

# INTEL<sup>®</sup> PRODUCT QUICK REFERENCE MATRIX

Q1, 2018

# TABLE OF CONTENTS

**INTEL® TECHNOLOGY PROVIDER**

**INTEL UNITE®**

**THUNDERBOLT™ 3**

**INTEL® AERO PLATFORM FOR UAVS**

## **SERVER**

Intel® Server/Workstation Processors

Intel® Server Boards

Intel® Server Systems

Intel® Data Center Blocks

Intel® Server Chassis

Intel® Server Storage Systems

Intel® RAID

Intel® Ethernet Server Adapters

Intel® Server Management

Intel® Accelerators

Intel® Omni-Path Architecture

**INTEL® IOT PLATFORM**

## **INTEL MEMORY AND STORAGE**

**INTEL® GRAPHICS**

**INTEL® VPRO™ TECHNOLOGY SOLUTION**

## **DESKTOP**

Intel® Desktop Processors

Intel® Boxed Thermal Solutions

Intel® NUC

Intel® Compute Stick

Intel® Ethernet Desktop Adapters

Intel® Compute Card

**INTEL® SECURITY**

**INTEL® WIRELESS PRODUCTS**



# INTEL<sup>®</sup> TECHNOLOGY PROVIDER

**YOUR SOLUTIONS.  
OUR TECHNOLOGY.  
SMARTER  
TOGETHER.**

## **INTEL<sup>®</sup> TECHNOLOGY PROVIDER**

Intel<sup>®</sup> Technology Provider provides support to keep your business running smoothly, knowledge and expertise to provide an edge and rewards to grow your business.

## **ONLINE RESOURCES**

Access a number of online resources designed to help provide the right solutions for your customers and grow your business.

## **ONLINE TRAINING**

Access a wide range of online courses that include in-depth technical, business and technology specific training. Earn credits as you learn more.



# INTEL® TECHNOLOGY PROVIDER

Intel® Technology Provider is a global membership program designed for businesses that resell or recommend Intel technology.

INTEL® TECHNOLOGY PROVIDER

## INTEL® TECHNOLOGY PROVIDER

Intel® Technology Provider provides support to keep your business running smoothly, knowledge and expertise to provide an edge and rewards to grow your business.

## ONLINE RESOURCES

Access a number of online resources designed to help provide the right solutions for your customers and grow your business.

## ONLINE TRAINING

Access a wide range of online courses that include in-depth technical, business and technology specific training. Earn credits as you learn more.

## Your Solutions. Our Technology. Smarter Together.

Whether selling to businesses or consumers, Intel® Technology Providers get the competitive advantage. Access your many benefits as you progress through the program, receiving the support, expertise, and recognition you need to succeed in a fast-moving global marketplace.

SUPPORT	EXPERTISE	RECOGNITION
Build your business with online help, dedicated account management, and marketing materials.	Become a trusted advisor to your customers with training, events, newsletters, and online guides.	Be recognized for the business you do with Intel. Earn points on purchases to spend on rewards and access promotions and membership materials.



## Helping You Succeed, with These Partner Benefits:

ACCOUNT MANAGEMENT	POINTS	TRAINING	EVENTS	SALES & MARKETING TOOLS	PRIORITY TECHNICAL SUPPORT
Dedicated account managers for Platinum partners, who can help drive sales and solutions.	Greater performance brings greater rewards. All partners can earn points while Gold and Platinum partners can spend points on Intel® technology, events and more.	Access to the latest online and face-to-face training courses.	Invitations to annual partner-only events offering the latest product information and the opportunity to network with Intel executives.	Targeted sales and marketing solutions to boost sales and grow your business.	Priority support for Platinum partners via chat, email, or phone, and advanced warranty service.

For more information, visit [www.intel.com/technologyprovider](http://www.intel.com/technologyprovider)

All products and dates specified are preliminary based on current expectations and are subject to change without notice. Availability in different channels may vary. Copyright © 2017 Intel Corporation. All rights reserved. Intel and the Intel logo are trademarks of Intel Corporation in the U.S. and/or other countries.

# CLOUD DATA CENTER SPECIALTY BENEFITS

## Earn specialty benefits and gain exclusive, partner-only resources to help you plan, build, and deploy your cloud data center solutions.

The Cloud Data Center Specialty aims to reward Partners who have the deepest expertise in designing and deploying cloud solutions. Intel has exclusive resources available to you, through Cloud Data Center Specialty Benefits, to help you plan, implement and deliver your data center solution, opening the door to another level of engagement with Intel on cloud.



### ACCESS TO EARLY SAMPLES

Get early access to engineering samples to allow you to test and start the validation process earlier. Showcase your solutions earlier to your customers for a competitive advantage.



### ADDITIONAL POINTS FOR SPECIALISTS

We will offer our Cloud Specialists the opportunity to participate in offers and earn additional points for purchases of Intel Data Center Portfolio products through authorized distributors that are available only to Specialty Partners.



### CUSTOMER MATCHMAKING

As a Cloud Specialist, you'll have priority access to Intel sales teams as they help match-make between your cloud expertise and our customer base. Intel also hosts special invitation-only matchmaking events at industry conferences.



### POTENTIAL FOR MDF

Marketing development funds may be available for projects proposed by Cloud Specialists and accepted by Intel. Contact ITP-Cloud@intel.com for limitations and guidelines.



### CLOUD SPECIALIST PROMOTION & SPECIALIST DESIGNATION

Intel will promote Cloud Specialists as the experts to the market. Our "Partner with an Intel Cloud Data Center Specialist" web page will give you invaluable exposure, making it easier for potential customers to find and connect with you. Display your specialty badge to show your official affiliation with Intel and your specific expertise.



### ACCESS TO INTEL CLOUD RESOURCES

Trainings, white papers, success stories and other collateral are just a few examples of the available resources that will help you stay up to date with cloud technologies and stay ahead of the competition. Our research and world-class resources will assist you in planning and architecting cloud solutions.



### ACCESS TO CLOUD EXPERTS FOR PRESALES TECHNICAL SUPPORT

As a Cloud Specialist, you'll receive priority access to our Cloud Experts, who can help you confidently offer end-to-end solutions to grow your business and cement your role as a trusted advisor. Reach out to us at ITP-Cloud@intel.com, and we will get you in touch with the right person to help you achieve your business goals.



### PRIORITY INVITATION TO INDUSTRY EVENTS AND TECHNICAL TRAINING

Imagine being in the same room at key events with Intel experts and learning about cutting-edge technologies. As a Cloud Specialist, you can look forward to receiving special invitations to leading industry events or Intel events such as Intel's Server Product Leader Conference.



### FACILITATED QUALIFICATION FOR INTEL CLOUD BUILDERS

When you become a Cloud Specialist, we'll help shepherd you through the process of qualifying for the highly regarded Intel® Cloud Builders program. In the qualification process, we'll repurpose the cloud solution white paper or proof point you used to meet the criteria for the Cloud Specialty to promote your membership in this prestigious ecosystem of leaders.

For more information, visit [www.intel.com/technologyprovider/cloud](http://www.intel.com/technologyprovider/cloud)

All products and dates specified are preliminary based on current expectations and are subject to change without notice. Availability in different channels may vary. Copyright © 2017 Intel Corporation. All rights reserved. Intel and the Intel logo are trademarks of Intel Corporation in the U.S. and/or other countries.

# SPECIALTY BENEFITS FOR INTERNET OF THINGS (IIOT) SPECIALISTS

## Maximize Your Membership With Benefits for IoT Solutions Providers

IoT specialty benefits give you exclusive, partner-only resources to help you plan, implement and deliver your IoT solutions with optimal performance and rapid efficiency. Leverage your expertise as an IoT solutions provider to unlock your specialty benefits. Displaying your IoT Specialist badge — on business cards, marketing materials, your website and more — provides third-party validation of your expertise. Stay ahead of your competition with partners-only resources and training opportunities. Make new connections and access resources that can propel your growth by working with IoT solutions providers including ODMs, ISVs, distributors and more.



### IIOT SPECIALTY DESIGNATION

Receive an IoT Specialist designation that you can use and display to show your affiliation with Intel and your specific expertise in providing Intel IoT technology and solutions to different industries.



### SPECIAL ACCESS TO EXCLUSIVE ANALYST STUDIES

Get special access to analyst studies that help you stay competitive, speak knowledgeably about IoT industry trends and recommend solutions that help your customers prepare successfully for the future.



### INTEL® SOLUTIONS DIRECTORY

As a tier benefit, you will have the opportunity to publish solutions on the Intel® Solutions Directory. In addition, as a specialty benefit, Intel will generate promotional campaigns for qualifying partners' published solutions and related collateral.



### ACCESS TO EXCLUSIVE COMMUNICATIONS

Access to a customized web page and a quarterly newsletter will allow you to view and download content only available to qualified specialists, providing updates to the latest IoT technologies and special resources to give you the competitive edge with your customers.



### ACCESS TO EXPERT LEVEL TRAINING

Expand your IoT knowledge with exclusive trainings offered only to qualified specialists.



### EXCLUSIVE EVENT INVITATIONS

Receive invitations to events hosted by Intel or by one of Intel's Partners. Events and participation may vary by availability and geography.



### MATCHMAKING

Get connected with ecosystem partners and/or receive end-customer sales leads to help you reach your goals and continue to grow your business.

For more information, visit [www.intel.com/technologyprovider/iiot](http://www.intel.com/technologyprovider/iiot)

All products and dates specified are preliminary based on current expectations and are subject to change without notice. Availability in different channels may vary. Copyright © 2017 Intel Corporation. All rights reserved. Intel and the Intel logo are trademarks of Intel Corporation in the U.S. and/or other countries.



# HIGH-PERFORMANCE COMPUTING (HPC) DATA CENTER SPECIALTY BENEFITS

## Earn specialty benefits and gain exclusive, partner-only resources to help you plan, implement, and deliver your data center solutions.

Intel has preferred resources available to you through HPC Data Center Specialty Benefits to help you plan, implement and deliver your data center solution. This includes access to special members-only training and events. These resources will open the door to another level of engagement with Intel on HPC.



### ACCESS TO EARLY SAMPLES

Get early access to engineering samples to allow you to test and start the validation process earlier. Showcase your solutions earlier to your customers for a competitive advantage. Explore the latest HPC solutions from Intel: [www.intel.com/HPC](http://www.intel.com/HPC)



### CUSTOMER MATCHMAKING

As an HPC Specialist, you'll have priority access to Intel sales teams as they help match-make between your HPC expertise and our customer base. Intel also hosts special invitation-only matchmaking events at industry conferences.



### POTENTIAL FOR MDF

Marketing development funds may be available for projects proposed by HPC Specialists and accepted by Intel. Contact [ITPHPC@intel.com](mailto:ITPHPC@intel.com) for limitations and guidelines.



### ADDITIONAL POINTS OFFERS FOR HPC SPECIALISTS

Participate in offers and earn additional points available only to Specialty partners. Use points to build your business and attract more data center customers.



### SPECIAL OMNI-PATH PRICING

HPC Specialists receive special pricing on purchase of Omni-path products.



### PRIORITY INVITATION TO INDUSTRY EVENTS & TECHNICAL TRAININGS

Imagine being in the same room at key events with Intel experts and learning about cutting-edge technologies. As an HPC Specialist, you can look forward to receiving special invitations to leading industry events or Intel events such as Intel's Server Product Leader Conference.



### ACCESS TO HPC EXPERTS FOR PRESALES TECHNICAL SUPPORT

Closing deals can be a complicated process that requires all the help you can get. With access to our experts, we can help you confidently offer end-to-end solutions to grow your business and cement your role as a trusted advisor. Reach out to us at [ITPHPC@intel.com](mailto:ITPHPC@intel.com), and we will get you in touch with the right person to help you achieve your business goals.



### HPC DATA CENTER SPECIALIST PROMOTIONS AND SPECIALTY DESIGNATION

Intel will promote the HPC Specialists as experts to the market. Our "Partner with an Intel HPC Data Center Specialist" web page will give you exposure, making it easier for potential customers to find and connect with you as an expert in HPC design and deployment. Display your specialty badge to show your official affiliation with Intel and your specific expertise in providing Intel® technology and solutions to end customers.



### INTEL HPC RESOURCES

Stay up-to-date with HPC technologies through preferred access to case studies and white papers. Learn how various markets, such as government, energy, and industrial, use technologies to optimize performance and control costs. Plus have access to preferred marketing content you can share with customers.

For more information, visit [www.intel.com/technologyprovider/hpc](http://www.intel.com/technologyprovider/hpc)

All products and dates specified are preliminary based on current expectations and are subject to change without notice. Availability in different channels may vary. Copyright © 2017 Intel Corporation. All rights reserved. Intel and the Intel logo are trademarks of Intel Corporation in the U.S. and/or other countries.



# EDUCATION SPECIALTY BENEFITS

## Maximize your membership with Education Specialty Benefits

In addition to the education-specific tier-level benefits, Partners can qualify to unlock even more powerful Education Specialty Benefits.<sup>1</sup> To qualify, Partners must first meet the criteria for membership status, sales volume, and training. These Specialty Benefits are new, and unrivaled for helping give education Partners a competitive advantage in supplying complete solutions to their new and existing customers.



### EARN EXTRA POINTS FOR SALES OF TARGETED EDUCATION PRODUCTS

Participate in offers and earn additional points available only to Education Specialist Partners. These valuable points can be spent on business rewards including Intel® technology, events, travel, and marketing materials. Use points to build your business and attract more Education customers.



### "EDUCATION SPECIALIST" DESIGNATION

Receive an "Education Specialist" designation to communicate your affiliation with Intel and specific education expertise. The "Education Specialist" designation can be used to build trust with your customers, and to help attract new business.



### EDUCATION SPECIALIST PROMOTION

Be included in the listing of qualified Education Specialists on the Intel Technology Partner Education web page. This page also profiles case studies and POCs where appropriate. Specialist certificate (Letter of Introduction) available on request.



### PARTICIPATION IN SUCCESS STORIES

Partners are given the opportunity to showcase their successes in conjunction with the Intel marketing team. Selected stories are professionally produced, co-branded, and published—increasing a Partner's visibility with existing and potential customers.



### EDUCATION CO-MARKETING ASSETS

Persuasive data and messaging for selling-in solutions with your education customers, that will help grow and expand your business. Includes Intel® Education pass-through messaging for co-marketing efforts, campaign builder creative assets for education, and passthrough content targeted to end-users that are available in a variety of languages.

For more information, visit [www.intel.com/educationchannel](http://www.intel.com/educationchannel)

<sup>1</sup> Benefits may vary by geography.

All products and dates specified are preliminary based on current expectations and are subject to change without notice. Availability in different channels may vary. Copyright © 2017 Intel Corporation. All rights reserved. Intel and the Intel logo are trademarks of Intel Corporation in the U.S. and/or other countries.

# INTEL® CHANNEL PRODUCTS GUIDE – SMARTPHONE APP

## Intel® Channel Products Guide – Smartphone App

The Intel® Channel Products Guide smartphone app provides specification data on Channel products to Intel sales, resellers, and end customers.

- An easy and simple smartphone application with product features and comparisons of boxed desktop processors, desktop boards, and Solid State Drives.
- Find an Intel® Technology Provider based on your location or search criteria.
- Available on iPhone®, iPad®, and Android® mobile devices.
- Six languages supported (Spanish, Brazil Portuguese, Simplified Chinese, Korean, and Russian).
- Only boxed products sold in the Channel.
- Links to compatibility data for processors, ARK, and marketing content.
- Includes compare and locate features.

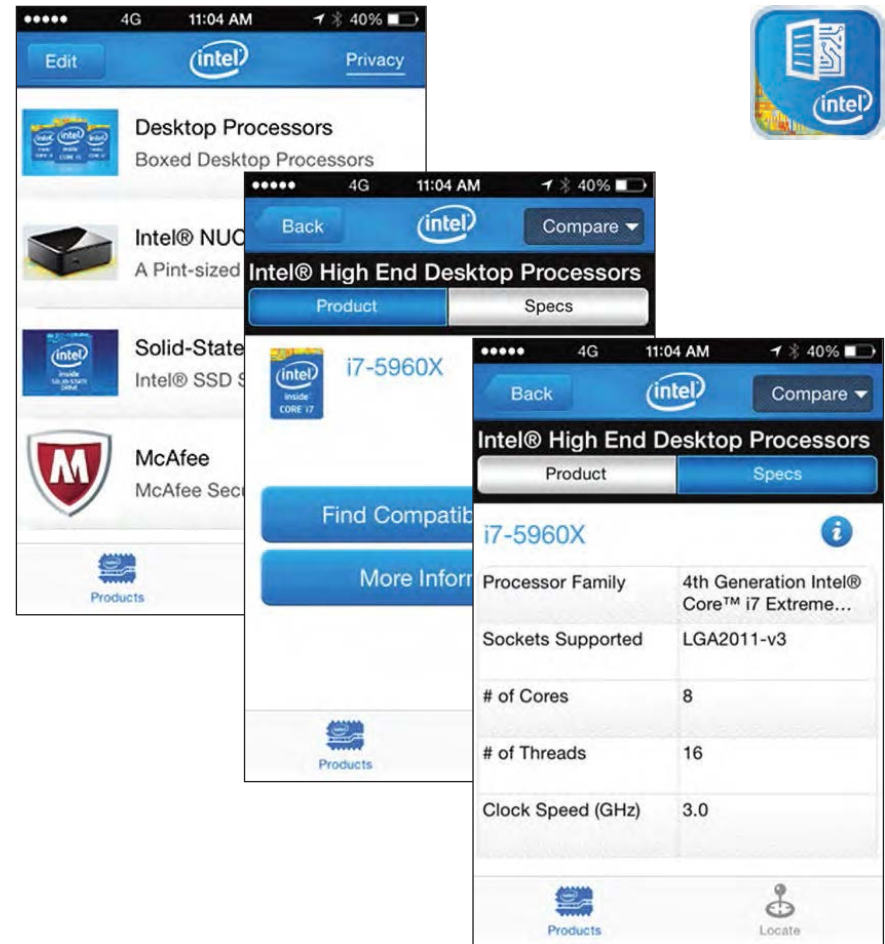
**TO DOWNLOAD AND INSTALL THIS SMARTPHONE APP,  
PLEASE VISIT THE FOLLOWING LINKS:**

iTunes\*:

<https://itunes.apple.com/us/app/intel-channel-products-guide/id589643956?mt=8>

Google Play\*:

<https://play.google.com/store/apps/details?id=com.intel.masterbrandapp>



All products and dates specified are preliminary based on current expectations and are subject to change without notice. Availability in different channels may vary.

Copyright © 2017 Intel Corporation. All rights reserved. Intel and the Intel logo are trademarks of Intel Corporation in the U.S. and/or other countries.

\* Other names and brands may be claimed as the property of others.

# INTEL® PC AND TABLET ADVISOR TOOL

## Intel® PC and Tablet Advisor Tool

Simplify your purchase decisions with the Intel® PC and Tablet Advisor. Answer a few questions about your needs and receive time-saving, tailored device recommendations.



All products and dates specified are preliminary based on current expectations and are subject to change without notice. Availability in different channels may vary.

Copyright © 2017 Intel Corporation. All rights reserved. Intel and the Intel logo are trademarks of Intel Corporation in the U.S. and/or other countries.



# INTEL® TECHNOLOGY PROVIDER TRAINING

## Access the Latest Online Courses

Access the latest online courses designed to help you grow your business. Complete training on specific products and technologies, focus on developing further sales and marketing expertise on Intel products and technologies. Track your learning progress and earn points as you grow your knowledge. Visit <http://channeltraining.intel.com>



Processors



Boards



Internet of Things (IoT)



2 in 1



Tablets



Other Mobile Devices



Desktop-PC



Server



Storage/Solid State Devices



SW and Services



Networking



# INTEL® VPRO™ TECHNOLOGY SOLUTION

## THE FOUNDATION FOR BUSINESS COMPUTING

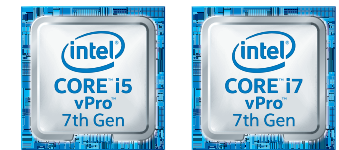
### THE INTEL® VPRO™ PLATFORM

The Intel® vPro™ platform<sup>1</sup> meets the needs of the user and the business by combining a premium computing experience with hardware-enhanced security, flexible management, and improved stability—all made possible by 7th Generation Intel® Core™ vPro™ processors.



# THE ADVANTAGES OF INTEL® VPRO PLATFORMS FOR BUSINESS OF ALL SIZES

High-performing devices based on the 7th Generation Intel® Core™ vPro™ processors streamline productivity and performance for serious business compute by enabling maximum multitasking efficiency and up to 10 hours of unprecedented battery life<sup>1,2</sup>. For employees on the go, 7th Generation Intel® Core™ vPro™ processors deliver the optimal combination of performance, battery life, and wireless capabilities in a razor-thin device. Built in Intel® vPro™ technology provides hardware-enhanced security, remote manageability, and productivity-enhancing capabilities to keep you moving forward.



## 50%

### 50% Better Productivity<sup>3</sup>

As much as 50% better productivity than a 5-year-old PC.<sup>3</sup>



## 65%

### 65% Faster Multitasking<sup>4</sup>

Up to 65% faster multitasking than a 5-year-old PC.<sup>4</sup>



## 10HRS

### 10-Hour Battery Life<sup>2</sup>

Up to 10 hours of battery life for the whole work day.<sup>2</sup>

### Sales Opportunities

Nearly half (46%) of small businesses are in a managed environment, and drive 62% of small business IT spending.<sup>5</sup>

Devices powered by Intel® Core™ vPro™ processors deliver proven value with reduced repair times and improved system availability.

Intel vPro technology is supported by a broad set of ISV management consoles and a wide variety of devices.



### Processor

Intel® Core™ i7 and Intel® Core™ i5 vPro™ Processors



### Desktop Chipset<sup>3</sup>

Intel® Q Series Chipset

OR

### Mobile Chipset<sup>3</sup>

Intel® QM Series Chipset



### Network

Intel® LAN Controller



## 7th Generation Intel® Core™ vPro™ Processors

### BUSINESS-CLASS PERFORMANCE YOU CAN COUNT ON

Streamline productivity with performance for serious business compute, multitasking for maximum efficiency, and unprecedented battery life that lasts up to 10 hours.



#### Lighten your heaviest workloads

When finance crunches complex calculations, developers compile precise code, and designers manipulate sophisticated graphics, the premium performance of new 7th Intel® Core™ vPro™ processors give uptime a whole new meaning.

From Excel macros to CAD animations, Intel® Hyper-Threading Technology handles demanding applications by running multiple threads on each core to deliver cutting-edge responsiveness for serious business compute.



#### Take the task out of multitasking

Trying to do more than one thing at a time on old technology is a productivity drain, not a driver.

Keep business running smoothly with new 7th Generation Intel® Core™ vPro™ processor-based devices that have Intel® Speedshift™ Technology for steady load balancing across highly demanding workloads.

Performance automatically adjusts to focus frequencies where they're needed most, while applications running in the background reserve power.



#### Unleash real mobile productivity

From improving interactions with patients to delighting customers on the sales floor, modern business is all about mobility and long battery life is central to this transformation.

Make your workforce more productive from anywhere, anytime with the endurance of new 7th Generation Intel® Core™ vPro™ processor-based devices, which provide up to 10 hours of untethered power to last the entire work day.

For more information, visit [www.intel.com/go/vpro](http://www.intel.com/go/vpro)

#### Product and Performance Information

<sup>1</sup> Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at <http://support.intel.com>.

<sup>2</sup> Whole workday battery life measured using Windows 10<sup>4</sup> EEMBC Browsing Bench Component Average Power.

<sup>3</sup> Productivity measured using overall SYSmark<sup>5</sup> 2014 score.

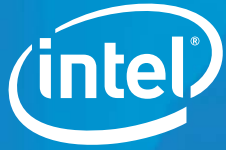
<sup>4</sup> Multitasking and office productivity workload measured using SEG572.

<sup>5</sup> Source: AMI-Partners (<http://www.ami-partners.com>) 2013.

For more complete information about performance and benchmark results, visit [www.intel.com/benchmarks](http://www.intel.com/benchmarks)

Copyright © 2017 Intel Corporation. All rights reserved. Intel, the Intel logo, Intel Inside, the Intel Inside logo, Intel Core, and Intel vPro are trademarks of Intel Corporation in the U.S. and/or other countries.

\* Other names and brands may be claimed as the property of others.



# INTEL<sup>®</sup> IOT PLATFORM

ENABLING A  
CONNECTED  
DIGITAL  
LIFESTYLE

## INTEL<sup>®</sup> IOT PLATFORM

The Intel<sup>®</sup> IoT Platform is a reference architecture implemented using products and technologies from Intel, along with developers and the ecosystem that seamlessly and securely connect and manage devices, deliver trusted data to the cloud, and deliver value through analytics.





# INTEL® IOT PLATFORM

**Enabling a connected digital lifestyle through devices that are able to connect to the internet securely.**

The Intel® IoT Platform is a reference architecture implemented using products and technologies from Intel, along with developers and the ecosystem that seamlessly and securely connect and manage devices, deliver trusted data to the cloud, and deliver value through analytics.

## INTEL® IOT PLATFORM INFOGRAPHIC

The Internet of Things (IoT) is at the heart of a powerful technology revolution. The act of connecting devices and systems to each other so that they can share data is the seed of new products, services, and experiences. Today, there are many IoT solutions based on Intel® technology in operation worldwide and the impact has been significant for businesses and consumers.

## IOT PRODUCT PORTFOLIO

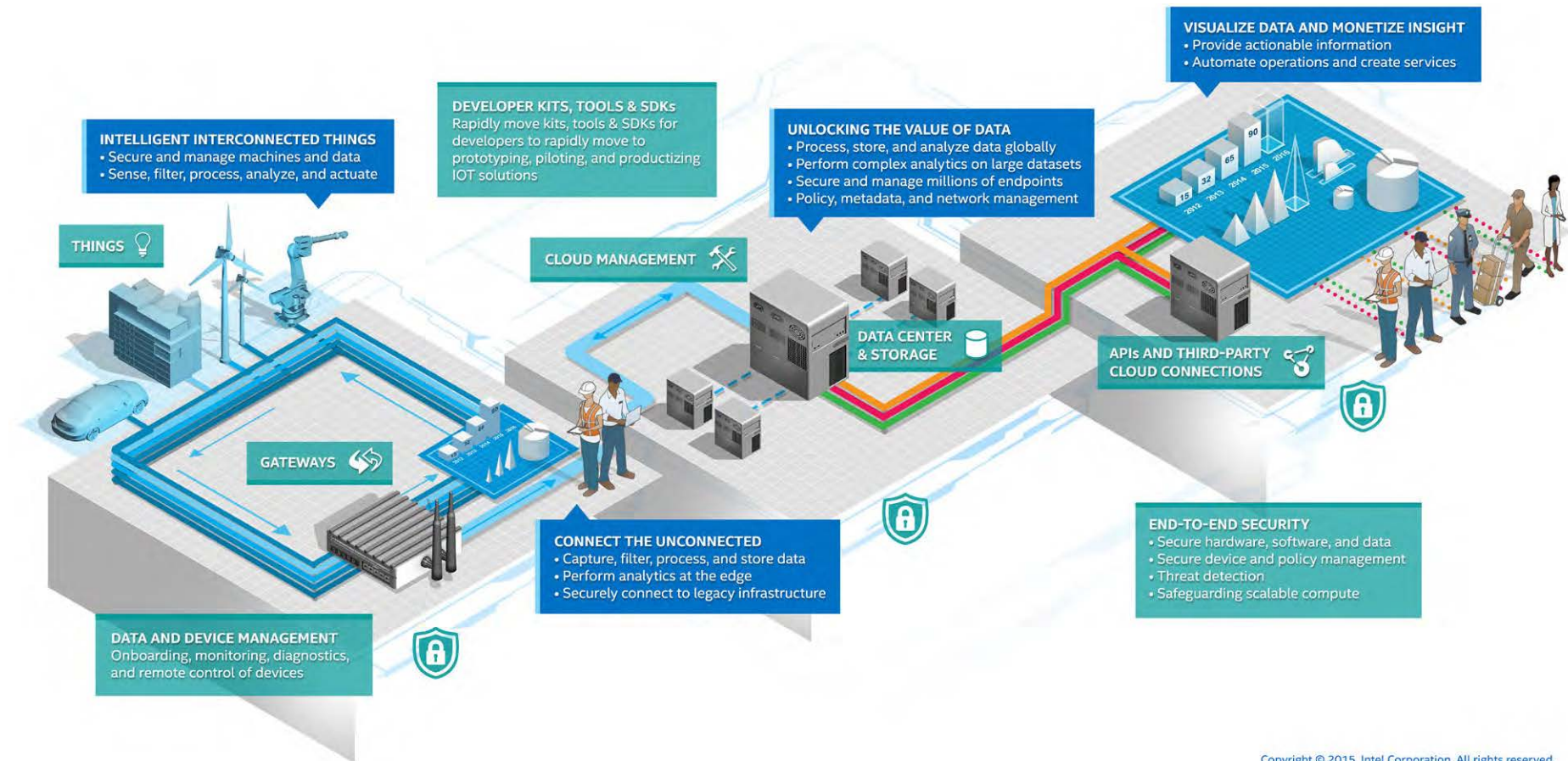
Intel technology is the backbone of proven IoT solutions in smart home, industrial, and mobile applications, as well as for vertical markets, including transportation, healthcare, and retail. It is helping billions of devices talk to each other and share valuable information, protecting sensitive data, and providing critical analytics and API offerings.

## IOT SECURITY PORTFOLIO

Intel supports tightly integrated hardware and software security from the edge to the cloud, along with data protection and policy management, delivering trusted data resulting in valuable insights.

## Secure. Scalable. Interoperable.

The Intel® IoT Platform is an end-to-end reference architecture and family of products from Intel, that works with third-party solutions, to provide a foundation for seamlessly and securely connecting devices, delivering trusted data to the cloud, and delivering value through analytics.



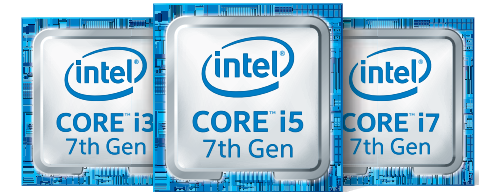
Copyright © 2015, Intel Corporation. All rights reserved.

# INTEL® PROCESSORS FOR IOT

## Hyperreal Visuals Drive Greater IOT Possibilities

Build your most innovative solutions with 7th Gen Intel® Core™ processors, featuring enhanced graphics, performance, and responsiveness.

- 14nm silicon technology
- Reduced electrical and power consumption
- Latest hardware- and software-enhanced security
- Long-term availability (up to seven years)



### BETTER PERFORMANCE

- Up to 17%<sup>1</sup> better CPU performance
- Power-optimized for mobility
- Intel® Optane™ memory ensures media responsiveness
- Intel® Speed Shift Technology optimizes task performance

### STRONGER GRAPHICS

- Up to 4K Ultra HD
- New HEVC 10-bit and VP9 decode
- Integrated HDCP 2.2
- Support for additional formats, such as AVC/H.264, MPEG-2, and VC-1

## Intel® Processors for IoT



### INTEL® QUARK™ PROCESSORS

Intel® Quark™ processors are microcontrollers for intelligent things. They provide flexible, low-power computing for a variety of small form factor applications to offer low-cost connectivity, integration, and compatibility for the IoT.



### 7TH GENERATION INTEL® CORE™ PROCESSORS

The 7th generation Intel® Core™ processors offer unprecedented power and responsiveness of Intel® Turbo Boost Technology.<sup>2</sup> Work with superior CPU and graphics performance, powerful security, and a range of power options to boost edge-to-cloud IoT designs.



### INTEL® ATOM™ PROCESSORS

Intel® Atom™ processors pack an entire system-on-a-chip for the ultimate in power and portability. Get performance/watt leadership, security and manageability, rich graphics, and I/O integration, with stunning graphics performance for edge devices.



### INTEL® XEON® PROCESSORS

The Intel® Xeon® processors power any workload and lift data center productivity. They combine multi-core performance and compute density with hardware-based manageability, security, virtualization, and power management for scalability and reliability at the edge.

Learn more at [intel.com/iot](http://intel.com/iot)

<sup>1</sup> Measured by Intel on a system with 7th Gen Intel® Core™ processor i7-7700 versus a system with 6th Gen Intel® Core™ processor i7-6700 using SPECfp2006 (8 copy).

<sup>2</sup> Requires a system with Intel® Turbo Boost Technology. Intel® Turbo Boost Technology and Intel® Turbo Boost Technology 2.0 are only available on select Intel® processors. Consult your system manufacturer. Performance varies depending on hardware, software, and system configuration. For more information, visit [intel.com/turboboost](http://intel.com/turboboost).

Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. For more complete information about performance and benchmark results, visit [intel.com/benchmarks](http://intel.com/benchmarks).

Copyright © 2017, Intel Corporation. All rights reserved. Intel, the Intel logo, Intel Atom, Intel Core, Xeon and Quark are trademarks of Intel Corporation in the U.S. and/or other countries. \*Other names and brands may be claimed as the property of others.



**SMARTER ROOMS.  
SMARTER  
COLLABORATION.**

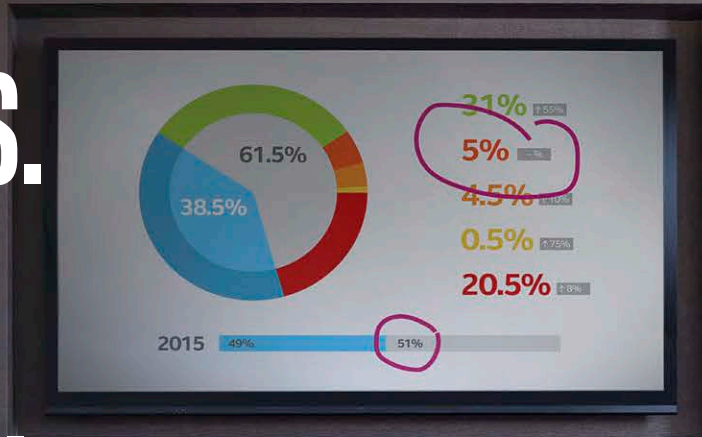
# INTEL® UNITE

## INTEL® UNITE

Start meetings fast and be more productive with easy wireless content sharing to room displays and other devices connected to the network.

# SMARTER ROOMS. SMARTER COLLABORATION.

Start meetings fast and be more productive with easy wireless content sharing to room displays and other devices connected to the network.



## ENTERPRISE INSTALLATION

This easily scalable solution is ideal for enhancing collaboration in *managed* IT environments with more than a few rooms, including medium to large businesses and schools. It features a centralized administrative web portal, broad OS support, and the ability to integrate optional plugin extensions.

## SMALL BUSINESS INSTALLATION - NEW!\*

For unmanaged small business environments with only a few rooms, this easy-to-install option requires no IT expertise or server components, and enables basic collaboration capabilities for users with PCs and Macs. Connection reliability is now on par with the enterprise installation, and multiple subnets are now supported.

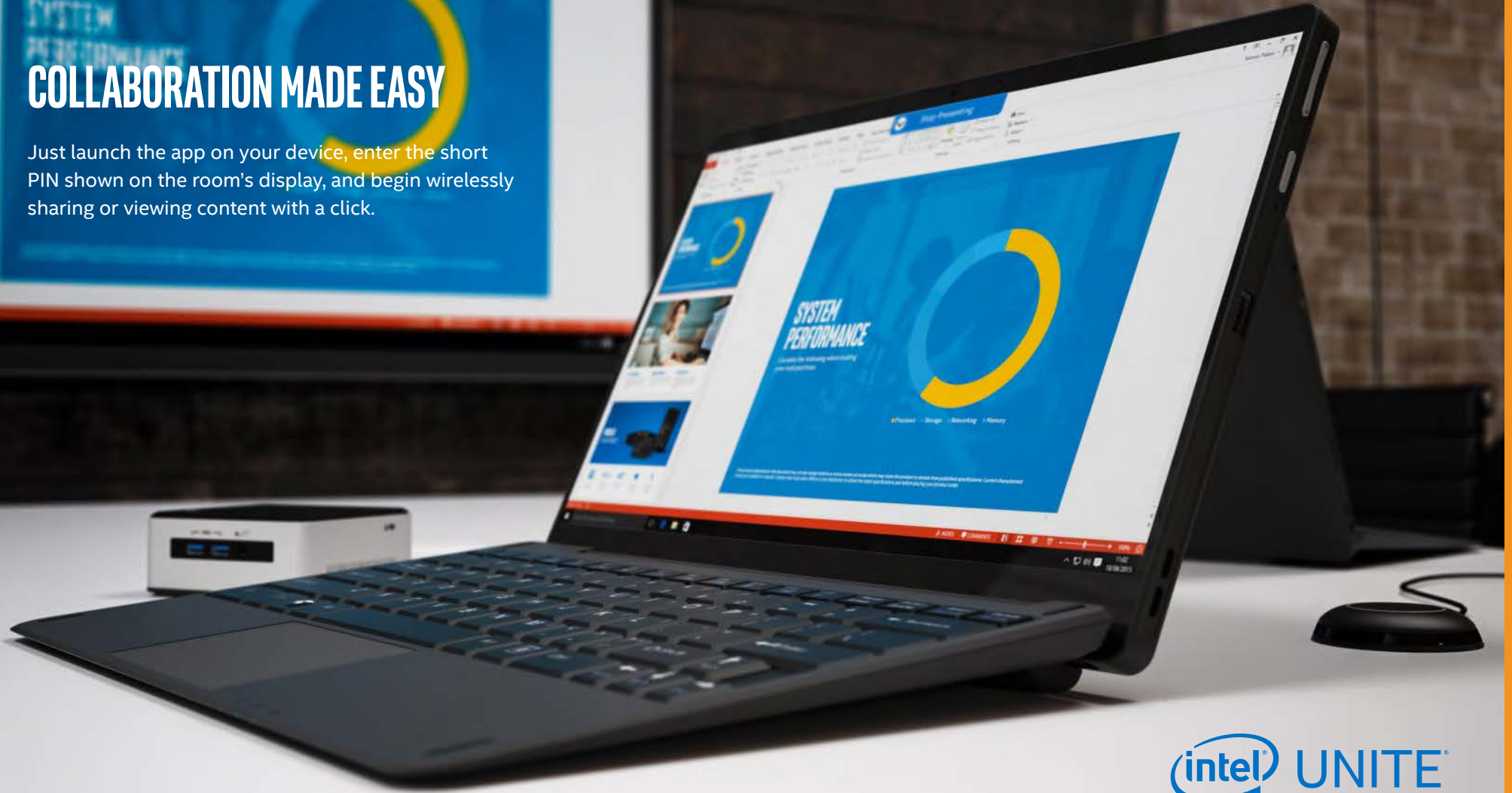
\* Now available with Intel Unite® software version 3.2



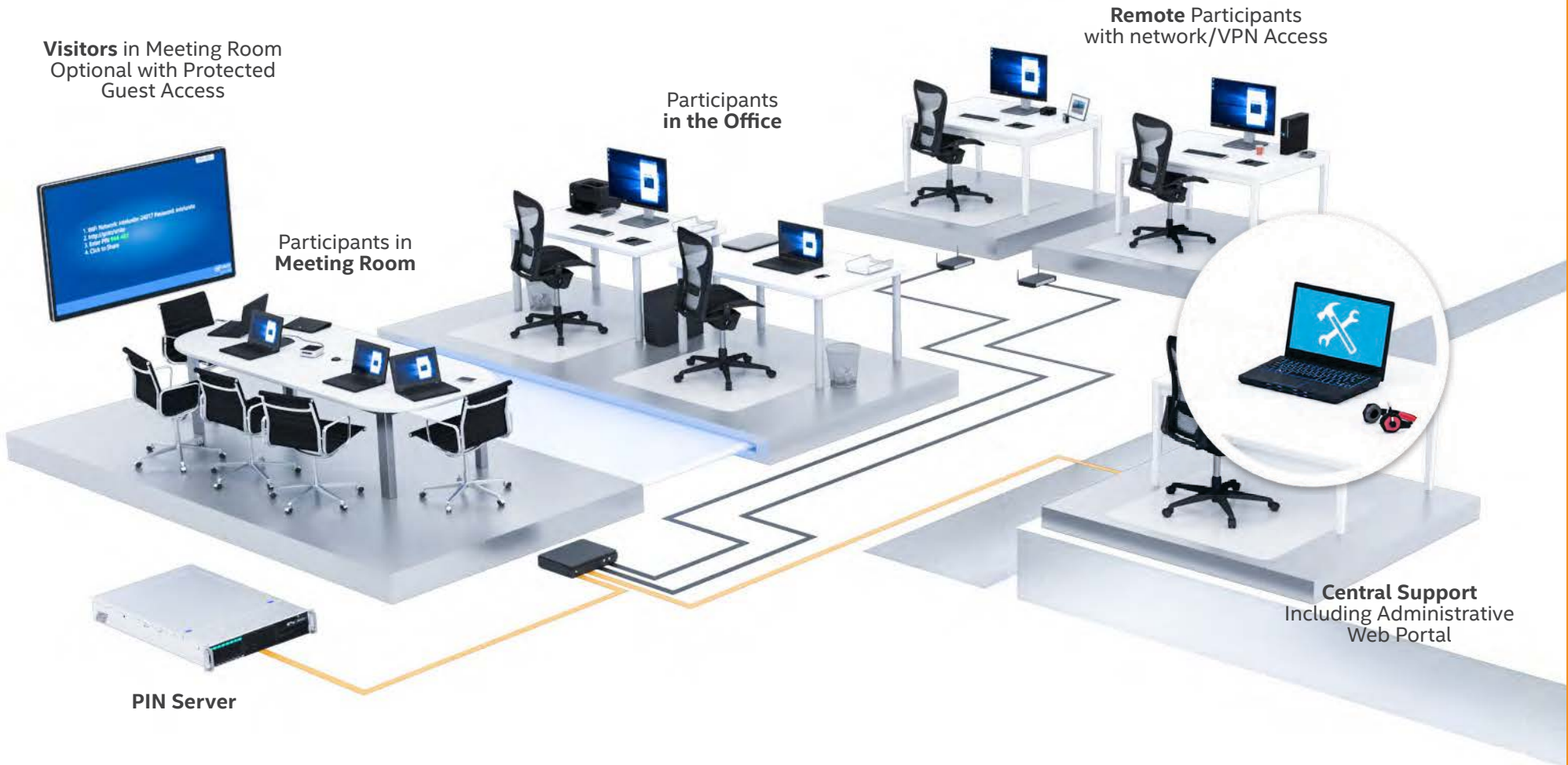
# INTEL UNITE® SOFTWARE

## COLLABORATION MADE EASY

Just launch the app on your device, enter the short PIN shown on the room's display, and begin wirelessly sharing or viewing content with a click.



# INTEL UNITE® - ENTERPRISE SOFTWARE INSTALLATION FOR MANAGED ENVIRONMENTS



Smart and Connected Meeting Rooms

Fast and Simple Meeting Starts

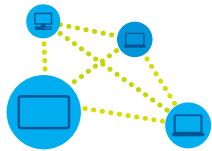
Seamless Collaboration From Anywhere on the Network

Intel® vPro™ Technology for Security and Manageability

# THE INTEL UNITE® SOLUTION

## Simplify IT Management

With Intel® vPro™ technology on every room-based PC running Windows and Intel Unite® software, you can easily integrate these PCs into your existing IT infrastructure and leverage the management tools, systems and policies you already have in place. And by simplifying the infrastructure technologies needed in your conference rooms, you can help reduce costs and improve manageability.



## Ditch the Dongle

Technology connects attendees to new or existing displays, projectors, and interactive whiteboards. There's no need to waste time searching for the right adapter or dongle.



## Safer Meetings

To improve security, attendees must enter the appropriate rotating PIN code to join the meeting. Guests outside of your network can temporarily join and participate in configured rooms using the optional software plugin<sup>3</sup> for protected guest access.



## Collaborate in Real Time

Attendees from any location can view, annotate, and share documents—in real time, every time. Share files easily using the built-in file transfer feature.



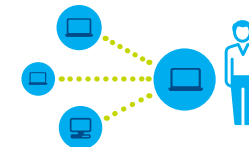
## Protected Data

Enterprise-grade security ensures that data is 256-bit Secure Sockets Layer (SSL) encrypted and stays within your corporate network. Data always stays within the virtual walls of your business and isn't dependent on any additional vendor solutions.<sup>1</sup>



## Host From Your PC

No room monitor? An Intel® Core™ vPro™ processor-based client device with the Intel Unite® app installed can host a session, allowing workers to share screens wirelessly between their devices.<sup>1</sup>



## Remote Manageability

With the remote management tools of Intel® vPro™ technology, you can manage all conference room PCs from any location to complete basic tasks, apply patching, or make repairs. Use the Administrative Web Portal<sup>3</sup> to track analytics and centrally manage or configure your deployed Intel Unite® solutions.



# RESELLER OPPORTUNITIES

## Reseller Conferencing Dilemma

Conferencing solutions in SMB are quickly becoming the new battle ground. Resellers have numerous solutions from several vendors to offer their customers.

### Resellers will gravitate towards solutions that:

- Have the features their customer demand
- Are easy to deploy and manage
- Offer them incremental opportunities for margin
- Keep the lines of communications open with their customer
- Offer the best support from the OEM for the entire solution

## Reseller Opportunities with Conferencing

### Resell

- NUCs and branded systems
- Network infrastructure
- Third Party Peripherals

### Plan

- Communication workshops
- Network assessments
- System integration

### Enhance

- Customization
- Vertical LOB integration
- Vertical applications

## Advantages of adopting Intel Unite® software for the Reseller

### Added margin opportunities

### Resell

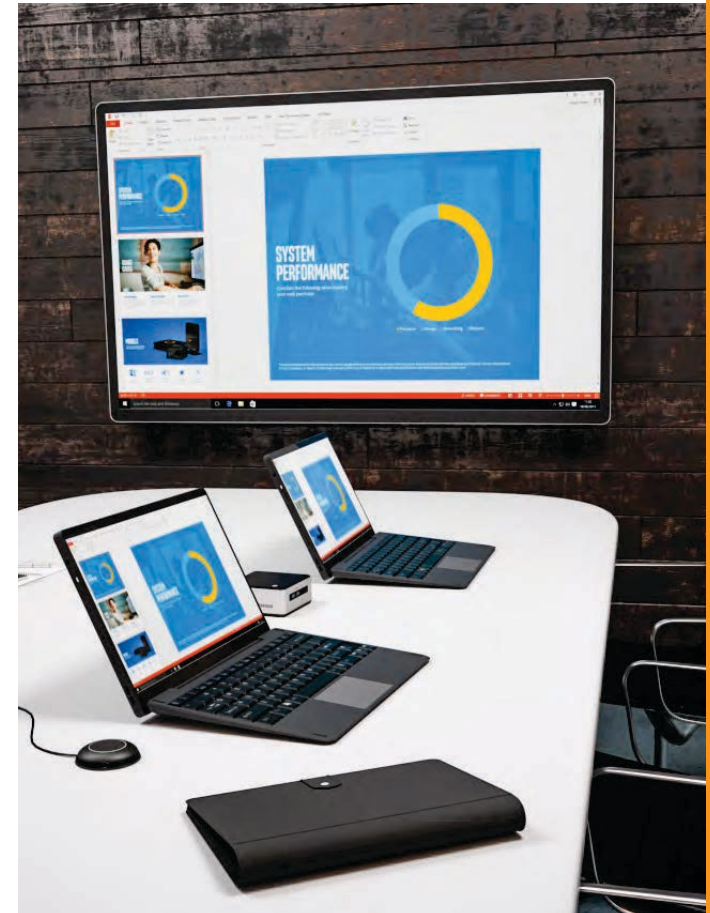
- Intel® Core™ vPro™ PC with Intel Unite® software
- Third Party Peripherals

### Plan

- Conference Consulting Services
- Network Assessment Services

### Enhance

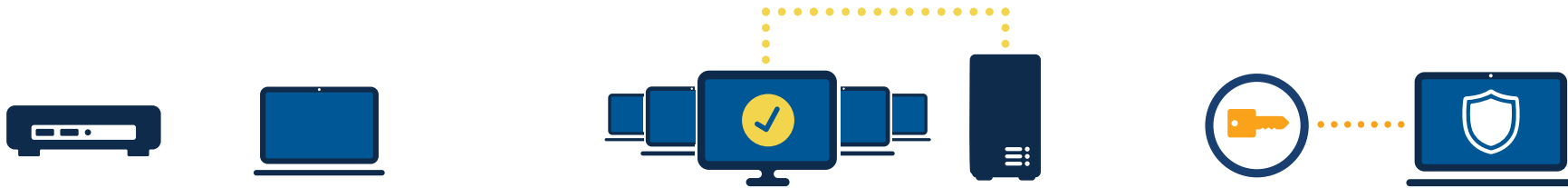
- Customization Services
- Service Level Agreements
- Configure room hubs with modular plug-ins for added functionality or integrated control of other enabled solutions (enterprise installation only)



# DEPLOY & CONFIGURE

## Deploy & Configure the Intel Unite® solution with Confidence

Follow these tips to help your customers jumpstart a more collaborative experience in every meeting, whether for a single shared space or throughout their organizations.



### Unmanaged Small Business Installation

For basic screen sharing in small, unmanaged business environments, a small business installation – formerly ‘standalone’ – is now available. In addition to adequate memory and storage, hubs will need Intel® vPro™ technology and Windows\* 10 with Microsoft\*.NET Framework 4 or newer. Clients require Windows\* 7 or newer or Mac OS\* X 10.9 or newer, plus the Intel Unite® app. For a cost-effective approach, configure the mini PC to work as both a collaboration solution and a personal or shared PC work station.

### Enterprise Installation

Add a new server or use a compatible existing server to manage connections for enterprise deployment. The server should have Microsoft\* IIS and Microsoft SQL Server\* 2008 or newer. Chromebook, Linux client, iPad and Android tablet support are also now available for enterprise installations via their respective app stores.

### Customize for Manageability

IT can configure rooms in enterprise installations differently with plugins and, add the organization's theme with hub customizations. Use the server's Administrative Web Portal to create and manage rooms, generate solution telemetry data reports, and control optional moderator account permissions.

For an exclusive ITP opportunity to download the Intel Unite® software today and to learn more, visit:

<https://www-ssl.intel.com/content/www/us/en/secure/technology-provider/products/software/unite-enables-real-time-collaboration.html>

<sup>1</sup> Intel technologies may require enabled hardware, specific software, or services activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at intel.com.

Copyright © 2017 Intel Corporation. All rights reserved. Intel, the Intel logo, Intel Core, the Intel Experience What's Inside logo, Intel Experience What's Inside, Intel Unite, and Intel vPro are trademarks of Intel Corporation in the U.S. and/or other countries.

<sup>2</sup> Skype\* for Business sold separately.

<sup>3</sup> Available with enterprise installation only.

\* Other names and brands may be claimed as the property of others.



# INTEL® AERO PLATFORM FOR UAVS

## INTEL® AERO PLATFORM FOR UAVS

Unmanned aerial vehicle (UAV) applications often require customized hardware, a variety of sensors, and significant compute horsepower. This developer platform is purposely built for UAV applications, with direct support for Intel® RealSense™ technology and the strength of a quad-core Intel® Atom™ processor. Use it to develop autonomous flight navigation capabilities with headroom to do even more.

# INTEL® AERO PLATFORM FOR UAVS

Unmanned aerial vehicle (UAV) applications often require customized hardware, a variety of sensors, and significant compute horsepower. This developer platform is purposely built for UAV applications, with direct support for Intel® RealSense™ technology and the strength of a quad-core Intel® Atom™ processor. Use it to develop autonomous flight navigation capabilities with headroom to do even more.



## INTEL® AERO READY TO FLY DRONE

The Intel® Aero Ready to Fly Drone combines tremendous capabilities and design flexibility intended to accelerate development of sophisticated drone applications.

## INTEL® AERO COMPUTE BOARD, INTEL® AERO VISION ACCESSORY KIT, AND INTEL® AERO ENCLOSURE KIT

Connect the Intel® Aero Vision Accessory Kit to the Intel® Aero Compute Board, install into the Aero Enclosure Kit and attach to your drone, for accelerated application development and rapid prototyping.

# THE INTEL® AERO READY TO FLY DRONE

## Get Drone Applications Airborne Quickly

The Intel® Aero Ready to Fly Drone combines tremendous capabilities and design flexibility intended to accelerate development of sophisticated drone applications.



## Powerful Compute

This drone development platform is built around the Intel® Aero Compute Board running a quad-core Intel® Atom™ processor, offering performance in a low power envelope.

Ample memory and expandable storage enable development of demanding in-flight applications.

## Open Source

Running embedded Linux built with Yocto Project, developers can customize with confidence.

The platform also integrates ROS, MAVROS, MAVlink, and OpenCV libraries, for broader development support.

## Flexible and Extendable

This drone is fully assembled, flight tested and ready to fly. Yet it is designed to be modified and is intended to support rapid drone application development from inception to deployment on a production drone.

## Enhanced Computer Vision

The integrated Intel® RealSense™ R200 camera with stereo vision 3D imaging and depth sensing offers developers a tool for developing advanced algorithms for collision avoidance, localization, and more.

## Dronecode\* PX4\* Autopilot

PX4 autopilot is an open-source, fully-featured flight stack, providing all the ingredients necessary for flight. It is pre-loaded on the Intel® Aero Flight Controller and communicates with the Intel® Aero Compute Board using the MAVLink\* protocol.



Compute and vision components can be purchased separately. For more information, ask an Intel sales representative, or visit [intel.com/aero](http://intel.com/aero).

## Technical Specifications

### COMPUTE BOARD

<b>Processor</b>	Intel® Atom™ x7-Z8750 (2.56 GHz burst, quad core, 2M cache, 64 bit)
<b>RAM</b>	4 GB LPDDR3-1600
<b>Storage</b>	32 GB eMMC, MicroSD* memory card slot, M.2 connector 1 lane PCIe for SSD
<b>Display</b>	1 micro HDMI 1.4b
<b>Communication</b>	Intel® Dual Band Wireless-AC 8260, 802.11ac, 2x2 MIMO
<b>I/O Expansion</b>	USB 3.0 OTG, HSIUART, I2C, CAN, 6 processor GPIOs, 28 FPGA GPIOs, 5 FPGA Analog Sense, (accessed via the Altera® Max® 10 FPGA)

### VISION

<b>Cameras</b>	Intel® RealSense™ Camera (R200), 8 MP RGB camera (front-facing), VGA camera, global shutter, monochrome (down-facing)
----------------	--

### FLIGHT CONTROL HARDWARE

<b>Intel® Aero Flight Controller</b>	STM32 microcontroller, 6 DoF IMU, magnetometer and altitude sensors
--------------------------------------	--

### REMOTE CONTROL

<b>Transmitter</b>	Spektrum® DXe (2.4 GHz DSMX)
<b>Receiver</b>	Spektrum® SPM4648 DSMX with Diversity

### SOFTWARE

<b>Operating System</b>	Yocto Project* 2.1 (Krogoth), Linux* 4.4.3-yocto-standard
<b>BIOS</b>	Insyde Software InsydeH2O* UEFI BIOS
<b>Flight Controller</b>	Dronecode* PX4* autopilot
<b>Communication Protocol</b>	Dronecode* MAVLink*

### DRONE

<b>Drone Dimensions</b>	360 mm - hub-to-hub (diagonal)
<b>Drone Height</b>	222 mm - from base to top of GPS antenna
<b>Propeller</b>	230 mm – length
<b>Weight of Drone</b>	865 g – basic configuration without battery
<b>Gross Weight</b>	1900g <sup>3</sup> (maximum) – takeoff weight
<b>Flight Time</b>	20 min <sup>3</sup> (maximum) with 4S, 4000mAh battery <sup>2</sup> , hovering, no added payload
<b>Sustained Wind</b>	15 knots <sup>3</sup> (maximum)
<b>Control Distance</b>	300 m <sup>3</sup> (maximum) with supplied remote control
<b>Airspeed</b>	15 m/s <sup>3</sup> (maximum)
<b>Altitude of Operation</b>	5000 m <sup>3</sup> (maximum) – height above sea level
<b>Outside Air Temp.</b>	-0 C / +40 C (minimum / maximum)
<b>ESC and Motor</b>	Designed and manufactured by Yuneec for Intel® Aero Ready to Fly Drone
<b>• Input control interface</b>	UART
<b>• ESC Input Voltage</b>	11.1 – 14.8 V

<sup>1</sup> The Intel Aero Ready to Fly Drone is a kit for developers and is intended to be modified by developers according to their professional judgment. Intel has not established operating limitations for the kit nor tested any configurations other than the base configuration. Developers are responsible for testing and ensuring the safety of their own configurations, and establishing the operating limits of those configurations.

<sup>2</sup> Recommended battery: Li-Po, 4S, 4000+ mAh, with XT60 connector. Max dimensions (mm): 150 x 50 x 32

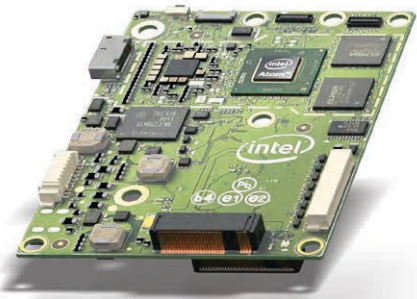
<sup>3</sup> Estimated

\* Other names and brands may be claimed as the property of others.

© 2017 Intel Corporation

# INTEL® AERO COMPUTE BOARD, INTEL® AERO VISION ACCESSORY KIT, & INTEL® AERO ENCLOSURE KIT

Connect the Intel® Aero Vision Accessory Kit to the Intel® Aero Compute Board, install into the Aero Enclosure Kit and attach to your drone, for accelerated application development and rapid prototyping.



## Intel® Aero Compute Board

The Intel® Aero Compute Board is a purpose-built, UAV developer kit powered by a quad-core Intel® Atom™ processor and geared toward UAV developers, educators, and researchers.

While only the size of a standard playing card, it features abundant storage capabilities, 802.11ac Wi-Fi\*, support for multiple cameras including the Intel® RealSense™ R200 camera, (part of the optional Vision Accessory Kit), industry standard interfaces, and reconfigurable I/O to facilitate connecting to a broad variety of drone hardware subsystems.

The Compute Board ships with open-source embedded Linux\* and offers sample applications and APIs for flight and vision interfaces, reducing hurdles for developers of sophisticated drone applications.



## Intel® Aero Vision Accessory Kit

This three-camera kit includes the Intel® RealSense™ camera R200 with stereo 3D imaging and depth sensing for development of obstacle sense and avoid algorithms, an 8 MP RGB camera for high-resolution photo and video capture, and a monochrome VGA camera with global shutter for development of optical flow algorithms.

These cameras connect directly to the Intel® Aero Compute Board through dedicated low-profile connectors using the supplied cables. All cameras are supported with Linux drivers.



## Intel® Aero Enclosure Kit

This mechanical enclosure is designed specifically to hold the Intel® Aero Compute Board and the three camera modules included in the Intel® Aero Vision Accessory Kit.

The enclosure is a two-piece plastic assembly with mounting features to allow relatively easy attachment to most UAV airframes.

When fully assembled, the enclosure holds both the Intel® RealSense R200 camera and the 8MP RGB camera along the front panel. The VGA camera is held in a compartment facing downward. A clear lens cover protects both the 8MP and VGA cameras.

## Technical Specifications

### INTEL® AERO COMPUTE BOARD

<b>Operating System</b>	Embedded Linux* 4.4.3-yocto-standard, Yocto Project* 2.1 (Krogoth)
<b>BIOS</b>	Insyde Software InsydeH2O* UEFI BIOS optimized for the Intel® Aero Platform for UAVs
<b>Processor</b>	Intel® Atom™ x7-Z8750 processor
<b>Display</b>	1 micro HDMI 1.4b
<b>USB</b>	1 USB 3.0 On-the-Go (OTG) connector
<b>Wi-Fi*</b>	Intel® Dual Band Wireless-AC 8260; 802.11ac, 2x2 MIMO
<b>Memory</b>	4 GB LPDDR3-1600
<b>Storage Embedded</b>	32 GB eMMC
<b>Storage Expansion</b>	microSD* memory card slot M.2 connector 1 lane PCIe for SSD
<b>Camera Interfaces</b>	MIPI* CSI-2 (4 lanes + 1 lane), Dedicated USB 3.0 port for Intel® RealSense™ camera R200
<b>I/O Expansion</b>	28 FPGA GPIOs (3.3V) and 5 FPGA analog inputs (0 to 3 V) accessed via the Altera® MAX® 10 FPGA, 6 processor GPIOs, 1 HSUART, 1 CAN bus
<b>Dimensions</b>	88 mm × 63 mm × 20 mm (includes heatsink)
<b>Weight</b>	30 g board only; less than 60 g board with heatsink

### INTEL® AERO VISION ACCESSORY KIT

<b>Depth Sensing and Vision Camera</b>	Intel® RealSense™ camera R200 with extension cable
<b>8 MP RGB Camera</b>	Omnivision* OV8858 with FPC extension cable
<b>VGA Camera</b>	Omnivision* OV7251 with FPC extension cable

### INTEL® AERO ENCLOSURE KIT

<b>Outer Dimensions</b>	X: 144.8 mm Y: 125.7 mm Z: 47.7 mm
<b>Mass</b>	158 grams
<b>4 Mounting Holes</b>	Separation: 94 x 105.4 mm Size: M3 x 0.5

For more information, visit [www.intel.com/aero](http://www.intel.com/aero)

<sup>1</sup> The Intel Aero Ready to Fly Drone is a kit for developers and is intended to be modified by developers according to their professional judgment. Intel has not established operating limitations for the kit nor tested any configurations other than the base configuration. Developers are responsible for testing and ensuring the safety of their own configurations, and establishing the operating limits of those configurations.

<sup>2</sup> Recommended battery: Li-Po, 4S, 4000+ mAh, with XT60 connector. Max dimensions (mm): 150 x 50 x 32

<sup>3</sup> Estimated

Copyright © 2017 Intel Corporation. Intel, the Intel logo, Joule, Quark, Curie, RealSense, Atom, Intel Experience What's Inside and the Intel Experience What's Inside logo are trademarks of Intel Corporation in the U.S. or other countries.

\* Other names and brands may be claimed as the property of others.



# INTEL® AERO PRODUCT SELECTION GUIDE

	INTEL PART	MIN/MULT	MM#	AVAILABILITY	WARRANTY	UPC CODE
INTEL® AERO READY TO FLY DRONE	82634CRARPLTRTF	1 unit	954400	51 countries: (USA, Canada, Japan, Australia, New Zealand, 46 EU countries)	30 day limited warranty	735858328678
	82634CRAPRTFC	1 unit	958536	52 countries: (USA, Canada, Japan, Australia, New Zealand, 46 EU countries, PRC)	30 day limited warranty	735858345835
INTEL® AERO COMPUTE BOARD	82634DSARPLTDVK	1 unit	952446	51 countries: (USA, Canada, Japan, Australia, New Zealand, 46 EU countries)	90 day limited warranty	735858325530
	82634CRAPDVKC	1 unit	958164	52 countries: (USA, Canada, Japan, Australia, New Zealand, 46 EU countries, PRC)	90 day limited warranty	735858344982
INTEL® AERO VISION ACCESSORY KIT	82634DSARPLTVAK	1 unit	953184	52 countries: (USA, Canada, Japan, Australia, New Zealand, 46 EU countries, PRC)	90 day limited warranty	735858325554
INTEL® AERO ENCLOSURE KIT	82634DSARPLTVIK	1 unit	953065	52 countries: (USA, Canada, Japan, Australia, New Zealand, 46 EU countries, PRC)	90 day limited warranty	735858325714





**THE USB-C  
THAT DOES  
IT ALL**

# THUNDERBOLT™ 3

## WHAT IS THUNDERBOLT™ 3?

At 40 Gb/s, it's the fastest port available on a computer today.

- 8x faster than USB 3.0 and 4x more video bandwidth than HDMI 1.4
- Transfer a 4K movie in less than 30 seconds
- Back up a year's worth of continuous MP3s in five minutes
- Plus, connect to any display, Thunderbolt, or USB device



# THUNDERBOLT™ 3

Thunderbolt™ 3 brings Thunderbolt to USB-C at speeds up to 40 Gigabits per second (Gbps), creating one compact port that does it all – delivering the fastest\*, most versatile connection to any dock, display, or data device.

## THE SPEED YOU NEED

Thunderbolt™ 3 technology is 8x faster than USB 3.0 and provides 4x more video bandwidth than HDMI 1.4, helping users work and play more efficiently. Incredible data transfer rates for high-powered external graphics cards - deliver exciting potential for multi-streaming HD and 4K UHD video and also allow you to enjoy the latest games as they were intended. Orchestrate desktop-level performance from a lightweight laptop, experience higher frame rates and improve visual quality with an unprecedented speed of 40Gbps.

## ALL-IN-ONE SIMPLICITY

Expand your capabilities while reducing cables with the simplicity of a single Thunderbolt™ 3 port paired with the latest 7th Generation Intel® Core™ processor. Now, just one compact port can enable lightning-fast data transfer, support two 4K UHD 60 Hz displays, and even charge a laptop. It's the most advanced, efficient, and versatile single-docking solution available.

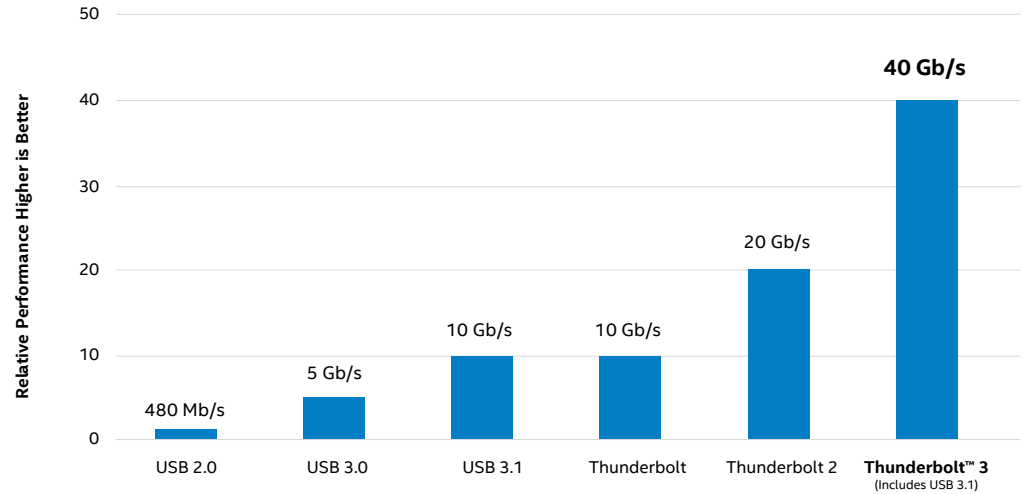
\* As compared to other PC I/O connection technologies including eSATA, USB, and IEEE 1394 Firewire. Performance will vary depending on the specific hardware and software used. Must use a Thunderbolt-enabled device.

## Thunderbolt™ 3 Brings Thunderbolt to USB-C

### THE USB-C THAT DOES IT ALL

Thunderbolt™ 3 technology offers a fast and simple level of connection and consistency for work or home, bringing the speed and versatility of Thunderbolt™ to USB-C. Increase productivity by linking multiple devices through a single, compact port or add a little more power to your gaming with lightning-fast transfers.

- 40Gb/s Thunderbolt™ 3
- Bi-directional, PCI Express and DisplayPort
- Four lanes of PCI Express Gen 3
- Eight lanes of DisplayPort 1.2
- Native USB 3.1 (10Gb/s)
- Native DisplayPort 1.2



### More Protocols

Simplify with one port to connect Thunderbolt devices, every display, and billions of USB devices.



### More Speed

Speed your creation of multi-stream HD or 4K video and archive it with superfast storage.



### More Power

Data, video, and power on the same cable. Up to 100W notebook charging, 15W to bus-powered devices.



### More Pixels

Access the fastest storage, two 4K displays and simultaneously charge with a single cable.

Thunderbolt™ 3 is available within a variety of form factors, including mini-PCs, 2 in 1s, notebooks, gaming systems, and workstations.



<b>BRAND</b>	Acer	Acer	Acer	Acer	Acer	Acer
<b>PRODUCT</b>	Aspire R 13	Aspire Switch 12 S	Aspire V 15 Nitro	Aspire V 17 Nitro	Predator 15	Predator 17
<b>WEBSITE</b>	<a href="https://goo.gl/NmThh3">https://goo.gl/NmThh3</a>	<a href="https://goo.gl/qMimXP">https://goo.gl/qMimXP</a>	<a href="https://goo.gl/bukQp5">https://goo.gl/bukQp5</a>	<a href="https://goo.gl/bukQp5">https://goo.gl/bukQp5</a>	<a href="https://goo.gl/q7kpcd">https://goo.gl/q7kpcd</a>	<a href="https://goo.gl/U1NZdD">https://goo.gl/U1NZdD</a>



<b>BRAND</b>	Acer	Acer	Apple	Apple	Apple	ASUS
<b>PRODUCT</b>	Predator 17 X	TravelMate P648	13-Inch MacBook Pro	13-Inch MacBook Pro with Touch Bar	15-Inch MacBook Pro with Touch Bar	ROG G501 VW
<b>WEBSITE</b>	<a href="https://goo.gl/G4RQBr">https://goo.gl/G4RQBr</a>		<a href="https://goo.gl/mgJqh0">https://goo.gl/mgJqh0</a>	<a href="https://goo.gl/flXop9">https://goo.gl/flXop9</a>	<a href="https://goo.gl/zPbvfo">https://goo.gl/zPbvfo</a>	<a href="https://goo.gl/Mgyc27">https://goo.gl/Mgyc27</a>



<b>BRAND</b>	ASUS	ASUS	ASUS	ASUS	ASUS	ASUS
<b>PRODUCT</b>	ROG G701 VO	ROG G752VL	ROG G752VT	ROG G752VY	ROG GL702VT	ROG GX700VO
<b>WEBSITE</b>	<a href="https://goo.gl/wa45ay">https://goo.gl/wa45ay</a>	<a href="https://goo.gl/BEZRoF">https://goo.gl/BEZRoF</a>	<a href="https://goo.gl/yRRnYr">https://goo.gl/yRRnYr</a>	<a href="https://goo.gl/JxKPe9">https://goo.gl/JxKPe9</a>	<a href="https://goo.gl/qgYDNs">https://goo.gl/qgYDNs</a>	<a href="https://goo.gl/PQhzky">https://goo.gl/PQhzky</a>

Visit [ThunderboltTechnology.net](https://ThunderboltTechnology.net) for latest news and product updates.



<b>BRAND</b>	ASUS	ASUS	Clevo	Clevo	Clevo	Dell
<b>PRODUCT</b>	Transformer 3 Pro T303UA	ZenBook Pro UX501VW	P750DM	P770DM	P870DM	Alienware 13
<b>WEBSITE</b>	<a href="https://goo.gl/HU1vWe">https://goo.gl/HU1vWe</a>	<a href="https://goo.gl/TVJgsg">https://goo.gl/TVJgsg</a>	<a href="https://goo.gl/RkRERX">https://goo.gl/RkRERX</a>	<a href="https://goo.gl/knVdwc">https://goo.gl/knVdwc</a>	<a href="https://goo.gl/JEG44M">https://goo.gl/JEG44M</a>	<a href="https://goo.gl/38gRFy">https://goo.gl/38gRFy</a>



<b>BRAND</b>	Dell	Dell	Dell	Dell	Dell	Dell
<b>PRODUCT</b>	Alienware 15	Alienware 17	Latitude E5570	Latitude 5480	Latitude 5580	Latitude 7280
<b>WEBSITE</b>	<a href="https://goo.gl/FRGzWw">https://goo.gl/FRGzWw</a>	<a href="https://goo.gl/sMWYhq">https://goo.gl/sMWYhq</a>	<a href="https://goo.gl/J7edp7">https://goo.gl/J7edp7</a>	<a href="https://goo.gl/Ak2agU">https://goo.gl/Ak2agU</a>	<a href="https://goo.gl/vLLzht">https://goo.gl/vLLzht</a>	<a href="https://goo.gl/tiS5y4">https://goo.gl/tiS5y4</a>



<b>BRAND</b>	Dell	Dell	Dell	Dell	Dell	Dell
<b>PRODUCT</b>	Latitude 7480	Latitude 7520	Latitude 7720	Latitude 12 2-in-1 7275	Latitude 13 7370	Precision 15 3000 Series (3510)
<b>WEBSITE</b>	<a href="https://goo.gl/rPuCS3">https://goo.gl/rPuCS3</a>	<a href="https://goo.gl/rXFie2">https://goo.gl/rXFie2</a>	<a href="https://goo.gl/GT8XUH">https://goo.gl/GT8XUH</a>	<a href="https://goo.gl/Dl2YWF">https://goo.gl/Dl2YWF</a>	<a href="https://goo.gl/ftaZ5P">https://goo.gl/ftaZ5P</a>	<a href="https://goo.gl/U3aLMv">https://goo.gl/U3aLMv</a>



<b>BRAND</b>	Dell	Dell	Dell	Dell	Dell	Dell
<b>PRODUCT</b>	Precision 3520	Precision 15 5000 Series (5510)	Precision 5520	Precision 15 7000 Series (7510)	Precision 17 7000 Series (7710)	XPS 12 2-in-1
<b>WEBSITE</b>	<a href="https://goo.gl/TXRnVt">https://goo.gl/TXRnVt</a>	<a href="https://goo.gl/SL5Tj3">https://goo.gl/SL5Tj3</a>	<a href="https://goo.gl/drtHkX">https://goo.gl/drtHkX</a>	<a href="https://goo.gl/y8KdEa">https://goo.gl/y8KdEa</a>	<a href="https://goo.gl/4uYw6M">https://goo.gl/4uYw6M</a>	<a href="https://goo.gl/psQKtK">https://goo.gl/psQKtK</a>

Visit [ThunderboltTechnology.net](http://ThunderboltTechnology.net) for latest news and product updates.



<b>BRAND</b>	Dell	Dell	Dell	EVGA	EVGA	FUJITSU
<b>PRODUCT</b>	XPS 13	XPS 13 2-in-1	XPS 15	SC15 Geforce GTX 1060 Gaming Laptop	SC17 Geforce GTX 1080 Gaming Laptop	Workstation CELSIUS H760
<b>WEBSITE</b>	<a href="https://goo.gl/DNoN3G">https://goo.gl/DNoN3G</a>	<a href="https://goo.gl/oNxSKV">https://goo.gl/oNxSKV</a>	<a href="https://goo.gl/MBXixA">https://goo.gl/MBXixA</a>	<a href="https://goo.gl/H7Sq8B">https://goo.gl/H7Sq8B</a>	<a href="https://goo.gl/zRRjp7">https://goo.gl/zRRjp7</a>	<a href="https://goo.gl/aVZBIH">https://goo.gl/aVZBIH</a>



<b>BRAND</b>	GIGABYTE	GIGABYTE	GIGABYTE	GIGABYTE	GIGABYTE	GIGABYTE
<b>PRODUCT</b>	AORUS X5v7	AORUS X7v7	AORUS X9	P56XT	AERO14K	AERO15
<b>WEBSITE</b>	<a href="https://goo.gl/2B5gsW">https://goo.gl/2B5gsW</a>	<a href="https://goo.gl/wMWmeV">https://goo.gl/wMWmeV</a>	<a href="https://goo.gl/buK2rb">https://goo.gl/buK2rb</a>	<a href="https://goo.gl/oEEeMP">https://goo.gl/oEEeMP</a>	<a href="https://goo.gl/1ciBjX">https://goo.gl/1ciBjX</a>	<a href="https://goo.gl/W8VxJr">https://goo.gl/W8VxJr</a>



<b>BRAND</b>	GIGABYTE	GIGABYTE	GIGABYTE	GIGABYTE	GIGABYTE	GIGABYTE
<b>PRODUCT</b>	GB-GZ1DTi7	GB-BKi5HT2-7200	GB-BKi5T2-7200	GB-BKi7HT2-7500	GB-BKi7T2-7500	GB-BSi5T-6200
<b>WEBSITE</b>	<a href="https://goo.gl/gamyKm">https://goo.gl/gamyKm</a>	<a href="https://goo.gl/tiUaA9">https://goo.gl/tiUaA9</a>	<a href="https://goo.gl/VtbY9T">https://goo.gl/VtbY9T</a>	<a href="https://goo.gl/1VvyTk">https://goo.gl/1VvyTk</a>	<a href="https://goo.gl/5wbxSo">https://goo.gl/5wbxSo</a>	<a href="https://goo.gl/nJxmKD">https://goo.gl/nJxmKD</a>



<b>BRAND</b>	GIGABYTE	GIGABYTE	GIGABYTE	HP	HP	HP
<b>PRODUCT</b>	GB-BSi5HT-6200	GB-BSi7T-6500	GB-BSi7HT-6500	EliteBook Folio	EliteBook x2 1012 G2	EliteBook x360 1020 G2
<b>WEBSITE</b>	<a href="https://goo.gl/TIFZki">https://goo.gl/TIFZki</a>	<a href="https://goo.gl/Rk7Clq">https://goo.gl/Rk7Clq</a>	<a href="https://goo.gl/jtr2kU">https://goo.gl/jtr2kU</a>	<a href="https://goo.gl/bJuogH">https://goo.gl/bJuogH</a>	<a href="https://goo.gl/X1rPRS">https://goo.gl/X1rPRS</a>	<a href="https://goo.gl/oVFoko">https://goo.gl/oVFoko</a>

Visit [ThunderboltTechnology.net](http://ThunderboltTechnology.net) for latest news and product updates.



<b>BRAND</b>	HP	HP	HP	HP	HP	HP
<b>PRODUCT</b>	EliteBook x360 G2	Elite X2 1012G1	Spectre x360	Spectre x360 Convertible PC 13	Spectre x360 Convertible PC 15	Spectre
<b>WEBSITE</b>	<a href="https://goo.gl/eMwM3Z">https://goo.gl/eMwM3Z</a>	<a href="https://goo.gl/QA4S9W">https://goo.gl/QA4S9W</a>	<a href="https://goo.gl/WYTRa7">https://goo.gl/WYTRa7</a>	<a href="https://goo.gl/M44pGz">https://goo.gl/M44pGz</a>	<a href="https://goo.gl/nhF7tw">https://goo.gl/nhF7tw</a>	<a href="https://goo.gl/73nl0Y">https://goo.gl/73nl0Y</a>



<b>BRAND</b>	HP	HP	HP	HP	HP	HP
<b>PRODUCT</b>	Envy 27 All-in-One PC	Envy Curved 34 All-in-One PC	ZBook 15 G4 Mobile Workstation	ZBook 17 G4 Mobile Workstation	Z1 G3 Workstation	ZBook 15G3
<b>WEBSITE</b>	<a href="https://goo.gl/1c5eKt">https://goo.gl/1c5eKt</a>	<a href="https://goo.gl/8q66yW">https://goo.gl/8q66yW</a>	<a href="https://goo.gl/d3h1on">https://goo.gl/d3h1on</a>	<a href="https://goo.gl/kdoMjA">https://goo.gl/kdoMjA</a>	<a href="https://goo.gl/xUhBUf">https://goo.gl/xUhBUf</a>	<a href="https://goo.gl/8Fnh1E">https://goo.gl/8Fnh1E</a>



<b>BRAND</b>	HP	HP	Intel	Intel	Intel	Intel
<b>PRODUCT</b>	ZBook Studio Mobile Workstation	OMEN X Laptop 17	NUC NUC6i7KYK	NUC Kit NUC7i5BNH	NUC Kit NUC7i7BNH	NUC Kit NUC7i5BNK
<b>WEBSITE</b>	<a href="https://goo.gl/uz4Dx9">https://goo.gl/uz4Dx9</a>	<a href="https://goo.gl/GN1Xq6">https://goo.gl/GN1Xq6</a>	<a href="https://goo.gl/Yb6CmG">https://goo.gl/Yb6CmG</a>	<a href="https://goo.gl/l70rZM">https://goo.gl/l70rZM</a>	<a href="https://goo.gl/xpd2Nf">https://goo.gl/xpd2Nf</a>	<a href="https://goo.gl/ZlGjZm">https://goo.gl/ZlGjZm</a>



<b>BRAND</b>	Lenovo	Lenovo	Lenovo	Lenovo	Lenovo	Lenovo
<b>PRODUCT</b>	Legion Y720 Laptop	Miix 720	ThinkPad P50	ThinkPad P51	ThinkPad P51s	ThinkPad P70
<b>WEBSITE</b>	<a href="https://goo.gl/lGyY9A">https://goo.gl/lGyY9A</a>	<a href="https://goo.gl/RzGmpb">https://goo.gl/RzGmpb</a>	<a href="https://goo.gl/EoVqAX">https://goo.gl/EoVqAX</a>	<a href="https://goo.gl/Vt2qT1">https://goo.gl/Vt2qT1</a>	<a href="https://goo.gl/HkAdUa">https://goo.gl/HkAdUa</a>	<a href="https://goo.gl/e2xmDB">https://goo.gl/e2xmDB</a>

Visit [ThunderboltTechnology.net](https://ThunderboltTechnology.net) for latest news and product updates.





<b>BRAND</b>	Lenovo	Lenovo	Lenovo	Lenovo	Lenovo	Lenovo
<b>PRODUCT</b>	ThinkPad P71	ThinkPad T470	ThinkPad T470s	ThinkPad T570	ThinkPad X1 Carbon	ThinkPad X1 Yoga
<b>WEBSITE</b>	<a href="https://goo.gl/vr9pMD">https://goo.gl/vr9pMD</a>	<a href="https://goo.gl/SzBKYd">https://goo.gl/SzBKYd</a>	<a href="https://goo.gl/216ZJv">https://goo.gl/216ZJv</a>	<a href="https://goo.gl/ui1xiL">https://goo.gl/ui1xiL</a>	<a href="https://goo.gl/KRG62C">https://goo.gl/KRG62C</a>	<a href="https://goo.gl/9GK3iC">https://goo.gl/9GK3iC</a>



<b>BRAND</b>	Lenovo	MSI	MSI	MSI	MSI	MSI
<b>PRODUCT</b>	ThinkPad Yoga 370	GS40 Gaming Notebook	GS60 Gaming Notebook	GS63 Gaming Notebook	GT72 Gaming Notebook	GT80 Gaming Notebook
<b>WEBSITE</b>	<a href="https://goo.gl/YGJT3s">https://goo.gl/YGJT3s</a>	<a href="https://goo.gl/uqsT8T">https://goo.gl/uqsT8T</a>	<a href="https://goo.gl/Ja2a79">https://goo.gl/Ja2a79</a>	<a href="https://goo.gl/Dc1aQh">https://goo.gl/Dc1aQh</a>	<a href="https://goo.gl/aG29DC">https://goo.gl/aG29DC</a>	<a href="https://goo.gl/zFNOSa">https://goo.gl/zFNOSa</a>



<b>BRAND</b>	MSI	MSI	MSI	Razer	Razer	Razer
<b>PRODUCT</b>	Vortex G65	WS60 Workstation Notebook	WT72 Workstation Notebook	The New Razer Blade	Razer Blade Pro	Blade Stealth
<b>WEBSITE</b>	<a href="https://goo.gl/6Jkz8f">https://goo.gl/6Jkz8f</a>	<a href="https://goo.gl/43iMyd">https://goo.gl/43iMyd</a>	<a href="https://goo.gl/poe59U">https://goo.gl/poe59U</a>	<a href="https://goo.gl/wvS0Ho">https://goo.gl/wvS0Ho</a>	<a href="https://goo.gl/lr5puI">https://goo.gl/lr5puI</a>	<a href="https://goo.gl/pLFsOG">https://goo.gl/pLFsOG</a>



<b>BRAND</b>	Toshiba	Toshiba	Toshiba	VAIO	ZBOX	ZBOX
<b>PRODUCT</b>	Portege X20W Convertible Notebook Series	Portege X30 Laptop Series	Tecra X40 Laptop Series	S11	ZBOX-MI549NANO ZBOX-CI549NANO	ZBOX-MI552 ZBOX-MI572
<b>WEBSITE</b>	<a href="https://goo.gl/nq49tG">https://goo.gl/nq49tG</a>	<a href="https://goo.gl/QAghJ9">https://goo.gl/QAghJ9</a>	<a href="https://goo.gl/5cDj3G">https://goo.gl/5cDj3G</a>	<a href="https://goo.gl/XtRD1E">https://goo.gl/XtRD1E</a>	<a href="https://goo.gl/qEo1dE">https://goo.gl/qEo1dE</a>	<a href="https://goo.gl/EbEyyN">https://goo.gl/EbEyyN</a>

Visit [ThunderboltTechnology.net](http://ThunderboltTechnology.net) for latest news and product updates.

An easy way to add Thunderbolt™ 3 to desktop computers is by using one of the motherboards below with Thunderbolt™ 3 ports.



<b>BRAND</b>	ASRock	ASRock	ASUS	ASUS	ASUS	ASUS
<b>PRODUCT</b>	Thunderbolt™ 3 AIC	X299 Designer+	ThunderboltEX 3	MAXIMUS-VIII-EXTREME	X99-DELUXE II	Z170- PREMIUM
<b>WEBSITE</b>		<a href="https://goo.gl/7f2cGe">https://goo.gl/7f2cGe</a>	<a href="https://goo.gl/4ZcdND">https://goo.gl/4ZcdND</a>	<a href="https://goo.gl/8wqk6T">https://goo.gl/8wqk6T</a>	<a href="https://goo.gl/jCs5lw">https://goo.gl/jCs5lw</a>	<a href="https://goo.gl/Wrk3WC">https://goo.gl/Wrk3WC</a>



<b>BRAND</b>	GIGABYTE	GIGABYTE	GIGABYTE	GIGABYTE	GIGABYTE	GIGABYTE
<b>PRODUCT</b>	GA-H170-Designare	GA-X99-Designare EX	GA-X99P-SLI	GA-X170-Extreme	GA-Z170X-Gaming G1	GA-Z170X-Gaming 7
<b>WEBSITE</b>	<a href="https://goo.gl/45dxB4">https://goo.gl/45dxB4</a>	<a href="https://goo.gl/4LvQA7">https://goo.gl/4LvQA7</a>	<a href="https://goo.gl/NWKcQ5">https://goo.gl/NWKcQ5</a>	<a href="https://goo.gl/MJLe4o">https://goo.gl/MJLe4o</a>	<a href="https://goo.gl/5zq2yP">https://goo.gl/5zq2yP</a>	<a href="https://goo.gl/ckFFOS">https://goo.gl/ckFFOS</a>



<b>BRAND</b>	GIGABYTE	GIGABYTE	GIGABYTE	GIGABYTE	GIGABYTE	GIGABYTE
<b>PRODUCT</b>	GA-Z170X Gaming 7-EU	GA-Z170X-Gaming GT	GA-Z170X-UD5 TH	GA-Z170X-Ultra Gaming	GA-Z270X-Gaming 7	GA-Z270X-Gaming 8
<b>WEBSITE</b>	<a href="https://goo.gl/5yiFy9">https://goo.gl/5yiFy9</a>	<a href="https://goo.gl/DZhvsk">https://goo.gl/DZhvsk</a>	<a href="https://goo.gl/syEEFw">https://goo.gl/syEEFw</a>	<a href="https://goo.gl/LG6G6i">https://goo.gl/LG6G6i</a>	<a href="https://goo.gl/A6LdHc">https://goo.gl/A6LdHc</a>	<a href="https://goo.gl/tFD9Cj">https://goo.gl/tFD9Cj</a>

Visit [ThunderboltTechnology.net](http://ThunderboltTechnology.net) for latest news and product updates.



<b>BRAND</b>	<b>GIGABYTE</b>	<b>GIGABYTE</b>	<b>GIGABYTE</b>	<b>GIGABYTE</b>	<b>GIGABYTE</b>	<b>GIGABYTE</b>
<b>PRODUCT</b>	GA-Z270X-Gaming 9	GA-Z270X-UD5	X170X-WS ECC	GA-Z170X-Designare	Z170X-UD3 Ultra	GC-ALPINE RIDGE
<b>WEBSITE</b>	<a href="https://goo.gl/Rd3Hdr">https://goo.gl/Rd3Hdr</a>	<a href="https://goo.gl/mjZgDi">https://goo.gl/mjZgDi</a>	<a href="https://goo.gl/0Cvy90">https://goo.gl/0Cvy90</a>	<a href="https://goo.gl/nOg0BJ">https://goo.gl/nOg0BJ</a>	<a href="https://goo.gl/1K5y6l">https://goo.gl/1K5y6l</a>	<a href="https://goo.gl/SH7tF3">https://goo.gl/SH7tF3</a>

Thunderbolt™ 3 enables several categories of compelling devices, such as docks, displays, storage, external graphics, and media. Thunderbolt™ 3 delivers unrivaled single-cable docking to connect to everything you need, while also charging your notebook. These docks provide fast Thunderbolt™ 3 data transfers, support for two 4K displays, and quick notebook charging.



<b>BRAND</b>	Accusys	Accusys	AKiTiO	AKiTiO	AKiTiO	AKiTiO
<b>PRODUCT</b>	A12T3-Share	Gamma 8	Node Pro	Thunder3 10G Network Adapter	Thunder3 RAID STATION	Node
<b>WEBSITE</b>	<a href="https://goo.gl/cDsLQB">https://goo.gl/cDsLQB</a>	<a href="https://goo.gl/CGUCQx">https://goo.gl/CGUCQx</a>	<a href="https://goo.gl/Ddj92d">https://goo.gl/Ddj92d</a>	<a href="https://goo.gl/TkbSHu">https://goo.gl/TkbSHu</a>	<a href="https://goo.gl/mgqNfw">https://goo.gl/mgqNfw</a>	<a href="https://goo.gl/3mtoi3">https://goo.gl/3mtoi3</a>



<b>BRAND</b>	AKiTiO	AKiTiO	AKiTiO	AKiTiO	AKiTiO	AKiTiO
<b>PRODUCT</b>	Node Lite	Thunder3 Duo Pro	Thunder3 PCIe Box	Thunder3 PCIe SSD	Thunder3 Quad	Thunder3 Quad X
<b>WEBSITE</b>	<a href="https://goo.gl/kRdOS8">https://goo.gl/kRdOS8</a>	<a href="https://goo.gl/R04RrZ">https://goo.gl/R04RrZ</a>	<a href="https://goo.gl/R2ZTyc">https://goo.gl/R2ZTyc</a>	<a href="https://goo.gl/iOXEu">https://goo.gl/iOXEu</a>	<a href="https://goo.gl/JJfLLl">https://goo.gl/JJfLLl</a>	<a href="https://goo.gl/GJwxxY">https://goo.gl/GJwxxY</a>



<b>BRAND</b>	AKiTiO	Alogic	Areca	Areca	Areca	Areca
<b>PRODUCT</b>	Thunder3 Quad Mini	Thunderbolt 3 Docking Station with Dual 4K Display & Power Delivery	ARC-8050T3-4	ARC-8050T3-6	ARC-8050T3-6M	ARC-8050T3-8
<b>WEBSITE</b>	<a href="https://goo.gl/A9xf6w">https://goo.gl/A9xf6w</a>	<a href="https://goo.gl/uE9byc">https://goo.gl/uE9byc</a>	<a href="https://goo.gl/4wEr49">https://goo.gl/4wEr49</a>	<a href="https://goo.gl/X5lry8">https://goo.gl/X5lry8</a>	<a href="https://goo.gl/LSRLMF">https://goo.gl/LSRLMF</a>	<a href="https://goo.gl/URqYVo">https://goo.gl/URqYVo</a>

Visit [ThunderboltTechnology.net](https://ThunderboltTechnology.net) for latest news and product updates.



<b>BRAND</b>	Areca	Areca	Areca	ASUS	ATTO	ATTO
<b>PRODUCT</b>	ARC-8050T3-12	ARC-8050T3-12R	ARC-8050T3-24R	ROG XG Station 2	ThunderLink® FC 3162	ThunderLink® FC 3322 (SFP+)
<b>WEBSITE</b>	<a href="https://goo.gl/lq5hNQ">https://goo.gl/lq5hNQ</a>	<a href="https://goo.gl/8VKSCJ">https://goo.gl/8VKSCJ</a>	<a href="https://goo.gl/DCWCMC">https://goo.gl/DCWCMC</a>	<a href="https://goo.gl/DO2zr5">https://goo.gl/DO2zr5</a>	<a href="https://goo.gl/yed5PO">https://goo.gl/yed5PO</a>	<a href="https://goo.gl/hYoOou">https://goo.gl/hYoOou</a>



<b>BRAND</b>	ATTO	ATTO	ATTO	ATTO	Avid	Belkin
<b>PRODUCT</b>	Thunderlink® NQ 3401	Thunderlink® NQ 3402	Thunderlink® NS 3101	Thunderlink® NS 3102	Artist DNxIO	Thunderbolt™ 3 Express Dock HD
<b>WEBSITE</b>	<a href="https://goo.gl/pjWBnK">https://goo.gl/pjWBnK</a>	<a href="https://goo.gl/krGIBD">https://goo.gl/krGIBD</a>	<a href="https://goo.gl/a7FWrg">https://goo.gl/a7FWrg</a>	<a href="https://goo.gl/9h4gKV">https://goo.gl/9h4gKV</a>	<a href="https://goo.gl/UJKSrS">https://goo.gl/UJKSrS</a>	<a href="https://goo.gl/fxAbfp">https://goo.gl/fxAbfp</a>



<b>BRAND</b>	BlackMagic Design	BlackMagic Design	Cable Matters	Cable Matters	CalDigit	CalDigit
<b>PRODUCT</b>	UltraStudio 4K Extreme	UltraStudio HD Mini	Thunderbolt™ 3 Dock	Thunderbolt 3 Docking Station	Thunderbolt™ Station 3	Thunderbolt™ Station 3 Lite
<b>WEBSITE</b>	<a href="https://goo.gl/ce849h">https://goo.gl/ce849h</a>	<a href="https://goo.gl/47M9K5">https://goo.gl/47M9K5</a>	<a href="https://goo.gl/k9uNJZ">https://goo.gl/k9uNJZ</a>	<a href="https://goo.gl/gmY1rD">https://goo.gl/gmY1rD</a>	<a href="https://goo.gl/1S1AZj">https://goo.gl/1S1AZj</a>	<a href="https://goo.gl/S8bRj5">https://goo.gl/S8bRj5</a>



<b>BRAND</b>	Dell	Drobo	Elgato	Galaxy Microsystems	GIGABYTE	GIGABYTE
<b>PRODUCT</b>	Thunderbolt™ Dock	5D3 Direct Attached Storage	Thunderbolt™ 3 Dock	GALAX SNPR External Graphics Enclosure	AORUS GTX 1070 Gaming Box	AORUS GTX 1080 Gaming Box
<b>WEBSITE</b>		<a href="https://goo.gl/J7eVSr">https://goo.gl/J7eVSr</a>	<a href="https://goo.gl/Y3NVLb">https://goo.gl/Y3NVLb</a>	<a href="https://goo.gl/QFF7Ak">https://goo.gl/QFF7Ak</a>	<a href="https://goo.gl/XDxrYW">https://goo.gl/XDxrYW</a>	<a href="https://goo.gl/kgNQoQ">https://goo.gl/kgNQoQ</a>

Visit [ThunderboltTechnology.net](http://ThunderboltTechnology.net) for latest news and product updates.



<b>BRAND</b>	<b>G-Technology</b>	<b>G-Technology</b>	<b>G-Technology</b>	<b>HighPoint</b>	<b>HighPoint</b>	<b>HighPoint</b>
<b>PRODUCT</b>	G-DRIVE with Thunderbolt™ 3	G-RAID Thunderbolt 3 USB 3.1	G-SPEED Shuttle XL with Thunderbolt™ 3	RocketStor 6628A	RocketStor 6628T	RocketStor 6618T
<b>WEBSITE</b>	<a href="https://goo.gl/zrZVW2">https://goo.gl/zrZVW2</a>	<a href="https://goo.gl/XaZJYt">https://goo.gl/XaZJYt</a>	<a href="https://goo.gl/W3tnd4">https://goo.gl/W3tnd4</a>	<a href="https://goo.gl/fz4c2n">https://goo.gl/fz4c2n</a>	<a href="https://goo.gl/7hHvjZ">https://goo.gl/7hHvjZ</a>	<a href="https://goo.gl/2LGL9K">https://goo.gl/2LGL9K</a>



<b>BRAND</b>	<b>HighPoint</b>	<b>HighPoint</b>	<b>HP</b>	<b>HP</b>	<b>IOGear</b>	<b>Kensington</b>
<b>PRODUCT</b>	RocketStor 6618A	RocketStor 6674T	ZBook Dock with Thunderbolt™ 3	OMEN by HP Accelerator	Thunderbolt 3 Quantum Docking Station	SD5000T Docking Station
<b>WEBSITE</b>	<a href="https://goo.gl/3K9A18">https://goo.gl/3K9A18</a>	<a href="https://goo.gl/AWg8jP">https://goo.gl/AWg8jP</a>	<a href="https://goo.gl/vbLqaQ">https://goo.gl/vbLqaQ</a>	<a href="https://goo.gl/MAKpb4">https://goo.gl/MAKpb4</a>	New	<a href="https://goo.gl/1Q1GzG">https://goo.gl/1Q1GzG</a>



<b>BRAND</b>	<b>LaCie</b>	<b>LaCie</b>	<b>LaCie</b>	<b>LaCie</b>	<b>Lenovo</b>	<b>LG</b>
<b>PRODUCT</b>	d2 Thunderbolt™ 3	6big	12big Thunderbolt™ 3	Bolt 3	ThinkPad Thunderbolt™ 3 Dock	UltraFine 5K Display
<b>WEBSITE</b>	<a href="https://goo.gl/bXglfF">https://goo.gl/bXglfF</a>	<a href="https://goo.gl/fv1QEj">https://goo.gl/fv1QEj</a>	<a href="https://goo.gl/TVJBtk">https://goo.gl/TVJBtk</a>	<a href="https://goo.gl/rxqlyk">https://goo.gl/rxqlyk</a>	<a href="https://goo.gl/G7DXUc">https://goo.gl/G7DXUc</a>	<a href="https://goo.gl/rTyQWc">https://goo.gl/rTyQWc</a>



<b>BRAND</b>	<b>Mantiz</b>	<b>Netstor</b>	<b>Netstor</b>	<b>Netstor</b>	<b>Netstor</b>	<b>Netstor</b>
<b>PRODUCT</b>	Venus eGFX (MZ-02)	NA338TB3	NA333TB3	NA211TB3	NA381TB3	NA762TB3
<b>WEBSITE</b>	<a href="https://goo.gl/PRZKFJ">https://goo.gl/PRZKFJ</a>	<a href="https://goo.gl/pw3sGi">https://goo.gl/pw3sGi</a>	<a href="https://goo.gl/0pYHZl">https://goo.gl/0pYHZl</a>	<a href="https://goo.gl/Ui5nzt">https://goo.gl/Ui5nzt</a>	<a href="https://goo.gl/f2WBA9">https://goo.gl/f2WBA9</a>	<a href="https://goo.gl/FYtdcV">https://goo.gl/FYtdcV</a>

Visit [ThunderboltTechnology.net](https://ThunderboltTechnology.net) for latest news and product updates.



<b>BRAND</b>	Netstor	Netstor	One Stop Systems	OWC	OWC	OWC
<b>PRODUCT</b>	HL23T	NA611TB3	ExpressBox 3T-V3	Mercury Helios 3	Envoy Pro	Thunderbolt™ 3 Dock
<b>WEBSITE</b>	<a href="https://goo.gl/tfsT7c">https://goo.gl/tfsT7c</a>	<a href="https://goo.gl/CU9joq">https://goo.gl/CU9joq</a>	<a href="https://goo.gl/DZfm6s">https://goo.gl/DZfm6s</a>	<a href="https://goo.gl/dbcfys">https://goo.gl/dbcfys</a>		<a href="https://goo.gl/BC1puu">https://goo.gl/BC1puu</a>



<b>BRAND</b>	Panasonic	Plugable	Plugable	PowerColor (TUL Corporation)	PowerColor (TUL Corporation)	Promise
<b>PRODUCT</b>	Memory Card Drive "expressP2 drive" AU-XPDP3	Thunderbolt™ 3 Docking Station	TBT3-UDV Thunderbolt 3™ Docking Station with Power Delivery	POWERCOLOR GAMING STATION	Devil Box	Pegasus3 R4
<b>WEBSITE</b>	<a href="https://goo.gl/ZDFBRh">https://goo.gl/ZDFBRh</a>	<a href="https://goo.gl/46Bmfl">https://goo.gl/46Bmfl</a>	<a href="https://goo.gl/FYQpHF">https://goo.gl/FYQpHF</a>	<a href="https://goo.gl/YSjybA">https://goo.gl/YSjybA</a>	<a href="https://goo.gl/3zNgJ5">https://goo.gl/3zNgJ5</a>	<a href="https://goo.gl/N8BOQe">https://goo.gl/N8BOQe</a>



<b>BRAND</b>	Promise	Promise	Promise	Promise	QNAP	QNAP
<b>PRODUCT</b>	Pegasus3 R6	Pegasus3 R8	SANLink3 16G FC	SANLink3 T1	TVS-1282T3	TVS-1582TU
<b>WEBSITE</b>	<a href="https://goo.gl/W9fsmu">https://goo.gl/W9fsmu</a>	<a href="https://goo.gl/LWBbND">https://goo.gl/LWBbND</a>	<a href="https://goo.gl/AHXxnh">https://goo.gl/AHXxnh</a>	<a href="https://goo.gl/YyDGQe">https://goo.gl/YyDGQe</a>	<a href="https://goo.gl/yNRvz9">https://goo.gl/yNRvz9</a>	<a href="https://goo.gl/qSWGLs">https://goo.gl/qSWGLs</a>



<b>BRAND</b>	QNAP	QNAP	Razer	Sonnet	Sonnet	Sonnet
<b>PRODUCT</b>	TVS-882BRT3	TVS-882ST3	Core	eGFX Breakaway Box 550	eGFX Breakaway Puck Radeon RX 560	eGFX Breakaway Puck Radeon RX 570
<b>WEBSITE</b>	<a href="https://goo.gl/DapRvb">https://goo.gl/DapRvb</a>	<a href="https://goo.gl/tyf8i3">https://goo.gl/tyf8i3</a>	<a href="https://goo.gl/LEHY75">https://goo.gl/LEHY75</a>	<a href="https://goo.gl/CgfSbW">https://goo.gl/CgfSbW</a>	<a href="https://goo.gl/W31D6a">https://goo.gl/W31D6a</a>	<a href="https://goo.gl/SnvGpt">https://goo.gl/SnvGpt</a>

Visit [ThunderboltTechnology.net](http://ThunderboltTechnology.net) for latest news and product updates.



<b>BRAND</b>	<b>Sonnet</b>	<b>Sonnet</b>	<b>Sonnet</b>	<b>Sonnet</b>	<b>Sonnet</b>	<b>Sonnet</b>
<b>PRODUCT</b>	SF3™ Series - SxS™ Pro Card Reader	eGFX Breakaway™ Box	Echo™ Express SE III	Echo Express SEL – Thunderbolt™ 3 Edition	Echo™ Express III-D – Thunderbolt™ 3 Edition	SF3™ Series – CFast™ 2.0 Pro Card Reader
<b>WEBSITE</b>	<a href="https://goo.gl/gFQXxz">https://goo.gl/gFQXxz</a>	<a href="https://goo.gl/Thq6Ze">https://goo.gl/Thq6Ze</a>	<a href="https://goo.gl/TX3o4g">https://goo.gl/TX3o4g</a>	<a href="https://goo.gl/HbDoqU">https://goo.gl/HbDoqU</a>	<a href="https://goo.gl/IL7XrT">https://goo.gl/IL7XrT</a>	<a href="https://goo.gl/POhhqL">https://goo.gl/POhhqL</a>



<b>BRAND</b>	<b>Sonnet</b>	<b>Sonnet</b>	<b>Sonnet</b>	<b>Sonnet</b>	<b>StarTech.com</b>	<b>StarTech.com</b>
<b>PRODUCT</b>	Echo™ Express III-D – Thunderbolt™ 3 Edition	SF3™ Series – CFast™ 2.0 Pro Card Reader	Twin10G SFP+ Thunderbolt™ 3 Edition	Twin 10G Thunderbolt™ 3 Edition	Thunderbolt 3 PCIe Expansion Chassis with DisplayPort	Thunderbolt™ 3 Docking Station
<b>WEBSITE</b>	<a href="https://goo.gl/IL7XrT">https://goo.gl/IL7XrT</a>	<a href="https://goo.gl/POhhqL">https://goo.gl/POhhqL</a>	<a href="https://goo.gl/bLVNnw">https://goo.gl/bLVNnw</a>	<a href="https://goo.gl/FbCjJ1">https://goo.gl/FbCjJ1</a>	<a href="https://goo.gl/LPDsjH">https://goo.gl/LPDsjH</a>	<a href="https://goo.gl/7Slwd4">https://goo.gl/7Slwd4</a>



<b>BRAND</b>	<b>StarTech.com</b>	<b>Toshiba</b>	<b>Visiontek</b>
<b>PRODUCT</b>	Thunderbolt™ 3 Charging Dock	Thunderbolt™ 3 Dock	VT-TB3-eGPU100
<b>WEBSITE</b>	<a href="https://goo.gl/nZ2QL9">https://goo.gl/nZ2QL9</a>	<a href="https://goo.gl/V9MUUV">https://goo.gl/V9MUUV</a>	<a href="https://goo.gl/HGJSGZ">https://goo.gl/HGJSGZ</a>



# CABLES AND ADAPTERS



A selection of Thunderbolt™ 3 cables and adapters provide connectivity for different protocols. The Thunderbolt™ 3 to Thunderbolt™ adapter allows new computers with Thunderbolt™ 3 ports to connect to hundreds of Thunderbolt™ and Thunderbolt™ 2 devices.



<b>BRAND</b>	<b>Ableconn</b>	<b>Ableconn</b>	<b>AKiTiO</b>	<b>AKiTiO</b>	<b>Alogic</b>	<b>Alogic</b>
<b>PRODUCT</b>	TBT3-DPX2 Thunderbolt 3 to Dual DisplayPort Adapter	TBT3-HDX2 Thunderbolt 3 to Dual HDMI Adapter	T3T Thunderbolt™ 3 to Thunderbolt™ Adapter	40Gbps Thunderbolt™ 3 cable (0.5m)	Thunderbolt 3 (USB-C) to Dual DisplayPort Adapter	Thunderbolt 3 (USB-C) to Dual HDMI Adapter
<b>WEBSITE</b>	<a href="https://goo.gl/H383U8">https://goo.gl/H383U8</a>	<a href="https://goo.gl/5SD21k">https://goo.gl/5SD21k</a>	<a href="https://goo.gl/n3PbSz">https://goo.gl/n3PbSz</a>	<a href="https://goo.gl/p5EWDk">https://goo.gl/p5EWDk</a>	<a href="https://goo.gl/1wXuK9">https://goo.gl/1wXuK9</a>	<a href="https://goo.gl/fpVbaZ">https://goo.gl/fpVbaZ</a>



<b>BRAND</b>	<b>Apple</b>	<b>Belkin</b>	<b>Cable Matters</b>	<b>Cable Matters</b>	<b>Cable Matters</b>	<b>Cable Matters</b>
<b>PRODUCT</b>	Thunderbolt™ 3 (USB-C) to Thunderbolt™ 2 Adapter	Thunderbolt 3 Cable (40Gbps) (0.5m)	Thunderbolt™ 3 Cable-1m/2m (20 Gbps)	Thunderbolt™ 3 Cable-0.5m/1.0m/2.0m (40 Gbps)	Thunderbolt™ 3 to Thunderbolt™ Adapter	Thunderbolt™ 3 Dual HDMI Adapter
<b>WEBSITE</b>	<a href="https://goo.gl/eRU4m3">https://goo.gl/eRU4m3</a>	<a href="https://goo.gl/KDYWqw">https://goo.gl/KDYWqw</a>	<a href="https://goo.gl/9k4ALN">https://goo.gl/9k4ALN</a>	<a href="https://goo.gl/9k4ALN">https://goo.gl/9k4ALN</a>	<a href="https://goo.gl/ug2Yg1">https://goo.gl/ug2Yg1</a>	<a href="https://goo.gl/r5xyh5">https://goo.gl/r5xyh5</a>



<b>BRAND</b>	<b>Cable Matters</b>	<b>CHOETECH</b>	<b>CHOETECH</b>	<b>CHOETECH</b>	<b>CHOETECH</b>	<b>CHOETECH</b>
<b>PRODUCT</b>	Thunderbolt™ 3 Dual DisplayPort Adapter	Thunderbolt 3 Cable (0.5m) 40Gbps	Thunderbolt 3 Cable (2m) 40Gbps	Thunderbolt 3 Cable (2m) 20Gbps	Thunderbolt 3 to Dual DisplayPort Adapter	Thunderbolt 3 to Dual HDMI 2.0 Output Adapter
<b>WEBSITE</b>	<a href="https://goo.gl/YnL34g">https://goo.gl/YnL34g</a>	<a href="https://goo.gl/2rJQ82">https://goo.gl/2rJQ82</a>	<a href="https://goo.gl/YpLBRT">https://goo.gl/YpLBRT</a>	<a href="https://goo.gl/NqkjuN">https://goo.gl/NqkjuN</a>	<a href="https://goo.gl/sYd75X">https://goo.gl/sYd75X</a>	<a href="https://goo.gl/QJsMqx">https://goo.gl/QJsMqx</a>

Visit [ThunderboltTechnology.net](https://ThunderboltTechnology.net) for latest news and product updates.





<b>BRAND</b>	<b>Delock</b>	<b>Delock</b>	<b>Delock</b>	<b>Delock</b>	<b>KaiJet</b>	<b>KaiJet</b>
<b>PRODUCT</b>	Adapter 62708 Thunderbolt 3 Dual DisplayPort	62709 Adapter Thunderbolt™ 3	Thunderbolt™ 3 (20 Gb/s) cable 1.0M 1.5M 2.0M	Thunderbolt™ 3 (40 Gb/s) cable 0.5M	j5create 20Gbps Thunderbolt™ 3 Cable (1m)	j5create 40Gbps Thunderbolt™ 3 Cable (0.5m)
<b>WEBSITE</b>	<a href="https://goo.gl/uBSuSC">https://goo.gl/uBSuSC</a>	<a href="https://goo.gl/FByHoh">https://goo.gl/FByHoh</a>	<a href="https://goo.gl/gEuH8n">https://goo.gl/gEuH8n</a>	<a href="https://goo.gl/A5CXQY">https://goo.gl/A5CXQY</a>	<a href="https://goo.gl/22vQCj">https://goo.gl/22vQCj</a>	<a href="https://goo.gl/giBn6Y">https://goo.gl/giBn6Y</a>



<b>BRAND</b>	<b>Kanex</b>	<b>Kanex</b>	<b>Kanex</b>	<b>Lintes</b>	<b>Lintes</b>	<b>Lintes</b>
<b>PRODUCT</b>	Thunderbolt™ 3 (20 Gbps) USB-C Cable-1m	Thunderbolt™ 3 (40 Gbps) USB-C Cable-0.5m	Thunderbolt™ 3 to Thunderbolt™ Adapter	Thunderbolt™ 3 40Gbps Cable - 0.5-meter	Thunderbolt™ 3 2M 40Gbps Active Cable	Thunderbolt™ 3 Baby Adapter
<b>WEBSITE</b>	<a href="https://goo.gl/evZy1C">https://goo.gl/evZy1C</a>	<a href="https://goo.gl/Nn1evw">https://goo.gl/Nn1evw</a>		<a href="https://goo.gl/BiUTUO">https://goo.gl/BiUTUO</a>	<a href="https://goo.gl/r9yvpi">https://goo.gl/r9yvpi</a>	<a href="https://goo.gl/g2CvKp">https://goo.gl/g2CvKp</a>



<b>BRAND</b>	<b>Lintes</b>	<b>Mega Grand (TEKQ Int.)</b>	<b>National Instruments</b>	<b>Nekteck</b>	<b>Nekteck</b>	<b>Nekteck</b>
<b>PRODUCT</b>	Thunderbolt™ 3 Legacy Adapter	TEKQ Thunderbolt 3 Cable (0.5 m)	PXIe-8301	20 Gbps Thunderbolt™ 3 Cable in Black (1m)	20 Gbps Thunderbolt™ 3 Cable in Black (2m)	40 Gbps Thunderbolt™ 3 Cable in Black (0.5m)
<b>WEBSITE</b>	<a href="https://goo.gl/uUj7cB">https://goo.gl/uUj7cB</a>	<a href="https://goo.gl/3qKaqc">https://goo.gl/3qKaqc</a>	<a href="https://goo.gl/ERZoPF">https://goo.gl/ERZoPF</a>	<a href="https://goo.gl/ercz4Q">https://goo.gl/ercz4Q</a>	<a href="https://goo.gl/zUYU3T">https://goo.gl/zUYU3T</a>	<a href="https://goo.gl/jFaa4M">https://goo.gl/jFaa4M</a>



<b>BRAND</b>	<b>Nekteck</b>	<b>Nekteck</b>	<b>Nekteck</b>	<b>Plugable</b>	<b>Plugable</b>	<b>Plugable</b>
<b>PRODUCT</b>	Thunderbolt 3 40Gbps Active Cable – (2m)	Thunderbolt 3 to Dual 4K DP DisplayPort Adapter	Thunderbolt 3 to Dual 4K HDMI Adapter	Thunderbolt™ 3 20 Gbps USB-C Cable (3.3ft/1m)	Thunderbolt™ 3 20 Gbps USB-C Cable (6.6ft/2m)	Thunderbolt™ 3 40 Gbps USB-C Cable (1.65ft/.5m)
<b>WEBSITE</b>	<a href="https://goo.gl/dXBy6x">https://goo.gl/dXBy6x</a>	<a href="https://goo.gl/JbQ9bS">https://goo.gl/JbQ9bS</a>	<a href="https://goo.gl/WqW3iN">https://goo.gl/WqW3iN</a>	<a href="https://goo.gl/3qa3Gq">https://goo.gl/3qa3Gq</a>	<a href="https://goo.gl/IH6H1y">https://goo.gl/IH6H1y</a>	<a href="https://goo.gl/vE49SC">https://goo.gl/vE49SC</a>

Visit [ThunderboltTechnology.net](https://ThunderboltTechnology.net) for latest news and product updates.



<b>BRAND</b>	Plugable	Plugable	SAPPHIRE	SAPPHIRE	Sonnet	Sonnet
<b>PRODUCT</b>	Thunderbolt™ 3 Dual DisplayPort Adapter	Thunderbolt™ 3 Dual HDMI Adapter	Thunderbolt™ 3 to Dual DisplayPort Dongle	Thunderbolt™ 3 to Dual HDMI Dongle	0.5m Thunderbolt™ 3 (40 Gbps) Cable	Thunderbolt 3 to Dual DisplayPort Adapter
<b>WEBSITE</b>	<a href="https://goo.gl/gA6G6h">https://goo.gl/gA6G6h</a>	<a href="https://goo.gl/kA1PtH">https://goo.gl/kA1PtH</a>	<a href="https://goo.gl/tvbPMU">https://goo.gl/tvbPMU</a>	<a href="https://goo.gl/hmCXXS">https://goo.gl/hmCXXS</a>	<a href="https://goo.gl/snFYeO">https://goo.gl/snFYeO</a>	<a href="https://goo.gl/64tXMU">https://goo.gl/64tXMU</a>



<b>BRAND</b>	Sonnet	StarTech.com	StarTech.com	StarTech.com	StarTech.com	StarTech.com
<b>PRODUCT</b>	1m Thunderbolt™ 3 (40 Gbps) Cable	Dual DisplayPort Adapter	Dual HDMI Adapter	Thunderbolt™ 3 (20 Gbps) USB-C Cable-1m/2m	Thunderbolt™ 3 (40 Gbps) USB-C Cable-0.5m	Thunderbolt™ 3 to Thunderbolt™ Adapter
<b>WEBSITE</b>	<a href="https://goo.gl/8JUIN8">https://goo.gl/8JUIN8</a>	<a href="https://goo.gl/nQhL2j">https://goo.gl/nQhL2j</a>	<a href="https://goo.gl/sqRMFe">https://goo.gl/sqRMFe</a>	<a href="https://goo.gl/Hlrsb6">https://goo.gl/Hlrsb6</a>	<a href="https://goo.gl/X2sDzw">https://goo.gl/X2sDzw</a>	<a href="https://goo.gl/nq7efZ">https://goo.gl/nq7efZ</a>



<b>BRAND</b>	Vantec	Vantec	Zikko
<b>PRODUCT</b>	Thunderbolt™ 3 to Dual DisplayPort 4K (60Hz) Adapter	Thunderbolt™ 3 To Dual HDMI 2.0 4K (60Hz) Adapter	Thunderbolt™ 3 Cable 0.5M 40Gbps
<b>WEBSITE</b>	<a href="https://goo.gl/HykGWM">https://goo.gl/HykGWM</a>	<a href="https://goo.gl/VuyYiB">https://goo.gl/VuyYiB</a>	<a href="https://goo.gl/hB6pKU">https://goo.gl/hB6pKU</a>

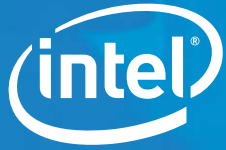
Visit [ThunderboltTechnology.net](https://ThunderboltTechnology.net) for more information.

No license (express or implied, by estoppel or otherwise) to any intellectual property rights is granted by this document. Intel disclaims all express and implied warranties, including without limitation, the implied warranties of merchantability, fitness for a particular purpose, and non-infringement, as well as any warranty arising from course of performance, course of dealing, or usage in trade.

The products and services described may contain defects or errors which may cause deviations from published specifications. Current characterized errata are available on request.

© 2017 Intel Corporation. All rights reserved. Intel, the Intel logo, Thunderbolt, and the Thunderbolt logo are trademarks of Intel Corporation in the U.S. and other countries.

\* Other names and brands may be claimed as the property of others.



**A VISION OF  
EXCELLENCE**

# INTEL® GRAPHICS

## INTEL® GRAPHICS TECHNOLOGY

Work and play in high resolution with Intel® UHD Graphics and Iris® Plus Graphics. Watch captivating 4K Ultra HD (UHD) video on up to three screens, edit photos and videos like a pro, and immerse yourself in vividly rendered, seamless 3D gameplay - all with the added power boost of an Intel® Core™ processor. Intel® Graphics Technology brings stunning visuals to thinner and lighter portable devices, like laptops, 2 in 1s, and desktop computers.



# INTEL® GRAPHICS

Immerse yourself in rich, vivid visuals enabled by integrated Intel® UHD Graphics and Iris™ Plus Graphics, delivering built-in 4K Ultra HD for new home theater, gaming, and conferencing experiences.

INTEL® GRAPHICS

## INTEL® GRAPHICS

Experience visual perfection with Intel® UHD graphics and Iris™ Plus graphics. Watch captivating 4k video on up to three screens, edit photos and videos like a professional, and desktop computers. Immerse yourself in vividly rendered, seamless 3D gameplay. Intel UHD graphics, and Iris™ Plus graphics are built right in to the processor, bringing stunning visuals to thinner and lighter portable devices, like Notebook 2 in 1s, and portable All-in-Ones.

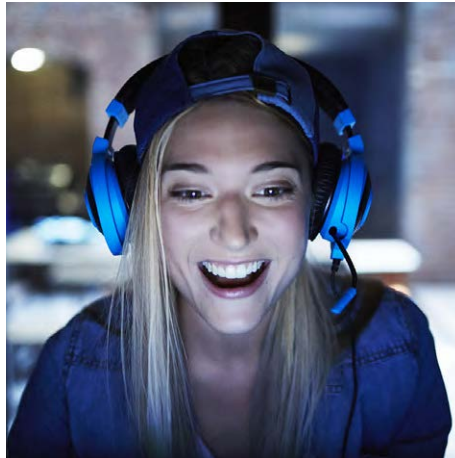
# 8<sup>TH</sup> GEN INTEL® CORE™ PROCESSOR GRAPHICS DELIVER EXCITING EXPERIENCES



## Watch

View stunning 4K UHD video and immerse yourself completely in up to three angles of the same experience with multi-screen capability.

- 4K/UHD Premium Content Playback with Netflix\* HDR
- 360 degree playback
- Multiple video streams



## Game

Enjoy the latest games delivered to you in high definition, complete with complex shading, and fast frame rates.

- HD Gaming on Intel® UHD Graphics
- Up to 1080p Gaming on Intel® Iris® Plus Graphics
- Accelerated game streaming

Visit [Gameplay.intel.com](https://www.intel.com/content/www/us/en/gaming/gameplay.html) – to discover in-game settings optimized for your Intel® Graphics Technology.



## Create

Uninhibited expression through enhanced media conversion and rendering, delivering picture perfect performance, every time. Uses fixed function hardware for fast, low-power video encode and transcode.

- 4K photo and video editing
- 360 degree stitching/VR content creation<sup>1</sup>



## Explore

Immerse yourself in amazing experiences through Mixed Reality-ready PCs<sup>2</sup>. Explore entirely new worlds with a Windows Mixed Reality\* headset, motion controllers, and a range of Intel powered devices.

- Dive right in to your favorite games, like Minecraft\* in VR
- Explore virtual worlds and create stunning 3D art

<sup>1</sup> May not be available on all SKUs

<sup>2</sup> Requires 7th Generation Intel® Core™ i5 Processors with Intel® UHD 620 Graphics or higher

# OPTIMIZE YOUR GAMING EXPERIENCE – VISIT GAMEPLAY.INTEL.COM

- Auto-detect / Enter Intel processor details and explore supported games
- Click on chosen games and discover optimal in-game settings per your hardware
- Optimized settings available for hundreds of games over multiple genres



Visit [gameplay.intel.com](http://gameplay.intel.com)

Settings only available for 4th Generation Intel® Core™ processor or higher.



INTEL® GRAPHICS

# 8<sup>TH</sup> GEN INTEL<sup>®</sup> CORE<sup>™</sup> PROCESSOR GRAPHICS ADVOCACY



## Intel<sup>®</sup> Core<sup>™</sup> Processor H-Series, X-Series, and S-Series 'K'

High-End Discrete Graphics

- >1080p gaming & premium VR experiences with H-series processors optimized for discrete graphics



## Intel<sup>®</sup> Core<sup>™</sup> Processor S-Series

Intel<sup>®</sup> UHD Graphics  
Mid-Range Discrete Graphics

- Up to Intel<sup>®</sup> UHD Graphics for HD gaming
- 5K support
- UHD resolution support



## Intel<sup>®</sup> Core<sup>™</sup> Processor U-Series

Intel<sup>®</sup> Iris<sup>®</sup> Plus Graphics  
Intel<sup>®</sup> UHD Graphics

- Up to Intel<sup>®</sup> Iris<sup>®</sup> Plus Graphics for 1080p gaming
- UHD resolution support



## Intel<sup>®</sup> Core<sup>™</sup> Processor Y-Series

Intel<sup>®</sup> UHD Graphics

- Up to Intel<sup>®</sup> UHD Graphics for HD gaming
- UHD resolution support



## Intel<sup>®</sup> Core<sup>™</sup> Processor N-Series

Intel<sup>®</sup> UHD Graphics

- Up to Intel<sup>®</sup> UHD Graphics
- UHD resolution support



# 8<sup>TH</sup> GENERATION INTEL<sup>®</sup> PROCESSOR GRAPHICS

## 8th Generation Intel<sup>®</sup> Processor Graphics

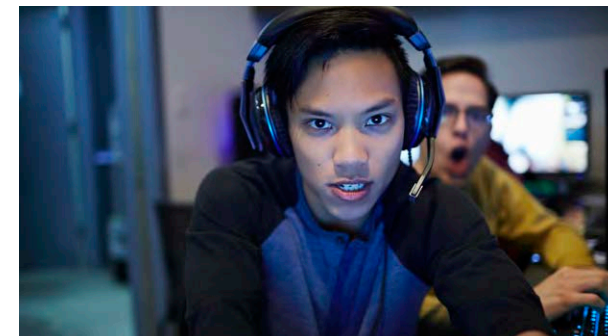
### INTEL<sup>®</sup> 8TH GENERATION PROCESSOR GRAPHICS DELIVERS ADVANCED PERFORMANCE FOR CAPTIVATING VISUALS

Starting with 8th Gen Intel<sup>®</sup> Core™ processors, Intel's integrated graphics offerings will be branded Intel<sup>®</sup> UHD Graphics. Intel<sup>®</sup> UHD graphics brand aligns the brand to the 4K platform capabilities of 8th Generation Intel<sup>®</sup> Core™ processors, including content playback, content creation, output, and display. Premium content comes to life in 4K Ultra HD, so users can enjoy amazing and vibrant multimedia experiences on compatible displays. Edit photos and videos like a pro with fast processor graphics. Expand entertainment with multiple video streams, 360° video and high resolution video chat. Challenge your skills with agile, texture-rich graphics for HD gaming. Get the high-impact visuals you want on premium Notebooks, 2 in 1s, mini-pcs and all-in-ones.

#### INTEL<sup>®</sup> UHD GRAPHICS 630

#### INTEL<sup>®</sup> UHD GRAPHICS 620

Processor Family	Intel <sup>®</sup> Core™ Processor Family	Intel <sup>®</sup> Core™ Processor Family
Processor Line		U-Series
Platform	Desktop	Mobile
Processor Number	i7-8700K	I7-8650U
	i7-8700	I5-8550U
	i5-8600K	I5-8350U
	i5-8400	I5-8250U
	i3-8350K	
	i3-8100	



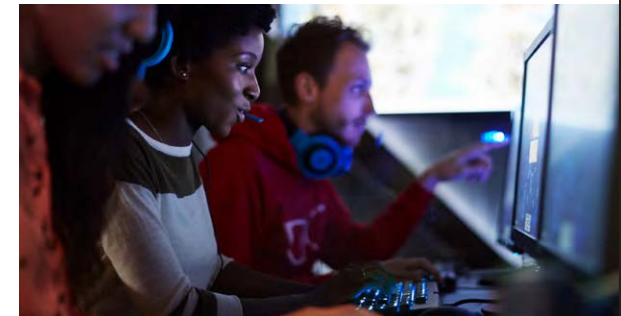
# 7<sup>TH</sup> GENERATION INTEL® PROCESSOR GRAPHICS

## 7th Generation Intel® Processor Graphics

Intel® 7th Generation Processor Graphics delivers advanced performance for captivating visuals. With 7th Gen Intel® Core™ processors, you can watch, create, share, and game like never before. Premium content comes to life in 4K Ultra HD, so users can enjoy amazing and vibrant multimedia experiences on compatible displays. Edit photos and videos like a pro with fast processor graphics. Expand entertainment with multiple video streams, 360° video and high resolution video chat. Challenge your skills with agile, texture-rich graphics for HD gaming. Get the high-impact visuals you want on premium Notebooks, 2 in 1s, mini-pcs and all-in-ones.



		INTEL® HD GRAPHICS 620 <sup>2</sup>	INTEL® HD GRAPHICS 650 <sup>4</sup>
<b>Productivity</b>	SYSmark* 2014	1.0	1.11x
<b>Video Editing</b>	TouchXPRT* 2016	1.0	1.40x
<b>Gaming</b>	3DMark* 11	1.0	1.65x



## 7th Generation Intel® Processor Graphics

	INTEL® IRIS™ PLUS GRAPHICS 650	INTEL® IRIS™ PLUS GRAPHICS 640	INTEL® HD GRAPHICS 630	INTEL® HD GRAPHICS 620	INTEL® HD GRAPHICS 610	INTEL® HD GRAPHICS 615
<b>Processor Family</b>	Intel® Core™ Processor Family	Intel® Core™ Processor Family	Intel® Core™ Processor Family	Intel® Core™ Processor Family	Intel® Core™ Processor Family	Intel® Core™ M Family
<b>Processor Line</b>	U-Series	U-Series	H-Series	U-Series	U-Series	Y-Series
<b>Platform</b>	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile
<b>Processor Number</b>	i7-7567U	i7-7660U	i7-7920HQ	i7-7600U	4415U	m-7Y75
	i5-7287U	i7-7560U	i7-7820HQ	i7-7500U	3965U	m-7Y57
	i5-7267U	i5-7360U	i7-7820HK	i5-7300U	3865U	m-7Y54
	i3-7167U	i5-7260U	i7-7700HQ	i5-7200U		m-7Y30
			i5-7440HQ	i3-7100U		
			i5-7300HQ			
			i3-7100H			

# 6<sup>TH</sup> GENERATION INTEL® PROCESSOR GRAPHICS

## Intel® Iris™ Graphics

Intel® Iris™ Graphics delivers advanced performance for captivating 4K visuals. Edit photos and videos like a pro with fast processor graphics. Expand entertainment to multiple screens for home entertainment and gaming. Challenge your skills with agile, texture-rich graphics for gaming. Get the high-impact visuals you want on premium Notebooks, 2 in 1s, mini-pcs and all-in-ones.



		INTEL® HD GRAPHICS 520 <sup>2</sup>	INTEL® IRIS™ GRAPHICS 540 <sup>3</sup>	INTEL® HD GRAPHICS 550 <sup>4</sup>
<b>Productivity</b>	SYSmark* 2014 Overall	1.0	1.06x	1.12x
<b>Video Editing</b>	CyberLink* MediaEspresso 7 Ultra HD Media Transcode	1.0	1.40x	1.40x
<b>Gaming</b>	3DMark* 11 Graphics Score (relative)	1.0	1.30x	1.80x



## 6<sup>th</sup> Generation Intel® Processor Graphics

	INTEL® IRIS™ GRAPHICS 580	INTEL® IRIS™ GRAPHICS 550	INTEL® IRIS™ GRAPHICS 540	INTEL® HD GRAPHICS 530	INTEL® HD GRAPHICS 520	INTEL® HD GRAPHICS 510	INTEL® HD GRAPHICS 515
<b>Processor Family</b>	Intel® Core™ Processor Family	Intel® Core™ Processor Family	Intel® Core™ Processor Family	Intel® Core™ Processor Family	Intel® Core™ Processor Family	Intel® Core™ Processor Family	Intel® Core™ M Family
<b>Processor Line</b>	H-Series	U-Series	U-Series	H-Series	U-Series	U-Series	Y-Series
<b>Platform</b>	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile
<b>Processor Number</b>	i7-6970HQ	i7-6567U	i7-6650U	i7-6920HQ	i7-6600U	4405U	m-6Y75
	i7-6870HQ	i5-6287U	i7-6560U	i7-6820HQ	i7-6500U	3995U	m-6Y57
	i7-6770HQ	i5-6267U	i5-6360U	i7-6820HK	i5-6300U	3855U	m-6Y54
	i5-6350HQ	i3-6167U	i5-6260U	i7-6700HQ	i5-6200U		m-6Y30
				i5-6440HQ	i3-6100U		
				i5-6300HQ			
				i3-6100H			

# 5<sup>TH</sup> GENERATION INTEL® PROCESSOR GRAPHICS

## Intel® Iris™ Graphics

Intel® Graphics Technology gives you discrete-level graphics power and performance without the additional add-in card, integrated right into your favorite Intel processor. The results are clear: home theater, gaming, conferencing and video and photo editing are smooth, vivid and faster than ever before. It's an immersive experience for premium notebooks, Ultrabook™, mini-pcs, and all-in-ones.



		INTEL® HD GRAPHICS 5500 <sup>5</sup>	INTEL® IRIS™ GRAPHICS 6100 <sup>6</sup>	INTEL® IRIS™ PRO GRAPHICS 6200 <sup>7</sup>
<b>Productivity</b>	CPU Performance SYSmark* 2014 Overall	1x	1.10x	1.70x
<b>Video Editing</b>	Quick Sync Video Accelerated Conversion Performance HDXPRT* Video Conversion	1x	1.20x	1.95x
<b>Gaming</b>	3DMark* 11-P Graphics Subscore, 3DMark* Firestrike Graphics Subscore, 3DMark* Vantage-P Graphics Subscore	1x	1.50x	2x

## 5th Generation Intel® Processor Graphics

	INTEL® IRIS™ PRO Graphics 6200	INTEL® IRIS™ PRO Graphics 6200	INTEL® IRIS™ Graphics 6100	INTEL® IRIS™ Graphics 6000	INTEL® HD Graphics 5600	INTEL® IRIS™ Graphics 5500	INTEL® HD Graphics 5300	INTEL® HD Graphics
<b>Processor Family</b>	Intel® Core™ Processor Family	Intel® Core™ M Processor Family	Intel® Core™ M Processor Family	Intel® Core™ M Processor Family	Intel® Core™ M Processor Family	Intel® Core™ M Processor Family	Intel® Core™ M Processor Family	Intel® Pentium® / Intel® Celeron®
<b>Processor Line</b>	S-Series	H-Series	U-Series	U-Series	H-Series	U-Series	Y-Series	U-Series
<b>Platform</b>	Desktop	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile	Mobile
<b>Processor Number</b>	i7-5775R	i7-5950HQ	i7-5557U	i7-5650U	i7-5700HQ	i7-5600U	M-5Y70	3805U
	i7-5775C	i7-5850HQ	i7-5287U	i7-5550U		i7-5500U	M-5Y71	3755U
	i5-5675R	i7-5750HQ	i7-5257U	i5-5350U		i5-5300U	M-5Y31	3205U
	i5-5675C	i5-5350H	i7-5157U	i5-5250U		i5-5200U	M-5Y10	3825U
	i5-5575R					i5-5010U	M-5Y10a	3765U
						i5-5005U	M-5Y10c	3215U



## Intel® Core™ i7-7567U Processor (e\*) up to 4 GHz, 4T/2C, 4MB w/ Iris Plus Graphics 650 vs. Intel® Core™ i7-7500U Processor (e\*) up to 3.5GHz, 4T/2C, 4MB w/ HD Graphics 620

Estimates and measurements based on (1) Productivity - SYSmark\* 2014 Overall Score, (2) Media Editing – TouchXPRT\* 2016 –Convert Videos for sharing Sub-score, (3) 3DMark\* Sky Diver\* - Graphics Score

Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For more information go to <http://www.intel.com/performance>

<sup>1</sup> Data based on SKUs below

<sup>2</sup> Core i7-6500U 15W w/HD Graphics 520

<sup>3</sup> Core i7-6560U 15W w/Iris Graphics 540

<sup>4</sup> Core i7-6567U 28w w/Iris Graphics 550

<sup>5</sup> System configuration for 5th Generation Intel Core Processor w/ HD Graphics 5500: Intel CRB, Intel® Core™ i7-5600U Processor, 2C4T, Turbo up to 3.2GHz, Memory: 2x2GB LPDDR3-1600, Storage: Intel SSD, Display Resolution:1920x1080.

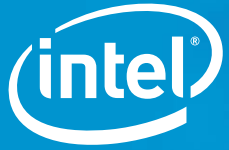
<sup>6</sup> System configuration for 5th Generation Intel Core Processor w/ Iris Graphics 6100: Intel CRB, Intel® Core™ i7-5557U 15W/28W, 2C4T, Turbo up to 3.2GHz/3.4 GHz, Memory: 2x2GB LPDDR3-1866, Storage: Intel SSD, Display Resolution:1920x1080. (Estimates based on measurements done with DDR3L)

<sup>7</sup> System configuration for 5th Generation Intel Core Processor w/ Iris Pro Graphics 6200: Intel CRB, Intel® Core™ i7-5950HQ PL1=47W TDP, 4C8T, Turbo up to 3.8 GHz, Memory: 2x4GB DDR3-1866, Storage: Intel SSD, Display Resolution:1920x1080.

System configuration for Desktop LGA 5th Generation Intel Core Processor w/ Iris Pro Graphics 6200: Intel CRB, Intel® Core™ i7-5775C PL1=65W TDP, 4C8T, Turbo up to 3.7 GHz, Memory: 2x4GB DDR3-1866, Storage: Intel SSD, Display Resolution:1920x1080. System configuration for Previous Gen Desktop LGA 4th Generation Intel Core Processor: Intel CRB, Intel® Core™ i7-4790S 65W, 4C8T, Turbo up to 4.0 GHz, Memory: 2x4GB DDR3L-1600, Storage: Intel SSD, Display Resolution:1920x1080.

Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products.

\* Other names and brands may be claimed as the property of others.



# INTEL® SECURITY

## INTEL® SECURITY

Intel Security seeks to help your customers securely connect and enrich their lives by providing them peace of mind knowing their content is safer across a wide array of devices.

Intel Security offers a variety of software product options for consumers and businesses for different levels of need.



# INTEL® SECURITY

Intel Security seeks to help your customers securely connect and enrich their lives by providing them peace of mind knowing their content is safer across a wide array of devices. Intel Security offers a variety of software product options for consumers and businesses for different levels of need.

## CROSS-DEVICE CONSUMER PRODUCTS



Good



Better



Best

## SINGLE PC / MOBILE / BUSINESS



Single PC



Mobile



Business

## RESELLER OPPORTUNITY

Earn 20% of all renewal revenue when end customer renews product subscription. Upload product serial numbers to identify your customer's products.

[www.intel.com/McAfee-SerialNumbers](http://www.intel.com/McAfee-SerialNumbers)

To learn more about Intel Security products, visit [www.intel.com/mcafee-reseller](http://www.intel.com/mcafee-reseller)

## PRODUCT OFFERINGS

You'll find downloadable marketing materials, product training, positioning, and more.

[www.intel.com/McAfee-Reseller](http://www.intel.com/McAfee-Reseller)



**FEATURES**

- PC, Mac, Android, and iOS mobile security
- Next Generation Anti-malware Engine with GTI
- Two-way Firewall
- Web Browsing Protection
- Powerful Anti-spam Engine
- File Shredder
- Backup Mobile Contacts
- Locate, Track, Lock, and Wipe your Mobile device
- Safeguard Against Risky Mobile Apps
- Free Technical Support
- Single PC Virus Removal Service<sup>†</sup>
- My Account Dashboard – cloud-based management

**McAfee® Small Business Security**

**THE CLOUD IS REDEFINING THE SMALL BUSINESS PLAYING FIELD**

- By 2020, 78% of small businesses will be fully adapted to the cloud up from 37% in 2014
- Cheaper and easier to start and scale a business
- Enables platforms, networks and ecosystems
- Variable instead of fixed costs
- Greatly enhanced customer acquisition, service and support
- Access to technology and capabilities once only available to large organizations

**Challenges Small Businesses Face Around Security**

**LACK OF EXPERTISE AND TIME**

- Generalist: Often multi-tasking on key business objectives
- With only minutes in any given day to devote to security, they don't have time to be experts

**LACK OF BUDGET**

- Price Sensitive: Concerned with total cost of security solution
- Don't have planned budget for IT security
- Concerned about security but not sure how much to deploy/spend on solution
- Some owners resist investing and force IT to use free tools

**PREVENT DATA LOSS**

- Concerned with security of their critical data
- Want to ensure that the data doesn't fall into the wrong hands
- Prevent unwanted applications or viruses from getting introduced through removable devices

**How MSSB Meets a Small Business's Needs**

Comprehensive security for your business.

FEATURES	BENEFITS
<ul style="list-style-type: none"> <li>• Protects the business's customer data and sensitive information from online threats</li> </ul>	<ul style="list-style-type: none"> <li>• Guards against viruses and online threats, GTI technology, web, email, and firewall protection</li> </ul>
<ul style="list-style-type: none"> <li>• Affordable</li> </ul>	<ul style="list-style-type: none"> <li>• Very competitively priced</li> </ul>
<ul style="list-style-type: none"> <li>• Simple and easy-to-manage</li> </ul>	<ul style="list-style-type: none"> <li>• My Account Dashboard: One central console to remotely manage all the devices used for the business</li> </ul>
<ul style="list-style-type: none"> <li>• Covers all mobile devices for the business</li> </ul>	<ul style="list-style-type: none"> <li>• Protects PCs, Macs and Android and iOS smartphones and tablets [Unlimited number of mobile devices**]</li> </ul>
<ul style="list-style-type: none"> <li>• Award-winning Technical Support</li> </ul>	<ul style="list-style-type: none"> <li>• 24x7 Technical Support for the lifetime of the subscription</li> <li>• Single PC Virus Removal Service<sup>†</sup></li> </ul>

<sup>†</sup> One redemption of PC Virus Removal Service per subscription year is included with each copy of McAfee Small Business Security purchased.





#### SYSTEM REQUIREMENTS

- Windows 10 (32- and 64-bit)
- Windows 8.1 (32- and 64-bit)
- Windows 8 (32- and 64-bit)
- Windows 7 (32- and 64-bit)
- Windows XP SP3 or higher (32-bit)
- Mac OS X 10.7 and 10.8
- Google Android smartphones and tablets 2.3 or later
- iOS 5 or higher

#### INTERNET CONNECTION REQUIRED

- High-speed connection recommended

#### SUPPORTED BROWSERS FOR ANTI-PHISHING

- Internet Explorer 7.0 or later
- Firefox 12 or later
- Google Chrome 6.0 or later
- Safari 5 or later

#### REQUIRED FOR McAfee ANTI-SPAM TOOLBAR

- Windows Mail or Outlook Express 6.0+
- Outlook XP+
- Thunderbird 5.0
- McAfee Anti-Spam also supports other POP3 e-mail clients (without SSL) and web accounts

## McAfee® LiveSafe™

### ULTIMATE PROTECTION FOR YOUR DATA, IDENTITY, AND PRIVACY ON EVERY DEVICE\*\* YOU OWN

Surf, shop, bank, share, and enjoy your life online with confidence. McAfee LiveSafe service helps secure your digital life. Designed to fit the way you live, the McAfee LiveSafe service protects your data, your identity, and your devices.

## McAfee LiveSafe Features

FEATURE	WHAT IT DOES	HOW IT PROTECTS
<b>Unlimited Cross-Device Protection**</b>	<ul style="list-style-type: none"> <li>• One annual subscription helps protect your PC, Mac, smartphone, and tablet</li> </ul>	<ul style="list-style-type: none"> <li>• Provides comprehensive protection for your various platforms with one license</li> </ul>
<b>Antivirus and AntiMalware Protection</b>	<ul style="list-style-type: none"> <li>• Powerful combination of protection services helps keep your data safe from malware threats</li> </ul>	<ul style="list-style-type: none"> <li>• Helps protect your devices with vulnerability scanner, realtime anti-malware, two-way firewall, file shredder, and more</li> </ul>
<b>Parental Control</b>	<ul style="list-style-type: none"> <li>• Keeps you in control of what your family sees and does online</li> </ul>	<ul style="list-style-type: none"> <li>• Helps you protect your children from exposure to inappropriate content, and control how much time they spend online</li> </ul>
<b>Home Network Defense</b>	<ul style="list-style-type: none"> <li>• Helps protect your network and PCs</li> </ul>	<ul style="list-style-type: none"> <li>• Helps prevent intruders from accessing your home network</li> </ul>
<b>Social Network Protection</b>	<ul style="list-style-type: none"> <li>• Helps safeguard URL sharing</li> </ul>	<ul style="list-style-type: none"> <li>• Helps protect your friends and family if a link you send becomes risky</li> </ul>
<b>Remotely Wipe Data</b>	<ul style="list-style-type: none"> <li>• Preserves your privacy on mobile devices</li> </ul>	<ul style="list-style-type: none"> <li>• Allows you to remotely wipe all contacts, photos, calendars, text messages, browsing history, and SD card content</li> </ul>
<b>Backup and Restore Mobile Data</b>	<ul style="list-style-type: none"> <li>• Preserves your irreplaceable personal information</li> </ul>	<ul style="list-style-type: none"> <li>• Makes a restorable copy of your content in the event that you need a new phone</li> </ul>
<b>Track and Lock</b>	<ul style="list-style-type: none"> <li>• Helps track and lock your mobile devices remotely</li> </ul>	<ul style="list-style-type: none"> <li>• Track and lock your tablets and smartphones if they are lost or stolen</li> </ul>
<b>App Protection</b>	<ul style="list-style-type: none"> <li>• Helps you share apps safely and helps safeguard your information from risky apps</li> </ul>	<ul style="list-style-type: none"> <li>• Helps control which apps family members—or even strangers—can access. Monitors mobile device apps and alerts you of suspicious activity</li> </ul>
<b>Call and SMS Filter</b>	<ul style="list-style-type: none"> <li>• Filters spam, wrong numbers, and unwanted SMS/MMS messages</li> </ul>	<ul style="list-style-type: none"> <li>• Helps keep unwanted content out of your mobile device</li> </ul>
<b>Uninstall Protection</b>	<ul style="list-style-type: none"> <li>• Provides password protection for app uninstall</li> </ul>	<ul style="list-style-type: none"> <li>• Helps prevent intruders from bypassing your McAfee mobile protection and wiping apps and device data</li> </ul>
<b>Intel Security True Key™ Identity Manager (5 user accounts)</b>	<ul style="list-style-type: none"> <li>• The easier, safer way to unlock your digital world</li> </ul>	<ul style="list-style-type: none"> <li>• Quickly and easily log in to sites, apps, and more using facial recognition and your trusted devices (multi-factor authentication)</li> </ul>
<b>McAfee Personal Locker</b>	<ul style="list-style-type: none"> <li>• Helps protect your personal data in the cloud</li> </ul>	<ul style="list-style-type: none"> <li>• Helps protect your personal data in the cloud Biometric authentication scans your voice and face to ensure that only you can access your files</li> </ul>



## McAfee® LiveSafe™ Features Across Devices

FEATURES	PC	MAC	SMARTPHONES AND TABLETS (ANDROID, iOS)
Antivirus	●	●	●
Anti-spyware	●	●	●
Anti-phishing	●	●	●
Firewall	●	●	○
Safe Search and Surf	●	●	●
Anti-spam	●	●	○
Parental Control	●	○	○
Home Network Defense	●	○	○
Social Network Protection	●	○	○
File Shredder	●	○	○
Vulnerability Scanner	●	○	○
Mobile Device Lock	○	○	●
Remotely Wipe Data (Mobile Devices)	○	○	●
Backup and Restore Mobile Data	○	○	●
Track (Mobile Devices)	○	○	●
App Protection	○	○	●
Call and SMS Filter	○	○	●
Uninstall Protection	○	○	●
True Key™ Identity Manager	●	●	●
Secure Cloud Storage	●	○	●

- Supported
- Not Supported



#### SYSTEM REQUIREMENTS

- Windows 10 (32- and 64-bit)
- Windows 8.1 (32- and 64-bit)
- Windows 8 (32- and 64-bit)
- Windows 7 (32- and 64-bit)
- 1 GB RAM for Windows 7
- 2 GB RAM for Windows 8 and above
- 500 MB free drive space
- 1 GHz processor
- Minimum screen resolution: 1024 x 768 or higher
- Google Android smartphones and tablets 2.3 or later
- iOS 5 or higher

#### INTERNET CONNECTION REQUIRED

- High-speed connection recommended

#### SUPPORTED BROWSERS FOR ANTI-PHISHING

- Internet Explorer 8.0 or later
- Firefox 4.0 or later
- Google Chrome

#### SUPPORTED E-MAIL PROGRAMS

- POP3—Windows Mail, Outlook Express, Outlook,
- Netscape, IncrediMail, Thunderbird, Becky, Shuriken
- MAPI—Outlook
- Web—MSN/Hotmail or e-mail account with POP3 access

#### REQUIRED FOR McAfee ANTI-SPAM TOOLBAR

- Windows Mail or Outlook Express 6.0+
- Thunderbird 5.0+
- McAfee Anti-Spam also supports other POP3 e-mail clients (without SSL) and web accounts

## McAfee® Internet Security

### TRUSTED ANTI-VIRUS AND IDENTITY MANAGEMENT FOR EVERY DEVICE\*\* YOU OWN

Help keep your identity and family secure online with comprehensive, real-time antivirus, anti-malware, firewall, spam filters, and parental controls on every device\*\* you own.

## McAfee Internet Security Features

FEATURE	WHAT IT DOES	HOW IT PROTECTS
<b>McAfee Active Protection</b>	<ul style="list-style-type: none"> <li>• Scans for malware known to interfere with product installations</li> <li>• Authenticates in real-time to determine if an application is a threat</li> <li>• Quarantines and eliminates threats by cross-checking against signature files that auto-download from the McAfee Global Threat Intelligence cloud</li> </ul>	<ul style="list-style-type: none"> <li>• Helps keep your PC running fast and free of threats</li> <li>• Helps to prevent cyber criminals from stealing your passwords and taking control of your PC</li> <li>• Helps keep your data safe from deletion or corruption</li> </ul>
<b>McAfee Global Threat Intelligence</b>	<ul style="list-style-type: none"> <li>• Aggregates threat data from more than one hundred million McAfee users across the globe</li> <li>• Combines and categorizes threat data into actionable intelligence</li> <li>• Deploys real-time protection from the latest threats to your PC running a McAfee security suite</li> </ul>	<ul style="list-style-type: none"> <li>• Uses the same reputation database as the Department of Defense</li> <li>• Leverages the latest threat intelligence shared from businesses and personal users</li> <li>• Helps protect you from both known and emerging cyber threats, regardless of the source of those threats or where they propagate</li> </ul>
<b>NetGuard</b>	<ul style="list-style-type: none"> <li>• Monitors traffic both in and out of your PC</li> <li>• Helps stop data transfers to unsafe destinations</li> <li>• Helps deny unauthorized persons and programs from gaining network and PC access</li> </ul>	<ul style="list-style-type: none"> <li>• Helps to stop hackers from accessing your PC</li> <li>• Helps prevent your PC from spreading malware and spam</li> <li>• Helps safeguard your sensitive information like account names and passwords</li> </ul>
<b>Network Manager</b>	<ul style="list-style-type: none"> <li>• Identifies the names of all the devices connected to your Wi-Fi</li> <li>• Notifies you when unknown and new devices gain access to your Wi-Fi</li> </ul>	<ul style="list-style-type: none"> <li>• Enables you to monitor the devices connecting to your home Internet</li> </ul>
<b>Web Protection</b>	<ul style="list-style-type: none"> <li>• Scans downloads for suspicious material</li> <li>• Identifies URLs as safe, potentially risky, or known to be risky to visit</li> <li>• Blocks replicas of legitimate sites designed to steal your information</li> <li>• Blocks malicious iFrames on hacked web sites</li> </ul>	<ul style="list-style-type: none"> <li>• Helps you make smarter decisions about what you click on and download</li> <li>• Helps prevent you from spreading malicious content to your social networks</li> <li>• Helps proactively protect users against malicious web sites by presenting the block page as a warning that clicking-through will lead them to a known-risky site</li> </ul>
<b>Vulnerability Scanner</b>	<ul style="list-style-type: none"> <li>• Identifies software in need of updating by checking the version against the McAfee database</li> <li>• Provides one-click solution to update popular software</li> </ul>	<ul style="list-style-type: none"> <li>• Enables you to more easily update software to avoid security holes</li> </ul>

Continued on next page

## McAfee® Internet Security Features

Continued from previous page

FEATURE	WHAT IT DOES	HOW IT PROTECTS
<b>McAfee QuickClean</b>	<ul style="list-style-type: none"><li>• Deletes unnecessary cookies and temporary Internet files, and empties your Recycle Bin</li><li>• Scans for and repairs problems in your Windows registry key</li></ul>	<ul style="list-style-type: none"><li>• Safely fixes problems in your registry and frees up disk space</li><li>• Improves PC response time</li></ul>
<b>McAfee Shredder</b>	<ul style="list-style-type: none"><li>• Securely destroys files from your PC as if they were never there in the first place</li><li>• Manually delete sensitive documents like tax files and copies of your passport</li></ul>	<ul style="list-style-type: none"><li>• Helps prevent hackers from being able to recover and restore files that you have chosen to shred</li></ul>
<b>Parental Controls</b>	<ul style="list-style-type: none"><li>• Applies adjustable rules to block inappropriate sites and limit online time</li><li>• Filters search results for inappropriate content</li></ul>	<ul style="list-style-type: none"><li>• Gives parents the ability to control what children can and cannot do online</li><li>• Helps ensure children are not exposed to inappropriate content</li></ul>
<b>Anti-Spam</b>	<ul style="list-style-type: none"><li>• Filters dangerous messages containing bad links and file attachments (i.e. Trojans, Phishing)</li><li>• Quarantines messages from suspicious IP addresses</li><li>• Stops annoying junk mail from cluttering your inbox</li></ul>	<ul style="list-style-type: none"><li>• Helps keep dangerous e-mails out of your inbox</li><li>• Works with your favorite e-mail client (like Outlook, Thunderbird, and IncrediMail)</li></ul>
<b>Intel Security True Key™ Identity Manager (1 user account)</b>	<ul style="list-style-type: none"><li>• The easier, safer way to unlock your digital world</li></ul>	<ul style="list-style-type: none"><li>• Quickly and easily log in to sites, apps, and more using facial recognition and your trusted devices (multi-factor authentication)</li></ul>



#### SYSTEM REQUIREMENTS

- Windows 10 (32- and 64-bit)
- Windows 8.1 (32- and 64-bit)
- Windows 8 (32- and 64-bit)
- Windows 7 (32- and 64-bit)
- Windows XP SP3 or higher (32-bit)
- 512 MB RAM for Windows XP
- 2 GB RAM for Windows 7 and above
- 500 MB free drive space
- 1 GHz processor

#### INTERNET CONNECTION REQUIRED

- High-speed connection recommended

## McAfee® AntiVirus Plus

### TRUSTED ANTI-VIRUS FOR EVERY DEVICE\*\* YOU OWN

When you surf, shop, and socialize, the last thing you want to think about is online risk. That's why McAfee is relentless when it comes to digital security, working hard to stay ahead of the latest internet threats. Our 24/7 obsession means reliable protection for your Intel-powered systems – so you can work and play online with confidence.

- Firewall, Web Safety & PC Optimization Tools
- Security Management Console
- FREE Support

## McAfee AntiVirus Plus Features

FEATURE	WHAT IT DOES	HOW IT PROTECTS
<b>Unlimited Cross-Device Protection**</b>	One annual subscription helps protect your PC, Mac, smartphone, and tablet	Provides comprehensive protection for your various platforms with one license
<b>High-Performance Scanning Engine</b>	Uses next-generation technology to scan systems for the latest viruses, trojans, spyware, and other threats. It works in the background without slowing the system	Helps identify and block system threats
<b>Firewall (2-way)</b>	Helps protect system from incoming threats and safeguards personal information from being stolen	Helps keep threats out and private information in
<b>Vulnerability Scanner</b>	Scans system for missing updates and recommends solutions to keep the PC safe	Proactively protects systems by keeping updates current
<b>NetGuard Anti-Bot Protection</b>	Disables hackers from sending out personal information	Preventative protection of personal information
<b>Site Advisor Social</b>	Helps detect malicious links in social networks	Surf social networks confidently
<b>Safe Search</b>	Features color-coded icons next to every search and social media result to identify sites that are safe	Helps you stay away from potentially risky sites
<b>Touch Interface</b>	Works effectively with Windows 10 and systems with touch and provides a touch-friendly home screen	Easy system management
<b>McAfee QuickClean</b>	Removes unused applications and files to speed up the system	Helps keep system running optimally and removes potentially sensitive, unused files
<b>Enhanced Digital Data Messages</b>	Includes the location of blocked IP addresses and identifies what makes connections unsafe	Identifies potential threatening web sites and connections
<b>Enhanced Security Reports</b>	Redesigned to give the user information in fresh and engaging ways, including an easier-to-understand snapshot of what's happening in the world of security	Keeps you informed of security information
<b>Malicious Ad and Pop-up Protection</b>	Web sites do not always monitor their advertising—offers protection against malicious pop-ups and ads	Automatically blocks suspicious content



#### SYSTEM REQUIREMENTS

- Windows 10 (32- and 64-bit)
- Windows 8.1 (32- and 64-bit)
- Windows 8 (32- and 64-bit)
- Windows 7 (32- and 64-bit)
- Windows XP SP3 or higher (32-bit)
- 1 GB RAM for Windows 7
- 2 GB RAM for Windows 8 and above
- 1 GHz processor

#### INTERNET CONNECTION REQUIRED

- High-speed connection recommended

#### SUPPORTED BROWSERS

- Internet Explorer 9.0 or later
- Firefox 4.0 or later
- Google Chrome

## McAfee® AntiVirus

### TRUSTED ANTI-VIRUS FOR YOUR PC

When you surf, shop, and socialize, the last thing you want to think about is online risk. That's why McAfee is relentless when it comes to digital security, working hard to stay ahead of the latest internet threats. Our 24/7 obsession means reliable protection for your Intel-powered systems – so you can work and play online with confidence.

- Shield your PC from viruses and online threats
- Optimize your PC's performance
- Wi-Fi and download protection tools

## McAfee AntiVirus Features

FEATURE	WHAT IT DOES	HOW IT PROTECTS
<b>High-Performance Scanning Engine</b>	Uses next-generation technology to scan systems for the latest viruses, trojans, spyware, and other threats. It works in the background without slowing the system	Helps identify and block system threats
<b>Firewall (2-way)</b>	Helps protect system from incoming threats and safeguards personal information from being stolen	Helps keep threats out and private information in
<b>Vulnerability Scanner</b>	Scans system for missing updates and recommends solutions to keep the PC safe	Proactively protects systems by keeping updates current
<b>NetGuard Anti-Bot Protection</b>	Disables hackers from sending out personal information	Preventative protection of personal information
<b>Site Advisor Social</b>	Helps detect malicious links in social networks	Surf social networks confidently
<b>Safe Search</b>	Features color-coded icons next to every search and social media result to identify sites that are safe	Helps you stay away from potentially risky sites
<b>Touch Interface</b>	Works effectively with Windows 10 and systems with touch and provides a touch-friendly home screen	Easy system management
<b>McAfee QuickClean</b>	Removes unused applications and files to speed up the system	Helps keep system running optimally and removes potentially sensitive, unused files
<b>Enhanced Digital Data Messages</b>	Includes the location of blocked IP addresses and identifies what makes connections unsafe	Identifies potential threatening web sites and connections
<b>Enhanced Security Reports</b>	Redesigned to give the user information in fresh and engaging ways, including an easier-to-understand snapshot of what's happening in the world of security	Keeps you informed of security information
<b>Malicious Ad and Pop-up Protection</b>	Web sites do not always monitor their advertising—offers protection against malicious pop-ups and ads	Automatically blocks suspicious content



#### SYSTEM REQUIREMENTS

- Google Android 2.3 or later (runs on Kindle Fire devices)
- iOS 5 or higher

#### ONLINE MANAGEMENT PORTAL BROWSER SUPPORT

- Internet Explorer 7.0 or later
- Firefox 3.5 or later
- Safari 3.0 or later
- Chrome

## McAfee® Mobile Security

### THE ULTIMATE PROTECTION FOR YOUR MOBILE LIFE

Explore everything the new mobile world has to offer, and do it safely and confidently with industry-leading McAfee Mobile Security. When you select new apps, shop online, browse social networks, or use your device for banking and payments, McAfee Mobile Security is there to protect you.

### McAfee® Mobile Security Features

FEATURE	WHAT IT DOES	HOW IT PROTECTS
<b>McAfee Active Protection</b>	Provides real-time protection	Scans for malicious code in apps, SD cards, and Internet downloads
<b>Uninstall Protection</b>	Password protection for app uninstall	Helps prevent thieves from bypassing your McAfee mobile protection and wiping your apps and device data
<b>McAfee App Alert</b>	Notifies you when unusual access is requested	Allows you to determine if you trust the app
<b>App Lock</b>	Helps prevent app usage by unauthorized users	Helps block access to private, personal apps such as banking, medical, etc.
<b>Call and SMS Filter</b>	Filters spam, wrong numbers, and unwanted SMS / MMS messages	Helps keep unwanted content out of your smartphone
<b>Locate</b>	Locates your device quickly via GPS	Helps recover lost, stolen, or misplaced devices
<b>Lock</b>	Helps prevent access to your mobile device	Helps prevent personal content from being exposed to the person in possession of the mobile device
<b>Remotely Wipe Data</b>	Preserves privacy	Allows you to wipe all contacts, photos, calendars, text messages, browsing history, and SD card content
<b>Backup and Restore Mobile Data</b>	Preserves irreplaceable personal information	Makes a restorable copy of your content in the event that you need a new mobile device
<b>Web Protection</b>	Actively checks web pages in real-time	Helps block potential phishing sites, browser exploits, and malicious links

## Product Codes

Intel Part Language	MMID	PRODUCT CODE	PRODUCT NAME
English	947939	BKCMABV1YRENG	McAfee® AntiVirus Physical Activation Card, 1-Year 100-pack (English) C
French	947942	BKCMABV1YRFRN	McAfee® AntiVirus Physical Activation Card, 1-Year 100-pack (French) C
Portuguese	947043	BKCMABV1BYRPORLA	McAfee® Antivirus Physical Activation Card, 1-Year 100-pack (Portuguese Latin America) C
Spanish	947044	BKCMABV1BYRSPNLA	McAfee® Antivirus Physical Activation Card, 1-Year 100-pack (Spanish Latin America) C
Virtual Activation Card	948058	MCAFEEAV1PC	McAfee® Antivirus Virtual Activation Card, 1-Year (All Supported Languages)
English	936773	BKCMABV1YRENG	McAfee® AntiVirus Plus Physical Activation Card, 1-Year 100-pack (English) C
French	940925	BKCMABV1YRFRN	McAfee® AntiVirus Plus Physical Activation Card, 1-Year 100-pack (French) C
Portuguese	940926	BKCMABV1YRPORLA	McAfee® Antivirus Plus Physical Activation Card, 1-Year 100-pack (Portuguese Latin America) C
Spanish	940927	BKCMABV1YRSPNLA	McAfee® Antivirus Plus Physical Activation Card, 1-Year 100-pack (Spanish Latin America) C
Virtual Activation Card	926861	MCAFEEANTIVIRUS	McAfee® Antivirus Plus Virtual Activation Card, 1-Year (All Supported Languages)
English	939542	BKCMIS1YRENG	McAfee® Internet Security Physical Activation Card, 1-Year 100-pack (English) C
French	939546	BKCMIS1YRFR	McAfee® Internet Security Physical Activation Card, 1-Year 100-pack (French) C
Portuguese	939545	BKCMIS1YRPORLA	McAfee® Internet Security Physical Activation Card, 1-Year 100-pack (Portuguese Latin American) C
Spanish	939850	BKCMIS1YRSPNLA	McAfee® Internet Security Physical Activation Card, 1-Year 100-pack (Spanish Latin American) C
Virtual Activation Card	940035	MCAFEEINETSEC	McAfee® Internet Security Virtual Activation Card, 1-Year (All supported languages)
English	931560	BKCMLS1YRENG	McAfee® LiveSafe™ Physical Activation Card, 1-Year 100-pack (English) C
French	944176	BKCMLS1YRFRN	McAfee® LiveSafe™ Physical Activation Card, 1-Year 100-pack (French) C
Portuguese	944184	BKCMLS1YRPORLA	McAfee® LiveSafe™ Physical Activation Card, 1-Year 100-pack (Portuguese Latin America) C
Spanish	944186	BKCMLS1YRSPNLA	McAfee® LiveSafe™ Physical Activation Card, 1-Year 100-pack (Spanish Latin America) C
Virtual Activation Card	933782	MCAFEELIVESAFE	McAfee® LiveSafe™ Virtual Activation Card, 1-Year (All Supported Languages)
English	942238	BKCMMS1YRENG	McAfee® Mobile Security Physical Activation Card, 1-year 100-pack (English) C
French	940933	BKCMMS1YRFRN	McAfee® Mobile Security Physical Activation Card, 1-year 100-pack (French) C
Portuguese	942336	BKCMMS1YRPORLA	McAfee® Mobile Security Physical Activation Card, 1-year 100-pack (Brazilian Portuguese) C
Spanish	940932	BKCMMS1YRSPNLA	McAfee® Mobile Security Physical Activation Card, 1-year 100-pack (Spanish – Latin American) C
Virtual Activation Card	931606	MCAFEEMOBILESEC	McAfee® Mobile Security Virtual Activation Card, 1-Year (All Supported Languages)
Virtual Activation Card	943526	MCAFEEMMS6MN	McAfee® Mobile Security Virtual Activation Card, 6-Month (English only)
English	946124	BKCMSSB1YRENG	McAfee® Small Business Security Physical Activation Card, 1-Year 100-pack (English) C
French	946129	BKCMSSB1YRFR	McAfee® Small Business Security Physical Activation Card, 1-Year 100-pack (French) C
Portuguese	946127	BKCMSSB1YRPORLA	McAfee® Small Business Security Physical Activation Card, 1-Year 100-pack (Portuguese Latin America) C
Spanish	946126	BKCMSSB1YRSPNLA	McAfee® Small Business Security Physical Activation Card, 1-Year 100-pack (Spanish Latin America) C
Virtual Activation Card	946669	MCAFESECSMLBIZ	McAfee® Small Business Security Virtual Activation Card, 1-Year (All Supported Languages)



For more information, visit [www.intel.com/McAfee-Reseller](http://www.intel.com/McAfee-Reseller)

\*\* Unlimited licenses are for all supported devices owned by you or your business for the duration of your subscription. Not all features are available for all operating systems; see system requirements for supported devices.

No system can provide absolute security under all conditions. Requires an enabled chipset, BIOS, firmware, and software. Consult your system manufacturer more information.

Intel assumes no liability for lost or stolen data and/or systems or any other damages resulting thereof.

All products and dates specified are preliminary based on current expectations and are subject to change without notice. Availability in different channels may vary.

For more complete information about performance and benchmark results, visit [www.intel.com/benchmarks](http://www.intel.com/benchmarks)

McAFEE SOFTWARE IS SUBJECT TO THE EXPORT ADMINISTRATION REGULATIONS IN THE US, EU, AND OTHER JURISDICTIONS; DIVERSION CONTRARY TO THOSE REGULATIONS IS PROHIBITED. This software is subject to a license agreement between you and McAfee. Intel, McAfee, and the Intel and McAfee logos are trademarks of Intel Corporation in the U.S. and/or other countries. Other names and brands may be claimed as the property of others. 3rd party logos used with permission, see [www.intelsecurity.com](http://www.intelsecurity.com).

Microsoft, Windows, and the Windows logo are trademarks, or registered trademarks of Microsoft Corporation in the United States and/or other countries.

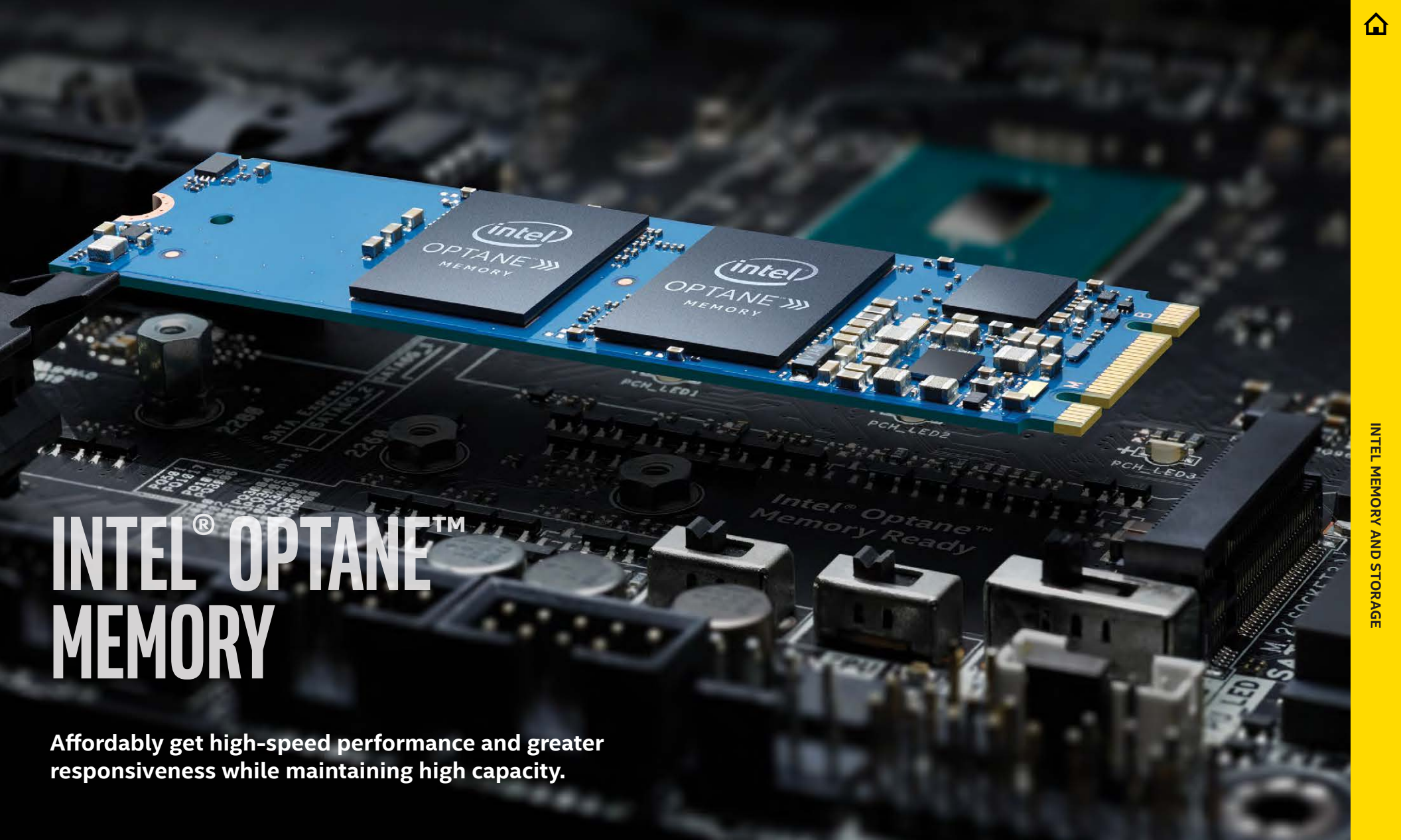


# INTEL MEMORY AND STORAGE

**FLEXIBILITY.  
STABILITY.  
EFFICIENCY.**

## **MEMORY AND STORAGE**

Intel provides technically-advanced products that support every level of computing—from data center workloads to enthusiast usage. Intel® Optane™ memory creates an accelerated bridge between memory and storage. Intel® Solid State Drives (Intel® SSDs) provide storage flexibility, stability, and efficiency.



# INTEL® OPTANE™ MEMORY

Affordably get high-speed performance and greater responsiveness while maintaining high capacity.

## BREAKTHROUGH SPEED. UNCOMPROMISED CAPACITY.

Increase PC responsiveness with Intel® Optane™ memory, smart and adaptable system accelerator that pairs with a 7th Gen Intel® Core™ processor based PC to deliver high-performance responsiveness for almost everything—from checking email and web surfing to gaming and business.

# INTEL® OPTANE™ MEMORY OFFERS BETTER END USER VALUE

<b>USES</b>	<ul style="list-style-type: none"> <li>• System Acceleration with 7th Gen Core based systems and an HDD</li> </ul>
<b>TARGET SEGMENTS</b>	<ul style="list-style-type: none"> <li>• Desktops, Workstations (Refer to Intel® Optane™ Memory POR document CDI 568777 for full list of supported platforms)</li> <li>• Intel® Optane™ Memory Ready Motherboards</li> </ul>
<b>FEATURES</b>	<ul style="list-style-type: none"> <li>• High Speed &amp; 2x Responsiveness</li> <li>• Revolutionary Intel® Optane™ Technology</li> <li>• Intelligent System Acceleration</li> <li>• High performance at low queue depth</li> <li>• Intel Q&amp;R backed by 5Yr Warranty</li> <li>• Software Encryption with Bitlocker and McAfee</li> <li>• New Sell-Up Opportunity</li> <li>• Platform Confidence &amp; Intel Branded Solution</li> </ul>



## 16 GB INTEL® OPTANE™ MEMORY

<b>MARKET SEGMENT</b>	<ul style="list-style-type: none"> <li>• Mainstream / DIY Consumers</li> <li>• SMB / Mainstream Corporate Users</li> </ul>
<b>IDEAL FOR USERS THAT</b>	<ul style="list-style-type: none"> <li>• Need high capacity storage and affordable performance</li> <li>• Task switch across online applications</li> <li>• Often have multiple browser tabs open</li> <li>• Utilize a smaller-footprint workload</li> <li>• Run multiple applications throughout the day</li> </ul>

## 32 GB INTEL® OPTANE™ MEMORY

<b>MARKET SEGMENT</b>	<ul style="list-style-type: none"> <li>• Mainstream Enthusiast / DIY Consumers</li> <li>• Enthusiast / Corporate Users</li> </ul>
<b>IDEAL FOR USERS THAT</b>	<ul style="list-style-type: none"> <li>• Need high capacity storage and affordable performance</li> <li>• Work in applications with large data sets</li> <li>• Run a variety of data intensive applications</li> <li>• Play Mainstream games</li> <li>• Work in content creation applications</li> <li>• Regularly multi-task</li> </ul>

\* Other names and brands may be claimed as the property of others

Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors.

Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For more complete information visit [www.intel.com/benchmarks](http://www.intel.com/benchmarks).

All testing done internally by Intel.

See Appendix I for System Configuration and testing procedures.

Note: Some applications and most games may require 8GB of DRAM memory for loading with or without Intel® Optane™ memory.

# PERFORMANCE BENEFITS FROM INTEL® OPTANE™ MEMORY

16 GB Intel® Optane™ memory + 1 TB HDD 4 GB DDR delivers better responsiveness than 1 TB HDD 8 GB DDR

## 16 GB Intel® Optane™ Memory + HDD

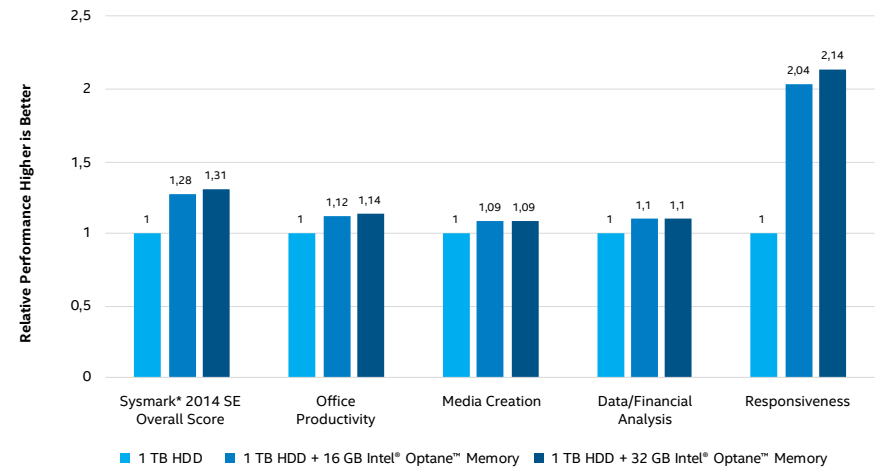
Everyday Tasks <sup>1</sup>	Up to 2x More Responsive
Storage Performance <sup>2</sup>	Up to 14x/21x Faster
Computer Boot Time <sup>3</sup>	Up to 2x Faster
Launch Web Browser <sup>4</sup>	Up to 5x Faster
Launch Game <sup>5</sup>	Up to 67% Faster
Game Level Load <sup>5</sup>	Up to 65% Faster
Open Large Media Projects <sup>6</sup>	Up to 4.1x Faster
Launch Email <sup>7</sup>	Up to 5.8x Faster
Launch Presentations <sup>8</sup>	Up to 3.8x Faster
Windows® File Search <sup>9</sup>	Up to 4x Faster

MAINSTREAM

ENTHUSIAST

BUSINESS

## Sysmark\* 2014 SE Comparison



<sup>1</sup> Sysmark 2014 SE (Responsiveness Subscore) <sup>2</sup> PCMark\* Vantage (HDD Suite) <sup>3</sup> OS Load Time Workload <sup>4</sup> Browser Launch Workload <sup>5</sup> Game Launch & Level Load Workload <sup>6</sup> Media Project Load Workload <sup>7</sup> Email Launch Workload <sup>8</sup> Presentation Launch Workload <sup>9</sup> File Search Workload

\*Other names and brands may be claimed as the property of others

Software and workloads used in performance tests may have been optimized for performance only on Intel® microprocessors.

Performance tests, such as SYSmark\* and MobileMark\*, are measured using specific computer systems, components, software, operations, and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For more information, go to [www.intel.com/benchmarks](http://www.intel.com/benchmarks).



# INTEL<sup>®</sup> SOLID STATE DRIVES

Intel Corporation manufactures industry leading solid state drives targeting data center, embedded, professional, and consumer market segments.

## CONSUMER FAMILY

Impressive performance with NVMe\*/PCIe\* and SATA for enthusiasts and mainstream consumers.

## PROFESSIONAL FAMILY

Enhanced security and remote manageability with vPro™ integration for the corporate client.

## EMBEDDED FAMILY

Low power, lower capacities all with Intel reliability for IOT and embedded applications.

## DATA CENTER FAMILY

Consistently amazing performance for NVMe\*/PCIe\* and SATA with broad industry compatibility, and robust enterprise RAS features.

# INTEL® SOLID STATE DRIVE CONSUMER FAMILY



INTEL® SSD	INTEL® SSD 750 SERIES	INTEL® SSD 600p SERIES	INTEL® SSD 540s SERIES
<b>USES</b>	Highest-performance Intel® client SSD	Verticals: PCs – notebooks, desktops, NUCs, Embedded applications – ATMs, digital signage Uses: Everyday computing, Gaming, Mobile computing	For everyday computing, gaming, and mobile computing in notebooks, desktops, NUCs, and embedded applications (ATMs, digital signage)
<b>INTERFACE</b>	PCI Express* 3.0, NVMe Express*	PCI Express* 3.0, NVMe Express*	SATA 6 Gb/s
<b>FORM FACTOR</b>	AIC / 2.5" (SFF-8639)	M.2 (80mm)	2.5" / M.2
<b>CAPACITIES</b>	1.20 TB / 800 GB / 400 GB	1024 GB / 512 GB / 256 GB / 128 GB	2.5": 120 GB / 180 GB / 240 GB / 360 GB / 480 GB / 1 TB M.2: 120 GB / 180 GB / 240 GB / 360 GB / 480 GB / 1 TB (double-sided)
<b>MAXIMUM RANDOM PERFORMANCE</b>	Reads: up to 440K IOPS <sup>1c, 2</sup> Writes: up to 290K IOPS <sup>1c</sup>	Reads up to: 155K IOPS <sup>1c, 2</sup> Writes up to: 128K IOPS <sup>1c</sup>	Reads: Up to 78K IOPS <sup>1c, 2</sup> Writes: Up to 85K IOPS <sup>1c</sup>
<b>MAXIMUM SEQUENTIAL PERFORMANCE</b>	Reads: up to 2400 MB/s <sup>1c</sup> Writes: up to 1200 MB/s <sup>1c</sup>	Reads up to: 1800 MB/s <sup>1c</sup> Writes up to: 560 MB/s <sup>1c</sup>	Reads: Up to 560K IOPS <sup>1c</sup> Writes: Up to 480K IOPS <sup>1c</sup>
<b>SECURITY</b>	End-to-end data protection <sup>3</sup> AES 256-bit Encryption	AES 256-bit Encryption	AES 256-bit Encryption
<b>ENDURANCE</b>	40 GB writes per day <sup>1c</sup> Up to 219 TBW (Terabytes Written) <sup>1c</sup>	72TBW (40GB DWPD) <sup>1c</sup>	Up to 40 GB written per day for 5 years <sup>1c</sup>
<b>WARRANTY</b>	5 year limited	5 year limited	5 year limited

## Intel® Data Migration Software

- Transfer operating system, applications, and files from an old HDD or SSD to a new Intel® Solid State Drive<sup>4</sup>
- Easy to use
- Free

Download now at [www.intel.com/go/ssdinstallation](http://www.intel.com/go/ssdinstallation)

## Intel® SSD Toolbox v3.4.34

- Update Intel® SSD firmware and Intel® drivers on host PC
- Optimize PC configuration for Intel SSDs, run drive diagnostics, and Secure Erase
- View SMART attributes, such as host writes and media wear out
- Supported in multiple languages

Download now at [www.intel.com/go/ssdtoolbox](http://www.intel.com/go/ssdtoolbox)

# INTEL® SOLID STATE DRIVE PROFESSIONAL FAMILY



## INTEL® SSD INTEL® SSD PRO 6000p SERIES

<b>USES</b>	Verticals: Corporate IT, Managed client, Workstation Applications Thin and light form factors: Ultrabook™, business tablets, 2-in-1s, Desktop and all-in-ones, Managed mini-PCs / Intel NUC
<b>INTERFACE</b>	PCI Express* 3.0, NVMe Express*
<b>FORM FACTOR</b>	M.2 (80mm)
<b>CAPACITIES</b>	1024 GB / 512 GB / 256 GB / 128 GB
<b>MAXIMUM RANDOM PERFORMANCE</b>	Reads up to: 155K IOPS <sup>1c, 2</sup> Writes up to: 128K IOPS <sup>1c</sup>
<b>MAXIMUM SEQUENTIAL PERFORMANCE</b>	Reads up to: 1800 MB/s <sup>1c</sup> Writes up to: 560 MB/s <sup>1c</sup>
<b>SECURITY</b>	AES 256-bit Encryption, OPAL 2.0 features, eDrive capable
<b>ENDURANCE</b>	72TBW (40 GB DWPD) <sup>1c</sup>
<b>WARRANTY</b>	5 year limited

## INTEL® SSD PRO 5400s SERIES

<b>USES</b>	Verticals: Corporate IT, Managed client, Workstation Applications Thin and light form factors: Ultrabook™, business tablets, 2-in-1s, Desktop and all-in-ones, Managed mini-PCs / Intel NUC
<b>INTERFACE</b>	SATA 6 Gbp/s
<b>FORM FACTOR</b>	2.5", M.2 (80mm)
<b>CAPACITIES</b>	1 TB / 480 GB / 360 GB / 240 GB / 180 GB / 120 GB
<b>MAXIMUM RANDOM PERFORMANCE</b>	Reads: Up to 78K IOPS <sup>1c, 2</sup> Writes: Up to 85K IOPS <sup>1c</sup>
<b>MAXIMUM SEQUENTIAL PERFORMANCE</b>	Reads: 560 MB/s <sup>1c</sup> Writes: 480 MB/s <sup>1c</sup>
<b>SECURITY</b>	AES 256-bit Encryption, OPAL c2.0 features, eDrive capable
<b>ENDURANCE</b>	Up to 40 GB per day for 5 years <sup>1c</sup>
<b>WARRANTY</b>	5 year limited



# INTEL® SOLID STATE DRIVE EMBEDDED FAMILY



## INTEL® SSD INTEL® SSD E 6000p SERIES

## INTEL® SSD E 7000s SERIES

## INTEL® SSD E 5400s SERIES

	INTEL® SSD E 6000p SERIES	INTEL® SSD E 7000s SERIES	INTEL® SSD E 5400s SERIES
<b>USES</b>	Verticals: Embedded IOT applications – ATMs, digital signage, POS, Kiosk, Vending, NUC	Verticals: Embedded IOT applications – ATMs, digital signage, POS, Kiosk, Vending, NUC	Verticals: Embedded IOT applications – ATMs, digital signage, POS, Kiosk, Vending, NUC
<b>INTERFACE</b>	PCI Express* 3.0, NVMe Express*	SATA 6Gbp/s	SATA 6Gbp/s
<b>FORM FACTOR</b>	M.2 (80mm)	2.5", M.2 (80mm)	2.5", M.2 (80mm)
<b>CAPACITIES (MB)</b>	256 GB / 128 GB	2.5" - 240 GB M.2 (80mm) - 150 GB	2.5" - 180 GB / 120 GB / 80 GB M.2 (80mm) - 180 GB / 120 GB / 120 GB / 80 GB / 48 GB
<b>MAXIMUM RANDOM PERFORMANCE</b>	Reads up to: 71K IOPS <sup>1c,2</sup> Writes up to: 112K IOPS <sup>1c</sup>	Reads: Up to 65K IOPS <sup>1c,2</sup> Writes: Up to 16K IOPS <sup>1c</sup>	Reads: Up to 71K IOPS <sup>1c,2</sup> Writes: Up to 85K IOPS <sup>1c</sup>
<b>MAXIMUM SEQUENTIAL PERFORMANCE</b>	Reads up to: 1570 MB/s <sup>1c</sup> Writes up to: 540 MB/s <sup>1c</sup>	Reads: Up to 320 MB/s <sup>1c</sup> Writes: Up to 300 MB/s <sup>1c</sup>	Reads: Up to 560 MB/s <sup>1c</sup> Writes: Up to 475 MB/s <sup>1c</sup>
<b>SECURITY</b>	AES 256-bit Encryption	End-to-end Data Protection AES 256-bit Encryption	AES 256-bit Encryption
<b>ENDURANCE</b>	72TBW (40 GB DWPD) <sup>1c</sup>	Up to 20 GB DWPD <sup>1c</sup>	Up to 40 GB per day for 5 years <sup>1c</sup>
<b>WARRANTY</b>	5 year limited	5 year limited	5 year limited

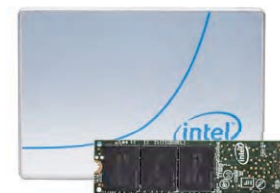
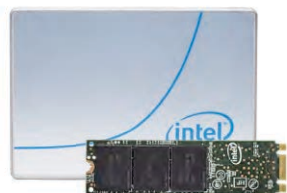
# INTEL® SOLID STATE DRIVE DATA CENTER FAMILY

## Intel® Solid State Drive Data Center Family for PCIe\*



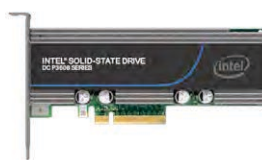
INTEL® SSD	INTEL® SSD DC P4500 SERIES	INTEL® SSD DC P4600 SERIES	INTEL® OPTANE™ SSD DC P4800X SERIES
<b>USES</b>	Optimized firmware for low latency and consistent performance in read intensive workloads	Optimized firmware for low latency and consistent performance in mixed workloads	Workloads: Fast Storage or Cache, Extended Memory
<b>INTERFACE</b>	PCIe* 3.0 x4, NVMe*	PCIe* 3.0 x4, NVMe*	PCIe* 3.0 x4, NVMe*
<b>FORM FACTOR</b>	U.2 (2.5"), HHHL Low Profile Add in card (Half-Height Half-Length)	U.2 (2.5"), HHHL Low Profile Add in card (Half-Height Half-Length)	AIC - HHHL Low Profile Add in card (Half-Height Half-Length)
<b>CAPACITIES</b>	AIC: 4 TB U.2 (2.5"): 1 TB / 2 TB / 4 TB	AIC: 2 TB / 4 TB U.2 (2.5"): 1.6 TB / 2 TB / 3.2 TB	AIC: 375 GB
<b>MAXIMUM RANDOM PERFORMANCE</b>	Reads: up to 687k IOPS <sup>1d, 2</sup> Writes: up to 62k IOPS <sup>1d</sup>	Reads: up to 694k IOPS <sup>1d, 2</sup> Writes: up to 228k IOPS <sup>1d</sup>	Reads: up to 550k IOPS <sup>1e, 2</sup> Writes: up to 500k IOPS <sup>1e</sup>
<b>MAXIMUM SEQUENTIAL PERFORMANCE</b>	Reads: up to 3270 MB/s <sup>1d</sup> Writes: up to 1860 MB/s <sup>1d</sup>	Reads: up to 3270 MB/s <sup>1d</sup> Writes: up to 2100 MB/s <sup>1d</sup>	Reads: up to 6550 MB/s <sup>1e</sup> Writes: up to 3100 MB/s <sup>1e</sup>
<b>SECURITY</b>	End-to-end data protection <sup>3</sup> Power-loss data protection <sup>3</sup>	End-to-end data protection <sup>3</sup> Power-loss data protection <sup>3</sup>	End-to-end data protection <sup>3</sup> Power-loss data protection <sup>3</sup>
<b>ENDURANCE</b>	Up to 4.60 PBW (Petabytes Written) <sup>1d, 4</sup> Up to .63 DWPD	Up to 21.69 PBW (Petabytes Written) <sup>1d, 4</sup> Up to 2.97 DWPD	Up to 12.3 PBW (Petabytes Written) <sup>1e, 4</sup> DWPD 30
<b>WARRANTY</b>	5 year limited	5 year limited	5 year limited

## Intel® Solid State Drive Data Center Family for PCIe\*



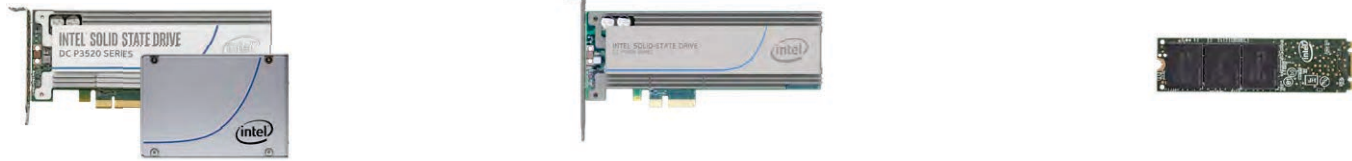
INTEL® SSD	INTEL® SSD DC P4501 SERIES	INTEL® SSD DC P4601 SERIES
<b>USES</b>	Cloud, Scale Out Storage, SATA replacement	Cloud, Scale Out Storage, SATA replacement
<b>INTERFACE</b>	PCIe* 3.0, NVMe*	PCIe* 3.0, NVMe*
<b>FORM FACTOR</b>	2.5"/U.2 (7mm), M.2 (110mm)	2.5"/U.2 (7mm), M.2 (110mm)
<b>CAPACITIES (MB)</b>	2.5"/U.2: 500 GB / 1 TB / 2 TB / 4 TB M.2: 500 GB / 1 TB / 2 TB / 4 TB	2.5"/U.2: 4 TB M.2: 1 TB / 2 TB / 3 TB
<b>MAXIMUM RANDOM PERFORMANCE</b>	Reads: up to 325K IOPs <sup>1d,2</sup> Writes: up to 100K IOPs <sup>1d</sup>	Reads: up to 325K IOPs <sup>1d,2</sup> Writes: up to 100K IOPs <sup>1d</sup>
<b>MAXIMUM SEQUENTIAL PERFORMANCE</b>	Reads: up to 3200 MB/s <sup>1d</sup> Writes: up to 880 MB/s <sup>1d</sup>	Reads: up to 3200 MB/s <sup>1d</sup> Writes: up to 880 MB/s <sup>1d</sup>
<b>SECURITY</b>	End-to-end data protection <sup>3</sup> Power-loss data protection <sup>3</sup>	End-to-end data protection <sup>3</sup> Power-loss data protection <sup>3</sup>
<b>ENDURANCE</b>	Up to 4.99 PBW (Petabytes Written) <sup>1d,4</sup>	Up to 21.32 PBW (Petabytes Written) <sup>1d,4</sup>
<b>WARRANTY</b>	5 year limited	5 year limited

## Intel® Solid State Drive Data Center Family for PCIe\*



INTEL® SSD	INTEL® SSD DC P3700 SERIES	INTEL® SSD DC P3608 SERIES	INTEL® SSD DC P3600 SERIES
<b>USES</b>	Exceptional performance for demanding workloads	Extreme Performance. Extra Ordinary Capacity	Mid-Endurance. Exceptional performance for mixed workloads
<b>INTERFACE</b>	PCIe* 3.0, NVMe*	PCIe 3.0, x8 NVMe*	PCIe* 3.0, NVMe*
<b>FORM FACTOR</b>	AIC (2.5" SKU Available)	AIC	AIC (2.5" SKU Available)
<b>CAPACITIES</b>	2.5": 2 TB / 1.60 TB / 800 GB / 400 GB AIC: 2 TB / 1.60 TB / 800 GB / 400 GB	4 TB / 3.2 TB / 1.6 TB	2.5": 2 TB / 1.60 TB / 1.20 TB / 800 GB / 400 GB AIC: 2 TB / 1.60 TB / 1.20 TB / 800 GB / 400 GB
<b>MAXIMUM RANDOM PERFORMANCE</b>	Reads: up to 460K IOPs <sup>1b,2</sup> Writes: up to 175K IOPs <sup>1b</sup>	Reads: up to 850K IOPs <sup>1a,2</sup> Writes: up to 150K IOPs <sup>1a</sup>	Reads: up to 450K IOPs <sup>1b,2</sup> Writes: up to 56K IOPs <sup>1b</sup>
<b>MAXIMUM SEQUENTIAL PERFORMANCE</b>	Reads: up to 2800 MB/s <sup>1b</sup> Writes: up to 2000 MB/s <sup>1b</sup>	Reads: up to 5000 MB/s <sup>1a</sup> Writes: up to 3000 MB/s <sup>1a</sup>	Reads: up to 2600 MB/s <sup>1b</sup> Writes: up to 1700 MB/s <sup>1b</sup>
<b>SECURITY</b>	End-to-end data protection <sup>3</sup> Power-loss data protection <sup>3</sup>	End-to-end data protection <sup>3</sup> Power-loss data protection <sup>3</sup>	End-to-end data protection <sup>3</sup> Power-loss data protection <sup>3</sup>
<b>ENDURANCE</b>	17 drive writes per day <sup>1b</sup> Up to 62 PBW (Petabytes Written) <sup>1b,4</sup>	3 drive writes per day <sup>1a</sup> Up to 21.9 PBW (Petabytes Written) <sup>1a,4</sup>	3 drive writes per day <sup>1b</sup> Up to 10.95 PBW (Petabytes Written) <sup>1b,4</sup>
<b>WARRANTY</b>	5 year limited	5 year limited	5 year limited

## Intel® Solid State Drive Data Center Family for PCIe\*



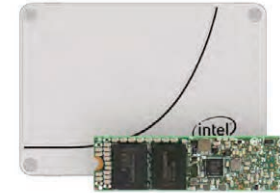
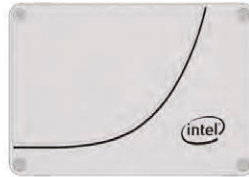
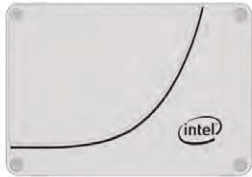
INTEL® SSD	INTEL® SSD DC P3520 SERIES	INTEL® SSD DC P3500 SERIES	INTEL® SSD DC P3100 SERIES
<b>USES</b>	Cloud, Database, Big data.	Standard Endurance. Exceptional performance for read-intensive workloads	Read intensive applications, boot drive
<b>INTERFACE</b>	PCIe* 3.0, NVMe*	PCIe* 3.0, NVMe*	PCIe* 3.0, NVMe*
<b>FORM FACTOR</b>	2.5"(U.2), x4 HHHL AIC	AIC (2.5" SKU Available)	M.2 (80mm)
<b>CAPACITIES</b>	2.5"/U.2: 2 TB / 1.20 TB / 450 GB AIC: 2.0 TB / 1.20 TB	2.5": 2 TB / 1.20 TB / 400 GB AIC: 2 TB / 1.20 TB / 400 GB	1024 GB / 512 GB / 256 GB / 128 GB
<b>MAXIMUM RANDOM PERFORMANCE</b>	Reads: up to 375K IOPs <sup>1b, 2</sup> Writes: up to 26K IOPs <sup>1b</sup>	Reads: up to 430K IOPs <sup>1b, 2</sup> Writes: up to 28K IOPs <sup>1b</sup>	Reads: up to 114K IOPs <sup>1b, 2</sup> Writes: up to 9K IOPs <sup>1b</sup>
<b>MAXIMUM SEQUENTIAL PERFORMANCE</b>	Reads: up to 1700 MB/s <sup>1b</sup> Writes: up to 1350 MB/s <sup>1b</sup>	Reads: up to 2700 MB/s <sup>1b</sup> Writes: up to 1800 MB/s <sup>1b</sup>	Reads: up to 1800 MB/s <sup>1b</sup> Writes: up to 175 MB/s <sup>1b</sup>
<b>SECURITY</b>	End-to-end data protection <sup>3</sup> Power-loss data protection <sup>3</sup>	End-to-end data protection <sup>3</sup> Power-loss data protection <sup>3</sup>	AES 256-bit Encryption
<b>ENDURANCE</b>	0.70 drive writes per day Up to 960 TBW (Terabytes Written)	0.30 drive writes per day <sup>1b</sup> Up to 1095 TBW (Terabytes Written) <sup>1b</sup>	Up to 0.5 drive writes per day <sup>1b</sup>
<b>WARRANTY</b>	5 year limited	5 year limited	5 year limited

## Intel® Solid State Drive Data Center Family for PCIe\*



INTEL® SSD	INTEL® SSD DC D3700	INTEL® SSD DC D3600
<b>USES</b>	High availability Storage System Enterprise mission critical applications	High availability Storage System Enterprise mission critical applications
<b>INTERFACE</b>	PCI Express* 3.0, NVM Express*	PCI Express* 3.0, NVM Express*
<b>FORM FACTOR</b>	2.5" (U.2)	2.5" (U.2)
<b>CAPACITIES (MB)</b>	1.6 TB / 800 GB	2 TB / 1 TB
<b>MAXIMUM RANDOM PERFORMANCE</b>	Reads: up to 470K IOPS <sup>1b,2</sup> Writes: up to 100K IOPS <sup>1b</sup>	Reads: Up to 470K IOPS <sup>1b,2</sup> Writes: Up to 30K IOPS <sup>1b</sup>
<b>MAXIMUM SEQUENTIAL PERFORMANCE</b>	Reads: Up to 2100 MB/s <sup>1b</sup> Writes: Up to 1500 MB/s <sup>1b</sup>	Reads: Up to 2200 MB/s <sup>1b</sup> Writes: Up to 1500 MB/s <sup>1b</sup>
<b>SECURITY</b>	End-to-end Data Protection <sup>3</sup> Power-loss Data Protection <sup>3</sup>	End-to-end Data Protection <sup>3</sup> Power-loss Data Protection <sup>3</sup>
<b>ENDURANCE</b>	1.0 TB: 5.475 PBW <sup>1b,4</sup> 2.0 TB: 10.95 PBW <sup>1b,4</sup> (10 DWPD)	1.0 TB: 5.475 PBW <sup>1b,4</sup> 2.0 TB: 10.95 PBW <sup>1b,4</sup> (3 DWPD)
<b>WARRANTY</b>	5 year limited	5 year limited

## Intel® Solid State Drive Data Center Family for SATA



**INTEL® SSD DC S3710 SERIES**

**INTEL® SSD DC S3610 SERIES**

**INTEL® SSD DC S3520 SERIES**

	INTEL® SSD DC S3710 SERIES	INTEL® SSD DC S3610 SERIES	INTEL® SSD DC S3520 SERIES
<b>USES</b>	Optimized for read- and write-intensive applications	Optimized for mixed workloads	Verticals: Cloud & Embedded Workloads: Boot, Static web content; Low data rate operational databases & Analytics; Web server and SQL Logs; OS Paging; Media Streaming
<b>INTERFACE</b>	SATA 6 Gb/s	SATA 6 Gb/s	SATA 6 Gb/s
<b>FORM FACTOR</b>	2.5"	2.5" / 1.8"	2.5" / M.2 (80mm)
<b>CAPACITIES</b>	1.20 TB / 800 GB / 400 GB / 200 GB	2.5": 1.60 TB / 1.20 TB / 800 GB / 480 GB / 400 GB / 200 GB / 100 GB 1.8": 800 GB / 400 GB / 200 GB	2.5": 1.6 TB / 1.2 TB / 960 GB / 800 GB / 480 GB / 240 GB / 150 GB M.2 (80mm): 960 GB / 760 GB / 480 GB / 240 GB / 150 GB (M.2 form factor launch/available mid Q4)
<b>MAXIMUM RANDOM PERFORMANCE</b>	Reads: up to 85K IOPs <sup>1b,2</sup> Writes: up to 45K IOPs <sup>1b</sup>	Reads: up to 84K IOPs <sup>1b,2</sup> Writes: up to 27K IOPs <sup>1b</sup>	Reads: up to 67.5K IOPs <sup>1b,2</sup> Writes: up to 17.5K IOPs <sup>1b</sup>
<b>MAXIMUM SEQUENTIAL PERFORMANCE</b>	Reads: up to 550 MB/s <sup>1b</sup> Writes: up to 520 MB/s <sup>1b</sup>	Reads: up to 550 MB/s <sup>1b</sup> Writes: up to 500 MB/s <sup>1b</sup>	Reads: up to 450 MB/s <sup>1b</sup> Writes: up to 380 MB/s <sup>1b</sup>
<b>SECURITY</b>	End-to-end data protection <sup>3</sup> Power-loss data protection <sup>3</sup> AES 256-bit Encryption	End-to-end data protection <sup>3</sup> Power-loss data protection <sup>3</sup> AES 256-bit Encryption	End-to-end data protection <sup>3</sup> Power-loss data protection <sup>3</sup> AES 256-bit Encryption
<b>ENDURANCE</b>	10 drive writes per day <sup>1b</sup> Up to 24.30 PBW (Petabytes Written) <sup>1b,4</sup>	3 drive writes per day <sup>1b</sup> Up to 10.95 PBW (Petabytes Written) <sup>1b,4</sup>	0.6 drive writes per day <sup>1b</sup>
<b>WARRANTY</b>	5 year limited	5 year limited	5 year limited

# INTEL® SOLID STATE DRIVE PRODUCT SELECTION GUIDE

## Intel® Optane™ Memory

NEW	PRODUCT NAME	CAPACITY	PRODUCT CODE	PRODUCT DESCRIPTION	PACKAGE TYPE	PACKAGE CONTENTS	QUANTITY PER BOX
X	Intel® Optane™ Memory	32 GB	MEMPEK1W032GAXT	20nm / 3D Xpoint / M.2 / 80mm PCIe 3.0	Reseller box (MOQ 10)	Module only	1
X		16 GB	MEMPEK1W016GAXT	20nm / 3D Xpoint / M.2 / 80mm PCIe 3.0	Reseller box (MOQ 10)	Module only	1

## Data Center Family (PCIe) SSDs

NEW	PRODUCT NAME	CAPACITY	PRODUCT CODE	PRODUCT DESCRIPTION	PACKAGE TYPE	PACKAGE CONTENTS	QUANTITY PER BOX
X	Intel® Optane™ DC P4800X Series	375 GB	SSDPED1K375GAQ1	20nm / 3D Xpoint / ½ Height PCI Express® 3.0, x4	OEM box	SSD only	1
X	Intel® SSD DC P4600 Series	4.00 TB	SSDPEDKE040T701	3D1, TLC / 1/2 Height PCI Express 3.0 x4	OEM box	SSD only	1
X		3.20 TB	SSDPE2KE032T701	3D1, TLC / 2.5" / 15mm PCI Express 3.0 x4	OEM box	SSD only	1
X		2.00 TB	SSDPE2KE020T701	3D1, TLC / 2.5" / 15mm PCI Express 3.0 x4	OEM box	SSD only	1
X		1.60 TB	SSDPE2KE016T701	3D1, TLC / 2.5" / 15mm PCI Express 3.0 x4	OEM box	SSD only	1
X		Intel® SSD DC P4500 Series	4.00 TB	SSDPEDKX040T701	3D1, TLC / 1/2 Height PCI Express 3.0 x4	OEM box	SSD only
X	Intel® SSD DC P4601 Series	4.00 TB	SSDPE2KX040T701	3D1, TLC / 2.5" / 15mm PCI Express 3.0 x4	OEM box	SSD only	1
X		2.00 TB	SSDPE2KX020T701	3D1, TLC / 2.5" / 15mm PCI Express 3.0 x4	OEM box	SSD only	1
X		1.00 TB	SSDPE2KX010T701	3D1, TLC / 2.5" / 15mm PCI Express 3.0 x4	OEM box	SSD only	1
X		Intel® SSD DC P4501 Series	4.00 TB	SSDPE7KE040T701	3D1, TLC / 2.5" / 7mm PCI Express 3.0	OEM box	SSD only
X	Intel® SSD DC P4601 Series	3.00 TB	SSDPE7KE030T701	3D1, TLC / 2.5" / 7mm PCI Express 3.0	OEM box	SSD only	1
X		2.00 TB	SSDPE7KE020T701	3D1, TLC / 2.5" / 7mm PCI Express 3.0	OEM box	SSD only	1
X		1.00 TB	SSDPE7KE010T701	3D1, TLC / 2.5" / 7mm PCI Express 3.0	OEM box	SSD only	1
X		500 GB	SSDPE7KX500G701	3D1, TLC / 2.5" / 7mm PCI Express 3.0	OEM box	SSD only	1
X		4.00 TB	SSDPE7KX040T701	3D1, TLC / M.2 / 110mm PCI Express 3.0	OEM box	SSD only	1
X		2.00 TB	SSDPE7KX020T701	3D1, TLC / M.2 / 110mm PCI Express 3.0	OEM box	SSD only	1
X		1.00 TB	SSDPE7KX010T701	3D1, TLC / M.2 / 110mm PCI Express 3.0	OEM box	SSD only	1
X		500 GB	SSDPE7KX500G701	3D1, TLC / M.2 / 110mm PCI Express 3.0	OEM box	SSD only	1
	Intel® SSD DC D3700 Series	1.60 TB	SSDPD2MD016T401	20nm Dual Port HET / 2.5" / 15mm PCI Express 3.0	OEM box	SSD only	1
		800 GB	SSDPD2MD800G401	20nm Dual Port HET / 2.5" / 15mm PCI Express 3.0	OEM box	SSD only	1







Intel® SSD DC D3600 Series	2.00 TB	SSDPD2ME020T401	20nm Dual Port HET / 2.5" / 15mm PCI Express 3.0	OEM box	SSD only	1
	1.00 TB	SSDPD2ME010T401	20nm Dual Port HET / 2.5" / 15mm PCI Express 3.0	OEM box	SSD only	1
Intel® SSD DC P3700 Series	2.00 TB	SSDPEDMD020T401	20nm HET / ½ Height PCI Express* 3.0	OEM box	SSD only	1
	1.60 TB	SSDPEDMD016T401	20nm HET / ½ Height PCI Express 3.0	OEM box	SSD only	1
	800 GB	SSDPEDMD800G401	20nm HET / ½ Height PCI Express 3.0	OEM box	SSD only	1
	400 GB	SSDPEDMD400G401	20nm HET / ½ Height PCI Express 3.0	OEM box	SSD only	1
	2.00 TB	SSDPE2MD020T401	20nm HET / 2.5" / 15mm PCI Express 3.0	OEM box	SSD only	1
	1.60 TB	SSDPE2MD016T401	20nm HET / 2.5" / 15mm PCI Express 3.0	OEM box	SSD only	1
	800 GB	SSDPE2MD800G401	20nm HET / 2.5" / 15mm PCI Express 3.0	OEM box	SSD only	1
	400 GB	SSDPE2MD400G401	20nm HET / 2.5" / 15mm PCI Express 3.0	OEM box	SSD only	1
Intel® SSD DC P3608 Series	4.00 TB	SSDPECME040T401	20nm HET/ ½ Height PCI Express® 3.0, x8	OEM box	SSD only	1
	3.20 TB	SSDPECME032T401	20nm HET/ ½ Height PCI Express® 3.0, x8	OEM box	SSD only	1
	1.60 TB	SSDPECME016T401	20nm HET/ ½ Height PCI Express® 3.0, x8	OEM box	SSD only	1
Intel® SSD DC P3600 Series	2.00 TB	SSDPEDME020T401	20nm HET / ½ Height PCI Express 3.0	OEM box	SSD only	1
	1.60 TB	SSDPEDME016T401	20nm HET / ½ Height PCI Express 3.0	OEM box	SSD only	1
	1.20 TB	SSDPEDME012T401	20nm HET / ½ Height PCI Express 3.0	OEM box	SSD only	1
	800 GB	SSDPEDME800G401	20nm HET / ½ Height PCI Express 3.0	OEM box	SSD only	1
	400 GB	SSDPEDME400G401	20nm HET / ½ Height PCI Express 3.0	OEM box	SSD only	1
	2.00 TB	SSDPE2ME020T401	20nm HET / 2.5" / 15mm PCI Express 3.0	OEM box	SSD only	1
	1.60 TB	SSDPE2ME016T401	20nm HET / 2.5" / 15mm PCI Express 3.0	OEM box	SSD only	1
	1.20 TB	SSDPE2ME012T401	20nm HET / 2.5" / 15mm PCI Express 3.0	OEM box	SSD only	1
	800 GB	SSDPE2ME800G401	20nm HET / 2.5" / 15mm PCI Express 3.0	OEM box	SSD only	1
	400 GB	SSDPE2ME400G401	20nm HET / 2.5" / 15mm PCI Express 3.0	OEM box	SSD only	1
Intel® SSD DC P3520 Series	2.00 TB	SSDPEDMX020T701	3D1, MLC / ½ Height PCI Express 3.0	OEM box	SSD only	1
	1.20 TB	SSDPEDMX012T701	3D1, MLC / ½ Height PCI Express 3.0	OEM box	SSD only	1
	2.00 TB	SSDPE2MX020T701	3D1, MLC / 2.5" / 15mm PCI Express 3.0	OEM box	SSD only	1
	1.20 TB	SSDPE2MX012T701	3D1, MLC / 2.5" / 15mm PCI Express 3.0	OEM box	SSD only	1
	450 GB	SSDPE2MX450G701	3D1, MLC / 2.5" / 15mm PCI Express 3.0	OEM box	SSD only	1
Intel® SSD DC P3500 Series	2.00 TB	SSDPEDMX020T401	20nm HET / ½ Height PCI Express 3.0	OEM box	SSD only	1
	1.20 TB	SSDPEDMX012T401	20nm HET / ½ Height PCI Express 3.0	OEM box	SSD only	1
	400 GB	SSDPEDMX400G40	20nm HET / ½ Height PCI Express 3.0	OEM box	SSD only	1
	2.00 TB	SSDPE2MX020T401	20nm HET / 2.5" / 15mm PCI Express 3.0	OEM box	SSD only	1
	1.20 TB	SSDPE2MX012T401	20nm HET / 2.5" / 15mm PCI Express 3.0	OEM box	SSD only	1
	400 GB	SSDPE2MX400G401	20nm HET / 2.5" / 15mm PCI Express 3.0	OEM box	SSD only	1
Intel® SSD DC P3100 Series	1024 GB	SSDPEKKA010TG701	3D1, TLC / M.2 / 80mm PCI Express 3.0	OEM box	SSD only	1
	512 GB	SSDPEKKA512G701	3D1, TLC / M.2 / 80mm PCI Express 3.0	OEM box	SSD only	1
	256 GB	SSDPEKKA256G701	3D1, TLC / M.2 / 80mm PCI Express 3.0	OEM box	SSD only	1
	128 GB	SSDPEKKA128G701	3D1, TLC / M.2 / 80mm PCI Express 3.0	OEM box	SSD only	1



## Data Center Family (SATA) SSDs

NEW	PRODUCT NAME	CAPACITY	PRODUCT CODE	PRODUCT DESCRIPTION	PACKAGE TYPE	PACKAGE CONTENTS	QUANTITY PER BOX
	Intel® SSD DC S3710 Series	1.20 TB	SSDSC2BA012T401	20nm HET MLC / 2.5" / 7mm	OEM box	SSD only	1
		800 GB	SSDSC2BA800G401	20nm HET MLC / 2.5" / 7mm	OEM box	SSD only	1
		400 GB	SSDSC2BA400G401	20nm HET MLC / 2.5" / 7mm	OEM box	SSD only	1
		200 GB	SSDSC2BA200G401	20nm HET MLC / 2.5" / 7mm	OEM box	SSD only	1
	Intel® SSD DC S3610 Series	1.60 TB	SSDSC2BX016T401	20nm HET MLC / 2.5" / 7mm	OEM box	SSD only	1
		1.20 TB	SSDSC2BX012T401	20nm HET MLC / 2.5" / 7mm	OEM box	SSD only	1
		800 GB	SSDSC2BX800G401	20nm HET MLC / 2.5" / 7mm	OEM box	SSD only	1
		480 GB	SSDSC2BX480G401	20nm HET MLC / 2.5" / 7mm	OEM box	SSD only	1
		400 GB	SSDSC2BX400G401	20nm HET MLC / 2.5" / 7mm	OEM box	SSD only	1
		200 GB	SSDSC2BX200G401	20nm HET MLC / 2.5" / 7mm	OEM box	SSD only	1
		100 GB	SSDSC2BX100G401	20nm HET MLC / 2.5" / 7mm	OEM box	SSD only	1
		800 GB	SSDSC1BG800G401	20nm HET MLC / 1.8" / 7mm	OEM box	SSD only	1
		400 GB	SSDSC1BG400G401	20nm HET MLC / 1.8" / 7mm	OEM box	SSD only	1
		200 GB	SSDSC1BG200G401	20nm HET MLC / 1.8" / 7mm	OEM box	SSD only	1
	Intel® SSD DC S3520 Series	1.60 TB	SSDSC2BB016T701	3D1, MLC / 2.5" / 7mm PCI Express 3.0	OEM box	SSD only	1
		1.20 TB	SSDSC2BB012T701	3D1, MLC / 2.5" / 7mm PCI Express 3.0	OEM box	SSD only	1
		960 GB	SSDSC2BB960G701	3D1, MLC / 2.5" / 7mm PCI Express 3.0	OEM box	SSD only	1
		800 GB	SSDSC2BB800G701	3D1, MLC / 2.5" / 7mm PCI Express 3.0	OEM box	SSD only	1
		480 GB	SSDSC2BB480G701	3D1, MLC / 2.5" / 7mm PCI Express 3.0	OEM box	SSD only	1
		240 GB	SSDSC2BB240G701	3D1, MLC / 2.5" / 7mm PCI Express 3.0	OEM box	SSD only	1
		150 GB	SSDSC2BB150G701	3D1, MLC / 2.5" / 7mm PCI Express 3.0	OEM box	SSD only	1
		960 GB	SSDSCKJB960G701	3D1, MLC / M.2 / 80mm PCI Express 3.0	OEM box	SSD only	1
		760 GB	SSDSCKJB760G701	3D1, MLC / M.2 / 80mm PCI Express 3.0	OEM box	SSD only	1
		480 GB	SSDSCKJB480G701	3D1, MLC / M.2 / 80mm PCI Express 3.0	OEM box	SSD only	1
		240 GB	SSDSCKJB240G701	3D1, MLC / M.2 / 80mm PCI Express 3.0	OEM box	SSD only	1
		150 GB	SSDSCKJB150G701	3D1, MLC / M.2 / 80mm PCI Express 3.0	OEM box	SSD only	1

## Professional Family SSDs

NEW	PRODUCT NAME	CAPACITY	PRODUCT CODE	PRODUCT DESCRIPTION	PACKAGE TYPE	PACKAGE CONTENTS	QUANTITY PER BOX
	Intel® SSD Pro 6000p Series	1024 GB	SSDPEKKF010T7X1	3D1, TLC / M.2 / 80mm PCI Express 3.0	Reseller box	SSD only	1
		512 GB	SSDPEKKF512G7X1	3D1, TLC / M.2 / 80mm PCI Express 3.0	Reseller box	SSD only	1
		360 GB	SSDPEKKF360G7X1	3D1, TLC / M.2 / 80mm PCI Express 3.0	Reseller box	SSD only	1
		256 GB	SSDPEKKF256G7X1	3D1, TLC / M.2 / 80mm PCI Express 3.0	Reseller box	SSD only	1
		128 GB	SSDPEKKF128G7X1	3D1, TLC / M.2 / 80mm PCI Express 3.0	Reseller box	SSD only	1
	Intel® SSD Pro 5400s Series	1.00 TB	SSDSC2KF010X6X1	16nm TLC / 2.5" / 7mm	Reseller box	SSD only	1
		512 GB	SSDSC2KF512H6X1	16nm TLC / 2.5" / 7mm	Reseller box	SSD only	1

480 GB	<b>SSDSC2KF480H6X1</b>	16nm TLC / 2.5" / 7mm	Reseller box	SSD only	1
360 GB	<b>SSDSC2KF360H6X1</b>	16nm TLC / 2.5" / 7mm	Reseller box	SSD only	1
256 GB	<b>SSDSC2KF256H6X1</b>	16nm TLC / 2.5" / 7mm	Reseller box	SSD only	1
240 GB	<b>SSDSC2KF240H6X1</b>	16nm TLC / 2.5" / 7mm	Reseller box	SSD only	1
180 GB	<b>SSDSC2KF180H6X1</b>	16nm TLC / 2.5" / 7mm	Reseller box	SSD only	1
120 GB	<b>SSDSC2KF120H6X1</b>	16nm TLC / 2.5" / 7mm	Reseller box	SSD only	1
1.00 TB	<b>SSDSCKKF010X6X1</b>	16nm TLC / M.2 / 80mm	Reseller box	SSD only	1
512 GB	<b>SSDSCKKF512H6X1</b>	16nm TLC / M.2 / 80mm	Reseller box	SSD only	1
480 GB	<b>SSDSCKKF480H6X1</b>	16nm TLC / M.2 / 80mm	Reseller box	SSD only	1
360 GB	<b>SSDSCKKF360H6X1</b>	16nm TLC / M.2 / 80mm	Reseller box	SSD only	1
256 GB	<b>SSDSCKKF256H6X1</b>	16nm TLC / M.2 / 80mm	Reseller box	SSD only	1
240 GB	<b>SSDSCKKF240H6X1</b>	16nm TLC / M.2 / 80mm	Reseller box	SSD only	1
180 GB	<b>SSDSCKKF180H6X1</b>	16nm TLC / M.2 / 80mm	Reseller box	SSD only	1
120 GB	<b>SSDSCKKF120H6X1</b>	16nm TLC / M.2 / 80mm	Reseller box	SSD only	1

## Consumer Family SSDs

NEW	PRODUCT NAME	CAPACITY	PRODUCT CODE	PRODUCT DESCRIPTION	PACKAGE TYPE	PACKAGE CONTENTS	QUANTITY PER BOX
	<b>Intel® SSD 750 Series</b>	1.20 TB	<b>SSDPEDMW012T4X1</b>	20nm MLC / ½ Height, AIC, PCI Express* 3.0	Reseller box	SSD and extra 1/2 height bracket	1
		800 GB	<b>SSDPEDMW800G4X1</b>	20nm MLC / ½ Height, AIC, PCI Express* 3.0	Reseller box	SSD and extra 1/2 height bracket	1
		400 GB	<b>SSDPEDMW400G4X1</b>	20nm MLC / ½ Height, AIC, PCI Express* 3.0	Reseller box	SSD and extra 1/2 height bracket	1
		1.20 TB	<b>SSDPE2MW012T4X1</b>	20nm MLC / 2.5" / 15mm PCI Express* 3.0	Reseller box	SSD and U.2 cable	1
		800 GB	<b>SSDPE2MW800G4X1</b>	20nm MLC / 2.5" / 15mm PCI Express* 3.0	Reseller box	SSD and U.2 cable	1
		400 GB	<b>SSDPE2MW400G4X1</b>	20nm MLC / 2.5" / 15mm PCI Express* 3.0	Reseller box	SSD and U.2 cable	1
		1.20 TB	<b>SSDPE2MW012T4M2</b>	20nm MLC / 2.5" / 15mm PCI Express* 3.0	Reseller box	SSD and M.2 cable	1
		800 GB	<b>SSDPE2MW800G4M2</b>	20nm MLC / 2.5" / 15mm PCI Express* 3.0	Reseller box	SSD and M.2 cable	1
		400 GB	<b>SSDPE2MW400G4M2</b>	20nm MLC / 2.5" / 15mm PCI Express* 3.0	Reseller box	SSD and M.2 cable	1
	<b>Intel® SSD 600p Series</b>	1024 GB	<b>SSDPEKKW010T7X1</b>	3D1, TLC / M.2 / 80mm PCI Express 3.0	Reseller box	SSD only	1
		512 GB	<b>SSDPEKKW512G7X1</b>	3D1, TLC / M.2 / 80mm PCI Express 3.0	Reseller box	SSD only	1
		256 GB	<b>SSDPEKKW256G7X1</b>	3D1, TLC / M.2 / 80mm PCI Express 3.0	Reseller box	SSD only	1
		128 GB	<b>SSDPEKKW128G7X1</b>	3D1, TLC / M.2 / 80mm PCI Express 3.0	Reseller box	SSD only	1
	<b>Intel® SSD 540s Series</b>	1.00 TB	<b>SSDSC2KW010X6X1</b>	16nm TLC / 2.5" / 7mm	Reseller box	SSD only	1
		512 GB	<b>SSDSC2KW512H6X1</b>	16nm TLC / 2.5" / 7mm	Reseller box	SSD only	1
		480 GB	<b>SSDSC2KW480H6X1</b>	16nm TLC / 2.5" / 7mm	Reseller box	SSD only	1
		360 GB	<b>SSDSC2KW360H6X1</b>	16nm TLC / 2.5" / 7mm	Reseller box	SSD only	1
		256 GB	<b>SSDSC2KW256H6X1</b>	16nm TLC / 2.5" / 7mm	Reseller box	SSD only	1
		240 GB	<b>SSDSC2KW240H6X1</b>	16nm TLC / 2.5" / 7mm	Reseller box	SSD only	1

	180 GB	<b>SSDSC2KW180H6X1</b>	16nm TLC / 2.5" / 7mm	Reseller box	SSD only	1
	120 GB	<b>SSDSC2KW120H6X1</b>	16nm TLC / 2.5" / 7mm	Reseller box	SSD only	1
	1.00 TB	<b>SSDSCCKW010X6X1</b>	16nm TLC / M.2 / 80mm	Reseller box	SSD only	1
	512 GB	<b>SSDSCCKW512H6X1</b>	16nm TLC / M.2 / 80mm	Reseller box	SSD only	1
	480 GB	<b>SSDSCCKW480H6X1</b>	16nm TLC / M.2 / 80mm	Reseller box	SSD only	1
	360 GB	<b>SSDSCCKW360H6X1</b>	16nm TLC / M.2 / 80mm	Reseller box	SSD only	1
	256 GB	<b>SSDSCCKW256H6X1</b>	16nm TLC / M.2 / 80mm	Reseller box	SSD only	1
	240 GB	<b>SSDSCCKW240H6X1</b>	16nm TLC / M.2 / 80mm	Reseller box	SSD only	1
	180 GB	<b>SSDSCCKW180H6X1</b>	16nm TLC / M.2 / 80mm	Reseller box	SSD only	1
	120 GB	<b>SSDSCCKW120H6X1</b>	16nm TLC / M.2 / 80mm	Reseller box	SSD only	1

## Embedded Family SSDs

NEW	PRODUCT NAME	CAPACITY	PRODUCT CODE	PRODUCT DESCRIPTION	PACKAGE TYPE	PACKAGE CONTENTS	QUANTITY PER BOX
	<b>Intel® SSD E 6000p Series</b>	256 GB	<b>SSDPEKKR256G7XN</b>	3D1, TLC / M.2 / 80mm PCI Express 3.0	Reseller box	SSD only	1
		128 GB	<b>SSDPEKKR128G7XN</b>	3D1, TLC / M.2 / 80mm PCI Express 3.0	Reseller box	SSD only	1
X	<b>Intel® SSD E 7000s Series</b>	240 GB	<b>SSDSCJKR150G7XA</b>	3D1, MLC / 2.5" / 7mm SATA 6Gb/s	OEM box	SSD only	1
X		150 GB	<b>SSDSCJKR150G7XA</b>	3D1, MLC / M.2 / 80mm SATA 6Gb/s	OEM box	SSD only	1
	<b>Intel® SSD E 5400s Series</b>	180 GB	<b>SSDSC2KR180H6XN</b>	16nm TLC / 2.5" / 7mm	Reseller box	SSD only	1
		120 GB	<b>SSDSC2KR120H6XN</b>	16nm TLC / 2.5" / 7mm	Reseller box	SSD only	1
		80 GB	<b>SSDSC2KR080H6XN</b>	16nm TLC / 2.5" / 7mm	Reseller box	SSD only	1
		180 GB	<b>SSDSCCKR180H6XN</b>	16nm TLC / M.2 / 80mm	Reseller box	SSD only	1
		120 GB	<b>SSDSCCKR120H6XN</b>	16nm TLC / M.2 / 80mm	Reseller box	SSD only	1
		80 GB	<b>SSDSCCKR080H6XN</b>	16nm TLC / M.2 / 80mm	Reseller box	SSD only	1
		48 GB	<b>SSDSCCKR048H6XN</b>	16nm TLC / M.2 / 80mm	Reseller box	SSD only	1

For more information, visit [www.intel.com/ssd](http://www.intel.com/ssd)

<sup>1</sup> Performance varies by capacity. Tests document performance of components on a particular test, in specific systems. Differences in hardware, software, or configuration will affect actual performance. Consult other sources of information to evaluate performance as you consider your purchase. System configurations:

<sup>1a</sup> Intel® Core™ i7-4770 CPU at 3.4 GHz, 8GB DDR3 at 1600 MHz, Intel® SSD DC P3608 Series 1.6TB

<sup>1b</sup> Intel Core i7-3770K CPU @ 3.50GHz, 8GB of system memory, Windows<sup>1</sup> Server 2012, IOMeter. Random performance is collected with 4 workers each with 32 QD. Average RMS Active write power measured at max bandwidth

<sup>1c</sup> Performance measured by Intel using Iometer 1.1.0 with queue depth 32. Measurements are performed on 8 GB of Logical Block Address (LBA) range on a full SSD. System configuration: Intel® Core i7-5960X processor, Intel® X99 chipset, PC2666 16GB DRAM.

<sup>1d</sup> Intel® Xeon® E5-2699 v3, Speed: 2.30GHz, Intel BIOS: Internal Release, DRAM: DDR3-32GB, OS Linux® Centos® 7.0 kernel 4.6, Intel SSD P4xxx Series

<sup>2</sup> Random 4 KB reads. Performance specifications apply to both compressible and non-compressible data.

<sup>3</sup> Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at [www.intel.com](http://www.intel.com)

<sup>4</sup> 1 PB = 1000 TeraBytes

<sup>5</sup> Desktop installation kit contents: SATA signal cables, screws, installation guide, and warranty documentation.

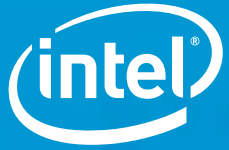
All products and dates specified are preliminary based on current expectations and are subject to change without notice.

Availability in different channels may vary.

For more complete information about performance and benchmark results, visit [www.intel.com/benchmarks](http://www.intel.com/benchmarks)

Copyright © 2017 Intel Corporation. All rights reserved. Intel, the Intel logo, and Ultrabook are trademarks of Intel Corporation in the U.S. and/or other countries.

\* Other names and brands may be claimed as the property of others.



**PREPARE  
TO BE  
AMAZED**

# **INTEL<sup>®</sup> DESKTOP PROCESSORS**

## **INTEL<sup>®</sup> DESKTOP PROCESSORS**

This new generation of processors extends all the capabilities users have come to love in our desktop platforms with advanced innovations that deliver exciting new features to immerse you in incredible experiences on a variety of form factors.



# INTEL® DESKTOP PROCESSORS

## ACCELERATE PERFORMANCE WITH 8<sup>TH</sup> GEN INTEL® CORE™ PROCESSOR FAMILY.

All-new performance. All-new experiences.  
An all-new computer.

### PERFORMANCE TO EXCITE

A desktop computer based on a 8th Generation Intel® Core™ processor is always ready for real-life productivity, creativity and entertainment.

### EXPERIENCE TO AMAZE

8th Generation Intel® Core™ processor-based desktop PCs are packed with new and enhanced features to deliver amazing experiences that a 5-year old PC can't handle. Uncompromised gaming, while you stream, chat and share with your community – stunning visuals of Ultra HD 4K premium content – or transport into a great VR experience.

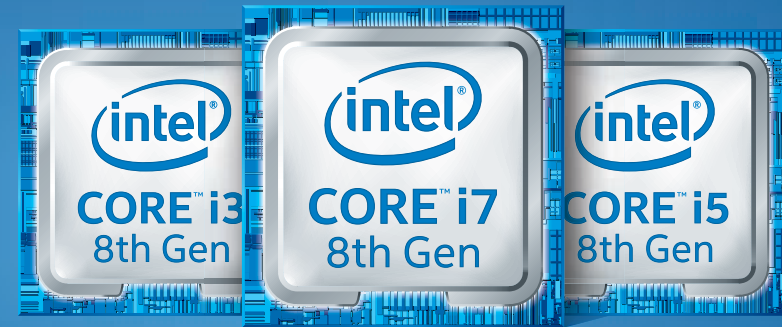
### HARDWARE-BASED FEATURES MITIGATE THREATS

8th Generation Intel® Core™ processors offer hardware-level security features that strengthen the protection of your enabled security software. Hardware-based security to help you compute with greater peace of mind.

### SCALABLE PORTFOLIO OF PROCESSORS

The 8th Generation Intel® Core™ processor family delivers significant value and is a great investment in your success. From the i7-8700K to the i3-8100, there is a processor to fit a wide range of budgets and needs, from the performance-hungry professionals to the first-time buyers.

# 8<sup>TH</sup> GENERATION INTEL<sup>®</sup> CORE<sup>™</sup> DESKTOP PROCESSOR



## Be Ready for Amazing Experiences

This new generation of processors extends all the capabilities users have come to love in our desktop platforms with advanced innovations that deliver exciting new features to immerse you in incredible experiences on a variety of form factors.

### Experience Amazing

8th Generation Intel<sup>®</sup> Core<sup>™</sup> processor-based desktop platforms are loaded with new and enhanced features to deliver amazing experiences that five-year-old systems can't handle.

### Incredible VR

A high-performance processor is key to achieving a balanced platform to make your VR experiences great. Attach your premium head-mounted display (HMD) to an Intel<sup>®</sup> Core<sup>™</sup> i7 or i5 processor-based PC, and prepare to be amazed.

### Great Gaming

Outstanding gaming experiences extend beyond your personal smooth gameplay to your entire gaming community. The 8th Generation Intel<sup>®</sup> Core<sup>™</sup> processor family makes it easy to share those experiences by live-streaming or recording, editing, and posting your epic highlights.

### Ultra-high Definition Entertainment

Desktop computers based on the 8th Generation Intel<sup>®</sup> Core<sup>™</sup> processors integrate advanced media technologies that bring premium, high-quality content to your desktop.

### Ultimate Protection Built Into the Silicon<sup>1</sup>

8th Generation Intel<sup>®</sup> Core<sup>™</sup> processors integrate hardware-level technologies that strengthen the protection of your enabled security<sup>1</sup> software. Hardware-based security helps you experience online and offline activities with peace of mind.

### Scalable Portfolio of Processors

From the jaw-dropping performance of the 8th Generation Intel<sup>®</sup> Core<sup>™</sup> i7-8700K processor with six cores to the practical capabilities of the 8th Generation Intel<sup>®</sup> Core<sup>™</sup> i3-8100 processor, our latest generation of desktop processors fits a wide range of budgets and needs.

### Prepare to be Amazed

The 8th Generation Intel<sup>®</sup> Core<sup>™</sup> processors are raising the bar of desktop computing with innovations to drive exciting experiences, capabilities, and form factors. Experience all the amazing things you and a new 8th Generation Intel<sup>®</sup> Core<sup>™</sup> processor-powered PC can do.

<sup>1</sup> Intel<sup>®</sup> technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at <https://www.intel.co.za>.

\* Other brands and names may be claimed as the property of others

# 8<sup>TH</sup> GEN INTEL® CORE™ DESKTOP PLATFORM



## Exceptional Platform Performance

The 8th Generation Intel® Core™ processors redefine mainstream desktop PC performance with up to six cores for more processing power—that's two more cores than the previous generation Intel® Core™ processor family—Intel® Turbo Boost Technology 2.0 to increase the maximum turbo frequency up to 4.7 GHz, and up to 12 MB of cache memory.<sup>1</sup> Intel® Hyper-Threading Technology (Intel® HT Technology)<sup>1</sup> delivers up to 12-way multitasking support in the latest generation of Intel® Core™ processors. For the enthusiast, the unlocked 8th Generation Intel® Core™ i7-8700K processor provides you the opportunity to tweak the platform performance to its fullest potential and enjoy great gaming and VR experiences.

### The new 8th Generation Intel® Core™ processor family delivers:

- An impressive portfolio of standard and unlocked systems for a broad range of usages and performance levels
- New system acceleration when paired with Intel® Optane™ memory to deliver amazing system responsiveness<sup>1</sup>
- Intel® Turbo Boost Technology 2.0 to give you that extra burst of performance when you need it
- Intel® Hyper-Threading Technology (Intel® HT Technology), which allows each processor core to work on two tasks at the same time, improving multitasking, speeding up workflows, and accomplishing more in less time
- DDR4 RAM memory technology support, which allows systems to have up to 64 GB of memory and up to 2666 MT/s memory transfer speeds
- The ability to set an overclocked ratio per core with unlocked processors,<sup>1</sup> when paired with select chipset SKUs, to provide you more control and more granularity for overclocking<sup>2</sup> your platform



BRAND NAME AND PROCESSOR NUMBER <sup>3</sup>	BASE FREQUENCY	MAX TURBO FREQUENCY <sup>4</sup>	PCI EXPRESS* 3.0 LANES	MEMORY SPEED	TDP	SOCKET (LGA)
Intel® Core™ i7-8700K	3.70 GHz	4.70 GHz	16	2 channels DDR4-2666	95 W	1151
Intel® Core™ i7-8700	3.20 GHz	4.60 GHz	16	2 channels DDR4-2666	65 W	1151
Intel® Core™ i5-8600K	3.60 GHz	4.30 GHz	16	2 channels DDR4-2666	95 W	1151
Intel® Core™ i5-8400	2.80 GHz	4.00 GHz	16	2 channels DDR4-2666	65 W	1151
Intel® Core™ i3-8350K	4.00 GHz	N/A	16	2 channels DDR4-2400 <sup>5</sup>	91 W	1151
Intel® Core™ i3-8100	3.60 GHz	N/A	16	2 channels DDR4-2400 <sup>5</sup>	65 W	1151

<sup>1</sup> Intel® technologies features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at <http://www.intel.com>.

<sup>2</sup> Warning: Altering PC clock or memory frequency and/or voltage may (i) reduce system stability and use life of the system, memory and processor; (ii) cause the processor and other system components to fail; (iii) cause reductions in system performance; (iv) cause additional heat or other damage; and (v) affect system data integrity. Intel assumes no responsibility that the memory, included if used with altered clock frequencies and/or voltages, will be fit for any particular purpose. Check with memory manufacturer for warranty and additional details. For more information, visit <http://www.intel.com/content/www/za/en/gaming/overclocking-intel-processors.html>.

<sup>3</sup> NOTE: Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See [www.intel.com/products/processor\\_number](http://www.intel.com/products/processor_number) for details.

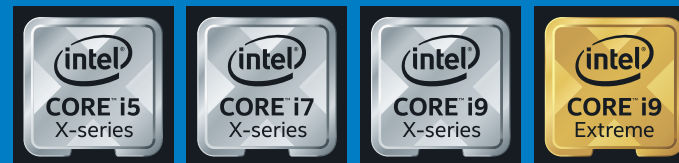
<sup>4</sup> Refers to the maximum single-core frequency that can be achieved with Intel® Turbo Boost Technology

<sup>5</sup> DDR4-2400 support is 1 and 2 DPC for UDIMMs but only 1DPC for SODIMMs

\* Other brands and names may be claimed as the property of others



# INTEL® CORE™ X-SERIES PROCESSOR FAMILY



## Intel® Core™ X-Series Processors and Intel® X299 Chipset<sup>1</sup>

Up to 18 Cores, 36 Way Multitask Processing.  
Ultimate platform for extreme gaming systems, intensive digital content creation and virtual reality usages.

- Unprecedented scalability from 4 cores to 18 cores
- Fully unlocked for performance tuning
- Improved Intel® Turbo Boost Max Technology 3.0
- Intel® Turbo Boost Technology 2.0
- Rebalanced Intel® Smart Cache hierarchy
- Up to 44 PCI Express\* 3.0 lanes
- Support for Optane™ Memory

## Intel® X99 Chipset

- Processor Overclocking with all Intel® Core™ X-series processors
- PCI Express 3.0 storage support with Intel® Rapid Storage Technology



BRAND NAME AND PROCESSOR NUMBER <sup>2</sup>	BASE FREQUENCY	MAX TURBO FREQUENCY <sup>3</sup>	INTEL® TURBO BOOST MAX TECHNOLOGY 3.0 <sup>4</sup>	CORES/THREADS	PCI EXPRESS* 3.0 LANES	MEMORY SPEED	TDP	SOCKET (LGA)
Intel® Core™ i9-7980XE	2.60 GHz	4.20 GHz	4.40 GHz	18/36	44	4 channels DDR4-2666	165 W	2066
Intel® Core™ i9-7960X	2.80 GHz	4.20 GHz	4.40 GHz	16/32	44	4 channels DDR4-2666	165 W	2066
Intel® Core™ i9-7940X	3.10 GHz	4.30 GHz	4.40 GHz	14/28	44	4 channels DDR4-2666	165 W	2066
Intel® Core™ i9-7920X	2.90 GHz	4.30 GHz	4.40 GHz	12/24	44	4 channels DDR4-2666	140 W	2066
Intel® Core™ i9-7900X	3.30 GHz	4.30 GHz	4.50 GHz	10/20	44	4 channels DDR4-2666	140 W	2066
Intel® Core™ i7-7820X	3.60 GHz	4.30 GHz	4.50 GHz	8/16	28	4 channels DDR4-2666	140 W	2066
Intel® Core™ i7-7800X	3.50 GHz	4.00 GHz	N/A	6/12	28	4 channels DDR4-2400	140 W	2066
Intel® Core™ i7-7740X	4.30 GHz	4.50 GHz	N/A	4/8	16	2 channels DDR4-2666	112 W	2066
Intel® Core™ i5-7640X	4.00 GHz	4.20 GHz	N/A	4/4	16	2 channels DDR4-2666	112 W	2066

<sup>1</sup> Features are present with select chipsets and processor combinations. Warning: Altering clock frequency and/or voltage may (i) reduce system stability and useful life of the system and processor; (ii) cause the processor and other system components to fail; (iii) cause reductions in system performance; (iv) cause additional heat or other damage; and (v) affect system data integrity. Intel has not tested, and does not warranty, the operation of the processor beyond its specifications.

<sup>2</sup> NOTE: Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See [www.intel.com/products/processor\\_number](http://www.intel.com/products/processor_number) for details.

<sup>3</sup> Refers to the maximum dual-core frequency that can be achieved with Intel® Turbo Boost Technology 2.0

<sup>4</sup> Refers to the maximum dual-core frequency that can be achieved with Intel® Turbo Boost Technology Max 3.0

\* Other brands and names may be claimed as the property of others

# 7<sup>TH</sup> GEN INTEL® CORE™ DESKTOP PLATFORM

## 7th Gen Intel® Core™ Processors and Intel® 200 Series Chipset<sup>1</sup>

Leading the pack is the Intel® Core™ i7-7700K processor. Architected for performance, this processor packs 4 high-performing cores with core base frequency of 4.2GHz and 8MB of cache memory. Kick up the performance even higher with Intel® Turbo Boost 2.0 technology to bump the max turbo frequency to an amazing 4.5GHz. Add Intel® Hyper-Threading Technology for 8-way multitasking to deliver the performance knockout punch. Not enough? For the enthusiast, this processor is unlocked, you can tweak the performance to its fullest potential. The new 7th Gen Intel Core desktop processors deliver:

- An impressive portfolio of standard and unlocked processors
- Supports Intel® Optane™ memory
- Intel® Turbo Boost Technology 2.0
- Intel® Hyper-Threading Technology
- Intel® Smart Cache Technology with up to 8MB of Cache
- Supports Two-Channel DDR4/DDR3L
- Intel® HD Graphics 630 (1150 MHz)
- 16 PCI Express\* 3.0 lanes

### Intel® Z270 Chipset

- Processor Overclocking with Intel® Processor “K” SKUs
- PCI Express 3.0 storage support with Intel® Rapid Storage Technology
- Support for processor PCIe Express\* 3.0 1x16, 2x8, or 1x8 and 2x4



BRAND NAME AND PROCESSOR NUMBER <sup>2</sup>	BASE FREQUENCY	MAX TURBO FREQUENCY <sup>3</sup>	PCI EXPRESS* 3.0 LANES	MEMORY SPEED	TDP	SOCKET (LGA)
Intel® Core™ i7-7700K	4.2 GHz	Up to 4.5 GHz	16	2 channels DDR4-2400 <sup>4</sup> DDR3L-1600	91 W	1151
Intel® Core™ i7-7700	3.6 GHz	Up to 4.2 GHz	16	2 channels DDR4-2400 <sup>4</sup> DDR3L-1600	65 W	1151
Intel® Core™ i5-7600K	3.8 GHz	Up to 4.2 GHz	16	2 channels DDR4-2400 <sup>4</sup> DDR3L-1600	91 W	1151
Intel® Core™ i5-7600	3.5 GHz	Up to 4.1 GHz	16	2 channels DDR4-2400 <sup>4</sup> DDR3L-1600	65 W	1151
Intel® Core™ i3-7350K	4.2 GHz	N/A	16	2 channels DDR4-2400 <sup>4</sup> DDR3L-1600	60 W	1151
Intel® Core™ i3-7300	4.0 GHz	N/A	16	2 channels DDR4-2400 <sup>4</sup> DDR3L-1600	51 W	1151

<sup>1</sup> Features are present with select chipsets and processor combinations. Warning: Altering clock frequency and/or voltage may (i) reduce system stability and useful life of the system and processor; (ii) cause the processor and other system components to fail; (iii) cause reductions in system performance; (iv) cause additional heat or other damage; and (v) affect system data integrity. Intel has not tested, and does not warranty, the operation of the processor beyond its specifications.

<sup>2</sup> NOTE: Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See [www.intel.com/products/processor\\_number](http://www.intel.com/products/processor_number) for details.

<sup>3</sup> Refers to the maximum single-core frequency that can be achieved with Intel® Turbo Boost Technology

<sup>4</sup> DDR4-2400 support is 1 and 2 DPC for UDIMMs but only 1DPC for SODIMMs

\* Other brands and names may be claimed as the property of others

# INTEL® Z370 CHIPSET



## Unlock Next Level Performance

### UNLOCK NEW ADVENTURES WITH THE 8TH GENERATION INTEL® CORE™ PROCESSOR

Get the edge over your competitors with the Intel® Z370 chipset and 8th Generation Intel® Core™ processors. From battling your fiercest e-sports opponents to quickly accessing your favorite media files, the Intel® Z370 chipset and 8th Generation Intel® Core™ processors provide you with tools such as Intel® Turbo Boost Technology 2.0<sup>3</sup> and Intel® Hyper-Threading Technology (Intel® HT Technology)<sup>3</sup> to ensure you are ready to compete.

### UNLEASH GREAT PERFORMANCE

Take control of your performance with the Intel® Z370 chipset and unlocked 8th Generation Intel® Core™ processors. Unlock your core, graphics, and memory frequencies<sup>1</sup> to new heights as you conquer your next epic adventure. The Intel® Z370 chipset paired with new unlocked 8th Generation Intel® Core™ processors sets free a top gaming experience.

### FAST PC RESPONSIVENESS AT YOUR COMMAND

The Intel® Z370 chipset and 8th Generation Intel® Core™ processors enable support for Intel® Optane™ memory which speeds up access to your favorite programs and files.<sup>2</sup> With the fast application response times enabled by Intel® Optane™ memory, you can take the advantage over your competition. Experience immersive sound quality via Intel® High Definition Audio (Intel® HD Audio) and enable your PC to respond to your voice commands with Intel® Smart Sound Technology (Intel® SST).<sup>3</sup>

### IMMERSIVE VISUALS WITH INTEL® UHD GRAPHICS

Intel® UHD Graphics on 8th Generation Intel® Core™ processors provide eye-popping 4K UHD resolutions. Experience more immersive gaming with High Dynamic Range (HDR) and Rec. 2020 (Wide Color Gamut) support. Playback your favorite videos with color precision via native true 10-bit graphics output. Watch the latest 4K UHD premium content on your PC from leading online providers.<sup>3</sup> With up to three independent, DisplayPort\* and/or HDMI\* displays supported with the Intel® Z370 chipset, you can immerse yourself into your gaming experience.

### MASSIVE STORAGE CAPABILITIES

Expand your storage capabilities with the Intel® Z370 chipset and 8th Generation Intel® Core™ processors. Quickly transfer your files to your phone or tablet via the integrated USB 3.1 Gen 1 support of the Intel® Z370 chipset. Create fast storage volumes and back-up your media and critical information via RAID support on PCI Express\* SSDs and SATA devices.<sup>3</sup> Enable blazingly fast data transfers to your favorite devices with PCI Express\* 3.0.

## FEATURES

## Z370

Bus Speed	8 GT/s DMI3
TDP	6 W
Supports Overclocking	Yes
# of DIMMs per channel	2
# of Displays Supported	3
PCI Support	No
PCI Express Configurations	x1, x2, x4
PCI Express Revision	3.0
Max # of PCI Express Lanes	24
USB 3.0 / USB 2.0	Up to 10 / Up to 14
Max # of SATA 6.0 Gb/s Ports	6
Integrated LAN	Integrated MAC
# of USB Ports	14
RAID Configuration	PCIe* 0,1,5 / SATA 0,1,5,10
Supported Processor PCI Express Port Configurations	1x16 or 2x8 or 1x8+2x4
Intel® Optane™ Memory Supported	Yes
Intel® vPro™ Technology	No
Intel® HD Audio Technology	Yes
Intel® Rapid Storage Technology enterprise	No
Intel® Stable Image Platform Program (SIPP)	No
Intel® Smart Sound Technology	Yes
Intel® Virtualization Technology for Directed I/O (VT-d)	Yes
Intel® ME Firmware Version	11
Intel® Rapid Storage Technology	Yes
Intel® Standard Manageability	No
Intel® Rapid Storage Technology for PCI Storage	Yes
Intel® Platform Trust Technology (Intel® PTT)	Yes
Intel® Trusted Execution Technology	No
Intel® Device Protection Technology with Boot Guard	Yes

<sup>1</sup> Altering clock frequency or voltage may damage or reduce the useful life of the processor and other system components, and may reduce system stability and performance. Product warranties may not apply if the processor is operated beyond its specifications. Check with the manufacturers of system and components for additional details.

<sup>2</sup> Intel® Optane™ memory requires specific hardware and software configuration. Visit [www.intel.com/OptaneMemory](http://www.intel.com/OptaneMemory) for configuration requirements.

<sup>3</sup> Intel® technologies features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at <http://www.intel.com>.

All information provided here is subject to change without notice. Contact your Intel representative to obtain the latest Intel product specifications and roadmaps. \* Other brands and names may be claimed as the property of others.

# INTEL® 200 SERIES CHIPSET



## FEATURES<sup>1</sup>

	H270	Z270	B250	Q250	Q270
Processor Support / Socket	LGA 1151	LGA 1151	LGA 1151	LGA 1151	LGA 1151
Processor Overclocking	-	✓ <sup>1</sup>	-	-	-
Independent Display Support (digital ports/pipes)	3/3	3/3	3/3	3/3	3/3
Intel® Rapid Storage Technology	✓	✓	✓	✓	✓
Intel® Rapid Storage Technology SATA RAID 0/1/5/10	✓	✓			✓
Intel® Rapid Storage Technology for PCIe Storage Driver	✓	✓	✓	✓	✓
Intel® Smart Response Technology	-	✓			✓
Intel® Smart Connect Technology	-	-	-	-	-
Intel® Rapid Start Technology	-	-	-	-	-
Intel® Wireless Display	✓	✓	✓	✓	✓
Intel® Platform Trust Technology	✓	✓	✓	✓ (w/o Intel® TXT)	✓ (w/o Intel® TXT)
Intel® Device Protection Technology with Boot Guard	✓	✓	✓	✓	✓
Processor PCI Express* 3.0 Configuration	1x16	1x16 or 2x8 or 1x8+2x4	1x16	1x16	1x16 or 2x8 or 1x8+2x4
Intel® ME Firmware SKU <sup>2</sup>	Cons./Corp.	Cons.	Cons./Corp.	Corp.	Corp.
Intel® SIPP	-	-	-	✓	✓
Intel® vPro™ Technology	-	-	-	-	✓
Intel® Active Management Technology	-	-	-	-	✓
Intel® Standard Manageability	-	-	-	✓	✓
Intel® Small Business Advantage	✓	-	✓	✓	✓
Intel® Small Business Basics	✓	-	✓	✓	✓
Total USB Ports (Max USB 3.0)	14(8)	14(10)	12(6)	14(8)	14(10)
Total SATA Ports (Max 6 Gb/s)	6	6	6	6	6
Max PCI Express* Ports (Gen)	16(3.0)	24(3.0)	12(3.0)	14(3.0)	24(3.0)
Max Intel® RST for PCIe Storage (x4 M.2 or x2 SATA Express)	2	3	1	1	3

<sup>1</sup> Features are present with select chipsets and processor combinations. Warning: Altering clock frequency and/or voltage may (i) reduce system stability and useful life of the system and processor; (ii) cause the processor and other system components to fail; (iii) cause reductions in system performance; (iv) cause additional heat or other damage; and (v) affect system data integrity. Intel has not tested, and does not warrant, the operation of the processor beyond its specifications.

All information provided here is subject to change without notice. Contact your Intel representative to obtain the latest Intel product specifications and roadmaps.

\* Other brands and names may be claimed as the property of others.



# INTEL® 100 SERIES CHIPSET



## FEATURES<sup>1</sup>

	H110	H170	Z170	B150	Q150	Q170
Processor Support / Socket	LGA 1151	LGA 1151	LGA 1151	LGA 1151	LGA 1151	LGA 1151
Processor Overclocking	-	-	✓ <sup>1</sup>	-	-	-
Independent Display Support (digital ports/pipes)	3/2	3/3	3/3	3/3	3/3	3/3
Intel® Rapid Storage Technology	✓	✓	✓	✓	✓	✓
Intel® Rapid Storage Technology SATA RAID 0/1/5/10	-	✓	✓	-	-	✓
Intel® Rapid Storage Technology for PCIe Storage Driver	-	✓	✓	-	-	✓
Intel® Smart Response Technology	-	✓	✓	-	-	✓
Intel® Smart Connect Technology	-	-	-	-	-	-
Intel® Rapid Start Technology	-	-	-	-	-	-
Intel® Wireless Display	✓	✓	✓	✓	✓	✓
Intel® Platform Trust Technology	✓	✓	✓	✓	✓ (w/o Intel® TXT)	✓ (w/o Intel® TXT)
Intel® Device Protection Technology with Boot Guard	✓	✓	✓	✓	✓	✓
Processor PCI Express* 3.0 Configuration	1x16	1x16	1x16 or 2x8 or 1x8+2x4	1x16	1x16	1x16 or 2x8 or 1x8+2x4
Intel® ME Firmware SKU <sup>2</sup>	Cons.	Cons./ Corp.	Cons.	Corp.	Corp.	Corp.
Intel® SIPP	-	-	-	-	✓	✓
Intel® vPro™ Technology	-	-	-	-	-	✓
Intel® Active Management Technology	-	-	-	-	-	✓
Intel® Standard Manageability	-	-	-	-	✓	✓
Intel® Small Business Advantage	-	✓	-	✓	✓	✓
Intel® Small Business Basics	✓	✓	-	✓	✓	✓
Total USB Ports (Max USB 3.0)	10 (4)	14 (8)	14 (10)	12 (6)	14 (8)	14 (10)
Total SATA Ports (Max 6 Gb/s)	4 (4)	6 (6)	6 (6)	6 (6)	6 (6)	6 (6)
Max PCI Express* Ports (Gen)	6 (2.0)	16 (3.0)	20 (3.0)	8 (3.0)	10 (3.0)	20 (3.0)
Max Intel® RST for PCIe Storage (x4 M.2 or x2 SATA Express)	0	2	3	0	0	3

<sup>1</sup> Features are present with select chipsets and processor combinations. Warning: Altering clock frequency and/or voltage may (i) reduce system stability and useful life of the system and processor; (ii) cause the processor and other system components to fail; (iii) cause reductions in system performance; (iv) cause additional heat or other damage; and (v) affect system data integrity. Intel has not tested, and does not warranty, the operation of the processor beyond its specifications.

All information provided here is subject to change without notice. Contact your Intel representative to obtain the latest Intel product specifications and roadmaps.

\* Other brands and names may be claimed as the property of others.



# 8<sup>TH</sup> GENERATION INTEL® CORE™ DESKTOP PROCESSOR PRODUCTS

## 8th Generation Intel® Core™ Processor SKUs

Processor Number	Base Frequency (GHz) <sup>1</sup>	Total Cache	Cores/Threads	Memory Support (DDR4)	Intel® Turbo Boost Technology maximum single core turbo frequency (GHz) <sup>2</sup>	Unlocked <sup>3</sup>	Graphics	Dynamic Frequency (MHz)	Integrated Memory Controller	TDP (W)	FMB	Intel Technologies					Intel® Device Protection with Boot Guard
												Intel® SIPP	Intel® vPro Technology	Intel® VT-d	Intel® TXT	AES-NI	
i7-8700	3.20	12M	6/12	2666	4.60		Intel® UHD Graphics 630	1200	2 ch	65	2015C	✓	✓	✓	✓	✓	✓
i7-8700K	3.70	12M	6/12	2666	4.70	✓	Intel® UHD Graphics 630	1200	2 ch	95	2015C	✓	✓	✓	✓	✓	✓
i5-8600K	3.60	9M	6/6	2666	4.30	✓	Intel® UHD Graphics 630	1150	2 ch	95	2015C	✓	✓	✓	✓	✓	✓
i5-8400	2.80	9M	6/6	2666	4.00		Intel® UHD Graphics 630	1050	2 ch	65	2015C			✓		✓	✓
i3-8350K	4.00	8M	4/4	2400	N/A	✓	Intel® UHD Graphics 630	1150	2 ch	91	2015C			✓		✓	✓
i3-8100	3.60	6M	4/4	2400	N/A		Intel® UHD Graphics 630	1100	2 ch	65	2015C			✓		✓	✓

<sup>1</sup> Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. Go to: [http://www.intel.com/products/processor\\_number/](http://www.intel.com/products/processor_number/)

All processors are lead-free (per EU RoHS directive July 2006) and halogen free (residual amounts of halogens are below November 2007 proposed IPC/JEDEC J-STD-709 standards)

All processors support Intel® Virtualization Technology (Intel® VT-x)

<sup>2</sup> Requires a system with Intel® Turbo Boost Technology. Intel Turbo Boost Technology and Intel Turbo Boost Technology 2.0 are only available on select Intel® processors. Consult your PC manufacturer. Performance varies tem configuration. For more information, visit <http://www.intel.com/go/turbo>

<sup>3</sup> Warning: Altering PC clock or memory frequency and/or voltage may (i) reduce system stability and use life of the system, memory and processor; (ii) cause the processor and other system components to fail; (iii) cause reductions in system performance; (iv) cause additional heat or other damage; and (v) affect system data integrity. Intel assumes no responsibility that the memory, included if used with altered clock frequencies and/or voltages, will be fit for any particular purpose. Check with memory manufacturer for warranty and additional details. Intel® Turbo Boost Technology



# 7<sup>TH</sup> GENERATION INTEL® CORE™ DESKTOP PROCESSOR PRODUCTS

## 7th Generation Intel® Core™ Processor SKUs

Processor Number	Base Frequency (GHz) <sup>1</sup>	Total Cache	Cores/Threads	Memory Support (DDR4/DDR3L)	Intel® Turbo Boost Technology maximum single core turbo frequency (GHz) <sup>2</sup>	Unlocked <sup>3</sup>	Graphics	Dynamic Frequency (MHz)	Integrated Memory Controller	TDP (W)	FMB	Intel Technologies					Intel® Device Protection with Boot Guard
												Intel® SIPP	Intel® vPro Technology	Intel® VT-d	Intel® TXT	AES-NI	
i7-7700K	4.2	8M	4/8	DDR4/DDR3L 2400 <sup>2</sup> /1600	Up to 4.5GHz	✓	Intel® HD Graphics 630	1150	2 ch	91	2015D			✓		✓	✓
i7-7700	3.6	8M	4/8	DDR4/DDR3L 2400 <sup>2</sup> /1600	Up to 4.2GHz		Intel® HD Graphics 630	1150	2 ch	65	2015C	✓	✓	✓	✓	✓	✓
i5-7600K	3.8	6M	4/8	DDR4/DDR3L 2400 <sup>2</sup> /1600	Up to 4.2GHz	✓	Intel® HD Graphics 630	1150	2 ch	91	2015D			✓		✓	✓
i5-7600	3.5	6M	4/4	DDR4/DDR3L 2400 <sup>2</sup> /1600	Up to 3.1GHz		Intel® HD Graphics 630	1150	2 ch	65	2015C	✓	✓	✓	✓	✓	✓
i5-7500	3.4	6M	4/4	DDR4/DDR3L 2400 <sup>2</sup> /1600	Up to 3.8GHz		Intel® HD Graphics 630	1050	2 ch	65	2015C	✓	✓	✓	✓	✓	✓
i5-7400	3.0	6M	4/4	DDR4/DDR3L 2400 <sup>2</sup> /1600	Up to 3.5GHz		Intel® HD Graphics 630	950	2 ch	65	2015C					✓	✓
i3-7350K	4.2	4M	2/4	DDR4/DDR3L 2400 <sup>2</sup> /1600	N/A	✓	Intel® HD Graphics 630	1150	2 ch	60	2015D			✓		✓	✓
i3-7320	4.1	4M	2/4	DDR4/DDR3L 2400 <sup>2</sup> /1600	N/A		Intel® HD Graphics 630	1150	2 ch	51	2015C					✓	✓
i3-7300T	3.5	4M	2/8	DDR4/DDR3L 2400 <sup>2</sup> /1600	N/A		Intel® HD Graphics 630	950	2 ch	35	2015A					✓	✓
i3-7300	4.0	4M	2/4	DDR4/DDR3L 2400 <sup>2</sup> /1600	N/A		Intel® HD Graphics 630	1150	2 ch	51	2015C					✓	✓
i3-7100T	3.4	3M	2/4	DDR4/DDR3L 2400 <sup>2</sup> /1600	N/A		Intel® HD Graphics 630	950	2 ch	35	2015A					✓	✓
i3-7100	3.9	3M	2/4	DDR4/DDR3L 2400 <sup>2</sup> /1600	N/A		Intel® HD Graphics 630	1050	2 ch	51	2015C					✓	✓

<sup>1</sup> Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. Go to: [http://www.intel.com/products/processor\\_number/](http://www.intel.com/products/processor_number/)  
 All processors are lead-free (per EU RoHS directive July 2006) and halogen free (residual amounts of halogens are below November 2007 proposed IPC/JEDEC J-STD-709 standards)  
 All processors support Intel® Virtualization Technology (Intel® VT-x)  
<sup>2</sup> Requires a system with Intel® Turbo Boost Technology. Intel Turbo Boost Technology and Intel Turbo Boost Technology 2.0 are only available on select Intel® processors. Consult your PC manufacturer. Performance varies tem configuration. For more information, visit <http://www.intel.com/go/turbo>  
<sup>3</sup> Warning: Altering PC clock or memory frequency and/or voltage may (i) reduce system stability and use life of the system, memory and processor; (ii) cause the processor and other system components to fail; (iii) cause reductions in system performance; (iv) cause additional heat or other damage; and (v) affect system data integrity. Intel assumes no responsibility that the memory, included if used with altered clock frequencies and/or voltages, will be fit for any particular purpose. Check with memory manufacturer for warranty and additional details. Intel® Turbo Boost Technology



# 7<sup>TH</sup> GENERATION INTEL® CORE™ DESKTOP PROCESSOR PRODUCTS

## 7th Generation Intel® Core™ Processor SKUs

Processor Number	Base Frequency (GHz) <sup>1</sup>	Total Cache	Cores/Threads	Memory Type	Memory Speed Support (DDR4/DDR3L)	Intel® Turbo Boost Technology maximum single core turbo frequency (GHz) <sup>2</sup>	Unlocked <sup>3</sup>	Graphics	Dynamic Frequency (MHz)	Integrated Memory Controller	TDP (W)	FMB	Intel Technologies					
													Intel® SIPP	Intel® vPro Technology	Intel® VT-d	Intel® TXT	AES-NI	Intel® Device Protection with Boot Guard
<b>G4620</b>	3.7	3M	2/4	DDR4/DDR3L	2400 <sup>1</sup> /1600	N/A		Intel® HD Graphics 630	1100	2 ch	51	2015C			✓		✓	✓
<b>G4600</b>	3.6	3M	2/4	DDR4/DDR3L	2400 <sup>1</sup> /1600	N/A		Intel® HD Graphics 630	1100	2 ch	51	2015C						
<b>G4560</b>	3.5	3M	2/4	DDR4/DDR3L	2400 <sup>1</sup> /1600	N/A		Intel® HD Graphics 610	1100	2 ch	54 <sup>4</sup>	2015C			✓		✓	✓
<b>G3950</b>	3.0	2M	2/2	DDR4/DDR3L	2133/1600	N/A		Intel® HD Graphics 610	1050	2 ch	51	2015C			✓		✓	✓
<b>G3930</b>	2.9	2M	2/2	DDR4/DDR3L	2133/1600	N/A		Intel® HD Graphics 610	1050	2 ch	51	2015C			✓		✓	✓
<b>Socket 1151</b>																		
<b>i3-7300T</b>	3.5	4M	2/4	DDR4/DDR3L	2400 <sup>1</sup> /1600	N/A		Intel® HD Graphics 630	1100	2 ch	35	2015A			✓		✓	✓
<b>i3-7100T</b>	3.4	3M	2/4	DDR4/DDR3L	2400 <sup>1</sup> /1600	N/A		Intel® HD Graphics 630	1100	2 ch	35	2015A			✓		✓	✓
<b>G4600T</b>	3.0	3M	2/4	DDR4/DDR3L	2400 <sup>1</sup> /1600	N/A		Intel® HD Graphics 630	1050	2 ch	35	2015A			✓		✓	✓
<b>G4560T</b>	2.9	3M	2/4	DDR4/DDR3L	2400 <sup>1</sup> /1600	N/A		Intel® HD Graphics 610	1050	2 ch	35	2015A			✓		✓	✓
<b>G3930T</b>	2.7	2M	2/2	DDR4/DDR3L	2133/1600	N/A		Intel® HD Graphics 610	1000	2 ch	35	2015A			✓		✓	✓

Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families.

All processors are lead-free (per EU RoHS directive July 2006) and halogen free (residual amounts of halogens are below November 2007 proposed IPC/JEDEC J-STD-709 standards)

All processors support Intel® Virtualization Technology (Intel® VT-x)

<sup>1</sup> DDR4-2400 support is 1 and 2 DPC for UDIMMs but only 1 DPC for SODIMMs

<sup>2</sup> Requires a system with Intel® Turbo Boost Technology. Intel Turbo Boost Technology and Intel Turbo Boost Technology 2.0 are only available on select Intel® processors. Consult your PC manufacturer. Performance varies tem configuration. For more information, visit <http://www.intel.com/go/turbo>

<sup>3</sup> Warning: Altering PC clock or memory frequency and/or voltage may (i) reduce system stability and use life of the system, memory and processor; (ii) cause the processor and other system components to fail; (iii) cause reductions in system performance; (iv) cause additional heat or other damage; and (v) affect system data integrity. Intel assumes no responsibility that the memory, included if used with altered clock frequencies and/or voltages, will be fit for any particular purpose. Check with memory manufacturer for warranty and additional details.

<sup>4</sup> Fused from quad core source die

\* Intel® Standard Manageability



# 6<sup>TH</sup> GENERATION INTEL® CORE™ DESKTOP PROCESSOR PRODUCTS

## 6th Generation Intel® Core™ Processor SKUs

Processor Number	Base Frequency (GHz) <sup>1</sup>	Total Cache	Cores/Threads	Memory Support (DDR4/DDR3L)	Intel® Turbo Boost Technology maximum single core turbo frequency (GHz) <sup>2</sup>	Unlocked <sup>3</sup>	Graphics	Dynamic Frequency (MHz)	Integrated Memory Controller	TDP (W)	FMB	Intel Technologies					Intel® Device Protection with Boot Guard
												Intel® SIPP	Intel® vPro Technology	Intel® VT-d	Intel® TXT	AES-NI	
i7-6700K	4.0	8M	4/8	DDR4 - 1866/2133 DDR3L - 1333/1600	Up to 4.2GHz	✓	Intel® HD Graphics 530	1150	2 ch	91	2015D			✓		✓	✓
i7-6700	3.4	8M	4/8	DDR4 - 1866/2133 DDR3L - 1333/1600	Up to 4GHz		Intel® HD Graphics 530	1150	2 ch	65	2015C	✓	✓	✓	✓	✓	✓
i5-6600K	3.5	6M	4/4	DDR4 - 1866/2133 DDR3L - 1333/1600	Up to 3.9GHz	✓	Intel® HD Graphics 530	1150	2 ch	91	2015D			✓		✓	✓
i5-6600	3.3	6M	4/4	DDR4 - 1866/2133 DDR3L - 1333/1600	Up to 3.9GHz		Intel® HD Graphics 530	1150	2 ch	65	2015C	✓	✓	✓	✓	✓	✓
i5-6500	3.2	6M	4/4	DDR4 - 1866/2133 DDR3L - 1333/1600	Up to 3.6GHz		Intel® HD Graphics 530	1050	2 ch	65	2015C	✓	✓	✓	✓	✓	✓
i5-6400	2.7	6M	4/4	DDR4 - 1866/2133 DDR3L - 1333/1600	Up to 3.3GHz		Intel® HD Graphics 530	950	2 ch	65	2015C					✓	✓
i3-6320	3.9	4M	2/4	DDR4 - 1866/2133 DDR3L - 1333/1600	N/A		Intel® HD Graphics 530	1150	2 ch	51	2015C					✓	✓
i3-6300T	3.3	4M	2/4	DDR4 - 1866/2133 DDR3L - 1333/1600	N/A		Intel® HD Graphics 530	950	2 ch	35	2015A					✓	✓
i3-6300	3.8	4M	2/4	DDR4 - 1866/2133 DDR3L - 1333/1600	N/A		Intel® HD Graphics 530	1150	2 ch	51	2015C					✓	✓
i3-6100T	3.2	3M	2/4	DDR4 - 1866/2133 DDR3L - 1333/1600	N/A		Intel® HD Graphics 530	950	2 ch	35	2015A					✓	✓
i3-6100	3.7	3M	2/4	DDR4 - 1866/2133 DDR3L - 1333/1600	N/A		Intel® HD Graphics 530	1050	2 ch	51	2015C					✓	✓

<sup>1</sup> Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. Go to: [http://www.intel.com/products/processor\\_number/](http://www.intel.com/products/processor_number/)

All processors are lead-free (per EU RoHS directive July 2006) and halogen free (residual amounts of halogens are below November 2007 proposed IPC/JEDEC J-STD-709 standards)

All processors support Intel® Virtualization Technology (Intel® VT-x)

<sup>2</sup> Requires a system with Intel® Turbo Boost Technology. Intel Turbo Boost Technology and Intel Turbo Boost Technology 2.0 are only available on select Intel® processors. Consult your PC manufacturer. Performance varies tem configuration. For more information, visit <http://www.intel.com/go/turbo>

<sup>3</sup> Warning: Altering PC clock or memory frequency and/or voltage may (i) reduce system stability and use life of the system, memory and processor; (ii) cause the processor and other system components to fail; (iii) cause reductions in system performance; (iv) cause additional heat or other damage; and (v) affect system data integrity. Intel assumes no responsibility that the memory, included if used with altered clock frequencies and/or voltages, will be fit for any particular purpose. Check with memory manufacturer for warranty and additional details. Intel® Turbo Boost Technology

# 6<sup>TH</sup> GENERATION INTEL® CORE™ DESKTOP PROCESSOR PRODUCTS

## 6th Generation Intel® Core™ Processor SKUs

Processor Number	Base Frequency (GHz) <sup>1</sup>	Total Cache	Cores/Threads	Memory Type	Memory Speed Support (DDR4/DDR3L)	Intel® Turbo Boost Technology maximum single core turbo frequency (GHz) <sup>2</sup>	Unlocked <sup>3</sup>	Graphics	Dynamic Frequency (MHz)	Integrated Memory Controller	TDP (W)	FMB	Intel Technologies					Intel® Device Protection with Boot Guard
													Intel® SIPP	Intel® vPro Technology	Intel® VT-d	Intel® TXT	AES-NI	
<b>G4520</b>	3.6	3M	2/2	DDR4/DDR3L	2133/1600	N/A		Intel® HD Graphics 530	1050	2 ch	65	2015C			✓		✓	✓
<b>G4500</b>	3.5	3M	2/2	DDR4/DDR3L	2133/1600	N/A		Intel® HD Graphics 530	1050	2 ch	65	2015C			✓		✓	✓
<b>G4400</b>	3.3	3M	2/2	DDR4/DDR3L	2133/1600	N/A		Intel® HD Graphics 510	1050	2 ch	65	2015C			✓		✓	✓
<b>G3920</b>	2.9	2M	2/2	DDR4/DDR3L	2133/1600	N/A		Intel® HD Graphics 510	950	2 ch	65	2015C			✓		✓	✓
<b>G3900</b>	2.8	2M	2/2	DDR4/DDR3L	2133/1600	N/A		Intel® HD Graphics 510	950	2 ch	65	2015C			✓		✓	✓
<b>Socket 1151</b>																		
<b>i3-6300T</b>	3.3	4M	2/4	DDR4/DDR3L	2133/1600	N/A		Intel® HD Graphics 530	950	2 ch	35	2015A			✓		✓	✓
<b>i3-6100T</b>	3.2	3M	2/4	DDR4/DDR3L	2133/1600	N/A		Intel® HD Graphics 530	950	2 ch	35	2015A			✓		✓	✓
<b>G4500T</b>	3.0	3M	2/2	DDR4/DDR3L	2133/1600	N/A		Intel® HD Graphics 530	950	2 ch	35	2015A			✓		✓	✓
<b>G4400T</b>	2.9	3M	2/2	DDR4/DDR3L	2133/1600	N/A		Intel® HD Graphics 510	950	2 ch	35	2015A			✓		✓	✓
<b>G3900T</b>	2.6	2M	2/2	DDR4/DDR3L	2133/1600	N/A		Intel® HD Graphics 510	950	2 ch	35	2015A			✓		✓	✓

<sup>1</sup> Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. Go to: [http://www.intel.com/products/processor\\_processor\\_number/](http://www.intel.com/products/processor_processor_number/)

All processors are lead-free (per EU RoHS directive July 2006) and halogen free (residual amounts of halogens are below November 2007 proposed IPC/JEDEC J-STD-709 standards)

All processors support Intel® Virtualization Technology (Intel® VT-x)

<sup>2</sup> Requires a system with Intel® Turbo Boost Technology. Intel Turbo Boost Technology and Intel Turbo Boost Technology 2.0 are only available on select Intel® processors. Consult your PC manufacturer. Performance varies tem configuration. For more information, visit <http://www.intel.com/go/turbo>

<sup>3</sup> Warning: Altering PC clock or memory frequency and/or voltage may (i) reduce system stability and use life of the system, memory and processor; (ii) cause the processor and other system components to fail; (iii) cause reductions in system performance; (iv) cause additional heat or other damage; and (v) affect system data integrity. Intel assumes no responsibility that the memory, included if used with altered clock frequencies and/or voltages, will be fit for any particular purpose. Check with memory manufacturer for warranty and additional details. Intel® Turbo Boost Technology

# PERFORMANCE TUNING PROTECTION PLAN



**Allows a single replacement for your qualified boxed processor, in addition to your standard 3 year warranty.**

The Performance Tuning Protection Plan is an additional plan that a customer can purchase to cover boxed processor failures caused by operating the eligible boxed processor outside of Intel's published specifications.

Available for all unlocked boxed processors. Hassle-free, no questions asked. Learn more at: <http://click.intel.com/tuningplan>



# INTEL® BOXED THERMAL SOLUTIONS



## INTEL® THERMAL SOLUTION TS13X

Intel® Thermal Solution TS13X (liquid cooling) is the perfect fit for extreme gaming and overclocking<sup>1</sup>. It is designed for high-end desktop performance and overclocking needs.

### Features

- Optimized performance
  - 120mm x 25mm fan
  - Updated cooler block
  - Supports up to 140W TDP processors
  - Supports the LGA1366, LGA115X, LGA2011 and LGA2066 sockets
- Visual improvements
- Low-profile pump
  - Blue LED lighting with ON / OFF switch
- 3 year limited warranty

MM# 929672  
Product code: BXTS13X

For processors higher than 140W, please consult your preferred 3rd party manufacturer for a thermal solution that will best meet your system requirements.

## INTEL® THERMAL SOLUTION TS15A

The Intel® Thermal Solution TS15A (air cooling) is an efficient fit for performance desktops. It is designed to support a wide range of processor sockets for performance desktops.

### Features

- Supports up to 130 W processors
- Lower cost
- Shock and vibrate compliant and keep out safe
- Supports the LGA 1151/1156/1150
- 3 year limited warranty

MM# 944216  
Product code: BXTS15A

## INTEL® THERMAL SOLUTION TS13A

The Intel® Thermal Solution TS13A (air cooling) is designed for budget-focused cooling requirements. Targeted uses include business, government, and entry-level workstations.

### Features

- Supports up to 140 W processors
- Low cost
- Shock and vibrate compliant and keep out safe
- Supports the LGA2011 and LGA2011-v3 socket only
- 3 year limited warranty

MM# 937425  
Product code: BXTS13A

## INTEL® THERMAL SOLUTION HTS1155LP

The Intel® Thermal Solution HTS1155LP is a compact cooling solution for Thin Mini-ITX based All-in-One PCs, and compatible Mini PCs.

### Features

- Low-profile All-In-One / Small Form Factor thermal solution
- Supports up to 65 W processors in the LGA1155 socket
- Compatible with Thin Mini-ITX desktop boards
- Multiple options for fan placement
- Available now from authorized Intel® distributors
- 3 year limited warranty

MM# 917752  
Product code: BXHTS1155LP

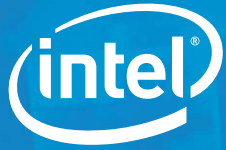
<sup>1</sup> WARNING: Altering clock frequency and/or voltage may: (i) reduce system stability and useful life of the system and processor; (ii) cause the processor and other system components to fail; (iii) cause reductions in system performance; (iv) cause additional heat or other damage; and (v) affect system data integrity. Intel has not tested, and does not warranty, the operation of the processor beyond its specifications. Intel assumes no responsibility that the processor, including if used with altered clock frequencies and/or voltages, will be fit for any particular purpose. For more information, visit <http://www.intel.com/consumer/game/gaming-power.htm>

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at <http://www.intel.com/support/processors/sb/CS-034910.htm> or <http://www.intel.com/support/processors/sb/CS-034340.htm>

Copyright © 2017 Intel Corporation. All rights reserved. Intel, the Intel logo, Intel Inside, the Intel Inside logo, and Intel Core are trademarks of Intel Corporation in the U.S. and/or other countries.

\* Other names and brands may be claimed as the property of others.





**SMALL  
PACKAGE. BIG  
POTENTIAL.**

**INTEL® NUC**

#### **INTEL® NUC**

The Intel® NUC is a powerful 4x4-inch mini PC with entertainment, gaming, and productivity features, including a customizable board that is ready to accept the memory, storage, and operating systems that you want.

#### **INTEL® NUC KITS**

Customizable kit, configurable features - choose memory, storage, and operating system.

#### **INTEL® NUC BOARDS**

4x4-inch form factor with soldered-on processor.



# INTEL® NUC MINI PC'S

**NEW! 7th generation Intel® NUCs, now with Optane!**

The Intel® Mini PC has gotten faster, smaller and smarter! The latest products with 7th generation Intel® Core™ processors are available, including 3 skus selling with Intel® Optane memory preinstalled for an incredibly responsive PC experience. Combining an incredibly small form factor, cutting-edge technologies and the performance of Intel's latest processors, the new Intel® NUCs deliver an incredible user experience.

## NEW INTEL® NUC KITS

Introducing the most fully featured NUC Kits Intel® has offered to date. Including new features such as 7th gen Intel processors, Thunderbolt 3, support for Intel Optane Memory, 4K video at 60Hz and a new modern industrial design.

## INTEL® NUC KITS

The Intel® NUC kits are available from various retailers and include a highly customizable four-by-four-inch board that is ready to accept the memory, hard drive, and operating system you choose to install.

## INTEL® NUC BOARDS

The four-by-four-inch Intel® NUC board comes complete with a soldered-on processor. The board can be purchased independently of the kit, giving you the flexibility to choose the chassis that best suits your needs.

# SMALL PACKAGE, BIG POTENTIAL

The Intel® NUC is an energy-efficient, fully functioning and versatile PC.



## IMMERSIVE GAMING

With a form factor as small as a game controller, but as powerful as a dragon slayer, the Intel® NUC delivers an immersive gaming experience.



## BUSINESS PRODUCTIVITY

The Intel® NUC delivers a fully functioning PC at a fraction of the size, as well as support for VESA\* mount brackets and much more.



## HOME ENTERTAINMENT

Compact and capable, Intel® NUC gives you the performance you need to be organized, connected and enjoy a visually stunning experience.



# INTEL® NUC KIT NUC6I7KYK

## Change the Game

Redefining what is possible in a Mini-PC, the Intel® NUC6i7KYK is the highest performing NUC ever. Packed with a 6th generation Intel® Core™ i7 processor, Intel® Iris™ Pro graphics and Thunderbolt 3, this NUC can power through most anything. With a sleek new design specifically optimized to eke out every bit of performance while minimizing fan noise, Skull Canyon raises the bar on what small can do.

## Specifications

- Intel® 6th Generation Core™ i7-6770HQ processor
- Intel® Iris™ Pro graphics 580
- Up to 32GB 2133+MHz DDR4 SODIMMs
- Up to 7.1 surround audio via HDMI and Mini DisplayPort
- Thunderbolt 3 port, with USB3.1, DP1.2 support (USB-C)
- 2 x M.2 SSD w/ Gen3 PCIe X4 AHCI, NVMe, or SATA-III 6Gbps





# NEW INTEL® NUC KITS<sup>1</sup>, WITH INTEL OPTANE MEMORY



PRODUCT FAMILY	NUC7i7BNHX	NUC7i5BNHX	NUC7i3BNHX
KIT / BOARD	Intel® NUC Kit <sup>1</sup>	Intel® NUC Kit <sup>1</sup>	Intel® NUC Kit <sup>1</sup>
5-PACK OUTERCASE	N/A	N/A	N/A
10-PACK PRODUCT CODE	N/A	N/A	N/A
PROCESSOR	Intel® Core™ i7-7567U	Intel® Core™ i5-7260U	Intel® Core™ i3-7100U
CHIPSET	N/A	N/A	N/A
INTEGRATED GRAPHICS CORE <sup>2</sup>	Intel® Iris™ Plus graphics 650	Intel® Iris™ Plus graphics 640	Intel® HD graphics 620
DISPLAY OUTPUTS	HDMI DisplayPort	HDMI DisplayPort	HDMI DisplayPort
MEMORY SUPPORT <sup>4</sup>	Dual-Channel DDR4-2133 SODIMM, 1.2V, 32 GB <sup>4</sup> maximum	Dual-Channel DDR4-2133 SODIMM, 1.2V, 32 GB <sup>4</sup> maximum	Dual-Channel DDR4-2133 SODIMM, 1.2V, 32 GB <sup>4</sup> maximum
2.5" HDD SUPPORT	Yes	Yes	Yes
EXPANSION CONNECTORS	M.2 Populated with 16GB Intel® Optane™ memory module	M.2 Populated with 16GB Intel® Optane™ memory module	M.2 Populated with 16GB Intel® Optane™ memory module
AUDIO <sup>3</sup>	Up to 7.1 multichannel digital audio via HDMI or DisplayPort signals 3.5mm front headset jack	Up to 7.1 multichannel digital audio via HDMI or DisplayPort signals 3.5mm front headset jack	Up to 7.1 multichannel digital audio via HDMI or DisplayPort signals 3.5mm front headset jack
USB PORTS	Two front USB 3.0 (one for charging), two rear USB 3.0, two internal USB 2.0 via header	Two front USB 3.0 (one for charging), two rear USB 3.0, two internal USB 2.0 via header	Two front USB 3.0 (one for charging), two rear USB 3.0, two internal USB 2.0 via header
ONBOARD LAN	Intel® (219-V 10/100/1000 Mbps Ethernet Intel® Wireless-AC 8265	Intel® (219-V 10/100/1000 Mbps Ethernet Intel® Wireless-AC 8265	Intel® (219-V 10/100/1000 Mbps Ethernet Intel® Wireless-AC 8265
POWER CORD OPTION	Multi-country plug (Types A/C/G/I) included	Multi-country plug (Types A/C/G/I) included	Multi-country plug (Types A/C/G/I) included
TRUSTED PLATFORM MODULE	N/A	N/A	N/A
LEAD-FREE	Yes	Yes	Yes
BIOS	Intel® Visual BIOS Intel® Express BIOS update support	Intel® Visual BIOS Intel® Express BIOS update support	Intel® Visual BIOS Intel® Express BIOS update support
WARRANTY	3 year limited warranty	3 year limited warranty	3 year limited warranty
OTHER	Replaceable lid Consumer Infrared sensor on front panel Micro SDXC slot with UHS-I support	Replaceable lid Consumer Infrared sensor on front panel Micro SDXC slot with UHS-I support	Replaceable lid Consumer Infrared sensor on front panel Micro SDXC slot with UHS-I support

# NEW INTEL® NUC SYSTEMS AND KITS<sup>1</sup>



## FULL SYSTEM



## FULL SYSTEM



PRODUCT FAMILY	NUC7i7BNKQ	NUC7i5BNKP
<b>CPU &amp; GFX</b>	7th Generation Intel® Core™ i7-7567U 3.5 GHz to 4.0 GHz Turbo, Dual Core, 4 MB cache, 28W Intel® Iris™ Plus Graphics 650, 300 MHz - 1.1 GHz	7th Generation Intel® Core™ i5-7260U 2.2 GHz up to 3.4 GHz Turbo, Dual Core, 4 MB cache, 15W Intel® Iris™ Plus Graphics 640, 300 MHz - 950 MHz
<b>RAM</b>	16 GB (2x 8 GB) DDR4-2400 SODIMMs pre-installed, 1.2V; Dual-channel, 32 GB maximum	8 GB (2x 4 GB) DDR4-2400 SODIMMs pre-installed, 1.2V; Dual-channel, 32 GB maximum
<b>SSD</b>	512 GB Intel® 600p SSD pre-installed, M.2 22x80 PCIe X4 Gen3 NVMe	256 GB Intel® 600p SSD pre-installed, M.2 22x80 PCIe X4 Gen3 NVMe
<b>OS LOAD</b>	Windows 10 Home x64, Intel® Remote Keyboard, Intel® Driver & Support Assistant	
<b>DIMENSIONS</b>	115 x 111 x 35 mm	
<b>CONNECTIVITY</b>	Thunderbolt™ 3 (40 Gbps) and USB 3.1 Gen2 (10 Gbps) and DisplayPort 1.2 via USB-C™ connector 2x front USB 3.0 (one charging), 2x rear USB 3.0, and 2x internal USB 2.0 via header Front Consumer Infrared port	
<b>VIDEO OUTPUTS</b>	HDMI 2.0a (4K 60Hz, HDR) and DisplayPort 1.2 via Thunderbolt™ 3 (USB-C™) port Both ports support HDCP 2.2	
<b>SDXC</b>	MicroSDXC slot with UHS-I support	
<b>NETWORKING</b>	Intel® I219-V 10/100/1000 Mbps Ethernet Intel® Wireless-AC 8265 soldered-down, IEEE 802.11ac 2x2 + Bluetooth v4.2, internal antennas	
<b>AUDIO</b>	Up to 7.1 multichannel digital audio via HDMI or DisplayPort signals 3.5mm front headset jack	
<b>ENCLOSURE</b>	Aluminum and plastic with replaceable lid, Kensington lock with base security	
<b>POWER ADAPTER</b>	12 – 19VDC input range, 19VDC 65W wall-wart power supply with replaceable plugs	
<b>INTERNAL HEADERS</b>	Front Panel, CEC, 2x USB2.0	
<b>OTHER FEATURES</b>	Microsoft Windows® 10 logo'd, compatible with various Linux distros Front panel RGB LED ring Built-in dual-array microphones VESA mounting plate included Individual retail packaging Three-Year Warranty	

For more information, visit [www.intel.com/NUC](http://www.intel.com/NUC)



**FULL SYSTEM**



**FULL SYSTEM**



**FULL SYSTEM**

PRODUCT FAMILY	NUC7i7BNHXG	NUC7i5BNHXF	NUC7i3BNHXF
<b>DESCRIPTION</b>	Intel® NUC 7 Enthusiast, a Mini PC with Windows 10	Intel® NUC 7 Home, a Mini PC with Windows 10	Intel® NUC 7 Home, a Mini PC with Windows 10
<b>CPU &amp; GFX</b>	7th Generation Intel® Core™ i7-7567U 3.5 GHz to 4.0 GHz Turbo, Dual Core, 4 MB cache, 28W Intel® Iris™ Plus Graphics 650, 300 MHz - 1.1 GHz	7th Generation Intel® Core™ i5-7260U 2.2 GHz up to 3.4 GHz Turbo, Dual Core, 4 MB cache, 15W Intel® Iris™ Plus Graphics 640, 300 MHz - 950 MHz	7th Generation Intel® Core™ i3-7100U 2.4 GHz, Dual Core, 3 MB cache, 15W Intel® HD Graphics 620, 300 MHz - 1 GHz
<b>RAM</b>	8 GB DDR4-2400 SODIMM pre-installed, 1.2V Dual-channel capable, 32 GB maximum	4 GB DDR4-2400 SODIMM pre-installed Dual-channel capable, 32 GB maximum	
<b>INTEL® OPTANE™ MEMORY</b>	32 GB M.2 22x80 module pre-installed	16 GB M.2 22x80 module pre-installed	
<b>HDD</b>	2 TB SATA3 pre-installed	1 TB SATA3 pre-installed	
<b>USB-C™ PORT</b>	Thunderbolt™ 3 (40 Gbps) and USB 3.1 Gen2 (10 Gbps) and DisplayPort 1.2		USB 3.1 Gen2 (10 Gbps) and DisplayPort 1.2
<b>OS LOAD</b>	Windows 10 Home x64, Intel® Remote Keyboard		
<b>DIMENSIONS</b>	115 x 111 x 51 mm		
<b>CONNECTIVITY</b>	2x front USB 3.0 (one charging), 2x rear USB 3.0, and 2x internal USB 2.0 via header Front Consumer Infrared port		
<b>VIDEO OUTPUTS</b>	HDMI 2.0a (4K 60Hz, HDR) and DisplayPort 1.2 via Thunderbolt™ 3 / USB-C™ port Both ports support HDCP 2.2		
<b>SDXC</b>	MicroSDXC slot with UHS-I support		
<b>NETWORKING</b>	Intel® I219-V 10/100/1000 Mbps Ethernet Intel® Wireless-AC 8265 soldered-down, IEEE 802.11ac 2x2 + Bluetooth v4.2, internal antennas		
<b>AUDIO</b>	Up to 7.1 multichannel digital audio via HDMI or DisplayPort signals 3.5mm front headset jack		
<b>ENCLOSURE</b>	Aluminum and plastic with replaceable lid, Kensington lock with base security		
<b>POWER ADAPTER</b>	12 – 19VDC input range, 19VDC 65W wall-wart power supply with replaceable plugs		
<b>INTERNAL HEADERS</b>	Front Panel, CEC, 2x USB2.0		
<b>OTHER FEATURES</b>	Microsoft Windows® 10 logo'd, compatible with various Linux distros Front panel RGB LED ring Built-in dual-array microphones VESAs mounting plate included Individual retail packaging Three-Year Warranty		



**FULL SYSTEM**

PRODUCT FAMILY	NUC7CJYSAL	NUC7PJYH	NUC7CJYH
<b>DESCRIPTION</b>	Intel® NUC 7 Enthusiast, a Mini PC with Windows 10	-	-
<b>CPU &amp; GFX</b>	Intel® Celeron® J4005 x GHz to x GHz burst, Quad Core, 10W Intel® HD Graphics 600, 700 MHz	Intel® Pentium® J5005 x GHz to x GHz burst, Quad Core, 10W Intel® HD Graphics 605, 800 MHz	Intel® Celeron® J4005 x GHz to x GHz burst, Dual Core, 10W Intel® HD Graphics 600, 700 MHz
<b>RAM</b>	4 GB DDR4-2400 SODIMM pre-installed, 1.2V Dual-channel capable, 8 GB maximum	Dual channel DDR4-2400 SODIMMs, 1.2V, 8 GB maximum	
<b>OS LOAD</b>	Windows 10 Home x64, Intel® Remote Keyboard, Intel® Driver & Support Assistant	-	-
<b>FLASH STORAGE</b>	32 GB eMMC v5.1	-	-
<b>2.5" SATA3</b>	9.5mm bay and port		
<b>DIMENSIONS</b>	115 x 111 x 49 mm		
<b>CONNECTIVITY</b>	2x front USB 3.0 (one charging), 2x rear USB 3.0, and 2x internal USB 2.0 via header Front Consumer Infrared port		
<b>VIDEO OUTPUTS</b>	2x HDMI 2.0a (4K 60Hz, HDR) Both ports support HDCP 2.2		
<b>SDXC</b>	SDXC slot with UHS-I support		
<b>NETWORKING</b>	Intel® I218-V 10/100/1000 Mbps Ethernet Intel® Wireless-AC 9462 soldered-down, IEEE 802.11ac 1x1 + Bluetooth v5, internal antennas		
<b>AUDIO</b>	Up to 7.1 multichannel digital audio via HDMI 3.5mm front headset jack, 3.5mm rear speaker / TOSLINK combo jack		
<b>ENCLOSURE</b>	Plastic with metal inner frame, replaceable lid, Kensington lock with base security		
<b>POWER ADAPTER</b>	12 – 19VDC input range, 19VDC 65W power supply with replaceable AC cords		
<b>INTERNAL HEADERS</b>	Front Panel, CEC, RGB LED, 2x USB2.0		
<b>OTHER FEATURES</b>	Microsoft Windows® 10 logo'd, compatible with various Linux distros Front panel status RGB LED Built-in dual-array microphones VESA mounting plate included Individual retail packaging Three-Year Warranty		



	<b>NUC7i7BNH</b>	<b>NUC7i5BNH</b>	<b>NUC7i5BNK</b>
<b>PRODUCT FAMILY</b>	<b>NUC7i7BNH</b>	<b>NUC7i5BNH</b>	<b>NUC7i5BNK</b>
<b>KIT / BOARD</b>	Intel® NUC Kit <sup>1</sup>	Intel® NUC Kit <sup>1</sup>	Intel® NUC Kit <sup>1</sup>
<b>5-PACK OUTERCASE</b>	N/A	N/A	N/A
<b>10-PACK PRODUCT CODE</b>	N/A	N/A	N/A
<b>PROCESSOR</b>	Intel® Core™ i7-7567U	Intel® Core™ i5-7260U	Intel® Core™ i5-7260U
<b>CHIPSET</b>	N/A	N/A	N/A
<b>INTEGRATED GRAPHICS CORE<sup>2</sup></b>	Intel® Iris™ Plus graphics 650	Intel® Iris™ Plus graphics 640	Intel® Iris™ Plus graphics 640
<b>DISPLAY OUTPUTS</b>	HDMI DisplayPort	HDMI DisplayPort	HDMI DisplayPort
<b>MEMORY SUPPORT<sup>4</sup></b>	Dual-Channel DDR4-2133 SODIMM, 1.2V, 32 GB <sup>4</sup> maximum	Dual-Channel DDR4-2133 SODIMM, 1.2V, 32 GB <sup>4</sup> maximum	Dual-Channel DDR4-2133 SODIMM, 1.2V, 32 GB <sup>4</sup> maximum
<b>2.5" HDD SUPPORT</b>	Yes	Yes	Yes
<b>EXPANSION CONNECTORS</b>	M.2 Support	M.2 Support	M.2 Support
<b>AUDIO<sup>3</sup></b>	Up to 7.1 multichannel digital audio via HDMI or DisplayPort signals 3.5mm front headset jack	Up to 7.1 multichannel digital audio via HDMI or DisplayPort signals 3.5mm front headset jack	Up to 7.1 multichannel digital audio via HDMI or DisplayPort signals 3.5mm front headset jack
<b>USB PORTS</b>	Two front USB 3.0 (one for charging), two rear USB 3.0, two internal USB 2.0 via header	Two front USB 3.0 (one for charging), two rear USB 3.0, two internal USB 2.0 via header	Two front USB 3.0 (one for charging), two rear USB 3.0, two internal USB 2.0 via header
<b>ONBOARD LAN</b>	Intel® (219-V 10/100/1000 Mbps Ethernet Intel® Wireless-AC 8265	Intel® (219-V 10/100/1000 Mbps Ethernet Intel® Wireless-AC 8265	Intel® (219-V 10/100/1000 Mbps Ethernet Intel® Wireless-AC 8265
<b>POWER CORD OPTION</b>	Multi-country plug (Types A/C/G/I) included	Multi-country plug (Types A/C/G/I) included	Multi-country plug (Types A/C/G/I) included
<b>TRUSTED PLATFORM MODULE</b>	N/A	N/A	N/A
<b>LEAD-FREE</b>	Yes	Yes	Yes
<b>BIOS</b>	Intel® Visual BIOS Intel® Express BIOS update support	Intel® Visual BIOS Intel® Express BIOS update support	Intel® Visual BIOS Intel® Express BIOS update support
<b>WARRANTY</b>	3 year limited warranty	3 year limited warranty	3 year limited warranty
<b>OTHER</b>	Replaceable lid Consumer Infrared sensor on front panel Micro SDXC slot with UHS-I support	Replaceable lid Consumer Infrared sensor on front panel Micro SDXC slot with UHS-I support	Replaceable lid Consumer Infrared sensor on front panel Micro SDXC slot with UHS-I support



<b>PRODUCT FAMILY</b>	<b>NUC7i3BNH</b>	<b>NUC7i3BNK</b>
<b>KIT / BOARD</b>	Intel® NUC Kit <sup>1</sup>	Intel® NUC Kit <sup>1</sup>
<b>5-PACK OUTERCASE</b>	N/A	N/A
<b>10-PACK PRODUCT CODE</b>	N/A	N/A
<b>PROCESSOR</b>	Intel® Core i3-7100U	Intel® Core i3-7100U
<b>CHIPSET</b>	N/A	N/A
<b>INTEGRATED GRAPHICS CORE<sup>2</sup></b>	Intel® HD graphics 620	Intel® HD graphics 620
<b>DISPLAY OUTPUTS</b>	HDMI DisplayPort	HDMI DisplayPort
<b>MEMORY SUPPORT<sup>4</sup></b>	Dual-channel DDR4 SODIMMs 1.2V, 2133 MHz, 32GB maximum	Dual-channel DDR4 SODIMMs 1.2V, 2133 MHz, 32GB maximum
<b>2.5" HDD SUPPORT</b>	Yes	No
<b>EXPANSION CONNECTORS</b>	M.2 Support	M.2 Support
<b>AUDIO<sup>3</sup></b>	Up to 7.1 multichannel digital audio via HDMI or DisplayPort signals 3.5mm front headset jack	Up to 7.1 multichannel digital audio via HDMI or DisplayPort signals 3.5mm front headset jack
<b>USB PORTS</b>	Two front USB 3.0 (one for charging), two rear USB 3.0, two internal USB 2.0 via header	Two front USB 3.0 (one for charging), two rear USB 3.0, two internal USB 2.0 via header
<b>ONBOARD LAN</b>	Intel® 219-V 10/100/1000 Mbps Ethernet Intel® Wireless-AC 8265	Intel® 219-V 10/100/1000 Mbps Ethernet Intel® Wireless-AC 8265
<b>POWER CORD OPTION</b>	Multi-country plugs (IEC types A/C/G/I)	Multi-country plugs (IEC types A/C/G/I)
<b>TRUSTED PLATFORM MODULE</b>	N/A	N/A
<b>LEAD-FREE</b>	Yes	Yes
<b>BIOS</b>	Intel® Visual BIOS Intel® Express BIOS update support	Intel® Visual BIOS Intel® Express BIOS update support
<b>WARRANTY</b>	3-year Advanced Warranty Replacement	3-year Advanced Warranty Replacement
<b>OTHER</b>	Replaceable lid Consumer Infrared sensor on front panel Micro SDXC slot with UHS-I support	Replaceable lid Consumer Infrared sensor on front panel Micro SDXC slot with UHS-I support



**FULL SYSTEM**

PRODUCT FAMILY	NUC6CAYS	NUC6CAYH
KIT / BOARD	Intel® NUC Mini PC	Intel® NUC Kit <sup>1</sup>
5-PACK OUTERCASE	N/A	N/A
10-PACK PRODUCT CODE	N/A	N/A
PROCESSOR	Intel® Celeron® J3455	Intel® Celeron® J3455
CHIPSET	N/A	N/A
INTEGRATED GRAPHICS CORE <sup>2</sup>	Intel® HD graphics 500	Intel® HD graphics 500
DISPLAY OUTPUTS	HDMI VGA	HDMI VGA
MEMORY SUPPORT <sup>4</sup>	Dual-channel DDR3L-1866 SODIMMs 1.35V, 8GB maximum 2Gb DDR3L-1600 module preinstalled	Dual-channel DDR3L-1866 SODIMMs 1.35V, 8GB maximum
2.5" HDD SUPPORT	Yes	Yes
EXPANSION CONNECTORS	SDXC slot with UHS-I support on the side	SDXC slot with UHS-I support on the side
AUDIO <sup>3</sup>	Up to 7.1 multichannel digital audio via HDMI 3.5mm front headset jack, 3.5mm rear speaker / TOSLINK combo jack	Up to 7.1 multichannel digital audio via HDMI 3.5mm front headset jack, 3.5mm rear speaker / TOSLINK combo jack
USB PORTS	Two front USB 3.0 (one charging), two rear USB 3.0, 2 internal USB 2.0 via header	Two front USB 3.0 (one charging), two rear USB 3.0, 2 internal USB 2.0 via header
ONBOARD LAN	Intel® Wireless-AC 3168 10/100/1000 Mbps Ethernet	Intel® Wireless-AC 3168 10/100/1000 Mbps Ethernet
POWER CORD OPTION	Multi-country plugs (IEC types A/C/G/I)	Multi-country plugs (IEC types A/C/G/I)
TRUSTED PLATFORM MODULE	N/A	N/A
LEAD-FREE	Yes	Yes
BIOS	Intel® Visual BIOS Intel® Express BIOS update support	Intel® Visual BIOS Intel® Express BIOS update support
WARRANTY	3-year Advanced Warranty Replacement	3-year Advanced Warranty Replacement
OTHER	Replaceable lid Consumer Infrared sensor on front panel Windows 10 Home pre-installed with latest Intel® drivers	Replaceable lid Consumer Infrared sensor on front panel



<b>PRODUCT FAMILY</b>	<b>NUC5CPYH</b>
<b>KIT / BOARD</b>	<b>Intel® NUC Kit<sup>1</sup></b>
<b>5-PACK OUTERCASE</b>	N/A
<b>10-PACK PRODUCT CODE</b>	N/A
<b>PROCESSOR</b>	<b>Intel® Celeron® N3050</b>
<b>CHIPSET</b>	N/A
<b>INTEGRATED GRAPHICS CORE<sup>2</sup></b>	Intel® HD Graphics
<b>DISPLAY OUTPUTS</b>	HDMI VGA
<b>MEMORY SUPPORT<sup>4</sup></b>	Single Channel DDR3L SODIMM 1.35V, 1333/1600 MHz, 8GB <sup>4</sup> maximum
<b>2.5" HDD SUPPORT</b>	Yes
<b>EXPANSION CONNECTORS</b>	M.2 support
<b>AUDIO<sup>3</sup></b>	Eight-Channel (7.1) digital audio via Mini HDMI 1.4a output, two-channel via headphone jack
<b>USB PORTS</b>	Four USB 3.0 ports (two front panel with one being charging capable, two back panel) and two USB 2.0 ports (via internal header)
<b>ONBOARD LAN</b>	Intel® 10/100/1000 Network Connection Intel® Wireless-AC 3165
<b>POWER CORD OPTION</b>	Multi-country plugs (IEC types A/C/G/I)
<b>TRUSTED PLATFORM MODULE</b>	N/A
<b>LEAD-FREE</b>	Yes
<b>BIOS</b>	Intel® Visual BIOS BIOS Vault Technology Fast Boot
<b>WARRANTY</b>	3-year Advanced Warranty Replacement
<b>OTHER</b>	Replaceable lid Consumer Infrared sensor on front panel SDXC slot with UHS-I support on the side





<b>PRODUCT FAMILY</b>	<b>NUC7i5DNHE</b>	<b>NUC7i5DNKE</b>
<b>KIT / BOARD</b>	Intel® NUC Kit <sup>1</sup>	Intel® NUC Kit <sup>1</sup>
<b>5-PACK OUTERCASE</b>	BLKNUC7i5DNHE	BLKNUC7i5DNKE
<b>10-PACK PRODUCT CODE</b>	N/A	N/A
<b>PROCESSOR</b>	Intel® Core™ i5-7300U Processor with Intel® vPro™ Technology	Intel® Core™ i5-7300U Processor with Intel® vPro™ Technology
<b>CHIPSET</b>	N/A	N/A
<b>INTEGRATED GRAPHICS CORE<sup>2</sup></b>	Intel® HD graphics 620	Intel® HD graphics 620
<b>DISPLAY OUTPUTS</b>	Dual HDMI 2.0a (4k @ 60Hz) w/HDCP 2.2 and basic CEC built in for 1 port	Dual HDMI 2.0a (4k @ 60Hz) w/HDCP 2.2 and basic CEC built in for 1 port
<b>MEMORY SUPPORT<sup>4</sup></b>	Dual-Channel SODIMM DDR4 2133 / 1.2V, 32 GB <sup>4</sup> maximum	Dual-Channel SODIMM DDR4 2133 / 1.2V, 32 GB <sup>4</sup> maximum
<b>2.5" HDD SUPPORT</b>	Yes	No
<b>EXPANSION CONNECTORS</b>	One M.2 22x80 (type M) for SATA & NVMe SSDs / One M.2 22x30 (type E) for wireless card Serial port header HDMI CEC header	One M.2 22x80 (type M) for SATA & NVMe SSDs / One M.2 22x30 (type E) for wireless card Serial port header HDMI CEC header
<b>AUDIO<sup>3</sup></b>	Dual Eight-Channel (7.1) digital audio via HDMI ports	Dual Eight-Channel (7.1) digital audio via HDMI ports
<b>USB PORTS</b>	Four USB 3.0 ports (two front panel, two back panel) One internal USB 3.0 port header Two internal USB 2.0 port headers	Four USB 3.0 ports (two front panel, two back panel) One internal USB 3.0 port header Two internal USB 2.0 port headers
<b>ONBOARD LAN</b>	Intel® i219 - LM 10/100/1000 Network Connection Intel® Wireless-AC 8265	Intel® i219 - LM 10/100/1000 Network Connection Intel® Wireless-AC 8265
<b>POWER DELIVERY</b>	19V 65W AC power adapter	19V 65W AC power adapter
<b>TRUSTED PLATFORM MODULE</b>	Yes (TPM v2.0) Worldwide and China-specific options	Yes (TPM v2.0) Worldwide and China-specific options
<b>LEAD-FREE</b>	Yes	Yes
<b>BIOS</b>	Intel® Visual BIOS	Intel® Visual BIOS
<b>WARRANTY</b>	3 year limited warranty	3 year limited warranty
<b>OTHER</b>	Replaceable lid 3 year product availability Qualified for 24x7 operation Backpanel opening w/DB9 bracket Internal power connector (12V – 24V DC) Vcc5/1A, 5Vsby/2A, 3.3Vsby/1A internal power sources via header Kensington lock with base security Intel® Optane™ Memory support VESA mounting plate included	Replaceable lid 3 year product availability Qualified for 24x7 operation Internal power connector (12V – 24V DC) Vcc5/1A, 5Vsby/2A, 3.3Vsby/1A internal power sources via header Kensington lock with base security VESA mounting plate included



PRODUCT FAMILY	NUC7i3DNHE	NUC7i3DNKE
KIT / BOARD	Intel® NUC Kit <sup>1</sup>	Intel® NUC Kit <sup>1</sup>
5-PACK OUTERCASE	BLKNUC7i3DNHE	BLKNUC7i3DNKE
10-PACK PRODUCT CODE	N/A	N/A
PROCESSOR	Intel® Core™ i3-7100U	Intel® Core™ i3-7100U
CHIPSET	N/A	N/A
INTEGRATED GRAPHICS CORE <sup>2</sup>	Intel® HD graphics 620	Intel® HD graphics 620
DISPLAY OUTPUTS	Dual HDMI 2.0a (4k @ 60Hz) w/ HDCP 2.2 and basic CEC built in for 1 port	Dual HDMI 2.0a (4k @ 60Hz) w/ HDCP 2.2 and basic CEC built in for 1 port
MEMORY SUPPORT <sup>4</sup>	Dual-Channel SODIMM DDR4 2133 / 1.2V, 32 GB <sup>4</sup> maximum	Dual-Channel SODIMM DDR4 2133 / 1.2V, 32 GB <sup>4</sup> maximum
2.5" HDD SUPPORT	Yes	No
EXPANSION CONNECTORS	One M.2 22x80 (type M) for SATA & NVMe SSDs / One M.2 22x30 (type E) for wireless card Serial port header HDMI CEC header	One M.2 22x80 (type M) for SATA & NVMe SSDs / One M.2 22x30 (type E) for wireless card Serial port header HDMI CEC header
AUDIO <sup>3</sup>	Dual Eight-Channel (7.1) digital audio via HDMI ports	Dual Eight-Channel (7.1) digital audio via HDMI ports
USB PORTS	Four USB 3.0 ports (two front panel, two back panel) One internal USB 3.0 port header Two internal USB 2.0 port headers	Four USB 3.0 ports (two front panel, two back panel) One internal USB 3.0 port header Two internal USB 2.0 port headers
ONBOARD LAN	Intel® i219 - LM 10/100/1000 Network Connection Intel® Wireless-AC 8265	Intel® i219 - LM 10/100/1000 Network Connection Intel® Wireless-AC 8265
POWER DELIVERY	19V 65W AC power adapter	19V 65W AC power adapter
TRUSTED PLATFORM MODULE	N/A	N/A
LEAD-FREE	Yes	Yes
BIOS	Intel® Visual BIOS	Intel® Visual BIOS
WARRANTY	3 year limited warranty	3 year limited warranty
OTHER	Replaceable lid 3 year product availability Qualified for 24x7 operation Backpanel opening w/DB9 bracket Internal power connector (12V – 24V DC) Vcc5/1A, 5Vsby/2A, 3.3Vsby/1A internal power sources via header Kensington lock with base security Intel® Optane™ Memory support VESA mounting plate included	Replaceable lid 3 year product availability Qualified for 24x7 operation Internal power connector (12V – 24V DC) Vcc5/1A, 5Vsby/2A, 3.3Vsby/1A internal power sources via header Kensington lock with base security VESA mounting plate included



PRODUCT FAMILY	NUC5i5MYHE	NUC5i3MYHE
KIT / BOARD	Intel® NUC Kit <sup>1</sup>	Intel® NUC Kit <sup>1</sup>
5-PACK OUTERCASE	BLKNUC5i5MYHE	BLKNUC5i3MYHE
10-PACK PRODUCT CODE	N/A	N/A
PROCESSOR	Intel® Core™ i5-5300U	Intel® Core™ i3-5010U
CHIPSET	N/A	N/A
INTEGRATED GRAPHICS CORE <sup>2</sup>	Intel® HD graphics 5500	Intel® HD graphics 5500
DISPLAY OUTPUTS	Two Mini DisplayPort* eDP* with backlight and adjustable voltage / timings	Two Mini DisplayPort* eDP* with backlight and adjustable voltage / timings
MEMORY SUPPORT <sup>4</sup>	Dual-Channel SODIMM DDR3L 1333 / 1600 MHz, 1.35V, 16 GB <sup>4</sup> maximum	Dual-Channel SODIMM DDR3L 1333 / 1600 MHz, 1.35V, 16 GB <sup>4</sup> maximum
2.5" HDD SUPPORT	Yes	Yes
EXPANSION CONNECTORS	One full-size PCI Express* Mini Card with M.2 support One half-size PCI Express Mini Card	One full-size PCI Express* Mini Card with M.2 support One half-size PCI Express Mini Card
AUDIO <sup>3</sup>	Eight-Channel (7.1) digital audio via Mini DisplayPort output Two-channel via headphone jack	Eight-Channel (7.1) digital audio via Mini DisplayPort output Two-channel via headphone jack
USB PORTS	Four USB 3.0 ports (two front panel, two back panel) Two USB 2.0 ports (via internal header)	Four USB 3.0 ports (two front panel, two back panel) Two USB 2.0 ports (via internal header)
ONBOARD LAN	Intel® PRO 10/100/1000 Network Connection	Intel® PRO 10/100/1000 Network Connection
POWER CORD OPTION	Multi-country plug (Types A/C/G/I) included	Multi-country plug (Types A/C/G/I) included
TRUSTED PLATFORM MODULE	Yes (TPM v2.0)	Yes (TPM v2.0)
LEAD-FREE	Yes	Yes
BIOS	Intel® Visual BIOS BIOS Vault Technology Fast Boot	Intel® Visual BIOS BIOS Vault Technology Fast Boot
WARRANTY	3 year limited warranty	3 year limited warranty
OTHER	Replaceable lid Backpanel serial port expandability via onboard header High-speed Custom Solutions header	Replaceable lid Backpanel serial port expandability via onboard header High-speed Custom Solutions header

# INTEL® NUC KIT<sup>1</sup> SUMMARY

INTEL® NUC	PROCESSOR <sup>5</sup>	SODIMM MEMORY	DIMMS	SUPPORT FOR 2.5" DRIVE	DISPLAY OUTPUT	MINI PCI Express®	AUDIO	USB 3 EXT+ INT	USB 2 EXT+ INT	LAN	3 YEAR PRODUCT LIFE	OTHER
NUC7i7BNKQ	Intel® Core™ i7-7567U processor	DDR4	2	Yes	HDMI 2.0a; USB-C (DP1.2)	1 M.2	7.1 digital (HDMI or DP)	4 + 0	0 + 2	GbE + WiFi*	No	Intel® Iris™ Plus graphics; Thunderbolt 3; CIR
NUC7i5BNKP	Intel® Core™ i5-7260U processor	DDR4	2	Yes	HDMI 2.0a; USB-C (DP1.2)	1 M.2	7.1 digital (HDMI or DP)	4 + 0	0 + 2	GbE + WiFi*	No	Intel® Iris™ Plus graphics; Thunderbolt 3; CIR
NUC7i7BNHXG	Intel® Core™ i7-7567U processor	DDR4	2	Yes	HDMI 2.0a; USB-C (DP1.2)	1 M.2	7.1 digital (HDMI or DP)	4 + 0	0 + 2	GbE + WiFi*	No	Intel® Iris™ Plus graphics; Thunderbolt 3; CIR
NUC7i5BNHXF	Intel® Core™ i5-7260U processor	DDR4	2	Yes	HDMI 2.0a; USB-C (DP1.2)	1 M.2	7.1 digital (HDMI or DP)	4 + 0	0 + 2	GbE + WiFi*	No	Intel® Iris™ Plus graphics; Thunderbolt 3; CIR
NUC7i3BNHXF	Intel® Core™ i3-7100U processor	DDR4	2	Yes	HDMI 2.0a; USB-C (DP1.2)	1 M.2	7.1 digital (HDMI or DP)	4 + 0	0 + 2	GbE + WiFi*	No	Intel® HD graphics; CIR
NUC7CJYSAL	Intel® Celeron® J4005 processor	DDR4	2	Yes	HDMI*	0	7.1 digital (HDMI)	4 + 0	0 + 2	GbE + WiFi*	No	Intel® HD graphics; CIR
NUC7PJYH	Intel® Pentium® J5005 processor	DDR4	2	Yes	HDMI*	0	7.1 digital (HDMI)	4 + 0	0 + 2	GbE + WiFi*	No	Intel® HD graphics; CIR
NUC7CJYH	Intel® Celeron® J4005 processor	DDR4	2	Yes	HDMI*	0	7.1 digital (HDMI)	4 + 0	0 + 2	GbE + WiFi*	No	Intel® HD graphics; CIR
NUC6CAYH	Intel® Celeron™ J3455 processor	DDR3L	2	Yes	HDMI* + VGA	0	7.1 digital (HDMI)	4 + 0	0 + 2	GbE + WiFi*	No	Intel® HD graphics
NUC6CAYS	Intel® Celeron™ J3455 processor	DDR3L	2	Yes	HDMI* + VGA	0	7.1 digital (HDMI)	4 + 0	0 + 2	GbE + WiFi*	No	Intel® HD graphics
NUCi3BNK	Intel® Core™ i3-7100U processor	DDR4	2	No	HDMI* + DP1.2	1 M.2	7.1 digital (HDMI or DP)	4 + 0	0 + 2	GbE + WiFi*	No	Intel® HD graphics
NUCi3BNH	Intel® Core™ i3-7100U processor	DDR4	2	Yes	HDMI* + DP1.2	1 M.2	7.1 digital (HDMI or DP)	4 + 0	0 + 2	GbE + WiFi*	No	Intel® HD graphics
NUC7i5BNK	Intel® Core™ i5-7260U processor	DDR4	2	No	HDMI* + DP1.2	1 M.2	7.1 digital (HDMI or DP)	4 + 0	0 + 2	GbE + WiFi*	No	Intel® HD graphics
NUC7i5BNH	Intel® Core™ i5-7260U processor	DDR4	2	Yes	HDMI* + DP1.2	1 M.2	7.1 digital (HDMI or DP)	4 + 0	0 + 2	GbE + WiFi*	No	Intel® HD graphics
NUC7i7BNH	Intel® Core™ i7-7567U processor	DDR4	2	Yes	HDMI* + DP1.2	1 M.2	7.1 digital (HDMI or DP)	4 + 0	0 + 2	GbE + WiFi*	No	Intel® HD graphics

INTEL® NUC	PROCESSOR <sup>5</sup>	SODIMM MEMORY	DIMMS	SUPPORT FOR 2.5" DRIVE	DISPLAY OUTPUT	MINI PCI Express®	AUDIO	USB 3 EXT+ INT	USB 2 EXT+ INT	LAN	3 YEAR PRODUCT LIFE	OTHER
NUC6i7KYK	Intel® Core™ i7-6770HQ processor	DDR4	2	No	mDP 1.2; HDMI* 2.0; USB-C (DP1.2)	2 M.2	7.1 digital (HDMI mDP); L+R+mic	4 + 0	0 + 2	GbE + WiFi*	No	Intel® Iris™ Pro graphics; Thunderbolt 3; CIR
NUC5CPYH	Intel® Celeron® N3050 processor	DDR3L	1	Yes	mHDMI* + VGA	1 M.2	8-ch + 2-ch	4 + 0	0 + 2	GbE + WiFi*	No	CIR
NUC5i5MYHE	Intel® Core™ i5-5300U processor	DDR3L	2	Yes	Dual mDP	2 M.2	8-ch + 2-ch	4 + 0	0 + 2	GbE	Yes	Intel® vPro™, TPM v2.0
NUC5i3MYHE	Intel® Core™ i3-5010U processor	DDR3L	2	Yes	Dual mDP	2 M.2	8-ch + 2-ch	4 + 0	0 + 2	GbE	Yes	TPM v2.0
NUC7i5DNHE	Intel® Core™ i5-7300U processor	DDR4	2	Yes	Dual HDMI 2.0a	2 M.2	Dual 7.1 digital (HDMI)	4 + 1	0 + 2	GbE + WiFi*	Yes	24x7, vPro, TPM, Serial, Int Exp.
NUC7i5DNKE	Intel® Core™ i5-7300U processor	DDR4	2	No	Dual HDMI 2.0a	2 M.2	Dual 7.1 digital (HDMI)	4 + 1	0 + 2	GbE + WiFi*	Yes	24x7, vPro, TPM, Serial
NUC7i3DNHE	Intel® Core™ i3-7100U processor	DDR4	2	Yes	Dual HDMI 2.0a	2 M.2	Dual 7.1 digital (HDMI)	4 + 1	0 + 2	GbE + WiFi*	Yes	24x7, Serial, Int Exp.
NUC7i3DNKE	Intel® Core™ i3-7100U processor	DDR4	2	No	Dual HDMI 2.0a	2 M.2	Dual 7.1 digital (HDMI)	4 + 1	0 + 2	GbE + WiFi*	Yes	24x7, Serial

# INTEL® NUC BOARDS



PRODUCT FAMILY	NUC5i5MYBE	NUC5i3MYBE	DE3815TYBE
<b>KIT / BOARD</b>	Intel® NUC Board	Intel® NUC Board	Intel® NUC Board
<b>5-PACK OUTERCASE</b>	BLKNUC5i5MYBE	BLKNUC5i3MYBE	N/A
<b>10-PACK PRODUCT CODE</b>	N/A	N/A	BLKDE3815TYBE
<b>PROCESSOR</b>	Intel® Core™ i5-5300U	Intel® Core™ i3-5010U	Intel® Atom™ E3815
<b>CHIPSET</b>	N/A	N/A	N/A
<b>INTEGRATED GRAPHICS CORE<sup>2</sup></b>	Intel® HD graphics 5500	Intel® HD graphics 5500	Intel® HD graphics
<b>DISPLAY OUTPUTS</b>	Two Mini DisplayPort* eDP* with backlight and adjustable voltage / timings	Two Mini DisplayPort* eDP* with backlight and adjustable voltage / timings	HDMI* VGA eDP*
<b>MEMORY SUPPORT<sup>4</sup></b>	Dual-Channel SODIMM DDR3L 1333 / 1600 MHz, 1.35V, 16 GB <sup>4</sup> maximum	Dual-Channel SODIMM DDR3L 1333 / 1600 MHz, 1.35V, 16 GB <sup>4</sup> maximum	Single-Channel SODIMM DDR3L 1333 / 1600 MHz, 1.35V, 8 GB <sup>4</sup> maximum
<b>2.5" HDD SUPPORT</b>	Yes	Yes	Yes
<b>EXPANSION CONNECTORS</b>	One full-size PCI Express* Mini Card with M.2 support and one half-size PCI Express Mini Card	One full-size PCI Express* Mini Card with M.2 support and one half-size PCI Express Mini Card	One half-size PCI Express* Mini Card
<b>AUDIO<sup>3</sup></b>	Eight-Channel (7.1) digital audio via Mini DisplayPort output, two-channel via headphone jack	Eight-Channel (7.1) digital audio via Mini DisplayPort output, two-channel via headphone jack	Eight-Channel (7.1) digital audio via HDMI 1.4a output, two-channel via headphone jack
<b>USB PORTS</b>	Four USB 3.0 ports (two front panel, two back panel) and two USB 2.0 ports (via internal header)	Four USB 3.0 ports (two front panel, two back panel) and two USB 2.0 ports (via internal header)	One USB 3.0 port (front panel), five USB 2.0 ports (two external ports and three additional ports via internal headers)
<b>ONBOARD LAN</b>	Intel® PRO 10/100/1000 Network Connection	Intel® PRO 10/100/1000 Network Connection	Intel® PRO 10/100/1000 Network Connection
<b>POWER CORD OPTION</b>	Multi-country plug (Types A/C/G/I) included	Multi-country plug (Types A/C/G/I) included	N/A
<b>TRUSTED PLATFORM MODULE</b>	Yes (TPM v2.0)	Yes (TPM v2.0)	N/A
<b>LEAD-FREE</b>	Yes	Yes	Yes
<b>BIOS</b>	Intel® Visual BIOS BIOS Vault Technology Fast Boot	Intel® Visual BIOS BIOS Vault Technology Fast Boot	Intel® Visual BIOS BIOS Vault Technology Fast Boot
<b>WARRANTY</b>	3 year limited warranty	3 year limited warranty	3 year limited warranty
<b>OTHER</b>	Serial port header High-speed Custom Solutions header	Serial port header High-speed Custom Solutions header	4 GB eMMC storage device soldered down, Custom Solutions header, watchdog timer, fanless design



PRODUCT FAMILY	NUC7i5DNBE	NUC7i3DNBE
<b>KIT / BOARD</b>	Intel® NUC Board	Intel® NUC Board
<b>5-PACK OUTERCASE</b>	BLKNUC7i5DNKE	BLKNUC7i5DNKE
<b>10-PACK PRODUCT CODE</b>	N/A	N/A
<b>PROCESSOR</b>	Intel® Core™ i5-7300U Processor with Intel® vPro™ Technology	Intel® Core™ i3-7100U Processor
<b>CHIPSET</b>	N/A	N/A
<b>INTEGRATED GRAPHICS CORE<sup>2</sup></b>	Intel® HD graphics 620	Intel® HD graphics 620
<b>DISPLAY OUTPUTS</b>	Dual HDMI 2.0a (4k @ 60Hz) w/HDCP 2.2 and basic CEC built in for 1 port Internal 4-lane eDP 1.4 connector	Dual HDMI 2.0a (4k @ 60Hz) w/HDCP 2.2 and basic CEC built in for 1 port Internal 4-lane eDP 1.4 connector
<b>MEMORY SUPPORT<sup>4</sup></b>	Dual-Channel SODIMM DDR4 2133 / 1.2V, 32 GB <sup>4</sup> maximum	Dual-Channel SODIMM DDR4 2133 / 1.2V, 32 GB <sup>4</sup> maximum
<b>2.5" HDD SUPPORT</b>	Yes	Yes
<b>EXPANSION CONNECTORS</b>	One M.2 22x80 (type M) for SATA & NVMe SSDs / One M.2 22x30 (type E) for wireless card Serial port header HDMI CEC header	One M.2 22x80 (type M) for SATA & NVMe SSDs / One M.2 22x30 (type E) for wireless card Serial port header HDMI CEC header
<b>AUDIO<sup>3</sup></b>	Dual Eight-Channel (7.1) digital audio via HDMI ports	Dual Eight-Channel (7.1) digital audio via HDMI ports
<b>USB PORTS</b>	Four USB 3.0 ports (two front panel, two back panel) One internal USB 3.0 port header Two internal USB 2.0 port headers	Four USB 3.0 ports (two front panel, two back panel) One internal USB 3.0 port header Two internal USB 2.0 port headers
<b>ONBOARD LAN</b>	Intel® i219 - LM 10/100/1000 Network Connection Intel® Wireless-AC 8265	Intel® i219 - LM 10/100/1000 Network Connection Intel® Wireless-AC 8265
<b>POWER CORD OPTION</b>	19V 65W AC power adapter	19V 65W AC power adapter
<b>TRUSTED PLATFORM MODULE</b>	Yes (TPM v2.0) Worldwide and China-specific options	N/A
<b>LEAD-FREE</b>	Yes	Yes
<b>BIOS</b>	Intel® Visual BIOS	Intel® Visual BIOS
<b>WARRANTY</b>	3 year limited warranty	3 year limited warranty
<b>OTHER</b>	3 year product availability Qualified for 24x7 operation Internal power connector (12V – 24V DC) Vcc5/1A, 5Vsby/2A, 3.3Vsby/1A internal power sources via header	3 year product availability Qualified for 24x7 operation Internal power connector (12V – 24V DC) Vcc5/1A, 5Vsby/2A, 3.3Vsby/1A internal power sources via header

# INTEL® NUC BOARD SUMMARY

INTEL® NUC	PROCESSOR <sup>5</sup>	SODIMM MEMORY	DIMMS	SUPPORT FOR 2.5" DRIVE	DISPLAY OUTPUT	MINI PCIe*	AUDIO	USB 3 EXT+INT	USB 2 EXT+INT	LAN	3 YEAR PRODUCT LIFE	OTHER
<b>NUC5i5MYBE</b>	Intel® Core™ i5-5300U processor	DDR3L	2	Yes	Dual mDP	2 M.2	8-ch + 2-ch	4 + 0	0 + 2	GbE	Yes	Intel® vPro™, TPM v2.0
<b>NUC5i3MYBE</b>	Intel® Core™ i3-5010U processor	DDR3L	2	Yes	Dual mDP	2 M.2	8-ch + 2-ch	4 + 0	0 + 2	GbE	Yes	TPM v2.0
<b>DE3815TYBE</b>	Intel® Atom™ processor E3815	DDR3L	1	Yes	HDMI + VGA + eDP*	1	8-ch + 2-ch	1 + 0	2 + 3	GbE	Yes	Fanless + 4 GB on-board memory
<b>NUC7i5DNBE</b>	Intel® Core™ i5-7300U processor	DDR4	2	Yes	Dual HDMI	2 M.2	8-ch + 2-ch	4 + 1	0 + 2	GbE	Yes	Intel® vPro™, TPM v2.0
<b>NUC7i3DNBE</b>	Intel® Core™ i3-7100U processor	DDR4	2	Yes	Dual HDMI	2 M.2	8-ch + 2-ch	4 + 1	0 + 2	GbE	Yes	





## For more information, visit [www.intel.com/NUC](http://www.intel.com/NUC)

<sup>1</sup> Intel® NUC Kit: Each kit contains motherboard, chassis, and power supply.

<sup>2</sup> Requires a processor with Intel® HD graphics.

<sup>3</sup> Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. Check with your system manufacturer or retailer or learn more at [www.intel.com/design/chipsets/hdaudio.htm](http://www.intel.com/design/chipsets/hdaudio.htm)

<sup>4</sup> System resources and hardware (such as PCI and PCI Express\*) require physical memory address locations that can reduce available addressable system memory. This could result in a reduction of as much as 1 GB or more of physical addressable memory being available to the operating system and applications, depending on the system configuration and operating system.

<sup>5</sup> Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. Go to: [http://www.intel.com/products/processor\\_number/](http://www.intel.com/products/processor_number/)

Intel® NUC Kits and Boards may contain design defects or errors known as errata, which may cause the product to deviate from published specifications. Current characterized errata are available on request. All products and dates specified are preliminary based on current expectations and are subject to change without notice. Availability in different channels may vary.

For more complete information about performance and benchmark results, visit [www.intel.com/benchmarks](http://www.intel.com/benchmarks)

Copyright © 2017 Intel Corporation. All rights reserved. Intel, the Intel logo, Intel Inside, the Intel Inside logo, Intel Core, Intel Atom, and Celeron are trademarks of Intel Corporation in the U.S. and/or other countries.

\* Other names and brands may be claimed as the property of others.



# INTEL® COMPUTE STICK

**BUILT FOR  
PERFORMANCE.  
SIZED FOR  
CONVENIENCE.**

## **INTEL® COMPUTE STICK**

Intel® Compute Stick is a device the size of a pack of gum that turns any HDMI display into a fully functional computer: same operating system, same high quality graphics, and same wireless connectivity.

All this in a PC on a stick that measures 4.5 inches from end to end, and is ready to compute right out of the box.



# INTEL® COMPUTE STICK

Connect. Compute.  
It's that simple.

INTEL® COMPUTE STICK

## QUAD-CORE INTEL® ATOM™ PROCESSOR

This innovative processor delivers great performance while consuming low energy—making the Intel® Compute Stick both space and energy efficient.

## INTEL® HD GRAPHICS

Exceptional clarity makes for an exceptional visual experience. The Intel® Compute Stick delivers HD wow, whether you're viewing videos, games, or photos.

## INTEL® HD AUDIO

Get a high quality, multichannel sound experience, without an audio card. It's truly an immersive media experience that will have your ears seeing stars.

# THE INTEL<sup>®</sup> COMPUTE STICK

Connect. Compute.  
It's that simple.



## INTERACTIVE DISPLAY

Transform a display into a fully functional interactive display solution.



## CONFERENCE PRESENTATION

Connect to your presentation device and stream videos or display visual content with ease.



## ENTERTAINMENT

Turn your HDMI\* television or monitor into a home entertainment computer.



# INTEL® COMPUTE STICK “CEDAR CITY”



Product Code	STK2m3W64CC	STK2mv64CC
Processor	6th generation Intel® Core™ Y-Series m3, 1.6GHz, 3MB L3 cache (M3-6Y30 SoC)	6th generation Intel® Core™ Y-Series m5, 1.6GHz, 3MB L3 cache (M3-6Y30 SoC), Intel® vPro™ Technology
Memory	Integrated in SoC Dual-channel LPDDR3 1.2V, 1866 MHz, 2GB per channel (4GB total memory)	Integrated in SoC Dual-channel LPDDR3 1.2V, 1866 MHz, 2GB per channel (4GB total memory)
Graphics	Intel® HD graphics 1x HDMI 1.4b male plug	Intel® HD graphics 1x HDMI 1.4b male plug
Audio	Multi-channel digital audio via HDMI interface	Multi-channel digital audio via HDMI interface
Peripheral Connectivity	1x USB 3.0 Type-A host port on side	1x USB 3.0 Type-A host port on side
Storage	64GB eMMC storage device soldered down Micro SDXC v3.0 slot with UHS I-Support (on side)	64GB eMMC storage device soldered down Micro SDXC v3.0 slot with UHS I-Support (on side)
Networking	IEEE 802.11 g/n/ac dual band and Bluetooth 4.1 Wireless module soldered down w/ dual band antennas	IEEE 802.11 g/n/ac dual band and Bluetooth 4.1 Wireless module soldered down w/ dual band antennas
Enclosure	Dimensions: Approx. 114mm x 38mm x 11mm Black Chassis Security Loop (Size TBD)	Dimensions: Approx. 114mm x 38mm x 11mm Black Chassis Security Loop (Size TBD)
Power Delivery	MicroUSB* Type-C power connector & cable 5V/2A Wall-wart style with US (includes Japan), AUS, UK, India, and EU interchangeable plugs	MicroUSB* Type-C power connector & cable 5V/2A Wall-wart style with US (includes Japan), AUS, UK, India, and EU interchangeable plugs
Additional Featured	Pre-installed OS: Windows* 10, 64-bit HDMI* Extender Cable Power LED, Power Button Three Year Warranty	HDMI* Extender Cable Power LED, Power Button Three Year Warranty

For more information, visit [www.intel.com/computestick](http://www.intel.com/computestick)

Actual Intel® Compute Stick may differ from the image shown. Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at [www.intel.com/computestick](http://www.intel.com/computestick)

\* Other names and brands may be claimed as the property of others.

# INTEL® COMPUTE STICK “STERLING CITY”



Product Code	STK1AW32SC	STK1A32SC
<b>Processor</b>	Intel® Atom Quad-Core Processor x5-Z8300 Type 3 BGA	Intel® Atom Quad-Core Processor x5-Z8300 Type 3 BGA
<b>Memory</b>	Soldered down Single-channel DDR3L 1.35V, 1600 MHz, 2GB	Soldered down Single-channel DDR3L 1.35V, 1600 MHz, 2GB
<b>Graphics</b>	Intel® HD graphics (Gen 8 LP) 1x HDMI 1.4b (1080p) male plug	Intel® HD graphics (Gen 8 LP) 1x HDMI 1.4b (1080p) male plug
<b>Audio</b>	Multi-channel digital audio via HDMI interface	Multi-channel digital audio via HDMI interface
<b>Peripheral Connectivity</b>	1x USB 3.0 Type-A host port on side 1x USB 2.0 Type-A host port on side	1x USB 3.0 Type-A host port on side 1x USB 2.0 Type-A host port on side
<b>Storage</b>	32GB eMMC storage device soldered down Micro SDXC v3.0 slot with UHS I-Support (on side)	32GB eMMC storage device soldered down Micro SDXC v3.0 slot with UHS I-Support (on side)
<b>Networking</b>	Intel® Dual Band Wireless AC 7265 with Bluetooth 4.0	Intel® Dual Band Wireless AC 7265 with Bluetooth 4.0
<b>Enclosure</b>	Black chassis with Intel Inside logo, plastic enclosure Dimensions: Approx. 113 mm x 38 mm x 12 mm	Black chassis with Intel Inside logo, plastic enclosure Dimensions: Approx. 113 mm x 38 mm x 12 mm
<b>Power Delivery</b>	MicroUSB power connector 5V/3A wall-mount AC-DC power adapter w/ support for US, EU, UK, AUS (SKU 1) and IND, BRA, ARG, CHN, KOR (SKU 2) outlets	MicroUSB power connector 5V/3A wall-mount AC-DC power adapter w/ support for US, EU, UK, AUS (SKU 1) and IND, BRA, ARG, CHN, KOR (SKU 2) outlets
<b>Additional Features</b>	Pre-installed OS: Windows* 10, 32-bit (64-bit capable) Intel BIOS Hot Plug video detect Power LED, power button One Year Warranty	Intel BIOS Hot Plug video detect Power LED, power button One Year Warranty

For more information, visit [www.intel.com/computestick](http://www.intel.com/computestick)

Actual Intel® Compute Stick may differ from the image shown. Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at [www.intel.com/computestick](http://www.intel.com/computestick)

\* Other names and brands may be claimed as the property of others.

For more information, visit [www.intel.com/computestick](http://www.intel.com/computestick)

Intel products are not intended for use in medical, life-saving, or life-sustaining applications. Intel may make changes to specifications and product descriptions at any time, without notice.

Actual Intel® Compute Stick may differ from the image shown.

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at [www.intel.com/computestick](http://www.intel.com/computestick)


All rights reserved. Intel, the Intel logo, Intel Inside, the Intel Inside logo, and Intel Atom are trademarks of Intel Corporation in the U.S. and/or other countries.

\* Other names and brands may be claimed as the property of others.

© 2017 Intel Corporation



# 1GB INTEL® ETHERNET FOR DESKTOP

PRODUCT	CONNECTOR & CABLE MEDIUM	CABLING TYPE	INTEL® ETHERNET CONTROLLER	SLOT TYPE, MAXIMUM BUS SPEED & BUS WIDTH	PORTS	SUPPORTED SLOT HEIGHTS	HALOGEN FREE	INTELLIGENT OFFLOADS	NETWORK VIRTUALIZATION TECHNOLOGY FOR CONNECTIVITY	STORAGE OVER ETHERNET	INTEL ETHERNET POWER MANAGEMENT <sup>1</sup>	ORDER CODES
 Intel® Gigabit CT Desktop Adapter	RJ45 Copper Twisted-pair	Category 5 or better: up to 100m	82574	PCI Express* v2.1 2.5 GT/s, x1 Lane	Single Port	Low Profile and Full Height	N/A	N/A	N/A	iSCSI, NFS, SMB	N/A	EXPI9301CT EXPI9301CTBLK

Make the Connection with Intel® Ethernet Adapters at [intel.com/ethernet](http://intel.com/ethernet)

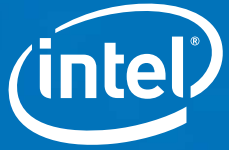
<sup>1</sup> Intel Ethernet Power Management includes Energy Efficient Ethernet (EEE) and DMA Coalescing.

Intel and the Intel logo are trademarks of Intel Corporation or its subsidiaries in the U.S. and/or other countries.

\* Other names and brands may be claimed as the property of others.

© Intel Corporation





**THE FUTURE  
IS SMART**

# INTEL<sup>®</sup> COMPUTE CARD

## **INTEL<sup>®</sup> COMPUTE CARD — SMALL IN SIZE, NOT IN CAPABILITIES**

Intel<sup>®</sup> Compute Card is just slightly longer than a credit card, but it's ready to power anything from entry-level to full featured devices.

The modularity and flexibility of this computer on a card allows compute integration via card slot into devices like digital signage, kiosks, Smart TVs, appliances and more.



# THE FUTURE IS SMART

The Intel® Compute Card is pushing the boundaries of where and how technology enriches life.



## DRIVING INNOVATION

Now any device with a Compute Card slot is a smart device, unlocking potential everywhere compute is possible.

## DELIVERING VALUE

Revolutionary in size, form, and function, the Intel® Compute Card brings tremendous value to designers, OEMs, manufacturers, distributors, channel partners, and ultimately, their customers.

## DELIVERED COMPLETE

With Intel® brand processors and everything your customers need—including RAM, storage, and wireless connectivity—already built-in.

# COMPUTE ANYWHERE



## IN THE HOME

Smart appliances and devices for a more connected home.



## IN BUSINESS

Digital signage, point of sale, intelligent vending, and smart security solutions to bring business into the future.



## IN THE FACTORY

Automation, inventory management, fleet tracking and mobile workstations to reinvent the factory floor.



# INTEL® COMPUTE CARD - MARBLE CREEK



<b>Product Code</b>	<b>CD1i5128MK</b>	<b>CD1M3128MK</b>
<b>Processor</b>	7th Generation Intel® Core™ i5-7Y57 Processor	7th Generation Intel® Core™ m3-7Y30 Processor
<b>Memory</b>	8GB dual channel LPDDR3-1866	4GB dual channel LPDDR3-1866
<b>Graphics</b>	Intel® HD Graphics 630, 300 MHz up to 950 MHz	Intel® HD Graphics 615, 300 MHz up to 900 MHz
<b>Storage</b>	128GB PCIe x2 SSD	128GB PCIe x2 SSD
<b>Networking</b>	Intel® Wireless-AC 8265 802.11ac 2x2 + Bluetooth 4.2, dual internal antennas	Intel® Wireless-AC 8265 802.11ac 2x2 + Bluetooth 4.2, dual internal antennas
<b>Enclosure</b>	Metal with a plastic cap	Metal with a plastic cap
<b>Additional Features</b>	No moving components Three year warranty	No moving components Three year warranty

For more information, visit [www.intel.com/computecard](http://www.intel.com/computecard)

Actual Intel® Compute Card may differ from the image shown. Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at [www.intel.com/computecard](http://www.intel.com/computecard)

\* Other names and brands may be claimed as the property of others.

# INTEL® COMPUTE CARD - GRANITE CREEK



<b>Product Code</b>	<b>CD1P64GK</b>	<b>CD1C64GK</b>
<b>Processor</b>	Intel® Pentium® Processor N4200	Intel® Celeron® N3450 Processor
<b>Memory</b>	4GB dual channel LPDDR3-1866	4GB dual channel LPDDR3-1866
<b>Graphics</b>	Intel® HD Graphics 505, 200 MHz up to 750 MHz	Intel® HD Graphics 500, 200 MHz up to 700 MHz
<b>Storage</b>	64GB eMMC 5.0, HS400	64GB eMMC 5.0, HS400
<b>Networking</b>	Intel® Wireless-AC 7265 802.11ac 2x2 + Bluetooth 4.2, dual internal antennas	Intel® Wireless-AC 7265 802.11ac 2x2 + Bluetooth 4.2, dual internal antennas
<b>Enclosure</b>	Metal with a plastic cap	Metal with a plastic cap
<b>Additional Features</b>	No moving components Three year warranty	No moving components Three year warranty

For more information, visit [www.intel.com/computecard](http://www.intel.com/computecard)

Actual Intel® Compute Card may differ from the image shown. Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at [www.intel.com/computecard](http://www.intel.com/computecard)

\* Other names and brands may be claimed as the property of others.

# INTEL® COMPUTE CARD DOCK - PORT JEFFERSON

<b>Product Code</b>	<b>DK132EPJ</b>
<b>Supported Cards</b>	CD1IV128MK Intel® Core™ i5 vPro* CD1M3128MK Intel® Core™ m3 CD1P64GK Intel® Pentium® CD1C64GK Intel® Celeron®
<b>Security</b>	Mechanical security latch, Compute Card ejection lock, Kensington lock
<b>Networking</b>	Intel® Ethernet Controller I211-AT, IEEE 802.3/u/ab, RJ45 with dual LEDs, 10/00/1000 Mbps
<b>Enclosure</b>	Metal with plastic
<b>Additional Featured</b>	Electronic ejection Active cooling One year warranty



For more information, visit [www.intel.com/computecard](http://www.intel.com/computecard)

Actual Intel® Compute Card may differ from the image shown. Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at [www.intel.com/computecard](http://www.intel.com/computecard)

\* Other names and brands may be claimed as the property of others.

For more information, visit [www.intel.com/computecard](http://www.intel.com/computecard)

Intel products are not intended for use in medical, life-saving, or life-sustaining applications. Intel may make changes to specifications and product descriptions at any time, without notice.

Actual Intel® Compute Card may differ from the image shown.

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at [www.intel.com/computecard](http://www.intel.com/computecard)

All rights reserved. Intel, the Intel logo, Intel Inside, Experience What's Inside logo, Intel vPro, Intel Core, Pentium, Celeron and the Intel Inside logo are trademarks of Intel Corporation in the U.S. and/or other countries.

\* Other names and brands may be claimed as the property of others.

© 2017 Intel Corporation



# INTEL® WIRELESS PRODUCTS

**INTEL®  
WIRELESS-AC  
WI-FI FOR YOUR  
CONNECTED LIFE**

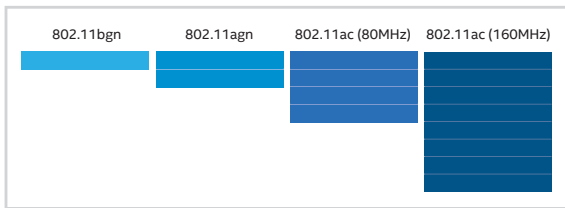
## **GIGABIT WI-FI POWERED BY INTEL**

With the right solution from Intel, your Wi-Fi performs just as remarkably as you do—easily keeping pace with your entertainment, business, and super-connected lifestyle.



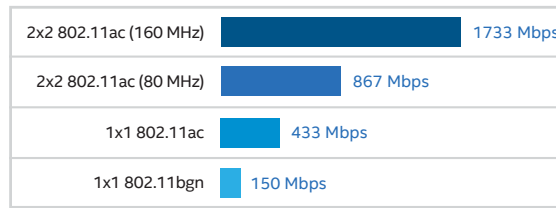
## Improved Capacity<sup>4</sup>

802.11ac (160MHz) combines eight 20 MHz channels into a super-wide 160MHz channel. More capacity, less congestion.



## Nearly Twelve Times Faster Data Rates<sup>5</sup>

Less time waiting, more time enjoying. 802.11ac: 2 data streams on 2 antennas for the best experience.



## Progression of Wi-Fi Standards & Technologies

YEAR	WI-FI TYPE	SHORT NAME	MAX SPEED	STREAMS	CHANNEL WIDTH	CHANNEL DENSITY
2016	2x2 802.11ac	2x2AC	1733Mbps	2	160MHz	Heavy
2013	2x2 802.11ac	2x2AC	867Mbps	2	80MHz	Heavy
2013	1x1 802.11ac	1x1AC	433Mbps	1	80MHz	Heavy
2007	1x1 802.11n	1x1BGN/AGN	150Mbps	1	40MHz	Medium

Note: Wider channels, heavier channel densities, and higher number of streams each contribute to higher maximum speeds

- 802.11ac products are nearly 12X faster<sup>5</sup> than 802.11n, is fully backwards compatible, and supports both the 2.4GHz and 5GHz spectrum.
- PC (client) and AP/Router must both have 802.11ac to get highest speeds.
- 2x2AC clients are 2X-4X faster than 1x1AC clients<sup>3</sup>.
- Intel has important additional unique features:
  - Wireless Intel® Active Management Technology (Intel® vPro™ Technology)<sup>1</sup>
  - Worldwide Regulatory Support with Intel® Dynamic Regulatory Solution<sup>2</sup>

## Module Form Factors

M.2 2230 Socketed



M.2 1216 Soldered Down



# INTEL® WIRELESS-AC PRODUCTS

## Wireless Products (802.11ac Wi-Fi and Bluetooth®)

Wi-Fi is not just for laptops. Experience the flexibility and performance offered by Intel® Wireless-AC in the desktop.

PRODUCT	INTEL® WIRELESS-AC 9560	INTEL® WIRELESS-AC 9260	INTEL® WIRELESS-AC 9461	INTEL® DUAL BAND WIRELESS-AC 8265	INTEL® DUAL BAND WIRELESS-AC 8260	INTEL® DUAL BAND WIRELESS-AC 7265	INTEL® DUAL BAND WIRELESS-AC 3168	INTEL® DUAL BAND WIRELESS-AC 3165
<b>FORM FACTOR</b>	M.2 2230, 1216 Solder Down	M.2 2230	M.2 2230, 1216 Solder Down	M.2 2230, 1216 (Solder Down)	M.2 2230, 1216 (Solder Down)	M.2 2230, 1216 (Solder Down)	M.2 2230	M.2 2230
<b>SPEED SPATIAL STREAMS (TX AND RX)</b>	Gigabit - 1733Mb/s (2x2)	Gigabit - 1733Mb/s (2x2)	433Mb/s (1x1) Single Antenna	867Mb/s (2x2)	867 Mb/s (2x2)	867 Mb/s (2x2)	433 Mb/s (1x1)	433 Mb/s (1x1)
<b>ENTERPRISE / SMB FEATURES</b>	Intel® PROset/ wireless software, MU-MIMO Rx, Intel® Authenticate Solution	Intel® PROset/ wireless software, MU-MIMO Rx, Intel® Authenticate Solution	Intel® PROset/ wireless software, MU-MIMO Rx, Intel® Authenticate Solution	Intel® PROSet/ Wireless Software, MU-MIMO, Intel® Authenticate Solution	Intel® PROSet / Wireless Software, Intel® Authenticate Solution	Intel® PROSet / Wireless Software, Intel® Authenticate Solution	Intel® PROSet / Wireless Software, Intel® Authenticate Solution	Intel® PROSet / Wireless Software, Intel® Authenticate Solution
<b>BANDS</b>	Dual Band - 2.4GHz and 5GHz	Dual Band - 2.4GHz and 5GHz	Dual Band - 2.4GHz and 5GHz	Dual Band – 2.4 GHz and 5 GHz	Dual Band – 2.4 GHz and 5 GHz	Dual Band – 2.4 GHz and 5 GHz	Dual Band – 2.4 GHz and 5 GHz	Dual Band – 2.4 GHz and 5 GHz
<b>INTEL® vPRO™ TECHNOLOGY<sup>1</sup></b>	✓	✓		✓	✓	✓		
<b>BLUETOOTH®</b>	Bluetooth® 5	Bluetooth 5	Bluetooth 5	Bluetooth® 4.2	Bluetooth 4.2	Bluetooth 4.2	Bluetooth 4.2	Bluetooth 4.2
<b>Wi-Fi* CERTIFICATION (802.11)</b>	WiFi certified 802.11 ac/a/b/g/n	WiFi certified 802.11 ac/a/b/g/n	WiFi certified 802.11 ac/a/b/g/n	WiFi certified 802.11ac/a/b/g/n	WiFi certified 802.11ac/a/b/g/n	WiFi certified 802.11ac/a/b/g/n	WiFi certified 802.11ac/a/b/g/n	WiFi certified 802.11ac/a/b/g/n
<b>OPTIMIZED FOR</b>	8th generation Intel® Core™ processors and Intel® Pentium® Silver and Intel® Celeron® processors with platforms designed to support connectivity integration	8th generation Intel® Core™ processors and Intel® Pentium® Silver and Intel® Celeron® processors	8th generation Intel® Core™ processors and Intel® Pentium® Silver and Intel® Celeron® processors with platforms designed to support connectivity integration	7th generation Intel® Core™ processors	6th generation Intel® Core™ processors	5th & 6th generation Intel® Core™ processors	6th generation Intel® Core™ processors	5th & 6th generation Intel® Core™ processors



# DESKTOP WIRELESS M.2 KIT

## Intel® Dual Band Wireless-AC 8265 Desktop Kit

Intel® wireless networking solutions for desktop platforms enable network connectivity without wires. This solution requires a motherboard with an M.2 key E connector for wireless and includes 2 antennas, 2 RF cables with connectors and 2 mounting brackets (long/short). Integrate wireless in the desktop vs. an external USB dongle for uncompromising performance, enhanced security, and scalability for fast, flexible connectivity at work and home.



SEGMENT	BUSINESS, EDUCATION, PERFORMANCE CONSUMER
PRODUCT	INTEL® DUAL BAND WIRELESS-AC 8265 DESKTOP KIT
FORM FACTOR	M.2 (key E)
ANTENNA	Included
SPEED SPATIAL STREAMS (TX AND RX)	867 Mb/s (2x2) <sup>4</sup>
BANDS	Dual Band – 2.4 GHz and 5 GHz
ENTERPRISE / SMB FEATURES	Intel® PROSet / Wireless Software, MU-MIMO
BLUETOOTH® 4	Bluetooth® 4.2
WI-FI® CERTIFICATION (802.11)	802.11ac, 802.11n
AVAILABILITY	Shipping

# INTEL® CHANNEL WIRELESS PRODUCTS

## Intel offers a full portfolio of advanced technologies to optimise every wireless experience

PRODUCT CODE	MM#	DESCRIPTION	PACKING	PRODUCT CONSIDERATIONS
<b>JEFFERSON PEAK 1 &amp; 2 - 9461 &amp; 9560</b>				
9560.NGWG	957714	CNVi, Gigabit (160MHz), 2x2 MU-MIMO 802.11ac/a/b/g/n + Bluetooth® 5 - M.2	100 pack	Recommended wireless solution for 8th generation Intel® Core™, Intel® Pentium® Silver and Intel® Celeron® Processors with platforms designed for connectivity integration. Supports Intel® vPro™ Technology on 8th generation Intel® Core™ processors.
9461.NGWG.NV	958885	CNVi, 1x1 MU-MIMO, 802.11ac/a/b/g/n + Bluetooth 5 - M.2	100 pack	Recommended wireless solution for 8th generation Intel® Core™, Intel® Pentium® Silver and Intel® Celeron® Processors with platforms designed for connectivity integration.
<b>THUNDER PEAK 2 - 9260</b>				
9260.NGWG	957712	Gigabit (160MHz), 2x2 MU-MIMO 802.11ac/a/b/g/n + Bluetooth 5 - M.2	100 pack	Recommended wireless solution for 8th generation Intel® Core™, Intel® Pentium® Silver and Intel® Celeron® Processors. Supports Intel® vPro™ Technology on 8th generation Intel® Core™ processors.
<b>WINDSTORM PEAK - 8265</b>				
8265.NGWMG	946658	2x2 MU-MIMO 802.11ac/a/b/g/n + Bluetooth® 4.2 - m.2	100 Packs	Recommended overall wireless solution for M.2 form-factor on 7th generation Intel® Core™ processors.
8265.NGWMG.DTX1	958156	2x2 MU-MIMO 802.11ac/a/b/g/n + Bluetooth 4.2 – m.2 desktop kit	1 Retail Box	
<b>SNOWFIELD PEAK - 8260</b>				
8260.NGWMG	942165	2x2 MIMO 802.11ac/a/b/g/n + Bluetooth 4.2 - m.2	100 Packs	Recommended overall wireless solution for M.2 form-factor on 6th generation Intel® Core™ processors.
<b>SANDY PEAK - 3168</b>				
3168.NGWG	944884	1x1 802.11ac/a/b/g/n + Bluetooth 4.2 - m.2	100 Packs	Nearly 3x faster than 802.11 bgn/agn based products. <sup>5</sup>
<b>STONE PEAK 1 &amp; 2 - 3165 &amp; 7265</b>				
7265.NGWG.W	939155	2x2 MIMO 802.11ac/a/b/g/n + Bluetooth 4.1 - rev.2, m.2	100 Packs	Recommended overall wireless solution for M.2 form-factor on 5th generation Intel® Core™ processor-based systems. Supports Intel® vPro™ Technology on 5th generation Intel® Core™ processors. <sup>1</sup>
7265.NGWWB.W	945063	2x2 MIMO 802.11ac/a/b/g/n + Bluetooth 4.1 - rev.2, m.2, 10pk	10 Packs	Lower quantity pack to support smaller product orders.
3165.NGWG	940106	1x1 802.11ac/a/b/g/n + Bluetooth 4.1 - m.2	100 Packs	Nearly 3x faster than 802.11 bgn/agn based products. <sup>5</sup>

For more information, visit [www.intel.com/wireless](http://www.intel.com/wireless)



For more information, visit [www.intel.com/wireless](http://www.intel.com/wireless)

<sup>1</sup> Intel® vPro™ technology is sophisticated and requires setup and activation. Availability of features and results will depend upon the setup and configuration of your hardware, software, and IT environment. To learn more visit: [www.intel.com/content/www/us/en/architecture-and-technology/vpro/intel-vpro-technology-developer.html](http://www.intel.com/content/www/us/en/architecture-and-technology/vpro/intel-vpro-technology-developer.html)

<sup>2</sup> For a list of country approvals, please contact your local Intel representative.

<sup>3</sup> Based on actual product benchmark performance. Theoretical maximum bandwidth enabled by 2x2 802.11ac (80MHz) and 2x2 802.11ac (160MHz) implementations are 867 Mbps and 1733Mbps PHY rates respectively.

<sup>4</sup> Tests document performance of components on a particular test, in specific systems. Differences in hardware, software, or configuration will affect actual performance. Consult other sources of information to evaluate performance as you consider your purchase. For more complete information about performance and benchmark results, visit <http://www.intel.com/performance>.

<sup>5</sup> "Nearly 3x/6x/12x faster" Intel® Wireless-AC claims are based on the comparison of maximum theoretical data rates for single (433 Mbps), dual (867 Mbps) spatial stream 802.11ac (80MHz) and dual (1733Mbps) spatial stream 802.11ac (160MHz) vs. single spatial stream (150 Mbps) 802.11n Wi-Fi solutions as documented in IEEE 802.11 wireless standard specifications, and require the use of similarly configured 802.11ac wireless network routers or better.

No license (express or implied, by estoppel or otherwise) to any intellectual property rights is granted by this document. Intel disclaims all express and implied warranties, including without limitation, the implied warranties of merchantability, fitness for a particular purpose, and non-infringement, as well as any warranty arising from course of performance, course of dealing, or usage in trade.

The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Intel Corporation is under license

Intel, the Intel logo, Celeron, Pentium, and vPro are trademarks of Intel Corporation in the U.S. and/or other countries.

Copyright © Intel Corporation. All rights reserved.

\* Other names, brands, and logos may be claimed as the property of others.



# INTEL® SERVER / WORKSTATION PROCESSORS

**INNOVATION  
YOU WANT.  
VERSATILITY  
YOU NEED.**

## **ENABLING BETTER DESIGNS AND FASTER TIME TO MARKET**

The demand for faster time to market, design optimization, and cost reduction is driving the rapid adoption of workstation products in many industries. Not long ago, workstations were relegated to high-end design tasks such as complex mechanical assemblies, buildings, and aerospace design. Today, workstations are used in every major industry for tasks ranging from financial modeling, to designing complex buildings and vehicles. Workstations have become standard equipment for engineers, content creators, analysts, and others who need the highest levels of performance, visualization, and data integrity.

# INTEL® SERVER / WORKSTATION PROCESSORS

Innovation You Want. Versatility You Need.

INTEL® XEON PHI™ PRODUCT FAMILY  
INTEL® XEON® SCALABLE PROCESSORS  
INTEL® XEON® PROCESSOR E7-8800/4800 V4 FAMILY  
INTEL® XEON® PROCESSOR E7-8800/4800 V3 FAMILY  
INTEL® XEON® PROCESSOR E7-8800/4800/2800 V2 FAMILY  
INTEL® XEON® PROCESSOR E5-4600 V4 FAMILY  
INTEL® XEON® PROCESSOR E5-4600 V3 FAMILY  
INTEL® XEON® PROCESSOR E5-2600/1600 V4 FAMILY  
INTEL® XEON® PROCESSOR E5-2600/1600 V3 FAMILY

INTEL® XEON® PROCESSOR E5-4600/2600/2400/1600 V2 FAMILY  
INTEL® XEON® W PROCESSORS  
INTEL® XEON® PROCESSOR E3-1500 V5 FAMILY  
INTEL® XEON® PROCESSOR E3-1200 V6 FAMILY  
INTEL® XEON® PROCESSOR E3-1200 V5 FAMILY  
INTEL® XEON® PROCESSOR E3-1200 V4 FAMILY  
INTEL® XEON® PROCESSOR E3-1200 V3 FAMILY  
INTEL® XEON® PROCESSOR D-1500 PRODUCT FAMILY



# INTEL® XEON® PHI™ PRODUCT FAMILY

## The Intel® Xeon Phi™ Processor – Your Path to Deeper Insight

Eliminate node bottlenecks, simplify your code modernization, and build on a power-efficient architecture with the Intel® Xeon Phi™ processor, a foundational element of Intel® Scalable System Framework. The bootable host processor offers an integrated architecture for powerful, highly parallel performance that will pave your path to deeper insight, innovation, and impact for today's most-demanding High Performance Computing applications, including Machine Learning. Supported by a comprehensive technology roadmap and robust ecosystem, the Intel® Xeon Phi™ processor is a future-ready solution that maximizes your return on investment by using open standards code that are flexible, portable, and reusable.

## Product Specifications

PROCESSOR NAME	# OF CORES/ # OF THREADS	CLOCK SPEED	MAX TDP/POWER	MEMORY TYPES	FABRIC	L2 CACHE
Intel® Xeon™ Phi Processor 7250 (16GB, 1.40 GHz, 68 core)	68/272	1.4 GHz	215 W	DDR4-2400	No	34 MB
Intel® Xeon™ Phi Processor 7230 (16GB, 1.30 GHz, 64 core)	64/256	1.3 GHz	215 W	DDR4-2400	No	32 MB
Intel® Xeon™ Phi Processor 7210 (16GB, 1.30 GHz, 64 core)	64/256	1.3 GHz	215 W	DDR4-2133	No	32 MB
Intel® Xeon™ Phi Processor 7290 (16GB, 1.50 GHz, 72 core)	72/288	1.5 GHz	245 W	DDR4-2400	No	36 MB
Intel® Xeon™ Phi Processor 7290F (16GB, 1.50 GHz, 72 core)	72/288	1.5 GHz	260 W	DDR4-2400	Yes	36 MB
Intel® Xeon™ Phi Processor 7250F (16GB, 1.40 GHz, 68 core)	68/272	1.4 GHz	230 W	DDR4-2400	Yes	34 MB
Intel® Xeon™ Phi Processor 7230F (16GB, 1.30 GHz, 64 core)	64/256	1.3 GHz	230 W	DDR4-2400	Yes	32 MB
Intel® Xeon™ Phi Processor 7210F (16GB, 1.30 GHz, 64 core)	64/256	1.3 GHz	230 W	DDR4-2133	Yes	32 MB



## Intel® Xeon Phi™ Coprocessors

Power breakthrough innovations with the highly parallel processing of the Intel® Xeon Phi™ coprocessor. Languages, tools, and applications run smoothly across the full spectrum of Intel® Xeon® processor family-based platforms. Intel Xeon Phi coprocessors provides 68 cores, 272 threads, and 2.828 double-precision teraFLOPS of performance,<sup>4,5,6</sup> and they come in a variety of configurations to address diverse hardware, software, workload, performance, and efficiency requirements.

### Intel® Xeon Phi™ Coprocessor Product Family for Server Systems

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE	CLOCK SPEED	CACHE	NO. OF CORES	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER	THERMAL	UPC CODE
Intel® Xeon Phi™ Coprocessor 7240P	SC7240P	1.3 GHz	34 MB	68	✓	205W	Passive Thermal	7 35858 33734 2
Intel® Xeon Phi™ Coprocessor 7220A	SC7220A	1.2 GHz	34 MB	68	✓	205W	Active Thermal	7 35858 33731 1
Intel® Xeon Phi™ Coprocessor 7220P	SC7220P	1.2 GHz	34 MB	68	✓	205W	Passive Thermal	7 35858 33732 8
Intel® Xeon Phi™ Coprocessor 7220AEB (HS)	SC7220AEB	1.2 GHz	34 MB	68	✓	205W	Active Thermal	7 35858 33730 4

# INTEL® XEON® SCALABLE PROCESSORS

## Intel® Xeon® Scalable Processors

The Intel® Xeon® Scalable processors are the new foundation for secure, agile, multi-cloud data centers. With uncompromising security and exceptional processing performance for trusted data service delivery, these processors deliver monumental leaps in I/O, memory, storage and network technology to harness actionable insights from our increasingly data-fueled smart and connected world.



## Intel® Xeon® Scalable Processors for Server and Workstation Systems

(Thermal Solution Sold Separately)

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE	CLOCK SPEED	INTEL® UPI <sup>3</sup> SPEED	INTEL® SMART CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER	UPC CODE
Intel® Xeon® Platinum Processor 8180	CD8067303314400 (tray) WX806738180 (box)	2.50 GHz	10.4 GT/s	38.5M	DDR4-2666 MHz	28/56	✓	2.0	205W	TBD
Intel® Xeon® Platinum Processor 8176	CD8067303314700 (tray) WX806738176 (box)	2.10 GHz	10.4 GT/s	38.5M	DDR4-2666 MHz	28/56	✓	2.0	165W	TBD
Intel® Xeon® Platinum Processor 8170	CD8067303327601 (tray) WX806738170 (box)	2.10 GHz	10.4 GT/s	35.75M	DDR4-2666 MHz	26/52	✓	2.0	165W	N/A
Intel® Xeon® Platinum Processor 8164	CD8067303408800 (tray) WX806738164 (box)	2.00 GHz	10.4 GT/s	35.75M	DDR4-2666 MHz	26/52	✓	2.0	150W	N/A
Intel® Xeon® Platinum Processor 8168	CD8067303327701 (tray)	2.70 GHz	10.4 GT/s	33M	DDR4-2666 MHz	24/48	✓	2.0	205W	N/A
Intel® Xeon® Platinum Processor 8160	CD8067303405600 (tray) WX806738160 (box)	2.10 GHz	10.4 GT/s	33M	DDR4-2666 MHz	24/48	✓	2.0	150W	TBD
Intel® Xeon® Platinum Processor 8158	CD8067303406500 (tray)	3.00 GHz	10.4 GT/s	24.75M	DDR4-2666 MHz	12/24	✓	2.0	150W	N/A
Intel® Xeon® Platinum Processor 8156	CD8067303368800 (tray)	3.60 GHz	10.4 GT/s	16.5M	DDR4-2666 MHz	4/8	✓	2.0	105W	N/A
Intel® Xeon® Platinum Processor 8153	CD8067303408900 (tray)	2.00 GHz	10.4 GT/s	22M	DDR4-2666 MHz	16/32	✓	2.0	125W	N/A
Intel® Xeon® Gold Processor 6154	CD8067303592700 (tray)	3.00 GHz	10.4 GT/s	24.75M	DDR4-2666 MHz	18/36	✓	2.0	200W	N/A
Intel® Xeon® Gold Processor 6152	CD8067303406000 (tray) WX806736152 (box)	2.10 GHz	10.4 GT/s	30.25M	DDR4-2666 MHz	22/44	✓	2.0	140W	TBD
Intel® Xeon® Gold Processor 6150	CD8067303328000 (tray)	2.70 GHz	10.4 GT/s	24.75M	DDR4-2666 MHz	18/36	✓	2.0	165W	TBD

Continued on next page



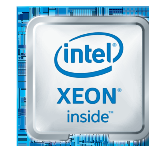
Continued from previous page

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE	CLOCK SPEED	INTEL® UPI <sup>3</sup> SPEED	INTEL® SMART CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER	UPC CODE
Intel® Xeon® Gold Processor 6148	CD8067303406200 (tray) WX806736148 (box)	2.40 GHz	10.4 GT/s	27.5M	DDR4-2666 MHz	20/40	✓	2.0	150W	TBD
Intel® Xeon® Gold Processor 6142	CD8067303405400 (tray) WX806736142 (box)	2.60 GHz	10.4 GT/s	22M	DDR4-2666 MHz	16/32	✓	2.0	150W	TBD
Intel® Xeon® Gold Processor 6140	CD8067303405200 (tray) WX806736140 (box)	2.30 GHz	10.4 GT/s	24.75M	DDR4-2666 MHz	18/36	✓	2.0	140W	TBD
Intel® Xeon® Gold Processor 6138	CD8067303406100 (tray) WX806736138 (box)	2.00 GHz	10.4 GT/s	27.5M	DDR4-2666 MHz	20/40	✓	2.0	125W	TBD
Intel® Xeon® Gold Processor 6132	CD8067303592500 (tray)	2.60 GHz	10.4 GT/s	19.25M	DDR4-2666 MHz	14/28	✓	2.0	133W	N/A
Intel® Xeon® Gold Processor 6136	CD8067303405800 (tray)	3.00 GHz	10.4 GT/s	24.75M	DDR4-2666 MHz	12/24	✓	2.0	148W	N/A
Intel® Xeon® Gold Processor 6134	CD8067303330302 (tray) WX806736134 (box)	3.20 GHz	10.4 GT/s	24.75M	DDR4-2666 MHz	8/16	✓	2.0	130W	N/A
Intel® Xeon® Gold Processor 6130	CD8067303409000 (tray) WX806736130 (box)	2.10 GHz	10.4 GT/s	22M	DDR4-2666 MHz	16/32	✓	2.0	125W	TBD
Intel® Xeon® Gold Processor 6128	CD8067303592600 (tray) WX806736128 (box)	3.40 GHz	10.4 GT/s	19.25M	DDR4-2666 MHz	6/12	✓	2.0	115W	N/A
Intel® Xeon® Gold Processor 6126	CD8067303405900 (tray)	2.60 GHz	10.4 GT/s	19.25M	DDR4-2666 MHz	12/24	✓	2.0	125W	N/A
Intel® Xeon® Gold Processor 5122	CD8067303330702 (tray) WX806735122 (box)	3.60 GHz	10.4 GT/s	16.5M	DDR4-2400 MHz	4/8	✓	2.0	105W	N/A
Intel® Xeon® Gold Processor 5120	CD8067303535900 (tray) WX806735120 (box)	2.20 GHz	10.4 GT/s	19.25M	DDR4-2400 MHz	14/28	✓	2.0	105W	TBD
Intel® Xeon® Gold Processor 5118	CD8067303536100 (tray)	2.30 GHz	10.4 GT/s	16.5M	DDR4-2400 MHz	12/24	✓	2.0	105W	N/A
Intel® Xeon® Gold Processor 5115	CD8067303535601 (tray)	2.40 GHz	10.4 GT/s	13.75M	DDR4-2400 MHz	10/20	✓	2.0	85W	N/A
Intel® Xeon® Sliver Processor 4116	CD8067303567200 (tray) WX806734116 (box)	2.10 GHz	9.6 GT/s	16.5M	DDR4-2400 MHz	12/24	✓	2.0	85W	TBD
Intel® Xeon® Sliver Processor 4114	CD8067303561800 (tray) WX806734114 (box)	2.20 GHz	9.6 GT/s	13.75M	DDR4-2400 MHz	10/20	✓	2.0	85W	TBD
Intel® Xeon® Sliver Processor 4112	CD8067303562100 (tray) WX806734112 (box)	2.60 GHz	9.6 GT/s	8.25M	DDR4-2400 MHz	4/8	✓	2.0	85W	TBD
Intel® Xeon® Sliver Processor 4110	CD8067303561400 (tray) WX806734110 (box)	2.10 GHz	9.6 GT/s	11M	DDR4-2400 MHz	8/16	✓	2.0	85W	TBD
Intel® Xeon® Sliver Processor 4108	CD8067303561500 (tray) WX806734108 (box)	1.80 GHz	9.6 GT/s	11M	DDR4-2400 MHz	8/16	✓	2.0	85W	TBD
Intel® Xeon® Bronze Processor 3106	CD8067303561900 (tray) WX806733106 (box)	1.70 GHz	9.6 GT/s	11M	DDR4-2133 MHz	8/16	No	No	85W	TBD
Intel® Xeon® Bronze Processor 3104	CD8067303562000 (tray) WX806733104 (box)	1.70 GHz	9.6 GT/s	8.25M	DDR4-2133 MHz	6/12	No	No	85W	TBD

# INTEL® XEON® PROCESSOR E7-8800 / 4800 V4 FAMILY

## Introducing the New Intel Xeon Processor E7-8800/ 4800 v4 Product Family

Unleash exceptional performance for your most demanding data workloads. Fast track your business for real-time analytics and in-memory computing with the secure, reliable, performance workhorse that is the Intel® Xeon® processor E7-8800/4800 v4 product families. Designed for the most mission-critical workloads and the always-on enterprise, the processor combines large memory capacities with leading performance, reliability, and virtualization capabilities to keep your data center supplying business advantage without interruption.



## Intel® Xeon® Processor E7-8800 v4 Product Family for Server / Workstation Systems Featuring Up to Eight LGA2011-1 Sockets

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE (TRAY ONLY)	CLOCK SPEED	INTEL® QPI <sup>3</sup> SPEED	SHARED L3 CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER
Intel® Xeon® processor E7-8893 v4	CM8066902065502	3.20 GHz	9.6 GT/s	60M	1866 MHz (DDR4) 1600 MHz (DDR3)	4/8	✓	✓	140 W
Intel® Xeon® processor E7-8891 v4	CM8066902027903	2.80 GHz	9.6 GT/s	60M	1866 MHz (DDR4) 1600 MHz (DDR3)	10/20	✓	✓	165 W
Intel® Xeon® processor E7-8867 v4	CM8066902028403	2.40 GHz	9.6 GT/s	45M	1866 MHz (DDR4) 1600 MHz (DDR3)	18/36	✓	✓	165 W
Intel® Xeon® processor E7-8890 v4	CM8066902885200	2.20 GHz	9.6 GT/s	60M	1866 MHz (DDR4) 1600 MHz (DDR3)	24/48	✓	✓	165 W
Intel® Xeon® processor E7-8880 v4	CM8066902325500	2.20 GHz	9.6 GT/s	55M	1866 MHz (DDR4) 1600 MHz (DDR3)	22/44	✓	✓	150 W
Intel® Xeon® processor E7-8870 v4	CM8066902025802	2.10 GHz	9.6 GT/s	50M	1866 MHz (DDR4) 1600 MHz (DDR3)	20/40	✓	✓	140 W
Intel® Xeon® processor E7-8860 v4	CM8066902325800	2.20 GHz	9.6 GT/s	45M	1866 MHz (DDR4) 1600 MHz (DDR3)	18/36	✓	✓	140 W

## Intel® Xeon® Processor E7-4800 v4 Product Family for Server / Workstation Systems Featuring Up to Four LGA2011-1 Sockets

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE (TRAY ONLY)	CLOCK SPEED	INTEL® QPI <sup>3</sup> SPEED	SHARED L3 CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER
Intel® Xeon® processor E7-4850 v4	CM8066902026904	2.10 GHz	8.0 GT/s	40M	1866 MHz (DDR4) 1600 MHz (DDR3)	16/32	✓	✓	115 W
Intel® Xeon® processor E7-4830 v4	CM8066902027102	2.00 GHz	8.0 GT/s	35M	1866 MHz (DDR4) 1600 MHz (DDR3)	14/28	✓	✓	115 W
Intel® Xeon® processor E7-4820 v4	CM8066902027500	2.00 GHz	6.4 GT/s	25M	1866 MHz (DDR4) 1333 MHz (DDR3)	10/20	✓		115 W
Intel® Xeon® processor E7-4809 v4	CM8066902027604	2.10 GHz	6.4 GT/s	20M	1866 MHz (DDR4) 1333 MHz (DDR3)	8/16	✓		115 W

# INTEL® XEON® PROCESSOR E7-8800 / 4800 V3 FAMILY

## Introducing the New Intel Xeon Processor E7-8800/ 4800 v3 Product Family

In Q2 2015, Intel will launch the next-generation processor family in the Mission Critical and Expandable Segment for server platforms with 2, 4, and 8+ sockets. The Intel® Xeon® Processor E7-8800/4800 v3 family will offer top-of-the-line performance, scalability, and reliability for enterprise and mission critical workloads, including advanced analytics, databases, virtualization, and scale-up HPC. Based on Haswell<sup>1</sup> microarchitecture on the 22nm process technology, the Intel Xeon Processor E7-8800/4800 v3 family will introduce performance improvements, new RAS capabilities, and new power and thermal management capabilities, as well as support for DDR4 memory.



## Intel® Xeon® Processor E7-8800 v3 Product Family for Server / Workstation Systems Featuring Up to Eight LGA2011-1 Sockets

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE (TRAY ONLY)	CLOCK SPEED	INTEL® QPI <sup>3</sup> SPEED	SHARED L3 CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER
Intel® Xeon® processor E7-8893 v3	CM8064501753602	3.20 GHz	9.60 GT/s	45 MB	1866 MHz (DDR4) 1600 MHz (DDR3)	4/8	✓	✓	140 W
Intel® Xeon® processor E7-8891 v3	CM8064501552202	2.80 GHz	9.60 GT/s	45 MB	1866 MHz (DDR4) 1600 MHz (DDR3)	10/20	✓	✓	165 W
Intel® Xeon® processor E7-8890 v3	CM8064501549928	2.50 GHz	9.60 GT/s	45 MB	1866 MHz (DDR4) 1600 MHz (DDR3)	18/36	✓	✓	165 W
Intel® Xeon® processor E7-8880 v3	CM8064501550002	2.30 GHz	9.60 GT/s	45 MB	1866 MHz (DDR4) 1600 MHz (DDR3)	18/36	✓	✓	150 W
Intel® Xeon® processor E7-8880L v3	CM8064501552522	2.00 GHz	9.60 GT/s	45 MB	1866 MHz (DDR4) 1600 MHz (DDR3)	18/36	✓	✓	115 W
Intel® Xeon® processor E7-8870 v3	CM8064501550107	2.10 GHz	9.60 GT/s	45 MB	1866 MHz (DDR4) 1600 MHz (DDR3)	18/36	✓	✓	140 W
Intel® Xeon® processor E7-8867 v3	CM8064502025001	2.50 GHz	9.60 GT/s	45 MB	1866 MHz (DDR4) 1600 MHz (DDR3)	16/32	✓	✓	165 W
Intel® Xeon® processor E7-8860 v3	CM8064502017900	2.20 GHz	9.60 GT/s	40 MB	1866 MHz (DDR4) 1600 MHz (DDR3)	16/32	✓	✓	140 W

## Intel® Xeon® Processor E7-4800 v3 Product Family for Server / Workstation Systems Featuring Up to Four LGA2011-1 Sockets

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE (TRAY ONLY)	CLOCK SPEED	INTEL® QPI <sup>3</sup> SPEED	SHARED L3 CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER
Intel® Xeon® processor E7-4850 v3	CM8064501551702	2.20 GHz	8 GT/s	35 MB	1866 MHz (DDR4) 1600 MHz (DDR3)	18/28	✓	✓	115 W
Intel® Xeon® processor E7-4830 v3	CM8064502020101	2.10 GHz	8 GT/s	30 MB	1866 MHz (DDR4) 1600 MHz (DDR3)	12/24	✓	✓	115 W
Intel® Xeon® processor E7-4820 v3	CM8064502020200	1.90 GHz	6.40 GT/s	25 MB	1866 MHz (DDR4) 1333 MHz (DDR3)	10/20	✓		115 W
Intel® Xeon® processor E7-4809 v3	CM8064501551526	2.00 GHz	6.40 GT/s	20 MB	1866 MHz (DDR4) 1333 MHz (DDR3)	8/16	✓		115 W

# INTEL® XEON® PROCESSOR E7-8800 / 4800 / 2800 V2 FAMILY

## Intel® Xeon® Processor E7-8800 / 4800 / 2800 v2 Product Families

Rapidly process and analyze large amounts of data in near real time with the Intel® Xeon® processor E7-8800 / 4800 / 2800 v2 product families.

Keep data local with up to 1.5 TB of memory per socket to manage data-demanding, transaction-intensive workloads. Intel® Run Sure Technology<sup>2</sup> helps increase system uptime and data integrity for business-critical solutions. Hardware-embedded security features help better protect data and provide a safer environment.



## Intel® Xeon® Processor E7-8800 v2 Product Family for Server / Workstation Systems Featuring Eight LGA2011-1 Sockets

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE (TRAY ONLY)	CLOCK SPEED	INTEL® QPI <sup>3</sup> SPEED	SHARED L3 CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER	UPC CODE
Intel® Xeon® processor E7-8893 v2	CM8063601454907	3.40 GHz	8 GT/s	37.5 MB	1600 MHz	6/12	✓	✓	155 W	N/A
Intel® Xeon® processor E7-8891 v2	CM8063601377422	3.20 GHz	8 GT/s	37.5 MB	1600 MHz	10/20	✓	✓	155 W	N/A
Intel® Xeon® processor E7-8890 v2	CM8063601213513	2.80 GHz	8 GT/s	37.5 MB	1600 MHz	15/30	✓	✓	155 W	N/A
Intel® Xeon® processor E7-8880 v2	CM8063601271810	2.50 GHz	8 GT/s	37.5 MB	1600 MHz	15/30	✓	✓	130 W	N/A
Intel® Xeon® processor E7-8880L v2	CM8063601275812	2.20 GHz	8 GT/s	37.5 MB	1600 MHz	15/30	✓	✓	105 W	N/A
Intel® Xeon® processor E7-8870 v2	CM8063601272006	2.30 GHz	8 GT/s	30 MB	1600 MHz	15/30	✓	✓	130 W	N/A
Intel® Xeon® processor E7-8857 v2	CM8063601275912	3.00 GHz	8 GT/s	30 MB	1600 MHz	12/12		✓	130 W	N/A
Intel® Xeon® processor E7-8850 v2	CM8063601272306	2.30 GHz	7.20 GT/s	24 MB	1333 MHz	12/24	✓	✓	105 W	N/A





## Intel® Xeon® Processor E7-4800 v2 Product Family for Server / Workstation Systems Featuring Four LGA2011-1 Sockets

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE (TRAY ONLY)	CLOCK SPEED	INTEL® QPI <sup>3</sup> SPEED	SHARED L3 CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER	UPC CODE
Intel® Xeon® processor E7-4890 v2	CM8063601272412	2.80 GHz	8 GT/s	37.5 MB	1600 MHz	15/30	✓	✓	155 W	N/A
Intel® Xeon® processor E7-4880 v2	CM8063601272512	2.50 GHz	8 GT/s	37.5 MB	1600 MHz	15/30	✓	✓	130 W	N/A
Intel® Xeon® processor E7-4870 v2	CM8063601272606	2.30 GHz	8 GT/s	30 MB	1600 MHz	15/30	✓	✓	130 W	N/A
Intel® Xeon® processor E7-4860 v2	CM8063601453406	2.60 GHz	8 GT/s	30 MB	1600 MHz	12/24	✓	✓	130 W	N/A
Intel® Xeon® processor E7-4850 v2	CM8063601272906	2.30 GHz	7.20 GT/s	24 MB	1333 MHz	12/24	✓	✓	105 W	N/A
Intel® Xeon® processor E7-4830 v2	CM8063601374506	2.20 GHz	7.20 GT/s	20 MB	1333 MHz	10/20	✓	✓	105 W	N/A
Intel® Xeon® processor E7-4820 v2	CM8063601521707	2.00 GHz	7.20 GT/s	16 MB	1333 MHz	8/16	✓	✓	105 W	N/A
Intel® Xeon® processor E7-4809 v2	CM8063601537106	1.90 GHz	6.40 GT/s	12 MB	1066 MHz	6/12	✓		105 W	N/A

## Intel® Xeon® Processor E7-2800 v2 Product Family for Server / Workstation Systems Featuring Two LGA2011-1 Sockets

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE (TRAY ONLY)	CLOCK SPEED	INTEL® QPI <sup>3</sup> SPEED	SHARED L3 CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER	UPC CODE
Intel® Xeon® processor E7-2890 v2	CM8063601375306	2.80 GHz	8 GT/s	37.5 MB	1600 MHz	15/30	✓	✓	155 W	N/A
Intel® Xeon® processor E7-2880 v2	CM8063601273306	2.50 GHz	8 GT/s	37.5 MB	1600 MHz	15/30	✓	✓	130 W	N/A
Intel® Xeon® processor E7-2870 v2	CM8063601273406	2.30 GHz	8 GT/s	30 MB	1600 MHz	15/30	✓	✓	130 W	N/A
Intel® Xeon® processor E7-2850 v2	CM8063601275706	2.30 GHz	7.20 GT/s	24 MB	1333 MHz	12/24	✓	✓	105 W	N/A

# INTEL® XEON® PROCESSOR E5-4600 V4 FAMILY

## Introducing the New Intel® Xeon® Processor E5-4600 v4 Product Family

Four-socket servers based on the Intel® Xeon® processor E5-4600 v4 product family provide high-density, cost-optimized, energy-efficient compute resources to support larger workloads and high virtual machine densities for the data center or cloud.



## Intel® Xeon® Processor E5-4600 v4 Product Family for Server / Workstation Systems

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE (TRAY ONLY)	CLOCK SPEED	INTEL® QPI <sup>3</sup> SPEED	SHARED L3 CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER
Intel® Xeon® processor E5-4660 v4	CM8066002062605	2.20 GHz	9.6 GT/s	40 MB	DDR4-2400 MHz	16/32	✓	✓	120 W
Intel® Xeon® processor E5-4650 v4	CM8066002028621	2.20 GHz	9.6 GT/s	35 MB	DDR4-2400 MHz	14/28	✓	✓	105 W
Intel® Xeon® processor E5-4640 v4	CM8066002061701	2.10 GHz	8.0 GT/s	30 MB	DDR4-2133 MHz	12/24	✓	✓	105 W
Intel® Xeon® processor E5-4620 v4	CM8066002883900	2.10 GHz	8.0 GT/s	25 MB	DDR4-2133 MHz	10/20	✓	✓	105 W
Intel® Xeon® processor E5-4610 v4	CM8066002062800	1.80 GHz	6.4 GT/s	25 MB	DDR4-1866 MHz	10/20	✓		105 W
Intel® Xeon® processor E5-4669 v4	CM8066002064800	2.20 GHz	9.6 GT/s	55 MB	DDR4-2400 MHz	22/44	✓	✓	135 W
Intel® Xeon® processor E5-4667 v4	CM8066002064600	2.20 GHz	9.6 GT/s	45 MB	DDR4-2400 MHz	18 /36	✓	✓	135 W
Intel® Xeon® processor E5-4655 v4	CM8066002065000	2.50 GHz	9.6 GT/s	30 MB	DDR4-2400 MHz	8/16	✓	✓	135 W
Intel® Xeon® processor E5-4627 v4	CM8066002330800	2.60 GHz	9.6 GT/s	25 MB	DDR4-2400 MHz	10/10		✓	135 W

# INTEL® XEON® PROCESSOR E5-4600 V3 FAMILY

## Introducing the New Intel® Xeon® Processor E5-4600 v3 Product Family

Available Q2 2015, the Intel® Xeon® processor E5-4600 v3 product family is a 4-socket server platform that supports DDR4 memory technology. Target applications and usage models include large memory databases that need a highly scalable number of cores and memory bandwidth per server, and large-scale online transaction processing workloads where high-speed and large capacity memory configurations are required.



## Intel® Xeon® Processor E5-4600 v3 Product Family for Server / Workstation Systems

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE (TRAY ONLY)	CLOCK SPEED	INTEL® QPI <sup>3</sup> SPEED	SHARED L3 CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER
Intel® Xeon® processor E5-4660 v3	CM8064402018700	2.10 GHz	9.60 GT/s	35 MB	2133 MHz	14/28	✓	✓	120 W
Intel® Xeon® processor E5-4650 v3	CM8064401441008	2.10 GHz	9.60 GT/s	30 MB	2133 MHz	12/24	✓	✓	105 W
Intel® Xeon® processor E5-4640 v3	CM8064401442601	1.90 GHz	8 GT/s	30 MB	1866 MHz	12/24	✓	✓	105 W
Intel® Xeon® processor E5-4620 v3	CM8064401442401	2.00 GHz	8 GT/s	25 MB	1866 MHz	10/20	✓	✓	105 W
Intel® Xeon® processor E5-4610 v3	CM8064402018800	1.70 GHz	6.40 GT/s	25 MB	1600 MHz	10/20	✓		105 W
Intel® Xeon® processor E5-4669 v3	CM8064401864100	2.10 GHz	9.60 GT/s	45 MB	2133 MHz	18/36	✓	✓	135 W
Intel® Xeon® processor E5-4667 v3	CM8064401864200	2.00 GHz	9.60 GT/s	40 MB	2133 MHz	16/32	✓	✓	135 W
Intel® Xeon® processor E5-4655 v3	CM8064402018600	2.90 GHz	9.60 GT/s	30 MB	2133 MHz	6/12	✓	✓	135 W
Intel® Xeon® processor E5-4627 v3	CM8064401544203	2.60 GHz	8 GT/s	25 MB	2133 MHz	10/10		✓	135 W

# INTEL® XEON® PROCESSOR E5-2600 / 1600 V4 FAMILY

## Intel® Xeon® Processor E5-2600 v4 Product Family

The powerful new Intel® Xeon® processor E5-2600 v4 product family offers versatility across diverse workloads. These processors are designed for architecting next-generation data centers running on, software defined infrastructure supercharged for efficiency, performance, and agile services delivery across cloud-native and traditional applications. They support workloads for cloud, high-performance computing, networking, and storage.



## Intel® Xeon® Processor E5-2600 v4 Product Family for Server and Workstation Systems

(Thermal Solution Sold Separately)

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE	CLOCK SPEED	INTEL® QPI <sup>3</sup> SPEED	INTEL® SMART CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER	UPC CODE
<b>SERVER SKUS</b>										
Intel® Xeon® Processor E5-2699 v4	CM8066002022506 (tray)	2.20 GHz	9.6 GT/s	55M	DDR4-2400 MHz	22/44	✓	2.0	145	N/A
Intel® Xeon® Processor E5-2698 v4	CM8066002024000 (tray)	2.20 GHz	9.6 GT/s	50M	DDR4-2400 MHz	20/40	✓	2.0	135	N/A
Intel® Xeon® Processor E5-2697 v4	CM8066002023907 (tray) BX80660E52697V4 (box)	2.30 GHz	9.6 GT/s	45M	DDR4-2400 MHz	18/36	✓	2.0	145	735858310574
Intel® Xeon® Processor E5-2697A v4	CM8066002645900 (tray)	2.60 GHz	9.6 GT/s	40M	DDR4-2400 MHz	16/32	✓	2.0	145	N/A
Intel® Xeon® Processor E5-2695 v4	CM8066002023801 (tray) BX80660E52695V4 (box)	2.10 GHz	9.6 GT/s	45M	DDR4-2400 MHz	18/36	✓	2.0	120W	735858310628
Intel® Xeon® Processor E5-2690 v4	CM8066002030908 (tray) BX80660E52690V4 (box)	2.60 GHz	9.6 GT/s	35M	DDR4-2400 MHz	14/28	✓	2.0	135W	735858310857
Intel® Xeon® Processor E5-2683 v4	CM8066002023604 (tray) BX80660E52683V4 (box)	2.10 GHz	9.6 GT/s	40M	DDR4-2400 MHz	16/32	✓	2.0	120W	735858310529
Intel® Xeon® Processor E5-2680 v4	CM8066002031501 (tray) BX80660E52680V4 (box)	2.40 GHz	9.6 GT/s	35M	DDR4-2400 MHz	14/28	✓	2.0	120W	735858310802
Intel® Xeon® Processor E5-2660 v4	CM8066002030908 (tray) BX80660E52660V4 (box)	2.00 GHz	9.6 GT/s	35M	DDR4-2400 MHz	14/28	✓	2.0	105W	735858310758
Intel® Xeon® Processor E5-2650 v4	CM8066002031103 (tray) BX80660E52650V4 (box)	2.20 GHz	9.6 GT/s	30M	DDR4-2400 MHz	12/24	✓	2.0	105W	735858310703

Continued on next page



Continued from previous page

# Intel® Xeon® Processor E5-2600 v4 Product Family for Server and Workstation Systems

(Thermal Solution Sold Separately)

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE	CLOCK SPEED	INTEL® QPI <sup>3</sup> SPEED	INTEL® SMART CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER	UPC CODE
<b>SERVER SKUS</b>										
Intel® Xeon® Processor E5-2640 v4	CM8066002032701 (tray) BX80660E52640V4 (box)	2.40 GHz	9.6 GT/s	25M	DDR4-2133 MHz	10/20	✓	2.0	90W	735858314220
Intel® Xeon® Processor E5-2630v4	CM8066002032301 (tray) BX80660E52630V4 (box)	2.20 GHz	8 GT/s	25M	DDR4-2133 MHz	10/20	✓	2.0	85W	735858314121
Intel® Xeon® Processor E5-2620v4	CM8066002032201 (tray) BX80660E52620V4 (box)	2.10 GHz	8 GT/s	20M	DDR4-2133 MHz	8/16	✓	2.0	85W	735858314077
Intel® Xeon® Processor E5-2609v4	CM8066002032901 (tray) BX80660E52609V4 (box)	1.70 GHz	8 GT/s	20M	DDR4-1866 MHz	8/8	✓	2.0	85W	735858314022
Intel® Xeon® Processor E5-2603v4	CM8066002032805 (tray) BX80660E52603V4 (box)	1.70 GHz	6.4 GT/s	15M	DDR4-1866 MHz	6	✓	2.0	85W	735858313971
Intel® Xeon® Processor E5-2650L v4	CM8066002033006 (tray)	1.70 GHz	9.6 GT/s	35M	DDR4-2400 MHz	14/28	✓	2.0	65W	N/A
Intel® Xeon® Processor E5-2630L v4	CM8066002033202 (tray)	1.80 GHz	8 GT/s	20M	DDR4-2133 MHz	10/20	✓	2.0	55W	N/A
Intel® Xeon® Processor E5-2667 v4	CM8066002041900 (tray)	3.20 GHz	9.6 GT/s	25M	DDR4-2400 MHz	8/16	✓	2.0	135W	N/A
Intel® Xeon® Processor E5-2643 v4	CM8066002041500 (tray)	3.40 GHz	9.6 GT/s	20M	DDR4-2400 MHz	6/12	✓	2.0	135W	N/A
Intel® Xeon® Processor E5-2637 v4	CM8066002041100 (tray)	3.50 GHz	9.6 GT/s	15M	DDR4-2400 MHz	4/8	✓	2.0	135W	N/A
Intel® Xeon® Processor E5-2623 v4	CM8066002402400 (tray)	2.60 GHz	8 GT/s	10M	DDR4-2133 MHz	4/8	✓	2.0	85W	N/A
<b>WORKSTATION SKU</b>										
Intel® Xeon® Processor E5-2687W v4	CM8066002042802 (tray) BX80660E52687V4 (box)	3.0GHz	9.6 GT/s	30M	DDR4-2400 MHz	12/24	✓	2.0	160W	735858310901

INTEL® SERVER / WORKSTATION PROCESSORS

## Intel® Xeon® Processor E5-1600 v4 Product Family for Server and Workstation Systems

(Thermal Solution Sold Separately)

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE	CLOCK SPEED	INTEL® QPI <sup>3</sup> SPEED	INTEL® SMART CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER	UPC CODE
<b>SERVER SKUS</b>										
Intel® Xeon® Processor E5-1680 v4	CM8066002044401 (tray)	3.40 GHz	0 GT/s QPI	20M	DDR4-2400 MHz	8/16	✓	2.0	140W	N/A
Intel® Xeon® Processor E5-1660 v4	CM8066002646401 (tray)	3.20 GHz	0 GT/s QPI	20M	DDR4-2400 MHz	8/16	✓	2.0	140W	N/A
Intel® Xeon® Processor E5-1650 v4	CM8066002044306 (tray) BX80660E51650V4 (box)	3.60 GHz	0 GT/s QPI	15M	DDR4-2400 MHz	3/12	✓	2.0	140W	735858318952
Intel® Xeon® Processor E5-1630 v4	CM8066002395300 (tray)	3.70 GHz	0 GT/s QPI	10M	DDR4-2400 MHz	4/8	✓	2.0	140W	N/A
Intel® Xeon® Processor E5-1620 v4	CM8066002044103 (tray) BX80660E51620V4 (box)	3.50 GHz	0 GT/s QPI	10M	DDR4-2400 MHz	4/8	✓	2.0	140W	735858314176
<b>WORKSTATION SKU</b>										
Intel® Xeon® Processor E5-1650 v4	BX80660E51650V4 (box)	3.60 GHz	0 GT/s QPI	15M	DDR4-2400 MHz	3/12	✓	2.0	140W	

# INTEL® XEON® PROCESSOR E5-2600 / 1600 V3 FAMILY

## Intel® Xeon® Processor E5-2600 / 1600 v3 Product Family

Intel® Xeon® processor E5-2600 / 1600 v3 product families are at the heart of an agile, efficient data center and help meet your needs for compute, storage, and network. These energy-efficient marvels are designed to help deliver a combination of performance, built-in capabilities, and cost-effectiveness. Whether addressing technical computing challenges, enabling cloud deployments, delivering intelligent storage, or powering design automation and data analytics, enjoy better-than-ever performance. Help better safeguard your data and infrastructure with technology foundational for greater security. Break challenging data management performance bottlenecks with 40 gigabit Intel® Ethernet, DDR4 support, and innovative storage features. Built-in capabilities that measure and monitor make Intel-powered platforms the smart choice for a software-defined world. With the flexibility and versatility of the Intel Xeon processor E5-2600 / 1600 v3 families, you only have to remember one thing: It's what's inside that counts.



## Intel® Xeon® Processor E5-2600 v3 Product Family for Server and Workstation Systems Featuring Two LGA2011 Sockets (Thermal Solution Sold Separately)

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE	CLOCK SPEED	INTEL® QPI <sup>3</sup> SPEED	INTEL® SMART CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER	UPC CODE
<b>ADVANCED SKUS</b>										
Intel® Xeon® processor E5-2690 v3	BX80644E52690V3 (box) CM8064401439416 (tray)	2.60 GHz	9.60 GT/s	30 MB	DDR4-2133 MHz	12/24	✓	✓	135 W	7 35858 28363 2
Intel® Xeon® processor E5-2680 v3	BX80644E52680V3 (box) CM8064401439612 (tray)	2.50 GHz	9.60 GT/s	30 MB	DDR4-2133 MHz	12/24	✓	✓	120 W	7 35858 28358 8
Intel® Xeon® processor E5-2670 v3	BX80644E52670V3 (box) CM8064401544801 (tray)	2.30 GHz	9.60 GT/s	30 MB	DDR4-2133 MHz	12/24	✓	✓	120 W	7 35858 28368 7
Intel® Xeon® processor E5-2660 v3	BX80644E52660V3 (box) CM8064401446117 (tray)	2.60 GHz	9.60 GT/s	25 MB	DDR4-2133 MHz	10/20	✓	✓	105 W	7 35858 28353 3
Intel® Xeon® processor E5-2650 v3	BX80644E52650V3 (box) CM8064401723701 (tray)	2.30 GHz	9.60 GT/s	25 MB	DDR4-2133 MHz	10/20	✓	✓	105 W	7 35858 28378 6
<b>STANDARD SKUS</b>										
Intel® Xeon® processor E5-2640 v3	BX80644E52640V3 (box) CM8064401830901 (tray)	2.60 GHz	8 GT/s	20 MB	DDR4-1866 MHz	8/16	✓	✓	90 W	7 35858 28522 3
Intel® Xeon® processor E5-2630 v3	BX80644E52630V3 (box) CM8064401831000 (tray)	2.40 GHz	8 GT/s	20 MB	DDR4-1866 MHz	8/16	✓	✓	85 W	7 35858 28533 9
Intel® Xeon® processor E5-2620 v3	BX80644E52620V3 (box) CM8064401831400 (tray)	2.40 GHz	8 GT/s	15 MB	DDR4-1866 MHz	8/16	✓	✓	85 W	7 35858 28538 4
<b>BASIC SKUS</b>										
Intel® Xeon® processor E5-2609 v3	BX80644E52609V3 (box) CM8064401850800 (tray)	1.90 GHz	6.40 GT/s	15 MB	DDR4-1600 MHz	6/6			85 W	7 35858 28373 1
Intel® Xeon® processor E5-2603 v3	BX80644E52603V3 (box) CM8064401844200 (tray)	1.60 GHz	6.40 GT/s	15 MB	DDR4-1600 MHz	6/6			85 W	7 35858 28517 9

Continued on next page



Continued from previous page

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE	CLOCK SPEED	INTEL® QPI <sup>3</sup> SPEED	INTEL® SMART CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER	UPC CODE
<b>SEGMENT-OPTIMIZED SKUS</b>										
Intel® Xeon® processor E5-2699 v3	CM8064401739300 (tray only)	2.30 GHz	9.60 GT/s	45 MB	DDR4-2133 MHz	18 / 36	✓	✓	145 W	N/A
Intel® Xeon® processor E5-2698 v3	CM8064401609800 (tray only)	2.30 GHz	9.60 GT/s	40 MB	DDR4-2133 MHz	16 / 26	✓	✓	135 W	N/A
Intel® Xeon® processor E5-2697 v3	BX80644E52697V3 (box) CM8064401807100 (tray)	2.60 GHz	9.60 GT/s	35 MB	DDR4-2133 MHz	14 / 28	✓	✓	145 W	7 35858 28264 2
Intel® Xeon® processor E5-2695 v3	BX80644E52695V3 (box) CM8064401438110 (tray)	2.30 GHz	9.60 GT/s	35 MB	DDR4-2133 MHz	14 / 28	✓	✓	120 W	7 35858 28269 7
Intel® Xeon® processor E5-2683 v3	CM8064401609728 (tray only)	2 GHz	9.60 GT/s	35 MB	DDR4-2133 MHz	14 / 28	✓	✓	120 W	N/A
<b>WORKSTATION SKUS</b>										
Intel® Xeon® processor E5-2687W v3	BX80644E52687V3 (box) CM8064401613502 (tray)	3.10 GHz	9.60 GT/s	25 MB	DDR4-2133 MHz	10/20	✓	✓	160 W	7 35858 28348 9
<b>FREQUENCY-OPTIMISED SKUS</b>										
Intel® Xeon® processor E5-2667 v3	CM8064401724301 (tray only)	3.20 GHz	9.60 GT/s	20 MB	DDR4-2133 MHz	8/16	✓	✓	135 W	N/A
Intel® Xeon® processor E5-2643 v3	CM8064401724501 (tray only)	3.40 GHz	9.60 GT/s	20 MB	DDR4-2133 MHz	6/12	✓	✓	135 W	N/A
Intel® Xeon® processor E5-2637 v3	CM8064401724101 (tray only)	3.50 GHz	9.60 GT/s	15 MB	DDR4-2133 MHz	4/8	✓	✓	135 W	N/A
Intel® Xeon® processor E5-2623 v3	CM8064401832000 (tray only)	3 GHz	8 GT/s	10 MB	DDR4-1866 MHz	4/8	✓	✓	105 W	N/A
<b>LOW-POWER SKUS</b>										
Intel® Xeon® processor E5-2650L v3	CM8064401575702 (tray only)	1.80 GHz	9.60 GT/s	30 MB	DDR4-2133 MHz	12/24	✓	✓	65 W	N/A
Intel® Xeon® processor E5-2630L v3	CM8064401832100 (tray only)	1.80 GHz	8 GT/s	20 MB	DDR4-1866 MHz	8/16	✓	✓	55 W	N/A
<b>EMBEDDED SKUS</b>										
Intel® Xeon® processor E5-2658 v3	CM8064401545904 (tray only)	2.20 GHz	9.60 GT/s	30 MB	DDR4-2133 MHz	12/24	✓	✓	105 W	N/A
Intel® Xeon® processor E5-2648L v3	CM8064401546007 (tray only)	1.80 GHz	9.60 GT/s	30 MB	DDR4-2133 MHz	12/24	✓	✓	75 W	N/A
Intel® Xeon® processor E5-2628L v3	CM8064401547200 (tray only)	2 GHz	8 GT/s	25 MB	DDR4-1866 MHz	10/20	✓	✓	75 W	N/A
Intel® Xeon® processor E5-2622 v3	CM8064401576904 (tray only)	2.40 GHz	8 GT/s	20 MB	DDR4-1866 MHz	8/16	✓	✓	85 W	N/A
Intel® Xeon® processor E5-2618L v3	CM8064401610301 (tray only)	2.30 GHz	8 GT/s	20 MB	DDR4-1866 MHz	8/16	✓	✓	75 W	N/A
Intel® Xeon® processor E5-2608L v3	CM8064401909500 (tray only)	2 GHz	6.40 GT/s	15 MB	DDR4-1866 MHz	6/12	✓		52 W	N/A





## Intel® Xeon® Processor E5-1600 v3 Product Family for Workstation Systems Featuring One LGA2011 Socket (Thermal Solution Sold Separately)

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE	CLOCK SPEED	INTEL® SMART CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER	UPC CODE
<b>ADVANCED SKUS</b>									
Intel® Xeon® processor E5-1680 v3	CM8064401547809 (tray only)	3.20 GHz	20 MB	DDR4-2133 MHz	8/16	✓	✓	140 W	N/A
Intel® Xeon® processor E5-1660 v3	CM8064401909200 (tray only)	3 GHz	20 MB	DDR4-2133 MHz	8/16	✓	✓	140 W	N/A
Intel® Xeon® processor E5-1650 v3	CM8064401548111 (tray only)	3.50 GHz	15 MB	DDR4-2133 MHz	6/12	✓	✓	140 W	N/A
Intel® Xeon® processor E5-1630 v3	CM8064401614501 (tray only)	3.70 GHz	10 MB	DDR4-2133 MHz	4/8	✓	✓	140 W	N/A
Intel® Xeon® processor E5-1620 v3	CM8064401973600 (tray only)	3.50 GHz	10 MB	DDR4-2133 MHz	4/8	✓	✓	140 W	N/A

# INTEL® XEON® PROCESSOR E5-4600 / 2600 / 2400 / 1600 V2 FAMILY

## Intel® Xeon® Processor E5-4600 / 2600 / 2400 / 1600 v2 Product Families

The Intel® Xeon® processor E5-2600 / 1600 v2, E5-2400 v2, and E5-4600 v2 product families are at the heart of an agile, efficient data center. Deploy a more trusted private cloud with the technology foundational for greater security. Put the “instantaneous” into data analysis with the performance to quickly process big data. These new Intel Xeon processor families enable greater energy efficiency and power management for a range of enterprise applications.



## Intel® Xeon® Processor E5-4600 v2 Product Family for Server Systems Featuring Four LGA2011 Sockets

(Thermal Solution Sold Separately)

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE	CLOCK SPEED	INTEL® QPI <sup>3</sup> SPEED	SHARED L3 CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER	UPC CODE
Intel® Xeon® processor E5-4657L v2	CM8063501285605 (tray only)	2.40 GHz	8 GT/s	30 MB	1866 MHz	12/24	✓	✓	115 W	N/A
Intel® Xeon® processor E5-4650 v2	CM8063501541700 (tray only)	2.40 GHz	8 GT/s	25 MB	1866 MHz	10/20	✓	✓	95 W	N/A
Intel® Xeon® processor E5-4640 v2	CM8063501285713 (tray only)	2.20 GHz	8 GT/s	20 MB	1866 MHz	10/20	✓	✓	95 W	N/A
Intel® Xeon® processor E5-4627 v2	CM8063501454002 (tray only)	3.30 GHz	7.20 GT/s	16 MB	1866 MHz	8/8		✓	130 W	N/A
Intel® Xeon® processor E5-4624L v2	CM8063501293407 (tray only)	1.90 GHz	8 GT/s	25 MB	1866 MHz	10/20	✓	✓	70 W	N/A
Intel® Xeon® processor E5-4620 v2	CM8063501393202 (tray only)	2.60 GHz	7.20 GT/s	20 MB	1600 MHz	8/16	✓	✓	95 W	N/A
Intel® Xeon® processor E5-4610 v2	CM8063501521600 (tray only)	2.30 GHz	7.20 GT/s	16 MB	1600 MHz	8/16	✓	✓	95 W	N/A
Intel® Xeon® processor E5-4607 v2	CM8063501377604 (tray only)	2.60 GHz	6.40 GT/s	12 MB	1333 MHz	6/12	✓	✓	95 W	N/A
Intel® Xeon® processor E5-4603 v2	CM8063501453800 (tray only)	2.20 GHz	6.40 GT/s	10 MB	1333 MHz	4/8	✓	✓	95 W	N/A



## Intel® Xeon® Processor E5-2600 v2 Product Family for Server / Workstation Systems Featuring Two LGA2011 Sockets

(Thermal Solution Sold Separately)

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE	CLOCK SPEED	INTEL® QPI <sup>3</sup> SPEED	INTEL® SMART CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER	UPC CODE
Intel® Xeon® processor E5-2697 v2	BX80635E52697V2 (box) CM8063501288843 (tray)	2.70 GHz	8 GT/s	30 MB	1866 MHz	12/24	✓	✓	130 W	7 35858 26666 6
Intel® Xeon® processor E5-2695 v2	BX80635E52695V2 (box) CM8063501288706 (tray)	2.40 GHz	8 GT/s	30 MB	1866 MHz	12/24	✓	✓	115 W	7 35858 26671 0
Intel® Xeon® processor E5-2690 v2	BX80635E52690V2 (box) CM8063501374802 (tray)	3 GHz	8 GT/s	25 MB	1866 MHz	10/20	✓	✓	130 W	7 35858 26832 5
Intel® Xeon® processor E5-2687W v2	BX80635E52687V2 (box) CM8063501287203 (tray)	3.10 GHz	8 GT/s	20 MB	1866 MHz	8/16	✓	✓	150 W	7 35858 26922 3
Intel® Xeon® processor E5-2680 v2	BX80635E52680V2 (box) CM8063501374901 (tray)	2.80 GHz	8 GT/s	25 MB	1866 MHz	10/20	✓	✓	130 W	7 35858 26837 0
Intel® Xeon® processor E5-2670 v2	BX80635E52670V2 (box) CM8063501375000 (tray)	2.50 GHz	8 GT/s	20 MB	1866 MHz	10/20	✓	✓	115 W	7 35858 26842 4
Intel® Xeon® processor E5-2667 v2	CM8063501287304 (tray only)	3.30 GHz	8 GT/s	25 MB	1866 MHz	8/16	✓	✓	130 W	N/A
Intel® Xeon® processor E5-2660 v2	BX80635E52660V2 (box) CM8063501452503 (tray)	2.20 GHz	8 GT/s	25 MB	1866 MHz	10/20	✓	✓	95 W	7 35858 26847 9
Intel® Xeon® processor E5-2650 v2	BX80635E52650V2 (box) CM8063501375101 (tray)	2.60 GHz	8 GT/s	20 MB	1866 MHz	8/16	✓	✓	95 W	7 35858 26852 3
Intel® Xeon® processor E5-2650L v2	CM8063501287602 (tray only)	1.70 GHz	7.20 GT/s	25 MB	1600 MHz	10/20	✓	✓	70 W	N/A
Intel® Xeon® processor E5-2643 v2	CM8063501287403 (tray only)	3.50 GHz	8 GT/s	25 MB	1866 MHz	6/12	✓	✓	130 W	N/A
Intel® Xeon® processor E5-2640 v2	BX80635E52640V2 (box) CM8063501288202 (tray)	2 GHz	7.20 GT/s	20 MB	1600 MHz	8/16	✓	✓	95 W	7 35858 26857 8
Intel® Xeon® processor E5-2637 v2	CM8063501520800 (tray only)	3.50 GHz	8 GT/s	15 MB	1866 MHz	4/8	✓	✓	130 W	N/A
Intel® Xeon® processor E5-2630 v2	BX80635E52630V2 (box) CM8063501288100 (tray)	2.60 GHz	7.20 GT/s	15 MB	1600 MHz	6/12	✓	✓	80 W	7 35858 26884 4
Intel® Xeon® processor E5-2630L v2	CM8063501376200 (tray only)	2.40 GHz	7.20 GT/s	15 MB	1600 MHz	6/12	✓	✓	80 W	N/A
Intel® Xeon® processor E5-2620 v2	BX80635E52620V2 (box) CM8063501288301 (tray)	2.10 GHz	7.20 GT/s	15 MB	1600 MHz	6/12	✓	✓	80 W	735858 26889 9
Intel® Xeon® processor E5-2609 v2	BX80635E52609V2 (box) CM8063501375800 (tray)	2.50 GHz	6.40 GT/s	10 MB	1333 MHz	4/4			80 W	7 35858 26894 3
Intel® Xeon® processor E5-2603 v2	BX80635E52603V2 (box) CM8063501375902 (tray)	1.80 GHz	6.40 GT/s	10 MB	1333 MHz	4/4			80 W	7 35858 26899 8



## Intel® Xeon® Processor E5-2400 v2 Product Family for Server / Workstation Systems Featuring Two LGA2011 Sockets

(Thermal Solution Sold Separately)

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE	CLOCK SPEED	INTEL® QPI <sup>3</sup> SPEED	INTEL® SMART CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER	UPC CODE
Intel® Xeon® processor E5-2470 v2	BX80634E52470V2 (box) CM8063401286102 (tray)	2.40 GHz	8 GT/s	25 MB	1600 MHz	10/20	✓	✓	95 W	7 35858 27206 3
Intel® Xeon® processor E5-2450 v2	BX80634E52450V2 (box) CM8063401376400 (tray)	2.50 GHz	8 GT/s	20 MB	1600 MHz	8/16	✓	✓	95 W	7 35858 27211 7
Intel® Xeon® processor E5-2450L v2	CM8063401287001 (tray only)	1.70 GHz	8 GT/s	20 MB	1600 MHz	8/16	✓	✓	70 W	N/A
Intel® Xeon® processor E5-2440 v2	BX80634E52440V2 (box) CM8062000862604 (tray)	1.90 GHz	7.20 GT/s	20 MB	1600 MHz	8/16	✓	✓	95 W	7 35858 27201 8
Intel® Xeon® processor E5-2430 v2	BX80634E52430V2 (box) CM8063401286400 (tray)	2.50 GHz	7.20 GT/s	15 MB	1600 MHz	6/12	✓	✓	80 W	7 35858 27196 7
Intel® Xeon® processor E5-2430L v2	CM8063401376704 (tray only)	2.40 GHz	7.20 GT/s	15 MB	1600 MHz	6/12	✓	✓	60 W	N/A
Intel® Xeon® processor E5-2420 v2	BX80634E52420V2 (box) CM8063401286503 (tray)	2.20 GHz	7.20 GT/s	15 MB	1600 MHz	6/12	✓	✓	80 W	7 35858 27191 2
Intel® Xeon® processor E5-2407 v2	BX80634E52407V2 (box) CM8063401286600 (tray)	2.40 GHz	7.20 GT/s	10 MB	1333 MHz	4/4			80 W	7 35858 27186 8
Intel® Xeon® processor E5-2403 v2	BX80634E52403V2 (box) CM8063401286702 (tray)	1.80 GHz	7.20 GT/s	10 MB	1333 MHz	4/4			80 W	7 35858 27181 3

## Intel® Xeon® Processor E5-1600 v2 Product Family for Workstation Systems Featuring One LGA2011 Socket

(Thermal Solution Sold Separately)

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE	CLOCK SPEED	CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER	UPC CODE
Intel® Xeon® processor E5-1660 v2	BX80635E51660V2 (box) CM8063501291808 (tray)	3.70 GHz	15 MB	1866 MHz	6/12	✓	✓	130 W	7 35858 26927 8
Intel® Xeon® processor E5-1650 v2	CM8063501292204 (tray only)	3.50 GHz	12 MB	1600 MHz	6/12	✓	✓	130 W	N/A
Intel® Xeon® processor E5-1620 v2	CM8063501292405 (tray only)	3.70 GHz	10 MB	1600 MHz	4/8	✓	✓	130 W	N/A

# INTEL® XEON® W PROCESSORS

## Intel® Xeon® W Processors for Workstation Systems

Intel® Xeon® W processors deliver optimized performance for the needs of mainstream workstation professionals. Hardware-enhanced workload performance, security, and reliability for the increasing demands of professional workstations and ready for professional quality VR design.



PROCESSOR NAME <sup>1</sup>	PRODUCT CODE TRAY	PRODUCT CODE BOX	CLOCK SPEED	CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER	UPC CODE
Intel® Xeon® W-2123 Processor	CD8067303533002	BX80673W2123	3.60 GHz	8.25 MB	2400 MHz	4/8	✓	✓	120W	735858351737
Intel® Xeon® W-2125 Processor	CD8067303533303	N/A	4.00 GHz	8.25 MB	2400 MHz	4/8	✓	✓	120W	N/A
Intel® Xeon® W-2133 Processor	CD8067303533204	N/A	3.60 GHz	8.25 MB	2400 MHz	6/12	✓	✓	140W	N/A
Intel® Xeon® W-2135 Processor	CD8067303533403	BX80673W2135	3.70 GHz	8.25 MB	2400 MHz	6/12	✓	✓	140W	735858355131
Intel® Xeon® W-2145 Processor	CD8067303533601	N/A	3.70 GHz	11 MB	2400 MHz	8/16	✓	✓	140W	N/A
Intel® Xeon® W-2155 Processor	CD8067303533703	N/A	3.30 GHz	13.75 MB	2400 MHz	10/20	✓	✓	140W	N/A
Intel® Xeon® W-2195 Processor	CD8067303805901	N/A	2.30 GHz	24.75 MB	2400 MHz	18/36	✓	✓	140W	N/A

# INTEL® XEON® PROCESSOR E3-1500 V5 FAMILY

## Introducing the Intel® Xeon® Processor E3-1500 v5 product family—the data center graphics powerhouse

Create visually stunning user experiences at low total cost of ownership with the new Intel® Xeon® processor E3-1500 v5 product family featuring Intel® Iris™ Pro graphics P580.



PROCESSOR NAME <sup>1</sup>	PRODUCT CODE	CLOCK SPEED	CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER	UPC CODE
Intel® Xeon® Processor E3-1585 v5	JQ8066201935710	3.50 GHz	8 MB	2133 MHz	4/8	✓	✓	65W	N/A
Intel® Xeon® Processor E3-1585L v5	JQ8066201935627	3.00 GHz	8 MB	2133 MHz	4/8	✓	✓	45W	N/A
Intel® Xeon® Processor E3-1565L v5	JQ8066201935626	2.50 GHz	8 MB	2133 MHz	4/8	✓	✓	35W	N/A

# INTEL® XEON® PROCESSOR E3-1200 V6 FAMILY

## Intel® Xeon® Processor E3-1200 v6 Product Family for Server and Workstation Systems

The latest Intel® Xeon® processor E3-1200 v6 product family-based platforms are a smart investment for a wide range of business needs and sizes. In addition to gains in CPU performance, CPU performance per watt, Intel Xeon processor E3-1200 v6 product family-based platforms offer fast access to data, protect the data's integrity, and have proven reliability for a range of business needs.

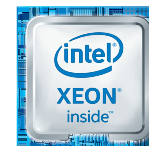


PROCESSOR NAME <sup>1</sup>	PRODUCT CODE TRAY	PRODUCT CODE BOX	CLOCK SPEED	CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER	UPC CODE
Intel® Xeon® Processor E3-1280 v6	CM8067702870647	N/A	3.9 GHz	8 MB	2400 MHz	4/8	✓	✓	72 W	N/A
Intel® Xeon® Processor E3-1275 v6	CM8067702870931	BX80677E31275v6	3.8 GHz	8 MB	2400 MHz	4/8	✓	✓	73 W	00735858328364
Intel® Xeon® Processor E3-1270 v6	CM8067702870648	BX80677E31270v6	3.8 GHz	8 MB	2400 MHz	4/8	✓	✓	72 W	00735858328487
Intel® Xeon® Processor E3-1245 v6	CM8067702870932	BX80677E31245v6	3.7 GHz	8 MB	2400 MHz	4/8	✓	✓	73 W	00735858328128
Intel® Xeon® Processor E3-1240 v6	CM8067702870649	BX80677E31240v6	3.7 GHz	8 MB	2400 MHz	4/8	✓	✓	72 W	00735858328180
Intel® Xeon® Processor E3-1230 v6	CM8067702870650	BX80677E31230v6	3.5 GHz	8 MB	2400 MHz	4/8	✓	✓	72 W	00735858328425
Intel® Xeon® Processor E3-1225 v6	CM8067702871024	BX80677E31225v6	3.3 GHz	8 MB	2400 MHz	4/4	✓	✓	73 W	00735858328241
Intel® Xeon® Processor E3-1220 v6	CM8067702870812	BX80677E31220v6	3.0 GHz	8 MB	2400 MHz	4/4		✓	72 W	00735858328302

# INTEL® XEON® PROCESSOR E3-1200 V5 FAMILY

## Intel® Xeon® Processor E3-1200 v5 Product Family for Server and Workstation Systems

The latest Intel® Xeon® processor E3-1200 v5 product family-based platforms are a smart investment for a wide range of business needs and sizes. In addition to gains in CPU performance, CPU performance per watt, and graphics performance, Intel Xeon processor E3-1200 v5 product family-based platforms offer fast access to data, protect the data's integrity, and have proven reliability for a range of business needs.



PROCESSOR NAME <sup>1</sup>	PRODUCT CODE TRAY	PRODUCT CODE BOX	CLOCK SPEED	CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER	UPC CODE
Intel® Xeon® Processor E3-1280 v5	CM806620192160		3.7 GHz	8 MB	2133 MHz	4/8	✓	✓	80 W	N/A
Intel® Xeon® Processor E3-1270 v5	CM8066201921712	BX80662E31270V5	3.6 GHz	8 MB	2133 MHz	4/8	✓	✓	80 W	735858301732
Intel® Xeon® Processor E3-1260L v5	CM8066201921903		2.9 GHz	8 MB	2133 MHz	4/8	✓	✓	45 W	N/A
Intel® Xeon® Processor E3-1240L v5	CM8066201935808		2.1 GHz	8 MB	2133 MHz	4/8	✓	✓	25 W	N/A
Intel® Xeon® Processor E3-1240 v5	CM8066201921715	BX80662E31240V5	3.5 GHz	8 MB	2133 MHz	4/8	✓	✓	80 W	735858301855
Intel® Xeon® Processor E3-1230 v5	CM8066201921713	BX80662E31230V5	3.4 GHz	8 MB	2133 MHz	4/8	✓	✓	80 W	735858301916
Intel® Xeon® Processor E3-1220 v5	CM8066201921804	BX80662E31220V5	3 GHz	8 MB	2133 MHz	4/4	✓	✓	80 W	735858302036
Intel® Xeon® Processor E3-1275 v5	CM8066201934909	BX80662E31275V5	3.6 GHz	8 MB	2133 MHz	4/8		✓	80 W	735858301671
Intel® Xeon® Processor E3-1245 v5	CM8066201934913	BX80662E31245V5	3.5 GHz	8 MB	2133 MHz	4/8		✓	80 W	735858301794
Intel® Xeon® Processor E3-1235L v5	CM8066201935807		2 GHz	8 MB	2133 MHz	4/4		✓	25 W	N/A
Intel® Xeon® Processor E3-1225 v5	CM8066201922605	BX80662E31225V5	3.3 GHz	8 MB	2133 MHz	4/4		✓	80 W	735858301978



# INTEL® XEON® PROCESSOR E3-1200 V4 FAMILY

## Intel® Xeon® Processor E3-1200 v4 Product Family for Server and Workstation Systems

The Intel® Xeon® Processor E3-1200 v4 product family supports up to 1.8x the overall graphics performance of the previous-generation<sup>2</sup>, and delivers high-quality visual experiences with up to 1.4x more video transcoding performance per node<sup>4</sup> and up to 4,300 simultaneous HD video streams per rack than the previous generation Intel® Xeon® processor E3-1200 v3 product family.<sup>3</sup>



PROCESSOR NAME <sup>1</sup>	PRODUCT CODE	CLOCK SPEED	CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER	UPC CODE
Intel® Xeon® processor E3-1285 v4 <sup>5</sup>	CM8065802482701	3.50 GHz	6 MB	1866 MHz	4/8	✓	✓	95 W	N/A
Intel® Xeon® processor E3-1285L v4 <sup>5</sup>	CM8065802482901	3.40 GHz	6 MB	1866 MHz	4/8	✓	✓	65 W	N/A
Intel® Xeon® processor E3-1265L v4 <sup>5</sup>	CM8066201937901	2.30 GHz	6 MB	1866 MHz	4/8	✓	✓	35 W	N/A
Intel® Xeon® processor E3-1278L v4 <sup>6</sup>	FH8065802420303	2.0 GHz	6 MB	1600 MHz	4/8	✓	✓	47 W	N/A
Intel® Xeon® processor E3-1258L v4 <sup>6,7</sup>	FH8065802420602	1.8 GHz	6 MB	1600 MHz	4/8	✓	✓	47 W	N/A

For more information, visit [www.intel.com/xeone3](http://www.intel.com/xeone3)

<sup>1</sup> Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. Go to: [http://www.intel.com/products/processor\\_number/](http://www.intel.com/products/processor_number/)

<sup>2</sup> Up to 1.8x better performance on 3DMark® 11. Baseline configuration: Intel® Hermosa Beach 2 CRB platform with Intel® Xeon® processor E3-1286v3, 32GB memory (4x 8GB DDR3-1333 UDIMM), 64GB SATA SSD, Intel® Turbo Boost enabled, HT enabled, Red Hat Enterprise Linux® 6.3, Oracle® Java® Hotspot Java 1.7.0\_17. 3DMark® Score 1524, Source: Internal Intel measurements as of April 2014.

Intel® Xeon® processor workstation platform (Intel® Server Board 51200RP) with one Intel® Xeon® processor E3-1285 v4 (quad-core, 3.5GHz, 6M cache) BIOS 51200RP.8  
68.03.01.0002.041520151123, Intel® Hyper-Threading Technology best configuration, 32GB memory (4x8GB DDR3-1600 ECC UDIMM), Intel® Iris™ Pro graphics P6300 with driver 10.18.10.3980, Intel SSDSC2BB300G4, Microsoft Windows 8.1\* 3DMark® Score 2881, Source: Intel internal testing as of June 2015.

<sup>3</sup> Up to 4300 streams per rack, or 1.4x vs previous generation. Rack density based on the Supermicro® SuperServer 5038ML-H24TRF 3U chassis with 12 sleds. Each sled containing 2 Intel® Xeon® E3-1200 v3 or v4 processors for a total of 24 E3-1200 v3 or v4 processors per 3U chassis. Assuming 2U for top of rack switches, 13 3U chassis could fit in each rack, giving 24\*13=312 sockets in a 42u rack. 312\*10=3120 streams E3-1286L v3; 312\*14=4368 streams on E3-1285L v4

<sup>4</sup> Up to 1.4x transcoding performance with Intel® Xeon® E3-1285L v4 when compared with Intel® Xeon® E3-1286L v3 on Intel Media Server Studio 2015 R3 Essentials Edition. Number of real time threads transcoded simultaneously: 10 on E3-1286L v3, 14 on E3-1285L v4, using 1080p30 20Mbps streams. Baseline configuration: Intel Rainbow Pass SR1200V3RP platform with Intel(R) Xeon® E3-1285L v4 (65W, 4C, 3.4Ghz, Intel® Iris Pro Graphics P6300) or Intel® Xeon® Processor E3-1286L v3 (65W, 4C, 3.2Ghz, Intel® HD Graphics P4700), 32 GB (4x8GB DDR3-1600MHz UDIMM), 160GB 7200 SATA HOD, Turbo Boost Enabled, HT Enabled, Windows Server 2012 R2, Intel Media Server Studio 2015 R3 Essentials Edition, Multi Transcoding Sample Version 6.0.0.36, Intel graphics driver pGFX 10.18.14.4172, BIOS 51200RP.86B.03.01.002. Source: Intel internal measurements as of May 2015

<sup>5</sup> Intel® Iris™ Pro Graphics P6300 requires the latest-version Intel® Graphics Driver, Intel C226 chipset, and Intel® Xeon® processor E3-1285 v4, Intel® Xeon® processor E3-1278L v4, or Intel® Xeon® processor E3-1265 v4 to enable data centre graphics application optimizations. To learn more about Intel Xeon processors for data center graphics, visit [intel.com/datacentregraphics](http://intel.com/datacentregraphics).

<sup>6</sup> BGA package

<sup>7</sup> HD P5700 graphics



# INTEL® XEON® PROCESSOR E3-1200 V3 FAMILY

## Intel® Xeon® Processor E3-1200 v3 Product Family

The Intel® Xeon® Processor E3-1200 v3 product family supports a range of business needs. Platforms based on the Intel Xeon processor E3-1200 v3 product family can be used as an entry server for small business applications or as an entry workstation for CAD and financial services. Low-power SKUs are uniquely suited to support scale-out workloads in Microserver platforms, and graphics-enabled SKUs support remote / virtual graphics capabilities and media transcode usages in the data center.



## Intel® Xeon® Processor E3-1200 v3 Product Family for Server and Workstation Systems Featuring One LGA1150 Socket (Thermal Solution Included with Box SKUs)

PROCESSOR NAME <sup>1</sup>	PRODUCT CODE	CLOCK SPEED	SINGLECORE TURBO MAX. SPEED	INTEL® SMART CACHE	MAX. MEMORY SPEED	NO. OF CORES / THREADS	INTEL® GRAPHICS ENGINE	INTEL® HYPER-THREADING TECHNOLOGY <sup>2</sup>	INTEL® TURBO BOOST TECHNOLOGY <sup>2</sup>	POWER	UPC CODE
Intel® Xeon® processor E3-1281 v3	CM8064601575329 (tray only)	3.70 GHz	4.10 GHz	8 MB	1600 MHz	4/8		✓	✓	80 W	N/A
Intel® Xeon® processor E3-1276 v3	BX80646E31276V3 (box) CM8064601575216 (tray)	3.60 GHz	4 GHz	8 MB	1600 MHz	4/8	Intel HD graphics P4600	✓	✓	84 W	7 35858 27876 8
Intel® Xeon® processor E3-1271 v3	BX80646E31271V3 (box) CM8064601575330 (tray)	3.60 GHz	4 GHz	8 MB	1600 MHz	4/8		✓	✓	80 W	7 35858 27900 0
Intel® Xeon® processor E3-1246 v3	BX80646E31246V3 (box) CM8064601575205 (tray)	3.50 GHz	3.90 GHz	8 MB	1600 MHz	4/8	Intel HD graphics P4600	✓	✓	84 W	7 35858 27882 9
Intel® Xeon® processor E3-1245 v3	BX80646E31245V3 (box) CM8064601466509 (tray)	3.40 GHz	3.80 GHz	8 MB	1600 MHz	4/8	Intel HD graphics P4600	✓	✓	84 W	7 35858 25940 8
Intel® Xeon® processor E3-1241 v3	BX80646E31241V3 (box) CM8064601575331 (tray)	3.50 GHz	3.90 GHz	8 MB	1600 MHz	4/8		✓	✓	80 W	7 35858 27906 2
Intel® Xeon® processor E3-1231 v3	BX80646E31231V3 (box) CM8064601575332 (tray)	3.40 GHz	3.80 GHz	8 MB	1600 MHz	4/8		✓	✓	80 W	7 35858 27912 3
Intel® Xeon® processor E3-1230L v3	CM8064601467601 (tray only)	1.80 GHz	2.80 GHz	8 MB	1600 MHz	2/4		✓	✓	25 W	N/A
Intel® Xeon® processor E3-1226 v3	BX80646E31226V3 (box) CM8064601575206 (tray)	3.30 GHz	3.70 GHz	8 MB	1600 MHz	4/4	Intel HD graphics P4600		✓	84 W	7 35858 27894 2
Intel® Xeon® processor E3-1225 v3	BX80646E31225V3 (box) CM8064601466507 (tray)	3.20 GHz	3.60 GHz	8 MB	1600 MHz	4/4	Intel HD graphics P4600		✓	84 W	7 35858 25946 0
Intel® Xeon® processor E3-1220 v3	BX80646E31220V3 (box) CM8064601467204 (tray)	3.10 GHz	3.50 GHz	8 MB	1600 MHz	4/4			✓	80 W	7 35858 25976 7
Intel® Xeon® Processor E3-1220L v3	CM8064601481914 (tray only)	1.10 GHz	1.50 GHz	4 MB	1600 MHz	2/4		✓	✓	13 W	N/A



For more information, visit [www.intel.com/xeon](http://www.intel.com/xeon)

- <sup>1</sup> Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. Go to: [http://www.intel.com/products/processor\\_number/](http://www.intel.com/products/processor_number/)
- <sup>2</sup> Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. Check with your system manufacturer or retailer or learn more at [www.intel.com](http://www.intel.com)
- <sup>3</sup> Intel® QPI-Intel® QuickPath Interconnect; GT/s—Gigatransfers per second.
- <sup>4</sup> Software and workloads used in performance tests may have been optimized for performance only on Intel® microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations, and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For more information, go to [www.intel.com/performance](http://www.intel.com/performance)
- <sup>5</sup> Claim based on calculated theoretical peak double precision performance capability for a single coprocessor. 16 DP FLOPS/clock/core \* 61 cores \* 1.238 GHz = 1.208 TeraFLOPS.
- <sup>6</sup> Results have been estimated based on internal Intel analysis and are provided for informational purposes only. Any difference in system hardware or software design or configuration may affect actual performance.
- <sup>7</sup> Intel® Xeon® Processor E5-2600 v4 product family (22C, 55M Cache) compared to Intel® Xeon® Processor E5-2600 v3 product family (18C, 45M Cache).
- <sup>8</sup> E5 v4 up to 47% vs. previous-generation E5 v3 performance based on binomialcpu v3.0\_AVX2 financial services workload results as of 16 March 2016) comparing 1-Node, 2 x Intel® Xeon® Processor E5-2699 v3 on Grantley-EP (Wellsburg) with 128 GB Total Memory on Red Hat Enterprise Linux® 6.4 kernel 2.6.32-358, Options per second Score: 106025 vs. 2 x Intel® Xeon® Processor E5-2699 v4 on Grantley-EP (Wellsburg) with 128 GB Total Memory on Red Hat Enterprise Linux® 6.4 kernel 2.6.32-358, Options per second Score: 156141 Higher is better. Data Source: Request Number: 1871 E5 v4 up to 27% vs. previous-generation E5 v3 average performance based on key industry-standard benchmarks calculations submitted by OEMs as of 16 March 2016) comparing 2-socket Intel® Xeon® processor E5 v3 to v4 family. Key industry benchmarks include: SPECint\*\_rate\_base2006, SPECint\*\_base 2006 (Speed), SPECfp\*\_rate\_base 2006, SPECfp\*\_base2006 (Speed), SPECmpi\*\_base2007, SPECmpiM\*\_base2007, SPECompG\*\_base2012, SPECvirt\_sc\*2013, VMmark\* 2.5 performance (matched pairs), TPC-E\*, SPECjEnterprise\*2010, Two-tier SAP SD\* Windows\*/Linux, 1-Node TPC-H\* 1TB, TPCx-BB\* and SPECjbb\*2015 MultiJVM. See <http://www.intel.com/performance/datacenter> for full configuration details.

All products and dates specified are preliminary based on current expectations and are subject to change without notice. Availability in different channels may vary.

For more complete information about performance and benchmark results, visit [www.intel.com/benchmarks](http://www.intel.com/benchmarks)

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at [www.intel.com/xeon](http://www.intel.com/xeon)

Intel, the Intel logo, Intel Inside, the Intel Inside logo, Xeon, and Xeon Phi are trademarks of Intel Corporation in the U.S. and / or other countries.

\* Other names and brands may be claimed as the property of others.

© 2017 Intel Corporation

# INTEL® XEON® PROCESSOR D-1500 PRODUCT FAMILY

The Intel® Xeon® processor D family offers new options for infrastructure optimization, by bringing the performance and advanced intelligence of Intel® Xeon® processors into a dense, lower-power system-on-a-chip.

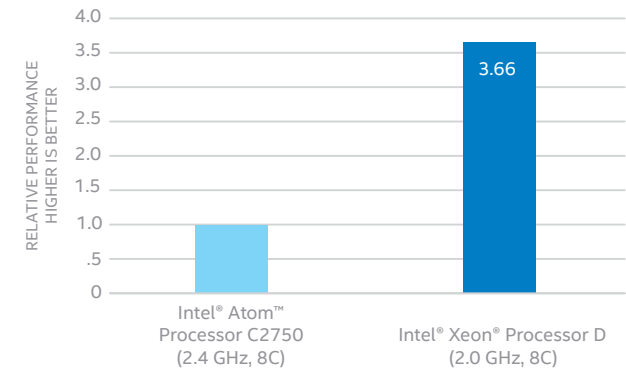
The Intel Xeon processor D product family is Intel's 3rd generation 64-bit SoC and the first based on Intel Xeon processor technology. It can be deployed for a variety of workloads including dynamic web serving, dedicated web hosting, warm storage, network routing, and more.



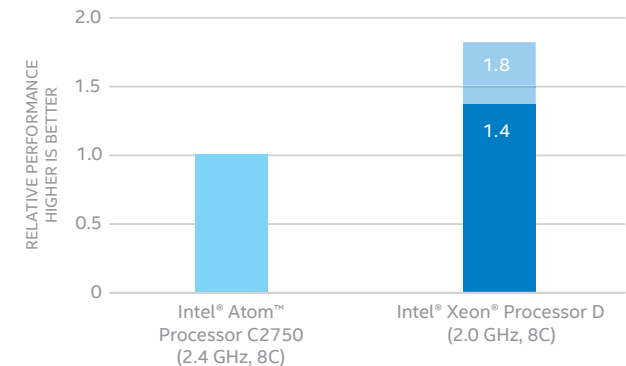
## Intel® Xeon® Processor D-1500 Product Family

	INTEL® XEON® PROCESSOR D-1541	INTEL® XEON® PROCESSOR D-1521
<b>Thermal Design Point</b>	45W	45W
<b>Frequency</b>	2.1 GHz	2.4 GHz
<b>Max Turbo Frequency</b>	2.7 GHz	2.7 GHz
<b>Cores</b>	8	4
<b>Threads</b>	16	8
<b>Memory Channels</b>	2	2
<b>DIMMS per Channel</b>	2	2
<b>DRAM Interface</b>	ECC (DDR4), DDR3	ECC (DDR4), DDR3
<b>Max. Memory Speed</b>	2133 MT/s	2133 MT/s
<b>Max. DRAM Capacity</b>	128 GB	128 GB
<b>Integrated I/O</b>	24 PCIe 3.0* 8 PCIe 2.0* x4 USB 3.0 x4 USB 2.0 x6 SATA 3	24 PCIe 3.0* 8 PCIe 2.0* x4 USB 3.0 x4 USB 2.0 x6 SATA 3
<b>Network Interface</b>	2 x 1/2.5/10 GbE Intel Ethernet	2 x 1/2.5/10 GbE Intel Ethernet
<b>Built-In Intel® Virtualization Technology</b>	VT-x, VT-d, and Cache QoS	VT-x, VT-d, and Cache QoS
<b>Cache Hierarchy</b>	L1 (32K data, 32K instructions per core) L2 (256K per core) LLC (1.5 MB per core)	L1 (32K data, 32K instructions per core) L2 (256K per core) LLC (1.5 MB per core)

### Performance Dynamic Web Serving



### Performance per Watt Dynamic Web Serving





## Intel® Xeon® Processor D-1500 Product Family

<b>Intel® Xeon® Processor Intelligence in a Low-Power SoC</b>	Up to 3.6x higher performance per node <sup>1,3</sup> versus Intel® Atom™ processor C2750-based solutions. Includes up to 8 cores, two integrated ports of 10 Gigabit Intel® Ethernet, plus support for up to 128 GB of memory. Also includes Intel® 64-bit software support <sup>4</sup> , L1 cache (32K data, 32K instructions per core), L2 cache (256K per core), LLC cache (1.5 MB per core), Intel® Turbo Boost Technology <sup>4</sup> , and Intel® Hyper-Threading Technology. <sup>4</sup>
<b>Industry-Leading 14 nm Process Technology</b>	Enables dense, low power system designs with thermal design points of ~20W to 45W and system level performance per watt of up to 1.8x that of Intel Atom processor C2750-based solutions <sup>2,3</sup> .
<b>Server-Class Reliability, Availability, and Serviceability (RAS)</b>	Provides high system reliability and data integrity with support for error correction code (ECC) memory, single device data correction (SDDC), memory demand and patrol scrubbing, and much more.
<b>Built-In Intel® Virtualization Technology</b>	Delivers near-native compute and I/O performance in virtualized data centers, network infrastructure, and cloud computing, with advanced monitoring of cache and memory bandwidth for better service level and infrastructure management.
<b>Hardware-Enhanced Security and Compliance</b>	Intel Advanced Encryption Standard New Instructions (Intel AES-NI) provide integrated support for fast, low-overhead encryption and Intel® Trusted Execution Technology (Intel® TXT) provides platform verification (through authenticated boot) to enable strong security with reduced performance impact <sup>5</sup> .
<b>Server-Class Manageability</b>	Includes Intel® Node Manager Base for adaptive power management.
<b>Intel® Platform Storage Extensions</b>	Enables fast data movement and high availability through integrated support for non-transparent bridging (NTB), asynchronous DRAM self-refresh (ADR), and Intel® QuickData technology, which provides a direct memory access (DMA) engine within the SoC <sup>6</sup> .

For more information, visit [www.intel.com/xeon](http://www.intel.com/xeon)

<sup>1</sup> Up to 3.6x better performance on Dynamic Web Serving Intel® Xeon Processor D-based reference platform with one Xeon Processor D (8C, 2.0GHz, 45W, ES2), Turbo Boost Enabled, Hyper-Threading enabled, 64GB memory (4x16GB DDR4-2133 RDIMM ECC), 2x10GBBase-T X552, 3x S3700 SATA SSD, Fedora\* 20 (3.17.8-200.fc20.x86\_64, Nginx\* 1.4.4, Php-fpm\* 15.4.14, memcached\* 1.4.14, Simultaneous users=43844 Supermicro SuperServer\* 5018A-TN4 with one Intel Atom Processor C2750 (8C, 2.4GHz,20W), Turbo Boost Enabled, 32GB memory (4x8GB DDR3-1600 SO-DIMM ECC), 1x10GBBase-T X520, 2x S3700 SATA SSD, Ubuntu\* 14.10(3.16.0-23 generic), Nginx\* 1.4.4, Php-fpm\* 15.4.14, memcached\* 1.4.14, Simultaneous users=12896.

<sup>2</sup> Up to 1.8x (estimated) better performance per watt on Dynamic Web Serving Intel® Xeon Processor D-based reference platform with one Xeon Processor D (8C, 2.0GHz, 45W, ES2), Turbo Boost Enabled, Hyper-Threading enabled, 64GB memory (4x16GB DDR4-2133 RDIMM ECC), 2x10GBBase-T X552, 3x S3700 SATA SSD, Fedora\* 20 (3.17.8-200.fc20.x86\_64, Nginx\* 1.4.4, Php-fpm\* 15.4.14, memcached\* 1.4.14, Simultaneous users=43844, Estimated wall power based on microserver chassis, power=90W, Perf/W=487.15 users/W Supermicro SuperServer\* 5018A-TN4 with one Intel Atom Processor C2750 (8C, 2.4GHz,20W), Turbo Boost Enabled, 32GB memory (4x8GB DDR3-1600 SO-DIMM ECC), 1x10GBBase-T X520, 2x S3700 SATA SSD, Ubuntu\* 14.10 (3.16.0-23 generic), Nginx\* 1.4.4, Php-fpm\* 15.4.14, memcached\* 1.4.14, Simultaneous users=12896. Maximum wall power =46W, Perf/W=280.3 users/W

<sup>3</sup> Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products.

<sup>4</sup> Intel technologies may require enabled hardware, specific software, or services activation. Check with your system manufacturer or retailer.

Intel may make changes to specifications and product descriptions at any time, without notice. Designers must not rely on the absence or characteristics of any features or instructions marked "reserved" or "undefined." Intel reserves these for future definition and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to them. The information here is subject to change without notice. Do not finalize a design with this information. The products described in this document may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are available on request. Contact your local Intel sales office or your distributor to obtain the latest specifications and before placing your product order. Copies of documents which have an order number and are referenced in this document, or other Intel literature, may be obtained by calling 1-800-548-4725, or by visiting Intel's Web site at [www.intel.com](http://www.intel.com).

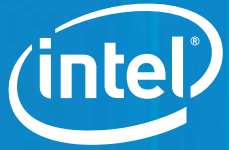
<sup>5</sup> Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at [www.intel.com](http://www.intel.com)

<sup>6</sup> Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products.

For more information go to <http://www.intel.com/performance>

Intel, the Intel logo, Intel Xeon, and Intel Atom are trademarks of Intel Corporation in the U.S. and/or other countries.

\* Other names and brands may be claimed as the property of others.



# INTEL® SERVER BOARDS

THE QUALITY  
YOU WANT. THE  
CONFIDENCE  
YOU NEED.

## INTEL® SERVER BOARDS

High quality, unbranded server building blocks featuring Intel's most innovative technologies with Intel world-class validation, compatibility, certification, warranty and support. Reliable solutions made easy.

# INTEL® SERVER BOARDS

High quality, unbranded server building blocks featuring Intel's most innovative technologies with Intel world-class validation, compatibility, certification, warranty and support. Reliable solutions made easy.

## THE QUALITY YOU WANT WITH THE CONFIDENCE YOU NEED

Intel designs and builds to a high specification, delivering server products with maximum processing power, great flexibility, excellent manageability, and high reliability. Stringent design and manufacturing practices, rigorous validation and testing, and excellent warranty and technical support ensure you receive value that is difficult to find anywhere else.

### Platform connected boards featuring Intel® Xeon® processor Scalable family

#### Intel® Server Board S2600WF family:

Power and performance at peak efficiency supporting a 1U and 2U rack mount server form factor.

#### Intel® Server Board S2600BP family:

Density optimized board enabling highest processing and memory performance.

#### Intel® Server Board S2600ST family:

Flexible general purpose boards in an SSI EEB form factor.

### Single-socket board featuring bootable Intel® Xeon Phi™ processor family

#### Intel® Server Board S7200AP family:

A High Performing Compute Node Featuring a bootable Intel® Xeon Phi™ Processor. This board family is designed to support the demands of parallel processing while delivering performance, high availability, and serviceability.

### Single-socket board featuring Intel® Xeon® processor E3 v6 family

#### Refreshed Intel® Server Board S1200SP family:

Reliable, cost effective, easy to manage board in a microATX form factor.

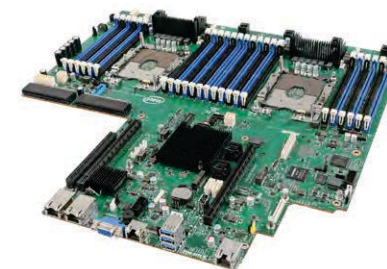
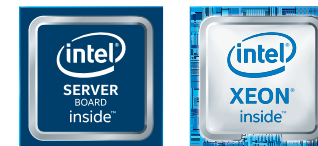
### Delivering high performance and increased memory bandwidth

The Intel® Xeon® processor E5-2600 v4 family delivers versatility across diverse workloads in the data center or cloud.

## Intel® Server Board S2600WF Product Family Featuring Intel® Xeon® Scalable Processors

### FULL FEATURED WITH MAXIMUM FLEXIBILITY FOR EXPANSION

The Intel® Server Board S2600WF product family delivers power and performance at peak efficiency in a 1U and 2U rack mount server form factor that features the energy-efficient dual Intel® Xeon® processor Scalable Family. High memory capacity, networking, storage and I/O flexibility combine with innovative design to provide an exceptional and reliable server for business IT, appliance, data center, cloud and high performance computing applications.



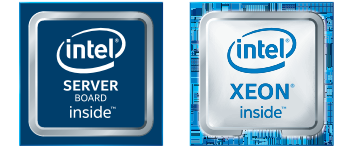
<b>DESCRIPTION</b>	Full-featured Server Board family with maximum flexibility for expansion; available as a 1U or 2U rack-mount form factor featuring the energy efficient Intel® Xeon® processor Scalable Family.
<b>TARGET MARKET</b>	Data Center, Cloud, High Performance Computing (HPC).
<b>ORDER CODE</b>	S2600WFT – Dual 10GbE integrated LAN ports; S2600WF0 – No integrated LAN ports; S2600WFQ – No integrated LAN support; integrated QAT support (launches Q4 2017)
<b>FORM FACTOR</b>	Custom (16.7" x 17")
<b>INTEL® SERVER CHASSIS</b>	Intel® Server Chassis R1000WF family; Intel® Server Chassis R2000WF family; Intel® Server System R1000WF family; Intel® Server System R2000WF family
<b>PROCESSOR SUPPORT<sup>1</sup></b>	Up to 2 Intel® Xeon® Scalable processors 205W Max
<b>CHIPSET</b>	Intel® C612 Chipset
<b>TOTAL PCI SLOTS</b>	3 Riser slots; 1 Intel® RAID Module Connector
<b>PCI SLOT TYPES</b>	2 PCI Express® 3.0 x24 riser super socket (supporting x8, x16, and PCI-X riser card slot options) 1 PCI Express 3.0 mixed x8, x4 slot riser socket (supporting x4, and x8 riser card slot options) 1 PCI Express 3.0 x8 Intel® RAID Module, 1x OCP KR Mezzanine I/O Expansion Module
<b>MEMORY CAPACITY</b>	24 R / LR DIMMs 1333 / 1600 / 1866 / 2133 / 2400/ 2666 MHz ECC DDR4 <sup>2</sup> NVDIMMs 2666 MHz3 Overall Memory size depends on processor used
<b>NVME</b>	Up to 4 OcuLink* (4x PCIe Gen 3 lanes per port)
<b>SATA PORTS</b>	10-port SATA (6.0 Gb/s)
<b>SAS OPTIONS</b>	6 Gb/s or 12 Gb/s SAS via optional SAS module
<b>INTEGRATED LAN</b>	2 integrated Dual Port Intel® Ethernet Controller I350 (1 GbE) or 2 integrated Dual Port Intel® Ethernet Controller X540 (10 GbE)
<b>MANAGEMENT SUPPORT</b>	Intel® Server Management Software Integrated BMC with IPMI 2.0
<b>INTEL® RAID SUPPORT</b>	Intel® VROC supports NVMe and RAID levels 0/1/10/5 Intel® Full-Featured RAID Controllers support NVMe/SAS/SATA, RAID levels 0/1/10/5/50/6/60, optional maintenance-free cache backup, and premium feature keys Intel® Entry-Level RAID Controllers support NVMe/SAS/SATA and RAID levels 0/1/10/5 Intel® Storage Controllers support NVMe/SAS/SATA and run in JBOD mode
<b>MODULE UPGRADES</b>	Intel® OCP Mezzanine Expansion Module; Intel Remote Management Module 4 Lite; Trusted Platform Module; Intel® RAID Module
<b>INTEL® TRANSPARENT SUPPLY CHAIN</b>	Statement of Conformance Platform Certificate
<b>WARRANTY</b>	3 year limited warranty, optional 2 year extended warranty available



## Intel® Server Board S2600BP Product Family featuring Intel® Xeon® Scalable processors

### PERFORMANCE OPTIMIZED FOR PROCESSOR AND MEMORY CAPACITY

The Intel® Server Board S2600BP product family is a purpose built, density-optimized server board ideal for use in hyper-converged, data analytics, storage, cloud and high performance computing applications. Designed to support 16 DDR4 DIMM slots per server board at 2 DIMMs per channel and the Intel® Xeon® processor Scalable Family, the S2600BP family maximizes memory and processor bandwidth to meet demanding compute use requirements.



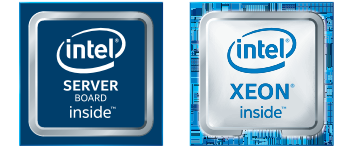
<b>DESCRIPTION</b>	This density-optimized board family enables high processing and memory performance, making this a compelling offering for compute-intensive workloads.
<b>TARGET MARKET</b>	High Performance Computing (HPC), Hyper-converged computing, data analytics, cloud infrastructure and storage.
<b>ORDER CODE</b>	S2600BPB S2600BPS S2600BPQ HNS2600BPB HNS2600BPB24 HNS2600BPS HNS2600BPS24
<b>FORM FACTOR</b>	6.8" x 19.1"
<b>INTEL® SERVER CHASSIS</b>	Intel® Server Chassis H200G Family H2312XXLR3, H2224XXLP3, H2204XXLRE4
<b>PROCESSOR SUPPORT,<sup>1</sup> MAX TDP</b>	Up to 2 Intel® Xeon® Scalable processors Support for optional Intel® Omni-path Integrated Fabric Connectors – 1 100Gb/s port per processor Board & Compute Module: 165W Chassis: 140W Chassis: 165W Supported only in enhanced air cooled Intel® Server Chassis H2204XXLRE
<b>CHIPSET</b>	Intel® C621 chipset Intel® C622 chipset Intel® C628 chipset
<b>TOTAL PCI SLOTS</b>	4
<b>PCI SLOT TYPES</b>	1 PCIe* 3.0 x16 (S2600BPQ: Power only) 2 PCIe* 3.0 x24 1 PCIe* 3.0 x16
<b>MEMORY CAPACITY</b>	16 DIMM Slots (8 per processor) – DDR4 RDIMM/LRDIMM, up to 2666 MT/s, 1.2V
<b>SATA PORTS</b>	S2600BPB/HNS2600BPB/HNS2600BPB24: Four (4) SATA
<b>INTEGRATED LAN</b>	S2600BPB/HNS2600BPB/HNS2600BPB24: Dual port integrated Intel® Ethernet Controller x550 (10G BaseT)
<b>MANAGEMENT SUPPORT</b>	Intel® Server Management Software Integrated BMC with IPMI 2.0
<b>INTEL® RAID SUPPORT</b>	Select Intel® Bridge Boards enable either pass-through functionality, basic storage functionality, RAID levels 0/1/10, or RAID levels 0/1/10/5
<b>INTEL® TRANSPARENT SUPPLY CHAIN</b>	Statement of Conformance Platform Certificate
<b>WARRANTY</b>	3 year limited warranty, optional 2 year extended warranty available



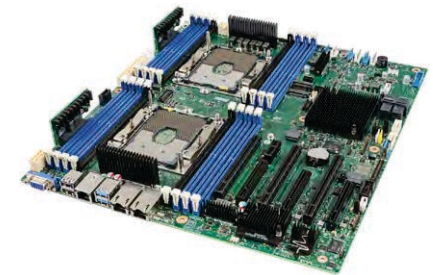
## Intel® Server Board S2600ST Product Family featuring Intel® Xeon® Scalable processors

### FLEXIBLE, GENERAL PURPOSE SERVER BOARD IN A STANDARD FORM FACTOR

The Intel® Server Board S2600ST product family delivers robust features and powerful performance in a standard 12" x 13" EEB form factor for flexibility and ease of adoption. Featuring Intel® Xeon® Scalable processors, high PCIe\* lane availability and SAS/SATA/NVMe\* flexibility, it provides a cost-effective option for pedestal, rack mount, or custom systems. The S2600ST is ideal for use in small and medium business, storage, networking, web hosting, and security appliances where feature capacity and price-performance balance is key.



<b>DESCRIPTION</b>	A family of flexible general purpose server boards supporting two Intel® Xeon® Scalable processors up to 205W and 16 DIMMs in a standard SSI EEB form factor board
<b>TARGET MARKET</b>	Embedded, small- and medium-sized businesses, storage, cloud
<b>ORDER CODE</b>	S2600STB: Dual 10GbE integrated LAN ports S2600STQ: Integrated QAT support, Dual 10GbE integrated LAN ports
<b>FORM FACTOR</b>	SSI EEB (12" x 13")
<b>INTEL® SERVER CHASSIS OR SYSTEM</b>	Intel® Server Chassis P4000G family
<b>PROCESSOR SUPPORT<sup>1</sup></b>	Up to 2 Intel® Xeon® Scalable processors - 205W Max (board only)
<b>CHIPSET</b>	S2600STB: Intel® C624 Chipset S2600STQ: Intel® C628 Chipset
<b>TOTAL PCI SLOTS</b>	6
<b>PCI SLOT TYPES</b>	CPU0: 1 PCI Express* 3.0 x8, 1 PCI Express 3.0 x16 CPU1: 2 PCI Express 3.0 x8, 2 PCI Express 3.0 x16 (Slots 2 and 5 support PCIe risers - 1 from each CPU)
<b>MEMORY CAPACITY</b>	16 (8 per CPU) 1600/1866/2133/2400 MHz 2DPC, 2666 MHz 1DPC DDR4 <sup>2</sup>
<b>NVME</b>	Up to 4OCuLink* NVMe connectors (4x PCIe Gen3 lanes per port)
<b>SATA PORTS</b>	10-port SATA (6Gb/s); Up to 4 OCuLink* NVMe connectors (4x PCIe Gen3 lanes per)
<b>SAS OPTIONS</b>	Via PCIe adapters
<b>INTEGRATED LAN</b>	2 integrated Dual Port Intel® Ethernet Controller I350 (1 GbE) or 2 integrated Dual Port Intel® Ethernet Controller X540 (10 GbE)
<b>MANAGEMENT SUPPORT</b>	Intel® Server Management Software Integrated BMC with IPMI 2.0
<b>INTEL® RAID SUPPORT</b>	Intel® VROC supports NVMe and RAID levels 0/1/10/5 Intel® Full-Featured RAID Controllers support NVMe/SAS/SATA, RAID levels 0/1/10/5/50/6/60, optional maintenance-free cache backup and premium feature keys Intel® Entry-Level RAID Controllers support NVMe/SAS/SATA and RAID levels 0/1/10/5 Intel® Storage Controllers support NVMe/SAS/SATA and run in JBOD mode
<b>MODULE UPGRADES</b>	Intel® Remote Management Module 4 Lite Trusted Platform Module
<b>INTEL® TRANSPARENT SUPPLY CHAIN</b>	N/A
<b>WARRANTY</b>	3 year limited warranty, optional 2 year extended warranty available



## Intel® Server Boards Supporting the Intel® Xeon® Processor E5-2600 v4 Family

### RELIABLE SOLUTIONS MADE EASY

Get Intel® Server Products built on a foundation of high-quality technology with the Intel® Xeon® processor E5-2600 v4 family of server solutions. These products are designed to span multiple use-cases and customization requirements while offering performance, power, and cost flexibility to meet customers' requirements and growth needs now and in the future. To address customer security concerns and guard against counterfeiting and malware, select product families feature the Intel® Transparent Supply Chain which enables the ability to verify the authenticity of board components and firmware. Intel® Server Products products ordered with the new Refresh order codes include the BIOS installed for the Intel® Xeon® Processor E5-2600 v4<sup>1</sup>. Previous generation products will require an Intel® Xeon® processor E5-2600 v3 (Haswell) in order to update to an Intel® Xeon® processor E5-2600 v4 (Broadwell) production BIOS.



PRODUCT NAME	INTEL® SERVER BOARD S2600KP FAMILY	INTEL® SERVER BOARD S2600TP FAMILY
<b>DESCRIPTION</b>	A hot-pluggable, high-density compute module integrated with an Intel® Server Board S2600KP model (available with or without integrated FDR InfiniBand*), maximum memory bandwidth, and flexible configuration options for the Intel® Server Chassis H2000G family.	A hot-pluggable, high-density compute module integrated with an Intel® Server Board S2600TP model (available with or without integrated FDR InfiniBand*) for higher memory capability and flexible configuration options for the Intel® Server Chassis H2000G family.
<b>TARGET MARKET</b>	High performance computing (HPC) / big data	Hyper-converged infrastructure/ High performance computing (HPC) / big data / storage / cloud
<b>ORDER CODE</b>	HNS2600KPR: 1U node with S2600KPR HNS2600KPF: 1U node with S2600KPF, onboard FDR InfiniBand* (1 rear InfiniBand 56 Gb/s port) BBS2600KPR: Board BBS2600KPF: Board with FDR InfiniBand (56 Gb/s) BBS2600KPTR: Board with TPM 1.2	HNS2600TPR: 1U node with S2600TPR HNS2600TPFR: 1U node with S2600TPFR, onboard FDR InfiniBand (1 rear InfiniBand 56 Gb/s port) HNS2600TP24R: 1U node for 24 x 2.5" drive chassis; dual 1G BaseT, dual 10G BaseT HNS2600TP24SR: 1U node for 24 x 2.5" drive chassis; dual 1G BaseT, dual 10G (SFP+) HNS2600TP24STR: 1U node for 24 x 2.5" drive chassis; dual 1G BaseT with TPM2.0 BBS2600TPR: Board BBS2600TPFR: Board with FDR InfiniBand (56 Gb/s)
<b>FORM FACTOR</b>	Custom (6.4" x 17.7")	Custom (6.8" x 18.9")
<b>INTEL® SERVER CHASSIS OR SYSTEM</b>	Intel® Server Chassis H2000G family	Intel® Server Chassis H2000G family
<b>PROCESSOR SUPPORT,<sup>1</sup> MAX TDP</b>	2 Intel® Xeon® processors E5-2600 v4 or v3 product family Boards only: 160 W Compute Modules: 145 W	2 Intel® Xeon® processors E5-2600 v4 or v3 product family Boards only: 160 W Compute Modules: 145 W
<b>CHIPSET</b>	Intel® C612 Chipset	Intel® C612 Chipset
<b>TOTAL PCI SLOTS</b>	3 Riser slots	4 Riser slots
<b>PCI SLOT TYPES</b>	1 PCI Express* 3.0 x16, 2 PCI Express 3.0 x24 super slots or 2 PCI Express 3.0 x16, 1 PCI Express 3.0 x24 super slot	2 PCI Express* 3.0 x16, 2 PCI Express 3.0 x24 super slots or 3 PCI Express 3.0 x16, 1 PCI Express 3.0 x24 super slot
<b>MEMORY CAPACITY</b>	8 LR / R / DIMMs 1333 / 1600 / 1866 / 2133 / 2400 MHz ECC DDR4 NVDIMMs 2133MHz <sup>3</sup> 1024 GB max per system	16 LR / R / DIMMs 1333 / 1600 / 1866 / 2133 / 2400 MHz ECC DDR4 NVDIMMs 2133MHz <sup>3</sup> 2048 GB max per system
<b>SATA PORTS</b>	10-port SATA (6 Gb/s)	HNS2600TP24R/HNS2600TP24SR: 6-port 6 Gb/s SATA 10-port SATA (6 Gb/s)
<b>SAS OPTIONS</b>	12 Gb/s SAS via optional 12 GB SAS bridge board and Intel® RAID module / adapter	12 Gb/s SAS via optional 12 GB SAS bridge board and Intel® RAID module / adapter HNS2600TP24R/HNS2600TP24SR: 12 Gb/s SAS via integrated 12 GB SAS bridge board
<b>INTEGRATED LAN</b>	2 integrated Dual Port Intel® Ethernet Controller I350 (1 GbE) 1 dedicated integrated management port	2 integrated Dual Port Intel® Ethernet Controller I350 (1 GbE) 1 dedicated integrated management port
<b>MANAGEMENT SUPPORT</b>	Intel® Server Management Software Integrated BMC with IPMI 2.0	Intel® Server Management Software Integrated BMC with IPMI 2.0
<b>INTEL® RAID SUPPORT</b>	Intel® Rapid Storage Technology 4.0 (0, 1, 5, and 10) Intel® Embedded Server RAID Technology 2 (ESRT2) RAID levels 0, 1, and 10 Up to SW Raid 5 with optional upgrade key	Intel® Rapid Storage Technology 4.0 (0, 1, 5, and 10) Intel® Embedded Server RAID Technology 2 (ESRT2) RAID levels 0, 1, and 10 Up to SW Raid 5 with optional upgrade key
<b>MODULE UPGRADES</b>	Intel® I/O Expansion Module Intel® Remote Management Module 4 Single port 100Gb/s Intel® Omni-Path Fabric	Intel® I/O Expansion Module Intel® Remote Management Module 4 Single port 100Gb/s Intel® Omni-Path Fabric
<b>INTEL® TRANSPARENT SUPPLY CHAIN</b>	Statement of Conformance Platform Certificate	Statement of Conformance
<b>WARRANTY</b>	3 year limited warranty, optional 2 year extended warranty available	3 year limited warranty, optional 2 year extended warranty available

<sup>1</sup> Intel always recommends updating the BIOS/BM/FRUSDR prior to server deployment <sup>2</sup> Maximum memory speed supported depends on the processor used. <sup>3</sup> NVDIMM support refer to Intel® Server Configurator Tool (<https://serverconfigurator.intel.com>).



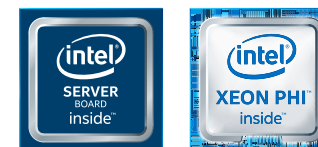
PRODUCT NAME	INTEL® SERVER BOARD S2600CW FAMILY	INTEL® SERVER BOARD S2600WT FAMILY
<b>DESCRIPTION</b>	A family of flexible general purpose server boards supporting two Intel® Xeon® processor E5-2600 v4 family up to 145 W and 16 DIMMs in a standard SSI EEB form factor. Board variations available for two 1 Gb or 10 Gb Ethernet ports, as well as options for an 8-port SAS controller.	A rack-optimized server board supporting two Intel® Xeon® processor E5-2600 v4 family up to 145 W, 24 DIMMs, and two 1 Gb or 10 Gb Ethernet port options available.
<b>TARGET MARKET</b>	Embedded / small- and medium-sized businesses / storage / cloud	Enterprise and medium business IT / big data / storage / cloud
<b>ORDER CODE</b>	DBS2600CW2R: Dual 1 Gb Ethernet ports DBS2600CWTR: Dual 10 Gb Ethernet ports DBS2600CW2SR: Dual 1 Gb Ethernet ports, 8-port LSI* 3008 SAS controller DBS2600CWTSR: Dual 10 Gb Ethernet ports, 8-port LSI 3008 SAS controller	S2600WT2R: 1 Gb Ethernet ports S2600WTTR: 10 Gb Ethernet ports S2600WTTS1R: 10 Gb Ethernet ports with TPM2.0
<b>FORM FACTOR</b>	SSI EEB (12" x 13")	Custom (16.7" x 17")
<b>INTEL® SERVER CHASSIS OR SYSTEM</b>	Intel® Server Chassis P4000G family	Intel® Server Chassis R1000WT family Intel® Server Chassis R2000WT family Intel® Server System R1000WT family Intel® Server System R2000WT family
<b>PROCESSOR SUPPORT,<sup>1</sup> MAX TDP</b>	2 Intel Xeon processors E5-2600 v4 or v3 product family 145 W Max	2 Intel Xeon processors E5-2600 v4 or v3 product family 145 W Max
<b>CHIPSET</b>	Intel® C612 Chipset	Intel® C612 Chipset
<b>TOTAL PCI SLOTS</b>	6	3 Riser slots 1 Intel® I/O Expansion Module Connector 1 Intel® RAID Module Connector
<b>PCI SLOT TYPES</b>	1 PCI Express* 3.0 x8, 4 PCI Express 3.0 x16, 1 PCI Express 2.0 x4 2 PCI Express 3.0 x8, 3 PCI Express 3.0 x16, 1 PCI Express 2.0 x4 (models with LSI* 3008)	2 PCI Express* 3.0 x24 riser super socket (supporting x8, x16, and PCI-X riser card slot options) 1 PCI Express 3.0 mixed x8, x4 slot riser socket (supporting x4, and x8 riser card slot options) 1 PCI Express 3.0 x8 Intel® I/O Expansion Module, 1 PCI Express 3.0 x8 Intel® RAID Module
<b>MEMORY CAPACITY</b>	16 R / LR DIMMs 1333/ 1600 / 1866 / 2133 / 2400 MHz ECC DDR4 <sup>2</sup> NVDIMMs 2133MHz <sup>3</sup> 1 TB max using 64 GB DIMMs 2 TB max using 128 GB DIMMs	24 R / LR DIMMs 1333/ 1600 / 1866 / 2133 / 2400 MHz ECC DDR4 <sup>2</sup> NVDIMMs 2133MHz <sup>3</sup> 1.50 TB max using 64 GB DIMMs
<b>SATA PORTS</b>	10-port SATA (6.0 Gb/s)	10-port SATA (6.0 Gb/s)
<b>SAS OPTIONS</b>	Models with LSI* 3008: 8 Integrated SAS ports, 12G SAS with battery-less hardware RAID	6 Gb/s or 12 Gb/s SAS via optional SAS module
<b>INTEGRATED LAN</b>	2 integrated Dual Port Intel® Ethernet Controller I350 (1 GbE) or 2 integrated Dual Port Intel® Ethernet Controller X540 (10 GbE)	2 integrated Dual Port Intel® Ethernet Controller I350 (1 GbE) or 2 integrated Dual Port Intel® Ethernet Controller X540 (10 GbE)
<b>MANAGEMENT SUPPORT</b>	Intel® Server Management Software Integrated BMC with IPMI 2.0	Intel® Server Management Software Integrated BMC with IPMI 2.0
<b>INTEL® RAID SUPPORT</b>	PCH SATA 6G with Intel® Embedded Server RAID Technology 2 (ESRT2) RAID levels 0, 1, and 10 optional RAID 5 supported through the ESRT2 RAID 5 upgrade key Integrated RAID levels 0, 1, 1E, and 10; optional RAID level 5 upgrade available	Intel® Rapid Storage Technology <sup>2</sup> 4.0 (SW RAID levels 0, 1, 5, and 10) Intel® Embedded Server RAID Technology 2 (SW Raid levels 0, 1, and 10; optional RAID level 5 upgrade available)
<b>MODULE UPGRADES</b>	Intel® Integrated RAID Module (ROC or IOC) Intel® Remote Management Module 4 Lite Trusted Platform Module	Intel® I/O Expansion Module Intel Integrated RAID Module (ROC or IOC) Intel Remote Management Module 4 Lite Trusted Platform Module
<b>INTEL® TRANSPARENT SUPPLY CHAIN</b>	N/A	Statement of Conformance Platform Certificate
<b>WARRANTY</b>	3 year limited warranty, optional 2 year extended warranty available	3 year limited warranty, optional 2 year extended warranty available

<sup>2</sup> Maximum memory speed supported depends on the processor used. <sup>3</sup> NVDIMM support refer to Intel® Server Configurator Tool (<https://serverconfigurator.intel.com>).

## Intel® Server Board S7200AP family supporting the Intel® Xeon Phi™ Processor (Knights Landing)

### RELIABLE SOLUTIONS MADE EASY

Get Intel® Server Products built on a foundation of high-quality technology with the Intel® Xeon® Phi™ processor family of server solutions for customers. The latest server products are designed to span multiple use-cases and customization requirements while offering performance, power, and cost flexibility to meet customers' requirements and growth needs now and in the future.



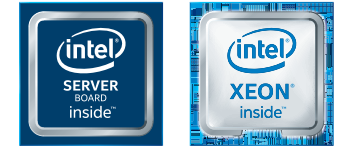
<b>PRODUCT NAME</b>	<b>INTEL® SERVER BOARD S7200AP FAMILY</b>
<b>DESCRIPTION</b>	A hot-pluggable, efficient, high-density compute module integrated with the Intel® Server Board S7200AP and optimized memory performance. Customizable as a 2U, four node system with serviceability and high availability, hot-swappable compute modules, 2.5" or 3.5" drive bays and redundant power supplies.
<b>TARGET MARKET</b>	High performance computing (HPC)
<b>ORDER CODE</b>	HNS7200AP: 1U node with S7200AP HNS7200APL: 1U node with S7200APL (Liquid cooling-friendly) BBS7200AP: Board (1G LOM) BBS7200APL: Board (Liquid cooling-friendly)
<b>FORM FACTOR</b>	Custom (6.8" x 14.2")
<b>INTEL® SERVER CHASSIS</b>	Intel® Server Chassis H2216XXLR2 Intel® Server Chassis H2312XXLR2
<b>PROCESSOR SUPPORT,<sup>1</sup> MAX TDP</b>	Intel® Xeon Phi™ processor (Knights Landing) 215W
<b>CHIPSET</b>	Intel® C612 Chipset
<b>TOTAL PCI SLOTS</b>	2 Riser slots
<b>PCI SLOT TYPES</b>	PCI Express* 3.0 x16 PCI Express 3.0 x20 (x16 or x4)
<b>MEMORY CAPACITY</b>	6 LR / R / UDIMMs 1866 / 2133 / 2400 MHz ECC DDR4 192 GB max per system
<b>SATA PORTS</b>	Integrated 10-port SATA (6 Gb/s)
<b>SAS OPTIONS</b>	12 Gb/s SAS via optional PCIe* card
<b>INTEGRATED LAN</b>	Dual Intel® Ethernet Controller i210 (1 GbE)
<b>MANAGEMENT SUPPORT</b>	Intel® Server Management Software Integrated BMC with IPMI 2.0
<b>INTEL® RAID SUPPORT</b>	Intel® Embedded Server RAID Technology 2 (ESRT2) RAID levels 0, 1, and 10
<b>MODULE UPGRADES</b>	Intel® Remote Management Module 4Lite Intel® Omni-Path Port Upgrade Kit (Two Port) Intel® Omni-Path low provide PCIe* adapter
<b>INTEL® TRANSPARENT SUPPLY CHAIN</b>	Statement of Conformance Platform Certificate
<b>WARRANTY</b>	3 year limited warranty, optional 2 year extended warranty available



## Intel® Server Boards Supporting the Intel® Xeon® Processor E3-1200 v6 Family

### RELIABLE SOLUTIONS MADE EASY

Get Intel® Server Products built on a foundation of high-quality technology in the sixth generation Intel® Xeon® processor E3-1200 v6 family of server solutions. The latest server products are designed to span multiple use-cases and customization requirements while offering performance, reliability, security, and cost flexibility to meet customers' requirements and growth needs now and in the future.



<b>DESCRIPTION</b>	A flexible and feature-rich entry-level server board family in a uATX form factor is available as a rack-mount system or easily integrated into a general purpose Intel® Server Chassis or 3rd party chassis	
<b>TARGET MARKET</b>	Entry level server for small and medium businesses (SMBs), embedded, and storage and security appliance applications.	
<b>ORDER CODE</b>	S1200SPLR: with SAS module support and eight SATA Ports S1200SPSR S1200SPOR: with Intel® I/O Expansion Module support	
<b>FORM FACTOR</b>	microATX (9.6" x 9.6")	
<b>INTEL® SERVER CHASSIS</b>	Intel® Server Chassis P40000SFDR, P4304XXSFCN, P4304XXSHCN Intel® Server System R1000SPO family	
<b>PROCESSOR SUPPORT,<sup>1</sup> MAX TDP</b>	Single Intel® Xeon® processors E3-1200 v6 product family; up to 80W TDP	
<b>CHIPSET</b>	S1200SPLR: Intel® C236 Chipset S1200SPSR: Intel® C232 Chipset S1200SPOR: Intel® C236 Chipset	
<b>TOTAL PCI SLOTS</b>	S1200SPLR/S1200SPOR: 3 S1200SPOR: 1 Riser slot	
<b>PCI SLOT TYPES</b>	1 PCI Express® 3.0 x8 with x16 connection, 1 PCIe Gen3 x4 with x8 connection, 1 PCIe 3.0 x8 with x8 connection	
<b>MEMORY CAPACITY</b>	4 UDIMMs up to 2400 MHz ECC DDR4 64 GB max	
<b>SATA PORTS</b>	S1200SPLR/S1200SPOR: 8-port 6 Gb/s S1200SPSR: 6-port 6 Gb/s SATA	
<b>SAS OPTIONS</b>	S1200SPLR/S1200SPOR: Intel® Integrated RAID Module	
<b>INTEGRATED LAN</b>	Dual port integrated Intel® Ethernet Controller i210 (1 GbE)	
<b>MANAGEMENT SUPPORT</b>	Intel® Server Management Software Integrated BMC with IPMI 2.0	
<b>INTEL® RAID SUPPORT</b>	Intel® Embedded Server RAID Technology 2 (ESRT2) RAID levels 0, 1, and 10 Intel® Rapid Storage Technology <sup>2</sup> 4.0 (0, 1, 5, and 10)	
<b>MODULE UPGRADES</b>	S1200SPLR only: Intel® Integrated RAID Module 22x42mm M.2 module Intel® Remote Management Module 4 LITE2 Trusted Platform Module 1.2	S1200SPOR only: Intel® I/O Expansion Module Intel® Integrated RAID Module 22x42mm M.2 module Intel® Remote Management Module 4 Lite2 Trusted Platform Module 1.2
<b>WARRANTY</b>	3 year limited warranty, optional 2 year extended warranty available	

The Intel® Server Product Marketing Library is designed as a one-stop-shop for all Intel® Server Product marketing assets and sales tools.

Visit <https://www.intelserveredge.com/>

For more information, visit [www.intel.com/go/serverboards](http://www.intel.com/go/serverboards) or [ark.intel.com](http://ark.intel.com)

<sup>1</sup> Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See [www.intel.com/products/processor\\_number](http://www.intel.com/products/processor_number) for details. Refer to <http://support.intel.com/support/motherboards/server> for up-to-date details on processors supported by each server board.

<sup>2</sup> Requires a 4th generation Intel® Core™ processor, enabled chipset, and Intel® Rapid Storage Technology (Intel® RST) software.

<sup>3</sup> On interposer (need accessory kit AXXRMM4IOM or AXXRMM4IOMW).

<sup>4</sup> The Intel® Server Chassis H2204XXLRE is offered as part of the Intel® Data Center Blocks for HPC only. This product can not be ordered separately.

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at [www.intel.com](http://www.intel.com).

Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products.

All products and dates specified are preliminary based on current expectations and are subject to change without notice. Availability in different channels may vary. For more information go to <http://www.intel.com/performance>.

Intel, the Intel logo, Intel Inside, the Intel Inside logo, and Xeon are trademarks of Intel Corporation in the U.S. and/or other countries.

\* Other names and brands may be claimed as the property of others.

© 2017 Intel Corporation.



# INTEL<sup>®</sup> SERVER SYSTEMS

**PERFORMANCE.  
RELIABILITY.  
SECURITY.**

## **INTEL<sup>®</sup> SERVER SYSTEMS**

Based on Intel's most innovative technologies with Intel world-class validation, compatibility, certification, warranty and support. Reliable solutions made easy.





# INTEL® SERVER SYSTEMS

Based on Intel's most innovative technologies with Intel world-class validation, compatibility, certification, warranty and support. Reliable solutions made easy.

## FEATURE-RICH INTEL® SERVER SYSTEMS FOR PERFORMANCE, RELIABILITY AND SECURITY

Customers want data center products designed for outstanding performance and reliability that will address their unique needs. With Intel® Server Systems featuring the latest Intel® Xeon® processor families you can count on trusted performance, quality and reliability to help solve the most complex business challenges.

## Intel® Server Systems Supporting the Intel® Xeon® Processor Scalable Family

### INTEL® SERVER SYSTEMS R1000WF AND R2000WF BASED ON THE INTEL® SERVER BOARD S2600WF FAMILY — RELIABLE SOLUTIONS MADE EASY

Intel® Server S2600WF Product family delivers power and performance at peak efficiency in a 1U and 2U rack mount server form factor that features the energy- efficient dual Intel® Xeon® processor Scalable Family. High memory capacity, networking, storage and I/O flexibility combine with innovative design to provide an exceptional and reliable server for business IT, appliance, data center, cloud and high performance computing applications.



<b>DESCRIPTION</b>	Manage highly demanding application workloads with 1U and 2U rack systems based on the premier Intel® Server Board W2600WF family featuring power-efficient spread core design, incredible 24 DDR4 DIMMs, and support for dual Intel® Xeon® processors Scalable Family.
<b>TARGET MARKET</b>	Enterprise and medium business IT / big data / storage / cloud
<b>SERVER BOARD INCLUDED</b>	<b>S2600WF1: Onboard 10 Gb Ethernet</b> <b>S2600WF0: No LOM</b>
<b>PROCESSOR SUPPORT,<sup>1</sup> MAX TDP</b>	<b>2 x Intel Xeon processors Scalable Family</b> NOTE: Max CPU TDP supported up to 165 W with configuration limitations, see Technical Product Specifications
<b>TOTAL PCI SLOTS</b>	3 Riser slots 1 Intel® RAID Module Connector
<b>PCI SLOT TYPES</b>	1U: 2 x PCI Express* 3.0 x16 (FHHL), 1 x PCI Express 3.0 x8 Intel® I/O Expansion Module, 1 x PCI Express 3.0 x8 Intel® Integrated RAID Module 2U: 3 Riser Options: Total of up to 7 PCI Express 3.0 x8 or 2 PCI Express 3.0 x16, 3 PCI Express 3.0 x8, 1 x PCI Express 3.0 x8 Intel I/O Expansion Module, 1 x PCI Express 3.0 x8 Intel Integrated RAID Module Riser 1 and 2 Options: 1) 3 x PCI Express 3.0 x8 (2 FHFL, 1 FHHL) Riser 1 and 2 Options: 2) 1 x PCI Express 3.0 x16 FHFL, 1 x PCI Express 3.0 x8 FHHL Riser 3: 1 x PCI Express 3.0 x8 LP, 1 x PCI Express 3.0 x4 LP via 3rd riser
<b>MEMORY CAPACITY</b>	24 LR / R / DIMMs 1333 / 1600 / 1866 / 2133 / 2400 / 2666 MHz ECC DDR4 <sup>2</sup> NVDIMMs 2666 MHz <sup>3</sup>
<b>MODULE UPGRADES</b>	Intel® OCP Mezzanine Expansion Module Intel® Integrated RAID Module (ROC or IOC) Intel® Remote Management Module 4 Lite Trusted Platform Module
<b>INTEL® TRANSPARENT SUPPLY CHAIN</b>	Statement of Conformance Platform Certificate
<b>WARRANTY</b>	3 year limited warranty, optional 2 year extended warranty available



## Intel® Server Systems R1000WF Based on the Intel® Server Board S2600WF Family

### 1U RACK SYSTEMS

Continued from previous page

<b>Dimensions (H x W x D)</b>	1.72" x 17.25" x 28"
<b>System Cooling</b>	Redundant cooling fans
<b>Power Supply</b>	1100 W AC Redundant PSU (Platinum Efficiency) Optional 750 W DC 48 V Redundant PSU (Gold Efficiency) NOTE: Second power supply sold separately
<b>Thermal Solution</b>	Included
<b>PCI Riser Slots</b>	2 x PCI Express* 3.0 x16 (FHHL) 1 x PCI Express 3.0 x8 Intel® Integrated RAID Module
<b>Additional Expansion</b>	1x OCP Mezzanine Expansion Module
<b>Other Components</b>	Intel® System Management Software Integrated BMC with IPMI 2.0 Optional optical disk drive
<b>Warranty</b>	3 year limited warranty, optional 2 year extended warranty available



### SPECIFIC SKUs

<b>R1208WFTYS</b>	Intel® Server Board S2600WFT Supports up to 165W TDP processors Single 1100W AC 80 PLUS Platinum PSU Dual 10GbE ports Support for 8x 2.5" hot-swap drives 24 DDR4 DIMMs
-------------------	--

### SPECIFIC SKUs

<b>R1304WF0YS</b>	Intel® Server Board S2600WF0 Supports up to 165W TDP processors Single 1100W AC 80 PLUS Platinum PSU Support for 4x 3.5" hot-swap drives 24 DDR4 DIMMs No LOM
<b>R1304WFTYS</b>	Intel® Server Board S2600WFT Supports up to 165W TDP processors Single 1100W AC 80 PLUS Platinum PSU Dual 10GbE ports Support for 4x 3.5" hot-swap drives 24 DDR4 DIMMs

Continued on next page

## Intel® Server Systems R2000WF Based on the Intel® Server Board S2600WF Family

### 2U RACK SYSTEMS

Continued from previous page

<b>Dimensions (H x W x D)</b>	3.44" x 17.25" x 28"
<b>System Cooling</b>	Redundant and hot-swap cooling fans
<b>Power Supply</b>	1300 W AC redundant-capable PSU (Titanium Efficiency) Optional 1100 W AC redundant-capable PSU (Platinum Efficiency) Optional 750 W DC 48 V Redundant PSU (Gold Efficiency) NOTE: Second power supply sold separately
<b>Thermal Solution</b>	Included
<b>PCI Riser Slots</b>	3 Riser Options: Total of up to 6 PCI Express* 3.0 x8 or 2 PCI Express 3.0 x16, 2 PCI Express 3.0 x8, 1 x PCI Express 3.0 x8 Intel® Integrated RAID Module Option 1) 3 x PCI Express 3.0 x8 (2 FHFL, 1 FHHL) Option 2) 1 x PCI Express 3.0 x16 FHFL, 1 x PCI Express 3.0 x8 FHHL Additional: 1 x PCI Express 3.0 x8 LP, 1 x PCI Express 3.0 x4 LP via 3rd riser
<b>Additional Expansion</b>	1x Intel® OCP Mezzanine Expansion Module
<b>Other Components</b>	Intel® System Management Software Integrated BMC with IPMI 2.0 Optional optical disk drive
<b>Warranty</b>	3 year limited warranty, optional 2 year extended warranty available



### SPECIFIC SKUs

<b>R2208WFTZS</b>	Intel® Server Board S2600WFT Supports up to 165W TDP processors Integrated Dual 10GbE ports Single 1300W AC 80 PLUS Titanium PSU Support for 8x 2.5" SAS/SATA/NVMe hot-swap drives 24 DDR4 DIMMs
<b>R2208WF0ZS</b>	Intel® Server Board S2600WF0 Supports up to 165W TDP processors Single 1300W AC 80 PLUS Titanium PSU Support for 8x 2.5" SAS/SATA/NVMe hot-swap drives 24 DDR4 DIMMs No LOM

### SPECIFIC SKUs

<b>R2224WFTZS</b>	Intel® Server Board S2600WFT Supports up to 140W TDP processors Single 1300W AC 80 PLUS Titanium PSU Support for 24 x 2.5" hot-swap SAS/SATA/NVMe drives Integrated Dual 10GbE ports
-------------------	--

Continued on next page

## Intel® Server Systems R2000WF Based on the Intel® Server Board S2600WF Family

### 2U RACK SYSTEMS

Continued from previous page

#### SPECIFIC SKUs

<b>R2308WFTZS</b>	<ul style="list-style-type: none"> <li>Intel® Server Board S2600WFT</li> <li>Supports up to 165W TDP processors</li> <li>Single 1300W AC 80 PLUS Titanium PSU</li> <li>Dual 10GbE ports</li> <li>Support for 8x 3.5" hot-swap drives</li> <li>24 DDR4 DIMMs</li> </ul>
<b>R2312WFTZS</b>	<ul style="list-style-type: none"> <li>Intel® Server Board S2600WFT</li> <li>Supports up to 140W TDP processors</li> <li>Single 1300W AC 80 PLUS Titanium PSU</li> <li>Dual 10GbE ports</li> <li>Support for 12x 3.5" hot-swap drives</li> <li>24 DDR4 DIMMs</li> </ul>

#### SPECIFIC SKUs

<b>R2312WF0NP</b>	<ul style="list-style-type: none"> <li>Intel® Server Board S2600WF0</li> <li>Supports up to 140W TDP processors</li> <li>Support for 12x 3.5" hot-swap drives</li> <li>24 DDR4 DIMMs</li> <li>No LOM</li> <li>No PSU</li> </ul>
-------------------	---



Product does not include memory, processors, or hard drives.

For compatibility information please refer to the configuration guide at [www.intel.com/support](http://www.intel.com/support)

For more information, visit [www.intel.com/go/serversystems](http://www.intel.com/go/serversystems)

<sup>1</sup> Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See [www.intel.com/products/processor\\_number](http://www.intel.com/products/processor_number) for details.

<sup>2</sup> Overall memory size depends on the processor used.

<sup>3</sup> NVDIMM support refer to Intel® Server Configurator Tool (<https://serverconfigurator.intel.com>).

All products and dates specified are preliminary based on current expectations and are subject to change without notice. Availability in different channels may vary. For more complete information about performance and benchmark results, visit [www.intel.com/benchmarks](http://www.intel.com/benchmarks).

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at [www.intel.com/go/serversystems](http://www.intel.com/go/serversystems).

Intel, the Intel logo, Intel Inside, the Intel Inside logo, Intel Core, and Xeon are trademarks of Intel Corporation in the U.S. and/or other countries.

\* Other names and brands may be claimed as the property of others.

## Intel® Server Systems Supporting the Intel® Xeon® Processor E5-2600 v4 Family



### INTEL® SERVER SYSTEMS R1000WT AND R2000WT BASED ON THE INTEL® SERVER BOARD S2600WT FAMILY — RELIABLE SOLUTIONS MADE EASY

Supporting 1U and 2U rack systems for expansion flexibility and maximum compute, memory, and I/O capacity to address customer security concerns and guard against counterfeiting and malware, select product families feature the Intel® Transparent Supply Chain which enables the ability to verify the authenticity of board components and firmware. Get the latest Intel® Server Products built on a foundation of high-quality technology in the next-generation Intel® Xeon® processor E5-2600 v4 family of server solutions. The latest Intel Server Products are designed to span multiple use-cases and customization requirements while offering performance, reliability, and security to meet customers' requirements and growth needs now and in the future.



<b>DESCRIPTION</b>	Manage highly demanding application workloads with 1U and 2U rack systems based on the premier Intel® Server Board W2600WT family featuring power-efficient spread core design, incredible 24 DDR4 DIMMS, and support for dual Intel® Xeon® processors E5-2600 v4.
<b>TARGET MARKET</b>	Enterprise and medium business IT / big data / storage / cloud
<b>SERVER BOARD INCLUDED</b>	<b>S2600WT2R: 1 Gb Ethernet</b> <b>S2600WTTR: 10 Gb Ethernet</b>
<b>PROCESSOR SUPPORT,<sup>1</sup> MAX TDP</b>	<b>2 x Intel Xeon processors E5-2600 v4 product family</b> NOTE: Max CPU TDP supported 145 W with configuration limitations, see Technical Product Specifications
<b>TOTAL PCI SLOTS</b>	3 Riser slots 1 Intel® I/O Module Connector 1 Intel® RAID Module Connector
<b>PCI SLOT TYPES</b>	1U: 2 x PCI Express* 3.0 x16 (FHHL), 1 x PCI Express 3.0 x8 Intel® I/O Expansion Module, 1 x PCI Express 3.0 x8 Intel® Integrated RAID Module 2U: 3 Riser Options: Total of up to 6 PCI Express 3.0 x8 or 2 PCI Express 3.0 x16, 2 PCI Express 3.0 x8, 1 x PCI Express 3.0 x8 Intel I/O Expansion Module, 1 x PCI Express 3.0 x8 Intel Integrated RAID Module Option 1) 3 x PCI Express 3.0 x8 (2 FHFL, 1 FHHL) Option 2) 1 x PCI Express 3.0 x16 FHFL, 1 x PCI Express 3.0 x8 FHHL Option 3) 2 PCI-X 133 MHz FHFL, 1 x PCI Express 3.0 x8 FHHL Additional: 1 x PCI Express 3.0 x8 LP, 1 x PCI Express 2.0 x4 LP via 3rd riser
<b>MEMORY CAPACITY</b>	24 LR / R / DIMMs 1333/ 1600 / 1866 / 2133 / 2400 MHz ECC DDR4 <sup>1</sup> NVDIMMs 2133MHz <sup>2</sup> 1.50 TB max using 64 GB DIMMS
<b>MODULE UPGRADES</b>	Intel® I/O Expansion Module Intel® Integrated RAID Module (ROC or IOC) Intel® Remote Management Module 4 Lite Trusted Platform Module
<b>INTEL® TRANSPARENT SUPPLY CHAIN</b>	Statement of Conformance Platform Certificate
<b>WARRANTY</b>	3 year limited warranty, optional 2 year extended warranty available

For the latest product SKUs and specifications, visit [ark.intel.com](https://ark.intel.com)

<sup>1</sup> Maximum memory speed supported depends on the processor used.

<sup>2</sup> NVDIMM support refer to Intel® Server Configurator Tool (<https://serverconfigurator.intel.com>).

Continued on next page

## Intel® Server Systems R1000WT Based on the Intel® Server Board S2600WT Family

### 1U RACK SYSTEMS

Continued from previous page

<b>Dimensions (H x W x D)</b>	1.72" x 17.25" x 28"
<b>System Cooling</b>	Redundant cooling fans
<b>Power Supply</b>	750 W AC Redundant PSU (Platinum Efficiency) Optional 750 W DC 48 V Redundant PSU (Gold Efficiency) NOTE: Second power supply sold separately
<b>Thermal Solution</b>	Included
<b>PCI Riser Slots</b>	2 x PCI Express* 3.0 x16 (FHHL) 1 x PCI Express 3.0 x8 Intel® I/O Expansion Module 1 x PCI Express 3.0 x8 Intel® Integrated RAID Module
<b>Other Components</b>	Intel® System Management Software Integrated BMC with IPMI 2.0 Optional optical disk drive
<b>Warranty</b>	3 year limited warranty, optional 2 year extended warranty available



### SPECIFIC SKUs

<b>R1208WT2GSR</b>	Intel® Server Board S2600WT2R 8 x 2.5" hot-swap HDD, optional support for 1 x 2.5" fixed internal drive 750 W AC redundant-capable PSU; second PSU sold separately Integrated Dual Port Intel® Ethernet Controller I350 (1 GbE)
<b>R1208WTTGSR</b>	Intel® Server Board S2600WTTR 8 x 2.5" hot-swap HDD, optional support for 1 x 2.5" fixed internal drive 750 W AC redundant-capable PSU; second PSU sold separately Integrated Dual Port Intel® Ethernet Controller X540 (10 GbE)
<b>R1304WT2GSR</b>	Intel® Server Board S2600WT2R 4 x 3.5" hot-swap HDD, optional support for 1 x 2.5" fixed internal drive 750 W AC redundant-capable PSU; second PSU sold separately Integrated Dual Port Intel® Ethernet Controller I350 (1 GbE)

### SPECIFIC SKUs

<b>R1304WTTGSR</b>	Intel® Server Board S2600WTTR 4 x 3.5" hot-swap HDD, optional support for 1 x 2.5" fixed internal drive 750 W AC redundant-capable PSU; second PSU sold separately Integrated Dual Port Intel® Ethernet Controller X540 (10 GbE)
--------------------	---

Continued on next page

Product does not include memory, processors, or hard drives. For compatibility information please refer to the configuration guide at [www.intel.com/support](http://www.intel.com/support)

## Intel® Server Systems R2000WT Based on the Intel® Server Board S2600WT Family

### 2U RACK SYSTEMS

Continued from previous page

<b>Dimensions (H x W x D)</b>	3.44" x 17.25" x 28"
<b>System Cooling</b>	Redundant and hot-swap cooling fans
<b>Power Supply</b>	750 W AC redundant-capable PSU (Platinum Efficiency) 750 W DC -48V redundant-capable power supply (Gold Efficiency) 1100 W AC redundant-capable PSU (Platinum Efficiency) NOTE: Second power supply sold separately
<b>Thermal Solution</b>	Included
<b>PCI Riser Slots</b>	3 Riser Options: Total of up to 6 PCI Express* 3.0 x8 or 2 PCI Express 3.0 x16, 2 PCI Express 3.0 x8, 1 x PCI Express 3.0 x8 Intel® I/O Expansion Module, 1 x PCI Express 3.0 x8 Intel® Integrated RAID Module Option 1) 3 x PCI Express 3.0 x8 (2 FHFL, 1 FHHL) Option 2) 1 x PCI Express 3.0 x16 FHFL, 1 x PCI Express 3.0 x8 FHHL Option 3) 2 PCI-X 133 MHz FHFL, 1 x PCI Express 3.0 x8 FHHL Additional: 1 x PCI Express 3.0 x8 LP, 1 x PCI Express 2.0 x4 LP via 3rd riser
<b>Other Components</b>	Intel® System Management Software Integrated BMC with IPMI 2.0 Optional optical disk drive
<b>Warranty</b>	3 year limited warranty, optional 2 year extended warranty available



### SPECIFIC SKUs

<b>R2208WT2YSR</b>	Intel® Server Board S2600WT2R 8 x 2.5" hot-swap HDD, optional 2 x 2.5" SATA rear hot-swap drives, 2 x 2.5" fixed internal drives 1100 W AC redundant-capable PSU; second PSU sold separately Integrated Dual Port Intel® Ethernet Controller I350 (1 GbE) 6 PCI Express* 3.0 x8 (4 FHFL, 2 FHHL), 1 riser PCI Express 3.0 x8 LP, PCIe 2.0 x4 LP
<b>R2208WTTYC1R</b>	Intel® Server Board S2600WTTR 8 x 2.5" hot-swap HDD, optional 2 x 2.5" SATA rear hot-swap drives, 2 x 2.5" fixed internal drives 2 x 1100 W AC redundant-capable PSU Integrated Dual Port Intel® Ethernet Controller X540 (10 GbE) 2 PCI Express* 3.0 x16, 2 PCI Express 3.0 x8, 1 PCI Express 3.0 x8 LP, PCIe 2.0 x4 LP

### SPECIFIC SKUs

<b>R2208WTTYSR</b>	Intel® Server Board S2600WTTR 8 x 2.5" hot-swap HDD, optional 2 x 2.5" SATA rear hot-swap drives, 2 x 2.5" fixed internal drives 1100 W AC redundant-capable PSU; second PSU sold separately Integrated Dual Port Intel® Ethernet Controller X540 (10 GbE) 6 PCI Express* 3.0 x8 (4 FHFL, 2 FHHL), 1 riser PCI Express 3.0 x8 LP, PCIe 2.0 x4 LP
<b>R2224WTTYSR</b>	Intel® Server Board S2600WTTR 24 x 2.5" hot-swap HDD, optional 2 x 2.5" SATA rear hot-swap drives, 2 x 2.5" fixed internal drives 1100 W AC redundant-capable PSU; second PSU sold separately Integrated Dual Port Intel® Ethernet Controller X540 (10 GbE) 6 PCI Express* 3.0 x8 (4 FHFL, 2 FHHL)

Continued on next page



## Intel® Server Systems R2000WT Based on the Intel® Server Board S2600WT Family

### SPECIFIC SKUs

*Continued from previous page*

<b>R2308WTTYSR</b>	<p>Intel® Server Board S2600WTTR              8 x 3.5" hot-swap HDD, optional 2 x 2.5" SATA rear hot-swap drives, 2 x 2.5" fixed internal drives              1100 W AC redundant-capable PSU; second PSU sold separately              Integrated Dual Port Intel® Ethernet Controller X540 (10 GbE) 6 PCI Express* 3.0 x8 (4 FHFL, 2 FHHL)              1 riser PCI Express 3.0 x8 LP, PCIe 2.0 x4 LP</p>
<b>R2312WTTYSR</b>	<p>Intel® Server Board S2600WTTR              12 x 3.5" hot-swap HDD, optional 2 x 2.5" SATA rear hot-swap drives, 2 x 2.5" fixed internal drives              1100 W AC redundant-capable PSU; second PSU sold separately              Integrated Dual Port Intel® Ethernet Controller X540 (10 GbE)              6 PCI Express* 3.0 x8 (4 FHFL, 2 FHHL)</p>

Product does not include memory, processors, or hard drives. For compatibility information please refer to the configuration guide at [www.intel.com/support](http://www.intel.com/support)

<sup>1</sup> Maximum memory speed supported depends on the processor used.

## Intel® Server Boards S1200SP–Based Systems Supporting the Intel® Xeon® Processor E3-1200 v6 Family

### RELIABLE, COST EFFECTIVE AND EASY TO MANAGE

Get Intel® Server Products built on a foundation of high-quality technology in the sixth generation Intel® Xeon® processor E3-1200 v6 family -based server system. The Intel® Server System R1000SP Family has the processing power to deliver reliability, durability and performance along with server management features and options for increased storage, functionality or faster networking speed. Intel® Server Products are backed by Intel's design excellence and manufacturing expertise to deliver processing power with high levels of flexibility, manageability and reliability.



<b>DESCRIPTION</b>	Robust and cost effective server s that can scale as customers grow. The Intel Server System R1000SP Family offers systems that scale via SATA and PCIe* expansion options, server management and storage flexibility at budget friendly prices.
<b>TARGET MARKET</b>	Small and medium businesses, embedded, storage or security appliances and web hosting rack installations
<b>SERVER BOARD INCLUDED</b>	<b>S1200SPOR: Rack optimized to support Intel® I/O Expansion Module and storage modules</b>
<b>PROCESSOR SUPPORT<sup>1</sup></b>	<b>1 x Intel® Xeon® processor E3-1200 v6 product family</b>
<b>TOTAL PCI SLOTS</b>	1
<b>PCI SLOT TYPES</b>	1 PCIe* Gen3 x8 with x16 connection
<b>MEMORY CAPACITY</b>	4 x DDR4 UDIMMs up to 2400 MHz ECC 64 GB max
<b>MODULE UPGRADES</b>	Intel® I/O Expansion Module Intel® Integrated RAID Module Intel® Remote Management Module 4 LITE2 Trusted Platform Module 1.2

### 1U RACK SYSTEMS

<b>Dimensions (H x W x D)</b>	1.7" x 17.26" x 23.84"
<b>System Cooling</b>	Fixed cooling fans
<b>Power Supply</b>	450 W Redundant (Gold Efficiency)
<b>Thermal Solution</b>	Sold separately
<b>Other Components</b>	Optional optical disk drive
<b>Warranty</b>	3 year limited warranty

### SPECIFIC SKUs

<b>R1208SPOSHORR</b>	8 x 2.5" hot-swap HDD Intel® Server Board S1200SPOR 2 x 450 W hot-swap Redundant PSU
<b>R1304SPOSHBNR</b>	4 x 3.5" hot-swap HDD Intel® Server Board S1200SPOR 1 x 350 W fixed PSU
<b>R1304SPOSHORR</b>	4 x 3.5" hot-swap HDD Intel® Server Board S1200SPOR 2 x 450 W hot-swap Redundant PSU

Product does not include memory, processors, or hard drives. For compatibility information please refer to the configuration guide at [www.intel.com/support](http://www.intel.com/support)

The Intel® Server Product Marketing Library is designed as a one-stop-shop for all Intel® Server Product marketing assets and sales tools. Visit <https://www.intelserveredge.com/>

For more information, visit [www.intel.com/go/serversystems](http://www.intel.com/go/serversystems)

<sup>1</sup> Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See [www.intel.com/products/processor\\_number](http://www.intel.com/products/processor_number) for details.

<sup>2</sup> High efficiency power supply.

<sup>3</sup> On interposer (need accessory kit AXXRMM4IOM or AXXRMM4IOMW).

All products and dates specified are preliminary based on current expectations and are subject to change without notice. Availability in different channels may vary.

For more complete information about performance and benchmark results, visit [www.intel.com/benchmarks](http://www.intel.com/benchmarks)

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at [www.intel.com/go/serversystems](http://www.intel.com/go/serversystems).

Intel, the Intel logo, Intel Inside, the Intel Inside logo, Intel Core, and Xeon are trademarks of Intel Corporation in the U.S. and/or other countries.

\* Other names and brands may be claimed as the property of others.



# INTEL<sup>®</sup> DATA CENTER BLOCKS (INTEL<sup>®</sup> DCB)

## ACCELERATING DATA CENTER TRANSFORMATION

### REDUCE COMPLEXITY AND DRIVE INNOVATION

Customer data centers today require unique server solutions that run complex, business-critical workloads. Increasingly, it takes more of your resources to develop those solutions. Intel<sup>®</sup> Data Center Blocks make it easier for you to adopt, qualify, and sell the latest Intel<sup>®</sup> technology, helping you address the demands of today's data centers.



# INTEL® DATA CENTER BLOCKS

Reduce complexity and speed time to market with unbranded, fully-validated data center blocks that feature Intel's latest technologies.



## HIGHER INTEGRATION AND VALIDATION FOR FASTER TIME-TO-MARKET

The world of computing is getting more complex. In order to help partners keep up with the rapid pace of technological demands, Intel is making it easier to adopt, qualify and sell the latest Intel technology with purpose-built Data Center Blocks. These fully-validated server building blocks feature the required Intel technology to deliver customized solutions that meet complex customer needs. Because these Data Center Blocks come with a higher level of integration and validation, partners can reallocate R&D resources to higher value activities and accelerate time to market with innovative solutions.

### Cloud and Software-Defined Infrastructure

Gain increased access to the private cloud and SDI market with fully-validated, server systems featuring the latest Intel® technologies and ISV software certifications.

### High Performance Computing (HPC)

Accelerate your growth in the HPC market with unbranded, semi-integrated 1 and 2U rack system options built-to-order for intensive workloads.

### Transform Business with Enterprise Performance

Grow and transform your business with pre-configured, fully validated server systems designed for the needs of business IT.

# INTEL® DATA CENTER BLOCKS FOR BUSINESS

## Intel® Data Center Block with Firmware Resilience

### Making It Easier to Deliver Competitive and Secure<sup>1</sup> Servers for Critical Infrastructure, Government, and Financial Institutions.

As security threats continue to evolve and increase, security IT officers are driving for a holistic and expanded view to protect their critical infrastructure. This includes protecting the server all the way down to the firmware at the lowest layers of the platform, where threats are most difficult to detect. While technologies exist to protect the higher layers of the infrastructure stack, system IT users need assurance that the underlying platform launching these security technologies can be trusted.

As hackers seek new ways to infiltrate servers, the lower layers of the platform, where threats are most difficult to detect become a more common target. To address this, Intel has developed the Intel® Data Center Block with Firmware Resilience. Featuring Intel® Platform Firmware Resilience technology, this preconfigured, validated server system enables platform security starting in the factory through power-on, system boot, OS load, and beyond<sup>1</sup>. With this offering, customers can protect firmware from being intercepted, detect firmware corruption, and automatically restore a system if malware is detected. The ability to correct firmware corruptions is a new and innovative capability, and an ideal solution for security-sensitive industries including government, financial institutions, and critical infrastructure.

Intel is simplifying adoption of this technology through fully-validated, configure-to-order systems featuring security-optimized Intel® Xeon® processor, Intel® Server Boards, Intel® Server Chassis, and multiple upgrade options to provide a solution that customers can deploy quickly and with confidence.

### Configure a system designed for your needs. Choose from three security-optimized processors and a variety of upgrade options.

Intel® Platform Firmware Resilience technology protects, detects critical firmware during boot and runtime attacks

2U Rack form factor:

Intel® Server Board S2600WTTTCR

Intel® Server Chassis R2000WT family; 2U chassis with 8 hot-swappable 2.5" drive trays, 1100W PSU

Choose from one of three Intel® Xeon® processor E5-2600 v4 versions enhanced to support Intel PFR

16GB memory included with option for up to 1.54T

RFID Antenna for Protect-In-Transit

Intel Fabric, Ethernet and RAID adapters

Up to 8 x Intel® SSD DC S3520 Series

Intel® Server Products hardware and accessories from supported families



<sup>1</sup> Intel® technologies features and benefits depend on system configuration and may require enabled hardware, software, or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer to learn more at intel.com.

## Software Guard Extensions Server Block

### CONTENT DELIVERY NETWORKS, CLOUD SERVICE PROVIDERS, COMMUNICATIONS NETWORKS, AND FINANCIAL INSTITUTIONS

The Software Guard Extensions Server Block is optimized for information security, featuring Intel's industry-leading cryptographic isolation technology - Intel® Software Guard Extensions (Intel® SGX). Intel® SGX provides CPU-hardened enclaves, or protected areas of execution in memory, that increase security for selected code and data on compromised platforms. The Software Guard Extensions Server Block is an unbranded server system designed to be a cost-effective cryptographic security solution that delivers enterprise-grade performance, reliability and security in an easy-to-manage system.

<b>PRODUCT</b>	Software Guard Extensions Server Block
<b>DESCRIPTION</b>	Pre-configured, fully validated 1U rack system, featuring Intel® Software Guard Extensions (Intel® SGX) for cryptographic security; includes the Intel® Server Board S1200SPOR, as well as other Intel components and 3rd party memory that can scale as customers grow via SATA and PCIe* expansion options for increased storage functionality or faster networking speed.
<b>ORDER CODE</b>	LR1304SPCFGX1
<b>TARGET MARKET</b>	Security optimized server for customers with high data protection needs
<b>SERVER BOARD</b>	Intel® Server Board S1200SPOR
<b>FORM FACTOR</b>	1U; microATX 9.6" x 9.6"
<b>PROCESSOR SUPPORT</b>	Single Intel® Xeon® processor E3-1270 v6, up to 72W TDP
<b>CHIPSET</b>	Intel® C236 chipset
<b>MEMORY</b>	64GB (4 x16GB), 2133MHZ, DDR4, UDIMM
<b>SATA PORTS</b>	One DH-10 Serial Port 'A' connector
<b>INTEGRATED LAN</b>	Dual 1GbE – Intel® i210
<b>MANAGEMENT SUPPORT</b>	Intel® Remote Management Module 4 Lite 2 (AXRMM4LITE2)
<b>CHASSIS</b>	Intel 1U chassis with hot-swappable 4 x 3.5" (2.5" SSD ready) drive trays, dual 450W redundant PSUs (R1304SPOSHOR)
<b>CHASSIS DIMENSIONS</b>	1.7 in (43.18 mm) x 17.26 in (438.5mm) x 21.06 in (548.9 mm) (Height x Width x Depth)
<b>SECURITY</b>	TPM 2.0 Module
<b>FANS</b>	Three managed 40mm single rotor system fans One fan for each installed power supply module
<b>STORAGE</b>	4 x 3.5" (2.5" SSD Ready) hot-swap drive bays 1 x optical drive bay
<b>UPGRADE OPTIONS</b>	Two Intel® SSD DC S3520 Series (1.2 TB, 2.5in. SATA 6Gb/s, 16nm, MLC) Intel® Integrated RAID Module options Intel® I/O Expansion Module options
<b>WARRANTY</b>	3 year limited warranty with options to expand to 5 years



## Intel® Data Center Blocks for Business - Entry Server Block

### ENTERPRISE PERFORMANCE FOR ENTRY NEEDS

In a highly competitive market, small enterprise and cloud service providers (CSPs) need a cost-effective server that delivers enterprise-grade performance, reliability and security in an easy-to-manage system. They also need solutions that are able to scale and be more agile, while also being competitively priced. To help address this demand, Intel is providing pre-configured, fully-validated Entry Server Blocks that will help accelerate time to market with server solutions optimized for the needs of small enterprises and CSPs. This 1U rack system includes Intel® components and 3rd party memory, in an unbranded offering that will help reduce the complexity and costs associated with designing, configuring and validating server solutions.

### ENTRY SERVER BLOCK FROM INTEL

<b>PRODUCT</b>	Intel® Data Center Blocks for Business - Entry Server Block
<b>DESCRIPTION</b>	Pre-configured, fully validated 1U rack system, featuring the Intel® Server Board S1200SPOR as well as other Intel components and 3rd party memory that can scale as customers grow via SATA and PCIe* expansion options for increased storage functionality or faster networking speed.
<b>ORDER CODE</b>	LR1304SPCFG1R
<b>TARGET MARKET</b>	Entry level server for small and medium businesses (SMBs), optimized for web hosting, enterprise applications and storage
<b>SERVER BOARD</b>	Intel® Server Board S1200SPOR
<b>FORM FACTOR</b>	1U; microATX 9.6" x 9.6"
<b>PROCESSOR SUPPORT</b>	Single Intel® Xeon® processor E3-1230 v6, up to 72W TDP
<b>CHIPSET</b>	Intel® C236 chipset
<b>MEMORY</b>	16GB (1 x16GB), 2133MHZ, DDR4, UDIMM
<b>SATA PORTS</b>	One DH-10 Serial Port 'A' connector
<b>INTEGRATED LAN</b>	Dual 1GbE – Intel® i210
<b>MANAGEMENT SUPPORT</b>	Intel® Remote Management Module 4 Lite 2 (AXXRM4LITE2)
<b>CHASSIS</b>	Intel 1U chassis with hot-swappable 4 x 3.5" (2.5" SSD ready) drive trays, dual 450W redundant PSUs (R1304SPOSHOR)
<b>CHASSIS DIMENSIONS</b>	1.7 in (43.18 mm) x 17.26 in (438.5mm) x 21.06 in (548.9 mm) (Height x Width x Depth)
<b>FANS</b>	Three managed 40mm single rotor system fans One fan for each installed power supply module
<b>STORAGE</b>	4 x 3.5" (2.5" SSD Ready) hot-swap drive bay, drives not included 1 x optical drive bay
<b>UPGRADE OPTIONS</b>	Up to 4x 2.5" SSD drives; Intel® Integrated RAID Module options; Intel® I/O Expansion Module options
<b>WARRANTY</b>	3 year limited warranty with options to expand to 5 years





## Intel® Data Center Blocks for Business - SMB Server Block

### ENTERPRISE PERFORMANCE FOR SMB NEEDS

In a highly competitive market, small and medium businesses need cost-effective IT solutions that deliver business-class performance, security, and manageability. Reduce design, testing and validation costs by taking advantage of fully-validated SMB Server Blocks from Intel. By starting with a higher-level of integration from Intel, you have more flexibility and choice about where to invest R&D spend to ensure you remain competitive and differentiated in the market.

### SMB SERVER BLOCK FROM INTEL

<b>PRODUCT</b>	Intel® Data Center Blocks for Business - SMB Server Block
<b>DESCRIPTION</b>	The SMB Server Block is a pre-configured, fully-validated, unbranded system based on Intel® Server Board S1200SPSR, Intel® Xeon® Processor E3-1230 v6, Intel® Server Chassis P4304XXSFCN and other Intel components designed specifically for the SMB market.
<b>ORDER CODE</b>	LSVRP4304ES6XXR
<b>TARGET MARKET</b>	Entry level server for small and medium businesses (SMBs)
<b>SERVER BOARD</b>	Intel® Server Board S1200SPSR
<b>FORM FACTOR</b>	microATX 9.6" x 9.6"
<b>PROCESSOR SUPPORT</b>	Single Intel® Xeon® processors E3-1230 v6
<b>CHIPSET</b>	Intel® C232 chipset
<b>MEMORY</b>	16GB (1 x16GB), 2133MHZ, DDR4, UDIMM
<b>MEMORY CAPACITY</b>	4 DIMMs, 64GB total
<b>SATA PORTS</b>	8-port
<b>INTEGRATED LAN</b>	Dual port integrated Intel® Ethernet Controller i210 (1 GbE)
<b>MANAGEMENT SUPPORT</b>	Intel® Server Management Software Integrated BMC with IPMI 2.0
<b>CHASSIS</b>	Intel® Server Chassis P4304XXSFCN
<b>CHASSIS DIMENSIONS</b>	17.24 in (438 mm) x 6.81 in (173mm) x 22.05 in (560 mm) (Height X Width X Depth)
<b>PSUs PER CHASSIS</b>	One 365W, fixed
<b>FANS</b>	One rear system fan
<b>STORAGE</b>	4x3.5" in fixed drive trays, no drives included
<b>UPGRADE OPTIONS</b>	4x DDR4 UDIMM 2133Mhz 4x 3.5"/2.5" drives
<b>WARRANTY</b>	3 year limited warranty



# INTEL® DATA CENTER BLOCKS FOR HPC

## Making the path to reliable HPC Solutions Easier

The process of configuring and validating the foundational components of an HPC solution that is tuned to meet specific customer requirements is a complex and resource intensive process. To help address these challenges, Intel provides high-quality, fully validated Data Center Blocks for HPC that can reduce complexity for resellers. These HPC Compute Blocks incorporate Intel's latest data center technologies - already optimized to work better together - allowing partners to accelerate time to market with reliable HPC solutions.

## HPC Compute Blocks

### BUILD TO ORDER

HPC Compute Blocks are build-to-order and embody the Intel® Scalable System Framework - a flexible blueprint for developing high performance, efficient and reliable HPC systems. These blocks capture the innovations taking place in compute, fabric, storage and memory in a building block optimized for HPC environments. This means partners can order based on the specific needs of their customer. By taking advantage of Intel's latest technologies, as well as world-class engineering and validation expertise, partners can build innovative solutions faster and with a lower total cost of ownership.

### MIX AND MATCH: BUILD YOUR OWN RACK

1U and 2U Rack form factors:
R1208WFTYS
R1304WF0YS, R1304WFTYS
R2208WFTZS, R2208WF0ZS, R2208WFQZS†, R2224WFTZS, R2224WFQZS†
R2308WFTZS, R2312WFTZS, R2312WF0NP, R2312WFQZS†
HNS2600BPB, HNS2600BPB24, HNS2600BPS, HNS2600BPS24, HNS2600BPQ, HNS2600BPQ24
HNS2600KPR, HNS2600KPFR
HNS2600TPR, HNS2600TP24R, HNS2600TP24SR, HNS2600TPFR
R1304WT2GSR, R1304WTTGSR
R1208WT2GSR, R1208WTTGSR
R2208WT2YSR, R2208WTTYC1R, R2208WTTYSR, R2224WTTYSR
R2308WTTYSR, R2312WTTYSR
HNS7200AP
Intel® Xeon® processor family
Intel® Xeon Phi™ processor family
Intel® Omni-Path Fabric
Intel Ethernet and RAID adapters
Intel® Server Products hardware and accessories from supported families

† Launching Q4 '17



## Intel® Data Center Blocks for HPC – LNET Router

### FULLY INTEGRATED AND VALIDATED PROVIDES “TURN KEY” SOLUTION

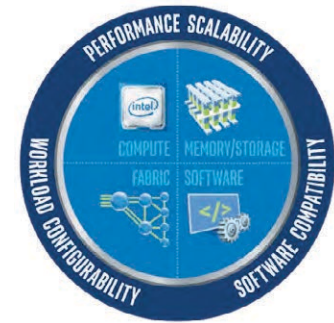
This fully-validated, integrated, and optimized system provides an efficient and turnkey approach to bridging Intel® Omni-Path Architecture (Intel® OPA) with existing InfiniBand\* infrastructure, enabling you to reap the scale benefits of Intel OPA without needing to rip and replace existing hardware or develop a custom routing solution. This saves valuable time and resources, allowing you to re-invest in other value-add software, services and applications.

### PRE-CONFIGURED AND FULLY VALIDATED BLOCKS WITH THE LATEST INTEL® HPC TECHNOLOGY

Powered by the Intel® Xeon® processor Scalable family
2 operating system options to choose: SUSE and CentOS
Multiple SKUs with different support options
Intel® Fabric Suite 10.5, Intel® Enterprise Edition for Lustre* Software 3.1
Intel® Omni-Path Host Fabric Interface Adapter 100 Series and FDR/EDR InfiniBand* Fabric
Intel® Solid State Drives (Intel® SSD)
Standard Intel 3-year warranty, with the option to extend parts of coverage to 5 years

### FEATURES

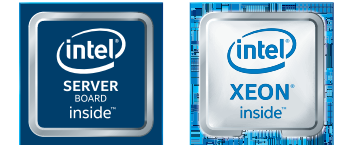
<b>SERVER BOARD</b>	Intel® Server Board S2600WFT (“Wolf Pass”)
<b>PROCESSOR</b>	Intel® Xeon® processor Scalable Family – Gold 6130, “Skylake-SP , XCC”, 16C, 2.1GHz, 125W
<b>NETWORK SUPPORT</b>	Dual 10G Copper, 1 GbE Management Port OmniPath 1x 100HFA016LS OPA HFI 100 series 1 port PCIe x16 FDR/EDR InfiniBand* Fabric: MCX455A-ECAT
<b>MEMORY</b>	RDIMM 16 GB – DDR4 288-pin, 2666MHz
<b>POWER SUPPLY</b>	1100W CRPS – AC, Platinum
<b>REMOTE MANAGEMENT MODULE</b>	AXXRMM4LITE
<b>FIRMWARE</b>	System BIOS: ME Firmware BMC Firmware: FRUSDR



# INTEL® DATA CENTER BLOCKS FOR CLOUD

## Intel® Data Center Blocks for Cloud – VMware\* (VSAN Ready Node)

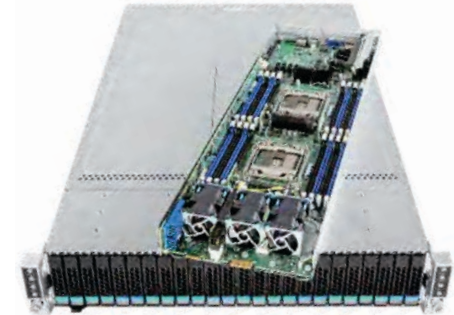
Designing, testing and validating an SDS solution can be a complex and resource-intensive process. Cloud Blocks for VMware are fully-validated, pre-configured server systems with VMware VSAN certifications included. Designed to address the challenges of storage modernization, this offering helps resellers reduce complexity and speed time to market.



### INTEL® DATA CENTER BLOCKS FOR CLOUD - VMWARE

<b>PRODUCT</b>	Intel® Data Center Blocks for Clouds - VMware (VSAN Ready Node)
<b>DESCRIPTION</b>	Intel Cloud Blocks for VMware are fully-validated, pre-configured server systems featuring the latest Intel technology, including Intel® Server Boards and Chassis, Intel® Xeon® Scalable processors, and Intel® Solid State Drives (SSDs), third-party memory and VMware VSAN certifications in configurations optimized for SDS solutions. These VSAN Ready Nodes from Intel are available in multiple All-Flash (AF) or Hybrid (HY) system configurations, each designed for specific workloads and use cases.
<b>TARGET MARKET</b>	Software-Defined Storage and Private Cloud. Recommended customer use cases include: Business-Critical Applications, Virtual Desktop Infrastructure, Disaster Recovery, Test and Development scenarios, and Enterprise Production Workloads.

ORDER CODES	VMWARE® VSAN PROFILE	INTEL® SERVER SYSTEM	FEATURES*
<b>HYBRID CONFIGURATIONS (Hard for capacity, SSDs for cache)</b>			
VRN2224THY2 <sup>2</sup>	Hybrid 2 (HY-2) <sup>2</sup>	2U 4 node Intel® Server Chassis H2224XXKR2 and Intel® Server Board S2600TPR	<ul style="list-style-type: none"> <li>• Up to 20 VMs and 4K IOPs per node</li> <li>• 2 TB raw storage capacity</li> <li>• Intel® Xeon® E5-2620 v4</li> <li>• 32 GB memory</li> </ul>
VRN2224THY42 <sup>2</sup>	Hybrid 4 (HY-4) <sup>2</sup>	2U 4 node Intel® Server Chassis H2224XXKR2 and Intel® Server Board S2600TPR	<ul style="list-style-type: none"> <li>• Up to 30 VMs and 10K IOPs per node</li> <li>• 4 TB raw storage capacity</li> <li>• Intel® Xeon® E5-2620 v4</li> <li>• 128 GB memory</li> </ul>
RN2224THY6 <sup>2</sup>	Hybrid 6 (HY-6) <sup>2</sup>	2U 4 node Intel® Server Chassis H2224XXKR2 and Intel® Server Board S2600TPR	<ul style="list-style-type: none"> <li>• Up to 50 VMs and 20K IOPs per node</li> <li>• 8 TB raw storage capacity</li> <li>• Intel® Xeon® E5-2680 v4</li> <li>• 256 GB memory</li> </ul>
VRN2208WHY8 <sup>2</sup>	Hybrid 8 (HY-8) <sup>2</sup>	2U 1 node Intel® Server System R2208WTTYSR with Intel® Server Board S2600WTTR	<ul style="list-style-type: none"> <li>• Up to 100 VMs and 40K IOPS per node</li> <li>• 12 TB raw storage capacity per node</li> <li>• Intel® Xeon® E5-2680 v4</li> <li>• 384 GB memory</li> </ul>
<b>ALL-FLASH CONFIGURATIONS (SATA SSDs for capacity, NVMe® SSDs for cache)</b>			
VRN2208WAF6 <sup>3</sup>	All-Flash 6 (AF-6) <sup>3</sup>	2U 1 node Intel® Server System R2208WTTYSR with Intel® Server Board S2600WTTR	<ul style="list-style-type: none"> <li>• Up to 60 VMs and 50K IOPs per node</li> <li>• 8 TB raw storage capacity</li> <li>• Intel® Xeon® E5-2680 v4</li> <li>• 256 GB memory</li> </ul>
VRN2208WAF8 <sup>3</sup>	All-Flash 8 (AF-8) <sup>3</sup>	2U 1 node Intel® Server System R2208WTTYSR with Intel® Server Board S2600WTTR	<ul style="list-style-type: none"> <li>• Up to 120 VMs and 80K IOPs per node</li> <li>• 12 TB raw storage capacity</li> <li>• Intel® Xeon® E5-2680 v4</li> <li>• 384 GB memory</li> </ul>



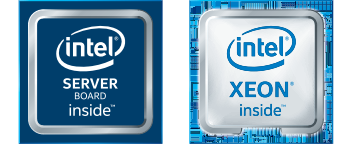
<sup>2</sup> 3rd party SW stack and HDD NOT included

<sup>3</sup> 3rd party SW stack NOT included

\* Other names and brands may be claimed as the property of others

## Intel® Data Center Blocks for Cloud - Microsoft Windows Server\* 2016

Designing, testing and validating an SDS solution can be a complex and resource-intensive process. Cloud Blocks for Microsoft\* are fully-validated, pre-configured server systems with Microsoft Windows Server 2016 certifications included. Designed to address the challenges of storage modernization, this offering helps resellers reduce complexity and speed time to market.



### CLOUD BLOCKS FROM INTEL

<b>PRODUCT</b>	Intel® Data Center Blocks for Cloud – Microsoft Windows Server* 2016
<b>DESCRIPTION</b>	Cloud Blocks for Microsoft Windows Server* 2016 are fully-validated, pre-configured server systems featuring the latest Intel® technology, including Intel® Server Boards and Chassis, Intel® Xeon® processors, and Intel® Solid State Drives (SSDs), as well as third-party memory and Windows Server 2016 certifications in configurations optimized for SDS solutions. These blocks are available in multiple All-Flash (AF) or Hybrid (HY) system configurations, each designed for specific workloads and use cases.
<b>TARGET MARKET</b>	Software-Defined Storage and Private Cloud. Recommended customer use cases include: Business-Critical Applications, Virtual Desktop Infrastructure, Disaster Recovery, Test and Development scenarios, and Enterprise Production Workloads.

ORDER CODES	INTEL® SERVER SYSTEM	FEATURES*
<b>ALL-FLASH CONFIGURATIONS (SATA SSDs for capacity, NVMe® SSDs for cache)</b>		
MCB2208WFAF6 <sup>3</sup>	2U 1 node Intel® Server System R2208WFOZS and Intel® Server Board S2600WFO	<ul style="list-style-type: none"> <li>• 24 TB raw storage capacity</li> <li>• Intel® Xeon® Gold 6152 processor</li> <li>• 768 GB memory</li> </ul>
MCB2208WFAF5 <sup>3</sup>	2U 1 node Intel® Server System R2208WFOZS and Intel® Server Board S2600WFO	<ul style="list-style-type: none"> <li>• 12 TB raw storage capacity</li> <li>• Intel® Xeon® Gold 5120 processor</li> <li>• 384 GB memory</li> </ul>
MCB2208WFAF4 <sup>3</sup>	2U 1 node Intel® Server System R2208WFOZS and Intel® Server Board S2600WFO	<ul style="list-style-type: none"> <li>• 11.5 TB raw storage capacity</li> <li>• Intel® Xeon® Gold 5118 processor</li> <li>• 384 GB memory</li> </ul>
MCB2224BPAF3 <sup>3</sup>	2U 4 node Intel® Server Chassis H2224XXLR3 and Intel® Server Board S2600BPS	<ul style="list-style-type: none"> <li>• 7.7 TB raw storage capacity per node</li> <li>• Intel® Xeon® Gold 5118 processor</li> <li>• 256 GB memory</li> </ul>
<b>HYBRID CONFIGURATIONS (Hard drives for capacity, SSDs for cache)</b>		
MCB2208WFHY2 <sup>2</sup>	2U 1 node Intel® Server System R2208WFOZS and Intel® Server Board S2600WFO	<ul style="list-style-type: none"> <li>• 12 TB raw storage capacity</li> <li>• Intel® Xeon® Gold 5118 processor</li> <li>• 128 GB memory</li> </ul>
MCB2224BPHY1 <sup>2</sup>	2U 4 node Intel® Server Chassis H2224XXLR3 and Intel® Server Board S2600BPS	<ul style="list-style-type: none"> <li>• 8 TB raw storage capacity per node</li> <li>• Intel® Xeon® Gold 5115 processor</li> <li>• 128 GB memory</li> </ul>



<sup>2</sup> 3rd party SW stack and HDD NOT included

<sup>3</sup> 3rd party SW stack NOT included

<sup>4</sup> Virtual Machine count modeled after Microsoft Azure A2 Basic compute instance with Hyper-threading, no oversubscription of any components (CPU, memory and storage).

\* Other names and brands may be claimed as the property of others

The Intel® Server Product Marketing Library is designed as a one-stop-shop for all Intel® Server Product marketing assets and sales tools. Visit <https://www.intelserveredge.com/>

For more information, visit [www.intel.com/dcb](http://www.intel.com/dcb) or [ark.intel.com](http://ark.intel.com)

All products and dates specified are preliminary based on current expectations and are subject to change without notice. Availability in different channels may vary.

For more complete information about performance and benchmark results, visit [www.intel.com/benchmarks](http://www.intel.com/benchmarks)

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at [www.intel.com/products/server/chassis](http://www.intel.com/products/server/chassis) or [ark.intel.com](http://ark.intel.com).

Intel and the Intel logo are trademarks of Intel Corporation in the U.S. and/or other countries.

\* Other names and brands may be claimed as the property of others.

© 2017 Intel Corporation



# INTEL® SERVER CHASSIS

**QUALITY.  
RELIABILITY.  
SECURITY.**

## **1U/2U RACK**

New flexible and highly serviceable 1U and 2U rack chassis targeted for cloud and datacenter environments support custom form factor server boards. Find high-density, 2U rackable chassis supporting up to 4 hot-pluggable Intel® Compute Modules up to 24 2.5 inch hot-swap drives or up to 12 3.5 inch hot-swap drives.

## **TOWER CHASSIS**

Pedestal chassis ideal for small and medium business environments and purpose-built appliances.



# INTEL® SERVER CHASSIS

Designed for quality, reliability, and security. Delivering building blocks for reliable solutions.

## 1U/2U RACK

New flexible and highly serviceable 1U and 2U rack chassis targeted for cloud and datacenter environments support custom form factor server boards. Find high-density, 2U rackable chassis supporting up to 4 hot-pluggable Intel® Compute Modules up to 24 2.5 inch hot-swap drives or up to 12 3.5 inch hot-swap drives.

## TOWER CHASSIS

Pedestal chassis ideal for small and medium business environments and purpose-built appliances.



# INTEL® SERVER CHASSIS H2000G FAMILY FOR THE INTEL® XEON® SCALABLE PROCESSOR



INTEL® SERVER CHASSIS H2000G FAMILY<sup>3</sup>

<b>CHASSIS</b>	2U rack chassis supporting up to 4 hot-pluggable Intel® Compute Module HNS2600BPB24, HNS2600BPQ24 or HNS2600BPS24, 24 2.5" hot-swap drives, and 2 2130 W AC Platinum efficiency common redundant power supplies	2U rack chassis supporting up to 4 hot-pluggable Intel® Compute Module HNS2600BPB, HNS2600BPQ, or HNS2600BPS, up to 4 2.5" hot-swap drives and 2 2130 W AC Platinum efficiency common redundant power supplies	High-density, 2U rackable chassis supporting up to 4 hot-pluggable Intel® Compute Module HNS2600BPB, HNS2600BPQ, HNS2600BPS up to 12 3.5" hot-swap drives and two 2130 W AC Platinum efficiency common redundant power supplies
<b>TARGET MARKET</b>	Hyper-converged infrastructure, Cloud, Datacenter		
<b>MODEL</b>	24 2.5" hot-swap drives	4 2.5" hot-swap drives	3.5" Hot-swap drive model
<b>COMPUTE MODULE SUPPORT<sup>1</sup></b>	HNS2600BP24		
<b>CHASSIS ORDER CODE<sup>1</sup></b>	<b>H2224XXLR3</b>	<b>H2204XXLRE:</b> Available only as part of the HPC Data Center Block offering	<b>H2312XXLR3</b>
<b>SPARES KIT ORDER CODE<sup>2</sup></b>	<p><b>AHWBPBGB24:</b> 6-Port IT Bridge Board with LSI* 3008 IOC, 6G SATA / 12G SAS, 2 NVMe* drives (pass-through), no RAID</p> <p><b>AHWBPBGB24R:</b> 6-Port iMR Bridge Board with LSI 3008 IOC, 6G SATA / 12G SAS, RAID, 2 NVMe drives (pass-through), RAID 0/1/10</p> <p><b>AHWBPBGB24P:</b> 6-Port Add-In-Card (AIC) pass-through Bridge Board; Must be used in combination with an add-in RAID card to be functional</p>	<p><b>AHWBPBGB:</b> 4-Port SATA SW RAID Bridge Board, 6G SATA only, no RAID</p> <p><b>AHWBP12GBGB:</b> 4-Port Bridge Board with LSI 3008 IOC, 6G SATA / 12G SAS, RAID 0/1/10</p> <p><b>AHWBP12GBGBR5:</b> 4-Port iMR Bridge Board with LSI 3008 IOC, 6G SATA / 12G SAS, RAID 0/1/5/10</p>	<p><b>AHWBPBGB:</b> 4-Port SATA SW RAID Bridge Board, 6G SATA Only, no RAID</p> <p><b>AHWBP12GBGB:</b> 4-Port Bridge Board with LSI* 3008 IOC, 6G SATA / 12G SAS, RAID 0/1/10</p> <p><b>AHWBP12GBGBR5:</b> 4-Port iMR Bridge Board with LSI 3008 IOC, 6G SATA / 12G SAS, RAID 0/1/5/10</p>
<b>FORM FACTOR</b>	2U Rack		
<b>DRIVE BAYS</b>	Supports up to 24 2.5" hot-swap SAS / SATA drives	Supports up to four 2.5" hot-swap SAS / SATA drives	Up to 12 2.5" or 3.5" hot-swap SAS / SATA drives
<b>HOT-SWAP DISK DRIVE BAY (ORDER CODE)</b>	Included		
<b>NVMe*</b>	Support up to 8 2.5" PCIe* SFF devices	None	N/A
<b>SYSTEM COOLING</b>	3 x 40mm x 56mm dual rotor fans per module		
<b>POWER SUPPLIES</b>	2 Common redundant 2130 W AC (Platinum Efficiency)		
<b>TOOL-LESS FEATURES</b>	PSU, Compute module, HDD bays are all hot-swap		
<b>DIMENSIONS (H x W x D)</b>	3.46" x 17.24" x 28.86"	3.46" x 17.24" x 30.35"	
<b>BEZEL FEATURES</b>	Black, independent front panel controls for each individual module		
<b>FRONT CONNECTORS</b>	N/A		
<b>SYSTEM SECURITY</b>	Protection for chassis drives with a lock to the chassis		

# INTEL® SERVER CHASSIS H2000G FAMILY FOR THE INTEL® XEON® PROCESSOR E5-V4



## INTEL® SERVER CHASSIS H2000G FAMILY<sup>3</sup>

<b>CHASSIS</b>	2U rack chassis supporting up to four hot-pluggable Intel® Compute Module HNS2600TP24R, HNS2600TP24SR or HNS2600TP24STR up to 24 2.5" hot-swap drives and two 1600W common redundant power supplies.	2U rack chassis supporting up to four hot-pluggable Intel® Compute Module NS2600TP24R, HNS2600TP24SR or HNS2600TP24STR up to 24 2.5" hot-swap drives and two 2130 W common redundant power supplies.
<b>TARGET MARKET</b>	Hyper-converged infrastructure/Cloud/Datacenter	
<b>MODEL</b>	4 2.5" hot-swap drives, including support for up to eight 2.5" PCIe* small form factor (SFF) devices	
<b>INTEL® SERVER BOARD SUPPORT<sup>1</sup></b>	HNS2600TP24R, HNS2600TP24SR	
<b>CHASSIS ORDER CODE<sup>1</sup></b>	<b>H2224XXKR2</b>	<b>H2224XXLR2</b>
<b>SPARES KIT ORDER CODE<sup>2</sup></b>	24 x 2.5" Backplane: FHW24X25HS12G Power interposer board: FXXCRPSPIB Power docking board: FH2000NPB24 Bridge board: FHWKPTPBGB24	24 x 2.5" Backplane: FHW24X25HS12G Bridge board: FHWKPTPBGB24 Front control panel kit: FH2000FPANEL2 Power distribution board: FXXCRPSPDB2 Power board: FH2000NPB24 Power in backplane bridge board module: FXXCRPSPIB
<b>FORM FACTOR</b>	2U Rack	
<b>DRIVE BAYS</b>	Supports up to twenty-four 2.5" hot-swap SAS drives	
<b>HOT-SWAP DISK DRIVE BAY (ORDER CODE)</b>	Included	
<b>NVMe*</b>	Support up to eight 2.5" PCIe* SFF devices	
<b>SYSTEM COOLING</b>	3 x 40mm x 56mm dual rotor fans per module	
<b>POWER SUPPLIES</b>	(2) Common Redundant 1600 W (Platinum Efficiency)	
<b>I/O SLOTS</b>	Up to 2	
<b>BACKPLANE</b>	Included combination backplane with PCIe* SFF device support	
<b>TOOL-LESS FEATURES</b>	PSU, Compute module, HDD bays are all hot-swap	
<b>DIMENSIONS (H x W x D)</b>	3.46" x 17.24" x 28.86"	
<b>BEZEL FEATURES</b>	Black, independent front panel controls for each individual module	
<b>FRONT CONNECTORS</b>	N/A	
<b>SYSTEM SECURITY</b>	Protection for chassis drives with a lock to the chassis	

# INTEL® SERVER CHASSIS H2000G FAMILY FOR THE INTEL® XEON® PROCESSOR E5-V4



## INTEL® SERVER CHASSIS H2000G FAMILY<sup>3</sup>

<b>CHASSIS</b>	High-density, 2U rackable chassis supporting up to four half-width Intel® Compute Modules.	
<b>MODEL</b>	3.5" drive model	2.5" drive model
<b>INTEL® SERVER BOARD SUPPORT<sup>1</sup></b>	HNS2600KPR, HNS2600KPFR HNS2600TPR, HNS2600TPFR	
<b>CHASSIS ORDER CODE<sup>1</sup></b>	<b>H2312XXKR2</b>	<b>H2216XXKR2</b>
<b>SPARES KIT ORDER CODE<sup>2</sup></b>	12 x 3.5" Backplane: FHW12X35HS12G 1600 W PSU Spare: FXX1600PCRPS Bridge Board: FHWKPTPBGB Control Panel Spare: FH2000FPANEL2 Node Power Board: FH2000NPB2 Power Distribution Board Spares: FXXCRPSPDB2	16 x 2.5" Backplane: FHW16X25HS12G 1600 W PSU Spare: FXX1600PCRPS Bridge Board: FHWKPTPBGB Control Panel Spare: FH2000FPANEL2 Node Power Board: FH2000NPB2 Power Distribution Board Spares: FXXCRPSPDB2
<b>FORM FACTOR</b>	2U Rack	
<b>DRIVE BAYS</b>	Up to twelve 2.5" or 3.5" hot-swap SAS / SATA drives	Up to sixteen 2.5" hot-swap SAS / SATA drives
<b>HOT-SWAP DISK DRIVE BAY (ORDER CODE)</b>	FXX35HSCAR	FXX25HSCAR
<b>NVMe*</b>	N/A	
<b>SYSTEM COOLING</b>	3 x 40mm x 56mm dual rotor fans per module	
<b>POWER SUPPLIES</b>	(2) Common Redundant 1600 W (Platinum Efficiency)	
<b>I/O SLOTS</b>	Up to 2	
<b>BACKPLANE</b>	Included	
<b>TOOL-LESS FEATURES</b>	PSU, Compute module, HDD bays are all hot-swap	
<b>DIMENSIONS (H x W x D)</b>	3.42" x 17.24" x 30.35" (87mm x 438mm x 771mm)	3.42" x 17.24" x 28.86" (87mm x 438mm x 771mm)
<b>BEZEL FEATURES</b>	Black, independent front panel controls for each individual module	
<b>FRONT CONNECTORS</b>	N/A	
<b>SYSTEM SECURITY</b>	Protection for chassis drives with a lock to the chassis	

# INTEL® SERVER CHASSIS H2000G FAMILY FOR THE INTEL® XEON PHI™ PROCESSOR



## INTEL® SERVER CHASSIS H2000G FAMILY<sup>3</sup>

<b>CHASSIS</b>	High-density, 2U rackable chassis supporting up to four half-width Intel® Compute Modules.	
<b>MODEL</b>	3.5" drive model	2.5" drive model
<b>INTEL® SERVER BOARD SUPPORT<sup>1</sup></b>	HNS7200AP HNS7200APL HNS2600KPR, HNS2600KPFR HNS2600TPR, HNS2600TPFR	
<b>CHASSIS ORDER CODE<sup>1</sup></b>	<b>H2312XXLR2</b>	<b>H2216XXLR2</b>
<b>SPARES KIT ORDER CODE<sup>2</sup></b>	12 x 3.5" Backplane: FHW12X35HS12G 2130 W PSU Spare: FXX2130PCRPS Control Panel Spare: FH2000FPANEL2 Node Power Board: FH2000NPB2 Power Distribution Board Spare: FXXCRPSPDB2 Passive Heat-Sink: AXXAPHS Intel® Omni-Path Port Upgrade Kit (2 Port): AXX2PFABKIT 1U Spare PCIe Riser (Slot 2): FHW1U20APRISER 1U PCI Express x16 riser card for Slot 1: FHW1U16APRISER 1U PCI Express x16 riser card for Slot 2: FHW1U20APRISER 1U PCI Express x4 riser card for Slot 2: FHW1U4APRISER Bridge Board Spare: FHWAPBGB	16 x 2.5" Backplane: FHW16X25HS12G 2130 W PSU Spare: FXX2130PCRPS Control Panel Spare: FH2000FPANEL2 Node Power Board: FH2000NPB2 Power Distribution Board Spare: FXXCRPSPDB2 Passive Heat-Sink: AXXAPHS Intel® Omni-Path Port Upgrade Kit (2 Port): AXX2PFABKIT 1U Spare PCIe Riser (Slot 2): FHW1U20APRISER 1U PCI Express x16 riser card for Slot 1: FHW1U16APRISER 1U PCI Express x16 riser card for Slot 2: FHW1U20APRISER 1U PCI Express x4 riser card for Slot 2: FHW1U4APRISER Bridge Board Spare: FHWAPBGB
<b>FORM FACTOR</b>	2U Rack	
<b>DRIVE BAYS</b>	Up to twelve 2.5" or 3.5" hot-swap SAS / SATA drives	Up to sixteen 2.5" hot-swap SAS / SATA drives
<b>HOT-SWAP DISK DRIVE BAY (ORDER CODE)</b>	FXX35HSCAR	FXX25HSCAR
<b>NVMe*</b>	N/A	
<b>SYSTEM COOLING</b>	3 x 40mm x 56mm dual rotor fans per module	
<b>POWER SUPPLIES</b>	(2) Common Redundant 2130 W (Platinum Efficiency)	
<b>I/O SLOTS</b>	Up to 2	
<b>BACKPLANE</b>	Included	
<b>TOOL-LESS FEATURES</b>	PSU, Compute module, HDD bays are all hot-swap	
<b>DIMENSIONS (H x W x D)</b>	3.42" x 17.24" x 30.35" (87mm x 438mm x 771mm)	3.42" x 17.24" x 28.86" (87mm x 438mm x 771mm)
<b>BEZEL FEATURES</b>	Black, independent front panel controls for each individual module	
<b>FRONT CONNECTORS</b>	N/A	
<b>SYSTEM SECURITY</b>	Protection for chassis drives with a lock to the chassis	

# INTEL® SERVER CHASSIS R1000WF AND INTEL® SERVER CHASSIS R1000WT FAMILIES

The Intel® Server Chassis R1000WF and Intel® Server Chassis R1000WT families support the Intel® Server Board S2600WF family and Intel® Server Board S2600WT family, respectively. See the Accessories and Spares section of the chosen Intel Server Board configuration guide for recommended part numbers.



INTEL® SERVER CHASSIS R1000WF FAMILY



INTEL® SERVER CHASSIS R1000WT FAMILY

<b>CHASSIS</b>	Flexible and highly serviceable 1U and 2U rack chassis targeted for cloud and datacenter environments supporting custom form factor server boards.	
<b>MODEL</b>	Hot-swap drive models	
<b>INTEL® SERVER BOARD SUPPORT<sup>1</sup></b>	S2600WFT, S2600WF0, S2600WFQ <sup>1</sup>	S2600WT2R, S2600WTTR
<b>CHASSIS ORDER CODE<sup>1</sup></b>	<b>R1304WFXXX</b>	<b>R1208WTXXX</b> <b>R1304WTXXX</b>
<b>SPARES KIT ORDER CODE<sup>2</sup></b>	1U riser for PCI Express* 3.0 x16 FHHL: F1UL16RISER3 SAS cables depend on usage model, reference Configuration Guide	
<b>FORM FACTOR</b>	1U Rack	
<b>DRIVE BAYS</b>	<b>R1304WTXXX:</b> Up to four 2.5" or 3.5" hot-swap SAS / SATA drives <b>Optional:</b> Fixed-mount SSD in optical drive bay (requires AXXSSDODDKIT accessory)	<b>R1208WTXXX:</b> Up to eight 2.5" hot-swap SAS / SATA drives, up to 4 PCI Express SSD with optional accessory (A1U44X25NVMEDK) <b>R1304WTXXX:</b> Up to four 2.5" or 3.5" hot-swap SAS / SATA drives <b>Optional:</b> Fixed-mount SSD in optical drive bay (requires AXXSSDODDKIT accessory)
<b>HOT-SWAP DISK DRIVE BAY (ORDER CODE)</b>	Included	
<b>SYSTEM COOLING</b>	6 x 40mm internal redundant chassis fans	
<b>POWER SUPPLIES</b>	(2) Common Redundant 1100 W AC (Platinum Efficiency) (2) Common Redundant 750 W DC -48V (Gold Efficiency) NOTE: Power supply sold separately	
<b>I/O SLOTS</b>	Up to 2 PCI Express 3.0 x8 (HLFH) with purchase of risers F1UL16RISER2, Intel® I/O Expansion module, SAS module	
<b>BACKPLANE</b>	Included	
<b>TOOL-LESS FEATURES</b>	Front bezel, PCI card retainer, peripheral bays, PSU installation, and fixed drive carriers	
<b>DIMENSIONS (H x W x D)</b>	Rack: 17.25" x 1.72" x 28" (438mm x 44mm x 711mm)	
<b>BEZEL FEATURES</b>	Black, control panel, two USB ports	
<b>FRONT CONNECTORS</b>	2 x USB	
<b>SYSTEM SECURITY</b>	Locking bezel and chassis intrusion	

<sup>1</sup>Q SKU launches Q4'17

For more information, visit [www.intel.com/products/server/chassis](http://www.intel.com/products/server/chassis) or [ark.intel.com](http://ark.intel.com)

# INTEL® SERVER CHASSIS R2000WF AND INTEL® SERVER CHASSIS R2000WT FAMILIES

The Intel® Server Chassis R2000WF and Intel® Server Chassis R2000WT families support the Intel® Server Board S2600WF family and Intel® Server Board S2600WT family, respectively. See the Accessories and Spares section of the chosen Intel Server Board configuration guide for recommended part numbers.



INTEL® SERVER CHASSIS R2000WF FAMILY



INTEL® SERVER CHASSIS R2000WT FAMILY

<b>CHASSIS</b>	Flexible and highly serviceable 1U and 2U rack chassis targeted for cloud and datacenter environments supporting custom form factor server boards.	
<b>MODEL</b>	Hot-swap drive models	
<b>INTEL® SERVER BOARD SUPPORT<sup>1</sup></b>	S2600WFT, S2600WF0	S2600WT2R, S2600WTTR
<b>CHASSIS ORDER CODE<sup>1</sup></b>	<b>R2000WFXXX</b>	<b>R2000WTXXX</b> <b>R2312WTXXX</b>
<b>SPARES KIT ORDER CODE<sup>2</sup></b>	Accessory 2U Hot-swap Drive Cage Upgrade Kit with 4x NVMe SSD support: A2U44X25NVMEDK 2U 3 slot riser for PCI Express* 3.0 x8: A2UL8RISER2 2U short riser PCI Express 3.0 x8, PCI Express x4: A2UX8X4RISER Accessory 2U 2 slot riser for PCI Express 3.0 x16: A2UL16RISER2 Rear 2-drive cage accessory: A2UREARHSDK SAS cables depend on usage model, reference Configuration Guide See Configuration Guide for detailed list of Spares and Accessories	
<b>FORM FACTOR</b>	2U Rack	
<b>DRIVE BAYS</b>	<b>R2000FTXXX:</b> Requires accessory bays to support hot-swap drives, support for 2.5" SSDs, optional 2 x 2.5" rear hot-swap drives available with accessory (A2UREARHSDK) <b>Optional:</b> 4 x 2.5" NVM Express* (PCI Express SSDs) available with accessory (A2U44X25NVMEDK)	<b>R2312WTXXX:</b> Up to 12 x 3.5" hot-swap SAS / SATA drives, support for 2.5" SSDs, optional 2 x 2.5" rear hot-swap drives available with accessory (A2UREARHSDK) <b>R2000WTXXX:</b> Requires accessory bays to support hot-swap drives, support for 2.5" SSDs, optional 2 x 2.5" rear hot-swap drives available with accessory (A2UREARHSDK)
<b>HOT-SWAP DISK DRIVE BAY (ORDER CODE)</b>	A2U8X35S3PHSDK1: 8 x 2.5" drives (Single port) A2U8X35S3PHSDK1(x3), Storage rack handle A2UHANDLKIT2 for 24 x 2.5" drives (Single port) A2U8X25S3DPDK2: Dual port drive cage kit supports dual port SAS drives up to 24 drives	A2U8X25S3HSDK: 8 x 2.5" drives (Single port) A2U8X25S3HSDK (x3), Storage rack handle A2UHANDLKIT for 24 x 2.5" drives (Single port) A2U8X35S3HSDK: 8 x 3.5" drives A2U44X25NVMEDK: Upgrade kit supporting up to 4 x 2.5" NVMe* drives, optional 8 x 2.5" HDD backplane A2U8X25S3DPDK: Dual port drive cage kit supports dual port SAS drives up to 24 drives
<b>SYSTEM COOLING</b>	See Configuration Guide for detailed list of cables needed 6 x 80mm internal redundant and hot-swap chassis fans	
<b>POWER SUPPLIES</b>	(2) Common Redundant 1300 W AC (Titanium Efficiency) (2) Common Redundant 750 W DC -48V (Gold Efficiency) (2) Common Redundant 1100 W AC (Platinum Efficiency) NOTE: Power supply sold separately	(2) Common Redundant 750 W AC (Platinum Efficiency)
<b>I/O SLOTS</b>	Up to 8 x PCI Express 3.0 with purchase of risers: 2 x A2UL8RISER2 and 1 x A2UX8X4RISER	
<b>BACKPLANE</b>	R2000WFXXX: See 'Drive Bays'	R2312WTXXX: Included R2000WTXXX: See 'Drive Bays'
<b>TOOL-LESS FEATURES</b>	Front bezel, top cover, PCI card retainer, fans, hot-swap drive carriers, hot-swap drive bays, peripheral bays, and PSU installation	
<b>DIMENSIONS (H x W x D)</b>	Rack: 17.25" x 3.44" x 28" (438mm x 87mm x 711mm)	
<b>BEZEL FEATURES</b>	Black, control panel, security lock, two USB ports	
<b>FRONT CONNECTORS</b>	2 x USB	
<b>SYSTEM SECURITY</b>	Locking bezel and chassis intrusion	

# INTEL® SERVER CHASSIS P4000M FAMILY FOR THE INTEL® XEON® SCALABLE PROCESSOR AND INTEL® XEON® PROCESSOR E5-V4

Intel® Server Chassis P4000 series requires the separate purchase of a thermal solution kit and air duct specific to the Intel® Server Board selected. See the Accessories and Spares section of the chosen Intel Server Board configuration guide for recommended part numbers. Other boxed Intel® Thermal Solutions are mechanically compatible with the processor socket but are not thermally validated in Intel Server Chassis.



## INTEL® SERVER CHASSIS P4000 FAMILY

<b>CHASSIS</b>	A sleek and flexible mid-length tower chassis targeted at small- to medium-sized businesses supporting custom form factor server boards.	
<b>MODEL</b>	Fixed drive models (upgradeable to hot-swap drive support)	
<b>INTEL® SERVER BOARD SUPPORT<sup>1</sup></b>	S2600STB, S2600STS, S2600CW2R, S2600CWTR, S2600CW2SR, S2600CWTSR	
<b>CHASSIS ORDER CODE<sup>1</sup></b>	<b>P4304XXMFEN2, P4304XXMUXX</b>	
<b>SPARES KIT ORDER CODE<sup>2</sup></b>	120mm Fixed Fan PCI area: FUPMNHFANPCI 120mm Fixed Fan for CPU area: FUPNHFANCPU 1600 W Common Redundant Power Supply: FXX1600PCRP Accessory kit enables support for 2.5" FF PCI Express* 3.0 SSDs (NVMe): FUP8X25S3NVDK Bezel Spare for P4000 Chassis Supporting Fixed HDD: FUPCRPSCAGE Bracket and Extension Kit for P4000M Chassis Family: AUPMCOPROBR Front bezel with door: FUPBEZELHSD2	High Current P4000 Family Chassis Power Distribution Board Spare: FUPPDBHC2 hot-swap Drive Cage: FXX25SHCAR Redundant Power Supply Cage for Intel® Server Chassis P4000 Family: FUPCRPSCAGE SRC-B tower passive heat sink 92mm x 100mm: AUPCWPBTP Spare 3.5" Fixed HDD Carriers: FUP4X35NHDK Spare hot-swap Fan Kit for Intel® Server Chassis P4000M: FUPMLHSFAN
<b>FORM FACTOR</b>	4U Tower (rackable)	
<b>DRIVE BAYS</b>	Up to 4 x 3.5" fixed drives, optional 4 or 8 x 3.5" or 8 or 16 x 2.5" hot-swap drive bay (2.5" configurations also support up to 4x PCIe 3.0 SSD's)	
<b>HOT-SWAP DISK DRIVE BAY (ORDER CODE)</b>	Upgrade: Convert up to 8 SAS / SATA hot-swap drive bays using the upgrade kit: (FUP8X25HSDK) Upgrade: Convert up to 8 hot-swap PCI Express* drive cages to support 2.5" FF PCIe SSDs (NVMe*): FUP8X25S3NVDK	
<b>SYSTEM COOLING</b>	P4304XXMFEN2: 2 x 120mm Internal fixed chassis fans P4304XXMUXX: 5 x 80mm Redundant hot-swap internal chassis fans	
<b>POWER SUPPLIES</b>	P4308XXMFEN2: (1) Fixed Non-redundant 550 W (Silver Efficiency) P4304XXMUXX: (2) Common Redundant 750 W (Platinum Efficiency) or (2) Common Redundant 1600 W (Platinum Efficiency) sold separately	
<b>I/O SLOTS</b>	Up to 6	
<b>BACKPLANE</b>	None included	
<b>TOOL-LESS FEATURES</b>	Front bezel, EMI cover, side cover, PCI card retainer, peripheral bays, PSU installation, and fixed drive carriers	
<b>DIMENSIONS (H x W x D)</b>	Tower: 17.24" x 6.81" x 24.9" (438mm x 173mm x 632mm)	
<b>BEZEL FEATURES</b>	Black, control panel, two USB ports	
<b>FRONT CONNECTORS</b>	2 x USB	
<b>SYSTEM SECURITY</b>	Locking bezel and chassis intrusion	



### INTEL® SERVER CHASSIS P4000S FAMILY

<b>CHASSIS</b>	A general purpose 4U tower chassis supporting the Intel® Server Board S1200SP family with up to four 3.5" fixed drives, two 460W common redundant power supplies optimized for thermal and acoustic performance.	A general purpose tower chassis optimized for thermal and acoustic performance.	
<b>MODEL</b>	4 x 3.5" Fixed drives	Fixed drive models	Hot-swap drive models
<b>INTEL® SERVER BOARD SUPPORT<sup>1</sup></b>	S1200SPLR, S1200SPSR		
<b>CHASSIS ORDER CODE<sup>1</sup></b>	<b>P4000XXSFDR</b>	<b>P4304XXSFCN</b>	<b>P4304XXSHCN</b>
<b>SPARES KIT ORDER CODE<sup>2</sup></b>	Front Panel board: FXXFPANELR Power Distribution Board: AP4000E3V5PDB 4 x 3.5" 6Gb/s hard drive hot-swap backplane: FUP4X35HSBP 8 x 3.5" 6Gb/s hard drive hot-swap backplane: FUP8X35HSBP 4 x 3.5" 12Gb/s hard drive hot-swap backplane: FUP4X35S3HSBP 460W Cold redundant power supply: FXX460GCRPS	Mechanical Spares Kit: FUPSMSK Electrical Spares Kit: FUPSESK Air ducts sold separately based on board purchased	
<b>FORM FACTOR</b>	4U Tower		
<b>DRIVE BAYS</b>	Up to four 3.5" fixed drives	Up to four 3.5" fixed SAS / SATA drives	Up to four 3.5" hot-swap SAS / SATA drives
<b>HOT-SWAP DISK DRIVE BAY (ORDER CODE)</b>	Hot-swap 6Gbps SATA drives: FUP4X35HSDK Hot-swap 6Gbps SATA drives: FUP8X35HSDK Hot-swap 12Gbps SAS drives: FUP4X35S3HSDK Hot-swap 12Gbps SAS drives: 2x FUP4X35S3HSDK	Upgrade: convert to four slot hot-swap drive bays using the following Drive Bay upgrade kit: (FUP4X35HSDK), supports four SAS / SATA hot-swap drives	Share the same hot-swap drive bay kit (FUP4X35HSDK), use as a spare
<b>SYSTEM COOLING</b>	(2) 92mm fixed fans (one PCIe* zone and one rear system fan)	2 x 92mm internal chassis fan (single fan in P4304XXSFCN)	2 x 92mm internal chassis fan (single fan in P4304XXSHCN)
<b>POWER SUPPLIES</b>	(2) Common Redundant 460 W (Gold Efficiency)	P4304XXSFCN: (1) Fixed 365 W (Silver Efficiency)	P4304XXSHCN: (1) Fixed 365 W (Silver Efficiency) P4304XXSHDR: (2) Common Redundant 460 W (Gold Efficiency)
<b>I/O SLOTS</b>	Up to 3	Up to 6	
<b>BACKPLANE</b>	None included		
<b>TOOL-LESS FEATURES</b>	Front bezel, EMI cover, PCI card retainer, peripheral bays, power supply unit installation, and fixed drive carriers	Front bezel, EMI cover, side cover, PCI card retainer, peripheral bays, PSU installation, and fixed drive carriers	Front bezel, side cover, PCI card retainer, hot-swap drive carriers, hot-swap drive bay, peripheral bays, and PSU installation
<b>DIMENSIONS (H x W x D)</b>	Tower: 17.24" x 6.81" x 22.05" (438mm x 173mm x 560mm)	Tower: 17.24" x 6.81" x 21.5" (438mm x 173mm x 546mm)	
<b>BEZEL FEATURES</b>	Black, control panel, three 5.25" peripheral drive bays, four internal drive bays	Black, control panel, three 5.25" peripheral drive bays, four internal drive bays, two USB ports	Black, control panel, three 5.25" peripheral drive bays, four hot-swap drive bays and carriers (behind door), security lock, two USB ports
<b>FRONT CONNECTORS</b>	Two USB 3.0 ports	2 x USB	
<b>SYSTEM SECURITY</b>	Protection for chassis drives with a lock to the chassis	Side cover: A padlock loop slot available at the rear of the system access cover to prevent access to the processors, memory, and add-in devices Side cover: Intrusion switch Back panel: Kensington* cable lock mounting hole	Front door: Security lock (available on hot-swap drive SKUs only) Side cover: A padlock loop slot available at the rear of the system access cover to prevent access to the processors, memory, and add-in devices Side cover: Intrusion switch Back panel: Kensington* cable lock mounting hole



The Intel® Server Product Marketing Library is designed as a one-stop-shop for all Intel® Server Product marketing assets and sales tools. Visit <https://www.intelserveredge.com/>

For more information, visit [www.intel.com/products/server/chassis](http://www.intel.com/products/server/chassis) or [ark.intel.com](http://ark.intel.com)

<sup>1</sup> Refer to <http://support.intel.com/support/motherboards/server> for up-to-date details on server boards supported by each chassis.

<sup>2</sup> For complete spare and accessory list, please download the latest configuration guide from Spare Parts list and Configuration Guide at <http://support.intel.com/support/motherboards/server>

<sup>3</sup> Intel® Server Chassis H2000 series requires the separate purchase of Intel® Compute Modules. See the Accessories and Spare Parts section of the chosen Intel® Server Board configuration guide for recommended part numbers.

All products and dates specified are preliminary based on current expectations and are subject to change without notice. Availability in different channels may vary.

For more complete information about performance and benchmark results, visit [www.intel.com/benchmarks](http://www.intel.com/benchmarks)

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at [www.intel.com/products/server/chassis](http://www.intel.com/products/server/chassis) or [ark.intel.com](http://ark.intel.com).

Intel and the Intel logo are trademarks of Intel Corporation in the U.S. and/or other countries.

\* Other names and brands may be claimed as the property of others.



# INTEL<sup>®</sup> STORAGE SYSTEMS

Intel<sup>®</sup> Product Quick Reference Matrix  
**Q1, 2018**

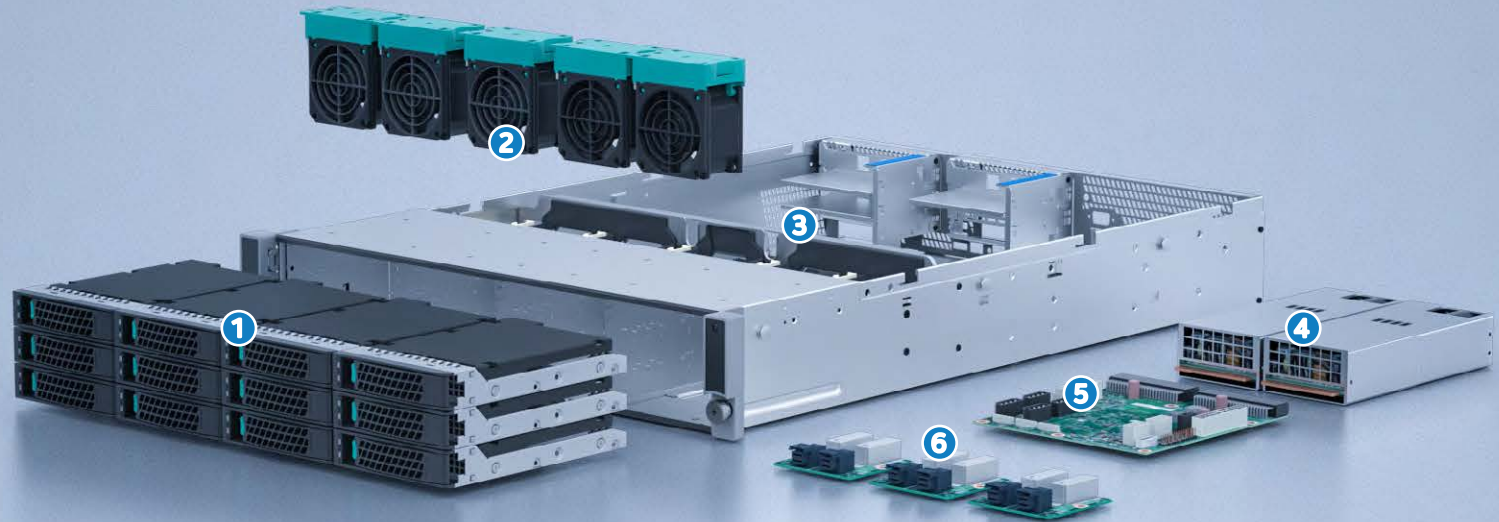
# INTEL® STORAGE SYSTEM JBOD2312S3SP

## Intel® JBOD2312S3SP

2U form factor storage system supporting up to 48-TB 3.5-in. drives.

### Key Features

- Options for single or redundant SAS/SATA 6G connectivity via SFF-8088
- Fan and PSU monitoring and notification via SES
- Redundant power and cooling
- Less than 25-inch deep chassis (3.44 inches by 16.93 inches by 24.95 inches)
- Allows for multiple levels of cascading — multiple JBOD's can be connected in a chained sequence
- Dual-port backplane offering full redundancy
- Options to support up to 48-TB storage capacity



1	12 x 3.5-in. drives	2	Redundant cooling with monitoring and notification via SES	3	Redundant power with monitoring and notification via SES
4	Power distribution board	5	SAS 3.0 Converter	6	SAS Expanders with optional redundant configuration

Systems do not include processors.

## Intel® Storage System JBOD2000 Product Family

The Intel® Storage System JBOD2000 product family works seamlessly with Intel® Server Systems and Intel® RAID and can even be used as a virtual RBOD by using Intel® RAID Controller RS25SB008 or an Intel® Intelligent RAID module. Combine with Intel® Solid State Drives using Intel® SSD Cache Technology, or set up a network using a SAS switch to serve multiple servers. With several configuration options available, it is a flexible and expandable storage system that simplifies your server environment.

<b>DESCRIPTION</b>	A flexible and expandable storage system with single- and multi-cable connectivity, redundant fans, and options for redundant power supplies simplifies your server configuration. Features 12 x 3.5" drives or 24 x 2.5" drives and works seamlessly with Intel® Server Systems and Intel® RAID for a complementary storage solution. Up to 48 TB storage capacity possible. Cascading up to 2 levels. (Extended life product.)
<b>TARGET MARKET</b>	Enterprise / storage

### 2U RACK SYSTEMS

<b>Dimensions (H x W x D)</b>	3.44" x 16.93" x 27.95"
<b>System Cooling</b>	Redundant cooling fans
<b>Power Supply</b>	460 W Redundant PSU (Gold Efficiency)
<b>Other Components</b>	Dual-port backplane for full redundancy Fan and PSU monitoring via SES
<b>Warranty</b>	3 year limited warranty, optional 2 year extended warranty available

### SPECIFIC SKUs

<b>JBOD2312S3SP</b>	12 x 3.5" hot-swap HDD 2 x 36-port SAS expander 2 x 460 W AC PSU Single SAS/SATA 12.0 Gb/s 4 x external SFF-8088 connectors
---------------------	---



The Intel® Server Product Marketing Library is designed as a one-stop-shop for all Intel® Server Product marketing assets and sales tools.

Visit <https://www.intelserveredge.com/>

For the latest product SKUs and specifications, visit <http://ark.intel.com>

For more information, visit [www.intel.com/go/serverproducts](http://www.intel.com/go/serverproducts)

All products and dates specified are preliminary based on current expectations and are subject to change without notice. Availability in different channels may vary.

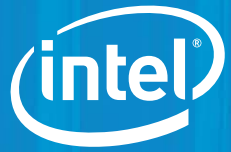
For more complete information about performance and benchmark results, visit [www.intel.com/benchmarks](http://www.intel.com/benchmarks)

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at [www.intel.com/go/serverproducts](http://www.intel.com/go/serverproducts).

Intel and the Intel logo are trademarks of Intel Corporation in the U.S. and/or other countries.

\* Other names and brands may be claimed as the property of others.

© 2017 Intel Corporation



# INTEL<sup>®</sup> RAID

Intel<sup>®</sup> Product Quick Reference Matrix  
**Q1, 2018**



# INTEL® RAID

Experience exceptional data protection, faster performance, and ease of use.

## INTEL® TRI-MODE GENERATION RAID PRODUCTS

The Intel® Tri-Mode RAID controllers, featuring LSI\* SAS3500/SAS3400 series RAID-on-Chip (ROC) processors, offer significant performance enhancements for solutions architected with SAS, SATA, and PCIe\* 3.0 NVMe\* drives.

## INTEL® RAID EXPANDER BOARDS

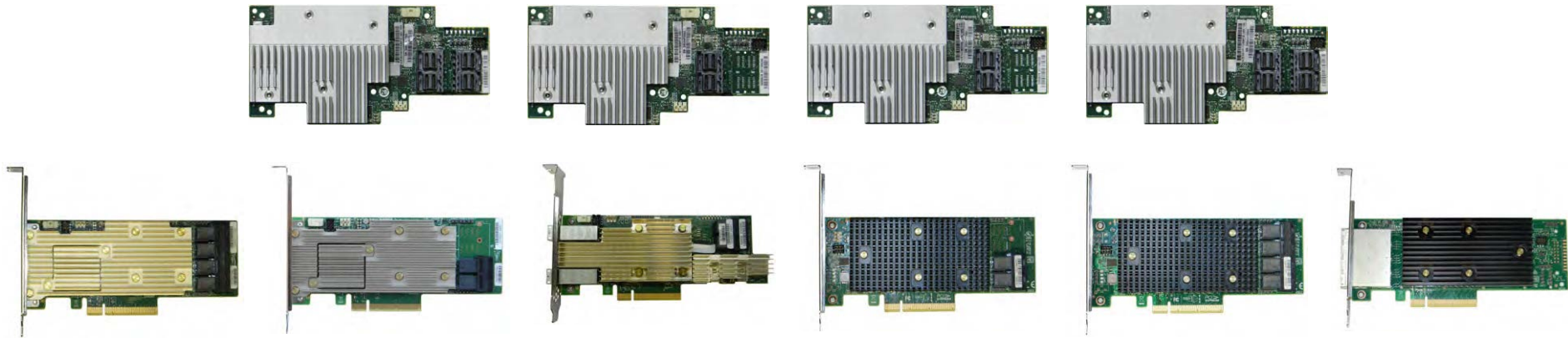
For high drive count solutions, Intel offers 12Gb/s SAS expander boards (available in midplane and add-in card form factors) and PCIe 3.0 switches and retimers.

## INTEL® RAID PREMIUM FEATURES

Get more performance and data protection with Premium Features for Intel® RAID solutions. When combined with Intel® RAID controllers, you can further enhance storage applications and deliver higher ROI for your server boards and systems.

## Tailor a Solution to Match Your Storage Needs

Intel offers multiple categories of RAID products to protect data, increase performance, scale storage, and enhance server availability. A brief description of each category is listed below.



### Controller Cards and Modules

- Intel® RAID Modules are designed for select 2U Intel® Xeon® Processor-based server solutions, affording up to 16 ports of PCIe\*/SAS/SATA connectivity without taking up a standard add-in card PCIe\* slot, for a highly integrated configuration.
- Intel® RAID Adapters come in a low-profile MD2 standard PCIe\* form-factor, and are PCIe\* compliant for flexibility of configuration and use in any system by any vendor.

### RAID Cache Backup

- Maintenance Free Backup Units (MFBUs) are available for Full-Featured RAID products with embedded cache. The backup options are listed in the “Backup Option” row of the product tables.

### Expander Boards

- Intel® RAID Expander Cards are intended for any system with more than 8 drives. As an example of use, 8 RAID ports can be expanded to 24 ports.

### Premium Feature Keys

- Several upgrade features can be added to enhance the performance and data protection of Intel's intelligent RAID cards and modules.

### Cable Kits and Converter Boards

- Newer-generation RAID products do not ship with cables, as multiple options exist depending on the system in which the RAID products are installed. Therefore, Intel offers a variety of cables. A converter board that allows for two internal 8087 connectors to be converted to two external 8088 connectors is also available.

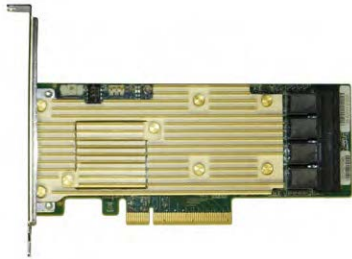


## Intel® Integrated RAID Modules (Tri-Mode)



CONTROLLER	INTEL® INTEGRATED RAID MODULE RMSP3AD160F	INTEL® INTEGRATED RAID MODULE RMSP3CD080F	INTEL® INTEGRATED RAID MODULE RMSP3HD080E	INTEL® INTEGRATED RAID MODULE RMSP3JD160J
<b>DESCRIPTION</b>	Tri-Mode SAS/SATA/PCIe* full-featured RAID mezzanine module with 16 internal ports using four Mini-SAS-HD connectors	Tri-Mode SAS/SATA/PCIe full-featured RAID mezzanine module with eight internal ports using two Mini-SAS-HD connectors	Tri-Mode SAS/SATA/PCIe entry-level RAID mezzanine module with eight internal ports using two Mini-SAS-HD connectors	Tri-Mode SAS/SATA/PCIe JBOD mezzanine module with 16 internal ports using four Mini-SAS-HD connectors
<b>MARKET SEGMENT</b>	Full-featured RAID	Full-featured RAID	Entry-level RAID	JBOD
<b>ORDER CODE</b>	<b>RMSP3AD160F</b>	<b>RMSP3CD080F</b>	<b>RMSP3HD080E</b>	<b>RMSP3JD160J</b>
<b>PROCESSOR</b>	<b>LSI 3516</b>	<b>LSI 3508</b>	<b>LSI 3408</b>	<b>LSI 3416</b>
<b>ONBOARD CACHE MEMORY</b>	4GB DDR4	4GB DDR4	N/A	N/A
<b>PCI E* INTERFACE</b>	PCI Express* 3.0 x8	PCI Express 3.0 x8	PCI Express 3.0 x8	PCI Express 3.0 x8
<b>PORTS</b>	16 Internal ports	8 Internal ports	8 Internal ports	16 Internal ports
<b>CHASSIS COMPATIBILITY</b>	Mezzanine-capable motherboard in 2U (or greater) chassis	Mezzanine-capable motherboard in 1U (or greater) chassis	Mezzanine-capable motherboard in 1U (or greater) chassis	Mezzanine-capable motherboard in 1U (or greater) chassis
<b>RAID LEVELS</b>	0, 1, 10, 5, 50, 6, 60	0, 1, 10, 5, 50, 6, 60	0, 1, 10, 5, 50 and JBOD mode	JBOD mode only
<b>CACHE BACKUP OPTIONS</b>	AXXRMFBU7	AXXRMFBU7	N/A	N/A
<b>CABLES</b>	Purchased separately	Purchased separately	Purchased separately	Purchased separately
<b>INTEL® SERVER BOARD SUPPORT</b>	Select Intel® Xeon® server boards with a storage I/O module connector	Select Intel® Xeon® server boards with a storage I/O module connector	Select Intel® Xeon® server boards with a storage I/O module connector	Select Intel® Xeon® server boards with a storage I/O module connector
<b>AVAILABILITY</b>	Q2 2017	Q2 2017	Q2 2017	Q2 2017
<b>WARRANTY</b>	3 year limited warranty	3 year limited warranty	3 year limited warranty	3 year limited warranty

## Intel® RAID Controllers (Tri-Mode) - Full-Featured



**CONTROLLER** INTEL® RAID CONTROLLER RSP3TD160F

**CONTROLLER** INTEL® RAID CONTROLLER RSP3DD080F

**CONTROLLER** INTEL® RAID CONTROLLER RSP3MD088F

<b>DESCRIPTION</b>	A Tri-Mode SAS/SATA/PCIe* full-featured RAID adapter (PCIe AIC) with 16 internal ports using four Mini-SAS-HD connectors	A Tri-Mode SAS/SATA/PCIe full-featured RAID adapter (PCIe AIC) with eight internal ports using two Mini-SAS-HD connectors	A Tri-Mode SAS/SATA/PCIe full-featured RAID adapter (PCIe AIC) with eight internal ports using two Mini-SAS-HD connectors and eight external ports using two external Mini-SAS-HD connectors
<b>MARKET SEGMENT</b>	Full-featured RAID	Full-featured RAID	Full-featured RAID
<b>ORDER CODE</b>	<b>RSP3TD160F</b>	<b>RSP3DD080F</b>	<b>RSP3MD088F</b>
<b>PROCESSOR</b>	<b>LSI* 3516</b>	<b>LSI 3508</b>	<b>LSI 3516</b>
<b>ONBOARD CACHE MEMORY</b>	4GB DDR4	4GB DDR4	4GB DDR4
<b>PCI E* INTERFACE</b>	PCI Express 3.0 x8	PCI Express 3.0 x8	PCI Express 3.0 x8
<b>PORTS</b>	16 internal ports	8 internal ports	8 internal ports / 8 external ports
<b>CHASSIS COMPATIBILITY</b>	MD2 compliant PCIe x8	MD2 compliant PCIe x8	MD2 compliant PCIe x8
<b>RAID LEVELS</b>	0, 1, 10, 5, 50, 6, 60	0, 1, 10, 5, 50, 6, 60	0, 1, 10, 5, 50, 6, 60
<b>CACHE BACKUP OPTIONS</b>	AXXRMFBU7	AXXRMFBU7	AXXRMFBU7
<b>CABLES</b>	Purchased separately	Purchased separately	Purchased separately
<b>INTEL® SERVER BOARD SUPPORT</b>	Intel® Server boards + third party boards	Intel® Server boards + third party boards	Intel® Server boards + third party boards
<b>AVAILABILITY</b>	Q2'17	Q2'17	Q2'17
<b>WARRANTY</b>	3 year limited warranty	3 year limited warranty	3 year limited warranty

## Intel® RAID Controllers (Tri-Mode) - Entry-Level and JBOD



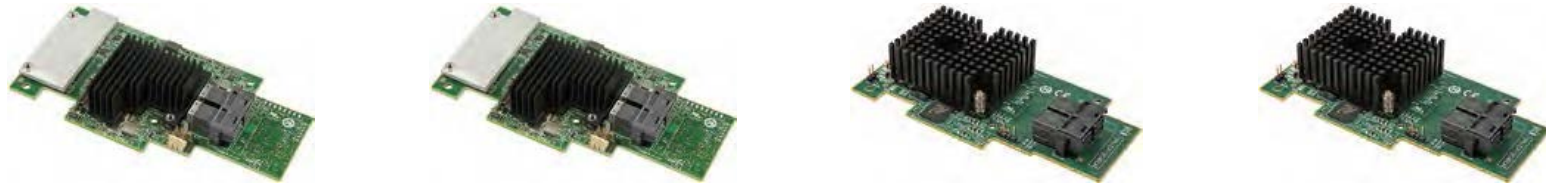
**CONTROLLER** INTEL® RAID CONTROLLER RSP3WD080E

**INTEL® INTEGRATED RAID MODULE** RSP3QD160J

**INTEL® INTEGRATED RAID MODULE** RSP3GD016J

<b>DESCRIPTION</b>	Tri-Mode SAS/SATA/PCIe* entry-level RAID adapter with eight internal ports using two Mini-SAS-HD connectors	Tri-Mode SAS/SATA/PCIe entry-level JBOD adapter with 16 internal ports using four Mini-SAS-HD connectors	Tri-Mode SAS/SATA/PCIe entry-level JBOD adapter with 16 external ports using four external Mini-SAS-HD connectors
<b>MARKET SEGMENT</b>	Entry-level RAID	JBOD	JBOD
<b>ORDER CODE</b>	<b>RSP3WD080E</b>	<b>RSP3QD160J</b>	<b>RSP3GD016J</b>
<b>PROCESSOR</b>	<b>LSI* 3408</b>	<b>LSI 3416</b>	<b>LSI 3416</b>
<b>ONBOARD CACHE MEMORY</b>	N/A	N/A	N/A
<b>PCI E* INTERFACE</b>	PCI Express* 3.0 x8	PCI Express 3.0 x8	PCI Express 3.0 x8
<b>PORTS</b>	8 Internal ports	16 Internal ports	8 External ports
<b>CHASSIS COMPATIBILITY</b>	MD2 compliant PCIe x8	MD2 compliant PCIe x8	MD2 compliant PCIe x8
<b>RAID LEVELS</b>	0, 1, 10, 5, 50 and JBOD mode	JBOD only mode	JBOD only mode
<b>CACHE BACKUP OPTIONS</b>	N/A	N/A	N/A
<b>CABLES</b>	Purchased separately	Purchased separately	Purchased separately
<b>INTEL® SERVER BOARD SUPPORT</b>	Intel® Server boards + third party boards	Intel® Server boards + third party boards	Intel® Server boards + third party boards
<b>AVAILABILITY</b>	Q2 2017	Q2 2017	Q2 2017
<b>WARRANTY</b>	3 year limited warranty	3 year limited warranty	3 year limited warranty

## Intel® Integrated RAID Modules (12Gb/s SAS 3.0)



CONTROLLER	INTEL® INTEGRATED RAID MODULE RMS3CC080	INTEL® INTEGRATED RAID MODULE RMS3CC040	INTEL® INTEGRATED RAID MODULE RMS3HC080	INTEL® INTEGRATED RAID MODULE RMS3JC080
DESCRIPTION	12 Gb/s SAS/SATA full-featured RAID mezzanine module with eight internal connectors and a storage I/O connector	12 Gb/s SAS/SATA full-featured RAID mezzanine module with four internal connectors and a storage I/O connector	12 Gb/s SAS/SATA entry-level RAID mezzanine module with eight internal ports and a storage I/O connector	12 Gb/s SAS/SATA entry-level RAID mezzanine module with eight internal ports and a storage I/O connector
MARKET SEGMENT	Full-featured RAID	Full-featured RAID	Entry-level RAID	Entry-level RAID
ORDER CODE	RMS3CC080	RMS3CC040	RMS3HC080	RMS3JC080
PROCESSOR	LSI* 3108 ROC	LSI* 3108 ROC	LSI* 3008 IOC	LSI* 3008 IOC
ONBOARD CACHE MEMORY	1 GB DDR3	1 GB DDR3	N/A	N/A
PCI E* INTERFACE	PCI Express* 3.0 x8	PCI Express* 3.0 x8	PCI Express* 3.0 x8	PCI Express* 3.0 x8
PORTS	8 Internal ports	4 Internal ports	8 Internal ports	8 Internal ports
CHASSIS COMPATIBILITY	Mezzanine-capable motherboard in 1U (or greater) chassis	Mezzanine-capable motherboard in 1U (or greater) chassis	Mezzanine-capable motherboard in 1U (or greater) chassis	Mezzanine-capable motherboard in 1U (or greater) chassis
RAID LEVELS	0, 1, 10, 5, 50, 6, 60	0, 1, 10, 5, 50, 6, 60	0, 1, 10, 5, 50 and JBOD mode	0, 1, 1E, 10 and JBOD mode
CACHE BACKUP OPTIONS	AXXRMFBU5	AXXRMFBU5	N/A	N/A
CABLES	Purchased separately	Purchased separately	Purchased separately	Purchased separately
INTEL® SERVER BOARD SUPPORT	Select Intel® Xeon® server boards with a storage I/O module connector	Select Intel® Xeon® server boards with a storage I/O module connector	Select Intel® Xeon® server boards with a storage I/O module connector	Select Intel® Xeon® server boards with a storage I/O module connector
WARRANTY	3 year limited warranty	3 year limited warranty	3 year limited warranty	3 year limited warranty

## Intel® Integrated RAID Modules (12Gb/s SAS 3.0) - High Port Count



CONTROLLER	INTEL® INTEGRATED RAID MODULE RMS3AC160	INTEL® INTEGRATED RAID MODULE RMS3VC160
DESCRIPTION	A 12 Gb/s SAS/SATA full-featured RAID mezzanine module with 16 internal ports and dual core RAID-On-Chip (ROC)	A 12 Gb/s SAS/SATA JBOD mezzanine module with sixteen internal ports and dual core RAID-On-Chip (ROC)
MARKET SEGMENT	Full-featured RAID	Full-featured RAID
ORDER CODE	RMS3AC160	RMS3VC160
PROCESSOR	LSI® 3316 ROC	LSI® 3216 ROC
ONBOARD CACHE MEMORY	2 GB DDR3	NA
PCI E* INTERFACE	PCI Express 3.0 x8	PCI Express 3.0 x8
PORTS	16 internal ports	16 internal ports
CHASSIS COMPATIBILITY	Mezzanine-capable motherboard in 2U (or greater) chassis	Mezzanine-capable motherboard in 1U (or greater) chassis
RAID LEVELS	0, 1, 10, 5, 50, 6, 60	N/A (JBOD mode only)
CACHE BACKUP OPTIONS	AXXRMFBU6	NA
CABLES	Purchased separately	Purchased separately
INTEL® SERVER BOARD SUPPORT	Select Intel® Xeon® server boards with a storage I/O module connector	Select Intel® Xeon® server boards with a storage I/O module connector
WARRANTY	3 year limited warranty	3 year limited warranty

## Intel® RAID Controllers (12Gb/s SAS 3.0) - Full-Featured



CONTROLLER	INTEL® RAID CONTROLLER RS3DC080	INTEL® RAID CONTROLLER RS3DC040	INTEL® RAID CONTROLLER RS3SC008
DESCRIPTION	A 12 Gb/s SAS/SATA full-featured RAID adapter (PCIe* AIC) with 8 internal ports	A 12 Gb/s SAS/SATA full-featured RAID adapter (PCIe* AIC) with 4 internal ports	A12 Gb/s SAS/SATA full-featured RAID adapter (PCIe AIC) with 8 external ports
MARKET SEGMENT	Full-featured RAID	Full-featured RAID	Full-featured RAID
ORDER CODE	RS3DC080	RS3DC040	RS3SC008
PROCESSOR	LSI* SAS3108 ROC	LSI* SAS3108 ROC	LSI* SAS3108 ROC
ONBOARD CACHE MEMORY	1GB DDR3	1GB DDR3	1GB DDR3
PCI E* INTERFACE	PCI Express* 3.0 x8	PCI Express 3.0 x8	PCI Express 3.0 x8
PORTS	8 Internal ports	4 Internal ports	8 External ports
CHASSIS COMPATIBILITY	MD2 compliant PCIe x8	MD2 compliant PCIe x8	MD2 compliant PCIe x8
RAID LEVELS	0, 1, 10, 5, 50, 6, 60	0, 1, 10, 5, 50, 6, 60	0, 1, 10, 5, 50, 6, 60
CACHE BACKUP OPTIONS	AXXRMFBU4	AXXRMFBU4	AXXRMFBU4
CABLES	Purchased separately	Purchased separately	Purchased separately
WARRANTY	3 year limited warranty	3 year limited warranty	3 year limited warranty

## Intel® RAID Controllers (12Gb/s SAS 3.0) – Entry Level



CONTROLLER	INTEL® RAID CONTROLLER RS3WC080	INTEL® RAID CONTROLLER RS3UC080
DESCRIPTION	A 12 Gb/s SAS/SATA entry-level RAID adapter (PCIe AIC) with 8 internal ports	A 12 Gb/s SAS/SATA entry-level RAID Adapter (PCIe AIC) with 8 internal ports
MARKET SEGMENT	Entry-level	Entry-level
ORDER CODE	RS3WC080	RS3UC080
PROCESSOR	LSI* SAS3008 IOC	LSI* SAS3008 IOC
ONBOARD CACHE MEMORY	N/A	N/A
PCI E* INTERFACE	PCI Express* 3.0 x8	PCI Express 3.0 x8
PORTS	8 Internal ports	8 Internal ports
CHASSIS COMPATIBILITY	MD2 compliant PCIe x8	MD2 compliant PCIe x8
RAID LEVELS	0, 1, 10, 5, 50 and JBOD mode	0, 1, 1E, 10 and JBOD mode
CACHE BACKUP OPTIONS	N/A	N/A
CABLES	Purchased separately	Purchased separately
WARRANTY	3 year limited warranty	3 year limited warranty

## Intel® Storage Controllers (12Gb/s SAS 3.0) - JBOD Only



CONTROLLER	INTEL® RAID CONTROLLER RS3GC008	INTEL® RAID CONTROLLER RS3UC080J
DESCRIPTION	A 12 Gb/s SAS/SATA JBOD Adapter (PCIe AIC) with 8 external ports	A 12 Gb/s SAS/SATA JBOD Adapter (PCIe AIC) with 8 internal ports
MARKET SEGMENT	JBOD	JBOD
ORDER CODE	RS3GC008	RS3UC080J
PROCESSOR	LSI* SAS3008	LSI* SAS3008
ONBOARD CACHE MEMORY	N/A	N/A
PCI E* INTERFACE	PCI Express* 3.0 x8	PCI Express 3.0 x8
PORTS	8 External ports	8 Internal ports
CHASSIS COMPATIBILITY	MD2 compliant PCIe x8	MD2 compliant PCIe x8
RAID LEVELS	JBOD mode (SAS Connectivity)	JBOD mode (SAS Connectivity)
CACHE BACKUP OPTIONS	N/A	N/A
CABLES	Purchased separately	Purchased separately
WARRANTY	3 year limited warranty	3 year limited warranty



## Intel® VROC – Virtual RAID on CPU

Intel® VROC is available on Intel® Server Board S2600WF, S2600BP, and S2600ST family boards. It enables RAID levels 0, 1, 10 (Standard) and 5 (Premium) with no RAID write hole. Intel® VROC boasts high IOPS and low latency.



ACTIVATION KEY	PRODUCT NAME	SKU STORAGE FUNCTIONALITY
<b>VROCSTANMOD</b>	Intel® Virtual RAID on CPU (Standard)	Activation key to support 3rd party NVMe SSDs and enable RAID (0, 1, 10) functionality
<b>VROCPREMMOD</b>	Intel® Virtual RAID on CPU (Premium)	Activation key to support 3rd party NVMe SSDs and enable Intel® VROC Premium, RAID 0,1,5,10 with RAID Write Hole Closure
<b>VROCISSDMOD</b>	Intel® Virtual RAID on CPU (Premium)	Activation key to support 3rd party NVMe SSDs and enable Intel® VROC Premium, RAID 0,1,5,10 with RAID Write Hole Closure (for use with Intel® SSD's only)

## Intel® RAID Expanders (12 Gb/s SAS 3.0)



EXPANDER BOARD	INTEL® RAID EXPANDER RES3FV288	INTEL® RAID EXPANDER RES3TV360
<b>DESCRIPTION</b>	12 Gb/s SAS/SATA expander adapter (PCIe AIC) with 28 internal ports and 8 external ports	12 Gb/s SAS/SATA Expander Midplane Board with 36-ports
<b>ORDER CODE</b>	RES3FV288	RES3TV360
<b>PCI E* INTERFACE</b>	PCIe x4 (for Power Only)	N/A
<b>PORTS</b>	28 Internal ports / 8 External ports	36 Internal ports
<b>CHASSIS COMPATIBILITY</b>	MD2 compliant PCIe* x4 or chassis mount	2U (or greater) system; requires chassis mount
<b>POWER OPTIONS FOR EXPANDERS</b>	PCIe x4 or 4-pin Molex	4-pin Molex
<b>MANAGEMENT</b>	SGPIO	SGPIO
<b>FAULT LED HEADERS</b>	Includes 2 pin headers to support each SAS port	Includes 2 pin headers to support each SAS port
<b>WARRANTY</b>	3 year limited warranty	3 year limited warranty

## Intel® RAID Premium Features

These features are available as an upgrade for all LSI\* SAS2208 and SAS3108 processor-based Intel® RAID products. To identify products with these processors, please refer to the Processor row of the preceding feature tables. The Premium Feature Keys are described below.

PREMIUM FEATURE	SSD CACHE 2 – 12G SAS only	DRIVE ENCRYPTION MANAGEMENT – 12G SAS and Tri-Mode
<b>Key Benefits</b>	SSD Cache allows Solid State Drives (SSD) to be utilized as additional cache for the RAID controller. Frequently accessed information is stored in the cache, allowing rapid access.	Drive encryption management enables authentication key management, auto-lock, and instant erase of self-encrypting drives (SED).
	SSD Cache capacity of up to 2 TB possible for SAS3108-based products.	All drives eventually leave the data center and the use of SEDs helps reduce risk of data breaches.
	SSD partitioning so that a portion of the drive is available to the operating system and the remainder for cache.	Instant-erase significantly reduces the cost and time of repurposing or retiring drives.
<b>Order Code</b>	AXXRPFKSSD2	AXXRPFKDE2

## Mounting Brackets

MOUNTING BRACKET	ORDER CODE	DESCRIPTION	INTERNAL CONNECTORS	EXTERNAL CONNECTORS
Intel® RAID Battery Remote Mounting Bracket	AXXBUBRKTP	A mounting bracket that fits in a low-profile PCI Express* slot and holds two RAID batteries or Maintenance Free Backup Units.	None	None



## Cable Kits and Converter Boards

The following cables are available for connecting Intel® RAID cards and modules to storage devices and drive bays. Intel® cables are designed to a high-quality specification and include the ability to bend at a very small radii. These cables allow low-profile Intel RAID products with vertical 8087 connectors to be used in 2U rack chassis while installed in a standard PCI Express\* slot. Intel offers many other cable kits that help optimize the integration of RAID products into specific Intel® Server Systems. For a list of these cables, refer to the Server Board and System Configuration Guide available on the support web site for each given Intel Server System.

CABLE KIT ORDER CODE	NUMBER OF CABLES INCLUDED IN KIT	INITIATOR CONNECTOR	TARGET CONNECTOR	LENGTH
AXXCBL650HDMS	2	HD mini-SAS straight <sup>1</sup>	8087 mini-SAS straight <sup>1</sup>	650mm
AXXCBL730HDMS	2	HD mini-SAS straight <sup>1</sup>	8087 mini-SAS straight <sup>1</sup>	730mm
AXXCBL750MS7P	2	8087 mini-SAS straight <sup>1</sup>	Four x 7-pin SATA style	750mm
AXXCBL650MSMS	2	8087 mini-SAS straight <sup>1</sup>	8087 mini-SAS straight <sup>1</sup>	650mm



<sup>1</sup> Cable is reversible so that either connector can be on the target or initiator side. Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products.

The Intel® Server Product Marketing Library is designed as a one-stop-shop for all Intel® Server Product marketing assets and sales tools. Visit <https://www.intelserveredge.com/>

For the latest product SKUs and specifications, visit <http://ark.intel.com>

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at [www.intel.com](http://www.intel.com). Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For more information go to <http://www.intel.com/performance>.

Intel and the Intel logo are trademarks of Intel Corporation in the U.S. and/or other countries.

\* Other names and brands may be claimed as the property of others.

© 2017 Intel Corporation.



# INTEL<sup>®</sup> ETHERNET SERVER ADAPTERS

INTEL<sup>®</sup>  
ETHERNET.  
IT JUST  
WORKS.

## WHY INTEL<sup>®</sup> ETHERNET?

Driving continuous innovation for more than 35 years, Intel<sup>®</sup> Ethernet products deliver a reliable out-of-the-box experience, and proven interoperability for your current and future networking infrastructure.

# INTEL® ETHERNET SERVER ADAPTERS

Intel® Ethernet. It Just Works.

## WHY INTEL® ETHERNET?

Driving continuous innovation for more than 35 years, Intel® Ethernet products deliver a reliable out-of-the-box experience, and proven interoperability for your current and future networking infrastructure.

### High Compatibility and Broad Interoperability

- Fully tested network adapters and accessories (optics and cables)
- Hardware and software is thoroughly validated across server and networking ecosystem
- Supports a broad selection of operating systems

### Ease of Use

- Works out of the box
- Automatic and highly optimized configuration setups
- Delivers the right traffic to the right VM with 128 perfect match filters

### Performance Assurance

- Optimized for Intel® architecture and broad OSV ecosystem
- Scales with CPU technology, leverages intelligent hardware offloads, network virtualization, and fast packet processing via Data Plane Development Kit (DPDK)

### Worldwide product support

- World-class pre- and post-sales support provide convenient accessibility to customers
- Adheres to global regulatory, environmental, and market requirements
- Long product lifecycle support





### Broad Product Selection and Accessories

- Supports all speeds (1/10/25/40GbE) and media types (BASE-T, Fiber, SFP+, QSFP+, SFP28, QSFP28, KR, XAUI, CAUI)
- Available in many different form factors: discrete controller, Intel® SoCs, and add-in cards (PCIe\*, OCP, and custom form factors)

# INTEL® ETHERNET 700 SERIES NETWORK ADAPTERS

Accelerate the delivery of new services and capabilities by increasing the speed and efficiency of your network infrastructure. The Intel® Ethernet 700 Series is the foundation for server connectivity, providing broad interoperability, critical performance optimizations, and increased agility for Telecommunications, Cloud, and the Data Center.

- **Interoperability** - Multiple speeds and media types for broad compatibility backed by extensive testing and validation.
- **Optimization** - Intelligent offloads and accelerators to unlock network performance in servers with Intel® Xeon® processors.
- **Agility** - Both kernel and Data Plane Development Kit (DPDK) drivers for scalable packet processing.

PRODUCT	CONNECTOR & CABLE MEDIUM	CABLING TYPE	INTEL® ETHERNET CONTROLLER	SLOT TYPE, MAXIMUM BUS SPEED & BUS WIDTH	BUS SPEED & BUS WIDTH CONNECTION SPEED	PORTS	SUPPORTED SLOT HEIGHTS	NETWORK VIRTUALIZATION ACCELERATION	STORAGE OVER ETHERNET	ORDER CODES
 XXV710-DA1 XXV710-DA2	SFP28 Direct Attach Copper Twinaxial SFP28 LC Fiber Optic Module	Direct Attach Passive Twinaxial 25GbE: up to 5m with RS-FEC, up to 3m with no FEC Direct Attach Passive Twinaxial 10 GbE: up to 15m Multimode Fiber: up to 70m (OM3), up to 100m (OM4) Single-mode Fiber: up to 10km	XL710	PCI Express* v 3.0 8.0 GT/s, x8 Lanes	1 GbE / 10 GbE / 25 GbE	Single and Dual Port	Low Profile and Full Height	Multi-Queue and Stateless Offloads for NVO, such as VXLAN, NVGRE, and GENEVE Enhanced DPDK packet-processing support <sup>1</sup>	iSCSI, NFS, SMB	XXV710DA1, XXV710DA1BLK, XXV710DA2, XXV710DA2BLK
 X710-DA2 X710-DA4FHBLK	SFP+ Direct Attach Copper Twinaxial SFP+ LC Fiber Optic Module	Direct Attach Passive Twinaxial: up to 15m Multimode Fiber: up to 300m (OM3), up to 400m (OM4) Single-mode Fiber: up to 10km	X710	PCI Express* v 3.0 8.0 GT/s, x8 Lanes	1 GbE / 10 GbE	Dual and Quad Port	Low Profile (DA2 only) and Full Height	Multi-Queue and Stateless Offloads for NVO, such as VXLAN, NVGRE, and GENEVE Enhanced DPDK packet-processing support <sup>1</sup>	iSCSI, NFS, SMB	X710DA2, X710DA2BLK, X710DA4FH, X710DA4FHBLK
 XL710-QDA1 XL710-QDA2	QSFP+ Direct Attach Copper Twinaxial QSFP+ Fiber Optic Module	Direct Attach Passive Twinaxial: up to 7m Multimode Fiber: up to 100m (OM3), up to 150m (OM4) Single-mode Fiber: up to 10km	XL710	PCI Express* v 3.0 8.0 GT/s, x8 Lanes	10 GbE / 40 GbE	Single and Dual Port	Low Profile and Full Height	Multi-Queue and Stateless Offloads for NVO, such as VXLAN, NVGRE, and GENEVE Enhanced DPDK packet-processing support <sup>1</sup>	iSCSI, NFS, SMB	XL710QDA1, XL710QDA1BLK, XL710QDA2, XL710QDA2BLK
 X710-T4	RJ45 Copper Twisted-pair	Category 6: up to 55m Category 6A or better: up to 100m	XL710	PCI Express* v 3.0 8.0 GT/s, x8 Lanes	100 Mb / 1 GbE / 10 GbE	Quad Port	Low Profile and Full Height	Multi-Queue and Stateless Offloads for NVO, such as VXLAN, NVGRE, and GENEVE Enhanced DPDK packet-processing support <sup>1</sup>	iSCSI, NFS, SMB	X710T4, X710T4BLK

<sup>1</sup> Learn more about DPDK at [intel.com/dpdk](https://intel.com/dpdk)






All Intel® Ethernet 700 Series and 500 Series Network Adapters include intelligent offloads, are optimized for Data Plane Development Kit (DPDK) and Intel® Ethernet Flow Director, and include these server virtualization attributes: on-chip QoS and traffic management, Flexible Port Partitioning, Virtual Machine Device Queues (VMDq), PCI-SIG\* SR-IOV capable.



# INTEL® ETHERNET 500 SERIES NETWORK ADAPTERS

The best choice for 10GBASE-T, the Intel® Ethernet 500 Series is a backward compatible with existing 1000BASE-T networks, simplifying the transition to 10GbE when more bandwidth is needed.

- Supports 100Mb, and 1/2.5/5/10GBASE-T
- Low cost, low power
- Optimized for network virtualization overlays

PRODUCT	CONNECTOR & CABLE MEDIUM	CABLING TYPE	INTEL® ETHERNET CONTROLLER	SLOT TYPE, MAXIMUM BUS SPEED & BUS WIDTH	BUS SPEED & BUS WIDTH CONNECTION SPEED	PORTS	SUPPORTED SLOT HEIGHTS	NETWORK VIRTUALIZATION ACCELERATION	STORAGE OVER ETHERNET	ORDER CODES
 <b>X550-T1</b> <b>X550-T2</b>	RJ45 Copper Twisted-pair	Category 6: up to 55m (10 GbE); Category 6A or better: up to 100m (10 GbE); Category 5 or better: up to 100m (1 GbE / 2.5 GbE / 5 GbE)	X550	PCI Express* v3.0 8.0 GT/s, x4 Lanes Operable in x8 and x16 slots	100 Mb / 1 GbE / 2.5 GbE / 5 GbE / 10 GbE	Single and Dual Port	Low Profile and Full Height	Multi-Queue and Stateless Offloads for NVO, such as VXLAN, NVGRE, and GENEVE Enhanced DPDK packet-processing support <sup>1</sup>	iSCSI, FCoE, <sup>2</sup> NFS, SMB	X550T1, X550T1BLK; X550T2, X550T2BLK
 <b>X540-T1</b> <b>X540-T2</b>	RJ45 Copper Twisted-pair	Category 6: up to 55m (10 GbE); Category 6A or better: up to 100m (10 GbE); Category 5 or better: up to 100m (1 GbE)	X540	PCI Express* v2.1 5.0 GT/s, x8 Lanes	100 Mb / 1 GbE / 10 GbE	Single and Dual Port	Low Profile and Full Height	RSS for UDP for VXLAN Enhanced DPDK packet-processing support <sup>1</sup>	iSCSI, FCoE, <sup>2</sup> NFS, SMB	X540T1, X540T1BLK; X540T2, X540T2BLK
 <b>X520-DA2</b>	SFP+ Direct Attach Copper Twinaxial SFP+ LC Fiber Optic Module	Direct Attach Passive Twinaxial: up to 15m; Multimode Fiber: up to 300m (OM3), up to 400m (OM4); Single-mode Fiber: up to 10km	82599ES	PCI Express* v2.0 5.0 GT/s, x8 Lanes	1 GbE / 10 GbE	Dual Port	Low Profile and Full Height	RSS for UDP for VXLAN Enhanced DPDK packet-processing support <sup>1</sup>	iSCSI, FCoE, <sup>2</sup> NFS, SMB	E10G42BTDA, E10G42BTDBLK
 <b>X520-SR1</b> <b>X520-SR2</b>	LC Fiber Optic <i>Customer may remove optics as needed.</i>	Multimode Fiber: up to 300m (OM3), up to 400m (OM4)	82599ES	PCI Express* v2.0 5.0 GT/s, x8 Lanes	1 GbE / 10 GbE	Single and Dual Port	Low Profile and Full Height	RSS for UDP for VXLAN Enhanced DPDK packet-processing support <sup>1</sup>	iSCSI, FCoE, <sup>2</sup> NFS, SMB	E10G41BFSR, E10G41BFSRBLK; E10G42BFSR, E10G42BFSRBLK
 <b>X520-UR1</b>	LC Fiber Optic <i>Customer may remove optics as needed.</i>	Single-mode Fiber: up to 10km	82599ES	PCI Express* v2.0 5.0 GT/s, x8 Lanes	1 GbE / 10 GbE	Single Port	Low Profile and Full Height	RSS for UDP for VXLAN Enhanced DPDK packet-processing support <sup>1</sup>	iSCSI, FCoE, <sup>2</sup> NFS, SMB	E10G41BFLR, E10G41BFLRBLK

<sup>1</sup> Learn more about DPDK at [intel.com/dpdk](http://intel.com/dpdk)

<sup>2</sup> Support for new operating systems will not be added to FCoE. The last operating system versions supporting FCoE are: Microsoft Windows Server\* 2012 R2, Red Hat Enterprise Linux\* 7.2 & 6.7, SUSE Linux Enterprise Server 11 SP4, 12 SP1; VMware ESX\* 6.0. All Intel® Ethernet 700 Series and 500 Series Network Adapters include intelligent offloads, are optimized for Data Plane Development Kit (DPDK) and Intel® Ethernet Flow Director, and include these server virtualization attributes: on-chip QoS and traffic management, Flexible Port Partitioning, Virtual Machine Device Queues (VMDq), PCI-SIG\* SR-IOV capable.





# INTEL® ETHERNET OPTICS AND CABLES FOR INTEL® ETHERNET 700 SERIES AND 500 SERIES NETWORK ADAPTERS

Combine these accessories with Intel Ethernet 700 Series and 500 Series Network Adapters, for dependable interoperability and consistent performance across the network.

INTEL® ETHERNET SFP+ OPTICS	INTEL® ETHERNET SFP+ TWINAXIAL CABLES	INTEL® ETHERNET QSFP+ OPTICS	INTEL® ETHERNET QSFP+ TWINAXIAL CABLES	INTEL® ETHERNET QSFP+ TWINAXIAL BREAKOUT CABLES	INTEL® ETHERNET SFP28 OPTICS	INTEL® ETHERNET SFP28 TWINAXIAL CABLES	INTEL® ETHERNET QSFP28 TO SFP28 TWINAXIAL BREAKOUT CABLES
E10GSFPSR = SFP+ SR Optic E10GSFPSRX = SFP+ SRX Optic E10GSFPLR = SFP+ LR Optic	SFP+ to SFP+ copper direct attach cable XDACBL1M = 1 Meter XDACBL3M = 3 Meter XDACBL5M = 5 Meter	E40GQSFP28SR = QSFP+ SR Optic E40GQSFP28LR = QSFP+ LR Optic	QSFP+ to QSFP+ copper direct attach cable XLDACBL1M = 1 Meter XLDACBL3M = 3 Meter XLDACBL5M = 5 Meter	QSFP+ to (4) SFP+ copper direct attach breakout cable X4DACBL1 = 1 Meter X4DACBL3 = 3 Meter X4DACBL5 = 5 Meter	E25GSFP28SR = SFP28 SR Optic	SFP28 to SFP28 copper direct attach cable XXVDACBL1M = 1 Meter XXVDACBL2M = 2 Meter XXVDACBL3M = 3 Meter	QSFP28 to (4) SFP+ copper direct attach breakout cable XXV4DACBL1M = 1 Meter XXV4DACBL2M = 2 Meter XXV4DACBL3M = 3 Meter



# 1GB INTEL® ETHERNET NETWORK ADAPTERS

PRODUCT	CONNECTOR & CABLE MEDIUM	CABLING TYPE	INTEL® ETHERNET CONTROLLER	SLOT TYPE, MAXIMUM BUS SPEED & BUS WIDTH	PORTS	SUPPORTED SLOT HEIGHTS	HALOGEN FREE	INTELLIGENT OFFLOADS	NETWORK VIRTUALIZATION TECHNOLOGY FOR CONNECTIVITY	STORAGE OVER ETHERNET	INTEL ETHERNET POWER MANAGEMENT <sup>1</sup>	ORDER CODES
 I210-T1	RJ45 Copper Twisted-pair	Category 5 or better: up to 100m	I210	PCI Express* v2.1 2.5 GT/s, x1 Lane	Single Port	Low Profile and Full Height	Yes	Yes	Includes Audio-Video Bridging (AVB) support 802.1Qav)	iSCSI, NFS, SMB	Yes	I210T1 I210T1BLK
 I350-T4	RJ45 Copper Twisted-pair	Category 5 or better: up to 100m	I350	PCI Express* v2.1 5 GT/s, x4 Lanes	Quad Port	Low Profile and Full Height	Yes	Yes	On-chip QoS and traffic management, Flexible Port Partitioning (FPP), Virtual Machine Device Queues (VMDq), PCI-SIG* SR-IOV capable	iSCSI, NFS, SMB	Yes	I350T4V2
 I350-T2	RJ45 Copper Twisted-pair	Category 5 or better: up to 100m	I350	PCI Express* v2.1 5 GT/s, x4 Lanes	Dual Port	Low Profile and Full Height	Yes	Yes	On-chip QoS and traffic management, Flexible Port Partitioning (FPP), Virtual Machine Device Queues (VMDq), PCI-SIG* SR-IOV capable	iSCSI, NFS, SMB	Yes	I350T2V2
 I350-F2	LC Fiber Optic	Multimode Fiber OM1 (62.5 μm): up to 275m Multimode Fiber OM2 or better (50 μm): up to 550m	I350	PCI Express* v2.1 5 GT/s, x4 Lanes	Dual Port	Low Profile and Full Height	N/A	Yes	On-chip QoS and traffic management, Flexible Port Partitioning (FPP), Virtual Machine Device Queues (VMDq), PCI-SIG* SR-IOV capable	iSCSI, NFS, SMB	Yes	I350F2 I350F2BLK
 I350-F4	LC Fiber Optic	Multimode Fiber OM1 (62.5 μm): up to 275m Multimode Fiber OM2 or better (50 μm): up to 550m	I350	PCI Express* v2.1 5 GT/s, x4 Lanes	Quad Port	Full Height	N/A	Yes	On-chip QoS and traffic management, Flexible Port Partitioning (FPP), Virtual Machine Device Queues (VMDq), PCI-SIG* SR-IOV capable	iSCSI, NFS, SMB	Yes	I350F4 I350F4BLK
 I340-r4	LC Fiber Optic	Multimode Fiber OM1 (62.5 μm): up to 275m Multimode Fiber OM2 or better (50 μm): up to 550m	82580	PCI Express* v2.1 5 GT/s, x4 Lanes	Quad Port	Full Height	N/A	Yes	On-chip QoS and traffic management, Flexible Port Partitioning (FPP), Virtual Machine Device Queues (VMDq)	iSCSI, NFS, SMB	N/A	E1G44HF

<sup>1</sup> Learn more about DPDK at [intel.com/dpdk](http://intel.com/dpdk)

All Intel® Ethernet 700 Series and 500 Series Network Adapters include intelligent offloads, are optimized for Data Plane Development Kit (DPDK) and Intel® Ethernet Flow Director, and include these server virtualization attributes: on-chip QoS and traffic management, Flexible Port Partitioning, Virtual Machine Device Queues (VMDq), PCI-SIG\* SR-IOV capable.

[www.intel.com/ethernet](http://www.intel.com/ethernet)

Intel and the Intel logo are trademarks of Intel Corporation or its subsidiaries in the U.S. and/or other countries. \*Other names and brands may be claimed as the property of others.  
© Intel Corporation



# INTEL<sup>®</sup> SERVER MANAGEMENT

**BUILD.  
DEPLOY.  
MANAGE.**

## **SOFTWARE TO BUILD, DEPLOY AND MANAGE SERVERS WITH EASE**

Intel<sup>®</sup> System Management Software is a set of management applications for Intel<sup>®</sup> Server Products that let you view and control hardware (servers, desktops, and laptops) and software (operating systems, applications, and patches) across your network.

## **REMOTE MANAGEMENT – IT MADE EASY**

The Intel<sup>®</sup> Remote Management Module (Intel<sup>®</sup> RMM) helps you to securely gain access and control servers and other devices from any machine on the network—any place, any time. It is all about IT made easy.

A man with glasses and a dark hoodie is sitting at a desk in a server room, looking thoughtful with his hand on his chin. In the background, there are server racks and a computer monitor. The lighting is dim, with a blue tint.

# INTEL® SERVER MANAGEMENT

Software to build, deploy and manage servers with ease.

## GET YOUR SERVERS UP AND RUNNING FAST—AND KEEP THEM RUNNING

Intel® System Management Software is a set of management applications for Intel® Server Products that let you view and control hardware (servers, desktops, and laptops) and software (operating systems, applications, and patches) across your network.

Small- and medium-sized businesses (SMBs) face complex IT challenges similar to those of large enterprises, but often without the large budget or staff of IT specialists. Now businesses can simply, smartly, and scalably manage their server hardware with applications and embedded server management tools.

For more information, visit [www.intel.com/go/servermanagement](http://www.intel.com/go/servermanagement)

## REMOTE MANAGEMENT – IT MADE EASY

The Intel® Remote Management Module (Intel® RMM) helps you to securely gain access and control servers and other devices from any machine on the network—any place, any time. It is all about IT made easy. With features like a full remote access keyboard, video and mouse (KVM), USB media redirection, remote power actions, proactive system health monitoring, and secure, embedded web server, plus a dedicated network connection it is easy to avoid expensive and messy cabling hardware KVM solutions and lower total server management costs with Intel® Remote Management.

## Intel® System Management Software

Intel® System Management Software is a set of management applications comprised of Intel® Active System Console and Intel® SNMP Subagent that let you view and control hardware (servers, desktops, and laptops) and software (operating systems, applications, and patches) across your network. Embedded Intel System Management Software is available in two varieties—an Integrated BMC, which has the full IPMI 2.0 stack available for comprehensive remote (out-of-band) or local (in-band) management, or an Integrated BMC web console available without the requirements for any agents and is always accessible, regardless of the state of the operating system.

FEATURES	INTEL® ACTIVE SYSTEM CONSOLE	INTEL® SNMP SUBAGENT	INTEGRATED BMC	INTEGRATED BMC WEB CONSOLE
Install Requirements	Application: Requires agent install on top of operating system	Application: Requires agent install on top of operating system	Embedded: Nothing to install and always running	Embedded: Nothing to install and always running
Server Environment	Small business, mid-market (One to ten servers)	Enterprise and cloud	Enterprise and cloud	All
User Interface	Web-based (Walkup and remote)	Integrates into SNMP-aware enterprise tools	None (Enables IPMI 2.0 connection)	None (Enables IPMI 2.0 connection)
Operating System Support	Windows*, Linux*	Windows*, Linux*	Firmware (All)	Firmware (All)
Network Configuration	Uses existing operating system network	Uses existing operating system network	Requires additional network configured by BIOS or utilities	Requires additional network configured by BIOS or utilities
Single, Easy-to-Use Console	Yes	No	No	Yes
View Operating System and BIOS Information	Yes	No	Limited BIOS only	Limited BIOS only
Hardware Predictive Failure Analysis	Yes	Yes	Yes	Yes
Sensor Readings	Yes	Yes	Yes	Yes
Hardware Event Log	Yes	No	Yes	Yes
Alerting	Yes (e-mail and SNMP)	Yes (e-mail and SNMP)	Yes (e-mail and SNMP)	Yes (e-mail and SNMP)
Reporting	Yes	No	No	Yes
BMC Configuration	Yes	No	Yes	Yes
Power Management	Yes	No	Yes	Yes
Remote Management	Yes (If operating system is up)	Yes (If operating system is up)	Yes	Yes
Remote Power On/Off/Reboot	No	Yes (If operating system is up)	Yes	Yes
Serial Over LAN (Console Redirection)	No	No	Yes	Yes
OEM Customization	Yes	No	No	Yes

## Intel® Remote Management Module

The Intel® Remote Management Module (Intel® RMM) helps you to securely gain access and control servers and other devices from any machine on the network—any place, any time.



MODULE	INTEL® REMOTE MANAGEMENT MODULE 4		
ORDER CODE	AXXRMM4R	AXXRMM4Lite	AXXRMM4LITE2
<b>SUPPORTED SYSTEMS<sup>1</sup></b>	Select systems based on Intel® Server Boards S1400FP, S2600GL, S2600GZ, S2600CP, S2600CO	Select systems based on Intel® Server Boards S1400FP family, S2600CO, S2600CP, S2600CW family, S2600GL, S2600GZ, S2600KP family, S2600TP family, S2600WT	Select systems based on Intel® Server Boards S2600BP family, S2600ST Family, S2600WF family, and S1200SP Family
<b>DEDICATED SERVER MANAGEMENT NIC</b>	Yes	family	No
<b>EMBEDDED VIDEO / GUI (KVM) REDIRECTION</b>	Yes	Yes	Yes
<b>USB VIRTUAL MEDIA REDIRECTION</b>	Yes	Yes	Yes
<b>REMOTE SERVER RESTART</b>	Feature enabled through BMC firmware	Feature enabled through BMC firmware	Feature enabled through BMC firmware
<b>OEM CUSTOMIZATION</b>	Feature enabled through BMC firmware	Feature enabled through BMC firmware	Feature enabled through BMC firmware
<b>LDAP, SSH, SSL SUPPORT</b>	Feature enabled through BMC firmware	Feature enabled through BMC firmware	Feature enabled through BMC firmware
<b>WS-MAN</b>	No	No	No
<b>EMBEDDED WEB SERVER</b>	Feature enabled through BMC firmware	Feature enabled through BMC firmware	Feature enabled through BMC firmware
<b>LOCAL AND REMOTE CONFIGURATION</b>	Feature enabled through BMC firmware	Feature enabled through BMC firmware	Feature enabled through BMC firmware
<b>AGENT-LESS MANAGEMENT</b>	Feature enabled through BMC firmware	Feature enabled through BMC firmware	Feature enabled through BMC firmware

The Intel® Server Product Marketing Library is designed as a one-stop-shop for all Intel® Server Product marketing assets and sales tools. Visit <https://www.intelserveredge.com/>

For more information, visit [www.intel.com/go/servermanagement](http://www.intel.com/go/servermanagement)

<sup>1</sup> For the latest Intel® Server Board support, visit <http://support.intel.com/support/motherboards/server>

All products and dates specified are preliminary based on current expectations and are subject to change without notice. Availability in different channels may vary.

For more complete information about performance and benchmark results, visit [www.intel.com/benchmarks](http://www.intel.com/benchmarks)

Features and functions of the Intel® Management Packs are dependent on the features and functions available on the server and client hardware and the loaded software and operating systems.

Not all features and functions are available on all products and may require Intel® AMT or IPMI technologies for additional functionality.

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at [www.intel.com/go/servermanagement](http://www.intel.com/go/servermanagement).

Intel and the Intel logo are trademarks of Intel Corporation in the U.S. and/or other countries.

\* Other names and brands may be claimed as the property of others.

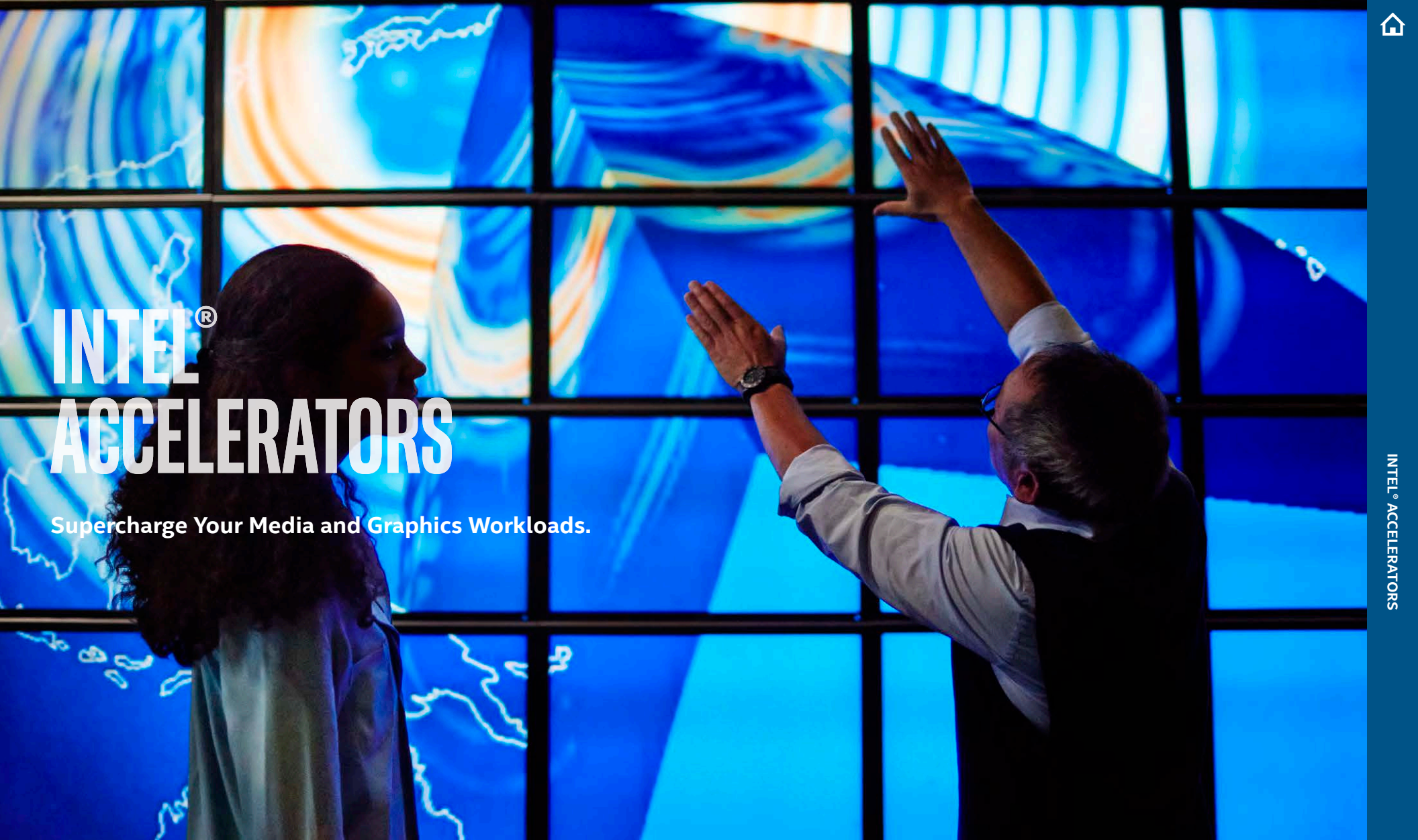
© 2017 Intel Corporation





# INTEL<sup>®</sup> ACCELERATORS

Intel<sup>®</sup> Product Quick Reference Matrix  
**Q1, 2018**



# INTEL® ACCELERATORS

Supercharge Your Media and Graphics Workloads.

## MEDIA AND GRAPHICS

The Intel® Visual Compute Accelerator is designed to optimize video delivery (transcoding and encoding). This new product is the ideal media and graphics solution bringing together the power of Intel® Xeon® Processor E5 with the graphics performance of Intel® Xeon® Processor E3 within one system along with flexible software architecture enabling software vendors to write applications quicker for many different graphics workloads.

## Intel® Visual Compute Accelerator 2

### SUPERCHARGE YOUR MEDIA AND GRAPHICS WORKLOADS

The Intel® Visual Compute Accelerator 2 is the second generation PCI Express\* card containing three Intel® Xeon® Processors E3 v5 designed to deliver cutting edge rendering performance per watt for graphics intensive workloads.<sup>1</sup> For OTT content providers and telecommunications service providers, Intel® VCA 2 takes the next step in transcode density, adding HEVC encode into the Quick Sync Video portfolio of accelerated codecs.

In the enterprise domain, security concerns and worker mobility are driving the need for cloud-based remote workstations, while at same time, applications such as AutoCad\* are consuming ever more graphics processing cycles.

The accelerator card provides customers:

- Best-in-class media transcode channel density for Intel® Xeon® processor E5-based systems in communications service provider deployments
- High performance remote graphics for Intel® Xeon® processor E5-based systems in purpose-built clouds and IT datacenters



<b>PRODUCT NAME</b>	<b>INTEL® VISUAL COMPUTE ACCELERATOR</b>
<b>ORDER CODE</b>	VCA1585LMV
<b>TARGET MARKET</b>	Comms SPs, Video Cloud Builders (Private Cloud), Enterprise Datacenter
<b>PROCESSORS</b>	Three Intel® Xeon® Processor E3-1585L v5 <ul style="list-style-type: none"> <li>• 4 Cores at 3.0 GHz</li> <li>• 45W TDP</li> <li>• Intel® Iris™ Pro graphics P580 (GT4e), 128MB eDRAM</li> </ul>
<b>FORM FACTOR</b>	Full-length, full-height, double-width PCIe* card
<b>PCI</b>	PCIe* 3.0, x16, 8 lanes per processor
<b>POWER</b>	235W
<b>MEMORY</b>	DDR4 2133MHz (1.2V), ECC SODIMMs, 2 channels per processor, up to 64GB per processor
<b>SSD's</b>	Not included
<b>OPERATING SYSTEM ON CARD</b>	CentOS* 7.2, Windows* 10 and Windows Server* 2016 Xen* and KVM hypervisors



The Intel® Server Product Marketing Library is designed as a one-stop-shop for all Intel® Server Product marketing assets and sales tools.

Visit <https://www.intelserveredge.com/>

For more information, visit [www.intel.com/xeon](http://www.intel.com/xeon) and [ark.intel.com](http://ark.intel.com)

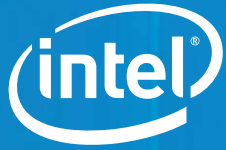
<sup>1</sup> Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. Check with your system manufacturer or retailer or learn more at [www.intel.com](http://www.intel.com). Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products.

All products and dates specified are preliminary based on current expectations and are subject to change without notice. Availability in different channels may vary.

For more complete information about performance and benchmark results, visit [www.intel.com/benchmarks](http://www.intel.com/benchmarks)

Intel, the Intel logo, Intel Inside, the Intel Inside logo, Xeon, and Iris are trademarks of Intel Corporation in the U.S. and/or other countries.

\* Other names and brands may be claimed as the property of others.



# INTEL® OMNI-PATH ARCHITECTURE

**THE HIGH  
PERFORMANCE,  
LOW COST  
FABRIC FOR HPC**

## **INTEL® OMNI-PATH ARCHITECTURE**

Intel® Omni-Path Architecture (Intel® OPA), an element of Intel® Scalable System Framework, delivers the performance for tomorrow's high performance computing (HPC) workloads and the ability to scale to tens of thousands of nodes—and eventually more—at a price competitive with today's fabrics.

# INTEL® OMNI-PATH ARCHITECTURE

## Intel® Omni-Path Architecture

**THE HIGH PERFORMANCE, LOW COST FABRIC FOR HPC. INTEL® OMNI-PATH ARCHITECTURE.**

Imagine you could achieve supercomputing-class performance for your HPC fabric, while reducing your infrastructure requirements by as much as 50 percent.<sup>1</sup>

You could use the money you saved to expand your cluster, potentially delivering up to 24 percent more compute power to your scientists and engineers.<sup>2</sup>

That's the transformative power of Intel® Omni-Path Architecture, a foundational component of the Intel® Scalable System Framework. This end-to-end fabric solution provides 100 Gbps port bandwidth with low latency that stays low even at extreme scale.

With cost-effective scaling from desk-side clusters to exascale supercomputers, Intel Omni-Path Architecture offers world-class fabric solutions for every level of HPC.

For more information, visit [www.intel.com/omnipath](http://www.intel.com/omnipath)



## 100GB Host Interfaces

Designed specifically for HPC, the Intel® Omni-Path Host Fabric Interface (Intel® OP HFI) uses an advanced connectionless design that delivers performance that scales with high node and core counts, making it the ideal choice for the most demanding application environments. Intel OP HFI supports 100 Gbps per port, which means each Intel OP HFI port can deliver up to 25 GBps per port of bidirectional bandwidth. The same ASIC utilized in the Intel OP HFI will also be integrated into future Intel® Xeon® processors and used in third-party products.



100GB HOST INTERFACES

INTEL PART #	100HFA018LS 100HFA018FS	100HFA016LS 100HFA016FS
DESCRIPTION	Single-port PCIe x8 Adapter, Low Profile and Std Height	Single-port PCIe x16 Adapter, Low Profile and Std Height
SPEED	58 Gbps	100 Gbps
PORTS, MEDIA	Single port, QSFP28	Single port, QSFP28
FORM FACTOR	Low profile PCIe Std Height PCIe	Low profile PCIe Std Height PCIe
FEATURES	Passive thermal – QSFP heatsink, supports up to Class 4 max optical transceivers	Passive thermal – QSFP heatsink, supports up to Class 4 max optical transceivers
SANDY BRIDGE	None	None
IVY BRIDGE	None	None
INTEL® XEON® PROCESSOR E5-2600 V3 (HASWELL-EP)	✓	✓
INTEL® XEON® PROCESSOR E5-2600 V4 (BROADWELL-EP)	✓	✓

## Edge Switches

The next generation of high performance computing (HPC) fabrics use Intel® Omni-Path Architecture to create fabrics that meet the needs of the most demanding set of applications.

The Intel® Omni-Path Edge Switch consists of two models supporting 100 Gb/s for all ports, an entry-level 24-port switch for small clusters and a 48-port switch. The larger switch, in addition to enabling a 48-port fabric in 1U, can be combined with other edge switches and directors to build much larger multitier fabrics.

These Intel Omni-Path Edge Switches are members of the Intel® Omni-Path Fabric 100 series of switches, host adapters, and software delivering an exceptional set of high-speed networking features and functions.



### 100GB Host Interfaces

INTEL PART #	100SWE48UF2 / R2 (2 Power Supplies) 100SWE48QF2 / R2 (2 Power Supplies) 100SWE48UF1 / R1 (1 Power Supply) 100SWE48QF1 / R1 (1 Power Supply)	100SWE24UF2 / R2(2 Power Supplies) 100SWE24QF2 / R2 (2 Power Supplies) 100SWE24UF1 / R1 (1 Power Supply) 100SWE24QF1 / R1 (1 Power Supply)	100SWE48QFH 100SWE48UFH
DESCRIPTION	48 Port Edge Switch ("Q" = mgmt card)	24 Port Edge Switch ("Q" = mgmt card)	Hot Swap Power Supply/Fans 48 Port Edge Switch ("Q" = mgmt card)
SPEED	100 Gbps	100 Gbps	100 Gbps
MAX EXTERNAL PORTS	48	24	48
MEDIA	QSFP28	QSFP28	QSFP28
FORM FACTOR	1U	1U	1U
FEATURES	Forward / reverse airflow and mgmt card options, up to 2 PSU	Forward / reverse airflow and mgmt card options, up to 2 PSU	Forward airflow and mgmt card options, up to 2 PSU

### Hot Swap Modules

INTEL PART #	100SWEHSFTF	100SWEHSPSF
DESCRIPTION	Hot Swap Fan Module	Hot Swap Power Supply Module



## Director Switches

The Intel® Omni-Path Director Class Switch (Intel® OP Director Class Switch), based on Intel's next generation 48-radix switch silicon, has many innovative features that provide optimum performance for both small and large fabrics. Both switch models are dense form factor designs capable of supporting up to 768 100 Gb/s ports in a low 20U footprint. Designed to be modular alongside edge switches, host adapters, and software, the Intel OP Director Class Switch 100 series enables customers to tailor their system configuration to meet present and future needs.



**DIRECTOR SWITCHES**

<b>INTEL PART #</b>	100SWD24B1N 100SWD24B1D 100SWD24B1A	100SWD06B1N 100SWD06B1D 100SWD06B1A	100SWDLF32Q	100SWDSPINE	100SWDMGTSH
<b>DESCRIPTION</b>	24-slot Director Class Switch, Base Config	6-slot Director Class Switch, Base Config	Director Class Switch Leaf Module	Director Class Switch Spine Module	Director Class Switch Management Module
<b>SPEED</b>	100 Gbps	100 Gbps	100 Gbps	100 Gbps	100 Gbps
<b>MAX EXTERNAL PORTS</b>	768	192	32	N/A	N/A
<b>MEDIA</b>	10/100/1000 Base-T USB Gen2	10/100/1000 Base-T USB Gen2	QSFP28	Internal high speed connections	10/100/1000 Base-T USB Gen2
<b>FORM FACTOR</b>	20U	7U	Half-width module 2 modules per leaf	Full width module, 2 boards/module	Half-width module
<b>FEATURES</b>	Up to 2 mgmt modules, up to 12 PSUs, AC and DC options	Up to 2 mgmt modules, up to 6 PSUs, AC and DC options	Hot swappable	96 internal mid-plane connections, hot swappable	N+1 redundancy, hot swappable

## Intel® Omni-Path Cables

Intel® Omni-Path Fabric solutions support a broad array of 3rd party cable types and lengths from the industry's leading providers. These cables, together with the Intel® OPA Packet Integrity Protection feature, provide highly reliable communication links with superior bit error rate (BER) performance.

### PASSIVE COPPER CABLES

CABLE LENGTH	INTEL® OMNI-PATH PASSIVE COPPER CABLES
<b>0.5M</b>	100CQQF3005; 100CQQH3005 (30 AWG)
<b>1.0M</b>	100CQQF3010; 100CQQH3010 (30 AWG)
<b>1.5M</b>	100CQQH2615 (26 AWG); 100CQQF3015 (30 AWG)
<b>2.0M</b>	100CQQH2620 (26AWG); 100CQQF3202 (30 AWG)
<b>3.0M</b>	100CQQH2630 (26AWG); 100CQQF3030 (30 AWG); 100CQQF2630 (26 AWG)
<b>3.5M*</b>	100CQQH3035 (30 AWG)
<b>4.0M*</b>	100CQQH2640 (26 AWG); 100CQQF3040 (30 AWG); 100CQQF2640 (26 AWG)
<b>5.0M*</b>	100CQQH2650 (26 AWG); 100CQQF2650 (26 AWG)
<b>5.5M*</b>	100CQQH2655 (26 AWG)
<b>6.0M*</b>	100CQQF2660 (26 AWG)

\* Please consult Intel for configuration details  
100CQQx x=Vendor

### ACTIVE OPTICAL CABLES

CABLE LENGTH	INTEL® OMNI-PATH ACTIVE FIBRE CABLES
<b>3.0M</b>	100FRRF0030; 100FRRL0030; 100FRRA0030
<b>5.0M</b>	100FRRF0050; 100FRRL0050; 100FRRA0050
<b>10M</b>	100FRRF0100; 100FRRA0050; 100FRRA0100
<b>15M</b>	100FRRF0150; 100FRRL0150; 100FRRA0150
<b>20M</b>	100FRRF0200; 100FRRL0200; 100FRRA0200
<b>30M</b>	100FRRF0300; 100FRRL0300; 100FRRA0300
<b>40M</b>	100FRRF0300; 100FRRL0300; 100FRRA0300
<b>50M</b>	100FRRF0500; 100FRRL0500; 100FRRA0500
<b>60M</b>	100FRRF0600; 100FRRL0600; 100FRRA0600
<b>100M</b>	100FRRF1000; 100FRRL1000; 100FRRA1000

\* 100FRRx x=Vendor

For more information, visit [www.intel.com/omnipath](http://www.intel.com/omnipath)

#### FOOTNOTES

- <sup>1</sup> Reduction of infrastructure requirements claim based on a 1024-node full bisectional bandwidth (FBB) Fat-Tree configuration, using a 48-port switch for Intel Omni-Path cluster and 36-port switch ASIC for either Mellanox or Intel® True Scale clusters.
- <sup>2</sup> Configuration assumes a 750-node cluster, and number of switch chips required is based on a full bisectional bandwidth (FBB) Fat-Tree configuration. Intel® OPA uses one fully-populated 768-port director switch, and Mellanox EDR solution uses a combination of 648-port director switches and 36-port edge switches. Intel and Mellanox component pricing from [www.kernelsoftware.com](http://www.kernelsoftware.com), with prices as of October 20, 2016. Assumes \$6,200 for a 2-socket Intel® Xeon® processor based compute node.

Software and workloads used in performance tests may have been optimized for performance only on Intel® microprocessors. Performance tests, such as SYSmark\* and MobileMark,\* are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For more information go to <http://www.intel.com/performance>

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can provide absolute security.

Cost reduction scenarios described are intended as examples of how a given Intel-based product, in the specified circumstances and configurations, may affect future costs and provide cost savings. Circumstances will vary. Intel does not guarantee any costs or cost reduction.

© 2017 Intel Corporation. All rights reserved. Intel, the Intel logo, and Intel Xeon are trademarks of Intel Corporation in the U.S. and other countries.

- \* Other names and brands may be claimed as the property of others.