

Compact All-in-One PC for POS and control applications

The Shuttle XPC all-in-one P20U with an 11.6" multi-touch display is positioned as a space-saving POS system or control device for media playback or automation. The adjustable stand allows for flexible viewing and operation angles, while it can also be VESA-mounted to appropriate stands or walls. The front panel is protected from splashing of water and dust according to the IP54 rating. A detachable cable collector box on the bottom helps avoid clutter. Thanks to its passive cooling, the system is virtually noiseless, maintenance-free and approved for 24/7 nonstop operation.

XPC all-in-one Barebone **P20U**



Images for illustration purposes only.

Feature Highlights

All-in-One Design	<ul style="list-style-type: none"> XPC all-in-one with 11.6" touchscreen Small: 29.9 x 27.1 x 5.0 cm (WHD) 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"> 29.5 cm (11.6") capacitive 10-point multi-touch display with a 1366 x 768 resolution Intel HD 610 graphics with HDMI and VGA
CPU & Cooling	<ul style="list-style-type: none"> Intel Celeron 3865U, 1.8 GHz, 15 W TDP Fanless cooling system
Storage (not included)	<ul style="list-style-type: none"> Supports max. 2x 16 GB DDR4-2133 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 1.4, 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 802.11n (1T1R), Bluetooth 4.1 SD card reader, 720p HD webcam 2 W speaker and Microphone
Optional Accessories	<ul style="list-style-type: none"> PCP21: two additional COM ports PNFC01: integrated NFC module
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



11.6" Multi-touch



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



Optional NFC module



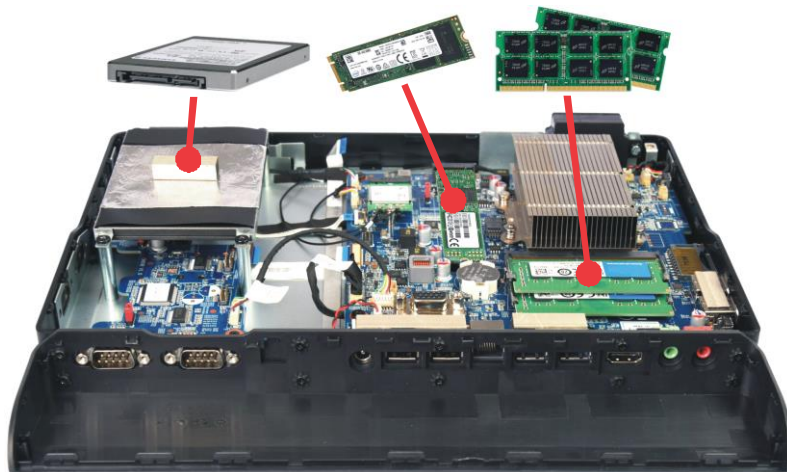
Shuttle XPC all-in-one P20U – Overview



- | | | |
|--|---|---|
| <ul style="list-style-type: none"> 1 Perforation for optional LTE antennas 2 Optional: 2x serial COM port 3 Line Collector Box 4 Webcam 5 Microphone 6 Multi-touch LCD display 7 Hard disk LED 8 Power-on LED 9 Power-on button | <ul style="list-style-type: none"> 10 Hole for the Kensington Lock 11 Card reader 12 2x USB 2.0 connector 13 Hole with Clear CMOS button 15 Detachable stand 16 D-Sub/VGA Video Output 17 2x rubber foot 18 Output of the Line Collector Box 19 Detachable chassis cover | <ul style="list-style-type: none"> 20 Mono Speaker 21 2x serial COM port 22 DC input for power adapter 23 2x USB 2.0 connector 24 RJ45 Gigabit LAN 25 2x USB 3.0 connector 26 HDMI Video Output 27 Audio Line-out (headphones) 28 Microphone Input 29 Screw holes for an optional 100x100 mm VESA mount |
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Installable Components

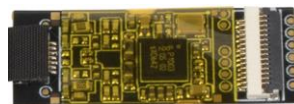


2.5" SATA Drive
Hard disk or SSD
max. 9.5 mm in height

M.2-2280 SSD card
80, 60 or 42 mm
SATA- or PCIe interface

2x DDR4 Memory
max. 2x 16 GB
SO-DIMM slot

Optional Accessories



NFC Expansion PNFC01
13.56 MHz NFC writer/reader module
including antenna
(Windows 10 only, not for payment)



2x COM Port Adapter PCP21
Provides two more COM port
connectors on the right side.

Operating Positions

Included Stand



⇒ Variable installation angle

VESA Arm / VESA Stand *)



⇒ with or without cable collection box

VESA Wall-Mounted *)



*) VESA mount is not included

Shuttle XPC all-in-one P20U – Special Features



All applications at your fingertips - 10-point multi-touch

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 P20U 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 is installed, this must also be approved for permanent operation by its manufacturer.



Fanless and quiet

The Shuttle XPC all-in-one P20U uses a passive thermal module to lead heat out of the case quickly and evenly. The unique fanless design makes it 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's 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 P20U 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 located on the back panel with the cables facing down and led to a cable collector box mounted on the bottom of the PC. This helps avoid clutter and makes for a clean, tidy appearance on the desk.

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



Connects to two external Full HD displays

The Shuttle XPC all-in-one P20U features two video outputs: One analog D-Sub/VGA connector and one HDMI connector. Two separate Full HD displays can be connected in extended mode. Now add the built-in display of the P20U and there are three displays showing different content.



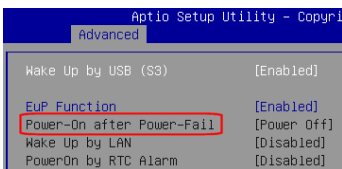
Supports high-performance M.2 SSDs

The M.2 slot (type 2280) is fully-equipped with 4X PCI-Express v3.0 lanes and SATA 3.0 interfaces. Modern M.2 SSDs with PCI Express interface (PCIe) and NVMe provide a significant higher bandwidth compared to the usual SATA standard. Type 2280 means it supports the usual M.2 cards with a width of 22 mm and a length of 80 mm, but also 2242 and 2260 standard cards are supported.



RS232 COM ports

Serial ports are still widely used for applications of industrial automation systems, scientific analysis, POS systems and other. The Shuttle XPC all-in-one P20U features two serial RS-232 ports on the bottom side and two more ports can optionally be installed on the right side (Accessory PCP21).



Power on after Power fail

The BIOS setup provides a "Power-On-after-Power-Fail" function that can be found under "Power Management Configuration" where the PC's behaviour after power failure can be determined.

The Shuttle XPC all-in-one P20U also comes with a hardware-based solution. By removing Jumper 7, the system will start unconditionally once power is applied.



Internal USB Slot and perforations for external antennas

The Shuttle XPC all-in-one P20U features an internal USB 2.0 connector (type A) for a USB stick and two perforations for optional external antennas. The internal USB connector is for expansion sticks (such as flash memory, DVB-T, SAT, LTE) or other USB devices like a radio module for home automation or RFID.



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 P20U – Specifications

<i>Fanless and silent</i>	<p>Passive cooling system, no fan noise at all Perfect to be used in 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: - without cable collector box: 29.9 x 20.3 x 5.0 cm (W x H x D) - with cable collector box: 29.9 x 27.1 x 5.0 cm (W x H x D) 100 mm VESA mount capable Mounting hole for Kensington lock Weight: 2.47 kg net, 3.39 kg gross</p>
<i>11.6" Display</i>	<p>29.5 cm / 11.6" LCD TN display Aspect ratio: 16:9 widescreen Resolution: 1366 x 768 = 1.05 Megapixel Backlight unit: LED, Luminance: 250 cd/sqm (typ.) Glass thickness: 3.2 mm, Anti-Glare</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>Operating System</i>	<p>This system comes without operating system. It is compatible with: - Windows 10 (64-bit) - Linux (64-bit, does not support the NFC accessory)</p>

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<p><i>Processor</i></p>	<p>Model: Intel Celeron 3865U (ULV) System-on-a-chip architecture (SoC): no chipset required BGA1356 package - directly soldered onto the mainboard Code name: Kaby Lake-U (7th Generation Intel Core) Cores / Threads: 2 / 2, Clock rate: 1.8 GHz L1/L2/L3 Cache: 128 kB / 512 kB / 2048 kB Memory controller: DDR4-2133 Dual Channel (1.2 V) TDP wattage: 15 W maximum, Manufacturing process: 14 nm 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>
<p><i>Integrated Graphics</i></p>	<p>Integrated graphics engine: 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>Up to three displays simultaneously Two video ports support two additional independent screens: 1) HDMI 1.4 supports 1920 x 1080 @ 60 Hz or 3840 x 2160 @ 30 Hz 2) VGA / D-Sub analog video supports 1920 x 1080 @ 60 Hz Special conditions for operation in Multi-Monitoring mode: 1) Clone mode: all displays show the same content at 1366 x 768 resolution 2) 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 fail resume / always on Supports Wake-on-LAN (WOL) from S3, S4, S5 ACPI states Supports hardware monitoring and watch dog functionality Supports Firmware TPM v2.0 functionality</p>
<p><i>Memory</i></p>	<p>2x SO-DIMM slot with 260 pins Supports DDR4-2133 (PC4-17000) SDRAM at 1.2 V Supports Dual Channel mode Supports a maximum of 16 GB per DIMM, maximum total size: 32 GB Supports two unbuffered DIMM modules (no ECC or registered)</p>
<p><i>Storage</i></p>	<p>Hard disk drive / SSD: 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 data transfer speed (6 Gbit/s) Supports one drive with up to 9.5 mm in height</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 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 SSDs (with M key)</p>

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Card Reader	Integrated card reader supports SD, SDHC and SDXC memory flash cards
Webcam	Integrated 720p HD webcam with 1.0M CMOS sensor Resolution: max. 1280 x 720 pixels
Microphone Speakers	Front panel with integrated Electret Condenser Microphone (front position) and one 2 W speaker (upper side)
Audio	Integrated Audio: 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.
Wired Network	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)
Wireless Network	Chipset: Realtek® RTL8723BE-CG M.2-2230AE Combo Module: AzureWave AW-NB165NF Two internal antennas support WLAN Transmit/Receive (1T1R) and Bluetooth Supports Wireless LAN IEEE 802.11b/g/n at 2,4 GHz Max. PHY data rate: 150 Mbps in 802.11n mode Supports Bluetooth 4.1
Front LEDs	Power LED (blue) Hard disk LED (orange)
Connectors left side	Power button 2x USB 2.0 (type A) SD card reader Hole with Clear CMOS button Mounting hole for Kensington lock
Connectors right side	Optional: 2x COM ports (1x RS232, 1x RS232/422/485)
Connectors bottom side	HDMI 1.4 (supports digital video and digital audio) VGA connector (D-Sub 15 pol., analog video) 2x USB 3.0 (type A) 2x USB 2.0 (type A) 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 COM-Port (RS232)

<p><i>Connectors onboard</i></p>	<p>Internal USB 2.0 type A connector for an USB cable Always power-on jumper JP7 Serial ATA (data and power) 3x USB 2.0 header (all occupied) eDP connector (Embedded DisplayPort) - occupied by the display LPC connector (occupied) I2C connector for optional NFC accessory</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% and 19V±5%.</p>
<p><i>Included Accessories</i></p>	<p>Quick Installation Guide Windows 10 Driver DVD External Power Adapter (65W / 19V) with DC cable (approx. 1.7 m) Power cord with Euro plug (approx. 1.75 m) 4x screw M3 x 3 mm to mount the 2.5" drive into the rack 4x screw M2.5 x 4 mm to mount the rack into the chassis EMI shielding gasket (sponge) for 2.5" drive (ca. 8.5 x 10 x 30 mm)</p>
<p><i>Optional Accessories</i></p>	<p>1) COM port adapter PCP21 provides two more serial COM ports on the right side 2) NFC module PNFC01 (no Linux and transaction support)</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, FCC, FAC, BSMI, RCM, VCCI & TELEC, RED Safety: CB, EAC & FSS, BSMI, ETL Other compliances: RoHS, ErP Lot 3, Energy Star v6.0 (Level 6)</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) 2004/108/EC relating to electromagnetic compatibility (EMC), (2) 2006/95/EC relating to Electrical Equipment designed for use within certain voltage limits (LVD), (3) 2009/125/EC relating to ecodesign requirements for energy-related products (ErP), (4) 1999/5/EC relating to Radio and Telecommunications Terminal Equipment (R&TTE)</p>

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Shuttle XPC all-in-one P20U – Technical Information

Power Consumption:

System configuration:

P20U, BIOS v1.02, Celeron-3865 , 2x 4GB DDR4, 2,5" SSD SATA-6G 120GB, Win10-1803-64bit.

Product model:	P20U
Processor:	Celeron 3865U
Idle mode:	12.17 W
Full load (CPU only):	16.23 W
Full load (CPU+Graphics):	31.52 W
ACPI mode S3 (Standby):	2.49 W
ACPI mode S5 (EUP=ON):	0.16 W
ACPI mode S5 (EUP=OFF):	0.54 W

Simplified dimensional drawing:

