Industrial Motherboard

Model Number AW-MB700

Socket 478 ATX Industrial Motherboard w/Two LAN, IEEE 1394, RAID-0, SSD & Audio

User's Manual

Version 1.0

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Chapter 1. General Information

1.1 Introduction

The AW-MB700 is the most expandable Pentium® 4 Industrial ATX motherboard AW-MB700-based on the Intel® 865PE chipset with ICH5R are designed to support Intel® Pentium® 4 Processors up to 800MHz FSB with Hyper-Threading Technology and onboard with four DDR DIMM socket up to 4Gbytes of DDR333/400 SDRAM

The most noticeable feature on AW-MB700 is its Expansion Slots, to meet most of the industrial computer requirements and needs, it comes with an 8x AGP slot, 3 PCI slots and 3 ISA slots onboard.

The other features comes with RAID-0 Stripping, an independent serial ATA operation on two ports, six USB 2.0 compliant ports, Digital I/O, one IEEE 1394 port; the low overhead, high data rates of 1394, the ability to mix real-time and asynchronous data on a single connection, and the ability to mix low speed and high speed devices on the same network provides a truly universal connection for almost any consumer, computer or peripheral application and optional for total three IEEE 1394 ports, supports one 1000/100/10 and one 100/10Mbps Ethernet interface and CompactFlash socket.

With Pentium® 4 based, Expansion slots and Digital I/O as well as IEEE 1394, the AW-MB700 is the most extendable and powerful platform in choice for industrial applications, telecommunications.

Specification

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1.2 Specifications

General Functions

CPU	Socket 478 Intel® Pentium® 4 processor with 400/533/800MHz system bus
BIOS	Award® 512KB Flash BIOS
Chipset	Intel® 865PE + ICH5R
I/O Chipset	Dual Winbond W83627HF-AW
Memory	Four 184-pin DDR DIMM sockets support DDR266/333/400 DDR devices and up to 4G bytes
Enhanced IDE	Support up to four IDE devices (Ultra DMA 33/66/100)
Serial ATA	Independent DMA operation on two ports, data transfer rates up to 1.5Gb/s, RAID-0 or RAID-1 optional
FDD Interface	Supports one 34-pin header up to two floppy disk drives.
Parallel port	One parallel port, supports SPP/ECP/EPP
Serial Port	Three RS-232 and one RS-232/422/485 serial ports.
IR Interface	Support one IrDA Tx/Rx header
KB/Mouse Connector	Mini-din jack for PC/AT keyboard and PS/2 mouse
USB Connectors	Support six USB V2.0 ports
Battery	Lithium battery for data retention up to 10 years(in normal condition)
Watchdog Timer	Support software selectable timeout interval
System Monitoring	Built in W83627HF-AW; supports temperatures, Fan speed, and voltages monitoring
PCI Slot	Three 32-bit PCI expansion slots
ISA Slot	Three ISA slots
AGP Slot	One 8X AGP slot
Digital I/O	Support four input and four output, I/O address: 220H
Power management	Support ATX power supply, Wake on LAN and Modem Ring-in functions

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Ethernet Interface	
Chipset	CSA interface supports Intel® 1000/Pro CT (547EI) Gbe and ICH5R embedded MAC with 82562EM (PHY) 100Base-TX Fast Ethernet controller
IEEE 1394 Interface	
Chipset	VT6306 control chip Onboard one IEEE 1394 port and optional pin-header for up to three IEEE 1394 ports
Audio Interface	
Chipset	AC97 codec
Audio Interface	Mic in , Line in , Speaker out , CD audio in and AUX in
SSD Interface	One 50-pin CompactFlash™ socket
Mechanical and Environmental	
Power supply voltage	VCC (4.75V to 5.25V), +12V (11.4V to 12.6V), -12V (-11.4V to 12.6V), 3.3V, 5VSB
Board size	12"(L) x 9.595"(W)(304.8mm x 243.71mm)

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1.3 AW-MB700 Package

Please make sure that the following items have been included in the package before installation.

1. AW-MB700 Low Power Embedded SBC
2. Quick Setup
3. Cable
4. CD-ROM which contains the following folders:
   - Manual
   - System Driver
   - VGA Driver
   - Ethernet Driver
   - Tools

If any of these items are missing or damaged, please contact your dealer from whom you purchased the board at once. Save the shipping materials and carton in the event that you want to ship or store the board in the future. After you unpack the board, inspect it to assure an intact shipment. Do not apply power to the board if it appears to have been damaged.

Leave the board in its original packing until you are ready to install

Precautions

Please make sure you properly ground yourself before handling the AW-MB700 board or other system components. Electrostatic discharge can be easily damage the AW-MB700 board.

Do not remove the anti-static packing until you are ready to install the AW-MB700 board.

Ground yourself before removing any system component from it protective anti-static packaging. To ground yourself, grasp the expansion slot covers or other unpainted parts of the computer chassis.

Handle the AW-MB700 board by its edges and avoid touching its component.

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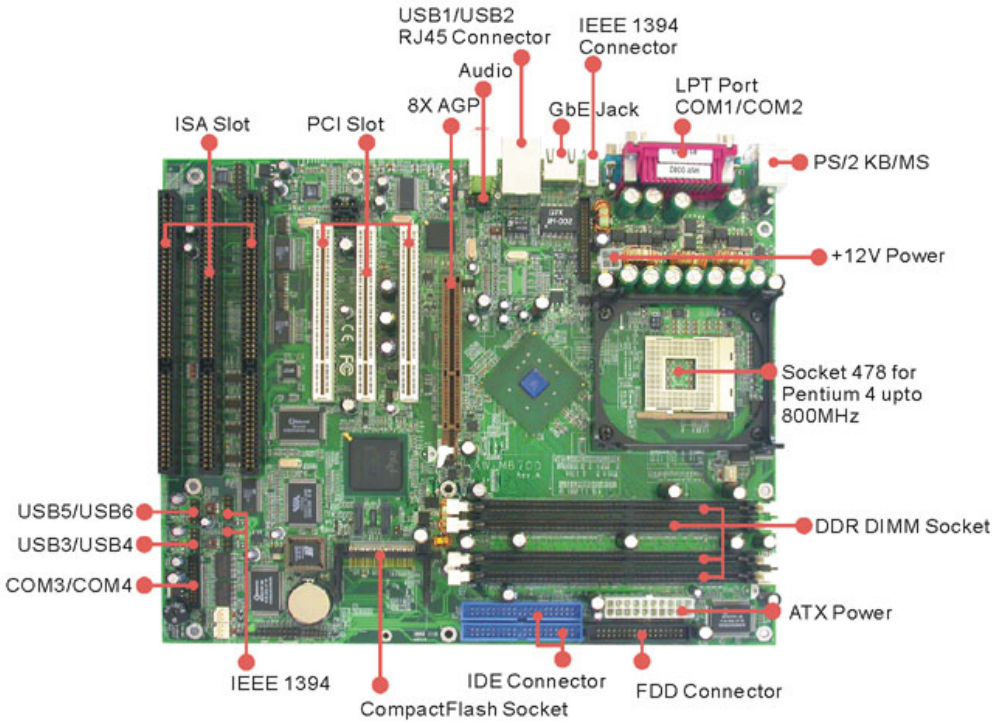
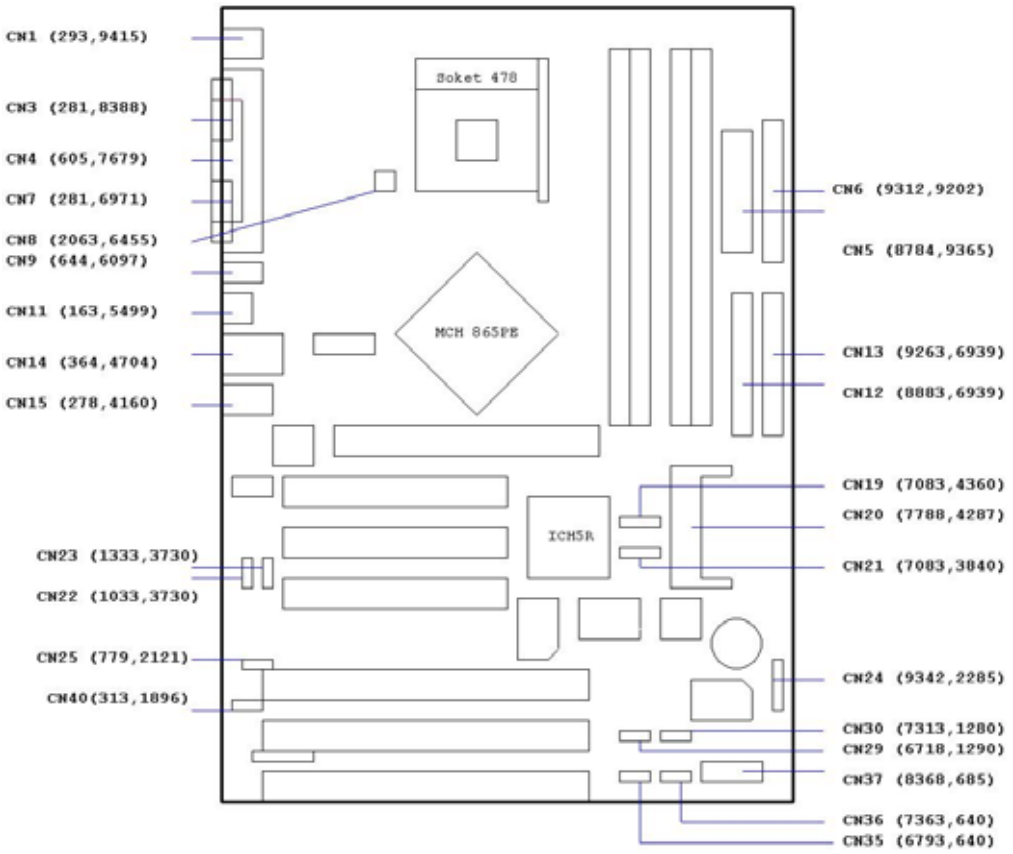
1.4 Board Layout



1.5 Board Dimension



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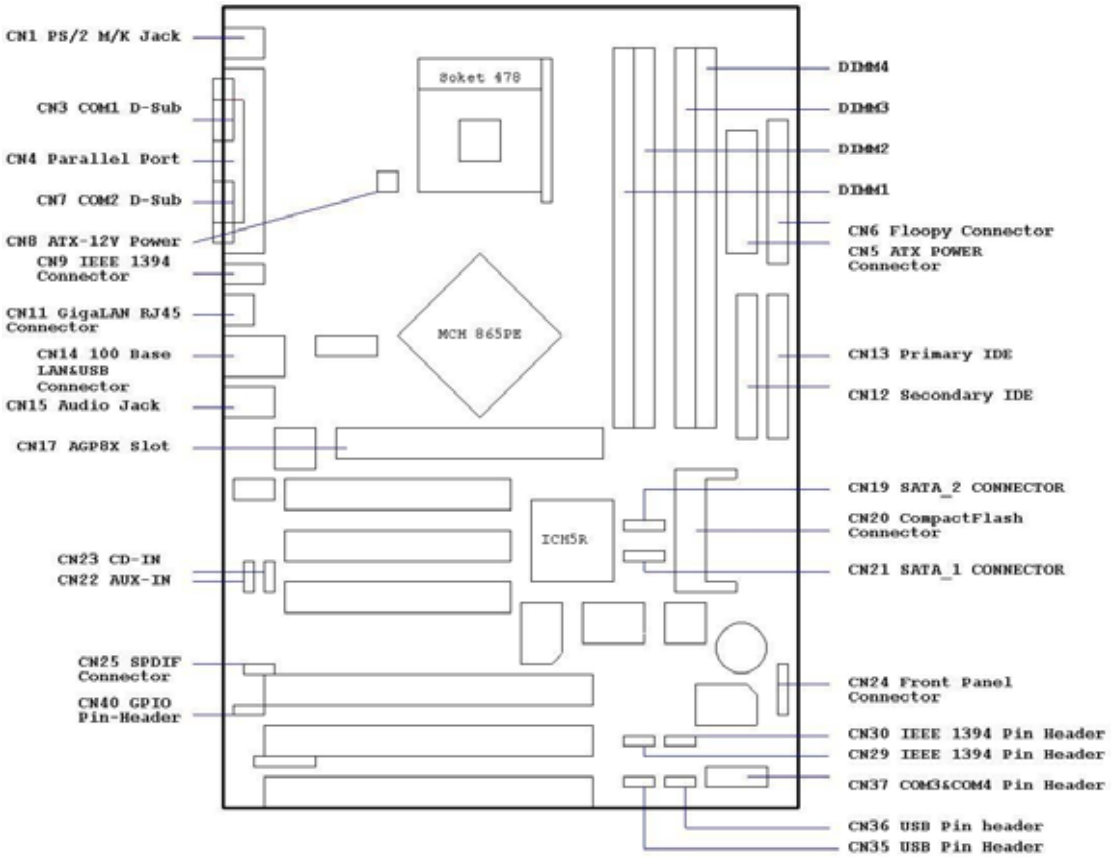
Chapter 2. Connectors/Jumper Location and Configuration



2.1 Connectors/Jumpers Location and Define

Connector	Description	Connector	Description
1	PS/2 Mouse/Keyboard Jack	21	SATA Pin-Header
2	CPU FAN Pin-Header	22	AUX-In Pin-Header
3	COM1 D-Sub Connector	23	CD-In Pin-Header
4	Parallel D-Sub Connector	24	Front Panel Connector
5	ATX Power Connector	25	SPDIF Pin-Header
6	Floppy Connector	27	IrDA Pin-Header
7	COM2 Port D-Sub	29	IEEE 1394 Port 2 Pin-Header
8	ATX –12V Power Pin-Header	30	IEEE 1394 Port 3 Pin-Header
9	IEEE 1394 Jack	31	System FAN 1
11	LAN Jack 1000/100/10	32	System FAN 2
12	Secondary IDE Connector	34	Wake On LAN Pin-Header
13	Primary IDE Connector	35	USB Port 3/4 Pin-Header
14	USB1/2 Jack	36	USB Port 5/6 Pin-Header

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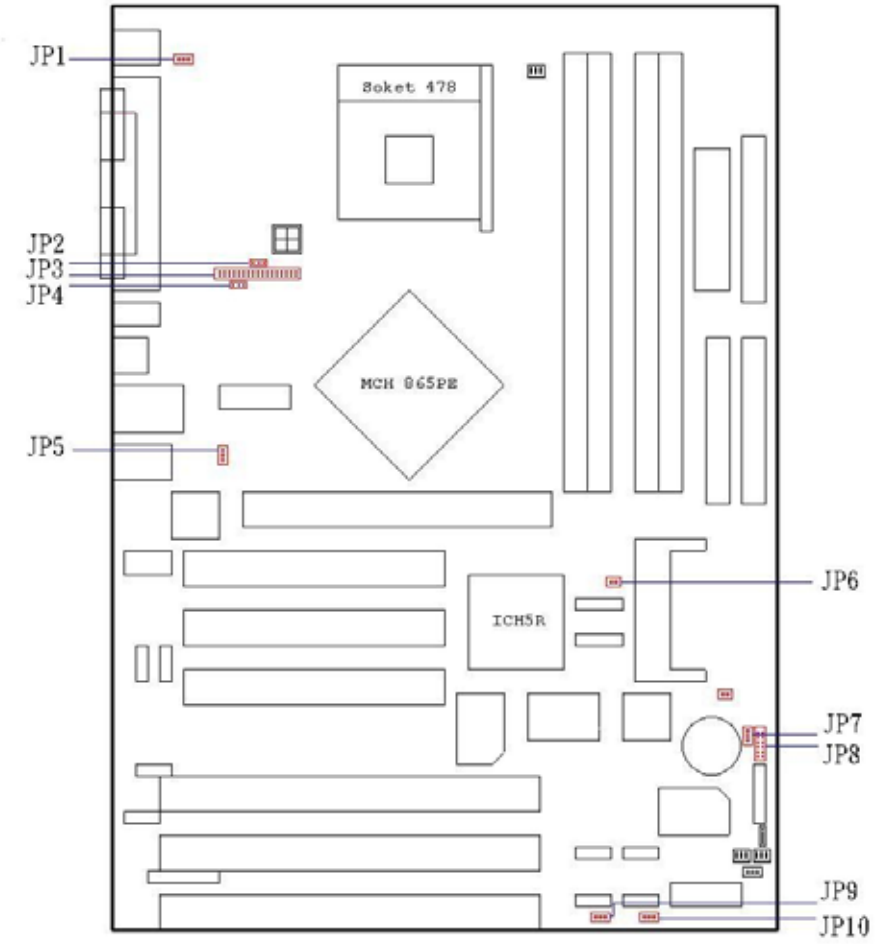
15	Audio Connector	37	COM3/COM4 Pin-Header
16	Audio Front Panel Pin-Header	39	Download Cable Pin-Header
19	SATA Pin-Header	40	GPIO Pin-Header
20	CompactFlash Socket		



Jumper	Description	Jumper	Description
1	PS/2 Keyboard/Mouse Power Jumper	6	CompactFlash Master/Slave Jumper
2	RS422/485 Select 1	7	Clear CMOS
3	RS232/422/485 Select	8	Modem Ring In
4	RS422/475 Select 2	9	USB Port 1/2 Power Jumper
5	USB Port 5/6 Power Jumper	10	USB Port 3/4 Power Jumper

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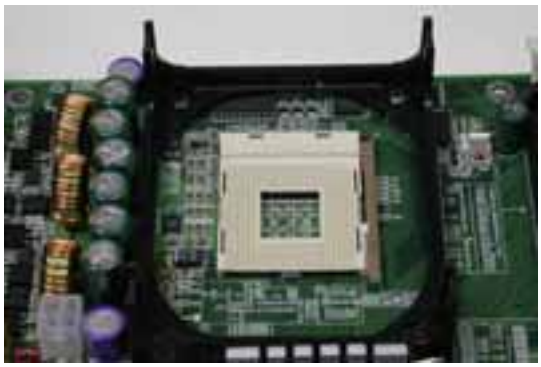
2.2. Installing CPU

The AW-MB700 onboard with Pentium® 4 socket 478 for 400/533/800MHz system bus.

2.2.1 Installing CPU：

(1) The CPU socket on your motherboard and nudge the lever away from the socket 478.



(2) Then lift the lever to a 90-degree angle for 478 socket, please see the picture.

(3) Now you can to lay aside CPU processor in 478 socket, please see picture.

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(4) You can see the CPU 478 socket has a lock sign please push the tappet to lock location.

2.2.2 Removing CPU

(1) First, please push the tappet to unlock location.

(2) Then untie the screw beginning from left side you can refer to below the picture.

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(3) Now you can take out the CPU from socket.

2.2.3 How to recognize FAN

（1） Lower the CPU fan onto the CPU and use the clasps on the fan to attach to the socket.

（2） Finally, extend the power cable from the fan and insert it onto the CPU FAN adapter.

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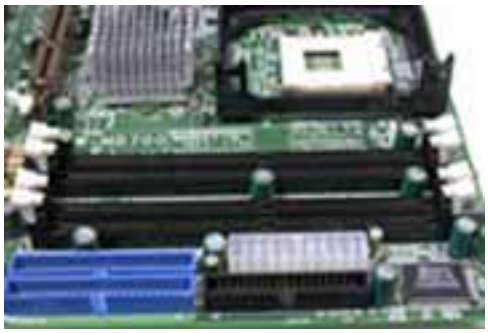
2.3 Installing Memory

To insert a DDR SDRAM Memory:

The AW-MB700 onboard with four 184-pin DDR DIMM sockets supports up to 4Gbytes DDR SDRAM.



To Insert a DIMM Memory*:* Please align the module with the socket key and press down until the levers at each end of the socket snap close up. There is only one direction for installing a module in the socket. Do not attempt to force the module into the socket incorrectly.

To Remove a DIMM Memory: To remove a DIMM, press down on the levers at both end of the module until the module pops out

There is only one direction for installing a module in the socket. Do not attempt to force the module into the socket incorrectly.

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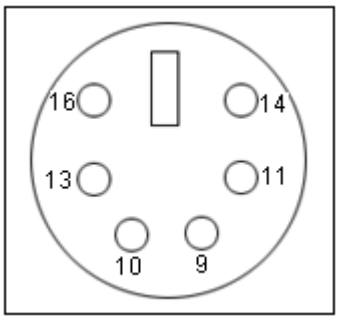
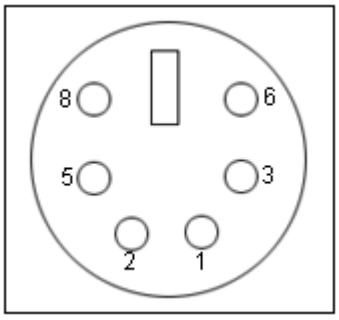
2.4 Connector and Jumper Settings

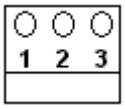
CN1: PS/2 Keyboard/Mouse Connector





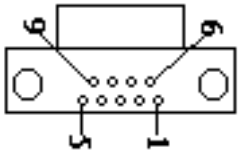
Pin	Signal	Pin	Signal
1	KB-DATA	2	NC
3	Ground	4	5V
5	KB-CLK	6	NC
7	MS-DATA	8	NC
9	Ground	10	5V
11	MS-CLK	12	NC
13	Ground	14	Ground
15	Ground	16	Ground

CN2: CPU Fan Connector



Pin	Signal
1	GND
2	+12V
3	Sense

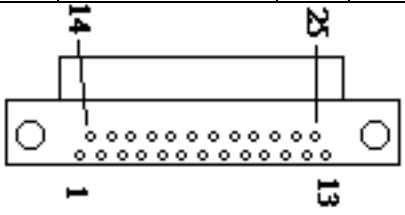
CN3: COM1 Connector



Pin	Define
1	DCD
2	RXD
3	TXD
4	DTR
5	Ground
6	DSR
7	RTS
8	CTS
9	R1

CN4: Parallel Port Connector

Pin	Signal	Pin	Signal
1	STROBE	14	AUTO FEED
2	PD0	15	ERROR
3	PD1	16	INIT
4	PD2	17	SELECT IN
5	PD3	18	Ground
6	PD4	19	Ground
7	PD5	20	Ground
8	PD6	21	Ground
9	PD7	22	Ground
10	ACK	23	Ground
11	BUSY	24	Ground
12	PE	25	Ground
13	SELECT		



(Top View)

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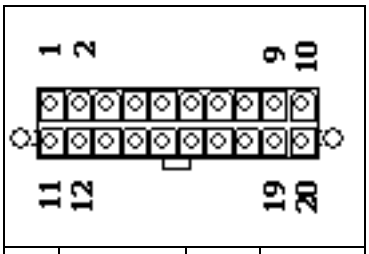
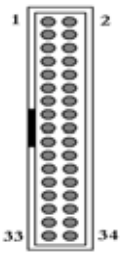
CN5: ATX Power Connector



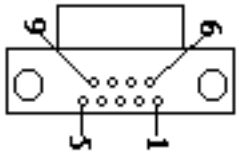
Pin	Signal	Pin	Signal
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	Ground	13	Ground
4	+5V	14	PSON
5	Ground	15	Ground
6	+5V	16	Ground
7	Ground	17	Ground
8	PWROK	18	-5V
9	+5VSB	19	+5V
10	+12V	20	+5V

CN6: Floppy Connector



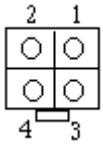
Pin	Signal	Pin	Signal
1	Ground	2	Drvden0
3	Ground	4	NC
5	Ground	6	NC
7	Ground	8	Index
9	Ground	10	Motor enable 0
11	Ground	12	Drive select 1
13	Ground	14	Driver select 0
15	Ground	16	Motor enable 1
17	Ground	18	Direction
19	Ground	20	Step
21	Ground	22	Write data
23	Ground	24	Write gate
25	Ground	26	Track 00
27	Ground	28	Write protect
29	Ground	30	Read data
31	Ground	32	Side 1 select
33	Ground	34	Diskette change

CN7: COM2 Connector



Pin	RS232	RS422	RS485 2 Wire	RS485 4 Wire
1	DCD	TX-	TX-/RX_	TX-
2	RXD	TX+	TX+/RX+	TX+
3	TXD	RX+		RX+
4	DTR	RX-		RX-
5	Ground	Ground	Ground	Ground
6	DSR	RTS-		
7	RTS	RTS+		
8	CTS	CTS+		
9	R1	CTS-		

CN8: ATX –12V Power Connector



Pin	Define	Pin	Define
4	+12V	2	Ground
3	+12V	1	Ground

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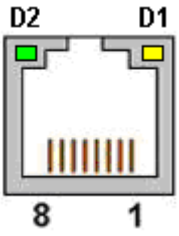
CN9: IEEE 1394 Connector

Pin	Signal	Pin	Signal
1	+12V	2	Ground
3	TPB-	4	TPB+
5	TPA-	6	TPA+

CN11: LAN Jack 1000/100/10



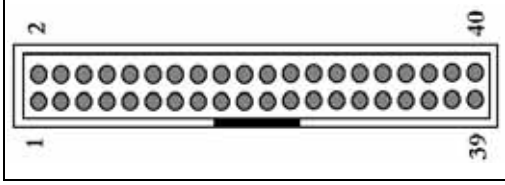
Pin	Define
1	TX0+
2	TX0-
3	RX0+
4	TX1+
5	TX1-
6	RX0-
7	RX1+
8	RX1-

LED:

D1 :Bi-Color Speed LED	
10 Mbps	Off
100 Mbps	Green
1000 Mbps	Yellow
D2 :Link/Activity LED	
Link	Green
Activity	Blinking

CN12/CN13:Secondary/Primary IDE Connector – 2.54mm

Pin	Signal	Pin	Signal
1	IDE Reset	21	IDE DREQ
2	Ground	22	Ground
3	Data 7	23	IOW
4	Data 8	24	Ground
5	Data 6	25	IOR
6	Data 9	26	Ground
7	Data 5	27	CHRDY
8	Data 10	28	NC
9	Data 4	29	IDE DACK
10	Data 11	30	Ground
11	Data 3	31	IDE IRQ
12	Data 12	32	NC
13	Data 2	33	A1
14	Data 13	34	NC
15	Data 1	35	A0
16	Data 14	36	A2
17	Data 0	37	CS0
18	Data 15	38	CS1
19	Ground	39	Active
20	NC	40	Ground



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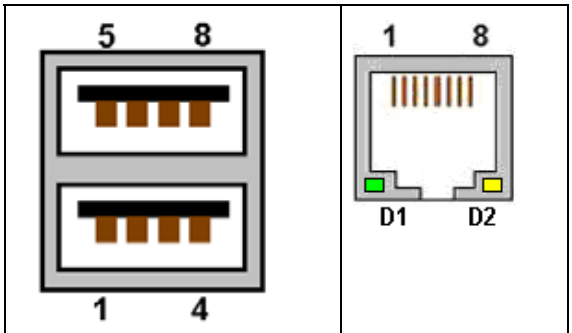
CN14: USB Jack and 100/10 LAN RJ45 Jack

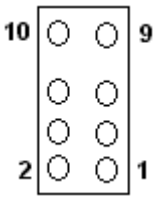


Pin	Signal	Pin	Signal
1	5VUSB0	1	TX+
2	USBDT0-	2	TX-
3	USBDT0+	3	N/C
4	Ground	4	Ground
5	5VUSB0	5	Ground
6	USBDT1-	6	N/C
7	USBDT1+	7	RX+
8	Ground	8	RX-

CN15: Audio Connector

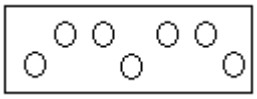
Pin	Signal
1	Line In
2	Line Out
3	Mic In

CN16: Audio Front Panel Connector



Pin	Signal	Pin	Signal
1	Lin_R/Surr_R	2	Lin_L/Surr_L
3	MIC2/LEF_OUT	4	MIC1/CENT_OUT
5	SPKOUT_R	6	SPKOUT_RR
7	NC	8	NC
9	SPKOUT_L	10	SPKOUT_LL

CN19/CN21: SATA Connector



Pin	Signal
1	Ground
2	TXP
3	TXN
4	Ground
5	RXN
6	RXP
7	Ground

CN20: CompactFlash Socket

Pin	Signal	Pin	Signal	Pin	Signal
1	GND	21	DATA0	41	RESET*
2	DATA3	22	DATA1	42	IOCHRDY
3	DATA4	23	DATA2	43	NC
4	DATA5	24	IOCS16*	44	-REG
5	DATA6	25	NC	45	ACTIVE*
6	DATA7	26	NC	46	-PDIAG
7	SELECT0*	27	DATA11	47	DATA8
8	GND	28	DATA12	48	DATA9
9	GND	29	DATA13	49	DATA10
10	GND	30	DATA14	50	GND
11	GND	31	DATA15		
12	GND	32	SELECT 1*		
13	+5V	33	NC		
14	GND	34	IOR*		
15	GND	35	IOW*		
16	GND	36	WE*		
17	GND	37	INTRQ		
18	A2	38	+5V		
19	A1	39	CSEL*		
20	A0	40	NC		

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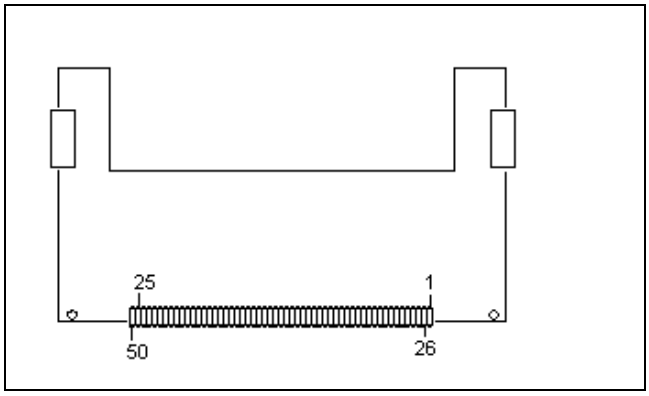
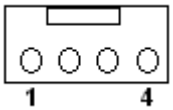
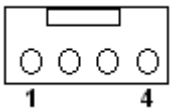


CN22: AUX-IN



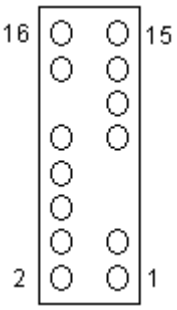
Pin	Signal
1	AUX-L
2	Ground
3	Ground
4	AUX-R

CN23: CD-IN



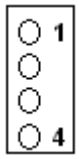
Pin	Signal
1	CD-L
2	Ground
3	Ground
4	CD-R

CN24: Front Panel Pin-Header



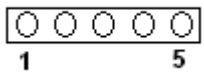
Pin	Signal	Pin	Signal
1	HLED+	2	5VSB
3	HLED-	4	Ground
5	NC	6	Suspend LED
7	NC	8	5VSB
9	SPK	10	Power Switch
11	Ground	12	NC
13	Ground	14	Reset
15	Ground	16	Ground

CN25: SPDIF Connector



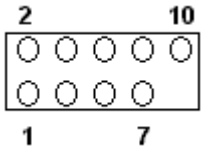
Pin	Signal
1	VCC (5V)
2	NC
3	SPDFIO
4	Ground

CN27: IrDA Connector



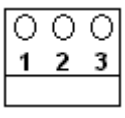
Pin	Signal
1	+5V
2	NC
3	SIRIN
4	Ground
5	SIROUT

CN29/CN30: IEEE 1394 Port 2/Port 3



Pin	Signal
1	XTPA1P
2	XTPA1M
3	Ground
4	Ground
5	XTPB1P
6	XTPB1M
7	+12V
8	-12V
9	NC
10	Ground

CN31/CN32: System FAN1/FAN2



Pin	Signal
1	GND
2	+12V
3	Sense

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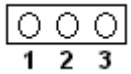
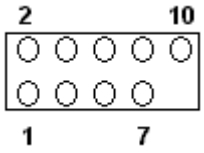
CN34: Wake On LAN Connector



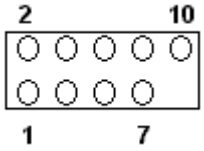
Pin	Signal
1	5VSB
2	GND
3	GPIO12

CN35: USB Port 3/4 Connector



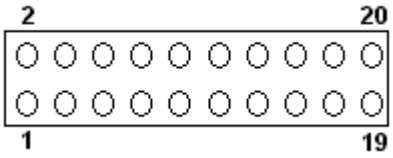
Pin	Signal
1	USB Power
2	USB Power
3	USBP1-
4	USBP0-
5	USBP1+
6	USBP1-
7	Ground
8	Ground
9	NC
10	Ground

CN36: USB Port 5/6 Connector



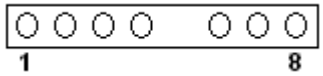
Pin	Signal
1	USB Power
2	USB Power
3	USBP3-
4	USBP2-
5	USBP3+
6	USBP2-
7	Ground
8	Ground
9	NC
10	Ground

CN37: Serial Port 3/4 Connector



Pin	Signal
1	NDCD#3
2	NDSR#3
3	NRXD3
4	R_NRTS#3
5	R_NTXD#3
6	NCTS#3
7	R_NDTR#3
8	RI IN#3
9	Ground
10	NC
11	NDCD#4
12	NDSR#4
13	NRXD#4
14	R_NRTS#4
15	R_NTXD#4
16	NCTS#4
17	R NDTR#4
18	RI IN#4
19	Ground
20	NC

CN39: Download Cable Connector



Pin	Signal	Pin	Signal
1	VCC	2	TDO
3	TDI	4	AEN
5	NC	6	TMS
7	GPO_0	8	RCK

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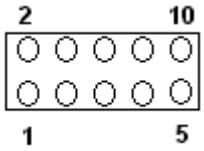
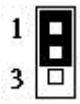
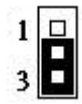
CN40: GPIO Connector

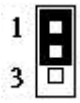
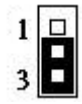


Pin	Signal	Pin	Signal
1	VCC	2	GPI_0
3	GPI_1	4	GPI_2
5	GPI_3	6	GPO_0
7	GPO_1	8	GPO_2
9	GPO_3	10	Ground

JP1: PS/2 Keyboard/Mouse Power Jumper

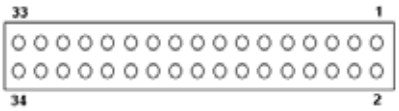
Setting		Define
	1-2	+5V(Default)
	2-3	+5VSB

JP2: RS422/485 Select

Setting		Define
	1-2	RS422
	1-2	RS485 (Two Wire)
	2-3	RS485 (Four Wire)

JP3: RS232/422/485 Selection

Pin	Signal	Pin	Signal
1	RXD2	2	RXD232
3	RXD2	4	RXD232
5	RXD2	6	RXD232
7	422TX-/485T(R)X-	8	422TX+/485T(R)X+
9	COM2 PIN1	10	COM2 PIN3
11	NDCD#3	12	NRXD2
13	422RX+	14	422RX-
15	COM2 PIN5	16	COM2 PIN7
17	R NTXD2	18	R NDTR#2
19	R TRS-	20	P RTS+
21	COM2 PIN2	22	COM2 PIN4
23	NDSR#2	24	R NRTS#2
25	P_CTS+	26	P_CTS-
27	COM2 PIN6	28	COM2 PIN8
29	NCTS#2	30	NRI#2
31	CTS#2	32	CTS#422
33	+5V	34	COM2 EN232



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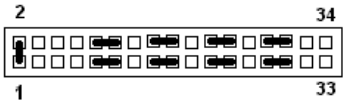
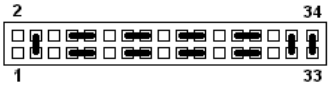
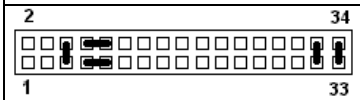
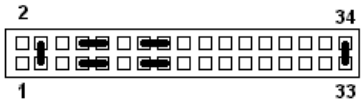
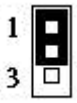
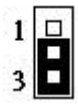
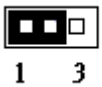
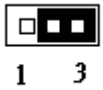
COM2 RS232/422/485 Mode Select

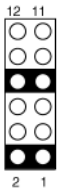
Setting		Function
	1-2, 9-11, 20-12, 15-17, 16-18, 21-23, 22-24, 27-29, 28-30	RS-232 (Default)
	3-4, 7-9, 8-10, 13-15, 14-16, 19-21, 20-22, 25-27, 26-28, 31-32, 33-34	RS-422
	5-6, 7-9, 8-10, 32-32, 33-34	RS-485 (Two Wire)
	3-4, 7-9, 8-10, 13-15, 14-16, 33-34	RS-485 (Four Wire)

JP4: RS422/485 Select

Setting		Define
	1-2	RS485 (Two Wire/Four Wire)
	2-3	RS422

JP5: USB Port 5/6 Power Jumper

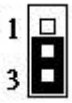
Setting		Define
	1-2	+5VSB
	2-3	+5V

Setting		Define
	7-8	NRI#4 (Default)
	1-2	NRI#3 (Default)

JP6: CompactFlash Master/Slave Jumper

Setting		Define
	ON	Master
	OFF	Slave

JP7: CMOS Clear

Setting		Define
	1-2	Normal(Default)
	2-3	Clear CMOS

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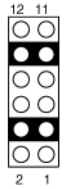
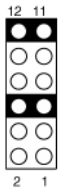
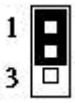
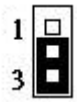
JP8: Modem Ring In

Setting		Define
	9-10	VCC
	3-4	

Setting		Define
	11-12	+12V
	5-6	

JP9/JP10: USB Port 1/2 and 3/4 Select

Setting		Define
	1-2	+5VSB
	2-3	+5V(Default)

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Chapter 3. BIOS Setup

The ROM chip of your AW-MB700 board is configured with a customized Basic Input/Output System (BIOS) from Phoenix-Award BIOS. The BIOS is a set of permanently recorded program routines that give the system its fundamental operational characteristics. It also tests the computer and determines how the computer reacts to instructions that are part of programs.

The BIOS is made up of code and programs that provide the device-level control for the major I/O devices in the system. It contains a set of routines (called POST, for Power-On Self Test) that check out the system when you turn it on. The BIOS also includes CMOS Setup program, so no disk-based setup program is required CMOS RAM stores information for:

- Date and time
- Memory capacity of the main board
- Type of display adapter installed
- Number and type of disk drives

The CMOS memory is maintained by battery installed on the AW-MB700 board. By using the battery, all memory in CMOS can be retained when the system power switch is turned off. The system BIOS also supports easy way to reload the CMOS data when you replace the battery of the battery power lose.

3.1 Quick Setup

In most cases, you can quickly configure the system by choosing the following main menu options:

1. Choose "Load Optimized Defaults" from the main menu. This loads the setup default values from the BIOS Features Setup and Chipset Features Setup screens.
2. Choose "Standard COS Features" from the main menu. This option lets you configure the date and time, hard disk type, floppy disk drive type, primary display and more.
3. In the main menu, press F10 ("Save & Exit Setup") to save your changes and reboot the system.

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3.2 Entering the CMOS Setup Program

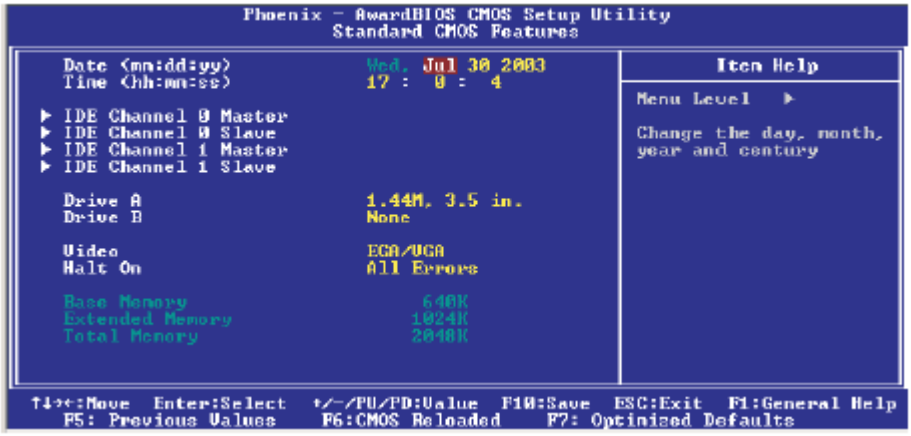
Use the CMOS Setup program to modify the system parameters to reflect the options installed in your system and to customize your system. For example, you should run the Setup program after you:

- Received an error code at startup
- Install another disk drive
- Use your system after not having used it for a long time
- Find the original setup missing
- Replace the battery
- Change to a different type of CPU
- Run the Phoenix-Award Flash program to update the system BIOS

Run the CMOS Setup program after you turn on the system. On-screen instructions explain how to use the program.

⇩ **Enter the CMOS Setup program's main menu as follows:**

1. Turn on or reboot the system. After the BIOS performs a series of diagnostic checks, the following message appears:
   "Press DEL to enter SETUP"
2. Press the <DEL> key to enter CMOS Setup program. The main menu appears:



3. Choose a setup option with the arrow keys and press <Enter>. See the following sections for a brief description of each setup option.

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In the main menu, press F10 ("Save & Exit Setup) to save your changes and reboot the system. Choosing "EXIT WITHOUT SAVING" ignores your changes and exits the program. Pressing <ESC> anywhere in the program returns you to the main menu.

3.3 Menu Options

The main menu options of the CMOS Setup program are described in the following and the following sections of this chapter.

STANDARD CMOS FEATURES:
Configure the date & time, hard disk drive type, floppy disk drive type, primary display type and more

ADVANCED BIOS FEATURES:
Configure advanced system options such as enabling/disabling cache memory and shadow RAM

ADVANCED CHIPSET FEATURES:
Configure advanced chipset register options such DRAM timing

INTEGRATED PERIPHERALS:
Configure onboard I/O functions

POWER MANAGEMENT SETUP:
Configure power management features such as timer selects

PNP/PCI CONFIGURATION:
Configure Plug & Play IRQ assignments and PCI slots

PC HEALTH STATUS:
Configure the CPU speed and, if the optional Winbond W83627HF system monitor IC is installed, view system information

LOAD FAIL-SAFE DEFAULT:
Loads BIOS default values. Use this option as diagnostic aid if your system behaves erratically

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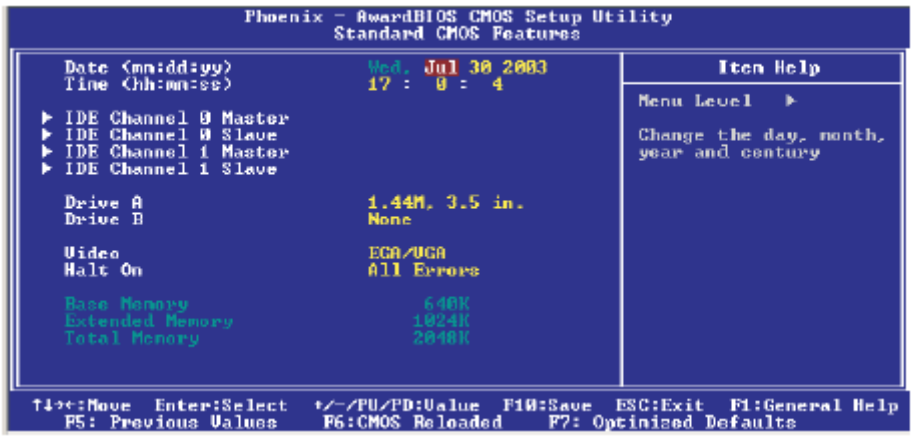
LOAD OPTIMIZED DEFAULTS:
Loads optimized BIOS settings

SET SUPERVISORS & USER PASSWORD:
Configure the system so that a password is required when the system boots or you attempt to enter the CMOS setup program. When you log in with this password, you will be able to enter the COS Setup main menu, but you cannot enter other menus in the CMOS Setup program.

SAVE & EXIT SETUP:
Save changes of values to CMOS and exit the CMOS setup program

EXIT WITHOUT SAVING:
Abandon all CMOS changes and exit the CMOS setup program

When you get in the BIOS program, you will see the Main menu and the contents is showed as below:
1.
Standard COMS Features
Set up the time, date for the system



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2. **Advanced BIOS Features**

There are some functions that you will use it frequently

Hard Disk Boot Priority: setup the order of device when you open the machine

CPU L1 & L2 Cache: This field is used to speed up the memory access. Enable the external cache for better performance.

Hyper-Threading Technology: can let you open the hyper-treading technologies of CPU. Please note that this only support Intel® Pentium® 4 processor

Quick Power On Self-Test: will enable you to cancel some checking item and increase the speed when you open the machine

Gate A20 Option

This entry allows you to select how gate A20 is handled. Gate A20 is a device used to address memory above 1 MB. Initially, gate A20 was handled via the keyboard controller. Today, while keyboards still provide this support, it is more common, and much faster, for the system chipset to provide support for gate A20.*Fast.* The chipset controls Gate A20.

Normal A pin in the keyboard controller controls Gate A20.

APIC Mode

Leave this field in its default setting，must be Enable.

The screen above list all the fields available in the Advanced BIOS Features submenu, for ease of reference in this manual. In the actual CMOS setup, you have to use the scroll bar to view the fields. The settings on the screen are for reference only. Your version may not be identical to this one.

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3. Advanced Chipset Features

The settings on the screen are for reference only. Your version may not be identical to this one.

Suggest you use the original setting in order to maintain the stable status of the system

DRAM Timing Selectable:

This field is used to select the timing of the DRAM.

CAS Latency Time

This field is used to select the local memory clock periods.

Active to Precharge Delay

Provide parameter of SDRAM for reference. ◦

DRAM RAS# to CAS# Delay

Control the command order and start the cycle time for read/write command by SDRAM

DRAM RAS# Precharge

This field controls RAS# precharge (in local memory clocks).

Memory Frequency For

This field is used to select the memory clock speed of the DIMM. DDR333 will run at 320MHz memory frequency when used with 800MHz FSB CPU. Under such circumstance, make sure this fields set to Auto or DDR320.

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System BIOS Cacheable

When this field is enabled, accesses to the system BIOS ROM addressed at F0000H-FFFFFH are cached, provided that the cache controller is enabled. The larger the range of the Cache RAM, the higher the efficiency of the system.

Video BIOS Cacheable

As with caching the system BIOS, enabling the Video BIOS cache will allow access to video BIOS addressed at C0000H to C7FFFH to be cached, if the cache controller is also enabled. The larger the range of the Cache RAM, the faster the video performance.

Memory Hole At 15M-16M

In order to improve system performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16MB. When enabled, the CPU assumes the 15-16MB memory range is allocated to the hidden ISA address range instead of the actual system DRAM. When disabled, the CPU assumes the 15-16MB address range actually contains DRAM memory. If more than 16MB of system memory is installed, this field must be disabled to provide contiguous system memory.

AGP Aperture Size (MB)

This field is relevant to the memory-mapped graphics data of the AGP card installed in your system. Leave this in its default setting.

Init Display First

If your system has both PCI and AGP Interface display card, this function can let you choose the display card you want to use first.

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Integrated Peripherals

OnChip IDE Device

The settings on the screen are for reference only. Your version may not be identical to this one.

IDE HDD Block Mode

Enabled The IDE HDD uses the block mode. The system BIOS will check the hard disk drive for the maximum block size the system can transfer. The block size will depend on the type of hard disk drive.

Disabled **The IDE HDD uses the standard mode.**

On-Chip Primary PCI IDE

These fields allow you to enable or disable the primary and secondary IDE controller. Select Disabled if you want to add a different hard drive controller.

IDE Primary Master/Slave PIO and IDE Secondary Master/Slave PIO

PIO means Programmed Input/Output. Rather than have the BIOS issue a series of commands to affect a transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by them. Your system supports five modes, 0 (default) to 4, which primarily differ in timing. When Auto is selected, the BIOS will select the best available mode after checking your drive. *Auto* The BIOS will automatically set the system according to your hard disk drive's timing.

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Mode 0-4 You can select a mode that matches your hard disk drive's timing. Caution: Do not use the wrong setting or you will have drive errors.

IDE Primary Master/Slave UDMA and IDE Secondary Master/Slave UDMA These fields allow you to set the Ultra DMA in use. When Auto is selected, the BIOS will select the best available option after checking your hard drive or CD-ROM. *Auto* The BIOS will automatically detect the settings for you. *Disabled* The BIOS will not detect these categories.

On-Chip Serial ATA Setting

This section is used to configure the SATA 1 and SATA 2 ports that are controlled by the Intel ICH5 chip.

On-Chip Serial ATA

***Disabled* Disables the onboard SATA.**

Auto The system will detect the existing SATA and IDE drives then automatically set them to the available master/slave mode.

Combined Mode

This option allows you to use both IDE and SATA drives; allowing a maximum of 4 drives. You must manually set the SATA drives' master/slave mode in the "Serial ATA Port0 Mode" and "Serial ATA Port1 Mode" fields.

Enhanced Mode

This option allows you to use both IDE and SATA drives; allowing a maximum of 6 drives. *SATA Only* This option automatically sets the SATA drives to Primary Master and Secondary Master modes. Since both drives are in master mode, you cannot set the IDE drives to Master mode. The "Serial ATA Port0 Mode" and "Serial ATA Port1 Mode" fields will not be configurable.

Please note that when you using Windows 2000/XP system,ICH5 system chips can support max 6 IDE devices。When using MS-DOS，Windows98SE/ME/NT4.0 system，ICH5 can support max 4 IDE device.

Serial ATA Port0 Mode and Serial ATA Port1 Mode These fields are used to select the master/slave mode of the serial ATA drives. Make sure they do not conflict with the settings of the IDE hard drives.

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Onboard Device

USB Controller

Enabled the onboard USB. You can further configure the onboard USB in the "USB 2.0 Controller" and "USB Keyboard Support" fields. Disabled Disables the onboard USB.

USB 2.0 Controller

If you are using USB 2.0, this field must be set to Enabled.

USB Keyboard Support

If you are using a USB keyboard under DOS, set this field to Enabled.

AC97 Audio

Auto Select this option when using the onboard audio codec.

Disabled Select this option when using a PCI sound card.

(Giga-LAN)

Auto Select this option when using the onboard Giga LAN 547EI

Disabled the onboard Giga LAN

Super IO Device

Power ON Function	Password、Hot Key、Any key、Button Only、keyboard 98
KB Power ON Password	User define
Hot KEY Power ON	User define
Onboard Serial Port 1	3F8/IRQ4、2F8/IRQ3、3E8/IRQ4、2E8/IRQ3、AUTO
Onboard Serial Port 2	3F8/IRQ4、2F8/IRQ3、3E8/IRQ4、2E8/IRQ3、AUTO
UART Mode Select	IrDA、ASKIR、Normal
Rxd, Txd Active	Hi,Lo
IR,Transmission Delay	Enabled
UR2 Duplex Mode	Half
Use IR Pins	IR-Rx2Tx2
Onboard Parallel Port	378/IRQ7、278/IRQ5、3BC/IRQ7
Parallel Port Mode	SPP/EPP/ECP/ECP+EPP
EPP Mode Select	EPP1.7
ECP Mode Use DMA	3
Power After PWR-Fail	Off/On/Former-Sts

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POWER ON Function

The power button will not function once a keyboard password has been set in this field. You must type the correct password to power-on the system. If you forgot the password, turn off the system and remove the battery. Wait for a few seconds and install it back before powering-on the system.

IR Mode Select

This field is used to select the type of IrDA standard supported by your IrDA device. For better transmission of data, your IrDA peripheral device must be within a 30o angle and within a distance of 1 meter.

RxD, TxD Active

The options are Hi, Lo; Lo, Hi; Lo, Lo; and Hi, Hi.

UR2 Duplex Mode

Half Data is completely transmitted before receiving data.

Full Transmits and receives data simultaneously.

Onboard Parallel Port

378/IRQ7, 3BC/IRQ7, 278/IRQ5 Selects the I/O address and IRQ for the onboard parallel port.

Disabled Disables the onboard parallel port.

Parallel Port Mode

The options are SPP, EPP, ECP and ECP+EPP. These apply to a standard specification and will depend on the type and speed of your device. Refer to your peripheral's manual for the best option.

SPP

Allows normal speed operation but in one direction only.

ECP (Extended Capabilities Port)

Allows parallel port to operate in bidirectional mode and at a speed faster than the normal mode's data transfer rate.

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EPP (Enhanced Parallel Port)

Allows bidirectional parallel port t operation at maximum speed.

If you selected EPP, the "EPP Mode Select" field is configurable. If you selected ECP, the "ECP Mode Use DMA" field is configurable. If you selected ECP+EPP, both "EPP Mode Select" and "ECP Mode Use DMA" are

configurable.

PWRON after PWR-Fail

This function allows you to setup the system whether you want restart or shut down the machine after the powers interrupt.

Off: Remain system closed when you restart the power

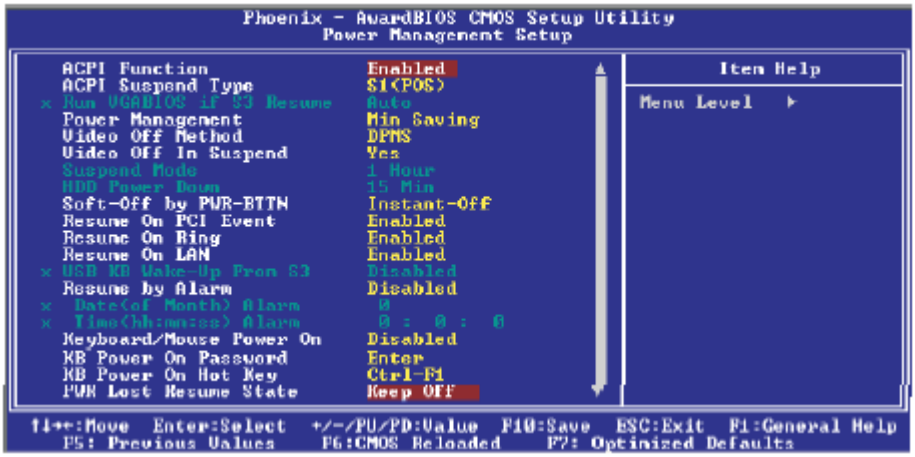
On: When restart the power it will remain the status that the machine is on.

Former-Sts: The system wills back to the status that power is not interrupt.

Watch Dog Timer Select

You can set up the watchdog timer.

Power Management Setup



ACPI Function

This function should be enabled only in operating systems that support ACPI. Currently, only Windows® 98SE/2000/ME/XP supports this function. When this field is enabled, the system will ignore the settings in the "Suspend Mode" and "HDD Power Down" fields. If you want to use the Suspend to RAM function, make sure this field is enabled then select "S3 (STR)" in the field below.

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ACPI Suspend Type

This field is used to select the type of Suspend mode.

S1(POS) Enables the Power On Suspend function.

S3(STR) Enables the Suspend to RAM function. You can further configure this function by setting

the "Run VGABIOS if S3 Resume" and "**USB KB Wake-Up From S3" fields**. Run VGABIOS if S3 Resume

When this field is set to Auto, the system will initialize the VGA BIOS when it wakes up from the S3 state. This can be configured only if the "ACPI Suspend Type" field is set to "S3(STR)".

Power Management

This field allows you to select the type (or degree) of power saving by changing the length of idle time that elapses before the "Suspend Mode" and "HDD Power Down" field is activated. *Min Saving* Minimum power saving time for the "Suspend Mode" and "HDD Power Down" = 15 min.

Max Saving Maximum power saving time for the "Suspend Mode" and "HDD Power Down" = 1 min.

User Define Allows you to set the power saving time in the "Suspend Mode" and "HDD Power Down" field.

Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC + Blank This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.

Blank Screen This option only writes blanks to the video buffer.

DPMS Initializes display power management signaling. Use this option if your video board supports it. Video Off In Suspend This field is used to activate the video off feature when the system enters the Suspend mode.

Suspend Mode

When the system enters the Suspend mode, the CPU and onboard peripherals will be shut off.

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HDD Power Down

This is selectable only when the Power Management field is set to User Define. When the system enters the HDD Power Down mode according to the power saving time selected, the hard disk drive will be powered down while all other devices remain active.

Soft-Off by PWR-BTTN

This field allows you to select the method of powering off your system.

Delay 4 Sec. Regardless of whether the Power Management function is enabled or disabled, if the power button is pushed and released in less than 4 sec, the system enters the Suspend mode. The purpose of this function is to prevent the system from powering off in case you accidentally "hit" or pushed the power button. Push and release again in less than 4 sec to restore. Pushing the power button for more than 4 seconds will power off the system.

Instant-Off Pressing and then releasing the power button at once will immediately power off your system.

Resume on PCI Event

Enabled This field should be set to Enabled only if your PCI card such as LAN card or modem card uses the PCI PME (Power Management Event) signal to remotely wake up the system. Access to the LAN card or PCI card will cause the system to wake up. Refer to the card's documentation for more information.

Disabled The system will not wake up despite access to the PCI card.

Wake up On LAN

If you are using a LAN card that supports the remote wake up function, set this field to Enabled. The will allow the network to remotely wake up a Soft Power Down (Soft-Off) PC. However, if your system is in the Suspend mode, you can wake up the system only through an IRQ or DMA interrupt.

Resume By Alarm

Enabled When Enabled, you can set the date and time you would like the Soft Power Down (Soft-Off) PC to power-on in the "Date (of Month) Alarm" and "Time (hh:mm:ss) Alarm" fields. However, if the system is being accessed by incoming calls or the network (Resume On Ring/LAN) prior to the date and time set in these fields, the system will give priority to the incoming calls or network.

Disabled Disables the automatic power-on function. (default)

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PnP/PCI Configurations

PNP OS Installed

NO: BIOS program will adjust all the set up by itself

YES: When you install the system that support plug & play, press＜Yes＞

Reset Configuration Data

Enabled The BIOS will reset the Extended System Configuration Data (ESCD) once automatically. It will then recreate a new set of configuration data.

Disabled The BIOS will not reset the configuration data.

Resources Controlled By The Award Plug and Play BIOS has the capability to automatically configure all of the boot and Plug and Play compatible devices.

Auto(ESCD) The system will automatically detect the settings for you.

Manual Choose the specific IRQ in the "IRQ Resources" field.

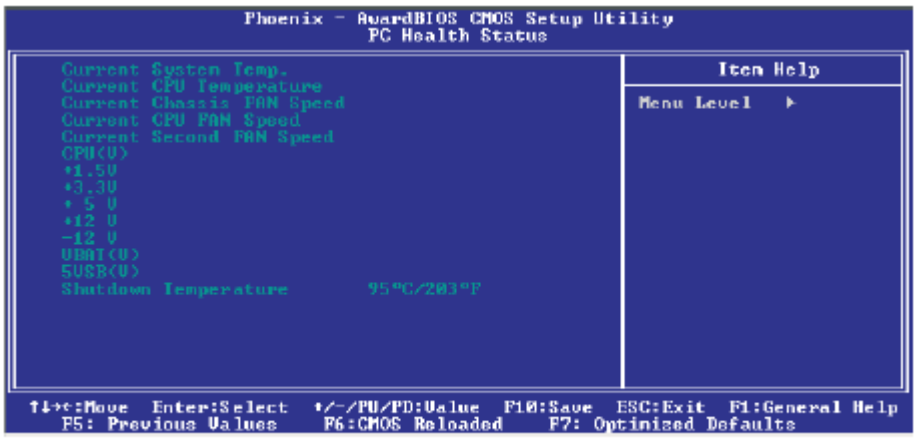
PCI/VGA Palette Snoop

This field determines whether the MPEG ISA/VESA VGA cards a work with PCI/VGA or not.

Enabled MPEG ISA/VESA VGA cards work with PCI/VGA.

Disabled MPEG ISA/VESA VGA cards does not work with PCI/VGA.

PC Health Status



The settings on the screen are for reference only. Your version may not be identical to this one.

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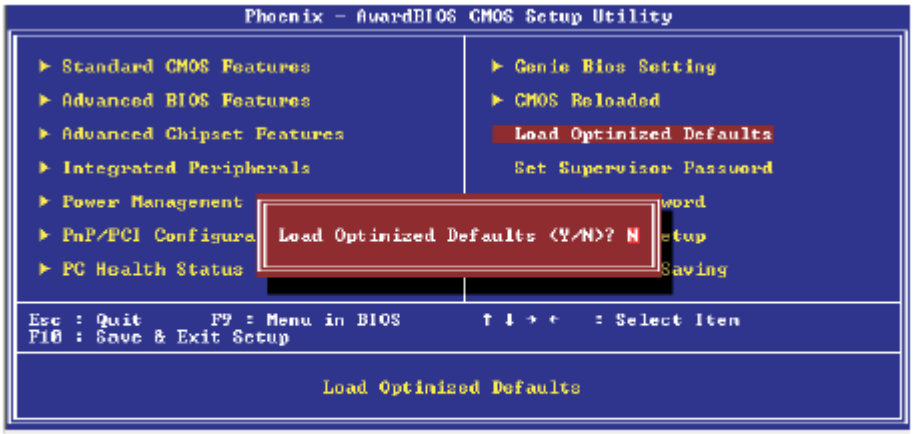
Shutdown Temperature

You can prevent the system from overheating by selecting a temperature in this field. If the system detected that its temperature exceeded the one set in this field, it will automatically shutdown. This function will work only when you enable this function in the Hardware Monitor utility.

Current System Temperature, Current CPU Temperature, Current SYSTEM Fan Speed

Load Optimized Defaults

The "Load Optimized Defaults" option loads optimized settings from the BIOS ROM. Use the default values as standard values for your system. Highlight this option in the main menu and press <Enter>.



Type <Y> and press <Enter> to load the Setup default values.

Set Supervisor Password

If you want to protect your system and setup from unauthorized entry, set a supervisor's password with the "System" option selected in the Advanced BIOS Features. If you want to protect access to setup only, but not your system, set a supervisor's password with the "Setup" option selected in the Advanced BIOS Features. You will not be prompted for a password when you

cold boot the system. Use the arrow keys to highlight "Set Supervisor Password" and press <Enter>.

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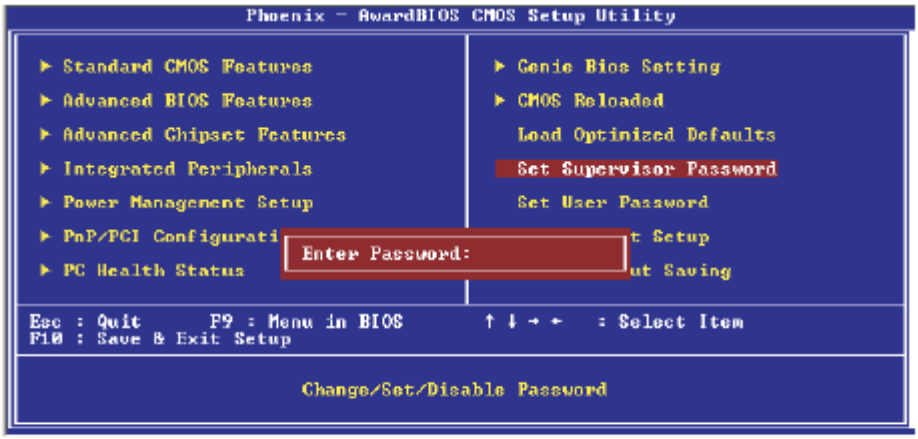
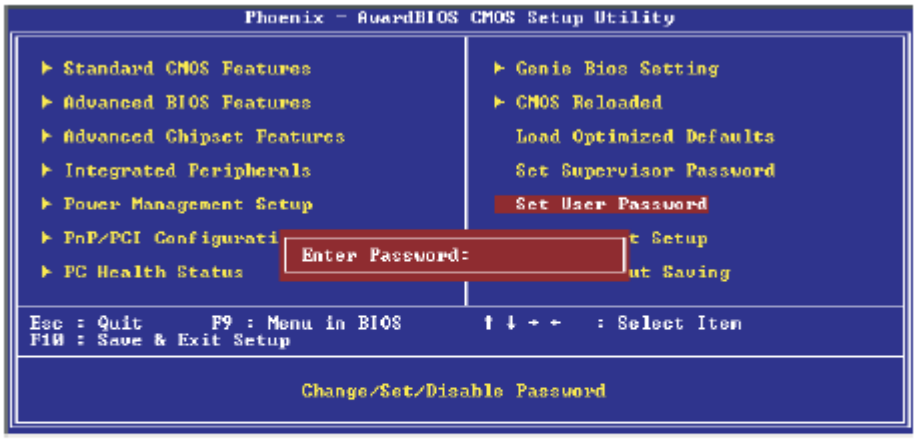


Type in the password. You are limited to eight characters. When done, the message below will appear:

Set User Password

If you want another user to have access only to your system but not to setup, set a user's password with the "System" option selected in the Advanced BIOS Features. If you want a user to enter a password when trying to access setup, set a user's password with the "Setup" option selected in the Advanced BIOS Features. Using user's password to enter Setup allows a user to access

only "Set User Password" that appears in the main menu screen. Access to all other options is denied. Use the arrow keys to highlight "Set User Password" and press<Enter>.



Type in the password. You are limited to eight characters. When done, the message below will appear:

Confirm Password:

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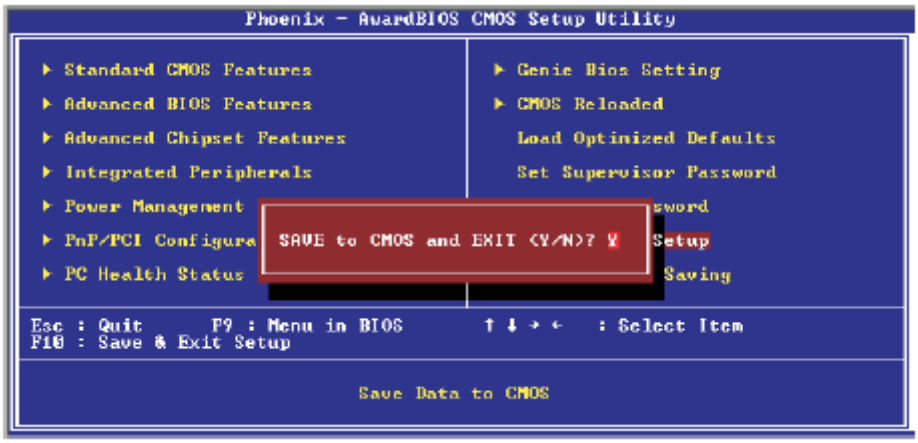
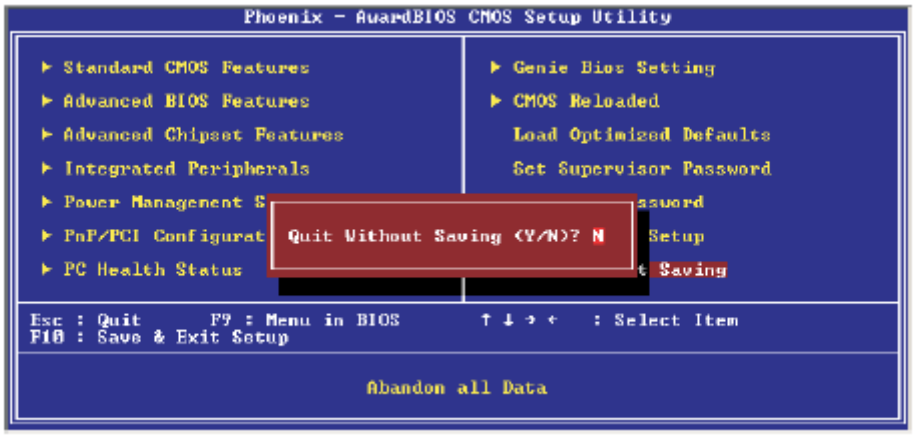
Save & Exit Setup

When all the changes have been made, highlight "Save & Exit Setup" and press <Enter>.



Exit Without Saving

When you do not want to save the changes you have made, highlight "Exit Without Saving" and press <Enter>.Type "Y" and press <Enter>. The system will reboot and you will once again see the initial diagnostics on the screen. If you wish to make any changes to the setup, press <Ctrl> <Alt> <Esc> simultaneously or <Del> after memory testing is done.



（3）INTEL RAID support Serial ATA setup

Installing Serial ATA（SATA）hard disks requires the use of a new SATA data cable（4-conductor）which supports the Serial ATA protocol and a SATA power cable. Either end of the SATA data cable can be connected to the SATA hard disk or the SATA connector on the motherboard.

- Both the data and power SATA cables are new cables. You cannot use older 40-pin 80-conductor IDE or regular IDE power cables with SATA hard drives.

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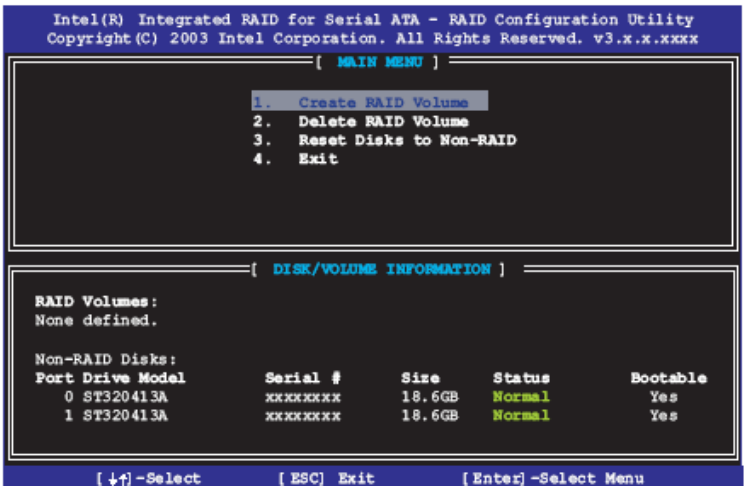
•Carefully follow any technical instructions that come from the hard disk manufacturer. Follow the given steps for correct cable installation:

1. Attach either cable end to the SATA connector on the motherboard.
2. Attach the other cable end to the SATA hard disk.

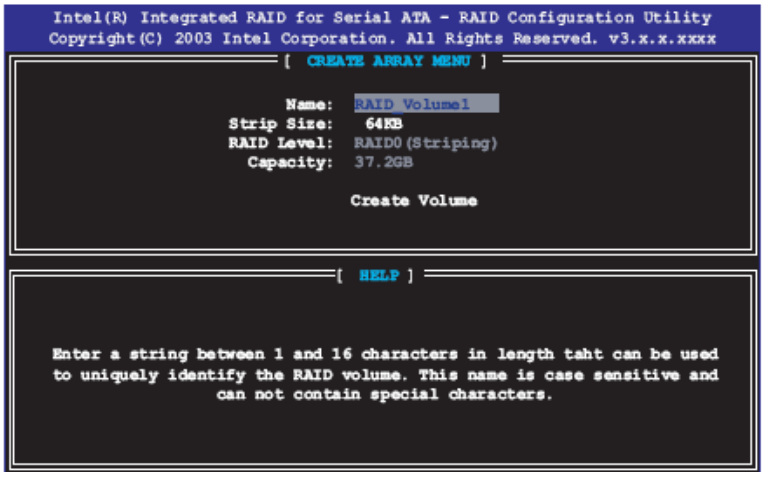
Creating, Deleting, and Resetting RAID Sets

The Serial ATA RAID set must be configured in the RAID Configuration utility. This configuration can be done by the Intel RAID Option ROM. During the Power-On Self Test (POST), the following message will appear for a few seconds: Press ＜Ctrl-I＞ to enter Raid Configuration Utility. After this message appears, press the ＜Ctrl＞ and ＜I＞ keys simultaneously, the following screen menu appears.



Creating a RAID volume

1. Select option 1 Create RAID Volume and press the ＜Enter＞ key



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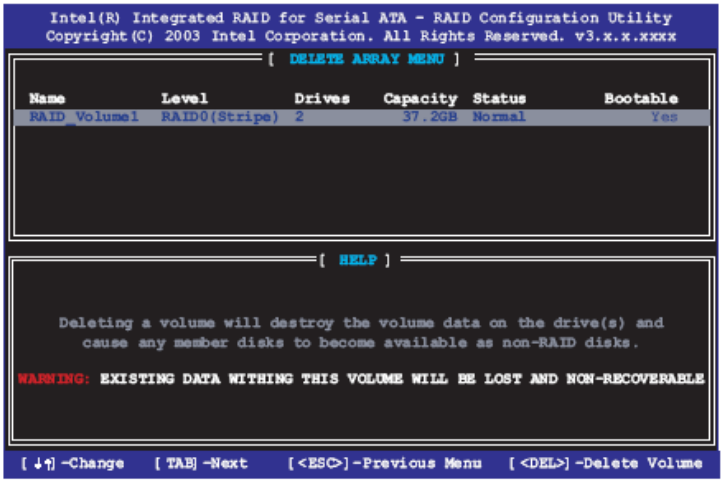
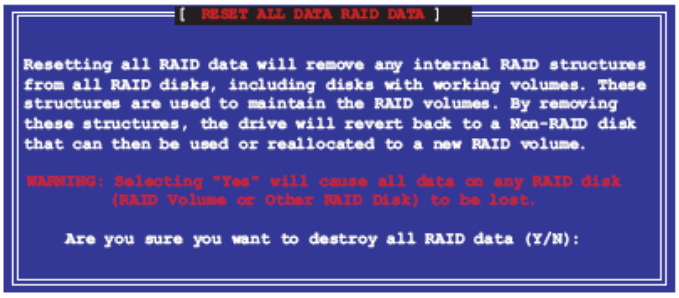
2. Select the stripe value for the RAID 0 array by scrolling through the available values by using the up and down arrow keys and pressing the ＜Enter＞ key.
3. The available values range form 8 KB to 128KB increments. The strip value should be chosen based on the planned drive usage. Some suggested selections are listed below. The default selection is 64 KB.
   16KB – low disk usage
   64KB – typical disk usage
   128KB – performance disk usage
4. Press the ＜Enter＞ key again to the Create Volume prompt to create the array. Confirm this selection by click ＜Y＞key after prompt.

5. Scroll top option 4 Exit and press the ＜Enter＞ key to exit the RAID configuration utility. Confirm the exit by pressing ＜Y＞key.

Deleting a RAID Volume



1. Select option 3 Reset RAID Data and press the ＜Enter＞ key to delete the RAID set and remove any RAID structures from the drives.



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2. Confirm the volume deletion by pressing the ＜Y＞ key

USING INTEL Utility driver

Important Notes

1. The iaar2_floppy.exe utility enables you to create a floppy disk with the RAID Driver necessary when configuring RAID installations.
2. During OS installation, press the F6 key and insert the created driver floppy disk to upload RIAD driver.

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Chapter 4 Driver utility

The System drive installation procedure must be performed first.

4.1 Ethernet Driver Installation

4.1.1 install 865 chipset update driver

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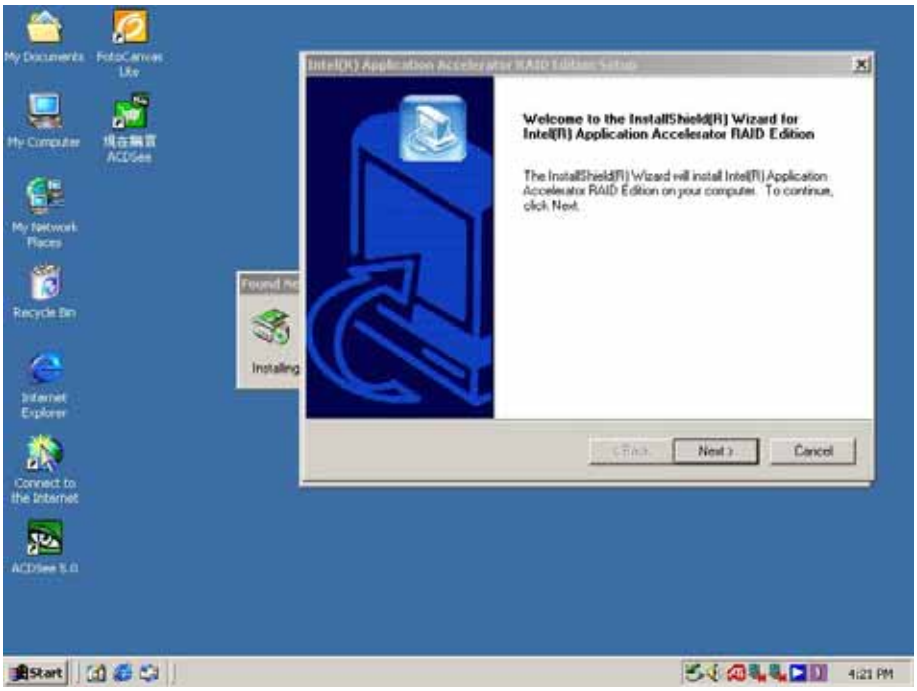
4.1.2 Intel Application accelerator RAID Edition

（1）Install SATA RAID application



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（2）Install AD198 Driver& Applications

USB 2.0 Driver

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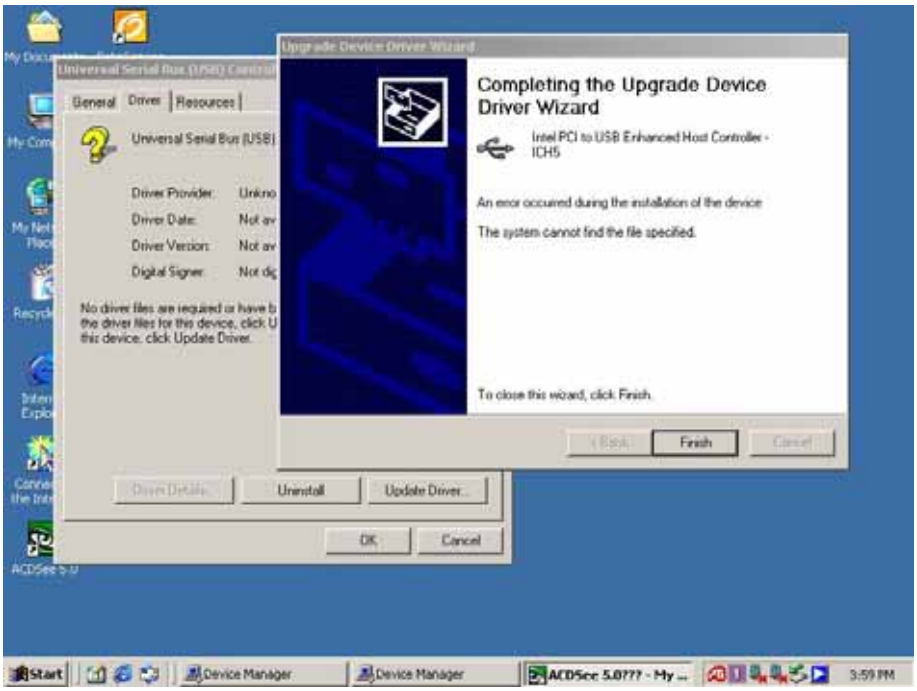

INTEL 547EI Gigabit LAN Driver

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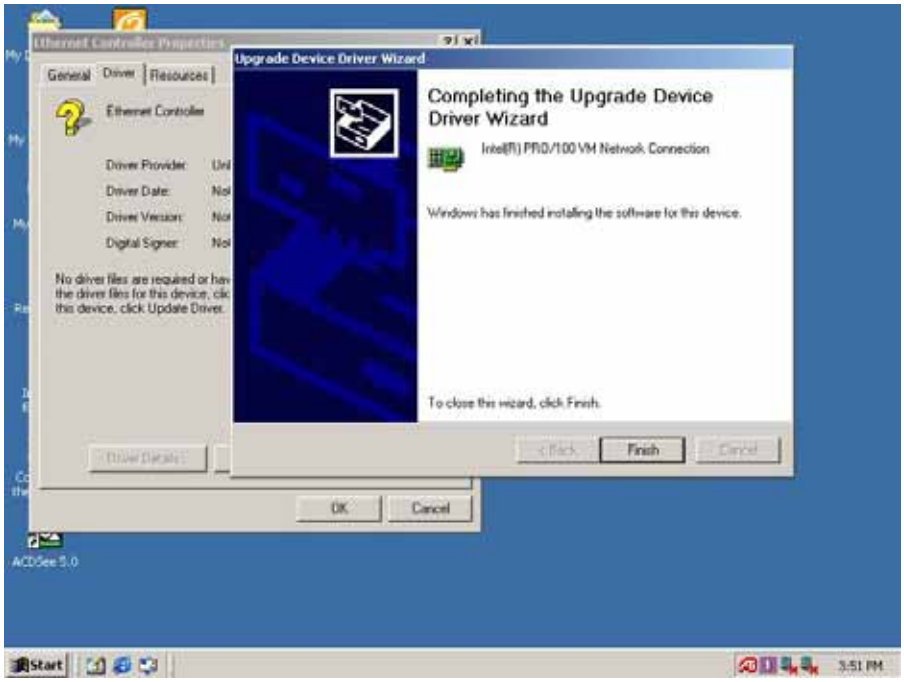
INTEL 562EM 100 Base LAN



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