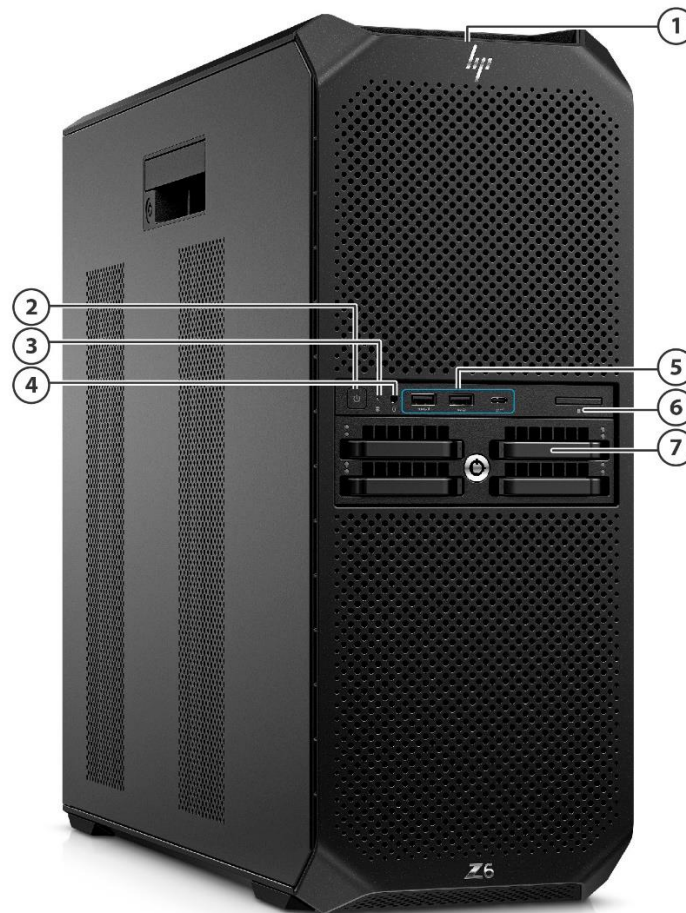


### Overview

#### HP Z6 G5 A Workstation



#### Front View

1. Integrated Front Handle
2. Power Button
3. HDD Activity Light
4. CTIA Headset Jack

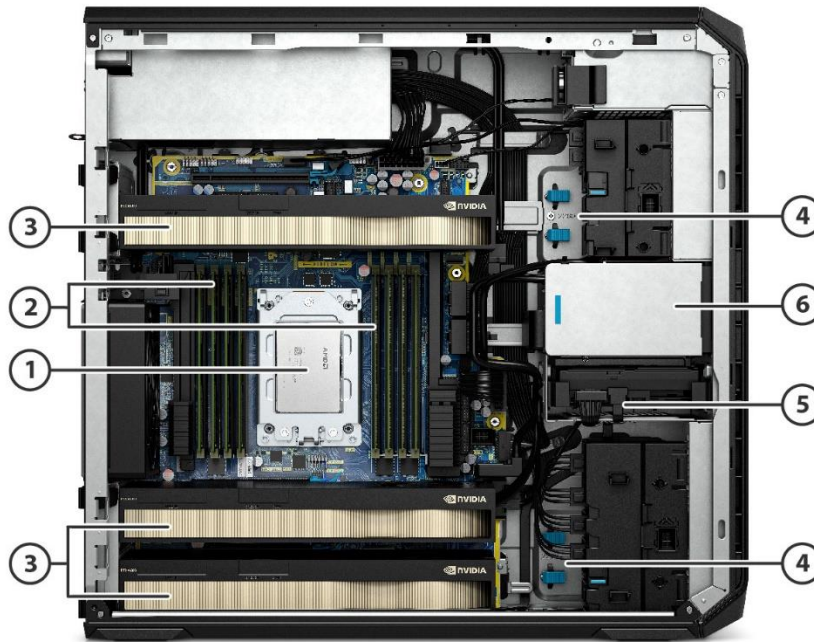
5. Front I/O Premium:  
1 USB 3.2 Gen2x2 Type-C®, 2 USB 3.1 Gen1 Type-A (left-most Type-A port has Charging Capability)<sup>1</sup>

Front I/O Entry:  
4 USB 3.1 Gen1 Type-A (left-most Type-A port has Charging Capability)

6. SD Card Reader
7. 1 External 5.25" bay

<sup>1</sup>Premium Front IO is shown on photography

### Overview



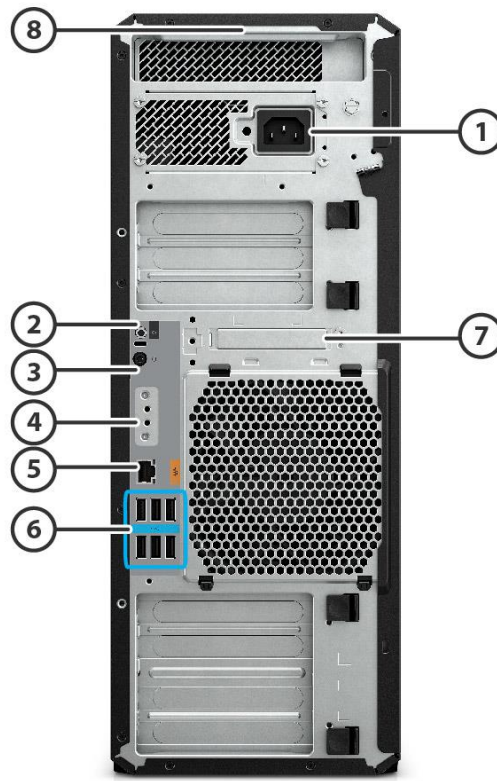
#### Internal View

- |   |   |
|---|---|
| 1. 1 AMD Ryzen™ Threadripper™ PRO 7000WX Series Processor   | 4. 4 internal onboard M.2 SSDs (2 PCIe x4 Gen5 and 2 PCIe x4 Gen4 system board connections) |
| 2. 8 DIMM slots for DDR5 ECC Memory   | 5. 1 Internal 5.25" bay   |
| 3. <ul style="list-style-type: none"><li>• Slot 1: PCIe Gen5 x16</li><li>• Slot 2: PCIe Gen5 x16</li><li>• Slot 3: PCIe Gen5 x16</li><li>• Slot 4: PCIe Gen5 x16</li><li>• Slot 5: PCIe Gen4 x16</li><li>• Slot 6: PCIe Gen4 x4</li></ul> | 6. 1 External 5.25" bay   |

**NOTE:** Not shown in photography:

- 2x internal NVMe connectors to front removable M.2 carrier
- 2x internal USB Ports (1x single USB2.0 port, 1x USB3.0 port for SD card reader)
- 2x SATA ports

### Overview



### Rear View

- |   |  |
|---|--|
| 1. Choice of 775W, 1125W or 1450W, 90% Efficient Power Supplies | 5. 1xRJ-45 integrated LAN port (1 GbE DASH)              |
| 2. Rear Power Button  | 6. 6 SuperSpeed USB3.2 Gen1 Type-A 5 Gbps signaling rate |
| 3. Universal Audio Jack   | 7. 2x10GbE LAN ports (optional)                          |
| 4. Flex I/O Module (optional)                                   | 8. Integrated Rear Handle                                |

### Overview

#### Form Factor

Tower

#### Operating Systems

Preinstalled:

- Windows 11 Pro for Workstations<sup>2</sup>
- Ubuntu 22.04 LTS<sup>4</sup>
- HP Linux<sup>®</sup>-ready (minimal OS ready for customer OS installation)<sup>5</sup>

License Only:

- Red Hat<sup>®</sup> Enterprise Linux<sup>®</sup> Desktop Workstation (includes paper license with 1 year support; no preinstalled OS)<sup>6</sup>

Supported:

- Windows 10 Pro for Workstations<sup>2,3</sup>
- Red Hat<sup>®</sup> Enterprise Linux<sup>®</sup> Workstation 8 & 9 <sup>6</sup>
- Ubuntu 22.04 LTS<sup>5</sup>

<sup>2</sup> 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>.

<sup>3</sup> Win10 cannot be configured with 7995WX (96C) processor

<sup>4</sup> 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.

<sup>5</sup>A certified preloaded version of Ubuntu<sup>®</sup> 20.04 LTS is available from HP for this platform. 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 upgrades.

<sup>6</sup>For detailed Linux<sup>®</sup> OS/hardware support information, see:  
[http://www.hp.com/support/linux\\_hardware\\_matrix](http://www.hp.com/support/linux_hardware_matrix)

**NOTE:** Your product does not support Windows 8 or Windows 7. In accordance with Microsoft's support policy, HP does not support the Windows<sup>®</sup> 8 or Windows 7 operating system on products configured with Intel<sup>®</sup> and AMD<sup>®</sup> 7th generation and forward processors or provide any Windows<sup>®</sup> 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>

### Overview

#### Processors

Name <sup>1</sup>	Cores	Frequency (GHz)		L3 Cache (MB)	Memory Speed (MT/s)	TDP (W)
		Base Clock Speed	Boost Technology			
AMD Ryzen™ Threadripper™ PRO 7995WX	96	2.5	5.1	384	5200	350
AMD Ryzen™ Threadripper™ PRO 7985WX	64	3.2	5.1	256	5200	350
AMD Ryzen™ Threadripper™ PRO 7975WX	32	4.0	5.3	128	5200	350
AMD Ryzen™ Threadripper™ PRO 7965WX	24	4.2	5.3	128	5200	350
AMD Ryzen™ Threadripper™ PRO 7955WX	16	4.5	5.3	64	5200	350
AMD Ryzen™ Threadripper™ PRO 7945WX	12	4.7	5.3	64	5200	350

#### NOTE:

- AMD Ryzen™ Threadripper™ PRO 7000WX Series processors do not offer integrated graphics
- AMD Ryzen™ Threadripper™ PRO 7000WX Series processors support ECC memory

<sup>1</sup> 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. AMD's numberins is not a measurement of clock speed.

### Overview

<b>Color</b>	Black
<b>Convertibility</b>	No
<b>Expansion Slots</b> (see system board section for more details)	<ul style="list-style-type: none"> <li>• Slot 1: PCIe Gen5 x16</li> <li>• Slot 2: PCIe Gen5 x16</li> <li>• Slot 3: PCIe Gen5 x16</li> <li>• Slot 4: PCIe Gen5 x16</li> <li>• Slot 5: PCIe Gen4 x16</li> <li>• Slot 6: PCIe Gen4 x4</li> </ul>
<b>Expansion Bays</b> (see storage section for more details)	1x internal 3.5" bays (includes acoustic damping rail assembly) 1x external 5.25" bays (175mm depth limit)
<b>Front I/O</b>	Front I/O Premium: 1x SuperSpeed USB Type-C® 20 Gbps signaling rate (USB Power Delivery 3.0), 2x SuperSpeed USB Type-A 5 Gbps signaling rate, 1x headphone/microphone combo, SD card reader (optional). [left-most Type-A ports supports BC1.2 (Battery Charging)]  Front I/O Entry: 4x SuperSpeed USB Type-A 5 Gbps signaling rate, 1x CTIA headset jack, SD card reader (optional). [left-most Type-A ports supports BC1.2 (Battery Charging)]
<b>Internal I/O [5]</b>	2 USB ports and 2 SATA ports.
<b>Rear I/O</b>	1x Universal Audio Jack, 6x SuperSpeed USB Type-A 5 Gbps signaling rate, 1x RJ-45 integrated LAN port (1 GbE, DASH), 2x10GbE Network Module (optional), Flex I/O (optional)
<b>On-board RAID Support</b>	SATA RAID 0 Striped Array SATA RAID 1 Mirrored Array SATA RAID 10 Striped/Mirrored SATA RAID 5 Parity Array
<b>Chassis Dimensions (H x W x D)</b>	Footprint: H: 17.5" [444.5 mm] W: 6.65" [169 mm] D: 18.3" [465 mm] (measured to the rear panel) Maximum: H: 17.5" [444.5 mm] W: 6.65" [169 mm] D: 18.51" [470.2 mm] (measured to the rear system fan)
<b>Packaged Dimensions</b>	H: 24.0" [630mm] W: 12.3" [313mm] D: 23.3" [593mm]
<b>Palletization Profile</b>	6 units x 3 layers = 18 units per pallet 1200x1000x1836mm (pallet included)
<b>Rack Dimensions</b>	4U
<b>Weight</b>	Exact weights depend upon configuration (System weight only). Minimum: 13.2.4kg (29.1lbs.) Typical: 14.8kg (32.6lbs.) Maximum: 23.1kg (50.9lbs.)
<b>Power Supply</b>	Choice of 80 Plus Gold (90% efficiency at 50% load) Power Supplies: <ul style="list-style-type: none"> <li>• 1450W @230V (<a href="#">Delta Efficiency Report</a>)</li> <li>• 1125W @110V (<a href="#">Delta Efficiency Report</a>)</li> <li>• 775W (<a href="#">Delta Efficiency Report</a>) (<a href="#">LiteOn Efficiency Report</a>)</li> <li>• 525W (<a href="#">LiteOn Efficiency Report</a>)</li> </ul>

**NOTE:** not all configurations are supported on all power supplies. Configuration support depends on total system power budget and having sufficient number or type of PCIe supplemental power connectors. Confirm power supply and configuration support using configurator on [hp.com](http://hp.com).

- 1450W supports up to 900W of auxiliary graphics power (dependent on system configuration)

Overview

- 1125W supports up to 600W of auxiliary graphics power (dependent on system configuration)
- 775W supports up to 230W of auxiliary graphics power (dependent on system configuration)

**NOTE:** updating graphics after purchase may require additional power distribution cables and/or auxiliary graphics adapters to support the new graphics configuration.

Workstation ISV Certifications	See the latest list of certifications at <a href="http://www.hp.com/united-states/campaigns/workstations/partnerships.html">http://www.hp.com/united-states/campaigns/workstations/partnerships.html</a>
Chipset	AMD PRO 695 Chipset
Memory	8 DIMM slots, supporting up to 1TB, DDR5 5200 MT/s speed depending on the system configuration

### Supported Components

#### Processors

	Factory Configured	Option Kit	Option Kit Part Number	Support Notes
AMD Ryzen™ Threadripper™ PRO 7995WX	Y	N		
AMD Ryzen™ Threadripper™ PRO 7985WX	Y	N		
AMD Ryzen™ Threadripper™ PRO 7975WX	Y	N		
AMD Ryzen™ Threadripper™ PRO 7965WX	Y	N		
AMD Ryzen™ Threadripper™ PRO 7955WX	Y	N		
AMD Ryzen™ Threadripper™ PRO 7945WX	Y	N		

#### SATA Hard Drives

	Factory Configured	Option Kit	Option Kit Part Number
1TB 7200 SATA 3.5" HDD	Y	Y	
1TB 7200 SATA 3.5" Enterprise HDD	Y	Y	W0R10AA
2TB 7200RPM SATA 3.5in Enterprise HDD	Y	Y	2Z274AA
4TB 7200 RPM SATA 3.5in Enterprise HDD	Y	Y	K4T76AA/AT
8TB 7200RPM SATA 3.5in Enterprise HDD	Y	Y	2Z273AA
12TB 7200 RPM SATA-6G 3.5in Enterprise HDD	Y	Y	5S461AA
HP 2.5in to 3.5in HDD Adapter Kit	N	Y	J5T63AA
HP 2.5in to 3.5in HDD Adapter Kit	N	Y	J5T63AA

**NOTE:** For internal bay install, HDD option kits require separate purchase of 74Y88AA HP Z6 A HDD Cable Kit.

#### PCIe Solid State Drives

	Factory Configured	Option Kit	Option Kit Part Number
Z Turbo 512GB PCIe-4x4 2280 TLC M.2 SSD Module	Y	Y	38T80AA
Z Turbo 512GB PCIe-4x4 2280 SED OPAL2 TLC M.2 SSD Module	Y	Y	38T81AA
Z Turbo 512GB PCIe-4x4 2280 TLC Z4/Z6 Kit SSD	N	Y	56Q73AA
Z Turbo 512GB PCIe-4x4 2280 SED OPAL2 TLC M.2 Z4/Z6 Kit SSD	N	Y	56Q74AA
Z Turbo 1TB PCIe-4x4 2280 TLC SSD Module	Y	Y	38T77AA
Z Turbo 1TB PCIe-4x4 2280 SED OPAL2 TLC M.2 SSD Module	Y	Y	38T76AA
Z Turbo 1TB PCIe-4x4 2280 TLC Z4/Z6 Kit SSD	N	Y	56Q75AA
Z Turbo 1TB PCIe-4x4 2280 SED OPAL2 TLC M.2 Z4/Z6 Kit SSD	N	Y	5Z7E7AA
Z Turbo 2TB PCIe-4x4 2280 TLC SSD Module	Y	Y	38T75AA
Z Turbo 2TB PCIe-4x4 2280 SED OPAL2 TLC M.2 SSD Module	Y	Y	38T79AA
Z Turbo 2TB PCIe-4x4 2280 SED OPAL2 TLC M.2 Z4/Z6 Kit SSD	N	Y	56Q77AA
Z Turbo 4TB PCIe-4x4 2280 TLC M.2 SSD Module	Y	Y	5S496AA/AT
Z Turbo 4TB PCIe-4x4 2280 SED OPAL2 TLC M.2 SSD Module	Y	Y	5S497AA/AT
Z Turbo 4TB PCIe-4x4 2280 SED OPAL2 TLC M.2 Z4/Z6 Kit SSD	N	Y	5S4A1AA
<b>HP Z Turbo Drive Quad Pro</b>			
HP Z Turbo Drive Quad Pro PCIe-4x4 NVMe Carrier <sup>1</sup>	Y	Y	7H9Z3AA
HP Z Turbo Drive Quad Pro 512GB TLC SSD	Y	N	



### Supported Components

HP Z Turbo Drive Quad Pro 1TB TLC SSD	Y	N	
HP Z Turbo Drive Quad Pro 2TB TLC SSD	Y	N	
HP Z Turbo Drive Quad Pro 4TB TLC SSD	Y	N	
<b>HP Z Turbo Drive Dual Pro</b>			
HP Z Turbo Drive Dual Pro PCIe-4x4 NVMe Carrier <sup>2</sup>	Y	Y	56Q86AA
HP Z Turbo Drive Dual Pro 512GB TLC SSD	Y	N	
HP Z Turbo Drive Dual Pro 1TB TLC SSD	Y	N	
HP Z Turbo Drive Dual Pro 2TB TLC SSD	Y	N	
HP Z Turbo Drive Dual Pro 4TB TLC SSD	Y	N	

**Note 1:** Kit includes dual pro carrier and heatsink. Requires separate purchase of Z Turbo PCIe 4x4 M.2 SSD modules.

**Note 2:** Kit includes quad pro carrier and heatsink. Requires separate purchase of Z Turbo PCIe 4x4 M.2 SSD modules.

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB of system disk (for Windows) is reserved for system recovery software.

Graphics		Factory Configured	Option Kit	Option Kit Part Number	Supported # of cards
<b>Graphics Cable Adapters</b>	HP DisplayPort to HDMI Adapter	Y	Y	2JA63AA	
	HP DisplayPort to DVI Adapter (Bulk 90)	N	Y	FH973A6	
	HP DisplayPort to VGA Adapter	N	Y	AS615AA/AT	
	HP DisplayPort to VGA Adapter	N	Y	F7W97AA	
	HP miniDP-to-DP Adapter Cable (single)	Y	Y	2MY05AA	
	HP miniDP-to-DP Adapter Cable (2-pack)	Y	N		
	HP miniDP-to-DP Adapter Cable (4-pack)	Y	N		
	HP miniDP-to-DP Adapter Cable (8-pack)	Y	N		
	HP miniDP-to-DP Adapter Cable (Bulk 12)	N	Y	2KW87A6	
	HP Graphics Power Cable CPU-8p to CPU-8p <sup>4</sup>	N	Y	6J6H7AA	
	HP Graphics Power Cable CPU-8p to x2 PCIe 8p(6+2) <sup>4</sup>	N	Y	6J6H8AA	
	NVIDIA 3D Stereo Bracket	N	Y	K0A25AA	
	NVIDIA Quadro Sync II	N	Y	1WT20AA	
<b>Ultra High-End Graphics</b>	NVIDIA® RTX 6000 Ada 48GB <sup>1,3</sup>	Y	Y	79C23AA	3
	AMD® Radeon™ Pro W7900 48GB <sup>1,6</sup>	Y	Y	8F699AA	1
	NVIDIA® RTX 5000 Ada 24GB <sup>1</sup>	Y	Y	8D6B6AA	3
	NVIDIA Quadro Sync II	N	Y	1WT20AA	
<b>High-End Graphics</b>	NVIDIA® RTX 4500 Ada 20GB <sup>1,6</sup>	Y			3
	NVIDIA® RTX A4500 20GB <sup>1</sup>	Y	Y	5S458AA/AT	3
	NVIDIA® RTX 4000 Ada 16GB <sup>1,5,6</sup>	Y			3
	NVIDIA® RTX A4000 16GB <sup>1,5</sup>	Y	Y	20X24AA/AT	3
	NVIDIA® RTX A2000 12GB <sup>1</sup>	Y	Y	5Z7D9AA/AT	3
<b>Mid-range Graphics</b>	NVIDIA® T1000 8GB <sup>2</sup>	Y	Y	5Z7D8AA/AT	3

## Supported Components

Entry Graphics	AMD® Radeon™ Pro W7600 8GB <sup>1</sup>	Y	Y	8D6B9AA	3
	AMD® Radeon™ Pro W7500 8GB <sup>1</sup>	Y	Y	8D6C2AA	3
	NVIDIA® T400 4GB <sup>2</sup>	Y	Y	5Z7E0AA/AT	3
	AMD® Radeon™ RX 6400 4GB	Y	Y	6Q3U4A	1

**Note 1:** Single, dual, or triple graphics configurations require the HP Z6 Fan and Front Card Guide. If configured as an after-market option, a separate purchase of the HP Z6 Fan and Front Card Guide 56Q80AA is required. If factory configured, the fan and front card guide is included.

**Note 2:** Dual or triple graphics configurations require the HP Z6 Fan and Front Card Guide. If configured as an after-market option, a separate purchase of the HP Z6 Fan and Front Card Guide 56Q80AA is required. If factory configured, the fan and front card guide is included.

**Note 3:** Triple graphics configuration requires the HP Z6 PCIe Retainer with Fans. If configured as an after-market option, a separate purchase of the HP Z6 PCIe Retainer with Fans 56Q85AA is required. If factory configured, the PCIe retainer with fans is included.

**Note 4:** Required for select graphics configurations.

**Note 5:** Only supported with 1125W and 1450W PSUs

**Note 6:** Not available at launch; available early 2024

## Memory

	Factory Configured	Option Kit	Option Kit Part Number	Support Notes
32GB (2x16GB) DDR5 5600 DIMM ECC REG Memory	Y	N		
64GB (4x16GB) DDR5 5600 DIMM ECC REG Memory	Y	N		
64GB (2x32GB) DDR5 5600 DIMM ECC REG Memory <sup>2</sup>	Y	N		
128GB (8x16GB) DDR5 5600 DIMM ECC REG Memory <sup>2</sup>	Y	N		
128GB (4x32GB) DDR5 5600 DIMM ECC REG Memory <sup>2</sup>	Y	N		
256GB (8x32GB) DDR5 5600 DIMM ECC REG Memory <sup>2</sup>	Y	N		
256GB (4x64GB) DDR5 5600 DIMM ECC REG Memory <sup>2</sup>	Y	N		
256GB (2x128GB) DDR5 5600 DIMM ECC REG Memory <sup>1,2,3</sup>	Y	N		
512GB (8x64GB) DDR5 5600 DIMM ECC REG Memory <sup>2</sup>	Y	N		
512GB (4x128GB) DDR5 5600 DIMM ECC REG Memory <sup>1,2,3</sup>	Y	N		
1TB (8x128GB) DDR5 5600 DIMM ECC REG Memory <sup>1,2,3</sup>	Y	N		
<b>After Market Options</b>				
16GB (1x16GB) DDR5 5600 DIMM ECC REG Memory	Y	Y	760N2AA	
32GB DDR5 (1x32GB) 5600 DIMM ECC REG Memory <sup>2</sup>	N	Y	760R7AA	
64GB DDR5 (1x64GB) 5600 DIMM ECC REG Memory <sup>2</sup>	N	Y	760R8AA	
128GB (1x128GB) DDR5 5600 DIMM ECC REG Memory <sup>1,2,3</sup>	N	Y	760R9AA	

**Note 1:** This memory configuration requires the 1125W/1450W PSU

**Note 2:** Configurations with 32GB DIMMs or greater come with memory fan installed

**Note 3:** Not available at launch; available early 2024

## Multimedia and Audio Devices

	Factory Configured	Option Kit	Option Kit Part Number
Poly Savi 8210/8220 Universal Power Supply - 9V 500mA	N	Y	783M9AA

### Supported Components

Poly Savi 7310 Headset	N	Y	783N0AA
Poly Savi 7320 Headset	N	Y	783N1AA
Poly Savi 7310 Headset (Teams)	N	Y	783N2AA
Poly Savi 7320 Headset (Teams)	N	Y	783N3AA
Poly Savi 7210 Headset	N	Y	783Q5AA
Poly Savi 7220 Headset	N	Y	783Q6AA
Poly BT700 USB-A Bluetooth Adapter	N	Y	786C4AA
Poly BT700 USB-C Bluetooth Adapter	N	Y	786C5AA
Poly DA75 USB to QD Adapter	N	Y	786C6AA
Poly DA85 USB to QD Adapter	N	Y	786C7AA
Poly DA85-M USB to QD Adapter	N	Y	786C8AA
Poly Voyager Office Base	N	Y	786C9AA
Poly Voyager Office Base Teams	N	Y	786D0AA
HyperX Cloud MIX Wireless GAM HEADSET	N	Y	4P5K9AA
HyperX Cloud Core Black Gaming Headset	N	Y	4P4F2AA
HyperX Cloud Flight - Wireless Gaming Headset (Black-Red) (HX-HSCF-BK/AM)	N	Y	4P5L4AA
HyperX Cloud Stinger Core GAM HEADSET PC	N	Y	4P4F4AA
HyperX Cloud II Core Wireless GAM HEADSET	N	Y	6Y2G8AA
HyperX SoloCast - USB Microphone (Black) (HMIS1X-XX-BK/G)	N	Y	4P5P8AA

### Optical and Removable Storage

	Factory Configured	Option Kit	Option Kit Part Number
HP 9.5mm Slim DVD-ROM Drive	Y	Y	K3R63AA
HP 9.5mm Slim Blu-Ray BDXL Writer Drive	Y	Y	K3R65AA
HP 9.5mm Slim DVD Writer	Y	Y	K3R64AA

### Networking and Communications

	Factory Configured	Option Kit	Option Kit Part Number
NVIDIA Mellanox ConnectX-6 DX Dual Port 10/25GbE SFP28 NIC	Y	Y	436M8AA
HP 10GbE SFP+ SR/SW LC Fiber Optic Transceiver	Y	Y	860T8AA
HP 25GbE SFP28 LC Fiber Optic Transceiver	Y	Y	860T9AA
HP Dual Port 10GbE NIC G2 <sup>1</sup>	Y	Y	360K6AA
Intel® X550 Dual Port 10GbE NIC	Y	Y	1QL46AA
Intel® I226-T1 2.5GbE NIC	Y	Y	
Allied Telesis AT-2911T/2-901 Dual Port 1GbE NIC	Y	Y	6E3Y9A
AT-2914SX/LC-901 Single Port 1GbE NIC	Y	Y	1C7Q2AA
Intel® I350-T4 4-Port 1GbE NIC	N	Y	W8X25AA
HP Flex 10GbE Single Port	Y	Y	56Q71AA
HP Flex 2.5GbE LAN Single Port	Y	Y	169K0AA/AT
HP Flex 1GbE Fiber Single Port LC	Y	Y	20J15AA
HP Flex 1GbE Single Port NIC	Y	N	
HP Flex MediaTek RZ616 Wi-Fi 6 +Bluetooth® 5.3 WLAN wireless card with Internal Antenna	Y	N	

### Supported Components

Intel® AX210 Wi-Fi 6E non-vPro + Bluetooth® 5.2 wireless card with External Antenna WLAN	Y	Y	340L7AA
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**Note1:** installation of component does not require PCIe slot

#### HP Anyware Remote System Controller

	Factory Configured	Option Kit	Option Kit Part Number
HP Anyware Remote System Controller	Y	Y	7K6D7AA
HP Anyware Remote System Controller Main Board Adapter	Y	Y	7K6D8AA
HP Anyware Integrated Remote System Controller	Y	Y	7K6D9AA
HP Anyware Remote System Controller for Universal KVM	N	Y	7K7N2AA

**NOTE:**

HP Anyware Remote System Controller is an IT Manager targeted manageability feature.

HP Anyware Remote access software is an End User centric and available as a separate AMO accessory.

#### Racking and Physical Security

	Factory Configured	Option Kit	Option Kit Part Number
Z2 Mini/Z2 Tower/Z4/Z6 Depth Adjustable Fixed Rail Rack Kit	N	Y	2A8Y5AA
HP Keyed Cable Lock	N	Y	T1A62AA
HP Master Keyed Cable Lock 10mm	N	Y	T1A63AA

#### Input Devices

	Factory Configured	Option Kit	Option Kit Part Number
<b>Mouse and Keyboard Combo</b>			
HP 655 Wireless Keyboard and Mouse Combo	N	Y	4R009AA/ET/UT/A6
HP Wired Desktop 320MK Mouse and Keyboard	N	Y	9SR36AA/ET/UT
<b>Keyboard only</b>			
HP 320K Wired Keyboard	Y	Y	9SR37AA/ET/UT
HP 125 Wired Keyboard	Y	Y	266C9AA/ET/UT
HP 975 USB+BT Dual-Mode Wireless Keyboard	N	Y	3Z726AA/UT
HP 455 Programmable Wireless Keyboard	N	Y	4R177AA/ET/UT/A6
HP Business Slim Smartcard Keyboard	Y	Y	Z9H48AA/AT
HyperX MKW100 Red Gaming Keyboard	N	Y	4P5E1AA
<b>Mouse only</b>			
HP Wired 320M Mouse	Y	Y	9VA80AA/ET/UT
HP Creator 935 Black Wireless Mouse	N	Y	1D0K8AA/UT
HP 128 LSR Wired Mouse	Y	Y	265D9AA/ET/UT
HP 125 Wired Mouse	N	Y	265A9AA/ET/UT
HyperX Pulsefire Core Black USB Gaming Mouse	N	Y	4P4F8AA
HyperX Pulsefire Haste White Wireless Gaming Mouse 2	N	Y	6N0A9AA
HyperX Pulsefire Haste Black Wireless Gaming Mouse 2	N	Y	6N0B0AA

**NOTE:** Keyboard and Mouse are optional or add on features.

### Supported Components

#### Other Hardware

	Factory Configured	Option Kit	Option Kit Part Number
HP Flex USB-C 3.2 Gen2	Y	Y	141K6AA/AT
HP Flex Dual USB-A 3.2 Gen1	Y	Y	141J8AA/AT
HP Flex Serial Port v3	Y	Y	5B895AA
HP Dual Thunderbolt4 PCIe x4 Low Profile Card <sup>4</sup>	Y	Y	340L1AA
HP Type-C SuperSpeed USB 20Gbps Front v3 Premium Module	Y	Y	8R3X3AA
HP Internal Serial+PS/2 Port	Y	Y	56Q78AA
HP USB 2.0 Type-A Port Adapter Kit <sup>1</sup>	N	Y	79C24AA
HP SD Card Reader Zx G4	Y	Y	2VK54AA
HP Z6 G5 A Fan and Front Card Guide Kit <sup>3</sup>	Y	Y	760N5AA
HP Z6 G5 A Memory Cooling Solution <sup>2</sup>	Y	Y	760N6AA
HP Z6 G5 A PCIe Retainer with Fans <sup>3</sup>	Y		760N7AA
HP C13 1.83m Power Cord Kit (halogen-free)	Y	N	
HP C13 1.83m Power Cord Kit	Y	Y	6Z1T9AA
HP C13-C14 2.0m Power Cord Kit	Y	N	
HP Z4/Z6 A HDD Cable Kit	N	Y	74Y88AA

**Note 1:** USB 2.0 Type-A Port Adapter Kit has a single USB 2.0 type A connector.

**Note 2:** HP Z6 G5 A Memory Cooling Solution 760N6AA is required as a separate purchase for after-market memory configurations using 32GB Registered DIMMs or greater. If configured from the factory, configurations using 32GB Registered DIMMs or greater will include a memory cooling solution.

**Note 3:** HP Z6 G5 A Fan and Front Card Guide Kit 760N5AA and HP Z6 G5 A PCIe Retainer with Fans 760N7AA are required for specific graphics configurations (see Graphics section).

**Note 4:** Not available at launch; available early 2024

#### Software

	Factory Configured	Option Kit	Support Notes
HP Performance Advisor	Y	N	1
HP PC Hardware Diagnostics UEFI	Y	N	2
HP PC Hardware Diagnostics Windows	Y	N	
HP Wolf Security	Y	N	
HP Notifications	Y	N	
HP Desktop Support Utility	Y	N	
HP Documentation	Y	N	
myHP	Y	N	
Kingsoft WPS Office	Y	N	
Z by HP Data Science Stack Manager	Y	N	3
WSL2/Ubuntu Data Science Stack	Y	N	3
HP Image Assistant	N	N	
HP Support Assistant	N	N	

**Note 1:** Also available as a free download from <http://www.hp.com/go/performanceadvisor>

**Note 2:** Windows OS only

### Supported Components

**Note 3:** Only available with NVIDIA graphics

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### Supported Components

#### Operating Systems Windows 11 Pro for Workstations<sup>2</sup>

Windows 11 Pro for Workstations (preinstalled with Windows 10 Pro for Workstations Downgrade).<sup>2,3</sup>

Windows 10 Pro for Workstations<sup>2,5</sup>

Ubuntu 22.04 LTS<sup>4</sup>

HP Linux®-ready

Red Hat® Enterprise Linux® (RHEL) Workstation - paper

<sup>2</sup> 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>.

<sup>3</sup> This system is preinstalled with Windows 10 Pro software and also comes with a license for Windows 11 Pro software and provision for recovery software. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.

<sup>4</sup> 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.

<sup>5</sup> Not available as factory image, support only.

**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>

### Supported Components

## SOFTWARE COMPONENTS AND APPLICATIONS WITH WINDOWS

### Software

HP Anyware  
HP Performance Advisor<sup>1</sup>  
HP PC Hardware Diagnostics UEFI  
HP PC Hardware Diagnostics Windows  
HP Wolf Security<sup>22</sup>  
HP Notifications  
HP Desktop Support Utility  
HP Documentation  
myHP  
HP Privacy Settings  
HP Easy Clean  
Kingsoft WPS Office (China only)  
WSL2/Ubuntu Data Science Stack  
HP Image Assistant (Supported)  
HP Support Assistant (Supported)  
HP Services Scan<sup>25</sup>

### Security Management

HP Secure Erase<sup>16</sup>  
HP Wolf Pro Security Edition (paid option)<sup>18</sup>  
HP Wolf Security for Business  
HP Sure Click  
HP Sure Sense  
HP Sure Run GenX<sup>9</sup>  
HP Sure Recover GenX<sup>10</sup>  
HP Sure Start GenX<sup>8</sup>  
HP Tamper Lock  
HP Sure Admin  
HP Client Security Manager GenX<sup>4</sup>

<sup>1</sup> HP Performance Advisor Software - HP Performance Advisor is ready to help you get the most out of your HP Workstation from day one—and every day after. Learn more or download at: <http://hp.com/PerformanceAdvisor>

<sup>2</sup> HP Driver Packs not preinstalled, however available for download at <http://www.hp.com/go/clientmanagement>.

<sup>3</sup> HP Manageability Integration Kit can be downloaded from <https://ftp.ext.hp.com/pub/caps-softpaq/cmit/HPMIK.html>

<sup>4</sup> HP Client Security Manager Gen7 requires Windows and is available on the select HP PCs.

<sup>7</sup> Microsoft Defender Opt in and internet connection required for updates.

<sup>8</sup> HP Sure Start Gen 7 is available on select HP PCs and workstations. See product specifications for availability.

<sup>9</sup> HP Sure Run Gen5 is available on select Windows 11 based HP Pro, Elite and Workstation PCs with select Intel® or AMD processors

<sup>10</sup> HP Sure Recover Gen4 is available on select HP PCs and requires Windows 10 and an open network connection. You must back up important files, data, photos, videos, etc. before using HP Sure Recover to avoid loss of data. Network based recovery using Wi-Fi is only available on PCs with Intel Wi-Fi Module

<sup>13</sup> HP BIOSphere Gen6 features may vary depending on the platform and configurations.

<sup>16</sup> 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.

<sup>18</sup> HP Wolf Pro Security Edition is available preloaded on select SKUs and, depending on the HP product purchased, includes a



### Supported Components

paid 1-year or 3-year license. The HP Wolf Pro Security Edition software is licensed under the license terms of the HP Wolf Security Software - End-User license Agreement (EULA) that can be found at: [https://support.hp.com/us-en/document/ish\\_3875769-3873014-16](https://support.hp.com/us-en/document/ish_3875769-3873014-16) as that EULA is modified by the following: “7. Term. Unless otherwise terminated earlier pursuant to the terms contained in this EULA, the license for the HP Wolf Pro Security Edition (HP Sure Sense Pro and HP Sure Click Pro) is effective upon activation and will continue for either a twelve (12) month or thirty-six (36) month license term (“Initial Term”). At the end of the Initial Term you may either (a) purchase a renewal license for the HP Wolf Pro Security Edition from HP.com, HP Sales or an HP Channel Partner, or (b) continue using the standard versions of HP Sure Click and HP Sure Sense at no additional cost with no future software updates or HP Support.

<sup>22</sup> HP Wolf Security for Business requires Windows 10 or 11 Pro higher, includes various HP security features and is available on HP Pro, Elite, RPOS and Workstation products. See product details for included security features.

<sup>23</sup> 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.

<sup>24</sup>Firmware TPM is version 15.23 and version 7.2.3.1 for Infineon and Nuvoton chips, respectively. Hardware TPM is v2.0.

<sup>25</sup> HP Services Scan is provided with Windows Update on select products and will check entitlement on each hardware device to determine if an HP TechPulse-enabled service has been purchased, and will download applicable software automatically. HP TechPulse is a telemetry and analytics platform that provides critical data around devices and applications. For full system requirements or to disable this feature, please visit <http://www.hpdaas.com/requirements> . Not applicable in China.

### System Technical Specifications

#### System Board

<b>System Board Form Factor</b>	Tower	
<b>Processor Socket</b>	AMD Socket SP6	
<b>Chipset</b>	AMD PRO 695 Chipset	
<b>Super I/O Controller</b>	Nuvoton SIO21	
<b>Memory Expansion Slots</b>	8 DDR5 memory slots	
<b>Memory Type Supported</b>	DDR5 RDIMM (Registered), RDIMMs and 3DS RDIMMs	
<b>Memory Modes</b>	Non-Interleaving for single channel, Interleaving when multiple channels are populated	
<b>Memory Speed Supported</b>	5200MT/s DDR5. The memory will run at the slowest supported speed that either the CPU or the memory modules support. For example, if the CPU only supports 5200MHz speed, 5600MHz will only run at 5200MHz'	
<b>Memory Protection</b>	ECC on data	
<b>Maximum Memory</b>	1TB when 128GB are available	
<b>Memory Configuration (Supported)</b>	16GB, 32GB, 64GB RDIMMs, 128GB 3DS RDIMMs when available. RDIMMs and 3DS RDIMMs cannot be mixed in the same system.	
<b>NVDIMM Memory</b>	N/A	
<b>PCI Express Connectors</b>	Standard PCIe Slots: <ul style="list-style-type: none"> <li>• 4 PCI Express Gen5 slot x16 mechanical/ x16 electrical (full height, full length)</li> <li>• 1 PCI Express Gen4 slot x16 mechanical/ x16 electrical (full height, full length)</li> <li>• 1 PCI Express Gen4 slot x4 mechanical/ x4 electrical (full height, half length)</li> </ul> M.2 Slots: <ul style="list-style-type: none"> <li>• 2 PCI Express Gen5 slot x4.</li> <li>• 2 PCI Express Gen4 slot x4.</li> </ul> Other PCIe Connections: <ul style="list-style-type: none"> <li>• 2 Front NVMe Storage (SlimSAS PCIe Gen4 x8) (each PCIe connection supports two x4 M.2 devices for a total system support of four x4 M.2 devices via QX448)</li> <li>• 1 Connector for HP Dual Port 10GbE NIC G2 (PCIe Gen4 x4)</li> </ul>	
<b>Supported Drive Interfaces</b>	<b>SATA</b>	Integrated (2) Serial ATA interfaces (6Gb/s SATA).
	<b>Integrated RAID</b>	AMD Express SATA RAID 0 and 1 supported on Windows 11 AMD Express NVMe RAID 0, 1, 5, and 10 supported on Windows 11
	<b>Integrated Graphics</b>	None
	<b>Network Controller</b>	Integrated Realtek RTL8111EPP Interface: 1GbE RJ-45 Port (10/100/1000Mbps) Management Capabilities: WOL, PXE, DASH Manageability
	<b>External SATA (eSATA)</b>	None
	<b>Serial</b>	1 internal header (requires optional Serial Port Adapter Kit)
<b>USB Connector(s)</b>	<b>2nd Serial</b>	Flex IO Module
	<b>HD Integrated Audio</b>	Yes
	<b>Front</b>	Front I/O Entry: 4 USB 3.1 Gen1 Type-A (left-most port supports Battery Charging 1.2)
		Front I/O Premium: 1x USB 3.2 Gen2x2 Type-C® (Power Delivery 3.0) 2x USB 3.1 Gen1 Type-A (left-most port supports Battery Charging 1.2)
		• USB Type-C® Ports provide 3 Amps @ 5 Volts

### System Technical Specifications

		<ul style="list-style-type: none"> <li>• Charging USB Type-A port provides 1.5 Amps @ 5 Volts</li> <li>• Standard USB Type-A Ports provide 900mA @ 5 Volts</li> </ul>
	<b>Rear</b>	4x USB 3.1 Gen1 Type-A with USB hub and 2x USB 3.2 Gen 1 Type-A without hub. (Optional: 2x USB 3.0 Type-A (optional via Flex module) or 1x USB 3.1 Gen2 Type-C® charging port (optional via Flex module).
	<b>Internal</b>	1 USB 3.2 Gen1 header, with a single 12-pin shrouded connector. This header supports a USB Media Card reader. 1 USB 2.0 single port header
<b>HD Integrated Audio</b>	Yes	
<b>Flash ROM</b>	Yes	
<b>CPU Fan Header</b>	Yes	
<b>Memory Fan Header</b>	Yes	
<b>Chassis Fan Header</b>	Yes (Rear, Front Upper, Front Lower)	
<b>Front PCI Fan Header</b>	Yes (Lower and Upper)	
<b>Front Control Panel/Speaker Header</b>	Yes	
<b>CMOS Battery Holder - Lithium</b>	Yes	
<b>Integrated Trusted Platform Module</b>	Integrated TPM 2.0 The TPM module disabled where restricted by law, i.e. Russia.	
<b>Power Supply Headers</b>	Yes	
<b>Power Switch, Power LED &amp; Hard Drive LED Header</b>	Yes	
<b>Clear Password Jumper</b>	Yes	
<b>Keyboard/Mouse</b>	USB or PS/2 (option)	
<b>Power Supply</b>	1125W and 775W	

### System Technical Specifications

System Configurations							
Example Configuration #1	Processor Info	AMD Ryzen™ Threadripper™ PRO 7945WX					
	Memory Info	32GB DDR5 (2x16GB) RegRAM					
	Graphics Info	1x NVIDIA® A2000					
	Disks/Optical/Floppy	1x 4TB Internal M.2 SSD + 1x DVDRW SATA					
	PSU	775W					
	Other	N/A					
Energy Consumption (Watts)		115 VAC		230 VAC		100 VAC	
		LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled
	Windows Idle (S0)	57.382	56.779	57.761	56.668	TBD	TBD
	Windows Busy Typ (S0)	367.6		361.6		364.79	
	Windows Busy Max (S0)	385.28		380.22		382.32	
	Sleep (S3)	6.557	6.483	6.976	6.543	6.574	6.492
	Off (S5)	1.969	1.949	2.448	2.059	2.032	1.957
	Zero Power Mode (EuP)	0.247		0.286		0.248	
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)	195.787	193.729	197.081	193.351	198.506	193.703
	Windows Busy Typ (S0)	1254.251		1233.779		1244.263	
	Windows Busy Max (S0)	1314.576		1297.311		1304.476	
	Sleep (S3)	22.372	22.120	23.802	22.324	22.430	22.151
	Off (S5)	6.718	6.650	8.352	7.025	6.933	6.677
	Zero Power Mode (EuP)	0.843		0.976		0.846	
Example Configuration #2	Processor Info	AMD Ryzen™ Threadripper™ PRO 7955WX					
	Memory Info	64GB DDR5 (4x16GB) RegRAM					
	Graphics Info	1x NVIDIA® A4000					
	Disks/Optical/Floppy	1x 4TB Internal SATA HDD + 2x 4TB Internal M.2 SSD					
	PSU	1125W					
	Other	N/A					
Energy Consumption (Watts)		115 VAC		230 VAC		100 VAC	
		LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled
	Windows Idle (S0)	75.011	72.431	75.639	73.246	74.745	72.687
	Windows Busy Typ (S0)	533.61		526.80		535.71	
	Windows Busy Max (S0)	605.35		588.25		606.37	
	Sleep (S3)	6.708	6.657	6.825	6.627	6.712	6.664
	Off (S5)	2.475	2.401	2.512	2.436	2.481	2.406
	Zero Power Mode (EuP)	0.257		0.296		0.255	
Heat Dissipation (Btu/hr)		115 VAC		230 VAC		100 VAC	
		LAN	LAN	LAN	LAN	LAN	LAN

### System Technical Specifications

		Enabled	Disabled	Enabled	Disabled	Enabled	Disabled
	Windows Idle (S0)	255.938	247.134	258.080	249.915	255.030	248.008
	Windows Busy Typ (S0)	1820.677		1797.442		1827.843	
	Windows Busy Max (S0)	2065.454		2007.109		2068.934	
	Sleep (S3)	22.888	22.714	23.287	22.611	22.901	22.738
	Off (S5)	8.445	8.192	8.571	8.312	8.465	8.209
	Zero Power Mode (EuP)	0.877		1.010		0.871	
	<b>Example Configuration #3</b>	<b>Processor Info</b>	AMD Ryzen™ Threadripper™ PRO 7975WX				
<b>Memory Info</b>		128GB DDR5 (8x16GB) RegRAM					
<b>Graphics Info</b>		2x NVIDIA® A4000					
<b>Disks/Optical/Floppy</b>		2x 1TB Internal SATA HDD + 2x 4TB Internal M.2 SSD + 1x DVDRW SATA					
<b>PSU</b>		1125W					
<b>Other</b>		N/A					

Energy Consumption (Watts)		115 VAC		230 VAC		100 VAC	
		LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled
	Windows Idle (S0)	108.546	105.36	109.341	105.884	108.451	104.874
	Windows Busy Typ (S0)	716.74		700.56		718.32	
	Windows Busy Max (S0)	780.421		759.67		776.841	
	Sleep (S3)	8.295	8.034	8.455	8.237	8.311	8.287
	Off (S5)	2.289	2.271	2.297	2.281	2.288	2.274
	Zero Power Mode (EuP)	0.231		0.293		0.233	

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)	370.359	359.489	373.071	361.276	370.035	357.831
	Windows Busy Typ (S0)	2445.516		2390.311		2450.908	
	Windows Busy Max (S0)	2662.796		2591.994		2650.581	
	Sleep (S3)	28.302	27.412	28.848	28.105	28.357	28.275
	Off (S5)	7.811	7.748	7.837	7.783	7.806	7.759
	Zero Power Mode (EuP)	0.788		0.999		0.794	

<b>Example Configuration #4</b>	<b>Processor Info</b>	AMD Ryzen™ Threadripper™ PRO 7995WX						
	<b>Memory Info</b>	256GB DDR5 (8x32GB) RegRAM						
	<b>Graphics Info</b>	2x NVIDIA® A6000						
	<b>Disks/Optical/Floppy</b>	2x 4TB Internal SATA HDD + 2x 4TB Internal M.2 SSD						
	<b>PSU</b>	1450W/200V						
	<b>Other</b>	N/A						

Energy Consumption (Watts)		115 VAC		230 VAC		100 VAC	
		LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled	LAN Enabled	LAN Disabled
	Windows Idle (S0)		N/A		179.521	157.249	N/A
Windows Busy Typ (S0)		N/A		925.96		N/A	

### System Technical Specifications

	Windows Busy Max (S0)	N/A		1003.71		N/A	
	Sleep (S3)	N/A	N/A	10.674	10.514	N/A	N/A
	Off (S5)	N/A	N/A	2.886	2.871	N/A	N/A
	Zero Power Mode (EuP)	TBD		0.312		N/A	

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)	N/A		612.526	536.533	N/A	
	Windows Busy Typ (S0)	N/A		3159.376		N/A	
	Windows Busy Max (S0)	N/A		3424.658		N/A	
	Sleep (S3)	N/A	N/A	36.419	35.873	N/A	N/A
	Off (S5)	N/A	N/A	9.847	9.795	N/A	N/A
	Zero Power Mode (EuP)	N/A		1.0645		N/A	

### System Technical Specifications

<b>Operating Voltage Range</b>	TBD
<b>Rated Voltage Range</b>	TBD
<b>Rated Line Frequency</b>	TBD
<b>Operating Line Frequency Range</b>	TBD
<b>ENERGY STAR® certified</b> (Config Dependent)	TBD
<b>CECP Compliant @ 220V</b>	TBD
<b>FEMP Standby Power Compliant</b>	TBD
<b>Built-in Self Test (BIST) LED</b>	TBD
<b>Surge Tolerant Full Ranging Power Supply</b> (withstands power surges up to 2000V)	TBD
<b>Hood Lock Header</b>	TBD
<b>ErP Lot 6- Tier 1 Compliance @ 230V</b> (<1W in S5 - Power Off)	TBD
<b>ErP Lot 6- Tier 2 Compliance @ 230V</b> (<0.5W in S5 - Power Off)	TBD

Declared Noise Emissions (Entry-level, Mid-level, and High-end configurations; tested on floor)			
<b>System Configuration (Entry level)</b>	<b>Processor Info</b>	AMD Ryzen™ Threadripper™ PRO 7945WX	
	<b>Memory Info</b>	32GB DDR5 (2x16GB) RegRAM	
	<b>Graphics Info</b>	1x NVIDIA Quadro A2000	
	<b>Disks/Optical</b>	1x 4TB M.2 + 1x DVD RW SATA	
	<b>Power Supply</b>	775W	
<b>Declared Noise Emissions</b>		<b>Sound Power (LWAd, bels)</b>	<b>Deskside Sound Pressure (LpAm, decibels)</b>
	<b>Idle</b>	3.33	15.9
	<b>Hard drive Operating (Drive Random Seek)</b>	4.10	23.9
	<b>Active mode</b>	3.94	21.8
<b>System Configuration (Mid-level)</b>	<b>Processor Info</b>	AMD Ryzen™ Threadripper™ PRO 7955WX	
	<b>Memory Info</b>	64GB DDR5 (4x16GB) RegRAM	
	<b>Graphics Info</b>	1x NVIDIA Quadro A4000	
	<b>Disks/Optical</b>	2x 512GB M.2 SSD + 1x 4TB SATA HDD	
	<b>Power Supply</b>	1125W	
<b>Declared Noise Emissions</b>		<b>Sound Power (LWAd, bels)</b>	<b>Deskside Sound Pressure (LpAm, decibels)</b>
	<b>Idle</b>	3.51	18.6
	<b>Hard drive Operating (Drive Random Seek)</b>	4.08	24

### System Technical Specifications

	<b>Active mode</b>	4.55	27.4
<b>System Configuration (High-end)</b>	<b>Processor Info</b>	AMD Ryzen™ Threadripper™ PRO 7995WX	
	<b>Memory Info</b>	512GB DDR5 (8x64GB) RegRAM	
	<b>Graphics Info</b>	2x NVIDIA Quadro A6000	
	<b>Disks/Optical</b>	1x 4TB SATA HDD + 4x 4TB M.2 + 1x DVDRW	
	<b>Power Supply</b>	1125W	
<b>Declared Noise Emissions</b>		<b>Sound Power (LWAd, bels)</b>	<b>Deskside Sound Pressure (LpAm, decibels)</b>
	<b>Idle</b>	3.19	19.1
	<b>Hard drive Operating (Drive Random Seek)</b>	3.71	22.8
	<b>Active mode</b>	3.22	19.1

### Environmental Requirements

#### Temperature

Operating: 5° to 40°C (40° to 104°F)<sup>1</sup>  
 Non-operating: -40° to 60°C (-40° to 140°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  
 Maximum rate of change: 10 °C/hr  
 No direct sustained sunlight

<sup>1</sup>40°C has been validated for configs up to a [350W CPU, 2x NVIDIA® RTX A4000 graphics cards, 8x64GB RAM, 4x 4TB M.2 storage, 1x 2TB HDD storage, and 1125W PSU](#)

#### Humidity

Operating: Operating: 8% to 85% RH, non-condensing, 35° C maximum wet bulb  
 Non-operating: 8% to 90% relative humidity, non-condensing, 35° C maximum wet bulb

#### Maximum Altitude (non-pressurized)<sup>6</sup>

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 ft)  
**NOTE:** Above 1524 m (5,000 feet) altitude, maximum operating temperature is reduced by 1° C (1.8° F) per 305 m (1,000 feet) increase in elevation.

#### Dynamic

Shock  
 Operating: ½-sine: 40g, 2-3ms (~62 cm/sec)  
 Non-operating: ½-sine: 160 cm/s, 2-3ms (~105g)  
 square: 422 cm/s, 20g  
**NOTE:** Values represent individual shock events and do not indicate repetitive shock events

Vibration  
 Operating random: 0.5g (rms), 5-300 Hz, up to 0.0025g²/Hz  
 Non-operating random: 2.0g (rms), 5-500 Hz, up to 0.0150 g²/Hz  
**NOTE:** Values do not indicate continuous vibration.

#### Cooling

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, up to 3048 m (10,000 feet)



### System Technical Specifications

#### Physical Security and Serviceability

<b>Access Panel</b>	Tool-less Includes system board and memory information
<b>Optical Drive</b>	Tool-less, Optical Drive requires a 5.25" bay carrier
<b>Hard Drives</b>	Tool-less
<b>Expansion Cards</b>	Tool-less
<b>Processor Socket</b>	Screw-in Retention for Processor and Cooler
<b>Blue User Touch Points</b>	Yes, on tool-less internal chassis mechanisms
<b>Color-coordinated Cables and Connectors</b>	Yes
<b>Memory</b>	Tool-less
<b>System Board</b>	Screw-in
<b>Power and HD LED on Front of Computer</b>	Yes
<b>Over-Temp Warning on Screen</b>	Yes
<b>Dual Function Front Power Switch</b>	Yes, causes a fail-safe power off when held for 4 seconds
<b>Padlock Support</b>	Yes (optional): Locks side cover and secures chassis from theft 7.0 mm (0.2756 in) diameter padlock loop at rear of system
<b>Cable Lock Support</b>	Yes, Kensington Cable Lock (optional): Locks side cover and secures chassis from theft 3 mm x 7 mm slot at rear of system
<b>Universal Chassis Clamp Lock Support</b>	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 with threaded feature at rear of system
<b>Solenoid Lock and Hood Sensor</b>	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
<b>Rear Port Control Cover</b>	No
<b>Serial, USB, Audio, Network, Enable/Disable Port Control</b>	Yes
<b>Removable Media Write/Boot Control</b>	Yes
<b>Power-On Password</b>	Yes
<b>Setup Password</b>	Yes, prevents an unauthorized person from changing the workstation configuration.
<b>3.3V Aux Power LED on System PCA</b>	No
<b>NIC LEDs (integrated) (Green &amp; Amber)</b>	Yes
<b>CPUs and Heatsinks</b>	A T-20 Torx screwdriver is needed to remove the cooler and CPU.
<b>Power Supply Diagnostic LED</b>	Yes
<b>Front Power Button</b>	Yes
<b>Front Power LED</b>	Yes, white (normal), red (fault)
<b>Front Hard Drive Activity LED</b>	Yes, white
<b>Front ODD Activity LED</b>	Yes

### System Technical Specifications

<b>Internal Speaker</b>	Yes
<b>System/Emergency ROM Flash Recovery</b>	Yes
<b>Cooling Solutions</b>	Air cooled forced convection
<b>Power Supply Fans</b>	80 mm x 80 mm x 25 mm (non-serviceable)
<b>CPU Heatsink Fan</b>	108 mm x 108 mm x 25 mm
<b>Chassis Fan</b>	Rear: 120 mm x 120 mm x 38mm 4-wire PWM Front Upper: 80 mm x 80 mm x 25 mm 4-wire PWM (Option based on System Config) Front Lower: 120 mm x 120 mm x 25 mm 4-wire PWM (Option based on System Config) Side Panel Upper: Dual 70 mm x 20 mm (Option based on System Config) Side Panel Lower: Dual 80 mm x 80 mm x 20 mm (Option based on System config)
<b>Memory Heatsink Fan</b>	Dual 60 mm x 60 mm x 25 mm Blindmate (optional based on configuration)
<b>HP PC Hardware Diagnostics UEFI</b>	Yes
<b>Access Panel Key Lock</b>	Yes, side panel barrel keylock (optional from the factory only)
<b>ACPI-Ready Hardware</b>	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.
<b>Integrated Chassis Handles</b>	Yes, Front handle and dedicated rear recess
<b>Power Supply</b>	Requires T15 Torx or flat blade screwdriver
<b>PCI Card Retention</b>	Yes, rear (all), middle (all), front (full-length cards with extender, using Fan and Front Card Guide Kit)
<b>Flash ROM</b>	Yes
<b>Diagnostic Power Switch LED on board</b>	Yes
<b>Clear Password Jumper</b>	Yes
<b>Clear CMOS Button</b>	Yes
<b>CMOS Battery Holder</b>	Yes
<b>DIMM Connectors</b>	Yes

### Service, Support, and Warranty

On-site Warranty and Service<sup>1</sup>: Three-years, limited warranty and service offering delivers on-site, next business-day<sup>2</sup> service for parts and labor. 24/7 operation will not void the HP warranty. Storage devices are not covered under warranty for 24/7 operation except for Enterprise class HDDs.

**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.

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

### System Technical Specifications

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](mailto: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](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](mailto:techregshelp@hp.com)

### BIOS

<b>PCIe 5.0 Support</b>	Full BIOS support for PCI Express through industry standard interfaces. Supported speeds and slot information vary.
<b>ATA/ATAPI</b>	AT Attachment 6 with Packet Interface (ATA/ATAPI-6), Revision 3b
<b>WMI Support</b>	WMI is Microsoft's implementation of Web-Based Enterprise Management (WBEM) for Windows. WMI is fully compliant with the Distributed Management Task Force (DMTF) Common Information Model (CIM) and WBEM specifications.
<b>BIOS Power On</b>	Users can define a specific date and time for the system to power on.
<b>ROM Based Computer Setup Utility (F10)</b>	Review and customize system configuration settings controlled by the BIOS.
<b>System/Emergency ROM Flash Recovery with Video</b>	Recovers system BIOS in corrupted Flash ROM.
<b>AMD ROM Armor v3</b>	AMD Platform Secure Processor enforced BIOS ROM access.
<b>AMD Transparent Secure Memory Encryption (TSME)</b>	Physical encryption of all system memory decoupled from the Operating System. Provides encryption without requiring software modification.
<b>Replicated Setup</b>	Saves BIOS settings to USB flash device in human readable file (HpSetup.txt). BiosConfigurationUtility.exe utility can then replicate these settings on machines being deployed without entering Computer Configuration Utility (F10 Setup).
<b>SMBIOS</b>	System Management BIOS Reference Specification, Version 3.5
<b>Boot Control</b>	Disables the ability to boot from removable media on supported devices.
<b>Memory Change Alert</b>	Alerts management console if memory is removed or changed.
<b>Thermal Alert</b>	Monitors the temperature state within the chassis. Three modes: <ul style="list-style-type: none"> <li>• NORMAL - normal temperature ranges.</li> <li>• ALERTED - excessive temperatures are detected. Raises a flag so action can be taken to avoid shutdown or provide for a smoother system shutdown.</li> <li>• SHUTDOWN - excessive temperatures are encountered. Automatically shuts down the computer without warning before hardware component damage occurs.</li> </ul>
<b>Remote ROM Flash</b>	Provides secure, fail-safe ROM image management from a central network console.
<b>ACPI (Advanced)</b>	Allows the system to enter and resume from low power modes (sleep states).

### System Technical Specifications

<b>Configuration and Power Management Interface)</b>	Enables an operating system to control system power consumption based on the dynamic workload. Makes it possible to place individual cards and peripherals in a low-power or powered-off state without affecting other elements of the system. Supports ACPI 6.0 for full compatibility with 64-bit operating systems.
<b>Ownership Tag</b>	A user-defined string stored in non-volatile memory that is displayed in the BIOS splash screen.
<b>Remote Wakeup/Remote Shutdown</b>	System administrators can power on, restart, and power off a client computer from a remote location.
<b>Instantly Available PC (Suspend to RAM - ACPI sleep state S3)</b>	Allows for very low power consumption with quick resume time.
<b>Remote System Installation via F12 (PXE 2.1) (Remote Boot from Server)</b>	Allows a new or existing system to boot over the network and download software, including the operating system.
<b>ROM revision levels</b>	Reports the system BIOS revision level in Computer Configuration Utility (F10 Setup). Version is available through an industry standard interface (SMBIOS and WMI) so that management SW applications can use and report this information.
<b>System board revision level</b>	Allows management SW to read revision level of the system board. Revision level is digitally encoded into the HW and cannot be modified.
<b>Start-up Diagnostics (Power-on Self-Test)</b>	Assesses system health at boot time with selectable levels of testing.
<b>Auto Setup when new hardware installed</b>	System automatically detects addition of new hardware.
<b>Keyboard-less Operation</b>	The system can be booted without a keyboard.
<b>Localized ROM Setup</b>	Common BIOS image supports System Configuration Utility (F10 Setup) menus in 15 languages with local keyboard mappings.
<b>Asset Tag</b>	The user or MIS to set a unique tag string in non-volatile memory.
<b>Per-slot Control</b>	Allows I/O slot parameters (option ROM enable/disable, bifurcation, speed) to be configured individually.
<b>Adaptive Cooling</b>	Control parameters are set according to detected hardware configuration for optimal acoustics.
<b>Pre-boot Diagnostics</b>	(Pre-video) critical errors are reported via beeps and blinks on the power LED.
<b>UEFI Specification Revision</b>	2.7
<b>ACPI</b>	Advanced Configuration and Power Management Interface, Version 6.0
<b>CD Boot</b>	"El Torito" Bootable CD-ROM Format Specification Version 1.0
<b>EHCI</b>	Enhanced Host Controller Interface for Universal Serial Bus, Revision 1.0
<b>PCI Express</b>	PCI Express Base Specification, Revision 2.0 PCI Express Base Specification, Revision 3.0 PCI Express Base Specification, Revision 4.0 PCI Express Base Specification, Revision 5.0
<b>SATA</b>	Serial ATA Specification, Revision 1.0a Serial ATA 3 Gb/s: Serial ATA Specification, Revision 2.5 Serial ATA 6 Gb/s: Serial ATA Specification, Revision 3.0
<b>SPD</b>	JEDEC JESD300-5
<b>TPM</b>	Trusted Computing Group TPM Specification Version 2.0 (Infineon SLB 9672). Common Criteria EAL4+ certified. FIPS 140-2 Certification TCG TPM Certified products list: <a href="http://www.trustedcomputinggroup.org/certification/tpm-certified-products/">http://www.trustedcomputinggroup.org/certification/tpm-certified-products/</a>
<b>UHCI</b>	Universal Host Controller Interface Design Guide, Revision 1.1
<b>USB</b>	Universal Serial Bus Revision 1.1 Specification Universal Serial Bus Revision 2.0 Specification Universal Serial Bus Revision 3.1 Specification

### System Technical Specifications

Universal Serial Bus Revision 3.2 Specification  
USB Battery Charging specification, Revision 1.2  
USB Power Delivery specification Revision 3.0

### 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®
- US Federal Energy Management Program (FEMP)
- China Energy Conservation Program (CECP)
- IT ECO declaration
- EPEAT® Gold registered worldwide
- TCO Certified
- China Energy Conservation Program (CECP)
- China State Environmental Protection Administration (SEPA)
- Taiwan Green Mark
- Korea Eco-label
- Japan PC Green label\*

#### Sustainable Impact Specifications

- Product Carbon Footprint (hp.com)
- Ocean-bound plastic in System and CPU Fans
- 35% post-consumer recycled plastic
- 10% recycled metal
- Low halogen
- Outside Box and corrugated cushions are 100% sustainably sourced and recyclable
- Molded Paper Pulp Cushion inside box is 100% sustainably sourced and recyclable
- Recycled Plastic cushions

#### System Configuration

The configuration used for the Energy Consumption and Declared Noise Emissions data for the Notebook model is based on a “Typically Configured Notebook”.

#### Energy Consumption (in accordance with US ENERGY STAR® test method)

	115VAC, 60Hz	230VAC, 50Hz	100VAC, 50Hz
Normal Operation (Sort idle)	101.5 W	102 W	101.5 W
Normal Operation (Long idle)	97.1 W	97.3 W	97.1 W
Sleep	12.6 W	12.7 W	12.6 W
Off	2.9 W	2.9 W	2.9 W

#### NOTE:

Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family . HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.

#### Heat Dissipation\*

	115VAC, 60Hz	230VAC, 50Hz	100VAC, 50Hz
Normal Operation (Short idle)	346.115 BTU/h	347.82 BTU/h	346.115 BTU/h

### System Technical Specifications

Normal Operation (Long idle)	331.111 BTU/h	331.793 BTU/h	331.111 BTU/h
Sleep	42.966 BTU/h	43.307 BTU/h	42.966 BTU/h
Off	9.889 BTU/h	9.889 BTU/h	9.889 BTU/h

**\*NOTE:** Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.

#### Longevity and Upgrading

This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the

Spare parts are available throughout the warranty period and or for up to “5” years after the end of production.

#### Additional Information

- This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.
- This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC.
- This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).
- This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see [www.epeat.net](http://www.epeat.net)
- Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.
- This product is 92.4% recycle-able when properly disposed of at end of life.

#### Packaging Materials

<b>External:</b>	PAPER/Corrugated	1914 g
	PAPER/Molded Pulp	1310 g
<b>Internal:</b>	PLASTIC/Polyethylene Expanded - EPE	88g
	PLASTIC/Polyethylene low density - LDPE	50g

The plastic material contains at least 83% recycled content.

The corrugated paper packaging materials contains at least 61.4% recycled content.

#### RoHS Compliance

HP Inc. complies fully with materials regulations. We were among the first companies to extend the restrictions in the European Union (EU) Restriction of Hazardous Substances (RoHS) Directive to our products worldwide through the HP GSE. HP has contributed to the development of related legislation in Europe, as well as China, India, and Vietnam.

We believe the RoHS directive and similar laws play an important role in promoting industry-wide elimination of substances of concern. We have supported the inclusion of additional substances—including PVC, BFRs, and certain phthalates—in future RoHS legislation that pertains to electrical and electronics products.

We met our voluntary objective to achieve worldwide compliance with the new EU RoHS requirements for virtually all relevant products by July 2013, and we will continue to extend the scope of the commitment to include further restricted substances as regulations continue to evolve.

To obtain a copy of the HP RoHS Compliance Statement, see [HP RoHS position statement](#).

### System Technical Specifications

#### Material Usage

This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at <http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf>):

- Asbestos
- Certain Azo Colorants
- Certain Brominated Flame Retardants – may not be used as flame retardants in plastics
- Cadmium
- Chlorinated Hydrocarbons
- Chlorinated Paraffins
- Formaldehyde
- Halogenated Diphenyl Methanes
- Lead carbonates and sulfates
- Lead and Lead compounds
- Mercuric Oxide Batteries
- Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user.
- Ozone Depleting Substances
- Polybrominated Biphenyls (PBBs)
- Polybrominated Biphenyl Ethers (PBBEs)
- Polybrominated Biphenyl Oxides (PBBOs)
- Polychlorinated Biphenyl (PCB)
- Polychlorinated Terphenyls (PCT)
- Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.
- Radioactive Substances
- Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)

#### Packaging Usage

HP Workstation product packaging meets the HP General Specification for the Environment at [http://www.hp.com/hpinfo/globalcitizenship/society/gen\\_specifications.html](http://www.hp.com/hpinfo/globalcitizenship/society/gen_specifications.html)

- Does not contain restricted substances listed in HP Standard 011-1 General Specification for the Environment
- Does not contain ozone-depleting substances (ODS)
- Does not contain heavy metals (lead, mercury, cadmium or hexavalent chromium) in excess of 100 ppm sum total for all heavy metals listed
- Maximizes the use of post-consumer recycled content materials in packaging materials
- All packaging material is recyclable
- All packaging material is designed for ease of disassembly
- Reduced size and weight of packages to improve transportation fuel efficiency
- Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards formatting

#### 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/go/reuse-recycle> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <http://www.hp.com/go/recyclers>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.



### System Technical Specifications

#### HP, Inc. Corporate Environmental Information

For more information about HP's commitment to the environment: Sustainability Report

Eco-label certifications:

<http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html>

ISO 14001 certificate:

<http://www.hp.com/hpinfo/globalcitizenship/environment/operations/envmanagement.html>

#### footnotes

- Percentage of ocean-bound plastic contained in each component varies by product
- Recycled plastic content percentage is based on the definition set in the IEEE 1680.1-2018 standard.
- External power supplies, WWAN modules, power cords, cables and peripherals excluded.
- 100% outer box packaging and corrugated cushions made from sustainably sourced certified and recycled fibers.
- Fiber cushions made from 100% recycled wood fiber and organic materials.
- Plastic cushions are made from >90% recycled plastic.
- Recycled metal is expressed as a percentage of the total weight of the metal according to ISO 14021 definitions for metal parts over 25 grams

### Manageability

#### Industry Standard Specifications

##### AMD DASH Manageability

This product meets the following industry standard specifications for manageability functionality:

- DASH 1.2 (via Realtek LAN on motherboard)

Provides AMD DASH Manageability functions and features including: Power Management (on, off, reset, graceful shutdown, sleep and hibernate)

- Support in Max Power Savings (Shutdown and Hibernation Modes)
- Hardware Inventory (includes BIOS)
- Indications and Events Alerting
- Text Redirection (SOL)
- USB Redirection
- KVM Redirection
- Wake-on-LAN (WOL), even with Maximum Power Savings Enabled
- DASH 1.2 compliance

#### AMD Pro Technology Remote Manageability Software Solutions

The HP Z6A G5 supports AMD Pro Technology for its manageability solution.

The HP Z6A G5 Workstation is supported on the following remote manageability software consoles:

- Realtek Management Console
- Microsoft System Center Configuration Manager with AMPS plugin.
- AMD Management Console

- DASH CLI Command Line Tool

For questions or support for manageability needs, please visit

<http://www.hp.com/go/clientmanagement>

Supported

#### HP Anyware Remote System Controller



### Technical Specifications - Storage Drives

#### STORAGE/HARD DRIVES

<b>Performance PCIe SSDs for HP Workstations</b>	<b>Z Turbo 512GB 2280 PCIe-4x4 TLC SSD</b>	<b>Capacity</b>	512GB
		<b>Protocol</b>	PCIe
		<b>Form Factor</b>	M.2
		<b>Controller</b>	NVMe
		<b>NAND Type</b>	3D TLC
		<b>Endurance</b>	300TBW (TB Written)
		<b>Reliability</b>	1.5M hours
		<b>Rated for 24/7/365 operation</b>	No
		<b>Interface</b>	PCI Express 4.0 x4 electrical
		<b>Operating Temperature</b>	32° to 158° F (0° to 70° C)
		<b>Performance</b>	<b>Sequential Read</b> up to 6400MB/s*
			<b>Sequential Write</b> up to 3400MB/s*
			<b>Random Read</b> up to 600K IOPS*
			<b>Random Write</b> up to 600K IOPS*

\*Actual performance may vary.

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB of system disk (for Windows) is reserved for system recovery software.

	<b>Z Turbo 512GB 2280 PCIe-4x4 SED OPAL2 TLC M.2 SSD</b>	<b>Capacity</b>	512GB
		<b>Protocol</b>	PCIe
		<b>Form Factor</b>	M.2
		<b>Controller</b>	NVMe
		<b>NAND Type</b>	3D TLC
		<b>Endurance</b>	300TBW (TB Written)
		<b>Reliability</b>	1.5M hours
		<b>Rated for 24/7/365 operation</b>	No
		<b>Interface</b>	PCI Express 4.0 x4 electrical
		<b>Operating Temperature</b>	32° to 158° F (0° to 70° C)
		<b>Performance</b>	<b>Sequential Read</b> up to 6400MB/s*
			<b>Sequential Write</b> up to 3400MB/s*
			<b>Random Read</b> up to 600K IOPS*
			<b>Random Write</b> up to 600K IOPS*
		<b>Self-Encrypting Drive Support</b>	OPAL 2

\*Actual performance may vary.

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB of system disk (for Windows) is reserved for system recovery software.

	<b>Z Turbo 1TB 2280 PCIe-4x4 SED OPAL2 TLC M.2 SSD Module</b>	<b>Capacity</b>	1TB
		<b>Protocol</b>	PCIe
		<b>Form Factor</b>	M.2
		<b>Controller</b>	NVMe
		<b>NAND Type</b>	3D TLC
		<b>Endurance</b>	400TBW (TB Written)
		<b>Reliability</b>	1.5M hours

### Technical Specifications - Storage Drives

<b>Rated for 24/7/365 operation</b>	No	
<b>Interface</b>	PCI Express 4.0 x4 electrical	
<b>Operating Temperature</b>	32° to 158° F (0° to 70° C)	
<b>Performance</b>	<b>Sequential Read</b>	up to 6500MB/s*
	<b>Sequential Write</b>	up to 5000MB/s*
	<b>Random Read</b>	up to 800K IOPS*
	<b>Random Write</b>	up to 800K IOPS*
<b>Self-Encrypting Drive Support</b>	OPAL 2	

\*Actual performance may vary.

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB of system disk (for Windows) is reserved for system recovery software.

<b>Z Turbo 1TB 2280 PCIe-4x4 TLC SSD</b>	<b>Capacity</b>	1TB
	<b>Protocol</b>	PCIe
	<b>Form Factor</b>	M.2
	<b>Controller</b>	NVMe
	<b>NAND Type</b>	3D TLC
	<b>Endurance</b>	400TBW (TB Written)
	<b>Reliability</b>	1.5M hours
	<b>Rated for 24/7/365 operation</b>	No
	<b>Interface</b>	PCI Express 4.0 x4 electrical
	<b>Operating Temperature</b>	32° to 158° F (0° to 70° C)
<b>Performance</b>	<b>Sequential Read</b>	up to 6500MB/s*
	<b>Sequential Write</b>	up to 5000MB/s*
	<b>Random Read</b>	up to 800K IOPS*
	<b>Random Write</b>	up to 800K IOPS*

\*Actual performance may vary.

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB of system disk (for Windows) is reserved for system recovery software.

<b>Z Turbo 2TB 2280 PCIe-4x4 SED OPAL2 TLC M.2 SSD</b>	<b>Capacity</b>	2TB
	<b>Protocol</b>	PCIe
	<b>Form Factor</b>	M.2
	<b>Controller</b>	NVMe
	<b>NAND Type</b>	3D TLC
	<b>Endurance</b>	500TBW (TB Written)
	<b>Reliability</b>	1.5M hours
	<b>Rated for 24/7/365 operation</b>	No
	<b>Interface</b>	PCI Express 4.0 x4 electrical
	<b>Operating Temperature</b>	32° to 158° F (0° to 70° C)
<b>Performance</b>	<b>Sequential Read</b>	up to 6500MB/s*
	<b>Sequential Write</b>	up to 5000MB/s*
	<b>Random Read</b>	up to 800K IOPS*
	<b>Random Write</b>	up to 800K IOPS*

### Technical Specifications - Storage Drives

#### Self-Encrypting Drive Support OPAL 2

\*Actual performance may vary.

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB of system disk (for Windows) is reserved for system recovery software.

<b>Z Turbo 2TB 2280 PCIe-4x4 TLC SSD</b>	<b>Capacity</b>	2TB
	<b>Protocol</b>	PCIe
	<b>Form Factor</b>	M.2
	<b>Controller</b>	NVMe
	<b>NAND Type</b>	3D TLC
	<b>Endurance</b>	500TBW (TB Written)
	<b>Reliability</b>	1.5M hours
	<b>Rated for 24/7/365 operation</b>	No
	<b>Interface</b>	PCI Express 4.0 x4 electrical
	<b>Operating Temperature</b>	32° to 158° F (0° to 70° C)
	<b>Performance</b>	<b>Sequential Read</b> up to 6500MB/s*
		<b>Sequential Write</b> up to 5000MB/s*
		<b>Random Read</b> up to 800K IOPS*
		<b>Random Write</b> up to 800K IOPS*

\*Actual performance may vary.

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB of system disk (for Windows) is reserved for system recovery software.

<b>Z Turbo 4TB 2280 PCIe-4x4 TLC M.2 SSD</b>	<b>Capacity</b>	4TB
	<b>Protocol</b>	PCIe
	<b>Form Factor</b>	M.2
	<b>Controller</b>	NVMe
	<b>NAND Type</b>	3D TLC
	<b>Endurance</b>	600TBW (TB Written)
	<b>Reliability</b>	1.5M hours
	<b>Rated for 24/7/365 operation</b>	No
	<b>Interface</b>	PCI Express 4.0 x4 electrical
	<b>Operating Temperature</b>	32° to 158° F (0° to 70° C)
	<b>Performance</b>	<b>Sequential Read</b> up to 6500MB/s*
		<b>Sequential Write</b> up to 5000MB/s*
		<b>Random Read</b> up to 700K IOPS*
		<b>Random Write</b> up to 700K IOPS*

\*Actual performance may vary.

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB of system disk (for Windows) is reserved for system recovery software.

<b>Z Turbo 4TB 2280 PCIe-4x4 SED OPAL2 TLC M.2 SSD</b>	<b>Capacity</b>	4TB
	<b>Protocol</b>	PCIe
	<b>Form Factor</b>	M.2
	<b>Controller</b>	NVMe
	<b>NAND Type</b>	3D TLC

### Technical Specifications - Storage Drives

<b>Endurance</b>	600TBW (TB Written)	
<b>Reliability</b>	1.5M hours	
<b>Rated for 24/7/365 operation</b>	No	
<b>Interface</b>	PCI Express 4.0 x4 electrical	
<b>Operating Temperature</b>	32° to 158° F (0° to 70° C)	
<b>Performance</b>	<b>Sequential Read</b>	up to 6500MB/s*
	<b>Sequential Write</b>	up to 5000MB/s*
	<b>Random Read</b>	up to 700K IOPS*
	<b>Random Write</b>	up to 700K IOPS*
<b>Self-Encrypting Drive Support</b>	OPAL 2	

\*Actual performance may vary.

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB of system disk (for Windows) is reserved for system recovery software.

#### Performance PCIe SSDs for HP Quad Pro Carrier

##### HP Z Turbo Drive Quad Pro 512GB SSD

Capacity	512GB	
Protocol	PCIe	
Form Factor	M.2	
Controller	NVMe	
NAND Type	3D TLC	
Endurance	300TBW (TB Written)	
Reliability	1.5M hours	
Rated for 24/7/365 operation	No	
Interface	PCI Express 4.0 x4 electrical	
Operating Temperature	32° to 158° F (0° to 70° C)	
Performance	Sequential Read	up to 6400MB/s*
	Sequential Write	up to 3400MB/s*
	Random Read	up to 600K IOPS*
	Random Write	up to 600K IOPS*

\*Actual performance may vary.

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB of system disk (for Windows) is reserved for system recovery software.

##### HP Z Turbo Drive Quad Pro 1TB SSD

Capacity	1TB	
Protocol	PCIe	
Form Factor	M.2	
Controller	NVMe	
NAND Type	3D TLC	
Endurance	400TBW (TB Written)	
Reliability	1.5M hours	
Rated for 24/7/365 operation	No	
Interface	PCI Express 4.0 x4 electrical	
Operating Temperature	32° to 158° F (0° to 70° C)	
Performance	Sequential Read	up to 6500MB/s*
	Sequential Write	up to 5000MB/s*

### Technical Specifications - Storage Drives

<b>Random Read</b>	up to 800K IOPS*
<b>Random Write</b>	up to 800K IOPS*

\*Actual performance may vary.

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB of system disk (for Windows) is reserved for system recovery software.

<b>HP Z Turbo Drive Quad Pro 2TB SSD</b>	<b>Capacity</b>	2TB	
	<b>Protocol</b>	PCIe	
	<b>Form Factor</b>	M.2	
	<b>Controller</b>	NVMe	
	<b>NAND Type</b>	3D TLC	
	<b>Endurance</b>	500TBW (TB Written)	
	<b>Reliability</b>	1.5M hours	
	<b>Rated for 24/7/365 operation</b>	No	
	<b>Interface</b>	PCI Express 4.0 x4 electrical	
	<b>Operating Temperature</b>	32° to 158° F (0° to 70° C)	
	<b>Performance</b>	<b>Sequential Read</b>	up to 6500MB/s*
		<b>Sequential Write</b>	up to 5000MB/s*
		<b>Random Read</b>	up to 800K IOPS*
		<b>Random Write</b>	up to 800K IOPS*

\*Actual performance may vary.

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB of system disk (for Windows) is reserved for system recovery software.

HP Z Turbo Drive Quad Pro 4TB SSD	Capacity	4TB	
	Protocol	PCIe	
	Form Factor	M.2	
	Controller	NVMe	
	NAND Type	3D TLC	
	Endurance	500TBW (TB Written)	
	Reliability	1.5M hours	
	Rated for 24/7/365 operation	No	
	Interface	PCI Express 4.0 x4 electrical	
	Operating Temperature	32° to 158° F (0° to 70° C)	
	Performance	Sequential Read	up to 6500MB/s*
		Sequential Write	up to 5000MB/s*
		Random Read	up to 800K IOPS*
Random Write		up to 800K IOPS*	

\*Actual performance may vary.

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB of system disk (for Windows) is reserved for system recovery software.

#### Performance PCIe SSDs for HP Dual Pro Carrier

<b>HP Z Turbo Drive Dual Pro 512GB SSD</b>	<b>Capacity</b>	512GB
	<b>Protocol</b>	PCIe
	<b>Form Factor</b>	M.2
	<b>Controller</b>	NVMe

### Technical Specifications - Storage Drives

<b>NAND Type</b>	3D TLC
<b>Endurance</b>	300TBW (TB Written)
<b>Reliability</b>	1.5M hours
<b>Rated for 24/7/365 operation</b>	No
<b>Interface</b>	PCI Express 4.0 x4 electrical
<b>Operating Temperature</b>	32° to 158° F (0° to 70° C)
<b>Performance</b>	<b>Sequential Read</b> up to 6400MB/s* <b>Sequential Write</b> up to 3400MB/s* <b>Random Read</b> up to 600K IOPS* <b>Random Write</b> up to 600K IOPS*

\*Actual performance may vary.

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB of system disk (for Windows) is reserved for system recovery software.

<b>HP Z Turbo Drive Dual Pro 1TB SSD</b>	<b>Capacity</b>	1TB
	<b>Protocol</b>	PCIe
	<b>Form Factor</b>	M.2
	<b>Controller</b>	NVMe
	<b>NAND Type</b>	3D TLC
	<b>Endurance</b>	400TBW (TB Written)
	<b>Reliability</b>	1.5M hours
	<b>Rated for 24/7/365 operation</b>	No
	<b>Interface</b>	PCI Express 4.0 x4 electrical
	<b>Operating Temperature</b>	32° to 158° F (0° to 70° C)
	<b>Performance</b>	<b>Sequential Read</b> up to 6500MB/s* <b>Sequential Write</b> up to 5000MB/s* <b>Random Read</b> up to 800K IOPS* <b>Random Write</b> up to 800K IOPS*

\*Actual performance may vary.

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB of system disk (for Windows) is reserved for system recovery software.

<b>HP Z Turbo Drive Dual Pro 2TB SSD</b>	<b>Capacity</b>	2TB
	<b>Protocol</b>	PCIe
	<b>Form Factor</b>	M.2
	<b>Controller</b>	NVMe
	<b>NAND Type</b>	3D TLC
	<b>Endurance</b>	500TBW (TB Written)
	<b>Reliability</b>	1.5M hours
	<b>Rated for 24/7/365 operation</b>	No
	<b>Interface</b>	PCI Express 4.0 x4 electrical
	<b>Operating Temperature</b>	32° to 158° F (0° to 70° C)
	<b>Performance</b>	<b>Sequential Read</b> up to 6500MB/s* <b>Sequential Write</b> up to 5000MB/s* <b>Random Read</b> up to 800K IOPS*

### Technical Specifications - Storage Drives

#### Random Write

up to 800K IOPS\*

\*Actual performance may vary.

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB of system disk (for Windows) is reserved for system recovery software.

#### HP Z Turbo Drive Dual Pro 4TB SSD

<b>Capacity</b>	4TB
<b>Protocol</b>	PCIe
<b>Form Factor</b>	M.2
<b>Controller</b>	NVMe
<b>NAND Type</b>	3D TLC
<b>Endurance</b>	500TBW (TB Written)
<b>Reliability</b>	1.5M hours
<b>Rated for 24/7/365 operation</b>	No
<b>Interface</b>	PCI Express 4.0 x4 electrical
<b>Operating Temperature</b>	32° to 158° F (0° to 70° C)
<b>Performance</b>	<b>Sequential Read</b> up to 6500MB/s* <b>Sequential Write</b> up to 5000MB/s* <b>Random Read</b> up to 800K IOPS* <b>Random Write</b> up to 800K IOPS*

\*Actual performance may vary.

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB of system disk (for Windows) is reserved for system recovery software.

#### SATA Hard Drives for HP Workstations

#### 1TB 7200RPM SATA 3.5in Enterprise HDD

<b>Capacity</b>	1TB
<b>Protocol</b>	SATA
<b>Form Factor</b>	3.5"
<b>Controller</b>	AHCI
<b>Reliability</b>	2.0M hours
<b>Rated Power On Hours</b>	8760/yr
<b>Annualized Failure Rate (based on Rated POH)</b>	<0.62%
<b>Rated for 24/7/365 operation</b>	YES
<b>Height</b>	1 in; 2.54 cm
<b>Width</b>	
	<b>Media Diameter</b> 3.5 in; 8.9 cm
	<b>Physical Size</b> 4 in; 10.17 cm
<b>Interface</b>	Serial ATA (6.0Gb/s), NCQ enabled
<b>Synchronous Transfer Rate (Maximum)</b>	Up to 600MB/s *
<b>Buffer</b>	128MB
<b>Cache</b>	Adaptive
<b>Seek Time</b> (typical reads, includes controller overhead, including settling)	<b>Single Track</b> 0.32 ms * <b>Average</b> 7.45 ms * <b>Full Stroke</b> 14.2 ms *
<b>Rotational Speed</b>	7,200 rpm
<b>Logical Blocks</b>	1,953,525,168

### Technical Specifications - Storage Drives

<b>Operating Temperature</b>	41° to 131° F (5° to 55° C)
<b>Performance</b>	<b>Sequential Read</b> up to 226MB/s* <b>Sequential Write</b> up to 226MB/s*

\*Actual performance may vary.

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB of system disk (for Windows) is reserved for system recovery software.

<b>2TB 7200RPM SATA 3.5in Enterprise HDD</b>	<b>Capacity</b>	2TB
	<b>Protocol</b>	SATA
	<b>Form Factor</b>	3.5"
	<b>Controller</b>	AHCI
	<b>Reliability</b>	2.0M hours
	<b>Rated Power On Hours</b>	8760/yr
	<b>Annualized Failure Rate (based on Rated POH)</b>	<0.62%
	<b>Rated for 24/7/365 operation</b>	YES
	<b>Height</b>	1 in; 2.54 cm
	<b>Width</b>	
	<b>Media Diameter</b>	3.5 in; 8.9 cm
	<b>Physical Size</b>	4 in; 10.17 cm
	<b>Interface</b>	Serial ATA (6.0Gb/s), NCQ enabled
	<b>Synchronous Transfer Rate (Maximum)</b>	Up to 600MB/s *
	<b>Buffer</b>	128MB
	<b>Cache</b>	Adaptive
	<b>Seek Time (typical reads, includes controller overhead, including settling)</b>	<b>Single Track</b> 0.7 ms * <b>Average</b> 8.5 ms * <b>Full Stroke</b> 15.7 ms *
	<b>Rotational Speed</b>	7,200 rpm
	<b>Logical Blocks</b>	3,907,029,168
	<b>Operating Temperature</b>	41° to 131° F (5° to 55° C)
	<b>Performance</b>	<b>Sequential Read</b> up to 226MB/s* <b>Sequential Write</b> up to 226MB/s*

\*Actual performance may vary.

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB of system disk (for Windows) is reserved for system recovery software.

<b>4TB 7200 RPM SATA 3.5in Enterprise HDD</b>	<b>Capacity</b>	4TB
	<b>Protocol</b>	SATA
	<b>Form Factor</b>	3.5"
	<b>Controller</b>	AHCI
	<b>Reliability</b>	2.0M hours
	<b>Rated Power On Hours</b>	8760/yr
	<b>Annualized Failure Rate (based on Rated POH)</b>	<0.62%
	<b>Rated for 24/7/365 operation</b>	YES
	<b>Height</b>	1 in; 2.54 cm



### Technical Specifications - Storage Drives

<b>Width</b>	<b>Media Diameter</b>	3.5 in; 8.9 cm
	<b>Physical Size</b>	4 in; 10.17 cm
<b>Interface</b>	Serial ATA (6.0Gb/s), NCQ enabled	
<b>Synchronous Transfer Rate (Maximum)</b>	Up to 600MB/s *	
<b>Buffer</b>	256MB	
<b>Cache</b>	Adaptive	
<b>Seek Time</b> (typical reads, includes controller overhead, including settling)	<b>Single Track</b>	0.7 ms *
	<b>Average</b>	8.5 ms *
	<b>Full Stroke</b>	15.7 ms *
<b>Rotational Speed</b>	7,200 rpm	
<b>Logical Blocks</b>	7,814,037,168	
<b>Operating Temperature</b>	41° to 131° F (5° to 55° C)	
<b>Performance</b>	<b>Sequential Read</b>	up to 226MB/s*
	<b>Sequential Write</b>	up to 226MB/s*

\*Actual performance may vary.

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB of system disk (for Windows) is reserved for system recovery software.

<b>8TB 7200RPM SATA 3.5in Enterprise HDD</b>	<b>Capacity</b>	8TB
	<b>Protocol</b>	SATA
	<b>Form Factor</b>	3.5"
	<b>Controller</b>	AHCI
	<b>Reliability</b>	2.0M hours
	<b>Rated Power On Hours</b>	8760/yr
	<b>Annualized Failure Rate (based on Rated POH)</b>	<0.62%
	<b>Rated for 24/7/365 operation</b>	YES
	<b>Height</b>	1 in; 2.54 cm
	<b>Width</b>	<b>Media Diameter</b> 3.5 in; 8.9 cm
		<b>Physical Size</b> 4 in; 10.17 cm
	<b>Interface</b>	Serial ATA (6.0Gb/s), NCQ enabled
	<b>Synchronous Transfer Rate (Maximum)</b>	Up to 600MB/s *
	<b>Buffer</b>	256MB
	<b>Cache</b>	Adaptive
	<b>Seek Time</b> (typical reads, includes controller overhead, including settling)	<b>Single Track</b> 0.7 ms *
		<b>Average</b> 8.5 ms *
		<b>Full Stroke</b> 15.7 ms *
	<b>Rotational Speed</b>	7,200 rpm
	<b>Logical Blocks</b>	15,628,053,168
	<b>Operating Temperature</b>	41° to 140° F (5° to 60° C)
	<b>Performance</b>	<b>Sequential Read</b> up to 226MB/s*
		<b>Sequential Write</b> up to 226MB/s*

\*Actual performance may vary.

Technical Specifications - Storage Drives

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB of system disk (for Windows) is reserved for system recovery software.

<b>12TB 7200 RPM SATA-6G 3.5in Enterprise HDD</b>	<b>Capacity</b>	12TB	
	<b>Protocol</b>	SATA	
	<b>Form Factor</b>	3.5"	
	<b>Controller</b>	AHCI	
	<b>Reliability</b>	2.0M hours	
	<b>Rated Power On Hours</b>	8760/yr	
	<b>Annualized Failure Rate (based on Rated POH)</b>	<0.62%	
	<b>Rated for 24/7/365 operation</b>	YES	
	<b>Height</b>	1 in; 2.54 cm	
	<b>Width</b>	<b>Media Diameter</b>	3.5 in; 8.9 cm
		<b>Physical Size</b>	4 in; 10.17 cm
	<b>Interface</b>	Serial ATA (6.0Gb/s), NCQ enabled	
	<b>Synchronous Transfer Rate (Maximum)</b>	Up to 600MB/s *	
	<b>Buffer</b>	256MB	
	<b>Cache</b>	Adaptive	
	<b>Seek Time</b> (typical reads, includes controller overhead, including settling)	<b>Single Track</b>	0.7 ms *
		<b>Average</b>	8.5 ms *
		<b>Full Stroke</b>	15.7 ms *
	<b>Rotational Speed</b>	7,200 rpm	
	<b>Logical Blocks</b>	23,437,770,752	
	<b>Operating Temperature</b>	41° to 140° F (5° to 60° C)	
	<b>Performance</b>	<b>Sequential Read</b>	up to 226MB/s*
		<b>Sequential Write</b>	up to 226MB/s*

\*Actual performance may vary.

**NOTE:** For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36GB of system disk (for Windows) is reserved for system recovery software.

### Technical Specifications - Graphics

#### GRAPHICS

<b>NVIDIA® RTX™ 6000 Ada 48GB</b>	<b>Form Factor</b>	Full-Height Dual Slot (4.4" Height x 10.5" Length) Weight: 1230 grams / 2.71 lbs (with extender)
	<b>Max Power Consumption</b>	Power: 300 Watts Cooling: Active
	<b>GPU Memory</b>	48GB GDDR6 memory ECC Memory Bandwidth: Up to 960 GB/s Memory Width: 384 bits
	<b>Connectors</b>	4x DisplayPort 1.4a Quadro Sync II connector Stereo Sync Requires CEM 5.0 16-pin auxiliary power adapter
	<b>Maximum Resolution</b>	7680x4320 @ 120Hz
	<b>Bus Type</b>	PCI Express 4.0 x16
	<b>Available Graphics Drivers</b>	Windows 11 Windows 10 Linux® 64-bit

<b>NVIDIA® RTX™ 5000 Ada 32GB</b>	<b>Form Factor</b>	Full-Height Dual Slot (5.0" Height x 13.85" Length) Weight: 1130 grams / 2.49 lbs (excluding extender)
	<b>Max Power Consumption</b>	Power: 250 Watts Cooling: Active
	<b>GPU Memory</b>	32GB GDDR6 memory ECC Memory Bandwidth: Up to 576 GB/s Memory Width: 256 bits
	<b>Connectors</b>	4x DisplayPort 1.4a Quadro Sync II connector Stereo Sync Requires CEM 5.0 16-pin auxiliary power adapter
	<b>Maximum Resolution</b>	7680x4320 @ 120Hz
	<b>Bus Type</b>	PCI Express 4.0 x16
	<b>Available Graphics Drivers</b>	Windows 11 Windows 10 Linux® 64-bit

<b>NVIDIA® RTX 4500 Ada 24GB</b>	<b>Form Factor</b>	Full-Height Dual Slot (4.4" Height x 10.5" Length)
	<b>Max Power Consumption</b>	210W
	<b>GPU Memory</b>	24GB GDDR6 Memory Bandwidth: 432 GB/s Memory Width: 192-bit
	<b>Connectors</b>	4x DisplayPort 1.4a Requires: 1x 16-pin CEM 5 power connector (adapter may be needed)
	<b>Maximum Resolution</b>	4x @ 4096 x 2160 @ 120Hz 4x @ 5120 x 2880 @ 60Hz 2x @ 7680 x 4320 @ 60Hz
	<b>Bus Type</b>	PCI Express 4.0 x16
	<b>Available Graphics Drivers</b>	Windows 10 Windows 11

### Technical Specifications - Graphics

**NOTE:** Not available at launch; available early 2024

#### NVIDIA® RTX A4500 20GB

<b>Form Factor</b>	Full-Height Dual Slot (4.4" Height x 10.5" Length) Weight: 1049 grams + 80 grams extender
<b>Max Power Consumption</b>	Power: 200W Cooling: Active
<b>GPU Memory</b>	20GB GDDR6 memory Memory Bandwidth: Up to 640 GB/s Memory Width: 320 bit
<b>Connectors</b>	4x DisplayPort 1.4a Quadro Sync II connector NVLink® Stereo Sync Requires 8-pin auxiliary power
<b>Maximum Resolution</b>	7680x4320 @ 120Hz
<b>Bus Type</b>	PCI Express 4.0 x16
<b>Available Graphics Drivers</b>	Windows 11 Windows 10 Linux® 64-bit

#### NVIDIA® RTX 4000 Ada 20GB

<b>Form Factor</b>	Full-Height Triple Slot (4.4" Height x 11.5" Length)
<b>Max Power Consumption</b>	130W
<b>GPU Memory</b>	20GB GDDR6 Memory Bandwidth: 360 GB/s Memory Width: 160-bit
<b>Connectors</b>	4x DisplayPort 1.4a Requires: 1x 16-pin CEM 5 power connector (adapter may be needed)
<b>Maximum Resolution</b>	4x @ 4096 x 2160 @ 120Hz 4x @ 5120 x 2880 @ 60Hz 2x @ 7680 x 4320 @ 60Hz
<b>Bus Type</b>	PCI Express 4.0 x16
<b>Available Graphics Drivers</b>	Windows 10 Windows 11

**NOTE:** Not available at launch; available early 2024

#### NVIDIA® RTX A4000 16GB

<b>Form Factor</b>	Full-Height Single Slot (4.4" Height x 9.5" Length) Weight: 500 grams
<b>Max Power Consumption</b>	Power: 140W Cooling: Active
<b>GPU Memory</b>	16GB GDDR6 memory Memory Bandwidth: Up to 448 GB/s Memory Width: 256 bit
<b>Connectors</b>	4x DisplayPort 1.4a Quadro Sync II connector Stereo Sync Requires 6-pin auxiliary power

### Technical Specifications - Graphics

<b>Maximum Resolution</b>	7680x4320 @ 120Hz
<b>Bus Type</b>	PCI Express 4.0 x16
<b>Available Graphics Drivers</b>	Windows 11 Windows 10 Linux® 64-bit

#### NVIDIA® RTX A2000 12GB

<b>Form Factor</b>	Half-Height Dual Slot (2.713" Height x 6.6" Length) Weight: 306 grams
<b>Max Power Consumption</b>	Power: 70W Cooling: Active
<b>GPU Memory</b>	12GB GDDR6 memory Memory Bandwidth: Up to 288 GB/s Memory Width: 192 bit
<b>Connectors</b>	4x mini-DisplayPort 1.4a
<b>Maximum Resolution</b>	7680x4320 @ 120Hz
<b>Bus Type</b>	PCI Express 4.0 x16
<b>Available Graphics Drivers</b>	Windows 11 Windows 10 Linux® 64-bit

#### NVIDIA® T1000 8GB

<b>Form Factor</b>	Half-Height Single Slot (2.713" Height x 6.137" Length) Weight: 132.6 grams
<b>Max Power Consumption</b>	Power: 50W Cooling: Active
<b>GPU Memory</b>	8GB GDDR6 memory Memory Bandwidth: Up to 160 GB/s Memory Width: 128 bit
<b>Connectors</b>	4x mini-DisplayPort 1.4a
<b>Maximum Resolution</b>	7680x4320 @ 120Hz
<b>Bus Type</b>	PCI Express 3.0 x16
<b>Available Graphics Drivers</b>	Windows 11 Windows 10 Linux® 64-bit

#### NVIDIA® T400 4GB Graphics

<b>Form Factor</b>	Half-Height Single Slot (2.713" Height x 6.137" Length) Weight: 123.5 grams
<b>Max Power Consumption</b>	Power: 30W Cooling: Active
<b>GPU Memory</b>	4GB GDDR6 memory Memory Bandwidth: Up to 80 GB/s Memory Width: 64 bit
<b>Connectors</b>	3x mini-DisplayPort 1.4a
<b>Maximum Resolution</b>	7680x4320 @ 120Hz
<b>Bus Type</b>	PCI Express 3.0 x16
<b>Available Graphics Drivers</b>	Windows 11 Windows 10

### Technical Specifications - Graphics

Linux® 64-bit

#### AMD® Radeon™ Pro W7900 48GB

<b>Form Factor</b>	Full-Height Triple Slot (4.38" Height x 11.0" Length)
<b>Max Power Consumption</b>	295W
<b>GPU Memory</b>	48GB GDDR6 Memory Bandwidth: 864 GB/s Memory Width: 384-bit
<b>Connectors</b>	3x DP 2.1 + 1x Enhanced Mini DP 2.1 Requires: 2x 8-pin PCIe Aux Power
<b>Maximum Resolution</b>	4x @ 4096 x 2160 (4K DCI) @ 120Hz with DSC 2x @ 6144 x 3456 (6K) 12-bit HDR @ 60Hz Uncompressed 1x @ 7680 x 4320 (8K) 12-bit HDR @ 60Hz Uncompressed 1x @ 12288 x 6912 (12K) @ 120Hz with DS
<b>Bus Type</b>	PCI Express 4.0 x16
<b>Available Graphics Drivers</b>	Windows 10 Windows 11

**NOTE:** Not available at launch; available early 2024

#### AMD® Radeon™ Pro W7600 8GB

<b>Form Factor</b>	Full-Height Single Slot (4.38" Height x 9.5" Length)
<b>Max Power Consumption</b>	130W
<b>GPU Memory</b>	8GB GDDR6 Memory Bandwidth: 288 GB/s Memory Width: 128-bit
<b>Connectors</b>	4x DP 2.1 Requires: 1x 6-pin PCIe Aux Power
<b>Maximum Resolution</b>	4x @ 3840x2160 (4K) 4x @ 5120x2880 (5K) 2x @ 7680x4320 (8K)
<b>Bus Type</b>	PCI Express 4.0 x8
<b>Available Graphics Drivers</b>	Windows 10 Windows 11

#### AMD® Radeon™ Pro W7500 8GB

<b>Form Factor</b>	Full-Height Single Slot (4.38" Height x 8.5" Length)
<b>Max Power Consumption</b>	70W
<b>GPU Memory</b>	8 GB GDDR6 Memory Bandwidth: 173 GB/s Memory Width: 128-bit
<b>Connectors</b>	4x DP 2.1
<b>Maximum Resolution</b>	4x @ 3840x2160 (4K) 4x @ 5120x2880 (5K) 2x @ 7680x4320 (8K)
<b>Bus Type</b>	PCI Express 4.0 x8
<b>Available Graphics Drivers</b>	Windows 10 Windows 11

#### AMD® Radeon™ RX 6400

<b>Form Factor</b>	Half-Height Single Slot (4.4"
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## Technical Specifications - Graphics

4GB		Height x 10.5" Length) Weight: 155 grams
	Max Power Consumption	Power: 50W Cooling: Active
	GPU Memory	4GB GDDR6 memory Memory Bandwidth: Memory Width:
	Connectors	1x DisplayPort 1.4a 1x HDMI
	Maximum Resolution	7680x4320 @ 60Hz
	Bus Type	PCI Express 4.0 x4
	Available Graphics Drivers	Windows 11 Windows 10 Linux® 64-bit

Notes for all graphics cards:

- Some graphics and GPU compute cards can consume a great deal of power, thus combinations of cards with other components may exceed a particular power supply's output capability.
- Some graphics and GPU compute cards require supplemental power cables.
- Not all chassis/PSU configurations have enough supplemental power cables of the correct type for all graphics configurations.

Refer to the Power Supply section within Overview for more information.

### Technical Specifications - Optical and Removable Storage

#### OPTICAL AND REMOVABLE STORAGE

<b>HP 9.5mm Slim Blu-Ray Writer</b>	<b>Description</b>	9.5mm height, tray-load
	<b>Mounting Orientation</b>	Either horizontal or vertical
	<b>Interface Type</b>	SATA/ATAPI
	<b>Dimensions (WxHxD)</b>	128 x 9.5 x 127mm
	<b>Supported Media Types</b>	BD-ROM BD-R BD-RE DVD+R DVD+RW DVD+R DL DVD-R DL DVD-R DVD-RW CD-R CD-RW
	<b>Disc Capacity</b>	<b>DVD-ROM</b> 8.5 GB DL or 4.7 GB standard <b>Blu-ray</b> 25 GB (single-layer) 50 GB (dual-layer) 100/128 GB (BDXL)
		<b>Full Stroke DVD</b> < 230 ms (seek)
		<b>Full Stroke CD</b> < 220 ms (seek)
		<b>Blu-ray</b> < 230 ms (seek) (Full Stroke Blu-ray)
	<b>Startup Time</b>	(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 CD-ROM 15S
	<b>Maximum Data Transfer Rates</b>	<b>CD ROM Read</b> CD-ROM, CD-R Up to 24X CD-RW Up to 24X
		<b>DVD ROM Read</b> 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
	<b>Blu-ray</b>	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



### Technical Specifications - Optical and Removable Storage

<b>Power</b>	<b>Source</b>	SATA DC power receptacle
	<b>DC Power Requirements</b>	5 VDC ± 5%-100 mV ripple p-p
	<b>DC Current</b>	5 VDC -900 mA typical, 2000mA maximum
<b>Operating Environmental</b> (all conditions non-condensing)	<b>Temperature</b>	41° to 122° F (5° to 50° C)
	<b>Relative Humidity</b>	10% to 80%
	<b>Maximum Wet Bulb Temperature</b>	84° F (29° C)
<b>Operating Systems Supported</b>	Windows 11, Windows 10, Windows 7 Professional 64-bit, Red Hat® Enterprise Linux® (RHEL) 8, 9 Desktop/Workstation SUSE Linux® Enterprise Desktop 15 Ubuntu 20.04, 22.04 LTS	
	No driver is required for this device. Native support is provided by the operating system.	
<b>Kit Contents</b>	9.5mm Slim BDXL Blu-Ray Writer, 5.25" ODD Bay adapter/carrier, slim SATA data/power cable, installation guide As Blu-ray is a new format containing new technologies, certain disc, digital connection, compatibility and/or performance issues may arise, and do not constitute defects in the product. Flawless playback on all systems is not guaranteed. In order for some Blu-ray titles to play, they may require a DVI or HDMI digital connection and your display may require HDCP support. HD-DVD movies cannot be played on this workstation.	
<b>NOTE:</b> HD-DVD disks cannot be played on the DVD-ROM drive. No support for DVD-RAM. Actual speeds may vary. Don't copy copyright-protected materials. Double Layer discs can store more data than single layer discs. Discs burned with this drive may not be compatible with many existing single-layer DVD drives and players. Flawless playback on all systems is not guaranteed.		

#### HP 9.5mm Slim DVD Writer

<b>Description</b>	9.5mm height, tray-load	
<b>Mounting Orientation</b>	Either horizontal or vertical	
<b>Interface Type</b>	SATA/ATAPI	
<b>Dimensions (WxHxD)</b>	128 x 9.5 x 127mm	
<b>Supported Media Types</b>	DVD+R	
	DVD+RW	
	DVD+R DL	
	DVD-R DL	
	DVD-R	
	DVD-RW	
	CD-R CD-RW	
<b>Disc Capacity</b>	<b>DVD-ROM</b>	8.5 GB DL or 4.7 GB standard
	<b>Full Stroke DVD</b>	< 200 ms (seek)
	<b>Full Stroke CD</b>	< 200 ms (seek)
<b>Maximum Data Transfer Rates</b>	<b>CD ROM Read</b>	CD-ROM, CD-R Up to 24X CD-RW Up to 24X
	<b>DVD ROM Read</b>	DVD+RW Up to 8X DVD-RW Up to 8X DVD+R DL Up to 8X DVD-R DL Up to 8X

Technical Specifications - Optical and Removable Storage

		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) 8, 9 Desktop/Workstation SUSE Linux® Enterprise Desktop 15 Ubuntu 20.04, 22.04 LTS	

\* No driver is required for this device. Native support is provided by the operating system

**Kit Contents** HP SATA DVD Writer drive, installation guide.

**NOTE:** Actual speeds may vary. No support for DVD-RAM (DVD Writer). Does not permit copying of commercially available DVD movies or other copyright protected materials. Intended for creation and storage of your original material and other lawful uses. Double Layer discs can store more data than single layer discs. However, double-layer discs burned with this drive may not be compatible with many existing single-layer DVD drives and players.

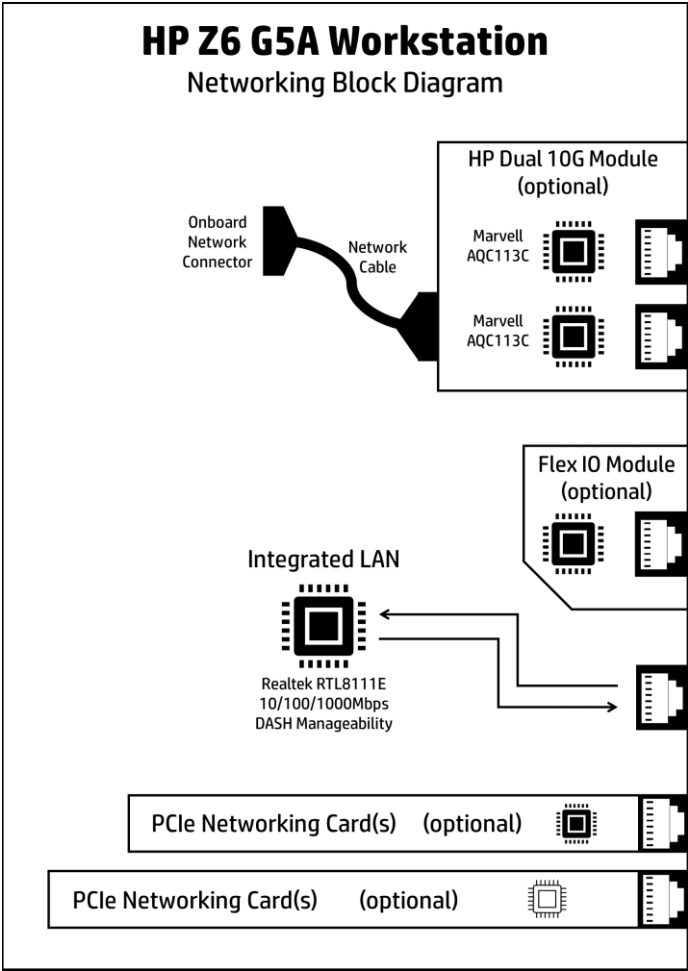
### Technical Specifications - Optical and Removable Storage

<b>HP 9.5mm Slim DVD-ROM</b>	<b>Description</b>	9.5mm height, tray-load
	<b>Mounting Orientation</b>	Either horizontal or vertical
	<b>Interface Type</b>	SATA/ATAPI
	<b>Dimensions (WxHxD)</b>	128 x 9.5 x 127mm
	<b>Disc Capacity</b>	<b>DVD-ROM</b> Single layer: Up to 4.7 GB Double layer: Up to 8.5 GB
	<b>Access Times</b>	<b>DVD-ROM Single Layer</b> < 110 ms (typical)
		<b>CD-ROM Mode 1</b> < 110 ms (typical)
		<b>Full Stroke DVD</b> < 230 ms (typical)
		<b>Full Stroke CD</b> < 220 ms (typical)
	<b>Power</b>	<b>Source</b> SATA DC power receptacle
		<b>DC Power Requirements</b> 5 VDC $\pm$ 5%-100 mV ripple p-p
		<b>DC Current</b> 5 VDC -< 800 mA typical, <1600 mA maximum
	<b>Operating Environmental</b> (all conditions non-condensing)	<b>Temperature</b> 41° to 122° F (5° to 50° C)
		<b>Relative Humidity</b> 10% to 80%
		<b>Maximum Wet Bulb Temperature</b> 84° F (29° C)
	<b>Operating Systems Supported</b>	Windows 11, Windows 10, Windows 8.1, Windows 7 Professional 64-bit Red Hat® Enterprise Linux® (RHEL) 8, 9 Desktop/Workstation SUSE Linux® Enterprise Desktop 15 Ubuntu 20.04, 22.04 LTS
	No driver is required for this device. Native support is provided by the operating system.	
	<b>Kit Contents</b>	9.5mm Slim DVD-ROM Drive, 5.25" ODD Bay adapter/carrier, slim SATA data/power cable, installation guide

**NOTE:** Actual speeds may vary. No support for DVD-RAM (DVD Writer). Does not permit copying of commercially available DVD movies or other copyright protected materials. Intended for creation and storage of your original material and other lawful uses. Double Layer discs can store more data than single layer discs. However, double-layer discs burned with this drive may not be compatible with many existing single-layer DVD drives and players.

Technical Specifications - Networking and Communications

NETWORKING AND COMMUNICATIONS



<b>Realtek RTL 8111EPP (Integrated)</b>	<b>Connector</b>	RJ45
	<b>Cabling</b>	Up to 100m with Cat 5e or better
	<b>Controller</b>	Realtek RTL8111EPP
	<b>Data Rates Supported</b>	10/100/1000Mbps
	<b>Compliance</b>	IEEE 802.3, 802.3ab, 802.3u, 802.3x, 802.3az-2010 (EEE) Microsoft NDIS5, NDIS6 (IPv4, IPv6, TCP, UDP) Chesum and Segmentation Task-offload, RSS, Auto-negotiation IEEE 802.1P Layer 2 priority encoding, IEEE 802.1Q VLAN PCI MSI and MSI-X Jumbo Frames up to 9Kb USB Redirection
	<b>Bus Architecture</b>	PCIe
	<b>Data Transfer Mode</b>	BASE-T
	<b>Network Transfer Rate</b>	10/100/1000Mbps
	<b>Management Capabilities</b>	DASH System Manageability, Wake-On-LAN, PXE, UEFI
	<b>Kit Contents</b>	Integrated into system

### Technical Specifications - Networking and Communications

<b>NVIDIA® Mellanox® ConnectX-6 DX Dual Port 10/25GbE SFP28 NIC</b>	<b>Connector</b>	2 x SFP28 Transceiver Cage (Dual Port)*
	<b>Cabling</b>	Depends on transceiver pairing. Typically OM4 or higher MMF LC fiber optic cabling with LC SFP28 Transceivers.
	<b>Controller</b>	ConnectX6-DX
	<b>Memory</b>	256Mbit SPI Quad Flash Device
	<b>Data Rates Supported</b>	1/10/25GbE *
		IEEE 802.3by, 802.3ae, 802.3ap, 802.3ad, 802.1AX, 802.1Q, 802.1P, 802.1Qau (QCN), 802.1Qaz (ETS), 802.1Qbb (PFC), 802.1Qbg, 1588v2 Jumbo frame support (9.6KB)
		CB/cTUVus/CE Compliant
		CE/FCC/VCCI/RCM Compliant
		RoHS/KCC/CAN ICES-3 (B)/NM EN 55035/55032 (Morocco)/UKCA Compliant
	<b>Bus Architecture</b>	PCIe Gen 4 x8
	<b>Data Transfer Mode</b>	PCI Express - stores and accesses Ethernet fabric connection information and packet data
	<b>Power Requirements</b>	11.5 Watts (typical)
	<b>Network Transfer Rate</b>	1Gbps, 10Gbps, 25Gbps *

**NOTE:** Network Transfer Rate depends on transceiver model.\*

**Kit Contents** NVIDIA® Mellanox® ConnectX-6 DX Dual Port 10/25GbE SFP28 NIC

\* You must have a transceiver installed in order to connect this card to a network.

<b>HP 25GbE SFP28 LC Fiber Optic Transceiver</b>	<b>Connector</b>	LC Fiber Optic Connector
	<b>Cabling</b>	Typically OM4 or higher MMF LC fiber optic cabling, up to 100m on OM4, up to 70m on OM3
	<b>Data Rates Supported</b>	25Gbps
	<b>Compliance</b>	SFF-8472 and 8431, Hot pluggable SFP+ footprint
	<b>Compatibility</b>	Intended for use with NVIDIA Mellanox ConnectX-6 DX Dual Port 10/25GbE NIC
	<b>Wavelength</b>	850nm
	<b>Kit Contents</b>	25GbE SFP28 Transceiver

<b>HP 10GbE SFP+ SR/SW LC Fiber Optic Transceiver</b>	<b>Connector</b>	LC Fiber Optic Connector
	<b>Cabling</b>	Typically OM4 or higher MMF LC fiber optic cabling, up to 300m on MMF
	<b>Data Rates Supported</b>	10Gbps
	<b>Compliance</b>	SFF-8472 and 8431, Hot pluggable SFP+ footprint
	<b>Compatibility</b>	Intended for use with NVIDIA Mellanox ConnectX-6 DX Dual Port 10/25GbE NIC
	<b>Wavelength</b>	850nm
	<b>Kit Contents</b>	10GbE SFP+ Transceiver

<b>HP Dual Port 10GBase-T NIC Module G2</b>	<b>Networking Interface</b>	2 x RJ-45 (Dual Port)
	<b>System Interface</b>	Cabled from Dedicated Rear I/O Slot
	<b>Controller</b>	Marvell AQc113C
	<b>Memory</b>	128KB Tx Buffer, 192KB Rx Buffer on-chip

### Technical Specifications - Networking and Communications

<b>Networking Speeds Supported</b>	10Gbps, 5Gbps, 2.5Gbps, 1Gbps, 100Mbps, 10Mbps
<b>Compliance</b>	IEEE 802.3 - 2018, IEEE 802.1AS-2011
<b>Cabling (up to 100m)</b>	Cat5e (or higher) for 1Gbps Cat6a (or higher) for 10Gbps
<b>Power Consumption (active-typical)</b>	5.5W at 1Gbps 11.2W at 10Gbps
<b>Physical Dimensions</b>	0.875 in x 3 in x 2.75 in
<b>Connect Speed LED Indicators</b>	Link/Activity LED <ul style="list-style-type: none"> <li>Off = No link</li> <li>Blinking = Activity</li> </ul> Speed LED <ul style="list-style-type: none"> <li>Amber = 1Gbps</li> <li>Green = 10Gbps</li> </ul>
<b>Operating Temperature</b>	0 °C to 55 °C (32 °F to 131 °F)

#### Intel® X550 10GBASE-T Dual Port NIC

<b>Connector</b>	2 x RJ-45 (Dual Port)
<b>Cabling</b>	Cat5 (or higher) for 100Mbps Cat5e (or higher) for 1Gbps, 2.5Gbps, or 5Gbps Cat6 (or higher) for 10Gbps up to 55m Cat6a (or higher) for 10Gbps up to 100m
<b>Controller</b>	Intel® X550-AT2
<b>Memory</b>	Jumbo Frames up to 15.5KB, 64 Tx and 64 Rx Queues per port, 160KB/port of programmable memory transmit buffers
<b>Data Rates Supported</b>	100Mbps (BASE-TX), 1Gbps (BASE-T, 2.5Gbps, 5Gbps, 10Gbps)
<b>Compliance</b>	802.1q (VLAN), 802.1Qbb, 802.1p, 802.1Qaz
<b>Bus Architecture</b>	PCIe 3x4
<b>Data Transfer Mode</b>	PCIe Gen 3 x4 based interface
<b>Power Requirements</b>	3.9W at 100Mbps 5.5W at 1Gbps 11.2W at 10Gbps
<b>Boot ROM Support</b>	Yes
<b>Network Transfer Mode</b>	Auto negotiation between 1GbE, 2.5GbE, 5GbE and 10GbE
<b>Management Capabilities</b>	DMI 2.0 Support, Windows Management Instrumentation (WMI) and SNMP, PXE 2.0 through boot ROM, Multi-mode I/O Virtualization, VxLAN, VMDq, VLAN support with VLAN tag insertion
<b>Kit Contents</b>	Intel® X550 10GBASE-T Dual Port NIC

#### HP 10GBase-T Flex Port

<b>Connector</b>	RJ45 (Single Port)
<b>Cabling</b>	Twisted Pair Cabling, up to 100m Cat5e (or higher) for 1Gbps Cat6a (or higher) for 10Gbps
<b>Controller</b>	Marvell AQC113C
<b>Memory</b>	128KB Tx Buffer, 192KB Rx Buffer on-chip

### Technical Specifications - Networking and Communications

<b>Data Rates Supported</b>	10/100/1000 Mbps and 2.5/5/10 Gbps
<b>Compliance</b>	IEEE 802.3 - 2018, IEEE 802.1AS-2011
<b>Bus Architecture</b>	PCI Express and SMBus
<b>Data Transfer Mode</b>	PCIe-based interface for active state operation (S0 state) and SMBus for host and management traffic
<b>Power Consumption (typical)</b>	5.5W at 1Gbps 11.2W at 10Gbps
<b>Network Transfer Mode</b>	Full-duplex, Half-duplex
<b>Network Transfer Rate</b>	10GBASE-T 5GBASE-T 2.5GBASE-T 1000BASE-T 100BASE-TX 10BASE-Te
<b>Management Capabilities</b>	WOL, PXE, UEFI,
<b>Kit Contents</b>	HP 10GBase-T Flex Port NIC Module

**NOTE:** Not available at launch; available early 2024

#### Intel® I226-T1 1 port 2.5GbE NIC

<b>Connector</b>	1xRJ-45
<b>Cabling</b>	Cat5e (or higher) for 2.5Gbps up to 100m
<b>Controller</b>	Intel® I226
<b>Memory</b>	Jumbo Frames up to 9.5KB, 4 Tx and Rx Queues
<b>Data Rates Supported</b>	10Mbps, 100Mbps, 1Gbps, 2.5Gbps
<b>Compliance</b>	IEEE 802.3 auto negotiation, 802.3, 802.3u, 802.3ab, 802.3x, 802.3z, IEEE1588 protocol and 802.1AS implementation, 802.3az EEE
<b>Bus Architecture</b>	PCI Express 2.1 x4
<b>Data Transfer Mode</b>	PCIe-based interface for active state operation
<b>Power Requirements</b>	1.4W typical at 2.5Gbps
<b>Network Transfer Mode</b>	Multi-speed, full, and half-duplex
<b>Network Transfer Rate</b>	10BASE-T 100BASE-Tx 1000BASE-T
<b>Management Capabilities</b>	WOL, PXE 2.1, UEFI, Power Management Protocol Offload (proxying), MAC Power Management, Active State Power Management, ACPI
<b>Kit Contents</b>	Intel® I226-T1® Adapter

#### HP 2.5GbE LAN Flex Port

<b>Connector</b>	RJ45 (Single Port)
<b>Cabling</b>	Copper twisted pair, Cat5e up to 100 meters
<b>Controller</b>	Intel® I225-V
<b>Memory</b>	4 Tx and 4 Rx Queues, Jumbo Frames up to 9KB and without TSN
<b>Data Rates Supported</b>	10/100/1000Mbps and 2.5Gbps BASE-T
<b>Compliance</b>	IEEE 802.3, 802.3u (auto-negotiation), 802.3ab, 1588, 802.1AS-Rev, 802.1Qav, 802.1Qbu, 802.1Qbv, 802.3br, 802.3az
<b>Bus Architecture</b>	PCIe G2x1
<b>Data Transfer Mode</b>	PCIe-based interface for active state operation (S0 state) and SMBus for host and management traffic (Sx low power state)
<b>Power Requirements</b>	2.2 Watts

### Technical Specifications - Networking and Communications

<b>Network Transfer Mode</b>	Automatic link configuration for speed duplex and flow control
<b>Network Transfer Rate</b>	2500BASE-T 1000BASE-T 100BASE-TX (Half-duplex supported) 10BASE-Te (Half-duplex supported)
<b>Management Capabilities</b>	WOL, PXE, UEFI, Intel vPro® support with appropriate Intel Chipset, Error Correcting Memory in packet buffers, UDP/TCP/IP Checksum Offload, SCTP receive and transmit integrity offload
<b>Kit Contents</b>	HP 2.5GbE LAN Flex Port Networking Interface Card

#### HP 1GbE Fiber LC Single Flex Port

<b>Connector</b>	LC (Little Connector) Fiber (Single Port)
<b>Cabling</b>	LC Fiber Cabling
<b>Controller</b>	AT-29M2
<b>Data Rates Supported</b>	1GBASE-SX
<b>Bus Architecture</b>	USB 3.1G1
<b>Power Requirements</b>	Up to 3.3 Watts
<b>Network Transfer Mode</b>	1GBASE-SX
<b>Network Transfer Rate</b>	1GBASE-SX
<b>Management Capabilities</b>	Wake on LAN, Digital Diagnostic Monitoring
<b>Kit Contents</b>	HP 1GbE Fiber LC Single Flex Port NIC

#### HP Flex 1GbE Single Port NIC

<b>Connector</b>	RJ45 (Single Port)
<b>Cabling</b>	1GbE over Category 5e (or better) up to 100m
<b>Controller</b>	Realtek RTL8153
<b>Data Rates Supported</b>	10/100/1000 Mbps
<b>Bus Architecture</b>	USB3.1G1, USB2
<b>Power Requirements</b>	Requires 3.3V (integrated regulators for core Vdc)
<b>Network Transfer Mode</b>	Full-duplex; Half-duplex
<b>Network Transfer Rate</b>	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
<b>Management Capabilities</b>	Wake on LAN, PXE, UEFI
<b>Kit Contents</b>	HP 1GbE Single Flex Port

#### Intel® Ethernet I350-T4V2 4-Port 1Gb NIC (After Market Option Only)

<b>Connector</b>	4x RJ-45 (Quad Port)
<b>Cabling</b>	Cat3 (or higher) for 10Mbps Cat5 (or higher) for 100Mbps Cat5e (or higher) for 1Gbps up to 100m
<b>Controller</b>	Intel® I350
<b>Memory</b>	Jumbo Frames up to 9.5KB, 8 Tx/Rx Queue pairs per port, Main Internal memory is Error Code Correcting
<b>Data Rates Supported</b>	10Mbps, 100Mbps, 1Gbps
<b>Compliance</b>	IEEE 802.3 auto negotiation, 802.3, 802.3u, 802.3ab, 802.3x, 802.3z, IEEE1588 protocol and 802.1AS implementation, 802.3az EEE



### Technical Specifications - Networking and Communications

<b>Bus Architecture</b>	PCI Express 2.1 x4
<b>Data Transfer Mode</b>	PCIe-based interface for active state operation
<b>Power Requirements</b>	5W
<b>Network Transfer Mode</b>	Multi-speed, full, and half-duplex
<b>Network Transfer Rate</b>	10BASE-T 100BASE-Tx 1000BASE-T
<b>Management Capabilities</b>	WOL, PXE 2.1, UEFI, Power Management Protocol Offload (proxying), MAC Power Management, Active State Power Management, VLAN, ACPI
<b>Kit Contents</b>	Intel® Ethernet I350- T4V2 4-Port 1Gb NIC, installation instructions

#### Allied Telesis AT-2914SX/LC 1GB LC Fiber NIC

<b>Connector</b>	LC Fiber (Single Port)
<b>Cabling</b>	50/125 µm (core/cladding) multimode fiber optic cable up to 500m 62.5/125 µm (core/cladding) multimode fiber optic cable up to 220m
<b>Memory</b>	Jumbo Frames up to 9.6KB
<b>Data Rates Supported</b>	1000SX (1GbE Fiber at 850nm Wavelength)
<b>Compliance</b>	IEEE 802.1p (Quality of Service), IEEE 802.1Q (VLANs), IEEE 802.2 (LLC), IEEE 802.3ac (MAC), IEEE 802.3x (Flow control auto-negotiation), IEEE 802.3z (1000 Base-X), IEEE 802.3ad (Link aggregation) RoHS, UL, FCC/EN55022 Class A, TUV, EN55024, CE, C-TICK, VCCI
<b>Bus Architecture</b>	PCIe x1
<b>Data Transfer Mode</b>	PCIe-based interface
<b>Power Requirements</b>	1.5 Watts (typical)
<b>Network Transfer Rate</b>	1000SX only (1GbE Fiber at 850nm Wavelength)
<b>Management Capabilities</b>	UEFI, Smart Load Balancing and failover, Link aggregation (IEEE802.3ad), Generic trunking (FEC/GEC) / IEEE 802.3ad-draft static, VLAN Support
<b>Kit Contents</b>	Allied Telesis AT-2914SX/LC 1GB LC Fiber NIC with low-profile bracket attached and standard height bracket included

#### Allied Telesis AT-2911T/2-901 Dual Port 1GbE NIC

<b>Connector</b>	2 x RJ-45 (Dual Port)
<b>Cabling</b>	Cat3 (or higher) for 10Mbps Cat5 (or higher) for 100Mbps Cat5e (or higher) for 1Gbps up to 100m
<b>Memory</b>	17 Rx and 16 Tx queues
<b>Data Rates Supported</b>	10/100/1000 Mbps
<b>Compliance</b>	IEEE 802.1p (Quality of Service), IEEE 802.1Q (VLANs), IEEE 802.2 (LLC), IEEE 802.3ac (MAC), IEEE 802.3x (Flow control auto-negotiation), IEEE 802.3z (1000 Base-X), IEEE 802.3ad (Link aggregation), IEEE 802.3ab (10/100/1000T) RoHS, UL, FCC/EN55022 Class A, TUV, EN55024, CE, C-TICK, VCCI
<b>Bus Architecture</b>	PCIe 2x1
<b>Data Transfer Mode</b>	PCIe-based interface
<b>Power Requirements</b>	2.4 Watts (typical)
<b>Management Capabilities</b>	VLAN support, Link aggregation LACP, Link aggregation smart switch, Failover, Smart Load Balancing (SLB), iSCSI boot support, Windows Management Instrumentation (WMI), PXE 2.1, SNMP
<b>Kit Contents</b>	Allied Telesis AT-2911T/2-901 Dual Port 1GbE NIC with low-profile bracket

### Technical Specifications - Networking and Communications

attached and standard bracket included

<b>MediaTek RZ616 Wi-Fi 6 + Bluetooth® 5.3 wireless card Flex Port NIC with Internal Antenna</b>	<b>Connector</b>	Wireless
	<b>Cabling</b>	N/A
	<b>Controller</b>	MediaTek RZ616
	<b>Data Rates Supported</b>	Wi-Fi 6 (2.4GHz/5GHz) (20MHz, 40MHz, 80MHz, 160MHz)
	<b>Compliance</b>	IEEE 802.11 a/b/g/n/ac/ax IEEE 802.11 d/e/h/i/j/k/mc/r/v/w
<b>Bus Architecture Capabilities</b>		PCIe G2.1 for WLAN, USB2.0 for BT WiFi: MU-MIMO TX/RX, STBC, LDPC Greenfield, mixed mode, legacy mode Security support for WPA WPA/WPA2/WPA3 personal, WPS2.0 QoS support of WFA WMM, WMM PS  BT: BT 2.1, 3.0, 5.3 Up to 7 BT links and 16BLE links SCO and eSCO link with retransmission Packet Loss Concealment (PLC) for voice quality AES128 and ECC256
<b>Kit Contents</b>		MediaTek RZ616 Wi-Fi 6 + Bluetooth® 5.3 Flex Port NIC Installation Instructions

\* Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 6 (802.11 ax) is backwards compatible with prior 802.11 specs.

<b>Intel® AX210 Wi-Fi 6E non-vPro + Bluetooth® 5.2 wireless card with External Antenna WLAN</b>	<b>Connector</b>	Wireless
	<b>Cabling</b>	N/A
	<b>Controller</b>	Intel® AX210
	<b>Data Rates Supported</b>	Wi-Fi 6e (2.4GHz/5GHz/6GHz)
	<b>Compliance</b>	Wi-Fi Alliance* Wi-Fi Alliance CERTIFIED 6, WiFi CERTIFIED a/b/g/n/ac, WMM, WMM-Power Save, WPA2, WPA3, Wi-Fi Direct, and Wi-Fi Agile Multiband IEEE WLAN Standard 802.11-2016, 802.11a, b, d, e, g, h, i, k, n, r, u, v, w, ac, and ax, Bluetooth® 5.2
<b>Bus Architecture</b>		PCIe G3x1 for WLAN, USB3.1G1 for BT
<b>Management Capabilities</b>		Authentication Protocols: 802.1X EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0 - MSCHAPv2 (EAP-SIM, EAP-AKA, EAP-AKA') Encryption: 128-bit AES-CCMP, 256-bit AES-GCMP UEFI
<b>Kit Contents</b>		Intel® AX210 Wi-Fi 6 + Bluetooth® 5.2 PCIe NIC External Dipole Antenna Installation Instructions

\*Wi-Fi 6E requires a Wi-Fi 6E router, sold separately to function in the 6GHz band. Availability of public wireless access points limited. Wi-Fi 6E is backwards compatible with prior 802.11 specs. And available in countries where Wi-Fi 6E is supported.

Date of change:	Version History:	Description of change:
	From v1 to v2	



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