HP Workstations

Quick Reference Guide



A family of overacheivers



HP recommends Windows® 7.

Meet Our HP Workstation Family—Compare Features







	HP Z1	HP Z220 SFF	HP Z220 CMT
Overview	Power without the tower.	Small Package. Bigger Punch.	Highly Affordable. Exceptionally Expandable.
Operating systems	Genuine Windows® 7 Professional 32-Bit Genuine Windows® 7 Professional 64-bit HP Linux Installer Kit SUSE Linux Enterprise Desktop 11 Red Hat Enterprise Linux Desktop/Workstation (1 year paper license; no preinstalled OS)	Genuine Windows® 7 Professional 32-Bit Genuine Windows® 7 Professional 64-bit Genuine Windows® 7 Ultimate 64-bit HP Linux Installer Kit SUSE Linux Enterprise Desktop 11 Red Hat Enterprise Linux Desktop/Workstation (1 year paper license; no preinstalled OS)	Genuine Windows® 7 Professional 32-Bit Genuine Windows® 7 Professional 64-bit Genuine Windows® 7 Ultimate 64-bit HP Linux Installer Kit SUSE Linux Enterprise Desktop 11 Red Hat Enterprise Linux Desktop/Workstation (1 year paper license; no preinstalled OS)
Processor/chipset	Intel® Core™ i3-2000 Processor Series Intel® Xeon® Processor E3-1200 Series¹.².³ Intel® C206 Chipset	Intel® Pentium Processor G640 Intel® Core™ i7-3770 Processor Intel® Xeon® Processor E3-1200v2 Series¹.².³ Intel® C216 chipset	Intel® Pentium Processor G640 Intel® Core™ i7-3770 Processor Intel® Xeon® Processor E3-1200v2 Series¹.².₃ Intel® C216 chipset
Slots available/maximum memory/number of memory channels ⁵	4 DIMM slots, up to 32 GB, DDR3 ECC/8 GB DDR3 nECC, 1600MHz 2 channels per CPU	4 DIMM slots, up to 32 GB ECC/non-ECC, DDR3 1600 MHz 2 channels per CPU	4 DIMM slots, up to 32 GB ECC/non-ECC, DDR3 1600 MHz 2 channels per CPU
Expansion slots	1 PCIe x 16 full 3 miniPCIe	1 PCIe Gen3 x16 1 PCIe Gen2 x4/x16 2 PCIe Gen2 x1 1 PCI (all slots are Low Profile)	1 PCIe Gen3 x16 1 PCIe Gen2 x4/x16 1 PCIe Gen2 x4/x8 2 PCI Gen2 x1 2 PCI
Graphics ⁶	Intel® HD Graphics 2000 (Intel® Core™ Processors) Intel® HD Graphics P3000 (Intel® Xeon® E3-1xx5 Processors) NVIDIA Quadro 500M NVIDIA Quadro 1000M NVIDIA Quadro 3000M NVIDIA Quadro 4000M	Intel® HD Graphics 4000 (Intel® Core™ Processors) Intel® HD Graphics P4000 (Intel® Xeon® E3-12x5 Processors) NVIDIA NVS 300 NVIDIA Quadro NVS 310 AMD FirePro V3900 NVIDIA Quadro 410* NVIDIA Quadro 600	Intel® HD Graphics 4000 (Intel® Core™ Processors Intel® HD Graphics P4000 (Intel® Xeon® E3-12x5 Processors) NVIDIA NVS 300 NVIDIA Quadro NVS 310 AMD FirePro V3900 AMD FirePro V4900 NVIDIA Quadro 410* NVIDIA Quadro 600 AMD FirePro V5900 NVIDIA Quadro 2000 AMD FirePro V7900 (AMO only)** NVIDIA Quadro 4000 (AMO only)**
Maximum supported displays	One external display via display port	4 displays	4 displays
Controllers and HDDs ^{8,9}	Integrated Serial ATA interfaces (2x 6Gb/s SATA, 1x 3Gb/s SATA) SATA 7200 3.5-in. drives: 250, 500 GB, 1, 2 TB SATA 10K 2.5-in. drives: 300, 600 GB SATA Solid State drives: 160, 300 GB	Integrated SATA Controller, RAID 0,1 supported: 2 ports 3 Gb/s, 2 ports 6 Gb/s Up to (2) 3.5-inch 7200 rpm SATA drives: 250, 500 GB, 1, 2 TB (4 TB max) Up to (2) 2.5-inch 10K rpm SATA drives: 300 GB (0.6 TB max) Up to (2) 2.5-inch SATA SSD drives: 128, 160, 256, 300 GB (0.6 TB max)	Integrated SATA Controller, RAID 0,1 supported: 4 ports 3 Gb/s, 2 ports 6 Gb/s Up to (3) 3.5-inch 7200 rpm SATA drives: 250, 500 GB, 1, 2 TB (6 TB max) Up to (3) 2.5-inch 10K rpm SATA drives: 300 GB (0.9 TB max) Up to (3) 2.5-inch SATA solid state drives: 128, 160, 256, 300 GB (0.9 TB max)
Optical drives ^{10,11,12}	DVD +/- RW Super-Multi Slot-Load Blu-ray Writer Slot-Load	DVD-ROM DVD+/-RW DL Super Multi HP Blu-ray Writer HP 22-in-1 Media Card Reader	DVD-ROM DVD+/-RW DL Super Multi HP Blu-ray Writer HP 22-in-1 Media Card Reader
Communications ¹³	Intel Gb LAN Wireless Bluetooth ^{®14}	Intel 82579 GbE Network Connection (Intel® vPro™ with Intel® AMT 8.0)	Intel 82579 GbE Network Connection (Intel® vPro™ with Intel® AMT 8.0)







	HP Z420	HP Z620	HP Z820
Overview	Expand your power.	Versatility redefined, still compact.	Ultimate performance for ultimate projects.
Operating systems	Genuine Windows® 7 Professional 32-Bit Genuine Windows® 7 Professional 64-bit Genuine Windows® 7 Ultimate 64-bit HP Linux Installer Kit SUSE Linux Enterprise Desktop 11 Red Hat Enterprise Linux Desktop/Workstation (1 year paper license; no preinstalled OS)	Genuine Windows® 7 Professional 32-Bit Genuine Windows® 7 Professional 64-bit Genuine Windows® 7 Ultimate 64-bit HP Linux Installer Kit Red Hat Enterprise Linux Desktop/Workstation (1 year paper license; no preinstalled OS)	Genuine Windows® 7 Professional 32-Bit Genuine Windows® 7 Professional 64-bit Genuine Windows® 7 Ultimate 64-bit HP Linux Installer Kit Red Hat Enterprise Linux Desktop/Workstation (1 year paper license; no preinstalled 0S)
Processor/chipset	Intel® Xeon® Processor E5-1600 Series ^{1,2,3} Intel® Xeon® Processor E5-2600* Series ^{1,2,3,4} Intel® C602 Chipset	Intel® Xeon® Processor E5-2600 Series ^{1,2,3} Intel® Xeon® Processor E5-2600* Series ^{1,2,3} Intel® C602 Chipset	Intel® Xeon® Processor E5-2600 Series ^{1,2,3} Intel® QuickPath Technology Intel® C602 Chipset
Slots available/maximum memory/number of memory channels ⁵	8 DIMM slots, up to 64 GB ECC unbuffered DDR3 1600 MHz 4 channels per CPU	Up to 12 DIMM slots with 2 CPUs, up to 96 GB, 8-channel ECC DDR3 1600 MHz 4 channels per CPU	16 DIMM slots, up to 512 GB, 8-channel ECC DDR3 1600 MHz 4 channels per CPU
Expansion slots	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	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	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
Graphics ⁶	NVIDIA NVS 300 NVIDIA NVS 310 AMD FirePro 2270 NVIDIA Quadro NVS 450 NVIDIA Quadro NVS 450 NVIDIA Quadro 410* AMD FirePro V3900 NVIDIA Quadro 600 AMD FirePro V4900 NVIDIA Quadro 2000 AMD FirePro V5900 NVIDIA Quadro 4000 AMD FirePro V7900 NVIDIA Quadro 5000 NVIDIA Quadro 5000 NVIDIA Quadro 5000 NVIDIA Quadro 6000 NVIDIA Quadro 6000 NVIDIA Tesla C2075	NVIDIA NVS 300 NVIDIA NVS 310 AMD FirePro 2270 NVIDIA Quadro NVS 450 NVIDIA Quadro NVS 450 NVIDIA Quadro 410* AMD FirePro V3900 NVIDIA Quadro 600 AMD FirePro V4900 NVIDIA Quadro 2000 AMD FirePro V5900 NVIDIA Quadro 4000 AMD FirePro V7900 NVIDIA Quadro 5000 NVIDIA Quadro 5000 NVIDIA Quadro 5000 NVIDIA Quadro 6000 NVIDIA Quadro 6000 NVIDIA Tesla C2075	NVIDIA NVS 300 NVIDIA NVS 310 AMD FirePro 2270 NVIDIA Quadro 410* AMD FirePro V3900 NVIDIA Quadro 600 AMD FirePro V4900 NVIDIA Quadro 2000 AMD FirePro V5900 NVIDIA Quadro 4000 AMD FirePro V7900 NVIDIA Quadro 5000 NVIDIA Quadro 6000 NVIDIA Quadro 6000 NVIDIA Quadro 6000 NVIDIA Tesla C20757
Maximum supported displays	8 displays	8 displays	8 displays
Controllers and HDDs ^{8,9}	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, 11 TB max Up to (4) 2.5-inch 10K rpm SATA drives: 300 GB, 1.2 TB max Up to (4) 2.5-inch 10K rpm SAS drives: 300, 600 GB, 2.4 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, 160, 256, 300 GB, 1.2 TB max Note: Fourth drive occupies one external 5.25-inch bay	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 6 Gb/s RAID 0, 1, 10 capable Up to (4) 3.5-inch 7200 rpm SATA drives: 250, 500 GB, 1, 2, 3, 11 TB max Up to (4) 2.5-inch 10K rpm SATA drives: 300 GB, 1.2 TB max Up to (4) 2.5-inch 10K rpm SAS drives: 300, 600 GB SFF, 2.4 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, 160, 256, 300 GB, 1.2 TB 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 TB, up to (4) 3 TB, 14 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 SAS drives: 300, 600 GB SFF, 3.6 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: 128, 160, 256, 300 GB, 1.8 TB max
Optical drives ^{10,11,12}	DVD-ROM DVD+/-RW DL Super-Multi Blu-ray Writer 22-in-1 Media Card Reader	DVD-ROM DVD+/-RW Slot-load DVD+/-RW Blu-ray Writer 22-in-1 Media Card Reader	DVD-ROM DVD+/-RW Super-Multi and Slot-Load Blu-ray Writer 22-in-1 Media Card Reader
Communications ¹³	Integrated Intel GbE LAN Infineon TPM 1.2 Controller Optional Broadcom NIC Optional Intel NIC	Dual integrated Intel GbE LAN Infineon TPM 1.2 Controller Optional Broadcom NIC Optional Intel NIC	Dual integrated Intel GbE LAN Infineon TPM 1.2 Controller Optional Broadcom NIC Optional Intel NIC







	HP EliteBook 8470w	HP EliteBook 8570w	HP EliteBook 8770w
Overview	Workstation Power. Notebook Mobility.	Portable Powerhouse.	Power to Perform.
Operating systems	Genuine Windows® 7 Ultimate and other editions available SUSE Linux Enterprise Desktop Red Hat Enterprise Linux (RHEL) FreeDOS	Genuine Windows® 7 Ultimate and other editions available SUSE Linux Enterprise Desktop Red Hat Enterprise Linux (RHEL) FreeDOS	Genuine Windows® 7 Ultimate and other editions available SUSE Linux Enterprise Desktop Red Hat Enterprise Linux (RHEL) FreeDOS
Processor/chipset/ system bus	Intel® Core™ i5 or i7 Mobile Processor Family with Intel® Turbo Boost Technology¹.2.3.15.16 Mobile Intel QM77 Chipset Intel vPro Technology (optional)	Intel® Core™ i5 or i7 Mobile Processor Family with Intel® Turbo Boost Technology¹,2,3,15,16 Mobile Intel QM77 Chipset Intel vPro Technology (optional)	Intel® Core™ i5 or i7 Mobile Processor Family with Intel® Turbo Boost Technology¹.2.3.15.16 Mobile Intel QM77 Chipset Intel vPro Technology (optional)
Maximum memory/ slots available⁵	DDR3 SDRAM, 1600 MHz, two slots supporting dual-channel memory, 2/4/8 GB SODIMMs, up to 16 GB total	DDR3 SDRAM, 1600 MHz, dual-core processors support 2 memory slots, 2/4/8 GB S DIMMs, up to 16 GB total, quad-core processors support 4 memory slots, 2/4/8 GB SODIMMs, up to 32 GB total	DDR3 SDRAM, 1600 MHz, dual-core processors support 2 memory slots and quad-core processors support 4 memory slots, 2/4/8 GB SODIMMs, up to 32 GB total
Expansion slots	1 Express Card/54 1 Secure Digital/MMC Media Reader	1 Express Card/54 1 Secure Digital/MMC Media Reader	1 Express Card/54 1 Secure Digital/MMC Media Reader
Graphics ⁶	AMD FirePro M2000	AMD FirePro M4000 NVIDIA Quadro K1000M NVIDIA Quadro K2000M	AMD FirePro M4000 NVIDIA Quadro K3000M NVIDIA Quadro K4000M NVIDIA Quadro K5000M
Displays	14.0" diagonal LED-backlit HD anti-glare (1366 x 768) 14.0" diagonal LED-backlit HD+ anti-glare (1600 x 900)	15.6" diagonal LED-backlit WVA anti-glare, HD+ (1600 x 900) 15.6" diagonal LED-backlit WVA anti-glare, FHD (1920 x 1080) 15.6" diagonal LED-backlit UWVA anti-glare, FHD DreamColor (1920 x 1080)	17.3" diagonal LED-backlit WVA anti-glare, HD+ (1600 x 900) 17.3" diagonal LED-backlit WVA anti-glare, FHD (1920 x 1080) 17.3" diagonal LED-backlit UWVA, anti-glare, FHD DreamColor (1920 x 1080)
Controllers and HDDs ^{8,9}	320/500/750 GB 7200 rpm SMART SATA II HDD 500 GB 7200 rpm SED (Self Encrypting Drive) HDD 128/180 GB SATA 6 GB/s SSD 256 GB SATA 6 GB/s SED SSD RAID 0, 1 support HP 3D DriveGuard ¹⁷	320/500/750 GB 7200 rpm SMART SATA II HDD 500 GB 7200 rpm SED (Self Encrypting Drive) HDD 128/180 GB SATA 6 GB/s SSD 256 GB SATA 6 GB/s SED SSD RAID 0, 1 support HP 3D DriveGuard ¹⁷	Up to (2) 320/500/750 GB 7200 rpm SMART SATA II HDD Up to (2) 500 GB 7200 rpm SED (Self Encrypting Drive) HDD Up to (2) 128/180 GB SATA 6 GB/s SSD Up to (2) 256 GB SATA 6 GB/s SED SSD RAID 0, 1, 5 support 18 HP 3D DriveGuard ¹⁷
Optical drives ^{10,11,12}	12.7 mm SATA optical drive or secondary hard drive: DVD-ROM Drive DVD+/-RW Drive Blu-ray ROM DVD+/-RW Drive Blu-ray R/RE DVD+/-RW Drive 500 GB 7200 rpm HDD Weight saver	12.7 mm SATA optical drive or secondary hard drive: DVD-ROM Drive DVD+/-RW Drive Blu-ray ROM DVD+/-RW Drive Blu-ray R/RE DVD+/-RW Drive 500 GB 7200 rpm HDD Weight saver	12.7 mm SATA optical drive or secondary hard drive: DVD-ROM Drive DVD+/-RW Drive Blu-ray ROM DVD+/-RW Drive Blu-ray R/RE DVD+/-RW Drive 500 GB 7200 rpm HDD Weight saver
Communications ¹³	Optional HP hs2350 HSPA+ Mobile Broadband Optional HP un2430 EV-DO/HSPA Mobile Broadband Intel® Centrino Advanced-N 6205 802.11 a/b/g/n 2x2 Intel® Centrino Ultimate-N 6300, 802.11a/b/g/n 3x3 Broadcom 802.11a/b/g/n 2x2 HP Integrated Module with Bluetooth®14 v4.0 HP Connection Manager Integrated Intel® 82579LM Gigabit Network Connection (vPro™ support) 56K v.92 modem	Optional HP hs2350 HSPA+ Mobile Broadband Optional HP un2430 EV-DO/HSPA Mobile Broadband Intel® Centrino Advanced-N 6205 802.11 a/b/g/n 2x2 Intel® Centrino Ultimate-N 6300, 802.11a/b/g/n 3x3 Broadcom 802.11a/b/g/n 2x2 HP Integrated Module with Bluetooth®14 v4.0 HP Connection Manager Integrated Intel® 82579LM Gigabit Network Connection (vPro™) 56K v.92 modem	Optional HP hs2350 HSPA+ Mobile Broadband Optional HP un2430 EV-D0/HSPA Mobile Broadband Broadcom 802.11a/b/g/n 2x2 Intel® Centrino Advanced-N 6205 802.11a/b/g/n 2x2 Intel® Centrino Ultimate-N 6300, 802.11a/b/g/n 3x3 HP Integrated Module with Bluetooth®14 v4.0 Wireless Technology HP Connection Manager Integrated Intel® 82579LM Gigabit Network Connection (vPro™ support) 56K v.92 modem

Select screen images courtesy of Autodesk and Cannon Design

- * Available July 2012
- ** After-Market Option
- 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.
- Intel's numbering is not a measurement of higher performance.

 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 intel.com/info/em64t for more information. Limited options on the Intel® Xeon® Processor E5-2600* Series; Please see HP Z420 Datasheet for details.
- 5 Each processor supports up to 2 channels (HP Z220 CMT/HP Z220 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.
- ⁶ AMD Graphics are not supported when there are greater than 32 GB of system memory present.
- 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.

 9 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 system recovery software for Windows 7.
- 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.
- 12 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.
- 14 Bluetooth is a trademark owned by its proprietor and used by Hewlett-Packard Company under license.
 15 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.
- 16 This workstation does not support the Intel Core 2 Extreme processor over-clocking feature. See intel.com/technology/turboboost for more information.
- 17 Microsoft Windows required.
- ¹⁸ Raid 5 requires 3 hard disk drives in primary storage, second primary storage and upgrade bay.

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