BAREBONE XPC slim DS50U5

Intel Core i5-1335U Processor

FANLESS SLIM PC WITH INTEGRATED ULV PROCESSOR IN INDUSTRIAL DESIGN

The DS50U-series is a fanless slim PC with a robust 1.3-litre metal chassis and exceptional connectivity. It supports two digital video outputs for UHD/4K displays and one traditional D-Sub/VGA connector. The built-in Intel Gen 12/13 processor provides ample performance for playback of 2160p/60 videos. Installation of components goes straight forward, as there is plenty of interior space for two DDR5 memory modules, one 2.5" drive and two M.2-2280 SSD cards. Optionally, an 4G/5G module can be fitted in the second M.2 slot using the optional WWN04 accessory. Thanks to its passive cooling, the system is virtually maintenance-free and is approved for 24/7 nonstop operation. It is big on performance, yet extremely energy-efficient. The Shuttle XPC slim Barebone DS50U series is an ideal platform for professional applications such as digital signage, POS, Kiosk, Thin Client, Office PC and Multimedia.



























FANLESS COOLING

SUPPORTS

HDMI 2.0b

DISPLAY-

SUPPORTS 2.5" HDD/SSD 2x M.2 SSDs SUPPORT

DUAL LAN (2.5G+1G)

VESA MOUNT WLAN / 4G/5G OPTIONAL

X.. REMOTE °C POWER OF

24/7 SUPPORT

SLIM DESIGN

■ Slim 1.3-litre metal chassis, black ■ Dimensions: $20 \times 16.5 \times 3.95$ cm (LWH) ■ Including Stand and VESA mount (75/100 mm) ■ Supports 24/7 Nonstop Operation ■ Operating temperature: 0~40~°C (non-condensing)

OPERATING SYSTEM

- An operating system is not included
- Supports Windows 10/11 (64-bit) and Linux (64-bit)

PROCESSOR

- Intel Core i5-1335U processor (Intel Core Gen. 13 "Raptor Lake-U")
- Processor cores: 2x P-cores, 8x E-cores, TDP: 15W, Cache: 12 MB
- Fanless heatpipe cooling system

GRAPHICS

- Integrated Intel UHD graphics with 80 execution units (EUs)
- Supports three independent displays

MEMORY SUPPORT

■ 2x 262-pin SO-DIMM slot ■ Supports DDR5-5200 ■ max. 2x 32 GB

STORAGE - M.2 / 2.5"

- Two M.2-2280M slots:
- 1) supports one M.2 SSD card with PCle 4.0 x4 NVMe 2) supports one M.2 SSD card with SATA <u>or</u> 4G/5G-kit (WWN04) Two thermal pads included
- M.2-2230E slot supports optional WLAN function
- One 2.5" bay for SATA hard disk or SSD

CONNECTORS

- HDMI 2.0b DisplayPort 1.4 VGA 2x audio (line out, mic)
- 2x USB 3.2 Gen2 (10 Gbps) 4x USB 3.2 Gen1 (5 Gbps) 2x USB 2.0
- 2x Intel LAN (2.5G + 1G) 1x COM port (1x RS232) Connector for external power button "Always on" Jumper DC-input 12 V or 19 V

DUMED STIDDI A

■ External 90W/19V power adapter (also supports 12 V power adapters)

OPTIONAL ACCESSORIES

■ WLAN Module (WLN- M1) ■ 4G/5G-kit (WWN04)

Date: 2024-02-01

- Rackmount kit (PRM01) Cable for external power button (CXP01)
- DIN-Rail mounting kit (DIRO1) 2nd COM port RS232 (PCP11)



MODELS OF THE DS50U SERIES

| Product | Processor | Intel Generation | P-Cores / Threads | E-Cores / Threads | L3 Cache | RAM Clock Rate | Graphics clock max. | EUs | UPC Code |
|---------------|----------------------|---------------------|----------------------|----------------------|----------|-------------------|---------------------|-----|---------------------------|
| DS50U | Intel Celeron 7305 | Gen 12 | 1/1 | 4/4 | 8 MB | DDR5-4800 | 1100 MHz | 48 | 887993006574 |
| DS50Ux | Intel U300 Processor | Gen 13 | 1/2 | 4/4 | 8 MB | DDR5-5200 | 1100 MHz | 48 | n.a. (project order only) |
| DS50U3 | Intel Core i3-1315U | Gen 13 | 2/4 | 4/4 | 10 MB | DDR5-5200 | 1250 MHz | 64 | 887993006192 |
| DS50U5 | Intel Core i5-1335U | Gen 13 | 2/4 | 8/8 | 12 MB | DDR5-5200 | 1250 MHz | 80 | 887993006185 |
| DS50U7 | Intel Core i7-1355U | Gen 13 | 2/4 | 8/8 | 12 MB | DDR5-5200 | 1300 MHz | 96 | 887993006178 |

Shuttle®

Front and Back Panel

Front panel



Back panel









- 1. 2x USB 3.2 Gen 2 port (red, 10 Gbps)
- 2. 4x USB 3.2 Gen 1 port (blue, 5 Gbps)
- 3. LED indicator for power state
- 4. LED indicator for storage activity
- 5. Power button
- 6. Microphone input
- 7. Headphones output
- 8. 4-pin connector (2.54 mm pitch) for external power button, Clear CMOS button and 5V DC voltage
- 9. 2x connector for optional WLAN antenna
- 10. DisplayPort 1.4
- 11. HDMI 2.0b port
- 12. COM port supports RS232/RS422/RS485
- 13. 2x USB 2.0 port (black)
- 14. RJ45 1G LAN port (1 Gbps, Intel i219)
- 15. RJ45 2.5G LAN port (2.5 Gbps, Intel i226)
- 16. DC-in connector for power adapter Supports 12V and 19V DC
- 17. D-Sub/VGA port for analog displays
- 18. 4x perforation for optional 4G/5G antennas (two perforations on both sides)

19. Hole for Kensington Lock (the lock-and-cable is not included)

20. VESA mount (two parts)

Shuttle®

Mainboard









View inside

- 1. Bottom chassis cover
- 2. Drive rack for 2.5" hard disk or SSD
- 3. 2x pre-installed WLAN cable for optional antennas and optional WLAN module
- 4. M.2-2280M slot supports one SSD cardwith PCIe Gen4x4 or SATA *)
- M.2-2280M slot supports either one SSD card or a 46/5G card, which requires the optional WWN04 kit *)
- 6. Connector for the CMOS battery
- 7. D-Sub/VGA port with cable to the onboard connector
- 8. Onboard RS232 COM-Port (2x5-pin header)
- 9. Jumper setting for COM port configuration
- 10. M.2-2230E slot for optional WLAN mod-
- 11. 2x SO-DIMM memory slot (262-pin) supports DDR5 RAM modules
- 12. SATA/power connector for the 2.5" hard disk or SSD
- 13. Always-Power-On jumper (JP9)
- 14. Socket with Flash EPROM for the Firmware



| *) Possible configurations for the M.2-2280 slots | | | |
|---|-------------------|-------------------|--|
| 1 | 2 | 3 | |
| M.2-2280 SSD card | M.2-2280 SSD card | M.2-2280 SSD card | |
| (SATA) | (PCIe/NVMe) | (SATA) | |
| M.2-2280 SSD card | WWN04 kit with | WWN04 kit with | |
| (PCIe/NVMe) | 4G/5G card (opt.) | 4G/5G card (opt.) | |

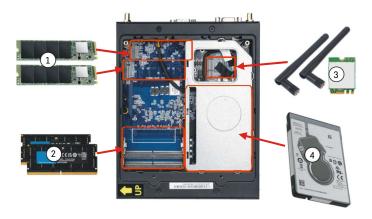


REQUIRED COMPONENTS

The following components need to be added to make it a fully-configured Mini PC

Shuttle XPC slim Barebone DS50U5

with opened chassis



M.2-2280 SSDs

Supports one NVMe M.2-2280 SSD card Supports one SATA M.2-2280 SSD card (The second M.2-2280 slot can also be used for a 4G/5G function. The optional WWN04 acces-

a 4G/56 function. The optional WWN04 accessory kit is required, in order to support 4G/5G adapter cards and a Nano SIM card.)

Memory Modules

Supports up to two SO-DIMM memory modules DDR5-5200 (or higher), max. 32 GB each

Optional Wireless LAN

3 Supports two WLAN antennas and a WLAN card in M.2-2230 format (e.g. WLAN accessory WLN-M1)

2.5" Storage Drive

- Supports one SATA hard disk (max. height: 9.5 mm) or Solid State Disk (SSD)
- 5 Operating System Supports Windows 10/11 (64-bit) or Linux (64-bit)

OPTIONAL ACCESSORIES FROM SHUTTLE



WLAN-Accessory

WLN-M1

M.2-2230 card supports WLAN-ax and Bluetooth including 2 antennas



allows the installation of an 4G/5G card and a nano SIM card (occupies one M.2-2280 slot). Including 4 antennas, which can be installed in additon to the WLAN antennas. Note: The 4G/5G card and SIM card are not included.





Cable CXP01

Cable for external push button switch (without button)



DIN-Rail Kit DIR01

This mounting kit allows the installation on a standard 35 mm DIN-Rail



Rack Mount Kit PRM01

2U front plate to install up to two 1.3L Shuttle XPCs in a 19" cabinet



Shuttle Product Comparison

| MODEL | DS50U Series | DS20U(V2) Series |
|----------------------|--|--|
| Processor | Intel Gen. 12/13 "Alder Lake-U/Raptor Lake-U", TDP= 15W, Intel 7 / 10 nm Technology DS50U: Celeron 7305 (Gen. 12) DS50U3: Core i3-1315U (Gen. 13) DS50U5: Core i5-1335U (Gen. 13) DS50U7: Core i7-1355U (Gen. 13) | Intel Gen. 10 "Comet Lake-U", TDP= 15W, 14 nm Technology DS20U(V2): Celeron 5205U DS20U3(V2): Core i3-10110U DS20U5(V2): Core i5-10210U DS20U7(V2): Core i7-10510U |
| RAM Suppport | 2x SO DIMM, 262 -pins max. 2x 32 GB DDR5-5200 (or higher) for DS50U (Celeron 7305): DDR5-4800 | 2x SO DIMM, 260-pins max. 2x 32 GB DDR4-2400/2666 (or higher) |
| 2.5" bay | Supports 2.5" SATA drive max. height: <mark>9.5 mm</mark> | Supports 2.5" SATA drive max. height: 12.5 mm |
| M.2-2280 slot(s) | 1) M.2-2280 supports NVMe/PCle Gen4 X4 & SATA*) 2) M.2-2280 supports NVMe/PCle Gen4 X4 | M.2-2280 supports NVMe/PCIe Gen2 X4 and SATA |
| Audio | Realtek ALC888S | Realtek ALC897/ALC662 |
| Dual LAN | 1) Intel i226 (2.5 Gbps) 2) Intel i219 (1 Gbps) | DS20U-Series: Intel i211 (1 Gbps) + i219LM (1 Gbps) DS20U<u>V2</u>-Series: Intel i225 (2.5 Gbps) + i219 (1 Gbps) |
| WLAN | M.2-2230E slot for optional WLAN module pre-mounted antenna cables, but no antennas | M.2-2230E slot for optional WLAN module pre-mounted antenna cables, but no antennas |
| Front Panel | On/Off button Power LED, HDD LED 4x USB 3.2 Gen 1 (blue) 2x USB 3.2 Gen 2 (red) 2x Audio ports | On/Off button Power LED, HDD LED 2x USB 3.2 Gen 2 (red) **) 4x USB 2.0 (black) 2x Audio ports SD card reader |
| Back Panel | HDMI 2.0b DisplayPort 1.4 D-Sub/VGA 2x USB 2.0 (black) 2x RJ45 LAN (2.5G + 1G) 1x COM (RS232/RS422/485) 4-pin power on connector | HDMI 2.0a DisplayPort 1.2 D-Sub/VGA 2x USB 3.2 Gen 2 (red) **) 2x RJ45 LAN (see above) 1x COM (RS232/RS422/485) 4-pin power on connector |
| DC-in port | Supports 12 V and 19 V | Supports 12 V and 19 V |
| Power Adapter | 90 W (19V, 4.74 A) 3-pin AC plug with earthed safety plug | 65 W (19V, 3.42 A) 3-pin AC plug with earthed safety plug |
| Vertical Stand | included | included |
| VESA Mount | included | included |
| Optional Accessories | CXP01: cable for ext. power button PRM01: 2U rack-mount kit DIR01: DIN-Rail mounting kit PCP11: RS232 COM port instead of VGA WWN04: 4G/5G kit for the second M.2-2280 slot WLN-M1: WLAN kit with external antennas | CXPO1: cable for ext. power button PRMO1: 2U rack-mount kit DIRO1: DIN-Rail mounting kit PCP11: RS232 COM port instead of VGA WWNO3: 4G/LTE kit for 2.5" drive bay WLN-M1: WLAN kit with external antennas |
| Front View | Shuttle | Shuttle O O O O O O O O O O O O O O O O O O O |
| Back View | DP HDMI COM COM COM COM COM | |

^{*)} Two M.2-2280 slots support one M.2 SSD with PCIe/NVMe interface and one M.2 SSD with SATA interface **) Note: DS20U(V2) with Celeron processor supports USB 3.2 Gen 1 (blue connector) only



SHUTTLE XPC SLIM BAREBONE DS50U5 — SPECIFICATIONS

| FANLESS AND SILENT | Passive cooling, no fan noise at all Perfect to be used in 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 stay clear If a hard disk is installed, this must also be approved for permanent operation by its manufacturer |
| CHASSIS | Slim-PC with black steel chassis Without cooling fan, passive cooling only The bay for memory modules, 2.5" drive and M.2 cards can easily be accessed by removing the bottom chassis cover. Dimensions: 200 x 165 x 39.5 mm (LWH) = 1.3 litres Weight: 1.6 kg net and 2.3 kg gross Two holes for Kensington Lock and numerous threaded holes (M3) at both sides of the chassis |
| OPERATION POSITION | 1) Vertical: Usual operating position with the supplied feet (DisplayPort output facing up). 2) VESA-mounted: The device can also be mounted behind an appropriate monitor using the supplied VESA mount kit. Note: 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. |
| OPERATING SYSTEM | This barebone system comes without operating system. It is compatible with Windows 10/11 (64-bit) and Linux (64-bit). |
| PROCESSOR | Model: Intel Core i5-1335U Code name: Raptor Lake-U (13th generation Intel Core) Performance-cores (P-Cores): 2 cores (4 threads), Basic/Turbo clock: 1.3-4.6 GHz Efficient-cores (E-Cores): 8 cores (8 threads), Basic/Turbo clock: 0.9-3.4 GHz Smart-Cache (L3): 12 MB Base Power (PL1 TDP): max. 15 W Maximum Tjunction Temperature: 100 °C System-on-a-chip architecture (SoC) with integrated memory and graphics controller BGA1700 package - directly soldered onto the mainboard Lithography: Intel 7 process (10 nm Enhanced SuperFin) |
| INTEGRATED GRAPHICS | Intel UHD Graphics GPU clock frequency: max. 1250 MHz Execution Units (EUs): 80 Supports up to three independent screens: 1) DisplayPort 1.4 supports Ultra HD @ 60 Hz 2) HDMI 2.0b supports Ultra HD @ 60 Hz 3) D-Sub/VGA supports analog displays |
| MAINBOARD / BIOS | Proprietary Mainboard for the Shuttle DS50U series Supports resume after power failure [2] Supports Wake on LAN (WOL) Supports Power on by RTC Alarm Supports boot from M.2 SSD cards und USB devices AMI BIOS in 32 MByte EEPROM with SPI interface Supports hardware monitoring and Watchdog function Supports Unified Extensible Firmware Interface (UEFI) Supports Firmware-TPM (fTPM) Version 2.0 |
| POWER ADAPTER | External 90 W power adapter (fanless) Input: 100~240 V AC, 50/60 Hz, max. 1.6 A Output: 19 V DC, max. 4.74 A, max. 90 W DC cable length: ca. 170 cm AC cable length: ca. 170 cm (3-pin Micky MM C6 and Schuko earthed safety plug) |
| 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%. |



| MEMORY SUPPORT | 2x SO-DIMM slot with 262 pins Supports DDR5-5200 (PC5-41600) SDRAM at 1.1 V Supports memory modules with higher frequency rating Supports Dual Channel mode Supports a maximum of 32 GB per DIMM, maximum total size: 64 GB Supports two unbuffered DIMM modules (no ECC or registered) Two thermal pads for the RAM modules are included [7] | | | | |
|-------------------------------------|---|--|--|--|--|
| 2.5" DRIVE BAY | 2.5" Drive Bay with SATA connector Supports one Serial ATA hard disk or one SATA SSD drive in 6.35 cm / 2.5" format Device height: max. 9.5 mm Supports Serial-ATA III, 6 Gb/s (600 MB/s) bandwidth Supports Unified Extensible Firmware Interface (UEFI) Note: no Serial ATA cable is required. | | | | |
| TWO M.2-2280 SLOTS FOR SSD CARDS | This product features two M.2-2280 Key-M slots - it supports M.2 cards with a width of 22 mm and a length of 80 mm (type 2280) - one M.2 SSD card with PCle/NVMe interface is supported - the second M.2 SSD card must have SATA interface - the second slot can also be used for the optional WWN04 kit to support a 4G/5G wireless network card The following configurations are supported: M.2 Slot | | | | |
| | Slot 2 PCle Gen 4 x4 and USB 3.2 Gen2 *) WN04 kit WWN04 kit WWN04 kit *) the USB 3.2 interface can only be used with the Shuttle Accessory WWN04 Two thermal pads for the M.2 SSDs are included (size: 70 x 20 mm). | | | | |
| M.2-2230E SLOT FOR WLAN CARDS | Slot: M.2-2230 Type E Interfaces: PCI-Express Gen. 3.0 X1 und USB 2.0 Supports M.2 cards with a width of 22 mm and a length of 30 mm (type 2230) Two antenna cable are pre-installed. A WLAN expansion card in M.2-2230 format and two WLAN antennas are required for the WLAN function. Optional Shuttle accessory: WLN-M1 | | | | |
| AUDIO | Audio Realtek® ALC888S High-Definition Audio Two analog audio connectors (3.5 mm) at the front panel: 1) 2 channel line out (headphones) 2) microphone input Digital multi-channel audio output: via HDMI and DisplayPort | | | | |
| DUAL LAN 2.5G AND 1G | Dual network with two RJ45 ports Used network chips: 1) left: Intel i219 Ethernet Controller supports 1.000 / 100 / 10 Mbps operation 2) right: Intel i226 Ethernet Controller supports 2.500 / 1.000 / 100 Mbps operation Supports WAKE ON LAN (WOL) Supports network boot by Preboot eXecution Environment (PXE) | | | | |
| FRONT PANEL CONNECTORS | 4x USB 3.2 Gen 1 (max. 5 Gbps, blue) 2x USB 3.2 Gen 2 (max. 10 Gbps, red) Microphone input Audio Line-out (headphones) Power button Power LED (blue) HDD LED (yellow) | | | | |
| BACK PANEL CONNECTORS | DisplayPort 1.4 [3] HDMI 2.0b D-Sub/VGA 2x USB 2.0 (black) 2x Intel RJ45 LAN (left: 1 Gbps and right: 2.5 Gbps) Serial COM port (5V / 12V, switchable to RS232 / RS422 / RS485) [1] DC-input connector for external power adapter 4-pin connector (2.54 mm pitch) for power button, Clear CMOS and 5 V DC [4] 2x connector for external WLAN antennas | | | | |





| ALWAYS-ON JUMPER | By removing Jumper JP1 (please refer to the quick user guide), the system will start unconditionally once power is applied. [2] |
|--------------------------------|---|
| SUPPLIED ACCESSORIES | Multi-language user guide Two metal feet with four screws M3 x 7 mm 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 4x Thermal Pad for cooling of optional components: - 2x for M.2 SSD cards (ca. 70 x 20 x 4 mm) - 2x for RAM modules (ca. 50 x 15 x 2 mm and 60 x 20 x 1 mm) Driver DVD for Windows External 90W power adapter with power cord (with protective-earth contacts) |
| OPTIONAL ACCESSORIES | PCP11: adapter cable for the second COM port (replaces the VGA port) CXP01: adapter cable for external power button WLN-M / WLN-M1: WLAN module (supports WLAN and Bluetooth) with two external antennas and cables PRM01: 2U rack mount front plate for two Shuttle XPC slim DIR01: mounting kit for 35 mm DIN-Rail WWN04: 4G/5G kit with antennas - enables the use of an optional 4G/5G card in M.2 format and a nano SIM card |
| ENVIRONMENTAL SPECIFICATIONS | Operating temperature range: 0~40 °C [5] Relative humidity, non-condensing: 10~90 % |
| CONFORMITY & CERTIFICATIONS | EMI: CE, FCC, BSMI, RCM, VCCI Safety: CB, BSMI, cTUVus Other: RoHS, Energy Star, ErP 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/EC relating to eco design requirements for energy-related products (ErP) |

Footnote:

[1] Jumper for COM port configuration

Pin 9 of the COM-Port is a multi-functional signal. Based on the Jumper JP2 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 this product it 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] 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 this product 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.

[3] 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.

[4] Four-pin header at the back panel

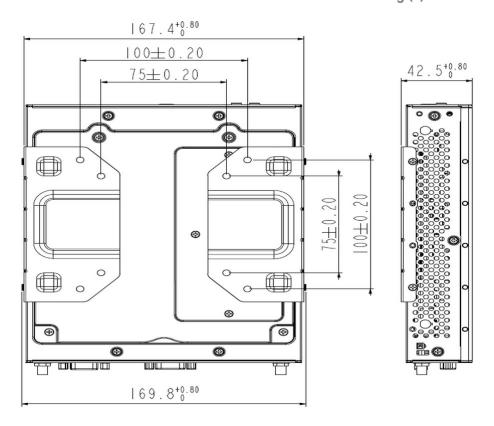
This header allows for connecting an external power button.

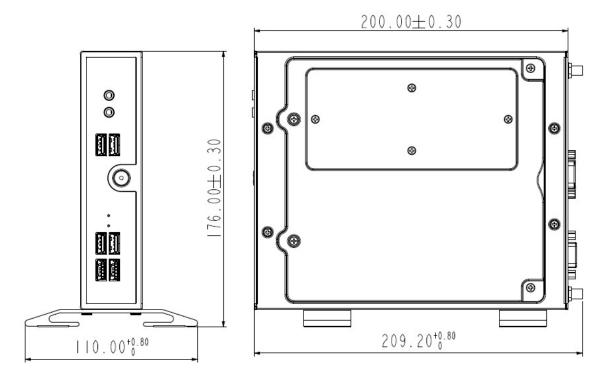
It also provides 5 V DC voltage for external devices and the Clear CMOS function. Optional accessory: the adapter cable CXPO1.

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



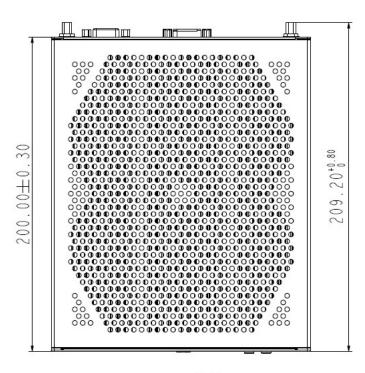
SHUTTLE XPC SLIM BAREBONE DS50U - Technical Drawing (1)

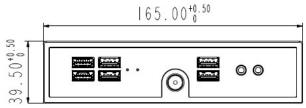


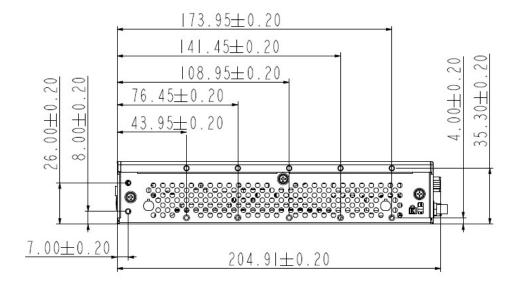




SHUTTLE XPC SLIM BAREBONE DS50U — Technical Drawing (2)







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