

Overview

HPE ProLiant XL730f Gen9 Server

For ground-breaking research in science and engineering workloads such as climate modeling or manufacturing simulations, the HPE ProLiant XL730f Gen9 Server advances the science of supercomputing with up to 144 x 2P servers per HPE Apollo f8000 Rack. The ProLiant XL730f Gen9 Server in the HPE Apollo 8000 System reaches new heights of performance density.

The ProLiant XL730f Gen9 Server has 2 x 2P nodes per tray with up to 144 servers per rack for more performance per rack. Each node delivers performance density with Intel® Xeon® processors, provide the processing power needed to handle a variety of demanding workloads. Supports up to 256Gb memory/node, with an optional SSD. One high performance FDR InfiniBand port per server and 1Gb NIC per server enhance connectivity and data availability.

The all new ProLiant XL730f Gen9 Server with HPE ProActive Insight architecture delivers even greater levels of configurability for Supercomputing environments that require the highest possible performance density and cooling efficiency, with an eye toward energy recycling. Dry disconnect server trays provide liquid cooling via sealed copper tubes, with heat exchange via thermal bus bars in the rack. Delivering on the promise of server lifecycle automation, the ProLiant XL730f Gen9 Server features the exclusive HPE Active Health System and provides continuous, proactive, monitoring for over 1600 system parameters with zero impact to application performance.

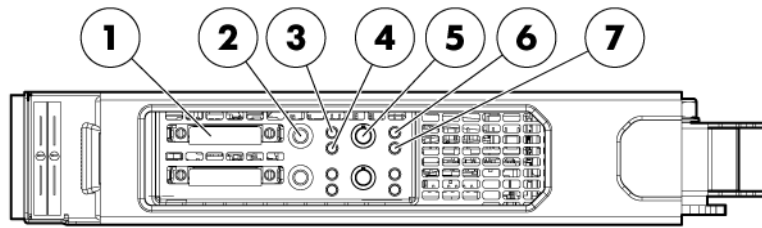
The HPE Apollo 8000 System Solution is comprised of the following components:

- One or more Apollo f8000 Racks with HPE ProLiant XL730f Gen9 Servers, one or more HPE Apollo 8000 iCDU Racks, and their associated onboard CDU control system.
- Primary plumbing interface assembly kit that connects the individual Apollo 8000 iCDUs Racks to the facility water system.
- Secondary plumbing system that connects the individual the Apollo f8000 Racks to the HPE Apollo 8000 iCDU Racks. This secondary closed loop system provides cooling for the Apollo f8000 Rack and isolates it from untreated, potentially incompatible primary water.
- High-speed (FDR) InfiniBand networking built into the Apollo f8000 Rack.



Overview

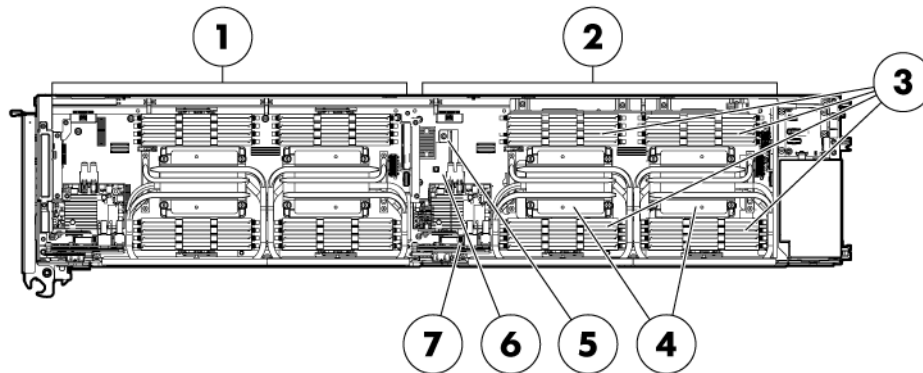
Front view of the ProLiant XL730f Gen9 Server



Item Description

- | | |
|----------------------------------|------------|
| 1. SUV (serial, USB, video) port | 5. UID LED |
| 2. Power Switch | 6. NIC2 |
| 3. iLO LED | 7. NIC1 |
| 4. Health LED | |

Open View



Item Description

- | | |
|--|-------------------------|
| 1. Front Server | 5. Optional one (1) SSD |
| 2. Rear Server | 6. IB Adapter Kit |
| 3. Sixteen (16) DDR4 DIMM slots per server | 7. 1Gb Ethernet Adapter |
| 4. Two Intel® Xeon® E5-2600 processors | |

Standard Features

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

Processor E5-2600 v4 series Processors

One of the Performance Processors

following **NOTE:** All support up to 2400MHz DDR4 memory speeds.

Intel® Xeon® E5-2667 v4 (3.2GHz/8-core/20MB/9.6GT-s QPI/135W, DDR4-2400, HT)

Intel® Xeon® E5-2680 v4 (2.4GHz/14-core/35MB/9.6GT-s QPI/120W, DDR4-2400, HT)

Intel® Xeon® E5-2683 v4 (2.1GHz/16-core/40MB/9.6GT-s QPI/120W, DDR4-2400, HT)

Intel® Xeon® E5-2690 v4 (2.6GHz/14-core/35MB/9.6GT-s QPI/135W, DDR4-2400, HT)

Intel® Xeon® E5-2695 v4 (2.1GHz/18-core/45MB/9.6GT-s QPI/120W, DDR4-2400, HT)

Intel® Xeon® E5-2697 v4 (2.3GHz/18-core/45MB/9.6GT-s QPI/145W, DDR4-2400, HT)

Intel® Xeon® E5-2697A v4 (2.6GHz/16-core/40MB/9.6GT-s QPI/145W, DDR4-2400, HT)

Intel® Xeon® E5-2698 v4 (2.2GHz/20-core/50MB/9.6GT-s QPI/135W, DDR4-2400, HT)

Intel® Xeon® E5-2699 v4 (2.2GHz/22-core/55MB/9.6GT-s QPI/145W, DDR4-2400, HT)

NOTE: The processor specifications are the Intel values given at time of publication and are subject to change based on Intel information.

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

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: Up to 2 processors supported. Mixing different processor models is not supported.

NOTE: For the Intel® C610 Chipset E5-2600 v4 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 = v4.

Cache Memory 55MB (1x55MB) Level 3

One of the **NOTE:** For Twenty-two-core processors.

following 50MB (1x50MB) Level 3

depending on **NOTE:** For Twenty-core processors.

Model 45MB (1x45MB) Level 3

NOTE: For Eighteen-core processors.

40MB (1x40MB) Level 3

NOTE: For Sixteen-core processors.

35MB (1x35MB) Level 3

NOTE: For Fourteen-core processors.

20MB (1x20MB) Level 3

NOTE: For Eight-core processors.

Chipset Intel® C610 Series Chipset

Intel® E5-2600 v4 Processor Family

NOTE: For more information regarding Intel® chipsets, please see the following URL:

<http://www.intel.com/products/server/chipsets/>

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The HPE ProLiant System BIOS is an EDK2 UEFI solution, and adheres to the latest revisions of UEFI Class 2 specifications, which supports both UEFI Boot Mode and Legacy BIOS Boot Mode. The HPE ProLiant XL730f Gen9 Server defaults to UEFI Boot Mode and can be factory or field configured for Legacy BIOS Boot Mode if required.

Standard Features

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

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

NOTE: UEFI System Utilities support Legacy BIOS Boot Mode like HPE ROM-Based Setup Utility (RBSU). For more information, please visit <http://www.hp.com/go/proliantuefi/docs>

UEFI enables numerous new capabilities, including both industry standard functionality and features specific to HPE ProLiant servers. The following are some of the features that UEFI enables and that the HPE ProLiant XL730f Gen9 Server can support when configured for UEFI Boot Mode:

- Secure Boot - A new feature in which the system firmware, option card firmware, operating systems, and software collaborate to greatly enhance platform security.
- 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.
- 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

On System Management Processor HPE iLO (Firmware: HPE iLO 4 v2.0)

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

Memory Protection Advanced ECC (multi-bit error protection)
Memory Online Spare Mode
Memory Lock Step Mode
Memory Mirroring Mode

Memory

Type	HPE SmartMemory DDR4 Registered (RDIMM)
DIMM Slots Available	16 DIMM Slots available per server and 32 slots available per tray
Maximum (RDIMM) (per server)	512GB (16 x32GB) Registered memory configurations

NOTE: HPE memory from previous generation servers are not qualified or warranted with this HPE ProLiant 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 the HPE SmartMemory QuickSpecs at:

http://h18000.www1.hp.com/products/QuickSpecs/14225_div/14225_div.html

Network Controller HPE Ethernet 1Gb 2-port 363i Adapter
HPE InfiniBand FDR/Ethernet 10/40Gb 2-port 544+A8L Adapter
NOTE: One 1GbE port and one port of FDR InfiniBand per server
NOTE: Each adapter interoperates with the corresponding Ethernet switch and InfiniBand switch via the HPE Apollo f8000 Rack infrastructure.

Storage Controller 1x SATA 3 port from Embedded C610 Chipset controller for the embedded SSDM.2.

Internal Storage Devices

Diskette Drives	Via USB through the SUV port, external support only	
Optical Drives	Via USB through the SUV port, external support only	
Solid State Drives	One SSD per server	

Maximum Internal Storage

SATA SFF SSD	960 GB	1x960 GB
SATA SFF SSD	480 GB	1x480 GB
SATA SFF SSD	240 GB	1x240 GB
SATA SFF SSD	120 GB	1x120 GB

Interfaces

Base Network	Two 1GbE NIC ports per XL730f Gen9 tray (One 1GbE NIC port per server)
InfiniBand Interface	The ProLiant XL730f Gen9 Server offers InfiniBand Adapter Kit.
KVM	Serial USB Video Port (SUV)

Standard Features

Micro SD	1 (internal)
USB Ports	1 (internal)
HPE iLO Remote Management Network Port	1 GbE dedicated internal port
iLO LED	2 front
Health LED	2 front
Power	2 front
UID	2 front
Network LED	2 front

NOTE: The only interface that is front pluggable on the ProLiant XL730f Gen 9 Server is the SUV port

Industry Standard Compliance

ACPI 2.0b Compliant
WOL Support
PXE Support
USB 1.1 and 2.0 Compliant
SMBIOS 2.7.0

Tray Power Supply

Each ProLiant XL730f Gen 9 Server Tray comes equipped with a High Voltage to 12V Power converter to supply each server in the tray.

Each power supply embedded on the ProLiant XL730f Gen9 Server Tray is capable of providing 1200 W total and 600 W per server node.

Operating Systems

Red Hat Enterprise Linux (RHEL)
SUSE Linux Enterprise Server (SLES)

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

NOTE: For more information on the HPE Certified and Supported ProLiant Servers for OS and latest listing of software drivers available for your server including how to purchase from HPE, please visit our OS Support Site at: <http://www.hp.com/go/ossupport> and our driver download page:

<http://www.hp.com/support>

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)

Form Factor

The ProLiant XL730f Gen9Server is 1U, half-width.

Embedded Management

The ProLiant XL730f Gen9Server has a comprehensive set of embedded management features supporting the complete lifecycle of the server, from initial deployment, through ongoing management, to service alerting and remote support. These features come standard on all HPE ProLiant Gen9 servers. The HPE iLO Management Engine portfolio includes:

- HPE iLO: Monitor your servers for ongoing management, service alerting, reporting and remote management with iLO. Learn more at <http://www.hp.com/go/ilo>
- UEFI: Configure and boot your servers securely with industry standard Unified Extensible Firmware Interface (UEFI). Learn more at <http://www.hp.com/go/ProLiant/uefi>
- Intelligent Provisioning: Provision servers by discovering and deploying one to few servers with Intelligent Provisioning. Learn more at <http://www.hp.com/go/intelligentprovisioning>
- Embedded Remote Support: HPE's embedded remote support, Insight Online direct connect or HPE Insight Remote Support, enables HPE ProLiant systems to directly link to phone home support without additional software or hardware and user's monitor their IT environment

Standard Features

anywhere, anytime. Learn more at <http://www.hp.com/go/insightonline/info>

HPE Server Utilities and Tools

HPE Smart Updates

Optimize firmware and driver updates with HPE Smart Update solutions. <http://www.hp.com/go/smartupdate>

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. Learn more at <http://www.hp.com/go/sim>

Scripting Toolkits

Provision servers using your own scripts to discover and deploy servers at scale. Learn more at <http://www.hp.com/go/ProLiantST>

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: <http://www.hp.com/go/ilo/mobileapp>

Security

Power-on password

Keyboard password

QuickLock, Network Server Mode

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

Warranty

This product is covered by a global limited warranty and supported by HPE Services and a worldwide network of Hewlett Packard Enterprise Authorized Channel Partners. 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 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 HPE 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>

Optional Features

Server & Infrastructure Management	HPE iLO Advanced	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. Learn more about HPE iLO Advanced at http://www.hp.com/go/iloadvanced
	HPE iLO Scale-Out	The license includes advanced power management, fast access through scripting tools and lower operational cost, in massive scale out environments, for maximum data center efficiency. Learn more about HPE iLO Scale-Out http://www.hp.com/go/ilo/scale-out
	HPE Insight Control	HPE Insight Control, lets you deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. For more information, see http://www.hpe.com/go/insightcontrol
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 HPE when integrated within an HPE cluster. Flexible, validated solutions can be defined with the help of configuration tools. http://www.hp.com/techservers/clusters/ucp/index.html
	HPE Insight Cluster Management Utility	HPE Insight Cluster Management Utility is a Hyperscale cluster management framework and suite of tools for large Linux clusters such as those found in High Performance Computing (HPC) environments. Learn more at http://www.hp.com/go/cmu
HPE Insight Online		HPE Insight Online is a new addition to the HPE Support Center for one stop, secure access to product and HPE 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 anytime. http://www.hp.com/go/insightonline
Factory Express Portfolio 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. Hewlett Packard Enterprise products supported through Factory Express include a wide array of servers and storage and HPE networking products. For more information on Factory Express services for the Apollo 8000 System model please contact your sales representative or go to: http://www.hp.com/go/factory-express

Service and Support

Service and Support

HPE Technology Services for Industry Standard Servers

HPE Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Connect to HPE 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.

Protect your business beyond warranty with HPE Pointnext operational services

HPE Pointnext operational services enable you to order the right service level, length of coverage and response time as you purchase your new server, giving you full entitlement for the term you select.

Services recommendation

Preferred recommendation:

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 HPE via a single point of accountability for HPE and others’ products. For more information, visit

<http://www.hp.com/services/datacentercare>

Standard Services recommendation

Standard recommendation: Maintains high level of server availability

Foundation Care 24x7, three-year Care Pack Service

HPE Foundation Care 24x7 connects you to Hewlett Packard Enterprise 24 hours a day, seven days a week for assistance on resolving issues. Hardware onsite response within four hours if needed; collaborative software included in this Care Pack service provides troubleshooting assistance on industry leading software running on your HPE server. Simplify your support experience and make HPE your first call for hardware or software questions.

<https://www.hpe.com/h20195/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en>

Related Services

Data Center Platform Consulting Services

Choose HPE Technology Services Consulting to modernize and migrate your key systems. These services help fine tune your data center to improve security, management and efficiency across IT infrastructure, operations, and facilities and prepare you for the new style of IT. Hewlett Packard Enterprise understands the needs of the data center of the future and will serve as your guide for the journey.

<http://www.hp.com/services/consulting>

HPE ProLiant Server Hardware Installation

Provides for the basic hardware installation of Hewlett Packard Enterprise branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.

<https://www.hpe.com/h20195/V2/GetPDF.aspx/5981-9356EN.pdf>

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

<http://www.hp.com/go/factory-express>.

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.

<http://www.hp.com/services/dataprivacy>

Get connected to HPE to improve your support experience

Service and Support

Prevent problems with innovative, automated monitoring tools and proactive services. Combining Proactive Care Services with our remote support technology such as Insight Online provides you with expert advice and personalized, cloud-based automated IT support, helping to prevent unplanned down time and solve problems quickly. For more information, visit:

[**http://www.hp.com/go/proactiveinsightexperience**](http://www.hp.com/go/proactiveinsightexperience)

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HPE Support Center

Personalized online support portal with access to information, tools and experts to support your HPE Apollo 8000 System. Submit support cases online, chat with HPE experts, access support resources or collaborate with peers. Learn more [**http://www.hp.com/go/hpsc**](http://www.hp.com/go/hpsc)

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. Our support tools are available at no additional cost with a HPE warranty, HPE Care Pack or Hewlett Packard Enterprise contractual support agreement.

NOTE: The HPE Support Center Mobile App is subject to local availability

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.

For more information

To learn more on HPE Apollo 8000 System, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Or visit:

[**http://www.hp.com/services/proliant**](http://www.hp.com/services/proliant)

Configuration Information - Factory Integrated Models

NOTE: The HPE Apollo 8000 System ships as a Configured-To-Order (CTO) product only.

The Apollo 8000 System consists of up to seventy-two (72) HPE ProLiant XL730f Gen9 Server Trays in a single HPE Apollo f8000 Rack, cooled by a single HPE Apollo 8000 iCDU Rack. The Apollo 8000 System is only sold as a Factory Integrated Model. To ensure only valid configurations are ordered, the sales system acts as a configurator. Contact your local sales representative for information on configurable product offerings and requirements. This section lists some of the steps required to configure a Factory Integrated Model of the Apollo 8000 System.

NOTE: The Configure-To-Order Apollo 8000 System must include an Apollo f8000 Rack, an Apollo 8000 iCDU Rack, at least seventy-two (72) ProLiant XL730f Gen9 Server Trays and eight (8) HPE InfiniBand Switches for Apollo 8000.

NOTE: Configure-To-Order Apollo 8000 Systems start with the 144 ProLiant Servers part of 72 HPE ProLiant XL730f Gen9 Server Trays.

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

Step 1. Choose a minimum of 72 HPE ProLiant XL730f trays or a combination of XL730f, XL740f or XL750f trays.

For each ProLiant XL730f, XL740f or XL750f Server choose the processor type. Four processors (two 2P servers) ship standard with each ProLiant XL750f Server Tray.

NOTE: For more details on configuration of XL740f and XL750f, reach out to your WW Product Management or contact Sammy Zimmerman

NOTE: Processor mixing of different frequencies and Wattage is not supported in any single tray.

Step 2. Choose one of the following kits for the Intel E5 2600v4 Xeon processor for each server tray.

Intel® Xeon® E5-2667 v4 (3.2GHz/8-core/20MB/9.6GT-s QPI/135W, DDR4-2400, HT)	832739-L21
Intel® Xeon® E5-2680 v4 (2.4GHz/14-core/35MB/9.6GT-s QPI/120W, DDR4-2400, HT)	832747-B21
Intel® Xeon® E5-2683 v4 (2.1GHz/16-core/40MB/9.6GT-s QPI/120W, DDR4-2400, HT)	832728-L21
Intel® Xeon® E5-2690 v4 (2.6GHz/14-core/35MB/9.6GT-s QPI/135W, DDR4-2400, HT)	832742-B21
Intel® Xeon® E5-2695 v4 (2.1GHz/18-core/45MB/9.6GT-s QPI/120W, DDR4-2400, HT)	832725-L21
Intel® Xeon® E5-2697 v4 (2.3GHz/18-core/45MB/9.6GT-s QPI/145W, DDR4-2400, HT)	832717-L21
Intel® Xeon® E5-2697A v4 (2.6GHz/16-core/40MB/9.6GT-s QPI/145W, DDR4-2400, HT)	867764-L21
Intel® Xeon® E5-2698 v4 (2.2GHz/20-core/50MB/9.6GT-s QPI/135W, DDR4-2400, HT)	832714-L21
Intel® Xeon® E5-2699 v4 (2.2GHz/22-core/55MB/9.6GT-s QPI/145W, DDR4-2400, HT)	832711-L21

Step 3. Choose memory for each ProLiant XL730f Gen9 Server Tray.

NOTE: Choose a minimum of 4 kits per server tray or a maximum of 32 kits per server tray. Choose in multiples of 4.

HPE 8GB (1x8GB) Single Rank x4 PC4-17000P (DDR4-2133) Registered Heat Spreader Memory Kit	778267-B21
HPE 16GB (1x16GB) Dual Rank x4 PC4-17000P (DDR4-2133) Registered Heat Spreader Memory Kit	778268-B21
HPE 32GB (1x32GB) Dual Rank x4 DDR4-2400 CAS-17-17-17 Registered Memory Kit	805351-B21

Step 4. Choose the SFF SSD for the server tray.

NOTE: Choose a minimum of 0 kits or a maximum of 2 kits per server tray, must be ordered in pairs.

NOTE: If you choose to have SSDs in the server tray, both SSDs must be the same size.

HP SAS Special Hard Drive	745794-B21
HP 80GB 6G SATA 2.5in VE Non Hot-plug Solid State Drive	744683-B21

Step 5. Choose a hard drive enablement kit for the SSD.

NOTE: Choose an enablement kit for each drive chosen.

HP XL7x0f Solid State Drive Enablement Kit	777899-B21
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Configuration Information - Factory Integrated Models

Step 6. Choose the required network solution.

NOTE: Each ProLiant XL730f Gen9 Server Tray ships with 2 network adapters, 1 per server.

HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+A8L Adapter

778509-B21

HPE Apollo f8000 Rack

Choose the Apollo f8000 Racks.

For 1-72 Server Trays, a single Apollo f8000 Rack is required. For more information, please see the HPE Apollo f8000 Rack QuickSpecs.

Step 7. Choose one of each of the following.

NOTE: The Top and Bottom Rack must be ordered together

HP Apollo f8000 Performance Bottom Rack

822584-B21

HPE Apollo f8000 Performance Top Rack

822583-B21

Step 8. Choose the infrastructure kits to support the Apollo f8000 Rack.

NOTE: Choose a minimum of 2 kits or a maximum of 2 kits per top or bottom of each Apollo f8000 Rack, must be ordered in pairs.

HP XL7x0f Integrated InfiniBand 18 2-port Fabric FIO Cartridge Cable Kit

774057-B21

HPE InfiniBand FDR/Ethernet 10/40Gb 2-port 544+A8L Adapter

HPE XL7x0f Integrated InfiniBand FDR 18-port FIO Switch Tray Kit

774059-B21

Step 9. Choose the rack plumbing kit for each Apollo f8000 Rack.

HP Apollo f8000 Rack Plumbing Kit

J1P10A

Step 10. Choose a power meter for each Apollo f8000 Rack, one per rack.

HP 480VAC Watertight FIO Power Meter

779240-B21

HP 415VAC FIO Power Meter Kit

779245-B21

Step 11. Choose a packaging option kit.

NOTE: Select this option only when shipping the rack stacked is an option. This option available only in North America.

HP Apollo f8000/iCDU Rack Packaging FIO Kit

778976-B21

HPE Apollo 8000 iCDU Rack

This cooling rack requires special site considerations, which can be understood with the HPE Apollo 8000 System Site Preparation Guide available from your HPE advisor. A single Apollo iCDU Rack can support up to four Apollo f8000 Racks. Please see the Apollo 8000 iCDU Rack QuickSpecs for additional information.

Choose the Apollo 8000 iCDU Racks. For 1-4 Apollo f8000 Racks an Apollo 8000 iCDU Rack is required.

Step 12. Choose one of each of the rack bottoms.

NOTE: The Top and Bottom Rack must be ordered together.

HP Apollo 8000 iCDU Top Rack

J1P09A

HP Apollo 8000 iCDU Top Rack (J1P09A) is included as default with the Bottom iCDU Rack selection

HP Apollo 8000 iCDU Bottom Rack

J1P08A

Configuration Information - Factory Integrated Models

HP Apollo 8000 iCDU International Bottom Rack J1P08B

Step 13. Choose the plumbing kits required.

HP Apollo 8000 iCDU Rack Plumbing Kit J1P12A

NOTE: The Hose Kit is required for each rack.

HP Apollo 8000 Secondary Plumbing Kit J1P14A

NOTE: One Apollo 8000 Secondary Plumbing Kit can support up to 3 full racks of any combination: an Apollo 8000 iCDU (Top and Bottom) or an Apollo f8000 (Top and Bottom) Rack.

HP Apollo 8000 End Assembly Kit J1P15A

NOTE: One Apollo 8000 end plumbing kit maximum per rack.

Step 14. Choose a power meter for the Apollo 8000 iCDU Rack.

HP 480VAC Watertight FIO Power Meter 779240-B21

HP 415VAC FIO Power Meter Kit 779245-B21

Step 15. Choose other rack options.

HP Apollo Rack Ramps Packaging Kit 778975-B21

NOTE: One HPE rack ramps kit per site needed for deployment as determined by Site Analysis.

HPE FlexFabric 5900AF 48XG 4QSFP+ Switch JC772A

NOTE: A minimum of 0 and a maximum of 6 per Bottom iCDU Rack and a minimum of 0 and a maximum of 22 per Top iCDU Rack.

HPE 58x0AF 650W AC Power Supply JC680A

NOTE: One for every switch ordered above.

HPE A58x0AF Back (power side) to Front (port side) Airflow Fan Tray JC682A

NOTE: Two for every switch ordered above.

Core Options

Processors	E5-2600 v4 series Processors	
	HPE XL7x0f Gen9 Intel Xeon E5-2667v4 (3.2GHz/8-core/25MB/135W) FIO Processor Kit	832739-L21
	HPE XL7x0f Gen9 Intel Xeon E5-2680v4 (2.4GHz/14-core/35MB/120W) Processor Kit	832747-B21
	HPE XL7x0f Gen9 Intel Xeon E5-2683v4 (2.1GHz/16-core/40MB/120W) FIO Processor Kit	832728-L21
	HPE XL7x0f Gen9 Intel Xeon E5-2690v4 (2.6GHz/14-core/35MB/135W) Processor Kit	832742-B21
	HPE XL7x0f Gen9 Intel Xeon E5-2695v4 (2.1GHz/18-core/45MB/120W) FIO Processor Kit	832725-L21
	HPE XL7x0f Gen9 Intel Xeon E5-2697v4 (2.3GHz/18-core/45MB/145W) FIO Processor Kit	832717-L21
	HPE XL7x0f Gen9 Intel Xeon E5-2697Av4 (2.6GHz/16-core/40MB/145W) FIO Processor Kit	867764-L21
	HPE XL7x0f Gen9 Intel Xeon E5-2698v4 (2.2GHz/20-core/50MB/135W) FIO Processor Kit	832714-L21
	HPE XL7x0f Gen9 Intel Xeon E5-2699v4 (2.2GHz/22-core/55MB/145W) FIO Processor Kit	832711-L21

HPE Memory	HPE SmartMemory	
	DDR4 Registered (RDIMM)	
	16 DIMM Slots available per server and 32 slots available per tray	
	512GB (16 x32GB) Registered memory configurations	
	HPE 8GB (1x8GB) Single Rank x4 PC4-17000P (DDR4-2133) Registered Heat Spreader Memory Kit	778267-B21
	HPE 16GB (1x16GB) Dual Rank x4 PC4-17000P (DDR4-2133) Registered Heat Spreader Memory Kit	778268-B21
	HPE 32GB (1x32GB) Dual Rank x4 DDR4-2400 CAS-17-17-17 Registered Memory Kit	805351-B21

NOTE: For additional information, please see the HPE SmartMemory QuickSpecs at:
http://h18000.www1.hp.com/products/QuickSpecs/14225_div/14225_div.html

NOTE: HPE certified SmartMemory must be used.

NOTE: Depending on the memory configuration and processor model, the memory speed may run at 2133 MHz or 1866MHz. Please see the Online Memory Configuration Tool at: <http://www.hp.com/go/ddr4config>

NOTE: The Apollo System requires heat spreaders on the DIMMs for the ProLiant XL730f Gen9 Servers. These are installed directly on the DIMM itself. These DIMMs are specifically for the ProLiant XL730f Gen9 Servers and should not be used in any other server.

HPE Hard Drives	NOTE: The components of a storage subsystem (e.g., the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.	
	HP SAS Special Hard Drive	745794-B21
	HP 80GB 6G SATA 2.5in VE Non Hot-plug Solid State Drive	744683-B21

HPE InfiniBand	HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+A8L Adapter	778509-B21
	NOTE: Dual port ConnectX-3 FDR/QDR IB or 40/10GbE. No IB Enablement Kit required.	
	NOTE: Please see the QuickSpecs for additional information:	

Core Options

<https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04154440>

NOTE: Please see the QuickSpecs for additional information:

<https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04154440>

Additional Options

HPE Insight Software

HPE Insight Control

HPE Insight Cluster Management Utility 1yr 24x7 Flexible LTU QL803B

HPE Insight Cluster Management Utility Media BD477A

Integrated Lights-Out (iLO)

HPE iLO Scale Out

HPE iLO Scale-Out including 3yr 24x7 Tech Support and Updates Flex Qty E-LTU BD776AAE

HPE iLO Scale-Out including 3yr 24x7 Tech Support and Updates Tracking LTU BD777A

HPE iLO Scale-Out including 1yr 24x7 Tech Support and Updates Flex Qty E-LTU BD778AAE

HPE iLO Scale-Out 1yr 24x7 Tech Support and Updates Flexible Quantity LTU BD778A

HPE iLO Scale-Out including 1yr 24x7 Tech Support and Updates Tracking LTU BD779A

HPE iLO Advanced including 1yr 24x7 Technical Support and Updates E-LTU E6U59ABE

NOTE: The Electronic software license is available in EMEA only

HPE iLO Advanced including 3yr 24x7 Technical Support and Updates E-LTU E6U64ABE

NOTE: The Electronic software license is available in EMEA only

HP iLO Advanced 1 Server with 3yr 24x7 Technical Support and Updates LTU G6F49A

NOTE: Licenses ship without media. The Media Kit for Insight Control for Linux can be ordered separately, or can be downloaded at: <http://www.hp.com/go/ic-linux> (click on Download button).

NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single set of activation keys.

NOTE: For additional license options please see the QuickSpecs at:

<https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04282647>

HPE Integrated Lights-Out (iLO) Advanced for ProLiant

HPE iLO Advanced including 1yr 24x7 Technical Support and Updates 1-server LTU 512485-B21

HPE iLO Advanced including 1yr 24x7 Technical Support and Updates Flexible Quantity LTU 512486-B21

HPE iLO Advanced including 1yr 24x7 Technical Support and Updates Tracking LTU 512487-B21

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

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

Additional Options

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>

High Performance Clusters

HPE Cluster Management Utility	
HPE Insight Cluster Management Utility 1yr 24x7 Flexible LTU	QL803B
HPE Insight Cluster Management Utility 3yr 24x7 Flexible LTU	BD476A
NOTE:NOTE: 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.	
HPE Insight Cluster Management Utility Media	BD477A

NOTE: For additional license kits please see the QuickSpecs at
<https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111735>

HPE USB and SD Options

HPE Flash Media Kits for USB Drives	
HP 2GB USB Flash Media Drive Key Kit	608447-B21
HPE 8GB USB Enterprise Mainstream Flash Media Drive Key Kit	737953-B21
HPE Enterprise Mainstream Flash Media Kits for Memory Cards	
HPE 8GB microSD Enterprise Mainstream Flash Media Kit	726116-B21
HPE 32GB microSD Mainstream Flash Media Kit	700139-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
<https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04123175>

Other USB and SD Options	
HPE 36pin Serial/USB/VGA Dongle Cord Kit	676277-B21

Memory

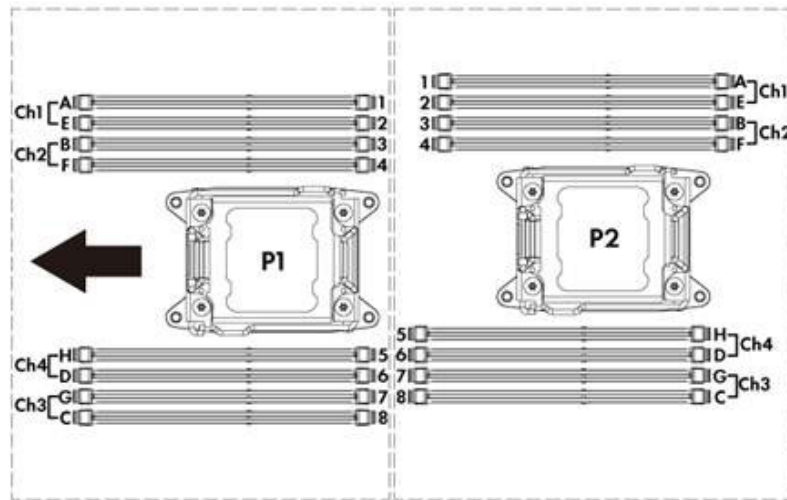
HPE ProLiant XL730f Gen 9Server

DDR4 memory population guidelines

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

<http://www.hp.com/go/ddr4config>

Each Intel® Xeon® E5-2600 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 16GB capacity DIMMs are supported for 256GB of memory (16 DIMM slots x 16GB per DIMM).



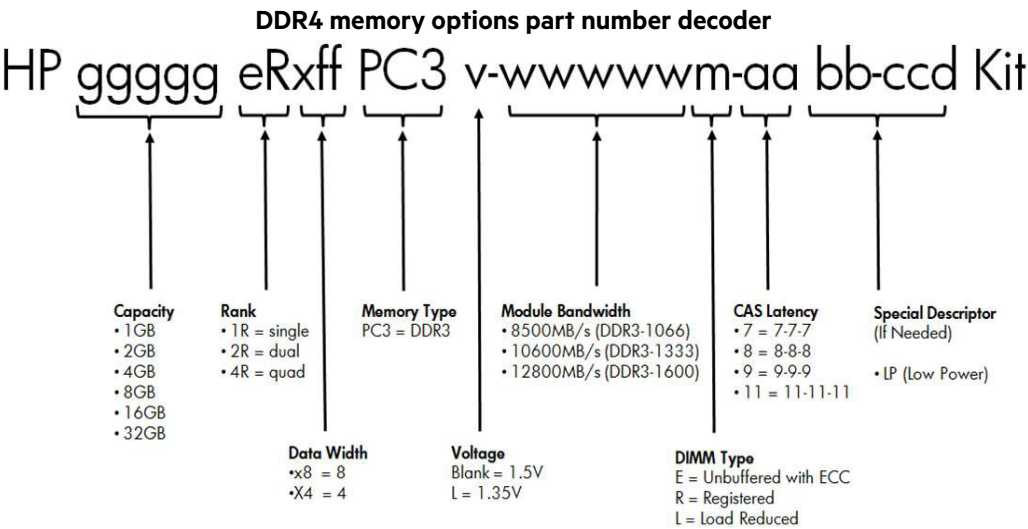
Memory Population Rules and Guidelines:

- 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.
- If only one processor is installed in a two processor system, only half of the DIMM slots are available.
- To maximize performance, it is recommended to balance the total memory capacity between all installed processors and to load the channels similarly whenever possible.
- 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.
- RDIMMs operating at either 1.35V or 1.5V may be mixed in any order, but the system will power them at the higher voltage.
- 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.
- HPE memory from previous generation servers is not qualified on the ProLiant XL730f Gen9 Server. Certain HPE SmartMemory features such as memory authentication and enhanced performance may not be supported.
- To realize the performance memory capabilities listed in this document, HPE SmartMemory is required. For additional information, please see the HPE SmartMemory QuickSpecs at: http://h18000.www1.hp.com/products/QuickSpecs/14225_div/14225_div.html
- For memory population rules and additional memory guidelines, please see the ProLiant XL730f Gen9 User Guide at <http://www.hp.com/support>

NOTE: Capacity references are rounded to the common Gigabyte values:

- 8GB = 8192MB
- 16GB = 16384MB

Memory



Following are memory options available from HPE:

HPE Memory

NOTE: HPE memory from previous generation servers are not qualified or warranted with this HPE ProLiant 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 the HPE SmartMemory QuickSpecs at: http://h18000.www1.hp.com/products/QuickSpecs/14225_div/14225_div.html

Registered DIMMs (RDIMMs)

NOTE: The following memory is supported by the E5-2600 v4 series Processors.

HPE 8GB (1x8GB) Single Rank x4 PC4-17000P (DDR4-2133) Registered Heat Spreader Memory Kit	778267-B21
HPE 16GB (1x16GB) Dual Rank x4 PC4-17000P (DDR4-2133) Registered Heat Spreader Memory Kit	778268-B21
HPE 32GB (1x32GB) Dual Rank x4 DDR4-2400 CAS-17-17-17 Registered Memory Kit	805351-B21

NOTE: This memory is only supported by the E5-2600 series Processors.

NOTE: For detailed memory configuration rules and guidelines, please use the Online DDR4 Memory Configuration Tool: <http://www.hp.com/go/ddr4config>

NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: <http://www.hp.com/go/proliant-energy-efficient>

Technical Specifications

Server Tray	Tray Dimensions (H x W x D)	1.75 x 7.9 x 38.27 in (4.45 x 20.07 x 98.98cm)		
	Weight (approximate)	Maximum	30 lb (13.6 kg)	
	Input Requirements (per power supply)	Power input provided by HPE Apollo f8000 Rack		
	Power Supply Output (per power supply)	Rated Steady-State Power 600W per server		
	System Inlet Temperature	Operating	50° to 95° F (10° to 27° C) facility water for most configurations. Maximum rate of change is 18°F/hr (10°C/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 86°F (30°C).	
		Non-operating	-22° to 140° F (-30° to 60° C) Maximum rate of change is 36°F/hr (20°C/hr).	
	Altitude	Operating	10,000 ft (3048 m). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 1500 ft/min (457 m/min).	
		Non-operating	30,000 ft (9144 m). Maximum allowable altitude change rate is 1500 ft/min (457 m/min).	
	Emissions Classification (EMC)	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.				
HPE Infiniband FDR/Ethernet 10Gb/40Gb 2 port 544 AL Adapter	Network Interface	InfiniBand QDR, FDR10, and FDR; Ethernet 10 or 40 Gb/sec		
	Compatibility	IEEE 802.1AS IEEE1588 IEEE 802.3az		
	Data Transfer Method	PCI Express v 3 x8 adapter		
Environment-friendly Products and Approach	Controller	Mellanox Connect X-3 Pro		
	End-of-life Management and Recycling	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		

Technical Specifications

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 HPE 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 8	Changed	Care Pack naming and Service and Support- Parts and Materials updated.
12-May-2017	From version 6 to 7	Updated	Update memory and Standard Features
15-Aug-2016	From version 5 to 6	Changed	Updated Broadwell processors
17-Aug-2015	From version 4 to 5	Changed	Change broken link from the memory-configuration
30-Mar-2015	From version 3 to 4	Changed	Update processors and options sections
6-January-2015	From version 2 to 3	Changed	Update the processors section in the QuickSpecs
1-November-2014	From version 1 to 2	Changed	Changes made throughout the QuickSpecs.
9-Sept-2014	Version 1	Created	Create the QuickSpecs for the HPE ProLiant XL730f Gen9 Server



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

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