



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





User Manual

PCM-9343

**3.5" Biscuit with DM&P
Vortex86DX- 800 MHz, PC/104 ,
VGA/TTL/LVDS, LAN, On-board
Memory, SATA, USB and CF**

ADVANTECH

Enabling an Intelligent Planet

Copyright

The documentation and the software included with this product are copyrighted 2013 by Advantech Co., Ltd. All rights are reserved. Advantech Co., Ltd. reserves the right to make improvements in the products described in this manual at any time without notice.

No part of this manual may be reproduced, copied, translated or transmitted in any form or by any means without the prior written permission of Advantech Co., Ltd. Information provided in this manual is intended to be accurate and reliable. However, Advantech Co., Ltd. assumes no responsibility for its use, nor for any infringements of the rights of third parties, which may result from its use.

Acknowledgements

Award is a trademark of Award Software International, Inc.

DM&P is a trademark of DM&P Technologies, Inc.

IBM, PC/AT, PS/2 and VGA are trademarks of International Business Machines Corporation.

Microsoft Windows® is a registered trademark of Microsoft Corp.

RTL is a trademark of Realtek Semi-Conductor Co., Ltd.

ESS is a trademark of ESS Technology, Inc.

UMC is a trademark of United Microelectronics Corporation.

SMI is a trademark of Silicon Motion, Inc.

CHRONTEL is a trademark of Chrontel Inc.

All other product names or trademarks are properties of their respective owners.

Product Warranty (2 years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandise authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Technical Support and Assistance

1. Visit the Advantech web site at www.advantech.com/support where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
 - Product name and serial number
 - Description of your peripheral attachments
 - Description of your software (operating system, version, application software, etc.)
 - A complete description of the problem
 - The exact wording of any error messages

Packing List

Before installation, please ensure the following items have been shipped:

Item Part Number

- 1 PCM-9343 SBC
- 1 Startup manual
- 1 Utility CD
- 1 mini jumper pack
- Cables

| Part Number | Description |
|-------------|------------------------------|
| 1700008894 | SATA cable 30CM |
| 1700060202 | Keyboard/Mouse cable |
| 1700100250 | COM3/COM4 cable |
| 1700260250 | Parallel port cable |
| 1701140201 | COM2 cable |
| 1703100121 | USB 2 port cable |
| 1700017863 | LAN Cable (PCM-9343EFG only) |

Ordering information

| Model Number | Description |
|-------------------|--|
| PCM-9343EFG-S6A1E | DMP Vortex86DX 3.5" SBC w/graphic,512MB,dual LAN |
| PCM-9343EF-S6A1E | DMP Vortex86DX 3.5" SBC w/graphic, 256MB memory |
| PCM-9343EL-S6A1E | DMP Vortex86DX 3.5" SBC w/o graphic,256MB memory |

Optional accessories

| Part No. | Description |
|------------|-----------------------|
| 1703150102 | SATA 10cm Power cable |

Contents

| | | |
|------------------|--|-----------|
| Chapter 1 | General Introduction | 1 |
| 1.1 | Introduction | 2 |
| 1.2 | Product Feature | 2 |
| 1.3 | Specifications | 3 |
| 1.3.1 | Functional Specification | 3 |
| 1.3.2 | Mechanical Specification | 4 |
| 1.3.3 | Electrical Specification | 5 |
| 1.4 | Environmental Specification | 5 |
| Chapter 2 | H/W installation..... | 7 |
| 2.1 | Jumpers | 8 |
| 2.1.1 | Jumper List | 8 |
| | Table 2.1: Jumper list | 8 |
| 2.1.2 | Jumper Settings | 8 |
| | Table 2.2: J1: LCD Power | 8 |
| | Table 2.3: J2: VBR_Ctrl..... | 8 |
| | Table 2.4: J3: COM2 Setting | 9 |
| | Table 2.5: J4: HDD & PWR LED Setting | 9 |
| | Table 2.6: J5: CF & SATA Master/Slave Setting | 9 |
| 2.1.3 | Jumper Description | 10 |
| 2.1.4 | External SPI Flash | 10 |
| 2.2 | Connectors..... | 11 |
| 2.2.1 | Connector list..... | 11 |
| | Table 2.7: Connector list..... | 11 |
| 2.2.2 | Connector Settings | 11 |
| 2.3 | Mechanical..... | 14 |
| 2.3.1 | Jumper and Connector Location..... | 14 |
| | Figure 2.1 Jumper and Connector layout (Component side)..... | 14 |
| | Figure 2.2 Jumper and Connector layout (Solder side)..... | 15 |
| 2.3.2 | Board Dimension | 15 |
| | Figure 2.3 Board Dimension layout (Component side)..... | 15 |
| | Figure 2.4 Board Dimension layout (Solder side)..... | 16 |
| | Figure 2.5 Board Dimension layout (Coastline)..... | 16 |
| Chapter 3 | BIOS Operation | 17 |
| 3.1 | BIOS Introduction | 18 |
| 3.2 | BIOS Setup | 18 |
| 3.2.1 | Main Menu | 19 |
| 3.2.2 | Standard CMOS Features | 20 |
| 3.2.3 | Advanced BIOS Features | 21 |
| 3.2.4 | Advanced Chipset Features..... | 22 |
| 3.2.5 | Integrated Peripherals..... | 23 |
| 3.2.6 | PnP/PCI Configurations | 24 |
| 3.2.7 | Load Optimized Defaults..... | 25 |
| 3.2.8 | Set Password..... | 26 |
| 3.2.9 | Save & Exit Setup | 27 |
| 3.2.10 | Quit Without Saving | 28 |
| Chapter 4 | Extension I/O Installation..... | 29 |

| | | |
|-------------------|---|-----------|
| 4.1 | PC/104 | 30 |
| Chapter 5 | S/W Introduction & Installation..... | 31 |
| 5.1 | S/W Introduction | 32 |
| 5.2 | Driver Installation | 32 |
| 5.2.1 | Windows XP Professional..... | 32 |
| 5.2.2 | Other OS..... | 32 |
| 5.3 | Value-Added Software Services | 32 |
| 5.3.1 | SUSI Introduction..... | 32 |
| 5.3.2 | Software APIs | 33 |
| 5.3.3 | SUSI Utilities..... | 34 |
| 5.3.4 | SUSI Installation | 34 |
| 5.3.5 | SUSI Sample Programs..... | 36 |
| Appendix A | PIN Assignments | 41 |
| A.1 | PIN Assignments | 42 |
| | Table A.1: CN1: SATA..... | 42 |
| | Table A.2: CN2: LPT..... | 42 |
| | Table A.3: CN3: 24 bits TTL Panel | 43 |
| | Table A.4: CN4: 24 bits LVDS Panel | 45 |
| | Table A.5: CN5: COM3..... | 46 |
| | Table A.6: CN6: JTAG | 46 |
| | Table A.7: CN7: Inverter Power Output | 46 |
| | Table A.8: CN8: Internal USB..... | 47 |
| | Table A.9: CN9: Internal USB..... | 47 |
| | Table A.10:CN10: ISA -5V & -12V Input..... | 48 |
| | Table A.11:CN11: AT Power Input | 48 |
| | Table A.12:CN12: GPIO | 49 |
| | Table A.13:CN13: PC104 | 49 |
| | Table A.14:CN14: GPIO | 52 |
| | Table A.15:CN15: SMBus..... | 53 |
| | Table A.16:CN16: BIOS Socket..... | 53 |
| | Table A.17:CN17: COM4..... | 54 |
| | Table A.18:CN18: LAN2 | 54 |
| | Table A.19:CN19: COM2..... | 55 |
| | Table A.20:CN20: LAN1 | 55 |
| | Table A.21:CN21: PS2 | 56 |
| | Table A.22:CN22: VGA..... | 56 |
| | Table A.23:CN23: COM1 | 57 |
| | Table A.24:CN24: CF | 57 |
| Appendix B | System Assignments..... | 59 |
| B.1 | System I/O Ports..... | 60 |
| | Table B.1: System I/O Ports | 60 |
| B.2 | 1st MB memory map..... | 60 |
| | Table B.2: 1st MB memory map | 60 |
| B.3 | DMA channel assignments | 61 |
| | Table B.3: DMA channel assignments..... | 61 |
| B.4 | Interrupt assignments | 61 |
| | Table B.4: Interrupt assignments..... | 61 |
| Appendix C | GPIO & WDT Sample Code | 63 |
| C.1 | [PCM-9343 WDT]..... | 64 |
| C.2 | [PCM-9343 GPIO]..... | 65 |

Chapter 1

General Introduction

This chapter gives background information on the PCM-9343.

Sections include:

- Introduction
- Product feature
- Specifications

1.1 Introduction

The PCM-9343 is a 3.5" SBC (Stackable Board Computer) with DM&P Vortex86DX-800 MHz SoC. The PCM-9343 has onboard memory up to 256/512MB, supports four USB 2.0 compatible ports, two LAN interface(PCM-9343EFG only), LVDS/TTL/VGA function , and four COM ports. In addition, the PCM-9343 also supports one SATA, one CF slot and one PC/104 expansion.

1.2 Product Feature

General

- **CPU:** DM&P Vortex86DX 800 MHz SoC
- **System Chipset:** DM&P Vortex86DX SoC
- **BIOS:** Award 16 Mbit Flash BIOS
- **System Memory:** 256/512MB on board DDR2 SDRAM
- **SSD:** Supports CompactFlash Card TYPE I/II
- **Watchdog Timer:** Single chip Watchdog 255-level interval timer, setup by software
- **Expansion Interface:** Supports 1xPC/104 expansion
- **Battery:** Lithium 3 V/210 mAH

I/O

- **I/O Interface:** 1 x SATA, 1 x KB/mouse, 3 x RS232, 1 x RS232/422/485, 1 x LPT
- **USB:** 4 x USB 2.0 compliant Ports
- **Audio:** N/A
- **GPIO:** 16-bit general purpose input/output
- **External SPI on board Flash:** Optional onboard 4MByte SPI Flash Disk(Support by request for boot device or storage on DOS OS)
- **I2C:** Compliant w/t V2.1, Some master code (general call, START and CBUS) not support

Ethernet

- **Chipset:** LAN1 DM&P Vortex86DX,
LAN2 Realtek RTL8110SC(PCM-9343EFG only)
- **Speed:** 10/100 Mbps
- **Interface:** 1 x RJ45,
1 x internal connector (PCM-9343EFG only)
- **Standard:** Compliant with IEEE 802.3, IEEE 802.3u

Display

- **Chipset:** SMI SM712 2D graphic Chip (built-in 4MB display memory)
- **Memory Size:** built-in 4MB display memory on SMI SM712
- **Resolution:** VGA Display mode: pixel resolution up to 1024 x 768 at 85-Hz and 1024 x 768 at 75-Hz LCD Display mode
- **TTL:** 1 x 24-bit TTL
- **LVDS:** 1x18/24-bit LVDS
- **Dual Display:** VGA+ LVDS or VGA+ TTL

1.3 Specifications

1.3.1 Functional Specification

Processor

| | |
|-----------|---|
| Processor | <p>DM&P Vortex86DX- 800 MHz SoC</p> <ul style="list-style-type: none"> ■ x86 Compatible Processor Core ■ 6 stage pipeline ■ Floating point unit support ■ Embedded I / D Separated L1 Cache:16K I-Cache, 16K D-Cache ■ DMA Controller ■ Operating Voltage Range: Core voltage: 0.9 V ~ 1.1V ■ I / O voltage: 1.8V \pm 5%, 3.3 V \pm 10 % ■ Package Type: 27x27, 581 Ball BGA ■ Manufacturing Technology:90nm |
|-----------|---|

VGA Chipset (SMI SM712)

| | |
|-------------------------------|--|
| Graphic and Video Controllers | <p>SMI SM712 2D graphic Chip VRAM: 4 MB internal memory Graphic Engine: 62.5MHz single clock/cycle engine (EM+) 86MHz single clock/cycle engine (EM4+) Designed to accelerate DirectDraw</p> |
| Output Interfaces | <p>VGA: Supports up to 1024 x 768 @85Hz LVDS: Supports up to 1024 x 768 @ 24-bit LVDS LCD Panel TTL: Supports up to 1024 x 768 @ 24-bit TTL LCD Panel Dual Display: VGA + LVDS and VGA+TTL, support extended mode and clone mode</p> <p>Note: TTL & LVDS can't output at the same time.</p> |

Chipset (DM&P Vortex86DX)

| | |
|---------------------------|--|
| Memory | Supports onboard DDR2 333 SDRAM Memory 256MB/512MB |
| LAN | LAN1: DM&P Vortex86DX, LAN2: Realtek RTL8110SC(PCM-9343EFG) <ul style="list-style-type: none">■ Integrated IEEE 802.3/802.3u compliant■ Support 10/100Mbps. Connectors: Phone Jack RJ45 8P 90D(F) |
| Serial ports | DM&P Vortex86DX SoC supports: <ul style="list-style-type: none">■ 4 full function serial ports from EVA-X5800 SoC■ Supports IRQ Sharing among serial ports Connectors: COM1/3/4: (RS-232) 1x DB9 at coastline, 2 x 2.0mm box header COM2: (RS-232/422/485) 1 x 2.0mm box header |
| USB Interface | DM&P Vortex86DX SoC supports: 4 USB 2.0 ports which are high-speed, full- speed, and low-speed capable USB Connector:(USB1~4) 2 set 5 x 2-pin Hirose DF13 type |
| SATA Connector | By ACARD chip supports IDE to SATA SATA connectors: Connector: Serial ATA II 7 pins 1.27 mm x 1 |
| Keyboard/Mouse connectors | DM&P Vortex86DX SoC supports: PS/2 Keyboard and Mouse interface. Connector: Box header 6P 2.0mm |
| GPIO | DM&P Vortex86DX SoC supports <ul style="list-style-type: none">■ 16 I/O Pins. Connectors: 16 pins 2.0mm pin header. |
| Battery backup | 2 pin wafer box for external Battery on board |
| BIOS | Award 16Mb Flash BIOS via SPI |

1.3.2 Mechanical Specification

1.3.2.1 Dimension(mm)

L146 mm * W102 mm

1.3.2.2 Height on Top(mm)

14.6 mm (PS/2 Connector)

1.3.2.3 Height on Bottom(mm)

6.70 mm (CF Socket)

1.3.2.4 Weight(g) with Heatsink

132g

1.3.3 Electrical Specification

1.3.3.1 Power Supply Voltage

Voltage requirement with AT Power :

+5 V \pm 5%, +12 V \pm 5% (Optional), (5 V only, 12 V optional for PC/104 add on card and LCD inverter)

1.3.3.2 Power Supply Current

Supply Current (AT)

- Typical mode:

PCM-9343EL: 0.44 A @ 5 V (2.2 W)

PCM-9343EF: 0.81 A @ 5 V (4.05 W)

PCM-9343EFG: 1.02 A @ 5 V (5.1 W)

- Max load in HCT:

PCM-9343EL: 0.75 A @ 5 V (3.75 W)

PCM-9343EF: 1.09 A @ 5 V (5.45 W)

PCM-9343EFG: 1.04 A @ 5 V (5.2 W)

1.3.3.3 RTC Battery

Typical Voltage : 3.0 V

Normal discharge capacity : 210 mAh

1.4 Environmental Specification

1.4.0.1 Operating Humidity

Operating Humidity: 10% ~ 90% Relative Humidity, non-condensing

1.4.0.2 Operating Temperature

Operating temperature: 0 ~ 60°C (32~140°F)

1.4.0.3 Storage Humidity

Standard products (0 ~ 60°C)

Relative Humidity: 95% @ 60°C

1.4.0.4 Storage Temperature

Standard products (0 ~ 60°C)

Storage temperature: -20~70°C

Chapter 2

H/W installation

This chapter explains the setup procedures of the PCM-9343 hardware, including instructions on setting jumpers and connecting peripherals, switches, indicators and mechanical drawings. Be sure to read all safety precautions before you begin the installation procedure.

2.1 Jumpers

2.1.1 Jumper List

Table 2.1: Jumper list

| | |
|----|--------------------------------|
| J1 | LCD Power |
| J2 | VBR_Ctrl |
| J3 | COM2 Setting |
| J4 | HDD & PWR LED Setting |
| J5 | CF & SATA Master/Slave Setting |

2.1.2 Jumper Settings

Table 2.2: J1: LCD Power

| | |
|--------------------|---|
| Part Number | 1653003101 |
| Footprint | HD_3x1P_79_D |
| Description | PIN HEADER 3*1P 180D(M) 2.0mm DIP SQUARE W/O Pb |
| Setting | Function |
| (1-2) | +3.3V |
| (2-3) | +5V (default setting) |

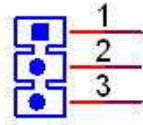


Table 2.3: J2: VBR_Ctrl

| | |
|--------------------|--|
| Part Number | 1653002101 |
| Footprint | HD_2x1P_79_D |
| Description | PIN HEADER 2*1P 180D(M)SQUARE 2.0mm DIP W/O Pb |
| Setting | Function |
| (1-2) | Brightness Control(PWM OUT) (default setting) |

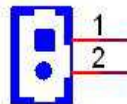
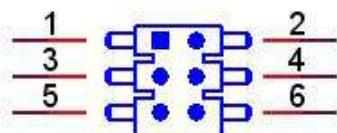
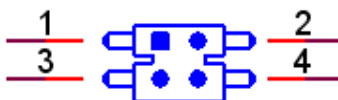


Table 2.4: J3: COM2 Setting

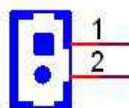
| | |
|--------------------|--|
| Part Number | 1653003260 |
| Footprint | HD_3x2P_79 |
| Description | PIN HEADER 3*2P 180D(M) 2.0mm SMD SQUARE PIN |
| Setting | Function |
| (1-2) | RS232 (default setting) |
| (3-4) | RS485 |
| (5-6) | RS422 |

**Table 2.5: J4: HDD & PWR LED Setting**

| | |
|--------------------|---|
| Part Number | 1653000014 |
| Footprint | HD_2x2P_79 |
| Description | PIN HEADER 2*2P 180D SMD MALE SQUARE 2.00mm 0 |
| Setting | Function |
| (1-2) (3-4) | IDE(Yellow) Power(Green) (default setting) |
| (1-3) (2-4) | IDE(Green) Power(Yellow) |

**Table 2.6: J5: CF & SATA Master/Slave Setting**

| | |
|--------------------|--|
| Part Number | 1653002101 |
| Footprint | HD_2x1P_79_D |
| Description | PIN HEADER 2*1P 180D(M)SQUARE 2.0mm DIP W/O Pb |
| Setting | Function |
| (1-2) | SATA Master, CF Slave |
| N/L | CF Master, SATA Slave (default setting) |

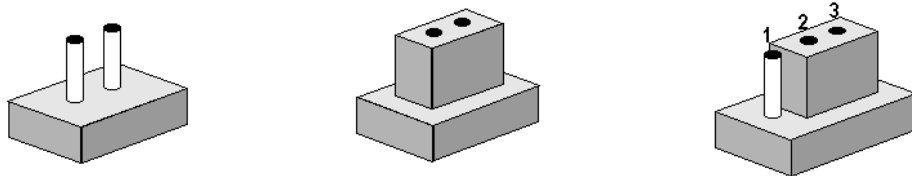


Note! Recommend to set the CF to Master when using the WinCE with CF card.



2.1.3 Jumper Description

You may configure your card to match the needs of your application by setting jumpers. A jumper is a metal bridge used to close an electric circuit. 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.

Warning! To avoid damaging the computer, always turn off the power supply before setting jumpers. Clear CMOS. Before turning on the power supply, set the jumper back to 3.0 V Battery On.



2.1.4 External SPI Flash

The board provides optional onboard external SPI flash up to 4MB for bootable devices and small storage using DOS Operating System. If required, please contact with Advantech's sales rep to support onboard external SPI flash by request, and follows below steps to enable external SPI flash.

1. If you want to function external SPI flash as storage for read/ write in DOS OS, please adjust BIOS SETUP \Advanced Chipset Features\Virtual Disk to "Enabled". and then use "SPITOOL.exe" in Drive CD to format it, so that you can read/write external SPI flash.
2. If you want to function external SPI flash as bootable device in DOS OS, please make a DOS bootable disk in CF card or IDE hard drive, boot from DOS bootable disk and then perform format A: /s to the external SPI flash. Next, set BIOS SETUP\ Boot Device to "FLOPPY", so that you can boot from external SPI DOS OS.

2.2 Connectors

2.2.1 Connector list

Table 2.7: Connector list

| | |
|------|-----------------------|
| CN1 | SATA |
| CN2 | LPT |
| CN3 | 24 bits TTL Panel |
| CN4 | 24 bits LVDS Panel |
| CN5 | COM3 |
| CN6 | JTAG |
| CN7 | Inverter Power Output |
| CN8 | Internal USB |
| CN9 | Internal USB |
| CN10 | ISA -5V & -12V Input |
| CN11 | AT Power Input |
| CN12 | GPIO |
| CN13 | PC104 |
| CN14 | GPIO |
| CN15 | SMBus |
| CN16 | BIOS Socket |
| CN17 | COM4 |
| CN18 | LAN2 |
| CN19 | COM2 |
| CN20 | LAN1 |
| CN21 | PS2 |
| CN22 | VGA |
| CN23 | COM1 |
| CN24 | CF |

2.2.2 Connector Settings

2.2.2.1 SATA Connector (CN1)

PCM-9343 supports Serial ATA via one connectors (CN1). It transfers by Acard chips and enabling very fast data and file transfer.

2.2.2.2 LPT Connector (CN2)

PCM-9343 can support LPT via CN2. LPT (Line Print Terminal) is the original, yet still common, name of the parallel port interface on IBM PC-compatible computers. It was designed to operate a text printer that used IBM's 8-bit extended ASCII character set.

2.2.2.3 VGA/TTL/LVDS Interface Connections

The PCM-9343's VGA interface can drive conventional CRT displays and is capable of driving LVDS and TTL flat panel displays. The board has three connectors to support these displays: one for standard CRT VGA monitors, one for LVDS type LCD panels, another one for TTL type LCD panels.

PCM-9343 uses SMI SM712 2D graphic chip offering enhanced capabilities for dual view and for handling dual applications, VGA+TTL, and VGA +LVDS, while dual independent display, each display can support independent full screen full motion video, as well as independent graphics refresh rates, resolutions, and color depths.

LVDS and TTL can support resolutions of 640 x 480, 800 x 480, 800 x 600, and 1024 x 768.

VGA display connector (CN22)

The VGA display connector is a box connector used for conventional VGA displays.

LVDS LCD panel connector (CN4)

The board supports 24-bit LVDS LCD panel displays. Users can connect to a 24-bit LVDS LCD through it.

TTL LCD panel connector (CN3)

The board supports 24-bit TTL LCD panel displays. Users can connect to a 24-bit TTL LCD through it.

Note!



1. *TTL & LVDS can't be output at the same time.*
2. *In DOS mode, PCM-9343 can't display full screen at 1024 X768 resolution.*
3. *The suggested maximum cable length for TTL is around 40cm, for LVDS is around 10m*

2.2.2.4 COM Port Connector (CN5, CN17, CN19, CN23)

The PCM-9343 provides 4 serial ports (COM1, COM3 & COM4: RS-232; COM2: RS-232/422/485) in one DB-9 connector (CN23) for COM1 and one 7*2P pin header (CN19) for COM2 and two 5*2P pin header (CN5, CN17) for COM3 & COM4. It 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 A.

COM RS-232/422/485 setting (J3)

COM2 can be configured to operate in RS-232, RS-422, or RS-485 mode.

This is done via J3.

| J3 | COM2 Setting |
|---------|--------------|
| Setting | Function |
| (1-2) | RS232 |
| (3-4) | RS485 |
| (5-6) | RS422 |

2.2.2.5 JTAG Connector (CN6)

The PCM-9343 provides one 6-pin JTAG connector for initial BIOS flash purpose through specific BIOS flash tool.

2.2.2.6 Inverter Power connector (CN7)

PCM-9343 can provide +5 V and +12 V and signal to LCD inverter board via CN7.

2.2.2.7 USB Connectors (CN8, CN9)

The board provides up to four USB (Universal Serial Bus) ports. This gives complete Plug and Play, and hot attach/detach for up to 127 external devices. The USB interfaces comply with USB specification Rev. 2.0 which supports 480 Mbps transfer rate, and are fuse protected.

There are 5 x 2 pin 180D (M) connectors for internal use, 4 x USB ports CN8, CN9. You will need an adapter cable if you use a standard USB connector. On one end the adapter cable has a 5 x 2-pin connector with a foolproof connection to prevent it from being plugged in the wrong way and on the other end a USB connector.

2.2.2.8 Main power connector, (CN11)

PCM-9343 can support 5V AT power supply. Supplies main power +5 V to the PCM-9343, and to devices that require +12 V.

2.2.2.9 GPIO (General Purpose Input Output) (CN14)

The board supports 16-bit GPIO through GPIO connector. The 16 digital in and outputs can be programmed to read or control devices, with input or output defined. The default setting is 8 bits input and 8 bits output.

2.2.2.10 PC/104 Connector (CN13)

PCM-9343 supports full ISA compatible functions via PC/104 connector (CN13).

20 x 2 (F) 2.54 mm 51.86 mm x 5.01 mm x 11.45 mm p = 3.40 mm

32 x 2 (F) 2.54 mm 82.34 mm x 5.01 mm x 11.45 mm p = 3.40 mm

PC/104 negative voltage: One 3 * 1P pin header (CN10) supports -5 V/-12 V power input for ISA devices.

2.2.2.11 SMBus Connector (CN15)

The System Management Bus (abbreviated to SMBus or SMB) is a simple two-wire bus, derived from I2C and used for communication with low-bandwidth devices on a motherboard, especially power related chips such as a laptop's rechargeable battery subsystem (see Smart Battery Data). Other devices might include temperature, fan or voltage sensors, lid switches and clock chips. PCI add-in cards may connect to a SMBus segment.

The SMBus was defined by Intel in 1995. It carries clock, data, and instructions and is based on Philips' I2C serial bus protocol. Its clock frequency range is 10 kHz to 100kHz. Its voltage levels and timings are more strictly defined than those of I2C, but devices belonging to the two systems are often successfully mixed on the same bus.

2.2.2.12 Ethernet Configuration(CN18,CN20)

The board is equipped with 2 high performance 32-bit PCI-bus Ethernet interface which is fully compliant with IEEE 802.3 10/100Mbps. It is supported by all major network operating systems.

LAN1 Connector (CN20)

DM&P Vortecx86DX Integrate Fast Ethernet MAC and Physical chip to provide the Fast Ethernet Control unit that has 32-bit performance, PCI bus master capability, and full compliance with IEEE 802.3u 100Bast-T specifications and IEEE 802.3x Full Duplex Flow Control. LAN1 connection adopts Vortecx86DX Integrated Fast Ethernet Control unit on CN24 through internal 10-pin right angle pin header.

LAN2 Connector (CN18, PCM-9343FG only)

PCM-9343 LAN2 connection uses the Realtek RTL8100C 10/100Mbps LAN chip via PCI bus and through internal 10-pin right angle pin header.

2.2.2.13 Keyboard and PS/2 Mouse Connector (CN21)

The 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. If the keyboard is not present, the standard PC/AT BIOS will report an error or fail during power-on self-test (POST) after a reset. The product'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.

2.2.2.14 Solid State Disk

The board provides a CompactFlash card type I/II socket.

CompactFlash (CN24)

The CompactFlash card shares a secondary IDE channel which can be enabled/disabled via the BIOS settings. Compact Flash set as fix master mode.

2.3 Mechanical

2.3.1 Jumper and Connector Location

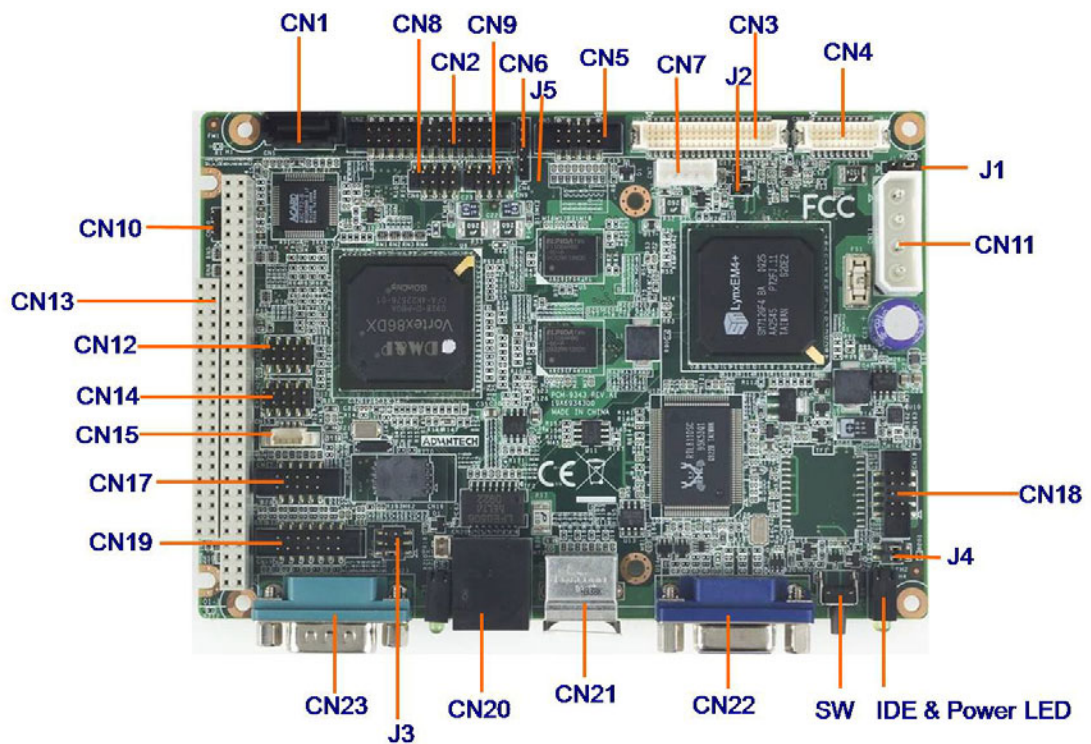


Figure 2.1 Jumper and Connector layout (Component side)

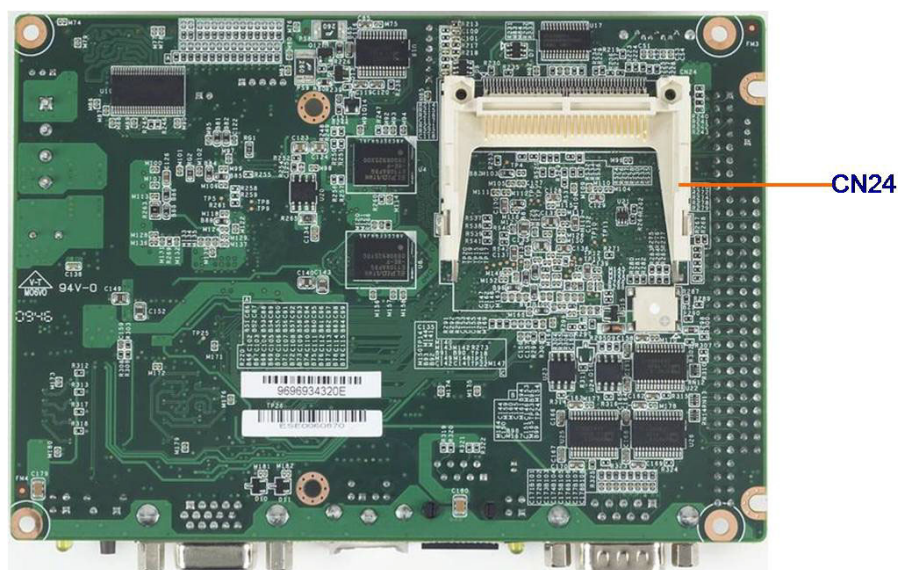


Figure 2.2 Jumper and Connector layout (Solder side)

2.3.2 Board Dimension

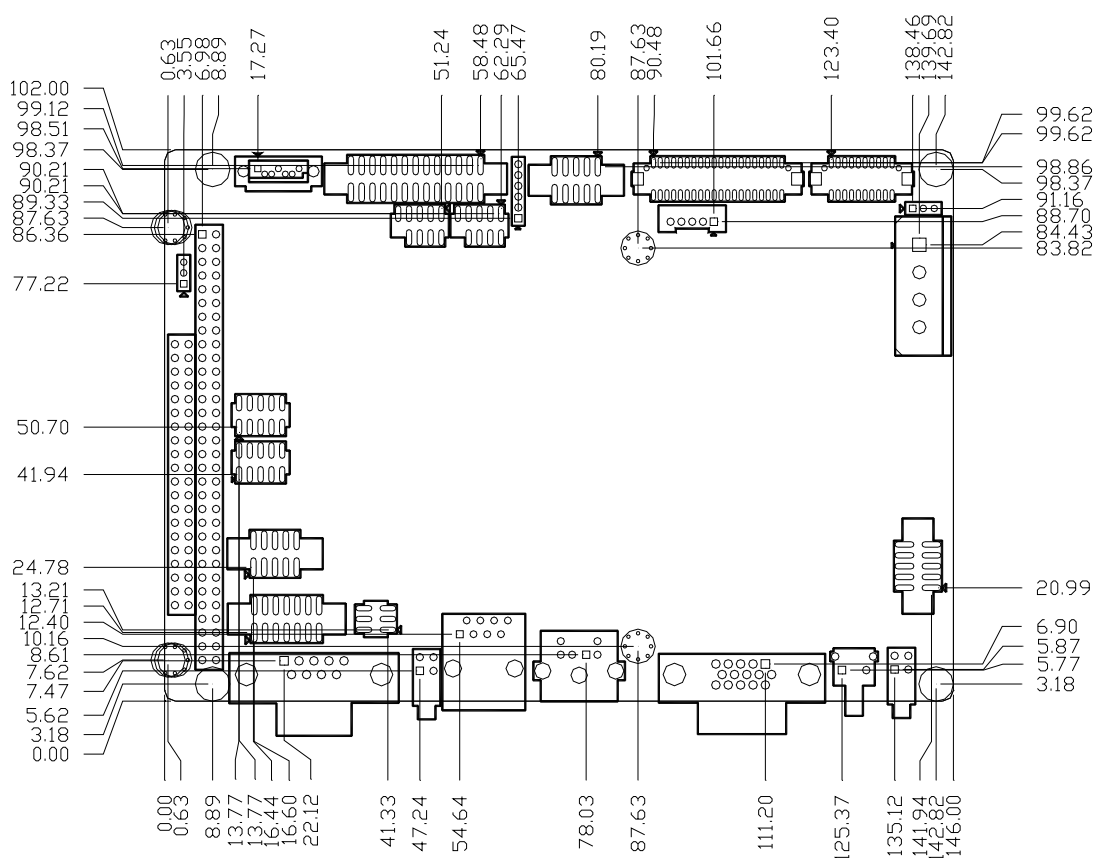


Figure 2.3 Board Dimension layout (Component side)

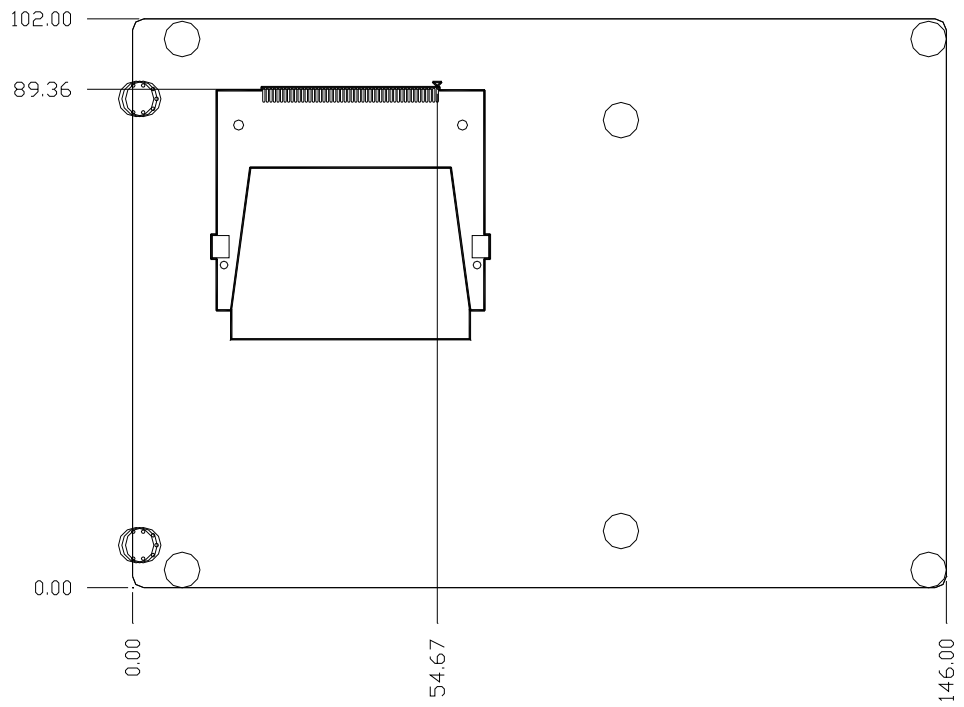


Figure 2.4 Board Dimension layout (Solder side)

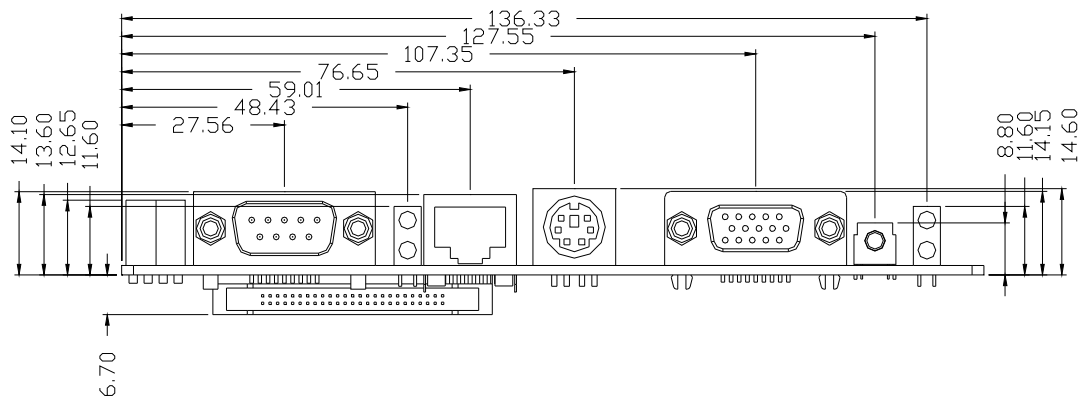


Figure 2.5 Board Dimension layout (Coastline)

Chapter 3

BIOS Operation

3.1 BIOS Introduction

AwardBIOS 6.0 is a full-featured BIOS provided by Advantech to deliver superior performance, compatibility, and functionality to industrial PCs and embedded boards. Its many options and extensions let you customize your products to a wide range of designs and target markets.

The modular, adaptable AwardBIOS 6.0 supports the broadest range of third-party peripherals and all popular chipsets, plus Intel, AMD, nVidia, VIA, and compatible CPUs from 386 through Pentium, AMD Geode, K7 and K8 (including multiple processor platforms), and VIA Eden C3 and C7 CPUs.

You can use Advantech's utilities to select and install features that suit your needs and your customers' needs.

3.2 BIOS Setup

The PCM-9343 system has AwardBIOS 6.0 built-in, which includes a CMOS SETUP utility that allows users to configure settings as required or to activate certain system features.

The CMOS SETUP saves configuration settings in the CMOS RAM of the motherboard. When the system power is turned off, the onboard battery supplies the necessary power to the CMOS RAM so that settings are retained.

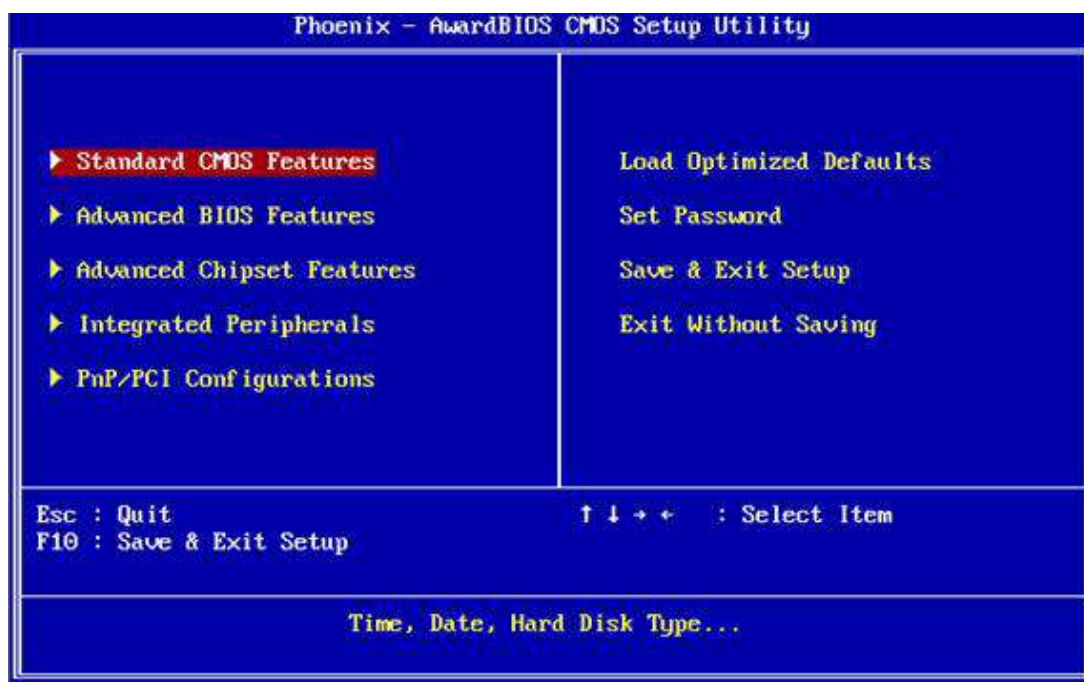
To access the CMOS SETUP screen, press the button during the power-on BIOS POST (Power-On Self Test).

CMOS SETUP Navigation and Control Keys:

| | |
|----------------------|---|
| < ↑ >< ↓ >< ← >< → > | Move to highlight item |
| <Enter> | Select Item |
| <Esc> | Main Menu - Start Quit sequence Sub Menu - Exit the current page and return to level above |
| <Page Up/+> | Increase the numeric value or make changes |
| <Page Down/-> | Decrease the numeric value or make changes |
| <F1> | General help, for Setup Sub Menu |
| <F2> | Item Help |
| <F5> | Load Previous Values |
| <F7> | Load Optimized Default |
| <F10> | Save all CMOS changes |

3.2.1 Main Menu

Press the key during startup to enter the BIOS CMOS Setup Utility; the Main Menu will appear on the screen. Use arrow keys to highlight the desired item, and press <Enter> to accept, or enter the sub-menu.



- **Standard CMOS Features**
This setup page includes all the features for standard CMOS configuration.
- **Advanced BIOS Features**
This setup page includes all the features for advanced BIOS configuration.
- **Advanced Chipset Features**
This setup page includes all the features for advanced chipset configuration.
- **Integrated Peripherals**
This setup page includes all onboard peripheral devices.
- **PnP/PCI Configurations**
This setup page includes PnP OS and PCI device configuration.
- **Load Optimized Defaults**
This selection loads optimized values for best system performance configuration.
- **Set Password**
Establish, change or disable passwords.
- **Save & Exit Setup**
Save CMOS value settings to CMOS and exit BIOS setup.
- **Exit Without Saving**
Abandon all CMOS value changes and exit BIOS setup.