

BOX-PC
Fanless Celeron 3965U / Core i5 7300U installed
Embedded computer
BX-M1000 Series



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

Features

- Seventh-generation Core i5, Celeron processor adopted

This product adopts the CPU that saves power consumption and also provides high computing and graphic performances. Embedded-type CPU makes the stable supply possible.

- 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.

- Major types of peripherals are supported with rich interfaces

It has a variety of extended interface such as DVI-D x 1, Displayport x 1, 1000BASE-T x 2, USB3.0 x 4, USB2.0 x 2, serial (RS-232C) x 3 and DIO x 1.

It has two slot-in type of 2.5-inch SATA disk slots, 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.

- Expansion slots to hold PCI bus boards (Type with Expansion Slot).

BX-M10x0P2 has two PCI slots.

BX-M10x0P4 has one PCI-Express(x4) slot and three PCI slots.

- The attachment fitting and cable ties prevent problems caused by cable disconnections

For connectors with no locking mechanism such as USB cable, unnecessary trouble can be avoided by the use of cable ties for prevention of cable disconnection.

- Safety design required for embedded applications

For Windows 10 IoT Enterprise 2019 LTSC installed type, it is possible to use the WF *1 function of OS.

It is designed for safety required for embedding purpose, for example, prohibiting unwanted writing to the HDD or SSD with WF function will relieve the concern about the writing limits to the HDD or SSD and prevent an unintentional system alteration.

*1 UWF (Unified Write Filter) is a function of Windows 10 IoT Enterprise 2019 LTSC.

They protect the disk from being actually written by redirecting the writing to RAM.

This product is a fan-less and high-performance embedded type computer with the seventh-generation Intel® CPU processor. Along with its power-saving and high-performance features, this product has a rich variety of interfaces and achieves fan-less operation by way of natural air-cooling.

The Core i5-7300U processor or Celeron 3965U processor can be selected for the CPU.

Various interfaces such as dual LAN / USB3.0 / DisplayPort / DVI-D / RS-232C / DIO and the slot-in 2.5 inches SATA hard disk bay unit being installed, this product is best suited to displaying images including digital signage. Additionally, a 2-slot model (which can be equipped with PCI busses in two slots) and a 4-slot model (which can be equipped with a PCI Express [x4] bus) are available.

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 October, 2019.

Packing List

Name	BX-M10x0	BX-M10x0P2	BX-M10x0P4
	[Base model]	[2-slot model]	[4-slot model]
	Pcs.	Pcs.	Pcs.
The Main Body	1	1	1
The Attachment Fittings	2	2	2
Screws for 2.5 inches Hard Disk (M3 x 4)	8 *1	8 *1	8 *1
Washer Assembled Screws (M4 x 8)	8	8	8
AC Power Cable	1	1	1
Cable Tie for AC Power Cable	1	1	1
Cable Tie for USB/Audio cable	1	1	1
Slot Cover	-	2	4
Slot Cover Fixing Screws (M3 x 6)	-	2	4
Product Guide	1	1	1
IPC Precaution List	1	1	1
Warranty Certificate	1	1	1
Serial Number Label	1	1	1
Royalty Consent Contract (OS)	1 *2	1 *2	1 *2
Recovery Disk	1 *2	1 *2	1 *2

*1 The number of items packed in the OS pre-installed type is different since some of them are already equipped to the BOX-PC.

With 1 disk : 4pcs With 2 disks : 0pcs

*2 Not packed in the OS uninstalled type.

* The Users Manual of this product is provided as the PDF file in the CONTEC web page. Such information as hardware setup, component functions, and BIOS setup are indicated in the Manual, please refer to it if needed.

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Specification

Function Specifications

Item	Description		
	BX-M1010xx	BX-M1020xx	
CPU	Intel® Core™ i5 Processor 7300U (2.60GHz)	Intel® Core™ Celeron Processor 3965U (2.20GHz)	
BIOS	BIOS (mfd. by AMI)		
Memory	8GB (260-pin SO-DIMM), PC4-17000 (DDR4-2133)		
Graphics Controller	Intel® HD Graphics 620 (CPU integrated)	Intel® HD Graphics 610 (CPU integrated)	
System resolution	DVI-D	800 x 600, 1,024 x 768, 1,152 x 864, 1,280 x 800, 1,280 x 720, 1,280 x 800, 1,280 x 900, 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, 1,920 x 1,080, 1,920 x 1,200 (16,770,000 colors)	
	Display Port	800 x 600, 1,024 x 768, 1,152 x 864, 1,280 x 600, 1,280 x 720, 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, 1,790 x 1,344, 1,856 x 1,392, 1,920 x 1,080, 1,920 x 1,200, 1,920 x 1,440, 2,048 x 1,152, 2,048 x 1,536, 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 (16,770,000 colors)	
Audio	HD Audio compliant, LINE OUT x 1, LINE IN x 1, MIKE IN x 1		
SATA *1	2.5 inches S-ATA disk Slot-in x 2 Serial ATA 3.0 compliant support		
LAN	Intel I210T controller 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector x 2 (supports Wake On LAN)		
USB	USB 3.0-compliant x 4 ports USB 2.0-compliant x 2 ports		
Serial	RS-232C 3ports, Baud rate: 50 - 115,200bps		
DIO	Watchdog timer (WDT)	Software programmable, 1sec - 255sec (A reset occurs upon time-up)	
	Remote reset	Isolated digital input	
	General I/O	3 isolated inputs and outputs 9-pin D-SUB connector (female) (Note that one output is switchable with WDT external output, and two inputs are switchable with either remote-reset or remote-power-on.)	
Expansion board slot	Base model: None 2-slot model: PCI slot x 2 4-slot model: PCI-Express(x4) slot x 1, PCI slot x 3 Usable board length: 240mm (Max)		
Hardware monitoring	Monitoring CPU temperature, board temperature, and power voltage		
Watchdog timer (WDT)	Software programmable, 255 level (1sec - 255sec). Time up allows reset, shutdown, or external output.		
Real Time Clock	Lithium backup battery life: 10 years or longer The real-time clock is accurate within ±3 minutes (at 25°C) per month (CPU built-in RTC).		
Power Management	Power management setup via BIOS Power On by Ring/Wake On LAN Supports ACPI Power management		
Interface	Display	DVI-D x 1 (25-pin DVI-D connector), Display Port x 1	
	Audio	LINE OUT: 3.5p Stereo mini jack, Full-scale output level 1.2Vrms (Typ.) LINE IN: 3.5p Stereo mini jack, Full-scale output level 1.4Vrms (Typ.) MIC IN: 3.5p Stereo mini jack, Full-scale input level 1.4Vrms (Typ.)	
	Serial ATA slot	Slot-in 2.5 inches SATA hard disk x 2	
	LAN	2-port (RJ-45 connector)	
	USB	USB3.0 compliant 4port (TYPE-A connector) USB2.0 compliant 2port (TYPE-A connector)	
	RS-232C	3-port (9pin D-SUB connector [male])	
	DIO	1 port (9pin D-SUB connector [female])	
Power supply	Input voltage range	Rating: 100 - 240VAC (50/60Hz) input automatic operation switch	
	Current consumption	Base model: 100 - 240VAC, 0.58 - 0.27A 2-slot model: 100 - 240VAC, 0.88 - 0.37A 4-slot model: 100 - 240VAC, 1.0 - 0.45A	Base model: 100 - 240VAC, 0.57 - 0.26A 2-slot model: 100 - 240VAC, 0.81 - 0.37A 4-slot model: 100 - 240VAC, 0.96 - 0.43A
	External device power supply capacity *2	SATA slot: +5V 2A (1,000mA x 2 per slot) USB3.0 I/F: +5V 3.6A (900mA x 4 per port) USB2.0 I/F: +5V 1.0A (500mA x 2 per port)	
	Capacity for power supply to the expansion board	2-slot model *3 +12V: 1.5A, +5V: 2.8A, +3.3V: 4.0A, -12V: 0.1A 4-slot model *4 +12V: 3.0A, +5V: 4.0A, +3.3V: 5.0A, -12V: 0.1A, +3.3VSB: 0.375A	
Physical dimensions (mm)	Base model: 262(W) x 262(D) x 64(H) 2-slot model: 262(W) x 262(D) x 119(H) 4-slot model: 262(W) x 262(D) x 159(H) (Not including the attachment fitting or protrusions)		
Weight	Base model: 3.1kg (approx.) 2-slot model: 4.2kg (approx.) *5 4-slot model: 4.6kg (approx.)		

*1 The capacity of storage device 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 The total capacity for power supply to external devices at +5 V must fall within 4.6 A
*3 The total capacity for power supply to the expansion board of the 2-slot model must fall within 20 W.
*4 The total capacity for power supply to the expansion board of the 4-slot model must fall within 40 W.
*5 The spec of Hardware RAID model is different. Refer to "Hardware RAID Setup" for details.

* The PCI bus slots are 32-bit type, not verified for operation of boards for both 32-bit and 64-bit bus slots.

Hardware RAID Configuration Product Specification

Item	Specification	
	BX-M1010P2	BX-M1020P2
RAID level	1	
Drive interface	Serial ATA 3.0	
Transfer mode	6.0Gb/s, 3.0Gb/s (Auto or fixed into 3.0Gb/s)	
Power supply	Expansion board power supply capacity	2-slot model +12V: 1.5A +5V: 2.8A +3.3V: 4.0A -12V: 0.1A
	Weight	About 4.6kg
Operating temperature	0 - 40°C	
Standard	VCCI Class A	

Installation Environment Requirements

Item	Description	
Operating temperature	0 - 50°C (When DVI is used: 0 - 45°C)	
Operating Humidity	-10 - 60°C	
Non-operating ambient temperature	10 - 90%RH (No condensation)	
Non-operating ambient humidity	10 - 90%RH (No condensation)	
Floating dust particles	Not to be excessive	
Corrosive gases	None	
Line-noise resistance	Line noise	AC Line /±2kV (IEC61000-4-4 Level 3, EN61000-4-4 Level 3)
	Static electricity resistance	Touch /±4kV (IEC61000-4-2 Level 2, EN61000-4-2 Level 2) Air /±8kV (IEC61000-4-2 Level 3, EN61000-4-2 Level 3)
Vibration resistance (The product alone)	Sweep resistance	(1) HDD built-in type (when current is applied): 10 - 50Hz/0.5G 25minutes each in X, Y, and Z directions (JIS C60068-2-6-compliant, IEC60068-2-6-compliant) (2) HDD built-in type (when current is not applied) and other types: 10 - 57Hz /semi-amplitude vibration 0.15mm, 57 - 150Hz/2.0G 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, Low Voltage Directive, RoHS Directive)	

List of Options

Hard Disk

PC-HDD100GS-2 2.5 inch SATA Hard Disk Drive 100GB

SSD(MLC)

SSD-256GS-2M 2.5 inch SATA SSD 256GB

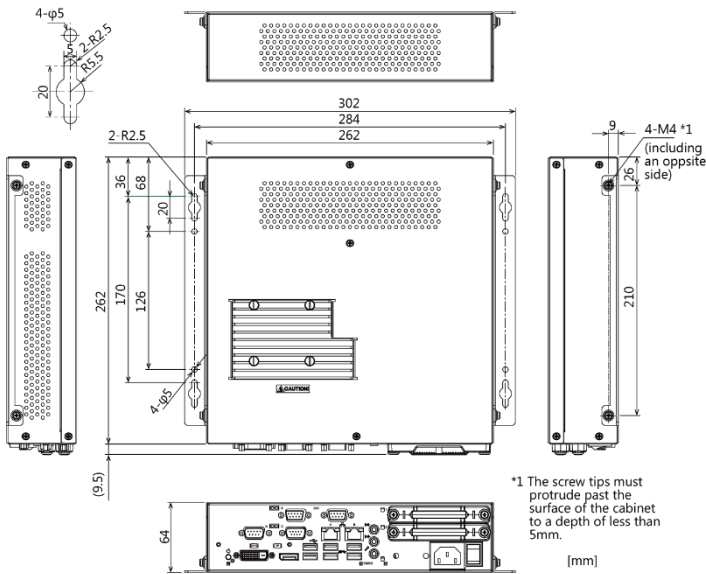
CAUTION

If a product other than our optional one is used, the normal operation may be impaired or the functions may be limited.

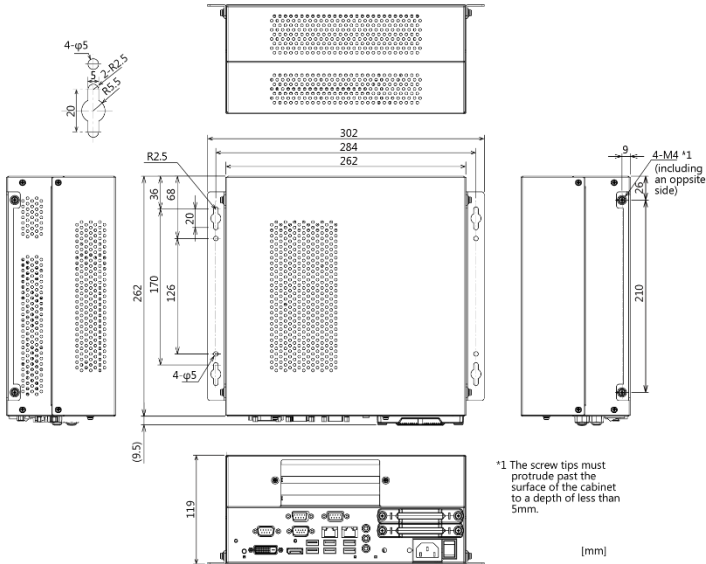
* Visit the CONTEC website for the latest optional products.

Physical Dimension

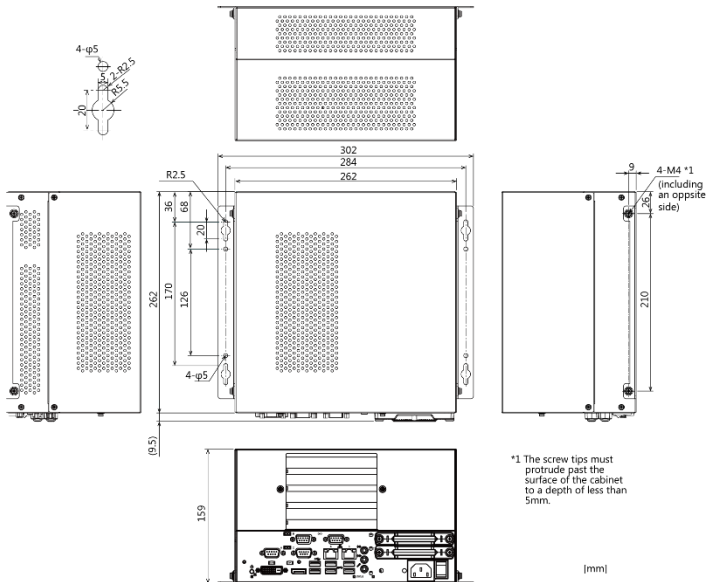
BX-M10x0 (Base model)



BX-M10x0P2 (2-slot model)

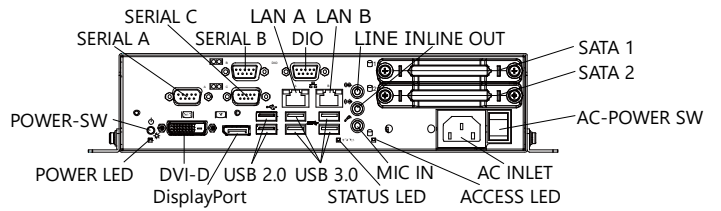


BX-M10x0P4 (4-slot model)

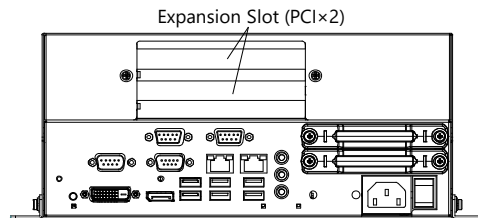


Nomenclature of Product Components

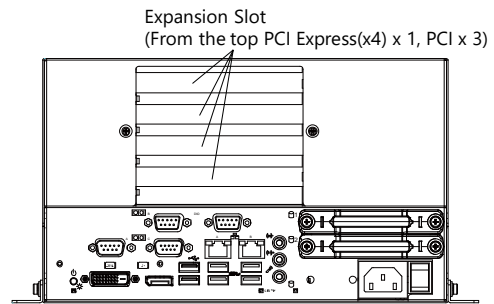
BX-M10x0 (Base model)



BX-M10x0P2 (2-slot model)



BX-M10x0P4 (4-slot model)






Component Function

Name	Function
AC POWER-SW	AC power switch
POWER-SW	PC Power switch
POWER LED	Power ON display LED
ACCESS LED	SATA device access display LED
STATUS LED	Status LED
AC INLET	AC power input connector
LINE IN	Line in (3.5p PHONE JACK)
LINE OUT	Line out (3.5p PHONE JACK)
MIC IN	Mic in (3.5p PHONE JACK)
LAN A	Ethernet 100BASE-T/100BASE-TX/10BASE-T RJ-45 connector
LAN B	Ethernet 100BASE-T/100BASE-TX/10BASE-T RJ-45 connector
USB 3.0	USB 3.0 port connector x4
USB 2.0	USB 2.0 port connector x2
SERIAL A	Serial port A connector (9-pin D-SUB male)
SERIAL B	Serial port B connector (9-pin D-SUB male)
SERIAL C	Serial port C connector (9-pin D-SUB male)
DIO	GPIO port connector (9-pin D-SUB female)
DVI-D	Display (25-pin female)
DISPLAY PORT	Display (20-pin female)
SATA1	2.5-inch HDD/SDD slot
SATA2	2.5-inch HDD/SDD slot
Expansion Slot	PCI x2 <BX-M10x0P2 model> PCI-Express(x4) x1 + PCIx3 <BX-M10x0P4 model>

Product Lineup

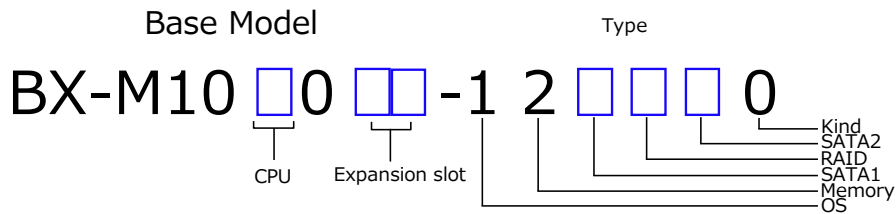
The product has two models. The standard model is pre-configured type. As for the BTO model, the storage capacity and types are selectable to meet the users needs.

Standard Model

Model	Expansion slot	CPU	OS	Strage
BX-M1010-NA02	 No expansion slot	Core i5 7300U Processor	None	None
BX-M1020-NA02		Celeron 3965U Processor	None	None
BX-M1020P2-NA02		Celeron 3965U Processor	None	None
BX-M1010P2-NA02	 Expansion 2 slot (PCIx2)	Core i5 7300U Processor	None	None
BX-M1020P2-NA02		Celeron 3965U Processor	None	None
BX-M1010P4-NA02	 Expansion 4 slot (PCI-Express(x4)x1, PCIx3)	Core i5 7300U Processor	None	None
BX-M1020P4-NA02		Celeron 3965U Processor	None	None

BTO Model

As for the BTO model, items such as CPU, expansion slots, storage and RAID can be customized as required.



The list of Selectable items

Item	No.	Description
Base model		
CPU	1	Core i5 7300U Processor
	2	Celeron 3965U Processor
Expansion slot	None	No expansion slot
	P2	Expansion 2 slot (PCIx2)
	P4	Expansion 4 slot (PCI-Express(x4)x1, PCIx3)
Type		
OS	1	Windows 10 IoT Enterprise 2019 LTSC
Memory	2	8GB
	1	SSD(MLC) 256GB
SATA1	2	HDD 100GB
	0	None
		Hardware RAID
RAID	2	Software RAID
	0	None
SATA2	1	SSD(MLC) 256GB
	2	HDD 100GB
Kind	0	BOX-PC

No expansion slot type



Expansion 2 slot (PCIx2) type



Expansion 4 slot (PCI-Express(x4)x1, PCIx3) type



*1 OS is already installed.
 The capacity of the 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 less than the actual value.
 *2 The disk is quipped in SATA2 slot when selecting RAID.
 The same type of disks are quipped in SATA1 and SATA2 slots when selecting RAID.
 *3 Hardware RAID is available only when selecting the base models BX-M10x0P2.