PCM-8120

VIA C7/ Eden Series Processors

One DDR 400/533 DDRII DIMM

48-bit Dual-Channel LVDS T FT LCD

7.1CH High Definition Audio

6 USB 2.0 / 4 COMs / Digital IO

PCM-8120 Manual Rev.A 2nd Ed.
Oct. 2008

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Packing List

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

- 1 96576 66600 Jumper Cap
- 1 PCM-8120 CPU Card
- 1 Quick Installation Guide
- 1 CD-ROM for manual (in PDF format) and drivers

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

Contents

Chapter

1

General Information

1.1 Introduction

Announcing a brand new Compact Board-PCM-8120 designed to deal with the escalating demands of balancing cost while improving performance. This advanced, new generation Compact Board can easily adapt to diverse applications in this competitive industrial embedded market.

PCM-8120 adopts a VIA C7 processor which features low power consumption and transcendent performance. In addition to the VIA C7 processor from 1GHz to 2GHz, this model can be equipped with an Eden V4 Bus (400MHz to 1.5GHz) processor. Moreover, 240-pin DDRII DIMM system memory is up to 1GB. For network connection, the PCM-8120 deploys Realtek RTL8139DL 10/100Base-TX chip and features two RJ-45 ports onboard.

This new Compact Board configures a VIA CX700M integrated display chipset to support CRT/LVDS, LVDS/TV or CRT/TTL, CRT/DVI, TV/TTL, TV/DVI simultaneous/dual view display. In addition, it supports MPEG-4 accelerator to enhance the performance of multimedia applications.

1.2 Features

- Onboard VIA C7/ Eden (V4 Bus) series processors
- One DIMM DDR II 400/533 up to 1GB
- Dual-channel LVDS, DVI and TV-out
- MPEG-4 accelerator
- Dual 10/100Base-TX Ethernet
- PCI, Type III Mini PCI, PC/104 & Type II PCMCIA
- Supports IDE, 4 COM Ports, Parallel
- High Definition Audio 7.1 CH
- SATA II x 2, USB2.0 x 6, 16-bit Digital I/O, IrDA

1.3 Specifications

System

- CPU — Supports VIA C7/ Eden (V4 Bus) series processors up to 2.0GHz with FSB 400/ 533MHz (only C7 1.8G & 2.0G support FSB 533 MHz)
- System Memory — 240-pin DDR II DIMM x 1, max. 1GB (DDR-400/533)
- Chipset — CX700 M
- I/O Chipset — ITE IT8712 + IT8888G
- Ethernet — Realte k RTL 8139DL, 10/100Base-TX, RJ-45 x 2
- BIOS — Award Plug & Play ISA BIOS – 512KB ROM
- Watchdog Timer — Generates a time-out system reset
- H/W status monitoring — CX700M, supports power supply voltages, fan speed and temperature monitoring functions
- Solid Storage Disk — One Type II Compact Flash slot
- Expansion Interface — Type II PCMCIA Slot x 1 for 2 devices, Mini PCI x 1, PCI x 1, PC/104 x 1
- Battery — Lithium battery

- Power Requirement AT/ ATX
- Operating Temperature 32°F~140°F (0°C~60°C)
- Board Size 8”(L) x5.72” (W) (203mm x 146mm)
- Gross Weight 1.2 lb (0.5kg)

Display: Support: CRT/LVDS, LVDS/TV or CRT/TTL, CRT/DVI, TV/TTL, TV/DVI simultaneous/ dual view displays. Supports MPEG-4 accelerator

- Chipset VIA CX700M integrated
- Memory Shared system memory up to 128/MB
- Resolutions Up to 1600x1200@32bpp for CRT; Up to 1280x1024@24bpp for LCD
- LCD Interface Up to 48-bit dual channel LVDS TFT LCD, up to 24-bit TTL TFT LCD
- TV-Out Supports NTSC/PAL, S-terminal and Composite Video

I/O

- MIO EIDEx1 (UDMA100 x 1), SATA II x 2, Floppy Disk Drive x 1 (supports two floppy devices), Keyboard +

		Mouse x 1, Parallel x 1 (supports SPP/ EPP/ ECP mode), RS-232 x 3, RS-232/422/485 x 1
● IDE Interface		P-ATA-133 x 1 channel, SATA II x 2 with RAID 0 & 1
● IrDA	One	IrDA Tx/Rx header
● Audio	VIA	VT-1708B, MIC-in/ Line-in/ Line-out/ CD-in, 7.1 Channel Surround, S/P DIF in/out
● USB		Two 5x2 box headers support six USB 2.0 Ports
● Digital I/O		Supports 16-bit (programmable)

Chapter

2

Quick Installation Guide

Part No. 2007812011 Printed in Taiwan, September 2008

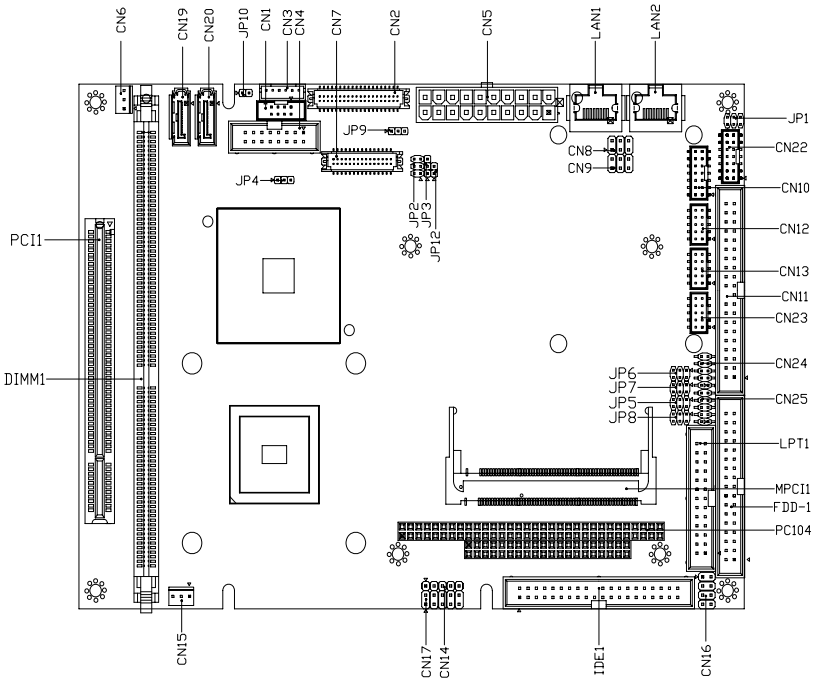
2.1 Safety Precautions

Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.

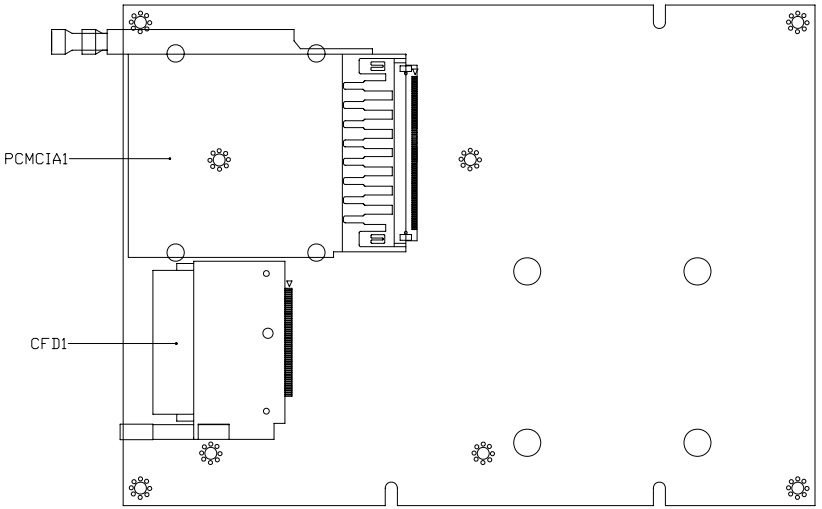
Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis

2.2 Location of Connectors and Jumpers

Component Side

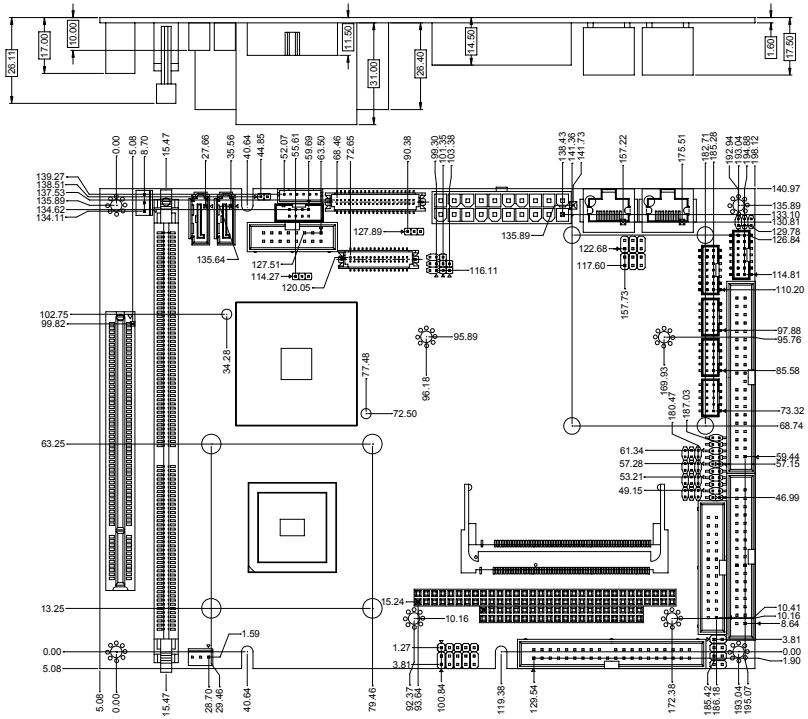


Solder Side

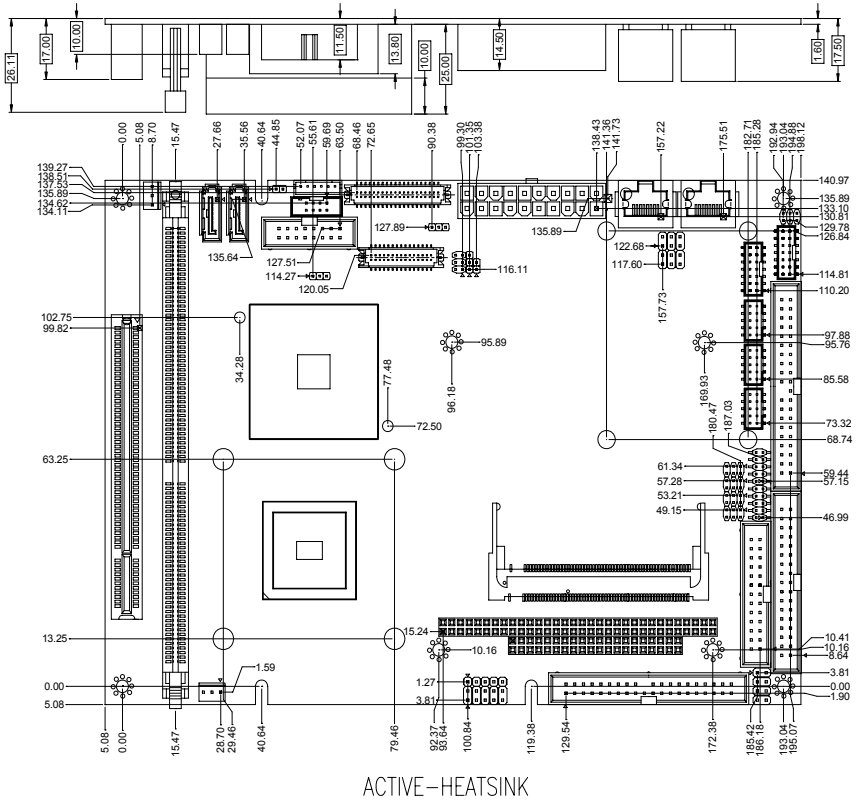


2.3 Mechanical Drawing

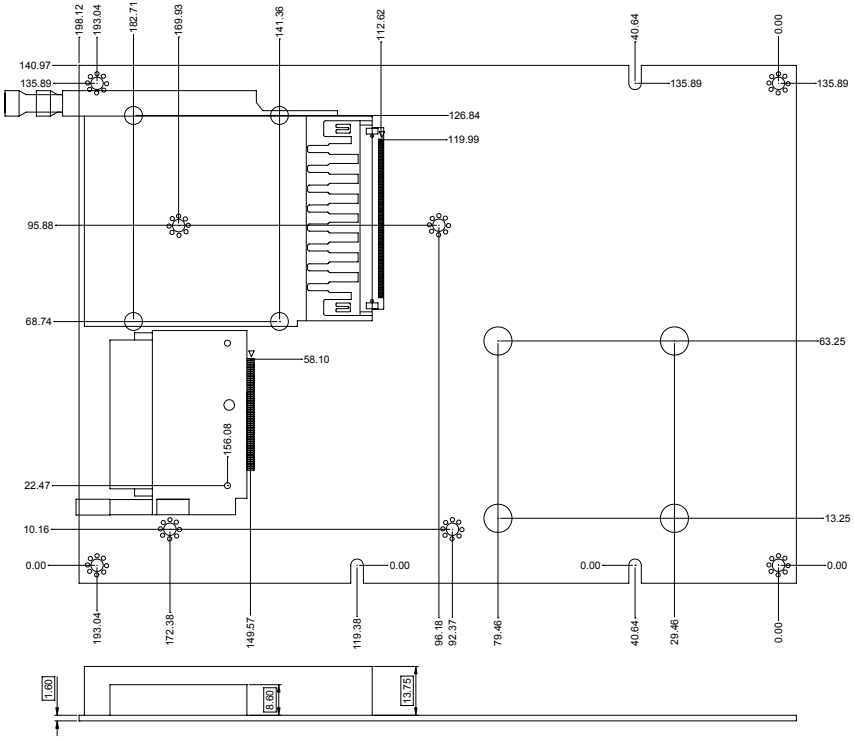
Component Side (Passive)



Component Side (Active)



Solder Side


198.12
193.04
182.71
169.93
141.36
112.62
40.64
0.00
140.97
135.89
135.89
135.89
126.84
119.99
95.88
68.74
58.10
63.25
156.08
22.47
10.16
13.25
0.00
0.00
0.00
0.00
193.04
172.38
149.57
119.38
96.18
92.37
79.46
40.64
29.46
0.00
1.60
8.60
13.75

2.4 List of Jumpers

The board has a number of jumpers that allow you to configure your system to suit your application.

The table below shows the function of each of the board's jumpers:

Jumpers

Label	Function
JP1	Audio Out Selection
JP2	LVDS/ DVI/ INVERTER Voltage Selection
JP3	TTL-LCD Clock Selection
JP4	Clear CMOS
JP5	COM2 Ring/+5V/+12V Selection
JP6	COM4 Ring/+5V/+12V Selection
JP7	COM3 Ring/+5V/+12V Selection
JP8	COM1 Ring/+5V/+12V Selection
JP9	ATX/AT Selection
JP10	CRT/TV Selection
JP12	ATX Power simulate AT Power

2.5 List of Connectors

The board has a number of connectors that allow you to configure your system to suit your application. The table below shows the function of each board's connectors:

Connectors

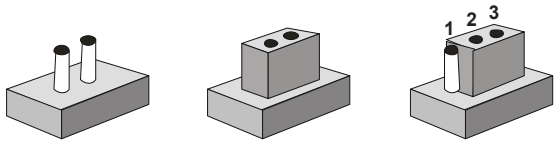
Label	Function
CN1	TV_Out Connector
CN2	TTL_LCD Connector
CN3	Inverter Connector
CN4	VGA Display Connector
CN5	ATX Power Connector
CN6	Chassis Fan Connector
CN7	LVDS/DVI Connector
CN8	LAN1 LED Connector
CN9	LAN2 LED Connector
CN10	Audio Connector
CN11	COM1~COM4 Ports Connector
CN12	USB1 Connector
CN13	USB2 Connector
CN14	IrDA Connector
CN15	CPU Fan Connector
CN16	PS2 Keyboard/Mouse Connector
CN17	Front Panel Connector

CN18	AT Power Connector (Optional)
CN19	SATA1 Connector
CN20	SATA2 Connector
CN22	Audio 5.1 Channel/SPDIF Connector
CN23	USB3 Connector
CN24	First Digital I/O Connector
CN25	Second Digital I/O Connector
FDD-1	Floppy Connector
IDE1	IDE Connector
LPT1	LPT Port Connector
LAN1	10/100 Base-TX Ethernet Connector
LAN2	10/100 Base-TX Ethernet Connector
PCI1	PCI Slot
MPCI1	Mini PCI Slot
PCMCIA1	PCMCIA Slot
CFD1	CompactFlash Slot
PC104	PC/104 Connector
DIMM1	DIMM Slot

2.6 Setting Jumpers

You configure your card to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip.

To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2 or 2 and 3.



OFF **ON** **ON 2-3**

A pair of needle-nose pliers may be helpful when working with jumpers.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any change.

Generally, you simply need a standard cable to make most connections.

2.7 Audio Out Selection (JP1)

JP1	Function
1-3, 2-4	W/O Amplifier
3-5, 4-6	W/ Amplifier (Default)

2.8 LVDS/DVI/ INVERTER Voltage Selection (JP2)

For LVDS/DVI

JP2	Function
1-3	+5V
3-5	+3.3V (Default)

Note:
DVI Voltage supports +5V only. If you want to activate the DVI function, please select +5V (pin 1-3).

For INVERTER

JP2	Function
2-4	+5V(Default)
4-6	+12V

2.9 TTL-LCD Clock Selection (JP3)

JP3	Function
1-2	CLK (Default)
2-3	Reverse CLK

2.10 Clear CMOS (JP4)

JP4	Function
1-2	Protected (Default)
2-3	Clear

2.11 COM2 Ring/+5V/+12V Selection (JP5)

JP5	Function
1-2	+12V
3-4	+5V
5-6	Ring (Default)

2.12 COM4 Ring/+5V/+12V Selection (JP6)

JP6	Function
1-2	+12V
3-4	+5V
5-6	Ring (Default)

2.13 COM3 Ring/+5V/+12V Selection (JP7)

JP7	Function
1-2	+12V
3-4	+5V
5-6	Ring (Default)

2.14 COM1 Ring/+5V/+12V Selection (JP8)

JP8	Function
1-2	+12V
3-4	+5V
5-6	Ring (Default)

2.15 ATX/ AT Selection (JP9)

JP9	Function
1-2	ATX (Default)
2-3	AT

2.16 TV/CRT Selection (JP10)

JP10	Function
NC	CRT (Default)
1-2	TV

2.17 ATX Power Simulate AT Power Selection (JP12)

JP12	Function
NC	ATX or AT standard (Default)
1-2	ATX Power Simulate AT Power

2.18 TV_Out Connector (CN1)

Pin	Signal	Pin	Signal
1	Y	2	CVBS

3	GND	4	GND
5	C	6	N.C.
7	GND	8	N.C.

2.19 TTL_LCD Connector (CN2)

Pin	Signal	Pin	Signal
1	+5V	2	+5V
3	GND	4	GND
5	+3.3V	6	+3.3V
7	ENBKL	8	GND
9	BLUE0	10	BLUE1
11	BLUE2	12	BLUE3
13	BLUE4	14	BLUE5
15	BLUE6	16	BLUE7
17	GREEN0	18	GREEN1
19	GREEN2	20	GREEN3
21	GREEN4	22	GREEN5
23	GREEN6	24	GREEN7
25	RED0	26	RED1
27	RED2	28	RED3
29	RED4	30	RED5
31	RED6	32	RED7
33	GND	34	GND
35	DOT_CLOCK	36	VSYNC

37	DE	38	HSYNC
39	N.C.	40	N.C.

2.20 INVERTER (CN3)

Pin	Signal
1	INV_VCC
2	INV_VCC
3	ENBKL
4	N.C.
5	GND
6	GND

2.21 VGA Display Connector (CN4)

Pin	Signal	Pin	Signal
1	RED	2	+5V
3	GREEN	4	GND
5	BLUE	6	N.C
7	N.C	8	DDCDAT
9	GND	10	HSYNC
11	GND	12	VSYNC
13	GND	14	DDCCLK
15	GND	16	GND

2.22 ATX Power Connector (CN5)

Pin	Signal	Pin	Signal
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	GND	13	GND
4	+5V	14	PS_ON
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	POWER OK	18	-5V
9	+5VSB	19	+5V
10	+12V	20	+5V

2.23 Fan Connector (CN6)

Pin	Signal
1	GND
2	+12V or +5V
3	Speed Sense

2.24 LVDS/ DVI Connector (CN7)

For LVDS

Pin	Signal	Pin	Signal
1	ENBKL	2	N.C.

3	PPVCC	4	GND
5	LVDS1_TXCLK-	6	LVDS1_TXCLK+
7	PPVCC	8	GND
9	LVDS1_TX0-	10	LVDS1_TX0+
11	LVDS1_TX1-	12	LVDS1_TX1+
13	LVDS1_TX2-	14	LVDS1_TX2+
15	LVDS1_TX3-	16	LVDS1_TX3+
17	N.C.	18	N.C.
19	LVDS2_TX0-	20	LVDS2_TX0+
21	LVDS2_TX1-	22	LVDS2_TX1+
23	LVDS2_TX2-	24	LVDS2_TX2+
25	LVDS2_TX3-	26	LVDS2_TX3+
27	PPVCC	28	GND
29	LVDS2_TXCLK-	30	LVDS2_TXCLK+

For DVI

Pin	Signal	Pin	Signal
1	N.C.	2	DVI_HPDET
3	PPVCC	4	GND
5	DVI_TX2-	6	DVI_TX2+
7	PPVCC	8	GND
9	DVI_TXC-	10	DVI_TXC+
11	DVI_TX0-	12	DVI_TX0+
13	DVI_TX1-	14	DVI_TX1+
15	N.C.	16	N.C.

17	DVI_SPCLK	18	DVI_SPD
19	N.C.	20	N.C.
21	N.C.	22	N.C.
23	N.C.	24	N.C.
25	N.C.	26	N.C.
27	PPVCC	28	GND
29	N.C.	30	N.C.

2.25 LAN1 LED Connector (CN8)

Pin	Signal	Pin	Signal
1	+3.3V	2	Active LED
3	Speed LED(100)	4	GND
5	+3.3V	6	N.C.

2.26 Audio Connector (CN10)

Pin	Signal	Pin	Signal
1	MIC_IN	2	MIC_+2.5V
3	LINE_IN_GND	4	CD_GND
5	LINE_IN_L	6	CD_IN_L
7	LINE_IN_R	8	CD_GND
9	LINE_IN_GND	10	CD_IN_R
11	LINE_OUT_L (FRONT_L)	12	LINE_OUT_R (FRONT_R)
13	LINE_OUT_GND	14	LINE_OUT_GND

Note:
For supporting Audio 7.1CH, you have to plug CN10 & CN22 synchronized.

2.27 COM1~COM4 Ports Connector (CN 11)

Pin	Signal	Pin	Signal
1	DCD1	2	DSR1
3	RXD1	4	RTS1
5	TXD1	6	CTS1
7	DTR1	8	RI1/+5V/+12V
9	COMGND	10	N.C.
11	DCD2(422TXD-/485DATA-)	12	DSR2
13	RXD2(422RXD+)	14	RTS2
15	TXD2(422TXD+/485DATA+)	16	CTS2
17	DTR2(422RXD-)	18	RI2/+5V/+12V
19	COMGND	20	N.C.
21	DCD3	22	DSR3
23	RXD3	24	RTS3
25	TXD3	26	CTS3
27	DTR3	28	RI3/+5V/+12V
29	COMGND	30	N.C.
31	DCD4	32	DSR4
33	RXD4	34	RTS4
35	TXD4	36	CTS4
37	DTR4	38	RI4/+5V/+12V
39	COMGND	40	N.C.

2.28 USB Connector (CN12)

Pin	Signal	Pin	Signal
1	+5V	2	GND
3	USBD0-	4	GND
5	USBD0+	6	USBD1+
7	GND	8	USBD1-
9	GND	10	+5V

2.29 USB Connector (CN13)

Pin	Signal	Pin	Signal
1	+5V	2	GND
3	USBD2-	4	GND
5	USBD2+	6	USBD3+
7	GND	8	USBD3-
9	GND	10	+5V

2.30 IrDA Connector (CN14)

Pin	Signal
1	+5V
2	N.C
3	IRRX
4	GND
5	IRTX

2.31 Fan Connector (CN15)

Pin	Signal
1	GND
2	+12V or +5V
3	Speed Sense

2.32 PS2 Keyboard/Mouse Connector (CN16)

Pin	Signal	Pin	Signal
1	KB_DATA	2	KB_CLK
3	GND	4	+5V
5	MS-DATA	6	MS_CLK
7	N.C	8	N.C.

2.33 Front Panel Connector (CN17)

Pin	Signal	Pin	Signal
1	Power On Button(-)	2	Power On Button(+)
3	IDE LED(-)	4	IDE LED(+)
5	External Buzzer(-)	6	External Buzzer(+)
7	Power LED(-)	8	Power LED(+)
9	Reset Switch(-)	10	Reset Switch(+)

2.34 AT Power Connector (CN18) (Optional)

Pin	Signal
1	N.C

2	+5V
3	+12V
4	-12V
5	GND
6	GND
7	GND
8	GND
9	-5V
10	+5V
11	+5V
12	+5V

2.35 SATA Connector (CN19)

Pin	Signal
1	GND
2	STXP_1
3	STXN_1
4	GND
5	SRXN_1
6	SRXP_1
7	GND
8	GND
9	GND

2.36 SATA Connector (CN20)

Pin	Signal
1	GND
2	STXP_2
3	STXN_2
4	GND
5	SRXN_2
6	SRXP_2
7	GND
8	GND
9	GND

2.37 Audio 5.1 Channel/SPDIF Connector (CN22)

Pin	Signal	Pin	Signal
1	SIDE SURROUND_R	2	GND
3	SIDE SURROUND_L	4	GND
5	SURROUND_R	6	GND
7	SURROUND_L	8	GND
9	LFE	10	GND
11	SENTER	12	GND
13	SPDIF_OUT	14	SPDIF_IN

Note:
For supporting Audio 7.1 CH, you have to plug CN10 & CN22 synchronized.

2.38 USB Connector (CN23)

Pin	Signal	Pin	Signal
1	+5V	2	GND
3	USBD4-	4	GND
5	USBD4+	6	USBD5+
7	GND	8	USBD5-
9	GND	10	+5V

2.39 First Digital I/O Connector (CN24)

Pin	Signal	Pin	Signal
1	IN1	2	IN2
3	IN3	4	IN4
5	OUT1	6	OUT2
7	OUT3	8	OUT4
9	+5V	10	GND

DIO Address is 800H

BIOS Setting	Connector Definition	Address	IT8712 GPIO Setting
Port 7	CN24. pin 1	Bit 7	U26. pin 28 (GPIO17)
Port 6	CN24. pin 2	Bit 6	U26. pin 29 (GPIO16)
Port 5	CN24. pin 3	Bit 5	U26. pin 30 (GPIO15)
Port 4	CN24. pin 4	Bit 4	U26. pin 31 (GPIO14)
Port 3	CN24. pin 5	Bit 3	U26. pin 32 (GPIO13)

Port 2	CN24. pin 6	Bit 2	U26. pin 33 (GPIO12)
Port 1	CN24. pin 7	Bit 1	U26. pin 34 (GPIO11)
Port 0	CN24. pin 8	Bit 0	U26. pin 84 (GPIO10)

2.40 Second Digital I/O Connector (CN25)

Pin	Signal	Pin	Signal
1	IN1	2	IN2
3	IN3	4	IN4
5	OUT1	6	OUT2
7	OUT3	8	OUT4
9	+5V	10	GND

DIO Address is 801H

BIOS Setting	Connector Definition	Address	IT8712 GPIO Setting
Port 7	CN25. pin 1	Bit 7	U26. pin 20 (GPIO27)
Port 6	CN25. pin 2	Bit 6	U26. pin 21 (GPIO26)
Port 5	CN25. pin 3	Bit 5	U26. pin 22 (GPIO25)
Port 4	CN25. pin 4	Bit 4	U26. pin 23 (GPIO24)
Port 3	CN25. pin 5	Bit 3	U26. pin 24 (GPIO23)
Port 2	CN25. pin 6	Bit 2	U26. pin 25 (GPIO22)
Port 1	CN25. pin 7	Bit 1	U26. pin 26 (GPIO21)
Port 0	CN25. pin 8	Bit 0	U26. pin 27 (GPIO20)

2.41 10/100 Base-TX Ethernet Connector (LAN1)

Pin	Signal	Pin	Signal
1	TX+	2	TX-
3	RX+	4	Temp_GND
5	Temp_GND	6	RX-
7	Temp_GND	8	Temp_GND
9	Chassis_GND	10	Chassis_GND

2.42 10/100 Base-TX Ethernet Connector (LAN2)

Pin	Signal	Pin	Signal
1	TX+	2	TX-
3	RX+	4	Temp_GND
5	Temp_GND	6	RX-
7	Temp_GND	8	Temp_GND
9	Chassis_GND	10	Chassis_GND

2.43 Floppy Connector (FDD1)

Pin	Signal	Pin	Signal
1	GND	2	#REDWC
3	GND	4	N.C.
5	GND	6	N.C.
7	GND	8	#INDEX
9	GND	10	#MOTOR A

11	GND	12	#DRIVE SELECT B
13	GND	14	#DRIVE SELECT A
15	GND	16	#MOTOR B
17	GND	18	#DIR
19	GND	20	#STEP
21	GND	22	#WRITE DATA
23	GND	24	#WRITE GATE
25	GND	26	#TRACK0
27	GND	28	#WRITE PROTECT
29	GND	30	#READ DATA
31	GND	32	#SIDE1
33	GND	34	#DISK CHANGE

2.44 IDE Connector (IDE1)

Pin	Signal	Pin	Signal
1	IDE RESET	2	GND
3	DATA7	4	DATA8
5	DATA6	6	DATA9
7	DATA5	8	DATA10
9	DATA4	10	DATA11
11	DATA3	12	DATA12
13	DATA2	14	DATA13
15	DATA1	16	DATA14
17	DATA0	18	DATA15

19	GND	20	N.C.
21	REQ	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	IO READY	28	GND
29	DACK	30	GND
31	IRQ15	32	N.C.
33	ADDR1	34	UDMA DETECT
35	ADDR0	36	ADDR2
37	CS#1	38	CS#3
39	LED	40	GND

2.45 LPT Port Connector (LPT1)

Pin	Signal	Pin	Signal
1	#STROBE	2	#AFD
3	DATA0	4	#ERROR
5	DATA1	6	#INIT
7	DATA2	8	#SLIN
9	DATA3	10	GND
11	DATA4	12	GND
13	DATA5	14	GND
15	DATA6	16	GND
17	DATA7	18	GND
19	#ACK	20	GND

21	BUSY	22	GND
23	PE	24	GND
25	SELECT	26	N.C.

Below Table for China RoHS Requirements
产品中有毒有害物质或元素名称及含量

Main Board/ Daughter Board/ Backplane

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板及其电子组件	×	○	○	○	○	○
外部信号连接器及线材	×	○	○	○	○	○

O：表示该有毒有害物质在该部件所有均质材料中的含量均在 **SJ/T 11363-2006** 标准规定的限量要求以下。

X：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 **SJ/T 11363-2006** 标准规定的限量要求。

备注：此产品所标示之环保使用期限，系指在一般正常使用状况下。

Chapter

3

Award BIOS Setup

3.1 System Test and Initialization

These routines test and initialize board hardware. If the routines encounter an error during the tests, you will either hear a few short beeps or see an error message on the screen. There are two kinds of errors: fatal and non-fatal. The system can usually continue the boot up sequence with non-fatal errors. Non-fatal error messages usually appear on the screen along with the following instructions:

Press <F1> to RESUME

Write down the message and press the F1 key to continue the boot up sequence.

System configuration verification

These routines check the current system configuration against the values stored in the CMOS memory. If they do not match, the program outputs an error message. You will then need to run the BIOS setup program to set the configuration information in memory.

There are three situations in which you will need to change the CMOS settings:

1. You are starting your system for the first time
2. You have changed the hardware attached to your system
3. The CMOS memory has lost power and the configuration information has been erased.

The PCM-8120 CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it finally runs down.

3.2 Award BIOS Setup

Awards BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

Entering Setup

Power on the computer and press <Del> immediately. This will allow you to enter Setup.

Standard CMOS Features

Use this menu for basic system configuration. (Date, time, IDE, etc.)

Advanced BIOS Features

Use this menu to set the advanced features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals. (keyboard, mouse etc.)

Power Management Setup

Use this menu to specify your settings for power management. (HDD power down, power on by ring, KB wake up, etc.)

PnP/PCI Configurations

This entry appears if your system supports PnP/PCI.

PC Health Status

Use this menu to set PC Health Status.

Frequency/Voltage Control

Use this menu to specify your settings for auto detect DIMM/PCI clock and spread spectrum.

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While AWARD has designated the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

Set Password

Use this menu to set Supervisor Password.

Save and Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

Chapter

4

Driver Installation

The PCM-8120 comes with an AutoRun CD-ROM that contains all drivers and utilities that can help you to install the driver automatically.

Insert the driver CD, the driver CD-title will auto start and show the installation guide. If not, please follow the sequence below to install the drivers.

Follow the sequence below to install the drivers:

Step 1 – Install Chipset Driver

Step 2 – Install VGA Driver

Step 3 – Install LAN Driver

Step 4 – Install Audio Driver

Step 5 – Install PCI to ISA Bridge Driver

Step 6 – Install RAID Driver (Optional)

USB 2.0 Drivers are available for download using Windows® Update for both Windows® XP and Windows® 2000. For additional information regarding USB 2.0 support in Windows® XP and Windows® 2000, please visit www.microsoft.com/hwdev/usb/.

Please read instructions below for further detailed installations.

4.1 Installation:

Insert the PCM-8120 CD-ROM into the CD-ROM drive and install the drivers from Step 1 to Step 5 in order. (Step 6 will be optional).

Step 1 – Install Chipset Driver

1. Click on the ***Step 1-Chipset*** folder and select the folder of ***Windows Driver***
2. Double click on ***SETUP.exe***
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 2 – Install VGA Driver

1. Click on the ***Step 2 –VGA*** folder and select the folder of ***Windows Driver***
2. Double click on ***setup.exe***
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 3 – Install LAN Driver

1. Click on the ***Step 3 –Lan*** folder and select the folder of ***Windows Driver***
2. Double click on ***Setup.exe***
3. Follow the instructions that the window shows

4. The system will help you install the driver automatically

Step 4 –Install Audio Driver

1. Click on the ***Step 4 –Audio*** folder and select the folder of ***Windows Driver***
2. Double click on ***SETUP.exe***
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 5 –Install PCI to ISA Bridge Driver

1. Click on **Start** button.
2. Click on **Settings** button
3. Click on **Control Panel** button
4. Click on **System** button
5. Select **Hardware** and click on **Device Manager…**
6. Double click on **Other PCI Bridge Device**
7. Click on **Update Driver…**
8. Click on **Next**
9. Select **Search for a suitable driver…**, then click on **Next**
10. Select **Specify a location**, then click on **Next**
11. Click on **Browse**
12. Select "**Ite**" file from CD-ROM **(Driver/Step5- PCI to ISA Bridge)** then click on **open**
13. Click on **OK**
14. Click on **Next**

15. Click on **Finish**.

Step 6 –Install RAID Driver (Optional)

1. Click on the ***Step 6 –RAID (optional)*** folder and double click on ***SETUP.exe***
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Note: The RAID function must be enabled in BIOS setup (Go Integrated Peripherals → VIA OnChip IDE Device → SATA Controller Mode → RAID) before you install RAID driver.

Appendix

A

Programming the Watchdog Timer

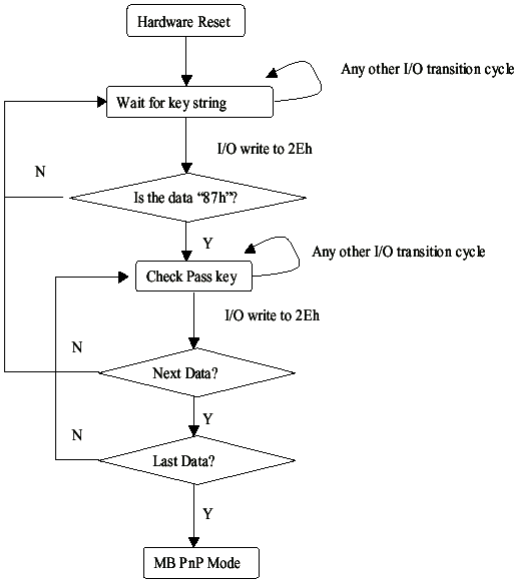
A.1 Programming

PCM-8120 utilizes ITE 8 712 chipset as its watchdog timer controller.

Below are the procedures to complete its configuration and the intial watchdog timer program is also attached based on which you can develop customized program to fit your application.

Configuring Sequence Description

After the hardware reset or power-on reset, the ITE 8712 enters the normal mode with all logical device s disabled except KBC. The initial state (enable bit) of this logical device (KBC) is determined by the state of pin 121 (DTR1#) at the falling edge of the system reset during power-on reset.



There are three steps to complete the configuration setup: (1) Enter the MB PnP Mode; (2) Modify the data of configuration

registers; (3) Exit the MB PnP Mode. Undesired result may occur if the MB PnP Mode is not exited normally.

(1) Enter the MB PnP Mode

To enter the MB PnP Mode, four special I/O write operations are to be performed during Wait for Key state. To ensure the initial state of the key-check logic, it is necessary to perform four write operations to the Special Address port (2EH). Two different enter keys are provided to select configuration ports (2Eh/2Fh) of the next step.

	Address Port	Data Port
87h, 01h, 55h, 55h:	2Eh	2Fh

(2) Modify the Data of the Registers

All configuration registers can be accessed after entering the MB PnP Mode. Before accessing a selected register, the content of Index 07h must be changed to the LDN to which the register belongs, except some Global registers.

(3) Exit the MB PnP Mode

Set bit 1 of the configure control register (Index=02h) to 1 to exit the MB PnP Mode.

WatchDog Timer Configuration Registers

LDN	Index	R/W	Reset	Configuration Register or Action
All	02H	W	N/A	Configure Control
07H	71H	R/W	00H	WatchDog Timer Control Register
07H	72H	R/W	00H	WatchDog Timer Configuration Register
07H	73H	R/W	00H	WatchDog Timer Time-out Value Register

Configure Control (Index=02h)

This register is write only. Its values are not sticky; that is to say, a hardware reset will automatically clear the bits, and does not require the software to clear them.

Bit	Description
7-2	Reserved
1	Returns to the Wait for Key state. This bit is used when the configuration sequence is completed
0	Resets all logical devices and restores configuration registers to their power-on states.

WatchDog Timer Control Register (Index=71h, Default=00h)

Bit	Description
7	WDT is reset upon a CIR interrupt
6	WDT is reset upon a KBC (mouse) interrupt
5	WDT is reset upon a KBC (keyboard) interrupt
4	WDT is reset upon a read or a write to the Game Port base address
3-2	Reserved
1	Force Time-out. This bit is self-clearing
0	WDT Status
	1: WDT value reaches 0.
	0: WDT value is not 0

WatchDog Timer Configuration Register (Index=72h, Default=00h)

Bit	Description
7	WDT Time-out value select
	1: Second
	0: Minute
6	WDT output through KRST (pulse) enable
5-4	Reserved
3-0	Select the interrupt level[Note] for WDT

WatchDog Timer Time-out Value Register (Index=73h, Default=00h)

Bit	Description
7-0	WDT Time-out value 7-0

A.2 IT8712 Watchdog Timer Initial Program

```
        .MODEL SMALL
        .CODE
Main:
        CALL Enter_Configuration_mode
        CALL Check_Chip
        mov cl, 7
        call Set_Logic_Device
        ;time setting
        mov cl, 10 ; 10 Sec
        dec al
Watch_Dog_Setting:
        ;Timer setting
        mov al, cl
        mov cl, 73h
        call Superio_Set_Reg
        ;Clear by keyboard or mouse interrupt
        mov al, 0f0h
        mov cl, 71h
        call Superio_Set_Reg
        ;unit is second.
        mov al, 0C0H
        mov cl, 72h
        call Superio_Set_Reg
```

```
; game port enable
mov cl, 9
call Set_Logic_Device

Initial_OK:
CALL Exit_Configuration_mode
MOV AH,4Ch
INT 21h

Enter_Configuration_Mode PROC NEAR
MOV SI,WORD PTR CS:[Offset Cfg_Port]

MOV DX,02Eh
MOV CX,04h
Init_1:
MOV AL,BYTE PTR CS:[SI]
OUT DX,AL
INC SI
LOOP Init_1
RET
Enter_Configuration_Mode ENDP

Exit_Configuration_Mode PROC NEAR
MOV AX,0202h
CALL Write_Configuration_Data
```

```
        RET
        Exit_Configuration_Mode ENDP

        Check_Chip PROC NEAR

        MOV AL,20h
        CALL Read_Configuration_Data
        CMP AL,87h
        JNE Not_Initial

        MOV AL,21h
        CALL Read_Configuration_Data
        CMP AL,12h
        JNE Not_Initial

Need_Initial:
        STC
        RET
Not_Initial:
        CLC
        RET
        Check_Chip ENDP
        Read_Configuration_Data PROC NEAR
        MOV DX,WORD PTR CS:[Cfg_Port+04h]
        OUT DX,AL
```

```
MOV DX,WORD PTR CS:[Cfg_Port+06h]
IN AL,DX
RET
Read_Configuration_Data ENDP

Write_Configuration_Data PROC NEAR
MOV DX,WORD PTR CS:[Cfg_Port+04h]
OUT DX,AL
XCHG AL,AH
MOV DX,WORD PTR CS:[Cfg_Port+06h]
OUT DX,AL
RET
Write_Configuration_Data ENDP

Superio_Set_Reg proc near
push ax
MOV DX,WORD PTR CS:[Cfg_Port+04h]
mov al,cl
out dx,al
pop ax
inc dx
out dx,al
ret
Superio_Set_Reg endp.Set_Logic_Device proc near
Set_Logic_Device   pro c    near
```

```
push ax
push cx
xchg al,cl
mov cl,07h
call Superio_Set_Reg
pop cx
pop ax
ret
Set_Logic_Device endp

;Select 02Eh->Index Port, 02Fh->Data Port
Cfg_Port DB 087h,001h,055h,055h

DW 02Eh,02Fh
```

END Main

Note: Interrupt level mapping

0Fh-Dh: not valid

0Ch: IRQ12

.

.

03h: IRQ3

02h: not valid

01h: IRQ1

00h: no interrupt selected

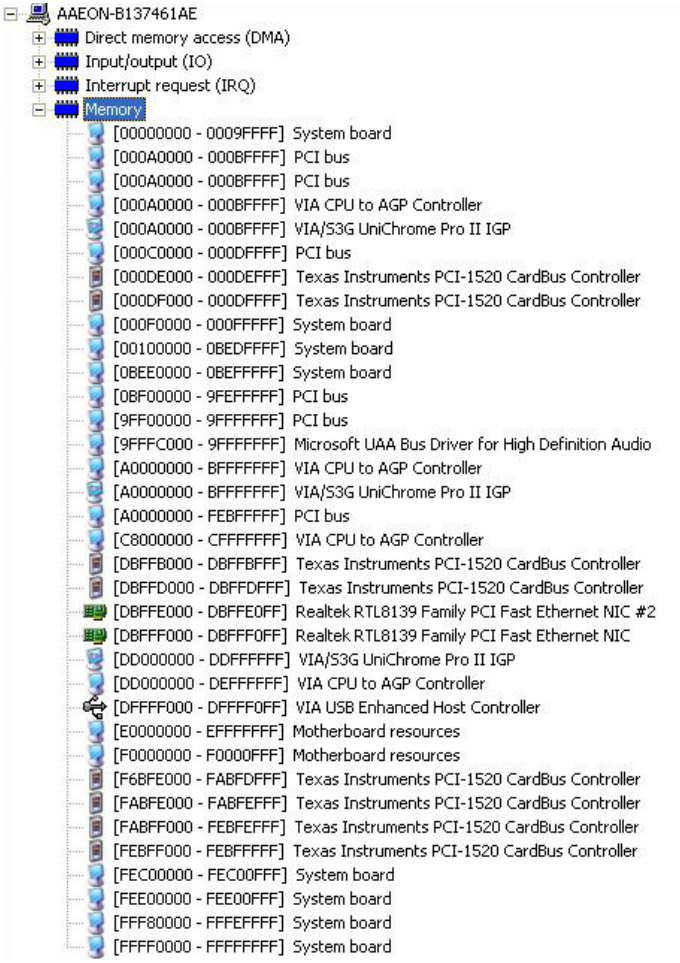
Appendix

B

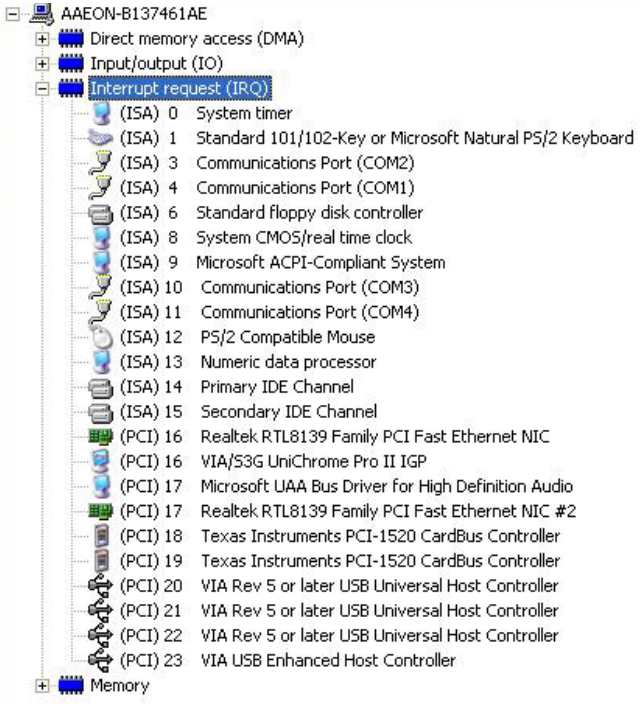
I/O Information

B.1 I/O Address Map

B.2 Memory Address Map



B.3 IRQ Mapping Chart



B.4 DMA Channel Assignments

Appendix C

Mating Connecotor

C.1 List of Mating Connectors and Cables

The table notes mating connectors and available cables.

Connector Label	Function	Mating Connector		Available Cable	Cable P/N
		Vendor	Model no		
CN1	TV-Out Connector	CATCH	2.00mm Pitch 8 pins (CATCH H754-2x4)	TV Cable	1700080180
CN2	TTL Connector	CATCH	1.25mm Pitch 40 pins(CATCH H716-2x20)	TTL Cable	N/A
CN3	Inverter Connector	CATCH	2.0mm Pitch 6 pins(CATCH. H732-06)	INV Cable	N/A
CN4	CRT Connector	CATCH	2.54mm Pitch 16 pins(CATCH 2.54-16P-2)	CRT Cable	1701160152
CN5	ATX Power Connector	CATCH	4.2mm Pitch 20pins (CATCH H756-20)	ATX Power Cable	N/A
CN6	FAN Connector	CATCH	2.54mm Pitch 3 pins(CATCH. H725-03)	FAN Cable	N/A
CN7	LVDS Connector	CATCH	1.25mm Pitch 30 pins (CATCH H716-2X15)	LVDS Cable	N/A
CN7	DVI Connector	CATCH	1.25mm Pitch 30 pins (CATCH H716-2X15)	DVI Cable	1700300240
CN8	LAN1 Indicator Connector	CATCH	2.54mm Pitch 6 pins(CATCH H709-2x3)	LAN1 Indicator Cable	N/A
CN9	LAN2 Indicator Connector	CATCH	2.54mm Pitch 6 pins(CATCH H709-2x3)	LAN1 Indicator Cable	N/A
CN10	Audio Connector	CATCH	2.00mm Pitch 14 pins (CATCH H754-2x7)	Audio Cable	1700140510

CN11	COM Port Connector	CATCH	2.54mm Pitch 40pins(CATCH 2.54-IDC40P-2)	Serial Port Cable	1701400180
CN12	USB Connector	CATCH	2.00mm Pitch 10 pins (CATCH H754-2x5)	USB Cable	1709100201
CN13	USB Connector	CATCH	2.00mm Pitch 10 pins (CATCH H754-2x5)	USB Cable	1709100201
CN14	IrDA Connector	CATCH	2.54mm Pitch5 pins(CATCH H709-05)	IrDA Cable	N/A
CN15	FAN Connector	CATCH	2.54mm Pitch 3 pins(CATCH. H725-03)	FAN Cable	N/A
CN16	PS2 Keyboard/ Mouse Connector	CATCH	2.54mm Pitch 8 pins(CATCH H709-2X4)	KB&MS Cable	1700080204
CN17	Front Panel Connector	CATCH	2.54mm Pitch 10 pins(CATCH H709-2x5)	Front Panel Cable	N/A
CN18	AT Power Connector	CATCH	3.96mm Pitch 12pins(CATCH H741-06)	AT Power Cable	N/A
CN19	Primary Serial ATA Connector	CATCH	1.27mm Pitch 7 pins (CATCH SA07FGP002X)	SATA Cable	1709070500
CN20	Secondary Serial ATA Connector	CATCH	1.27mm Pitch 7 pins (CATCH SA07FGP002X)	SATA Cable	1709070500
CN22	SPDIF IN/OUT Connector	CATCH	2.00mm Pitch 3 pins (CATCH H754-2x7)	SPDIF Cable	1700140164
CN23	USB Connector	CATCH	2.00mm Pitch 10 pins (CATCH H754-2x5)	USB Cable	1709100201
CN24	Digital I/O-1 Connector	CATCH	2.00mm Pitch 10 pins (CATCH H754-2x5)	Digital I/O Cable	N/A

CN25	Digital I/O-2 Connector	CATCH	2.00mm Pitch 10 pins (CATCH H754-2x5)	Digital I/O Cable	N/A
LPT1	LPT Connector	CATCH	2.54mm Pitch 26pins(CATCH 2.54-IDC-26P-2)	LPT Cable	1701260301
FDD-1	FDD Connector	CATCH	2.54mm Pitch 34pins(CATCH 2.54-IDC34P-2)	FDD Cable	1701340600
IDE1	IDE Connector	CATCH	2.54mm Pitch 40pins(CATCH ATA-80PB)	HDD Calbe	1701400453