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HP ZBook 17 Mobile Workstation Product Specifications

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Product image



HP ZBook 17 Mobile Workstation

Product features



Feature	Description
Chipset	Mobile Intel QM87
Processors	<ul style="list-style-type: none"> • 4th Generation Intel Core i7-4930MX, i7-4900MQ, i7-4800MQ, i7-4700MQ, i7-4600M, i5-4330M • Intel Dual-Core i5-4300M
Graphics ¹	<p>Microsoft DirectX 11.1 (Shader Model 5.0) and OpenGL 4.2 capable</p> <ul style="list-style-type: none"> • NVIDIA Quadro K610M with 1GB dedicated GDDR5 video memory • NVIDIA Quadro K3100M with 4GB dedicated GDDR5 video memory • NVIDIA Quadro K4100M with 4GB dedicated GDDR5 video memory • NVIDIA Quadro K5100M with 8GB dedicated GDDR5 video memory
Display	<ul style="list-style-type: none"> • Internal 17.3-inch diagonal LED-backlit HD+SVA anti-glare (1600 x 900) 17.3-inch diagonal LED-backlit FHD UWVA anti-glare (1920 x 1080) 17.3-inch diagonal LED-backlit FHD DreamColor UWVA anti-glare (1920 x 1080) • External Up to 30-bit (2³⁰) per pixel “Deep Color” (total of 1,073,741,824 color variations)
Storage and drives	<ul style="list-style-type: none"> • mSATA storage bay 128GB mini-card Solid State Drive • Primary storage bay Hard drives <ul style="list-style-type: none"> • 320/500/750GB 7200 rpm SMART SATA II • 1TB 5400 rpm SMART SATA II • 500GB 7200 rpm SMART SATA II Self Encrypting Drive • 500GB 5400 rpm SMART SATA II Self Encrypting Drive FIPS 140-2 compliant Solid State Drive <ul style="list-style-type: none"> • 128/180/512GB SATA 6 Gb/s • 256GB SATA 6 Gb/s Self Encrypting Drive



Feature	Description
Optical drives	<ul style="list-style-type: none"> • Fixed 9.5 mm SATA optical drive Blu-ray R/RE DVD+/-RW SuperMulti DL Drive Blu-ray ROM DVD+/-RW SuperMulti DL Drive DVD+/-RW SuperMulti DL Drive DVD-ROM Drive • Second hard drive 750GB 7200 rpm SMART SATA II Hard Drive 256GB SATA 6 Gb/sec Self Encrypting Drive 512GB SATA 6 Gb/sec Solid State Drive RAID 0 and 1 supported
Memory	<ul style="list-style-type: none"> • Standard DDR3L 1.35V SDRAM (1600 MHz) Two SODIMM slots (Dual-core processor) or four SODIMM slots (Quad-core processor) supporting dual-channel memory 2GB, 4GB, and 8GB SODIMMs • Maximum Upgradeable to 16384 MB with optional 8192 MB SODIMMs in both slots (Dual-core processor) Upgradeable to 32768 MB with optional 8192 MB SODIMMs in all 4 slots (Quad-core processor) • Dual-channel Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory slots.
Networking/Communications	<ul style="list-style-type: none"> • Wireless • Mobile Broadband options HP hs3110 HSPA+ Mobile Broadband Module HP lt4111 LTE/EV-DO/HSPA+ Gobi4G Module HP lt4112 LTE/HSPA+Gobi4G Module (EMEA,APJ) • All 802.11 integrated wireless LAN options Intel Dual Band Wireless-AC 7260 802.11 ac (2x2) + Bluetooth 4.0 LE Combo Intel Centrino Advanced-N 6235 802.11 a/b/g/n (2x2) + Bluetooth 4.0 LE Combo Intel Centrino Advanced-N 6205 802.11 a/b/g/n (2x2) • Communications Integrated Intel I217-LM Gigabit Network Connection (vPro configurations)

Feature	Description
Audio/Multimedia	<ul style="list-style-type: none"> • Audio DTS Studio Sound HD audio (Windows OS only) Integrated stereo speakers Integrated microphone (dual-microphone array when equipped with optional webcam) Button for volume mute; function keys for volume up and down Combo mic-in / stereo headphone-out jack • Webcam Optional 720p HD webcam <ul style="list-style-type: none"> • HD format (widescreen) • Supports videoconferencing and still image capture • High quality fixed focus lens • Video capture at various resolutions up to 1280x720 resolution (720p) and up to 30fps • M-JPEG compression supports higher frame rates for video capture and videoconferencing • Improved low light sensitivity • Improved dynamic range
<p>NOTE: NVIDIA Quadro mobile professional graphics support up to five independent displays when using an HP Advanced Docking station (sold separately) and up to six independent displays when using DisplayPort 1.2 daisy chained displays.</p>	

Display specifications

17.3-inch HD+ SVA LED anti-glare

Specification	Description
Dimensions (W x H)	38.2 x 21.5 cm (15.0 x 8.5 in)
Diagonal size	43.9 cm (17.3 in)
Surface treatment	Anti-glare

Specification	Description
Contrast ratio	300:1 (min)
Refresh rate	60 Hz
Brightness	200 nits (typ)
Pixel resolution	<ul style="list-style-type: none"> • Pitch: 0.3287 x 0.3287 mm • Format: 1600 x 900 • Configuration: RGB Stripe
Backlight	LED
PPI	106
Viewing angle	<p>±30° Horizontal, ±10° Vertical (minimum)</p> <p>30/30/10/20 (Left/Right/Down/Up) (minimum)</p>

17.3-inch FHD WVA LED anti-glare

Specification	Description
Dimensions (W x H)	38.2 x 21.5 cm (15.0 x 8.5 in)
Diagonal size	43.9 cm (17.3 in)

Specification	Description
Surface treatment	Anti-glare
Contrast ratio	500:1 (min)
Refresh rate	60 Hz
Brightness	300 nits (typ)
Pixel resolution	<ul style="list-style-type: none"> • Pitch: 0.1989 x 0.1989 mm • Format: 1920x1080 • Configuration: RGB Stripe
Backlight	LED
PPI	127
Viewing angle	<p>±60° Horizontal, ±50° Vertical (minimum)</p> <p>60/60/50/50 (Left/Right/Down/Up) (minimum)</p>

17.3-inch FHD UWVA LED anti-glare Dreamcolor

Specification	Description
Dimensions (W x H)	38.2 x 21.5 cm (15.0 x 8.5 in)

Specification	Description
Diagonal size	43.9 cm (17.3 in)
Surface treatment	Anti-glare
Contrast ratio	600:1 (min)
Refresh rate	60 Hz
Brightness	300 nits (typ)
Pixel resolution	<ul style="list-style-type: none">• Pitch: 0.1989 x 0.1989 mm• Format: 1920x1080• Configuration: RGB Stripe
Backlight	LED
PPI	127
Viewing angle	±80° Horizontal, ±80° Vertical (minimum) 80/80/80/80 (Left/Right/Down/Up) (min)
Technology type	30-bit In-Plane Switching (IPS)

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Specification	Description
Color depth	10-bits/color
Display colors	Over 1 billion colors (native mode)
Color gamut coverage	<p>NTSC:</p> <ul style="list-style-type: none"> • CIE1931 (x,y): 109% • CIE 1976 (u',v'): 129% <p>AdobeRGB:</p> <ul style="list-style-type: none"> • CIE1931 (x,y): 114% • CIE 1976 (u',v'): 127% <p>sRGB:</p> <ul style="list-style-type: none"> • CIE1931 (x,y): 154% • CIE 1976 (u',v'): 148%

HDD specifications

1TB 5400 rpm SATA Hard Drive

Specification	Description
Drive weight	115 g (0.25 lbs)
Capacity	1TB
Height	9.5 mm (0.37 in)
Width	70 mm (2.75 in)

Specification	Description
Interface	ATA-8, SATA 2.6, 3.0 Gb/s, NCQ
Transfer rate	Synchronous (maximum): 300 MB/s (Drive Capability)
Seek time (typical reads, including settling)	<ul style="list-style-type: none"> • Single track: 4 ms • Average: 14 ms • Maximum: 24 ms
Cache	16MB
Rotational speed	5400 rpm
Logical blocks	1,953,525,168
Operating temperature	0° to 60°C (32° to 140°F) [case temp]
Features	ATA Security

750GB 7200 rpm SATA Hard Drive

Specification	Description
Drive weight	115 g (0.25 lbs)

Specification	Description
Capacity	750GB
Height	9.5 mm (0.37 in)
Width	70 mm (2.75 in)
Interface	ATA-8, SATA 2.6, 3.0 Gb/s, NCQ
Transfer rate	Synchronous (maximum): 300 MB/s (Drive Capability)
Seek time (typical reads, including settling)	<ul style="list-style-type: none">• Single track: 1.5 ms• Average: 11 ms• Maximum: 22 ms
Cache	16MB
Rotational speed	7200 rpm
Logical blocks	1,465,149,168
Operating temperature	0° to 60°C (32° to 140°F) [case temp]
Features	ATA Security

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500GB 7200 rpm SATA Hard Drive

Specification	Description
Drive weight	115 g (0.25 lbs)
Capacity	500GB
Height	9.5 mm (0.37 in)
Width	70 mm (2.75 in)
Interface	ATA-8, SATA 2.6, 3.0 Gb/s, NCQ
Transfer rate	Synchronous (maximum): 300 MB/s (Drive Capability)
Seek time (typical reads, including settling)	<ul style="list-style-type: none"> • Single track: 1.5 ms • Average: 11 ms • Maximum: 22 ms
Cache	16MB
Rotational speed	7200 rpm
Logical blocks	976,773,168

Specification	Description
Operating temperature	0° to 60°C (32° to 140°F) [case temp]
Features	ATA Security

500GB 5400 rpm SATA FIPS Hard Drive

Specification	Description
Drive weight	95 g (0.25 lbs)
Capacity	500GB
Height	7 mm (0.28 in)
Width	70 mm (2.75 in)
Interface	ATA-8, SATA 2.6, 3.0 Gb/s, NCQ
Transfer rate	Synchronous (maximum): 300 MB/s (Drive Capability)
Seek time (typical reads, including settling)	<ul style="list-style-type: none"> • Single track: 1.5 ms • Average: 11 ms • Maximum: 22 ms

Specification	Description
Cache	16MB
Rotational speed	7200 rpm
Logical blocks	976,773,168
Operating temperature	0° to 60°C (32° to 140°F) [case temp]
Features	ATA Security, TCG Opal SSC 2.0 and FIPS 140-2-level2

500GB 7200 rpm SMART SATA II Self Encrypting Drive

Specification	Description
Drive weight	115 g (0.25 lbs)
Capacity	500GB
Height	9.5 mm (0.37 in)
Width	63.5 mm (2.50 in)
Interface	ATA-8, SATA 2.6, 3.0 Gb/s

Specification	Description
Transfer rate	Synchronous (maximum): 300 MB/s (Drive Capability)
Seek time (typical reads, including settling)	<ul style="list-style-type: none"> • Single track: 1 ms • Average: 12 ms • Maximum: 20 ms
Cache	16MB
Rotational speed	7200 rpm
Logical blocks	976,773,168
Operating temperature	0° to 60°C (32° to 140°F) [case temp]
Features	ATA Security

320GB 7200 rpm SATA Hard Drive

Specification	Description
Drive weight	115 g (0.25 lbs)
Capacity	320GB

Specification	Description
Height	9.5 mm (0.37 in)
Width	70 mm (2.75 in)
Interface	ATA-8, SATA 2.6, 3.0 Gb/s, NCQ
Transfer rate	Synchronous (maximum): 300 MB/s (Drive Capability)
Seek time (typical reads, including settling)	<ul style="list-style-type: none">• Single track: 1.5 ms• Average: 11 ms• Maximum: 22 ms
Cache	16MB
Rotational speed	7200 rpm
Logical blocks	625,142,448
Operating temperature	0° to 60°C (32° to 140°F) [case temp]
Features	ATA Security

SATA 6 Gb/s 512GB, 2.5-inch Solid State Drive

Specification	Description
Drive weight	73 g
Capacity	512GB
Height	7 mm (0.276 in)
Width	70 mm (2.76 in)
Interface	SATA Gen 3 (6 Gb/s)
Performance	<ul style="list-style-type: none"> • Maximum Sequential Read: 460 MB/s • Maximum Sequential Write: 260 MB/s
Logical blocks	1,000,215,216
Operating temperature	0° to 70°C (32° to 158°F) [case temp]
Features	ATA Security; ATA-8; SATA 3.0 DIPM; TRIM

SATA 6 Gb/s 256GB, 2.5-inch SATA SED Solid State Drive

Specification	Description
Drive weight	73 g

Specification	Description
Capacity	256GB
Height	7 mm (0.276 in)
Width	70 mm (2.76 in)
Interface	SATA Gen 3 (6 Gb/s)
Performance	<ul style="list-style-type: none"> • Maximum Sequential Read: Up to 460 MB/s • Maximum Sequential Write: Up to 260 MB/s
Logical blocks	500,118,192
Operating temperature	0° to 70°C (32° to 158°F) [case temp]
Features	ATA Security; ATA-8 compliant; SATA 3.0; DIPM; TRIM

SATA 6 Gb/s 180GB, 2.5-inch Solid State Drive

Specification	Description
Drive weight	73 g
Capacity	180GB

Specification	Description
Height	7 mm (0.276 in)
Width	70 mm (2.76 in)
Interface	SATA Gen 3 (6 Gb/s)
Performance	<ul style="list-style-type: none"> • Maximum Sequential Read: 550 MB/s • Maximum Sequential Write: 520 MB/s
Logical blocks	351,651,888
Operating temperature	0° to 70°C (32° to 158°F) [case temp]
Features	ATA Security; ATA-8, SATA 3.0; DIPM; TRIM

SATA 6 Gb/s 128GB, 2.5-inch Solid State Drive

Specification	Description
Drive weight	73 g
Capacity	128GB
Height	7 mm (0.276 in)

Specification	Description
Width	70 mm (2.76 in)
Interface	SATA Gen 3 (6 Gb/s)
Performance	<ul style="list-style-type: none"> • Maximum Sequential Read: 415 MB/s • Maximum Sequential Write: 175 MB/s
Logical blocks	250,069,680
Operating temperature	0° to 70°C (32° to 158°F) [case temp]
Features	ATA Security; ATA-8, SATA 3.0; DIPM; TRIM

Optical drive specifications

DVD-ROM Drive

Specification	Description
Access times	Random: Less than 140 ms CD (typical) Less than 160 ms DVD (typical)
Max data transfer rate	24X CD-ROM 8X-DVD



Specification	Description
Transfer mode	UDMA Mode 5
Interface	Gen 1 SATA
Supported media (read)	CD-DA, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM
Supported media (write)	None
Max media capacity (read)	8.5GB
Transport	Tray loading

DVD+/-RW SuperMulti DL Drive

Specification	Description
Access times	Random: Less than 140 ms CD (typical) Less than 160 ms DVD (typical)
Max data transfer rate	24X CD-ROM 8X-DVD 24X CD-R

Specification	Description
	24X CD-RW 8X DVD+R 8X DVD+RW 8X DVD-R 6X DVD-RW 6X - DVD+R Dual Layer 6X - DVD-R Dual Layer 5X DVD-RAM
Transfer mode	UDMA Mode 5
Interface	Gen 1 SATA
Supported media (read)	CD-DA, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM
Supported media (write)	CD-R, CD-RW, DVD+R, DVD+RW, DVD-R, DVD-RW, DVD-RAM, DVD+R DL, DVD-R DL
Max media capacity (read)	8.5GB
Max media capacity (write)	8.5GB
Transport	Tray loading

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Blu-ray ROM DVD+/-RW SuperMulti DL Drive

Specification	Description
Access times	Random: Less than 190 ms CD-ROM (typical) Less than 180 ms DVD-ROM (typical) Less than 230 ms BD-ROM (typical)
Max data transfer rate	24X CD-ROM 8X DVD-ROM 24X CD-R 16X CD-RW 8X DVD+R 8X DVD+RW 8X DVD-R 6X DVD-RW 4X - DVD+R Dual Layer 4X - DVD-R Dual Layer 5X DVD-RAM 6X BD-ROM
Transfer mode	UDMA Mode 5
Interface	Gen 1 SATA

Specification	Description
Supported media (read)	CD-DA, , CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW. DVD-RAM, BD-ROM, BD-R, BD-RE
Supported media (write)	CD-R, CD-RW, DVD+R, DVD+R DL, DVD+RW, DVD-R, DVD-R DL, DVD-RW, DVD-RAM
Max media capacity (read)	50.0GB
Max media capacity (write)	8.5GB
Transport	Tray loading

Blu-ray R/RE DVD+/-RW SuperMulti DL Drive

Specification	Description
Access times	Random: Less than 165 ms CD-ROM (typical) Less than 185 ms DVD-ROM (typical) Less than 205 ms BD-ROM (typical)
Max data transfer rate	24X CD-ROM 8X DVD-ROM 24X CD-R

Specification	Description
	16X CD-RW 8X DVD+R 8X DVD+RW 8X DVD-R 6X DVD-RW 6X DVD+R Dual Layer 6X DVD-R Dual Layer 5X DVD-RAM 6X BD-ROM 6X BD-R 2X BD-RE
Transfer mode	UDMA Mode 5
Interface	Gen 1 SATA
Supported media (read)	CD-DA, , CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW. DVD-RAM, BD-ROM, BD-R, BD-RE
Supported media (write)	CD-R, CD-RW, DVD+R, DVD+R DL, DVD+RW, DVD-R, DVD-R DL, DVD-RW, DVD-RAM, BD-R, BD-RE
Max media capacity (read)	50.0GB



Specification	Description
Max media capacity (write)	50.0GB
Transport	Tray loading

Networking/Communications

Intel I217-LM Gigabit Network Connection

Specification	Description
Ethernet features	<p>10 Mbit/s operation (10BASE-T; IEEE 802.3; IEEE 802.3 clauses 13-14)</p> <p>100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30)</p> <p>1000 Mbit/s operation (1000BASE-T; IEEE 802.3ab; IEEE 8023. Clauses 40)</p> <p>IEEE 802.3u Auto-Negotiation (Automatic Speed Selection)</p> <p>Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s</p> <p>IEEE 802.1p QoS (Quality of Service) Support</p> <p>IEEE 802.1q VLAN support</p> <p>IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable)</p> <p>IEEE 802.3az EEE(Energy Efficient Ethernet)</p> <p>IEEE 802.1as/1588 conformance</p> <p>Jumbo Frame 9K</p> <p>Auto MDI/MDIX Crossover cable detection</p>
Power management	<p>ACPI compliant - multiple power modes</p> <p>Energy Detect Low Power Mode(Green Ethernet)</p>

Specification	Description
Performance features	<p>TCP/IP/UDP Checksum Offload (configurable)</p> <p>Protocol Offload(ARP & NS)</p> <p>Large send offload and Giant send offload</p> <p>Receiving Side Scaling</p> <p>MACSec Offload (802.3ae)</p> <p>Intel vPro</p> <p>iSCSI Boot</p>
Manageability	<p>Wake-on-LAN from standby and hibernation (Magic Packet and Microsoft Wake-Up Frame); Wake-on-LAN from off (Magic Packet only)</p> <p>PXE 2.1 Remote Boot</p> <p>Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30))</p> <p>Comprehensive diagnostic and configuration software suite</p> <p>Virtual Cable Doctor for Ethernet cable status</p>
Interface	PCI Express 1.1 x1 to fully support ASPM L0s/L1 and CLKREQ.
NIC device driver name	Intel Ethernet Network Connection I217-LM
<p>NOTE: Intel 82579 PCIe interface is not PCIe compliant. It operates at half of PCIe specification V1.1 (2.5GT/S) speed.</p>	

HP hs3110 HSPA+ Mobile Broadband Module



Specification	Description
Technology/Operating bands	<p>Modes: WCDMA/HSDPA/HSUPA/HSPA+/AWS/GSM/EDGE/GPRS</p> <p>Penta-band WCDMA/HSDPA/HSUPA/HSPA+/AWS: 850/900/1900/2100/AWS MHz</p> <p>GSM/GPRS/EDGE: 850/900/1800/1900 MHz</p>
Wireless protocol standards	<p>GSM/GPRS/EDGE: Class B, Multi-slot class 33, coding schemes CS1 - CS4 and MSC1 - MSC9.</p> <p>UMTS/WCDMA: Release 99 and Release 7</p> <p>Advanced Receiver Type 3i</p>
Wireless parametric standards	Complies with 3GPP specifications
Maximum data rates	<p>GPRS/EDGE: Multi-slot Class 33, Class B</p> <p>WCDMA PS: UL (384 kbps) / DL (384 kbps)</p> <p>UL/DL HSPA: UL (5.76 Mbps)/ DL (7.2 Mbps)</p> <p>UL/DL HSPA+: UL (5.76 Mbps)/ DL (21Mbps)</p>
GPS	GPS Standalone, A-GPS: L1 (Internet- and Network assisted)
GPS bands	1575.42 MHz (\pm 1.023 MHz)
Maximum output power	<p>WCDMA/HSPA/HSPA+ 2100/1900/900/850/AWS MHz: +24dBm (Power Class 3)</p> <p>GPRS 1900/1800 MHz: +30dBm (Power Class 1)</p> <p>GPRS 900/850 MHz: +33dBm (Power Class 4)</p>

Specification	Description
	EDGE 1900/1800 MHz: +26dBm (Power Class E2) EDGE 900/850 MHz: +27dBm (Power Class E2)
Maximum power consumption	2500 mA (peak); 600 mA (average) 2700 mA (peak)
Power consumption sleep mode	3.6 mA
Power management	USB selective suspend, Connected Standby Integrated notebook wireless button
Antenna type	Dual high efficiency 5 band antennae with spatial diversity, mounted in the display enclosure
Form factor	M.2 Socket 2, USB 2.0 interface high speed
Weight	Less than 6 g

HP Lt4111 LTE/EV-DO/HSPA+ Mobile Broadband Module

Specifications	Descriptions
Technology/Operating bands	LTE FDD all bands with diversity: 1900 MHz (Band II) , 1700/2100MHz (Band IV (AWS), 850 MHz (Band V), 700MHz (Band XIII), 700MHz (Band XVII), 1900MHz G Block (Band XXV) WCDMA/HSDPA/HSUPA/HSPA+: all bands with diversity: 2100 MHz (Band I), 1900 MHz (Band II) , AWS 1700/2100MHz (Band IV), 850 MHz (Band V), 800 MHz (Band VIII)

Specifications	Descriptions
	GSM/GPRS/EDGE: 1900 MHz, 1800 MHz , 850 MHz , 900 MHz CDMA: Cellular 800MHz (BC0), PCS 1900MHz (BC1)
Wireless protocol standards	3GPP Release 8 LTE Specification WCDMA R99, 3GPP Release 5, 6 and 7 UMTS Specification EVDO Release 0 and Release A
Wireless parametric standards	Complies with 3GPP specifications Release 8 for LTE
Maximum data rates	LTE (Category 3): 100 Mbps (Download), 50Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21.6 Mbps (Download), 5.76 Mbps (Upload) EDGE: 236.8 kbps (Download), 236.8 kbps (Upload) GPRS: 85.6 kbps(Download), 85.6 kbps (Upload)
GPS	Standalone GPS, A-GPS, GPS XTRA
GPS bands	1575.42 MHz (\pm 1.023 MHz), GLONASS 1596-1607 MHz
Maximum output power	LTE: +23 dBm (+/- 1 dBm) WCDMA: +23 dBm (+/- 1 dBm) GSM850/900, GMSK: +32dBm (+/- 1dBm) GSM850/900, 8PSK: +27dBm (+/- 1dBm) DCS1800 / PCS 1900, GMSK: +29dBm (+/- 1dBm) DCS1800 / PCS 1900, 8PSK: +26dBm (+/- 1dBm)

Specifications	Descriptions
	CDMA: +24dBm (+/- 1dBm)
Maximum power consumption	LTE: 1,200 mA (peak); less than 900 mA (average) WCDMA: 1,100 mA (peak); less than 800 mA (average) EGPRS: 2,500 mA (peak); less than 700 mA (average)
Power consumption, sleep mode	2 mA
Power management	USB selective suspend, Integrated notebook wireless button
Antenna type	Dual high efficiency multi-band antennae with spatial diversity
Form factor	M.2, 3042-S3 Key B
Weight	6g
Dimensions (Length x Width x Thickness)	42 mm x 30 mm x 2.3 mm
Voltage, Operating	3.135 V to 4.4 V (3.3 V +1.1 V/-0.165 V)
Temperature, operating (from TIA/EIA/IS-98-D)	-25° to 60°C (-13° to 140°F)
Temperature, non-operating, 96 hours (from MIL-STD 202 Method	-40° to 85°C (-40° to 185°F)



Specifications	Descriptions
108)	
Humidity, non-operating	95% relative humidity for 48 hours at 85°C (185°F) (non-condensing)
LED activity	LED Off - Radio Off; Solid LED On - Radio On
<p>NOTE: This card is not available with Dreamcolor.</p>	

HP It4112 LTE/HSPA+ Mobile Broadband Module

Specifications	Descriptions
Technology/Operating bands	<p>LTE FDD all bands with diversity: 2100 MHz (Band I), 1900 MHz (Band II), 1800 MHz (Band III), 850 MHz (Band V), 2600 MHz (Band VII), 900 MHz (Band VIII), 700 MHz (Band XX, DD800)</p> <p>WCDMA/HSDPA/HSUPA/HSPA+ all bands with diversity: 2100 MHz (Band I), 1900 MHz (Band II), 800 MHz (Band V), 900 MHz (Band VIII)</p> <p>GSM/GPRS/EDGE: 1900 MHz (Band II), 1800 MHz (Band III), 850 MHz (Band V), 900 MHz (Band VIII)</p>
Wireless protocol standards	<p>3GPP Release 8 LTE Specification</p> <p>WCDMA R99, 3GPP Release 5, 6 and 7 UMTS Specification</p>
Wireless parametric standards	Complies with 3GPP specifications Release 8 for LTE
Maximum data rates	<p>LTE (Category 3): 100 Mbps (Download), 50Mbps (Upload)</p> <p>DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload)</p>

Specifications	Descriptions
	HSPA+: 21.6 Mbps (Download), 5.76 Mbps (Upload) EDGE: 236.8 kbps (Download), 236.8 kbps (Upload) GPRS: 85.6 kbps(Download), 85.6 kbps (Upload)
GPS	Standalone
GPS bands	1575.42 MHz (\pm 1.023 MHz), GLONASS 1596-1607 MHz
Maximum output power	LTE: +23 dBm (+/- 2 dBm) WCDMA: +23.5 dBm (+/- 1 dBm) GPRS Band II, III: +29.5 dBm (+/- 1 dBm) GPRS Band V, VIII: +32.5 dBm (+/- 1 dBm) EGPRS Band II, III: +26.5 dBm (+/-1.5 dBm) EGPRS Band V, VIII: +27.5 dBm (+/-1.5 dBm)
Maximum power consumption	LTE: 1,200 mA (peak); less than 900 mA (average) WCDMA: 1,100 mA (peak); less than 800 mA (average) EGPRS: 2,500 mA (peak); less than 700 mA (average)
Power consumption, sleep mode	3 mA
Power management	USB selective suspend, Integrated notebook wireless button
Antenna type	Dual high efficiency multi-band antennae with spatial diversity

Specifications	Descriptions
Form factor	M.2, USB 2.0 interface
Weight	6g
Dimensions (Length x Width x Thickness)	42 mm × 30 mm × 2.3 mm
Voltage, Operating	3.135 V to 4.4 V (3.3 V +1.1 V/-0.165 V)
Temperature, operating (from TIA/EIA/IS-98-D)	-10° to 55°C (-14° to 131°F)
Temperature, non-operating, 96 hours (from MIL-STD 202 Method 108)	-40° to 85°C (-40° to 185°F)
Humidity, non-operating	95% relative humidity for 48 hours at 85°C (185°F) (non-condensing)
LED activity	LED Off - Radio Off; Solid LED On - Radio On
<p>NOTE: This card is not available with Dreamcolor.</p>	

Intel Dual Band Wireless-AC 7260 802.11ac (2x2) WiFi and Bluetooth 4.0 comb

Specification	Description
Wireless LAN standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n
Frequency band	802.11b/g/n 802.11a/n
Antenna structure	2 transmit; 2 receive (2x2)
Network architecture models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Output power	2.4G: +13.5dBm minimum 5G: +12dBm minimum
Power consumption	Transmit: 2.0 W Receive: 1.6 W Idle mode: 250 mW (WLAN Associated) Idle mode: 100 mW (WLAN unassociated) Radio off: 75 mW
Antenna connections	2 U.FL type connectors (output impedance of 50 ± 2 ohms)

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help?

Specification	Description
Form factor	PCI-Express Half-MiniCard
Dimensions	3.1 x 26.8 x 30.0 mm (0.12 x 1.06 x 1.18 in)
Weight	3.1g
Operating voltage	3.3 V +/- 9%
Temperature	Operating: -10° to 70°C (14° to 158°F) Non-operating: -40° to 80°C (-40° to 176°F)
Humidity	Operating: 10% to 90% (non-condensing) Non-operating: 5% to 95% (non-condensing)
Altitude	Operating: 3,048 m (0 to 10,000 ft) Non-operating: 15,240 m (0 to 50,000 ft)
LED activity	LED Amber - Radio OFF; LED White - Radio ON

HP Integrated Module with Bluetooth 4.0+EDR Wireless Technology

Specification	Description
Bluetooth specification	4.0+EDR Compliant

Specification	Description
Dimensions	30 x 6.5 x 3.25 mm (1.18 x 0.26 x 0.13 in)
Frequency band	2402 to 2480 MHz
Number of available channels	79 (1 MHz) available channels
Transmit power	-1.5 dBm to 4 dBm (Bluetooth Class II)
Range	Up to 10 m (33 ft)
Electrical interface	USB 2.0 compliant Microsoft Windows Plug and Play compliant
Power consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW
Receiver sensitivity	Better than -20 dBm at 0.1 % raw bit error rate

Intel Centrino Advanced-N 6205

Specification	Description
Wireless LAN standards	IEEE 802.11a IEEE 802.11b

Specification	Description
	IEEE 802.11g IEEE 802.11n
Frequency band	2.4 GHz and 5GHz
Antenna structure	2 transmit; 2 receive (2x2)
Network architecture models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between 2.4GHz band Access Points
Output power	2.4G: +13.5dBm minimum 5G: +12dBm minimum
Power consumption	Transmit: 2.0 W Receive: 1.6 W Idle mode3: 250 mW (WLAN Associated) Idle mode: 100 mW (WLAN unassociated) Radio off: 75 mW
Power management	ACPI compliant power management 802.11 compliant power saving mode

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help?

Specification	Description
Receiver sensitivity	54 Mbps: -76 dBm, 6 Mbps: -92 dBm
Antenna connections	2 U.FL type connectors, 50 ohm nominal impedance
Form factor	PCI-Express Half-MiniCard
Weight	3.1 g
Dimensions	3.1 x 26.8 x 30.0 mm (0.12 x 1.06 x 1.18 in)
Operating voltage	3.3 V +/- 9%
Temperature	Operating: 0° to 80°C (32° to 176°F) Non-operating: -40° to 80°C (-40° to 176°F)
Humidity	Operating: 10% to 90% (non-condensing) Non-operating: 5% to 90% (non-condensing)
Altitude	Operating: 3,048 m (0 to 10,000 ft) Non-operating: 15,240 m (0 to 50,000 ft)
LED activity	LED Off - Radio OFF; Solid LED On - Radio ON

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help?



Intel Centrino® Advanced-N 6235 802.11 a/b/g/n (2x2) + Bluetooth 4.0 LE Combo

Specification	Description
Wireless LAN standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n
Antenna structure	2 transmit; 2 receive (2x2)
Data rates	802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)
Network architecture models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between band Access Points
Output power	2.4G: +13.5dBm minimum 5G: +12dBm minimum
Power consumption	Transmit: 2.0 W Receive: 1.6 W Idle mode3: 250 mW (WLAN Associated)

Specification	Description
	Idle mode: 100 mW (WLAN unassociated) Radio off: 75 mW
Power management	ACPI compliant power management 802.11 compliant power saving mode
Antenna connections	2 U.FL type connectors (output impedance of 50 ± 2 ohms)
Form factor	PCI-Express Half-MiniCard
Weight	3.1 g
Dimensions	3.1 x 26.8 x 30.0 mm (0.12 x 1.06 x 1.18 in)
Operating voltage	3.3 V +/- 9%
Temperature	Operating: -10° to 70°C (14° to 158°F) Non-operating: -40° to 80°C (-40° to 176°F)
Humidity	Operating: 10% to 90% (non-condensing) Non-operating: 5% to 95% (non-condensing)
Altitude	Operating: 3,048 m (0 to 10,000 ft) Non-operating: 15,240 m (0 to 50,000 ft)

Specification	Description
LED activity	LED Amber - Radio OFF; LED White - Radio ON

HP Integrated Module with Bluetooth 4.0+EDR Wireless Technology

Specification	Description
Bluetooth specification	4.0+EDR Compliant
Dimensions	30 x 6.5 x 3.25 mm (1.18 x 0.26 x 0.13 in)
Frequency band	2402 to 2480 MHz
Number of available channels	79 (1 MHz) available channels
Transmit power	-1.5 dBm to 4 dBm (Bluetooth Class II)
Range	Up to 10 m (33 ft)
Electrical interface	USB 2.0 compliant Microsoft Windows Plug and Play compliant
Power consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW

Specification	Description
Receiver sensitivity	Better than -20 dBm at 0.1 % raw bit error rate

Audio/Multimedia specifications

Specification	Description
Hardware	
Implementation	IDT 92HD91
Function key volume controls	Volume up, volume down, and mute
Full duplex	Yes
Microphone In	Stereo
Headphone/Line out	Stereo
Integrated microphone	Yes, dual digital microphone array when equipped with optional webcam
Audio output quality	
Frequency response	20 Hz - 20 kHz



Specification	Description
Signal to noise ratio	Greater than 85 dB
Total harmonic distortion	0.01%
Noise floor	-110 dB
Play/Record sampling rate(s)	8 kHz - 48kHz
D ac	16, 20 or 24-bit
A dc	16 or 20-bit
Integrated stereo speakers	
Power rating	2 W
Impedance	4 Ohms

Power specifications

HP 230W Slim Smart AC Adapter

Specification	Description
Dimensions	200 x 100mm x 25.4mm (7.87 x 3.94 x 1.0 in)

Specification	Description
Weight	840 g (1.85 lb)
Input	<p>100 to 240 V ac</p> <p>Input efficiency: 87% min at 115 V ac</p> <p>Input frequency range: 47 to 63 Hz</p> <p>Input AC current: 3.5 A at 90 VAC, 1.75 A at 180 V ac</p>
Output	<p>Output power: 230 W</p> <p>DC output: 19.5 V</p> <p>Hold-up time: 5 msec at 115 V ac input</p> <p>Output current limit: Less than 18 A, Over voltage protection - 29 V max automatic shutdown</p>
Connector	3 pin/grounded, mates with interchangeable cords
Environmental design	<p>Operating temperature: 0° to 40°C (32° to 104°F)</p> <p>Non-operating (storage) temperature: -20° to 65°C (-4° to 149°F)</p> <p>Altitude: 0 to 3,048 m (0 to 10,000 ft)</p> <p>Humidity: 20% to 80%</p> <p>Storage humidity: 10% to 90%</p>
EMI and safety certifications	CE Mark- full compliance with LVD and EMC directives; Worldwide safety standards- IEC950, EN60950, UL1950, Class 1, SELV; Agency approvals- C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCIB, NOM-1 NYCE; MTBF- over 200,000 hours at 25°C ambient condition.

HP 200W Slim Smart AC Adapter



Specification	Description
Dimensions	172 x 96 x 25.4 mm (6.77 x 3.80 x 1.0 in)
Weight	748 g (1.65 lb)
Input	<p>100 to 240 V ac</p> <p>Input efficiency: 87% min at 115 V ac</p> <p>Input frequency range: 47 to 63 Hz</p> <p>Input AC current: 2.9 A at 90 V ac, 1.45 A at 180 V ac</p>
Output	<p>Output power: 200 W</p> <p>DC output: 19.5 V</p> <p>Hold-up time: 5 msec at 115 V ac input</p> <p>Output current limit: Less than 16 A, Over voltage protection - 29 V max automatic shutdown</p>
Connector	3 pin/grounded, mates with interchangeable cords
Environmental design	<p>Operating temperature: 0° to 40°C (32° to 104°F)</p> <p>Non-operating (storage) temperature: -20° to 65°C (-4° to 149°F)</p> <p>Altitude: 0 to 3,048 m (0 to 10,000 ft)</p> <p>Humidity: 20% to 80%</p> <p>Storage humidity: 10% to 90%</p>
EMI and safety certifications	CE Mark- full compliance with LVD and EMC directives; Worldwide safety standards- IEC950, EN60950, UL1950, Class 1, SELV; Agency approvals- C-UL-US, NORDICS, DENAN, EN55022

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Specification	Description
	Class B, FCC Class B, CISPR22 Class B, CCIB, NOM-1 NYCE; MTBF- over 200,000 hours at 25°C ambient condition.

HP 8-cell Lithium-Ion Battery (83 WHr)

Specification	Description
Dimensions (H x W x L)	2 x 5.3 x 27cm (0.8 x 2.1 x 10.6 in)
Weight (max)	0.442 kg (0.99lb)
Cells/Type	Lithium-Ion
Energy	Voltage: 14.8 V Amp-hour capacity: 5.6Ah Watt-hour capacity: 83Wh
Temperature	Operating (Charging): 0° to 45°C (32° to 113°F) Operating (Discharging): -10° to 50°C (14° to 122°F) Non-operating: -20° to 50°C (-4° to 122°F)
Battery re-Charge time	System in OFF or Standby Mode: 2.5 hours System ON: 3 to 5 hours
Fuel gauge LED	No

Specification	Description
Warranty	1 year
Optional travel battery available	Yes

HP Long Life 8-cell Lithium-Ion Battery (75 WHr)

Specification	Description
Dimensions (H x W x L)	2 x 5.3 x 27cm (0.8 x 2.1 x 10.6 in)
Weight (max)	0.442 kg (0.99lb)
Cells/Type	Lithium-Ion
Energy	Voltage: 14.4 V Amp-hour capacity: 5.1 Ah Watt-hour capacity: 75 Wh
Temperature	Operating (Charging): 0° to 45°C (32° to 113°F) Operating (Discharging): -10° to 50°C (14° to 122°F) Non-operating: -20° to 50°C (-4° to 122°F)
Battery re-Charge time	System in OFF or Standby Mode: 2.5 hours System ON: 3 to 5 hours

Specification	Description
Fuel gauge LED	No
Warranty	3 year
Optional travel battery available	Yes
<p>NOTE: 3-year platform warranty is required for a 3-year Long Life Battery warranty.</p>	

Optional HP BB09 Ultra Extended Life Notebook Battery

Specification	Description
Dimensions (H x W x L)	3 x 15 x 29 cm (1.2 x 5.9 x 11.4 in)
Weight (max)	0.682 kg (1.5lb)
Cells/Type	Lithium-Ion
Energy	Voltage: 11.25 V Amp-hour capacity: 8.85 Ah Watt-hour capacity: 100 Wh
Temperature	Operating (Charging): 0° to 45°C (32° to 113°F) Operating (Discharging): -10° to 50°C (14° to 122°F)

Specification	Description
	Non-operating: -20° to 50°C (-4° to 122°F)
Battery re-Charge time	System in OFF or Standby Mode: 3.5 to 5 hours System ON: 4 to 7 hours
Fuel gauge LED	No
Warranty	1 year
Optional travel battery available	NA

Optional HP ST09 Extended Life Notebook Battery

Specification	Description
Dimensions (H x W x L)	3 x 15.5 x 30.5 cm (1.2 x 6.1 x 12 in)
Weight (max)	0.550 kg (1.2 lb)
Cells/Type	Lithium-Ion polymer
Energy	Voltage: 11.1 V Amp-hour capacity: 6.6 Ah Watt-hour capacity: 73 Wh

Specification	Description
Temperature	<p>Operating (Charging): 0° to 45°C (32° to 113°F)</p> <p>Operating (Discharging): -10° to 50°C (14° to 122°F)</p> <p>Non-operating: -20° to 50°C (-4° to 122°F)</p>
Battery re-Charge time	<p>System in OFF or Standby Mode: 3.5 to 5 hours</p> <p>System ON: 4 to 7 hours</p>
Fuel gauge LED	Yes
Warranty	1 year
Optional travel battery available	NA

Physical specifications

Specification	Description
Weight	Starting at 3.46 kg (7.62 lb) with SSD and weight saver (no optical drive)
Dimensions (h x w x d)	34 mm (at front) x 416 mm x 272 mm (1.33 in (at front) x 16.37 in x 10.7 in)
Height with DreamColor display	<p>34.0 mm (1.34 in) at front</p> <p>40.0 mm (1.57 in) at rear</p>

Software/OS

Feature	Description
Operating system	<ul style="list-style-type: none"> • Windows 8 Pro 64 Windows 8 64 Windows 7 Professional 32 (available through downgrade rights from Windows 8 Pro) Windows 7 Professional 64 SuSE Linux Enterprise (SLED 11) SP2 64bit FreeDOS
Preinstalled software with Windows operating system	<ul style="list-style-type: none"> • Preinstalled <ul style="list-style-type: none"> HP Recovery Manager HP Performance Advisor HP Remote Graphics Software (pre-load) HP Support Assistant HP Client Security HP Hotkey Support HP Wireless Hotspot (Windows 8 only) HP Connection Manager (Windows 7 only) HP GPS and Location (Select Models) (Windows 7 only) Adobe Flash Player (Windows 7 only) Buy Office Microsoft Office 2013 Trial Version Microsoft Security Essentials Cyberlink Power DVD Cyberlink Power2Go PDF Complete Corporate Edition Skype • Additional software available from the web <ul style="list-style-type: none"> HP SoftPaq Download Manager HP Software System Manager HP Peak Power Manager • HP Remote Graphics Software • HP Performance Advisor • HP Recovery Manager
Security	<p>Standard</p> <p>HP Client Security (Windows 7 & 8) (standard modules include)</p> <ul style="list-style-type: none"> • Credential Manager • Computrace

Feature	Description
	<ul style="list-style-type: none"> • Device Access Manager with Just In Time Authentication • Drive Encryption • Validity Fingerprint Driver • File Sanitizer (Windows 8 only) • Trust Circles <p>HP Fingerprint Sensor (optional)</p> <p>Integrated Smart Card Reader</p> <p>Enhanced Pre-Boot Security (Multiuser / Multifactor)</p> <p>HP Sure Start HP Spare Key (requires initial user setup)</p> <p>One-Step Logon Common Criteria EAL4+ Augmented Certified Discrete TPM 1.2 Embedded Security Chip</p> <p>Security lock slot</p> <p>Support for Intel AT</p>

Environmental specifications

Specification	Description
Stand-alone power requirements (AC Power)	<p>Nominal operating voltage: 19.5 V</p> <p>Average operating power:</p> <p>DreamColor</p> <ul style="list-style-type: none"> • Windows 7 (32-bit): 35 W • Windows 7 (64-bit): 35 W <p>Without DreamColor</p> <ul style="list-style-type: none"> • Windows 7 (32-bit): 25 W • Windows 7 (64-bit): 25 W <p>Max operating power: Less than 200 W or less than 230 W</p>
Temperature	<p>Operating:</p> <ul style="list-style-type: none"> • 0° to 35°C (32° to 95°F) (not writing optical)

Specification	Description
	<ul style="list-style-type: none"> • 5° to 35°C (41° to 95°F) (writing optical) <p>Non-operating: -20° to 60°C (-4° to 140°F)</p>
Relative humidity	<p>Operating: 10% to 90%, non-condensing</p> <p>Non-operating: 5% to 95%, 38.7°C (101.6°F) maximum wet bulb temperature</p>
Shock	<p>Operating: 40 G, 2 ms, half-sine</p> <p>Non-operating: 200 G, 2 ms, half-sine</p>
Random vibration	<p>Operating: 0.75 g</p> <p>Non-operating: 1.50 g</p>
Altitude (unpressurized)	<p>Operating: -15.24 to 3,048 m (-50 to 10,000 ft)</p> <p>Non-operating: -15.24 to 12,192 m (-50 to 40,000 ft)</p>
Planned industry standard certifications	<ul style="list-style-type: none"> • UL: Yes • CSA: Yes • FCC Compliance: Yes • ICES: Yes • Australia / NZ A-Tick Compliance: Yes • CCC: Yes • Japan VCCI Compliance: Yes • KCC: Yes • BSMI: Yes • CE Marking Compliance: Yes

Security

HP Fingerprint Sensor

Specification	Description
Voltage	3.0 - 3.6 V
Operating temperature	-10° to 75°C (14° to 167°F)
Current consumption image	36 mA
Low latency wait for finger	950 uA
Capture rate	3000 lines/sec
ESD resistance	IEC 6100-4-2 4B (+/-15 KV)
Detection matrix	200*1 (plus another secondary line); 508 dpi, sensor area 12*3 mm

Important links

List of available documents for HP ZBook 17 Mobile Workstation:

[Click here to view HP ZBook 17 Mobile Workstation document list.](#)

Warranty information

Terms of warranty apply to the individual model purchased. To see if your HP product is still in warranty, go to the [HP Product Warranty Check page](#).

Additional support options





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