Nord Technology

One of the first authorized reseller af Shuttle hardware in Denmark

NORD TECHNOLOGY CONTACT INFORMATION

World Trade Center
Borupvang 3,
2750 Ballerup,
Denmark

📞 **Tel.:** +45 70 27 04 15
✉️ **Email:** sales@nord-t.eu
🏠 **Website**: www.nordtechnology.dk

Box-PC
BPCWL03-i5

Barebone, Core i5 ULV CPU, max. 60°C

FANLESS SHUTTLE BOX-PC WITH INTEL CORE ULV PROCESSOR IN A ROBUST CHASSIS

Shuttle's new generation BPCWL0x IPC Series in a ruggedized box design for high durability consists of compact fanless IPC systems with modular expansion for wide-range industrial applications.

Images for illustration only

Front View
(without optional I/O ports)

Rear View

| Robust chassis | 2x 32 GB Support | NVMe SSD Support | Dual LAN | Serial Port (max. 4) | Hardware TPM | Supports vPRO/AMT | 75 x 75 mm VESA mount | Fanless | Max. 60 °C | 24/7 Support |

ROBUST CHASSIS
■ Fanless cooling system ■ Robust aluminium/steel chassis ■ Dimensions (LWH): 16.9 x 24.5 x 5.7 cm (2.7 L) ■ Net weight: 2.85 kg ■ Operating temperature: -20 ~ +60 °C ■ Operating humidity: 0 ~ 90% (non-condensing) ■ IP Rating: IP30 ■ Mounting options: VESA 75x75 mm, Ear mount 256x100 mm and DIN Rail

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

PROCESSOR
■ Intel Core i5-8365UE, 4 Cores, 8 Threads, 1.6~4.1 GHz, 6 MB Cache
■ "Whiskey Lake" ULV Prozessor, 15 W TDP

GRAPHICS
■ Integrated Intel UHD 620 graphics, 4K support
■ Optionally supports up to three independent displays

MEMORY SUPPORT
■ 2x 260-pin SO-DIMM slot ■ Supports Dual Channel, up to 2x 32 GB DDR4-2400 with -40 up to +85°C temperature range *)

STORAGE
■ M.2-2280/2260 M slot supports one SSD card (supports PCIe X4 NVMe and SATA interface) with -40 up to +85°C temperature range *)

BACK PANEL CONNECTORS
■ HDMI 1.4 ■ 4x USB 3.2 Gen 1 ■ Dual Gigabit LAN (Intel i219LM/i211) ■ RS232 serial COM (D-Sub) ■ Mic-in and Line-out (Realtek ALC662 or ALC888S) ■ DC-input 19V ■ Power Button

OTHER FEATURES
■ Hardware TPM v2.0 Infineon SLB9670VQ2 onboard
■ AMI BIOS, 32 MB SPI ROM supports Intel vPro and ATM features
■ Embedded I/O controller: ITE IT8528E/FX

OPTIONAL FRONT PANEL CONNECTORS
■ Up to two additional graphics ports:
  HDMI 2.0/1.4, DVI-I, DisplayPort 1.2 or D-Sub/VGA
■ Up to three additional COM ports
■ Up to 8 (16) additional USB 2.0 ports
■ LTE kit with 2 antennas (LTE card and Nano-SIM not included)

POWER SUPPLY
■ External 150W/19V power adapter
■ AC input 100~240V 50~60 Hz, 3-pin connector
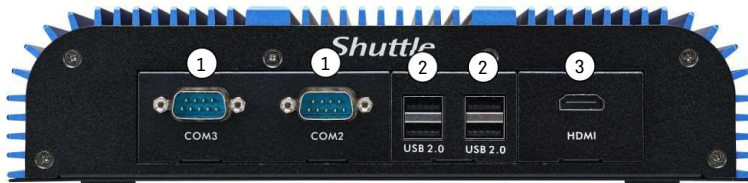■ Optional wide range DC-input 9~36V

Overview Box-PC Series BPCWL0x:

Processor / BIOS	Barebone	BTO System without Windows	BTO System with Windows	Operating temp.	Power Adap.	UPC Code
Intel Core i3-8145UE 2.2~3.9 GHz, 2/4 Cores 16 MB BIOS without vPRO function	BPCWL02-i3	BPCWL02-i3X	BPCWL02-i3W	0 ~ +40 °C	90 W	887993003474
	BPCWL03-i3	BPCWL03-i3X	BPCWL03-i3W	-20 ~ +60 °C **)**	150 W	887993004716
Intel Core i5-8365UE 1.6~4.1 GHz, 4/8 Cores 32 MB BIOS with vPRO function	BPCWL02-i5	BPCWL02-i5X	BPCWL02-i5W	0 ~ +40 °C	90 W	887993003481
	BPCWL03-i5	BPCWL03-i5X	BPCWL03-i5W	-20 ~ +60 °C **)**	150 W	887993004723

*) the **BPCWL03 Series** (-20 ~ +60°C) requires industrial-grade RAM modules and M.2 SSDs with an operation temperature range of -40 to +85°C.
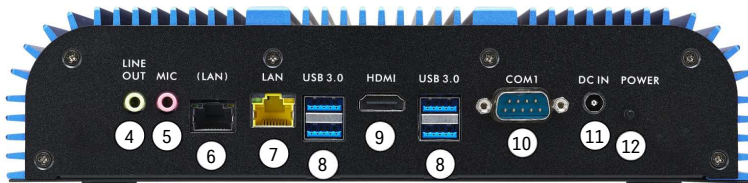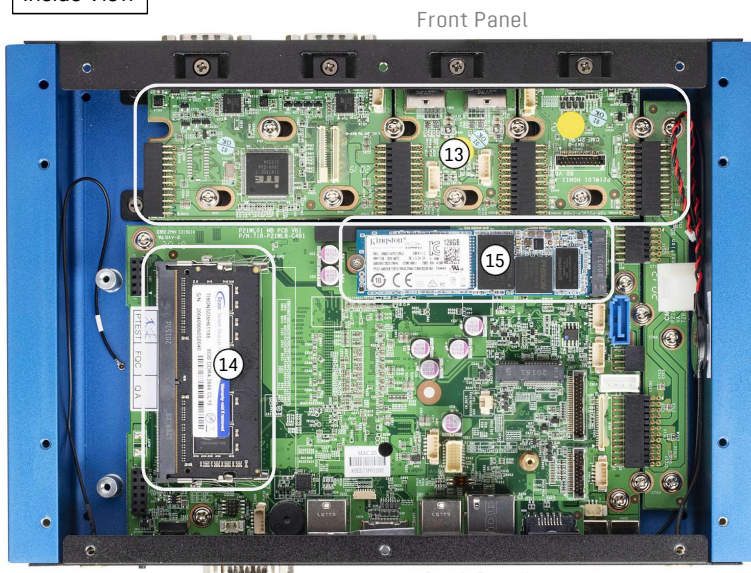
Shuttle®

Front and Back Panel

Front panel

Back panel

1. Optional: Dual COM ports support RS232/RS422/RS485
2. Optional: 4x USB 2.0 port
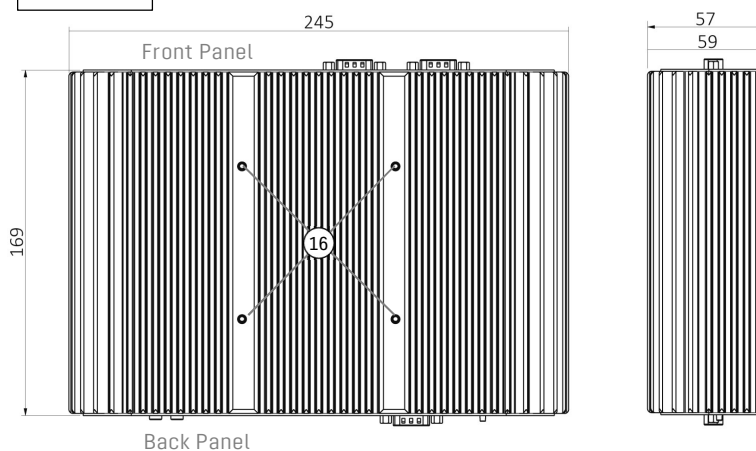3. Optional: HDMI 1.4/2.0

4. Audio Line Out (Headphones output)
5. Microphone input
6. Gigabit LAN port (Intel i211)
7. Gigabit LAN port (Intel i219LM)
8. 4x USB 3.2 Gen 1 Type A port
9. HDMI 1.4 port
10. COM port (RS232)
11. DC-in connector for power adapter
12. Power button

Inside View

13. Area for optional daughter boards
14. 2x SO-DIMM slot supports DDR4-2400
15. M.2-2280/2260 M slot for SSD card (NVMe/SATA)
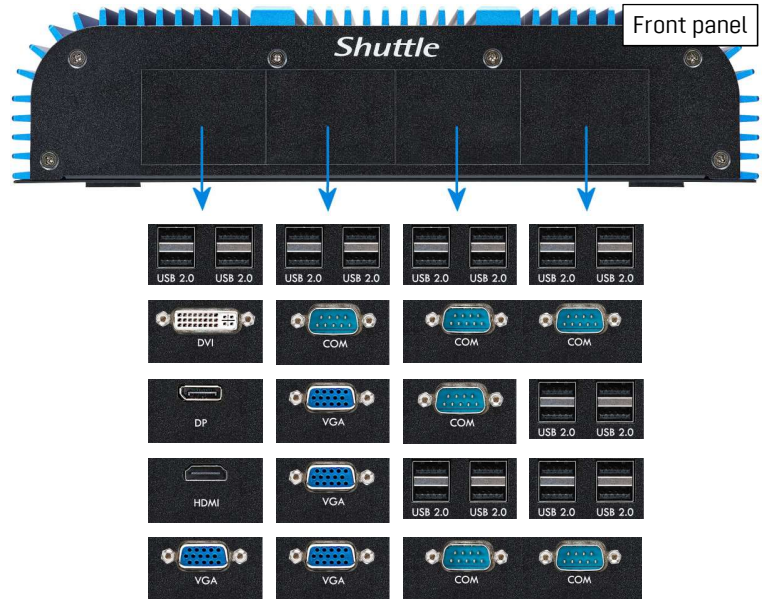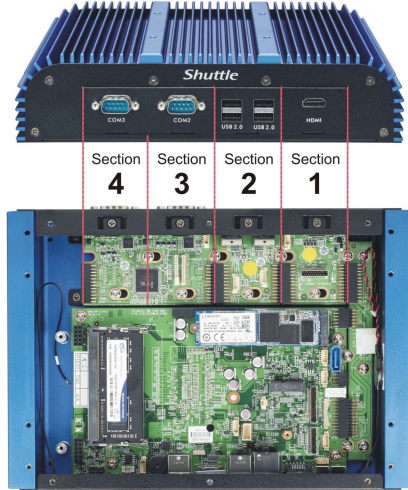16. Screw threads for VESA mount (75x75 mm)

Dimensions

Dimensions:
Width: 245 mm (without optional ear mount)
Depth: 169 mm
Height: 57 mm (59 mm including feet)

Optional Accessories
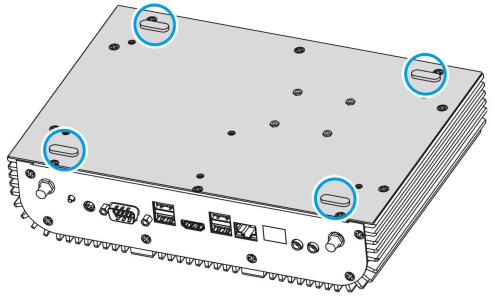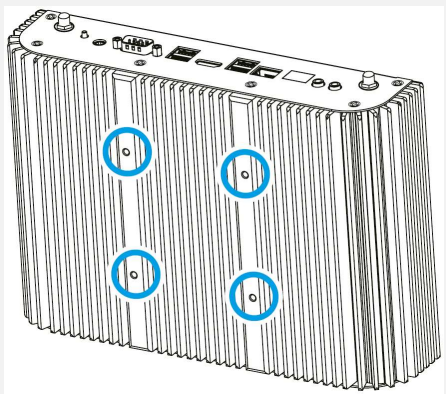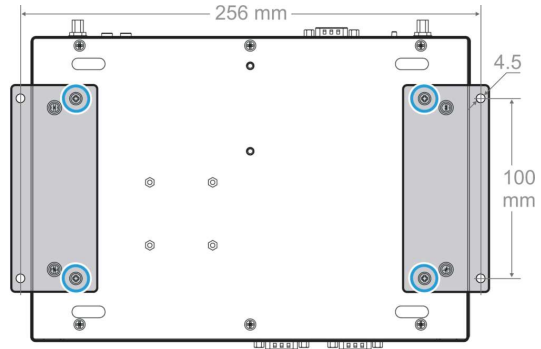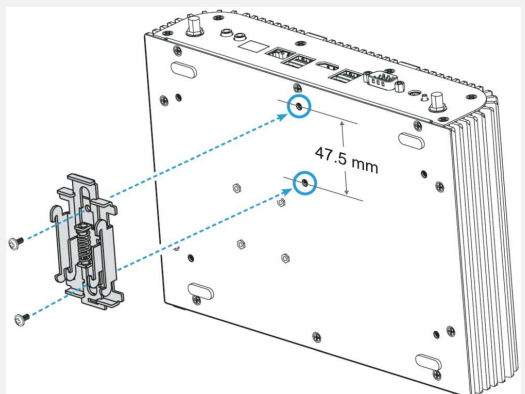
Expansion concept with optional daughter boards

The front panel is subdivided into four sections to support optional expansion kits with daughter boards in order to add I/O ports. Every expansion is required to start from Section 1 with the second kit occupying Section 2 etc.

Front panel

Optional Expansion Kits

PORT	IMAGE	OCCUPIED SECTIONS	MAXIMUM KITS	NOTE	
HDMI 1.4 HDMI 2.0 DisplayPort 1.2 DVI-I		1	1	DDI Interface	The mainboard provides two onboard connectors for optional expansion kits with graphics ports: - one 21-pin **DDI** and - one 31-pin **eDP** interface. Note: The **eDP** interface does not support audio and PnP.
D-Sub/VGA		1	2	DDI or eDP Interface	
4x USB 2.0		1	2 (4)	USB hub device (USB 2.0 ports allow up to 500mA/2.5W power output, but if only low power devices like mouse/keyboard are connected, then up to 4 USB kits can be used)	
Single COM		1	1	Supports RS232 only (passive cable adapter)	
Dual COM		2	1	Supports RS232/RS422/RS485 (with additional I/O controller chip)	
LTE Kit with 2 antennas		2	1	Compatible with e.g. Huawei ME906S, Sierra EM7455, Quectel EM06E etc. (supports Single-SIM)	
Port for external Power Button		1	1	Screw terminals for a cable for an external power button	
Wide range DC-Input		—	1	Extended DC-Input voltage range: from 9 to 36V instead of only 19V	
WLAN + BT		—	1	1) Wi-Fi 5 (Realtek WLAN-ac and BT 4.2) 2) Wi-Fi 6 (Intel WLAN-ax and BT 5.2)	
2x Ear Mount Bracket		—	1	Allows the BoxPC to be attached to surfaces	

Operating Positions and Mounting

	NOTE	IMAGE
Placed horizontally	The Shuttle Box-PC BPCWL0x can be operated in horizontal position like a desktop PC standing on its rubber feet.	
VESA-mounted	The Shuttle Box-PC BPCWL0x features four threaded M4 holes on the upper side for a standard 75 x 75 mm VESA mount, which allows for installation on to walls or large displays. The VESA mount is not included.	
Ear-mounted	The Shuttle Box-PC BPCWL0x features four threaded M3 holes on the bottom, which allows for it to be attached to two Ear Mount brackets (optional accessory). The Box-PC can then be affixed to a surface with four M4 screws (mounting dimension: 256 mm x 100 mm).	
DIN-Rail-mounted	The Shuttle Box-PC BPCWL0x features two threaded M3 holes on the bottom, which allows for installation on a standard 35 mm DIN-Rail, e.g. inside equipment racks. The DIN-Rail clip is not included.	

Shuttle Computer Handels GmbH · Fritz-Strassmann-Str. 5 · 25337 Elmshorn · Germany
Tel. +49 (0) 4121-47 68 60 · Fax +49 (0) 4121-47 69 00 · sales@shuttle.eu   4 | 7

WWW.SHUTTLE.EU

SHUTTLE Box-PC BPCWL03-i5 — SPECIFICATIONS

FANLESS AND SILENT	Equipped with 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. Requirement: Free circulation of air amongst the PC must be guaranteed.
CHASSIS	Durable and rugged chassis made of aluminium and steel. Passive cooling system with specially designed fins to maximize heat dissipation. Dimensions: 16,9 x 24,5 x 5,7 cm (LWH) = approx. 2,7 litres Weight: 2.85 kg net (Barebone without RAM/SSD and optional expansions) IP-rating: IP30
OPERATING POSITIONS AND MOUNTING	1) The unit can be placed horizontally to stand on its feet. 2) The unit can be affixed to a 75 mm x 75 mm VESA bracket. For this purpose, four M4x6L screws are required to be screwed into the chassis from the top. 3) The unit can be mounted using two optional 256 mm x 100 mm ear-mount brackets. For this purpose, four M3x6L screws are required to be screwed into the chassis from the bottom. 4) Mounted on a standard 35 mm DIN-Rail, e.g. inside equipment racks Notes: VESA bracket, Ear-Mount and DIN-Rail clip are not included. Vertical mounting is permitted in any orientation.
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 i5-8365UE (ULV) System-on-a-chip architecture (SoC) with integrated memory and graphics controller FCBGA1528 package - directly soldered onto the mainboard Code name: Whiskey Lake-U (8th Generation Intel Core) Cores / Threads: 4 / 8 Clock rate: 1.6 GHz, Turbo clock rate: 4.1 GHz L3 Smart Cache: 6 MB TDP wattage: 15 W maximum Manufacturing process: 3rd-generation enhanced 14nm++
INTEGRATED GRAPHICS	Intel UHD Graphics 620 GPU clock frequency: 300~1050 MHz Execution Units (EUs): 24 Supports up to three independent screens: 1) HDMI 1.4 on the backpanel 2) optional HDMI 1.4/2.0, DisplayPort 1.2, DVI-I or D-Sub/VGA (DDI interface) 3) optional D-Sub/VGA (eDP interface, limitations: no PnP support)
UEFI BIOS	Supports resume after power failure Supports Wake on LAN (WOL) Supports Power on by RTC Alarm Supports boot from M.2 SSD cards and USB devices AMI BIOS in 32 MB EEPROM with SPI interface Supports hardware monitoring and Watchdog function Supports Unified Extensible Firmware Interface (UEFI)
INTEL vPRO/AMT	Supports Intel® vPro™ and AMT Intel® vPro™ is a brand name for a specific set of management and security technologies. Intel® Active Management Technology (AMT) is a subset of Intel vPro. This technology allows remote management of PCs, even in power-off mode or with non-functional operating systems. You can audit, repair and restore AMT-based platforms in a LAN. These functions can increase the uptime of desktops with lower maintenance costs. Note: Intel vPro requires appropriate software. The Intel® MEBX configuration user interface can be accessed after pressing CTRL-P at the beginning of the boot process. Only the Intel i219 LAN port (yellow color) supports the Intel vPro® function.
TPM MODULE	Hardware Trusted Platform Module (Infineon SLB9670VQ2 TPM 2.0)

POWER ADAPTER	External 150 W power adapter (fanless) Input: 100~240 V AC, 50/60 Hz Output: 19 V DC, 7.89 A, max. 150 W DC Connector: 5.5/2.5 mm (outer/inner diameter) AC mains cable: 3 pins, ca. 1.8 m length, with C13/C14 coupler for the power adapter and CEE-7/7 plug with earth-contact (type E+F) for the power outlet Note: The DC input voltage range can optionally be extended to support 9-36 V
MEMORY SUPPORT	2x SO-DIMM slot with 260 pins Supports DDR4-2400 (PC4-19200) SDRAM at 1.2 V Operation temperature range: -40 to +85°C 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)
M.2 SLOT FOR SSDs	The M.2 2280 M slot provides the following interfaces: - PCI-Express Gen. 3.0 X4 - SATA v3.0 (max. 6 Gbps) Operation temperature range: -40 to +85°C It supports M.2 cards with a width of 22 mm and a length of 60 or 80 mm (type 2260, 2280). Supports M.2 SATA SSDs (with B+M key) and M.2 PCIe NVMe SSDs (with M key) with auto detect
AUDIO	Audio Realtek® ALC662 or ALC888S High-Definition Audio Two analog audio connectors (3.5 mm) on the back panel: 1) 2 channel line out (headphones) 2) microphone input Digital multi-channel audio output: via HDMI and optional DisplayPort
DUAL GIGABIT LAN	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 / 1000 MBit/s operation Supports WAKE ON LAN (WOL) Supports network boot by Preboot eXecution Environment (PXE) Supports Teaming mode
BACK PANEL CONNECTORS	Power Button HDMI 1.4 4x USB 3.2 Gen 1 Type A (max. 5 Gbps) 2x Intel Gigabit LAN (RJ45, i211/i219LM) Serial COM port (RS232) Microphone input (3.5 mm) Audio Line-out / Headphones (3.5 mm) DC-input connector for external power adapter
OPTIONAL FRONT PANEL CONNECTORS	The front panel is subdivided into four sections to support optional expansion kits with daughter boards in order to add I/O ports. The following optional accessory kits are available: 1) second graphics port: HDMI 1.4/2.0, DisplayPort 1.2 or D-Sub/VGA 2) third graphics port: D-Sub/VGA 3) one COM port RS232 4) two COM ports RS232/RS422/RS485 (occupies two sections) 5) 4x USB 2.0 - can be installed twice (Note: USB 2.0 ports allow up to 500mA/2.5W power output, but if only low power devices like mouse/keyboard are connected, then up to 4 USB kits can be used)
FURTHER OPTIONAL ACCESSORIES	1) Wide range DC-input 9~36 V (instead of only 19 V) 2) Ear-mount brackets (mounting dimensions: 256 mm x 100 mm) 3) WLAN 802.11n/ac and BT 4.0 (RTL8821CE) with two external antennas
ENVIRONMENTAL SPECIFICATIONS	Operating temperature range: -20 ~ +60 °C Relative humidity, non-condensing: 0~90 % Note: this Box-PC requires industrial-grade RAM modules and M.2 SSDs with an operation temperature range of -40 to +85°C.

CONFORMITY AND CERTIFICATIONS	EMI: CE, FCC Class A, VCCI, RCM Safety: CB, cTUVus Other: RoHS, CEC This device is classed as a technical information equipment (ITE) in Class A , Class A is for product used in commercial and industrial areas. 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)