

### Overview

### HP 340 G5 Notebook PC



- 1. Internal Microphones (2)
- 2. Webcam LED Indicator
- 3. Webcam
- 4. Touch Pad
- 5. Power LED Indicator

#### Left

- 6. Storage LED Indicator
- 7. SD Card Slot
- 8. USB Type-C 3.1 Gen Port
- 9. Security Lock (Lock sold separately)
- 10. Power Button



### Overview



- 1. Power Connector
- 2. RJ-45/Ethernet Port
- 3. HDMI port (Cable not included)

#### Right

- 4. USB 3.1 Gen 1 Port
- 5. USB 3.1 Gen 1 Port
- 6. Audio Combo Jack



### Overview

#### AT A GLANCE

- Preinstalled Windows 10 or FreeDOS 2.0 versions
- Choice of 8th Generation Intel® Core™ i7, i5 and i3 processors
- Display include your choice of 35.56 cm (14") diagonal narrow bezel, anti-glare, ultra-wide or standard view angle, HD or FHD
- Graphics include your choice of integrated Intel® UHD Graphics 620, Intel® HD Graphics 620, or switchable discrete graphics AMD Radeon™ 530
- Enhanced security features including TPM and mini security lock
- Integrated with 2 stereo speakers and dual array microphone for better audio experience
- Support dual storage, Solid State Drives up to 512 GB, and/or Hard Drives up to 1 TB<sup>2</sup>
- Up to 32 GB total system memory
- Optional 720p HD webcam or no webcam available Full-size island-style spill resistant keyboard and Clickpad with multi-touch gestures enabled, taps enabled as default.802.11b/g/n (1x1) and Bluetooth® 4.2 Combo
- Passed MIL-STD test<sup>3</sup>

1. Lock sold separately.

2. Dual storage needs to be configured before purchase.

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 340 G5 Notebook PC

#### OPERATING SYSTEM

##### Preinstalled

Windows 10 Pro 64<sup>1</sup>

Windows 10 Home Single Language 64<sup>1</sup>

Windows 10 Pro 64 (National Academic only)<sup>2</sup>

Windows 10 Home 64<sup>1</sup>

FreeDOS 2.0

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. Windows 10 is automatically updated, which is always enabled. ISP fees may apply and additional requirements may apply over time for updates. See <http://www.windows.com>.

2. 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

Intel® Core™ i7-8565U with Intel® UHD Graphics 620 (1.8 GHz base frequency, up to 4.6 GHz with Intel® Turbo Boost Technology, 8 MB L3 cache, 4 cores)<sup>3,4,5,6</sup>

Intel® Core™ i5-8265U with Intel® UHD Graphics 620 (1.6 GHz base frequency, up to 3.9 GHz with Intel® Turbo Boost Technology, 6 MB L3 cache, 4 cores)<sup>3,4,5,6</sup>

Intel® Core™ i3-8145U with Intel® UHD Graphics 620 (2.1 GHz base frequency, up to 3.9 GHz with Intel® Turbo Boost Technology, 4 MB L3 cache, 2 cores)<sup>3,4,5,6</sup>

Intel® Core™ i3-7020U with Intel® HD Graphics 620 (2.3 GHz, 3 MB cache, 2 cores)<sup>3,4,6</sup>

##### Processor Family

8th Generation Intel® Core™ i7 processor (i7-8565U)<sup>6</sup>

8th Generation Intel® Core™ i5 processor (i5-8265U)<sup>6</sup>

8th Generation Intel® Core™ i3 processor (i3-8145U)<sup>6</sup>

7th Generation Intel® Core™ i3 processor (i3-7020U)<sup>6</sup>

3. 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.

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

5. Intel® Turbo Boost performance varies depending on hardware, software and overall system configuration. See [www.intel.com/technology/turboboost](http://www.intel.com/technology/turboboost) for more information.

6. 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

Chipset is integrated with processor



### Features

#### GRAPHICS

##### Integrated

Intel® UHD Graphics 620 (i7-8565U, i5-8265U and i3-8145U)<sup>7</sup>

Intel® HD Graphics 620 (i3-7020U)<sup>7</sup>

##### Discrete

AMD Radeon™ 530 (2 GB GDDR5 dedicated)<sup>8</sup>

##### Supports

Support HD decode, DX12, HDMI 1.4b

7. HD content required to view HD images.

8. AMD Dynamic Switchable Graphics technology requires an Intel processor, plus an AMD Radeon™ discrete graphics configuration and is not available on FreeDOS and Linux OS. With AMD Dynamic Switchable Graphics technology, full enablement of all discrete graphics video and display features may not be supported on all systems (e.g. OpenGL applications will run on the integrated GPU or the APU as the case may be).

#### DISPLAY

##### Non-Touch

35.56 cm (14") diagonal HD SVA eDP anti-glare WLED-backlit slim-flat, 220 cd/m<sup>2</sup>, 45% sRGB one WLAN antenna (1366 x 768)<sup>7,9</sup>

35.56 cm (14") diagonal HD SVA eDP anti-glare WLED-backlit slim-flat, 220 cd/m<sup>2</sup>, 45% sRGB two WLAN antennas (1366 x 768)<sup>7,9</sup>

35.56 cm (14") diagonal FHD IPS eDP anti-glare WLED-backlit slim-flat, 250 cd/m<sup>2</sup>, 45% sRGB one WLAN antenna (1920 x 1080)<sup>7,9</sup>

35.56 cm (14") diagonal FHD IPS eDP anti-glare WLED-backlit slim-flat, 250 cd/m<sup>2</sup>, 45% sRGB two WLAN antennas (1920 x 1080)<sup>7,9</sup>

7. HD content required to view HD images.

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

#### STORAGE AND DRIVES

##### Primary Storage

500 GB 7200 rpm SATA<sup>10</sup>

1 TB 5400 rpm SATA<sup>10</sup>

16 GB memory cache Intel® Optane® (Only available with HDD) to optimize HDD performance<sup>10</sup>

##### Primary M.2 Storage

128 GB SATA TLC Solid State Drive<sup>10</sup>

256 GB PCIe® NVMe™ Value Solid State Drive<sup>10</sup>

256 GB PCIe® NVMe™ TLC Solid State Drive<sup>10</sup>

512 GB PCIe® NVMe™ Value Solid State Drive<sup>10</sup>

10. For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 30 GB (for Windows 10) is reserved for system recovery software.

#### MEMORY

##### Maximum Memory

32 GB DDR4-2400 SDRAM (only available for 8th Generation Intel® processors)

32 GB DDR4-2133 SDRAM<sup>11</sup>



### Features

#### Memory

32 GB DDR4-2400 SDRAM (2 X 16 GB) (Only available for 8th Generation Intel® processors)<sup>11</sup>  
16 GB DDR4-2400 SDRAM (1 X 16 GB) (Only available for 8th Generation Intel® processors)<sup>11</sup>  
8 GB DDR4-2400 SDRAM (1 x 8 GB) (Only available for 8th Generation Intel® processors)<sup>11</sup>  
4 GB DDR4-2400 SDRAM (1 x 4 GB) (Only available for 8th Generation Intel® processors)<sup>11</sup>  
32 GB DDR4-2133 SDRAM (2 X 16 GB)<sup>11</sup>  
16 GB DDR4-2133 SDRAM (1 X 16 GB)<sup>11</sup>  
8 GB DDR4-2133 SDRAM (1 x 8 GB)<sup>11</sup>  
4 GB DDR4-2133 SDRAM (1 x 4 GB)<sup>11</sup>

#### Memory Slots

2 SODIMM

Both slots are customer accessible / upgradeable

DDR4 PC4 SODIMMS, system runs at 2400 (Intel 7th Gen (KBL) runs at 2133)

Supports Dual Channel Memory

11. 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.

### NETWORKING/COMMUNICATIONS

#### WLAN

Intel® Dual Band Wireless-AC 9560 802.11ac (2x2) Wi-Fi® and Bluetooth® 5 Combo, non-vPro™<sup>12</sup>

Realtek 802.11ac (1x1) and Bluetooth® 4.2 Combo<sup>12</sup>

Realtek 802.11b/g/n (1x1) and Bluetooth® 4.2 Combo<sup>12</sup>

#### Ethernet

Integrated 10/100/1000 GbE

Realtek RTL8111HSH-CG 10/100/1000 GbE NIC<sup>13</sup>

12. Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited.

13. The term "10/100/1000" or "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.

### AUDIO/MULTIMEDIA

#### Audio

2 Integrated stereo speakers

Integrated dual array microphone

#### Camera

720p HD Camera<sup>7,14</sup>

7. HD content required to view HD images.

14. Sold separately or as an optional feature.



### Features

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

##### Keyboard

Full-size island-style spill resistant keyboard

##### Pointing Device

Clickpad with multi-touch gesture support

##### Function Keys

ESC: System Information

F1: Windows Help

F2: Brightness Down

F3: Brightness Up

F4: Display Switching

F5: Blank

F6: Speaker Mute

F7: Volume Down

F8: Volume Up

F9: Previous track/section

F10: Starts, Pauses, or resumes playback

F11: Next track/section

F12: Airplane mode (Wireless feature on or off).

#### SOFTWARE AND SECURITY

##### Preinstalled Software

##### Software

HP ePrint<sup>25</sup>

HP Support Assistant<sup>15</sup>

HP Recovery Manager

Native Miracast Support<sup>16</sup>

sMedio True DVD for HP

##### Security Management

Firmware TPM

Mini security lock (Lock sold separately)

Windows Defender<sup>17</sup>

15. HP Support Assistant requires Windows and Internet access.

16. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming.

17. Windows Defender Opt In, Windows 10, and internet connection required for updates.

25. HP ePrint Driver 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.

#### POWER

##### Power Supply

HP Smart 65 W EM External AC power adapter<sup>18</sup>

##### Primary Battery

HP Long Life 3-cell, 41 Wh Li-ion<sup>19</sup>



### Features

**Battery Life**

Up to 12 hours and 30 minutes (UMA, WHL-U processor, HD display, 4 GB\*1 memory, SSD)<sup>20</sup>

**Power Cord**

3-wire plug - 1m<sup>18</sup>

**Battery Weight**

0.19 kg

18. Availability may vary by country.

19. Battery is internal and not replaceable by customer. Serviceable by warranty.

20. 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

**Product Weight**

Starting at 3.26 lbs<sup>21</sup>

Starting at 1.48 kg<sup>21</sup>

**Product Dimensions (w x d x h)**

8.89 x 12.76 x 7.83 in

22.59 x 32.4 x 19.9 cm

21. Weight will vary by configuration.

### PORTS/SLOTS

**Ports**

1 USB 3.1 Type-C™ Gen 1

2 USB 3.1 Gen 1

1 HDMI 1.4<sup>22</sup>

1 RJ-45

1 AC power

1 Headphone/Microphone Combo Jack

**Expansion Slots**

1 multi-format digital media reader

Supports SD, SDHC, SDXC

22. HDMI cable sold separately.





### Features

#### **SERVICE AND SUPPORT**

HP Services offers 1-year limited warranties and 90 day software limited warranty options depending on country. Batteries have a default one year limited warranty except for Long Life batteries which will have same 1-year or 3-year limited warranty as the platform. Refer to <http://www.hp.com/support/batterywarranty/> for additional battery information. 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>.<sup>23</sup>

23. 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

<b>Stand-Alone Power Requirements (AC Power)</b>	Nominal Operating Voltage	19.5 V
	Average Operating Power	Win 10
	Integrated Graphics	7.69W
	Discrete Graphics	N/A (Switchable graphics design)
	Max Operating Power	Discrete < 65W UMA < 45W
<b>Temperature</b>	Operating	32° to 95° F (0° to 35° C) (not writing optical) 41° to 95° F (5° to 35° C) (writing optical)
	Non-operating	-4° to 140° F (-20° to 60° C)
<b>Relative Humidity</b>	Operating	10% to 90%, non-condensing
	Non-operating	5% to 95%,
<b>Shock</b>	Operating	40 G, 2 ms duration, half-sine
	Non-operating	240 G, 2 ms duration, half-sine
<b>Random Vibration</b>	Operating	1.043 grms
	Non-operating	3.5 grms
<b>Planned Industry Standard Certifications</b>	UL	Yes
	CSA	No
	FCC Compliance	Yes
	ENERGY STAR®	Yes <sup>24</sup>
	EPEAT®	EPEAT Silver <sup>25</sup>
	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	

24. Configurations of the HP 340 G5 Notebook that are ENERGY STAR® certified<sup>2</sup> are identified as HP 340 G5 Notebook PC ENERGY STAR on HP websites and on <http://www.energystar.gov>.

25. 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>.



### Technical Specifications

#### DISPLAYS

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

<b>14.0" diagonal HD WLED Anti-Glare (1366x768) slim-flat (3.0mm) SVA, eDP, Narrow Bezel</b>	<b>Outline Dimensions (W x H)</b>	320.9 x 205.6 (max)
	<b>Active Area</b>	309.4 x 173.95
	<b>Weight</b>	320 g max
	<b>Diagonal Size</b>	14 (inch)
	<b>Thickness</b>	3.6 mm max
	<b>Interface</b>	eDP 1.2
	<b>Surface Treatment</b>	Anti-glare (AG)
	<b>Touch Enabled</b>	No
	<b>Contrast Ratio</b>	300:1 (typ)
	<b>Refresh Rate</b>	60Hz
	<b>Brightness</b>	220 nit typ
	<b>Pixel Resolution</b>	1366 x 768 (HD)
	<b>Format</b>	RGB
	<b>Backlight</b>	LED
	<b>Color Gamut Coverage</b>	45%
<b>Color Depth</b>	6 bits (Hi FRC)	
<b>Viewing Angle</b>	SVA 40/40/15/30	

<b>14" diagonal FHD WLED Anti-Glare (1920x1080) slim-flat (3.0mm), UWVA, eDP, Narrow Bezel</b>	<b>Outline Dimensions (W x H)</b>	320.9 x 205.6 (max)
	<b>Active Area</b>	309.31 x 173.99
	<b>Weight</b>	290 max.
	<b>Diagonal Size</b>	14 (inch)
	<b>Thickness</b>	3.0 mm max
	<b>Interface</b>	eDP 1.2 (2 lane)
	<b>Surface Treatment</b>	Anti-Glare (AG)
	<b>Touch Enabled</b>	No
	<b>Contrast Ratio</b>	600:1 (typ)
	<b>Refresh Rate</b>	60Hz
	<b>Brightness</b>	250 nit typ



### Technical Specifications

<b>Pixel Resolution</b>	1920 x 1080 (FHD)
<b>Format</b>	RGB
<b>Backlight</b>	LED
<b>Color Gamut Coverage</b>	45%
<b>Color Depth</b>	6 bits (Hi FRC)
<b>Viewing Angle</b>	UWVA 85/85/85/85



### Technical Specifications

#### STORAGE AND DRIVES

<b>500 GB 7200 rpm SATA Hard Drive</b>	<b>Drive Weight</b>	0.21 lb (95 g)		
	<b>Rotation speed</b>	7200 rpm		
	<b>Cache Buffer</b>	Up to 32 MB		
	<b>Height</b>	0.28 in (7 mm)		
	<b>Width</b>	2.75 in (69.85 mm)		
	<b>Interface</b>	ATA-8, SATA 3.0		
	<b>Transfer Rate</b>	600 MB/s		
	<b>Seek Time</b>	<b>Single Track</b>	2 ~ 1.5 ms	
		<b>Average</b>	11 ~ 13 ms	
		<b>Maximum</b>	18 ~ 22 ms	
	<b>Logical Blocks</b>	976773168		
	<b>Operating Temperature</b>	32° to 140° F (0° to 60° C) [case temp]		
	<b>Security Features</b>	ATA Security		
<b>Features</b>	S.M.A.R.T., NCQ, Ultra DMA			
<b>1 TB 5400 rpm SATA Hard Drive</b>	<b>Drive Weight</b>	0.21 lbs (95 g)		
	<b>Rotation speed</b>	5400 rpm		
	<b>Cache Buffer</b>	Up to 128 MB		
	<b>Height</b>	0.28 in (7 mm)		
	<b>Width</b>	2.75 in (69.85 mm)		
	<b>Interface</b>	ATA-8, SATA 3.0		
	<b>Transfer Rate</b>	600 MB/s		
	<b>Seek Time</b>	<b>Single Track</b>	2 ms	
		<b>Average</b>	12 ~ 13 ms	
		<b>Maximum</b>	18 ~ 22 ms	
	<b>Logical Blocks</b>	1953525168		
	<b>Operating Temperature</b>	32° to 140° F (0° to 60° C) [case temp]		
	<b>Security Features</b>	ATA Security		
<b>Features</b>	S.M.A.R.T., NCQ, Ultra DMA			
<b>128 GB 2280 M2 SATA-3 TLC Solid State Drive</b>	<b>Form Factor</b>	M.2 2280		
	<b>Capacity</b>	128 GB		
	<b>NAND Type</b>	TLC		
	<b>Height</b>	0.09 in (2.3 mm)		
	<b>Width</b>	0.87 in (22 mm)		



### Technical Specifications

<b>Weight</b>	0.01 lb (6 g) ~ 0.02 lb (10 g)
<b>Interface</b>	ATA-8, SATA 3.0
<b>Maximum Sequential Read</b>	Up To 535 MB/s
<b>Maximum Sequential Write</b>	Up To 515 MB/s
<b>Logical Blocks</b>	250,069,680
<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]
<b>Features</b>	DIPM; TRIM; DEVSLP

#### 256 GB PCIe NVMe TLC Solid State Drive

<b>Form Factor</b>	M.2 2280
<b>Capacity</b>	256 GB
<b>NAND Type</b>	TLC
<b>Height</b>	0.09 in (2.3 mm)
<b>Width</b>	0.87 in (22 mm)
<b>Interface</b>	PCIe NVMe Gen3x4
<b>Maximum Sequential Read</b>	Up To 2500 MB/s
<b>Maximum Sequential Write</b>	Up To 1000 MB/s
<b>Logical Blocks</b>	500,118,192
<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]
<b>Features</b>	TRIM; L1.2

#### 256 GB 2280 M2 PCIe NVMe Value Solid State Drive

<b>Form Factor</b>	M.2 2280
<b>Capacity</b>	256 GB
<b>NAND Type</b>	TLC
<b>Height</b>	0.09 in (2.3 mm)
<b>Width</b>	0.87 in (22 mm)
<b>Interface</b>	PCIe NVMe Gen 3x2
<b>Maximum Sequential Read</b>	Up to 1500 MB/s
<b>Maximum Sequential Write</b>	Up to 1000 MB/s
<b>Logical Blocks</b>	500,118,192
<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]
<b>Features</b>	TRIM, L1.2

<b>Form Factor</b>	M.2 2280
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### Technical Specifications

<b>512 GB 2280 M2 PCIe NVMe Value Solid State Drive</b>	<b>Capacity</b>	512 GB
	<b>NAND Type</b>	TLC
	<b>Height</b>	0.09 in (2.3 mm)
	<b>Width</b>	0.87 in (22 mm)
	<b>Interface</b>	PCIe NVMe Gen3x2
	<b>Maximum Sequential Read</b>	Up to 1500 MB/s
	<b>Maximum Sequential Write</b>	Up to 1000 MB/s
	<b>Logical Blocks</b>	1,000,215,215
	<b>Features</b>	TRIM, L1.2

<b>16 GB Intel® Optane™ Solution PCIe Gen3x2 M.2 SSD</b>	<b>Form Factor</b>	M.2 2280
	<b>Capacity</b>	16 GB
	<b>NAND Type</b>	3D Xpoint
	<b>Height</b>	80 mm
	<b>Width</b>	22 mm
	<b>Interface</b>	<10 grams
	<b>Maximum Sequential Read</b>	PCIe NVMe Gen3X2
	<b>Maximum Sequential Write</b>	Up To 900 MB/s
	<b>Logical Blocks</b>	Up To 140 MB/s
<b>Operating Temperature</b>	28,181,328 LBA	

NOTE: For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 30 GB (for Windows 10) is reserved for system recovery software.



### Technical Specifications

#### NETWORKING/COMMUNICATIONS

<b>Realtek 802.11b/g/n (1x1) Wi-Fi® and Bluetooth® 4.2 Combo<sup>1</sup></b>	<b>Wireless LAN Standards</b>	IEEE 802.11b IEEE 802.11g IEEE 802.11n
	<b>Interoperability</b>	Wi-Fi certified™
	<b>Frequency Band</b>	802.11b/g/n 2.402 – 2.482 GHz
	<b>Data Rates</b>	802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: MCS 0 ~ MCS 7, (20MHz, and 40MHz)
	<b>Modulation</b>	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM
	<b>Security</b>	IEEE and Wi-Fi® compliant 64 / 128 bit WEP encryption for 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 WAPI
	<b>Network Architecture Models</b>	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
	<b>Roaming</b>	IEEE 802.11 compliant roaming between access points
	<b>Output Power</b>	802.11b: +14dBm minimum 802.11g: +12dBm minimum 802.11n HT20(2.4GHz): +12dBm minimum 802.11n HT40(2.4GHz): +12dBm minimum
	<b>Power Consumption</b>	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 8mW
	<b>Power Management</b>	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
	<b>Receiver Sensitivity</b>	802.11b, 1Mbps: -93.5dBm maximum 802.11b, 11Mbps: -84dBm maximum 802.11g, 6Mbps: -86dBm maximum 802.11g, 54Mbps: -72dBm maximum 802.11n, MCS07: -67dBm maximum
	<b>Antenna type</b>	High efficiency antenna. One embedded dual band 2.4/5 GHz antenna is provided to the card to support WLAN communications and Bluetooth communications





### Technical Specifications

<b>Form Factor</b>	PCI-Express M.2 MiniCard
<b>Dimensions</b>	Type 2230: 2.3 x 22.0 x 30.0 mm
<b>Weight</b>	Type 2230: 2.8g
<b>Operating Voltage</b>	3.3v +/- 9%
<b>Temperature</b>	Operating: 14° to 158° F (–10° to 70° C) Non-operating: –40° to 176° F (–40° to 80° C)
<b>Humidity</b>	Operating: 10% to 90% (non-condensing) Non-operating: 5% to 95% (non-condensing)
<b>Altitude</b>	Operating: 0 to 10,000 ft (3,048 m) Non-operating: 0 to 50,000 ft (15,240 m)
<b>LED Activity</b>	LED Amber – Radio OFF LED OFF – 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

<b>Bluetooth Specification</b>	4.0/4.1/4.2 Compliant
<b>Frequency Band</b>	2402 to 2480 MHz
<b>Number of Available Channels</b>	Legacy: 0~79 (1 MHz/CH) BLE: 0~39 (2 MHz/CH)
<b>Signaling Data Rate</b>	Legacy: 3 Mbps Signaling Data Rate <sup>1</sup> 2.17 Mbps BLE: 1 Mbps Signaling Data Rate <sup>1</sup> 0.2 Mbps <a href="#">1. Actual throughput may vary.</a>
<b>Transmit Power</b>	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) The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.
<b>Power Consumption</b>	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW
<b>Electrical Interface</b>	USB 2.0 compliant
<b>Bluetooth Software Supported Link Topology</b>	Microsoft Windows Bluetooth Software
<b>Power Management</b>	Microsoft Windows ACPI, and USB Bus Support



### Technical Specifications

<b>Certifications</b>	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
<b>Power Management Certifications</b>	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
<b>Bluetooth Profiles Supported</b>	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)

**Realtek  
802.11a/b/g/n/ac (1x1)  
Wi-Fi® and Bluetooth®  
4.2 Combo<sup>1</sup>**

<b>Wireless LAN Standards</b>	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac IEEE 802.11d IEEE 802.11e IEEE 802.11h IEEE 802.11i IEEE 802.11k IEEE 802.11r IEEE 802.11v
<b>Interoperability</b>	Wi-Fi certified™
<b>Frequency Band</b>	<ul style="list-style-type: none"> <li>• 802.11b/g/n 2.402 – 2.482 GHz</li> <li>• 802.11a/n/ac 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</li> </ul>



### Technical Specifications

<b>Data Rates</b>	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)
<b>Modulation</b>	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
<b>Security<sup>3</sup></b>	IEEE and Wi-Fi® compliant 64 / 128 bit WEP encryption for 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 WAPI
<b>Network Architecture Models</b>	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
<b>Roaming</b>	IEEE 802.11 compliant roaming between access points
<b>Output Power<sup>2</sup></b>	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
<b>Power Consumption</b>	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 8mW
<b>Power Management</b>	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
<b>Receiver Sensitivity<sup>3</sup></b>	802.11b, 1Mbps: -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
<b>Antenna type</b>	High efficiency antenna. One embedded dual band 2.4/5 GHz antenna is provided to the card to support WLAN communications and Bluetooth communications



### Technical Specifications

<b>Form Factor</b>	PCI-Express M.2 MiniCard
<b>Dimensions</b>	Type 2230: 2.3 x 22.0 x 30.0 mm
<b>Weight</b>	Type 2230: 2.8g
<b>Operating Voltage</b>	3.3v +/- 9%
<b>Temperature</b>	Operating: 14° to 158° F (–10° to 70° C) Non-operating: –40° to 176° F (–40° to 80° C)
<b>Humidity</b>	Operating: 10% to 90% (non-condensing) Non-operating: 5% to 95% (non-condensing)
<b>Altitude</b>	Operating: 0 to 10,000 ft (3,048 m) Non-operating: 0 to 50,000 ft (15,240 m)
<b>LED Activity</b>	LED Amber – Radio OFF LED OFF – 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

<b>Bluetooth Specification</b>	4.0/4.1/4.2 Compliant
<b>Frequency Band</b>	2402 to 2480 MHz
<b>Number of Available Channels</b>	Legacy: 0~79 (1 MHz/CH) BLE: 0~39 (2 MHz/CH)
<b>Signaling Data Rate</b>	Legacy: 3 Mbps Signaling Data Rate <sup>1</sup> 2.17 Mbps BLE: 1 Mbps Signaling Data Rate <sup>1</sup> 0.2 Mbps <a href="#">1. Actual throughput may vary.</a>
<b>Transmit Power</b>	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) The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.
<b>Power Consumption</b>	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW
<b>Electrical Interface</b>	USB 2.0 compliant
<b>Bluetooth Software Supported Link Topology</b>	Microsoft Windows Bluetooth Software
<b>Power Management</b>	Microsoft Windows ACPI, and USB Bus Support
<b>Certifications</b>	FCC (47 CFR) Part 15C, Section 15.247 & 15.249



### Technical Specifications

<b>Power Management Certifications</b>	ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
<b>Bluetooth Profiles Supported</b>	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)

**Intel® 9560  
802.11 a/b/g/n/ac (2x2)  
Wi-Fi® and Bluetooth®  
5.0 Combo<sup>1</sup>  
non-vPro**

<b>Wireless LAN Standards</b>	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac IEEE 802.11d IEEE 802.11e IEEE 802.11h IEEE 802.11i IEEE 802.11k IEEE 802.11r IEEE 802.11v
<b>Interoperability</b>	Wi-Fi certified™
<b>Frequency Band</b>	802.11b/g/n 2.402 – 2.482 GHz  802.11a/n 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



### Technical Specifications

<b>Data Rates</b>	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, 80MHz & 160MHz)
<b>Modulation</b>	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
<b>Security<sup>3</sup></b>	IEEE and Wi-Fi® compliant 64 / 128 bit WEP encryption for 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 WAPI
<b>Network Architecture Models</b>	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
<b>Roaming</b>	IEEE 802.11 compliant roaming between access points
<b>Output Power<sup>2</sup></b>	802.11b: +18.5dBm minimum 802.11g: +17.5dBm minimum 802.11a: +18.5dBm minimum 802.11n HT20(2.4GHz): +15.5dBm minimum 802.11n HT40(2.4GHz): +14.5dBm minimum 802.11n HT20(5GHz): +15.5dBm minimum 802.11n HT40(5GHz): +14.5dBm minimum 802.11ac VHT80(5GHz): +11.5dBm minimum 802.11ac VHT160(5GHz): +11.5dBm minimum
<b>Power Consumption</b>	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/Modern Standby: 10mW Radio disabled: 8 mW
<b>Power Management</b>	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
<b>Receiver Sensitivity<sup>3</sup></b>	802.11b, 1Mbps: -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



### Technical Specifications

<b>Antenna type</b>	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications
<b>Form Factor</b>	PCI-Express M.2 MiniCard with CNVi Interface
<b>Dimensions</b>	1. Type 2230: 2.3 x 22.0 x 30.0 mm 2. Type 1216: 1.67 x 12.0 x 16.0 mm
<b>Weight</b>	1. Type 2230: 2.8 g 2. Type 126: 1.3 g
<b>Operating Voltage</b>	3.3v +/- 9%
<b>Temperature</b>	Operating: 14° to 158° F (–10° to 70° C) Non-operating: –40° to 176° F (–40° to 80° C)
<b>Humidity</b>	Operating: 10% to 90% (non-condensing) Non-operating: 5% to 95% (non-condensing)
<b>Altitude</b>	Operating: 0 to 10,000 ft (3,048 m) Non-operating: 0 to 50,000 ft (15,240 m)
<b>LED Activity</b>	LED Amber – Radio OFF LED OFF – 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 4.0/4.1/4.2/5.0 Wireless Technology

<b>Bluetooth Specification</b>	4.0/4.1/4.2/5.0 Compliant
<b>Frequency Band</b>	2402 to 2480 MHz
<b>Number of Available Channels</b>	Legacy: 0~79 (1 MHz/CH) BLE: 0~39 (2 MHz/CH)
<b>Signaling Data Rate</b>	Legacy: 3 Mbps Signaling Data Rate <sup>1</sup> 2.17 Mbps BLE: 1 Mbps Signaling Data Rate <sup>1</sup> 0.2 Mbps <a href="#">1. Actual throughput may vary.</a>
<b>Transmit Power</b>	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) The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of + 4 dBm for BR and EDR.
<b>Power Consumption</b>	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW



### Technical Specifications

<b>Bluetooth Software Supported Link Topology</b>	Microsoft Windows Bluetooth Software
<b>Power Management Certifications</b>	Microsoft Windows ACPI, and USB Bus Support
<b>Power Management Certifications</b>	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
<b>Power Management Certifications</b>	ETS 300 328, ETS 300 826
<b>Power Management Certifications</b>	Low Voltage Directive IEC950
<b>Power Management Certifications</b>	UL, CSA, and CE Mark
<b>Bluetooth Profiles Supported</b>	BT4.1-ESR 5/6/7 Compliance
<b>Bluetooth Profiles Supported</b>	LE Link Layer Ping
<b>Bluetooth Profiles Supported</b>	LE Dual Mode
<b>Bluetooth Profiles Supported</b>	LE Link Layer
<b>Bluetooth Profiles Supported</b>	LE Low Duty Cycle Directed Advertising
<b>Bluetooth Profiles Supported</b>	LE L2CAP Connection Oriented Channels
<b>Bluetooth Profiles Supported</b>	Train Nudging & Interlaced Scan
<b>Bluetooth Profiles Supported</b>	BT4.2 ESR08 Compliance
<b>Bluetooth Profiles Supported</b>	LE Secure Connection- Basic/Full
<b>Bluetooth Profiles Supported</b>	LE Privacy 1.2 –Link Layer Privacy
<b>Bluetooth Profiles Supported</b>	LE Privacy 1.2 –Extended Scanner Filter Policies
<b>Bluetooth Profiles Supported</b>	LE Data Packet Length Extension
<b>Bluetooth Profiles Supported</b>	FAX Profile (FAX)
<b>Bluetooth Profiles Supported</b>	Basic Imaging Profile (BIP)2
<b>Bluetooth Profiles Supported</b>	Headset Profile (HSP)
<b>Bluetooth Profiles Supported</b>	Hands Free Profile (HFP)
<b>Bluetooth Profiles Supported</b>	Advanced Audio Distribution Profile (A2DP)

### POWER

<b>HP EM 65 W Smart AC adapter</b>	<b>Dimensions (H x W x D)</b>	102 x 55 x 30mm
	<b>Weight</b>	unit: 250g +/- 10g
	<b>Input</b>	100 to 240 VAC
	<b>Input Efficiency</b>	87.74 % at 115 Vac and 88.4 % at 230Vac
	<b>Input frequency range</b>	48 ~ 63 Hz
	<b>Input AC current</b>	Max. 1.7 A at 90 Vac
	<b>Output</b>	<b>Output power</b> 65 W
		<b>DC output</b> 19.5V
		<b>Hold-up time</b> 5ms at 115 Vac input
		<b>Output current limit</b> <11.0A
	<b>Connector</b>	C6
		4.5mm Barrel Type





### Technical Specifications

<b>Environmental Design</b>	<b>Operating temperature</b>	32°F to 95°F (0° to 35°C)
	<b>Non-operating (storage) temperature</b>	-4°F to 185°F (-20° to 85°C)
	<b>Altitude</b>	0 to 16,400 ft (0 to 5000m)
	<b>Humidity</b>	20% to 95%
	<b>Storage Humidity</b>	10% to 95%
<b>EMI and Safety Certifications</b>	<p>CE Mark - full compliance with LVD and EMC directives</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>	
<b>HP 3-cell Long Life Li-Ion (41 WHr)</b>	<b>Dimensions (H x W x L)</b>	6.0 x 186.35 x 90.2 mm (0.236 x 7.33 x 3.55 inch)
	<b>Weight</b>	0.19 kg (0.418 lb)
	<b>Cells/Type</b>	3cell Lithium-Ion Polymer cell / 515974 Prismatic cell 496080
	<b>Voltage</b>	11.55V/11.4V/11.34V
	<b>Amp-hour capacity</b>	3.63Ah/3.6Ah/3.62Ah
	<b>Watt-hour capacity</b>	41 Wh
	<b>Temperature</b>	<b>Operating (Charging)</b> 32° to 113° F (0° to 45° C)
		<b>Operating (Discharging)</b> 14° to 122° F (-10° to 60° C)
		<b>Hold-up time</b> 5ms at 115 Vac input
		<b>Output current limit</b> <11.0A
	<b>Optional Travel Battery Available</b>	No



## Technical Specifications

### **COUNTRY OF ORIGIN**

China



### Options and Accessories

Sold separately and availability may vary by country.

Category	Description	Part Number
<b>Docking</b>	HP 3005pr USB3 Port Replicator	Y4H06AA
	HP USB Travel Dock	T0K30AA
	HP USB-C Universal Dock	1MK33AA
	HP USB-C Universal Dock NF (non-flash)	3DV65AA
<b>Input/Output</b>	HP USB Essential Keyboard and Mouse	H6L29AA
	HP Ultra Mobile Wireless Mouse	H6F25AA#xxx
	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 Stereo USB Headset	T1A67AA
	HP Stereo 3.5mm Headset	T1A66AA
<b>Power</b>	HP 65W Smart AC Adapter	H6Y89AA#xxx
	HP 65W Slim AC Adapter	H6Y82AA#xxx
<b>Storage</b>	HP Mobile USB DVDRW	F2B56AA
<b>UCC</b>	HP Conferencing Keyboard	K8P74AA#xxx
	HP UC Speaker Phone	4VW02AA
<b>Displays</b>	HP ProDisplay P203 20-inch Monitor	X7R53AA
	HP ProDisplay P223 21.5-inch Monitor	X7R61AA
	HP ProDisplay P240va 23.8-inch Monitor	N3H14AA



### Change Log

Date of change	Version History		Description of change
	V1 to V2		

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