

Family data sheet

HP Z Workstations

Quick reference guide



A family of overachievers

September 2015

Meet Our HP Workstation Family—Compare Features



All-in-One

HP Z1 G2	
Overview	Power without the tower.
Operating systems	Windows 8.1 Pro 64-bit ¹ Windows 7 Professional 64-bit (available through downgrade rights from Windows 8.1 Pro 64-bit) ¹ HP Installer Kit for Linux [®] (includes drivers for 64-bit OS versions of RHEL 5 & 6 and SUSE Linux [®] Enterprise Desktop 11)
Processor/chipset	Intel [®] Xeon [®] Processor E3-1200 v3 series ² 4th Generation Intel [®] Core™ i3, i5, and i7 Processors ² Intel [®] C226 Chipset
Slots available/maximum memory/number of memory channels³	Up to 32 GB ECC non-ECC unbuffered DDR3L-1600 (Transfer rates up to 1600 MT/s) DIMMS; 4 DIMM slots 2 channels per CPU
Expansion slots	1 MXM 3.1 (dedicated for graphics) 2 miniPCIe/mSATA (full-length) Optional Thunderbolt™ 2 ⁴ via PCIe Card
Graphics	Intel [®] HD Graphics 4400 and 4600 (Intel [®] Core™ i3 and i5 Processors) NVIDIA [®] Quadro [®] K2100M Intel [®] HD Graphics P4600 (Intel [®] Xeon [®] E3-12x5v3 Processors) NVIDIA [®] Quadro [®] K3100M NVIDIA [®] Quadro [®] K610M NVIDIA [®] Quadro [®] K4100M
Maximum supported displays⁵	One external display via display port
Controllers and HDDs^{6,7}	Integrated SATA Controller, RAID 0,1 supported: 3 ports, 6 Gb/s Up to (1) 3.5-inch 7200 rpm SATA drives: 500 GB, 1, 2, 3 TB Up to (2) 2.5-inch SATA SSD drives: 128, 180, 240, 256, 480, 512 GB, 1 TB (2 TB max) Up to (1) mSATA SSD drives: 256 GB Up to (1) 2.5-inch SATA self-encrypting boot drive (SED): 180 GB Up to (1) 2.5-inch SATA self-encrypting solid state boot drive (SED SSD) drives, 180, 240, 256, 480, 512 GB, 1TB
Optical drives^{8,9}	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
Remote Technology	HP Remote Graphics Software
Communications	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

Desktop Workstations



	HP Z230 SFF	HP Z230 Tower
Overview	Better package. Bigger punch.	More performance. Less space.
Operating systems	Windows 8.1 Pro 64-bit ¹ Windows 7 Professional 64-bit (available through downgrade rights from Windows 8.1 Pro 64-bit) ¹ Windows 7 Professional (MSNA) 64-bit ¹ Windows 7 Enterprise 32 and 64 bit ¹ HP Installer Kit for Linux [®] (includes drivers for 64-bit OS versions of RHEL 5 & 6 and SUSE Linux [®] Enterprise Desktop 11) Red Hat [®] Enterprise Linux [®] Desktop (Paper license with 1 year support; no preinstalled OS) SUSE Linux Enterprise Desktop 11 64-bit (90 day license) Ubuntu Linux 14.04 ¹¹	Windows 8.1 Pro 64-bit ¹ Windows 7 Professional 64-bit (available through downgrade rights from Windows 8.1 Pro 64-bit) ¹ Windows 7 Professional (MSNA) 64-bit ¹ HP Installer Kit for Linux [®] (includes drivers for 64-bit OS versions of RHEL 5 & 6 and SUSE Linux [®] Enterprise Desktop 11) Red Hat [®] Enterprise Linux [®] Desktop (Paper license with 1 year support; no preinstalled OS)
Processor/chipset	Intel [®] Xeon [®] Processor E3-1200v3 series ² Intel [®] Core™ i3/i5/i7 processor family ² Intel [®] C226 Chipset Intel [®] Pentium [®] G3220 processor ²	Intel [®] Xeon [®] Processor E3-1200v3 series ² Intel [®] Core™ i3/i5/i7 processor family ² Intel [®] C226 Chipset
Slots available/maximum memory/number of memory channels³	4 DIMM slots, up to 32 GB ECC/non-ECC, DDR3L-1600 (Transfer rates up to 1600 MT/s) (ECC/non-ECC choice and actual memory speed dependent on processor capability)	4 DIMM slots, up to 32 GB ECC/non-ECC, DDR3L-1600 (Transfer rates up to 1600 MT/s) (ECC/non-ECC choice and actual memory speed dependent on processor capability)
Expansion slots	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 ⁴ 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 1 PCI 32-bit Optional Thunderbolt™ 2 ⁴ via PCIe Card
Graphics	Intel [®] HD Graphics available on select processors NVIDIA [®] NVS™ 310 NVIDIA [®] NVS™ 315 AMD FirePro™ W2100 2GB Graphics NVIDIA [®] Quadro K620 2GB Graphics NVIDIA [®] NVS™ 510 NVIDIA [®] Quadro [®] K420 NVIDIA [®] Quadro [®] K2000 NVIDIA [®] Quadro [®] K1200	Intel [®] HD Graphics available on select processors NVIDIA [®] NVS™ 310 NVIDIA [®] NVS™ 315 NVIDIA [®] NVS™ 510 AMD FirePro™ W2100 AMD FirePro™ W5100 AMD FirePro™ W7100 (AMO only)* NVIDIA [®] Quadro [®] K420 NVIDIA [®] Quadro [®] K2000 AMD FirePro™ W7000 (AMO only)* NVIDIA [®] Quadro K620
Maximum supported displays⁵	6 displays	6 displays
Controllers and HDDs^{6,7}	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, 3 or 4 TB (8 TB max) Up to (2) 2.5-inch SATA SSD drives: 128, 180, 240, 256, 480, 512 GB, 1 TB (1 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): 180, 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. Up to (1) HP Z Turbo Drive PCIe SSD: 256, 512 GB Up to (1) mSATA SSD drives: 256 GB	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, 3 or 4 TB (12 TB max) Up to (3) 2.5-inch SATA SSD drives: 128, 180, 240, 256, 480, 512 GB, 1 TB (1 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 HDD (SED HDD): 180, 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. Up to (1) HP Z Turbo Drive PCIe SSD: 256, 512 GB
Optical drives^{8,9}	DVD-ROM DVD+/-RW DL Super Multi HP Blu-ray Writer HP 15-in-1 Media Card Reader	DVD-ROM DVD+/-RW DL Super Multi HP Blu-ray Writer HP 15-in-1 Media Card Reader
Remote Technology	HP Remote Graphics Software	HP Remote Graphics Software
Communications	Integrated Intel I217LM PCIe GbE Controller Intel Ethernet I210-T1 PCIe NIC Intel 6205 802.11 a/b/g/n PCIe x1 WLAN Card	Integrated Intel I217LM PCIe GbE Controller Intel Ethernet I210-T1 PCIe NIC HP X520 10GbE Dual Port Adapter HP 10GbE SFP+ SR Transceiver Intel 6205 802.11 a/b/g/n PCIe x1 WLAN Card

Desktop Workstations



	HP Z440	HP Z640	HP Z840	
Overview	Expand your power.	Flexible, powerful, ready to work.	More power to you.	
Operating systems	Windows 10 Pro 64 ¹⁰ Windows 10 Home 64 ¹⁰ Windows 8.1 Pro 64-bit ¹ Windows 7 Professional 64-bit (available through downgrade rights from Windows 8.1 Pro 64-bit) ¹ Windows 7 Professional 64-bit ⁹ HP Installer Kit for Linux (includes drivers for 64-bit OS versions of RHEL 6.6, RHEL 7, SUSE Linux Enterprise Desktop 11, SP3, 12, Ubuntu 14.04) Red Hat® Enterprise Linux® Desktop (Paper license with 1 year support; no preinstalled OS) Ubuntu 14.04 ¹¹	Windows 10 Pro 64 ¹⁰ Windows 10 Home 64 ¹⁰ Windows 8.1 Pro 64-bit ¹ Windows 7 Professional 64-bit (available through downgrade rights from Windows 8.1 Pro 64-bit) ¹ Windows 7 Enterprise 64-bit ¹ HP Installer Kit for Linux (includes drivers for 64-bit OS versions of RHEL 6.6, RHEL 7, SUSE Linux Enterprise Desktop 11, SP3, 12, Ubuntu 14.04) Red Hat® Enterprise Linux® Desktop (Paper license with 1 year support; no preinstalled OS) Ubuntu 14.04 ¹¹	Windows 10 Pro 64 ¹⁰ Windows 10 Home 64 ¹⁰ Windows 8.1 Pro 64-bit ¹ Windows 7 Professional 64-bit (available through downgrade rights from Windows 8.1 Pro 64-bit) ¹ Windows 7 Professional (MSNA) 64-bit ¹ HP Installer Kit for Linux (includes drivers for 64-bit OS versions of RHEL 6.6, RHEL 7, SUSE Linux Enterprise Desktop 11, SP3, 12, Ubuntu 14.04) Red Hat® Enterprise Linux® Desktop (Paper license with 1 year support; no preinstalled OS) Ubuntu 14.04 ¹¹	
Processor/chipset	Intel® Xeon® Processor E5-1600v3 series ² Intel® Xeon® Processor E5-2600v3 series ² Intel® C612 Chipset	Intel® Xeon® Processor E5-1600v3 series ² Intel® Xeon® Processor E5-2600v3 series ² Intel® C612 Chipset	Intel® Xeon® Processor E5-2600v3 series ² Intel® C612 Chipset	
Slots available/maximum memory/number of memory channels³	8 DIMM slots; Up to 128 GB DDR4-2133 (Transfer rates up to 2133 MT/s) Registered ECC (w/16 GB DIMMs)	Up to 8 DIMM slots with 2 CPUs, up to 256 GB DDR4-2133 (Transfer rates up to 2133 MT/s) Registered ECC (w/32 GB DIMMs)	16 DIMM slots, up to 512 GB DDR4-2133 (Transfer rates up to 2133 MT/s) Registered ECC	
Expansion slots	2 PCIe Gen3 x16 1 PCIe Gen3 x8 (open-ended connector) 1 PCIe Gen2 x4 (open-ended connector) 1 PCIe Gen2 x1 (open-ended connector) 1 PCI 32-bit/33 MT/s (legacy) Optional Thunderbolt™ 2 ⁴ via PCIe Card	2 PCIe Gen3 x16 1 PCIe Gen3 x8 (open-ended connector) 1 PCIe Gen2 x8 (x4 elec.; open-ended connector) 1 PCIe Gen2 x4 (x1 elec.; open-ended connector) – not available with riser installed 1 Legacy PCI Optional Thunderbolt™ 2 ⁴ via PCIe Card	3 PCIe Gen3 x16 2 PCIe Gen3 x8 (x16 mechanically) 1 PCIe Gen3 x4 (x8 mechanically) 1 PCIe Gen2 x4 (x8 mechanically) Optional Thunderbolt™ 2 ⁴ via PCIe Card	
Graphics	NVIDIA® NVS™ 310 NVIDIA® NVS™ 315 NVIDIA® NVS™ 510 NVIDIA® Quadro® K420 NVIDIA® Quadro® K620 AMD FirePro™ W2100 NVIDIA® Quadro® K2200	NVIDIA® Quadro® K4200 AMD FirePro™ W5100 AMD FirePro™ W7100 NVIDIA® Quadro® K5200 NVIDIA® Quadro® K6000 NVIDIA® Tesla® K40	NVIDIA® NVS™ 310 NVIDIA® NVS™ 315 NVIDIA® NVS™ 510 NVIDIA® Quadro® K420 NVIDIA® Quadro® K620 AMD FirePro™ W2100 NVIDIA® Quadro® K2200	NVIDIA® Quadro® K4200 AMD FirePro™ W5100 AMD FirePro™ W7100 NVIDIA® Quadro® K5200 NVIDIA® Quadro® K6000 NVIDIA® Tesla® K40 NVIDIA® Quadro® M6000
Maximum supported displays⁵	8 displays	8 displays	12 displays	
Controllers and HDDs^{6,7}	Integrated SATA Controller, RAID 0,1,10 supported: 6 ports, 6 Gb/s Up to (4) 3.5-inch 15K rpm SAS drives: 300, 600 GB, 2.4 TB max Up to (4) 2.5-inch 10K rpm SAS drives: 300, 600 GB, 1.2 TB, 4.8 TB max Up to (4) 3.5-inch 7200 rpm SATA drives: 500 GB, 1, 2, 3, 4 TB, 16 TB max Up to (4) 2.5-inch 6 Gb/s SATA Solid State Drives: 128, 256, 512 GB, 1 TB, 4 TB max Up to (1) 2.5-inch 6 Gb/s SATA Self-Encrypting Solid State Drive (SED SSD): 256, 512 GB Opal 2 Up to (4) 2.5-inch Samsung Enterprise 6 Gb/s SATA Solid State Drives: 240, 480 GB, 1.9 TB max Up to (2) PCIe SSD HP Z Turbo Drives: 256 GB, 512 GB, 1 TB max Up to (4) 2.5-inch 15K rpm SAS drives: 300, 600 GB, 2.4 TB max Fusion ioFX 410 GB PCIe Accelerator Note: Fourth 3.5-inch drive occupies one external 5.25-inch bay.	Integrated SATA Controller, RAID 0,1,10 supported: 6 ports, 6 Gb/s Up to (4) 3.5-inch 15K rpm SAS drives: 300, 600 GB, 2.4 TB max Up to (4) 2.5-inch 10K rpm SAS drives: 300, 600 GB, 1.2 TB, 4.8 TB max Up to (4) 3.5-inch 7200 rpm SATA drives: 500 GB, 1, 2, 3, 4 TB, 16 TB max Up to (4) 2.5-inch 6 Gb/s SATA Solid State Drives: 128, 256, 512 GB, 1 TB, 4 TB max Up to (1) 2.5-inch 6 Gb/s SATA Self-Encrypting Solid State Drive (SED SSD): 256, 512 GB Opal 2 Up to (4) 2.5-inch Samsung Enterprise 6 Gb/s SATA Solid State Drives: 240, 480 GB, 1.9 TB max Up to (2) PCIe SSD HP Z Turbo Drives: 256 GB, 512 GB, 1 TB max Up to (4) 2.5-inch 15K rpm SAS drives: 300, 600 GB, 2.4 TB max Fusion ioFX 410 GB PCIe Accelerator Note: Fourth drive occupies one external 5.25-inch bay.	Integrated SATA Controller, RAID 0,1,10 supported: 6 ports, 6 Gb/s Integrated SAS controller, RAID 0,1,10 supported: 8 ports 6 Gb/s Up to (5) 3.5-inch 10k rpm SAS SFF HDD: 300, 600 GB, 1.2 TB max Up to (6) 3.5-inch 6 Gb/s 7200 rpm SATA HDD: 500 GB, 1, 2 TB, 3 TB max Up to (6) 2.5-inch 6 Gb/s SATA SSD: 128, 256, 512 GB, 1 TB max Up to (1) 2.5-inch 6 Gb/s SATA Self-Encrypting Solid State Drive (SED SSD): 256, 512 GB Opal 2 Up to (1) 2.5-inch 6 Gb/s SATA Self-Encrypting Solid State Drive (SED SSD): 512 GB Up to (2) Samsung Enterprise SATA SSD: 240, 480 GB Up to (2) PCIe SSD HP Z Turbo Drives, 256 GB, 512 GB, 1 TB max Fusion ioFX 410 GB PCIe Accelerator	
Optical drives^{8,9}	HP DX115 Removable HDD Frame/Carrier HP 9.5 mm Slim SuperMulti DVD Writer HP 9.5 mm Slim DVD-ROM Drive HP 9.5 mm Slim BDXL Blu-ray Writer HP 15-in-1 Media Card Reader	HP DX115 Removable HDD Frame/Carrier HP 9.5 mm Slim SuperMulti DVD Writer HP 9.5 mm Slim DVD-ROM Drive HP 9.5 mm Slim BDXL Blu-ray Writer HP 15-in-1 Media Card Reader	HP DX115 Removable HDD Frame/Carrier HP 9.5 mm Slim SuperMulti DVD Writer HP 9.5 mm Slim DVD-ROM Drive HP 9.5 mm Slim BDXL Blu-ray Writer HP 15-in-1 Media Card Reader	
Remote Technology	HP Remote Graphics Software 6.0 (RGS)	HP Remote Graphics Software 6.0 (RGS)	HP Remote Graphics Software 6.0 (RGS)	
Communications	Integrated Intel I218LM PCIe GbE Controller Intel Ethernet I210-T1 PCIe NIC HP X520 10GbE Dual Port Adapter HP 10GbE SFP+ SR Transceiver HP 361T PCIe Dual Port Gigabit NIC Intel 7260 802.11 a/b/g/n PCIe WLAN NIC	Integrated Intel I218LM PCIe GbE Controller Intel Ethernet I210-T1 PCIe NIC HP X520 10 GbE Dual Port Adapter HP X540-T2 10 GbE Dual Port Adapter HP 10 GbE SFP+ SR Transceiver HP 361T PCIe Dual Port Gigabit NIC Intel 7260 802.11 a/b/g/n PCIe WLAN NIC	HP X520 10 GbE Dual Port Adapter HP 10 GbE SFP+ SR Transceiver Intel Ethernet I210-T1 PCIe NIC Intel 7260 802.11 a/b/g/n PCIe WLAN NIC Integrated Intel I210AT PCIe GbE Controller Integrated Intel I218LM PCIe GbE Controller HP 361T PCIe Dual Port Gigabit NIC	



Mobile Workstations

	HP ZBook 14 G2	HP ZBook 15u G2
Overview	Capture your inspiration wherever you go.	More power to you.
Operating systems	Windows 10 Pro 64 ¹⁰ Windows 10 Home 64 ¹⁰ Windows 8.1 Pro 64-bit and other editions available ¹ Windows 7 Professional ¹ Ubuntu (64-bit) ¹¹ FreeDOS	Windows 10 Pro 64 ¹⁰ Windows 10 Home 64 ¹⁰ Windows 8.1 Pro 64-bit and other editions available ¹ Windows 7 Professional ¹ Ubuntu Linux ¹¹ FreeDOS
Processor/chipset	Dual-core 5th generation Intel® Core™ i5 and i7 processors ² Chipset is integrated with processor	Dual-core 5th generation Intel® Core™ i5 and i7 processors ² Chipset is integrated with processor
Slots available/maximum memory/number of memory channels³	DDR3L-1600 (Transfer rates up to 1600 MT/s), 2 SODIMMs, up to 16 GB	DDR3L-1600 (Transfer rates up to 1600 MT/s), 2 SODIMMs, up to 16 GB
Expansion slots	1 Secure Digital 1 Smart Card Reader	1 Secure Digital 1 Smart Card Reader
Graphics	AMD FirePro™ M4150 FireGL (1 GB dedicated GDDR5) AMD Enduro™ Technology Intel® HD 5500 Graphics	Intel® HD 5500 Graphics AMD FirePro™ M4170 FireGL AMD Enduro™ Technology supported.
Maximum supported displays⁵	Supports up to 3 independent displays via internal LCD Panel, system DisplayPort, system VGA, or using the HP UltraSlim Docking Station DisplayPort and VGA ports (sold separately).	Supports up to 3 independent displays via internal LCD Panel, system DisplayPort, system VGA, or using the HP UltraSlim Docking Station DisplayPort and VGA ports (sold separately).
Controllers and HDDs^{6,7}	1 TB 7200rpm SMART SATA III 500 GB 7200 rpm SMART SATA III 500 GB 7200 rpm SMART SATA III Self Encrypting Drive 500 GB 5400 rpm SMART SATA III Self Encrypting Drive FIPS 140-2 compliant 128/180/240/256/512 GB SATA 6 Gb/s 180/256 GB SATA 6 Gb/s Self Encrypting Drive 256 GB PCIe Solid State Drive	1 TB 7200rpm SMART SATA III 500 GB 7200 rpm SMART SATA III 500 GB 7200 rpm SMART SATA III Self Encrypting Drive 500 GB 5400 rpm SMART SATA III Self Encrypting Drive FIPS 140-2 compliant 128/180/240/256/512 GB SATA 6 Gb/s 180/256 GB SATA 6 Gb/s Self Encrypting Drive 512 GB SSD Opal 2 HP Z Turbo Drive 128, 256 GB, PCIe Solid State Drive
Optical drives^{8,9}	N/A	N/A
Communications	Ethernet: Intel® (I218-LM) Gigabit Network WLAN ¹⁴ : Intel® Dual Band Wireless-AC 7265 802.11a/b/g/n (2x2) and Bluetooth®; Intel® Dual Band Wireless-AN 7265 802.11a/b/g/n (2x2) and Bluetooth; Intel® Dual Band Wireless-NB 7265 802.11a/b/g/n (2x2) Wi-Fi only; Intel® Dual Band Wireless-AC 3160 802.11ac (1x1) and Bluetooth NFC: Integrated NFC with Antenna option WWAN ¹⁵ : HP lt4211 LTE/EV-DO/HSPA+ Gobi 4G Module; HP lt4112 LTE/HSPA+ Gobi™ 4G Module; HP hs3110 HSPA+ Mobile Broadband Module	Ethernet: Intel® (I218-LM) Gigabit Network WLAN ¹⁴ : Intel® Dual Band Wireless-AC 7265 802.11a/b/g/n (2x2) and Bluetooth®; Intel® Dual Band Wireless-AN 7265 802.11a/b/g/n (2x2) and Bluetooth; Intel® Dual Band Wireless-NB 7265 802.11a/b/g/n (2x2) Wi-Fi only; Intel® Dual Band Wireless-AC 3160 802.11ac (1x1) and Bluetooth NFC: Integrated NFC with Antenna option WWAN ¹⁵ : HP lt4211 LTE/EV-DO/HSPA+ Gobi 4G Module; HP lt4112 LTE/HSPA+ Gobi™ 4G Module; HP hs3110 HSPA+ Mobile Broadband Module



Mobile Workstations

	HP ZBook 15 G2	HP ZBook 17 G2
Overview	Perform on the go.	Expand your creative capabilities.
Operating systems	Windows 10 Pro 64 ¹⁰ Windows 10 Home 64 ¹⁰ Windows 8.1 Pro 64-bit and other editions available ¹ Windows 7 Professional ¹ Ubuntu Linux ^{®11} FreeDOS	Windows 10 Pro 64 ¹⁰ Windows 10 Home 64 ¹⁰ Windows 8.1 Pro 64-bit and other editions available ¹ Windows 7 Professional ¹ Ubuntu Linux ^{®11} FreeDOS
Processor/chipset	Dual- and quad-core 4th generation refresh Intel [®] Core [™] i5 and i7 processors ² Mobile Intel [®] QM87 chipset	Dual- and quad-core 4th generation refresh Intel [®] Core [™] i5 and i7 processors ² Mobile Intel [®] QM87 chipset
Slots available/maximum memory/number of memory channels³	DDR3L-1600 (Transfer rates up to 1600 MT/s), 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	DDR3L-1600 (Transfer rates up to 1600 MT/s), 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
Expansion slots	1 ExpressCard/54 1 Secure Digital 1 Smart Card Reader 1 Thunderbolt [™] 2 ⁴	1 ExpressCard/54 1 Secure Digital 1 Smart Card Reader 1 Thunderbolt [™] 2 ⁴
Graphics	NVIDIA [®] Quadro [®] K610M NVIDIA [®] Quadro [®] K1100M AMD FirePro [™] M5100 NVIDIA [®] Quadro [®] K2100M NVIDIA [®] Optimus [®] Technology supported ¹² AMD Enduro [™] Technology supported	AMD FirePro [™] M6100 NVIDIA [®] Quadro [®] K1100M NVIDIA [®] Quadro [®] K2200M NVIDIA [®] Quadro [®] K3100M NVIDIA [®] Quadro [®] K4100M NVIDIA [®] Quadro [®] K5100M NVIDIA [®] Optimus [®] Technology supported ¹² AMD Enduro [™] Technology supported
Maximum supported displays⁵	4-6 (varies by configuration) Note: NVIDIA [®] Quadro [®] mobile professional graphics support up to five independent displays when using an HP Advanced Docking station (sold separately). AMD FirePro [™] professional graphics support up to five independent displays when using an HP Advanced Docking station (sold separately).	4-6 (varies by configuration) Note: NVIDIA [®] Quadro [®] mobile professional graphics support up to five independent displays when using an HP Advanced Docking station (sold separately). AMD FirePro [™] professional graphics support up to five independent displays when using an HP Advanced Docking station (sold separately).
Controllers and HDDs^{6,7}	500/750 GB, 1 TB 7200 rpm SMART SATA II 500 GB 7200 rpm SMART SATA II Self Encrypting Drive 500 GB 5400 rpm SMART SATA II Self Encrypting Drive FIPS 140-2 compliant 128/256 GB Z Turbo Drive (PCIe Solid State Drive) 128/180/240/256/512 GB SATA 6 Gb/s 256/512 GB SATA 6 Gb/s Secure Encrypted Drive (SED) Opal 2	500/750 GB, 1 TB 7200 rpm SMART SATA II 500 GB 7200 rpm SMART SATA II Self Encrypting Drive 500 GB 5400 rpm SMART SATA II Self Encrypting Drive FIPS 140-2 compliant 256 GB SATA 6 Gb/s Self Encrypting Drive 256/512 GB SATA 6 Gb/s Secure Encrypted Drive (SED) Opal 2 750 GB 7200 rpm SMART SATA II Hard Drive 512 GB SATA 6 Gb/s Solid State Drive 256 GB SATA 6 Gb/s Self Encrypting Drive RAID 0, 1, and 5 supported 128/180/240/256/512 GB SATA 6 Gb/s 128/256 GB Z Turbo Drive (PCIe Solid State Drive)
Optical drives^{8,9}	Fixed 9.5 mm SATA optical drive Blu-ray R/RE DVD+/-RW SuperMulti DL Blu-ray ROM DVD+/-RW SuperMulti DL DVD+/-RW SuperMulti DL	Blu-ray R/RE DVD+/-RW SuperMulti DL Blu-ray ROM DVD+/-RW SuperMulti DL DVD+/-RW SuperMulti DL DVD-ROM
Communications	Integrated Intel [®] I217-LM Gigabit ¹³ WLAN ¹⁴ : Intel [®] Dual Band Wireless-NB 7260 802.11 a/b/g/n (2x2) Wi-Fi; Intel [®] Dual Band Wireless-AC 7260 802.11 a/b/g/n/ac (2x2) Wi-Fi and Bluetooth [®] 4.0 combo; Intel [®] Dual Band Wireless-AN 7260 802.11 a/b/g/n (2x2) Wi-Fi and Bluetooth 4.0 combo WWAN ¹⁵ : HP hs3110 HSPA+ Mobile Module; HP lt4211 LTE/EV-DO/HSPA+ Gobi4G Module; HP lt4112 LTE/HSPA+ Mobile Broadband Module	Integrated Intel [®] I217-LM Gigabit ¹³ WLAN ¹⁴ : Intel [®] Dual Band Wireless-NB 7260 802.11 a/b/g/n (2x2) Wi-Fi; Intel [®] Dual Band Wireless-AC 7260 802.11 a/b/g/n/ac (2x2) Wi-Fi and Bluetooth [®] 4.0 combo; Intel [®] Dual Band Wireless-AN 7260 802.11 a/b/g/n (2x2) Wi-Fi and Bluetooth 4.0 combo WWAN ¹⁵ : HP hs3110 HSPA+ Mobile Module; HP lt4211 LTE/EV-DO/HSPA+ Gobi4G Module; HP lt4112 LTE/HSPA+ Mobile Broadband Module



Virtual Workstations

HP DL380z Gen9

Overview	Flexible, powerful, ready to work.
Operating systems	Windows and Linux® Client OS Windows 7 Professional 64-Bit DL380z FIO Software Kit HP DL380z Linux Installer Software Kit
Processor/chipset	Intel® Xeon® Processor E5-2600v3 family up to 3.5 GHz, up to 18 cores ² Intel® C610 Series Chipset
Slots available/maximum memory/number of memory channels³	24 DIMM slots for up to 1.5 TB of DDR4-2133 (Transfer rates up to 2133 MT/s) memory ¹⁶
Expansion slots	Primary 3-slot riser: (2) PCIe Gen3 x16 slot (1) PCIe Gen3 x8 slot Secondary 3-slot riser: (2) PCIe Gen3 x16 slot (1) PCIe Gen3 x8 slot
Graphics	NVIDIA GRID™ K1 NVIDIA GRID™ K2 NVIDIA® Quadro® K6000 NVIDIA® Quadro® K5200 NVIDIA® Quadro® K4200 NVIDIA® Quadro® K2200
Maximum supported displays⁵	12 displays
Controllers and HDDs^{6,7}	Integrated 10-port SATA Controller, RAID 0, 1, 10, 5 supported: 6 ports, 6 Gb/s Available 12G SAS controller 16 TB max storage Supports 8 SFF drives as standard. Can be upgraded with a drive cage to support up to 24 SFF drives
Optical drives^{8,9}	Optional slim optical drive: 16X DVD-ROM 16X DVD+/-RW DL
Communications	Embedded 4 x 1GbE Network Adapter

* After-Market Option

1. Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows functionality. See microsoft.com.
2. 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.
3. Each processor supports up to 2 channels (HP Z230 Tower/HP Z230 SFF) of DDR3 memory or 4 channels (HP Z440/HP Z640/HP Z840) of DDR4 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. Actual memory speeds dependent on processor capability.
4. Thunderbolt™ 2 is available via an optional add-in card on HP Z1 G2, HP Z230 SFF, HP Z230 Tower, HP Z440, HP Z640 and HP Z840 Workstations. It is standard on HP ZBook 15 G2 and HP ZBook 17 G2 Mobile Workstations. 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.
5. Number of supported displays varies by configuration.
6. For hard drives, 1 GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 20 GB (for Windows 7) and up to 30 GB (For Windows 8.1 and 10) of hard drive (or system disk) is reserved for the system recovery software.
7. 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®.
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. The DVD-RAM cannot read or write to 2.6 GB Single Sided/5.2 GB Double Sided – Version 1.0 media.
9. With Blu-Ray, 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.
10. Not all features are available in all editions or versions of Windows 10. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows 10 functionality. Windows 10 is automatically updated, which is always enabled. ISP fees may apply and additional requirements may apply over time for updates. See microsoft.com for details.
11. Not available with WWAN.
12. If configured with the HP DreamColor display, NVIDIA® Optimus® graphics will not be enabled.
13. The term "10/100/1000" or "Gigabit" Ethernet indicates compatibility with IEEE standard 802.3ab for Gigabit Ethernet, and does not connote actual operating speed of 1 Gb/s. For high-speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required.
14. 802.11 requires access point and internet service. Availability of public wireless access points limited.
15. Broadband wireless is an optional feature and requires separately purchased service contract. Check with your local vendor for coverage area and availability in your area. Connection and speeds will vary due to location, environment, network conditions, and other factors. 4G LTE not available on all products, in all regions.
16. 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.

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