

**BOX-PC**  
Fanless, Atom E3845 1.91GHz  
**BX-956S Series**



- \* Specifications, color and design of the products are subject to change without notice.
- \* The contents in this document are subject to change without notice.
- \* Visit the CONTEC website to check the latest details in the document.
- \* Visit the CONTEC website to check the latest OS.
- \* The information in the data sheets is as of July, 2024.

## 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.

### Design that meets the safety standard

This product, as in our other products, is designed to comply with the safety standard of VCCI, FCC, CE, and furthermore, its safety has been certified to meet the UL standard for Europe and the U.S.

### 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), by general purpose input (power on by GPI), and by modem reception (power on by ring). It encourages significant labor saving in operation.

### Major types of peripherals are supported with rich interfaces including the two CFast card slots

It has a variety of extended interface such as DVI-I x 1, 1000BASE-T x 2, USB3.0 x 1, USB2.0 x 5, serial (RS-232C) x 2, DIO x 1.

It has two CFast card 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.

### 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.

### 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\*1 function of OS. It is designed for safety required for embedding purpose, for example, prohibiting unwanted writing to the CFast card with WF

This product is a fanless computer for embedded applications. It features an Intel Atom processor E3845 chipset. Thanks to a quad-core CPU, simultaneous stable high-speed processing for four applications is possible with four cores. This CPU also allows for computing power almost four times that of conventional products in addition to three times the graphics performance, a significant improvement. Moreover, power consumption has been significantly reduced, resulting in nearly double the power efficiency compared with the previous generation's architecture. This "resource-saving PC" helps you design more compact, energy efficient equipment to reduce running costs and promote energy efficiency.

It has extension interfaces such as DVI-I, 1000BASE-T, USB 2.0, USB 3.0, DIO, 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.

function will relieve the concern about the writing limits to the CFast card and prevent an unintentional system alteration.

\*1 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.

### A wide range of power supplies (10.8 - 31.2VDC) supported

As the product supports a wide range of power (10.8 - 31.2VDC), it can be used in a variety of power environments. The separately available AC adapter adds support for 100 - 240VAC power.

### "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 \*2. 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.

\*2 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 \*3 customized by CONTEC is provided. The "CONTEC Fast Boot" achieves Windows startup in less than half the normal time.\*4 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. \*5

\*3 For details, see each setting in the [BIOS Setup] section.

\*4 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.

\*5 Contact your retailer for more information.

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## Specifications

## Function specifications

| Model                                 |            | BX-956SD-DC7xxxxx   | BX-956SD-DC8xxxxx   |
|---------------------------------------|------------|---|---|
| CPU                                   |            | Intel® Atom™ Processor E3845 1.91GHz  |   |
| BIOS                                  |            | BIOS (mfd. by AML)  |   |
| Memory                                |            | 4GB, 204pin SO-DIMM socket x 1, PC3-10600(DDR3L 1333 ECC)   | 8GB, 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)   |   |
| Audio                                 |            | HD Audio compliant, LINE OUT x 1, MIC IN x 1  |   |
| CFast card slot                       |            | 2 slot, CFast CARD Type I x 2 bootable<br>BX-956SD-DC700000:-<br>BX-956SD-DC3xxxx Built-in CFast card slot (SLC) (16GB, 1 partition) *1<br>BX-956SD-DC6xxxx Built-in CFast card slot (MLC) (32GB, 1 partition) *1<br>BX-956SD-DC7xxxx Built-in CFast card slot (Q-MLC) (16GB, 1 partition) *1<br>BX-956SD-DC8xxxx Built-in CFast card slot (Q-MLC) (32GB, 1 partition) *1<br>BX-956SD-DC9Cxxx Built-in CFast card slot (SLC) (40GB, 1 partition) *1<br>BX-956SD-DC9Dxxx Built-in CFast card slot (TLC) (128GB, 1 partition) *1  |   |
| LAN *2                                |            | Intel I210IT Controller<br>100BASE-T/100BASE-TX/10BASE-T 2 port (Wake On LAN support)   |   |
| USB                                   |            | USB 3.0 compliant 1 port<br>USB 2.0 compliant 5 port  |   |
| Serial I/F                            |            | RS-232C (general-purpose) : 2port (SERIAL PORTA, B), 9pin D-SUB connector (male)<br>Baud rate : 50 - 115,200bps   |   |
| General-purpose I/O                   |            | Non-isolated type : I/O 6 channels,<br>Power switch signal  |   |
| Hardware monitoring                   |            | Monitoring CPU temperature, power voltage   |   |
| Watchdog timer                        |            | Software programmable, 255 level(1sec - 255sec)<br>Time up allows reset   |   |
| RTC/CMOS                              |            | Lithium backup battery life: 10 years or more.<br>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,<br>Supports PC98/PC99 ACPI Power management  |   |
| Interface                             |            |   |   |
| Display                               |            | DVI-I x 1 (29pin DVI-I connector)   |   |
| Audio                                 |            | LINE OUT : 3.5p Stereo mini jack, Full-scale output level 1.4Vrms(Typ.)<br>MIC IN : 3.5p Stereo mini jack, Full-scale input level 1.4Vrms(Typ.)   |   |
| CFast card slot                       |            | 2 slot, CFast CARD Type I x 2, bootable<br>BX-956SD-DC700000:- -,<br>BX-956SD-DC3xxxx Built-in CFast card slot contains a CFast card(SLC) .<br>(16GB, 1 partition)*1<br>BX-956SD-DC6xxxx Built-in CFast card slot contains a CFast card(MLC) .<br>(32GB, 1 partition)*1<br>BX-956SD-DC7xxxx Built-in CFast card slot contains a CFast card (Q-MLC) .<br>(16GB, 1 partition)*1<br>BX-956SD-DC8xxxx Built-in CFast card slot contains a CFast card(Q-MLC) .<br>(32GB, 1 partition)*1<br>BX-956SD-DC9Cxxx Built-in CFast card slot contains a CFast card (SLC) .<br>(40GB, 1 partition) *1<br>BX-956SD-DC9Dxxx Built-in CFast card slot contains a CFast card (TLC) .<br>(128GB, 1 partition) *1 |   |
| LAN *2                                |            | 2 port (RJ-45 connector)  |   |
| USB                                   |            | USB3.0 compliant 1port (TYPE-A connector x1)<br>USB2.0 compliant 5port (TYPE-A connector x5)  |   |
| RS-232C                               |            | 2 port (9pin D-SUB connector [male])  |   |
| DIO                                   |            |   |   |
| General-purpose I/O                   |            | 1 port (9pin D-SUB connector [female])  |   |
| Power supply                          |            |   |   |
| Rated input voltage                   |            | 12 - 24VDC *3   |   |
| Range of input voltage                |            | 10.8 - 31.2VDC  |   |
| Power consumption                     |            | 12V 3.4A, 24V 1.8A  |   |
| External device power supply capacity |            | CFast card slot: 3.3V: 1A(500mAx2)<br>USB3.0 I/F: +5V: 0.9A(900mAx1)<br>USB2.0 I/F: +5V: 2.5A(500mAx5)  |   |
| Physical dimensions (mm)              |            | 182 (W) x 115(D) x 29(H) (No protrusions)   |   |
| Weight                                |            | About 1.0kg (Excluding attachment fittings)   |   |

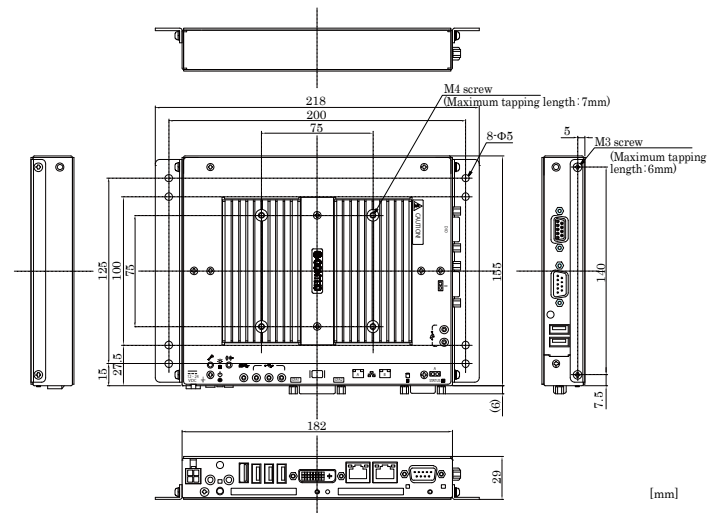
- \*1 The capacity of CFast is a value when 1GB is calculated by 1 billion bytes. The capacity that can be recognized from OS might be displayed fewer than an actual value.
- \*2 If you use the 1000BASE-T, be careful of the operating temperature.  
For more details on this, refer to chapter3, Installation Requirements.
- \*3 Use a power cable shorter than 3m.

## Installation Environment Requirements

| Model                  |                          | BX-956SD-DC7xxxxx  | BX-956SD-DC8xxxxx  |  |
|------------------------|--------------------------|--|--|--|
| Ambient specifications | Operating temperature *4 | 0 - 60°C (With 1000BASE-T: 0 - 55°C), airflow 0.7m/s<br>0 - 50°C (With 1000BASE-T: 0 - 45°C), no airflow |  |  |
|                        | 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 *5,<br>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)<br>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<br>60 min. each in x, y, and z directions<br>(JIS C60068-2-6 compliant, IEC68-2-6 compliant)   |  |
|                        | Impact resistance        |  | 100G, half-sine shock for 6 ms in x, y, and z directions<br>(JIS C0041-compliant, IEC68-2-27-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 *6     |  |  |

- \*4 Derating occurs due to the way of installation. For more details on this, refer to the "Installation Requirements" in User's Manual.
- \*5 When AC adapter "ACAP19-01" is used.
- \*6 The models of BX-956SD-DC700000 and BX-956SD-DC800000 are excluded from CCC.

## Physical Dimensions



- \*1 The length (L) from the tip of M4 boss to the M4 screw tip should be 5mm or less. If not doing so, it may be exactly fixed.

### Supported OS

- Windows Embedded Standard 7 32bit  
(Japanese, English, Chinese, Korean)
- Windows 10 IoT Enterprise LTSC 2016 64bit  
(Japanese, English, Chinese, Korean)

## Optional Products

## AC adapter

ACAP19-01

AC adapter

(Input: 100-240VAC, Output: 19VDC 3.42A)

PWA-65AWD1

AC adapter

(Input: 100-240VAC, Output: 12VDC 5.417A)

PWA-90AWD1

AC adapter

(Input: 100-240VAC, Output: 12VDC 7.5A)

## Power supply unit

PW1-60D6D2

Power supply unit (Input: 12-24VDC.

Output: 24VDC 2.5A)

### Bracket

BX-BKT-VESA02

Bracket for VESA ("75 x 75", "100 x 100")

### CFast Card (SLC)

CFS-4GB-A

4GB CFast Card

|                           |   |
|---------------------------|---|
| CFS-8GB-A                 | 8GB CFast Card  |
| CFS-16GB-A                | 16GB CFast Card   |
| <b>CFast Card (MLC)</b>   |   |
| CFS-32GBM-A               | 32GB CFast Card   |
| <b>CFast Card (Q-MLC)</b> |   |
| CFS-16GBQ-A               | 16GB CFast Card   |
| CFS-32GBQ-B               | 32GB CFast Card<br>(Higher environmental resistance type)     |
| <b>CFast Card (iSLC)</b>  |   |
| CFS-40GBIP-A              | 40GB CFast Card<br>(Power Failure Protection Supported type)  |
| <b>CFast Card (TLC)</b>   |   |
| CFS-128GBTP-A             | 128GB CFast Card<br>(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.
- When you use a power supply unit, use the cranking movement in consumption electricity 24V/1.5A.

## Included Items

|   | BX-956SD-DCx00000<br>[Base Type] | BX-956SD-DCxxxxx *1<br>[OS Pre-install Type] |
|---|----------------------------------|--|
| Name  | Pcs.                             | Pcs.   |
| BOX-PC  | 1                                | 1  |
| The attachment fittings   | 2                                | 2  |
| CFast card removal prevention fitting                               | 1                                | 1 *2   |
| USB removal prevention fitting (angle)                              | 6                                | 6  |
| Washer assembled screw (M3 x 6)                                     | 7                                | 6  |
| Washer assembled screw (M3 x 8, black)                              | 4                                | 4  |
| Washer assembled and cross recessed hexagonal bolt (M4 x 10, black) | 4                                | 4  |
| Cable clamp   | 1                                | 2  |
| Power supply connector  | 1                                | 1  |
| Power connector complete set  | 4                                | 4  |
| DVI-analog RGB conversion adapter                                   | 1                                | 1  |
| Product guide   | 1                                | 1  |

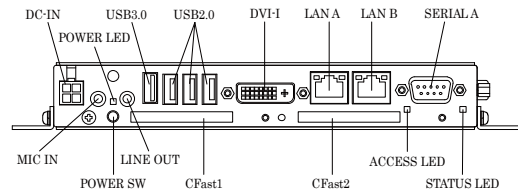
\*1 Except for base type.

\*2 It is attached to the main body.

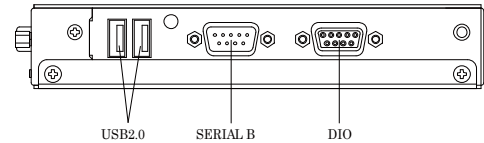
\* The user's manual for this product is available as a PDF file through CONTEC's Web site.  
The user's manual provides such information as hardware settings, functions for each component, and BIOS settings. Refer to it as necessary.

## Component Name

### Front View



### Side 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     | Mike in (ø3.5 PHONE JACK)                               |
| LINE OUT   | Line out (ø3.5 PHONE JACK)                              |
| DVI-I      | Display (29 pin, female)                                |
| USB3.0     | USB3.0 port TYPE-A connector x 1                        |
| USB2.0     | USB2.0 port TYPE-A connector x 5                        |
| 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)                       |
| CFast2     | CFast card slot (SATA connection)                       |
| SERIAL A   | Serial port A connector (9pin D-SUB, male)              |
| SERIAL B   | Serial port B connector (9pin D-SUB, male)              |
| DIO        | General-purpose I/O connector (9 pin D-SUB, female)     |

## Model

| Model             | CPU                             | Memory     | CFast      | OS      |
|-------------------|---------------------------------|------------|------------|---------|
| BX-956SD-DC700000 | Atom Processor<br>E3845 1.91GHz | 4GB<br>ECC | None       | None    |
| BX-956SD-DC800000 |                                 | 8GB<br>ECC |            |         |
| BX-956SD-DC731314 |                                 | 4GB<br>ECC | SLC 16GB   | WES7P   |
| BX-956SD-DC761314 |                                 |            | MLC 32GB   |         |
| BX-956SD-DC771314 |                                 |            | Q-MLC 16GB |         |
| BX-956SD-DC781314 |                                 |            | Q-MLC 32GB | W10IOTE |
| BX-956SD-DC761724 |                                 |            | MLC 32GB   |         |
| BX-956SD-DC781724 |                                 |            | Q-MLC 32GB |         |
| BX-956SD-DC7D1724 |                                 |            | TLC 128GB  |         |
| BX-956SD-DC881724 |                                 | 8GB<br>ECC | Q-MLC 32GB |         |
| BX-956SD-DC8C1724 |                                 |            | iSLC 40GB  |         |
| BX-956SD-DC8D1724 |                                 |            | TLC 128GB  |         |

WES7P: Windows Embedded Standard 7 RUNTIME P 32bit (Japanese, English, Chinese, Korean)

W10IOTE: Windows 10 IoT Enterprise LTSC 2016 64bit (Japanese, English, Chinese, Korean)