

### Overview

#### HP Chromebook 13 G1



1. Webcam LED
2. HD Webcam
3. Microphones (2)
4. Touchpad

#### Front/ Left

5. Headphone / microphone combo jack
6. USB-A 3.1 Gen 1 port
7. USB-C™ 3.1 Gen 1 charging port
8. USB-C™ 3.1 Gen 1 charging port



### Overview



#### Rear/ Right

1. Micro SD Media Card Reader



### Overview

#### AT A GLANCE

- Google Chrome OS™
- Designed for businesses that are accelerating the movement to cloud-based applications
- 12.59 mm (0.50 inches) thin
- Weight starting at 2.86 lbs (1.29 kg)
- Not your kids Chromebook- a stylish, fanless Chromebook™ with a durable anodized aluminum chassis
- 6th Generation Intel® Pentium® or Intel® Core™ M processors
- 13.3" diagonal QHD+ Bright View (3200 x 1800) IPS display or 13.3" diagonal Full HD Anti-glare (1920 x 1080) IPS display
- Audio by B&O PLAY for crystal clear Hangouts; HD webcam
- Keep dozens of browser tabs open with 4 GB memory standard and up to 16 GB
- Backlit keyboard for late night emails on the red-eye flight home
- Battery life up to 11 hours and 30 minutes
- Two USB Type-C™ 3.1 Gen 1 charging ports enables fast charging between meetings
- Supports docking with the HP Elite USB-C™ Docking Station and a host of USB-C™ adapters
- Supports next generation Lucid Sleep<sup>1</sup> means your docs/emails/notifications are updated the second you log-in
- Purchase with confidence with a limited 1-year limited warranty and 3-year extended service available with optional HP Care Services.

1. Internet service is required and is not included.

**NOTE:** See important legal disclosures for all listed specs in their respective features sections.



### Technical Specifications

#### PRODUCT NAMES

HP Chromebook 13 G1

#### OPERATING SYSTEM

**Preinstalled** Chrome OS™

#### PROCESSORS

Intel® Pentium® 4405Y with Intel® HD Graphics 515  
(1.5 GHz, 2 MB cache, 2 cores)<sup>1</sup>

Intel® Core™ m3-6Y30 with Intel® HD Graphics 515  
(0.9 GHz, up to 2.2 GHz with Intel® Turbo Boost Technology, 4 MB cache, 2 cores)<sup>1</sup>

Intel® Core™ m5- 6Y57 with Intel® HD Graphics 515  
(1.1 GHz, up to 2.80 GHz with Intel® Turbo Boost Technology, 4 MB cache, 2 cores)<sup>1</sup>

Intel® Core™ m7-6Y75 with Intel® HD Graphics 515  
(1.2 GHz, up to 3.10 GHz with Intel® Turbo Boost Technology, 4 MB cache, 2 cores)<sup>1</sup>

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.

**NOTE:** Processor speed denotes maximum performance mode; processors will run at lower speeds in battery optimization mode.

#### CHIPSET

Integrated with processor

#### GRAPHICS

**Integrated**

Intel® HD Graphics 515<sup>1</sup> Supports 4K video output over DisplayPort™ or HDMI with optional USB Type-C™ video adapter cable

1. HD content required to view HD images.

#### DISPLAY

13.3" diagonal FHD WLED Anti-glare (1920 x 1080) uslim-flat (2.6mm) UWVA, eDP, 330nits<sup>1</sup>

13.3" diagonal RGBW QHD+ WLED Bright View (3200 x 1800) uslim-flat (2.6mm) UWVA, eDP, 300nits<sup>1</sup>

1. HD content required to view HD images.



### Technical Specifications

#### STORAGE AND DRIVES

##### Support eMMC

Embedded Multi Media Card<sup>1</sup>

32 GB eMMC v5.0

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

##### Standard

On-board system memory

Single/Dual Channel Support

LPDDR3-1866 MHZ

##### Support

4 GB LPDDR3; configurable with Intel® Pentium® 4405Y, Intel® Core™ m3-6Y30, Intel® Core™ m5- 6Y57

8 GB LPDDR3; configurable with Intel® Core™ m5- 6Y57, Intel® Core™ m7-6Y75

16 GB LPDDR3; configurable with Intel® Core™ m7-6Y75

##### Maximum

Up to 16 GB

#### NETWORKING/COMMUNICATIONS

##### Wireless LAN (WLAN)<sup>1</sup>

Intel® Dual Band Wireless - AC 7265 802.11 ac (2x2) WiFi + Bluetooth® 4.2 Combo

1. Wireless access point and Internet service is required and is not included. Availability of public wireless access points limited.

#### AUDIO/MULTIMEDIA

##### Audio

Audio by B&O PLAY, dual speakers, top-firing

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

HP TrueVision HD<sup>2</sup>

- HD<sup>2</sup> camera - Fixed (no tilt) + activity LED, USB 2.0, M-JPEG
- 1280 x 720 by 30 frames per second

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



### Technical Specifications

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

##### Keyboard

Black, Textured, Full Size, Island-style Chrome OS™ keyboard  
Backlit keyboard

##### Touchpad

Multi-touch gestures enabled  
Taps enabled as default

#### SOFTWARE AND SECURITY

##### Preinstalled Software

Chrome OS™ with default set of apps

##### Security

TPM 1.2 Embedded Security Chip

#### POWER

##### Power Supply

HP 45W USB Type-C™ Straight Type AC Adapter  
Power cord included is 5 feet 9 inches (1.8 m) in length

##### Primary Battery

HP 3-cell 45WHr Polymer Long-Life Battery

##### Battery Life

Up to 11 hours 30 minutes <sup>1</sup>

(3-cell 45WHr Polymer Battery with Pentium 4405Y/4GB RAM/32GB Storage/ Full HD panel)

Up to 8 hours 15 minutes <sup>1</sup>

(3-cell 45WHr Polymer Battery with Pentium 4405Y/4GB RAM/32GB Storage/ QHD+ panel)

Up to 8 hours 45 minutes <sup>1</sup>

(3-cell 45WHr Polymer Battery with Core m3/4GB RAM/32GB Storage/ QHD+ panel)

Up to 8 hours 15 minutes <sup>1</sup>

(3-cell 45WHr Polymer Battery with Core m5/8GB RAM/32GB Storage/ QHD+ panel)

Up to 8 hours 30 minutes <sup>1</sup>

(3-cell 45WHr Polymer Battery with Core m7/16GB RAM/32GB Storage/ QHD+ panel)

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.

##### System Standby Time

TBD



### Technical Specifications

#### WEIGHTS & DIMENSIONS

##### Weight

Starting at 2.86 lbs (1.29 kg)<sup>1</sup>

1. Weight varies by configuration and components.

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

12.59 x 8.64 x 0.50 in

319.9 x 219.6 x 12.95 mm

#### PORTS/SLOTS

##### Ports

USB-C™ 3.1 Gen 1 charging ports – Two (Left side) Support power delivery, video, data. up to 5Gbps data , 4K display out with optional HDMI or DisplayPort™ adapter, 45W charging.<sup>1</sup>

USB-A 3.1 Gen 1 port – One (Left side)

Headphone / microphone combo jack – One

1. Each USB Type-C™ 3.1 charging port delivers power to the Chromebook individually, not when using both at once.

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

Supports micro SD/SDHC/SDXC up to UHS-I

#### SERVICE AND SUPPORT

HP Services offers limited 1-year limited warranty depending on country; 1-year limited warranty on primary battery. On-site service is also available with optional HP Care Services<sup>1,2</sup> which extend protection beyond the standard limited warranty. To choose the right level of service for your HP product, use the HP Care Services Lookup Tool at: <http://www.hp.com/go/lookuptool>. Additional HP Care Services<sup>1,2</sup> information by product is available at: [www.hp.com/go/cpc](http://www.hp.com/go/cpc).

1. Sold separately or as an optional feature.
2. 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).

**NOTE:** Certain restrictions and exclusions apply. Consult the HP Customer Support Center for details. <http://h20000.www2.hp.com/bizsupport/TechSupport/ProductRoot.jsp>



### Technical Specifications

#### SYSTEM UNIT

<b>Stand-Alone Power Requirements (AC Power)</b>	<b>Nominal Operating Voltage</b>	15V
	<b>Average Operating Power</b>	5~45W
<b>Temperature</b>	<b>Max Operating Power</b>	45W
	<b>Operating</b>	5C ~ 35C
<b>Relative Humidity</b>	<b>Non-operating</b>	-20C ~ 60C
	<b>Operating</b>	10% ~ 90%
<b>Shock</b>	<b>Non-operating</b>	5% ~ 95%
<b>Random Vibration</b>	<b>Operating</b>	
	<b>Non-operating</b>	
<b>Altitude (unpressurized)</b>	<b>Operating</b>	-15m ~ 3048m
	<b>Non-operating</b>	-15m ~ 12192m
<b>Planned Industry Standard Certifications</b>	<b>UL</b>	
	<b>FCC Compliance</b>	
	<b>ENERGY STAR®*</b>	
	<b>EPEAT®**</b>	
	<b>ICES</b>	
	<b>Australia / NZ C-Tick Compliance</b>	
	<b>CCC</b>	
	<b>Japan VCCI Compliance</b>	
	<b>MIC / KCC</b>	
	<b>BSMI</b>	
	<b>CE Marking Compliance</b>	
	<b>BNCI or BELUS</b>	
	<b>CIT</b>	
	<b>GOST</b>	
	<b>Saudi Arabian Compliance (ICCP)</b>	
	<b>SABS</b>	

\* Configurations of the HP Chromebook 13 G1 that are ENERGY STAR qualified are identified as HP Chromebook 13 G1 on HP websites and on [www.energystar.gov](http://www.energystar.gov).

\*\* EPEAT registration varies by country. See [www.epeat.net](http://www.epeat.net) for registration status by country.

EPEAT status listed above applies to U.S.

For accessibility information on HP products, please visit: <http://www.hp.com/accessibility>.





### Technical Specifications

#### DISPLAYS\*

<b>13.3" diagonal FHD WLED Anti Glare (1920x1080) uslim-flat (2.6mm) UWVA, eDP, 330 nits</b>	<b>Outline Dimensions</b> (W x H x D)	305.4x194.9x2.6mm
	<b>Active Area</b>	293.4x165.0mm
	<b>Weight</b>	230gm
	<b>Diagonal Size</b>	336.7mm
	<b>Surface Treatment</b>	Anti-Glare, Harness 3H
	<b>Contrast Ratio</b>	700 typ.
	<b>Refresh Rate</b>	60Hz frame rate
	<b>Brightness</b>	330nits
	<b>Pixel Resolution</b>	<b>Format</b>
	<b>Interface</b>	<b>Configuration</b>
	<b>LCD Mode</b>	eDP
	<b>PPI</b>	Normally black
	<b>Viewing Angle</b>	1661
	80 typ	

<b>13.3" diagonal RGBW QHD+ WLED Bright View (3200x 1800) uslim-flat (2.6mm) UWVA, eDP, 300 nits</b>	<b>Outline Dimensions</b> (W x H x D)	306.15x194.3x2.8mm
	<b>Active Area</b>	293.44x164.06mm
	<b>Weight</b>	210gm
	<b>Diagonal Size</b>	336.7mm
	<b>Surface Treatment</b>	Haze 0%
	<b>Contrast Ratio</b>	400 typ
	<b>Refresh Rate</b>	60Hz frame rate
	<b>Brightness</b>	300nits
	<b>Pixel Resolution</b>	<b>Format</b>
	<b>Interface</b>	<b>Configuration</b>
	<b>LCD Mode</b>	eDP
	<b>PPI</b>	Normally black
	<b>Viewing Angle</b>	554/H; 277/V
	85 typ	

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



### Technical Specifications

#### NETWORKING/COMMUNICATIONS\*\*

##### Intel® Dual Band Wireless - AC 7265 802.11 ac (2x2) WiFi + 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><b>Note:</b></p> <p>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>
	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>Note: Indonesia no support this band)</p>
<b>Data Rates</b>	<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> </ul>



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	<ul style="list-style-type: none"> <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



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	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

1. [Check latest software/driver release for updates on supported security features.](#)
2. [Maximum output power may vary by country according to local regulations.](#)
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 \(OFDM modulation\).](#)



### Technical Specifications

#### 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)
<b>Transmit Power</b>	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.

\*\* Wireless access point and internet service required. 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.



### Technical Specifications

**Receiver Sensitivity**

**Legacy**

<b>Modulation</b>	<b>0.01% BER</b>	<b>0.001% BER</b>
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**

**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**

ACPI, and USB Bus Support power management

**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

**Certifications**

UL, CSA, and CE Mark

**Bluetooth Profiles Supported**

Serial Port Profile (SPP)<sup>1</sup>  
 Service Discovery Application Profile (SDAP)  
 Dial-Up Networking (DUN)<sup>1,2</sup>  
 Generic Object Exchange Profile (GOEP)<sup>1,2</sup>



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Object Push Profile (OPP)<sup>1,2</sup>  
 Hard Copy Cable Replacement (HCRP)<sup>1,2</sup>  
 Personal Area Networking Profile (PAN)<sup>1,2</sup>  
 Human Interface Device Profile (HID)<sup>1,2</sup>  
 Hands Free Profile (HFP)  
 Advanced Audio Distribution Profile (A2DP)  
 Audio Video Remote Control Profile (AVRCP)

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

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

### AUDIO/MULTIMEDIA

<b>Hardware</b>	<b>Implementation</b>	
	<b>Function Key Volume Controls</b>	Yes
	<b>Full Duplex</b>	Yes
	<b>Microphone In</b>	Yes
	<b>Headphone/Line Out</b>	Yes
	<b>Integrated Microphone</b>	n/a
<b>Audio Output Quality</b>	<b>Frequency Response</b>	20~20K Hz
	<b>Signal to Noise Ratio</b>	100dB
	<b>Total Harmonic Distortion</b>	-85dB
	<b>Noise Floor</b>	-123dB
	<b>Play/Record Sampling Rate(s)</b>	44.1K/48KHz
	<b>DAC</b>	123dB SNR and -85dB THD
	<b>ADC</b>	100dB SNR & -85dB THD
<b>Integrated Stereo Speakers</b>	<b>Power Rating</b>	0.8W in 1 c.c cavity (1.0W max)
	<b>Impedance</b>	6 ohms



## Technical Specifications

### POWER

<b>HP 45W USB Type-C™ Straight Type AC Adapter</b>	<b>Dimensions</b>	95x46x29 (mm)	
	<b>Input</b>	<b>Input Efficiency</b>	78%~88%
		<b>Input frequency range</b>	50~60Hz
	<b>Output</b>	<b>Input AC current</b>	1.4A
		<b>Output power</b>	45W
		<b>DC output</b>	5V/12V/15V
		<b>Hold-up time</b>	5mSec
		<b>Output current limit</b>	2A~3A
	<b>Connector</b>		
	<b>Environmental Design</b>	<b>Operating temperature</b>	
<b>Non-operating (storage) temperature</b>			
<b>Altitude</b>			
<b>Humidity</b>			
<b>EMI and Safety Certifications</b>	<b>Storage Humidity</b>		
		Industry std	

<b>HP 3-cell 45Whr Polymer Battery</b>	<b>Dimensions (H x W x L)</b>			
	<b>Weight</b>			
	<b>Cells/Type</b>	Li-Polymer/Coslight-3950		
	<b>Energy</b>	<b>Voltage</b>	11.4V nominal	
		<b>Amp-hour capacity</b>	3900mAh	
		<b>Watt-hour capacity</b>	45W	
	<b>Temperature</b>	<b>Operating (Charging)</b>	0~45C	
		<b>Operating (Discharging)</b>	-10~60C	
		<b>Non-operating</b>	Storage 1 month :	-20~60C
			Storage 3 month :	-20~45C
Storage 6 month :	-20~30C			
<b>Battery Re-Charge Time</b>	<b>System in OFF or Standby Mode</b>	-10~60C		
<b>Fuel Gauge LED</b>		n/a		
<b>Warranty</b>				
<b>Optional Travel Battery Available</b>		n/a		





### Technical Specifications

#### 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> Silver 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”.

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

		115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Sort idle)		8.43 W	8.54 W	8.49 W
Normal Operation (Long idle)		1.47 W	1.51 W	1.51 W
Sleep		0.48 W	0.49 W	0.48 W
Off		0.37 W	0.38 W	0.37 W

##### Note:

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

##### Heat Dissipation\*

115VAC, 60Hz

230VAC, 50Hz

100VAC, 60Hz



### Technical Specifications

Normal (Short idle)	Operation	29 BTU/hr	29 BTU/hr	29 BTU/hr
Normal (Long idle)	Operation	5 BTU/hr	5 BTU/hr	5 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.

### Declared Emissions (in accordance with ISO 7779 and ISO 9296)

#### Noise

Sound Power (L<sub>WAd</sub>, bels)

Sound Pressure (L<sub>pAm</sub>, decibels)

Typically Configured – Idle

1.6

16

Fixed Disk – Random writes

1.6

16

### Longevity and Upgrading

#### and

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

- 3 USB ports
- 1 PC card slot (type I/II)
- 1 ExpressCard/54 slot
- 1 IEEE 1394 Port
- 2 SODIMM memory slots
- Optional expansion base docking station
- 1 multi-bay II storage port
- Interchangeable HDD??

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

### Batteries

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

Batteries used in the product do not contain:

Mercury greater the 1ppm by weight

Cadmium greater than 20ppm by weight

Battery size: CR2032 (coin cell)



## Technical Specifications

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 silver 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 96.4% recycle-able when properly disposed of at end of life.

### Packaging Materials

<b>External:</b>	PAPER/Corrugated	384 g
<b>Internal:</b>	PLASTIC/EPE (Expanded Polyethylene)	18.9 g
	PLASTIC/Polyethylene low density	18 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>](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)



### Technical Specifications

#### 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.

#### Hewlett-Packard Corporate Environmental Information

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

Global Citizenship Report

<http://www.hp.com/hpinfo/globalcitizenship/qcreport/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



### Summary of Changes

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

Type	Description	Part Number
<b>Cases</b>	HP Business Slim Top Load	H5M91AA
	HP Business Backpack	H5M90AA
	HP Slim Ultrabook Top Load	F3W15AA
<b>Docking</b>		
	HP Elite USB-C Docking Station	T3V74AA
<b>Input/Output</b>	HP 3-Button Laser Mouse	H4B81AA#xxx
	HP USB Optical Travel mouse	G1K28AA
	HP USB-C to VGA Adapter	N9K76AA
	HP USB-C to HDMI Adapter	N9K77AA
	HP USB-C to DisplayPort Adapter	N9K78AA
	HP USB-C to USB 3.0 Adapter	N2Z63AAA#xxx
<b>Power</b>		
	HP 45W USB-C Right Type Power Adapter	V5Y26AA#xxx

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## Summary of Changes

