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

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.

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

Model	CPU	Memory	CFast	OS
BX-956SD-DC700000	Atom Processor E3845 1.91GHz	4GB ECC	None	None
BX-956SD-DC800000		8GB ECC		
BX-956SD-DC731314		4GB ECC	SLC 16GB	WES7P
BX-956SD-DC761314			MLC 32GB	
BX-956SD-DC771314			Q-MLC 16GB	
BX-956SD-DC781314			Q-MLC 32GB	
BX-956SD-DC761724			MLC 32GB	W10IOTE
BX-956SD-DC781724			Q-MLC 32GB	
BX-956SD-DC881724		8GB ECC		

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

* 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 October, 2020.

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 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.

Packing List

Name		BX-956SD-DCx00000 [Base Model] Pcs.	BX-956SD-DCxxxxxx *1 [OS PreInstall Model] 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 complete set	Power connector	1	1
	Contact	4	4
DVI-analog RGB conversion adapter		1	1
Product guide		1	1
IPC Precaution List		1	1
Warranty Certificate		1	1
Serial number label		1	1
Royalty consent contract (For OS)		- *3	1
Setup Procedure Document		- *3	1
Recovery Media		- *3	1
CFast User's Guide		- *4	1 *4

*1 Except for base model. *2 It is attached to the main body.
*3 Not included in models without OS. *4 Come with Windows 10 install model only
* 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.

Specifications

Function specifications

Model		BX-956SD-DC7xxxxx	BX-956SD-DC8xxxxx
CPU		Intel® Atom™ Processor E3845 1.91GHz	
BIOS		BIOS (mfd. by AMI)	
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	
		BX-956SD-DC700000:- BX-956SD-DCx3xxxx: Built-in CFast card slot (SLC) (16GB, 1 partition) *1 BX-956SD-DCx6xxxx: Built-in CFast card slot (MLC) (32GB, 1 partition) *1 BX-956SD-DCx7xxxx: Built-in CFast card slot (Q-MLC) (16GB, 1 partition) *1 BX-956SD-DCx8xxxx: Built-in CFast card slot (Q-MLC) (32GB, 1 partition) *1	
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 5 port	
Serial I/F		RS-232C (general-purpose) : 2port (SERIAL PORTA, B), 9pin D-SUB connector (male) Baud rate : 50 - 115,200bps	
General-purpose I/O		Non-isolated type : I/O 6 channels, Power switch signal	
Hardware monitoring		Monitoring CPU temperature, power voltage	
Watchdog timer		Software programmable ,255 level(1sec - 255sec) Time up allows reset	
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	

*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.

Model		BX-956SD-DC7xxxxx	BX-956SD-DC8xxxxx
Interface			
	Display	DVI-I x 1 (29pin DVI-I connector)	
	Audio	LINE OUT : 3.5φ Stereo mini jack, Full-scale output level 1.4Vrms(Typ.) MIC IN : 3.5φ Stereo mini jack, Full-scale input level 1.4Vrms(Typ.)	
	CFast card slot	2 slot, CFast CARD Type I x 2, bootable BX-956SD-DC700000 : -, BX-956S D-DCx3xxxx : Built-in CFast card slot contains a CFast card(SLC) . (16GB, 1 partition)*1 BX-956S D-DCx6xxxx : Built-in CFast card slot contains a CFast card(MLC) . (32GB, 1 partition)*1 BX-956S D-DCx7xxxx : Built-in CFast card slot contains a CFast card (Q-MLC) . (16GB, 1 partition)*1 BX-956SD-DCx8xxxx : Built-in CFast card slot contains a CFast card(Q-MLC) . (32GB, 1 partition)*1	
	LAN *2	2 port (RJ-45 connector)	
	USB	USB3.0 compliant 1port (TYPE-A connector x1) 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 [femaie])	
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) USB3.0 I/F : +5V : 0.9A (900mAx1) 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)	

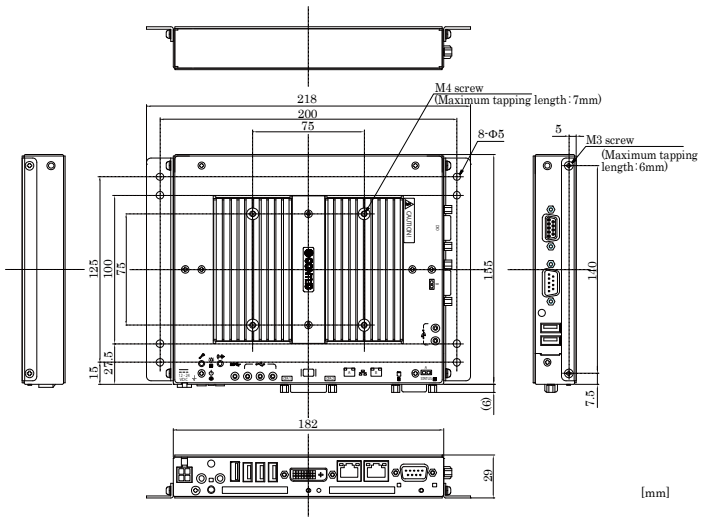
*2 If you use the 1000BASE-T, be careful of the operating temperature.
For more details on this, refer to chapter3, Installation Requirements.
*3 Use a power cable shorter than 3m.

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 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, 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) 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 C60068-2-6compliant, IEC68-2-6-compliant)	
	Impact resistance		100G, half-sine shock for 6 ms in x, y, and z directions (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), 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 LTSB 2016 64bit
(Japanese, English, Chinese, Korean)

List of Options

AC adapter

ACAP19-01	AC adapter (Input: 100-240VAC, Output: 19VDC 3.42A)
IPC-ACAP12-04A	AC adapter (Input: 100-240VAC, Output: 12VDC 4A)
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

PWI-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

CFast Card (MLC)

CFS-32GBM-A	32GB CFast Card

CFast Card (Q-MLC)

CFS-16GBQ-A	16GB CFast Card
CFS-32GBQ-B	32GB CFast Card (Higher environmental resistance type)

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

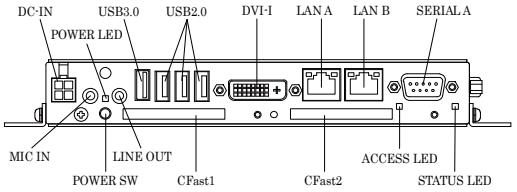
CAUTION

Precautions when using products other than our options

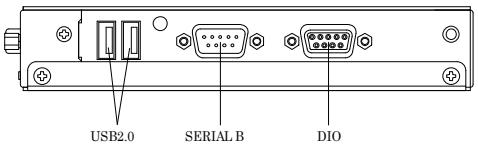
- If a product other than our option is used, the normal operation may be impaired or the functions may be limited.
- When you use a power supply unit, use the cracking movement in consumption electricity 24V/1.5A.

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 (ϕ3.5 PHONE JACK)
LINE OUT	Line out (ϕ3.5 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)