

## **User Manual**

## PCM-3355

PC/104 SBC w/AMD LX800/ LX600, VGA, LCD, LAN, USB2.0 SATA and CF

Trusted ePlatform Services



### Copyright

This document is copyrighted® 2009. All rights are reserved. The original manufacturer reserves the right to make improvements to 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 the original manufacturer. Information provided in this manual is intended to be accurate and reliable. However, the original manufacturer assumes no responsibility for its use, nor for any infringements upon the rights of third parties that may result from such use.

### **Acknowledgement**

Award is a trademark of Award Software International, Inc.

VIA is a trademark of VIA Technologies, Inc.

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

Intel, Pentium, Celeron, and MMX are registered trademarks of Intel 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.

Creative is a trademark of Creative Technology LTD.

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

For more information on this and other Advantech products, please visit our websites at: http://www.advantech.com

http://www.advantech.com/eplatform

For technical support and service, please visit our support website at:

http://www.advantech.com/support

This manual is for the PCM-3355.

Part No. 2006335510 Printed in China Edition 1 June 2009

### **Packing List**

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

1 PCM-3355 SBC	
1 x SATA cable	(p/n: 1700008894)
1 x Keyboard/Mouse cable	(p/n: 1703060053)
1 x Y cable for KB/MS extension	(p/n: 1700060202)
1 x Ethernet RJ-45 Conn. conversion cable	(p/n: 1700005158)
1 x LPT port cable	(p/n: 1700260250)
1 x VGA cable	(p/n: 1701160150)
1 x USB cable (bracket type with two USB ports)	(p/n: 1703100121)
1 x RS-422/485 COM cable	(p/n: 1703040157)
1 x RS-232 COM cable	(p/n: 1701200220)
1 x Startup manual	

1 x CD-ROM (Manual, Driver, Utility)

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

Model No. List	Description
PCM-3355F-L0A1E	PC/104 SBC w/AMD LX800, VGA, LVDS, LAN, USB,SATA and CF
PCM-3355L-J0A1E	PC/104 SBC w/AMD LX600, VGA, LVDS, LAN, USB, and CF

### **Additional Information and Assistance**

- 1. Visit the Advantech web site at www.advantech.com 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

### **Declaration of Conformity**

This device complies with the requirements in part 15 of the FCC rules: Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and

2. This device must accept any interference received, including interference that may cause undesired operation

#### FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



**Caution!** There is a danger of a new battery exploding if it is incorrectly installed. Do not attempt to recharge, force open, or heat the battery. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

# Contents

Chapter	1	General Information	.1
	1.1 1.2 1.3	Introduction Features Specifications 1.3.1 Standard PC/104 Biscuit SBC Functions 1.3.2 VGA/TTL Interface	2 2 2 2 3
	1.4	<ul> <li>1.3.3 Ethernet Interface</li></ul>	3 3 4 4 5
Chapter	2	Installation	.7
	2.1	lumpore	0
	2.1	Jumpers	o g
	22	Connectors	0 8
	2.2	Table 2.2 <sup>.</sup> Connectors	0
	23	Locating Connectors	0
	2.0	Figure 2.1 Connectors (component side)	9
		Figure 2.2 Connectors (solder side)	9
	2.4	Installing SO-DIMMs	.10
	2.5	Solid State Disk	. 10
	-	2.5.1 CompactFlash (CN18)	. 10
	2.6	Parallel port connector (CN5)	.10
	2.7	Kevboard and PS/2 mouse connector (CN14)	. 10
	2.8	Power Connectors (CN4)	. 11
	2.9	Power/HDD LED Connector (CN15)	. 11
	2.10	COM port connector (CN8,CN17)	. 11
		2.10.1 Serial Port RS-422/485 (CN17)	. 11
		Table 2.3: Serial Port RS-422/485 (SW1)	. 11
	2.11	VGA/LCD interface connections	. 11
		2.11.1 CRT display connector (CN2)	. 11
		2.11.2 TTL TFT LCD connector (CN1)	. 11
		2.11.3 Panel Inverter Power (CN16)	. 11
	2 12	Ethernet configuration	12
		2 12 1 100Base-T connector (CN9)	12
	2 13	Watchdog timer configuration	12
	2.10	USB connectors (CN3)	12
	2.15	SATA Connector (CN7)	. 12
Chapter	3	Award BIOS Setup	13
	3.1	Introduction	. 14
	0.0	3.1.1 UNUS KAIN AUTO-DACKUP and Kestore	.14
	3.2	Entering Setup	.14
	0.0	Figure 3.1 Award BIOS Setup Initial screen	. 14
	3.3	Standard CMOS Setup	.15
	3.4	Standard CMOS Setup	. 15
		3.4.1 Date	. 15

 3.4.2
 Time
 15

 3.4.3
 IDE Primary Master/Slave
 15

	3.4.4	Drive A	15
	3.4.5	Halt on	16
	3.4.6	Base Memory	16
	3.4.7	Extended Memory	16
	3.4.8	Total Memory	16
3.5	Advand	ced BIOS Features	17
		Figure 3.2 Advanced BIOS features screen	17
	3.5.1	Virus Warning	17
	3.5.2	CPU Internal Cache	17
	3.5.3	Quick Power On Self Test	17
	3.5.4	First/Second/Third/Other Boot Device	18
	3.5.5	Boot Up NumLock Status [On]	18
	3.5.6	Gate A20 Option [Fast]	18
	3.5.7	Typematic Rate Setting [Disabled]	18
	3.5.8	Security Option [Setup]	18
	359	OS Select For DRAM > 64M [Non-OS2]	19
	3 5 10	Video BIOS Shadow [Enabled]	19
	3 5 11	Small Logo (FPA) Show [Disabled]	19
	3 5 12	Cvrix 6X86/MILCPLIID [Enabled]	19
36	Advanc	red Chinset Features	20
5.0	361	Video Memory Size [32 M]	20
	362	Output Display [CRT]	20
	363	Elat Papel Configuration [Press Enter] (Show Only)	20
	361	Onboard USB1 1 [Enabled]	20
	265	Onboard USB2 0 [Enabled]	20
	3.0.5		20
	267	Momory Hole At 15 M 16 M [Disabled]	20
	260	Overeurrent Reporting [Disabled]	20
	260	Dert 4 appignment [Host]	21
27	Jotogro	tod Derinbergle	21
3.7	2 7 1	IDE Mastar/Slava DIO/I IDMA Mada	21
	3.7.1	IDE Mastel/Slave PIO/ODMA Mode,	21
	3.1.Z	Moster Drive DIO Mode [Auto]	21
	3.7.3	Slove Drive PIO Mode [Auto]	21
	3.7.4	JDE Drimony Mostor LIDMA [Auto]	21
	3.7.3	IDE Primary Slove UDMA [Auto]	21
	3.7.0	IDE Philinally Slave ODIVIA [Auto]	22
	3.7.7		22
	3.7.8	ITE8888 Configure [Press Enter]	22
	3.7.9		22
	3.7.10	LPT/FDC SWITCH: [DISabled]	22
	3.7.11	Onboard Serial Port 1 [3F8]	22
	3.7.12	Onboard Serial Port 1 use [IRQ4]	22
	3.7.13	Onboard Serial Port 2 [2F8]	22
	3.7.14	Onboard Serial Port 2 use [IRQ3]	22
	3.7.15	Onboard Serial Port 3 [3E8]	22
	3.7.16	Onboard Serial Port 3 use [IRQ10]	22
	3.7.17	Auto Flow Control [Disabled]	22
	3.7.18	Onboard Parallel Port [3/8/IRQ/]	22
	3.7.19	Parallel Port Mode [Standard]	23
<u> </u>	3.7.20	ECP Mode Use DMA [3]	23
3.8	Power		23
	204	Figure 3.3 Power management setup screen	23
	3.8.1 2.0.0	AUMI IUNCIION	23
	3.8.2	Power Ivianagement	23
	3.8.3		24
	3.8.4	SOIT-OIT DY PWK-BIIN [Instant-Off]	24
	3.8.5	Power-On by Alarm [Disabled]	24
	3.8.6		24
	3.8.7	PWKUN ATTER PWK-Fall [Off]	24
	3.8.8	vvui Time-out value Unit [Iviinutes]	24

	3.9	<ul> <li>3.8.9 WDT Time-out Value [00]</li> <li>PnP/PCI Configurations</li></ul>	. 24 . 25 . 25 . 25
	3.10	<ul> <li>3.9.2 PNP OS Installed [No]</li> <li>3.9.3 Reset Configuration Data [Disabled]</li> <li>3.9.4 Resources Controlled By [Auto (ESCD)]</li> <li>3.9.5 PCI VGA Palette Snoop [Disabled]</li> <li>PC Health Status</li> <li>3.10.1 PC Health Status Screen</li> <li>3.10.2 Current CPU Temp [Show Only]</li> <li>3.10.3 3.3V / 5V / 12V [Show Only]</li> </ul>	. 25 . 25 . 25 . 25 . 26 . 26 . 26 . 26
	3.11	Password Setting	. 27
	3.12	Save & Exit Setup	. 27
	3.13	Exit without Saving	. 27
Chapter	4	PCI SVGA/LCD Setup	29
	4.1	Introduction	. 30
		4.1.1 Display type	. 30
		4.1.2 Dual Simultaneous Display	. 30
	4.2	Connections to Two Standard LCDs	. 30
		4.2.1 AMD Geode LX	. 30
		Table 4.1: Connections to Sharp LQ121S1DG31 / PCM-3355	. 30
	4.3	Installation of the SVGA Driver	. 32
		4.3.2 Installation of VGA driver	. 32
		4.3.3 PCI Bridge	. 39
	4.4	Further Information	. 41
Chapter	5	Ethernet Interface4	13
	5.1	Introduction	44
	5.2	Installation of Ethernet driver	44
Appendix	хА	Pin Assignments	<b>15</b>
	Λ 1	lumper and Connector Tables	16
	Π.Ι	Table A.1: CN1: TTL LCD Connector	. 40
		Table A.2: CN2: CRT connector	.47
		Table A.3: CN3: USB connector	. 47
		Table A.5: CN5:LPT connector	. 48 48
		Table A.7: CN7:SATA connector	.49
		Table A.8: CN8: COM1/2 connector	. 49
		Table A.6: CN6: PC/104 connector	. 49
		Table A.9: CN9:LAN Connector	. 50
		Table A.11:CN11:SMBUS connector	.50
		Table A.12:CN12: BATTERY connector	51
		Table A.13:CN13: BUZZER connector	.51
		Table A.14:UN14: KB/MS connector	.51 51
		Table A.16:CN16: Panel Inverter Power	.52
		Table A.17:CN17: COM3 RS-422/485 connector	.52
		Table A.18:CN18: Compact Flash connector	.52
			. 5Z

	Table A.20:SW1: COM3 RS-422/485 switch (Default RS-485) 53Table A.21:SW2: Compact Flash Master/Slave switch (Default Slave)
Appendix B	System Assignments55
B.1	System I/O Ports
B.2	1st MB memory map
B.3	DMA channel assignments
B.4	Interrupt assignments
Appendix C	Mechanical Drawings59
C.1	Mechanical Drawings
Appendix D	Watchdog Timer61
D.1	Watchdog Timer sample code62



### **General Information**

This chapter gives background information on the PCM-3355.

- Sections include:
- Introduction
- Features
- Specifications
- Board layout and dimensions

### 1.1 Introduction

The PCM-3355 is a fanless, cost-effective, small size(96X90mm), and performance PC/104 SBC (Single Board Computer) geared to satisfy the needs for various industrial computing equipment. PCM-3355 is ideal for communication, environment monitoring system, factory automation, military and medical applications that require flat panel support using digital displays with TTL interfaces and single Ethernet ports.

For those who want superior performance for various low-power embedded applications, PCM-3355 uses an AMD LX800/LX600 processor clocked at 500/366 MHz, supporting DDR333 SDRAM up to 1 GB.

PCM-3355 offers convenient connector layout, easy assembly, multiple I/O, and includes single 10/100Mbps Ethernet, two USB (Universal Serial Bus) 2.0one SATA interface, two RS-232 serial ports and one RS-422/485 serial port for easy system expansibility.

### **1.2 Features**

- AMD low power LX800 500MHz and LX600 366MHz Processor
- Supports DDR memory
- Supports 24-bit TFT LCD interface
- Supports 1 X SATA interface
- Supports 1 x 100Base-T Fast Ethernet
- Supports two USB2.0 ports
- Supports threeCOM ports
- PC/104 expansion interface

### **1.3 Specifications**

#### 1.3.1 Standard PC/104 Biscuit SBC Functions

- **CPU:** AMD Geode® LX800/LX600 processor, up to 500/366 MHz
- System Memory: supports Double Data Rate (DDR) DDR333 SDRAM up to 1GB
- 2nd Cache Memory: 128 KB on the processor
- System Chipset: AMD Geode LX800/LX600
- BIOS: AWARD 4Mbit Flash BIOS
- Watchdog timer: 255 levels timer interval
- **Expansion Interface:** PC/104 (ISA bus)
- Battery: Lithium 3V/196 mAH
- Power management: ACPI supported
- Serial ATA: One Serial ATA interface, Speed up to 100MB/s (Transfer from IDE)



Strongly suggest not to use CF card and SATA device together. Due to limitation of bottleneck of transmitted rate on ARC772, IDE to SATA bridge.

If you find your CF card cannot be detected when you use SATA device at the same time, please adjust CF card to Slave via SW2 and SATA to Master via SW3 that would have CF card and SATA device detected together, or you select suitable CF card which Advantech had confirmed.

- Serial ports: two serial RS-232 ports , one RS-422/485 ports
- Parallel port: One parallel port, supports SPP/EPP/ECP mode
- Keyboard/mouse connector: Supports one standard PC/AT keyboard and a PS/2 mouse
- **USB:** Two USB 2.0 ports compliant universal serial bus ports
- CF: Solid State Disk (SSD) supports one 50-pin socket for CFC type I(type II optional)

#### **1.3.2 VGA/TTL Interface**

- Chipset: AMD Geode LX800/LX600
- Memory Size: Optimized Shared Memory Architecture, supports 64 MB frame buffer using system memory
- CRT resolutions supported:
  - Supports up to 1920x1440x32 bpp at 85 Hz
  - Supports up to 1600x1200x32 bpp at 100 Hz
- TFT resolutions supported:
  - Supports up to 1024 x 768 x 32 bpp at 60 Hz
- LCD Interface: Supports up to 24-bit TFT LCD (TTL signal)
- Dual Simultaneous Display: CRT + LCD

#### **1.3.3 Ethernet Interface**

- Chipset supports: 1 x 10/100 Mbps Intel 82551QM
- Interface: 1 x internal box header
- Standard IEEE 802.3u (100 BASE-T) protocol compatible

#### 1.3.4 OS support

This board supports Win XP, Win CE and Win XPe.

For further information about OS support in your PCM-3355, visit the following web resource Advantech: website: www.advantech.com or please contact technical support center

#### **1.3.5 Mechanical and Environmental**

- Dimensions: 96 x 90 mm (3.8" x 3.5")Mechanical Drawing (dxf file) is available.
- Power Supply Type: AT
- Power Requirement: +5 V ± 5%, +12 V ± 5% (Optional), (5V only,12V optional for PC104 add on card and LCD inverter)
- Power Consumption: (Geode LX800, 512 MB DDR333)
  - Power on Load: +5 V@ 1.79 A, +12 V@ 0.02 A
  - Max load: +5 V@ 1.74 A, +12 V@ 0.02 A
  - Idle mode: +5 V@ 1.45 A, +12 V@ 0.02 A
- Power Consumption Conditions:
  - **Test software:** Hot CPU pro 4.22
  - Power on Boot: Measure the maximum current value of between system power on and boot-up to O.S.
  - Max. load: Measure the maximum current value which system under maximum load (CPU: Top speed, RAM &Graphic: Full loading)
  - Idle mode: Measure the current value when system in windows mode and without running any program

- Operating temperature: 0 ~ 60°C (32 ~ 140°F) (operation humidity: 40°C @ 85% RH Non-Condensing)
- Weight: 0.85 kg (reference weight of total package)

### **1.4 Board layout: dimensions**



Figure 1.1 Board layout: Dimensions (Component Side)





PCM-3355 User Manual



### Installation

This chapter explains the setup procedures of the PCM-3355 hardware, including instructions on setting jumpers and connecting peripherals, switches and indicators. Be sure to read all safety precautions before you begin the installation procedure.

### 2.1 Jumpers

The PCM-3355 has a number of jumpers that allow you to configure your system to suit your application. The table below lists the functions of the various jumpers.

Table 2.1: Jumpers				
Label	Function			
SW1	COM3 RS422/485 switch			
SW2	CF Master/Slave switch			
SW3	SATA Master/Slave switch			

### 2.2 Connectors

Onboard connectors link the PCM-3355 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			
Label	Function		
CN1	TTL LCD connector		
CN2	CRT connector		
CN3	USB connector		
CN4	Power IN connector		
CN5	LPT connector		
CN6	PC/104 connector		
CN7	SATA connector		
CN8	COM1/2 connector		
CN9	LAN connector		
CN10	ISA -5V connector		
CN11	SMBUS connector		
CN12	BATTERY connector		
CN13	BUZZER connector		
CN14	KB/MS connector		
CN15	Power/HDD LED connector		
CN16	Panel Inverter Power		
CN17	COM3 RS422/485 connector		
CN18	CF connector		
CN19	DDR SODIMM connector		

### 2.3 Locating Connectors



Figure 2.1 Connectors (component side)



Figure 2.2 Connectors (solder side)

### 2.4 Installing SO-DIMMs

The procedures for installing SODIMMs are described below. Please follow these steps carefully. You can install SDRAM memory modules using 200-pin SODIMMs (Small Outline Dual In-line Memory Modules).

- 1. Ensure that all power supplies to the system are switched off.
- 2. Tilt the SODIMM card just above the board and slide it into the housing card slot.
- 3. Push the module into the socket until the module gently snaps in. There should only be a slight insertion force to engage the module into the contacts. Make sure that the module and the housing are aligned and locked in place.

### 2.5 Solid State Disk

The board provides a CompactFlash card type I socket and type II for optional kit.

#### 2.5.1 CompactFlash (CN18)

The CompactFlash card can be enabled/disabled via the BIOS settings. and be selected Master/Slave by SW2.



Strongly suggest not to use CF card and SATA device together. Due to limitation of bottleneck of transmitted rate on ARC772, IDE to SATA bridge.

If you find your CF card cannot be detected when you use SATA device at the same time, please adjust CF card to Slave via SW2 and SATA to Master via SW3 that would have CF card and SATA device detected together.

### **2.6** Parallel port connector (CN5)

Normally, the parallel port is used to connect the cable to a printer. The board includes a multi-mode (ECP/EPP) parallel port accessed via CN5 and 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/ECP DMA channel via BIOS setup.

### 2.7 Keyboard and PS/2 mouse connector (CN14)

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 PCM 3355'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.

### 2.8 Power Connectors (CN4)

Supplies main power +5 V to the PCM-3355, and to devices that require +12 V.

### 2.9 Power/HDD LED Connector (CN15)

You may want to install external switches to monitor and control the PCM-3355. These features are optional: install them only if you need them.

#### POWER LED (Pin1 & Pin2)

+5 V POWER LED indicator would light when the power is on.

#### HDD LED (Pin3 & Pin4)

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

### 2.10 COM port connector (CN8,CN17)

The board provides three serial ports: two serial RS-232 ports in one 20 pin connector (CN8:COM1/2), and one serial port RS422/485 in 4 pin connector(CN17: COM3). It provides connections for serial devices or a communication network. You can find the pin assignments for the COM port connector in Appendix.

#### 2.10.1 Serial Port RS-422/485 (CN17)

COM3(CN17) can be configured to operate in RS-422 or RS-485 mode by SW1.

Table 2.3: Serial Port RS-422/485 (SW1)			
Setting	Function		
1	RS-485		
2	RS-422		

### **2.11 VGA/LCD interface connections**

The board's PCI SVGA interface can drive conventional CRT displays and is capable of driving a wide range of flat panel displays.

#### 2.11.1 CRT display connector (CN2)

The CRT display connector is a 15-pin D-SUB connector used for conventional CRT displays.

#### 2.11.2 TTL TFT LCD connector (CN1)

For PCM-3355 series, CN1 is a 40-pin connector which can support up to 24-bit LCD panel. Its Hirose's product no. DF13-40DP-1.25 V

#### 2.11.3 Panel Inverter Power (CN16)

The LCD inverter is connected to CN16 via a 5-pin connector to provide +5 V/+12 V power to the LCD display.

### 2.12 Ethernet configuration

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

#### 2.12.1 100Base-T connector (CN9)

100Base-T connections are made via one internal 10-pin box header.

### 2.13 Watchdog timer configuration

An onboard watchdog timer reduces the chance of disruptions which EMP (electromagnetic 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).

### 2.14 USB connectors (CN3)

The board provides up to four USB (Universal Serial Bus) ports using Plug and Play. The USB interfaces comply with High Speed USB specification Rev. 2.0 which supports 480 Mbps transfer rate, and are fuse protected.

The USB interface is accessed through two 5 x 2-pin flat-cable connectors. You will need an adapter cable if you use a standard USB connector. The adapter cable has a 5 x 2-pin connector on one end and a USB connector on the other.

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

### 2.15 SATA Connector (CN7)

PCM-3355 supports Serial ATA via one connector (CN7) by ARC772N, IDE to SATA Bridge, Data transfer rates is up to 100 MB/s and supports DMA operation on one port. You may select SATA device to Master or Slave by SW3.

#### Note!



Strongly suggest not to use CF card and SATA device together. Due to limitation of bottleneck of transmitted rate on ARC772, IDE to SATA bridge.

If you find your CF card cannot be detected when you use SATA device at the same time, please adjust CF card to Slave via SW2 and SATA to Master via SW3 that would have CF card and SATA device detected together, or you select suitable CF card which Advantech had confirmed.



Award BIOS Setup

### 3.1 Introduction

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 memory (CMOS RAM) so that it retains the setup information when the power is turned off.

#### 3.1.1 CMOS RAM Auto-backup and Restore

The CMOS RAM is powered by an onboard button cell battery. When you finish BIOS setup, the data in CMOS RAM will be automatically backed up to Flash ROM. If operation in harsh industrial environments causes a software error, the BIOS will recheck the data in CMOS RAM and automatically restore the original data in Flash ROM to CMOS RAM for booting.



If you intend to change the CMOS setting without restoring the previous backup, you have to click on "DEL" within two seconds of the "CMOS checksum error..." display screen message appearing. Then enter the "Setup" screen to modify the data. If the "CMOS checksum error..." message appears again and again, please check to see if you need to replace the battery in your system.

### 3.2 Entering Setup

Turn on the computer and check for the "patch code". If there is a number assigned to the patch code, it means that the BIOS supports your CPU.

If there is no number assigned to the patch code, please contact Advantech's applications engineer to obtain an up-to-date patch code file. This will ensure that your CPU's system status is valid. After ensuring that you have a number assigned to the patch code, press <Del> to allow you to enter the setup.

Phoenix - AwardBIOS CMOS Setup Utility				
Standard CMDS Features	▶ PC Health Status			
Advanced BIOS Features	Load Optimized Defaults			
Advanced Chipset Features	Set Password			
▶ Integrated Peripherals	Save & Exit Setup			
▶ Power Management Setup	Exit Without Saving			
▶ PnP/PCI Configurations				
Esc: Quit F9: Menu in BIOS	↑↓→ ← : Select Item			
F6 : SAVE CMOS TO BIOS	F7 : LOAD CMOS FROM BIOS			
Time, Date, Hard Disk Type				

Figure 3.1 Award BIOS Setup initial screen

### 3.3 Standard CMOS Setup

Choose the "Standard CMOS Features" option from the "Initial Setup Screen" menu, and the screen below will be displayed. This menu allows users to configure system components such as date, time, hard disk drive, Video, Halt On, display, and memory.

### 3.4 Standard CMOS Setup

Phoe	nix - AwardBIOS CMOS Setup Standard CMOS Features	Utility
Date (mm:dd:yy) Time (bb:mm:ee)	Thu, May 21 2009	Item Help
<ul> <li>IDE Primary Master</li> <li>IDE Primary Slave</li> </ul>	10 . 30 . 15	Menu Level >> Change the day, month,
Drive A Video Halt On	[None] [EGA∕UGA] [All , But Keyboard]	year and century
Base Memory Extended Memory Total Memory	640K 15360K 16384K	
†↓→←:Move Enter:Select F5:Pre <u>vious</u>	+/-/PU/PD:Value F10:Save Values F7: Opt	ESC:Exit F1:General Help imized Defaults

#### 3.4.1 Date

The date format is <Weekday>, <Month>, <Day>, <Year>.

Week	From Sun to Sat, determined and display by BIOS only
Month	From Jan to Dec.
Day	From 1 to 31
Year	From 1999 through 2098

#### 3.4.2 Time

The time format is in <hours> : <minutes> : <seconds>, based on 24-hour time.

#### 3.4.3 IDE Primary Master/Slave

IDE HDD Auto-Detection. Press "Enter" for automatic device detection.

#### 3.4.4 Drive A

The Item identifies the types of floppy disk drives occupying A

None	No floppy drive installed
1.44M, 3.5"	3.5 inch double-sided drive; 1.44M byte capacity
2.88M, 3.5"	3.5 inch double-sided drive; 2.88M byte capacity

#### 3.4.5 Halt on

The item determines whether the computer will stop if an error is detected during power up.

No Errors	The system boot will not stop for any error.
All Errors	Whenever the BIOS detects a non-fatal error the system will be stopped.
All, But Keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors. (Default value)
All, But Diskette	The system boot will not stop for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error; it will stop for al other errors.

#### 3.4.6 Base Memory

The BIOS POST displays the amount of base (or conventional) memory installed in the system.

#### 3.4.7 Extended Memory

The BIOS POST displays the amount of extended memory (above 1MB in the CPU's memory address map) installed in the system.

#### 3.4.8 Total Memory

This item displays the total system memory size.

### 3.5 Advanced BIOS Features

The "Advanced BIOS Features" screen appears when choosing the "Advanced BIOS Features" item from the "Initial Setup Screen" menu. It allows the user to configure the board according to his particular requirements. Below are some major items that are provided in the Advanced BIOS Features screen. A quick booting function is provided for your convenience. Simply enable the Quick Booting item to save yourself valuable time.

Phoenix – AwardBIOS CMOS Setup Utility Advanced BIOS Features					
Virus Warning	[Disabled]	4	Item Help		
Quick Power On Self Test	[Enabled]		Menu Level 🕨 🕨		
First Boot Device Second Boot Device	LFToppyJ [CDROM]		Allows you to choose		
Third Boot Device Boot Other Device	[HDD-0] [Enabled]		the VIRUS warning feature for IDE Hard		
Boot Up NumLock Status Gate A20 Ontion	[On] [Fast]		Disk boot sector		
Typematic Rate Setting	[Disabled]		function is enabled		
x Typematic Delay (Msec)	250		write data into this		
Security Option OS Select For DRAM > 64MB	[Setup] [Non-0S2]		area , BIOS will show a warning message on		
Video BIOS Shadow C8000-CBFFF Shadow	[Enabled] [Disabled]		screen and alarm beep		
CC000-CFFFF Shadow	[Disabled]				
D4000-D7FFF Shadow	[Disabled]	•			
†↓→+:Move Enter:Select +/ F5:Previous Value:	∕PU∕PD∶Value s	F10:Save H F7: Optimi	CSC:Exit F1:General Help ized Defaults		

Figure 3.2 Advanced BIOS features screen

#### 3.5.1 Virus Warning

If enabled, a warning message and alarm beep activates if someone attempts to write here. The commands are "Enabled" or "Disabled."

#### 3.5.2 CPU Internal Cache

This item allows user to enable CPU internal cache. (Disable is sometimes useful for troubleshooting.)

#### 3.5.3 Quick Power On Self Test

This BIOS feature allows you to decrease the time it takes to boot up the computer by shortening or skipping certain standard booting procedures.

If enabled, the BIOS will shorten the booting process by skipping some tests and shortening others.

If disabled, the BIOS will run the whole gamut of boot-up tests

#### 3.5.4 First/Second/Third/Other Boot Device

Floppy	Assign this boot device priority to Floppy.
HDD	Assign this boot device priority to Hard Disk.
CDROM	Assign this boot device priority to CDROM.
USB-FDD	Assign this boot device priority to USB-FDD.
USB-CDROM	Assign this boot device priority to USB-CDROM.
USB-HDD	Assign this boot device priority to USB-HDD.
LAN	Assign this boot device priority to LAN.
Disabled	Do not assign this boot priority.

#### 3.5.5 Boot Up NumLock Status [On]

When enabled, the keyboard keypad boots up in number mode. When disabled, the keypad boots up in cursor control mode (arrow mode).

#### 3.5.6 Gate A20 Option [Fast]

This item enables users to switch A20 control by port 92 or not.

#### 3.5.7 Typematic Rate Setting [Disabled]

This item enables users to enable or disable typematic action. When enabled, they can set the two typematic controls items, controlling the speeds of:

#### Typematic Rate (Chars/Sec)

This item controls the speed at which the system registers repeated keystrokes. The eight settings are 6, 8, 10, 12, 15, 20, 24 and 30 characters/second.

#### Typematic Delay (Msec)

This item sets the keypress delay before typematic repetition kicks in. The four delay options are 250, 500, 750 and 1000 milliseconds.

## Note!

These typematic settings apply to systems that communicate with thekeyboard via BIOS. For Windows systems, typematic settings are controlled by keyboard driver settings in Windows Control Panel.

### 3.5.8 Security Option [Setup]

- System System can not boot and can not access to Setup page if the correct password is not entered at the prompt.
- Setup System will boot, but access to Setup if the correct password is not entered at the prompt. (Default value)

Note!

To disable security, select PASSWORD SETTING in the main menu. Then, you will be asked to enter a password. Simply press <Enter> to disable security. When security is disabled, the system will boot and you can enter Setup freely.

#### 3.5.9 OS Select For DRAM > 64M [Non-OS2]

Select OS2 only if system is running OS/2 operation system with greater than 64 MB of RAM on the system.

#### 3.5.10 Video BIOS Shadow [Enabled]

For copying of video BIOS to shadow RAM--sometimes improves performance. C8000-CBFFF Shadow [Disabled] Control copying of this block to shadow RAM. CC000-CFFFF Shadow [Disabled] Control copying of this block to shadow RAM. D0000-D3FFF Shadow [Disabled] Control copying of this block to shadow RAM. D4000-D7FFF Shadow [Disabled] Control copying of this block to shadow RAM. D8000-DBFFF Shadow [Disabled] Control copying of this block to shadow RAM. D8000-DFFFF Shadow [Disabled] Control copying of this block to shadow RAM.

#### 3.5.11 Small Logo (EPA) Show [Disabled]

Show EPA logo during system post stage.

#### 3.5.12 Cyrix 6X86/MII CPUID [Enabled]

This item allows user to control BIOS enabled or disabled CPUID for CPU Cyrix/MII.

### 3.6 Advanced Chipset Features

Phoenix – AwardBIOS CMOS Setup Utility Advanced Chipset Features					
Video Memory Size	[ <mark>32 M</mark> ]			Item Help	
Output display × Flat Panel Configuration Onboard USB1.1 Onboard USB2.0 Onboard IDE Memory Hole At 15M-16M Overcurrent reporting Port 4 assigment	[CRT] Press Enter [Enabled] [Enabled] [Disabled] [Disabled] [Host]		Menu Le	vel 🕨	
†↓→←:Move Enter:Select +/- F5:Previous Value	-/PU/PD:Value s	F10:Save F7: Optim	ESC:Exit mized Defa	F1:General Help ults	

Note!

This Advanced Chipset Features screen controls the configuration of the board's chipset for fine-tuning system performance. Screen options depend on the specific chipset. It is strongly recommended that only technical users make changes to the default settings.

#### 3.6.1 Video Memory Size [32 M]

This item allows user to adjust VGA shared memory size.

#### 3.6.2 Output Display [CRT]

This item allows the user to choose screen display type: "Flat Panel", "CRT" and "Panel & CRT". BIOS default value is set to "CRT".

#### 3.6.3 Flat Panel Configuration [Press Enter] (Show Only)

This item provides flat panel adjustments.

#### 3.6.4 Onboard USB1.1 [Enabled]

This item enables or disables motherboard USB1.1 device.

#### 3.6.5 Onboard USB2.0 [Enabled]

This item enables or disables motherboard USB2.0 device.

#### 3.6.6 Onboard IDE [Enabled]

This item enables or disables motherboard IDE device.

#### 3.6.7 Memory Hole At 15 M-16 M [Disabled]

This item reserves 15 MB-16 MB memory address space to ISA expansion cards that specifically require the setting. Memory from 15 MB-16 MB will be unavailable to the system because only expansion cards can access memory in this area.

#### 3.6.8 Overcurrent Reporting [Disabled]

This item enables or disables USB overcurrent reporting function. Suggest leaving on default setting (Disabled).

#### 3.6.9 Port 4 assignment [Host]

This item allows user to change mode of USB port 4. The selections are "Host", "Device., or .Not Used..

### 3.7 Integrated Peripherals

#### 3.7.1 IDE Master/Slave PIO/UDMA Mode,

IDE Master/Slave PIO/UDMA Mode (Auto) has a master and a slave, making two IDE devices possible. Because each IDE device may have a different Mode timing (0, 1, 2, 3, 4), it is necessary for these to be independent. The default setting "Auto" will allow auto detection to ensure optimal performance.

#### 3.7.2 Integrated peripherals screen

Phoenix - It	AwardBIOS CMOS Setup Ut: ntegrated Peripherals	lity
Master Drive PIO Mode	[Auto]	Item Help
Slave Drive PIU Mode	LAutoJ	
IDE Primary Master UDMA	[Auto]	Menu Level 🕨
IDE Primary Sla∨e UDMA	[Auto]	
IDE DMA transfer access	[Enabled]	
ITE8888 Configure	[Press Enter]	
IDE HDD Block Mode	[Enabled]	
LPT/FDC switch:	[Disabled]	
Onboard Serial Port 1	[3F8]	
Onboard Serial Port 1 use	[IRQ4]	
Onboard Serial Port 2	[2F8]	
Onboard Serial Port 2 use	[IRQ3]	
Onboard Serial Port 3	[3E8]	
Onboard Serial Port 3 use	[IRQ10]	
Auto Flow Control	[Disable]	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[Standard]	
ECP Mode Use DMA	[3]	
↑↓→+:Move Enter:Select +/-, F5:Previous Values	/PU/PD:Ualue F10:Save I s F7: Optim:	2SC:Exit F1:General Help ized Defaults

#### 3.7.3 Master Drive PIO Mode [Auto]

This item allows user to adjust master IDE mode of type for modification purpose. Bios default value suggest to "Auto".

#### 3.7.4 Slave Drive PIO Mode [Auto]

This item allows user to adjust slave IDE mode of type for modification purpose. Bios default value suggest to "Auto".

#### 3.7.5 IDE Primary Master UDMA [Auto]

This item allows user to adjust primary master IDE mode of type for modification purpose. Bios default value suggest to "Auto".

#### 3.7.6 IDE Primary Slave UDMA [Auto]

This item allows user to adjust primary slave IDE mode of type for modification purpose. Bios default value suggest to "Auto".

#### 3.7.7 IDE DMA transfer access [Enabled]

This item allows user to adjust IDE DMA mode. It will increase IDE Data transfer of speed. Bios default value suggest to "Enabled".

#### 3.7.8 ITE8888 Configure [Press Enter]

This item allows user to changed ITE8888 of detail adjust.

#### 3.7.9 IDE HDD Block Mode [Enabled]

This item allows enabled or disabled that IDE block data transfer mode. It will speed up HDD data transfer of efficiency. Bios default value suggest to "Enabled".

#### 3.7.10 LPT/FDC switch: [Disabled]

This item is switch LPT/FDC port by item. It will changed from LPT to FDC port. Bios default value suggest to "Disabled".

#### 3.7.11 Onboard Serial Port 1 [3F8]

This item allows user to change com 1 of address. Bios default value suggest to "3F8".

#### 3.7.12 Onboard Serial Port 1 use [IRQ4]

This item allows user to change com 1 of IRQ. Bios default value suggest to "IRQ4".

#### 3.7.13 Onboard Serial Port 2 [2F8]

This item allows user to change com 2 of address. Bios default value suggest to "2F8".

#### 3.7.14 Onboard Serial Port 2 use [IRQ3]

This item allows user to change com 2 of IRQ. Bios default value suggest to "IRQ3".

#### 3.7.15 Onboard Serial Port 3 [3E8]

This item allows user to change com 3 of address. Bios default value suggest to "3E8".

#### 3.7.16 Onboard Serial Port 3 use [IRQ10]

This item allows user to change com 3 of IRQ. Bios default value suggest to "IRQ10".

#### 3.7.17 Auto Flow Control [Disabled]

This item allows user to control com port of auto flow transfer. Bios default value suggest to "Disabled".

#### 3.7.18 Onboard Parallel Port [378/IRQ7]

This item allows user to change parallel port of address. Bios default value suggest to "378/IRQ7".

#### 3.7.19 Parallel Port Mode [Standard]

This item allows user to change parallel port of mode. User can choose "SPP", "EPP", "ECP" and "ECP+EPP". SPP (Standard Parallel Port).ECP(Extended Capabilities Port). EPP(Enhanced Parallel Port). Bios default value suggest to "Normal".

#### 3.7.20 ECP Mode Use DMA [3]

This selection is available only if you select  $^{\circ}\times ECP^{\circ}\pm or ^{\circ}\times ECP + EPP^{\circ}\pm in$  the Parallel Port Mode field. In ECP Mode Use DMA, you can select DMA channel 1, DMA channel 3, or Disable. Leave this field on the default setting.

### **3.8 Power Management Setup**

The power management setup controls the CPU card's "green" features to save power. The following screen shows the manufacturer's defaults:

Phoenix – AwardBIOS CMOS Setup Utility Power Management Setup					
× ACPI Function	Enabled	Item Help			
Power Management *** PM Timers ** × Standby Mode × Suspend Mode MODEM Use IRQ Soft-Off by PWR-BTTN Power-On by Alarm × Time (hh:mm:ss) Alarm × IRQ Wakeup Events PWRON After PWR-Fail WDT Time-out Value Unit WDT Time-out Value	IACPIJ Disabled Disabled IN/AJ IInstant-OffJ IDisabledJ 0 0 0 : IPress EnterJ IOffJ IMinutesJ I00J	Menu Level >			
1↓→←:Move Enter:Select +/- F5:Previous Value	-/PU/PD:Value F10:Sau es F7: O	ve ESC:Exit F1:General Help ptimized Defaults			

Figure 3.3 Power management setup screen

#### 3.8.1 ACPI function

The choice: Enabled, Disabled.

#### 3.8.2 Power Management

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

- 1. HDD Power Down
- 2. Suspend Mode

There are four selections for Power Management, three of which have fixed mode settings

Min. Power Saving

Minimum power management., Suspend Mode = 1 hr., and HDD Power Down = 15 min.

Max. Power Saving	Maximum power management., Suspend Mode = 1 min., and HDD Power Down = 1 min.
User Defined (Default)	Allows you to set each mode individually. When not dis- abled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

#### 3.8.3 Modem Use IRQ

This determines the IRQ which the MODEM can use. The choices: 3, 4,5, 7, 9, 10, 11, NA.

#### 3.8.4 Soft-Off by PWR-BTTN [Instant-Off]

This item allows user to define power button function.Instant-OffPress power button to power off instantly.Delay 4 SecPress power button 4 secs. to power off.

#### 3.8.5 Power-On by Alarm [Disabled]

This item allows users to power on the system at a specified date and time.DisabledDisables this function.EnabledEnables alarm function to power on systemDay (of the month) Alarm1-31Time (HH:MM:SS) Alarm(0-23) : (0-59) : 0-59)

#### 3.8.6 IRQ Wakeup Events [Press Enter]

This item allows user to control wakeup from an IRQ event.

#### 3.8.7 PWRON After PWR-Fail [off]

This item allows control of response after a power failure.

#### 3.8.8 WDT Time-out Value Unit [Minutes]

This item allows user to choose watch dog timer of unit.

#### 3.8.9 WDT Time-out Value [00]

This item determines delay count time for the watch dog timer.

## 3.9 PnP/PCI Configurations

#### 3.9.1 PnP OS Installed

Select Yes if you are using a plug and play capable operating system. Select No if you need the BIOS to configure non-boot device

Phoenix – AwardBIOS CMOS Setup Utility PnP/PCI Configurations					
PNP OS Installed Reset Configuration Data	[No] [Disabled]	Item Help			
Resources Controlled By × IRQ Resources × Memory Resources PCI/UGA Palette Snoop	[Auto(ESCD)] Press Enter Press Enter [Disabled]	Menu Level Select Yes if you are using a Plug and Play capable operating system Select No if you need the BIOS to configure non-boot devices			
†↓→+:Move Enter:Select +/- F5:Previous Value	/PU/PD:Value F10:Save s F7: Optim	ESC:Exit F1:General Help hized Defaults			

Figure 3.4 PnP/PCI configurations screen

#### 3.9.2 PNP OS Installed [No]

Usually best set to No. Some rare cases may need to set to Yes.

#### 3.9.3 Reset Configuration Data [Disabled]

This item allows user to clear any PnP configuration data stored in the BIOS.

### 3.9.4 Resources Controlled By [Auto (ESCD)]

#### IRQ Resources

This item allows you respectively to assign interrupt types for IRQ-3, 4, 5, 7, 9,10, 11, 12, 14, and 15.

#### Memory Resources

This item allows you respectively to assign memory blocks from N/A to DC00.

#### 3.9.5 PCI VGA Palette Snoop [Disabled]

The item is designed to solve problems caused by some non-standard VGA cards. A built-in VGA system does not need this function.

### 3.10 PC Health Status

This is to check the PC health, e.g.: current CPU temperature.

#### 3.10.1 PC Health Status Screen

Phoenix - AwardBIOS CMOS Setup Utility PC Health Status						
Current	CPU Temperatu	re			Item He	elp
3.30 5 U 12 U				Menu Le	vel )	
t↓→←∶Move	Enter:Select F5:Previous V	+/-/PU/PD:Value alues	F10:Save F7: Optin	ESC:Exit mized Defa	F1:Ger ults	neral Help

#### 3.10.2 Current CPU Temp [Show Only]

This item displays current system and CPU temperature.

#### 3.10.3 3.3V / 5V / 12V [Show Only]

This item displays current CPU and system Voltage.

### 3.11 Password Setting

#### To change the password:

1. Choose the "Set Password" option from the "Initial Setup Screen" menu and press <Enter>.

The screen will display the following message

```
Please Enter Your Password
```

Press <Enter>.

 If the CMOS is good or if 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:



3. After pressing <Enter> (ROM password) or the current password (user-defined), you can change the password stored in the CMOS. The password must be no longer than eight (8) characters.

Remember, to enable the password setting feature, you must first select either "Setup" or "System" from the "Advanced BIOS Features" menu.

### 3.12 Save & Exit Setup

If you select this and press <Enter>, the values entered in the setup utilities will be recorded in the CMOS memory of the chipset. 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.

### 3.13 Exit Without Saving

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

PCM-3355 User Manual


## PCI SVGA/LCD Setup

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

- Installation of SVGA drivers
  - for Window XP
- Connections for standard LCDs
- Further information

### 4.1 Introduction

The board has an onboard AMD Geode LX800 chipset for its AGP/SVGA controller. It supports TFT LCD displays and conventional analog CRT monitors with 64 MB frame buffer shared with system memory. The VGA controller can drive CRT displays with resolutions up to 1600 x 1200 x 16 bpp at 100 Hz and up to 1024 x 768 x 32 bpp at 60 Hz for TFT LCD.

#### 4.1.1 Display type

The board can be set in one of three configurations: on a CRT, on a flat panel display, or dual simultaneous display. The system is initially set to dual display mode. If you want to enable the CRT display only or the flat panel display only, please set them up from the BIOS screen, or contact Advantech's technical support center.

#### 4.1.2 Dual Simultaneous Display

The board uses an AMD LX800 controller that is capable of providing multiple views and simultaneous display with mixed video and graphics on a flat panel and CRT. The Dual display can be set up by CMOS setting.

### 4.1.3 CMOS setting for panel type

The board system BIOS and custom drivers are located in a 512 KB, Flash ROM device. A single Flash chip holds the system BIOS, VGA BIOS and network Boot ROM image. The display can be configured via CMOS settings, please choose "panel type" from the "Advanced Chipset Features" menu in the CMOS settings.

### 4.2 Connections to Two Standard LCDs

Connector Table of 12.1" TTL Sharp LQ121S1DG31 800 x 600 5/3.3 V (18 Bit) for PCM-9375 AMD Geode LX.

#### 4.2.1 AMD Geode LX

Table	4.1: Connections	to Sharp LQ	121S1DG31 / PCM-3355
Sharp	LQ121S1DG31	PCM-3	355
DF9MA	A-41P-1V	DF-13 4	4OP-1.25V
Pin	Function	Pin	Function
1	GND	3	GND
2	СК	35	DOTCLK
3	GND	4	GND
4	Hsync	38	HS
5	Vsync	36	VS
6	GND		
7	GND		
8	GND	8	GND
9	R0	27	D18
10	R1	28	D19
11	R2	29	D20
12	GND		
13	R3	30	D21

Table	4.1: Conne	ctions to Sharp	LQ121S1DG31 / PCM-3355
14	R4	31	D22
15	R5	32	D23
16	GND		
17	GND		
18	GND		
19	G0	19	D10
20	G1	20	D11
21	G2	21	D12
22	GND		
23	G3	22	D13
24	G4	23	D14
25	G5	24	D15
26	GND	33	GND
27	GND		
28	GND	33	GND
29	B0	11	D2
30	B1	12	D3
31	B2	13	D4
32	GND	34	GND
33	B3	14	D5
34	B4	15	D6
35	B5	16	D7
36	GND	34	GND
37	ENAB	37	DE
38	NC		
39	VCC	5	+3.3 V
40	VCC	6	+3.3 V
41	NC		

Chapter 4 PCI SVGA/LCD Setup

\* The polarity of both synchronous signals are negative.

### 4.3 Installation of the 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 board.



- 1. The windows illustrations in this chapter are intended as examples only. Please follow the listed steps, and pay attention to the instructions which appear on your screen.
- 2. For convenience, the CD-ROM drive is designated as "D" throughout this chapter.

### 4.3.1 Installation chipset AES driver

1. Open device manager, right click on entertainment then, click on properties

🚇 Device Manager		PX
File Action View Help		
	<b>8</b>	
AA-CXP7SLDPWAAP     Computer     Disk drives     Disk drives     Disk drives     Disk controllers     Floppy disk controllers     Disk controllers     Evolution     Mice and other pointing devices     Wice and other pointing devices		
C Entertainment Encryption/Decrypt Multimedia Audio Controller Other PCI Bridge Device	Update Driver Disable Uninstall	
Ports (COM & LPT)      Processors	Scan for hardware changes	
<ul> <li>Sound, video and game controllers</li> </ul>	Properties	
B System devices B & Universal Serial Bus controllers		

2. Go to driver page and click on update driver.

Entertainment Encrypt	ion/Decryption Controller Prop ? 🔀
General Driver Resource	es
Entertainment E	ncryption/Decryption Controller
Driver Provider:	Unknown
Driver Date:	Not available
Driver Version:	Not available
Digital Signer:	Not digitally signed
Driver Details	To view details about the driver files.
Update Driver	To update the driver for this device.
Roll Back Driver	If the device fails after updating the driver, roll back to the previously installed driver.
Uninstall	To uninstall the driver (Advanced).
	OK Cancel

3. Click on install from specific folder and click on next.

Hardware Update Wizard	
	Welcome to the Hardware Update Wizard
	This wizard helps you install software for:
65	Geode GX3 AES Crypto Driver
- And	If your hardware came with an installation CD or floppy disk, insert it now.
	What do you want the wizard to do?
	<ul> <li>Install the software automatically (Recommended)</li> <li>Install from a list or specific location (Advanced)</li> </ul>
	Click Next to continue.
	< Back Next > Cancel

4. Click on browse and select target folder, then, click OK.

Browse For Folder	? 🗙
Select the folder that contains drivers for your har	rdware.
🗄 🥯 Local Disk (C:)	~
🗉 🥝 Norwich_v0.7 (D:)	
🗉 🚞 Shared Documents	1000
🗉 🚞 aa's Documents	
🗉 🧐 My Network Places	
aes	
🗀 audio	
🚞 graphic	~
To view any subfolders, click a plus sign above.	
ОКС	ancel

5. Click on next.

ardware Up	date Wizard
Please cho	ose your search and installation options.
💿 Searc	ch for the best driver in these locations.
Use ti paths	he check boxes below to limit or expand the default search, which includes local and removable media. The best driver found will be installed.
	Search removable media (floppy, CD-ROM)
	Include this location in the search:
	C:\Documents and Settings\aa\Desktop\aes 💉 Browse
🔿 Don't	search. I will choose the driver to install.
Choo: the dr	se this option to select the device driver from a list. Windows does not guarantee that iver you choose will be the best match for your hardware.
	< Back Next > Cancel

6. Click on finish.



#### 4.3.2 Installation of VGA driver

1. Right click on video, and click "Properties".



2. Go to driver page and click on update driver.

Video Co	ntrolle	r (VGA Co	ompatible) Properties 🛛 🛛 🛛 🛛
General	Driver	Resource	s
2	Video (	Controller (V	'GA Compatible)
	Driver I	<sup>p</sup> rovider:	Unknown
	Driver I	Date:	Not available
	Driver \	/ersion:	Not available
	Digital	Signer:	Not digitally signed
Drive	er Details	Т	o view details about the driver files.
Upda	ate Drive	r T	o update the driver for this device.
Roll 8	Back Driv	ver lf b	i the device fails after updating the driver, roll back to the previously installed driver.
	Ininstall	Т	o uninstall the driver (Advanced).
			OK Cancel

3. Click on install from specific folder and click on next.



Chapter 4 PCI SVGA/LCD Setup

4. Click on browse and select target folder, then click OK.

Browse For Folder
Select the folder that contains drivers for your hardware.
<ul> <li>Desktop</li> <li>My Documents</li> <li>My Computer</li> <li>My Network Places</li> <li>aes</li> <li>audio</li> <li>graphic</li> </ul>
To view any subfolders, click a plus sign above.
OK Cancel

5. Click on next, then click on finish.

Hardware Update Wizard
Please choose your search and installation options.
<ul> <li>Search for the best driver in these locations.</li> </ul>
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM)
Include this location in the search:
C:\Documents and Settings\aa\Desktop\aes V
O Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back Next > Cancel

6. Then click on continue anyway.



7. Click on finish.

Hardware Update Wizard	
	Completing the Hardware Update Wizard         The wizard has finished installing the software for:         Image: Solution of the software of the wizard has finished installing the software for:         Image: Solution of the wizard has finished installing the software for:         Image: Solution of the wizard has finished installing the software for:         Image: Solution of the wizard has finished installing the software for:         Image: Solution of the wizard has finished installing the software for:         Image: Solution of the wizard has finished installing the software for:         Image: Solution of the wizard has finished installing the software for:         Image: Solution of the wizard has finished installing the software for:         Image: Solution of the wizard has finished installing the software for:         Image: Solution of the wizard has finished installing the software for:         Image: Solution of the wizard has finished installence of the wizard has finished installence of the wizard has finished has finis
	Click Finish to close the wizard.

### 4.3.3 PCI Bridge

The system may detect the PCI bridge automatically. If the question mark is shown on device manager, please install the driver as below:

1. Click "Add Hardware Wizard" and add new hardware wizard

Syster	n Restore Automat	ic Updates	Remote
General	Computer Name	Hardware	Advance
Add Har	dware Wizard		
	The Add Hardware Wizard he	lps you install hardware	
×,			
		Add Hardware W	/izard
Device I	Vanager		
Device I	Manager The Device Manager lists all t	he hardware devices in	belled
Device I	Manager The Device Manager lists all t on your computer. Use the De properties of any device.	he hardware devices in vice Manager to chang	nstalled ge the
Device I	Manager The Device Manager lists all t on your computer. Use the De properties of any device. Driver Signing	he hardware devices ir vice Manager to chang Device Manag	nstalled ge the ger
Device I	Manager The Device Manager lists all t on your computer. Use the De properties of any device. Driver Signing	he hardware devices ir vice Manager to chang Device Manag	nstalled ge the ger
Device I	Manager The Device Manager lists all t on your computer. Use the De properties of any device. Driver Signing re Profiles Hardware profiles provide a w different hardware configuration	he hardware devices in vice Manager to chang Device Manag ay for you to set up and ns.	nstalled ge the ger
Device I	Manager The Device Manager lists all t on your computer. Use the De properties of any device. Driver Signing te Profiles Hardware profiles provide a w different hardware configuration	he hardware devices in vice Manager to chang Device Manag ay for you to set up and ins. Hardware Prof	nstalled ge the ger d store iles



2. Search the right directory of PCI bridge for IT8888G driver.

Hardware Update Wizard
Please choose your search and installation options.
<ul> <li>Search for the best driver in these locations.</li> </ul>
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM)
Include this location in the search:
C:\Documents and Settings\aa\Desktop\ITE8888 🛛 Browse
O Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
<pre>&lt; Back Next &gt; Cancel</pre>

#### 3. Installation finished.

Hardware Update Wizard	
	Completing the Hardware Update Wizard The wizard has finished installing the software for: ITE 8888 PCI to ISA bridge
	K Back Finish Cancel

### 4.4 Further Information

For further information about the AGP/VGA installation of your PCM-3355, including driver updates, troubleshooting guides and FAQ lists, visit the following web resources:

Intel website: www.intel.com

Advantech websites: www.advantech.com

www.advantech.com.tw

PCM-3355 User Manual



## **Ethernet Interface**

This chapter provides information on Ethernet configuration.

- Sections include:
- Introduction
- Installation of Ethernet drivers for Windows XP
- Further information

## 5.1 Introduction

The board 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. With 100Base-T compatible. 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.

## **5.2 Installation of Ethernet driver**

- 1. Click on the .LAN. folder and double click the .\*.exe. file.
- 2. Follow the instructions that the driver installation wizard shows.
- 3. The system will help you to complete the driver installation.



# **Pin Assignments**

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

# A.1 Jumper and Connector Tables

#### Table A.1: CN1: TTL LCD Connector

	1 3	37 39
	2 4	38 40
Port Number	1652020200	
	0000920200 000000	
Description		1 25mm SMD W/O/Ph DE12 40DP 1 25V
Description	Din Namo	
Г III 4		
1	+5V	
2	+5V	
3	GND	
4	GND	
5	+3.3V	
6	+3.3V	
7	NC	
8	GND	
9	PD0	
10	PD1	
11	PD2	
12	PD3	
13	PD4	
14	PD5	
15	PD6	
16	PD7	
17	PD8	
18	PD9	
19	PD10	
20	PD11	
21	PD12	
22	PD13	
23	PD14	
24	PD15	
25	PD16	
26	PD17	

#### Table A.2: CN2: CRT connector



Part Number	1653208260		
Footprint	BH8X2SV		
Description	BOX HEADER 8*2P 1	80D(M) 2.00mm	
Pin	Pin Name	Signal Type	Signal Level
1	VGA_z_R	OUT	Analog
2	NC		
3	VGA_z_G	OUT	Analog
4	GND	GND	
5	VGA_z_B	OUT	Analog
6	NC		
7	NC		
8	VGA_y_DDAT	OUT	+5V
9	GND	GND	
10	VGA_y_HS	OUT	+5V
11	GND		
12	VGA_y_VS	OUT	+5V
13	GND	GND	
14	VGA_y_DCLK	OUT	+5V
15	GND	GND	
16	NC		

#### Table A.3: CN3: USB connector

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

Part Number	1653005260			
Footprint	HD_5x2P_79_N10			
Description	PIN HEADER 2*5P 180D(M) 2.0mm SMD IDIOT-PROOF			
Pin	Pin Name	Signal Type	Signal Level	
1	+V5_USB0	PWR	+5V	
2	+V5_USB0	PWR	+5V	
3	USB0_z_P-	I/O		
4	USB0_z_P+	I/O		
5	USB1_z_P-	I/O		-
6	USB1_z_P+	I/O		-
7	GND			
8	GND			-
9	GND			
10	NC			

### Table A.4: CN4: Power IN connector

1	
2	0
3	0
4	0

Part Number	1655004110		
Footprint	WF_4P_98_A2544WR2-4P_R1_D		
Description	WAFER 2.54mm 4P 90D(M) DIP W/LOCK W/O Pb		
Pin	Pin Name	Signal Type	Signal Level
1	+12V	PWR	+12V
2	GND		
3	GND		
4	+5V	PWR	+5V

Table A.5: CN5:LPT connector				
25 23	3 1			
00000	00000000			
00000	00000000			
26 24	4 2			

Part Number	1653213260		
Footprint	BH13X2SV		
Description	BOX HEADER 13*2P 180D(M) 2.0mm SMD		
Pin	Pin Name	Signal Type	Signal Level
1	LPT_z_STB#	OUT	+5V
2	LPT_z_AFD#	OUT	+5V
3	LPT_z_PD0	I/O	+5V
4	LPT_z_ERR#	IN	+5V
5	LPT_z_PD1	I/O	+5V
6	LPT_z_INIT#	OUT	+5V
7	LPT_z_PD2	I/O	+5V
8	LPT_z_SLIN#	OUT	+5V
9	LPT_z_PD3	I/O	+5V
10	GND		
11	LPT_z_PD4	I/O	+5V
12	GND		
13	LPT_z_PD5	I/O	+5V
14	GND		
15	LPT_z_PD6	I/O	+5V
16	GND		
17	LPT_z_PD7	I/O	+5V
18	GND		
19	LPT_ACK#	IN	+5V
20	GND		
21	LPT_BUSY	IN	+5V
22	GND		
23	LPT_PE	IN	+5V
24	GND		
25	LPT_SLCT	I/O	+5V
26	NC		

Table A.6: CN6: PC/104 connector			
Part Number         1653130428			
Footprint PC104			
Description PC104(ISA)			

Table A.7: CN7:SATA connector



Part Number	1654000128		
Footprint	SATA-LD11071S02		
Description	Serial ATA 7P 90D(M) SI	MD 15u Reverse	
Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	SATA0_TX+	I/O	Analog
3	SATA0_TX-	I/O	Analog
4	GND	GND	
5	SATA0_RX-	I/O	Analog
6	SATA0_RX+	I/O	Analog
7	GND	GND	

Table A 8.	CN8-	COM1/2	connector
			CONTECTO

19 17	3 1
00000000	
00000000	000
20 18	4 2

Part Number	1653210260		
Footprint	HD_10x2P_79_BOX_J	VE	
Description	BOX HEADER 10*2P 180D(M) 2.0mm SMD W/O Pb		
Pin	Pin Name	Signal Type	Signal Level
1	COM1_DCD#	IN	+5V
2	COM1_DSR#	IN	+5V
3	COM1_RXD	IN	+5V
4	COM1_RTS#	I/O	+5V
5	COM1_TXD	OUT	+5V
6	COM1_CTS#	IN	+5V
7	COM1_DTR#	I/O	+5V
8	COM1_RI#	IN	+5V
9	GND		
10	GND		
11	COM2_DCD#	IN	+5V
12	COM2_DSR#	IN	+5V
13	COM2_RXD	IN	+5V
14	COM2_RTS#	I/O	+5V
15	COM2_TXD	OUT	+5V

Table A.	Table A.8: CN8: COM1/2 connector				
16	COM2_CTS#	IN	+5V		
17	COM2_DTR#	I/O	+5V		
18	COM2_RI#	IN	+5V		
19	GND				
20	GND				

### Table A.9: CN9:LAN Connector

1		2
	00	
	00	
	00	
9	00	10

Part Number	1653205260		
Footprint	BH5X2SV		
Description	BOX HEADER SMD 5*2	2 180D (M) 2.0mm	
Pin	Pin Name	Signal Type	Signal Level
1	+V3.3_LAN0	PWR	+3.3V
2	LAN0_ACTLED	OUT	+3.3V
3	LAN0_RX+	I/O	+3.3V
4	LAN0_RX-	I/O	+3.3V
5	LAN0_LILED	OUT	+3.3V
6	GND		
7	NC		
8	GND		
9	LAN0_TX+	I/O	+3.3V
10	LAN0_TX-	I/O	+3.3V

Table A.10: CN10: ISA -5V Connector					
Part Number	1653003101				
Footprint	HD_3x1P_79_D				
Description	PIN HEADER 3*1P	180D(M) 2.0mm DIP SC	UARE W/O Pb		
Pin	Pin Name	Pin Name Signal Type Signal Level			
1	-V12	PWR	-12V		
2					
2	-V5	PWR	-5V		

Table A.11: CN11:SMBUS connector				
Part Number	1653002101			
Footprint	JH2X1V-2M			
Description	Pin header BOX 2	.0mm 2P 180D MALE W/	LOCK	
Pin	Pin Name Signal Type Signal Level			
1	SMB_CLK	Out	+3.3V	
2	SMB_DAT	I/O	+3.3V	

Table A.12: CN12: BATTERY connector					
Part Number	1655902032				
Footprint	WHL2V-125				
Description	WAFER 2P 180D(	M) 1.25mm 53047-0210			
Pin	Pin Name	Signal Type	Signal Level		
1	+VBAT	PWR	+3.3V		
2	GND	GND			

Table A.13: CN13: BUZZER connector				
Part Number	1655902032			
Footprint	WHL2V-125			
Description	WAFER 2P 180D(M) 1.25mm 53047-0210			
Pin	Pin Name Signal Type Signal Level			
1	+V5_BUZZER	PWR	+5V	
2	GND	GND		

### Table A.14: CN14: KB/MS connector

#### 6 5 4 3 2 1 0 0 0 0 0 0

Part Number	1655306020			
Footprint	WHL6V-2M			
Description	WAFER BOX 2.0m	nm 6P 180D(M) W/LOCK		
Pin	Pin Name	Signal Type	Signal Level	
1	KB_z_CLK	I/O	+5V	
2	KB_z_DAT	I/O	+5V	
3	MS_z_CLK	I/O	+5V	
4	GND			
5	+V5_PS2	PWR	+5V	
6	MS_z_DAT	I/O	+5V	

#### Table A.15: CN15: Power/HDD LED connector

1	2	3	4
	0	0	0

Part Number	1653004101			
Footprint	JH4X1V-2M			
Description	PIN HEADER 4*1P 180D	O(M) 2.0mm DIP WO/Pb		
Pin	Pin Name Signal Type Signal Level			
1	+VCC_PW_LED	Out	+5V	
2	GND			
3	+VCC_HD_LED	OUT	+5V	
4	HDD_LED	OUT	+5V	

#### Table A.16: CN16: Panel Inverter Power

1 2 3 4 5 0 0 0 0

Part Number	1653000849				
Footprint	JH5X1V-51462805				
Description	PIN HEADER 1*5P	180D(M£©2.54 DIP 5-1	46280-5 TYC		
Pin	Pin Name	Pin Name Signal Type Signal Level			
1	+V12_LCD	PWR	+12V		
2	GND	GND			
3	FP_ENABKL	OUT	+3.3V		
4	FP_VBR	OD	+3.3V		
5	+V5	PWR	+5V		

Table A.17: CN17: COM3 RS-422/485 connector

1 2 3 4

Part Number	1653004101		
Footprint	HD_4x1P_79_D		
Description	PIN HEADER 4*1P 180	D(M) 2.0mm DIP WO/Pb	)
Pin	Pin Name Signal Type Signal Level		Signal Level
1	RS422_RXD-	IN	+5V
2	RS422_RXD+	IN	+5V
3	RS485-422_TXD+	OUT	+5V
4	RS485-422_TXD-	OUT	+5V

Table A.18: CN18: Compact Flash connector	
Part Number	1653525260
Footprint	3M_N7E50-D516PK-30
Description	CF HEADER 50P 90D(M) SMD type I N7E50-D516PK-30

Table A.19: CN19: DDF	R SODIMM connector
Part Number	1651000051
Footprint	DDR-SODIMM-RVS65
Description	SODIMM 200P DDR RVS 0.6mm H=6.5 SMD WO/Pb Tyco

Table A.20: SW1: COM3 RS-422/485 switch	(Default RS-485)

Part Number	160000071	
Footprint	SW_3P_CJS-1201TA1	
Description	SW SMD 3P SPDT P=6.0mm W=2	2.5mm CJS-1201TA1 COPAL
Pin	Pin Name	Setting
1	COM2_485_RXD	Default set
2	UART2_RXD	
3	COM2_422_RXD	

### Table A.21: SW2: Compact Flash Master/Slave switch (Default Slave)

Part Number	160000071	
Footprint	SW_3P_CJS-1201TA1	
Description	SW SMD 3P SPDT P=6.0mm W=2	2.5mm CJS-1201TA1 COPAL
Pin	Pin Name	Setting
1	CF_CSEL#_L	Master
2	CF_CSEL#	-
3	CF_CSEL#_H	Slave

Table A.22: SW3:	SATA Master/Slave switch (I	Default Master)
Part Number	160000071	
Footprint	SW_3P_CJS-1201TA1	
Description	SW SMD 3P SPDT P=6.0mm W=2	2.5mm CJS-1201TA1 COPAL
Pin	Pin Name	Setting
1	MSSEL_H	Slave
2	MSSEL	-
3	MSSEL_L	Master

PCM-3355 User Manual



## **System Assignments**

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

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

# **B.1 System I/O Ports**

Table B.1: System I/O ports		
Device		
DMA controller		
Interrupt controller 1, master		
8254 timer		
8042 (keyboard controller)		
Real-time clock, non-maskable interrupt (NMI) mask		
DMA page register		
Interrupt controller 2		
DMA controller		
Fixed disk		
Reserved (Parallel port 2,LTP3)		
Reserved (Series port 4)		
Serial port 2		
Parallel printer port 1 (LPT 2)		
Monochrome display and printer adapter (LPT1)		
Color/graphics monitor adapter		
Series port 3		
Diskette controller		
Serial port 1		

\* PNP audio I/O map range from 220 ~ 250H (16 bytes) MPU-401 select from 300 ~ 330H (2 bytes)

## B.2 1st MB memory map

Table B.2: 1st MB memory map		
Addr. range (Hex)	Device	
F0000h - FFFFFh	System ROM	
*CC000h - EFFFFh	Unused (reserved for Ethernet ROM)	
C0000h - CBFFFh	Expansion ROM (for VGA BIOS)	
B8000h - BFFFFh	CGA/EGA/VGA text	
B0000h - B7FFFh	Unused	
A0000h - AFFFFh	EGA/VGA graphics	
00000h - 9FFFFh	Base memory	

\* If Ethernet boot ROM is disabled (Ethernet ROM occupies about 16 KB)

\* E0000 - EFFFF is reserved for BIOS POST

# **B.3 DMA channel assignments**

Table B.3: DMA channel assignments	
Channel	Function
0	Available
1	Available (audio)
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 (LPT2) or 3 (LPT1)

## **B.4 Interrupt assignments**

Table B.4: Interrupt assignments	
Interrupt#	Interrupt source
IRQ 0	Interval timer
IRQ 1	Keyboard
IRQ 2	Interrupt from controller 2 (cascade)
IRQ 3	COM2
IRQ 4	COM1
IRQ 5	Reserved (COM4)
IRQ 6	FDD
IRQ 7	LPT1
IRQ 8	RTC
IRQ 9	Reserved (audio)
IRQ 10	Reserved (COM3)
IRQ 11	Reserved
IRQ 12	PS/2 mouse
IRQ 13	INT from co-processor
IRQ 14	Primary IDE

PCM-3355 User Manual



**Mechanical Drawings** 

## C.1 Mechanical Drawings



Figure C.1 PCM-3355 Mechanical Drawing (Componnent Side)



Figure C.2 PCM-3355 Mechanical Drawing (Solder Side)

![](_page_68_Picture_0.jpeg)

Watchdog Timer

## D.1 Watchdog Timer sample code

```
Watchdog function:
1.
;The SCH3114 Runtime base I/O address is 800h
;Setting WatchDog time value location at offset 66h
;If set value "0", it is mean disable WatchDog function.
Superio_GPIO_Port = 800h
mov dx,Superio_GPIO_Port + 66h
mov al,00h
out dx,al
.model small
.486p
.stack 256
.data
SCH3114_IO EQU 800h
.code
org 100h
.STARTup
;90H
;enable WDT function bit [0]=01h
mov dx,SCH3114_IO + 90h
mov al,01h
out dx,al
:65H
;bit [1:0]=Reserved
;bit [6:2]Reserve=00000
;bit [7] WDT time-out Value Units Select
;Minutes=0 (default) Seconds=1
mov dx,SCH3114_IO + 65h ;
mov al,080h
out dx,al
:====
    :66H
;WDT timer time-out value
;bit[7:0]=0~255
mov dx,SCH3114_IO + 66h
mov al,01h
out dx,al
;bit[0] status bit R/W
;WD timeout occurred =1
```

Appendix D Watchdog Timer

;WD timer counting = 0

mov dx,SCH3114\_IO + 68h mov al,01h out dx,al .exit END

![](_page_71_Picture_0.jpeg)

![](_page_71_Picture_1.jpeg)

### www.advantech.com

Please verify specifications before quoting. This guide is intended for reference purposes only.

All product specifications are subject to change without notice.

No part of this publication may be reproduced in any form or by any means, electronic, photocopying, recording or otherwise, without prior written permission of the publisher.

All brand and product names are trademarks or registered trademarks of their respective companies.

© Advantech Co., Ltd. 2009