

HP AND PTC

Give yourself an engineering edge



Engineers and designers gain a revolutionary step in performance and productivity, thanks to the HP and PTC edge, which helps ensure optimum compatibility when running some of the world's most advanced CAD software on the new line of HP Z Workstations. When using HP Workstations and software from PTC®, you benefit from the HP commitment to innovation and solutions excellence combined with the strength of the HP and PTC relationship.

HP innovation, performance, reliability, relationships and personal productivity

HP Z Workstations are engineered to optimize the way hardware and software components work together, delivering massive, whole-system computational power that helps maximize your productivity and make 2D and 3D design and visualization faster and more efficient than ever before. This gives you an edge in five key areas:

- **Innovation:** Next-generation technology, including a new line of 2D and 3D graphics cards, help create and visualize even the most complex designs. HP WattSaver, when activated, helps lower energy consumption.
- **Performance:** Advanced compute and visualization power help speed your work, beat deadlines, and meet expectations. At the heart of HP Z Workstations are the new Intel® Xeon® processors with advanced processor performance technologies, such as QuickPath, Hyper-Threading¹², and Turbo Boost¹³. Intel Turbo Boost is designed to enhance the base operating frequency of processor cores,

providing more processing speed for single and multi-threaded applications. The HP Z Workstation cooling design enhances this performance.

- **Reliability:** HP product testing includes application performance, graphics, and comprehensive ISV certification for maximum productivity. You can be confident in your HP and PTC solution.
- **Relationships:** HP resources and our relationships with PTC, graphics vendors, chip suppliers, and Microsoft provide a consistent application, operating system, hardware and graphics technical direction. This results in broader, more dependable 3D application oriented technology choices.
- **Personal productivity:** Only HP provides unique tools to improve workstation user productivity, including: Performance Tuning Framework, a workstation optimization tool; Remote Graphics Software, a high performance real time 3D screen sharing application; and HP SkyRoom, the next generation in video and voice communications with a real time 3D shared workspace.

The HP and PTC advantage

HP has a unique relationship with PTC, working as one of its top hardware partners. This allows HP and PTC to offer a comprehensive portfolio of solutions that address the needs of our customers—like Toyota Racing—with innovative hardware and software that is tuned and integrated. Our close relationship and engineering expertise helps ensure solutions that perform not only today, but for the long run.

“Having HP as a strategic alliance partner is a key component in our efforts to optimize our customer’s business and engineering environments. HP’s IT infrastructure built on Z Workstations, servers and storage components create a powerful platform for PTC’s complete PLM portfolio.”

Andy Barlow,
Senior Director of
Business Development,
PTC

HP and PTC—Working Better Together

- HP thoroughly tests and certifies each HP Personal Workstation for more CAD applications than anyone else.
- HP submits workstations to PTC for its complete testing.
- PTC uses HP workstations internally to develop and test its applications.
- HP workstation graphics are thoroughly tested to support PTC products.
- HP Performance Tuning Framework has special features to optimize the performance of PTC applications.
- HP’s experts are available to support customers and recommend configurations
- HP SkyRoom allows real-time visual collaboration between engineers using PTC applications.

PTC

PTC is one of the world’s largest and fastest growing software companies, with a strong focus on product development and product lifecycle management (PLM). PTC develops, markets, and delivers integrated PLM software solutions using a belief that great products make great companies—that allows manufacturers to not only succeed, but thrive. Today more than 50,000 customers worldwide use PTC’s Product Development System to help them bring their products to market quickly and cost effectively.

Pro/ENGINEER

Pro/ENGINEER®, PTC’s parametric 3D CAD/CAM/CAE solution, helps engineers accelerate time to market, improve product quality, and lower product costs. The latest version offers groundbreaking capabilities that improve productivity for both users and organizations. Pro/ENGINEER offers a 64-bit version that runs on HP Personal and Mobile Workstations, further enhancing its power and productivity.

Pro/ENGINEER offers industry-leading interactive 3D modeling capability and powerful, highly automated design capabilities incorporated directly into the core product. This allows companies to reduce opportunities for misinterpretation and eliminates or decreases reliance on traditional 2D drawing. Pro/ENGINEER also supports interoperability with all the major CAD systems.

Pro/ENGINEER CAE Solutions

Pro/ENGINEER is the standard in 3D product design. Its industry-leading productivity tools help promote best practices in design and ensure compliance with your industry and company standards. The Pro/ENGINEER product family provides a broad range of CAE capabilities to help you deliver innovative, higher quality products in less time, including:

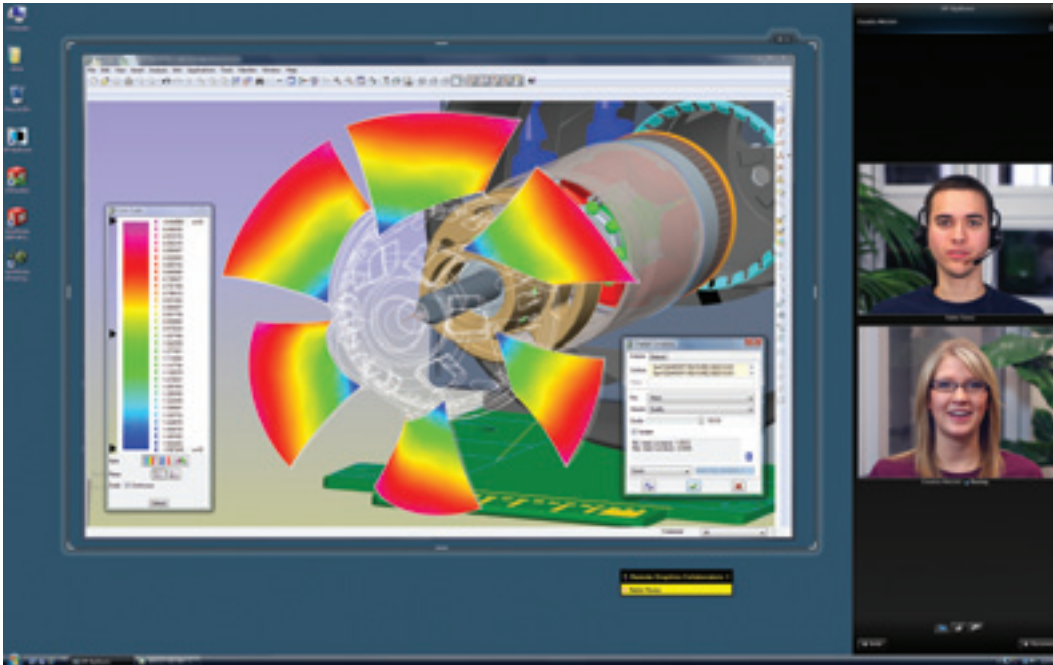
- Tolerance analysis
- Advanced thermal and structural simulation
- Design optimization
- Other analysis tools

Pro/ENGINEER Advanced Mechanica provides design engineers a better understanding of product performance so they can accommodate the digital design accordingly—all without the need for a specialist’s FEA-background and application. Use these products to conduct standard analysis types, including:

- Linear static
- Modal
- Buckling
- Contact
- Steadystate thermal

In addition PTC provides an alternative modeling solution for companies who need a lightweight and flexible design strategy, to shorten design cycles and quickly create one-off product designs. CoCreate is the world’s leading explicit CAD and PDM solution. A broad set of add-on design modules brings additional product development capabilities including:

- 2D and 3D Modeling
- Data Management
- Sheetmetal, Cabling, Surfacing
- Simulation



Improve your day-to-day productivity with real-time video collaboration using HP SkyRoom

Your digital workbench

In addition to leading-edge hardware solutions, HP and PTC together offer a combination of applications, workstations and personal productivity tools that combine to provide a complete digital workbench that saves you time. In addition to the HP Z workstation, HP's key contributions to the digital workbench are:

- HP SkyRoom
- HP Remote Graphics Software
- HP Performance Tuning Framework
- HP SpacePilot
- HP Support Assistant

HP SkyRoom

HP SkyRoom is the next-generation remote conferencing tool. It allows up to four individuals to communicate in their own personal meeting space within the corporate network. HP SkyRoom offers the following advantages:

- **Instant collaboration:** Live audio, video, application sharing, and streaming video allow for a face-to-face meeting experience with your colleagues across the globe.
- **Professional quality:** HP SkyRoom's high-resolution capabilities, embedded media engines, and AES256 advanced encryption help ensure a high-quality, secure video conference environment. You can even connect via a VPN when outside your corporate network.
- **Affordable simplicity:** HP SkyRoom is an affordable, easy-to-use solution that will help to minimize travel costs and foster teamwork and collaboration throughout your company.

HP Remote Graphics Software

HP Remote Graphics Software (RGS) is an advanced 3D screen-sharing utility that allows remote access and workstation sharing. Using HP compression technology, HP RGS compresses the screen image and sends it to receiver software for decompression and display. The receiver captures keystrokes and mouse clicks for return to the workstation. HP RGS minimizes network usage and enables remote access without compromising performance or image quality. For engineers and designers looking to speed the design process, HP RGS enables real-time sharing of high-resolution imagery so creative teams from multiple remote sites can collaborate instantly, regardless of remote distances. For more information see the HP Remote Graphics Software Users Guide at www.hp.com/go/rgs

HP Performance Tuning Framework

Put the underlying power of HP Workstations at your fingertips, with a powerful interface to analyze, fine-tune, and optimize the performance of HP Workstations. HP Performance Tuning Framework (PTF) makes it easy to keep your professional applications running smoothly by:

- Providing a detailed configuration report so you can easily see what's on your system.
- Organizing graphics driver certification information to help you make informed decisions when loading the latest drivers.
- Tracking memory use and graphically displaying how applications and processes use physical and virtual memory.
- Monitoring system resource usage over time to identify bottlenecks.

“For us, the bottom line is winning races. If one or more Toyota drivers are standing on the podium at the end of race day, then we’ve done our job. We’re confident HP will continue to help us do just that.”

Jaxon Tate, IT Systems Support Engineer, Toyota Racing Development

- Measuring subsystem performance using Vista Performance monitoring.

If problems arise, PTC support staff can review your PTF configuration report included with each HP Workstation. This report can be generated easily by clicking on the configuration tab and saving the file. For more information see www.hp.com/go/framework

HP SpacePilot

SpacePilot Intelligent Controller, which enables two-handed CAD, with one hand on the mouse and one on the HP SpacePilot. This device combines:

- Refined sensing technology that allows you to intuitively push, tilt, or twist the control cap for an immediate response.
- Extendable function keys that can be programmed to simplify repeat operations or multilayered menu pull downs for increased efficiency.
- Comfortable design that minimizes repetitive stress.

Studies show significant improvements in user productivity when inputting with an HP SpacePilot.

HP Support Assistant

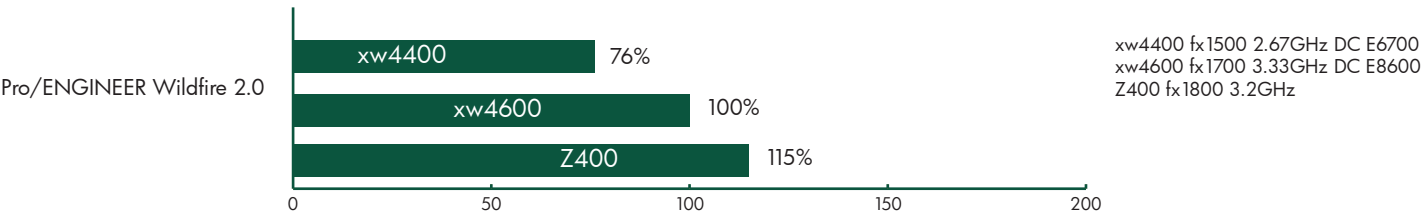
HP Support Assistant makes it easier than ever to own and use an HP Workstation. It comes pre-installed on

every workstation with the latest version of Windows Vista® or Windows 7®. HP Support Assistant provides you with the following support features:

- **Maintain:** Automated software updates and reminders, maintenance routines, and other preventative measures help you keep your Workstation in peak condition.
- **Troubleshoot:** Diagnostic utilities help you investigate problems on your own and find solutions for common issues.
- **Learn:** An extensive library, including specification and warranty information and online resources, helps you make the most of your Workstation.
- **Get assistance:** Friendly and efficient experts are available to assist you with problems you can’t solve on your own. Remote access capabilities allow the HP agent to investigate the problem directly, adjust your system settings and even install software patches and upgrades.

HP Support Assistant, part of HP Total Care Service and Support, saves you valuable time and allows you to get the most out of your HP Workstation.

Increase your performance with HP Z Workstations



xw4400 fx1500 2.67GHz DC E6700
xw4600 fx1700 3.33GHz DC E8600
Z400 fx1800 3.2GHz

Average increase in performance on SPECapc ProE Wildfire 2 Benchmark. Testing using Pro/ENGINEER Wildfire 2.0



Meet the HP Workstation family

Combining bold design, best-in-class engineering, robust tools, and visual collaboration solutions, the HP Workstation family takes innovation, performance, and reliability to the next level—to give you and your business or engineering function a design edge. All HP Workstations are tested and certified for PTC applications. HP tests a comprehensive range of applications on our workstations, helping ensure reliable, dependable performance.

HP Z400 Workstation

The HP Z400 Workstation delivers enhanced workstation performance in an affordable package to transform how engineering and design professionals work. The next-generation system architecture enables fast and efficient performance plus HP personal productivity tools and built-in HP reliability that helps you work more productively and get the job done faster. This workstation is ideal for users of PTC who need the most affordable solution.

HP Z600 Workstation

The HP Z600 Workstation packs compute and visualization power to help you work faster and beat deadlines—delivering maximum performance in our smallest, quietest dual eight-core design when every inch, watt, and decibel make a difference. This workstation is ideal for 3D users who want to take advantage of the multiple cores needed for

applications that use rendering, animation, and simulation. This system's dual-processor capability, combined with Intel Turbo Boost and Hyper-Threading technologies, is well-suited for users of singlethreaded applications who occasionally need support for multithreaded applications, such as PTC visualization and luxology features.

HP Z800 Workstation

The HP Z800 Workstation delivers the ultimate performance in a revolutionary next-generation design that combines extreme speed, massive expandability, and maximum productivity to accelerate even the biggest, most complex engineering and design projects. This high-end workstation provides the expandability, performance, and data storage required by power users of PTC and other MCAD and CAE applications.

HP Elitebook 8730w Mobile Workstation

The HP Elitebook 8730w Mobile Workstation redefines power on the move, combining the best in visualization and computational power with a 17-inch diagonal display for HP's highest performing mobile workstation. This mobile workstation offers reinforced latches and durable construction in a lightweight form factor that has passed most Mil-Std-810F testing, making it a great tool for professionals on the go. The choice of an HP DreamColor screen enables true color visualization and top performance for PTC applications. This notebook is designed to be more rugged for those whose work needs to be mobile.



Cadalyt Labs awarded the HP Z600 Workstation a prestigious Highly Recommended Thumbs Up Award giving it a rare A+ grade. In their words "a testament to the leap in processing technology brought about by this new generation of hardware" and "it's innovative design and superb engineering and is forward looking in terms of expansion. The attention to detail in this system is remarkable, as is the design philosophy". Learn more at:

<http://www.cadalyt.com/hardware/news/hp-z600-workstation-first-look-review-8130>

Windows®. Life without Walls™. HP recommends Windows.

Meet the HP Workstation family

Model	HP xw4600 Workstation	HP Z400 Workstation	HP Z600 Workstation	HP Z800 Workstation	HP Elitebook 8730w Mobile Workstation
User	Ideal for entry level users where workstation performance is needed	Ideal for those who want to maximize performance with single threaded application	Ideal for those who occasionally need multi-core performance	Ideal for those who have the largest files, store large data sets	Ideal for those who want the most power a notebook can provide, as light as possible
PTC solution	PTC Entry level users	PTC Main users with some visualization	PTC users with significant visualization and analysis	PTC Power users	All PTC applications
Processors ^{1,2}	Intel® Pentium® Intel Core™ 2 Duo processor Intel Core 2 Quad processor Intel Core 2 Extreme Processor	Dual- and quad-core Intel® Xeon® processor Intel® QuickPath Technology	Quad-core Intel® Xeon® processor Intel® QuickPath Technology	Quad-core Intel® Xeon® processor Intel® QuickPath Technology	Intel Core 2 Duo or Extreme processor
Graphics cards	NVIDIA Quadro FX 580 NVIDIA Quadro FX 1800 Quadro FX3800	NVIDIA Quadro FX 580 NVIDIA Quadro FX 1800 Quadro FX3800 ATI FirePro V5700 ATI FirePro V7750 NVIDIA Quadro FX 4800	NVIDIA Quadro FX 580 NVIDIA Quadro FX 1800 Quadro FX3800 ATI FirePro V5700 ATI FirePro V7750 NVIDIA Quadro FX 4800	NVIDIA Quadro FX 580 NVIDIA Quadro FX 1800 Quadro FX3800 ATI FirePro V5700 ATI FirePro V7750 NVIDIA Quadro FX 4800	ATI Mobility FireGL V5700 NVIDIA Quadro FX 770M

Suggested configurations

www.hp.com/go/workstationfinder

All PTC certifications include both Pro/ENGINEER and CoCreate.

HP Recommended Configurations for

PTC Entry Level User



HP xw4600 Workstation

Genuine Windows® XP Professional 32-bit available through downgrade rights from Windows Vista® Business ***
Intel® Core™2 Duo E8400 processor^{1,2,4} (3.00 GHz, 6 MB L2 cache, 1333 MHz FSB)
Intel X38 Express chipset
4 GB DDR2 800 MHz ECC memory^{5, 6}
NVIDIA Quadro FX580 (512 MB)
250 GB SATA⁸
DVD-ROM SATA⁹
HP LP2475w 24-inch Widescreen LCD Monitor
HP Remote Graphics Software
HP Performance Tuning Framework
HP SkyRoom Video Conferencing
HP SpacePilot
HP Scroll Mouse
Application certified
3/3/3 limited warranty

PTC Main Stream User



HP Z400 Workstation

Genuine Windows XP Professional 64-bit available through downgrade rights from Windows Vista Business ***
Quad-Core Intel® Xeon® W3570 processor^{1,2,4} (3.20 GHz)
Intel X58 Express chipset
6 GB DDR3 ECC memory^{5,7}
NVIDIA Quadro FX 1800
320 GB 10k rpm SATA⁸
DVD-ROM SATA⁹
HP LP2475w 24-inch Widescreen LCD Monitor
HP Remote Graphics Software
HP Performance Tuning Framework
HP SkyRoom Video Conferencing
HP SpacePilot
HP Scroll Mouse
Application certified
3/3/3 limited warranty

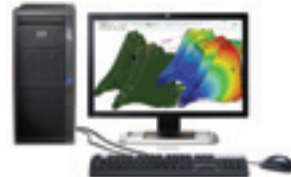
PTC Power User



HP Z600 Workstation

Genuine Windows XP Professional 64-bit available through downgrade rights from Windows Vista Business ***
Two Quad-Core Intel Xeon X5570 processors^{1,2,4} (2.93 GHz)
6 GB DDR3 ECC memory or 8 GB if 64-bit^{5,7}
NVIDIA Quadro FX 3800 (1 GB Video RAM)
(2) 300 GB 15k rpm SAS⁸
DVD-ROM SATA⁹
HP LP2475w 24-inch Widescreen LCD Monitor
HP Remote Graphics Software
HP Performance Tuning Framework
HP SkyRoom Video Conferencing
HP SpacePilot
HP Scroll Mouse
Application certified
3/3/3 limited warranty

PTC Extreme User



HP Z800 Workstation

Genuine Windows XP Professional 64-bit available through downgrade rights from Windows Vista Business ***
Dual Quad-Core Intel Xeon W5580 processor (3.20 GHz)^{1,2,4}
12 GB DDR3 ECC memory⁵
NVIDIA Quadro FX 4800 (1.5 GB Video RAM)
(2) 300 GB 15K rpm SAS RAID ^{8,10}
CD-RW/DVD-ROM Combo⁹
HP LP3065 30-inch Widescreen LCD Monitor
HP Remote Graphics Software
HP Performance Tuning Framework
HP SkyRoom Video Conferencing
HP SpacePilot
HP Scroll Mouse
Application certified
3/3/3 limited warranty

All PTC applications



HP Elitebook 8730w Mobile Workstation

Genuine Windows® XP Professional 32-bit available through downgrade rights from Windows Vista® Business ***
Intel Core™ 2 Duo processor^{1,2,4} T9800
2.93 GHz, 6 MB L2 cache
1066 MHz FSB
17-inch diagonal WUXGA display (1920 x 1200)
NVIDIA Quadro FX 3700m with 1 GB of video memory
8 GB DDR2 800 MHz SDRAM memory^{5,6}
320 GB 7200 rpm SATA hard drive⁸
DVD/CD-RW Combo⁹
7.5 pounds¹¹
Business rugged design
HP Remote Graphics Software
HP Performance Tuning Framework
Application certified
3/3/3 limited warranty

Windows®. Life without Walls™. HP recommends Windows.

For more information about HP and PTC solutions,
please visit www.hp.com/go/PTC

Screenshot images courtesy of PTC Corporation.

*Windows Vista Business disk may also be 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.

**Certain Windows Vista product features require advanced or additional hardware. See www.microsoft.com/windowsvista/getready/hardwarereqs.msp and www.microsoft.com/windowsvista/getready/capable.msp 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. Systems may require upgraded and/or separately purchased hardware and/or a DVD drive to install the Windows 7 software and take full advantage of Windows 7 functionality. See <http://www.microsoft.com/windows/windows-7/> for details.

¹ Dual- and Quad-Core technologies are designed to improve performance of multithreaded software products and hardware-aware multitasking operating systems and may require appropriate operating system software for full benefits; Not all customers or software applications will necessarily benefit from use of these technologies.

² 64-bit computing on Intel architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers and applications enabled for Intel® 64 architecture. Processors will not operate (including 32-bit operation) without an Intel 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. See www.intel.com/info/em64t for more information.

³ The hyperthreading feature is designed to improve performance of multithreaded software products; please contact your software provider to determine software compatibility. Not all customers or software applications will benefit from the use of hyperthreading. Go to <http://www.intel.com/info/hyperthreading/> for more information including which processors support HT Technology.

⁴ Intel's numbering is not a measurement of higher performance.

⁵ Maximum memory capacities assume 64-bit operating systems. Microsoft® Windows® XP (32-bit) supports 4 GB (with Microsoft 32-bit, the amount of usable memory will be dependent upon your system configuration. It may be less than 4 GB); 32-bit Linux can support up to 8 GB.

⁶ Dual Channel is only supported when the system is configured with DDR2 symmetric memory (i.e. 2 x 256).

⁷ Each processor supports up to 3 channels of DDR3 memory. To realize full performance at least 1 DIMM must be inserted into each channel. To get full 6 channel support, 2 processors MUST be installed.

⁸ For hard drives, 1 GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 8 GB of hard drive (or system disk) is reserved for the system recovery software (XP and XP Pro). Up to 12 GB of system disk is reserved for system recovery software. (Vista).

⁹ Actual speeds may vary. Does not permit copying of commercially available DVD movies or other copyright protected materials. Intended for creation and storage of your original material and other lawful uses.

¹⁰ Hardware RAID is not supported on Linux systems. The Linux kernel, with built-in software RAID, provides excellent functionality and performance. It is a good alternative to hardware-based RAID. Please visit <http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00060684/c00060684.pdf> for RAID capabilities with Linux.

¹¹ Weight varies by model.

¹² Intel HT Technology (HT) is designed to improve performance of multi-threaded software products and requires a computer system with a processor supporting HT and an HT-enabled chipset, BIOS, and operating system. Please contact your software provider to determine compatibility. Not all customers or software applications will benefit from the use of HT. See <http://www.intel.com/info/hyperthreading> for more information.

¹³ Enabling Intel® Turbo Boost Technology (Intel® TBT) requires a PC with a processor with Intel TBT capability. Intel TBT performance varies depending on hardware, software, and overall system configuration. For more information, see www.intel.com/technology/turboboost.

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4AA2-0187ENW, September 2009

Contact Information

Hewlett-Packard USA:

+1 (281) 370 0670
20555 SH 249
Houston, Texas 77070 USA

HP Small and Medium Business Store:

+1 (800) 888 9909

www.hp.com/go/store

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8am - 9pm ET (5am - 6pm PT) Monday - Friday
Closed weekends and holidays
www.hp.com/sbso/buspurchase_info.html

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www.hp.com/sbso/buspurchase_info.html

Hewlett-Packard Canada Ltd.:

(905) 206 4725
5150 Spectrum Way
Mississauga, Ontario
L4W 5G1
Canada

Hewlett-Packard Latin America:

+1 (305) 267 4220
Waterford Building, 9th Floor
5200 Blue Lagoon Drive
Miami, Florida 33126
USA

Hewlett-Packard Asia Pacific Pte Ltd.:

(+65) 6275 3888
138, Depot Road
Singapore 109683

Hewlett-Packard Japan:

(+81) 3 6416 6444
7 Gobancho, Chiyoda-ku
Tokyo 102-0076 Japan

Hewlett-Packard Europe, Middle East, Africa:

(+41) 22 780 8111
150 Route du Nant-d'Avril
1217 Meyrin 2
Geneva, Switzerland

EMEA workstation country homepages

www.hp.com/eur/workstations

