

# **PCM-9574**

Socket 370 Celeron™/Pentium® III  
SBC with LCD, Ethernet and SCSI

**User's Manual**

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This manual is for the PCM-9574, Rev. A2.

## Packing list

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

- 1 PCM-9574 all-in-one single board computer
- 1 CD disc with utility and drivers
- 1 Startup Manual

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

Please refer to Appendix E for the optional interface wiring kit.

# Contents

|                  |  |           |
|------------------|--|-----------|
| <b>Chapter 1</b> | <b>General Information</b>                     | <b>1</b>  |
| 1.1              | <b>Introduction</b>                            | <b>2</b>  |
|                  | Highly integrated Socket 370 SBC               | 2         |
| 1.2              | <b>Features</b>                                | <b>3</b>  |
| 1.3              | <b>Specifications</b>                          | <b>3</b>  |
|                  | Standard SBC functions                         | 3         |
|                  | PCI SVGA/flat panel interface                  | 4         |
|                  | PCI bus Ethernet interface                     | 5         |
|                  | Audio Function                                 | 5         |
|                  | Solid state disk                               | 5         |
|                  | PanelLink (optional)                           | 5         |
|                  | Mechanical and environmental                   | 5         |
| 1.4              | <b>Board layout and dimensions</b>             | <b>6</b>  |
| <b>Chapter 2</b> | <b>Installation</b>                            | <b>7</b>  |
| 2.1              | <b>Jumpers</b>                                 | <b>8</b>  |
| 2.2              | <b>Connectors</b>                              | <b>9</b>  |
| 2.3              | <b>Locating jumpers</b>                        | <b>10</b> |
| 2.4              | <b>Locating connectors</b>                     | <b>11</b> |
|                  | 2.4.1 Component side                           | 11        |
|                  | 2.4.2 Solder side                              | 12        |
| 2.5              | <b>Setting jumpers</b>                         | <b>13</b> |
| 2.6              | <b>CPU installation and upgrading</b>          | <b>14</b> |
|                  | 2.6.1 Installing a CPU in the ZIF socket       | 14        |
|                  | 2.6.2 CMOS clear (J1)                          | 15        |
|                  | 2.6.3 Buzzer enable/disable (J9)               | 15        |
| 2.7              | <b>Installing DRAM (SODIMMs)</b>               | <b>16</b> |
|                  | 2.7.1 Introduction                             | 16        |
|                  | 2.7.2 Installing SODIMMs                       | 16        |
| 2.8              | <b>IDE Hard Drive Connector (CN11)</b>         | <b>16</b> |
|                  | 2.8.1 Connecting the hard drive                | 17        |
| 2.9              | <b>Floppy drive connector (CN9)</b>            | <b>17</b> |
|                  | 2.9.1 Connecting the floppy drive              | 18        |
| 2.10             | <b>Parallel port connector (CN12)</b>          | <b>18</b> |
| 2.11             | <b>Keyboard and PS/2 mouse connector (CN5)</b> | <b>19</b> |

|  |           |
|--|-----------|
| <b>2.12 Front panel connector (CN18)</b> .....                 | <b>19</b> |
| 2.12.1 Speaker .....   | 19        |
| 2.12.2 LED interface .....                                     | 19        |
| 2.12.3 Watchdog output .....                                   | 19        |
| 2.12.4 Reset switch .....                                      | 20        |
| <b>2.13 Power connectors (FAN1, CN14, CN6)</b> .....           | <b>20</b> |
| 2.13.1 Peripheral power connector, -5 V, -12 V(CN14) .....     | 20        |
| 2.13.2 Main power connector, +5 V, +12 V (CN6) .....           | 20        |
| 2.13.3 Fan power supply connector (FAN1) .....                 | 20        |
| <b>2.14 ATX power control connector (CN2, J4)</b> .....        | <b>21</b> |
| 2.14.1 ATX feature connector (CN2) and power button (J4) ..... | 21        |
| <b>2.15 ATX power on function select (J11)</b> .....           | <b>22</b> |
| <b>2.16 IR connector (CN8)</b> .....                           | <b>22</b> |
| <b>2.17 COM-port connector (CN20)</b> .....                    | <b>22</b> |
| 2.17.1 COM2 RS-232/422/485 setting (J10) .....                 | 23        |
| 2.17.2 COM3/COM4 RI pin setting (J6) .....                     | 23        |
| <b>2.18 VGA interface connections</b> .....                    | <b>26</b> |
| 2.18.1 CRT display connector (CN15) .....                      | 26        |
| 2.18.2 Flat panel display connector (CN16) .....               | 26        |
| 2.18.3 Ext. flat panel display connector (CN17) .....          | 26        |
| 2.18.4 Panel type select (SW1) .....                           | 27        |
| <b>2.19 Ethernet configuration</b> .....                       | <b>28</b> |
| 2.19.1 100Base-T connector (CN1) .....                         | 28        |
| 2.19.2 Network boot .....                                      | 28        |
| 2.19.3 LAN controller power select(J12) .....                  | 28        |
| <b>2.20 Watchdog timer configuration</b> .....                 | <b>29</b> |
| 2.20.1 Watchdog timer action (J2) .....                        | 29        |
| <b>2.21 USB connectors (CN19)</b> .....                        | <b>29</b> |
| <b>2.22 Audio interfaces (CN25, CN26)</b> .....                | <b>30</b> |
| 2.22.1 Audio connector (CN26) .....                            | 30        |
| 2.22.2 CD audio input connector (CN25) .....                   | 30        |
| 2.22.3 Audio power source setting (J13) .....                  | 30        |
| <b>2.23 PanelLink (CN22) (optional)</b> .....                  | <b>31</b> |
| <b>2.24 MDC interface (CN 24)</b> .....                        | <b>31</b> |

## **Chapter 3 Software Configuration** .....

|  |           |
|--|-----------|
| <b>3.1 Introduction</b> .....                    | <b>34</b> |
| <b>3.2 Ethernet software configuration</b> ..... | <b>35</b> |

## **Chapter 4 Award BIOS Setup** .....

|   |           |
|---|-----------|
| <b>4.1 System test and initialization</b> ..... | <b>38</b> |
|---|-----------|

|   |           |
|---|-----------|
| 4.1.1 System configuration verification ..... | 38        |
| <b>4.2 Award BIOS setup .....</b>             | <b>39</b> |
| 4.2.1 Entering setup .....                    | 39        |
| 4.2.2 Standard CMOS setup .....               | 40        |
| 4.2.3 BIOS features setup .....               | 41        |
| 4.2.4 Chipset features setup .....            | 42        |
| 4.2.5 Power management setup .....            | 43        |
| 4.2.6 PnP/PCI configuration .....             | 44        |
| 4.2.7 Integrated peripherals .....            | 45        |
| 4.2.8 Load BIOS defaults .....                | 46        |
| 4.2.9 Change password .....                   | 47        |
| 4.2.10 Auto detect hard disk .....            | 48        |
| 4.2.11 Save & exit setup .....                | 48        |
| 4.2.12 Exit without saving .....              | 48        |

## **Chapter 5 PCI SVGA Setup ..... 49**

|  |           |
|--|-----------|
| <b>5.1 Introduction .....</b>                | <b>50</b> |
| 5.1.1 Chipset .....                          | 50        |
| 5.1.2 Display memory .....                   | 50        |
| 5.1.3 Display types .....                    | 50        |
| 5.1.4 Dual/simultaneous display .....        | 51        |
| <b>5.2 Installation of SVGA driver .....</b> | <b>52</b> |
| 5.2.1 Installation for Windows 95/98 .....   | 53        |
| 5.2.2 Installation for Windows NT .....      | 56        |
| <b>5.3 Further information .....</b>         | <b>59</b> |

## **Chapter 6 Audio ..... 61**

|   |           |
|---|-----------|
| <b>6.1 Introduction .....</b>                   | <b>62</b> |
| <b>6.2 Installation of audio driver .....</b>   | <b>62</b> |
| 6.2.1 Installation for Windows 95/98/2000 ..... | 63        |
| 6.2.2 Installation for Windows NT .....         | 64        |

## **Chapter 7 PCI Bus Ethernet Interface ..... 65**

|   |           |
|---|-----------|
| <b>7.1 Introduction .....</b>                       | <b>66</b> |
| <b>7.2 Installation of Ethernet driver .....</b>    | <b>66</b> |
| 7.2.1 Installation for MS-DOS and Windows 3.1 ..... | 66        |
| 7.2.2 Installation for Windows 95/98 .....          | 67        |
| 7.2.3 Installation for Windows NT .....             | 69        |
| <b>7.3 Further information .....</b>                | <b>71</b> |

**Appendix A Programming the Watchdog Timer ..... 73**  
    A.1 Programming the watchdog timer ..... 74

**Appendix B Installing PC/104 Modules ..... 77**  
    B.1 Installing PC/104 modules ..... 78

**Appendix C Pin Assignments ..... 81**  
    C.1 Ethernet 10/100Base-T connector (CN1) ..... 82  
    C.2 ATX power feature connector (CN2) ..... 82  
    C.3 Keyboard and PS/2 mouse connector (CN5) ..... 83  
    C.4 Main power connector (CN6) ..... 84  
    C.5 IR connector (CN8) ..... 84  
    C.6 Floppy drive connector (CN9) ..... 85  
    C.7 IDE hard drive connector (CN11) ..... 86  
    C.8 Parallel port connector (CN12) ..... 87  
    C.9 Backlight connector (CN13) ..... 88  
    C.10 Peripheral power connector (CN14) ..... 88  
    C.11 CRT display connector (CN15) ..... 89  
    C.12 24-bit LCD display connector (CN16) ..... 90  
    C.13 Ext. LCD display connector (CN17) ..... 91  
    C.14 LCD signal mapping ..... 92  
    C.15 Front panel connector (CN18) ..... 93  
    C.16 USB connectors (CN19) ..... 93  
    C.17 COM port connector (CN20) ..... 94  
    C.18 CompactFlash™ card connector (CN21) ..... 95  
    C.19 PanelLink connector (CN22) ..... 96  
    C.20 Fan power connector (FAN1) ..... 97  
    C.21 CD audio input connector (CN25) ..... 97  
    C.22 MDC Connector (CN24) ..... 98  
    C.23 Audio connector (CN26) ..... 99

**Appendix D System Assignments ..... 101**  
    D.1 System I/O ports ..... 102  
    D.2 1st MB memory map ..... 103  
    D.3 DMA channel assignments ..... 103  
    D.4 IRQ mapping chart ..... 104



**Appendix E Optional Extras ..... 105**

E.1 PCM-10586- 4A cable kit for PCM-9574 ..... 106  
E.2 USB cable ..... 107  
E.3 24-bit LCD cable adapter ..... 107  
E.4 PanelLink Receiver Module(PCM-3542R) ..... 107  
E.5 PanelLink Cable ..... 107

**Appendix F Mechanical Drawings ..... 109**

F.1 Component side ..... 110  
F.2 Solder side ..... 111

# Tables

|  |    |
|--|----|
| Table 2-1: Jumpers .....   | 8  |
| Table 2-2: Connectors .....                                      | 9  |
| Table 2-3: CMOS clear (J1) .....                                 | 15 |
| Table 2-4: Buzzer enable/disable (J9) .....                      | 15 |
| Table 2-5: ATX power on function select (J11) .....              | 22 |
| Table 2-6: COM2 RS-232/422/485 setting (J10) .....               | 23 |
| Table 2-7: Serial port default settings .....                    | 23 |
| Table 2-8: COM1 RI pin setting (J6) .....                        | 24 |
| Table 2-9: COM2 RI pin setting (J6) .....                        | 24 |
| Table 2-10: COM3 RI pin setting (J6) .....                       | 25 |
| Table 2-11: COM4 RI pin setting (J6) .....                       | 25 |
| Table 2-12: Panel type select (SW1) .....                        | 27 |
| Table 2-13: LAN controller power select (J12) .....              | 28 |
| Table 2-14: Watchdog timer action (J2) .....                     | 29 |
| Table 2-15: Audio power source setting .....                     | 31 |
| Table B-1: PC/104 connectors (CN10) .....                        | 80 |
| Table C-1: Ethernet 10Base-T connector (CN1) .....               | 82 |
| Table C-2: ATX power feature connector (CN2) .....               | 82 |
| Table C-4: Keyboard and mouse connector (CN5) .....              | 83 |
| Table C-5: Main power connector (CN6) .....                      | 84 |
| Table C-6: IR connector (CN8) .....                              | 84 |
| Table C-7: Floppy drive connector (CN9) .....                    | 85 |
| Table C-8: IDE hard drive connector (CN11) .....                 | 86 |
| Table C-9: Parallel port connector (CN12) .....                  | 87 |
| Table C-10: Backlight connector (CN13) .....                     | 88 |
| Table C-11: Peripheral power connector (CN14) .....              | 88 |
| Table C-12: CRT display connector (CN15) .....                   | 89 |
| Table C-13: 24-bit LCD display connector (CN16) .....            | 90 |
| Table C-14: Ext. LCD display connector (CN17) .....              | 91 |
| Table C-15: LCD signal mapping .....                             | 92 |
| Table C-16: Front panel connector (CN18) .....                   | 93 |
| Table C-17: USB connectors (CN19) .....                          | 93 |
| Table C-18: COM port connector (CN20) .....                      | 94 |
| Table C-19: COM2 port for RS-232, RS-422 and RS-485 (CN20) ..... | 95 |
| Table C-20: CompactFlash card connector (CN21) .....             | 95 |
| Table C-21: PanelLink connector (CN22) .....                     | 96 |
| Table C-22: Fan power connector (FAN1) .....                     | 97 |
| Table C-23: CD audio input connector (CN25) .....                | 97 |
| Table C-24: MDC connector (CN24) .....                           | 98 |

|  |     |
|--|-----|
| Table C-25: Audio connector (CN26) ..... | 99  |
| Table D-1: System I/O ports .....        | 102 |
| Table D-2: 1st MB memory map .....       | 103 |
| Table D-3: DMA channel assignments ..... | 103 |
| Table D-4: IRQ mapping chart .....       | 104 |

# Figures

|  |     |
|--|-----|
| Figure 1-1: PCM-9574 dimensions .....                          | 6   |
| Figure 2-1: Locating jumpers .....                             | 10  |
| Figure 2-2: Locating connectors (component side) .....         | 11  |
| Figure 2-3: Locating connectors (solder side) .....            | 12  |
| Figure 2-4: Wiring for ATX power switch function .....         | 21  |
| Figure 4-1: Setup program initial screen .....                 | 39  |
| Figure 4-2: CMOS setup screen .....                            | 40  |
| Figure 4-3: BIOS features setup .....                          | 41  |
| Figure 4-4: Chipset features setup .....                       | 42  |
| Figure 4-5: Power management setup .....                       | 43  |
| Figure 4-6: PnP/PCI configuration .....                        | 44  |
| Figure 4-7: Integrated peripherals .....                       | 45  |
| Figure 4-8: Load BIOS defaults .....                           | 46  |
| Figure 4-9: IDE HDD auto detection screen .....                | 48  |
| Figure 5-1: Selecting display settings .....                   | 51  |
| Figure B-1: PC/104 module mounting diagram .....               | 79  |
| Figure B-2: PC/104 module dimensions (mm) ( $\pm 0.1$ ) .....  | 79  |
| Figure F-1: PCM-9574 mechanical drawing - component side ..... | 110 |
| Figure F-2: PCM-9574 mechanical drawing - solder side .....    | 111 |

## **General Information**

This chapter gives background information on the PCM-9574.

Sections include:

- Introduction
- Features
- Specifications
- Board layout and dimensions

## 1.1 Introduction

---

The PCM-9574 is an all-in-one Celeron™/Pentium® III level single board computer (SBC) with an AC 97 Audio interface a 2x AGP LCD controller, a PCI Fast Ethernet interface and one PCI expansion slot. With the Intel Celeron™ processor, the PCM-9574 achieves outstanding performance that surpasses any other SBC in its class. This compact unit is only 203 x 146 mm (8" x 5.75"). It offers all the functions of a single board industrial computer, but still fits in the space of a 5.25" floppy drive.

On-board features include four serial ports (three RS-232, one RS-232/422/485), one multi-mode parallel (ECP/EPP/SPP) port, two USB (Universal Serial Bus) ports, one infrared port (SIR), one CompactFlash socket for CFC, a floppy drive controller, and a keyboard/PS/2 mouse interface. The built-in high-speed PCI IDE controller supports PIO, UDMA/33 and bus master modes. Up to two IDE devices can be connected, including large hard disks, CD-ROM drives and tape backup drives.

The PCM-9574 features power management to minimize power consumption. It complies with the "Green Function" standard and supports doze, standby and suspend modes. In addition, the board's watchdog timer can automatically reset the system or generate an interrupt in case the system stops due to a program bug or EMI.

The PCM-9574 has been certified as complying with FCC Class A and CE Marking Class A.

### **Highly integrated Socket 370 SBC**

The PCM-9574 is a highly integrated SBC that combines AC 97 Audio, PanelLink, and network functions on a single computer board the size of a 5.25" floppy drive. Major on-board devices adopt PCI technology to achieve outstanding computing performance when used with Intel® Celeron™/Pentium® III processors, making the PCM-9574 the world's smallest and most powerful all-in-one Socket 370 board.

## 1.2 Features

---

- **Audio:** Supports AC 97 3D surround stereo sound
- **3D VGA/LCD interface:** Supports a 2x AGP interface, 3D 64-bit engine, as well as a 2.5 MB embedded Trident 9525 DVD chip
- **Display resolution:** Up to 1024 x 768 @ 64 K colors, for both LCD and CRT displays
- **PanelLink (optional):** Scalable bandwidth of 25 ~ 112 MHz (VGA 640 x 480 ~ SXGA 1280 x 1024)
- **100 MHz FSB design:** To facilitate future upgrading to Pentium® III
- **Wake on LAN; modem**
- **Option MDC software modem card**

## 1.3 Specifications

---

### Standard SBC functions

- **CPU:** Socket 370 for Intel® Celeron™ processors up to 500 MHz or higher in the future; Intel® Pentium® III in the future
- **BIOS:** Award 256 KB Flash BIOS, supports Plug & Play, APM
- **Chipset:** Intel 440BX
- **Green function:** APM 1.1 compliant
- **2nd level cache:** 128 KB on the Celeron™ processor; 256 KB on the Pentium® III processor
- **RAM:** Two 144-pin SODIMM sockets accept 8 ~ 256 MB SDRAM
- **Enhanced IDE interface:** Primary channel for 2 IDE devices. Secondary channel for CompactFlash card
- **FDD interface:** Supports up to two FDDs (360 KB/1.2 MB/ 720 KB/1.44 MB/2.88 MB)

- **Parallel port:** One parallel port, supports SPP/EPP/ECP parallel mode
- **Serial ports:** Four serial ports with +5 V / +12 V power capability (COM1, 3, 4: RS-232; and COM2: RS-232/422/485)
- **Watchdog timer:** Software enabled/disabled. 62-level interval from 1 to 62 seconds. Jumperless selection. Generates system reset or IRQ11
- **Keyboard/mouse connector:** 8-pin header connector for keyboard and PS/2 mouse
- **USB interface:** Two USB connectors with fuse protection. Complies with USB Spec. Rev. 1.0
- **Infrared port:** Supports up to 115 Kbps transfer rates
- **PC/104 expansion:** 104-pin 16-bit PC/104 module connector
- **I/O bus expansion:** One 32-bit PCI bus expansion slot

## PCI SVGA/flat panel interface

- **Chipset:** Trident Cyber 9525 DVD, high performance 64-bit GUI, 3D engine
- **Display memory:** 2.5 MB of SDRAM frame buffer on cyber 9525DVD.
- **Display type:** Simultaneously supports CRT and flat panel (EL, LCD and gas plasma) displays
- **Interface:** 2x AGP, Accelerator Graphics Ports 1.0 compliant
- **Display mode:**

LCD panel supports up to 800 x 600 @ 24 bpp, 1024 x 768 @ 24 bpp.

CRT displays support up to 800 x 600 @ 24 bpp, 1024 x 768 @ 24 bpp



## PCI bus Ethernet interface

- **Chipset:** Realtek RTL8139 PCI-bus Ethernet controller
- **Ethernet interface:** PCI 100/10 Mbps Ethernet, IEEE 802.3U protocol compatible
- **Connection:** On-board RJ-45 connector
- **I/O address switchless setting**
- **Built-in boot ROM**

## Audio Function

- **Chipset:** ES 1989
- **Audio Controller:** AC97 ver. 2.0 compliant interface
- **Audio interface:** Microphone in, Line in, CD audio in, line out, Speaker L, Speaker R

## Solid state disk

- **One 50-pin socket:** For one CompactFlash card, shared with one IDE channel

## PanelLink (optional)

- **Chipset:** SiI 154 PanelLink Digital Transmitter
- **Scalable band width:** Ranging from 25 ~ 112 MHz (VGA ~ SAGG)

## Mechanical and environmental

- **Dimensions (L x W):** 203 x 146 mm (8" x 5.75")
- **Power supply voltage:** +5 V  $\pm$ 5%
- **Power requirements:** 5.2 A @ 5 V (4.75 to 5.25) (typical, 64 MB DRAM, Celeron™ -433 CPU)
- **Operating temperature:** 0 ~ 60° C (32 ~ 140° F)
- **Weight:** 0.32 kg (0.7 lb)

# 1.4 Board layout and dimensions

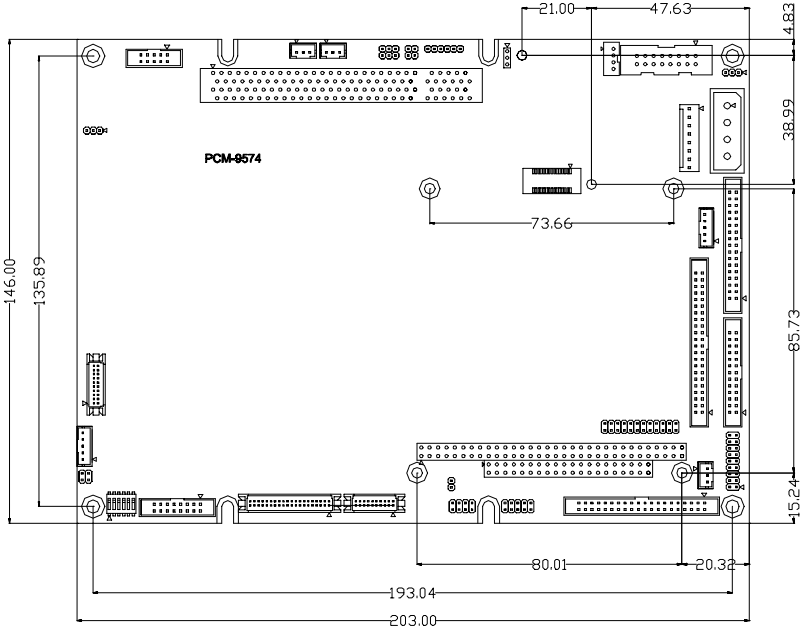


Figure 1-1: PCM-9574 dimensions

# CHAPTER 2

## Installation

This chapter tells how to set up the PCM-9574 hardware, including instructions on setting jumpers and connecting peripherals, switches and indicators. Be sure to read all the safety precautions before you begin the installation procedure.

## 2.1 Jumpers

---

The PCM-9574 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 board's jumpers:

Table 2-1: Jumpers

| <b>Label</b> | <b>Function</b>              |
|--------------|------------------------------|
| J1           | CMOS clear                   |
| J2           | Watchdog timer action        |
| J4           | ATX power switch button      |
| J6           | COM port RI pin setting      |
| J7           | PanelLink control            |
| J9           | Buzzer enable/disable        |
| J10          | COM2 RS-232/422/485 setting  |
| J11          | ATX power on function select |
| J12          | LAN controller power select  |
| J13          | Audio power source setting   |
| SW1          | Panel type select            |

## 2.2 Connectors

---

On-board connectors link the PCM-9574 to external devices such as hard disk drives, a keyboard, or floppy drives. The table below lists the function of each of the board's connectors:

Table 2-2: Connectors

| <b>Label</b> | <b>Function</b>                   |
|--------------|-----------------------------------|
| CN1          | Ethernet 100/10Base-T connector   |
| CN2          | ATX feature connector             |
| CN5          | Keyboard and PS/2 mouse connector |
| CN6          | Main power connector              |
| CN8          | IR connector                      |
| CN9          | Floppy drive connector            |
| CN10         | PC/104 ISA-bus expansion          |
| CN11         | IDE hard drive connector          |
| CN12         | Parallel port connector           |
| CN13         | Backlight connector               |
| CN14         | Peripheral power connector        |
| CN15         | CRT display connector             |
| CN16         | Flat panel connector              |
| CN17         | Ext. flat panel display connector |
| CN18         | Front panel connector             |
| CN19         | USB channel 1, 2 connector        |
| CN20         | COM-port connector                |
| CN21         | CFC connector                     |
| CN22         | PanelLink connector               |
| CN24         | MDC connector                     |
| CN25         | CD Audio input connector          |
| CN26         | Audio connector                   |
| FAN1         | Fan power connector               |

Please refer to Appendix C for pin assignments.

## 2.3 Locating jumpers

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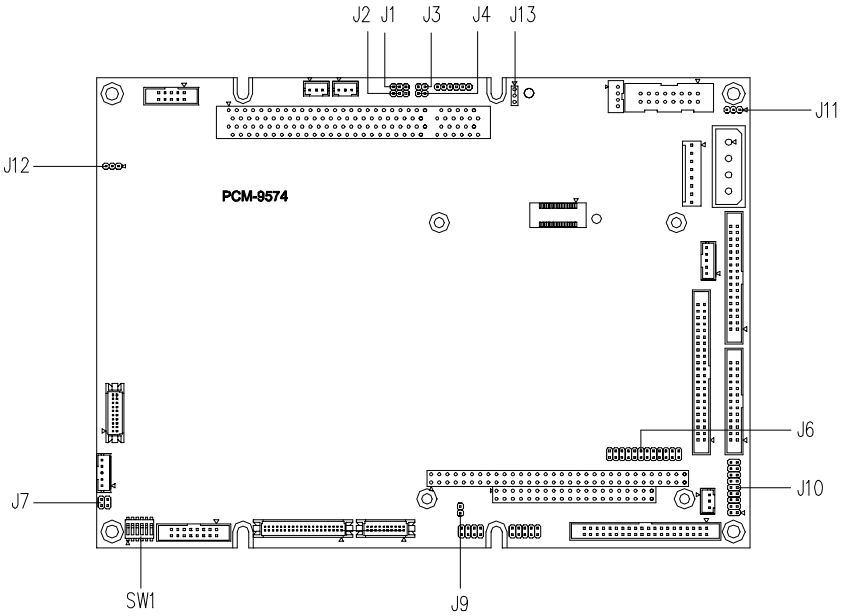


Figure 2-1: Locating jumpers

# 2.4 Locating connectors

## 2.4.1 Component side

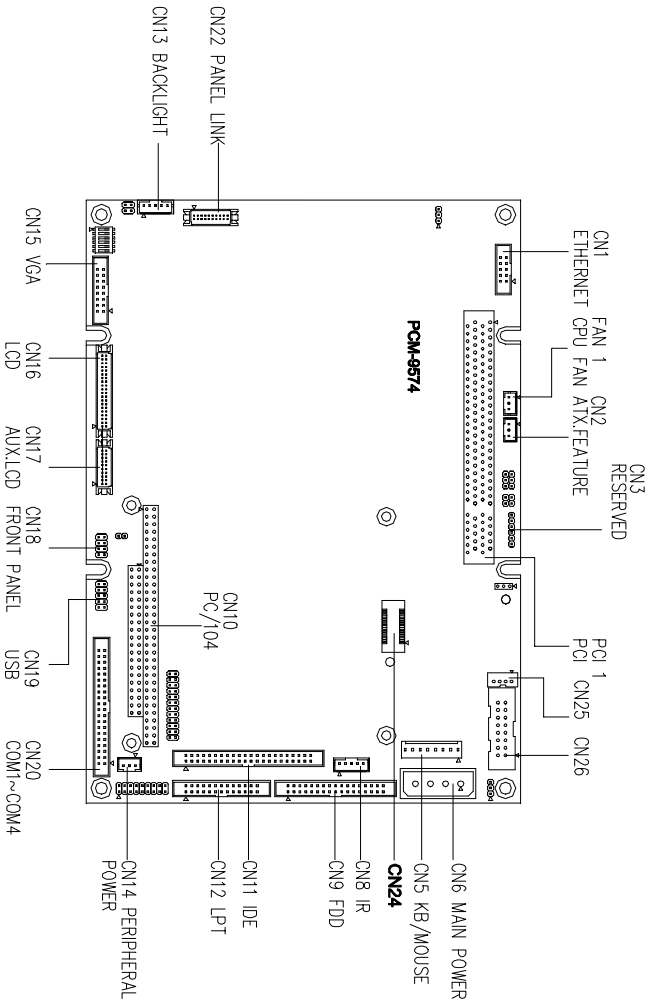
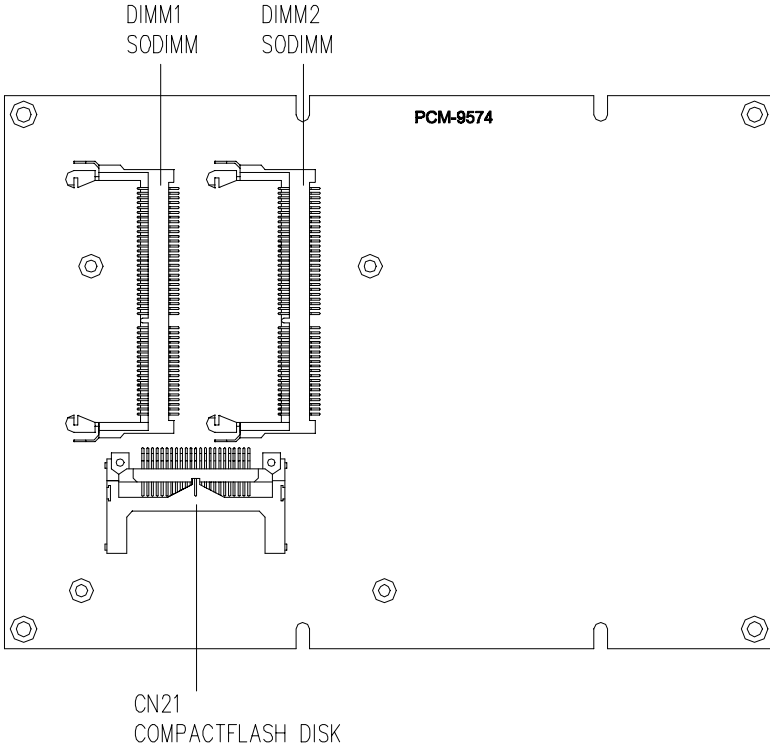


Figure 2-2: Locating connectors (component side)

## 2.4.2 Solder side



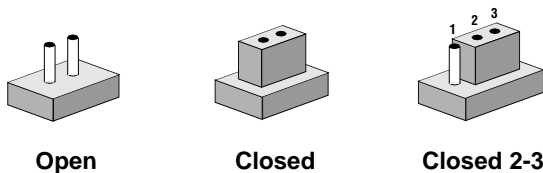
*Figure 2-3: Locating connectors (solder side)*



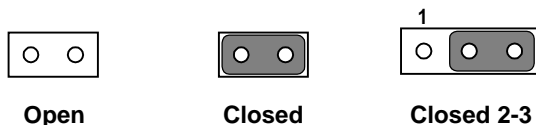
## 2.5 Setting jumpers

---

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.



The jumper settings are schematically depicted in this manual as follows:



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 changes.

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

## 2.6 CPU installation and upgrading

---

You can upgrade to a higher power Pentium processor at any time. Simply remove the old CPU, install the new one, and set the jumpers for the new CPU type and speed.

**Warning!** *Always disconnect the power cord from your chassis when you are working on it. Do not make connections while the power is on as sensitive electronic components can be damaged by the sudden rush of power. Only experienced electronics personnel should open the PC chassis.*



**Caution!** *Always ground yourself to remove any static charge before touching the PC 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.*



### 2.6.1 Installing a CPU in the ZIF socket

The PCM-9574 provides a Zero Insertion Force (ZIF) socket for easy CPU installation.

1. Make sure the ZIF socket lever is in the upright position. To raise the lever, pull it out to the side a little and raise it as far as it will go.
2. Place the CPU in the empty socket. Follow the instructions that came with the CPU. If you have no instructions, do the following: Carefully align the CPU so it is parallel to the socket and the notch on the corner of the CPU corresponds with the notch on the inside of the socket. Gently slide the CPU in. It should insert easily. If it doesn't, pull the lever up a little more.
3. Press the lever down. The plate will slide forward. You will feel some resistance as the pressure starts to secure the CPU in the socket. This is normal and will not damage the CPU.

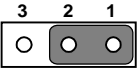
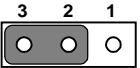
When the CPU is installed, the lever should snap into place at the side of the socket.

**Note:** To remove a CPU, pull the lever out to the side a little and raise it as far as it will go. Lift out the CPU chip.

## 2.6.2 CMOS clear (J1)

**Warning:** To avoid damaging the computer, always turn off the power supply before setting “Clear CMOS.” Set the jumper back to “3V Battery On” before turning on the power supply.



Table 2-3: CMOS clear (J1)

|    | * 3 V battery on  | Clear CMOS  |
|----|---|---|
| J1 |  |  |

\* default setting

## 2.6.3 Buzzer enable/disable (J9)

Table 2-4: Buzzer enable/disable (J9)

|    | * Enabled   | Disabled  |
|----|---|---|
| J9 |  |  |

\* default setting

## 2.7 Installing DRAM (SODIMMs)

---

### 2.7.1 Introduction

You can install anywhere from 16 MB to 128 MB of on-board DRAM memory using 16, 32, 64 or 128 MB 144-pin SODIMMs (Small Outline Dual In-Line Memory Modules).

### 2.7.2 Installing SODIMMs

*Note: The modules can only fit into a socket one way and their gold pins must point down into the SODIMM socket.*

The procedure for installing SODIMMs appears below. Please follow these steps carefully.

1. Ensure that all power supplies to the system are switched Off.
2. Install the SODIMM card. Install the SODIMM so that its gold pins point down into the SODIMM socket.
3. Slip the SODIMM into the socket at a 45 degree angle and carefully fit the bottom of the card against the connectors.
4. Gently push the SODIMM into a perpendicular position until the clips on the ends of the SODIMM sockets snap into place.
5. Check to ensure that the SODIMM is correctly seated and all connector contacts touch. The SODIMM should not move around in its socket.

## 2.8 IDE Hard Drive Connector (CN11)

---

You can attach one or two Enhanced Integrated Device Electronics hard disk drives to the PCM-9574's internal controller. The PCM-9574's IDE controller uses a PCI local-bus interface. This advanced IDE controller supports faster data transfer, PIO mode 3, mode 4.

### 2.8.1 Connecting the hard drive

Connecting drives is done in a daisy-chain fashion and requires one of two cables (not included in this packing), depending on the drive size. 1.8" and 2.5" drives need a 1 x 44-pin to 2 x 44-pin flat-cable connector. 3.5" drives use a 1 x 44-pin to 2 x 40-pin connector.

Wire number 1 on the cable is red or blue, and the other wires are gray.

1. Connect one end of the cable to CN11. Make sure that the red (or blue) wire corresponds to pin 1 on the connector, which is labeled on the board (on the right side).
2. Plug the other end of the cable to the Enhanced IDE hard drive, with pin 1 on the cable corresponding to pin 1 on the hard drive. (See your hard drive's documentation for the location of the connector.)

Connect a second drive as described above.

Unlike floppy drives, IDE hard drives can connect to either end of the cable. If you install two drives, you will need to set one as the master and one as the slave by using jumpers on the drives. If you install just one drive, set it as the master.

## 2.9 Floppy drive connector (CN9)

---

You can attach up to two floppy drives to the PCM-9574's on-board controller. You can use any combination of 5.25" (360 KB and 1.2 MB) and/or 3.5" (720 KB, 1.44 MB, and 2.88 MB) drives.

A 34-pin daisy-chain drive connector cable is required for a dual-drive system. On one end of the cable is a 34-pin flat-cable connector. On the other end are two sets of floppy disk drive connectors. Each set consists of a 34-pin flat-cable connector (usually used for 3.5" drives) and a printed-circuit board connector (usually used for 5.25" drives).

### 2.9.1 Connecting the floppy drive

1. Plug the 34-pin flat-cable connector into CN9. Make sure that the red wire corresponds to pin one on the connector.
2. Attach the appropriate connector on the other end of the cable to the floppy drive(s). You can use only one connector in the set. The set on the end (after the twist in the cable) connects to the A: drive. The set in the middle connects to the B: drive.
3. If you are connecting a 5¼" floppy drive, line up the slot in the printed circuit board with the blocked-off part of the cable connector.

If you are connecting a 3½" floppy drive, you may have trouble determining which pin is pin number one. Look for a number printed on the circuit board indicating pin number one. In addition, the connector on the floppy drive connector may have a slot. When the slot is up, pin number one should be on the right. Check the documentation that came with the drive for more information.

If you desire, connect the B: drive to the connectors in the middle of the cable as described above.

If you need to make your own cable, you can find the pin assignments for the board's connector in Appendix C.

## 2.10 Parallel port connector (CN12)

---

Normally, the parallel port is used to connect the card to a printer. The PCM-9574 includes a multi-mode (ECP/EPP/SPP) parallel port, accessed through CN12, a 26-pin flat-cable connector. You will need an adapter cable if you use a traditional DB-25 connector. The adapter cable has a 26-pin connector on one end and a DB-25 connector on the other.

The parallel port is designated as LPT1 and can be disabled or changed to LPT2 or LPT3 in the system BIOS setup.

The parallel port interrupt channel is designated to be IRQ7.

You can select ECP/EPP DMA channel via BIOS setup.

## **2.11 Keyboard and PS/2 mouse connector (CN5)**

---

The PCM-9574 board provides a keyboard connector that supports both a keyboard and a PS/2 style mouse. In most cases, especially in embedded applications, a keyboard is not used. The standard PC/AT BIOS will report an error or fail during power-on self-test (POST) after a reset if the keyboard is not present. The PCM-9574's BIOS standard setup menu allows you to select "All, But Keyboard" under the "Halt On" selection. This allows no-keyboard operation in embedded system applications without the system halting under POST (power-on-self-test).

## **2.12 Front panel connector (CN18)**

---

Next, you may want to install external switches to monitor and control the PCM-9574. These features are optional - install them only if you need them. The front panel connector (CN18) is an 8-pin male, dual in-line header and provides connections for a speaker, hard disk access indicator, watchdog output and an input switch for resetting the card.

### **2.12.1 Speaker**

The PCM-9574 can drive an 8  $\Omega$  speaker at 0.5 watts. Make sure that alternatives to this specification do not overload the card.

### **2.12.2 LED interface**

The front panel LED indicator for hard disk access is an active low signal (24 mA sink rate).

### **2.12.3 Watchdog output**

When PCM-9574 watchdog timer times out, the front panel pin 6 will output an active low pulse signal (25 mA sink rate for 1 second).

### **2.12.4 Reset switch**

If you install a reset switch, it should be an open single pole switch. Momentarily pressing the switch will activate a reset. The switch should be rated for 10 mA, 5 V.

If you need to make your own cable, you can find the pin assignments for the board's connector in Appendix C.

## **2.13 Power connectors (FAN1, CN14, CN6)**

---

### **2.13.1 Peripheral power connector, -5 V, -12 V (CN14)**

Supplies secondary power to devices that require -5 V and -12 V.

### **2.13.2 Main power connector, +5 V, +12 V (CN6)**

Supplies main power to the PCM-9574 (+5 V) and devices that require +12 V.

### **2.13.3 Fan power supply connector (FAN1)**

Provides power supply to optional CPU cooling fan. Only present when +5 V and +12 V power is supplied to the board.



## 2.14 ATX power control connector (CN2, J4)

---

### 2.14.1 ATX feature connector (CN2) and power button (J4)

The PCM-9574 can support an advanced power button if an ATX power supply is used. To enable the power button:

1. Take the specially designed ATX-to-PS/2 power cable (PCM-9574 optional item).
2. Connect the 3-pin plug of the cable to CN2 (ATX feature connector).
3. Connect the power on/off button to J4. (A momentary type of button should be used.)

*Important: Be sure that the ATX power supply can take at least a 10 mA load on the 5 V standby lead (5 VSB). If not, you may have difficulty powering on your system.*

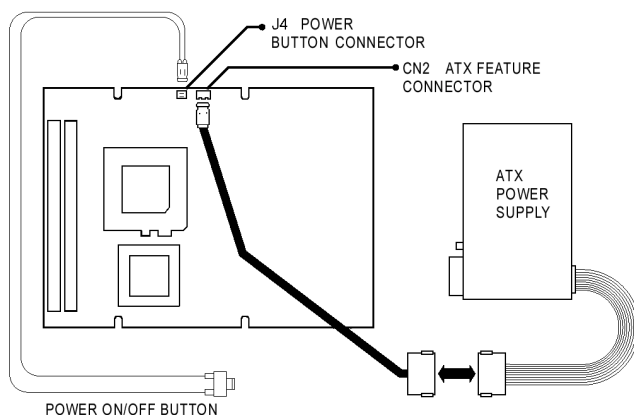




Figure 2-4: Wiring for ATX power switch function

## 2.15 ATX power on function select (J11)

---

Table 2-5: ATX power on function select (J11)

---

|     | Default on  |   |   | Default off *   |   |   |
|-----|---|---|---|---|---|---|
| J11 | 3   | 2 | 1 | 3   | 2 | 1 |
|     |  |   |   |  |   |   |

---

\* default setting

*Note1: J11 select 1-2, that while AC power is turned on, the system cannot boot up without ATX power switch button J4.*

*Note2: J11 select 2-3, that while AC power is turned on, the cannot boot up without ATX power switch button J4.*

## 2.16 IR connector (CN8)

---

The PCM-9574 provides an IrDA port for transfer rates of 115 Kbps. This connector supports the optional wireless infrared transmitting and receiving module. This module mounts on the system case. You must configure the setting through BIOS setup.

## 2.17 COM-port connector (CN20)

---

The PCM-9574 provides four serial ports (COM1, 3, 4: RS-232; COM2: RS-232/422/485) in one COM port connector. The COM port connector is a 40-pin, dual-in-line, male header and provides connections for serial devices (a mouse, etc.) or a communication network. You can find the pin assignments for the COM port connector in Appendix C

### 2.17.1 COM2 RS-232/422/485 setting (J10)

COM2 can be configured to operate in RS-232, RS-422, or RS-485 mode. This is done via J10.

Table 2-6: COM2 RS-232/422/485 setting (J10)

|     | * RS-232 | RS-422 | RS-485 |
|-----|----------|--------|--------|
| J10 |          |        |        |

\* default setting

The IRQ and the address range for COM1, 2, 3, 4 are fixed. However, if you wish to disable the port or change these parameters later you can do this in the system BIOS setup. The table below shows the settings for the PCM-9574's serial ports.

Table 2-7: Serial port default settings

| Port | Address range | Interrupt |
|------|---------------|-----------|
| COM1 | 3F8 ~ 3FF     | IRQ4      |
| COM2 | 2F8 ~ 2FF     | IRQ3      |
| COM3 | 3E8 ~ 3EF     | IRQ10     |
| COM4 | 2E8 ~ 2EF     | IRQ5      |

### 2.17.2 COM3/COM4 RI pin setting (J6)

COM1 through COM4 can supply +5 V or +12 V power to the serial devices via the RI pin of the COM port connector. The outputs of the COM1 ~ COM4 RI pins are selected by setting J6.

Table 2-8: COM1 RI pin setting (J6)

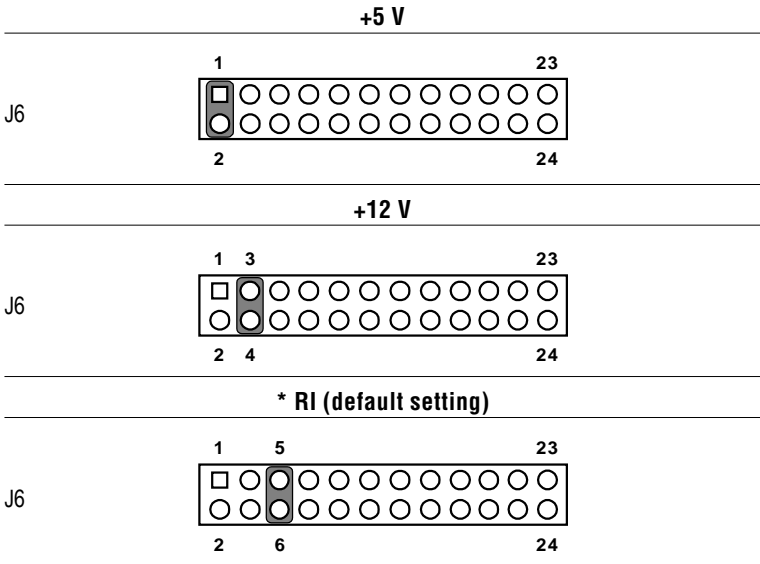


Table 2-9: COM2 RI pin setting (J6)

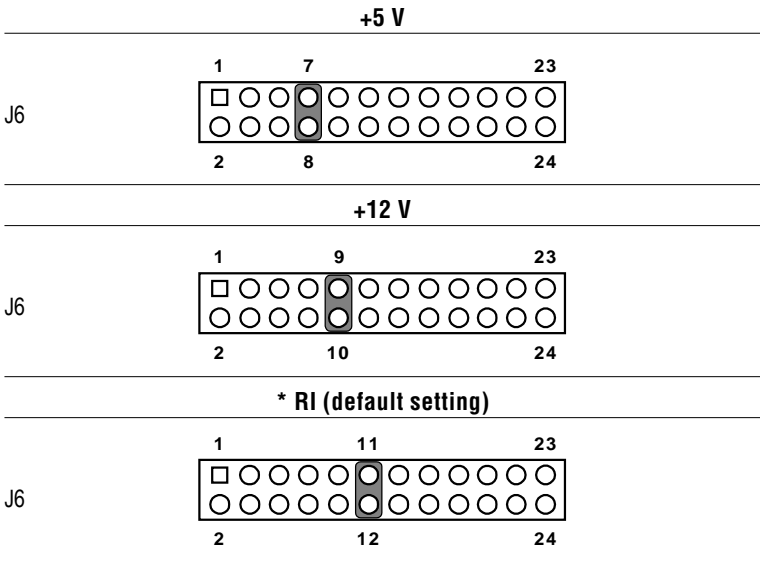


Table 2-10: COM3 RI pin setting (J6)

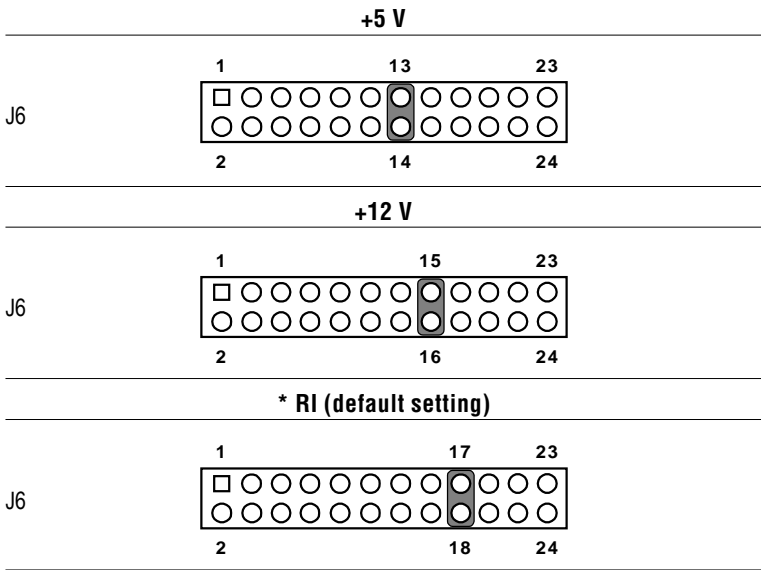
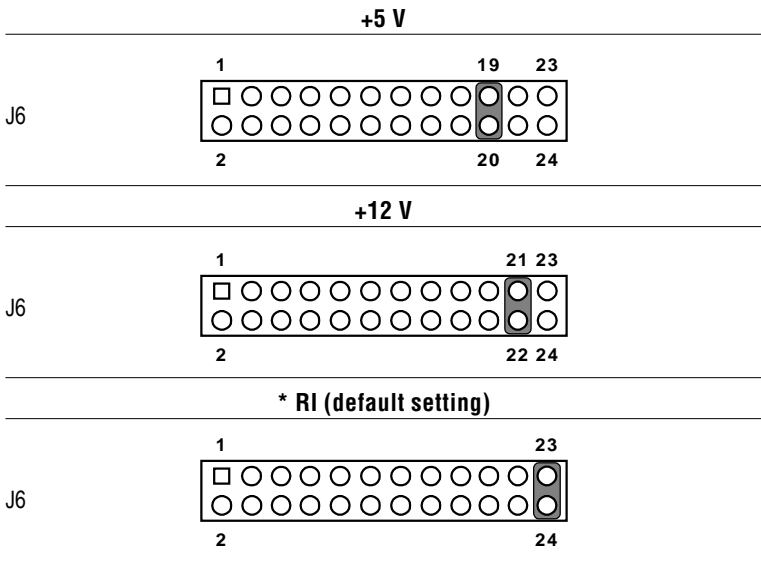


Table 2-11: COM4 RI pin setting (J6)



## 2.18 VGA interface connections

---

The PCM-9574's PCI SVGA interface can drive conventional CRT displays and is capable of driving a wide range of flat panel displays, including electroluminescent (EL), gas plasma, passive LCD and active LCD displays. The board has two connectors to support these displays, one for standard CRT VGA monitors and one for flat panel displays.

### 2.18.1 CRT display connector (CN15)

CN15 is a 16-pin, dual-in-line header used for conventional CRT displays. A simple one-to-one adapter can be used to match CN15 to a standard 15-pin D-SUB connector commonly used for VGA.

Pin assignments for CRT display connector CN15 are detailed in Appendix C.

### 2.18.2 Flat panel display connector (CN16)

CN16 is a 40-pin connector which can support a 24-bit TFT LCD. It is Hirose's product no. DF13A-40DP-1.25V.

The PCM-9574 provides a bias control signal on CN16 that can be used to control the LCD bias voltage. It is recommended that the LCD bias voltage not be applied to the panel until the logic supply voltage (+5 V or +3.3 V) and panel video signals are stable. Under normal operation, the control signal (ENAVEE) is active high. When the PCM-9574's power is applied, the control signal is low until just after the relevant flat panel signals are present.

### 2.18.3 Ext. flat panel display connector (CN17)

CN17 consists of a 20-pin header, which is Hirose's product no. DF13A-20DP-1.25V. The PCM-9574 supports a 36-bit LCD panel with connections to both CN16 and CN17. For details of pin assignments, refer to Appendix C.

## 2.18.4 Panel type select (SW1)

SW1 is a 6-pin dip switch for selecting the type of panel and display mode.

Table 2-12: Panel type select (SW1)

| Panel type            | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 |
|-----------------------|-------|-------|-------|-------|-------|-------|
| TFT 640 x 480 18-bit  | OFF   | ON    | ON    | ON    | ON    | -     |
| TFT 800 x 600 18-bit  | OFF   | OFF   | ON    | ON    | ON    | -     |
| TFT 1024 x 768 24-bit | OFF   | ON    | OFF   | ON    | ON    | -     |
| TFT 1024 x 768 36-bit | OFF   | OFF   | OFF   | ON    | ON    | -     |
| STN 640 x 480 16-bit  | OFF   | ON    | ON    | ON    | OFF   | -     |
| STN 800 x 600 16-bit  | OFF   | OFF   | ON    | ON    | OFF   | -     |
| STN 1024 x 768 16-bit | OFF   | ON    | OFF   | ON    | OFF   | -     |
| STN 1024 x 768 24-bit | OFF   | OFF   | OFF   | ON    | OFF   | -     |
| Default setting       | ON    | ON    | ON    | ON    | ON    | ON    |

*Note 1: If the Pin 1 of SW1 is in the ON position, the LCD is disconnected.*

*Note 2: Pin 6 is reserved for PanelLink setting.*

## 2.19 Ethernet configuration

---

The PCM-9574 is equipped with a high performance 32-bit PCI-bus Ethernet interface which is fully compliant with IEEE 802.3U 10/100Mbps CSMA/CD standards. It is supported by all major network operating systems.

The medium type can be configured via the RSET8139.EXE program included on the utility disk. (See Chapter 3 for detailed information.)

### 2.19.1 100Base-T connector (CN1)

100Base-T connects to the PCM-9574 via an adapter cable to a 10-pin polarized header (CN1). For 10Base-T RJ-45 operation, an adapter cable converting CN1 into a standard RJ-45 jack is required.

### 2.19.2 Network boot

The Network Boot feature can be utilized by incorporating the Boot ROM image files for the appropriate network operating system. The Boot ROM BIOS files are on the included utility disk.

### 2.19.3 LAN controller power select(J12)

---

Table 2-13 LAN controller power select (J12)

---



\* default setting

**Note:** *PCM-9574 supports wake-on on LAN. For wake-on LAN, J12 has to select standby 5 V (2-3 position)*



## 2.20 Watchdog timer configuration

---

An on-board watchdog timer reduces the chance of disruptions which EMP (electro-magnetic pulse) interference can cause. This is an invaluable protective device for standalone or unmanned applications. Setup involves one jumper and running the control software (refer to Appendix A).

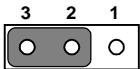
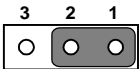
### 2.20.1 Watchdog timer action (J2)

When the watchdog timer activates (CPU processing has come to a halt), it can reset the system or generate an interrupt on IRQ11. This can be set via setting J2 as shown below:

---

Table 2-14: Watchdog timer action (J2)

---

|    | * System reset  | IRQ11   |
|----|---|---|
| J2 |  |  |

---

\* default setting

## 2.21 USB connectors (CN19)

---

The PCM-9574 board provides two USB (Universal Serial Bus) interfaces which gives complete plug and play, hot attach/detach for up to 127 external devices. The USB interfaces comply with USB specification rev. 1.0 and are fuse protected.

The USB interfaces are accessed through two 4-pin flat-cable connectors, CN19. You will need an adapter cable if you use a standard USB connector. The adapter cable has a 4-pin connector on one end and an USB connector on the other.

The USB interfaces can be disabled in the system BIOS setup.

## **2.22 Audio interfaces (CN25, CN26)**

---

The PCM-9574 is equipped with a high-quality audio interface, which provides 16-bit CD-quality recording and playback as well as OPL3 compatible FM music. It is supported by all major operating systems, and is 100% Sound Blaster Pro compatible.

### **2.22.1 Audio connector (CN26)**

The PCM-9574 provides all major audio signals on a 16-pin flat-cable connector, CN26. These audio signals include Microphone in (mono), Line in (stereo), Line out (stereo), and Speaker out (stereo). If you use traditional telephone jack connectors for these audio signals, you will need an adapter cable.

### **2.22.2 CD audio input connector (CN25)**

Any CD-ROM drive can provide analog audio signal output when used as a music CD player. The CN25 on PCM-9574 is a connector to input CD audio signals into the audio controller. The audio cable of your CD-ROM drive will be used to connect to CN25.



### **2.22.3 Audio power source setting (J13)**

The PCM-9574 is designed to work with a single +5 V power supply. The audio interface can also function normally under single +5V power supply, but most audio controllers require an independent power source generated from a +12 V power supply. The independent power source avoids the noise from the other digital circuits. The PCM-9574's audio interface can accept +12 V power via a 7805 (U53) power regulator to provide improved quality audio. This is done via J13.

---

Table 2-15: Audio power source setting

---

|     | <b>*+5 V</b>  | <b>*7805 5 V</b>  |
|-----|---|---|
| J13 |  |  |

---

\* default setting

Configuration of the audio interface is done entirely via the software utility. You do not have to set any jumpers. Refer to Chapter 6 for audio setup details.

## 2.23 PanelLink (CN22) (optional)

---

The PCM-9574 optional PanelLink function uses Silicon Image Inc.'s Universal Transmitter SiI150 chip. It can support 25 ~ 112 MHz clock speeds, for VGA through to SXGA LCD panels. The 20-pin PanelLink transmitter connector is Hirose Electric Co., Ltd.'s product no. DF13A-20DP-1.25V.

## 2.24 MDC interface (CN 24)

---

The PCM-9574 provides a MDC (Mobile Daughter Card) interface for optional MDC software modem card. This option modem card will be released later.

The CN 24 consists of the 15 x 2 board to board connector. (AMP C-179397).



## Software Configuration

This chapter details the software configuration information. It shows you how to configure the card to match your application requirements. AWARD System BIOS is covered in Chapter 4.

Sections include:

- Introduction
- Ethernet interface configuration

## 3.1 Introduction

---

The PCM-9574 system BIOS and custom drivers are located in a 256 Kbyte, 32-pin (JEDEC spec.) Flash ROM device, designated U15. A single Flash chip holds the system BIOS, VGA BIOS, and network Boot ROM image. The display can be configured via CMOS settings. This method minimizes the number of chips and difficulty of configuration. To set different types of LCD panels please choose “panel type” from the “Intergrated Peripherals” menu in CMOS setup.

## 3.2 Ethernet software configuration

---

The PCM-9574's on-board Ethernet interface supports all major network operating systems. To configure the medium type, to view the current configuration, or to run diagnostics, do the following:

1. Power the PCM-9574 on. Make sure that the RSET8139.EXE file is located in the working drive.
2. At the prompt, type RSET8139.EXE and press <Enter>. The Ethernet configuration program will then be displayed.
3. This simple screen shows all the available options for the Ethernet interface. Just highlight the option you wish to change by using the Up and Down keys. To change a selected item, press <Enter>, and a screen will appear with the available options. Highlight your option and press <Enter>. Each highlighted option has a helpful message guide displayed at the bottom of the screen for additional information.
4. After you have made your selections and are sure this is the configuration you want, press ESC. A prompt will appear asking if you want to save the configuration. Press Y if you want to save.

The Ethernet Setup Menu also offers three very useful diagnostic functions. These are:

1. Run EEPROM test
2. Run Diagnostics on Board
3. Run Diagnostics on Network

Each option has its own display screen that shows the format and result of any diagnostic tests undertaken.

*Note:* For Ethernet installation, please see Chapter 7.





## Award BIOS Setup

This chapter describes how to set BIOS configuration data.

## 4.1 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 bootup sequence.

### 4.1.1 System configuration verification

These routines check the current system configuration against the values stored in the board's CMOS memory. If they don't 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-9574's CMOS memory has an integral lithium battery backup. The battery backup should last ten years in normal service, but when it finally runs down, you will need to replace the complete unit.

## 4.2 Award BIOS setup

Award's 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.

### 4.2.1 Entering setup

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

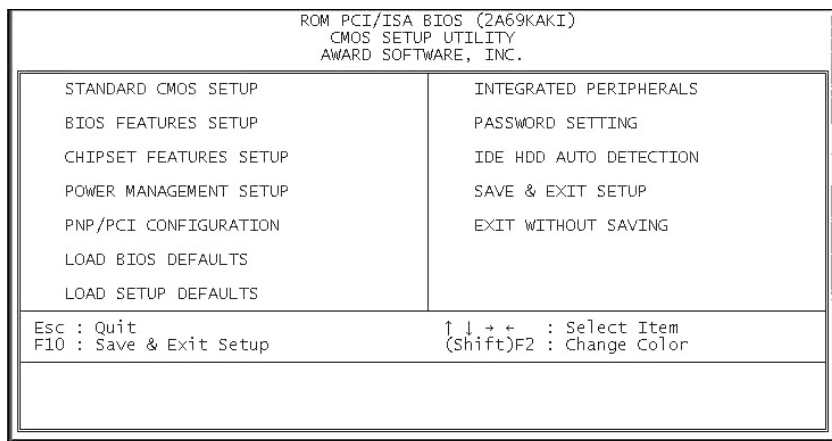


Figure 4-1: Setup program initial screen

## 4.2.2 Standard CMOS setup

When you choose the STANDARD CMOS SETUP option from the INITIAL SETUP SCREEN menu, the screen shown below is displayed. This standard Setup Menu allows users to configure system components such as date, time, hard disk drive, floppy drive and display. Once a field is highlighted, on-line help information is displayed in the left bottom of the Menu screen.

```
ROM PCI/ISA BIOS (2A69KAKI)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.
```

```
Date (mm:dd:yy) : Thu, Sep 16 1999
Time (hh:mm:ss) : 9 : 38 : 2
```

| HARD DISKS       | TYPE | SIZE | CYLS | HEAD | PRECOMP | LANDZ | SECTOR | MODE     |
|------------------|------|------|------|------|---------|-------|--------|----------|
| Primary Master   | :    | 0    | 0    | 0    | 0       | 0     | 0      | 0 NORMAL |
| Primary Slave    | :    | 0    | 0    | 0    | 0       | 0     | 0      | 0 NORMAL |
| Secondary Master | :    | 0    | 0    | 0    | 0       | 0     | 0      | 0 NORMAL |

```
Drive A : None
Drive B : None
```

```
Video : EGA/VGA
Halt On : All Errors
```

```
ESC : Quit          ↑ ↓ → ← : Select Item      PU/PD/+/- : Modify
F1  : Help          (Shift)F2 : Change Color
```

Figure 4-2: CMOS setup screen

### 4.2.3 BIOS features setup

By choosing the BIOS FEATURES SETUP option from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the PCM-9574.

| ROM PCI/ISA BIOS (2A69KAKI)<br>BIOS FEATURES SETUP<br>AWARD SOFTWARE, INC. |            |                          |                     |
|--|------------|--------------------------|---------------------|
| Virus Warning  | : Enabled  | Video BIOS Shadow        | : Disabled          |
| CPU Internal Cache   | : Disabled | C8000-CBFFF Shadow       | : Disabled          |
| External Cache   | : Disabled | CC000-CFFFF Shadow       | : Disabled          |
| CPU L2 Cache ECC Checking  | : Enabled  | D0000-D3FFF Shadow       | : Disabled          |
| Processor Number Feature   | : Enabled  | D4000-D7FFF Shadow       | : Disabled          |
| Quick Power On Self Test   | : Disabled | D8000-DBFFF Shadow       | : Disabled          |
| Boot From LAN First  | : Disabled | DC000-DFFFF Shadow       | : Disabled          |
| Boot Sequence  | : A,C,SCSI |                          |                     |
| Swap Floppy Drive  | : Disabled |                          |                     |
| Boot Up Floppy Seek  | : Disabled |                          |                     |
| Boot Up NumLock Status   | : Off      |                          |                     |
| Gate A20 Option  | : Normal   |                          |                     |
| Typematic Rate Setting   | : Disabled |                          |                     |
| Typematic Rate (Chars/Sec)   | : 6        |                          |                     |
| Typematic Delay (Msec)   | : 250      |                          |                     |
| Security Option  | : Setup    | ESC : Quit               | ↑↓+/- : Select Item |
| PS/2 mouse function control  | : Disabled | F1 : Help                | PU/PD/+/- : Modify  |
| PCI/VGA Palette Snoop  | : Disabled | F5 : Old Values          | (Shift)F2 : Color   |
| OS Select For DRAM > 64MB  | : Non-OS2  | F6 : Load BIOS Defaults  |                     |
| Report No FDD For WIN 95   | : No       | F7 : Load Setup Defaults |                     |

Figure 4-3: BIOS features setup

## 4.2.4 Chipset features setup

By choosing the CHIPSET FEATURES SETUP option from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the PCM-9574.

| ROM PCI/ISA BIOS (2A69KAKI)<br>CHIPSET FEATURES SETUP<br>AWARD SOFTWARE, INC. |                       |
|---|-----------------------|
| Auto Configuration  | : Disabled            |
| EDO CAS# MA Wait State  | : 1                   |
| EDO RAS# Wait State   | : 1                   |
| SDRAM RAS-to-CAS Delay  | : 3                   |
| SDRAM RAS Precharge Time  | : 3                   |
| SDRAM CAS latency Time  | : 2                   |
| SDRAM Precharge Control   | : Disabled            |
| DRAM Data Integrity Mode  | : Non-ECC             |
| System BIOS Cacheable   | : Disabled            |
| Video BIOS Cacheable  | : Disabled            |
| Video RAM Cacheable   | : Disabled            |
| 8 Bit I/O Recovery Time   | : NA                  |
| 16 Bit I/O Recovery Time  | : NA                  |
| Memory Hole At 15M-16M  | : Disabled            |
| Passive Release   | : Disabled            |
| Delayed Transaction   | : Disabled            |
| AGP Aperture Size (MB)  | : 4                   |
| Power-Supply Type   | : AT                  |
| Auto Detect DIMM/PCI Clk  | : Enabled             |
| Spread Spectrum   | : Disabled            |
| CPU Host Clock (CPU/PCI)  | : Default             |
| CPU Warning Temperature   | : Disabled            |
| Current CPU Temperature   | :                     |
| ESC   | : Quit                |
| F1  | : Help                |
| F5  | : Old Values (Shift)  |
| F6  | : Load BIOS Defaults  |
| F7  | : Load Setup Defaults |
| ↑↓+/-   | : Select Item         |
| PU/PD/+/-   | : Modify              |
| F2  | : Color               |

Figure 4-4: Chipset features setup

## 4.2.5 Power management setup

By choosing the POWER MANAGEMENT SETUP option from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the PCM-9574.

| ROM PCI/ISA BIOS (2A69KAKI) |                |                          |                    |
|-----------------------------|----------------|--------------------------|--------------------|
| POWER MANAGEMENT SETUP      |                |                          |                    |
| AWARD SOFTWARE, INC.        |                |                          |                    |
| Power Management            | : User Define  | ** Reload Global Timer   | Events **          |
| PM Control by APM           | : No           | IRQ[3-7,9-15],NMI        | : Disabled         |
| Video Off Method            | : Blank Screen | Primary IDE 0            | : Disabled         |
| Video Off After             | : NA           | Primary IDE 1            | : Disabled         |
| MODEM Use IRQ               | : NA           | Secondary IDE 0          | : Disabled         |
| Doze Mode                   | : Disable      | Secondary IDE 1          | : Disabled         |
| Standby Mode                | : Disable      | Floppy Disk              | : Disabled         |
| Suspend Mode                | : Disable      | Serial Port              | : Disabled         |
| HDD Power Down              | : Disable      | Parallel Port            | : Disabled         |
| Throttle Duty Cycle         | : 12.5%        |                          |                    |
| PCI/VGA Act-Monitor         | : Disabled     |                          |                    |
| Soft-off by PWR-BTTN        | : Instant-Off  |                          |                    |
| CPUFAN Off In Suspend       | : Disabled     |                          |                    |
| PowerOn by Ring             | : Disabled     |                          |                    |
| IRQ 8 Break Suspend         | : Disabled     |                          |                    |
|                             |                | ESC : Quit               | ↑↓+ : Select Item  |
|                             |                | F1 : Help                | PU/PD/+/- : Modify |
|                             |                | F5 : Old Values          | (Shift)F2 : Color  |
|                             |                | F6 : Load BIOS Defaults  |                    |
|                             |                | F7 : Load Setup Defaults |                    |

Figure 4-5: Power management setup

## 4.2.6 PnP/PCI configuration

By choosing the PnP/PCI CONFIGURATION option from the Initial Setup Screen menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the PCM-9574.

| ROM PCI/ISA BIOS (2A69KAKI)         |                                   |
|-------------------------------------|-----------------------------------|
| PNP/PCI CONFIGURATION               |                                   |
| AWARD SOFTWARE, INC.                |                                   |
| PNP OS Installed : No               | Assign IRQ For VGA : Disabled     |
| Resources Controlled By : Manual    | Used MEM base addr : N/A          |
| Reset Configuration Data : Disabled | Assign IRQ For USB : Disabled     |
| IRQ-3 assigned to : PCI/ISA PnP     |                                   |
| IRQ-4 assigned to : PCI/ISA PnP     |                                   |
| IRQ-5 assigned to : PCI/ISA PnP     |                                   |
| IRQ-7 assigned to : PCI/ISA PnP     |                                   |
| IRQ-9 assigned to : PCI/ISA PnP     |                                   |
| IRQ-10 assigned to : PCI/ISA PnP    |                                   |
| IRQ-11 assigned to : PCI/ISA PnP    |                                   |
| IRQ-12 assigned to : PCI/ISA PnP    |                                   |
| IRQ-14 assigned to : PCI/ISA PnP    |                                   |
| IRQ-15 assigned to : PCI/ISA PnP    |                                   |
| DMA-0 assigned to : PCI/ISA PnP     |                                   |
| DMA-1 assigned to : PCI/ISA PnP     | ESC : Quit                        |
| DMA-3 assigned to : PCI/ISA PnP     | F1 : Help                         |
| DMA-5 assigned to : PCI/ISA PnP     | F5 : Old Values (Shift)F2 : Color |
| DMA-6 assigned to : PCI/ISA PnP     | F6 : Load BIOS Defaults           |
| DMA-7 assigned to : PCI/ISA PnP     | F7 : Load Setup Defaults          |
|                                     | ↑↓+ : Select Item                 |
|                                     | PU/PD/+/- : Modify                |

Figure 4-6: PnP/PCI configuration



## 4.2.7 Integrated peripherals

By choosing the INTEGRATED PERIPHERALS option from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the PCM-9574. The PANEL TYPE by default supports an 18-bit 640 x 480 TFT LCD panel display.

| ROM PCI/ISA BIOS (2A69KAKI)<br>INTEGRATED PERIPHERALS<br>AWARD SOFTWARE, INC. |                     |
|---|---------------------|
| IDE HDD Block Mode  | : Disabled          |
| On-Chip Primary PCI IDE   | : Disabled          |
| On-Chip Secondary PCI IDE   | : Disabled          |
| Onboard PCI SCSI Chip   | : Disabled          |
| Onboard PCI Lan Chip  | : Disabled          |
| USB Keyboard Support  | : Disabled          |
| Init Display First  | : PCI Slot          |
| KBC input clock   | : 6 MHz             |
| Onboard FDC Controller  | : Disabled          |
| Onboard Serial Port 1   | :                   |
| Onboard Serial Port 1 IRQ   | : 3                 |
| Onboard Serial Port 2   | :                   |
| Onboard Serial Port 2 IRQ   | : 3                 |
| UART Mode Select  | :                   |
| RxD , TxD Active  | : Hi,Hi             |
| IR Transmittiion delay  | : Disabled          |
| Onboard Parallel Port   | :                   |
| Onboard Parallel Port IRQ   | : 5                 |
| Parallel Port Mode  | :                   |
| ECP Mode Use DMA  | : 1                 |
| EPP Mode Select   | : EPP1.9            |
| Onboard Serial Port 3   | : Disabled          |
| Onboard Serial Port 4   | : Disabled          |
| Panel SHFCLK Polarity   | : Normal            |
| Boot Up Display Type  | : Panel Only        |
| Panel Type  | : 640x480 24bit TFT |

Figure 4-7: Integrated peripherals

### 4.2.8 Load BIOS defaults

LOAD BIOS DEFAULTS loads the default system values directly from ROM. If the stored record created by the Setup program becomes corrupted (and therefore unusable), these defaults will load automatically when you turn the PCM-9574on.

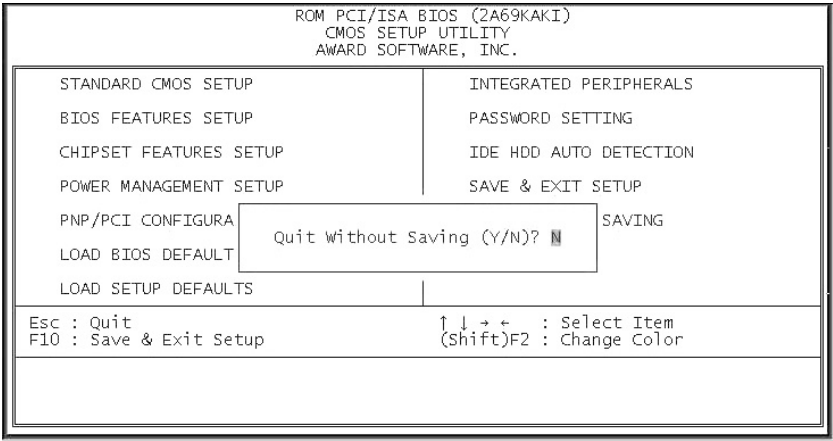


Figure 4-8: Load BIOS defaults

## 4.2.9 Change password

To change the password, choose the PASSWORD SETTING option from the Setup main menu and press <Enter>.

1. If the CMOS is bad or this option has never been used, a default password is stored in the ROM. The screen will display the following messages:

**Enter Password:**

Press <Enter>.

2. If the CMOS is good or this option has been used to change the default password, the user is asked for the password stored in the CMOS. The screen will display the following message:

**Confirm Password:**

Enter the current password and press <Enter>.

3. After pressing <Enter> (ROM password) or the current password (user-defined), you can change the password stored in the CMOS. The password can be at most eight (8) characters long.

Remember - to enable this feature, you must first select either Setup or System in the BIOS FEATURES SETUP.

### 4.2.10 Auto detect hard disk

The IDE HDD AUTO DETECTION utility can automatically detect the IDE hard disk installed in your system. You can use it to self-detect and/or correct the hard disk type configuration.

```
ROM PCI/ISA BIOS (2A5IHAKA)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.
```

| HARD DISK TYPE | SIZE   | CYLS. | HEADS | PRECOMP | LANDZ | SECTORS | MODE |
|----------------|--------|-------|-------|---------|-------|---------|------|
| Drive C        | : (MB) | 790   | 15    | 65535   | 789   | 57      |      |

```
SELECT SECONDARY SLAVE OPTION (N=Skip): N
```

```
ESC = SKIP
```

*Figure 4-9: IDE HDD auto detection screen*

### 4.2.11 Save & exit setup

If you select this option and press <Enter>, the values entered in the setup utilities will be recorded in the chipset's CMOS memory. The microprocessor will check this every time you turn your system on and compare this to what it finds as it checks the system. This record is required for the system to operate.

### 4.2.12 Exit without saving

Selecting this option and pressing <Enter> lets you exit the Setup program without recording any new values or changing old ones.

# CHAPTER 5

## PCI SVGA Setup

- Introduction
- Installation of SVGA driver for
  - Windows 95
  - Windows 98
  - Windows NT

## 5.1 Introduction

---

The PCM-9574 has an on-board PCI flat panel/VGA interface. The specifications and features are described as follows:

### 5.1.1 Chipset

The PCA-9574 uses a Trident 9525DVD chipset for its PCI/SVGA controller. It supports many popular LCD, EL, and gas plasma flat panel displays and conventional analog CRT monitors. The 9525 VGA BIOS supports monochrome LCD, EL, color TFT and STN LCD flat panel displays. In addition, it also supports interlaced and non-interlaced analog monitors (color and monochrome VGA) in high-resolution modes while maintaining complete IBM VGA compatibility. Digital monitors (i.e. MDA, CGA, and EGA) are NOT supported. Multiple frequency (multisync) monitors are handled as if they were analog monitors.

### 5.1.2 Display memory

With 2.5 MB display memory on board, the VGA controller can drive CRT displays or color panel displays with resolutions up to 1024 x 768 at 16.8 M colors. You have the option to use the Trident 9525 to expand the display memory to 4 MB (TM 9540 chip). This yields true-color resolution of 1280 x 1024.

### 5.1.3 Display types

CRT and panel displays can be used simultaneously. The PCA-9574 can be set in one of three configurations: on a CRT, on a flat panel display, or on both simultaneously. The system is initially set to simultaneous display mode. The BIOS setup can be used to configure the display. In BIOS, select "Integrated Peripherals", then "Boot-up display type." You can then choose one of the following modes: "CRT only", "Panel only", or "Simultaneous."

## 5.1.4 Dual/simultaneous display

The PCM-9574s uses a Trident Cyber 9525DVD LCD controller that is capable of providing multiple views and simultaneous display with mixed video and graphics on a flat panel and CRT.

To set up dual display under Windows 98, follow these steps:

1. Select “Windows98”, “Control panel”, “Display”, “Settings”.
2. Select “1” for current display, or “2” for second display.
3. Enable “Extend my Windows desktop onto this monitor”.
4. Click “OK”.

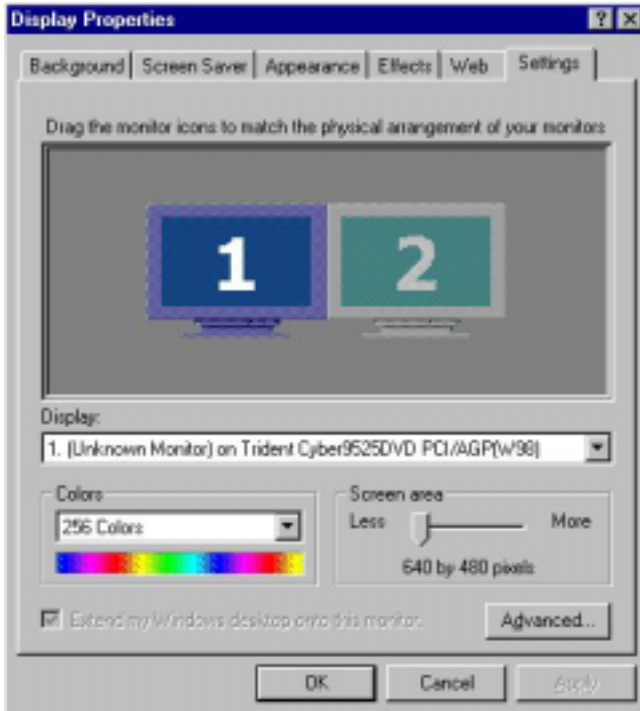


Figure 5-1: Selecting display settings

## 5.2 Installation of SVGA driver

---

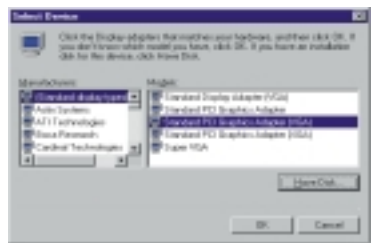
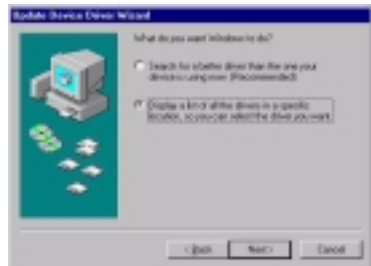
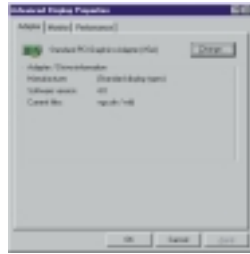
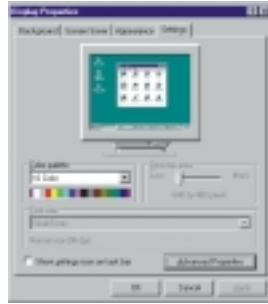
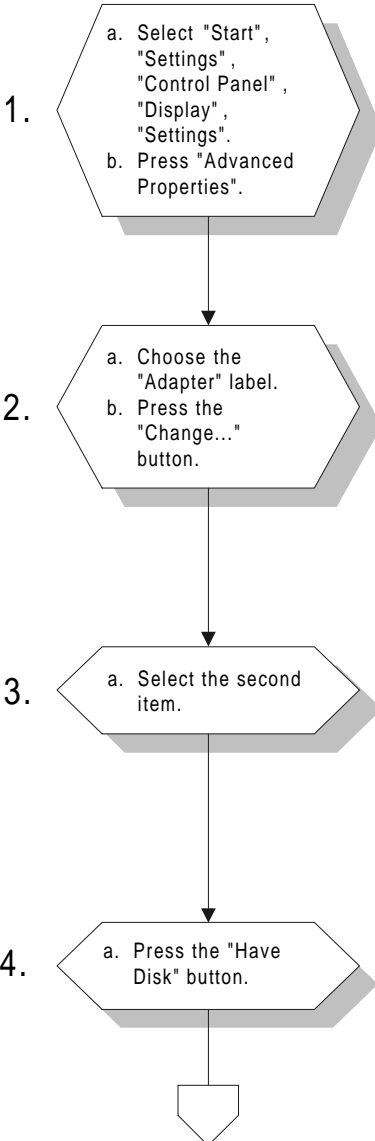
Complete the following steps to install the SVGA driver. Follow the procedures in the flow chart that apply to the operating system that you are using within your PCM-9574.

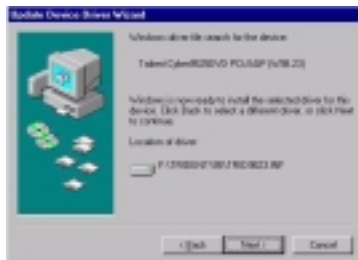
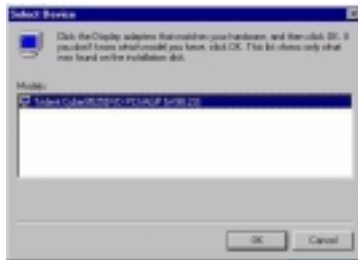
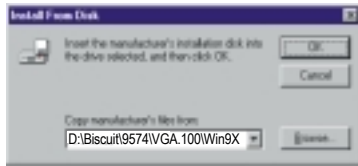
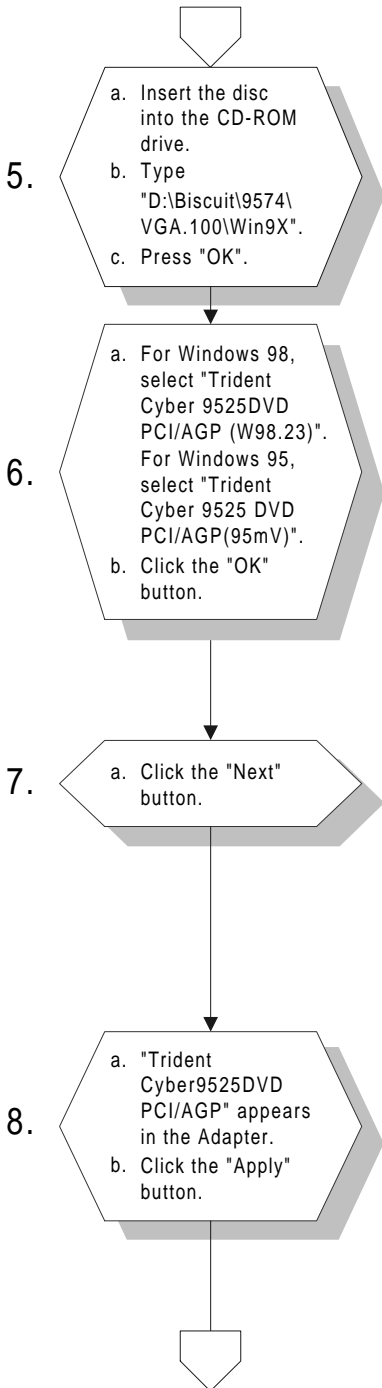
*Important: The following windows illustrations are examples only. You must follow the flow chart instructions and pay attention to the instructions which then appear on your screen.*

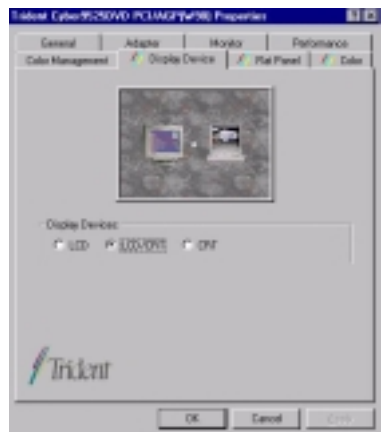
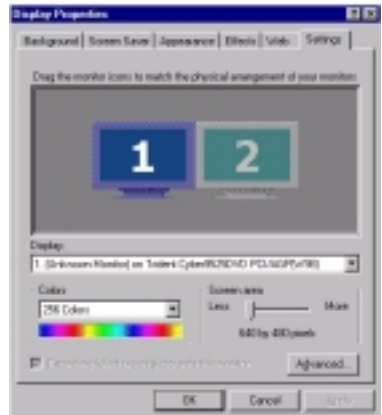
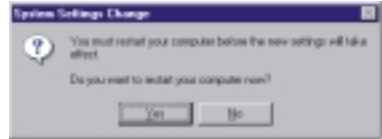
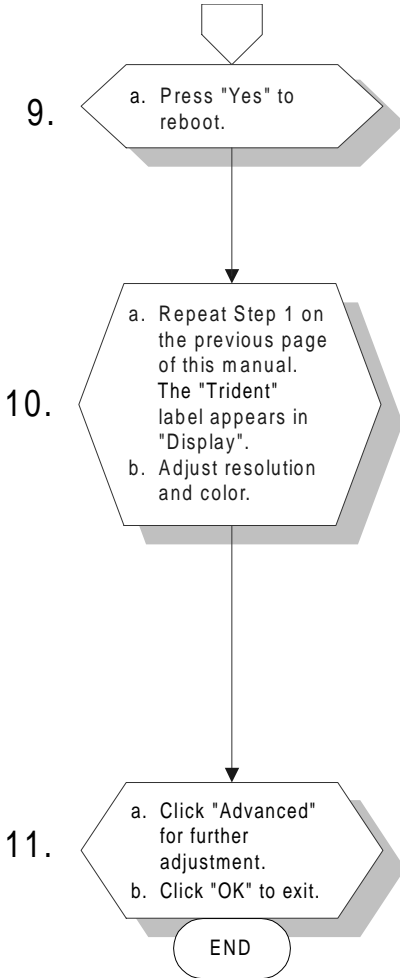
*Note: <Enter> means pressing the "Enter" key on the keyboard.*



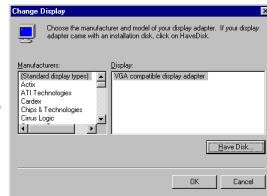
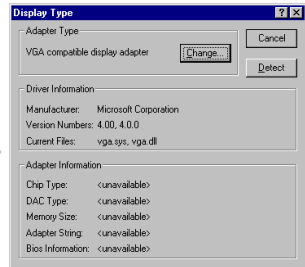
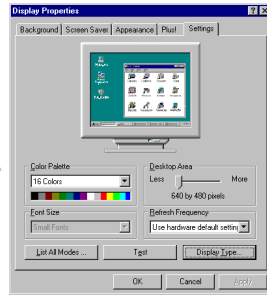
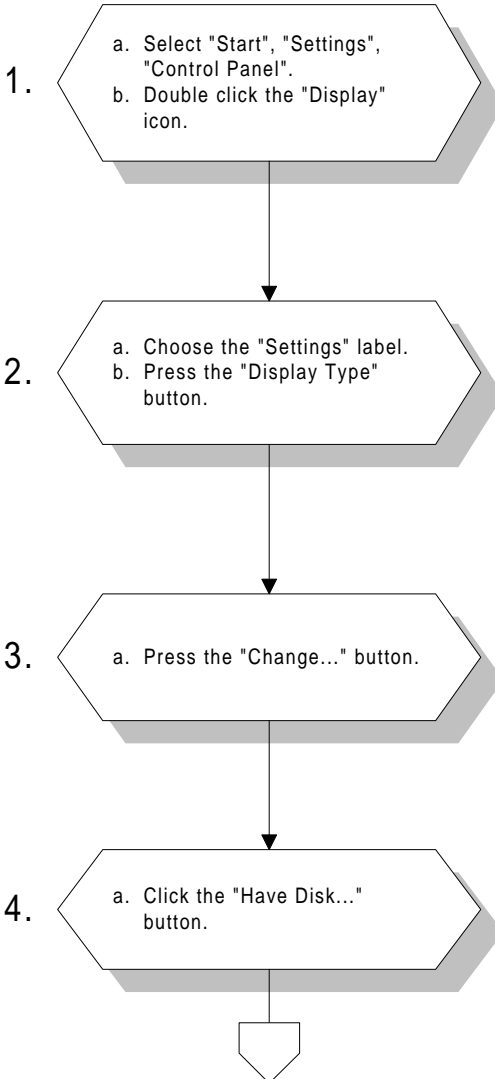
## 5.2.1 Installation for Windows 95/98

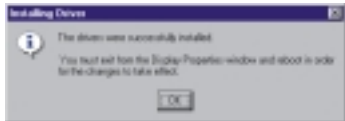
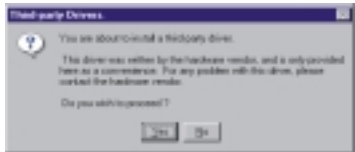
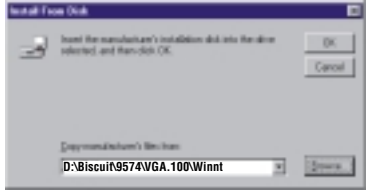
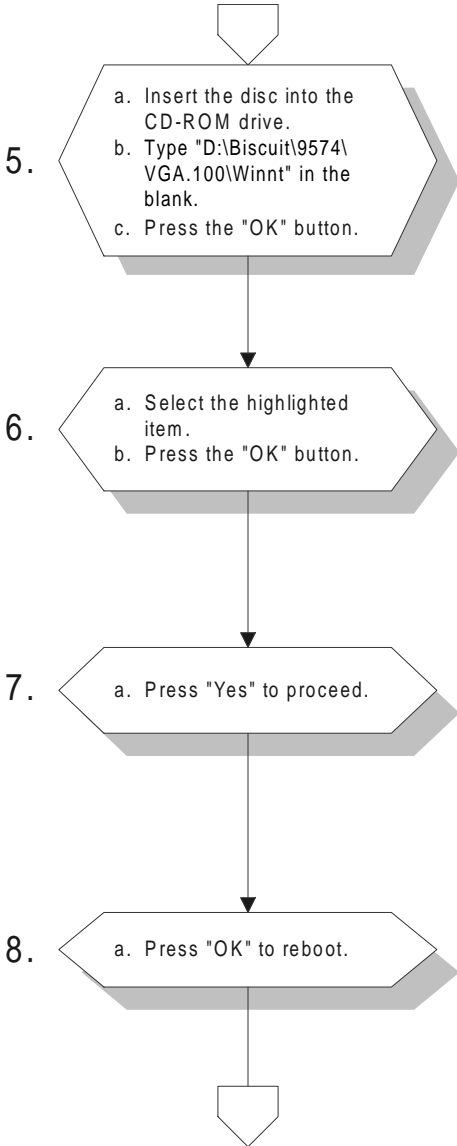






## 5.2.2 Installation for Windows NT





9.

- a. Repeat Step 1 in this manual, to select the "Settings" label.
- b. Adjust resolution and color.
- c. Click "Test" to see the result.
- d. Click "OK" to save the setting.

END



## 5.3 Further information

---

For further information about the PCI/SVGA installation in your PCM-9574, including driver updates, troubleshooting guides and FAQ lists, visit the following web resources:

Trident website: **[www.trid.com](http://www.trid.com)**

EMAC websites: **[www.emacinc.com](http://www.emacinc.com)**





# CHAPTER 6

## Audio

- Introduction
- Installation of audio driver for Windows 95/98/NT/2000

## 6.1 Introduction

---

The PCM-9574 on-board audio interface provides high-quality stereo sound and FM music synthesis (ESFM) by using the ES1989 audio controller from Creative Technology Ltd. The audio interface can record, compress, and play back voice, sound, and music with a built-in mixer control. The PCM-9574's on-board audio interface also supports the Plug and Play (PnP) standard and provides PnP configuration for audio, FM, and MPU-104 logical devices. It is compatible with AC97 version 2.0, voice, and music functions. The ESFM synthesizer is register compatible with the OPL3 and has extended capabilities.

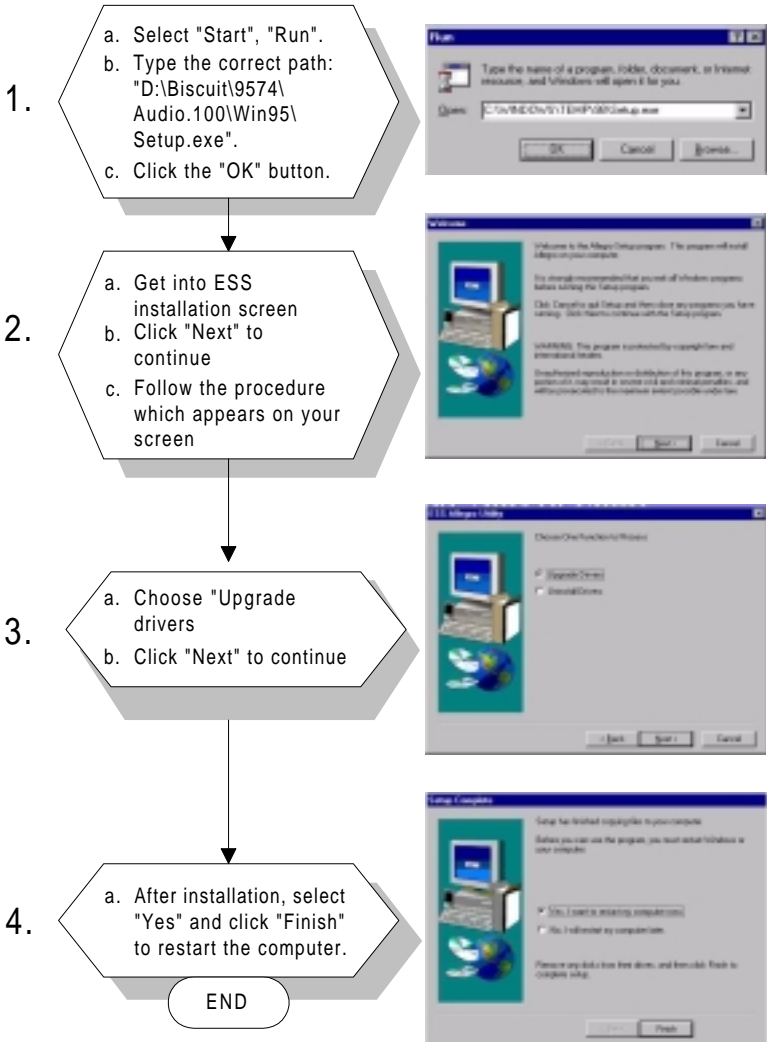
## 6.2 Installation of audio driver

---

Before installing the audio driver, please take note of the procedures detailed below. You must know which operating system you are using in your PCM-9574, and then refer to the corresponding installation flow chart. Just follow the steps in the flow chart. You can quickly and successfully complete the installation, even though you are not familiar with instructions for Windows.

*Note:*        *The CD-ROM drive is designated as "D" throughout this chapter.*

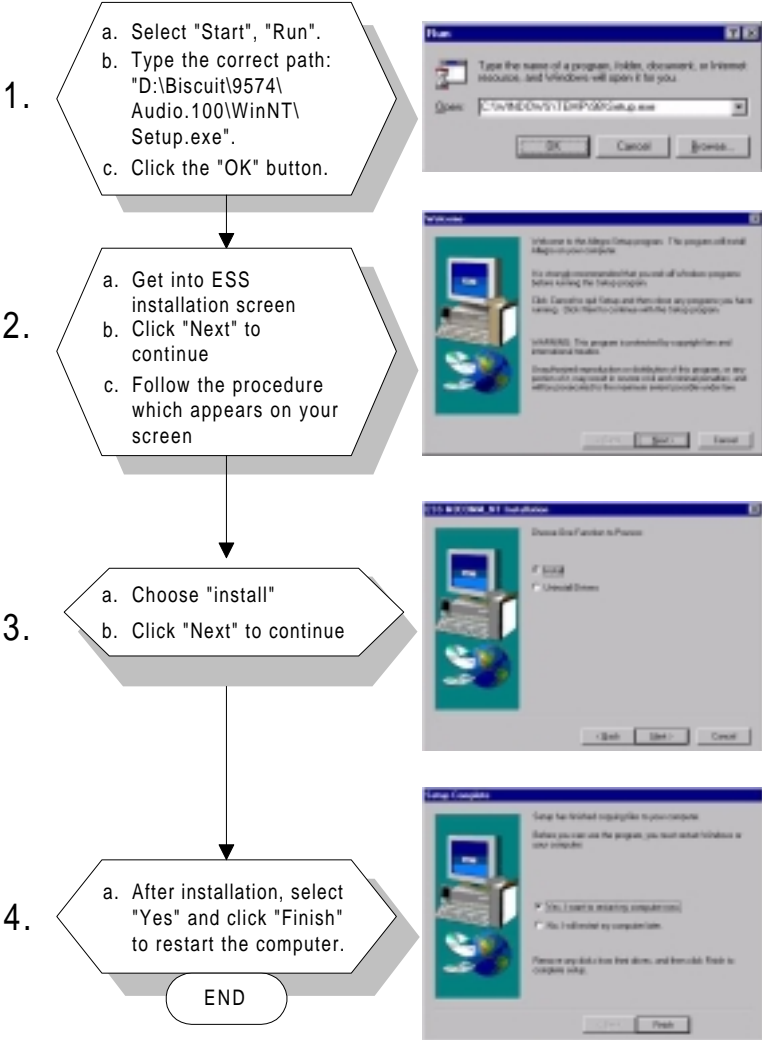
## 6.2.1 Installation for Windows 95/98/2000



**Note:** 1. In step 1 for Windows 98, the path is:  
*D:\Biscuit\9574\Audio100\Win98*

2. In step 1 for Windows 2000, the path is:  
*D:\Biscuit\9574\Audio100\Win2000*

## 6.2.2 Installation for Windows NT



## **PCI Bus Ethernet Interface**

This chapter provides information on Ethernet configuration.

- Introduction
- Installation of Ethernet driver for Windows 95/98/NT
- Further information

## 7.1 Introduction

---

The PCM-9574 is equipped with a high performance 32-bit Ethernet chipset which is fully compliant with IEEE 802.3 100 Mbps CSMA/CD standards. It is supported by major network operating systems. It is also both 100Base-T and 10Base-T compatible. The medium type can be configured via the RSET8139.exe program included on the utility disk.

The Ethernet port provides a standard RJ-45 jack on board. The network boot feature can be utilized by incorporating the boot ROM image files for the appropriate network operating system. The boot ROM BIOS files are combined with system BIOS, which can be enabled/disabled in the BIOS setup.

## 7.2 Installation of Ethernet driver

---

Before installing the Ethernet driver, note the procedures below. You must know which operating system you are using in your PCM-9574, and then refer to the corresponding installation flow chart. Then just follow the steps described in the flow chart. You will quickly and successfully complete the installation, even if you are not familiar with instructions for MS-DOS or Windows.

*Note: The windows illustrations in this chapter are examples only. You must follow the flow chart instructions and pay attention to the instructions which then appear on your screen.*

### 7.2.1 Installation for MS-DOS and Windows 3.1

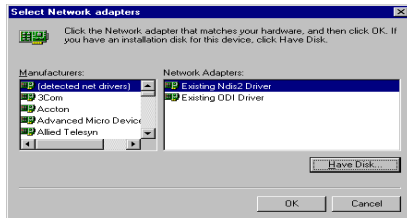
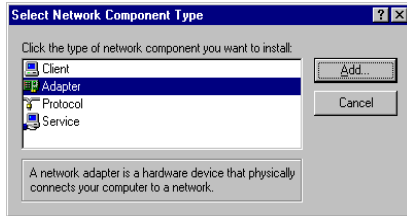
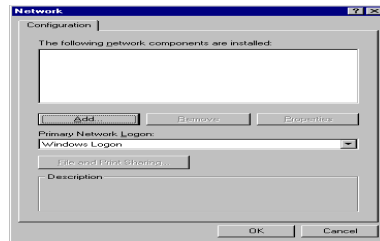
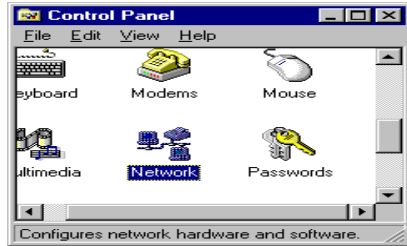
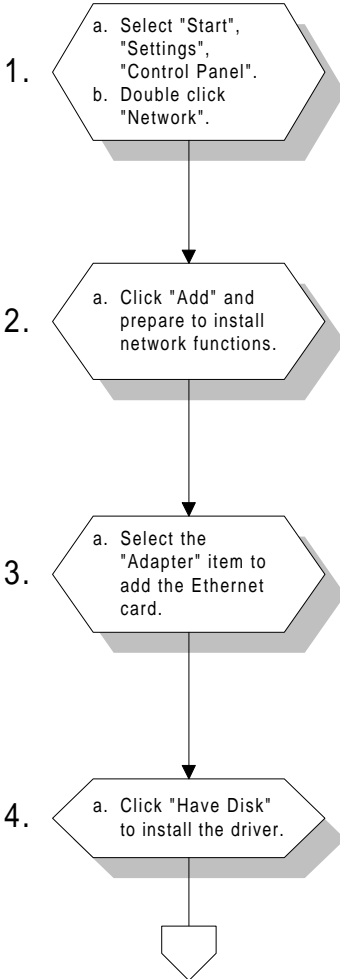
If you want to set up your Ethernet connection under the MS-DOS or Windows 3.1 environment, you should first check your server system model. For example, MS-NT, IBM-LAN server, and so on.

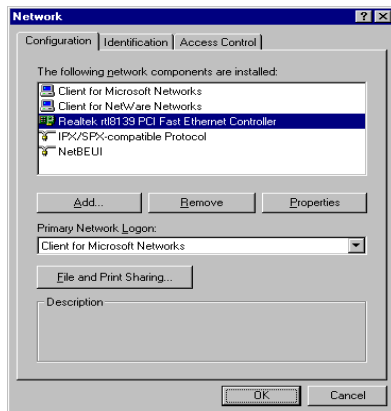
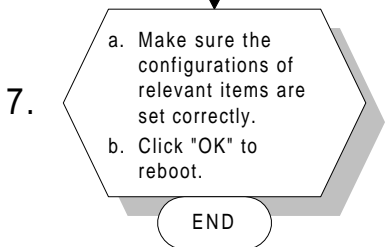
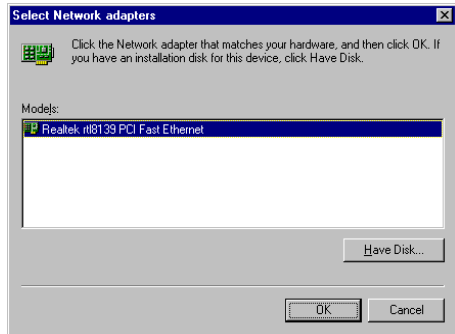
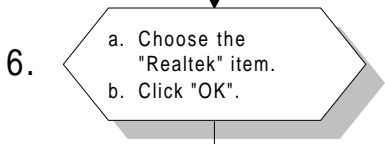
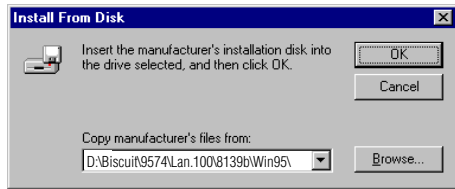
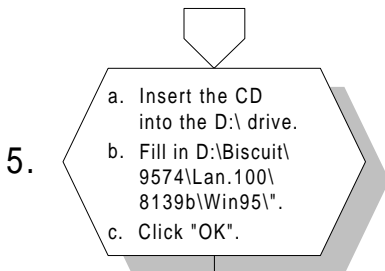
Then choose the correct driver to install in your panel PC.

The installation procedures for various servers can be found on CD-ROM, the correct path being:

**D:\Biscuit\9574\Lan.100\8139B\wfw311**

## 7.2.2 Installation for Windows 95/98



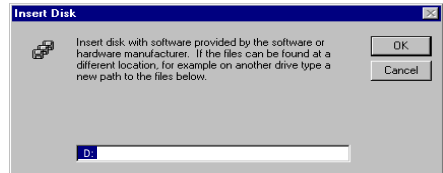
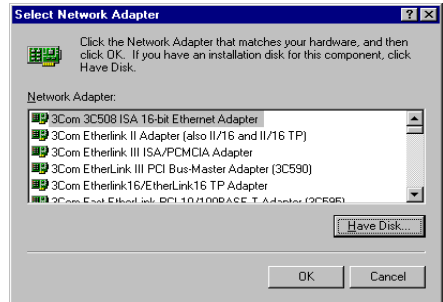
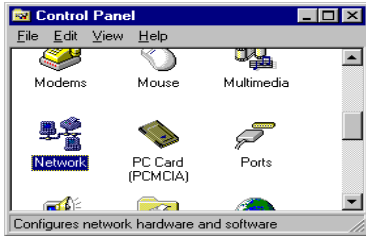
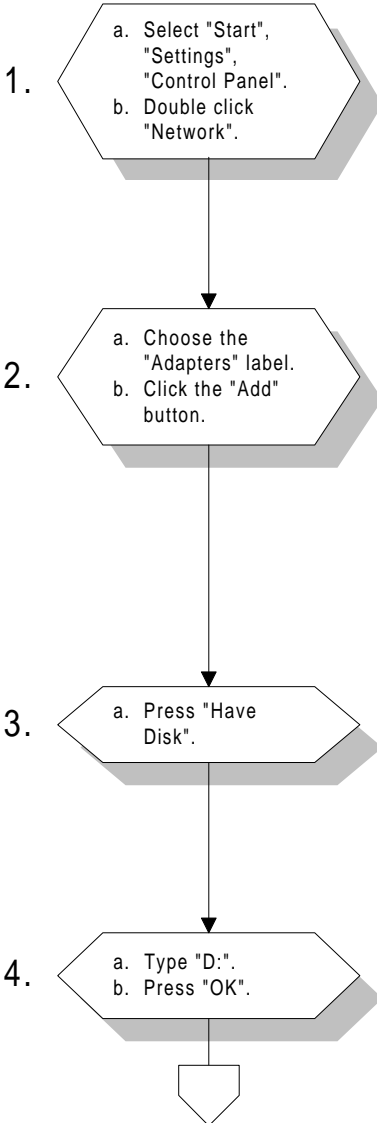


**Note 1:** The correct file path for Windows 98 is:  
***Biscuit\9574\Lan.100\8139b\Win98***

**Note 2:** In the file path, choose "***8139a***" or "***8139b***" according to the type of Ethernet chip used.

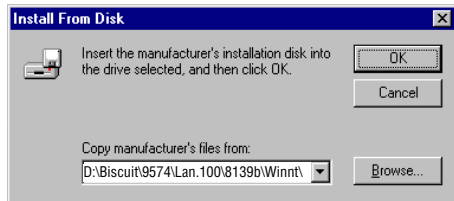


## 7.2.3 Installation for Windows NT



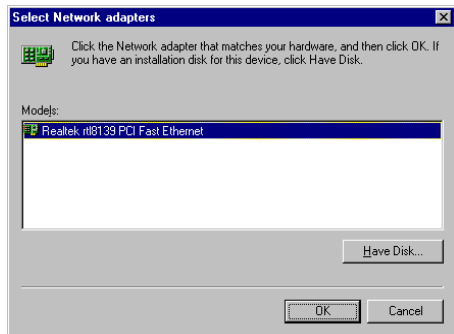
5.

- a. Insert the CD into the D:\ drive.
- b. Fill in "D:\Biscuit\9574\Lan.100\8139b\Winnt\".
- c. Click "OK".



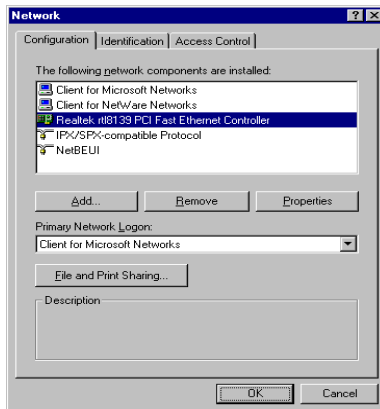
6.

- a. Choose the "Realtek" item.
- b. Click "OK".



7.

- a. Make sure the configurations of relevant items are set correctly.
- b. Click "OK" to reboot.



END

## 7.3 Further information

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Realtek website: [www.realtek.com](http://www.realtek.com)

EMAC website: [www.emacinc.com](http://www.emacinc.com)



## **Programming the Watchdog Timer**

The PCM-9574 is equipped with a watchdog timer that resets the CPU or generates an interrupt if processing comes to a standstill for whatever reason. This feature ensures system reliability in industrial standalone, or unmanned, environments.

## A.1 Programming the watchdog timer

---

In order to program the watchdog timer, you must write a program which writes I/O port address 443 (hex). The output data is a value of time interval. The value range is from 01(hex) to 3E(hex), and the related time interval is 1 sec. to 62 sec.

| <b>Data</b> | <b>Time Interval</b> |
|-------------|----------------------|
| 01          | 1 sec.               |
| 02          | 2 sec.               |
| 03          | 3 sec.               |
| 04          | 4 sec.               |
|             | .                    |
|             | .                    |
|             | .                    |
| 3E          | 62 sec.              |

After data entry, your program must refresh the watchdog timer by rewriting the I/O port 443 (hex) while simultaneously setting it. When you want to disable the watchdog timer, your program should read I/O port 443 (hex).

The following example shows how you might program the watchdog timer in BASIC:

```
10      REM Watchdog timer example program
20      OUT &H443, data REM Start and restart the
        watchdog
30      GOSUB 1000 REM Your application task #1
40      OUT &H443, data REM Reset the timer
50      GOSUB 2000 REM Your application task #2
60      OUT &H443, data REM Reset the timer
70      X=INP (&H443) REM Disable the watchdog
        timer
80      END

1000     REM Subroutine #1, you application task
        .
        .
        .
1070     RETURN
2000     REM Subroutine #2, you application task
        .
        .
        .
2090     RETURN
```





APPENDIX **B**

## **Installing PC/104 Modules**

This appendix gives instructions for installing PC/104 modules.

## B.1 Installing PC/104 modules

---

The PCM-9574's PC/104 connectors give you the flexibility to attach PC/104 modules.

Installing these modules on the PCM-9574 is quick and simple. The following steps show how to mount the PC/104 modules:

1. Remove the PCM-9574 from your system paying particular attention to the safety instructions already mentioned above.
2. Make any jumper or link changes required to the CPU card now. Once the PC/104 module is mounted you may have difficulty in accessing these.
3. Normal PC/104 modules have male connectors and mount directly onto the main card. (Refer to the diagram on the following page.)
4. Mount the PC/104 module onto the CPU card by pressing the module firmly but carefully onto the mounting connectors.
5. Secure the PC/104 module onto the CPU card using the four mounting spacers and screws.

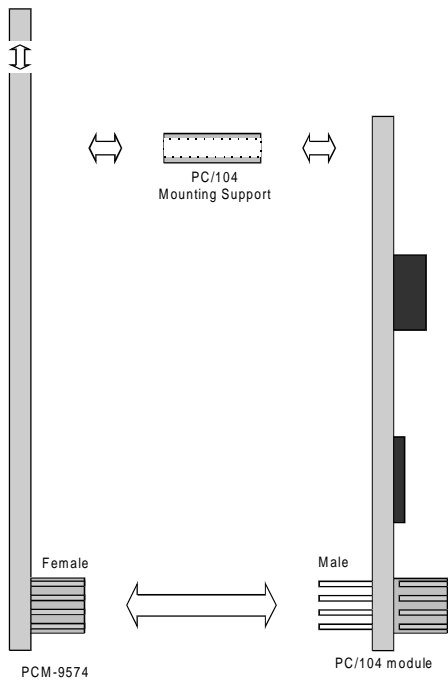


Figure B-1: PC/104 module mounting diagram

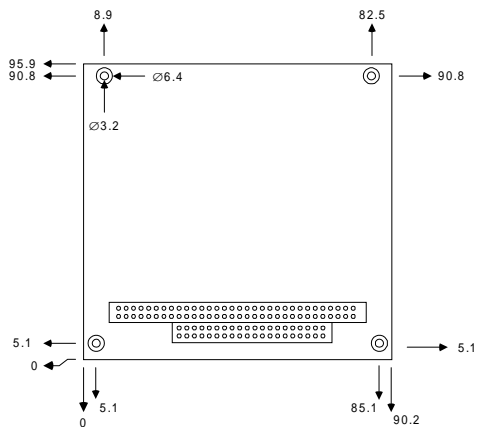


Figure B-2: PC/104 module dimensions (mm) ( $\pm 0.1$ )

Table B-1: PC/104 connectors (CN10)

| Pin Number | Signal   |          | Signal |          |
|------------|----------|----------|--------|----------|
|            | Row A    | Row B    | Row C  | Row D    |
| 0          | —        | —        | 0 V    | 0 V      |
| 1          | IOCHCHK* | 0 V      | SBHE*  | MEMCS16* |
| 2          | SD7      | RESETDRV | LA23   | IOCS16*  |
| 3          | SD6      | +5 V     | LA22   | IRQ10    |
| 4          | SD5      | IRQ9     | LA21   | IRQ11    |
| 5          | SD4      | -5 V     | LA20   | IRQ12    |
| 6          | SD3      | DRQ2     | LA19   | IRQ15    |
| 7          | SD2      | -12 V    | LA18   | IRQ14    |
| 8          | SD1      | ENDXFR*  | LA17   | DACK0*   |
| 9          | SD0      | +12 V    | MEMR*  | DRQ0     |
| 10         | IOCHRDY  | N/C      | MEMW*  | DACK5*   |
| 11         | AEN      | SMEMW*   | SD8    | DRQ5     |
| 12         | SA19     | SMEMR*   | SD9    | DACK6*   |
| 13         | SA18     | IOW*     | SD10   | DRQ6     |
| 14         | SA17     | IOR*     | SD11   | DACK7*   |
| 15         | SA16     | DACK3*   | SD12   | DRQ7     |
| 16         | SA15     | DRQ3     | SD13   | +5 V     |
| 17         | SA14     | DACK1*   | SD14   | MASTER*  |
| 18         | SA13     | DRQ1     | SD15   | 0 V      |
| 19         | SA12     | REFRESH* | KEY    | 0 V      |
| 20         | SA11     | SYSCLK   | —      | —        |
| 21         | SA10     | IRQ7     | —      | —        |
| 22         | SA9      | IRQ6     | —      | —        |
| 23         | SA8      | IRQ5     | —      | —        |
| 24         | SA7      | IRQ4     | —      | —        |
| 25         | SA6      | IRQ3     | —      | —        |
| 26         | SA5      | DACK2*   | —      | —        |
| 27         | SA4      | TC       | —      | —        |
| 28         | SA3      | BALE     | —      | —        |
| 29         | SA2      | +5 V     | —      | —        |
| 30         | SA1      | OSC      | —      | —        |
| 31         | SA0      | 0 V      | —      | —        |
| 32         | 0 V      | 0 V      | —      | —        |

\* active low

## Pin Assignments

This appendix contains information of a detailed or specialized nature. It includes:

- Ethernet 10/100Base-T connector
- ATX power feature connector
- Audio connector
- Keyboard and PS/2 mouse connector
- Main power connector
- IR connector
- Floppy drive connector
- IDE hard drive connector
- Parallel port connector
- Backlight connector
- Peripheral power connector
- CRT display connector
- 24-bit LCD display connector
- Ext. LCD display connector
- LCD signal mapping
- Front panel connector
- USB connectors
- COM port connector
- CompactFlash™ card connector
- PanelLink connector
- Fan power connector
- CD Audio input connector
- MDC connector

## C.1 Ethernet 10/100Base-T connector (CN1)

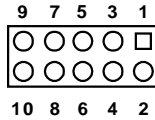


Table C-1: Ethernet 10Base-T connector (CN1)

| Pin | Signal   |
|-----|----------|
| 1   | $V_{CC}$ |
| 2   | CRS LED  |
| 3   | RCV+     |
| 4   | RCV-     |
| 5   | BNC LED  |
| 6   | GND      |
| 7   | N/C      |
| 8   | GND      |
| 9   | XMT+     |
| 10  | XMT-     |

## C.2 ATX power feature connector (CN2)

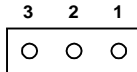


Table C-2: ATX power feature connector (CN2)

| Pin | Signal                    |
|-----|---------------------------|
| 1   | 5 V SB (Stand-by voltage) |
| 2   | NC                        |
| 3   | 5 V SB (VPSON)            |

### C.3 Keyboard and PS/2 mouse connector (CN5)

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Table C-4: Keyboard and mouse connector (CN5)

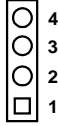
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| Pin | Signal   |
|-----|----------|
| 1   | GND      |
| 2   | MS VCC   |
| 3   | MS DATA  |
| 4   | MS CLOCK |
| 5   | GND      |
| 6   | KB VCC   |
| 7   | KB DATA  |
| 8   | KB CLOCK |

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## C.4 Main power connector (CN6)

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Table C-5: Main power connector (CN6)

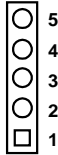
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| Pin | Signal |
|-----|--------|
| 1   | +12 V  |
| 2   | GND    |
| 3   | GND    |
| 4   | +5 V   |

---

## C.5 IR connector (CN8)

---



---

Table C-6: IR connector (CN8)

---

| Pin | Signal   |
|-----|----------|
| 1   | $V_{cc}$ |
| 2   | NC       |
| 3   | IR IN    |
| 4   | GND      |
| 5   | IR OUT   |

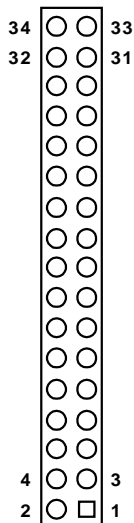
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## C.6 Floppy drive connector (CN9)

Table C-7: Floppy drive connector (CN9)

| Pin | Signal | Pin | Signal          |
|-----|--------|-----|-----------------|
| 1   | GND    | 2   | DENSITY SELECT* |
| 3   | GND    | 4   | N/C             |
| 5   | GND    | 6   | DRIVE TYPE      |
| 7   | GND    | 8   | INDEX*          |
| 9   | GND    | 10  | MOTOR 0*        |
| 11  | GND    | 12  | DRIVE SELECT 1* |
| 13  | GND    | 14  | DRIVE SELECT 0* |
| 15  | GND    | 16  | MOTOR 1*        |
| 17  | GND    | 18  | DIRECTION*      |
| 19  | GND    | 20  | STEP*           |
| 21  | GND    | 22  | WRITE DATA*     |
| 23  | GND    | 24  | WRITE GATE*     |
| 25  | GND    | 26  | TRACK 0*        |
| 27  | GND    | 28  | WRITE PROTECT*  |
| 29  | GND    | 30  | READ DATA*      |
| 31  | GND    | 32  | HEAD SELECT*    |
| 33  | GND    | 34  | DISK CHANGE*    |

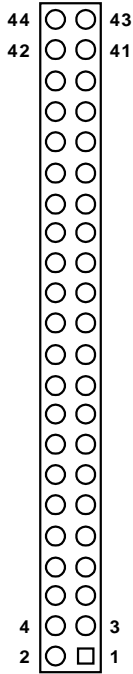


\* low active

## C.7 IDE hard drive connector (CN11)

Table C-8: IDE hard drive connector (CN11)

| Pin | Signal              | Pin | Signal  |
|-----|---------------------|-----|---------|
| 1   | IDE RESET*          | 2   | GND     |
| 3   | DATA 7              | 4   | DATA 8  |
| 5   | DATA 6              | 6   | DATA 9  |
| 7   | DATA 5              | 8   | DATA 10 |
| 9   | DATA 4              | 10  | DATA 11 |
| 11  | DATA 3              | 12  | DATA 12 |
| 13  | DATA 2              | 14  | DATA 13 |
| 15  | DATA 1              | 16  | DATA 14 |
| 17  | DATA 0              | 18  | DATA 15 |
| 19  | SIGNAL GND          | 20  | N/C     |
| 21  | HDD 0               | 22  | GND     |
| 23  | IO WRITE            | 24  | GND     |
| 25  | IO READ             | 26  | GND     |
| 27  | HD READY            | 28  | N/C     |
| 29  | HDACK 0*            | 30  | GND     |
| 31  | IRQ14               | 32  | N/C     |
| 33  | ADDR 1              | 34  | N/C     |
| 35  | ADDR 0              | 36  | ADDR 2  |
| 37  | HARD DISK SELECT 0* |     |         |
| 38  | HARD DISK SELECT 1* |     |         |
| 39  | IDE ACTIVE*         | 40  | GND     |
| 41  | VCC                 | 42  | VCC     |
| 43  | GND                 | 44  | N/C     |



\* low active

## C.8 Parallel port connector (CN12)

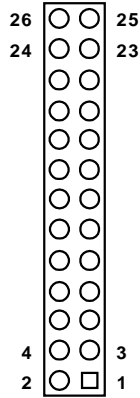


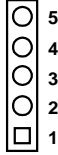
Table C-9: Parallel port connector (CN12)

| Pin | Signal  | Pin | Signal   |
|-----|---------|-----|----------|
| 1   | STROBE* | 2   | AUTOFD*  |
| 3   | D0      | 4   | ERR      |
| 5   | D1      | 6   | INIT*    |
| 7   | D2      | 8   | SLCTINI* |
| 9   | D3      | 10  | GND      |
| 11  | D4      | 12  | GND      |
| 13  | D5      | 14  | GND      |
| 15  | D6      | 16  | GND      |
| 17  | D7      | 18  | GND      |
| 19  | ACK*    | 20  | GND      |
| 21  | BUSY    | 22  | GND      |
| 23  | PE      | 24  | GND      |
| 25  | SLCT    | 26  | N/C      |

\* low active

## C.9 Backlight connector (CN13)

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Table C-10: Backlight connector (CN13)

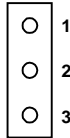
---

| Pin | Signal   |
|-----|----------|
| 1   | +12 V    |
| 2   | GND      |
| 3   | Enable   |
| 4   | Reserved |
| 5   | N.C.     |

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## C.10 Peripheral power connector (CN14)

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Table C-11: Peripheral power connector (CN14)

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| Pin | Function |
|-----|----------|
| 1   | -5 V     |
| 2   | GND      |
| 3   | -12 V    |

---

## C.11 CRT display connector (CN15)

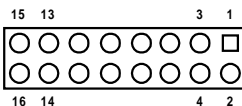


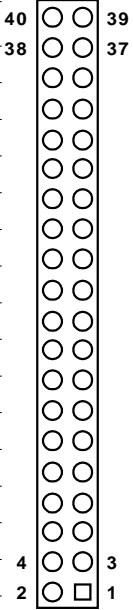
TABLE C-12: CRT DISPLAY CONNECTOR (CN15)

| Pin | Signal     | Pin | Signal      |
|-----|------------|-----|-------------|
| 1   | RED        | 9   | SIGNAL GND  |
| 2   | DDC power  | 10  | H-SYNC      |
| 3   | GREEN      | 11  | Signal GND  |
| 4   | SIGNAL GND | 12  | V-SYNC      |
| 5   | BLUE       | 13  | Signal GND  |
| 6   | N/C        | 14  | N/C         |
| 7   | N/C        | 15  | Signal GND  |
| 8   | DDC_DAT    | 16  | Chassis GND |

# C.12 24-bit LCD display connector (CN16)

Table C-13: 24-bit LCD display connector (CN16)

| Pin | Signal          | Pin | Signal    |
|-----|-----------------|-----|-----------|
| 1   | VDD 5 V         | 2   | VDD 5 V   |
| 3   | GND             | 4   | GND       |
| 5   | VDD 3.3 V       | 6   | VDD 3.3 V |
| 7   | Vcon            | 8   | GND       |
| 9   | PD23 (BØ)       | 10  | PD22 (B1) |
| 11  | PD17 (B2)       | 12  | PD16 (B3) |
| 13  | PD11 (B4)       | 14  | PD10 (B5) |
| 15  | PD9 (B6)        | 16  | PD8 (B7)  |
| 17  | PD21 (GØ)       | 18  | PD20 (G1) |
| 19  | PD15 (G2)       | 20  | PD14 (G3) |
| 21  | PD7 (G4)        | 22  | PD6 (G5)  |
| 23  | PD5 (G6)        | 24  | PD4 (G7)  |
| 25  | PD19 (RØ)       | 26  | PD18 (R1) |
| 27  | PD13 (R2)       | 28  | PD12 (R3) |
| 29  | PD3 (R4)        | 30  | PD2 (R5)  |
| 31  | PD1 (R6)        | 32  | PD0 (R7)  |
| 33  | GND             | 34  | GND       |
| 35  | SHIFT CLOCK     | 36  | FLM       |
| 37  | M               | 38  | LP        |
| 39  | DCLK (reserved) | 40  | ENAVEE    |



**Note 1:** The model number of the CN16 connector is DF13A-40DP-1.25V (Hirose Electric Co., Ltd.)

**Note 2:** The signals shown in parentheses are for 24-bit TFT color bits.

## C.13 Ext. LCD display connector (CN17)

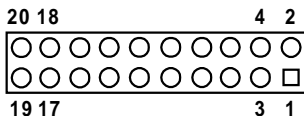


Table C-14: Ext. LCD display connector (CN17)

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1   | GND    | 2   | GND    |
| 3   | PD24   | 4   | PD25   |
| 5   | PD26   | 6   | PD27   |
| 7   | PD28   | 8   | PD29   |
| 9   | PD30   | 10  | PD31   |
| 11  | PD32   | 12  | PD33   |
| 13  | PD34   | 14  | PD35   |
| 15  | GND    | 16  | GND    |
| 17  | N/C    | 18  | N/C    |
| 19  | N/C    | 20  | N/C    |

**Note 1:** The model number of the CN17 connector is DF13A-20DP-1.25V (Hirose Electric Co., Ltd.).

The model number of the CN16 connector is DF13A-40DP-1.25V (Hirose Electric Co., Ltd.).

**Note 2:** To support a 36-bit TFT LCD, connection must be made to both CN17 and CN16.

# C.14 LCD signal mapping

Table C-15: LCD signal mapping

| Pin Name | LCD         |            |            |            |
|----------|-------------|------------|------------|------------|
|          | 16-bit DSTN | 18-bit TFT | 24-bit TFT | 36-bit TFT |
| PD0      | LD0         | R5         | R7         | Ro5        |
| PD1      | LD1         | R4         | R6         | Ro4        |
| PD2      | LD2         | R3         | R5         | Ro3        |
| PD3      | LD3         | R2         | R4         | Ro2        |
| PD4      | LD4         | G5         | G7         | Go5        |
| PD5      | LD5         | G4         | G6         | Go4        |
| PD6      | LD6         | G3         | G5         | Go3        |
| PD7      | LD7         | G2         | G4         | Go2        |
| PD8      | UD0         | B5         | B7         | Bo5        |
| PD9      | UD1         | B4         | B6         | Bo4        |
| PD10     | UD2         | B3         | B5         | Bo3        |
| PD11     | UD3         | B2         | B4         | Bo2        |
| PD12     | UD4         | R1         | R3         | Re5        |
| PD13     | UD5         | R0         | R2         | Re4        |
| PD14     | UD6         | G1         | G3         | Re3        |
| PD15     | UD7         | G0         | G2         | Re2        |
| PD16     |             | B1         | B3         | Ge5        |
| PD17     |             | B0         | B2         | Ge4        |
| PD18     |             |            | R1         | Ge3        |
| PD19     |             |            | R0         | Ge2        |
| PD20     |             |            | G1         | Be5        |
| PD21     |             |            | G0         | Be4        |
| PD22     |             |            | B1         | Be3        |
| PD23     |             |            | B0         | Be2        |
| PD24     |             |            |            | Ro1        |
| PD25     |             |            |            | Ro0        |
| PD26     |             |            |            | Go1        |
| PD27     |             |            |            | Go0        |
| PD28     |             |            |            | Bo1        |
| PD29     |             |            |            | Bo0        |
| PD30     |             |            |            | Re1        |
| PD31     |             |            |            | Re0        |
| PD32     |             |            |            | Ge1        |
| PD33     |             |            |            | Ge0        |
| PD34     |             |            |            | Be1        |
| PD35     |             |            |            | Be0        |



## C.15 Front panel connector (CN18)

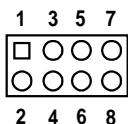


Table C-16: Front panel connector (CN18)

| Pin | Signal                      |
|-----|-----------------------------|
| 1   | HDD LED- (HARD DISK ACTIVE) |
| 2   | HDD LED+ ( $V_{cc}$ )       |
| 3   | SPEAKER+                    |
| 4   | SPEAKER- (GND)              |
| 5   | GND                         |
| 6   | WATCHDOG OUTPUT*            |
| 7   | RESET SWITCH- (GND)         |
| 8   | RESET SWITCH+               |

\* low active

## C.16 USB connectors (CN19)

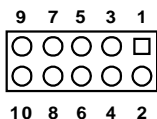


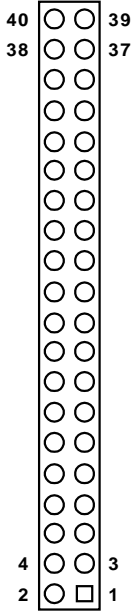
Table C-17: USB connectors (CN19)

| Pin | Signal      | Pin | Signal |
|-----|-------------|-----|--------|
| 1   | +5 V        | 2   | +5 V   |
| 3   | UV0-        | 4   | UV1-   |
| 5   | UV0+        | 6   | UV1+   |
| 7   | GND         | 8   | GND    |
| 9   | Chassis GND | 10  | NC     |

# C.17 COM port connector (CN20)

Table C-18: COM port connector (CN20)

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1   | DCD1   | 2   | DSR1   |
| 3   | RX1    | 4   | RTS1   |
| 5   | TX1    | 6   | CTS1   |
| 7   | DTR1   | 8   | RI1    |
| 9   | GND    | 10  | NC     |
| 11  | DCD2   | 12  | DSR2   |
| 13  | RX2    | 14  | RTS2   |
| 15  | TX2    | 16  | CTS2   |
| 17  | DTR2   | 18  | RI2    |
| 19  | GND    | 20  | NC     |
| 21  | DCD3   | 22  | DSR3   |
| 23  | RX3    | 24  | RTS3   |
| 25  | TX3    | 26  | CTS3   |
| 27  | DTR3   | 28  | RI3    |
| 29  | GND    | 30  | NC     |
| 31  | DCD4   | 32  | DSR4   |
| 33  | RX4    | 34  | RTS4   |
| 35  | TX4    | 36  | CTS4   |
| 37  | DTR4   | 38  | RI4    |
| 39  | GND    | 40  | NC     |



*Note: The cable of serial port (CN20) comes with four DSUB-9 male connectors. The pin assignments of each DSUB-9 connector are listed below for your reference:*

Table C-19: COM2 port for RS-232, RS-422 and RS-485 (CN20)

| <b>Pin</b> | <b>Signal</b> | <b>RS-422</b>   | <b>RS-485</b>   |
|------------|---------------|-----------------|-----------------|
| 11         | DCD2          | TX-             | DATA-           |
| 13         | RxD2          | TX+             | DATA+           |
| 15         | TxD2          | RX+             | NC              |
| 17         | DTR2          | RX-             | NC              |
| 19         | GND           | GND             | GND             |
| 12         | DSR2          | DSR2 (not used) | DSR2 (not used) |
| 14         | RTS2          | RTS2 (not used) | DSR2 (not used) |
| 16         | CTS2          | CTS2 (not used) | DSR2 (not used) |
| 18         | RI2           | RI2 (not used)  | DSR2 (not used) |

## C.18 CompactFlash™ card connector (CN21)

Table C-20: CompactFlash card connector (CN21)

| <b>Pin</b> | <b>Signal</b>    | <b>Pin</b> | <b>Signal</b>    |
|------------|------------------|------------|------------------|
| 1          | GND              | 2          | D03              |
| 3          | D04              | 4          | D05              |
| 5          | D06              | 6          | D07              |
| 7          | -CS0             | 8          | A10 <sup>2</sup> |
| 9          | -ATA SEL         | 10         | A09 <sup>2</sup> |
| 11         | A08 <sup>2</sup> | 12         | A07 <sup>2</sup> |
| 13         | VCC              | 14         | A06 <sup>2</sup> |
| 15         | A05 <sup>2</sup> | 16         | A04 <sup>2</sup> |
| 17         | A03 <sup>2</sup> | 18         | A02              |
| 19         | A01              | 20         | A00              |

|    |                  |    |                   |
|----|------------------|----|-------------------|
| 21 | D00              | 22 | D01               |
| 23 | D02              | 24 | -IOCS16           |
| 25 | -CD2             | 26 | -CD1              |
| 27 | D11 <sup>1</sup> | 28 | D12 <sup>1</sup>  |
| 29 | D13 <sup>1</sup> | 30 | D14 <sup>1</sup>  |
| 31 | D15 <sup>1</sup> | 32 | -CS1 <sup>1</sup> |
| 33 | -VS1             | 34 | -IORD             |
| 35 | -IOWR            | 36 | -WE <sup>3</sup>  |
| 37 | INTRQ            | 38 | V <sub>CC</sub>   |
| 39 | -CSEL            | 40 | -VS2              |
| 41 | -RESER           | 42 | IORDY             |
| 43 | -INPACK          | 44 | -REG <sup>3</sup> |
| 45 | -DASP            | 46 | -PDIAG            |
| 47 | D08 <sup>1</sup> | 48 | D09 <sup>1</sup>  |
| 49 | D10              | 50 | GND               |

## C.19 PanelLink connector (CN22)

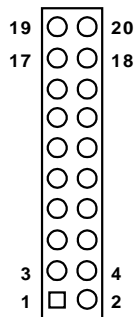


Table C-21: PanelLink connector (CN22)

| Pin | Signal  | Pin | Signal  |
|-----|---------|-----|---------|
| 1   | TX1+    | 2   | TX1-    |
| 3   | TX1 GND | 4   | TXC GND |

|    |                    |    |                    |
|----|--------------------|----|--------------------|
| 5  | TXC+               | 6  | TXC-               |
| 7  | DDC GND            | 8  | VDD 5 V            |
| 9  | VDD 5 V            | 10 | VDD 5 V            |
| 11 | TX2+               | 12 | TX2-               |
| 13 | TX2 GND            | 14 | TX0 GND            |
| 15 | TX0+               | 16 | TX0-               |
| 17 | NC                 | 18 | NC                 |
| 19 | DDC/SDA (reserved) | 20 | DDC/SCL (reserved) |

## C.20 Fan power connector (FAN1)

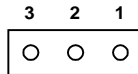


Table C-22: Fan power connector (FAN1)

| Pin | Signal |
|-----|--------|
| 1   | NC     |
| 2   | +12 V  |
| 3   | GND    |

## C.21 CD audio input connector (CN25)

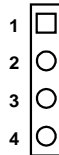


Table C-23: CD audio input connector (CN25)

| Pin | Signal     |
|-----|------------|
| 1   | GND        |
| 2   | CD AUDIO R |
| 3   | GND        |
| 4   | CD AUDIO L |

## C.22 MDC Connector (CN24)

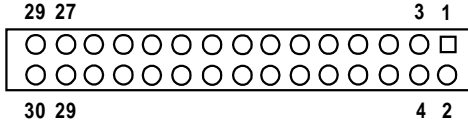


Table C-24: MDC connector (CN24)

| Pin | Signal                    | Pin | Signal              |
|-----|---------------------------|-----|---------------------|
| 1   | MONO OUT/PC BEEP          | 2   | AUDIO PWRDN         |
| 3   | GND                       | 4   | MONO PHONE          |
| 5   | N.C.                      | 6   | RESERVED            |
| 7   | N.C.                      | 8   | GND                 |
| 9   | CD GND                    | 10  | 5 V <sub>main</sub> |
| 11  | CD RIGHT                  | 12  | RESERVED            |
| 13  | CD LEFT                   | 14  | RESERVED            |
| 15  | GND                       | 16  | RESERVED            |
| 17  | 3.3 V <sub>aux/dual</sub> | 18  | RESERVED            |
| 19  | GND                       | 20  | RESERVED            |
| 21  | 3.3 V <sub>main</sub>     | 22  | AC97 SYNC           |
| 23  | AC97 SDATA OUT            | 24  | AC97 SDATA INB      |
| 25  | AC97 RESET#               | 26  | AC97 SDATA INA      |
| 27  | GND                       | 28  | GND                 |
| 29  | AC97 MSTRCLK              | 30  | AC97 BITCLK         |

## C.23 Audio connector (CN26)

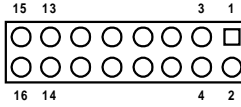


Table C-25: Audio connector (CN26)

| Pin | Signal         | Pin | Signal         |
|-----|----------------|-----|----------------|
| 1   | SPEAKER OUT R+ | 2   | SPEAKER OUT R- |
| 3   | SPEAKER OUT L+ | 4   | SPEAKER OUT L- |
| 5   | LINE OUT R     | 6   | LINE OUT L     |
| 7   | GND            | 8   | GND            |
| 9   | LINE IN R      | 10  | LINE IN L      |
| 11  | GND            | 12  | GND            |
| 13  | NC             | 14  | NC             |
| 15  | MIC IN         | 16  | GND            |





# APPENDIX **D**

## **System Assignments**

- System I/O ports
- 1st MB memory map
- DMA channel assignments
- Interrupt assignments

## D.1 System I/O ports

---

Table D-1: System I/O ports

| <b>Addr. range (Hex)</b> | <b>Device</b>                                      |
|--------------------------|--|
| 000-01F                  | DMA controller                                     |
| 020-021                  | Interrupt controller 1, master                     |
| 022-023                  | Chipset address                                    |
| 040-05F                  | 8254 timer   |
| 060-06F                  | 8042 (keyboard controller)                         |
| 070-07F                  | Real-time clock, non-maskable interrupt (NMI) mask |
| 080-09F                  | DMA page register,                                 |
| 0A0-0BF                  | Interrupt controller 2                             |
| 0C0-0DF                  | DMA controller                                     |
| 0F0                      | Clear math co-processor                            |
| 0F1                      | Reset math co-processor                            |
| 0F8-0FF                  | Math co-processor                                  |
| 1F0-1F8                  | Fixed disk   |
| 200-207                  | Reserved (Game I/O)                                |
| 278-27F                  | Reserved   |
| 2E8-2EF                  | Serial port 4                                      |
| 2F8-2FF                  | Serial port 2                                      |
| 300-31F                  | Prototype card                                     |
| 360-36F                  | Reserved   |
| 378-37F                  | Parallel printer port 1 (LPT 2)                    |
| 380-38F                  | SDLC, bisynchronous 2                              |
| 3A0-3AF                  | Bisynchronous 1                                    |
| 3B0-3BF                  | Monochrome display and printer adapter(LPT1)       |
| 3C0-3CF                  | Reserved   |
| 3D0-3DF                  | Color/graphics monitor adapter                     |
| 3E8-3EF                  | Serial port 3                                      |
| 3F0-3F7                  | Diskette controller                                |
| 3F8-3FF                  | Serial port 1                                      |
| 443                      | Watchdog timer                                     |

\* MPU-401 select from 300 ~ 330H (2 bytes)

\* PNP Audio I/O map range from 220-250 H (16 bytes)

## D.2 1st MB memory map

---

Table D-2: 1st MB memory map

| <b>Addr. range (Hex)</b> | <b>Device</b>    |
|--------------------------|------------------|
| F000h - FFFFh            | System ROM       |
| E000h - EFFFh            | Unused           |
| D000h - DFFFh            | SCSI ROM         |
| *CC00h - CFFFh           | Ethernet ROM     |
| C000h - CBFFh            | Expansion ROM    |
| B800h - BFFFh            | CGA/EGA/VGA text |
| B000h - B7FFh            | Unused           |
| A000h - AFFFh            | EGA/VGA graphics |
| 0000h - 9FFFh            | Base memory      |

\* If Ethernet boot ROM is enabled

## D.3 DMA channel assignments

---

Table D-3: DMA channel assignments

| <b>Channel</b> | <b>Function</b>              |
|----------------|------------------------------|
| 0              | Available                    |
| 1              | Available                    |
| 2              | Floppy disk (8-bit transfer) |
| 3              | Available (Parallel Port)    |
| 4              | Cascade for DMA controller 1 |
| 5              | Available                    |
| 6              | Available                    |
| 7              | Available                    |

\* Audio DMA select 1,3,or 5

\*\* Parallel port DMA select 1 or 3

## D.4 IRQ mapping chart

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Table D-4: IRQ mapping chart

|    |   |
|----|---|
| 0  | Interval timer                            |
| 1  | Keyboard                                  |
| 2  | Interrupt from Controller 2               |
| 3  | COM2                                      |
| 4  | COM1                                      |
| 5  | COM4                                      |
| 6  | FDD                                       |
| 7  | LPT1                                      |
| 8  | RTC                                       |
| 9  | Reserved                                  |
| 10 | COM3                                      |
| 11 | Reserved (watchdog timer)                 |
| 12 | PS/2 mouse                                |
| 13 | INT from co-processor                     |
| 14 | Primary IDE                               |
| 15 | Secondary IDE (reserved for CompactFlash) |

\* Ethernet interface IRQ select: 9, 11, 12, 15

\* PnP USB IRQ select: 9, 11, 12, 15

\* PNP Audio I/O select: 9,11,12, or 15

APPENDIX

# E

## Optional Extras

## E.1 PCM-10586- 4A cable kit for PCM-9574

The PCM-9574 requires several cables for normal operation. You can make them yourself or purchase an optional cable kit assembly, which includes the following:

| Part No.   | Cable description                         | PCM-9574 connector | Terminating connector                  |
|------------|---|--------------------|--|
| 1701440350 | 2.5" and 1.8" IDE, IDC44P/IDC44P, IDC44P  | CN11               | 44-pin, 2 mm, female IDC (350 mm)      |
| 1701440500 | 3.5 IDE (40P), IDC40P/IDC40P/ Housing 44P | CN11               | 40-pin, 2.54 mm, female IDC (500 mm)   |
| 1701340602 | Dual floppy, 3.5" and 5.25" (34P)         | CN9                | 34-pin dual floppy (2.0 mm)            |
| 1700260250 | Parallel port                             | CN12               | 25-pin female D-SUB (2.0 mm)           |
| 1701100202 | Network, 10Base-T                         | CN1                | RJ-45 8-pin modular jack (2.0 mm)      |
| 1700160150 | VGA CRT                                   | CN15               | 15-pin D-SUB (2.0 mm)                  |
| 1700060200 | Keyboard and PS/2 mouse                   | CN5                | 5-pin circular DIN, 6-pin circular DIN |
| 1703040300 | Peripheral power (-5 V and -12 V)         | CN14               | (3p - 3p) (300 mm)                     |
| 1701080300 | Front Panel                               | CN18               | (8-conductor pigtail)                  |
| 1700400000 | COM 1-4 cable                             | CN20               | 40-pin, 9-pin male D-SUB x 4           |
| 1700160000 | Audio cable                               | CN26               | 03.5 mm female telephone jack *5       |

## **E.2 USB cable**

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Optional USB cable, part no: 1703100260

## **E.3 24-bit LCD cable adapter**

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This converts from the Hirose “DF20A” type connector transfer to a 20 x 2-pin header. It supports 3.3 V or 5 V LCDs via pins 5 and 6.

Part no: 9681000040 (3.3 V LCD)

9681000041 (5 V LCD)

## **E.4 Panellink Receiver Module(PCM-3542R)**

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This module is for PCM-9570/S and PCM-9574 with Panellink transmit function only. (It does not include the Panellink cable.)

The part no. is PCM-3542R-00A1

## **E.5 Panellink Cable**

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This cable connects PCM-9570/S , PCM-9574 and PCM-3542R. This cable comes in the 3 m and 5 m size. The part numbers are:

1700203000 (3 m)

1700205000 (5 m)





APPENDIX

**F**

## **Mechanical Drawings**

# F.1 Component side

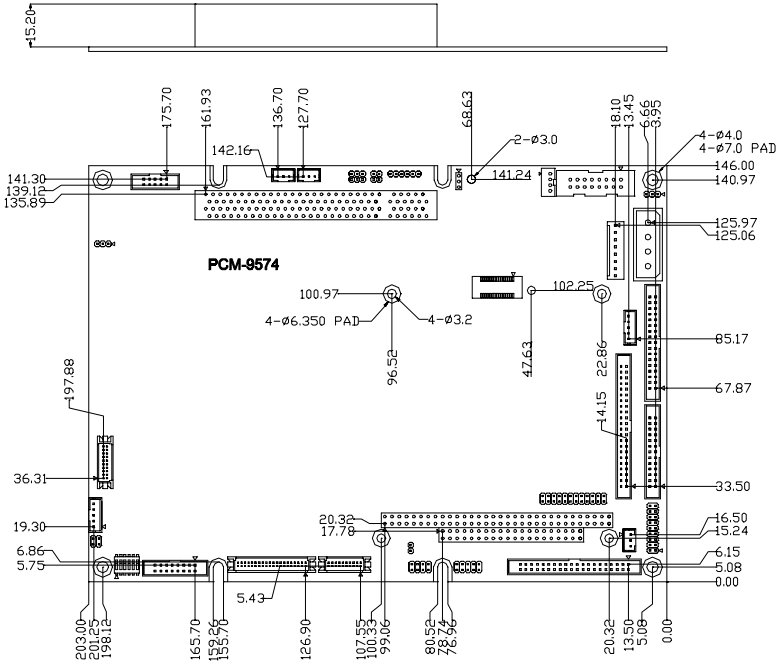


Figure F-1: PCM-9574 mechanical drawing - component side

# F.2 Solder side

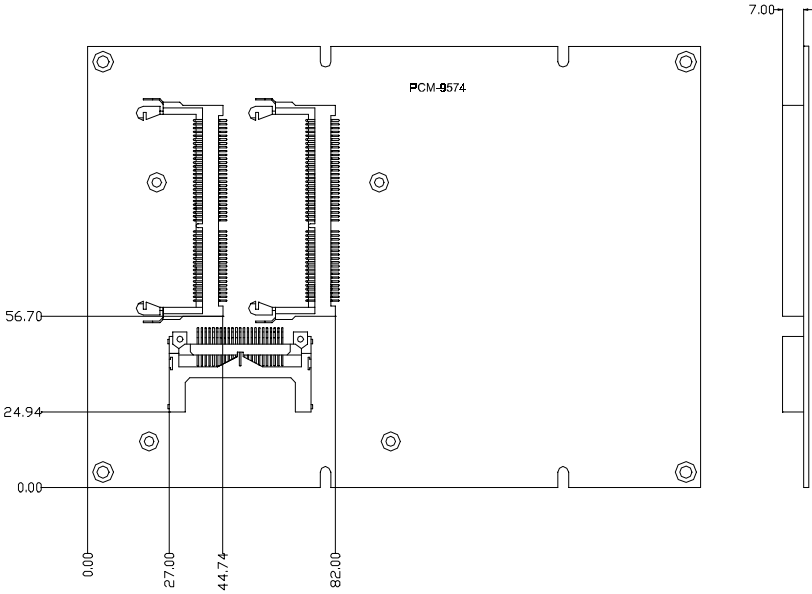


Figure F-2: PCM-9574 mechanical drawing - solder side

