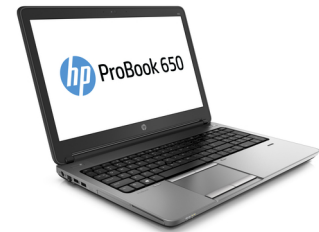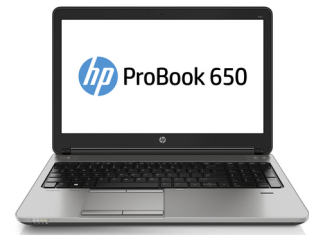# HP

HP ProBook 650 G1 Intel® Core™ i5 i5-4300M Laptop 39,6 cm (15.6") 4 GB DDR3-SDRAM 128 GB SSD Windows 7 Professional Silver

Brand : HP **Product family:** ProBook **Product code:** G6K77EC

Product name : 650 G1

Intel Core i5-4300M (2.6GHz, 3MB), 15.6" LED HD anti-glare (1366 x 768), 4GB DDR3 SDRAM, 128GB SATA SSD, DVD+/-RW SuperMulti DL, Intel HD Graphics 4600, 802.11a/b/g/n, Bluetooth 4.0, webcam, Windows 7 Professional 64 / Windows 8 Pro 64

HP ProBook 650 G1. Product type: Laptop, Form factor: Clamshell. Processor family: Intel® Core™ i5, Processor model: i5-4300M, Processor frequency: 2,6 GHz. Display diagonal: 39,6 cm (15.6"), Display resolution: 1366 x 768 pixels. Internal memory: 4 GB, Internal memory type: DDR3-SDRAM. Total storage capacity: 128 GB, Storage media: SSD, Optical drive type: DVD Super Multi DL. On-board graphics card model: Intel® HD Graphics 4600. Operating system installed: Windows 7 Professional. Product colour: Silver

Design

Product type *	Laptop
Product colour *	Silver
Form factor *	Clamshell
Country of origin	China

Display

Display diagonal *	39,6 cm (15.6")
Display resolution *	1366 x 768 pixels
Touchscreen *	✘
LED backlight	✔
Native aspect ratio	16:9
Display surface	Matt

Processor

Processor manufacturer *	Intel
Processor family *	Intel® Core™ i5
Processor generation	4th gen Intel® Core™ i5
Processor model *	i5-4300M
Processor cores	2
Processor threads	4
Processor boost frequency	3,3 GHz
Processor frequency *	2,6 GHz
System bus rate	5 GT/s
Processor cache	3 MB
Processor cache type	Smart Cache
Processor socket	PGA946
Processor lithography	22 nm
Processor operating modes	64-bit
Processor series	Intel Core i5-4300 Mobile series
Processor codename	Haswell
Bus type	DMI
FSB Parity	✘
Stepping	C0

Ports & interfaces

SmartCard slot	✘

Performance

Motherboard chipset	Intel® QM87

Keyboard

Pointing device	Touchpad
Spill-resistant keyboard	✔

Software

Operating system architecture	64-bit
Recovery operating system	Windows 8 Pro
Operating system installed *	Windows 7 Professional

Processor special features

Intel® Wireless Display (Intel® WiDi)	✔
Intel® My WiFi Technology (Intel® MWT)	✘
Intel® Anti-Theft Technology (Intel® AT)	✔
Intel® Identity Protection Technology (Intel® IPT)	✔
Intel® Hyper Threading Technology (Intel® HT Technology)	✔
Intel® Turbo Boost Technology	2.0
Intel® Active Management Technology (Intel® AMT)	✘
Enhanced Intel SpeedStep Technology	✔
Intel® Clear Video HD Technology (Intel® CVT HD)	✔
Intel Clear Video Technology	✘
Intel® InTru™ 3D Technology	✔
Intel® Insider™	✔

Processor

Thermal Design Power (TDP)	37 W
Tjunction	100 °C
Maximum number of PCI Express lanes	16
PCI Express slots version	3.0
PCI Express configurations	1x16, 2x8, 1x8+2x4
ECC supported by processor	✘

Memory

Internal memory *	4 GB
Internal memory type	DDR3-SDRAM
Memory clock speed	1600 MHz
Memory slots	2x SO-DIMM
Maximum internal memory *	8 GB

Storage

Total storage capacity *	128 GB
Storage media *	SSD
Number of SSDs installed	1
SSD capacity	128 GB
SSD interface	SATA
Optical drive type *	DVD Super Multi DL
Card reader integrated	✔

Graphics

Discrete graphics card model *	Not available
On-board graphics card *	✔
Discrete graphics card *	✘
On-board graphics card family	Intel® HD Graphics
On-board graphics card model *	Intel® HD Graphics 4600
On-board graphics card base frequency	400 MHz
On-board graphics card dynamic frequency (max)	1250 MHz
Maximum on-board graphics card memory	1,74 GB
On-board graphics card DirectX version	11.1
On-board graphics card ID	0x416

Audio

Audio system	DTS Studio Sound
Number of built-in speakers	2
Built-in microphone	✔

Camera

Front camera	✔

Network

Wi-Fi	✔
Wi-Fi standards	802.11a, 802.11b, 802.11g
Ethernet LAN	✔
Ethernet LAN data rates	10,100,1000 Mbit/s
Bluetooth	✔
Bluetooth version	4.0

Ports & interfaces

USB 3.2 Gen 1 (3.1 Gen 1) Type-A ports quantity *	4
Ethernet LAN (RJ-45) ports	1
DisplayPorts quantity	1
DVI port	✘
VGA (D-Sub) ports quantity	1
S/PDIF out port	✘

Processor special features

Intel® Quick Sync Video Technology	✔
Intel Flex Memory Access	✘
Intel® Smart Cache	✔
Intel® AES New Instructions (Intel® AES-NI)	✔
Intel Trusted Execution Technology	✔
Intel Enhanced Halt State	✘
Intel VT-x with Extended Page Tables (EPT)	✔
Intel Demand Based Switching	✘
Intel® Secure Key	✔
Intel TSX-NI	✘
Intel® Clear Video Technology for Mobile Internet Devices (Intel CVT for MID)	✘
Intel 64	✔
Execute Disable Bit	✔
Idle States	✔
Thermal Monitoring Technologies	✔
Processor package size	37.5 x 37.5 x 4.7 mm
Supported instruction sets	AVX 2.0, SSE4.1, SSE4.2
Processor code	SR1H9
CPU configuration (max)	1
Embedded options available	✘
Intel Virtualization Technology for Directed I/O (VT-d)	✔
Intel Identity Protection Technology version	1,00
Intel Secure Key Technology version	1,00
Intel TSX-NI version	0,00
Intel Virtualization Technology (VT-x)	✔
Intel Dual Display Capable Technology	✘
Intel FDI Technology	✘
Intel Rapid Storage Technology	✘
Intel Fast Memory Access	✘
Processor ARK ID	76347
Conflict-Free processor	✔

Battery

Battery technology	Lithium-Ion (Li-Ion)
Number of battery cells	6

Power

AC adapter power	65 W
DC-in jack	✔

Security

Cable lock slot	✔

Sustainability

Sustainability certificates	ENERGY STAR

Weight & dimensions

Width	378 mm
Depth	257 mm
Height	25,3 mm
Weight *	2,32 kg

Other features

LightScribe	✘
Intel segment tagging	Enterprise

Ports & interfaces

Microphone in	✗
Combo headphone/mic port	✔
Docking connector	✔
ExpressCard slot	✗
CardBus PCMCIA slot type	✗

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