Fanless, Atom DVI Model

IPC-BX955 Series

RoHS Compliant

Model	CPU	Pre-installed OS (storage device)
IPC-BX955D-DC500	Atom N270 (1.60GHz)	-
IPC-BX955D-DC556		Windows Embedded Standard (Japanese version), (CF 2GB)

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

This product is a fanless PC for embedded use based on an Atom processor N270 and a 945GSE (GMA950 incorporated) chipset.   It has sufficient performance with low power consumption, as well as small footprint of about A5-size and low height which allows installation in a space of 50mm thick. The "resource-saving PC" contributes downsizing and power-saving of equipment to reduce your running cost and to promote energy efficiency.
With DVI interface capable of screen display of 1,920 x 1,080 pixels (full HD), it is most suitable for content delivery by large-sized LCD TV.   It has extended interfaces such as 1000BASE-T, USB2.0, and serial.   It adopts CF card for the storage and is fanless, which demonstrate the totally spindleless design that simplifies the maintenance. 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.

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Features

Most suitable for digital signage
This product incorporates DVI interface capable of screen display of 1,920 x 1,080 pixels (full HD), which is best suited to the purposes of digital signage with high definition large-sized LCD TV, intelligent poster, and image displaying to show information of an establishment or something.

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.

Serving the downsizing of equipment, a small footprint design for A5-sized installation area
This product adopts space-saving design of 182(W) x 155(D) x 35(H), permitting placement in the smaller, A5-sized space with opening of only 50mm.   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.

Slitless/fanless design that reduces maintenance work
This product's spindleless design eliminates the heat dissipating slit and CPU fan and adopts CF card for the storage. It is free from dusts and foreign objects, and the use the parts that degrades over the years is avoided in most case, 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.

Major types of peripherals are supported with rich interfaces including the two CF card slots
It has a variety of extended interface such as 1000BASE-T x 2, USB2.0 x 4, serial (RS-232C) x 2.
It has 2 CF card slots that can use for OS and data.   They are very useful because you can use one slot for system start-up and the other for maintenance, system log, or taking away the 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 CF card.

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.   For Windows Embedded Standard installed model, it is possible to use the EWF*1 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.

*1   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.

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 100VAC power.

Supported OS

Windows Embedded Standard

Functional Specification

Model	IPC-BX955D-DC500, IPC-BX955D-DC556	
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 : φ3.5 Stereo mini jack Full-scale output level 1.5Vrms (Typ.), Dual 50mW Amplifier MIC IN : φ3.5 Stereo mini jack Full-scale input level 1.3Vrms (Typ.)	
CF card slot	CF CARD Type I x 2 bootable IPC-BX955D-DC500 : -, IPC-BX955D-DC556 : CF1 is finished mounting CF (2GB, 1 partition) *1	
Serial I/F	RS-232C (general-purpose) : 2channels (SERIAL PORT1, 2) 9pin D-SUB connector (male) Baud rate : 50 - 115,200bps	
LAN *2	I/F	1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector x 2 (Wake On LAN support)
	Controller	Intel 82573L Controller
USB I/F	4channels (USB 2.0-compliant)	
Keyboard/mouse I/F	None *3	
General-purpose I/O	None	
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 ±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 *4
	Range of input voltage	10.8 - 31.2VDC
	Power consumption	12V 3.3A (Max.), 24V 1.7A (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 155(D) x 35(H) (No protrusions)	
Weight	About 1.4kg	

*1 The capacity of CF 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.
*3 Use USB I/F for the keyboard/mouse.
*4 Use a power cable shorter than 3m.

Installation Environment Requirements

Model		IPC-BX955D-DC500, IPC-BX955D-DC556	
Ambient specifications	Operating temperature *5	(1) Horizontal installation : 0 - 50°C (2) Vertical installation other than above : 0 - 45°C	
	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 *6, 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 C0040-compliant, 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 (previous class 3 grounding), SG-FG / continuity

*5 For more details on this, please refer to "Installation Requirements".

*6 When AC adapter "IPC-ACAP12-04" is used.

List of Options

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

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 *1 (15inch 1024 x 768 dots, Panel mounted type)
FPD-L71ST-DC1 *1 (12.1inch 800 x 600 dots, Panel mounted type)
FPD-S71VT-DC1 *1 (6.4 inch 640 x 480 dots, Panel mounted type)
FPD-H75XT-DC1 *1 (15inch 1024 x 768 dots, Embedded type)
FPD-L75ST-DC1 *1 (12.1inch 800 x 600 dots, Embedded type)
FPD-M75VT-DC1 *1 (10.4inch 640 x 480 dots, Embedded type)
*1   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)

Packing List

Name	IPC-BX955D-DC500 Pcs.	IPC-BX955D-DC556 Pcs.
BOX-PC	1	1
The attachment fittings	2	2
CF card removal prevention fitting	1	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
Notes on using Windows Embedded Standard	None	1
Recovery Media *2	None	1

*1 It is attached to the main body.
*2 Please confirm latest information on the CONTEC homepage though the user's manual is stored in Recovery Media.

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.
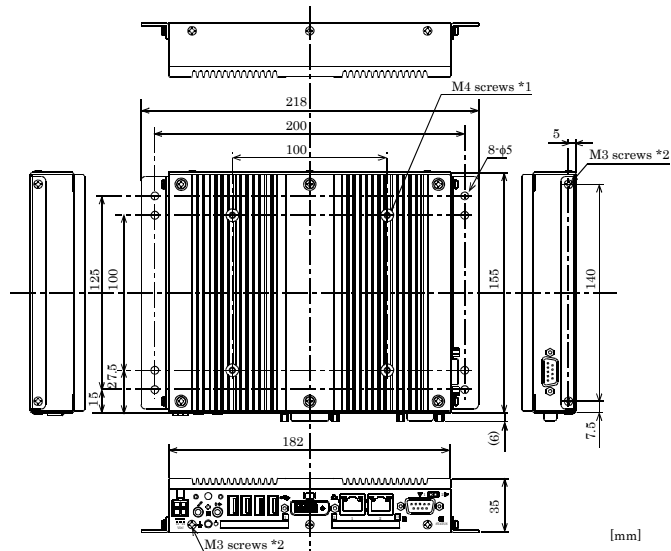
(2) CF
 The OS-installed model uses a CF card in the OS storage area.
 Estimated failure rates: 100,000 rewrite cycles, 1,000,000 hours MTBF

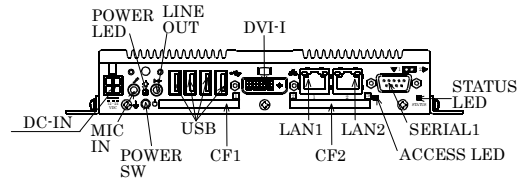* Replacement of expendables is handled as a repair (there will be a charge).
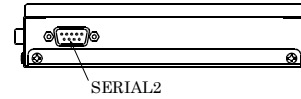
Physical Dimensions

IPC-BX955D-DC5xx


[mm]

Component Locations

Front View

Side View

Name	Function
POWER-SW	Power switch
POWER LED	Power ON display LED
ACCESS LED	IDE disk access display LED
STATUS LED	Status 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)
DVI-I	Display (29pin female)
CF1	CF card slot (IDE connection mastering)
CF2	CF card slot (IDE connection slaving)

System Configuration

IPC-BX955D-DC5xx
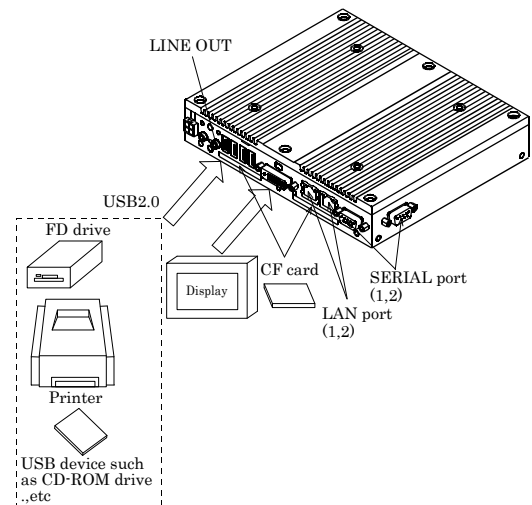
Installation Requirements

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.

IPC-BX955D-DC5xx

Installable directions at operating temperature 0 - +50°C
: (1), (2) Horizontal installation

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

When using 1000BASE-T

Installable directions at operating temperature 0 - +45°C
: (1), (2) Horizontal installation

Installable directions at operating temperature 0 - +40°C
: All type of installation other than above (including diagonal installation)

Installation Orientation

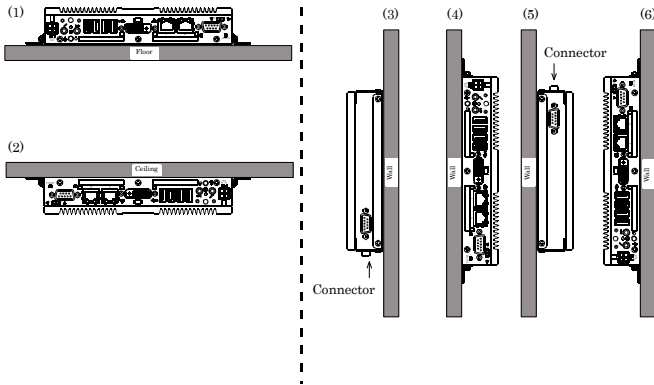Operating temperature :
0 - +50°C
(When using the 1000BASE-T :
0 - +45°C)

Operating temperature :
0 - +45°C
(When using the 1000BASE-T :
0 - +40°C)

⚠ 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.

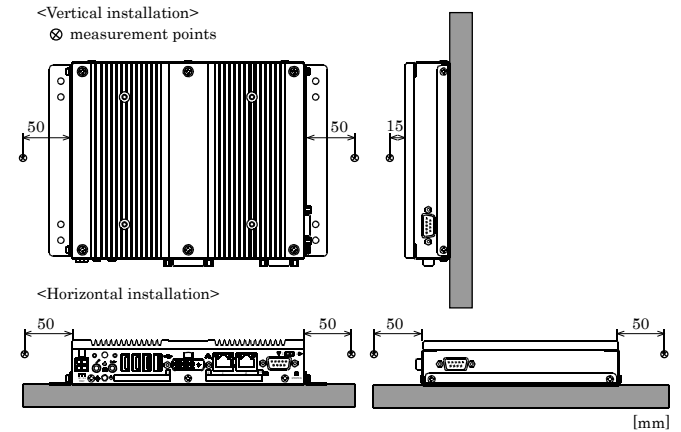### Distances between this product and its vicinity

⚠ 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.

Ambient temperature

In this product, the operating temperature is decided from the multiple measurement points as shown below. When making use of the product, the air current should be adjusted to prevent that all the temperatures measured at the measurement points exceed the specified temperature.