

Overview

HP mt21 Mobile Thin Client



Left

- | | |
|--|---|
| 1. Microphones (2) | 7. SD card reader |
| 2. Webcam light (select models) | 8. Headphone/microphone combo jack |
| 3. Webcam (select models) | 9. USB 3.1 Gen 1 (power port) |
| 4. Fingerprint reader* (select models) | 10. Power button |
| 5. Clickpad | 11. Security lock slot (Lock sold separately) |
| 6. Storage drive LED | |

*Fingerprint reader is not compatible on HP mt21 Mobile Thin Client models with an HP ThinPro operating system.

Overview



Right

- | | |
|--------------------------|-----------------------------------|
| 1. Power connector | 4. HDMI port (Cable not included) |
| 2. Ethernet port (RJ-45) | 5. USB 3.1 Gen 1 |
| 3. VGA video output | 6. USB Type-C™ port |

Overview

At a Glance

1. Preinstalled with Windows 10 IoT Enterprise or HP ThinPro/Smart Zero Core
2. Intel® Celeron 3867U Processor (1.8GHz dual-core) with Intel® HD graphics
3. Choice of displays
 - 35.56 cm (14") diagonal FHD UWVA anti-glare flat LED backlit non-touch; 220 cd/m2; 45% sRGB (1920 x 1080)[1]
 - 35.56 cm (14") diagonal HD SVA anti-glare LED-backlit non-touch; 220 cd/m2; 45% sRGB (1366 x 768)
4. Full size HP Premium Keyboard with a thin layer of Mylar film to prevent minor spills
5. Large Click pad with support for gestures
6. Optional HD webcam with dual-microphone array for video conferencing [1]
7. Fingerprint Reader* (select models)
8. Intel® Dual Band Wireless-AC 8265 Wi-Fi + BT 4.2 adapter
9. HDMI port for connecting to high-resolution displays
10. Function keys provide control of features including standby mode, display brightness, external display, microphone mute, volume down, volume up, and backlight toggle for backlit keyboard (Select models only.)
11. VGA analog video output
12. HP 3-cell, 48 WHr Li-ion battery
13. Battery life up to 15 hours
14. Passed MIL-STD testing [2]

*Fingerprint reader is not compatible on HP mt21 Mobile Thin Client models with an HP ThinPro operating system.

1. Sold separately or as an optional feature.
2. MIL-STD-810G testing is passed and is conducted on select HP products. Testing is not intended to demonstrate fitness of U.S. Department of Defense (DoD) contract requirements or for military use. Test results are not a guarantee of future performance under these test conditions. Accidental damage requires an optional HP Accidental Damage Protection Care Pack.

NOTE: See important legal disclosures for all listed specs at the end of this document.

Features

OPERATING SYSTEMS

Preinstalled HP ThinPro with Smart Zero Core
Microsoft Windows 10 IoT Enterprise¹

PROCESSOR

Intel® Celeron™ 3867U (1.8GHz dual-core) with Intel® HD graphics^{2,3}

GRAPHICS

Intel® HD Graphics integrated as part of the Celeron processor³

DISPLAY SUPPORT

eDP FHD Flat

35.56 cm (14") diagonal FHD UWVA anti-glare flat LED backlit non-touch, 220 cd/m², 45% sRGB (1920 x 1080)^{3,4,5}

eDP HD Flat

35.56 cm (14") diagonal HD SVA anti-glare LED-backlit non-touch, 220 cd/m², 45% sRGB (1366 x 768)^{3,5}

EXTERNAL DISPLAY SUPPORT

VGA video output port supports resolutions up to 2048 x 1536 external resolution @ 60 Hz⁵

HDMI video output port supports direct connection to high-definition displays with up to 4096 x 2160 @ 24 Hz resolution and 7-channel audio with one cable (cable not included.)⁵

STORAGE AND DRIVES

128GB M.2 SATA TLC SSD⁶

Features

MEMORY

8 GB DDR4-2400 SDRAM (2 x 4 GB)
4 GB DDR4-2400 SDRAM (1 x 4 GB)

Maximum

8 GB DDR4-2400 SDRAM

Memory Slots

2 SODIMM

Both slots are customer accessible / upgradeable
DDR4 PC4 SODIMMS, system runs at 2133⁷
Supports Dual Channel Memory

NETWORKING/COMMUNICATIONS

Wireless LAN (WLAN)

Intel® Dual Band Wireless-AC 8265 802.11a/b/g/n/ac (2x2) WiFi and Bluetooth® 4.2 Combo (non-vPro™)⁸

Wired LAN (Ethernet)

Realtek RTL8111HSH Gigabit Ethernet⁹

AUDIO/MULTIMEDIA

Audio

2 Integrated stereo speakers
Integrated dual array microphone

Webcam

720p HD webcam¹⁰

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

HP Premium Keyboard

HP Premium Keyboard
Backlit keyboard available as an option
Full-sized island-style, minor spill resistant
U.S.A. and International key layouts are available.

Pointing Device

Clickpad with multi-touch gesture support image sensor, taps enabled as default

Gestures enabled by default Win 10 IoT

Features

- 2 Finger Scrolling
- 2 Finger Zoom (Pinch)
- OSD (enable/disable)
- 3 finger flick = App switch
- 4 finger tap = Action Center

Function Keys

- ESC: System Information
- F1: Display Switching
- F2: Blank
- F3: Brightness Down
- F4: Brightness Up
- F5: Speaker Mute
- F6: Volume Down
- F7: Volume Up
- F8: Mic Mute
- F9: Backlight Toggle (for backlit keyboard) or Blank
- F10: NumLock
- F11: Wifi Toggle
- F12: Sleep

Hidden Functions

- Fn+R = Break
- Fn+S = Sys Rq
- Fn+C = Scroll Lock

SOFTWARE AND SECURITY

BIOS

- UEFI adheres to ISO/IEC 19678:2015 BIOS Protection Guidelines
- HP BIOSphere Gen4; features may vary depending on the configuration.
- BIOS update via network
- Master Boot Record Security
- Power On Authentication
- Secure Erase; for methods outlined in the National Institute of Standards and Technology Special Publication 800-88¹¹
- Pre-boot Authentication

Software¹²

- Supported protocols: Microsoft RDP; VMware® Horizon RDP/PCoIP, Blast Extreme; Citrix® ICA/HDX*
- Noise Cancellation Software
- HP Hotkey Filter (via add-on)
- HP Easy Shell
- HP USB Port Manager
- HP Velocity
- HP True Graphics

Features

HP Write Manager

*Protocols are dependent on operating system installed

Manageability

HP BIOS Config Utility (BCU) (via add-on)

HP Device Manager Agent

HP ThinUpdate

Microsoft SCCM Agent

Client Security Software

Microsoft Windows Defender ^{12,13}

Standard Security Features

TPM 2.0

Security lock slot

| Recommended TC config for Microsoft Teams media optimization | | | |
|---|-----------------|----------------------------------|----------------------------------|
| | TC CPU | VMware Teams Optimization | Citrix Teams Optimization |
| t430 | 1.10 GHz 2 Core | - | - |
| t530 | 1.50 GHz 2 Core | - | - |
| t540 | 1.50 GHz 2 Core | - | - |
| t630 | 2.00 GHz 4 Core | ✓ | ✓ |
| t628 | 1.99 GHz 4 Core | - | ✓ |
| t638 | 2.00 GHz 4 Core | ✓ | ✓ |
| t640 | 2.40 GHz 2 Core | ✓ | ✓ |
| t730 | 2.70 GHz 4 Core | ✓ | ✓ |
| t740 | 3.25 GHz 4 Core | ✓ | ✓ |
| mt21 | 1.80 GHz 2 Core | - | ✓ |
| mt22 | 1.90 GHz 2 Core | - | ✓ |
| mt31 | 1.80 GHz 2 Core | - | ✓ |
| mt32 | 2.70 GHz 4 Core | ✓ | ✓ |
| mt45 | 2.10 GHz 4 Core | ✓ | ✓ |
| mt46 | 2.50 GHz 4 Core | ✓ | ✓ |

- Not recommended, ✓ recommended

Features

POWER

Adapters¹⁴

- 45 W Smart AC adapter
- 45 W Smart AC adapter 2-prong (Japan only)
- 65 W Smart AC adapter
- 65W EM Smart AC adapter

Primary Battery

HP 3-cell, Long Life 48 WHr Li-ion¹⁵

Battery life

Up to 15 hours¹⁶

Power Cord

2-wire plug - 1 m (2-prong Japan only)

3-wire plug - 1 m

3-wire plug - 1.8m

WEIGHTS & DIMENSIONS

Weight: starting at 1.63 kg (3.6 lbs)¹⁷

Dimensions (w x d x h):

33.6 x 23.8 x 1.99 cm

13.23 x 9.37 x 0.79 in

PORTS/SLOTS¹⁸

1 USB 3.1 Type-C™

2 USB 3.1 Gen 1 (1 powered port)

1 VGA

1 HDMI 1.4b

1 headphone/microphone combo jack

1 AC power interface

1 RJ-45

Expansion Slots

1 multi-format digital media reader

Supports SD, SDHC, SDXC.

SERVICE AND SUPPORT

Features

HP Services offers a 1-year limited warranty. On-site service varies by country. HP Care Pack Services are optional extended service contracts that go beyond the standard limited warranties. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at <http://www.hp.com/go/cpc>.¹⁹

CERTIFICATION AND COMPLIANCE

ENERGY STAR® certified
EPEAT® Gold²⁰
Low halogen²¹

Technical Specifications

SYSTEM UNIT

| | | |
|--|----------------------------------|--|
| Stand-Alone Power Requirements (AC Power) | Nominal Operating Voltage | 19 V |
| | Integrated graphics | 5.71W |
| | Max Operating Power | UMA < 45W |
| Temperature | Operating | 32° to 95° F (0° to 35° C) |
| | Non-operating | -4° to 140° F (-20° to 60° C) |
| Relative Humidity | Operating | 10% to 90%, non-condensing |
| | Non-operating | 5% to 95%, 101.6° F (38.7° C) maximum wet bulb temperature |
| Shock | Operating | 40 G, 2 ms, half-sine |
| | Non-operating | 200 G, 2 ms, half-sine |
| Random Vibration | Operating | 0.75 grms |
| | Non-operating | 1.50 grms |
| Altitude (unpressurized) | Operating | -50 to 10,000 ft (-15.24 to 3,048 m) |
| | Non-operating | -50 to 40,000 ft (-15.24 to 12,192 m) |
| Planned Industry Standard Certifications | UL | Yes |
| | CSA | Yes |
| | FCC Compliance | Yes |
| | ENERGY STAR 6.0 [®] | Select models ²² |
| | EPEAT | Registered Gold in United States ²³ |
| | ICES | Yes |
| | Australia / NZ A-Tick Compliance | Yes |
| | CCC | Yes |
| | Japan VCCI Compliance | Yes |
| | KC | Yes |
| | BSMI | Yes |
| | CE Marking Compliance | Yes |
| | BNCI or BELUS | Yes |
| | CIT | Yes |
| | GOST | Yes |
| Saudi Arabian Compliance (ICCP) | Yes | |
| SABS | Yes | |
| UKRSERTCOMPUTER | Yes | |

Technical Specifications

DISPLAYS

| | | |
|---|-----------------------------------|-------------------|
| 35.56 cm (14") diagonal FHD UWVA anti-glare flat LED backlit non-touch; 220 cd/m²; 45% sRGB (1920 x 1080) | Outline Dimensions (W x H) | 320.9x205.6 (max) |
| | Active Area | 309.31 x 173.99 |
| | Weight | 290 max. |
| | Diagonal Size | 14 (inch) |
| | Thickness | 3.0mm max |
| | Interface | eDP 1.2 |
| | LCD Mode | TN |
| | PPI | |
| | Surface Treatment | Anti-Glare (AG) |
| | Touch Enabled | None |
| | Contrast Ratio | 600:1 (typ) - AG |
| | Refresh Rate | 60Hz |
| | Brightness | 220 nits |
| | Pixel Resolution | 1920 x 1080 (FHD) |
| | Format | RGB |
| | Backlight | LED |
| | Color Gamut Coverage | 45% |
| Color Depth | 6 bits + Hi FRC | |
| Viewing Angle | UWVA 85/85/85/85 | |

| | | |
|---|-----------------------------------|------------------------|
| 35.56 cm (14") diagonal HD SVA anti-glare LED-backlit non-touch; 220 cd/m²; 45% sRGB (1366 x 768) | Outline Dimensions (W x H) | 320.9 x 205.6 (mm) max |
| | Active Area | 309.40 x 173.95 (mm) |
| | Weight | 290 g max |
| | Diagonal Size | 14 (inch) |
| | Thickness | 3.0 (mm) max |
| | Interface | eDP 1.2 |
| | LCD Mode | TN |
| | PPI | |
| | Surface Treatment | Anti-Glare (AG) |
| | Touch Enabled | None |
| | Contrast Ratio | 300:1 (typical) |
| | Refresh Rate | 60 Hz |
| | Brightness | 220 nits |
| | Pixel Resolution | 1366 x 768 (HD) |
| | Format | RGB |
| | Backlight | LED |
| | Color Gamut Coverage | 45% |
| Color Depth | 6 bits + Hi FRC | |

Technical Specifications

| | |
|----------------------|-----------------|
| Viewing Angle | SVA 40/40/15/30 |
|----------------------|-----------------|

AUDIO/MULTIMEDIA

| | | |
|-----------------------------------|-------------------------------------|------------------------------------|
| Hardware | Implementation | Conexant CX7700 |
| | 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 |
| Audio Output Quality | Frequency Response | 20Hz – 20kHz |
| | Signal to Noise Ratio | 106 dB (DAC), 102dB (ADC) |
| | Total Harmonic Distortion | 91dB THD+n on Line Out/HP (0.003%) |
| | Play Sampling Rate(s) | Up to 192kHz |
| | Record Sampling Rate(s) | Up to 96Khz |
| | DAC | 16, 20 or 24-bit |
| | ADC | 16, 20 or 24-bit |
| Integrated Stereo Speakers | Power Rating | 2 Watts |
| | Impedance | 4 Ohms |

NETWORKING/COMMUNICATIONS**WLAN**

| | | |
|--|-------------------------------|---|
| Intel 802.11 a/b/g/n/AC (2x2) WiFi and Bluetooth® Combo | Wireless LAN Standards | IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac |
| | Interoperability | Wi-Fi certified |
| | Frequency Band | 802.11b/g/n <ul style="list-style-type: none"> • 2.402 – 2.482 GHz 802.11a/n <ul style="list-style-type: none"> • 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 |
| | Data Rates | <ul style="list-style-type: none"> • 802.11b: 1, 2, 5.5, 11 Mbps • 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps |

Technical Specifications

| | |
|--|---|
| | <ul style="list-style-type: none"> • 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz) • 802.11ac : MCS0 ~ MCS7, (1SS) (20MHz, 40MHz, and 80MHz) |
| Modulation | Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM |
| Security²⁴ | <ul style="list-style-type: none"> • IEEE and WiFi 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 • IEEE 802.11i • Cisco Certified Extensions, all versions through CCX4 and CCX Lite • WAPI |
| Network Architecture Models | Ad-hoc (Peer to Peer) Infrastructure (Access Point Required) |
| Roaming | IEEE 802.11 compliant roaming between access points |
| Output Power²⁵ | <ul style="list-style-type: none"> • 802.11b : +16dBm minimum • 802.11g : +14dBm minimum • 802.11a : +14dBm minimum • 802.11n HT20(2.4GHz) : +14dBm minimum • 802.11n HT40(2.4GHz) : +12dBm minimum • 802.11n HT20(5GHz) : +14dBm minimum • 802.11n HT40(5GHz) : +12dBm minimum • 802.11ac 80MHz(5GHz) : +11dBm minimum |
| Power Consumption | 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 |
| Power Management | ACPI and PCI Express compliant power management 802.11 compliant power saving mode |
| Receiver Sensitivity²⁶ | 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 : -84dBm maximum 802.11ac, MCS9 : -59dBm maximum |
| 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 M.2 MiniCard |
| Dimensions | Type 2230 : 2.3 x 22.0 x 30.0 mm |
| Weight | Type 2230 : 2.8g |

Technical Specifications

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|--------------------------|---|--------------------------------|
| 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 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).

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

| | |
|-------------------------------------|--|
| Bluetooth Specification | 4.0/4.1/4.2 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 + 4 dBm for BR and EDR. |
| Power Consumption | Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW |
| Electrical Interface | USB 2.0 compliant |
| Bluetooth Software Supported | Microsoft Windows Bluetooth Software |
| Link Topology | |
| Power Management | Microsoft Windows ACPI, and USB Bus Support |
| Certifications | FCC (47 CFR) Part 15C, Section 15.247 & 15.249 |
| Power Management | ETS 300 328, ETS 300 826 |
| Certifications | 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 |

Technical Specifications

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)

ETHERNET

Realtek Gigabit Ethernet Adapter

Features

10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14)
 100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30)
 1000 Mbit/s operation (1000BASE-T; IEEE 802.3ab; IEEE 8023 clauses 40)
 Auto-Negotiation (Automatic Speed Selection)
 Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s
 IEEE 802.1p QoS (Quality of Service) Support
 IEEE 802.1q VLAN support
 IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable)
 IEEE 802.3az EEE (Energy Efficient Ethernet)
 Jumbo Frame 9K
 Auto MDI/MDIX Crossover cable detection

Power Management

ACPI compliant - multiple power modes
 Situation-sensitive features reduce power consumption
 Advanced link down power saving for reducing link down power consumption

Performance

TCP/IP/UDP Checksum Offload (configurable)
 Protocol Offload (ARP & NS)
 Large send offload and Giant send offload
 Receiving Side Scaling

Manageability

Wake-on-LAN from standby and hibernation (Magic Packet and Microsoft Wake-Up Frame); Wake-on-LAN from off (Magic Packet only)
 PXE 2.1 Remote Boot
 Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30))
 Comprehensive diagnostic and configuration software suite
 Virtual Cable Doctor for Ethernet cable status

Interface

PCI Express 1.1 to fully support ASPM L0s/L1 and CLKREQ

NIC Device Driver Name

Realtek PCIe GbE Ethernet Family Controller

STORAGE AND DRIVES

SSD 128GB 2280 M2 SATA-3 Value

Form-Factor (I/O)

M.2 2280

Capacity

128 GB

Technical Specifications

| | |
|--------------------------------------|--|
| NAND Type | TLC |
| Weight | 0.02 lb (10 g) |
| Height | 0.09 in (2.3 mm) |
| Width | 0.87 in (22 mm) |
| Interface | ATA-8, SATA 3.0 |
| Sequential Read (Up to MB/s) | Up to 520 MB/s |
| Sequential Write (Up to MB/s) | Up to 450 MB/s |
| Logical Blocks | 250,069,680 |
| Operating Temperature | 32° to 158°F (0° to 70°C) [ambient temp] |
| Other Features | DIPM; TRIM; DEVSLP |

POWER

| | | | |
|--------------------------------------|---|---|--------------------------------------|
| HP 45W Smart AC Adapter | Dimensions (H x W x D) | 3.74 x 1.57 x 1.04 in (9.5 x 4.0 x 2.65 cm) | |
| | Weight | 0.386 lb (175g) max | |
| | Input | | 90 to 265 VAC |
| | | Input Efficiency | 87.74% at 115Vac and 88.4% at 230Vac |
| | Output | Input frequency range | 47 to 63 Hz |
| | | Input AC current | 1.4 A at 90 VAC |
| | | Output power | 45W |
| | | DC output | 19.5V |
| | | Hold-up time | 5 msec at 115 VAC input |
| | | Output current limit | <8.0A |
| | Connector | 4.5mm Barrel Type, 3 pin/grounded, mates with interchangeable cords | |
| | Environmental Design | Operating temperature | 32° to 95° F (0° to 35° C) |
| | | Non-operating (storage) temperature | -4° to 185° F (-20° to 85° C) |
| Altitude | | 0 to 16,400 ft (0 to 5,000 m) | |
| Humidity | | 20% to 95% | |
| Storage Humidity | | 10% to 95% | |
| EMI and Safety Certifications | <p>*CE Mark - full compliance with LVD and EMC directives</p> <p>* 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.</p> <p>* MTBF - over 200,000 hours at 25°C ambient condition.</p> | | |

| | | |
|--------------------------|-------------------|--|
| HP 65W AC Adapter | Dimensions | 4.25 x 1.85 x 1.47 in (10.8 x 4.7 x 3.74 cm) |
| | Weight | 1.81 lb (250g) max |
| | Input | 100 to 240 VAC |

Technical Specifications

| | | |
|--------------------------------------|---|---|
| | Input Efficiency | 88% min at 115 VAC and 89% min at 230 VAC |
| | Input frequency range | 47 to 63 Hz |
| | Input AC current | 1.7 A at 90 VAC |
| Output | Output power | 65W |
| | DC output | 19.5V |
| | Hold-up time | 5 msec at 115 VAC input |
| | Output current limit | <11A, Over voltage protection- 29V max automatic shutdown |
| Connector | 4.5mm Barrel Type, 3 pin/grounded, mates with interchangeable cords | |
| Environmental Design | Operating temperature | 32° to 104° F (0° to 40° C) |
| | Non-operating (storage) temperature | -4° to 149° F (-20° to 65° C) |
| | Altitude | 0 to 10,000 ft (0 to 3,048 m) |
| | Humidity | 20% to 80% |
| | Storage Humidity | 10% to 90% |
| EMI and Safety Certifications | <p>*CE Mark - full compliance with LVD and EMC directives</p> <p>* 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.</p> <p>* MTBF - over 200,000 hours at 25°C ambient condition.</p> | |

| | | | |
|---|--|---|-------------------------------|
| HP 3-cell, Long Life 48 WHr Li-ion | Dimensions (H x W x L) | 7.0. x180.48x88.95 mm (0.273 x 7.09 x 3.49 inch) | |
| | Weight | 0.22 kg (0.48lb) | |
| | Cells/Type | 3cell Lithium-Ion | |
| | Energy | Voltage | 11.4V/ 10.95V |
| | | Amp-hour capacity | 4.212Ah /4.385Ah |
| | | Watt-hour capacity | 48Wh |
| | Temperature | Operating (Charging) | 32° to 113° F (0° to 45° C) |
| | | Operating (Discharging) | 14° to 122° F (-10° to 60° C) |
| | | Non-operating | -4° to 122° F (-20° to 60° C) |
| | Battery Re-Charge Time | System in OFF or Standby Mode | <3 hours |
| | Fuel Gauge LED | No | |
| | Warranty | 3-years | |
| | Optional Travel Battery Available | No | |

Technical Specifications

ENVIRONMENTAL DATA

| | | | |
|----------------------------|------------------|-------------------------------------|---------|
| Packaging Materials | External: | PAPER/Corrugated | 340.5 g |
| | Internal: | PLASTIC/EPE (Expanded Polyethylene) | 40.4 g |
| | | PLASTIC/Polyethylene low density | 9.1 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.

Technical Specifications

End-of-life Management and Recycling

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 HP Inc. 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

DISCLAIMERS

1. Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. ISP fees may apply and additional requirements may apply over time for updates. See <http://www.microsoft.com>.
2. Processor speed denotes maximum performance mode; processors will run at lower speeds in battery optimization mode. Multiple cores improve performance of certain software products. Not all users 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.
3. HD content required to view HD images
4. Optional equipment.
5. Resolutions are dependent upon monitor capability, and resolution and color depth settings.
6. For flash memory drives, GB = 1 billion bytes. Actual formatted capacity is less.
7. Due to the non-industry standard nature of some third-party memory modules, we recommend HP branded memory to ensure compatibility. If memory speeds are mixed, the system will perform at the lower memory speed.
8. 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.

Technical Specifications

9. The term "Gigabit Ethernet" indicates compatibility with IEEE standard 802.3ab for Gigabit Ethernet, and does not connote actual operating speed of 1 Gb/s. For high-speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required.
10. Webcam included on select models; HD content required to view HD images; Internet access required.
11. Secure Erase for the methods outlined in the National Institute of Standards and Technology Special Publication 800-88. Supported on Elite platforms with BIOS version F.03 or higher.
12. Only available with Windows 10 IoT Enterprise OS
13. Microsoft Defender Opt in and internet connection required for updates
14. Availability may vary by country.
15. Battery is internal and not replaceable by customer. Serviceable by warranty.
16. Windows 10 MM14 battery life will vary depending on various factors including product model, configuration, loaded applications, features, use, wireless functionality, and power management settings. The maximum capacity of the battery will naturally decrease with time and usage. See www.bapco.com for additional details.
17. Weight will vary by configuration
18. All cables are not included and sold separately
19. 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. 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. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at: <http://www.hp.com/go/cpc>.
20. EPEAT® registered where applicable. EPEAT registration varies by country. See <http://www.epeat.net> for registration status by country. Search keyword generator on HP's 3rd party option store for solar generator accessories at <http://www.hp.com/go/options>.
21. External power supplies, power cords, cables and peripherals are not Low Halogen. Service parts obtained after purchase may not be Low Halogen.
22. ENERGY STAR® qualified configurations are identified on HP websites and on <http://www.energystar.gov>.
23. EPEAT® registration varies by country. See <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>.
24. Check latest software/driver release for updates on supported security features.
25. Maximum output power may vary by country according to local regulations.
26. 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).

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

| Type | Description | Part Number |
|-----------------------|-------------------------------------|-------------|
| Cases | HP Essential Top Load Case | H2W17AA |
| | HP Essential Backpack | H1D24AA |
| | HP Essential Messenger Case | H1D25AA |
| Docking* | HP 3005pr USB3 Port Replicator | Y4H06AA |
| | HP USB-C Travel Dock | T0K29AA |
| | HP Elite USB-C Docking Station | X7W54AA |
| | HP Elite USB-C Dock | Z9R42AA |
| | HP Elite USB-C Dock G3 | 2DW60AA |
| Input/Output | HP Slim USB Keyboard and Mouse | T6T83AA |
| | HP Slim Wireless Keyboard and Mouse | T6L04AA |
| | HP Ultra Mobile Wireless Mouse | H6F25AA |
| | HP Comfort Grip Wireless Mouse | H2L63AA |
| | HP 3-Button USB Laser Mouse | H4B81AA |
| | HP USB Travel Mouse | G1K28AA |
| | HP HDMI to DVI Adapter | F5A28AA |
| | HP USB-C to DP | N9K78AA |
| | HP USB-C to USB-A Hub | Z6A00AA |
| | HP Stereo 3.5mm Headset | T1A66AA |
| HP Stereo USB Headset | T1A67AA | |
| Power | HP 45W Smart AC Adapter 4.5mm | H6Y88AA |
| | HP 65W Smart AC Adapter | H6Y89AA |
| | HP 65W Slim AC Adapter | H6Y82AA |
| | HP 45W USB-C Power Adapter | 1HE07AA |
| | HP 65W USB-C Power Adapter | 1HE08AA |
| | HP Power Bank | N9F71AA |
| | HP USB-C Notebook Power Bank | 1TZ86AA |
| | HP Notebook Power Bank | N9F71AA |
| Storage | HP External USB Optical Drive | F2B56AA |
| Security | HP Essential Combination Lock | T0Y16AA |
| | HP Combination Lock | T0Y15AA |
| | HP Keyed Cable lock | T0Y14AA |
| | HP Keyed Cable Lock 10mm | T1A62AA |
| UCC | HP Conferencing Keyboard | K8P74AA |

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

| | |
|-----------------------------|---------|
| HP UC Wireless Mono Headset | W3K08AA |
| HP UC Wireless Duo Headset | W3K09AA |
| HP UC Speaker Phone | K7V16AA |
| HP UC Wired Headset | K7V17AA |

Displays

| | |
|---|---------|
| HP EliteDisplay S140u USB Portable Monitor | G8R65AA |
| HP ProDisplay P240VA 23.8-inch Monitor | N3H14AA |
| HP ProDisplay P232 23-inch Monitor | K7X31AA |
| HP ProDisplay P223 21.5-inch Monitor | X7R61AA |
| HP EliteDisplay E230t 23-inch Touch Monitor | W2Z50AA |
| HP EliteDisplay E240c 23.8-inch Collaboration Monitor | M1P00A8 |

* ThinPro is not supported

| Date of change: | Version History: | | Description of change: |
|------------------------|-------------------------|---------|---|
| September 18, 2017 | From v1 to v2 | Changed | BIOSphere fixed to G4 from G3 and Overview point number 14 and footnote #2 status switched from "pending" to "passed" |
| October 2, 2017 | From v2 to v3 | Added | HP Write Manager added to software section |
| August 20, 2018 | From v3 to v4 | Changed | Software support for VMware Horizon |
| April 30, 2019 | From v4 to v5 | Added | Footnote for Fingerprint reader |
| | | Changed | Intel Celeron 3865U to Intel Celeron 3867U |
| January 14, 2021 | From v5 to v6 | Changed | SOFTWARE AND SECURITY section |

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