

EBC-3220

Chassis for Mini-ITX

Version: 1.00

Quick Installation Guide



ABOUT THE EBC-3220

The heavy-duty steel EBC-3220 compact embedded industrial chassis is designed for Mini-ITX SBC to operate reliably in industrial environments where it will be exposed to dust, wide temperature variations, shocks and vibrations.



SPECIFICATIONS

- **SBC Form Factor:** Mini-ITX SBC
- **Construction:** heavy duty metal
- **Drive Bay:** one 2.5" internal HDD bay
- **USB:** two optional USB 2.0 ports on the side panel
- **System Fan Module:**
one (optional, 40 mm x 40 mm x 10 mm)
- **Indicator and Switch:**
one power button with HDD LED
- **Mount:**
 - Wall mount (mounting plates included)
 - VESA 100 supported
- **Dimensions (WxDxH):** 190 mm x 180 mm x 55 mm
- **Operating Temperature:** -10°C ~ 50°C with air flow
Relative Humidity: 10%~90%
- **Weight (N):** 1.0 kg

PACKING LIST

When unpacking the chassis, make sure the following items have been shipped.

- 1 x Quick Installation Guide
- 1 x Screw set
- 1 x SATA cable
- 2 x Wall mount brackets

OPTIONAL ITEMS

The following items can be purchased separately:

- Dual-port USB cable (32001-010800-100-RS)
- System fan module (19FR124010BL-000003-RS)
- Power adapter (60W, 12 V DC, 63040-010060-110-RS)
- Power adapter (84W, 12 V DC, 63040-010084-010-RS)
- Wi-Fi kit (EMB-WIFI-KIT01-R11)

DETAILS OF INCLUDED SCREWS

Screws used for installing components are shown below.



Peripherals/Parts	Screw Label (refer to picture)	Amount	In Package/ On Chassis
Top cover	D	2	On chassis
2.5" HDD	B	4	In package
HDD bracket	D	2	On chassis
	B	1	On chassis
Motherboard	A	4	In package
Wall-mount bracket	C	6	In package
System fan	E	4	In package

Table 1: Screws for Peripheral/Parts

DIMENSION DRAWING

The dimensions of EBC-3220 are shown below.

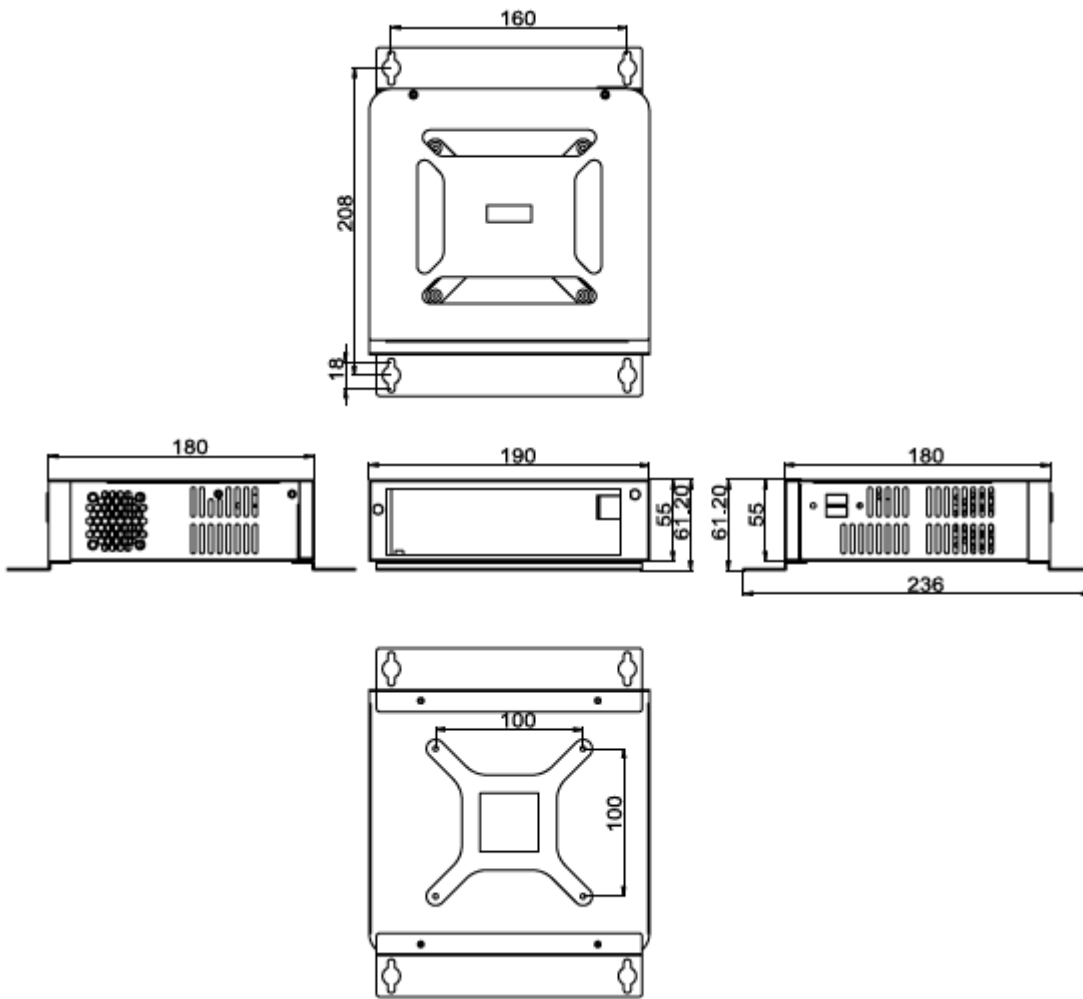


Figure 1: Dimension Drawing

INSTALLATION STEPS

To install the EBC-3220 chassis, the following installation steps must be completed:

- Step 1:** Unpack the chassis.
- Step 2:** Remove the top cover.
- Step 3:** Install the SBC (Single Board Computer).
- Step 4:** Install the wireless LAN (WLAN) module (optional).
- Step 5:** Install the internal 2.5" HDD.
- Step 6:** Install the system fan (optional).
- Step 7:** Connect the cables.
- Step 8:** Reinstall the top cover.
- Step 9:** Mount the chassis (optional).

The installation steps outlined above are described in detail below. Please refer to the relevant section.

STEP 1: UNPACK

The EBC-3220 is shipped in a plastic bag that is placed inside a cardboard box. The items are also shipped with the chassis. When unpacking the chassis please:

- Make sure all the items listed in the **PACKING LIST** section are present.
- Make sure the chassis has not been damaged in any way.

STEP 2: REMOVE THE TOP COVER

The top cover is secured to the chassis with two retention screws on the top panel of the chassis. To remove the top cover, please follow the instruction below:

- Step 1:** Loosen the two top cover retention screws on the top panel of the chassis.



Figure 2: Top Cover Retention Screws

- Step 2:** Slide the cover toward the front panel and then lift the cover up gently.

STEP 3: MOTHERBOARD INSTALLATION

To install a Mini-ITX motherboard, please follow the instructions below:

- Step 1:** Remove the HDD bracket from the chassis by removing the three retention screws on the chassis (two on the side panel and one inside the chassis).

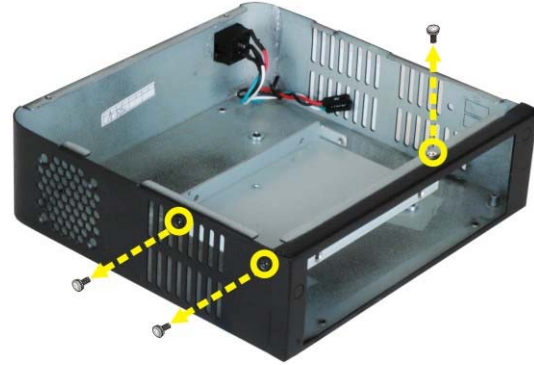


Figure 3: HDD Bracket Retention Screws

- Step 2:** Install the I/O shielding in the chassis. Push the I/O shielding inside out.



Figure 4: I/O Shielding Installation

- Step 3:** Place the motherboard inside the chassis. Make sure the external peripheral interface connectors fit into the predrilled holes on the previously installed I/O shielding.
- Step 4:** Align the four retention screws holes on the motherboard with the retention screw holes on the bottom of the chassis.
- Step 5:** Install the motherboard to the chassis with four retention screws.



Figure 5: Motherboard Retention Screws

STEP 4: WLAN MODULE INSTALLATION (OPTIONAL)

To install the optional wireless LAN (WLAN) module, please follow the steps below.

STEP 1: Remove the two knockout holes for antenna installation. The two knockout holes are located on the rear panel of the EBC-3220 as shown in the following diagram.



Figure 6: Knockout Holes for Wireless Antenna

STEP 2: Locate the PCIe Mini slot on the motherboard.

STEP 3: Remove the retention screw for half-size card installation.

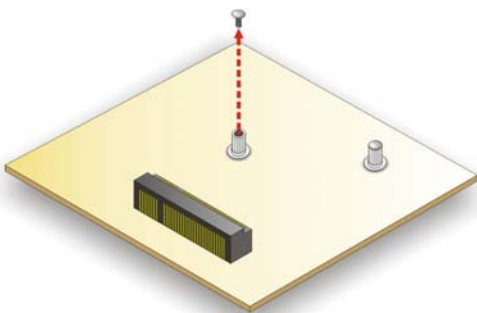


Figure 7: Removing the Retention Screw

STEP 4: Line up the notch on the WLAN module with the notch on the slot. Slide the WLAN module into the slot at an angle of about 20°.

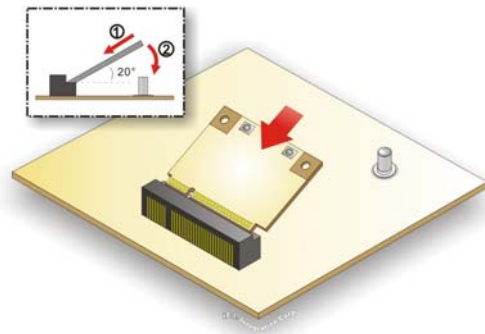


Figure 8: Inserting the WLAN Module

STEP 5: Secure the WLAN module. Secure the WLAN module with the retention screw previously removed. Then, connect the two RF cables to the antenna connectors on the WLAN module.

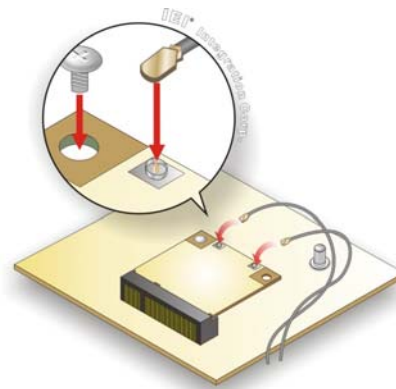


Figure 9: Removing the Retention Screw

STEP 6: Remove the nut and washer from the SMA connector at the other end of the RF cable.

STEP 7: Insert the SMA connector to the antenna connector holes on the rear panel. Then, secure the SMA connector by inserting the washer and tightening it with nut.

STEP 8: Install the external antenna.

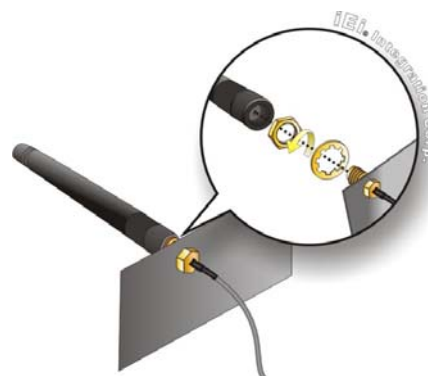


Figure 10: Securing SMA Connector and External Antenna

STEP 5: DISK DRIVE INSTALLATION

The EBC-3220 chassis has the capacity for one 2.5" internal HDD. To install the HDD, please follow the steps below.

- Step 1:** Take the HDD bracket removed from the chassis when installing the motherboard.
- Step 2:** Mount a 2.5" HDD onto the HDD bracket. To do this, align the four retention screw holes in the sides of 2.5" HDD with the retention screw holes in the HDD bracket.
- Step 3:** Insert the four retention screws to secure the HDD with the bracket.

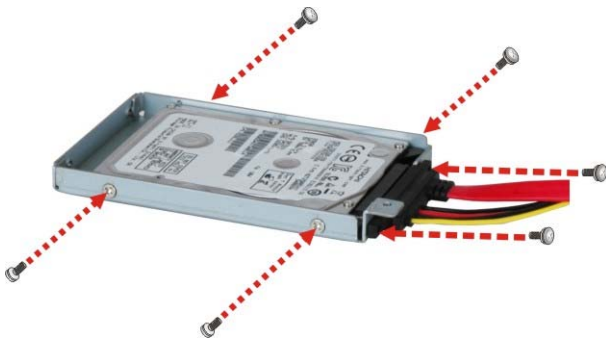


Figure 11: HDD Retention Screws

- Step 4:** Install the SATA cable to the rear of the HDD and secure the cable with two retention screws.
- Step 5:** Install the HDD into the chassis with three retention screws.



Figure 12: HDD Installation

STEP 6: SYSTEM FAN INSTALLATION (OPTIONAL)

A system fan module can be purchased separately for the EBC-3220 chassis. To install the system fan module, please follow the steps below.

- Step 1:** Place the system fan inside the chassis beside the vents for system fan.



Figure 13: Vents for System Fan

- Step 2:** Align the four retention screws holes on the system fan with the retention screw holes on the chassis.
- Step 3:** Install the fan to the chassis with four retention screws (M4*10) that came with the EBC-3220.



Figure 14: System Fan Retention Screws

STEP 7: CABLING

STEP 6.1: FRONT PANEL CABLE CONNECTION

There is a power button with HDD LED on the front panel of the EBC-3220 chassis.

This button is connected to the motherboard with cables. To correctly connect these cables, please refer to the user manual that came with the motherboard. The connectors that are provided with the chassis are listed below.



Table 2: Chassis Connectors

STEP 7.2: HDD CABLE CONNECTION

To correctly connect the HDD SATA cable and SATA power cable from the HDD to the motherboard, please refer to the user manual that came with the motherboard.

STEP 7.3: FAN CABLE CONNECTION (OPTIONAL)

To correctly connect the system fan cable from the system fan to the motherboard, please refer to the user manual that came with the motherboard.

STEP 7.4: USB CABLE CONNECTION (OPTIONAL)

An optional dual-port USB cable can be installed to provide two external USB 2.0 ports on the side panel. To install the USB cable, please follow the steps below.

Step 1: Remove the two USB knockout holes on the right panel of the chassis.



Figure 15: USB Knockout Holes

Step 2: Align the USB connectors and the two retention screws holes on the cable with the holes on the chassis.

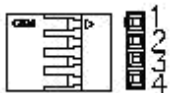
Step 3: Secure the USB cable to the chassis with two retention screws (#4-40).



Figure 16: USB Cable Retention Screws

Step 4: Refer to the user manual that came with the motherboard to correctly connect the USB cable to the motherboard.

The pin definitions for the USB cable are shown below.



PIN No.	Description	Color
1	+5V	Red
2	D-	Dark Yellow
3	D+	Yellow
4	GND	Brown

Table 3: Pin Definitions of USB Cable

STEP 8: WALL-MOUNT PLATES INSTALLATION

Two wall-mount plates are shipped with the EBC-3220 chassis. The wall-mount plates are installed on the sides, at the bottom of the chassis. Each plate is secured to the chassis by two retention screws. To install the wall-mount plates, please follow the steps below.

Step 1: Align the retention screw holes in the wall-mount plate with the retention screw holes on the side of the chassis.

Step 2: Insert two retention screws for each wall-mount plate.

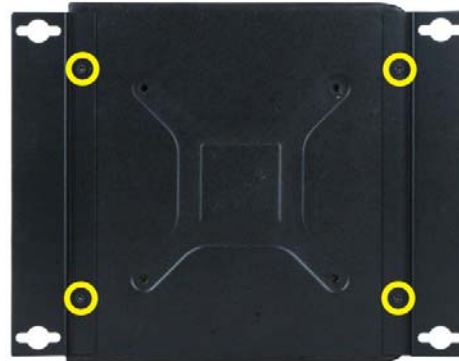


Figure 17: Wall-mount Plate Retention Screws