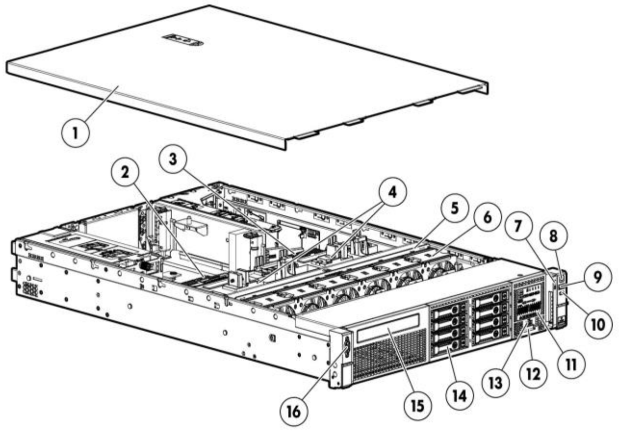
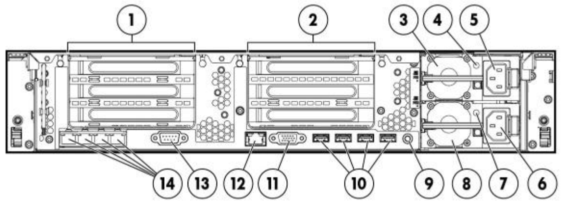
HP DL380z Generation8 (Gen8) Virtual Workstation

The HP DL380z Gen8 Virtual Workstation sets the new standard of 2U rack mount 2-socket rack virtual workstation solutions for the industry. With enhanced configuration flexibility, unmatched performance, and leading energy efficient design the HP DL380z Gen8 offers the perfect solution to address the emerging demands for virtual workstation capabilities.

The HP DL380z Gen8 Virtual Workstation is a focused 2U 2-socket rack ecosystem solution based on the proven technologies offered on the HP Proliant DL380p Gen8 server. As such, this QuickSpec will reference supporting documents that detail the HP Proliant server product offerings and descriptions. This is intentional since the HP DL380z Gen8 is based on the same technologies.





Front View:

1. Quick removal access panel
2. Second Intel Processor
3. First Intel Processor
4. 24 DIMM slots: DDR3 Registered (RDIMM)
5. Air Baffle
6. Hot-plug fans, full N+1 redundancy
7. Health LED
8. Power On /Standby button and system power LED button
9. USB connector
10. Unit ID LED
11. Systems Insight Display
12. Asset Tag
13. USB connector
14. Drive Bays
15. Optional Slim Optical Bay (SATA DVD-RW /ROM Optical Drive)
16. Video connector

Rear View:

1. PCIe 3.0 Slots 1, 2, 3-PCIe 2.0 top to bottom
2. PCIe 3.0 Slots 4-6 top to bottom
3. Power supply 1
4. Power supply 1 Power LED
5. Power supply 1 Power connection (with Intelligent PDU communication)
6. Power supply 2 Power connection (with Intelligent PDU communication)
7. Power supply 2 Power LED
8. Power supply 2
9. Unit ID LED/Button
10. USB connectors (4)
11. Video connector
12. iLO connector
13. Serial connector
14. FlexibleLOM ports (Shown: 4 ports 1Gb each /Optional: 2 ports 10Gb each)

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	**E5-2600 v2 series Processors** **Entry Processors** **NOTE:** All support up to1600MT/s DDR3 memory speeds. Intel® Xeon® E5-2609 v2 (2.5GHz/4-core/10MB/6.4GT-s QPI/80W) Intel® Xeon® E5-2603 v2 (1.8GHz/4-core/10MB/6.4GT-s QPI/80W) **Base Processors** **NOTE:** All support up to1600MT/s DDR3 memory speeds. Intel® Xeon® E5-2640 v2 (2.0GHz/8-core/20MB/7.2GT-s QPI/95W, DDR3-1600, HT, Turbo2-3/3/3/3/3/3/4/5) Intel® Xeon® E5-2630 v2 (2.6GHz/6-core/15MB/7.2GT-s QPI/80W, DDR3-1600, HT, Turbo2-3/3/3/3/4/5) Intel® Xeon® E5-2620 v2 (2.1GHz/6-core/15MB/7.2GT-s QPI/80W, DDR3-1600, HT, Turbo2-3/3/3/3/4/5) Intel® Xeon® E5-2650L v2 (1.7GHz/10-core/25MB/8.0GT-s QPI/70W, DDR3-1600, HT, Turbo2-2/2/2/2/2/2/2/2/3/4) Intel® Xeon® E5-2630L v2 (2.4GHz/6-core/15MB/7.2GT-s QPI/60W, DDR3-1600, HT, Turbo2-2/2/2/2/3/4) **Performance Processors** **NOTE:** All support up to 1866MT/s DDR3 memory speeds. Intel® Xeon® E5-2697 v2 (2.7GHz/12-core/30MB/8.0GT-s QPI/130W, DDR3-1866, HT, Turbo2-3/3/3/3/3/3/3/4/5/6/7/8) Intel® Xeon® E5-2695 v2 (2.4GHz/12-core/30MB/8.0GT-s QPI/115W, DDR3-1866, HT, Turbo2-4/4/4/4/4/4/4/4/5/6/7/8) Intel® Xeon® E5-2690 v2 (3.0GHz/10-core/25MB/8.0GT-s QPI/130W, DDR3-1866, HT, Turbo2-3/3/3/3/3/3/3/4/5/6) Intel® Xeon® E5-2680 v2 (2.8GHz/10-core/25MB/8.0GT-s QPI/115W, DDR3-1866, HT, Turbo2-3/3/3/3/3/4/5/6/7/8) Intel® Xeon® E5-2670 v2 (2.5GHz/10-core/25MB/8.0GT-s QPI/115W, DDR3-1866, HT, Turbo2-4/4/4/4/4/4/5/6/7/8) Intel® Xeon® E5-2667 v2 (3.3GHz/8-core/25MB/8.0GT-s QPI/130W, DDR3-1866, HT, Turbo2-3/3/3/3/4/5/6/7) Intel® Xeon® E5-2660 v2 (2.2GHz/10-core/25MB/8.0GT-s QPI/95W, DDR3-1866, HT, Turbo2-4/4/4/4/4/4/5/6/7/8) Intel® Xeon® E5-2650 v2 (2.6GHz/8-core/20MB/8.0GT-s QPI/95W, DDR3-1866, HT, Turbo2-4/4/4/4/5/6/7/8) Intel® Xeon® E5-2643 v2 (3.5GHz/6-core/25MB/8.0GT-s QPI/130W, DDR3-1866, HT, Turbo2-1/1/1/1/2/3) Intel® Xeon® E5-2637 v2 (3.5GHz/4-core/15MB/8.0GT-s QPI/130W, DDR3-1866, HT, Turbo2- 1/1/2/3)
Cache Memory One of the following	30MB (1x30MB) Level 3 **NOTE:** For Twelve-core processors. 25MB (1x25MB) Level 3 **NOTE:** For Ten-core processors.

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

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

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

Chipset

Intel® C600 Series Chipset

Intel® E5-2600 v2 Processor Family

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

Upgradeability

Upgradeable to 2 processors (24 Cores)

Up to 24 DIMM slots available for higher Memory capacity

FlexibleLOM connector for 1 Gigabit or 10 Gigabit networking options

8SFF Hard drive bays

Mandatory CPU0 2 PCIe slot riser (x16, x8), optional CPU1 2 PCIe slot riser (x16, x16)
NOTE: To take advantage of the CPU1 riser, the second processor must be installed.

Redundant Power Supply

Optical Drive

On System Management Chipset

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

Memory Protection

Advanced ECC
NOTE: Advanced ECC uses single device data correction (SDDC) to detect and correct single and all multi-bit error that occurs within a single DRAM chip. Both x4 and x8 SDDC are supported (x8 requires lockstep mode).

Online Spare
NOTE: Memory online spare mode (also known as rank spare mode) detects a rank that is degrading and switches operation to the spare rank.

Lock-step mode
NOTE: Memory Lockstep mode is used to correct a single x8 DRAM device failure on a DIMM. The DIMMs in each paired memory channel must have identical HP part numbers.

Memory

Type	HP SmartMemory Registered (RDIMM)
DIMM Slots Available	24 (12 DIMM slots per processor /4 channels per processor/3 DIMMs per channel)
Maximum Capacity (RDIMM)	384GB (24x 16GB RDIMM @1866MT/s)

NOTE: For additional information, please see the HP SmartMemory QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html
NOTE: The DL380z Gen8 Virtual Workstation supports only RDIMM.
NOTE: If only one processor is installed, only half the DIMM slots are available.
NOTE: Depending on the memory configuration and processor model, the memory speed may run at 1866MT/s, 1600MT/s, 1333MT/s, or 1066MT/s. Please see Memory Population Table or the Online Memory Configuration Tool at: www.hp.com/go/ddr3memory-configurator.

Network Controller

HP DL380z Gen8 Virtual Workstation offers a new flexible network technology - FlexibleLOMs. The HP DL380z Gen8 offers the customer the choice of 1Gb or 10Gb networking solutions. For additional details see the Networking Section of this document.

One of the following	HP VWS Ethernet 10Gb 2-port 560FLR-SFP+ FIO Adapter HP Ethernet 1Gb 4-port 366FLR FIO Adapter

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Expansion Slots

Primary Riser
(Must order option 766993-B21)

Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
1	PCIe 3.0	X16	X16	5	Full Length, Full Height Slot	Proc 1
2	PCIe 3.0	X8	X8	4	Full Length, Full Height Slot	Proc 1

* Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number
** Indicates the number of physical electrical lanes running to the connector.

Secondary Riser
(Optional 2-slot, requires 766994-B21)

Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
4	PCIe 3.0	X16	X16	24	Full length, Full height slot	Proc 2
5	PCIe 3.0	X16	X16	25	Full Length, Full Height	Proc 2

* Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number
** Indicates the number of physical electrical lanes running to the connector.
NOTE: When populating the second optional riser slot, the second processor must be installed

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HP DL380z ROM

The HP DL380z Gen8 ROM identifies itself as an HP Proliant DL380p Gen8 platform. This is to be expected and is correct behavior.

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		HP Smart Array P420i (RAID 0/1/1+0/5/5+0/6/6+0) **NOTE:** P420i controller comes with no cache memory options. For cache module options for this controller, use P/N 631679-B21 or 631681-B21 described in Section 4.	
Internal Storage Devices	Diskette Drive	None	
	Optical Drive	Optional: DVD-ROM, DVD-RW	
	Hard Drives	None ship standard	
	Drive Bays	Standard: 8SFF drive bays total with Optical Bay **NOTE:** Unfilled bays come populated with hard drive blanks installed. Should the customer need additional hard drive blanks, they can order more using P/N 666987-B21: HP SFF Gen8 Hard Drive Blank Kit.	
Maximum Internal Storage	Hot Plug SFF SAS	7.2TB	8 x 900GB
	Hot Plug SFF SATA	8.0TB	8 x 1TB
	Hot Plug SFF SAS SSD	6.4TB	8 x 800GB
Interfaces	Serial	1	
	Video	2 (1 front, 1 back) not active simultaneously	
	FlexibleLOM Network Ports	Can be configured with 4 x 1Gb ports or with 2 x 10Gb ports (See HP Networking section below for more details and options).	
	HP iLO Remote Management Network Port	1 Gb Dedicated	
	SD slot	1 Internal Secure **NOTE:** The SD slot is not a hot-pluggable device. Customers should not attempt to plug an SD card into the SD slot while the server is powered.	
	USB 2.0 Ports	7 total: 2 front, 4 back, 1 internal	
Industry Standard Compliance	ACPI 2.0b Compliant PCIe 3.0 Compliant PXE Support WOL Support USB 2.0 Compliant		
Power Cords	**NOTE:** HP DL380z Gen8 Virtual Workstations are primarily connected to power distribution units (PDUs) in data center racks and now ship standard with a PDU 6-foot C-14 to C13 power cord (A0K02A). If a user wishes to power an HP DL380z using a 110V receptacle (NEMA-15), the 6-foot NEMA 5-15 to C13 power cord must be ordered separately (AF556A). See Power Cords section for Worldwide 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/hppoweradvisor.

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

Common Slot Power Supply

NOTE: Mixing of power supplies in the same system is not supported. All power supplies inside a system must be exactly the same model. Mixing Gold, Platinum, and Platinum Plus certified power supplies is not supported.

HP's Common Slot (CS) power supplies allow for commonality of power supplies across a wide range of ProLiant, HP Virtual Workstation, 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). Only the 1200W power supply is available for the DL380z Gen8 Virtual Workstation. 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 system 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.

The HP DL380z supports only the 1200W Platinum Plus power supply. A second redundant 1200W power supply can be ordered.

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_div/14209_div.html

System Fans
One of the following

2P Models have (6) (N+1 redundancy standard)
1P Models have (4) (N+1 redundancy standard)

Required Cabling

For required cabling information, refer to the HP Web site at: www.hp.com/servers/dl380p-gen8.

Operating Systems and Virtualization Software Support for HP DL380z Virtual Workstations

VMware
Citrix XenServer
NOTE: Choice of hypervisor solution will depend on chosen GPU virtualization strategies.

Graphics

Integrated Matrox G200 video standard

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

HP iLO 4 On System Management Memory

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

Virtual Workstation Graphics options:

- NVIDIA Quadro K4000 3GB graphics (up to 3) only for pass through GPU virtualization solutions
- NVIDIA Quadro K5000 4GB graphics (up to 2) only for pass through GPU virtualization solutions
- NVIDIA Quadro K6000 12GB graphics (up to 2) only for pass through GPU virtualization solutions
- NVIDIA GRID K2 8GB graphics (up to 2) for pass through and virtual GPU virtualization solutions

NOTE: All Virtual Workstation Graphics options will require one or two graphics PCIe Riser cages to be configured.

Form Factor

2U Rack form factor

8 SFF:
3.44 (8.74 cm) Height x 17.54" (44.55 cm) Width x 27.5" (69.85 cm) Length

On System Management

HP iLO Management Engine

- HP iLO Management Engine is a comprehensive set of embedded management features supporting the complete lifecycle of the DL380z Gen8, from initial deployment, through ongoing management, to service alerting and remote support. HP iLO Management Engine comes standard on all HP DL380z Gen8 virtual workstations. The HP iLO Management Engine portfolio includes:
    - **HP iLO:** The HP iLO (Integrated Lights-Out) management processor is the core foundation for the HP iLO Management Engine
    - **HP Agentless Management:** Provides built in system health monitoring and alerting capability without OS agents, that starts working the moment a power cord and an Ethernet cable are connected.
    - **HP Active Health System:** Always on, continuous monitoring for increased stability and shorter downtimes; 100% configuration history; Health and service alerts and easy export and upload to Service and Support.
    - **HP Intelligent Provisioning:** Lets customers provision and configure a single system without any separate media. No more SmartStart CDs or Smart Update Firmware DVD are needed.
        - To start Intelligent Provisioning:
            - Press the F10 key during the DL380z Gen8 boot process (also known as power on self test or POST).
            - Please go to the Intelligent Provisioning website at www.hp.com/go/intelligentprovisioning for additional information and to view

    usage videos.
    - Use the Service Pack for ProLiant (SPP) at www.hp.com/go/spp to get firmware and software updates.
  - **HP iLO Mobile App:** Enables the ability to access, deploy, and manage your system anytime from anywhere from select smartphones and mobile devices. For additional information please visit: www.hp.com/go/ilo/mobileapp

NOTE: For more information, visit: http://www.hp.com/go/ilo or HP iLO Management Engine technologies whitepaper

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HP Insight management

HP Service Pack for Proliant (SPP)

HP Service Pack for Proliant (SPP) and HP Smart Update Manager (HP SUM) provide a comprehensive approach to firmware and system software maintenance. These capabilities are available for the HP DL380z Gen8 Virtual Workstation. Together they provide better operating stability and ensure maximum uptime. The SPP will be updated at a predictable cadence, typically coinciding with new HP server or virtual workstation hardware launches. By enabling firmware to be updated online and integrating firmware and system software updates in one operation, HP SUM and the SPP offer faster updates of individual systems. Further improving system uptime and stability is the fact that HP provides 12 months of support for each Service Pack release.

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

The Service Pack for DL380z Virtual Workstation has been rigorously tested with specific attention for interaction between firmware, drivers and agents both within the system. This testing ensures the highest quality as well as providing the input for HP SUM to deploy updates taking into account all interdependencies, when determining the correct updates and order of update deployment.

NOTE: The Service Pack for HP DL380z (which includes HP SUM) can be downloaded from www.hp.com/go/spp/download. More information can be found: http://www.hp.com/go/SmartUpdate, www.hp.com/go/spp and http://www.hp.com/go/hpsum

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Security

Power-on password
Serial interface control

	Administrator's password
Warranty	This product is covered by a global limited warranty and supported by HP. 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 HP Care Pack 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:** DL380z Gen8 Warranty includes 3-Year Parts, 3-Year Labor, 3-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 HP 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

HP Insight management	HP Insight Control	HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. HP Insight Control also supports Location and Power Discovery Services to automate many configuration, asset tracking, and power management tasks to speed implementation and prevent downtime. For more information, see http://www.hp.com/go/insightcontrol. HP Insight Control includes one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, see: http://www.hp.com/services/insight.
	HP iLO Advanced	HP Integrated Lights-Out Advanced License a product option, providing smart remote system management without compromise. iLO Advanced unlocks the full set of remote administration functionality for all HP ProLiant servers and HP DL380z Virtual Workstation systems by activating the full Virtual Keyboard Video and Mouse remote console, multi-user collaboration, console record and replay, GUI-based and scripted virtual media and virtual folders, and enhanced security and power management functionality. For more information, see: http://www.hp.com/go/iloadvanced

HP Insight Online

HP Insight Online is a new addition to the HP Support Center for one stop, secure access to product and HP support information personalized to your IT environment. Insight Online can automatically display devices remotely monitored by HP 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. www.hp.com/go/insightonline

Factory Express Portfolio

HP Factory Express offers configuration, customization, integration and deployment services for HP servers, virtual workstations, 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. HP products supported through Factory Express include a wide array of servers, virtual workstation, and storage and networking.

For more information on Factory Express services for your specific DL380z model please contact your sales representative or go to: http://www.hp.com/go/factory-express.

HP Simple Configurator

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 HP's Customer Business. http://www.hp.com/products/configurator

Service and Support

Service and Support	**HP Technology Services for HP DL380z Virtual Workstations** Capitalizing on HP Virtual Workstation capabilities requires a service partner who understands your increasingly complex business technology environment. That's why it makes sense to team up with the people who know HP infrastructure hardware and software best - the experienced professionals at HP Services. **Protect your business beyond warranty with HP Care Pack Services** HP Care Pack services offer complete care and support expertise with committed response choices designed to meet your IT and business needs. HP Foundation Care services offer scalable reactive support-packages for HP Virtual Workstations and software. You can choose the type and level of service that is most suitable for your IT and business needs.
Optimized Care	**Supports maintaining HP Virtual Workstations at optimum performance availability** **HP Foundation Care 24x7 Service** HP Foundation Care 24x7 connects you to HP 24 hours a day, seven days a week for assistance on resolving issues - hardware onsite response within four hours and software call back within two hours after opening your case. Make HP your first call for hardware or software questions; Collaborative Support is included in all Foundation Care Services for this product and provides troubleshooting assistance on software such as Microsoft Server, Red Hat Linux, VMware and more. Three years' coverage recommended with HP Care Pack Service. http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en **HP DL380z Virtual Workstation Hardware Installation** Provides for the basic hardware installation of HP branded virtual workstations, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN.pdf
Insight Online/Insight Remote Support	HP Insight Remote Support provides 24 X 7 remote monitoring, proactive notifications, and problem resolution. This comes at no additional cost with your HP solution. Learn more about Insight Remote Support http://www.hp.com/go/insightremotesupport and Insight Online http://www.hp.com/go/insightonline
HP Support Center	Personalized online support portal with access to information, tools and experts to support HP business products. Submit support cases online, chat with HP experts, access support resources or collaborate with peers. Learn more http://www.hp.com/go/hpsc HP's Support Center Mobile App* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime. HP Insight Remote Support and HP Support Center are available at no additional cost with a HP warranty, HP Care Pack, or HP contractual support agreement. *HP' Support Center Mobile App is subject to local availability
Parts and Material	HP will provide HP-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.

Service and Support

	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 HP due to malfunction.
For more information	To learn more on HP DL380z Gen8 Virtual Workstation, please contact your HP sales representative. Or visit: http://www.hp.com/go/ZVirtualWorkstation

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.
NOTE: FIO indicates that this option is only available as a factory installable option.
NOTE: All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the DL380z Virtual Workstation.

Step 1: Base Configuration (Must choose)

HP Models

HP DL380z Gen8 8 SFF Configure-to-order Virtual Workstation 766982-B21

Factory Integrated Model ships with:

1 FlexibleLOM connector: (see Step 2: HP FlexibleLOM section below for NIC choices to populate the embedded connector)
Smart Array P420i Controller w/ Zero Memory (ZM)
I/O slots – **Must order option** HP DL380z Gen8 Double Wide Slot1 FIO Riser Cage (766993-B21):

- Slot 1 - FL/FH x16 PCIe 3.0 (x16 connector)
- Slot 2 - HL/FH x8 PCIe 3.0 (x8 connector)
- Additional Slots may be added via selections from the PCI Information and Options subsection.

System Fans - 4 (2 additional fans included with second processor)
Drive Cage - 8SFF (Optical media drive cage optional)
USB - 4 Rear, 2 Front, 1 Internal, 1 SD slot
HP iLO Management Engine (standard)
NOTE: Power Supply & Rail Kit not included - choose from Step 3 & 4 sections below.

NOTE: For P420i cache memory options, see **HP Storage Controllers** cache memory options 631679-B21 and 631681-B21 in Section 4.

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

HP Processors

NOTE: If two processors are desired, select one xxxxxx-L21 and one xxxxxx-B21. See Step 3 for xxxxxx-B21 processors and memory options for xxxxxx-B21 processors.

Base Processors - E5-2600 v2 series Processors
NOTE: All support up to1600MT/s DDR3 memory speeds.

HP DL380z Gen8 Intel® Xeon® E5-2630v2 (2.6GHz/6-core/15MB/80W) FIO Processor Kit 766984-L21

Performance Processors - E5-2600 v2 series Processors
NOTE: All support up to 1866MT/s DDR3 memory speeds

HP DL380z Gen8 Intel® Xeon® E5-2695v2 (2.4GHz/12-core/30MB/115W) FIO Processor Kit 766985-L21

HP DL380z Gen8 Intel® Xeon® E5-2680v2 (2.8GHz/10-core/25MB/115W) FIO Processor Kit 766986-L21

HP DL380z Gen8 Intel® Xeon® E5-2670v2 (2.5GHz/10-core/25MB/115W) FIO Processor Kit 766987-L21

HP DL380z Gen8 Intel® Xeon® E5-2650v2 (2.6GHz/8-core/20MB/95W) FIO Processor Kit 766983-L21
NOTE: Up to 2 processors supported. See Step 3 for second processor part numbers.

Additional Options

Processor type must match for chosen xxxxxx-L21 and xxxxxx-B21 parts.
NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.

HP Memory

NOTE: No other HP memory not listed in this QuickSpec or from any other 3rd party provider is qualified or warranted with this HP DL380z Virtual Workstation. 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_div/14225_div.html

Registered DIMMs (RDIMMs)
NOTE: The following memory is supported by the E5-2600 v2 series Processors.

HP VWS 8GB (1x8GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 FIO Memory Kit	766988-B21
HP 8GB (1x8GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	731761-B21
HP VWS 16GB (1x16GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 FIO Memory Kit	766989-B21

NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator.

HP Networking

FlexibleLOM Adapters
NOTE: The FlexibleLOM Adapters in this section are Factory Integrated Options (FIO) only. Must choose one option.
NOTE: Only one FlexibleLOM can be added to the DL380z. These options are upgradeable and can be changed from the original configuration after the system is shipped.
NOTE: For 10Gb adapters, a minimum of two Gigabytes (2 GB) of system memory is required per each adapter.

HP Ethernet 1Gb 4-port 366FLR FIO Adapter	684217-B21
HP VWS Ethernet 10Gb 2-port 560FLR-SFP+ FIO Adapter	766990-B21

NOTE: Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately. Please see the related NIC QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs.

HP GPU or IO Riser Cages

HP DL380z Gen8 Double Wide Slot1 FIO Riser Cage	766993-B21

NOTE: This kit is a mandatory FIO. This IO Cage requires the 1st Processor to be installed.
NOTE: This riser supports one single wide, or one double wide GPU or graphics adapter option in the primary riser position.

HP Power Supplies

NOTE: Mixing of power supplies in the same system is not supported. If non-matched power supplies are inserted, you will get errors, and operation will fail.

HP Common Slot Platinum Plus Power Supply Kits
NOTE: The following Power Supply offers 94% Efficiency and lower total harmonic distortion to save on energy costs. Common Slot Platinum Plus Power Supplies support Power Discovery Services when used with the HP Intelligent PDUs.

Additional Options

HP DL380z 1200W Common Slot Platinum Plus Hot Plug FIO Power Supply Kit	766992-B21

NOTE: For power supply redundancy, a second 1200W power supply would need to be odered (part number 766992-B21).
NOTE: Option Kits for AC power supplies include the power supply and one PDU IEC cable.

NOTE: The HP DL380z Gen8 ship with an IEC-IEC power cord used for rack mounting with Power Distribution Units (PDUs). For a full list of optional HP power cords please go to www.hp.com/products/powercords

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

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Step 3: Choose Additional Factory Integration Options

HP 2nd Processor Options

NOTE: xxxxxx-B21 choice must match xxxxxx-L21 choice made in Step 2.
Base Processors - E5-2600 v2 series Processors
NOTE: All support up to1600MT/s DDR3 memory speeds.

HP DL380z Gen8 Intel® Xeon® E5-2630v2 (2.6GHz/6-core/15MB/80W) with Fan FIO Processor Kit	766984-B21

Performance Processors - E5-2600 v2 series Processors
NOTE: All support up to 1866MT/s DDR3 memory speeds

HP DL380z Gen8 Intel® Xeon® E5-2695v2 (2.4GHz/12-core/30MB/115W) with Fan FIO Processor Kit	766985-B21
HP DL380z Gen8 Intel® Xeon® E5-2680v2 (2.8GHz/10-core/25MB/115W) with Fan FIO Processor Kit	766986-B21
HP DL380z Gen8 Intel® Xeon® E5-2670v2 (2.5GHz/10-core/25MB/115W) with Fan FIO Processor Kit	766987-B21
HP DL380z Gen8 Intel® Xeon® E5-2650v2 (2.6GHz/8-core/20MB/95W) with Fan FIO Processor Kit	766983-B21

NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.

HP Memory (2nd Processor Memory Options)

NOTE: Memory choice for the 2nd Processor made here MUST match memory type choice made in Step 2 for the 1st Processor choice.
Registered DIMMs (RDIMMs)
NOTE: The following memory is supported by the E5-2600 v2 series Processors.

HP VWS 8GB (1x8GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 FIO Memory Kit	766988-B21
HP 8GB (1x8GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	731761-B21
HP VWS 16GB (1x16GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 FIO Memory Kit	766989-B21

NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator.

HP InfiniBand

HP VWS Infiniband FDR/Ethernet 10Gb/40Gb 2-port 544FLR-QSFP FIO Adapter	766991-B21

NOTE: 10Gb Ethernet requires the use of the QSFP to SFP+ adapter P/N 655874-B21.
NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/13078_div/13078_div.html

Additional Options

HP GPU or IO Riser Cages	HP DL380z Gen8 Double Wide Slot2 FIO Riser Cage **NOTE:** This Kit is optional. **NOTE:** 2 processors are required for this riser installation. **NOTE:** This riser supports two single wide, or one double wide GPU or graphics adapter option in the secondary riser position	766994-B21
HP Graphics Options	HP DL380z NVIDIA GRID K2 Reverse Air Flow PCIe GPU FIO Adapter **NOTE:** This is supported in the 766994-B21 or 728543-B21 riser in the secondary position (second processor required) or in the 766993-B21 or 752803-B21, primary position. Maximum 2 supported with both risers.	766995-B21
	HP DL380z NVIDIA Quadro K4000 PCIe FIO Graphics Adapter **NOTE:** 1xK4000 is supported in the primary position with the riser 766993-B21 or 752803-B21. **NOTE:** 2xK4000 are supported in the secondary position with the riser 766994-B21 or 728543-B21. **NOTE:** To support 3xK4000 both the primary riser (766993-B21 or 752803-B21) and the secondary riser is required (766994-B21 or 728543-B21)	766996-B21
	HP DL380z NVIDIA Quadro K5000 PCIe FIO Graphics Adapter **NOTE:** This is supported in the 7766994-B21 or 28543-B21 riser in the secondary position (second processor required) or in the 766993-B21 or 752803-B21, primary position. Maximum 2 supported with both risers.	766997-B21
	HP DL380z NVIDIA Quadro K6000 PCIe FIO Graphics Adapter **NOTE:** This is supported in the 766994-B21 or 728543-B21 riser in the secondary position (second processor required) or in the 766993-B21 or 752803-B21, primary position. Maximum 2 supported with both risers.	766998-B21
	NOTE: Each of the HP DL380z Gen8 Dbl Wide GPU Riser Kits (766993-B21 & 766994-B21) supports one of the above GPU's or graphics adapters (Exception: Riser part 766994-B21 can support 2 K4000 graphics adapters). For dual GPU or dual graphics adapter configuations it is necessary to install both GPU Riser Gages.	
HP Rack Kits	**NOTE:** Gen8 rail kits have changed significantly from prior generation Proliant rail kits. Please take a moment to review the installation documentation that comes with the system to help you with the installation of your Gen8 Virtual Workstation. **NOTE:** For in-rack serviceability HP recommends the Easy Install rail kits. **NOTE:** Rail kits are optional for the HP DL380z Gen8 and are not included with the system. Customers have the option to purchase their virtual workstation without a rail kit.	
	HP 2U SFF Easy Install Rail Kit	733660-B21
	HP 2U Cable Management Arm for Easy Install Rail Kit	733664-B21
	HP 2U SFF Easy Install Rail Kit with Cable Management Arm	733668-B21

Additional Options

HP Insight Software	HP Insight Control including 1yr 24x7 Support ProLiant bundle FIO Electronic License **NOTE:** The Electronic software license is available in EMEA only.	C6N36ABE
	HP Insight Control including 1yr 24x7 Support ProLiant bundle Single Server FIO License	C6N36A

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Core Options and Additional Options" section below. These options are available for ordering if not chosen in previous steps, or if non-FIO (Factory Integration Option) parts are needed.

NOTE: Some options may not be integrated at the factory. Contact your local sales representative for additional information.
NOTE: Any option with an FIO designation is a Factory Integration Option only. Contact your local sales representative for additional information.

HP Optical Drives

HP 12.7mm Slim SATA DVD-ROM JackBlack Optical Drive	652232-B21
HP 12.7mm Slim SATA DVD-RW JackBlack Optical Drive	652235-B21

HP Hard Drives

NOTE: The HP DL380z Gen8 Smart Storage solutions are equipped with entirely re-designed Small Form Factor (SFF 2.5 in) hot plug Smart Drive carriers for HP Qualified Hard Drives and Solid State Drives. These new carriers provide status and activity indicators as well as caution indicators for "Do Not Remove".
NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the system 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 with SmartDrive SFF (2.5-inch) Enterprise Drives

HP 900GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652589-B21
HP 600GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652583-B21
HP 450GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652572-B21
HP 300GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652564-B21
HP 300GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652611-B21
HP 146GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652605-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information (Worldwide):
http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html

6G SATA Hot Plug with SmartDrive SFF (2.5-inch) Midline (MDL) Drives

HP 1TB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	655710-B21
HP 500GB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	655708-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information (Worldwide):
http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html

6G SATA Value Endurance Hot Plug SFF (2.5-inch) Enterprise Boot Solid State Drives

HP 120GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Boot 3yr Wty Solid State Drive	717965-B21

6G SATA Value Endurance Hot Plug SFF (2.5-inch) Enterprise Value Solid State Drives

HP 600GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	739898-B21
HP 300GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid	739888-B21

State Drive

6G SATA ME Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives

HP 800GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691868-B21
HP VWS 400GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty FIO SSD	774115-B21
HP 200GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691864-B21
HP VWS 100GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty FIO SSD	774114-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information (Worldwide): http://h18000.www1.hp.com/products/quickspecs/14038_div/14038_div.html

Hard Drive Kits

NOTE: All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the system.

NOTE: The part numbers for single HDD blanks below are provided should the customer require replacement HDD blanks for their system.

HP SFF Gen8 Hard Drive Blank Kit	666987-B21

HP Power Supplies

NOTE: Mixing of power supplies in the same system is not supported. If non-matched power supplies are inserted, you will get errors, and operation will fail.

NOTE: Power Supply Kits should be added in Step 2 ("Configuration Information - Factory Integrated Models") using the FIO Power Supply Kits. The following is for field upgrade option or for non-FIO orders.

HP Common Slot Platinum Plus Power Supply Kits

NOTE: The following Power Supply offers 94% Efficiency with support for Intelligent Power Discovery.*

HP 1200W Common Slot Platinum Plus Hot Plug Power Supply Kit	656364-B21

NOTE: Option Kits contain optional power supply, an IEC power cable and PDU IEC cables.

NOTE: HP DL380z Gen8 ship with an IEC-IEC power cord used for rack mounting with Power Distribution Units (PDUs). For a full list of optional HP power cords please go to: www.hp.com/products/powercords

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

Additional Options

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

HP Insight Software	**HP Insight Control**	
	HP Insight Control including 1yr 24x7 Technical Support and Updates Single Server License	C6N27A
	HP Insight Control including 1yr 24x7 Technical Support and Updates Electronic License **NOTE:** The Electronic software license is available in EMEA only.	C6N28ABE
	HP Insight Control Server Provisioning Media Kit	BD883A
	HP Insight Management Media Kit	C6N31A
	NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key. **NOTE:** Customer will receive a license entitlement certificate. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service. **NOTE:** Licenses ship without media. The HP Insight Control Media Kit can be ordered separately, or can be downloaded at: http://www.hp.com/go/insightupdates. **NOTE:** For additional license options please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html	
	HP Integrated Lights-Out (iLO) Advanced for HP DL380z Gen8 Virtual Workstation	
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates E-LTU **NOTE:** The Electronic software license is available in EMEA only.	E6U59ABE
	HP iLO Advanced including 3yr 24x7 Technical Support and Updates E-LTU **NOTE:** The Electronic software license is available in EMEA only.	E6U64ABE
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License	512485-B21
	HP iLO Advanced 1 Server License with 3yr 24x7 Tech Support and Updates	BD505A
	NOTE: For additional license options please see the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/14276_div/14276_div.html **NOTE:** For more information, visit: http://www.hp.com/go/ilo	
HP Security	HP Trusted Platform Module Option **NOTE:** The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the system platform. For more information about TPM, including a white paper, go to: www.hp.com/go/TPM. **NOTE:** The TPM key is unique to every TPM deployed system and must be retained. Misplacing or losing the key could result in data loss.	488069-B21
	HP 2U Security Bezel Kit	666988-B21
HP Storage Controllers	**SAS Controllers** The DL380z Gen8 Virtual Workstation comes configured with a P420 Smart Array controller for the 8 SFF drive bay.	
	Optional Upgrades	
	HP 1GB P-series Smart Array Flash Backed Write Cache	631679-B21
	HP 2GB P-series Smart Array Flash Backed Write Cache	631681-B21

	HP SmartCache No Media 24x7 Technical Support 1 Svr License	D7S26A
	HP SmartCache No Media 24x7 Technical Support Flexible License	D7S27A
	HP SmartCache No Media 24x7 Technical Support Electronic License	D7S27AAE
HP Power Cords	**NOTE:** HP DL380z Gen8 ships with an IEC-IEC power cord used for rack mounting with Power Distribution Units (PDUs).	
	HP C13 - SEV 1011 CH 250V 10Amp 1.83m Power Cord	AF565A
	HP C13 - DK-2.5A DK 250V 10Amp 1.83m Power Cord	AF566A
	HP C13 - CEE-VII EU 250V 10Amp 1.83m Power Cord	AF568A
	HP C13 - BS-1363A UK/HK/SG 250V 10Amp 1.83m Power Cord	AF570A
	HP C13 - CEI-23-50 IT/CL 250V 10Amp 1.83m Power Cord	AF571A
	HP C13 - SABS-164 ZA 250V 10Amp 2.5m Power Cord	AF567A
	HP C13 - Nema 6-15P US 250V 15A JP 3.6m Power Cord	A0N33A
	HP C13 - Nema 5-15P US/CA 110V 10Amp 1.83m Power Cord	AF556A
HP Rack Options	**HP USB Keyboard and Mouse**	
	HP USB BFR with PVC Free UK Keyboard/Mouse Kit	631344-B21
	HP USB BFR with PVC Free FR Keyboard/Mouse Kit	631346-B21
	HP USB BFR with PVC Free ES Keyboard/Mouse Kit	631348-B21
	HP USB BFR with PVC Free DE Keyboard/Mouse Kit	631358-B21
	HP USB BFR with PVC Free JP Keyboard/Mouse Kit	631360-B21
	HP USB BFR with PVC Free IT Keyboard/Mouse Kit	631362-B21
	HP USB BFR with PVC Free CN Keyboard/Mouse Kit	631364-B21
	HP USB BFR with PVC Free AE Keyboard/Mouse Kit	638212-B21
	HP USB BFR with PVC Free RU Keyboard/Mouse Kit	638214-B21
	HP USB BFR with PVC Free AP-Intl Keyboard/Mouse Kit	672097-373
	HP USB BFR with PVC Free Intl Keyboard/Mouse Kit	672097-B33
	HP USB BFR with PVC Free PT Keyboard/Mouse Kit	672097-133
	HP USB BFR with PVC Free TR Keyboard/Mouse Kit	672097-143
	HP USB BFR with PVC Free CZ Keyboard/Mouse Kit	672097-223
	HP USB BFR with PVC Free FI Keyboard/Mouse Kit	672097-353
	HP USB BFR with PVC Free SE Keyboard/Mouse Kit	672097-103
	HP USB BFR with PVC Free CH Keyboard/Mouse Kit	672097-113
	HP USB BFR with PVC Free KR Keyboard/Mouse Kit	672097-KD3
	HP USB BFR with PVC Free IN Keyboard/Mouse Kit	672097-D63
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information (Worldwide): http://h18000.www1.hp.com/products/quickspecs/13972_div/13972_div.html	
	Rail Kits	
	NOTE: Gen8 rail kits have changed significantly from prior generation Proliant rail kits. Please take a moment to review the installation documentation that comes with the system to help you with the installation of your Gen8 system. **NOTE:** Rail kits are optional for DL380z Gen8. Customers have the option to purchase their system without a rail kit. **NOTE:** Easy Install rail kits contain telescoping rails which allow for in-rack serviceability.	

HP 2U Small Form Factor Easy Install Rail Kit	733660-B21
HP 2U Cable Management Arm for Easy Install Rail Kit	733664-B21
HP 2U Small Form Factor Easy Install Rail Kit with CMA	733668-B21

HP Care Pack Services

Foundation Care

NOTE: The following Care Pack services are available for the HP DL380z Gen8 Virtual Workstation:

HP 3 year Next business day DL380z Virtual Workstation Foundation Care Service	U5V46E
HP 3 year Next business day with Defective Media Retention DL380z Virtual WS Foundation Care Service	U5V47E
HP 3 year 24x7 DL380z Virtual Workstation Foundation Care Service	U5V48E
HP 3 year 24x7 with Defective Media Retention DL380z Virtual Workstation Foundation Care Service	U5V49E
HP 4 year Next business day DL380z Virtual Workstation Foundation Care Service	U5V50E
HP 4 year Next business day with Defective Media Retention DL380z Virtual WS Foundation Care Service	U5V51E
HP 4 year 24x7 DL380z Virtual Workstation Foundation Care Service	U5V52E
HP 4 year 24x7 with Defective Media Retention DL380z Virtual Workstation Foundation Care Service	U5V53E
HP 5 year Next business day DL380z Virtual Workstation Foundation Care Service	U5V54E
HP 5 year Next business day with Defective Media Retention DL380z Virtual WS Foundation Care Service	U5V55E
HP 5 year 24x7 DL380z Virtual Workstation Foundation Care Service	U5V56E
HP 5 year 24x7 with Defective Media Retention DL380z Virtual Workstation Foundation Care Service	U5V57E
HP Install DL380z Service	U5V58E
HP Startup DL380z Service	U5V59E

NOTE: For more information, customer/resellers can contact: http://www.hp.com/services/carepack

FIO HP DL380z parts with non-FIO part equivalents

The following parts listed detail the HP DL380z Gen8 Virtual Workstation FIO only parts and the equivalent non-FIO part number:

NOTE: The equivalent non-FIO part numbers are useful for field upgrade/replacement situations, or for customer premise installation.

Processors

HP DL380z Gen8 Intel Xeon E5-2650v2 (2.6GHz/8-core/20MB/95W) with Fan FIO Processor Kit	766983-B21
The equivalent non-FIO part number:	
HP DL380p Gen8 Intel® Xeon® E5-2650v2 (2.6GHz/8-core/20MB/95W) Processor Kit	715218-B21
HP DL380z Gen8 Intel Xeon E5-2630v2 (2.6GHz/6-core/15MB/80W) with Fan FIO	766984-B21

Processor Kit	
The equivalent non-FIO part number:	
HP DL380p Gen8 Intel® Xeon® E5-2630v2 (2.6GHz/6-core/15MB/80W) Processor Kit	715220-B21
HP DL380z Gen8 Intel Xeon E5-2695v2 (2.4GHz/12-core/30MB/115W) with Fan FIO Processor Kit	766985-B21
The equivalent non-FIO part number:	
HP DL380p Gen8 Intel® Xeon® E5-2695v2 (2.4GHz/12-core/30MB/115W) Processor Kit	715225-B21
HP DL380z Gen8 Intel Xeon E5-2680v2 (2.8GHz/10-core/25MB/115W) with Fan FIO Processor Kit	766986-B21
The equivalent non-FIO part number:	
HP DL380p Gen8 Intel® Xeon® E5-2680v2 (2.8GHz/10-core/25MB/115W) Processor Kit	715215-B21
HP DL380z Gen8 Intel Xeon E5-2670v2 (2.5GHz/10-core/25MB/115W) with Fan FIO Processor Kit	766987-B21
The equivalent non-FIO part number:	
HP DL380p Gen8 Intel® Xeon® E5-2670v2 (2.5GHz/10-core/25MB/115W) Processor Kit	715216-B21

Memory

HP VWS 8GB (1x8GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 FIO Memory	766988-B21
The equivalent non-FIO part number:	
HP 8GB (1x8GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	708639-B21
HP VWS 16GB (1x16GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 FIO Memory	766989-B21
The equivalent non-FIO part number:	
HP 16GB (1x16GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	708641-B21

Networking

HP Ethernet 1Gb 4-port 366FLR FIO Adapter	684217-B21
The equivalent non-FIO part number:	
HP Ethernet 1Gb 4-port 366FLR Adapter	665240-B21
HP VWS Ethernet 10Gb 2-port 560FLR-SFP+ FIO Adapter	766990-B21
The equivalent non-FIO part number:	
HP Ethernet 10Gb 2-port 560FLR-SFP+ Adapter	665243-B21
HP VWS Infiniband FDR/Ethernet 10Gb/40Gb 2-port 544FLR-QSFP FIO Adapter	766991-B21
The equivalent non-FIO part number:	
HP Infiniband FDR/Ethernet 10Gb/40Gb 2-port 544FLR-QSFP Adapter	649282-B21

Power Supply

HP DL380z 1200W Common Slot Platinum Plus Hot Plug FIO Power Supply	766992-B21
The equivalent non-FIO part number:	
HP 1200W Common Slot Platinum Plus Hot Plug Power Supply Kit	656364-B21

Additional Options

PCIe IO Slot Risers

HP DL380z Gen8 Double Wide Slot1 FIO Riser Cage	766993-B21
The equivalent non-FIO part number:	
HP DL380p Gen8 Double Wide Slot1 Riser Cage Kit	752803-B21
HP DL380z Gen8 Double Wide Slot2 FIO Riser Cage	766994-B21
The equivalent non-FIO part number:	
HP DL380p Gen8 Double Wide Slot2 Riser Cage Kit	728543-B21

GPUs

HP DL380z NVIDIA GRID K2 Reverse Air Flow PCIe GPU FIO Adapter	766995-B21
The equivalent non-FIO part number:	
NVIDIA GRID K2 Reverse Air Flow Dual GPU PCIe Graphics Accelerator	753958-B21
HP DL380z NVIDIA Quadro K4000 PCIe FIO Graphics Adapter	766996-B21
The equivalent non-FIO part number:	
NVIDIA Quadro K4000 PCI-E Graphics Adapter	730870-B21
HP DL380z NVIDIA Quadro K5000 PCIe FIO Graphics Adapter	766997-B21
The equivalent non-FIO part number:	
NVIDIA Quadro K5000 PCI-E Graphics Adapter	730872-B21
HP DL380z NVIDIA Quadro K6000 PCIe FIO Graphics Adapter	766998-B21
The equivalent non-FIO part number:	
NVIDIA Quadro K6000 PCI-E Graphics Adapter	730874-B21

Storage

HP VWS 100GB 6G SATA Mainstream Endurance88 SFF 2.5-in SC Enterprise Mainstream 3yr Wty FIO SSD	774114-B21
The equivalent non-FIO part number:	
HP 100GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691862-B21
HP VWS 400GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty FIO SSD	774115-B21
The equivalent non-FIO part number:	
HP 400GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691866-B21

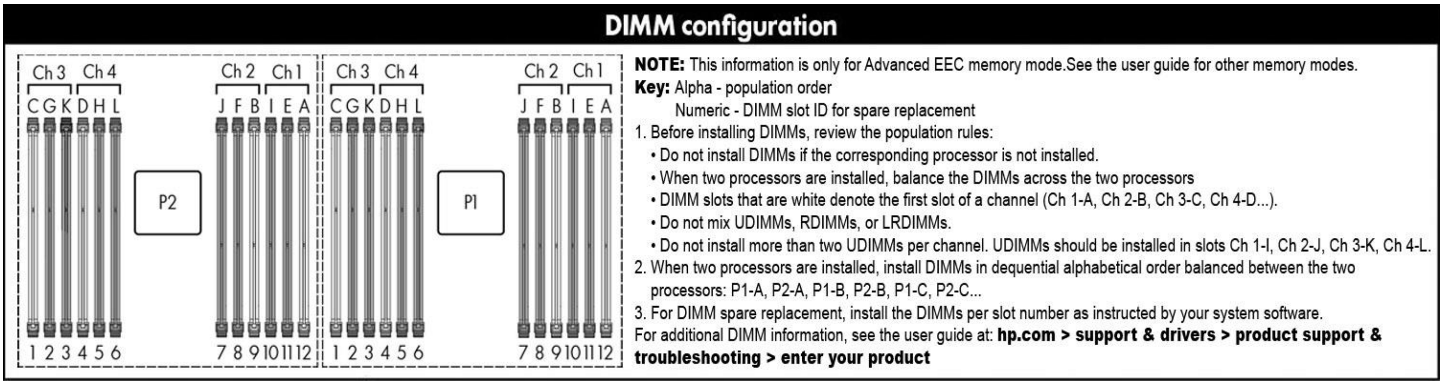
HP SmartMemory

New HP SmartMemory now provides additional protection for your HP Virtual Workstations. With HP Authentication it can verify that you have true HP Qualified Memory in your HP DL380z Gen8 Virtual Workstation. With HP SmartMemory your new HP DL380z Gen8 can take advantage of enhancements in performance, durability and future manageability support through HP Active Health System

For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator

Memory Subsystem Architecture
Each Intel® Xeon® E5-2600 v2 family processor socket contains four memory channels that support three DIMMs each for a total of twelve (12) DIMMs per installed processor or a grand total of Twenty Four (24) DIMMs for the system. Up to 16GB capacity DIMMs are supported for 384GB of max memory (for Best Speed (1866MT/s) run 2 DIMMs per channel or 16 DIMM slots x 16GB per DIMM = 256GB).

Memory population guidelines



DIMM configuration

NOTE: This information is only for Advanced EEC memory mode.See the user guide for other memory modes.
Key: Alpha - population order
Numeric - DIMM slot ID for spare replacement

1. Before installing DIMMs, review the population rules:
   - Do not install DIMMs if the corresponding processor is not installed.
   - When two processors are installed, balance the DIMMs across the two processors
   - DIMM slots that are white denote the first slot of a channel (Ch 1-A, Ch 2-B, Ch 3-C, Ch 4-D...).
   - Do not mix UDIMMs, RDIMMs, or LRDIMMs.
   - Do not install more than two UDIMMs per channel. UDIMMs should be installed in slots Ch 1-I, Ch 2-J, Ch 3-K, Ch 4-L.
2. When two processors are installed, install DIMMs in dequential alphabetical order balanced between the two processors: P1-A, P2-A, P1-B, P2-B, P1-C, P2-C...
3. For DIMM spare replacement, install the DIMMs per slot number as instructed by your system software.

For additional DIMM information, see the user guide at: **hp.com > support & drivers > product support & troubleshooting > enter your product**

General 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.
- A minimum of one DIMM is required per system.
- 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.
- When two processors are installed, balance the DIMMs across the two processors.
- 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.
- Mixing of RDIMM, LRDIMM, and UDIMM is not supported. DL380z Gen8 supports only RDIMM technology.
- Using the HP RBSU, 1.35V DIMMs can be changed to operate at 1.5V.
- DIMMs of different speeds may be mixed in any order; the system will select a common optimal speed.
- The maximum memory speed is a function of the memory type, memory configuration, and processor model.
- The maximum memory capacity is a function of the memory type and number of installed processors.
- To realize the performance memory capabilities listed in this document, HP SmartMemory is required. For additional information, please see the HP 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 HP DL380z Gen8 user guide at

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

Supported Memory Bandwidth for HP DL380z Gen8 Virtual Workstation with Intel® Xeon® E5-2600 v2 Series Processor Family			
DIMM Type ->	**Register DIMM**		
DIMM Rank ->	**Dual Rank (2R)**	**Single Rank (1R)**	**Dual Rank (2R)**
DIMM Capacity ->	8GB	8GB	16GB
DIMM Native Speed (MT/s) - >	1866	1866	1866
Voltage	Std	Std	Std
SLOTS THAT CAN BE POPULATED			
24 slot systems	24	24	24
MAXIMUM CAPACITY (GB)*			
24 slot systems	192	192	384
POPULATED DIMM SPEED (MT/s)			
1 DIMM/Channel	1866	1866	1866
2 DIMM/Channel	1866	1866	1866
3 DIMM/Channel	1066	1066	1066
Memory speed is a function of the processor QPI bus speed. * Maximum capacity will vary based on individual system platform qualification schedule			

Memory Speed by E5-2600 v2 Processor Model	
Processor Models	Supported Memory Speeds
E5-2695 v2, E5-2680 v2, E5-2670 v2, E5-2650 v2	1866/1600MT/s
E5-2630 v2	1600MT/s

Memory

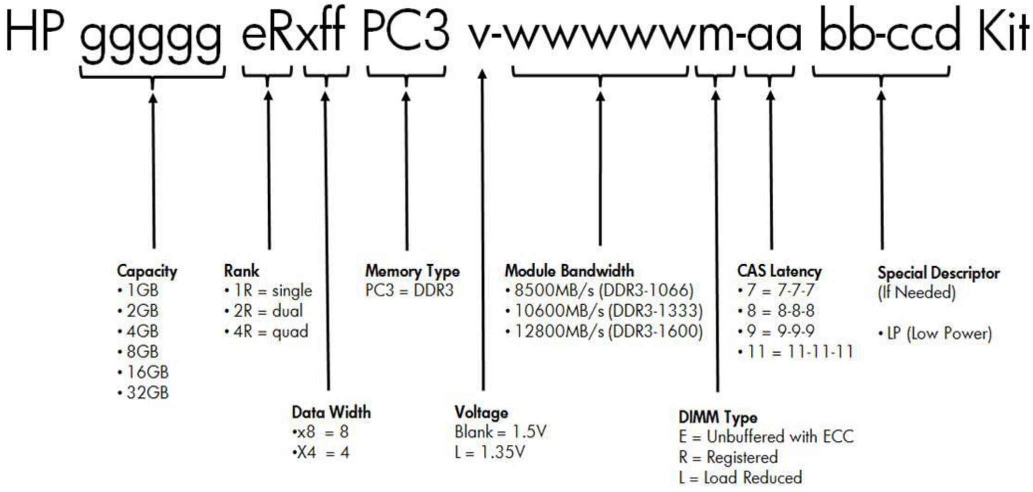
DIMM slot and configuration diagram
Population order; start with "A" first, "B" second, "C" third, etc.
When one processor is installed, install DIMMs in sequential alphabetic order: A, B, C, D, E, F ...
When two processors are installed, install DIMMs in sequential
alphabetic order: CPU1-A, CPU2-A,CPU1-B,CPU2-B,CPU1-C, CP2-C

24 DIMM SLOTS (12 per CPU node)					
	slot #	population order	slot #	population order	
Chnl 3	1	C	1	C	Chnl 3
	2	G	2	G	
	3	K	3	K	
Chnl 4	4	D	4	D	Chnl 4
	5	H	5	H	
	6	L	6	L	
CPU1			**CPU2**		
Chnl 2	7	J	7	J	Chnl 2
	8	F	8	F	
	9	B	9	B	
Chnl 1	10	I	10	I	Chnl 1
	11	E	11	E	
	12	A	12	A	

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

- 1GB = 1024MB
- 2GB = 2048MB
- 4GB = 4096MB
- 8GB = 8192MB
- 16GB = 16384MB
- 32GB = 32768MB

DDR3 memory options part number decoder



Memory

Following are memory options available from HP:

HP Memory

NOTE: Memory modules not contained in the latest version of this QuickSpec for the HP DL380z Gen8 Virtual Workstation are not qualified or warranted. 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_div/14225_div.html

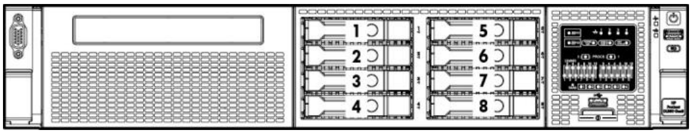
NOTE: LRDIMM, RDIMM and UDIMMs are all distinct memory technologies and cannot be mixed within a system. The HP DL380z Gen8 Virtual Workstation supports only RDIMM technology.

Registered DIMMs (RDIMMs)

NOTE: The following memory is supported by the E5-2600 v2 series Processors.

HP VWS 8GB (1x8GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 FIO Memory Kit	766988-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	708639-B21
HP 8GB (1x8GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	731761-B21
HP VWS 16GB (1x16GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 FIO Memory Kit	766989-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	708641-B21

Storage



1-8	Eight SFF SAS hot plug drive bays

Maximum Storage Capacity - (SAS/SATA HDD)

Internal	8.0TB (8 SFF HDDs x 1TB SATA SFF)

Technical Specifications

System Unit	**Dimensions** (H x W x D)	SFF Drives: 3.44 x 17.54 x 27.50 in (8.73 x 44.55 x 69.85 cm)	
	Weight (approximate)	Maximum	61.00 lb (27.66 kg)
		Minimum (one SFF hard drive, power supply, and processor installed, ODD not installed)	41.0 lb (18.59 kg)
	Input Requirements (per power supply)	Rated Line Voltage	100 to 120 VAC 200 to 240 VAC
		Rated Input Current	For 1200 W Power Supply: 10 A (at 100 VAC), 4.9 A (at 200 VAC)
		Rated Input Frequency	50 to 60 Hz
		Rated Input Power	For 1200 W Power Supply: 930 W (at 100 VAC), 1348 W (at 200 VAC)
	BTU Rating	Maximum	For 1200 W Power Supply: 3530 BTU/hr (at 100 VAC), 4600 BTU/hr (at 200 VAC)
	Power Supply Output (per power supply)	Rated Steady-State Power	For 1200 W Power Supply: 800 W (at 100 VAC), 900 W (at 120 VAC), 1200 W (at 200 to 240 VAC)
		Maximum Peak Power	For 1200 W Power Supply: 800 W (at 100 VAC), 900 W (at 120 VAC), 1200 W (at 200 to 240 VAC)
	System Inlet Temperature	Operating	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 (non-condensing)	Operating	10% to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
		Non-operating	5% to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
	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). The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.

NOTE: The Listed sound levels apply to configurations without graphics. Additional options, including graphics, may result in increased sound levels.

	Performance
Idle	
LWAd	4.1 B
LpAm	25 dBA
Operating	
LWAd	5.0 B
LpAm	35 dBA

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.

NOTE: The Listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.

HP Smart Array P420i Controller

Dimensions	Embedded
Disk Drive and Enclosure Interface - Transfer Rate	6Gb/s SAS (Serial Attached SCSI) 6Gb/s SATA (Serial ATA)
SAS Connectors	2 internal 4X connectors
Cache Memory Speed	1GB or 2GB FBWC DDR3-1333MHz with 72-bit wide bus
System Interface	x8 PCIe 3.0 provides 8GB/s maximum bandwidth
SAS Speed	(8) 6Gb/s SAS links provide 4.8GB/s maximum bandwidth
Cache Memory	Zero Memory RAID has no cache memory 72-bit 1GB ECC protected flash back write cache (FBWC) or 72-bit 2GB FBWC
Logical Drives Supported	Zero Memory, Up to 2 logical volumes (8SFF physical drives) Up to 64 logical drives with cache
Host Memory Addressing	64-bit, supporting greater than 4GB system memory space
RAID Support	RAID 6, 60 (Advanced Data Guarding) RAID 5, 50 (Distributed Data Guarding) **NOTE:** A minimum of 512 MB cache is required to enable RAID 5, 50, 6, 60 **NOTE:** HP Smart Array Advanced Pack (SAAP 2.0) is no longer required to enable RAID 6 & 60 (Advanced Data Guarding). However, controller must be in firmware version 4.68 (or later).

		RAID 10 (Striping & Mirroring) RAID 0 (Striping), RAID 1 (Mirroring)	
HP Ethernet 1Gb 4-port 366FLR Adapter	**HP Flexible Network Technology**	HP Flexible Network Technology consists of replaceable network solutions to meet customer requirements now and in the future.	
	Network Interface	10Base-T/100Base-TX/1000Base-TX	
	Compatibility	EEE 802.3 IEEE 802.3ab IEEE 802.3u IEEE 802.3x IEEE 802.3ad IEEE 802.1q IEEE 802.3az IEEE 802.1as IEEE 1588	
	Data Transfer Method	PCI Express, four lanes (x4)	
	Chipset	Intel Ethernet Controller I350	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
		1000Base-TX (Full-Duplex)	2000Mb/s
	Connector	Four RJ-45	
	Cable Support	10Base-T	Category 5e (CAT-5e) or better twisted-pair cabling; up to 328 ft (100 m)
		100Base-TX	Category 5e (CAT-5e) or better twisted-pair cabling; up to 328 ft (100 m)
		1000BaseTX	Category 5e (CAT-5e) or better twisted-pair cabling; up to 328 ft (100 m)
HP Ethernet 10Gb 2-port 560FLR-SFP+ Adapter	**Network Interface**	SFP+ for Direct Attach Cable copper or fiber	
	Compatibility	IEEE 802.3 IEEE 802.1ab IEEE 802.3x IEEE 802.3ad IEEE 802.1p/802.1q IEEE 802.3ae IEEE 802.1Qau	
	Data Transfer Method	PCI Express 2.0, eight lanes (x8)	
	Chipset	Intel 82599 Controller (generation 10)	
	Network Transfer Rate	Full Duplex	20Gbps per port
		Total Aggregate	40Gbps Full Duplex theoretical bandwidth
	Connector	Two SFP+ cages allowing use of Direct Attach copper and SR fiber optic modules	

Technical Specifications

Environment-friendly Products and Approach	**End-of-life Management and Recycling**	Hewlett-Packard offers end-of-life HP 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 HP sales office. Products returned to HP 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 web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

Summary of Changes

Date of change:	Version History:		Description of change:
June 9, 2014	From v1 to v2	Added	Add document ID to footnotes section
		Changed	Processor list
August 5, 2014	From v1 to v2	Added	Processor list
		Changed	Add document ID to footnotes section
April 3, 2015	From v2 to v3	Changed	Memory nomenclature