Overview

HP Chromebox G4

Front	**Side**
1. Headphone / Microphone Combo Jack	5. Standard Security Lock Slot
2. (2) USB 3.2 Gen 2	
3. MicroSD card slot (Push-pull type)	
4. Power button/LED	

Overview

HP Chromebox G4
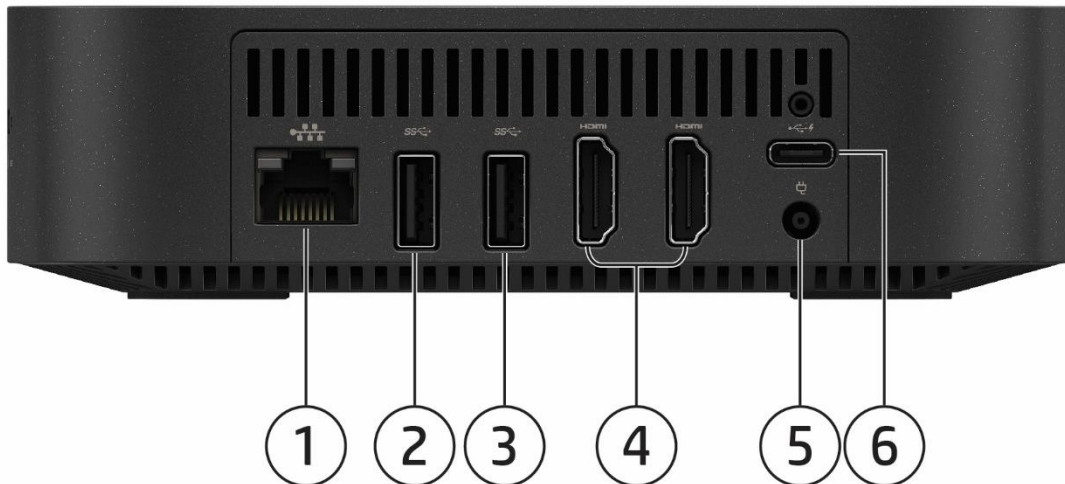
Back

1. Ethernet network port or RJ-45 connector
2. USB-A 3.2 Gen2
3. USB-A 3.2 Gen2
4. (2) HDMI ports
5. AC-in plug - 4.5mm barrel connector
6. USB Type-C® 3.2 Gen 2 – support charging, power/data delivery, DisplayPort™

Features

AT A GLANCE

- Bootup in seconds, get to work, and sign out to protect your data. Support multiple users on a single HP Chromebox to get the most of your investment.
- Get the performance of up to a 13th gen Intel® Core™ i7 processor1 to complete tasks in multiple windows simultaneously.
- Support up to 32GB DDR4 memory
- Support 64GB eMMC and 256GB SSD
- Get a fast and reliable connection in dense wireless environments with gigabit-speed Wi-Fi 6E.2
- MicroSD Multi-Format Digital Media Card Reader
- 100 mm VESA mounting capability
- Connect up to three 4K displays.
- Complete work tasks with multiple ports: two integrated HDMI (v2.0) ports and a USB-C® port,
- Environmental Certifications1
- ENERGY STAR®
- EPEAT® registered*
- BFR/PVC Free1
- WEEE compliant
- RoHS 2 compliant
- Standard Security Lock Slot

1. External power supplies, power cords, cables and peripherals are not low halogen. Service parts obtained after purchase may not be low halogen.

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

QuickSpecs

Features

PRODUCT NAME

HP Chromebox G4

OPERATING SYSTEM

Preinstalled   Chrome OS™

PROCESSORS

13th Generation Intel® Core™ i7 Processors
Intel Core i7-1365U 10 Core 1.8-5.2G BGA 12ML3 Intel® Iris® Xe Graphics[2] 3200MHz 15W[1]

13th Generation Intel® Core™ i5 Processors
Intel Core i5-1335U 10 Core 1.3-4.6G BGA 12ML3 Intel® Iris® Xe Graphics[2] 3200MHz 15W[1]
Intel Core i5-1345U 10 Core 1.6-4.7G BGA 12ML3 Intel® Iris® Xe Graphics[2] 3200MHz 15W[1]

13th Generation Intel® Core™ i3 Processors
Intel Core i3-1315U 6 Core 1.2-4.5G BGA 10ML3 UHD Graphics 3200MHz 15W[1]

Intel® Celeron® Processors
Intel Celeron 7305 5 Core 1.1GHz BGA 8ML3 UHD Graphics 3200MHz 15W[1]

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, branding and/or naming is not a measurement of higher performance.
2. Intel® Iris® Xe Graphics only support on Intel® Core™ i5-1335U
NOTE: Intel® Iris® Xe Graphics capabilities require system to be configured with Intel® Core™ i5 or i7 processors and dual channel memory. Intel® Iris® Xe Graphics with Intel® Core™ i5 or 7 processors and single channel memory will only function as UHD graphics.

CHIPSET

Chipset is integrated with processor.

GRAPHICS

Integrated
Intel® UHD Graphics
Intel® Iris® Xe Graphics[1]

1. Intel® Iris® Xe Graphics only support on Intel® Core™ i5-1335U
NOTE: Intel® Iris® Xe Graphics capabilities require system to be configured with Intel® Core™ i5 or i7 processors and dual channel memory. Intel® Iris® Xe Graphics with Intel® Core™ i5 or 7 processors and single channel memory will only function as UHD graphics.

MEMORY

4GB DDR4 Synchronous Dynamic Random Access Memory (SDRAM) (Up to 3200 MT/s)[1] 1x4GB*
8GB DDR4 Synchronous Dynamic Random Access Memory (SDRAM) (Up to 3200 MT/s)[1] 2x4GB*
16GB DDR4 Synchronous Dynamic Random Access Memory (SDRAM) (Up to 3200 MT/s)[1] 2x8GB*
32GB DDR4 Synchronous Dynamic Random Access Memory (SDRAM) (Up to 3200 MT/s)[1] 2x16GB*

1. Shared video memory (UMA) uses part of the total system memory for video performance. System memory dedicated to video performance is not available for other use by other programs.

Features

STORAGE AND DRIVES

Internal Storage Device
64GB eMMC[1]
256GB PCIe NVMe Value SSD[1]

Removable Storage
Micro SD card slot

1. For storage drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 5.1 GB of the eMMC are dedicated/allocated to the Chrome OSTM and OS partitions.

NETWORKING/COMMUNICATIONS

Networking
Wired Gigabit Ethernet (RTL8111K-CG)

Wi-Fi® and Bluetooth®
Intel® Wi-Fi 6E AX211 (2x2) and Bluetooth® 5.3 wireless card[1]

1. Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited. The specifications for Wi-Fi 6 (802.11ax 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 802.11ax WLAN

SECURITY

Nano lock slot (Lock sold separately)

Titan C security chip

AUDIO/MULTIMEDIA

Audio
Realtek ALC5682I-VS-CGT
Internal Beeper
Combo Mic/Headphone Jack

PORTS/SLOTS

Ports
1 - Audio Combo jack - Headphone/Microphone (Front)
2 - USB 3.2 Gen 2(Front)
1 - Micro SD card slot (Front)
1 - USB Type-C® 3.2 Gen 2 (Back)
1 - AC Adapter plug (Back)
2 - HDMI, up to 4K@60fps, HDMI version 2.0 (Back)
2 - USB 3.2 Gen 2(Back)
1 - RJ-45 Connector (Back)

Features

SOFTWARE COMPONENTS AND APPLICATIONS

Software
HP Support Assistant[1]

Manageability Features
Zero Touch Enrollment 4[2]
Chrome Enterprise Upgrade 4.5[3]
Chrome Education Upgrade 4.6[4]

1. HP Support Assistant requires Internet Access.
2. Sold separately.
3. Chrome Enterprise Upgrade requires one-time setup, subscription, Google Admin Console, and your organization's domain. Please see https://support.google.com/a/topic/1409901.
4. Chrome Education Upgrade requires one-time setup, subscription, Google Admin Console, and your organization's domain. Please see https://support.google.com/a/answer/60216.

POWER

Power Supply

External 65W adapter > 85% efficiency 100-240V, 50-60Hz, power cord (1.0 m)[1,2]
External 90W adapter > 85% efficiency 100-240V, 50-60Hz, power cord (1.0 m)[1]

1. Not all power supplies are available in every region.
2. 65W is for Celeron only while 90W is for i3, i5 and i7 only

WEIGHT & DIMENSIONS

Dimensions (WxDxH)
5.87 x 5.87 x 1.57 in (14.93 x 14.93 x 4 cm)

Weight
1.42 lb (645 g)[1]

1. Lowest weight noted. Weight will vary by configuration.

PACKAGING INFORMATION

One Unit

Dimension of single box: 235 x 190 x 110 mm (9.25 x 7.48 x 4.33 in)
Weight: 790 g (1.74 lb)

One Unit + Keyboard / Mouse
Dimension of DIB box: 310 x 190 x 140 mm (12.2 x 7.48 x 5.51 in)
Weight: 1330 g (2.92 lb)

Features

PALLETIZATION PROFILE

	Units per layer	Layers Max (for Air)	Units per pallet	Dimension (LxWxH) (excluding pallet)
1 IN 1 SINGLE (ADP/Power code/Doc)	34	5	170	46.5 x 35.8 x 38.4 in (118 x 91 x 97.5 cm)
1 IN 1 DIB (KB/MOUSE/ADP/Power code/Doc)	24	5	120	44.6 x 36.5 x 38.4 in (113.4 x 92.8 x 97.5 cm)
5 IN 1 bulk (ADP/Power code/Doc)	8	5	40	46.5 x 38.3 x 38.4 in (118 x 97.4 x 97.5 cm)
1 IN 1 DIB (USB Wired KB)	16	5	80	44.1 x 37.6 x 38.4 in (112 x 95.6 x 97.5 cm)

IN THE BOX

HP Chromebox G4
External Power Supply
Quick Start Guide

Technical specifications - Storage

STORAGE

256GB M.2 2230 PCIe NVMe SSD

Drive Weight	< 10g
Capacity	256GB
Height	2.3 mm
Length	30 mm
Width	22 mm
Interface	PCIe NVMe
Maximum Sequential Read	2200 MB/s ±20%
Maximum Sequential Write	1100 MB/s ±20%
Logical Blocks	500,118,192
Operating Temperature	0° to 70°C (32° to 158°F) [ambient temp]
Features	TRIM; L1.2

NOTE: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less.

Technical specifications – Memory

MEMORY

DDR4-3200 (Transfer rates up to 3200 MT/s), 4GB, 2 SO-DIMM
DDR4-3200 (Transfer rates up to 3200 MT/s), 8GB, 2 SO-DIMM
DDR4-3200 (Transfer rates up to 3200 MT/s), 16GB, 2 SO-DIMM
DDR4-3200 (Transfer rates up to 3200 MT/s), 32GB, 2 SO-DIMM

Technical specifications – Networking and Communications

NETWORKING AND COMMUNICATIONS

Intel AX211 Wi-Fi 6E +Bluetooth® 5.3 wireless card M.2 160MHz CNVi WW WLAN[1]	
Wireless LAN Standards	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac IEEE 802.11ax IEEE 802.11d IEEE 802.11e IEEE 802.11h IEEE 802.11i IEEE 802.11k IEEE 802.11r IEEE 802.11v
Interoperability	Wi-Fi certified
Frequency Band	802.11b/g/n/ax • 2.402 – 2.482 GHz 802.11a/n/ac/ax • 4.9 – 4.95 GHz (Japan) • 5.15 – 5.25 GHz • 5.25 – 5.35 GHz • 5.47 – 5.725 GHz • 5.825 – 5.850 GHz • 5.955 – 6.415 GHz • 6.435 – 6.515 GHz • 6.535 – 6.875 GHz • 6.895 – 7.115 GHz
Data Rates	• 802.11b: 1, 2, 5.5, 11 Mbps • 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11n: max 300Mbps • 802.11ac: 1733Mbps • 802.11ax: max 2.4Gbps
Modulation	Direct Sequence Spread Spectrum OFDM, BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM , 1024QAM
Security[2]	• IEEE and Wi-Fi compliant 64 / 128 bit WEP encryption for a/b/g mode only • AES-CCMP: 128 bit in hardware • 802.1x authentication • WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. • WPA2 certification • WPA3 certification • IEEE 802.11i • WAPI
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power[3]	• 802.11b: +17dBm minimum • 802.11g: +16dBm minimum • 802.11a: +17dBm minimum • 802.11n HT20(2.4GHz): +14dBm minimum • 802.11n HT40(2.4GHz): +13dBm minimum

Technical specifications – Networking and Communications

	• 802.11n HT20(5GHz): +14dBm minimum • 802.11n HT40(5GHz): +13dBm minimum • 802.11ac VHT80(5GHz): +10dBm minimum • 802.11ac VHT160(5GHz): +10dBm minimum • 802.11ax HE40(2.4GHz): +12dBm minimum • 802.11ax HE80(5GHz): +10dBm minimum • 802.11ax HE160(5GHz): +10dBm minimum
Power Consumption	•Transmit mode 2.0 W •Receive mode 1.6 W •Idle mode (PSP) 180 mW (WLAN Associated) •Idle mode 50 mW (WLAN unassociated) •Connected Standby 10mW •Radio disabled 8 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity[4]	• 802.11b, 1Mbps: -93.5dBm maximum • 802.11b, 11Mbps: -84dBm maximum • 802.11a/g, 6Mbps: -86dBm maximum • 802.11a/g, 54Mbps: -72dBm maximum • 802.11n, MCS07: -67dBm maximum • 802.11n, MCS15: -64dBm maximum • 802.11ac, MCS0(VHT80): -84dBm maximum • 802.11ac, MCS9(VHT80): -59dBm maximum • 802.11ac, MCS9(VHT160): -58.5dBm maximum • 802.11ax, MCS11(HE40): -57dBm maximum • 802.11ax, MCS11(HE80): -54dBm maximum • 802.11ax, MCS11(HE160): -53.5dBm maximum
Antenna type	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5/6 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth® communications
Form Factor	PCI-Express M.2 MiniCard
Dimensions	1.Type 2230: 2.3 x 22.0 x 30.0 mm
Weight	1. Type 2230: 2.8g
Operating Voltage	3.3v +/- 9%
Temperature	Operating: 14° to 158° F (–10° to 70° C) Non-operating: –40° to 176° F (–40° to 80° C)
Humidity	Operating: 10% to 90% (non-condensing) Non-operating: 5% to 95% (non-condensing)
Altitude	Operating: 0 to 10,000 ft (3,048 m) Non-operating: 0 to 50,000 ft (15,240 m)
LED Activity	LED Amber – Radio OFF; LED OFF – Radio ON

HP Integrated Module with Bluetooth® 4.0/4.1/4.2/5.0/5.1/5.2/5.3 Wireless Card Technology

Bluetooth® Specification	4.0/4.1/4.2/5.0/5.1/5.2/5.3 Wireless Card Compliant
Frequency Band	2402 to 2480 MHz
Number of Available Channels	Legacy: 0~79 (1 MHz/CH) BLE: 0~39 (2 MHz/CH)
Data Rates and Throughput	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 + 9.5 dBm for BR and EDR.

Technical specifications – Networking and Communications

Power Consumption	Peak (Tx): 330 mW Peak (Rx): 230 mW Selective Suspend: 17 mW
Bluetooth® Software Supported Link Topology	Bluetooth® Software
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Certifications	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
Power Management Certifications	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
Bluetooth® Profiles Supported	BT4.1-ESR 5/6/7 Compliance LE Link Layer Ping LE Dual Mode LE Link Layer LE Low Duty Cycle Directed Advertising LE L2CAP Connection Oriented Channels Train Nudging & Interlaced Scan BT4.2 ESR08 Compliance LE Secure Connection- Basic/Full LE Privacy 1.2 –Link Layer Privacy LE Privacy 1.2 –Extended Scanner Filter Policies LE Data Packet Length Extension FAX Profile (FAX) Basic Imaging Profile (BIP)2 Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP) BT5.3[5] ESR9/10 Compliance LE Advertisement Extensions Channel Selection Algo Limited High Duty Cycle Non-Connectable Advertising 2Mbps LE LE Long Range

1. Wi-Fi 6E requires a Wi-Fi 6E router, sold separately, to function in the 6GHz band. Availability of public wireless access points limited. Wi-Fi 6E is backwards compatible with prior 802.11 specs. And available in countries where Wi-Fi 6E is supported.
2. Check latest software/driver release for updates on supported security features.
3. The FCC has declared as of September 1, 2014 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.
4. 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).
5. Bluetooth® 5.3 operation requires Chrome OS support. Until Chrome OS support is available, Bluetooth® 5.3 will function as Bluetooth® 5.2 or lower.

QuickSpecs

Technical specifications – Power

POWER

Unit Environment and Operating Conditions

Temperature Range	Operating: 5°C ~35°C Non-Operating: -40°C ~66°C
Relative Humidity	Operating 5% to 90% relative humidity at max inlet temperature Non-Operating 5% to 90% relative humidity at max inlet temperature
Maximum Altitude (unpressurized)	Operating: 5000m Non-operating: 50,000 ft. (15240 m)

External Power Supplies[1]	EM 65W EPS, non-PFC, 88% average efficiency at 115V & 89% at 230Vac Hera 65W EPS,non-PFC, 88% average efficiency at 115V & 89% at 230Vac Ares 90W EPS, active PFC, 88% efficiency in 115Vac / 89% efficiency in 230Vac
80 PLUS Platinum	N/A
Operating Voltage Range	90Vac~264Vac
Rated Voltage Range	100Vac~240Vac
Rated Line Frequency	50HZ~60HZ
Operating Line Frequency	47HZ~63HZ
Rated Input Current with Energy Efficient* **Power Supply**	65W EM≦1.7A HERA 65W≦1.7A ARES 90W≦1.7A
DC Output	+19.5V

1. External power supplies, power cords, cables and peripherals are not low halogen. Service parts obtained after purchase may not be low halogen.

Current Leakage (NFPA 99: 2012)	Less than 500 microamps of leakage current at 264 Vac with the ground wire disconnected, as required for Non-patient Electrical Appliances and Equipment used in a patient care facility or that contact patients in normal use. Per section 10.3.5.1. Less than 100 microamps of leakage current at 264 Vac with the ground wire intact with normal polarity, as required for Non-patient Electrical Appliances and Equipment used in a patient care facility or that contact patients in normal use. Per section 10.3.5.1.
Power Supply Fan	N/A
Power cord length	6.0 ft. (1.83 m)[2,3]
External Power Adapter	External power
Dimensions	65W EM: 102 x 55 x 30mm HERA 65W: 91x51 x 28.5 mm ARES 90W: 126 x 50 x 30 mm
Total Cord Length	6.0 ft. (1.83 m)

2. Power cord length will be varied from different type of cords start from 1.8m.
3. The length of India power cord is 2.0m

Technical specifications – Power

AC Adaptor		**65W EM**
Dimensions		4.016 x 2.165 x 1.181 in (10.2 x 5.5 x 3 cm)
Weight		270 g (+/- 10 g)
Input	**Input Efficiency**	Average Efficiency of 25%, 50%, 75%, 100% load condition with 115 Vac / 230 Vac Spec: 88% at 115 Vac and 89 % at 230 Vac
	Input Frequency Range	47-63 Hz
	Input AC current	Max. 1.7 A at 90 Vac
Output	**Output Power**	65W
	DC Output	19.5V
	Hold-up Time	5 ms at 115 Vac input
	Output Over Current Protection	11A
Leakage Current		Shall not exceed 30uA when tested at 250 Vac/50 Hz in a normal operating condition
AC connector (Ac Inlet)		C6
DC Plug		4.5 mm Barrel Type
Environmental Design	**Operating Temperature**	32ºF to 95ºF (0º to 35ºC)
	Non-operating (storage) Temperature	-4ºF to 185ºF (-20º to 85ºC)
	Altitude	0 to 16,400 ft (0 to 5000 m)
	Humidity	20% to 95%
	Storage Humidity	10% to 95%
EMI and Safety Certifications		*CE Mark - full compliance with LVD and EMC directives * Worldwide safety standards - IEC60950-1 and/or IEC62368-1 2&3 ed, EN60950-1 and/or EN62368-1, UL62368-1 , Class I, SELV; Agency approvals - cULus, CCC, BIS, PSE(J62368), EN55032 Class B, FCC Class B, CISPR32 Class B, CCC, NOM-001 NYCE, EAEU, Australia MTBF - over 100,000 hours at 35°C ambient condition

AC Adaptor		**HERA 65W**
Dimensions		3.543 x 2.008 x 1.122 in (9.0 x 5.1 x 2.85 cm)
Weight		230 g (+/- 10 g)
Input	**Input Efficiency**	Average Efficiency of 25%, 50%, 75%, 100% load condition with 115 Vac / 230 Vac Spec: 88% at 115 Vac and 89 % at 230 Vac
	Input Frequency Range	47-63Hz
	Input AC current	Max. 1.7A at 90 Vac
Output	**Output Power**	65W
	DC Output	19.5V
	Hold-up Time	5 ms at 115 Vac input
	Output Over Current Protection	11A
Leakage Current		Shall not exceed 30uA when tested at 250 Vac/50 Hz in a normal operating condition
AC connector (Ac Inlet)		C6

Technical specifications – Power

DC Plug		4.5 mm Barrel Type
Environmental Design	**Operating Temperature**	32ºF to 95ºF (0º to 35ºC)
	Non-operating (storage) Temperature	–4ºF to 185ºF (–20º to 85ºC)
	Altitude	0 to 16,400 ft (0 to 5000 m)
	Humidity	20% to 95%
	Storage Humidity	10% to 95%
EMI and Safety Certifications		*CE Mark – full compliance with LVD and EMC directives * Worldwide safety standards – IEC60950-1 and/or IEC62368-1 2&3 ed, EN60950-1 and/or EN62368-1, UL62368-1 , Class I, SELV; Agency approvals – cULus, CCC, BIS, PSE(J62368), EN55032 Class B, FCC Class B, CISPR32 Class B, CCC, NOM-001 NYCE, EAEU, Australia MTBF – over 100,000 hours at 35°C ambient condition

AC Adaptor		Ares 90W
Dimensions		5 x 2.008 x 1.181 in (12.7 x 5.1 x 3 cm)
Weight		350 g (+/- 10 g)
Input	**Input Efficiency**	Average Efficiency of 25%, 50%, 75%, 100% load condition with 115 Vac / 230 Vac Spec: 88% at 115 Vac and 89 % at 230 Vac
	Input Frequency Range	47–63Hz
	Input AC current	Max. 1.7A at 90 Vac
Output	**Output Power**	90w
	DC Output	19.5V
	Hold-up Time	5 ms at 115 Vac input
	Output Over Current Protection	11A
Leakage Current		Shall not exceed 30uAwhen tested at 250 Vac/50 Hz in a normal operating condition
AC connector (Ac Inlet)		C6
DC Plug		4.5mm Barrel Type
Environmental Design	**Operating Temperature**	32ºF to 95ºF (0º to 35ºC)
	Non-operating (storage) Temperature	–4ºF to 185ºF (–20º to 85ºC)
	Altitude	0 to 16,400 ft (0 to 5000 m)
	Humidity	20% to 95%
	Storage Humidity	10% to 95%
EMI and Safety Certifications		*CE Mark – full compliance with LVD and EMC directives * Worldwide safety standards – IEC60950-1 and/or IEC62368-1 2&3 ed, EN60950-1 and/or EN62368-1, UL62368-1 , Class I, SELV; Agency approvals – cULus, CCC, BIS, PSE(J62368), EN55032 Class B, FCC Class B, CISPR32 Class B, CCC, NOM-001 NYCE, EAEU, Australia MTBF – over 100,000 hours at 35°C ambient condition

Technical specifications – Power

Wireless Charger General Description

Operating Voltage	12~13V (DC) After QI certificate, this range are optimum voltage.
Nominal Input voltage	12.6V (DC) (The optimum working voltage)
Input Current	Typ. 1.5A (2A max.)
Max Input Power	<24W
Standby Current (No load)	Average current=12.5mA Max. (Q/Ping period= 500ms Avg. Power 150mW Max.)
Over Voltage Protection	15V Max.
Over Current Protection	2.1A± 10%

For active power factor correction the power factor at 50% &100% loads shall be greater than 0.9 over the entire nominal input voltage range (100-127VAC and 200-240VAC). The power supply shall comply with harmonic input current requirements as detailed in EN61000-3-2 and JEIDA MITI standards. The harmonic input current requirements must be met under the following operating conditions:
Load Requirements: 50% and 100%
Input Voltage: 230Vac/50Hz.
For active power factor correction the power factor at 50% &100% loads shall be greater than 0.9 over the entire nominal input voltage range (100-127VAC and 200-240VAC).

Condition	Standard Efficiency	82/85/82%	85/88/85%	87/90/87%	90/92/89%	Input Voltage
10% of Rated Load	-	75%	81%	84%	86%	115Vac/60HZ
20% of Rated Load	-	82%	85%	87%	90%	115Vac/60HZ
50% of Rated Load	-	85%	88%	90%	92%	115Vac/60HZ
	PF>0.9	PF>0.9	PF>0.9	PF>0.9	PF>0.95	
100% of Rated Load	70%	82%	85%	87%	89%	115Vac/60HZ
	PF>0.9	PF>0.9	PF>0.9	PF>0.9	PF>0.9	230Vac/50HZ

QuickSpecs

Technical Specifications – System Unit

SYSTEM UNIT

Temperature	Operating	41°F to 95°F (5°C to 35°C)
	Non-operating	-4°F to 140°F (-20°C to 60°C)
Relative Humidity (noncondensing)	Operating	10% to 90%
	Non-operating	5% to 95%
Altitude (unpressurized)	Operating	-50 ft to 10,000 ft (-15 m to 3,048 m)
	Non-operating	-50 ft to 40,000 ft (-15 m to 12,192 m)
Planned Industry Standard Certifications	UL	Yes
	CSA	No
	FCC Compliance	Yes
	ENERGY STAR 8.0	Yes
	EPEAT®*	Yes
	ICES	Yes
	Australia / NZ A-Tick Compliance	Yes
	CCC	No
	Japan VCCI Compliance	Yes
	KC	Yes
	BSMI	Yes
	CE Marking Compliance	Yes
	BNCI or BELUS	No
	CIT	No
	GOST	No
	Saudi Arabian Compliance (ICCP)	Yes
	SABS	Yes
	UKRSERTCOMPUTER	No
	TCO CERTIFIED, generation 8	Yes

*Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. EPEAT® status varies by country. Visit http://www.epeat.net for more information.

Technical Specifications – Environmental & Industry

ENVIRONMENTAL & INDUSTRY

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®
- US Federal Energy Management Program (FEMP)
- EPEAT◻ Gold registered in the United States. See http://www.epeat.net for registration status in your country.
- TCO Certified
- China Energy Conservation Program (CECP)
- China State Environmental Protection Administration (SEPA)
- Taiwan Green Mark
- Korea Eco-label
- Japan PC Green label*

*Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. EPEAT® status varies by country. Visit http://www.epeat.net for more information.

Sustainable Impact Specifications

- Low halogen
- Outside Box and corrugated cushions are 100% sustainably sourced and recyclable
- Outside Box and corrugated cushions are 100% sustainably sourced and recyclable
- Molded Paper Pulp Cushion inside box is 100% sustainably sourced and recyclable

System Configuration

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

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

	115VAC, 60Hz	230VAC, 50Hz	100VAC, 50Hz
Normal Operation (Short idle)	4.8 W	4.908 W	4.908 W
Normal Operation (Long idle)	3.228 W	3.396 W	3.252 W
Sleep	0.828 W	0.84 W	0.78 W
Off	0.156 W	0.192 W	0.168 W

Energy efficiency data listed is for an ENERGY STAR® certified 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® certified 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. Search keyword generator on HP's 3rd party option store for solar generator accessories at: http://www.hp.com/go/options

Heat Dissipation*

	115VAC, 60Hz	230VAC, 50Hz	100VAC, 50Hz
Normal Operation (Short idle)	16.42 BTU/hr	16.79 BTU/hr	16.79 BTU/hr
Normal Operation (Long idle)	11.04 BTU/hr	11.61 BTU/hr	11.12 BTU/hr
Sleep	2.83 BTU/hr	2. BTU/hr	2.67 BTU/hr
Off	0.53 BTU/hr	0.66 BTU/hr	0.57 BTU/hr

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

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

Sound Power (L$_{WAd}$, bels)	Sound Pressure (L$_{pAm}$, decibels)

Technical Specifications – Environmental & Industry

Typically Configured – Idle	2.7	24
Fixed Disk – Random writes	2.7	24

Longevity and Upgrading

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

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 the1ppm by weight
Cadmium greater than 20ppm by weight

Battery size: ML 1220 (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 http://www.epeat.net
- Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.
- This product contains 10% post-consumer recycled plastic (by wt.)
- This product is 90.2% recycle-able when properly disposed of at end of life.

Packaging Materials

External:	PAPER/Corrugated		249 g
Internal:	PLASTIC/EPS (Expanded Polyethylene)		69 g
	PLASTIC/Polyethylene low density		4 g

The plastic packaging material contains at least 100.0% recycled content.
The corrugated paper packaging materials contains at least 35.6% 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)

Technical Specifications – Environmental & Industry

- 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.

HP Inc. offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

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

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://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf

and

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

COUNTRY OF ORIGIN

China

QuickSpecs

Options and Accessories (sold separately and availability may vary by country)

AFTER MARKET OPTIONS

Type	Description	Part #
Display	HP Z27u G3 QHD USB-C Display	1B9X2AA
	HP Z24u G3 WUXGA USB-C With HDMI With DisplayPort Display	1C4Z6AA
	HP P32u G5 QHD USB-C With HDMI With DisplayPort Monitor[1]	64W51AA
	HP P34hc G4 WQHD USB-C Curved With HDMI With DisplayPort Monitor[1]	21Y56AA
	HP E24u G5 FHD USB-C With HDMI With USB-C With DisplayPort Monitor[1]	6N4D0AA
	HP E27q G5 QHD With HDMI With DisplayPort Monitor	6N6F2AA
	HP P22h G5 FHD With HDMI With VGA With DisplayPort Monitor	64W30AA
	HP P24h G5 FHD With HDMI With VGA With DisplayPort Monitor	64W34AA

1. Power delivery through USB-C port supports Celeron skus only

Input/Output		
Input/Output	HP USB-C to DisplayPort Adapter	N9K78AA
	HP USB-C to HDMI 2.0 Adapter	1WC36AA
	HP USB-C to USB 3.0 Adapter	N2Z63AA
	HP HDMI to VGA Adapter	H4F02AA
	HP USB-C to VGA Adapter	P7Z54AA

Mounts and Stands		
Mounts and Stands	HP B550 PC Mounting Bracket	16U00AA
	HP Quick Release Kit 2	6KD15AA
	HP Desktop Mini Security Dual VESA Sleeve (PC bracket required)	13L67AA

Power Adapters		
Power Adapters	HP 65W Smart AC Adapter (4.5mm)[2]	6H459AA
	HP 65W USB-C LC AC Power Adapter[2]	1P3K6AA
	HP 90W Smart AC Adapter (4.5mm)	G6H43AA

2. 65W adapter supports Celeron only.

Security		
Security	HP Keyed Cable Lock 10mm	T1A62AA

Summary of Changes

Date of change:	Version History:		Description
	V1 to V2		
	V2 to V3		
	V3 to V4		
	V4 to V5		
	V5 to V6		
	V6 to V7		
	V7 to V8		
	V8 to V9		
	V9 to V10		
	V10 to V11		