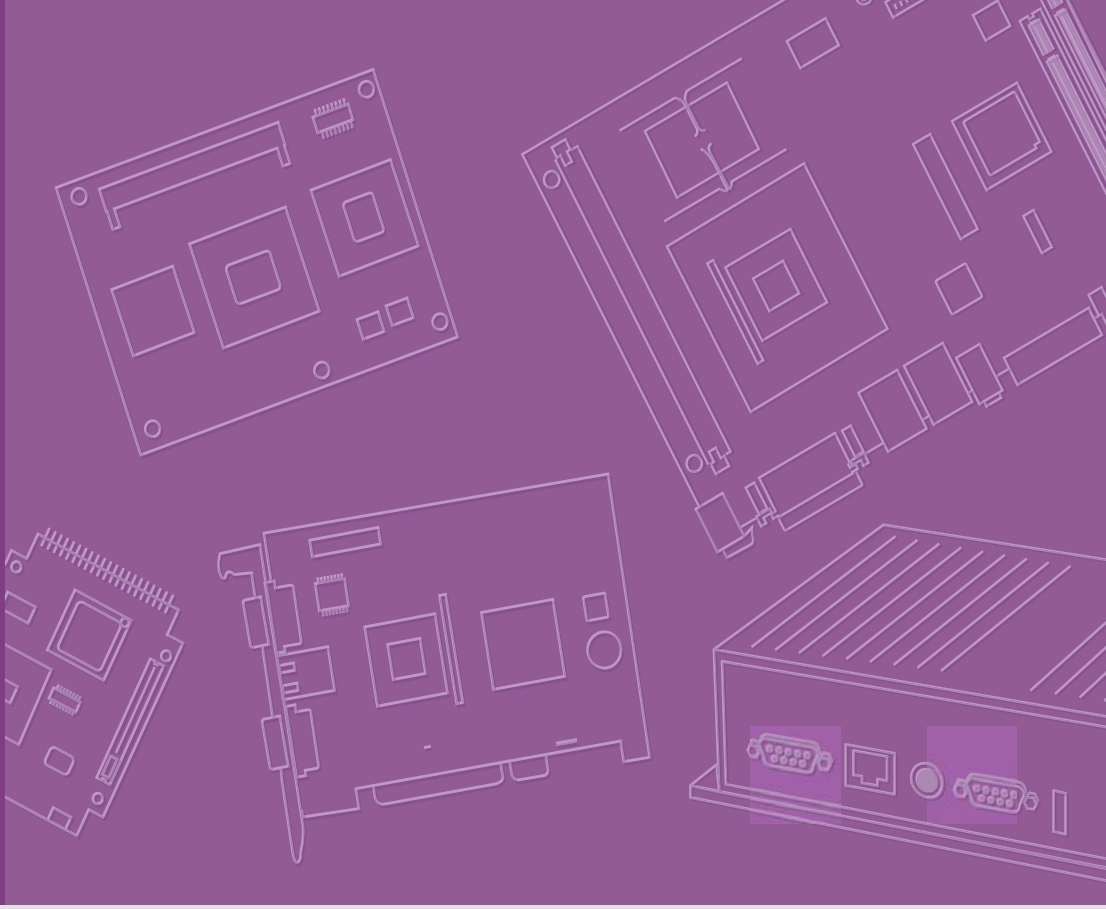

User Manual

AIMB-262

Intel® LGA775 Core 2 Duo Mini ITX Motherboard with DDR2/ LAN/4COM/PCIe x16

Trusted ePlatform Services

ADVANTECH

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A Message to the Customer

Advantech Customer Services

Each and every Advantech product is built to the most exacting specifications to ensure reliable performance in the harsh and demanding conditions typical of industrial environments. Whether your new Advantech equipment is destined for the laboratory or the factory floor, you can be assured that your product will provide the reliability and ease of operation for which the name Advantech has come to be known.

Your satisfaction is our primary concern. Here is a guide to Advantech's customer services. To ensure you get the full benefit of our services, please follow the instructions below carefully.

Technical Support

We want you to get the maximum performance from your products. So if you run into technical difficulties, we are here to help. For the most frequently asked questions, you can easily find answers in your product documentation. These answers are normally a lot more detailed than the ones we can give over the phone.

So please consult this manual first. If you still cannot find the answer, gather all the information or questions that apply to your problem, and with the product close at hand, call your dealer. Our dealers are well trained and ready to give you the support you need to get the most from your Advantech products. In fact, most problems reported are minor and are able to be easily solved over the phone.

In addition, free technical support is available from Advantech engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products.

Declaration of Conformity

FCC

This device complies with the requirements in part 15 of the FCC rules:

Operation is subject to the following two conditions:

- This device may not cause harmful interference
- 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! *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.*

Memory Compatibility

Brand	Size	Speed	Type	ECC	Vendor PN	Advantech PN	Memory
Transcend	256 MB	DDR2 533	SODIMM DDR2	N	TS32MSQ64V5M	NA	Hynix HY5PS121621B FP-Y5 (32x16)
	512 MB	DDR2 533	SODIMM DDR2	N	119833-0266	NA	Infineon HYB18T512 800AF37 SVV39006 0526 (32x8)
	1GB	DDR2 533	SODIMM DDR2	N	120048-0014	NA	ELPIDA TWN E5108AE-5C-E 0517A9105 (64x8)
	1GB	DDR2 533	SODIMM DDR2	N	NA	NA	ELPIDA TWN E5108AE-5C-E 0511009276 (64x8)
Apacer	256 MB	DDR2 533	SODIMM DDR2	N	78.82054.420	NA	ELPIDA JAPAN E5116AB-5C-E 05050WPWA (64x8)
	512 MB	DDR2 533	SODIMM DDR2	N	78.92051.421	96D2-512M533NN-AP1	ELPIDA JAPAN E5108AB-5C-E 04520WR5Q (64x8)
A-DATA	256 MB	DDR2 533	SODIMM DDR2	N	M20SS2F3G3410A1BOZ	NA	SAMSUNG 52B K4T56083QF-GCD5 (32x8)
	512 MB	DDR2 533	SODIMM DDR2	N	M20EL2G3H3410A1BOZ	NA	ELPIDA JAPAN E5108AB-5C-E (64x8)
	1GB	DDR2 533	SODIMM DDR2	N	M20EL2G314430B1BOZ	NA	ELPIDA TWN E5108AE-5C-E (64x8)
Transcend (RoHS)"	256 MB	DDR2 667	SODIMM DDR2	N	TS32MSQ64V6M	NA	Hynix HY5PS121621B FP-Y5 (32x16)
	512 MB	DDR2 667	SODIMM DDR2	N	TS64MSQ64V6J	NA	SAMSUNG K4T51083QC ZCE6 (64x8)
	1GB	DDR2 667	SODIMM DDR2	N	TS128MSQ64V6J	NA	SAMSUNG K4T51083QC ZCE6 (64x8)
Apacer (RoHS)"	512 MB	DDR2 667	SODIMM DDR2	N	78.92G63.422	NA	ELPIDA E5108AG-6E-E (64x8)
	1GB	DDR2 667	SODIMM DDR2	N	78.02G63.423	96SD2-1G667NN-AP	ELPIDA E5108AGBG-6E-E (64x8)
DSL (RoHS)"	256 MB	DDR2 667	SODIMM DDR2	N	NA	NA	ELPIDA E5116AF-6E-E (32x16)
	512 MB	DDR2 667	SODIMM DDR2	N	NA	NA	ELPIDA E5108AGBG-6E-E (64x8)
	1GB	DDR2 667	SODIMM DDR2	N	NA	NA	ELPIDA E5108AGBG-6E-E (64x8)
Transcend (RoHS)"	1GB	DDR2 800	SODIMM DDR2	N	TS128MSQ64V8J	NA	HYNIX HY5PS12821E-FP-S5 (64x8)
DSL (RoHS)	1GB	DDR2 800	SODIMM DDR2	N	NA	NA	ELPIDA TWN E5108AHSE-8E-E (64x8)

Ordering Information

AIMB-262 Ordering Information						
Part Number	**On-board Processor**	**Chipset**	**Memory**	**LAN**	**COM**	**DVI**
AIMB-262VG-00A1E	NA	945GC	DDR2 533/ 667	1	4	None

Product Warranty (2 years)

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

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

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

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

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

Initial Inspection

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

- LGA 775 Core™ 2 Duo/Pentium 4/Pentium dual-core/Celeron® D Processor-based Mini ITX with DDR2/PCIe/Single GbE LAN
- 1 x AIMB-262 startup manual
- 1 x CD with driver utility and manual
- 2 x Serial ATA HDD data cable
- 2 x Serial ATA HDD power cable
- 1 x I/O port bracket
- 1 x jumper package
- 1 x warranty card

If any of these items are missing or damaged, contact your distributor or sales representative immediately. We have carefully inspected the AIMB-262 mechanically and electrically before shipment. It should be free of marks and scratches and in perfect working order upon receipt. As you unpack the AIMB-262, check it for signs of shipping damage. (For example, damaged box, scratches, dents, etc.) If it is damaged or it fails to meet the specifications, notify our service department or your local sales representative immediately. Also notify the carrier. Retain the shipping carton and packing material for inspection by the carrier. After inspection, we will make arrangements to repair or replace the unit.

Contents

Chapter 1

General Information

1.1 Introduction

The AIMB-262 is designed with the Inte® 945GC and the ICH6 for industrial applications that require both performance computing and enhanced power management capabilities. The motherboard supports Intel Pentium LGA 775 Core™ 2 Duo up to 1.8 GHz / Pentium dual-core up to 1.8 Ghz / Pentium 4 up to 3.8 Ghz/ Celeron® D up to 2.0 Ghz with 533/800 MHz front side bus and DDR2 533/667 MHz up to 2 GB.

The AIMB-262 offers cost-saving integrated graphics, built on the Intel® 945GC chipset and features the unique Intel® Extreme Graphics architecture that maximizes VGA performance and shares system memory up to 224 MB.

Advantech AIMB-262 is designed with Intel 945GC chipset and supports Intel Core 2 Duo processor up to FSB 800 MHz. A rich I/O connectivity of 4 serial ports, 6 USB 2.0, single GbE LAN and 2 SATA ports.

1.2 Features

- **Cost effective 945GC chipset:** support 533/800 Front side bus
- **Rich I/O connectivity:** 4 serial ports, 6 USB 2.0, single GbE LAN
- Standard Mini ITX form factor with industrial feature: The AIMB-262 is the most fully-featured Mini ITX motherboard with balanced expandability and the performance
- **Wide selection of storage devices:** SATA HDD, customers benefit the flexibility of using the most suitable storage device for large capacity
- **Optimized integrated graphic solution:** With Intel® Graphics Media Accelerator 950, it supports versatile display options and 32-bit 3D graphics engine.

1.3 Specifications

1.3.1 System

- **CPU:** LGA 775 Core™ 2 Duo up to 1.8 Ghz / Pentium dual-core up to 1.8 Ghz / Pentium 4 up to 3.8 Ghz / Celeron® D up to 2.0 Ghz
- **BIOS:** Award SPI 16 Mbit BIOS
- **System chipset:** Intel 945GC with ICH7
- **SATA hard disk drive interface:** Two on-board SATA connectors with data transmission rate up to 300 MB

1.3.2 Memory

- **RAM:** Up to 2 GB in 2 slots 200-pin SODIMM sockets. Supports dualchannel DDRII 533/667 SDRAM

1.3.3 Input/Output

- **PCIe bus:** 1PCIe x 16 slot
- **Enhanced parallel port:** Configured to LPT1, LPT2, with 25 pin box header. Supports EPP/SPP/ECP
- **Serial ports:** Four serial ports, one of RS-232/422/485 and three of RS-232 serial ports
- **Keyboard and PS/2 mouse connector:** Two 6-pin mini-DIN connectors are located on the mounting bracket for easy connection to a PS/2 keyboard and mouse
- **USB port:** Supports up to six USB 2.0 ports with transmission rate up to 480 Mbps, 2 on board pin header and 4 external ports)

1.3.4 Graphics

- **Controller:** Chipset integrated VGA controller
- **Display memory:** Dynamically shared system memory up to 224 MB
- **CRT:** Up to 2048 x 1536 resolution, 400 MHz RAMDAC

1.3.5 Ethernet LAN

- Supporting single/dual 10/100/1000Base-T Ethernet port (s) via PCI Express x1 bus which provides 500 MB/s data transmission rate
- **Controller:** LAN: Realtek RTL8111C

1.3.6 Industrial features

- **Watchdog timer:** Can generate a system reset. The watchdog timer is programmable, with each unit equal to one second or one minute (255 levels)

1.3.7 Mechanical and environmental specifications

- **Operating temperature:** 0 ~ 60° C (32 ~ 140° F, Depending on CPU)
- **Storage temperature:** -20 ~ 70° C (-4 ~ 158° F)
- **Humidity:** 5 ~ 95% non-condensing
- **Power supply voltage:** +3.3 V, +5 V, +12 V, -12 V, 5 Vsb
- **Power consumption:**
- **Board size:** 170 mm x 170 mm (6.69" x 6.69")
- **Board weight:** 0.365 kg

1.4 Jumpers and Connectors

Connectors on the AIMB-262 motherboard link it to external devices such as hard disk drives and a keyboard. In addition, the board has a number of jumpers used to configure your system for your application.

The tables below list the function of each of the board jumpers and connectors. Later sections in this chapter give instructions on setting jumpers. Chapter 2 gives instructions for connecting external devices to your motherboard.

Table 1.1: Jumpers

Label	Function
CMOS1	CMOS clear
PSON1	AT/ATX mode selector
JSETCOM1	Serial port: RS232/RS422/RS485

Table 1.2: Connectors

Label	Function
JFP2_1	Reset connector
	HDD LED connector
	ATX soft power switch (PS_ON)
	Power/Sleep waiting LED
LPT1	Parallel port
USB56	USB port 5, 6 (on board)
VGA1	VGA connector
COM1/COM2	Serial port: COM1/COM2 (rear panel port)
COM3/COM4	Serial port: COM3/COM4 (9-pin connector)
KBMS1	PS/2 keyboard and Mouse connector Cable length: 20 meter
CPU_FAN1	CPU FAN connector
CHA_FAN1	System FAN connector 1
LAN1_USB12	LAN1 / USB port 1,2
USB34	USB port 3,4
SATA1	Serial ATA0
SATA2	Serial ATA1
ATX1	ATX 12 V Auxiliary power connector
ATX2	ATX power connector
TPM_SLOT	TPM2.0 Module connector
SPI_CN1	SPI flash card pin header

1.5 Board layout: Jumper and Connector Locations

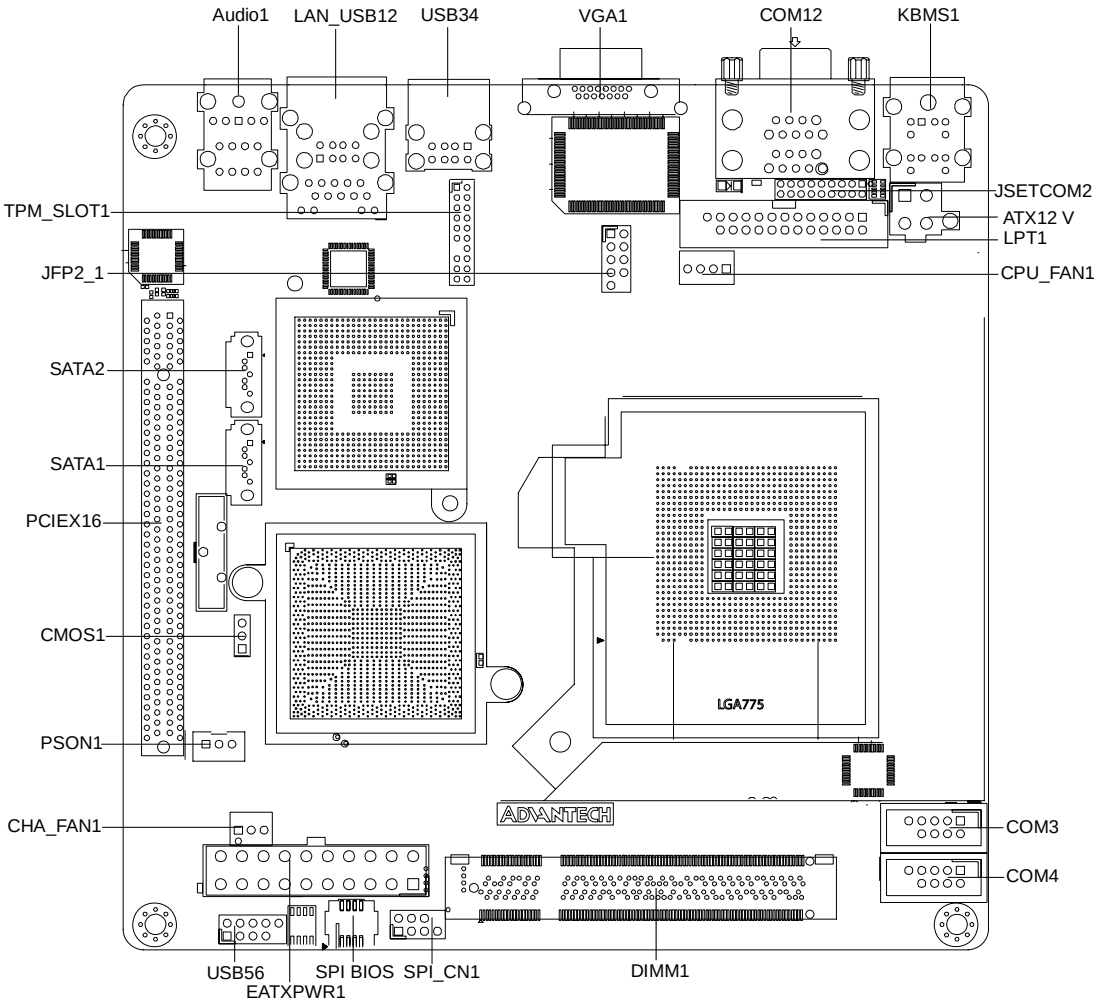


Figure 1.1 Jumper and Connector Location

Figure 1.2 I/O Connectors

1.6 AIMB-262 Block Diagram

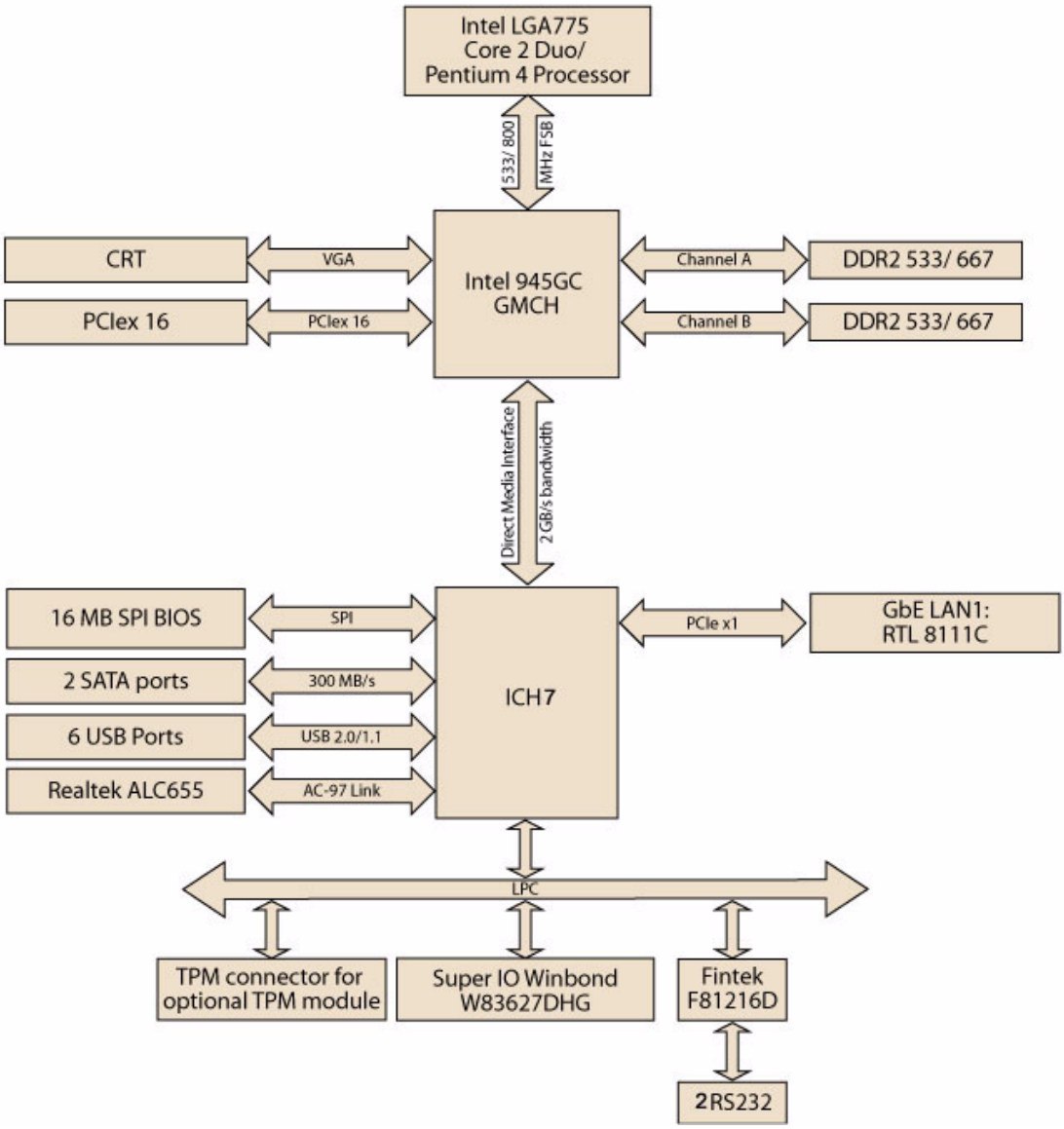


Figure 1.3 AIMB-262 Block Diagram

1.7 Safety Precautions

Warning! *Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.*

Caution! *Always ground yourself to remove any static charge before touching the motherboard. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis.*

Caution! *The computer is provided with a battery-powered Real-time Clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by the manufacturer. Discard used batteries according to manufacturer's instructions.*

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.*

1.8 Jumper Settings

This section provides instructions on how to configure your motherboard by setting the jumpers. It also includes the motherboards's default settings and your options for each jumper.

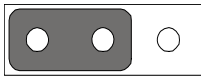
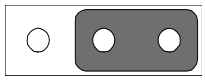
1.8.1 How to set jumpers

You can configure your motherboard to match the needs of your application by setting the jumpers. A jumper is a metal bridge that closes an electrical 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” (or turn ON) a jumper, you connect the pins with the clip. To “open” (or turn OFF) a jumper, you remove the clip. Sometimes a jumper consists of a set of three pins, labeled 1, 2, and 3. In this case you connect either pins 1 and 2, or 2 and 3. A pair of needle-nose pliers may be useful when setting jumpers.

1.8.2 CMOS clear (CMOS1)

The AIMB-262 motherboard contains a jumper that can erase CMOS data and reset the system BIOS information. Normally this jumper should be set with pins 1-2 closed. If you want to reset the CMOS data, set J1 to 2-3 closed for just a few seconds, and then move the jumper back to 1-2 closed. This procedure will reset the CMOS to its default setting.

Table 1.3: CMOS1

Function	Jumper Setting	
*Keep CMOS data	1 	1-2 closed
Clear CMOS data	1 	2-3 closed

* Default

1.8.3 COM2 RS 232/422/485 mode selector (JSETCOM2)

Users can use JSETCOM1 to select among RS 232/422/485 modes for COM2. The default setting is RS 232.

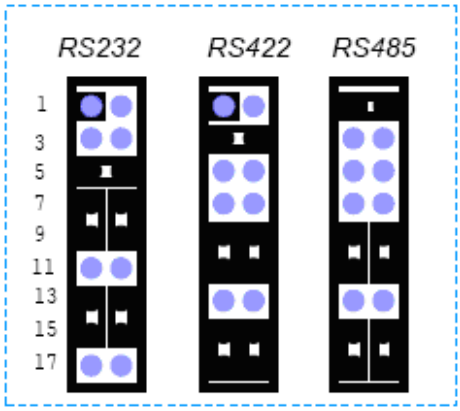


Table 1.4: COM2 RS 232/422/485 mode selector (JSETCOM2)

Function	Jumper Setting
*RS232	(5-6) + (7-9) + (8-10) + (13-15) + (14-16) closed
RS422	(3-4) + (9-11) + (10-12) + (15-17) + (16-18) closed
RS-485	(1-2) + (9-11) + (10-12) + (15-17) + (16-18) closed
*: Default	

1.9 System Memory

The AIMB-262 has two sockets for 200-pin SODIMMx2.

All these sockets use 1.8 V unbuffered double data rate synchronous DRAMs (DDR SDRAM). They are available in capacities of 256, 512 and 1024 MB. The sockets can be filled in any combination with DIMMs of any size, giving a total memory size between 256 MB and 2 GB. AIMB-262 does NOT support ECC (error checking and correction).

1.10 Memory Installation Procedures

To install SODIMMs, first make sure the two handles of the SODIMM socket are in the “open” position. i.e. The handles lean outward. Slowly slide the SODIMM module along the plastic guides on both ends of the socket. Then press the SODIMM module right down into the socket, until you hear a click. This is when the two handles have automatically locked the memory module into the correct position of the SODIMM socket. To remove the memory module, just push both handles outward, and the memory module will be ejected by the mechanism in the socket.

1.11 Cache Memory

The AIMB-262 supports a CPU with one of the following built-in fullspeed L2 caches:

- 2048 MB for Intel Core 2 Duo CPU
- 1024 KB for Pentium dual core
- 1024 KB / 2048 KB for Pentium 4 CPUs
- 256 KB / 512 KB for Celeron D CPUs

The built-in second-level cache in the processor yields much higher performance than conventional external cache memories.

1.12 Processor Installation

The AIMB-262 is designed for LGA775, Intel Pentium 4, Intel Core 2 Duo, Celeron D and Intel Pentium dual core D processor.

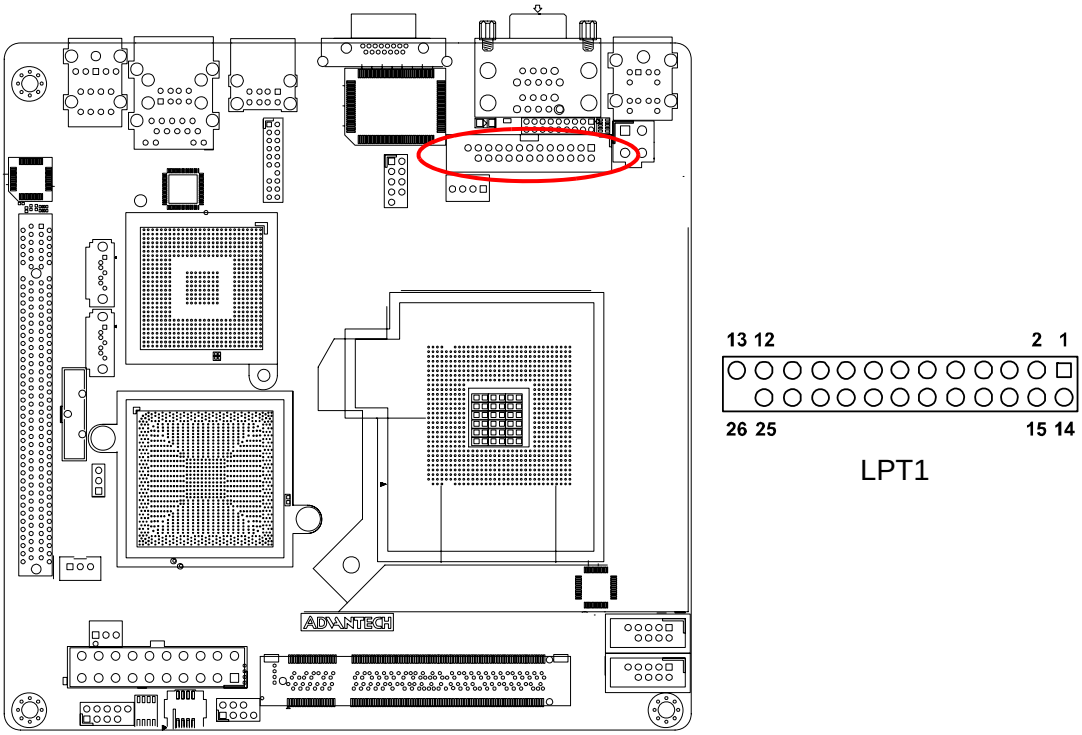
Chapter 2

Connecting Peripherals

2.1 Introduction

You can access most of the connectors from the top of the board as it is being installed in the chassis. If you have a number of cards installed or have a packed chassis, you may need to partially remove the card to make all the connections.

2.2 Parallel Port (LPT1)



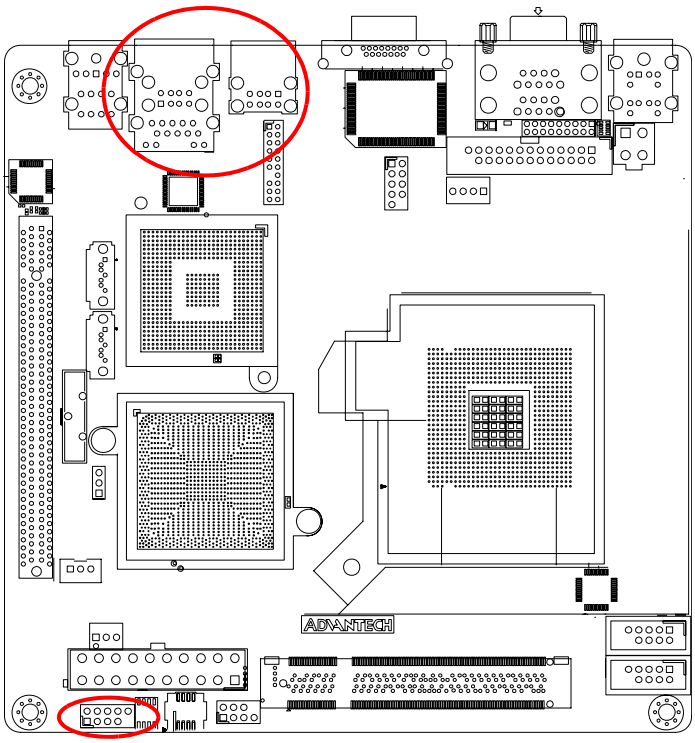
The parallel port is normally used to connect the motherboard to a printer. The AIMB-262 includes an onboard parallel port, accessed through a 25-pin flat-cable connector, LPT1.

Note! *Parallel cable is not enclosed in the box as standard accessory. The order part number is 1700008809.*

2.3 USB Ports (LAN1_USB12/USB34/USB56)

The AIMB-262 provides up to six ports of USB (Universal Serial Bus). The USB interface complies with USB Specification Rev. 2.0 supporting transmission rate up to 480 Mbps and is fuse protected. The USB interface can be disabled in the system BIOS setup.

The AIMB-262 is equipped with one high-performance 1000 Mbps Ethernet LANs. They are supported by all major network operating systems. The RJ-45 jacks on the rear plate provide convenient or 1000Base-T operation.



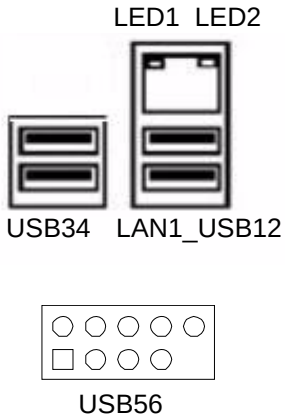
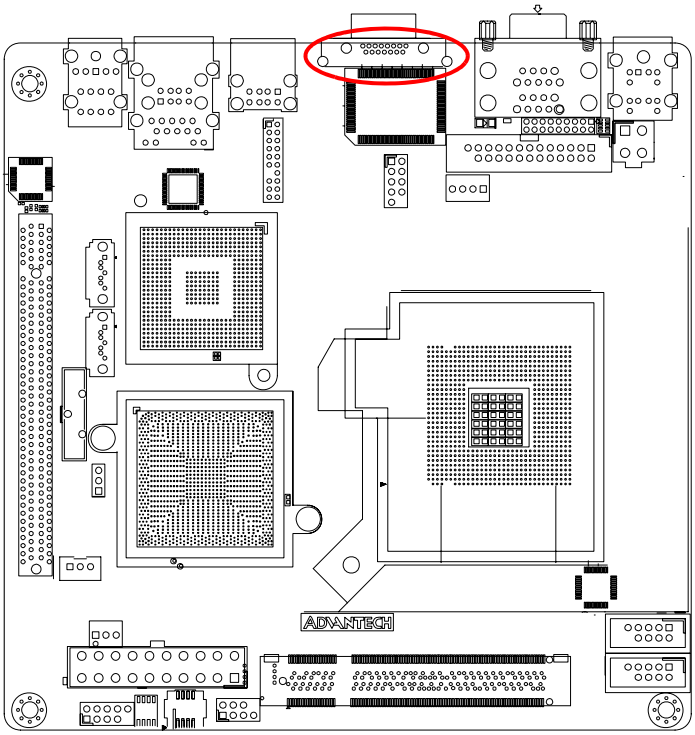
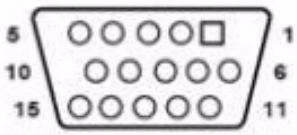


Table 2.1: LAN LED Indicator

LAN Mode	Lan Indicator
1 Gbps Link on	LED1 Green on
100 Mbps Link on	LED1 Orange on
Active	LED2 Green flash

2.4 VGA Connector (VGA1)

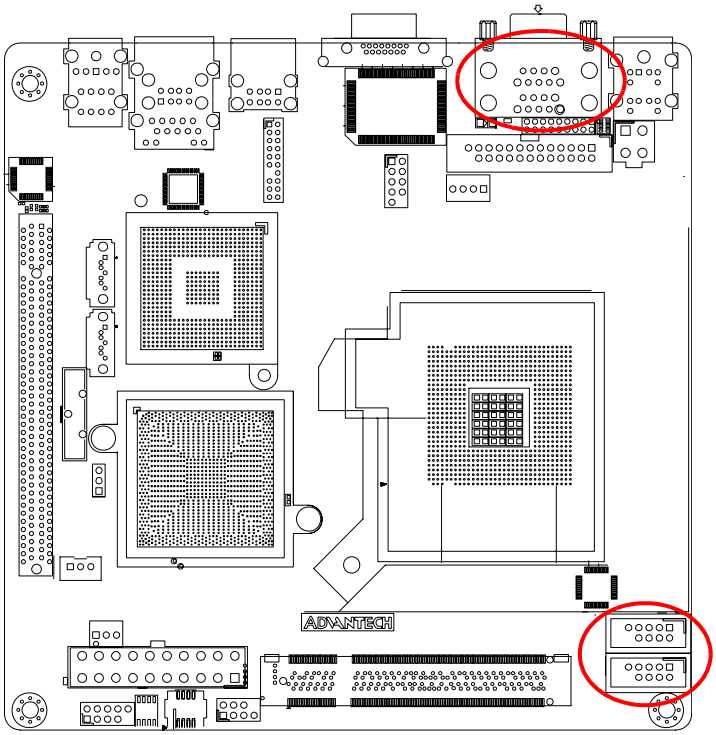


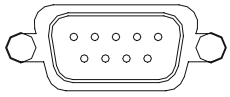


VGA1

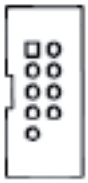
The AIMB-262 includes a VGA interface that can drive conventional CRT displays. VGA1 is a standard 15-pin D-SUB connector commonly used for VGA. Pin assignments for CRT connector VGA1 are detailed in Appendix B.

2.5 Serial Ports (COM1~COM4)





COM1/COM2



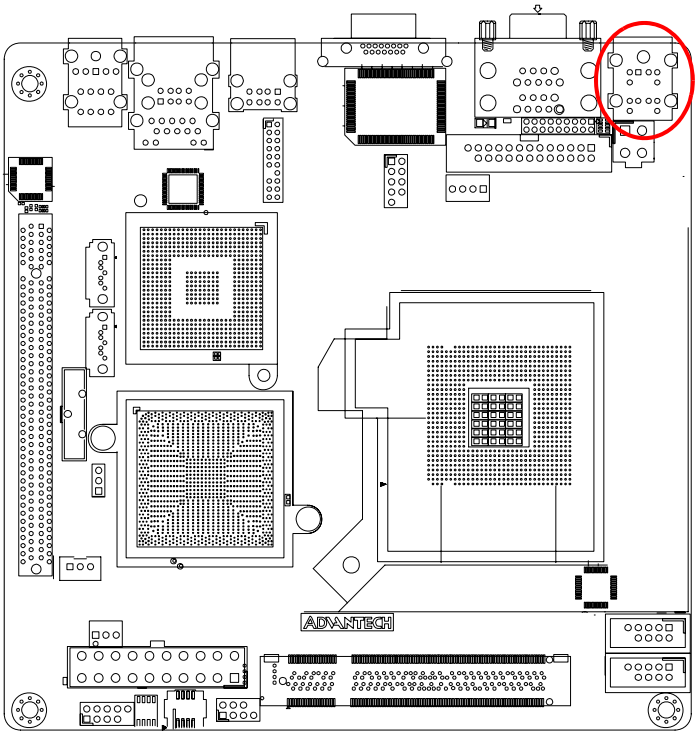
COM3/COM4

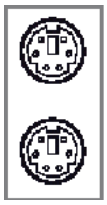
AIMB-262 supports four serial ports. 1 of RS-232/422/485 - COM2, COM1, COM3 and COM4. The user can use JSETCOM2 to select among RS 232/422/485 modes for COM2. These ports can connect to serial devices, such as a mouse or a printer, or to a communications network.

The IRQ and address ranges for both ports are fixed. However, if you want to disable the port or change these parameters later, you can do this in the system BIOS setup.

Different devices implement the RS-232/422/485 standards in different ways. If you are having problems with a serial device, be sure to check the pin assignments for the connector.

2.6 PS/2 Keyboard and Mouse Connector (KBMS1)

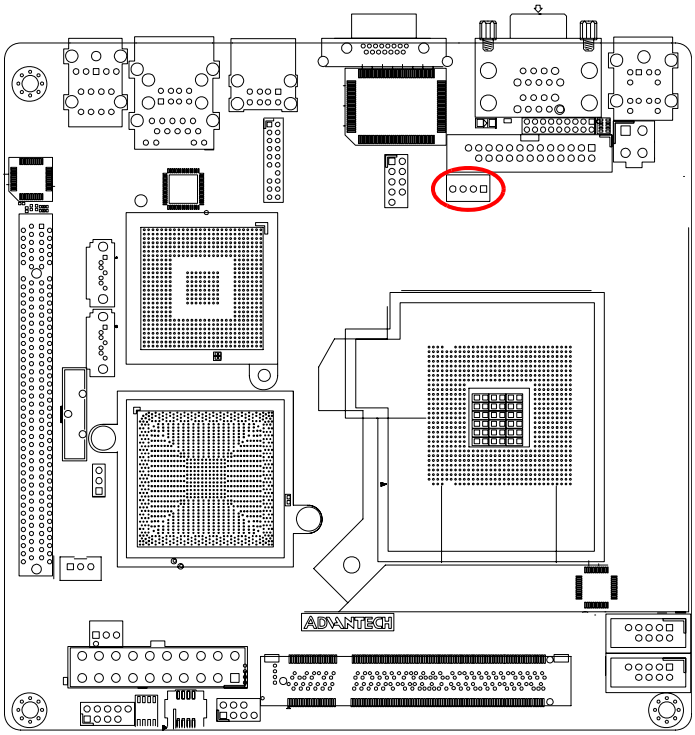


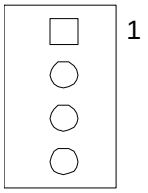


KBMS1

Two 6-pin mini-DIN connectors (KBMS1) on the motherboard provide connection to a PS/2 keyboard and a PS/2 mouse, respectively.

2.7 CPU Fan Connector (CPU_FAN1)

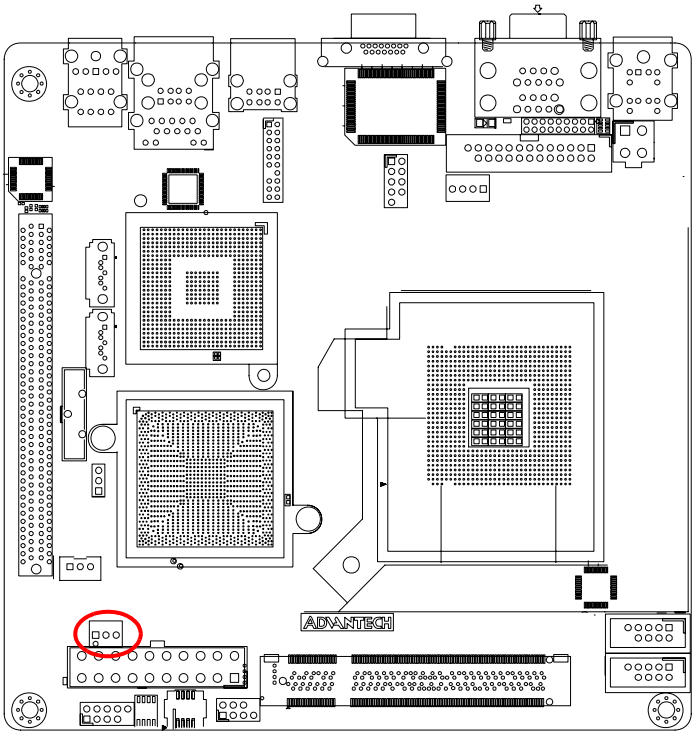


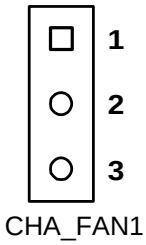


CPU_FAN1

If fan is used, this connector supports cooling fans of 500 mA (6 W) or less.

2.8 System FAN Connector (CHA_FAN1)

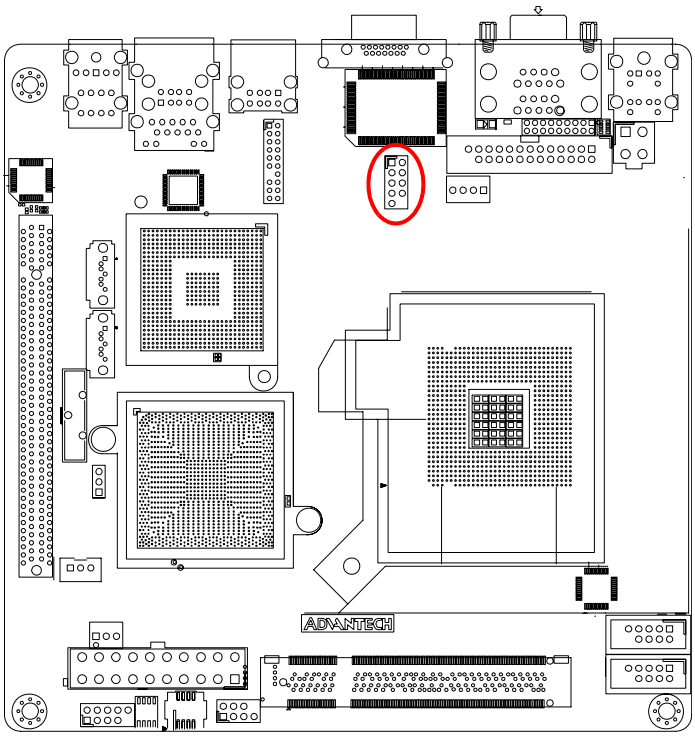


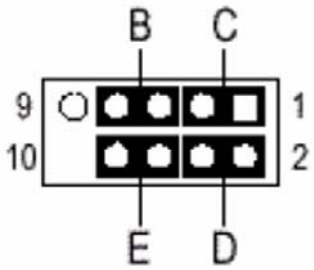


If fan is used, this connector supports cooling fans of 500 mA (6 W) or less.

2.9 Front Panel Connectors (JFP2_1)

There are several external switches to monitor and control the AIMB-262.





JFP2_1

B	5 and 7	Reset switch
C	1 and 3	Hard driver activity LED
D	2 and 4	Power/Sleep/Waiting LED
E	6 and 8	Power switch

2.9.1 Power/Sleep Waiting LED (JFP2_1)

JFP2_1 pins 2 & 4 is a 2-pin connector for the power LED. Refer to Appendix B for detailed information on the pin assignments. If a PS/2 or ATX power supply is used, the system's power LED status will be as indicated below:

Table 2.2: ATX power supply LED status (No support for AT power)

Power mode	LED (ATX Power Mode) (On/off by tentative button)	LED (AT power Mode) (On/off by switching power supply)	LED (AT power Mode) (On/off by front panel switch)
PSON1 (On Back plane) Jumper setting	2-3 pin closed	1-2 pin closed	Connect 1-2 pin cable with switch
System On	On	On	On
System Suspend	Fast flashes	Fast flashes	Fast flashes
System Off	Slow flashes	Off	Off

2.9.2 Reset Connector (JFP2_1 pins 5 & 7)

Many computer cases offer the convenience of a reset button. Connect the wire from the reset button.

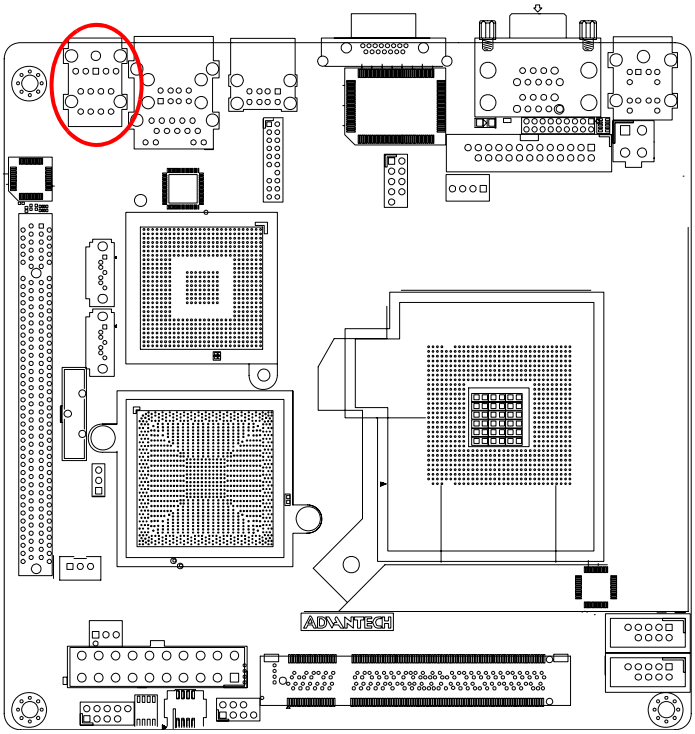
2.9.3 HDD LED Connector (JFP2_1 pins 1 & 3)

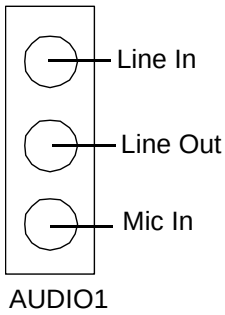
You can connect an LED to connector JFP2 to indicate when the HDD is active.

2.9.4 ATX Soft Power Switch (JFP2_1 pins 6 & 8)

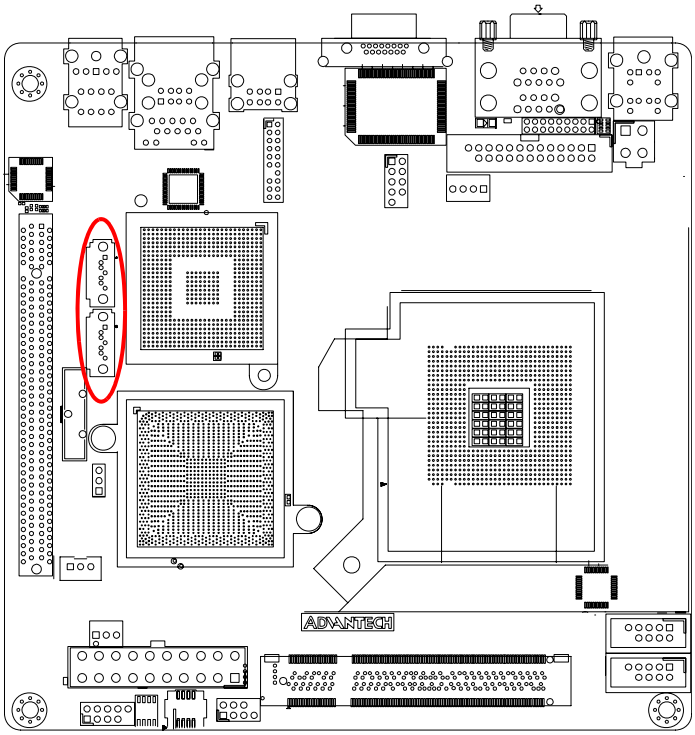
If your computer case is equipped with an ATX power supply, you should connect the power on/off button on your computer case to JFP1 pins 1&2. This connection enables you to turn your computer on and off.

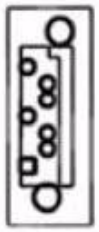
2.10 Line In, Line Out, Mic In Connector (AUDIO1)





2.11 Serial ATA Interface (SATA1, SATA2)

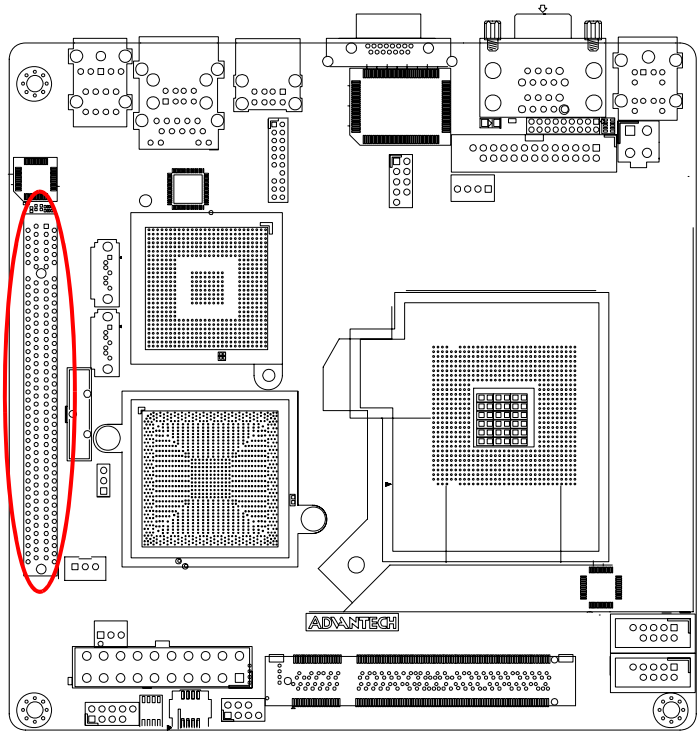




SATA1, SATA2

AIMB-262 features a high performance serial ATA interface (up to 300 MB/s) which eases cabling to hard drives with thin and long cables.

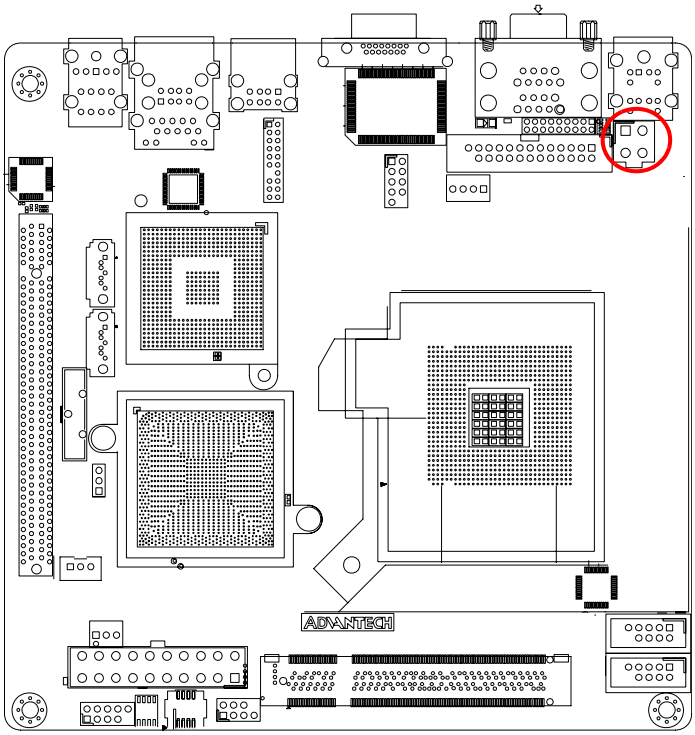
2.12 PCIe x 16 slot (PCIE X 16)

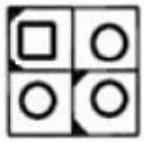


The AIMB-262 provides 1 PCIe x 16 slot.

2.13 Auxiliary 4-pin power connector (ATX)

To ensure the enough power is supplied to the motherboard, one auxiliary 4 pin power connector is available on the AIMB-262. ATX must be used to provide sufficient 12 V power to ensure the stable operation of the system.

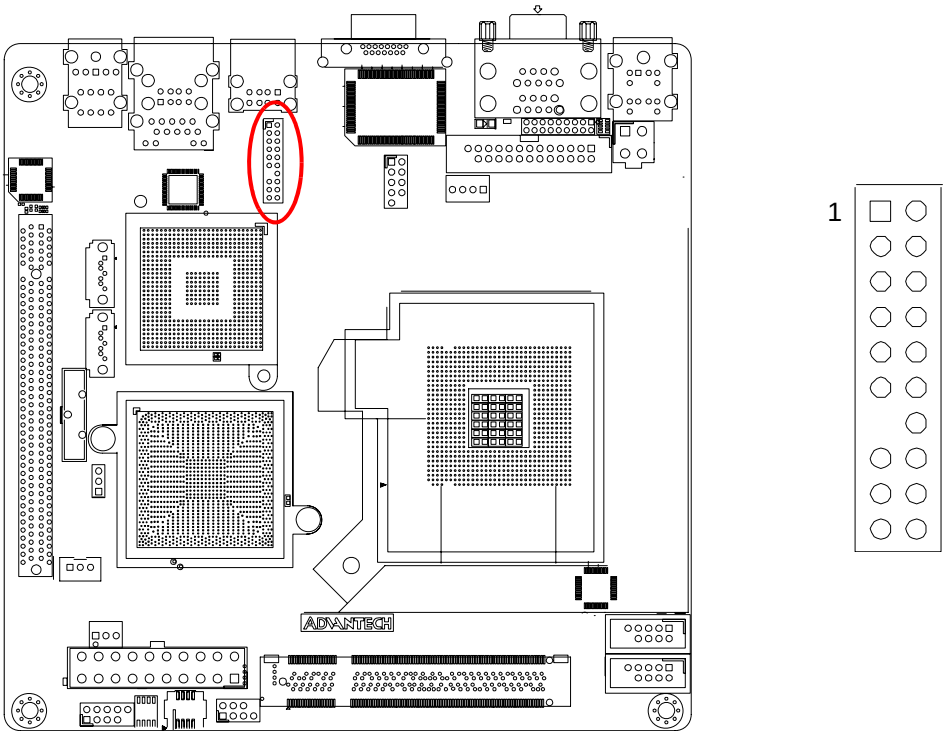




ATX

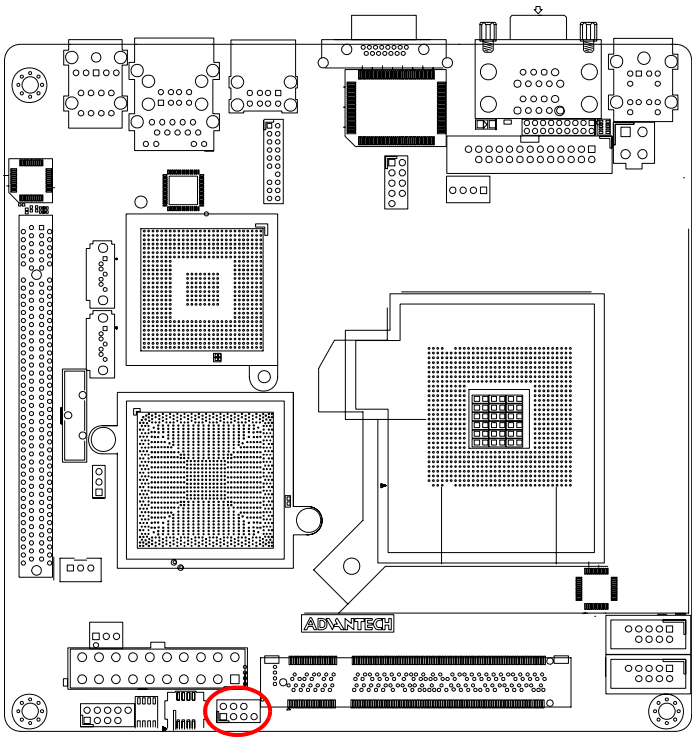
2.14 TPM connector (20-1 pin TPM_SLOT)

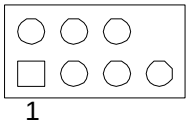
This connector supports a Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. TPM system also helps enhance network security, protects digital identities, and ensures platform integrity. The order part number of TPM module is 9680004525.



2.15 SPI Flash connector(SPI_CN1)

SPI flash card pin header which can flash BIOS while AIMB-262 can not be power on and ensures platform integrity.





Chapter 3

BIOS Operation

3.1 Introduction

Advantech provides full-featured AwardBIOS 6.0 and delivers the superior performance, compatibility and functionality that manufactures of Industry PC and Embedded boards, its many options and extensions let you customize your products to a wide range of designs and target markets.

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

You can use Advantech's utilities to select and install features to suit your designs for customers need.

3.2 BIOS Setup

The AIMB-262 Series system has build-in AwardBIOS with a CMOS SETUP utility which allows user to configure required settings or to activate certain system features.

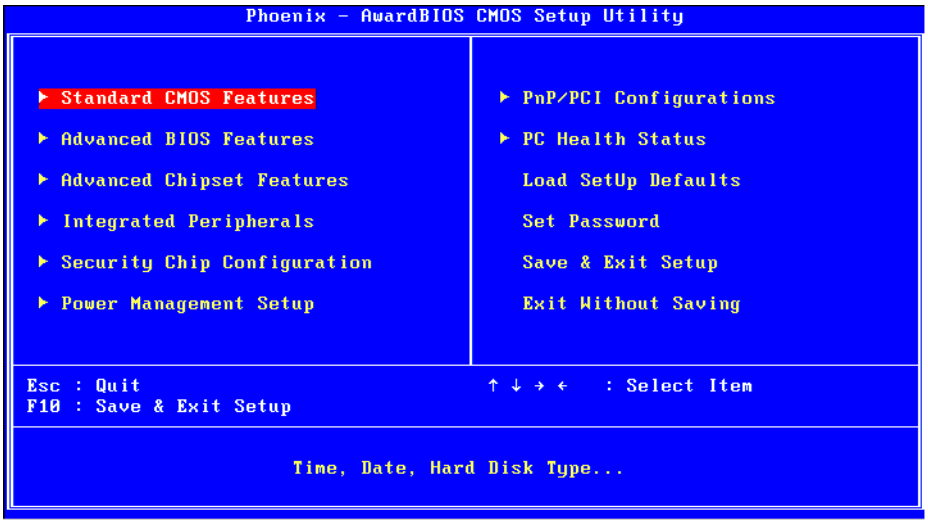
The CMOS SETUP saves the configuration in the CMOS RAM of the motherboard. When the power is turned off, the battery on the board supplies the necessary power to the CMOS RAM.

When the power is turned on, press the <Del> button during the BIOS POST (Power-On Self Test) will take you to the CMOS SETUP screen.

Control Keys	
< ↑ >< ↓ >< ← >< → >	Move to select item
<Enter>	Select Item
<Esc>	Main Menu - Quit and not save changes into CMOS Sub Menu - Exit current page and return to Main Menu
<Page Up/+>	Increase the numeric value or make changes
<Page Down/->	Decrease the numeric value or make changes
<F1>	General help, for Setup Sub Menu
<F2>	Item Help
<F5>	Load Previous Values
<F7>	Load Setup Default
<F10>	Save all CMOS changes

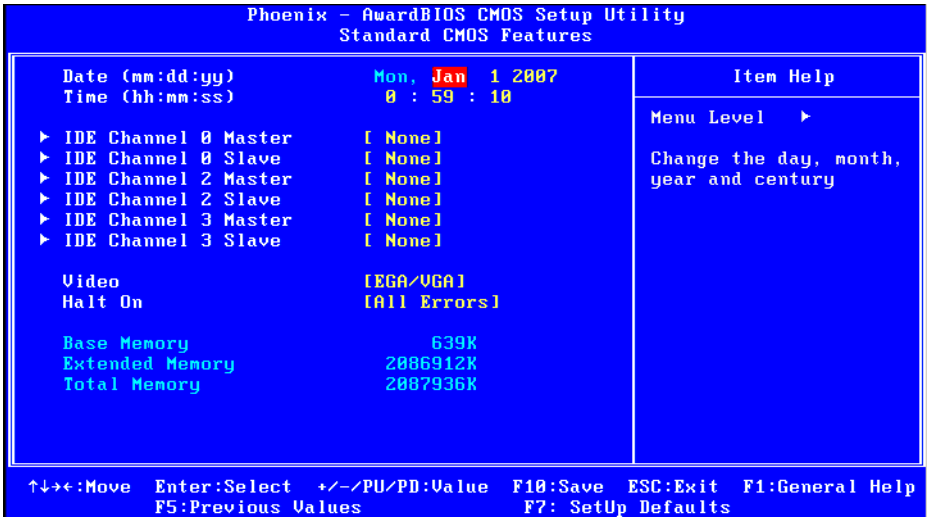
3.2.1 Main Menu

Press <Del> to enter AwardBIOS CMOS Setup Utility, the Main Menu will appear on the screen. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.



- Standard CMOS Features
  This setup page includes all the items in standard compatible BIOS.
- Advanced BIOS Features
  This setup page includes all the items of Award BIOS enhanced features.
- Advanced Chipset Features
  This setup page includes all the items of Chipset configuration features.
- Integrated Peripherals
  This setup page includes all onboard peripheral devices.
- Security chip configuration
  This SETUP page includes all the items of Trusted Module Configuration features. This sub-menu item only appears when Trusted Module plug in.
- Power Management Setup
  This setup page includes all the items of Power Management features.
- PnP/PCI Configurations
  This setup page includes PnP OS and PCI device configuration.
- PC Health Status
  This setup page includes the system auto detect CPU and system temperature, voltage, fan speed.
- Frequency/Voltage Control
  This setup page includes CPU host clock control, frequency ratio and voltage.
- Load Setup Defaults
  This setup page includes Load system optimized value, and the system would be in best performance configuration.
- Set Password
  Establish, change or disable password.
- Save & Exit Setup
  Save CMOS value settings to CMOS and exit BIOS setup.
- Exit Without Saving
  Abandon all CMOS value changes and exit BIOS setup.

3.2.2 Standard CMOS Features



- Date

  The date format is <week>, <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

- Time

  The times format in <hour> <minute> <second>, base on the 24-hour time.

- IDE Channel 0 Master/Slave

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

- Video

- 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)

- Base Memory

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

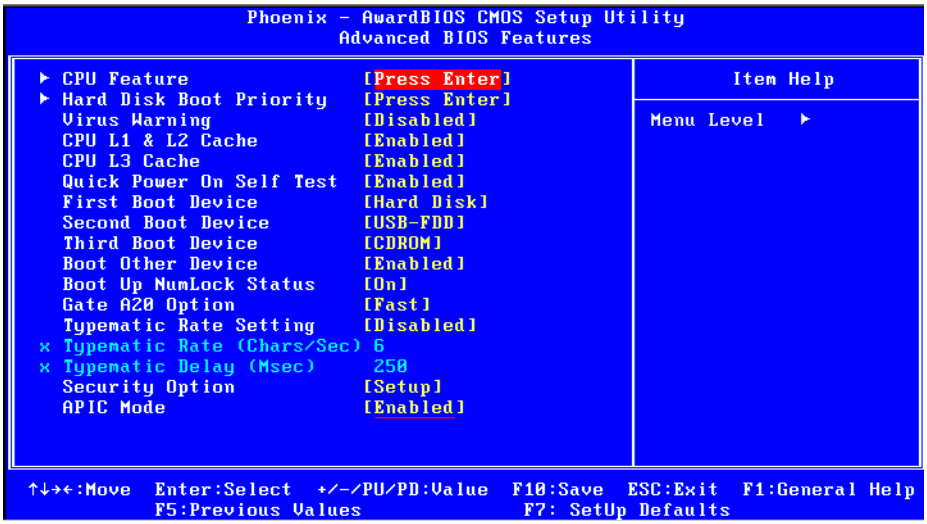
- Extended Memory

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

- Total Memory

  This item displays the total system memory size.

3.2.3 Advanced BIOS Features



- CPU Feature

  This item allows user to adjust CPU features.

- Hard Disk Boot Priority

  This item allows user to select boot sequence for system device HDD, USB-HDD, SCSI, RAID.

- Virus Warning[Disabled]

  Enables or disables the virus warning.

- CPU L3 Cache

  This item allows user to enable CPU L3 cache.

- Quick Power On Self Test[Enabled]

  This field speeds up the Power-On Self Test (POST) routine by skipping retesting a second, third and forth time. Setup setting default is enabled.

- First / Second / Third / Other Boot Drive

Hard Disk	Select boot device priority by Hard Disk.
CDROM	Select boot device priority by CDROM.
USB-FDD	Select boot device priority by USB-FDD.
USB-ZIP	Select boot device priority by USB-ZIP.
USB-CDROM	Select boot device priority by USB-CDROM.
LAN	Select boot device priority by LAN.
Disabled	Disable this boot function.

- Gate A20 Option [Fast]

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

- Typematic Rate Setting

  This item enables users to set the two typematic controls items.

  This field controls the speed at

  – Typematic Rate (Chars/Sec)

  This item controls the speed at system registers repeated keystrokes.

  Eight settings are 6, 8, 10, 12, 15, 20, 24 and 30.

  – Typematic Delay (Msec)

  This item sets the time interval for displaying the first and second characters.

  Four delay rate options are 250, 500, 750 and 1000.

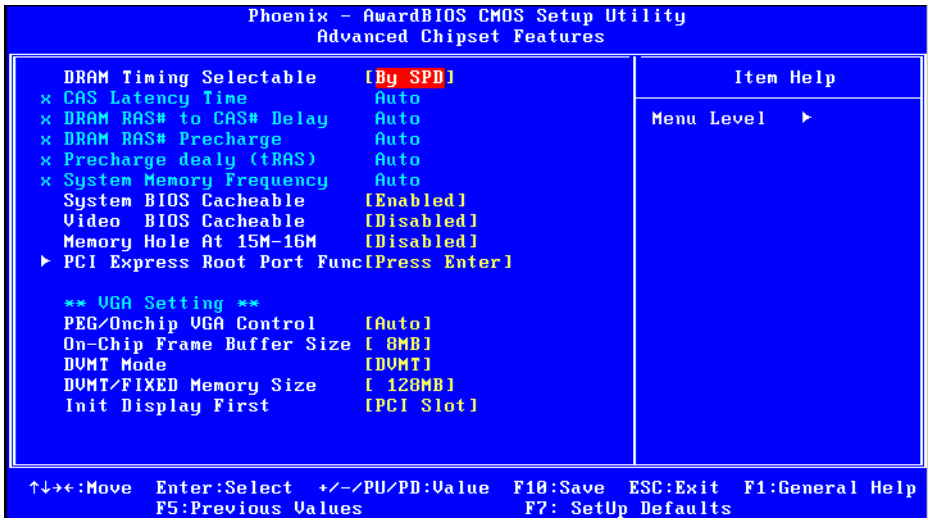
- Security Option [Setup]

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)

- APIC Mode [Enabled]

  This item allows user to enabled of disabled “Advanced Programmable Interrupt Controller”. APIC is implemented in the motherboard and must be supported by the operating system, and it extends the number of IRQ's available.

3.2.4 Advanced Chipset Features



Note! *This “Advanced Chipset Features” option controls the configuration of the board’s chipset, this page is developed by Chipset independent, for control chipset register setting and fine tune system performance. It is strongly recommended only technical users make changes to the default settings.*

- DRAM Timing Selectable [By SPD]

  This item enables users to set the optimal timings for items 2 through 5, system default setting of “By SPD” to follow the SPD information and ensure the system running in stable and optimal performance.

- CAS Latency Time [Auto]

  This item enables users to set the timing delay in clock cycles before SDRAM start a read command after receiving it.

- DRAM RAS# to CAS# Delay [Auto]

  This item enables users to set the timing of the transition from RAS (row address strobe) to CAS (column address strobe) as both rows and column are separately addressed shortly after DRAM is refreshed.

- DRAM RAS# Precharge [Auto]

  This item enables users to set the DRAM RAS# precharge timing, system default is setting to “Auto” to reference the data from SPD ROM.

- Prechage delay (tRAS) [Auto]

  This item allows user to adjust memory precharge time.

- System Memory Frequency [Auto]

  This item allows user to adjust memory frequency to improvement performance.
- System BIOS Cacheable [Enabled]

  This item allows the system BIOS to be cached to allow faster execution and better performance.
- Video BIOS Cacheable [Disabled]

  This item allows the video BIOS to be cached to allow faster execution and better performance.
- 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 of the expansion cards can only access memory at this area.
- PCI Express Root port Func [Press Enter]

  This item allows the user to adjust PCIE port on,off or auto.
- On-Chip Frame Buffer Size[8 MB]

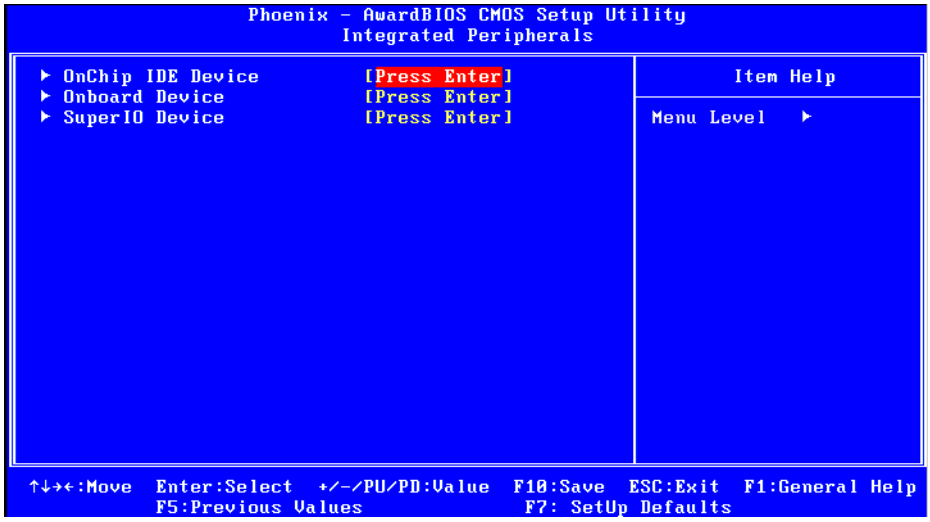
  This item allows the user to adjust the on-chip frame buffer size 8 MB or 1 MB.
- DVMT Mode [DVMT]

  This item allows the user to adjust Intel's Dynamic Video Memory Technology (DVMT). BIOS provides three options to choose (DVMT,FIXED and Both).
- DVMT/FIXED Memory Size [128MB]

  This item allows the user to adjust DVMT/FIXED graphics memory size.
- Init Display First

  This item is setting for start up Video output from PCI Express or Onboard device.

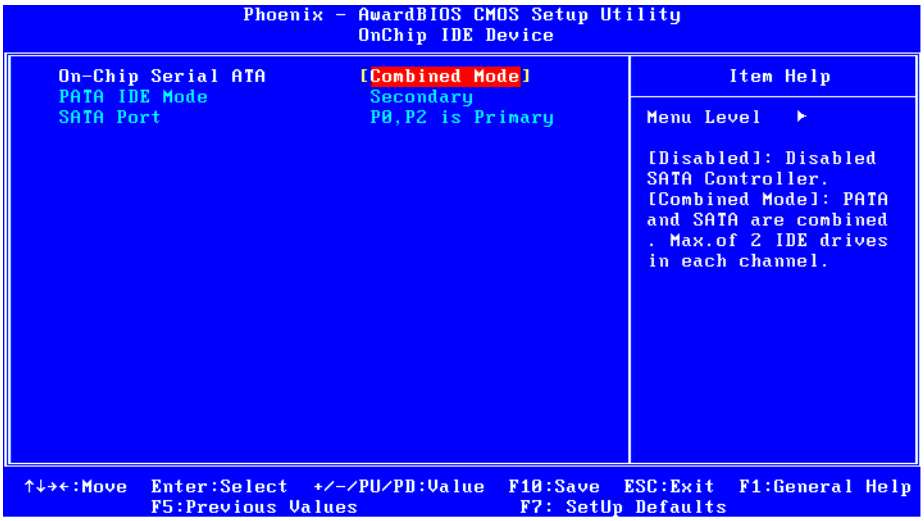
3.2.5 Integrated Peripherals



Note! *This "Integrated Peripherals" option controls the configuration of the board's chipset, includes IDE, ATA, SATA, USB, AC97, MC97 and Super IO and Sensor devices, this page is developed by Chipset independent.*

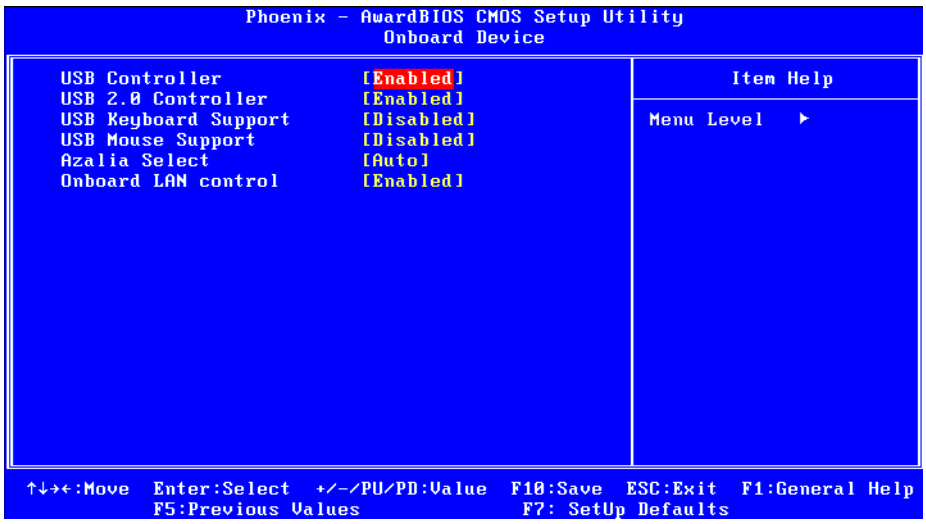
- OnChip IDE Device

  This item enables users to set the OnChip IDE device status, including some of new chipsets also support for SATA device (Serial-ATA).



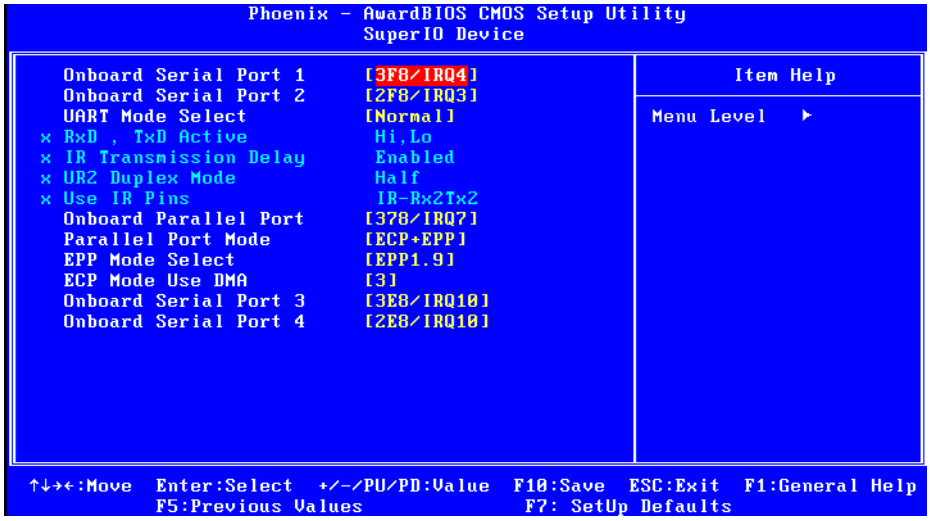
- Onboard Device

  This item enables users to set the Onboard device status, includes enable USB, AC97 and LAN devices.



- Super IO Device

  This item enables users to set the Super IO device status, including enable COM, LPT and IR.



- Onboard Serial port 1 [3F8 / IRQ4]

  This item allows user to adjust serial port 1 of address and IRQ.
- Onboard Serial port 2 [2F8/ IRQ3]

  This item allows user to adjust serial port 2 of address and IRQ.
- UART Mode Select [Normal]

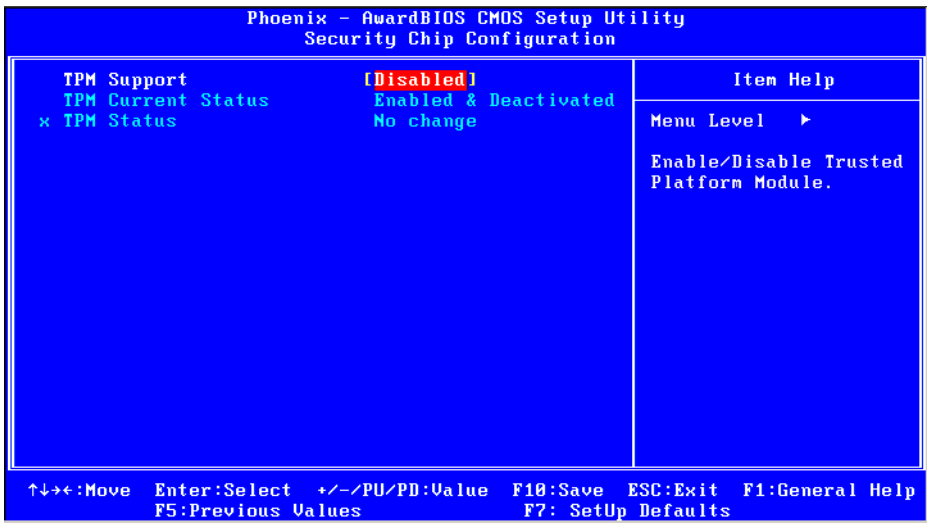
  This item allows you to select UART mode. The choices: “IrDA”, “ASKIR”, and “Normal”.
- RxD, TxD Active

  This item allows you to determine the active level of the RxD and TxD serial lines. The choices: “Hi, Hi”, “Lo, Lo”, “Lo, H”, and “Hi, Lo”.
- IR Transmission Delay

  This item allows you to enable/disable IR transmission delay. The options are “Enabled” and “Disabled”.

- UR2 Duplex Mode
  This item allows you to select the IR half/full duplex function. The options are “Half” and “Full”.
- Use IR Pins
  The options are “RxD2, TxD2” and “IR-Rx2Tx2”.
- Onboard Parallel Port [378/IRQ7]
  This item allows user to adjust parallel port of address and IRQ.
- Parallel Port Mode [ECP+EPP]
  This item allows user to adjust parallel port mode.
- EPP Mode Select [EPP1.9]
  This field allows you to select EPP port type 1.7 or 1.9. The choices are “EPP1.9” and “EPP1.7”.
- ECP Mode Use DMA [3]
  This item allows user to adjust ECP DMA resource.
- Onboard Serial port 3 [3E8/IRQ10]
  This item allows user to adjust serial port 3 of address and IRQ.
- Onboard Serial port 4 [2E8/IRQ10]
  This item allows user to adjust serial port 4 of address and IRQ.

3.2.6 Security Chip Configuration



3.2.7 TPM Support

The items in this menu allow you to set the TPM (Trusted Platform Module) features. Select an item and then press <Enabled> to display the configuration options.

Note! *To enable the TPM function, set the TPM Support item to [Enabled] and then save the change , After rebooting, the TPM Configuration menu will change into the following one.*

3.2.8 Power Management Setup

```
Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup

▸ PCI Express PM Function      [Press Enter]        Item Help
  Power-Supply Type            [ATX]
  ACPI Function                [Enabled]            Menu Level  ▸
  ACPI Suspend Type            [S3(STR)]
  Run VGABIOS if S3 Resume     [Auto]
  Power Management             [User Define]
  Video Off Method             [DPMS]
  Video Off In Suspend         [Yes]
  Suspend Type                 [Stop Grant]
  MODEM Use IRQ                [3]
  Suspend Mode                 [Disabled]
  Soft-Off by PWR-BTTN         [Instant-Off]
  PowerOn by LAN               [Disabled]
  PowerOn by Modem             [Disabled]
  USB KB Wake-Up From S3       [Disabled]
  PowerOn by Alarm             [Disabled]
x  Date(of Month) Alarm          0
x  Time(hh:mm:ss) Alarm          0 :  0 :  0

↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
           F5:Previous Values             F7: SetUp Defaults
```

```
Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup

  Suspend Type                 [Stop Grant]         Item Help
  MODEM Use IRQ                [3]
  Suspend Mode                 [Disabled]           Menu Level  ▸
  Soft-Off by PWR-BTTN         [Instant-Off]
  PowerOn by LAN               [Disabled]
  PowerOn by Modem             [Disabled]
  USB KB Wake-Up From S3       [Disabled]
  PowerOn by Alarm             [Disabled]
x  Date(of Month) Alarm          0
x  Time(hh:mm:ss) Alarm          0 :  0 :  0

  ** Reload Global Timer Events **
  Primary IDE 0                [Disabled]
  Primary IDE 1                [Disabled]
  Secondary IDE 0              [Disabled]
  Secondary IDE 1              [Disabled]
  FDD,COM,LPT Port             [Disabled]
  PCI PIRQ[A-D]#               [Disabled]
  PWRON After PWR-Fail         [Former-Sts]

↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
           F5:Previous Values             F7: SetUp Defaults
```

Note! *This "Power management Setup" option configure system to most effectively saving energy while operating in a manner consistent with your computer use style.*

- PCI Express PM Function

  This allow you to control Power On by onboard LAN chip feature.
- Power-Supply Type [ATX]

  This item allows user to set power-supply type ATX or AT mode.
- ACPI Function [Enabled]

  This item defines the ACPI (Advanced Configuration and Power Management) feature that makes hardware status information available to the operating system, and communicate PC and system devices for improving the power management.
- ACPI Suspend Type [S3(STR)]

  This item allows user to select sleep state when suspend.

  S1(POS) The suspend mode is equivalent to a software power down;

S3(STR)	The system shuts down with the exception of a refresh current to the system memory.

- Run VGA BIOS if S3 Resume [Auto]

  This item allows system to reinitialize VGA BIOS after system resume from ACPI S3 mode.

- Power Management [User Define]

  This item allows user to select system power saving mode.

Min Saving	Minimum power management. Suspend Mode=1 hr.
Max Saving	Maximum power management. Suspend Mode=1 min.
User Define	Allows user to set each mode individually. Suspend Mode= Disabled or 1 min ~1 hr.

- Video Off Method [DPMS]

  This item allows user to determine the manner is which the monitor is blanked.

V/H SYNC+Blank	This option will cause system to turn off vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS	Initial display power management signaling.

- Video Off In Suspend [Yes]

  This item allows user to turn off Video during system enter suspend mode.

- Suspend Type [Stop Grant]

  This item allows user to determine the suspend type.

- Modem use IRQ [3]

  This item allows user to determine the IRQ which the MODEM can use.

- Suspend Mode [Disabled]

  This item allows user to determine the time of system inactivity, all devices except the CPU will be shut off.

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

  This item allows user to define function of power button.

Instant-Off	Press power button then Power off instantly.
Delay 4 Sec	Press power button 4 sec. to Power off.

- PowerOn by LAN [Enabled]

  This item allows user to power on the system by LAN. The choices are “Enabled” and “Disabled”.

- PowerOn by Modem [Enalbed]

  This item allows user to power on the system by Modem. The choices are “Enabled” and “Disabled”.

- USB KB Wake_Up From S3 [Disabled]

  This item allows user to set USB keyboard wake up system from S3 Enable or Disable.

- PowerOn by Alarm [Disabled]

  The choices are “Enabled” and “Disabled”. Fields that follow below indicate date of current month and time of alarm settings, if enabled.

- Primary IDE 0 (1) and Secondary IDE 0 (1) [Disabled]

  When Enabled, the system will resume from suspend mode if Primary IDE 0 (1) or Secondary IDE 0 (1) becomes active. The choices are “Enabled” and “Disabled”.

- FDD, COM, LPT PORT [Disabled]

When Enabled, the system will resume from suspend mode if the FDD, interface, COM port, or LPT port is active. The choices are ”Enabled” and “Disabled”.

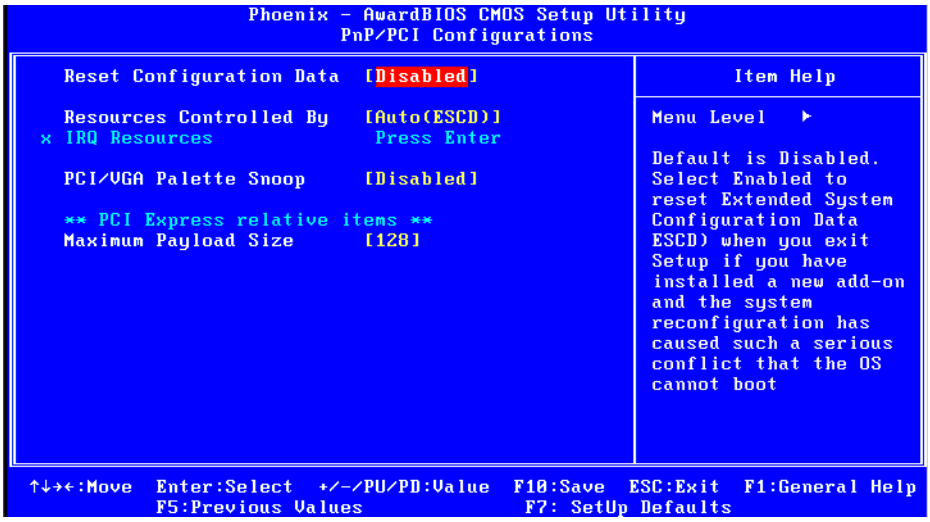
- PCI PIRQ [A-D]# [Disabled]

  When Enabled, the system resumes from suspend mode if an interrupt occurs. The choices are “Enabled” and “Disabled”.

- PWRON After PWR-Fail [Former-Sts]

  Use this to set up the system after power failure. The “Off” setting keeps the system powered off after power failure, the “On” setting boots up the system after failure, and the “Former-Sts” returns the system to the status before power failure.

3.2.9 PnP/PCI Configurations



- Reset Configuration Data [Disabled]

  The default is Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) if you have installed a new add-on card, and system configuration is in such a state that the OS cannot boot.

- Resources Controlled By [Auto(ESCD)]

  The commands here are “Auto(ESCD)” or “Manual”. Choosing “Manual” requires you to choose resources from the following sub-menu. “Auto(ESCD)” automatically configures all of the boot and Plug and Play devices, but you must be using Windows 95 or above.

- PCI / VGA Palette Snoop [Disabled]

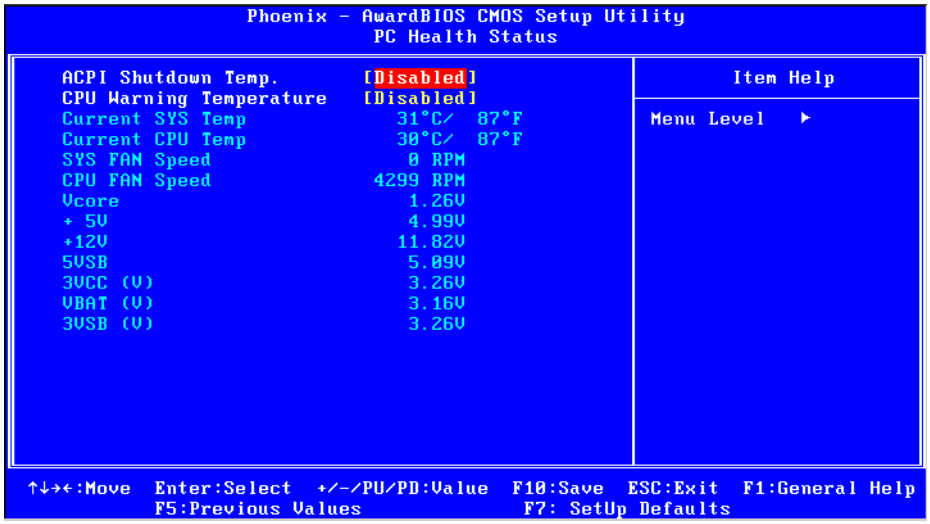
  This is set to “Disabled” by default.

- Maximum Payload Size [128]

  This item shows you the maximum TLP payload size for PCI Express devices.

  The option is setting to [128 bytes] by chipset specification.

3.2.10 PC Health Status



- ACPI Shutdown Temperature [Disabled]

  The system will shut down automatically when the CPU temperature is over the selected setting.
- CPU Warning Temperature [Disabled]

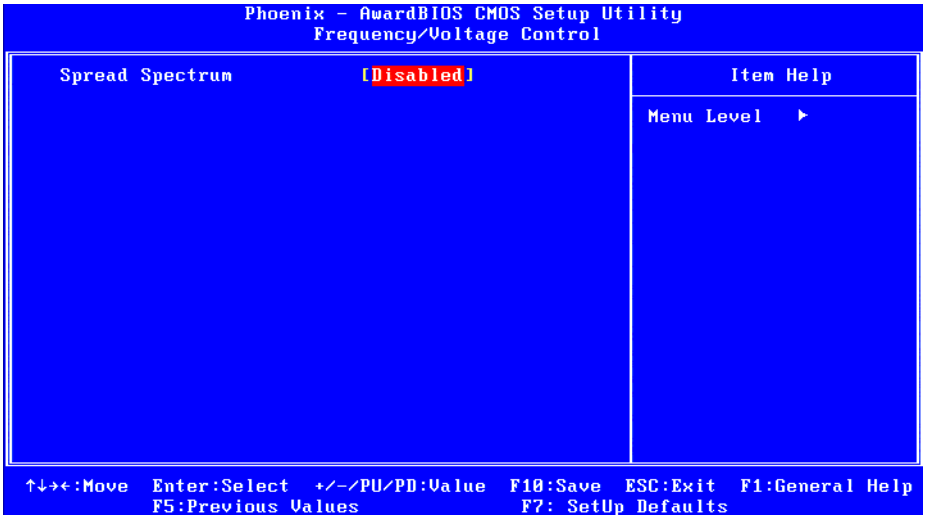
  The system will be warning automatically when the CPU temperature is over the selected setting.
- Current System Temperature

  This shows you the current temperature of system.
- Current CPU Temperature

  This shows the current CPU temperature.
- VCORE and Other Voltages

  This shows the voltage of VCORE, +3.3 V, +5 V, +12 V, -12 V, VBAT(V), and 5 VSB (V).

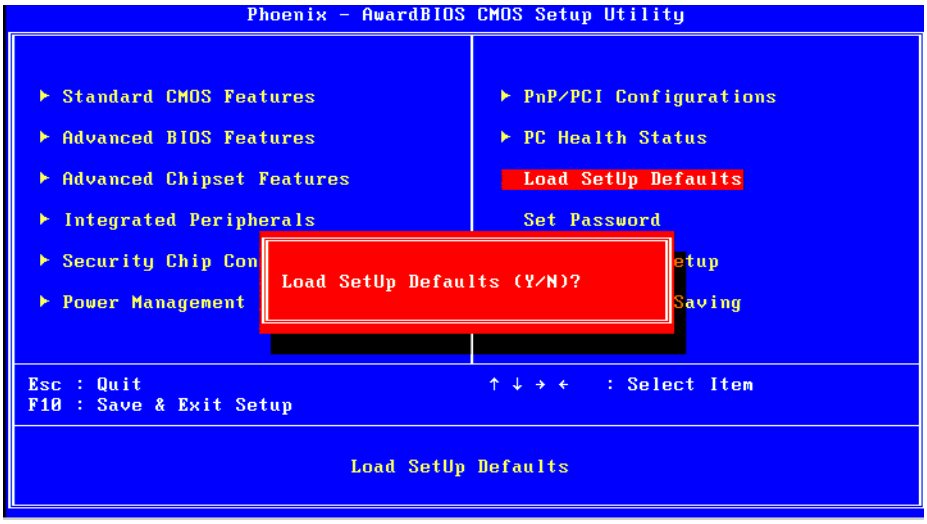
3.2.11 Frequency/Voltage Control



- Spread Spectrum [Disabled]

  This item enables users to set the spread spectrum modulation.

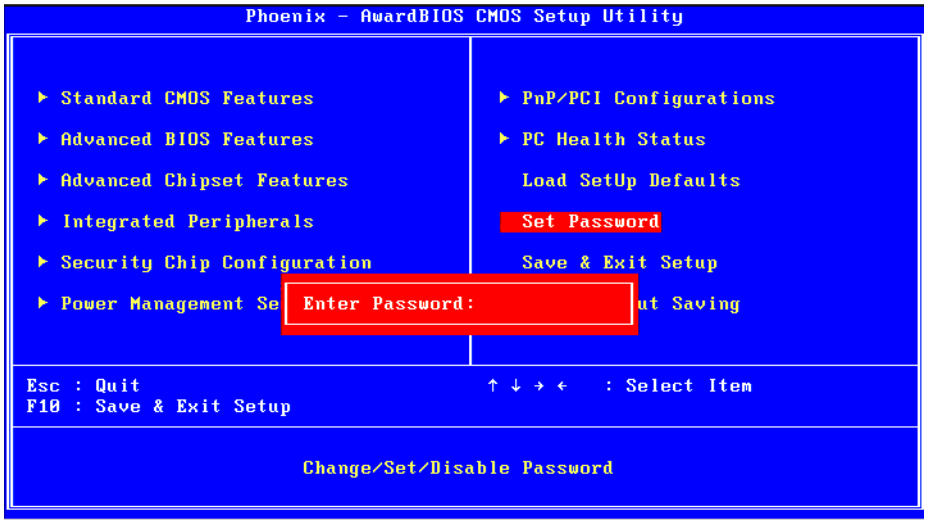
3.2.12 Load Setup Defaults



Note! *Load Setup 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 AIMB-262 Series system on.

3.2.13 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 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>.

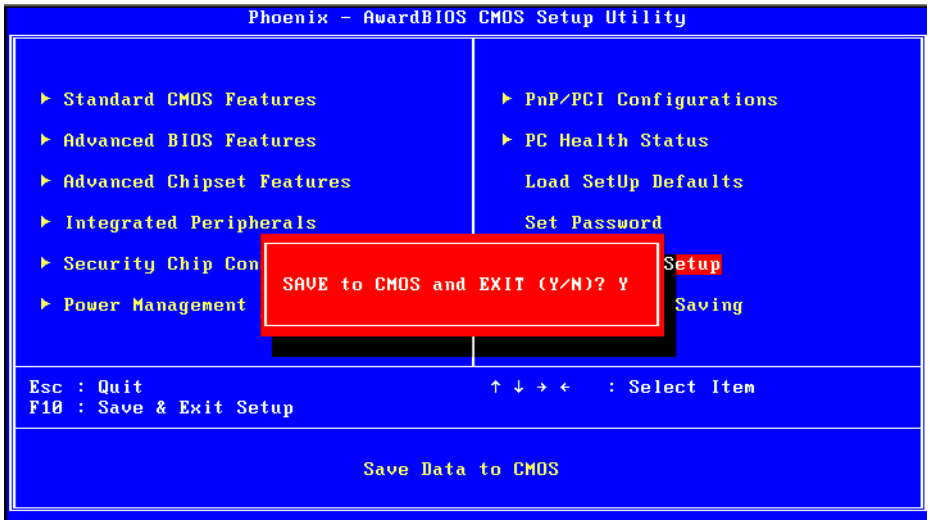
To Change Password

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, please 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>.

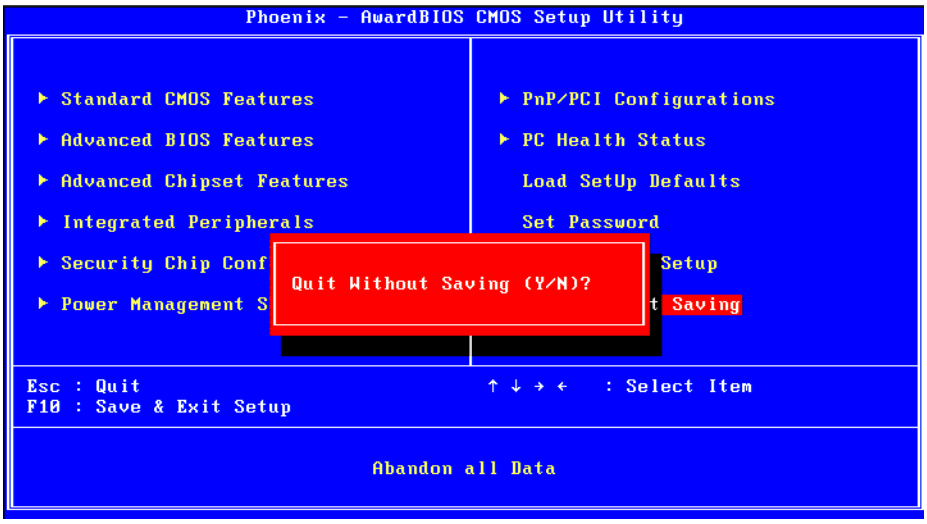
3.2.14 Save & Exit Setup



Note! *Type "Y" will quit the BIOS Setup Utility and save user setup value to CMOS.*

Type "N" will return to BIOS Setup Utility.

3.2.15 Quit without Saving



Note! *Type "Y" will quit the BIOS Setup Utility without saving to CMOS.*

Type "N" will return to BIOS Setup Utility.

Chapter 4

Chipset Software Installation Utility

4.1 Before you begin

To facilitate the installation of the enhanced display drivers and utility software, read the instructions in this chapter carefully. The drivers for the AIMB-262 are located on the software installation CD. The driver in the folder of the driver CD will guide and link you to the utilities and drivers under a Windows system. Updates are provided via Service Packs from Microsoft*.

Note! *The files on the software installation CD are compressed. Do not attempt to install the drivers by copying the files manually. You must use the supplied SETUP program to install the drivers.*

Before you begin, it is important to note that most display drivers need to have the relevant software application already installed in the system prior to installing the enhanced display drivers. In addition, many of the installation procedures assume that you are familiar with both the relevant software applications and operating system commands. Review the relevant operating system commands and the pertinent sections of your application software's user manual before performing the installation.

4.2 Introduction

The Intel? Chipset Software Installation (CSI) utility installs the Windows INF files that outline to the operating system how the chipset components will be configured. This is needed for the proper functioning of the following features:

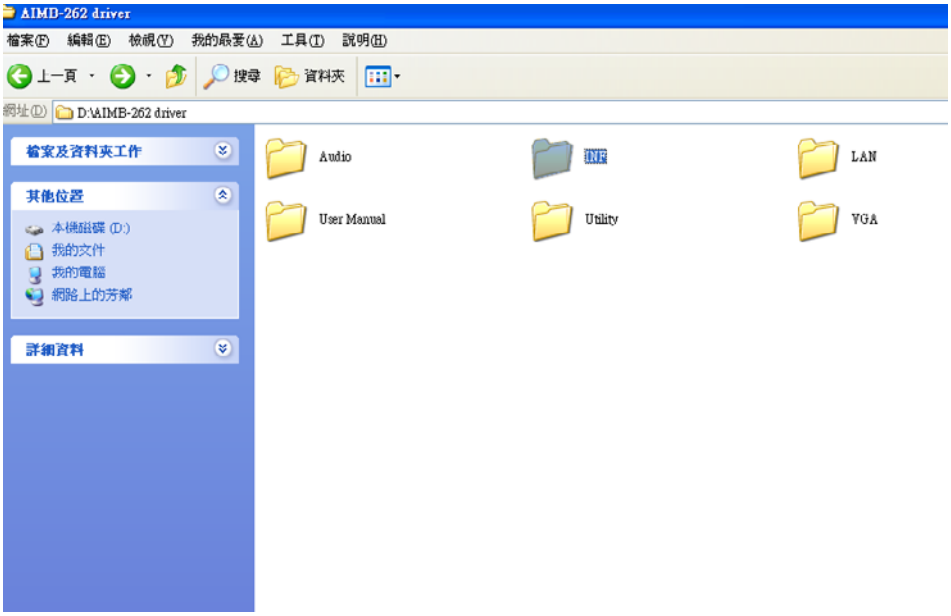
- Core PCI PnP services
- IDE Ultra ATA 100/66/33 and Serial ATA interface support
- USB 1.1/2.0 support (USB 2.0 driver needs to be installed separately for Win98)
- Identification of Intel® chipset components in the Device Manager
- Integrates superior video features. These include filtered sealing of 720 pixel DVD content, and MPEG-2 motion compensation for software DVD

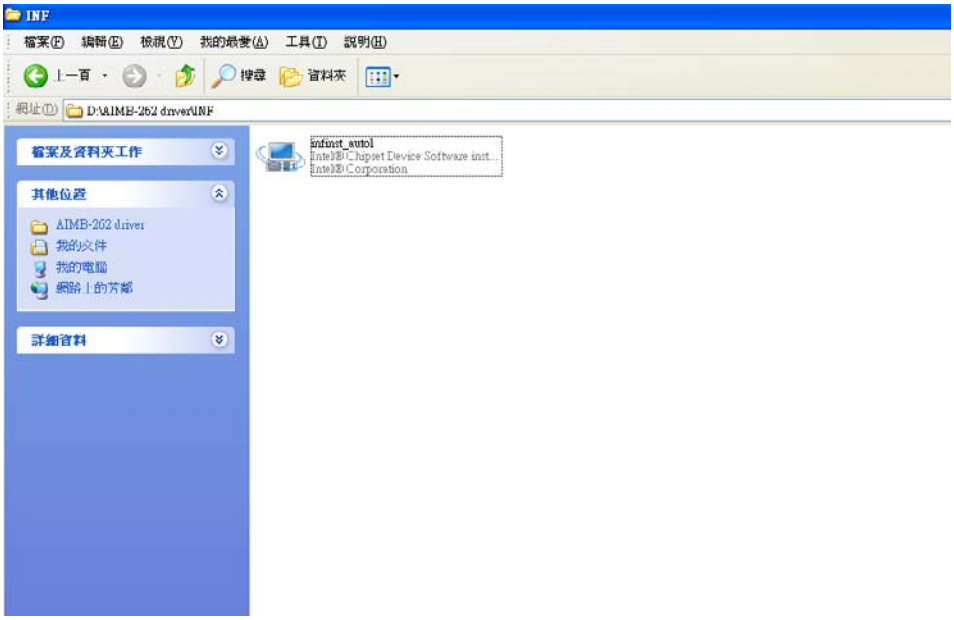
Note! *This utility is used for the following versions of Windows system, and it has to be installed before installing all the other drivers:*

- *Windows 2000*
- *Windows XP*
- *Windows Vista*

4.3 Windows XP Driver Setup

1. Insert the driver CD into your system's CD-ROM drive. You can see the driver folders items. Move the mouse cursor over the folder "INF". In INF folder, you can click "setup.exe" to complete the implement of the driver.





Chapter 5

VGA Setup

5.1 Introduction

The Intel 945GC integrated graphics controller. You need to install the VGA driver to enable the function.

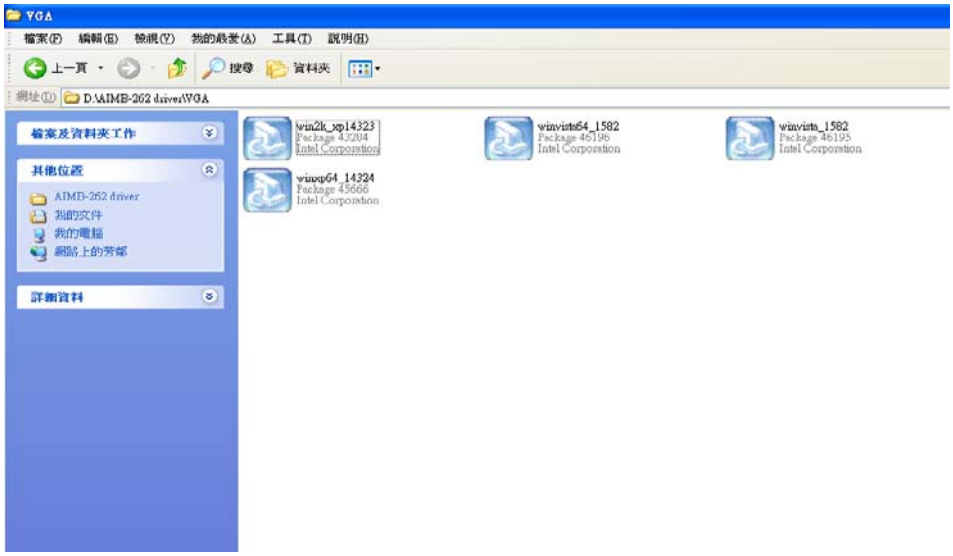
The Intel 945GC integrated graphics controller includes the following features.

- Intel Graphics Media Accelerator 950: Incorporating the latest Microsoft* DirectX*9 support capabilities, it allows software developers to create lifelike environments and characters. Dual independent display, enhanced display modes for widescreen flat panels, and optimized 3D support deliver an intense and realistic visual experience without requiring a separate graphics card.

5.2 Windows Vista/XP/2000

Note! *Before installing this driver, make sure the CSI utility has been installed in your system. See Chapter 4 for information on installing the CSI utility.*

Insert the driver CD into your system's CD-ROM drive. You can see the driver folders items. Move the mouse cursor over the folder "VGA". In VGA folder, you can click "setup.exe" to complete the implement of the driver based on Vista,Windows XP and Windows 2000.



Chapter 6

LAN Configuration

6.1 Introduction

The AIMB-262 has a single/dual Gigabit Ethernet LAN via dedicated PCI Express x 1 bus (Realtek RTL8111C), which offers bandwidth of up to 500 MB/sec, eliminating the bottleneck of network data flow and incorporating Gigabit Ethernet to operate at 1000 Mbps.

6.2 Features

- Integrated 10/100/100 BASE-T transceiver
- 10/100/1000 BASE-T triple-speed MAC
- High-speed RISC core with 24-KB cache
- On-chip voltage regulation
- Wake-on-LAN (WOL) support
- PCI Express X1 host interface

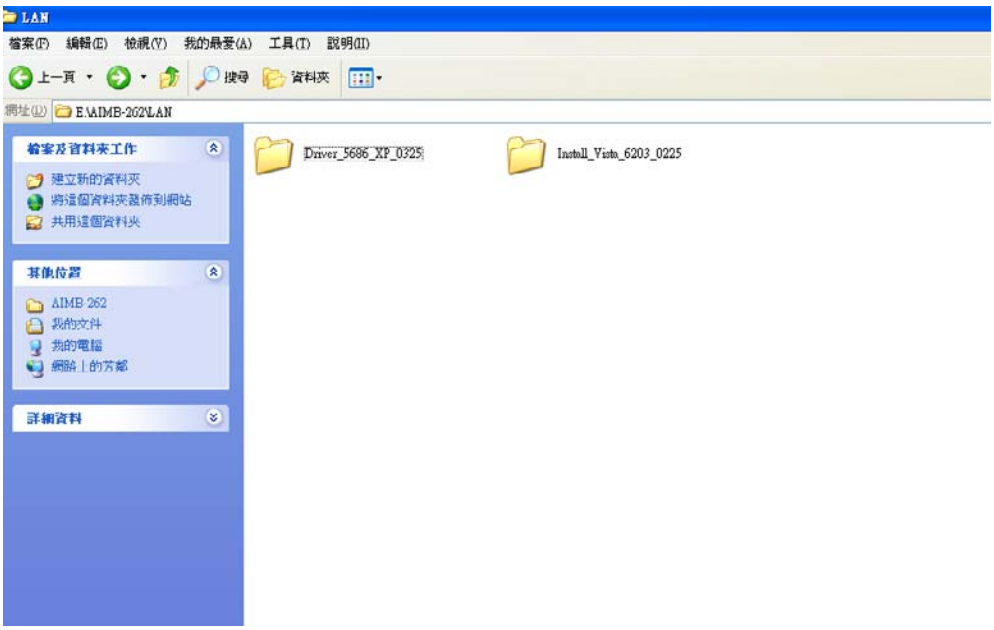
6.3 Installation

Note! *Before installing the LAN drivers, make sure the CSI utility has been installed on your system. See Chapter 4 for information on installing the CSI utility.*

The AIMB-262 Realtek RTL8111C Gigabit integrated controller supports all major network operating systems. However, the installation procedure varies with different operating systems. In the following sections, refer to the one that provides the driver setup procedure for the operating system you are using.

6.4 Win XP/Vista Driver Setup (Realtek RTL8111C)

Insert the driver CD into your system's CD-ROM drive. Select the Drv_LAN folder then click the proper Lan driver for the OS.



Appendix A

Programming the Watchdog Timer

A.1 Programming the Watchdog Timer

The AIMB-262's watchdog timer can be used to monitor system software operation and take corrective action if the software fails to function within the programmed period. This section describes the operation of the watchdog timer and how to program it.

A.1.1 Watchdog timer overview

The watchdog timer is built in to the super I/O controller W83627DHG. It provides the following functions for user programming:

- Can be enabled and disabled by user's program
- Timer can be set from 1 to 255 seconds or 1 to 255 minutes
- Generates an interrupt or resets signal if the software fails to reset the timer before time-out

A.1.2 Programming the Watchdog Timer

The I/O port address of the watchdog timer is 2E (hex) and 2F (hex). 2E (hex) is the address port. 2F(hex) is the data port. You must first assign the address of register by writing an address value into address port 2E (hex), then write/read data to/from the assigned register through data port 2F (hex).

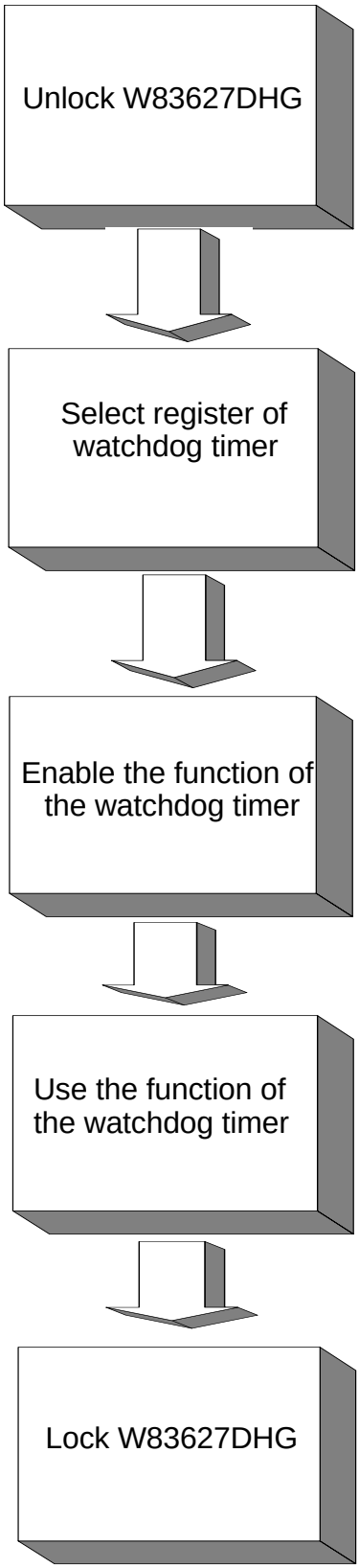

Unlock W83627DHG
Select register of watchdog timer
Enable the function of the watchdog timer
Use the function of the watchdog timer
Lock W83627DHG

Table A.1: Watchdog Timer Registers		
Address of register (2E)	**Attribute**	
Read/Write	Value (2F) & description	
87 (hex)	-----	Write this address to I/O address port 2E (hex) twice to unlock the W83627DHG.
07 (hex)	write	Write 08 (hex) to select register of watchdog timer.
30 (hex)	write	Write 01 (hex) to enable the function of the watchdog timer. Disabled is set as default.
F5 (hex)	write	Set seconds or minutes as units for the timer. Write 0 to bit 3: set second as counting unit. [default] Write 1 to bit 3: set minutes as counting unit.
F6 (hex)	write	0: stop timer [default] 01~FF (hex): The amount of the count, in seconds or minutes, depends on the value set in register F5 (hex). This number decides how long the watchdog timer waits for strobe before generating an interrupt or reset signal. Writing a new value to this register can reset the timer to count with the new value.
F7 (hex)	read/write	Bit 7:Write 1 to enable mouse to reset the timer, 0 to disable[default]. Bit 6: Write 1 to enable keyboard to reset the timer, 0 to disable.[default] Bit 5: Write 1 to generate a timeout signal immediately and automatically return to 0. [default=0] Bit 4: Read status of watchdog timer, 1 means timer is “timeout”.
AA (hex)	-----	Write this address to I/O port 2E (hex) to lock the watchdog timer 2.

A.1.3 Example Program

1. Enable watchdog timer and set 10 sec. as timeout interval

```
;-----------------------------------------------------------
Mov dx,2eh ; Unlock W83627DHG
Mov al,87h
Out dx,al
Out dx,al
;-----------------------------------------------------------
Mov al,07h ; Select registers of watchdog timer
Out dx,al
Inc dx
Mov al,08h
Out dx,al
;-----------------------------------------------------------
Dec dx ; Enable the function of watchdog timer
Mov al,30h
Out dx,al
Inc dx
Mov al,01h
Out dx,al
;-----------------------------------------------------------
Dec dx ; Set second as counting unit
Mov al,0f5h
Out dx,al
Inc dx
In al,dx
And al,not 08h
Out dx,al
;-----------------------------------------------------------
Dec dx ; Set timeout interval as 10 seconds and start counting
Mov al,0f6h
Out dx,al
Inc dx
Mov al,10
Out dx,al
;-----------------------------------------------------------
Dec dx ; Lock W83627HG
Mov al,0aah
Out dx,al
```

2. Enable watchdog timer and set 5 minutes as timeout interval

```
;-----------------------------------------------------------
Mov dx,2eh ; Unlock W83627HG
Mov al,87h
Out dx,al
Out dx,al
```

```
;-----------------------------------------------------------
Mov al,07h ; Select registers of watchdog timer
Out dx,al
Inc dx
Mov al,08h
Out dx,al
;-----------------------------------------------------------
Dec dx ; Enable the function of watchdog timer
Mov al,30h
Out dx,al
Inc dx
Mov al,01h
Out dx,al
;-----------------------------------------------------------
Dec dx ; Set minute as counting unit
Mov al,0f5h
Out dx,al
Inc dx
In al,dx
Or al,08h
Out dx,al
;-----------------------------------------------------------
Dec dx ; Set timeout interval as 5 minutes and start counting
Mov al,0f6h
Out dx,al
Inc dx
Mov al,5
Out dx,al
;-----------------------------------------------------------
Dec dx ; Lock W83627HG
Mov al,0aah
Out dx,al
```

3. Enable watchdog timer to be reset by mouse

```
;-----------------------------------------------------------
Mov dx,2eh ; Unlock W83627HG
Mov al,87h
Out dx,al
Out dx,al
;-----------------------------------------------------------
Mov al,07h ; Select registers of watchdog timer
Out dx,al
Inc dx
Mov al,08h
Out dx,al
;-----------------------------------------------------------
```

```
Dec dx ; Enable the function of watchdog timer
Mov al,30h
Out dx,al
Inc dx
Mov al,01h
Out dx,al
;-----------------------------------------------------------
Dec dx ; Enable watchdog timer to be reset by mouse
Mov al,0f7h
Out dx,al
Inc dx
In al,dx
Or al,80h
Out dx,al
;-----------------------------------------------------------
Dec dx ; Lock W83627HG
Mov al,0aah
Out dx,al
```

4. Enable watchdog timer to be reset by keyboard

```
;-----------------------------------------------------------
Mov dx,2eh ; Unlock W83627HG
Mov al,87h
Out dx,al
Out dx,al
;-----------------------------------------------------------
Mov al,07h ; Select registers of watchdog timer
Out dx,al
Inc dx
Mov al,08h
Out dx,al
;-----------------------------------------------------------
Dec dx ; Enable the function of watchdog timer
Mov al,30h
Out dx,al
Inc dx
Mov al,01h
Out dx,al
;-----------------------------------------------------------
Dec dx ; Enable watchdog timer to be strobed reset by keyboard
Mov al,0f7h
Out dx,al
Inc dx
In al,dx
Or al,40h
Out dx,al
```

```
;-----------------------------------------------------------
Dec dx ; Lock W83627HG
Mov al,0aah
Out dx,al
```

5. Generate a time-out signal without timer counting

```
;-----------------------------------------------------------
Mov dx,2eh ; Unlock W83627HG
Mov al,87h
Out dx,al
Out dx,al
;-----------------------------------------------------------
Mov al,07h ; Select registers of watchdog timer
Out dx,al
Inc dx
Mov al,08h
Out dx,al
;-----------------------------------------------------------
Dec dx ; Enable the function of watchdog timer
Mov al,30h
Out dx,al
Inc dx
Mov al,01h
Out dx,al
;-----------------------------------------------------------
Dec dx ; Generate a time-out signal
Mov al,0f7h
Out dx,al ;Write 1 to bit 5 of F7 register
Inc dx
In al,dx
Or al,20h
Out dx,al
;-----------------------------------------------------------
Dec dx ; Lock W83627HG
Mov al,0aah
Out dx,al
```

Appendix B

I/O Pin Assignments

B.1 Parallel Port (LPT1)

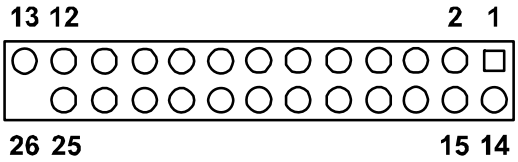


Table B.1: Parallel Port (LPT1)			
Pin	**Signal**	**Pin**	**Signal**
1	STROBE*	14	AUTOFD*
2	D0	15	ERR
3	D1	16	INIT*
4	D2	17	SLCTINI*
5	D3	18	GND
6	D4	19	GND
7	D5	20	GND
8	D6	21	GND
9	D7	22	GND
10	ACK*	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT	26	N/C

* Low activity

B.2 USB Header (USB56)

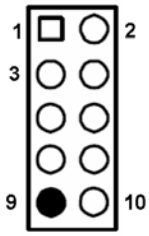


Table B.2: USB Header (USB56)			
Pin	**Signal**	**Pin**	**Signal**
1	USB0_VCC5	2	USB1_VCC5
3	USB0_D-	4	USB1_D-
5	USB0_D+	6	USB1_D+
7	GND	8	GND
9	Key	10	GND

B.3 VGA Connector (VGA1)

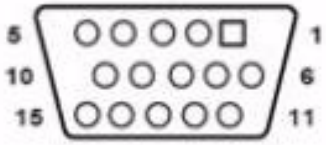


Table B.3: VGA Connector (VGA1)			
Pin	**Signal**	**Pin**	**Signal**
1	RED	9	CRT_VCCIN
2	VGA_G	10	GND
3	VGA_B	11	N/C
4	N/C	12	V_SDAT
5	GND	13	H-SYNC
6	GND	14	V-SYNC
7	GND	15	V_SCLK

B.4 RS-232 Interface

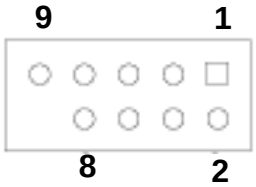


Table B.4: RS-232 Interface (COM1~COM4)	
Pin	**Signal**
1	DCD
2	DSR
3	RXD
4	RTS
5	TXD
6	CTS
7	DTR
8	RRI
9	GND

B.5 RS-232/422/485 Setting Interface (JETCOM2)

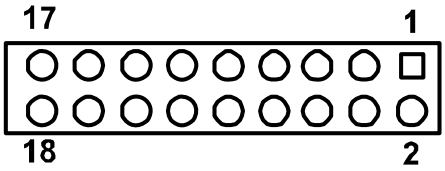


Table B.5: RS-232/422/485 Setting Interface (JETCOM2)			
Pin	**Signal**	**Pin**	**Signal**
1	R_SINA	2	RXD485_1
3	R_SINA	4	RXD422_1
5	R_SINA	6	RXD232_1
7	DCDA	8	SOUTA
9	COM1_DCD#	10	COM1_SOUT
11	COM1_TXD485N	12	COM1_RXD485P
13	SINA	14	DTRA
15	COM1_SIN	16	COM1_DTR#
17	COM1_TXD485P	18	COM1_RXD485N

B.6 SPI_CN1: SPI fresh card pin connector

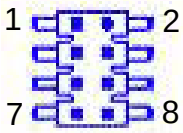


Table B.6: SPI_CN1:SPI fresh card pin connector			
Pin	**Signal**	**Pin**	**Signal**
1	+F1_3V	2	GND
3	F1_SPI_CS#_Q	4	F1_SPI_CLK_Q
5	F1_SPI_MISO_Q	6	F1_SPI_MOSI_Q
7	NC	8	NC

B.7 PS/2 Keyboard and Mouse Connector (KBMS1)

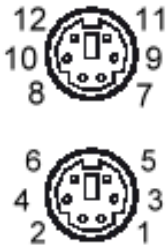


Table B.7: PS/2 Keyboard and Mouse Connector (KBMS1)	
Pin	**Signal**
1	KB DATA
2	N/C
3	GND
4	KB VCC
5	KB CLK
6	N/C
7	M_DATA
8	N/C
9	GND
10	M_VCC
11	M_CLK
12	N/C

B.8 CPU Fan Power Connector (CPU_FAN1)

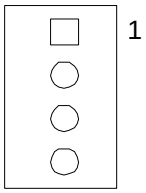


Table B.8: CPU Fan Power Connector (CPU_FAN1)	
Pin	**Signal**
1	GND
2	+12 V
3	DETECT
4	PWM

B.9 System Fan Power Connector (CHA_FAN1)

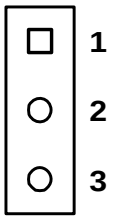
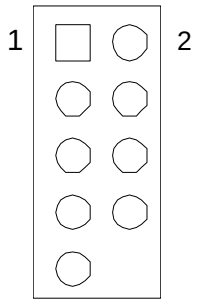


Table B.9: System Fan Power Connector (SYSFAN1/SYSFAN2)	
Pin	**Signal**
1	GND
2	+12 V
3	DETECT

B.10 Front Panel Connectors (JFP2_1)



B.10.1 Power/Sleep LED (JFP2_1)

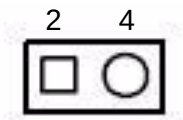


Table B.10: Power/Sleep LED (JFP2_1)	
Pin	**Signal**
2	LED power (+5 V)
4	LED power (+5 V)

B.10.2 Reset Connector (JFP2_1)

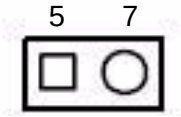


Table B.11: Reset Connector (JFP2_1)	
Pin	**Signal**
5	RESET
7	GND

B.10.3 HDD LED Connector (JFP2_1)

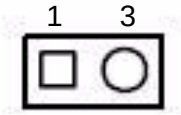


Table B.12: HDD LED Connector (JFP2_1)	
Pin	**Signal**
1	IDE LED+
3	IDE LED-

B.10.4 ATX Soft Power Switch (JFP2_1)

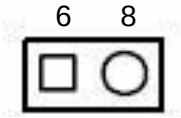


Table B.13: ATX Soft Power Switch (JFP2_1)	
Pin	**Signal**
6	5 VSB
8	PWR-BTN

B.11 ATX1 12 V Auxiliary Power Connector (ATX1)

Table B.14: ATX1 12 V Auxiliary Power Connector (ATX1)	
Pin	**Signal**
1	GND
2	GND
3	+12 V
4	+12 V

B.12 ATX Power Connector (EATXPWR1)

Table B.15: ATX Power Connector (ATX2)			
Pin	**Signal**	**Pin**	**Signal**
1	+3.3 V	2	+3.3 V
3	GND	4	+5 V
5	GND	6	+5 V
7	GND	8	POK
9	5 VSB	10	12 V
11	12 V	12	3.3 V
13	3.3 V	14	-12 V
15	GND	16	PSON
17	GND	18	GND
19	GND	20	-5 V

B.13 USB/LAN ports (LAN1_USB12/USB34)

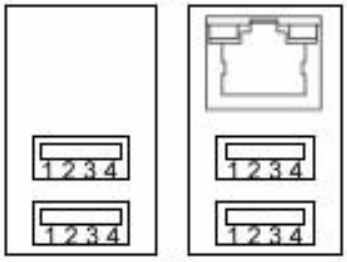
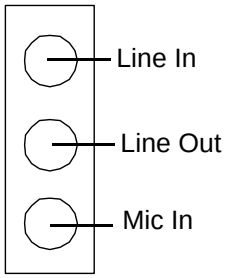


Table B.16: USB Port			
Pin	**Signal**	**Pin**	**Signal**
1	VCC	3	Data0+
2	Data0-	4	GND

Table B.17: Ethernet 10/100Base-T RJ-45 Port			
Pin	**Signal**	**Pin**	**Signal**
1	XMT+	5	N/C
2	XMT-	6	RCV-
3	RCV+	7	N/C
4	N/C	8	N/C

B.14 Line In, Line Out, Mic In Connector (AUDIO1)



B.15 Serial ATA0 (SATA1)

Table B.18: Serial ATA0 (SATA1)

Pin	Signal	Pin	Signal
1	GND	2	SATA_0TX+
3	SATA_0TX-	4	GND
5	SATA_0RX-	6	SATA_0RX+
7	GND	8	

B.16 Serial ATA1 (SATA2)

Table B.19: Serial ATA1 (SATA2)

Pin	Signal	Pin	Signal
1	GND	2	SATA_1TX+
3	SATA_1TX-	4	GND
5	SATA_1RX-	6	SATA_1RX+
7	GND	8	

B.17 AT/ATX Mode (PSON1)

Table B.20: AT/ATX Mode (PSON1)

Pin	Signal	Pin	Signal
1	#PSON_SIO (to super IO)	2	#PSON (to power supply)
3	GND		

B.18 TPM_SLOT1: TPM module connector

Table B.21: TPM_SLOT1:TPM module connector			
Pin	**Signal**	**Pin**	**Signal**
1	GND	2	CLK
3	SMB_ CLK	4	FRAME#
5	SMB_DATA	6	REST
7	LAD2	8	LAD3
9	LAD1	10	VCC3
11	GND	12	LAD0
13	N/C	14	VCC3
15	SERIRQ#	16	VCC3SB
17	CLKRUN#	18	GND
19	N/C	20	SLPS3#

B.19 System I/O Ports

Table B.22: System I/O Ports	
Addr. range (Hex)	**Device**
000-01F	Interrupt controller 1, master
022-023	Chipset address
040-05F	8254 timer
060-06F	8042 (keyboard controller)
070-07F	Real-time clock, non-maskable interrupt (NMI) mask
080-09F	DMA page register
0A0-0BF	Interrupt controller 2
0C0-0DF	DMA controller
0F0	Clear math co-processor
0F1	Reset math co-processor
0F8-0FF	Math co-processor
1F0-1F8	Fixed disk
200-207	Game I/O
278-27F	Parallel printer port 2 (LPT3)
290-297	On-board hardware monitor
2F8-2FF	Serial port 2
Serial port 2	Prototype card
360-36F	Reserved
378-37F	Parallel printer port 1 (LPT2)
380-38F	SDLC, bisynchronous 2
3A0-3AF	Bisynchronous 1
3B0-3BF	Monochrome display and printer adapter (LPT1)
3C0-3CF	Reserved
3D0-3DF	Color/graphics monitor adapter
3F0-3F7	Diskette controller
3F8-3FF	Serial port 1

B.20 DMA Channel Assignments

Table B.23: DMA Channel Assignments

Channel	Function
0	Available
1	Available
2	Floppy disk (8-bit transfer)
3	Available
4	Cascade for DMA controller 1
5	Available
6	Available
7	Available

B.21 Interrupt Assignments

Table B.24: Interrupt Assignments

Priority	Interrupt#	Interrupt source
1	NMI	Parity error detected
2	IRQ0	Interval timer
3	IRQ1	Keyboard
-	IRQ2	Interrupt from controller 2 (cascade)
4	IRQ8	Real-time clock
5	IRQ9	Cascaded to INT 0A (IRQ 2)
6	IRQ10	Serial communication port 3/4
7	IRQ11	Available
8	IRQ12	PS/2 mouse
9	IRQ13	INT from co-processor
10	IRQ14	Primary IDE Channel
11	IRQ15	Secondary IDE Channel
12	IRQ3	Serial communication port 2
13	IRQ4	Serial communication port 1
14	IRQ5	Available
15	IRQ6	Diskette controller (FDC)
16	IRQ7	Parallel port 1 (print port)

B.22 1st MB Memory Map

Table B.25: 1st MB Memory Map	
Addr. range (Hex)	**Device**
E0000h - FFFFFh	BIOS
CC000h - DFFFFh	Unused
C0000h - CBFFFh	VGA BIOS
A0000h - BFFFFh	Video Memory
00000h - 9FFFFh	Base memory

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