PCM-4141 Series

STPC Atlas 120 MHz CPU Module with VGA/LAN/FDD

User Manual

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This manual is for the PCM-4141.

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Packing List

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

- 1 PCM-4141 all-in-one single board computer
- 1 Start-up manual
- CD-ROM or Disks for utility, drivers, and manual (in PDF format)
- 1 IDE flat cable, 44-pin to 44-pin p/n: 1701440504
- 1 Keyboard / PS2 mouse cable p/n: 1700060202
- 1 cable 6-pin (MINI-DIN) to 6-pin (Wafer 2.0 mm) p/n: 1703060053
- 4 COM ports cable p/n: 1701400181
- 1 Parallel cable p/n: 1700260250
- 1 LAN cable p/n: 1701100202
- 1 VGA cable p/n: 1701160150
- 1 FDD converter module p/n: 9681000044E

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

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CHAPTER

General Information

This chapter gives background information on the PCM-4141.

Sections include:

- Introduction
- Features
- Specifications
- Board dimensions

Chapter 1 General Information

1.1 Introduction

The PCM-4141 is the ultimate cost-effective PC/104 solution for limitedspace applications. It offers all the functions of an AT-compatible industrial computer on a single board, and occupies less space than a 3^{3}_{4} " hard drive. The PCM-4141 comes with an embedded STPC Atlas 120 MHz processor on board. For maximum performance, the PCM-4141 also supports on board memory that can accept up to 64 MB memory. Onboard features include a socket for a CompactFlashTM Card, 100Base-T Ethernet, Enhanced IDE interface, one parallel port, four serial ports (RS-232), a keyboard, and a PS/2 mouse interface. A SVGA LCD display controller allows CRT resolutions up to 1024 x 768 @ 16bpp colors, LCD resolutions up to 1024 x 768 @ 16bpp colors.

PCM-4141 use the most industrial grade material and passed the Advantech Phoebus testing profile. Very suitable for wide range temperature operating, PCM-4141 can operate under -40~85° C environment temperature and with the total onboard materials feature which can have the strong anti-vibration feature. PCM-4141 is the best choice for rugguized environment application.

1.2 Features

- STMicroelectronics STPC Atlas 486 processor
- Onboard 64 MB memory
- Supports 10/100 based-T Ethernet
- Supports 18-bit TFT LCD and CRT (18-bit TFT need to ask ST FAE support and co-work with STPC FAE, the min request is specify BIOS for specify LCD panel)
- · On-board 4 serial ports
- On-board 1 LPT and 2 USB 1.1 port
- PC/104 expansion connector

1.3 Specifications

1.3.1 Standard SBC functions

- CPU: STMicroelectronics, STPC Atlas 120 MHz CPU Module
- BIOS: Award 256 KB Flash BIOS
- DRAM: On board 64 MB SDRAM
- SSD: Onboard 128 MB Flash (IDE Interface)
- Network: Intel 82551ER chipset
- Watchdog: 255 scale, hardware reset ane IRQ selection
- **IDE interface:** One Enhanced IDE

PC/104 expansion: 104-pin 16-bit PC/104 module connectors

1.3.2 Display

- Chipset: STPC Atlas support 18-bit TFT LCD Panel
- **Display memory:** Shared Memory Architecture, up to 4MB using system memory
- Display resolution: CRT Display Code: up to 1280 x 1024 at 75Hz

LCD Display Code: up to 1024 x 768 and up to 18-

bit TFT

1.3.3 Ethernet function

• Chipset: Intel 82551ER

• Ethernet interface: PCI 10/100 Mbps Ethernet. IEEE 802.3u protocol compatible

1.3.4 Solid state disk

• Onboard 128 MB Flash (IDE Interface)

1.3.5 Mechanical and environmental

- **Dimension:** 96 x 90 (3.8" x 3.5") (L x W)
- Weight: 0.85 kg (weight of total package)
- Power Supply Voltage: 4-pin power connector, +5 V power
- Power Requirement: (STPC ATLAS, 32M SDRAM)

Average: +5 V @ 1.6 A

- Operating temperature: -40 $\sim 85^\circ~C$
- **Operating Humidity:** 0%~90% relative humidity, non-condensing



Figure 1.1: PCM-4141 Dimensions (component side)



Figure 1.2: PCM-4141 Dimensions (solder side)

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Introduction

This chapter tells how to set up the PCM-4141 hardware. It includes instructions on setting jumpers and connecting peripherals, switches and indicators. Make sure you read all the safety precautions before you begin the installation procedure.

Chapter 2 Introduction

2.1 Connectors

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

The tables below shows the function of each of the board's connectors:.

Function
System reset connector
Primary IDE 44-pin connector
RS422/485 connector
IR connector
Power and Hdisk LED connector
LAN connector
Print port
4 COM port connector
USB connector
PC104 connector
GPIO connector
TFT panel connector
VGA connector
Mini Power Input connector
Panel Back-light connector
External -5V, -12V power input
KB/MS connector
Floppy

2.2 Locating connectors

Warning: Make sure you use the correct component side. Improper installation can cause serious damage to your hardware!



Figure 2.1: Locating connectors (component side)



Figure 2.2: Locating connectors (solder side)



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



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

2.4 Ethernet connector (CN6)

The PCM-4141 is equipped with a high performance 32-bit PCI-bus Fast Ethernet interface which is fully compliant with IEEE 802.3u 100/ 10Base-T specifications. It is supported by all major network operating systems.

The medium type can be configured via the program included on the utility disk. (See Chapter 5 for detailed information.)

2.4.1 Ethernet connector (CN6)

10/100 Base-T connects to the PCM-4141 via an adapter cable to the 10-pin 2 mm connector.

2.5 TFT panel connector (CN12)

CN12 is a 40-pin dual-in-line header and is used to connect an 18-bit LCD TTL display to the PCM-4141.

2.6 Serial ports (CN8)

The PCM-4141 offers four serial ports, three RS-232. These ports allow you to connect to any serial device (a mouse, printers, etc.) or communication network.

2.6.1 COM1,COM2,COM3,COM4 RS-232 port (CN8)

The serial port connector's consist of a 10-pin dual-in-line pin head housing.

2.6.2 COM2 RS-232/422/485 port (CN3)

The secondary port, located above COM2, consists of two 10-pin, dualin-line pin head housing.

The IRQ and address range for these ports 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-4141 board's ports.

Table 2.2: Serial port default settings				
Port	Address	Interrupt	Default	
COM1	3E8, 3F8	IRQ4	3F8	
COM2	2E8, 2F8	IRQ3	2F8	
COM3	3F8,2F8,3E8,2E8	IRQ10	3E8	
COM4	3F8,2F8,3E8,2E8	IRQ5	2E8	

2.7 Primary IDE 44-pin connector (CN2)

The built-in Enhanced IDE (Integrated Device Electronics) controller supports up to two IDE devices, including CD-ROM drives, tape backup drives, a large hard disk drive and other IDE devices.

2.7.1 Connecting the hard drive

Connecting drives is done in a daisy-chain fashion. It requires one or two cables, depending on the drive size. All necessary cables are included in your PCM-4141 package. 1.8" and 2.5" drives need a 1 x 44-pin to 2 x 44-pin flat-cable connector. 3.5" drives need 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 CN2. 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 into the Enhanced IDE hard drive, with pin 1 on the cable corresponding to pin 1 on the hard drive. 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.

2.8 PC/104 connector (CN10)

Refer to Appendix B in this manual.

2.9 Parallel port connector (CN7)

Normally, the parallel port is used to connect the card to a printer. The PCM-4141 includes a multi-mode (ECP/EPP/SPP) parallel port. It is accessed via CN7, a 26-pin flat-cable connector.

You will need an adapter cable if you use a traditional DB-25 connector. The adapter cable should have a 26-pin connector on one end and a DB-25 connector on the other.

The parallel port interrupt channel is designated as IRQ7.

2.10 Backlight connector (CN15)

The LCD inverter is connected to CN15 via a 5-pin connector to provide +12 V power to the LCD display and also 12 V power to the backlight connector.

2.11 VGA connector (CN13)

The PCM-4141 board's SVGA interface can facilitate conventional CRT displays. The card has a connector to support CRT VGA monitors.

2.11.1 CRT display connector (CN13)

CN13 is a 16-pin, pin head housing connector. Please use the VGA cable (provided with your kit) to convert the pin head housing connector into a connector for conventional CRT displays.

Detailed information on pin assignments for CRT display connector CN13 is given in Appendix C.

2.12 Reset button connector (CN1)

If you install a reset button, it should be a single pole switch rated at 5 V. Momentarily pressing the button will activate a reset. For reset button pin assignments, please see Appendix C.

2.13 PS/MS connector (CN17)

The PCM-4141 board provides a pin head keyboard connector, which 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 failure during the power-on self test (POST) after resetting the PC. The PCM-4141 board's BIOS standard setup menu allows you to select "Absent/Present" for your keyboard under the Advanced CMOS Setup section. This allows non-keyboard operation in embedded system applications without the system halting during the POST. When "PS/2 mouse support" is enabled, your PS/2 mouse is automatically detected by the system.

2.14 External -5 V, -12 V power input (CN16)

The PCM-4141 is equipped with a low power dissipation STPC. With only a heat sink, the PCM-4141 will operate normally at temperatures up to $60 \times C$. At temperatures above $60 \times C$, a fan is recommended. A CPU fan power supply connector is provided (+5 V input) in addition to the CPU power supply.

This provides power supply to the optional CPU cooling fan. This connector is only available when +5 V power is supplied to the board.



Before making the connection, make sure that the voltage is absolutely correct and matched with the correct connector.

2.15 Floppy (CN19)

You can attach one 3.5" floppy drive to the PCM-4141's onboard controller. This is useful for notebooks, for example.

A daisy-chain drive cable converter (part no. 9681000044E) is required for a single floppy system. A 34-pin flat-cable connector is fitted on one end of the cable converter, while the other end has one floppy disk drive connector. It consists of a 34-pin flat-cable connector (for the $3^{3}/4^{2}$ drives).

2.15.1 Connecting the floppy drive

1. Plug the 34-pin flat-cable connector into the cable converter. Make sure that the red wire corresponds to pin 1 on the connector.

2. Attach the appropriate connector at the other end of the cable to the floppy drive(s). You can use only one connector in the set. The set at the other end (after the twist in the cable) connects to the A: drive.

When connecting a $3\frac{3}{4}$ " floppy drive, you may have some difficulties in determining which pin is number one. Look for a number on the circuit board indicating pin number one. In addition, you should check if the connector on the floppy drive has an extra slot. If the slot is up, pin number one should be on the right. Please refer to any documentation that came with the drive for more information.

If your cable needs to be custom made, you can find the pin assignments for the board's connector in Appendix C.

2.16 IR connector (CN4)

PCM-4141 provides a 5-pin IR connector.

2.17 Power and HDD LED connector (CN5)

PCM-4141 provides a 4-pin LED connector.

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CHAPTER 3

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
- Connections for four standard LCDs
- Ethernet software configuration

Chapter 3 Software Configuration

3.1 Introduction

The PCM-4141 system BIOS and custom drivers are located in a 256 KB, 32-pin (JEDEC spec.) Flash ROM device. A single Flash chip holds the system BIOS and VGA BIOS. 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 ipanel typeî from the iintegrated peripheralsî menu in CMOS setup.





Do not remove the plastic rear cover until you have verified that no power is flowing within the panel PC. Power must be switched off and the power cord must be unplugged. Every time you service the panel PC, you should be aware of this.

3.2 Connections for four standard LCDs (PCM-4141)

Note: Standard BIOS supports TFT LCD panels.

3.2.1 Toshiba LTM10C209A(640x480 TFT color LCD)

Table 3.1: Connections to Toshiba LTM10C209A				
LTM10C209A		PCM-4141 CN12		
Pin	Name	Pin	Name	
1	GND	3	GND	
2	NCLK	35	SHFCLK	
3	GND	4	GND	
4	R0	9	R0	
5	R1	12	R1	
6	R2	15	R2	
7	GND	33	GND	
8	R3	18	R3	

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9	R4	21	R4
10	R5	24	R5
11	GND	33	GND
12	G0	10	G0
13	G1	13	G1
14	G2	16	G2
15	GND	34	GND
16	G3	19	G3
17	G4	22	G4
18	G5	25	G5
19	GND	4	GND
20	ENAB	37	M/(DE)
21	GND	3	GND
22	B0	11	B0
23	B1	14	B1
24	B2	17	B2
25	GND	8	GND
26	B3	20	B3
27	B4	23	B4
28	B5	26	B5
29	GND	4	GND
30	VDD 5V	1	LCD VDD +5V
31, 32	VDD 5V	2	LCD VDD +5V

3.2.2 Connections to Toshiba LTM12C275C (800 x 600 TFT color LCD)

Table 3.2: Connections to Toshiba LTM12C275C				
LTM12C275C		PCM-4141 CN12		
Pin	Name	Pin	Name	
1	GND	3	GND	
2	NCLK	35	SHFCLK	
3	NC	Х		
4	NC	Х		
5	GND	4	GND	

6	R0	9	R0
7	R1	12	R1
8	R2	15	R2
9	R3	18	R3
10	R4	21	R4
11	R5	24	R5
12	GND	33	GND
13	G0	10	G0
14	G1	13	G1
15	G2	16	G2
16	G3	19	G3
17	G4	22	G4
18	G5	25	G5
19	GND	34	GND
20	B0	11	B0
21	B1	14	B1
22	B2	17	B2
23	B3	20	B3
24	B4	23	B4
25	B5	26	B5
26	ENAB	37	M/(DE)
27	GND	34	GND
28	VDD 5V	1	LCD VDD(+5V)
29	VDD 5V	2	LCD VDD(+5V)
30	GND	3	GND

3.3 Ethernet software configuration

The PCM-4141 is onboard 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-4141 on. Make sure that the LAN Driver file is located in the working drive.

2. At the prompt, type LAN Driver and press <Enter>. The Ethernet configuration program will then be displayed.

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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 1: For Ethernet installation, please see Chapter 6.

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Award BIOS Setup

This chapter describes how to set BIOS configuration data.

Chapter 4 Award BIOS Setup

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 bootup 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 do not match, the program outputs an error message. You will then need to run the BIOS setup program to set the configuration information in memory.

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

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

The PCM-4141 is CMOS memory has an integral lithium battery backup. The battery backup should last at least five years in normal service. When it finally runs down, you will need to replace the complete unit.

4.1.2 Further CMOS Data Safeguards

The PCM-4141 uses 2 additional functions that help ensure the integrity of the CMOS memory data. A Batteryless CMOS bootup function as well as automatic CMOS data refresh, are both utilized. Both these functions rely on utilizing free space in the BIOS Flash memory. Also, since the CMOS memory data and BIOS Flash saved CMOS memory data are stored simultaneously, you are always guaranteed an exact duplicate of the original CMOS memory data.

CMOS Data Backup

Because CMOS memory retention and integrity is especially critical for normal startup, original CMOS memory values stored in the BIOS Flash memory allow system boots to proceed normally. This is especially critical in unmanned applications where system monitoring is not convenient. This data redundancy (backup) combined with error detecting capability make for more stable and reliable systems.

Batteryless Bootup

Since the BIOS Flash memory does not need a battery to retain its contents (unlike the CMOS's lithium memory backup), and usually has extra capacity, CMOS memory values are stored here. So, in the event of CMOS backup battery failure and CMOS configuration information being erased, when the start-up routine encounters a CMOS memory error during bootup, CMOS configuration memory is automatically transferred out of the BIOS Flash memory back into CMOS memory. Hence, CMOS configuration information is replaced with the original memory data and system bootup can then proceed normally. This would reset the RTC, which is only a minor concern.

4.2 Award BIOS setup

Awardís 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.

Please note that all PCI functions are not supported in this product.

4.2.1 Entering setup

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

4.2.2 Standard CMOS setup

When you choose the Standard CMOS Setup option from the Award BIOS Setup Utility 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 at the bottom left of the menu screen.

Phoenix - AwardBIOS CMOS Setup Utility				
 > Standard CMOS Features > Advanced BIOS Features > Advanced Chipset Features > Integrated Peripherals > Power Management Setup 	▶ PnP/PCI Configurations Load Optimized Defaults Set Password Save & Exit Setup Exit Without Saving			
Esc : Quit F9 : Menu in BIOS ↑↓ + + : Select Item F1D : Save & Exit Setup				
Time, Date, Hard Disk Type				

Figure 4.1: BIOS setup initial screen

Phoenix	- AwardBIOS CMOS Setup U Standard CMOS Features	tility
Date (nm:dd:yy) Time (hh:nm:ss) > IDE Primary Master > IDE Primary Slave > IDE Secondary Master > IDE Secondary Slave Drive A Drive B Video Halt On Base Memory Extended Memory Total Memory	Thu, Jun 19 2003 23 : 39 : 48 [None] [1.44M, 3.5 in.] [None] [EGA/VGA] [All , But Keyboard] 654728 10248	Item Help Menu Level → Change the day, month, year and century
†↓→+:Move Enter:Select → F5:Previous Val	/-/PU/PD:Value F10:Save ues F7: Opti	ESC:Exit F1:General Help nized Defaults

Figure 4.2: Standard CMOS setup screen

4.2.3 Advanced BIOS setup

By choosing the Advanced BIOS Setup option from the Award BIOS Setup Utility menu, the screen below is displayed.



Figure 4.3: Advanced BIOS setup screen

4.2.4 Advanced chipset setup

By choosing the Advanced Chipset Setup option from the Award BIOS Setup Utility menu, the screen below is displayed. This sample screen contains the manufactureris default values for the PCM-4141.



Figure 4.4: Advanced chipset setup
4.2.5 Power management setup

By choosing the Power Management Setup option from the Award BIOS Setup Utility menu, the screen below is displayed.

Phoenix - AwardBIOS CMOS Setup Utility Power Management Setup					
Power Management	[User Define]	4		Item Help	
Video Off Option	[Susp,Stby -> Off]		Menu Le	vel 🕨	
Video Off Method ** PM Timers **	[V/H_SYNC+Blank]				
HDD Power Down	[Disable]				
Standby Mode	[Disable]				
Suspend Mode ** PM Events **	[Disable]				
DMA Request (DRQ) PCI master deuice (PCIM)	[Disable]				
Parallel I/O (PIO)	[Disable]				
Keyboard (KBD)	[Disable] [Enable]				
Floppy Disk Controller Hard Disk Controller	[Disable] [Disable]				
IRQ 15 - 1 Detection IRQ 0 Detection	[Enable] [Disable]	Ţ			
^↓++:Move Enter:Select +/- F5:Previous Value	/PU/PD:Value F10:Sa s F7: 0	ve ptim	ESC:Exit ized Defa	F1:General Help ults	

Figure 4.5: Power management setup

4.2.6 PCI / Plug and Play configuration

By choosing the PCI / Plug and Play Setup option from the Award BIOS Setup Utility menu, the screen below is displayed.

Phoenix - AwardBIOS CMOS Setup Utility PnP/PCI Configurations					
Reset Configuration Data [Disabled]	Item Help				
Resources Controlled By [Auto(ESCD)] × IRQ Resources Press Enter × DMA Resources Press Enter PCI/UGA Palette Snoop [Disabled]	Menu Level → Default is Disabled. Select Enabled to reset Extended System Configuration Data ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot				
↑↓→+:Move Enter:Select +/-/PU/PD:Value F1D:Save F5:Previous Values F7: Opti	ESC:Exit F1:General Help mized Defaults				

Figure 4.6: Plug and Play Configuration

4.2.7 Peripheral setup

By choosing the Peripheral Setup option from the Award BIOS Setup Utility menu, the screen below is displayed. This sample screen contains the manufactureris default values for the PCM-4141.

Phoenix - AwardBIOS CMOS Setup Utility Integrated Peripherals				
On-Chip Local Bus IDE [Enabled	🔺 🛛 Item Help			
The borrer for bost with Enabled The 201 channel IDE [Enabled IDE Primary Master PIO [Auto] IDE Secondary Master PIO [Auto] IDE Secondary Master PIO [Auto] IDE HDD Block Mode [Enabled Onboard Serial Port 1 [378/IR0 UABT 2 Type RS485 Flow Control [Enabled Onboard Parallel Port	Menu Level →			
Parallel Port Mode [SPP] Onboard Serial Port 3 [3E8] Serial Port 3 Use IRQ [IRQ10] Onboard Serial Port 4 [2E8] Serial Port 4 Use IRQ [IRQ5] IR Controller				
↑↓++:Move Enter:Select +/-/PU/PD:Va F5:Previous Values	lue F10:Save ESC:Exit F1:General Help F7: Optimized Defaults			

Figure 4.7: Peripheral setup

4.2.8 Load BIOS defaults

Auto Configuration 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-4141 on. Two settings can be used here: Fail-Safe or Optimized.



Figure 4.8: Load BIOS Defaults

4.2.9 Change password

To change the password, choose the Set Password option form the Award BIOS setup utility 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 message:



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:

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 Change User Password.

4.2.10 Save settings and exit

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.



Figure 4.9: Save and exit settings

4.2.11 Exit without saving

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



Figure 4.10: Exit without saving

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CHAPTER CHAPTER

VGA Setup

- Introduction
- Installation of VGA driver
- - for Windows 3.1
- - for Windows 95/98

Further information

Chapter 5 VGA Setup

5.1 Introduction

The PCM-4141 has an on-board VGA interface. The specifications and features are described as follows:

5.1.1 Chipset

The PCM-4141 uses a Atlas STPC for its VGA controller, which supports conventional analog CRT monitors. 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

PCM-4141 has on board 64 memory, the VGA controller can drive CRT displays or color panel displays with resolutions up to 1024 x 768 at 64 K colors.

5.2 Installation of VGA driver

Complete the following steps to install the VGA driver. Follow those procedures in the flow chart that apply to the operating system which you are using within your PCM-4141.

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 1: The CD-ROM drive is designated as "U" throughout this chapter.
- Note 2: <Enter> means pressing the "Enter" key on the keyboard.

5.2.1 Installation for Windows 95/98

1. a. Select "Start", "Settings", "Control Panel", "Display", "Settings".



b. Press "Advanced Properties".

Display Properties ? 🗙
Background Screen Saver Appearance Effects Web Settings
Display:
Colors 256 Colors Screen area Less More 640 by 480 pixels
Extend my windows desktop onto this monitor.
OK Cancel Apply

- 2. a. Choose the "Adapter" label.
 - b. Press the "Change..." button.

c. Click "OK"



- 3. a. Update Device Driver Wizard.
 - b. Click "Next".



c. Select "Display a list of all the drivers in a specific location, so you can select the driver you want" in display.

d. Click "Next".

Update Device Driver Wizard					
	What do you want Windows to do? Search for a better driver than the one your device is using now. (Recommended) Second				
	< <u>B</u> ack Next > Cancel				

e. Select the manufacturer and model of your hardware device.

f. If you have a disk that contains the updated driver, click "Have Disk".

g. To install the updates driver, click "Finish".

Update I	Device Driver Wizard
	Select the manufacturer and model of your hardware device. If you have a disk that contains the updated driver, click Have Disk. To install the updated driver, click Finish.
Mo <u>d</u> els: Standa	rd Display Adapter (VGA) [4-23-1999]
⊙ Sho ⊙ Sho	w <u>c</u> ompatible hardware. <u>H</u> ave Disk) w <u>a</u> ll hardware.
	< Back Next > Cancel

4. a. Insert the utility disc into the CD-ROM drive, then click "OK".



- b. Folders: U:\CD_CAT3\PC104\4141\Vga\Win95&98
- c. Press "OK".

Open		? ×
File <u>n</u> ame: uma.inf uma.inf	Eolders: U:\CD_CAT3\P\Win95&98 U:\CD_CAT3\P\Win95&98 U:\CD_CAT3\P C_3 u'\ C_3 u'\ C_3 u'\ C_3 V3a C_3 Win95&98	OK Cancel
	Dri <u>v</u> es: u: 19 cdkit123	

Click "OK".



5. a. Select the highlighted item.

b. Click the "OK" button.

Select De	evice X
	Click the Display adapters that matches your hardware, and then click OK. If you don't know which model you have, click OK. This list shows only what was found on the installation disk.
Modeļs:	
SGS	THOMSON STPC
	Cancel

- 6. a. Update Device Drive Wizard.
 - b. Click the "Next" button.

Update Device Driver V	√izard
Update Device Driver V	Vizard Windows driver file search for the device: SGS-THOMSON STPC Windows is now ready to install the selected driver for this device. Click Back to select a different driver, or click Next to continue. Location of driver: U:CD_CAT3\PC104\3341\VGA\WIN95 <u>9</u> 8\L
	< Back Next> Cancel

Press "Finish".



Click "Yes" to restart your computer.



CHAPTER 6

PCI Bus Ethernet Interface (PCM-4141)

This chapter provides information on Ethernet configuration. Sections include:

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

Chapter 6 PCI Bus Ethernet Interface

6.1 Introduction

The PCM-4141 is equipped with a high performance 32-bit Ethernet chipset which is fully compliant with IEEE 802.3u 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 program included on the utility disk.

The Ethernet port provides a 10-pin 2 mm connector on board.

6.2 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-4141, 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 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.

6.2.1 Installation for Windows 95/98/NT

1. a. Insert the utility disc into the CD-ROM drive.

b. Folders:

 $U:\CD_CAT3\LAN\4141\Vga\Win95\&98$

Select on "Setup".

🔁 98-me-2k-xp						_ 🗆 ×
<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>G</u> o F <u>a</u> vorit	es <u>H</u> elp					1
Sack → → L Back Forward Up	X Cut	Copy Pas	te Undo	Delete	Properties View	∎ . vs
Address 📄 U:\CD_CAT3\LAN\81	00BL\98.me-2k->	р.				•
)(95-cm ²).//9E0CB2.(1))	LUN2000 (4)). (m95 m	<u> </u>
98-me-2k-	W 300812	w3503h2 (1)	WINZUUU	WIN2000 (4)	WINJJa	
хр						
	WIN95A (8)	Win98	WIN98 (11)	Winme	WINME (15)	
Setup.exe Application			<u></u>			
Modified: 9/5/01 8:23 PM	Winxp	WINXP (19)	Data1	Data1.hdr	Data2	
Size: 55KB						
	1				1	
	lkernel.ex_	Layout.bin	Setup	Setup	Setup.inx	
						•
	55.0	KB		🛄 My Comp	uter	//

2. a. Click "Next" and prepare to install network functions.



3. a. Click "Finish" to finish the installing.



4. a. choose "Yes, I want to restart my computer now".

Restarting Windows
Setup has finished copying files to your computer. Before you can use the program, you must restart your computer.
Choose one of the following options and click OK to finish setup.
 Yes, I want to restart my computer now. No, I will restart my computer later.
ОК

6.3 Further information

Realtek website: www.realtek.com Advantech websites:www.advantech.com www.advantech.com/support



Keyboard and Mouse Driver for Win95/98

Chapter 7 Keyboard and Mouse Driver for Win95/98

7.1 Overview

The document provides installation instructions for a replacement driver which has been introduced to compensate for known bugs in Keyboard and Mouse Controller.

7.2 Keyboard and mouse Installation for Windows 98

- 1. a. Select "Start", "Settings", "Control Panel"
 - b. Double click "Systerm"



a. Choose the "Device Manager" label.
 b. Select "Standard 101/102-Key or Microsoft Natural Keyboard.

Click "OK".

System Properties	? ×
General Device Manager Hardware Profiles Performance	
	1
• View devices by type • View devices by connection	
📃 Computer	▲
💼 🚔 CDROM	
庄 🖃 Disk drives	
🗄 🖳 Display adapters	
🗄 🚭 Floppy disk controllers	
🕀 🚭 Hard disk controllers	
🖻 🍪 Keyboard	
Standard 101/102-Key or Microsoft Natural Keyboard	
📺 🖳 🖳 Monitors	
🗄 🕀 🕥 Mouse	
😥 🕮 Network adapters	
📄 💱 Other devices	
PCI Ethernet Controller	
Ports (COM & LPT)	
E System devices	-
Properties Refresh Remove Prir	jt
ОК	Cancel

- 3. a. Choose the "Driver" label.
 - b. Click "Update Driver".



4. a. Click "Next" to update Device Driver Wizard.



- 5. a. Choose the "Display a list of all the drivers in a specific location, so you can select the driver you want".
 - b. Click "Next".

Update Device Driver	√izard
Update Device Driver V	 What do you want Windows to do? Search for a better driver than the one your device is using now. (Recommended) Isplay a list of all the drivers in a specific location, so you can select the driver you want.
	< <u>B</u> ack Next> Cancel

a. select the manufacturer and model of your hardware device.

If you have a disk that contains the updated driver, click "Have Disk".

To install the updates driver, click "Next".

Update	te Device Driver Wizard	
¹ 2	Select the manufacturer and model of your hardware device. If disk that contains the updated driver, click Have Disk. To insta driver, click Finish.	you have a all the updated
Mo <u>d</u> els:	els:	
Standa	ndard 101/102-Key or Microsoft Natural Keyboard [4-23-1999]	
⊙ Sho ⊙ Sho	how <u>c</u> ompatible hardware.	lave Disk
	< <u>B</u> ack Next >	Cancel

a.Select the driver and click "OK".

Install Fr	om Disk	×
_	Insert the manufacturer's installation disk into the drive selected, and then click OK.	ОК
_		Cancel
	Copy manufacturer's files from:	
	A:\	Browse

a. Select "u:\CD_CAT3\PC104\4141\kbm.

Click "OK".

Open		? ×
File name: stkb9x.inf stkb9x.inf	Eolders: u:\CD_CAT3\PC104\\KBM u:\ cd_cat3 cd_cat3 pc104 c3341 kbm v	OK Cancel
	Drives:	

a. Choose the manufacturer's files and click "OK".



A

Appendix

Programming the Watchdog Timer

The PCM-4141 is equipped with a watchdog timer that resets the CPU or generates an interrupt if processing comes to a standstill for any reason. This feature ensures system reliability in industrial standalone or unmanned environments.

Appendix A Programming the Watchdog Timer

A.1 Programming the watchdog timer

The default configuration of the timer is enabled with system reset.

To enable the watchdog timer, you must make a program which writes 1 to I/O port address 370 (hex) at regular intervals. The first time your program reads the port, it enables the watchdog timer. After that, your program must write 1 to port 370 at time intervals of less than 1.6 seconds. Otherwise, the watchdog timer will activate and reset the CPU. When you want to disable the watchdog timer, your program should write 0 to port 370.

If CPU processing comes to a standstill because of EMI or a software problem, your program's signals to I/O port address 370 of the timer will be interrupted. The timer will then automatically reset the CPU, and data processing will continue normally.

You must make your program so that it writes 1 to I/O port 370 at an interval shorter than the timer's preset interval. The timer's intervals have a tolerance of \pm 30%, so you should program an instruction that will refresh the timer about every second.

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

10 REM Watchdog timer example program

20 X=Out &H443,1 REM Enable and refresh the watchdog unlock 83977

```
mov dx, 370
mov al, 87
out dx, al
out dx, al
;Set Logical device 8
mov dx,370h
mov al,07h
out dx,al
inc dx
```

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mov al,08h out dx,al ;Set Device active mov dx,370h al,030h mov dx,al out inc dx mov al.01h out dx.al ;Set Wdt Time mov dx,370h mov al,0F2h out dx,al inc dx al,01h ;Time value mov out dx,al

2000 REM Subroutine #2, takes 1 second to complete

2090 RETURN

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Installing PC/104 Modules

This appendix gives instructions for installing PC/104 modules.

Appendix B Installing PC/104 Modules

B.1 Installing PC/104 modules

The PCM-4141's PC/104 connectors give you the flexibility to attach PC/104 modules.

Installing these modules on the PCM-4141 is quick and simple. The following steps show how to mount the PC/104 modules:

1. Remove the PCM-4141 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.



Appendix B

Table B.1: PCM-4141 PC/104 (CN10)				
Pin	Signal		Signal	
Number	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		

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Table B.1: PCM-4141 PC/104 (CN10)		
30	SA1	OSC
31	SA0	0 V
32	0 V	0 V
* low active		

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Appendix C

Pin Assignments

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

- System reset button
- Primary IDE 44 pin connector
- RS422/485 connector
- IR connector
- Power and Hdisk LED connector
- LAN connector
- Print port
- 4 COM port connector
- USB connector
- PC/104 connector
- GPIO connector
- TFT panel connector
- VGA connector
- Main power input connector
- Panel back-light connector
- External -5v, -12v power connector
- KB/MS connector
- Floppy

Appendix C Pin Assignments

C.1 System reset button (CN1)



Table C.1: System reset button (CN1)					
Pin	Pin name				
1	Signal				
2	GND				

C.2 Primary IDE 44 pin Connector(CN2)

Table C.2: Primary IDE 44 pin Connector(CN2)								
Pin	Signal	Pin	Signal					
1	Reset	2	GND					
3	D7	4	D8	1 [] () 2				
5	D6	6	D9	3004				
7	D5	8	D10	00				
9	D4	10	D11					
11	D3	12	D12	00				
13	D2	14	D13	00				
15	D1	16	D14					
17	D0	18	D15	ŏŏ				
19	GND	20	N/C	00				
21	DRQ	22	GND					
23	DIOW	24	GND	00				
25	DIOR	26	GND	00				
27	IORDY	28	N/C					
29	DACK	30	GND	00				
31	IDE IRQ	32	IOCS16	00				
33	ADDR1	34	N/C					
35	ADDR0	36	ADDR2	41 0 0 42 43 0 0 44				
37	HD SELECT0	38	HD SELECT1					
39	IDE ACTIVE	40	GND					
41	VCC	42	VCC					
43	GND	44	NC					

4	3	2	1
Ο	0	0	

Table C.3: RS-422/485 connector (CN3)					
Pin	Signal				
1	RS422Rx-				
2	RS422Rx+				
3	RS422Tx+/RS485+				
4	RS422Tx-/RS485-				

C.4 IR connector (CN4)

5	4	3	2	1	
0	0	0	0		

Table C.4: IR connector (CN4)					
Pin	Signal				
1	+5V				
2	IRRXH				
3	IRRX				
4	GND				
5	IRTX				

C.5 Power and Hdisk LED connector (CN5)

4	3	2	1
0	0	0	

Table C.5: Power and Hdisk LED connector (CN5)					
Pin	Signal				
1	Power LED+				
2	Power LED-				
3	HDD LED+				
4	HDD LED-				

C.6 LAN connector (CN6)

1		2
3	00	4
5	00	6
7	00	8
9	00	10

Table C.6	Table C.6: LAN connector (CN6)						
Pin	Signal						
1	VCC_LAN						
2	Active LED						
3	RX+						
4	RX-						
5	Link LED						
6	GND						
7	NC						
8	GND						
9	TX+						
10	TX-						



Table C.7: Print port connector (CN7)								
Pin	Signal	Pin	Signal					
1	STROBE	2	AUTOFD					
3	D0	4	ERROR					
5	D1	6	INIT					
7	D2	8	SLCTIN					
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					

1	3													37	39
	0	00	00	20	0	00	0	0	0	00	ЭC	0 (0	0	Ο
0	0	00	00	00	Ο	00	0	Ο	0	00	$\mathcal{D}\mathcal{C}$	0	0	Ο	0
2	4													38	40

Table C.8: 4 COM Port connector (CN8)					
Pin	Signal	Pin	Signal		
1	DCD1	2	DSR1		
3	RX1	4	RTS1		
5	TX1	6	CTS1		
7	DTR1	8	RI1		
9	GND	10	GND		
11	DCD2	12	DSR2		
13	RX2	14	RTS2		
15	TX2	16	CTS2		
17	DTR2	18	RI2		
19	GND	20	GND		
21	DCD3	22	DSR3		
23	RX3	24	RTS3		
25	ТХ3	26	CTS3		
27	DTR3	28	RI3		
29	GND	30	GND		
31	DCD4	32	DSR4		
33	RX4	34	RTS4		
35	TX4	36	CTS4		
37	DTR4	38	RI4		
39	GND	40	GND		

1		2
3	00	4
5	00	6
7	00	8
9	00	10

Table C.9: USB connector (CN9)					
Pin	Signal	Pin	Signal		
1	+5V	2	+5V		
3	UV0-	4	UV1-		
5	UV0+	6	UV1+		
7	GND	8	GND		
9	GND	10	NC		

C.10 PC/104 connector (CN10)

For details on PC/104 connectors, please refer to Appendix B.



Table C.10: GPIO connector (CN11)					
Pin	Signal	Pin	Signal		
1	+5V	2	GPIO0		
3	GPIO1	4	GPIO2		
5	GPIO3	6	GPIO4		
7	GPIO5	8	GPIO6		
9	GPIO7	10	GND		

1	3													37	39
	0	00	0	0	00	00	0 (0	0	0	00	0 (0	0	Ο
0	0	00	0	0	00	00	0	0	0	0	00)0	0	Ο	0
2	4													38	40

Table C.11: TFT Panel connector (CN12)						
Pin	Signal	Pin	Signal			
1	LCD VDD(+5V)	2	LCD VDD(+5V)			
3	GND	4	GND			
5	LCD VDD(+3.3V)	6	LCD VDD(+3.3V)			
7	Vcon (optional)	8	GND			
9	R0	10	G0			
11	B0	12	R1			
13	G1	14	B1			
15	R2	16	G2			
17	B2	18	R3			
19	G3	20	B3			
21	R4	22	G4			
23	B4	24	R5			
25	G5	26	B5			
27	NC	28	NC			
29	NC	30	NC			
31	NC	32	NC			
33	GND	34	GND			
35	SHFCLK	36	FLM(V-SYNC)			
37	M/(DE)	38	LP(H-SYNC)			
39	NC	40	ENVEE			



Table C.12:	Table C.12: VGA connector (CN13)					
Pin	Signal	Pin	Signal			
1	RED	2	DDC POWER(+5V)			
3	GREEN	4	GND			
5	BLUE	6	NC			
7	NC	8	NC			
9	GND	10	H-SYNC			
11	GND	12	V-SYNC			
13	GND	14	NC			
15	GND	16	NC			

4	3	2	1
Ο	0	0	

Table C.1.	Table C.13: Main power input connector (CN14)				
Pin	Signal				
1	+12V				
2	GND				
3	GND				
4	+5V				



Table C.14: Panel back-light power connector (CN15)				
Pin	Signal			
1	+12V			
2	GND			
3	ENABKL			
4	VBR			
5	+5V			

C.16 External -5V, -12V power input (CN16)



Table C.15: External -5V, -12V power input (CN16)				
Pin	Signal			
1	-5V			
2	GND			
3	-12V			

6	5	4	3	2	1
Ο	0	0	0	0	

Table C.16: KB/MS connector (CN17)		
Pin	Signal	
1	KBCLK	
2	KBDATA	
3	MSCLK	
4	GND	
5	+5V	
6	MSDATA	



Table C.17: Floppy (CN19)				
Pin	Signal	Pin	Signal	
1	+5V	2	INDEX	
3	+5V	4	DSA	
5	+5V	6	DSKCHG	
7	NC	8	NC	
9	NC	10	MOA	
11	NC	12	DIR	
13	NC	14	STEP	
15	GND	16	WD	
17	GND	18	WE	
19	GND	20	TRACK0	
21	GND	22	WP	
23	GND	24	RDATA	
25	GND	26	HEAD	

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System Assignments

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

- System I/O ports
- DMA Channel Assignments
- Interrupt Assignments
- 1st MB memory map

Appendix D System Assignments

D.1 System I/O ports

Table D.1: System I/O ports				
Addr. range (Hex)	Device			
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	Game I/O			
278-27F	Parallel printer port 2 (LPT 3)			
2F8-2FF	Serial port 2			
300-31F	Prototype card			
320H~32FH	Reserved for GPIO			
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			
3F0-3F7	Diskette controller			

Table D.1: System I/O ports				
Addr. range (Hex)	Device			
3F8-3FF	Serial port 1			
* PNP audio I/O map range from 220 ~ 250H (16 bytes)				

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

D.2 DMA channel assignments

Table D.2: DMA channel assignments		
Channel	Function	
0	Available	
1	Available	
2	Floppy disk (8-bit transfer)	
3	Available	
4	Cascade for DMA controller 1	
5	Available	
6	Available	
7	Available	

* Audio DMA select 0, 1 or 3

D.3 Interrupt assignments

Table D.3: Interrupt assignments		
Interrupt#	Interrupt source	
IRQ 0	Interval timer	
IRQ 1	Keyboard	
IRQ 2	Interrupt from controller 2 (cascade)	
IRQ 8	Real-time clock	
IRQ 9	Cascaded to INT 0A (IRQ 2)	
IRQ 10	Available	
IRQ 11	Available	
IRQ 12	PS/2 mouse (non-releasable)	
IRQ 13	INT from co-processor	
IRQ 14	Fixed disk controller (primary)	
IRQ 15	Fixed disk controller (secondary)	
IRQ 3	Serial communication port 2	
IRQ 4	Serial communication port 1	
IRQ 5	Parallel port 2	
IRQ 6	Diskette controller (FDC)	
IRQ 7	Parallel port 1 (print port)	

* PNP audio IRQ select: 5, 7, 9 or 10

* Ethernet function is auto-sensing

D.4 1st MB memory map

Table D.4: 1st MB memory map		
Addr. range (Hex)	Device	
F000h - FFFFh	System ROM	
D000 - EFFFh	Expansion ROM	
CC00 - CFFFh	Ethernet boot ROM	
C000 - CBFFh	32/40/44 K VGA BIOS	
B800h - BFFFh	CGA/EGA/VGA text	
B000h - B7FFh	Unused	
A000h - AFFFh	EGA/VGA graphics	
0000h - 9FFFh	Base memory	

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LCD Services

This appendix contains information on Advantech's LCD lighting services.

Appendix E LCD Services

E.1 LCD Services

LCD screens are very popular on Advantech's CPU cards, Biscuit PCs and POS series products. "Lighting" LCDs is virtually impossible without technical expertise. Advantech provides LCD lighting and integration services to assist our customers in setting up their systems. Advantech's LCD lighting guide explains how to make connections between LCD interfaces and LCD panels, as well as how to control contrast, brightness, VEE source, LCD inverter and all other factors that affect the successful installation of LCD panels.

The following information details our LCD lighting services:

a) This policy is only valid for Advantech products that include LCD support

b) The customer should send the following LCD components for service:

DC-AC inverter and cable (i.e. connector with/without and data sheet

wires) and data sheet LCD flat panel and cable (connector with/without wires)

and complete data sheet

c) Advantech will normally charge the customer a deposit. The deposit will be refunded when servicing exceeds a minimum volume

d) The customer must sign the agreement and fax it to us prior to sending the LCD package. Advantech reserves the right to refuse service if the customer cannot provide the required documents and auxiliary parts

e) Advantech will supply a BIOS file and connection cable to the customer upon completing the service

f) A minimum of seven working days is required for completion of service, starting from receipt of the LCD package by Advantech

For TFT display support lists, see our website at:

http://www.advantech.com/support

Please contact our customer service department for more detailed information and service files.