

Overview

HP ProBook 455 G5 Notebook PC



Right

- | | |
|-----------------------|--|
| 1. Microphones (2) | 7. SD Card reader |
| 2. Webcam | 8. Headphone/Microphone combo jack |
| 3. Webcam light | 9. USB 2.0 (power port) |
| 4. Fingerprint reader | 10. Power button |
| 5. Clickpad | 11. Security lock slot (Lock sold separately.) |
| 6. Hard drive LED | |

Overview



Left

1. Power connector
2. Ethernet port (RJ-R45)
3. External VGA monitor port
4. HDMI port (Cable not included.)
5. USB 3.1 Gen 1 (2)
6. USB Type-C™ port

Overview

AT A GLANCE

- Preinstalled with Windows 10 versions or FreeDOS 2.0
- Choice of 7th Generation AMD A10 or A9 APU with Radeon™ R5 Graphics
- 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.)
- Large Clickpad with gestures support
- Enhanced security features with preinstalled software and hardware options
- Optional HD webcam with dual-microphone array for video conferencing¹
- HDMI port for connecting to high-resolution displays
- Choice of displays 39.6 cm (15.6") diagonal FHD IPS anti-glare flat LED backlit non-touch; 220 cd/m²; 45% sRGB (1920 x 1080)
eDP HD Slim or 39.6 cm (15.6") diagonal HD SVA anti-glare LED-backlit non-touch; 220 cd/m²; 45% sRGB (1366 x 768)
- Flexible wireless connectivity options
- Battery life up to 9 hours and 45 minutes (SSD); up to 8 hours and 30 minutes (HDD)²
- HP 3-cell, 48 WHr Li-ion battery
- Passed MIL-STD testing³
- Full size HP Premium Keyboard with numeric keypad, spill-resistant keyboard with a thin layer of mylar film to prevent minor spills

1. Sold separately or as an optional feature.

2. 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 <http://www.bapco.com> for additional details.

3. MIL-STD-810G 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 in their respective features sections.

Features

PRODUCT NAME

HP ProBook 455 G5 Notebook PC

OPERATING SYSTEM

Preinstalled

Windows 10 Pro 64⁴
Windows 10 Pro (National Academic only)^{4,5}
Windows 10 Home 64⁴
Windows 10 Home Single Language 64⁴
Windows 10 Home 64 (National Academic only)⁴
FreeDOS 2.0

4. Sold separately or as an optional feature.

5. Note: Some devices for academic use will automatically be updated to Windows 10 Pro Education with the Windows 10 Anniversary Update. Features vary; see <https://aka.ms/ProEducation> for Windows 10 Pro Education feature information.

PROCESSORS

AMD A10-9620P APU with Radeon™ R5 Graphics (2.5 GHz base frequency, up to 3.4 GHz burst frequency, 2 MB cache, 4 cores)^{6,7}
AMD A9-9420 APU with Radeon™ R5 Graphics (3 GHz base frequency, up to 3.6 GHz burst frequency, 1 MB cache, 2 cores)^{6,7}

Processor Family

7th Generation AMD A10 APU processor (9620P model)⁸

7th Generation AMD A9 APU processor (9420 model)⁸

6. 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. AMD's numbering is not a measurement of clock speed.

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

8. NOTE: In accordance with Microsoft's support policy, HP does not support the Windows 8 or Windows 7 operating system on products configured with Intel® and AMD 7th generation and forward processors or provide any Windows 8 or Windows 7 drivers on <http://www.support.hp.com>.

CHIPSET

Integrated with processor

GRAPHICS

Integrated

AMD Radeon™ R5⁹

Supports

Supports HD decode, DX12, HDMI 1.4b

9. HD content required to view HD images.

Features

DISPLAY

eDP FHD Slim

39.6 cm (15.6") diagonal FHD IPS anti-glare flat LED backlit non-touch; 220 cd/m²; 45% sRGB (1920 x 1080)^{10,11}

eDP HD Slim

39.6 cm (15.6") diagonal HD SVA anti-glare LED-backlit non-touch; 220 cd/m²; 45% sRGB (1366 x 768)^{10,11}
Up to 32-bit per pixel color depth

Display Size

15.6"

39.6 cm (15.6")

10. HD content required to view HD images.

11. Resolutions are dependent upon monitor capability, and resolution and color depth settings.

STORAGE AND DRIVES

Primary Storage

500 GB SATA (7200 rpm)¹²

1 TB SATA (5400 rpm)¹²

Primary M.2 Storage

128 GB M.2 SATA TLC SSD¹²

256 GB M.2 PCIe NVMe Value SSD¹²

12. For hard drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 10) of system disk is reserved for the system recovery software.

MEMORY

Maximum Memory

16 GB DDR4-2400 SDRAM¹³

Memory

16 GB DDR4-2400 SDRAM (1 x 16 GB)¹³

16 GB DDR4-2400 SDRAM (2 x 8 GB)¹³

12 GB DDR4-2400 SDRAM (4 and 8 GB)¹³

8 GB DDR4-2400 SDRAM (1 x 8 GB)¹³

8 GB DDR4-2400 SDRAM (2 x 4 GB)¹³

4 GB DDR4-2400 SDRAM (1 x 4 GB)¹³

Memory Slots

2 SODIMM

Both slots are customer accessible / upgradeable

DDR4 PC4 SODIMMS (Transfer rates up to 1866 MT/s)

13. Due to the non-industry standard nature of some third-party memory modules, we recommend HP branded memory to ensure compatibility. If you mix memory speeds, the system will perform at the lower memory speed.

Features

NETWORKING/COMMUNICATIONS

WLAN

Realtek 802.11ac (2x2) Wi-Fi® and Bluetooth® 4.2 Combo¹⁴

Realtek 802.11ac (1x1) Wi-Fi® and Bluetooth® 4.2 Combo¹⁴

Ethernet

Realtek RTL8111HSH Gigabit Ethernet

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

AUDIO/MULTIMEDIA

Audio

2 Integrated stereo speakers

Integrated dual array microphone

Webcam

HD webcam ^{15,16}

15. HD content required to view HD images.

16. Internet access required.

Features

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard

HP Premium Keyboard
Backlit keyboard available as an option
Full-sized island-style, spill resistant with numeric keypad

Pointing Device

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

Gestures

Enabled by default Win 10

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

Disabled by default Win 10

3 Finger Flick
2 Finger Rotate
Momentum Motion
1 Finger Vertical Scroll

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 - Blank
F11 - Wifi Toggle
F12 - Sleep

Hidden Functions

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

Features

SOFTWARE AND SECURITY

Preinstalled Software

BIOS

HP BIOSphere Gen4¹⁷
HP Drive Lock & Automatic Drive Lock
BIOS Update via Network
Master Boot Record Security
Power-on authentication
Secure Erase¹⁸
Absolute Persistence Module¹⁹
Pre-boot Authentication
HP Wireless Wakeup

Software

HP Native Miracast Support²⁰
HP LAN-Wireless Protection
HP 3D DriveGuard
HP ePrint + JetAdvantage²¹
HP Hotkey Support - CMIT
HP Recovery Manager
HP Jumpstart
HP Support Assistant²²
HP Noise Cancellation Software
Buy Office

Manageability Features

HP Driver Packs²³
HP System Software Manager (SSM)
HP BIOS Config Utility (BCU)
HP Client Catalog
HP Manageability Integration Kit Gen2²⁴

Client Security Software

HP Client Security Suite Gen4²⁵ including:
HP Security Manager (including Credential Manager, HP Password Manager, HP Spare Key)²⁶
Power On Authentication
HP Fingerprint Sensor
HP Device Access Manager
HP Power On Authentication
Microsoft Defender²⁷

Features

Security Management

HP BIOSphere Gen4¹⁷

HP DriveLock & Automatic DriveLock

BIOS Update via Network

Secure Erase¹⁸

Pre-boot Authentication

TPM 2.0 Embedded Security Chip shipped with Windows 10 (Common Criteria EAL4+ Certified)

SATA 0,1 port disablement (viaBIOS)

Serial, USB enable/disable (viaBIOS)

Power-on password (viaBIOS)

Setup password (viaBIOS)

Support for chassis padlocks and cable lock devices

Integrated hood sensor

17. HP BIOSphere Gen4 requires Intel® 7th generation processors.

18. 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.

19. Absolute agent is shipped turned off, and will be activated when customers activate a purchased subscription. Subscriptions can be purchased for terms ranging multiple years. Service is limited, check with Absolute for availability outside the U.S. The Absolute Recovery Guarantee is a limited warranty. Certain conditions apply. For full details visit: <http://www.absolute.com/company/legal/agreements/computrace-agreement>. Data Delete is an optional service provided by Absolute Software. If utilized, the Recovery Guarantee is null and void. In order to use the Data Delete service, customers must first sign a Pre-Authorization Agreement and either obtain a PIN or purchase one or more RSA SecurID tokens from Absolute Software.

20. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming media players that also support Miracast. You can use Miracast to share what you're doing on your PC and present a slide show. For more information: <http://windows.microsoft.com/en-us/windows-8/project-wireless-screen-miracast>.

21. HP ePrint Drive requires an Internet connection to HP web-enabled printer and HP ePrint account registration (for a list of eligible printers, supported documents and image types and other HP ePrint details, see <http://www.hp.com/go/eprintcenter>). Print times and connection speeds may vary.

22. HP Support Assistant requires Windows and Internet Access.

23. HP Driver Packs is not preinstalled, however available for download at <http://www.hp.com/go/clientmanagement>.

24. HP Manageability Integration Kit Gen2: HP Manageability Integration Kit can be downloaded from <http://www8.hp.com/us/en/ads/clientmanagement/overview.html>

25. HP Client Security Suite Gen4: Requires Windows

26. HP Password Manager requires Internet Explorer or Chrome or FireFox. Some websites and applications may not be supported. User may need to enable or allow the add-on / extension in the internet browser.

27. Microsoft Defender Opt in and internet connection required for updates.

Features

POWER

Power Supply

45 W HP Smart AC adapter²⁸

45 W HP Smart AC adapter 2-prong (Japan only)²⁸

65 W HP Smart AC adapter²⁸

65 W EM Smart AC adapter²⁸

Primary Battery

3-cell, 48 Wh Long Life Li-ion²⁹

Power Cord

2-wire plug - 1 m (2-prong Japan only)²⁹

3-wire plug - 1 m²⁹

3-wire plug - 1.8 m²⁹

Battery Life

Up to 9 hours and 45 minutes³⁰

28. Availability may vary by country.

29. Battery is internal and not replaceable by customer. Serviceable by warranty. Fast charging 90% in 90 minutes

30. 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 <http://www.bapco.com> for additional details.

WEIGHTS & DIMENSIONS

Weight

Starting at 4.64 lb³¹

Starting at 2.02 kg³¹

Dimensions (w x d x h)

14.8 x 10.4 x 0.82 in

37.6 x 26.3 x 2.09 cm

31. Weight will vary by configuration.

Features

PORTS/SLOTS

Ports

- 1 USB 3.1 Type-C™ Gen 1 (Power Delivery, DisplayPort™)
- 2 USB 3.0
- 1 USB 2.0(power port)
- 1 HDMI 1.4b³²
- 1 VGA
- 1 RJ-45
- 1 AC power
- 1 headphone/microphone combo jack

Expansion Slots

- 1 multi-format digital media reader
- Supports SD, SDHC, SDXC
- 32. HDMI cable sold separately.

ENVIRONMENTAL & INDUSTRY

Environmental Data	Eco-Label Certifications & declarations	<p>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:</p> <ul style="list-style-type: none"> • IT ECO declaration • US ENERGY STAR® • EPEAT[®] Gold registered in the United States. See http://www.epeat.net for registration status in your country. Search keyword <i>generator</i> on HP's 3rd party option store for solar energy accessory at http://www.hp.com/go/options 		
	System Configuration Energy Consumption (in accordance with US ENERGY STAR® test method)	<p>The configuration used for the Energy Consumption and Declared Noise Emissions data for the Notebook model is based on a "Typically Configured Notebook".</p>		
		115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
	Normal Operation (Short idle)	7.27 W	7.35 W	7.32 W
	Normal Operation (Long idle)	4.88 W	4.96 W	4.87 W
	Off	0.42 W	0.44 w	0.42 W
		<p>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</p>		

Features

	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
Normal Operation (Short idle)	25 BTU/hr	25 BTU/hr	25 BTU/hr
Normal Operation (Long idle)	17 BTU/hr	17 BTU/hr	17 BTU/hr
Sleep	2 BTU/hr	2 BTU/hr	2 BTU/hr
Off	1 BTU/hr	2 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 Noise Emissions (in accordance with ISO 7779 and ISO 9296)	Sound Power (L _{WAd} , bels)	Sound Pressure (L _{pAm} , decibels)	
Typically Configured – Idle	2.7	18	
Fixed Disk – Random writes	3	25	
Longevity and Upgrading	<p>"This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include:</p> <p>Spare parts are available throughout the warranty period and or for up to "5" years after the end of production.</p>		
Batteries	<p>"This battery(s) in this product comply with EU Directive 2006/66/EC</p> <p>Batteries used in the product do not contain: Mercury greater the 1ppm by weight Cadmium greater than 20ppm by weight</p> <p>Battery size: CR2032 (coin cell) Battery type: Lithium</p> <p>Battery size: CR2032 (coin cell) Battery type: Lithium"</p>		

Features

	Additional Information	<ul style="list-style-type: none"> • "• This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC. • • This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC. • • This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986). • • This product is in compliance with the IEEE 1680 (EPEAT) standard at the Gold level, see www.epeat.net • • 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 94.4% recycle-able when properly disposed of at end of life." 		
	Packaging Materials	External:	PAPER/Corrugated	359 g
		Internal:	PLASTIC/EPE (Expanded Polyethylene)	10 g
			PLASTIC/Polyethylene low density	82 g
		The plastic packaging material contains at least 50% recycled content.		
		The corrugated paper packaging materials contains at least 75% recycled content.		
	Material Usage	<p>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):</p> <ul style="list-style-type: none"> • 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, has been voluntarily removed from most applications. • Radioactive Substances • Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO) 		

Features

	Packaging Usage	<p>HP follows these guidelines to decrease the environmental impact of product packaging:</p> <ul style="list-style-type: none"> • 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	<p>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.</p> <p>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.</p>
	HP, Inc. Corporate Environmental Information	<p>For more information about HP's commitment to the environment:</p> <p>Global Citizenship Report http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html</p> <p>Eco-label certifications http://www8.hp.com/us/en/hp-information/environment/ecolabels.html</p> <p>ISO 14001 certificates: http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842 http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf</p>

Features

SERVICE AND SUPPORT

3 year and 1 year limited warranties and 90-day software limited warranty options depending on country. Batteries have a default one year limited warranty. On-site service and extended coverage is also available. 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>.³³

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

Technical Specifications

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)	Nominal Operating Voltage	19V
	Average Operating Power	Win 10
	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 7.0®	Select models ³⁴
	EPEAT®	Registered Gold in United States ³⁵
	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

34. 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>.

35. Configurations of the HP ProBook 455 G4 is ENERGY STAR® qualified are identified as HP ProBook 455 G4 ENERGY STAR on HP websites and on <http://www.energystar.gov>.

Technical Specifications

DISPLAYS

15.6" diagonal FHD UWVA anti-glare eDP slim LED backlit non-touch; 220 nits; 45% sRGB (1920 x 1080)

Outline Dimensions (W x H)	360.0 x 224.3mm max
Active Area	344.16 x 193.59
Weight	360g max.
Diagonal Size	15.6 (inch)
Thickness	3.2mm max
Interface	eDP 1.2
LCD Mode	IPS
PPI	
Surface Treatment	Anti-Glare (AG)
Touch Enabled	None
Contrast Ratio	600:1 (typical)
Refresh Rate	60Hz
Brightness	220 nits
Pixel Resolution	1920 x 1080 (FHD)
Format	RGB
Backlight	LED
Color Gamut Coverage	45%
Color Depth	6 bits + FRC
Viewing Angle	UWVA 85/85/85/85

15.6" diagonal HD SVA anti-glare eDP slim LED-backlit non-touch; 220 nits; 45% sRGB (1366 x 768)

Outline Dimensions (W x H)	360 x 224.3 (mm) max
Active Area	344.2 x 193.5 (mm)
Weight	370 g max
Diagonal Size	15.6 (inch)
Thickness	3.2 (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

Technical Specifications

Brightness	220 nits
Pixel Resolution	1366 x 768 (HD)
Format	RGB
Backlight	LED
Color Gamut Coverage	45%
Color Depth	6 bits + Hi FRC
Viewing Angle	SVA 45/45/25/35

STORAGE

500 GB 7200 rpm SATA Hard Drive

Drive Weight	0.21 lbs (94 g)
Rotation Speed	5400 rpm
Cache Buffer	Up to 32 MB
Height	0.28 in (7.2 mm)
Width	2.75 in (69.85 mm)
Interface	ATA-8, SATA 3.0
Transfer Rate	600 MB/s
Seek Time	Single Track 2 ms Average 13 ms Maximum 18 ~ 22 ms
Logical Blocks	1,953,525,168
Operating Temperature	32° to 140° F (0° to 60° C) [top cover temp]
Security Features	ATA Security
Features	S.M.A.R.T., NCQ, Ultra DMA

1 TB 5400 rpm SATA Hard Drive

Drive Weight	0.21 lbs (94 g)
Rotation Speed	5400 rpm
Cache Buffer	Up to 32 MB
Height	0.28 in (7.2 mm)
Width	2.75 in (69.85 mm)
Interface	ATA-8, SATA 3.0
Transfer Rate	600 MB/s
Seek Time	Single Track 2 ms Average 13 ms Maximum 18 ~ 22 ms
Logical Blocks	1,953,525,168

Technical Specifications

Operating Temperature	32° to 140° F (0° to 60° C) [top cover temp]
Security Features	ATA Security
Features	S.M.A.R.T., NCQ, Ultra DMA

128 GB 2280 M2 SATA-3 TLC Solid State Drive

Form Factor	M.2 2280
Capacity	128 GB
NAND Type	TLC
Height	0.09 in (2.3 mm)
Width	0.87 in (22 mm)
Weight	0.02 lb (10 g)
Interface	ATA-8, SATA 3.0
Maximum Sequential Read	Up To 520 MB/s
Maximum Sequential Write	Up To 450 MB/s
Logical Blocks	250,069,680
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
Features	DIPM; TRIM; DEVSLP

256 GB 2280 PCIe NVMe Value Solid State Drive

Form Factor	M.2 2280
Capacity	256 GB
NAND Type	TLC
Height	0.09 in (2.3 mm)
Width	0.87 in (22 mm)
Weight	0.02 lb (10 g)
Interface	PCIe NVMe Gen3X4
Maximum Sequential Read	Up To 1700 MB/s
Maximum Sequential Write	Up To 600 MB/s
Logical Blocks	500,118,192
Operating Temperature	32° to 158°F (0° to 70°C) [ambient temp]
Features	M.2 2280

Technical Specifications

NETWORKING/COMMUNICATIONS

Realtek 802.11 b/g/n (1x1) with Bluetooth® v4.2 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 • 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz) • 802.11ac: MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)
	Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
	Security	<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 Power	<ul style="list-style-type: none"> • 802.11b: +14dBm minimum • 802.11g: +12dBm minimum • 802.11a: +12dBm minimum • 802.11n HT20(2.4GHz): +12dBm minimum • 802.11n HT40(2.4GHz): +12dBm minimum • 802.11n HT20(5GHz): +10dBm minimum • 802.11n HT40(5GHz): +10dBm minimum • 802.11ac VHT80(5GHz): +10dBm minimum
	Power Consumption	<ul style="list-style-type: none"> • 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 compliant power management 802.11 compliant power saving mode

Technical Specifications

Receiver Sensitivity	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 Half-MiniCard
Dimensions	Type 2230 : 2.3 x 22.0 x 30.0 mm
Weight	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	Amber – Radio OFF; White – Radio ON

Technical Specifications

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
Power Management	Microsoft Windows ACPI, and USB Bus Support
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)

Technical Specifications

Intel® 802.11a/b/g/n/ac (1x1) WiFi and Bluetooth® 4.2 Combo	Wireless LAN Standards	<ul style="list-style-type: none"> 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 • 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps • 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz) • 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)
	Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
	Security	<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 Power	<ul style="list-style-type: none"> • 802.11b : +14dBm minimum • 802.11g : +12dBm minimum • 802.11a : +12dBm minimum • 802.11n HT20(2.4GHz) : +12dBm minimum • 802.11n HT40(2.4GHz) : +12dBm minimum • 802.11n HT20(5GHz) : +10dBm minimum • 802.11n HT40(5GHz) : +10dBm minimum • 802.11ac VHT80(5GHz) : +10dBm minimum
	Power Consumption	<ul style="list-style-type: none"> • 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
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Technical Specifications

POWER

HP 45W Smart AC adapter	Dimensions	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	Input Voltage	90 to 265 VAC
		Input Efficiency	87.74% at 115Vac and 88.4% at 230Vac
		Input frequency range	47 to 63 Hz
		Input AC current	1.4 A at 90 VAC
		Output	Output power
		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%	
Safety Certifications	CE Mark - full compliance with LVD and EMC directives Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE. MTBF - over 200,000 hours at 25°C ambient condition.		

HP 45W Smart AC adapter	Dimensions	102x55x30mm		
	Weight	270g +/- 10g		
	Input	Input Efficiency	87% min at 115V/230V	
		Input frequency range	47 to 63 Hz	
		Input AC current	1.7 A at 90 VAC and maximum load	
		Output	DC output	65W(19.5V/3.33A)
			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	0° to 35° C	
		Non-operating (storage) temperature	-20° to 85° C	
		Altitude	0 to 5,000 m	
		Humidity	0% to 95%	
		Storage Humidity	0% to 95%	
Safety Certifications	CE Mark - EMC directives; Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE; Reliability - failure rate of less than 0.1% annually within the first three years of operation.			

Technical Specifications

HP 3-cell, Long Life 48 WHr Li-ion	Dimensions (H x W x L)	7.0. x180.48x88.95mm (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)
	Fuel Gauge LED	N/A	
	Warranty	3 years	
	Optional Travel Battery Available	No	

COUNTRY OF ORIGIN

China

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

Type	Description	Part #
Cases	HP Essential Top Load Case	H2W17AA
	HP Essential Backpack	H1D24AA
	HP Essential Messenger Case	H1D25AA
Docking	HP 3005pr USB3 Port Replicator	Y4H06AA
	HP Thunderbolt Dock 120W G2	TBD
	HP USB-C Travel Dock	TOK29AA
	HP USB Travel Dock	TOK30AA
	HP Elite USB-C Docking Station	X7W54AA
	HP Elite USB-C Dock	Z9R42AA
	HP Elite USB-C Dock G3	2DW60AA
	HP USB-C Mini Dock	1PM64AA
	HP USB-C Universal Dock	1MK33AA
	HP Thunderbolt 120W 1m cable	3AQ23AA
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
HP Essential USB Mouse	2TX37AA	
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	2NA10AA
	HP Notebook Power Bank	N9F71AA
Storage	HP External USB Optical Drive	F2B56AA
	HP 500GB 7200rpm HDD	F3B97AA
	HP External Portable USB3.0 HDD	K6A93AA
	HP 256GB Value 2280 M.2 SATA3 SSD	1DE47AA
	HP 512GB TLC PCI-e 3x4 NVMe M.2 SSD	1FU88AA

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

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
	HP USB Collaboration Keyboard	Z9N38AA
	HP Wireless Collaboration Keyboard	Z9N39AA
	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

Summary of Changes

Date of change:	Version History:		Description of change:
January 4, 2018	V1 to V2	Update	Ports section rearranged
January 17, 2018	V2 to V3	Update	Footnote number 3 on At a Glance section updated
January 18, 2018	V3 to V4	Update	“Fast charging 90% in 90 minutes” added to footnote n. 31 in Power section
April 18, 2018	V4 to V5	Update	At a glance section
May 8, 2018	V5 to V6	Added	Environmental tab
July 6, 2018	V6 to V7	Update	Energy star
August 13, 2018	V7 to V8	Removed	Software Workwise and Velocity
February 13, 2019	V8 to V9	Removed	Phonewise Software

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