

BOX Computer  
BX-M210 Series (SATA Model)



\* Specifications, color and design of the products are subject to change without notice.

Features

**Ultra-compact design about as large as A5 size contributes to space-saving**  
With a space-saving design of a thickness of 55 mm, a width of 182 mm, and a depth of 155 mm that is about A5 size.

**Operation capable in a wide temperature range between -20 and +60°C**  
Achieves stable operation in a wide temperature range of -20 to +60°C \*1

**"Power failure protection system" features power-off without OS shutdown**  
Equipped with the "Power failure protection system" function that protects data and prohibits writing to storage in the event of power failure. Along with the lockdown (disk writing suppression) function of Windows IoT Enterprise, power can be safely turned off without a shutdown process. Moreover, file system damage or data damage caused by sudden power failure can be avoided.

**High-security design contributes to a highly reliable system**  
The latest security functions such as TPM2.0 and Secure Boot, as well as CONTEC's original functions including the USB Boot Protect are provided. This product is designed with the high security required for industrial applications in mind.

**CONTEC-customized BIOS provides useful utility**  
Useful utility of BIOS\*2 customized by CONTEC is provided. The "CONTEC Fast Boot" achieves Windows startup in 10 seconds. \*3 The "Disk Copy" function provides secure disk backup at the BIOS level, and also supports backup in file format or compressed file format. We also offer the CONTEC tools "BIOS update tool" for updating BIOS. \*4

**Helps reduce running costs and energy consumption**  
This product uses the x5-E3940 low power consumption Intel Atom processor platform to achieve low power consumption while still providing sufficient performance.

**Fan-less design reduces maintenance work**  
The product is fan-less to ensure a totally spindle-less design that simplifies maintenance, relieving the concern about dust or foreign matter to get into the product. Moreover, along with minimized use of degrading parts greatly reduce maintenance work.

**Rich interfaces for easy connection to various peripherals**  
In addition to DisplayPort x1, USB3.2 Gen1 (USB3.0) x 4, USB2.0 x 2, and LAN x 2, Analog RGB port, RS-232C x 2 (one port can be used as RS-422A or 485) are equipped. It has slot-in type of 2.5-inch SATA disk slot

This product is a fan-less computer for embedded applications with an Intel Atom processor x5-E3940 (1.6GHz). It provides an ultra-compact design with a capability of operating in a wide temperature range (between -20 and + 60°C in an airflow environment of 0.7m/s). The product includes a rich array of interfaces in addition to DisplayPort, including USB 3.2 Gen 1 (USB 3.0 × 4), LAN (× 2), and a slot for 2.5-inch slot-in SATA disks. Furthermore, the product types with wireless LAN function and Bluetooth are ready for connecting digital devices with ease, and they are ideal as IoT gateway terminals that can link to peripheral devices. Embedded-type CPU has been adopted. The use of readily available parts ensures the product to be applied easily. In addition, CONTEC-customized BIOS allows support to be provided at the BIOS level.

\*The contents in this document are subject to change without notice.  
\*Visit the CONTEC website to check the latest details in the document.  
\*The information in the data sheets is as of May, 2022.

and CFast card slot, providing the ability to separate data from the operating system, as well as the convenience of being able to use one slot for system startup and the other for maintenance or for taking home system logs or collected data. The wireless model (BX-M210-J2304, BX-M210-J2314) can be connected to wireless LAN and Bluetooth compatible devices.

\*1 In an airflow environment of 0.7m/s  
\*2 For details, see each setting in the [BIOS Setup] section.  
\*3 It is the actual measured value when Windows 10 and HORM function are enabled at the factory. Time may vary depending on configuration. Note that TXE, TPM, Network Stack, and SMART Self Test are not supported when the CONTEC Fast Boot is enabled.  
\*4 Contact your retailer for more information.

Supported OS

Windows 10 IoT Enterprise 2019 LTSC 64bit (Japanese / English / Chinese / Korean)

Packing List

	BX-M210-J2302 [Base Type]	BX-M210-J2312 [OS Pre-install Type]	BX-M210-J2304 [Wireless Type]	BX-M210-J2314 [OS Pre-install, Wireless Type]
Name	Pcs.	Pcs.	Pcs.	Pcs.
Product	1	1	1	1
The Attachment Fitting	2	2	2	2
Cable Tie for Cable	1	1	1	1
Washer Assembled Screw (M3x6, Black)	4	4	4	4
Washer Assembled Screw for Attachment (M4x10, Black)	4	4	4	4
Power Supply Connector Complete Set	Power Connector	1	1	1
	Contact	4	4	4
Antenna	-	-	2	2
Product Guide	1	1	1	1

Model Name

Model	Wireless	OS	Storage device
BX-M210-J2302	None	None	2.5" SATA SSD 128GB(TLC)
BX-M210-J2312		Windows 10 IoT Enterprise 2019 LTSC 64bit (Japanese / English / Chinese / Korean)	
BX-M210-J2304	IEEE 802.11ac/a/b/g/n Bluetooth 4.2	None	
BX-M210-J2314		Windows 10 IoT Enterprise 2019 LTSC 64bit (Japanese / English / Chinese / Korean)	

## Specifications

### Function specification

Item		Description
CPU		Intel Atom® x5-E3940 Processor 1.6GHz
BIOS		BIOS (mfd. by AMI)
Memory		8GB (204-pin SO-DIMM), PC3L-12800 (DDR3L-1600) ECC
Graphics Controller		Intel® HD Graphics 500 (CPU integrated)
System Resolution	DisplayPort	800 x 600, 1,024 x 768, 1,152 x 864, 1,280 x 600, 1,280 x 720, 1,280 x 768, 1,280 x 800, 1,280 x 960, 1,280 x 1,024, 1,360 x 768, 1,366 x 768, 1,400 x 1,050, 1,440 x 900, 1,600 x 900, 1,600 x 1,200, 1,680 x 1,050, 1,792 x 1,344, 1,856 x 1,392, 1,920 x 1,080, 1,920 x 1,200, 1,920 x 1,440, 1,920 x 2,160, 2,048 x 1,152, 2,048 x 1,536, 2,560 x 1,080, 2,560 x 1,440, 2,560 x 1,600, 2,560 x 1,920, 2,560 x 2,048, 3,840 x 2,160 (1,677,000 colors)
	Analog RGB	800 x 600, 1,024 x 768, 1,152 x 864, 1,280 x 600, 1,280 x 720, 1,280 x 768, 1,280 x 800, 1,280 x 960, 1,280 x 1,024, 1,360 x 768, 1,366 x 768, 1,400 x 1,050, 1,440 x 900, 1,600 x 900, 1,600 x 1,200, 1,680 x 1,050, 1,920 x 1,080, 1,920 x 1,200 (1,677,000 colors)
Audio		Conforms to HD Audio, LINE OUT x1, MIC IN x1
M.2 Card Slot		1 slot, M.2 2230/2280, Key E, PCIe(x2) 1 port, USB2.0 1 port BX-M210-J23x4 : M.2 Wireless LAN card built-in
SATA		2.5 inches S-ATA disk Slot-in x 1 Serial ATA 3.0 compliant support  2.5 inches built-in SSD (TLC, 128GB, 1 partition) *1
CFast Card Slot		1 slot, CFast CARD Type I, bootable
LAN		Intel® I210T controller 1000BASE-T/100BASE-TX/10BASE-T x 2 ports RJ-45 connector (supports Wake On LAN)
USB		USB 3.2 Gen1 (USB3.0) compliant 4ports USB 2.0 compliant 2ports
Serial		RS-232C/422/485 1port, RS-232C 1port Baud rate: 50 - 115,200bps
Wireless LAN *3		IEEE 802.11ac/a/b/g/n
Bluetooth *3		4.2
General Purpose I/O (Non-isolated)		I/O 6 channels, switch signal
Security (TPM)		TCG TPM2.0
Hardware monitoring		Monitoring CPU temperature, board temperature, and power voltage
Watchdog timer (WDT)		Software programmable, 255 level (1sec - 255sec), Time up allows reset
Real Time Clock		Lithium backup battery life: 10 years or more *2 The real-time clock is accurate within ±3 minutes (at 25°C) per month (CPU integrated RTC).
Power Management		Power management setup via BIOS Power On by Ring/Wake On LAN Supports ACPI Power management
Interface	Display	DisplayPort (v1.2) x 1 Analog RGB x 1
	Audio	LINE OUT: 3.5φ Stereo mini jack MIC IN: 3.5φ Stereo mini jack
	M.2 Card Slot	1 slot, M.2 2242, Key M 1 slot, M.2 2230/2280, Key E
	Serial ATA Slot	Slot-in 2.5 inches SATA hard disk x 1
	CFast Card Slot	1 slot, CFast CARD Type I
	LAN	2-port (RJ-45 connector)
	USB	USB3.2 Gen1 (USB3.0) compliant 4ports (TYPE-A connector) USB2.0 compliant 2ports (TYPE-A connector)
	RS-232C/422/485	1 port (9pin D-SUB connector [Male])
	RS-232C	1 port (9pin D-SUB connector [Male])
	DIO	1 port (9pin D-SUB connector [Female])
	Power supply	Rated Voltage Range
Input Voltage Range		108 - 31.2VDC
Current Consumption (Max.)		12V 3.3A, 24V 1.7A
External Device Power Supply Capacity		M.2 slot Key M : +3.3V : 2.5A (2,500mA x1) M.2 slot Key E : +3.3V : 2.0A (2,000mA x1) CFast card slot : +3.3V 0.5A (500mA x1) USB3.2 Gen1 (USB3.0) I/F : +5V : 3.6A (900mA x4 per port) USB2.0 I/F : +5V : 1.0A (500mA x2 per port) SATA slot : +5V 1.0A (1,000mA x 1 per slot)
Physical dimensions (mm)		182(W) x 155(D) x 55(H) (Not including the attachment fitting or protrusions)
Weight		1.8kg (approx.) (Not including the attachment fitting)

- \*1 The capacity of disk in the OS pre-installed type is a value when 1GB is calculated by 1 billion bytes. The capacity that can be recognized from OS might be displayed fewer than an actual value.
- \*2 It is when temperature is 25 degree C and the power is disconnected for 16 hours a day.
- \*3 Wireless LAN and Bluetooth are only available on wireless types.
- \*4 Use a power cable 3 meters or shorter.

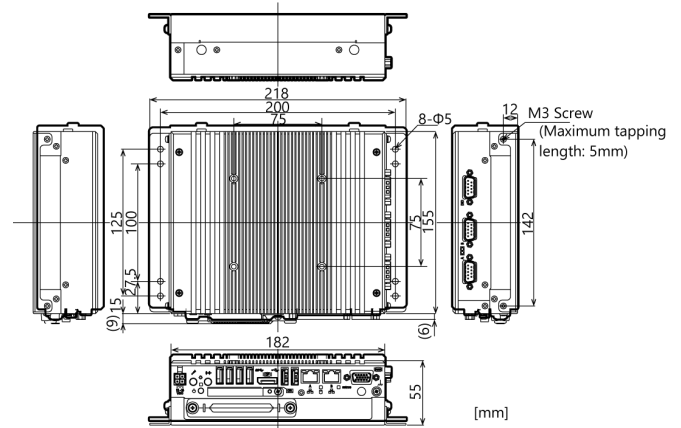
### Installation Environment Requirements

Item		Description
Operating temperature *5		-20 - +50°C no airflow -20 - +60°C airflow 0.7m/s
Storage Temperature *5		-20 - +70°C
Humidity		10 - 90%RH (No condensation)
Floating dust particles		Not to be excessive
Corrosive gases		None
Line-noise resistance	Line noise	AC Line: ±2kV *6, Signal Line: ±1kV (IEC61000-4-4 Level 3, EN61000-4-4 Level 3)
	Static electricity resistance	Contact discharge / ±4kV (IEC61000-4-2 Level 2, EN61000-4-2 Level 2) Air discharge / ±8kV (IEC61000-4-2 Level 3, EN61000-4-2 Level 3)
Vibration resistance	Sweep resistance	10 - 57Hz /semi-amplitude vibration 0.15mm, 57 - 150Hz/20G 40minutes each in X, Y, and Z directions (JIS C60068-2-6-compliant, IEC60068-2-6-compliant)
	Impact resistance	10G half-sine shock for 11ms in X, Y, and Z directions (JIS C 60068-2-27-compliant, IEC 60068-2-27-compliant)
Grounding		Class D grounding, SG-FG / continuity
Standard		VCCI Class A, FCC Class A, CE Marking (EMC Directive Class A, RoHS Directive) *7, UKCA *8, TELEC (set with the certified wireless module) *8

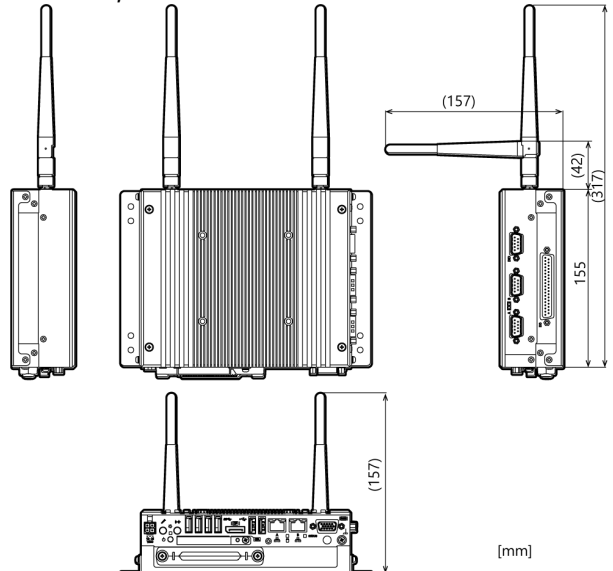
- \*5 The ambient temperature should be 0°C and higher when using or storing the audio
- \*6 It is when the product is used with AC adapter PWA-65AWD1.
- \*7 The wireless type is excluded from CE standard.
- \*8 The wireless module is set only in the wireless type.

### External Dimensions

#### BX-M210-J2302, BX-M210-J2312



#### BX-M210-J2304, BX-M210-J2314



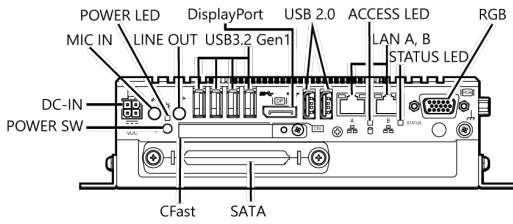
## List of Option

Item	Model	Description
AC adapter	PWA-65AWD1	Switching AC adapter 12VDC 5.417A
Storage	CFS-4GB-A	4GB SATA CFast card (SLC)
	CFS-8GB-A	8GB SATA CFast card (SLC)
	CFS-16GB-A	16GB SATA CFast card (SLC)
	CFS-32GBM2-A	32GB SATA CFast card (MLC)
	CFS-16GBQ-A	16GB SATA CFast card (Q-MLC)
	CFS-32GBQ-B	32GB SATA CFast card (Q-MLC) (Wide temperature range specification)
Antenna extension cable	IPC-RPSMA-2	RP-SMA connector coaxial cable
Bracket	BX-BKT-VESA02	Bracket for VESA ("75 x 75", "100 x 100")

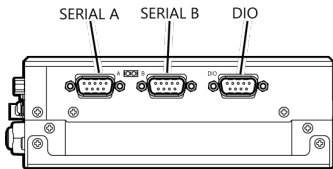
\* Information about the option products, see the Contec's website.

## Component Name

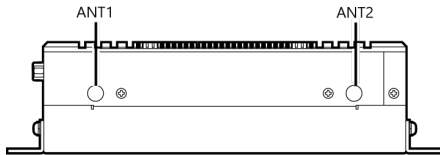
### Front



### Side



### Rear



Name	Function
<b>Front</b>	
DC-IN	DC power connector
POWER LED	Power ON display LED
ACCESS LED	SATA device access display LED
STATUS LED	Status LED
POWER SW	PC power switch
MIC IN	Mike in (3.5p PHONE JACK)
LINE OUT	Line out (3.5pPHONE JACK)
USB 3.2 Gen1	USB 3.2 Gen1 (USB3.0) port connector x4
USB 2.0	USB 2.0 port connector x2
CFast	CFast card slot (SATA connection)
DisplayPort	Display (20-pin female)
LAN A	Ethernet 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector
LAN B	Ethernet 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector
RGB	Display (15-pin D-SUB, female)
SATA	2.5-inch HDD/SSD slot
<b>Side</b>	
SERIAL A	Serial port A connector (9-pin D-SUB, male) (RS-232C/422/485)
SERIAL B	Serial port B connector (9-pin D-SUB, male) (RS-232C)
DIO	GPIO port connector (9-pin D-sub male)
<b>Rear</b>	
ANT1	Antenna connector (for both wireless LAN and Bluetooth) * 1
ANT2	Antenna connector (for wireless LAN) * 1

\*1 Antenna connectors are available only on the wireless type.

Intel, Intel Atom, Intel Core and Celeron are registered trademarks of Intel Corporation. MS, Microsoft and Windows are trademarks of Microsoft Corporation. Other brand and product names are trademarks of their respective holder.