Fanless, Ultra Low Voltage Core Duo

IPC-BX950T1

Model	CPU	Memory	OS (storage device)
IPC-BX950T1-DC500	Ultra Low Voltage Core Duo Processor 1.20GHz	1GB	-
IPC-BX950T1-DC55F			Windows XP Embedded (CF 2GB)

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

This product is a fan-less embedded computer (BOX-PC (R)) packaged in a slim chassis of 25mm.
IPC-BX950T1 series, which have the 1.20GHz ultra low voltage Intel (R) Core (TM) Duo processor, 945GME chip set, and 1GB DDR2 SDRAM memory, achieve a high-level computing and drawing ability.
Adopting air-cooling system using a large heat sink (fan-less) and CF card as its storage device (bootable), this product achieves high levels of reliability and quietness.   It also includes a variety of extended interface such as 1000BASE-T, USB2.0, or serial.
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

The 25mm thick of slim chassis [256(W) x 183(D) x 25(H)] that can be installed to a 35mm-wide space

A high performance embedded computer packaged in 25mm slim chassis [256(W) x 183(D) x 25(H)] that can be installed anywhere you want.   It can be installed to a 35mm-wide space between walls, inside of the wall, or on the back of LCD display using the provided attachment fittings.   (It is also possible to attach to the VESA standard 75 x 75, 100 x 100, 200 x 100, 200 x 200, 400 x 200mm using the optional fittings.)

Adoption of 945GME Chipset to allow the mounting of Intel Core Duo processor

Adopting the Intel (R) 945GME, ICH7M-DH chip set, IPC-BX950T1 series achieve a high-level computing and drawing ability by using the 1.20GHz (FSB 533MHz) ultra low voltage Intel (R) Core (TM) Duo processor.   This product is ideal for the content delivery through the large display.   It also has 1GB memory.

The extended interface such as Dual LAN, USB2.0, or Serial

It has a variety of extended interface such as 1000BASE-T x 2, USB2.0 x 4, serial (RS-232C) x 2.
It has two 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.   It also has a LVDS interface as well as a general-purpose analog RGB to display in double screens.

Safety design required for embedded applications

Unnecessary trouble can be avoided by the use of clamps for prevention of cable disconnection and the use of metal fittings for prevention of CF card disconnection.   Retention of CMOS data by EEPROM allows the system to start up even when the battery has run out.   For Windows XP Embedded 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 XP Embedded that protects the disk from being actually written by redirecting the writing to RAM.

The adoption of a fan-less, CF card configuration providing high levels of reliability and quietness

It achieves the air-cooling system (fan-less) by using a large heat sink.   It also achieves a high-level reliability and quietness by adopting CF card (bootable) as its storage device.

A wide range of power supplies (12 - 24VDC) supported

As the product supports a wide range of power (12 - 24VDC), it can be used in a variety of power environments.

Supported OS

Windows XP Embedded

Packing List

Name	IPC-BX950T1-DC500 Pcs.	IPC-BX950T1-DC55F Pcs.
BOX-PC	1	1
The attachment fittings	2	2
CF attachment fittings 1	2	1
CF attachment fittings 2	1	1
Screws for attachment fittings Three-point sems screw (M3 x 8)	6	5
Power supply connector complete set		
Power connector	1	1
Contact	4	4
Cable clamp	1	1
Product guide (this sheet)	1	1
IPC Precaution List	1	1
Royalty consent contract	None	1
Setup Procedure Document	None	1
Notes on using Windows XP Embedded	None	1
IPC-SLIB-01 *1 (User's manual, Driver & Utility Soft Set)	1	1
Recovery Media	None	1

*1   Please confirm latest information on the CONTEC homepage though the user's manual is stored in IPC-SLIB-01.

Functional Specification

Model		Specification
CPU		Ultra Low Voltage Intel(R) Core(TM) Duo Processor 1.20GHz (FSB533MHz)
Chip set		Intel(R) 945GME + 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 945GME
	Video RAM	Main memory shared
	Video BIOS	64KB(C0000H-CFFFFH)
	Display I/F	Analog RGB I/F x 1 (15pin HD-SUB connector x 1) LVDS I/F x 1(26pin half pitch connector x 1)
System resolution	Analog RGB	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, 1,400 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, 1,920 x 1,440, 2,048 x 1,536 (16,770,000 colors)
	LVDS	640 x 480, 800 x 600, 1,024 x 768 (260,000 colors)
Audio		AC97 compliant LINE OUT: φ3.5 Stereo mini jack Full-scale output level 1.5Vrms (Typ.), Dual 50mW Amplifier
CF card slot		CF CARD Type I x 2 bootable
		IPC-BX950T1-DC500 : -, IPC-BX950T1-DC55F : CF1 is finished mounting CF (2GB, one partition) *1
Serial I/F		RS-232C (general-purpose) : 2ch (SERIAL PORT1, 2) 9pin D-SUB connector (male) Baud rate : 50 - 115,200bps For touch panel communication : 1ch (SERIAL PORT3) in LVDS 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		4ch (USB 2.0-compliant)
Keyboard/mouse I/F		None *2
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 Modem Ring On/Wake One LAN Supports PC98/PC99 ACPI Power management
Power supply	Input supply voltage	12 - 24VDC±5% *3
	Current consumption	12V 3.4A (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)		256(W) x 183(D) x 25(H) (No protrusions)
Weight		About 1.3kg

*1 The capacity of CF is a value when 1GB is calculated by one billion bytes.   The capacity that can be recognized from OS might be displayed fewer than an actual value.
*2 Use USB I/F for the keyboard/mouse.
*3 Use a power cable shorter than 3m.

Functional Specification

Model			Specification
Ambient specifications	Operating temperature *5		(1) Vertical installation (power connector is downside) : 0 - 50°C (2) Vertical and horizontal 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 0.15mm 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

*5 For more details on this, please refer to page 3, "Installation Requirements".
*6 When AC/DC power unit "LDA100W-24-SN, LDA100W-12-SN" (by Cosel) is used.

List of Options

CF Card
CF-1GB-A	1GB Compact Flash for Fix Disk
CF-2GB-A	2GB Compact Flash for Fix Disk
CF-4GB-A	4GB Compact Flash for Fix Disk
CF-8GB-A	8GB Compact Flash for Fix Disk

AC adapter
IPC-ACAP12-03   AC adapter
(Input: 100-240VAC, Output: 12VDC 4A)

Bracket
BX-BKT-VESA01   Bracket for VESA
("75 x 75" - "400 x 200")

TFT color liquid-crystal display
<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)

< 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
(6.4inch 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)

*   Please purchase the optional connection cable [FPD-26M26M-005, FPD-26M26M-020, FPD-26M26M-050].
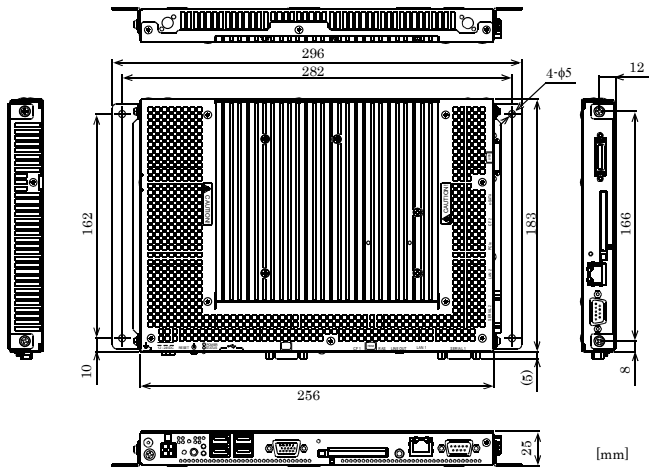
Display cable only for LVDS
FPD-26M26M-005	LVDS Cable (0.5m)
FPD-26M26M-020	LVDS Cable (2m)
FPD-26M26M-050	LVDS Cable (5m)

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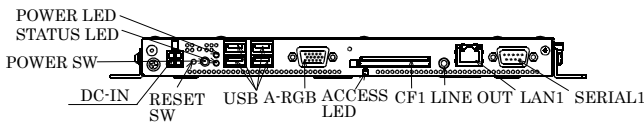
*   Replacement of expendables is handled as a repair (there will be a charge).
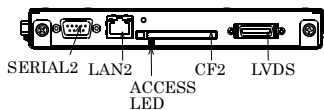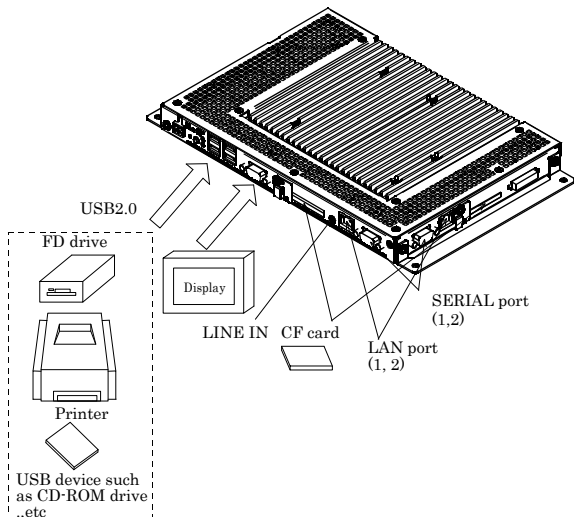
Physical Dimensions

296
282
4-φ5
12
162
183
166
10
(5)
256
2.5
[mm]

Component Name

Front View

POWER LED
STATUS LED
POWER SW
DC-IN
RESET SW
USB A-RGB
ACCESS LED
CF1 LINE OUT LAN1 SERIAL1

Side View

SERIAL2 LAN2
ACCESS LED
CF2 LVDS

Name	Function
POWER-SW	Power switch
RESET SW	Hardware reset 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)
LAN1	Ethernet 1000BASE-TX/100BASE-T/10BASE-T RJ-45 connector
LAN2	Ethernet 1000BASE-TX/100BASE-T/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)
A-RGB	Display (15pin D-SUB/female)
LVDS	LVDS (26pin half pitch connector)
CF1	CF card slot (IDE connection mastering)
CF2	CF card slot (IDE connection slaving)

System Configuration

USB2.0
FD drive
Display
Printer
USB device such as CD-ROM drive ,etc
LINE IN CF card
LAN port (1, 2)
SERIAL port (1,2)

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 ambient temperature 0°C - +50°C : (2) Vertical installation (power connector is downside)

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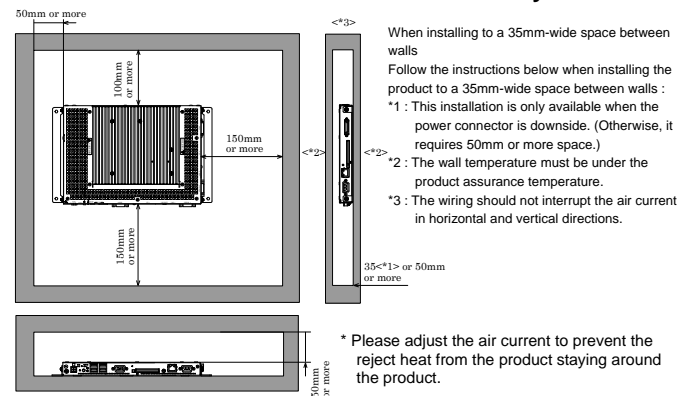
Installation Orientation

(2)
(3) (4) Connector (5)
(1)
Ceiling
(6)
Floor
Wall Wall Wall
Connector
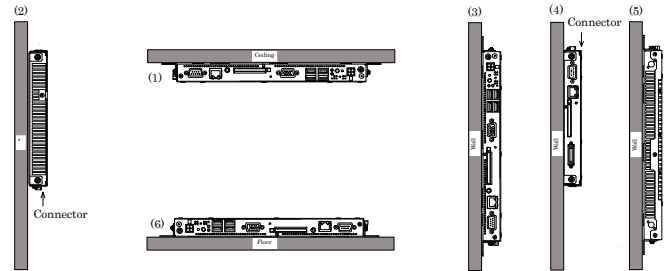
⚠ CAUTION
Note that even though the ambient temperature is within the specified range, an operational malfunction may occur if there is other device generating high heat; the radiation will influence the product to increase its temperature.

Distances between the BOX-PC and Its Vicinity

50mm or more
100mm or more
150mm or more
150mm or more
<*3>
<*2> <*2>
35<*1> or 50mm or more
50mm or more

When installing to a 35mm-wide space between walls
Follow the instructions below when installing the product to a 35mm-wide space between walls :
*1 : This installation is only available when the power connector is downside. (Otherwise, it requires 50mm or more space.)
*2 : The wall temperature must be under the product assurance temperature.
*3 : The wiring should not interrupt the air current in horizontal and vertical directions.

* Please adjust the air current to prevent the reject heat from the product staying around the product.

⚠ 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.