

IB900

Intel Xeon E7500/E7501
Full Size CPU Card

USER'S MANUAL

Version 1.0

Acknowledgments

Award is a registered trademark of Award Software International, Inc.

PS/2 is a trademark of International Business Machines Corporation.

Intel and Xeon are registered trademarks of Intel Corporation.

Microsoft Windows is a registered trademark of Microsoft Corporation.

Winbond is a registered trademark of Winbond Electronics Corporation.

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

Table of Contents

Introduction	1
Product Description	1
Checklist.....	2
Specifications.....	3
Board Dimensions.....	4
Installations	5
Installing the CPU.....	6
ATX Power Installation	7
Installing the Memory	7
Setting the Jumpers.....	9
Connectors on IB900	13
BIOS Setup	22
Drivers Installation	41
Windows 2000/XP Chipset Drivers Installation	42
Intel Software Installation Utility.....	42
ATI M6 VGA Driver Installation	45
PCI Ethernet Drivers.....	48
Windows NT 4.0 Chipset Drivers Installation	50
ATI M6 VGA Driver Installation	50
PCI Ethernet Drivers Installation	50

This page is intentionally left blank.

Introduction

Product Description

The IB900 Intel Xeon full size CPU card is based on the Intel ET7500/ET7501 chipset. With two 184-pin DDR memory sockets, up to 4GB of memory is supported. A dual-channel DDR-200/266 memory interface provides a maximum memory bandwidth of 3.2 GB/s through a 144-bit wide, 200/266 MHz Double Data Rate SDRAM memory interface with densities up to 512 megabits is supported.

The Intel® Xeon™ Processor provides exceptional performance for applications running on advanced operating systems and delivers unparalleled computing power for powerful workstations, internet infrastructure, and departmental server applications. The Intel® NetBurst™ micro-architecture and Hyper-Threading Technology deliver outstanding performance and headroom for peak internet server workloads, resulting in faster response times, support for more users, and improved scalability.

The on board Intel® E7501 Chipset Memory Controller Hub (MCH) is the central hub for all data passing through core system elements such as the dual Intel Xeon processors with 512 KB L2 cache via the system bus interface, the memory via memory interface, and both the 64-bit PCI/PCI-X and I/O controller hubs via Intel® Hub Interfaces.

IB900's Intel® 82870P2 64-bit PCI/PCI-X Controller Hub 2 (P64H2) connects to the MCH through a point-to-point Hub Interface 2.0 connection. P64H2 devices can be attached to the MCH with each providing an I/O bandwidth greater than 1 GB/s.

Through the Intel® 82801CA I/O Controller Hub 3-S (ICH3-S) that connects to the MCH through a point-to-point Hub Interface 1.5 connection, IB900 features two-channel Ultra ATA/100 bus master IDE interface and four USB ports. It also supports System Manageability Bus 2.0 (SMBus 2.0) and PCI 2.2-compliant interfaces.

This CPU card represents the perfect choice for those who want superior performance for rugged and demanding applications in industrial automation, telecommunications and data-intensive applications.

Checklist

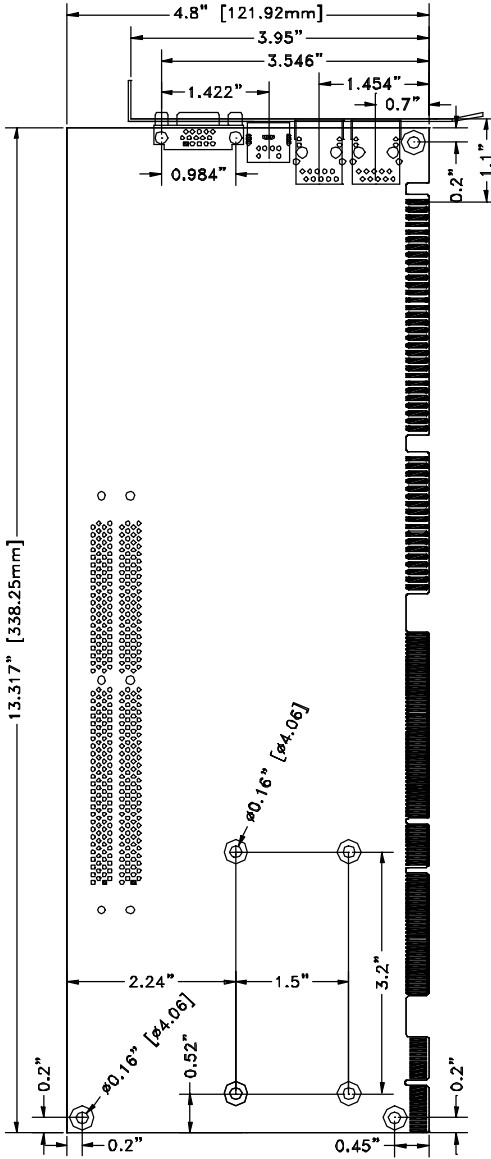
Your IB900 package should include the items listed below.

- The IB900 Industrial CPU Card
- This User's Manual
- 2 IDE Ribbon Cable
- 1 Floppy Ribbon Connector
- 2 Serial Port Ribbon Cable and 1 Parallel Port Attached to a Mounting Bracket
- 1 Y-Cable supporting a PS/2 Keyboard and a PS/2 Mouse
- 1 CD containing the following:
 - Chipset Drivers
 - Flash Memory Utility
- Optional USB cable with bracket

Specifications

CPU Socket	mPGA604 ZIF socket
CPU	Intel Xeon Processor, 1.8GHz~2.8GHz+ Supports Hyper-Threading technology
Chipset	Intel E7501 chipset E7501 Memory Controller Hub (MCH) 82801CA Integrated Controller Hub (ICH3-S) 82870P2 64-bit PCI/PCI-X Controller (P64H2)
Bus Frequency	System Bus: 533Mhz (E7501 chipset) Hub Link 2.0 : 1GB/s PCI-X (on board): 64-bit/133MHz PCI : 32-bit/33MHz/66MHz or 64-bit/33MHz/66MHz ISA : 16-bit/8MHz Remarks: PCI 66Mhz/64-bit requires 3.3V voltage.
L2 Cache	512K, CPU integrated
BIOS	Award BIOS, 4M FWH
System Memory	Two 184-pin DDR memory slots Up to 4GB memory capacity PC266 (E7501) support One 144-bit wide DDR memory port Supports x72 ECC registered DIMMs
VGA	ATI M6 VGA controller 8MB embedded VGA memory Supports CRT, LVDS (24-bit) interface
LAN	Intel 82546EB Dual Port Gigabit Ethernet Controller PCI-X 1.0a compliant bus supports 133 MHz
LPC I/O	Winbond 83627HF supports parallel port, COM1 (RS232), COM2 (RS232/422/485) serial ports, FDD controller, hardware monitor
IDE Interface	Chipset built-in; two enhanced IDE supports 4 IDE devices including UDMA33/66/100, PIO mode 4 and bus master
FDD Interface	Supports up to two floppy disk drives: 3.5" and/or 5.25" drives; 3 Mode support
Parallel Port	One parallel port supports SPP/EPP/ECP modes
Serial Ports	One RS-232/422/485 and one RS-232 port
Watchdog Timer	Generates system reset; 256 levels
USB	Four USB ports USB 1.1 compliant
Keyboard and Mouse	PS/2 type connectors
ISA High Drive	Winbond W83628, W83629 PCI to ISA Bridge Chip
Power Connector	ATX 12V power connector
Form Factor	Full Size CPU Card
Dimensions	338mm x 122mm (13.3" x 4.8")

Board Dimensions



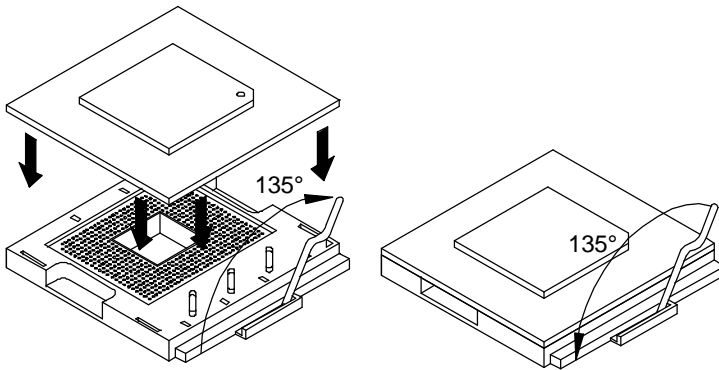
Installations

This section provides information on how to use the jumpers and connectors on the IB900 in order to set up a workable system. The topics covered are:

Installing the CPU	6
ATX Power Installation	7
Installing the Memory	7
Setting the Jumpers	9
Connectors on IB900.....	13

Installing the CPU

The IB900 CPU Card supports a CPU socket for Intel Xeon processors. This socket comes with a lever to secure the processor. Raise this lever to about a 90° angle to allow the insertion of the processor. Place the processor into the socket by making sure the notch on the corner of the CPU corresponds with the notch on the inside of the socket. Once the processor has slide into the socket, return the lever to the lock position. Refer to the figures below.



After you have installed the processor into the socket, check if the jumpers for the CPU type and speed are correct.

NOTE: *Ensure that the CPU heat sink and the CPU top surface are in total contact to avoid CPU overheating problem that would cause your system to hang or be unstable.*

ATX Power Installation

The system power is provided to the IB900 CPU card with the J2 and J15 ATX power connectors. Please note that the J15 external ATX power connector should be connected to the backplane for IB900 to function. J15 is a 3-pin power connector. J2 is a 4-pin 12V power connector. J2 is to be connected to the ATX power supply.

Installing the Memory

The IB900 CPU Card supports two DDR memory sockets for a maximum total memory of 4GB in DDR memory type.

**Note: DIMM modules must be DDR/ECC/Reg Only.
Modules “in pairs” must be the same type and size.**

The memory module capacities supported are 64MB, 128MB, 256MB, 512MB, 1GB and 2GB. The following table lists the supported SDR DIMM configurations.

Supported DDR DIMM Configurations.

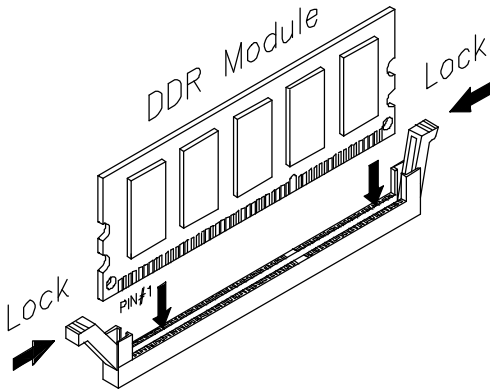
Density	64 Mbit		128Mbit		256Mbit		512Mbit	
Device Width	X4	X8	X4	X8	X4	X8	X4	X8
Single/Double	SS/DS	SS/DS	SS/DS	SS/DS	SS/DS	SS/DS	SS/DS	SS/DS
184-pin DDR	128/256M B	64/128MB	256/512M B	128/256M B	512MB /1GB	256/512M B	1GB/2GB	512MB /1GB

Installing and Removing Memory Modules

To install the DDR modules, locate the memory slot on the CPU card and perform the following steps:

1. Hold the DDR module so that the key of the DDR module align with those on the memory slot.
2. Gently push the DDR module in an upright position until the clips of the slot close to hold the DDR module in place when the DDR module touches the bottom of the slot.

3. To remove the DDR module, press the clips with both hands.

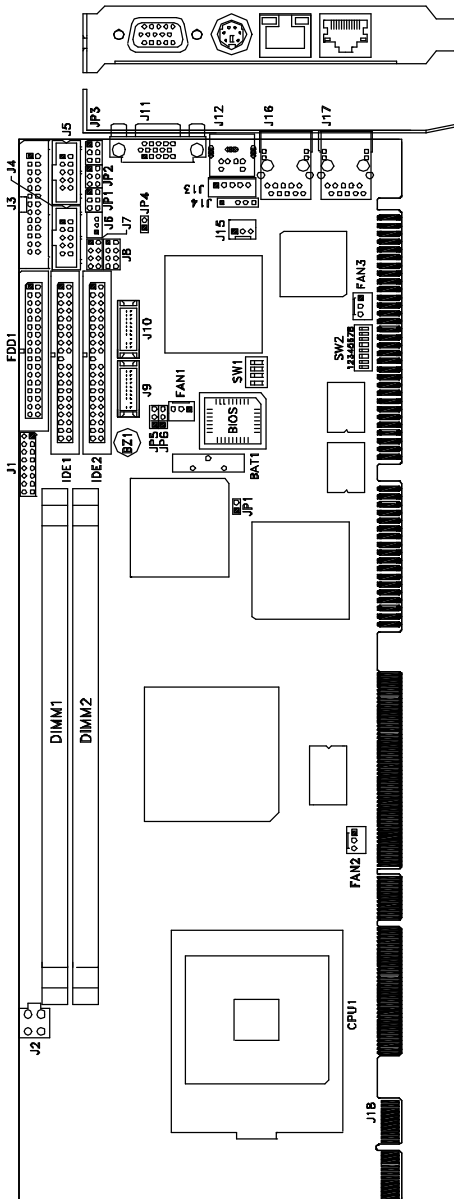


Setting the Jumpers

Jumpers are used on IB900 to select various settings and features according to your needs and applications. Contact your supplier if you have doubts about the best configuration for your needs. The following lists the connectors on IB900 and their respective functions.

Jumper Locations on IB900.....	10
Configuring the CPU Frequency	11
SW1: LVDS Resolution Select.....	11
SW2 (1-4): PCI (PICMG) Bus Setting.....	11
SW2 (5-8): For 82546EB Gigabit LAN (J15/J17)	11
JP1, JP2, JP3: RS232/422/485 (COM2) Selection	12
JP6: LVDS Panel Power Select	12
JP5: Clear CMOS Contents	12

Jumper Locations on IB900





Configuring the CPU Frequency



The IB900 CPU card does not provide DIP switches to configure the processor speed (CPU frequency).

SW1: LVDS Resolution Select






The table below shows the switch settings for the LVDS resolution.

Resolution	SW1(1-4)	Resolution	SW1(1-4)
800x600x18bit	 off on on off	1024x768x18bit	 on on off off

SW2 (1-4): PCI (PICMG) Bus Setting

PCI Setting	SW2(1-4)
PCI-33 (default)	 off on off on xx xx xx xx
PCI-66	 off on off off xx xx xx xx

SW2 (5-8): For 82546EB Gigabit LAN (J15/J17)

PCI-33	 xx xx xx xx on on on on
PCI-66	 xx xx xx xx off on off off
PCI-X-66	 xx xx xx xx off off on on
PCI-X-100	 xx xx xx xx on off off off
PCI-X-133 (default)	 xx xx xx xx off off off off

JP1, JP2, JP3: RS232/422/485 (COM2) Selection

COM1 is fixed for RS-232 use only.

COM2 is selectable for RS232, RS-422 and RS-485.

The following table describes the jumper settings for COM2 selection.

		COM2 Function	RS-232	RS-422	RS-485
	Jumper Setting (pin closed)	JP1: 1-2	JP1: 3-4	JP1: 5-6	
		JP2: 3-5 & 4-6	JP2: 1-3 & 2-4	JP2: 1-3 & 2-4	
		JP3: 3-5 & 4-6	JP3: 1-3 & 2-4	JP3: 1-3 & 2-4	

JP6: LVDS Panel Power Select

JP6	LVD Panel Power
	3.3V (default)
	5V

JP5: Clear CMOS Contents

Use JP5, a 3-pin header, to clear the CMOS contents. *Note that the ATX-power connector should be disconnected from the CPU card before clearing CMOS.*

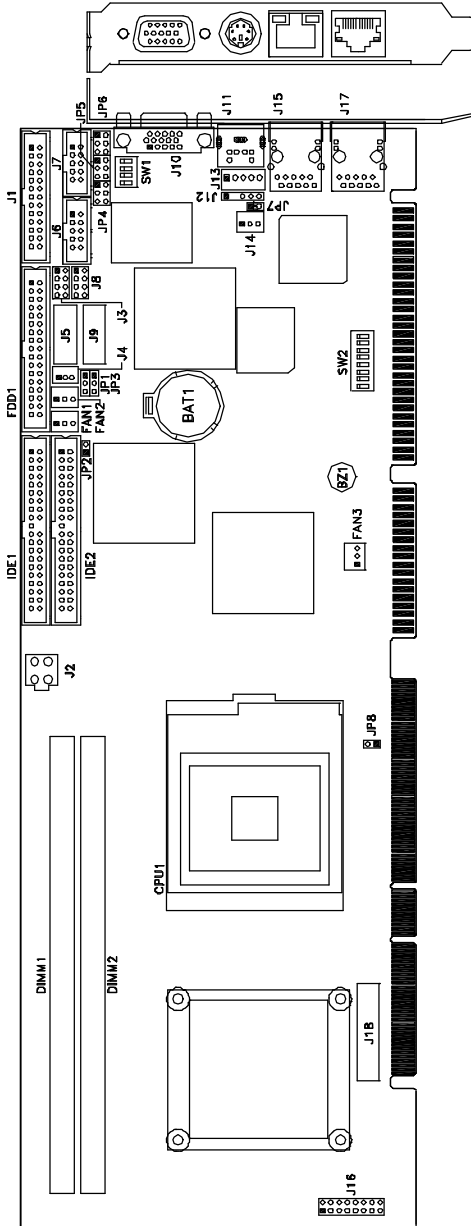
JP5	Setting	Function
	Pin 1-2 Short/Closed	Normal
	Pin 2-3 Short/Closed	Clear CMOS

Connectors on IB900

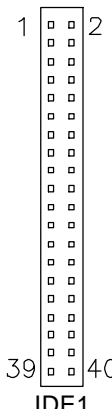
The connectors on IB900 allows you to connect external devices such as keyboard, floppy disk drives, hard disk drives, printers, etc. The following table lists the connectors on IB900 and their respective functions.

Connector Locations on IB900.....	14
IDE1, IDE2: EIDE Connectors.....	15
FDD1: Floppy Drive Connector.....	16
FAN2 CPU Fan Power Connector.....	16
FAN3: System Fan Power Connector.....	16
FAN1: Auxiliary Fan Power Connector.....	17
J1: System Function Connector.....	17
J2: ATX 12V/+12V Power Connector.....	18
J3: Parallel Port Connector.....	18
J4, J5: COM1 and COM2 Serial Ports Connector.....	19
J6: Wake On LAN Connector.....	19
J7, J8: USB Connectors.....	19
J10, J9: LVDS Connectors (1st channel, 2nd channel).....	20
J11: VGA CRT Connector.....	20
J12: PS/2 Keyboard and Mouse Connector.....	20
J13, J14: External PS/2 Keyboard and Mouse Connector.....	21
J15: External ATX Power Connector.....	21
J16, J17: Gigabit LAN RJ45 Connectors.....	21

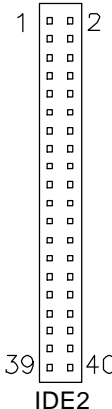
Connector Locations on IB900



IDE1, IDE2: EIDE Connectors



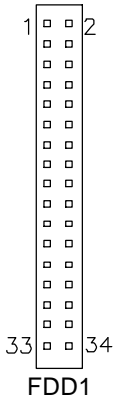
Signal Name	Pin #	Pin #	Signal Name
Reset IDE	1	2	Ground
Host data 7	3	4	Host data 8
Host data 6	5	6	Host data 9
Host data 5	7	8	Host data 10
Host data 4	9	10	Host data 11
Host data 3	11	12	Host data 12
Host data 2	13	14	Host data 13
Host data 1	15	16	Host data 14
Host data 0	17	18	Host data 15
Ground	19	20	Protect pin
DRQ0	21	22	Ground
Host IOW	23	24	Ground
Host IOR	25	26	Ground
IOCHRDY	27	28	Host ALE
DACK0	29	30	Ground
IRQ14	31	32	No connect
Address 1	33	34	No connect
Address 0	35	36	Address 2
Chip select 0	37	38	Chip select 1
Activity	39	40	Ground



Signal Name	Pin #	Pin #	Signal Name
Reset IDE	1	2	Ground
Host data 7	3	4	Host data 8
Host data 6	5	6	Host data 9
Host data 5	7	8	Host data 10
Host data 4	9	10	Host data 11
Host data 3	11	12	Host data 12
Host data 2	13	14	Host data 13
Host data 1	15	16	Host data 14
Host data 0	17	18	Host data 15
Ground	19	20	Protect pin
DRQ1	21	22	Ground
Host IOW	23	24	Ground
Host IOR	25	26	Ground
IOCHRDY	27	28	Host ALE
DACK1	29	30	Ground
IRQ15	31	32	No connect
Address 1	33	34	No connect
Address 0	35	36	Address 2
Chip select 0	37	38	Chip select 1
Activity	39	40	Ground

FDD1: Floppy Drive Connector

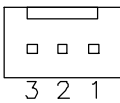
FDD1 is a 34-pin header and will support up to 2.88MB floppy drives.



Signal Name	Pin #	Pin #	Signal Name
Ground	1	2	RM/LC
Ground	3	4	No connect
Ground	5	6	No connect
Ground	7	8	Index
Ground	9	10	Motor enable 0
Ground	11	12	Drive select 1
Ground	13	14	Drive select 0
Ground	15	16	Motor enable 1
Ground	17	18	Direction
Ground	19	20	Step
Ground	21	22	Write data
Ground	23	24	Write gate
Ground	25	26	Track 00
Ground	27	28	Write protect
Ground	29	30	Read data
Ground	31	32	Side 1 select
Ground	33	34	Diskette change

FAN2 CPU Fan Power Connector

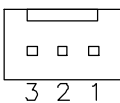
FAN2 is a 3-pin header for the CPU fan. The fan must be a 12V fan.



Pin #	Signal Name
1	Ground
2	+12V
3	Rotation detection

FAN3: System Fan Power Connector

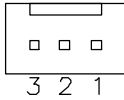
FAN3 is a 3-pin header for the system fan. The fan must be a 12V fan.



Pin #	Signal Name
1	Ground
2	+12V
3	Rotation detection

FAN1: Auxiliary Fan Power Connector

FAN1 is a 3-pin header for a 12V fan.



Pin #	Signal Name
1	Ground
2	+12V
3	Rotation detection

J1: System Function Connector

J1 provides connectors for system indicators that provide light indication of the computer activities and switches to change the computer status. J1 is a 16-pin header that provides interfaces for the following functions.

Speaker: Pins 1-4 (Speaker out, NC, GND, 5V)

This connector provides an interface to a speaker for audio tone generation. An 8-ohm speaker is recommended.

Power LED: Pins 9-11 (Power LED, NC, GND)

The power LED indicates the status of the main power switch.

ATX Power On Switch: Pins 5, 13 (PS_ON, GND)

This 2-pin connector is an “ATX Power Supply On/Off Switch” on the system that connects to the power switch on the case. When pressed, the power switch will force the system to power on. When pressed again, it will force the system to power off.

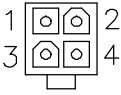
Reset Switch: Pins 7, 15 (Reset #, GND)

The reset switch allows the user to reset the system without turning the main power switch off and then on again. Orientation is not required when making a connection to this header.

HDD LED: Pins 8, 16 (HDD Active, 5V)

This connector connects to the hard drive activity LED on control panel. This LED will flash when the HDD is being accessed.

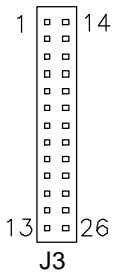
J2: ATX 12V/+12V Power Connector



Pin #	Signal Name
1	Ground
2	Ground
3	+12V
4	+12V

J3: Parallel Port Connector

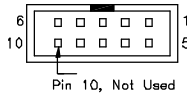
The following table describes the pin out assignments of this connector.



Signal Name	Pin #	Pin #	Signal Name
Line printer strobe	1	14	AutoFeed
PD0, parallel data 0	2	15	Error
PD1, parallel data 1	3	16	Initialize
PD2, parallel data 2	4	17	Select
PD3, parallel data 3	5	18	Ground
PD4, parallel data 4	6	19	Ground
PD5, parallel data 5	7	20	Ground
PD6, parallel data 6	8	21	Ground
PD7, parallel data 7	9	22	Ground
ACK, acknowledge	10	23	Ground
Busy	11	24	Ground
Paper empty	12	25	Ground
Select	13	N/A	N/A

J4, J5: COM1 and COM2 Serial Ports Connector

J4 and J5 both 10-pin headers, are the onboard serial port connectors.

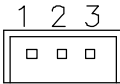


J4
Fixed as
RS-232

J5
Configurable
as RS-232/
RS-422/485
with jumper
JP1, JP2, JP3

Pin #	Signal Name		
	RS-232	RS-422	RS-485
1	DCD	TX-	DATA-
2	RX	TX+	DATA+
3	TX	RX+	NC
4	DTR	RX-	NC
5	GND	GND	GND
6	DSR	RTS-	NC
7	RTS	RTS+	NC
8	CTS	CTS+	NC
9	RI	CTS-	NC
10	NC	NC	NC

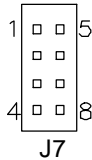
J6: Wake On LAN Connector



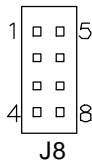
Pin #	Signal Name
1	+5VSB
2	Ground
3	Wake On LAN

J7, J8: USB Connectors

The following table shows the pin outs of the USB pin headers connectors. Overall, the two pin headers support four USB ports.



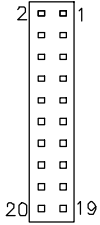
Signal Name	Pin	Pin	Signal Name
Vcc	1	5	Ground
USB0-	2	6	USB1+
USB0+	3	7	USB1-
Ground	4	8	Vcc



Signal Name	Pin	Pin	Signal Name
Vcc	1	5	Ground
USB2-	2	6	USB3+
USB2+	3	7	USB3-
Ground	4	8	Vcc

J10, J9: LVDS Connectors (1st channel, 2nd channel)

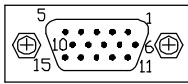
The LVDS connectors are composed of the first channel (J10) and second channel (J9) to support 24-bit or 48-bit.



Signal Name	Pin #	Pin #	Signal Name
TX0-	2	1	TX0+
Ground	4	3	Ground
TX1-	6	5	TX1+
5V/3.3V	8	7	Ground
TX3-	10	9	TX3+
TX2-	12	11	TX2+
Ground	14	13	Ground
TXC-	16	15	TXC+
5V/3.3V	18	17	ENABKL
+12V	20	19	+12V

J11: VGA CRT Connector

The pin assignments of the J11 VGA CRT connector are as follows:

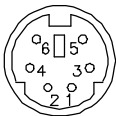


J11

Signal Name	Pin	Pin	Signal Name
Red	1	2	Green
Blue	3	4	N.C.
GND	5	6	GND
GND	7	8	GND
N.C.	9	10	GND
N.C.	11	12	N.C.
HSYNC	13	14	VSYNC
NC	15		

J12: PS/2 Keyboard and Mouse Connector

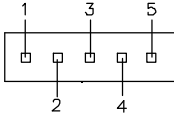
J12 uses a Y-cable with for a PS/2 keyboard and a PS/2 mouse.



J12

Pin #	Signal Name
1	Mouse data
2	Keyboard data
3	Ground
4	Vcc
5	Mouse Clock
6	Keyboard Clock

J13, J14: External PS/2 Keyboard and Mouse Connector



Pin #	J14	J13
1	Mouse data	KB clock
2	N.C.	KB data
3	Ground	N.C.
4	Vcc	Ground
5	Mouse clock	Vcc

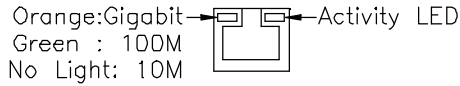
J15: External ATX Power Connector



Pin #	Signal Name
1	Ground
2	PS-ON (soft on/off)
3	5VSB (Standby +5V)

J16, J17: Gigabit LAN RJ45 Connectors

J16 and J17 are the Gigabit LAN RJ45 connectors.



BIOS Setup

This chapter describes the different settings available in the Award BIOS that comes with the CPU card. The topics covered in this chapter are as follows:

BIOS Introduction	23
BIOS Setup.....	23
Standard CMOS Setup.....	25
Advanced BIOS Features.....	28
Advanced Chipset Features	31
Integrated Peripherals	32
Power Management Setup.....	34
PNP/PCI Configurations.....	37
PC Health Status.....	38
Frequency/Voltage Control.....	39
Load Fail-Safe Defaults	40
Load Setup Defaults	40
Set Supervisor/User Password.....	40
Save & Exit Setup.....	40
Exit Without Saving	40

BIOS Introduction

The Award BIOS (Basic Input/Output System) installed in your computer system's ROM supports Intel Pentium II/III processors. The BIOS provides critical low-level support for a standard device such as disk drives, serial ports and parallel ports. It also adds virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

BIOS Setup

The Award BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn on the computer, the Award BIOS is immediately activated. Pressing the key immediately allows you to enter the Setup utility. If you are a little bit late pressing the key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system Off and back On again. The following message will appear on the screen:

```
Press <DEL> to Enter Setup
```

In general, you press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help and <Esc> to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit choices.

Phoenix - Award Workstation BIOS CMOS Setup Utility

Standard CMOS Features	Frequency/Voltage Control
Advanced BIOS Features	Load Fail-Safe Defaults
Advanced Chipset Features	Load Optimized Defaults
Integrated Peripherals	Set Supervisor Password
Power Management Setup	Set User Password
PnP/PCI Configurations	Save & Exit Setup
PC Health Status	Exit Without Saving
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	
Time, Date, Hard Disk Type...	

The section below the setup items of the Main Menu displays the control keys for this menu. At the bottom of the Main Menu just below the control keys section, there is another section that displays information on the currently highlighted item in the list.

Note: *If the system cannot boot after making and saving system changes with Setup, the Award BIOS supports an override to the CMOS settings that resets your system to its default.*

Warning: *It is strongly recommended that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your system manufacturer to provide the absolute maximum performance and reliability. Changing the defaults could cause the system to become unstable and crash in some cases.*

Standard CMOS Setup

“Standard CMOS Setup” choice allows you to record some basic hardware configurations in your computer system and set the system clock and error handling. If the CPU card is already installed in a working system, you will not need to select this option. You will need to run the Standard CMOS option, however, if you change your system hardware configurations, the onboard battery fails, or the configuration stored in the CMOS memory was lost or damaged.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Tue, Jan 1 2002	Item Help
Time (hh:mm:ss)	00 : 00 : 00	Menu Level
IDE Primary Master	None	Change the day, month, Year and century
IDE Primary Slave	None	
IDE Secondary Master	None	
IDE Secondary Slave	None	
Drive A	1.44M, 3.5 in.	
Drive B	None	
Video	EGA/VGA	
Halt On	All Errors	
Base Memory	640K	
Extended Memory	129024K	
Total Memory	130048K	

At the bottom of the menu are the control keys for use on this menu. If you need any help in each item field, you can press the <F1> key. It will display the relevant information to help you. The memory display at the lower right-hand side of the menu is read-only. It will adjust automatically according to the memory changed. The following describes each item of this menu.

Date

The date format is:

Day : Sun to Sat
Month : 1 to 12
Date : 1 to 31
Year : 1994 to 2079

To set the date, highlight the “Date” field and use the PageUp/ PageDown or +/- keys to set the current time.

Time

The time format is: **Hour : 00 to 23**
Minute : 00 to 59
Second : 00 to 59

To set the time, highlight the “Time” field and use the <PgUp>/ <PgDn> or +/- keys to set the current time.

IDE Primary HDDs / IDE Secondary HDDs

The onboard PCI IDE connectors provide Primary and Secondary channels for connecting up to four IDE hard disks or other IDE devices. Each channel can support up to two hard disks; the first is the “Master” and the second is the “Slave”.

Press <Enter> to configure the hard disk. The selections include Auto, Manual, and None. Select ‘Manual’ to define the drive information manually. You will be asked to enter the following items.

CYLS : Number of cylinders
HEAD : Number of read/write heads
PRECOMP : Write precompensation
LANDZ : Landing zone
SECTOR : Number of sectors

The Access Mode selections are as follows:

Auto
Normal (HD < 528MB)
Large (for MS-DOS only)
LBA (HD > 528MB and supports
Logical Block Addressing)

Drive A / Drive B

These fields identify the types of floppy disk drive A or drive B that has been installed in the computer. The available specifications are:

360KB	1.2MB	720KB	1.44MB	2.88MB
5.25 in.	5.25 in.	3.5 in.	3.5 in.	3.5 in.

Video

This field selects the type of video display card installed in your system. You can choose the following video display cards:

EGA/VGA	For EGA, VGA, SEGA, SVGA or PGA monitor adapters. (default)
CGA 40	Power up in 40 column mode.
CGA 80	Power up in 80 column mode.
MONO	For Hercules or MDA adapters.

Halt On

This field determines whether or not the system will halt if an error is detected during power up.

No errors	The system boot will not be halted for any error that may be detected.
All errors	Whenever the BIOS detects a non-fatal error, the system will stop and you will be prompted.
All, But Keyboard	The system boot will not be halted for a keyboard error; it will stop for all other errors
All, But Diskette	The system boot will not be halted for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not be halted for a keyboard or disk error; it will stop for all others.

Advanced BIOS Features

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

Phoenix - Award Workstation BIOS CMOS Setup Utility
Advanced BIOS Features

		ITEM HELP
Virus Warning	Disabled	Menu Level Allows you choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep
CPU L1 & L2 Cache	Enabled	
CPU L3 Cache	Enabled	
Hyper-Threading Technology	Enabled	
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	HDD-0	
Third Boot Device	CDROM	
Boot Other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Disabled	
Boot Up Numlock Status	On	
Gate A20 Option	Fast	
Typematic Rate Setting	Disabled	
Typematic Rate (chars/Sec)	6	
Typematic Delay (Msec)	250	
Security Option	Setup	
MPS Version Control For OS	1.4	
OS Select For DRAM>64MB	Non-OS2	
Report No FDD For WIN 95	Yes	
Small Logo (EPA) Show	Enabled	

Virus Warning

This item protects the boot sector and partition table of your hard disk against accidental modifications. If an attempt is made, the BIOS will halt the system and display a warning message. If this occurs, you can either allow the operation to continue or run an anti-virus program to locate and remove the problem.

CPU Internal Cache / External Cache

Cache memory is additional memory that is much faster than conventional DRAM (system memory). CPUs from 486-type on up contain internal cache memory, and most, but not all, modern PCs have additional (external) cache memory. When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU. These items allow you to enable (speed up memory access) or disable the cache function. By default, these items are **Enabled**.

Hyper-Threading Technology

This field enables or disables the Hyper-Threading feature that is available with CPUs of 3.06GHz speeds (Pentium 4) and above.

Quick Power On Self Test

When enabled, this field speeds up the Power On Self Test (POST) after the system is turned on. If it is set to *Enabled*, BIOS will skip some items.

First/Second/Third Boot Device

These fields determine the drive that the system searches first for an operating system. The options available include *Floppy, LS/ZIP, HDD-0, SCSI, CDROM, HDD-1, HDD-2, HDD-3, LAN* and *Disable*.

Boot Other Device

These fields allow the system to search for an operating system from other devices other than the ones selected in the First/Second/Third Boot Device.

Swap Floppy Drive

This item allows you to determine whether or not to enable Swap Floppy Drive. When enabled, the BIOS swaps floppy drive assignments so that Drive A becomes Drive B, and Drive B becomes Drive A. By default, this field is set to *Disabled*.

Boot Up Floppy Seek

When enabled, the BIOS will seek whether or not the floppy drive installed has 40 or 80 tracks. 360K type has 40 tracks while 760K, 1.2M and 1.44M all have 80 tracks.

Boot Up NumLock Status

This allows you to activate the NumLock function after you power up the system.

Gate A20 Option

This field allows you to select how Gate A20 is worked. Gate A20 is a device used to address memory above 1 MB.

Typematic Rate Setting

When disabled, continually holding down a key on your keyboard will generate only one instance. When enabled, you can set the two typematic controls listed next. By default, this field is set to *Disabled*.

Typematic Rate (Chars/Sec)

When the typematic rate is enabled, the system registers repeated keystrokes speeds. Settings are from 6 to 30 characters per second.

Typematic Delay (Msec)

When the typematic rate is enabled, this item allows you to set the time interval for displaying the first and second characters. By default, this item is set to *250msec*.

Security Option

This field allows you to limit access to the System and Setup. The default value is *Setup*. When you select *System*, the system prompts for the User Password every time you boot up. When you select *Setup*, the system always boots up and prompts for the Supervisor Password only when the Setup utility is called up.

MPS Version Control for OS

This option specifies the version of the Multiprocessor Specification (MPS) that the board will use. MPS version 1.4 added extended configuration tables to improve support for multiple PCI bus configurations and improve future expandability. It is also required for a secondary PCI bus to work without the need for a bridge. Newer versions of server operating systems will generally support MPS 1.4.

OS Select for DRAM > 64MB

This option allows the system to access greater than 64MB of DRAM memory when used with OS/2 that depends on certain BIOS calls to access memory. The default setting is *Non-OS/2*.

Video BIOS Shadow

This item allows you to change the Video BIOS location from ROM to RAM. Video Shadow will increase the video speed.

C8000 - CBFFF Shadow/DC000 - DFFFF Shadow

Shadowing a ROM reduces the memory available between 640KB to 1024KB. These fields determine whether or not optional ROM will be copied to RAM.

Small Logo (EPA) Show

This field enables the showing of the EPA logo located at the upper right of the screen during boot up.

Advanced Chipset Features

This Setup menu controls the configuration of the chipset.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Advanced Chipset Features

DRAM Timing Control	[Press Enter]	ITEM HELP
DRAM Timing Configure	By SPD	Menu Level
- CAS Latency Time	1.5	
- Active to Precharge Delay	7	
- DRAM RAS# to CAS# Delay	3	
- DRAM RAS# Precharge	3	
System BIOS Cacheable	Enabled	
Video BIOS Cacheable	Enabled	
Delayed Transaction	Enabled	
Delay Prior to Thermal	16 Min	

DRAM Timing Control

This option when selected lets you configure DRAM timing either by SPD or manually for items such as CAS latency time, active to precharge delay, Active to Precharge Delay, DRAM RAS# to CAS# delay and DRAM RAS# Precharge timing.

System BIOS Cacheable

The setting of *Enabled* allows caching of the system BIOS ROM at F000h-FFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Video BIOS Cacheable

The Setting *Enabled* allows caching of the video BIOS ROM at C0000h-F7FFFh, resulting in better video performance. However, if any program writes to this memory area, a system error may result.

Delayed Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select *Enabled* to support compliance with PCI specification version 2.1.

Delay Prior to Thermal

This field activates the CPU thermal function after the systems boots for the set number of minutes. The options are *16Min* and *64Min*.

Integrated Peripherals

This section sets configurations for your hard disk and other integrated peripherals.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Integrated Peripherals

On-Chip IDE Device	Press Enter	ITEM HELP
Onboard Device	Press Enter	Menu Level
Super IO Device	Press Enter	

OnChip IDE Device

This field contains options related to the IDE devices on board. The options and the respective default settings are listed below.

- IDE HDD Block Mode : Enabled
- On-chip Primary PCI IDE : Enabled
- IDE Primary Master PIO : Auto
- IDE Primary Slave PIO : Auto
- IDE Primary Master UDMA : Auto
- IDE Primary Slave UDMA : Auto
- IDE Secondary Master PIO : Auto
- IDE Secondary Slave PIO : Auto
- IDE Secondary Master UDMA : Auto
- IDE Secondary Slave UDMA : Auto

Onboard Device

This field contains options related to onboard devices including USB devices. The options and the respective default settings are listed below.

- USB Controller : Enabled
- USB Keyboard Support : Disabled

Super IO Device

This field contains options related to IO devices including FDD, serial ports, IR, and parallel port devices. The options and the respective default settings are listed below.

Onboard FDC Controller : Enabled
Onboard Serial Port 1 : 3F8/IRQ4
Onboard Serial Port 2 : 2F8/IRQ3
UART Mode Select : Normal
RxD, TxD Active : Hi, Lo
IR Transmission Delay : Enabled
UR2 Duplex Mode : Half
Use IR Pins : IR-Rx2Tx2
Onboard Parallel Port : 378/IRQ7
Parallel Port Mode : SPP
EPP Mode Select : EPP1.7
ECP Mode Use DMA : 3
PWRON After PWR-Fail : Off

Power Management Setup

The Power Management Setup allows you to save energy of your system effectively.

Phoenix - Award Workstation BIOS CMOS Setup Utility
Power Management Setup

ACPI Function	Enabled	ITEM HELP
Power Management	User Define	Menu Level
Video Off Method	V/H SYNC+Blank	
Video Off In Suspend	Yes	
Suspend Type	Stop Grant	
Modem Use IRQ	3	
Suspend Mode	Disabled	
HDD Power Down	Disabled	
Soft-Off by PWR-BTTN	Instant-Off	
CPU Thermal-Throttling	50.0%	
Wake-Up by PCI card	Disabled	
Power On by Ring	Disabled	
Resume by Alarm	Disabled	
Date (of Month) Alarm	0	
Time (hh:mm:ss) Alarm	0 : 0 : 0	
** Reload Global Timer Events **		
Primary IDE 0	Enabled	
Primary IDE 1	Enabled	
Secondary IDE 0	Enabled	
Secondary IDE 1	Enabled	
FDD, COM, LPT Port	Enabled	
PCI PIRQ[A-D] #	Enabled	

ACPI Function

Use this option to enable or disable the ACPI function

Power Management

This field allows you to select the type of power saving management modes. There are four selections for Power Management.

Min. Power Saving	Minimum power management
Max. Power Saving	Maximum power management.
User Define	Each of the ranges is from 1 min. to 1hr. Except for HDD Power Down which ranges from 1 min. to 15 min. (Default)

Video Off Method

This field defines the Video Off features. There are three options.

- | | |
|------------------|--|
| V/H SYNC + Blank | Default setting, blank the screen and turn off vertical and horizontal scanning. |
| DPMS | Allows the BIOS to control the video display card if it supports the DPMS feature. |
| Blank Screen | This option only writes blanks to the video buffer. |

Video Off In Suspend

When enabled, the video is off in suspend mode. The default setting is *Yes*.

Suspend Type

The default setting for the Suspend Type field is *Stop Grant*.

Modem Use IRQ

This field sets the IRQ used by the Modem. By default, the setting is *3*.

Suspend Mode

When enabled, and after the set time of system inactivity, all devices except the CPU will be shut off.

HDD Power Down

When enabled, and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

Soft-Off by PWRBTN

This field defines the power-off mode when using an ATX power supply. The *Instant Off* mode allows powering off immediately upon pressing the power button. In the *Delay 4 Sec* mode, the system powers off when the power button is pressed for more than four seconds or enters the suspend mode when pressed for less than 4 seconds. The default value is *Instant Off*.

CPU Thermal Throttling

When the system enters Doze mode, the CPU clock runs only part of the time. You may select the percent of time that the clock runs.

Wake Up by PCI Card

This field allows the system to wake up from a signal received from a PCI card such as a LAN card.

Power On by Ring

This field enables or disables the power on of the system through the modem connected to the serial port or LAN.

Resume by Alarm

This field enables or disables the resumption of the system operation. When enabled, the user is allowed to set the *Date* and *Time*.

Reload Global Timer Events

The HDD, FDD, COM, LPT Ports, and PCI PIRQ are I/O events which can prevent the system from entering a power saving mode or can awaken the system from such a mode. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.

PNP/PCI Configurations

This option configures the PCI bus system. All PCI bus systems on the system use INT#, thus all installed PCI cards must be set to this value.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
PnP/PCI Configurations

PNP OS Installed	No	ITEM HELP
Reset Configuration Data	Disabled	Menu Level
Resources Controlled By	Auto (ESCD)	Default is Disabled.
IRQ Resources	Press Enter	Select Enabled to
DMA Resources	Press Enter	reset Extended
PCI/VGA Palette Snoop	Disabled	System Configuration
		Data (ESCD) when you
		exit Setup if you have
		installed a new add-on
		and the system
		reconfiguration has
		caused such a serious
		conflict that the OS
		cannot boot

PNP OS Installed

Enable the PNP OS Install option if it is supported by the operating system installed. The default value is *No*.

Reset Configuration Data

This field allows you to determine whether to reset the configuration data or not. The default value is *Disabled*.

Resources Controlled by

This PnP BIOS configures all of the boot and compatible devices with the use of a use a PnP operating system such as Windows 95.

IRQ / DMA Resources

These fields allow you to configure the IRQ / DMA Resources.

PCI/VGA Palette Snoop

Some non-standard VGA display cards may not show colors properly. This field allows you to set whether or not MPEG ISA/VESA VGA cards can work with PCI/VGA. When this field is enabled, a PCI/VGA can work with an MPEG ISA/VESA VGA card. When this field is disabled, a PCI/VGA cannot work with an MPEG ISA/VESA card.

PC Health Status

This section shows the parameters in determining the PC Health Status. These parameters include temperatures, fan speeds and voltages.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
PC Health Status

		ITEM HELP
CPU Warning Temperature	Disabled	
System Temp.	34°C	
CPU Temp.	55°C	
CPU FAN Speed (FAN2)		
System FAN Speed (FAN3)		
Chassis FAN Speed(FAN1)		
Vcore(V)		
+1.8V		
+3.3V		
+5V		
+12V		
-12V		
- 5V		
VBAT(V)		
5VSB(V)		
Shutdown Temperature	Disabled	
CPU Fan Failure Warning	Enabled	
Sys. Fan Failure Warning	Disabled	
Cha. Fan Failure Warning	Disabled	

CPU Warning Temperature

This field sets the temperature threshold that when reached, the system would give an audible warning.

Temperatures/Fan Speeds/Voltages

These fields are the parameters of the hardware monitoring function feature of the CPU card. The values are read-only values as monitored by the system and show the PC health status.

Fan Failure Warning

The BIOS allows the system to sound a warning when the CPU fan, system fan or/and chassis fan fails to function normally through these options.

Frequency/Voltage Control

This section shows the user how to configure the processor frequency.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Frequency/Voltage Control

CPU Clock Ratio	8X	ITEM HELP
Auto Detect DIMM/PCI Clk	Disabled	Menu Level
Spread Spectrum	Disabled	

CPU Clock Ratio

By default, the CPU Clock Ratio, is set to 8X.

Auto Detect DIMM/PCI Clk

This field enables or disables the auto detection of the DIMM/PCI clock. The default setting is *Disabled*.

Spread Spectrum

This field sets the value of the spread spectrum. The default setting is *Disabled*. This field is for CE testing use only.

Load Fail-Safe Defaults

This option allows you to load the troubleshooting default values permanently stored in the BIOS ROM. These default settings are non-optimal and disable all high-performance features.

Load Setup Defaults

This option allows you to load the default values to your system configuration. These default settings are optimal and enable all high performance features.

Set Supervisor/User Password

These two options set the system password. Supervisor Password sets a password that will be used to protect the system and Setup utility. User Password sets a password that will be used exclusively on the system. To specify a password, highlight the type you want and press <Enter>. The Enter Password: message prompts on the screen. Type the password, up to eight characters in length, and press <Enter>. The system confirms your password by asking you to type it again. After setting a password, the screen automatically returns to the main screen.

To disable a password, just press the <Enter> key when you are prompted to enter the password. A message will confirm the password to be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

Save & Exit Setup

This option allows you to determine whether or not to accept the modifications. If you type “Y”, you will quit the setup utility and save all changes into the CMOS memory. If you type “N”, you will return to Setup utility.

Exit Without Saving

Select this option to exit the Setup utility without saving the changes you have made in this session. Typing “Y” will quit the Setup utility without saving the modifications. Typing “N” will return you to Setup utility.

Drivers Installation

This section describes the installation procedures for software and drivers under the Windows 98, Windows NT 4.0 and Windows 2000. The software and drivers are included in the package. If you find the items missing, please contact the vendor where you made the purchase. The contents of this section include the following:

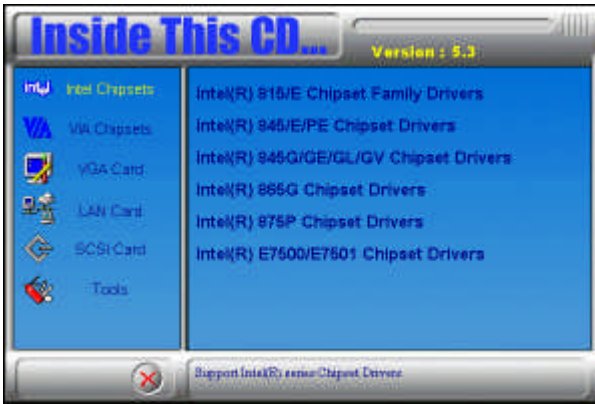
Windows 2000/XP Chipset Drivers Installation.....	42
Intel Software Installation Utility.....	42
ATI M6 VGA Driver Installation	45
PCI Ethernet Drivers	48
Windows NT 4.0 Chipset Drivers Installation	50
ATI M6 VGA Driver Installation	50
PCI Ethernet Drivers Installation	50

Windows 2000/XP Chipset Drivers Installation

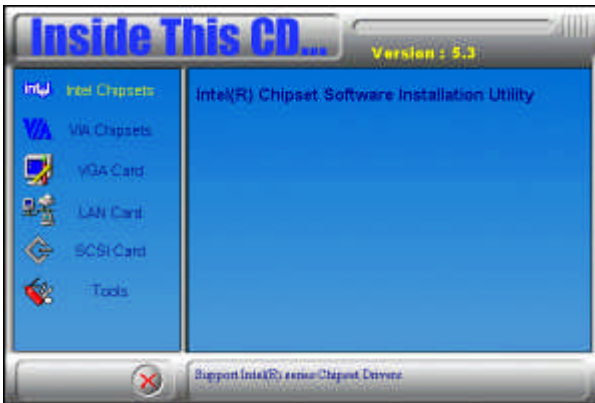
Intel Software Installation Utility

The Intel Chipset Software Installation Utility will enable Plug & Play INF support for Intel chipset components. Follow the instructions below to complete the installation under Windows 2000/XP.

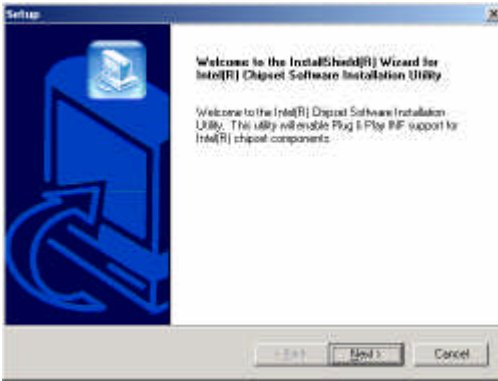
1. Insert the CD that comes with the CPU card and the screen below would appear. Click Intel(R) E7500/E7501 Chipset Drivers.



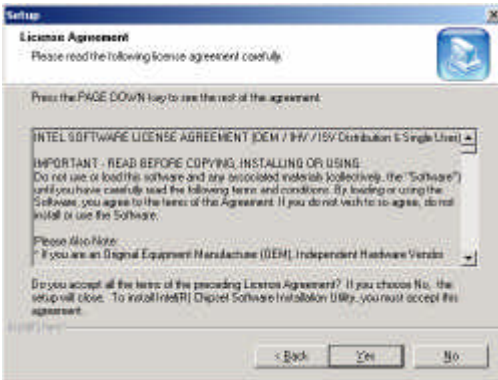
2. Click Intel(R) Chipset Software Installation Utility.



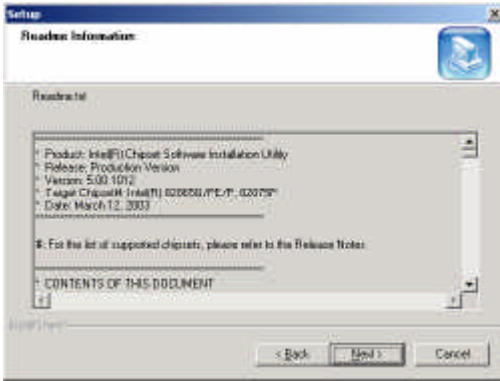
3. When the Welcome screen appears, click Next to continue.



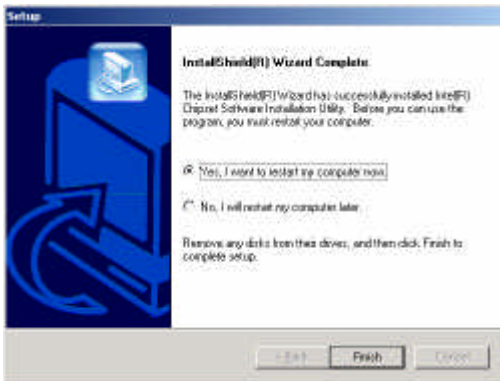
4. Click Yes to accept the software license agreement and proceed with the installation process.



5. On Readme Information screen, click Next to continue the installation.

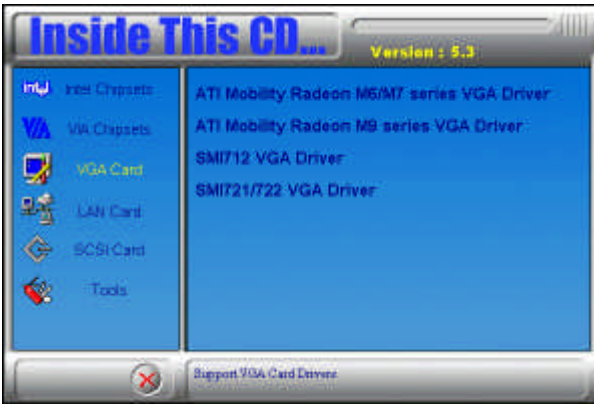


6. The Setup process is now complete. Click Finish to restart the computer and for changes to take effect. When the computer has restarted, the system will be able to find some devices. Restart your computer when prompted.

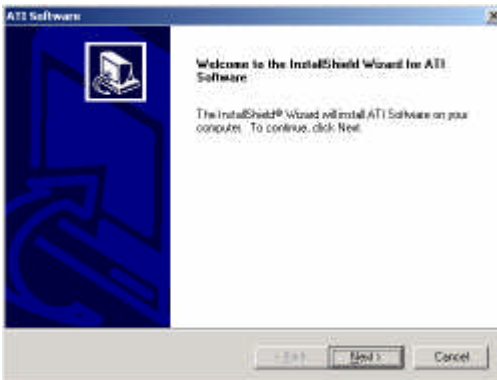


ATI M6 VGA Driver Installation

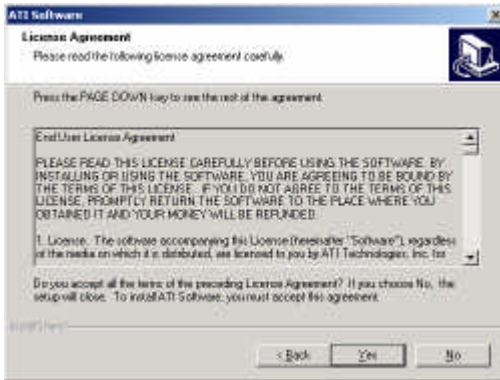
1. Insert the CD that comes with IB900. On the initial screen, click VGA Card on the left side and the screen below would appear. Click ATI Mobility Radeon M6/M7 series VGA Driver.



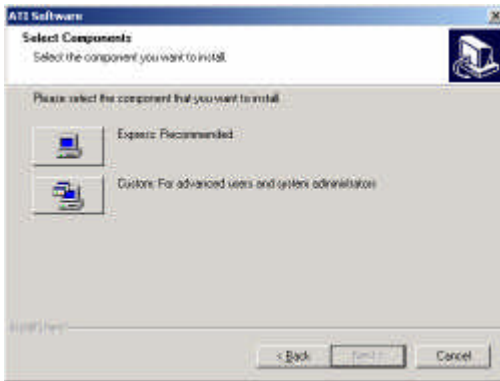
2. When the Welcome screen appears, click Next to continue.



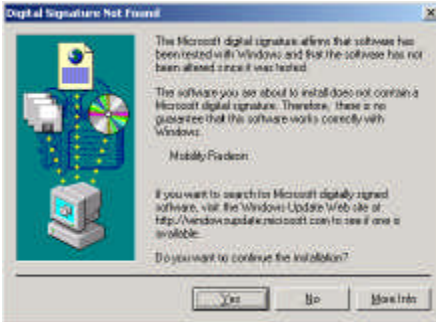
3. Click Yes to accept the software license agreement and proceed with the installation process.



4. Select on the Express icon and click Next to continue.



5. This screen will appear under Windows 2000 installation (not Windows XP). Click Yes to continue the installation process.



5. This screen will appear under Windows XP installation (not Windows 2000). Click Yes to continue the installation process.



6. The Setup process is now complete. Click Finish to restart the computer and for changes to take effect. Restart your computer when prompted.

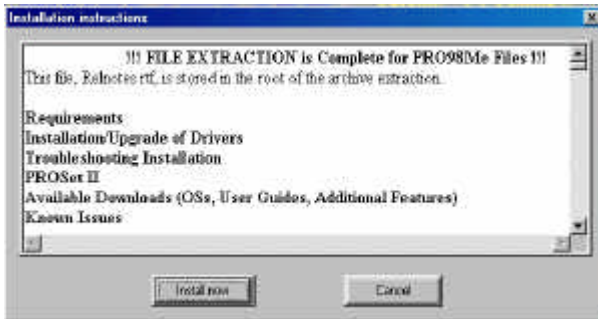
PCI Ethernet Drivers

Follow the steps below to install the PCI Ethernet/LAN drivers Windows 2000/XP.

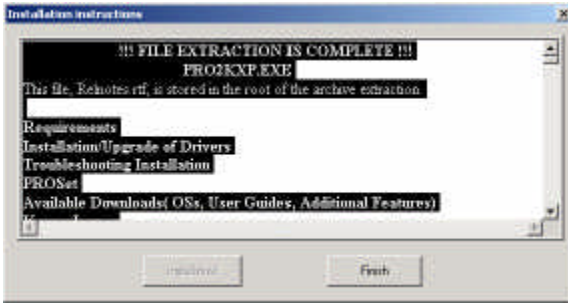
1. Insert the CD that comes with IB900 and the screen below would appear. Click LAN Card on the left side and then click Intel(R) PRO LAN Drivers.



2. Click Install Now.



3. Click Finish to complete the LAN drivers installation process.



Windows NT 4.0 Chipset Drivers Installation

ATI M6 VGA Driver Installation

To install the ATI Radeon M6 Graphics drivers for Windows NT 4.0, please follow the same procedure as shown in the ATI M6 VGA Driver Installation for Windows 2000/XP in the previous section.

PCI Ethernet Drivers Installation

The first thing to do to install the Ethernet drivers is to create floppy diskettes that would contain the drivers. Run the batch file in the CD in the directory Lan\Intel\Driver\WinNT4\MakeDisk\MAKENT.bat under Windows to create the diskettes.

After creating the Ethernet drivers floppy diskettes, follow the steps below.

1. Under the Windows NT 4.0 environment, click Start → Control Panel. Double click Network → Adapters → Add.
2. Select “Have disk ...” and insert the floppy diskette containing the Ethernet drivers for Windows NT 4.0 into the FDD drive, then click OK.
3. Click OK → Close, and then enter IP address.
4. Restart the system for changes to take effect.