

Brochure

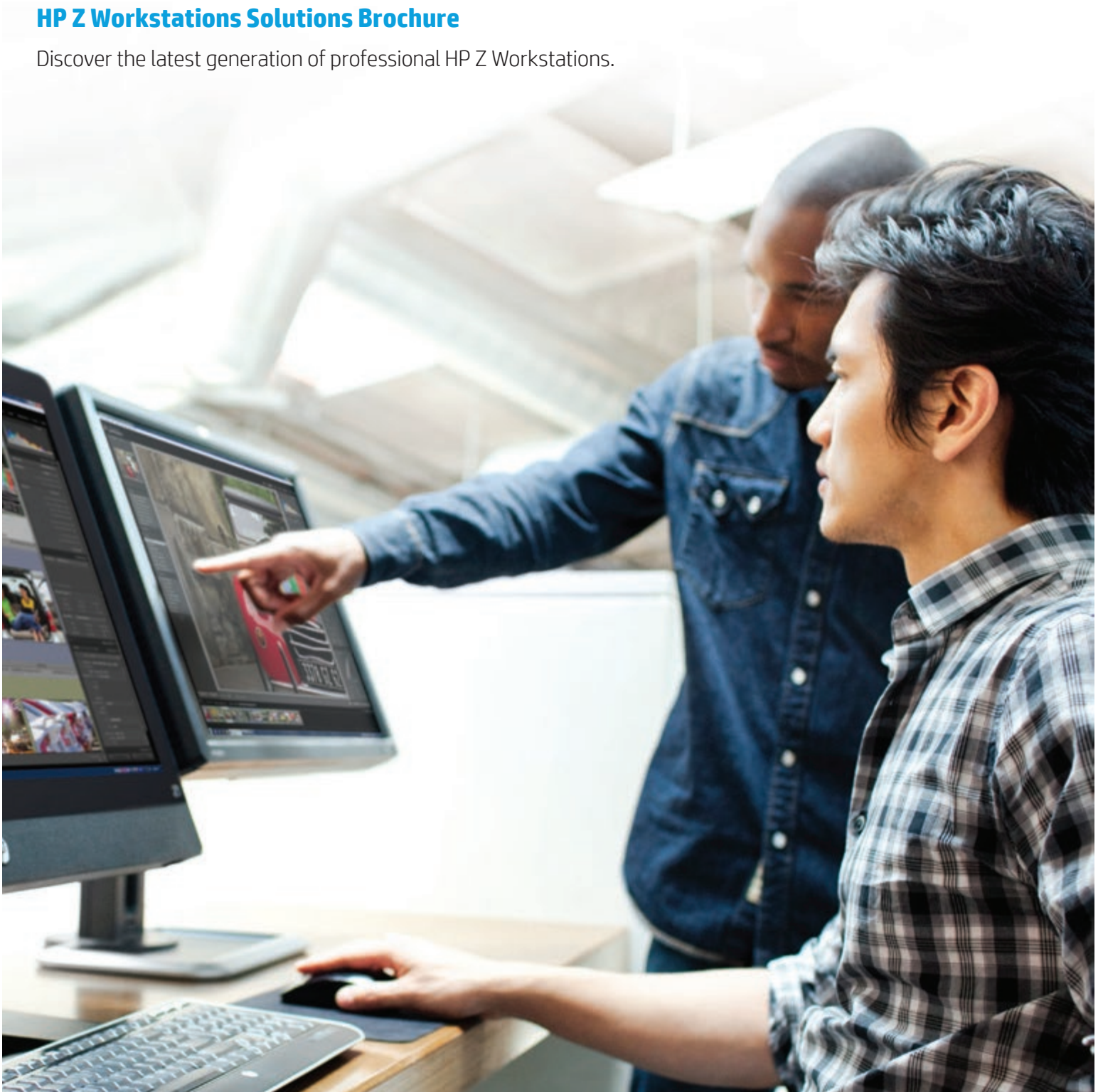
HP recommends Windows.

Power your imagination



HP Z Workstations Solutions Brochure

Discover the latest generation of professional HP Z Workstations.



Power your imagination.

Creation is part imagination and part execution. Whether you're building 3D models, creating complex animations or designing the world's next architectural wonder, you need a powerful computer to turn your imagination into reality.

For users like you, the typical computer is not enough. For users like you, performance and reliability are everything. And it's for users just like you that HP has created the latest generation of professional-grade workstations. From the innovative, space-saving HP Z1 G2 All-in-One Workstation, to light and travel-ready ZBook Mobile Workstations, to our most powerful tower models—there is a solution to fit the way you work.

- Innovation comes standard** 3
From ultimate scalability to innovative technologies, HP Z Workstations are rich with customer-driven features.
- ISV Certifications** 3
Our relationships with leading Independent Software Vendors (ISV) ensure your HP Z Workstation works seamlessly with your application software.
- Unique HP Technologies** 4
Discover the HP Technologies designed to help you get the most out of your HP Z Workstation experience.
- Powerful and refined all in one** 4
Unleash your creativity with the elegant and innovative Z1 G2 Workstation.
- Performance you want. Value you need** 5
Experience workstation-class power and outstanding scalability—at an affordable price.
- Built to perform like no other** 6
Get ultimate performance for your mission-critical applications with HP's most powerful workstations.
- Powerful computing where you need it** 7
Enjoy the best of both worlds—complete mobility and full desktop workstation functionality back in the office too.
- Extended Services** 8
Take advantage of the HP service and support packages available to safeguard your investment.
- Performance Displays** 9
Get the very most out of your HP Z Workstation with a wide-viewing angle, high-contrast, high-resolution HP Z Display or DreamColor Display.
- HP Z Workstations quick reference guide** 10
See side-by-side specifications for easy comparisons of our Z Workstation family.

Innovation comes standard.

Innovation, performance and reliability are in the DNA of every HP Z Workstation. From ground-breaking engineering to performance-optimizing technologies, HP Z Workstations are rich with customer-driven tools, features and benefits.



Brilliant design, inside and out

From the striking design of the HP Z1 G2 and sleek industrial styling of the tower models, to the business-rugged, thinner and lighter chassis of the HP ZBook Mobile Workstations, every HP Z Workstation combines stunning aesthetics with everyday practicality.

But they don't just look great from the outside—they're beautifully engineered on the inside, too. Open up any HP Desktop Workstation and you'll find a clean modular design that not only maximizes airflow—keeping processors and graphics cards running at optimum performance—but also enables snap-in and snap-out upgrades without the need for tools.

Tool-free customization makes it easy to install more memory, storage and I/O options. Multiple slots and flexible storage bays allow you to install hard drives, SSDs, optical drives, RAID configurations and more.

Ultimate processing power

High-performance multi-core Intel® Xeon® processors¹ are tested and validated by Intel and HP for your workstation-class applications to provide breakthrough performance in processing and visualizing large complex data. This means you can innovate faster, and get from idea to end product quicker than ever before.

Supercharged professional graphics

Get the graphics performance and power to realize your vision with ISV-certified 2D through extreme 3D workstation graphics, including NVIDIA Quadro and AMD FirePro™. Increase your graphics performance with NVIDIA Maximus.

A leader in eco-labels

- HP is an industry leader in ENERGY STAR® qualified products.
- EPEAT® is a comprehensive environmental rating that helps identify greener computers and other electronic equipment. As the first to achieve EPEAT Gold certification, HP Z Workstations exceed industry requirements.

Get the right workstation for your application

So which is the right HP Z Workstation for your applications? Try our online workstations selection wizard to find out: hp.com/workstationfinder

Just select the applications you use and see recommended configurations.

Built-in reliability

Whole system engineering means that everything—processor, memory, graphics, operating system, software—is designed to work together.

Our workstations, and the components that go into them, are put through extreme stress tests involving temperature, shock, dust and more. And they're designed, optimized, tested and certified for the applications you work with every day.

ECC memory

Memory errors can happen anywhere, anytime—with consequences as disastrous as a system crash in the middle of a critical operation. HP offers Error Correction Code (ECC) memory on every desktop Workstation to detect and correct soft errors in the memory system on the fly, preserving the integrity of your data.

Certification for every industry

Workstations provide the window to your application world. Whether you're working in media and entertainment or product development, finance or design, oil and gas or geographic information systems, you can rely on these applications—known and trusted throughout your industry—to deliver rock solid reliability, every minute of every working day.

And that's why we place such importance on our relationships with the companies who develop these applications—the Independent Software Vendors or ISVs. HP and ISV developers collaborate from the earliest days of any hardware or software development to ensure that your workstation and applications run seamlessly—right out of the box.

Unique HP Technologies.



HP places a large priority on satisfying customer requirements, and that is why we have developed technologies to help you enjoy the full performance of your HP Z Workstation.

HP Performance Advisor

HP Performance Advisor¹³ delivers a simple, effective way to keep your workstation operating at its peak potential. Like having an IT pro always on hand, the helpful software wizard can take you from initial configuration and customization through the optimization of your system for each new application and driver you install.

HP Remote Graphics Software

From the factory floor to the boardroom, HP Remote Graphics Software (RGS) delivers seamless remote access to workstation graphics. Pre-installed on every HP Z Workstation, RGS¹³ automatically adjusts to network conditions while cutting required bandwidth—reducing infrastructure costs. Collaborate on graphics projects in real time with colleagues across the hall or across the continent.¹³

HP Liquid Cooling²

HP Liquid Cooling is re-engineering the sound of high performance workstations to reduce noise. This technology provides extremely efficient heat removal from processors and reduces the overall acoustic output levels. Building on our industry-leading acoustics, HP Liquid Cooling makes workstations even quieter—even under the most demanding workloads.

HP DreamColor Technology^{7,11}

Work with a palette of over one billion colors with HP DreamColor Technology. This set of technologies provides precise color accuracy and predictable color across your digital workflow.

Powerful and refined all in one.

Unleash your creativity with HP's elegant and innovative all-in-one workstation with a brilliant display. Thanks to HP's cutting-edge engineering, you get accelerated performance, world-class reliability and easy upgradability in a slim and stylish all-in-one form factor.



HP Z1 G2 Workstation

Performance to spark creativity

Take computing performance to another level with the latest Intel processors and a wide range of professional 3D graphics from NVIDIA. Connect in a flash and increase productivity with optional, easily accessible Thunderbolt™ 2¹⁰ ports.⁷ And see your ideas shine on the brilliant next generation IPS display or the optional 10-point touchscreen with a stunning edge-to-edge glass design.⁷

- Intel® Xeon® processor E3-1200 v3 series or 4th Generation Intel® Core™ i3/i5 processors¹ options
- Windows 8.1 Pro 64-bit and other editions available⁴
Windows 7 Professional⁵
Linux Operating Systems
- 27" diagonal IPS display with 2560 x 1440 resolution; optional 10-point touchscreen⁷
- Optional Thunderbolt™ 2¹⁰ ports⁷ for up to 4X the bandwidth of USB 3.0
- Professional 3D NVIDIA Quadro graphics
- Dual cone, front-facing speakers with DTS Studio Sound

With the power to blaze through renderings, 3D animations and other data-hungry imaging tasks, the HP Z1 G2 gives you workstation-class performance and reliability—ideal for architects, engineers, M&E professionals and more.

Performance you want. Value you need.

Boost your creativity and productivity with these powerful, cost-effective and easily upgradeable HP Z Workstations. Professional graphics and powerful processing ensure your ideas come to life, every day.

HP Z230 Workstations

Affordable performance and flexibility, re-defined.

Get Workstation performance and reliability at an affordable price. Make the move from a PC to a workstation more easily than ever, and then expand at your own pace. Designed for heavy 24x7x365 workloads, the HP Z230 delivers next-generation processor and graphics technologies in two redesigned models.



Choose between a surprisingly capable Small Form Factor (SFF) for constrained spaces, and a new compact Tower that is impressively expandable.

- Powered by the Intel® Xeon® processor E3-1200 series or Intel® Core™ i3/i5/i7 processor family¹
- Windows 8.1 Pro 64-bit and other editions available⁴
Windows 7 Professional⁵
Linux Operating Systems
- Optional Thunderbolt™ 2^{7,10} technology for up to 4X the bandwidth of USB 3.0
- Wide selection of professional graphics, from NVIDIA, AMD and Intel
- Wide array of USB ports and storage options let you expand
- 92% efficient power supplies standard and available ENERGY STAR® 5.2 configurations

This is our most affordable workstation, yet one that delivers impressive performance and scalability—a great solution for current PC users working in government and education environments and for entry MCAD, M&E and geospatial users.

HP Z420 Workstation

Performance you want. Value you need.

The HP Z420 gives you professional expandability in an accessible tool-free mini-tower form factor—all at a great price.



- Choice of Intel® Xeon® processor E5-1600 v2 and E5-2600 v2 families¹ supporting 4-8 cores of processing power
- Windows 8.1 Pro 64-bit and other editions available⁴
Windows 7 Professional⁵
Linux Operating Systems
- Optional Thunderbolt™ 2^{7,10} technology for up to 4X the bandwidth of USB 3.0
- Fusion-io® (ioFX®) option for extreme storage performance⁷
- Smart chassis design built for tool-less access to the inside and easy configurability
- Whisper-quiet performance with optional HP Liquid Cooling⁷
- Support for up to eight displays¹⁵ at peak HD resolutions¹⁶ for maximum viewing area

This high performance workstation—designed to help you get the best out of your graphics-intensive applications—is well suited for engineers, architects and creative professionals.

Built to perform like no other.

Put impressive computing power within your reach with our high-end HP Z Workstations. Ideal for heavy workloads, graphics-rich applications and image rendering, these powerful workstations will help you tackle your most challenging projects—with ease.

HP Z620 Workstation

Big possibilities. Compact form factor.

With up to 24 discrete processor cores, the HP Z620 Workstation packs a ton of computing and visualization power into a quiet, compact footprint. This dual-socket system helps you boost productivity with next-generation Intel® Xeon® processors and support for multiple displays.¹⁵



- Support for both Intel® Xeon® processor E5-2600 v2 and E5-1600 v2 families¹
- Windows 8.1 Pro 64-bit and other editions available⁴
Windows 7 Professional⁵
Linux Operating Systems
- Optional Thunderbolt™ 2^{7,10} technology for up to 4X the bandwidth of USB 3.0
- Fusion-io® (ioFX®) option for extreme storage performance⁷
- Massive system performance in a space-saving design
- Easy upgrades, servicing and expandability with tool-less chassis

This powerful, ultra-versatile workstation is the ideal solution for environments where space is at a premium, including financial services, engineering and construction.

HP Z820 Workstation

Ultimate performance for ultimate projects.

Tackle your most demanding projects like never before. The dual-processor HP Z820 Workstation delivers outstanding performance, an award-winning industrial design, and tool-free serviceability in our most expandable chassis. With next-generation Intel® Xeon® processors, support for up to 24 processing cores, and the latest professional graphics, your best work is yet to come.



- Powered by Intel® Xeon® processor E5-2600 v2 family¹
- Windows 8.1 Pro 64-bit and other editions available⁴
Windows 7 Professional⁵
Linux Operating Systems
- Increased memory bandwidth and support for up to 512 GB of the latest generation of DDR3 memory⁸
- Optional Thunderbolt™ 2^{7,10} technology for up to 4X the bandwidth of USB 3.0
- Fusion-io® (ioFX®) option for extreme storage performance⁷
- Highest performing GPU computing solutions available in the Z family
- Easy access to customize and maintain system components with a tool-less and visually cable-free chassis

This is the workstation for tasks requiring maximum computing, graphics, memory, storage and I/O, such as simulation, product development, entertainment and financial services.

Powerful computing where you need it.

Creativity has no boundaries with these light, powerful and mobile workstations that make the world your studio.



HP ZBook 14 Mobile Workstation

The world's first workstation Ultrabook™⁹ redefines mobile computing.

HP's lightest mobile workstation—the new HP ZBook 14 Mobile Workstation utilizes impressive professional 3D graphics. This exceptionally thin, customizable workstation is light enough to carry when you're on the go—and powerful and reliable enough to carry you through the workday.

- Powered by 4th generation Intel® Core™ i5 and i7 processors¹
- Windows 8.1 Pro 64-bit and other editions available⁴
Windows 7 Professional⁵
Linux Operating Systems
- 14.0" (35.6 cm) diagonal display and 3.57 lbs (1.62 kg) for easy mobility
- Latest AMD FirePro™ graphics feature ISV certifications
- AMD Dynamic Switchable Graphics support
- Intuitive 10-point multi-touch screen⁷ option
- Optional secondary battery support (6-cell slice)⁷

Take powerful computing where you need to work. The innovative sleek design is impressive on the road, at client sites, and satellite offices.



HP ZBook 15 Mobile Workstation

Push your creative limits with a powerful mobile workstation redesigned for productivity on the go.

Break free from your desktop with a sleek HP ZBook 15 Mobile Workstation that keeps you productive in the field. Take advantage of powerful processing and graphics, consistent color throughout your workflow, simple scalability, and the blazing-fast connectivity your team needs to perform and collaborate at the speed of creativity.

- Dual- and quad-core 4th generation Intel® Core™ i5 and i7 processors¹
- Windows 8 Pro 64-bit and other editions available⁴
Windows 7 Professional⁵
Linux Operating Systems
- 15.6" (39.6 cm) diagonal display in your choice of FHD resolutions³ or HP DreamColor panel⁷
- Drive up to five displays with NVIDIA Graphics¹⁷
- NVIDIA Optimus Technology¹⁸ support
- Up to 1.8 TB of storage^{7,8} and up to four SODIMMS supporting up to 32 GB¹² of memory
- Thunderbolt™¹⁰ technology for up to 2X faster data transfer speeds than USB 3.0
- Tool-less hard drive release
- Two secondary external battery options⁷
- Common docking station options

The new stylish HP ZBook 15 projects a professional image at the office, client meetings, and on the road in a lightweight yet surprisingly durable chassis.



HP ZBook 17 Mobile Workstation

Inspire creativity with the incredible expandability of HP's most powerful mobile workstation.

Creativity knows no limits. Showcase your best work in the office or on the go. With the new HP ZBook 17 Mobile Workstation, take advantage of powerful processing and graphics, consistent color throughout your workflow, simple scalability, and the blazing-fast connectivity your team needs to perform and collaborate at the speed of creativity.

- Dual- and quad-core 4th generation Intel® Core™ i7 processors¹
- Windows 8 Pro 64-bit and other editions available⁴
Windows 7 Professional⁵
Linux Operating Systems
- 17.3" (43.9 cm) diagonal display in your choice of HD+, FHD resolutions³ or HP DreamColor panel⁷
- Drive up to five displays with NVIDIA graphics¹⁷
- Up to 2.75 TB of storage^{7,8} and up to 32 GB¹² of memory
- NVIDIA Optimus Technology¹⁸ support
- Thunderbolt™¹⁰ technology for up to 2X faster data transfer speeds than USB 3.0
- Tool-less hard drive release
- Two secondary external battery options⁷
- Common docking station options

Proudly display your work on a large, 17.3-inch diagonal screen housed in the durable chassis of the new HP ZBook 17. The new innovative design projects a professional image and remains easy enough to carry where work takes you.

Extended Services



Your HP Z Workstation experience doesn't end at the time of purchase, so why should our support? HP's Warranty along with a range of services ensures you have the right support at the right time.

HP Warranty

Every HP Z Workstation comes with a standard limited 3-3-3 warranty (three years parts, three years labor and three years next business day¹⁴ onsite support). Depending on your relationship with HP, you may also benefit from account management and premium call center support.

HP Total Care

Behind every HP Z Workstation there's a whole infrastructure of service and support packages designed to ensure that you get maximum value and benefit over the full life of your product.

For more information, please visit: hp.com/go/totalcare

HP Care Pack Services¹⁴

Choose to expand upon your standard warranty by taking advantage of our HP Care Pack Services, and you have the reassurance of knowing that, whatever's around the next corner, you're covered.

For more information, please visit: hp.com/go/cpc

Performance Displays

Now that you have the power to bring your imagination to life, see it in brilliant, high-resolution clarity with our extensive range of high-performance displays that are designed to work flawlessly with your HP Z Workstation.

HP Z Displays

Say hello to your new power-smart IPS Gen 2 team players

Get outstanding image accuracy, exceptional adjustability, and mission-critical reliability optimized for commercial environments. Built with IPS Gen 2 panels, HP Z Displays deliver power savings over first-generation IPS technology and extra-wide viewing angles that foster collaboration.

HP Z22i 21.5-inch IPS Display, HP Z23i 23-inch IPS Display, and HP Z24i 24-inch Display



- Choose a 21.5-inch diagonal or 23-inch diagonal display with 1920 x 1080 resolution or the 24-inch diagonal display with 1920 x 1200 resolution and 2.3M pixels
- Legacy connectivity from a range of inputs that include DisplayPort 1.2, DVI, VGA, and an integrated USB hub
- Ergonomic 4-way adjustable stand; HP Z24i features HP QR2 Quick Release

HP Z27i 27-inch IPS Display



- 27-inch diagonal display with narrow bezels and a high resolution of 2560 x 1440 and 3.7M pixels for enhanced productivity
- Connectivity from a range of inputs that include DisplayPort 1.2, DVI, VGA, HDMI 1.4, audio output for an HP Speaker Bar,⁷ and four USB 3.0 ports with speeds up to 10x faster than USB 2.0
- 4-way adjustable stand and an integrated HP QR2 Quick Release that enables VESA mounting

HP Z30i 30-inch IPS Display



- 30-inch diagonal display with narrow bezels and an ultra-high resolution of 2560 x 1600 that provides 4.1M pixels of ultimate visual power
- Enhance the dark regions of your onscreen images and see the smallest details even better with integrated HP Black Stretch technology
- Crisp, clear presentation from 350 cd/m² brightness, 1000:1 contrast ratio, 5M:1 dynamic contrast ratio, and 8 ms response time¹¹
- 4-way adjustable stand and an integrated HP QR2 Quick Release that enables VESA mounting

Gold-standard color-critical display

HP DreamColor LP2480zx

Ultimate color performance

With a true 30-bit panel and RGB LED backlight, this stunning monitor delivers support for over a billion colors.¹¹

- Super-IPS LCD
- Multiple color spaces
- Comfort 8-way adjustable stand



HP Z Workstations quick reference guide

	HP Z1 G2	HP Z230 SFF	HP Z230 Tower	HP Z420	
Operating systems	Windows 7 Professional 64-bit ¹ Windows 8.1 Pro 64-bit ² Windows 8.1 Pro Downgrade to Windows 7 Professional 64-bit ² HP Linux Installer Kit SUSE Linux Enterprise Desktop 11 (90 day support) Red Hat Enterprise Linux Desktop/ Workstation (Paper license with 1 year support; no preinstalled OS)	Windows 7 Professional 64-bit ¹ Windows 8.1 Pro 64-bit ² Windows 8.1 Pro Downgrade to Windows 7 Professional 64-bit ² HP Linux Installer Kit SUSE Linux Enterprise Desktop 11 (90 day support) Red Hat Enterprise Linux Desktop/ Workstation (Paper license with 1 year support; no preinstalled OS)	Windows 7 Professional 64-bit ¹ Windows 8.1 Pro 64-bit ² Windows 8.1 Pro Downgrade to Windows 7 Professional 64-bit ² HP Linux Installer Kit SUSE Linux Enterprise Desktop 11 (90 day support) Red Hat Enterprise Linux Desktop/ Workstation (Paper license with 1 year support; no preinstalled OS)	Windows 7 Professional 64-bit ¹ Windows 7 Ultimate 64-bit ¹ Windows 8.1 Pro 64-bit ² Windows 8.1 Pro Downgrade to Windows 7 Professional 64-bit ² HP Linux Installer Kit SUSE Linux Enterprise Desktop 11 (90 day support) Red Hat Enterprise Linux Desktop/ Workstation (Paper license with 1 year support; no preinstalled OS)	
Processor/chipset	4th Generation Intel® Core™ i3, i5 Processors ³ Intel® Xeon® Processor E3-1200 v3 Series ³ Intel® C226 Chipset	Intel® Xeon® Processor E3-1200v3 series ³ Intel® Core™ i3/i5/i7 processor family ³ Intel® C226 Chipset	Intel® Xeon® Processor E3-1200v3 series ³ Intel® Core™ i3/i5/i7 processor family ³ Intel® C226 Chipset	Intel® Xeon® Processor E5-1600v2 Series ³ Intel® Xeon® Processor E5-2600v2 Series ³ Intel® C602 Chipset	
Slots available/maximum memory/number of memory channels⁵	4 DIMM slots, up to 32 GB DDR3 ECC 1866 MHz/16 DDR3 nECC 1866 MHz 2 channels per CPU	4 DIMM slots, up to 32 GB ECC/non-ECC, DDR3 1600 MHz (ECC/non-ECC choice and actual memory speed dependent on processor capability)	4 DIMM slots, up to 32 GB ECC/non-ECC, DDR3 1600 MHz (ECC/non-ECC choice and actual memory speed dependent on processor capability)	8 DIMM slots; Up to 64 GB (8x8GB) ECC unbuffered DDR3 1866 MHz (600W PSU chassis); Up to 32 GB (8x4GB) ECC unbuffered DDR3 1866 MHz (400W PSU chassis); 4 channels per CPU	
Expansion slots	1 MXM 3.1 (dedicated for graphics) 2 miniPCIe/mSATA (full-length) Optional Thunderbolt™ 2 via PCIe Card	1 PCIe Gen3 x16 1 PCIe Gen2 x4 slot/x16 connector 1 PCIe Gen2 x1 slot/x4 connector 1 PCIe Gen2 x1 slot All slots are Low Profile Optional Thunderbolt™ 2 via PCIe Card	1 PCIe Gen3 x16 1 PCIe Gen2 x4 slot/x16 connector 1 PCIe Express x1 slot/x4 connector 1 PCIe Gen2 x1 slot 1 PCI 32-bit Optional Thunderbolt™ 2 via PCIe Card	2 PCI Express Gen3 x16 mechanical/ electrical 1 PCI Express Gen3 x8 mechanical/ electrical 1 PCI Express Gen2 x8 mechanical/x4 electrical 1 PCI Express Gen2 x4 mechanical/x1 electrical 1 Legacy PCI Optional Thunderbolt™ 2 via PCIe Card	
Graphics	Intel® HD Graphics 4400 and 4600 (Intel® Core™ i3 and i5 Processors) Intel® HD Graphics P4600 (Intel® Xeon® E3-12xv3 Processors)	NVIDIA Quadro K610M NVIDIA Quadro K2100M NVIDIA Quadro K3100M NVIDIA Quadro K4100M	Intel® HD Graphics available on select processors AMD FirePro™ V3900 NVIDIA NVS 310 NVIDIA NVS 315 NVIDIA NVS 510 NVIDIA NVS 510 NVIDIA NVS 510 NVIDIA NVS 510 NVIDIA Quadro 410 NVIDIA Quadro K600	Intel® HD Graphics available on select processors AMD FirePro™ V3900 NVIDIA Quadro 410 NVIDIA Quadro K600 NVIDIA Quadro K2000 AMD FirePro™ W7000 (AMO only)* NVIDIA Quadro K4000	NVIDIA NVS 300 NVIDIA NVS 310 NVIDIA NVS 315 NVIDIA NVS 510 NVIDIA Quadro 410 NVIDIA Quadro K600 AMD FirePro™ V3900 NVIDIA Quadro K2000 NVIDIA Quadro K4000 AMD FirePro™ W7000 NVIDIA Quadro K5000 NVIDIA Quadro 6000 NVIDIA Tesla K20c NVIDIA Tesla K40
Maximum supported displays	One external display via display port	6 displays	6 displays	8 displays	
Controllers and HDDs^{7,8}	Integrated SATA Controller, RAID 0,1 supported: 3 ports, 6 Gb/s SATA 7200 3.5-in. drives: 500 GB, 1, 2, 3 TB SATA 10K 2.5-in. drives: 500 GB, 1 TB SATA Solid State drives: 256, 512 GB mSATA Solid State drives: 128, 256 GB	Integrated SATA Controller, RAID 0,1 supported: 5 ports, 6 Gb/s Up to (2) 3.5-inch 7200 rpm SATA drives: 500 GB, 1, 2 or 3 TB (6 TB max) Up to (2) 2.5-inch 10K rpm SATA drives: 250, 500 GB, 1 TB (2 TB max) Up to (2) 2.5-inch SATA SDD drives: 128, 256 GB (0.5 TB max) Up to (1) 2.5-inch SATA self-encrypting solid state boot drive (SED SSD): 256 GB, 256 GB max Up to (1) 2.5-inch SATA self-encrypting 7200 rpm boot drive (SED): 500 GB, 500 GB max Optional (1) 64 GB SSD Disk Cache Module can be used in conjunction with up to (2) SATA HDDs in RAID 0/RAID 1 using Intel® Smart Response Technology.	Integrated SATA Controller, RAID 0,1 supported: 5 ports, 6 Gb/s Up to (3) 3.5-inch 7200 rpm SATA drives: 500 GB, 1, 2 or 3 TB (9 TB max) Up to (3) 2.5-inch 10K rpm SATA drives: 250, 500 GB, 1 TB (3 TB max) Up to (3) 2.5-inch SATA SDD drives: 128, 256 GB (0.75 TB max) Up to (1) 2.5-inch SATA self-encrypting solid state boot drive (SED SSD): 256 GB, 256 GB max Up to (1) 2.5-inch SATA self-encrypting 7200 rpm boot drive (SED): 500 GB, 500 GB max Optional (1) 64 GB SSD Disk Cache Module can be used in conjunction with up to (2) SATA HDDs in RAID 0/RAID 1 using Intel® Smart Response Technology.	Integrated 6-channel SATA controller: 2 ports 6 Gb/s + 4 ports 3 Gb/s, RAID 0, 1, 5, 10 capable Optional SAS controller: LSI 9212-4i 4-port SAS/SATA 6 Gb/s, RAID 0, 1, 10 capable Up to (4) 3.5-inch 7200 rpm SATA drives: 250, 500 GB, 1, 2, 3 TB, 12 TB max Up to (4) 2.5-inch 10K rpm SATA drives: 250, 500 GB, 1 TB, 4 TB max Up to (4) 2.5-inch 10K rpm SAS drives: 300, 600, 900 GB, 1.2 TB, 4.8 TB max Up to (4) 3.5-inch 15K rpm SAS drives: 300, 450, 600 GB, 2.4 TB max Up to (4) 2.5-inch SATA solid state drives: 128, 240, 256, 480, 512 GB, 2.0 TB max Note: Fourth 3.5-inch drive occupies one external 5.25-inch bay. Fourth 2.5-inch drive is installed into top optical bay handle.	
Optical drives^{9,10,11}	DVD-ROM slim tray load DVD+/-RW DL Super Multi slim tray load HP Blu-ray Writer slim tray load 1 SD 4.0 Media Card Reader	DVD-ROM DVD+/-RW DL Super Multi HP Blu-ray Writer HP 14-in-1 Media Card Reader	DVD-ROM DVD+/-RW DL Super Multi HP Blu-ray Writer HP 14-in-1 Media Card Reader	DVD-ROM DVD+/-RW DL Super-Multi Blu-ray Writer 14-in-1 Media Card Reader	
Communications¹²	Intel I217LM Network Connection (Intel® vPro™ with Intel® AMT 9.0) Integrated Intel dual-band AC 7260 802.11ac Wireless LAN & Bluetooth 4 Combo Card	Intel I217LM Network Connection (Intel® vPro™ with Intel® AMT 9.0) Optional Intel® GbE NIC	Intel I217LM Network Connection (Intel® vPro™ with Intel® AMT 9.0) Optional Intel® GbE NIC	Integrated Intel GbE LAN Optional Intel CT x1 PCIe NIC Optional Intel Ethernet I210-T1 PCIe NIC Optional Broadcom NIC Optional HP 361T PCIe Dual Port Gigabit NIC Optional HP X520 10GbE Dual Port Adapter Optional HP 10GbE SFP+ SR Transceiver Infineon TPM 1.2 Controller	

HP Z620	HP Z820	HP ZBook 14	HP ZBook 15	HP ZBook 17	
Windows 7 Professional 64-bit ¹ Windows 7 Ultimate 64-bit ¹ Windows 8.1 Pro 64-bit ² Windows 8.1 Pro Downgrade to Windows 7 Professional 64-bit ² HP Linux Installer Kit SUSE Linux Enterprise Desktop 11 (90 day support) Red Hat Enterprise Linux Desktop/Workstation (Paper license with 1 year support; no preinstalled OS)	Windows 7 Professional 64-bit ¹ Windows 7 Ultimate 64-bit ¹ Windows 8.1 Pro 64-bit ² Windows 8.1 Pro Downgrade to Windows 7 Professional 64-bit ² HP Linux Installer Kit SUSE Linux Enterprise Desktop 11 (90 day support) Red Hat Enterprise Linux Desktop/Workstation (Paper license with 1 year support; no preinstalled OS)	Windows 7 Professional and other editions available ¹ Windows 8.1 Pro and other editions available ² SUSE Linux Enterprise Desktop 11 FreeDOS	Windows 7 Professional and other editions available ¹ Windows 8 Pro and other editions available ² SUSE Linux Enterprise Desktop 11 FreeDOS	Windows 7 Professional and other editions available ¹ Windows 8 Pro and other editions available ² SUSE Linux Enterprise Desktop 11 FreeDOS	
Intel® Xeon® Processor E5-1600v2 Series ³ Intel® Xeon® Processor E5-2600v2 Series ³ Intel® C602 Chipset	Intel® Xeon® Processor E5-2600v2 Series ³ Intel® QuickPath Technology Intel® C602 Chipset	Intel® Core™ i5 or i7 Mobile Processor Family with Intel® vPro Technology ^{3,13,14} Chipset is integrated with processor	Intel® Core™ i5 or i7 Mobile Processor Family with Intel® vPro Technology ^{3,13,14} Mobile Intel® QM87 chipset	Intel® Core™ i5 or i7 Mobile Processor Family with Intel® vPro Technology ^{3,14,14} Mobile Intel® QM87 chipset	
Up to 12 DIMM slots with 2 CPUs, up to 192 GB, 8-channel ECC DDR3 1866 MHz 4 channels per CPU	16 DIMM slots, up to 512 GB, 8-channel ECC DDR3, up to 1866 MHz 4 channels per CPU	DDR3L SDRAM, 1600 MHz, 2 SODIMMs, Up to 16 GB	DDR3L SDRAM, 1600 MHz, 4 SODIMMs, Up to 32 GB Two SODIMM slots (dual-core processor) or four SODIMM slots (quad-core processor) supporting dual-channel memory.	DDR3L SDRAM, 1600 MHz, 2 or 4 SODIMMs, Up to 32 GB Two SODIMM slots (dual-core processor) or four SODIMM slots (quad-core processor) supporting dual-channel memory.	
2 PCI Express Gen3 x16 1 PCI Express Gen3 x8 1 PCI Express Gen2 x8 mechanical/x4 electrical 1 PCI Express Gen2 x4 mechanical/x1 electrical 1 Legacy PCI Optional Thunderbolt™ 2 via PCIe Card	2 PCI Express Gen3 x16 1 PCI Express Gen3 x16 (Available only with 2nd CPU) 1 PCI Express Gen3 x16 mechanical/x8 electrical (Available only with 2nd CPU) 1 PCI Express Gen3 x8 mechanical/x4 electrical 1 PCI Express Gen2 x8 mechanical/x4 electrical 1 Legacy PCI Optional Thunderbolt™ 2 via PCIe Card	1 Secure Digital 1 Smart Card Reader	1 ExpressCard/54 1 Secure Digital 1 Smart Card Reader Optional Thunderbolt™ 2 via PCIe Card	1 ExpressCard/54 1 Secure Digital 1 Smart Card Reader Optional Thunderbolt™ 2 via PCIe Card	
NVIDIA NVS 300 NVIDIA NVS 310 NVIDIA NVS 315 NVIDIA NVS 510 NVIDIA Quadro 410 NVIDIA Quadro K600 AMD FirePro™ V3900 NVIDIA Quadro K2000	NVIDIA Quadro K4000 AMD FirePro™ W7000 NVIDIA Quadro K5000 NVIDIA Quadro 6000 NVIDIA Quadro K6000 NVIDIA Tesla K20c NVIDIA Tesla K40	NVIDIA NVS 300 NVIDIA NVS 310 NVIDIA NVS 315 NVIDIA Quadro NVS 450 NVIDIA NVS 510 NVIDIA Quadro 410 NVIDIA Quadro K600 NVIDIA Tesla K2075 ⁶ NVIDIA Tesla K20c NVIDIA Tesla K40	Intel® HD Graphics 4400 AMD FirePro™ M4100 AMD Dynamic Switchable Graphics supported	Intel HD Graphics 4600 NVIDIA Quadro K610M NVIDIA Quadro K1100M NVIDIA Quadro K2100M NVIDIA Optimus Technology supported ¹⁸	NVIDIA Quadro K610M NVIDIA Quadro K3100M NVIDIA Quadro K4100M NVIDIA Quadro K5100M NVIDIA Optimus Technology supported ¹⁸
8 displays	8 displays	5 displays	5 displays	5 displays	
Integrated 6-channel SATA controller: 2 ports 6 Gb/s + 4 ports 3 Gb/s, RAID 0, 1, 5, 10 capable Optional SAS controllers: LSI 9212-4i 4-port SAS & LSI 9717-4i4e 8-port SAS; both 6 Gb/s RAID 0, 1, 10 capable Up to (4) 3.5-inch 7200 rpm SATA drives: 250, 500 GB, 1, 2, 3 TB, 12 TB max Up to (4) 2.5-inch 10K rpm SATA drives: 250, 500 GB, 1 TB, 4 TB max Up to (4) 2.5-inch 10K rpm SAS drives: 300, 600, 900 GB, 1.2 TB, 4.8 TB max Up to (4) 3.5-inch 15K rpm SAS drives: 300, 450, 600 GB, 2.4 TB max Up to (4) 2.5-inch SATA solid state drives: 128, 240, 256, 480, 512 GB, 2 TB max Up to (1) 2.5-inch SATA self-encrypting solid state boot drive (SED SSD): 256 GB, 256 GB max Up to (1) 2.5-inch SATA self-encrypting hard drive (SED HDD): 500 GB, 500 GB max Note: Fourth drive occupies one external 5.25-inch bay	Integrated 2-channel SATA 6 Gb/s controller, RAID 0, 1 capable Integrated 4-channel SATA 3 Gb/s controller, RAID 0, 1, 5, 10 capable Integrated 8-channel SAS 6Gb/s controller, RAID 0, 1, 10 capable Optional LSI 9260-8i 8-port 6Gb/s SAS HW RAID 0, 1, 5, 10 capable Up to (5) 3.5-inch 7200 rpm SATA drives: 250, 500 GB, 1, 2, 3 TB, 15 TB max Up to (5) 2.5-inch 10K rpm SATA drives: 300 GB SFF, 1.5 TB max Up to (6) 2.5-inch 10K rpm SATA drives: 250, 500, 1000 GB SFF, 6 TB max Up to (6) 2.5-inch 10K rpm SAS drives: 300, 600, 900 GB, 1.2 TB, 7.2 TB max Up to (5) 3.5-inch 15K rpm SAS drives: 300, 450, 600 GB, 3 TB max Up to (6) 2.5-inch SATA solid state drives: 120, 128, 180, 240, 256, 480, 512 GB, 3 TB max Up to (1) 2.5-inch SATA solid state SED drives: 256 GB, 256 GB max Up to (1) 3.5-inch SATA SED hard drive: 500 GB, 500 GB max	SATA (7200 rpm), 320 GB, 750 GB SATA (5400 rpm), 1 TB SATA SED, 500 GB SATA FIPS 140-2 SED (5400 rpm), 500 GB SATA SSD, 180GB, 512 GB SATA SE SSD, 256 GB M.2 SSD, 120 GB	SATA (7200 rpm), 320 GB, 750 GB SATA (5400 rpm), 1 TB SATA SED, 500 GB SATA FIPS 140-2 SED (5400 rpm), 500 GB SATA SSD, 128GB, 500 GB SATA SE SSD, 256 GB mSATA SSD, 128 GB	SATA (7200 rpm), 320 GB, 750 GB SATA (5400 rpm), 1 TB SATA SED, 500 GB SATA FIPS 140-2 SED (5400 rpm), 500 GB SATA SSD, 128GB, 500 GB SATA SE SSD, 256 GB mSATA SSD, 128 GB	
DVD-ROM DVD+/-RW Slot-load DVD+/-RW Blu-ray Writer 14-in-1 Media Card Reader	DVD-ROM DVD+/-RW Super-Multi and Slot-Load Blu-ray Writer 14-in-1 Media Card Reader	External optical drives are supported	Blu-ray R/RE DVD+/-RW SuperMulti DL Blu-ray ROM DVD+/-RW SuperMulti DL DVD+/-RW SuperMulti DL DVD-ROM	Blu-ray R/RE DVD+/-RW SuperMulti DL Blu-ray ROM DVD+/-RW SuperMulti DL DVD+/-RW SuperMulti DL DVD-ROM	
Dual integrated Intel GbE LAN Infineon TPM 1.2 Controller Optional Broadcom GbE NIC Optional Intel GbE NIC Optional HP X520 10GbE Dual Port NIC Optional Intel Ethernet I210-T1 PCIe NIC	Dual integrated Intel GbE LAN Infineon TPM 1.2 Controller Optional Broadcom NIC Optional Intel NIC	Integrated Intel I218-LM Gigabit Network Connection (10/100/1000)	Integrated Intel I217-LM Gigabit Network Connection (10/100/1000)	Integrated Intel I217-LM Gigabit Network Connection (10/100/1000)	

Comparison chart notes

* After-Market Option

- Not all features are available in all editions of Windows 7. Systems may require upgraded and/or separately purchased hardware to take full advantage of Windows 7 functionality. See microsoft.com/windows/windows-7/ for details.
- Not all features are available in all editions of Windows 8. Systems may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows 8 functionality. See microsoft.com.
- Multi-Core is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. 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. Intel's numbering is not a measurement of higher performance.
- Limited options on the Intel® Xeon® Processor E5-2600* Series; Please see HP Z420 Datasheet for details.
- Each processor supports up to 2 channels (HP Z230 Tower/HP Z230 SFF) or 4 channels (HP Z420/HP Z620/HP Z820) of DDR3 memory. To realize full performance at least 1 DIMM must be inserted into each channel. To get full 8 channel support, 2 processors MUST be installed.
- NVIDIA Tesla C2075 on the HP Z820 requires the 1125W power supply.
- 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. Please visit h20000.www2.hp.com/bc/docs/support/SupportManual/c00060684/c00060684.pdf for RAID capabilities with Linux. HP Z200 does not support RAID 10 Because of drive bay limitation.
- For hard drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16GB of system disk is reserved for system recovery software (for Windows 7) and up to 30GB is reserved for Windows 8.
- Double Layer discs can store more data than single layer discs. However, double-layer discs burned with this drive may not be compatible with many existing single-layer DVD drives and players.
- As Blu-Ray contains new technologies, certain disc, digital connection, compatibility and/or performance issues may arise, and do not constitute defects in the product. Flawless playback on all systems is not guaranteed. In order for some Blu-ray titles to play, they may require a DVI or HDMI digital connection and your display may require HDCP support. HD-DVD movies cannot be played on this workstation.
- 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.
- Note that DVD-RAM cannot read or write to 2.6 GB Single Sided/5.2 GB Double Sided – Version 1.0 media.
- The term "10/100/1000" or "Gigabit" Ethernet indicates compliance with IEEE standard 802.3ab for Gigabit Ethernet, and does not connote actual operating speed of 1 Gb/sec. For high speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required.
- Intel® Turbo Boost technology requires a PC with a processor with Intel Turbo Boost capability. Intel Turbo Boost performance varies depending on hardware, software, and overall system configuration.
- This workstation does not support the Intel Core 2 Extreme processor over-clocking feature. See intel.com/technology/turboboost for more information.
- Microsoft Windows required.
- Raid 5 requires 3 hard disk drives in primary storage, second primary storage and upgrade bay.
- If configured with the HP DreamColor display, NVIDIA Optimus graphics will not be enabled.

Notes

- Multi-Core is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. 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. Intel's numbering is not a measurement of higher performance.
- Available on HP Z420 and HP Z820 Workstations only.
- High-definition content is required to view high-definition images.
- Not all features are available in all editions of Windows 8. Systems may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows 8 functionality. See microsoft.com.
- Not all features are available in all editions of Windows 7. Systems may require upgraded and/or separately purchased hardware to take full advantage of Windows 7 functionality. See microsoft.com/windows/windows-7/ for details.
- Intel® Xeon® E3/E5 and Intel Pentium processors can support either ECC or non-ECC memory. Intel Core i3/i5/i7 processors only support non-ECC memory.
- Sold as an optional or add on feature.
- For hard drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16GB of system disk is reserved for system recovery software (for Windows 7) and up to 30GB is reserved for Windows 8.
- Not all configurations qualify as an Ultrabook™.
- Thunderbolt™ 2 is available via an optional add-in card. Thunderbolt is new technology. Thunderbolt cable and Thunderbolt device (sold separately) must be compatible with Windows. To determine whether your device is Thunderbolt Certified for Windows, see thunderbolttechnology.net/products.
- All specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary either higher or lower.
- Maximum memory capacities assume Windows 64-bit operating systems or Linux. With Windows 32-bit operating systems, memory above 3 GB may not all be available due to system resource requirements.
- Internet access required.
- HP Care Packs are optional. Service levels and response times for HP Care Packs may vary depending on your geographic location. Restrictions and limitations apply. Service starts at date of hardware purchase. For details, visit hp.com/go/cpc.
- Dual NVIDIA NVS 510 Graphics cards required.
- Support for external displays as a standard feature through integrated processor-based graphics is dependent upon the particular workstation configuration; the actual number of displays supported will vary. An optional graphics solution will be required for the support of additional displays. Additional cables required. HD (high-definition) content required to view HD images.
- Requires optional docking and hybrid graphics enabled.
- If configured with the HP DreamColor display, NVIDIA Optimus graphics will not be enabled.

For more information visit hp.com/zworkstations

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