EBC-3220
Chassis for Mini-ITX
Version: 1.10

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 switch
- **Mount:**
  - o   Wall mount (mounting plates included)
  - o   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
- 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	6	On chassis
HDD bracket	D	3	On chassis
2.5" HDD	B	4	In package
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.
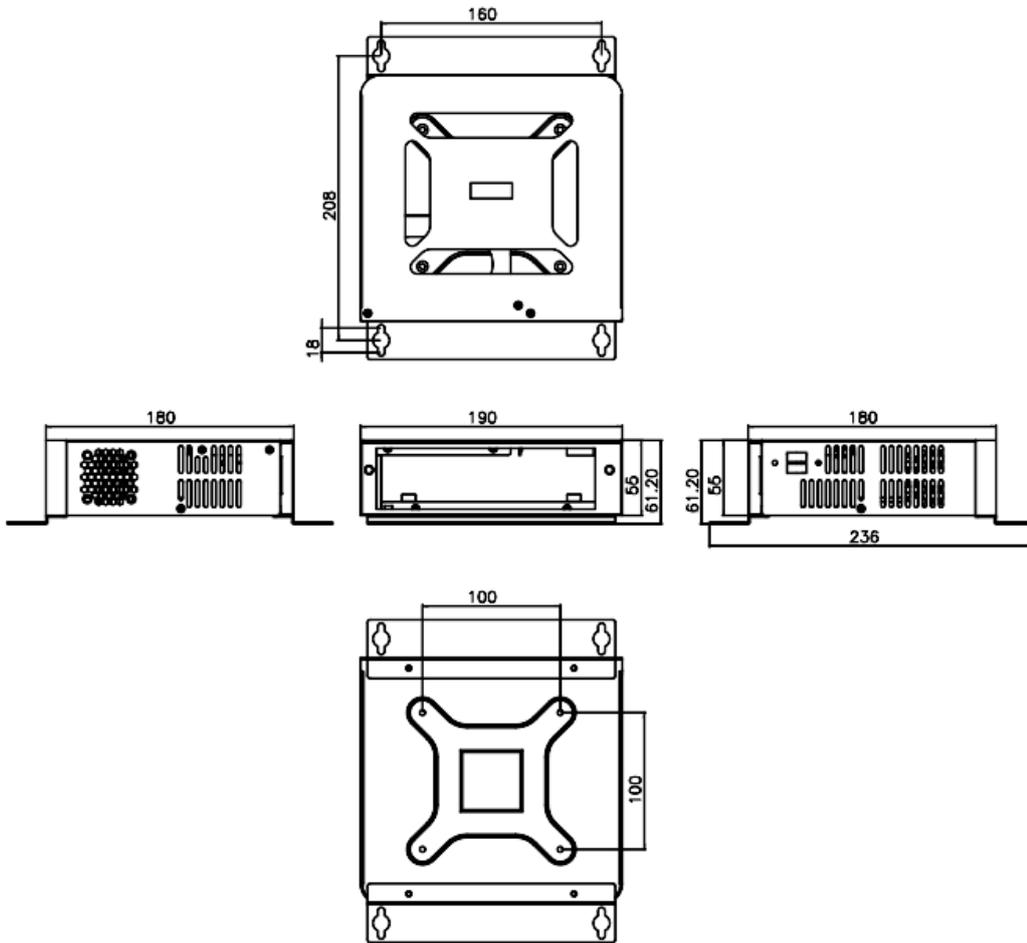
Figure 1: Dimension Drawing

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 internal 2.5" HDD.

Step 5:   Install the wireless LAN (WLAN) module (optional).

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 six retention screws. To remove the top cover, please follow the instruction below:

Step 1:   Remove the six top cover retention screws, two on the top panel, one on each side panel and two on the rear panel.

Figure 2: Top Cover Retention Screws

Step 2:   Slide the cover toward the front panel and then remove the cover gently.

STEP 3: MOTHERBOARD INSTALLATION

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

Step 1:   Install the I/O shielding in the chassis. Push the I/O shielding inside out.

Figure 3: I/O Shielding Installation

Step 2:   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 3:   Align the four retention screws holes on the motherboard with the retention screw holes on the bottom of the chassis.

Step 4:   Install the motherboard to the chassis with four retention screws.

Figure 4: Motherboard Retention Screws

STEP 4: **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:   Remove the HDD bracket attached inside the top cover by removing the three retention screws on the top cover (two on the side panel and one on the top panel).

Figure 5: HDD Bracket Retention Screws

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 6: 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 onto the top cover with three retention screws.

Figure 7: HDD Installation

STEP 5: **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 8: 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.
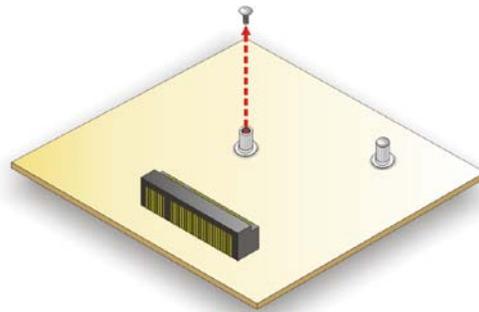
Figure 9: Removing the Retention Screw

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 20⁰.
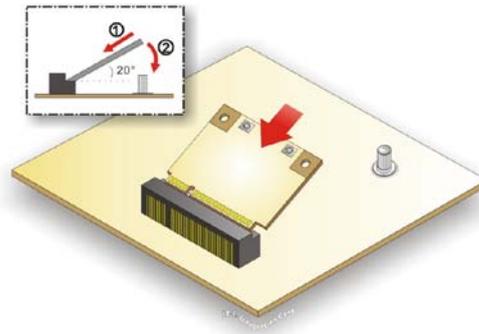

Figure 10: Inserting the WLAN Module

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.
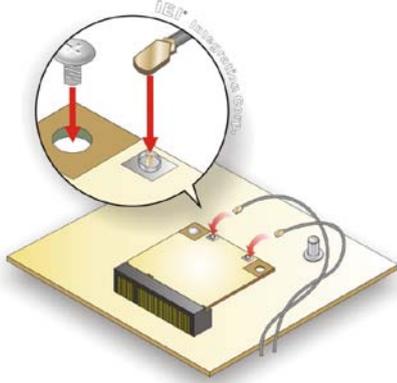

Figure 11: Removing the Retention Screw

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.
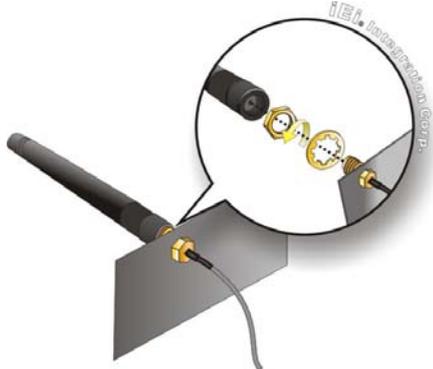
Figure 12: Securing SMA Connector and External Antenna

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.
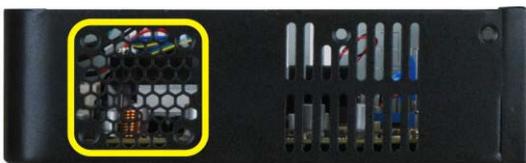
Figure 13: Vents for System Fan

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 7.1: FRONT PANEL CABLE CONNECTION

There is a power switch on the front panel of the EBC-3220 chassis.

This switch 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.

Power switch cable
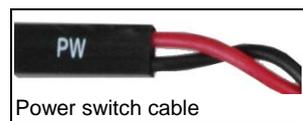
Table 2: Chassis Connectors

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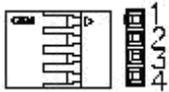
PIN No.	Description	Color
1	+5V	Red
2	D-	Dark Yellow
3	D+	Yellow
4	GND	Brown

Table 3: Pin Definitions of USB Cable
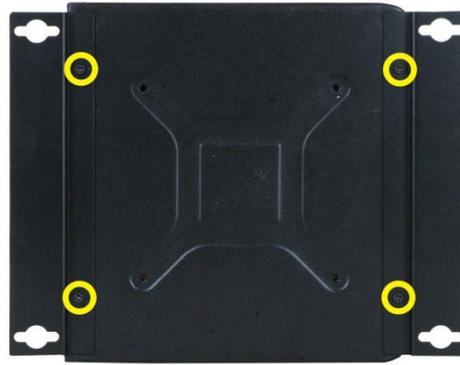
Figure 17: Wall-mount Plate Retention Screws

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.