

# PCM-9590 Onboard Intel® Core™ 2 Duo EBX SBC with Audio, VGA/LVDS and LAN

## Startup Manual

### Packing List

Before you begin installing your card, please make sure that the following items have been shipped:

- 1 PCM-9590 all-in-one single board computer
- 1 Startup manual
- 1 CD disk for utility and drivers
- 1 Mini Jumper (10 pcs package) p/n: 9689000002
- 1 ATX power cable p/n: 1700000265
- 1 Cooler (50\*50\*23 mm) (PCM-9590FG-00A2E only)

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

- Note 1:** For detailed contents of PCM-9591, please refer to information on the enclosed CD-ROM (in PDF format).
- Note 2:** Acrobat Reader is required to view any PDF file. Acrobat Reader can be downloaded at: [www.adobe.com/Products/acrobat/readstep2.html](http://www.adobe.com/Products/acrobat/readstep2.html) (Acrobat is a trademark of Adobe)

For more information on this and other Advantech products, please visit our website at:

<http://www.advantech.com>

<http://www.advantech.com/epc>

For technical support and service, please visit our support website at:

<http://service.advantech.com.tw/eservice/>

This manual is for the PCM-9591 series Rev. A2.

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### Specifications

#### General

- **CPU:** Embedded Intel Core 2 Duo / Core Duo / Core Solo / Celeron M Processor supported:
  - Core Duo 1.66 GHz PCM-9590FG-S6A2E
  - Core Duo 1.2 GHz PCM-9590FG-S2A2E
  - uFCPGA2 (478 pin) PCM-9590FG-00A2E
- **2nd Cache Memory:** Depends on CPU from 512KB to 4 MB
- **System Chipset:** Intel 945GME GMCH/ICH7M Chipset
- **BIOS:** AWARD 4 Mbit Flash BIOS
- **System Memory:** 2 x 200-pin SODIMM sockets, Double Data Rate (DDR2) 128 MB up to 4 GB, accept 128/256/512/1024 MB DDR2 up to 533/667 SDRAM
- **Power Management:** APM 1.2, ACPI support
- **Watchdog Timer:** 255-level interval timer, setup by software, Super I/O integrated, SMSC Controller
- **Expansion Interface:** Supports PCI-104, Mini PCI interface, one PCI-E X 16 Slot
- **Battery:** Lithium 3 V / 196 mA

#### I/O

- **I/O Interface:** 1 x EIDE (UDMA 100), 2 x SATA 300, 1 x K/B, 1 x Mouse, 3 x RS232, 1 x RS232/422/485, 1 x LPT and 2 x EIDE device
- **USB:** 6 x USB 2.0 compliant Ports
- **Audio:** HD Audio codec ALC883, support 7.1 channel output, CD-input, Line-in, Microphone
- **IrDA:** N/A
- **GPIO:** 16-bit general purpose 16 input/16 output

#### Ethernet

- **Chipset:** 2 x Intel 82573L
- **Speed:** 10/100/1000 Mbps
- **Interface:** 2 x RJ45 by cable
- **Standard:** IEEE 802.3u 100Base-T & IEEE 802.3ab 1000Base-T

#### Display

- **Chipset:** Intel 945GME chip integrated (Intel Gen 3.5 integrated graphic engine)
- **Memory Size:** 32-bit interface to address up to 32 MB of memory
- **Resolution:** CRT Display mode: pixel resolution up to QXGA (2048 x 1536)
- **LCD Display mode:** Dual channel LVDS panel supports up to UXGA panel resolution with frequency range from 25 MHz to 112 MHz
- **LCD Interface:** 2 Channel LVDS 1 (36-bit) LVDS2 (48-bit) optional by request

## Specifications

- **Dual Ind. Display:** CRT + LVDS; CRT + TV-Out; LVDS + TV-Out under Windows system

### Mechanical and Environmental

- **Dimension (mm):** 203 mm (L)\* 146 mm (W)
- **Height on Top (mm):** 29.3 mm (with Heatsink), 27 mm (with FAN cooler)
- **Height on Bottom (mm):** 9.2 mm (memory socket)
- **Heatsink Dimension (mm):** L50 mm\* W50 mm\* H23 mm (Heatsink)
- **Weight (g):** with Heatsink 345 g (Heat sink)
- **Operating Temperature:** 0 ~ 60° C (32~140° F)
- **Operating Humidity:** 0% ~ 90% Relative Humidity, noncondensing
- **Storage Temperature:**  
Standard products: 0 ~ 60° C  
Storage temperature: -20 ~ 70° C
- **Storage Humidity:**  
Standard products: 0 ~ 60° C  
Relative humidity: 95% @ 60° C
- **Power Supply Voltage:**
  - Voltage requirement with ATX Power :  
+5 V DC +/- 5%  
+5 V DC Standby +/- 5%  
+12 V DC (For PCI-E by16 slot, PCI Card, FAN power, and LVDS inverter power, CPU core power)
  - Voltage requirement with AT Power :  
+5 V DC +/- 5%  
+12 V DC (For PCI Card, FAN power, and LVDS inverter power, CPU core power)
- **Power Requirement:**
  - (CPU T7400 2.16 GHz)  
Max (HCT): 1.03 A @ 5 V, 2.09 A @ 12 V  
Suspend: 0.96 A @ 5 V, 0.81 A @ 12 V
  - (CPU U2500 1.2 GHz)  
Max (HCT): 1.05 A @ 5 V, 0.98 A @ 12 V  
Suspend: 1.01 A @ 5 V, 0.76 A @ 12 V

## Jumpers and Connectors

The board has a number of jumpers that allow you to configure your system to suit your application. The table below lists the function of each of the jumpers and connectors.

Jumpers	
Label	Function
J1	LVDS1 panel power
J2	PC104+ VIO Selection
J3	COM2 function option
J4	Clear CMOS function
J5	LVDS2 panel power
J6	AT Power Solution

Connectors	
Label	Function
CN1	Gigabit LAN led connector
CN2	LVDS1 connector
CN3	LAN1 connector
CN4	SATA connector 1
CN5	SATA connector 0
CN6	DIO1 connector
CN7	DIO2 connector
CN8	LAN2 connector
CN9	USB port 4/5
CN10	Printer port connector
CN11	USB port 2/3
CN12	Floppy disk connector
CN13	Primary HDD connector
CN14	USB port 0/1
CN15	RS422 / 485 connector
CN16	PCI-104 connector
CN17	SMBUS connector
CN18	CRT connector
CN19	COM port 1/2/3/4 connector
CN20	Front panel connector
CN21	Power input connector
CN22	TV-out connector
CN23	LVDS1 backlight connector

## Jumpers and Connectors

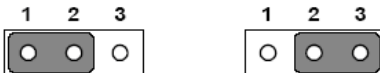
CN24	+12 V power connector
CN25	Internal speaker connector
CN26	Audio output connector
CN27	CD-IN connector
CN28	KB / Mouse connector
CN29	Extension SMBUS connector
CN30	MIO-USB connector
CN31	MINI PCI connector
CN32	LVDS2 connector
CN33	LVDS2 backlight connector
PCIe1	PCIe X16 connector
FAN1	CPU FAN
FAN2	System FAN

### Jumper Setting

J1	LVDS1 panel power
	PIN HEADER 3*1P 2.0 mm
<b>Setting</b>	<b>Function</b>
1-2	+5 V (Default)
2-3	+3.3 V

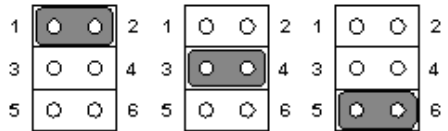


J2	PC104+ VIO Selection
	PIN HEADER 3*1P 2.54 mm
<b>Setting</b>	<b>Function</b>
1-2	VIO = +5 V (Default)
2-3	VIO = +3.3 V



## Jumpers and Connectors

J3	COM2 function option
	PIN HEADER SMD 5*2P 180D(M) 2.0 mm
<b>Setting</b>	<b>Function</b>
1-2	RS232 (Default)
3-4	RS485
5-6	RS422



J4	Clear CMOS function
	PIN HEADER 3*1P 2.0 mm
<b>Setting</b>	<b>Function</b>
1-2	Normal (Default)
2-3	Clear CMOS



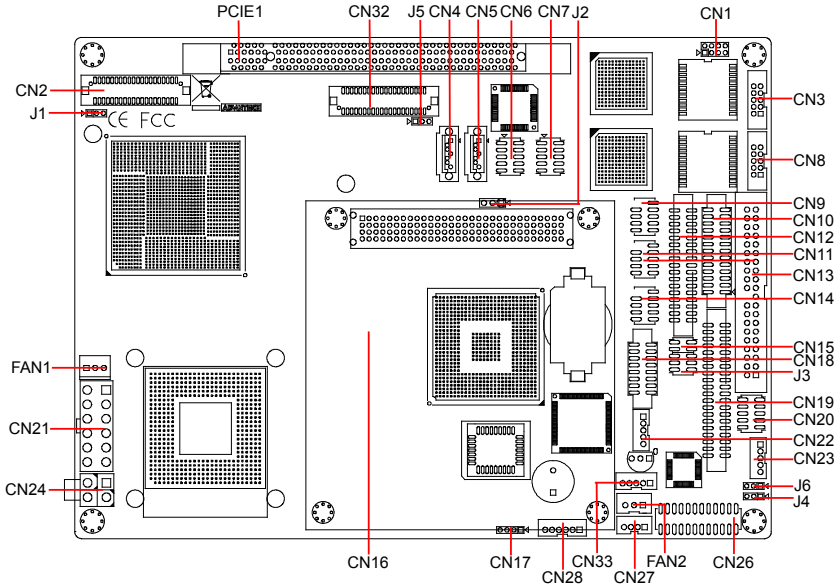
J5	LVDS2 panel power
<b>Setting</b>	<b>Function</b>
1-2	+5 V*
2-3	+3.3 V



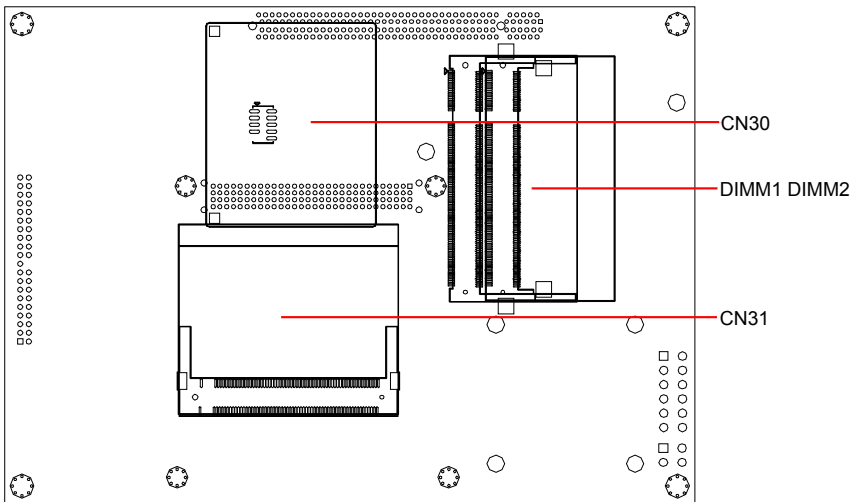
J6	AT Power Solution
	PIN HEADER 3*1P 2.0 mm
<b>Setting</b>	<b>Function</b>
1-2	ATX power supply (Default)
2-3	AT power supply



# PCM-9590 Jumpers and Connectors

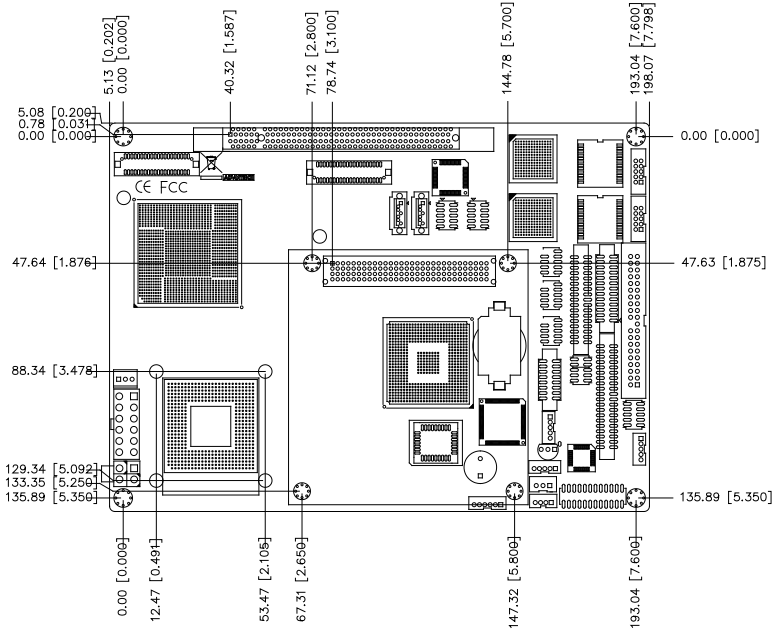


*PCM-9590 Jumper & Connectors (Component Side)*

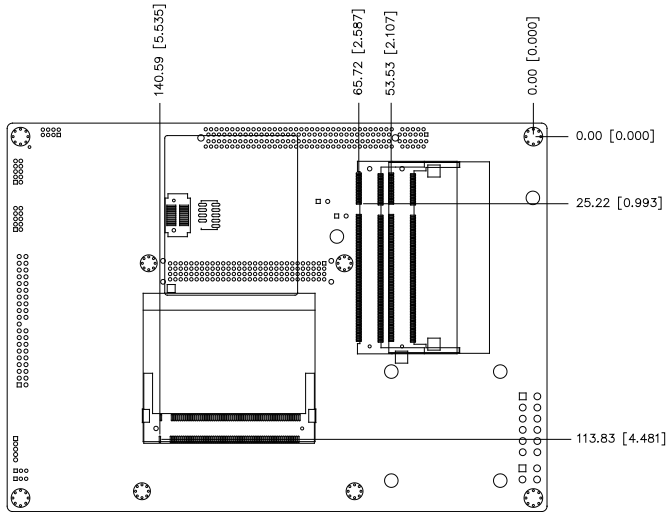


*PCM-9590 Jumper & Connectors (Solder Side)*

# PCM-9590 Dimension



**PCM-9590 Dimension (Top)**



**PCM-9590 Dimension (Bottom)**