

### 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 P51U with a capacitive 15.6" multitouch screen offers Full HD resolution and is optionally available with an integrated 30Wh battery. An Intel 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 P51U Black



Images for illustration purposes only.

Feature Highlights	
All-in-One Design	<ul style="list-style-type: none"> <li>All-in-one PC</li> <li>Stand can also be used as a handle</li> <li>100 mm VESA mount capable</li> <li>IP54-compliant front panel</li> <li>Approved for 24/7 nonstop operation</li> </ul>
Display & Graphics	<ul style="list-style-type: none"> <li>39.6 cm (15.6") Full HD IPS display (1920x1080)</li> <li>Capacitive 10-point multitouch display</li> <li>Intel HD 610 graphics with HDMI 1.4b and VGA</li> </ul>
CPU & Cooling	<ul style="list-style-type: none"> <li>Intel Celeron 4205U, Dual Core, 15 W TDP</li> <li>Intel ULV "Whiskey-Lake-U" Generation</li> <li>Fanless cooling system</li> </ul>
Storage (not included)	<ul style="list-style-type: none"> <li>Supports max. 2x 16 GB DDR4 SO-DIMM</li> <li>Supports one 2.5" SATA HDD / SSD ≤9.5 mm</li> <li>Supports one M.2-2280 SSD (SATA / PCIe)</li> <li>Supports internal USB stick (USB 2.0, type A)</li> </ul>
Operating System	<ul style="list-style-type: none"> <li>Operating system is not included</li> <li>Supports Windows 10 (64-bit) &amp; Linux (64-bit)</li> </ul>
Connectivity	<ul style="list-style-type: none"> <li>HDMI 1.4b, D-Sub/VGA, 2x USB 3.0, 4x USB 2.0</li> <li>Gigabit LAN, 2x Audio (Mic / Headphones)</li> <li>2x RS232, internal USB 2.0 type A port</li> </ul>
Built-in	<ul style="list-style-type: none"> <li>Wireless LAN 802.11ac (1T1R), Bluetooth 4.2</li> <li>SD card reader, 1080p Full HD webcam</li> <li>2x 2W speakers and microphone</li> </ul>
Optional Accessories	<ul style="list-style-type: none"> <li>Two additional COM ports</li> <li>Battery for 7h operation (4-cell, 30 Wh)</li> <li>Integrated NFC module (on request only)</li> </ul>
Power Supply	<ul style="list-style-type: none"> <li>External fanless power adapter, 65 W</li> </ul>
Warranty	<ul style="list-style-type: none"> <li>24 months Bring-in Service</li> </ul>



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



15.6" Multitouch



Nonstop operation



Fanless cooling



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

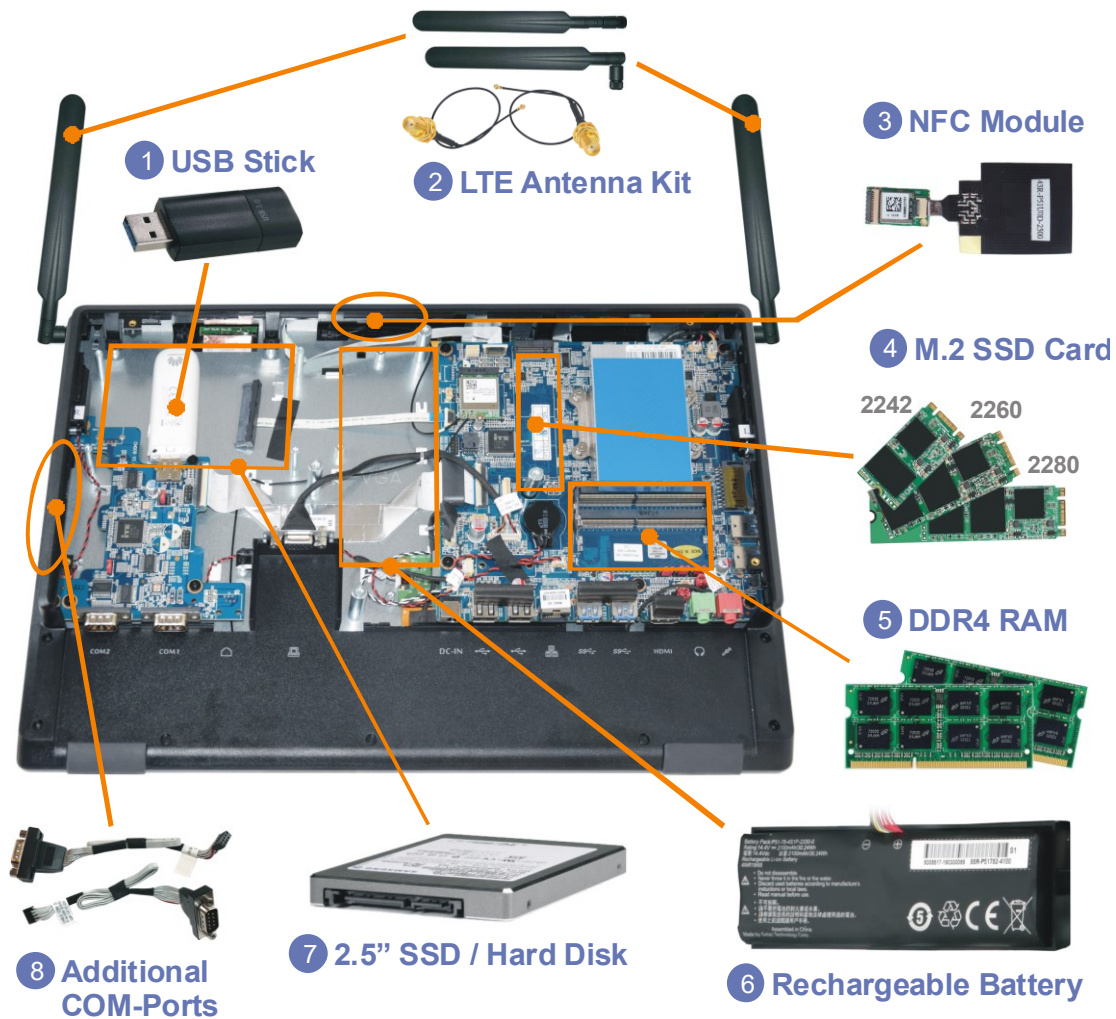
Shuttle XPC all-in-one P51U – Overview



- 1 2x Perforation for optional LTE antennas
- 2 Power button
- 3 Speaker
- 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 Vent hole
- 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

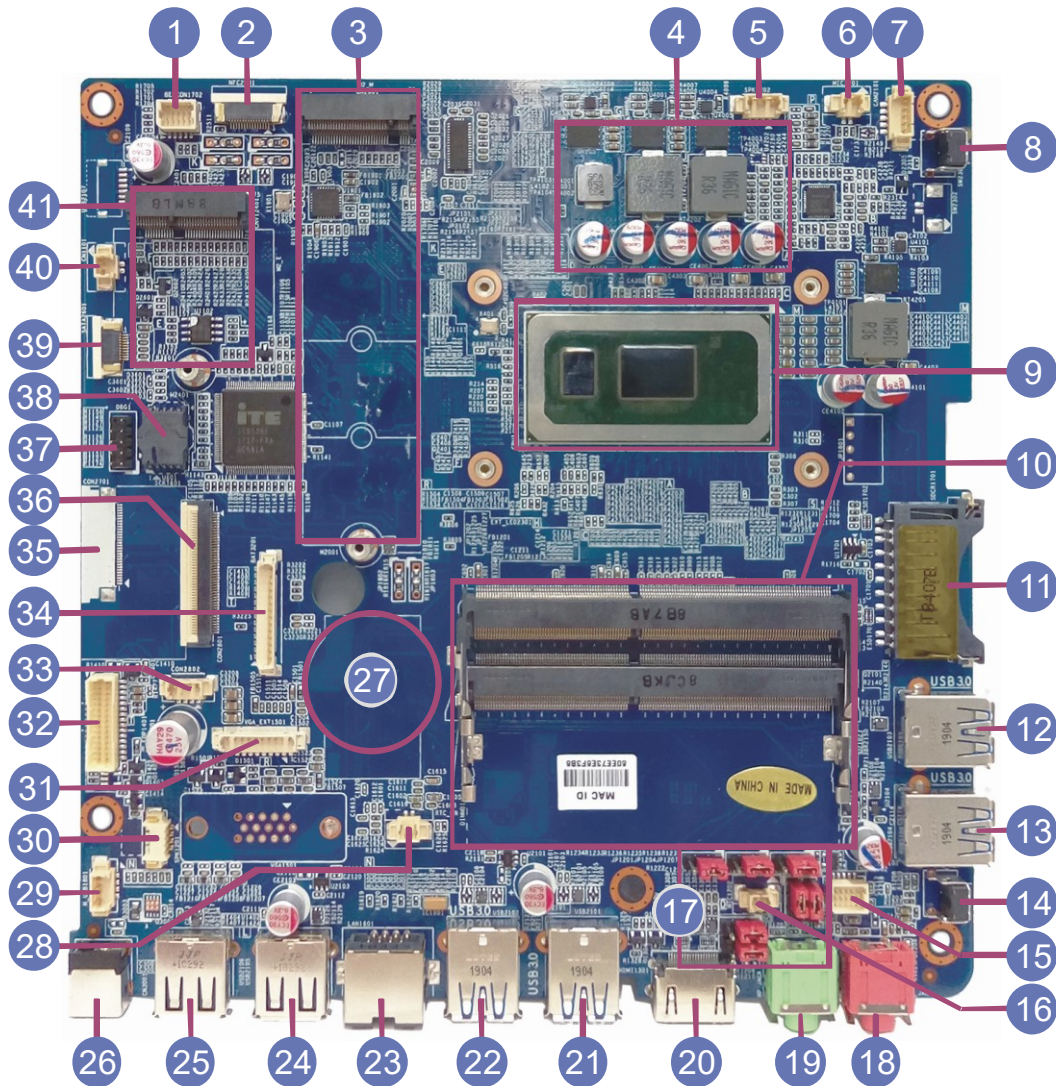
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Installable Components



- 1 USB Stick** The P51U 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 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.
- 4 M.2 SSD card** The P51U supports M.2 SSD cards with a length of 42, 60 or 80 mm and with both SATA and PCIe interface.
- 5 DDR4 RAM** The P51U supports up to two 16 GB DDR4-2133(+) SO-DIMM memory modules.
- 6 Rechargeable Battery** The PBAT01 is a rechargeable Li-Ion battery for 4~7 h operating time (14.4V / 2100 mAh, 30.24 Wh). This Shuttle accessory is available on request only.
- 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 P51U – 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 P51U 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 P51U uses a passive thermal module to lead heat out of the case quickly and evenly. The unique fanless design makes the P51U 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 P51U 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 P51U 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 P51U 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 P51U – 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 Celeron 4205U (ULV)                  System-on-a-chip architecture (SoC) with integrated memory and graphics controller: no chipset required                  FCBGA1528 package - directly soldered onto the mainboard                  Code name: Whiskey Lake U (8th Generation Intel Core)                  Cores / Threads: 2 / 2, Clock rate: 1.8 GHz                  L1/L2/L3 Cache: 128 kB / 512 kB / 2048 kB                  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 610            GPU clock frequency: 300~900 MHz            Execution Units (EUs): 12            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 DDR4-2133 (PC4-17000) SDRAM at 1.2 V            Also compatible with DDR4-2400/2666 memory modules            Supports Dual Channel mode            Supports a maximum of 16 GB per DIMM, maximum capacity: 32 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 RTL8821AE                  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>

<i>Holes for optional Antennas</i>	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)
<i>Power Adapter</i>	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
<i>DC Input</i>	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%.
<i>Included Accessories</i>	Quick Guide Driver DVD 2x bracket to install a 2.5" drive External Power Adapter (65W / 19V) Power cord Screws
<i>Optional Accessories</i>	1) <b>COM port adapter PCP21 or 2x PCP11</b> provides two more serial COM ports on the right side 2) <b>LI-ION battery PBAT01</b> 4S1P, 14.4V, 2100 mAh, 30.24 Wh, for 4~7h operation 3) <b>NFC module</b> (on request only)
<i>Environmental criteria</i>	Operating temperature: 0~40 °C Humidity: 10~90 %
<i>Certification and Compliance</i>	EMI: CE, RED, FCC, RCM, VCCI Safety: CB, ETL Other compliances: RoHS, ErP Lot3, Energy Star
<i>Conformity</i>	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)

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Shuttle XPC all-in-one – Comparison

Touch Display	Model	Processor	Colour	UPC Code
11.6" 1366 x 768 pixels Capacitive	<b>P20U</b>	Intel Celeron 3865U	Black	887993001487
15.6" 1366 x 768 pixels Resistive	<b>X50V6</b>	Intel Celeron 3865U	Black	887993001203
			White	887993001227
	<b>X50V6U3</b>	Intel Core i3-7100U	Black	887993001074
			White	887993001098
15.6" 1920 x 1080 pixels Capacitive	<b>P51U</b>	Intel Celeron 4205U	Black	887993001791
	<b>P51U3</b>	Intel Core i3-8145U	Black	TBA
19.5" 1600 x 900 pixels Capacitive	<b>P90U</b>	Intel Celeron 3865U	Black	887993001661
			White	887993001890
	<b>P90U3</b>	Intel Core i3-7100U	Black	887993001685
			White	887993001906
<b>P90U5</b>	Intel Core i5-7200U	Black	887993001678	

**P20U (11.6")**



**X50V6 (15.6")**



**P51U (15.6")**



**P90U (19.5")**



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