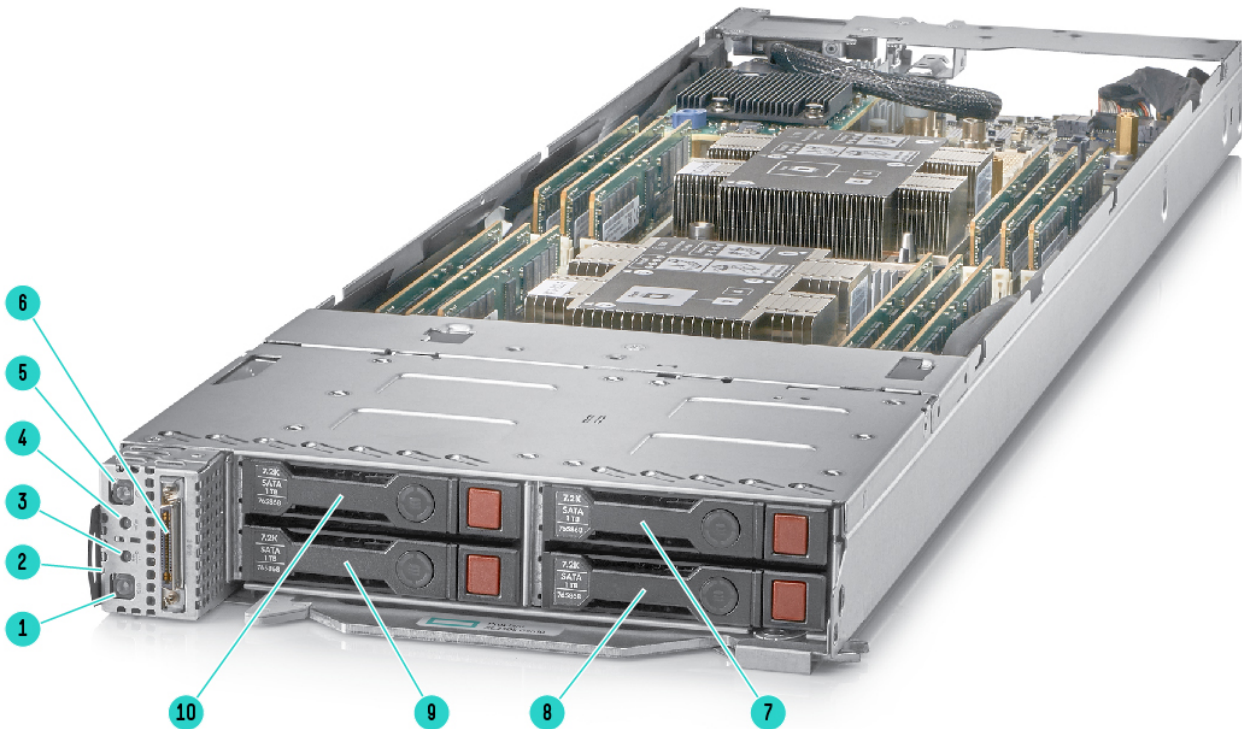## Overview

HPE ProLiant XL230k Gen10 Server

The HPE ProLiant XL230k Gen10 Server delivers extreme compute performance using leading edge technology needed to handle complex HPC workloads. This server leverages latest Intel's Xeon Gold and Platinum series processors and DDR4 2666 MT/s HPE SmartMemory.
The new modular, fully integrated, and highly flexible HPE Apollo k6000 Chassis accommodates up to 24 XL230k server trays, ethernet and high speed fabric switches to address various HPC workload needs. The Apollo k6000 System is a performance optimized, air-cooled solution. This solution offers outstanding configuration flexibility, redundant power, simplified administration and rack-scale efficiency that lowers the total cost of ownership needed for mass scale HPC deployments.
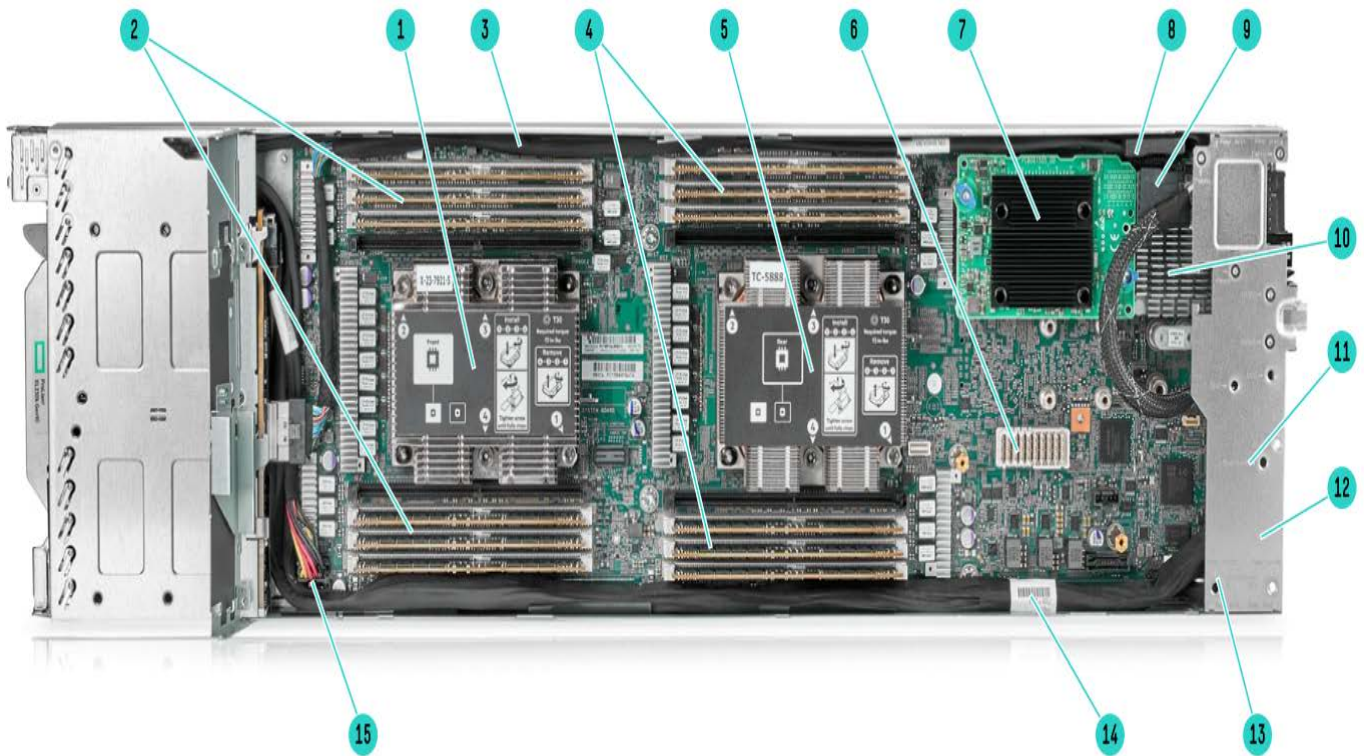

Front View Item Description

Item	Description	Item	Description
1	UID LED/Button	6	SUV Connector
2	Serial label pull tab	7	Drive bay 1
3	NIC LED	8	Drive bay 2
4	Health LED	9	Drive bay 3
5	Power On/Standby button and system power LED	10	Drive bay 4

Overview

Top View

Item	Description	Item	Description
1.	Processor 2 DIMM slots	10.	M.2 cable connector
2.	Processor 2	11.	TPM module
3.	NVMe riser connector	12.	Front panel SUV cable connector (under the bracket)
4.	Processor 1 DIMM slots	13.	Front panel LED cable connector (under the bracket)
5.	Processor 1	14.	System battery (under the bracket)
6.	Mezzanine B connector	15.	PCIe riser connector
7.	Mezzanine A connector	16.	Drive backplane power connector
8.	SATA cable connector	17.	Access panel not shown
9.	Front panel USB cable connector	18.	Air baffle not shown*

*CAUTION: For proper cooling, do not operate the server without the access panel, baffles, expansion slot covers, or blanks installed.

Standard Features

Processors							
Intel Xeon Models	**CPU Frequency**	**Cores**	**L3 Cache**	**Power**	**QPI**	**DDR4 MT/s**	**Memory per socket**
Platinum 8176 Processor	2.1 GHz	28	38.50 MB	165W	3 @ 10.4 GT/s	2666 MT/s	768 GB
Platinum 8170 Processor	2.1 GHz	26	35.75 MB	165W	3 @ 10.4 GT/s	2666 MT/s	768 GB
Platinum 8164 Processor	2.0 GHz	26	35.75 MB	150W	3 @ 10.4 GT/s	2666 MT/s	768 GB
Platinum 8160 Processor	2.1 GHz	24	33.00 MB	150W	3 @ 10.4 GT/s	2666 MT/s	768 GB
Gold 6152 Processor	2.1 GHz	22	30.25 MB	140W	3 @ 10.4 GT/s	2666 MT/s	768 GB
Gold 6150 Processor	2.7 GHz	18	24.75 MB	165W	3 @ 10.4 GT/s	2666 MT/s	768 GB
Gold 6148 Processor	2.4 GHz	20	27.50 MB	150W	3 @ 10.4 GT/s	2666 MT/s	768 GB
Gold 6142 Processor	2.6 GHz	16	22.00 MB	150W	3 @ 10.4 GT/s	2666 MT/s	768 GB
Gold 6140 Processor	2.3 GHz	18	24.75 MB	140W	3 @ 10.4 GT/s	2666 MT/s	768 GB
Gold 6138 Processor	2.0 GHz	20	27.50 MB	125W	3 @ 10.4 GT/s	2666 MT/s	768 GB
Gold 6136 Processor	3.0 GHz	12	24.75 MB	150W	3 @ 10.4 GT/s	2666 MT/s	768 GB
Gold 6134 Processor	3.2 GHz	8	24.75 MB	130W	3 @ 10.4 GT/s	2666 MT/s	768 GB
Gold 6132 Processor	2.6 GHz	14	19.25 MB	140W	3 @ 10.4 GT/s	2666 MT/s	768 GB
Gold 6130 Processor	2.1 GHz	16	22.00 MB	125W	3 @ 10.4 GT/s	2666 MT/s	768 GB
Gold 6128 Processor	3.4 GHz	6	19.25 MB	115W	3 @ 10.4 GT/s	2666 MT/s	768 GB
Gold 6126 Processor	2.6 GHz	12	19.25 MB	125W	3 @ 10.4 GT/s	2666 MT/s	768 GB
Gold 5122 Processor	3.6 GHz	4	16.50 MB	105W	2 @ 10.4 GT/s	2400 MT/s	768 GB

NOTE: All processors within the server must be identical and paired using -B21 and -B22 SKUs for front and rear
NOTE: Select processors may limit the system's inlet ambient support to 25°C or lower.
NOTE: Only 2666 MT/s DDR4 memory is supported

Chipset

Intel® C622 Chipset (Intel EY82C622 PCH)
NOTE: For more information regarding Intel® chipsets, please see the following URL:
http://www.intel.com/products/server/chipsets/

On System Management Processor

HPE iLO 5 ASIC
NOTE: Read and learn more in the **iLO QuickSpecs**

Memory	Type	HPE SmartMemory
		DDR4 Load Reduced (LRDIMM), or Registered (RDIMM)
	DIMM Slots Available	16 DIMM Slots available
	Maximum DIMMs (per server tray)	1024GB (16 x 64GB)

> **NOTE:** HPE memory from previous generation servers are not compatible with the HPE ProLiant XL230k Gen10 Server.
> **NOTE:** For additional information, please see the HPE SmartMemory QuickSpecs at:
> **https://www.hpe.com/h20195/v2/GetPDF.aspx/c04355083.pdf**
> **NOTE:** LRDIMM and RDIMM are distinct memory technologies and cannot be mixed within a server.
> **NOTE:** For DIMM population, please see Memory Population Table at:
> **http://www.hpe.com/docs/memory-population-rules**
> or the Online Memory Configuration Tool at:

Standard Features

http://h22195.www2.hpe.com/MemoryTool/Home/Legal

Memory Protection

Advanced ECC	Detects and corrects multi-bit memory errors. Advanced ECC can detect and correct up to 4-bit memory errors if all failed bits are on the same 4-bit DRAM device on the DIMM, thus enabling continued memory operation.
Online Spare with Advanced ECC Support	Provides protection against persistent DRAM failure. A rank that is starting to degrade making it more likely to receive a fatal/uncorrectable memory error is automatically removed from operation, swapping operation to the spare, thus resulting in less system downtime.
Memory Mirroring with Advanced ECC Support:	Provides protection against uncorrectable memory errors that would otherwise result in system failure. In this mode, the system maintains two copies of all data. If an uncorrectable memory error occurs, the system automatically retrieves the good data from the mirrored (redundant) copy. Use this option to select from the available Memory Mirroring modes. " "Full Mirror - reserves 50% of the total available memory for mirroring. " "Partial Mirror (20% above 4GB) - reserves 20% of the total available Memory above 4GB for Mirroring. " "Partial Mirror (10% above 4GB) - reserves 10% of the total available Memory above 4GB for Mirroring. " "Partial Mirror (Memory below 4GB) - depending on the memory configuration, sets up 2GB or 3GB of lower memory below 4GB for Mirroring. " Partial Mirror (OS Configured) - sets up the system to configure Partial Mirroring at OS level.
HPE Fast Fault Tolerance	Fault Tolerant Advanced Double Device Data Correction (ADDDC) enables the system to correct memory errors and continue to operate in cases of multiple DRAM device failures on a DIMM. This provides protection against uncorrectable memory errors beyond what is available with Advanced ECC.

Expansion Slots

Expansion Slot #	Technology	BusWidth*	Form Factor / Physical connector
Internal PCIe	PCIe 3.0	x8	Low profile x16
External PCIe	PCIe 3.0	x16	Low profile x16
Internal/External	PCIe 3.0	x8/x8	Low profile x16/x16

NOTE: External PCIe riser requires ordering the HPE Apollo Server Tray IO Mod Opt kit 868858-B21
NOTE: Internal Mezzanine B slot will be unavailable with above PCIe options.
*Indicates the number of electrical lanes running to the connector.

Storage Controllers

Software RAID
HPE Smart Array S100i SR Gen10 Software RAID
NOTE: HPE S100i 6G SATA FIO cable SKU 866784-B21 is required to enable this software RAID
NOTE: HPE Smart Array S100i SR Gen10 SW RAID will operate in UEFI mode only. The S100i Software RAID is supported in Windows environment only.
Essential RAID
HPE Smart Array E208i-p SR Gen10 Controller
NOTE: The Smart Array E208i-p requires cable kit SKU 866786-B21
HPE Smart Array E208e-p SR Gen10 Controller
NOTE: The Smart Array E208e-p controllers supports external JBODs and requires external PCIe riser kit
Performance RAID
HPE Smart Array P408i-p SR Gen10 Controller
NOTE: The Smart Array P408i-p above requires cable kit SKU 866786-B21
NOTE: The Smart Array P408i-p controller requires HPE XL230k 12W Smart Storage Battery
Storage Controller Cable Kits
HPE Smart Array E208i-/P408i-p SAS Cable
HPE Smart Array S100i 6G SATA FIO Cable
Other Storage Controller Options
HPE XL230k 12W Smart Storage Battery Kit

Standard Features

Maximum Internal Storage

	Capacity	**Configuration**
Hot Plug SFF SAS HDD	8 TB	4 x 2 TB
Hot Plug SFF SATA HDD	8 TB	4 x 2 TB
Hot Plug SFF SSD	15.36 TB	4 x 3.84 TB
M.2 internal	680 GB	2 x 340 GB
uFF	2.72 TB	4 x (2 uFFx 340 GB)
NVMe SFF	8TB	4 x 2 TB

Interfaces

KVM	Serial USB Video Port (SUV) P/N: 676277-B21 HPE 36pin SUV Dongle Cord Kit
USB Ports	1 internal USB 3.0 and 2 external USB 2.0 via SUV
HPE iLO Remote Management Network Port	Aggregated via HPE Apollo k6000 Chassis Controller or Apollo Platform Manager
Health LED	1
Power	1
UID	1

Standard Features

Operating Systems and Virtualization Software Support for ProLiant Servers

Microsoft Windows Server

- Windows 2012 R2 Standard, Datacenter, Essentials & Hyper-V
- Windows Server 2016 Standard (includes Nano Server), Datacenter & Hyper-V

Red Hat Enterprise Linux (RHEL) 7 & 8

- RHEL 6.9
- RHEL 7.3 w/eratta kernel 3.10.0-514.6.1.el7

SUSE Linux Enterprise Server (SLES) 11.4 or beyond

- SLES 11 SP4 w/kISO
- SLES 12 SP2

VMware ESX

- ESXi 6.0 U3
- ESXi 6.5 & 6.5 U1 (with custom image) - 3.29

Community OSes: Supported 90 days POST launch

- CentOS 6.9/7.3/7.4

NOTE: Only 64-bit versions of these operating systems are supported.
NOTE: For more information on the HPE Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server including how to purchase from Hewlett Packard Enterprise, please visit our OS Support Site at: **http://www.hpe.com/info/ossupport** and our driver download page:
http://www.hpe.com/support

Industry Standard Compliance

ACPI 6.1 Compliant

PCIe 3.0 Compliant

WOL Support

Microsoft® Logo certifications

PXE Support

USB 3.0 Compliant (internal); USB 2.0 Compliant (external ports via SUV)

SMBIOS 3.1

UEFI 2.6

Redfish API

Power Specifications

To review typical system power ratings use the HPE Power Advisor which is available via the online tool located at URL:
http://www.hpe.com/info/poweradvisor/online or **http://www.hpe.com/info/poweradvisor.**
NOTE: Power Specification and Technical Content for supported power supplies can be found at:
https://www.hpe.com/info/qs

Graphics

Integrated video standard

- Video modes up to 1920 x 1200@60Hz (32 bpp)
- 16MB Video Memory

HPE Server UEFI /Legacy ROM

Unified Extensible Firmware Interface (UEFI) is an industry standard that provides better manageability and more secured configuration than the legacy ROM while interacting with your server at boot time. HPE ProLiant Gen10 servers have a UEFI Class

Standard Features

2 implementation and support both UEFI Mode (default) and Legacy BIOS Mode.
NOTE: The UEFI System Utilities tool is analogous to the HPE ROM-Based Setup Utility (RBSU) of legacy BIOS. For more information, please visit **http://www.hpe.com/servers/uefi.**
UEFI enables numerous new capabilities specific to HPE ProLiant servers such as:

- Secure Boot
- Operating system specific functionality
- Support for > 2.2 TB (using GPT) boot drives
- USB 3.0 Stack
- Embedded UEFI Shell
- Mass Configuration Deployment Tool using iLO RESTful API.
- PXE boot support for IPv6 networks
- Boot support for option cards that only support a UEFI option ROM
- Network Stack configurations
- Workload Profiles for simple performance optimization

NOTE: For UEFI Boot Mode, boot environment and OS image installations should be configured properly to support UEFI.
NOTE: UEFI FIO Setting (758959-B22) can be selected to configure the system in Legacy mode in the factory for your HPE ProLiant XL230k Gen10 Server.

Form Factor

The ProLiant XL230k Gen10 Server is a single-slot tray for the HPE Apollo k6000 Chassis

Embedded Management

HPE Integrated Lights-Out (HPE iLO)	Monitor your servers for ongoing management, service alerting, reporting and remote management with HPE iLO. Learn more at **http://www.hpe.com/info/ilo**
UEFI	Configure and boot your servers securely with industry standard Unified Extensible Firmware Interface (UEFI). Learn more at **http://www.hpe.com/servers/uefi**
iLO RESTful API	iLO RESTful API is Redfish API conformance and offers simplified server management automation such as configuration and maintenance tasks based on modern industry standards. Learn more at **http://www.hpe.com/info/restfulapi**
Active Health System	The HPE Active Health System (AHS) is an essential component of iLO management portfolio that provides continuous, proactive health monitoring of HPE servers. Learn more at **http://www.hpe.com/servers/ahs**
Active Health System Viewer	Use the Active Health System Viewer, a web-based portal, to easily read AHS logs and speed problem resolution with HPE self-repair recommendations. Learn more at **http://www.hpe.com/servers/ahsv**
Smart Update Manager	Keep your servers up to date with HPE's Smart Update solution by using Smart Update Manager (SUM) to optimize the firmware and driver updates of the Service Pack for ProLiant (SPP). **http://www.hpe.com/info/smartupdate.**

Server Utilities

iLO Amplifier Pack	Designed for large enterprise and service provider environments with hundreds of HPE servers, the iLO Amplifier Pack is a free, downloadable open virtual application (OVA) that delivers the power to discover, inventory and update Gen8, Gen9 and Gen10 HPE servers at unmatched speed and scale. Use with an iLO Advanced License to unlock full capabilities. **http://www.hpe.com/servers/iLOamplifierpack**
HPE iLO Mobile Application	Enables the ability to access, deploy, and manage your server anytime from anywhere from select smartphones and mobile devices. **http://www.hpe.com/info/ilo/mobileapp**
RESTful Interface Tool	RESTful Interface tool (iLOREST) is a single scripting tool to provision using iLO RESTful API to discover and deploy servers at scale. **http://www.hpe.com/info/resttool**
Scripting tools	Provision 1 to many servers using your own scripts to discover and deploy with Scripting Toolkit (STK) for Windows and Linux or Scripting Tools for Windows PowerShell. **http://www.hpe.com/servers/stk or http://www.hpe.com/servers/powershell**
HPE OneView Standard	HPE OneView Standard can be used for inventory, health monitoring, alerting, and reporting

Standard Features

	without additional fees. It can monitor multiple HPE Servers generations. The user interface is similar to the HPE OneView Advanced version, but the software-defined functionality is not available. **http://www.hpe.com/info/oneview**
HPE Systems Insight Manager (HPE SIM)	Ideal for environments already using HPE SIM, it allows you to monitor the health of your HPE ProLiant Servers and HPE Integrity Servers. Also provides you with basic support for non-HPE servers. HPE SIM also integrates with Smart Update Manager to provide quick and seamless firmware updates. **www.hpe.com/info/hpesim**

Server Management Software Licenses

HPE iLO Advanced	HPE iLO Advanced licenses offer smart remote functionality without compromise, for all HPE ProLiant servers. The license includes the full integrated remote console, virtual keyboard, video, and mouse (KVM), multi-user collaboration, console record and replay, and GUI-based and scripted virtual media and virtual folders. You can also activate the enhanced security and power management functionality. **http://www.hpe.com/servers/iloadvanced**
HPE iLO Advanced Premium Security Edition	HPE iLO Advanced Premium Security Edition for iLO 5 includes iLO Advanced License plus high-end security modes, unique security capabilities, like Automatic FW recovery; Runtime FW verification, and Secure erase. **http://www.hpe.com/servers/ilopremium**
HPE iLO Scale-Out	HPE iLO Scale-Out is the preferred license built for web hosting, cloud service providers, and high performance computing data centers, managing massive scale out environments. This license offers sophisticated scripting tools that provides remote access through Text Console via SSH, Dynamic power capping, Email-based Alerting and proactive notifications. **http://www.hpe.com/servers/iLO/scale-out**
HPE OneView Advanced	HPE OneView brings a new level of automation to infrastructure management by taking a template driven approach to provisioning, updating, and integrating compute, storage, and networking infrastructure. It provides full-featured licenses which can be purchased for managing Gen8 Gen9 and Gen10 servers. **http://www.hpe.com/info/oneview**
HPE Insight Cluster Management Utility (CMU)	HPE Insight Cluster Management Utility is a HyperScale management framework that includes software for the centralized provisioning, management and monitoring of nodes and infrastructure. **http://www.hpe.com/info/cmu**
HPE Insight Control	HPE Insight Control is recommended for current implementation on HPE Servers to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. **http://www.hpe.com/info/insightcontrol**

Security

- UEFI Secure Boot and Secure Start support
- Immutable Silicon Root of Trust
- Support for Commercial National Security Algorithms (CNSA)
- iLO Security Modes including a New iLO Advance Premium Security License
- Granular control over iLO interfaces
- Common Access Card (CAC) 2-factor Authentication
- Tamper-free updates – components digitally signed and verified
- Secure Recovery – recover critical firmware to known good state on detection of compromised firmware
- TPM (Trusted Platform Module) 1.2 option
- TPM (Trusted Platform Module) 2.0 option Bezel Locking Kit
- Intrusion Security Kit option

Ethernet Options

HPE Ethernet 10/25Gb 2p 631SFP28 Adapter
HPE Ethernet 10Gb 2p 535T Adapter
HPE Ethernet 10Gb 2p 562T Adapter
HPE Ethernet 1Gb 4-port 366T Adapter
HPE Ethernet 10/25Gb 2P 640SFP28 Adapter
HPE Ethernet 1Gb 4-port 331T Adapter
HPE Ethernet 4x25Gb 1p 620QSFP28 Adapter

Standard Features

HPE Ethernet 1Gb 2P 361T Adapter
HPE Ethernet 1Gb 2P 332T Adapter
HPE Ethernet 10Gb 2-port 562SFP+ Adapter
High Speed Fabric Option
HPE Apollo IB EDR 100GB 840z FIO Adapter
HPE 100Gb 1p OPA 860z FIO Adapter

Service and Support

Warranty

This product is covered by a global limited warranty and supported by Hewlett Packard Enterprise Services and a worldwide network of Hewlett Packard Enterprise Authorized Channel Partners (may vary by region). Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HPE Care Pack services or customized service agreements. Hard drives have either a one year or three year warranty.

NOTE: Server Warranty includes 3 year Parts, 3 year Labor, 3-year on-site support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have Hewlett Packard Enterprise replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at:
http://www.hpe.com/support/ProLiantServers-warranties

Warranty and Services - Options

NOTE: HPE ProLiant XL230k Gen10 Servers are covered under the HPE Service Contract applied to the HPE ProLiant Server. No separate HPE support services need to be purchased.

Warranty and Support Services will extend to include HPE options configured with your server or storage device. The price of support service is not impacted by configuration details. HPE sourced options that are compatible with your product will be covered under your server support at the same level of coverage allowing you to upgrade freely. Installation for HPE options is available as needed. To keep support costs low for everyone, some high value options will require additional support. Additional support is only required on select high value workload accelerators, fibre switches, InfiniBand and UPS batteries over 12KVA. See the specific high value options that require additional support : **www.hpe.com/h20195/V2/GetPDF.aspx/4AA4-8876ENW.pdf**

HPE Pointnext Service and Support

The support of HPE XL230k tray covers the tray and all included options. It is recommended to have the same attached support level for the Server tray as the chassis

HPE Technology Services for Apollo Systems

Protect your business beyond warranty with HPE Support Services

HPE Pointnext provides a comprehensive portfolio including Advisory and Transformational, Professional, and Operational Services to help accelerate your digital transformation. From the onset of your transformation journey, Advisory and Transformational Services focus on designing the transformation and creating a solution roadmap. Professional Services specializes in creative configurations with flawless and on-time implementation, and on-budget execution. Finally, operational services provides innovative new approaches like Flexible Capacity and Datacenter Care, to keep your business at peak performance. HPE is ready to bring together all the pieces of the puzzle for you, with an eye on the future, and make the complex simple.

Get connected to Hewlett Packard Enterprise to improve your support experience

Connect your devices:

Unlock all of the benefits of your technology investment by connecting your products to Hewlett Packard Enterprise. Reduce down time and improve diagnostic accuracy with a single consolidated view of your environment. By connecting, you will receive 24x7monitoring, pre-failure alerts, automatic call logging, and automatic parts dispatch. HPE Proactive Care Service and HPE Datacenter Care Service customers will also benefit from proactive activities to help prevent issues and increase optimization. All of these benefits are already available to you with your server storage and networking products, securely connected to HPE support. Learn more about getting connected at **http://www.hpe.com/services/getconnected**

Recommended HPE Support Services for your XL230k: Supports maintaining servers at optimum performance availability:

HPE Proactive Care gives customers an enhanced call experience.

When your products are connected to HPE, Proactive Care helps prevent problems and maintains IT stability by utilizing personalized proactive reports with recommendations and advice This Service combines three years proactive reporting and advice with our 24x7 coverage, four hour hardware response time when there is a problem. This service also includes collaborative software support for Independent Software Vendors (ISVs), (Red Hat, VMWare, Microsoft, etc.) running on your HPE servers.
https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf

Service and Support

NOTE: *HPE Proactive Care and HPE Proactive Care Advanced require that the customer connect their devices to make the most of these services and receive all the deliverables.

Standard recommendation: HPE Foundation Care 24x7, three-year Support Service
HPE Foundation Care 24x7 gives you access to HPE 24 hours a day, seven days a week for assistance on resolving issues. Tis service includes need based Hardware onsite response within four hours. In addition, collaborative software support is included in this service that provides troubleshooting assistance on industry leading software running on your HPE server. Simplify your support experience and make HPE your first call to help resolve hardware or software problems.
https://www.hpe.com/h20195/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en

Basic recommendation: HPE Foundation Care NBD, three-year Support Service
HPE Foundation Care Next Business Day connects you to HPE during business hours for assistance on resolving issues – This service features need based next business day hardware onsite response and software call back within two hours. In addition, Collaborative software support and provides troubleshooting assistance on industry leading software running on your HPE server. Simplify your support experience and make HPE your first call to help resolve hardware or software problems.
https://www.hpe.com/h20195/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=e

Parts and Materials
HPE will provide HPE-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.
Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.
The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.

Other Related Services

HPE Server Hardware Installation
Provides for the basic hardware installation of HPE branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.
https://www.hpe.com/h20195/V2/GetPDF.aspx/5981-9356EN.pdf

HPE Installation and Startup Service
Provides for the installation of your HPE hardware according to product specifications including options as well as installation of the operating system. The HPE service delivery technician will connect the product to a LAN as appropriate and enable remote support to allow for automatic case creation for hardware failures.

HPE Datacenter Care service
HPE Datacenter Care helps improve IT stability and security, increase the value of IT, and enable agility and innovation. It is a structured framework of repeatable, tested, and globally available services "building blocks." You can deploy, operate, and evolve your datacenter wherever you are on your IT journey. With HPE Datacenter Care, you benefit from a personalized relationship with HPE via a single point of accountability for HPE and others' products. For more information, visit
http://www.hpe.com/services/datacentercare

HPE Flexible Capacity
With Flexible Capacity, you get the speed, scalability, and economics of the public cloud in the privacy of your data center. Gain the advantages of the public cloud—consumption-based payment, rapid scalability without worrying about capacity constraints. Reduce the "heavy lifting" needed to operate a data center. And retain the advantages that IT provides the business (i.e., control, security). Deliver the right user experience, choose the right technology for the business, manage privacy and compliance, and manage the cost of IT. And, you have the option to use the public cloud when needed.

DC for Hyperscale
Datacenter Care for Hyperscale is available for Service Providers and HPC customers who use a scale out approach to computing with a high volume homogenous infrastructure and resilient architecture can take advantage of this environment support tailored to their operating model.

HPE Factory Express for Servers and storage
HPE Factory Express offers configuration, customization, integration and deployment services for HPE servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.
Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HPE products supported through

Service and Support

Factory Express include a wide array of servers and storage: HPE Integrity, HPE ProLiant, HPE Apollo, HPE ProLiant Server Blades, HPE BladeSystem, HPE 9000 servers, as well as the HPE MSAxxxx, HPE 3PAR suite, HPE XP, rackable tape libraries and configurable network switches.

HPE Technology Services Support Credits
Offer flexible services and technical skills to meet your changing IT demands. With a menu of service that is tailored to suit your needs, you get additional resources and specialist skills to help you maintain peak performance of your IT. Offered as annual credits, you can plan your budgets while proactively responding to your dynamic business.

HPE Education Services
Keep your IT staff trained making sure they have the right skills to deliver on your business outcomes. Book a class today and learn how to get the most from your technology investment. **http://www.hpe.com/ww/learn**

HPE Support Center
The HPE Support Center is a personalized online support portal with access to information, tools and experts to support HPE business products. Submit support cases online, chat with HPE experts, access support resources or collaborate with peers. Learn more at **http://www.hpe.com/support/hpesc**

HPE's Support Center Mobile App* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime. HPE Insight Remote Support and HPE Support Center are available at no additional cost with a HPE warranty, HPE Support Service or HPE contractual support agreement.
NOTE: *HPE Support Center Mobile App is subject to local availability

For more information visit http://www.hpe.com/services

Configuration Information

HPE Apollo k6000 Chassis
https://www.hpe.com/h20195/v2/gethtml.aspx?docname=c04293373

Step 1: Base Configuration (Choose one of the CTO Models below)

HPE CTO Model	HPE ProLiant XL230k Gen10 Single-width 2P 1.2m Compute Tray	865404-B21

> **NOTE:** Select one "B21" processor and a matching "B22" processor in step 2.

Step 2: Choose Required Options (only one from each category unless otherwise noted)

Intel-Platinum Processors

HPE XL230k Gen10 Intel Xeon-Platinum 8176 (2.1GHz/28-core/165W) Rear Processor Kit	870250-B21
HPE XL230k Gen10 Intel Xeon-Platinum 8176 (2.1GHz/28-core/165W) Front Processor Kit	870250-B22
HPE XL230k Gen10 Intel Xeon-Platinum 8170 (2.1GHz/26-core/165W) Rear Processor Kit	870254-B21
HPE XL230k Gen10 Intel Xeon-Platinum 8170 (2.1GHz/26-core/165W) Front Processor Kit	870254-B22
HPE XL230k Gen10 Intel Xeon-Platinum 8164 (2.0GHz/26-core/150W) Rear Processor Kit	870256-B21
HPE XL230k Gen10 Intel Xeon-Platinum 8164 (2.0GHz/26-core/150W) Front Processor Kit	870256-B22
HPE XL230k Gen10 Intel Xeon-Platinum 8160 (2.1GHz/24-core/145W) Rear Processor Kit	870258-B21
HPE XL230k Gen10 Intel Xeon-Platinum 8160 (2.1GHz/24-core/145W) Front Processor Kit	870258-B22

Intel-Platinum Processors

HPE XL230k Gen10 Intel Xeon-Platinum 8176 (2.1GHz/28-core/165W) Rear Processor Kit	870250-B21
HPE XL230k Gen10 Intel Xeon-Platinum 8176 (2.1GHz/28-core/165W) Front Processor Kit	870250-B22
HPE XL230k Gen10 Intel Xeon-Platinum 8170 (2.1GHz/26-core/165W) Rear Processor Kit	870254-B21
HPE XL230k Gen10 Intel Xeon-Platinum 8170 (2.1GHz/26-core/165W) Front Processor Kit	870254-B22
HPE XL230k Gen10 Intel Xeon-Platinum 8164 (2.0GHz/26-core/150W) Rear Processor Kit	870256-B21
HPE XL230k Gen10 Intel Xeon-Platinum 8164 (2.0GHz/26-core/150W) Front Processor Kit	870256-B22
HPE XL230k Gen10 Intel Xeon-Platinum 8160 (2.1GHz/24-core/145W) Rear Processor Kit	870258-B21
HPE XL230k Gen10 Intel Xeon-Platinum 8160 (2.1GHz/24-core/145W) Front Processor Kit	870258-B22

Intel-Gold Processors

HPE XL230k Gen10 Intel Xeon-Gold 6152 (2.1GHz/22-core/140W) Rear Processor Kit	870268-B21
HPE XL230k Gen10 Intel Xeon-Gold 6152 (2.1GHz/22-core/140W) Front Processor Kit	870268-B22
HPE XL230k Gen10 Intel Xeon-Gold 6150 (2.7GHz/18-core/165W) Rear Processor Kit	870260-B21
HPE XL230k Gen10 Intel Xeon-Gold 6150 (2.7GHz/18-core/165W) Front Processor Kit	870260-B22
HPE XL230k Gen10 Intel Xeon-Gold 6148 (2.4GHz/20-core/145W) Rear Processor Kit	870565-B21
HPE XL230k Gen10 Intel Xeon-Gold 6148 (2.4GHz/20-core/145W) Front Processor Kit	870565-B22
HPE XL230k Gen10 Intel Xeon-Gold 6142 (2.6GHz/16-core/150W) Rear Processor Kit	870567-B21
HPE XL230k Gen10 Intel Xeon-Gold 6142 (2.6GHz/16-core/150W) Front Processor Kit	870567-B22
HPE XL230k Gen10 Intel Xeon-Gold 6140 (2.3GHz/20-core/135W) Rear Processor Kit	870272-B21
HPE XL230k Gen10 Intel Xeon-Gold 6140 (2.3GHz/20-core/135W) Front Processor Kit	870272-B22
HPE XL230k Gen10 Intel Xeon-Gold 6138 (2.0GHz/20-core/125W) Rear Processor Kit	870246-B21
HPE XL230k Gen10 Intel Xeon-Gold 6138 (2.0GHz/20-core/125W) Front Processor Kit	870246-B22
HPE XL230k Gen10 Intel Xeon-Gold 6136 (3.0GHz/12-core/150W) Rear Processor Kit	870252-B21
HPE XL230k Gen10 Intel Xeon-Gold 6136 (3.0GHz/12-core/150W) Front Processor Kit	870252-B22

Configuraiton Information

HPE XL230k Gen10 Intel Xeon-Gold 6134 (3.2GHz/8-core/130W) Rear Processor Kit	870591-B21
HPE XL230k Gen10 Intel Xeon-Gold 6134 (3.2GHz/8-core/130W) Front Processor Kit	870591-B22
HPE XL230k Gen10 Intel Xeon-Gold 6132 (2.6GHz/14-core/140W) Rear Processor Kit	870602-B21
HPE XL230k Gen10 Intel Xeon-Gold 6132 (2.6GHz/14-core/140W) Front Processor Kit	870602-B22
HPE XL230k Gen10 Intel Xeon-Gold 6130 (2.1GHz/16-core/120W) Rear Processor Kit	870571-B21
HPE XL230k Gen10 Intel Xeon-Gold 6130 (2.1GHz/16-core/120W) Front Processor Kit	870571-B22
HPE XL230k Gen 10 Intel Xeon-Gold 6128 (3.4GHz/6-core/115W) Rear Processor Kit	870596-B21
HPE XL230k Gen 10 Intel Xeon-Gold 6128 (3.4GHz/6-core/115W) Front Processor Kit	870596-B22
HPE XL230k Gen10 Intel Xeon-Gold 6126 (2.6GHz/12-core/125W) Rear Processor Kit	870575-B21
HPE XL230k Gen10 Intel Xeon-Gold 6126 (2.6GHz/12-core/125W) Front Processor Kit	870575-B22
HPE XL230k Gen10 Intel Xeon-Gold 5122 (3.6GHz/4-core/105W) Rear Processor Kit	870569-B21
HPE XL230k Gen10 Intel Xeon-Gold 5122 (3.6GHz/4-core/105W) Front Processor Kit	870569-B22

NOTE: All processors within the server must be identical and paired using B21 and B22 SKUs for front and rear
NOTE: Select processors may limit the system's inlet ambient support to 25°C or lower.

HPE Memory

Registered DIMMs (RDIMMs) – DDR4-2666

HPE 8GB (1Rx8) Single Rank x8 DDR4-2666 CAS-19-19-19 Registered Memory Kit	815097-B21
HPE 16GB (1Rx4) Single Rank x4 DDR4-2666 CAS-19-19-19 Registered Memory Kit	815098-B21
HPE 16GB (2Rx8) Dual Rank x4 DDR4-2666 CAS-19-19-19 Registered Memory Kit	835955-B21
HPE 32GB (2Rx4) Dual Rank x4 DDR4-2666 CAS-19-19-19 Registered Memory Kit	815100-B21

Load Reduced DIMMs (LRDIMMs) –DDR4-2666

HPE 64GB (4Rx4) Quad Rank x4 DDR4-2666 CAS-19-19-19 Load Reduced Memory Kit	815101-B21

NOTE: Minimum 2 DIMMs are required per server; up to 8 DIMMs per processor.
NOTE: If Fabric is installed, minimum of 32GB is required
NOTE: A maximum of 16 DIMMs are supported per XL230k server tray (or 8 DIMMs max per processor).
NOTE: LRDIMM and RDIMM are distinct memory technologies and cannot be mixed within a server.
NOTE: HPE memory from previous generation servers is not compatible with this server. HPE SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen10. For additional information, please see the HPE Server Memory Options Population Rules:
http://www.hpe.com/docs/memory-population-rules

HPE Storage Controllers

Essential RAID Controller

HPE Smart Array E208i-p SR Gen10 (8 Internal Lanes/No Cache) 12G SAS PCIe Plug-in Controller	804394-B21
HPE Smart Array E208e-p SR Gen10 (8 External Lanes/No Cache) 12G SAS PCIe Plug-in Controller	804398-B21

NOTE: The Essentail RAID controllers are only supported with PCIe IO Riser card

Performance RAID Controller

HPE Smart Array P408i-p SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS PCIe Plug-in Controller	830824-B21

NOTE: This controller is only supported with PCIe IO Riser card
NOTE: The Smart Array P408i-p requires the HPE 12W Smart Storage Battery

Other Storage Controller Options

HPE 12W Smart Storage Battery (up to 3 Devices) for Apollo XL230k Gen10 Server	875240-B21

NOTE: If Smart Array P408i-p with Smart Storage battery is selected, M.2 option kit cannot be installed as the battery shares the same space.

HPE PCIe riser kits

HPE XL230k x8 LP PCIe Int IO Riser Kit	866722-B21

Configuraiton Information

HPE XL230k x8 LP PCIe Int/Ext Riser Kit	866721-B21
HPE XL230k x16 LP PCIe Ext IO Riser Kit	866720-B21

NOTE: The above options require HPE Apollo Server Tray IO Module Option Kit P/N 868858-B21.
NOTE: Microsoft Windows does not include native support for certain expansion cards that can be installed in the I/O module. For more information about enabling support, see the Hewlett Packard Enterprise
website:**(http://www.hpe.com/support/XL230k-io).**

HPE Ethernet Options

HPE Ethernet 10/25Gb 2p 631SFP28 Adapter	817718-B21
HPE Ethernet 10Gb 2p 535T Adapter	813661-B21
HPE Ethernet 1Gb 4-port 366T Adapter	811546-B21
HPE Ethernet 10/25Gb 2P 640SFP28 Adptr	817753-B21
HPE Ethernet 1Gb 4-port 331T Adapter	647594-B21
HPE Ethernet 4x25Gb 1p 620QSFP28 Adapter	817762-B21
HPE Ethernet 1Gb 2P 361T Adapter	652497-B21

HPE InfiniBand Options

HPE Apollo IB EDR 100Gb 840z FIO Adptr	843400-B21

Intel High Speed Options

HPE InfiniBand Options

HPE Apollo IB EDR 100Gb 840z FIO Adptr	843400-B21

Intel High Speed Options

HPE 100Gb 1p OPA 860z FIO Adapter	**851226-B21**

High Speed Fabric Cable Options

HPE Int Single Fabric 20GHz LH Cable	875346-B21
HPE Int Dual Fabric 20GHz LH Cable	875348-B21

Step 3: Choose Additional Factory Integrated Options

NOTE: Some options may not be integrated at the factory. To ensure only valid configurations are ordered, Hewlett Packard Enterprise recommends the use of a Hewlett Packard Enterprise approved configurator. Contact your local sales representative for additional information.

HPE Drives

Enterprise - 12G SAS - SFF Drives

HPE 300GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty HDD	759208-B21
HPE 300GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	870753-B21
HPE 300GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty HDD	785067-B21
HPE 300GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	872475-B21
HPE 450GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty HDD	759210-B21
HPE 600GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty HDD	759212-B21
HPE 600GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	870757-B21
HPE 600GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD	870763-B21
HPE 600GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty HDD	781516-B21
HPE 600GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	872477-B21
HPE 900GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty DS Digitally Signed Firmware HDD	870759-B21
HPE 900GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD	870765-B21
HPE 900GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty HDD	785069-B21
HPE 1.2TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty HDD	781518-B21

Configuraiton Information

HPE 1.2TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	872479-B21
HPE 1.8TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e HDD	791034-B21
HPE 1.8TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD	872481-B21
HPE 1TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty HDD	832514-B21
HPE 1TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e HDD	765464-B21
HPE 2TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e HDD	765466-B21

Midline - 6G SATA - SFF Drives

HPE 1TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e HDD	765453-B21

Write Intensive - NVMe - SFF - Solid State Drives

HPE 400GB NVMe x4 Lanes Write Intensive SFF (2.5in) SCN 3yr Wty SSD	736936-B21
HPE 800GB NVMe x4 Lanes Write Intensive SFF (2.5in) SCN 3yr Wty SSD	736939-B21
HPE 1.6TB NVMe x4 Lanes Write Intensive SFF (2.5in) SCN 3yr Wty SSD	764892-B21
HPE 2TB NVMe x4 Lanes Write Intensive SFF(2.5in) SCN 3yr Wty SSD	764894-B21

Read Intensive - SATA - M.2 - Solid State Drives

HPE 120GB 6G SATA Read Intensive M.2 2280 3yr Wty Solid State Drive	777262-B21
HPE 120GB SATA 6G Read Intensive UFF 3yr Wty Dual M.2 Kit	822593-B21
HPE 340GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	777264-B21
HPE 340GB SATA 6G Read Intensive UFF 3yr Wty Dual M.2 Kit	815605-B21
HPE 340GB SATA 6G Read Intensive UFF 3yr Wty M.2 Kit	815606-B21

Read Intensive - NVMe - SFF - Solid State Drives

HPE 400GB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty SSD	764904-B21
HPE 1.2TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty SSD	764906-B21
HPE 2TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty SSD	764908-B21

Mixed Use - NVMe - SFF - Solid State Drives

HPE 400GB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty SSD	765034-B21
HPE 800GB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty SSD	765036-B21
HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty SSD	765038-B21
HPE 2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty SSD	765044-B21

NOTE: Hard drives have either a one year or three year warranty.
NOTE: The hard drive options are not required when configuring a Drive-less Model.
NOTE: The H240 controller is required when ordering SAS drives.
NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.

Security Hardware

HPE Trusted Platform Module 2.0 Gen10 Kit Option	864279-B21
HPE Trusted Platform Module 1.2 Gen10 FIO Mode Setting	872108-B21

HPE Rack Options

HPE USB BFR with PVC Free US Keyboard/Mouse Kit	631341-B21
HPE USB BFR with PVC Free UK Keyboard/Mouse Kit	631344-B21
HPE USB BFR with PVC Free FR Keyboard/Mouse Kit	631346-B21
HPE USB BFR with PVC Free ES Keyboard/Mouse Kit	631348-B21
HPE USB BFR with PVC Free DE Keyboard/Mouse Kit	631358-B21
HPE USB BFR with PVC Free JP Keyboard/Mouse Kit	631360-B21
HPE USB BFR with PVC Free IT Keyboard/Mouse Kit	631362-B21

Configuraiton Information

HPE USB BFR with PVC Free CN Keyboard/Mouse Kit	631364-B21
HPE USB BFR with PVC Free AE Keyboard/Mouse Kit	638212-B21
HPE USB BFR with PVC Free RU Keyboard/Mouse Kit	638214-B21
HPE USB BFR with PVC Free IN Keyboard/Mouse Kit	672097-D63
HPE USB BFR with PVC Free AP-Intl Keyboard/Mouse Kit	672097-373
HPE USB BFR with PVC Free Intl Keyboard/Mouse Kit	672097-B33
HPE USB BFR with PVC Free PT Keyboard/Mouse Kit	672097-133
HPE USB BFR with PVC Free TR Keyboard/Mouse Kit	672097-143
HPE USB BFR with PVC Free CZ Keyboard/Mouse Kit	672097-223
HPE USB BFR with PVC Free FI Keyboard/Mouse Kit	672097-353
HPE USB BFR with PVC Free SE Keyboard/Mouse Kit	672097-103
HPE USB BFR with PVC Free CH Keyboard/Mouse Kit	672097-113
HPE USB BFR with PVC Free KR Keyboard/Mouse Kit	672097-KD3

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hpe.com/products/QuickSpecs/13972_div/13972_div.html

Embedded Management

HPE iLO Advanced

HPE iLO Adv incl 1yr TSU E-LTU	E6U59ABE
HPE iLO Adv incl 3yr TSU E-LTU	E6U64ABE
HPE iLO Adv incl 3yr TSU 1-Svr Lic	BD505A
HPE iLO Adv incl 1yr TSU 1-Svr Lic	512485-B21

USB and SD Options

HP Dual 8GB microSD EM USB Kit	741279-B21
HP 8GB USB EM Flash Media Kit	737953-B21
HP 36pin SUV Dongle Cord Kit	676277-B21

HPE Support Services

HPE Install Apollo 6000Gen10 Chassis SVC	H2GA8E
HPE Apollo 6000 Gen10 Startup SVC	H6SV1E

Support Services

HPE 3Y PC 24x7 XL230k Gen10 SVC	H2FT3E
HPE 3Y PC 24x7 wDMR XL230k Gen10 SVC	H2FT4E
HPE 3Y PC 24x7 wCDMR XL230k Gen10 SVC	H2FT5E
HPE 3Y FC 24x7 XL230k Gen10 SVC	H2FT0E
HPE 3Y FC 24x7 wDMR XL230k Gen10 SVC	H2FT1E
HPE 3Y FC 24x7 wCDMR XL230k Gen10 SVC	H2FT2E
HPE 3Y FC NBD XL230k Gen10 SVC	H2FS1E

Memory

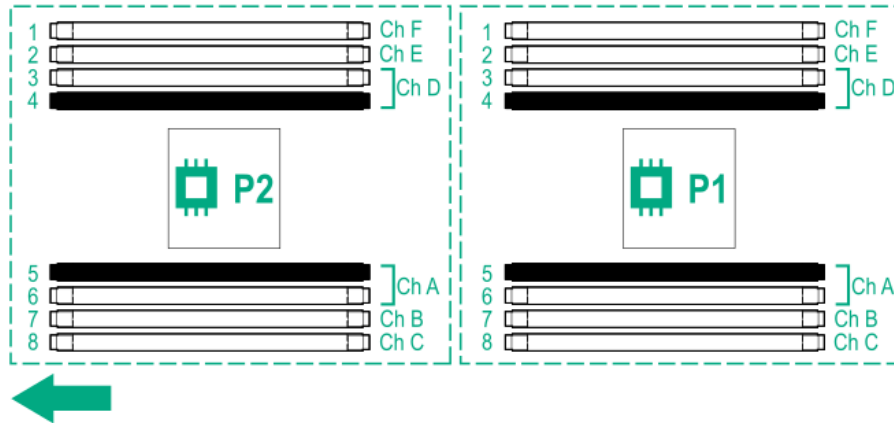### HPE Memory

For detailed memory configuration rules and guidelines, please use the Online DDR4 Memory Configuration Tool:
http://h22195.www2.hpe.com/MemoryTool/Home/Legal

Memory Subsystem Architecture

Each Intel® Xeon® Gold and Platinum family processor socket contains three memory channels that support one or two DIMMs each for a total of eight (8) DIMM per installed processor or a grand total of sixteen (16) DIMMs for the server. Up to 64 GB capacity DIMMs are supported for 1024 GB of memory (16 DIMM slots x 64 GB per DIMM).

General Memory Population Rules and Guidelines:

For details on the HPE Server Memory Options Population Rules, visit:
http://www.hpe.com/docs/memory-population-rules
For details on the HPE Server Memory Options RAS Features, visit:
https://www.hpe.com/h20195/V2/Getdocument.aspx?docname=4AA4-3490ENW

Supported Memory Bandwidth with Intel Xeon Gold and Platinum Series Processor Family					
Memory Bandwidth and capacity					
DIMM Type	**Registered DIMMs (RDIMMs)**				**Load Reduced (LRDIMMs)**
HPE SKU	815097-B21	815098-B21	835955-B21	815100-B21	815101-B21
DIMM Rank	1R	1R	2R	2R	4R
DIMM Capacity	8 GB	16 GB	16 GB	32 GB	64 GB
Voltage	1.2V	1.2V	1.2V	1.2V	1.2V
DRAM Depth	1G	2G	1G	2G	2G
DRAM Width	x8	x4	X8	X4	X4
DRAM Density	8 Gb	8 Gb	8 Gb	8 Gb	8 Gb
CAS Latency	19-19-19	19-19-19	19-19-19	19-19-19	19-19-19
DIMM Native Speed	2666	2666	2666	2666	2666
Slots	16	16	16	16	16
Max Capacity (GB)	128 GB	256 GB	256 GB	512 GB	1024 GB
1 DIMM per channel	2666	2666	2666	2666	2666

NOTE: Capacity references are rounded to the common gigabyte (GB) values.
- 8GB = 8,192MB
- 16GB = 16,384MB
- N32GB = 32,768MB
- 64GB = 65,536MB
- 128GB = 131,072MB

Memory

Memory options part number decoder
NOTE: For Memory technical specifications, including part number decoder
visit:**https://www.hpe.com/h20195/v2/gethtml.aspx?docname=c04355083**

Technical Specifications

System Unit Specifications

Server Dimensions (L x W x D)	1.65 x 7.64 x 30.53 in (4.19 x 19.41 x 77.55 cm)
Shipping Dimensions (L x W x D)	8.78 x 14.72 x 39.33 in (22.30 x 37.39 x 99.90 cm)
Weight (approximate, maximum) (four hard drives and two processors installed)	15.0 lb (6.80 kg)

System Inlet Temperature

Standard Operating Support	10° to 35°C (50° to 95°F)	At sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 20°C/hr (36°F/hr). The upper limit and rate of change may be limited by the type and number of options installed. System performance during standard operating support may be reduced if operating with a fan fault or above 30°C (86°F).
Extended Ambient Operating Support	10° to 5°C (50° to 41°F) and 35° to 40°C (95° to 104°F)	For approved hardware configurations, the supported system inlet range is extended to be: 10° to 5°C (50° to 41°F) and 35° to 40°C (95° to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: **http://www.hpe.com/servers/ASHRAE** For approved hardware configurations, the supported system inlet range is extended to be: 40° to 45°C (104° to 113°F) at sea level with an altitude derating of 1.0°C per every 125 m (1.8°F per every 410 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: **http://www.hpe.com/servers/ASHRAE** System performance may be reduced if operating in the extended ambient operating range or with a fan fault.
Non-operating	-30° to 60°C (-22° to 140°F).	Maximum rate of change is 20°C/hr (36°F/hr).

Relative Humidity (non-condensing)

Operating	10 to 90%	Relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
Non-operating	5 to 95%	Relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.

NOTE: Operating temperature has an altitude derating of 1.8° F (1° C) per 1,000 ft (304.8 m). No direct sunlight. Upper operating limit is 10,000 ft (3,048 m) or 70Kpa/10.1 psia. Upper non-operating limit is 30,000 ft (9,144 m) or 30.3 KPa/4.4 psia. Storage maximum humidity of 95% is based on a maximum temperature of 113° F (45° C). Altitude maximum for storage is 70 KPa.

Altitiude

Operating	3050 m (10,000 ft)	This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457

Technical Specifications

m/min (1500 ft/min).

Acoustic Noise

Listed are the declared A-Weighted sound power levels (LWAd) and measured average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). The listed sound levels apply to standard shipping configurations.

Configuration SKU	Entry	Base	Performance
Idle – LWAd	6.9 B	6.9 B	6.9 B
Idle – LpAm	53 dBA	53 dBA	53 dBA
Operating - LWAd	8.1 B	8.6 B	9.0 B
Operating - LpAm	64 dBA	69 dBA	73 dBA

NOTE: Entry- CPU*2(Intel Xeon Gold 6152, 140W, 22c), DDR4 DIMM*12(8GB 1Rx8 PC4-2666 RDIMM), HDD*1(1TB 6G 7.2k SATA SFF HDD)2

NOTE: Base- CPU*2(Intel Xeon Gold 6136, 150W TDP 12c), DDR4 DIMM*12(32GB 2Rx4 PC4-2666 RDIMM), HDD*2(1TB 6G 7.2k SATA SFF HDD) 3

NOTE: Performance- CPU*2(Intel Xeon Platinum 8176, 165W TDP 28c), DDR4 DIMM*12(64GB 4Rx4 PC4-2666 LRDIMM), HDD*4(1TB 6G 7.2k SATA SFF HDD)

NOTE: Values are subject to change without notification and are for reference only.

NOTE: Performance of system, options, and ancillary equipment will vary depending on the system configuration.

NOTE: Levels presented do not account for non-Hewlett Packard Enterprise installed hardware.

Environment-friendly Products and Approach - End-of-life Management and Recycling	Hewlett Packard Enterprise offers end-of-life product return, trade-in, and recycling programs, in many geographic areas, for our products. Products returned to Hewlett Packard Enterprise will be recycled, recovered or disposed of in a responsible manner. The EU WEEE Directive (2012/19/EU) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard Enterprise web site: **http://www.hpe.com/RECYCLE**. These instructions may be used by recyclers and other WEEE treatment facilities as well as Hewlett Packard Enterprise OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment.

Summary of Changes

Date	Version History	Action	Description of Change
17-July-2017	From Version 2 to 3	Chagned	Update images with callouts and correct errors.
11-July-2017	From version 1 to 2	Updated	US version created
11-July-2017	Version 1	Created	Create QuickSpecs for HPE ProLiant XL230k Gen10 Server

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