BOX Computer
BX-T3020 Series

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

This product is a fan-less and high-performance embedded type computer with the eight-generation Intel® CPU processor Celeron processor 4305UE(2.0GHz). 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.

In a space-saving design that can be installed in spaces only 50-mm thick with roughly the same area as a paperback book.

The product includes varied interfaces such as HDMI, DisplayPort, dual LAN, USB 3.2 Gen 2 (USB3.1), RS-232C/422/485.

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 February, 2025.

Features

Space-saving PC that contributes to the miniaturization of equipment
The space-saving design (29 × 178 × 115 mm (H × W × D)) of the BX-T3020 allows for installation in compact areas.

"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. *1 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 a low power consumption platform 8th generation Intel® CPU processor 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.

Major types of peripherals are supported with rich interfaces
It has a variety of extended interface such as HDMI, DisplayPort, dual LAN, USB 3.2 Gen2 (USB3.1), and RS-232C/422/485.

The attachment fitting and cable ties prevent problems caused by cable disconnections
For connectors with no locking mechanism such as USB cable, HDMI cable unnecessary trouble can be avoided by the use of cable ties for prevention of cable disconnection.

*1   The "Power Failure Protection system" function is only supported by OS pre-installed types.

*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 CSME, Network Stack, and SMART Self Test are not supported when the CONTEC Fast Boot is enabled.

*4   Contact your retailer for more information.

Specifications

Function specification

Item		Description
CPU		Intel® Celeron® 4305UE Processor 2.0GHz
BIOS		BIOS (mfd. by AMI)
Memory		8GB (260pin SO-DIMM), PC4-17000 (DDR4-2133)
Graphics Controller		Intel® UHD Graphics 610 (CPU integrated)
System resolution	HDMI	800×600, 1,024×768, 1,152×864, 1,280×600, 1,280×720, 1,280×768, 1,280×800, 1,280×960, 1,280×1,024, 1,360×768, 1,366×768, 1,400×1,050, 1,440×900, 1,600×900, 1,600×1,200, 1,680×1,050, 1,792×1,344, 1,856×1,392, 1,920×1,080, 1,920×1,200, 1,920×1,440, 1,920×2,160, 2,048×1,152, 2,048×1,536, 2,560×1,080, 2,560×1,440, 2,560×1,600, 2,560×1,920, 2,560×2,048, 3,840×2,160 (1,6770,000 colors)
	DisplayPort	800×600, 1,024×768, 1,152×864, 1,280×600, 1,280×720, 1,280×768, 1,280×800, 1,280×960, 1,280×1,024, 1,360×768, 1,366×768, 1,400×1,050, 1,440×900, 1,600×900, 1,600×1,200, 1,680×1,050, 1,792×1,344, 1,856×1,392, 1,920×1,080, 1,920×1,200, 1,920×1,440, 1,920×2,160, 2,048×1,152, 2,048×1,536, 2,560×1,080, 2,560×1,440, 2,560×1,600, 2,560×1,920, 2,560×2,048, 3,840×2,160 (1,6770,000 colors)
LAN		Intel® I210 controller x 1 Intel® I219 controller x 1 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector x 2 (supports Wake On LAN)
USB		USB 3.2 Gen2 (USB3.1) compliant x 4 ports
Serial		RS-232C/422/485 1port Baud rate: 50 - 115,200bps
M.2 Card Slot		1 slot, M.2 2242/2280, Key M, PCIe(x1) Gen3 1 port NVMe SSD mounted (TLC, 128GB, 1 partition) *1 1 slot, M.2 2230, Key E, PCIe(x1) 1port, USB2.0 1 port
Security (TPM)		TCG TPM2.0
Hardware Monitoring		Monitoring CPU temperature, card temperature, 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 built-in RTC).
Power Management		Power management setup via BIOS Power On by Ring/Wake On LAN Supports ACPI Power management
Interface	Display	HDMI(v1.4) x 1, DisplayPort(v1.4) x 1
	LAN	2 port (RJ-45 connector)
	USB	USB3.2 Gen2 (USB3.1) compliant 4port (Type-A connector)
	RS-232C/ 422/485	1 port (9pin D-SUB connector [male])
	M.2 Card Slot	1 slot, M.2 2242/2280, Key M 1 slot, M.2 2230, Key E
Power Supply	Rated Voltage Range	12 - 24VDC ±10% *3
	Input Voltage Range	10.8 - 31.2VDC
	Current Consumption	12V 4.6A (Max.), 24V 2.3A (Max.)

Item		Description
	External Device Power Supply Capacity	M.2 slot Key M : +3.3V 2.5A (2,500mA x 1 per port) USB 3.2 Gen2 (USB3.1) I/F : +5V 3.6A (900mA x 4 per port)
Physical Dimensions (mm)		178(W) x 115(D) x 29(H) (Not including the attachment fitting or protrusions)
Weight		0.85kg (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 the power is disconnected for 15 hours a day.

*3   Use a power cable of 3 meters or shorter.

Installation Environment Requirements

| Item		Description
Operating Temperature		0 - +45°C without air flow 0 - +55°C, airflow 0.7m/s
Storage Temperature		-10 - +60°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 (IEC61000-4-4 Level 3, EN61000-4-4 Level 3) *1, 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 (The product alone)	Sweep Resistance	10 - 57Hz /semi-amplitude vibration 0.375mm, 57 - 500Hz/5.0G 60minutes each in X, Y, and Z directions (JIS C60068-2-6-compliant, IEC60068-2-6-compliant)
Shock Resistance		100G half-sine shock for 6ms 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), UKCA, UL/c-UL, CCC *2

*1   It is when the product is used with AC adapter PWA-65AWD1.

*2   The Base models are excluded from CCC.

Physical Dimensions

Product only

[mm]
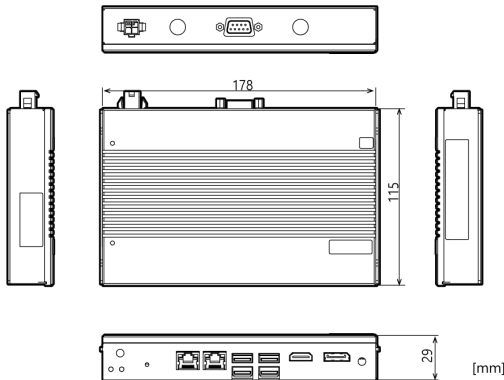
When the main unit fixing metal fittings are installed

[mm]
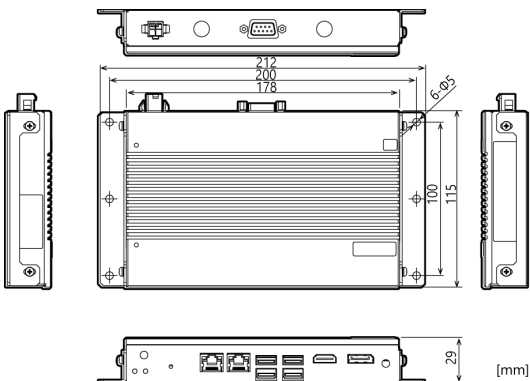
Included Items

Name		BX-T3020-Jxx00 [Base Model] Pcs.	BX-T3020-Jxxx0 [OS Pre-install Model] Pcs.
The Main Body		1	1
The Attachment Fitting		2	2
Cable Ties for fixing cables		1	1
Washer Assembled Screw (M3 x 6, Black)		4	4
Washer Assembled Screw for Attachment (M4 x 10, Black)		4	4
Power Supply Connector Complete Set	Power Connector	1	1
	Contact	4	4
Product Guide		1	1

Supported OS

Windows 10 IoT Enterprise 2021 LTSC 64bit (Japanese / English / Chinese / Korean)
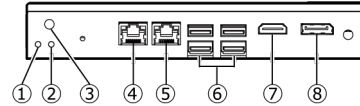
Optional Products

Item	Model	Description
AC adapter	PWA-65AWD1	Switching AC adapter 12VDC 5.417A

Product Lineup

Type	CPU	Memory	OS	Storage device
BX-T3020-J2300	Celeron 4305UE processor	DDR4 8GB	None	N.2 NVMe 128GB(TLC)
BX-T3020-J2320			Windows 10 IoT Enterprise 2021 LTSC 64bit (Japanese / English / Chinese / Korean)	

Component Name

Front

Side
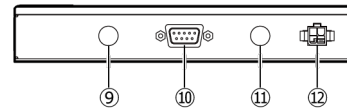
No.	Name	Function
1	POWER LED	Power ON display LED
2	DRIVE ACCESS LED	Drive access display LED
3	POWER SW	PC Power switch
4	LAN A	Ethernet 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector
5	LAN B	Ethernet 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector
6	USB3.2 Gen2	USB 3.2 Gen2 (USB3.1) port connector x4
7	HDMI	Display (19-pin female)
8	DisplayPort	Display (20-pin female)
9	ANT1	Antenna connector * 1
10	SERIAL A	Serial port A connector (9-pin D-SUB male) (RS-232C/422/485)
11	ANT2	Antenna connector * 1
12	DC-IN	DC power connector

*1 This cannot be used with this product.