AIMB-341

Socket 775 Embedded ATX/ Micro ATX for Multimedia Applications

User Manual

Acknowledgements

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 AIMB-341.

Part No.2006034110 1st Edition

Aug. 2006

Packing List

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

- 1 AIMB-341 all-in one single board computer
- 1 startup manual
- 1 CD-ROM or disks for utility, drivers, and manual (in PDF format)
- 1 UDMA/66 IDE flat cable p/n:1701400452
- 1 COM2(W/485/422)cable p/n:1701140201
- 1 DMA/33 IDE 40 to 44pin IDE flat cable p/n:1701440350
- 1 I/O shield p/n:1960001955
- 4 COM port cable kit 18CM p/n:1701400181
- 1 USB cable p/n:1703100156

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

Optional Items:

- 1 USB cable (2.54mm) p/n:1700000719
- 1 DVI cable p/n:1700000410
- 1 FDD cable p/n:1701340700
- 1 SATA cable p/n:1700001054
- 1 COM3.4 cable 20pin (22CM) cable p/n:1701200220

Model No. List	Description
AIMB-341F	SKT 775 Pentium 4 SBC w/8USB/2LAN/ 4COM/1PCI/1 EmbPCI

Additional Information and Assistance

Visit the Advantech web site at **www.advantech.com** where you can find the latest information about the product.

Step 1. 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

FCC

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

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 device in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense. The user is advised that any equipment changes or modifications not expressly approved by the party responsible for compliance would void the compliance to FCC regulations and therefore, the user's authority to operate the equipment.

Caution!

Achtung!

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

Chapter 1 General Information

1.1 Introduction

The AIMB-341 series is an Embedded ATX/Micro ATX form factor (Socket 775) design for Intel Pentium® 4 processors with 533/800 MHz FSB and Intel's 915GV and ICH6 chipsets. For maximum performance, AIMB-341 also supports two 240 PIN DDRII DIMM 533Mhz up to 4GB. These chipsets enable great computing power for embedded computing and provide an optimized onboard integrated graphics solution. This product uses Intel 915GV chipset for dual independent display. AIMB-341 allow CRT+LVDS, DVI+LVDS, CRT+DVI combinations. The dual independent display is suitable for POS, Kiosks and multiple display applications. There are 2 Ethernet interfaces that can be used; one LAN for communication and the other one for backup purposes. Other onboard comprehensive peripherals include 1 EIDEs, 4 SATAs, up to 8 USB 2.0, 6 serial ports (5x RS-232 and 1x RS-232/422/485), 1 FDD, 1 LPT, PS/2 Keyboard/mouse, watchdog timer, and a DIO interface. The SSD solution supports Type I/II CompactFlash cards, and the standard expansion interface includes PCI, EmbPCI and miniPCI for user expansion purposes. AIMB-341 series are the best *all-in-one* embedded motherboards specifically designed for the embedded market.

1.2 Features

- Intel Pentium 4/Celeron D 533/800 MHz FSB Socket 775 uFCPGA2 Processor
- 0~60°C operating temperature
- Intel 915GV dual independent display (CRT+LVDS, DVI+LVDS,CRT+DVI)
- 2 x Gigabit LAN on board
- Supports 4 SATA
- EmbPCI, PCI, PCI-E x1, miniPCI multiple expansion
- Supports 8 x USB2.0 port
- Option up to 2 Channel 36bits LVDS for LCD

- Supports 533/800 MHz Front Side Bus
- Supports 533 DDRII SDRAM up to 4GB.

1.3 Specifications

1.3.1 Standard SBC Functions

- **CPU:** Intel Pentium 4/Celeron D 533/800 MHz FSB Socket 775 uFCPGA2 Processor (Up to Pentium D 3.8 GHz)
- **System chipsets:** Intel 915GV+ICH6
- **BIOS:** Award 4 Mbit Flash memory
- **System memory:** 240 pin DIMM x 2, support up to 4 GB
- **2nd cache memory:** 1 MB on Pentium 5xx, 2MB on Pentium 6xx series
- **PCI interface:** Supports 1 PCI slot
- **EmbPCI interface:** Supports 1 EmbPCI slot
- **PCI-E interface:** Support 1 PCI-E x1 slot
- **Enhanced IDE Interface:** Supports two enhanced IDE channels. Primary channel supports ATA-100 mode; Secondary channel only supports ATA-33 and PIO mode. CFC card occupies secondary master
- **Serial Ports:** Four serial ports: COM1,3,4,5,6: RS-232, COM2: RS-232/422/485
- **Parallel Ports:** one parallel port, support SPP/EPP/ECP
- **Keyboard/Mouse Connector:** Supports standard PC/AT Keyboard and a PS/2 Mouse
- **Power Management:** Supports Power Saving Mode including Normal/ Standard/Suspend modes. APM 1.2 compliant.
- **FDD interface:** Support up to two FDD devices
- **DIO interface:** Supports 8 general purpose input/output ports
- **Watchdog Timer:** 0~255 Sec., System reset
- **Expansion Interface:** 1 PCI Slot and 1 EmbPCI Slot, 1 PCI-E x1 slot, 1 miniPCI slot
- **Battery:** Lithium 3V/195 mAH
- **USB:** Up to 8 USB Intel 6300ESB ports, USB 2.0 compliant
- **SATA:** Intel 915GV supports data transfer rates up to 150 Mbyte/s, support RAID 0.1

1.3.2 Display Interface

- **Chipset:** Intel 915GV
- **Memory size:** Optimized Shared Memory Architecture, supports up to 64 MB frame buffer using system memory

- **Display modes:**
  CRT Modes: up to 2048 x 1536 at 75Hz;
  LCD Modes: up to 1280 x 1024 at 85Hz
- **LCD Interface:** 2 Channel LVDS (up to 36-bit)
- **LVDS:** Hirose connector support dual channel LVDS panel, up to UXGA panel resolution with frequency range from 25 MHz to 112-MHz

1.3.3 DVI

- **Chipset:** Chrontel CH7307
- Drives a DVI display at a pixel rate of up to 165MHz, supporting UXGA resolution displays
- DVI hot plug detection
- Compliant with DVI Specification 1.0

1.3.4 Solid State Disk

- Supports CompactFlash Type I/II disks

1.3.5 PCI bus Ethernet interface

- **Chipset:** Boardcom 5721
- **Connection:** onboard 2XRJ-45
- **Interface:** IEEE 802.3 z/ab(1000BASE-T) or IEEE 802.3u(100BASE-T) protocol compatible

1.3.6 Mechanical and Environmental

- **Dimensions (L x W):** 185 x 122 mm (7.3" x 4.8")
- **Power supply voltage:** +5 V, +5V STB, +12V
- **Operating temperature:** 0 ~ 60°C (32 ~ 140°F),operation
- **Operating humidity:** 0% ~ 90% Relative Humidity, Non condensing

1.4 Board Layout: dimensions

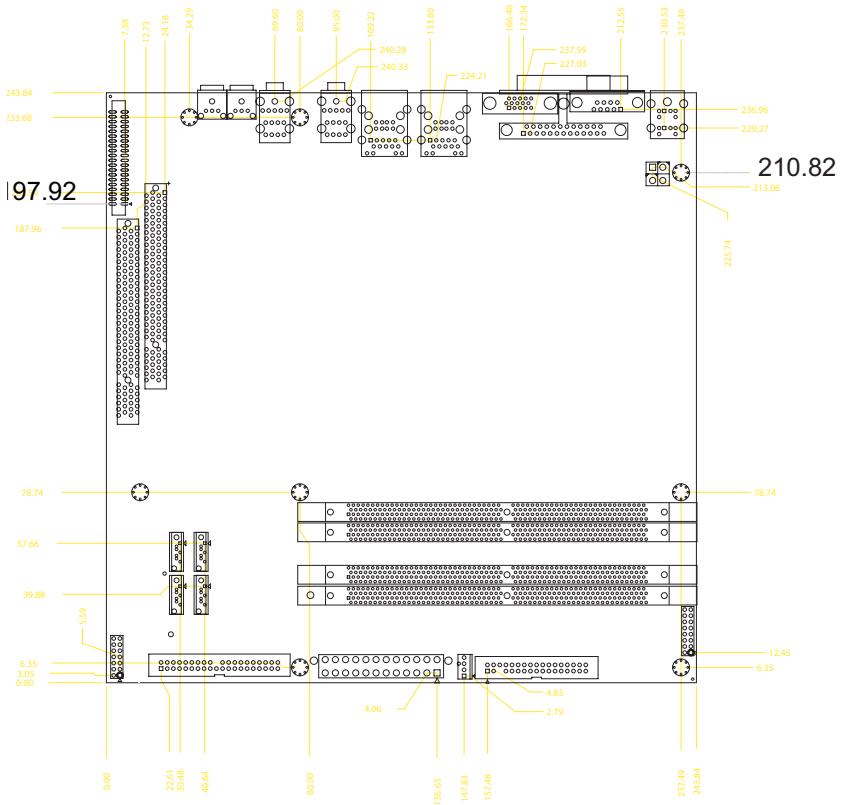


Figure 1.1: Board layout: dimenstions (component side)

1.5 Board Layout: dimensions (cont.)

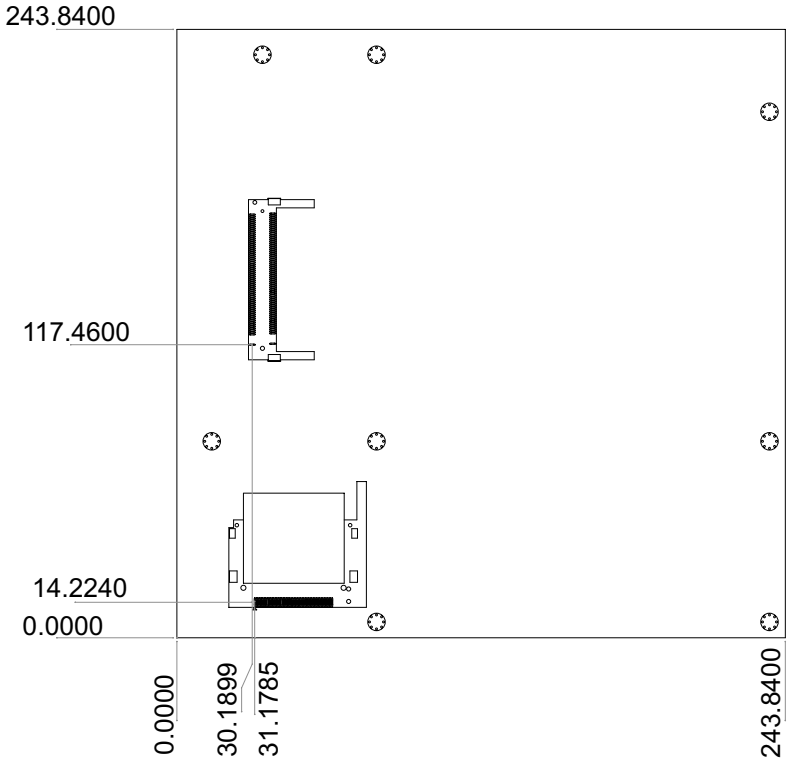


Figure 1.2: Board layout: dimenstions (component side)

CHAPTER 2

Installation

Chapter 2 Installation

2.1 Jumpers

The AIMB-341 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
J1	RTC Connector
JP2	LVDS2 Panel Voltage select
JP5	COM2 (RS232/422/485) Select Jumper

2.2 Connectors

Onboard connectors link the AIMB-341 to external devices such as LCD Panels, LEDs, 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

Connector	Function
CN1	COM1 Connector
CN2	SPDIF-OUT Connector
CN3	SPDIF-IN Connector
CN4	CRT Connector
CN5	LPT1 Connector
CN6	Audio Connector
CN8	Keyboard + PS/2 Mouse Connector
CN9	LAN2 USB3/4 Connector
CN10	LAN1 USB1/2 Connector
CN11	CD-IN Connector
CN12	Surround-out Connector
CN13	internal SPDIF-IN Connector
CN14	Center Bass Connector

Table 2.2: Connectors	
CN16	COM3~6 CONNECTOR
CN17	internal SPDIF-OUT Connector
CN18	Back-Surround Connector
CN21	LVDS INVERTER Connector
CN23	LVDS2 Connector
CN25	USB7/8 Connector
CN26	USB5/6 Connector
CN27	SMB BUS Connector
CN28	COM2 Connector
CN29	SIR Connector
CN30	Digital IO Connector
CN31	Front Panel Connector
CN32	Primary IDE Connector
CN33	FDD Connector
CN34	MINI PCI Connector
CN35	Compact Flash Connector
VCN2	DVI1 Connector
SA1	SATA 1 Connector
SA2	SATA 2 Connector
SA3	SATA 3 Connector
SA4	SATA 4 Connector
ATX1	ATX Power Connector
ATX2	ATX Power Connector
FAN1	CPU FAN
FAN2	AUX FAN
PCI1	PCI SLOT
PCI2	PCI SLOT
PCIE1X1	PCI-E X1 SLOT

2.3 Locating Connectors (component side)

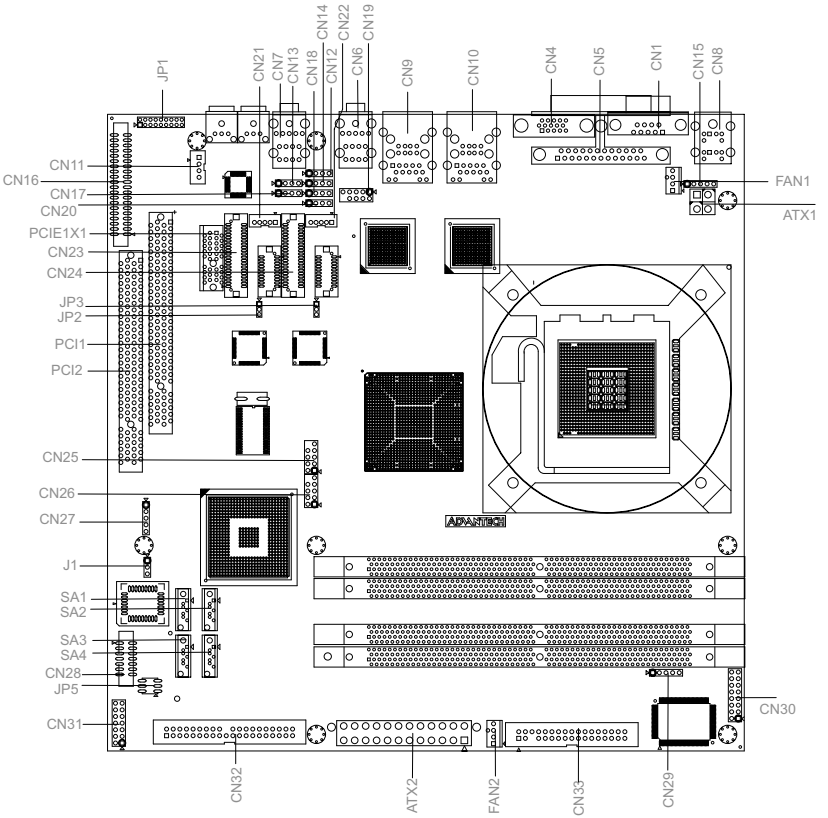


Figure 2.1: Jumper & Connector Locations

2.4 Locating Connectors (solder side)

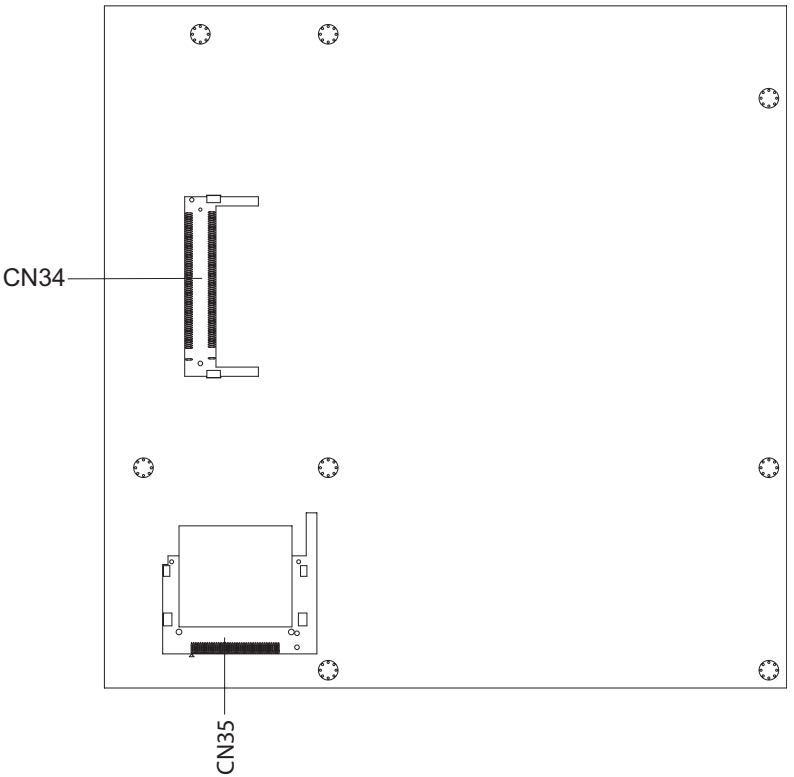
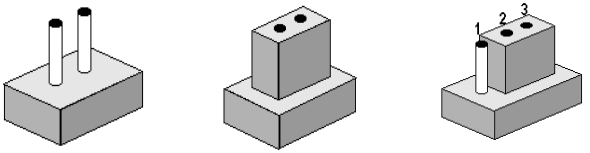


Figure 2.2: Connectors (component side)

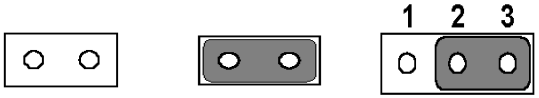
2.5 Setting Jumpers

You may configure your card to match the needs of your application by setting jumpers. A jumper is a metal bridge used to close an electric circuit. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper, you connect the pins with the clip. To "open" a jumper, you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2, or 2 and 3.



open closed closed 2-3

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



open closed closed 2-3

A pair of needle-nose pliers may be helpful when working with jumpers. If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes. Generally, you simply need a standard cable to make most connections.

2.6 LVDS Panel Voltage select (JP2)

Sets voltage on the LVD panel. Default is 5V..

Table 2.3: LVDS Panel Voltage select(JP2)

Close pins	Result
1-2*	5V
2-3	3.3V

* Default value Enable

2.7 COM2 (RS232/422/485)Select (JP5)

Selects the type of COM port.

Table 2.4: COM2 (RS232/422/485) Select (JP5)

Close pins	Function
1-2	RS485
3-4	RS422
5-6	RS232

2.8 Clear RTC (J1)

This jumper sets clears all the data from the Real Time Clock (RTC) or CMOS.

Table 2.5: Clear RTC

Close pins	Result
1-2	Normal
2-3	Clear RTC

Action to erase RTC (CMOS) data.

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

This jumper is used to erase RTL (CMOS) data (including the setting of date, time and password) and reset system BIOS information.

The procedure for clearing RTL (CMOS) is:

1. Turn off the system.
2. Short pin 1 and pin 2.
3. Turn on the system. The BIOS is now reset to its default setting.

2.9 Installing DIMMs

Notes *The modules can only fit into a socket one way. The gold pins must point down into the DIMM socket.*

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

1. Make sure that all power supplies to the system are switched off
2. Install the DIMM card. Install the DIMM so that its gold pins point down into the DIMM socket.

3. Slip the DIMM module perpendicular into the socket, apply more pressure until the clips fix the DIMM and socket securely.

4. Check to ensure that the DIMM is correctly seated and all connector contacts touch. The DIMM should not move around in its socket.

2.10 ATX power control connector (ATX1, ATX2)

The AIMB-341 supports ATX power. ATX2 supplies main power (+5V, +12V, 5VSB), and it is a 20-Pin power connector, with Fixed Lock. ATX1 supplies 12V Power, and it is a 4-Pin power connector, with Fixed Lock

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

2.11 Printer port connector (CN5)

Normally, the parallel port is used to connect the card to a printer. The AIMB-341 includes a multi-mode (ECP/EPP/SPP) parallel port accessed via CN5 and a D-SUB 25-pin connector.

The parallel port interrupt channel is designated to be IRQ7.

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

2.12 CompactFlash Card Socket

The AIMB-341 provides a 50-pin socket for CompactFlash card type I/II.

2.12.1 CompactFlash(CN35)

The CompactFlash card occupies a secondary IDE channel which can be enabled/disabled via the BIOS settings.

2.13 Floppy drive connector (CN33)

You can attach up to two floppy drives to the AIMB-341's onboard controller. You can use any combination of 5.25" (360 KB and 1.2 MB) and/or 3.5" (720 KB, 1.44 MB, and 2.88 MB) drives.

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

2.13.1 Connecting the floppy drive

1. Plug the 34-pin flat-cable connector into CN33. Make sure that the red wire corresponds to pin one on the connector.
2. Attach the appropriate connector on the other end of the cable to the floppy drive(s). You can use only one connector in the set. The set on the end (after the twist in the cable) connects to the A: drive. The set in the middle connects to the B: drive.
3. If you are connecting a 5.25" floppy drive, line up the slot in the printed circuit board with the blocked-off part of the cable connector.

If you are connecting a 3.5" floppy drive, you may have trouble determining which pin is number one. Look for a number printed on the circuit board indicating pin number one. In addition, the connector on the floppy drive may have a slot. When the slot is up, pin number one should be on the right. Check the documentation that came with the drive for more information.

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

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

2.14 IDE connector (CN32)

The AIMB-341 provides one IDE channels to which you can attach up to two Enhanced Integrated Device Electronics hard disk drives or CDROM to the AIMB-341's internal controller. The AIMB-341's IDE controller uses a PCI interface. This advanced IDE controller supports faster data transfer, PIO Mode 3 or Mode 4, UDMA 33/66/100 mode.

2.14.1 Connecting the hard drive

1. Connect one end of the cable to CN32. 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. (See your hard drive's documentation for the location of the connector.)

If desired, connect a second drive as described above.

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

2.15 VGA/LVDS interface connections

The AIMB-341's display interface can drive conventional CRT displays and is capable of driving a wide range of LVDS flat panel displays as well. The board has two display connectors: one for standard CRT VGA monitors, and one for LVDS/DVI flat panel displays. AIMB-341 with 915GV can support dual independent displays like CRT+LVDS or CRT+DVI.

2.15.1 CRT display connector (CN4)

CN1 is a standard 15-pin connector used for conventional CRT displays. Users can drive a standard progressive scan analog monitor with pixel resolution up to 2048 x 1536 at 75 Hz. Pin assignments for CRT display connector CN4 are detailed in Appendix B.

2.15.2 LVDS panel connector(CN23)

AIMB-341 uses the Intel 915GV to supports single or dual-channel LVDS panels up to UXGA panel resolution with frequency range from 25 MHz to 112 MHz.

2.15.3 LCD inverter connector(CN21)

The LCD inverter is connected to CN8 via a 5-pin connector to provide +5V/+12V power.

2.15.4 DVI connector (VCN2)

Digital Visual Interface (DVI) is the standard interface for high-performance connection between PCs and Flat Panel Displays, Digital CRT displays, Projectors, and HDTV. AIMB-341 is able to drive a DVI connector

display at a pixel rate of up to 165MHz, supporting UXGA resolution displays and hot plug detection.

2.16 USB connectors (CN9,CN10,CN25,CN26)

The AIMB-341 board provides up to eight USB (Universal Serial Bus) ports. This gives complete Plug and Play, and hot attach/detach for up to **127** external devices. The USB interfaces comply with USB specification Rev. 2.0, and are fuse protected.
There are 4 USB connectors for external and 4 USB for internal use. The 4 external USBs are combine with LAN+2 USB in CN9 and CN10. The internal USB interfaces are accessed through the 5 x 2-pin flat-cable connectors, CN25 (USB7, 8) and CN26 (USB5, 6). 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.

2.17 Ethernet configuration

The AIMB-341 is equipped with two high performance 32-bit PCI-bus Ethernet interfaces which are fully compliant with IEEE 802.3U 10/100Mbps CSMA/CD standards. These are supported by all major network operating systems.

The AIMB-341 supports 2 x 1000Base-T Ethernet connections with onboard RJ-45 connectors (CN9, CN10).

2.17.1 LAN connector (CN9, CN10)

Base-T connects are standard RJ45 connectors on AIMB-341.

2.18 Front Panel Connector (CN31)

Next is to install external switches to monitor and control AIMB-341. These features are optional: install them only if necessary. CN31 is a 2 x 7 pin header, 180 degree, male. It provides connections for reset, power, and hard disk indicator.

2.18.1 Reset (Pin13 & Pin14)

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

2.18.2 HDD LED (Pin1 & Pin2)

The HDD LED indicator for hard disk access is an active low signal (24 mA sink rate). The HDD LED indicator lights up when the HDD is reading or writing.

2.18.3 Power LED (Pin 3 & Pin 4)

The Power LED indicator lights up when the power is on.

2.18.4 Suspend LED (Pin 5 & Pin 6)

The Suspend LED indicator lights up when the computer is in suspend.

2.18.5 Power Button (Pin 11 & Pin12)

AIMB-341 provides an ATX power input connector. When connected with PIN 9 & PIN 10, it enables power On/Off from the chassis.

2.18.6 LAN LED(Pin7, 8, 9, 10)

The LAN LED indicator lights up when the LAN stay connected.

2.19 COM port connector (CN1,CN16,CN28)

The AIMB-341 provides six serial ports (COM1,COM3~COM6: RS-232 and COM2: RS-232/RS-422/RS-485). CN1 supports COM1 with D-SUB 9-Pin standard connector, CN28 supports COM2, CN16 supports COM3~6,. and JP5 is for COM2 RS-232/RS-422/RS-485 selection. It provides connections for serial devices (a mouse, etc.) or a communication network. You can find the pin assignments for the COM port connector in Appendix B.

2.20 MINI PS/2, KB/Mouse connector (CN8)

The AIMB-341 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 AIMB-341'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.

2.21 Audio Connector (CN6)

AIMB-341 can support AC97 2.2 compliant Audio line_in, line_out and mic_in with on board standard connector.

2.22 DI/O connector (CN30)

The AIMB-341 supports DIO interface with CN30, which is a 2 x 8 dual line pin header, supplying 8 general purpose input or output ports.

One characteristic of digital circuit are their fast response to high or low signals, the kind of responses that are needed for harsh and critical industrial operating environments.

Generally, Digital Input and Output are signals to control external devices that needs On/Off circuits or TTL devices. For detailed signal assignments refer to Appendix A.

2.23 SATA Connector (SA1, SA2, SA3, SA4)

AIMB-341 can support Serial ATA by four COMAX C504C connectors (SA1, SA2, SA3, SA4), data transfer rates up to 150 Mbyte/s, enabling very fast data and file transfer, and independent DMA operation on two ports. It also supports alternate Device ID and RAID Class Code options for support of Soft RAID.

2.24 CD-In Connector (CN11)

AIMB-341 has a CD-In connector for the CD-ROM driver audio signal interface. CD-In connector is a 2.54mm pitch 4 pin connector.

2.25 SIR Connector (CN29)

This connector support wireless 115.2 Kbps infrared transmission and receive mode.The IR module should mount on system case. It is a 5 pin connector.

2.26 SM Bus Connector (CN27)

The System Management Bus (SM Bus) which uses 12C bus to make a communication between the South Bridge and the rest of the system. In AIMB-341 the South Bridge is dedicated to one PCI slot. The other will handle the remaining I2C buses to other on-board devices such as the PCI, PCI-E x1, LAN1 and LAN2.

2.27 System and CPU Fan Conn. (FAN1 and FAN2)

These 2 FAN connectors both have +12V FAN power and fan speed detection. AIMB-341 recommends FAN1 for CPU fan and FAN2 for system.

2.28 PCI,MINI PCI,and PCI-E X1 Conn (PCI1,PCI2,CN34,PCIEX1)

These 4 connectors all follow standards. AIMB-341 has 2 PCI slots,1 MINI PCI slot and 1 PCI-E X1 slot.

CHAPTER 3

Award BIOS Setup

Chapter 3 Award BIOS Setup

3.1 System test and initialization

These routines test and initialize board hardware. If the routines encounter an error during the tests, you will either hear a few short beeps or see an error message on the screen. There are two kinds of errors: fatal and non-fatal. The system can usually continue the boot up sequence with non-fatal errors. Non-fatal error messages usually appear on the screen along with the following instructions:

```
press <F1> to CONTINUE
```

Write down the message and press the F1 key to continue the bootup sequence.

3.1.1 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 AIMB-341 Series' CMOS memory has an integral lithium battery backup. The battery backup should at least three years in normal service, but when it finally runs down, you will need to replace the complete unit.

3.2 Award BIOS setup

Award's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

3.2.1 Entering setup

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

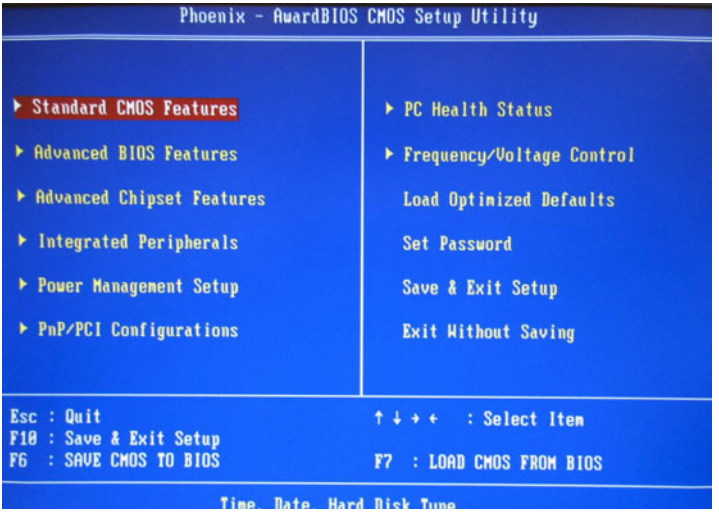


Figure 3.1: BIOS setup program initial screen

3.2.2 Standard CMOS Features setup

When you choose the Standard CMOS Features option from the Initial Setup Screen menu, the screen shown below is displayed. This standard Setup Menu allows users to configure system components such as date, time, hard disk drive, floppy drive and display. Once a field is highlighted, online help information is displayed in the right top of the Menu screen.

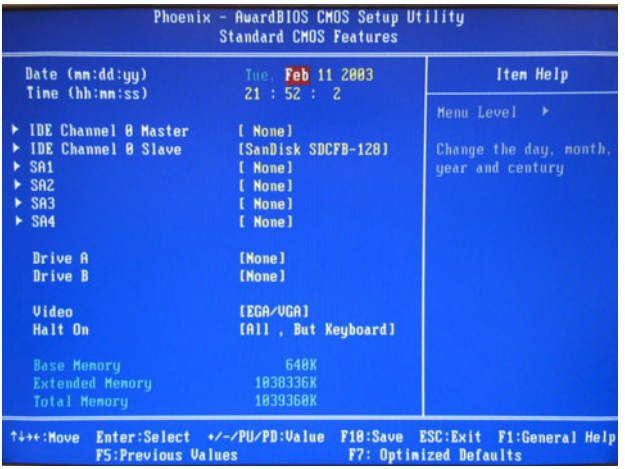


Figure 3.2: Standard CMOS Features setup

3.2.3 Advanced BIOS Features setup

By choosing the Advanced BIOS Features Setup option from the Initial Setup Screen menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the AIMB-341 Series.

Figure 3.3: Advanced BIOS Features setup

3.2.4 Advanced Chipset Features setup

By choosing the Advanced Chipset Features option from the Initial Setup Screen menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the AIMB-341 Series.

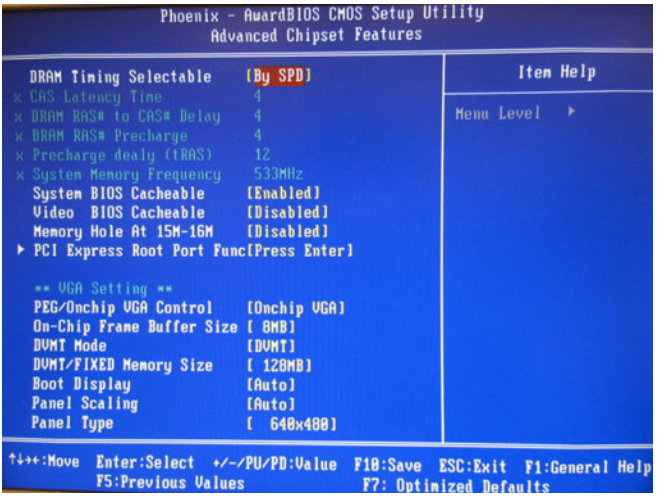


Figure 3.4: Advanced Chipset Features setup

3.2.5 Integrated Peripherals

Choosing the Integrated Peripherals option from the Initial Setup Screen menu should produce the screen below. Here we see the manufacturer's default values for the AIMB-341 Series.

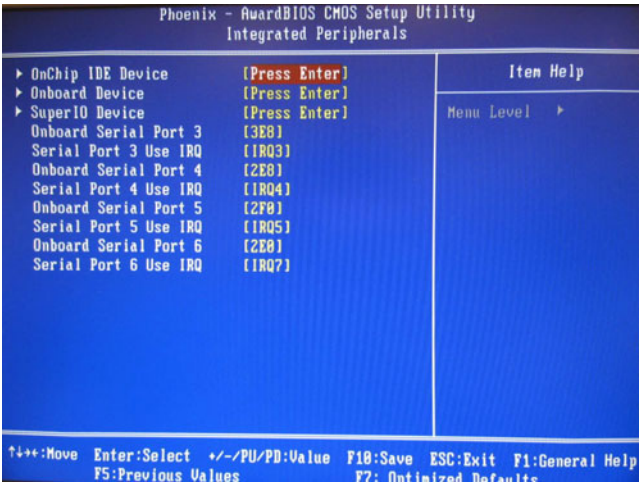


Figure 3.5: Integrated Peripherals

3.2.6 Power Management Setup

By choosing the Power Management Setup option from the Initial Setup Screen menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the AIMB-341 Series.

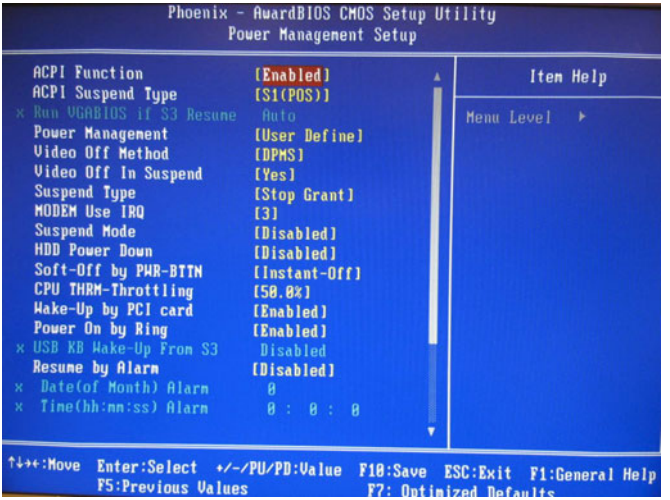


Figure 3.6: Power Management Setup

3.2.7 PnP/PCI Configurations

By choosing the PnP/PCI Configurations option from the Initial Setup Screen menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the AIMB-341 Series.

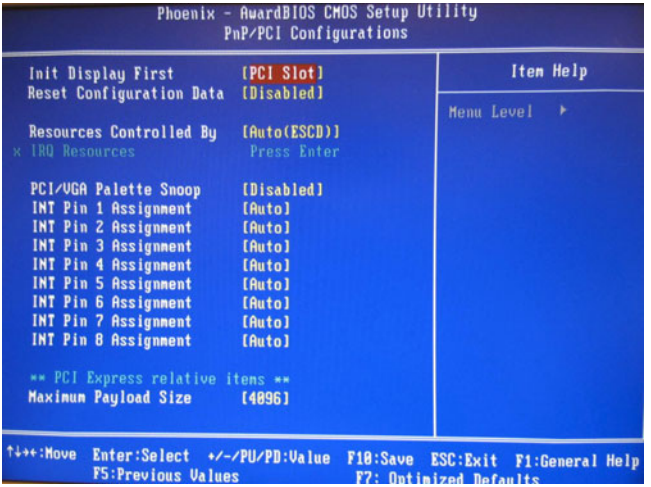


Figure 3.7: PnP/PCI Configurations

3.2.8 PC Health Status

The PC Health Status option displays information such as CPU and motherboard temperatures, fan speeds, and core voltage.

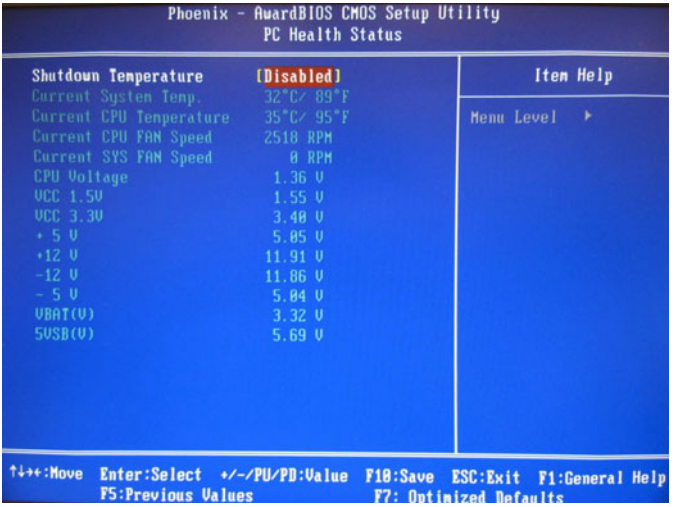


Figure 3.8: PC Health Status

3.2.9 Frequency/Voltage Control

By choosing the Frequency/Voltage Control option from the Initial Setup Screen menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the AIMB-341.

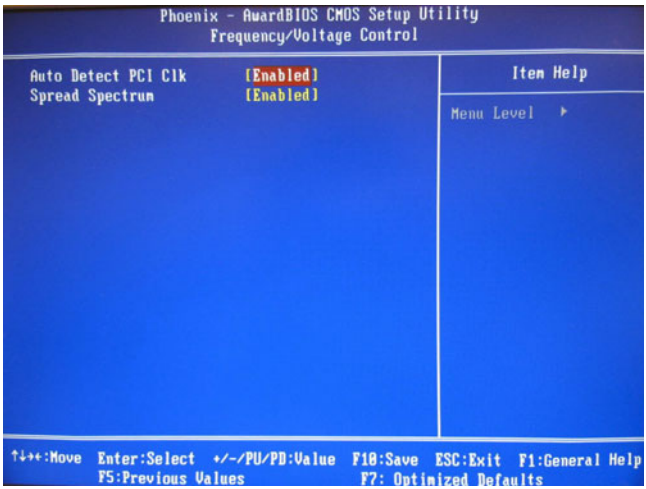


Figure 3.9: Frequency/Voltage Control

Caution *Incorrect settings in Frequency/Voltage Control may damage the system CPU, video adapter, or other hardware.*

3.2.10 Load Optimized Defaults

Load Optimized Defaults loads the default system values directly from ROM. If the stored record created by the Setup program should ever become corrupted (and therefore unusable), these defaults will load automatically when you turn the AIMB-341 Series system on.

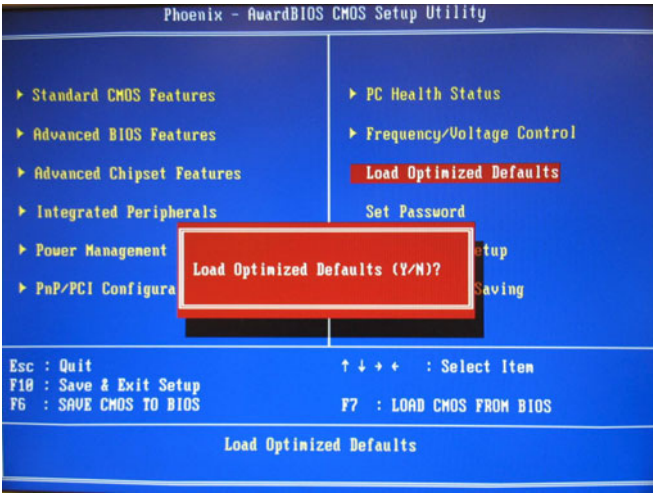


Figure 3.10: Load BIOS defaults screen

3.2.11 Set Password

Note *To enable this feature, you should first go to the Advanced BIOS Features menu, choose the Security Option, and select either Setup or System, depending on which aspect you want password protected. Setup requires a password only to enter Setup. System requires the password either to enter Setup or to boot the system. A password may be at most 8 characters long.*

To Establish a Password

1. Choose the Set Password option from the CMOS Setup Utility main menu and press <Enter>.
2. When you see “Enter Password,” enter the desired password and press <Enter>.
3. At the “Confirm Password” prompt, retype the desired password, then press <Enter>.
4. Select Save to CMOS and EXIT, type <Y>, then <Enter>.

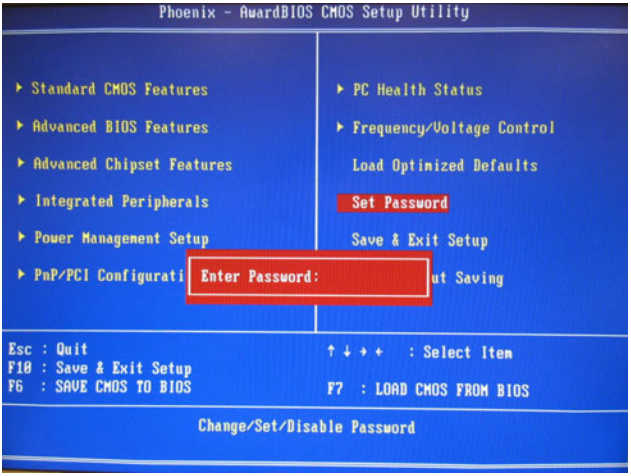


Figure 3.11: Set password

To Change a Password

1. Choose the Set Password option from the CMOS Setup Utility main menu and press <Enter>.
2. When you see “Enter Password,” enter the existing password and press <Enter>.
3. You will see “Confirm Password.” Type it again, and press <Enter>.
4. Select Set Password again, and at the “Enter Password” prompt, enter the new password and press <Enter>.

5. At the “Confirm Password” prompt, retype the new password, and press <Enter>.
6. Select Save to CMOS and EXIT, type <Y>, then <Enter>.

To Disable Password

1. Choose the Set Password option from the CMOS Setup Utility main menu and press <Enter>.
2. When you see “Enter Password,” enter the existing password and press <Enter>.
3. You will see “Confirm Password.” Type it again, and press <Enter>.
4. Select Set Password again, and at the “Enter Password” prompt, don’t enter anything; just press <Enter>.
5. At the “Confirm Password” prompt, again don’t type in anything; just press <Enter>.
6. Select Save to CMOS and EXIT, type <Y>, then <Enter>.

3.2.12 Save & Exit Setup

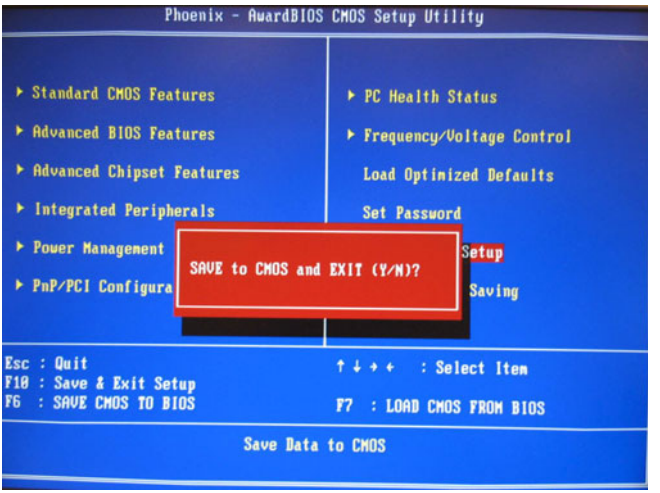


Figure 3.12: Save to CMOS and EXIT

If you select this option and press <Y> then <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 use the settings to configure the system. This record is required for the system to operate.

3.2.13 Exit Without Saving

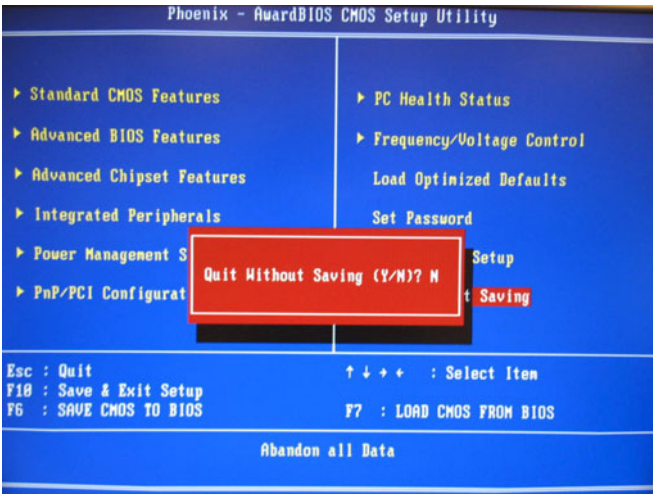


Figure 3.13: Quit without saving

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

Appendix A

Programming GPIO & Watchdog Timer

Appendix A Programming GPIO & Watchdog Timer

A.1 Supported GPIO Register

Bellow are detailed description of the GPIO addresses and programming sample.

A.1.1 GPIO Registers

CRF0 (GP10-GP17 I/O selection register. Default 0xFF)

When set to a '1', respective GPIO port is programmed as an input port.

When set to a '0', respective GPIO port is programmed as an output port.

CRF1 (GP10-GP17 data register. Default 0x00)

If a port is programmed to be an output port, then its respective bit can be read/written.

If a port is programmed to be an input port, then its respective bit can only be read.

CRF2 (GP10-GP17 inversion register. Default 0x00)

When set to a '1', the incoming/outgoing port value is inverted.

When set to a '0', the incoming/outgoing port value is the same as in data register.

Extended Function Index Registers (EFIRs)

The EFIRs are write-only registers with port address 2Eh or 4Eh on PC/AT systems.

Extended Function Data Registers (EFDRs)

the EFDRs are read/write registers with port address 2Fh or 4Fh on PC/AT systems.

A.1.2 GPIO Example program-1

```
------------------------------------------------
/* Winbond 83627*/
 #include <dos.h>
 #include <conio.h>
#include <stdio.h>
#define SuperIO_A0          0x2E
#define SuperIO_A1          0x2F
#define DIO_A0               0x300
void main()
{
    unsigned Temp;
    unsigned ErrFlag;
    ErrFlag=0;
   clrscr();
   /*---Winbond W83627--*/
  outportb(SuperIO_A0, 0x87); /* External Function (Two Successive
writes of 0x87)*/
outportb(SuperIO_A0, 0x87); /* External Function (Two Successive
writes of 0x87)*/
/*--Global CR20--*/
outportb(SuperIO_A0, 0x20);
Temp-inportb(SuperIO_a1); /*Temp must be 0x52*/
/*--Global CR2A--*/
outportb(SuperIO_A0,0x2A);
Temp=inportb(SuperIO_A1);
Temp=Temp | 0xFC; /*set pin 121-128*/
outportb(SuperIO_A1, Temp);
/*--Configure Logical Device 7 GPIO Port1--*/
outportb(SuperIO_A0, 0x07);
outportb(SuperIO_A1,0x07);/*GP15 GP16 gp17*/
/*--CR30--*/
```

```
outportb(SuperIO_A0,0x30);
outportb(SuperIO_A1,0x01); /*Enable GPIO Port*/
/*--CR60--*/ /*Select FDC I/O Base*/
Temp=DIO_A0;
Temp>>=8; /* right shift 8 bit*/
outportb(SuperIO_A0,0x60);
outportb(SuperIO_A1,Temp);/*0x03*/
/*--CR61--*/ /*Select FDC I/O Base*/
Temp=DIO_A0;
Temp&=0x0FF;
outportb(SuperIO_A0, 0x61);
outportb(SuperIO_A1, Temp);/*0x00*/
/*--CRF0--*/ /*Configure logical device 1, configuration register CRF0*/
outportb(SuperIO_A0, 0xF0);
outportb(SuperIO_A1, 0xFF);
gotoxy(6,6);
printf("!!AIMB-341 DIO Testing!!);
gotoxy(6,7);
printf("-->Set jumpers on CN23(1-2)and CN23(13-14)");
gotoxy(6,8);
printf("-->Press any key to start.");
while(!bioskey(1));
/*--CRF0--*/
outportb(SuperIO_A0,0xF0);
outportb(SuperIO_A1,0x0F);/*set GP10-GP17 I/O=>"1" is input, "0"is
output=>(10101010)*/
/*--CRF1--*/
outportb(SuperIO_A0,0XF1);
outportb(SuperIO_A1,0x00);
/*--CRF1--*/
outportb(SuperIO_A0,0xF1);
Temp=inportb(SuperIO_A1);
```

```
Temp=Temp | 0x00;
/*printf (“Temp=”%s,Temp);*/
if(Temp!=0x0B)
ErrFlag=1;
/*-----------------------------------------------------*/
/*--Exit extended function mode--*/
outportb(SuperIO_A0,0xAA);
if(ErrFlag==0)
{   gotoxy(10,13);
     printf (“Testing is successful!”);
}
else
{   gotoxy(10,13);
     printf(“Testing is Failed!”);          }   }
```

Appendix B

Pin Assignments

Appendix B Pin Assignments

B.1 CRT Connector (CN4)

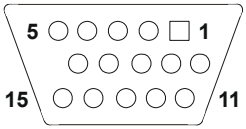


Table B.1: CRT Connector (CN4)

Description		D-SUB HD CONN.15P 90D(Blue)			
Pin	**Signal**	**Pin**	**Signal**	**Pin**	**Signal**
1	RED	6	GND	11	NC
2	GREEN	7	GND	12	DDC DATA
3	BLUE	8	GND	13	H-SYNC
4	NC	9	NC	14	V-SYNC
5	GND	10	GND	15	DDC CLOCK

B.2 COM1 Connector (CN1)

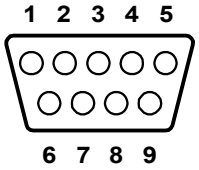


Table B.2: COM1 Connector (CN1)

Description		D-SUB CONN.9P 90D(M) (Green)	
Pin	**Signal**	**Pin**	**Signal**
1	DCD*	6	DSR*
2	RX	7	RTS*
3	TX	8	CTS*
4	DTR*	9	RI
5	GND		

* LOW ACTIVE

B.3 LPT1 Connector(CN5)

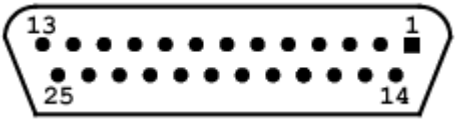


Table B.3: Primary IDE connector (CN5)

Description		D-SUB CONN.25P 90D(M)	
Pin	**Signal**	**Pin**	**Signal**
1	STROBE*	14	ATUO FEED*
2	PD0	15	ERROR*
3	PD1	16	INT*
4	PD2	17	SELECT IN*
5	PD3	18	GND
6	PD4	19	GND
7	PD5	20	GND
8	PD6	21	GND
9	PD7	22	GND
10	ACK*	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SELECT		

* LOW ACTIVE

B.4 Audio Connector (CN6)

Table B.4: Audio Connector (CN6)

Description		Phone Jack 13P 90D(F)	
Pin	**Signal**	**Pin**	**Signal**
A1	GND	A2	LINE IN (R)
A3	NC	A4	NC
A5	LINE IN (L)		
B1	GND	B2	LINE OUT (R)
B3	NC	B4	NC
B5	LINE OUT (L)	12	GND
C1	GND	C2	MIN_IN2
C3	NC	C4	NC
C5	MIC_IN1		

B.5 Keyboard + PS/2 Mouse Connector (CN8)

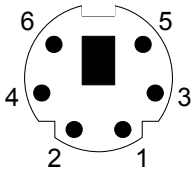


Table B.5: Keyboard + PS/2 Mouse Connector (CN8)

Description	MINI DIN 6P 90D(F)
Pin	**Signal**
1	KB DATA
2	MS DATA
3	GND
4	+5V
5	KB CLOCK
6	MS CLOCK

B.6 LAN2 USB3/4 Connector (CN9)

Table B.6: LAN2 USB3/4 Connector (CN9)

Description		Phone Jack RJ45 + USB*2 90D(F)	
Pin	**Signal**	**Pin**	**Signal**
1	LAN_V25	2	LAN_MDI0+
3	LAN_MDI0-	4	LAN_MDI1+
5	LAN_MDI1-	6	LAN_MDI2+
7	LAN_MDI2-	8	LAN_MDI3+
9	LAN_MDI3-	10	GND
11	LINK_LED#	12	ACT_LED#
13	LINK1000_LED#	14	LINK100_LED#
15	USB1_5V	16	USBD1-
17	USBD1+	18	GND
19	USB2_5V	20	USBD2-
21	USBD2+	22	GND
23	GND	24	GND
25	GND	26	GND
27	GND	28	GND
29	GND	30	GND

B.7 LAN1 USB1/2 Connector(CN10)

Table B.7: LAN1 USB1/ 2 Connector (CN10)

Description		Phone Jack RJ45 + USB*2 90D(F)	
Pin	**Signal**	**Pin**	**Signal**
1	LAN_V25	2	LAN_MDI0+
3	LAN_MDI0-	4	LAN_MDI1+
5	LAN_MDI1-	6	LAN_MDI2+
7	LAN_MDI2-	8	LAN_MDI3+
9	LAN_MDI3-	10	GND
11	LINK_LED#	12	ACT_LED#
13	LINK1000_LED#	14	LINK100_LED#
15	USB1_5V	16	USBD1-
17	USBD1+	18	GND
19	USB2_5V	20	USBD2-
21	USBD2+	22	GND
23	GND	24	GND
25	GND	26	GND
27	GND	28	GND
29	GND	30	GND

B.8 LVDS INVERTER Connector(CN21)

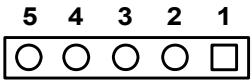


Table B.8: LVDS INVERTER Connector (CN21)

Description		WAFER BOX 2.0mm 5P 180D
Pin	**Signal**	
1	+12V	
2	GND	
3	BKLTEN	
4	VBR	
5	+5V	

B.9 CD-IN Connector (CN11)

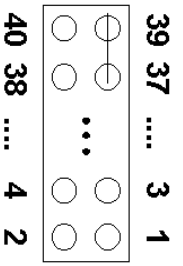
Table B.9: CD-IN Connector (CN11)

Description	WAFER BOX 2.54mm 4P 180DMALE
Pin	**Signal**
1	CDIN-R
2	GND
3	GND
4	CDIN-L

B.10 LVDS Connector (CN23)

Table B.10: LVDS Connector (CN23)

Description		DF13-40DP-1.25V	
Pin	**Signal**	**Pin**	**Signal**
1	VDDSAFE_5V	2	VDDSAFE_5V
3	GND	4	GND
5	VDDSAFE_3V	6	VDDSAFE_3V
7	VCON	8	GND
9	PD0-B0	10	PD1-B1
11	PD2-B2	12	PD3_B3
13	PD4-B4	14	PD5_B5
15	PD6-B6	16	PD7_B7
17	PD8_G0	18	PD9_G1
19	PD10_G2	20	PD11_G3
21	PD12_G4	22	PD13_G5
23	PD14_G6	24	PD15_G7
25	PD16_R0	26	PD17_R1
27	PD18_R2	28	PD19_R3
29	PD20_R4	30	PD21_R5
31	PD22_R6	32	PD23_R7
33	GND	34	GND
35	SHFCLK	36	FLM
37	M	38	LP
39	EN_BKL	40	ENVEE



B.11 DVI Connector (VCN2)

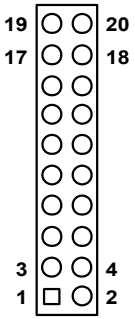


Table B.11: DVI Connector (VCN2)

Description		DF13-20DP 1.25mm	
Pin	**Signal**	**Pin**	**Signal**
1	TMDS_C0#	2	VCC_DVI
3	TMDS_C0	4	TMDS_CK#
5	GND	6	TMDS_CK
7	TMDS_C1#	8	GND
9	TMDS_C1	10	MDVI_CLK
11	GND	12	MDVI_DATA
13	TMDS_C2#	14	HP_DET
15	TMDS_C2	16	MI2C_DATA
17	PD8	18	MI2C_CLK
19	NC	20	NC

B.12 USB5/6/USB7/8 Connector (CN25, CN26)

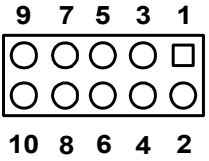


Table B.12: USN5/6/USB7/8 Connector (CN25,CN26)

Description		Pin HEADER 5*2 180D 2.54mm	
Pin	**Signal**	**Pin**	**Signal**
1	USB VCC	2	USB VCC
3	DATA1-	4	DATA2-
5	DATA1+	6	DATA2+
7	USB GND	8	USB GND
9	USB GND	10	USB GND

B.13 SIR Connector (CN29)

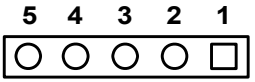


Table B.13: SIR Connector (CN29)

Description		Wafer-Box 5-pin 2.54mm
Pin	**Signal**	
1	+5V	
2	CIR RX	
3	IR RX	
4	GND	
5	IR TX	

B.14 Compact Flash Connector (CN35)

Table B.14: Compact Flash Connector (CN35)

Description		HEADER FOR CF Type II 50-pin 90D(M)	
Pin	**Signal**	**Pin**	**Signal**
1	GND	2	IDE_SDD3
3	IDE_SDD4	4	IDE_SDD5
5	IDE_SDD6	6	IDE_SDD7
7	IDE_SDCS1*	8	GND
9	GND	10	GND
11	GND	12	GND
13	VCC	14	GND
15	GND	16	GND
17	GND	18	IDE_SDA2
19	IDE_SDA1	20	IDE_SDA0
21	IDE_SDD0	22	IDE_SDD1
23	IDE_SDD2	24	NC
25	GND	26	NC
27	IDE_SDD11	28	IDE_SDD12
29	IDE_SDD13	30	IDE_SDD14
31	IDE_SDD15	32	IDE_SDCS3*
33	NC	34	IDE_SDIOR*
35	IDE_SDIOW*	36	WE*
37	IDE_IRQ15	38	VCC
39	CSEL*	40	NC
41	IDE_RST*	42	IDE_SLORDY
43	NC	44	REG
45	IDE_SDACTIVE*	46	IDE_SATASET
47	IDE_SDD8	48	IDE_SDD9
49	IDE_SDD10	50	GND

*: LOW ACTIVE

B.15 Primary IDE Connector(CN32)

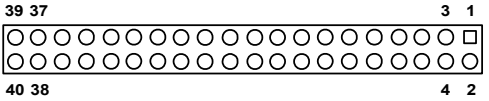


Table B.15: Primary IDE Connector (CN32)

Description		Box-Header 40-Pin 2.54mm (Blue)	
Pin	**Signal**	**Pin**	**Signal**
1	IDE-RST*	2	GND
3	IDE_PDD7	4	IDE_PDD8
5	IDE_PDD6	6	IDE_PDD9
7	IDE_PDD5	8	IDE_PDD10
9	IDE_PDD4	10	IDE_PDD11
11	IDE_PDD3	12	IDE_PDD12
13	IDE_PDD2	14	IDE_PDD13
15	IDE_PDD1	16	IDE_PDD14
17	IDE_PDD0	18	IDE_PDD15
19	GND	20	NC
21	IDE_PDDREQ	22	GND
23	IDE_PDIOW*	24	GND
25	IDE_PDIOR*	26	GND
27	IDE_PIORDY	28	IDE_PCSEL
29	IDE_PDDACK*	30	GND
31	IDE_IRQ14	32	NC
33	IDE_PAD1	34	IDE_PATADET
35	IDE_PAD0	36	IDE_PAD2
37	IDE_PDCS1*	38	IDE_PDCS3*
39	IDE_PDACTIVE*	40	GND

* LOW ACTIVE

B.16 SM BUS Connector (CN27)

Table B.16: SM BUS Connector (CN27)

Description	Wafer-Box 4-Pin 2.0mm
Pin	**Signal**
1	GND
2	SMB DAT
3	SMB CLK
4	5V/+3.3V

B.17 FDD Connector (CN33)

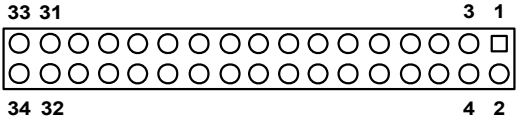


Table B.17: FDD Connector (CN33)

Description	Box-Header 34-Pin 2.54mm		
Pin	**Signal**	**Pin**	**Signal**
1	GND	2	DRVDENA
3	GND	4	NC
5	GND	6	NC
7	GND	8	INDEX
9	GND	10	MTR A*
11	GND	12	DS B*
13	GND	14	DS A*
15	GND	16	MTR B*
17	GND	18	DIR
19	GND	20	STEP*
21	GND	22	WDATA*
23	GND	24	WGATE*
25	GND	26	TRAK0*
27	GND	28	WR*
29	GND	30	RDATA*
31	GND	32	HDSEL*
33	GND	34	DSKCHG*

* LOW ACTIVE

B.18 COM2 Connector (CN28)

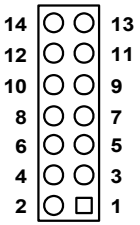


Table B.18: COM2 Connector (CN28)

Description	Box-Header 14-Pin 2.0mm		
Pin	**Signal**	**Pin**	**Signal**
1	NDCD*	2	DSR*
3	RX	4	RTS*
5	TX	6	CTS*
7	DTR*	8	RI
9	GND	10	GND
11	TXD485P	12	TXD485N
13	RXD485P	14	RXD485N

*: LOW ACTIVE

B.19 COM3~6 Connector (CN16)

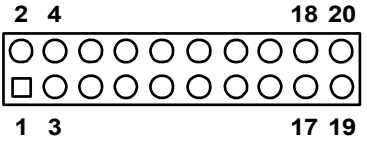


Table B.19: COM3~6 Connector (CN16)

Description		Box-Header 20-Pin 2.0mm	
Pin	**Signal**	**Pin**	**Signal**
1	DCD3*	2	DSR3*
3	RX3	4	RTS3*
5	TX3	6	CTS3*
7	DTR3*	8	RI_3
9	GND	10	GND
11	DCD4*	12	DSR4*
13	RX4	14	RTS4
15	TX4	16	CTS4*
17	DTR4*	18	RI_4
19	GND	20	GND

*: LOW ACTIVE

B.20 Digital IO Connector (CN30)

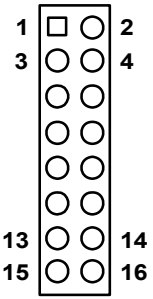


Table B.20: Digital IO Connector (CN30)

Description		Pin-Header 16-Pin 2.54mm	
Pin	**Signal**	**Pin**	**Signal**
1	DIO-IN0	2	5V
3	DIO_IN1	4	DIOOUT0
5	DIO_IN2	6	GND
7	DIO_IN3	8	DIOOUT1
9	GND	10	12V
11	NC	12	NC
13	DIO_OUT3	14	GND
15	DIO_OUT4	16	12V

* LOW ACTIVE

B.21 Front Panel Connector(CN31)

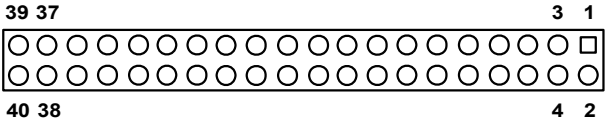


Table B.21: Front Panel Connector(CN31)

Description		Pin-Header 14-Pin 2.54mm	
Pin	**Signal**	**Pin**	**Signal**
1	V5	2	HDLED#

3	VCC (POWER_LED)	4	GND
5	SUSPEN_LED	6	GND
7	3VSB(LAN_ACKLED)	8	LAN1_ACKLED#
9	3VSB(LAN_ACKLED)	10	LAN2_ACTLED#
11	V5	12	PWRBTN#
13	GND	14	RESET#

* LOW ACTIVE

B.22 MINI PCI Connector(CN34)

Table B.22: MINI PCI Connector(CN34)

Description	**HEADER for CF Type II 50P 90D(M)**		
Pin	**Signal**	**Pin**	**Signal**
1	GND	2	IDE_SDD3
3	IDE_SDD4	4	IDE_SDD5
5	IDE_SDD6	6	IDE_SDD7
7	IDE_SDCS1*	8	GND
9	GND	10	GND
11	GND	12	GND
13	VCC	14	GND
15	GND	16	GND
17	GND	18	IDE_SDA2
19	IDE_SDA1	20	IDE_SDA0
21	IDE SDD0	22	IDE SDD1
23	IDE SDD2	24	NC
25	GND	26	NC
27	IDE_SDD11	28	IDE_SDD12
29	IDE_SDD13	30	IDE_SDD14
31	IDE_SDD15	32	IDE_SDCS3*
33	NC	34	IDE_SDIOR*
35	IDE_SDIOW*	36	WE*
37	IDE_IRQ15	38	VCC
39	CSEL*	40	NC
41	IDE_RST*	42	IDE_SIORDY

43	NC	44	REG*
45	IDE_SDACTIVE*	46	IDE_SATASET
47	IDE_SDD8	48	IDE_SDD9
49	IDE_SDD10	50	GND

B.23 SATA Connector (SATA1, 2, 3, 4)

Table B.23: SATA Connector (SATA1, 2, 3, 4)

Description		DIP 7P 180D(M) 1.27mm	
Pin	**Signal**	**Pin**	**Signal**
1	GND	5	SATA_RXN
2	SATA_TXP	6	SATA_RXP
3	SATA_TXN	7	GND
4	GND	8	NC

B.24 ATX Power Connector (ATX2)

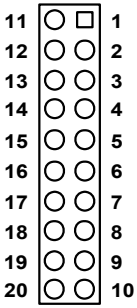


Table B.24: ATX Power Connector (ATX2)

Description		Wafer ATX PWR 20-Pin	
Pin	**Signal**	**Pin**	**Signal**
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	+5V	14	PSON*
5	GND	15	GND

Table B.24: ATX Power Connector (ATX2)

Description		Wafer ATX PWR 20-Pin	
Pin	**Signal**	**Pin**	**Signal**
6	+5V	16	GND
7	GND	17	GND
8	PWROK	18	-5V
9	5VSB	19	+5V
10	+12V	20	+5V

* LOW ACTIVE

B.25 LVDS Connector (CN23)

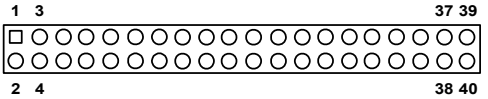


Table B.25: LVDS Connector (CN23)

Description		DF 13-40P	
Pin	**Signal**	**Pin**	**Signal**
1	VDDSAFE	2	VDDSAFE
3	GND	4	GND
5	VDDSAFE	6	VDDSAFE
7	LVDS0_N0	8	LVDS1_N0
9	LVDS0-P0	10	LVDS1_P0
11	GND	12	GND
13	LVDS0_N1	14	LVDS1_N1
15	LVDS0_P1	16	LVDS_P1
17	GND	18	GND
19	LVDS0_N2	20	LVDS1_N2
21	LVDS0_P2	22	LVDS_P2
23	GND	24	GND
25	LVDS0_CLKN	26	LVDS1_CLKN
27	LVDS0_CLKP	28	LVDS1_CLKP
29	GND	30	GND
31	LVDS_DDCPCLK	32	LVDS_DDCPDATA
33	GND	34	GND
35	LVDS0_N3	36	LVDS1_N3
37	LVDS0_P3	38	LVDS1_P3
39	NC	40	LVDS_VCON

B.26 CPU/SYSTEM FAN Connector (FAN1/FAN2)

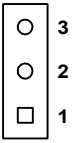


Table B.26: CPU/SYSTEM FAN Control Connector (FAN1/FAN2)

Pin	Signal
1	FAN_PWM CONTROL
2	+12V
3	FAN DETECT

B.27 PCI Slot Connectors (PCI1 and PCI2)

Table B.27: PCI Slot Connectors (PCI1 and PCI2)

Pin	Signal	Pin	Signal
A1	GND (TRST#)	B1	-12V
A2	+12V	B2	GND (TCK)
A3	VCC5V (TMS)	B3	GND
A4	VCC5V (TDI)	B4	NC (TDO)
A5	VCC5V	B5	VCC5V
A6	INTF#	B6	VCC5V
A7	INTH#	B7	INTG#
A8	VCC5V	B8	INTE#
A9	GNT#1 (REV)	B9	PCICLK1 (PRSNT#1)
A10	VCC5V	B10	PREQ#1 (REV)
A11	GNT#2 (REV)	B11	PCICLK2 (PRSNT#2)
A12	GND	B12	GND
A13	GND	B13	GND
A14	3VSB	B14	PREQ#2 (REV)
A15	RST#	B15	GND
A16	VCC5V	B16	PCICLK
A17	GNT#0	B17	GND
A18	GND	B18	REQ#0
A19	PCI_PME#	B19	VCC5V
A20	AD30	B20	AD31
A21	VCC3	B21	AD31
A22	AD28	B22	GND
A23	AD26	B23	AD27
A24	GND	B24	AD25
A25	AD28	B25	VCC3V
A26	IDSEL	B26	C/BE#3
A27	VCC3V	B27	AD23
A28	AD22	B28	GND
A29	AD20	B29	AD21
A30	GND	B30	AD19
A31	AD18	B31	VCC3V
A32	AD16	B32	AD17

Table B.27: PCI Slot Connectors (PCI1 and PCI2)

Pin	Signal	Pin	Signal
A1	GND (TRST#)	B1	-12V
A2	+12V	B2	GND (TCK)
A3	VCC5V (TMS)	B3	GND
A33	VCC3V	B33	C/BE#2
A34	FRAME#	B34	GND
A35	GND	B35	IRDY#
A36	TRDY#	B36	VCC3V
A37	GND	B37	DEVSEL#
A38	STOP#	B38	GND
A39	VCC3V	B39	LOCK#
A40	SMBCLK	B40	PERR#
A41	SMBDAT	B41	VCC3V
A42	GND	B42	SERR#
A43	PAR	B43	VCC3V
A44	AD15	B44	C/BE#1
A45	VCC3V	B45	AD14
A46	AD13	B46	GND
A47	AD11	B47	AD12
A48	GND	B48	AD10
A49	AD9	B49	GND
A50	NC	B50	NC
A51	NC	B51	NC
A52	C/BE#0	B52	AD8
A53	VCC3V	B53	AD7
A54	AD6	B54	VCC3V
A55	AD4	B55	AD5
A56	GND	B56	AD3
A57	AD2	B57	GND
A58	AD0	B58	AD1
A59	VCC5V	B59	VCC5V
A60	REQ64#	B60	ACK64#
A61	VCC5V	B61	VCC5V
A62	VCC5V	B62	VCC5V

B.28 PCI-E X1 SLOT Connector (PCIE1X1)

Table B.28: PCI-E X1 SLOT Connector (PCIE1X1)

Pin	Signal	Pin	Signal
A1	PRSNT1*	B1	+12V
A2	+12V	B2	+12V
A3	+12V	B3	RSVD
A4	GND	B4	GND
A5	JTAG2	B5	SMB CLK
A6	JTAG3	B6	SMB DATA
A7	JTAG4	B7	GND
A8	JTAG5	B8	+3.3V
A9	+3.3V	B9	JTAG1
A10	+3.3V	B10	+3.3VAUX
A11	PWRGD	B11	WAKE*
A12	GND	B12	RSVD
A13	REFCLK+	B13	GND
A14	REFCLK-	B14	HSOP0
A15	GND	B15	HSON0
A16	HSIP0	B16	GND
A17	HSIN0	B17	PRSNT2*
A18	GND	B18	GND

Appendix C

System Assignments

Appendix C System Assignments

C.1 System I/O Ports

Table C.1: System I/O ports

Addr. range (Hex)	Device
00-0F	Master DMA controller
20-21F	Master Interrupt controller
40-5F	Timer/Counter
60-6F	Keyboard controller
(60h)	KBC Data
(61h)	Misc Functions & Spkr Ctrl
(64h)	KBC Command/Status
70-77	RTC/COMS/NMI-Disable
78-7F	-available for system use-
80	-reserved-(debug port)
81-8F	DMA Page Registers
90-91	-available for system use-
92	System Control
93-9F	-available for system use-
A0-A1H	Slave Interrupt Controller
C0-DF	Slave DMA Controller
E0-FF	-available for system use-
100-1EF	-available for system use-
170-178	Secondary IDE Control
1F0-1F8	Primary IDE Control
200-20F	Game Port
295-296	Hardware Monitor
2E8-2EF	COM4
2F8-2FF	COM2
378-37F	Parallel Port (Standard & AFF)
3C0-3CF	EGA
3D0-3DF	VGA
3E8-3EF	COM3
3F0-3F1	Configuration Index/Data
3F0-3F7	Floppy Controller
3F8-3FF	COM1
778-77A	Parallel Port (ECP Extensions) (Port 378+400)

Table C.1: System I/O ports	
Addr. range (Hex)	**Device**
CF8-CFB	PCI Configuration Address
CFC-CFF	PCI Configuration Data
D00-FFFF	-available for system use-

C.2 1st MB memory map

Table C.2: 1st MB memory map	
Addr. range (Hex)	**Device**
F0000h - FFFFFh	System ROM
*D0000h - EFFFFh	Unused (reserved for Ethernet ROM)
C0000h - CFFFFh	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

C.3 DMA channel assignments

Table C.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

* Parallel port ECP mode DMA select 1 or 3

C.4 Interrupt assignments

Table C.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	COM4
IRQ 6	FDD
IRQ 7	LPT1
IRQ 8	RTC
IRQ 9	Reserved (audio)
IRQ 10	COM3
IRQ 11	Reserved for watchdog timer
IRQ 12	PS/2 mouse
IRQ 13	INT from co-processor
IRQ 14	Primary IDE
IRQ 15	Secondary IDE for CFC