

Overview

Sprout Pro by HP



1. HP Illuminator
2. Web camera
3. Speakers
4. Touchmat touch capacitive LED

5. Home touch capacitive LED
6. Power touch capacitive LED
7. HP Touchmat

Overview

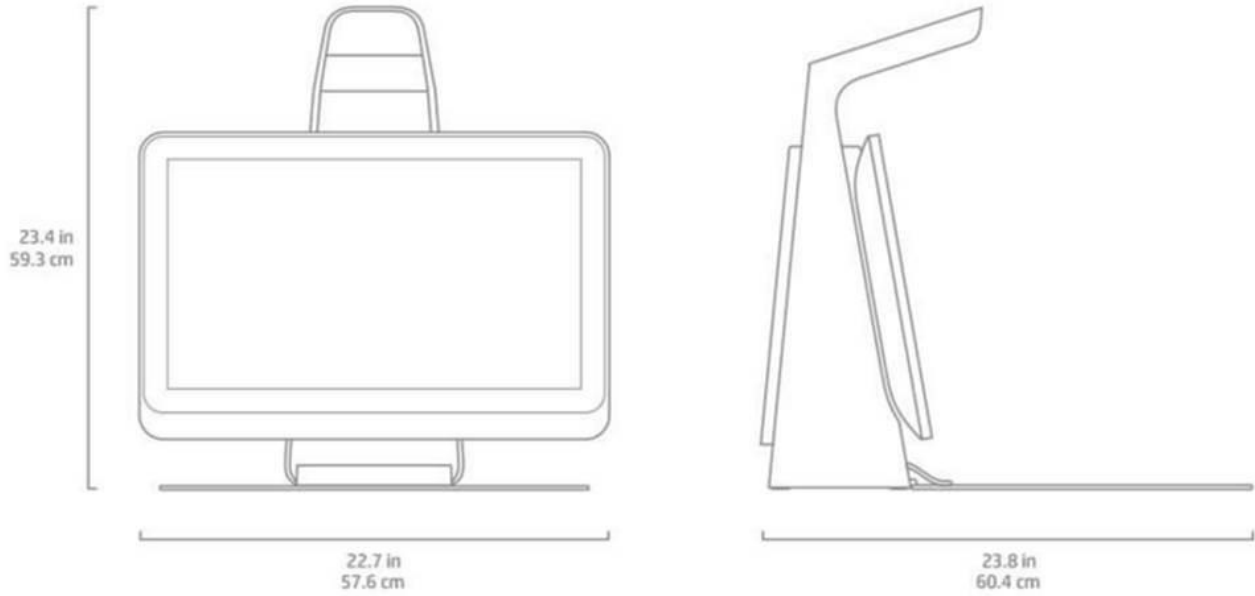
Form Factor	All in One
Operating Systems	Preinstalled: Windows 10 Pro 64-bit Note: Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows 10 is automatically updated, which is always enabled. ISP fees may apply and additional requirements may apply over time for update. See http://www.microsoft.com .
Available Processors	Intel® Core i7-6700 3.4G 8M 65W CPU Notes: Multicore is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. Intel's numbering is not a measurement of higher performance.
Color	White
Side I/O	2 USB 3.0 (one charging port) 1 Headphone/ Microphone combo jack 1 SD Media Slot
Rear I/O	1 HDMI 1.4 output from Intel® HD graphics 2 USB 2.0 ports 1 GB Ethernet port 1 Audio Line-out
Media Card Reader	HP 3-in-1 Media Card Reader - Supports SD, SDHC, SDXC
Chassis Dimensions	Unpackaged, with HP Touch Mat docked: Height: 23.4" (59.3 cm) Width: 22.7" (57.6 cm) Depth: 23.8" (60.4 cm) Packaged: Length: 29.84"(75.79 cm) Width: 16.46"(41.80 cm) Height: 31.50" (80.01 cm)
Weight	Unpackaged: 33.7 lb. / 15.3 kg. Packaged: 52 lb. / 23.6 kg.
Power Supply	350W Power Supply 85% Efficiency
Chipset	Intel® H170 chipset

Overview

Memory	8GB DDR4-2133 SODIMM (2x4GB) RAM – SRP Transfer rates up to 2133 MT/s Note: Up to 512 MB of main system memory may be allocated to support video graphics. Part of the total system memory (RAM) is used for graphics/video performance. System memory dedicated to graphics/video performance is not available.
HP Touch Mat	20" diagonal, 20-point touch-enabled mat with an ultra-resistant top coating
HP High Resolution Camera	14 Megapixel, downward facing camera
Stylus	Capacitive stylus
Web Camera	HP High Definition 1MP Webcam
Integrated Display	23" diagonal, 10-point touch-enabled, Full HD (1920x1080) Wide Viewing Angle, White LED backlit LCD Display
Horizontal Display	Projected display using DLP projector (adjusted for Keystone correction); max resolution 73 ppi
3D Camera	Intel® RealSense™ 3D Camera F200
Desktop Footprint	Width: 22.7" (57.6 cm) Depth: 23.8" (60.4 cm)

Overview

Sprout Pro by HP Dimensions - Unpackaged



Supported Components

Processors	6th generation Intel® Core™ processor family Intel® Core i7-6700 3.4 GHz (up to 4.0 GHz) 2133 4C CPU	Y	N
Monitors / Displays	23" diagonal, 10-point touch-enabled, Full HD (1920x1080) Wide Viewing Angle, White-LED backlit LCD I 20" diagonal Touch Mat with 20-point touch-enabled display Note: High-definition (HD) content is required to view high definition images.		
SATA Hard Drives	1TB SATA 5400 rpm 8GB 3.5" SSHD (hybrid) Note: For hard drives, TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35GB of system disk is reserved for system recovery software.	Y	N
Hard Drive Controllers	Integrated SATA 6.0 Gb/s Controller	Y	N
Graphics	Integrated Intel® HD Graphics Intel® HD 530 Graphics Entry 3D NVIDIA® GeForce® 945A	Y Y	N N
	Note: Part of the total system memory (RAM) is used for graphics/video performance. System memory dedicated to graphics/video performance is not available.		
Memory	DDR4-2133 nECC Unbuffered SODIMMs HP 8GB (2x4GB) DDR4-2133 non-ECC RAM		
Multimedia and Audio Devices	Realtek ALC3241 HD audio High quality stereo speakers with 4W/ch speakers and 10W woofer Dual digital MEMS microphones	Y Y Y	N N N
Optical and Removable Storage	HP 3-in-1 Media Card Reader		
Networking and Communications	Integrated Intel® I219-V PCIe GbE Controller Intel® 8260 802.11ac dual-band NIC w/ Bluetooth® 4.0	Y	N
	Note 1: "Gigabit" Ethernet indicates compliance with IEEE standard 802.3ab for Gigabit Ethernet, and does not connote actual operating speed of 1 Gb/sec. For high speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required. Note 2: Wireless access point and Internet service required and not included. 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. Actual speeds may vary.		
Input Devices	Capacitive Stylus Premium wireless chiclet-style keyboard with volume control, Windows 10 hot keys and optical mouse	Y Y	N Y
	Note: For full functionality of the share hot key, internet access is required and not included.		

Supported Components

Other Hardware	DLP Projector	Y	N
	HP High-Resolution Camera (downward facing)	Y	N
	Intel® RealSense™ 3D Camera	Y	N
	HP Touch Mat	Y	N
	Sprout by HP 3D Capture Stage T7U17AA (localized)	N	Y
Software	HP PC Hardware Diagnostics UEFI	Y	N
	Sprout Workspace ¹ (commercial)	Y	N
	HP MyRoom for Sprout ²	Y	N
	Autodesk Sketchbook	Y	N
	Discover HP TouchPoint Manager ³	Y	N
	Foxit Phantom PDF	Y	N
	Skype™	Y	N
	HP ePrint Driver ⁴	Y	N
	Cyberlink PowerDirector ⁵	Y	N

NOTE 1: Apps sold separately.

NOTE 2: Subscription required. User based tiered subscription, free for up to 4 users for 12 months.

Please refer to <https://www.myroom.hpe.com/Products> for pricing details.

NOTE 3: HP Touchpoint Manager requires purchase of a subscription and supports Android™, iOS and Windows 7 or higher operating systems and PCs, notebooks, tablets and smartphones from various manufacturers. Not available in all countries see <http://www.hp.com/touchpoint> for availability information.

NOTE 4: 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 www.hp.com/go/eprint)

NOTE 5: Cyberlink is preinstalled in the US and requires internet access in order to download the app outside the US. Internet connection is required in order to use the “Share to YouTube” feature.

Operating Systems Windows 10 Pro 64

System Technical Specifications

SYSTEM BOARD

System Board Form Factor	ATX 24.38 x 24.38 mm (9.6 x 9.6 inches)
Processor Socket	Single LGA 1151
CPU Bus Speed	DMI
Chipset	Intel® H170 Express PCH-H
Memory Expansion Slots	2 DDR4 memory slots
Memory Type Supported	DDR4, SODIMM (unbuffered), non-ECC
Memory Modes	Non-Interleaved for single channel. Interleaved when both channels are populated.
Memory Speed Supported	2133 MT/s DDR4
Maximum Memory	16GB
Memory Configuration (Supported)	4GB and 8GB non-ECC unbuffered SODIMMs are supported.*

* Maximum memory capacities assume 64-bit operating systems, such as Windows 7 Professional 64-Bit or Red Hat® Linux® 64-bit. 32-bit Windows Operating Systems support up to 4 GB.

Supported Drive Interfaces	SATA	Integrated (1) Serial ATA interfaces (6Gb/s SATA).
	Serial Attached SCSI	None
	Integrated Graphics	Intel® HD Graphics 530 Based on Unified Memory Architecture (UMA) - A region of system memory is reserved and dedicated to the graphics display. Support for Microsoft DirectX 12.1, OpenGL 4.4 and OpenCL 2.0 1 HDMI 1.4 graphics port; Max. resolution supported: <ul style="list-style-type: none"> • 2560 x 1600 @60Hz • 4096 x 2160 @24Hz
	Network Controller	Integrated Ethernet PHY Connection I219-V. Management capabilities: WOL, PXE 2.1 Intel® Dual Band Wireless-AC 8260 NIC. Supports the following radio technologies: <ul style="list-style-type: none"> • 802.11abgn+ac MIMO 2x2 • Bluetooth® 4.1
	External SATA(eSATA)	No
	IDE connector	No
	Floppy connector	No
	Serial	No
	2nd Serial	No
	Parallel	No
	CD-ROM input (Audio)	No

System Technical Specifications

	AUX input (Audio)	No
IEEE 1394 Connector(s)	Front	Side Connectors: 2 USB 3.0 (one charging port)
	Rear	(2) USB 2.0
	Internal	(1) USB 3.0, (1) USB 2.0
HD Integrated Audio	Yes	
Flash ROM	Yes	
Chassis Fan Header	Not applicable	
CMOS Battery Holder - Lithium	Yes	
Integrated Trusted Platform Module	TPM Specification Version 1.2: user upgradeable to Version 2.0 when available.	
Power Supply Headers	Yes	
Power Switch, Power LED & Hard Drive LED Header	Yes	
Clear Password Jumper Keyboard/Mouse	Yes	
	Wireless	
	350W, 85% efficiency, wide-ranging, active PFC Power Supply	
Operating Voltage Range	90-264 VAC	
Rated Voltage Range	100–240 VAC	
Rated Line Frequency	50-60 Hz	
Operating Line Frequency Range	47–63 Hz	
Rated Input Current	4A @ 100-240V	
Heat Dissipation		
ENERGY STAR® qualified (Config Dependent)	Yes	
FEMP Standby Power Compliant	Yes, with Wake-on-LAN disabled: <2W in S5- Power Off	
Built-in Self-Test (BIST) LED	No	

System Technical Specifications

**Surge Tolerant Full Ranging
Power Supply (withstands
power surges up to 2000V)** Yes

**ErP Lot 6- Tier 1 Compliance @
230V (<1W in S5- Power Off)** Yes

**ErP Lot 6- Tier 2 Compliance @
230V (<0.5W in S5- Power Off)** Yes

System Technical Specifications

DLP Projector

The Sprout Pro horizontal display is based on a DLP projector which is designed using LED illumination, and operates at a fixed throw distance and screen tilt angle. It produces sufficient light to render a high quality display under a broad range of ambient illumination conditions.

Native display resolution	1280x 800
Resolution as displayed on the mat (adjusted for Keystone correction)	
Maximum Resolution	73 PPI
Median Resolution	69 PPI
Display refresh rate	60 Hz
Minimum Brightness	200 lumens
Contrast Ratio	>800:1
Peak/Typical power consumption	<150W/ <80W
Environmental Compliance	Yes ¹

¹ Assembly and all components will comply with HP's GSE, low halogen and other applicable environmental specifications.

HP High Resolution Camera (downward facing)

The Sprout Illuminator includes the HP High Resolution Camera which is mounted in a fixed location and orientation. It is a downward facing camera that functions as a high resolution, visible wavelength image capture device for objects placed on the above the Sprout Touch Mat. It includes an extended command interface implemented via a UVC extension DLL. It is Windows Logo certified.

Sensor native resolution	4416 x 3312 (14 Megapixel)
Interface: command + data	USB 3.0
Frame Rates	
4416 x 3312	7fps max
2208 x 1656	30fsp max
Output format	YUV422
Motorized adjustable focus/ zoom	No
Front focal distance range	570mm nominal
Field of View	49.3° horizontal, 38.0° vertical, 60.0° diagonal

System Technical Specifications

Relative Illumination >60% at max FOV

Typical power consumption 4.5W

Environmental Compliance Yes¹

¹ Assembly and all components will comply with HP's GSE, low halogen and other applicable environmental specifications.

System Technical Specifications

Intel® RealSense™ 3D Camera

The Intel® RealSense™ Camera F200 implements a short range, coded light 3D imaging device. The broad range of 3D mode configurations and synchronization capabilities of the F200 enable the product to be a powerful solution for many 3D imaging applications.

Features:

- Depth Capture from 0.2 to 1.2m
- Infrared (IR) Laser Projector System
- Synchronized Depth, Color, Infrared Video
- Texture Mapping of Depth to Color
- Depth Unprojection to World Coordinates
- Up to 60FPS Depth at 640x480 (VGA)
- Up to 30FPS Color at 1920x1080 (FHD)
- Green Activity LED
- Class 1 Laser Compliant

Infrared Camera	640x480 (VGA) monochromatic infrared sensor
Color Camera	1920x1080 (FHD) chromatic sensor with integrated ISP
Infrared Projector	Class 1 laser compliant coded light infrared projector system

HP Touch Mat

The HP Touch Mat is a touch-enabled human interface device which also provides a projector screen surface.

Active Area Aspect Ratio	4:3
Overall Dimensions	~20.7" x ~16.4" (526 x 417 mm)
Interface	USB 2.0
Touch Technology	PCT (Projected Capacitance)
Touch Points	True Multi-Touch, 20 points recognized by Windows 10
Touch Detection	Fingers, Capacitive Stylus
Accuracy	± 1 mm
Hover Sensing	Not Applicable
Buttons	3 (Virtual keyboard, Home, Touch/Projector) on Sprout Connector
Mechanical properties	Flexible
Stylus Support	Capacitance
OS Requirements	Microsoft Windows 10 WHQL

System Technical Specifications

Active Area IR Reflectivity	58% ± 3
Total Mat Thickness	2 mm
Refresh Rate	> 100 Hz
Latency	< 18 msec
Surface Finish	Matte, Non-glare ~ 10 GU
ASTM D 1308-02^{e1} (24 hour duration spot test) ASTM F 1598-95 (Re-approved 2002) - (Spot Test Method) - (24 hour duration)	Scratch, Abrasion Resistant Water Proof, Spill Proof Dry Erase Marker Wipe Off Permanent Marker Cleanable Cleanable with Household Cleaners (alcohol free cleaners that have no strong chemicals; see Sprout User Guide for detailed instructions) Mar/Blemish resistant to pressure from ball point pen (Diameter 0.03in at 250 grams).
Scratch Resistance*	Consistent with Cosmetic Inspection 45°viewing angle: No scratch detected below 100 grams applied force with Balance Beam loop stylus.
Wear Resistance*	Cosmetically unaffected when subjected to 1000 rubs with “0000” grade 500 gram load.
*Note:	Test results are not a guarantee of future performance under these test conditions. Accidental damage requires an optional HP Accidental Damage Protection Care Pack.

Sprout by HP 3D Capture Stage

Part Number	T7U17AA (localized)
Product Specifications:	<ul style="list-style-type: none">• 360-degree rotation with a 15-degree tilt for maximum scan coverage.• Scan objects up to 4.4 lb (2 kg) and up to 7.5 in (190 mm) tall• Mesh Density – 200 microns• Detail Resolution – About 500 microns• Surface texture resolution – from about 100 dpi at Touch Mat up to about 200 dpi
Product Limitations:	<p>The object being scanned must fit on the mat in the volume of light emitted by the projector - approximately 12 inches by 16 inches on the mat and decreasing toward the projector.</p> <p>Objects that are reflective, transparent, have very uneven textures such as fur, are very dark in color, or are highly symmetrical do not scan well.</p> <p>Sprout 3D Capture is not intended for users needing precision scans such as for product design or creating museum-quality scans.</p>
What's in the box:	3D Capture Stage, USB cable, Pack of adhesive putty strips, Quick Start Guide, Warranty card.
Packaged Product Dimensions:	10.0 in (H) x 9.3 in (W) x 2.8 in (D) 255.0 mm x 237.0 mm x 72.0 mm

System Technical Specifications

Unpackaged Product Dimensions: 1.59 in (H) x 8.08 in (W) x 8.22 in (D)
40.5 mm x 205.2 mm x 208.9 mm

Packaged Product Weight: 4.27 lb
1.94 kg

Unpackaged Product Weight: 2.0 lb
0.914 kg

Technical Specifications

Sprout Pro Storage Devices

1 TB SATA 5400 rpm 8GB cache 3.5" SSHD (hybrid)

Capacity	1 TB
Height	0.374in; 0.95cm
Width	Physical size 2.75in; 6.99cm
Interface	SATA 6.0/3.0/1.5Gb/s NCQ
Cache	8GB NAND Flash
Rotational Speed	5400 rpm
Operating Temperature	32° to 140° F (0° TO 60° C)

Technical Specifications

Sprout Pro by HP Audio components

Speakers	Realtek ALC3241 HD audio High quality stereo speakers with 4W/channel and 10W woofer
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Sprout Pro Discrete Graphics

NVIDIA® GeForce® GT 945A

Form Factor	GPU installed on motherboard
Graphics Controller	N16S-GX1-AIO
Bus Type	PCIe Gen3
Memory	1GB GDDR5 memory
Connectors	NA
Shading Architecture	Shader Model 5.0
Supported Graphics APIs	DirectX 12 Support, along with previous versions; OpenGL 4.5 OpenCL 1.2

Environmental Requirements

Temperature	Operating: 41° to 95° F (5° to 35° C) Non-operating: -22° to 140° F (-30° to 60° C)
Humidity	Operating: 10% to 80% RH, at 26° C, non-condensing
Maximum Altitude	Unpressurized: Operating: 6,561 ft (2,000 m) Storage: 15,000 ft (4,572 m)
Cooling	Above 5,000 ft (1524 m) altitude, maximum operating temperature is de-rated by 1.8° F (1° C) per 1,000 ft (305 m) elevation increase

Technical Specifications

Physical Security and Serviceability

Access Panel	Left and right rear covers are tool-less and provide access to the storage drive, memory and wireless USB dongle. Access to other components including system board requires tools.
Memory	Tool-less
System Board	Screw-In
Configuration Record SW	Yes
Over-Temp Warning on Screen	Yes
Dual Function Front Power Switch	Yes, causes a fail-safe power off when held for 4 seconds
Cable Lock Support	Yes, Kensington Cable Lock (sold separately): Locks side cover and secures chassis from theft 3 mm x 7 mm slot at rear of system
Serial, Parallel, USB, Audio, Network, Enable/Disable Port Control	Yes, enables or disables USB, audio, and network ports
Power-On Password	Yes, prevents an unauthorized person from booting up the workstation
Setup Password	Yes, prevents an unauthorized person from changing the workstation configuration
NIC LEDs (integrated) (Green & Amber)	Yes
CPUs and Heatsinks	A T-15 Torx or flat blade screwdriver is needed to remove the CPU heatsink before the CPU can be removed. CPU removal is tool-less
Power Supply Diagnostic LED	No
Front Power Button	Yes, ACPI multi-function
Front Power LED	Yes, white
Front Hard Drive Activity LED	Yes, white
Internal Speaker	Yes, 4W/channel stereo speakers and 10W mono woofer
System/Emergency ROM Flash Recovery	Recovers corrupted system BIOS.
Cooling Solution	Air cooled forced convection

Technical Specifications

CPU Heatsink Fan	Not applicable- CPU heatsink is passive.
Chassis Fan	Not applicable. CPU heatsink fan also operates as the chassis fan.
Memory Heatsink Fan	No
HP PC Hardware Diagnostics UEFI	HP PC Hardware Diagnostics (UEFI) enables hardware level testing outside the operating system on many components. The diagnostics can be invoked by pressing F2 at POST, and is available as a download from HP Support.
Access Panel Key Lock	No
ACPI-Ready Hardware	Advanced Configuration and Power Management Interface (ACPI). <ul style="list-style-type: none">• Allows the system to wake from a low power mode.• Controls system power consumption, making it possible to place individual cards and peripherals in a low-power or powered-off state without affecting other elements of the system
Trusted Platform Module Chip	Yes
Integrated Chassis Handles	No
Power Supply	Requires T15 Torx or flat blade screwdriver
Flash ROM	Yes
Diagnostic Power Switch LED on board	No
Clear Password Jumper	Yes
Clear CMOS Button	Yes, jumper
CMOS Battery Holder	Yes
DIMM Connectors	Yes

Technical Specification – BIOS

BIOS

PCI 3.0 Support	Full BIOS support for PCI Express through industry standard interfaces.
ATAPI	ATAPI Removable Media Device BIOS Specification Version 1.0.
BIOS Power On	Users can define a specific day-of-week and time for the system to power on.
ROM Based Computer Setup Utility (F10)	Review and customize system configuration settings controlled by the BIOS.
System/Emergency ROM Flash Recovery with Video	Recovers system BIOS in corrupted Flash ROM.
SMBIOS	System Management BIOS 2.7.1, for system management information.
Boot Control	Disables the ability to boot from removable media on supported devices.
ACPI (Advanced Configuration and Power Management Interface)	Allows the system to enter and resume from low power modes (sleep states). Enables an operating system to control system power consumption based on the dynamic workload. Makes it possible to place individual cards and peripherals in a low-power or powered-off state without affecting other elements of the system. Supports ACPI 4.0 for full compatibility with 64-bit operating systems.
Remote Wakeup/Remote Shutdown	Wake on LAN from S4/S5
ASF 2.0 Compliant	No.
Instantly Available PC (Suspend to RAM - ACPI sleep state S3)	Allows for very low power consumption with quick resume time.
Remote System Installation via F12 (PXE 2.1) (Remote Boot from Server)	Allows a new or existing system to boot over the network and download software, including the operating system.
ROM revision levels	Reports the system BIOS revision level in Computer Configuration Utility (F10 Setup). Version is available through an industry standard interface (SMBIOS) so that management SW applications can use and report this information.
System board revision level	Allows management SW to read revision level of the system board.
Start-up Diagnostics (Power-on Self-Test)	Assesses system health at boot time.
Auto Setup when new hardware installed	System automatically detects addition of new hardware.
Keyboard-less Operation	The system can be booted without a keyboard.

Technical Specification – BIOS

Localized ROM Setup	System Configuration Utility (F10 Setup) menus are mapped to the applicable local languages.
Asset Tag	The user or IT administrator to set a unique tag string in non-volatile memory.
Per-slot Control	Allows I/O slot parameters (option ROM enable/disable) to be configured individually.
Adaptive Cooling	Control parameters are set according to detected hardware configuration for optimal acoustics.
Pre-boot Diagnostics	(Pre-video) critical errors are reported via beeps.
Digitally and Cryptographically Signed BIOS	Helps to prevent the installation of unauthorized versions of a BIOS (a rogue BIOS) from a virus, malware, or other code that could lead to compromised system security, data access, physical service, or even system board replacement.
Master Boot Record Protection	
Boot Block Emergency Recovery Mode (BIOS Recovery)	The HP BIOS offers a write-protected boot block ROM that provides recovery from a failed flashing of the computer BIOS. This special recovery mode prevents the system from becoming unusable or “bricked” when a BIOS update is interrupted.
Industry Standard Specification Support	
Industry Standard	Revision Supported by the BIOS
UEFI Specification Revision	UEFI 2.3.1
ACPI	Advanced Configuration and Power Management Interface, Version 4.0
ATA (IDE)	AT Attachment 6 with Packet Interface (ATA/ATAPI-6), Revision 3b
CD Boot	“El Torito” Bootable CD-ROM Format Specification Version 1.0
EHCI	No. The xHCI Extensible Host Controller, Revision 1.0 Interface is supported
PCI	No
PCI Express	PCI Express Base Specification, Revision 2.0; PCI Express Base Specification, Revision 3.0.
SATA	SATA-IO SATA Revision 3.0 Specification
SPD	PC SDRAM Serial Presence Detect (SPD) Specification, Revision 1.2B
TPM	Trusted Computing Group TPM Specification Version 1.2: user upgradeable to Version 2.0 when available.

Technical Specification – BIOS

USB Universal Serial Bus Revision 1.1 Specification
 Universal Serial Bus Revision 2.0 Specification
 Universal Serial Bus Revision 3.0 Specification

SMBIOS System Management BIOS 2.7, for system management information.

Social and Environmental Responsibility

Environmental Data

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 All-in-One PC model is based on a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.

Energy Consumption (in accordance with US ENERGY STAR® test method)

	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Short idle)	47.52 W	47.17 W	47.30 W
Normal Operation (Long idle)	24.40 W	24.63 W	24.66 W
Sleep	2.06 W	2.10 W	2.06 W
Off	0.39 W	0.44 W	0.39 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 idle)	163 BTU/hr	161 BTU/hr	162 BTU/hr
Normal Operation (Long idle)	83 BTU/hr	84 BTU/hr	84 BTU/hr
Sleep	7 BTU/hr	7 BTU/hr	7 BTU/hr
Off	1 BTU/hr	2 BTU/hr	1 BTU/hr

*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 ISO 7779 and ISO 9296)

	Sound Power (L _{WAd} , bels)	Sound Pressure (L _{pAm} , decibels)
Typically Configured – Idle	3.2	23
Fixed Disk – Random writes	3.2	23

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:

- 2x 2.0 USB ports
- 2x 3.0 USB ports
- 1x SD Media Slot
- 2x SODIMM Memory Slots

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

Social and Environmental Responsibility

Batteries

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

Batteries used in the product do not contain:

Mercury greater than 1ppm 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 13.4% post-consumer recycled plastic (by wt.)
- This product is 98.7% recycle-able when properly disposed of at end of life.

Packaging Materials

External:	PAPER/Corrugated	7023 g
Internal:	PLASTIC/EPP (Expanded Polypropylene)	2158 g
	PLASTIC/Polyethylene low density	51 g

The plastic packaging material contains at least 0.0% 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)

Social and Environmental Responsibility

- 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)

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: <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/gcreport/index.html>

Eco-label certifications

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

ISO 14001 certificates:

<http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842>

and

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

Manageability

System Software Manager

- Program to proactively communicate Product Change Notifications (PCNs) and Customer Advisories by email to customers, based on a user-defined profile.
- PCNs provide advance notification of hardware and software changes to be implemented in the factory providing time to plan for transition.

Social and Environmental Responsibility

- Customer Advisories provide concise, effective problem resolution, greatly reducing the need to call technical support.
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Summary of Changes

Date of change:	Version History:		Description of change:
28 March, 2016	From v1 to v2	Added	Technical Specifications, Environmental Data.
August 1, 2016	From v2 to v3	Added	Feature and kit options, Several updates to Sprout by HP 3D Capture Stage, Touch mat, and Technical Specification section.

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