

Intel(R) Fanless, Atom HDD Model BX-100n Series



Model	CPU	Memory	Pre-installed OS (storage device)
BX-100n-DC5000-C01	Intel Atom	1GB	None
BX-100n-DC5121-C01	Processor N270 (1.60GHz)		Windows XP Professional (Japanese version), (40GB SATA HDD)

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

Features

Able to contain HDD that can handle large amounts of data
It can incorporate up to two 2.5-inch SATA HDDs that make it most suitable as a unit embedded into bulk data server. It is also capable of mirroring between two HDDs.

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

In addition to extended interfaces such as 1000BASE-T x 2, USB2.0 x 4, serial (RS-232C x 5, RS-485/422 x 1), it also includes RAS and three units of general-purpose I/O. Two slots available for CF cards.

Serving the downsizing of equipment, a small footprint design for A4-sized or smaller installation area

The product adopts space-saving design for A4-sized or smaller installation area 182(W) x 270(D) x 35(H), permitting placement with opening of only 50mm*1. It largely serves downsizing of your equipment, fits any area with the aestheticness kept. It is also possible to attach to the VESA standard 75 x 75, 100 x 100mm using the optional fittings.

Contributing to reduction of running cost and promotion of energy efficiency

It adopts the low-power platform with Intel (R) Atom(TM) Processor N270 1.60GHz (FSB 533MHz), 945GSE and ICH7M-DH chipset that realizes lower power consumption while ensuring sufficient performance.

Slitless/fanless design that reduces maintenance work

It employs slitless/fanless designing achieved by the elimination of radiating slit and CPU fan. It is free from dusts and foreign objects, and the use of the parts that degrades over the years is avoided in most cases, resulting in drastic alleviation of the maintenance burden.

Remote power management function to reduce operation tasks

This product supports timed/automated system start-up (Resume By Alarm). For example, it enables unattended operation, such as starting to show information of an establishment in unison at opening time. Also, it supports system start-up externally via network (Wake On LAN) and modem (Power On by Ring). It encourages significant labor saving in operation.

This product is a fanless PC for embedded use based on an Atom processor N270 and a 945GSE (GMA950 incorporated) chipset. Operates in less power while ensuring sufficient performance, and permits installation in an A4-sized or smaller footprint with about 50mm in height*1. The "resource-saving PC" contributes downsizing and power-saving of equipment to reduce your running cost and to promote energy efficiency. The model can incorporate up to two 2.5-inch SATA HDDs, which enhances RAS feature. Windows XP Professional installed model that adopts HDD supporting wider temperature range is most suitable as a unit embedded into bulk data server. It is also capable of mirroring with two HDDs. Embedded-type CPU and chip set have been adopted. The use of readily available parts ensures the ease of the use of the product. In addition, the use of a Contec-customized BIOS allows support to be provided at the BIOS level.

*1 installed vertically

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Expandable with PCI boards and/or PCI Express boards

By connecting a PCI Express Cable-based expansion chassis using one cable at extra cost, it can be expanded with up to thirteen expansion board.

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 CF card.



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.

Safety design required for embedded applications

Retention of CMOS data by EEPROM allows the system to start up even when the battery has run out. Additionally, Windows Embedded Standard installed model realizes totally spindleless design with CF card adopted for the storage. It can utilize EWF feature of OS*2 that protects CF card from unnecessary write, i.e. relieves concern about the limitation of number of writes to CF card, and that prevents system from unintentional modification, as a result of consideration for reassurance in designing necessary for the purpose of embedding.

*1 installed vertically

*2 EWF (Enhanced Write Filter) is a function specific to Windows Embedded Standard that protects the disk from being actually written by redirecting the writing to RAM.

Supported OS

Windows XP Professional (BX-100n-DC5121-C01)

Functional Specification

Model	Specification	
CPU	Intel(R) Atom(TM) Processor N270 1.60GHz (FSB533MHz)	
Chip set	Intel(R) 945GSE + ICH7M-DH	
BIOS	BIOS (mfd. by Award)	
Memory	1GB, 200pin SO-DIMM socket x 1, PC2-4300 (DDR2 533) DDR2 SDRAM support	
Video	Controller	Built in Intel 945 GSE
	Video RAM	Main memory shared
	Video BIOS	64KB(C0000H-CFFFFH)
	Display I/F	DVI-I I/F x 1(29 pin connector x 1)
System resolution	DVI	640 x 480, 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 960, 1,280 x 1,024, 1,360 x 768, 1,400 x 1,050, 1,600 x 900, 1,600 x 1,200, 1,856 x 1,392, 1,920 x 1,080, 1,920 x 1,200 (16,770,000 colors)
	Analog RGB	640 x 480, 800 x 600, 1,024 x 768, 1,280 x 768, 1,280 x 1,024, 1,360 x 768, 1,400 x 1,050 (16,770,000 colors)
Audio	AC97 compliant LINE OUT : ϕ 3.5 Stereo mini jack Full-scale output level 1.5Vrms (Typ.), Dual 50mW Amplifier MIC IN : ϕ 3.5 Stereo mini jack Full-scale input level 1.3Vrms (Typ.)	
Serial ATA I/F	2.5 inch SATA hard disk slot-in system x 2, Corresponding to RAID 0,1, serial ATA 1.0 standard port BX-100n-DC5000-C01 : -, BX-100n-DC5121-C01 : HDD1 is finished mounting SATA HDD. (40GB, 1 partition)	
CF card slot	CF CARD Type I x 2 bootable	
Serial I/F	RS-232C (general-purpose) : 5 channels (SERIAL PORT1, 2, 3, 4, 5)9pin D-SUB connector (male) Baud rate : 50 - 115,200bps RS-485/422 (general-purpose) : 1 channel [Inside the RAS Connector]	
LAN	I/F	1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector x 2 (Wake On LAN support)
	Controller	Intel 82573L Controller
USB I/F	4 channels (USB 2.0-compliant)	
Keyboard/mouse I/F	None *1	
General-purpose I/O	Inside the 15-pin D-SUB connector (female) [RAS connector] Optocoupler isolated I/O 3 channels for each (However, when using, you need to switch between the output 1 channel and WDT external device, and between the input 1 channel and remote reset.)	
RAS function	Inside the 15-pin D-SUB connector (female) [RAS connector] WDT: 1sec - 255sec (Reset, interrupt, and external output enabled by time up) Remote reset : Input signal from external part.	
PCI Express cable	PCI Express 1.0a(x1) standard port (18-pin PCI Express External Cabling connector x 1)	
Hardware monitoring	Monitoring CPU temperature, board temperature, power voltage	
Watch dog timer	Software programmable, 255 level (1sec - 255 sec) Causes a reset upon time-out.	
RTC/CMOS	Lithium backup battery life : 10 years or more The real-time clock is accurate within \pm 3 minutes (at 25°C) per month (ICH7 integrated RTC).	
Power Management	Power management setup via BIOS Power On by Ring / Wake On LAN Supports PC98/PC99 ACPI Power management	
Power supply	Rated input voltage	12 - 24VDC *2
	Range of input voltage	10.8 - 31.2VDC
	Power consumption	12V 4.0A (Max.), 24V 1.9A (Max.)
	External device power supply capacity	- CF card slot +3.3V : 1A (500mA x 2) - USB I/F +5V : 2A (500mA x 4)
Physical dimensions (mm)	182 (W) x 270 (D) x 35(H) (No protrusions)	
Weight	Without HDD : About 2.2kg With one slot of HDD : About 2.3kg With two slots of HDD : About 2.4kg	

*1 : Use USB I/F for the keyboard / mouse.

*2 : Use a power cable shorter than 3m.

Installation Environment Requirements

Model	Specification			
	BX-100n-DC5000-C01, BX-100n-DC5121-C01*1			
Ambient specifications	Operating temperature *3	0 - 45°C *5		
	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 / \pm 2kV *4, Signal line / \pm 1kV (IEC61000-4-4 Level 3, EN61000-4-4 Level 3)	
		Static electricity resistance	Contact discharge / \pm 4kV (IEC61000-4-2 Level 2, EN61000-4-2 Level 2) Atmospheric discharge / \pm 8kV (IEC61000-4-2 Level 3, EN61000-4-2 Level 3)	
	Vibration resistance	Sweep resistance	When HDD is on	10 - 50Hz / 0.5G 25 min. each in x, y, and z directions (JIS C60068-2-6-compliant, IEC60068-2-6-compliant)
			When HDD is off	10 - 57Hz / semi-amplitude 0.15 mm 57 - 150Hz/2.0G 40 min. each in x, y, and z directions (JIS C60068-2-6-compliant, IEC60068-2-6-compliant)
	Impact resistance	10G, half-sine shock for 11 ms in x, y, and z directions (JIS C60068-2-27-compliant, IEC60068-2-27-compliant)		
Grounding	Class D grounding (previous class 3 grounding), SG-FG / continuity			

*3 For more details on page 4, please refer to "Installation Requirements".

*4 When AC/DC power unit "LDA100W-24-SN, LDA100W-12-SN" (by Cosel) is used.

*5 To use 1000BASE-T, you should keep its ambient temperature between 0 - 40°C.

List of Options

AC adapter

IPC-ACAP12-04 *1 AC adapter (Input: 100-240VAC, Output: 12VDC 4A)

*1 The model whom can be installed in the main body by using a fixed bracket of the AC adaptor attachment is only a model equipped with multi signal I/O.

Bracket

BX-BKT-VESA02 Bracket for VESA("75 x 75", "100 x 100")

CF Card

CF-1GB-A 1GB CompactFlash for Fix Disk
CF-2GB-A 2GB CompactFlash for Fix Disk
CF-4GB-A 4GB CompactFlash for Fix Disk
CF-8GB-A 8GB CompactFlash for Fix Disk

TFT color liquid-crystal display

< LVDS&DVI input type >

FPD-H71XT-DC1 *2 (15inch 1024 x 768 dots,
Panel mounted type)

FPD-L71ST-DC1 *2 (12.1inch 800 x 600 dots,
Panel mounted type)

FPD-S71VT-DC1 *2 (6.4 inch 640 x 480 dots,
Panel mounted type)

FPD-H75XT-DC1 *2 (15inch 1024 x 768 dots, Embedded type)

FPD-L75ST-DC1 *2 (12.1inch 800 x 600 dots, Embedded type)

FPD-M75VT-DC1 *2 (10.4inch 640 x 480 dots, Embedded type)

*2 Please purchase the optional connection cable [IPC-DVI/D-020, IPC-DVI/D-050].

<Analog RGB types>

FPD-H21XT-AC (15 inch 1024 x 768 dots, Panel mounted type)

FPD-L21ST-AC (12.1 inch 800 x 600 dots, Panel mounted type)

FPD-M21VT-AC (10.4 inch 640 x 480 dots, Panel mounted type)

Display cable only for DVI input

IPC-DVI/D-020 DVI-D Cable (2m)

IPC-DVI/D-050 DVI-D Cable (5m)

Cable for Cable Express *3

CB-CE-1 Cable Express Cable (1m)

CB-CE-3 Cable Express Cable (3m)

*3 This cable is for connecting to the CONTEC's expansion chassis of PCI Express Cable modes. The following enhancing chassis can be connected.

ECH-PCI-CE-H2B, ECH-PCI-CE-F2B, ECH-PCI-CE-H4B, ECH-PCI-CE-F4B,
ECH-PCI-CE-H4A, ECH-PCI-CE-H7A, ECH-PCI-CE-H13A, ECH-PE-CE-H2B,
ECH-PE-CE-F2B

Packing List

Name	BX-100n-DC5000-C01	BX-100n-DC5121-C01
	Pcs.	Pcs.
BOX-PC	1	1
The attachment fittings	2	2
CF card removal prevention fitting	1	1
USB removal prevention fitting (base)	1	1
USB removal prevention fitting (angle)	4	4
Washer assembled screw (M3 x 6)	4	4
Washer assembled screw (M3 x 8, black)	6	6
Washer assembled and cross recessed hexagonal bolt (M4 x 10, black)	4	4
Power supply connector complete set		
Power connector	1	1
Contact	4	4
Cable clamp	2	2
DVI-analog RGB conversion adapter	1	1
Product guide	1	1
IPC Precaution List	1	1
Royalty consent contract	None	1
Setup Procedure Document	None	1
Recovery Media *1	None	1
HDD/SDD exchange seal	2	1
HDD/SDD protection seal	4	2

*1 It is attached to the main body.

Component Life

(1) Battery

The internal calendar clock and CMOS RAM are backed by a Lithium primary battery. The backup time at a temperature of 25°C with the power disconnected is 10 years or more.

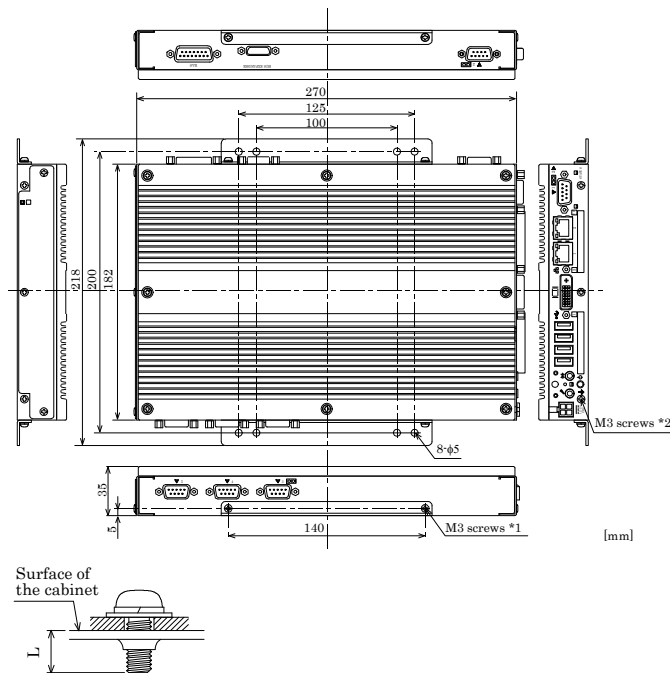
(2) HDD

OS-installed model (BX-100n-DC5121-C01) uses HDD for the OS storage area.

Estimated failure rates: 300,000 hours MTBF

* Replacement of expendables is handled as a repair (there will be a charge).

Physical Dimensions

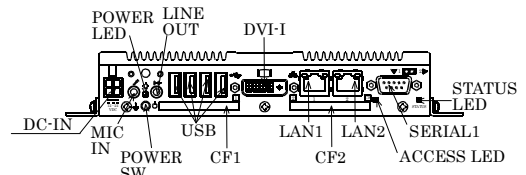


*1: When you fasten the bundled attachment fittings to be fixed to the body, you should use the attached screws (M3 x 8). Otherwise, the length (L) from the surface of the cabinet to the screw tip should be 6mm or less.

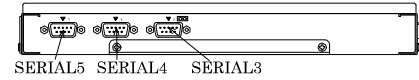
*2: The length (L) from the surface of the cabinet to the screw tip should be 6mm or less.

Component Locations

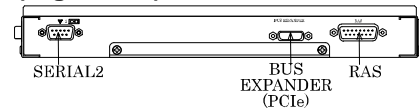
Front View



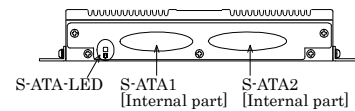
Side View (Left side)



Side View (Right side)

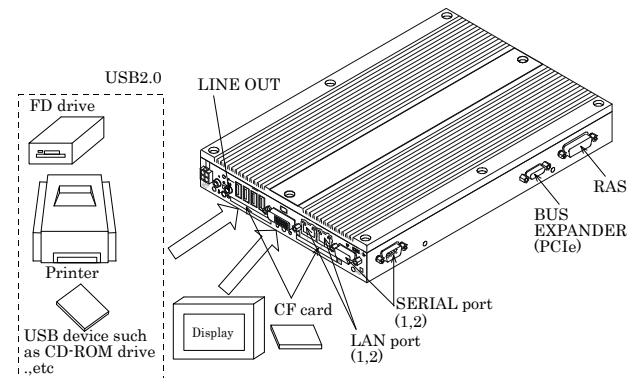


Back View



Name	Function
POWER-SW	Power switch
POWER LED	Power ON display LED
ACCESS LED	IDE disk access display LED
STATUS LED	Status LED
S-ATA LED	S-ATA disk access display LED
DC-IN	DC power input connector
LINE OUT	Line out (φ3.5 PHONE JACK)
MIC IN	Mike in (φ3.5 PHONE JACK)
LAN1	Ethernet 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector
LAN2	Ethernet 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector
USB	USB port connector x 4
SERIAL1	Serial port 1 connector (9pin D-SUB/male)
SERIAL2	Serial port 2 connector (9pin D-SUB/male)
SERIAL3	Serial port 3 connector (9pin D-SUB/male)
SERIAL4	Serial port 4 connector (9pin D-SUB/male)
SERIAL5	Serial port 5 connector (9pin D-SUB/male)
DVI-I	Display (29pin female)
CF1	CF card slot (IDE connection mastering)
CF2	CF card slot (IDE connection slaving)
S-ATA1	HDD slot (Serial-ATA)
S-ATA2	HDD slot (Serial-ATA)
RAS	RAS function or RS-485 connector (15pin D-SUB/female)
BUS EXPANDER (PCIe)	PCI Express Cable connector (18pin PCI Express External Cabling/female)

System Configuration



Installation Requirements

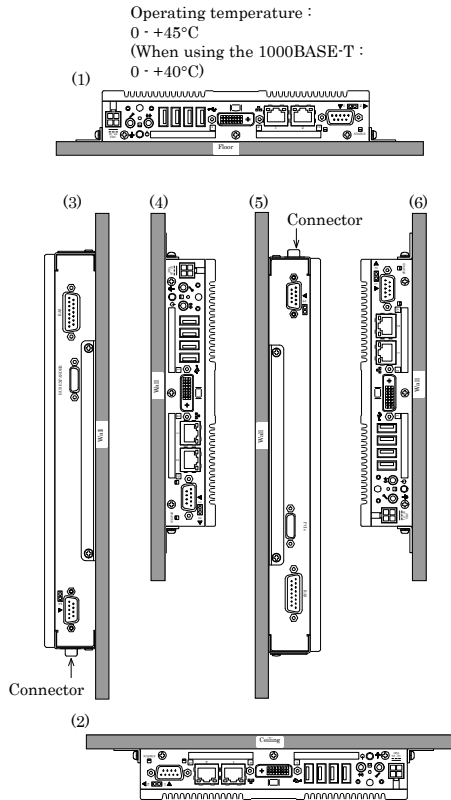
Be sure that the ambient temperature is within the range specified in the installation environment requirement by making space between the product and device that generates heat or exhaust air.

Installable directions at operating temperature 0 - +45°C
: All type of installation (including diagonal installation)

⚠ CAUTION

To use 1000BASE-T, you should keep its ambient temperature between 0 - 40°C

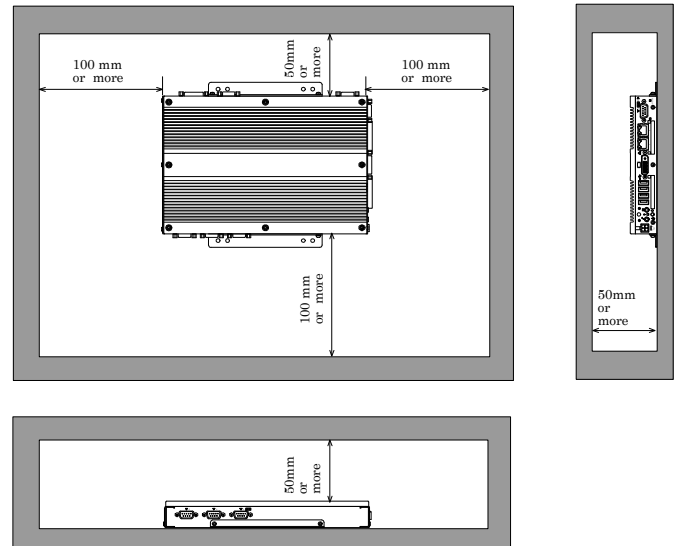
Installation Orientation



⚠ CAUTION

Note that even though the ambient temperature is within the specified range, an operational malfunction may occur if there is other device generating high heat; the radiation will influence the product to increase its temperature.

Distances between this product and its vicinity



⚠ CAUTION

Do not install this product into the fully-sealed space except the case in which the internal temperature is adjustable by equipment such as air conditioner. Troubles such as operational malfunctions could be occurred by the temperature increase caused by long-term usage.