

### Overview

#### HP Chromebook 11 G5 EE Notebook PC



#### Front Right View

- |                            |                       |
|----------------------------|-----------------------|
| 1. Internal microphone     | 5. Security lock slot |
| 2. Webcam LED              | 6. USB 3.0 port       |
| 3. HP TrueVision HD Webcam | 7. Touchpad           |
| 4. Power button            |                       |

### Overview



#### Front Left View

- |                               |                      |
|-------------------------------|----------------------|
| 1. Internal microphone        | 6. Media card reader |
| 2. Webcam LED                 | 7. USB 3.0 port      |
| 3. HP TrueVision HD Webcam    | 8. HDMI 1.4 port     |
| 4. Touchpad                   | 9. Power connector   |
| 5. Headphone/microphone combo |                      |

### Overview

#### AT A GLANCE

- Enjoy affordable, convenient mobile productivity with Intel® Celeron® processor.
- 29.46 cm (11.6") diagonal HD LED anti-glare (1366 x 768) Non-Touch or 29.46 cm (11.6") diagonal HD IPS (1366 x 768) Touch display
- Up to 11 hours of battery life<sup>1</sup> for touch and up to 12 hours and 30 mins of battery life<sup>1</sup> for non- touch
- WLAN connectivity allows you to stay productive wherever work takes you
- Your Chromebook boots up within 10 seconds and you can be browsing online and working in Google Apps just moments later.
- Store up to 100 GB of your files and content with Google Drive. Your own virtual hard drive is available anywhere the Internet is accessible with this complimentary two year promotion.<sup>2</sup>
- Purchase with confidence with a limited 1-year warranty and 3- 5year extended service available with optional 4 year or 5 year HP Care Services.
- Passed military standard MIL STD-810G testing.<sup>3</sup>
- **NOTE: See important legal disclosures for all listed specs in their respective features sections.**

1. Testing conducted by HP using Google Chrome OS power\_LoadTest. Battery life will vary and the maximum capacity of the battery will naturally decrease with time and usage. See <http://www.chromium.org/chromium-os/testing/power-testing> for test details.

2. This offer is tied to this device and is non-transferable. If this device is returned, the extra storage will be revoked. In order to redeem this offer, you will need to be on Chrome OSTM 23 or later. Internet access is required and not included. Additional information about storage plan refunds, renewals, cancellations and expiration is available at the Google website: <https://support.google.com/chromebook/answer/2703646?hl=en>

3. MIL STD 810G testing is pending and is not intended to demonstrate fitness for U.S. Department of Defense contract requirements or for military use. Test results are not a guarantee of future performance under these test conditions. Damage under the MIL STD test conditions or any accidental damage requires an optional HP Accidental Damage Protection Care Pack.



### PRODUCT NAME

HP Chromebook 11 G5 EE Notebook PC

### OPERATING SYSTEM

Preinstalled Chrome OS™

### PROCESSOR

Intel® Celeron® N3060 with Intel HD Graphics 400 (1.6 GHz, up to 2.48 GHz, 2 MB cache, 2 cores)

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

### CHIPSET

Chipset is integrated with processor

### GRAPHICS

Intel® HD Graphics 400

- Support HD Decode, DX12, and HDMI

### DISPLAY

29.46 cm (11.6") diagonal HD SVA eDP LED anti-glare slim (1366 x 768)<sup>1</sup>

29.46 cm (11.6") diagonal HD UWVA BrightView slim LED-backlit touch screen (1366 x 768)<sup>1</sup>

1. High definition content is required to view high-definition images.

#### External

HDMI v1.4b

Supporting up to 1920 x 1080 @ 60 Hz

**NOTE:** Resolutions are dependent upon monitor capability, and resolution and color depth settings.

### STORAGE AND DRIVES

#### Support eMMC SSD

16 GB

32 GB

Store up to 100 GB with Google Drive (2-year subscription included)<sup>2</sup>

1. 5.1 GB of the eMMC are dedicated/allocated to the Chrome OS™ partition.
2. This offer is tied to this device and is non-transferable. If this device is returned, the extra storage will be revoked. In order to redeem this offer, you will need to be on Chrome OSTM 23 or later. Internet access is required and not included. Additional information about storage plan refunds, renewals, cancellations and expiration is available at the Google website: <https://support.google.com/chromebook/answer/2703646?hl=en>



### MEMORY

#### Support

On Board system memory

Memory is soldered down

LPDDR3-1600 Single Channel Support (Transfer rates up to 1600 MT/s) For 2 GB Memory

LPDDR3-1600 Dual Channel Support (Transfer rates up to 1600 MT/s) For 4 GB Memory

2 GB (8Gb, 128 M x 32 x 2 x 2 pcs)

4 GB (8Gb, 128 M x 32 x 2 x 4 pcs)

#### Memory Maximum

4 GB

**NOTE:** Internal component upgrades to memory are not available after factory configuration.

### NETWORKING/COMMUNICATIONS

#### Wireless LAN (WLAN)

Intel® Dual Band Wireless-AC 7265 802.11a/b/g/n/ac (2x2) WiFi and Bluetooth® 4.2 Combo<sup>1</sup>

1. Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited. The specifications for the 802.11ac WLAN are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11ac WLAN devices.

### AUDIO/MULTIMEDIA

#### Audio

Dual speakers

#### Webcam<sup>1</sup>

HD<sup>2</sup> camera - Fixed (no tilt) + activity LED, 1PC, USB 2.0, M-JPEG

1280 x 720 by 30 frames per second

Dual array digital microphone w/ appropriate software - beam forming, echo cancellation, noise suppression

1. Internet access required and not included.
2. High definition content is required to view high-definition images.

### KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

#### Keyboard

Google Keyboard

Full Size Textured island-style in black

Spill-resistant

#### Pointing Devices

Touchpad

Multitouch gestures enabled

Taps enabled as default



### SOFTWARE AND SECURITY

#### Software

#### Security

Security lock slot (Cable not included)  
Trusted Platform Module (TPM) 1.2

### POWER

#### Power Supply

HP 45W Smart AC Adapter<sup>1,2</sup>  
HP 65W EM Smart AC Adapter<sup>2</sup>

Power cord included is 3.3-foot (1.0 meter)

1. AC adapter uses a 90 degree 4.5 mm DC plug.
2. Availability may vary by country.

#### Primary Battery

3-cell, 44 Wh Li-ion Polymer battery

#### Battery Life<sup>1</sup>

Up to 11 hours (touch)  
Up to 12 hours 30 mins (non-touch)

**NOTE:** Battery is internal and not replaceable by customer.

#### Charging Time

3 hours to 100% when the system is off or in suspend or deep sleep mode. Power adapter with a minimum capacity of 45 watts is required

1. Testing conducted by HP using Google Chrome OS power\_LoadTest. Battery life will vary and the maximum capacity of the battery will naturally decrease with time and usage. See <http://www.chromium.org/chromium-os/testing/power-testing> for test details.

### WEIGHTS & DIMENSIONS

#### Weight<sup>1</sup>

##### Imperial

Starting at 2.72 lbs (non-touch)  
Starting at 2.82 lbs (touch)

##### Metric

Starting at 1.23 kg (non-touch)  
Starting at 1.29 kg (touch)

#### Dimensions (w x d x h)

11.8 x 8.14 x 0.8 in (Rear)  
30 x 20.67 x 2.04 cm (Rear)

1. Weight varies by configuration and components.



### EXTERNAL PORTS

**Ports**

2 USB 3.0 (1 charging)

1 HDMI 1.4

1 AC power

1 Headphone/microphone combo

**HP Multi-Format Digital Media Card Reader**

Support SD/SDHC/SDXC up to UHS-50

Push-Pull Insertion/Removal

### SERVICE AND SUPPORT

HP 1 year limited warranty. 1 year limited warranty on primary battery. On-site service and optional extended service contracts are also available. Optional HP CarePacks<sup>1</sup> are extended service contracts which go beyond your standard limited warranties. For more details, visit: <http://www.hp.com/go/lookuptool>.

1. HP Care Packs are sold separately. Service levels and response times for HP Care Packs may vary depending on your geographic location. Service starts on date of hardware purchase. Restrictions and limitations apply. For details, visit [www.hp.com/go/cpc](http://www.hp.com/go/cpc). HP services are governed by the applicable HP terms and conditions of service provided or indicated to Customer at the time of purchase. Customer may have additional statutory rights according to applicable local laws, and such rights are not in any way affected by the HP terms and conditions of service or the HP Limited Warranty provided with your HP Product.



### DISPLAYS

**Note:** All specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary either higher or lower.

<b>29.46 cm (11.6") diagonal HD SVA eDP LED anti-glare slim (1366 x 768)</b>	<b>Outline Dimensions</b> (W x H x D)	278.5x168.5x 3.0mm(max)	
	<b>Active Area</b>	256.125 x 144.0	
	<b>Weight</b>	210 max.	
	<b>Diagonal Size</b>	11.6"	
	<b>Surface Treatment</b>	AG	
	<b>Contrast Ratio</b>	400:1	
	<b>Refresh Rate</b>	60/40Hz	
	<b>Response time</b>	16ms typ.	
	<b>Pixel Per Inch (PPI)</b>	135	
	<b>Brightness</b>	220 nit typ.	
	<b>Pixel Resolution</b>	<b>Format</b>	1366 x 768
		<b>Configuration</b>	RGB
	<b>Interface</b>	eDP 1.2 (1 lane)	
	<b>LCD Mode</b>	TN	
	<b>Viewing Angle</b>	40/40/15/30	

<b>29.46 cm (11.6") diagonal HD UWVA BrightView slim LED-backlit touch screen (1366 x 768)</b>	<b>Outline Dimensions</b> (W x H x D)	278.5x168.5x 3.0mm(max)	
	<b>Active Area</b>	256.125 x 144.0	
	<b>Weight</b>	220 max.	
	<b>Diagonal Size</b>	11.6"	
	<b>Surface Treatment</b>	AG	
	<b>Contrast Ratio</b>	800:1	
	<b>Touch Enabled</b>	Yes	
	<b>TSP Type</b>	I2C	
	<b>Refresh Rate</b>	60/40Hz	
	<b>Response time</b>	27ms typ.	
	<b>Pixel Per Inch (PPI)</b>	135	
	<b>Brightness</b>	220 nit typ.	
	<b>Pixel Resolution</b>	<b>Format</b>	1366 x 768
		<b>Configuration</b>	RGB
	<b>Interface</b>	eDP 1.3 w/o PSR	
	<b>LCD Mode</b>	AHVA/IPS	
<b>Viewing Angle</b>	85/85/85/85		





### NETWORKING\*

Intel® Dual Band Wireless-AC 7265 802.11a/b/g/n/ac (2x2) WiFi and Bluetooth® 4.2 Combo

<b>Wireless LAN Standards</b>	<ul style="list-style-type: none"> <li>IEEE 802.11a</li> <li>IEEE 802.11b</li> <li>IEEE 802.11g</li> <li>IEEE 802.11n</li> <li>IEEE 802.11ac</li> </ul>
<b>Interoperability</b>	Wi-Fi certified
<b>Frequency Band</b>	802.11b/g/n <ul style="list-style-type: none"> <li>• 2.402 – 2.482 GHz</li> </ul> <p style="margin-left: 20px;"><b>Note:</b> The FCC has declared as of January 1, 2015 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.</p>
<b>Data Rates</b>	802.11a/n <ul style="list-style-type: none"> <li>• 4.9 – 4.95 GHz (Japan)</li> <li>• 5.15 – 5.25 GHz</li> <li>• 5.25 – 5.35 GHz</li> <li>• 5.47 – 5.725 GHz</li> <li>• 5.825 – 5.850 GHz</li> </ul> <p style="margin-left: 20px;">Note: Indonesia no support this band)</p> <ul style="list-style-type: none"> <li>• 802.11b: 1, 2, 5.5, 11 Mbps</li> <li>• 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</li> <li>• 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</li> <li>• 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)</li> <li>• 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)</li> </ul>
<b>Modulation</b>	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
<b>Security<sup>1</sup></b>	<ul style="list-style-type: none"> <li>• IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only</li> <li>• AES-CCMP: 128 bit in hardware</li> <li>• 802.1x authentication</li> <li>• WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.</li> <li>• WPA2 certification</li> <li>• IEEE 802.11i</li> <li>• Cisco Certified Extensions, all versions through CCX4 and CCX Lite</li> <li>• WAPI</li> </ul>



<b>Network Architecture Models</b>	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
<b>Roaming</b>	IEEE 802.11 compliant roaming between access points
<b>Output Power<sup>2</sup></b>	<ul style="list-style-type: none"><li>• 802.11b : +16dBm minimum</li><li>• 802.11g : +14dBm minimum</li><li>• 802.11a : +14dBm minimum</li><li>• 802.11n HT20(2.4GHz) : +14dBm minimum</li><li>• 802.11n HT40(2.4GHz) : +12dBm minimum</li><li>• 802.11n HT20(5GHz) : +14dBm minimum</li><li>• 802.11n HT40(5GHz) : +12dBm minimum</li></ul>
<b>Power Consumption</b>	Transmit: 2.0 W (max)  Receive: 1.6 W (max)  Idle mode (PSP): 180 mW (WLAN Associated)  Idle mode: 50 mW (WLAN unassociated)  Connect Standby: 10 mW (WLAN+BT)  Radio disabled: 5 mW
<b>Power Management</b>	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
<b>Receiver Sensitivity<sup>3</sup></b>	802.11b, 1Mbps : -94dBm maximum  802.11b, 11Mbps : -86dBm maximum  802.11g, 6Mbps : -88dBm maximum  802.11g, 54Mbps : -74dBm maximum  802.11a, 6Mbps : -88dBm maximum  802.11a, 54Mbps : -74dBm maximum  802.11n, MCS07 : -69dBm maximum  802.11n, MCS15 : -66dBm maximum  802.11ac, 1SS, MCS-0 : -86dBm maximum  802.11ac, 1SS, MCS-9 : -61dBm maximum  802.11ac, 2SS, MCS-0 : -83dBm maximum  802.11ac, 2SS, MCS-9 : -58dBm maximum



<b>Antenna type</b>	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	
<b>Form Factor</b>	PCI-Express M.2 MiniCard	
<b>Dimensions</b>	Type 2230 : 2.3 x 22.0 x 30.0 mm	
	Or	
	Type 1630 : 2.3 x 16.0 x 30.0 mm	
<b>Weight</b>	Type 2230 : 2.8g	
	Or	
	Type 1630 : 2g	
<b>Operating Voltage</b>	3.3v +/- 9%	
<b>Temperature</b>	Operating	14° to 158° F (–10° to 70° C)
	Non-operating	–40° to 176° F (–40° to 80° C)
<b>Humidity</b>	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
<b>Altitude</b>	Operating	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)
<b>LED Activity</b>	LED Amber – Radio OFF; LED White – Radio ON	
	<ol style="list-style-type: none"> <li>1. Check latest software/driver release for updates on supported security features.</li> <li>2. Maximum output power may vary by country according to local regulations.</li> <li>3. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).</li> </ol>	

### HP Integrated Module with Bluetooth 4.0/4.1/4.2 Wireless Technology

<b>Bluetooth Specification</b>	4.0/4.1/4.2 Compliant
<b>Frequency Band</b>	2402 to 2480 MHz
<b>Number of Available Channels</b>	Legacy : 0~79 (1 MHz/CH) BLE : 0~39 (2 MHz/CH)
<b>Data Rates and Throughput</b>	Legacy : 3 Mbps data rate; throughput up to 2.17 Mbps BLE : 1 Mbps data rate; throughput up to 0.2 Mbps



Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels

Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)

**Transmit Power**

The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.

**Receiver Sensitivity**

**Legacy**

Modulation	0.01% BER	0.001% BER
GFSK	-80 dBm	-70 dBm
$\pi/4$ -DQPSK	-80 dBm	-70 dBm
8DPSK	-80 dBm	-70 dBm

**Power Consumption**

Peak (Tx) 330 mW  
Peak (Rx) 230 mW  
Selective Suspend 17 mW

**Range**

Legacy Up to 33 ft (10 m)  
BLE Up to 99 ft (30 m)

**Electrical Interface**

USB 2.0 compliant

**Bluetooth Software Supported**

Microsoft Windows Bluetooth Software

**Link Topology**

**Electrical Interface**

Point to Point, Multipoint Pico Nets up to 7 slaves

**Bluetooth Software Supported**

Full support of Bluetooth Security Provisions

**Security**

**Power Management**

Microsoft Windows ACPI, and USB Bus Support

**Certifications**

Self-configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff

**Security**

All necessary regulatory approvals for supported countries, including:

**Certifications**

FCC (47 CFR) Part 15C, Section 15.247 & 15.249

**Bluetooth Profiles Supported**

**Power Management**

ETS 300 328, ETS 300 826

**Certifications**

Low Voltage Directive IEC950



	UL, CSA, and CE Mark
<b>Certifications</b>	Serial Port Profile (SPP) <sup>1.2</sup>
	Service Discovery Application Profile (SDAP)
	Dial-Up Networking (DUN) <sup>1,1</sup>
	Generic Object Exchange Profile (GOEP) <sup>1,2</sup>
	Object Push Profile (OPP) <sup>1,2</sup>
	Hard Copy Cable Replacement (HCRP) <sup>1,2</sup>
<b>Bluetooth Profiles Supported</b>	Personal Area Networking Profile (PAN) <sup>1.0</sup>
	Human Interface Device Profile (HID) <sup>1.0</sup>
	Hands Free Profile (HFP) <sup>1.5/1.6</sup>
	Advanced Audio Distribution Profile (A2DP) <sup>1.3</sup>
	Audio Video Remote Control Profile (AVRCP) <sup>1.3/1.4</sup>

**Bluetooth V4.1/V4.2 support** V4.1: ESR5/6/7 compliant feature

V4.2: ESR8 compliant, LE Secure Connection – Basic.

## POWER

### HP 45W Smart AC Adapter

<b>Dimensions (H x W x D)</b>	3.74 x 1.57 x 1.04 in (9.5 x 4.0 x 2.65 cm)
<b>Weight</b>	0.386 lb (175g) max
<b>Input</b>	90 to 265 VAC
	<b>Input Efficiency</b> 87.74% at 115Vac and 88.4% at 230Vac
	<b>Input frequency range</b> 47 to 63 Hz
	<b>Input AC current</b> 1.4 A at 90 VAC
<b>Output</b>	<b>Output power</b> 45W
	<b>DC output</b> 19.5V
	<b>Hold-up time</b> 5 msec at 115 VAC input
	<b>Output current limit</b> <8.0A
<b>AC Connector (Ac Inlet)</b>	3 pin/grounded, mates with interchangeable cords
<b>Environmental Design</b>	<b>Operating temperature</b> 32° to 95° F (0° to 35° C)
	<b>Non-operating (storage) temperature</b> -4° to 185° F (-20° to 85° C)
	<b>Altitude</b> 0 to 16,400 ft (0 to 5,000 m)
	<b>Humidity</b> 20% to 95%
	<b>Storage Humidity</b> 10% to 95%



	<b>EMI and Safety Certifications</b>	<p>*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.</p>
<b>HP 65W EM Smart AC Adapter</b>	<b>Dimensions</b>	4.98 x 1.97 x 1.18 in (12.65 x 5.0 x 3.0 cm)
	<b>Weight</b>	0.62 lb (290g) max
	<b>Input</b>	90 to 265 VAC
		<b>Input Efficiency</b> 87.74% at 115Vac and 88.4% at 230Vac
		<b>Input frequency range</b> 47 to 63 Hz
		<b>Input AC current</b> 1.7 A at 90 VAC
	<b>Output</b>	<b>Output power</b> 65W
		<b>DC output</b> 19.5V
		<b>Hold-up time</b> 5 msec at 115 VAC input
		<b>Output current limit</b> <11.0A
	<b>AC Connector (Ac Inlet)</b>	3 pin/grounded, mates with interchangeable cords
	<b>Environmental Design</b>	<b>Operating temperature</b> 32° to 95° F (0° to 35° C)
		<b>Non-operating (storage) temperature</b> -4° to 185° F (-20° to 85° C)
		<b>Altitude</b> 0 to 16,400 ft (0 to 5,000 m)
		<b>Humidity</b> 20% to 95%
		<b>Storage Humidity</b> 10% to 95%
	<b>Certifications</b>	<p>*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.</p>

## ENVIRONMENTAL

### 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:

- IT ECO declaration
- US ENERGY STAR®
- EPEAT<sup>®</sup> Gold registered in the United States. See <http://www.epeat.net> for registration status in your country.

### 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”.



<b>Energy Consumption (in accordance with US ENERGY STAR® test method)</b>	<b>115VAC, 50Hz</b>	<b>230VAC, 50Hz</b>	<b>100VAC, 50Hz</b>
Normal Operation (Short idle)	5.61 W	5.66 W	5.50 W
Normal Operation (Long idle)	1.75 W	1.77 W	1.76 W
Sleep	0.45 W	0.54 W	0.46 W
Off	0.27 W	0.37 W	0.27 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.

<b>Heat Dissipation*</b>	<b>115VAC, 50Hz</b>	<b>230VAC, 50Hz</b>	<b>100VAC, 50Hz</b>
Normal Operation (Short idle)	19 BTU/hr	19 BTU/hr	19 BTU/hr
Normal Operation (Long idle)	6 BTU/hr	6 BTU/hr	6 BTU/hr
Sleep	2 BTU/hr	2 BTU/hr	2 BTU/hr
Off	1 BTU/hr	1 BTU/hr	1 BTU/hr

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

<b>Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)</b>	<b>Sound Power (L<sub>WA</sub>d, bels)</b>	<b>Sound Pressure (L<sub>pAm</sub>, decibels)</b>
Typically Configured – Idle	2.7	21



Fixed Disk – Random writes

2.8

20

### Batteries

This battery(s) in this product comply with EU Directive 2006/66/EC

Batteries used in the product do not contain:  
 Mercury greater than 1ppm by weight  
 Cadmium greater than 20ppm by weight

Battery size: CR2032 (coin cell)  
 Battery type: Lithium

### 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 contains 0% post-consumer recycled plastic (by wt.)
- This product is 95.0% recycle-able when properly disposed of at end of life.

### Packaging Materials

<b>External:</b>	PAPER/Corrugated	367 g
<b>Internal:</b>	PLASTIC/Expanded Polyethylene - EPE	33 g
	PLASTIC/Polyethylene low density - LDPE	5 g

The plastic packaging material contains at least 0% recycled content.

The corrugated paper packaging materials contains at least 80% recycled content.

### 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 follows these guidelines to decrease the environmental impact of product packaging:

- Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.
- Eliminate the use of ozone-depleting substances (ODS) in packaging materials.
- Design packaging materials for ease of disassembly.
- Maximize the use of post-consumer recycled content materials in packaging materials.
- Use readily recyclable packaging materials such as paper and corrugated materials.
- Reduce size and weight of packages to improve transportation fuel efficiency.
- Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.

### End-of-life Management and Recycling

Hewlett-Packard 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.

### HP, Inc. Corporate Environmental Information

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

Global Citizenship Report

<http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html>

Eco-label certifications

<http://www8.hp.com/us/en/hp-information/environment/ecolabels.html>

ISO 14001 certificates:

<http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842>

and <http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf>

### COUNTRY OF ORIGIN

China



### Options and Accessories (Sold separately and availability may vary by country.)

Category	Description	Part Number
<b>Cases</b>	HP Business Slim Top Load	H5M90AA
	HP Essential Top Load Case (up to 15.6")	H2W17AA#xxx
	HP Essential Backpack (up to 15.6")	H1D24AA
<b>Input Devices</b>	HP 3-Button Laser Mouse	H4B81AA#xxx
	HP Ultra Mobile Wireless Mouse	H6F25AA
	HP USB Optical Travel mouse	G1K28AA
	HP Stereo 3.5mm Headset	T1A66AA
	HP Stereo USB Headset	T1A67AA
<b>Power</b>	HP 45W Smart AC Adapter (4.5mm)	H6Y88AA#xxx
	HDMI to VGA Adapter	H4F02AA
	HP Notebook Power Bank	N9F71AA
<b>Storage</b>	HP External USB Optical Drive	F2B56AA

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