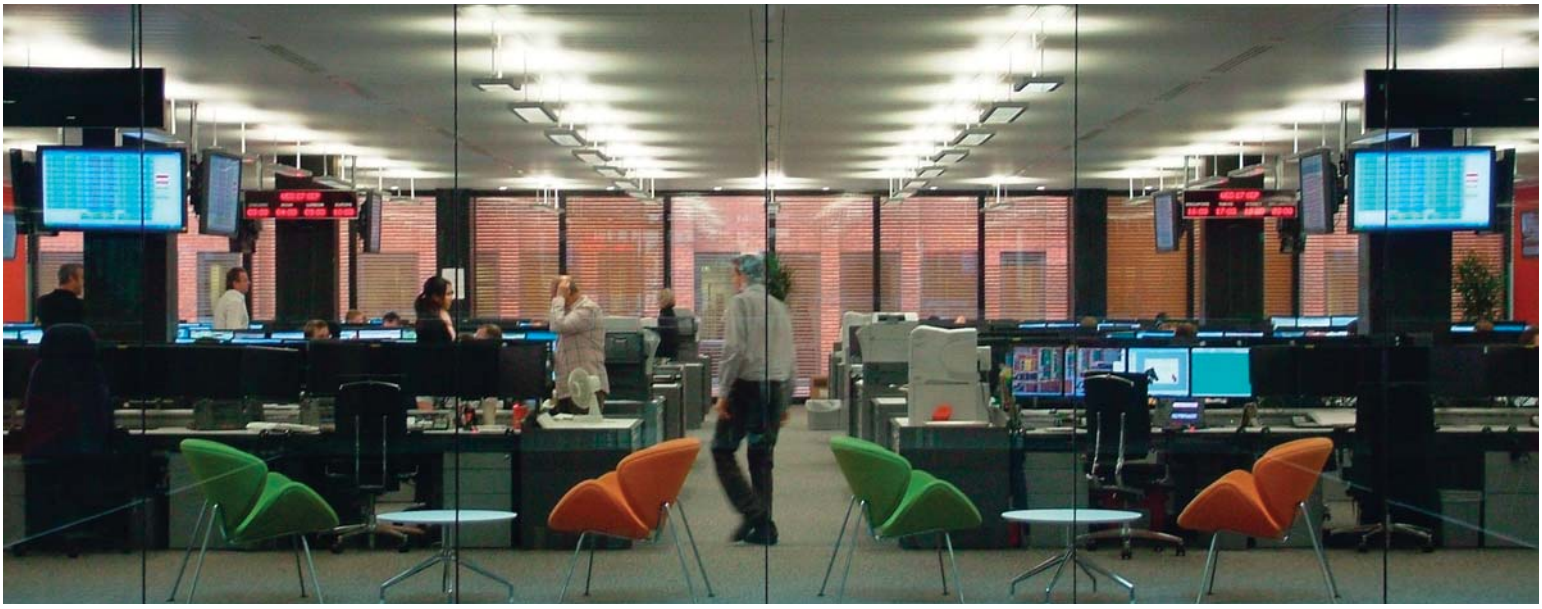


HP Blade Workstation Solution

Data center workstation computing, without boundaries

Featuring the HP ProLiant xw460c Blade Workstation

Power to the business, power to the people

Built with HP ProLiant quality and trading-floor proven reliability, the HP Blade Workstation Solution provides data center workstation computing without boundaries.

By combining the centralized security and control of a data center with seamless workstation performance and the flexibility to support professionals in multiple locations, the HP Blade Workstation Solution revolutionizes the business workplace with a new way of working.

Data center security and control provides risk protection

The HP Blade Workstation Solution helps you manage technology exposures to business operations with a centralized blade approach that brings mission-critical security and business continuity.

Blade-driven computing keeps data securely in the data center. High-performance blade workstations send encrypted pixels to client workstation devices reducing the risk of security exposures from local drives and USB ports, as well as through system theft or loss.

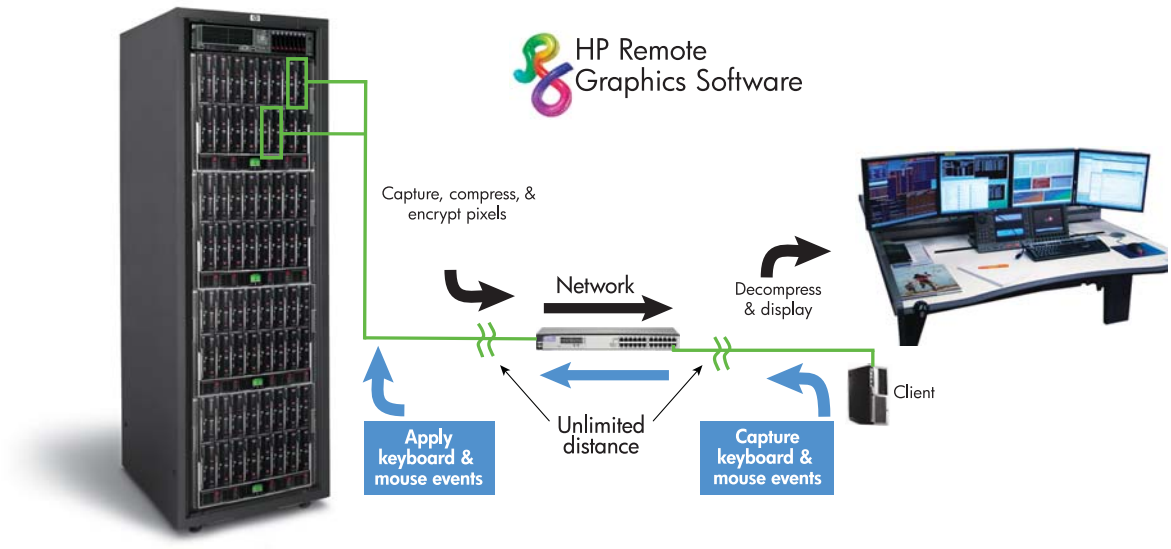
Multi-blade and multi-site capabilities dramatically improve business continuity. By creating a data center computing environment that can be accessed securely and remotely, the HP Blade Workstation Solution prepares your business for any incidents ranging from power loss to disaster or even pandemic events.

HP ProLiant Essentials Management Software gives IT staff efficient, expert control. Through a single, browser-based interface, IT professionals can remotely control and troubleshoot workstation blades from anywhere on the network, minimizing onsite help desk requirements, maximizing staff productivity, and driving greater cost of ownership savings.

Workstation-class experience increases work efficiency

The HP Blade Workstation solution allows you to create an environment that empowers your professionals, through a remote graphics innovation that delivers the workstation experience in a small device footprint.

HP Remote Graphics Software (RGS) enables interactive performance for multi-display 2D/3D graphics and video. A breakthrough HP technology, RGS drives a blade workstation with high-performance graphics, efficiently, through a network connection, enabling users to remotely and transparently share and deliver multi-display, 2D/3D graphics and full-motion video.



Data center connectivity delivers workstation power to the client on-demand. With the HP Blade Workstation Solution, you can access one or more HP Blade Workstations from a single client device giving users the workstation power they need, on-demand. The HP Blade Workstation Solution allows IT to pack more computing power into every square inch of your data center floor space. The blade computing environment makes it easy to connect to compute resources and for IT to manage its hardware—all without affecting operations. Moves, Adds, and Changes can now be done in minutes.

The HP Blade Workstation Solution greatly enhances desk ergonomics. The small form factor client supports up to four displays and multiple blade connections while dramatically reducing the heat, noise, and power consumption inherent in multi-workstation desktop configurations.

Multi-location flexibility enables greater business possibilities

The HP Blade Workstation Solution supports new business work models by eliminating distance barriers, with network-optimized access that allows teams to work and collaborate remotely and reliably.

Reliably work locally or remotely over standard network connections. The HP Blade Workstation Solution enables access to workstation compute power from client devices as well as Windows-based workstations, PCs, and notebooks. Using your existing network infrastructure and applications, this Solution intelligently compresses pixels and minimizes bandwidth usage, enabling individuals and teams to transcend the boundaries of distance.

Real-time collaboration enables teams to see and share information. Teams and individual workers, regardless of their physical location, can quickly connect to each other to work collaboratively and to solve business, financial, engineering, or field operational problems. The interactive graphics and full-motion video capabilities go far beyond the limits of web and data conferencing, allowing users to interact with media-rich graphics and 3D models in real-time.

Multi-site connectivity enables a highly responsive, virtual workforce. The HP Blade Workstation Solution eliminates distance barriers that divide operations, field personnel, business units, and corporate headquarters, allowing professionals in multiple locations to work as virtual teams.

Take control of your workstation world

Improve security while gaining greater control over your data. Create an environment that empowers your professionals. Enable and support a flexible, productive, collaborative work model.

The HP Blade Workstation Solution—welcome to the next generation way to work.

For more information on the HP Blade Workstation Solution, visit www.hp.com/go/workstations.

HP Blade Workstation Solution

HP ProLiant xw460c Blade Workstation

Operating System	Preinstalled: Genuine Windows Vista® Business 32-bit with downgrade to Windows® XP Professional 32-bit SP2 Blade PC edition with 1 RDL (Remote Desktop License) custom installed* Available: HP Installer Kit for Linux (Red Hat Enterprise Linux Workstation Version 5 update 2 and Version 4 update 5 or better) Supported: Genuine Microsoft® Windows® XP Professional x64 Edition with SP2
Processors[1]	Intel® Xeon® Quad-Core[2] X5460[3] (3.16 GHz[4]), X5450[3] (3.00 GHz[4]), E5450[3] (3.00 GHz[4]), E5440[3] (2.83 GHz[4]), E5430[3] (2.66 GHz[4]), E5420[3] (2.50 GHz[4]), L5420[3] (2.50 GHz[4]), E5405[3] (2.00 GHz[4]); Intel Xeon Dual-Core[2] X5260[3] (3.33 GHz[4]), L5240[3] (3.00 GHz[4]); Single or dual socket configuration
Cache	6 MB Level-2 shared per core pair (5400, 5200 series)
Chipsets	Intel 5000P chipset
Memory	Up to 64 GB PC2-5300 DDR2[8] Fully Buffered DIMM at 667 MHz. Low-power memory also available.
Graphics	NVIDIA Quadro FX 770M (256 MB), up to four-monitor support with dual-card configuration; NVIDIA Quadro FX 3600M (512 MB), up to two-monitor support; NVIDIA Quadro FX 5600 (1.5 GB) via HP Graphics Expansion Blade module; NVIDIA Quadra FX 3700 (512 MB) via HP Graphics Expansion Blade module
Extended I/O	Two standard, full-length PCI Express (x8) slots. (Models with HP Graphics Expansion Blade module only. Internal mezzanine slots on base blade not available)
Drive Controller	HP Smart Array E200i controller with 128 MB battery-backed write cache or 64 MB cache. RAID 0 and 1 configurable
Drive Bays	Two Small Form Factor hard disk drive bays
Internal Storage	Up to 292 GB[5]; 73 GB[5] or 146 GB[5] 10K SAS drive or 73 GB[5] 15K SAS drive
Network Adapters	Two integrated single port NC373i Multifunction Gigabit Server Adapter. One additional 10/100 NIC dedicated to iLO2 management
Internal USB port	One internal USB port (not accessible from outside)
I/O & Connectors	I/O cable with 2 USB ports, video port, iLO port and kernel debug port
Rack Enclosure	HP BladeSystem c-class enclosure (Up to 16 half-height blades per 10U enclosure, up to 8 half-height blades per 6U enclosure)
Dimensions (H x D x W)	2.21 x 20.06 x 7.15 in. (5.6 x 51.0 x 18.2 cm), 4.41 x 20.06 x 7.15 in. (11.2 x 51.0 x 18.2 cm) with HP Graphics Expansion Blade module
Power	Rack centralized, hot-plug, redundant power sub-system
Warranty	Three-year hardware, next business day, parts, labor, and 8 x 5 phone support; 90-day software 8 x 5 phone support. Terms and conditions may vary; certain restrictions apply.

HP BladeSystem Infrastructure

Enclosures	Up to 4 HP BladeSystem c7000 enclosure (10U) per 42U rack or 7 c3000 enclosure (6U) per 42U rack
Dimensions	17.4 x 17.5 x 32 in. (44.2 x 44.5 x 81.3 cm)
Density	Max 16 HP ProLiant xw460c Blade Workstation, 8 network interconnect modules per enclosure, 2 on-board administrator, 10 fans, 6 power supplies (c7000) Max 8 HP ProLiant xw460c Blade Workstation, 4 interconnect modules per enclosure, 1 on-board administrator, 6 fans, 6 power supplies (c3000)
Interconnects	HP 1/10 GB Virtual Connect Ethernet Module, Cisco Catalyst Blade Switch 3020 for HP c-class BladeSystem, HP GbE2c Ethernet Blade Switch for c-class, HP 1 GB Ethernet Pass-Thru Module for c-class BladeSystem
Power	Hot-plug, redundant power for all components; 1U form factor; single or three-phase input

HP Management Software

Infrastructure Management	HP Systems Insight Manager · Provides in-depth fault, inventory, and configuration management of BladeSystem resources · Proactive alert of actual or impending component failure with automatic event handling policies and script execution · Comprehensive system data collection and inventory reporting utilities · Single management interface for monitoring health of entire infrastructure
Remote Management	HP ProLiant Integrated Lights Out 2 (iLO2) Blade edition · Remote control of system resources located in data centers and remote locations · Install, configure, monitor, update, and troubleshoot Proliant Blade Workstations anywhere, anytime from a standard web browser, command line or script
Deployment Management Services	HP Proliant Essentials Rapid Deployment Pack · Automates the installation, configuration, and deployment of high volumes of workstation blades through a web-based console · Support for unattended image deployments

HP Remote Graphics Software

Version	HP Remote Graphics Software Version 5
Performance	Interactive 2D, 3D, and streaming video performance; applications run natively on workstation blades and take full advantage of the workstation compute, graphics, and system bandwidth resources

HP Blade Workstation Solution

Multi-Display	Up to four displays per Client desktop session
Multi-Session	Connect to multiple, simultaneous Blade Workstations from a single Client desktop
Distance	Unlimited over standard TCP/IP
Security	Microsoft password authentication protocol NTLM and Kerberos
Encryption	AES 256-bit
Compression	HP3 Image Compression Technology (visually loss-less with variable compression rate control)
Collaboration	Real-time 1-to-many collaboration support
Application Transparency	Non-intrusive, transparent application architecture; requires no modification to application for remote support
3D graphics API	OpenGL, Microsoft Direct3D (8.0 & 9.0); overlays, full screen mode not supported

Access Clients

HP dc73 Blade Workstation Client

Operating System	HP Blade Workstation Client Embedded OS
Processors	Intel® Pentium® Dual-Core E2160[3] (1.80 GHz[4], 1 MB L2 cache, 800 MHz FSB[6])
Chipset	Intel Q35 Express chipset
Memory	512 MB DDR2[8] Sync-DRAM PC2-5300 (667 MHz) Non ECC (1 x 512 MB)
Storage	512 MB SATA Flash Disk-On-Memory (DOM)
Graphics	NVIDIA Quadro 290 NVS 256 MB PCIe x 16 dual display NVIDIA Quadro 290 NVS 256 MB PCIe x 1 dual display
Networking	Intel 82566DM Gigabit Network Connection (integrated on system board)
Input Device	USB standard keyboard, selected financial USB keyboards, and USB 2-button scroll mouse
I/O Ports & Connectors	USB (2 front, 6 rear); headphone; microphone; two PS/2; RJ-45; Audio in/out
Dimensions (H x W x D)	3.95 x 13.3 x 14.9 in. (10.03 x 33.78 x 37.85 cm)
Monitors	Up to four monitors

HP Compaq t5730 Client

Operating System	Microsoft Windows XP Embedded (SP2)
Processors	AMD Sempron™ 2100+[7] 1 GHz[4]
System Memory	512 MB or 1 GB (DDR2[8]) (32 MB reserved for video)
Flash Memory	1 GB
Graphics	ATI Radeon X1250 graphics
Networking	10/100/1000 Gigabit Ethernet, twisted pair (RJ-45)
Input Devices	USB standard keyboard and USB 2-button scroll mouse
I/O Ports & Connectors	8 USB, 1 serial, RJ-45, 2 PS/2, audio in/out, VGA, DVI-D native; PCI or PCIe x 1 with expansion module
Dimensions	With stand 10.5 x 1.8 x 8.47 in. (266.7 x 45.7 x 215.14 mm)
Monitors	Up to two monitors

*Certain Windows Vista product features require advanced or additional hardware. See www.microsoft.com/windowsvista/getready/hardwarereqs.mspx and www.microsoft.com/windowsvista/getready/capable.mspx for details. Windows Vista Upgrade Advisor can help you determine which features of Windows Vista will run on your computer. To download the tool, visit www.windowsvista.com/upgradeadvisor. Windows Vista Business disk also included for future upgrade if desired. To qualify for this downgrade an end user must be a business (including governmental or educational institutions) and is expected to order at least 25 customer systems with the same custom image.

[1] Not all processors available in preconfigured models.

[2] Quad-Core and Dual-Core are new technologies designed to improve performance of multithreaded software products and hardware-aware multitasking operating systems and may require appropriate operating system software for full benefit; check with software provider to determine suitability; Not all customers or software applications will necessarily benefit from use of these technologies.

[3] Intel's numbering is not a measurement of clock speed.

[4] GHz refers to internal clock speed of the processor. Other factors besides clock speed may impact system and application performance.

[5] 1 GB = 1 billion bytes. Actual formatted capacity is less.

[6] Actual bus speed is less. Listed bus speed represents the equivalent effective throughput for data.

[7] AMD's numbering is not a measurement of clock speed.

[8] Dual Channel is only supported when the system is configured with DDR2 symmetric memory (i.e. 2 x 256)

To learn more, visit www.hp.com

4AA0-9097ENW, September 2008

invent