Box-PC System
BPCRL02-i3XA

Intel Core i3-1315U processor, 8GB DDR5, 120 GB M.2 SSD (without OS)

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

Shuttle's BPCRL02 fanless Box-PC Series is fueled by Intels 13th Generation ("Raptor Lake") Core processors in a ruggedized box design for high durability. The complete system BPCRL02-i3XA is a fixed configuration without an operating system that features a wide range of I/O ports. With advanced technology and highly flexible design, this industrial PC offers a reliable solution for a wide range of requirements in industrial environments.

Rear View



Front View



Images for illustration only



Robust chassis | Intel Core CPU GEN 13 | 8 GB DDR5 | 120 GB NVMe M.2 SSD | HDMI 2.0b and VGA | Dual 2.5G LAN | 4x USB 3.2 4x USB 2.0 | 3x Serial Port | 75 x 75 mm VESA mount | Fanless | 24/7 Support | Operating Temp.-Range

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
■ IP Rating: IP30 ■ Mounting options: VESA, Ear mount and DIN Rail

OPERATING TEMPERATURE RANGE

■ 0 – +40 °C ■ Operating humidity: 20 ~ 80% (non-condensing)

OPERATING SYSTEM SUPPORT

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

PROCESSOR

■ intel Core i3 -1315U Gen. 13 "Raptor Lake" ULV processor, 15 W TDP
■ Integrated Intel® UHD Graphics supports UHD displays

RAM/SSD

■ 8 GB DDR5-5200 SO-DIMM Memory
■ 120 GB SSD card in M.2-2280 format (supports PCIe X4 and NVMe)

FRONT PANEL CONNECTORS

■ VGA (D-Sub) ■ 4x USB 2.0 ■ 2x COM Port (RS232/RS422/RS485)

BACK PANEL CONNECTORS

■ HDMI 2.0b ■ 4x USB 3.2 Gen 2 ■ Dual 2.5G LAN ■ COM Port RS232
■ Mic-in and Line-out ■ DC-input (2.5/5.5 mm) ■ Power Button

OTHER FEATURES

■ Hardware TPM v2.0 Infineon SLB9670VQ2 onboard

POWER SUPPLY

■ DC-Input: 19V – optional wide range DC-input 9~36V
■ External 90W/19V power adapter

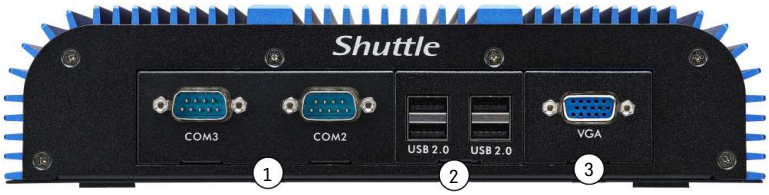
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Models of the BPCRL02 series

Category	Shuttle Model	Intel Gen13 ULV Processor	Operating System	DDR5 Memory	M.2 SSD Card	Additional I/O Ports on the front panel	UPC/EAN Bar Code
Barebone	BPCRL02-i3	Core i3-1315U	–	–	–	–	887993008332
	BPCRL02-i5	Core i5-1335U	–	–	–	–	887993008325
	BPCRL02-i7	Core i7-1355U	–	–	–	–	887993008318
System	BPCRL02-i3XA	Core i3-1315U	–	8 GB	120 GB	2x COM, 4x USB 2.0, VGA	4046047104611
	BPCRL02-i5XA	Core i5-1335U	–	8 GB	500 GB	4x COM, 4x USB 2.0, HDMI 2.0	4046047104499
	BPCRL02-i5WA	Core i5-1335U	Windows 11 IoT	8 GB	500 GB	4x COM, 4x USB 2.0, HDMI 2.0	4046047104505

Front and Back Panel

Front panel



1. 2x COM (RS232/422/485)
2. 4x USB 2.0 Port
3. VGA Port

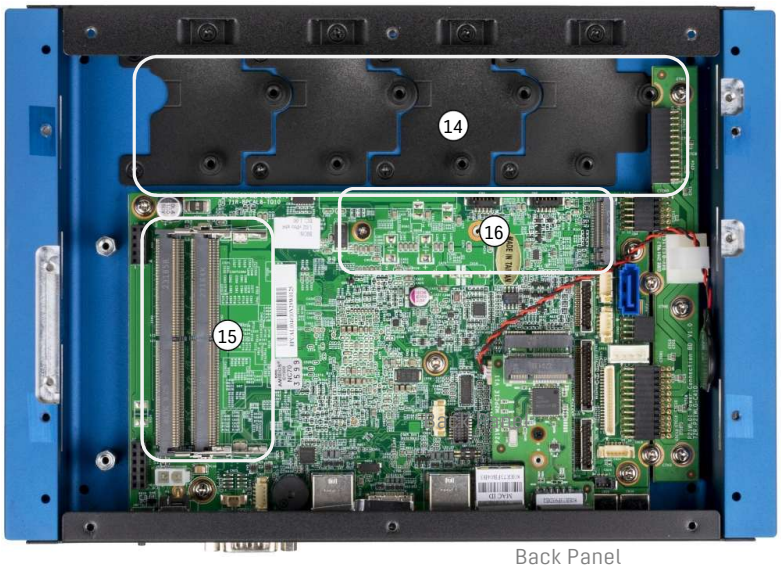
Back panel



4. Audio Line Out (Headphones output)
5. Microphone input
6. 2.5G LAN Port (Intel i226V, black)
7. 2.5G LAN Port (Intel i226V , yellow)
8. 4x USB 3.2 Gen 2 Type A Port
9. HDMI 2.0b Port
10. COM port (RS232)
11. DC-in connector for power adapter
12. Power button
13. 2x WLAN antenna (optional)

Inside View

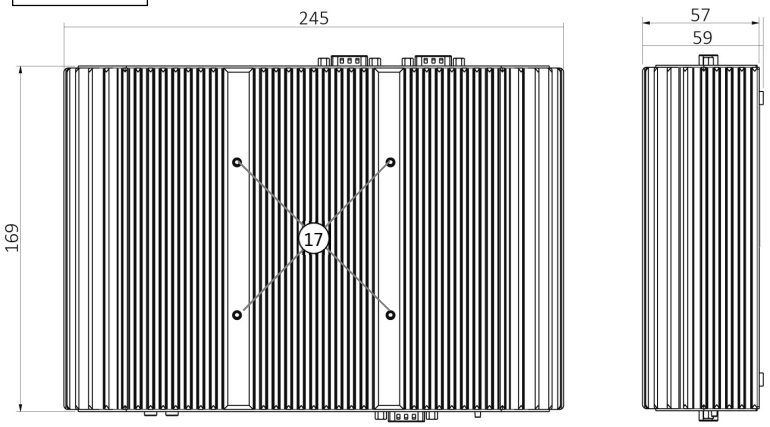
Front Panel



Back Panel

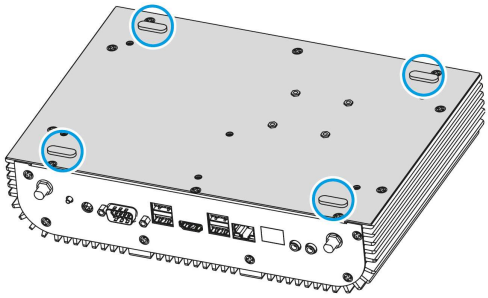
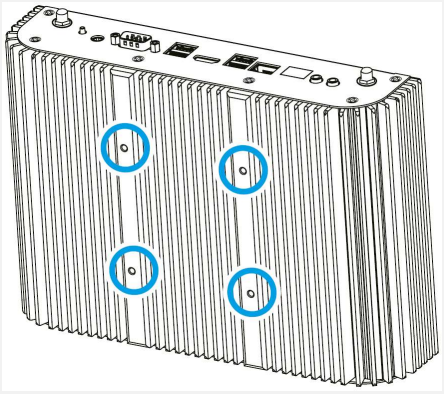
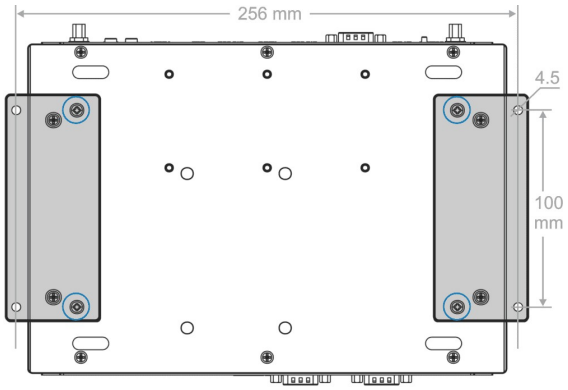
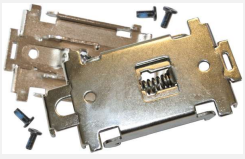
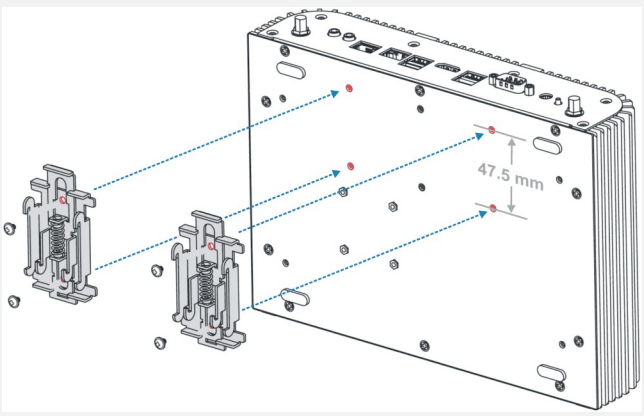
14. Area for optional daughter boards
15. 2x SO-DIMM slot with 8 GB DDR5-5200 RAM memory
16. M.2-2280/2242 M slot with a 120 GB SSD card (supports NVMe/SATA)
17. Screw threads for VESA mount (75x75 mm)

Dimensions



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

Operating Positions and Mounting

	NOTE	IMAGE
Placed horizontally	The Shuttle Box-PC series BPCRL02 can be operated in horizontal position like a desktop PC standing on its rubber feet.	
VESA-mounted	The Shuttle Box-PC series BPCRL02 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 series BPCRL02 features four threaded M3 holes on the bottom, which allows for it to be attached to two Ear Mount brackets (optional accessory **MRS01**). 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 series BPCRL02 features several threaded M3 holes on the bottom, which allows for installation of two DIN-Rail clips to mount this PC on a standard 35 mm DIN-Rail, e.g. inside equipment racks. The matching DIN-Rail clips are an optional accessory (2x **MDR01**) – please use two of them as shown in the picture. 	

Shuttle Product Comparison

Shuttle Box-PC Model	BPCRL02 Series	BPCAL02 Series	BPCWL02 Series
Processor Generation	**Intel Core Gen. 13** Code name: **"Raptor Lake-U"**, TDP= 15W Intel 7 (10 nm) Technology	**Intel Core Gen. 12** Code name: **"Alder Lake-U"**, TDP= 15W Intel 7 (10 nm) Technology	**Intel Core Gen. 8** Code name: **"Whiskey Lake-U"**, TDP= 15W 14 nm Technology
Processor Model	**BPCRL02-i3:** Intel Core i3-1315U **BPCRL02-i5:** Intel Core i5-1335U **BPCRL02-i7:** Intel Core i7-1355U	**BPCAL02-i3:** Intel Core i3-1215U **BPCAL02-i5:** Intel Core i5-1235U **BPCAL02-i7:** Intel Core i7-1255U	**BPCWL02-i3:** Intel Core i3-8145UE **BPCWL02-i5:** Intel Core i5-8365UE **BPCWL02-i7:** Intel Core i7-8365U(E)
RAM Support	2x SO DIMM, 262 pins max. 2x 32 GB DDR5-5200 (or higher)	2x SO DIMM, 262 pins max. 2x 32 GB DDR5-4800 (or higher)	2x SO DIMM, 260 pins max. 2x 32 GB DDR4-2400 (or higher)
Graphics Engine	Core i5/i7: Intel Iris Xe Core i3: Intel UHD Graphics	Core i5/i7: Intel Iris Xe Core i3: Intel UHD Graphics	Intel UHD Graphics
Graphics Ports	HDMI 2.0 fixed Optional: 3 additional ports	HDMI 2.0 fixed Optional: 3 additional ports	HDMI 1.4 fixed Optional: 2 additional ports
Dual LAN onboard	1) Intel i226V (2.5 Gbps) 2) Intel i226V (2.5 Gbps) Optional: 2 or 4 additional ports	1) Intel i226V (2.5 Gbps) 2) Intel i226V (2.5 Gbps) Optional: 2 or 4 additional ports	1) Intel i219LM (1 Gbps) 2) Intel i211 (1 Gbps) or Intel i226 (2.5 Gbps) Optional: 4 additional ports
M.2-2280 Slot	M.2-2280 slot for M.2 SSD cards with 80 and 42 mm length Supports NVMe/PCIe Gen4 X4 and SATA	M.2-2280 slot for M.2 SSD cards with 80 and 42 mm length Supports NVMe/PCIe Gen4 X4 and SATA	M.2-2280 slot for M.2 SSD cards with 80 and 60 mm length Supports NVMe/PCIe Gen3 X4 and SATA

SHUTTLE Box-PC Barebone BPCRL02-i3XA — 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: ca. 3.0 kg net IP-rating: IP30
OPERATING POSITIONS AND MOUNTING	1) Desktop: The unit can be placed horizontally to stand on its feet. 2) VESA Mount: 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) Side Brackets (**MRS01** = 2 brackets): 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) DIN-Rail Clips (**2x MDR01**): Mounted on a standard 35 mm DIN-Rail, e.g. inside equipment racks. This requires two standard DIN rail clips, each of which is attached to the underside of the BoxPC with two M3 screws (hole spacing: 47.5 mm). Notes: VESA bracket, Ear-Mount and DIN-Rail clips are not included. Vertical mounting is permitted in any orientation.
OPERATING SYSTEM	This barebone system comes without operating system. It is compatible with Windows 11 (64-bit) and Linux (64-bit).
PROCESSOR	Model: Intel Core i3-1315U Code name: Raptor Lake-U (13th generation Intel Core) Performance-cores (P-Cores): 2 cores (4 threads), Basic/Turbo clock: 1.2-4.5 GHz Efficient-cores (E-Cores): 4 cores (4 threads), Basic/Turbo clock: 0.9-3.3 GHz Smart-Cache (L3): 10 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 FCBGA1744 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): 64 Supports up to four independent screens with up to 4K/60Hz (Ultra HD 3840×2160 resolution).
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 64 MB EEPROM with SPI interface Supports hardware monitoring and Watchdog function Supports Unified Extensible Firmware Interface (UEFI) Supports Intel vPro Essential
TPM MODULE	H/W-TPM V2.0: Hardware Trusted Platform Module V2.0 (Infineon SLB9670VQ2)
BUTTON CELL BATTERY	The product contains a built-in 3V button cell battery For further information see footnote **[1]**
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 Connector: 5.5 / 2.5 mm (outer/inner diameter) AC mains cable: 3 pins, ca. 1.8 m length, with C5/C6 coupler (called "Mickey Mouse" or "Clover-leaf") 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 from 19V to support 9-36 V (Accessory VOL01).
RAM MEMORY	8 GB DDR5-5200 (PC5-41600) SO-DIMM memory Maximum total size: 64 GB

M.2 SSD	120 GB SSD module in M.2-2280 form factor PCIe interface supports NVMe
AUDIO	Audio Realtek® 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 2.5G LAN	Dual network with RJ45 ports and Intel i226V network chips Supports 10 / 100 / 1000 / 2500 MBit/s operation Supports WAKE ON LAN (WOL) Supports network boot by Preboot eXecution Environment (PXE)
BACK PANEL CONNECTORS	HDMI 2.0b 4x USB 3.2 Gen 2 Type A (max. 10 Gbps) 2x Intel 2.5G LAN (RJ45, i226V) Serial COM port (RS232) Microphone input (3.5 mm) Audio Line-out / Headphones (3.5 mm) DC-input connector for external power adapter (2.5 / 5.5 mm)
FRONT PANEL CONNECTORS	1x VGA (D-Sub) 4x USB 2.0 2x Serial COM port (supports RS232/422/485)
FURTHER OPTIONAL ACCESSORIES	1) Wide range DC-input 9~36 V, instead of only 19 V (**VOL01**) 2) Ear-mount brackets, mounting dimensions: 256 mm x 100 mm (**MRS01**) 3) DIN-Rail clip (special clip has holes without thread) (**2x MDR01**) 4) WLAN module with two external antennas (**WMAX2011+CWL01**) For more details on accessories, see here: https://go.shuttle.eu/bpcacc
ENVIRONMENTAL SPECIFICATIONS	Operating temperature range: 0~40 °C Relative humidity, non-condensing: 20~80 %
CONFORMITY AND CERTIFICATIONS	EMI: CE, FCC Class A, VCCI, RCM, BSMI Safety: CB, cTUVus, BSMI Other: RoHS, ErP, 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)

[1] Button Cell Battery

- Purpose:
  The built-in button cell battery on the mainboard supplies the CMOS memory and the Real-Time Clock (RTC) with power so that certain settings are retained and the internal clock continues to run – even if the PC is completely switched off or disconnected from the power supply.
- Specification:
  Model: Lixing KTS CR2032 with cable and connector (Molex 51021-8602, 2-pin, 1.25 mm pitch)
  Type: Lithium metal battery, non-rechargeable, transport identification: UN 3091 (battery is built-in)
  Nominal voltage: 3.0V, nominal capacity: 220 mAh (0.66 Wh)
  Dimensions: 20 mm diameter, 3.2 mm thickness
  Weight: 3.2 g, of which 0.063 g lithium (2.1%)
  Manufacturer: Wuhan Lixing (Torch) Power Sources Co, Ltd, Address: No. 7 Plot, Guandong, Science and Technology Industrial Park, East Lake Development Zone, Wuhan, Hubei, China
- Certificates:
  Material Safety Data Sheet (MSDS), UN38.3 test report, ISO 9001 of the manufacturer, EU DoC
  Download here: https://go.shuttle.eu/Py1Jn
- Replace the battery:
  If the PC issues error messages about the clock or CMOS when starting up, the system's CMOS battery probably needs to be replaced. Use a model with the same technical characteristics as a replacement battery or contact our technical support at support@shuttle.eu.
  The replacement of a CMOS battery may only be carried out by qualified specialist personnel. Improper handling can lead to damage to the mainboard, loss of data or electrical risks. Disconnect the device from the power supply before opening it. Make sure that you do not injure yourself on the sharp metal edges inside the computer. Open the device according to the Quick Installation Guide supplied. Find the battery and pull on the connecting cable so that the plug comes off the mainboard (see photo below). Before pulling out, pay attention to the polarity based on the cable colours (red and black). Carefully remove the old battery, which is stuck on with an adhesive pad. With the new battery, remove the protective film from the adhesive pad and stick the battery in the same position, connect the cable and reassemble the PC. When switching on for the first time, press the "DEL" key, load the "Default Settings" in the BIOS and make any other necessary settings before saving the settings and exiting the BIOS setup.

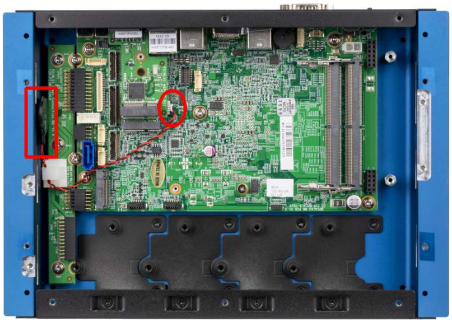
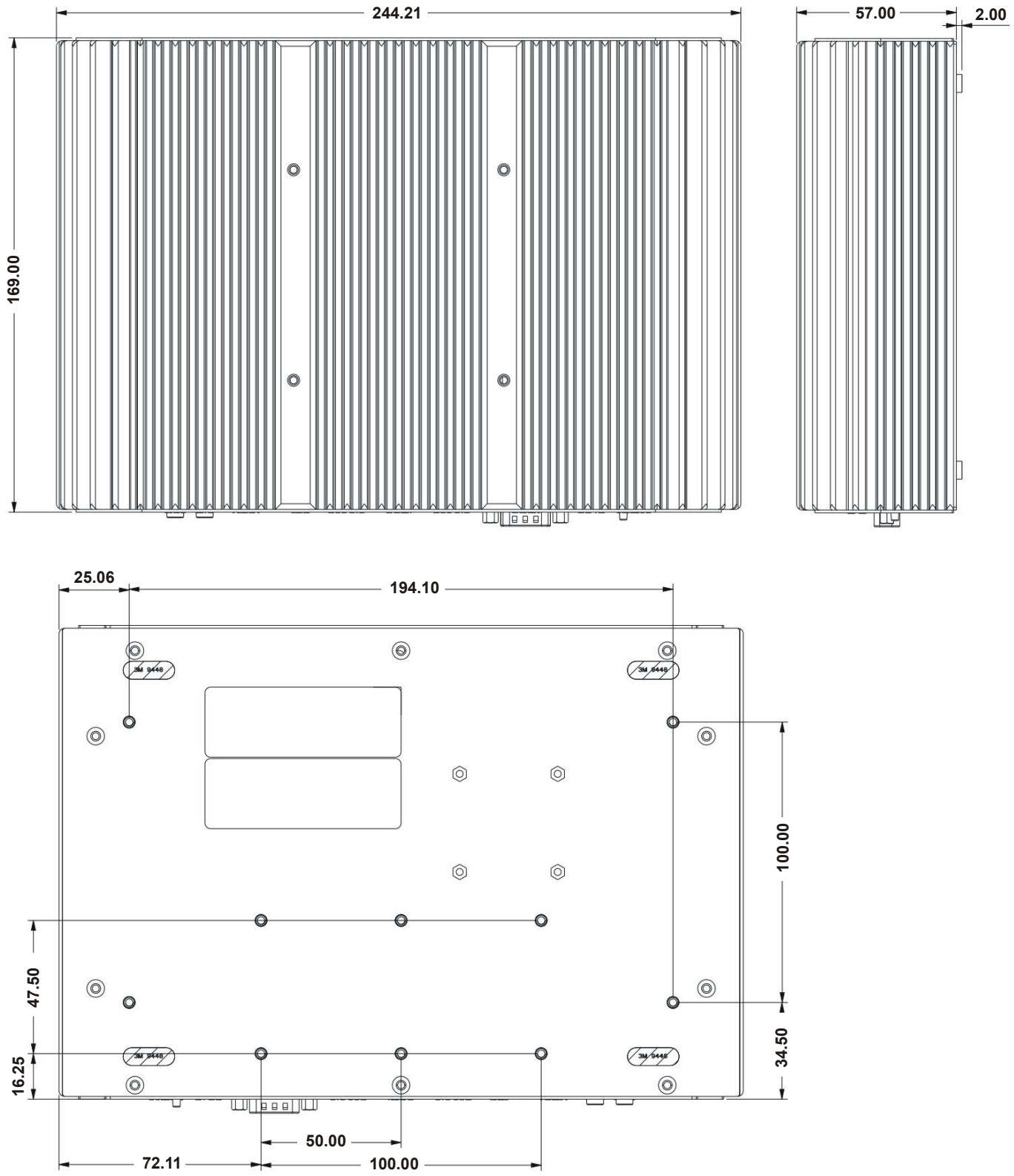


Photo: Position of the button cell battery
and the connector on the mainboard with the computer housing open.

- Disposal:
  Batteries are classified as hazardous waste and must be disposed of properly. Do not throw them in the household trash. Dispose of batteries at the designated collection points prescribed by law in your country, e.g. at the dealers' collection points.
- Safety instructions:
  This product contains a lithium button cell battery that can cause serious or fatal injury within 2 hours if swallowed. Not intended for children under the age of three.

Technical Drawing



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