

15.6" All-in-One PC for POS, POI and Kiosk Applications

Shuttle's range of All-in-One PCs yet comprises models with three different screen sizes: 11.6", 15.6" and 19.5". The Shuttle XPC all-in-one P51U3 with a capacitive 15.6" multi-touchscreen offers Full-HD resolution. An Intel Core i3 Ultra-Low-Voltage (ULV) processor makes for high computing power while it keeps energy consumption at a low level. Thanks to its passive cooling, the system is virtually noiseless, maintenance-free and approved for 24/7 nonstop operation. Particularly suitable for vertical applications is the arrangement of connectors at the bottom and the IP54 compliant front panel which is dust-protected and protected from splashing of water.

XPC all-in-one Barebone P51U3 Black



Images for illustration purposes only.

Feature Highlights

All-in-One Design	<ul style="list-style-type: none"> All-in-one PC Stand can also be used as a handle 100 mm VESA mount capable IP54-compliant front panel Approved for 24/7 nonstop operation
Display & Graphics	<ul style="list-style-type: none"> 39.6 cm (15.6") Full HD IPS display (1920x1080) Capacitive 10-point multitouch display Intel HD 610 graphics with HDMI 1.4b and VGA
CPU & Cooling	<ul style="list-style-type: none"> Intel Core i3-8145U, 2.1 / 3.9 GHz, 15W TDP 2/4 Cores/Threads, "Whiskey-Lake-U" Gen. Fanless cooling system
Storage (not included)	<ul style="list-style-type: none"> Supports max. 2x 32 GB DDR4 SO-DIMM Supports one 2.5" SATA HDD / SSD ≤9.5 mm Supports one M.2-2280 SSD (SATA / PCIe) Supports internal USB stick (USB 2.0, type A)
Operating System	<ul style="list-style-type: none"> Operating system is not included Supports Windows 10 (64-bit) & Linux (64-bit)
Connectivity	<ul style="list-style-type: none"> HDMI 1.4b, D-Sub/VGA, 2x USB 3.0, 4x USB 2.0 Gigabit LAN, 2x Audio (Mic / Headphones) 2x RS232, internal USB 2.0 type A port
Built-in	<ul style="list-style-type: none"> Wireless LAN 802.11ac (1T1R), Bluetooth 4.2 SD card reader, 1080p Full HD webcam 2x 2W speakers and microphone
Optional Accessories	<ul style="list-style-type: none"> Two additional COM ports WLAN / Bluetooth with two external antennas Integrated NFC module (on request only)
Power Supply	<ul style="list-style-type: none"> External fanless power adapter, 65 W
Warranty	<ul style="list-style-type: none"> 24 months Bring-in Service



15.6" Multitouch



Nonstop operation



Fanless cooling



IP54 Front protected from dust & water



Two COM ports



Supports Windows 10 & Linux (64-bit)



Wireless and Wired Network



2x USB 3.0
4x USB 2.0



Internal USB-Port

Produkt	Farbe	Prozessor
P51U	Schwarz	Celeron 4205U
P51U3	Schwarz	Core i3-8145U

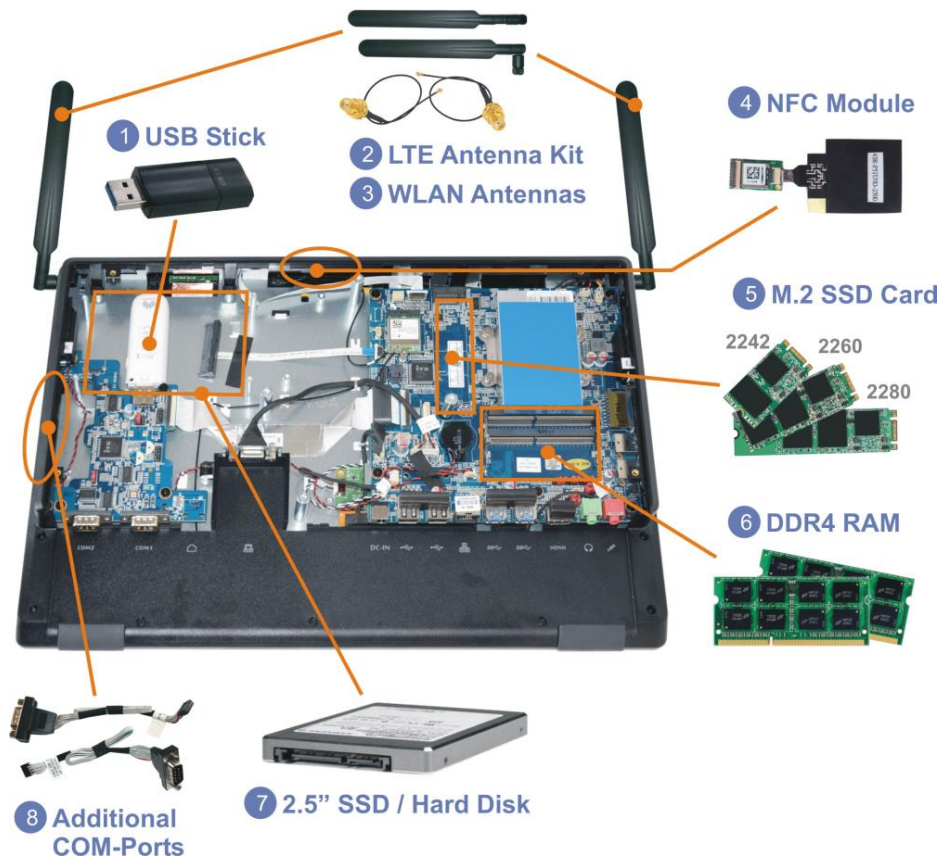
Shuttle XPC all-in-one P51U3 – Overview



- | | |
|----|--|
| 1 | 2x Perforation for optional LTE antennas |
| 2 | Power button |
| 3 | Speaker (left) |
| 4 | Card reader |
| 5 | 4x USB 3.0 port (= USB 3.1 Gen 1) |
| 6 | Stand |
| 6a | Cover for stand |
| 7 | Hole for Clear CMOS button |
| 8 | Power LED (blue) |
| 9 | Storage LED (orange) |
| 10 | Battery LED (red) |
| 11 | Microphone |
| 12 | Webcam |
| 13 | LCD Touchscreen |
| 14 | Speaker (right) |
| 15 | 2x Serial COM port (optional) |
| 16 | Hole for Kensington Lock |
| 17 | 2x Serial COM port |
| 18 | D-Sub/VGA output |
| 19 | DC-input (for power adapter) |
| 20 | 2x USB 2.0 port |
| 21 | Gigabit LAN port |
| 22 | HDMI 1.4b output |
| 23 | Audio Line-out (headphones) |
| 24 | Microphone input |
| 25 | Screw holes for VESA mount |
| 26 | Optional LTE antennas |
| 27 | Optional NFC module area |

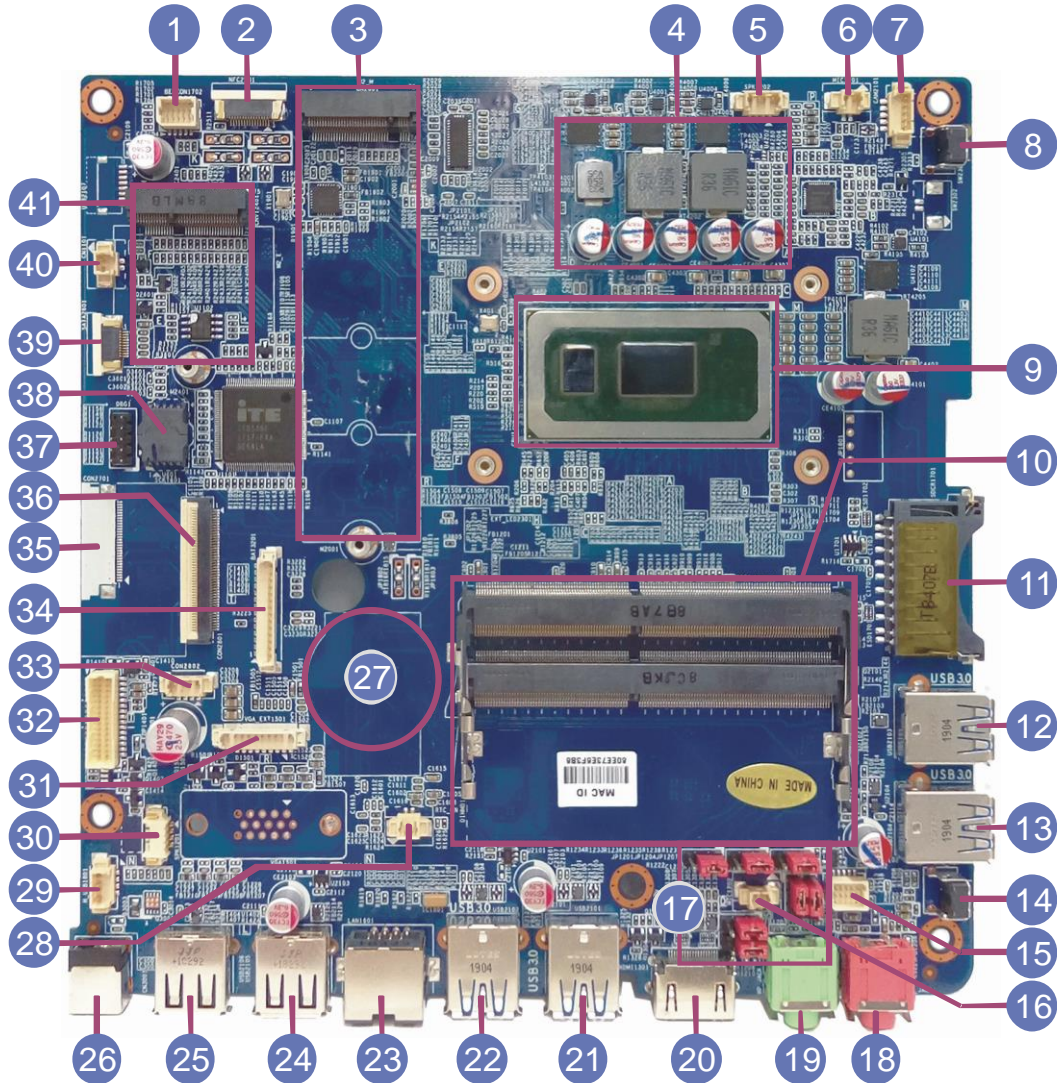
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Installable Components



- 1 USB Stick** The P51U3 features an internal USB 2.0 Type A connector for expansion sticks (such as flash memory or LTE modules).
- 2 LTE Antenna Kit** The chassis features two perforated 7 mm holes for optional external antennas with SMA connector. You may add mobile network functionality by, for example, using the USB LTE stick Huawei MS2372h-153 (for EMEA region) which provides two antenna connectors.
- 3 WLAN Kit with ext. Antennas** The optional Shuttle Accessory WLN-M is a WLAN kit with two external antennas. It supports IEEE 802.11ac in the 2.4 / 5 GHz band and Bluetooth 4.0.
- 4 NFC Module** The PNFC02 is a 13.56 MHz NFC module for internal installation. It supports Windows 10 and is not certified for payment applications. This Shuttle accessory is available on request only.
- 5 M.2 SSD card** The P51U3 supports M.2 SSD cards with a length of 42, 60 or 80 mm and with both SATA and PCIe interface.
- 6 DDR4 RAM** The P51U3 supports up to two 32 GB DDR4-2400(+) SO-DIMM memory modules.
- 7 2.5" SSD/HDD** Supports one SATA SSD or Hard Disk in 2.5" format (max. height: 9.5 mm).
- 8 Additional COM-Ports** The optional Shuttle Accessory PCP21 (or 2x PCP11) provides two more serial COM ports.

Mainboard Overview



- | | | |
|-----------------------------|-------------------------------|-------------------------------|
| 1 Conn. for Beacon Module | 15 LED Connector | 29 USB-Conn. f. Touch Screen |
| 2 Connector for NFC-Module | 16 Microphone Port (reserved) | 30 Speakers Connector |
| 3 M.2-2280 Slot | 17 Jumper Block | 31 VGA Connector |
| 4 CPU Voltage Regulator | 18 Microphone Port | 32 Embedded DisplayPort (eDP) |
| 5 Speakers Connector (res.) | 19 Audio Line-Out | 33 Cash Drawer Connector |
| 6 Microphone Connector | 20 HDMI 1.4b Connector | 34 Battery Pack Connector |
| 7 Webcam Connector | 21 USB 3.1 Connector | 35 Connector for POS01/PCL71 |
| 8 Onboard Power Button | 22 USB 3.1 Connector | 36 Conn. for POS03 I/O board |
| 9 Soldered Processor | 23 RJ45 Network Connector | 37 Debug Port (Reserved) |
| 10 SO-DIMM Memory Slots | 24 USB 2.0 Connector | 38 BIOS EEPROM |
| 11 SD Card Reader | 25 USB 2.0 Connector | 39 Serial ATA Connector |
| 12 USB 3.1 Connector | 26 DC-in for Power Adapter | 40 Debug Port (Reserved) |
| 13 USB 3.1 Connector | 27 Location of CMOS Battery | 41 M.2-2230 Slot |
| 14 Clear CMOS Button | 28 Connector for CMOS Battery | |

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Shuttle XPC all-in-one P51U3 – Special Features



All applications at your fingertips - 10-point multitouch

The innovative touchscreen technology delivers the simplest operation possible and makes the screen the centre of action. Its high-quality design gives you access to all capabilities of the PC - by just touching the screen.



24/7 nonstop operation

The Shuttle XPC all-in-one P51U3 is officially approved for 24/7 permanent operation. Thanks to its low power consumption and completely passive cooling, this PC runs highly reliable making it perfectly suitable for digital signage and POI/POS applications.

Conditions for permanent use:

- Ambient temperature while under load: 5 - 40 °C
- Air humidity while under load: 10 - 80 % (not condensing)
- Free circulation of air amongst the PC must be guaranteed
- Ventilation holes must be kept clear
- If a hard disk or SSD is installed, this must also be approved for permanent operation by its manufacturer.



Fanless and quiet

The Shuttle XPC all-in-one P51U3 uses a passive thermal module to lead heat out of the case quickly and evenly. The unique fanless design makes the P51U3 perfect to be used in noise-sensitive environments. As an additional benefit, fanless cases rarely gather dust on the inside and stay cleaner than others. So it is not only quiet and low in energy use, but also virtually maintenance-free.



Protection Class IP54

The front panel of the Shuttle XPC all-in-one P51U3 is dust-protected and protected from splashing of water according to IP protection class 54. Consequently, this All-in-One PC can be used for those indoor applications, where the touchscreen may be exposed to humidity and occasional splashing of water. This is particularly welcome in restaurants, laboratories, production or other places.



Optimised Cable Management

Most of the connectors are now located at the back panel facing down. This leads to an effective cable management making for a clean, tidy appearance on the desk.

On the left side sit those connectors which need to be accessed from the front: the card reader and two USB ports.



Connects to two external Full HD displays

The Shuttle XPC all-in-one P51U3 features two video outputs: One analog D-Sub/VGA connector and one HDMI 1.4b connector. Two separate Full HD displays can be connected in extended mode. Now add the built-in display of the P51U3 and there are three displays showing different content.



VESA mount *)

The stand on the rear can easily be removed to unveil four VESA mounting screw holes that can be used for mounting arms and other mounting devices from a variety of manufacturers.

*) VESA mount is not included

Shuttle XPC all-in-one Systems based on P51U Black

Name	Type	OS	SSD / HDD	RAM	Battery	UPC/EAN Code
P51U	Barebone	-	-	-	-	887993001791
P51U3	Barebone	-	-	-	-	
POS P510	System, fixed	-	120 GB M.2 SSD	4 GB	-	4046047103454
POS P511	System, fixed	-	120 GB M.2 SSD	4 GB	PBAT01	4046047103461
IoT P5100PA	System, fixed	Windows 10 IoT	120 GB M.2 SSD	4 GB	-	4046047103478
P51UXA	System, BTO	-	BTO	BTO	BTO	-
P5100T	System, BTO	Windows 10	BTO	BTO	BTO	-

Shuttle XPC all-in-one P51U3 – Specifications

<i>Fanless and silent</i>	<p>Passive heatpipe cooling, absolutely no fan noise Perfect for noise-sensitive environments Fanless, dust-free and thus virtually maintenance-free</p>
<i>24/7 nonstop operation</i>	<p>This device is approved for 24/7 permanent operation. Requirements: - Free circulation of air amongst the PC must be guaranteed. - Ventilation holes must be kept clear. - If a hard disk is installed, this must also be approved for permanent operation by its manufacturer.</p>
<i>IP54 protected</i>	<p>The front panel is dust-protected and protected from splashing of water according to protection class IP54.</p>
<i>Chassis</i>	<p>Colour: black Dimensions: 393.6 x 272.5 x 39.8 mm (W x H x D) 100 mm VESA mountable Hole for Kensington lock Weight: 3.25 kg net, 4.5 kg gross</p>
<i>Operation System</i>	<p>This system comes without operating system. It is compatible with: - Windows 10 (64-bit) - Linux –(64-bit)</p>
<i>Touchscreen</i>	<p>Touchscreen function supports fingertip input Capacitive Touch Panel with 10-point multitouch Supports input with gloves (PVC, cotton, cotton/linen) Stylus pen not supported</p>
<i>15.6" Display</i>	<p>39.6 cm / 15.6" LC display, IPS technology Ratio: 16:9 wide-screen panel Native resolution: 1920 x 1080 = 2 Megapixel (Full HD / 1080p) Brightness: 250 cd/sqm</p>
<i>Processor</i>	<p>Model: Intel Core i3-8145U (ULV) System-on-a-chip architecture (SoC) with integrated memory and graphics controller FCBGA1528 package - directly soldered onto the mainboard Code name: Whiskey Lake U (8th Generation Intel Core) Cores / Threads: 2 / 4 Clock rate: 2.1 GHz, Turbo clock rate: 3.9 GHz L3 Smart Cache: 4 MB TDP wattage: 15 W maximum Manufacturing process: 3rd-generation enhanced 14nm++ Maximum Tjunction Temperature: 100 °C Supports 64-bit, VT-x (EPT), VT-d, Enhanced SpeedStep, NX bit, AES-NI, SSE 4.1/4.2</p>

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<p><i>Integrated Graphics</i></p>	<p>Intel HD Graphics 620 GPU clock frequency: 300~1000 MHz Execution Units (EUs): 24 Supports DirectX 12 Supports full H264, H265 8/10 bit, VP8/9, VC-1, AVC hardware decoding Supports Quick Sync Video and Clear Video HD technology</p>
<p><i>Up to three displays</i></p>	<p>Two video ports support two additional independent screens: 1) HDMI 1.4b supports 1920 x 1080 @ 60 Hz or 3840 x 2160 @ 30 Hz 2) VGA / D-Sub analog video supports 1920 x 1080 @ 60 Hz Multi-Monitoring modes as follow: Clone mode: All displays show the same content at 1920 x 1080. Extended mode: All displays show different content.</p>
<p><i>BIOS</i></p>	<p>AMI BIOS in 8 MByte EEPROM with SPI interface Supports Power-on-after-power-fail / always on Supports Wake-on-LAN (WOL) from S3, S4, S5 ACPI states Supports hardware monitoring and Watchdog function Supports Firmware TPM v2.0 function</p>
<p><i>Memory</i></p>	<p>2x SO-DIMM slot with 260 pins Supports DDR4-2400 (PC4-19200) SDRAM at 1.2 V Also compatible with DDR4-2666 memory modules Supports Dual Channel mode Supports a maximum of 32 GB per DIMM, maximum capacity: 64 GB Supports two unbuffered DIMM modules (no ECC or registered)</p>
<p><i>Storage</i></p>	<p>Supports one SATA hard disk or one SATA SSD drive in 6.35 cm / 2.5" format The SATA 3.0 interface supports up to 600 MB/s of data transfer speed (6 Gbit/s) Supports one drive with up to 9.5 mm in height SATA cable pre-installed</p>
<p><i>M.2-2280 Slot</i></p>	<p>The M.2 2280 BM slot provides the following interfaces: - PCI-Express Gen. 3.0 X4 with up to 32 Gbps of data transfer speed - SATA v3.0 (max. 6 Gbps) It supports M.2 cards with a width of 22 mm and a length of 42, 60 or 80 mm (type 2242, 2260, 2280). Supports M.2 SATA SSDs (with B+M key) and M.2 PCIe NVMe-SSDs (with M key)</p>
<p><i>Card Reader</i></p>	<p>Integrated card reader supports SD, SDHC and SDXC memory flash cards</p>
<p><i>Webcam</i></p>	<p>Integrated Full HD 2 megapixel camera (1920 x 1080)</p>
<p><i>Microphone Speakers</i></p>	<p>Front panel with integrated Electret Condenser Microphone and 2x 2 W speakers</p>

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<p><i>Audio</i></p>	<p>Realtek ALC269 Audio Codec Two analog audio connectors (3.5 mm) on the bottom side: 1) Line-out (headphones) 2) Microphone input Digital Audio is supported via HDMI.</p>
<p><i>Wired Network</i></p>	<p>Intel i211 Ethernet Controller with MAC, PHY and PCIe interface Supports 10 / 100 / 1.000 MBit/s operation Supports WAKE ON LAN (WOL) from S3, S4 modes Supports network boot by Preboot eXecution Environment (PXE)</p>
<p><i>Wireless Network</i></p>	<p>Model: AzureWave AW-CB209NF Chipset: Realtek RTL8821CE M.2-2230 (NGFF) expansion card Connected with two internal antennas (via IPEX4) Supports WiFi IEEE 802.11b/g/n/ac in the 2.4/5 GHz band, 1T1R Max. 72.2 / 150 Mbps using 20 / 40 MHz bandwidth in n-mode Max. 433.3 Mbps using 80 MHz bandwidth in ac-mode Supports Bluetooth 4.2 in the 2.4 GHz band (BT 4.0 under Linux)</p>
<p><i>Front LEDs</i></p>	<p>Power LED (blue) Hard disk LED (orange) Battery LED (red)</p>
<p><i>Connectors left side</i></p>	<p>Power button 2x USB 3.1 Gen. 1 (= USB 3.0, max. 5 Gb/s) SD card reader Hole with power button</p>
<p><i>Connectors bottom side</i></p>	<p>HDMI 1.4b (supports digital video and digital audio) VGA connector (D-Sub 15 pol., analog video) 2x USB 3.1 Gen. 1 (= USB 3.0, max. 5 Gb/s) 2x USB 2.0 2x COM/serial (D-Sub) Gigabit Network (LAN, RJ45) Audio Line-out / headphones (3.5 mm jack) Microphone input (3.5 mm jack) DC input for external power adapter (5.5 / 2.5 mm) 2x Perforation for optional WLAN/LTE antennas (diameter: 7 mm)</p>
<p><i>Connectors onboard</i></p>	<p>Internal USB 2.0 type A connector for a USB stick Serial ATA (6 Gbps) data/power combo connector 3x USB 2.0 header (all occupied) Microphone connector (2-pin, occupied) Speakers connector (4-pin, occupied) eDP connector (Embedded DisplayPort) - occupied by the display LPC connector (occupied) I2C connector for optional NFC accessory CMOS battery connector (2-pin occupied) System battery connector (14-pin, battery is optional)</p>

<p><i>Holes for optional Antennas</i></p>	<p>The chassis features two perforated 7 mm holes for optional antennas mounted with an (RP-)SMA connector for wireless network such as WLAN or WWAN (e.g. LTE)</p>
<p><i>Power Adapter</i></p>	<p>External 65 W power adapter (fanless) Input: 100~240 V AC, 50/60 Hz, max. 1.6 A Output: 19 V DC, max. 3.42 A, max. 65 W</p>
<p><i>DC Input</i></p>	<p>DC Input Connector: 5.5 / 2.5 mm (outer/inner diameter) The DC-input of the computer supports an external power source with either 12V ±5 % or 19V ± 5%.</p>
<p><i>Included Accessories</i></p>	<p>Quick Guide Driver DVD 2x bracket to install a 2.5" drive External Power Adapter (65W / 19V) Power cord Screws</p>
<p><i>Optional Accessories</i></p>	<p>1) COM port adapter PCP21 or 2x PCP11 provides two more serial COM ports on the right side 2) WLAN with two external Antennas WLN-M: supports IEEE 802.11ac and BT 4.0 To use this accessory, the existing WLAN module must be removed. 3) NFC module (on request only)</p>
<p><i>Environmental criteria</i></p>	<p>Operating temperature: 0~40 °C Humidity: 10~90 %</p>
<p><i>Certification and Compliance</i></p>	<p>EMI: CE, RED, FCC, RCM, VCCI Safety: CB, ETL Other compliances: RoHS, ErP Lot3, Energy Star</p>
<p><i>Conformity</i></p>	<p>This device is classed as a technical information equipment (ITE) in class B and is intended for use in living room and office. The CE-mark approves the conformity by the EU directives: (1) 2014/30/EU relating to electromagnetic compatibility (EMC), (2) 2014/35/EU relating to Electrical Equipment designed for use within certain voltage limits (LVD), (3) 2009/125/EU relating to ecodesign requirements for energy-related products (ErP), (4) 2014/53/EU related to Radio and Telecommunications Terminal Equipment (RED)</p>

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Shuttle XPC all-in-one – Comparison

Touch Display	Model	Processor	Colour	UPC Code
11.6" 1366 x 768 pixels Capacitive	P20U	Intel Celeron 3865U	Black	887993001487
15.6" 1366 x 768 pixels Resistive	X50V7	Intel Celeron 4205U	Black	887993002149
			White	887993002156
	X50V7U3	Intel Core i3-8145U	Black	887993002163
			White	887993002170
15.6" 1920 x 1080 pixels Capacitive	P51U	Intel Celeron 4205U	Black	887993001791
	P51U3	Intel Core i3-8145U	Black	887993002187
19.5" 1600 x 900 pixels Capacitive	P90U	Intel Celeron 3865U	Black	887993001661
			White	887993001890
	P90U3	Intel Core i3-7100U	Black	887993001685
			White	887993001906
P90U5	Intel Core i5-7200U	Black	887993001678	

P20U (11.6")



X50V7 (15.6")



P51U (15.6")



P90U (19.5")

