



Experience true workstation-class 3D graphics

HP ProLiant WS460c Gen8 Blade Workstation

The HP ProLiant WS460c Gen8 Blade Workstation revolutionizes workstation computing by allowing you to centralize your organization's workstations in the data center. Rather than placing the workstation's computing power at the user's desk, the computing power—in the form of a blade workstation—is moved to the data center, where workstations can be more easily, securely, and economically managed. The results are improved uptime and business continuity, enhanced data center security, and reduced IT costs.

This next-generation workstation infrastructure combines the centralized, mission-critical control and security of the data center with seamless, on-demand workstation performance, providing the flexibility to support professionals in multiple work locations. The ProLiant WS460c Gen8 Blade solution provides for an improved user environment, better resource utilization, easy remote access, and real-time remote collaboration among individuals and teams. It can transform your workstation environment to make your users more productive.

The ProLiant WS460c Gen8 Blade solution is ideal for high-end graphics users with computing environments that require the use of high-performance graphics applications such as those used in financial trading, computer-aided design (CAD), Web design, education, public sector, oil and gas, and healthcare sectors. It offers improved graphics capabilities, enhanced memory footprint and speeds on the ProLiant Gen8 architecture. All these features enable users to complete large model visualizations with uncompromised workstation-class performance.

What's new?

The HP ProLiant WS460c Gen8 Blade Workstation provides increased core support (eight-core vs. six-core support in the previous generation blade solutions). It utilizes the latest Intel® Xeon® E5-2600 Series Processors. New advanced mezzanine slots in ProLiant WS460c Gen8 Blade Workstation support up to 400 percent more bandwidth per slot.¹ This blade workstation offers high availability via hot-plug drive support. In addition, HP Flexible LAN-on-motherboard (LOM) and features like HP Gen8 enhanced manageability suite (HP iLO Management Engine, HP Insight Control 7.0) provide high availability and increased flexibility.

The ProLiant WS460c Gen8 Server Blade is a dual-socket server blade that comes with new and enhanced features such as:

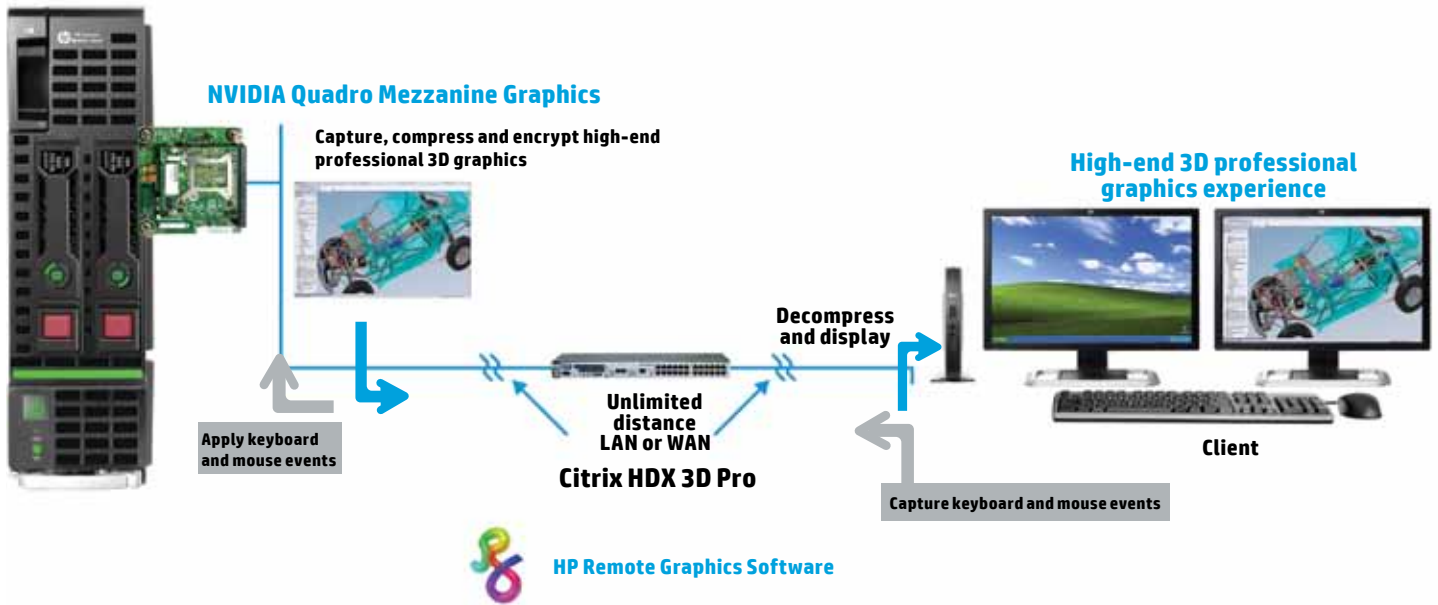
- Next-generation two-socket Intel Xeon E5-2600 processor family that provides two-, six-, and eight-core solutions, with support for up to 130 W processors
- Support for NVIDIA Quadro 3000M, Quadro 1000M, and Quadro 500M Graphics Cards
- Enhanced memory capacity and performance, along with the benefit of reduced power: 16 DIMM slots, supporting up to 512 GB at 1333 MHz and 256 GB at 1600 MHz, with the ability to operate registered DIMMs (RDIMMs) at a low power (1.35 V) without performance reductions
- Dual-port Flexible LOMs that are ready for technology change as network demands dictate
- HP iLO Management Engine, which contains a host of embedded features that support the entire server lifecycle ranging from deployment, continued management, and service alerts to remote support
- The HP P220i Smart Array controller offers three times the performance² compared to the HP P410i controller offered with the ProLiant WS460c G6 Server Blade. The ProLiant WS460c Gen8 Blade offers a choice of two 2.5-inch small form factor (SFF) serial-attached SCSI (SAS), Serial ATA (SATA) drives, and solid-state drives (SSDs). The HP P220i controller comes standard with 512 MB flash-backed write cache (FBWC), and supports mixing of SAS/SATA/SSD hot-plug drives³
- Two x16 PCI Express (PCIe) 3.0 I/O expansion slots that support the highest bandwidth mezzanine option cards at present, with room for future growth

¹ Per HP internal testing, compared to a G6 x8 PCIe Gen 2 expansion slot. Actual results will depend on application, system configuration, tuning, and so on.

² Based on HP internal testing of I/O transactions per second. Actual results will depend on application, system configuration, tuning, and so on.

³ When mixing different drive technology, RAID technology is limited to two independent RAID 0 volumes.

Workstation-class experience for 3D graphics



ProLiant WS460c Gen8 Blade Workstation makes life easier

Workstation-class performance

The ProLiant WS460c Gen8 Blade Workstation delivers an outstanding workstation experience compared to standard networks.

- Share advanced media-rich workstation graphics remotely, with 2D and 3D multi-display, and full-motion video capabilities.
- The Intel Xeon E5-2600 processor family offers more power efficiency, higher performance, and more adaptability with Intel® QuickPath Interconnect (QPI) and Intel integrated memory controller. ProLiant WS460c Gen8 Blade Workstation supports new NVIDIA Quadro 3000M, 1000M, and 500M Graphics Cards.
- Intel Turbo Boost Technology and Intel Intelligent Power Technology move, add, and change blade computing power in minutes. This way, IT managers can manage the hardware pool more effectively, and professionals can easily connect to compute resources.

Enhanced application, storage, and I/O performance

- HP SmartMemory is a new technology that is available only on HP ProLiant Gen8 servers. This technology offers unmatched quality, performance, and manageability, compared to industry-standard memory; it supports RDIMM, unregistered DIMM (UDIMM), and load-reduced DIMM (LRDIMM) with 512 GB capacity at 1333 MHz or 256 GB capacity at 1600 MHz on the ProLiant WS460c Gen8 server blade.
- The PCIe 3.0 technologies on the ProLiant WS460c Gen8 server blade offer improved latency, and up to 400 percent more bandwidth per I/O expansion slot.⁴
- HP FlexibleLOM allows you to update technology based on networking demands, helping you customize server networking, and scale up to future demands without the need to overhaul existing server hardware.

⁴ Per HP internal testing, compared to a G6 x8 PCIe Gen 2 expansion slot. Actual results will depend on application, system configuration, tuning, and so on.

Multi-location flexibility

The HP ProLiant WS460c Gen8 Server Blade paves the way for new business models by removing distance barriers. It accomplishes this with reliable network-enabled access that allows teams to collaborate remotely.

- Access blade workstation resources easily from thin client devices and from Microsoft® Windows®-based workstations, PCs, and notebooks.
- Enable high-performance levels with a solution that intelligently compresses bandwidth use, utilizes the existing network infrastructure, and runs existing applications unchanged.
- Empower professionals in different locations to work collaboratively on the same applications, allowing them to share ideas and solve problems in real time.

Data center security and control

The HP ProLiant WS460c Gen8 Server Blade lowers risk by managing exposure to your business operations with a centralized blade infrastructure that encrypts all graphic data sent to client devices.

- Benefit from mission-critical security and low-latency data access across the workstation environment.
- Reduce the risk of security exposure from local hard drives, removable media drives, data interfaces such as USB, and system theft or loss.

Business continuity

With multi-blade and multi-site capabilities, the ProLiant WS460c Gen8 Blade Workstations can dramatically improve business continuity.

- Rely on the availability of your computing resources knowing that your workstation computing infrastructure provides data center redundancy and fault tolerance.
- Run multiple blade workstation sessions from a single client and connect to any data center to intelligently balance and shift compute resources in the event of a problem.
- Be prepared for incidents such as power loss and catastrophic disasters, with data center computing environments that can be accessed more securely from any location.

Easy management

The HP ProLiant WS460c Gen8 Blade helps consolidate IT management in one location, improves efficiency, and reduces the time needed to troubleshoot and perform maintenance tasks.

- Get access to improved management capabilities through the HP iLO 4 Management Engine, which enables a lifecycle approach to deploying and managing the server, and automatically regulates power consumption and server performance.
- Navigate and manage systems through a single, browser-based interface, and deploy software easily using the HP ProLiant Essentials Rapid Deployment Pack.
- Remotely control and troubleshoot from a central location or outside the office, on the network using the HP ProLiant Onboard Administrator.

Table 1. Comparison of ProLiant WS460c Gen8 with ProLiant WS460c G6 Blade

	ProLiant WS460c Gen8 Built on ProActive Insight Architecture	ProLiant WS460c G6
Compute	Intel Xeon E5-2600, 2/6/8 cores PCIe Gen 3 (2)	Intel Xeon 5500/5600, 2/4/6 cores PCIe Gen 2 (2)
HP Smart Socket guide	✓	✗
Memory	(16) DDR3, up to 1600 MHz (512 GB max)	(12) DDR3, up to 1333 MHz (192 GB max)
HP SmartMemory		✗
Graphics Cards	NVIDIA Quadro 3000M, 1000M, 500M	NVIDIA Quadro FX880M, FX2800M
Storage	HP Smart Array P220i Controller with 512 MB FBWC 2 SFF 2.0 TB max—HDD/SSD	HP Smart Array P410i controller 2 SFF 2.0 TB max—HDD/SSD
HP SmartDrives		✗
FBWC	✓	✗
Networking	2x10GbE Flex-10	2x1GbE
HP FlexibleLOM	✓	✗
Embedded management	HP iLO Management Engine (iLO 4)	HP Integrated Lights-Out (iLO 2)
Intelligent provisioning	✓	✗
HP Active Health System	✓	✗
Agentless management	✓	✗
Cloud-based management	HP Insight Management 7	HP Insight Management 6
HP Insight Control (agentless)	✓	✗
HP Insight Online		✗
Power and cooling	Enclosure based (94 percent Platinum)	Enclosure based
3D Sea of Sensors		✗

Table 2. Technical specifications

Processor and memory	
Processor type	Intel Xeon E5-2600 product family
Available processors	<p>Eight-core processors Intel Xeon E5-2680 (2.7GHz/8-core/20MB/130W) processor kit Intel Xeon E5-2670 (2.6GHz/8-core/20MB/115W) processor kit Intel Xeon E5-2665 (2.4GHz/8-core/20MB/115W) processor kit Intel Xeon E5-2660 (2.2GHz/8-core/20MB/95W) processor kit Intel Xeon E5-2650 (2.0GHz/8-core/20MB/95W) processor kit Intel Xeon E5-2650L (1.8GHz/8-core/20MB/70W) processor kit</p> <p>Six-core processors Intel Xeon E5-2667 (2.9GHz/6-core/15MB/130W) processor kit Intel Xeon E5-2640 (2.5GHz/6-core/15MB/95W) processor kit Intel Xeon E5-2630 (2.3GHz/6-core/15MB/95W) processor kit Intel Xeon E5-2630L (2.0GHz/6-core/15MB/60W) processor kit Intel Xeon E5-2620 (2.0GHz/6-core/15MB/95W) processor kit</p> <p>Dual-core processors Intel Xeon E5-2637 (3.0GHz/2-core/5MB/80W) processor kit</p>
Processor core	2, 6, and 8
Maximum processor speed	3.0 GHz
Processors per 42U enclosure	128
Cache memory	5 MB, 15 MB, or 20 MB shared L3
Memory type	DDR3 load reduced (LRDIMM), registered (RDIMM), or unbuffered ECC (UDIMM)
Standard memory	2 GB, 4 GB, 8 GB, 16 GB, or 32 GB
Maximum memory	Up to 512 GB (LRDIMM), up to 256 GB (RDIMM), up to 128 GB (UDIMM)

Technical specifications (contd.)

Storage	
Maximum internal storage	Hot-plug SAS/SATA/ SSD, 2 TB max
Number of hard drives	Up to 2 serial-attached SFF hot-plug SAS/SATA/SSD drives
Fibre Channel SAN support	Yes
Storage controller	HP Smart Array P220i Controller with 512 MB FBWC

Graphics	
Graphics ⁵ adapter	Mezzanine cards NVIDIA Quadro 3000M, 1000M, 500M Graphics Expansion Blades⁶ Expected to be available by December 2012

Deployment	
Form factor	Blade
Rack height	10U: up to 16 ProLiant WS460c Gen8 Blade Workstations 6U: up to 8 ProLiant WS460c Gen8 Blade Workstations
Networking	Embedded 10Gb 530 FLB Flex-10 Adapter; two ports
Remote management	ProLiant Onboard Administrator powered by iLO 4
Remote access	HP Remote Graphics Software (RGS)
Operating systems	Client Operating Systems: Microsoft Windows 7 Professional (64-bit)
Warranty	3-year parts, 3-year labor, 3-year onsite support
QuickSpecs URL	http://h18000.www1.hp.com/products/quickspecs/14409_div/14409_div.pdf

^{5,6} Presently supports only single Mezzanine card. Dual Mezzanine Graphics and PCIe cards (with Gen8 Graphics expansion blade) support is expected to be available in December.



HP Thin Clients

The simple, flexible performance of industry-leading thin client solutions from HP delivers rich, responsible user connectivity to client virtualization or cloud computing environments. Designed with the latest, standards-based hardware, leading client virtualization software, and complete manageability tools, HP thin client solutions help simplify IT while providing adaptive flexibility. The new HP t610 Thin Client delivers PC-like multimedia experience. The HP t610 and the HP t610 PLUS Flexible Thin Client feature DirectX 11 graphics support, DDR3-1600 RAM (dual slots) with up to 4 GB of capacity, and AMD A55E Chipset with DVI-I and DisplayPort connectors for exceptional thin client performance. Preloaded with HP Trusted Platform Module (TPM) Chip built-in security feature, NIST-compliant BIOS and optional dual Wi-Fi3 internal antennas, the HP t610 Flexible series thin clients bring security features usually found only on PCs so that customers' network-access security concerns can be addressed.

For more information

Get access to centralized, cost-effective workstation management. Visit

hp.com/services/proliant

hp.com/services/bladesystem

HP Technology Services

When technology works, business works.

When you buy HP ProLiant options for your HP ProLiant servers, it is also a good time to think about services.

Recommended HP Care Pack Services

3-year, HP 24x7, 4-hour response, hardware support, onsite service or 3-year

3-year, HP 24x7, 4-hour response HP Collaborative Support HP ProLiant Server Hardware Installation Service

Related HP Care Pack Services

3-year, HP 24x7, 4-hour response Proactive Care or 3-year, HP 6-hour, onsite, call-to-repair HP Collaborative Support HP Proactive Select Service

All support services come with HP Insight Remote Support, providing 24x7 remote monitoring, proactive notifications, and problem resolution.

Coverage: For HP ProLiant servers, care pack services provide coverage for HP-branded hardware options qualified for the server, purchased at the same time or afterward, internal to the enclosure, as well as external monitors up to 22" and tower UPS products; these items will be covered at the same service level, and for the same coverage period as the server unless the highest supported lifetime and/or the highest usage limitation has been exceeded. Coverage of UPS battery is not included; standard warranty terms and conditions apply.

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