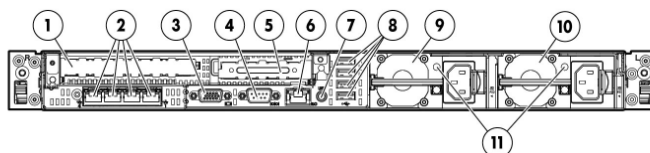
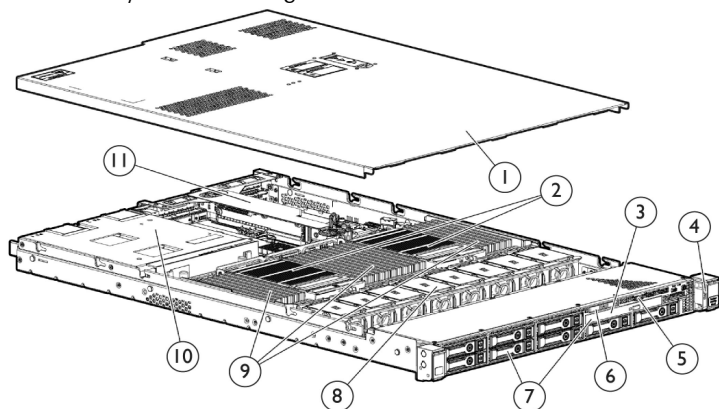


Overview

Performance driven compute with storage density - ideal for enterprise applications. Industry leading performance, efficiency, capacity and reliability. Enterprise enhanced design for all workloads with versatility for future requirements. A space conscious 2-processor server with industry leading feature sets. Built to protect your investment and extend the life with reliability, accessibility and serviceability features designed in.



Front View:

1. Hood Cover
2. Up to two Intel® E5-2600 Series processors
3. Optical Disk Drive Bay
4. Active Health and Network Status LEDs
5. Video connector (requires Front Video Adapter Kit)
6. Slide-out System Insight Display (SID)
7. Hard Drive Bays
8. Removable hot-plug fan modules for easy serviceability
9. 24 DIMM slots: DDR3 Registered (RDIMM), LRDIMM or Unbuffered (UDIMM) memory
10. Redundant Hot Plug Power Supplies (upgradeable option)
11. Removable Riser Cage assembly for 2 x PCIe 3.0 Slots

Rear View:

1. PCIe 3.0 Full-height/half length x16 expansion slot
2. FlexibleLOM ports (Shown: 4 ports 1Gb each /Optional: 2 ports 10Gb each)
3. Video connector
4. Serial connector
5. PCIe 3.0 Low Profile x8 expansion slot
6. iLO Management Engine NIC connector
7. Unit ID LED/button
8. 4 USB connectors
9. Power supply bay 2 (Shown populated: Optional Power Supply for Redundant Power)
10. Power supply bay 1 (Primary Power Supply)
11. Power Supplies Health/Activity Indicators

Standard Features

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

Processor
One of the following
depending on Model

Entry Processors

NOTE: All support up to 1066MHz memory speeds.

Intel® Xeon® E5-2609 (2.40GHz/4-core/10MB/6.4GT-s QPI/80W)

Intel® Xeon® E5-2603 (1.80GHz/4-core/10MB/6.4GT-s QPI/80W)

Base Processors

NOTE: All support up to 1333MHz DDR3 memory speeds.

Intel® Xeon® E5-2640 (2.50GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2-3/3/4/4/5/5)

Intel® Xeon® E5-2630 (2.30GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2-3/3/4/4/5/5)

Intel® Xeon® E5-2620 (2.0GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2-3/3/4/4/5/5)

Intel® Xeon® E5-2630L (2.0GHz/6-core/15MB/8.0GT-s QPI/60W, DDR3-1333, HT, Turbo2-3/3/4/4/5/5)

Performance Processors

NOTE: All support up to 1600MHz DDR3 memory speeds.

Intel® Xeon® E5-2690 (2.90GHz/8-core/20MB/8GT-s QPI/135W, DDR3-1600, HT, Turbo2-4/4/4/5/5/7/7/9)

Intel® Xeon® E5-2680 (2.70GHz/8-core/20MB/8GT-s QPI/130W, DDR3-1600, HT, Turbo2-4/4/5/5/5/7/8/8)

Intel® Xeon® E5-2670 (2.60GHz/8-core/20MB/8GT-s QPI/115W, DDR3-1600, HT, Turbo2-4/4/5/5/6/6/7/7)

Intel® Xeon® E5-2667 (2.90GHz/6-core/15MB/8GT-s QPI/130W, DDR3-1600, HT, Turbo2-3/3/3/4/5/6)

Intel® Xeon® E5-2665 (2.40GHz/8-core/20MB/8GT-s QPI/115W, DDR3-1600, HT, Turbo2-4/4/5/5/6/6/7/7)

Intel® Xeon® E5-2660 (2.20GHz/8-core/20MB/8GT-s QPI/95W, DDR3-1600, HT, Turbo2-5/5/6/6/7/7/8/8)

Intel® Xeon® E5-2650 (2.0GHz/8-core/20MB/8GT-s QPI/95W, DDR3-1600, HT, Turbo2-4/4/5/5/5/7/8/8)

Intel® Xeon® E5-2650L (1.80GHz/8-core/20MB/8.0 GT-s QPI/70W, DDR3-1600, HT, Turbo2-2/2/3/3/4/4/5/5)

Intel® Xeon® E5-2643 (3.33GHz/4-core/10MB/8GT-s QPI/130W, DDR3-1600, HT, Turbo2-1/1/2/2)

Intel® Xeon® E5-2637 (3.0GHz/2-core/5MB/8.0GT-s QPI/80W, DDR3-1600, HT, Turbo2- 2/2)

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

NOTE: Turbo 2 indicates the maximum potential bin increments when using Intel® Turbo Boost Technology, with 8, 7, 6, 5, 4, 3, 2 and 1 cores active

NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed (options for 1600, 1333, 1066MHz).

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

NOTE: For the Intel® C600 Chipset E5-2600 Series, the letter preceding the model number indicates the Product Line (E3, E5, E7); 2600x v#, 2 = number of CPUs in a Node, 6 is socket/segment designation, 00 = Processor SKU, x = L for low power SKUs and v# (not yet designated) = version



Standard Features

number.

Cache Memory One of the following depending on Model

20MB (1x20MB) Level 3
NOTE: For Eight-core processors.

15MB (1x15MB) Level 3
NOTE: For Six-core processors.

10MB (1x10MB) Level 3
NOTE: For Quad-core processors.

5MB (1x5MB) Level 3
NOTE: For Dual-core processors.

NOTE: All processor models above list the L3 Cache associated with that particular processor.

Chipset

Intel® C600 Series Chipset
Intel® E5-2600 Processor Family
NOTE: For more information regarding Intel® chipsets, please see the following URL:
<http://www.intel.com/products/server/chipsets/>.

Upgradeability

Upgradeable to two processors (16 Cores)
Up to 24 DIMM slots available for higher Memory capacity
Up to 8 SFF Hard Drive Bays; Or 4 LFF Drive Bay (optional through CTO below)
FlexibleLOM slot for 1/10/40 Gigabit Ethernet or QDR/FDR InfiniBand networking options
2 PCIe 3.0 I/O slots for additional communications and storage expansion
Redundant Power Supply
Optical Drive Bay (8 SFF/4 LFF)

On System Management Processor

HP iLO (Firmware: HP iLO 4)
NOTE: For more information, visit: <http://www.hp.com/go/ilo>.

Memory Protection

Advanced ECC
Online Spare
Lock-step



Standard Features

Memory One of the following depending on Model	Type	HP SmartMemory DDR3 Load Reduced(LRDIMM), Registered (RDIMM) or Unbuffered (UDIMM)
	DIMM Slots Available	24 (12 DIMM slots per processor /4 channels per processor/3 DIMMs per channel)
	Standard (Entry Model)	4GB using 1 x 4GB Registered DIMMs PC3-10600R (1333MHz)
	Standard (Base Models)	16GB using 4 x 4GB Registered DIMMs PC3-10600R (1333MHz)
	Standard (High Performance Models)	32GB using 4 x 8GB Registered DIMMs PC3-12800R (1600MHz)
	Standard (Energy Star Models)	Energy Star models duplicate Entry and Base models but add a second processor and on the Entry model double the memory to evenly distribute memory across dual processors
	Maximum Capacity (LRDIMM)	768GB (24 slots x 32GB@1066MHz)
	Maximum Performance Capacity (RDIMM)	256GB (16 slots x 16GB@1600MHz)
	Maximum Performance Capacity (UDIMM)	128GB (16 slots x 8GB@1333MHz)

NOTE: HP memory from previous generation servers are not qualified or warranted with this HP ProLiant Server. HP SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen8. For additional information, please see the HP SmartMemory QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/14225_na/14225_na.html

NOTE: LRDIMM, RDIMM and UDIMMs are all distinct memory technologies and cannot be mixed within a server. The majority of ProLiant Gen8 servers support RDIMM, UDIMM and LRDIMM.

NOTE: If only one processor is installed, only 12 DIMM slots are available. When populating with two processors 24 DIMM slots are available. For maximum speed on some memory options on 16 DIMM slots may be populated.

NOTE: Depending on the memory configuration and processor model, the memory speed may run at 1600MHz, 1333MHz, or 1066MHz. Please see Memory Population Table or the Online Memory Configuration Tool at: www.hp.com/go/ddr3memory-configurator.

Network Controller One of the following depending on Model	HP ProLiant Gen8 servers offer a new networking technology - Flexible Network Technology. The HP ProLiant DL360p Gen8 server offers the customer the choice of 1 Gigabit and/or 10 Gigabit networking solutions. For additional details see the Networking Section of this document.	
	Entry Models	HP Ethernet 1Gb 4-port 331FLR Adapter
	Base Models	HP Ethernet 1Gb 4-port 331FLR Adapter
	High Performance Models	HP Ethernet 10Gb 2-port 530FLR-SFP+ Adapter HP Ethernet 1Gb 4-port 331FLR Adapter
	Energy Star Certified Models	HP Ethernet 1Gb 4-port 331FLR Adapter



Standard Features

Expansion Slots	Expansion Slots #	Technology	Bus Width*	Connector Width	Form Factor	Notes
	1	PCIe 3.0	x8	x8	Low profile slot	
	2	PCIe 3.0	x16	x16	Half-length, full-height slot	

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

NOTE: Two PCIe 3.0 expansion slots: (1) Half-length, full-height slot and (1) low-profile slot.

HP Server ROM

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

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

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

HP's ProLiant ROM is used to configure the following:

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

NOTE: For further information, please refer to HP's RBSU (ROM based setup utility) user guide: www.hp.com/support/rbsu.

Storage Controller One of the following depending on Model

Entry Models	HP Smart Array P420i/ZM (RAID 0/1/1+0)
Base Models	HP Smart Array P420i/1GB with FBWC (RAID 0/1/1+0/5/5+0)
High Performance Models	HP Smart Array P420i/2GB with FBWC (RAID 0/1/1+0/5/5+0)
Energy Star - Base and Entry Models	HP Smart Array P420i/1GB FBWC (RAID 0/1/1+0/5/5+0)
	HP Smart Array P420i/ZM (RAID 0/1/1+0)



Standard Features

Internal Storage Devices	Diskette Drive	None
	Optical Drive	Optional DVD-ROM, DVD-RW NOTE: This option available with all 8SFF or 4LFF drive bay models.
	Hard Drives	None ship standard
	Hard Drive Bays	8 SFF drive bays total with Optical drive bay Optional: 4 LFF bays with Optical drive bay. NOTE: HP ProLiant DL360p Series servers offer both SFF, and LFF versions in CTO. The Optical Drive bay is available with both models. NOTE: LFF versions is not an upgradeable option from SFF models, or vice versa.

Maximum Internal Storage	Hot Plug SFF SAS	8.0TB	8 x 1TB
	Hot Plug SFF SATA	8.0TB	8 x 1TB
	Hot Plug LFF SAS	12.0TB	4 x 3TB (with optional LFF drive cage)
	Hot Plug LFF SATA	12.0TB	4 x 3TB (with optional LFF drive cage)
	Hot Plug SFF SAS SSD	6.4TB	8 x 800GB
	Hot Plug SFF SATA SSD	3.2TB	8 x 400GB
	Hot Plug LFF SATA SSD	1.6TB	4 x 400GB (with optional LFF drive cage)

Interfaces	Serial	1
	Video	1 Front Mini-Video connector/ 1- Rear standard video (not active simultaneously) NOTE: Mini-video connector requires Front Video Adapter Kit (PN 655915-B21).
	FlexibleLOM Network Ports	Some models come standard with 4 x 1GB ports while others come with 2 x 10GB ports (See HP Networking section below for more details and options).
	iLO remote management network port	1GB Dedicated
	SD slot	1 Internal secure
	USB 2.0 Ports	7 total: 4 rear, 2 front, 1 internal (secure)

Industry Standard Compliance	ACPI 2.0b Compliant
	PCIe 3.0 Compliant
	PXE Support
	WOL Support
	Microsoft® Logo certifications
	USB 2.0 Compliant



Standard Features

Server Power Cords

All Pre-configured Models servers ship with a high voltage server to PDU power cord.

NOTE: HP ProLiant DL servers no longer ship standard with a 12-foot NEMA 5-15P to C13 power cords that allow connection to 110V US wall outlets in a home or office. ProLiant DL servers are primarily connected to PDU's in data center racks so they now ship standard with only a PDU 6-foot C-14 to C13 power cord (142263-001). If a user wishes to power a ProLiant DL server using a 110V receptacle (NEMA-15), the 12-foot NEMA 5-15 to C13 power cord. See Power Cords section for Power Cord options.

Power Specifications

To review typical system power ratings use the HP Power Advisor which is available via the online tool located at URL: www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor.

NOTE: Power Specification and Technical Content for supported power supplies can be found at: http://h18000.www1.hp.com/products/quickspecs/14209_na/14209_na.html

Common Slot Power Supply

HP's Common Slot (CS) power supplies allow for commonality of power supplies across a wide range of ProLiant and Integrity servers, as well as HP Storage solutions, and are designed to provide the highest power supply efficiency without degrading system performance. HP CS power supplies are tested by the Electric Power Research Institute (EPRI) and certified through the ECOS 80 Plus power supply program. HP CS power supply options provide efficiency ratings of up to 94% (80 Plus Platinum) and are available in three power output options - 460W, 750W, and 1200W - allowing the customer to "right-size" a power supply for their specific server configuration. All HP Common Slot power sources are UL, CE Mark Compliant, hot-plug and support redundant configurations.

NOTE: Mixing of power supplies in the same server is not supported. All power supplies must be of the same output and efficiency rating. If non-matched power supplies are inserted you will get errors and operation will fail.

HP CS Platinum Plus power supplies are required when enabling HP's Intelligent Power Discovery (IPD) solution. IPD is the first technology to create an automated, energy-aware network between IT systems and facilities. This allows your company to reclaim millions of dollars in wasted power capacity and downtime costs across data centers. For more information on HP's IPD solution, go to www.hp.com/go/ipd.

It is highly recommended that you use the HP Power Advisor in defining the "Right-Size" power supply for your needs. HP Power Advisor can be accessed at: www.hp.com/go/hppoweradvisor.

NOTE: The 80 PLUS program is a unique forum that unites electric utilities, the computer industry, and consumers in an effort to bring energy efficient technology solutions to the marketplace. 80 Plus independently tests power supply efficiency and publicly posts the results on 80Plus.org.

Redundant Power: Optional (1 + 1 or n+n redundant) power supplies can be purchased through power supply option kits (see Power Supplies for part numbers).

NOTE: Power Specification and Technical Content for supported power supplies can be found at: http://h18000.www1.hp.com/products/quickspecs/14209_na/14209_na.html