PCM-8150

Intel® ULV Celeron® M
600MHz, 1.8GHz Processors
Compact Board
With LVDS, 10/100 Ethernet,
6 Channel Audio & Mini PCI

PCM-8150 Rev. A Manual 4th Ed.
June 2008

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Packing List

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

- 1 PCM-8150 CPU Card
- 1 Quick Installation Guide
- 1 CD-ROM for manual (in PDF format) and drivers
- 1 Cooler Fan +Heatsink (For Socket 478 version only)
- 1 Jumper cap

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

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Chapter

1

General Information

1.1 Introduction

PCM-8150 is powered by onboard ULV Intel® Celeron® Processor at 600MHz Processor or Socket 478-based Pentium® M or Celeron® M processor up to 1.8GHz. PCM-8150 is an innovative product that adopts Intel® latest low power consumption platform but with excellent performance. It is delicately designed for fanless and low power consumption and simple voltage input required application. (5V only workable)

The PCM-8150 supports system memory up to 1GB with fast DDR 266MHz providing high calculate and graphic ability but with extreme low power consumption. This feature is especially suitable for Video, Automation controller, Multimedia application.
Besides the excellent CPU performance, PCM-8150 also provides multiple display functions, it allows user to display different content on CRT/LCD, CRT/TV, CRT/DVI, LCD/TV and LCD/DVI. This feature opens a shortcut to dual view and simultaneous display demanders. PCM-8150 does really the most power efficiency board that you can find at this moment.

PCM-8150 provides interface capabilities of one channel ATA controller supports two ATAPI devices; USB 2.0 host controller support up to 4 USB ports; eight sets digital I/O and Watchdog Timer support. In addition, the excellent 48/24/18-bit LVDS

supports high quality LCD display resolution. Expansion Interfaces include one mini-PCI, one PCI and two Type II PCMCIA ports. And onboard Intel® 82551 Ethernet controller stands for 10/100Mbps transferring speed.

The PCM-8150 is the ideal choice for high performance and energy saving demands that implement with low power consumption and pleasant multimedia presentations. For environment-friendly applications, The PCM-8150 no doubt is a perfect fit.

1.2 Features

- Supports Intel® Pentium® M / Celeron® M or onboard ULV Intel® Celeron® Processor at 600MHz
- Supports 48-bit dual channel LVDS TFT Panel
- Supports one DDR266 memory slot up to 1GB
- 6 channels AC97 2.0 Codec with S/P DIF function
- Supports Mini-PCI socket, PCMCIA slots
- 4 COM / 4 USB2.0 / TV-out / DVI / Digital I/O

1.3 Specifications

System

- CPU: Onboard ULV Intel® Celeron® Processor at 600MHz or Socket 478 Intel® Pentium® M / Celeron® M Processor up to 1.8GHz
- Memory: DDR DIMM x 1, support DDR266 up to 1GB
- Chipset: Intel® 852GM + 82801DB(ICH4)
- I/O Chipset: ITE IT8712F
- Ethernet: Intel® 82551, 10/100Base-TX RJ-45 connector
- BIOS: AWARD512KB FLASH ROM
- Watchdog Timer: Generates a Time-out System Reset
- H/W Status Monitor: Supports Power Supply Voltages and Temperatures Monitoring
- SSD: Type II CompactFlash™ slot x 1
- Expansion Interface: Type III Mini-PCI Socket x 1; PCI slot x1, Type II PCMCIA x 2 (optional)

Display

- Chipset: Intel® 852GM + Chrontel 7009
- Memory size: Shared System Memory Up to 64MB with DVMT
- Resolutions: Up to 1280 x 1024 @ 32bpp Colors for CRT; Up to 1280 x 1024 @ 24bpp Colors for LCD
- TV-out: Supports NTSC and PAL standard; Supports CRT/LCD, CRT/TV, CRT/DVI, LCD/DVI and LCD/TV Simultaneous Display

I/O

- MIO: EIDE x 1(UDMA100x 1), FDD x 1, KB + Mouse x 1, RS-232 x 3, RS-232/422/485 x 1, Parallel x 1
- IrDA: IrDA Tx/Rx header x 1
- Audio: MIC-in, Line-in, Line-out / Speaker-out, 5.1 Output
- USB: USB 2.0 ports x 4
- Digital I/O Supports Digital I/O (8 in and 8 out, 16 in or 16 out)

Mechanical and Environment

- Dimension: 8”(L) x 5.75”(W) (203mmx146mm)
- Weight: 1.2lb (0.5kg)
- Operation Temp: 32˚F~140˚F (0˚C~60˚C)
- Battery: Lithium battery
- Power Supply Voltage: +5V. AT/ATX

Chapter

2

Quick Installation Guide

Notice:

The Quick Installation Guide is derived from Chapter 2 of user manual. For other chapters and further installation instructions, please refer to the user manual CD-ROM that came with the product.

Part No. 2007815014 Printed in Taiwan June 2008

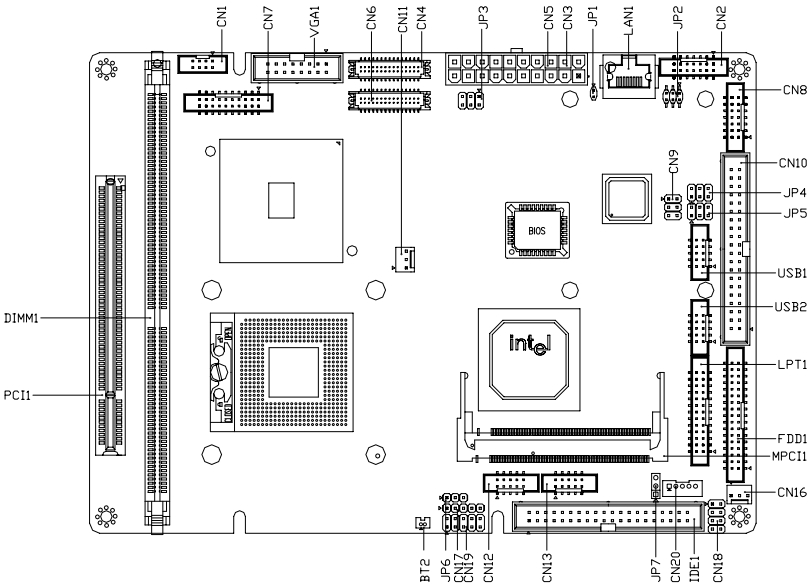
2.1 Safety Precautions

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.

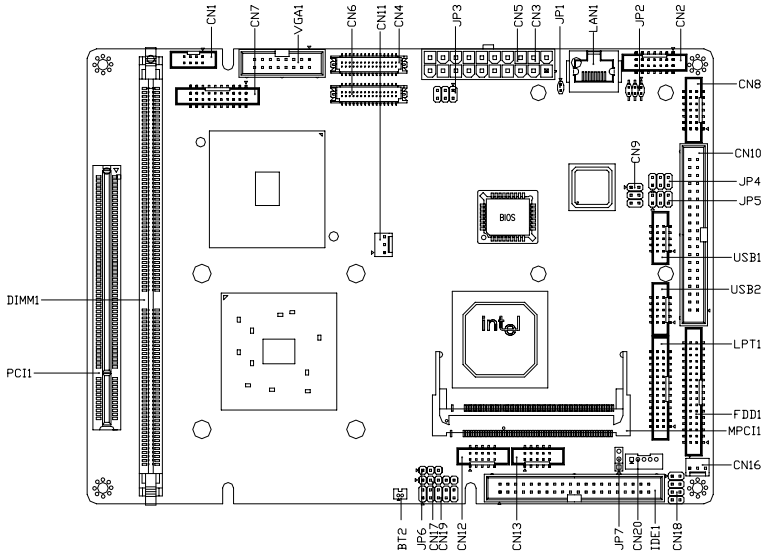
Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not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

2.2 Location of Connectors and Jumpers

Component Side

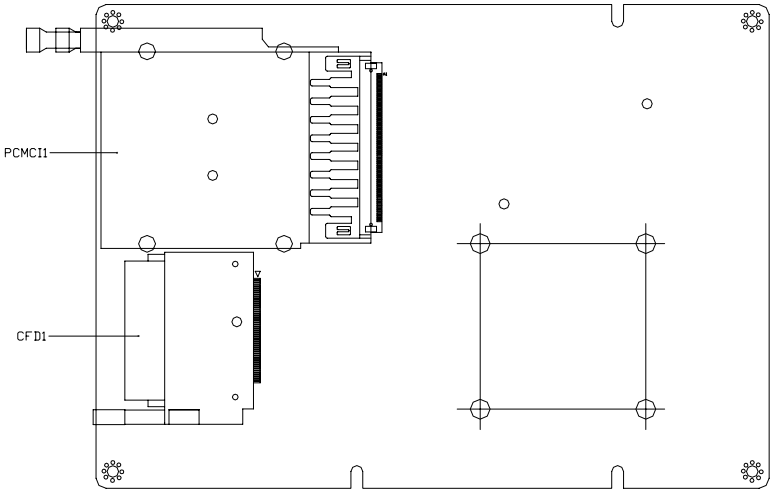


Type I: Socket 478 CPU



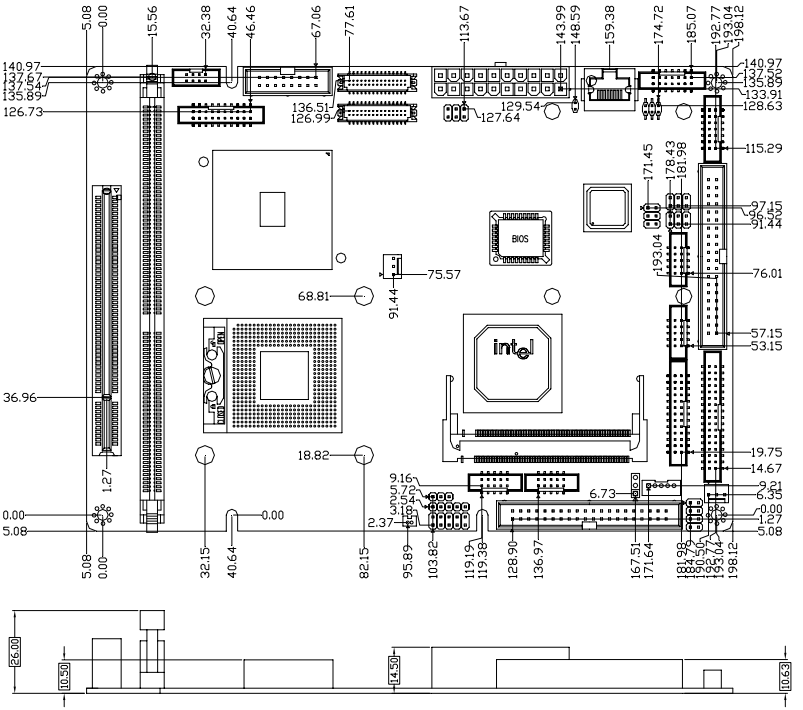
Type II: Onboard CPU

Solder Side

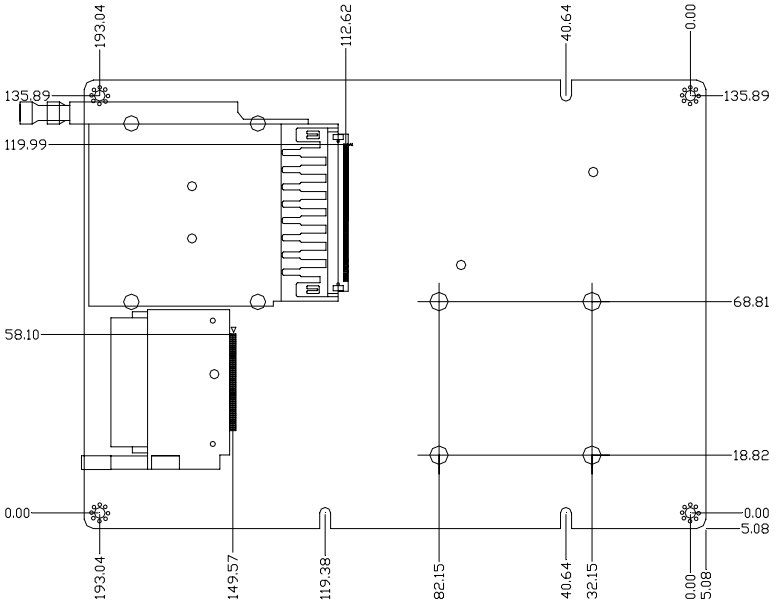


2.3 Mechanical Drawing

Component Side



Solder Side


193.04
112.62
40.64
0.00
135.89
135.89
119.99
68.81
58.10
18.82
0.00
0.00
5.08
193.04
149.57
119.38
82.15
40.64
32.15
0.00
5.08

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	ATX Power to AT Function
JP2	Audio Out Selection
JP3	LCD Voltage Selection
JP4	COM4 Ring/+5V/+12V Selection
JP5	COM3 Ring/+5V/+12V Selection
JP6	Clear CMOS
JP7	LCD INVERTER Voltage Selection

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

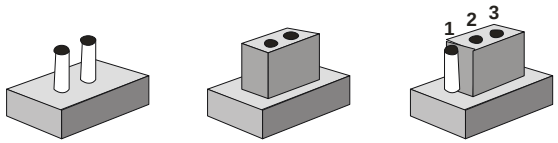
Label	Function
CN1	TV_Out Connector
CN2	Audio Connector (Audio 5.1 Channel /SPDIF)
CN4	LVDS Connector For 82852GM
CN5	ATX Power Connector
CN6	LVDS Connector For CH7017
CN7	DVI Connector
CN8	Audio Connector(Audio 2 Channel /Amplifier)
CN9	LAN LED Connector
CN10	COM1-4 Connector
CN11	CPU Fan Connector
CN12	Digital I/O-1 Connector
CN13	Digital I/O-2 Connector
CN16	System Fan Connector
CN17	IrDA Connector
CN18	Internal Keyboard and Mouse Connector
CN19	Front Panel Connector
CN20	LCD Inverter Connector
FDD1	Floppy Connector
IDE1	EIDE Connector

VGA1	VGA Display Connector
LPT1	LPT Port Connector
USB1	USB 0/1Connector
USB2	USB 2/3 Connector
LAN1	10/100 Base-TX Ethernet Connector
PCI1	PCI Slot
MPCI1	Mini PCI Slot
PCMCIA1	PCMCIA Slot
DIMM1	DDR DIMM Slot
CFD1	CompactFlash Socket

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 ATX Emulation AT Power Selection (JP1)

JP1	Function
ON	AT
OFF	ATX (Default)

2.8 Audio Out Selection (JP2)

JP2	Function
1-3, 2-4	W/O Amplifier
3-5, 4-6	W/ Amplifier (Default)

2.9 LCD Voltage Selection (JP3)

JP3	Function	Voltage
1-3	LVDS-LCD for 82852GM	+5V
2-4	LVDS-LCD for CH7017	+5V
3-5	LVDS-LCD for 82852GM	+3.3V (Default)
4-6	LVDS-LCD for CH7017	+3.3V (Default)

2.10 COM4 Ring/+5V/+12V Selection (JP4)

JP4	Function
1-2	+12V
3-4	+5V
5-6	Ring (Default)

2.11 COM3 Ring/+5V/+12V Selection (JP5)

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

2.12 Clear CMOS (JP6)

JP6	Function
1-2	Protected (Default)
2-3	Clear

2.13 LCD Inverter Voltage Selection (JP7)

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

2.14 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.

2.15 Audio SPDIF Connector (CN2)

Pin	Signal	Pin	Signal
1	Front-R	2	GND
3	Front-L	4	GND
5	SURROUND-R	6	GND
7	SURROUND-L	8	GND
9	LFEOUT	10	GND
11	CENOUT	12	GND
13	SPDIFO-N	14	SPDIFI-N

2.16 LVDS Connector (CN4)

Pin	Signal	Pin	Signal
1	LVDS_BKLEN	2	LVDS_BKLCTL
3	PPVCC_1	4	GND
5	LVDS_TXLCLK (-)	6	LVDS_TXLCLK(+)
7	PPVCC_1	8	GND
9	LVDS_TXL0(-)	10	LVDS_TXL0(+)
11	LVDS_TXL1(-)	12	LVDS_TXL1(+)
13	LVDS_TXL2(-)	14	LVDS_TXL2(+)
15	LVDS_TXL3(-)	16	LVDS_TXL3(+)
17	LVDS_DDCPDATA	18	LVDS_DDCPCLK
19	LVDS_TXU0(-)	20	LVDS_TXU0(+)
21	LVDS_TXU1(-)	22	LVDS_TXU1(+)
23	LVDS_TXU2(-)	24	LVDS_TXU2(+)
25	LVDS_TXU3(-)	26	LVDS_TXU3(+)
27	PPVCC_1	28	GND
29	LVDS_TXUCLK(-)	30	LVDS_TXUCLK(+)

2.17 ATX Power Connector (CN5)

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

15	GND	16	GND
17	GND	18	-5V
19	+5V	20	+5V

2.18 LVDS Connector For CH7017 (CN6)

Pin	Signal	Pin	Signal
1	LVDS_BKLEN	2	LVDS_BKLCTL
3	PPVCC_1	4	GND
5	LVDS_TXLCLK (-)	6	LVDS_TXLCLK(+)
7	PPVCC_1	8	GND
9	LVDS_TXL0(-)	10	LVDS_TXL0(+)
11	LVDS_TXL1(-)	12	LVDS_TXL1(+)
13	LVDS_TXL2(-)	14	LVDS_TXL2(+)
15	LVDS_TXL3(-)	16	LVDS_TXL3(+)
17	LVDS_DDCPDATA	18	LVDS_DDCPCLK
19	LVDS_TXU0(-)	20	LVDS_TXU0(+)
21	LVDS_TXU1(-)	22	LVDS_TXU1(+)
23	LVDS_TXU2(-)	24	LVDS_TXU2(+)
25	LVDS_TXU3(-)	26	LVDS_TXU3(+)
27	PPVCC_1	28	GND
29	LVDS_TXUCLK(-)	30	LVDS_TXUCLK(+)

2.19 DVI Connector (CN7)

Pin	Signal	Pin	Signal
1	DVI_TD1(+)	2	DVI_TD1(-)
3	GND	4	GND
5	DVI_TDC(+)	6	DVI_TDC(-)
7	GND	8	+5V

9	HPDET	10	+5V
11	DVI_TD2(+)	12	DVI+TD2(-)
13	GND	14	GND
15	DVI_TD0(+)	16	DVI_TD0(-)
17	N.C.	18	N.C.
19	MDVI_DATA	20	MDVI_CLK

2.20 Audio Connector (CN8)

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	12	LINE_OUT_R
13	LINE_OUT_GND	14	LINE_OUT_GND

2.21 LAN LED Connector (CN9)

Pin	Signal	Pin	Signal
1	Link/Active LED (+)	2	Link/ Active LED (-)
3	Speed 100Base-TX LED (+)	4	Speed 100Base-TX LED (-)
5	Speed 1000Base-T LED (+)	6	Speed 1000Base-T LED (-)

2.22 COM 1/2/3/4 Connector (CN10)

Pin	Signal	Pin	Signal
1	DCD1	2	DSR1
3	RXD1	4	RTS1
5	TXD1	6	CTS1

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

2.23 CPU Fan Connector (CN11)

Pin	Signal
1	GND
2	+5V
3	Speed Sense

2.24 Digital I/O-1 Connector (CN12) Address=801H

Pin	Signal	Pin	Signal
1	DIO1-1	2	DIO1-2
3	DIO1-3	4	DIO1-4

5	DIO1-5	6	DIO1-6
7	DIO1-7	8	DIO1-8
9	+5V	10	GND

BIOS Setting	Connector Definition	Address	IT8712 GPIO Setting
DIO1-1	CN13 Pin 1	Bit 7	U38 Pin 28 (GPIO17)
DIO1-2	CN13 Pin 2	Bit 6	U38 Pin 29 (GPIO16)
DIO1-3	CN13 Pin 3	Bit 5	U38 Pin 30 (GPIO15)
DIO1-4	CN13 Pin 4	Bit 4	U38 Pin 31 (GPIO14)
DIO1-5	CN13 Pin 5	Bit 3	U38 Pin 32 (GPIO13)
DIO1-6	CN13 Pin 6	Bit 2	U38 Pin 33 (GPIO12)
DIO1-7	CN13 Pin 7	Bit 1	U38 Pin 34 (GPIO11)
DIO1-8	CN13 Pin 8	Bit 0	U38 Pin 84 (GPIO10)

2.25 Digital I/O-2 Connector (CN13) Address=800H

Pin	Signal	Pin	Signal
1	DIO2-1	2	DIO2-2
3	DIO2-3	4	DIO2-4
5	DIO2-5	6	DIO2-6
7	DIO2-7	8	DIO2-8
9	+5V	10	GND

BIOS Setting	Connector Definition	Address	IT8712 GPIO Setting
DIO2-1	CN12 Pin 1	Bit 7	U38 Pin 20 (GPIO 27)
DIO2-2	CN12 Pin 2	Bit 6	U38 Pin 21 (GPIO 26)
DIO2-3	CN12 Pin 3	Bit 5	U38 Pin 22 (GPIO 25)

DIO2-4	CN12 Pin 4	Bit 4	U38 Pin 23 (GPIO 24)
DIO2-5	CN12 Pin 5	Bit 3	U38 Pin 22 (GPIO 23)
DIO2-6	CN12 Pin 6	Bit 2	U38 Pin 23 (GPIO 22)
DIO2-7	CN12 Pin 7	Bit 1	U38 Pin 24 (GPIO 21)
DIO2-8	CN12 Pin 8	Bit 0	U38 Pin 25 (GPIO 20)

2.26 System Fan Connector (CN16)

Pin	Signal
1	GND
2	+5V
3	Speed Sense

2.27 IrDA Connector (CN17)

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

2.28 Internal Keyboard and Mouse Connector (CN18)

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

2.29 Front Panel Connector (CN19)

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 (+)

2.30 LCD Inverter Connector (CN20)

Pin	Signal
1	VCC of LCD Inverter (+5V/+12V)
2	Adjust backlight
3	GND
4	GND
5	ENBKL

2.31 Floppy Connector (FDD1)

Pin	Signal	Pin	Signal
1	GND	2	# REDWC
3	GND	4	N.C.
5	GND	6	# DS1
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

2.32 EIDE Connector (IDE1)

Pin	Signal	Pin	Signal
1	IDE RESET	2	GND
3	DATA7	4	DATA 8
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	IRQ14	32	N.C.
33	ADDR1	34	UDMA DETECT

35	ADDR0	36	ADDR2
37	CS#1	38	CS#3
39	LED	40	GND

2.33 VGA Display Connector (VGA1)

Pin	Signal	Pin	Signal
1	RED	2	VGAVCC
3	GREEN	4	GND
5	BLUE	6	N.C.
7	N.C.	8	SDATA
9	GND	10	H
11	GND	12	V
13	GND	14	SCLK
15	GND	16	N.C.

2.34 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.

2.35 USB Connector (USB1)

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

2.36 USB Connector (USB2)

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

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

AAEON 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.

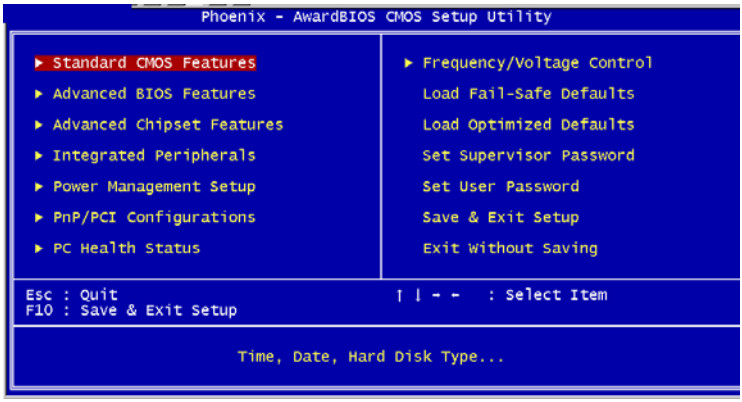
The PCM-8150 CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it finally runs down.

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. (Primary slave, secondary slave, 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

This menu allows you to set the shutdown temperature for your system.

Frequency/Voltage Control

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

Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

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 Supervisor/User Password

Use this menu to set Supervisor/User Passwords.

Save and Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

You can refer to the "AAEON BIOS Item Description.pdf" file in the CD for the meaning of each setting in this chapter.

Chapter

4

Driver Installation

OS Support For Microsoft® Windows® 2000, Windows® XP only

The PCM-8150 comes with a CD-ROM that contains most of drivers and utilities of your needs.

Please follow the sequence below to install the drivers:

Step 1 – Install Intel® Chipset Software Installation Utility

Step 2 – Install Intel® Extreme Graphics Driver

Step 3 – Install Intel® LAN Driver

Step 4 – Install Realtek AC97 codec Driver

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-8150 CD-ROM into the CD-ROM Drive. And install the drivers from Step 1 to Step 4 in order.

Step 1 – Install Intel® Chipset Software Installation Utility

1. Click on the ***Intel® Chipset Software Installation Utility*** folder and then double click on the ***infinst_autol.exe.***
2. Follow the instructions that the window shows you.
3. The system will help you install the driver automatically.

Step 2 – Install Intel® Extreme Graphics Driver

1. Click on the ***Intel® Extreme Graphics Driver*** folder and then double click on the ***SETUP.exe.***

2. Follow the instructions that the window shows you.
3. The system will help you install the driver automatically.

Remark: You can choose the different display ways by pressing below hot key

C+A+F1 = CRT, C+A+F2=LCD, C+A+F3=TV, C+A+F4=DVI, C+A+F12=Graphic Control Panel

Step 3 – Install Intel® LAN Driver

There're two folders after you enter the 'Step 3' folder. You can install either ***Intel® LAN 82551er Driver*** or ***Intel® LAN 825xx Driver*** in terms of the board you purchased.

Intel® LAN 82551er Driver

1. Double click on the **82551ER exe.** before you key in the

path where you want the unzipped files place on and then click on Unzip button.

2. Click on **Start**, **Settings**, **Control Panel** and **System** button in order.
3. Select **Device Manager** under the **Hardware** category.
4. Double click on the **Ethernet controller** and select **reinstall Driver** button under the **General** category.
5. Click **Next** twice and tick the **Specify a location** option.
6. Click **Next** and choose a route where you want place the folders on before you click on **open**.
7. Click **Next**, **Yes** and **Finish** button in order**,** and the window will show you how to finish the installation process.

Intel® LAN 825xx Driver

1. Click on the ***Intel® LAN 825xx Driver*** folder and then double click on the ***pro2kxp.exe.***
2. Follow the instructions that the window shows you.
3. The system will help you install the driver automatically.

Step 4 – Install Realtek AC97 Codec Driver

1. Click on the ***Realtek AC97 codec Driver*** folder and then double click on the ***wdm_a367.exe***
2. Follow the instructions that the window shows you.
3. The system will help you install the driver automatically.

Appendix

A

Programming the Watchdog Timer

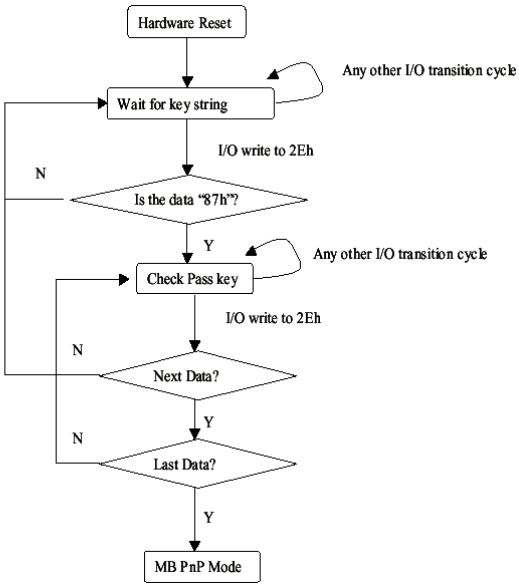
A.1 Programming

PCM-8150 utilizes ITE 8712 chipset as its watchdog timer controller.

Below are the procedures to complete its configuration and the AAEON 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 devices 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    proc    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

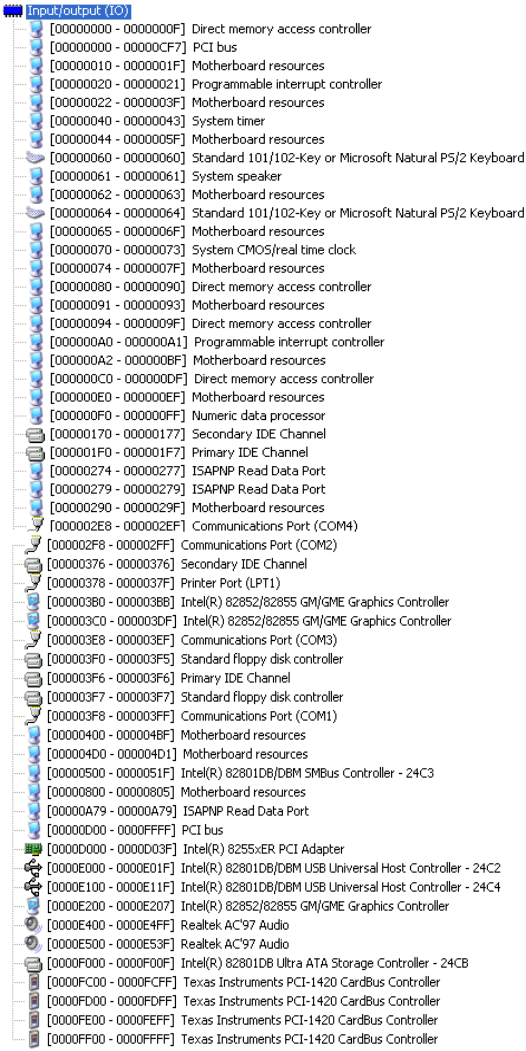
00h: no interrupt selected

Appendix

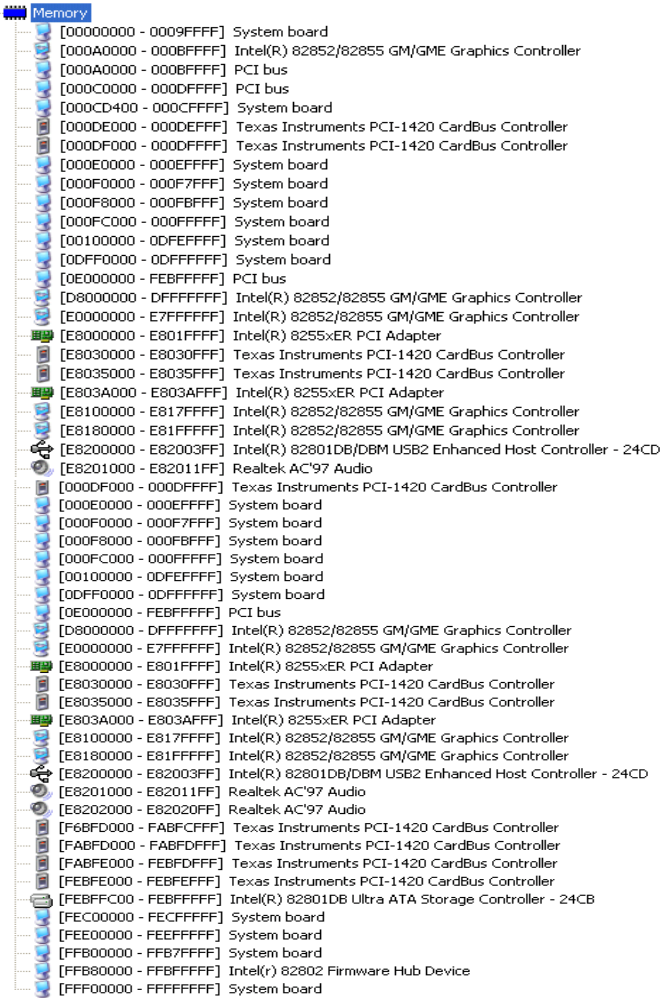
B

I/O Information

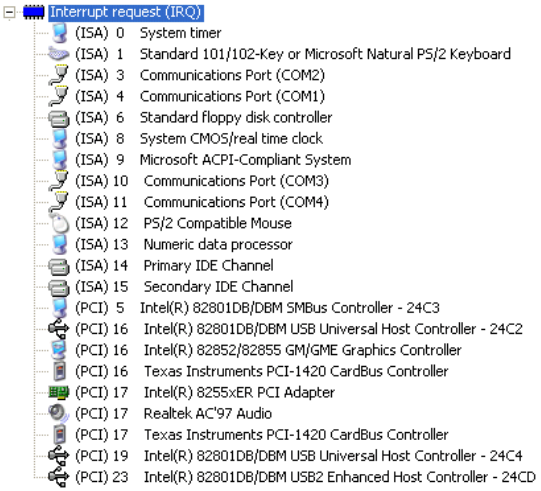
B.1 I/O Address Map



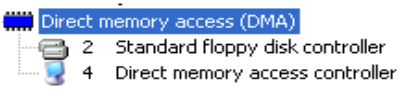
B.2 Memory Address Map



B.3 IRQ Mapping Chart



B.4 DMA Channel Assignments



Appendix C

Mating Connector

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 Connector	Neltron	2026B-08	TV Cable	1700080180
CN2	Audio Connector	Neltron	2026B-14	Audio 5.1ch Cable	1700140164
CN4	LVDS Connector	Hirose	DF13-30DS-1.25C	N/A	N/A
CN5	ATX Connector	Neltron	2418HJ-20-PHD	N/A	N/A
CN7	DVI Connector	Neltron	2026B-20	DVI Cable	1700200200
CN8	Audio Connector	Neltron	2026B-14	Audio 2ch Cable	1700140510
CN9	LAN LED Connector	Neltron	2226B-xx	N/A	N/A
CN10	COM port Connector	Keen Top	1014 serial FC socket 2.54mm	COM port Cable	1701400180
CN11	Fan Connnector	Molex	Housing 2695	N/A	N/A
CN12	GPIO Connector	Neltron	2026B-10	N/A	N/A
CN13	GPIO Connector	Neltron	2026B-10	N/A	N/A
CN16	Fan Connnector	Molex	Housing 2695	N/A	N/A
CN17	IrDA Connector	Neltron	2226A-05	N/A	N/A
CN18	KB&MS Connector	Neltron	2226B-08	Keyboard & Mouse Cable	1700080204

CN19	Front Panel Connector	Neltron	2226A-xx	N/A	N/A
CN20	LVDS Backlifgt Connector	HO Base	Ho-Base 2000-H-5	N/A	N/A
FDD1	Floppy Connector	HR	A2016H-N-2 X17P-A	Floppy Disk Drive Cable	1701340600
IDE1	HDD connector	Hi-TOP	ATP2xxxxxx xx	Hard Disk Driver Cable	1701400453
VGA1	VGA Connector	Keen Top	1014 serial FC socket 2.54mm	VGA Cable	1701160152
LPT1	LPT Connector	Keen Top	MFC socket 2.0mm	Printer Cable	1701260308
USB1	USB connector	Neltron	2026B-10	USB Cable	1709100201
USB2	USB Connector	Neltron	2026B-10	USB Cable	1709100201
LAN1	Serial Port 5 Connector	Neltron	7001-8P8C	N/A	N/A