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

With the XPC all-in-one P90U3 Shuttle expands its product range of All-in-One PCs and introduces its largest model so far. It is the first one in a 19.5 inch format and with a capacitive touchscreen. 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
P90U3 Black
With Intel Core i3 ULV CPU

19.5"

Feature Highlights

All-in-One Design	• XPC all-in-one with touchscreen • Dimensions: 487 x 321 x 44 mm (WHD) • 100 mm VESA mount capable • IP54 compliant front panel • Approved for 24/7 nonstop operation
Display & Graphics	• 49.5 cm (19.5") LC Display, 1600 x 900 pixel • Capacitive 10-point multi-touchscreen • Integrated Intel HD 620 graphics • HDMI 1.4 + D-Sub/VGA Video output
CPU & Cooling	• Intel Core i3-7100U, 2.4 GHz, 15 W TDP • Fanless heatpipe cooling system
Storage (not included)	• Supports max. 2x 16 GB DDR4-2133 SO-DIMM • Supports one 2.5" SATA hard disk / SSD • Supports one M.2-2280 SSD (SATA / PCIe) • Supports internal USB stick (USB 2.0, type A)
Operating System	• Operating system is not included • Supports Windows 10 (64-bit) & Linux (64-bit)
Connectivity	• HDMI 1.4, D-Sub/VGA • 2x USB 3.0, 4x USB 2.0, internal port: 1x USB 2.0 • Microphone input, headphones output • Gigabit LAN, Wireless LAN 802.11ac, BT 4.1
Optional	• PCL71: 2x COM, 1x LPT • POS01: 4x COM (2x D-Sub, 2x RJ45), LPT, RJ11 • PNFC02: NFC module (only on request) • Supports LTE/USB stick + two external antennas
Built-in	• SD card reader, 2.0 Megapixel FHD webcam • 2x 2 W speakers • Electret Condenser Microphone
Power Supply	• External fanless power adapter, 65 W / 19 V • DC-in supports 12 V and 19 V voltage
Warranty	• 24 months Bring-in Service

19.5" Multitouch — *Nonstop operating* — *Fanless cooling*

Front protected: dust & water — *Up to four COM ports* — *Supports Windows 10 & Linux (64-bit)*
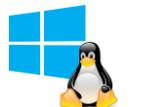
WLAN-AC and Intel LAN — *2x USB 3.0 4x USB 2.0* — *Internal USB-Port*

Product	Colour	Processor
P90U	**Black or White**	**Celeron 3865U**
P90U3	**Black** or White	**Core i3-7100U**
P90U5	**Black**	**Core i5-7200U**

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Images for illustration purposes only.

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Shuttle XPC all-in-one P90U3 − Overview

1	Stand	**8**	SD card reader	**18**	2x D-Sub COM port (optional)
1a	Stand mounting plate	**9**	4x USB 2.0 port	**19**	2x RJ45 COM port (optional)
1b	VESA cover	**10**	Power LED	**20**	RJ11 for cash drawer (opt.)
1c	100 x 100 mm VESA mount	**11**	Hard disk LED	**21**	DC-input for power adapter
2	Full HD Webcam	**12**	2x speakers (stereo)	**22**	RJ45 Gigabit LAN port
3	Microphone	**13**	Position of optional NFC	**23**	2x USB 3.0
4	Touchscreen LCD display	**14**	Name plate (rating label)	**24**	HDMI video output
5	Power Button	**15**	Hole for Kensington lock	**25**	Audio Line-out (headphones)
6	2x Performation for external antenna	**16**	D-Sub/VGA video output	**26**	Microphone input
7	Hole for hidden power button	**17**	LPT Parallel Port (optional)	**27**	Openings for ventilation

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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

2242
2260
2280
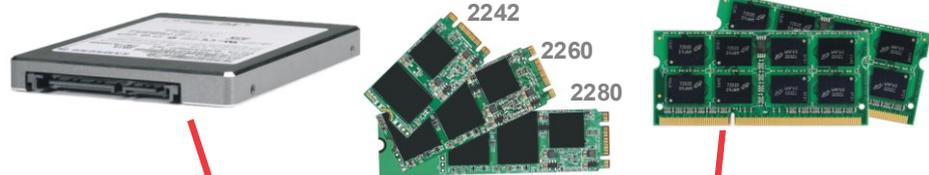
Optional COM, LPT and DIO ports
While the Shuttle Accessory PCL71 adds two serial COM ports and one parallel LPT port, the POS01 adds two more COM ports (with RJ45 connector) and one Digital I/O 12 V / 24 V (RJ11) for a cash drawer.

PCL71   **POS01**
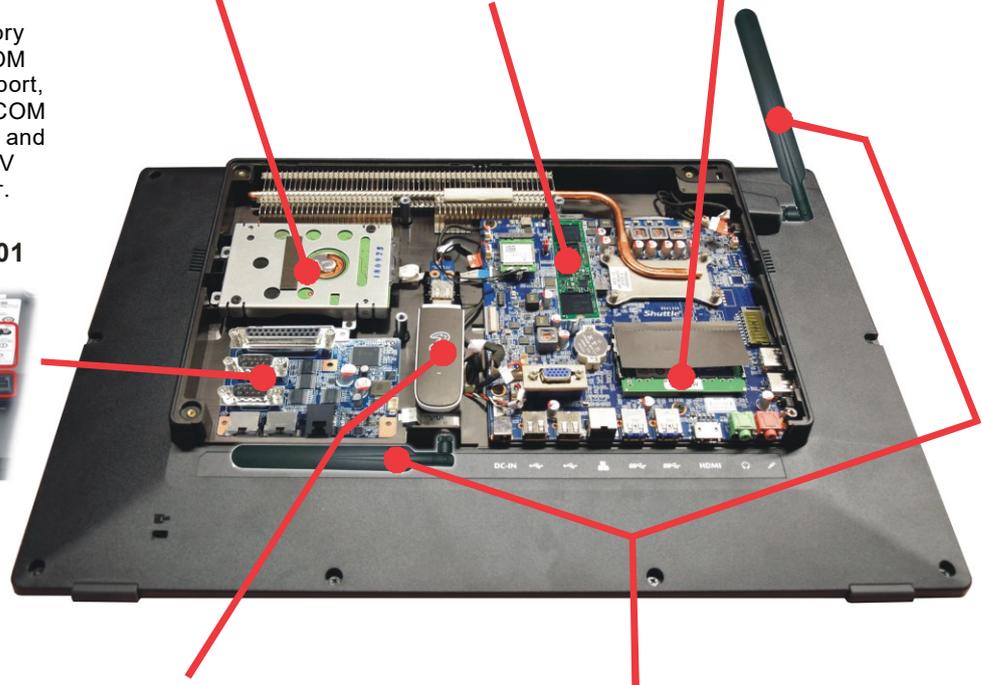
Internal USB port
Internal USB 2.0 Type A connector for expansion sticks (such as flash memory or LTE).

Optional antennas
The chassis features two perforated 7 mm holes for optional antennas mounted with an (RP-)SMA connector.

Internal NFC Module *PNFC02*
13.56 MHz NFC-module for internal installation. Supports Windows 10. Not certified for payment applications. Note: this Shuttle accessory is available on request only.

Shuttle XPC all-in-one P90U3 – 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 P90U3 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 P90U3 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 P90U3 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 P90U3 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 P90U3 and there are three displays showing different content.

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 P90U3 also comes with a hardware-based solution. By removing Jumper 7, the system will start unconditionally once power is applied.

Hidden Power Button

Left picture: The power button can be deactivated to prevent unauthorised use. To do so, disconnect the appropriate connection inside the chassis (see red circle).

Right picture: Still, it can be used with a straightened paper clip as shown on the left.

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 P90U3 – Specifications

Fanless and silent	Passive heatpipe cooling, absolutely no fan noise Perfect for noise-sensitive environments Fanless, dust-free and thus virtually maintenance-free
24/7 nonstop operation	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.
IP54 protection	The front panel is dust-protected and protected from splashing of water according to protection class IP54.
Chassis	Colour: black Dimensions: 487 x 321 x 44 mm (W x H x D) 100 mm VESA mountable Hole for Kensington lock Weight: 4.29 kg net, 5.62 kg gross
Operating system	This system comes without operating system. It is compatible with: - Windows 10 - 64-bit - Linux - 64-bit
Touchscreen	Touchscreen function supports fingertip input Capacitive Touch Panel with 10-point multi-touch Supports input with gloves (PVC, cotton, cotton/linen) Stylus pen not supported
49.5 cm display (19.5")	49.5 cm / 19.5" LCD display Ratio: 16:9 widescreen panel Resolution: 1600 x 900 = 1.44 Megapixel (WSXGA/HD+)
Processor	Model: Intel Core i3-7100U (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 / 4 Clock rate: 2.4 GHz L1/L2/L3 Cache: 128 kB / 512 kB / 3072 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 Hyper-Threading (HT), 64-bit, VT-x (EPT), VT-d, Enhanced SpeedStep, NX bit, AES-NI, SSE 4.1/4.2

Integrated Graphics	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
Up to three displays	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 follows: Clone mode: All displays show the same content at 1600 x 900. Extended mode: All displays show different content.
BIOS	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
Memory	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)
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 12.5 mm in height SATA cable pre-installed
M.2-2280 Slot	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 SSDs (with M key)
Card Reader	Integrated card reader supports SD, SDHC and SDXC memory flash cards
Webcam	Integrated Full HD webcam (1920 x 1080 pixels)
Microphone and speakers	Front panel with integrated Electret Condenser Microphone and 2x 2 W speakers
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 (WLAN)	Model: AzureWave AW-CB209NF Chipset: Realtek RTL8821AE M.2-2230 (NGFF) extension 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 4.1 in the 2.4 GHz band (BT 4.0 under Linux)
Front LEDs	Power LED (blue) Hard disk LED (orange)
Connectors left side	Power button 2x USB 2.0 SD card reader Hole with power button
Connectors bottom side	HDMI 1.4b (supports digital video and digital audio) 2x USB 3.0 2x USB 2.0 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) Perforation for optional TV/3G antenna (diameter: 9 mm) Optional: 2x COM/serial (RJ45), DIO (RJ11) for cash drawer (accessory POS01)
Connectors rear side	VGA connector (D-Sub 15 pol., analog video) Optional: 2x COM/serial (D-Sub), 1x LPT/parallel (accessory: PCL71 or POS01)
Connectors onboard	Internal USB 2.0 type A connector for a USB stick Serial ATA (6 Gbps) Serial ATA power connector 3x USB 2.0 header (all occupied) eDP connector (Embedded DisplayPort) - occupied by the display Connector for optional COM/LPT adapter POS01 or PCL71
Openings for optional antennas	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)
Power adapter	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

DC Input connector	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%.
Included Accessories	Quick Guide Driver DVD External Power Adapter (65W / 19V) Power cord Screws
Optional Accessories	**PCL71:** COM / LPT / RJ11 adapter: - 1x Parallel (25p D-Sub) - 2x Serial RS232 (9p D-Sub) supports 0 / 5 / 12V **POS01:** COM / LPT / RJ11 adapter: - 1x Parallel (25p D-Sub) - 2x Serial RS232 (9p D-Sub) supports 0 / 5 / 12V - 2x Serial RS232 (8p RJ45) - 1x DIO/RJ11 connector for cash drawer supports 12 / 24V **PNFC02:** NFC module (no Linux and transaction support) - Note: PNFC02 is only available on request
Environmental criteria	Operating temperature: 0~40 °C Humidity: 10~90 %
Certification and Compliance	EMI: CE, RED, FCC, RCM, VCCI Safety: CB, ETL Other compliances: RoHS, ErP Lot3, Energy Star v7.0
Conformity	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	P20U	Intel Celeron 3865U	Black	887993001487
15.6" 1366 x 768 pixels Resistive	X50V6	Intel Celeron 3865U	Black	887993001203
			White	887993001227
	X50V6U3	Intel Core i3-7100U	Black	887993001074
			White	887993001098
15.6" 1920 x 1080 pixels Capacitive	P51U	Intel Celeron 4205U	Black	TBA (Sept. 2019)
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")

X50V6 (15.6")

P51U (15.6")

P90U (19.5")