

MB893

Socket LGA775 Pentium® 4
Intel® i915GV Chipset
Server Motherboard

USER'S MANUAL

Version 1.0

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The MB893 Server Motherboard



Introduction

Checklist

Your MB893 Pentium® 4 motherboard package should include the items listed below:

- The MB893 motherboard
- This User's Manual
- 1 IDE cable (40 pin 2.54mm) (optional)
- 1 IDE cable (44 pin 2.0mm) (optional)
- 2 SATA cable (optional)
- ID370 front side bridge board (optional)
- IP320 backplane bridge board (optional)
- 1 CD containing the following: (optional)
 - Chipset Drivers
 - Flash Memory Utility

Product Description

The MB893 LGA 775 Pentium® 4 motherboard incorporates the Intel® i915GV chipset that can utilize a single LGA775 processor of up to 3.8GHz or higher and supports FSB frequency of 533/800MHz (133MHz, and 200MHz HCLK respectively).

The i915GV chipset is designed for use with the Pentium® 4 processor with 1M Level 2 (CPU integrated) cache. The integrated MCH component provides the CPU interface, DDR interface and Hub Interface.

Four DDR memory sockets supports DDR 400/333 SDRAM DIMM modules of up to 4GB in capacity.

The board is designed with four Marvell 88E8053 PCI Express Gigabit LAN single controllers and two Intel® 82541PI PCI Gigabit LAN single controllers. ICH6 supports only one primary IDE interface for UDMA 33/66/100. Two Serial ATA connectors offer 1.5 Gigabits/sec data throughput speed - faster than the most advanced parallel ATA.

On board expansion is provided by one Mini PCI socket. Additional expansion is provided by two PCI slot if the board is used with the IP320 backplane bridge board. Other advanced features include two USB 2.0 ports...etc. Dimensions of the board are 12.6" by 7.2".

Specifications

Product Name	MB893
CPU Support	Intel® Pentium® 4
CPU Voltage	0.8375V~1.6V (VRD 10.1)
System Speed	Up to 3.8GHz+
CPU Operating Frequency	533MHz / 800MHz
Green /APM	APM1.2
CPU Socket	LGA 775
Chipset	Intel® Grantsdale Chipset MCH: i915GV FC-BGA+ ICH6 mBGA FWH
BIOS	Award BIOS; Supports ACPI
Cache	1M Level 2 (CPU integrated)
VGA	Grantsdale built-in, supports CRT by 2x6 pin header
Gigabit LAN	Intel 82541 Gigabit controllers with RJ-45 interface x 2 (PCI-32) Marvell 8053 Gigabit controllers with RJ-45 interface x 4 (PCI Express x 1) CN7 & CN10 LAN Port support hardware by-pass
Memory Type	Dual Channel memory architecture 4 x 184-pin DIMM sockets support unbuffered non-ECC 400/333 MHz DDR memory modules. Max. 4GB DDR 333/400
LPC I/O	W83627HF: COM1, 2(RS232),
Secondary Super I/O	Fintek F81216, supports COM3
RTC/CMOS	Built in ICH6
Battery	Lithium battery
IDE	The ICH6 supports only one primary IDE interface and can be either IDE1 (40-pin/2.5mm pitch) or IDE2 (44-pin/2.0mm pitch)
Serial ATA Connector	Two SATA ports
RJ45 Connectors	Six RJ-45
USB Connectors	ICH6 built in USB Version 2.0, support 4 ports (D-type CN. x 2 port & pin header x 2 port)
COM Connectors	3 ports (D-type CN. x 1 port & pin header x 2 port)
Power Connector	ATX 24-pin
Expansion Slots	1 x Mini PCI socket
Backplane Bridge Board	With PCI BUS Gold finger (PICMG REV: 2.0 Spec.) connect to Backplane bridge board IP320 32bit/33MHz PCI-32 slots x 2
Front Side Bridge Board	With 40 pin 2mm connector to connect ID370 Front side bridge board
LAN bypass Function	PCI Express Gigabit CN7, 10 RJ45 support Relay Switch by pass function.
Watchdog Timer	Supports 256 segments (0,1,2...255. sec/min)
System Voltages	+5V, +12V, -12V, 5VSB, -5V, 3.3V
Hardware Monitoring	Voltage, Temperature, Smart fan
Board Size	12.6" x 7.2"(318 mm x 183mm)

Installations

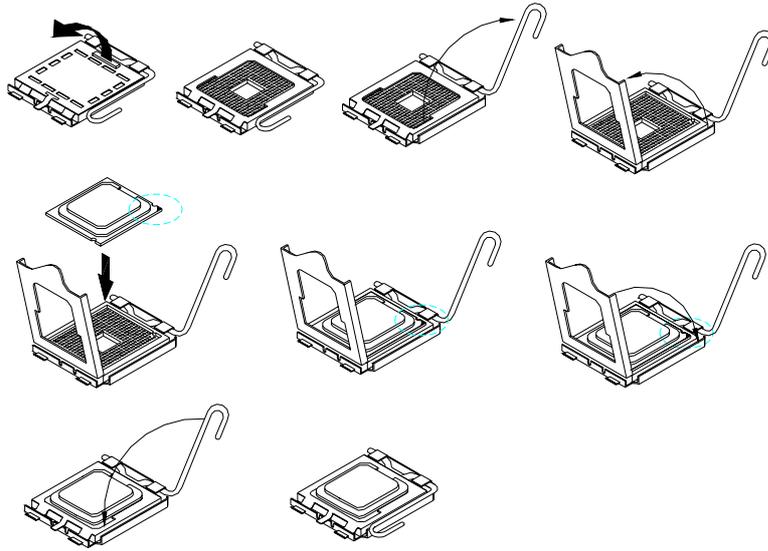
This section provides information on how to use the jumpers and connectors on the MB893 in order to set up a workable system. The topics covered are:

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Installing the CPU

The MB893 motherboard supports an LGA 775 processor socket for Intel® Pentium® 4 processors.

The LGA 775 processor socket comes with a lever to secure the processor. Refer to the pictures below, from left to right, on how to place the processor into the CPU socket. ***Please note that the cover of the LGA775 socket must always be installed during transport to avoid damage to the socket.***



ATX Power Installation

The system power is provided to the motherboard with the ATX1 and ATX_12V1 power connectors. ATX1 is a 24-pin power connector and ATX_12V1 is an 8-pin 12V power connector.

Note: The power supply 5VSB voltage must be at least 2A.

Installing the Memory

The MB893 motherboard supports four DDR memory sockets for a maximum total memory of 4GB in DDR memory type. It supports DDR333 when installed with CPUs that have clock speeds of 533MHz. It supports DDR400 when installed with CPUs that have clock speeds of 800MHz. The board provides dual channel functionality for its DIMM slots. DIMM1, 2 is for one channel and DIMM3, 4 is for another channel.

Basically, the system memory interface has the following features:

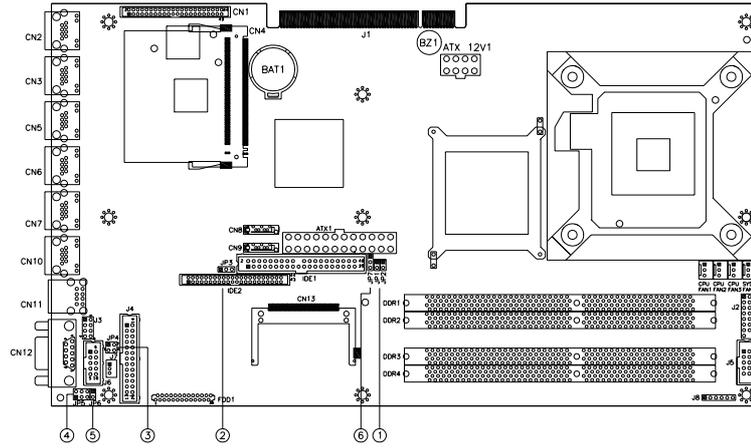
- Supports two 64-bit wide DDR data channels
- Available bandwidth of up to 3.2GB/s (DDR400) for single-channel mode and 6.4GB/s (DDR400) in dual-channel mode
- Supports 128Mb, 256Mb, 512Mb and 1Gb DDR technologies
- Supports only x8, x16, DDR devices with four banks
- Registered DIMMs not supported
- Supports opportunistic refresh
- Up to 16 simultaneously open pages (four per row, four rows maximum)

Setting the Jumpers

Jumpers are used on MB893 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 MB893 and their respective functions.

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JP3: Clear CMOS Contents	10
JP4: CN7 & CN10 LAN By-pass Function Setting.....	10
JP5: COM2 (J6) Tx/Rx Signal Setting (Reserved).....	10
JP6: Case Open Connector (Reserved).....	11
JP7: IDE1, IDE2 UDMA Cable Detect Setting	11

Jumper Locations on MB893

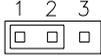
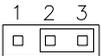


Jumper Locations on MB893	Page
① JP2: Compact Flash Master/Slave Select	10
② JP3: Clear CMOS Contents	10
③ JP4: CN7 & CN10 LAN By-pass Function Setting	10
④ JP5: COM2 (J6) Tx/Rx Signal Setting (Reserved)	10
⑤ JP6: Case Open Connector (Reserved)	11
⑥ JP7: IDE1, IDE2 UDMA Cable Detect Setting	11

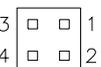
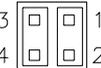
JP2: Compact Flash Master/Slave Select

JP2	Setting	Compact Flash
	Open	Slave
	Closed	Master

JP3: Clear CMOS Contents

JP3	Setting	Function
	Pin 1-2 Short/Closed	Normal
	Pin 2-3 Short/Closed	Clear CMOS

JP4: CN7 & CN10 LAN By-pass Function Setting

JP4	Setting	Function
	Pin 1-2&3-4 OPEN	System will bypass LANs upon the timeout of watchdog timer
	Pin 1-2&3-4 Short/Closed (Default)	System will reboot upon the timeout of watchdog timer.

JP5: COM2 (J6) Tx/Rx Signal Setting (Reserved)

JP5	Setting	COM2 (J6)
	Pin 1-3&2-4 Short/Closed	TTL
	Pin 3-5&4-6 Short/Closed (Default)	RS232

Important Note: Should the two jumper clips or the jumper itself (JP5) be missing, this means that the default setting is fixed as RS232.

JP6: Case Open Connector (Reserved)**JP7: IDE1, IDE2 UDMA Cable Detect Setting**

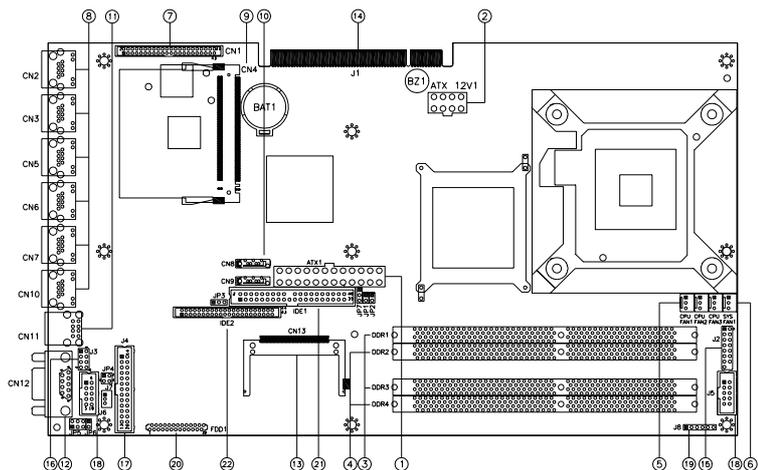
JP7	Setting	Function
	Pin 1-2 Short/Closed (Default)	UDMA by cable detect
	Pin 2-3 Short/Closed	UDMA33 Only

Connectors on MB893

The connectors on MB893 allows you to connect external devices such as keyboard, floppy disk drives, hard disk drives, printers, etc. The following table lists the connectors on MB893 and their respective functions.

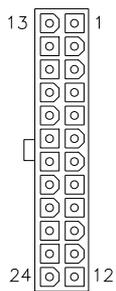
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Connector Locations on MB893



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ATX1: ATX Power Supply Connector

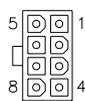


Signal Name	Pin #	Pin #	Signal Name
3.3V	13	1	3.3V
-12V	14	2	3.3V
Ground	15	3	Ground
PS-ON	16	4	+5V
Ground	17	5	Ground
Ground	18	6	+5V
Ground	19	7	Ground
-5V	20	8	Power good
+5V	21	9	5VSB
+5V	22	10	+12V
+5V	23	11	+12V
Ground	24	12	+3.3V

ATX1 is a 24-pin ATX power supply connector.

ATX_12V1: ATX 12V Power Connector

This connector supplies the CPU operation voltage



Pin #	Signal Name
1,2,3,4	Ground
5,6,7,8	+12V

DIMM1, 3: Channel A1, B1 DDR Socket(Green)

DIMM1 is the channel-A first DDR socket.

DIMM3 is the channel-B first DDR socket.

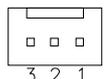
DIMM2, 4: Channel A2, B2 DDR Socket (Purple)

DIMM2 is the channel-A second DDR socket.

DIMM4 is the channel-B second DDR socket.

NOTE: Recommended DIMM modules must be of the same vendor type and size

CPU_FAN1/2/3: CPU Fan Power Connectors



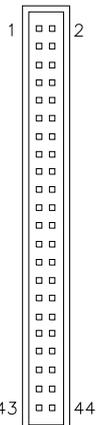
Pin #	Signal Name
1	Ground
2	+12V
3	Rotation detection

SYS_FAN1: System Fan Power Connector



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

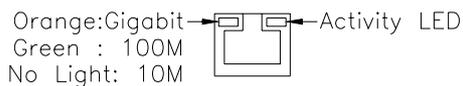
CN1: Front Side Bridge Board to ID370



Signal Name	Pin #	Pin #	Signal Name
PWR-SW	1	2	5VSB
Reset-SW	3	4	Ground
Speak	5	6	VCC
VCC	7	8	VCC
Ground	9	10	PULL-UP
HDD LED	11	12	PULL-UP
By-pass LED	13	14	PULL-UP
Ground	15	16	Ground
Ground	17	18	Ground
GPO0	19	20	GPI0
GPO1	21	22	GPI1
GPO2	23	24	GPI2
GPO3	25	26	GPI3
GPO4	27	28	GPI4
GPO5	29	30	GPI5
GPO6	31	32	GPI6
GPO7	33	34	GPI7
VCC	35	36	VCC
GPI032	37	38	GPI6
GPI033	39	40	GPI7
GPI034	41	42	GPI12
VCC3	43	44	VCC3

CN2/3/5/6/7/10: Gigabit LAN RJ45 Connectors

CN2/3/5/6/7/10 are the Gigabit LAN RJ45 connectors on MB893.
 CN2/3: Intel 82541 Gigabit controllers (PCI-32)
 CN5/6/7/10: Marvell 8053 Gigabit controllers (PCI Express x 1)
 CN7/10: Support hardware by-pass



CN4: Mini PCI Socket

Pin #	Signal	Pin #	Signal	Pin #	Signal	Pin #	Signal
1	NC	2	NC	63	+3.3V	64	FRAME#
3	NC	4	NC	65	CLKRUN#	66	TRDY#
5	NC	6	NC	67	SERR#	68	STOP#
7	NC	8	NC	69	Gnd	70	+3.3V
9	NC	10	NC	71	PERR#	72	DEVSEL#
11	NC	12	NC	73	C/BE[1]	74	Gnd
13	NC	14	NC	75	AD[14]	76	AD[15]
15	GND	16	EX_INTC#	77	GND	78	AD[13]
17	INTB#	18	+5V	79	AD[12]	80	AD[11]
19	+3.3V	20	INTA#	81	AD[10]	82	GND
21	NC	22	NC	83	GND	84	AD[9]
23	GND	24	+3.3VS	85	AD[8]	86	C/BE[0]
25	CLK	26	RESET#	87	AD[7]	88	+3.3V
27	GND	28	+3.3V	89	+3.3V	90	AD[6]
29	REQ#	30	GNT#	91	AD[5]	92	AD[4]
31	+3.3V	32	GND	93	EX_GNT#	94	AD[2]
33	AD[31]	34	PME#	95	AD[3]	96	AD[0]
35	AD[29]	36	NC	97	+5V	98	NC
37	GND	38	AD[30]	99	AD[1]	100	NC
39	AD[27]	40	+3.3V	101	GND	102	GND
41	AD[25]	42	AD[28]	103	AC_SYNC	104	GND
43	EX_IDSEL#	44	AD[26]	105	AC_SDIN	106	AC_SDOUT
45	C/BE[3]	46	AD[24]	107	AC_BITCLK	108	NC
47	AD[23]	48	IDSEL#	109	NC	110	AC_RST#
49	GND	50	GND	111	NC	112	NC
51	AD[21]	52	AD[22]	113	GNC	114	GND
53	AD[19]	54	AD[20]	115	NC	116	NC
55	GND	56	PAR	117	GND	118	GND
57	AD[17]	58	AD[18]	119	GND	120	GND
59	C/BE[2]	60	AD[16]	121	NC	122	NC
61	IRDY#	62	GND	123	+5V	124	+3.3VS

CN8, CN9: SATA Connector

The SATA connectors support SATA 150 and use one serial ATA HDD for each. CN8 is port 1. CN9 is port 2.

CN11: Dual Port USB Connector

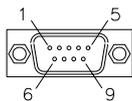
CN11 is a USB connector consisting of two ports stacked vertically.



Pin	Signal Name
1	Ground
2	USB+
3	USB-
4	Vcc

CN12: COM1 Connector

CN12 (COM1) is a DB-9 connector



Signal Name	Pin #	Pin #	Signal Name
DCD, Data carrier detect	1	6	DSR, Data set ready
RXD, Receive data	2	7	RTS, Request to send
TXD, Transmit data	3	8	CTS, Clear to send
DTR, Data terminal ready	4	9	RI, Ring indicator
GND, ground	5	10	Not Used

CN13: Slim Type II Compact Flash Connector

J1: PICMG 2.0 Gold Finger (to IP320)

J2: VGA CRT Connector

J2 is a 15-pin header for an external VGA CRT female connector.

A diagram of a 15-pin header showing a vertical row of 15 pins. The pins are numbered 1 through 15 from bottom to top. Pin 1 is at the bottom right, pin 2 is at the bottom left, and pin 15 is at the top right.

Signal Name	Pin	Pin	Signal Name
Red	1	2	Vcc
Green	3	4	Ground
Blue	5	6	N.C.
N.C.	7	8	N.C.
Ground	9	10	H-Sync
Ground	11	12	V-Sync
Ground	13	14	N.C.
Ground	15	16	N.C.

J3: USB Connector

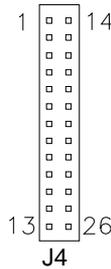
The J3 pin header supports two USB 2.0 ports.

A diagram of a 5-pin header showing a vertical row of 5 pins. The pins are numbered 1 through 5 from left to right. Pin 1 is at the top left, pin 4 is at the bottom left, and pin 5 is at the top right.

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

J4: Parallel Port Connector (Reserved)

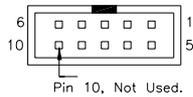
Signal Name	Pin #	Pin #	Signal Name
Line printer strobe	1	14	AutoFeed
PD0, parallel data 0	2	15	Error
PD1, parallel data 1	3	16	Initialize
PD2, parallel data 2	4	17	Select
PD3, parallel data 3	5	18	Ground
PD4, parallel data 4	6	19	Ground
PD5, parallel data 5	7	20	Ground
PD6, parallel data 6	8	21	Ground
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



J5, J6: COM2, COM3 Connectors

J5 is a COM3 pin-header connector.

J6 is a COM2 pin-header connector.



Signal Name	Pin #	Pin #	Signal Name
DCD, Data carrier detect	1	6	DSR, Data set ready
RXD, Receive data	2	7	RTS, Request to send
TXD, Transmit data	3	8	CTS, Clear to send
DTR, Data terminal ready	4	9	RI, Ring indicator
GND, ground	5	10	Not Used

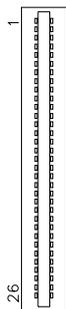
J8: PS/2 Keyboard & Mouse Connectors



Pin #	Signal Name
1	KBDAT
2	KBCLK
3	MSDAT
4	MSCLK
5	Ground
6	+5V

FDD1: Floppy Drive Connector (Reserved)

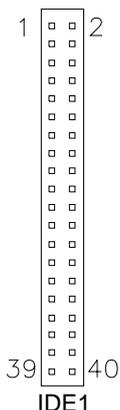
FDD1 is a slim 26-pin connector and will support up to 2.88MB FDD.



Signal Name	Pin #	Pin #	Signal Name
VCC	1	2	INDEX
VCC	3	4	DRV_SEL
VCC	5	6	DSK_CH
NC	7	8	NC
NC	9	10	MOTOR
DINST	11	12	DIR
NC	13	14	STEP
GND	15	16	WDATA
GND	17	18	WGATE
GND	19	20	TRACK
NC	21	22	WPROT
GND	23	24	RDATA
GND	25	26	SIDE

IDE1: Primary IDE Connectors (40-pin 2.54mm)

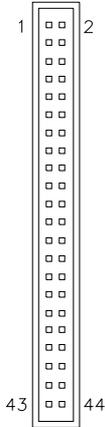
The ICH6 supports only one Primary IDE interface and can be either IDE1 or IDE2 based on the user's selection.



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

IDE2: Primary IDE Connectors (44-pin 2.0mm)

The ICH6 supports only one Primary IDE interface and can be either IDE1 or IDE2 based on the user's selection.



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	Key
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
Vcc	41	42	Vcc
Ground	43	44	N.C.

Watchdog Timer Configuration

The WDT is used to generate a variety of output signals after a user programmable count. The WDT is suitable for use in the prevention of system lock-up, such as when software becomes trapped in a deadlock. Under these sorts of circumstances, the timer will count to zero and the selected outputs will be driven. Under normal circumstance, the user will restart the WDT at regular intervals before the timer counts to zero.

SAMPLE CODE:

This code and information is provided "as is" without warranty of any kind, either expressed or implied, including but not limited to the implied warranties of merchantability and/or fitness for a particular purpose.

```

:[]=====
; Name  : Enable_And_Set_Watchdog
; IN   : AL - 1sec ~ 255sec
; OUT  : None
:[]=====
Enable_And_Set_Watchdog Proc Near
    pushax                ;save time interval
    call Unlock_Chip

    mov cl, 2Bh
    call Read_Reg
    and al, NOT 10h
    call Write_Reg        ;set GP24 as WDTO

    mov cl, 07h
    mov al, 08h
    call Write_Reg        ;switch to LD8
    mov cl, 0F5h
    call Read_Reg
    and al, NOT 08h
    call Write_Reg        ;set count mode as second

    pop ax
    mov cl, 0F6h
    call Write_Reg        ;set watchdog timer

    mov al, 01h
    mov cl, 30h
    call Write_Reg        ;watchdog enabled

```

```

        call Lock_Chip
        ret
Enable_And_Set_Watchdog Endp

;[]=====
; Name  : Disable_Watchdog
; IN   : None
; OUT  : None
;[]=====
Disable_Watchdog Proc Near
        call Unlock_Chip

        mov cl, 07h
        mov al, 08h
        call Write_Reg      ;switch to LD8

        xor al, al
        mov cl, 0F6h
        call Write_Reg      ;clear watchdog timer

        xor al, al
        mov cl, 30h
        call Write_Reg      ;watchdog disabled

        call Lock_Chip
        ret
Disable_Watchdog Endp

;[]=====
; Name  : Unlock_Chip
; IN   : None
; OUT  : None
;[]=====
Unlock_Chip Proc Near
        mov dx, 2Eh
        mov al, 87h
        out dx, al
        out dx, al
        ret
Unlock_Chip Endp

;[]=====
; Name  : Lock_Chip
; IN   : None
; OUT  : None

```

```
:[]=====
Unlock_Chip Proc Near
    mov dx, 2Eh
    mov al, 0Aah

    out dx, al
    ret
Unlock_Chip Endp
:[]=====
; Name   : Write_Reg
; IN    : CL - register index
;      AL - Value to write
; OUT   : None
:[]=====
Write_Reg Proc Near
    pushax
    mov dx, 2Eh
    mov al, cl
    out dx, al
    pop ax
    inc dx
    out dx, al
    ret
Write_Reg Endp
:[]=====
; Name   : Read_Reg
; IN    : CL - register index
; OUT   : AL - Value to read
:[]=====
Read_Reg Proc Near
    mov al, cl
    mov dx, 2Eh
    out dx, al
    inc dx
    in al, dx
    ret
Read_Reg Endp
:[]=====
```

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BIOS Setup

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

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Advanced Chipset Features	35
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Load Fail-Safe Defaults	48
Load Setup Defaults	48
Set Supervisor/User Password	48
Save & Exit Setup.....	48
Exit Without Saving	48

BIOS Introduction

The Award BIOS (Basic Input/Output System) installed in your computer system's ROM supports Intel® Pentium® 4 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 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 - AwardBIOS 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, which 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 board 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 - AwardBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Thu, Dec 16, 2004	Item Help
Time (hh:mm:ss)	00 : 00 : 00	Menu Level
IDE Channel 0 Master	None	Change the day, month, Year and century
IDE Channel 0 Slave	None	
IDE Channel 1 Master	None	
IDE Channel 1 Slave	None	
Drive A	1.44M, 3.5 in.	
Drive B	None	
Video	EGA/VGA	
Halt On	All Errors , But Keyboard	
Base Memory	640K	
Extended Memory	515072K	
Total Memory	516096K	

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 : 1999 to 2099

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.

Capacity : Capacity/size of the hard disk drive
Cylinder : Number of cylinders
Head : Number of read/write heads
Precomp : Write precompensation
Landing Zone : Landing zone
Sector : Number of sectors

The Access Mode selections are as follows:

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

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 - AwardBIOS CMOS Setup Utility
Advanced BIOS Features

		ITEM HELP
CPU Feature	Press Enter	
Hard Disk Boot Priority	Press Enter	
Virus Warning	Disabled	Menu Level
CPU L1 and L2 Cache	Enabled	
Hyper-Threading Technology	Enabled	
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	Hard Disk	
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	
APIC Mode	Enabled	
MPS Version Control for OS	1.4	
OS Select For DRAM>64MB	Non-OS2	
Report No FDD For WIN 95	Yes	
Console Redirection	Enable	
Baud Rate	19200	
Baud Rate	19200	
Agent connect via	NULL	
Agent wait time(min)	1	
Agent after boot	Disabled	
Report No FDD For WIN 95	Yes	
Small Logo (EPA) Show	Enabled	

Hard Disk Boot Priority

This item allows you to set the priority for hard disk boot. When you press enter, the selections shows the current hard disks used in your system as well as the "Bootable Add-in Card" that is relevant to other boot sources media such as SCSI cards and LAN cards.

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 L1 and L2 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

Hyper-Threading Technology enables two logical processors on a single physical processor by replicating, partitioning, and sharing the resources within the Intel NetBurst microarchitecture pipeline.

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*, *USB-FDD*, *USB-ZIP*, *USB-CDROM* 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

This feature controls whether the BIOS checks for a floppy drive while booting up. If it cannot detect one (either due to improper configuration or its absence), it will flash an error message.

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.

APIC Mode

APIC stands for Advanced Programmable Interrupt Controller. The default setting is *Enabled*.

MPS Version Control for OS

This option is specifies the MPS (Multiprocessor Specification) version for your operating system. MPS version 1.4 added extended configuration tables to improve support for multiple PCI bus configurations and improve future expandability. The default setting is *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*.

Console Redirection

Set the Console Redirection from COM port to UNIX terminal on BIOS boot up. By default, the setting is enabled.

Baud Rate

The default value of the Baud Rate is 19200.

Agent Connect Via

By default, this item is set to NULL.

Agent Wait Time (min)

By default, the Agent Wait Time is set to 1 minute.

Agent After Boot

By default, this field is disabled.

Report No FDD For WIN 95

If you are using Windows 95/98 without a floppy disk drive, select Enabled to release IRQ6. This is required to pass Windows 95/98's SCT test. You should also disable the Onboard FDC Controller in the Integrated Peripherals screen when there's no floppy drive in the system. If you set this feature to Disabled, the BIOS will not report the missing floppy drive to Win95/98.

Small Logo (EPA) Show

The EPA logo appears at the right side of the monitor screen when the system is boot up. The default setting is enabled.

Advanced Chipset Features

This Setup menu controls the configuration of the chipset.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features

		ITEM HELP
DRAM Timing Selectable	By SPD	Menu Level
CAS Latency Time	Auto	
DRAM RAS# to CAS# Delay	Auto	
DRAM RAS# Precharge	Auto	
Precharge Delay	Auto	
SLP_S4# Assertion Width		
System Memory Frequency	Auto	
System BIOS Cacheable	Enabled	
Video BIOS Cacheable	Enabled	
Memory Hole at 15M-16M	Disabled	
PCI Express Root	Press Enter	
On-Chip Video Memory	Press Enter	
On-Chip Frame Buffer Size	8MB	
Memory		
DVMT Version	DVMT 3.0	
FIXED Memory Size	64MB	
DVMT Memory Size	64MB	
Boot Display	Auto	

DRAM Timing Selectable

This option refers to the method by which the DRAM timing is selected. The default is **By SPD**.

CAS Latency Time

You can configure CAS latency time in HCLKs as 2 or 2.5 or 3. The system board designer should set the values in this field, depending on the DRAM installed. Do not change the values in this field unless you change specifications of the installed DRAM or the installed CPU.

DRAM RAS# to CAS# Delay

This option allows you to insert a delay between the RAS (Row Address Strobe) and CAS (Column Address Strobe) signals. This delay occurs when the SDRAM is written to, read from or refreshed. Reducing the delay improves the performance of the SDRAM.

DRAM RAS# Precharge

This option sets the number of cycles required for the RAS to accumulate its charge before the SDRAM refreshes. The default setting for the Active to Precharge Delay is Auto.

Precharge Delay

The default setting for the Precharge Delay is **Auto**.

System Memory Frequency

This field sets the frequency of the DRAM memory installed. The default setting is *Auto*. The other settings are *DDR266*, *DDR333*, *DDR320* and *DDR400*.

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.

Memory Hole At 15M-16M

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be

On-Chip Frame Buffer Size Memory

Allow user to select the amount of system memory pre-allocated by the internal graphics device.

Fixed Memory Size

Specify the size of system memory to allocate for video memory.

DVMT Memory Size

Specify the size of DVMT memory to allocate for video memory.

Integrated Peripherals

Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals

OnChip IDE Device	Press Enter	ITEM HELP
Onboard Device	Press Enter	Menu Level
SuperIO Device	Press Enter	
2 nd SuperIO Device	Press Enter	

Phoenix - AwardBIOS CMOS Setup Utility
OnChip IDE Device

IDE HDD Block Mode	Enabled	ITEM HELP
IDE DMA transfer access	Enabled	
On-Chip Primary PCI IDE	Enabled	Menu Level
IDE Primary Master PIO	Auto	
IDE Primary Slave PIO	Auto	
IDE Primary Master UDMA	Auto	
IDE Primary Slave UDMA	Auto	
On-Chip Secondary PCI IDE	Enabled	
IDE Secondary Master PIO	Auto	
IDE Secondary Slave PIO	Auto	
IDE Secondary Master UDMA	Auto	
IDE Secondary Slave UDMA	Auto	
*** On-Chip Serial ATA Setting ***		
SATA Mode	IDE	
On-Chip Serial ATA	Auto	
Serial ATA Port0 Mode	SATA0 master	
Serial ATA Port1 Mode	SATA1 master	

Phoenix - AwardBIOS CMOS Setup Utility
Onboard Device

USB Controller	Enabled	ITEM HELP
USB 2.0 Controller	Enabled	Menu Level
USB Keyboard Support	Disabled	
USB Mouse Support	Disabled	
Azalia/AC97 Audio Select	Auto	

Phoenix - AwardBIOS CMOS Setup Utility
SuperIO Device

POWER ON Function	BUTTON ONLY	ITEM HELP
KB Power ON Password	Enter	Menu Level >
Hot Key Power ON	Ctrl-F1	
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	
PWRON After PWR-Fail	Off	

IDE HDD Block Mode

This field allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive.

IDE DMA Transfer Access

Use this field to enable or disable IDE DMA transfer access.

OnChip Primary/Secondary PCI IDE

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel.

IDE Primary/Secondary Master/Slave PIO

These fields allow your system hard disk controller to work faster. Rather than have the BIOS issue a series of commands that transfer to or from the disk drive, PIO (Programmed Input/Output) allows the BIOS to communicate with the controller and CPU directly.

The system supports five modes, numbered from 0 (default) to 4, which primarily differ in timing. When Auto is selected, the BIOS will select the best available mode.

IDE Primary/Secondary Master/Slave UDMA

These fields allow your system to improve disk I/O throughput to 33Mb/sec with the Ultra DMA/33 feature

SATA Mode

The setting choices for the SATA Mode are IDE, RAID and AHCI Mode. Select [IDE] if you want to have SATA function as IDE. Select [AHCI] for Advanced Host Controller Interface (AHCI) feature, with improved SATA performance with native command queuing & native hot plug. Select [RAID] to use SATA as RAID function. RAID function is supported on the board if it uses ICH6R. Otherwise, it is not supported.

On-Chip Serial ATA

The default setting of *Auto* allows the Serial ATA drive to be enabled, when the system detects one.

PATA IDE Mode

This item allows you to select the parallel ATA channel. Setting options are Primary and Secondary.

SATA Port

This feature allows users to view the SATA port as primary or secondary channel.

USB Controller

The options for this field are *Enabled* and *Disabled*. By default, this field is set to *Enabled*.

USB 2.0 Controller

The options for this field are *Enabled* and *Disabled*. By default, this field is set to *Disabled*. In order to use USB 2.0, necessary OS drivers must be installed first.

USB Keyboard Support

The options for this field are *Enabled* and *Disabled*. By default, this field is set to *Disabled*.

USB Mouse Support

The options for this field are *Enabled* and *Disabled*. By default, this field is set to *Disabled*.

Azalia/AC97 Audio Select

The default setting of the AC97 Audio is *Auto*.

Power ON Function

This field is related to how the system is powered on – such as with the use of conventional power button, keyboard or hot keys. The default is **BUTTON ONLY**.

KB Power ON Password

This field allows users to set the password when keyboard power on is the mode of the Power ON function.

Hot Key Power ON

This field sets certain keys, also known as hot keys, on the keyboard that can be used as a ‘switch’ to power on the system.

Onboard FDC Controller

Select *Enabled* if your system has a floppy disk controller (FDC) installed on the board and you wish to use it. If you install an add-in FDC or the system has no floppy drive, select *Disabled* in this field. This option allows you to select the onboard FDD port.

Onboard Serial/Parallel Port

These fields allow you to select the onboard serial and parallel ports and their addresses. The default values for these ports are:

Serial Port 1	3F8/IRQ4
Serial Port 2	2F8/IRQ3
Serial Port 3	2F0/IRQ11
Serial Port 4	2E0/IRQ10
Parallel Port	378H/IRQ7

UART Mode Select

This field determines the UART 2 mode in your computer. The default value is *Normal*. Other options include *IrDA* and *ASKIR*.

PWRON After PWR-Fail

This field sets the system power status whether *on* or *off* when power returns to the system from a power failure situation.

Power Management Setup

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

Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup

		ITEM HELP
ACPI Function	Enabled	
Power Management	User Define	
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 THRM-Throttling	50%	
Wake-Up by PCI Card	Disabled	
Power On by Ring	Disabled	
Wake Up On LAN	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

Enable this function to support ACPI (Advance Configuration and Power Interface).

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.

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 BIOS to control the video display.
Blank Screen	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.

Wake-Up by PCI Cards

Enable this field to allow wake up function through a PCI Ethernet 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.

Wake Up On LAN

Enable this field to allow wake up function through the onboard Marvell Gigabit Ethernet.

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 that 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 - AwardBIOS CMOS Setup Utility
PnP/PCI Configurations

PNP OS Installed	No	ITEM HELP
Reset Configuration Data	Disabled	
Resources Controlled By	Auto (ESCD)	Menu Level Default is Disabled. Select Enabled to reset Extended 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
IRQ Resources	Press Enter	
DMA Resources	Press Enter	
PCI/VGA Palette Snoop	Disabled	
INT Pin 1 Assignment	Auto	
INT Pin 2 Assignment	Auto	
INT Pin 3 Assignment	Auto	
INT Pin 4 Assignment	Auto	
INT Pin 5 Assignment	Auto	
INT Pin 6 Assignment	Auto	
INT Pin 7 Assignment	Auto	
INT Pin 8 Assignment	Auto	
** PCI Express relative items **		
Maximum Payload Size	4096	

PNP OS Install

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 can configure all of the boot and compatible devices automatically with the use of a use a PnP OS such as Windows 95.

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.

Maximum Payload Size

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 - AwardBIOS CMOS Setup Utility
PC Health Status

		ITEM HELP
CPU Warning Temperature	80°C/176°F	
System Temp	28°C/82°F	
CPU Temp	42°C/107°F	
CPU FAN Speed (CPU_FAN1/2)	5400 RPM	
System FAN Speed (FAN1)	5463 RPM	
System FAN Speed (FAN2)	5388 RPM	
Vcore(V)	1.02 V	
+3.3V	3.32 V	
+5 V	4.94 V	
+12 V	12.03 V	
-12 V	-12.44 V	
VBAT (V)	3.21V	
5VSB (V)	5.15V	
Shutdown Temperature	Disabled	
Current CPUFAN1 Speed		
Current CPUFAN2 Speed		
Current CPUFAN3 Speed		
Current CPUSYS1 Speed		
1st Smart Fan II Temperature		
Level2 Temperature		
2nd Smart Fan II Temperature		
Level2 Temperature		

CPU Warning Temperature

This field allows the user to set the temperature so that when the temperature is reached, the system sounds a warning. This function can help prevent damage to the system that is caused by overheating.

Shutdown Temperature

This field allows the user to set the temperature by which the system automatically shuts down once the threshold temperature is reached. This function can help prevent damage to the system that is caused by overheating.

Temperatures/Fan Speeds/Voltages

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

CPU/Chassis Fan Failure Warning

When enabled, this field lets the system sounds a 'siren' audible warning to the user that the CPU fan or chassis fan has malfunctioned.

1st Smart Fan II Temperature (SYS_FAN1 connector)

Enable or Disable the first phase Smart FAN functionality of SYS_FAN1 connector.

Configuration option: [30] [35] [40] [45] [50] [55] [60]

If the value is set, the fan turns to 25% duty cycle when the temperature of CPU reach to the value.

The default value is *Disabled*.

2nd Smart Fan II Temperature (CPU_FAN1 / CPU_FAN2 / CPU_FAN3 connectors)

Enable or Disable the first phase Smart FAN functionality of CPU_FAN1/CPU_FAN2/CPU_FAN3 connectors.

Configuration option: [30] [35] [40] [45] [50] [55] [60]

If the value is set, the fan turns to 25% duty cycle when the temperature of CPU reach to the value. The default value is *Enabled*.

Level2 Temperature

Set the second phase Smart FAN functionality.

Configuration option: [5] [10] [15]

If both the value and the **Smart Fan II Temperature** are set, the fan turns to 50% duty cycle when the temperature of CPU reach to (first phase + second phase temperature).

The third phase Smart FAN functionality:

If the temperature of CPU is over (first phase + second phase temperature + 10), the fan turns to 75% duty cycle.

The final phase Smart FAN functionality:

If the temperature of CPU is over (first phase + second phase temperature + 20), the fan turns to 100% duty cycle.

Frequency/Voltage Control

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

Phoenix - AwardBIOS CMOS Setup Utility
Frequency/Voltage Control

CPU Clock Ratio	14X	ITEM HELP
Auto Detect PCI Clk	Disabled	
Spread Spectrum	Disabled	Menu Level

CPU Clock Ratio

The CPU Ratio, also known as the CPU bus speed multiplier, can be configured through this field. The default setting is **8X**. This parameter can be used in conjunction with the above field to change the processor's speed.

Auto Detect PCI Clk

This field enables or disables the auto detection of the PCI clock.

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 2000 and Windows XP. The software and drivers are included with the board. If you find the items missing, please contact the vendor where you made the purchase. The contents of this section include the following:

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Intel 915G Chipset Graphics Driver.....	51
Marvell 88E8053 LAN Drivers Installation.....	52
INTEL PRO LAN Drivers Installation	52

IMPORTANT NOTE:

After installing your Windows operating system (Windows 2000/XP), you must install first the Intel Chipset Software Installation Utility before proceeding with the drivers installation.

Intel 915G Chipset Software Intallation Utility

The Intel 915G Chipset Drivers should be installed first before the software drivers to enable Plug & Play INF support for Intel chipset components. Follow the instructions below to complete the installation under Windows 2000/XP. (Before installed Intel Chipset Software Intallation Utility, Please update your system to Windows 2000 SP4 or Windows XP SP1A)

1. Insert the CD that comes with the board and the screen below would appear. Click Intel Chipset Software Intallation Utility.



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

5. 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.

Intel 915G Chipset Graphics Driver

The Intel 915G Chipset Family Graphics Drivers come in the CD with the motherboard. Follow the instructions below to complete the installation under Windows 2000/XP.

1. Insert the CD that comes with the board and the screen below would appear. Click Intel 915G Chipset Family Graphics 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. 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.

Marvell 88E8053 LAN Drivers Installation

Follow the steps below to start installing the Marvell 88E8053 PCI Express Gigabit LAN drivers.

1. Insert the CD that comes with the board. In the initial screen, click on LAN Card on the left side.



2. When the Welcome screen appears, click Next to start the drivers installation.



3. Click Finish to complete the setup and for changes to take effect.

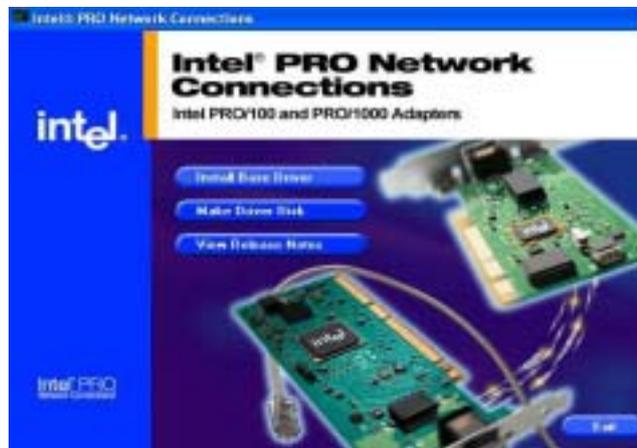
Intel PRO LAN Drivers Installation

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

1. Insert the CD that comes with MB893. On the initial screen, click LAN Card on the left side and the screen below would appear.



2. Click Intel(R) PRO LAN Drivers. Follow the instructions accordingly to finish the Ethernet driver installation.



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Appendix

A. I/O Port Address Map

Each peripheral device in the system is assigned a set of I/O port addresses that also becomes the identity of the device. The following table lists the I/O port addresses used.

Address	Device Description
000h - 01Fh	DMA Controller #1
020h - 03Fh	Interrupt Controller #1
040h - 05Fh	Timer
060h - 06Fh	Keyboard Controller
070h - 07Fh	Real Time Clock, NMI
080h - 09Fh	DMA Page Register
0A0h - 0BFh	Interrupt Controller #2
0C0h - 0DFh	DMA Controller #2
0F0h	Clear Math Coprocessor Busy Signal
0F1h	Reset Math Coprocessor
1F0h - 1F7h	IDE Interface
278h - 27Fh	Parallel Port #2(LPT2)
2F8h - 2FFh	Serial Port #2(COM2)
2B0h - 2DFh	Graphics adapter Controller
378h - 3FFh	Parallel Port #1(LPT1)
360h - 36Fh	Network Ports
3B0h - 3BFh	Monochrome & Printer adapter
3C0h - 3CFh	EGA adapter
3D0h - 3DFh	CGA adapter
3F0h - 3F7h	Floppy Disk Controller
3F8h - 3FFh	Serial Port #1(COM1)

B. Interrupt Request Lines (IRQ)

Peripheral devices use interrupt request lines to notify CPU for the service required. The following table shows the IRQ used by the devices on board.

Level	Function
IRQ0	System Timer Output
IRQ1	Keyboard
IRQ2	Interrupt Cascade
IRQ3	Serial Port #2
IRQ4	Serial Port #1
IRQ5	Reserved
IRQ6	Floppy Disk Controller
IRQ7	Parallel Port #1
IRQ8	Real Time Clock
IRQ9	Reserved
IRQ10	Reserved
IRQ11	Reserved
IRQ12	PS/2 Mouse
IRQ13	80287
IRQ14	Primary IDE
IRQ15	Secondary IDE