QuickSpecs

Overview

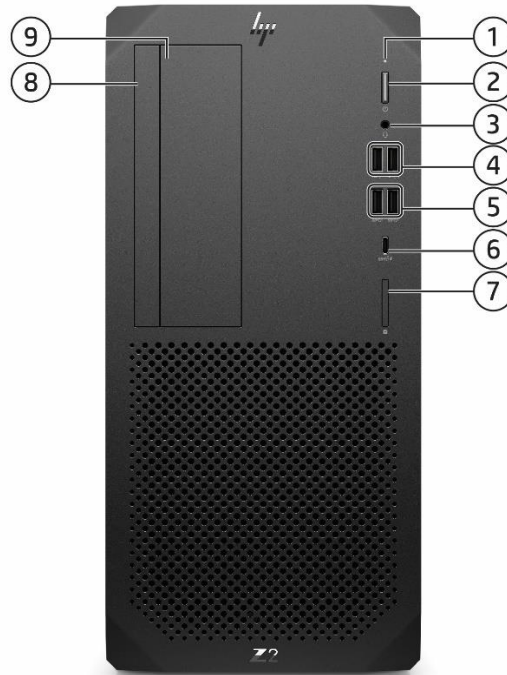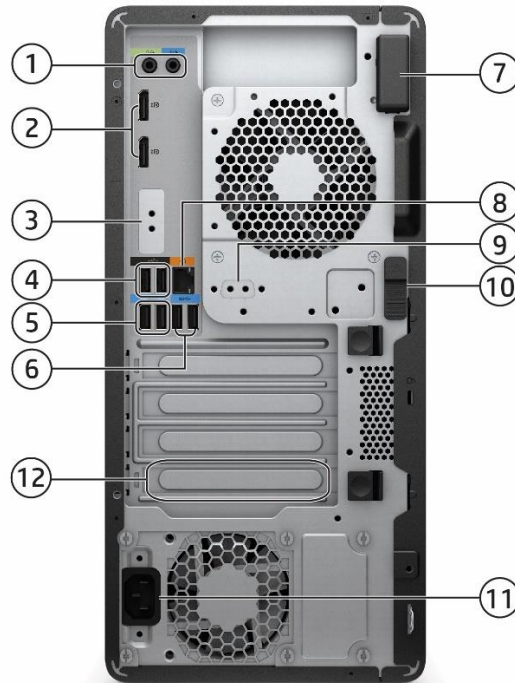### HP Z2 Tower G5 Workstation

front

1. HDD Activity LED

2. Power button
3. Universal audio jack (with CTIA & OMTP headset support)
4. 2 Type-A SuperSpeed USB 5 Gbps signaling rate port (1 charge supports up to 5V/2.1A)
5. 2 Type-A SuperSpeed USB 10Gbps signaling rate port

6. 1 Type-C® SuperSpeed USB 10Gbps signaling rate port (optional, charge supports up to 5V/3A)
7. SD card reader 4.0 (optional)
8. Slim ODD bay
9. External 5.25" bay

Overview

rear

1. 1 Audio Line-in / Audio Line-out
2. 2 DisplayPort™ 1.4*
3. Flex IO modules, choice of:
   VGA, HDMI 2.0b, DisplayPort™ 1.4*, Dual Type-A SuperSpeed USB 5Gbps signaling rate port, 2nd 1GbE LAN, Type-C® SuperSpeed USB 10Gbps signaling rate port (Alt Mode)
4. 2 High-Speed USB 480Mbps signaling rate port
5. 2 Type-A SuperSpeed USB 10Gbps signaling rate port
6. 2 Type-A SuperSpeed USB 5Gbps signaling rate port

7. WLAN antenna (optional)
8. RJ-45
9. 2nd serial port (optional)
10. Release latch
11. Power connector
12. Type-C® Thunderbolt™ 3 Dual-port (optional)

Form Factor	Tower

Operating Systems   Preinstalled:
- Windows 11 Pro[2]
- Windows 11 Pro for Workstations[2]
- Windows 11 Home - HP recommends Windows 11 Pro for business [2]
- Windows 10 Pro[1,2]
- Windows 10 Pro for Workstations[1,2]
- Windows 10 Home - HP recommends Windows 11 Pro for business[1,2]
- Ubuntu 20.04 LTS[3]
- Linux®-ready[4]
- Red Hat® Enterprise Linux® Desktop Workstation (Paper license with 1-year support; no preinstalled OS)

Overview

Web-supported only:
- Windows 10 Enterprise 64[2]

Supported Version:
- HP tested Windows 10, version 1809 on this platform. For testing information on newer versions of Windows 10, please see: https://support.hp.com/document/c05195282.
- Red Hat® Enterprise Linux® Workstation 8
- SUSE Linux® Enterprise Desktop 15

[1] Device comes with Windows 10 and a free Windows 11 upgrade or may be preloaded with Windows 11. Upgrade timing may vary by device. Features and app availability may vary by region. Certain features require specific hardware (see Windows 11 Specifications).

[2] 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 is automatically updated and enabled. High speed internet and Microsoft account required. ISP fees may apply and additional requirements may apply over time for updates. See http://www.windows.com.

NOTE: Your product does not support Windows 8 or Windows 7. 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. A full list of HP products and the Windows 10 versions tested is available on the HP support website. https://support.hp.com/us-en/document/c05195282

All onboard Display support DP1.4/HBR2 when video output is via Intel Graphics.

[3] Not all features are available in all editions or versions of Ubuntu. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS to take full advantage of Ubuntu functionality. Ubuntu may be automatically updated. ISP fees may apply, and additional requirements may apply over time for updates.

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

NOTE: In accordance with Microsoft's support policy, HP does not support the Windows® 7 operating system on products configured with Intel® 7th Generation and forward processors.

Processors

Name	Cores	Clock Speed (GHz)	Cache (MB)	Memory Speed (MT/s)	Hyper-Threading	Integrated Graphics	Intel® Turbo Boost Technology[3]	Featuring Intel® vPro® Technology[4]	16GB Intel® Optane™ memory[2]	TDP (W)
Intel® Core™ i9-10900K Processor	10	3.7	20	2933	Y	Intel® UHD Graphics 630	5.2	Y	Y	125
Intel® Core™ i9-10900 Processor	10	2.8	20	2933	Y	Intel® UHD Graphics 630	5.1	Y	Y	65
Intel® Core™ i9-10900F Processor	10	2.8	20	2933	Y	N/A	5.1	Y	Y	65
Intel® Core™ i9-10850K Processor	10	3.6	20	2933	Y	Intel® UHD Graphics 630	5.2	N/A	Y	125
Intel® Core™ i7-10700K Processor	8	3.8	16	2933	Y	Intel® UHD Graphics 630	5.1	Y	Y	125
Intel® Core™ i7-10700 processor	8	2.9	16	2933	Y	Intel® UHD Graphics 630	4.8	Y	Y	65

Overview

Intel® Core™ i5-10600K processor	6	4.1	12	2666	Y	Intel® UHD Graphics 630	4.8	Y	Y	125
Intel® Core™ i5-10600 processor	6	3.3	12	2666	Y	Intel® UHD Graphics 630	4.8	Y	Y	65
Intel® Core™ i5-10500 processor	6	3.1	12	2666	Y	Intel® UHD Graphics 630	4.5	Y	Y	65
Intel® Core™ i5-10400 processor	6	2.9	12	2666	Y	Intel® UHD Graphics 630	4.3	Y	Y	65
Intel® Core™ i5-10400F processor6	6	2.9	12	2666	Y	N/A	4.3	Y	Y	65
Intel® Core™ i3-10320 processor6	4	3.8	8	2666	Y	Intel® UHD Graphics 630	4.6	Y	Y	65
Intel® Core™ i3-10300 processor	4	3.7	8	2666	Y	Intel® UHD Graphics 630	4.4	Y	Y	65
Intel® Core™ i3-10100 processor	4	3.60	6	2666	Y	Intel® UHD Graphics 630	4.3	Y	Y	65
Intel® Xeon® W-1290P processor	10	3.7	20	2933	Y	Intel® UHD Graphics	5.2	Y	Y	125
Intel® Xeon® W-1290 processor6	10	3.2	20	2933	Y	Intel® UHD Graphics	5.1	Y	Y	80
Intel® Xeon® W-1270P processor6	8	3.8	16	2933	Y	Intel® UHD Graphics	5.1	Y	Y	125
Intel® Xeon® W-1270 processor	8	3.4	16	2933	Y	Intel® UHD Graphics	5.0	Y	Y	80
Intel® Xeon® W-1250P processor	6	4.1	12	2666	Y	Intel® UHD Graphics	4.8	Y	Y	125
Intel® Xeon® W-1250 processor	6	3.3	12	2666	Y	Intel® UHD Graphics	4.7	Y	Y	80

1. Multicore is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. Intel's numbering, branding and/or naming is not a measurement of higher performance.

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

3. The specifications shown in the Intel® Turbo Boost Technology column represent the maximum turbo frequency with one core active. Turbo boost stepping occurs in 100MHz increments. Processors that do not have turbo functionality are denoted as N/A. Intel® Turbo Boost performance varies depending on hardware, software and overall system configuration. See http://www.intel.com/technology/turboboost for more information

4. For full Intel® vPro™ functionality, Windows 10 Pro 64 bit, a vPro supported processor, vPro enabled chipset, vPro enabled wired LAN and/or WLAN card and TPM 2.0 are required. Some functionality requires additional 3rd party software in order to run. See http://intel.com/vpro

6. Available in Q4, 2020

Color   Black
Convertibility   No

QuickSpecs

HP Z2 Tower G5 Workstation

Overview

Expansion Slots (see system board section for more details)	Slot 1: PCIe Gen3 x16 Slot 2: PCIe Gen3 x1 - with x4 Connector Slot 3: PCIe Gen3 x1 - with x4 Connector Slot 4: PCIe Gen3 x4 - with x16 Connector
Expansion Bays (see storage section for more details)	2 internal 3.5" bays 1 external 5.25" bay 1 internal 2.5" bay (for SSD only) 1 dedicated 9.5mm slim optical disk drive bay
Front I/O	2 Type-A SuperSpeed USB 5Gbps signaling rate port, 2 Type-A SuperSpeed USB 10Gbps signaling rate port, 1 Type-C® SuperSpeed USB 10Gbps signaling rate port (optional), 1 SD card reader 4.0 (optional), 1 universal audio jack
Internal I/O	1 Hi-Speed USB 480Mbps signaling rate port
Rear I/O	2 DisplayPort™ 1.4, 1 Audio Line in/out, 1 RJ-45, 2 Hi-Speed USB 480Mbps signaling rate port, 2 Type-A SuperSpeed USB 10Gbps signaling rate port, 2 Type-A SuperSpeed USB 5Gbps signaling rate port, 1 serial port (optional), 1 serial and PS/2 combo (optional), 1 Flex I/O port (choice of VGA, HDMI 2.0b, DisplayPort™ 1.4, Type-C® SuperSpeed USB 10Gbps signaling rate port (Alt mode), Dual Type-A SuperSpeed USB 5Gbps signaling rate port, 2nd 1GbE LAN), Thunderbolt™ 3 (40Gbs signaling rate port, optional, cabled to PCIe AIC) **NOTE:** All DisplayPort™ support DP1.4/HBR2 when video output is via Intel Graphics.
Interfaces Supported	SD Media Card Reader (optional)
On-board RAID Support	RAID 0 RAID 1
Chassis Dimensions (H x W x D)	H: 14" [356mm] W: 6.7" [169mm] D: 15.2" [385mm]
Packaged Dimensions	H: 20.39" (518mm) W: 11.61" (295mm) D: 19.29" (490mm)
Rack Dimensions	4U
Weight	Exact weights depend upon configuration (System weight only). Starting at 7kg (15.43lbs.)
Temperature	Operating: 5° to 35° C (40° to 95° F) Above 1524 m (5,000 feet) altitude, the maximum operating temperature is reduced by 1° C (1.8° F) for every 305 m (1,000 feet) increase in elevation Non-operating: -40° to 60° C (-40° to 140° F) Maximum rate of change: 10°C/hr
Humidity	Operating: 10% to 85% RH, non-condensing, 35° C maximum wet bulb Non-operating: 10% to 90% RH, non-condensing, 35° C maximum wet bulb
Maximum Altitude (non-pressurized)[6]	Operating (with Rotational Hard Drives): 3,048 m (10,000 feet) Operating (with only Solid-State Drives): 5,000 m (16,404 feet) Non-operating: 12,192 m (40,000 feet) Maximum operating temperature is reduced as altitude increases. See Temperature for details.

QuickSpecs

HP Z2 Tower G5 Workstation

Overview

Power Supply	700W wide-ranging, active Power Factor Correction, 92% Efficiency. 500W wide-ranging, active Power Factor Correction, 90% Efficiency. 350W wide-ranging, active Power Factor Correction, 92% Efficiency.

NOTE: The Power Supply Efficiency Report for the 700W 92% Efficiency, 500W 90% Efficiency and 350W 92% Efficiency Power Supply may be found at the following links:

700W PSU:
The power delivery system includes two 6+2-pin graphics power cables.
https://www.plugloadsolutions.com/80PlusPowerSuppliesDetail.aspx?id=0&type=2

500W PSU:
The power delivery system includes two 6+2-pin graphics power cables.
https://www.plugloadsolutions.com/80PlusPowerSuppliesDetail.aspx?id=0&type=2

350W PSU:
The power delivery system does not include graphics power cables.
https://www.plugloadsolutions.com/80PlusPowerSuppliesDetail.aspx?id=0&type=2

Backup Devices	For a complete listing of compatible DAT tape drives, LTO tape drives and RDX Removable Disk Backup System offerings, please visit http://www.hp.com/go/connect
Chipset	Intel® W480 chipset

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Supported Components

Processors	Factory Configured	Option Kit	Option Kit Part Number	Support Notes
10th Generation Intel® Core Processors[1]				
Intel® Core™ i9-10900K processor	Y	N		
Intel® Core™ i9-10900 processor	Y	N		
Intel® Core™ i9-10900F processor	Y	N		1
Intel® Core™ i9-10850K Processor	Y	N		
Intel® Core™ i7-10700K processor	Y	N		
Intel® Core™ i7-10700 processor	Y	N		
Intel® Core™ i5-10600K processor	Y	N		
Intel® Core™ i5-10600 processor	Y	N		
Intel® Core™ i5-10500 processor	Y	N		
Intel® Core™ i5-10400 processor	Y	N		
Intel® Core™ i5-10400F processor	Y	N		1
Intel® Core™ i3-10320 processor	Y	N		2
Intel® Core™ i3-10300 processor	Y	N		2
Intel® Core™ i3-10100 processor	Y	N		
Intel® Xeon® W Processors				
Intel® Xeon® W-1290P processor	Y	N		
Intel® Xeon® W-1290 processor	Y	N		2
Intel® Xeon® W-1270P processor	Y	N		2
Intel® Xeon® W-1270 processor	Y	N		
Intel® Xeon® W-1250P processor	Y	N		
Intel® Xeon® W-1250 processor	Y	N		

[1]These processors support only non-ECC memory
NOTE 1: No iGfx. A discrete graphics card must be purchased at the same time. Avaialble in Q4, 2020
NOTE 2: Available in Q4, 2020

SATA Hard Drives	Factory Configured	Option Kit	Option Kit Part Number
500GB SATA 7200 rpm 6Gb/s 3.5" HDD	Y	Y	LQ036AA
1TB SATA 7200 rpm 6Gb/s 3.5" HDD	Y	Y	LQ037AA
2TB SATA 7200 rpm 6Gb/s 3.5" HDD	Y		
1TB SATA 7200 rpm 6Gb/s 3.5" HDD (Enterprise Class)	Y	Y	W0R10AA
2TB SATA 7200 rpm 6Gb/s 3.5" HDD (Enterprise Class)	Y	Y	2Z274AA
4TB SATA 7200 rpm 6Gb/s 3.5" HDD (Enterprise Class)	Y	Y	K4T76AA
8TB SATA 7200 rpm 6Gb/s 3.5" HDD (Enterprise Class)	Y	Y	2Z273AA
500GB SATA 7.2K SED SFF HDD	Y	Y	D8N29AA

SATA Solid State Drives	Factory Configured	Option Kit	Option Kit Part Number
HP 256GB SATA 6Gb/s SSD	Y		A3D26AA
HP 512GB SATA 6Gb/s SSD	Y		D8F30AA
HP 1TB SATA 6Gb/s SSD	Y		F3C96AA
HP 2TB SATA 6Gb/s SSD	Y		Y6P08AA/AT

Supported Components

	HP 256GB SATA 6Gb/s SED Opal 2 SSD	Y		G7U67AA
	HP 512GB SATA 6Gb/s SED Opal 2 SSD	Y		N8T26AA
PCIe Solid State Drives	**PCIe SSDs for HP Workstations**			
	HP ZTurbo 1TB TLC Z2 G5 TWR/SFF SSDKit	Y	Y	141L5AA/AT
	HP ZTurbo 256GB SED Z2 G5 TWR/SFF SSDKit	Y	Y	141L8AA/AT
	HP ZTurbo 256GB TLC Z2 G5 TWR/SFF SSDKit	Y	Y	141L7AA/AT
	HP ZTurbo 2TB TLC Z2 G5 TWR/SFF SSDKit	Y	Y	141M1AA/AT
	HP ZTurbo 512GB SED Z2 G5 TWR/SFF SSDKit	Y	Y	141M3AA/AT
	HP ZTurbo 512GB TLC Z2 G5 TWR/SFF SSDKit	Y	Y	141M5AA/AT
	HP Z Turbo 2TB SED OPAL2 TLC M.2 Z2 G5 TWR SSD	Y	Y	2Y7W5AA
	HP 2TB PCIe NVME TLC M.2 Z2 G5 TWR/SFF SSD	Y	Y	35F73AA

NOTE: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35GB is reserved for system recovery software.

QuickSpecs

HP Z2 Tower G5 Workstation

Supported Components

Hard Drive Controllers

	Factory Configured	Option Kit
Integrated SATA Controller (Z2 G5)		
Integrated SATA Controller, RAID 0,1 supported: 4x 6 Gb/s ports	Y	
Factory integrated RAID on motherboard for SATA drives		
RAID 0 Data Configuration	Y	
RAID 1 Data Configuration	Y	
Factory integrated RAID on motherboard for Z Turbo Drive		
RAID 0 Boot or Data Configuration	Y	
RAID 1 Boot or Data Configuration	Y	

NOTE: 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. All drives must be identical in type and capacity. Boot volume/RAID array must be less than 2 TB
NOTE: Requires identical drives (speeds, capacity, and interface).
NOTE: The HP Z2 Tower G5 Workstation is capable of configuring up to 2 Z Turbo Drives. By default, the Z Turbo Drive configured will be installed in the M.2 storage slot on the system's motherboard.
NOTE: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB (for Windows 10) of system disk is reserved for system recovery software.
NOTE: The HP Z2 Tower G5 Workstation is capable of configuring up to 2 Z Turbo Drives. By

Graphics

	Factory Configured	Option Kit	Option Kit Part Number	Supported # of cards
Graphics Cable Adapters				
HP USB-C to DisplayPort Adapter	Y	Y	4SH08AA	
HP USB-C to HDMI Adapter	Y	Y	4SH07AA	
HP USB-C to VGA Adapter	Y	Y	4SH06AA	
HP DisplayPort To DVI-D Adapter	Y	Y	FH973AA	
HP DisplayPort To VGA Adapter	Y	Y	AS615AA	
HP DisplayPort To HDMI True 4k Adapter	Y	Y	2JA63AA	
HP Single miniDP-to-DP Adapter Cable	Y	Y	2MY05AA	
Entry 3D				
NVIDIA® Quadro® P400 2GB Graphics	Y	Y	1ME43AA/AT[1]	2
NVIDIA® Quadro® P620 2GB Graphics	Y	Y	3ME25AA/AT[1]	2
NVIDIA® T400 2 GB GDDR6 LP Blower Fan 3mDP PCIe x16 Graphics	Y	Y	340K8AA	2
NVIDIA® T400 4 GB 3mDP Graphics	Y	Y	5Z7E0AA/AT	2
NVIDIA® T600 4 GB GDDR6 LP Blower Fan 4mDP PCIe x16 Graphics	Y	Y	340K9AA	2
Mid-range 3D				
NVIDIA® Quadro® T1000 4 GB 4mDP Graphics	Y	Y	20X22AA/AT	2
NVIDIA® Quadro® P1000 4GB Graphics	Y	Y	1ME01AA/AT[1]	2
NVIDIA® Quadro® P2200 5GB Graphics	Y	Y	6YT67AA/AT	2

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Supported Components

			Option Kit Part Number	Support Notes
NVIDIA RTX A2000 6 GB GDDR6 Blower Fan 4mDP PCIe x16 Graphics	Y	Y	340L0AA	1
AMD Radeon™ Pro WX 3200 4GB Graphics	Y	Y	6YT68AA/AT [1]	2
AMD Radeon Pro W6600 8 GB GDDR6 4DP Graphics	Y	Y	340K5AA	1
High End 3D				
NVIDIA® Quadro® RTX 4000 8GB Graphics	Y	Y	5JV89AA/AT	1
NVIDIA® RTX A4000 16 GB 4DP Graphics			20X24AA/AT	1
AMD Radeon™ Pro W5500 8GB Graphics[2]	Y	Y	9GC16AA/AT	1
AMD Radeon™ Pro W5700 8GB Graphics[2]	Y	Y	9GC15AA/AT	1
Ultra High-End 3D				
NVIDIA® Quadro® RTX 5000 16GB Graphics	Y	Y	5JH81AA/AT	1
NVIDIA® Quadro® RTX 6000 24GB Graphics	Y	Y	5JH80AA/AT	1

[1] Option kits include 2x miniDP-to-DP adapters
[2] Available in Q4, 2020

Memory	Factory Configured	Option Kit	Option Kit Part Number	Support Notes
HP 4GB (1x4GB) DDR4-3200 nECC UDIMM	Y			2, 3
HP 8GB (2x4GB) DDR4-3200 nECC UDIMM	Y			3
HP 8GB (1x8GB) DDR4-3200 nECC UDIMM	Y			2, 3
HP 8GB (1x8GB) DDR4-3200 ECC UDIMM	Y			1, 2, 3, 4
HP 16GB (2x8GB) DDR4-3200 nECC UDIMM	Y			3
HP 16GB (2x8GB) DDR4-3200 ECC UDIMM	Y			1, 3, 4
HP 16GB (1x16GB) DDR4-3200 nECC UDIMM	Y			2, 3
HP 16GB (1x16GB) DDR4-3200 ECC UDIMM	Y			1, 2, 3, 4
HP 24GB (3x8GB) DDR4-3200 nECC UDIMM	Y			3
HP 24GB (3x8GB) DDR4-3200 ECC UDIMM	Y			1, 3, 4
HP 32GB (4x8GB) DDR4-3200 nECC UDIMM	Y			3
HP 32GB (4x8GB) DDR4-3200 ECC UDIMM	Y			1, 3, 4
HP 32GB (2x16GB) DDR4-3200 nECC UDIMM	Y			3
HP 32GB (2x16GB) DDR4-3200 ECC UDIMM	Y			1, 3, 4
HP 32GB (1x32GB) DDR4-3200 nECC UDIMM	Y			2, 3
HP 32GB (1x32GB) DDR4-3200 ECC UDIMM	Y			1, 2, 3, 4
HP 64GB (4x16GB) DDR4-3200 nECC UDIMM	Y			3
HP 64GB (4x16GB) DDR4-3200 ECC UDIMM	Y			1, 3, 4
HP 64GB (2x32GB) DDR4-3200 nECC UDIMM	Y			3
HP 64GB (2x32GB) DDR4-3200 ECC UDIMM	Y			1, 3, 4
HP 128GB (4x32GB) DDR4-3200 nECC UDIMM	Y			3
HP 128GB (4x32GB) DDR4-3200 ECC UDIMM	Y			1, 3, 4

NOTES:

Supported Components

1 Intel® Xeon processors can support either ECC or non-ECC memory; Intel® Core™ only support non-ECC memory.

2 Two channels of DDR4 memory are supported. To realize full performance at least one DIMM must be inserted into each channel.

3 Max transfer rates up to 2933 MT/s

AMO

HP 4GB (1x4GB) DDR4-3200 nECC UDIMM	Y	Y	141J1AA/AT	
HP 8GB (1x8GB) DDR4-3200 nECC UDIMM	Y	Y	141J4AA/AT	
HP 8GB (1x8GB) DDR4-3200 ECC UDIMM	Y	Y	141J3AA/AT	1, 4
HP 16GB (1x16GB) DDR4-3200 nECC UDIMM	Y	Y	141H3AA/AT	
HP 16GB (1x16GB) DDR4-3200 ECC UDIMM	Y	Y	141H2AA/AT	1, 4
HP 32GB (1x32GB) DDR4-3200 nECC UDIMM	Y	Y	141H9AA/AT	
HP 32GB (1x32GB) DDR4-3200 ECC UDIMM	Y	Y	141H7AA/AT	1, 4

1 Intel® Xeon® processors can support either ECC or non-ECC memory; Intel® Core™ processors only support non-ECC memory.
2 Two channels of DDR4 memory are supported. To realize full performance at least one DIMM must be inserted into each channel.
3 The CPUs determine the speed at which the memory is clocked. If a 2666 MT/s capable CPU is used in the system, the maximum speed the memory will run at is 2666 MT/s regardless of the specified speed of the memory.
4 ECC or nECC memory availability depends on processor configuration.

Optical and Removable Storage	Factory Configured	Option Kit	Option Kit Part Number
HP 9.5mm Slim DVD Writer	Y	Y	4L5K0AA
HP DX175 Removable HDD Frame/Carrier	Y	Y	1ZX71AA
HP DX175 Removable HDD Spare Carrier	Y	Y	1ZX72AA
HP SD card reader Z2 TWR	Y	Y	141K3AA/AT
HP 9.5mm Slim BDXL Blu-Ray Writer	Y	N	
HP 9.5mm Slim DVD-ROM Drive	Y	Y	4L5K1AA

NOTE: 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 on this workstation.
NOTE: HD-DVD disks cannot be played on the DVD-ROM Drive. No support for DVD RAM.

Supported Components

Input Devices	Factory Configured	Option Kit	Option Kit Part Number
HP Premium Wireless Keyboard	Y	Y	Z9N41AA/AT
HP USB 320K Keyboard	Y	Y	9SR37AA
HP USB Business Slim Wired SmartCard CCID Keyboard	Y	N	
HP USB Premium Wired Keyboard PROMO	Y	Y	Z9N40AT
HP 320M Wired Mouse	Y	Y	9VA80AA
HP USB Premium Mouse	Y	Y	1JR32AA
HP Wireless Premium Mouse	Y	Y	1JR31AA
HP Promo PS/2 Mouse	N	Y	QY775AT
HP Wired Desktop 320MK Mouse and Keyboard	N	Y	9SR36AA
HP Creator 935 Black Wireless Mouse	N	Y	1D0K8AA

Other Hardware	Factory Configured	Option Kit	Option Kit Part Number
HP Thunderbolt 3 PCIe Card Z2 Tower	Y	Y	141M7AA
HP Z2 Internal Serial Port and PS/2 Port	Y	Y	141K9AA/AT
HP Z2 Power Cord Kit	Y	Y	1N1D5AA
HP Z2 2nd serial port adapter	Y	Y	141K8AA/AT
HP Z2 Tower Dust Filter	Y	Y	141L2AA/AT
HP Z2 Tower Dust Filter and bezel	Y	Y	141L3AA/AT
HP 800/600/400 G3 Serial/ PS/2 Adapter	Y	Y	1VD82AA
HP PCIe x1 Parallel Port Card	N	Y	N1M40AA
HP DP Flex Port 2020	Y	Y	141J7AA/AT
HP 1GbE LAN Flex Port 2020	Y	Y	141J6AA/AT
HP Dual USB-A 3.2 Gen1 Flex 2020	Y	Y	141J8AA/AT
HP Front USB-C 3.2 Gen2 2020 TWR	Y	Y	141K0AA
HP HDMI Flex Port 2020	Y	Y	141K1AA/AT
HP USB-C 3.2 Gen2 Alt Flex Port 2020	Y	Y	141K6AA/AT
HP VGA Flex Port 2020	Y	Y	141K7AA/AT
HP Z2 Tower PCIe Card Holder/Blower Kit		Y	2B1D4AA

Networking and Communications	Factory Configured	Option Kit	Option Kit Part Number
Integrated Intel® I219LM PCIe GbE Controller (Intel® vPro® with Intel® AMT 12.0)	Y	N	
Aquantia AQN-108 1-Port 5GbE NIC	Y	Y	1PM63AA
HP 10GbE SFP+ SR Tranceiver	Y	Y	C3N53AA
Intel Ethernet I350-T4 4-Port 1Gb NIC	N	Y	W8X25AA
Intel X550 10GBASE-T Dual Port NIC	Y	Y	1QL46AA
Intel X710-DA2 10GbE SFP+ DP NIC	Y	Y	1QL47AA
Intel® AX201 802.11 a/b/g/n/ac/ax WLAN + Bluetooth 5.0 M.2 NIC	Y	N	
HP Flex 1GbE Fiber LC Single Port	Y	Y	20J15AA
Intel I210-T1 Single Port x1 PCIe NIC	Y	Y	E0X95AA

NOTE 1: The integrated network connection is required to support Intel® vPro™ Technology.

Supported Components

NOTE 2: If AMT is provisioned, then network teaming with the integrated LAN port is not possible.
NOTE 3: "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

Racking and Physical Security	Factory Configured	Option Kit	Option Kit Part Number
HP Z2 Mini and Z2/Z4/Z6 TWR Depth Adjustable Fixed Rail Rack Kit	Y	Y	2A8Y5AA
HP Keyed Cable Lock	N	Y	T1A62AA
HP Master Keyed Cable Lock 10mm	N	Y	T1A63AA
HP Business PC Security Lock V3 Kit	N	Y	3XJ17AA

Software	Factory Configured	Option Kit	Support Notes
HP Performance Advisor	Y	N	1
HP PC Hardware Diagnostics UEFI (Windows OS only)	Y	N	2
HP PC Hardware Diagnostics Windows	Y	N	
HP Sure Sense	Y	N	
HP Notifications	Y	N	
HP Desktop Support Utility	Y	N	
HP Documentation	Y	N	
HP Image Assistant	N	N	
HP Support Assistant	N	N	

1. Supports, and preinstalled with Windows 10 and Windows 11 only. Also available as a free download from http://www.hp.com/go/performanceadvisor
2. Windows OS only

Application Software	Factory Configured	Option Kit	Support Notes
Sobey Video Editing SW	Y	N	China only
HP ZCentral Remote Boost	N	N	
Data Science Stack	Y	N	1,2
WSL2/Ubuntu Data Science Stack	Y	N	1,3

*Not all Application Software for Z Desktop Workstations is included with purchase.
Note 1: Only available with NVIDIA graphics cards selections.
Note 2: Only available with Ubuntu 20.04 LTS preinstall.
Note 3: Only available with Windows 10 Pro/Pro for Workstations or Windows 11 Pro/Pro for Workstations.

Supported Components

Operating Systems   Windows 11 Pro[2]

Windows 11 Pro for Workstations[2]

Windows 11 Home - HP recommends Windows 11 Pro for business [2]

Windows 10 Pro[1,2]

Windows 10 Pro for Workstations[1,2]

Windows 10 Home - HP recommends Windows 11 Pro for business [1,2]

Ubuntu 20.04 LTS

Linux Ready

Red Hat Enterprise Linux (RHEL) Workstation – Paper license (1 yr)

NOTE 1: Device comes with Windows 10 and a free Windows 11 upgrade or may be preloaded with Windows 11. Upgrade timing may vary by device. Features and app availability may vary by region. Certain features require specific hardware (see Windows 11 Specifications).

NOTE 2: 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 is automatically updated and enabled. High speed internet and Microsoft account required. ISP fees may apply and additional requirements may apply over time for updates. See http://www.windows.com.

1. For detailed OS/hardware support information for Linux, see: http://www.hp.com/support/linux_hardware_matrix

Supported Components

HP BIOS

Key features of the HP BIOS include:

- Deployment and manageability – HP BIOS provides several technologies that help integrate the HP Z2 G5 Workstation into the enterprise, such as PXE, remote recovery, remote configuration, remote control, and BIOS (F10) Setup support for 14 languages.
- Network firmware updates – Update your BIOS via the cloud or standardize on a BIOS version hosted on an Enterprise network.
- Stability – HP BIOS supports the HP stable product roadmap by releasing only critical BIOS changes to the factory and advanced change notification.
- Class 3 UEFI specification version 2.6
- Absolute Persistence agent – For tracking and tracing services, available in select countries, separate software and purchase of a subscription is required.
- Thermal and power management – The HP BIOS provides and enables thermal and power management technologies so component temperatures are managed for high reliability and to assist in operating the HP Workstation computer in any enterprise environment.
- Acoustic performance – Industry leading acoustic emissions across the range of operating conditions.
- Serviceability – HP BIOS provides diagnostic and detailed service information.
- Upgrades and recovery – HP BIOS provides numerous ways to upgrade HP Workstation computers, including BIOS updates from within Windows (HP Firmware Update and Recovery), HP Client Manager, and fail-safe recovery. In addition, the HP BIOS Configuration Utility enables replication of BIOS settings within Windows while the Replicated Setup feature provides the same capability within BIOS (F10) Setup. The BIOS Configuration Utility is available from the HP support website.
- HP BIOS uses PKI signing of the BIOS for trusted BIOS upgrades and recovery.

   Additional HP BIOS Features:
- Power-On password – Helps prevent an unauthorized user from powering on the system.
- Administrator password – Also known as the BIOS Setup password, this helps prevent unauthorized changes to the system configuration. If the administrator password is not known, the BIOS cannot be updated and changes cannot be made to BIOS settings using BIOS Setup or under the OS.
- S4/S5 Maximum Power Savings setting supports EU Lot6 requirement and allows the computer to power down below 0.5W in S4/S5 (when turned off). When S4/S5 Maximum Power Savings feature is enabled below features are turned off:
   -Power to expansion connectors / slots
   -Wake events other than power buttons (such as wake on LAN)
   -USB charging ports

   HP Sure Start Gen6
- BIOS Integrity checking – Sure Start protection ensures that only trusted BIOS code is executed and not rootkits, viruses and malware. Verification is done upon boot up, shutdown and while the system is on.
- Sure Start is set by default to automatically repair the BIOS if corrupted or compromised but is policy driven for better manageability. Start is set by default to automatically repair the BIOS if corrupted or compromised but is policy driven for better manageability.
- Protecting beyond BIOS – Integrity checking and repair is extended to other data that should be protected such as network configuration parameters, platform specific information (i.e. system IDs), secure boot credentials, and other code the system needs to boot.

Supported Components

- Audit enabled – System Audit via Sure Start Event Logs capture data such as incident, repair date and time for troubleshooting and investigating

HP Sure Start Gen6 is available on select HP PCs and requires Windows 10 or Windows 11.

SOFTWARE COMPONENTS AND APPLICATIONS WITH WINDOWS

BIOS
HP BIOSphere Gen6[39]
BIOS Update via Network
HP Secure Erase[40]
Absolute Persistence Module[41]
Pre-boot Authentication
HP Wake on WLAN
HP DriveLock & Automatic DriveLock

Software
HP Support Assistant
HP Image Assistant
HP Desktop Support Utility
HP Documentation
HP Notifications
HP PC Hardware Diagnostics UEFI
HP PC Hardware Diagnostics Windows
HP Performance Advisor[24]
ZCentral Remote Boost[28]
HP Smart Support[42]

Manageability Features
HP Driver Packs[22]
HP System Software Manager (SSM)
HP BIOS Config Utility (BCU)
HP Manageability Integration Kit Gen4[23]

Client Security Software
HP Client Security Manager Gen6 [25] including:
(including Credential Manager, HP Password Manager[26], HP Spare Key)
HP Sure Run Gen3[35]
HP Power On Authentication
Microsoft Defender[27]

Security Management
HP Sure Click[38]
HP Sure Start Gen6
HP Sure Sense[29]
HP Sure Recover Gen3[36]

[22] HP Driver Packs not preinstalled, however available for download at http://www.hp.com/go/clientmanagement.
[23] HP Manageability Integration Kit can be downloaded from
http://www8.hp.com/us/en/ads/clientmanagement/overview.html
[24] HP Performance Advisor Software - HP Performance Advisor is ready and waiting to help you get the most out of your HP Workstation from day one—and every day after. Learn more or download at:
https://www8.hp.com/us/en/workstations/performance-advisor.html

Supported Components

[25] HP Client Security Manager Gen6 requires Windows and is available on the select HP Elite and Pro PCs.

[26] HP Password Manager requires Internet Explorer or Chrome or FireFox. Some websites and applications may not be supported. User may need to enable or allow the add-on / extension in the internet browser.

[27] Microsoft Defender Opt in and internet connection required for updates.

[28] HP Z Central Remote Boost Software does not come preinstalled on Z Workstations but can be downloaded and run on all Z desktop and laptops without license purchase. With non-Z sender devices, purchase of perpetual individual license or perpetual floating license per simultaneously executing versions and purchase of ZCentral Remote Boost Software Support is required. Zcentral Remote Boost requires Windows, RHEL (7 or 8), UBUNTU 18.04 LTS, or HP ThinPro 7 operating systems. MacOS (10.13 or newer) operating system is only supported on the receiver side. Requires network access. The software is available for download at hp.com/ZCentralRemoteBoost.

[29] HP Sure Sense requires Windows 10/11 Pro or Enterprise. See product specifications for availability.

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

[36] HP Sure Recover Gen3 is available on select HP PCs and requires an open network connection. You must back up important files, data, photos, videos, etc. before using HP Sure Recover to avoid loss of data.

[38] HP Sure Click requires Windows 10/11 Pro or Enterprise. See https://bit.ly/2PrLT6A_SureClick for complete details.

[39] HP BIOSphere Gen6 Features may vary depending on the platform and configurations.

[40] HP Secure Erase for the methods outlined in the National Institute of Standards and Technology Special Publication 800-88 "Clear" sanitation method. HP Secure Erase does not support platforms with Intel® Optane™.

[41] 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.

[42] HP Smart Support is available to commercial customers through your HP Service Representative and HP Factory Configuration Services; or it can be downloaded at: http://www.hp.com/smart-support. HP Smart Support automatically collects the telemetry necessary upon initial boot of the product to deliver device-level configuration data and health insights.

QuickSpecs

HP Z2 Tower G5 Workstation

System Technical Specifications

System Board

System Board Form Factor	Customized PCB
Processor Socket	Single LGA-1200
CPU Bus Speed	DMI
Chipset	Intel® PCH W480
Super I/O Controller	Nuvoton SIO18
Memory Expansion Slots	4 DDR4 memory slots
Memory Type Supported	DDR4, UDIMM (Unbuffered), ECC& non-ECC
Memory Modes	Non-Interleaved for single channel. Interleaved when both channels are populated.
Memory Speed Supported	2933MT/s DDR4
Memory Protection	ECC available on data
Maximum Memory	128GB
Memory Configuration (Supported)	4GB, 8GB 16GB and 32GB non-ECC/8GB, 16GB and 32GB ECC unbuffered DIMMs are supported. ECC and non-ECC memory DIMMs cannot be mixed in the same system

PCI Express Connectors	1 PCI Express Gen3 slot x16 mechanical/ x16 electrical (full height, full length) 1 PCI Express Gen3 slot x4 mechanical/ x1 electrical (full height, full length, open-ended) 1 PCI Express Gen3 slot x4 mechanical/ x1 electrical (full height, full length, open-ended) 1 PCI Express Gen3 slot x16 mechanical/ x4 electrical (full height, full length) 2 M.2 2280 Storage (PCIe Gen3 x4) 1 M.2 2230 WLAN (PCIe Gen3 x1+ Intel CNVi) In the PCIe Gen3 (x16 electrical/x16 mechanical) slot, it intent to supported HP certified added in card.

Supported Drive Interfaces		
	SATA	Integrated (4) Serial ATA interfaces (6Gb/s SATA). RAID 0 and 1 supported. Factory integrated RAID for Microsoft Windows only.
	Serial Attached SCSI	None
	Integrated Graphics	Intel® UHD Graphics 630 (on Core i3/i5/i7/i9-10xxx processors); Intel® Integrated Graphics P630 for Xeon processors Based on Unified Memory Architecture (UMA) - a region of system memory is reserved and dedicated to the graphics display. Support for Microsoft DirectX 12, OpenGL 4.5 and OpenCL 2.1 on Intel® UHD Graphics P630; Based on Unified Memory Architecture (UMA) - a region of system memory is reserved and dedicated to the graphics display. Support for Microsoft DirectX 12, OpenGL 4.5 and OpenCL 2.1 on Intel® UHD Graphics P630;

System Technical Specifications

		3 DP 1.4 graphics ports integrated in motherboard; Supports up to three simultaneous displays across DisplayPort™/HDMI*/DVI outputs.
		Max. resolution supported on DP 1.4 ports: 4096x2304 @ 60Hz,
		24bpp
	Network Controller	Integrated Ethernet PHY Connection I219LM. Management capabilities: WOL, PXE 2.1 and AMT 12
	Serial	Yes- requires optional Serial Port Adapter Kit
	2nd Serial	Yes- requires optional Serial Port Adapter Kit
	HD Integrated Audio	Yes
USB Connector(s)	**Front**	2 Type-A SuperSpeed USB 5Gbps signaling rate port (1 charge supports up to 5V/2.1A); 2 Type-A SuperSpeed USB 10Gbps signaling rate port; 1 Type-C® SuperSpeed USB 10Gbps signaling rate port (optional, charge supports up to 5V/3A)
	Rear	2 High-speed USB 480Mbps signaling rate port; 2 Type-A SuperSpeed USB 5Gbps signaling rate port; 2 Type-A SuperSpeed USB 10Gbps signaling rate port; 1 Type-C® SuperSpeed USB 10Gbps signaling rate Alt mode port (optional via Flex)
	Internal	1 High-Speed USB 480Mbps signaling rate port
HD Integrated Audio	Yes	
Flash ROM	Yes	
CPU Fan Header	Yes	
Memory Fan Header	None	
Chassis Fan Header	1 Rear System Chassis Fan Header, 1 Graphic chassis Fan Header.	
Front PCI Fan Header	None	
Front Control Panel/Speaker Header	Yes	
CMOS Battery Holder - Lithium	Yes	
Integrated Trusted Platform Module	Integrated TPM 2.0 Convertible to FIPS 140-2 Certified mode through firmware v7.85 The TPM module disabled where restricted by law, i.e. Russia.	
Power Supply Headers	Yes	
Power Switch, Power LED & Hard Drive LED Header	Yes	
Clear Password Jumper	None	
Keyboard/Mouse	USB or PS/2 (option)	
Power Supply	700W EPA92, 500W EPA90 and 350W EPA92	

[1]Maximum memory capacities assume 64-bit operating systems, such as Genuine Windows® 10 Professional 64 bit, Red Hat Linux 64-bit. 32-bit Windows Operating Systems support up to 4 GB.
[2]M.2 storage supports compatible devices up to 80mm

QuickSpecs

System Technical Specifications

PCIe Hold-down / Blower Kit Specification

Please refer to section Supported Components - Graphics for supported cards list.

Performance Class	Product Name	Slots space Required	Max Card Count	Number of Cards Require PCIe Hold-down / Blower Kit
High	NVIDIA® Quadro® RTX™ 6000	2	1	1
	NVIDIA® Quadro® RTX™ 5000	2	1	1
	NVIDIA® Quadro® RTX™ 4000	2	1	1
	AMD Radeon™ Pro W5700	2	1	1
Mid-Range	AMD Radeon™ Pro W5500	1	1	1
	NVIDIA® Quadro® P2200	1	2	1
	NVIDIA® Quadro® P1000	1	2	2
	AMD Radeon™ Pro WX 3200	1	2	2
	NVIDIA® Quadro® T1000	1	2	2
Entry	NVIDIA® Quadro® P620	1	2	2
	NVIDIA® Quadro® P400	1	2	3

QuickSpecs

System Technical Specifications

System Configurations

Example Configuration #1	**Processor Info**	CPU I Core i5-10400 2.9GHz 6C65W
	Memory Info	8GB (1x 8GB) 2666 MHz DDR4 non-ECC
	Graphics Info	Intel® UHD Integrated Graphics 630
	Disks/Optical/Floppy	1x SATA 1TB 7.2k rpm / 1x 9.5mm Slim ODD
	PSU	350W
	Other	

Energy Consumption (Watts)		115 VAC		230 VAC		100 VAC	
		LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled
	Windows long Idle (S0)	12.3		10.872		11.564	
	Windows short Idle (S0)	13.599		12.504		13.423	
	Windows Busy Typ (S0)	94.399		92.031		96.542	
	Windows Busy Max (S0)	112.35		109.536		114.513	
	Sleep (S3)	0.774	0.805	0.766	0.803	0.759	0.808
	Off (S5)	0.505	0.504	0.51	0.51	0.512	0.508
	Zero Power Mode (EuP)	0.21		0.221		0.276	

Heat Dissipation (Btu/hr)		115 VAC		230 VAC		100 VAC	
		LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled
	Windows Idle (S0)	41.967		37.095		39.456	
	Windows short Idle (S0)	46.399		42.663		45.799	
	Windows Busy Typ (S0)	322.089		314.009		329.401	
	Windows Busy Max (S0)	383.338		373.736		390.718	
	Sleep (S3)	2.64	2.746	2.613	2.739	2.589	2.756
	Off (S5)	1.723	1.719	1.74	1.74	1.746	1.733
	Zero Power Mode (EuP)	0.716		0.754		0.941	

Example Configuration #2	**Processor Info**	CPU I Core i7-10700 2.9GHz 8C65W
	Memory Info	16GB (2x 8GB) 2666 MHz DDR4 non-ECC
	Graphics Info	P2200 Graphics
	Disks/Optical/Floppy	1x SATA 256GB SSD / 1x 9.5mm Slim ODD
	PSU	500W
	Other	

Energy Consumption (Watts)		115 VAC		230 VAC		100 VAC	
		LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled
	Windows long Idle (S0)	13.976		13.668		13.856	
	Windows short Idle (S0)	15.331		15.818		15.322	
	Windows Busy Typ (S0)	165.25		147.41		167.52	
	Windows Busy Max (S0)	197.41		183.52		190.23	
	Sleep (S3)	0.843	0.883	0.839	0.871	0.851	0.865
	Off (S5)	0.509	0.506	0.511	0.509	0.512	0.508
	Zero Power Mode (EuP)	0.21		0.222		0.224	

		115 VAC	230 VAC	100 VAC

System Technical Specifications

		LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled
Heat Dissipation (Btu/hr)	Windows Idle (S0)	47.686		46.635		47.276	
	Windows short Idle (S0)	52.309		53.971		52.278	
	Windows Busy Typ (S0)	563.883		502.912		571.578	
	Windows Busy Max (S0)	673.562		626.171		649.065	
	Sleep (S3)	2.876	3.012	2.862	2.917	2.903	2.951
	Off (S5)	1.73	1.726	1.743	1.736	1.746	1.733
	Zero Power Mode (EuP)	0.716		0.757		0.764	

System Technical Specifications

Example Configuration #3	Processor Info	CPU Xeon W-1270P 3.8GHz 8C125W
	Memory Info	128GB (4x 32GB) 2666 MHz DDR4 ECC
	Graphics Info	RTX6000 Graphics
	Disks/Optical/Floppy	1x SATA 1TB SSD Z Turbo
	PSU	700W
	Other	

Energy Consumption (Watts)		115 VAC		230 VAC		100 VAC	
		LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled
	Windows long Idle (S0)	17.623		17.283		17.552	
	Windows short Idle (S0)	19.313		18.848		18.846	
	Windows Busy Typ (S0)	245.58		238.68		248.88	
	Windows Busy Max (S0)	275.45		266.79		272.89	
	Sleep (S3)	0.958	0.869	0.981	0.836	0.965	0.852
	Off (S5)	0.628	0.506	0.623	0.512	0.624	0.509
	Zero Power Mode (EuP)	0.225		0.23		0.24	

Heat Dissipation (Btu/hr)		115 VAC		230 VAC		100 VAC	
		LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled
	Windows Idle (S0)	60.129		58.969		70.611	
	Windows short Idle (S0)	65.895		64.309		76.974	
	Windows Busy Typ (S0)	837.918		814.376		987.296	
	Windows Busy Max (S0)	939.835		910.287		1029.821	
	Sleep (S3)	6.762	6.489	6.707	6.213	6.796	6.752
	Off (S5)	2.238	1.729	1.76	1.743	2.125	1.746
	Zero Power Mode (EuP)	0.771		0.794		0.75	

Example Configuration #4	Processor Info	CPU Xeon W-1250 3.3GHz 6C80W
	Memory Info	16GB (2x 8GB) 2666 MHz DDR4 ECC
	Graphics Info	RTX5000 Graphics
	Disks/Optical/Floppy	1x SATA 1TB SSD Z Turbo
	PSU	700W
	Other	

Energy Consumption (Watts)		115 VAC		230 VAC		100 VAC	
		LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled
	Windows long Idle (S0)	17.623		17.283		17.552	
	Windows short Idle (S0)	19.313		18.848		18.846	
	Windows Busy Typ (S0)	245.58		238.68		248.88	
	Windows Busy Max (S0)	275.45		266.79		272.89	
	Sleep (S3)	0.958	0.869	0.981	0.836	0.965	0.852
	Off (S5)	0.628	0.506	0.623	0.512	0.624	0.509
	Zero Power Mode (EuP)	0.225		0.23		0.24	

System Technical Specifications

Heat Dissipation (Btu/hr)		115 VAC		230 VAC		100 VAC	
		LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled
	Windows Idle (S0)	60.129		58.969		59.887	
	Windows short Idle (S0)	65.895		64.309		64.302	
	Windows Busy Typ (S0)	837.918		814.376		849.178	
	Windows Busy Max (S0)	939.835		910.287		931.101	
	Sleep (S3)	3.268	2.965	3.347	2.852	3.292	2.907
	Off (S5)	2.258	1.726	2.125	1.749	2.129	1.736
	Zero Power Mode (EuP)	0.767		0.784		0.818	

System Technical Specifications

Operating Voltage Range	90-269 VAC
Rated Voltage Range	100-240 VAC
Rated Line Frequency	50-60 Hz
Operating Line Frequency Range	47-66 Hz
Rated Input Current	8.2A @ 100-240V (700W PSU) 6A @ 100-240V (500W PSU) 4.2A @ 100-240V (350W PSU)
Heat Dissipation	Typical: 444 btu/hr (112 kcal/hr) Maximum: 1484 btu/hr (374 kcal/hr)
Power Supply Fan	70mm x 70mm x 25mm 4-wire PWM
ENERGY STAR® certified (Config Dependent)	Yes
CECP Compliant @ 220V	Yes
FEMP Standby Power Compliant	Yes, with Wake-on-LAN disabled: <1W in S4/S5 - Power Off
Built-in Self Test (BIST) **LED**	Yes
Surge Tolerant Full Ranging Power Supply (withstands power surges up to 2000V)	Yes
Hood Lock Header	Yes
ErP Lot 6- Tier 1 Compliance @ 230V (<1W in S4/S5 - Power Off)	Yes
ErP Lot 6- Tier 2 Compliance @ 230V (<0.5W in S4/S5 - Power Off)	Yes

Declared Noise Emissions (Entry-level, Mid-level, and High-end configurations; tested on floor)			
System Configuration (Entry level)	**Processor Info**	I5-10600 COMET LAKE G-0 6c 65W MS2 vPro® QS QTLR	
	Memory Info	4*Samsung 32GB 2933 nECC DIMM [1]	
	Graphics Info	Intel® UHD	
	Disks/Optical/PSU	Samsung PM871b 1TB 6Gb/s SSD / No Optical / Chicony 700W PSU	
Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)		**Sound Power** (LWAd, bels)	**Deskside Sound Pressure** (LpAm, decibels)
	Idle	3.24	13.7
	Hard drive Operating (random reads)	3.44	16.9
	Hard drive Operating (active mode)	3.62	15.7
System Configuration (Entry level)	**Processor Info**	W-1250 COMET LAKE WS G-0 6c LGA 80W WE1 vPro® QS QTMD	
	Memory Info	4* Samsung 32GB 2933 nECC DIMM [1]	
	Graphics Info	NVIDIA® RTX5000	
	Disks/Optical /PSU	2*WD 2TB 7200RPM SATA HSS / No Optical / Lite-on 500W PSU	

System Technical Specifications

Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)		Sound Power (LWAd, bels)	Deskside Sound Pressure (LpAm, decibels)
	Idle	3.47	18.2
	Hard drive Operating (random reads)	3.75	20.4
	Hard drive Operating (active mode)	3.41	22.2

System Configuration (Entry level)	Processor Info	I9-10900 COMET LAKE WS P-1 10c LGA 2.8GHz 65W P2 vPro® QUBN
	Memory Info	4*Samsung 4*Samsung 32GB 2933 nECC DIMM [1]
	Graphics Info	Intel® UHD
	Disks/Optical /PSU	1 TB SATA 6Gb/s SSD / No Optical / Chicony 700W PSU

Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)		Sound Power (LWAd, bels)	Deskside Sound Pressure (LpAm, decibels)
	Idle	3.24	13.5
	Hard drive Operating (random reads)	3.39	15.8
	Hard drive Operating (active mode)	3.49	15.9

System Configuration (Mid-level)	Processor Info	W-1290 COMET LAKE WS P-1 10c 3.2G LGA 80W WE3 vPro® QSK QS QUBT
	Memory Info	4* Samsung 32GB 2933 nECC DIMM [1]
	Graphics Info	NVIDIA® RTX5000
	Disks/Optical /PSU	2*WD 2TB 7200RPM SATA HSS / No Optical / Lite-on 500W PSU

Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)		Sound Power (LWAd, bels)	Deskside Sound Pressure (LpAm, decibels)
	Idle	3.55	16.9
	Hard drive Operating (random reads)	3.72	19.9
	Hard drive Operating (active mode)	3.43	21.5

System Configuration (High-end)	Processor Info	I9-10900K COMET LAKE WS P-1 10c LGA 3.7GHz 125W P2K vPro® QUBQ
	Memory Info	4* Samsung 32GB 2933 nECC DIMM [1]
	Graphics Info	NVIDIA® RTX5000
	Disks/Optical/PSU	2*WD 2TB 7200RPM SATA HSS / No Optical / Lite-on 500W PSU

Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)		Sound Power (LWAd, bels)	Deskside Sound Pressure (LpAm, decibels)
	Idle	3.50	18.3
	Hard drive Operating (random reads)	3.88	20.6
	Hard drive Operating (active mode)	3.88	20.8

Note 1: Transfer rates up to 2933MT/s.

Environmental Requirements	Temperature	Operating: 5° to 35° C (40° to 95° F) Above 1524 m (5,000 feet) altitude, the maximum operating temperature is reduced by 1° C (1.8° F) for every 305 m (1,000 feet) increase in elevation Non-operating: -40° to 60° C (-40° to 140° F) Maximum rate of change: 10°C/hr
	Humidity	Operating: 10% to 85% RH, non-condensing, 35° C maximum wet bulb

System Technical Specifications

		Non-operating: 10% to 90% RH, non-condensing, 35° C maximum wet bulb
	Maximum Altitude	Operating (with Rotational Hard Drives): 3,048 m (10,000 feet)
		Operating (with only Solid-State Drives): 5,000 m (16,404 feet)
		Non-operating: 12,192 m (40,000 feet)
		Maximum operating temperature is reduced as altitude increases. See **Temperature** for details.
	Shock (non-repetitive)	Operating ½-sine: 40g, 2-3ms (~62 cm/sec)
		Non-operating ½-sine: 160 cm/s, 2-3 ms (~105 g)
		Non-operating square: 422 cm/s, 20 g
	Vibration	Operating random: 0.5 g (rms), 5-300 Hz, up to 0.0025 g²/Hz
		Non-operating random: 2.0 g (rms), 5-500 Hz, up to 0.0150 g²/Hz

Physical Security and Serviceability

Access Panel	Tool-less
	Includes system board and memory information
Optical Drive	Tool-less, except for Screw-In carrier
Hard Drives	Tool-less, except for 2.5" bay
Expansion Cards	Tool-less
Processor Socket	Tool-less, except for the processor heatsink
Blue User Touch Points	Yes, on tool-less internal chassis mechanisms
Color-coordinated Cables and Connectors	Yes
Memory	Tool-less
System Board	Screw-In
Padlock Support	Yes (optional): Locks side cover and secures chassis from theft
	0.22-in diameter padlock loop at rear of system
Cable Lock Support	Yes, Kensington Cable Lock (optional): Locks side cover and secures chassis from theft
	3 mm x 7 mm slot at rear of system
Universal Chassis Clamp Lock Support	Yes (optional): Locks side cover and locks cables to chassis. Secures chassis from theft and allows multiple units to be chained together when used with optional cable
	Threaded feature at rear of system
Solenoid Lock and Hood Sensor	Yes (optional)
	The Solenoid Hood Lock eliminates the need for a physical key by making the chassis lockable through software and a password. You can also lock and unlock the chassis remotely over the network. The Sensor Kit detects when the access panel has been removed.
Rear Port Control Cover	No
CPUs and Heatsinks	A T-15 Torx or flat blade screwdriver is needed to remove the CPU heatsink before the CPU can be removed. CPU removal is tool-less
Internal Speaker	Yes
Power Supply Fans	70mm x 70mm x 25mm 4-wire PWM (non-serviceable)
Access Panel Key Lock	No
Integrated Chassis Handles	Rear Recessed Handle
Power Supply	Requires T-15 Torx or flat blade screwdriver
PCI Card Retention	Yes, rear (all), middle (optional), front (full-length cards with extender)

Service, Support, and Warranty

System Technical Specifications

On-site Warranty and Service[1]: Three-years, limited warranty and service offering delivers on-site, next business-day[2] service for parts and labor and includes free telephone support[3] 8am - 5pm. Global coverage[2] ensures that any product purchased in one country and transferred to another, non-restricted country will remain fully covered under the original warranty and service offering. 24/7 operation will not void the HP warranty.

NOTE 1: Terms and conditions may vary by country. Certain restrictions and exclusions apply.
NOTE 2: On-site service may be provided pursuant to a service contract between HP and an authorized HP third-party provider, and is not available in certain countries. Global service response times are based on commercially reasonable best effort and may vary by country.
NOTE 3: Technical telephone support applies only to HP-configured, HP and HP-qualified, third-party hardware and software. Toll-free calling and 24x7 support service may not be available in some countries.
HP Care Pack Services extend service contracts beyond the standard warranties. Service starts from date of hardware purchase. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at: http://www.hp.com/go/lookuptool. Service levels and response times for HP Care Packs may vary depending on your geographic location.

Certification and Compliance

Environmental Sustainability questions concerning:
- Ecolabels (EPEAT, TCO, etc.)
- ENERGY STAR, California Energy Commission (CEC)
- Compliance with Environmental legislation (EU ErP, China CECP, EU RoHS and other countries)
- Supply Chain Social Environmental Responsibility (SER) (conflict minerals; human rights, etc.)
- Product specific environmental features (material content, packaging content, recycled content, etc.)
- China Energy Label (CEL)
-

Please contact sustainability@hp.com

For country specific Regulatory Compliance approval documents or Regulatory and Safety questions concerning:
- Declarations of Conformity (for self-service, go to https://www.hp.com/uk-en/certifications/technical/regulations-certificates.html?jumpid=ex_r135_uk/en/any/corp/hpuk-mu_chev/certificates)
- GS Certificates
- Product Safety Certificates (UL, CB, BIS, etc.)
- EMC Certificates, Declarations of Conformity, or Certificates of Conformity (CE, FCC, ICES, etc.)
- CCC Certificates
- Ergonomics
-

Please contact techregshelp@hp.com

Social and Environmental Responsibility

Eco-Label Certifications & Declarations

This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:

- ENERGY STAR® (energy-saving features available on select configurations-Windows only)
- US Federal Energy Management Program (FEMP)
- China Energy Conservation Program
- IT ECO declaration
- TCO Certified configurations available*

*TCO Certified configurations available when ENERGY STAR configurations are selected with a USB Type-C® connector. ENERGY STAR available with a combination of high-performance CPU's, high-performance GPU's and select memory configurations.

System Technical Specifications

Batteries	This battery(s) in this product comply with EU Directive 2006/66/EC
	Batteries used in the product do not contain: Mercury greater the1ppm by weight Cadmium greater than 20ppm by weight
	Battery size: CR2032 (coin cell) Battery type: Lithium
Restricted Material Usage	This product meets the material restrictions specified in HP's General Specification for the Environment. http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf HP Inc. is committed to compliance with all applicable environmental laws and regulations, including the European Union Restriction of Hazardous Substances (RoHS) Directive. HP's goal is to exceed compliance obligations by meeting the requirements of the RoHS Directive on a worldwide basis.
End-of-Life Management and Recycling	HP Inc. offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. This product is greater than 90% recyclable by weight when properly disposed of at end of life.
HP Inc. Corporate Environmental Information	For more information about HP's commitment to the environment: Living Progress Report http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html
	Eco-label certifications http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html
	ISO 14001 certificates: http://www.hp.com/hpinfo/globalcitizenship/environment/operations/envmanagement.html

QuickSpecs

Stable & Consistent Offerings

As part of its commitment to hardware, software, and solution innovation, HP is proud to introduce this breakthrough platform configuration stability to HP Workstation customers. HP Stable & Consistent Offerings are built on the foundation of a carefully chosen set of hardware and software designed and tested to work with all HP Z Workstation platforms through their end of life. These components and their corresponding HP Workstation platform compatibility are outlined in this section. HP Stable & Consistent Offerings are available worldwide to all HP Workstation customers—no special programs, no additional cost—no kidding. Simply select your hardware and software components when you customize your HP Workstation and be assured that you'll be able to buy that same configuration throughout the lifecycle of the product.

Processors	Product #	Offering
		Intel Core i3-10100 3.6 4C 65W processor
		Intel Core i5-10500 3.1 6C 65W processor
		Intel Core i5-10600 3.3 6C 65W processor
		Intel Core i7-10700 2.9 8C 65W processor
		Intel Xeon W-1250 3.3 6C 80W processor
		Intel Xeon W-1250P 4.1 6C 125W processor

Hard Drives	Product #	Offering
		1TB 7200RPM SATA 3.5 HDD

Graphics	Product #	Offering
		AMD Radeon™ Pro WX 3200 4GB

Technical Specifications - Processors

10th Generation Intel Core Processors
Intel® Core™ i9-10900K Processor
Intel® Core™ i9-10900 Processor
Intel® Core™ i9-10900F Processor[1]
Intel® Core™ i9-10850K Processor
Intel® Core™ i7-10700K Processor
Intel® Core™ i7-10700 processor
Intel® Core™ i5-10600K processor
Intel® Core™ i5-10600 processor
Intel® Core™ i5-10500 processor
Intel® Core™ i5-10400 processor
Intel® Core™ i5-10400F Processor[1]
Intel® Core™ i3-10320 processor[1]
Intel® Core™ i3-10300 processor[1]
Intel® Core™ i3-10100 processor
Intel Xeon W Processors
Intel Xeon W-1290P processor
Intel Xeon W-1290 processor[1]
Intel Xeon W-1270P processor[1]
Intel Xeon W-1270 processor
Intel Xeon W-1250P processor
Intel Xeon W-1250 processor
NOTE 1: Available in Q4, 2020

Technical Specifications - Hard Drives

SATA Hard Drives for HP Workstations	500GB SATA 7200 rpm 6Gb/s 3.5" HDD			
		Capacity	500GB	
		Protocol	SATA	
		Form Factor	3.5"	
		Controller	AHCI	
		Height	1 in; 2.54 cm	
		Width	**Media Diameter**	3.5 in; 8.9 cm
			Physical Size	4 in; 10.17 cm
		Interface	Serial ATA (6.0Gb/s), NCQ enabled	
		Synchronous Transfer Rate (Maximum)	Up to 600MB/s *	
		Buffer	32MB	
		Seek Time (typical reads, includes controller overhead, including settling)	**Single Track**	2 ms *
			Average	11 ms *
			Full Stroke	21 ms *
		Rotational Speed	7,200 rpm	
		Logical Blocks	976,773,168	
		Operating Temperature	41° to 131° F (5° to 55° C)	
		*Actual performance may vary.		
	1TB SATA 7200 rpm 6Gb/s 3.5" HDD	**Capacity**	1TB	
		Protocol	SATA	
		Form Factor	3.5"	
		Controller	AHCI	
		Height	1 in; 2.54 cm	
		Width	**Media Diameter**	3.5 in; 8.9 cm
			Physical Size	4 in; 10.17 cm
		Interface	Serial ATA (6.0Gb/s), NCQ enabled	
		Synchronous Transfer Rate (Maximum)	Up to 600 MB/s *	
		Buffer	64MB	
		Seek Time (typical reads, includes controller overhead, including settling)	**Single Track**	2 ms *
			Average	11 ms *
			Full Stroke	21 ms *
		Rotational Speed	7,200 rpm	
		Logical Blocks	1,953,525,168	
		Operating Temperature	41° to 131° F (5° to 55° C)	
		*Actual performance may vary.		
	2TB SATA 7200 rpm 6Gb/s 3.5" HDD	**Capacity**	2TB	
		Protocol	SATA	
		Form Factor	3.5"	
		Controller	AHCI	
		NAND Type	3D TLC	
		Endurance	400TBW (TB Written)	
		Height	1 in; 2.54 cm	
		Width	**Media Diameter**	3.5 in; 8.9 cm

Technical Specifications - Hard Drives

	Physical Size	4 in; 10.17 cm	
	Interface	Serial ATA (6.0 Gb/s), NCQ Enabled	
	Synchronous Transfer Rate (Maximum)	Up to 600MB/s *	
	Buffer	64MB	
	Seek Time (typical reads, includes controller overhead, including settling)	**Single Track**	2.0 ms *
		Average	11 ms *
		Full Stroke	21 ms *
	Rotational Speed	7,200 rpm	
	Logical Blocks	3,907,029,168	
	Operating Temperature	41° to 131° F (5° to 55° C)	
	*Actual performance may vary.		
1TB SATA 7200 rpm 6Gb/s 3.5" HDD (Enterprise Class)	**Capacity**	1TB	
	Height	1 in; 2.54 cm	
	Protocol	SATA	
	Form Factor	3.5"	
	Controller	AHCI	
	Width	**Media Diameter**	3.5 in; 8.9 cm
		Physical Size	4 in; 10.17 cm
	Interface	Serial ATA (6.0 Gb/s), NCQ Enabled	
	Synchronous Transfer Rate (Maximum)	Up to 600MB/s *	
	Buffer	128MB	
	Seek Time (typical reads, includes controller overhead, including settling)	**Single Track**	0.32ms*
		Average	7.45ms*
		Full Stroke	14.2ms*
	Rotational Speed	7,200 rpm	
	Logical Blocks	3,907,029,168	
	Operating Temperature	41° to 140° F (5° to 60° C)	
	*Actual performance may vary.		
1TB SATA 7200 rpm 6Gb/s 3.5" HDD (Enterprise Class)	**Capacity**	1TB	
	Protocol	SATA	
	Form Factor	3.5"	
	Controller	AHCI	
	Reliability (MTBF)	2.0M hours	
	Rated Power On Hours	8760/yr	
	Annualized Failure Rate (based on Rated POH)	<0.62%	
	Rated for 24/7/365 operation		
	Physical Size (Height)	1 in; 2.54 cm	
	Physical Size (Width)	4 in; 10.17 cm	
	Media Diameter	3.5 in; 8.9 cm	
	Interface	Serial ATA (6Gb/s), NCQ enabled	

Technical Specifications - Hard Drives

	Synchronous Transfer Rate (Maximum)	Up to 600MB/s*	
	Buffer	128MB	
	Cache	Adaptive	
	Seek Time (typical reads, includes controller overhead, including settling)	**Single Track**	0.32ms*
		Average	7.45ms*
		Full Stroke	14.2ms*
	Rotational Speed	7,200 rpm	
	Operating Temperature	41° to 131° F (5° to 55° C)	
	Performance	**Sequential Read**	up to 226MB/s*
		Sequential Write	up to 226MB/s*
	Enterprise Class Features	High Reliability	
	*Actual performance may vary.		
2TB SATA 7200 rpm 6Gb/s 3.5" HDD (Enterprise Class)	**Capacity**	2TB	
	Protocol	SATA	
	Form Factor	3.5"	
	Controller	AHCI	
	Reliability (MTBF)	2.0M hours	
	Rated Power On Hours	8760/yr	
	Annualized Failure Rate (based on Rated POH)	<0.62%	
	Rated for 24/7/365 Operation		
	Physical Size (Height)	1 in; 2.54 cm	
	Physical Size (Width)	4 in; 10.17 cm	
	Media Diameter	3.5 in; 8.9 cm	
	Interface	Serial ATA (6Gb/s), NCQ enabled	
	Synchronous Transfer Rate (Maximum)	Up to 600MB/s*	
	Buffer	128MB	
	Seek Time (typical reads, includes controller overhead, including settling)	**Single Track**	0.7ms*
		Average	8.5ms*
		Full Stroke	15.7ms*
	Operating Temperature	41° to 131° F (5° to 55° C)	
	Performance	**Sequential Read**	up to 226MB/s*
		Sequential Write	up to 226MB/s*
	Enterprise Class Features	High Reliability	
	*Actual performance may vary.		
4TB SATA 7200 rpm 6Gb/s 3.5" HDD (Enterprise Class)	**Capacity**	4TB	
	Protocol	SATA	
	Form Factor	3.5"	
	Controller	AHCI	
	Reliability	2.0M hours	

Technical Specifications - Hard Drives

	Rated Power On Hours	8760/yr	
	Annualized Failure Rate (based on Rated POH)	<0.62%	
	Rated for 24/7/365 Operation		
	Physical Size (Height)	1 in; 2.54 cm	
	Physical Size (Width)	4 in; 10.17 cm	
	Media Diameter	3.5 in; 8.9 cm	
	Physical Size	4 in; 10.17 cm	
	Interface	Serial ATA (6Gb/s), NCQ enabled	
	Synchronous Transfer Rate (Maximum)	Up to 600MB/s*	
	Buffer	256MB	
	Seek Time (typical reads, includes controller overhead, including settling)	**Single Track**	0.7ms*
		Average	8.5ms*
		Full Stroke	15.7ms*
	Operating Temperature	41° to 131° F (5° to 55° C)	
	Performance	**Sequential Read**	up to 226MB/s*
		Sequential Write	up to 226MB/s*
	Enterprise Class Features	High Reliability	
	*Actual performance may vary.		
8TB SATA 7200 rpm 6Gb/s 3.5" HDD (Enterprise Class)	**Capacity**	500GB	
	Protocol	SATA	
	Form Factor	3.5"	
	Controller	AHCI	
	Reliability	2.0M hours	
	Width	**Media Diameter**	3.5 in; 8.9 cm
		Physical Size	4 in; 10.17 cm
	Interface	Serial ATA (6.0Gb/s), NCQ enabled	
	Synchronous Transfer Rate (Maximum)	Up to 600MB/s [1]	
	Buffer	256MB	
	Seek Time (typical reads, includes controller overhead, including settling)	**Single Track**	0.7ms*
		Average	8.5ms*
		Full Stroke	15.7ms*
	Rotational Speed	7,200 rpm	
	Operating Temperature	32° to 140° F (0° to 60° C)	
	Performance	**Sequential Read**	up to 226MB/s[1]
		Sequential Write	up to 226MB/s[1]
	Enterprise Class Features	High Reliability	
	*Actual performance may vary.		
500GB SATA 7.2K SED 2.5" HDD	**Capacity**	500GB	
	Protocol	SATA	

Technical Specifications - Hard Drives

	Form Factor	2.5"	
	Height	0.275 in; 0.7 cm	
	Width	Media Diameter	2.5 in; 6.36 cm
		Physical Size	2.75 in; 6.99 cm
	Interface	Serial ATA (6.0Gb/s), NCQ enabled	
	Synchronous Transfer Rate (Maximum)	Up to 600MB/s*	
	Buffer	64MB	
	Seek Time (typical reads, includes controller overhead, including settling)	**Single Track**	1ms*
		Average	4.2ms*
		Full Stroke	25ms (Typical)*
	Rotational Speed	7,200 rpm	
	Operating Temperature	32° to 131° F (0° to 60° C)	
	Self-Encrypting Drive Support	Yes	
	*Actual performance may vary.		
HP 256GB SATA 6Gb/s SSD	**Capacity**	256GB	
	Protocol	SATA	
	Form Factor	2.5"	
	Height	0.28 in; 0.7 cm	
	Width	**Physical Size**	
	Synchronous Transfer Rate (Maximum)	Up to 550MB/s (Sequential Read)*	
	Operating Temperature	32° to 158° F (0° to 70° C)	
	*Actual performance may vary.		
HP 512GB SATA 6Gb/s SSD	**Capacity**	512GB	
	Protocol	SATA	
	Form Factor	2.5"	
	Height	0.28 in; 0.7 cm	
	Width	**Physical Size**	
	Interface	6Gb/s SATA	
	Synchronous Transfer Rate (Maximum)	Up to 550MB/s (Sequential Read)*	
	Operating Temperature	32° to 158° F (0° to 70° C)	
	*Actual performance may vary.		
HP 1TB SATA 6Gb/s SSD	**Capacity**	1TB	
	Protocol	SATA	
	Form Factor	2.5"	
	Height	0.28 in; 0.7 cm	
	Width	**Physical Size**	
	Interface	SATA 6Gb/s	
	Synchronous Transfer Rate (Maximum)	Up to 550MB/s (Sequential Read)*	
	Operating Temperature	32° to 158° F (0° to 70° C)	
	*Actual performance may vary.		

Technical Specifications - Hard Drives

HP 1TB SATA 6Gb/s SSD			
Capacity	1TB		
Height	0.28 in; 0.7 cm		
Width	**Physical Size**	2.5 in; 6.36 cm	
Interface	6Gb/s SATA		
Synchronous Transfer Rate (Maximum)	Up to 500MB/s (Sequential Read)*		
Operating Temperature	32° to 158° F (0° to 70° C)		

*Actual performance may vary.

HP 2TB SATA 6Gb/s SSD	
Capacity	2TB
Protocol	SATA
Form Factor	2.5"
Height	0.28 in; 0.7 cm
Width	**Physical Size**
Interface	SATA 6Gb/s
Synchronous Transfer Rate (Maximum)	Up to 550MB/s (Sequential Read)*
Operating Temperature	32° to 158° F (0° to 70° C)

*Actual performance may vary.

HP 256GB SATA 6Gb/s SED Opal 2 SSD	
Capacity	256GB
Protocol	SATA
Form Factor	2.5"
Height	0.28 in; 0.7 cm
Width	**Physical Size**
Interface	SATA 6Gb/s
Synchronous Transfer Rate (Maximum)	Up to 550MB/s (Sequential Read)*
Operating Temperature	32° to 158° F (0° to 70° C)
Self-Encrypting Drive Support	OPAL2

*Actual performance may vary.

HP 512GB SATA 6Gb/s SED Opal 2 SSD	
Capacity	512GB
Protocol	SATA
Form Factor	2.5"
Endurance	400TBW (TB Written)
Reliability	1.5M Hours
Height	0.28 in; 0.7 cm
Width	**Physical Size**
Synchronous Transfer Rate (Maximum)	Up to 550MB/s (Sequential Read)*
Operating Temperature	32° to 158° F (0° to 70° C)
Self-Encrypting Drive Support	OPAL2

*Actual performance may vary.

HP Z Turbo Drv 256GB TLC PCIe SSD (Z2G5)	
Capacity	256GB
Protocol	PCIe

Technical Specifications - Hard Drives

Form Factor	M.2 in native Slot on motherboard	
Controller	NVMe	
NAND Type	3D TLC	
Endurance	75TBW (TB Written)	
Reliability	1.5M Hours	
Interface	PCI Express 3.0 x4 electrical	
Operating Temperature	32° to 158° F (0° to 70° C)	
Performance	**Sequential Read**	2800MB/s*
	Sequential Write	1100MB/s*
	Random Read	250K IOPS*
	Random Write	180K IOPS*

*Actual performance may vary.

HP 256GB SATA 6Gb/s SED Opal 2 SSD		
Capacity	256GB	
Protocol	PCIe	
Form Factor	M.2 in native slot on motherboard	
Controller	NVMe	
NAND Type	3D TLC	
Endurance	200TBW (TB Written)	
Reliability (MTBF)	1.5M hours	
Interface	PCI Express 3.0 x4 electrical x4 physical	
Operating Temperature	32° to 158° F (0° to 70° C)	
Performance	**Sequential Read**	3500 MB/s*
	Sequential Write	2200 *
	Random Read	240K IOPS*
	Random Write	480K IOPS*

*Actual performance may vary.

HP Z Turbo Drv 512GB TLC PCIe SSD (Z2G5)		
Capacity	512GB	
Protocol	PCIe	
Form Factor	M.2 in native Slot on motherboard	
Controller	NVMe	
NAND Type	3D TLC	
Endurance	150TBW (TB Written)	
Reliability (MTBF)	1.5M hours	
Interface	PCI Express 3.0 x4 electrical	
Operating Temperature	32° to 158° F (0° to 70° C)	
Performance	**Sequential Read**	2800MB/s*
	Sequential Write	1600MB/s*
	Random Read	260K IOPS*
	Random Write	260K IOPS*

*Actual performance may vary.

HP Z Turbo Drv 1TB TLC PCIe SSD (Z2G5)	
Capacity	1TB
Protocol	PCIe

Technical Specifications - Hard Drives

	Form Factor	M.2 in native Slot on motherboard	
	Controller	NVMe	
	NAND Type	3D TLC	
	Endurance	300TBW (TB Written)	
	Reliability	1.5M Hours	
	Interface	PCI Express 3.0 x4 electrical	
	Operating Temperature	32° to 158° F (0° to 70° C)	
	Performance	**Sequential Read**	3000MB/s*
		Sequential Write	1700MB/s*
		Random Read	360K IOPS*
		Random Write	330K IOPS*
	*Actual performance may vary.		
HP Z Turbo Drv 2TB TLC PCIe SSD (Z2G5)	**Capacity**	2TB	
	Protocol	PCIe	
	Form Factor	M.2 in native Slot on motherboard	
	Controller	NVMe	
	NAND Type	3D TLC	
	Endurance	600TBW (TB Written)	
	Reliability	1.5M Hours	
	Interface	PCI Express 3.0 x4 electrical	
	Operating Temperature	32° to 158° F (0° to 70° C)	
	Performance	**Sequential Read**	3000MB/s*
		Sequential Write	2100MB/s*
		Random Read	320K IOPS*
		Random Write	265K IOPS*
	*Actual performance may vary.		
HP Z Turbo Drv 256GB TLC PCIe SED OPAL2 (Z2G5)	**Capacity**	256GB	
	Protocol	PCIe	
	Form Factor	M.2 in native Slot on motherboard	
	Controller	NVMe	
	NAND Type	3D TLC	
	Endurance	75TBW (TB Written)	
	Reliability	1.5M Hours	
	Interface	PCI Express 3.0 x4 electrical	
	Operating Temperature	32° to 158° F (0° to 70° C)	
	Performance	**Sequential Read**	2800MB/s*
		Sequential Write	1100MB/s*
		Random Read	250K IOPS*
		Random Write	180K IOPS*
	Self-Encrypting Drive Support	OPAL2	
	*Actual performance may vary.		

Technical Specifications - Hard Drives

HP Z Turbo Drv 512GB TLC PCIe SED OPAL2 (Z2G5)	Capacity	512GB	
	Protocol	PCIe	
	Form Factor	M.2 in native Slot on motherboard	
	Controller	NVMe	
	NAND Type	3D TLC	
	Endurance	150TBW (TB Written)	
	Reliability	1.5M Hours	
	Interface	PCI Express 3.0 x4 electrical	
	Operating Temperature	32° to 158° F (0° to 70° C)	
	Performance	Sequential Read	2800MB/s*
		Sequential Write	1600MB/s*
		Random Read	260K IOPS*
		Random Write	260K IOPS*
	Self-Encrypting Drive Support	OPAL2	

*Actual performance may vary.

HP Z Turbo Drv 1TB TLC PCIe SED OPAL2 (Z2G5)	Capacity	1TB	
	Protocol	PCIe	
	Form Factor	M.2 in native Slot on motherboard	
	Controller	NVMe	
	NAND Type	3D TLC	
	Endurance	300TBW (TB Written)	
	Reliability	1.5M Hours	
	Interface	PCI Express 3.0 x4 electrical	
	Operating Temperature	32° to 158° F (0° to 70° C)	
	Performance	Sequential Read	3000MB/s*
		Sequential Write	1700MB/s*
		Random Read	360K IOPS*
		Random Write	330K IOPS*
	Self-Encrypting Drive Support	OPAL2	

*Actual performance may vary.

HP Z Turbo Drv 2TB TLC PCIe SED OPAL2 (Z2G5)	Capacity	2TB	
	Protocol	PCIe	
	Form Factor	M.2 in native Slot on motherboard	
	Controller	NVMe	
	NAND Type	3D TLC	
	Endurance	600TBW (TB Written)	
	Reliability	1.5M Hours	
	Interface	PCI Express 3.0 x4 electrical	
	Operating Temperature	32° to 158° F (0° to 70° C)	
	Performance	Sequential Read	3000MB/s*
		Sequential Write	2100MB/s*

Technical Specifications - Hard Drives

Random Read	320K IOPS*	
Random Write	265K IOPS*	
Self-Encrypting Drive Support	OPAL2	

*Actual performance may vary.

Technical Specifications - Graphics

Integrated Intel® UHD Graphics (Z2 G5)	**Form Factor**	Integrated in select Intel® Xeon® E, Intel® Core™ i7, and Intel® Core™ i5 processors.
		Check specific platform specifications for selections.
	Graphics Controller	Intel® UHD Graphics
	Memory	Unified Memory Architecture (UMA) frame buffer. Graphics memory is shared with system memory. Size selectable between 64 MB to 1024 MB via BIOS setting. Default size is 64 MB. Additional memory is allocated for graphics as needed using Intel's Dynamic Video Memory Technology (Intel® DVMT 5.0), to provide an optimal balance between graphics and system memory use.
	Connectors	Check system platform specifications where Intel® UHD Graphics are available.
	Maximum Resolution	Display Port: 4096 x 2160 HDMI: 4096 x 2160 DVI: 1920x1200 VGA: 2048x1536
		NOTE: For HDMI, DVI and VGA outputs, separate adapters may be required.
	Shading Architecture	Shader Model 6 compiler support
	Supported Graphics APIs	OpenGL 4.54 DirectX 12
	Available Graphics Drivers	Windows 11 Windows 10
NVIDIA® Quadro® P400 2GB Graphics	**Form Factor**	Single Slot, Low Profile (2.713" H x 5.7" L)
	Graphics Controller	NVIDIA® Quadro® P400 Graphics Card Max Power: 30 Watts Cooling Solution: Active fan heatsink
	Bus Type	PCI Express 3.0 x16
	Memory	Size: 2 GB GDDR5
	Maximum Resolution	DisplayPort™ 1.4: - up to 3x 5120 x 2880 x 24 bpp @ 60Hz - supports Multi-Stream Transport (MST)
	Display Output	3 mDP (Mini DisplayPort™) 1.4 Connectors
	Shading Architecture	Full Microsoft DirectX 12 Shader Model 5.1
	Supported Graphics APIs	OpenGL 4.5 DirectX 12 Vulkan 1.0 API support includes: CUDA, OpenCL 1.x
	Available Graphics Drivers	Windows 11 Windows 10 Linux® 64-bit (selected Enterprise distributions) HP qualified drivers may be preloaded or available from the HP support Web site:

Technical Specifications - Graphics

http://welcome.hp.com/country/us/en/support.html

	Notes	*P400, P620 and P1000 only have mini-DisplayPort™ (mDP) video ports.
		Note 1: AMO kits for P400, P1000 and Adapters
		• Two mDP-to-DP Adapters are included in the P400, P620 and P1000 AMO kits.
		• If more mDP-to-DP Adapters are needed, Adapters can be ordered separately:
		  - 2MY05AA HP Single miniDP-to-DP Adapter Cable
		  - 2KW87A6 - HP (Bulk 12) miniDP-to-DP Adapter Cables

NVIDIA® Quadro® P620 2GB Graphics	**Form Factor**	Single slot, Low Profile (2.713" H x 5.7" L)
	Graphics Controller	NVIDIA® Quadro® P620 Max. Power: 40W Cooling Solution: Active fan heatsink
	Bus Type	PCI Express x16
	Memory	Size: 2GB DDR5
	Maximum Resolution	DisplayPort™ 1.4: - up to 4x 5120 x 2880 x 24 bpp @ 60Hz - supports Multi-Stream Transport (MST)
	Shading Architecture	Full Microsoft DirectX 12 Shader Model 5.1
	Display Outputs	4 mDP (Mini DisplayPort™) 1.4 Connectors
	Supported Graphics APIs	OpenGL 4.5 DirectX 12 Vulkan 1.0 API support includes: CUDA, OpenCL 1.x
	Available Graphics Drivers	Windows 11 Windows 10 Linux® 64-bit (selected Enterprise distributions) HP qualified drivers may be preloaded or the latest HP qualified drivers are available from the HP support Web site: http://welcome.hp.com/country/us/en/support.html

	Notes	*P400, P620 and P1000 only have mini-DisplayPort™ (mDP) video ports.
		Note 1: AMO kits for P400, P620, P1000 and Adapters
		• Two mDP-to-DP Adapters are included in the P400, P620 and P1000 AMO kits.
		• If more mDP-to-DP Adapters are needed, Adapters can be ordered separately:
		  - 2MY05AA HP Single miniDP-to-DP Adapter Cable
		  - 2KW87A6 - HP (Bulk 12) miniDP-to-DP Adapter Cables

NVIDIA® T400 2GB Graphics	**Form Factor**	Dimensions: 2.713" H x 6.137" L Single Slot, Low Profile Weight: 124g
	Graphics Controller	NVIDIA® T400 Graphics Card GPU: 384 CUDA cores

Technical Specifications - Graphics

		Power: 30 Watts Cooling: Active
	Bus Type	PCI Express 3.0 x16
	Memory	Size: 2 GB GDDR6 Memory Interface: 64-bit Memory Bandwidth: 80 GB/s
	Connectors	3x mDP
	Maximum Resolution	3x 5120 x 2880 x 24 bpp @ 60Hz
	Supported Graphics APIs	OpenGL 4.5 DirectX 12 Vulkan 1.0 API support includes: CUDA, OpenCL 1.x
	Available Graphics Drivers	Windows 11 Windows 10 Linux HP qualified drivers may be preloaded or available from the HP support Web site: http://welcome.hp.com/country/us/en/support.html
NVIDIA® T400 4GB Graphics	**Form Factor**	Dimensions: 2.713" H x 6.137" L Single Slot, Low Profile Weight: 124g
	Graphics Controller	NVIDIA® T400 Graphics Card GPU: 384 CUDA cores Power: 30 Watts Cooling: Active
	Bus Type	PCI Express 3.0 x16
	Memory	Size: 4 GB GDDR6 Memory Interface: 64-bit Memory Bandwidth: 80 GB/s
	Connectors	3x mDP
	Maximum Resolution	3x 5120 x 2880 x 24 bpp @ 60Hz
	Supported Graphics APIs	OpenGL 4.5 DirectX 12 Vulkan 1.0 API support includes: CUDA, OpenCL 1.x
	Available Graphics Drivers	Windows 11 Windows 10 Linux HP qualified drivers may be preloaded or available from the HP support Web site: http://welcome.hp.com/country/us/en/support.html

Technical Specifications - Graphics

NVIDIA® T600 4GB Graphics	**Form Factor**	Dimensions: 2.713" H x 5.7" L Single Slot, Low Profile
	Graphics Controller	NVIDIA® T600 Graphics Card GPU: 640 CUDA cores Power: 40 Watts Cooling: Active
	Bus Type	PCI Express 3.0 x16
	Memory	Size: 4 GB GDDR6 Memory Interface: 128-bit Memory Bandwidth: 160 GB/s
	Connectors	4x mDP
	Maximum Resolution	7680 x 432- @ 60Hz
	Display Output	4x mDP
	Supported Graphics APIs	OpenGL 4.5 DirectX 12 Vulkan 1.0 API support includes: CUDA C, CUDA C++, DirectCompute , OpenCL
	Available Graphics Drivers	Windows 11 Windows 10 Linux HP qualified drivers may be preloaded or available from the HP support Web site: http://welcome.hp.com/country/us/en/support.html
AMD Radeon™ Pro WX 3200 4GB Graphics	**Form Factor**	Low-Profile Single Slot (2.75 "H x 6.6" L)
	Graphics Controller	Radeon™ Pro WX 3200 Power: 56 Watts Cooling Solution: Active fan heatsink
	Memory	4GB GDDR5 memory
	Maximum Resolution	DisplayPort™ 1.4: - up to 4x 4096 x 2160 x 24 bpp @ 60Hz - supports Multi-Stream Transport (MST)
	Shading Architecture	Full Microsoft DirectX 12 Shader Model 5.1
	Display Outputs	4 mDP (Mini DisplayPort™) 1.4 Connectors
	Supported Graphics APIs	DirectX® 12 OpenGL® 4.6 OpenCL™ 2.0 Vulkan™ 1.0
	Available Graphics Drivers	Windows 11 Windows 10 (Windows® 7 64-bit available from AMD) Linux® 64-bit (selected Enterprise distributions) HP qualified drivers may be preloaded or available from the HP support Web site: http://welcome.hp.com/country/us/en/support.html

Technical Specifications - Graphics

Notes	1.	HDR content requires that the system be configured with a fully HDR-ready content chain, including: graphics card, monitor/TV, graphics driver and application. Video content must be graded in HDR and viewed with an HDR-ready player. Windowed mode content requires operating system support.
	2.	WX 3200 only has mini-DisplayPort™ (mDP) video ports. Two mDP-to-DP Adapters are included in the WX 3200 AMO kit. If more mDP-to-DP Adapters are needed, Adapters can be ordered separately:

- 2MY05AA   HP Single miniDP-to-DP Adapter Cable
- 2KW87A6 – HP (Bulk 12) miniDP-to-DP Adapter Cables

AMD Radeon™ Pro W5500 8GB Graphics	Form Factor	Single slot, full-height, 9.5" length
	Graphics Controller	Radeon™ Pro W5500 Power: 120 Watts Cooling Solution: Active Fan Heatsink
	Memory	8GB GDDR6
	Maximum Resolution	DisplayPort™ 1.4: - up to 4x 5120 x 2880 x 24 bpp @ 60Hz - supports Multi-Stream Transport (MST)
	Display Outputs	DisplayPort™ 1.4 Connectors FreeSync support
	Shading Architecture	Full Microsoft DirectX 12 Shader Model 5.1
	Supported Graphics APIs	DirectX® 12 (12_1) OpenGL® 4.6 OpenCL™ 2.0 Vulkan™ 1.1
	Available Graphics Drivers	Windows 11 Windows 10 Linux® 64-bit (selected Enterprise distributions) HP qualified drivers may be preloaded or available from the HP support Web site: http://welcome.hp.com/country/us/en/support.html

NVIDIA® Quadro® P1000 4GB Graphics	Form Factor	Single Slot, Low Profile, Dimensions:2.713" H x 5.7" L Cooling: Active
	Graphics Controller	NVIDIA® Quadro® P1000 47 Watts Cooling Solution: Active Fan Heatsink
	Bus Type	PCI Express 3.0 x16
	Maximum Resolution	DisplayPort™ 1.4: - up to 4x 5120 x 2880 x 24 bpp @ 60Hz - supports Multi-Stream Transport (MST)
	Display Output	4 mDP 1.4 Connectors
	Shading Architecture	Full Microsoft DirectX 12 Shader Model 5.1

Technical Specifications - Graphics

	Supported Graphics APIs	OpenGL 4.5 DirectX 12 Vulkan 1.0 API support includes: CUDA, OpenCL 1.x
	Available Graphics Drivers	Windows 11 Windows 10 Linux® 64-bit (selected Enterprise distributions) HP qualified drivers may be preloaded or available from the HP support Web site: http://welcome.hp.com/country/us/en/support.html

	Notes	*P400, P620 and P1000 only have mini-DisplayPort™ (mDP) video ports.
		Note 1: AMO kits for P400, P620, P1000 and Adapters
		   • Two mDP-to-DP Adapters are included in the P400, P620 and P1000 AMO kits.
		   • If mDP-to-DP Adapters are needed, Adapters can be ordered separately:
		       - 2KW87A6 - HP (Bulk 12) miniDP-to-DP Adapter Cables

NVIDIA® Quadro® P2200 5GB Graphics	**Form Factor**	Single Slot, Full Height (4.4"H x 7.9"L) Weight: 260 grams
	Graphics Controller	NVIDIA® Quadro® P2200 Power: 75 Watts Cooling Solution: Active Fan Heatsink
	Bus Type	PCI Express 3.0 x16
	Memory	5GB GDDR5X
	Maximum Resolution	DisplayPort™ 1.4: - up to 4x 5120 x 2880 x 24 bpp @ 60Hz - supports Multi-Stream Transport (MST)
	Display Output	4 DisplayPort™ 1.4
	Shading Architecture	Full Microsoft DirectX 12 Shader Model 5.1
	Supported Graphics APIs	OpenGL® 4.5 DirectX® 12 Vulkan 1.0 API support includes: CUDA, OpenCL 1.x
	Available Graphics Drivers	Windows 11 Windows 10 Linux®-64-bit (selected Enterprise distributions) HP qualified drivers may be preloaded or available from the HP support Web site: http://welcome.hp.com/country/us/en/support.html
NVIDIA® T1000 4GB Graphics	**Form Factor**	Dimensions: 2.713" H x 6.137" L Single Slot Weight: xx
	Graphics Controller	NVIDIA® T1000 Graphics Card Power: 50W

QuickSpecs

Technical Specifications - Graphics

	Cooling: Active
Bus Type	PCI Express 3.0 x16
Memory	Size: 4GB GDDR6 Memory Bandwidth: Up to 160 GB/s Memory Width: 128-bit
Connectors	4x mini DisplayPort™ 1.4a
Maximum Resolution	7680 x 4320 @ 120Hz
Display Output	Maximum number of displays: 4 displays
Architecture	NVIDIA® Turing™
Supported Graphics APIs	DirectX®12.1 OpenGL® 4.6 OpenCL™ 1.2 Vulkan™ 1.2
Available Graphics Drivers	Windows 11 Windows 10 Windows 8.1 Microsoft Windows 7 Professional 64bit Linux® - Full OpenGL® implementation, complete with NVIDIA® Quadro® and ARB extensions HP qualified drivers may be preloaded or available from the HP support Web site: http://welcome.hp.com/country/us/en/support.html

QuickSpecs

HP Z2 Tower G5 Workstation

Technical Specifications - Graphics

AMD Radeon™ Pro W5700 8GB Graphics	**Form Factor**	Full-Height Dual Slot (10.5" Length)
	Graphics Controller	Radeon™ Pro W5700 Power: 210 Watts Cooling Solution: Active Fan Heatsink
	Memory	8GB GDDR6
	Maximum Resolution	DisplayPort™ 1.4: - up to 4x 5120 x 2880 x 24 bpp @ 60Hz - supports Multi-Stream Transport (MST)
	Display Output	4 DisplayPort™ 1.4 Outputs FreeSync support
	Supported Graphics APIs	DirectX® 12 (12_1) OpenGL® 4.6 OpenCL™ 2.0 Vulkan™ 1.0
	Available Graphics Drivers	Windows 11 Windows 10 Linux® 64-bit (selected Enterprise distributions) HP qualified drivers may be preloaded or available from the HP support Web site: http://welcome.hp.com/country/us/en/support.html

AMD Radeon ™ Pro W6600 8GB Graphics	**Form Factor**	Full height, Single Slot, 241mm length
	Graphics Controller	AMD Radeon™ PR W6600 XT Graphics GPU: AMD RDNA 2 Memory: 8GB GDDR6 Power: 130 Watts, 6-pin Power Cable Cooling: Active, Dual Axial fan
	Bus Type	PCI Express 4.0 x16
	Connectors	4x DisplayPort 1.4 with DSC
	Maximum Resolution	DisplayPort™ 1.4 with DSC: - up to 4x @ 3840x2160px (4K) - up to 4x @ 5120x2880px (5K) - up to 1x @ 7680x4320px (8K)
	Display Outputs	4x DP
	Shading Architecture	Microsoft DirectX 12 Shader Model 6.1
	Supported Graphics APIs	OpenGL 4.6 DirectX 12 Feature Level 12_1 Vulkan 1.1 OpenCL 2.2
	Available Graphics Drivers	Windows 11 Windows 10 Linux® 64-bit (selected distributions) HP qualified drivers may be preloaded or available from the HP support Web site:

QuickSpecs

Technical Specifications - Graphics

http://welcome.hp.com/country/us/en/support.html

NVIDIA® Quadro® RTX 4000 8GB Graphics	**Form Factor**	Full-Height Single Slot (4.4" Height x 9.5" Length)
	Graphics Controller	NVIDIA® Quadro® RTX 4000 Power: 160 Watts Cooling Solution: Active Fan Heatsink
	Memory	8GB GDDR6
	Maximum Resolution	DisplayPort™ 1.4: - up to 4x 5120 x 2880 x 24 bpp @ 60Hz - supports Multi-Stream Transport (MST)
	Display Outputs[1]	3x DisplayPort™1.4a and VirtualLink[2]
	Supported Graphics APIs	DirectX®12, OpenGL® 4.5, OpenCL™ 1.0, Vulkan™ 1.0 Additional API support includes: CUDA OpenCL™ 1.x
	Available Graphics Drivers	Windows® 10 64-bit Linux® 64-bit (selected Enterprise distributions) HP qualified drivers may be preloaded or available from the HP support Web site: http://welcome.hp.com/country/us/en/support.html
	Notes	1- Supports up to a total of 4 displays 2- VirtualLink's USB-C™ (data) cannot be disabled at a hardware level

QuickSpecs

Technical Specifications - Graphics

NVIDIA® Quadro® RTX 5000 16GB Graphics	Form Factor	Full-Height Dual Slot (4.4" Height x 10.5" Length)
	Graphics Controller	NVIDIA® QUADRO® RTX 5000 Power: 265 Watts Cooling Solution: Active Fan Heatsink
	Memory	16GB GDDR6
	Maximum Resolution	DisplayPort™ 1.4: - up to 4x 5120 x 2880 x 24 bpp @ 60Hz - supports Multi-Stream Transport (MST)
	Display Outputs	4x DisplayPort™ 1.4 and VirtualLink[2]
	Supported Graphics APIs	DirectX®12, OpenGL® 4.5 Additional API support includes: CUDA, OpenCL™
	Available Graphics Drivers	Windows 10 64-bit Linux® 64-bit (selected Enterprise distributions) HP qualified drivers may be preloaded or available from the HP support Web site: http://welcome.hp.com/country/us/en/support.html Factory Configured: No adapters included After market option kit: No adapters included *VirtualLink's USB-C™ (data) cannot be disabled at a hardware level

NVIDIA® RTX A4000 16GB Graphics	Form Factor	Full-Height Single Slot (4.4" Height x 9.5" Length)
	Graphics Controller	NVIDIA® RTX A4000 Graphics GPU: 6144 NVIDIA® CUDA® Parallel Processing Cores Power: 140 Watts Cooling: Active
	Memory	16GB GDDR6 memory Memory Bandwidth: Up to 448 GB/s Memory Width: 256 bit
	Connectors	4x DP One 6-pin auxiliary power connector Factory configured option: No video cable adapter included with card. After market option Kit: No video cable adaptor included with card. DVI to VGA, DisplayPort™ to VGA, DisplayPort™ to DVI, and DisplayPort™ to Dual-Link DVI adapters available as accessories.

QuickSpecs

Technical Specifications - Graphics

Maximum Resolution	7680x4320 @ 60Hz
Display Outputs[1]	4x DP
Supported Graphics APIs	DirectX®12, OpenGL® 4.5, OpenCL™ 1.0, Vulkan™ 1.0 Developer API support includes: CUDA C, CUDA C++, DirectCompute 5.0, OpenCL™, Java, Python, and Fortran
Available Graphics Drivers	Windows 10 64-bit Linux® 64-bit HP qualified drivers may be preloaded or available from the HP support Web site: http://welcome.hp.com/country/us/en/support.html

NVIDIA® Quadro® RTX 6000 24GB Graphics		
	Form Factor	Full-Height Dual Slot (4.4" Height x 10.5" Length)
	Graphics Controller	NVIDIA® QUADRO® RTX 6000 Power: 295 Watts Cooling Solution: Active Fan Heatsink
	Memory	24GB GDDR6
	Maximum Resolution	DisplayPort™ 1.4: - up to 4x 5120 x 2880 x 24 bpp @ 60Hz - supports Multi-Stream Transport (MST)
	Display Outputs	4x DisplayPort™ 1.4 and VirtualLink[2]
	Supported Graphics APIs	DirectX®12, OpenGL® 4.5, Vulcan 1.0 Additional API support includes: CUDA, OpenCL™ 1.x
	Available Graphics Drivers	Windows 10 64-bit Linux® 64-bit (selected Enterprise distributions) HP qualified drivers may be preloaded or available from the HP support Web site: http://welcome.hp.com/country/us/en/support.html Factory Configured: No adapters included After market option kit: No adapters included *VirtualLink's USB-C™ (data) cannot be disabled at a hardware level

Technical Specifications - Optical and Removable Storage

HP 9.5mm Slim DVD Writer			
	Description	9.5mm height, tray-load	
	Mounting Orientation	Either horizontal or vertical	
	Interface Type	SATA/ATAPI	
	Dimensions (WxHxD)	128 x 9.5 x 127mm	
	Supported Media Types	DVD+R DVD+RW DVD+R DL DVD-R DL DVD-R DVD-RW CD-R CD-RW	
	Disc Capacity	**DVD-ROM**	8.5 GB DL or 4.7 GB standard
	Access Times	**Full Stroke DVD**	< 200 ms (seek)
		Full Stroke CD	< 200 ms (seek)
	Maximum Data Transfer Rates	**CD ROM Read**	CD-ROM, CD-R Up to 24X CD-RW Up to 24X
		DVD ROM Read	DVD+RW Up to 8X DVD-RW Up to 8X DVD+R DL Up to 8X DVD-R DL Up to 8X DVD-ROM Up to 8X DVD-ROM DL Up to 8X DVD+R Up to 8X DVD-R Up to 8X
	Power	**Source**	SATA DC power receptacle
		DC Power Requirements	5 VDC ± 5%-100 mV ripple p-p
		DC Current	5 VDC -< 800 mA typical, <1600 mA maximum
	Operating Environmental (all conditions non-condensing)	**Temperature**	41° to 122° F (5° to 50° C)
		Relative Humidity	10% to 80%
		Maximum Wet Bulb Temperature	84° F (29° C)
	Operating Systems Supported	Windows 11, Windows 10, Windows 7 Professional 64-bit, Windows Vista Business 64*, Windows 2000. Red Hat® Enterprise Linux® (RHEL) 6, 7 Desktop/Workstation SUSE Linux® Enterprise Desktop 12	
	Kit Contents	HP SATA DVD Writer drive, installation guide.	
	Approvals	USB-IF, WHQL, Compliant with USB Mass Storage Class Bulk only Transport Specification Rev. 1.0, Compliant Intel Front Panel I/O Connectivity Design Guide V. 1.3, FCC, CE, BSMI, C-Tick, VCCI, MIC, cUL, TUVT	

HP 9.5mm Slim DVD-ROM Drive		
	Description	9.5mm height, tray-load
	Mounting Orientation	Either horizontal or vertical
	Interface Type	SATA / ATAPI
	Dimensions (WxHxD)	128 x 9.5 x 127mm

Technical Specifications - Optical and Removable Storage

Disc Capacity	**DVD-ROM**	Single layer: Up to 4.7 GB Double layer: Up to 8.5 GB
Access Times	**DVD-ROM Single Layer**	< 110 ms (typical)
	CD-ROM Mode 1	< 110 ms (typical)
	Full Stroke DVD	< 230 ms (typical)
	Full Stroke CD	< 220 ms (typical)
Power	**Source**	SATA DC power receptacle
	DC Power Requirements	5 VDC ± 5%-100 mV ripple p-p
	DC Current	5 VDC – <800mA typical, < 1600 mA maximum
Operating Environmental (all conditions non-condensing)	**Temperature**	41° to 122° F (5° to 50° C)
	Relative Humidity	10% to 80%
	Maximum Wet Bulb Temperature	84° F (29° C)
Operating Systems Supported	Windows 11, Windows 10, Windows 7 Professional 64-bit, Windows Vista Business 64*, Windows 2000. Red Hat® Enterprise Linux® (RHEL) 6, 7 Desktop/Workstation SUSE Linux® Enterprise Desktop 12	
Kit Contents	9.5mm Slim DVD-ROM Drive, slim SATA data/power cable, installation guide	
Approvals	USB-IF, WHQL, Compliant with USB Mass Storage Class Bulk only Transport Specification Rev. 1.0, Compliant Intel Front Panel I/O Connectivity Design Guide V. 1.3, FCC, CE, BSMI, C-Tick, VCCI, MIC, cUL, TUVT	

HP 9.5mm Slim BDXL Blu-Ray Writer	**Description**	9.5mm height, tray-load
	Mounting Orientation	Either horizontal or vertical
	Interface Type	SATA/ATAPI
	Dimensions (WxHxD)	128 x 9.5 x 127mm
	Supported Media Types	BD-ROM BD-R BD-RE DVD-RAM DVD+R DVD+RW DVD+R DL DVD-R DL DVD-R DVD-RW CD-R CD-RW
	Disc Capacity	**DVD-ROM** — 8.5 GB DL or 4.7 GB standard
		Blu-ray — 25 GB (single-layer) 50 GB (dual-layer) 100/128 GB (BDXL)
	Access Times	**Full Stroke DVD** — < 230 ms (seek)
		Full Stroke CD — < 220 ms (seek)

Technical Specifications - Optical and Removable Storage

	Blu-ray	< 230 ms (seek) (Full Stroke Blu-ray)
	Startup Time	(Time to drive ready from tray loading)
		BD-ROM (SL/DL) 25S / 28S
		BD-R (SL/DL) 25S / 28S
		BD-RE (SL/DL) 25S / 28S
		DVD-ROM (SL/DL) 18S / 18S
		DVD-R (SL/DL) 25S / 25S
		DVD-RW 25S
		DVD+R (SL/DL) 25S / 25S
		DVD+RW 25S
		DVD-RAM 45S
		CD-ROM 15S
Maximum Data Transfer Rates	**CD ROM Read**	CD-ROM, CD-R Up to 24X
		CD-RW Up to 24X
	DVD ROM Read	DVD-RAM Up to 8X
		DVD+RW Up to 8X
		DVD-RW Up to 8X
		DVD+R DL Up to 8X
		DVD-R DL Up to 8X
		DVD-ROM Up to 8X
		DVD-ROM DL Up to 8X
		DVD+R Up to 8X
		DVD-R Up to 8X
	Blu-ray	BD-ROM Up to 6X
		BD-ROM DL Up to 6X
		BD-R Up to 6X
		BD-R DL Up to 6X
		BD-R Up to 6X
		BD-RE SL/DL Up to 6X
Power	**Source**	SATA DC power receptacle
	DC Power Requirements	5 VDC ± 5%-100 mV ripple p-p
	DC Current	5 VDC -900 mA typical, 2000mA maximum
Operating Environmental (all conditions non-condensing)	**Temperature**	41° to 122° F (5° to 50° C)
	Relative Humidity	10% to 80%
	Maximum Wet Bulb Temperature	84° F (29° C)
Operating Systems Supported		Windows 11, Windows 10, Windows 7 Professional 64-bit,
		Windows Vista Business 64*, Windows 2000. Red Hat® Enterprise Linux® (RHEL) 6, 7 Desktop/Workstation SUSE Linux® Enterprise Desktop 12
Kit Contents		9.5mm Slim BDXL Blu-Ray Writer, 5.25" ODD Bay adapter/carrier, slim SATA data/power cable, installation guide

Technical Specifications - Controller Cards

HP Thunderbolt™ 3 PCIe 3 Dual-port I/O Card		
	Data Transfer Rate	Supports up to 40 Gb/s 40,000 Mb/s)
	Devices Supported	Thunderbolt™ certified devices
	Bus Type	PCIe card, full height PCIe slots
	Ports	Two USB 3.1 Type-C® connector (Rear)
	Internal Connectors	One wire-to-board-connector
	System Requirements	Windows 11, Windows 10 RS3 64-bit, Intel® i5 series or higher processor, 4-GB RAM, 20-GB Hard Drive, available PCIe slot.
	Temperature - Operating	50° to 131° F (10° to 55° C)
	Temperature - Storage	-22° to 140° F (-30° to 60° C)
	Relative Humidity - Operating	20% to 80%
	Compliances	FCC Part 15B, cULus 60950, CE Mark EN55022B(1995)/EN55024-1998 STD, Taiwan BSMI CNS13438, Korea MIC
	Operating Systems Supported	Windows 10; Windows 11
	Kit Contents	HP Thunderbolt™ 3 PCIe 3-port I/O Card, full height bulkhead bracket, DisplayPort™ and GPIO (General-Purpose Input/Output) cable, Installation documentation and warranty card.

Technical Specifications - Networking and Communications

Integrated Intel® I219LM PCIe GbE Controller (Intel® vPro® with Intel® AMT 12.0)		
	Connector	RJ-45
	Controller	Intel® I219LM GbE platform LAN connect networking controller
	Memory	3 KB Tx and 3KB Rx FIFO packet buffer memory
	Data Rates Supported	10/100/1000 Mbps
	Compliance	802.1as/1588, 802.1p, 802.1Q, 802.3, 802.3ab, 802.3az, 802.3i, 802.3u, 802.3z
	Bus Architecture	PCI Express and SMBus
	Data Transfer Mode	PCIe-based interface for active state operation (S0 state) and SMBus for host and management traffic (Sx low power state)
	Power Requirement	Requires 3.3V (integrated regulators for core Vdc)
	Boot ROM Support	Yes
	Network Transfer Mode	Full-duplex; Half-duplex (not supported for the 1000BASE-T transceiver)
	Network Transfer Rate	10BASE-T (half-duplex) 10 Mbps
		10BASE-T (full-duplex) 20 Mbps
		100BASE-TX (half-duplex) 100 Mbps
		100BASE-TX (full-duplex) 200 Mbps
		1000BASE-T (full-duplex) 2000 Mbps
	Management Capabilities	vPro®, WOL, auto MDI crossover, PXE, Muti-port teaming, RSS, ACPI, Advanced cable diagnostic, loopback modes, AMT 12.0 support, Circuit Breaker, VLAN, Multicast Listener Discovery (MLD)

Intel® X710-DA2 2-Port SFP+ 10GbE NIC		
	Connector	2 SFP+ Ports
	Cabling	Twin Axial Cabling up to 10m
	Controller	Intel® Ethernet Controller X710-AM2
	Network Transfer Rates Supported	10GbE (with supported 10GBASE-SR transceivers)
	Data Path Width	PCIe Gen3x8 (compatible with x4)
	Power Requirement	4.3W (typical) (with supported 10GBASE-SR transceivers)
	Operating Temperature	32° to 131° F (0° to 55° C)
	Dimensions (HxW)	2.703 x 6.578 inches
	Operating System Driver Support	Windows 11
		Windows 10
		Linux®
	Kit Contents	• Intel® X710-DA2 2-Port SFP+ 10GbE NIC with standard height bracket attached
		• Low-profile bracket
		• Product Literature

HP 10GbE SFP+ SR Transceiver		
	Operating Temperature	32°F to 113°F (0°C to 45°C)
	Operating Humidity	0% to 85%, noncondensing
	Dimensions (HxWxD)	0.47 x 0.54 x 2.19 inches
	Kit Contents	HP 10GbE SFP+ SR Transceiver

Technical Specifications - Networking and Communications

Intel® X550-T2 2-Port 10GbE NIC		
Connector	2 RJ-45	
Cabling	10GbE: Cat6a (or better) up to 100m 5GbE and below: Cat5e (or better) up to 100m	
Controller	Intel® Ethernet Controller X550	
Network Transfer Rates Supported	10GbE, 5GbE, 2.5GbE, 1GbE, 100MbE	
Data Path Width	PCIe Gen3x4	
Power Requirement	11.2W (typical)	
Operating Temperature	32° to 131° F (0° to 55° C)	
Dimensions (HxW)	5.1 x 2.7 in (without brackets)	
Operating System Driver Support	Windows 11 Windows 10 Linux®	
Kit Contents	• Intel® X550-T2 2-Port 10GbE NIC with standard height bracket attached • Low-profile bracket • Product Literature	

Aquantia® AQN-108 1-Port 5GbE NIC		
Connector	1 RJ-45	
Cabling	Cat5e (or better) up to 100m	
Controller	Aquantia® AQC108	
Network Transfer Rates Supported	5Gbe, 2.5GbE, 1GbE, 100MbE	
Data Path Width	PCIe Gen3x1	
Power Requirement	3.5W (typical)	
Operating Temperature	32° to 131° F (0° to 55° C)	
Dimensions (HxW)	3.72 x 3.18 inches (without brackets)	
Operating System Driver Support	Windows 7 64-bit; Windows 10; Windows 11 Linux®	
Kit Contents	• Aquantia AQN-108 1-Port 5GbE NIC with standard height bracket attached • Low-profile bracket • Product Literature	

Intel® I350-T2 2-Port 1GbE NIC		
Connector	2 RJ-45	
Cabling	Cat5e (or better) up to 100m	
Controller	Intel® Ethernet I350 Controller	
Network Transfer Rates Supported	1GbE, 100MbE, 10MbE	
Data Path Width	PCIe Gen2.1x4	
Power Requirement	4.4W (typical)	
Operating Temperature	32° to 131° F (0° to 55° C)	
Dimensions (HxW)	2.75 x 5.5 inches (without brackets)	

Technical Specifications - Networking and Communications

	Operating System Driver Support	Windows 7 64-bit; Windows 10; Windows 11 Linux®
	Kit Contents	• Intel® I350-T2 2-Port 1GbE NIC with standard height bracket attached • Low-profile bracket • Product Literature

Intel® I350-T4 4-Port 1GbE NIC	**Connector**	4 RJ-45
	Cabling	Cat5e (or better) up to 100m
	Controller	Intel® Ethernet I350 Controller
	Network Transfer Rates Supported	1GbE, 100MbE, 10MbE
	Data Path Width	PCIe Gen2.1x4
	Power Requirement	5W (typical)
	Operating Temperature	32° to 131° F (0° to 55° C)
	Dimensions (HxW)	2.75 x 5.5 inches (without brackets)
	Operating System Driver Support	Windows 7 64-bit; Windows 10; Windows 11 Linux®
	Kit Contents	• Intel® I350-T4 4-Port 1GbE NIC with standard height bracket attached • Low-profile bracket • Product Literature

Intel® AX201 802.11 a/b/g/n/ac/ax WLAN + Bluetooth 5.0 M.2	**WLAN Standards**	802.11a/b/g/n/ac/ax Wave 6, Dual band 2x2 with up to 2.4Gbps speed (theoretical maximum); Up to 3x faster than 802.11ac and up to 4x capacity in congested environments than 802.11ac
	Antenna	2x2 Dual-Band
	Bluetooth Standards	5
	Operating Temperature	32° to 131° F (0° to 55° C)
	Interface	M.2 CNVio
	Dimensions	M.2 2230
	Kit Contents	Not Available

NOTE: Wireless access point and internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 5 (802.11 ax) is backwards compatible with prior 802.11 specs.

HP eSATA PCI Cable Kit	**Part Number**	FH966AA
	Features	• 1x eSATA ports • Bring the same ultra-fast SATA performance that you demand from your internal SATA hard drives to an external eSATA hard drive. • Faster transfer rates than existing external storage solutions: USB 2.0 & 1394. • Complete motherboard to eSATA PCI bracket solution. • Robust and user friendly external eSATA connector.

	Part Number	4KY89AA

Technical Specifications - Networking and Communications

Z2 G5 TWR Bezel w/ Dust Filter option	**Overview**	Workstations are deployed in a variety of different ways and in different environments, from under a desk to manufacturing floors. HP Workstations designed a dust filter option to further protect the system against the ingress of dust and other particles over the life of the system. Test have shown a reduction of dust ingress of up to 32% for the HP Z2 Tower G5 Workstation platform and is cleanable and serviceable by customers. There is also a BIOS setting that will warn customer when it is time to check and clean their filters.

Cleaning and servicing the dust filter

1. After removing the filter from the system bezel (dust filter can be removed without the use of tools from the front bezel), either blow it with and wash with water or use a delicate duster (feather duster)to brush off the filter then rinse it with water.
2. Allow the filter half a day to dry at room temperature (25C at 30%-50% humidity)
3. Temperature of water can be 0-70C, due to the dust filter meeting the SQTM 70C humidity test. Suggested water temperature for best user experience is 0-50C.
4. Normal tap water (and most other types of water) can be used to rinse the filter. Any type of corrosive liquid is restricted.

Enabling the Check Filter warning in the BIOS:

1. Customers must enable the BIOS setting once they receive their filter.
2. To enable, do the following once you see the boot screen for your system: F10 > Advanced > Built-In Device Options > Dust Filter
3. Select to enable the Dust Filter replacement reminder, which can be set for 15, 30, 60, 90, 120, or 180 days. The Reminder will show during POST after the reminder timer has expired.
4.

NOTE: customers who anticipate more dust ingress in their environments should set the reminder for a shorter window. Customers anticipating longer ingress can set the reminder for a longer window.

BIOS Warnings

Large enterprise customers deploying multiple systems can centrally enable/control the BIOS warning using the WMI/BCU tool remotely to set the options below:

Dust Filter
- Disable*
- Enable

Dust Filter Reminder (Days)
15, 30, 60*, 90, 120, and 180

Z2 G5 Dust Filter (Filter Only)	**Part Number**	3TQ24AA
		This is intended to be a replacement filter for the HP Z2 Tower G5 Workstation in the event that the original filter would need to be replaced.

HP Z2 Tower PCIe Card Holder/Blower Kit	**Part Number**	2B1D4AA
	Features	This card holder/blower kit is required to enable added mechanical stability when configuring select graphics cards on the HP Z2 Tower G5 Workstation.

Technical Specifications - Networking and Communications

The kit enables added mechanical stability when configuring:
- 2x AMD Radeon™ Pro WX 3200 4GB Graphics
- 1x AMD Radeon™ Pro W5500
- 1x AMD Radeon™ Pro W5700
- 2x NVIDIA Quadro P400
- 2x NVIDIA Quadro P620
- 2x NVIDIA® Quadro® P1000 4GB Graphics
- 1x NVIDIA® Quadro® P2200 5GB Graphics
- 1x NVIDIA® Quadro® RTX 4000 8GB Graphics
- 1x NVIDIA® Quadro® RTX 5000 16GB Graphics
- 1x NVIDIA® Quadro® RTX6000 24GB Graphics

NOTE: If one of the above graphics cards is configured with the Z2 G5 TWR at time of purchase or the 700W chassis is configured, the Card Holder/Blower is automatically included.
- If one of the above graphics cards is added as an aftermarket option, the Card holder/Blower Kit (2B1D4AA) is required, as a separate purchase, for installation of the graphics card.

MISCELLANEOUS FEATURES

Management Features

- Advanced Configuration and Power Management Interface (ACPI). Allows the system to wake from a low power mode. Controls system power consumption, making it possible to place individual cards and peripherals in a low-power or powered-off state without affecting other elements of the system.
- Intel® Wired for Management support; industry wide initiative to make Intel® architecture based PCs, servers and mobile computers more inherently manageable out-of-the-box and over the network
- Dual State Power Button; acts as both an on/off button and a suspend-to-sleep button

Serviceability Features

- Dual colored power LED on front of computer to indicate either normal or fault condition
- Diagnostic LED Explanation Table:
  - Power LED will blink red 2 to 5 times, then blink white 2 or more times, then repeat (with beep tones for each blink initially):
    - 2 red + 2 white   User must provide file for BIOS recovery (USB storage typically)
    - 2 red + 3 white   User must enter a key sequence to proceed with recovery by policy
    - 2 red + 4 white   BIOS recovery is in progress
    - 3 red + 2 white   Memory could not be initialized
    - 3 red + 3 white   Graphics adaptor could not be found
    - 3 red + 4 white   Power supply failure / not connected
    - 3 red + 5 white   Processor not installed
    - 3 red + 6 white   Current processor does not support an enabled feature
    - 4 red + 2 white   Processor has exceeded its temperature threshold / system thermal shutdown
    - 4 red + 3 white   System internal temperature has exceeded its threshold
    - 5 red + 2 white   System controller firmware is not valid
    - 5 red + 3 white   System controller detected BIOS is not executing
    - 5 red + 4 white   BIOS could not complete initialization / PCA failure
    - 5 red + 5 white   System controller rebooted the system after a health or recovery timer triggered
- HP PC Hardware Diagnostics UEFI:
  - This utility enables hardware level testing outside the operating system on many components. The diagnostics can be invoked by pressing F2 at POST, and is available as a download from HP Support
- System/Emergency ROM
- Flash ROM
- CMOS Battery Holder for easy replacement
- Flash Recovery with Video Configuration Record Software5 Aux Power LED on System PCA
- Processor ZIF Socket for easy Upgrade
- Over-Temp Warning on Screen (Requires IM Agents)
- Clear Password Jumper
- DIMM Connectors for easy Upgrade
- Clear CMOS Button
- NIC LEDs (integrated) (Green & Amber)
- Color coordinated cables and connectors
- Tool-less Hood Removal
- Front power switch
- System memory can be upgraded without removing the system board or any internal components
- Tool-less Hard Drive, CD & Diskette Removal
- Blue Pull Tabs, and Quick Release Latches for easy Identification

Summary of Changes

Date of change:	Version History:		Description of change:
December 18, 2020	From v1 to v2	Changed	Processors, Other Hardware, HP Bios, PCIe Solid State Drives, Input Devices, Other Hardware, Networking and Communications sections
January 26, 2021	From v2 to v3	Changed	PCIe Hold-down / Blower Kit Specification section
February 1, 2021	From v3 to v4	Changed	Operating Systems and NETWORKING AND COMMUNICATIONS sections
March 1, 2021	From v4 to v5	Changed	Overview, Social and Environmental Responsibility sections
April 13, 2021	From v5 to v6	Changed	Format page 2 and changed Optical and Removable Storage section
May 1, 2021	From v6 to v7	Added	Service, Support, and Warranty section
		Changed	Graphics and System Configurations sections
May 31, 2021	From v7 to v8	Added	HP Smart Support and footnote
July 1, 2021	From v8 to v9	Changed	Graphics and Power Supply sections
August 1, 2021	From v9 to v10	Changed	Graphics section
September 1, 2021	From v10 to v11	Changed	Input Devices, Graphics, Optical and Removable Storage and PCIe Hold-down / Blower Kit Specification sections
October 1, 2021	From v11 to v12	Changed	Graphics section
December 1, 2021	From v12 to v13	Changed	Operating Systems, Graphics and Input Devices sections
December 15, 2021	From v13 to v14	Changed	OPERATING SYSTEM and Social and Environmental Responsibility sections
January 1, 2022	From v14 to v15	Changed	Networking and Communications, OPERATING SYSTEM and Application Software sections
April 1, 2022	From v15 to v16	Changed	Technical Specifications - Controller Cards
May 2, 2022	From v16 to v17	Changed	Graphics section
July 1, 2022	From v17 to v18	Changed	Graphics section
September 1, 2022	From v18 to v19	Changed	Racking and Physical Security section
March 1, 2023	From v19 to v20	Changed	Manageability section