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# HP EliteBook 840 G1 Notebook PC Product Specifications

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HP EliteBook 840 G1 Notebook PC

## Product features

Feature	Description
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Pays/région :  France 



Feature	Description
Processors	4 <sup>th</sup> generation Intel Core Processors
Chipset	Chipset integrated with processor
Graphics	<p><b>Integrated:</b></p> <ul style="list-style-type: none"> <li>● Intel HD Graphics 4400</li> </ul> <p><b>Discrete:</b></p> <ul style="list-style-type: none"> <li>● AMD Radeon HD 8750M, with 1GB dedicated DDR5 video memory</li> </ul>
Display	<p><b>Internal:</b></p> <ul style="list-style-type: none"> <li>● 14-inch diagonal LED-backlit HD anti-glare SVA flat (1366 x 768)</li> <li>● 14-inch diagonal LED-backlit HD+ anti-glare SVA flat (1600 x 900)</li> <li>● 14-inch diagonal LED-backlit HD+ SVA flat + touch (1600 x 900)</li> <li>● 14-inch diagonal LED-backlit FHD anti-glare UWVA slim (1920 x 1080)</li> </ul> <p><b>External:</b> Up to 32-bit per pixel color depth</p> <p><b>VGA:</b> Port supports resolutions up to 1920 x 1200 external resolution at 75 Hz</p>
Storage and drives	<p><b>Hard drives</b></p> <ul style="list-style-type: none"> <li>● 320/500GB/1TB 5400 rpm SATA II Hard Drive</li> <li>● 320/500GB 7200 rpm SATA II Hard Drive</li> <li>● 500GB 7200 rpm SED (Self Encrypting Drive)</li> <li>● 500GB 5400 rpm FIPS SED (Self Encrypting Drive)</li> </ul> <p><b>Solid State Drives</b></p> <ul style="list-style-type: none"> <li>● 120GB M.2 (NGFF) Solid State Drive</li> <li>● 128/180/240GB 2.5" Solid State Drive</li> <li>● 256GB SED Solid State Drive</li> </ul>
Memory	<p><b>Standard</b></p> <ul style="list-style-type: none"> <li>● DDR3L SDRAM (1600 MHz)</li> <li>● Two SODIMM slots supporting dual-channel memory</li> <li>● 4GB and 8GB SODIMMs</li> </ul> <p><b>Maximum</b></p> <ul style="list-style-type: none"> <li>● Upgradeable to 16384MB with optional 8192MB SODIMMs in slots 1 and 2</li> </ul> <p><b>Dual-channel</b></p> <ul style="list-style-type: none"> <li>● Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory slots.</li> </ul>
Networking/Communications	<p><b>Broadband wireless (WWAN)</b></p> <ul style="list-style-type: none"> <li>● HP hs3110 HSPA+ Mobile Broadband Module</li> <li>● HP lt4111 LTE/EV-DO/HSPA+ Mobile Broadband Module (US)</li> <li>● HP lt4112 LTE/HSPA+ Mobile Broadband Module (EMEA, APJ)</li> </ul> <p><b>Wireless LAN (WLAN)</b></p> <ul style="list-style-type: none"> <li>● Broadcom 802.11 (2 x 2) a/b/g/n + Bluetooth 4.0</li> <li>● Intel Dual Band Wireless-AC 7260 802.11 ac (2 x 2) WiFi + BT 4.0 combo</li> <li>● Intel Dual Band Wireless-N 7260AN 802.11 a/b/g/n (2 x 2) WiFi + BT 4.0 combo</li> <li>● Intel Dual Band Wireless-N 7260NB 802.11 a/b/g/n (2 x 2) WiFi</li> </ul>



Feature	Description
	<p><b>Communications</b></p> <ul style="list-style-type: none"> <li>● Intel Clarkville (I218-LM) Gigabit Network Connection (10/100/1000 NIC)</li> </ul>
Audio/Multimedia	<p><b>Audio</b></p> <ul style="list-style-type: none"> <li>● HD Audio with DTS Studio Sound</li> <li>● Two Integrated stereo speakers</li> <li>● Integrated dual-microphone array; located in the display</li> <li>● Function keys for microphone mute, volume up, volume down</li> <li>● Stereo headphone/line out</li> <li>● Stereo microphone/line in</li> </ul> <p><b>Webcam</b></p> <p>Optional 720p HD webcam</p> <ul style="list-style-type: none"> <li>● HD format (widescreen)</li> <li>● Supports videoconferencing (non-HD) and still image capture</li> <li>● High quality fixed focus lens</li> <li>● Video capture at various resolutions up to 1280x720 resolution (720p) and up to 30fps</li> <li>● M-JPEG compression supports higher frame rates for video capture and videoconferencing</li> <li>● Improved low light sensitivity</li> <li>● Improved dynamic range</li> <li>● Skype-ready</li> </ul>
Power supply	<p><b>Integrated graphics:</b></p> <ul style="list-style-type: none"> <li>● HP 45W Smart AC adapter</li> <li>● HP 65W Smart AC adapter</li> <li>● HP 65W EM Smart AC adapter (China and India only)</li> <li>● HP 65W Slim Smart AC adapter (Japan and Australia only)</li> </ul> <p><b>Discrete graphics:</b></p> <ul style="list-style-type: none"> <li>● HP 65W Smart AC adapter</li> <li>● HP 65W EM Smart AC adapter (China and India only)</li> <li>● HP 65W Slim Smart AC adapter (Japan and Australia only)</li> </ul>
Ports/Slots	<p><b>Ports:</b></p> <ul style="list-style-type: none"> <li>● USB 3.0 - Two for EliteBook 820, Three for EliteBook 840 and EliteBook 850</li> <li>● USB 3.0 (charging) - One</li> <li>● DisplayPort 1.2 - One</li> <li>● VGA - One</li> <li>● Headphone/Microphone combo port - One</li> <li>● RJ-45 (Ethernet) - One</li> <li>● Power connector - One</li> <li>● Side docking connector - One</li> </ul> <p><b>Expansion slots:</b></p> <ul style="list-style-type: none"> <li>● Media Card Reader - supports SD, SDHC, SDXC</li> </ul>

## Physical specifications



Specification	Description
Weight	Starting at 1.58 kg (3.48 lb) (non-Touch) (weight will vary by configuration) Starting at 1.78 kg (3.92 lb) (Touch) (weight will vary by configuration)
Dimensions (w x d x h)	Non-Touch 33.89 x 23.7 x 2.10 cm (13.34 x 9.33 x 0.83 in) Touch 33.89 x 23.7 x 2.25 cm (13.34 x 9.33 x 0.89 in)

## Display specifications

12.5-inch diagonal LEDbacklit HD anti-glare SVA flat (1366 x 768)

Specification	Description
Outline dimensions (W x H x D)	29.1 x 18.14 x 0.36 cm (11.46 x 7.14 x 0.14 in)
Active area	27.6615 x 15.552 cm (10.89 x 6.12 in)
Weight	270 g (0.6 lb) (max)
Diagonal size	35.75 cm (12.5 in)
Surface treatment	Anti-glare
Contrast ratio	300:1 (min)
Refresh rate	60 Hz
Brightness	200 nits (typical)
Pixel resolution	<ul style="list-style-type: none"> <li>● Format: 1366 x 768 (HD)</li> <li>● Configuration: RGB Stripe</li> </ul>
Interface	eDP 1.2 (1 lane)
LCD mode	TN
PPI	125 ppi
Viewing angle	SVA 40/40/15/30 (Left/Right/Down/Up)



## 12.5-inch diagonal LEDbacklit HD Premium antiglare UWVA slim (1366 x 768)

Specification	Description
Outline dimensions (W x H x D)	29.1 x 18.14 x 0.285 cm (11.46 x 7.14 x 0.112 in)
Active area	27.559 x 15.494 cm (10.85 x 6.12 in)
Weight	220 g (0.49 lb) (max)
Diagonal size	35.75 cm (12.5 in)
Surface treatment	Anti-glare
Contrast ratio	500:1 (min)
Refresh rate	60 Hz
Brightness	300 nits (typical)
Pixel resolution	<ul style="list-style-type: none"> <li>• Format: 1366 x 768 (HD)</li> <li>• Configuration: RGB Stripe</li> </ul>
Interface	eDP 1.2 (1 lane)
LCD mode	IPS/FFS/VA
PPI	125 ppi
Viewing angle	UWVA 85/85/85/85 (Left/Right/Down/Up)

## 14-inch diagonal LED-backlit HD anti-glare SVA flat (1366 x 768)

Specification	Description
Outline dimensions (W x H x D)	32.09 x 20.56 x 0.36 cm (12.6 x 8.09 x 0.14 in)
Active area	30.94 x 17.395 cm (12.18 x 6.85 in)
Weight	320 g (0.71 lb) (max)
Diagonal size	35.6 cm (14.0 in)



Specification	Description
Surface treatment	Anti-glare
Contrast ratio	300:1 (min)
Refresh rate	60 Hz
Brightness	200 nits (typical)
Pixel resolution	<ul style="list-style-type: none"> <li>• Format: 1366 x 768 (HD)</li> <li>• Configuration: RGB Stripe</li> </ul>
Interface	eDP 1.2 (1 lane)
LCD mode	TN
PPI	125 ppi
Viewing angle	SVA 40/40/15/30 (Left/Right/Down/Up)

#### 14-inch diagonal LED-backlit HD+ anti-glare SVA flat (1600 x 900)

Specification	Description
Outline dimensions (W x H x D)	32.09 x 20.56 x 0.36 cm (12.6 x 8.09 x 0.14 in)
Active area	30.96 x 17.415 cm (12.19 x 6.86 in)
Weight	325 g (0.72 lb) (max)
Diagonal size	35.6 cm (14.0 in)
Surface treatment	Anti-glare
Contrast ratio	300:1 (min)
Refresh rate	60 Hz
Brightness	250 nits (typical)



Specification	Description
Pixel resolution	<ul style="list-style-type: none"> <li>• Format: 1600 x 900 (HD+)</li> <li>• Configuration: RGB Stripe</li> </ul>
Interface	eDP 1.2 (1 lane)
LCD mode	TN
PPI	131 ppi
Viewing angle	SVA 40/40/15/30 (Left/Right/Down/Up)

### 14-inch diagonal LED-backlit HD+ SVA flat + touch (1600 x 900)

Specification	Description
Outline dimensions (W x H x D)	32.09 x 20.56 x 0.36 cm (12.6 x 8.09 x 0.14 in)
Active area	30.96 x 17.415 cm (12.19 x 6.86 in)
Weight	325 g (0.72 lb) (max)
Diagonal size	35.6 cm (14.0 in)
Surface treatment	Anti-glare
Contrast ratio	300:1 (min)
Refresh rate	60 Hz
Brightness	250 nits (typical)
Pixel resolution	<ul style="list-style-type: none"> <li>• Format: 1600 x 900 (HD+)</li> <li>• Configuration: RGB Stripe</li> </ul>
Interface	eDP 1.2 (1 lane)
LCD mode	TN
PPI	131 ppi



Specification	Description
Viewing angle	SVA 40/40/15/30 (Left/Right/Down/Up)

#### 14-inch diagonal LED-backlit FHD anti-glare UWVA slim (1920 x 1080)

Specification	Description
Outline dimensions (W x H x D)	32.09 x 20.56 x 0.3 cm (12.6 x 8.09 x 0.12 in)
Active area	30.93 x 17.4 cm (12.18 x 6.85 in)
Weight	340 g (0.75 lb) (max)
Diagonal size	35.6 cm (14.0 in)
Surface treatment	Anti-glare
Contrast ratio	600:1 (min)
Refresh rate	60 Hz
Brightness	300 nits (typical)
Pixel resolution	<ul style="list-style-type: none"> <li>● Format: 1920 x 1080 (FHD)</li> <li>● Configuration: RGB Stripe</li> </ul>
Interface	eDP 1.3+PSR (2 lane)
LCD mode	IPS/FFS/VA
PPI	157 ppi
Viewing angle	UWVA 85/85/85/85 (Left/Right/Down/Up)

#### 15.6-inch diagonal LEDbacklit HD anti-glare SVA flat (1366 x 768)

Specification	Description
Outline dimensions (W x H x D)	36.0 x 22.43 x 0.38 cm (14.17 x 8.83 x 0.15 in)





Specification	Description
Active area	34.42 x 19.35 cm (13.55 x 7.62 in)
Weight	500 g (Less than 1.1 lb) (max)
Diagonal size	39.62 cm (15.6 in)
Surface treatment	Anti-glare
Contrast ratio	300:1 (min)
Refresh rate	60 Hz
Brightness	200 nits (typical)
Pixel resolution	<ul style="list-style-type: none"> <li>● Format: 1366 x 768 (HD)</li> <li>● Configuration: RGB Stripe</li> </ul>
Interface	eDP 1.2 (1 lane)
LCD mode	TN
PPI	101 ppi
Viewing angle	SVA 40/40/15/30 (Left/Right/Down/Up)

### 15.6-inch diagonal LEDbacklit FHD anti-glare SVA flat (1920 x 1080)

Specification	Description
Outline dimensions (W x H x D)	36.0 x 22.43 x 0.38 cm (14.17 x 8.83 x 0.15 in)
Active area	34.42 x 19.36 cm (13.55 x 7.62 in)
Weight	380 g (Less than 0.84 lb) (max)
Diagonal size	39.62 cm (15.6 in)
Surface treatment	Anti-glare
Contrast ratio	400:1 (min)



Specification	Description
Refresh rate	60 Hz
Brightness	300 nits (typical)
Pixel resolution	<ul style="list-style-type: none"> <li>• Format: 1920 x 1080 (FHD)</li> <li>• Configuration: RGB Stripe</li> </ul>
Interface	eDP 1.2 (1 lane)
LCD mode	TN
PPI	142 ppi
Viewing angle	SVA 45/45/25/35 (Left/Right/Down/Up)

## System specifications

Specification	Description
Stand-alone power requirements (AC Power)	Max operating power: Discrete less than 90 W UMA: less than 65 W
Temperature	<p>Operating:</p> <ul style="list-style-type: none"> <li>• 0° to 35°C (32° to 95°F) (not writing optical)</li> <li>• 5° to 35°C (41° to 95°F) (writing optical)</li> </ul> <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>



Specification	Description
Planned industry standard certifications	<ul style="list-style-type: none"> <li>● UL: Yes</li> <li>● CSA: Yes</li> <li>● FCC Compliance: Yes</li> <li>● ICES: Yes</li> <li>● Australia / NZ A-Tick Compliance: Yes</li> <li>● CCC: Yes</li> <li>● Japan VCCI Compliance: Yes</li> <li>● KCC: Yes</li> <li>● BSMI: Yes</li> <li>● CE Marking Compliance: Yes</li> <li>● BNCI or BELUS: Yes</li> <li>● CIT: Yes</li> <li>GOST: Yes</li> <li>Saudi Arabian Compliance (ICCP): Yes</li> <li>SABS: Yes</li> <li>UKRSERTCOMPUTER: Yes</li> </ul>

## HDD specifications

320GB 5400 rpm SATA Hard Drive

Specification	Description
Drive weight	115 g (0.25 lbs)
Capacity	320GB
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"> <li>● Single track: 1.5 ms</li> <li>● Average: 11 ms</li> <li>● Maximum: 22 ms</li> </ul>
Rotational speed	7200 rpm
Logical blocks	625,142,448



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

### 1TB 5400 rpm SATA Hard Drive

Specification	Description
Drive weight	115 g (0.254 lbs)
Capacity	1TB
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"> <li>● Single track: 3 ms</li> <li>● Average: 13 ms</li> <li>● Maximum: 24 ms</li> </ul>
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

### 500GB 5400 rpm SATA FIPS Hard Drive (Expected to be available in November 2013)

Specification	Description
Drive weight	95 g (0.25 lbs)
Capacity	500GB



Specification	Description
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"> <li>• Single track: 1.5 ms</li> <li>• Average: 11 ms</li> <li>• Maximum: 22 ms</li> </ul>
Cache	16MB
Rotational speed	5400 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
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"> <li>• Single track: 1.5 ms</li> <li>• Average: 11 ms</li> <li>• Maximum: 22 ms</li> </ul>



Specification	Description
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

### 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"> <li>● Single track: 1.5 ms</li> <li>● Average: 11 ms</li> <li>● Maximum: 22 ms</li> </ul>
Rotational speed	7200 rpm
Logical blocks	976,773,168
Operating temperature	0° to 60°C (32° to 140°F) [case temp]
Features	ATA Security

### 500 GB 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 (2.75 in)
Interface	ATA-8, SATA 2.6, 3.0 Gb/s
Transfer rate	Synchronous (maximum): 300 Mb/s (Drive Capability)
Seek time (typical reads, including settling)	<ul style="list-style-type: none"> <li>• Single track: 1 ms</li> <li>• Average: 12 ms</li> <li>• Maximum: 20 ms</li> </ul>
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

#### 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)
Width	70 mm (2.76 in)
Interface	SATA 3 (6 Gb/s)



Specification	Description
Performance	<ul style="list-style-type: none"> <li>• Maximum sequential read: 415 Mb/s</li> <li>• Maximum sequential write: 175 Mb/s</li> </ul>
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

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

Specification	Description
Drive weight	73 g
Capacity	180GB
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"> <li>• Maximum sequential read: Up to 550 Mb/s</li> <li>• Maximum sequential write: Up to 520 Mb/s</li> </ul>
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 240GB 2.5-inch Solid State Drive

Specification	Description
Drive Weight	78 g
Capacity	240GB





Specification	Description
Height	7 mm (0.276 in)
Width	70mm (2.76 in)
Interface	SATA Gen 3 (6 Gb/s)
Performance	<ul style="list-style-type: none"> <li>• Maximum sequential read: 550 Mb/s</li> <li>• Maximum sequential write: 520 Mb/s</li> </ul>
Logical blocks	468,862,128
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 (Expected to be available in November 2013)

Specification	Description
Drive Weight	78 g
Capacity	256GB
Height	7 mm (0.276 in)
Width	70mm (2.76 in)
Interface	SATA 3 (6 Gb/s)
Performance	<ul style="list-style-type: none"> <li>• Maximum sequential read: Up to 460 Mb/s</li> <li>• Maximum sequential write: Up to 260 Mb/s</li> </ul>
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 6Gb/s 120GB, 2242 M.2 Solid State Drive (Expected to be available in November 2013)



Specification	Description
Drive Weight	Up to 10 g
Capacity	120GB
Height	3.5 mm (0.138 in)
Width	22mm (0.866 in)
Interface	M.2 SATA Gen3 (6 Gb/s)
Performance	<ul style="list-style-type: none"> <li>• Maximum sequential read: Up to 540 Mb/s</li> <li>• Maximum sequential write: Up to 520 Mb/s</li> </ul>
Logical blocks	234,441,648
Operating Temperature	0° to 70°C (32° to 158°F) [case temp]
Features	ATA Security; ATA-8, SATA 3.0; DIPM; TRIM

## Networking/Communication

### HP 3110 HSPA+ Mobile Broadband Module

Specification	Description
Maximum power consumption	2700 mA (peak)
Power consumption	Sleep mode: 10 mA
Antenna type	Dual high efficiency 6 band antennae with spatial diversity, mounted in the display enclosure
Form factor	PCI-Express MiniCard, USB 2.0 interface
Weight	Less than 10 g
Dimensions (Length x Width x Thickness)	51 x 30 x 4.5 mm (2.01 x 1.18 x 0.18 in)
Voltage	Operating: 3.3 V +/- 9%



Specification	Description
Temperature	Operating: -20° to 65°C (-4° to 149°F) Non-operating, 96 hours (from MIL-STD 202 Method 108): -40° to 85°C (-40° to 185°F)
Humidity	Non-operating: 85% relative humidity for 48 hours at 185°F (85°C) (non-condensing)
LED activity	LED Off - Radio Off Solid LED On - Radio On

### HP lt4111 LTE/EVDO/ HSPA+ 4G WWAN

Specification	Description
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
Antenna type	Dual high efficiency multi-band antennae with spatial diversity
Form factor	M.2, 3042-S3 Key B
Weight	6 g
Dimensions (Length x Width x Thickness)	42 × 30 × 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) 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 185°F (85°C) (non-condensing)
LED activity	LED Off - Radio Off Solid LED On - Radio On



## HP It4112 LTE/HSPA+ Gobi 4G Module

Specification	Description
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
Antenna type	Dual high efficiency multi-band antennae with spatial diversity
Form factor	M.2, USB 2.0 interface
Weight	6 g
Dimensions (Length x Width x Thickness)	42 × 30 × 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) 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 185°F (85°C) (non-condensing)
LED activity	LED Off - Radio Off Solid LED On - Radio On

## Broadcom 802.11 a/b/g/n (2x2) with Bluetooth v4.0 combo

Specification	Description
Power consumption	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 250 mW (WLAN Associated) Idle mode: 100 mW (WLAN unassociated) Radio disabled: 75 mW
Antenna type	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications



Specification	Description
Form factor	PCI-Express Half-MiniCard
Weight	3.1 g
Dimensions	4.75 x 26.8 x 30 mm (0.19 x 1.06 x 1.18 in)
Voltage	Operating: 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 Off - Radio Off Solid LED On - Radio On

#### Intel Dual Band Wireless- N 7260AN 802.11 a/b/g/n (2x2) WiFi + Bluetooth 4.0 Combo Adaptor

Specification	Description
Power consumption	Transmit: 2.0 W Receive: 1.6 W Idle mode (PSP): 250 mW (WLAN Associated) Idle mode: 100 mW (WLAN unassociated) Radio disabled: 75 mW
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)
Voltage	Operating: 3.3 V +/- 9%



Specification	Description
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 Off - Radio Off Solid LED On - Radio On

### Intel Dual Band Wireless- AC 7260 802.11 ac (2x2) WiFi + BT 4.0 combo Adapter

Specification	Description
Power consumption	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 250 mW (WLAN Associated) Idle mode: 100 mW (WLAN unassociated) Radio disabled: 75 mW
Antenna type	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications
Form factor	PCI-Express Half-MiniCard
Weight	3.1 g
Dimensions	4.75 x 26.8 x 30 mm (0.19 x 1.06 x 1.18 in)
Voltage	Operating: 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)



Specification	Description
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

### Intel Dual Band Wireless- N 7260NB 802.11 a/b/g/n (2x2) WiFi Adapter

Specification	Description
Power consumption	Transmit: 2.0 W Receive: 1.6 W Idle mode (PSP): 250 mW (WLAN Associated) Idle mode: 100 mW (WLAN unassociated) Radio disabled: 75 mW
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)
Voltage	Operating: 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 Off - Radio Off Solid LED On - Radio On

## Audio/Multimedia

### Hardware



Specification	Description
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

Specification	Description
Frequency response	20 Hz - 20 kHz
Signal to noise ratio	>85 dB
Total harmonic distortion	0.01%
Noise floor	-110 dB
Play/Record sampling rate(s)	8 kHz - 48kHz
DAC	16, 20 or 24-bit
ADC	16 or 20-bit

### Integrated stereo speakers

Specification	Description
Power rating	2 W
Impedance	4 Ohms





## Fingerprint Reader

HP Fingerprint Reader (optional)

Specification	Description
Mobile voltage operation	3.0 V - 3.6 V
Operating temperature	-10° - 75°C (14° - 167°F)
Current consumption image	36 mA peak
Low latency wait for finger	950 uA
Capture rate	3000. lines/sec
ESD resistance	IEC 61000-4-2 4B (±15KV)
Detection matrix	200*1 (plus another secondary line) 508 dpi 12*3 mm sensor area

## Power specifications

HP 45W Smart AC Adapter

Specification	Description
Dimensions	9.6 x 4.95 x 2.24 cm (3.78 x 1.95 x 0.88 in)
Input	90 to 265 V ac <ul style="list-style-type: none"> <li>● Input Efficiency: 87% min at 115 V ac</li> <li>● Input frequency range: 47 to 63 Hz</li> <li>● Input AC current: 1.4 A at 90 V ac and maximum load</li> </ul>
Output	<ul style="list-style-type: none"> <li>● Output power: 45 W</li> <li>● DC output: 19.5 V</li> <li>● Hold-up time: 5 msec at 115 V ac input</li> <li>● Output current limit: Less than 8 A, Over voltage protection- 29V max automatic shutdown</li> </ul>
Connector	3 pin/grounded, mates with interchangeable cords



Specification	Description
Environmental design	<ul style="list-style-type: none"> <li>● Operating temperature: 0° to 35°C (32° to 95°F)</li> <li>● Non-operating (storage) temperature: -20° to 85°C (-4° to 121°F)</li> <li>● Altitude: 0 to 5,000 m (0 to 16,405 ft)</li> <li>● Humidity: 0% to 95%</li> <li>● Storage humidity: 0% to 95%</li> </ul>
EMI and Safety Certifications	CE Mark - full compliance with LVD and EMC directives; Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE; Reliability - failure rate of less than 0.1% annually within the first three years of operation.

### HP 65W EM Smart AC Adapter

Specification	Description
Dimensions	12.65 x 5.0 x 3.0 cm (4.98 x 1.97 x 1.18 in)
Weight	290 g (0.62 lb) max
Input	<p>90 to 265 V ac</p> <ul style="list-style-type: none"> <li>● Input Efficiency: 87% min at 115 V ac</li> <li>● Input frequency range: 47 to 63 Hz</li> <li>● Input AC current: 1.7 A at 90 V ac and maximum load</li> </ul>
Output	<ul style="list-style-type: none"> <li>● Output power: 65 W</li> <li>● DC output: 19.5 V</li> <li>● Hold-up time: 5 msec at 115 V ac input</li> <li>● Output current limit: Less than 11 A, Over voltage protection- 29 V max automatic shutdown</li> </ul>
Connector	3 pin/grounded, mates with interchangeable cords
Environmental design	<ul style="list-style-type: none"> <li>● Operating temperature: 0° to 35°C (32° to 95°F)</li> <li>● Non-operating (storage) temperature: -20° to 85°C (-4° to 185°F)</li> <li>● Altitude: 0 to 3,048 m (0 to 10,000 ft)</li> <li>● Humidity: 20% to 95%</li> <li>● Storage humidity: 10% to 95%</li> </ul>
EMI and Safety Certifications	CE Mark - full compliance with LVD and EMC directives; Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE; MTBF - over 200,000 hours at 25°C ambient condition.

### HP 65W Smart AC Adapter



Specification	Description
Dimensions	10.6 x 4.7 x 2.8 cm (4.17 x 1.85 x 1.1 in)
Weight	280 g (0.62 lb)
Input	<p>100 to 240 V ac</p> <ul style="list-style-type: none"> <li>● Input Efficiency: 87% min at 115 V ac</li> <li>● Input frequency range: 47 to 63 Hz</li> <li>● Input AC current: 1.7 A at 90 V ac and at 180 V ac</li> </ul>
Output	<ul style="list-style-type: none"> <li>● Output power: 65 W</li> <li>● DC output: 18.5 V</li> <li>● Hold-up time: 5 msec at 115 V ac input</li> <li>● Output current limit: Less than 11 A, Over voltage protection- 29 V max automatic shutdown</li> </ul>
Connector	3 pin/grounded, mates with interchangeable cords
Environmental design	<ul style="list-style-type: none"> <li>● Operating temperature: 0° to 40°C (32° to 104°F)</li> <li>● Non-operating (storage) temperature: -20° to 65°C (-4° to 149°F)</li> <li>● Altitude: 0 to 3,048 m (0 to 10,000 ft)</li> <li>● Humidity: 20% to 80%</li> <li>● Storage humidity: 10% to 90%</li> </ul>
EMI and Safety Certifications	CE Mark - full compliance with LVD and EMC directives; Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE; MTBF - over 200,000 hours at 25°C ambient condition.

### 3-cell HP Long Life (24Whr) Lithium-Ion Polymer

Specification	Description
Dimensions (H x W x L)	2.16 x 4.46 x 26.9 cm (0.85 x 1.76 x 10.59 in)
Cells/Type	3-cell Lithium-Ion Polymer
Energy	<ul style="list-style-type: none"> <li>● Voltage: 11.1</li> <li>● Amp-hour capacity: 4.4 Ah</li> <li>● Watt-hour capacity: 24 Wh</li> </ul>
Temperature	<ul style="list-style-type: none"> <li>● Operating (Charging): 0° to 45°C (32° to 113°F)</li> <li>● Operating (Discharging): -10° to 50°C (14° to 122°F)</li> <li>● Non-operating: -20° to 50°C (-4° to 122° F)</li> </ul>



Specification	Description
Fuel gauge LED	No
Warranty	1 year
Optional travel battery available	No

### 3-cell HP Long Life (26WHr) Lithium-Ion Polymer

Specification	Description
Dimensions (H x W x L)	2.16 x 4.46 x 26.9 cm (0.85 x 1.76 x 10.59 in)
Cells/Type	3-cell Lithium-Ion Polymer
Energy	<ul style="list-style-type: none"> <li>● Voltage: 11.1</li> <li>● Amp-hour capacity: 4.4 Ah</li> <li>● Watt-hour capacity: 26.3 Wh</li> </ul>
Temperature	<ul style="list-style-type: none"> <li>● Operating (Charging): 0° to 45°C (32° to 113°F)</li> <li>● Operating (Discharging): -10° to 50°C (14° to 122°F)</li> <li>● Non-operating: -20° to 50°C (-4° to 122° F)</li> </ul>
Fuel gauge LED	No
Warranty	1 year
Optional travel battery available	No

### 3-cell HP Long Life (46WHr) Lithium-Ion Polymer

Specification	Description
Dimensions (H x W x L)	2.16 x 4.46 x 26.9 cm (0.85 x 1.76 x 10.59 in)
Cells/Type	3-cell Lithium-Ion Polymer
Energy	<ul style="list-style-type: none"> <li>● Voltage: 11.1</li> <li>● Amp-hour capacity: 4.4 Ah</li> <li>● Watt-hour capacity: 46 Wh</li> </ul>



Specification	Description
Temperature	<ul style="list-style-type: none"> <li>Operating (Charging): 0° to 45°C (32° to 113°F)</li> <li>Operating (Discharging): -10° to 50°C (14° to 122°F)</li> <li>Non-operating: -20° to 50°C (-4° to 122° F)</li> </ul>
Fuel gauge LED	No
Warranty	1 year
Optional travel battery available	No

### 3-cell HP Long Life (50Whr) Lithium-Ion Polymer

Specification	Description
Dimensions (H x W x L)	2.16 x 4.46 x 26.9 cm (0.85 x 1.76 x 10.59 in)
Cells/Type	3-cell Lithium-Ion Polymer
Energy	<ul style="list-style-type: none"> <li>Voltage: 11.1</li> <li>Amp-hour capacity: 4.4 Ah</li> <li>Watt-hour capacity: 50 Wh</li> </ul>
Temperature	<ul style="list-style-type: none"> <li>Operating (Charging): 0° to 45°C (32° to 113°F)</li> <li>Operating (Discharging): -10° to 50°C (14° to 122°F)</li> <li>Non-operating: -20° to 50°C (-4° to 122° F)</li> </ul>
Fuel gauge LED	No
Warranty	1 year
Optional travel battery available	No

### HP 6-cell Lithium-Ion Long Life Slice Battery (60 WHr)

Specification	Description
Dimensions (H x W x L)	2.16 x 4.46 x 26.9 cm (0.85 x 1.76 x 10.59 in)
Weight	0.78 kg (1.72 lb)



Specification	Description
Cells/Type	6-cell Lithium-Ion
Energy	<ul style="list-style-type: none"> <li>● Voltage: 11.4 V</li> <li>● Amp-hour capacity: 2.0 Ah</li> <li>● Watt-hour capacity: 60 Wh</li> </ul>
Temperature	<ul style="list-style-type: none"> <li>● Operating (Charging): 0° to 45°C (32° to 113°F)</li> <li>● Operating (Discharging): -10° to 50°C (14° to 122°F)</li> <li>● Non-operating: -20° to 50°C (-4° to 122° F)</li> </ul>
Battery Re-Charge time	<ul style="list-style-type: none"> <li>● System in Off or standby mode: 3.5 to 5 hours</li> <li>● System On: 4 to 7 hours</li> </ul>
Fuel gauge LED	No
Optional travel battery available	No

## Software overview

Feature	Description
Operating system	<p>Preinstalled.</p> <ul style="list-style-type: none"> <li>● Windows 8 Pro 64</li> <li>● Windows 7 Professional (available through downgrade rights from Windows 8 Pro)</li> <li>● Windows 8 64</li> <li>● Windows 7 Professional 32</li> <li>● Windows 7 Professional 64</li> <li>● Windows 7 Home Premium 32</li> <li>● Windows 7 Home Premium 64</li> <li>● SUSE Linux</li> <li>● FreeDOS</li> </ul>
Preinstalled software with windows operating system	<p>BIOS:</p> <ul style="list-style-type: none"> <li>● HP DriveLock   HP Automatic Drive Lock</li> <li>● HP BIOS Protection</li> <li>● HP Disk Sanitizer</li> <li>● HP SpareKey</li> <li>● Update via Network</li> <li>● Master Record Security</li> <li>● Power On Authentication</li> <li>● Pre-Boot Security</li> <li>● Secure Erase</li> <li>● Hybrid Boot</li> <li>● Measured Boot</li> <li>● Secure Boot</li> </ul>



Feature	Description
	<ul style="list-style-type: none"> <li>Absolute Persistence Module</li> </ul>

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Oui

Non

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