

## HPE ProLiant XL190r Gen10 Server

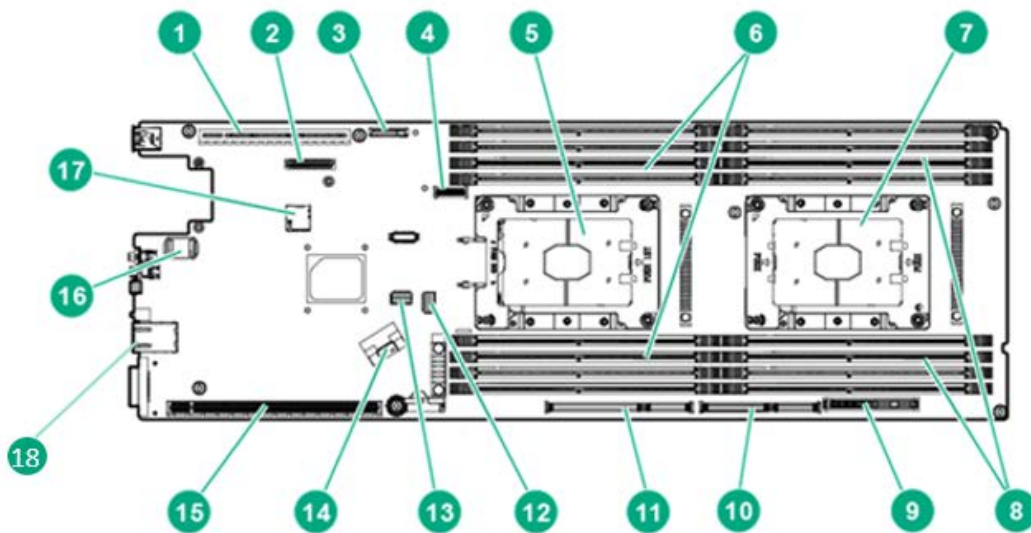
The ProLiant XL190r Gen10 Server is a 2U half-width, 2P server with the same configuration options as the XL170r for CPU and memory, but has additional PCIe slots in multiple configurations providing support for additional expansion cards and support for two (2) accelerators per server.

This server leverages Intel's latest Xeon Scalable Family series processors options ranging from Bronze to Platinum, increasing performance up to 30-40%, and DDR4 HPE SmartMemory, at speeds of up to 2666 MHz and 1.5TB maximum which boosts bandwidth and efficiency up to 66% over previous generation servers.

The dense and flexible HPE Apollo 2000 Chassis can accommodate up to two 2U hot-swap server trays to meet various workload needs while lowering TCO.

Rack scale power efficiency is fueled by the optional HPE Apollo Platform Manager for rack, chassis, server and component level management.

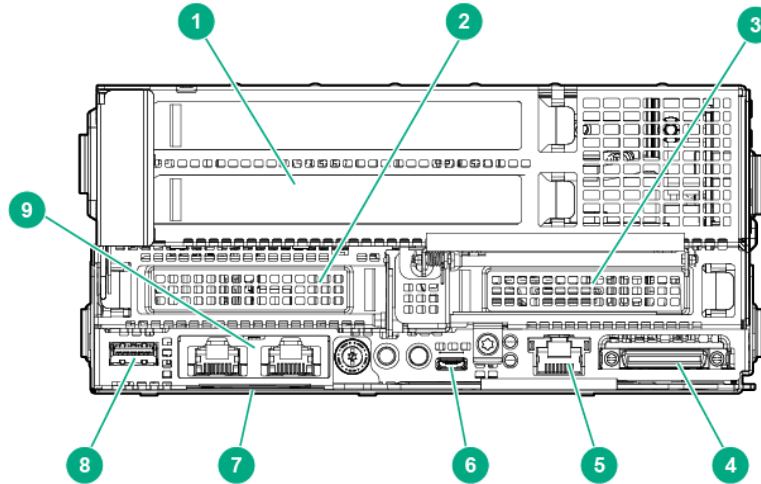
Front View



Item	Description
1	Primary riser slot 1
2	mLOM connector
3	System battery
4	M.2 SSD riser connector
5	Processor 1
6	DIMMs for processor 1
7	Processor 2
8	DIMMs for processor 2
9	Bayonet board slot

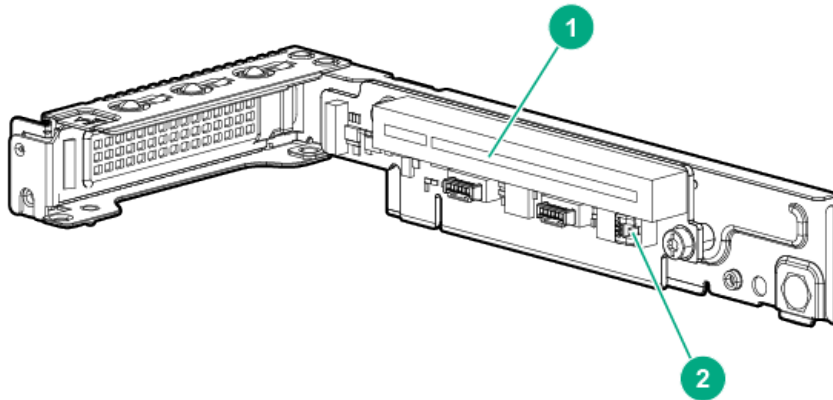
Item	Description
10	Secondary riser slot 4
11	Secondary riser slot 3
12	Slimline connector (SATA x4)
13	System maintenance switch
14	Slimline connector (SATA x8)
15	Secondary riser slot 2
16	TPM connector
17	microSD slot
18	iLO dedicated port

### 2U Node Rear Panel Components



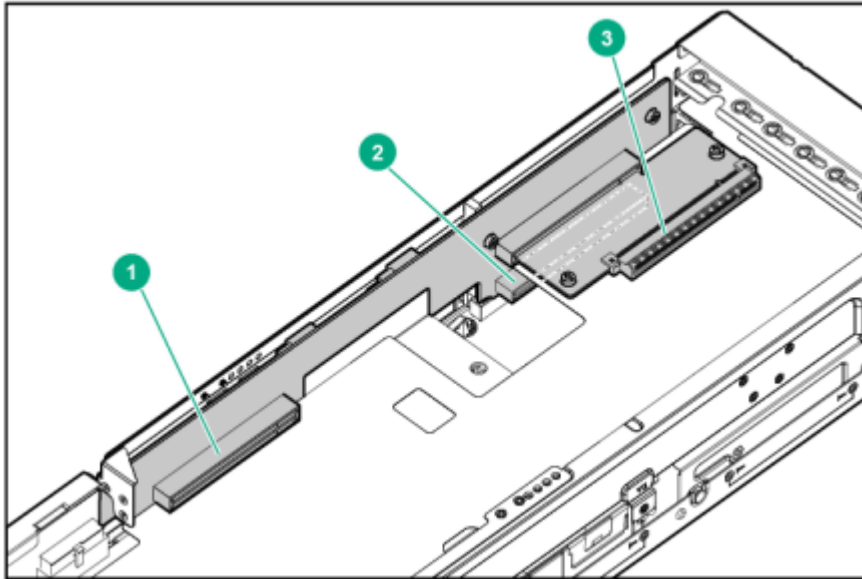
Item	Description	Item	Description
1	Dual Width GPU slot 3	6	iLO service port
2	Slot 1	7	Node serial number and iLO label pull tab
3	Slot 2	8	USB 3.0 connector
4	SUV connector	9	mLOM module
5	Dedicated iLO port		

### Single-Slot left PCI riser cage assembly



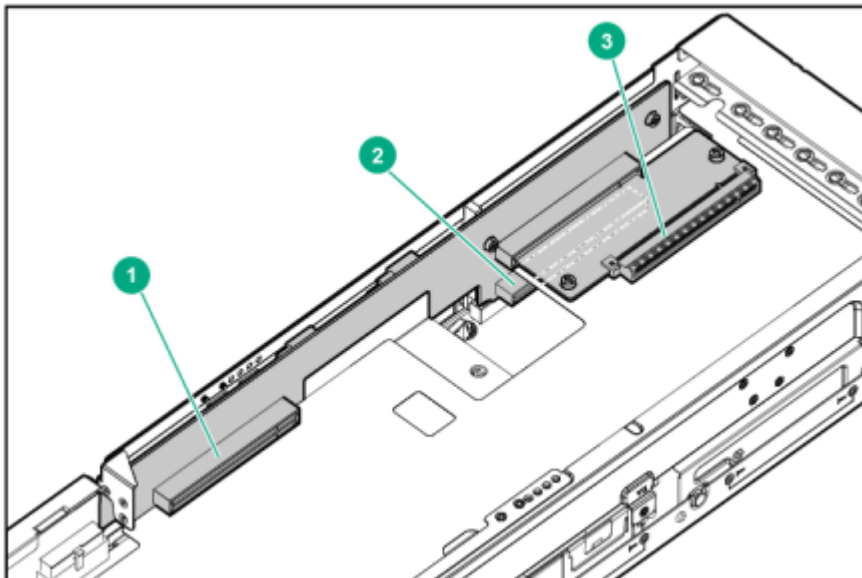
Item	Form factor	Slot number	Slot description
1	low profile PCIe NIC card	1	PCIe3 x16 (16, 8, 4, 1) for Processor 1
2	N/A	N/A	Storage backup power connector

### 2U NVMe / FlexibleLOM riser cage assembly



Item	Form factor	Slot number	Slot description
1	Accelerator Card	4	PCIe3 x16 (16, 8, 4, 1) for Processor 1
2	FlexibleLOM	FlexibleLOM slot	PCIe3 x16 (8, 4, 1) for Processor 1
3	Accelerator Card	3	PCIe3 x16 (16, 8, 4, 1) for Processor 2
4	SUV connector	9	mLOM module

### 2U secondary riser for processor 2 cage assembly



Item	Form factor	Slot number	Slot description
1	Accelerator Card	4	PCIe3 x16 (16, 8, 4, 1) for Processor 2
2	Storage controller or low-profile PCIe NIC card	2	PCIe3 x16 (16, 8, 4, 1) for Processor 2
3	Accelerator Card	3	PCIe3 x16 (16, 8, 4, 1) for Processor 2

**NOTE:** For the Standard Features shipped in the Factory Integrated Models, please see the "Configuration Information Factory Integrated Models" section.

## Processors

Intel Xeon Models	CPU Frequency	Cores	L3 Cache	Power	QPI	CPU Frequency
Platinum 8164 Processor	2.0 GHz	26	35.75 MB	150W	3 @ 10.4 GT/s	2666 MT/s
Platinum 8160 Processor	2.1 GHz	24	33.00 MB	150W	3 @ 10.4 GT/s	2666 MT/s
Platinum 8158 Processor	3.0 GHz	12	24.75 MB	150W	3 @ 10.4 GT/s	2666 MT/s
Platinum 8156 Processor	3.6 GHz	4	16.50 MB	105W	3 @ 10.4 GT/s	2666 MT/s
Platinum 8153 Processor	2.0 GHz	16	22.00 MB	125W	3 @ 10.4 GT/s	2666 MT/s
Gold 6152 Processor	2.1 GHz	22	30.25 MB	140W	3 @ 10.4 GT/s	2666 MT/s
Gold 6148 Processor	2.4 GHz	20	27.50 MB	150W	3 @ 10.4 GT/s	2666 MT/s
Gold 6142 Processor	2.6 GHz	16	22.00 MB	150W	3 @ 10.4 GT/s	2666 MT/s
Gold 6140 Processor	2.3 GHz	18	24.75 MB	140W	3 @ 10.4 GT/s	2666 MT/s
Gold 6138 Processor	2.0 GHz	20	27.50 MB	125W	3 @ 10.4 GT/s	2666 MT/s
Gold 6138F Processor	2.0 GHz	20	27.50 MB	135W	3 @ 10.4 GT/s	2666 MT/s
Gold 6136 Processor	3.0 GHz	12	24.75 MB	150W	3 @ 10.4 GT/s	2666 MT/s
Gold 6134 Processor	3.2 GHz	8	24.75 MB	130W	3 @ 10.4 GT/s	2666 MT/s
Gold 6132 Processor	2.6 GHz	14	19.25 MB	140W	3 @ 10.4 GT/s	2666 MT/s
Gold 6130 Processor	2.1 GHz	16	22.00 MB	125W	3 @ 10.4 GT/s	2666 MT/s
Gold 6130F Processor	2.1 GHz	16	22.00 MB	135W	3 @ 10.4 GT/s	2666 MT/s
Gold 6128 Processor	3.4 GHz	6	19.25 MB	115W	3 @ 10.4 GT/s	2666 MT/s
Gold 6126 Processor	2.6 GHz	12	19.25 MB	125W	3 @ 10.4 GT/s	2666 MT/s
Gold 6126F Processor	2.6 GHz	12	19.25 MB	135W	3 @ 10.4 GT/s	2666 MT/s
Gold 5122 Processor	3.6 GHz	4	16.50 MB	105W	2 @ 10.4 GT/s	2400 MT/s
Gold 5120 Processor	2.2 GHz	14	19.25 MB	105W	2 @ 10.4 GT/s	2400 MT/s
Gold 5118 Processor	2.3 GHz	12	16.50 MB	105W	2 @ 10.4 GT/s	2400 MT/s
Gold 5115 Processor	2.4 GHz	10	13.75 MB	85W	2 @ 10.4 GT/s	2400 MT/s
Silver 4116 Processor	2.1 GHz	12	16.50 MB	85W	2 @ 9.6 GT/s	2400 MT/s
Silver 4114 Processor	2.2 GHz	10	13.75 MB	85W	2 @ 9.6 GT/s	2400 MT/s
Silver 4110 Processor	2.6 GHz	8	11.00 MB	85W	2 @ 9.6 GT/s	2400 MT/s
Silver 4109T Processor	2.0 GHz	8	11.00 MB	70W	2 @ 9.6 GT/s	2400 MT/s
Silver 4108 Processor	2.1 GHz	8	11.00 MB	85W	2 @ 9.6 GT/s	2400 MT/s
Bronze 3106 Processor	1.8 GHz	8	11.00 MB	85W	2 @ 9.6 GT/s	2133 MT/s

**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 (LRDIMM)	1.5TB

**NOTE:** HPE memory from previous generation servers are not fully compatible with the HPE ProLiant XL190r Gen10 Server.

**NOTE:** To realize the performance memory capabilities listed in this document, HPE SmartMemory is required. For additional information, please see the HPE SmartMemory QuickSpecs at:

<https://www.hpe.com/h20195/v2/gethtml.aspx?docname=c04111535>

**NOTE:** LRDIMM and RDIMM are distinct memory technologies and cannot be mixed within a server.

**NOTE:** The maximum memory speed is a function of the memory type, memory configuration, and processor model. Please see Memory Population Table or the Online Memory Configuration Tool at: <http://www.hpe.com/servers/servermemoryconfigurator>

**NOTE:** Memory DIMM availability with a server platform is dependent upon completion of certification testing.

**Memory Protection**

For details on the HPE Server Memory Options RAS feature, visit:

<http://www.hpe.com/docs/memory-ras-feature>.

**Expansion Slots (EE)**

Expansion Slot #	Technology	Bus Width*	Source	Connector Width	Form Factor
1	PCIe 3.0	x16	CPU1	x16	Low profile
Expansion Slot #	Technology	Bus Width*	Source	Connector Width	Form Factor
FlexibleLOM	PCIe 3.0	X8	CPU1	x16	FlexibleLOM
Expansion Slot #	Technology	Bus Width*	Source	Connector Width	Form Factor
FlexibleLOM	PCIe 3.0	X16	CPU2	x16	Low profile
Expansion Slot #	Technology	Bus Width*	Source	Connector Width	Form Factor
3	PCIe 3.0	X16	CPU1/ CPU2	X16	Full height/max 10.5" long
Expansion Slot #	Technology	Bus Width*	Source	Connector Width	Form Factor
4	PCIe 3.0	X16	CPU2	X16	Full height/max 10.5" long

**NOTE:** \*Indicates the number of physical electrical lanes running to the connector.

**NOTE:** Expansion slot 1 requires ordering HPE XL1x0r Gen10 Left LP Riser Kit (874296-B21 )

**NOTE:** FlexibleLOM require ordering HPE XL190r Gen10 FLOM Riser Kit ( 874847-B21)

**NOTE:** Expansion slot 2 HPE XL190r Gen10 P2 Riser Kit ( 874851-B21)

**NOTE:** Expansion slot 3 and 4 requires ordering HPE XL190r Gen10 FLOM Riser Kit ( 874847-B21) or HPE XL190r Gen10 P2 Riser Kit ( 874851-B21)

**Storage Controller**

## Converged Network Adapters

HPE StoreFabric CN1200E 10Gb CNA  
HPE StoreFabric CN1200E-T 10Gb CNA  
HPE CN1100R 2P Converged Network Adapter  
HPE StoreFabric CN1100R-T 10Gb CAN

## Smart Array Controller

HPE Smart Array E208i-p SR Gen10 Controller  
HPE Smart Array E208e-p SR Gen10 Controller  
HPE Smart Array P408e-p SR Gen10 Controller  
HPE Smart Array P408i-p SR Gen10 Controller

## Host Bus Adapter

HPE SN1600Q 32Gb 1p FC HBA  
HPE SN1600E 32Gb 1p FC HBA  
HPE SN1600E 32Gb 2p FC HBA  
HPE SN1200E 16Gb 2p FC HBA  
HPE SN1100Q 16Gb 1p FC HBA

## Storage Controller Cable Kits

HPE 96W Smart Storage Battery 145mm Cable  
HPE XL190r Gen10 S100i SATA Cable Kit  
HPE XL190r Lft E208ip/P408ip Cbl Kit  
HPE XL190r Rght E208ip/P408ip Cbl Kit

**NOTE:** AHCI mode is default settings and to convert to S100i mode, HPE FIO Enable Smart Array SW RAID needs to be selected.

Maximum Internal Storage	Capacity	Configuration
Hot Plug LFF SAS 7.2k	60TB	6x 10TB
Hot Plug LFF SAS 15k	5.4TB	6 x 900GB
Hot Plug LFF SATA	60TB	6 x 10TB
Hot Plug LFF SATA SSD	23.04TB	6x 3.84TB
Hot Plug LFF SAS SSD	9.6TB	6x 1.6TB
Hot Plug SFF SAS 7.2k	24TB	12x 2TB
Hot Plug SFF SAS 10k	28.8TB	12x 2.4TB
Hot Plug SFF SAS 15k	10.8TB	12x 900GB
Hot Plug SFF SATA	24TB	12x 2TB
Hot Plug SFF SATA SSD	24.08TB	12x 3.8TB
Hot Plug SFF SAS SSD	46.08TB	12x 3.84TB
NVMe x4 MU SFF SCN DS SSD	16TB	4x 4TB

**Internal Storage Devices** Internal MicroSD slot

## Interfaces

**FlexibleLOM** HPE ProLiant Gen10 servers offer a new networking technology-Flexible Network Technology. The HPE ProLiant Gen10 server offers the customer the choice of 1Gigabit, 10Gigabit, 25Gigabit, InfiniBand, Omni-Path or FlexibleLOM solutions depending on workload. For further details on the choices, see FlexibleLOM in the Networking Section of this document.

**KVM** Serial USB Video Port (SUV)

**MicroSD** 1 (internal)

**USB Ports** 2 (external via SUV); 1 USB 3.0 (external);

**HPE iLO Remote Management Network Port** Aggregated via HPE Apollo 2000 Chassis; or on board dedicated iLO NIC port

**Health LED** 1

**Power**

**UID** 1

**Do not remove LED** 1

**LED**

**Operating Systems and Virtualization Software Support for ProLiant Servers**

Windows Server 2012 R2 (Most Recent Version)  
Windows Server 2016 (Most Recent Version)  
VMware ESXi 6.0 U3  
VMware ESXi 6.5 and U1 upon release  
Red Hat Enterprise Linux (RHEL) 6.9 and 7.3  
SUSE Linux Enterprise Server (SLES) 11 SP4 and 12 SP2  
CentOS

**NOTE:** CentOS not directly supported / Community Supported (Based on RHEL so RHEL testing and enablement applicable to CentOS) CentOS 6.9 / CentOS 7.3.

**NOTE:** For more information on Hewlett Packard Enterprise Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server.

<http://h20566.www2.hp.com/portal/site/hpsc/public/psi/home?sp4ts.oid=1010026818>.

**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.hp.com/servers/powersupplies>

**NOTE:** Power Specification and Technical Content for supported power supplies can be found at:

<https://www.hp.com/info/qs>

**Graphics**

Integrated Matrox G200 video standard

- 1280 x 1024 (32 bpp)
- 1920 x 1200 (16 bpp)
- HPE iLO 5 On System Management Memory
- 32 MB Flash
- 512 MB DDR 3 with ECC (112 MB after ECC and video)

**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 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.hp.com/servers/uefi>.

UEFI enables numerous new capabilities specific to HPE ProLiant servers such as:

- Secure Boot and Secure Start enable for enhanced security
- 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 that is Redfish API Conformant.
- 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

UEFI Boot Mode only:

- TPM 2.0 Support
- NVMe Boot Support
- Platform Trust Technology (PTT) can be enabled.
- iSCSI Software Initiator Support.
- HTTP/HTTPS Boot support as a PXE alternative.
- Boot support for option cards that only support a UEFI option ROM

**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 XL190r Gen10 Server.

<b>Form Factor</b>	The ProLiant XL190r Gen10 Server is a single-slot 2U node for the HPE Apollo 2000 Chassis.
<b>HPE Integrated Lights-Out (HPE iLO)</b>	Monitor your servers for ongoing management, service alerting, reporting and remote management with HPE iLO. Learn more at <a href="http://www.hpe.com/info/ilo">http://www.hpe.com/info/ilo</a>
<b>UEFI</b>	Configure and boot your servers securely with industry standard Unified Extensible Firmware Interface (UEFI). Learn more at <a href="http://www.hpe.com/servers/uefi">http://www.hpe.com/servers/uefi</a>
<b>iLO RESTful API</b>	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 <a href="http://www.hpe.com/info/restfulapi">http://www.hpe.com/info/restfulapi</a>
<b>Server Utilities Active Health System</b>	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 <a href="http://www.hpe.com/servers/ahs">http://www.hpe.com/servers/ahs</a>
<b>Active Health System Viewer</b>	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 <a href="http://www.hpe.com/servers/ahsv">http://www.hpe.com/servers/ahsv</a>
<b>Smart Update</b>	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). <a href="http://www.hpe.com/info/smartupdate">http://www.hpe.com/info/smartupdate</a> .
<b>Warranty</b>	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 Pointnext operational services or customized service agreements. Hard drives have either a one year or three year warranty. <b>NOTE:</b> 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 XL190r 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](http://www.hpe.com/h20195/v2/GetPDF.aspx/4AA4-8876ENW.pdf)

## HPE Pointnext Service and Support

The support of HPE XL190r 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.

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#### 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 24x7 monitoring, 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 XL190r: Supports maintaining servers at optimum performance availability: HPE Proactive Care\* with 24x7 coverage, three year Support Service**

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>

**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. This 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=en>

### **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>

#### **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 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>

**NOTE:** This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, Hewlett Packard Enterprise recommends the use of an Hewlett Packard Enterprise approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.

**NOTE:** FIO indicates that this option is only available as a factory installable option.

**NOTE:** HPE Apollo 2000 Chassis is required to support the server. Refer to their QuickSpecs for additional information.

HPE Apollo 2000 Chassis

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

HPE CTO Model HPE ProLiant XL190r Gen10 2U Node Configure-to-order Server 867056-B21

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

### Intel-Platinum Processors

HPE XL1x0r Gen10 Intel Xeon-Platinum 8164 (2.0GHz/26-core/150W) FIO Processor Kit	874295-L21
HPE XL1x0r Gen10 Intel Xeon-Platinum 8160 (2.1GHz/24-core/145W) FIO Processor Kit	874294-L21
HPE XL1x0r Gen10 Intel Xeon-Platinum 8158 (3.0GHz/12-core/150W) FIO Processor Kit	879567-L21
HPE XL1x0r Gen10 Intel Xeon-Platinum 8156 (3.6GHz/4-core/105W) FIO Processor Kit	879569-L21
HPE XL1x0r Gen10 Intel Xeon-Platinum 8153 (2.0GHz/16-core/125W) FIO Processor Kit	879571-L21

### Intel-Gold Processors

HPE XL1x0r Gen10 Intel Xeon-Gold 6152 (2.1GHz/22-core/140W) FIO Processor Kit	874292-L21
HPE XL1x0r Gen10 Intel Xeon-Gold 6148 (2.4GHz/20-core/145W) FIO Processor Kit	874287-L21
HPE XL1x0r Gen10 Intel Xeon-Gold 6142 (2.6GHz/16-core/150W) FIO Processor Kit	874289-L21
HPE XL1x0r Gen10 Intel Xeon-Gold 6140 (2.3GHz/20-core/135W) FIO Processor Kit	874291-L21
HPE XL1x0r Gen10 Intel Xeon-Gold 6138 (2.0GHz/20-core/125W) FIO Processor Kit	874288-L21
HPE XL1x0r Gen10 Intel Xeon-Gold 6136 (3.0GHz/12-core/150W) FIO Processor Kit	874290-L21
HPE XL1x0r Gen10 Intel Xeon-Gold 6134 (3.2GHz/8-core/130W) FIO Processor Kit	880669-L21
HPE XL1x0r Gen10 Intel Xeon-Gold 6132 (2.6GHz/14-core/140W) FIO Processor Kit	874286-L21
HPE XL1x0r Gen10 Intel Xeon-Gold 6130 (2.1GHz/16-core/120W) FIO Processor Kit	880667-L21
HPE XL1x0r Gen10 Intel Xeon-Gold 6126 (2.6GHz/12-core/125W) FIO Processor Kit	874283-L21
HPE XL1x0r Gen10 Intel Xeon-Gold 5122 (3.6GHz/4-core/105W) FIO Processor Kit	874282-L21
HPE XL1x0r Gen10 Intel Xeon-Gold 5120 (2.2GHz/14-core/105W) Processor FIO Kit	879583-L21
HPE XL1x0r Gen10 Intel Xeon-Gold 5118 (2.3GHz/12-core/105W) Processor FIO Kit	879581-L21
HPE XL1x0r Gen10 Intel Xeon-Gold 5115 (2.4GHz/10-core/85W) Processor FIO Kit	879579-L21

### Intel-Silver Processors

HPE XL1x0r Gen10 Intel Xeon-Silver 4116 (2.1GHz/12-core/85W) Processor FIO Kit	879577-L21
HPE XL1x0r Gen10 Intel Xeon-Silver 4114 (2.2GHz/10-core/85W) Processor FIO Kit	879599-L21
HPE XL1x0r Gen10 Intel Xeon-Silver 4110 (2.6GHz/8-core/85W) Processor FIO Kit	879595-L21

HPE XL1x0r Gen10 Intel Xeon-Silver 4108 (2.1GHz/8-core/85W) Processor FIO Kit	879591-L21
HPE XL1x0r Gen10 Intel Xeon-Silver 4109T (1.6GHz/8-core/70W) Processor FIO Kit	879593-L21

**Intel-Bronze Processors**

HPE XL1x0r Gen10 Intel Xeon-Bronze 3106 (1.8GHz/8-core/85W) Processor FIO Kit	879589-L21
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**NOTE:** Must select one xxxxxx-L21 processor. If one processor is desired, select one xxxxxx-L21. If two processors are desired, select one corresponding xxxxxx-B21. Mixing of processor speeds and types is not supported.

**NOTE:** DDR4 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed. For the maximum supported memory speeds for each processor listed above, please reference the 'Memory Speed by Processor Model' table in the Memory section of the QuickSpecs.

**NOTE:** For the maximum supported memory speeds for each processor listed above, please reference the 'Memory Speed by Processor Model' table in the Memory section of the QuickSpecs.

**NOTE:** The processor model as well as the memory configuration determines the maximum speed memory can operate. Please see the see the "Memory" section later in this document.

**HPE Memory**

**NOTE:** Depending on the memory configuration and processor model, the memory speed may run at 2666MHz, 2400MHz, 2133MHz. Please see Memory Population Table or the Online Memory Configuration Tool at: <http://h22195.www2.hpe.com/MemoryTool/Home/Legal>

**Registered DIMMs (RDIMMs) – DDR4-2666**

HPE 8GB (1x8GB) Single Rank x8 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	815097-B21
HPE 16GB (1x16GB) Single Rank x4 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	815098-B21
HPE 32GB (1x32GB) Dual Rank x4 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	815100-B21
HPE 16GB (1x16GB) Dual Rank x8 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	835955-B21
HPE 8GB (1x8GB) Dual Rank x8 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	876181-B21

**Load Reduced DIMMs (LRDIMMs) – DDR4-2666**

HPE 64GB (1x64GB) Quad Rank x4 DDR4-2666 CAS-19-19-19 Load Reduced Smart Memory Kit	815101-B21
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**NOTE:** Minimum 2 DIMMs are required per server; up to 8 DIMMs per processor.

**NOTE:** If Fabric CPU is installed, minimum of 32GB is required

**NOTE:** A maximum of 16 DIMMs are supported per XL190r 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 SmartMemory QuickSpecs at:

<https://www.hpe.com/h20195/v2/GetPDF.aspx/c04355083.pdf>

**HPE PCIe riser kits**

HPE XL1x0r Gen10 Left Riser Blank FIO Kit	874805-B21
HPE XL1x0r Gen10 Left Low Profile Riser Kit	874296-B21
HPE XL190r Gen10 P2 Riser Kit	874851-B21
HPE XL1x0r Gen10 M2 (NGFF) Riser Kit	874853-B21

**NOTE:** Must have 874853-B21 to support the M.2 devices

HPE XL190r Gen10 16NVMe FlexibleLOM Riser Kit	874849-B21
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HPE XL190r Gen10 FlexibleLOM Riser Kit	874847-B21
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**NOTE:** Only 874849-B21 and 874847-B21 can support FLOM adapter

**HPE Storage Cables**

HPE 96W Smart Storage Battery (up to 20 Devices/145mm Cable) Kit	875241-B21
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**NOTE:** The battery cable kit needs to be selected if the node has the P series controller in the node configuration

HPE XL190r Gen10 S100i SATA Cable Kit	874307-B21
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**NOTE:** Required to be selected when S100i is the primary controller. This cable supports to connect to SATA drives. Max = 1 of cable kit per Node can be selected.

**NOTE:** R2200 + 2U node - Supports max of 6 SATA hard drive per node

R2600 + 2U Node - Supports 6 SATA hard drives per node

HPE XL190r Left E208ip/P408ip Cable Kit	874787-B21
<b>NOTE:</b> Required to be selected when E208i or P408i is selected in the configuration along with HPE XL1x0r Gen10 Left LP Riser Kit excluding Fabric CPU enablement kit in the configuration	
HPE XL190r Right E208ip/P408ip Cable Kit	874791-B21
<b>NOTE:</b> Required to be selected when E208i or 408i is selected along with one the below mentioned Riser including the Fabric CPU enablement kit in the configuration. (Fabric CPU enablement kit gets installed in the slot1 and hence the controller can be installed only in any one of the right riser ( Slot2) mentioned below)	
HPE XL190r Gen10 FLOM Riser Kit	
HPE XL190r Gen10 P2 LP Riser Kit	
HPE XL190r 16NVMe Gen10 P2 LP Riser Kit	

### Step 3: Choose Additional Factory Integrated Options (only one from each category unless otherwise noted)

<b>BIOS Mode</b>	HPE Legacy FIO Mode Setting	758959-B22
<b>NOTE:</b> The system BIOS provides two different Boot Modes: UEFI (Standard) and Legacy BIOS (optional) (758959-B22) When this option is selected, then BIOS need to be switched from default UEFI Mode to Legacy Mode		
<b>Controller State</b>	HP FIO Enable Smart Array B140i Setting	784308-B21
	HP Manufacturing FIO Enable HBA Mode Setting	792962-B21
<b>NOTE:</b> If E208i is the primary controller and if HPE Mfg FIO Enable HBA Mode Setting is selected, then RAID is not allowed – can only be selected with E208i only		
<b>TPM FIO</b>	HPE Gen10 TPM 1.2 FIO Setting	872108-B21
<b>NOTE:</b> this can be selected only when TPM 2.0 is selected in the configuration		
<b>BIOS Mode</b>	HPE Legacy FIO Mode Setting	758959-B22
<b>NOTE:</b> The system BIOS provides two different Boot Modes: UEFI (Standard) and Legacy BIOS (optional) (758959-B22) When this option is selected, then BIOS need to be switched from default UEFI Mode to Legacy Mode		
<b>Controller State</b>	HP FIO Enable Smart Array B140i Setting	784308-B21
	HP Manufacturing FIO Enable HBA Mode Setting	792962-B21
<b>NOTE:</b> If E208i is the primary controller and if HPE Mfg FIO Enable HBA Mode Setting is selected, then RAID is not allowed – can only be selected with E208i only		
<b>TPM FIO</b>	HPE Gen10 TPM 1.2 FIO Setting	872108-B21
<b>NOTE:</b> this can be selected only when TPM 2.0 is selected in the configuration		

### Step 4: Choose Additional Options for Factory Integration from Core and Additional Options sections below.

**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.

<b>TPM FIO</b>	HPE Gen10 TPM 1.2 FIO Setting	872108-B21
<b>NOTE:</b> this can be selected only when TPM 2.0 is selected in the configuration		
<b>Intel-Platinum Processors</b>		
	HPE XL1x0r Gen10 Intel® Xeon-Platinum 8164 (2.0GHz/26-core/150W) Processor Kit	874295-B21
	HPE XL1x0r Gen10 Intel® Xeon-Platinum 8160 (2.1GHz/24-core/150W) Processor Kit	874294-B21
	HPE XL1x0r Gen10 Intel® Xeon-Platinum 8158 (3.0GHz/12-core/150W) Processor Kit	879567-B21
	HPE XL1x0r Gen10 Intel® Xeon-Platinum 8156 (3.6GHz/4-core/105W) Processor Kit	879569-B21
	HPE XL1x0r Gen10 Intel® Xeon-Platinum 8153 (2.0GHz/16-core/125W) Processor Kit	879571-B21

### Intel-Gold Processors

HPE XL1x0r Gen10 Intel® Xeon-Gold 6152 (2.1GHz/22-core/140W) Processor Kit	874293-B21
HPE XL1x0r Gen10 Intel® Xeon-Gold 6148 (2.4GHz/20-core/150W) Processor Kit	874292-B21
HPE XL1x0r Gen10 Intel® Xeon-Gold 6142 (2.6GHz/16-core/150W) Processor Kit	874287-B21
HPE XL1x0r Gen10 Intel® Xeon-Gold 6140 (2.3GHz/18-core/140W) Processor Kit	874289-B21
HPE XL1x0r Gen10 Intel® Xeon-Gold 6138 (2.0 GHz/20-core/125W) Processor Kit	874291-B21
HPE XL1x0r Gen10 Intel® Xeon-Gold 6138 Fabric (2.0GHz/20-core/135W) Processor Kit	880670-B21
HPE XL1x0r Gen10 Intel® Xeon-Gold 6136 (3.0GHz/12-core/150W) Processor Kit	874288-B21
HPE XL1x0r Gen10 Intel® Xeon-Gold 6134 (3.2GHz/8-core/130W) Processor Kit	874290-B21
HPE XL1x0r Gen10 Intel® Xeon-Gold 6132 (2.6GHz/14-core/140W) Processor Kit	880669-B21
HPE XL1x0r Gen10 Intel® Xeon-Gold 6130 (2.1GHz/16-core/125W) Processor Kit	874286-B21
HPE XL1x0r Gen10 Intel® Xeon-Gold 6130 Fabric (2.1GHz/16-core/135W) Processor Kit	880668-B21
HPE XL1x0r Gen10 Intel® Xeon-Gold 6128 (3.4GHz/6-core/115W) Processor Kit	880667-B21
HPE XL1x0r Gen10 Intel® Xeon-Gold 6126 (2.6GHz/12-core/125W) Processor Kit	874283-B21
HPE XL1x0r Gen10 Intel® Xeon-Gold 6126 Fabric (2.6GHz/12-core/135W) Processor Kit	880666-B21
HPE XL1x0r Gen10 Intel® Xeon-Gold 5122 (3.6GHz/4-core/105W) Processor Kit	874282-B21
HPE XL1x0r Gen10 Intel® Xeon-Gold 5120 (2.2GHz/14-core/105W) Processor Kit	879583-B21
HPE XL1x0r Gen10 Intel® Xeon-Gold 5118 (2.3GHz/12-core/105W) Processor Kit	879581-B21
HPE XL1x0r Gen10 Intel® Xeon-Gold 5115 (2.4GHz/10-core/85W) Processor Kit	879579-B21

### Intel-Silver Processors

HPE XL1x0r Gen10 Intel® Xeon-Silver 4116 (2.1GHz/12-core/85W) Processor Kit	879577-B21
HPE XL1x0r Gen10 Intel® Xeon-Silver 4114 (2.2GHz/10-core/85W) Processor Kit	879599-B21
HPE XL1x0r Gen10 Intel® Xeon-Silver 4110 (2.1GHz/8-core/85W) Processor Kit	879595-B21
HPE XL1x0r Gen10 Intel® Xeon-Silver 4108 (1.8GHz/8-core/85W) Processor Kit	879591-B21
HPE XL1x0r Gen10 Intel® Xeon-Silver 4109T (2.0GHz/8-core/70W) Processor Kit	879593-B21

### Intel-Bronze Processors

HPE XL1x0r Gen10 Intel® Xeon-Bronze 3106 (1.7GHz/8-core/85W) Processor Kit	879589-B21
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**NOTE:** DDR4 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed. For the maximum supported memory speeds for each processor listed above, please reference the 'Memory Speed by Processor Model' table in the Memory section of the QuickSpecs.

### HPE Memory

#### Registered DIMMs (RDIMMs) – DDR4-2666

HPE 8GB (1x8GB) Single Rank x8 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	815097-B21
HPE 16GB (1x16GB) Single Rank x4 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	815098-B21
HPE 32GB (1x32GB) Dual Rank x4 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	815100-B21
HPE 16GB (1x16GB) Dual Rank x8 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	835955-B21
HPE 8GB (1x8GB) Dual Rank x8 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	876181-B21

#### Load Reduced DIMMs (LRDIMMs) – DDR4-2666

HPE 64GB (1x64GB) Quad Rank x4 DDR4-2666 CAS-19-19-19 Load Reduced Smart Memory Kit	815101-B21
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**NOTE:** HPE memory from previous generation servers (DDR3) is not compatible with this server. HPE DDR4 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 DDR4 SmartMemory QuickSpecs at: <http://www8.hpe.com/h20195/v2/GetHTML.aspx?docname=c04380279>

**NOTE:** LRDIMM and RDIMM are distinct memory technologies and cannot be mixed within a server.

**NOTE:** Depending on the memory configuration and processor model, the memory speed may run at 2666MHz, 2400MHz, 2133MHz. Please see Memory Population Table or the Online Memory Configuration Tool at: <http://h22195.www2.hp.com/MemoryTool/Home/Legal>

**HPE Networking**

**Ethernet Options**

HPE Ethernet 10Gb 2-port 530SFP Adapter	652503-B21
HPE Ethernet 10/25Gb 2-port 631SFP28 Adapter	817718-B21
HPE Ethernet 10Gb 2-port 535T Adapter	813661-B21
HPE Ethernet 10Gb 2-port 562T Adapter	817738-B21
HPE Ethernet 1Gb 4-port 366T Adapter	811546-B21
HPE Ethernet 1Gb 2-port 368FLR-T Media Module Adapter	866464-B21
HPE Ethernet 10Gb 2-port 568FLR-SFP+ Media Module Adapter	866467-B21
HPE Ethernet 10/25Gb 2-port 640FLR-SFP28 Adapter	817749-B21
HPE Ethernet 10/25Gb 2-port 640SFP28 Adapter	817753-B21
HPE Ethernet 1Gb 4-port 331T Adapter	647594-B21
HPE Ethernet 10/25Gb 2-port 621SFP28 Adapter	867328-B21
HPE Ethernet 10Gb 2-port 521T Adapter	867707-B21
HPE XL1x0r Ethernet 10Gb 2-port 568FLR-MMT Adapter	868227-B21
HPE Ethernet 10Gb 2-port 530T Adapter	656596-B21
HPE Ethernet 1Gb 2-port 332T Adapter	615732-B21

**NOTE:** The following options are suggested to install in slot2 of XL190r: 817738-B21, 867707-B21, 656596-B21, 615732-B21, 811546-B21, 647594-B21

**FlexibleLOM Adapters**

HPE Ethernet 1Gb 4-port 331FLR Adapter	629135-B22
HPE Ethernet 10/25Gb 2-port 631FLR-SFP28 Adapter	817709-B21
HPE Ethernet 10Gb 2-port 535FLR-T Adapter	817721-B21
HPE Ethernet 10Gb 2-port 562FLR-T Adapter	817745-B21
HPE Ethernet 10Gb 2-port 522FLR-T Converged Network Adapter	867331-B21
HPE Ethernet 10/25Gb 2-port 622FLR-SFP28 Converged Network Adapter	867334-B21
HPE Ethernet 1Gb 4-port 366FLR Adapter	665240-B21
HPE Ethernet 4x25Gb 1-port 620QSFP28 Adapter	817762-B21
HPE FlexFabric 10Gb 2-port 534FLR-SFP+ Adapter	700751-B21
HPE FlexFabric 10Gb 2-port 533FLR-T Adapter	700759-B21
HPE FlexFabric 10Gb 4-port 536FLR-T Adapter	764302-B21

**Converged Network Adapters**

HPE StoreFabric CN1200E 10GBASE-T Dual Port Converged Network Adapter	N3U51A
HPE StoreFabric CN1100R 10GBASE-T Dual Port Converged Network Adapter	N3U52A
HPE StoreFabric CN1100R Dual Port Converged Network Adapter	QW990A
HPE StoreFabric CN1200E 10Gb Converged Network Adapter	E7Y06A

**InfiniBand and Omni-Path Options**

HPE InfiniBand EDR/Ethernet 100Gb 1-port 840QSFP28 Adapter	825110-B21
HPE InfiniBand EDR/Ethernet 100Gb 2-port 840QSFP28 Adapter	825111-B21
HPE InfiniBand EDR 100Gb 1-port 841QSFP28 Adapter	872725-B21
HPE 100Gb 1-port OP101 QSFP28 x16 PCIe Gen3 with Intel® Omni-Path Architecture Adapter	829335-B21

**InfiniBand and Omni-Path Options**

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information: <https://www.hpe.com/us/en/product-catalog/servers/server-adapters.hits-12.html>

**M.2**

HPE 150GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	875317-B21
HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	875319-B21
HPE 1.92GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	875496-B21
HPE 240GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	875488-B21
HPE 480GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	875490-B21
HPE 960GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	875492-B21
HPE 1.92TB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	875494-B21
HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	875498-B21
HPE 960GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	875500-B21

**HPE Tape Backup**

**NOTE:** For the complete range of tape drives, autoloaders, libraries and media see: <http://www.hpe.com/storage/storeever>. For hardware and software compatibility of Hewlett Packard Enterprise tape backup products <http://www.hpe.com/storage/BURACompatibility>

HPE StoreEver LTO-7 Ultrium 15000 External Tape Drive	BB874A
HPE StoreEver LTO-6 Ultrium 6250 External Tape Drive	EH970A
HPE StoreEver LTO-5 Ultrium 3000 SAS External Tape Drive	EH958B
HPE StoreEver MSL6480 Scalable Base Module	QU625A
HPE StoreEver MSL2024 0-drive Tape Library	AK379A
HPE StoreEver MSL4048 0-drive Tape Library	AK381A
HPE StoreEver 1/8 G2 LTO-7 Ultrium 15000 SAS Tape Autoloader	N7P35A
HPE StoreEver 1/8 G2 LTO-7 Ultrium 15000 FC Tape Autoloader	N7P34A
HPE StoreEver 1/8 G2 LTO-6 Ultrium 6250 SAS Tape Autoloader	C0H18A
HPE StoreEver 1/8 G2 LTO-6 Ultrium 6250 Fibre Channel Tape Autoloader	C0H19A
HPE StoreEver 1/8 G2 LTO-5 Ultrium 3000 SAS Tape Autoloader	BL536B
HPE StoreEver 1/8 G2 LTO-5 Ultrium 3000 Fibre Channel Tape Autoloader	BL541B
HPE StoreEver MSL LTO-7 Ultrium 15000 SAS Drive Upgrade Kit	N7P37A
HPE StoreEver MSL LTO-7 Ultrium 15000 FC Drive Upgrade Kit	N7P36A
HPE StoreEver MSL LTO-6 Ultrium 6250 SAS Drive Upgrade Kit	C0H27A
HPE StoreEver MSL LTO-6 Ultrium 6250 Fibre Channel Drive Upgrade Kit	C0H28A
HPE StoreEver MSL LTO-5 Ultrium 3000 SAS Drive Upgrade Kit	BL540B
HPE StoreEver MSL LTO-5 Ultrium 3000 Fibre Channel Drive Upgrade Kit	BL544B

**HPE Drives**

**NOTE:** User may select any combination of SAS or SATA Hard Drives. However, if RAID is selected and both SAS and SATA Hard Drives have been selected, then only the SAS Drives will be used in the RAID set.



**NOTE:** If S100i is the primary controller, user can only select SATA drives.

**NOTE:** Can't select HDD when customers order standalone XL1x0 node without r2x00 enclosure

**Enterprise - 12G SAS - SFF Drives**

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 Digitally Signed Firmware HDD	872475-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 Digitally Signed Firmware HDD	870759-B21
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 Digitally Signed Firmware HDD	872481-B21
HPE 2.4TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD	881457-B21

**Enterprise - 12G SAS - LFF Drives**

HPE 900GB SAS 12G Enterprise 15K LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware HDD	870761-B21
HPE 300GB SAS 12G Enterprise 15K LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware HDD	870755-B21

**Midline - 12G SAS - SFF Drives**

HPE 1TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty Digitally Signed Firmware HDD	832514-B21
HPE 1TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD	765464-B21
HPE 2TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e HDD	765466-B21

**Midline - 12G SAS - LFF Drives**

HPE 8TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e Digitally Signed Firmware HDD	834031-B21
HPE 2TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD	833926-B21
HPE 4TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD	833928-B21
HPE 4TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e HDD	846996-B21
HPE 6TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e HDD	846998-B21
HPE 10TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Helium 512e Digitally Signed Firmware HDD	857646-B21
HPE 8TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Helium 512e Digitally Signed Firmware HDD	861592-B21
HPE 6TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e HDD	861746-B21
HPE 4TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e HDD	861748-B21
HPE 3TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD	846530-B21
HPE 1TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD	846526-B21
HPE 6TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD	846516-B21

**Midline - 6G SATA SFF Drives**

HPE 1TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD	765453-B21
HPE 2TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD	765455-B21

**Midline - 6G SATA - LFF Drives**

HPE 4TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD	861683-B21
HPE 1TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD	861686-B21
HPE 2TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD	861681-B21
HPE 3TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD	861688-B21
HPE 4TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e HDD	846783-B21
HPE 6TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD	846512-B21
HPE 10TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Helium 512e Digitally Signed Firmware HDD	857650-B21
HPE 8TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Helium 512e Digitally Signed Firmware HDD	861596-B21
HPE 8TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e Digitally Signed Firmware HDD	834028-B21
HPE 6TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e HDD	861742-B21
HPE 4TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e HDD	861744-B21
HPE 1TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty Digitally Signed Firmware HDD	655710-B21

**SSD Selection****Write Intensive - 6G SATA - SFF - Solid State Drives**

HPE 400GB SATA 6G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872355-B21
HPE 800GB SATA 6G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872359-B21
HPE 1.6TB SATA 6G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872363-B21

**Read Intensive - 12G SAS - SFF Solid State Drives**

HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872390-B21
HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872392-B21
HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872394-B21
HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	870144-B21

**Read Intensive - 12G SAS - LFF Solid State Drives**

HPE 7.68TB SAS 12G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	870146-B21
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**Read Intensive - 6G SATA - SFF - Solid State Drives**

HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	868814-B21
HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	868818-B21
HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	868822-B21
HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	868826-B21
HPE 3.8TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	868830-B21

HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	877740-B21
HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	877746-B21
HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	877752-B21
HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	877758-B21
HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	877764-B21
<b>Read Intensive - 6G SATA - LFF - Solid State Drives</b>	
HPE 480GB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	877750-B21
HPE 960GB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	877756-B21
HPE 1.92TB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	877762-B21
HPE 3.84TB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	877768-B21
<b>Read Intensive - NVMe - SFF - Solid State Drives</b>	
HPE 1TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	877984-B21
HPE 2TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	877986-B21
HPE 480GB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	875587-B21
HPE 960GB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	875589-B21
HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	875591-B21
HPE 500GB NVMe x4 Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	878006-B21
HPE 1TB NVMe x4 Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	878008-B21
<b>Read Intensive - SATA - SFF Solid State Drives</b>	
HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875503-B21
HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875509-B21
HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875511-B21
HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875513-B21
<b>Mixed Use - 12G SAS - SFF Solid State Drives</b>	
HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872386-B21
HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872374-B21
HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872382-B21
HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872376-B21

HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	873359-B21
HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	873363-B21
HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	873365-B21
HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	873367-B21
HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	873351-B21
HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	873355-B21
HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	873357-B21
<b>Mixed Use - 12G SAS - LFF Solid State Drives</b>	
HPE 1.6TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	872384-B21
HPE 800GB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	872380-B21
HPE 400GB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	873361-B21
HPE 400GB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	873353-B21
<b>Mixed Use - 6G SAS - LFF Solid State Drives</b>	
HPE 480GB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	877780-B21
HPE 960GB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	877786-B21
HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	877792-B21
<b>Mixed Use - 6G SATA - SFF - Solid State Drives</b>	
HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872344-B21
HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872348-B21
HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872352-B21
HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	877776-B21
HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	877788-B21
HPE 240GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	880295-B21
HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875470-B21
HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875474-B21
HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875478-B21
HPE 240GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875483-B21
HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	877782-B21
<b>Mixed Use - NVMe - SFF - Solid State Drives</b>	
HPE 4TB NVMe x4 Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	878004-B21
HPE 400GB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	875593-B21
HPE 800GB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	875595-B21
HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed	875597-B21

	Firmware SSD	
	HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	877994-B21
	HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	877998-B21
<b>Bezel Kits</b>	HPE Apollo 2000 LFF Bezel Kit	838518-B21
	HPE Apollo 2000 SFF Bezel Enhanced Kit	874793-B21
<b>HPE Smart Array Storage Controllers</b>	HPE Smart Array E208i-p SR Gen10 (8 Internal Lanes/No Cache) 12G SAS PCIe Plug-in Controller	804394-B21
	<b>NOTE: This controller supports up to 0 Internal SAS/SATA devices</b>	
	HPE Smart Array E208e-p SR Gen10 (8 External Lanes/No Cache) 12G SAS PCIe Plug-in Controller	804398-B21
	<b>NOTE: This controller can support up to 0 internal SAS/SATA devices.</b>	
	<b>NOTE: This controller may be selected to support: SAS Tape Device (External), SAS Storage (External)</b>	
	HPE Smart Array P408e-p SR Gen10 (8 External Lanes/4GB Cache) 12G SAS PCIe Plug-in Controller	804405-B21
	<b>NOTE: This controller can support up to 0 internal SAS/SATA devices.</b>	
	<b>NOTE: This controller may be selected to support: SAS Tape Device (External), SAS Storage (External)</b>	
	HPE Smart Array P408i-p SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS PCIe Plug-in Controller	830824-B21
	<b>NOTE: This controller supports 8 Internal SAS/SATA devices</b>	
<b>PCIe Accelerators</b>	HPE 4TB PCIe x4 RI HH DS Card	877831-B21
	HPE 2TB PCIe x4 MU HH DS Card	877835-B21
	HPE 1.6TB PCIe x8 Lanes Mixed Use HHHH 3yr Wty Digitally Signed Firmware Card	877825-B21
	HPE 3.2TB PCIe x8 Lanes Mixed Use HHHH 3yr Wty Digitally Signed Firmware Card	877827-B21
	HPE 6.4TB PCIe x8 Lanes Mixed Use HHHH 3yr Wty Digitally Signed Firmware Card	877829-B21
<b>HBA Storage Controllers</b>	HPE StoreFabric SN1600Q 32Gb Single Port Fibre Channel Host Bus Adapter	P9M75A
	HPE StoreFabric SN1600E 32Gb Single Port Fibre Channel Host Bus Adapter	Q0L11A
	HPE StoreFabric SN1600E 32Gb Dual Port Fibre Channel Host Bus Adapter	Q0L12A
	HPE StoreFabric SN1200E 16Gb Dual Port Fibre Channel Host Bus Adapter	Q0L14A
	HPE StoreFabric SN1100Q 16Gb Single Port Fibre Channel Host Bus Adapter	P9D93A
<b>HPE Insight Software</b>	<b>Integrated Lights-Out (iLO)</b>	
	<b>HPE iLO Scale Out</b>	
	HPE iLO Advanced including 1yr 24x7 Technical Support and Updates E-LTU	E6U59ABE
	HPE iLO Advanced including 3yr 24x7 Technical Support and Updates E-LTU	E6U64ABE
	HPE iLO Scale-Out including 3yr 24x7 Tech Support and Updates Flex Qty E-LTU	BD776AAE
	HPE iLO Scale-Out 3yr 24x7 Tech Support and Updates Flexible Quantity LTU	BD776A
	HPE iLO Scale-Out including 3yr 24x7 Tech Support and Updates Tracking LTU	BD777A
	HPE iLO Scale-Out 1yr 24x7 Tech Support and Updates Flexible Quantity LTU	BD778A
	<b>HPE Integrated Lights-Out (iLO) Advanced for ProLiant</b>	
	HPE iLO Scale-Out including 1yr 24x7 Tech Support and Updates Flex Qty E-LTU	BD778AAE

HPE iLO Scale-Out including 1yr 24x7 Tech Support and Updates Tracking LTU	BD779A
HPE iLO Advanced including 3yr 24x7 Tech Support and Updates 1-server LTU	BD505A
HPE iLO Advanced including 3yr 24x7 Tech Support and Updates Flexible Quantity LTU	BD506A
HPE iLO Advanced including 3yr 24x7 Tech Support and Updates Tracking LTU	BD507A
HPE iLO Advanced including 1yr 24x7 Technical Support and Updates 1-server LTU	512485-B21
HPE iLO Advanced including 1yr 24x7 Technical Support and Updates Flexible Quantity LTU	512486-B21
HPE iLO Advanced including 1yr 24x7 Technical Support and Updates Tracking LTU	512487-B21

**NOTE:** For additional license options please see the QuickSpecs at:  
<http://www.hpe.com/h20195/v2/gethtml.aspx?docname=c04154343>

**NOTE:** For more information, visit: <http://www.hpe.com/info/ilo>

**Graphic Card Options**

HPE 32GB microSD Mainstream Flash Media Kit	700139-B21
HPE 8GB microSD Enterprise Mainstream Flash Media Kit	726116-B21
HPE NVIDIA Tesla P100 PCIe 12GB Computational Accelerator	Q2S42A
NVIDIA Tesla M10 Quad GPU Module	Q0J62A
HPE NVIDIA Tesla V100 PCIe 16GB Computational Accelerator	Q2N68A
HPE NVIDIA Tesla P40 24GB Computational Accelerator	Q0V80A
HPE NVIDIA Quadro P4000 Graphics Accelerator	Q0V78A
HPE XL190r Gen10 NVIDIA CPU 8-pin Adapter Kit	874857-B21
HPE XL190r Gen10 NVIDIA PCIe 8-pin Adapter Kit	874859-B21
HPE NVIDIA Tesla P100 PCIe 16GB Computational Accelerator	Q0E21A

**NOTE:** the following table summaries the configuration options for risers associated with the GPU cards.

	HPE NVIDIA Tesla P100 PCIe 12GB Module	NVIDIA Tesla M10 Quad GPU Module	HPE NVIDIA Tesla P40 24GB Module	HPE NVIDIA Tesla V100 PCIe 16GB Module	HPE NVIDIA Quadro P4000 GPU Module	HPE NVIDIA Tesla P100 PCIE 16GB Module
	Q2S42A	Q0J62A	Q0V80A	Q2N68A	Q0V78A	Q0E21A
<b>HPE XL190r Gen10 FLOM Riser Kit</b> (874847-B21)	X	X	X	X	X	X
<b>HPE XL190r 16NVMe Gen10 FLOM Riser Kit</b> (874849-B21)	X	X	X	X	X	X
<b>HPE XL190r Gen10 P2 Riser Kit</b> (874851-B21)	X	X	X	X	X	X
<b>HPE XL190r G10 PCIe 6 &amp; 8pin Adptr Kit</b> (P00145-B21)					X	
<b>HPE XL190r G10 CPU 8pin Adptr Kit</b> (874857-B21)	X		X	X		X
<b>HPE XL190r G10 PCIe8pin Adptr Kit</b>		X				

(874859-B21)						
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<b>Security Hardware</b>	<b>Trusted Platform Module</b>	
	HPE Trusted Platform Module 2.0 Gen10 Option	864279-B21
<b>USB and SD Options</b>	HPE USB US Keyboard/Mouse Kit	631341-B21
	HPE USB UK Keyboard/Mouse Kit	631344-B21
	HPE USB ES Keyboard/Mouse Kit	631348-B21
	HPE USB DE Keyboard/Mouse Kit	631358-B21
	HPE USB JP Keyboard/Mouse Kit	631360-B21
	HPE USB IT Keyboard/Mouse Kit	631362-B21
	HPE USB CN Keyboard/Mouse Kit	631364-B21
	HPE USB AE Keyboard/Mouse Kit	638212-B21
	HPE USB RU Keyboard/Mouse Kit	638214-B21
	HPE USB SE Keyboard/Mouse Kit	672097-103
	HPE USB CH Keyboard/Mouse Kit	672097-113
	HPE USB PT Keyboard/Mouse Kit	672097-133
	HPE USB TR Keyboard/Mouse Kit	672097-143
	HPE USB CZ Keyboard/Mouse Kit	672097-223
	HPE USB FI Keyboard/Mouse Kit	672097-353
	HPE USB AP/INTL Keyboard/Mouse Kit	672097-373
	HPE USB INTL Keyboard/Mouse Kit	672097-B33
	HPE USB IN Keyboard/Mouse Kit	672097-D63
	HPE USB KR Keyboard/Mouse Kit	672097-KD3
	HPE 36pin Serial/USB/VGA Dongle Cord Kit	676277-B21
<b>HPE Smart Array SmartCache License</b>	HPE Smart Array SR SmartCache (Single Key/Single Server) LTU	D7S26A
	HPE Smart Array SR SmartCache (Single Key/Multiple Servers) LTU	D7S27A
	HPE Smart Array SR SmartCache (Single Key/Multiple Servers) E-LTU	D7S27AAE
	HPE Smart Array SR Secure Encryption (Data at Rest Encryption/per Server Entitlement) E-LTU	Q2F26AAE

## HPE Memory

### General Memory population rules and guidelines:

**NOTE:** For detailed memory configuration rules and guidelines, please use the Online DDR4 Memory Configuration Tool:

<http://www.hpe.com/docs/memory-population-rules>

### Memory speed:

**NOTE:** For details on the HPE Server Memory speed, visit:

<https://www.hpe.com/docs/memory-speed-table>

DIMM Type	Registered DIMM (RDIMM)				
HPE SKU P/N	815097-B21	876181-B21	815098-B21	835955-B21	815100-B21
SKU Description	HPE 8GB 1Rx8 PC4-2666V-R Kit	HPE 8GB 2Rx8 PC4-2666V-R Kit	HPE 16GB 1Rx4 PC4-2666V-R Kit	HPE 16GB 2Rx8 PC4-2666V-R Kit	HPE 32GB 2Rx4 PC4-2666V-R Kit
DIMM Rank	Single Rank (1R)	Dual Rank (2R)	Single Rank (1R)	Dual Rank (2R)	Dual Rank (2R)
<b>DIMM Capacity</b>	<b>8 GB</b>	<b>8 GB</b>	<b>16 GB</b>	<b>16 GB</b>	<b>32 GB</b>
Voltage	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V
DRAM Depth	1 Gb	512 MB	2 Gb	1 Gb	2 Gb
DRAM Width (bit)	x8	x8	x4	x8	x4
DRAM Density	8 Gb	4 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 (MT/s)	2666	2666	2666	2666	2666
<b>HPE Server Memory Speed (MT/s): Intel Xeon Platinum/Gold 81xx/61xx Processors</b>					
1 DIMM per Channel	2666	2666	2666	2666	2666
2 DIMM per Channel	2666	2666	2666	2666	2666
<b>HPE Server Memory Speed (MT/s): Intel Xeon Gold/Silver 51xx/41xx Processors</b>					
1 DIMM per Channel	2400	2400	2400	2400	2400
2 DIMM per Channel	2400	2400	2400	2400	2400
<b>HPE Server Memory Speed (MT/s): Intel Xeon Bronze 31xx Processors</b>					
1 DIMM per Channel	2133	2133	2133	2133	2133
2 DIMM per Channel	2133	2133	2133	2133	2133



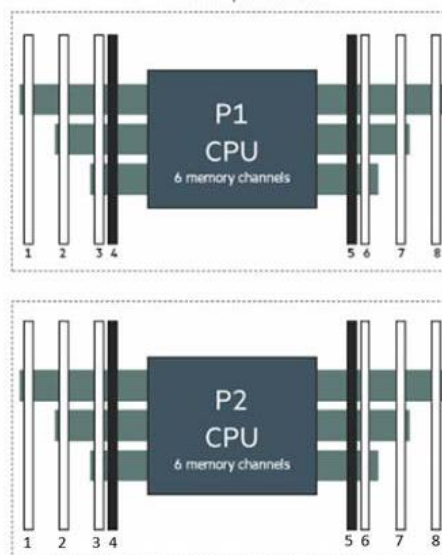
DIMM Type	Load-Reduced DIMM (LRDIMM)	
HPE SKU P/N	815101-B21	815102-B21
SKU Description	HPE 64GB 4Rx4 PC4-2666V-L Kit	HPE 128GB 8Rx4 PC4-2666V-L Kit
DIMM Rank	Quad Rank (4R)	Octal Rank (8R)
DIMM Capacity	64 GB	128 GB
Voltage	1.2 V	1.2 V
DRAM Depth	2 Gb	2 Gb
DRAM Width (bit)	x4	x4
DRAM Density	8 Gb	8 Gb
CAS Latency	19-19-19	22-19-19
DIMM Native Speed (MT/s)	2666	2666
<b>HPE Server Memory Speed (MT/s): Intel Xeon Platinum/Gold 81xx/61xx Processors</b>		
1 DIMM per Channel	2666	2666
2 DIMM per Channel	2666	2666
<b>HPE Server Memory Speed (MT/s): Intel Xeon Gold/Silver 51xx/41xx Processors</b>		
1 DIMM per Channel	2400	2400
2 DIMM per Channel	2400	2400
<b>HPE Server Memory Speed (MT/s): Intel Xeon Bronze 31xx Processors</b>		
1 DIMM per Channel	2133	2133
2 DIMM per Channel	2133	2133

**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>

**Memory Subsystem Architecture**

Each Intel® Xeon® Scalable family processor socket contains four memory channels per installed processor with two DIMMs per channel for a total of eight (8) DIMMs or a grand total of sixteen (16) DIMMs for the server.



**System Unit Specifications**

	3.32 x 7.27 x 27.36 in (8.43 x 18.45 x 69.47 cm)	
Maximum	25.1 lb (11.39 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.
Extended Ambient Operating Support	5° to 10°C (41° to 50°F) and 35° to 40°C (95° to 104°F)	System performance during standard operating support may be reduced if operating with a fan fault or above 30°C (86°F). For approved hardware configurations, the supported system inlet range is extended to be: 5° to 10°C (41° to 50°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: <b><a href="http://www.hpe.com/servers/ASHRAE">http://www.hpe.com/servers/ASHRAE</a></b> 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: <b><a href="http://www.hpe.com/servers/ASHRAE">http://www.hpe.com/servers/ASHRAE</a></b> 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).
8% to 90%	Relative humidity (Rh), 28°C maximum wet bulb temperature, non-condensing.	
5 to 95%	Relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.	
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 m/min (1500 ft/min).
9144 m (30,000 ft)		Maximum allowable altitude change rate is 457 m/min (1500 ft/min).

Listed are the declared A-Weighted sound power levels (LWAd) and declared 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. Additional options may result in increased sound levels. Please have your HPE representative provide information from the HPE EMESC website for further technical details regarding the configurations listed below.

**NOTE:** Acoustics levels presented here are generated by the test configuration only. Acoustics levels will vary depending on system configuration. Values are subject to change without notification and are for reference only.

<b>r2200 Chassis</b>			
<b>Configuration</b>	<b>SKU</b>	<b>Entry Base</b>	<b>Performance</b>
Idle			
LWAd	6.5 B	7.3 B	8.4 B
LpAm	51 dBA	59 dBA	69 dBA
Operating			
LWAd	6.5 B	7.6 B	8.8 B
LpAm	51 dBA	62 dBA	73 dBA

<b>r2600 Chassis</b>			
<b>Configuration</b>	<b>SKU</b>	<b>Entry Base</b>	<b>Performance</b>
Idle			
LWAd	6.6 B	7.5 B	8.1 B
LpAm	51 dBA	64 dBA	66 dBA
Operating			
LWAd	7.1 B	7.8 B	8.7 B
LpAm	57 dBA	63 dBA	70 dBA

<b>r2200 Chassis</b>			
<b>Configuration</b>	<b>SKU</b>	<b>Entry Base</b>	<b>Performance</b>
Idle			
LWAd	6.6 B	7.5 B	8.1 B
LpAm	51 dBA	64 dBA	66 dBA
Operating			
LWAd	8.6 B	8.7 B	8.9 B
LpAm	69 dBA	70 dBA	71 dBA

**Thermal  
Limitations:**

<b>Chassis</b>	<b>12 LFF front end : 9-12 drives</b>	<b>12 LFF front end : 0-8 drives (Removable drive blank at Bay 2)</b>	<b>24 SFF combo front end</b>	<b>16 NVME front end</b>
<b>Processor</b>	150W SKU limited to 25C amb., 140W-115W SKUs limited to 30C amb.	150W SKU limited to 30C amb.	150W SKU limited to 30C amb.	No limitation
<b>DIMM</b>	No limitation	No limitation	No limitation	No limitation
<b>Storage card</b>	P408i-p & P408e-p limited to 25C amb. (Now working on verification)	P408i-p & P408e-p limited to 30C amb. (Now working on verification)	P408i-p & P408e-p limited to 30C amb. (Now working on verification)	TBD
<b>PCIe NIC card</b>	TBD	TBD	TBD	TBD
<b>ALOM</b>	TBD	TBD	TBD	TBD
<b>mLOM card</b>	TBD	TBD	TBD	TBD
<b>InfiniBand</b>	TBD	TBD	TBD	TBD
<b>FC HBA</b>	TBD	TBD	TBD	TBD
<b>Fabric adaptor</b>	TBD	TBD	TBD	TBD
<b>GPU : P4000</b>	No amb. limitation	No amb. limitation	No amb. limitation	No amb. limitation

<b>GPU : M10</b>	Non-redundant and redundant fan SKUs limited to 22C amb.	Non-redundant fan SKU : No amb. limitation	No amb. limitation	No amb. limitation
		Redundant fan SKU : Limited to 30C amb.		
<b>GPU : P40</b>	TBD	TBD	TBD	TBD
<b>GPU : P100</b>	TBD	TBD	TBD	TBD
<b>GPU : V100</b>	TBD	TBD	TBD	TBD
<b>PCIe accelerator</b>	TBD	TBD	TBD	TBD

**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.

Date	Version History	Action	Description of Change
9-Oct-2017	From version 1 to 2	Updated	Update SKUs in the configuration information section
25-Sept-2017	Version 1	Created	Create QuickSpecs for HPE ProLiant XL190r Gen10 Server



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