

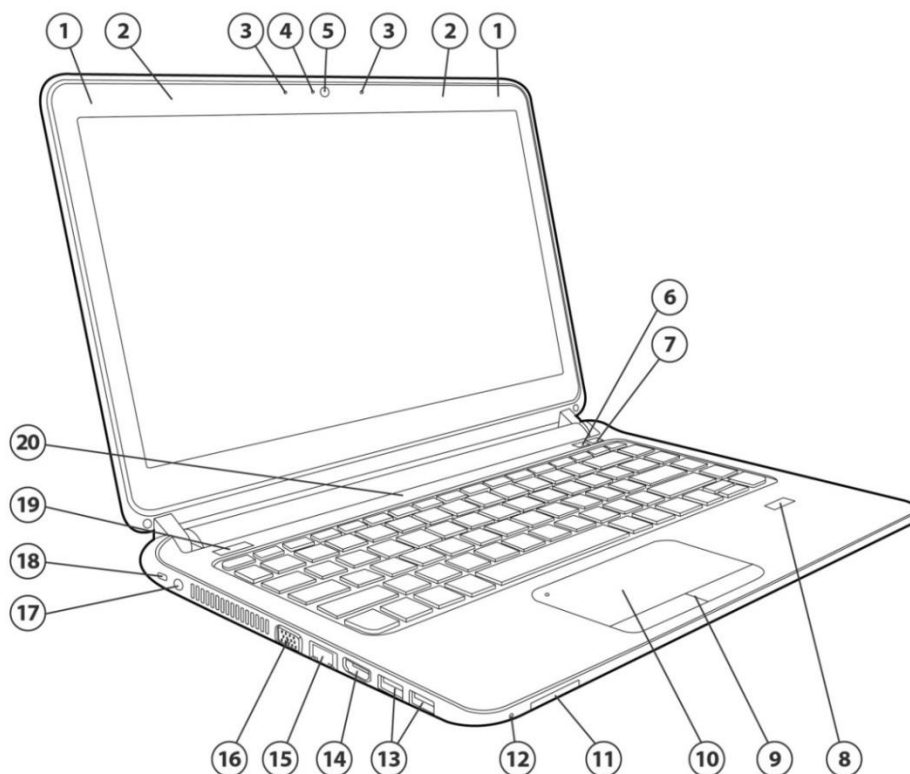


Notebook HP Probook 440 G2

O elegante HP ProBook 440, com tela de toque opcional de 10 pontos e as tecnologias de última geração, oferece desempenho poderoso no escritório ou em trânsito.

Overview

HP ProBook 440 G2 Notebook PC



Front

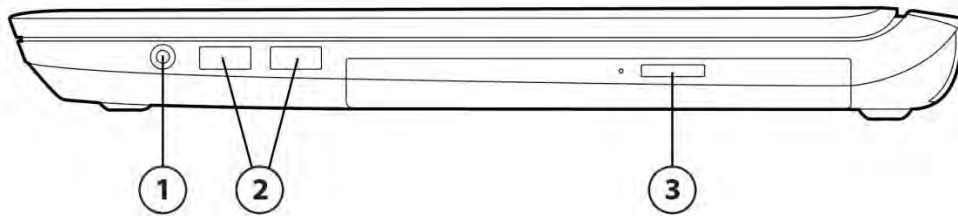
- | | |
|--|---------------------------------------|
| 1. WLAN antennas (available on select models only) | 11. Media Card Reader |
| 2. Dual-microphone array* | 12. Hard drive activity LED indicator |
| 3. Optional webcam | 13. USB 3.0 ports (2) |
| 4. Wireless on/off button | 14. HDMI port |
| 5. Speaker mute button | 15. RJ-45 (network) jack |
| 6. Optional Fingerprint Reader | 16. RJ-45 (network) lights (2) |
| 7. Touchpad pick buttons | 17. VGA monitor port |
| 8. Touchpad | 18. Power connector |
| | 19. Security lock slot |
| | 20. Power button |
| | 21. Speakers (2) |

* Only available with optional webcam.

** The antennas are not visible from the outside of the computer. For optimal transmission, keep the areas immediately around the antennas free from obstructions.



Overview



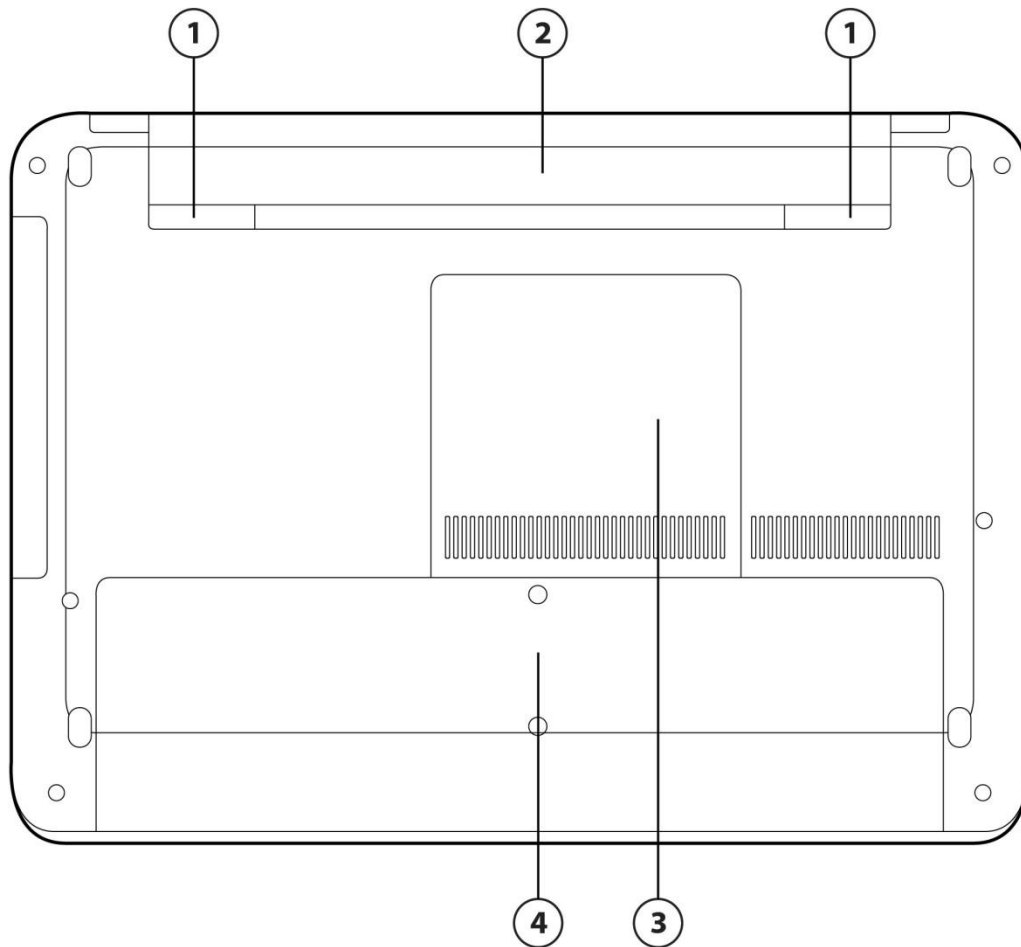
1. Headphone/Microphone combo jack
2. USB 2.0 ports (2)

Right

3. Optical drive eject button (select models only)



Overview



- 1. Battery release latches
- 2. Battery bay

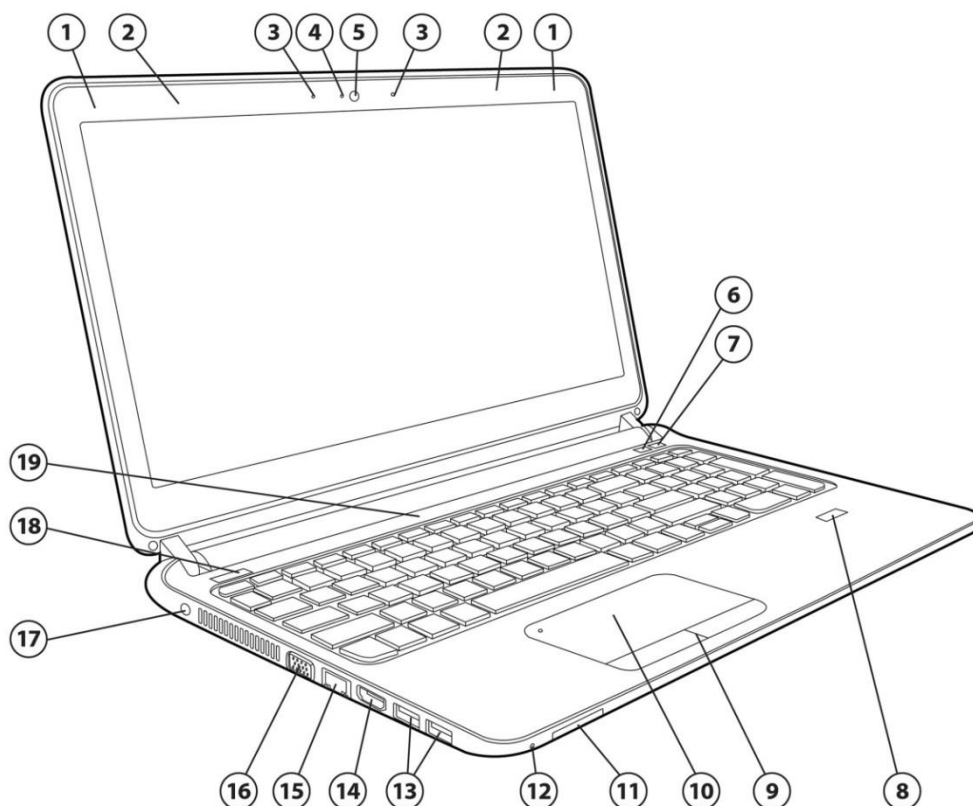
Bottom

- 3. Service door
- 4. Service door



Overview

HP ProBook 450 G2 Notebook PC



Front

- | | |
|--|---------------------------------------|
| 1. WLAN antennas (available on select models only) | 11. Media Card Reader |
| 2. Dual-microphone array* | 12. Hard drive activity LED indicator |
| 3. Optional Webcam | 13. USB 3.0 ports (2) |
| 4. Wireless on/off button | 14. HDMI port |
| 5. Speaker mute button | 15. RJ-45 (network) jack |
| 6. Optional Fingerprint Reader | 16. RJ-45 (network) lights (2) |
| 7. Touchpad pick buttons | 17. VGA monitor port |
| 8. Touchpad | 18. Power connector |
| | 19. Power button |
| | 20. Speakers (2) |

* Only available with optional webcam.

** The antennas are not visible from the outside of the computer. For optimal transmission, keep the areas immediately around the antennas free from obstructions.



Overview



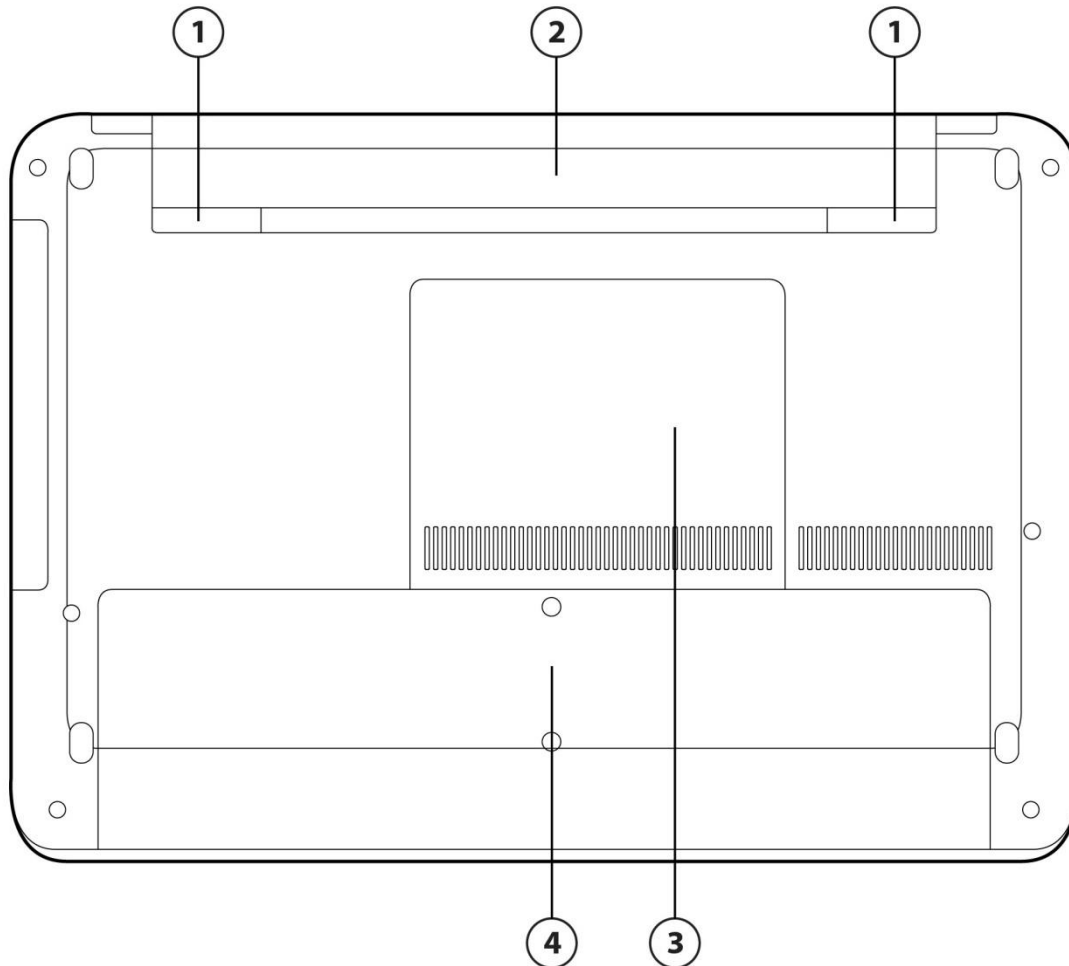
1. Headphone/Microphone combo jack
2. USB 2.0 ports (2)

Right

3. Optical drive eject button (select models only)
4. Security lock slot



Overview



- 1. Battery release latches
- 2. Battery bay

Bottom

- 3. Service door
- 4. Service door



Overview

AT A GLANCE

- Windows 8.1 versions, Windows 7 Professional (available through downgrade rights from Windows 8.1 Pro), Windows 7 versions, or FreeDOS 2.0
- Durable multi-layer soft touch painted LCD cover and brushed aluminum keyboard deck that keeps system looking good longer
- Full-sized spill-resistant keyboard with a thin layer of Mylar film to prevent minor spills; full separate numeric keypad (HP ProBook 450)
- Larger Touchpad with gestures support, on/off button with LED indicator
- Enhanced security features including HP Client Security, optional HP Fingerprint Reader and TPM 1.2
- Optional HD webcam with dual-microphone array for video conferencing*
- HDMI port for connecting to high-resolution displays; USB 3.0 ports
- DTS Sound+ optimized for high fidelity audio
- Widescreen LED-backlit displays with available touch panels
 - 15.6-inch diagonal HD, 15.6-inch diagonal HD with Touch (available in Summer 2014), 15.6-inch diagonal FHD (HP ProBook 450 G2)
 - 14-inch diagonal HD, 14-inch diagonal HD with Touch (available in Summer 2014), and 14-inch diagonal HD+ (HP ProBook 440 G2)
- Choice of 4th generation Intel® Core™ i7, i5 and i3 processors, Intel Celeron™(select models only) processor
- Wireless on/off and speaker mute buttons for convenient management of the connectivity and speaker.
- Flexible wireless connectivity options:
 - Integrated 802.11 b/g/n wireless LAN module
 - Integrated 802.11 a/b/g/n/AC, a/b/g/n or b/g/n with Bluetooth 4.0 combo card
- Spill-resistant backlit keyboard available on select models (available in Summer 2014)
- Optional 4-cell (40 WHr) HP Long Life battery available on HP ProBook 440, 450 G2

* Optional on models with integrated graphics only.

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



QuickSpecs

HP Confidential
HP ProBook 440 G2 Notebook PC
HP ProBook 450 G2 Notebook PC

Features

PRODUCT NAME

HP ProBook 440 G2 Notebook PC

HP ProBook 450 G2 Notebook PC

OPERATING SYSTEM

Preinstalled

Windows 8.1 Pro 64*

Windows 7 Professional (available through downgrade rights from Windows 8.1 Pro)**

Windows 8.1 64*

Windows 7 Professional 64***

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 <http://www.microsoft.com> for details.

** This system is preinstalled with Windows® 7 Pro 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.

*** Not all features are available in all editions of Windows 7. This system may require upgraded and/or separately purchased hardware to take full advantage of Windows 7 functionality. See <http://www.microsoft.com/windows/windows-7/> for details.

PROCESSOR

4th Generation Intel® Core™ i7-4510U (2.0GHz, 4 MB L3 cache, 2 cores)*

Up to 3.1GHz with Intel Turbo Boost Technology

4th Generation Intel® Core™ i5-4210U (1.7GHz, 3 MB L3 cache, 2 cores)*

Up to 2.7GHz with Intel Turbo Boost Technology

4th Generation Intel® Core™ i3-4030U (1.9GHz, 3 MB L3 cache, 2 cores)*

4th Generation Intel® Core™ i3-4005U (1.7GHz, 3 MB L3 cache, 2 cores) (available in Summer 2014 on 440 and 450 G2 only)

4th Generation Intel® Celeron 2957U (1.4GHz, 2MB L3 cache, 2 cores)* (available on 440 and 450 G2 only)

* 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.

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

CHIPSET

Integrated with processor

GRAPHICS



Features

Integrated*:

4th Generation Intel® Core™ i7-4510U (2.0GHz, 4 MB L3 cache, 2 cores)/ Intel® HD Graphics 4400

4th Generation Intel® Core™ i5-4210U (1.7GHz, 3 MB L3 cache, 2 cores)/ Intel® HD Graphics 4400

4th Generation Intel® Core™ i3-4030U (1.9GHz, 3 MB L3 cache, 2 cores)/ Intel® HD Graphics 4400

4th Generation Intel® Core™ i3-4005U (1.7GHz, 3 MB L3 cache, 2 cores)/ Intel® HD Graphics 4400 (available in Summer 2014 on 440 and 450 G2 only)

4th Generation Intel® Celeron 2957U (1.4GHz, 2MB L3 cache, 2 cores) / Intel® HD Graphics (HP ProBook 440 G2 and 450 G2 only)

* HP ProBook 440 G2 and 450 G2 only. HP ProBook 470 G2 supports switchable discrete graphics only.

** HD content required to view HD images.

*** AMD Dynamic Switchable Graphics technology requires either an AMD "A" series APU or an Intel processor, plus an AMD Radeon™ discrete graphics configuration and is not available on FreeDOS 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

HP ProBook 440 G2

Internal

14" diagonal LED-backlit HD anti-glare (1366 x 768)

14" diagonal LED-backlit HD Touch Display is shatter, scratch, and smudge resistant (1366 x 768) (available in Summer 2014)

14" diagonal LED-backlit HD+ anti-glare (1600 x 900)

External

Up to 32-bit per pixel color depth

VGA

Port supports resolutions up to 2048 x 1536 external resolution @50 Hz

HDMI

Supports direct connection to high-definition displays with up to 1920 x 1200@60Hz resolution and 7-channel audio with one convenient cable (not included)

NOTE: HD content required to view HD images.

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

HP ProBook 450 G2

Internal

15.6" diagonal LED-backlit HD anti-glare (1366 x 768)

15.6" diagonal LED-backlit HD Touch Display is shatter, scratch, and smudge resistant (1366 x 768) (available in Summer 2014)

15.6" diagonal LED-backlit FHD anti-glare (1920 x 1080)

External

Up to 32-bit per pixel color depth

VGA

Port supports resolutions up to 2048x1536 external resolution @ 50 Hz

HDMI

Supports direct connection to high-definition displays with up to 1920 x 1200@60Hz resolution and 7-channel audio with one convenient cable (not included)



Features

NOTE: HD content required to view HD images.

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

STORAGE AND DRIVES

Primary Storage Bay

Hard Drives

320/500/750 GB**/1.0 B** 5400 rpm SMART SATA HDD; 750GB** 7200 rpm SMART SATA HDD
500 GB** 5400 rpm SMART SATA Hybrid HDD/SSHD

Solid State Drive*

120 GB* M.2 Solid State Drive (440 G2 and 450 G2 only)
128 GB** 2.5" Solid State Drive

HP 3D DriveGuard (Windows only)

The hard drive is mounted directly to the notebook frame, reducing the transmission of shock to the hard drive

*For hard drives and solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 36 GB (for Windows 8) of system disk is reserved for the system recovery software.

OPTICAL DRIVES

Fixed 9.5 mm SATA optical drive

Blu-ray ROM DVD+/-RW SuperMulti DL Drive*†
DVD+/-RW SuperMulti DL Drive*
No optical drive option

* Sold separately as an optional feature.

† For Blu-ray drives, certain disc, digital connection, compatibility and/or performance issues may arise, and do not constitute defects in the product. Flawless playback on all systems is not guaranteed. In order for some Blu-ray titles to play, they may require an HDMI digital connection and your display may require HDCP support. HD-DVD disks cannot be played on this drive. Note that DVD-RAM cannot read or write to 2.6GB Single Sided/5.2 GB Double Sided – Version 1.0 media. Actual speeds may vary. Don't copy copyright-protected materials. Double Layer discs can store more data than single layer discs; discs burned with this drive may not be compatible with many existing single-layer DVD drives and players.

MEMORY

Standard

DDR3L 1.35V SDRAM (1600 MHz)
Two SODIMM slots supporting dual-channel memory
2 GB, 4 GB, and 8 GB SODIMMs*

Maximum

Upgradeable to 16384 MB with optional 8192 MB SODIMMs in slots 1 and 2

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. With Windows Starter 32-bit operating systems, the amount of usable memory is dependent upon your configuration, so that above 3 GB all memory



Features

may not be available due to system resource requirements.

NETWORKING/COMMUNICATIONS

Wireless

Support for a broad range of secure, integrated wireless LAN options featuring support for the latest industry standards. Integrated Bluetooth is also available (factory configurable only) and can be combined with any of the supported wireless LAN options.

Wireless LAN (WLAN)***

Realtek 802.11 b/g/n (1x1)***

Realtek 802.11 b/g/n (1x1) with Bluetooth® v4.0 combo***

Broadcom 802.11 a/b/g/n (2x2) with Bluetooth® v4.0 combo ***

Intel Dual Band Wireless-AC 3160 802.11 a/b/g/n/ac (1x1) WiFi with Bluetooth 4.0 combo***

Intel Dual Band Wireless-AC 7260AN 802.11 a/b/g/n/ac (2x2) WiFi with Bluetooth 4.0 combo***

NOTE: Supports Bluetooth® v2.1 on Linux operating systems

Communications

Realtek 10/100/1000* Ethernet Controller

* 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

DTS Sound+

Integrated stereo speakers

Integrated digital microphone (dual-microphone array when equipped with optional webcam)

Function keys for microphone mute, volume up, and volume down

Headphone/Microphone Combo Jack

Webcam

Optional* 720p HD** webcam

- HD format (widescreen)
- Supports videoconferencing (non-HD) and still image capture
- High quality fixed focus lens
- Video capture at various resolutions up to 1280x720 resolution (720p) and up to 30fps
- M-JPEG compression supports higher frame rates for video capture and videoconferencing
- Improved low light sensitivity
- Improved dynamic range
- Skype-ready***, ****

* Sold separately as an optional feature.

** HD content required to view HD images.

*** Internet access required.

**** Not available in China



Features

KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

Keyboard

The HP spill-resistant keyboard and optional HP spill-resistant backlit keyboard are 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 (HP ProBook 450).

Optional backlit keyboard is available (available in Summer 2014).

Pointing Devices

Touchpad with gestures support, on/off button with LED indicator, two-way scroll, two pick buttons

Buttons and Function Keys

Separate launch buttons provide easy access to wireless on/off and speaker mute. Function keys provide control of features including: standby mode, display brightness, external display, microphone mute, volume down, volume up, and backlight toggle for backlit keyboard (select models only).

SOFTWARE AND SECURITY

Software Included

Security

Windows 8.1

Absolute Persistence Module¹
 Device Access Manager with Just In Time Authentication
 HP File Sanitizer²
 HP Client Security³
 HP SpareKey
 Microsoft Defender
 DigitalPersona Fingerprint Driver
 Validity Fingerprint Driver
 Hardware Root of Trust
 HP Automatic DriveLock
 HP BIOS Protection
 HP Disk Sanitizer⁵
 DASH Support
 HP DriveLock
 HP SpareKey⁶
 Hybrid Boot
 Master Record Security
 Measured Boot
 Power On Authentication
 Pre-Boot Security
 Secure Boot (Windows 8.1)
 Secure Erase⁷
 Touch enabled F10 Setup with virtual KB
 Cyberlink Power2Go
 Cyberlink PowerDVD
 Cyberlink YouCam BE
 HP Connection Manager
 HP GPS and Location⁸
 HP Mobile Connect⁹
 HP Wireless Hotspot¹⁰
 Intel WiDi Software¹¹

Windows 7

Absolute Persistence Module
 Device Access Manager with Just In Time Authentication
 HP File Sanitizer²
 HP Client Security³
 HP SpareKey
 Microsoft Security Essentials⁴
 DigitalPersona Fingerprint Driver
 Validity Fingerprint Driver
 Hardware Root of Trust
 HP Automatic DriveLock
 HP BIOS Protection
 HP Disk Sanitizer⁵
 DASH Support
 HP DriveLock
 HP SpareKey⁶
 Hybrid Boot
 Master Record Security
 Measured Boot
 Power On Authentication
 Pre-Boot Security
 Secure Boot (Windows 7)
 Secure Erase⁷
 Touch enabled F10 Setup with virtual KB
 Cyberlink Power2Go
 Cyberlink PowerDVD
 Cyberlink YouCam BE
 HP Connection Manager
 HP GPS and Location⁸
 Intel WiDi Software¹¹
 Intel My WiFi and Wireless Drivers for Microsoft

MultiMedia

Communications



QuickSpecs

HP Confidential HP ProBook 440 G2 Notebook PC HP ProBook 450 G2 Notebook PC

Features

HP Value Add Software

Intel My WiFi and Wireless Drivers for Microsoft
Digital Energy Star Logo W8
Getting Started with Windows 8
HP 3D DriveGuard
HP Ceement
HP ePrint Driver¹²
HP Hotkey
HP PageLift App (Requires Windows 8)
HP Recovery Manager
HP Registration App
HP Setup
HP Softpaq Download Manager
HP Software Setup
HP Support Assistant¹³
HP Recovery Disc Creator (HPRDC)
HP Wallpaper
System Default Settings for Win8
UEFI System Diagnostics W8
Box 50GB Offer Desktop Icon¹⁴
Box App
Foxit PhantomPDF Express
Buy Office

Digital Energy Star Logo W8
Getting Started with Windows 8
HP 3D DriveGuard
HP Ceement
HP ePrint Driver¹²
HP Hotkey
HP PageLift for Win 7
HP Recovery Manager
HP Registration App
HP Setup
HP Softpaq Download Manager
HP Software Setup
HP Support Assistant¹³
HP Recovery Disc Creator (HPRDC)
HP Wallpaper
System Default Settings for Win8
UEFI System Diagnostics W8
Box 50GB Offer Desktop Icon¹⁴
Box App
Foxit PhantomPDF Express
Buy Office

3rd Party

¹The Absolute Persistence agent is shipped turned off, and will be activated when customers activate a purchased subscription. Subscriptions can be purchased for terms ranging multiple years. Service is limited, check with Absolute for availability outside the U.S. The Absolute Recovery Guarantee is a limited warranty. Certain conditions apply. For full details visit: <http://www.absolute.com/company/legal/agreements/computrace-agreement>. Data Delete is an optional service provided by Absolute Software. If utilized, the Recovery Guarantee is null and void. In order to use the Data Delete service, customers must first sign a Pre-Authorization Agreement and either obtain a PIN or purchase one or more RSA SecurID tokens from Absolute Software.

²For the use cases outlined in the DOD 5220.22-M Supplement. Supports standard Hard Drives. Initial setup required.

³Not all features are remotely manageable.

⁴Opt in and internet connection required for updates.

⁵For the use cases outlined in the DOD 5220.22-M Supplement. Does not support Solid State Drives (SSDs). Initial setup required. Web history deleted only in Internet Explorer and Firefox browsers and must be user enabled.

⁶Requires initial user set up.

⁷For the methods outlined in the National Institute of Standards and Technology Special Publication 800-88.

⁸GPS access requires an unobstructed path to multiple satellites. Performance may be affected if/when used inside of buildings, bridges or heavily congested metropolitan areas. Requires separately purchased GPS navigation software available from multiple GPS applications.

⁹Internet access required.

¹⁰ The wireless hotspot application requires an active internet connection and separately purchased data plan. While HP wireless hotspot is active, on-device applications will continue to work and will use the same data plan as the wireless hotspot. Wireless hotspot data usage may incur additional charges. Check with your service provider for plan details. Requires Windows.

¹¹Integrated Intel Wi-Di feature is available on select configurations only and requires separately purchased projector, tv or computer monitor with an integrated or external Wi-Di receiver. External Wi-Di receivers connect to the projector, tv or computer monitor via a standard HDMI cable, also sold separately.

¹²Requires 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 www.hp.com/go/eprintcenter). Requires optional broadband module. Broadband use requires separately purchased service contract. Check with service provider for coverage



Features

and availability in your area. Separately purchased data plans or usage fees may apply. Print times and connection speeds may vary.

¹³ Internet access required.

¹⁴ Offer available on new 2014 HP commercial PC and requires Box registration. Offer subject to change without notice.

Security

Standard

HP Client Security (Windows only)

Microsoft Security Essentials(Windows 7)/Microsoft Defender (Windows 8)*

HP Drive Encryption**

HP BIOS Protection***

Security lock slot

TPM 1.2 Embedded Security Chip

Optional

Intel Identity Protection****

HP Fingerprint reader

NOTE: The Absolute Persistence agent is shipped turned off, and must be activated by customers when they purchase a subscription. Subscriptions can be purchased for terms ranging multiple years. Service is limited, check with Absolute for availability outside the U.S.

* Opt in and internet connection required for updates.

** HP Drive Encryption requires Windows. Data is protected prior to Drive Encryption login. Turning the PC off or into hibernate logs out of Drive Encryption and prevents data access.

*** HP Tools partition with an HP BIOS required for automatic recovery.

**** Intel Identity Protection feature is only available with Intel Core Processors. Intel® IPT security requires separate Symantec VIP software service subscription and must be activated and configured. Requires a website that uses Symantec VIP Authentication Service and Microsoft® Windows. Intel® and HP assume no liability for lost or stolen data and/or systems or any other damages resulting therefrom.

For more information on HP security solutions refer to: <http://www.hp.com/go/security>.

POWER

Power Supply

HP ProBook 440 G2 Notebook PC

Models with integrated graphics:

45W Smart AC Adapter

Power cord included is 1.0m (+/- 0.1m)

HP ProBook 450 G2 Notebook PC

Models with integrated graphics:

45W Smart AC Adapter

Power cord included is 1.0m (+/- 0.1m)



QuickSpecs

HP Confidential
HP ProBook 440 G2 Notebook PC
HP ProBook 450 G2 Notebook PC

Features

Primary Battery

HP ProBook 440 G2 and 450 G2 Notebook PCs

4-cell (44 WHr) Lithium-Ion battery
4-cell (40 WHr) Long Life Lithium-Ion battery

Battery Life

	Configurations with integrated graphics (Windows 7)	Configurations with discrete graphics (Windows 7)
HP ProBook 440 4-cell (44 WHr)	Up to TBD hours	Up to TBD hours
HP ProBook 450 4-cell (44 WHr)	Up to TBD hours	Up to TBD hours
HP ProBook 470 6-cell (47 WHr)	N/A	Up to TBD hours

System Standby Time*

Up to TBD hours days

* 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.

NOTE: Fast Charge recharges your battery up to 90% within 90 minutes when the system is off.

Power Conservation

Supports enhanced Intel SpeedStep technology (allows Battery Optimized Mode, Maximum Performance Mode, or Automatic mode)

AMD PowerPlay technology (discrete models)

Hibernation

Standby

ACPI compliance

WEIGHTS & DIMENSIONS

HP ProBook 440 G2 Notebook PC

Weight

Lightest possible configuration across battery and panel options (HD Panel, Non-Touch, No-ODD, 4-cell (44Whr) Battery, M.2 120GB SSD) at 4.04 lb/1.83 kg

Lightest Weight Configurations (across panel, battery and ODD options, if applicable)

	4-cell (44Whr)
Non-Touch, No-ODD, M.2 SSD	4.04 lb/1.83 kg
Non-Touch, ODD, M.2 SSD	4.29 lb/1.94 kg



QuickSpecs

Features

Non-Touch, No-ODD, HDD	4.24 lb/1.92 kg
Non-Touch, ODD, HDD	4.49 lb/2.03 kg
Touch, No-ODD, HDD	5.10 lb/2.32 kg
Touch, ODD, HDD	5.35 lb/2.43 kg

Dimensions (w x d x h)

Non-Touch Models

13.35 x 9.61 x 0.91 (front) - 0.99 in (rear)

33.92 x 24.4 x 2.31 (front) - 2.52 cm (at rear)

Touch Models

13.35 x 9.62 x 0.96 (front) - 1.05 in (rear)

33.92 x 24.45 x 2.45 (front) - 2.66 cm (rear)

HP ProBook 450 G2 Notebook PC

Weight

Lightest possible configuration across battery and panel options (HD Panel, Non-Touch, No-ODD, 4-cell (44Whr) Battery, M.2 120GB SSD) at 4.66 lb/2.11 kg

Lightest Weight Configurations (across panel, battery and ODD options, if applicable)

	4-cell (44Whr)
Non-Touch, No-ODD, M.2 SSD	4.66 lb/2.11 kg
Non-Touch, ODD, M.2 SSD	4.90 lb/2.22 kg
Non-Touch, No-ODD, HDD	4.86 lb/2.20 kg
Non-Touch, ODD, HDD	5.10 lb/2.31 kg
Touch, No-ODD, HDD	5.95 lb/2.70 kg
Touch, ODD, HDD	6.19 lb/2.81 kg

Dimensions (w x d x h)

Non-Touch Models

14.76 x 10.35 x 0.92 (front) - 1.00 in (rear)

37.50 x 26.28 x 2.34 (front) - 2.55 cm (at rear)

Touch Models

14.76 x 10.36 x 0.98 (front) - 1.07 in (rear)

37.50 x 26.32 x 2.50 (front) - 2.71 cm (rear)



Features

PORTS/SLOTS

Ports

USB 3.0 – Two

USB 2.0 – Two

HDMI 1.4a – One

Headphone/Microphone Combo Jack – One

RJ-45 (Ethernet) – One

Power connector – One

VGA – One

Digital Media Slots

Multi Media Reader Slot supporting SD, SDHC, and SDXC

SERVICE AND SUPPORT

HP Services offers limited 3-year, 1-year and 90-day warranty options depending on country; 1-year limited warranty on primary battery. 3-year limited warranty on HP Long Life Battery (only available with 3-year platform warranty). On-site service and warranty upgrades are also available. HP Care Pack Services extend service contracts beyond the standard 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/lookuptool>. Consult the HP Customer Support Center for details.

<http://h20000.www2.hp.com/bizsupport/TechSupport/ProductRoot.jsp>.

NOTE: 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>.



Technical Specifications

SYSTEM UNIT

Stand-Alone Power Requirements (AC Power)	Nominal Operating Voltage	19 V	Windows 7 (64-bit)	Windows 8 (64-bit)
	Average Operating Power			
	ProBook 440 Integrated graphics		TBD W	TBD W
	ProBook 440 Discrete graphics		TBD W	TBD W
	ProBook 450 Integrated graphics		TBD W	TBD W
	ProBook 450 Discrete graphics		TBD W	TBD W
	ProBook 470 Discrete graphics		TBD W	TBD W
	Max Operating Power			
		Discrete < 90W		
		UMA < 65W		
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 6.0®	Select models*		
	EPEAT	Registered Gold in United States**		
	ICES	Yes		
	Australia /	Yes		
	NZ A-Tick Compliance			
	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 ProBook 440 G2, HP ProBook 450 G2 and HP ProBook 470 G2 that are ENERGY STAR® qualified are identified as HP ProBook 440 G2 ENERGY STAR, HP ProBook 450 G2 ENERGY STAR and HP ProBook 470 G2 ENERGY STAR on HP websites and on www.energystar.gov.

** EPEAT® registration varies by country. See www.epeat.net for registration status by country. EPEAT status listed above applies to U.S.

For accessibility information on HP products, please visit: <http://www.hp.com/accessibility>.

DISPLAYS



Technical Specifications

14.0-inch LED HD (1366 x 768) anti-glare

Dimensions (W x H)	12.63 x 7.39 in (32.09 x 18.76 cm)	
Weight	320g max.	
Diagonal Size	14.0 in (35.6cm)	
Surface Treatment	Anti-glare	
Contrast Ratio	400:1 (typical)	
Refresh Rate	60 Hz	
Brightness	200 nit (typical)	
Pixel Resolution	Pitch	0.227 mm
	Format	1366 x 768
	Configuration	RGB Stripe
Backlight	LED	
PPI	112 ppi	
Viewing Angle	±30° Horizontal, ±10° Vertical (minimum) 30/30/20/10 (Left/Right/Down/Up) (minimum) or 45/45/35/25 (Left/Right/Down/Up) (typical)	

15.6-inch LED HD (1366 x 768) with Touch

Dimensions (W x H)	13.54 x 7.64 in (34.39 x 19.41 cm)	
Weight	500g max.	
Diagonal Size	15.6 in (39.6cm)	
Contrast Ratio	300:1 (min)	
Refresh Rate	60 Hz	
Brightness	200 nit (typical)	
Pixel Resolution	Pitch	0.252 x 0.252
	Format	1366 x 768
	Configuration	RGB Stripe
Backlight	LED	
PPI	106 ppi	
Viewing Angle	±30° Horizontal, ±10° Vertical (minimum) 30/30/20/10 (Left/Right/Down/Up) (minimum) or 45/45/35/25 (Left/Right/Down/Up) (typical)	

15.6-inch LED HD (1366 x 768) anti-glare

Dimensions (W x H)	14.17 x 8.83 in (36.0 x 22.43 cm)	
Weight	500g max.	
Diagonal Size	15.6 in (39.6cm)	
Surface Treatment	Anti-glare	
Contrast Ratio	400:1 (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	106 ppi	



Technical Specifications

Viewing Angle

±30° Horizontal, ±10° Vertical (minimum)
30/30/20/10 (Left/Right/Down/Up) (minimum) or
45/45/35/25 (Left/Right/Down/Up) (typical)

STORAGE AND DRIVES

Internal Storage

750 GB* 7200 rpm SATA Hard Drive

Drive Weight	0.25 lbs (115g)	
Capacity	750 GB	
Height	0.37 in (9.5 mm)	
Width	2.50 in (63.5 mm)	
Interface	ATA-8, SATA 2.6, 3.0 Gb/s	
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	1,465,149,168	
Operating Temperature	32° to 140° F (0° to 60° C) [case temp]	
Features	ATA Security	

320 GB* 5400rpm rpm SATA Hard Drive

Drive Weight	0.25 lbs (115 g)
Capacity	320 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) 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	625,142,448
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)	300 MB/s (Drive Capability)
Seek Time (typical reads, including settling)	Single Track	3 ms
	Average	13 ms



Technical Specifications

750 GB* 5400 rpm SATA Hard Drive	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	
	Drive Weight	0.22 lb (101 g)	
	Capacity	750 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	300 MB/s (Drive Capability)
		(maximum)	
	Seek Time	Single Track	3 ms
	(typical reads, including settling)	Average	13 ms
1 TB* 5400 rpm SATA Hard Drive		Maximum	24 ms
	Rotational Speed	5400 rpm	
	Logical Blocks	1,465,149,168	
	Operating Temperature	32° to 140° F (0° to 60° C) [case temp]	
	Features	ATA Security	
	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	300 MB/s (Drive Capability)
		(maximum)	
	Seek Time	Single Track	3 ms
	(typical reads, including settling)	Average	13 ms
500 GB* 5400 rpm SMART SATA II Hybrid HDD/SSHD		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	
	Drive Weight	0.209 lb (95 g)	
	Capacity	500 GB	
	Height	0.276 in (7 mm)	
	Width	2.76 in (70.1 mm)	
	Interface	ATA-8, SATA 2.6, 6.0 Gb/s, NCQ	
	Transfer Rate	Synchronous (maximum)	600 MB/s (Drive Capability)
	Seek Time	Single Track	2 ms
	(typical reads, including settling)	Average	12 ms
		Maximum	NIL ms
SATA 6 Gb/s 128 GB*, 2.5-	Rotational Speed	5400 rpm	
	Logical Blocks	976,773,168	
	Operating Temperature	32° to 140° F (0° to 60° C) [case temp]	
	Features	ATA Security	
	Drive Weight	73 Grams	



Technical Specifications

inch Solid State Drive	Capacity	128 GB
	Height	0.276 in (7 mm)
	Width	2.76 in (70 mm)
	Interface	SATA 3 (6 Gb/s)
	Performance	Maximum Sequential Read Maximum Sequential Write
		415 MB/s 175 MB/s
	Logical Blocks	250,069,680
	Operating Temperature	32° to 158°F (0° to 70°C) [case temp]
	Features	ATA Security; ATA-8; SATA 3.0; DIPM; TRIM

120 GB* M.2 Solid State Drive	Drive Weight	< 10 Grams
	Capacity	120 GB
	Height	0.276 in (22 mm)
	Width	2.76 in (42 mm)
	Interface	SATA 3 (6 Gb/s)
	Performance	Maximum Sequential Read Maximum Sequential Write
		540 MB/s 480 MB/s
	Logical Blocks	234,441,648
	Operating Temperature	32° to 158°F (0° to 70°C) [case temp]
	Features	ATA Security; ATA-8; SATA 3.0; TRIM

* For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 30GB (for Windows 8) of system disk is reserved for system recovery software.

Optical Drives

DVD+/-RW SuperMulti DL Drive*	Access Times	Random	<140ms CD (typical) < 160 ms DVD (typical)
	Weight	170g max.	
	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 6X - DVD+R Dual Layer 6X - DVD-R Dual Layer 5X DVD-RAM	
	Transfer Mode	UDMA Mode 5	
	Interface	Gen 1 SATA	



Technical Specifications

Blu-ray ROM DVD+/-RW SuperMulti DL Drive*	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	
	Access Times	Random	<190 ms CD-ROM (typical) < 180ms DVD-ROM (typical) <230 ms BD-ROM (typical)
	Weight	170g max.	
	Max Data Transfer Rate	24X CD-ROM 8X DVD-ROM 24X CD-R 16X CD-RW 8X DVD+R 8X DVD+RW 8X DVD-R 6X DVD-RW 4X - DVD+R Dual Layer 4X - DVD-R Dual Layer 5X DVD-RAM 6X BD-ROM	
	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, BD-ROM, BD-R, BD-RE	
	Supported Media (write)	CD-R, CD-RW, DVD+R, DVD+R DL, DVD+RW, DVD-R, DVD-R DL, DVD-RW, DVD-RAM	
	Max Media Capacity (read)	50.0 GB	
	Max Media Capacity (write)	8.5GB	



Technical Specifications

Transport

Tray Loading

SECURITY

HP Validity VFM 495 Fingerprint Reader (optional)

Mobile Voltage Operation	3.0V-3.6V Single Supply
Operating Temperature	32° – 158°F (0° – 70°C)
Current Consumption @ 3.3V	Less than 70 mA peak imaging and scrolling Less than 25 mA hardware finger detection Advanced Power Management
High-Rate Image Capture	Up to 240 image frames /sec
ESD Resistance	IEC 61000-4-2 Level 4 (±15KV)
Detection Matrix	200 pixel wide fingerprint image 16.5 mm x 3 mm sensor area 508 dpi resolution, 256 levels of grayscale

NETWORKING/COMMUNICATIONS

Integrated Realtek RTL8161GSH-CH 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 (1000BASE-T; IEEE 802.3ab; IEEE 8023 clauses 40) Auto-Negotiation (Automatic Speed Selection) Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s IEEE 802.1p QoS (Quality of Service) Support IEEE 802.1q VLAN support IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable) IEEE 802.3az EEE (Energy Efficient Ethernet) Jumbo Frame 9K Auto MDI/MDIX Crossover cable detection
Power Management	ACPI compliant - multiple power modes Situation-sensitive features reduce power consumption Advanced link down power saving for reducing link down power consumption
Performance Features	TCP/IP/UDP Checksum Offload (configurable) Protocol Offload (ARP & NS) Large send offload and Giant send offload Receiving Side Scaling
Manageability	Wake-on-LAN from standby and hibernation (Magic Packet and Microsoft Wake-Up Frame); Wake-on-LAN from off (Magic Packet only) PXE 2.1 Remote Boot Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30)) Comprehensive diagnostic and configuration software suite Virtual Cable Doctor for Ethernet cable status
Interface	PCI Express 1.1 to fully support ASPM L0s/L1 and CLKREQ
NIC Device Driver Name	Realtek PCIe GBE Ethernet Family Controller



Technical Specifications

Realtek 802.11 b/g/n (1x1)*	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
		802.11n: card will support rates for NSS=1 for RX and TX for 20 MHz channels. Short and long guard interval will be supported.
	Modulation	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-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 types WPA, WPA2:
		802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.
		WPA2 certification
	Network Architecture	IEEE 802.11i
		Cisco Certified Extensions, all versions through V5
		WAPI
		Ad-hoc (Peer to Peer)
	Models	Infrastructure (Access Point Required)
	Roaming	IEEE 802.11 compliant roaming between access points
	Output Power²	13.5 dBm, nominal
	Power Consumption	Transmit: 2.0 W (max)
		Receive: 1.6 W (max)
		Associated to Access Point, Idle: 250 mW nominal
	Power Management	Wireless Button Off: 100 mW nominal
		Radio disabled: 75 mW nominal
		ACPI compliant power management
	Receiver Sensitivity³	802.11 compliant power saving mode
		802.11b: -95 dBm (1 Mbps), -93 dBm (2 Mbps), -91 dBm (5.5 Mbps), -88 dBm (11 Mbps)
		802.11g: -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)
	Antenna type	802.11n: -70dBm (72.2 Mbps)
		High efficiency antenna with spatial diversity, mounted in the display enclosure
	Form Factor	PCI-Express Half-MiniCard
	Dimensions	0.19 x 1.06 x 1.18 in (4.75 x 26.8 x 30 mm)
	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)



Technical Specifications

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		
<ol style="list-style-type: none"> 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). 		
* Wireless access point and internet service required. Availability of public wireless access points limited.		
Intel Dual Band Wireless-AC 3160 802.11 ac (1x1) WiFi and Bluetooth 4.0 Combo* Adaptor	General	
	Dimensions (H x W x D)	Standard: 26.80 mm x 30.00 mm x 2.4 mm Max (Top Side) / 1.35 mm Max (Bottom Side) Low profile: 22 mm x 30.00 mm x 1.5 mm Max (Top Side) / 0.6 mm Max (Bottom Side) NGFF: 22 mm x 30 mm, single sided
	Weight	TBD
	Diversity	No diversity support
	Radio ON/OFF Control	Supported in both hardware and software
	Connector interface	Half Mini Card form factor, based on PCIe electrical interface Next Generation Form Factor, A-SD electrical interface definition support
	LED Output	On/Off
	Operating Temperature (Adapter Shield)	0° to +80° C
	Humidity Non-Operating	50% to 90% RH non-condensing (at temperatures of 25°C to 35°C)
	Operating Systems	Microsoft Windows 7, Microsoft Windows 8, Linux
	Wi-Fi Alliance	Wi-Fi CERTIFIED for 802.11ac, Wi-Fi CERTIFIED a/b/g, Wi-Fi CERTIFIED n, WMM, WPA, WPA2, and WPS, WPS 2.0, Protected Management Frames, Wi-Fi Direct for peer to peer device connections
	Microsoft WHQL	Yes
	IEEE WLAN Standard	IEEE 802.11abgn, 802.11ac, 802.11d, 802.11e, 802.11i, 802.11h, 802.11w
	Architecture	Infrastructure and SoftAP; Supports simultaneous Client and SoftAP modes in 2.4 GHz or 5GHz
	Roaming¹	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
	Security	
	Authentication	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP, LEAP, EAP-FAST), EAP-SIM, EAP-AKA



Technical Specifications

Compliance	Authentication Protocols	PAP, CHAP, TLS, GTC, MS-CHAP, MS-CHAPv2
	Encryption	64-bit and 128-bit WEP, AES-CCMP, TKIP
	Wi-Fi Direct Encryption and Authentication	WPA2, AES-CCMP
	Product Safety	UL, C-UL, CB (IEC 60950-1)
	Management Frame Protection	802.11w (WFA- Protected Management Frames)
	Retail (Credit Card Processing)	PCI, CISP
	Government	FIPS ² , FISMA
<p>1. Roaming is supported only within each respective band and mode of access points.</p> <p>2. Microsoft Windows 7 only.</p>		
HP Integrated Module with Bluetooth 4.0+EDR Wireless Technology		
Bluetooth Specification	Dual Mode Bluetooth* 2.1, 2.1+EDR, 3.0, 3.0+HS, 4.0 (BLE)	
Dimensions	1.18 x 0.26 x 0.13 in (30 x 6.5 x 3.25 mm)	
Frequency Band	2402 to 2480 MHz	
Number of Available Channels	79 (1 MHz) available channels	
Data Rates and Throughput	<p>3 Mbps data rate; throughput up to 2.17 Mbps</p> <p>Synchronous Connection Oriented links up to 3, 64 kbps, voice channels</p> <p>Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric</p>	
Transmit Power	-1.5 dBm to 4 dBm (Bluetooth Class II)	
Receiver Sensitivity	Better than -20 dBm at 0.1 % raw bit error rate	
Power Consumption	<p>Peak (Tx) 264 mW</p> <p>Peak (Rx) 231 mW</p> <p>Sleep <1 mW</p>	
Antenna	Internally integrated within module	
Range	Up 33 ft (10 m)	
Electrical Interface	<p>USB 2.0 compliant</p> <p>Microsoft Windows Plug and Play compliant</p>	
Bluetooth Software Supported	<p>Broadcom Bluetooth for Windows</p> <p>Microsoft Windows Bluetooth Software</p>	
Link Topology	Point to Point, Multipoint Pico Nets up to 7 slaves	
Security	Full support of Bluetooth Security Provisions	
Power Management	<p>Microsoft Windows ACPI, and USB Bus Support</p> <p>Self configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff</p>	
Certifications	<p>All necessary regulatory approvals for supported countries, including:</p> <p>FCC (47 CFR) Part 15C, Section 15.247 & 15.249</p> <p>ETS 300 328, ETS 300 826</p> <p>Low Voltage Directive IEC950</p>	



Technical Specifications

	UL, CSA, and CE Mark	
Temperature	Operating	-14° to 158° F (-10° to 70° C)
	Non-operating	-40° to 212° F (-40° to 100° C)
Humidity	Operating	0% to 90%
	Non-operating	0% to 95%
Altitude	Operating	15,000 ft (4,572 m)
	Non-operating	40,000 ft (12,192 m)
Bluetooth Profiles Supported	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)	
	Hard Copy Cable Replacement (HCRP) ^{1,2}	
	Personal Area Networking Profile (PAN) ^{1,2}	
	Human Interface Device Profile (HID) ^{1,2}	
	FAX Profile (FAX)	
	Basic Imaging Profile (BIP) ²	
	Headset Profile (HSP)	
	Hands Free Profile (HFP)	
	Advanced Audio Distribution Profile (A2DP)	

1. indicates the profile is supported by Microsoft Windows XP SP2

2. indicates the profile is part of Windows Vista

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

AUDIO/MULTIMEDIA - DTS SOUND+

Hardware	Implementation	Realtek ALC3227-CG
	Function Key Volume Controls	Volume up, volume down, and mute
	Full Duplex	Yes
	Microphone In	Stereo
	Headphone/Line Out	Stereo
	Integrated Microphone	Yes, dual digital microphone array
Audio Output Quality	Frequency Response	10 Hz – .454*Fs
	Signal to Noise Ratio	95 dB (DAC), 88dB (ADC)
	Total Harmonic Distortion	0.01%



Technical Specifications

Integrated Stereo Speakers	Play/Record Sampling Rate(s)	44.1k/48k/96k/192kHz
	DAC	16, 20 or 24-bit
	ADC	16, 20 or 24-bit
	Power Rating	2 Watts
	Impedance	4 Ohms

POWER

HP 45W Smart AC Adapter	Dimensions	3.74 x 1.57 x 1.04 in (9.5 x 4.0 x 2.65 cm)	
		90 to 265 VAC	
	Input	Input Efficiency	87.74% min at 115 VAC
		Input frequency range	47 to 63 Hz
		Input AC current	2.31 A at 100 VAC and maximum load
		Output	
		Output power	45W
		DC output	19.5V +5.0%/-5%
		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 temperature	32° to 95° F (0° to 35° C)
		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.	
4-Cell (44 WHr) Lithium-Ion battery	Dimensions (H x W x L)	0.86 x 1.4 x 8.0 in (2.18 x 3.56 x 27.72 cm)	
	Weight	≤0.551 lb (250 g)	
	Cells/Type	4-cell Lithium-Ion	
	Energy	Voltage	14.8V DC
		Amp-hour capacity	2850mAh
		Watt-hour Capacity	44 WHr



Technical Specifications

4-cell (40 WHr) Long Life Lithium-Ion battery	Temperature	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 mode or Standby	2.5 hours
		System ON	3 to 5 hours (depending on system power consumption)
	Fuel Gauge LED	No	
	Warranty	1 year	
	Optional Travel Battery Available	No	
	Cells/Type	4-cell Lithium-Ion	
	Energy	Amp-hour capacity	3.0Ah
		Watt-hour Capacity	40 WHr
	Temperature	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 mode or Standby	2.5 hours
		System ON	3 to 5 hours (depending on system power consumption)
	Fuel Gauge LED	No	
	Warranty	Up to 3 years (depending on system warranty)	
	Optional Travel Battery Available	No	

ENVIRONMENTAL

ALL MODELS

MATERIAL USAGE

This product does not contain any of the following substances in excess of regulatory limits (for reference of these limits please refer to the HP General Specification of the Environment

(http://www.hp.com/hpinfo/globalcitizenship/environment/supplychain/gen_specifications.html):

- 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



Technical Specifications

- Lead and Lead compounds
- Mercuric Oxide Batteries
- 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)
- Nickel finishes that release greater than 0.5 µgrams/cm²/week, measured according to EN 1811:1998, are not used on any product surface designed to be frequently handled or touched by users.

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: <http://www.hp.com/go/reuse-recycle> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

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

HEWLETT-PACKARD CORPORATE ENVIRONMENTAL INFORMATION

For more information about HP's commitment to the environment:

Global Citizenship Report

<http://www.hp.com/hpinfo/globalcitizenship/qcreport/index.html>

Environment website

<http://www.hp.com/environment>

Eco-label certifications

<http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html>

ISO 14001 certificates:

<http://www.hp.com/hpinfo/globalcitizenship/environment/operations/envmanagement.html>

Country of Origin

China



QuickSpecs

HP ProBook 440 G2 Notebook PC HP ProBook 450 G2 Notebook PC

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

Type	Description	Part #
Cases	HP Essential Top Load Case	H2W17AA
	HP Essential Backpack (up to 15.6")	H1D24AA
	HP Essential Messenger Case (up to 17.3")	H1D25AA
Docking	HP 3005pr USB 3.0 Port Replicator	H1L08AA
Input/Output – Mice	HP Comfort Grip Wireless Mouse	H2L63AA
	HP 3-Button USB Laser Mouse	H4B81AA
	HP USB Optical Travel mouse	RH304AA
Adapters	HP 45W Smart AC Adapter 4.5mm	H6Y88AA
Security	HP UltraSlim Keyed Cable Lock	H4D73AA
Displays	HP ProDisplay P201 20-inch LED Backlit Monitor	C9F26AA
	HP ProDisplay P201m 20-inch LED Backlit Monitor (With Integrated Speakers)	C9F73AA
	HP ProDisplay P221 21.5-inch LED Backlit Monitor	C9E49AA
	HP ProDisplay P231 23-inch LED Backlit Monitor	E4S07AA

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