

## BOX-PC Wide Temperature, Atom E3845, Fanless BX-830 Series



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

### Features

#### Contributing to reduction of running cost and promotion of energy efficiency

It adopts the low-power platform with Intel Atom Processor E3845 that realizes lower power consumption while ensuring sufficient performance.

#### Supports a wide range of temperatures with operations guaranteed from -40 to 70°C\*1

Stable operations of this product are possible over a wide range of temperatures from -40 to 70°C.

\*1 This specification applies when forced air cooling is used. Derating may be necessary depending on the usage environment.

#### Slitless/fanless design that reduces maintenance work

This product's spindleless design eliminates the heat dissipating slit and CPU fan and adopts CFast card for the storage. There is no need to worry about the intrusion of dust or foreign objects, and the use of parts that degrade over time is minimized to facilitate maintenance.

#### Remote power management function to reduce operation tasks

Supports system startup by external device over network (Wake-on-LAN) and by modem reception (power on by ring). It encourages significant labor saving in operation.

#### Supports railway standards

This product conforms to railway standard EN50155 (Class TX)\*2 and fire safety standard EN45545-2. This ensures that the product can operate safely in harsh environments such as railroad vehicles.

\*2 Type testing has been performed.

#### Falling-off prevention tools and fixing clamps provided to avoid trouble caused by disconnected cable

This product stays trouble-free, being equipped with USB removal prevention fitting and cable clamp for connectors with no locking mechanism, such as USB cable, and with hardware to properly mount and avoid falling out of CFast card.

#### A wide range of power supplies (10.8 - 33.6VDC) supported

As the product supports a wide range of power (10.8 - 33.6VDC), it can be used in a variety of power environments. The separately available AC adapter adds support for 100VAC power.

This product is a fanless computer for embedded applications. It features an Intel Atom processor E3845 chipset. Even though it has a slitless case, it supports a wide range of temperatures from -40 to 70°C and can be operated stably under harsh operating conditions.

Thanks to its Quad-Core CPU, it can perform stable, high-speed processing of four applications at the same time (one application is processed by each core). The Quad-Core CPU also greatly reduces power consumption, with power efficiency improved to at least twice that of the previous generation's architecture.

It has extension interfaces such as DVI-I, Display Port, 1000BASE-T, USB 3.0, and serial. It employs a CFast card for storage and is fanless to ensure a totally spindleless design that simplifies maintenance. Embedded-type CPU have been adopted. The use of readily available parts ensures the ease of the use of the product. In addition, the use of 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 October, 2022.

#### Safety design required for embedded applications

For Windows Embedded Standard installed model or Windows 10 IoT Enterprise LTSB 2016 installed model, it is possible to use the WF\*3 function of OS. It is designed for safety required for embedding purpose, for example, prohibiting unwanted writing to the CF card with EWF function will relieve the concern about the writing limits to the CF card and prevent an unintentional system alteration.

\*3 EWF (Enhanced Write Filter) is a function of Windows Embedded Standard. UWF (Unified Write Filter) is a function of Windows 10 IoT Enterprise LTSB 2016. They protect the disk from being actually written by redirecting the writing to RAM.

#### "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 \*4. 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.

\*4 Only the CFast Card 40GB (SLC) model and CFast Card 128GB (TLC) model are compatible with the "Power failure protection system".

#### CONTEC-customized BIOS provides useful utility

Useful utility of BIOS \*5 customized by CONTEC is provided. The "CONTEC Fast Boot" achieves Windows startup in 12 seconds. \*6 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. \*7

\*5 For details, see each setting in the [BIOS Setup] section.

\*6 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.

\*7 Contact your retailer for more information.

### Supported OS

Windows Embedded Standard 7 32bit (Japanese, English, Chinese, Korean)

Windows 10 IoT Enterprise LTSB 2016 64bit (Japanese, English, Chinese, Korean)

### Included Items

Name	BX-830D-DCxxxxx [Base Model] Pcs.	BX-830D-DCxxxxx*1 [OS Preinstal Model] Pcs.
The main body	1	1
The attachment fittings	2	2
CFast card removal prevention fitting	1	1*2
USB removal prevention fitting	1	1
USB / DisplayPort removal prevention damp	1	1
DisplayPort removal prevention fitting	1	1
DVI-analog RGB conversion adapter	1	1
Washer assembled screw (M3 x 6)	3	2
Washer assembled and cross recessed hexagonal bolt (M4 x 10, black)	8	8
Power supply connector	1	1
complete set	Contact	4
Product guide	1	1

\*1 Except for base model.

\*2 It is attached the main body.

\* The User's Guide of this product is offered as the PDF file in our web page. With it, since information such as a setup of hardware, each component function and BIOS setup is indicated, please refer to it if needed.

### Specifications

#### Function specifications

Model	BX-830D-DCxxxxx
CPU	Intel® Atom™ Processor E3845 1.91GHz
BIOS	BIOS (mfd. by AMI)
Memory	BX-830D-DC8xxxx: 8GB, 204pin SO-DIMM socket x 1, PC3-10600(DDR3L 1333) ECC BX-830D-DC7xxxx: 4GB, 204pin SO-DIMM socket x 1, PC3-10600(DDR3L 1333) ECC
Graphic	Intel® HD Graphics (built-in CPU)
System resolution	Analog RGB 640x480, 800x600, 1,024x768, 1,152x864, 1,280x600, 1,280x720, 1,280x768, 1,280x800, 1,280x960, 1,280x1,024, 1,360x768, 1,366x768, 1,400x1,050, 1,440x900, 1,600x900, 1,680x1,050, 1,920x1,080, 1,920x1,200 (16,770,000 colors)
	DVI-D 640x480, 800x600, 1,024x768, 1,152x864, 1,280x600, 1,280x720, 1,280x768, 1,280x800, 1,280x960, 1,280x1,024, 1,360x768, 1,366x768, 1,400x1,050, 1,440x900, 1,600x900, 1,680x1,050, 1,920x1,080 (16,770,000 colors)
	DisplayPort 640x480, 800x600, 1,024x768, 1,152x864, 1,280x600, 1,280x720, 1,280x768, 1,280x800, 1,280x960, 1,280x1,024, 1,360x768, 1,366x768, 1,400x1,050, 1,440x900, 1,600x900, 1,680x1,050, 1,920x1,080, 1,920x1,200 (16,770,000 colors)
CFast card slot	1 slot, CFast CARD Type I x 1 bootable BX-830D-DC73131x: Built-in CFast card slot (SLC) (16GB, 1 partition) *1 BX-830D-DC781724: Built-in CFast card slot (Q-MLC) (32GB, 1 partition) *1 BX-830D-DCx1724: Built-in CFast card slot (SLC) (40GB, 1 partition) *1 BX-830D-DCxD1724: Built-in CFast card slot (TLC) (128GB, 1 partition) *1 Other models: none
LAN *2	Intel I210IT Controller 1000BASE-T/100BASE-TX/10BASE-T 2 port (Wake On LAN support)
USB	USB 3.0 compliant 1 port USB 2.0 compliant 2 port
Serial I/F	RS-232C (general-purpose): 2 port (SERIAL PORTA, B), 9pin D-SUB connector (male), Baud rate: 50 - 115,200bps RS-422/485 (general-purpose) 1 port, Baud rate: 50 - 115,200bps
Watchdog timer	WDT: Software programmable, 1sec - 255sec (Time up allows reset, interrupt, or external output)
General-purpose I/O	Photocoupler insulation inputs/outputs (3 of each) (However, one output can be switched to WDT external output.)
Hardware monitoring	Monitoring CPU temperature, power voltage
RTC/CMOS	Lithium backup battery life: 10 years or more. The real-time clock is accurate within ±3 minutes (at 25°C) per month
Power Management	Power management setup via BIOS, Power On by Ring / Wake On LAN, Supports PC98/PC99 ACPI Power management
Interface	
Display	DVI-I x 1 (29pin DVI-I connector), DisplayPort x1
CFast card slot	1 slot, CFast CARD Type I x 1, bootable BX-830D-DC700000, BX-830D-DC800000: -, BX-830D-DC73131x: Built-in CFast card slot contains a CFast card(SLC), (16GB, 1 partition)*1 BX-830D-DC781724: Built-in CFast card slot contains a CFast card (Q-MLC). (32GB, 1 partition)*1 BX-830D-DCx1724: Built-in CFast card slot contains a CFast card (SLC). (40GB, 1 partition) *1 BX-830D-DCxD1724: Built-in CFast card slot contains a CFast card (TLC). (128GB, 1 partition) *1
LAN *2	2 port (RJ-45 connector)
USB	USB3.0 compliant 1port (TYPE-A connector x1) USB2.0 compliant 2port (TYPE-A connector x2)
RS-232C	2 port (9pin D-SUB connector (male))
RS-422/485/ General-purpose I/O	1 port (15pin D-SUB connector (female))
Power supply	
Rated input voltage	12 - 24VDC *3
Range of input voltage	10.8 - 33.6VDC
Power consumption	12V 2.2A, 24V 1.2A

Model	BX-830D-DCxxxxx
External device power supply capacity	CFast card slot: 3.3V: 0.5A(500mAx1) USB3.0 I/F: +5V: 0.9A (900mAx1) USB2.0 I/F: +5V: 1A (500mAx2)
Physical dimensions (mm)	182 (W) x 118.9(D) x 49.8(H) (No protrusions)
Weight	About 1.3kg (Excluding attachment fittings)

\*1 The capacity of CFast 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 If you use the 1000BASE-T, be careful of the operating temperature.  
For more details on this, refer to chapter3, Installation Requirements.

\*3 Use a power cable shorter than 3m.

#### Installation Environment Requirements

Model	BX-830D-DCxxxxx		
Ambient specifications	Operating temperature *4	-40 - +70°C (With 1000BASE-T: -40 - +65°C), airflow 0.5m/s -40 - +60°C (With 1000BASE-T: -40 - +55°C), no airflow	
	Storage temperature	-40 - 80°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)*5, Signal line / ±1kV (IEC61000-4-4 Level 4, EN61000-4-4 Level 3)
		Static electricity resistance	Contact discharge / ±4kV (IEC61000-4-2 Level 3, EN61000-4-2 Level 2) Atmospheric discharge / ±8kV (IEC61000-4-2 Level 3, EN61000-4-2 Level 3)
	Vibration resistance	Sweep resistance	10 - 57Hz/semi-amplitude 0.375 mm 57 - 500Hz/5.0G 60 min. each in x, y, and z directions (JIS C60068-2-6-compliant, IEC60068-2-6-compliant)
		Impact resistance	100G half-sine shock for 6 ms in x, y, and z directions (JIS C60068-2-27-compliant, IEC60068-2-27-compliant)
	Grounding	Class D grounding, SG-FG / continuity	
Standard	VCCI Class A, FCC Class A, UKCA CE Marking (EMC Directive Class A, RoHS Directive), UKCA, EN45545-2, EN50155 (Class TX) *6 *7		

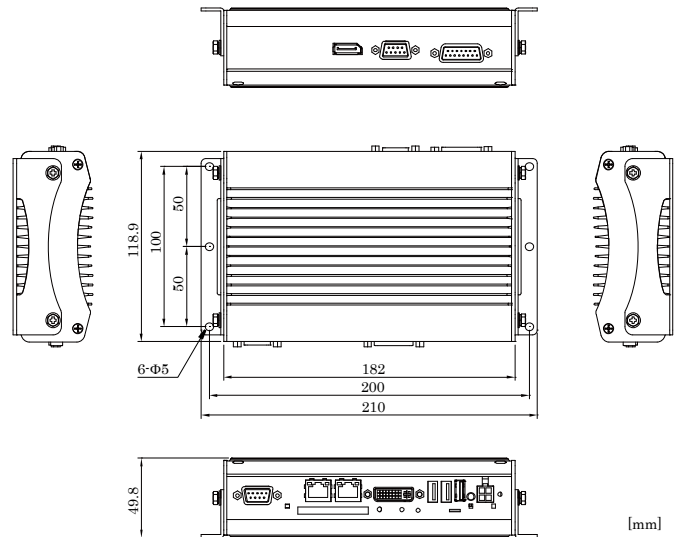
\*4: For more details on this, please refer to chapter 3, "Installation Requirements".

\*5: When AC adapter "ACAP19-01" is used.

\*6: Use USB2.0 cable shorter than 3m.

\*7: The line-noise resistance test, withstand voltage test, and insulation resistance test were performed with the optional AC adapter ACAP19-01 connected. Only the BX-830D conforms to this standard. Prepare a power supply that conforms to EN50155.

#### Physical Dimensions



\*1 When you fasten the bundled attachment fittings to be fixed to the body, you should use the attached screws (M4 x 10). Otherwise, the length (L) from the surface of the cabinet to the screw tip should be 5mm or less.

### Optional Products

AC adapter ACAP19-01	AC adapter (Input:100-240VAC, Output: 19VDC 3.42A)
PWA-90AWD1	AC adapter (Input: 100-240VAC, Output: 12VDC 7.5A)
PWA-65AWD1	AC adapter (Input: 100-240VAC, Output: 12VDC 5.417A)
Power supply unit PWI-60D6D2	Power supply unit (Input: 12-24VDC, Output: 24VDC 2.5A)
CFast Card (SLC) CFS-4GB-A	4GB CFast Card
CFS-8GB-A	8GB CFast Card
CFS-16GB-A	16GB CFast Card
CFast Card (Q-MLC) CFS-32GBQ-B	32GB CFast Card (Higher environmental resistance type)
CFast Card (iSLC) CFS-40GBIP-A	40GB CFast Card (Power Failure Protection Supported type)
CFast Card (TLC) CFS-128GBTP-A	128GB CFast Card (Power Failure Protection Supported type)

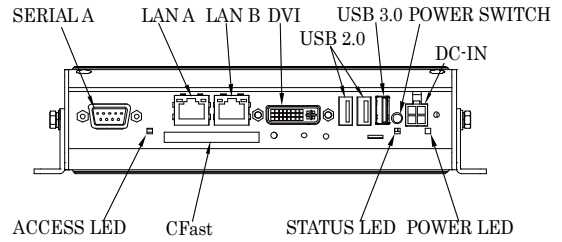
\* Information about the option products, see the Contec's website.

### ⚠ CAUTION

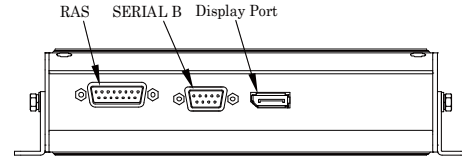
Precautions when using products other than our options  
 - If a product other than our option is used, the normal operation may be impaired or the functions may be limited.

### Component Name

#### Front View



#### Rear View



Name	Function
POWER LED	Power ON display LED
STATUS LED	Status LED
ACCESS LED	CFast disk access display LED
DC-IN	DC power input connector
POWER-SW	Power switch
MIC IN	Mic in (ø3.5 PHONE JACK)
LINE OUT	Line out (ø3.5 PHONE JACK)
DVI-I	Display (29 pin, female)
DisplayPort	Display (20 pin, female)
USB3.0	USB3.0 port TYPE-A connector x 1
USB2.0	USB2.0 port TYPE-A connector x 2
LAN A	Ethernet 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector
LAN B	Ethernet 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector
CFast1	CFast card slot (SATA connection)
SERIAL A	Serial port 1 connector (9pin D-SUB, male)
SERIAL B	Serial port 2 connector (9pin D-SUB, male)
RAS	RAS function and RS-422/485 connector (15 pinD-SUB, female)

### Product Lineup

The product has seven models.

Model	CPU	Memory	CFast	OS
BX-830D-DC700000	Atom Processor E3845 1.91GHz	4GB ECC	None	None
BX-830D-DC731314			SLC 16GB	WES7P
BX-830D-DC781724			Q-MLC 32GB	W10IOTE
BX-830D-DC7C1724			iSLC 40GB	W10IOTE
BX-830D-DC7D1724		TLC 128GB	W10IOTE	
BX-830D-DC800000		8GB ECC	None	None
BX-830D-DC8C1724			iSLC 40GB	W10IOTE
BX-830D-DC8D1724			TLC 128GB	W10IOTE

WES7P: Windows Embedded Standard 7 32bit (Japanese, English, Chinese, Korean)  
 W10IOTE: Windows 10 IoT Enterprise LTSB 2016 64bit (Japanese, English, Chinese, Korean)

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.