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Z BY HP DESKTOPS

	Z2 Mini G4	Z2 SFF G4	Z2 Tower G4
Overview	Built for the masses, designed for the selective.	Power, price, and size	Powered to manage your challenges
Operating systems[1,2]	Windows 10 Pro 64, Windows 7 Professional 64-bit (available through downgrade rights from Windows 10 Pro 64), HP Linux®-ready, Red Hat® Enterprise Linux® Workstation *(1 year paper license available; Preinstall not available)*		
Processor [6,7,8,9]	Intel® Xeon® processor E-2000G series Intel® Pentium® Gold processor Intel® Core™ 8th Gen i7+, i7, i5+ , i5, i3 processor		
Chipset	Intel® C246	Intel® C246	Intel® C246
Memory slots available	2 DIMM	4 DIMM	4 DIMM
Maximum memory[11,12]	Up to 64 GB ECC/non-ECC DDR4-2666 MHz *(Transfer rates up to 2666 MT/s)*	Up to 128 GB ECC/non-ECC DDR4-2666 *(Transfer rates up to 2666 MT/s)*	
Number of memory channels	Dual-channel	Dual-channel	Dual-channel
Graphics [14,15,16]	Intel® HD Graphics 630 Intel® HD Graphics P630 AMD Radeon™ Pro WX 4150* NVIDIA® Quadro® P600* NVIDIA® Quadro® P1000* (*Performance model only)	Intel® HD Graphics 630 Intel® HD Graphics P630 AMD Radeon™ Pro WX 3100 AMD Radeon™ Pro WX 4150 NVIDIA® Quadro® P400 NVIDIA® Quadro® P620 NVIDIA® Quadro® P1000	Intel® HD Graphics 630 Intel® HD Graphics P630 AMD Radeon™ Pro WX 3100 AMD FirePro™ W7100 NVIDIA® Quadro® P400 NVIDIA® Quadro® P620 NVIDIA® Quadro® P1000 NVIDIA® Quadro® P2000 NVIDIA® Quadro® P4000 NVIDIA® Quadro® P5000
Maximum supported displays	6 *(Performance model only)*	6	6
Drive controllers	AHCI, NVMe™	Integrated SATA Controller, RAID 0,1 supported: 4x 6 Gb/s ports Factory integrated RAID on motherboard for SATA Drives and for HP Z Turbo Drives (Raid 0 or 1 for boot or data configuration) HP Thunderbolt™ 3 PCIe I/O card	
Internal storage[22,23,24,25]	Up to (1) 7200 rpm SATA HDD: 500 GB, 1 TB: 1 TB Max Up to (1) 5400 rpm SATA HDD: 2 TB: 2 TB max Up to (1) SATA SSD: 256 GB: 256 GB max Up to (1) HP Z Turbo Drive G2 (PCIe M.2 SSD): 256/512 GB, 1 TB: 1 TB max 16 GB Intel® Optane™ memory	Up to (2) 7200 rpm SATA HDD: 500 GB, 1/2/4/6 TB: 12 TB max Up to (2) 7200 rpm Enterprise Class SATA HDD: 1 TB: 2 TB max Up to (2) SATA SED HDD: 500 GB: 1 TB max Up to (1) SATA SSD: 256/512 GB, 1/2 TB: 2 TB max Up to (1) SATA SED: 256 GB: 256 GB max Up to (2) HP Z Turbo Drive (PCIe SSD): 256/512 GB, 1 TB: 2 TB max Intel® Optane™ SSD 905p 280 GB AiC* Intel® Optane™ SSD 905p 480 GB AiC* 16 GB Intel® Optane™ memory (* PCIe card installed in standard PCIe x4 slot)	Up to (2) 7200 rpm SATA: 500 GB, 1/2/4/6 TB: 12 TB max Up to (2) 7200 rpm Enterprise Class SATA HDD: 1 TB: 2 TB max Up to (2) 7200 rpm SSHD: 1 TB: 1 TB max Up to (2) SATA SSD: 256/512 GB, 1/2 TB: 4 TB max Up to (2) SATA SED: 256 GB: 512 GB max Up to (2) HP Z Turbo Drive (PCIe SSD): 256/512 GB, 1 TB: 2 TB max Intel® Optane™ SSD 905p 280 GB AiC* Intel® Optane™ SSD 905p 480 GB AiC* 16 GB Intel® Optane™ memory (* PCIe card installed in standard PCIe x4 slot)
Optical + other storage [28,29]	HP External Ultra-Slim DVD-RW Drive	HP Slim DVD Writer HP Slim DVD-ROM Drive HP Slim BDXL Blu-Ray Writer HP SD Media Card Reader	
Expansion slots[30]	HP Slim DVD Writer HP Slim DVD-ROM Drive HP Slim BDXL Blu-Ray Writer HP SD Media Card Reader	1 PCIe Gen3 x16 slot 2 PCIe Gen3 x1 slot /x4 connector 1 PCIe Gen3 x4 slot /x16 connector 2 M.2 storage (PCIe Gen3 x4)* 1 M.2 WLAN (PCIe Gen3 x1+ intel CNVI)* (all slots are Low Profile) * M.2 storage supports compatible devices at 80mm	
Communications[31]	Integrated Intel® I219LM PCIe GbE Controller (Intel® vPro™ with Intel® AMT 12.0) Intel® 9560 Wireless LAN (802.11ac) and Bluetooth® 5 Module	Integrated Intel® I219LM PCIe GbE Controller (Intel® vPro™ with Intel® AMT 12.0) Intel® X710-DA2 2-Port 10GbE SFP+ NIC HP 10GbE SFP+ SR Transceiver Intel® X550-T2 2-Port 10GbE NIC Intel® 9560 802.11 a/b/g/n/ac with Bluetooth® 5 M.2 Intel® I350-T2 2-Port 1GbE(3) NIC Intel® I350-T4 4-Port 1GbE(3) NIC Aquantia AQN-108 1-Port 5GbE NIC	
Remote technology[36]	HP Remote Graphics Software (HP RGS)	HP Remote Graphics Software (HP RGS)	HP Remote Graphics Software (HP RGS)
Dimensions	8.5 x 8.5 x 2.28 in 21.6 x 21.6 x 5.8 cm	13.3 x 15 x 3.95 in 33.8 x 38.1 x 10 cm	6.7 x 17.1 x 14.0 16.9 x 43.5 x 35.6 cm
Starting weight	4.25 lb | 1.93 kg	12.12 lb | 5.5 kg	15.43 lb | 7.0 kg

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Z BY HP DESKTOPS (CONTINUED)

	Z4 G4	Z6 G4	Z8 G4
Overview	HP's best-selling performance workstation	A future-proof powerhouse	The world's most powerful workstation
Operating systems[1,2,3,4]	Windows 10 Pro 64 for Workstations – HP recommends Windows 10 Pro; Windows 10 Pro 64; Windows 10 Pro (National Academic Plus); Windows 10 downgrade to Windows 7 Red Hat® Enterprise Linux® HP Installer Kit for Linux®	Windows 10 Pro 64 for Workstations – HP recommends Windows 10 Pro; Windows 10 downgrade to Windows 7 Red Hat® Enterprise Linux® HP Installer Kit for Linux®	Windows 10 Pro 64 for Workstations – HP recommends Windows 10 Pro; Windows 10 downgrade to Windows 7 Red Hat® Enterprise Linux® HP Installer Kit for Linux®
	(HP Linux® Installer Kit includes drivers for 64-bit versions of Red Hat® Enterprise Linux® 7.4, SUSE Linux® Enterprise Desktop 12 and Ubuntu 16.04. Red Hat® Enterprise Linux® (1-year paper license only) and is available as a second operating system.)		
Processor[6,7,8,9,10]	Intel® Xeon® W processor; Intel® Core™ X-Series processor	Intel® Xeon® Scalable processor	Intel® Xeon® Scalable processor
Chipset	Intel® C422; Intel® X299	Intel® C622	Intel® C622
Memory slots available	8 DIMM	12 DIMM	24 DIMM
Maximum memory[11,12]	256 GB DDR4-2666 ECC SDRAM (for Intel® Xeon® configurations) 128 GB DDR4-2666 non-ECC SDRAM (for Intel® Core™ X configurations) *(Transfer rates up to 2666 MT/s.)*	384 GB DDR4-2666 ECC SDRAM *(Transfer rates up to 2666 MT/s.)*	3 TB DDR4-2666 ECC SDRAM *(Transfer rates up to 2666 MT/s.)*
Number of memory channels	Dual-channel	Dual-channel	Dual-channel
Graphics[17,18]	AMD FirePro™ W2100 AMD Radeon™ Pro WX 3100 AMD Radeon™ Pro WX 4100 AMD Radeon™ Pro WX 7100 AMD Radeon™ Pro WX 9100 NVIDIA® Quadro® P400 NVIDIA® Quadro® P620 NVIDIA® Quadro® P1000 NVIDIA® Quadro® P2000 NVIDIA® Quadro® P4000 NVIDIA® Quadro® P5000 NVIDIA® Quadro® P6000 NVIDIA® Quadro® GP100 NVIDIA® Quadro® GV100 HP VR Ready configurations available	AMD FirePro™ W2100 AMD Radeon™ Pro WX 3100 AMD Radeon™ Pro WX 4100 AMD Radeon™ Pro WX 7100 AMD Radeon™ Pro WX 9100 NVIDIA® Quadro® P400 NVIDIA® Quadro® P600 NVIDIA® Quadro® P1000 NVIDIA® Quadro® P2000 NVIDIA® Quadro® P4000 NVIDIA® Quadro® P5000 NVIDIA® Quadro® P6000 NVIDIA® Quadro® GP100 HP VR Ready configurations available	AMD FirePro™ W2100 AMD Radeon™ Pro WX 3100 AMD Radeon™ Pro WX 4100 AMD Radeon™ Pro WX 7100 AMD Radeon™ Pro WX 9100 Graphics NVIDIA® Quadro® P400 NVIDIA® Quadro® P600 NVIDIA® Quadro® P1000 NVIDIA® Quadro® P2000 NVIDIA® Quadro® P4000 NVIDIA® Quadro® P5000 NVIDIA® Quadro® P6000 NVIDIA® Quadro® GP100 NVIDIA® Quadro® GV100 HP VR Ready configurations available
Maximum supported displays	8	12	16
Drive controllers	Integrated SATA 6.0 Gb/s supporting RAID 0, 1, 5, 10 Optional SAS controller supporting RAID, 0, 1, 10 for SAS drives	Integrated SATA 6.0 Gb/s Factory integrated RAID available for SATA/SAS drives (RAID 0, 0 Data, 1, 5, and 10)	Integrated SATA 6.0 Gb/s Factory integrated RAID available for SATA/SAS drives (RAID 0, 0 Data, 1, 5, and 10)
Internal storage[22,23,26,27]	Up to (4) 2.5-inch 15000 rpm SAS: 300 GB: 1.2 TB max Up to (4) 3.5-inch 7200 rpm SATA: 500 GB, 1/2 TB: 8 GB max Up to (4) 2.5-inch 7200 rpm SATA SED: 500 GB: 2 TB max Up to (4) 2.5-inch 7200 rpm SATA Enterprise 7200 rpm: 1/4 TB: 16 TB max Up to (4) 2.5-inch SATA SSD: 256/512 GB, 1/2 TB: 8 TB max Up to (4) 2.5-inch SATA SED SSD: 256/512 GB: 2.048 TB max Up to (4) 2.5-inch SATA Enterprise SSD: 240/480 GB: 1.92 TB max Up to (2) M.2 HP Z Turbo Drive PCIe® NVMe™ SSD: 256/512 GB, 1 TB: 2 TB max Up to (2) M.2 HP Z Turbo Drive PCIe® TLC NVMe™ SSD: 256/512 GB: 1.024 TB max Up to (2) M.2 HP Z Turbo Drive PCIe® NVMe™ SED SSD: 256/512 GB: 1.024 TB max Up to (2) M.2 HP Z Turbo Drive Quad Pro PCIe® SSD: 2-4x256 GB, 2-4x512 GB, 2-4x1 TB Modules: 8 TB max	Up to (4) 2.5-inch 15000 rpm SAS: 300 GB: 1.2 TB max Up to (4) 3.5-inch 7200 rpm SATA: 500 GB, 1/2 TB: 8 GB max Up to (4) 2.5-inch 7200 rpm SATA SED: 500 GB: 2 TB max Up to (4) 2.5-inch 7200 rpm SATA Enterprise 7200 rpm: 1/4 TB: 16 TB max Up to (4) 2.5-inch SATA SSD: 256/512 GB, 1/2 TB: 8 TB max Up to (4) 2.5-inch SATA SED SSD: 256/512 GB: 2.048 TB max Up to (4) 2.5-inch SATA Enterprise SSD: 240/480 GB: 1.92 TB max Up to (2) M.2 HP Z Turbo Drive PCIe® NVMe™ SSD: 256/512 GB, 1 TB: 2 TB max Up to (2) M.2 HP Z Turbo Drive PCIe® TLC NVMe™ SSD: 256/512 GB: 1.024 TB max Up to (2) M.2 HP Z Turbo Drive PCIe® NVMe™ SED SSD: 256/512 GB: 1.024 TB max Up to (2) M.2 HP Z Turbo Drive Quad Pro PCIe® SSD: 2-4x256 GB, 2-4x512 GB, 2-4x1 TB Modules: 8 TB max	Up to (6) 2.5-inch 15000 rpm SAS: 300 GB: 1.8 GB max Up to (6) 3.5-inch SATA 7200 rpm: 500 GB, 1/2 TB: 12 GB max Up to (6) 2.5-inch 7200 rpm SATA SED: 500 GB: 3 TB max Up to (6) 2.5-inch 7200 rpm SATA Enterprise 7200 rpm: 1/4 TB: 24 TB max Up to (6) 2.5-inch SATA SSD: 256/512 GB, 1/2 TB: 12 TB max Up to (6) 2.5-inch SATA SED SSD: 256/512 GB: 3.072 TB max Up to (6) 2.5-inch SATA Enterprise SSD: 240/480 GB: 2.88 TB max Up to (4) M.2 HP Z Turbo Drive PCIe® NVMe™ SSD: 256/512 GB, 1 TB: 4 TB max Up to (4) M.2 HP Z Turbo Drive PCIe® TLC NVMe™ SSD: 256/512 GB: 2.048 TB max Up to (4) M.2 HP Z Turbo Drive PCIe® NVMe™ SED SSD: 256/512 GB: 2.048 TB max Up to (2) M.2 HP Z Turbo Drive Quad Pro PCIe® SSD: 2-4x256 GB, 2-4x512 GB, 2-4x1 TB Modules: 8 TB max
Optical + other storage[28,29]	HP Slim DVD-ROM; HP Slim Blu-ray Writer; HP Slim DVD-Writer HP SD 4 Media Card Reader (optional)		

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Z BY HP DESKTOPS (CONTINUED)

	Z4 G4	Z6 G4	Z8 G4
Expansion slots	Intel® Xeon® 2 PCIe 3 x16 1 PCIe 3 x8 2 PCIe 3 x4 2 M.2 PCIe 3 x4 Intel® Core™ i9-X config 2 PCIe x16 1 PCIe x8 2 PCIe 3 x4, 1 M.2 PCIe 3 x4 Intel® Core™ i7-X config: 1 PCIe x16 1 PCIe x16 (x8 electrical) 1 PCIe x8 (mechanical only) 2 PCIe 3 x4, 1 M.2 PCIe 3 x4	3 PCIe x4 1 PCIe x8 2 PCIe x16 2 M.2 PCIe x4 Slot 1: CPU with open-ended connector. Slots 1 and 2: CPU up to 80 mm storage devices.) Slots 3 and 6: PCH with open-ended connector. Slot 4: CPU with open-ended connector (slot converts to x4 electrical when SSD is installed in 2nd M.2 slot).	2 PCIe x4 3 PCIe x8 4 PCIe x16 (1 PCIe x8 has rear bulkhead access and 2 PCIe x8 are internal access only.) Slot 1: Transforms to PCIe x8 when 2nd CPU is installed. Slots 3 and 6: are available only when 2nd processor is installed. PCIe x16 available only when 2nd processor is installed.
Communications[31, 32, 33]	Integrated Intel® I210-AT PCIe® GbE Integrated Intel® I219-LM PCIe® GbE Intel® 10 GbE SFP+ SR transceiver Intel® Dual Band Wireless-AC 8265 802.11a/b/g/n/ac (2x2) Wi-Fi® and Bluetooth® 4.2 Combo, non-vPro™ Intel® I210-T1 PCIe® GbE Intel® I350-T2 dual-port GbE NIC Intel® I350-T4 dual-port GbE NIC Intel® X550-T2 dual-port GbE NIC Intel® X710-DA2 dual-port GbE NIC	Integrated Intel® I219-LM PCIe® GbE Integrated Intel® X722 PCIe® GbE Intel® I350-T2 dual-port GbE NIC Intel® I350-T4 dual-port GbE NIC Intel® I210-T1 PCIe® GbE Intel® X550-T2 dual-port GbE NIC Intel® X710-DA2 dual-port GbE NIC Intel® 10 GbE SFP+ SR transceiver HP dual-port 10GBase-T NIC Intel® Dual Band Wireless-AC 8265 802.11a/b/g/n/ac (2x2) Wi-Fi® and Bluetooth® 4.2 Combo, non-vPro™	Integrated Intel® I219-LM PCIe® GbE Integrated Intel® X722 PCIe® GbE Intel® I350-T2 dual-port GbE NIC Intel® I350-T4 dual-port GbE NIC Intel® I210-T1 PCIe® GbE Intel® X550-T2 dual-port GbE NIC Intel® X710-DA2 dual-port GbE NIC Intel® 10 GbE SFP+ SR transceiver HP dual-port 10GBase-T NIC Intel® Dual Band Wireless-AC 8265 802.11a/b/g/n/ac (2x2) Wi-Fi® and Bluetooth® 4.2 Combo, non-vPro™
Remote technology[36]	HP Remote Graphics Software (HP RGS)	HP Remote Graphics Software (HP RGS)	HP Remote Graphics Software (HP RGS)
Dimensions	15.2 x 6.65 x 17.5 in 38.6 x 16.9 x 44.5 cm	6.65 x 18.3 x 17.5 in 16.9 x 46.5 x 44.5 cm	8.5 x 21.7 x 17.5 in 21.59 x 55.12 x 44.45 cm
Starting weight	22.4 lb | 10.2 kg	29 lb | 13.1 kg	49.4 lb | 22.4 kg

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Z BY HP LAPTOPS FOR ON THE GO PROFESSIONALS

	ZBook 14u G5	ZBook 15u G5
Overview	Performance travels light in the world's smallest 14" mobile workstation.	Workstation power. World-class security. Thin, light design.
Operating systems[1,5]	Windows 10 Pro 64 HP recommends Windows 10 Pro, Windows 10 Pro 64 (National Academic), Windows 10 Home Single Language 64, FreeDOS 2.0	
Processor[6]	8th Generation Intel® Core™ i7 processor (i7-8650U, i7-8550U) 8th Generation Intel® Core™ i5 (i5-8350U, i5-8250U) 7th Generation Intel® Core™ i5 processor (i5-7200U, i5-7300U)	
Chipset	Integrated with processor	
Memory slots available	2 SODIMM	
Maximum memory[13]	32 GB DDR4-2400 non-ECC SDRAM (Transfer rates up to 2400 MT/s with 8th gen processors) (Transfer rates up to 2133 MT/s with 7th gen processors)	
Number of memory channels	Dual-channel	
Graphics[14,15,16]	Intel® HD Graphics 620 (for 7th gen processors) Intel® UHD Graphics 630 (for 8th gen processors) AMD Radeon™ Pro WX 3100	
Display options[19]	14" diagonal FHD IPS eDP anti-glare LED-backlit (1920 x 1080) 14" diagonal FHD IPS eDP+PSR anti-glare ALS LED-backlit (1920 x 1080) 14" diagonal FHD IPS LED-backlit touch screen (1920 x 1080) 14" diagonal 4K IPS eDP LED-backlit (3840 x 2160) HP Sure View 14" diagonal FHD IPS eDP anti-glare LED-backlit touch screen (1920 x 1080)	15.6" diagonal FHD IPS eDP anti-glare LED-backlit (1920 x 1080) 15.6" diagonal FHD IPS LED-backlit touch screen (1920 x 1080) 15.6" diagonal 4K IPS eDP LED-backlit (3840 x 2160) HP Sure View 15.6" diagonal FHD IPS eDP anti-glare LED-backlit touch screen (1920 x 1080)
Maximum supported displays	Up to 3 independent displays via internal LCD Panel, system HDMI, system Thunderbolt™ 3, or using the HP Thunderbolt Dock G2 with DisplayPort™ or Thunderbolt™ 3	
Drive controllers	SATA 3.0 SSD PCIe NVME SSD	
Internal storage[22]	Up to (1) M.2 SATA SED SSD: 256 GB: 256 GB max Up to (1) M.2 SATA SED SSD FIPS 140-2: 512 GB: 1.024 TB max Up to (1) M.2 PCIe® NVMe™ SSD: 256/512 GB, 1/2 TB: 2 TB max Up to (1) M.2 PCIe® NVMe™ SED SSD: 256/512 GB: 512 GB max Up to (1) M.2 HP Z Turbo Drive G2 PCIe® NVMe™ SSD: 256/512 GB, 1 TB: 1 TB max	
Optical + other storage	N/A	N/A
Communications[31,34,35]	Integrated Intel® I219-LM GbE, vPro™ Integrated Intel® I219-V GbE, non-vPro™ Intel® Dual Band Wireless-AC 8265 802.11a/b/g/n/ac (2x2) Wi-Fi® and Bluetooth® 4.2 Combo, vPro™ Intel® Dual Band Wireless-AC 8265 802.11a/b/g/n/ac (2x2) Wi-Fi® and Bluetooth® 4.2 Combo, non-vPro™ Intel® XMM 7360 LTE-Advanced HP lt4132 LTE/HSPA+ 4G Mobile Broadband Module NFC Mirage WNC XRAV-1	
Expansion slots	1 smart card reader	
Remote technology[36]	HP Remote Graphics Software (HP RGS)	
Dimensions	12.84 x 9.22 x 0.71 in 32.6 x 23.43 x 1.79 cm	14.6 x 9.91 x 0.72 in 37.08 x 25.1 x 1.86 cm
Starting weight	3.27 lb | 1.48 kg	3.89 lb | 1.77 kg

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Z BY HP LAPTOPS FOR CREATIVE PROS

	ZBook x2 G4	ZBook Studio x360 G5	ZBook Studio G5
Overview	Unleash the power of Adobe® Creative Cloud®	HP's most powerful convertible PC	Smaller, faster, and brighter than ever
Operating systems[1,5]	Windows 10 Pro 64 – HP recommends Windows 10 Pro Windows 10 Home 64 Plus FreeDOS 2.0	Windows 10 Pro 64 – HP recommends Windows 10 Pro Windows 10 Pro for Workstations Windows 10 Home 64 plus FreeDOS 2.0	
Processor[6]	8th Generation Intel® Core™ i7 processor (i7-8650U, i7-8550U) 8th Generation Intel® Core™ i5 processor (i5-8250U) 7th Generation Intel® Core™ i7 processor (i7-7500U, i7-7600U)	Intel® Xeon® E3 processor (E3-2176M, E3-2186M) 8th Generation Intel® Core™ i7 processor (i7-8750H, i7-8850H) 8th Generation Intel® Core™ i5 processor (i5-8300H, i5-8400H)	
Chipset	Integrated with processor	Mobile Intel® CM246	
Memory slots available	2 SODIMM		
Maximum memory[11,13]	32 GB DDR4-2400 non-ECC SDRAM (Transfer rates up to 2400 MT/sx for 8th gen processors) (Transfer rates up to 2133 MT/s with 7th gen processors)	32 GB DDR4-2667 ECC/non-ECC SDRAM (Transfer rates up to 2666 MT/s) Non-ECC memory only available with Intel® Core™ procesors. ECC memory only available with Intel® Xeon® processors.	
Number of memory channels	Dual-channel		
Graphics[14,15,16]	Intel® HD Graphics 620 (for 7th gen processors) Intel® UHD Graphics 620 (for 8th gen processors) NVIDIA® Quadro® M620	Intel® UHD Graphics 630 Intel® UHD Graphics P630 NVIDIA® Quadro® P1000	
Display options[19,20,21]	HP DreamColor 14" diagonal 4K IPS anti-glare LED-backlit touch screen (3840 x 2160)	15.6" diagonal FHD IPS eDP LED-backlit touch screen with ambient light sensor (1920 x 1080) 15.6" diagonal 4K IPS eDP LED-backlit touch screen with ambient light sensor (3840 x 2160) HP Sure View 15.6" diagonal FHD IPS LED-backlit touch screen (1920 x 1080) HP DreamColor 15.6" diagonal 4K IPS LED-backlit anti-glare touch screen (3840 x 2160)	15.6" diagonal FHD IPS eDP anti-glare LED-backlit with ambient light sensor (1920 x 1080) 15.6"diagonal 4K IPS eDP anti-glare LED-backlit with ambient light sensor (3840 x 2160) HP Sure View 15.6" diagonal FHD IPS anti-glare LED-backlit with ambient light sensor (1920 x 1080) HP DreamColor 15.6" diagonal 4K IPS anti-glare LED-backlit (3840 x 2160)
Maximum supported displays	NVIDIA® Quadro® mobile professional graphics support up to four independent displays when using a HP Thunderbolt Dock G2 (sold separately)		
Drive controllers	SATA 3.0 SSD PCIe NVME SSD		
Internal storage[22]	Up to (1) M.2 SATA SSD: 128 GB: 128 GB max Up to (1) M.2 SATA SSD FIPS 140-2: 512 GB: 512 GB max Up to (1) M.2 PCIe® NVMe™ SSD: 256/512 GB, 1/2 TB: 2 TB max Up to (1) M.2 PCIe® NVMe™ SED SSD: 512 GB: 512 GB max Up to (1) M.2 HP Z Turbo Drive G2 PCIe® NVMe™ SSD: 256/512 GB: 512 GB max	Up to (1) 2.5-inch SATA SSD: 256 GB, 1 TB: 1 TB max Up to (2) M.2 SATA SED SSD: 256 GB: 512 GB max Up to (2) M.2 SATA FIPS 140-2: 512 GB: 1.024 TB max Up to (2) M.2 PCIe® NVMe™ SSD: 256/360/512 GB, 1/2 TB: 4 TB max Up to (2) M.2 PCIe® NVMe™ SED SSD: 256/512 GB: 1.024 TB max	Up to (1) 2.5-inch 5400 rpm SATA: 2 TB: 2 TB max Up to (1) 2.5-inch 7200 rpm SATA: 500 GB, 1 TB: 1 TB max Up to (1) 2.5-inch 7200 rpm SATA SED: 500 GB: 500 GB max Up to (1) 2.5-inch 7200 rpm SATA FIPS 140-2 SED: 500 GB: 500 GB max Up to (1) 2.5-inch 5400 rpm SATA SSHD: 500 GB, 1/2 TB: 2 TB max Up to (1) 2.5-inch SATA SSD: 256 GB, 1 TB: 1 TB max Up to (2) M.2 SATA SED SSD: 256 GB: 512 GB max Up to (2) M.2 SATA FIPS 140-2 SSD: 512 GB: 1.024 TB max Up to (2) M.2 PCIe® NVMe™ SSD: 256/360/ 512 GB, 1/2 TB: 4 TB max Up to (2) M.2 PCIe® NVMe™ SED SSD: 256/512 GB: 1.024 TB max
Optical + other storage [24,25]	N/A	N/A	16 GB Intel® Optane™ Flash Cache

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Z BY HP LAPTOPS FOR CREATIVE PROS (CONTINUED)

	ZBook x2 G4	ZBook Studio x360 G5	ZBook Studio G5
Communications[31,34]	Intel® Dual Band Wireless-AC 8265 802.11ac (2x2) Wi-Fi® and Bluetooth® 4.2 Combo Near Field Communication (NFC) module (optional in base only)	Intel® Dual Band Wireless-AC 9560 802.11ac (2x2) Wi-Fi® and Bluetooth® 5.0 Combo, vPro™ Intel® Dual Band Wireless-AC 9560 802.11ac (2x2) Wi-Fi® and Bluetooth® 5.0 Combo, non-vPro™ HP lt4132 LTE/HSPA+ 4G Mobile Broadband Module Intel® XMM™ 7360 LTE Advanced Near Field Communication (NFC) module	Intel® Dual Band Wireless-AC 9560 802.11ac (2x2) Wi-Fi® and Bluetooth® 5.0 Combo, vPro™ Intel® Dual Band Wireless-AC 9560 802.11ac (2x2) Wi-Fi® and Bluetooth® 5.0 Combo, non-vPro™ Near Field Communication (NFC) module
Expansion slots	1 Smart card reader 1 SD media reader (SD supports next generation secure digital and is backward compatible to SDHC, SDXC)	1 UHS-II SD card reader (SD supports next generation secure digital and is backward compatible to SDHC, SDXC)	
Remote technology[36]		HP Remote Graphics Software (HP RGS)	
Dimensions	Tablet 14.35 x 9.94 x 0.57 in 36.45 x 22.7 x 1.46 cm Laptop 14.35 x 8.94 x 0.80 in 36.45 x 22.7 x 2.03 cm	14.17 x 9.65 x 0.80 in 36 x 25.4 x 2.04 cm	14.17 x 9.65 x 0.74 in 36 x 25.4 x 1.89 cm
Starting weight	Tablet 3.64 lb | 1.65 kg Laptop 4.78 lb | 2.17 kg	4.99 lb | 2.22 kg	4.4 lb | 2.00 kg

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Z BY HP LAPTOPS FOR PERFORMANCE USERS

	ZBook 15v G5	ZBook 15 G5	ZBook 17 G5
Overview	Affordable performance	Portable powerhouse	Ultimate mobile performance
Operating systems[1,5]	Windows 10 Pro 64 – HP recommends Windows 10 Pro; Windows 10 Pro for Workstations; Windows 10 Home 64; FreeDOS 2.0	Windows 10 Pro 64 – HP recommends Windows 10 Pro; Windows 10 Pro for Workstations; Windows 10 Home 64	
Processor[6,8,9]	Intel® Xeon® E3 processor (E3-2176M); 8th Generation Intel® Core™ i7 processor (i7-8750H, i7-8850H); 8th Generation Intel® Core™ i5 processor (i5-8300H, i5-8400H)	Intel® Xeon® E3 processor (E3-2176M, E3-2186M) 8th Generation Intel® Core™ i7+ processor (Core i7+ and Intel® Optane™ memory) (i7-8750H, i7-8850H) 8th Generation Intel® Core™ i5+ processor (Core i5+ and Intel® Optane™ memory) (i5-8300H, i5-8400H)	
Chipset	Mobile Intel® CM246		
Memory slots available	2 SODIMM	4 SODIMM	
Maximum memory[11,13]	32 GB DDR4-2667 ECC/non-ECC SDRAM (Transfer rates up to 2666 MT/s) ECC memory only available with Intel® Xeon® processors	64 GB DDR4-2667 ECC/non-ECC SDRAM (Transfer rates up to 2666 MT/s) ECC memory only available with Intel® Xeon® processors	
Number of memory channels	Dual-channel		
Graphics[14,15,16]	Intel® UHD Graphics P630 NVIDIA® Quadro® P600 UMA graphics only available with Intel® Core™ processors Discrete Graphics only available with Intel® Xeon® processors	Intel® UHD Graphics P630 (Intel® Xeon® processors only) Intel® UHD Graphics 630 (Intel® Core™ processors only) AMD Radeon™ Pro WX 4150 NVIDIA® Quadro® P1000 NVIDIA® Quadro® P2000	Intel® UHD Graphics P630 (Intel® Xeon® processors only) Intel® UHD Graphics 630 (Intel® Core™ processors only) AMD Radeon™ Pro WX 4170 NVIDIA® Quadro® P1000 NVIDIA® Quadro® P2000 NVIDIA® Quadro® P3200 NVIDIA® Quadro® P4200 NVIDIA® Quadro® P5200
Display options[19,20,21]	15.6" diagonal FHD anti-glare LED-backlit (1920 x 1080); 15.6" diagonal FHD anti-glare LED-backlit touch screen (1920 x 1080); 15.6" diagonal 4K anti-glare LED-backlit (3840 x 2160)	15.6" diagonal FHD IPS eDP anti-glare LED-backlit (1920 x 1080); 15.6" diagonal FHD IPS eDP anti-glare LED-backlit ambient light sensor (1920 x 1080); 15.6" diagonal 4K IPS eDP LED-backlit touch screen ambient light sensor (3840 x 2160); 15.6" diagonal 4K IPS eDP anti-glare LED-backlit ambient light sensor (3840 x 2160); HP Sure View 15.6" diagonal FHD eDP LED-backlit touch screen (1920 x 1080) HP DreamColor 15.6" diagonal 4K IPS anti-glare LED-backlit (3840 x 2160)	17.3" diagonal HD SVA eDP anti-glare LED-backlit (1600 x 900); 17.3" diagonal FHD IPS eDP anti-glare LED-backlit ambient light sensor (1920 x 1080); 17.3" diagonal 4K IPS eDP LED-backlit touch screen ambient light sensor (3840 x 2160); HP DreamColor 17.3" diagonal 4K IPS anti-glare LED-backlit (3840 x 2160)
Maximum supported displays	NVIDIA® Quadro® mobile professional graphics support up to four independent displays when using a HP Thunderbolt Dock G2 (sold separately).	AMD Radeon™ Pro professional graphics support up to six displays when using an HP Thunderbolt Dock G2 (sold separately). NVIDIA® Quadro® mobile professional graphics support up to four independent displays when using a HP Thunderbolt Dock G2 (sold separately).	AMD Radeon™ Pro professional graphics support up to six displays when using an HP Thunderbolt Dock G2 (sold separately). NVIDIA® Quadro® mobile professional graphics support up to four independent displays when using a HP Thunderbolt Dock G2 (sold separately).
Drive controllers	SATA 3.0 SSD PCIe NMVe SSD		

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	ZBook 15v G5	ZBook 15 G5	ZBook 17 G5
Internal storage[22]	Up to (1) 2.5-inch 5400 rpm SATA: 2 TB: 2 TB max Up to (1) 2.5-inch 7200 rpm SATA: 500 GB, 1 TB: 1 TB max Up to (1) 2.5-inch 7200 rpm SATA SED: 500 GB: 500 GB max Up to (1) 2.5-inch 7200 rpm SATA SED: 500 GB: 500 GB max Up to (1) 2.5-inch 5400 rpm SATA SSHD: 500 GB, 1/2 TB: 2 TB max Up to (1) 2.5-inch SATA SSD: 256 GB, 1 TB: 1 TB max Up to (1) M.2 SATA SED SSD: 256 GB: 256 GB max Up to (1) M.2 PCIe® NVMe™ SSD: 256/512 GB, 1/2 TB: 2 TB max Up to (1) M.2 PCIe® NMVe™ SED SSD: 256/512 GB: 512 GB max	Up to (1) 2.5-inch 5400 rpm SATA: 2 TB: 2 TB max Up to (2) 2.5-inch 7200 rpm SATA: 500 GB, 1 TB: 1 TB max Up to (1) 2.5-inch 7200 rpm SATA SED: 500 GB: 500 GB max Up to (1) 2.5-inch 7200 rpm SATA FIPS 140-2 SED: 500 GB: 500 GB max Up to (1) 2.5-inch 5400 rpm SATA SSHD: 500 GB, 1/2 TB: 2 TB max Up to (1) 2.5-inch SATA SSD: 256 GB, 1 TB: 1 TB max Up to (2) M.2 SATA SED SSD: 256 GB: 512 GB max Up to (2) M.2 SATA FIPS 140-2 SED: 512 GB: 1.024 TB max Up to (2) M.2 PCIe® NVMe™ SSD: 256/360/512 GB, 1/2 TB: 4 TB max Up to (2) M.2 PCIe® NMVe™ SED SSD: 256/512 GB: 1.024 TB max	Up to (2) 2.5-inch 5400 rpm SATA: 2 TB: 4 TB max Up to (2) 2.5-inch 7200 rpm SATA: 500 GB, 1 TB: 2 TB max Up to (2) 2.5-inch 7200 rpm SATA SED: 500 GB: 1 TB max Up to (2) 2.5-inch 7200 rpm SATA FIPS 140-2 SED: 500 GB: 1 TB max Up to (2) 2.5-inch 5400 rpm SATA SSHD: 500 GB, 1/2 TB: 4 TB max Up to (2) 2.5-inch SATA SSD: 256 GB, 1 TB: 2 TB max Up to (3) M.2 SATA SED SSD: 256 GB: 768 GB max Up to (3) M.2 SATA FIPS 140-2 SED: 512 GB: 1.536 TB max Up to (3) M.2 PCIe® NVMe™ SSD: 256/360/521 GB, 1/2 TB: 6 TB max Up to (3) M.2 PCIe® NMVe™ SED SSD: 256/512 GB: 1.536 TB max
Optical + other storage[24,25,28,29]	N/A	Intel® Optane™ 16 GB Flash Cache	Intel® Optane™ 16 GB Flash Cache Optical Disk Drive Blue-ray player DVD-writer
Communications[31,34]	Integrated Intel® I219-LM GbE Intel® Dual Band Wireless-AC 9560 802.11ac (2x2) Wi-Fi® and Bluetooth® 5.0 Combo, vPro™ Intel® Dual Band Wireless-AC 9560 802.11ac (2x2) Wi-Fi® and Bluetooth® 5.0 Combo, non-vPro™	Integrated Intel® I219-LM GbE; Intel® Dual Band Wireless-AC 9560 802.11ac (2x2) Wi-Fi® and Bluetooth® 5.0 Combo, vPro™ Intel® Dual Band Wireless-AC 9560 802.11ac (2x2) Wi-Fi® and Bluetooth® 5.0 Combo, non-vPro™ HP lt4132 LTE/HSPA+ 4G Mobile Broadband Module Intel® XMM™ 7360 LTE Advanced Near Field Communication (NFC) module	
Expansion slots	1 UHS-II SD card reader (SD supports next generation secure digital and is backward compatible to SDHC, SDXC)	1 Smart card reader 1 UHS-II SD card reader (SD supports next generation secure digital and is backward compatible to SDHC, SDXC)	
Remote technology[36]		HP Remote Graphics Software (HP RGS)	
Dimensions	14.37 x 10.10 x 1 in 36.50 x 25.65 x 2.54 cm	14.8 x 10.4 x 1 in 37.6 x 26.4 x 2.60 cm	16.4 x 11.3 x 1.3 in 41.60 x 28.8 x 3.38 cm
Starting weight	4.77 lb | 2.17 kg	5.79 lb | 2.60 kg	7.0 lb | 3.2 kg

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Z BY HP DESKTOP SECURITY & MANAGEABILITY

	Z2 Mini	Z2 SFF G4, Z2 Tower G4	Z4 G4, Z6 G4, Z8 G4
Security			
Absolute (Computrace) PC Tracking[37]	Yes	Yes	Yes
Cable lock devices/kits[38]	Yes	Optional	Yes
Chassis padlocks	Kensington	Yes	Kensington
Discrete TPM 2.0 Security Chip (Common Criteria EAL4+ Augmented Certified)	Yes SLB 9670VQ2.0	Yes SLB 9670VQ2.0	Yes SLB 9670VQ2.0
Data Protection[39]	HP Secure Erase, others	HP Secure Erase, others	HP Secure Erase, others
Device Protection[40]	HP Sure Start, others	HP Sure Start, others	HP Sure Start, others
Full volume encryption	Yes, with SED	Yes, with SED	Yes
HP BIOS Protection	HP Sure Start	HP Sure Start	HP Sure Start
HP BIOSphere with Sure Start[40,41]	Yes	Yes	Yes
HP Client Security Suite[42,43]	Yes	Yes	Yes
HP Device Access Manager	Yes	Yes	Yes
HP DriveLock and Automatic DriveLock	DriveLock only	DriveLock only	Yes
HP Endpoint Security Controller	Yes	Yes	Yes
HP Lock Kits	Optional	Optional	Optional
HP Multi-Factor Authenticate	Yes	Yes	Yes
HP Password Manager[44]	Yes	Yes	Yes
HP Power-On Authentication[45]	Yes	Yes	Yes
HP Secure Erase[39]	Yes	Yes	Yes
HP Security Manager	Yes	Yes	Yes
HP Spare Key	TPM or Disk on Key	TPM or Disk on Key	TPM or Disk on Key
HP Sure Click[46]	Yes	Yes	Yes
HP Sure Recover[47]	Yes		
HP Sure Run[48]	Yes		
HP Sure Start[40]	Gen 4	Gen 2	Gen 3
Integrated hood sensor		Optional	Optional
Master Boot Record Security	Yes	Yes	Yes (MBR+GPT)
Microsoft Defender[49]	Yes	Yes	Yes
Parallel enable/diable (via BIOS)	Yes	Yes	Yes
Power-on password (via BIOS)	Yes	Yes	Yes
Pre-boot authentication	Yes	Yes	Yes
Pre-boot security	Device Guard, Intel TXT, HP Sure Start	Device Guard, Intel TXT, HP Sure Start	Device Guard, Intel TXT, HP Sure Start
Removeable media write/boot control	USB Port Disablement	USB Port Disablement	USB Port Disablement
SATA port disablement (via BIOS)	Yes	Yes	Yes
Secure authentication	Yes	Yes	Yes
Security lock slot	Yes	Yes	Yes

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Z BY HP DESKTOP SECURITY & MANAGEABILITY (CONTINUED)

	Z2 Mini G4	Z2 SFF G4, Z2 Tower G4	Z4 G4, Z6 G4, Z8 G4
Serial enable/disable (via BIOS)	Yes	Yes	Yes
Set-up password (via BIOS)	Yes	Yes	Yes
USB port disable at factory (user configurable via BIOS)	Yes	Yes	Yes
TPM 1.2[50]		Yes	Yes
TPM 2.0	Yes	Yes	Yes
HP Client Management			
HP BIOS Config Utility	Yes	Yes	Yes
HP Client Catalog	Yes	Yes	Yes
HP Driver Packs[51]	Yes	Yes	Yes
HP Manageability Integration Kit[52]	Yes	Yes	Yes
HP PC Hardware Diagnostics UEFI	Yes	Yes	Yes
HP SoftPaq Download Manager[53]	Yes	Yes	Yes
HP Support for Microsoft SCCM	Yes	Yes	Yes
HP System Software Manager	Yes	Yes	Yes
LANDESK Management Suite	Yes	Yes	Yes
HP Value Add			
Bing search for IE11	Yes	Yes	Yes
Buy Office	Yes	Yes	Yes
CyberLink Power DVD	Yes	Yes	Yes
Cyberlink Power Media Player	Yes	Yes	Yes
CyberLink Power2Go	Yes	Yes	Yes
Foxit Phantom PDF Express for HP	Yes	Yes	Yes
HP Hotkey Support	Yes	Yes	Yes
HP JumpStart	Yes	Yes	Yes
HP Performance Advisor	Yes	Yes	Yes
HP Recovery Manager	Yes	Yes	Yes
HP Remote Graphics Software (RGS)[36]	Yes	Yes	Yes
HP Support Assistant[54]	Yes	Yes	Yes
One-step log-on	Yes	Yes	Yes
PDF Complete - Corporate Edition		Yes	
Efficiency			
ENERGY STAR® certified	Yes	Yes	Yes
EPEAT® registered[55]		Yes	Yes
Low Halogen[56]		Yes	Yes
Reliability			
HP Dust Management Solution		Yes	Z4 only
HP Total Test Process[57]	Yes	Yes	Yes
RAID configurations		Yes	Yes
Tool-less serviceability[58]	Yes	Yes	Yes

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	ZBook 14u G5, ZBook 15u G5	ZBook x2	ZBook 15v	ZBook Studio x360 G5, Studio G5	ZBook 15 G5, ZBook 17 G5
Security					
Absolute Persistence Module[37]	Yes	Yes	Yes	Yes	Yes
Cable lock devices/kits		Yes			
Chassis padlocks		Yes			
Discrete TPM 2.0 Security Chip (Common Criteria EAL4+ Augmented Certified)	Yes	Yes	Yes	Yes	Yes
HP BIOSphere with Sure Start[41]	Gen4	Gen3		Gen4	Gen4
HP Client Security Suite[43]	Gen3	Gen2	Gen3	Gen3	Gen3
HP Credential Manager	Yes	Yes	Yes	Yes	Yes
HP Device Access Manager	Yes	Yes		Yes	Yes
HP Drive Encryption		Yes		Yes	Yes
HP DriveLock and Automatic DriveLock	Yes	Yes	Yes	Yes	Yes
HP Endpoint Security Controller	Yes	Yes		Yes	Yes
HP Fingerprint Sensor[59]	Yes	Yes	Yes	Yes	Yes
HP Lock Kits				Yes	Yes
HP Multi-Factor Authenticate	Gen2	Gen2	Gen2	Gen2	Gen2
HP Password Manager[44]		Yes			
HP Power-On Authentication[45]	Yes	Yes		Yes	Yes
HP Privacy Camera Shutter[60]	Yes	No		Yes	Yes
HP Secure Erase[39]	Yes	Yes		Yes	Yes
HP Security Manager	Yes	Yes			
HP Spare Key	Yes	Yes		Yes	Yes
HP Sure Click[46]	Yes	Yes	Yes	Yes	Yes
HP Sure Recover[47]	Yes		Yes	Yes	Yes
HP Sure Run[48]	Yes			Yes	Yes
HP Sure Start[40,61]	Gen4	Gen3	Gen4	Gen4	Gen4
HP Sure View[21]	Gen2			Gen2	Gen2
Integrated hood sensor		Yes			
Intel® Anti-Theft Technology support			Yes	Yes	Yes
IR camera with Windows Hello[62]	Yes	Yes	Yes	Yes	Yes
Master Boot Record Security	Yes	Yes		Yes	Yes
Microsoft Defender[49]	Yes	Yes		Yes	Yes
Microsoft Security Essentials	Yes	Yes		Yes	Yes
Parallel enable/diable (via BIOS)		Yes			
Power-on password (via BIOS)	Yes	Yes	Yes	Yes	Yes
Pre-boot authentication	Yes				
Pre-boot security	Yes	Yes	Yes	Yes	Yes
Removeable media write/boot control	Yes	Yes	Yes	Yes	Yes
SATA port disablement (via BIOS)	Yes	Yes	Yes	Yes	Yes
Security lock slot	Yes			Yes	Yes
Serial enable/disable (via BIOS)	Yes	Yes	Yes	Yes	Yes

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	ZBook 14u G5, ZBook 15u G5	ZBook x2	ZBook 15v	ZBook Studio x360 G5, Studio G5	ZBook 15 G5, ZBook 17 G5
Set-up password (via BIOS)	Yes	Yes	Yes	Yes	Yes
USB port disable at factory (user configurable via BIOS)	Yes	Yes	Yes	Yes	Yes
TPM 2.0	Yes	Yes		Yes	Yes
HP Client Management					
HP BIOS Config Utility	Yes	Yes	Yes	Yes	Yes
HP Client Catalog	Yes	Yes	Yes	Yes	Yes
HP Driver Packs[51]	Yes	Yes	Yes	Yes	Yes
HP Manageability Integration Kit[52]	Gen2	Gen2	Gen2	Gen2	Gen2
HP PC Hardware Diagnostics UEFI	Yes	Yes	Yes	Yes	Yes
HP SoftPaq Download Manager[53]	Yes	Yes	Yes	Yes	Yes
HP Support for Microsoft SCCM	Yes	Yes	Yes	Yes	Yes
HP System Software Manager	Yes	Yes	Yes	Yes	Yes
LANDESK Management Suite	Yes	Yes	Yes	Yes	Yes
HP Value Add					
Bing search for IE11	Yes		Yes	Yes	Yes
Buy Office	Yes		Yes	Yes	Yes
Cyberlink Power Media Player	Yes				
HP ePrint Driver + JetAdvantage[63]	Yes	Yes	Yes	Yes	Yes
HP Hotkey Support	Yes		Yes	Yes	Yes
HP JumpStart	Yes		Yes	Yes	Yes
HP LAN-WLAN Protection	Yes		Yes	Yes	Yes
HP Mobile Connect Pro[64]	Yes				
HP Noise Cancellation Software	Yes		Yes	Yes	Yes
HP Clear Sound Amp	Yes			Yes	Yes
HP PageLift		Yes			
HP Performance Advisor	Yes	Yes	Yes	Yes	Yes
HP Recovery Manager (Win 10)	Yes		Yes	Yes	Yes
HP Remote Graphics Software (HP RGS)[36]	Yes	Yes	Yes	Yes	Yes
HP Support Assistant[54]	Yes		Yes	Yes	Yes
HP WorkWise (requires Bluetooth)[65]	Yes		Yes	Yes	Yes
Native Miracast support[66]	Yes				
One-step log-on			Yes	Yes	Yes
Skype for Business Certified[67]	Yes		Yes	Yes	Yes
Efficiency					
ENERGY STAR® certified	Yes	Yes	Yes	Yes	Yes
EPEAT® registered[55]	Yes	Yes	Yes	Yes	Yes
Low Halogen[56]	Yes	Yes	Yes	Yes	Yes
Reliability					
HP Total Test Process[57]	Yes	Yes		Yes	Yes
RAID configurations		Yes	Yes	Yes	Yes
Tool-less serviceability[58]					Yes

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MIL-STD 810G TESTING[68]

	Test MIL-STD 810G	Reference	Key Test Parameters	ZBook 14u G5, 15u G5	ZBook x2	ZBook 15v	ZBook Studio x360 G5, Studio G5	ZBook 15 G5, 17 G5
1a	Vibration	Method 514.6	Procedure I, Category 4 (Ground Vehicle)	Yes	Yes	Yes	Yes	Yes
1b	Vibration	Method 514.6	Procedure I, Category 24 (Minimum Integrity Test)	Yes	Yes	Yes	Yes	Yes
2	Dust Resistance	Method 510.5	Procedure I (Blowing dust)	Yes	Yes	Yes	Yes	Yes
3	Humidity	Method 507.5	Procedure II	Yes	Yes	Yes	Yes	Yes
4	Altitude	Method 500.5	Procedure I (Storage/air transport) Procedure II (Operation/air carriage)	Yes	Yes	Yes	Yes	Yes
5	High Temperature	Method 501.5	Procedure I (Storage) Procedure II (Operation)	Yes	Yes	Yes	Yes	Yes
6	Low Temperature	Method 502.5	Procedure I (Storage) Procedure II (Operation)	Yes	Yes	Yes	Yes	Yes
7	Temperature Shock	Method 503.5	Procedure I	Yes	Yes	Yes	Yes	Yes
8	Shock	Method 516.6	Procedure V	Yes	Yes	Yes	Yes	Yes
9	Drop	Method 516.6	Procedure IV	Yes	Yes	Yes	Yes	Yes
10	Sand	Method 510.4	Procedure II	Yes	Yes		Yes	Yes
11	Explosive Atmosphere	Method 511.5	Procedure I	Yes	Yes		Yes	Yes
12	Freeze/Thaw	Method 524.54	Procedure III	Yes	Yes		Yes	Yes
13	Crash Hazard	Method 516.5	Procedure V	Yes	Yes		Yes	Yes
14	Bench Handling	Method 516.6	Procedure IV	Yes	Yes		Yes	Yes

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IMAGE ATTRIBUTION

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Operating System

[1] Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows 10 is automatically updated, which is always enabled. ISP fees may apply and additional requirements may apply over time for updates. See http://www.microsoft.com.

[2] For detailed OS/hardware support information for Linux® see: http://www.hp.com/support/linux_hardware_matrix.

[3] Z4 G4: Windows 10 Pro 64 for Workstations – HP recommends Windows 10 Pro is available on Intel® Xeon® W processor configurations only.

[4] Z4 G4: Windows 10 Pro 64 is available on Intel® Core™ X-Series processor configurations only.

[5] ZBooks: Linux® and Ubuntu are supported but not preloaded.

Processor

[6] In accordance with Microsoft's support policy, HP does not support the Windows® 8 or Windows 7 operating system on products configured with Intel® and AMD 7th generation and forward processors or provide any Windows 8 or Windows 7 drivers on http://www.support.hp.com.

[7] The following applies to HP systems with Intel® 6th Gen and other future-generation processors on systems shipping with Windows 7, Windows 8, Windows 8.1 or Windows 10 Pro systems downgraded to Windows 7 Professional, Windows 8 Pro, or Windows 8.1: This version of Windows running with the processor or chipsets used in this system has limited support from Microsoft. For more information about Microsoft's support, please see Microsoft's Support Lifecycle FAQ at support.microsoft.com/lifecycle.

[8] Intel® Optane™ memory (cache) is sold separately. Intel® Optane™ memory system acceleration does not replace or increase the DRAM in your system. Available for HP commercial desktops and notebooks and for select HP workstations (Z240 Tower/SFF, Z2 Mini, ZBook Studio, 15 and 17 G5) and requires a SATA HDD, 7th Gen or higher Intel® Core™ processor or Intel® Xeon® processor E3-1200 V6 product family or higher, BIOS version with Intel® Optane™ supported, Windows 10 version 1703 or higher, M.2 type 2280-S1-B-M connector on a PCH Remapped PCIe Controller and Lanes in a x2 or x4 configuration with B-M keys that meet NVMe™ Spec 1.1, and an Intel® Rapid Storage Technology (Intel® RST) 15.5 driver.

[9] Intel® Optane™ memory system acceleration does not replace or increase the DRAM in your system.

[10] Z4 G4, Z6 G4, Z8 G4: Windows 10 Pro is preinstalled. Windows 7 media is only available upon request from HP Customer Support. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.

Memory

[11] Non-ECC memory only available with Intel® Core™ processors. ECC memory only available with Intel® Xeon® processors.

[12] For systems installed with Microsoft Windows 7 (Ultimate, Enterprise or Professional), the maximum accessible system memory is 192 GB. For systems installed with Microsoft Windows 8.x (Enterprise or Pro), the maximum accessible system memory is 512 GB.

[13] ZBooks: Only 2 DIMM configurations run at 2400 MHz and 4 DIMM configurations run at 2133 MHz.

Graphics

[14] For Intel® graphics: HD graphics requires a 7th generation processor. UHD requires an 8th generation processor.

[15] For Intel® graphics: HD content required to view HD images. UHD content required to view UHD images.

[16] Intel® HD graphics 630 is configurable as a standalone graphics option; Intel® HD graphics P630 only used when NVIDIA® Optimus™ Technology is enabled

[17] Z4 G4, Z6 G4, Z8 G4, ZBook 17 G5: HP VR Ready Configurations available.

[18] Z6 G4: The AMD Radeon™ Pro WX 4100 Graphics is available only as an aftermarket option.

Display options

[19] HD content required to view HD images.

[20] ZBooks: HP Privacy Camera Shutter only available on non-touch screens equipped with HD or IR camera and must be installed at the factory.

[21] ZBooks: HP Sure View integrated privacy screen is an optional feature available on select platforms only and must be configured at purchase.

Internal Storage

[22] 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 36 GB (for Windows 10) of hard drive (or system disk) is reserved for the system recovery software.

[23] 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 http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00060684/c00060684.pdf for RAID capabilities with Linux®.

[24] Intel® Optane™ memory (cache) is sold separately. Intel® Optane™ memory system acceleration does not replace or increase the DRAM in your system. Available for HP commercial desktops and notebooks and for select HP workstations (Z240 Tower/SFF, Z2 Mini, ZBook Studio, 15 and 17 G5) and requires a SATA HDD, 7th Gen or higher Intel® Core™ processor or Intel® Xeon® processor E-2100 product family or higher, BIOS version with Intel® Optane™ supported, Windows 10 version 1703 or higher, M.2 type 2280-S1—M connector on a PCH Remapped PCIe Controller and Lanes in a x2 or x4 configuration with M keys that meet NVMe™ Spec 1.1, and an Intel® Rapid Storage Technology (Intel® RST) 15.5 driver.

[25] Intel® Optane™ memory not supported on non-Core Intel® Pentium™ processors.

[26] Z4 G4: 300 GB SAS (15000 rpm) Supported only on Intel ® Xeon® configurations: Not supported with Intel® Core X™ processor configurations.

[27] Z4 G4: 256 GB up to 4 TB HP Z Turbo Drive Quad Pro PCIe® SSD Available on Intel® Xeon® W processor configurations only.

Optical and Other Storage

[28] Duplication of copyrighted material is strictly prohibited. Actual speeds may vary. Double Layer media compatibility will widely vary with some home DVD players and DVD-ROM drives. Note that DVD-RAM cannot read or write to 2.6GB Single Sided/5.2 Double Sided-Version 1.0 Media.

[29] 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.

Expansion slots

[30] Z2 Mini G4: Three (3) DisplayPort™ 1.2 in Performance model.

Communications

[31] Wireless cards are optional or add-on features and requires separately purchased wireless access point and internet service. Availability of public wireless access points limited. The specifications for the 802.11ac WLAN are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the workstation to communicate with other 802.11ac WLAN devices.

[32] Z6 G4, Z8 G4: HP 10GBASE-T Dual NIC Z6/8 G4 is sold separately or as an optional feature.

[33] Z4 G4: I210-AT, I219-V are available in Intel® Xeon® configurations only.

[34] ZBooks: WWAN is an optional feature. Check with service provider for coverage and availability in your area. Connection speeds will vary due to location, environment, network conditions, and other factors. 4G LTE not available on all products, and in all regions.

[35] ZBook 15u GbE - 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.

Remote Technology

[36] HP RGS requires a Windows, Linux®, or Mac® OS X 10.10 and newer operating system and network access.

Security

[37] Absolute agent is shipped turned off and will be activated when customers activate a purchased subscription. Subscriptions can be purchased for terms ranging multiple years. Service is limited, check with Absolute for availability outside the U.S. The Absolute Recovery Guarantee is a limited warranty. Certain conditions apply. For full details visit: http://www.absolute.com/company/legal/agreements/computrace-agreement. Data Delete is an optional service provided by Absolute Software. If utilized, the Recovery Guarantee is null and void. In order to use the Data Delete service, customers must first sign a Pre-Authorization Agreement and either obtain a PIN or purchase one or more RSA SecurID tokens from Absolute Software.

[38] Z8 G4: HP Keyed Cable Lock Kit is available only as an aftermarket option.

[39] HP Secure Erase: For the methods outlined in the National Institute of Standards and Technology Special Publication 800-88. Supported on Elite and Z platforms with BIOS version F.03 or higher.

[40] HP Sure Start Gen3 is available on HP Workstation products equipped with Intel® 7th generation processors.

[41] HP BIOSphere Gen4 features may vary depending on the PC platform and configurations requires 8th Gen Intel® processors.

[42] HP Client Security Suite Gen 4 requires Windows and Intel® or AMD 8th generation processors.

[43] HP Client Security Suite Gen 3 - Requires Windows and Intel® 7th generation processors.

[44] HP Password Manager: HP Password manager requires Windows. Some websites and applications may not be supported. User may need to enable or allow the add-on / extension in the internet browser.

[45] Power On Authentication: HP commercial platforms support password with this feature and fingerprint where applicable.

[46] HP Sure Click is available on select HP platforms and supports Microsoft® Internet Explorer, Google Chrome, and Chromium™. Supported attachments include Microsoft Office (Word, Excel, PowerPoint) and PDF files in read only mode. Check http://h20195.www2.hp.com/v2/GetDocument.aspx?docname=4AA7-0922ENW for all compatible platforms as they become available.

[47] HP Sure Recover is available on HP Workstations with 8th generation Intel® or AMD processors and requires an open, wired network connection. Not available on platforms

FAMILY QRG

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with multiple internal storage drives, Intel® Optane™. You must back up important files, data, photos, videos, etc. before using HP Sure Recover to avoid loss of data.

[48] HP Sure Run is available on HP Workstation products equipped with 8th generation Intel® or AMD® processors.

[49] Microsoft Security Defender requires Windows 10. Opt in and internet connection required for updates. For Windows 8.x and 10 operating systems only.

[50] Z4 G4, Z6 G4, Z8 G4: TPM 1.2 may not be purchased with Windows 10. It may only be purchased with Windows 10 Downgrade to Windows 7 or with Boot Mode AV purchase.

HP Client Management

[51] HP Driver Packs not preinstalled, however available for download at http://www.hp.com/go/clientmanagement.

[52] HP Manageability Integration Kit Gen2 can be downloaded from http://www8.hp.com/us/en/ads/clientmanagement/overview.html/.

[53] HP SoftPaq Download Manager (SDM); HP System Software Manager (SSM); HP Management Integration Kit for Microsoft System Center Configuation Manager: Not preinstalled, however available for download at http://www.hp.com/go/clientmanagement.

HP Value Add

[54] HP Support Assistant - Requires Windows and Internet Access.

Efficiency

[55] EPEAT® registered where applicable. EPEAT registration varies by country. See www.epeat.net for registration status by country. Search keyword generator on HP's 3rd party option store for solar generator accessories at www.hp.com/go/options.

[56] External power supplies, power cords, cables and peripherals are not Low Halogen. Service parts obtained after purchase may not be Low Halogen.

Reliability

[57] HP's Total Test Process is not a guarantee of future performance under these test conditions. Accidental Damage or damage under these test conditions requires an optional HP Accidental Damage Protection Care Pack.

[58] Tool-less feature applies to the cover only.

Mobile Only Security

[59] Fingerprint Sensor is optional.

[60] ZBooks: Privacy camera not available on touchscreen.

[61] HP Sure Start Gen4 is available on HP Workstation products equipped with Intel® 8th generation processors.

[62] Windows Hello optional. Windows Hello face authentication utilizes a camera specially configured for near infrared (IR) imaging to authenticate and unlock Windows devices as well as unlock your Microsoft Passport.

Mobile Only HP Value Add

[63] HP ePrint Driver + JetAdvantage - Requires an Internet connection to HP web-enabled printer and HP ePrint account registration (for a list of eligible printers, supported documents and image types and other HP ePrint details, see http://www.hp.com/go/eprintcenter). Separately purchased data plans or usage fees may apply. Print times and connection speeds may vary.

[64] HP Mobile Connect Pro is only available on preconfigured devices with WWAN. For geographic availability refer to http://www.hp.com/go/mobileconnect.

[65] HP Workwise smartphone app is available as a free download on the App Store and Google Play. See requirements at www.hp.com/go/workwise.

[66] Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming media players that also support Miracast. You can use Miracast to share what you're doing on your PC and present a slide show. For more information: http://windows.microsoft.com/en-us/windows-8/project-wireless-screen-miracast.

[67] Skype is not offered in China.

MIL-STD 810G Testing

[68] MIL STD 810G testing is conducted on select HP products. Testing is not intended to demonstrate fitness for U.S. Department of Defense (DoD) contract requirements or for military use. Test results are not a guarantee of future performance under these test conditions. Accidental damage or damage under these test conditions requires an optional HP Accidental Damage Protection Care Pack.

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