

hp Why a Workstation?

When it comes to investing in your everyday hardware, you have an array of PC and workstation choices, and each platform addresses different criteria.



Business PCs deliver:

- **Power and reliability**—PC-grade Intel and AMD processors, non-ECC memory, standard SATA HDDs, and lower-power graphics cards
- **Wide form factor choices**—Convertible Minitower, Microtower, Small Form Factor, and Ultra-Slim Desktop PCs
- **Leadership manageability**—Integrated manageability tools to help troubleshoot IT issues
- **Choice of security features**—Built-in software security measures and external hardware locking devices

Workstations provide:

- **Increased processing power**—Multi-core¹ Intel® Xeon® processors (see Intel Processor Positioning, page 4), higher frequencies, and a growing number of cores
- **Professional class graphics**—From entry-level 2D up to high-end 3D solutions
- **Mission-critical reliability**—Memory and storage options that use server-class technology and are ready to go right when you need them most
- **Maximum expandability**—Up to 10 TB² of storage
- **Professional application certification**—To help ensure out-of-the-box compatibility between HP Workstations and professional applications

HP Workstations are designed and tested with these details in mind, and they address key technical and business challenges that you face on a daily basis. In this paper, we'll examine a few of them. The supporting HP Workstation strengths translate beyond these examples to support a range of technical and business issues to help maximize your IT investment vs. PCs.

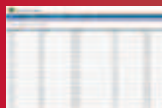
HP Business PCs and Workstations

Target customer segments

PCs



General-purpose PC, corporate managed IT environments



Accounting payroll, tax preparation



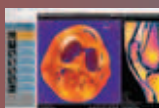
Commercial banking administration, processing, records



Office productivity, Office suite, web, publishing



Education K-12 and higher education, specialized



Health care payers and providers, imaging and research



Public sector policy-makers and analysts



Power office users

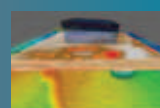
Workstations



Architecture, engineering, and construction (AEC) and mechanical computer-aided design (MCAD)



Digital media and entertainment (DME), animation, effects, and photo-/video-editing



Oil and gas, integrating highly reliable systems



Finance Financial traders, managers, and analysts

Other Workstation customers: Custom customer solutions, GIS, video surveillance, software development



Why a Workstation?

Maximum user productivity

You've invested a lot in your people, and you want hardware that helps your people do more, better, and faster. HP Workstations meet and surpass that goal, with:

- **Whole system design**—HP Workstations are designed and engineered to optimize the way the processor, memory, graphics, operating system, and application software components work together in maximum configurations. This whole-system focus, combined with efficient power and cooling solutions, helps you accomplish more with each minute of your time. And, the world-class acoustics of HP Workstations are perfectly suited for use in quiet office environments.
- **Intel® Xeon® processor technology**—A choice of high performance multi-core¹ Intel® Xeon® processors that are validated and tested by Intel for demanding server and workstation-class applications. Check out the Intel Processor Positioning (page 4) for the full range of Intel processor technologies.
- **Single/dual-socket CPUs**—HP Workstations support more processor cores, up to 12 cores in a single workstation on select platforms.
- **High-performance drives**—PCs usually have 7200 rpm SATA drives, while HP Workstations offer an additional choice of 10K rpm SATA as well as 10K/15K rpm SAS hard drives, which provide better reliability than standard 7200 rpm SATA drives as well as better performance to the user.
- **Enterprise-class storage**—Choose an HP Workstation with storage from 2 TB up to 10 TB² for all your data-intensive application needs.

Professional 3D application usage

Workstation users often deal with complex 3D applications, especially in industries such as mechanical computer aided design (MCAD), computer aided engineering (CAE), and digital media and entertainment (DME). These power users need a complete performance solution that can keep up with their applications while also powering a maximum number of professional performance displays.

HP Workstations offer:

- **Pro 2D and 3D graphics**—A wide range of professional graphics from NVIDIA and AMD, from 2D up to high-end 3D, drive your most visually-demanding applications. HP graphics solutions include powerful graphics cards, additional graphics pipelines and engines, and hardware

acceleration optimized to give you more accuracy and better visual performance. Every supported graphics card goes through HP's proprietary suite of tests to ensure maximum application compatibility and component reliability.

- **Up to eight displays**—Dual graphics support for the latest graphics cards (on select models) means you can power a panoramic display of your work on up to eight monitors from one workstation.

Future-ready right now

HP Workstations offer a range of configurable features so you can quickly and easily grow your workstation at your own pace over its lifespan, which is designed to be longer than that of PCs.

- **Processing power**—On dual-socket workstations, a second processor can be added when you need it, and you can be assured that it, along with every new refreshed component, will be qualified with the same rigor that went into the initially-released product.
- **Scalable memory configurations**—The high performance models of HP Workstations employ a scalable memory subsystem that provides more bandwidth, reduces latency, and helps reduce power consumption, so workstations can be configured with more memory without substantially increasing power and cooling requirements.
- **Expandable by design**—More memory and faster I/O channels are critical for workstation applications and the large files they generate. HP Workstations provide more memory expansion (on higher models) and maximum I/O bandwidth and expandability from a range of Gen2 PCI Express slots, optical drives, solid state drives, RAID³, and storage bays.
- **Tool-free upgradability**—HP Workstations have a tool-less chassis that simplifies expansions and reduces expensive downtime while taking ease of service and tool-less design to the next level. PCI and PCI Express cards can be added or replaced without tools.

Select models feature:

- Pre-configured power connections ready for easy installation of additional 3D graphics cards
- eSATA and/or SAS support directly out the back of the system simplifies adding external hard disk drives
- Cable-free connections on the power supply and hard drives so you can unplug and physically remove them without disconnecting cables



Why a Workstation?

Reliability when you need it most

Reliability means a lot of things—that your workstation will work when you need it, and that it will work with your range of applications while ensuring your data integrity. HP Workstations are designed to comprehensively address reliability in all its forms.

- **Independent Software Vendor (ISV) certification**—HP supports an extensive list of application partners and works closely with many software vendors to ensure that these applications work smoothly and flawlessly on HP Workstations in all possible configurations. HP also provides a test suite to graphics vendors, to help increase the reliability and stability of industry-standard graphics products.
- **HP Performance Advisor**—Further enhancing application performance on your workstation, this exclusive HP software wizard helps you configure, customize, and optimize your system for each new application and driver you install. To learn more, see www.hp.com/go/performanceadvisor.
- **ECC memory**—HP Workstations offer and support error checking and correction (ECC) memory that detects and corrects single-bit errors on the fly and keeps data-intensive workstation applications running reliably and without error.
- **Large, high-performance memory**—These configurations reduce the need for swaps to and from HDD storage so large problems can be solved and more applications can be run simultaneously.

- **Engineered and tested long life components**—HP Stable and Consistent Offerings are a carefully chosen set of hardware and software designed and tested to work with all HP Z Workstation platforms through their end of life, so your first installed workstation can match your last.
- **Engineered BIOS**—HP BIOS ensures hardware compatibility and increases workstation reliability by reducing power consumption through preset sleep states, adjustable fan speeds that maximize operating efficiency, and power management features.
- **Operating system choices**—HP engineers work extensively with Windows®* and Linux operating system providers to verify top performance, flexibility, reliability, and compatibility with HP Workstations. We conduct joint engineering collaboration with industry partners long before systems are introduced.

While PCs deliver excellent value, versatility, and stability, workstations deliver ultimate performance, uncompromised reliability, and wide-ranging scalability, from entry-level up to extreme power users. For more information about HP Workstations, please visit www.hp.com/go/workstations.

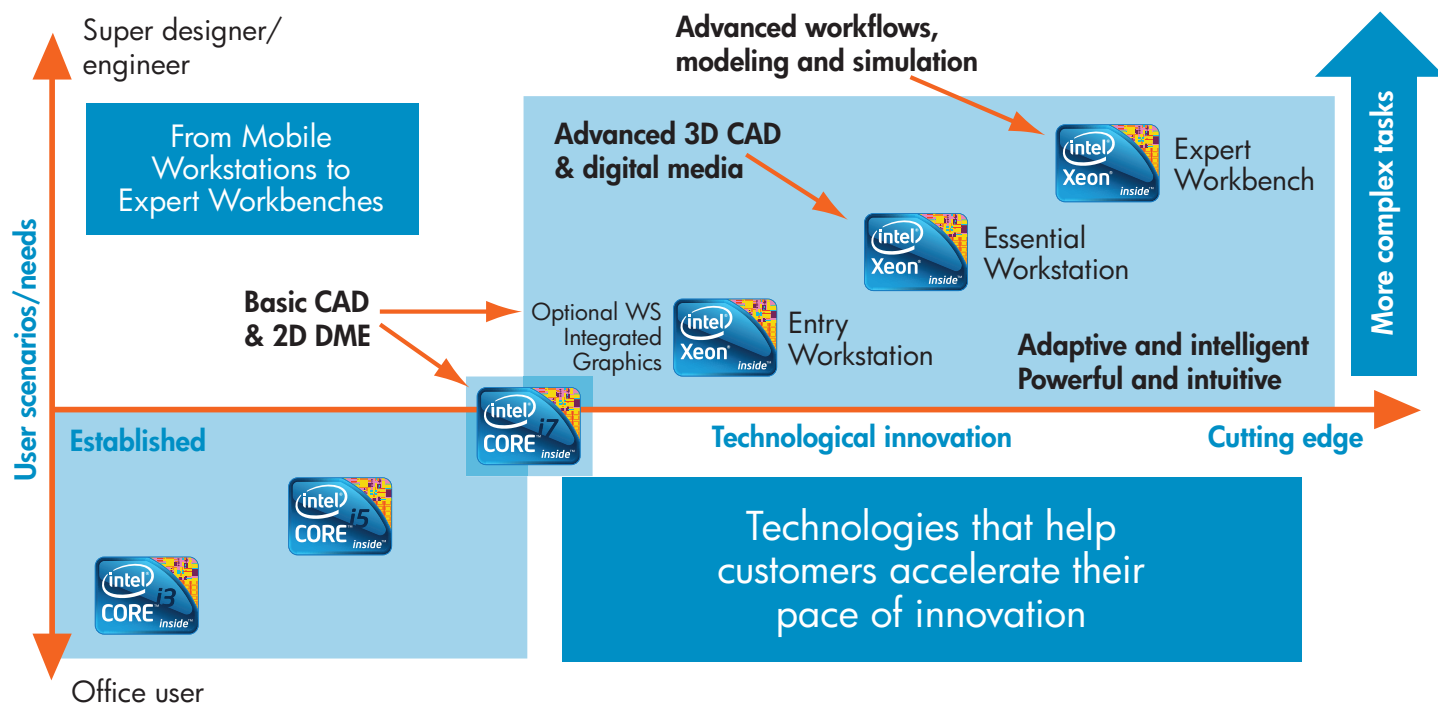
Delivering greater expandability

How much memory, storage, and graphics do you need now and in the future?

	Operating systems	Maximum memory	Maximum storage	Graphics
HP Z800	Genuine Windows® 7 Ultimate 64-bit* Genuine Windows® 7 Professional 32-bit* Range of Linux choices	192 GB	10.0 TB	Up to dual NVIDIA Quadro 6000
HP Z600	Genuine Windows® 7 Ultimate 64-bit* Genuine Windows® 7 Professional 32-bit* Range of Linux choices	48 GB	6.0 TB	Up to eight 2D displays or dual NVIDIA Quadro 2000
HP Z400	Genuine Windows® 7 Ultimate 64-bit* Genuine Windows® 7 Professional 32-bit* Range of Linux choices	24 GB	8.0 TB	Up to NVIDIA Quadro 5000 or dual NVIDIA Quadro 2000
HP Z210 CMT	Genuine Windows® 7 Ultimate 64-bit* Genuine Windows® 7 Professional 32-bit* Range of Linux choices	Estimated availability Q4 2011 32 GB	4.5 TB	Up to NVIDIA Quadro 2000 or dual NVIDIA NVS 300
HP Z210 SFF	Genuine Windows® 7 Ultimate 64-bit* Genuine Windows® 7 Professional 32-bit* Range of Linux choices	16 GB	2.0 TB	Up to NVIDIA Quadro 600 or dual NVIDIA NVS 300

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Intel Processor Positioning:



Summary:

Ultimate performance	Uncompromised reliability	Wide-ranging scalability
<ul style="list-style-type: none"> • High-performance single- and dual-socket CPUs • Professional 2D and 3D graphics • Large, high-performance memory configurations • High-performance HDD options • HP Performance Advisor software 	<ul style="list-style-type: none"> • ISV certification • Professional graphics • ECC memory • Enterprise-class storage options • Proprietary extensive HP testing and qualification 	<ul style="list-style-type: none"> • Expandable, optimally-sized chassis • Large memory and disk configurations • Designed (power, thermals, acoustics) to cater to high-end configurations • Up to eight displays

Designed for artists, engineers, scientists, analysts, and power users

* Windows 7 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/windows7/> for details.

1 Multi-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 For hard drives, 1 GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 20 GB of hard drive (or system disk) is reserved for the system recovery software for Windows 7.
 3 SATA 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.

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