

Fanless PC system for POS application

The Shuttle POS DS100 is a sleek complete mini PC system with a robust 1.3-litre metal chassis and exceptional connectivity. The array of modern connectors include HDMI 2.0a, DisplayPort 1.2, USB 3.2 Gen.1, but also traditional ports like VGA, COM and USB 2.0 are part of the package which are particularly important for commercial applications. With Dual Gigabit LAN and WLAN-ac/Bluetooth built in, network connectivity is extensive. Thanks to its passive cooling and SSD storage, the system is virtually maintenance-free and approved for 24/7 nonstop operation. It is big on performance, yet extremely energy-efficient - the ideal platform for professional applications such as digital signage, POS, Kiosk, Thin Client, Office PC and Multimedia.

Shuttle XPC slim POS DS100 PC system without operating system

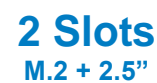
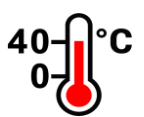


Feature Highlights

Slim Design	<ul style="list-style-type: none"> • Slim 1.3-litre metal chassis, black • Dimensions: 20 x 16.5 x 3.95 cm (LWH) • Incl. Stand & VESA mount (75/100 mm)
Operating System	<ul style="list-style-type: none"> • An operating system is not included • Compatible with Windows 10, Linux (64-bit)
Processor	<ul style="list-style-type: none"> • Intel Celeron 4205U, Dual Core, 15 W TDP • Intel ULV "Whiskey-Lake-U" Generation • Integrated Intel UHD graphics 610, DX12 • Fanless heatpipe cooling
RAM	<ul style="list-style-type: none"> • 4 GB DDR4-2133, 260-pin SO-DIMM
Storage	<ul style="list-style-type: none"> • 120 GB SSD, 2.5" drive, SATA 3 interface • M.2 2280 slot supports optional M.2 card
Connectors	<ul style="list-style-type: none"> • HDMI 2.0a, DisplayPort 1.2, D-Sub/VGA • 4x USB 3.2 Gen 1 (5 Gbps), 4x USB 2.0 • SD card reader, 2x Intel Gigabit LAN • 2x Audio (Line out + mic) • 1x COM port (RS232/RS422/RS485) • Connector for external power button
WLAN	<ul style="list-style-type: none"> • WLAN 802.11ac with two external antennas
Power Supply	<ul style="list-style-type: none"> • External 65 W fanless power adapter
Optional Accessories	<ul style="list-style-type: none"> • CXP01: adapter cable f. ext. power button • PRM01: 2U rack mount kit for two PCs • PCP11: adapter cable for 2nd COM port • DIR01: DIN-Rail mounting kit

Shuttle Products based on DS10U Series:

Type	Model	Processor	RAM	Storage	OS
Bare-bone	DS10U	Celeron 4205U	—	—	—
	DS10U3	Core i3-8145U	—	—	—
	DS10U5	Core i5-8265U	—	—	—
	DS10U7	Core i7-8565U	—	—	—
Fix System	POS DS100	Celeron 4205U	4 GB	120 GB SSD	—
	POS DS100P	Celeron 4205U	4 GB	120 GB SSD	Win 10 IoT
BTO System	DS10UXA	BTO	BTO	BTO	—
	DS1000B	BTO	BTO	BTO	Win 10

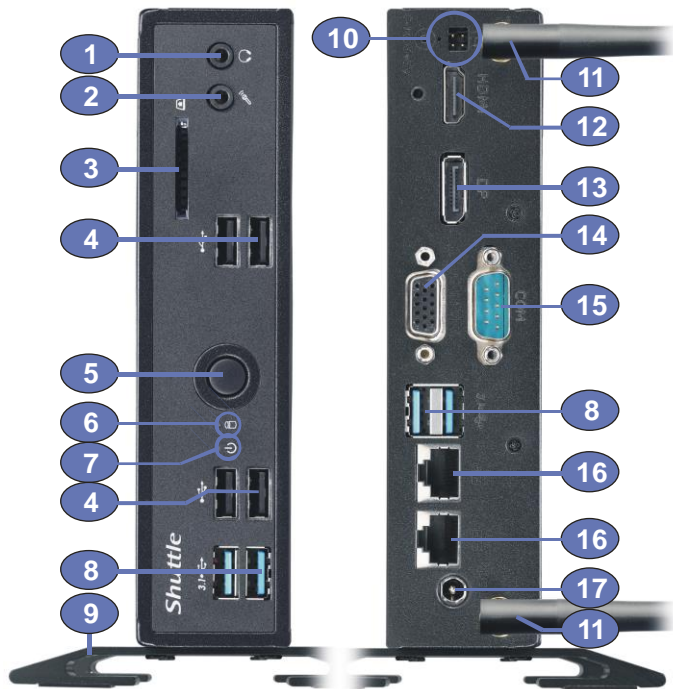


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Shuttle XPC slim POS DS100 – Product Views



- 1 Headphones output
- 2 Microphone input
- 3 SD card reader
- 4 4x USB 2.0
- 5 On/Off power button
- 6 Hard disk LED indicator
- 7 Power LED indicator
- 8 4x USB 3.2 Gen 1
- 9 Stand with screws
- 10 Pin connector for external power button or CMOS button or 5 V DC voltage supply
- 11 2x WLAN antenna
- 12 HDMI 2.0a output
- 13 Display Port 1.2 output
- 14 D-Sub / VGA
- 15 COM 1: RS-232/422/485
- 16 2x RJ45 Gigabit LAN
- 17 DC-Input for Power Adapter

Optional Accessories

CXP01

Adapter cable for external power button (without button)



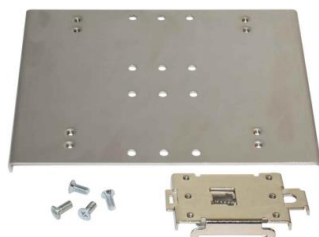
PRM01

2U rack mount kit for two Shuttle XPC slim



DIR01

DIN-Rail Mounting Kit (for standard 35 mm DIN-Rail)



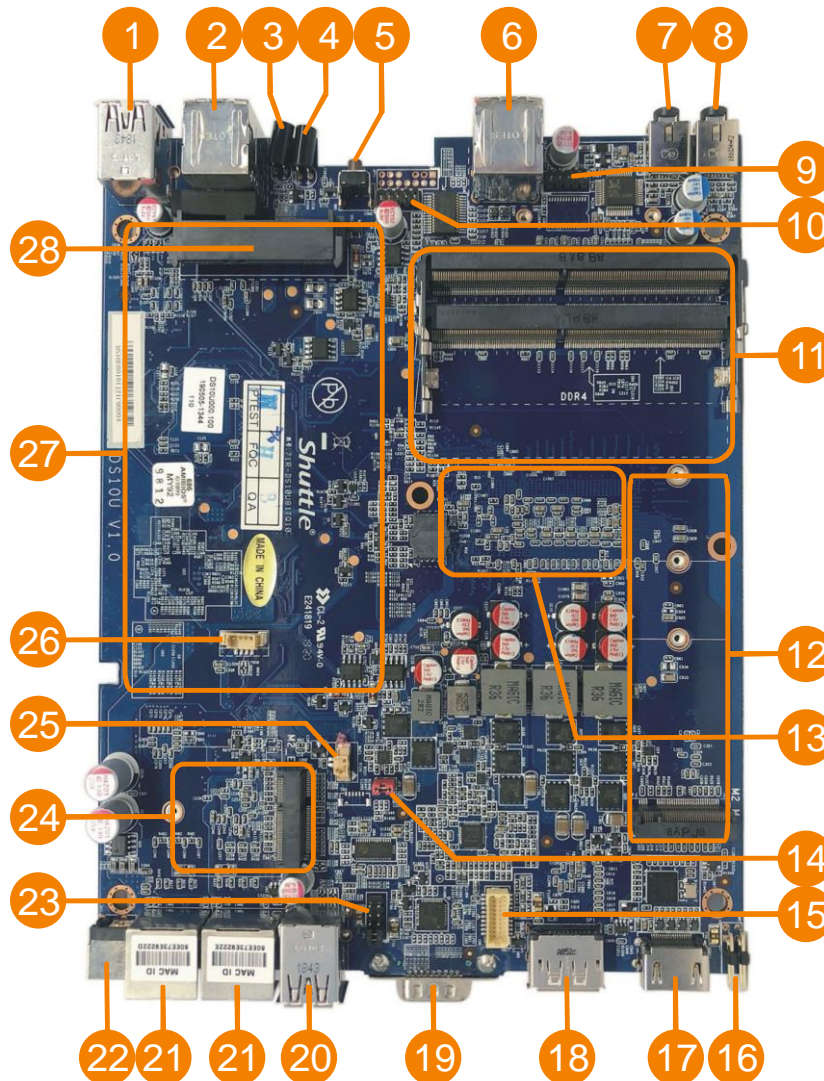
PCP11

COM port adapter second COM instead of VGA



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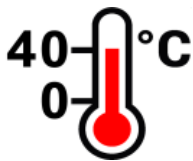
Mainboard Overview



- | | | | |
|----|---------------------------------------|----|---|
| 1 | 2x USB 3.2 port | 15 | VGA onboard connector |
| 2 | 2x USB 2.0 port | 16 | Connector for external power button |
| 3 | Power LED | 17 | HDMI 2.0a video output |
| 4 | Hard Disk Drive LED | 18 | DisplayPort 1.2 video output |
| 5 | Power Button | 19 | COM port (D-Sub) |
| 6 | 2x USB 2.0 port | 20 | 2x USB 3.2 port |
| 7 | Connector for Microphone | 21 | 2x Gigabit LAN port |
| 8 | Connector for Headphones | 22 | DC connector for power adapter |
| 9 | Debug header | 23 | COM port jumper (Pin-9 voltage setting) |
| 10 | Header for COM 2 port | 24 | M.2-2230 slot (with WLAN card) |
| 11 | 2x SO-DIMM slot for DDR4 RAM | 25 | Connector for CMOS battery |
| 12 | M.2-2280 slot | 26 | USB 2.0 onboard connector |
| 13 | Location of the processor (back side) | 27 | Area of the 2.5" bay |
| 14 | Always-On jumper (JP9) | 28 | Onboard SATA connector |

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Shuttle XPC slim POS DS100 – Product Features



Robust, Stylish and Extremely Small

You should have held it in your own hands to experience how small it actually is. Barely 1.35 litre in volume, its rigid steel chassis design meets the high standards towards quality and stability that are essential for professional applications like digital signage. Despite its diminutive size, the processing power inside the POS DS100 is sufficient to meet the needs of the most demanding multimedia and computational workloads. The well-designed interior of the POS DS100 makes installations and upgrades simple. Other than rough environments, its sleek and stylish look also blends seamlessly in both home and office.

Ease of installation thanks to bay covers

The Shuttle XPC slim POS DS100 features two practical bay covers at the bottom of the chassis which make the installation or upgrade of hardware components a breeze. No cable is required and no cooling system needs to be installed.

24/7 nonstop operation and 0~40 °C temperature range

The Shuttle XPC slim POS DS100 is officially approved for 24/7 permanent operation. Thanks to its low power consumption and completely passive cooling, this PC runs highly reliably making it perfectly suitable for digital signage and POI/POS applications – even at ambient temperatures of up to 40 °C.

Conditions for permanent use:

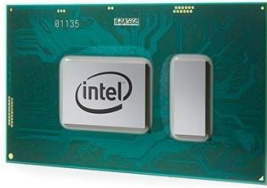
- Free circulation of air amongst the PC must be guaranteed
- Ventilation holes must stay clear

No fan noise

A large heatsink is concealed behind a plastic cover and cools down the processor in a passive way without any fan. Using an SSD drive instead of a hard disk makes the system virtually noiseless and hence perfectly suitable for noise-sensitive environments like e.g. a library, living room, music studio or even a bedroom.

Energy-saving

Power consumption mainly depends on system load. Equipped with a 2.5" SSD drive, the system consumes about 6 W in idle mode. Assuming the device runs 5 days a week for eight hours a day in idle mode, the annual consumption would amount to less than 12,5 kWh which would mean just 4 Euros on the power bill (30 Euro ct/kWh) - way less than a conventional desktop PC draws.



Energy-efficient Intel® Whiskey Lake-U Processor

The Shuttle XPC slim POS DS100 is equipped with an Intel® Core processor of the Whiskey Lake-U series which is soldered to mainboard and passively cooled by a large heatsink. This ultra low voltage (ULV) processor belongs to Intel's 8th-generation Intel Core processor family manufactured in a new energy-efficient 14 nm architecture. As a result of further integration, it comes as a system-on-a-chip (SoC) without the need of an extra chipset. The integrated Intel HD-Graphics engine supports DirectX 12 and Ultra HD / 4K resolution via DisplayPort 1.2 or HDMI 2.0a.



Triple Display with HDMI 2.0a, DisplayPort 1.2 and VGA

The POS DS100 features three video outputs which helps improve on productivity by allowing for spreading multiple windows across three monitors while working with them simultaneously. It even supports two Ultra HD displays at 60 Hz via its digital HDMI and DisplayPort outputs.



Dual Intel Gigabit LAN Network

The Shuttle XPC slim POS DS100 supports Dual Gigabit LAN with Intel network adapters, which are popular for their excellent performance and driver compatibility and are the preferred choice for professional environments.



RS-232/422/485 serial port

Many PCs do not have these legacy ports any longer, since they have been superseded and replaced by USB for most consumer applications, but they are still commonly used for applications such as industrial automation, scientific analysis, POS systems and other such fields of application. The Shuttle XPC slim POS DS100 features one serial RS-232/422/485 port which also supports both 5 and 12 V auxiliary voltage. Optionally, a second RS-232 COM port can be installed, if the VGA port is not required.



M.2-2280-Slot for SSD cards

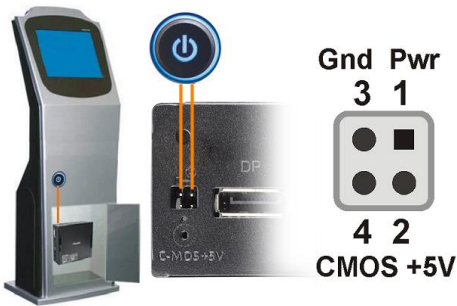
The M.2-2280 slot supports M.2 SSD storage cards with PCIe interface and NVMe support or the SATA standard.

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.



SD Card Reader

The built-in SD card reader at the front makes file transfer from and to a digital camera easy. It takes SD, SDHC and SDXC memory flash cards in standard size format and also supports booting from bootable SD cards.



External power button

If space is an object (e.g. in case of a fixed installation) and the machine cannot be switched on by pressing the front power button, it can be powered on by a separate remote line (also see Shuttle Accessory CXP01). An appropriate four-pin-connector "SW2" can be found at the back panel of the Shuttle XPC slim POS DS100 (pitch 2.54 mm). In addition, this connector also provides the Clear CMOS function and an external 5 V DC voltage supply.

Pin 1-3	Connect external power button (use a temporary switch)
Pin 3-4	Close these pins for 3 seconds to perform a Clear CMOS
Pin 2-3	External + 5 V DC voltage (Pin 3 = Ground).



Location of Jumper J9

Power on after Power fail

The BIOS setup provides a "Power-On after Power Fail" function that can be found under "Power Management Configuration". As the name indicates, this function determines the PC's behaviour after power failure: (1) unconditional power on, (2) restore former status, (3) keep system turned off or (4) Power On by LAN. As a matter of the nature of this function, it may fail after short power failures. This is why the POS DS100 also comes with a hardware-based solution. By removing Jumper J9 (see quick guide) the system will start unconditionally once power is applied.



Kensington Lock

This is a small, metal-reinforced hole as part of an anti-theft system. The Shuttle XPC slim POS DS100 provides an appropriate hole on both sides of its chassis. The lock-and-cable is not included.



VESA mount

The supplied 75/100mm VESA mount allows the Shuttle XPC slim POS DS100 to be wall-mounted or just to be affixed on the rear side of a monitor which is particularly interesting for the industry segment, company buildings and public institutions. Besides, the chassis of the Shuttle XPC slim POS DS100 provides numerous threaded holes (M3) enabling it to be fitted almost anywhere.

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Shuttle XPC slim POS DS100 - Specifications

<p><i>Fanless and Silent</i></p>	<p>Equipped with passive cooling and SSD drive, no fan noise at all Perfect to be used in noise-sensitive environments Fanless, dust-free and thus virtually maintenance-free</p>
<p><i>Low Power Consumption</i></p>	<p>Power consumption in idle mode with 2.5" SSD under Windows 10: ca. 6 W only</p>
<p><i>24/7 Nonstop Operation</i></p>	<p>This device is approved for 24/7 permanent operation. Requirements: - Free circulation of air amongst the PC must be guaranteed. - Ventilation holes must stay clear.</p>
<p><i>Chassis</i></p>	<p>Slim-PC with black steel chassis Without cooling fan, passive cooling only Bays for memory, 2.5" drive and M.2 card can easily be accessed by removing two cover plates. Dimensions: 200 x 165 x 39.5 mm (LWH) = 1.3 litres Weight: 1.5 kg net and 2.2 kg gross Two holes for Kensington Lock and numerous threaded holes (M3) at both sides of the chassis</p>
<p><i>Operating Position</i></p>	<p>1) <u>Vertical</u>: Usual operating position with the supplied feet (DisplayPort output facing up). 2) <u>VESA-mounted</u>: The device can also be mounted behind an appropriate monitor using the supplied VESA mount kit. <u>Note</u>: From a thermal point of view horizontal operation is permitted. However, there are no rubber feet on the device. The maximum operating temperature is 35 °C then.</p>
<p><i>Operating System</i></p>	<p>This barebone system comes without operating system. It is compatible with Windows 10 (64-bit) and Linux (64-bit).</p>
<p><i>Processor</i></p>	<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 UHD 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 Supports up to three independent screens: 1) DisplayPort 1.2 supports Ultra HD @ 60 Hz 2) HDMI 2.0a supports Ultra HD @ 60 Hz 3) D-Sub/VGA supports analog displays</p>
<p><i>Mainboard BIOS</i></p>	<p>Shuttle Mainboard DS10 All capacitors are high quality solid capacitors Supports resume after power failure [6] Supports Wake on LAN (WOL) Supports Power on by RTC Alarm Supports boot from M.2 SSD cards, USB devices and SD card reader AMI BIOS in 8 MByte EEPROM with SPI interface Supports hardware monitoring and watch dog function Supports Unified Extensible Firmware Interface (UEFI) Supports Firmware-TPM (fTPM) Version 2.0</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 DC cable length: ca. 170 cm AC cable length: ca. 170 cm (with 2-pin Europlug)</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>Memory (RAM)</i></p>	<p>4 GB DDR4-2133 (PC4-17000) SDRAM at 1.2 V SO-DIMM module with 260 pins Two SO-DIMM socket supports a maximum of 32 GB each Maximum total size: 64 GB</p>
<p><i>SSD Drive</i></p>	<p>120 GB SSD drive in 6.35 cm / 2.5" format with SATA 3 interface</p>
<p><i>M.2 Slot for SSDs</i></p>	<p>The M.2 2280 BM slot provides the following interfaces: - PCI-Express Gen. 2.0 X4 with up to 2 GB/s - 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 SD card reader Supports SD, SDHC and SDXC memory flash cards Supports booting from SD card</p>

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<p><i>Audio</i></p>	<p>Audio Realtek® ALC 662 High-Definition Audio Two analog audio connectors (3.5 mm) at the back panel: 1) 2 channel line out (headphones), 2) microphone input Digital multi-channel audio output: via HDMI and DisplayPort</p>
<p><i>Dual Intel Gigabit LAN</i></p>	<p>Dual network with two RJ45 ports Used network chips: 1) Intel i211 Ethernet Controller with MAC, PHY and PCIe interface 2) Intel i219LM PHY connected to the MAC of the processor Supports 10 / 100 / 1.000 MBit/s operation Supports WAKE ON LAN (WOL) Supports network boot by Preboot eXecution Environment (PXE) Supports Teaming mode [3]</p>
<p><i>Wireless Network (WLAN)</i></p>	<p>Built-in M.2-2230-A/E WLAN card with connectors for two external antennas WLAN Controller Realtek RTL8821AE Supports WiFi IEEE 802.11b/g/n/ac in the 2.4 / 5 GHz band, 1T1R Supports 20 / 40 / 80 MHz channel bandwidth Security: supports WPA(-PSK), WPA2(-PSK), WEP 64/128 bit, IEEE 802.11x, IEEE 802.11i Supports Bluetooth 4.0 in the 2.4 GHz band</p>
<p><i>Front Panel Connectors</i></p>	<p>2x USB 3.2 Gen 1 (max. 5 Gbps) 4x USB 2.0 Microphone input Audio Line-out (headphones) SD card reader (supports SD, SDHC, SDXC) Power button Power LED (blue) HDD LED (yellow)</p>
<p><i>Back Panel Connectors</i></p>	<p>DisplayPort 1.2 HDMI 2.0a D-Sub/VGA 2x USB 3.2 Gen 1 (max. 5 Gbps) 2x Intel Gigabit LAN (RJ45) Serial COM port (5V / 12V, switchable to RS232 / RS422 / RS485) [1] DC-input connector for external power adapter 4-pin connector "SW2" (2.54 mm pitch) for power button, Clear CMOS and 5 V DC [4]</p>
<p><i>Always-On-Jumper</i></p>	<p>By removing Jumper J9 (please refer to the quick user guide), the system will start unconditionally once power is applied. [6]</p>
<p><i>Scope of Delivery</i></p>	<p>Multi-language user guide Two metal feet with four screws M3 x 7 VESA mount for 75/100mm standard (two metal brackets) Four screws M3 x 7 mm (screws together VESA mount and PC) Four screws M4 x 10 mm (to fix the VESA mount to the external surface) Two screws M3 x 5 mm to mount a 2.5" storage in the bay Two screws M3 x 5 mm to mount M.2 cards Driver DVD for Windows 10 (64-bit) External 65W power adapter with power cord (Europlug)</p>

<i>Optional Accessories</i>	<p>PCP11: adapter cable for the second COM port (replaces the VGA port)</p> <p>CXP01: adapter cable for external power button</p> <p>PRM01: 2U rack mount front plate for two Shuttle XPC slim</p> <p>DIR01: mounting kit for 35 mm DIN-Rail</p>
<i>Environmental Specifications</i>	<p>Operating temperature range: 0~40 °C [5]</p> <p>Relative humidity, non-condensing: 10~90%</p>
<i>Conformity Certifications</i>	<p>EMI: FCC, CE, BSMI, C-Tick</p> <p>Safety: ETL, CB, BSMI</p> <p>Other: RoHS, Energy Star, ErP</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:</p> <ol style="list-style-type: none"> (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/EC relating to eco design requirements for energy-related products (ErP), (4) 2014/53/EU Radio Equipment Directive (RED)

Power Consumption:

Configuration: BIOS V1.00, 2x 4GB DDR4-2400, SSD SATA 2.5" Samsung 120GB 750EVO, Windows 10 Pro (64-bit) 1809

	DS10U	DS10U3	DS10U5	DS10U7
CPU	Cel. 4205U	i3-8145U	i5-8265U	i7-8565U
Win 10 idle	5.72 W	5.72 W	5.72 W	5.72 W
Win 10 full load	26.39 W	32.85 W	33.77 W	33.89 W
Win 10 S3 (standby)	0.85 W	0.85 W	0.85 W	0.85 W
Win 10 S5 (EUP=ON)	0.19 W	0.19 W	0.19 W	0.19 W
Win 10 S5 (EUP=OFF)	0.51 W	0.51 W	0.51 W	0.51 W

Footnote:**[1] Jumper for COM port configuration**

Pin 9 of the COM-Port is a multi-functional signal. Based on the Jumper JP1 configuration on the mainboard, it can be configured as Ring Indicator (RI) or external power supply with a voltage level of either 5 V or 12 V. Each COM port can be configured separately. The operating mode of COM 1 can be set to RS232, RS422 or RS485 in the BIOS.

The second COM port (COM 2) supports RS232 mode only, and in the standard SKU of POS DS100 this is only available as an onboard connector on the mainboard. An appropriate adapter (e.g. the optional accessory PCP11) is required in order to provide this port as D-Sub connector at the back panel. In this case the VGA port cannot be used.

[2] LTE Adapter Kit WWN03

Using the optional LTE adapter kit WWN03 means, that the 2.5" bay can no longer be used for SATA drives in 2.5" format (hard disk or SSD). An SSD card in the M.2-2280 format must be used instead.

[3] Teaming Mode

The teaming function allows you to group both available network adapters together to function as a single adapter. The benefit of this approach is that it enables load balancing and failover.

Driver download: <https://downloadcenter.intel.com/download/21642>

[4] Four-pin header at the back panel

This header allows for connecting an external power button.

It also provides 5 V DC voltage for external devices and the Clear CMOS function. Optional accessory: the adapter cable CXP01.

[5] Caution: For ambient temperatures higher than 35 °C we strongly recommend to use an SSD instead of an HDD.

[6] Power on after power fail:

The BIOS setup provides a "Power-On after Power Fail" function that can be found under "Power Management Configuration". This function determines the PC's behaviour after power failure. As a matter of the nature of this function, it may fail after short power failures. This is why the Shuttle XPC slim POS DS100 also comes with a hardware-based solution. By removing Jumper J9 (please refer to the quick user guide), the system will start unconditionally once power is applied.

[7] HDMI output supports DVI-D with an optional adapter.

[8] How to convert DisplayPort into HDMI/DVI

The DisplayPort output can be converted to HDMI or DVI by an additional, passive adapter cable. For example:

DELOCK 82590: 1 m, DisplayPort (male, 20p) to HDMI-A (male, 19p)

DELOCK 82435: 5 m, DisplayPort (male, 20p) to DVI-D (male, 24p)

The integrated graphics automatically detects the connected display and puts out the appropriate electric signal - either through DisplayPort (without an adapter) or HDMI/DVI (with an adapter).

However, a monitor with a DisplayPort connector cannot be connected to the HDMI port with a simple, passive adapter.