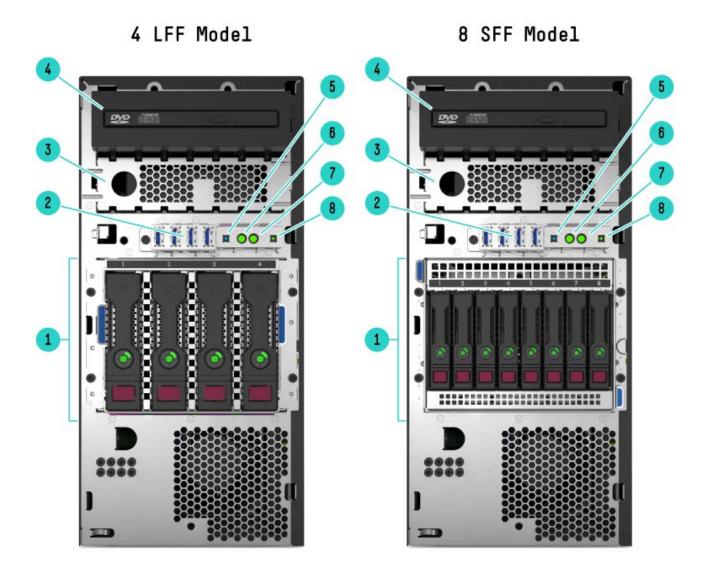# QuickSpecs

Overview

HPE ProLiant ML30 Gen9 Server

HPE ProLiant ML30 Gen9, delivers a full featured single-socket tower server with the right features at a competitive price, easy to use and maintain for growing small businesses and remote branch offices.
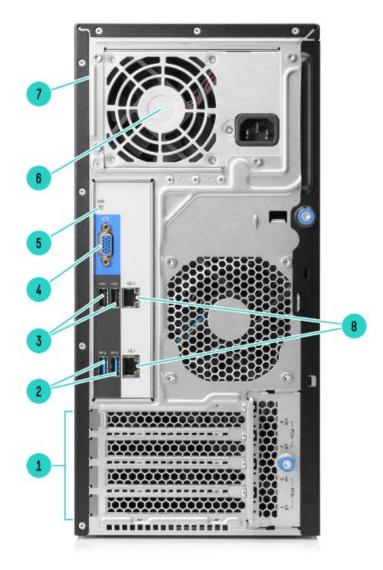

Front View (details for 4LFF and 8SFF)

1. Four (4) LFF or Eight (8) SAS/SATA HDD cage
2. Four (4) USB 3.0 connectors
3. Media Drive Blank
4. 9.5mm Slim SATA DVD-ROM or DVD RW Optical Drive
5. Power On/Standby button and system power LED button
6. NIC status LED
7. Health LED
8. UID (unit identification) button/LED

Overview

Rear View

1. PCI Slots (Slots 1-4)
2. USB 3.0 (2)
3. USB 2.0 (2)
4. Video Connector
5. UID LED
6. Power Supply Power Fan
7. HPE 350W Power Supply
8. NIC1/shared iLO port (lower), NIC2 (upper)

Overview

Internal View

1. One (1) processor and heatsink
2. System Fan
3. Power Supply
4. Four (4) DDR4 DIMM slots
5. Front PCIe fan (optional)
6. Two (2) Internal USB 2.0 connectors (USB Type A, Tape Drive Header)
7. Front PCIe fan connector
8. Smart Storage Battery connector
9. Four (4) PCIe expansion slots

What's New

- ClearOS, an easy to use OS with an application marketplace, allows you to build a fully functional server that is just right for you at no upfront cost. To learn more on what you can do, please visit **http://www.hpe.com/servers/clearos**.

Standard Features

NOTE: For more information regarding Intel Xeon processors, please see the following **http://www.intel.com/xeon**.

Intel® Xeon® processor E3-1200v5 and E3-1200v6 quad core processor family is designed to deliver the best combination of performance, built-in capabilities, and cost-effectiveness. The product also supports Intel® Pentium® and Intel® Core-i3 dual core processors. Choose one of the following processors based on the model:

Processor One of the following depending on model	Model	CPU frequency	Cores	L3 Cache	Power	DDR4 Hz
	G4560	3.5 GHz	2	3MB	54W	2400
	G4600	3.6 GHz	2	3MB	51W	2400
	i3-7100	3.9 GHz	2	3MB	51W	2400
	i3-7300	4.0 GHz	2	3MB	51W	2400
	E3-1220v6	3.0 GHz	4	8MB	72W	2400
	E3-1230v6	3.5 GHz	4	8MB	72W	2400
	E3-1240v6	3.7 GHz	4	8MB	72W	2400
	E3-1270v6	3.8 GHz	4	8MB	72W	2400
	E3-1280v6	3.9 GHz	4	8MB	72W	2400

Cache Memory One of the following depending on model	8MB (1 x 8MB) Level 3 cache **NOTE:** For Quad-core Intel Xeon® processors. 3MB (1 x 3MB) Level 3 cache **NOTE:** For Dual-core Intel Pentium® Core™ i3 processors.

Chipset	Intel® C236 Chipset **NOTE:** For more information regarding Intel® chipsets, please see the following URL: **http://www.intel.com/products/server/chipsets/**

On System Management Chipset	HPE iLO (Firmware HPE iLO4 2.0 or later) 4GB NAND **NOTE:** 1GB USB user space configurable via UEFI and accessible via iLO. Read and learn more in the **HPE iLO QuickSpecs**.

Memory One of the following depending on model	Type:		
	DDR4 Unbuffered (UDIMM)		
	DIMM Slots Available	4	4 DIMMs (2 Channels/ 2 DIMMs per channel)
	Maximum Capacity (UDIMM)	64GB	(4 x 16GB UDIMM @2400MHz)

Memory Protection	ECC

Network Controller	HPE Ethernet 1Gb 2-port NC332i Adapter

Standard Features

Expansion Slots #	Technology	Bus Width	Connector Width	Form Factor
4	PCIe 3.0	x16	x16	Full length/full height
3	PCIe 3.0	x1	x4	Full length/full height
2	PCIe 3.0	x1	x4	Full length/full height
1	PCIe 3.0	x4	x8	Half length/full height

NOTE: Bus Width indicates the number of physical electrical lanes running to the connector.

Storage Controller
One of the following depending on model

Base Models	HPE Dynamic Smart Array B140i Controller

NOTE: B140i can't mix with any standup internal controller.

Performance Models	HPE Dynamic Smart Array B140i Controller

NOTE: B140i can't mix with any standup internal controller.

Internal Storage Devices
One of the following depending on model

Optical Drives	Optional SATA 9.5mm DVD-ROM Optical Drive
	Optional SATA 9.5mm DVD RW Optical Drive
Hard Drives	None ship standard
Hard Drive Bays	4 LFF drive bays (non-hot-plug and hot-plug)
	8 SFF hot-plug drive bays

NOTE: HPE ProLiant ML30 Series servers offer both SFF and LFF versions in CTO.
NOTE: All Pre-configured Models come populated with some hard drive blanks installed. Should the customer need additional hard drive blanks, they can order more using either P/N 666987-B21: HPE SFF HDD Blank Kit or P/N 666986-B21: HPE LFF HDD Blank Kit.

Maximum Internal Storage
One of the following depending on model

	Capacity	Configuration
Hot Plug LFF SAS	48TB	4 x 12TB
Hot Plug SFF SAS	19.2TB	8 x 2.4TB
Hot Plug LFF SATA	48TB	4 x 12TB
Hot Plug SFF SATA	16TB	8 x 2TB
Non Hot Plug LFF SATA	16TB	4 x 4TB
Hot Plug SFF SATA SSD	30.72TB	8 x 3.84TB
Hot Plug LFF SATA SSD	7.68TB	4 x 1.92GB

Power Supply
One of the following depending on model

HPE 350W ATX-Gen9 Power Supply FIO Kit
HPE 460W Redundant Power Supply

Standard Features

HPE Entry-Level Power Supplies provide lower-cost options for customers trying to balance their need for enterprise class efficiency and reliability while maintaining lowest possible hardware costs. All Entry-Level power supply options have been designed specifically for HPE ProLiant Gen9 Essential Series servers. The HPE 350W FIO Power Supply is the standard, non-redundant AC power supply option for most HPE ProLiant Gen9 Essential servers. It features Bronze-level (85%) certified power efficiency with a set of features optimized for the Gen9 Essential-series rack and tower servers.

The HPE 460W (Redundant) AC Power Supply can be configured with redundancy enablement kit to support power redundancy in ProLiant ML30 Servers, providing additional protection against power loss. With an 80 Plus Gold power efficiency rating (up to 92%), this power option helps to reduce operating expenses while protecting against trapped power capacity in the data center.

All pre-configured servers ship with a standard 6-foot IEC C-13/C-14 jumper cord (A0K02A). This jumper cord is also included with each standard AC power supply option kit. If a different power cord is required, please check the ProLiant Power Cables web page.

To review the power requirements for your selected system, please use the HPE Power Advisor Tool located at **http://www.hpe.com/info/hppoweradvisor**.

Power Specification and Technical Content for supported power supplies can be found at: **https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111541**.

Required Cabling	**Server Power Cords**
	The ProLiant ML30 server is a tower server that ships standard with a 6 country specific NEMA power cord that allows connection to wall outlets in a home or office. If customers require additional local power cords, they can check the power cord matrix for the appropriate country specific SKU.

System Fans One of the following depending on model		**Non-redundant**	**Redundant**
	1P model system fan	One (1) Non-redundant system fan	NA
		Non-redundant	**Redundant**
	1P model PCIe fan	One (1) Non-redundant PCIe fan	NA

Interfaces	Video	1 (rear)
	Network RJ-45 (Ethernet)	2 (1 shared for HPE Integrated Lights-Out)
	Micro SD Slot	1 (internal)
	NOTE: The Micro-SD slot is not a hot-pluggable device. Customers should not attempt to plug a Micro-SD card into the Micro-SD slot while the server is powered.	
	USB 3.0	6 (4 front, 2 rear)
	USB 2.0	4 (2 rear, 1 internal standard USB, 1 internal USB header)

Operating Systems and Virtualization Software Support for ProLiant Servers	**Microsoft Windows Server** **Red Hat Enterprise Linux (RHEL)** **SUSE Linux Enterprise Server (SLES)** **VMware** **ClearOS** **NOTE:** ClearOS allows you to build a fully functional server that is just right for you at no upfront cost. It is available via CTO preload, Intelligent Provisioning or via download. For more information on ClearOS, please visit **http://www.hpe.com/servers/clearos**.

Standard Features

NOTE: VMWare availability is dependent on General availability from the vendor. HPE ProLiant ML30 supports VMWare 5.5 U3 and 6.0 U1.

NOTE: For more information on HPE's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: **http://www.hpe.com/info/ossupport** and our **driver download page**.

Upgradeability	• Upgradeable to 4 cores
	  NOTE: Total 2 or 4 cores.
	• Up to 4 DIMM slots available for higher memory capacity
	• Up to 8 SFF Hard Drive Bays; or 4 LFF Hard Drive Bays
	• All PCIe 3.0 I/O slots for additional communications and storage expansion
	• Redundant Power Supply
	• Optical Drive Bay
	  NOTE: Up to 2.

Industry Standard Compliance	• ACPI 2.0b Compliant • PCIe 3.0 Compliant • PXE Support • WOL Support • Microsoft® Logo certifications • USB 2.0 /3.0 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) HPE NVIDIA Quadro M2000 GPU Module
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 Gen9 platform defaults to UEFI and can be factory or field configured for Legacy BIOS Boot Mode. **NOTE:** The UEFI System Utilities function is analogous to the HPE ROM-Based Setup Utility (RBSU) of legacy BIOS. For more information, please visit **http://www.hpe.com/servers/uefi**. UEFI enables numerous new capabilities specific to HPE ProLiant servers such as: • Secure Boot • Operating system specific functionality • Support for > 2.2 TB (using GPT) boot drives • USB 3.0 Stack • Embedded UEFI Shell • Mass Configuration Deployment Tool using RESTful API for iLO 4 • PXE boot support for IPv6 networks • Boot support for option cards that only support a UEFI option ROM • Network Stack configurations **NOTE:** For UEFI Boot Mode, boot environment and OS image installations should be configured properly to support UEFI. **NOTE:** UEFI FIO Setting (758959-B22) can be selected to configure the system in Legacy mode in the factory for your HPE ProLiant Gen9 Server.

Standard Features

Form Factor One of the following depending on model	Micro ATX Tower (4U) chassis with feet/bezel: 14.5" (36.82cm) Height x 6.89" (17.5cm) Width x 18.71" (47.52cm) Length
	8 SFF Drive Bay Cage: 4.6" (11.74cm) Height x 5.74" (14.57cm) Width x 4.79" (12.15cm) Length
	4 LFF Drive Bay Cage: 4.6" (11.72cm) Height x 5.74" (14.57cm) Width x 6.90" (17.54cm) Length

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**.
	RESTful API	RESTful API for iLO 4 is Redfish 1.0 conformance for simplified server management such as configuration and maintenance tasks based on modern industry standards. Learn more at **http://www.hpe.com/info/restfulapi**.
	Intelligent Provisioning	Hassle free server and OS provisioning for 1 or few servers with Intelligent Provisioning. Learn more at **http://www.hpe.com/servers/intelligentprovisioning**.

Server utilities	**Smart Update**	Optimize firmware and driver updates with Smart Update solutions including Smart Update Manager (SUM) and Service Pack for ProLiant (SPP). Learn more at **http://www.hpe.com/servers/smartupdatemanager**.
	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-HPE servers. HPE SIM also integrates with Smart Update Manager to provide quick and seamless firmware updates. Learn more at **http://www.hpe.com/servers/hpsim**.
	Scripting Tool Kit and Windows PowerShell	Provision 1 to many servers using your own scripts to discover and deploy them with Scripting Tool Kit (STK) for Windows and Linux or Scripting Tools for Windows PowerShell. Learn more at or **http://www.hpe.com/servers/powershell**.
	RESTful Interface Tool	RESTful Interface tool is a scripting tool to provision using RESTful API for iLO 4 to discover and deploy servers at scale. Learn more at **http://www.hpe.com/info/resttool**.
	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.hpe.com/info/ilo/mobileapp**.

Standard Features

Security	• Power-on password
	• Setup password
	• Power switch security
	• Administrator's password
	• TPM 1.2
	• TPM 2.0
	• UEFI

Warranty

This product is covered by a global limited warranty and supported by HPE Services and a worldwide network of HPE Authorized Channel Partners resellers. 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; refer to the specific hard drive QuickSpecs for details.

NOTE: Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite 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://h17007.www1.hpe.com/us/en/enterprise/servers/warranty/.

Optional Features

Embedded Management	**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. Learn more about HPE iLO Advanced at **http://www.hpe.com/servers/iloadvanced**.
HPC Interconnects		**NOTE:** High Performance Computing (HPC) interconnect technologies are available for this server under the HPE Cluster Platform product portfolio. These high-speed interconnects are fully supported by Hewlett Packard Enterprise when they are part of these configure to order clusters. Solutions can be defined with a lot of flexibility with the help of configuration tools. Please visit the following URL to configure HPEC Clusters with InfiniBand Interconnects: **https://www.hpe.com/info/hpc/solutions**.
ClearOS		HPE and ClearCenter will help you lower the cost of building on-premise solutions without sacrificing security and ease of use. HPE ProLiant servers with ClearOS give you a simple, secure, and affordable operating system with an intuitive web based graphical user interface that provides a cloud-like experience on- premise, and an Application Marketplace with over 100 apps and growing. Whether you're starting out or scaling, you decide what applications you need and pay as you grow.
One Config Simple (SCE)		SCE is a guided self-service tool to help sales and non-technical people provide customers with initial configurations in 3 to 5 minutes. You may then send the configuration on for configuration help, or use in your existing ordering processes. If you require "custom" rack configuration or configuration for products not available in SCE, please contact Hewlett Packard Enterprise Customer Business Center or an Authorized Partner for assistance. **http://ocs.ext.hpe.com/**.

Storage Software

Whether you need to solve a specific data protection, archiving, or storage command and control challenge, or deliver on strategic consolidation, compliance, or continuity initiatives, look no further than Hewlett Packard Enterprise storage software. Our storage software helps you reduce costs, simplify storage infrastructure, protect vital assets and respond faster to business opportunities.
Storage software that gets the job done:

- **Data Protection and Recovery Software**
  Whether you're a large enterprise or a smaller business, Hewlett Packard Enterprise data protection and recovery software will cost-effectively protect you against disaster and ensure business continuity.
- **Data Archive and Migration Software**
  Hewlett Packard Enterprise storage software enables you to comply with data retention and retrieval requirements, improve application performance, and reduce costs by efficiently migrating infrequently accessed or less valuable data to lower cost storage.
- **Storage Resource Management Software (SRM**
  Hewlett Packard Enterprise storage resource management software reduces operational costs and provides the command and control foundation you need to efficiently manage and visualize your physical and virtual environments.
- **Data Replication Software**
  Hewlett Packard Enterprise offers array-based and host-based replication software for use in disaster recovery, testing, application development and reporting.
- **Storage Device Management Software**
  Maximize your investment in Hewlett Packard Enterprise storage and networking with software that enables hardware-specific configuration, performance tuning and connectivity management.

Optional Features

- **HPE StoreVirtual VSA**

  With HPE StoreVirtual VSA you can use the power of virtualization to create a virtual array within your host server. Manage it as a single pool of shared storage capacity, and scale it to match your evolving needs. HPE ProLiant Gen9 servers include a 3-year limited license for HPE StoreVirtual VSA software with 1TB of capacity at no extra cost. Simply select to install HPE StoreVirtual VSA software during server setup within Intelligent Provisioning. More information, instructional videos, and free console management software are available at **http://www.hpe.com/info/vsa1TB**.

  NOTE: For more information about Storage Software including QuickSpecs, please see: **https://www.hpe.com/us/en/storage/software-defined.html**.

Service and Support

HPE Support Services	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. HPE Support Services enable you to choose the right service level, length of coverage and response time as you purchase your new server, giving you full entitlement to the support for need for your IT and business.
Connect your devices	Unlock all of the benefits of your technology investment by connecting your products to Hewlett Packard Enterprise. Achieve up to 77%[1] reduction in down time, near 100%[2] diagnostic accuracy and a single consolidated view of your environment. By connecting, you will receive 24x7monitoring, pre-failure alerts, automatic call logging, and automatic parts dispatch. HPE Proactive Care Service and HPE Datacenter Care Service customers will also benefit from proactive activities to help prevent issues and increase optimization. All of these benefits are already available to you with your server storage and networking products, securely connected to Hewlett Packard Enterprise support. **NOTE:**[1]- IDC **NOTE:** [2] – HP CSC reports 2014 - 2015
Recommended Support	**Basic: HPE Foundation Care NBD, three-year Support Service** HPE Foundation Care Next Business Day connects you to Hewlett Packard Enterprise 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 Hewlett Packard Enterprise 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** **Standard: HPE Foundation Care 24x7, three-year Support Service** HPE Foundation Care 24x7 gives you access to Hewlett Packard Enterprise 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 Hewlett Packard Enterprise 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** **Optimized: HPE Proactive Care* with 24x7 coverage, three year Support Service** HPE Proactive Care gives customers an enhanced call experience. When your products are connected to Hewlett Packard Enterprise, 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.
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.

Service and Support

Related Services	**HPE Server Hardware Installation**

HPE 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

HPE Installation and Startup Service
Provides for the installation and startup of Hewlett Packard Enterprise technology including BladeSystems, C-Class enclosure, HPE ProLiant c-Class and Integrity server blades, storage blades, SAN switch blades, HPE Virtual Connect modules (Ethernet and Fibre Channel), Ethernet network interconnects, and InfiniBand, as well as the installation of one supported operating system type (Windows® or Linux).

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 on 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 Hewlett Packard Enterprise 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 Hewlett Packard Enterprise Support Center Mobile App* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime.

HPE Insight Remote Support and HPE Support Center are available at no additional cost with a Hewlett Packard Enterprise warranty, HPE Support Service or Hewlett Packard Enterprise contractual support agreement.

HPE Support Center Mobile App is subject to local availability.
For more information: **http://www.hpe.com/services**

Pre-configured Models

	Entry Models	Performance Models		Solution Models
[SKU Number]	P03704-XXX	P03705-XXX	P03706-XXX	P03707-XXX
Model Name	HPE ProLiant ML30 Gen9 E3-1220v6 1P 8GB-U B140i 4LFF NHP SATA 350W PS Entry Server	HPE ProLiant ML30 Gen9 E3-1220v6 1P 8GB-U B140i 4LFF HP SATA 350W PS Perf Server	HPE ProLiant ML30 Gen9 E3-1230v6 1P 8GB-U B140i 4LFF HP SATA 460W RPS Perf Server	HPE ProLiant ML30 Gen9 E3-1240v6 1P 8GB-U B140i 8SFF SATA 460W RPS Perf Server
Processor	Intel® Xeon® E3-1220v6	Intel® Xeon® E3-1220v6	Intel® Xeon® E3-1230v6	Intel® Xeon® E3-1240v6
Number of Processors	One			
Memory	8GB (1x8GB UDIMMs, 2400 MHz)	8GB (1x8GB UDIMMs, 2400 MHz)	8GB (1x8GB UDIMMs, 2400 MHz)	16GB (1x16GB UDIMMs, 2400 MHz)
Network Controller	Broadcom 5720 Dual-port 1GbE			
Storage Controller	HPE Dynamic Smart Array B140i with 4 SATA ports support	HPE Dynamic Smart Array B140i with 4 SATA ports support **NOTE:** Field upgradeable to SAS support by selecting an HPE SAS Controller or Smart HBA.		HPE Dynamic Smart Array B140i with 4 SATA ports support **NOTE:** Field upgradeable to SAS/8 ports support by selecting an HPE SAS Controller or Smart HBA.
Network Controller	Broadcom 5720 Dual-port 1GbE			
Storage Controller	HPE Dynamic Smart Array B140i			
Hard Drive	None ship standard; includes 3 LFF hard drive blanks			None ship standard; includes 7SFF hard drive blanks
Internal Storage	4 LFF HDD Bays (Non Hot Plug)	4 LFF HDD Bays (Hot Plug)		8SFF HDD Bays (Hot Plug)
Optical Drive Bay	1 (Optional: DVD-ROM, DVD-RW)	1 (Optional: DVD-ROM, DVD-RW)		1 (Optional: DVD-ROM, DVD-RW)
Optical Drive	None	1 DVD RW		None
PCI-Express Slots	4 PCIe 3.0 slots			
Power Supply	(1) 350W ATX Power Supply		(1) 460W Redundant Power Supply	
Fans	1 non hot plug, non-redundant			
Management	iLO Management (standard), Intelligent Provisioning (standard), iLO Essentials (optional), iLO Scale-out (optional only for DL), iLO Advanced (optional)			
Form Factor	Tower (4U)			
Warranty	Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.			

NOTE: APJ Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.

Country Code Key	xx1 = B21	Worldwide
	xx1 = S01	US
	xx1 = S05	BZ
	xx1 = 425	EU/UK
	xx1 = 375	AP
	xx1 = 291	Japan

NOTE: Not all models are available in all regions. Check with your local country Hewlett Packard Enterprise offices for availability.

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 an HPE approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.

1. Factory Integrated Models must start with a CTO Server.
2. FIO indicates that this option is only available as a factory installable option.
3. All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server.
4. Some options may not be integrated at the factory. Contact your local sales representative for additional information.

Step 1: Base Configuration (choose one of the following configurable models)

[Chassis]	HPE ProLiant ML30 Gen9 Non-hot Plug 4LFF Configure-to-order Server	HPE ProLiant ML30 Gen9 Hot Plug 4LFF Configure-to-order Server	HPE ProLiant ML30 Gen9 Hot Plug 8SFF Configure-to-order Server
SKU Number	823401-B21	823402-B21	823403-B21
Processor	1	1	1
DIMM Slots	4 DIMM slots for UDIMM DDR4 Memory		
Storage Controller	HPE Dynamic Smart Array B140i with 4 SATA ports support	HPE Dynamic Smart Array B140i with 4 SATA ports support, choice of HPE SAS Controller or Smart HBA	
PCIe	4 PCIe 3.0 slots		
Drive Cage	4LFF Non Hot Plug	4LFF Hot Plug	8SFF Hot Plug
Network Controller	Broadcom 5720 Dual-port 1GbE		
Fans	1 non hot plug, non-redundant		
Management	iLO Management (standard), Intelligent Provisioning (standard)		
USB	4 front, 4 rear, 2 internal		

Step 2: Choose Required Options (only one of the following from each list unless otherwise noted)

HPE Processors   Select one processor from Core Options-Processor section below.
- Select one xxxxxx-L21.
- Only one processor 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 Intel® C236 Chipset E3-1200 Series, the letter preceding the model number indicates the Product Line (E3, E5, E7); 1200x v#, 1 is the number of CPU, 2 is socket type/segment designation, 00 = Processor SKU, x = L for low power SKUs and v# (not yet designated) is the version number

HPE Memory   Select one or more types of memory from Core Options-Memory section below.
- HPE memory from previous generation servers is not qualified or warranted with this HPE ProLiant Server.
- HPE Standard Memory (UDIMM) is required to realize the memory performance improvements and enhanced functionality listed in this document for this HPE ProLiant Server.
- With one processor installed, four DIMMs slots are available.
- Depending on the memory configuration and processor model, the memory speed would run at 2133MHz. Please see Memory Population Table or the Online Memory Configuration Tool at: **http://www.hpe.com/servers/ddr4memoryconfig**.

Configuration Information.

HPE Power Supplies   Select one or more power supplies from Core Options-Power Supplies section below.

- Prior to selecting a power supply option, it is highly recommended that you review your server configuration in the HPE Power Advisor tool to determine the right size power supply for your server configuration. The HPE Power Advisor is located at: **http://www.hpe.com/info/hppoweradvisor**.
- Mixing of power supplies in the same server is not supported. All power supplies must be of the same input voltage, output rating, and efficiency rating. If non-matching power supplies are installed, you may receive an error message and/or experience operational issues with your server.

Step 3: Choose Additional Factory Integratable Options

HPE Unique Options   Select one or more Unique options from Core Options section below.
- This section may contain FIO options, please see the Unique options section below.
- FIO indicates that this option is only available as a factory installable option.

HPE Drives   Select one or more drives from Core Options-HPE Drives section below.
- 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.
- Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.
- The HPE ProLiant Gen9 Smart Storage solutions are equipped with re-designed Small Form Factor (SFF 2.5 in) and Large Form Factor (LFF 3.5 in) hot plug carriers for HPE Qualified Hard Drives and Solid State Drives. These new carriers provide status and activity indicators as well as caution indicators for "Do Not Remove."

HPE Graphics Options   Select one or more graphics adapter from Additional Options section below.
- Please see the HPE Power Advisor for estimated power consumption of your individual system configuration prior to installing GPUs. The HPE Power Advisor is located at: **http://www.hpe.com/info/hppoweradvisor**.
- This section may contain FIO options, please see HPE Computation & Graphics Accelerators section below.

HPE Networking   Select a standup NIC adapter from Core Options-Networking section below.
- These options are upgradeable and can be changed from the original configuration after the server is shipped.
- For 10Gb adapters, a minimum of two Gigabytes (2 GB) of server memory is required per each adapter.

HPE Cooling Options   Select one or more Fan Kits from Core Options section below.
- This section may contain FIO options, please see HPE Cooling Options section below.
- FIO indicates that this option is only available as a factory installable option.

HPE Storage Controllers   Select one or more Storage options from Additional Options section below.
- The embedded B140i controller will operate in UEFI only mode. For legacy support an additional controller will be needed, and for CTO orders please also select the Legacy mode settings part, 758959-B22.
- This section may contain FIO options, please see HPE Storage Controllers section below.
- FIO indicates that this option is only available as a factory installable option.

Core Options

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

HPE Unique Options	HPE Legacy FIO Mode Setting	758959-B22
	NOTE: UEFI is the default, this FIO part can be used for CTO to enable Legacy mode.	
	HPE ML30 Gen9 Tape Drive Cable Kit	851615-B21
	NOTE: Max=2 1pc required per LTO int tape drive or per RDX USB int disk backup sys if selected together with 350W ES1.0 or ES2.0 power supply. 1pc required when 2pcs of Optical Drives were selected together with 350W ES1.0 or ES2.0 power supply. This cable is not required when only 1pc of Optical drive is selected.	

HPE Memory	**Unbuffered DIMMs (UDIMMs)**	
	HPE 8GB (1x8GB) Single Rank x8 DDR4-2400 CAS-17-17-17 Unbuffered Standard Memory Kit	862974-B21
	HPE 8GB (1x8GB) Single Rank x8 DDR4-2133 CAS-15-15-15 Unbuffered Standard Memory Kit	819880-B21
	HPE 16GB (1x16GB) Dual Rank x8 DDR4-2400 CAS-17-17-17 Unbuffered Standard Memory Kit	862976-B21
	HPE 16GB (1x16GB) Dual Rank x8 DDR4-2133 CAS-15-15-15 Unbuffered Standard Memory Kit	805671-B21
	NOTE: The following memory is supported by the E3-1200v6 series, i3-7000 series, G4560 and G4600 processors only.	

HPE Optical Drives		
	HPE 9.5mm SATA DVD-ROM Optical Drive	726536-B21
	HPE 9.5mm SATA DVD-RW Optical Drive	726537-B21

HPE 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. **NOTE:** Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.	
	SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives	
	HPE 2.4TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD	881457-B21
	HPE 1.8TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD	872481-B21
	HPE 1.2TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	872479-B21

Core Options

HPE 900GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	870759-B21
HPE 600GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	872477-B21
HPE 300GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	870753-B21
HPE 300GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	872475-B21

NOTE: User may select any combination of SAS or SATA Hard Drives.
SAS drives require the selection of a SAS controller. See card lists in Controllers section.
If B140i is the primary controller, user can only select SATA drives.

SAS Hot Plug SFF (2.5-inch) Midline (MDL) Drives

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

NOTE: User may select any combination of SAS or SATA Hard Drives. SAS drives require the selection of a SAS controller. See card lists in Controllers section. If B140i is the primary controller, user can only select SATA drives.

SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives

HPE 10TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Helium 512e Digitally Signed Firmware HDD	857644-B21
HPE 8TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD	819201-B21
HPE 6TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e HDD	861754-B21
HPE 6TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD	846514-B21
HPE 4TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD	872487-B21
HPE 2TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD	872485-B21
HPE 1TB SAS 12G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD	846524-B21

NOTE: User may select any combination of SAS or SATA Hard Drives. SAS drives require the selection of a SAS controller. See card lists in Controllers section. If B140i is the primary controller, user can only select SATA drives.

12G SAS Hot Plug SFF (2.5-inch) Write Intensive Solid State Drives

HPE 400GB SAS 12G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04541-B21

12G SAS Hot Plug SFF (2.5-inch) Mixed Use Solid State Drives

HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P09088-B21
HPE 400GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P04525-B21

SATA Hot Plug SFF (2.5-inch) Midline (MDL) Drives

HPE 2TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD	765455-B21
HPE 1TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty Digitally Signed Firmware HDD	655710-B21

NOTE: User may select any combination of SAS or SATA Hard Drives. SAS drives require the selection of a SAS controller. See card lists in Controllers section. If B140i is the primary controller, user can only select SATA drives.

SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives

HPE 1TB SATA 6G Midline 7.2K LFF (3.5in) RW 1yr Wty HDD	801882-B21
HPE 4TB SATA 6G Midline 7.2K LFF (3.5in) RW 1yr Wty HDD	801888-B21

Core Options

SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives

HPE 12TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Helium 512e Digitally Signed Firmware HDD	881785-B21
HPE 10TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Helium 512e Digitally Signed Firmware HDD	857648-B21
HPE 8TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e Digitally Signed Firmware HDD	819203-B21
HPE 6TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty 512e HDD	861750-B21
HPE 4TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD	872491-B21
HPE 2TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty Digitally Signed Firmware HDD	872489-B21
HPE 1TB SATA 6G Midline 7.2K LFF (3.5in) SC 1yr Wty HDD	861691-B21

6G SATA Hot Plug SFF (2.5-inch) Read Intensive Solid State Drives

HPE 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P06200-B21
HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P06198-B21
HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P06196-B21
HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P06194-B21
HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	875503-B21

Read Intensive - 6G SATA - M.2 - Solid State Drives

HPE 480GB SATA 6G Read Intensive M.2 2280 3yr Wty Digitally Signed Firmware SSD	875498-B21

6G SATA Hot Plug SFF (2.5-inch) Mixed Use Solid State Drives

HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P09722-B21
HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P09716-B21
HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	P09712-B21

6G SATA Hot Plug LFF (3.5-inch) Read Intensive Solid State Drives

HPE 1.92TB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	P09693-B21
HPE 960GB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	P09689-B21
HPE 480GB SATA 6G Read Intensive LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	P09687-B21

6G SATA Hot Plug LFF (3.5-inch) Mixed Use Solid State Drives

HPE 1.92TB SATA 6G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware SSD	P09724-B21

Mixed Use - 6G SATA - M.2 - Solid State Drives

HPE 480GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	875490-B21
HPE 240GB SATA 6G Mixed Use M.2 2280 3yr Wty Digitally Signed Firmware SSD	875488-B21

Hard Drive Kits

HPE Large Form Factor Hard Drive Blank Kit	666986-B21
HPE Small Form Factor Hard Drive Blank Kit	666987-B21
HPE ML10v2 Drive Enablement Kit	812248-B21

NOTE: Compatible with all chassis and supports NHP LFF Hard Disk. If ATX PSU is installed, system support up to 2x. If RPS is installed, system support up to 1x.

Core Options

	M.2 SSD	
	HPE Universal SATA HHHL 3yr Wty M.2 Kit	878783-B21

HPE Networking	**1 Gigabit Ethernet adapters**	
	HPE Ethernet 1Gb 4-port 331T Adapter	647594-B21
	HPE Ethernet 1Gb 4-port 366T Adapter	811546-B21
	HPE Ethernet 1Gb 2-port 332T Adapter	615732-B21
	HPE Ethernet 1Gb 2-port 361T Adapter	652497-B21
	10 Gigabit Ethernet adapters	
	HPE Ethernet 10Gb 2-port 530SFP Adapter	652503-B21
	HPE Ethernet 10Gb 2-port 530T Adapter	656596-B21
	HPE Ethernet 10Gb 2-port 560SFP+ Adapter	665249-B21
	HPE Ethernet 10Gb 2-port 561T Adapter	716591-B21

NOTE: Max=1 if selected with another x8 device.

HPE Computation and Graphics Accelerators		
	HPE NVIDIA Quadro P2000 Graphics Accelerator	Q0V77A
	HPE AMD Radeon Pro WX2100 Graphics Accelerator	Q1P47C

Additional Options

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

Embedded Management	**HPE iLO Advanced**	
	HPE iLO Advanced 1-server License with 1yr Support on iLO Licensed Features	512485-B21
	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 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 Essentials	

HPE Security		
	HPE Trusted Platform Module 2.0 Kit	745823-B21
	NOTE: HPE Trusted Platform Module 2.0 Option works with Gen9 servers with UEFI Mode not Legacy Mode. It is not compatible with HPE ProLiant Gen8 servers or earlier generation variants.	
	NOTE: HPE Gen9 servers purchased earlier may need the latest firmware update to be compatible with the TPM 2.0 Option.	
	NOTE: HPE server systems can have a TPM module (of any type) installed only once. It cannot be replaced with any other TPM module.	

	HPE Smart Host Bus Adapters	
	HPE H241 12Gb 2-ports Ext Smart Host Bus Adapter	726911-B21
	NOTE: Max=1.	
	HPE H240 12Gb 2-ports Int Smart Host Bus Adapter	726907-B21
	NOTE: Device Count - This controller can support up to 8 internal SAS/SATA devices.	
	NOTE: Must select Mini SAS H240 Cable Kit (789648-B21) x1 for 4LFF model.	
	NOTE: Must select Mini SAS H240 Cable Kit (789648-B21) x2 for 8SFF model.	

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 HPE tape backup products see: **http://www.hpe.com/storage/spock**.	
	NOTE: Must select SAS controller to support internal SAS tape drives.	
	NOTE: Tape drive and HDD total amount can't exceed SAS controller support qty.	
	NOTE: Limited to H240 when select Tape Drive.	
	Tape Drives	
	HPE LTO-7 Ultrium 15000 Internal Tape Drive	BB873A
	HPE StoreEver LTO-7 Ultrium 15000 External Tape Drive	BB874A
	HPE StoreEver MSL LTO-7 Ultrium 15000 SAS Drive Upgrade Kit	N7P37A
	HPE StoreEver LTO-6 Ultrium 6250 External Tape Drive	EH970A
	HPE LTO-6 Ultrium 6250 Internal Tape Drive	EH969A
	HPE StoreEver MSL LTO-6 Ultrium 6250 SAS Drive Upgrade Kit	C0H27A
	HPE StoreEver LTO-5 Ultrium 3000 SAS External Tape Drive	EH958B

Additional Options

HPE StoreEver MSL LTO-5 Ultrium 3000 SAS Drive Upgrade Kit	BL540B
HPE StoreEver LTO-5 Ultrium 3000 SAS Internal Tape Drive	EH957B
HPE StoreEver Mini-SAS High Density to 4-lane Mini-SAS External Fanout 2m Cable	K2R09A
HPE StoreEver Mini-SAS High Density to 4-lane Mini-SAS External Fanout 4m Cable	K2R10A
HPE ML30 Gen9 Tape Drive Cable Kit	851615-B21

NOTE: Required per RDX/LTO internal disk backup system if selected together with 350W ES1.0 or ES2.0 power supply.

NOTE: HPE ML30 Gen9 server requires HPE ML30 Gen9 Tape Drive Cable Kit (851615-B21) for internal tape drive support.

HPE DAT Autoloader

HPE MSL2024 Tape Library

HPE StoreEver MSL2024 0-drive Tape Library	AK379A

HPE MSL4048 Tape Library

HPE Disk Backup	**HPE RDX Removable Disk Backup System**	
	HPE RDX 1TB Internal Disk Backup System	B7B67A
	HPE RDX 1TB External Disk Backup System	B7B69B
	HPE RDX Internal Docking Station	C8S06A
	HPE RDX External Docking Station	C8S07B
	HPE RDX 2TB Internal Disk Backup System	E7X52A
	HPE RDX 2TB External Disk Backup System	E7X53B
	HPE RDX 4TB Internal Disk Backup System	Q2R32A
	HPE RDX 4TB External Disk Backup System	Q2R33A

NOTE: HPE ML30 Gen9 server requires HPE ML30 Gen9 Tape Drive Cable Kit (851615-B21) for internal tape drive support.

NOTE: For the complete range of RDX drives and media see: **https://www.hpe.com/us/en/product-catalog/storage/disk-based-backup-systems.html**. For hardware and software compatibility of HPE disk backup products see: **http://www.hpe.com/storage/spock**.

NOTE: Please see the **HPE RDX Removable Disk Backup System QuickSpecs** for additional part numbers, technical specifications, and additional information.

HPE Uninterruptible Power Systems (UPS)	**NOTE:** To learn more, please visit the **HPE Uninterruptible Power Systems (UPS) web page**.

HPE USB and SD Options	**HPE Enterprise Mainstream Flash Media Kits for Memory Cards**	
	HPE 32GB microSD Flash Memory Card	700139-B21
	HPE 8GB microSD Flash Memory Card	726116-B21
	HPE 8GB microSD Flash USB Drive	737953-B21
	HPE 8GB Dual microSD Flash USB Drive	741279-B21

HPE Support Services	**Installation & Start-up Services**	
	HPE Installation ML/DL Series 10 Service	U7WZ5E
	HPE Startup ML/DL Series 10 Service	U7WZ7E

Additional Options

Foundation Care

HPE 3 year Foundation Care Next business day ML30 Gen9 Service	H1AS0E
HPE 3 year Foundation Care Next business day with DMR ML30 Gen9 Service	H1AS1E
HPE 3 year Foundation Care 24x7 ML30 Gen9 Service	H1AS6E
HPE 3 year Foundation Care 24x7 with DMR ML30 Gen9 Service	H1AS7E
HPE 3 year Foundation Care Next business day with CDMR ML30 Gen9 Service	H1AX4E
HPE 3 year Foundation Care 24x7 with CDMR ML30 Gen9 Service	H1AX7E

Proactive Care

HPE 3 year Proactive Care 24x7 ML30 Gen9 Service	H1AS8E
HPE 3 year Proactive Care 24x7 with DMR ML30 Gen9 Service	H1AS9E
HPE 3 year Proactive Care 24x7 with CDMR ML30 Gen9 Service	H1AX8E

NOTE: For a full list of packaged support services, please visit **http://www.hpe.com/services/ssc**.
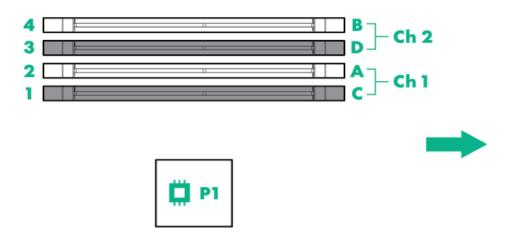
Memory

HPE Standard Memory
HPE Standard Memory is unique technology which is designed to work on 10/100 series Rack and Tower server. In Gen9 Server HPE Standard Memory has passed HPE's rigorous qualification and test processes. HPE Standard Memory is a certified HPE options and will provide a platform to allow future memory-related support enhancements through HPE Active Health System, System Insight Management and Insight Control management software.

DDR4 memory population guidelines
For detailed memory configuration rules and guidelines, please use the Online DDR4 Memory Configuration Tool: **http://www.hpe.com/servers/ddr4memoryconfig**.

Memory Population guidelines

General Memory Population Rules and Guidelines:

- The HPE ProLiant ML30 Gen9 Server has four memory slots
- There are two channels per server with two DIMM slots per channel
- Memory channel 1 consists of the two (2) DIMMs that are closest to the processor
- Memory channel 2 consists of the two (2) DIMMs that are furthest from the processor
- Support for single/dual-rank 2133 MT/s ECC UDIMM (unbuffered DIMMS)
- The server supports up to 64 GB (4 x 16-GB) for Unbuffered DIMMs
- No support for LRDIMMs; RDIMMs; Non-ECC UDIMMs
- Do not install DIMMs if the processor is not installed
- Populate DIMMs from heaviest load (double-rank) to lightest load (single-rank)
- Non-ECC DIMMs are not supported
- Always use HPE qualified DIMMs

Memory

Intel Gen9 Supported Memory Bandwidth for HPE ProLiant Gen9 Intel® Xeon® E3-1200v5 Series Processor Family

Memory Bandwidth and Capacity				
[DIMM Type]	**Unbuffered with ECC DIMMs (UDIMMs)**			
HPE SKU P/N	819880-B21	805671-B21	862974-B21	862976-B21
DIMM Rank	Single Rank	Dual Rank	Single Rank	Dual Rank
DIMM Capacity	8GB	16GB	8GB	16GB
Voltage	Std Voltage 1.2V	Std Voltage 1.2V	Std Voltage 1.2V	Std Voltage 1.2V
DIMM Native Speed (MT/s)	2133	2133	2400	2400
SLOTS THAT CAN BE POPULATED				
4 slot servers	4	4	4	4
MAXIMUM CAPACITY (GB)				
	32	64	32	64
POPULATED DIMM SPEED (MT/s)				
1 DIMM Per Channel	2133	2133	2400	2400
2 DIMM Per Channel	2133	2133	2400	2400

DIMM slot and configuration diagram

Standard memory replaced with optional memory (1 CPU model)

- Population order; start with "A" first, "B" second, "C" third, etc.
- Population order; start with "A" first, "B" second, "C" third, etc.
- When two processors are installed, install DIMMs in sequential alphabetic order: CPU1-A, CPU2-A,CPU1-B,CPU2-B,CPU1-C, CP2-C

CPU 1		
	Slot #	Population order
Chnl 1	1	C
	2	A

CPU 1		
	Slot #	Population order
Chnl 2	3	D
	4	B

Memory Speed by Processor Model

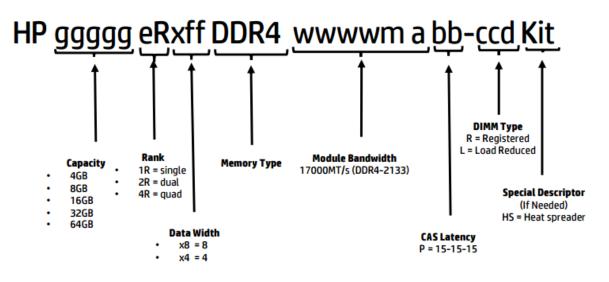| Processor Models	Supported Memory Speeds
E3-1220v5, E3-1230v5, E3-1240Lv5, E3-1240v5, E3-1270v5, i3-6300, i3-6100, G4400, G4500	2133MT/s
E3-1220v6, E3-1230v6, E3-1240v6, E3-1270v6, E3-1278v6, i3-7300, i3-7100, G4560, G4600	2400MT/s

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Standard and Maximum Memory Capacity (Pre-configured Models)

Pre-Configured Models	Standard Memory	Maximum Memory Plus Optional Memory	Standard Memory Replaced with Optional Memory
E3-1240v5	8GB (1x8GB)	56GB (3x16GB, 1x8GB)	64GB (4x16GB)
E3-1220v5	4GB (1x4GB)	52GB (3x16GB, 1x4GB)	64GB (4x16GB)
E3-1240v6	8GB (1x8GB)	56GB (3x16GB, 1x8GB)	64GB (4x16GB)
E3-1220v6	8GB (1x8GB)	56GB (3x16GB, 1x8GB)	64GB (4x16GB)

Memory

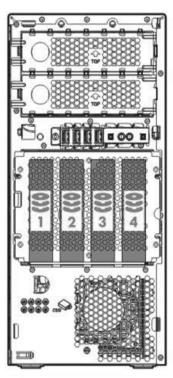**DDR4 memory options part number decoder**

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

- 2GB = 2,048MB
- 4GB = 4,096MB
- 8GB = 8,192MB
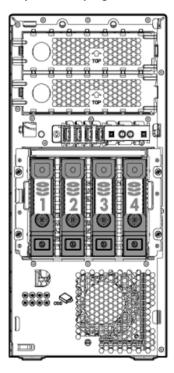- 16GB = 16,384MB
- 32GB = 32,768MB
- 64GB = 65,536MB

HP ggggg eRxff DDR4 wwwwm a bb-ccd Kit

Capacity
- 4GB
- 8GB
- 16GB
- 32GB
- 64GB

Rank
- 1R = single
- 2R = dual
- 4R = quad

Data Width
- x8 = 8
- x4 = 4

Memory Type

Module Bandwidth
17000MT/s (DDR4-2133)

CAS Latency
P = 15-15-15

DIMM Type
R = Registered
L = Load Reduced

Special Descriptor
(If Needed)
HS = Heat spreader

Storage

4-Bay LFF non-hot-plug drive model

1-4   4 x LFF SATA/SSD Non-hot-plug Hard Drive Bays

4-bay LFF hot-plug drive model

1-4   4 x LFF SAS/SSD Hot Pluggable Hard Drive Bays

Storage

8-bay SFF hot-plug drive model

1-8   8 x SFF SATA/SSD Hot Pluggable Hard Drive Bays

Maximum Storage Capacity

Total (4 LFF Drive)   32TB
Total (8 SFF Drive)   16TB

Technical Specifications

System Unit	Tower Dimensions (H x W x D)		14.50 x 6.89 x 18.7 in (36.82 x 17.5 x 47.52 cm)
	Tower Weight	Minimum:	27.1lb(13.56kg)
		Maximum:	30.8lb(15.4kg)
	Input Requirements	Range Line Voltage	100 to 120 VAC
		Rated Input Current Rated Input Frequency	2.5 to 6 Amps
		Range Line Voltage	47 to 63 Hz
		Rated Input Current	412W to 526W at 115 V AC input
			412W to 523W at 230 V AC input
	BTU Rating	Maximum	460W - 1773 BTU / hr (at 120 VAC), 1715 (at 240 VAC)
	Power Supply Output	Rated Steady-State Power	350 W (at 115 VAC)
			350 W (at 230 VAC)
		Maximum Peak Power	350 W (at 115 VAC)
			350 W (at 230 VAC)
	System Inlet Temperature	Standard Operating Support	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 304.8 m (1.8°F per every 1000 ft) above sea level to a maximum of 3048 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/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 30°C (86°F).
		Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
	Relative Humidity	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature.
		Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, noncondensing.
	Altitude	Operating	3048 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).
		Non-operating	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 ISO 9296 (ECMA 109).
		Idle	
		LWAd	4.2 Bels (1P LFF Base)
			3.7 Bels (1P LFF Performance)
		LpAm	27 dBA (1P LFF Base)
			23 dBA (1P LFF Performance)

Technical Specifications

Operating

LWAd	4.2 Bels (1P LFF Base)
	3.8 Bels (1P LFF Performance)
LpAm	27 dBA (1P LFF Base)
	23 dBA (1P LFF Performance)

NOTE: Configurations tested for 1P LFF Base models include one (1) 1TB LFF SATA Midline HDD and Windows 2012 Enterprise 64-bit.
NOTE: Configurations tested for 1P LFF Performance models include one (1) 1TB LFF SATA Midline HDD and Windows 2012 Enterprise 64-bit.
NOTE: The Listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.
NOTE: Levels presented do not account for non-Hewlett Packard Enterprise installed hardware.

Emissions Classification (EMC)	FCC Rating	Class B
	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 Dynamic Smart Array B140i Controller	**Number of PCI links**	Four
	PCI link rate	4Gb/s
	Storage protocol support	SATA
	SAS/SATA peak data transfer rate	6Gb/s
	Number of SAS/SATA links	10 links
	SAS/SATA connectivity	2x4 connectors; 2x1 connectors
	Expander support	No
	Drives supported (max)	Up to 10 Internal Drives
	RAID support	0, 1, 10, 5 SATA
	Software management	HPE SSA, SMH, SIM
	Warranty	Server warranty
	HPE Secure Encryption license	Not Supported
	HPE SmartCache License	Not Supported
	HPE Smart Storage Administrator	Supported

Technical Specifications

HPE Ethernet 1Gb 2-port 332i Adapter	**Network Interface**	10Base-T/100Base-TX/1000Base-TX	
	Compatibility	IEEE 802.3 10Base-T	
		IEEE 802.3ab 1000Base-T	
		IEEE 802.3u 100Base-TX	
	Data Transfer Method	PCI Express, two lanes (x2)	
	Controller	BCM5720	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s per port, 40 Mb/s combined
		10Base-T (Full-Duplex)	20 Mb/s per port, 80 Mb/s combined
		100Base-TX (Half-Duplex)	100 Mb/s per port, 400 Mb/s combined
		100Base-TX (Full-Duplex)	200 Mb/s per port, 800 Mb/s combined
		1000Base-TX (Half-Duplex)	1000Mb/s per port, 4000 Mb/s combined
		1000Base-TX (Full-Duplex)	2000Mb/s per port, 8000 Mb/s combined
	Connector	RJ-45	
	Cable Support	10 Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		10/100/1000 Base-TX	Category 5 or higher UTP; up to 328 ft (100 m)

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.

http://www.hpe.com/recycle

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. 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.
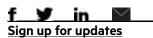
http://www.hpe.com/recycle

Summary of Changes

Date	Version History	Action	Description of Change
02-Dec-2019	Version 29	Changed	Obsolete SKUs were removed from the QuickSpecs. SKU was updated under Core Options section.
03-Dec-2018	Version 28	Changed	Standard Features, SMB Models, Configuration Information and Core Options sections were updated
01-Oct-2018	Version 27	Changed	Models, Core Options and Additional Options sections were updated. SKU descriptions were updated. Obsolete SKUs were removed from the QuickSpecs. Removed MSL Base Modules.
06-Aug-2018	Version 26	Added	Added new Solid State Drives to the HPE Drives section.
		Changed	Core Options and Additional Options were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
04-Jun-2018	Version 25	Added	HPE AMD Radeon Pro WX2100 Graphics Accelerator was added.
02-Apr-2018	Version 24	Changed	SKU descriptions were revised.
05-Mar-2018	Version 23	Changed	Maximum Internal Storage and SMB Models were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
05-Feb-2018	Version 22	Added	Added new SMB Bundle offering.
04-Dec-2017	Version 21	Added	Added new HPE 12TB SATA 6G Midline 7.2K LFF (3.5in) LP 1yr Wty Helium 512e Digitally Signed Firmware HDD.
23-Oct-2017	Version 20	Changed	Care Pack naming and Service and Support- Parts and Materials updated.
25-Sep-2017	Version 19	Added	Added new Solid State Drives to the HPE Drives section. Added new Storage options.
		Changed	Core Options and Additional Options were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
07-Aug-2017	Version 18	Added	Added new Solid State Drives to the HPE Drives section.
11-Jul-2017	Version 17	Changed	HPE Disk Backup section was revised.
15-May-2017	Version 16	Added	Added support for E3-1200v6 processors. New memory options were added. Added new Pre-configured Models.
		Changed	Processors, Memory, and Pre-configured Models were revised.
08-May-2017	Version 15	Added	Added support for ClearOS.
		Changed	Operating Systems and Virtualization Software Support for ProLiant Servers and HPE Drives were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
27-Mar-2017	Version 14	Added	Added new Hard Drives.
13-Feb-2017	Version 13	Added	Added new HDD and SSD offering to the HPE Drives section.
06-Jan-2017	Version 12	Changed	HPE Drives and HPE Tape Backup sections were revised.
09-Dec-2016	Version 11	Changed	Smart Buy models section in the NA version was revised.
28-Nov-2016	Version 10	Added	Added new Hard Drives offering. Added new M2000 GPU option.
		Changed	HPE Unique Options and HPE Computation and Graphics Accelerators were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
28-Oct-2016	Version 9	Removed	Obsolete Hard Drives were removed from the QuickSpecs.
15-Aug-2016	Version 8	Added	Added HPE ML30 Gen9 Tape Drive Cable Kit to the Unique Options section. Added T750, T1000, and T1500 G4 Tower UPS models.
		Changed	HPE Hard Drives section was revised.

Summary of Changes

08-Jul-2016	Version 7	Changed	Smart Buy models section was revised for the NA version only.
06-Jun-2016	Version 6	Added	Added new HDD offering to the HPE Drives section.
08-Apr-2016	Version 5	Changed	HPE Processors section was revised.
31-Mar-2016	Version 4	Added	Added new HPE TMP 2.0 module, and new RDX Disk Backup Systems.
		Changed	Embedded Management, Security, Service and Support, and Pre-configured Models sections were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
16-Feb-2016	Version 3	Added	New HDD offering was added to HPE Drives.
		Changed	HPE Unique Options and HPE Tape Backup were revised.
		Removed	Obsolete SKUs were removed from the QuickSpecs.
17-Dec-2015	Version 2	Added	Smart Buy models were added to the NA version.
		Changed	Chipset, Pre-configured Models, HPE Drives, HPE Power Supplies, HPE Tape Backup, Maximum Storage Capacity, and Technical Specifications were revised.
01-Dec-2015	Version 1	New	New QuickSpecs.

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