QuickSpecs

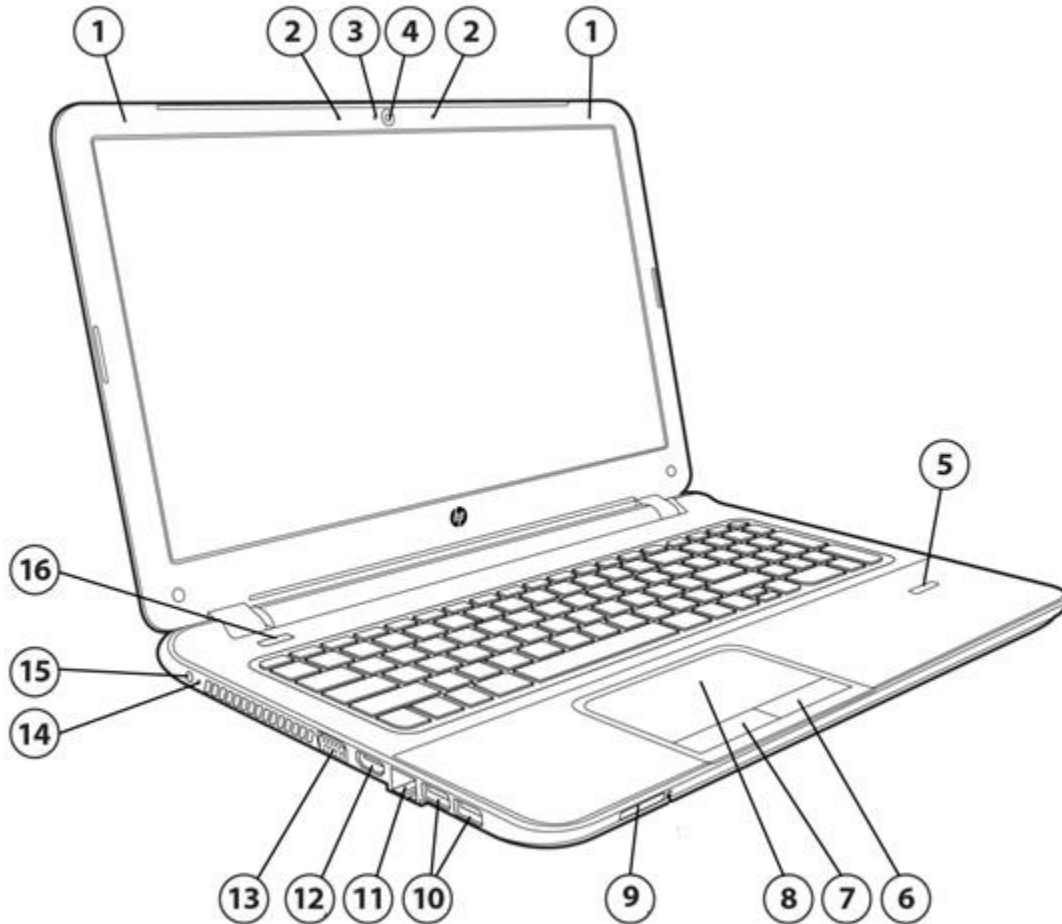## Overview

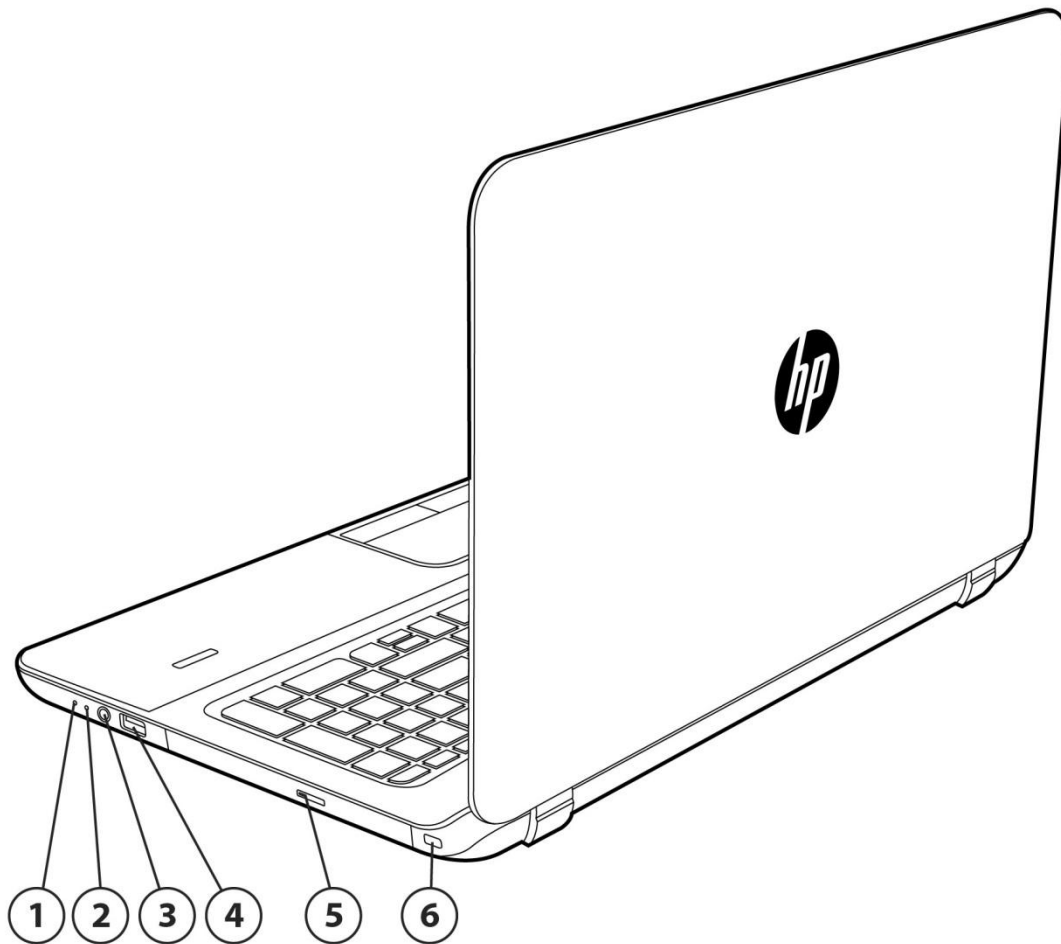**HP 355 G2 Notebook PC**

1.	WLAN antennas	9.	SD Card reader
2.	Internal microphones	10.	USB 3.0 ports (2)
3.	Webcam LED	11.	RJ-45 (Ethernet)
4.	HP HD Webcam	12.	HDMI port
5.	Finger print reader (select models only)	13.	VGA port
6.	Right TouchPad button	14.	AC Plug LED
7.	Left TouchPad button	15.	Power connector
8.	Touchpad with scroll zone	16.	Power button

QuickSpecs

Overview

1. Duplicate power LED
2. Hard drive LED
3. Headphone / Microphone in Combo Jack
4. USB 2.0 Port
5. Optical drive button
6. Security cable slot

QuickSpecs

Overview

AT A GLANCE

- Windows 8.1 versions, Windows 7 Professional 64 (available through downgrade rights from Windows 8.1 Pro 64), Ubuntu Linux, FreeDOS 2.0
- Durable, sophisticated design with smooth surfaced silver color.
- Full-sized keyboard with numeric keypad
- Spill-resistant keyboard and HP 3D Drive Guard protects your system from accidental spills or drops
- HDMI port for connecting to high-resolution displays
- Integrated HP HD Webcam, integrated microphone
- Optional 802.11 b/g/n 1x1 wireless LAN module, optional 802.11 b/g/n 1x1 wireless LAN module + Bluetooth® 4.0 combo, and optional 802.11 a/b/g/n 2x2 wireless LAN module + Bluetooth® 4.0 combo
- 15.6" diagonal LED-backlit HD anti-glare (1366 x 768)

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

QuickSpecs

Features

PRODUCT NAMES

HP 355 G2 Notebook PC

OPERATING SYSTEM

Preinstalled
Windows 8.1*
Windows 8.1 Pro*
Windows 7 Professional 64 (available through downgrade rights from Windows 8.1 Pro 64**)
Ubuntu Linux
FreeDOS 2.0

* Not all features are available in all editions of Windows 8.1. Systems may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows 8.1 functionality. See microsoft.com for details.
** This system is preinstalled with Windows® 7 Pro software and also comes with a license and media for Windows 8.1 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.

ACCELERATED PROCESSING UNIT

AMD
AMD A6-6310 APU (1.8 GHz/2.4 GHz, 2 MB L2 cache, 4 cores)* with AMD Radeon™ R4 Graphics
AMD A4-6210 APU (1.8 GHz, 2 MB L2 cache, 4 cores)* with AMD Radeon™ R3 Graphics
AMD E2-6110 APU (1.5 GHz, 2 MB L2 cache, 2 cores)* with AMD Radeon™ R2 Graphics
AMD E1-6010 APU (1.35 GHz, 1 MB L2 cache, 2 cores)* with AMD Radeon™ R2 Graphics

*This system requires a separately purchased 64-bit operating system and 64-bit software products to take advantage of the 64-bit processing capabilities of AMD technology. Multi-core processing with AMD technology is designed to improve performance of this system. Given the wide range of SW applications available, performance will vary. AMD's numbering is not a measurement of clock speed.

CHIPSET

AMD Chipset is integrated with APU

GRAPHICS

Integrated:
AMD Radeon™ R4 Graphics (AMD A6-6310 APU)
AMD Radeon™ R3 Graphics (AMD A4-6210 APU)
AMD Radeon™ R2 Graphics (AMD E2-6110 APU and AMD E1-6010 APU

DISPLAY

Internal
15.6" diagonal LED-backlit HD anti-glare (1366 x 768)
External
Up to 32-bit per pixel color depth
VGA
Port supports resolutions up to 1080p, 1920 x 1080 at 60Hz

Features

HDMI*
1.4 port supports up to 1080p, 1920 x 1080 at 60Hz

*HDMI cable sold separately.
NOTE: Resolutions are dependent upon monitor capability, and resolution and color depth settings.

STORAGE AND DRIVES

Primary Storage Bay
Hard Drives
500GB/1 TB 5400 rpm SATA
500 GB 7200 rpm SATA

NOTE: For hard drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 30 GB (for Windows 8.1) of system disk is reserved for the system recovery software.

OPTICAL DRIVES

Fixed Optical Drive
DVD+/-RW SuperMulti DL* Drive
Weight Saver option

* * Double-layer discs can store more data than single layer discs. However, double-layer discs burned with this drive may not be compatible with many existing single-layer DVD drives and players. Note that this drive cannot read or write to 2.6 GB single-sided/5.2 GB double-sided – version 1.0 media. Don't copy copy-right protected materials.

MEMORY

Standard
DDR3L SDRAM (1600 MHz)
Two SODIMM slots supporting dual-channel memory
Standard memory up to 8192 MB*
Maximum
Upgradeable to 16384 MB
Dual-channel
Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory slots.

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.

* Maximum memory capacities assume Windows 64-bit operating systems or Linux. With Windows 32-bit operating systems, memory above 3 GB may not all be available due to system resource requirements.

NETWORKING/COMMUNICATIONS

Wireless
Optional 802.11 b/g/n (1x1) wireless LAN module[1,2]
Optional 802.11 b/g/n (1x1) + Bluetooth 4.0 Combo[1,2]
Optional 802.11 a/b/g/n (2x2) + Bluetooth 4.0 Combo[1,2]

Features

Communications
Realtek Gigabit Network Connection (10/100/1000 NIC)

1. Sold separately or as an optional feature.
2. Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited.

AUDIO/MULTIMEDIA

Audio
DTS Sound
Integrated Stereo Speaker
Headphone / Microphone in Combo Jack
Integrated microphone

Webcam
HP HD* Webcam**
- Supports videoconferencing and still image capture
- Improved quality for video streaming and still image capture (1280x720 resolution)
- Up to 30 frames/sec
- Fixed focus lens

* HD content required to view HD images.
** Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited.

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard
The HP spill-resistant keyboard is designed using a thin layer of Mylar film under the keyboard. The 101/102-key compatible keyboard features a full-pitch key layout with desktop keyboard features, such as editing keys, both left and right control and alt keys, and function keys. US and International key layouts are available. Includes a separate numeric keypad.

Pointing Devices
Touchpad with 2-piece pick button with left and right click functions
Multi-touch gestures supported

Buttons and Function Keys
On/off button

SOFTWARE AND SECURITY

Preinstalled Software with Windows Operating System
Buy Office
Recovery Manager Installer
Cyberlink Youcam DE
Cyberlink Power DVD (available on select models)
McAfee Internet Security 2013*
Getting Started with Windows 8.1

Security

Features

Security Lock slot (lock must be purchased separately)
Fingerprint Reader (select models only)

For more information on HP security solutions refer to: hp.com/go/security.

* Internet access required. First 60 days included. Subscription required for live updates afterwards.

POWER

Power Supply
External 45W AC adapter (UMA only)
External 65W HP AC adapter 3-wire plug 1.0m (with ground pin)

Primary Battery
HP 4-cell (41 WHr) Li-Ion battery

Battery life

4-cell (41 WHr) battery   Up to TBD hours (with Windows 7)

System Standby Time
Up to 1 week*

*Standby life will vary depending on various factors including battery, Memory, CPU, EC and LAN chip. The maximum capacity of the battery will naturally decrease with time and usage.

Power Conservation
Hibernation*
Standby*
ACPI compliance*

* Only Linux will feature power conservation.

WEIGHTS & DIMENSIONS

Weight
Starting at 5.07 lbs (2.30 kg)
Weight will vary by configuration.

Dimensions (w x d x h)
10.28 x 15.12 x .91 in
26.1 x 38.4 x 2.31 cm

NOTE: Height varies depending upon where on the notebook the measurement is made. Weight varies by configuration and components.

PORTS/SLOTS

Ports
VGA – One
HDMI* – One
Headphone / Microphone in Combo Jack – One

Features

Power Connector – One
RJ-45 (Ethernet) - One
USB 3.0 – Two
USB 2.0 – One

Expansion Slots
HP Multi-Format Digital Media Reader - supports SD/SDHC/SDXC
Supports mini versions with adapter

* HDMI cable sold separately.

SERVICE AND SUPPORT

HP Services offers limited 1-year warranty options depending on country;
1-year limited warranty on primary battery. On-site service and warranty upgrades are also available. Optional* HP Care Pack Services** are extended service contracts which go beyond your standard warranties. For more details visit:
hp.com/go/lookuptool.

*Sold separately or as an optional feature.
** 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. Consult the HP Customer Support Center for details.
http://h20000.www2.hp.com/bizsupport/TechSupport/ProductRoot.jsp

Technical Specifications

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)	**Nominal Operating Voltage**	18.5/19.5V
	Average Operating Power	Integrated graphics: TBD W
	Max Operating Power	< 65 W
Temperature	**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)
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®	Select models*
	EPEAT®	Registered Silver in United States**
	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

* Configurations of the HP 355 G2 Notebook PC that are ENERGY STAR qualified are identified as HP 355 G2 Energy Star on HP websites and on energystar.gov.
** EPEAT registration varies by country. See epeat.net for registration status by country.
EPEAT status listed above applies to U.S.

For accessibility information on HP products, please visit: hp.com/accessibility.

QuickSpecs

Technical Specifications

DISPLAY

15.6" diagonal LED-backlit HD anti-glare flat (1366 x 768)	Active Area (w x h)	13.54 x 7.59 in (34.4 x 19.4 cm)	
	Diagonal Size	15.6 in (39.6cm)	
	Surface Treatment	Anti-glare	
	Contrast Ratio	300:1 (min)	
	Refresh Rate	60 Hz	
	Brightness	200 nit (typical)	
	Pixel Resolution	**Pitch**	0.252 mm
		Format	1366 x 768
		Configuration	RGB Stripe
	Backlight	LED	
	PPI	101 ppi	
	Viewing Angle	±40° Horizontal, +10°/-30° Vertical (minimum)	
		40/40/30/10 (Left/Right/Down/Up) (minimum	

STORAGE AND DRIVES

Internal Storage

500 GB* 7200 rpm SATA Hard Drive	Drive Weight	0.25 lb (115g)	
	Capacity	500 GB	
	Height	0.276 in (7 mm)	
	Width	2.75 in (70 mm)	
	Interface	ATA-8, SATA 2.6, 3.0 Gb/s, NCQ	
	Transfer Rate	**Synchronous** (maximum)	300 MB/s (Drive Capability)
	Seek Time (typical reads, including settling)	**Single Track**	1.5 ms
		Average	11 ms
		Maximum	22 ms
	Rotational Speed	7200 rpm	
	Logical Blocks	976,773,168	
	Operating Temperature	32° to 140° F (0° to 60° C) [case temp]	
	Features	ATA Security	

1 TB* 5400 rpm SATA Hard Drive	Drive Weight	0.254 lb (115 g)	
	Capacity	1 TB	
	Height	0.37 in (9.5 mm)	
	Width	2.75 in (70 mm)	
	Interface	ATA-8, SATA 2.6, 3.0 Gb/s, NCQ	
	Transfer Rate	**Synchronous** (maximum)	300 MB/s (Drive Capability)
	Seek Time (typical reads, including	**Single Track**	3 ms
		Average	13 ms

Technical Specifications

settling)	**Maximum**	24 ms
Rotational Speed	5400 rpm	
Logical Blocks	1,953,525,168	
Operating Temperature	32° to 140° F (0° to 60° C) [case temp]	
Features	ATA Security	

500 GB* 5400 rpm SATA Hard Drive			
Drive Weight	0.22 lb (101 g)		
Capacity	500 GB		
Height	0.37 in (9.5 mm)		
Width	2.75 in (70 mm)		
Interface	ATA-8, SATA 2.6, 3.0 Gb/s, NCQ		
Transfer Rate	**Synchronous** (maximum)	150 MB/s (Drive Capability)	
Seek Time	**Single Track**	3 ms	
(typical reads, including	**Average**	13 ms	
settling)	**Maximum**	24 ms	
Rotational Speed	5400 rpm		
Logical Blocks	976,773,168		
Operating Temperature	32° to 140° F (0° to 60° C) [case temp]		
Features	ATA Security		

* For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 36 GB (for Windows 8.1) of system disk is reserved for the system recovery software.

Optical Drives
DVD+/-RW
SuperMulti DL Drive

Access Times	Random	<140ms CD (typical)	
		< 160 ms DVD (typical)	
Max Data Transfer Rate	24X CD-ROM		
	8X DVD		
	24X CD-R		
	24X CD-RW		
	8X DVD+R		
	8X DVD+RW		
	8X DVD-R		
	6X DVD-RW		
	5X DVD-RAM		
Transfer Mode	UDMA Mode 5		
Interface	Gen 1 SATA		
Supported Media (read)	CD-DA, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM		
Supported Media (write)	CD-R, CD-RW, DVD+R, DVD+RW, DVD-R, DVD-RW, DVD-RAM, DVD+R DL, DVD-R DL		
Max Media Capacity (read)	8.5 GB		
Max Media Capacity (write)	8.5 GB		
Transport	Tray Loading		

Technical Specifications

NETWORKING/COMMUNICATIONS

Networking

Integrated Realtek 10/100/1000 NIC	**Ethernet Features**	10 Mbit/s operation (10BASE–T; IEEE 802.3i; IEEE 802.3 clauses 13-14) 100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30) 1000 Mbit/s operation (100BASE-T; IEEE 802.3ab; IEEE 802.3 clauses 21-30) (Support in RTL8161FH-CG only) Auto-Negotiation (Automatic Speed Selection) Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s IEEE 802.1p QoS (Quality of Service) Support IEEE 802.1q VLAN support IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable
	Power Management	ACPI compliant - multiple power modes Situation-sensitive features reduce power consumption Advanced link down power saving for reducing link down power consumption
	Performance Features	TCP/IP/UDP Checksum Offload (configurable) Large send offload and Giant send offload Receiving Side Scaling
	Manageability	Wake-on-LAN from standby and hibernation (Magic Packet and Microsoft Wake-Up Frame); Wake-on-LAN from off (Magic Packet only) PXE 2.1 Remote Boot Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30)) Comprehensive diagnostic and configuration software suite Virtual Cable Doctor for Ethernet cable status
	Interface	PCI Express 1.1 x1 to fully support ASPM L0s/L1 and CLKREQ
	NIC Device Driver Name	Realtek PCIe FE Ethernet Family Controller

Communications

**Atheros 802.11b/g/n WiFi Adapter*, **	**Wireless LAN Standards**	IEEE 802.11b IEEE 802.11g IEEE 802.11n
	Interoperability	Wi-Fi certified
	Frequency Band	2.402 - 2.482 GHz
	Data Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n150Mbps for MCS7
	Frequency Support	20 MHz: 2.4 GHz bands
	Modulation	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM, BPSK, QPSK, 16-QAM, 64-QAM
	Security[1]	Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST. Support for Cisco Security Features (proven compatibility with

Technical Specifications

	Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 5) with Microsoft Windows 7only.
Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.
Media Access Protocol	CSMA/CA (Collision Avoidance) with ACK
Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power[2]	13.5 dBm, minimum
Power Consumption	Idle associated: 250 mW avg (CLKREQ enabled) Idle unassociated: 100 mW avg Transmit/Receive channel: 2.0 /1.6 W
Power Management	ACPI compliant power management 802.11 compliant power saving mode
Receiver Sensitivity[3]	11b:-88dBm@11 Mbps, 11g:-74 dBm@54 Mbps, 11n:-70dBm@72 Mbps
Antenna type	High efficiency dual antenna with spatial diversity, usually mounted in the display enclosure
Form Factor	PCI-Express Half-MiniCard
Weight	4 g
Dimensions	3.3 x 26.65 x 29.85 mm
Operating Voltage	3.3v +/- 9%

Temperature	Operating	-10° to 70° C
	Non-operating	-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 LED on-Radio OFF; White LED on-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 (CCK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).

NOTE: WLAN supplier's client utility is required for Cisco Compatible Extensions support with Microsoft Windows XP. WLAN may also be compatible with certain third-party software supplicants. WLAN supplier IHV extensions required for Cisco Compatible Extensions support for Microsoft Windows Vista and Win7.

* Wireless access point and internet service required. Availability of public wireless access points limited.

** Sold separately or as an optional add-on feature.

Ralink 802.11b/g/n Bluetooth 4.0 Combo Card*, **	**Wireless LAN Standards**	IEEE 802.11b IEEE 802.11g IEEE 802.11n

Technical Specifications

Interoperability	Wi-Fi certified)
Frequency Band	2.402 – 2.482 GHz
Data Rates	802.11b: 1, 2, 5.5, 11 Mbps
	802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
	802.11n: 150Mbps for MCS7
Modulation	Direct Sequence Spread Spectrum
	DBPSK, DQPSK, CCK, OFDM, BPSK, QPSK, 16-QAM, 64-QAM
Security[1]	Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST. WAPI
	Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 5) with Microsoft Windows Vista and XP only.
Sub-channels	Multinational support with frequency bands and channels compliant to local regulations.
Media Access Protocol	CSMA/CA (Collision Avoidance) with ACK
Network Architecture	Ad-hoc (Peer to Peer)
Models	Infrastructure (Access Point Required)
Roaming	IEEE 802.11 compliant roaming between access points
Output Power (for CCK)[2]	13.5dBm , minimum
Power Consumption	Idle associated: 250 mW
	Idle unassociated: 150 mW
	Transmit: 2.0 W (max)
	Receive: 2.0 W (max)
Power Management	ACPI compliant power management
	802.11 compliant power saving mode
Receiver Sensitivity[3]	11b:-88dBm@11Mbps,
	11g:-74 dBm@54Mbps,
	11n:-70dBm@72.Mbps.
Antenna type	High efficiency dual antenna with spatial diversity, mounted in the display enclosure
Form Factor	PCI-Express Half-MiniCard v1.2
Weight	6 g
Dimensions	3.3 x 26.65 x 29.85 mm
Operating Voltage	3.3v +/- 10%

Temperature	Operating	14° to 149° F (-10° to 65° 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 Off – Radio OFF; Solid LED On – RadioON	

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 (CCK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).

Technical Specifications

NOTE: WLAN supplier's client utility is required for Cisco Compatible Extensions support with Microsoft Windows XP. WLAN may also be compatible with certain third-party software supplicants. WLAN supplier IHV extensions required for Cisco Compatible Extensions support for Microsoft Windows Vista and Win7.

Bluetooth Specification	
V4.0 High Speed, V2.1+EDR, backwards compatible with V1.1, 1.2 and 2.0	
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	-6 dBm to 4 dBm (Bluetooth Class II)
Receiver Sensitivity	Better than -80 dBM at 0.1 % raw bit error rate
Power Consumption	Peak (Tx) 330 mW
	Peak (Rx) 230 mW
	Sleep <17 mW
Antenna	Internally integrated within module
Range	Up to 33 ft (10 m)
Electrical Interface	USB 2.0 compliant
	Microsoft Windows Plug and Play compliant
Bluetooth Software Supported	Broadcom Bluetooth for Windows
	Microsoft Windows Bluetooth Software
Link Topology	Point to Point, Multipoint Pico Nets up to 7 slaves
Security	Full support of Bluetooth Security Provisions
Power Management	Microsoft Windows ACPI, and USB Bus Support
	Self configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff
Certifications	All necessary regulatory approvals for supported countries, including:
	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
	ETS 300 328, ETS 300 826
	Low Voltage Directive IEC950
	UL, CSA, and CE Mark
Bluetooth Profiles Supported	Generic Access Profile (GAP)
	Service Discovery Application Profile (SDAP)
	Serial Port Profile (SPP)
	Dial_Up Networking Profile (DUN)
	Generic Object Exchange Profile (GOEP)
	Object Push Profile (OPP)
	File Transfer Profile (FTP)
	Synchronization Profile (SYNC)
	Hard Copy Cable Replacement (HCRP)
	Personal Area Networking Profile (PAN)
	Human Interface Device Profile (HID)
	Generic Audio/Video Distribution Profile (GAVDP)
	Advanced Audio/Video Distribution Profile (A2DP)
	FAX Profile (FAX)

Technical Specifications

Basic Imaging Profile (BIP)
Headset Profile (HSP)
Hands Free Profile (HFP)
Basic Printing Profile (BPP)
VDP (Video Distribution Profile)
AVRCP (Audio Video Remote Control Profile)

* Wireless access point and internet service required. Availability of public wireless access points limited.
** Sold separately or as an optional add-on feature.

Broadcom 802.11 a/b/g/n (2x2) with Bluetooth® v4.0 combo*	**Wireless LAN Standards**	IEEE 802.11a IEEE 802.11b IEEE 802.11g IEEE 802.11n
	Interoperability	Wi-Fi certified
	Frequency Band	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
- 2.402 - 2.482 GHz

	Data Rates	802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: card will support rates for NSS=1 and NSS=2 for RX and TX for 20 and 40 MHz channels. Short and long guard interval shall be supported.
	Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM
	Security[1]	o IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only o AES-CCMP: 128 bit in hardware o 802.1x authentication o WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES. o WPA2 certification o IEEE 802.11i o Cisco Certified Extensions, all versions through V5 o WAPI
	Network Architecture Models	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)

Technical Specifications

Roaming	IEEE 802.11 compliant roaming between access points
Output Power[2]	2.4G: +13.5dBm minimum 5G: +12dBm minimum - Maximum output power must be able to achieve modular regulatory certification with notebooks that have antennas >20cm from the user and peak gain of +3dBi at 2.4GHz and +4dBi at 5GHz
Power Consumption	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 250 mW (WLAN Associated) Idle mode: 100 mW (WLAN unassociated) Radio disabled: 75 mW
Power Management	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
Receiver Sensitivity[3]	802.11b:-95 dBm (1 Mbps), –93 dBm (2 Mbps), –91 dBm (5.5 Mbps), –88 dBm (11 Mbps) 802.11a/g:-90 dBm (6 Mbps), –89 dBm (9 Mbps), –87 dBm (12 Mbps), –85 dBm (18 Mbps), –82 dBm (24 Mbps), –79 dBm (36 Mbps), –76 dBm (48 Mbps), –74 dBm (54 Mbps) 802.11n:-69 dBm (72.2 Mbps), –66 dBm (300 Mbps)
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	0.19 x 1.06 x 1.18 in (4.75 x 26.8 x 30 mm)
Weight	3.3g
Operating Voltage	3.3v +/- 9%
Temperature	Operating 14° to 158° F (–10° to 70° C) Non-operating -40° to 176° F (–40° to 80° C)
Humidity	Operating 10% to 90% (non-condensing) Non-operating 5% to 95% (non-condensing)
Altitude	Operating 0 to 10,000 ft (3,048 m) Non-operating 0 to 50,000 ft (15,240 m)
LED Activity	LED Off - Radio OFF; Solid LED On - 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).
Bluetooth Specification

V4.0 High Speed, V2.1+EDR, backwards compatible with V1.1, 1.2 and 2.0

Number of Available Channels	79 (1 MHz) available channels

Technical Specifications

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	-6 dBm to 4 dBm (Bluetooth Class II)
Receiver Sensitivity	Better than -80 dBM at 0.1 % raw bit error rate
Power Consumption	Peak (Tx) 330 mW Peak (Rx) 230 mW Sleep <17 mW
Antenna	Internally integrated within module
Range	Up to 33 ft (10 m)
Electrical Interface	USB 2.0 compliant Microsoft Windows Plug and Play compliant
Bluetooth Software Supported	Broadcom Bluetooth for Windows Microsoft Windows Bluetooth Software
Link Topology	Point to Point, Multipoint Pico Nets up to 7 slaves
Security	Full support of Bluetooth Security Provisions
Power Management	Microsoft Windows ACPI, and USB Bus Support Self configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff
Certifications	All necessary regulatory approvals for supported countries, including: FCC (47 CFR) Part 15C, Section 15.247 & 15.249 ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
Bluetooth Profiles Supported	Generic Access Profile (GAP) Service Discovery Application Profile (SDAP) Serial Port Profile (SPP) Dial_Up Networking Profile (DUN) Generic Object Exchange Profile (GOEP) Object Push Profile (OPP) File Transfer Profile (FTP) Synchronization Profile (SYNC) Hard Copy Cable Replacement (HCRP) Personal Area Networking Profile (PAN) Human Interface Device Profile (HID) Generic Audio/Video Distribution Profile (GAVDP) Advanced Audio/Video Distribution Profile (A2DP) FAX Profile (FAX) Basic Imaging Profile (BIP) Headset Profile (HSP) Hands Free Profile (HFP) Basic Printing Profile (BPP) VDP (Video Distribution Profile)

Technical Specifications

AVRCP (Audio Video Remote Control Profile)
* Wireless access point and internet service required. Availability of public wireless access points limited.

AUDIO/MULTIMEDIA

Audio

Hardware	**Implementation**	Realtek ALC3201-GR High Definition audio
	Volume Controls	Up, down, and mute function keys
	Full Duplex	Yes
	Microphone In	Stereo
	Headphone/Line Out	Stereo
	Integrated Microphone	Yes

Audio Output Quality	**Frequency Response**	10 Hz ~ 22 KHz
	Signal to Noise Ratio	Typical 95 dB FSA (DAC)
	Total Harmonic Distortion	Typical -88 dB FS (DAC)
	Noise Floor	-110 dB
	Play/Record Sampling Rate(s)	Up to 192 KHz
	DAC	24 bits
	ADC	24 bits

Integrated Stereo Speakers	**Power Rating**	1.5 W
	Impedance	4 ohms

Multimedia

Integrated HD Webcam	Supports videoconferencing and still image capture
	Improved quality for video streaming and still image capture (1280x720 resolution)
	Up to 30 frames/sec
	Fixed focus lens

POWER

HP 45W Smart AC Adapter	**Dimensions**	3.78 x 1.95 x 0.88 in (9.6 x 4.95 x 2.24 cm)	
	Input	90 to 265 VAC	
		Input Efficiency	87% min at 115 VAC
		Input frequency range	47 to 63 Hz
		Input AC current	1.4 A at 90 VAC and maximum load
	Output	**Output power**	45W
		DC output	19.5V
		Hold-up time	5 msec at 115 VAC input
		Output current limit	<8A, Over voltage protection- 29V max automatic shutdown
	Connector	3 pin/grounded, mates with interchangeable cords	
	Environmental Design	**Operating**	32° to 95° F (0° to 35° C)

Technical Specifications

	temperature		
	Non-operating (storage) temperature	-4° to 121° F (-20° to 85° C)	
	Altitude	0 to 16,405 ft (0 to 5,000 m)	
	Humidity	0% to 95%	
	Storage Humidity	0% to 95%	
	EMI and 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; Reliability - failure rate of less than 0.1% annually within the first three years of operation.	
HP 65W AC Adapter	**Dimensions**	4.21 x 1.85 x 1.18 in (10.7 x 4.7 x 3.0 cm)	
	Weight	0.62 lb (280 g)	
	Input	100 to 240 VAC	
		Input Efficiency	87% min at 115 VAC
		Input frequency range	47 to 63 Hz
		Input AC current	1.7 A at 90 VAC
	Output	Output power	65W
		DC output	18.5/19.5V
		Hold-up time	5 msec at 115 VAC input
		Output current limit	<11A, Over voltage protection- 29V max automatic shutdown
	Connector	3 pin/grounded, mates with interchangeable cords	
	Environmental Design	Operating temperature	41° to 95° F (5° to 35° C)
		Non-operating (storage) temperature	-4° to 185° F (-20° to 85° C)
		Altitude	0 to 5,000 ft (0 to 1,524 m)
		Humidity	20% to 95%
		Storage Humidity	10% to 95%
	EMI and Safety Certifications	CE Mark - full compliance with LVD and EMC directives; Worldwide safety standards - IEC60950, 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.	
4-Cell (41 WHr) Lithium-Ion battery	**Cells/Type**	4-cell Lithium-Ion	
	Energy Temperature	Watt-hour capacity	41 WHr
		Operating (Charging)	32° to 113° F (0° to 45° C)
		Operating (Discharging)	14° to 140° F (-10° to 60° C)
		Non-operating	-4° to 140° F (-20° to 60° C)
	Battery Re-Charge Time	System in OFF or Standby Mode	2.5 hours
		System ON	3 to 5 hours (depending on system power

Technical Specifications

	consumption)
HP Fast Charge Technology	Charges the battery up to 90% within 90 minutes when system is OFF

ENVIRONMENTAL

COUNTRY OF ORIGIN

China

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

NOTE: Options/capabilities listed in the QuickSpecs represent those capabilities available through Base Units or Build to Order configurations. The various product features and capabilities will vary in terms of configurable vs. aftermarket options (AMOs). There may be options and capabilities available through CTO that are not available as AMOs.

Type	Description	Part #
Docking	HP 3005pr USB 3.0 Port Replicator	H1L08AA#xxx
	HP 2005pr USB 2.0 Port Replicator	H1L07AA#xxx
	HP 3001 USB 3.0 Port Replicator	F3S42AA#xxx
	HP Display and Notebook Stand	AW662AA
Input/Output	HP Stylish USB Keyboard and Mouse	H4B80AA#xxx
	HP Stylish Wireless Keyboard and Mouse	H4B79AA#xxx
	HP Comfort Grip Wireless Mouse	H2L63AA
	HP X4000b Bluetooth Mouse	H3T50AA#xxx
	HP 3-Button USB Laser Mouse	H4B81AA
	HP USB Optical Travel mouse	RH304AA
	USB Graphics Adapter (DBU PL)	NL571AA
Power	90W Smart AC/Auto/Air Combo Adapter	AJ652AA#xxx
	90W Smart Auto/Truck Adapter	ED493AA
	HP 65W Slim Adapter	AX727AA#XXX
	90W Slim Adapter	BT796AA#XXX
	90W Slim Combo Adapter	H4A41AA
	90W w/USB Universal Adapter	H3A43AA
Security	HP UltraSlim Keyed Cable Lock	H4D73AA
Storage - External Storage	HP External USB Optical Drive	F2B56AA
Other	HP HDMI to VGA Adapter	F5A28AA
Monitors	HP EliteDisplay E271i 27-inch IPS LED Monitor	D7Z72AA/A8/AS/AT
	HP EliteDisplay E231 23-inch LED Monitor	C9V75AA/A8/AS/AT
	HP EliteDisplay E201 20-inch LED Monitor	C9V73AA/A8/AS/AT
	HP ProDisplay P221 21.5" LED Monitor	C9E49AA/A8/AS/AT
	HP ProDisplay P201 20" LED Monitor	C9F26AA/A8/AS/AT