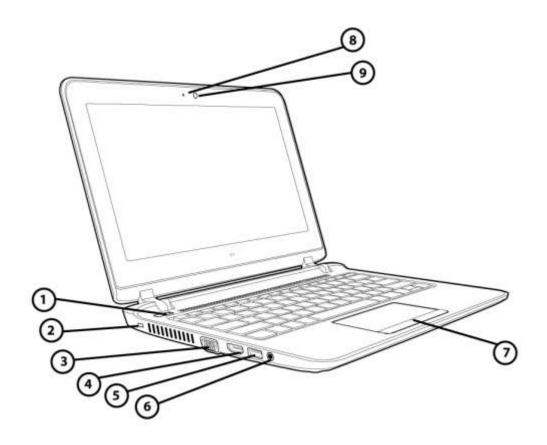
Overview

## **HP ProBook 11 G1 Education Edition Notebook**



## Front, Left

- 1. Power Button
- 2. Lock Slot
- 3. VGA Port
- 4. HDMI Port
- 5. USB 3.0 Port

- 6. 3.5mm Combo Headphone/Mic
- 7. Touchpad
- 8. Webcam LED
- 9. Webcam

## Overview

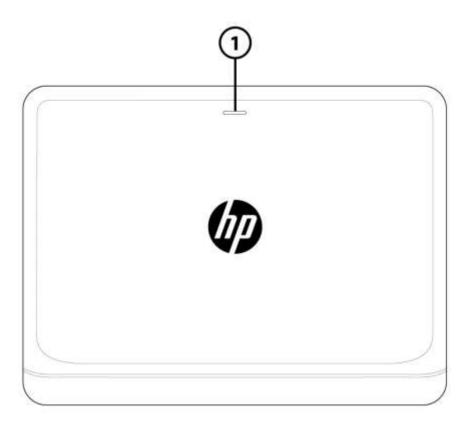


## **Right side**

- 1. 2 USB 3.0 Ports
- 2. SD Card Slot

- 3. RJ-45 Port (Ethernet)
- 4. AC Power Connector (4.5mm)

Overview



Closed view - top

1. Network access indicator/LED light

Overview

## At A Glance

- This light, durable notebook features a reinforced chassis design
- Weight starting at 3.48 lbs (1.58 kg) for Non Touch; 3.76 lbs (1.71 kg) for Touch
- Windows 10 versions, Windows 8.1 versions, Windows 7 versions, or FreeDOS 2.0
- Choice of Intel® Core™ i3, Intel® Pentium®, or Intel® Celeron® Processors
- Battery life up to 16 hours and 15 minutes
- 11.6-inch diagonal display (1366 x 768) in matte or touch screens with Gorilla Glass 3
- Full size island style spill resistant keyboard (tested to IP41 standard)
- Touchpad support multi gestures, Win 8.1 modern TouchPad gestures and PS/2 interface
- Choice of up to 500 GB hard drives or 180 GB solid state drives
- Memory options up to 8 GB
- Integrated HP TrueVision HD Webcam
- Supports a broad range of wireless WLAN or WWAN options for connectivity on the go
- HP 3-cell battery (36 WHr) or optional HP 6-cell long life battery (64 WHr)
- Integrated Intel® UMA Graphics
- DTS Sound+™ with integrated stereo speakers and single digital microphones
- HP Multi-Format Digital Media Card Reader

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



#### **Features**

#### PRODUCT NAME

HP ProBook 11 G1 Education Edition Notebook

#### **OPERATING SYSTEM**

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

Windows 10 Home 64<sup>1</sup> Windows 10 Home 64<sup>1</sup> Windows 8.1 Pro 64<sup>1</sup> Windows 8.1 64<sup>1</sup>

Windows 7 Professional 64 (available through downgrade rights from Windows 10 Pro)<sup>3</sup> Windows 7 Professional 64 (available through downgrade rights form Windows 8.1 Pro)<sup>2</sup>

Windows 7 Professional 641

FreeDOS 2.0

Web Support Windows 10 Pro 641

Windows 10 Home 64<sup>1</sup> Windows 10 Home 64<sup>1</sup> Windows 8.1 Pro 64<sup>1</sup> Windows 8.1 64<sup>1</sup>

Windows 7 Professional 64 (available through downgrade rights from Windows 10 Pro) <sup>3</sup> Windows 7 Professional 64 (available through downgrade rights form Windows 8.1 Pro) <sup>2</sup>

Windows 7 Professional 64<sup>1</sup> Windows 10 Enterprise 64<sup>1</sup> Windows 8.1 Enterprise 64<sup>1</sup>

Windows 8 641

Windows 7 Enterprise 641

- 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 <a href="http://www.microsoft.com">http://www.microsoft.com</a>
- 2. This system is preinstalled with Windows 7 Professional software and also comes with a license and media for Windows 8 Pro software. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.
- 3. This system is preinstalled with Windows 7 Professional software and also comes with a license and media for Windows 10 Pro software. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data

#### **PROCESSOR**

Intel® Core™ i3-5005U with Intel HD Graphics 5500 (2 GHz, 3 MB cache, 2 cores)¹ Intel® Pentium® 3805U with Intel HD Graphics (1.9 GHz, 2 MB cache, 2 cores)¹ Intel® Celeron® 3205U with Intel HD Graphics (1.5 GHz, 2 MB cache, 2 cores)¹



#### **Features**

1. Multi-Core is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. 64-bit computing on Intel® architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers, and applications enabled for Intel® 64 architecture. Processors will not operate (including 32-bit operation) without an Intel® 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. Intel's numbering is not a measurement of higher performance.

#### **CHIPSET**

Chipset is integrated with processor

#### **GRAPHICS**

Intel® HD 5500 Graphics (available on Core i3-5005U configurations)
Intel® HD Graphics (available on Celeron/Pentium configurations)

#### **DISPLAY**

#### Internal

11.6-inch diagonal HD LED (3.6mm) SVA, 220nits, Touch (1366 x 768) with Corning® Gorilla® Glass 3 11.6-inch diagonal HD AG LED flat (3.6mm) SVA, 220nits, (1366 x 768) **Note:** HD content required to view HD images.

#### HDMI v1.4 port on Unit

Supporting: up to 1080p, 1920 x 1080 @ 60Hz

#### VGA (Dsub 15 pin) supporting:

1920 x 1200 external resolution @ 60Hz

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

#### STORAGE AND DRIVES

Supports single 2.5" 7.0mm SATA Hard Drives

#### Single HDD configurations

500 GB (5400 rpm)

#### M.2 2280 SSD

64 GB Solid State Drive (Windows 8.1 only) 128 GB Solid State Drive 180 GB Solid State Drive

**NOTE:** For Solid State Drives (SSD), GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and up to 30 GB (for Windows 8 and 10) is reserved for system recovery software

#### **MEMORY**

#### Standard

One SODIMM slots-customer accessible / upgradeable DDR3L PC3-12800 SDRAM 1600 (Transfer rates up to 1600 MT/s)



#### **Features**

#### Supports

2048 MB Total System Memory (2048 MB x 1) 4096 MB Total System Memory (4096 MB x 1) 8192 MB Total System Memory (8192 MB x 1)

#### Maximum

Supports up to 8 GB max system memory

**NOTE:** 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**

#### Wireless LAN (WLAN)1

Intel® Dual Band Wireless-AC 3160 802.11 a/b/g/n/AC 1x1 +Bluetooth® Combo Intel® Dual Band Wireless-AC 7260 802.11 a/b/g/n/AC 2x2 +Bluetooth® Combo Realtek 802.11 b/g/n 1x1 +Bluetooth® Combo

#### Wireless WAN (WWAN)1,2

HP hs3110 HSPA+ Mobile Broadband

- 1. Wireless access point and Internet service is required and is not included. Availability of public wireless access points limited.
- Sold separately or as an optional feature.

#### **Communications**

Integrated 10/100/1000 Gigabit Ethernet; supports PXE boot

#### AUDIO/MULTIMEDIA

#### Audio

DTS Sound +™ Integrated dual stereo speakers Single digital microphone with echo cancellation/noise suppression

#### Webcam

Integrated HD\* webcam

- HP TrueVision HD¹ camera
- Fixed (no tilt) + activity LED on LCD cover
- 1280x720 by 30 frames per second
  - 1. HD content required to view HD images.

## **KEYBOARDS/POINTING DEVICES**

#### Keyboard

100% Full size island style keyboard Anti-peel protection on key caps Spill resistant keyboard (tested to IP41 standard)

### **Pointing Devices**

Touchpad (tested to IP41 standard)
Taps enabled as default



#### **Features**

Support Multi Gestures - ability to turn on and off Support Win8.1 Modern TouchPad Gestures Support PS/2 interface

#### **SOFTWARE AND SECURITY**

#### **BIOS**

HP BIOSphere1

**HP DriveLock** 

HP BIOS Protection<sup>2</sup>

**BIOS Update via Network** 

Master Boot Record Security

**Power On Authentication** 

**Pre-Boot Security** 

Secure Erase<sup>3</sup>

Hybrid Boot (Windows 8.1 only)

Measured Boot (Windows 8.1 only)

Secure Boot (Windows 8.1 only)

Absolute Persistence Module<sup>4</sup>

## Multimedia

Cyberlink PowerDVD

Cyberlink YouCam BE (Windows 7 only)

#### Communication

Intel® Wireless Display (WiDi) Software for Windows 5

#### **HP Value Add Software**

HP ePrint Driver 6

**HP Mobile Connect** 

**HP Recovery Disc Creator** 

**HP Recovery Manager** 

**HP Support Assistant** 

**HP 3D DriveGuard** 

**HP Wireless Hotspot** 

**HP User Guide with Warranty Documentation** 

HP SoftPaq Download Manager

## 3rd Party

Foxit PhantomPDF Express for HP

### **Microsoft Products**

**Buy Office** 

Bing Search

Skype 13



#### **Features**

### Security

Windows Defender <sup>7</sup>
Computrace Data Protection Basic <sup>13</sup>
TPM 1.2<sup>10</sup>
Smart Card Reader
Security lock slot
Preboot Authentication

#### **HP School Pack**

HP Life e-learning <sup>11</sup>
HP MyRoom Collaboration
HP Online Learning Platform <sup>12</sup>
HP Classroom Manager Student Edition <sup>14</sup>
Microsoft FreshPaint – Metro
Microsoft OneNote
Oxford® Advanced Learner's Dictionary
Oxford University Press
OverDrive
Reading / eTextBook - OverDrive
SparkVUE® by PASCO

## Manageability

HP SoftPaq Download Manager (SDM) HP System Software Manager (SSM) <sup>8</sup> HP BIOS Config Utility (BCU) <sup>8</sup> HP CIK for Microsoft SCCM <sup>8</sup> LANDESK Management <sup>9</sup>

For more information on HP Client Management Solutions refer to: <a href="http://www.hp.com/go/clientmanagement">http://www.hp.com/go/clientmanagement</a>.

- 1. Available only on business PCs with HP BIOS.
- 2. May require a manual recovery step if all copies of BIOS are compromised or deleted.
- 3. For the methods outlined in the National Institute of Standards and Technology Special Publication 800-88.
- 4. Absolute Computrace Data Protect Basic 1 year includes a 1 year license of Computrace Data Protect to lock and prevent unauthorized access and remotely delete personal data. License must be activated by customer. See http://www.absolute.com/landing/2012/computrace-hp for complete details. Service may be limited, check with Absolute for availability outside the U.S.
- 5. Integrated Intel® Wi-Di Display is available on select configurations only and requires a separate projector, TV or monitor with an integrated or external Wi-Di receiver. For more information on Intel® Wi-Di Display visit <a href="https://www.intel.com/qo/wirelessdisplay">www.intel.com/qo/wirelessdisplay</a>
- 6. 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 <a href="https://www.hp.com/qo/eprintcenter">www.hp.com/qo/eprintcenter</a>). Requires optional broadband module. Broadband use requires separately purchased service contract. Check with service provider for coverage and availability in your area. Separately purchased data plans or usage fees may apply. Print times and connection speeds may vary.
- 7. Windows Defender requires Windows 8.
- 8. Not preinstalled, however available on manageability website.
- 9. Subscription required.



#### **Features**

- 10. Firmware TPM is version 2.0, a subset of the TPM 2.0 specification version v0.89 as implemented by Intel Platform Trust Technology (PTT).
- 11. For more information visit <a href="http://www.life-qlobal.org">http://www.life-qlobal.org</a>
- 12. Check http://www.hp.com/go/teachingwithtechnology for regional availability.
- 13. Skype is not offered in China.
- 14. HP Classroom Manager for Teachers is required and sold separately for control and device locking from the teacher's Windows desktop console; no locking and control functionality originates from HP Classroom Manager for Student.

#### **POWER**

#### **Power Supply**

HP 45W Smart AC Adapter HP 65W EM Smart AC Adapter (PRC, India only) 3.2 ft/1.0m 3-prong power cord

#### **Primary Battery**

HP 3-cell battery (36WHr)
Optional HP 6-cell Long Life battery (64WHr)<sup>1</sup>

1. Sold separately or as an optional feature.

### Battery Life<sup>1</sup>

	Celeron	Pentium	Core i3
3-cell HDD	7hr (HDD: HGST 500G)	7hr 45min (HDD: Western Digital 500 G)	8hr (HDD: Toshiba 500G)
3-cell SSD	9hr (SSD:Intel 180G)	9hr (SSD:Intel 180G)	9hr 15min (SSD: Intel 180G)
6-cell HDD	14hr (HDD: HGST 500G)	13hr 30min (HDD: Western Digital 500 G) 13hr 45min (HDD:Toshiba 5	
6-cell SSD	15hr 15min (SSD:Intel 180G)	16hr 15min (SSD:Intel 180G)	15hr 15min (SSD: Intel 180G)

1. Windows 8 MM12 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.

#### **System Standby Time**

TBD

### **WEIGHTS & DIMENSIONS**

#### Weight

#### Non Touch

Starting at 3.48 lbs (1.58 kg) (3-cell battery, non-touch, with SSD)

Starting at 3.87 lbs (1.76 kg) (6-cell battery, non-touch, with Solid State Drive)

#### Touch

Starting at 3.76 lbs (1.71 kg)



#### **Features**

(3-cell battery, touch, with Solid State Drive)

Starting at 4.15 lbs (1.88 kg) (6-cell battery, non-touch, with Solid State Drive)

Weight varies by configuration and components.

**Dimensions** (w x d x h) 8.95 x 11.88 x 1 in (at front) 22.74 x 30.18 x 2.54 cm (at front)

## PORTS/JACKS/SLOTS

#### Ports/Jacks

- (1) Headphone/MIC combo audio jack
- (1) AC Power connector
- (3) USB 3.0 Ports (two on one side, third on the opposite side)
- (1) RJ-45 / Ethernet

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

Support SD/SDHC/SDXC
Push-Push Insertion/Removal

SIM Slot

Populated on WWAN configurations only (tool-less user-accessible)

### **SERVICE AND SUPPORT**

HP Services offers 1-year and 90 day 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. Onsite service and extended coverage is also available. HP Care Pack Services<sup>1</sup> are optional<sup>2</sup> 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: <a href="http://www.hp.com/go/cpc">http://www.hp.com/go/cpc</a>.\*Sold separately or as an optional feature.

- 1. Service levels and response times for HP Care Services may vary depending on your geographic location. Service starts on date of hardware purchase. Restrictions and limitations apply. For details, visit www.hp.com/go/cpc
- 2. Sold separately or as an optional feature.

## **COUNTRY OF ORIGIN**

China



## **Technical Specifications**

### **NETWORKING/COMMUNICATIONS**

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

Intel® Dual Band Wireless-AC 3160 802.11 a/b/g/n/AC 1x1 +Bluetooth® Combo **Wireless LAN Standards** 

IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n IEEE 802.11ac Wi-Fi certified

802.11b/q/n

Interoperability Frequency Band

• 2.402 - 2.482 GHz

Note:

The FCC has declared as of January 1, 2015 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.

#### 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

Note:

Indonesia only supports 5.725 - 5.825 GHz (CH149 - CH161)

#### **Data Rates**

- 802.11b: 1, 2, 5.5, 11 Mbps
- 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
- 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
- 802.11n: 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

#### Security<sup>1</sup>

- 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 Roaming Output Power<sup>2</sup> Ad-hoc (Peer to Peer)

Infrastructure (Access Point Required)

IEEE 802.11 compliant roaming between access points

- 802.11b: +16dBm minimum
- 802.11g: +14dBm minimum
- 802.11a: +14dBm minimum
- 802.11n HT20(2.4GHz): +13dBm minimum
- 802.11n HT40(2.4GHz): +13dBm minimum
- 802.11n HT20(5GHz): +12dBm 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: 60 mW (WLAN unassociated)

Radio disabled: 30 mW

**Power Management** ACPI and PCI Express compliant power management

802.11 compliant power saving mode

**Receiver Sensitivity**<sup>3</sup> 802.11b, 1Mbps : -94dBm maximum

802.11b, 11Mbps: -86dBm maximum 802.11g, 6Mbps: -88dBm maximum 802.11g, 54Mbps: -74dBm maximum 802.11a, 6Mbps: -86dBm maximum 802.11a, 54Mbps: -72dBm maximum 802.11n, MCS07: -69dBm maximum 802.11n, MCS15: -66dBm maximum 802.11ac, 1SS, MCS-0: -86dBm maximum 802.11ac, 2SS, MCS-9: -61dBm maximum 802.11ac, 2SS, MCS-9: -58dBm maximum 802.11ac, 2SS, MCS-9: -58dBm 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

Or

Type 1630: 2.3 x 16.0 x 30.0 mm

**Weight** Type 2230 : 2.8q

0r

Type 1630: 2g

Operating Voltage 3.3v +/- 9%

**Altitude** 

**Temperature** Operating 14° to 158° F (–10° to 70° C)

Non-operating -40° to 176° F (-40° to 80° C)

**Humidity**Operating
Non-operating
5% to 95% (non-condensing)

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+EDR Wireless Technology

**Bluetooth Specification** 4.0+EDR Compliant **Frequency Band** 2402 to 2480 MHz

Number of Available Channels 79 (1 MHz) available channels

**Data Rates and Throughput** 3 Mbps data rate; throughput up to 2.17 Mbps

Synchronous Connection Oriented links up to 3, 64 kbps, voice

channels

Asynchronous Connection Less links 2178.1 kbps/177.1 kbps

asymmetric or 1306.9 kbps symmetric



**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.

0.01% BER 0.001% BER **Receiver Sensitivity** Modulation

**GFSK** -80 dBm -70 dBm π/4-DQPSK -70 dBm -80 dBm 8DPSK -70 dBm -80 dBm

**Power Consumption** Peak (Tx) 330 mW

Peak (Rx) 230 mW

Selective Suspend 17 mW

Range Up to 33 ft (10 m) **Electrical Interface** USB 2.0 compliant

**Bluetooth Software Supported** 

Link Topology

**Electrical Interface** 

**Bluetooth Software Supported** 

Security

Point to Point, Multipoint Pico Nets up to 7 slaves Full support of Bluetooth Security Provisions

Microsoft Windows Bluetooth Software

**Power Management** Microsoft Windows ACPI, and USB Bus Support

**Power Management** Self-configurable to optimize power conservation in all operating

**Certifications** modes, including Standby, Hold, Park, and Sniff

Security All necessary regulatory approvals for supported countries, including:

**Certifications** FCC (47 CFR) Part 15C, Section 15.247 & 15.249

**Bluetooth Profiles Supported** 

**Power Management** ETS 300 328, ETS 300 826 Certifications Low Voltage Directive IEC950

> UL, CSA, and CE Mark Serial Port Profile (SPP)1

Service Discovery Application Profile (SDAP)

Dial-Up Networking (DUN)1,2

Generic Object Exchange Profile (GOEP)1,2

Object Push Profile (OPP)1,2 File Transfer Profile (FTP) Synchronization Profile (SYNC)

**Certifications** 

Hard Copy Cable Replacement (HCRP)<sup>1,2</sup> Personal Area Networking Profile (PAN)1,2 **Bluetooth Profiles Supported** 

Human Interface Device Profile (HID)<sup>1,2</sup>

FAX Profile (FAX)

Basic Imaging Profile (BIP)<sup>2</sup> Headset Profile (HSP) Hands Free Profile (HFP)

Advanced Audio Distribution Profile (A2DP)

**Wireless LAN Standards** IEEE 802.11a

Intel® Dual Band IEEE 802.11b Wireless-AC 7260 IEEE 802.11q 802.11 a/b/q/n/AC 2x2 IEEE 802.11n +Bluetooth® Combo IEEE 802.11ac

> Interoperability Wi-Fi certified **Frequency Band** 802.11b/q/n

> > 2.402 - 2.482 GHz



Note:

The FCC has declared as of January 1, 2015 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.

#### 802.11a

- 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

Note:

Indonesia only supports 5.725 - 5.825 GHz (CH149 - CH161)

- 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

**Data Rates** 

Direct Sequence Spread Spectrum

BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM

Security1

- 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 Roaming

Output Power<sup>2</sup>

Ad-hoc (Peer to Peer)

Infrastructure (Access Point Required)

IEEE 802.11 compliant roaming between access points

- 802.11b: +16dBm minimum
- 802.11g: +14dBm minimum
- 802.11a: +14dBm minimum
- 802.11n HT20(2.4GHz): +13dBm minimum
- 802.11n HT40(2.4GHz): +13dBm minimum
- 802.11n HT20(5GHz): +12dBm 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: 60 mW (WLAN unassociated)

Radio disabled: 30 mW

**Power Management** ACPI and PCI Express compliant power management

802.11 compliant power saving mode

Receiver Sensitivity<sup>3</sup>

802.11b, 1Mbps: -94dBm maximum



## Technical Specifications

802.11b, 11Mbps: -86dBm maximum 802.11g, 6Mbps: -88dBm maximum 802.11g, 54Mbps: -74dBm maximum 802.11a, 6Mbps: -86dBm maximum 802.11a, 54Mbps: -72dBm maximum 802.11n, MCS07: -69dBm maximum 802.11n, MCS15: -66dBm maximum 802.11ac, 1SS, MCS-0: -86dBm maximum 802.11ac, 2SS, MCS-9: -61dBm maximum 802.11ac, 2SS, MCS-9: -58dBm 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

0r

Type 1630: 2.3 x 16.0 x 30.0 mm

Weight Type 2230: 2.8g

Ur

Type 1630 : 2g 3.3v +/- 9%

**Operating Voltage** 3.3v +/- 9% **Temperature** Operating

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

4. Check latest software/driver release for updates on supported security features.

5. Maximum output power may vary by country according to local regulations.

6. 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).

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Synchronous Connection Oriented links up to 3, 64 kbps, voice

channels

Asynchronous Connection Less links 2178.1 kbps/177.1 kbps

asymmetric or 1306.9 kbps symmetric

**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.

**Receiver Sensitivity** 

Modulation	0.01% BER	0.001% BER	
GFSK	-80 dBm	-70 dBm	



π/4-DQPSK	-80 dBm	-70 dBm	
8DPSK	-80 dBm	-70 dBm	

**Power Consumption** Peak (Tx) 330 mW

Peak (Rx) 230 mW

Selective Suspend 17 mW

Range Up to 33 ft (10 m)
Electrical Interface USB 2.0 compliant

Bluetooth Software Supported Microsoft

**Link Topology** 

Microsoft Windows Bluetooth Software

Point to Point, Multipoint Pico Nets up to 7 slaves

Electrical Interface

**Bluetooth Software Supported** 

Full support of Bluetooth Security Provisions

Security

**Power Management** Microsoft Windows ACPI, and USB Bus Support

**Power Management** Self-configurable to optimize power conservation in all operating

**Certifications** modes, including Standby, Hold, Park, and Sniff

**Security** All necessary regulatory approvals for supported countries,

including:

Certifications

Certifications

FCC (47 CFR) Part 15C, Section 15.247 & 15.249

**Bluetooth Profiles Supported** 

**Bluetooth Profiles Supported** 

Power Management ETS 300 328, ETS 300 826
Certifications Low Voltage Directive IEC950

UL, CSA, and CE Mark Serial Port Profile (SPP)<sup>1</sup>

Service Discovery Application Profile (SDAP)

Dial-Up Networking (DUN)1,2

Generic Object Exchange Profile (GOEP)1,2

Object Push Profile (OPP)<sup>1,2</sup> File Transfer Profile (FTP) Synchronization Profile (SYNC)

Hard Copy Cable Replacement (HCRP)<sup>1,2</sup>

Personal Area Networking Profile (PAN)<sup>1,2</sup> Human Interface Device Profile (HID)<sup>1,2</sup>

FAX Profile (FAX)

Basic Imaging Profile (BIP)<sup>2</sup> Headset Profile (HSP) Hands Free Profile (HFP)

Advanced Audio Distribution Profile (A2DP)

Realtek 802.11 b/g/n 1x1 +Bluetooth® Combo Wireless LAN Standards IEEE 802.11b

IEEE 802.11g IEEE 802.11n

Interoperability Wi-Fi certified



Frequency Band 802.11b/g/n

2.402 – 2.482 GHz

Note

The FCC has declared as of September 1, 2014 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels.

**Data Rates** 802.11b: 1, 2, 5.5, 11 Mbps

802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps

802.11n: MCS 0 ~ MCS 07, (20MHz)

**Modulation** Direct Sequence Spread Spectrum

BPSK, QPSK, CCK, 16-QAM, 64-QAM,

• IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only

AES-CCMP: 128 bit in hardware

802.1x authentication

WPA2 certification

IEEE 802.11i

 Cisco Certified Extensions, all versions through CCX4 and CCX Lite

WAPI

**Network Architecture** 

Models Roaming Output Power<sup>2</sup> Ad-hoc (Peer to Peer)
Infrastructure (Access Point Required)

IEEE 802.11 compliant roaming between access points

• 802.11b: +16dBm minimum

• 802.11g: +14dBm minimum

802.11n HT20(2.4GHz): +13dBm minimum
 802.11n HT40(2.4GHz): +13dBm minimum

• 802.11n HT20(5GHz): +12dBm minimum

802.11n HT40(5GHz): +12dBm minimum

Power Consumption Transmit: 2.0 W (max)

Receive: 1.6 W (max)

Idle mode (PSP): 180 mW (WLAN Associated)
Idle mode: 60 mW (WLAN unassociated)

Radio disabled: 30 mW

**Power Management** ACPI and PCI Express compliant power management

802.11 compliant power saving mode

Receiver Sensitivity<sup>3</sup> 802.11b, 1Mbps: -94dBm maximum

802.11b, 11Mbps: -86dBm maximum 802.11g, 6Mbps: -88dBm maximum 802.11g, 54Mbps: -74dBm maximum 802.11n, MCS07: -69dBm maximum 802.11n, MCS15: -66dBm maximum

Antenna type High efficiency antenna with spatial diversity, mounted in the

display enclosure

Two embedded antennas for 2.4GHz are provided to the card to

support WLAN and Bluetooth communications.

(Support Dual antenna or Single antenna, depend on platform

requirement)

**Form Factor** PCI-Express M.2 MiniCard

**Dimensions** Type 2230: 2.3 x 22.0 x 30.0 mm

Type 1630: 2.3 x 16.0 x 30.0 mm

Weight Type 2230: 2.8g

Type 1630: 2g

**Operating Voltage** 3.3v +/- 9%

Temperature Operating 14° to 158° F (-10° to 70°

Non-operating

-40° to 176° F (-40° to 80°

Humidity Operating 10% to 90% (non-

> Non-operating condensing) 5% to 95% (non-

> > condensing)

0.001% BER

Altitude Operating 0 to 10,000 ft (3,048 m)

0 to 50,000 ft (15,240 m) Non-operating

**LED** LED Amber - Radio OFF; LED White - Radio ON

#### **Activity**

HP Integrated Module with Bluetooth 4.0+EDR Wireless Technology

**Bluetooth Specification** 4.0+EDR Compliant **Frequency Band** 2402 to 2480 MHz

**Number of Available Channels** 79 (1 MHz) available channels

**Data Rates and Throughput** 3 Mbps data rate; throughput up to 2.17 Mbps

Synchronous Connection Oriented links up to 3, 64 kbps, voice channels

Asynchronous Connection Less links 2178.1 kbps/177.1 kbps

asymmetric or 1306.9 kbps symmetric

**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. 0.01% BER

**GFSK** -80 dBm -70 dBm π/4-DQPSK -80 dBm -70 dBm 8DPSK -80 dBm -70 dBm

**Power Consumption** Peak (Tx) 330 mW

Peak (Rx) 230 mW Selective Suspend 17 mW

Modulation

Range Up to 33 ft (10 m) **Electrical Interface** USB 2.0 compliant

**Bluetooth Software Supported** 

Microsoft Windows Bluetooth Software

**Link Topology Electrical Interface** 

**Receiver Sensitivity** 

Point to Point, Multipoint Pico Nets up to 7 slaves **Bluetooth Software Supported** Full support of Bluetooth Security Provisions

Security

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Advanced Audio Distribution Profile (A2DP)

#### **ENVIRONMENTAL**

## Eco-Label Certifications & declarations

This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:

- IT ECO declaration
- US ENERGY STAR®
- EPEAT Gold registered in the United States. See http://www.epeat.net for registration status in your country.

#### **System Configuration**

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

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

method)	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Sort idle)	6.45 W	6.60 W	6.55 W
Normal Operation (Long idle)	5.16 W	5.22 W	5.05 W
Sleep	0.39 W	0.46 W	0.39 W
Off	0.31 W	0.39 W	0.30 W

#### Note:

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



Heat Dissipation*	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Short	22 BTU/hr	23 BTU/hr	22 BTU/hr
idle)			
Normal Operation (Long	18 BTU/hr	18 BTU/hr	17 BTU/hr
idle)			
Sleep	1 BTU/hr	3 BTU/hr	1 BTU/hr
Off	1 BTU/hr	1 BTU/hr	1 BTU/hr

<sup>\*</sup>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	Sound Power (L <sub>WAd</sub> , bels)	Sound Pressure (L <sub>pAm</sub> , decibels)
ISO 7779 and ISO 9296) Typically Configured — Idle	2.8	21
Fixed Disk – Random	2.8	21

#### **Longevity and Upgrading**

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

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

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

#### **Batteries**

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

Batteries used in the product do not contain: Mercury greater the1ppm by weight Cadmium greater than 20ppm by weight

Battery size: CR2032 (coin cell)

Battery type: Lithium



#### **Additional Information**

- This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive -2011/65/EC.
- This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC.
- This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).
- This product is in compliance with the IEEE 1680 (EPEAT) standard at the gold level, see www.epeat.net
- Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.
- This product contains 8 % post-consumer recycled plastic (by wt.)
- This product is 98.1 % recycle-able when properly disposed of at end of life.

#### **Packaging Materials**

External:	PAPER/Corrugated	339.7 g
Internal:	PLASTIC/EPE (Expanded Polyethylene)	43.5 g
	PLASTIC/Polyethylene low density	12.1 g
	PLASTIC/Plast. Other	1.8 g

The plastic packaging material contains at least 30 % recycled content.

The corrugated paper packaging materials contains at least 30 % 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)



### **HP ProBook 11 G1 Education Edition Notebook**

## **Technical Specifications**

#### **Packaging Usage**

HP follows these guidelines to decrease the environmental impact of product packaging:

- Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.
- Eliminate the use of ozone-depleting substances (ODS) in packaging materials.
- Design packaging materials for ease of disassembly.
- Maximize the use of post-consumer recycled content materials in packaging materials.
- Use readily recyclable packaging materials such as paper and corrugated materials.
- Reduce size and weight of packages to improve transportation fuel efficiency.
- Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.

## End-of-life Management and Recycling

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

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <a href="http://www.hp.com/go/recyclers">http://www.hp.com/go/recyclers</a>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP 0EM customers who integrate and re-sell HP equipment.

Hewlett-Packard Corporate Environmental Information For more information about HP's commitment to the environment:

Global Citizenship Report

http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html

Eco-label certifications

http://www8.hp.com/us/en/hp-information/environment/ecolabels.html

ISO 14001 certificates:

http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC GBU Product Design ISO\_

14K Certificate.pdf

and

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



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

Category	Description	Part number
Cases	HP Essential Top Load Case	H2W17AA
	HP Essential Backpack	H1D24AA
	HP Slim Ultrabook Top Load	F3W15AA
	HP Slim Ultrabook Backpack	F3W16AA
Stands and Docking	HP 3001pr USB 3.0 Port Replicator	F3S42AA
	HP 3005pr USB 3.0 Port Replicator	H1L08AA
Input Devices	HP Stylish Wireless KB/Mouse	H4B79AA
	HP 2.4 GHz Keyboard and Mouse	G1K29AA
	HP Stylish USB KB/Mouse	H4B80AA
	HP X4000b Bluetooth Mouse	H3T50AA
	HP External USB Optical Drive	F2B56AA
Adapters	HP HDMI to DVI Adapter	F5A28AA
	HP Wireless Display Adapter	J1V25AA
Charging	HP 45W Smart AC Adapter (4.5mm)	H6Y88AA
Power		
	HP DS06XL Battery	TBD
Security	HP UltraSlim Keyed Cable Lock	H4D73AA
Charging Cart	20 Notebook Managed Charging Cart	QL489AA
	20 Notebook Charging Cart	QL488AA
	30 Notebook Managed Charging Cart	QL490AA
	30 Notebook Charging Cart	H4F31AA
Displays	HP V242h 24-inch LED Backlit Monitor	K6X12AA
	HP ProDisplay P242va 24-inch LEB Backlit Monitor	K7X32AA
	HP EliteDisplay S24ml 23-inch MHL Monitor	F4M47AA



## **Summary of Changes**

Date of change	Version History		Description of change	
April 6, 2015	V1 to V2	Added	Environmental data.	
April 29, 2015	V2 to V3	Added	Weights for a 6 cell battery to Touch and NonTouch And Battery life	
		Removed	Environmental Data TBD	
		Changed	SSD to Solid State Drive	
May 22, 2015	V3 to V4	Changed	Post-consumer recycled plastic estimate	
June 29, 2015	V4 to V5	Added	Windows 10 added to Overview in page 4, OS list and footnotes on pages 5, 6. 64 GB Solid State Drive page 6	
		Removed	320 GB (5400 rpm) page 6	
		Updated	Battery time pages 4 and 10	
July 8, 2015	V5 to V6	Removed	All Windows 7 32 Operating Systems page 5	
		Added	Note about availability in footer.	

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