

**ANNEX 4h. PROPOSICIÓ TÈCNICA – Lot 8**

El senyor Carlos Torruella García amb DNI 39683651A com a apoderat declara sota la seva responsabilitat, com a licitador/a de l'Acord marc de subministrament d'equips informàtics i determinades llicències de programari amb destinació a les entitats locals de Catalunya (expedient 2018.09) que l'empresa ICOT, Informàtica i Comunicacions de Tarragona, S.A. amb CIF A43132422, fa la següent proposta tècnica, d'acord amb les característiques tècniques que es detallen seguidament,

**LOT 8- SERVERS-CONVERGENTS**
**Sublot 8.1**

<b>CONVERGENT COMPACTE CHASIS MULTINODO – HPE Apollo r2800 Gen10 24SFF chassis</b>
2U`s de alçada
Possibilitat d'ampliació fins a <b>4</b> nodws
Possibilitat d'emmagatzematge <b>6</b> discos per servidor
Font d'alimentació redundant
Gestió integral de múltiples xasis
Garantia <b>48</b> mesos fabricant
Energy Star

**Sublot 8.2**

<b>CONVERGENT COMPACTE NODO BÀSIC – Servidor HPE ProLiant XL170r Gen10</b>
Processador <b>Intel Xeon-Bronze 3206R (1.9GHz/8-core/85W)</b>
Doble processador
Possibilitat d'emmagatzematge 6 discos per servidor
Alçada 1/4 dins del xassis
Memòria <b>32GB</b> DDR-4 ampliable 16 slots
Capacitat de RAID 1,5,10 per Hardware
Tarja Ethernet en placa de dos ports 1/10GB
Possibilitat de sortida targetes FC 16GB/32GB , 10GB SFP+, 10 GB base T , Infiniband 100GB, Mellanox 25GB
Garantia <b>48</b> mesos fabricant
Connectivitat de gestió i monitorització remota
Capacitat d'enciptació en processador (TPM)
Energy Star <b>3.0</b>

**Sublot 8.3**

<b>CONVERGENT COMPACTE NODO AVANÇAT - Servidor HPE ProLiant XL170r Gen10</b>
Processador <b>Intel Xeon-Silver 4208 (2.1GHz/8-core/85W)</b>
Doble processador
Alçada 1/4 dins del xasis
Memòria <b>32GB</b> DDR-4 ampliable 16 slots

Capacitat de RAID 1,5,10 per Hardware
Tarja Ethernet en placa de dos ports 1/10GB
Possibilitat de sortida targetes FC 16GB/32GB , 10GB SFP+, 10 GB base T , Infiniband 100GB, Melanox 25GB
Garantia <b>48</b> mesos fabricant
Connectivitat de gestió i monitorització remota
Capacitat d'encryptació en processador (TPM)
Energy Star <b>3.0</b>
<b>Sublot 8.4</b>
<b>CONVERGENT COMPACTE NODO AVANÇAT II - Servidor HPE ProLiant XL170r Gen10</b>
Processador <b>Intel Xeon-Gold 6226 (2.7GHz/12-core/125W)</b>
Doble processador
Alçada 1/4 dins del xasis
Memòria <b>64GB</b> DDR-4 ampliable 16 slots
Capacitat de RAID 1,5,10 per Hardware
Tarja Ethernet en placa de dos ports 1/10GB
Possibilitat de sortida targetes FC 16GB/32GB , 10GB SFP+, 10 GB base T , Infiniband 100GB, Melanox 25GB
Garantia <b>48</b> mesos fabricant
Connectivitat de gestió i monitorització remota
Capacitat d'encryptació en processador (TPM)
Energy Star <b>3.0</b>
<b>Sublot 8.5</b>
<b>CONVERGENT COMPACTE NODO PREMIUM - Servidor HPE ProLiant XL190r Gen10</b>
Processador <b>Intel Xeon-Gold 6226 (2.7GHz/12-core/125W)</b>
Doble procesador
Alçada 2/4 dins del xasis
Memòria <b>64GB</b> DDR-4 ampliable 16 slots
Capacitat de RAID 1,5,10 per Hardware
Tarja Ethernet en placa de dos ports 1/10GB
Possibilitat de sortida targetes FC 16GB/32GB , 10GB SFP+, 10 GB base T , Infiniband 100GB, Melanox 25GB
Possibilitat 4 GPU
Garantia <b>48</b> mesos fabricant
Connectivitat de gestió i monitorització remota
Capacitat d'encryptació en processador (TPM)
Energy Star <b>3.0</b>

Aquest document degudament complimentat haurà d'adjuntar les fitxes tècniques o catàleg de cadascun dels elements objecte de la unitat de licitació.

Exp. 2018.09

I per què consti, signo aquesta declaració responsable.

A Tarragona, 07 de juliol de 2020  
Sig. Carlos Torruella García

Reg. Merc. DE TARRAGONA T. 578, L. 461, F. 38, FULL 8660, SECC. 3ª, C.I.FES-A43132422

### Overview

#### HPE Apollo 2000 Gen10 Chassis

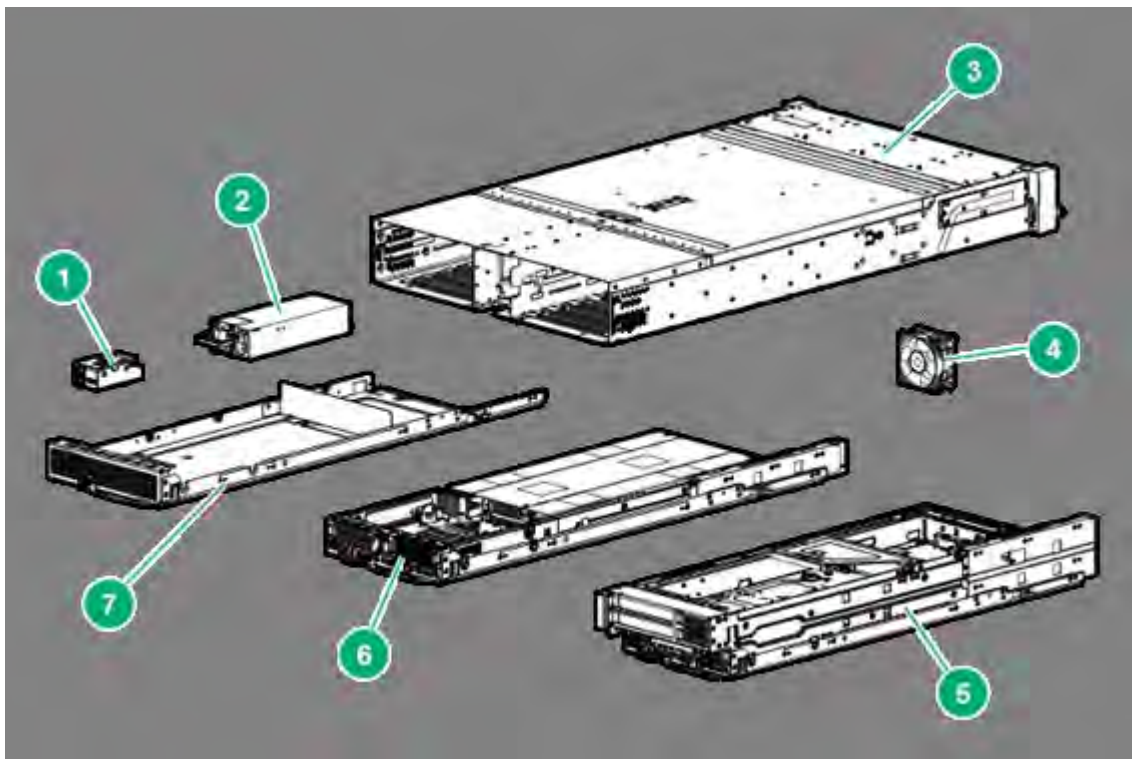
The HPE Apollo 2000 Gen10 System is a dense, multi-server platform that packs incredible performance and workload flexibility into a small datacenter space, while delivering the efficiencies of a shared infrastructure. It is designed to provide a bridge to scale-out architecture for traditional data centers, so enterprise and SME customers can achieve the space-saving value of density-optimized infrastructure in a cost-effective and non-disruptive manner.

The Apollo 2000 Gen10 System offers the configuration flexibility to support a variety of workloads, from remote site systems to large HPC clusters and everything in between. And it can be deployed cost-effectively starting with a single 2U, shared infrastructure chassis to meet the configuration needs of a wide variety of scale-out workloads.

The Apollo 2000 Gen10 System is a density-optimized, 2U shared infrastructure chassis for up to 4 ProLiant XL170r Gen10 and up to 2 ProLiant XL190r Gen10 independent, hot-plug servers with all the traditional data center attributes - standard racks and cabling and rear-aisle serviceability access. A 42U rack fits up to 20 Apollo r2000 series chassis accommodating up to 80 servers per rack.

With Apollo 2000 Gen10 System servers there is flexibility to tailor the system to the precise needs of each workload with compute and flexible I/O and storage options. Apollo 2000 System servers can be "mixed and matched" within a single chassis to support different applications and it can even be deployed with a single server, leaving room to scale as customer's needs grow. One cannot use Gen9 servers in a Gen10 chassis or Gen10 servers in a Gen9 chassis.

The Apollo Gen10 2000 chassis comes with 4 new generation single rotor fans and an additional 4 fans can be added for redundancy. It supports up to 2 HPE Flexible Slot Power Supplies which provide up to 96% power efficiency with 80Plus Titanium-certified power supplies that lower server power requirements and reduce power waste in your data center. The chassis can also be managed by the HPE Advance Power Manager (HPE APM) an optional rack level manager.

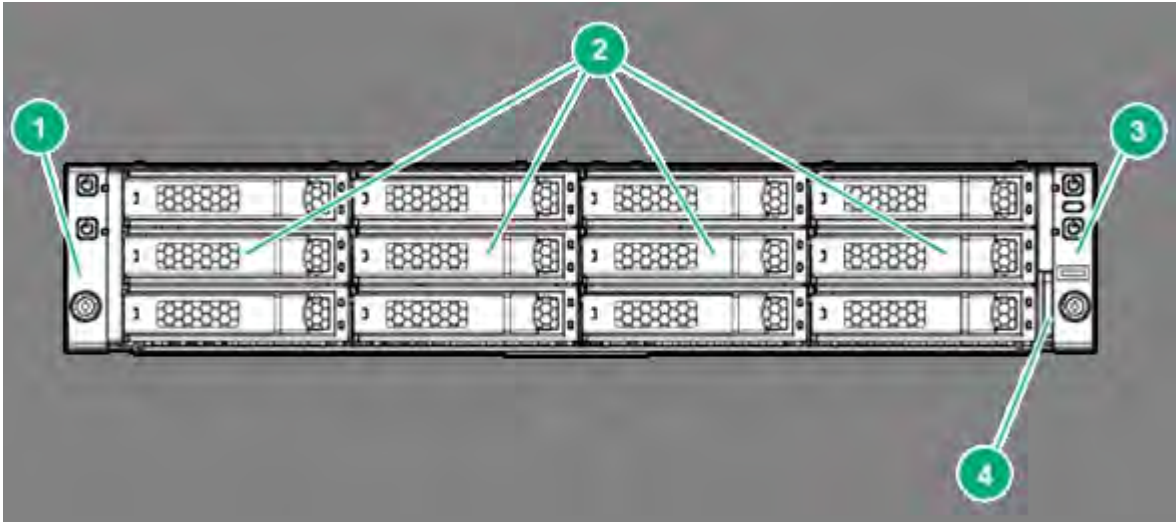


**HPE Apollo r2200 12LFF Gen10 CTO Chassis - 12 LFF**

Item	Description	Item	Description
1	RCM module (optional)	5	HPE ProLiant XL190r Gen10 Server
2	Power Supply	6	HPE ProLiant XL170r Gen10 Server

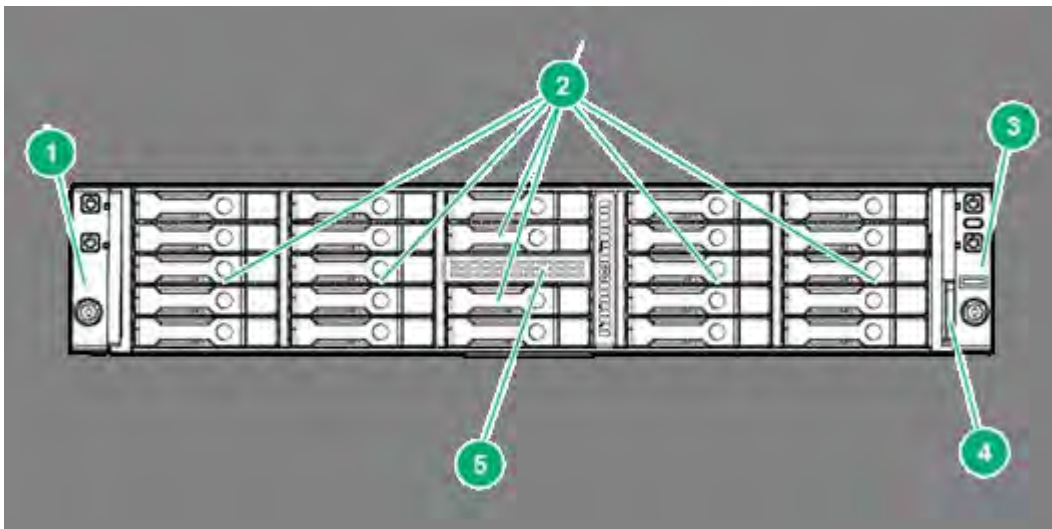
### Overview

3	HPE Apollo 2000 Gen10 Chassis	7	Server tray blank
4	Chassis serial label pull tab		



**HPE Apollo r2200 12LFF Gen10 CTO Chassis - 12 LFF**

Item	Description	Item	Description
1	Left bezel ear	3	Right bezel ear
2	Low-profile LFF hot-plug drives	4	Chassis serial label pull tab

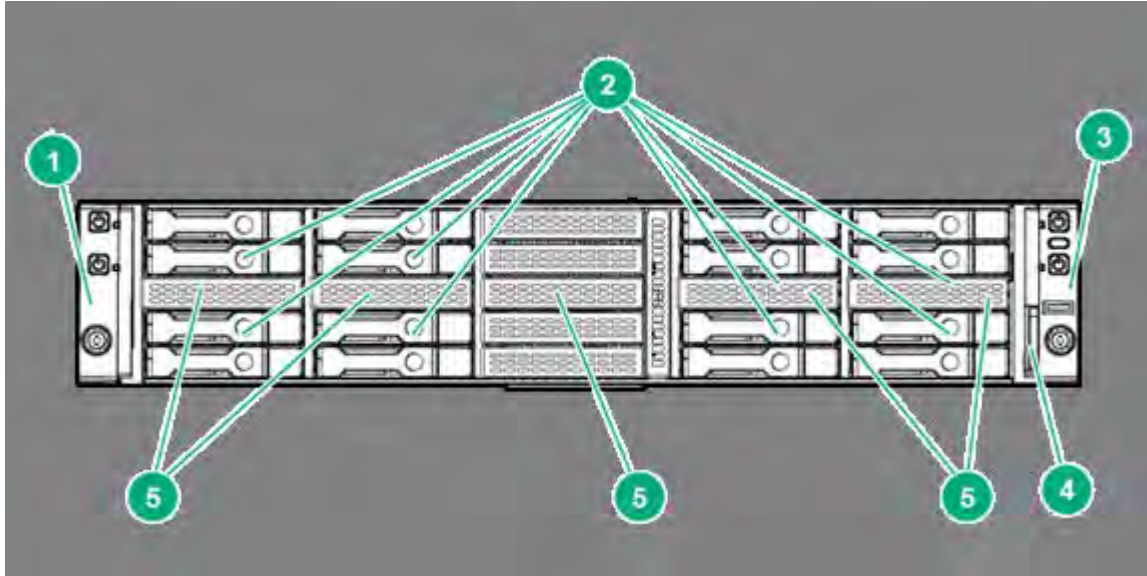


**HPE Apollo r2600 24SFF-Prem Gen10 CTO Chassis - 24 SFF**

Item	Description	Item	Description
1	Left bezel ear	4	Chassis serial label pull tab
2	SFF hot-plug drives	5	Non-removable bezel blank
3	Right bezel ear		

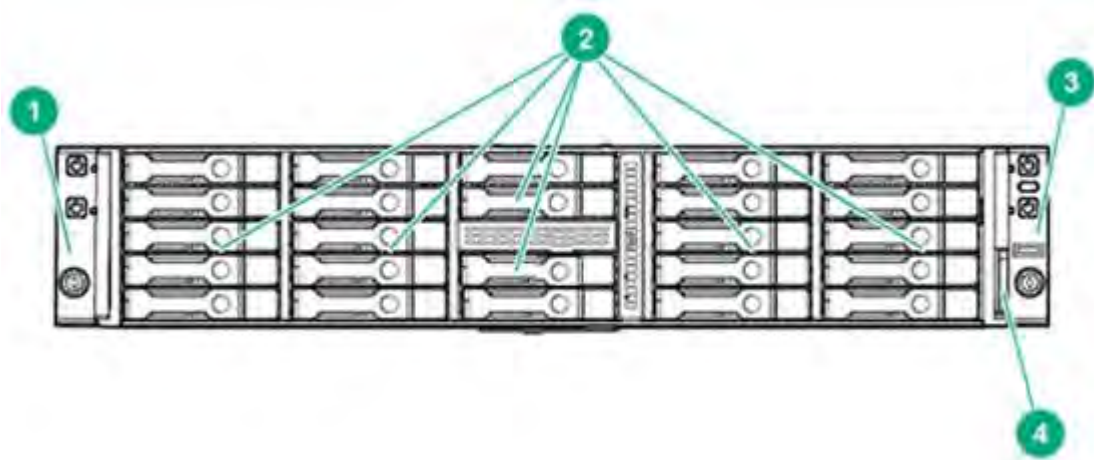


### Overview



**HPE Apollo r2800 24SFF-Flex Gen10 CTO Chassis- 16 NVMe**

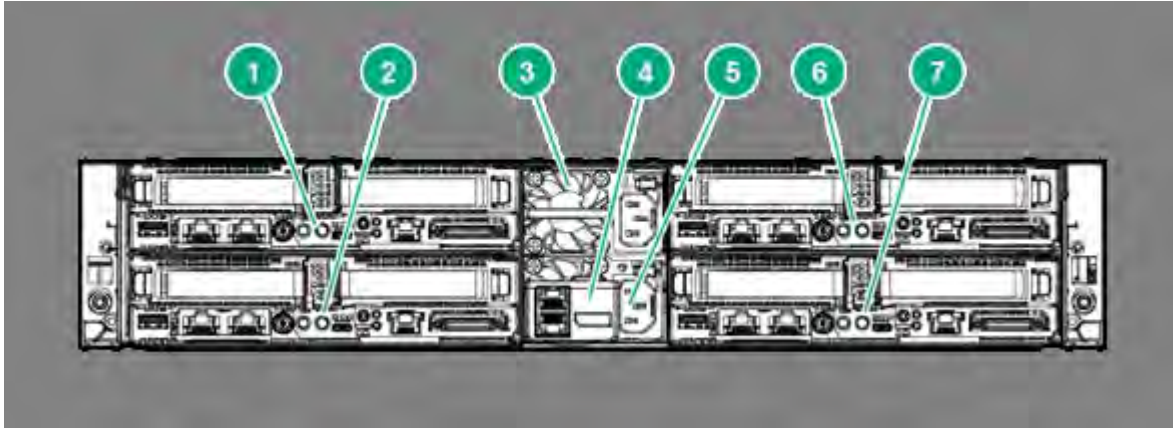
Item	Description	Item	Description
1	Left bezel ear	4	Chassis serial label pull tab
2	NVMe drives	5	Non-removable bezel blanks
3	Right bezel ear		



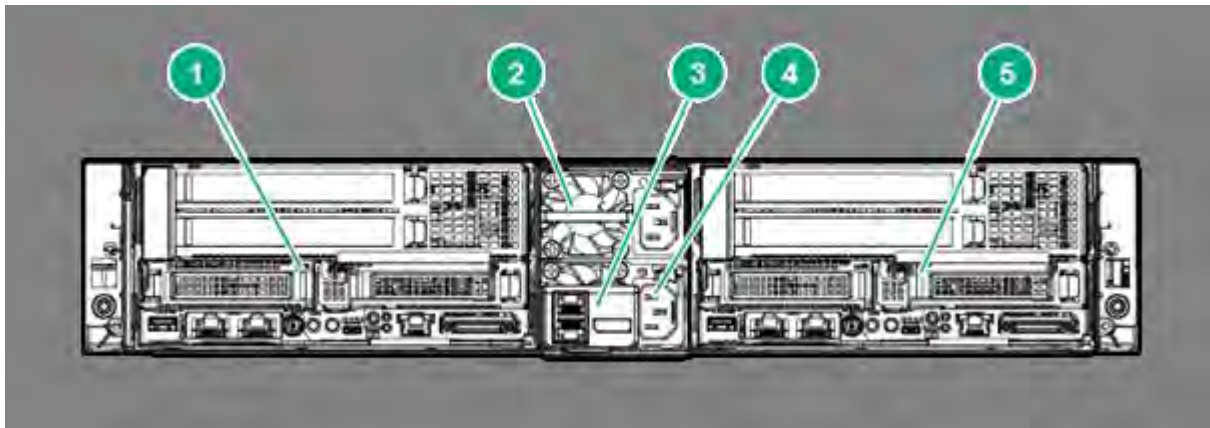
**HPE Apollo r2800 24SFF-Flex Gen10 CTO Chassis- w/ SAS expander**

Item	Description	Item	Description
1	Left bezel ear	3	Right bezel ear
2	SFF HP SmartDrives	4	Chassis serial label pull tab

Overview



Item	Description	Item	Description
1	Server 4	5	Power Supply 1
2	Server 3	6	Server 2
3	Power supply 2	7	Server 1
4	RCM module (optional)		



Chassis Rear panel Components / Two 2U Servers

Item	Description	Item	Description
1	Server 3	4	Power Supply 1
2	RCM module (optional)	5	Server 1
3	Power Supply 2		

### Core Features

#### Chassis

There are 4 chassis options with different storage configurations

- HPE Apollo r2200 12LFF Gen10 CTO Chassis - allocated equally across server nodes  
12 LFF hot-pluggable SAS/SATA HDD/SSD (Direct Attach)
- HPE Apollo r2600 24SFF-Prem Gen10 CTO Chassis - allocated equally across server nodes  
24 SFF hot-pluggable SAS/SATA HDD/SSD  
16 SFF SAS/SATA +8 NVMe HDD
- HPE Apollo r2800 24SFF-Flex Gen10 CTO Chassis

This chassis has 2 Backplane options

HPE r2800 Gen10 16SFF NVMe BP FIO Kit (16 SFF NVMe ) : allocated equally across server nodes

HPE r2800 Gen10 24SFF BP w/EXP FIO Kit (SAS Expander) : allocated flexibly across server nodes

Each HPE Apollo 2000 Chassis is built with the following:

- Four server slots for a chassis
  - Up to two (2) power supplies for the chassis HPE Thermal Logic technology for lower power consumption and airflow.
  - Four (4) single rotor fans standard and an additional 4 fans can be added for redundancy
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#### System Fans

The Chassis ships standard with 4 single rotor fan modules.

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#### Server Tray Blank Kit

A chassis requires that four (4) server tray slots be populated with either an HPE ProLiant XL170r Gen10, XL190r Gen10 server or an HPE Apollo 2000 Gen10 Server Node Blank Kit.

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#### Rack Airflow Requirements

##### HPE Apollo 2000 Gen10 Chassis

The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. For maximum cooling, HPE racks are recommended to allow these racks to be fully loaded with servers using the latest processors. For detail information please see Apollo 2000 System User Guide.

**CAUTION:** If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment.

**CAUTION:** Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels will result in improper cooling that can lead to thermal damage.

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### Service & Support

#### Pointnext - Service and Support

It is recommended to have the same attached support level for all products included in the HPE Apollo 2000 chassis.

The support of HPE Apollo 2000 the chassis covers the chassis, the included options, and APM. Support for the xl170r and xl190r are sold separately.

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#### HPE Pointnext for Industry Standard Servers

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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#### Recommended HPE Pointnext Services for your HPE Apollo 2000

##### Optimized Recommendation

##### Proactive Care, 24x7, 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/getdocument.aspx?docname=4AA5-3259ENW>

**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.

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##### Standard Recommendation

##### 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>

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##### 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>

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### Related Services

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### Service & Support

#### **HPE Datacenter Care service**

HPE Datacenter Care helps you 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 Hewlett Packard Enterprise via a single point of accountability for Hewlett Packard Enterprise and others' products. For more information, visit <http://www.hpe.com/services/datacentercare>

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#### **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

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#### **Datacenter Care 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.

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#### **HPE Installation and Startup Service**

Provides for the installation of your HPE hardware according to product specifications including options. 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. Installation and start up services also includes the installation of one supported operating system type (Windows® or Linux)

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#### **Factory Express for servers and storage**

HPE Factory Express offers configuration, customization, integration and deployment services for Hewlett Packard Enterprise 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 MSxxxx3PAR suite, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services for your specific server model please contact your sales representative.

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#### **Data Privacy Services**

Protect your data through better media management. HPE Data privacy services help manage and protect sensitive data to reduce the risk of unauthorized access to private information and help meet compliance requirements. Our retention services allow you to keep drives and other devices upon failure, our removal services provide convenient data sanitization and our recovery services allow you to safely retire IT assets and capture any remaining value from the hardware. [hpe.com/services/lifecycle](http://www.hpe.com/services/lifecycle) event

Additional can be found at: <http://www.hpe.com/services>

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### Service & Support

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#### HPE Education Services

Keep your IT staff trained making sure they have the right skills to deliver on your business outcomes. Book on a class today and learn how to get the most from your technology investment.

<http://www.hpe.com/ww/learn>

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#### 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>

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#### Parts and Materials

Hewlett Packard Enterprise 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.

**NOTE:** APM is covered under the HPE Service Contract applied to the HPE Apollo 2000 Chassis. No separate HPE support services need to be purchased

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#### 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 Hewlett Packard Enterprise experts, access support resources or collaborate with peers. Learn more

<http://www.hpe.com/support/hpesc>

The HPE 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 personalize 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

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#### For More Information

To learn more on services for Hewlett Packard Enterprise Apollo please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Or visit:

<http://www.hpe.com/services>

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#### 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

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### Service & Support

services are available through HPE Pointnext operational 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>

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### Configuration Information

#### Step 1: Choose a Chassis

HPE Apollo r2200 Gen10 12 LFF Configure-to-order Chassis	867156-B21
HPE Apollo r2600 Gen10 24 SFF Premium Configure-to-order Chassis	867158-B21
HPE Apollo r2800 Gen10 24 SFF Flexible Configure-to-order Chassis	867159-B21

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#### Choose a Backplane for r2800 chassis

HPE r2800 Gen10 16SFF NVMe Backplane FIO Kit	874800-B21
HPE r2800 Gen10 24SFF BP w/EXP FIO Kit	874797-B21

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#### Step 2: Choose cooling options

##### HPE Cooling Options

HPE Apollo 2000 Gen10 Server Node Blank Kit	874309-B21
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**NOTE:** Required for any non-populated slots in the chassis to prevent thermal related issues

HPE r2x00 Gen10 Redundant Fan Module Kit	874308-B21
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**NOTE:** Must select quantity for fan modules: 0 fan kit; 1 fan kit for Fan redundancy

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#### Step 3: Choose the following rail kit and bracket per chassis

##### HPE Rail Kits

HPE 2U Gen9 Hardware Rail Kit	822731-B21
HPE Strap t2500 Shipping Bracket	740713-B21

**NOTE:** Hewlett Packard Enterprise recommends that a minimum of two people are required for all rack installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.

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#### Step 4: Choose Base configuration

##### Server Trays

HPE ProLiant XL170r Gen10 1U Node Configure-to-order Server	867055-B21
HPE ProLiant XL190r Gen10 2U Node Configure-to-order Server	867056-B21

**NOTE:** Up to 4 single half width server trays (XL170r Gen10) can be added to the HPE Apollo 2000 Chassis.

Up to 2 half width 2 U height server trays (XL190 Gen10) can be added to the HPE Apollo 2000 chassis

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### Core Options

#### RCM Module

HPE Apollo 2000 Rack Consolidation Module Kit 798211-B21

**NOTE:** This is an optional RCM (Rack Consolidation Management) module kit which allows iLO aggregation at the chassis level and also has the port for the HPE APM. The RCM Module consists of 2 iLO ports for redundancy. It can also be daisy chained to connect to a Top of the Rack (TOR) management switch.

**NOTE:** If using the RCM module iLO port connect to a network, the network must operate at a speed of 1Gb/s. On-board dedicated iLO management port could be ran at 10/100/1000 Gb network speed.

HPE Apollo 2000 Rack Consolidation Module 2.0-1.0 Adapter Kit 800063-B21

**NOTE:** Refer to HPE APM QuickSpecs for more details at:

<https://www.hpe.com/us/en/product-catalog/detail/pip.hpe-advanced-power-manager.5202410.html>

#### Power Supply

HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit 830272-B21

HPE 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit 865414-B21

HPE 800W Flex Slot -48VDC Hot Plug Low Halogen Power Supply Kit 865434-B21

HPE 1800W-2200W Flex Slot Platinum Hot Plug Power Supply Kit 876935-B21

HPE r2x00 Gen10 Power Supply Unit Enablement Kit 880186-B21

HPE r2x00 Gen10 1800-2200W Redundant Power Supply Enablement Kit 880189-B21

HPE 800W Flex Slot Universal Hot Plug Low Halogen Power Supply Kit 865428-B21

#### Security Hardware

HPE Gen10 2U Bezel Kit 867809-B21

HPE Bezel Lock Kit 875519-B21

#### HPE Advanced Power Manager

HPE Advanced Power Manager Kit 741192-B21

**NOTE:** Each HPE APM can connect up to 10 chassis via consolidated chassis management cable.

**NOTE:** Refer to HPE APM QuickSpecs for further details at

<https://www.hpe.com/us/en/product-catalog/detail/pip.hpe-advanced-power-manager.5202410.html>

#### Power Cords

HPE SAFDGRID-SAFDGRID 277V 15Amp DC 2.0m Jumper Cord J6X00A

HPE SAFDGRID-LS-25 277V 15Amp AC 2.0m Jumper Cord J6X03A

HPE 48VDC 2.85m Power Cable Q0H80A

HPE No Plug 12AWG 48V DC 3.0m Power Cord J6X43A

**NOTE:** Below Power cords are compatible with 1800W-2200W Power Supply kit (876935-B21)

#### Power Cords - US

HPE C15 US 125V 15Amp 2.5m Black Power Cord Q7F42A

HPE C15 US 250V 10Amp 2.5m Black Jumper Cord Q7F57A

HPE C15 US 250V 10Amp 0.76m Black Jumper Cord Q7F59A

HPE C15 US 250V 10Amp 1m Black Jumper Cord Q7F61A

#### Power Cords - CN

HPE C15 CN 250V 10Amp 2.5m Black Power Cord Q7F53A

Core Options

**Power Cords - EU**

HPE C15 EU 250V 10Amp 2.5m Black Power Cord	Q7F45A
HPE C15 EU 250V 10Amp 2.5m Black Jumper Cord	Q7F58A
HPE C15 EU 250V 10Amp 0.76m Black Jumper Cord	Q7F60A
HPE C15 EU 250V 10Amp 1m Black Jumper Cord	Q7F62A

**Power Cords - UK**

HPE C15 UK 250V 10Amp 2.5m Black Power Cord	Q7F46A
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### Technical Specifications

#### HPE Apollo r2200 Gen10 Chassis - 12 LFF

<b>Dimensions</b>	<b>Height</b>	3.45 in (8.76 cm)
	<b>Width</b>	17.64 in (44.80 cm)
	<b>Depth</b>	34.62 in (87.93 cm)
<b>Shipping Dimensions</b>	<b>Height</b>	12.5 in (31.75 cm)
	<b>Width</b>	23.63 in (60.02 cm)
	<b>Depth</b>	39.38 in (100.01 cm)
<b>Chassis Weight</b>	<b>Empty</b>	28.88 lb (13.1 kg)
	<b>Max Approximate</b>	122.19 lb (46.70 kg)
<b>Temperature Range</b>	<b>Operating</b>	50° to 95° F (10° to 35° C)
	<b>Non-Operating</b>	-22° to 140° F (-30° to 60° C)
<b>Relative Humidity</b>	<b>Operating</b>	Minimum to be higher (more moisture) of -12°C (10.4°F) dew point or 8% relative humidity
	<b>Non-Operating</b>	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.

**Acoustic Noise** **NOTE:** Please see QuickSpecs for Apollo 2000 Gen10 XL170r and XL190r servers

#### HPE Apollo r2600 Gen10 Chassis - 24 SFF

<b>Dimensions</b>	<b>Height</b>	3.45 in (8.76 cm)
	<b>Width</b>	17.64 in (44.80 cm)
	<b>Depth</b>	33.02 in (83.87 cm)
<b>Shipping Dimensions</b>	<b>Height</b>	12.5 in (31.75 cm)
	<b>Width</b>	23.63 in (60.02 cm)
	<b>Depth</b>	37.76 in (95.9 cm)
<b>Chassis Weight</b>	<b>Empty</b>	28.00 lb (12.7 kg)
	<b>Max Approximate</b>	103.27 lb (46.84 kg)
<b>Temperature Range</b>	<b>Operating</b>	50° to 95° F (10° to 35° C)
	<b>Non-Operating</b>	-22° to 140° F (-30° to 60° C)
<b>Relative Humidity</b>	<b>Operating</b>	Minimum to be higher (more moisture) of -12°C (10.4°F) dew point or 8% relative humidity

### Technical Specifications

#### 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.

#### Acoustic Noise

**NOTE:** Please see QuickSpecs for Apollo 2000 Gen10 XL170r and XL190r servers

### HPE Apollo r2800 Gen10 Chassis 16 NVMe

<b>Dimensions</b>	<b>Height</b>	3.45 in (8.76 cm)
	<b>Width</b>	17.64 in (44.80 cm)
	<b>Depth</b>	33.02 in (83.87 cm)
<b>Shipping Dimensions</b>	<b>Height</b>	12.5 in (31.75 cm)
	<b>Width</b>	23.63 in (60.02 cm)
	<b>Depth</b>	37.76 in (95.9 cm)
<b>Chassis Weight</b>	<b>Empty</b>	28.00 lb (12.7 kg)
<b>Max Enclosure Weight</b>	<b>Approximate</b>	102.96 lb (46.70kg)
<b>Temperature Range</b>	<b>Operating</b>	50° to 95° F (10° to 35° C)
	<b>Non-Operating</b>	-22° to 140° F (-30° to 60° C)
<b>Relative Humidity</b>	<b>Operating</b>	Minimum to be higher (more moisture) of -12°C (10.4°F) dew point or 8% relative humidity
	<b>Non-Operating</b>	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.

#### Acoustic Noise

**NOTE:** Please see QuickSpecs for Apollo 2000 Gen10 XL170r and XL190r servers

### Environmental-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**:

These instructions may be used by recyclers and other WEEE treatment facilities as well as Hewlett

## Technical Specifications

Packard Enterprise OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment.

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### Summary of Changes

Date	Version History	Action	Description of Change
07-Oct-2019	Version 8	Changed	Configuration Information section was updated
02-Apr-2019	Version 7	Changed	Overview and Core Options sections were updated.. Obsolete SKUs were removed
01-Oct-2018	Version 6	Changed	SKUs descriptions in the Configuration Information and Core Options were updated
13-Aug-2018	Version 5	Changed	Overview and SKUs descriptions in the Configuration Information and Core Options were updated.
04-Jun-2018	Version 4	Changed	Update SKUs in the Core Options section
02-Apr-2018	Version 3	Updated	Update Overview, Configuration Information and Core Options sections
09-Oct-2017	Version 2	Updated	Update SKUs in the Configuration Information section
25-Sep-2017	Version 1	New	New QuickSpecs.



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a00019876enw - 16063 - Worldwide - V8 - 07-October-2019

### Overview

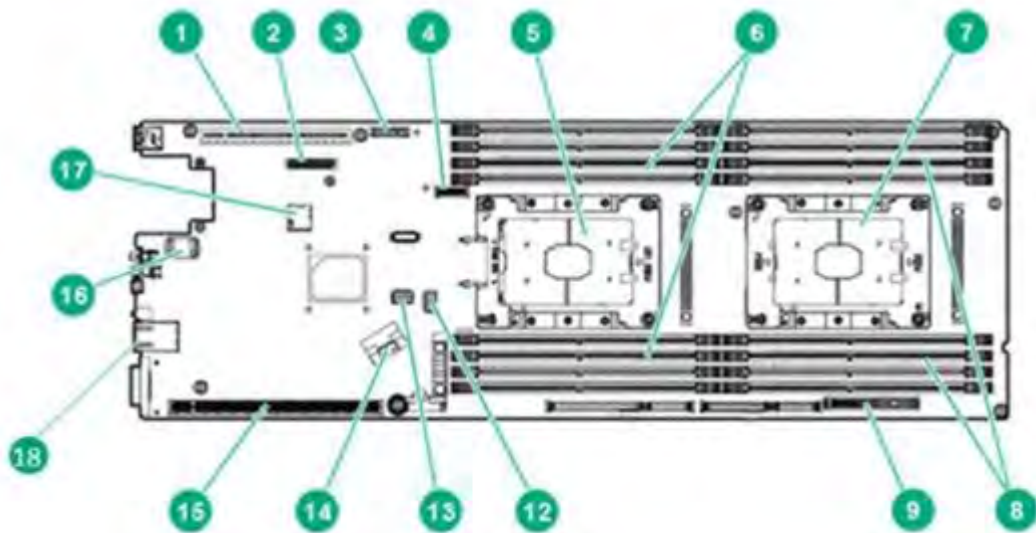
### HPE ProLiant XL170r Gen10 Server

The ProLiant XL170r Gen10 Server is a 1U half-width, 2P server with configuration options for:

- Performance and efficient CPUs -- Intel Xeon Scalable Family series processor options ranging from Bronze to Platinum with choices from 4-24 Cores, 1.7GHz - 3.8GHz CPU speed, and power ratings between 85-150 Watts
- 16 memory DIMM slots, DDR4 2933 MT/s HPE SmartMemory.
- 2 I/O slots for a choice of networking and clustering options including : 1Gb, 10Gb, 100Gb Ethernet, 100 Gb/s EDR InfiniBand, 100Gv/s Omni-Path, FibreChannel and options for either 1 PCIe (x16) slot plus a FlexibleLOM or 2 PCIe (x16) slots

The Apollo r2000 series chassis accommodates 4 independently serviceable ProLiant XL170r Gen10 servers with up to 80 servers in a 42U rack with 1 to 4 servers per chassis.

Rack scale power efficiency is easy with HPE Apollo Platform Manager for rack, chassis, server and component level management



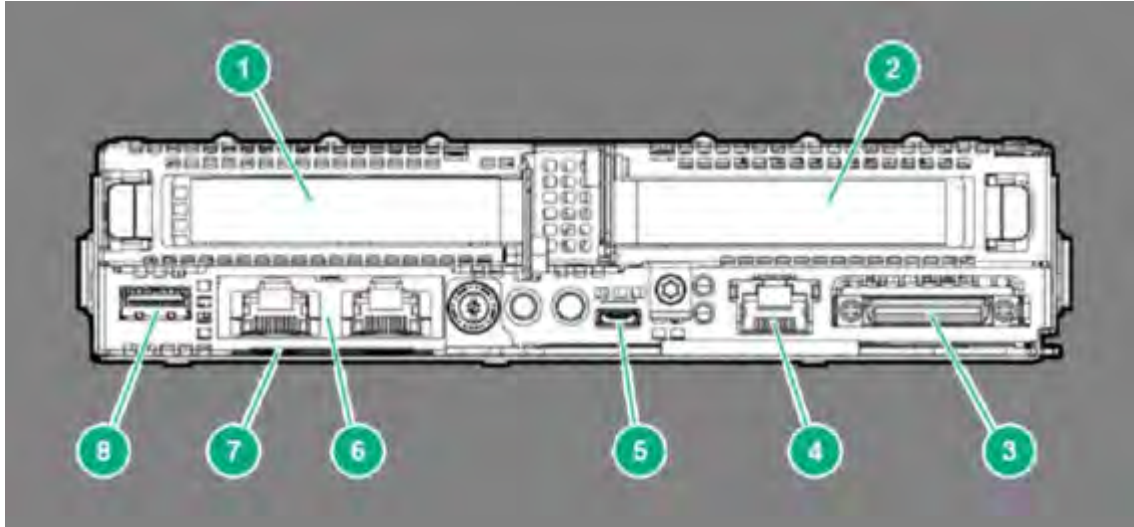
Front View

Item	Description	Item	Description
1	Primary riser slot 1	9	Bayonet board slot
2	mLOM connector	12	Slimline connector (SATA x4)
3	System battery	13	System maintenance switch
4	M.2 SSD riser connector	14	Slimline connector (SATA x8)
5	Processor 1	15	Secondary riser slot 2
6	DIMMs for processor 1	16	TPM connector
7	Processor 2	17	microSD slot
8	DIMMs for processor 2	18	iLO dedicated port

### Whats New

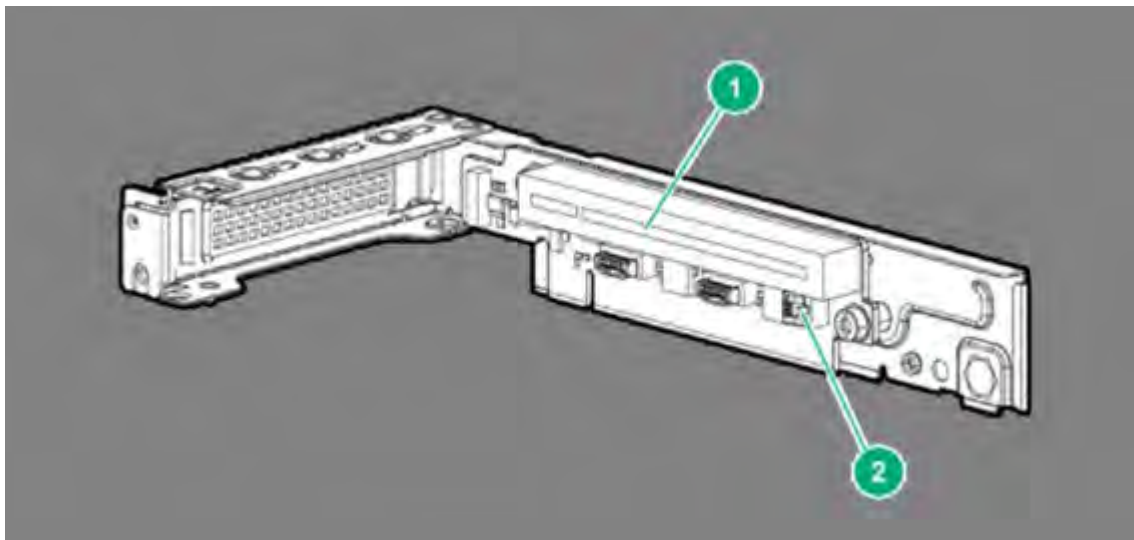
New HPE Persistent Memory 128GB/256GB/512GB 2666 featuring Intel® Optane™ DC persistent memory

### Overview



**Rear View**

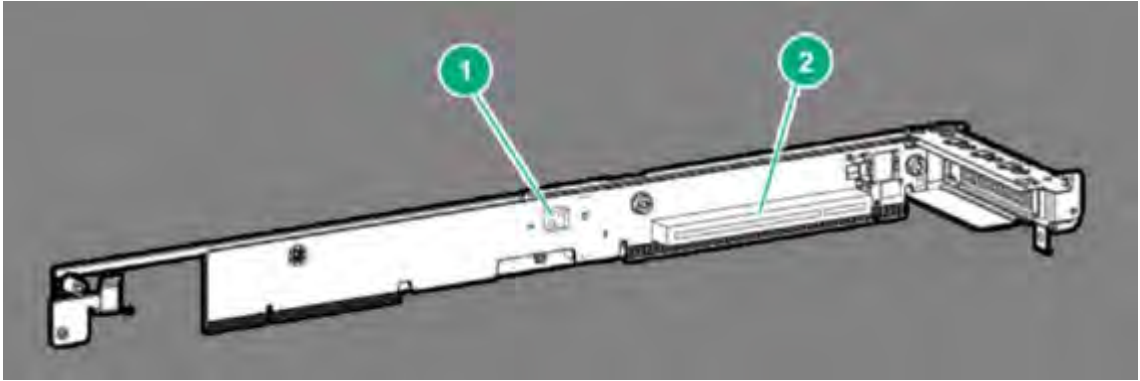
Item	Description	Item	Description
1	Primary riser (slot1)	5	iLO service port with micro USB connector
2	Secondary riser (slot2)	6	Media module
3	SUV connector	7	Node serial number and iLO label pull tab
4	ILO Management Port	8	USB 3.0 connector



**Single-slot left PCI Riser Cage Assembly  
(874296-B21)**

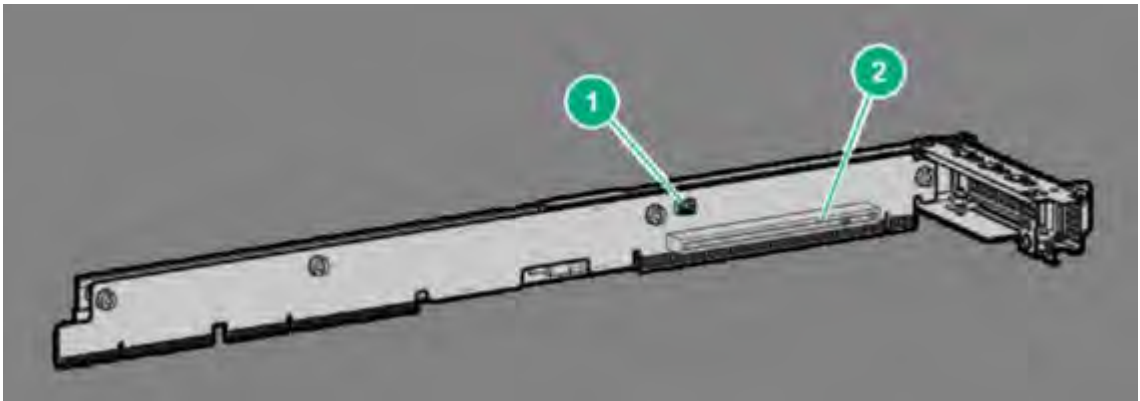
Item	Form factor	Slot number	Slot description
1	Storage controller or low-profile PCIe	1	PCIe3 x16 (16, 8, 4, 1) for Processor 1
2	N/A	N/A	Storage backup power connector

Overview



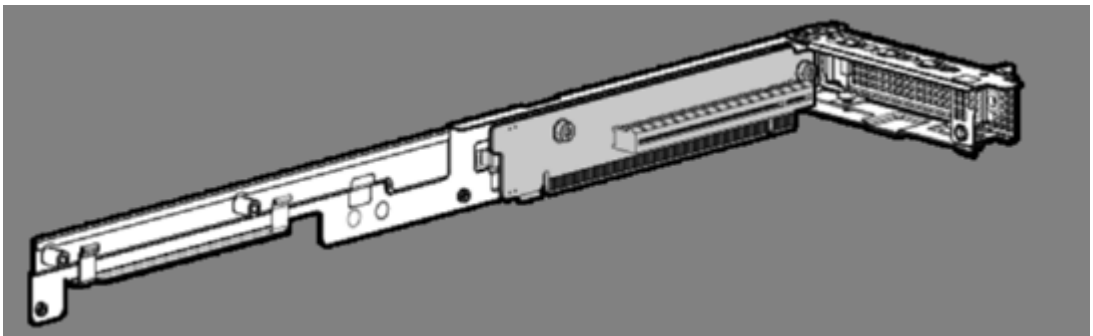
**Single-slot 1U node right PCI Riser Cage Assembly  
(874300-B21)**

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



**Single-slot 1U node right PCI Riser Cage Assembly  
(874302-B21)**

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



**FlexibleLOM 1U node Riser Cage Assembly  
(874298-B21)**

Form factor	Slot number	Slot description
FlexibleLOM	FlexibleLOM slot	PCIe3 x16 for Processor 1

### Standard Features

#### Processors

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

1 <sup>st</sup> Generation Intel® Xeon® Scalable Processor Family							
Processors Intel Xeon Models	CPU Frequency	Cores	L3 Cache	Power	QPI	DDR4/ MT/s	Mem per soc
<b>Platinum Processors</b>							
Platinum 8160 Processor	2.1 GHz	24	33.00 MB	150W	3 @ 10.4 GT/s	2666 MT/s	768
<b>Gold Processors</b>							
Gold 6152 Processor	2.1 GHz	22	30.25 MB	140W	3 @ 10.4 GT/s	2666 MT/s	768
Gold 6148 Processor	2.4 GHz	20	27.50 MB	150W	3 @ 10.4 GT/s	2666 MT/s	768
Gold 6144 Processor	3.5 GHz	8	24.75 MB	150W	3 @ 10.4 GT/s	2666 MT/s	768
Gold 6142 Processor	2.6 GHz	16	22.00 MB	150W	3 @ 10.4 GT/s	2666 MT/s	768
Gold 6140 Processor	2.3 GHz	18	24.75 MB	140W	3 @ 10.4 GT/s	2666 MT/s	768
Gold 6138 Processor	2.0 GHz	20	27.50 MB	125W	3 @ 10.4 GT/s	2666 MT/s	768
Gold 6136 Processor	3.0 GHz	12	24.75 MB	150W	3 @ 10.4 GT/s	2666 MT/s	768
Gold 6134 Processor	3.2 GHz	8	24.75 MB	130W	3 @ 10.4 GT/s	2666 MT/s	768
Gold 6132 Processor	2.6 GHz	14	19.25 MB	140W	3 @ 10.4 GT/s	2666 MT/s	768
Gold 6130 Processor	2.1 GHz	16	22.00 MB	125W	3 @ 10.4 GT/s	2666 MT/s	768
Gold 6128 Processor	3.4 GHz	6	19.25 MB	115W	3 @ 10.4 GT/s	2666 MT/s	768
Gold 6126 Processor	2.6 GHz	12	19.25 MB	125W	3 @ 10.4 GT/s	2666 MT/s	768
Gold 5122 Processor	3.6 GHz	4	16.50 MB	105W	2 @ 10.4 GT/s	2400 MT/s	768
Gold 5120 Processor	2.2 GHz	14	19.25 MB	105W	2 @ 10.4 GT/s	2400 MT/s	768
Gold 5119T Processor	1.9 GHz	14	19.25 MB	85W	2 @ 10.4 GT/s	2400 MT/s	768
Gold 5118 Processor	2.3 GHz	12	16.50 MB	105W	2 @ 10.4 GT/s	2400 MT/s	768
Gold 5115 Processor	2.4 GHz	10	13.75 MB	85W	2 @ 10.4 GT/s	2400 MT/s	768
<b>Silver Processors</b>							
Silver 4116 Processor	2.1 GHz	12	16.50 MB	85W	2 @ 9.6 GT/s	2400 MT/s	768
Silver 4112 Processor	2.6 GHz	4	8.25 MB	85W	2 @ 9.6 GT/s	2400 MT/s	768
Silver 4110 Processor	2.1 GHz	8	11.00 MB	85W	2 @ 9.6 GT/s	2400 MT/s	768
Silver 4109T Processor	2.0 GHz	8	11.00 MB	70W	2 @ 9.6 GT/s	2400 MT/s	768
Silver 4108 Processor	1.8 GHz	8	11.00 MB	85W	2 @ 9.6 GT/s	2400 MT/s	768
<b>Bronze Processors</b>							
Bronze 3104 Processor	1.7 GHz	6	8.25 MB	85W	2 @ 9.6 GT/s	2133 MT/s	768

**Notes:** Bronze Processors not supported in EMEA

2 <sup>nd</sup> Generation Intel® Xeon® Scalable Processor Family							
Processors Intel Xeon Models	CPU Frequency	Cores	L3 Cache	Power	QPI	DDR4/ MT/s	Mem per so
<b>Platinum Processors</b>							



### Standard Features

Platinum 8253 Processor	2.2 GHz	16	22 MB	125W	3 @ 10.4 GT/s	2933 MT/s	1 T
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**Notes:** Support for HPE Persistent Memory featuring Intel® Optane™ DC persistent memory

### Gold Processors

Gold 6252 Processor	2.1 GHz	24	35.75 MB	150W	3 @ 10.4 GT/s	2933 MT/s	1 T
Gold 6248 Processor	2.5 GHz	20	27.50 MB	150W	3 @ 10.4 GT/s	2933 MT/s	1 T
Gold 6244 Processor	3.6GHz	8	24.75 MB	150W	3 @ 10.4 GT/s	2933 MT/s	1 T
Gold 6242 Processor	2.8 GHz	16	22.00 MB	150W	3 @ 10.4 GT/s	2933 MT/s	1 T
Gold 6240 Processor	2.6 GHz	18	24.75 MB	150W	3 @ 10.4 GT/s	2933 MT/s	1 T
Gold 6238 Processor	2.1 GHz	22	30.25 MB	140W	3 @ 10.4 GT/s	2933 MT/s	1 T
Gold 6234 Processor	3.3 GHz	8	24.75 MB	130W	3 @ 10.4 GT/s	2933 MT/s	1 T
Gold 6230 Processor	2.1 GHz	20	27.50 MB	125W	3 @ 10.4 GT/s	2933 MT/s	1 T
Gold 6226 Processor	2.7 GHz	12	19.25 MB	125W	3 @ 10.4 GT/s	2933 MT/s	1 T
Gold 5222 Processor	3.8 GHz	4	16.50 MB	105W	2 @ 10.4 GT/s	2933 MT/s	1 T
Gold 5220 Processor	2.2 GHz	18	24.75 MB	125W	2 @ 10.4 GT/s	2666 MT/s	1 T
Gold 5218 Processor	2.3 GHz	16	22 MB	125W	2 @ 10.4 GT/s	2666 MT/s	1 T
Gold 5217 Processor	3.0 GHz	8	11 MB	115W	2 @ 10.4 GT/s	2666 MT/s	1 T
Gold 5215 Processor	2.5 GHz	10	11 MB	85W	2 @ 10.4 GT/s	2666 MT/s	1 T
Gold 6230R Processor	2.1 GHz	26	35.75 MB	150W	2 @ 10.4 GT/s	2933 MT/s	1 T
Gold 6226R Processor	2.9 GHz	16	22MB	150W	2 @ 10.4 GT/s	2933 MT/s	1 T
Gold 5220R Processor	2.2 GHz	24	35.75 MB	150W	2 @ 10.4 GT/s	2667 MT/s	1 T
Gold 5218R Processor	2.1 GHz	20	27.5 MB	125W	2 @ 10.4 GT/s	2667 MT/s	1 T

**Notes:** Support for HPE Persistent Memory featuring Intel® Optane™ DC persistent memory

### Silver Processors

Silver 4216 Processor	2.1 GHz	16	22 MB	100W	2 @ 10.4 GT/s	2400 MT/s	1 T
Silver 4215 Processor	2.5 GHz	8	11 MB	85W	2 @ 10.4 GT/s	2400 MT/s	1 T
Silver 4214 Processor	2.2 GHz	12	16.5 MB	85W	2 @ 10.4 GT/s	2400 MT/s	1 T
Silver 4210 Processor	2.2 GHz	10	13.75 MB	85W	2 @ 10.4 GT/s	2400 MT/s	1 T
Silver 4208 Processor	2.1 GHz	8	11 MB	85W	2 @ 10.4 GT/s	2400 MT/s	1 T
Silver 4215R Processor	3.2 GHz	8	11 MB	130W	2 @ 9.6 GT/s	2400 MT/s	1TI

### Standard Features

Silver 4214R Processor	2.4 GHz	12	16.5 MB	100W	2 @ 9.6 GT/s	2400 MT/s	1 T
Silver 4210R Processor	2.4 GHz	10	13.75 MB	100W	2 @ 9.6 GT/s	2400 MT/s	1 T

**Notes:** 4215 supports HPE Persistent Memory featuring Intel® Optane™ DC persistent memory

### Bronze Processors

Bronze 3204 Processor	1.9 GHz	6	8.25 MB	85W	2 @ 9.6 GT/s	2133 MT/s	1 T
Bronze 3206R Processor	1.9 GHz	8	11 MB	85W	2 @ 9.6 GT/s	2133 MT/s	1 T

**Notes:** Bronze Processors not supported in EMEA

### Chipset

- HPE iLO 5 ASIC.
- Intel® C622 Chipset (Intel EY82C622 PCH)

**Notes:** 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.

**Notes:** Read and learn more in the [iLO QuickSpecs](#)

### Memory

<b>Type</b>	HPE SmartMemory DDR4 Load Reduced (LRDIMM), or Registered (RDIMM)
<b>DIMM Slots Available</b>	16 DIMM Slots available
<b>Maximum (LRDIMM) (per server tray)</b>	1.5TB (Skylake) and 2TB (Cascade Lake)
<b>HPE Persistent Memory</b>	1024GB Max per processor/socket

### Standard Features

#### Notes:

- HPE memory from previous generation servers are not fully compatible with the HPE ProLiant XL170r Gen10 Server.
- To realize the performance memory capabilities listed in this document, HPE SmartMemory is required.
- LRDIMM and RDIMM are distinct memory technologies and cannot be mixed within a server.
- HPE Persistent Memory featuring Intel® Optane™ DC persistent memory only supported with select 2nd generation Intel
- Xeon Scalable Series Processors ONLY ((82xx/62xx/52xx/4215) and can only be mixed with either RDIMMs or LRDIMMs.
- For information regarding HPE Persistent Memory visit: <http://www.hpe.com/info/persistentmemory>
- 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>
- 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
FlexibleLOM	PCIe 3.0	x16	CPU1	x16	FlexibleLOM
2	PCIe 3.0	x16*	CPU1	x16	Low profile
2	PCIe 3.0	x16	CPU2	X16	Low profile

#### Notes:

- \*Indicates the number of physical electrical lanes running to the connector.
- Expansion slot 1 requires ordering HPE XL1x0r Gen10 Left LP Riser Kit (874296-B21 )
- FlexibleLOM require ordering HPE XL170r Gen10 FLOM Riser Kit (874298-B21)
- Expansion slot 2 requires ordering HPE XL170r Gen10 P1 LP Riser Kit (874300-B21) or HPE XL170r Gen10 P2 LP Riser Kit (874302-B21) or HPE XL170r 16NVMe Gen10 P2 LP Riser Kit (874304-B21)

### Storage Controllers

#### Converged Network Adapters

- HPE StoreFabric CN1200E 10Gb CNA

### Standard Features

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

### 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 Cbl
- HPE XL170r Gen10 S100i SATA Cbl Kit
- HPE XL170r Left E208ip/P408ip Cbl Kit
- HPE XL170r Right E208ip/P408ip Cbl Kit

**Notes:** 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		
Drive	Capacity	Configuration
Hot Plug LFF SAS 7.2k	30TB	3 x 10TB
Hot Plug LFF SAS 15k	2.7TB	3 x 900GB
Hot Plug LFF SATA	30TB	3x 10TB
Hot Plug LFF SATA SSD	11.52TB	3x 3.84TB
Hot Plug LFF SAS SSD	4.8TB	3x 1.6TB
Hot Plug SFF SAS 7.2k	12TB	6x 2TB
Hot Plug SFF SAS 10k	14.4TB	6 x 2.4TB
Hot Plug SFF SAS 15k	5.4TB	6x 900GB
Hot Plug SFF SATA	12TB	6x 2TB
Hot Plug SFF SATA SSD	23.04TB	6x 3.84TB
Hot Plug SFF SAS SSD	23.04TB	6x 3.84TB
NVMe x4 MU SFF SCN DS SSD	8TB	2 x 4TB

### Internal Storage Devices

Internal MicroSD slot

### Standard Features

Interfaces	
<b>FlexibleLOM</b>	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, 25 Gigabit, InfiniBand or FlexibleLOM solutions depending on workload. For further details on the choices, see FlexibleLOM in the Networking Section of this document.
<b>KVM</b>	Serial USB Video Port (SUV)
<b>MicroSD</b>	1 (internal)
<b>USB Ports</b>	2 (external via SUV); 1 USB 3.0 (external);
<b>HPE iLO Remote Management Network Port</b>	Aggregated via HPE Apollo 2000 Chassis; Dedicated NIC onboard
<b>Health LED</b>	1
<b>Power</b>	1
<b>UID</b>	1
<b>Do not remove LED</b>	1

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

- Windows Server 2012 R2 (Most Recent Version)
- Windows Server 2016 (Most Recent Version)
- Windows Server 2019 (Most Recent Version)
- VMware ESXi 6.0 U3
- VMware ESXi 6.5 U2
- VMware ESXi 6.7 U1
- Red Hat Enterprise Linux (RHEL) 7.6
- SUSE Linux Enterprise Server (SLES) 12 SP4
- SUSE Linux Enterprise Server (SLES) 15 SP1
- CentOS

#### Notes:

- CentOS not directly supported / Community Supported (Based on RHEL so RHEL testing and enablement applicable to CentOS) CentOS 7.6
- 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.

[https://techlibrary.hpe.com/us/en/enterprise/servers/supportmatrix/certification.aspx?var=XL170r\\_Gen10](https://techlibrary.hpe.com/us/en/enterprise/servers/supportmatrix/certification.aspx?var=XL170r_Gen10)

### Industry Standard Compliance

- ACPI 6.2 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

### Standard Features

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

- Windows Server 2012 R2 (Most Recent Version)
- Windows Server 2016 (Most Recent Version)
- Windows Server 2019 (Most Recent Version)
- VMware ESXi 6.0 U3
- VMware ESXi 6.5 U2
- VMware ESXi 6.7 U1
- Red Hat Enterprise Linux (RHEL) 7.6
- SUSE Linux Enterprise Server (SLES) 12 SP4
- SUSE Linux Enterprise Server (SLES) 15 SP1
- CentOS

#### Notes:

- CentOS not directly supported / Community Supported (Based on RHEL so RHEL testing and enablement applicable to CentOS) CentOS 7.6
- 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.hpe.com/portal/site/hpsc/public/psi/home?sp4ts.oid=1010026818>.

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#### 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/servers/powersupplies>

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

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

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#### Graphics

Integrated Matrix 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)
- 

Expansion Slots (EE)						
Part Number	Expansion Slot #	Technology	Bus Width*	Connector Width	Form Factor	Note
874296-B21	1	PCIe3.0	X16	X16	Low Profile	CPU1
874298-B21	FlexibleLOM	PCIe3.0	X16	X16	FlexibleLOM	CPU1
874300-B21	2	PCIe3.0	X16	X16	Low Profile	CPU1
874302-B21	2	PCIe3.0	X16	X16	Low Profile	CPU2

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### Standard Features

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#### 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.

**Notes:** The UEFI System Utilities tool is analogous to the HPE ROM-Based Setup Utility (RBSU) of legacy BIOS.

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
- 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

#### Notes:

- For UEFI Boot Mode, boot environment and OS image installations should be configured properly to support UEFI.

- UEFI FIO Setting (758959-B22) can be selected to configure the system in Legacy mode in the factory for your HPE ProLiant XL170r Gen10 Server.

#### Form Factor

The ProLiant XL170r Gen10 Server is a half width tray for the HPE Apollo 2000 Chassis

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### 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

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### Standard Features

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>

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### Server Utilities

#### 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

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)

#### 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/powershell>

#### HPE OneView Standard

HPE OneView Standard can be used for inventory, health monitoring, alerting, and reporting 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](http://www.hpe.com/info/hpesim)

### Standard Features

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#### Server Management

##### 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.

##### 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.

##### 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 Gen9 and Gen10 servers.

<http://www.hpe.com/info/oneview>

##### HPE Performance Cluster Management (HPCM)

HPE Performance Cluster Manager is a fully integrated system management solution offering all the functionalities you need to manage your Linux®-based high performance computing (HPC) clusters. The software provides system setup, hardware monitoring and management, image management and software updates as well as power management for systems of any scale - up to 100,000 nodes.

<http://www.hpe.com/software/hpcm>

##### HPE Performance Software-Message Passing Interface

The HPE Performance Software-**Message Passing Interface (MPI)** is an MPI development environment designed to enable the development and optimization of high performance computing (HPC) applications. The HPE Performance Software-MPI leverages a scalable MPI library and boosts performance of existing applications without requiring recompilation.

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#### Software Licenses

- HPE iLO Standard (embedded in server)
- HPE iLO Advanced (requires license)
- HPE iLO Advanced Premium Security Edition (requires license)
- Intelligent Provisioning (embedded in server)
- HPE OneView Standard (requires download)
- HPE OneView Advanced (requires license)

### Standard Features

For more information on Server Management - <http://www.hpe.com/info/servermanagement>

For more information on HPE iLO Licensing

[https://support.hpe.com/hpsc/doc/public/display?docId=emr\\_na-c04951959&docLocale=en\\_US](https://support.hpe.com/hpsc/doc/public/display?docId=emr_na-c04951959&docLocale=en_US)

For more information on HPE OneView - <http://www.hpe.com/info/hpeoneview>

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### Security

- UEFI Secure Boot and Secure Start support
  - Immutable Silicon Root of Trust
  - Support for Commercial National Security Algorithms (CNSA)
  - iLO Advanced Premium Security Edition
  - 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
  - Runtime Firmware Validation - Periodically scan essential firmware for compromised code during runtime
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### Service and Support

#### HPE Pointnext Service and Support

The support of HPE XL170r 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

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#### 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 Pointnext operational services or customized service agreements. Hard drives have either a one year or three year warranty.

**Notes:** 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>

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#### Warranty and Services - Options

**Notes:** HPE ProLiant XL170r 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:

<http://www.hpe.com/h20195/V2/GetPDF.aspx/4AA4-8876ENW.pdf>

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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>

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->

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### Service and Support

[8855ENW.pdf](#)

**Notes:** 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.

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### 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>

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### 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>

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### 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.

#### **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.

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### Service and Support

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 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 Hewlett Packard Enterprise 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 personalize 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.

**Notes:** \*HPE Support Center Mobile App is subject to local availability

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

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#### Parts and Materials

Hewlett Packard Enterprise 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 Hewlett Packard Enterprise due to malfunction.

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### Configuration Information

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 a Hewlett Packard Enterprise approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.

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

The HPE Apollo 2000 Chassis is required to support the server. Refer to HPE Apollo 2000 Chassis QuickSpecs for additional information.

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

##### HPE CTO Model

HPE ProLiant XL170r Gen10 1U Node Configure-to-order Server	867055-B21
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##### HPE BTO Model

HPE XL170r Gen10 Server for HPE Container Platform	R0Q98A
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#### Step 2: Choose Required Options (only one from each category unless otherwise noted)

##### HPE Processors

##### Platinum Processors (1<sup>st</sup> Generation Intel® Xeon® Scalable Processor Family)

Intel Xeon-Platinum 8160 (2.1GHz/24-core/150W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10	874294-L21
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##### Platinum Processors (2<sup>nd</sup> Generation Intel® Xeon® Scalable Processor Family)

Intel Xeon-Platinum 8253 (2.2GHz/16-core/125W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10.	P11835-L21
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##### Gold Processors (1<sup>st</sup> Generation Intel® Xeon® Scalable Processor Family)

Intel Xeon-Gold 6152 (2.1GHz/22-core/140W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10	874293-L21
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Intel Xeon-Gold 6148 (2.4GHz/20-core/150W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10	874292-L21
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Intel Xeon-Gold 6144 (3.5GHz/8-core/150W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10.	880671-L21
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Intel Xeon-Gold 6142 (2.6GHz/16-core/150W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10	874287-L21
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Intel Xeon-Gold 6140 (2.3GHz/18-core/140W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10	874289-L21
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Intel Xeon-Gold 6138 (2.0 GHz/20-core/125W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10	874291-L21
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Intel Xeon-Gold 6136 (3.0GHz/12-core/150W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10	874288-L21
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Intel Xeon-Gold 6134 (3.2GHz/8-core/130W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10	874290-L21
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Intel Xeon-Gold 6132 (2.6GHz/14-core/140W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10.	880669-L21
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Intel Xeon-Gold 6130 (2.1GHz/16-core/125W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10	874286-L21
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Intel Xeon-Gold 6128 (3.4GHz/6-core/115W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10.	880667-L21
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Intel Xeon-Gold 6126 (2.6GHz/12-core/125W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10	874283-L21
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### Configuration Information

Intel Xeon-Gold 5122 (3.6GHz/4-core/105W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10	874282-L21
Intel Xeon-Gold 5120 (2.2GHz/14-core/105W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10	879583-L21
Intel Xeon-Gold Special Processor Kits	882040-L21
Intel Xeon-Gold 5118 (2.3GHz/12-core/105W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10	879581-L21
Intel Xeon-Gold 5115 (2.4GHz/10-core/85W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10	879579-L21

### Gold Processors (2<sup>nd</sup> Generation Intel® Xeon® Scalable Processor Family)

Intel Xeon-Gold 6252 (2.1GHz/24-core/150W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10.	P10329-L21
Intel Xeon-Gold 6248 (2.5GHz/20-core/150W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10.	P10328-L21
Intel Xeon-Gold 6244 (3.6GHz/8-core/150W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10.	P10327-L21
Intel Xeon-Gold 6242 (2.8GHz/16-core/150W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10.	P10326-L21
Intel Xeon-Gold 6240 (2.6GHz/18-core/150W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10.	P10325-L21
Intel Xeon-Gold 6238 (2.1GHz/22-core/140W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10.	P12326-L21
Intel Xeon-Gold 6234 (3.3GHz/8-core/130W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10.	P12325-L21
Intel Xeon-Gold 6230 (2.1GHz/20-core/125W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10	P10324-L21
Intel Xeon-Gold 6226 (2.7GHz/12-core/125W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10	P12324-L21
Intel Xeon-Gold 5222 (3.8GHz/4-core/105W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10.	P11834-L21
Intel Xeon-Gold 5220 (2.2GHz/18-core/125W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10.	P10323-L21
Intel Xeon-Gold 5218 (2.3GHz/16-core/125W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10.	P10322-L21
Intel Xeon-Gold 5217 (3.0GHz/8-core/115W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10.	P10321-L21
Intel Xeon-Gold 5215M (2.5GHz/10-core/85W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10.	P10320-L21
Intel Xeon-Gold 5218R (2.1GHz/20-core/125W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10	P19269-L21
Intel Xeon-Gold 5220R (2.2GHz/24-core/150W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10	P19270-L21
Intel Xeon-Gold 6226R (2.9GHz/16-core/150W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10	P25126-L21

### Configuration Information

Intel Xeon-Gold 6230R (2.1GHz/26-core/150W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10 P25127-L21

#### **Silver Processors (1<sup>st</sup> Generation Intel® Xeon® Scalable Processor Family)**

Intel Xeon-Silver 4116 (2.1GHz/12-core/85W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10 879577-L21

Intel Xeon-Silver 4112 (2.6GHz/4-core/85W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10. 879597-L21

Intel Xeon-Silver 4110 (2.1GHz/8-core/85W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10 879595-L21

Intel Xeon-Silver 4109T (2.0GHz/8-core/70W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10 879593-L21

Intel Xeon-Silver 4108 (1.8GHz/8-core/85W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10 879591-L21

#### **Silver Processors (2<sup>nd</sup> Generation Intel® Xeon® Scalable Processor Family)**

Intel Xeon-Silver 4216 (2.1GHz/16-core/100W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10. P10319-L21

Intel Xeon-Silver 4215 (2.5GHz/8-core/85W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10 P10318-L21

Intel Xeon-Silver 4214 (2.2GHz/12-core/85W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10. P10317-L21

Intel Xeon-Silver 4210 (2.2GHz/10-core/85W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10. P10316-L21

Intel Xeon-Silver 4208 (2.1GHz/8-core/85W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10. P10315-L21

Intel Xeon-Silver 4210R (2.4GHz/10-core/100W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10 P19265-L21

Intel Xeon-Silver 4214R (2.4GHz/12-core/100W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10 P19266-L21

Intel Xeon-Silver 4215R (3.2GHz/8-core/130W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10 P25128-L21

#### **Bronze Processors (1<sup>st</sup> Generation Intel® Xeon® Scalable Processor Family)**

Intel Xeon-Bronze 3104 (1.7GHz/6-core/85W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10 879587-L21

#### **Bronze Processors (2<sup>nd</sup> Generation Intel® Xeon® Scalable Processor Family)**

Intel Xeon-Bronze 3204 (1.9GHz/6-core/85W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10. P10314-L21

Intel Xeon-Bronze 3206R (1.9GHz/8-core/85W) FIO Processor Kit for HPE ProLiant XL1x0r Gen10 P19263-L21

#### **Notes:**

- 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.

- 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

### Configuration Information

listed above, please reference the 'Memory Speed by Processor Model' table in the Memory section of the QuickSpecs.

- Bronze Processors not supported in EMEA

#### HPE Memory

**Notes:** Minimum 1 DIMMs are required per processor; up to 8 DIMMs per processor.

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

HPE 8GB (1x8GB) Single Rank x8 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	815097-H21
HPE 16GB (1x16GB) Single Rank x4 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	815098-H21
HPE 32GB (1x32GB) Dual Rank x4 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	815100-H21
HPE 16GB (1x16GB) Dual Rank x8 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	835955-H21

##### Registered DIMMs (RDIMMs) - DDR4-2933

HPE 8GB (1x8GB) Single Rank x8 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00918-H21
HPE 16GB (1x16GB) Single Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00920-H21
HPE 16GB (1x16GB) Dual Rank x8 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00922-H21
HPE 32GB (1x32GB) Dual Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00924-H21
HPE 64GB (1x64GB) Dual Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00930-H21

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

HPE 64GB (1x64GB) Quad Rank x4 DDR4-2666 CAS-19-19-19 Load Reduced Smart Memory Kit	815101-H21
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##### Load Reduced DIMMs (LRDIMMs) - DDR4-2933

HPE 64GB (1x64GB) Quad Rank x4 DDR4-2933 CAS-21-21-21 Load Reduced Smart Memory Kit	P00926-H21
HPE 128GB (1x128GB) Octal Rank x4 DDR4-2933 CAS-24-21-21 Load Reduced 3DS Smart Memory Kit	P00928-H21

#### HPE Persistent Memory (Intel Optane)

HPE 128GB 2666 Persistent Memory Kit featuring Intel Optane DC Persistent Memory	835804-B21
HPE 256GB 2666 Persistent Memory Kit featuring Intel Optane DC Persistent Memory	835807-B21
HPE 512GB 2666 Persistent Memory Kit featuring Intel Optane DC Persistent Memory	835810-B21

#### Notes:

- A max of 2 HPE Persistent Memory DIMMs per processor supported with select 2nd Generation Intel Xeon Scalable Series Processors ONLY (82xx/62xx/52xx/4215) and require either RDIMMs or LRDIMMs to be configured.

- For information regarding HPE Persistent Memory visit: <http://www.hpe.com/info/persistentmemory>

- Minimum 1 DIMMs are required per processor; up to 8 DIMMs per processor.

- If Fabric CPU is installed, minimum of 32GB is required

- A maximum of 16 DIMMs are supported per XL170r server tray (or 8 DIMMs max per processor).

### Configuration Information

- LRDIMM and RDIMM are distinct memory technologies and cannot be mixed within a server.
- 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>
- Depending on the memory configuration and processor model, the memory speed may run at 2666MHz, 2400MHz, and 2133MHz. Please see Memory Population Table or the Online Memory Configuration Tool at:

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

#### HPE PCIe riser kits

HPE XL170r Gen10 Right Riser FIO Blank Kit 874802-B21

**Notes:** Must be selected if none of the following are selected: HPE XL1x0r Gen10 P1 LP Riser Kit 874300-B21; HPE XL1x0r Gen10 P2 LP Riser Kit 874302-B21; or HPE XL170r 16NVMe P2 LP Riser Kit 874304-B21

HPE XL1x0r Gen10 FLOM Riser Kit 874298-B21

HPE XL1x0r Gen10 Left Riser FIO Blank Kit 874805-B21

**Notes:** Must be selected if HPE XL170r Gen10 Left LP Kit 874296-B21 is not selected.

HPE XL1x0r Gen10 Left Low Profile Riser Kit 874296-B21

#### Notes:

- HPE XL1x0r Gen10 Left Low Profile Riser Kit & HPE XL170r Gen10 Right Riser FIO Blank Kit 874802-B21 total available PCIe slots is one (1x16) total available FlexibleLOM slots is 0.

- HPE XL1x0r Gen10 Left Low Profile Riser Kit & HPE XL170r Gen10 P1 LP Kit 874300-B21 total available PCIe slots is two (2x16) total available FlexibleLOM slots is 0.

- HPE XL1x0r Gen10 Left Low Profile Riser Kit & HPE XL170r Gen10 P2 LP Kit 874302-B21 total available PCIe slots is two (2x16) total available FlexibleLOM slots is 0.

- HPE XL1x0r Gen10 Left Low Profile Riser Kit & HPE XL170r Gen10 16NVMe P2 LP Kit 874304-B21 total available PCIe slots is two (2x16) total available FlexibleLOM slots is 0.

HPE XL170r Gen10 FlexibleLOM Riser Kit 874298-B21

**Notes:** Must be selected if a FlexibleLOM option is ordered.

HPE XL170r Gen10 P1 Low Profile Riser Kit 874300-B21

**Notes:** HPE XL1x0r Gen10 P1 Low Profile Riser Kit & HPE XL170r Gen10 Left Riser FIO Blank Kit 874805-B21 total available PCIe slots is one (1x16) total available FlexibleLOM slots is 0.

HPE XL170r Gen10 P2 Low Profile Riser Kit 874302-B21

**Notes:** HPE XL1x0r Gen10 P2 Low Profile Riser Kit & HPE XL170r Gen10 Left Riser FIO Blank Kit 874805-B21 total available PCIe slots is one (1x16) total available FlexibleLOM slots is 0.

HPE XL1x0r Gen10 M2 (NGFF) Riser Kit 874853-B21

**Notes:** Must be selected if M.2 SSDs are ordered. Can support two M.2 SSD. Does not consume the PCIe slot.

HPE XL170r Gen10 16NVMe P2 Low Profile Riser Kit 874304-B21



### Configuration Information

**Notes:** HPE XL1x0r Gen10 16NVMe P2 Low Profile Riser Kit & HPE XL170r Gen10 Left Riser FIO Blank Kit 874805-B21 total available PCIe slots is one (1x16) total available FlexibleLOM slots is 0.

#### HPE Storage Controller

**Notes:** Required to select one of the following when SAS Drives are installed on the server

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

**Notes:** Supports up to 8 internal SAS/SATA Drives. HPE XL170r Left E208ip/P408ip Cable Kit 874785-B21 or HPE XL170r Right E208i/P408i Cable Kit 874855-B21 must be ordered to support P-series controllers.

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

**Notes:** Supports up to 8 internal SAS/SATA Drives. HPE XL170r Left E208ip/P408ip Cable Kit 874785-B21 or HPE XL170r Right E208i/P408i Cable Kit 874855-B21 must be ordered to support P-series controllers.

#### HPE Storage Cables

HPE XL170r Gen10 S100i SATA Cable Kit 874305-B21

**Notes:**

- Required to be selected when S100i is the primary controller; supports to connect to SATA drives; select 1 cable kit per node

- R2200 + 1U node - supports max of 3 SATA hard drive per node; R2600 + 1U node - supports 6 SATA hard drives per node

HPE XL170r Left E208ip/P408ip Cable Kit 874785-B21

**Notes:** 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 XL170r Right E208ip/P408ip Cable Kit 874855-B21

**Notes:**

- 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:

- HPE XL170r Gen10 FLOM Riser Kit, HPE XL170r Gen10 P2 LP Riser Kit, HPE XL170r 16NVMe3 Gen10 P2 LP Riser Kit

HPE 96W Smart Storage Lithium-ion Battery with 145mm Cable Kit P01366-B21

**Notes:** The battery cable kit needs to be selected if the node has the P series controller in the node configuration

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

#### BIOS Mode

HPE Legacy FIO Mode Setting 758959-B22

### Configuration Information

#### Notes:

- 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

#### HPE Security Hardware

HPE Gen10 TPM 1.2 FIO Setting 872108-B21

**Notes:** This can be selected only when TPM 2.0 Gen10 Kit 864279-B21 is selected in the configuration

#### Raid Settings

HPE RAID 0 Drive 1 FIO Setting 339777-B21

HPE RAID 1 Drive 1 FIO Setting 339778-B21

HPE RAID 5 Drive 1 FIO Setting 339779-B21

HPE Raid 5 w/SP Drive 1 FIO Setting 339780-B21

HPE RAID FIO Advanced Data Guarding Option 339781-B21

HPE Customer Defined RAID Setting Service 389692-B21

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

**Notes:** 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.

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### Core Options

#### HPE Processors

##### Platinum Processors (1st Generation Intel® Xeon® Scalable Processor Family)

Intel Xeon-Platinum 8160 (2.1GHz/24-core/150W) Processor Kit for HPE ProLiant XL1x0r Gen10 874294-B21

##### Platinum Processors (2nd Generation Intel® Xeon® Scalable Processor Family)

Intel Xeon-Platinum 8253 (2.2GHz/16-core/125W) Processor Kit for HPE ProLiant XL1x0r Gen10. P11835-B21

##### Gold Processors (1st Generation Intel® Xeon® Scalable Processor Family)

Intel Xeon-Gold 6152 (2.1GHz/22-core/140W) Processor Kit for HPE ProLiant XL1x0r Gen10 874293-B21

Intel Xeon-Gold 6148 (2.4GHz/20-core/150W) Processor Kit for HPE ProLiant XL1x0r Gen10 874292-B21

Intel Xeon-Gold 6144 (3.5GHz/8-core/150W) Processor Kit for HPE ProLiant XL1x0r Gen10 880671-B21

Intel Xeon-Gold 6142 (2.6GHz/16-core/150W) Processor Kit for HPE ProLiant XL1x0r Gen10 874287-B21

Intel Xeon-Gold 6140 (2.3GHz/18-core/140W) Processor Kit for HPE ProLiant XL1x0r Gen10 874289-B21

Intel Xeon-Gold 6138 (2.0 GHz/20-core/125W) Processor Kit for HPE ProLiant XL1x0r Gen10 874291-B21

Intel Xeon-Gold 6136 (3.0GHz/12-core/150W) Processor Kit for HPE ProLiant XL1x0r Gen10 874288-B21

Intel Xeon-Gold 6134 (3.2GHz/8-core/130W) Processor Kit for HPE ProLiant XL1x0r Gen10 874290-B21

Intel Xeon-Gold 6132 (2.6GHz/14-core/140W) Processor Kit for HPE ProLiant XL1x0r Gen10 880669-B21

Intel Xeon-Gold 6130 (2.1GHz/16-core/125W) Processor Kit for HPE ProLiant XL1x0r Gen10 874286-B21

Intel Xeon-Gold 6128 (3.4GHz/6-core/115W) Processor Kit for HPE ProLiant XL1x0r Gen10 880667-B21

Intel Xeon-Gold 6126 (2.6GHz/12-core/125W) Processor Kit for HPE ProLiant XL1x0r Gen10 874283-B21

Intel Xeon-Gold 5122 (3.6GHz/4-core/105W) Processor Kit for HPE ProLiant XL1x0r Gen10 874282-B21

Intel Xeon-Gold 5120 (2.2GHz/14-core/105W) Processor Kit for HPE ProLiant XL1x0r Gen10 879583-B21

HPE XL1x0r Gen10 Intel Xeon-Gold 5119T (1.9GHz/14-core/85W) Processor Kit 882040-B21

Intel Xeon-Gold 5118 (2.3GHz/12-core/105W) Processor Kit for HPE ProLiant XL1x0r Gen10 879581-B21

Intel Xeon-Gold 5115 (2.4GHz/10-core/85W) Processor Kit for HPE ProLiant XL1x0r Gen10 879579-B21

##### Gold Processors (2nd Generation Intel® Xeon® Scalable Processor Family)

Intel Xeon-Gold 6252 (2.1GHz/24-core/150W) Processor Kit for HPE ProLiant XL1x0r Gen10. P10329-B21

Intel Xeon-Gold 6248 (2.5GHz/20-core/150W) Processor Kit for HPE ProLiant XL1x0r Gen10. P10328-B21

Intel Xeon-Gold 6244 (3.6GHz/8-core/150W) Processor Kit for HPE ProLiant XL1x0r Gen10. P10327-B21

Intel Xeon-Gold 6242 (2.8GHz/16-core/150W) Processor Kit for HPE ProLiant XL1x0r Gen10. P10326-B21

Intel Xeon-Gold 6240 (2.6GHz/18-core/150W) Processor Kit for HPE ProLiant XL1x0r Gen10. P10325-B21

Intel Xeon-Gold 6238 (2.1GHz/22-core/140W) Processor Kit for HPE ProLiant XL1x0r Gen10 P12326-B21

Intel Xeon-Gold 6234 (3.3GHz/8-core/130W) Processor Kit for HPE ProLiant XL1x0r Gen10 P12325-B21

Intel Xeon-Gold 6230 (2.1GHz/20-core/125W) Processor Kit for HPE ProLiant XL1x0r Gen10. P10324-B21

Intel Xeon-Gold 6226 (2.7GHz/12-core/125W) Processor Kit for HPE ProLiant XL1x0r Gen10 P12324-B21

Intel Xeon-Gold 5222 (3.8GHz/4-core/105W) Processor Kit for HPE ProLiant XL1x0r Gen10. P11834-B21

Intel Xeon-Gold 5220 (2.2GHz/18-core/125W) Processor Kit for HPE ProLiant XL1x0r Gen10. P10323-B21

Intel Xeon-Gold 5218 (2.3GHz/16-core/125W) Processor Kit for HPE ProLiant XL1x0r Gen10. P10322-B21

Intel Xeon-Gold 5217 (3.0GHz/8-core/115W) Processor Kit for HPE ProLiant XL1x0r Gen10. P10321-B21

Intel Xeon-Gold 5215 (2.5GHz/10-core/85W) Processor Kit for HPE ProLiant XL1x0r Gen10. P10320-B21

Intel Xeon-Gold 5218R (2.1GHz/20-core/125W) Processor Kit for HPE ProLiant XL1x0r Gen10 P19269-B21

### Core Options

Intel Xeon-Gold 5220R (2.2GHz/24-core/150W) Processor Kit for HPE ProLiant XL1x0r Gen10	P19270-B21
Intel Xeon-Gold 6226R (2.9GHz/16-core/150W) Processor Kit for HPE ProLiant XL1x0r Gen10	P25126-B21
Intel Xeon-Gold 6230R (2.1GHz/26-core/150W) Processor Kit for HPE ProLiant XL1x0r Gen10	P25127-B21

#### **Silver Processors (1st Generation Intel® Xeon® Scalable Processor Family)**

Intel Xeon-Silver 4116 (2.1GHz/12-core/85W) Processor Kit for HPE ProLiant XL1x0r Gen10	879577-B21
Intel Xeon-Silver 4112 (2.6GHz/4-core/85W) Processor Kit for HPE ProLiant XL1x0r Gen10	879597-B21
Intel Xeon-Silver 4110 (2.1GHz/8-core/85W) Processor Kit for HPE ProLiant XL1x0r Gen10	879595-B21
Intel Xeon-Silver 4108 (1.8GHz/8-core/85W) Processor Kit for HPE ProLiant XL1x0r Gen10	879591-B21
Intel Xeon-Silver 4109T (2.0GHz/8-core/70W) Processor Kit for HPE ProLiant XL1x0r Gen10	879593-B21

#### **Silver Processors (2nd Generation Intel® Xeon® Scalable Processor Family)**

Intel Xeon-Silver 4216 (2.1GHz/16-core/100W) Processor Kit for HPE ProLiant XL1x0r Gen10.	P10319-B21
Intel Xeon-Silver 4215 (2.5GHz/8-core/85W) Processor Kit for HPE ProLiant XL1x0r Gen10.	P10318-B21
Intel Xeon-Silver 4214 (2.2GHz/12-core/85W) Processor Kit for HPE ProLiant XL1x0r Gen10.	P10317-B21
Intel Xeon-Silver 4210 (2.2GHz/10-core/85W) Processor Kit for HPE ProLiant XL1x0r Gen10.	P10316-B21
Intel Xeon-Silver 4208 (2.1GHz/8-core/85W) Processor Kit for HPE ProLiant XL1x0r Gen10.	P10315-B21
Intel Xeon-Silver 4210R (2.4GHz/10-core/100W) Processor Kit for HPE ProLiant XL1x0r Gen10	P19265-B21
Intel Xeon-Silver 4214R (2.4GHz/12-core/100W) Processor Kit for HPE ProLiant XL1x0r Gen10	P19266-B21
Intel Xeon-Silver 4215R (3.2GHz/8-core/130W) Processor Kit for HPE ProLiant XL1x0r Gen10	P25128-B21

#### **Bronze Processors (1st Generation Intel® Xeon® Scalable Processor Family)**

Intel Xeon-Bronze 3104 (1.7GHz/6-core/85W) Processor Kit for HPE ProLiant XL1x0r Gen10	879587-B21
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#### **Bronze Processors (2nd Generation Intel® Xeon® Scalable Processor Family)**

Intel Xeon-Bronze 3204 (1.9GHz/6-core/85W) Processor Kit for HPE ProLiant XL1x0r Gen10.	P10314-B21
Intel Xeon-Bronze 3206R (1.9GHz/8-core/85W) Processor Kit for HPE ProLiant XL1x0r Gen10	P19263-B21

#### **Notes:**

- 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

### Core Options

listed above, please reference the 'Memory Speed by Processor Model' table in the Memory section of the QuickSpecs.

- Bronze Processors not supported in EMEA

### HPE Memory

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

HPE 16GB (1x16GB) Single Rank x4 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	815098-H21
HPE 32GB (1x32GB) Dual Rank x4 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	815100-H21
HPE 16GB (1x16GB) Dual Rank x8 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	835955-H21
HPE 8GB (1x8GB) Single Rank x8 DDR4-2666 CAS-19-19-19 Registered Smart Memory Kit	815097-H21

#### Registered DIMMs (RDIMMs) - DDR4-2933

HPE 8GB (1x8GB) Single Rank x8 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00918-H21
HPE 16GB (1x16GB) Single Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00920-H21
HPE 16GB (1x16GB) Dual Rank x8 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00922-H21
HPE 32GB (1x32GB) Dual Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00924-H21
HPE 64GB (1x64GB) Dual Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart Memory Kit	P00930-H21

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

HPE 64GB (1x64GB) Quad Rank x4 DDR4-2666 CAS-19-19-19 Load Reduced Smart Memory Kit	815101-H21
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#### Load Reduced DIMMs (LRDIMMs) - DDR4-2933

HPE 64GB (1x64GB) Quad Rank x4 DDR4-2933 CAS-21-21-21 Load Reduced Smart Memory Kit	P00926-H21
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### HPE Persistent Memory (Intel Optane)

HPE 128GB 2666 Persistent Memory Kit featuring Intel Optane DC Persistent Memory	835804-B21
HPE 256GB 2666 Persistent Memory Kit featuring Intel Optane DC Persistent Memory	835807-B21
HPE 512GB 2666 Persistent Memory Kit featuring Intel Optane DC Persistent Memory	835810-B21

#### Notes:

- A max of 2 HPE Persistent Memory DIMMs per processor supported with select 2nd Generation Intel Xeon Scalable Series Processors ONLY (82xx/62xx/52xx/4215) and require either RDIMMs or LRDIMMs to be configured.
- For information regarding HPE Persistent Memory visit: <http://www.hpe.com/info/persistentmemory>
- CLX-SP processors require 2933 MT/s DIMMS

### Core Options

- Minimum 1 DIMMs are required per processor; up to 8 DIMMs per processor.
- 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>

- LRDIMM and RDIMM are distinct memory technologies and cannot be mixed within a server.
- 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>

### HPE Networking

#### Ethernet Options

HPE XL1x0r Ethernet 10Gb 2-port 568FLR-MMT Adapter	868227-B21
HPE Ethernet 10Gb 2-port 530SFP Adapter	652503-B21
HPE Ethernet 10Gb 2-port 530T Adapter	656596-B21
HPE Ethernet 10/25Gb 2-port 631SFP28 Adapter	817718-B21
HPE Ethernet 10Gb 2-port 535T Adapter	813661-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 10Gb 2-port 562T Adapter	817738-B21
HPE Ethernet 10/25Gb 2-port 621SFP28 Adapter	867328-B21
HPE Ethernet 10Gb 2-port 521T Adapter	867707-B21
HPE Ethernet 1Gb 2-port 332T Adapter	615732-B21
HPE Ethernet 100Gb 1-port 842QSFP28 Adapter	874253-B21

**Notes:** For 1U, total Slots available for PCIe is 2, total Slots available for FlexLOM is 1. This is a total selection from anything in the following categories: InfiniBand, Networking, Controllers.

#### 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 1Gb 4-port 366FLR Adapter	665240-B21
HPE FlexFabric 10Gb 2-port 534FLR-SFP+ Adapter	700751-B21



### Core Options

HPE FlexFabric 10Gb 2-port 533FLR-T Adapter	700759-B21
HPE FlexFabric 10Gb 4-port 536FLR-T Adapter	764302-B21
HPE Ethernet 10Gb 2-port 562FLR-T Adapter	817745-B21
HPE Ethernet 10/25Gb 2-port 622FLR-SFP28 Converged Network Adapter	867334-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 FDR/Ethernet 10Gb/40Gb 2-port 544+FLR-QSFP Adapter	764285-B21
HPE InfiniBand EDR 100Gb 1-port 841QSFP28 Adapter	872725-H21
HPE InfiniBand EDR/Ethernet 100Gb 2-port 841QSFP28 Adapter	872726-H21
HPE InfiniBand FDR/Ethernet 40/50Gb 2-port 547FLR-QSFP Adapter	879482-B21
HPE 100Gb 1-port OP101 QSFP28 x16 PCIe Gen3 with Intel Omni-Path Architecture Adapter	829335-B21
HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+QSFP Adapter	764284-B21
HPE InfiniBand EDR/Ethernet 100Gb 1-port 840QSFP28 Adapter	825110-H21
HPE InfiniBand EDR/Ethernet 100Gb 2-port 840QSFP28 Adapter	825111-H21
HPE InfiniBand HDR/Ethernet 200Gb 1-port 940QSFP56 Adapter	P06154-H21
HPE InfiniBand HDR100/Ethernet 100Gb 1-port 940QSFP56 Adapter	P06250-H21
HPE InfiniBand HDR100/Ethernet 100Gb 2-port 940QSFP56 Adapter	P06251-H21

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

### HPE Drives

#### Enterprise 12G SAS - SFF Drives

HPE 300GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	870753-H21
HPE 300GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	872475-H21
HPE 600GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	872477-H21
HPE 900GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	870759-H21
HPE 1.2TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	872479-H21
HPE 1.8TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD	872481-H21
HPE 2.4TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD	881457-H21

#### Midline 12G SAS - SFF Drives

HPE 1TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty Digitally Signed Firmware HDD	832514-H21
HPE 2TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e HDD	765466-H21

### Core Options

#### Midline 12G SAS - LFF Drives

HPE 8TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e Digitally Signed Firmware HDD	834031-H21
HPE 2TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD	833926-H21
HPE 4TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD	833928-H21
HPE 6TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e HDD	861746-H21
HPE 10TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty He 512e DS 6-pack FIO HDD	P09799-B21
HPE 10TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Helium 512e Digitally Signed Firmware HDD	P09149-H21
HPE 12TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Helium 512e Digitally Signed Firmware HDD	881781-H21

#### Midline 6G SATA SFF Drives

HPE 2TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD	765455-H21
HPE 1TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty Digitally Signed Firmware HDD	655710-H21

#### Midline 6G SATA - LFF Drives

HPE 4TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD	861683-H21
HPE 1TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD	861686-H21
HPE 8TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e Digitally Signed Firmware HDD	834028-H21
HPE 6TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e HDD	861742-H21
HPE 2TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD	861681-H21
HPE 10TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Helium 512e Digitally Signed Firmware HDD	P09161-H21
HPE 10TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty He 512e DS 6-pack FIO HDD	P09797-B21
HPE 12TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Helium 512e Digitally Signed Firmware HDD	881787-H21

### SSD Selection

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

HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04517-H21
HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04519-H21
HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04521-H21
HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04523-H21
HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	P10440-H21
HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	P10442-H21
HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	P10444-H21
HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	P10446-H21
HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	P19903-H21
HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	P19905-H21
HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	P19907-H21
HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	P19909-H21
HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	P21139-H21

### Core Options

HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	P21141-H21
HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	P21143-H21
HPE 7.68TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	P21145-H21
HPE 15.3TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty SSD	P21147-H21

#### Mixed Use 6G SATA - M.2 - Solid State Drive

HPE 240GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	875488-H21
HPE 480GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	875490-H21
HPE 960GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	875492-H21

#### Read Intensive 6G SATA - M.2 - Solid State Drive

HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	875498-H21
HPE 960GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	875500-H21

#### Read Intensive 6G SATA - SFF - Solid State Drives

HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04474-H21
HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04476-H21
HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04478-H21
HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04480-H21
HPE 7.68TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04482-H21
HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04556-H21
HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04560-H21
HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04564-H21
HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04566-H21
HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04570-H21
HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P06194-H21
HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P06196-H21
HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P06198-H21
HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P06200-H21
HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	P18426-H21
HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	P18420-H21
HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	P18428-H21
HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	P18422-H21
HPE 7.68TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	P18430-H21
HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Multi Vendor SSD	P18424-H21

#### Read Intensive 6G SATA - LFF - Solid State Drives

HPE 480GB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	P04499-H21
HPE 1.92TB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	P04501-H21
HPE 960GB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	P09691-H21

#### Read Intensive 6G SATA - SFF - Solid State Drives

### Core Options

HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P05924-H21
HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P05928-H21
HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P05932-H21
HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P05938-H21
HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P05946-H21

### Write Intensive 12G SAS - SFF - Solid State Drive

HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P09098-H21
HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P09100-H21
HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P09102-H21
HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04541-H21
HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04543-H21
HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04545-H21
HPE 3.2TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04547-H21
HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD	P21125-H21
HPE 800GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD	P21127-H21
HPE 1.6TB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty SSD	P21129-H21

### Mixed Use 12G SAS - SFF Solid State Drives

HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04525-H21
HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04527-H21
HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04533-H21
HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04537-H21
HPE 6.4TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04539-H21
HPE 3.84TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	P10460-H21
HPE 1.92TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Value SAS Digitally Signed Firmware SSD	P10454-H21
HPE 960GB SAS 12G Mixed Use SC 3yr Wty Value SAS Digitally Signed Firmware SSD	P10448-H21
HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	P19913-H21
HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	P19915-H21
HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	P19917-H21
HPE 6.4TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	P19919-H21
HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	P21131-H21
HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	P21133-H21
HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	P21135-H21
HPE 6.4TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD	P21137-H21

### Core Options

#### Mixed Use 12G SAS - LFF Solid State Drives

HPE 1.6TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	P04535-H21
HPE 800GB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	P04531-H21
HPE 3.84TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	P10462-H21
HPE 1.92TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	P10458-H21
HPE 960GB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Value SAS Digitally Signed Firmware SSD	P10452-H21

#### Mixed Use 6G SATA - LFF Solid State Drives

HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	P07934-H21
HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD	P09726-H21

#### Mixed Use 6G SATA - SFF - Solid State Drives

HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P00896-H21
HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P07922-H21
HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P07926-H21
HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P07930-H21
HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P09712-H21

HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P09716-H21
HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P09722-H21
HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P05976-H21
HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P05980-H21
HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P05986-H21
HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P05994-H21
HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	P18436-H21
HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	P18438-H21
HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	P18432-H21
HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Multi Vendor SSD	P18434-H21
HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P13660-H21
HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P13662-H21
HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P13658-H21
HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P13664-H21
HPE 3.84TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P21517-H21

#### Write Intensive NVMe - SFF - Solid State Drives

HPE 375GB NVMe x4 Lanes Write Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	878014-H21
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#### Read Intensive NVMe - SFF - Solid State Drives

HPE 15.36TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P07198-H21
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### Core Options

HPE 3.84TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P13680-H21
HPE 1.92TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P13678-H21
HPE 960GB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P13676-H21
HPE 7.68TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P13682-H21
HPE 1.92TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	P22276-H21
HPE 3.84TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	P22278-H21
HPE 7.68TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	P22280-H21
HPE 15.36TB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	P22282-H21
HPE 960GB NVMe High Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	P22331-H21
HPE 1.92TB NVMe Mainstream Performance Read Intensive SFF (2.5in) SCN 3yr Wty Universal Connect SSD	P20139-H21

### HPE Server Solid State Drives

#### Mixed Use NVMe - SFF - Solid State Drives

HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P10222-H21
HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P10224-H21
HPE 6.4TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P10226-H21
HPE 6.4TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P13674-H21
HPE 800GB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P13668-H21
HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P13670-H21
HPE 3.2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty Digitally Signed Firmware SSD	P13672-H21
HPE 1.6TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	P22268-H21
HPE 3.2TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	P22270-H21
HPE 6.4TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	P22272-H21
HPE 12.8TB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	P22274-H21

### Core Options

HPE 800GB NVMe High Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	P22329-H21
HPE 1.6TB NVMe Mainstream Performance Mixed Use SFF (2.5in) SCN 3yr Wty Universal Connect SSD	P20203-H21

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## Additional Options

**Bezel Kits**

HPE Apollo 2000 SFF Bezel Enhanced Kit	874793-B21
HPE Apollo 2000 LFF Bezel Kit	838518-B21

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**HPE Smart Array Storage Controllers**

HPE Smart Array E208i-p SR Gen10 (8 Internal Lanes/No Cache) 12G SAS PCIe Plug-in Controller	804394-B21
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**Notes:** This controller supports 0 Internal SAS/SATA devices

HPE Smart Array E208e-p SR Gen10 (8 External Lanes/No Cache) 12G SAS PCIe Plug-in Controller	804398-B21
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**Notes:** This controller can support up to 0 internal SAS/SATA devices. This controller may be selected to support: SAS Tape Device (External), SAS Storage (External)

HPE Smart Array P408e-p SR Gen10 (8 External Lanes/4GB Cache) 12G SAS PCIe Plug-in Controller	804405-B21
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**Notes:** This controller can support up to 0 internal SAS/SATA devices. This controller may be selected to support: SAS Tape Device (External), SAS Storage (External)

HPE Smart Array P408i-p SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS PCIe Plug-in Controller	830824-B21
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**Notes:** This controller supports 8 Internal SAS/SATA devices

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**HBA Storage Controllers**

HPE StoreFabric SN1600Q 32Gb Single Port Fibre Channel Host Bus Adapter	P9M75A
HPE StoreFabric SN1600Q 32Gb Dual Port Fibre Channel Host Bus Adapter	P9M76A
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 Single Port Fibre Channel Host Bus Adapter	Q0L13A
HPE StoreFabric SN1200E 16Gb Dual Port Fibre Channel Host Bus Adapter	Q0L14A
HPE StoreFabric SN1100Q 16Gb Single Port Fibre Channel Host Bus Adapter	P9D93A
HPE StoreFabric SN1100Q 16Gb Dual Port Fibre Channel Host Bus Adapter	P9D94A
HPE SN1610Q 32Gb 1-port Fibre Channel Host Bus Adapter	R2E08A
HPE SN1610Q 32Gb 2-port Fibre Channel Host Bus Adapter	R2E09A

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**Converged Infrastructure Management**

HPE OneView w/o iLO including 3yr 24x7 Support 1-server LTU	P8B24A
HPE OneView w/o iLO including 3yr 24x7 Support Track 1-server LTU	P8B25A
HPE OneView w/o iLO including 3yr 24x7 Support Flexible Quantity E-LTU	P8B26AAE
HPE OneView w/o iLO including 3yr 24x7 Support 1-server FIO LTU	P8B31A
HPE OneView including 3yr 24x7 Support Flexible Quantity E-LTU	E5Y35AAE
HPE OneView including 3yr 24x7 Support Physical 1-server LTU	E5Y34A
HPE OneView Physical Media Kit LTU	E5Y37A

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### Additional Options

HPE OneView for ProLiant DL Server including 3yr 24x7 Support FIO Bundle Physical 1-server LTU	E5Y43A
HPE iLO Common Password FIO Setting	P08040-B21

### HPE Integrated Light-Out (iLO)

HPE iLO Advanced Electronic License with 1yr Support on iLO Licensed Features	E6U59ABE
HPE iLO Advanced Electronic License with 3yr Support on iLO Licensed Features	E6U64ABE
HPE iLO Advanced 1-server License with 3yr Support on iLO Licensed Features	BD505A
HPE iLO Advanced Flexible Quantity License with 3yr Support on iLO Licensed Features	BD506A
HPE iLO Advanced AKA Tracking License with 3yr Support on iLO Licensed Features	BD507A
HPE iLO Advanced 1-server License with 1yr Support on iLO Licensed Features	512485-B21
HPE iLO Advanced Flexible Quantity License with 1yr Support on iLO Licensed Features	512486-B21
HPE iLO Advanced AKA Tracking License with 1yr Support on iLO Licensed Features	512487-B21

#### Notes:

- For additional license options please see the QuickSpecs at:

<http://www.hpe.com/h20195/v2/gethtml.aspx?docname=c04154343>

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

### USB Flash Kit

HPE 32GB microSD Flash Memory Card	700139-B21
HPE 8GB microSD Flash Memory Card	726116-B21

### Security Hardware

#### Trusted Platform Module

HPE Trusted Platform Module 2.0 Gen10 Option	864279-B21
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### HPE Smart Array SmartCache License

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

### Additional Options

#### USB and SD Options

HPE USB US Keyboard/Mouse Kit	631341-B21
HPE USB UK Keyboard/Mouse Kit	631344-B21
HPE USB FR Keyboard/Mouse Kit	631346-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 IN Keyboard/Mouse Kit	672097-D63
HPE USB AP/INTL Keyboard/Mouse Kit	672097-373
HPE USB INTL Keyboard/Mouse Kit	672097-B33
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 SE Keyboard/Mouse Kit	672097-103
HPE USB CH Keyboard/Mouse Kit	672097-113
HPE USB KR Keyboard/Mouse Kit	672097-KD3

**Notes:** Please see the QuickSpecs for Technical Specifications and additional information:

<https://h20195.www2.hp.com/v2/getdocument.aspx?docname=c04168349>

HPE 36pin Serial/USB/VGA Dongle Cord Kit	676277-B21
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#### HPE Tape Backup

**Notes:** For the complete range of tape drives, autoloaders, libraries and media see:

<http://www.hp.com/storage/storeever>.

For hardware and software compatibility of Hewlett Packard Enterprise tape backup products

<http://www.hp.com/storage/BURCompatibility>

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 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

### Technical Specifications

#### System Unit Specifications

<b>Server Dimensions (L x W x D)</b>	1.63 x 7.27 x 25.91 in (4.13 x 18.45 x 65.80 cm)	
<b>Weight (approximate)</b>	Maximum	15.23lb (6.91 kg)
<b>System Inlet Temperature Standard Operating Support</b>	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.
<b>Extended Ambient Operating Support</b>	10° to 5°C (50° to 41°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: <a href="http://www.hpe.com/servers/ashrae">http://www.hpe.com/servers/ashrae</a>
		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: <a href="http://www.hpe.com/servers/ashrae">http://www.hpe.com/servers/ashrae</a>
		System performance may be reduced if operating in the extended ambient operating range or with a fan fault.
<b>Relative Humidity (non-condensing) Operating</b>	-30° o 60°C (-22° to 140°F). 8% to 90%	Maximum rate of change is 20°C/hr (36°F/hr).  Relative humidity (Rh), 28°C maximum wet bulb temperature, non-condensing.
<b>Non-operating</b>	5 to 95%	Relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
<b>Altitude Operating</b>	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).
<b>Non-operating</b>	9144 m (30,000 ft).	Maximum allowable altitude change rate is 457 m/min (1500 ft/min).

#### Acoustic Noise

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

### Technical Specifications

ISO 9296 (ECMA 109). The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.

**Notes:** Please have your HPE representative provide information from the HPE EMESC website for further technical details regarding the configurations listed below.r2200 Chassis.

r2200 Chassis			
Configuration SKU	Entry	Base	Performance
Idle			
LWAd	6.7 B	7.8 B	8.4 B
LpAm	52 dBA	62 dBA	70 dBA
Operating			
LWAd	6.9 B	8.2 B	8.9 B
LpAm	53 dBA	66 dBA	74 dBA

r2600 Chassis			
Configuration SKU	Entry	Base	Performance
Idle			
LWAd	6.7 B	7.7 B	7.9 B
LpAm	52 dBA	64 dBA	68 dBA
Operating			
LWAd	6.9 B	8.0 B	8.7 B
LpAm	54 dBA	66 dBA	70 dBA

r2800 Chassis			
Configuration SKU	Entry	Base	Performance
Idle			
LWAd	6.7 B	7.7 B	7.9 B
LpAm	52 dBA	64 dBA	68 dBA
Operating			
LWAd	8.6 B	8.6 B	8.7 B
LpAm	69 dBA	70 dBA	70 dBA

**Notes:** 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.

### Thermal limitations

For a full list of thermal limitations please see the HPE ProLiant XL170r Gen 10 Server User Guide.

[https://support.hpe.com/hpsc/doc/public/display?docId=emr\\_na-a00027945en\\_us&docLocale=en\\_US](https://support.hpe.com/hpsc/doc/public/display?docId=emr_na-a00027945en_us&docLocale=en_US)

### 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**. 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

Technical Specifications

Packard Enterprise equipment.

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### Summary of Changes

Date	Version History	Action	Description of Change
01-Jun-2020	Version 18	Changed	Configuration Information and Core Options were updated. Obsolete SKU was removed
06-Apr-2020	Version 17	Changed	Standard Features, Service and Support, Configuration Information and Core Options were updated. Obsolete SKUs were removed.
24-Feb-2020	Version 16	Changed	Standard Features, Configuration Information and Core Option sections were updated. Obsolete SKUs were removed.
02-Dec-2019	Version 15	Changed	SKUs were updated in Configuration Information and Core Options sections. Obsolete SKUs were removed.
07-Oct-2019	Version 14	Changed	Overview, Standard Features and Core Options sections were updated.
05-Aug-2019	Version 13	Changed	Overview, Standard Features and Configuration Information sections were updated. SKUs were added..
01-Jul-2019	Version 12	Changed	Standard Features section was updated. Obsolete SKUs were removed
03-Jun-2019	Version 11	Changed	Standard Features, Configuration Information, Core Options sections were updated Obsolete SKUs were removed
06-May-2019	Version 10	Changed	Configuration Information section was updated.
18-Apr-2019	Version 9	Changed	Obsolete SKUs were removed SKUs were updated.
02-Apr-2019	Version 8	Changed	Overview, Standard Features, Core Options, Memory and Technical Specifications sections were updated Obsolete SKUs were removed
04-Feb-2019	Version 7	Changed	SKUs were added and Obsolete SKUs were removed in Core Options section
03-Dec-2018	Version 6	Changed	Configuration Information and Core Options sections were updated. Obsolete SKUs were removed
01-Oct-2018	Version 5	Changed	SKUs descriptions in Standard Features, Configuration information and Core Options Sections were updated
13-Aug-2018	Version 4	Changed	Configuration information and SKUs descriptions were updated, incorporated Recommended and Extended Options.
02-Apr-2018	Version 3	Changed	Add the following section Mixed Use - 6G SATA - LFF Solid State Drives
09-Oct-2017	Version 2	Changed	Update SKUs descriptions
25-Sep-2017	Version 1	New	New QuickSpecs



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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.

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### Overview

#### HPE ProLiant XL190r Gen9 Server

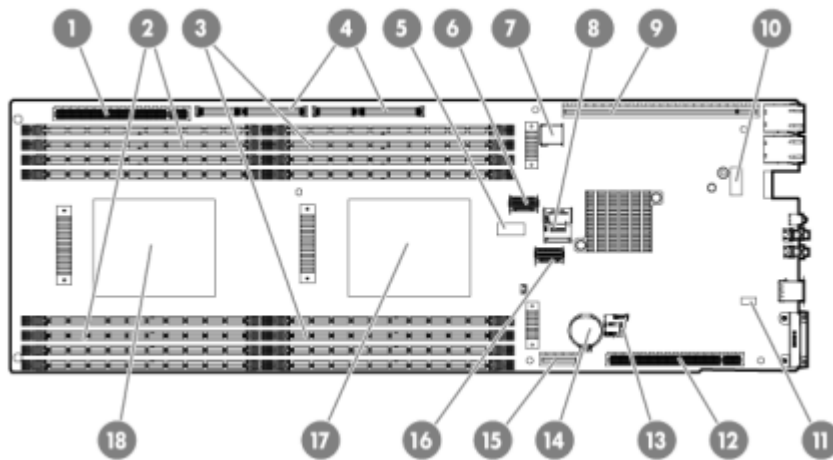
The ProLiant XL190r Gen9 Server is a 2U half-width, 2 processor server with the same configuration options as the XL170r for CPU and memory, but has additional PCIe slots in multiple configurations providing support for additional expansion cards and future support for two (2) integrated accelerators per server (GPUs or Coprocessors).

This server leverages Intel's latest Xeon E5-2600 v3 and E5-2600 v4 series processors increasing performance up to 30-40%, and DDR4 HPE SmartMemory, at speeds of up to 2133 MHz and 512GB maximum which boosts bandwidth and efficiency up to 50% over previous generation servers.

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

Rack scale power efficiency is fueled by the optional Advanced Power Management for rack, chassis, server and component level management

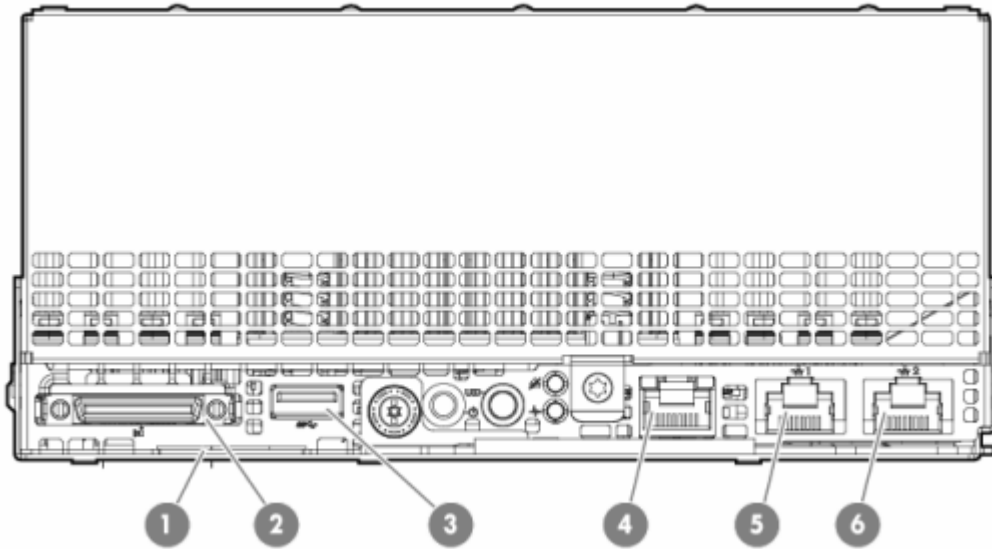
Front View



Item	Description	Item	Description
1	Bayonet board slot	10	Dedicated iLO port connector
2	DIMMs for processor 2	11	NMI header
3	DIMMs for processor 1	12	PCIe x16 riser board connector*
4	PCIe x40 riser board connector*	13	microSD slot
5	System maintenance switch	14	System battery
6	Mini-SAS connector 1 (SATA x4)	15	M.2 SSD riser connector
7	Internal USB 3.0 connector	16	TPM connector
8	Mini-SAS connector 2 (SATA x4)	17	Processor 1
9	PCIe x24 riser board connector*	18	Processor 2

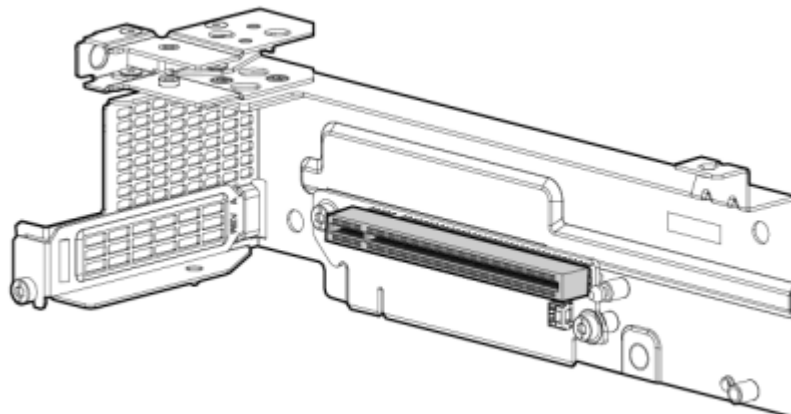
### Overview

#### 2U Node Rear Panel Components



Item	Description	Item	Description
1	Node serial number and iLO label pull tab	4	Dedicated iLO port (optional)
2	SUV connector	5	NIC connector 1
3	USB 3.0 connector	6	NIC connector 2

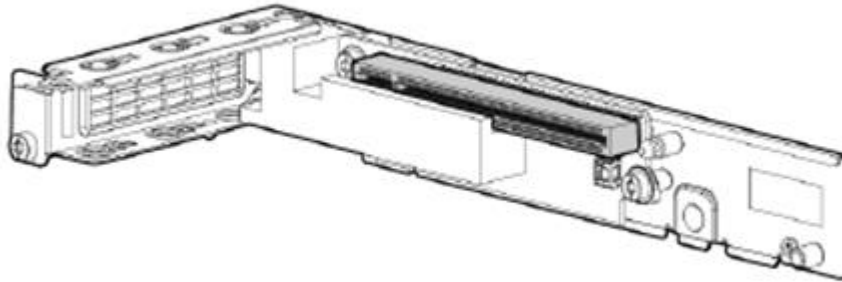
#### Single-Slot 2U Node PCI Riser Cage Assembly



Item	Form factor	Slot number	Slot description
1	Storage controller / Low-profile PCIe card	1	PCIe3 x16 (16, 8, 4, 1) for Processor 1
HPE XL190r Gen9 LP PCIe16 L Riser Kit Single-Slot 2U Node PCI Riser Cage Assembly			800293-B21

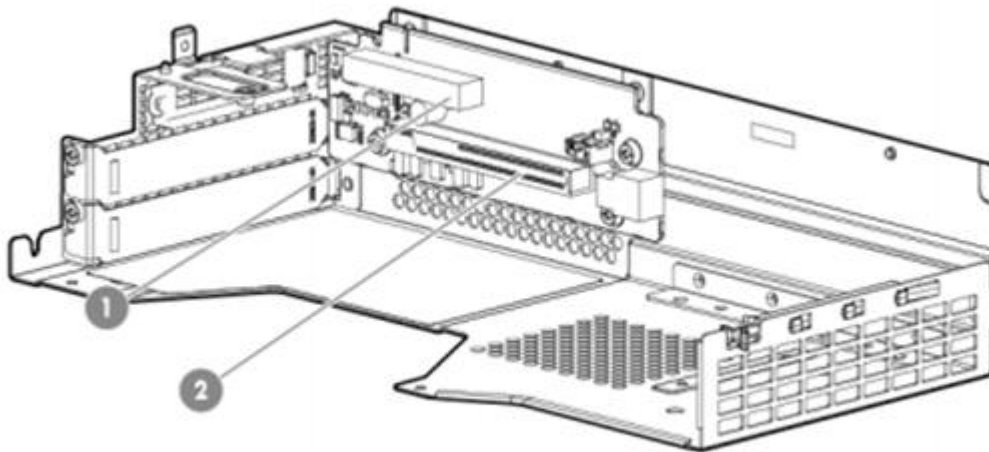
#### Single-slot left PCI riser cage assembly

### Overview



Item	Form factor	Slot number	Slot description
1	Storage controller or low-profile PCIe NIC card	1	PCIe3 x16 (16, 8, 4, 1) for Processor 1
FlexibleLOM 2U node riser cage assembly			798184-B21

### HPE XL190r Gen9 x16 FLOMx8 R Riser Kit



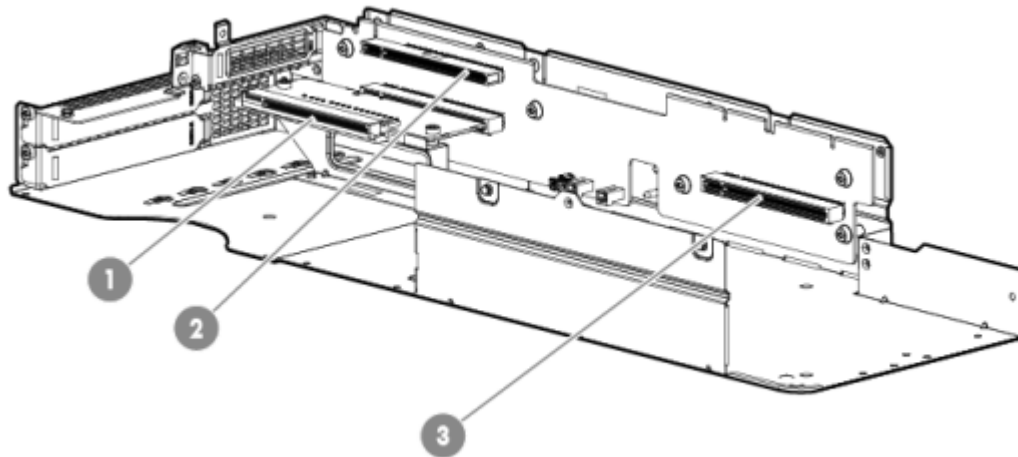
Item	Form factor	Slot number	Slot description
1	FlexibeLOM	FlexibleLOM slot	PCIe x8 for Processor 1
2	Storage controller or accelerator card	2	PCIe3 x16 (16, 8, 4, 1) for Processor 1

**NOTE:** When using a P840/841 or a Low-Profile card in Slot 2, the maximum operating temperature is 20C.

2. With E5-16x0v3 processor, the maximum operating temperature is 23C

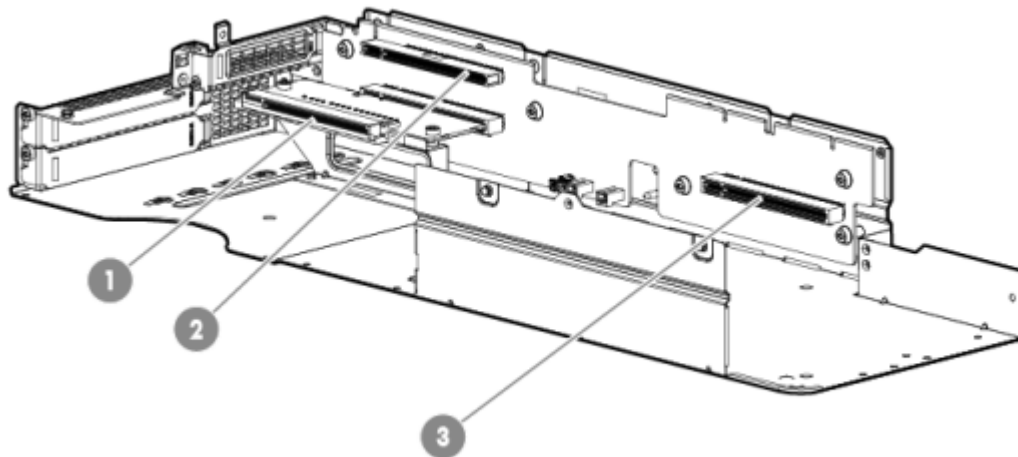
### Three-slot PCI riser cage assembly

### Overview



Item	Form factor	Slot number	Slot description
1	Accelerator Card	3	PCIe3 x16 (16, 8, 4, 1) for Processor 1
2	Storage controller or low-profile PCIe NIC card	2	PCIe3 x16 (16, 8, 4, 1) for Processor 2
3	Accelerator Card	4	PCIe3 x16 (16, 8, 4, 1) for Processor 2
HPE XL190r x16x16x16 11OS R Riser Kit			798186-B21

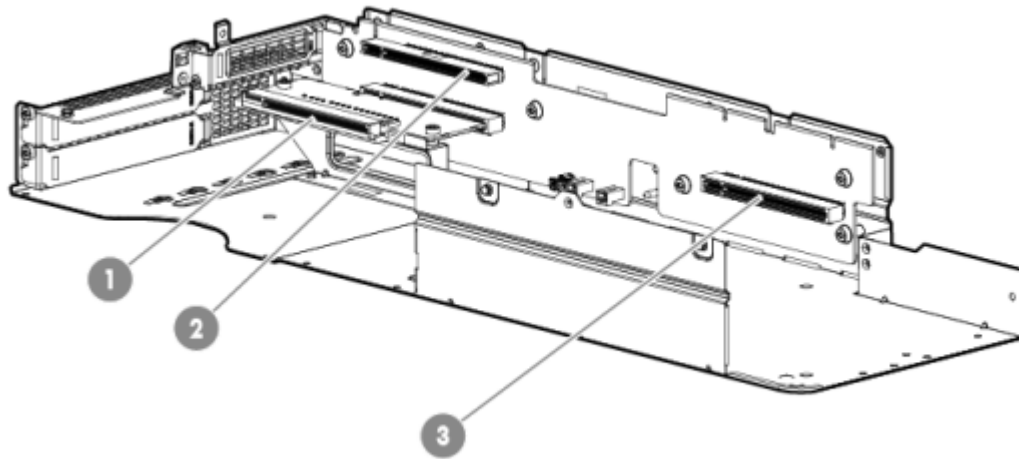
### Three-slot GPU-direct PCI riser cage assembly



Item	Form factor	Slot number	Slot description
1	Accelerator Card	3	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	4	PCIe3 x16 (16, 8, 4, 1) for Processor 2
HPE XL190r Gen9x16x16x16 GD R Riser Kit			798188-B21

### Three-slot GPU-direct with re-timer PCI riser cage assembly

### Overview



Item	Form factor	Slot number	Slot description
1	Accelerator Card	3	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	4	PCIe3 x16 (16, 8, 4, 1) for Processor 2
HPE XL190r Gen9 GD-RT R Riser Kit			827353-B21



### Standard Features

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

#### Processor

One of the following depending on Model

#### E5-2600 v3 series Processors

Model	CPU frequency	Cores	L3 Cache	Power	QPI	DDR4 MHz
E5-2699v3	2.3GHz	18	45MB	145W	9.6GT/s	2133
E5-2698v3	2.3GHz	16	40MB	135W	9.6GT/s	2133
E5-2697v3	2.6GHz	14	35MB	145W	9.6GT/s	2133
E5-2695v3	2.3GHz	14	35MB	120W	9.6GT/s	2133
E5-2690v3	2.6GHz	12	30MB	135W	9.6GT/s	2133
E5-2683v3	2.0GHz	14	35MB	120W	9.6GT/s	2133
E5-2680v3	2.5GHz	12	30MB	120W	9.6GT/s	2133
E5-2670v3	2.3GHz	12	30MB	120W	9.6GT/s	2133
E5-2667v3	3.2GHz	8	20MB	135W	9.6GT/s	2133
E5-2660v3	2.6GHz	10	25MB	105W	9.6GT/s	2133
E5-2650v3	2.3GHz	10	25MB	105W	9.6GT/s	2133
E5-2650Lv3	1.8GHz	12	25MB	65W	9.6GT/s	2133
E5-2643v3	3.4GHz	6	20MB	135W	9.6GT/s	2133
E5-2640v3	2.6GHz	8	20MB	90W	8.0GT/s	1866
E5-2637v3	3.5GHz	4	15MB	135W	9.6GT/s	2133
E5-2630v3	2.4GHz	8	20MB	85W	8.0GT/s	1866
E5-2630Lv3	1.8GHz	8	25MB	55W	8.0GT/s	1866
E5-2620v3	2.4GHz	6	15MB	85W	8.0GT/s	1866
E5-2609v3	1.9GHz	6	15MB	85W	8.0GT/s	1600
E5-2603v3	1.6GHz	6	15MB	85W	6.4GT/s	1600

#### Processor

One of the following depending on Model

#### E5-2600 v4 series Processors (Please follow product offering to fill out processor SKU)

Model	CPU frequency	Cores	L3 Cache	Power	QPI	DDR4 Hz
E5-2603v4	1.7GHz	6	15MB	85W	9.6GT/s	1866
E5-2609v4	1.7GHz	8	20MB	85W	9.6GT/s	1866
E5-2620v4	2.1GHz	8	20MB	85W	9.6GT/s	2133
E5-2623v4	2.6GHz	4	10MB	85W	9.6GT/s	2133
E5-2630Lv4	1.8GHz	10	25MB	55W	9.6GT/s	2133
E5-2630V4	2.2GHz	10	20MB	85W	9.6GT/s	2133
E5-2637V4	3.5GHz	4	15MB	135W	9.6GT/s	2133
E5-2640V4	2.4GHz	10	25MB	90W	9.6GT/s	2400
E5-2643V4	3.4GHz	6	20MB	135W	9.6GT/s	2400
E5-2650LV4	1.7GHz	14	35MB	65W	9.6GT/s	2400
E5-2650V4	2.2GHz	12	30MB	105W	9.6GT/s	2400
E5-2660V4	2.0GHz	14	35MB	105W	9.6GT/s	2400
E5-2667V4	3.2GHz	8	25MB	135W	9.6GT/s	2400
E5-2680V4	2.4GHz	14	35MB	120W	9.6GT/s	2400
E5-2683V4	2.1GHz	16	40MB	120W	9.6GT/s	2400
E5-2690V4	2.6GHz	14	35MB	135W	9.6GT/s	2400
E5-2695V4	2.1GHz	18	45MB	120W	9.6GT/s	2400

### Standard Features

E5-2697V4	2.3GHz	18	45MB	145W	9.6GT/s	2400
E5-2698V4	2.2GHz	20	50MB	135W	9.6GT/s	2400
E5-2697AV4	2.6GHz	16	40MB	145W	9.6GT/s	2400
E5-2699V4	2.2GHz	22	55MB	145W	9.6GT/s	2400

### Processor One of the following depending on Model

E5-1600 v3 series Processors (Please follow product offering to fill out processor SKU)

Model	CPU frequency	Cores	L3 Cache	Power	DDR4 Hz
E5-1680v3	3.2GHz	8	20MB	140W	2133
E5-1650v3	3.5GHz	6	15MB	140W	2133
E5-1630v3	3.7GHz	4	10MB	140W	2133

**NOTE:** : these processors are supported with the following risers kits.

- HPE XL190r Gen9 x16 FLOM x8 R Riser Kit [798184-B21](#)

HPE XL190r LP PCIe16 L Riser Kit - [800293-B21](#)

### Chipset

Intel® C610 Series Chipset

**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 (Firmware: HPE iLO 4)

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

### Memory Protection

Advanced ECC (multi-bit error protection)  
Memory Online Spare Mode (Rank Spare Mode)

### Memory

Type HPE SmartMemory  
DDR4 Load Reduced (LRDIMM), or Registered (RDIMM)  
DIMM Slots Available 16 DIMM Slots available  
2TB (16 x 128GB) 2TB (16 x 128GB)

**NOTE:** HPE memory from previous generation servers are not fully compatible with the HPE ProLiant XL190r Gen9 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:** Depending on the memory configuration and processor model, the memory speed may run at 2400MHz, 2133MHz, 1866MHz, or 1600MHz. Please see Memory Population Table or the Online Memory Configuration Tool at:

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

### Standard Features

#### Network Controller Ethernet Options

HPE Ethernet 1Gb 2P 332T Adptr  
HPE Ethernet 1Gb 4-port 331T Adapter  
HPE Ethernet 1Gb 2P 361T Adptr  
HPE Ethernet 10Gb 2P 530SFP+ Adptr  
HPE Ethernet 10Gb 2P 530T Adptr  
HPE Ethernet 10Gb 2P 560SFP+ Adptr  
HPE Ethernet 10Gb 2P 561T Adptr  
HPE Ethernet 10Gb 2P 561FLR-T Adptr  
HPE Ethernet 10G 2-port 546SFP+ Adptr  
HPE 1Gb Ethernet 4P 331FLR Adptr  
HPE Ethernet 1Gb 4-port 366FLR Adapter  
HPE Ethernet 10Gb 2P 560FLR-SFP+ Adptr  
HPE FlexFabric 10Gb 2P 534FLR-SFP+ Adptr  
HPE FlexFabric 10Gb 2P 533FLR-T Adptr  
HPE FlexFabric 10Gb 2P 556FLR-SFP+ Adptr  
HPE FlexFabric 10Gb 4-port 536FLR-T Adapter  
HPE FlexFabric 10Gb 2-port 536FLR-T Adapter  
HPE Ethernet 10Gb 2P 546FLR-SFP+ Adptr  
HPE Ethernet 10Gb 2-port 562SFP+ Adptr  
HPE Ethernet 10Gb 2-port 562FLR-SFP+ Adpt  
HPE StoreFabric CN1200E-T 10Gb CAN  
HPE StoreFabric CN1100R-T 10Gb CNA

#### InfiniBand Options

HPE IB FDR/EN 40Gb 2P 544+FLR-QSFP Adptr  
HPE IB QDR/EN 10Gb 2P 544+FLR-QSFP Adptr  
HPE IB FDR/EN 40Gb 2P 544+QSFP Adptr  
HPE IB FDR 2P 545FLR-QSFP Adptr  
HPE IB FDR 2P 545QSFP Adptr  
QLogic 4X QDR IB PCI-e G2 HCA  
HPE IB EDR/EN 100Gb 1P 840QSFP28 Adptr  
HPE IB EDR/EN 100Gb 2P 840QSFP28 Adptr  
HPE 100Gb 1p OP101 QSFP28 x16 OPA Adptr  
HPE 100Gb 1p OP101 QSFP28 x16 OPA Adptr  
Riser Options to support FlexibleLOM cards  
HPE XL190r Gen9 LPx16 FLOMx8 R Riser Kit

**NOTE:** The HPE XL190r Gen9 LPx16 FLOMx8 R Riser Kit (798184-B21) is required to order the FlexibleLOM options. Max operating temp is 23C ambient. Max operating temp is 23C ambient

### Standard Features

#### HPE Server ROM

**NOTE:** indicates the number of physical electrical lanes running to the connector.  
\* FHFLDW allows for cards up to 10.5" in Length

HPE ROM (Read Only Memory) is now digitally signed using the HPE Corporate Signing Service. This signature is verified before the flash process starts, reducing accidental programming and preventing malicious efforts to corrupt system ROM.

HPE ROM provides for essential initialization and validation of hardware components before control is passed to the customer-installed operating system. The ROM also provides the capability of booting from various fixed media (HDD, CD-ROM) and removable media (USB), to continue operation to the operating system.

HPE ROM performs very early configuration of the video controller, to allow monitoring of initialization progress via an attached monitor. If configuration or hardware errors are discovered during this early phase of hardware initialization, suitable messages are now displayed on the connected monitor. Additionally, these configuration or hardware errors are logged to the Integrated Management Log (IML) to assist in diagnosis.

The HPE ProLiant ROM is used to configure the following:

- Processor and chipset status registers
- System memory, memory map, and memory initialization
- System hardware configuration (Integrated PCI devices and optional PCIe cards).
- Customer-specific BIOS configuration (using the HPE ROM-Based Setup Utility (RBSU)).

**NOTE:** For further information, please refer to the HPE RBSU (ROM based setup utility) user guide: <http://www.hp.com/support/rbsu>.

#### HPE Server Unified Extensible Firmware Interface (UEFI) or Legacy Mode

The HPE ProLiant System BIOS is an EDK2 UEFI solution, and adheres to the latest revisions of UEFI Class 2 specifications which supports both legacy boot and UEFI boot operation. The HPE ProLiant XL190r Gen9 defaults to UEFI boot operation and can be factory or field configured for Legacy boot operation.

**NOTE:** For UEFI boot operation, boot environment and OS image installations should be configured properly to support UEFI.

**NOTE:** For more information on Hewlett Packard Enterprise's ProLiant System BIOS and UEFI, see the UEFI Information Library: <http://www.hp.com/go/uefi/docs>

**NOTE:** HPE Legacy FIO Mode Setting (758959-B22) can be selected to configure the system in UEFI mode in the factory.

To modify the server configuration ROM default settings, press F9 in the HPE ProLiant POST screen to enter the UEFI System Utilities screen. By default, the System Utilities menus are in the English language.

UEFI enables numerous new capabilities, including both industry standard functionality and features specific to HPE ProLiant servers. Following are some of the features that UEFI enables and that the HPE ProLiant XL190r Gen9 can support when configured for UEFI boot operation:

- Secure Boot - A new feature in which the system firmware, option card firmware, operating systems, and software collaborate to greatly enhance platform security.
- Operating system specific functionality - Microsoft Windows 2012 supports several features only when installed in UEFI mode.
- Support for > 2.2 TB (using GPT) boot drives - Such drives could previously only be used for boot drives when using RAID solutions such as HPE Smart Array.

### Standard Features

- UEFI Shell - Provides a pre-boot environment for running scripts and tools. The HPE ProLiant UEFI Shell provides both standard capabilities as well as numerous enhancements.
- PXE boot support for IPv6 networks.
- PXE Multicast Boot allowing for faster PXE deployments for large numbers of servers.
- Boot support for option cards that only support a UEFI option ROM.

#### NOTE:

- When the server is configured for UEFI Boot Mode, PXE servers must be configured with a UEFI boot image.
- When the server boots in UEFI mode, it does not boot media with a legacy OS installation. This includes DOS targets and Windows or Linux systems installed in Legacy mode. The reverse is also true for servers that boot in Legacy mode.
- If Microsoft Windows 2008 or Windows 2008 R2 is used in UEFI Boot Mode, UEFI Optimized Mode must be disabled (this option is enabled by default). This is required to work around an issue in Windows 2008 / 2008 R2 that requires legacy BIOS components necessary for video operations in Windows.

### Storage Controller

Smart Array Controller  
HPE Dynamic Smart Array B140i Controller  
HPE Smart Array P440/4G Controller  
HPE Smart Array P441/4G Controller  
HPE Smart Array P840/4G Controller  
HPE Smart Array P841/4G Controller  
Host Bus Adapter  
HPE H240 Host Bus Adapter  
HPE H241 Smart HBA  
Storage Controller Cable Kits  
HPE XL190r B140i Cbl FIO Kit  
HPE XL190r Gen9 Mini-SAS H240 Cbl Kit  
HPE XL190r Gen9 Mini-SAS P440 Cbl Kit  
HPE XL1x0r Gen9 Mini-SAS P840/440 Cbl Kit

**NOTE:** The H240 controller and the embedded B140i will operate in UEFI mode only. For legacy support, AHCI mode is required.

### Internal Storage Devices

Internal MicroSD slot

### Standard Features

<b>Maximum Internal Storage</b>	Hot Plug LFF SAS 10k	24TB	x 6TB
	Hot Plug LFF SATA	4.0TB	6 x 1TB
	Hot Plug LFF SATA SSD	1.9 TB	6 x 480GB
	Hot Plug LFF SAS SSD	19.2TB	12 X 1.6TB
	Hot Plug SFF SAS 7.2k	12TB	12 X 1.0TB
	Hot Plug SFF SAS 10k	21.6TB	12X1.8TB
	Hot Plug SFF SAS 15k	7.2TB	12X600GB
	Hot Plug SFF SATA	12TB	12X1TB
	Hot Plug SFF SATA SSD	11.5TB	12X960GB
	Hot Plug SFF SAS SSD	19.2TB	12X1.6TB

<b>Interfaces</b>	FlexibleLOM	HPE ProLiant Gen9 servers offer a new networking technology-Flexible Network Technology. The HPE ProLiant Gen9 server offers the customer the choice of 1Gigabit, 10Gigabit, InfiniBand 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 internal)
	HPE iLO Remote Management Network Port	Aggregated via HPE Apollo 2000 Chassis Port
	Health LED	1
	Power	1
	UID	1
	Do not remove LED	1

<b>Industry Standard Compliance</b>	ACPI 2.0b Compliant
	PCIe 3.0 Compliant
	WOL Support
	Microsoft® Logo certifications
	PXE Support
	USB 1.1 and 2.0 Compliant
	SMBIOS 2.6.1

### Standard Features

#### Power Ratings

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/go/proliant-energy-efficient> or <http://www.hp.com/go/hppoweradvisor>.

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

<https://www.hpe.com/h20195/v2/gethtml.aspx?docname=c04111541>

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

Microsoft Windows Server  
Red Hat Enterprise Linux (RHEL)  
SUSE Linux Enterprise Server (SLES)  
Canonical Ubuntu  
VMware

**NOTE:** Only 64-bit versions of these operating systems are supported.

**NOTE:** For more information on the Hewlett Packard Enterprise Certified and Supported ProLiant Servers for OS and Virtualization Software and more OS support timeline such as Debian, CentOS, Fedora, OpenSUSE and Asianux, please visit our OS support site at <http://www.hp.com/go/ossupport> and our driver download page: <http://www.hp.com/support>.

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#### Graphics

Integrated Matrox G200 video standard

- 1280 x 1024 (32 bpp)
- 1920 x 1200 (16 bpp)

HPE iLO 4 On System Management Memory

- 16 MB Flash
  - 256 MB DDR 3 with ECC (112 MB after ECC and video)
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#### Form Factor

The ProLiant XL190r Gen9 Server is a single-slot 2U tray for the HPE Apollo 2000 Chassis.

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### Standard Features

#### Embedded Management

HPE Integrated Lights Out	Monitor your servers for ongoing management, service alerting, reporting and remote management with iLO. Learn more at <a href="http://www.hp.com/go/ilo">http://www.hp.com/go/ilo</a> .
UEFI	Configure and boot your servers securely with industry standard Unified Extensible Firmware Interface (UEFI). Learn more at <a href="http://www.hp.com/go/ProLiant/uefi">http://www.hp.com/go/ProLiant/uefi</a> .
HPE RESTful API	RESTful API is an application programming interface. RESTful Web Service API served by iLO's web server. <a href="http://www.hp.com/go/restfulapi">http://www.hp.com/go/restfulapi</a> .
Intelligent Provisioning	Provision servers by discovering and deploying 1 to few servers with Intelligent Provisioning. Learn more at <a href="http://www.hp.com/go/intelligentprovisioning">http://www.hp.com/go/intelligentprovisioning</a> .

#### Server Utilities

HPE Smart Update	Optimize firmware and driver updates with HPE Smart Update solutions. Learn more at <a href="http://www.hp.com/go/smartupdate">http://www.hp.com/go/smartupdate</a> .
HPE Systems Insight Manager (HPE SIM)	HPE SIM allows you to monitor the health of your HPE ProLiant Servers and HPE Integrity Servers, and also provides you with basic support for non-Hewlett Packard Enterprise servers. HPE SIM also integrates with HPE SUM to provide quick and seamless firmware updates. Learn more at <a href="http://www.hp.com/go/sim">http://www.hp.com/go/sim</a>
Scripting Tool Kit and Windows PowerShell	Provision 1 to many servers using your own scripts to discover and deploy them with HPE Scripting Tool Kit for Windows and Linux or HPE Scripting Tools for Windows PowerShell. Learn more at <a href="http://www.hp.com/go/ProLiantSTK">http://www.hp.com/go/ProLiantSTK</a> or <a href="http://www.hp.com/go/powershell">http://www.hp.com/go/powershell</a> .
HPE RESTful Interface Tool	HPE RESTful API tool is a scripting tool to provision servers using RESTful API Interface to discover and deploy servers at scale. Learn more at <a href="http://www.hp.com/go/restfulapi">http://www.hp.com/go/restfulapi</a>
HPE iLO Mobile Application	Enables the ability to access, deploy, and manage your server anytime from anywhere from select smartphones and mobile devices. For additional information please visit: <a href="http://www.hp.com/go/ilo/mobileapp">http://www.hp.com/go/ilo/mobileapp</a>
HPE Insight Online	HPE Insight Online, available at no additional cost as part of your Hewlett Packard Enterprise warranty, Care Pack or contractual support agreement with Hewlett Packard Enterprise, is a personalized dashboard for simplified tracking of IT operations and support information from anywhere, anytime. Learn more at <a href="http://www.hp.com/go/insightonline/info">http://www.hp.com/go/insightonline/info</a> .

#### Embedded Management

HPE Integrated Lights Out	Monitor your servers for ongoing management, service alerting, reporting and remote management with iLO. Learn more at <a href="http://www.hp.com/go/ilo">http://www.hp.com/go/ilo</a> .
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### Standard Features

#### HPE Insight management software

HPE Service Pack for ProLiant (SPP)

HPE Service Pack for ProLiant (SPP) and HPE Smart Update Manager (HPE SUM) provide a comprehensive approach to firmware and system software maintenance. Together they provide better operating stability and ensure maximum uptime. The SPP will be updated at a predictable cadence, typically coinciding with new Hewlett Packard Enterprise server hardware launches. By enabling firmware to be updated online and integrating firmware and system software updates in one operation, HPE SUM and the SPP offer faster updates of individual servers and dramatically faster updates of entire HPE Apollo 2000 Chassis. Further improving system uptime and stability is the fact that Hewlett Packard Enterprise provides 12 months of support for each Service Pack for ProLiant release (may vary by region).

The user experience around HPE SUM and the SPP has been improved in several ways, starting with the web download. A single web page provides access to a single download containing both the latest version of HPE SUM and the latest SPP. Optional smaller subsets with only specific types of servers or specific operating systems are offered to save on download time. The HPE SUM application provides a straightforward, intuitive user interface that guides the user through the steps of discovery, analyses and update, providing comprehensive information on available updates, criticality and interdependencies. This information is also available in reports. By providing the option of multiple local or shared repositories which can be easily updated from hp.com, HPE SUM provides the tools to optimize stability and consistency throughout the company. While HPE SUM and the SPP recommend the combinations of firmware and system software that Hewlett Packard Enterprise has found to be the best practice, the application gives customers the flexibility to set their own specific baseline.

The Service Pack for ProLiant has been rigorously tested with specific attention for interaction between firmware, drivers and agents both within the server as well as in interaction with the HPE Apollo 2000 chassis. This testing ensures the highest quality as well as providing the input for HPE SUM to deploy updates taking into account all interdependencies, when determining the correct updates and order of update deployment.

**NOTE:** The Service Pack for ProLiant (which includes HPE SUM) can be downloaded from

<http://www.hp.com/go/spp/download>.

More information can be found:

<http://www.hp.com/go/SmartUpdate> ,

<http://www.hp.com/go/spp> and

<http://www.hp.com/go/hpsum>

### Standard Features

#### Security

- Power-on password
- Keyboard password
- Serial interface control
- Administrator's password
- iLO 4 (Integrated Lights-Out 4) has 12 customizable user accounts and SSL encryption
- iLO 4 can be disabled via a Global Setting
- iLO Advanced supports directory services integration
- TPM (Trusted Platform Module) 2.0 option

#### 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 one year 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.

**NOTE:** Server Warranty includes 1 year Parts, 1 year Labor, 1-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://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>

<http://www.hp.com/go/insightcontrol>

**NOTE:** In Asia Pacific, Japan and China, Server Warranty includes 3 years Parts, 3 year Labor, 3-year Onsite support with next business day response

### Optional Features

#### HPE Insight management software

HPE Insight Control	<p>HPE Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. For more information, see: <a href="http://www.hp.com/go/insightcontrol">http://www.hp.com/go/insightcontrol</a></p> <p>HPE Insight Control includes one year of 24 x 7 HPE Software Technical Support and Update Service ensuring rapid access to Hewlett Packard Enterprise support staff and proactive delivery of software updates. For more information about this service, see: <a href="http://www.hpe.com/services/insight">http://www.hpe.com/services/insight</a>.</p>
HPE iLO Advanced	<p>HPE Integrated Lights-Out Advanced License a product option, providing smart remote server management without compromise. iLO Advanced unlocks the full set of remote administration functionality for all HPE ProLiant servers by activating the full Virtual Keyboard Video and Mouse remote console, multi-user collaboration, console record and replay, GUI-based and scripted virtual media and virtual folders, and enhanced security and power management functionality. For more information, see: <a href="http://www.hp.com/go/ioloadvance">http://www.hp.com/go/ioloadvance</a></p>
HPE iLO Scale-Out	<p>The HPE iLO Scale-Out license ideal for web/hosting/cloud service providers and High Performance Computing environments. This license is a specific subset of iLO Advanced functionality, provides fast remote access through Text Console via SSH, lower operational cost with Dynamic power capping, and faster time to resolution through Email-based Alerting and proactive notifications. With this newly designed HPE iLO Scale-Out license HPC customers now have a server management package solely design and priced for their massive data environments. HPE iLO Scale-Out is available on all HPE ProLiant Gen9 servers. For more information, see: <a href="http://www.hp.com/go/iLO/scale-out">http://www.hp.com/go/iLO/scale-out</a></p>
HPE Matrix Operating Environment	<p>The HPE Matrix Operating Environment (Matrix OE) for ProLiant and Integrity servers is an integrated command center that helps you instantly adjust to dynamic business demands. This advanced infrastructure management software lets you reduce the cost of common data center tasks by up to 40 percent while keeping pace with your changing business. The HPE Matrix OE includes the automated provisioning, optimization, and recovery management capabilities for HPE CloudSystem Matrix, the ideal platform for private cloud and Infrastructure as a Service (IaaS).</p> <p><b>NOTE:</b> For more information, visit: <a href="http://www.hp.com/go/matrixoe">http://www.hp.com/go/matrixoe</a></p>

### Optional Features

#### High Performance Clusters

HPE Cluster Platforms

HPE Cluster Platforms are specifically engineered, factory-integrated large-scale ProLiant clusters optimized for High Performance Computing, with a choice of servers, networks and software. Operating system options include specially priced offerings for Red Hat Enterprise Linux and SUSE Linux Enterprise Server, as well as Microsoft Windows HPC Server. A Cluster Platform Configurator simplifies ordering.

<http://www.hp.com/go/clusters>

HPE HPC Interconnects

High Performance Computing (HPC) interconnect technologies are available for this server as part of the HPE Cluster Platform portfolio. These high-speed InfiniBand and Gigabit interconnects are fully supported by Hewlett Packard Enterprise when integrated within an Hewlett Packard Enterprise cluster. Flexible, validated solutions can be defined with the help of configuration tools.

<http://www.hpe.com/techservers/clusters/ucp/index.html>

HPE Insight Cluster Management Utility

HPE Insight Cluster Management Utility (CMU) is an Hewlett Packard Enterprise-licensed and Hewlett Packard Enterprise-supported suite of tools that are used for lifecycle management of hyperscale clusters of Linux ProLiant systems. CMU includes software for the centralized provisioning, management and monitoring of nodes. CMU makes the administration of clusters user friendly, efficient, and effective. <http://www.hp.com/go/cmu>

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#### HPE Insight Online

HPE Insight Online is a new addition to the HPE Support Center for one stop, secure access to product and Hewlett Packard Enterprise support information personalized to your IT environment. Insight Online can automatically display devices remotely monitored by HPE Insight Remote Support. With Insight Online's easy navigation you can efficiently track your IT support contracts and device status from anywhere and at any time. <http://www.hp.com/go/insightonline>

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### Service and Support

#### Service and Support

The support Care Packs chosen for the chassis are applied to this server node at no additional cost.

HPE Technology Services for HPE Apollo 2000

HPE Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Connect to Hewlett Packard Enterprise to help prevent problems and solve issues faster. Our support technology lets you to tap into the knowledge of millions of devices and thousands of experts to stay informed and in control, anywhere, any time.

Support for the HPE Apollo 2000, APM and chassis are all covered by support purchased at the chassis level. This simplifies your support experience and can reduce total cost of ownership over support purchased per server.

What HPE Technology Services can do for you

We can help you design, deploy, test, integrate, support, and manage IT and infrastructure solutions. Our services solutions include more than just uplift of base warranty; we help deliver high levels of application availability through proactive service management and advanced technical response.

Protect your business beyond warranty with HPE Pointnext operational services that provide total support expertise to meet your IT and business needs. We have made it simple to select among 3 levels of recommended services; optimized, standard, or basic.

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For more information To learn more on HPE ProLiant servers, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Or visit: <http://www.hpe.com/services/proliant>

To find the full list of Care Pack SKUs for the HPE Apollo family of products, go to: <http://hp.com/go/lookuptool> and in step 2 select HPE ProLiant, then select HPE Apollo family.

#### Parts and Materials

Hewlett Packard Enterprise 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 Hewlett Packard Enterprise due to malfunction.

### Configuration Information – Factory Integrated Models

**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 2000Chassis

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

HPE CTO Model	HP ProLiant XL190r Gen9 2U Node Configure-to-order Server	798156-B21
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### Step 2: Choose Required Options (only one from each category unless otherwise noted)

HP XL1x0r Gen9 Intel Xeon E5-2603v3 (1.6GHz/6-core/15MB/85W) FIO Processor Kit	793012-L21
HP XL1x0r Gen9 Intel Xeon E5-2609v3 (1.9GHz/6-core/15MB/85W) FIO Processor Kit	793014-L21
HP XL1x0R Gen9 Intel Xeon E5-2620v3 (2.4GHz/6-core/15MB/85W) FIO Processor Kit	793016-L21
HP XL1x0r Gen9 Intel Xeon E5-2630v3 (2.4GHz/8-core/20MB/85W) FIO Processor Kit	793018-L21
HP XL1x0 Gen9 Intel Xeon E5-2695v3 (2.3GHz/14-core/35MB/120W) FIO Processor Kit	793048-L21
HP XL1x0r Gen9 Intel Xeon E5-2640v3 (2.6GHz/8-core/20MB/90W) FIO Processor Kit	793020-L21
HP XL1x0r Gen9 Intel Xeon E5-2650v3 (2.3GHz/10-core/25MB/105W) FIO Processor Kit	793022-L21
HP XL1x0r Gen9 Intel Xeon E5-2660v3 (2.6GHz/10-core/25MB/105W) FIO Processor Kit	793024-L21
HP XL1x0r Gen9 Intel Xeon E5-2670v3 (2.3GHz/12-core/30MB/120W) FIO Processor Kit	793026-L21
HP XL1x0r Gen9 Intel Xeon E5-2680v3 (2.5GHz/12-core/30MB/120W) FIO Processor Kit	793028-L21
HP XL1x0r Gen9 Intel Xeon E5-2690v3 (2.6GHz/12-core/30MB/135W) FIO Processor Kit	793030-L21
HP XL1x0r Gen9 Intel Xeon E5-2697v3 (2.6GHz/14-core/35MB/145W) FIO Processor Kit	793032-L21
HP XL1x0r Gen9 Intel Xeon E5-2637v3 (3.5GHz/4-core/15MB/135W) FIO Processor Kit	793034-L21

### Configuration Information – Factory Integrated Models

HP XL1x0r Gen9 Intel Xeon E5-2643v3 (3.4GHz/6-core/20MB/135W) FIO Processor Kit	793036-L21
HP XL1x0r Gen9 Intel Xeon E5-2667v3 (3.2GHz/8-core/20MB/135W) FIO Processor Kit	793038-L21
HP XL1x0r Gen9 Intel Xeon E5-2683v3 (2GHz/14-core/35MB/120W) FIO Processor Kit	793046-L21
HP XL1x0r Gen9 Intel Xeon E5-2650Lv3 (1.8GHz/12-core/30MB/65W) FIO Processor Kit	793050-L21
HP XL1x0r Gen9 Intel Xeon E5-2698v3 (2.3GHz/16-core/40MB/135W) FIO Processor Kit	793054-L21
HP XL1x0r Gen9 Intel Xeon E5-2699v3 (2.3GHz/18-core/45MB/145W) FIO Processor Kit	793056-L21
HPE XL1x0r Gen9 Intel Xeon E5-2603v4 (1.7GHz/6-core/15MB/85W) FIO Processor Kit	850286-L21
HPE XL1x0r Gen9 Intel Xeon E5-2609v4 (1.7GHz/8-core/20MB/85W) FIO Processor Kit	850288-L21
HPE XL1x0r Gen9 Intel Xeon E5-2620v4 (2.1GHz/8-core/20MB/85W) FIO Processor Kit	850290-L21
HPE XL1x0r Gen9 Intel Xeon E5-2623v4 (2.6GHz/4-core/10MB/85W) FIO Processor Kit	850292-L21
HPE XL1x0r Gen9 Intel Xeon E5-2630Lv4 (1.8GHz/10-core/25MB/55W) FIO Processor Kit	850294-L21
HPE XL1x0r Gen9 Intel Xeon E5-2630v4 (2.2GHz/10-core/20MB/85W) FIO Processor Kit	850296-L21
HPE XL1x0r Gen9 Intel Xeon E5-2637v4 (3.5GHz/4-core/15MB/135W) FIO Processor Kit	850298-L21
HPE XL1x0r Gen9 Intel Xeon E5-2640v4 (2.4GHz/10-core/25MB/90W) FIO Processor Kit	850300-L21
HPE XL1x0r Gen9 Intel Xeon E5-2643v4 (3.4GHz/6-core/20MB/135W) FIO Processor Kit	850302-L21
HPE XL1x0r Gen9 Intel Xeon E5-2650Lv4 (1.7GHz/14-core/35MB/65W) FIO Processor Kit	850304-L21
HPE XL1x0r Gen9 Intel Xeon E5-2650v4 (2.2GHz/12-core/30MB/105W) FIO Processor Kit	850306-L21
HPE XL1x0r Gen9 Intel Xeon E5-2660v4 (2.0GHz/14-core/35MB/105W) FIO Processor Kit	850308-L21



### Configuration Information – Factory Integrated Models

HPE XL1x0r Gen9 Intel Xeon E5-2667v4 (3.2GHz/8-core/25MB/135W) FIO Processor Kit	850310-L21
HPE XL1x0r Gen9 Intel Xeon E5-2680v4 (2.4GHz/14-core/35MB/120W) FIO Processor Kit	850314-L21
HPE XL1x0r Gen9 Intel Xeon E5-2683v4 (2.1GHz/16-core/40MB/120W) FIO Processor Kit	850316-L21
HPE XL1x0r Gen9 Intel Xeon E5-2690v4 (2.6GHz/14-core/35MB/135W) FIO Processor Kit	850318-L21
HPE XL1x0r Gen9 Intel Xeon E5-2695v4 (2.1GHz/18-core/45MB/120W) FIO Processor Kit	850320-L21
HPE XL1x0r Gen9 Intel Xeon E5-2697v4 (2.3GHz/18-core/45MB/145W) FIO Processor Kit	850322-L21
HPE XL1x0r Gen9 Intel Xeon E5-2698v4 (2.2GHz/20-core/50MB/135W) FIO Processor Kit	850324-L21
HPE XL1x0r Gen9 Intel Xeon E5-2699v4 (2.2GHz/22-core/55MB/145W) FIO Processor Kit	850326-L21
HPE ProLiant XL170r Gen9 Special Server	845119-L21
HPE ProLiant XL170r Gen9 Special Server	845121-L21
HPE ProLiant XL170r Gen9 Special Server	845123-L21

**NOTE:** If two processors are desired, select one xxxxxx-L21 processor and one corresponding xxxxxx-B21. Up to two processors are supported. Mixing of processor speeds and types within the server is not supported.

**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:** HT indicates that the processor model supports Intel® Hyper-Threading Technology.

**NOTE:** Turbo indicates the maximum potential frequency when using Intel® Turbo Boost Technology. The frequency boost increment is dependent on the processor SKU and the number of active cores. In general, a higher boost increment is obtained when fewer cores are active.

**NOTE:** DDR4 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.

**NOTE:** For the Intel® C610 Chipset E5-2600 v3 Series, the letter preceding the model number indicates the Product Line (E3, E5, E7); 2600x, 2 = number of CPUs in a Node, 6 is socket/segment designation, 00 = Processor SKU, and x = L for low power SKUs.

**NOTE:** All processors support Intel® Hyper-Threading and Intel® Turbo Boost Technologies except the E5-2603 v3 and E5-2609 v3.

**NOTE:** The letter "L" following the model number denotes lower wattage.

**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:** Minimum 2 DIMMs are required.

**NOTE:** HPE memory from previous generation servers (DDR3) is not compatible with this server. HPE SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen9. For additional information, please see

### Configuration Information – Factory Integrated Models

the HPE SmartMemory QuickSpecs at: <http://www8.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111535>

**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 2133MHz, 1866MHz, or 1600MHz. Please see Memory Population Table or the Online Memory Configuration Tool at: <http://h22195.www2.hpe.com/MemoryTool/Home/Legal>

#### Registered DIMMs (RDIMMs) - E5-2600 v3 series Processors

HPE 4GB (1x4GB) Single Rank x8 DDR4-2133 CAS-15-15-15 Registered Memory Kit 726717-B21

HPE 8GB (1x8GB) Single Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit 726718-B21

HPE 8GB (1x8GB) Dual Rank x8 DDR4-2133 CAS-15-15-15 Registered Memory Kit 759934-B21

HPE 16GB (1x16GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit 726719-B21

HPE 32GB (1x32GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit 728629-B21

#### Registered DIMMs (RDIMMs) - E5-2600 v4 series Processors

HP 8GB (1x8GB) Single Rank x8 DDR4-2400 CAS-17-17-17 Registered Memory Kit 805347-B21

HP 16GB (1x16GB) Single Rank x4 DDR4-2400 CAS-17-17-17 Registered Memory Kit 805349-B21

HP 32GB (1x32GB) Dual Rank x4 DDR4-2400 CAS-17-17-17 Registered Memory Kit 805351-B21

HPE 16GB (1x16GB) Dual Rank x4 DDR4-2400 CAS-17-17-17 Registered Memory Kit 836220-B21

#### Load Reduced DIMMs (LRDIMMs) - E5-2600 v3 series Processors

HPE 32GB (1x32GB) Quad Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit 726722-B21

HPE 16GB (1x16GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit 726720-B21

#### Load Reduced DIMMs (LRDIMMs) - E5-2600 v4 series Processors

HPE 32GB (1x32GB) Dual Rank x4 DDR4-2400 CAS-17-17-17 Load Reduced Memory Kit 805353-B21

HPE 64GB (1x64GB) Quad Rank x4 DDR4-2400 CAS-17-17-17 Load Reduced Memory Kit 805358-B21

HPE 128GB (1x128GB) Octal Rank x4 DDR4-2400 CAS-20-18-18 Load Reduced Memory Kit 809208-B21

### Configuration Information – Factory Integrated Models

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

<b>BIOS Mode</b>	HPE Legacy FIO Mode Setting <b>NOTE:</b> If B140i is the only primary controller, then this option cannot be selected. When this option is selected, then BIOS need to be switched from default UEFI Mode to Legacy Mode.	758959-B21
<b>Controller State</b>	HPE FIO Enable B140i Setting <b>NOTE:</b> Must be selected when B140i is used as primary controller and RAID is desired.	784308-B21
	HPE Mfg FIO Enable HBA Mode Setting <b>NOTE:</b> When selected if H240ar/H240 are used as the primary controller then RAID is not allowed.	792962-B21
	HPE AHCI-Enable FIO Setting <b>NOTE:</b> If B140i is the primary controller and if HPE AHCI-Enable FIO Setting is selected, then RAID is not allowed.	801845-B21

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

**NOTE:** for additional options, please refer to "Core Options"? and "Additional Options"? section 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 an Hewlett Packard Enterprise approved configurator. Contact your local sales representative for additional information.

<b>HPE Processors</b>	HP XL1x0r Gen9 Intel Xeon E5-2603v3 (1.6GHz/6-core/15MB/85W) Processor Kit
	HP XL1x0r Gen9 Intel Xeon E5-2609v3 (1.9GHz/6-core/15MB/85W) Processor Kit
	HPE XL1x0R Gen9 Intel Xeon E5-2620v3 (2.4GHz/6-core/15MB/85W) Processor Kit
	HP XL1x0r Gen9 Intel Xeon E5-2630v3 (2.4GHz/8-core/20MB/85W) Processor Kit
	HP XL1x0r Gen9 Intel Xeon E5-2640v3 (2.6GHz/8-core/20MB/90W) Processor Kit
	HP XL1x0r Gen9 Intel Xeon E5-2650v3 (2.3GHz/10-core/25MB/105W) Processor Kit
	HP XL1x0r Gen9 Intel Xeon E5-2660v3 (2.6GHz/10-core/25MB/105W) Processor Kit
	HP XL1x0r Gen9 Intel Xeon E5-2670v3 (2.3GHz/12-core/30MB/120W) Processor Kit
	HP XL1x0r Gen9 Intel Xeon E5-2680v3 (2.5GHz/12-core/30MB/120W) Processor Kit
	HP XL1x0r Gen9 Intel Xeon E5-2690v3 (2.6GHz/12-core/30MB/135W) Processor Kit
	HP XL1x0r Gen9 Intel Xeon E5-2697v3 (2.6GHz/14-core/35MB/145W) Processor Kit
	HPE XL1x0 Gen9 Intel Xeon E5-2695v3 (2.3GHz/14-core/35MB/120W) Processor Kit

### Configuration Information – Factory Integrated Models

HP XL1x0r Gen9 Intel Xeon E5-2637v3 (3.5GHz/4-core/15MB/135W) Processor Kit

HP XL1x0r Gen9 Intel Xeon E5-2643v3 (3.4GHz/6-core/20MB/135W) Processor Kit

HP XL1x0r Gen9 Intel Xeon E5-2667v3 (3.2GHz/8-core/20MB/135W) Processor Kit

HP XL1x0r Gen9 Intel Xeon E5-2683v3 (2GHz/14-core/35MB/120W) Processor Kit

HP XL1x0r Gen9 Intel Xeon E5-2650Lv3 (1.8GHz/12-core/30MB/65W) Processor Kit

HP XL1x0r Gen9 Intel Xeon E5-2698v3 (2.3GHz/16-core/40MB/135W) Processor Kit

HP XL1x0r Gen9 Intel Xeon E5-2699v3 (2.3GHz/18-core/45MB/145W) Processor Kit

HPE XL1x0r Gen9 Intel Xeon E5-2609v4 (1.7GHz/8-core/20MB/85W) Processor Kit

HPE XL1x0r Gen9 Intel Xeon E5-2603v4 (1.7GHz/6-core/15MB/85W) Processor Kit

HPE XL1x0r Gen9 Intel Xeon E5-2620v4 (2.1GHz/8-core/20MB/85W) Processor Kit

HPE XL1x0r Gen9 Intel Xeon E5-2623v4 (2.6GHz/4-core/10MB/85W) Processor Kit

HPE XL1x0r Gen9 Intel Xeon E5-2630Lv4 (1.8GHz/10-core/25MB/55W) Processor Kit

HPE XL1x0r Gen9 Intel Xeon E5-2630v4 (2.2GHz/10-core/25MB/85W) Processor Kit

HPE XL1x0r Gen9 Intel Xeon E5-2640v4 (2.4GHz/10-core/25MB/90W) Processor Kit

HPE XL1x0r Gen9 Intel Xeon E5-2643v4 (3.4GHz/6-core/20MB/135W) Processor Kit

HPE XL1x0r Gen9 Intel Xeon E5-2650Lv4 (1.7GHz/14-core/35MB/65W) Processor Kit

HPE XL1x0r Gen9 Intel Xeon E5-2650v4 (2.2GHz/12-core/30MB/105W) Processor Kit

HPE XL1x0r Gen9 Intel Xeon E5-2660v4 (2.0GHz/14-core/35MB/105W) Processor Kit

HPE XL1x0r Gen9 Intel Xeon E5-2667v4 (3.2GHz/8-core/25MB/135W) Processor Kit

HPE XL1x0r Gen9 Intel Xeon E5-2680v4 (2.4GHz/14-core/35MB/120W) Processor Kit

HPE XL1x0r Gen9 Intel Xeon E5-2683v4 (2.1GHz/16-core/40MB/120W) Processor Kit

HPE XL1x0r Gen9 Intel Xeon E5-2690v4 (2.6GHz/14-core/35MB/135W) Processor Kit

HPE XL1x0r Gen9 Intel Xeon E5-2695v4 (2.1GHz/18-core/45MB/120W) Processor Kit

HPE XL1x0r Gen9 Intel Xeon E5-2697v4 (2.3GHz/18-core/45MB/145W) Processor Kit

### Configuration Information – Factory Integrated Models

HPE XL1x0r Gen9 Intel Xeon E5-2697Av4 (2.6GHz/16-core/40MB/145W) Processor Kit

HPE XL1x0r Gen9 Intel Xeon E5-2698v4 (2.2GHz/20-core/50MB/135W) Processor Kit

HPE XL1x0r Gen9 Intel Xeon E5-2699v4 (2.2GHz/22-core/55MB/145W) Processor Kit

HPE XL1x0r Gen9 Intel Xeon E5-1630v3 (3.7GHz/4-core/10MB/140W) Processor Kit

HPE XL1x0r Gen9 Intel Xeon E5-1650v3 (3.5GHz/6-core/15MB/140W) Processor Kit

HPE XL1x0r Gen9 Intel Xeon E5-1680v3 (3.2GHz/4-core/20MB/140W) Processor Kit

**NOTE:** For 845119-B21, 845121-B21, and 845123-B21 installed in XL190r gen9, to prevent potential performance drop (CPU throttling), the max. working temperature should be under 23°C ambient temperature.

#### Registered DIMMs (RDIMMs) - E5-2600 v3 series Processors

#### HPE Memory

HPE 4GB (1x4GB) Single Rank x8 DDR4-2133 CAS-15-15-15 Registered Memory Kit 7

HPE 8GB (1x8GB) Single Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit 7

HPE 8GB (1x8GB) Dual Rank x8 DDR4-2133 CAS-15-15-15 Registered Memory Kit 7!

HPE 16GB (1x16GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit

HPE 32GB (1x32GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit

#### Load Reduced DIMMs (LRDIMMs) - E5-2600 v3 series Processors

HPE 32GB (1x32GB) Quad Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit

HPE 16GB (1x16GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit

#### M.2

HP XL170r/190r NGFF Riser for M2SATA Kit

HPE XL1x0r Gen9 New Generation Form Factor 240GB (2x120GB) Riser Drive

#### HPE Hard Drives

#### Hot Plug SFF 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 B140i is the primary controller, user can only select SATA drives.

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

HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD

HPE 200GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD

HPE 800GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD

### Configuration Information – Factory Integrated Models

HPE 400GB SATA 6G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE 800GB SATA 6G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE 1.6TB SATA 6G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

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

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

HPE 150GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE 1.6TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE 1.6TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty SSD

HPE 200GB SATA 6G Write Intensive SFF (2.5in) SC 3yr Wty SSD

HPE 400GB SATA 6G Write Intensive SFF (2.5in) SC 3yr Wty SSD

HPE 800GB SATA 6G Write Intensive SFF (2.5in) SC 3yr Wty SSD

HPE 450GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty HDD

HPE 1.2TB SATA 6G Write Intensive SFF (2.5in) SC 3yr Wty SSD

HPE 600GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty HDD

HPE 300GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty HDD

### Configuration Information – Factory Integrated Models

HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD

HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty SSD

HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE 3.2TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE 300GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD

HPE 600GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD

HPE 900GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD

HPE 600GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD

HPE 900GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD

HPE 300GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD

HPE 600GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD

HPE 1.2TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD

HPE 1.8TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD

HPE 600GB SAS 12G Enterprise 10K SFF (2.5in ) SC 3yr Wty HDD

HPE 1.2TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty HDD

HPE 300GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty HDD

HPE 900GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty HDD

HPE 1.8TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e HDD

### Configuration Information – Factory Integrated Models

HPE 960GB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE 1.92TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE 3.84TB SAS 12G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE 1TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD

HPE 2TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e HDD

HPE 1TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty Digitally Signed Firmware HDD

HPE Small Form Factor Hard Drive Blank Kit

HPE 1TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty Digitally Signed Firmware HDD

HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD

HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD

HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty SSD

HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE 3.8TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD

HPE Apollo 2000 SFF Bezel Kit

**NOTE:** This bezel kit is required for P100 PCIe card

Hot Plug LFF

**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.



### Configuration Information – Factory Integrated Models

**NOTE:** If B140i is the primary controller, user can only select SATA drives.

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

HPE Gen9 LFF HDD Spade Blank Kit

HPE 800GB SAS 12G Write Intensive LFF (3.5in) LP 3yr Wty SSD

HPE 400GB SAS 12G Write Intensive LFF (3.5in) LP 3yr Wty SSD

HPE 600GB SAS 12G Enterprise 15K LFF (3.5in) LPC 3yr Wty HDD

HPE 960GB 6G SATA Mixed Use-3 LFF 3.5-in LPC 3yr Wty Solid State Drive

HPE 1.6TB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty SSD

HPE 1TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD

HPE 3TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD

HPE 8TB 12G SAS 7.2K rpm LFF (3.5in) 512e Low Profile Midline 1yr Wty 6-pack FIO Hard Drive Bundle

HPE 4TB 12G SAS 7.2K rpm LFF (3.5in) 512e Low Profile Midline 1yr Wty 6-pack FIO Hard Drive Bundle

HPE 6TB 12G SAS 7.2K rpm LFF (3.5in) 512e Low Profile Midline 1yr Wty 6-pack FIO Hard Drive Bundle

HPE 800GB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD

HPE 1.6TB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD

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

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

HPE 2TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD

HPE 4TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD

HPE 6TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e HDD

HPE 4TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e HDD

HPE 2TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD

HPE 4TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD

### Configuration Information – Factory Integrated Models

HPE 1TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD

HPE 3TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD

HPE 8TB 6G SATA 7.2K rpm LFF (3.5in) 512e Low Profile Midline 1yr Wty 6-pack FIO Hard Drive Bundle

HPE 4TB 6G SATA 7.2K rpm LFF (3.5in) 512e Low Profile Midline 1yr Wty 6-pack FIO Hard Drive Bundle

HPE 6TB 6G SATA 7.2K rpm LFF (3.5in) 512e Low Profile Midline 1yr Wty 6-pack FIO Hard Drive Bundle

HPE 10TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Helium 512e Digitally Signed Firmware HDD

HPE 8TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Helium 512e Digitally Signed Firmware HDD

HPE 480GB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD

HPE 6TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e HDD

HPE 4TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e HDD

HPE 8TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e Digitally Signed Firmware HDD

HPE 8TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e Digitally Signed Firmware HDD

HPE 10TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Helium 512e Digitally Signed Firmware HDD

HPE 8TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Helium 512e Digitally Signed Firmware HDD

HPE 6TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD

HPE 6TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware HDD

HPE 480GB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD

HPE 1.92TB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware SSD

HPE Apollo 2000 LFF Bezel Kit

### Configuration Information – Factory Integrated Models

**NOTE:** This bezel kit is required for P100 PCIe card

#### USB Flash Kit

HPE Dual 8GB microSD Enterprise Midline USB Kit

HPE 8GB USB Enterprise Mainstream Flash Media Drive Key Kit

#### HPE Storage Controllers

Emulex Fibre Channel HBAs

HPE StoreFabric SN1100E 16Gb Single Port Fibre Channel Host Bus Adapter

HPE StoreFabric SN1100E 16Gb Dual Port Fibre Channel Host Bus Adapter

HPE 81E 8Gb 1-port PCIe Fibre Channel Host Bus Adapter

HPE 82E 8Gb 2-port PCIe Fibre Channel Host Bus Adapter

#### HPE PCIe Accelerators

HPE 800GB NVMe Mixed Use HH/HL PCIe Workload Accelerator

HPE 1.6TB NVMe Mixed Use HH/HL PCIe Workload Accelerator

HPE 800GB NVMe Write Intensive HH/HL PCIe Workload Accelerator

HPE 1.6TB NVMe Write Intensive HH/HL PCIe Workload Accelerator

#### HPE Networking

##### Ethernet Options

##### FlexibleLOM Adapters

HPE Ethernet 10Gb 2-port 562SFP+ Adapter

HPE Ethernet 10Gb 2-port 562FLR-SFP+ Adapter

HPE Ethernet 1Gb 4-port 331FLR Adapter

HPE Ethernet 1Gb 4-port 366FLR Adapter

HPE Ethernet 10Gb 2-port 560FLR-SFP+ Adapter

HPE FlexFabric 10Gb 4-port 536FLR-T Adapter

HPE FlexFabric 10Gb 2-port 556FLR-T Adapter

HPE FlexFabric 10Gb 2-port 534FLR-SFP+ Adapter

HPE FlexFabric 10Gb 2-port 533FLR-T Adapter

HPE FlexFabric 10Gb 2-port 556FLR-SFP+ Adapter

HPE Ethernet 10Gb 2-port 546FLR-SFP+ Adapter

HPE Ethernet 10Gb 2-port 530SFP Adapter

HPE Ethernet 10Gb 2-port 560SFP+ Adapter

HPE Ethernet 10Gb 2-port 561T Adapter

### Configuration Information – Factory Integrated Models

HPE Ethernet 10Gb 2-port 546SFP+ Adapter

HP XL170r/190r Dedicated NIC IM Board Kit

HPE Ethernet 10Gb 2-port 561FLR-T Adapter

HPE Ethernet 1Gb 4-port 366T Adapter

HPE Ethernet 10/25Gb 2-port 640FLR-SFP28 Adapter

HPE Ethernet 10/25Gb 2-port 640SFP28 Adapter

HPE Ethernet 1Gb 4-port 331T Adapter

HPE Ethernet 4x25Gb 1-port 620QSFP28 Adapter

HPE Ethernet 10Gb 2-port 530T Adapter

HPE Ethernet 1Gb 2-port 361T Adapter

HPE Ethernet 1Gb 2-port 332T Adapter

HPE StoreFabric CN1200E 10GBASE-T Dual Port Converged Network Adapter

HPE StoreFabric CN1100R 10GBASE-T Dual Port Converged Network Adapter

HPE StoreFabric CN1100R Dual Port Converged Network Adapter

HPE Smart Array P440/4GB FBWC 12Gb 1-port Int SAS Controller

**NOTE:** This controller can support up to 8 internal SAS/SATA devices.

**NOTE:** Selecting this controller means H240 cannot be selected.

**NOTE:** A maximum of 1 may be ordered.

7.

HPE Smart Array P441/4GB FBWC 12Gb 2-ports Ext SAS Controller

**NOTE:** This controller supports 0 Internal SAS/SATA devices

**NOTE:** A maximum of 2 may be ordered to support external devices.

7.

HPE Smart Array P840/4GB FBWC 12Gb 2-ports Int SAS Controller

HPE 81Q 8Gb 1-port PCIe Fibre Channel Host Bus Adapter

HPE 82Q 8Gb 2-port PCIe Fibre Channel Host Bus Adapter

HPE H240 12Gb 2-ports Int Smart Host Bus Adapter

**NOTE:** This controller can support up to 8 internal SAS/SATA devices.

**NOTE:** Selecting this controller means P440/4G cannot be selected.

**NOTE:** A maximum of 1 may be ordered.

HPE H241 12Gb 2-ports Ext Smart Host Bus Adapter

**NOTE:** This controller supports 0 Internal SAS/SATA devices

**NOTE:** A maximum of 1 may be ordered to support external devices.

### InfiniBand Options

### Configuration Information – Factory Integrated Models

HPE InfiniBand FDR 2-port 545QSFP Adapter

HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+QSFP Adapter

HPE InfiniBand FDR 2-port 545FLR-QSFP Adapter

HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+FLR-QSFP Adapter

HPE InfiniBand QDR/Ethernet 10Gb 2-port 544+FLR-QSFP Adapter

HPE 100Gb 1-port OP101 QSFP28 x16 PCIe Gen3 with Intel Omni-Path Architecture Adapter

HPE InfiniBand EDR/Ethernet 100Gb 1-port 840QSFP28 Adapter

HPE InfiniBand EDR/Ethernet 100Gb 2-port 840QSFP28 Adapter

HPE 100Gb 1-port OP101 QSFP28 x8 PCIe Gen3 with Intel Omni-Path Architecture Adapter

### Riser Options

HP XL170r/190r Low Profile PCI-E x16 Left Riser Kit

HP XL190r Low Profile x16 FlexibleLOM x8 Right Riser Kit

HPE XL190r Gen9 GPU Direct Attach Re-timer Right Riser Kit

HP XL190r x16x16x16 11OS Right Riser Kit

HP XL190r x16x16x16 Graphics Processing Unit Direct Right Riser Kit

HP XL190r Low Profile PCIe x16 Left Riser Kit

HPE XL190r Gen9 Enhanced 11OS Right Riser Kit

HPE XL190r Gen9 Enhanced GD Right Riser Kit

HP XL190r Gen9 Dual K80/M60 Graphics Processing Unit Adapter Kit

HP XL190r Gen9 2x3 Dual Graphics Processing Unit Adapter Kit

HP XL190r Gen9 2x3 2x4 Single Graphics Processing Unit Adapter Kit

HP XL190r Rear I/O Blank FIO Kit

### HPE Storage Cables

HP XL190r Mini-SAS B140 Cable Kit

NOTE:NOTE: Must select for B140i on 2U, 1 cable kits per card

HP XL190r Gen9 Mini-SAS H240 Cable Kit

NOTE:NOTE: Must select for H240 on 2U, 1 cable kits per card

### Configuration Information – Factory Integrated Models

HP XL190r Gen9 Mini-SAS P440 Cable Kit

NOTE:NOTE: Must select for P440 on 2U, 1cable kit per card

HP XL170/190r Mini-SAS P840/P440 Cable Kit

NOTE:NOTE: Must select for P440 on 1U, 1cable kit per card; Must select for P840 on 2U, 2 cable kits per card

#### 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/BURAccompatibility>

HPE StoreEver LTO-7 Ultrium 15000 External Tape Drive

HPE StoreEver LTO-6 Ultrium 6250 External Tape Drive

HPE StoreEver LTO-5 Ultrium 3000 SAS External Tape Drive

HPE StoreEver 1U SAS Rack Mount Kit + LTO-7 Ultrium 15000 Internal Tape Drive

HPE StoreEver 1U SAS Rack Mount Kit + LTO-6 Ultrium 6250 Internal Tape Drive

HPE StoreEver MSL6480 Scalable Base Module

HPE StoreEver MSL2024 0-drive Tape Library

HPE StoreEver MSL4048 0-drive Tape Library

HPE StoreEver 1/8 G2 LTO-7 Ultrium 15000 SAS/FC Tape Autoloader

HPE StoreEver 1/8 G2 LTO-6 Ultrium 6250 SAS/FC Tape Autoloader

HPE StoreEver 1/8 G2 LTO-5 Ultrium 3000 SAS/FC Channel Tape Autoloader

HPE StoreEver MSL LTO-7 Ultrium 15000 SAS/FC Drive Upgrade Kit

HPE StoreEver MSL LTO-6 Ultrium 6250 SAS/FC Drive Upgrade Kit

#### Graphic Card Options

HPE NVIDIA Tesla P100 PCIe 12GB Computational Accelerator

HPE NVIDIA Quadro M4000 Graphics Accelerator

HP XL190r K40 Enablement Cable Kit

HPE NVIDIA Tesla P40 24GB Computational Accelerator

HP XL190r Gen9 AMD GPU Enablement Kit

HPE XL190r Gen9 AMD S7150x2 GPU Enablement Kit

HPE NVIDIA Tesla M40 24GB Computational Accelerator

HPE NVIDIA Tesla M60 Reverse Air Flow Dual GPU PCIe Graphics Accelerator

HPE AMD FirePro S7150x2 Accelerator Kit

NVIDIA Tesla K40 12 GB Computational Accelerator

### Configuration Information – Factory Integrated Models

HP NVIDIA Tesla K80 Dual GPU PCIe Computational Accelerator

HPE NVIDIA Tesla P100 PCIe 16GB Computational Accelerator

HP AMD FirePro S9150 Accelerator Kit

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

	HPE NVIDIA Tesla K80 Dual GPU Module	HPE NVIDIA Tesla K40 12 GB Module	HPE AMD S9150 Accelerator Kit	HPE N' Grid M6 Dual Mod
	J0G95A	F1R08A	J0H11A	M3X0
HPE XL190r Gen9 AMD GPU Enablement Kit (827357-B21)			X	
HPE XL190r Gen9 K40 Enablement Kit (800807-B21)	X	X		X
HPE XL190r Gen9 Dual K80/M60 GPU Adptr Kit (802855-B21)	X			X
HPE XL190r Gen9 Single GPU Adptr Kit (798203-B21)		X	X	
HPE XL190r Gen9 Dual GPU Adptr Kit (798196-B21)		X	X	
HPE FLOM 2U node Riser (798184-B21)		X	X	
HPE 11OS Riser kit (198184-B21)		X		
HPE GD Riser kit (798188-B21)		X		

### Configuration Information – Factory Integrated Models

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:

<http://www8.hp.com/h20195/v2/gethtml.aspx?docname=c04168349>

<b>HPE Rack Options</b>	HPE USB BFR with PVC Free Keyboard/Mouse Kit	
	HPE USB US Keyboard/Mouse Kit	631341-B21
<b>High Performance Clusters</b>	HPE Trusted Platform Module 2.0 Kit	745823-B21
	HPE Trusted Platform Module Option	488069-B21
	HPE Cluster Management Utility	
	HPE Insight Cluster Management Utility 1yr 24x7 Flexible LTU	QL803B
	HPE Insight Cluster Management Utility 3yr 24x7 Flexible LTU	BD476A
	<p><b>NOTE:</b> These part numbers can be used to purchase one certificate for multiple licenses and support with a single activation key. Each license is for one node (server). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key. Customer also will receive a support agreement.</p>	
	HPE Insight Cluster Management Utility Media	BD477A

### HPE Insight Software

#### Integrated Lights-Out (iLO)

HPE iLO Scale Out	
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
HPE Integrated Lights-Out (iLO) Advanced for ProLiant	
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
HP iLO Advanced Electronic License with 3yr 24x7 Tech Support and Updates	BD506AAE
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



### Configuration Information – Factory Integrated Models

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
HP iLO Advanced including 1yr 24x7 Technical Support and Updates Electronic License	TA850AAE

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

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

### 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® E5-2600 v3 family processor socket contains four memory channels that support 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 32GB capacity DIMMs are supported for 512GB of memory (16 DIMM slots x 32GB per DIMM).

Memory Population Rules and Guidelines:

- White DIMM slots denote the first slot of a channel. For 1 DPC (DIMM per channel) populate white slots only.
- Install DIMMs only if the corresponding processor is installed.
- There are two channels per processor with two DIMM slots per channel.
- Memory channel A consists of the two (2) DIMMs that are closest to the processor.
- Memory channel B consists of the two (2) DIMMs that are furthest from the processor.
- Populate DIMMs from heaviest load (quad-rank) to lightest load (single-rank) within a channel
- Heaviest load (DIMM with most ranks) within a channel goes furthest from the processor
- No support for RDIMMs; Non-ECC UDIMMs
- DIMMs of different speeds may be mixed in any order; the server will select a common optimal speed.
- The maximum memory speed is a function of the memory type, memory configuration, and processor model.
- The maximum memory capacity is a function of the memory type and number of installed processors.
- 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>
- For memory population rules and additional memory guidelines, please see the HPE ProLiant XL230 Gen9 user guide at <http://www.hpe.com/support>

#### Supported Memory Bandwidth on Intel® Xeon® E5-2600 v3 series Processors

DIMM Rank	Register DIMM (RDIMM)		Load Reduced (LRDIMMs)
	Single Rank (1R)	Dual Rank (2R)	Quad Rank (4R)
DIMM Capacity	8GB	16GB	32GB
Voltage	Std Voltage 1.2V	Std Voltage 1.2V	Std Voltage 1.2V
SLOTS THAT CAN BE POPULATED			
16 slots	16	16	16
MAXIMUM CAPACITY (GB)*			
16 slots	128	256	512
POPULATED DIMM SPEED (MT/s)			
1 DIMM Per Channel	2133	2133	2133
2 DIMM Per Channel	2133	2133	2133
*Maximum Capacity will vary based on individual serve platform qualification schedule			

### Memory

#### Supported Memory Bandwidth on Intel® Xeon® E5-2600 v4 series Processors

DIMM Rank	Register DIMM (RDIMM)		Load Reduced (LRDIMMs)
	Single Rank (1R)	Dual Rank (2R)	Quad Rank (4R)
DIMM Capacity	16GB	32GB	32GB
Voltage	Std Voltage 1.2V	Std Voltage 1.2V	Std Voltage 1.2V
SLOTS THAT CAN BE POPULATED			
16 slots	16	16	16
MAXIMUM CAPACITY (GB)*			
16 slots	256	512	512
POPULATED DIMM SPEED (MT/s)			
1 DIMM Per Channel	2400	2400	2400
2 DIMM Per Channel	2133	2133	2133
*Maximum Capacity will vary based on individual serve platform qualification schedule			

#### Memory Speed by E5-2600 v3 Series Processor Model

Processor Models (please based on processor model Mission Bay offer to update below SKUs)	Supported Memory Speeds
E5-2690 v3, E5-2695 v3, E5-2697 v3, E5-2698 v3, E5-2699 v3, E5-2687W v3, E5-2683 v3, E5-2680 v3, E5-2670 v3, E5-2667 v3 , E5-2660 v3, E5-2650 v3, E5-2650L, E5-2643 v3, E5-2637 v3	2133MHz
E5-2640 v3, E5-2630 v3, E5-2630L v3, E5-2623 v3, E5-2620 v3	1866MHz
E5-2609 v3, E5-2603 v3	1600MHz

#### Memory Speed by E5-2600 v4 Series Processor Model

Processor Models (please based on processor model Mission Bay offer to update below SKUs)	Supported Memory Speeds
E5-2643 v4, E5-2650Lv4, E5-2650 v4, E5-2660 v4, E5-2667 v4, E5-2680 v4, E5-2683 v4, E5-2690 v4, E5-2695 v4 , E5-2697 v4, E5-2698 v4, E5-2699v4, E5-2637 v4.	2400MHz
E5-2620 v4, E5-2623 v4, E5-2630L v4, E5-2630 v4, E5-2637 v4, E5-2640 v4	2133MHz
E5-2603 v4, E5-2609 v4	1866MHz

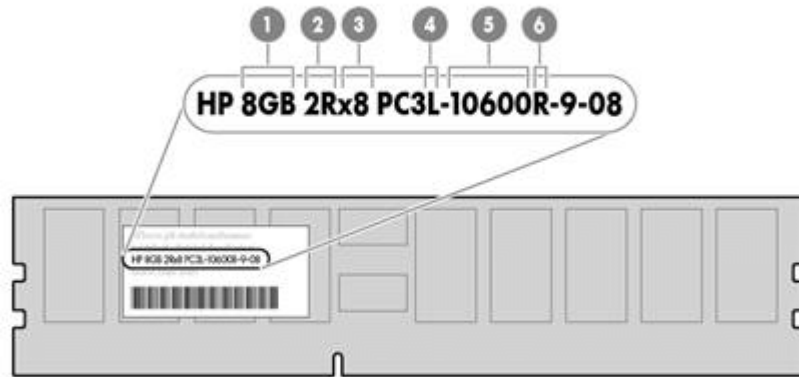
Supported Memory Bandwidth on Intel® Xeon® E5-2600 v4 series Processors

## Memory

**NOTE:** Capacity references are rounded to the common gigabyte (GB) values.

- 2GB = 2,048MB
- 4GB = 4,096MB
- 8GB = 8,192MB
- 16GB = 16,384MB
- 32GB = 32,768MB

### Memory options part number decoder



Item	Description	Definition
1	Capacity	8 GByte / 16 GByte / 32 GByte
2	Rank	1R=Single-rank / 2R = Dual-rank / 4R Quad-rank
3	Data Width	x4 = 4-bit / x8 =-bit
4	Memory Generation	DDR4
5	Max. Memory Speed	2133MT/s
6	CasLatency	P=15
6	DIMM type	R= RDIMM (registered) L= LRDIMM (registered)

### Technical Specifications

<b>System Unit</b>	Server Dimensions (L x W x D)	1.63 x 7.07 x 25.26 in (4.13 x 17.95 x 64.15 cm)	
	Weight (approximate)	Maximum (four hard drives and two processors installed)	14.27 lb (6.47 kg)
System Inlet Temperature	Standard Operating Support	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: <a href="http://www.hp.com/servers/ASHRAE">http://www.hp.com/servers/ASHRAE</a>	
	Extended Ambient Operating Support	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: <a href="http://www.hp.com/servers/ASHRAE">http://www.hp.com/servers/ASHRAE</a> System performance may be reduced if operating in the extended ambient operating range or with a fan fault.	
Relative Humidity (non-condensing)	Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).	
	Operating	Minimum to be the higher (more moisture) of -12°C (10.4°F) dew point or 8% relative humidity. Maximum to be the lower (less moisture) of 24°C (75.2°F) dew point or 90% relative humidity.	
Altitude	Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.	
	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 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		

### Technical Specifications

Emissions Classification (EMC)	accordance with ISO 9296 (ECMA 109). The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.
FCC Rating	Class A
Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1

**NOTE:** Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.

### Acoustic Noise

SL2000 Gen 9 Configuration				
Configuration	Entry	Typical	Performance	Others
CPU type and qty	HPE XL1x0r Gen9 ZE5-2630v3 Kit x 1	HPE XL1x0r Gen9 ZE5-2630v3 Kit x1	HPE XL1x0r Gen9 ZE5-2630v3 Kit x2	NA
DIMM type, capacity and qty	HPE Z16GB 2Rx4 PC4-2133P-R Kit x2	HPE Z16GB 2Rx4 PC4-2133P-R Kit x2	HPE Z16GB 2Rx4 PC4-2133P-R Kit x4	NA
HDD type and qty	500GB 6G SATA 7.2K SFF HDD x2	HPE 450GB 12G SAS 15K 2.5in x2	HPE 450GB 12G SAS 15K 2.5in x2	NA
HDD Backplane	24SFF W/O Expander	24SFF W/ Expander	24SFF W/ Expander	NA
HD Controller for flexible storage options	B140i onboard SATA	HPE Smart Array P440/4GB 12Gb Controller	HPE Smart Array P440/4GB 12Gb Controller	NA
LOM for flexibility for multiple ALOM/BLOM	NA	NA	NA	NA
Fan type and count	8038mm x4	8038mm x4	8038mm x4	NA
I/O and Others (Mezz, GPGPU, NIC and etc.)	NA	NA	NA	NA
Cooling Mode Setting	Optimal Cooling	Optimal Cooling	Optimal Cooling	NA
<b>Acoustics Performance</b>				
Sound Power Level in Bels LWAd	Idle:6.6Bel OP: 6.6Bel	Idle:6.9 Bel OP: 6.9Bel	Idle:6.9;Bel OP: 7.1Bel	NA
Sound Pressure Level LpAm	Idle:47 dBA OP:47 dBA	Idle:50 dBA OP:50 dBA	Idle:50 dBA OP: 51 dBA	NA

**NOTE:** The product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 and declared in accordance with ISO 9296. The listed sound levels apply to listed configurations. Additional options may result in increased sound levels. Please have your HPE Rep refer to EMESC Website for further technical details regarding the configurations listed above.

### Technical Specifications

**NOTE:** Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.

#### Environment-friendly Products and Approach

Hewlett Packard Enterprise offers end-of-life Hewlett Packard Enterprise product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: <http://www.hp.com/go/green> to recycle your product, please go to: <http://www.hp.com/go/green> or contact your nearest Hewlett Packard Enterprise sales office. Products returned to Hewlett Packard Enterprise will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) 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 at: <http://www.hp.com/go/green> 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
23-Oct-2017	Version 15	Changed	Care Pack naming and Service and Support- Parts and Materials updated.
19-May-2017	From version 13 to 14	Updated	Update the configuration information section
16-Dec-2016	From version 12 to 13	Updated	Add the USB Flash Kits
28-Nov-2016	From version 11 to 12	Updated	Update the configuration section and correct errors.
4-Nov-2016	From version 10 to 11	Updated	Remove some HDD SKUs
15-Aug-2016	From version 9 to 10	Updated	Update the configuration and information section.
15-Jul-2016	From version 8 to 9	Updated	Update configuration and information sections
2-May-2016	From version 7 to 8	Updated	Added GPU and HDD throughout the QuickSpecs
31-Mar-2016	From version 6 to 7	Updated	Update configuration and information sections
16-Feb-2016	From version 5 to 6	Updated	Update the SATA, SDD and processors section
8-Jun-2015	From version 4 to 5	Changed	Change the errors on the document and update the configuration section.
1-Dec-2015	From version 3 to 4	Updated	Modified GOU and changes throughout the QuickSpecs
28-Sept-2015	From version 2 to 3	Updated	Added GPU and HDD throughout the QuickSpecs
17-Aug-2015	From version 1 to 2	Modified	Modified Riser card and updates throughout the QuickSpecs
30-Mar-2015	Version 1	Created	Create QuickSpecs for HPE ProLiant XL190r Gen9 Server



### Summary of Changes



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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.



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