BOX-PC
Fanless Xeon E-2278GEL / Core i5 9500TE /
Core i3 9100TE / Celeron G4900T installed
Embedded computer
BX-M2500 Series

This product is a fan-less and high-performance embedded type computer with the nine-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 Xeon E-2278GEL, Core i5 9500TE, Core i3 9100TE or Celeron G4900T processor can be selected for the CPU.
Various interfaces such as dual LAN / USB3.2 Gen2 / DisplayPort / DVI-I / 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.
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.
* Visit the CONTEC website to check the latest OS.
* The information in the data sheets is as of November, 2024

Features

- **Ninth-generation Xeon, Core i5, Core i3, 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.

- **"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 *1 customized by CONTEC is provided. The "CONTEC Fast Boot" achieves Windows startup in 10 seconds.*2

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.*3

- **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-I x 1, DisplayPort×1, 1000BASE-T x 2, USB3.2 Gen2 x 4, USB2.0 x 2, serial (RS-232C) x 4 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.

- **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.

*1　For details, see "BIOS Setup" in the manual.
*2　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.
*3　Contact your retailer for more information.

Supported OS

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

Included Items

Name		BX-M2500-Jx0xNA [Base Model] Pcs.	BX-M2500-Jxxxxxxxxx [OS Pre-install Model] Pcs.
The Main Body		1	1
The Attachment Fittings		2	2
The Attachment Rubbers		4	4
Cable Clamp for USB		1	1
Screw for USB Cable (M3×6)		1	1
Screws For 2.5 Inches HDD (M3 x 4)		8	4
Washer Assembled Screw (M3 x 8)		4	4
Washer Assembled Screws for attachment (M4 x 8, Black)		8	8
Power Supply Connector Complete Set	Power Connector	1	1
	Contact	4	4
Cable Tie for USB Cable		1	1
Cable Tie for Audio Cable		1	1
DVI-Analog RGB Conversion Adapter		1	1
Trellix License Label		-	1 *1
Product Guide		1	1

*1 Trellix pre-installed type only.

Please apply for "Recovery Media" in advance if you are going to configure RAID with OS pre-installed type.

Specification

Function Specifications

Item		Description
CPU		BX-M2500-J80xxxxxxx: Intel® Xeon E-2278GEL Processor (2.0GHz) BX-M2500-J50xxxxxxx: Intel® Core™ i5-9500TE Processor (2.2GHz) BX-M2500-J40xxxxxxx: Intel® Core™ i3-9100TE Processor (2.2GHz) BX-M2500-J20xxxxxxx: Intel® Celeron® G4900T Processor (2.9GHz)
Chip Set		Intel® C246 Platform Controller Hub
BIOS		BIOS (mfd. by AMI)
Memory		BX-M2500-J804xxxxxx, BX-M2500-J404xxxxxx, BX-M2500-J204xxxxxx: 8GB (260pin SO-DIMM), PC4-21300/19200 (DDR4-2666/2400) ECC BX-M2500-J805xxxxxx: 16GB (260pin SO-DIMM), PC4-21300/19200 (DDR4-2666/2400) ECC BX-M2500-J504xxxxxx: 8GB (260pin SO-DIMM), PC4-21300 (DDR4-2666)
Graphics Controller		BX-M2500-J80xxxxxxx, BX-M2500-J50xxxxxxx, BX-M2500-J40xxxxxxx: Intel® UHD Graphics 630 (CPU integrated) BX-M2500-J20xxxxxxx: Intel® UHD Graphics 610 (CPU integrated)
System resolution	DVI-D	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 (1,6770,000 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 (1,6770,000 colors)
	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 1,280, 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 (1,6770,000 colors)
Audio		HD Audio compliant, LINE OUT x 1, MIC IN x 1
SATA		2.5 inches S-ATA disk Slot-in x 2 Serial ATA 3.0 compliant support, RAID1(Mirror) support
		BX-M2500-JxxxNA : - BX-M2500-JxxxM05W19 : 2.5 inches built-in SSD (MLC, 64GB, 1 partition) *1 BX-M2500-JxxxL08W19 : 2.5 inches built-in SSD (TLC, 256GB, 1 partition) *1 BX-M2500-JxxxL09W19 : 2.5 inches built-in SSD (TLC, 512GB, 1 partition) *1 BX-M2500-JxxxL07L08W19 : 2.5 inches built-in SSD (Slot 1 : TLC, 128GB, 1 partition, Slot 2 : TLC, 256GB) *1
LAN		Intel® I210AT controller x 1 Intel® I219LM controller x 1 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector x 2 (supports Wake On LAN)
USB		USB 3.2 Gen2 compliant x 4 ports USB 2.0 compliant x 2 ports
Serial		RS-232C 3ports, RS-232C/422/485 1port, Baud rate: 50 - 115,200bps
General I/O		Non-isolated type 6 isolated inputs and outputs, POWER switch signals
Security (TPM)		TCG TPM2.0
Hardware Monitoring		Monitoring CPU temperature, board 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℃) per month (C246 PCH built-in RTC).
Power Management		Power management setup via BIOS Power On by Ring/Wake On LAN Supports ACPI Power management
Interface	Display	DVI-I x 1 (29-pin DVI-I connector), DisplayPort x 1
	Audio	LINE OUT: 3.5φ Stereo mini jack, MIC IN: 3.5φ Stereo mini jack
	Serial ATA Slot	Slot-in 2.5 inches SATA hard disk x 2
	LAN	2-port (RJ-45 connector)
	USB	USB3.2 Gen2 compliant 4port (TYPE-A connector) USB2.0 compliant 2port (TYPE-A connector)
	RS-232C	3-port (9pin D-SUB connector [male])
	RS-232C/422/485	1 port (9pin D-SUB connector [male])
	DIO	1 port (9pin D-SUB connector [female])
Power Supply	Rated Voltage Range	12 - 24VDC ±10% *3
	Current Consumption	12V 6.8A, 24V 3.4A
	External Device Power	SATA slot: +5V 2.0A (1,000mA x 2 per slot) USB3.2 Gen2 I/F: +5V 3.6A (900mA x 4 per port)

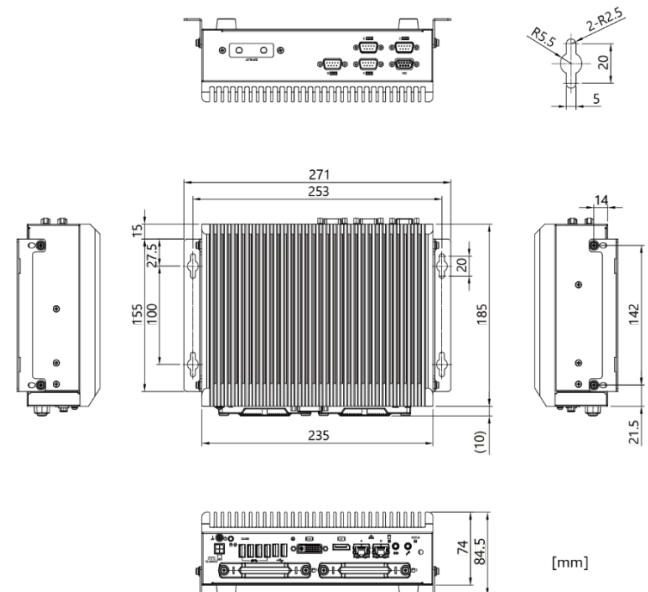| Item		Description
	Supply Capacity	USB2.0 I/F: +5V 1.0A (500mA x 2 per port)
Physical Dimensions (mm)		235(W) x 185(D) x 74(H) (Not including the attachment fitting or protrusions)
Weight		3.0kg (approx.) (Not including the attachment fitting)

*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 16 hours a day.
*3 Use a power cable of 3 meters or shorter.

Environment Requirements

Item		Description
Operating Temperature		0 - 50℃, airflow 0.7m/s
Storage Temperature		-10 - +60℃
Humidity		10 - 90%RH (No condensation)
Floating Dust Particles		Not to be excessive
Corrosive Gases		None
Line-Noise Resistance	Line Noise	AC Line /±2kV *4, 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 0.15mm, 57 - 150Hz/2.0G 40minutes each in X, Y, and Z directions (JIS C60068-2-6-compliant, IEC60068-2-6-compliant)
Shock 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), UKCA, UL/c-UL, CCC *5

*4 It is when the product is used with AC adapter PWA-90AWD1.
*5 The Base models are excluded from CCC.
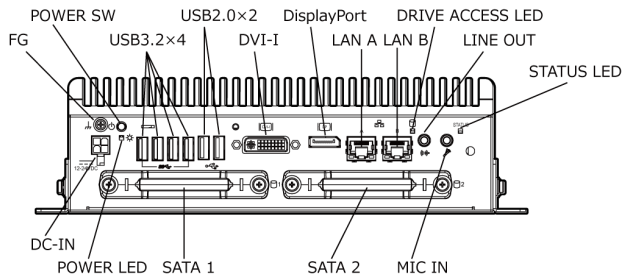
Physical Dimension

[mm]

Optional Products

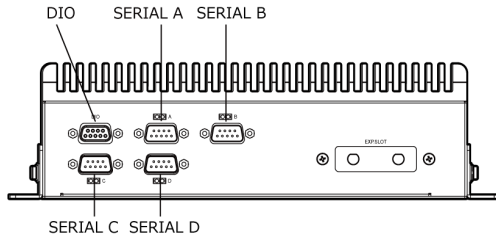| Item	Model	Description
SSD (MLC)	SSD-32GS-2MP	2.5-inch SATA SSD 32GB
	SSD-64GS-2M	2.5-inch SATA SSD 64GB
	SSD-128GS-2MP	2.5-inch SATA SSD 128GB
	SSD-256GS-2MP	2.5-inch SATA SSD 256GB
SSD (TLC)	SSD-128GS-2TP	2.5-inch SATA SSD 128GB
	SSD-256GS-2TP	2.5-inch SATA SSD 256GB
	SSD-512GS-2TP	2.5-inch SATA SSD 512GB
	SSD-1TS-2TP	2.5-inch SATA SSD 1TB
AC adapter	PWA-90AWD1	Switching AC adapter 12VDC 7.5A

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

Nomenclature Of Product Components

Front

POWER SW   USB2.0×2   DisplayPort   DRIVE ACCESS LED
FG   USB3.2×4   DVI-I   LAN A LAN B   LINE OUT
STATUS LED
DC-IN
POWER LED   SATA 1   SATA 2   MIC IN

Rear

DIO   SERIAL A   SERIAL B
EXP.SLOT
SERIAL C SERIAL D

Name	Function
DC-IN	DC power connector
POWER SW	PC Power switch
POWER LED	Power ON display LED
DRIVE ACCESS LED	Drive access display LED
STATUS LED	Status LED
LINE OUT	Line out (3.5φ PHONE JACK)
MIC IN	Mic in (3.5φ PHONE JACK)
LAN A	Ethernet 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector
LAN B	Ethernet 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector
USB 3.2	USB 3.2 Gen2 port connector x4
USB 2.0	USB 2.0 port connector x2
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)
SERIAL C	Serial port C connector (9-pin D-SUB male) (RS-232C)
SERIAL D	Serial port D connector (9-pin D-SUB male) (RS-232C)
DIO	GPIO port connector (9-pin D-SUB female)
DVI-I	Display (29-pin female)
DisplayPort	Display (20-pin female)
SATA1	2.5-inch HDD/SSD slot
SATA2	2.5-inch HDD/SSD slot

Product Lineup

Model	CPU	Memory	OS	Storage device
BX-M2500-J804NA	Xeon E-2278GEL processor	8GB ECC available	None	None
BX-M2500-J804M05W19				SSD(MLC) 64GB
BX-M2500-J805L08W19		16GB ECC available	Windows 10 IoT Enterprise 2019 LTSC	SSD(TLC) 256GB
BX-M2500-J805L09W19				SSD(TLC) 512GB
BX-M2500-J805L07L08W19B			Windows 10 IoT Enterprise 2019 LTSC (Trellix available)	SSD(TLC) 128GB, SSD(TLC) 256GB
BX-M2500-J404NA	Core i3 9100TE processor	8GB ECC available	None	None
BX-M2500-J404M05W19			Windows 10 IoT Enterprise 2019 LTSC	SSD(MLC) 64GB
BX-M2500-J204NA	Celeron G4900T processor		None	None
BX-M2500-J204M05W19			Windows 10 IoT Enterprise 2019 LTSC	SSD(MLC) 64GB
BX-M2500-J504NA	Core i5 9500TE processor	8GB without ECC	None	None
BX-M2500-J504M05W19			Windows 10 IoT Enterprise 2019 LTSC	SSD(MLC) 64GB