

Mungo540

Embedded Socket 370 CPU Board

Version 1.0



User's Manual

Customer Service

Mailing Address: Kontron - United States
6260 Sequence Drive
San Diego, CA 92121 USA
Tel: 858-677-0877
Fax: 858-677-0895

Technical Support: U.S. and Canadian Customers - 24 hours a day
Tel: 800-480-0044, option 1
Fax: 858-677-0898
International Customers - 9am to 4pm local time
Tel: (+49) 8165-77 112
Fax: (+49) 8165-77 110

Visit our site at: www.kontron.com

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This section provides the FCC compliance statement for Class A devices and describes how to keep the system CE compliant.

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The product(s) described in this user's guide has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the user's guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area (domestic environment) is likely to cause harmful interference, in which case the user will be required to correct the interference (take adequate measures) at their own expense.

Changes or modifications not expressly approved by Kontron could void the user's authority to operate the equipment.

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The product(s) described in this user's guide complies with all applicable European Union (CE) directives if it has a CE marking. The CE declaration of conformity is provided on the last page of this user's guide. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques. Although Kontron offers accessories, the customer must ensure that these products are installed with proper shielding to maintain CE compliance. Kontron does not offer engineering services for designing cabling systems. In addition, Kontron will not retest or recertify systems or components that have been reconfigured by customers.

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Chapter 1

Introduction

This manual is designed to give you information on the Mungo540 single board computer. It is divided into the following sections:

Checklist.....	2
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Specifications.....	3
Intelligence	6

The topics covered in this chapter are as follows:

- ◆ Checklist
- ◆ Description
- ◆ Features
- ◆ Specifications
- ◆ Intelligence

Checklist

Please check that your package is complete and contains the items below. If you discover damaged or missing items, please contact your dealer.

- Mungo540 single board computer
- This user's manual
- 4 IDE ribbon cable
- 1 Floppy ribbon connector
- 1 Keyboard/ Mouse cable
- 1 CRT cable
- 1 COM port cable for COM1~4
- 1 Sound cable
- 1 IPC Series (CD driver)
- 1 USB cable support two channel
- 1 ATX power cable

Introduction

The Mungo540 is one of the most efficient embedded boards in the world. It integrates the Intel 82815EP chipset and Intel 82801BA ICH2 chipset supporting a Socket 370 connector for Intel Pentium III with frequencies of up to 1G MHz.

The Mungo540 is designed with a PCI bridge that is able to support 1 PCI master interfaces with PCI to ISA bridge by PC/104 interface. The board also provides DiskOnChip interface to storage your system. We also provides CRT /LCD display, ACP7 Codec to show the best solution on this board. Dual LAN function also offer the customs demands.

Specifications

- **Processor Socket:** Socket 370 connector
- **Processor:** Intel Pentium III 500MHz~1GHz Processor
- **Bus Speed:** 100MHz, 133MHz.
- **Chipset:** Intel 815EP Chipset
- **Secondary Cache:** CPU integrated
- **Memory Sockets:**
 - One 168-pin DIMM sockets
 - Max. 256MB SDRAM
 - Memory type: SDRAM (Synchronous DRAM)
 - NOTE: Only SDRAM modules that support SPD (Serial Presence Detect) should be use. Use PC133 modules when running 133MHz CPU bus speed and use PC66/PC100 modules when running 66MHz /100MHz CPU bus speed.*

-
- **BIOS:** Award BIOS, PnP support
 - The motherboard BIOS provides “Plug & Play” which detects the peripheral devices and expansion boards of the automatically.
 - The motherboard provides a Desktop Management Interface (DMI) function which record your motherboard specifications
 - ACPI Power management
 - **DMI BIOS Support:**

Desktop Management Interface (DMI) allows users to download system hardware-level information such as CPU type, CPU speed, internal/external frequencies and memory size.
 - **1ST I/O PCI to ISA Bridge:** Winbond W83627HF + W83628F + W83629D
 - **2ND I/O:** Winbond W83877TTF
 - **Parallel Port:** One high-speed parallel port, SPP/EPP/ECP mode
 - **Serial Port:** Four 16550 UART compatible ports with COM1/COM3/ COM4 as RS232 and COM2 as RS232/RS422/RS485
 - **Enhanced IDE:** Two Bus Mastering EIDE mode, up to 4 devices, Two EIDE interfaces for up to four devices, support PIO Mode 4/5 or Ultra DMA/33 IDE Hard Disk and ATAPI CD-ROM.
 - **FDD Interface:** Two floppy drives (360KB, 720KB, 1.2MB, 1.44MB, 2.88MB, LS-120)
 - **USB Interface:** Four USB pin-header connectors, compliant with USB Specification Rev. 1.1
 - **DiskOnChip:** The M-Systems flash disk supports system boot and storage capacity from 8MB to 288MB.
 - **Watchdog Timer:** 0~254.5-level, programmable
 - **IrDA Interface:** Pin-header connector for the optional IrDA external connector
 - **Keyboard and Mouse Connectors:** PS/2 type mini-DIN that supports PC/AT; supports a 5-pin external keyboard connector

-
- **VGA:** Onboard SMI721 4/8M VGA Chipset support Single TFT LCD panel (36 bit)
 - Simultaneous CRT & LCD display
 - LCD panel supports DSTN/TFT
 - 1280x1024x8bpp colors CRT resolution
 - Up to 1280x1024x8bpp colors resolution for color active matrix TFT panels (12, 18, and 24bit analog) or (12+12), (18+18) double pixel/CLK interface
 - LVDS Panel support (18 bit) for JAE Connector

 - **Green Function:** Power management via BIOS, activated through mouse/keyboard movement.

 - **LAN:** Intel 82559B and Intel 82562ET LAN Controllers Interface for Connecting to the ICH2

 - **Sound:**
AD1881 AC'97 CODEC for controller Interface for Connection to ICH2

 - **Environmental and Mechanical:**
 - **Power Supply:** 10A @+5V(max), ±12V: 100mA(max)
 - **Temperature:** 0°C to 60°C
 - **Humidity:** 5% to 95%
 - **Dimensions:** 146mm x 203mm

Intelligence

- **Temperature Monitoring and Alert:** A sensor for the CPU temperature on the Mungo540 monitors the CPU temperature and alerts the user through the speaker or buzzer when temperature exceeds the safe heat level.
- **Windows serials shut-off:** Allows shut-off control from within Windows serials and through an ATX power supply.
- **Year 2001 Compliant BIOS:** The onboard Award BIOS is Year 2001 Compliant and will pass software applications that have the tendency to invoke INT1AH function 04H such as year2000.exe utility released by NSTL.
- **Wake On LAN:** Through an ATX power supply and network connection, systems can be turned on from the power-off state. Wake On LAN will function properly only with an ATX power supply with 5VSB that has 800mA.

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Chapter 2

Installations

This chapter provides information on how to use the jumpers and connectors on the Mungo540 in order to set up a workable system. The topics covered are:

CPU Installation	9
Memory Installation	10
Jumpers on the Mungo540	11
Connectors on the Mungo540	16
Watchdog Timer Configuration	31

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

CPU Installation

The Mungo540 single board computer supports a Socket 370 connector processor socket for Intel Pentium III processors.

The Socket 370 connector comes with a lever to secure the processor. Before inserting the CPU, make sure the lever is raised perpendicular to the socket and the notch on the corner of the CPU corresponds with the notch on the inside of the socket.

After you have installed and lock the processor into place, 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.*

Memory Installation

The Mungo540 single board computer supports one 168-pin DIMM socket for a maximum total memory of 256MB SDRAM.



NOTE: Use SDRAM module with PC133 specification when running 133MHz CPU bus speed. With 66/100MHz bus speed, SDRAM modules with PC66 or PC100 specification can be used.

Jumpers on the Mungo540

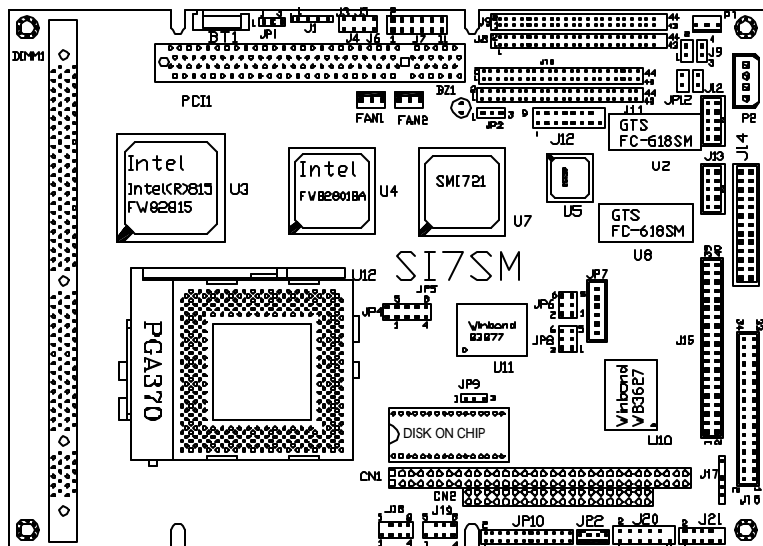
The jumpers on the Mungo540 allow you to configure your board according to the needs of your applications. If you have doubts about the best jumper configuration for your needs, contact your dealer or sales representative. The following table lists the connectors on Mungo540 and their respective functions.

Jumper Locations on the Mungo540	12
JP1: Clear CMOS Content	13
JP2: Panel Power Setting	13
JP4: Boot Block Lock/Unlock	13
JP5: Select Panel Display Type Setting.....	14
JP6: COM3/COM4 RS232 +5V / +12V Power Setting	14
JP8: COM1/COM2 RS232 +5V / +12V Power Setting	14
JP9: DiskOnChip BIOS Expansion Address Select	15
JP10: RS232/422/485 Selection.....	15

The following examples show the conventions used in this section.



	Jumper Open
	Jumper Closed

Jumper Locations on the Mungo540





- JP1: Clear CMOS Content
- JP2: Panel Power Setting
- JP4: Boot Block Lock/Unlock
- JP5: Select Panel Display Type Setting
- JP6: COM3/COM4 RS232 +5V / +12V Power Setting
- JP8: COM1/COM2 RS232 +5V / +12V Power Setting
- JP9: DiskOnChip BIOS Expansion Address Select
- JP10: RS232/422/485 Selection

JP1: Clear CMOS Content



JP1	Setting	Function
	Pin 2-3 Closed	Clear CMOS Content
	Pin 1-2 Closed	Normal Operation

JP2: Panel Power Setting

JP1	Setting	Function
	Pin 2-3 Closed	5V
	Pin 1-2 Closed	3.3V

JP4: Boot Block Lock/Unlock

When the Boot Block is locked, BIOS flash update cannot be executed.

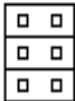
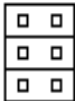
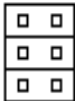
JP4	Setting	Function
	Pin 1-2 Closed	Boot Block Unlock
	Pin 1-2 Open	Boot Block Locked

JP5: Select Panel Display Type Setting

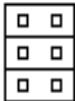
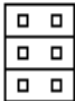
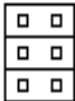


Jumper 1-5 Setting	Jumper 2-6 Setting	Jumper 3-7 Setting	Jumper 4-8 Setting	Resolution
Short	Short	Short	Short	640x480 TFT
Open	Short	Short	Short	640X480,16bit DSTN
Short	Open	Short	Short	800X600 TFT
Open	Open	Short	Short	800X600,16bit DSTN
Short	Short	Open	Short	1024X768 TFT
Open	Short	Open	Short	1024X768,16bit DSTN



JP6: COM3/COM4 RS232 +5V / +12V Power Setting

Signal Name	JP6	Signal Name
+5V	1  2	+5V
COM3	3  4	COM4
+12V	5  6	+12V

JP8: COM1/2 RS232 +5V / +12V Power Setting

Signal Name	JP6	Signal Name
+5V	1  2	+5V
COM1	3  4	COM2
+12V	5  6	+12V

JP9: DiskOnChip BIOS Expansion Address Select

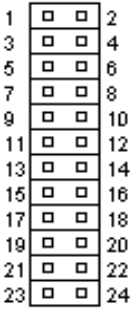
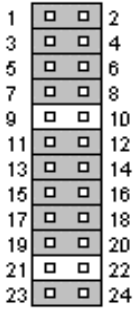
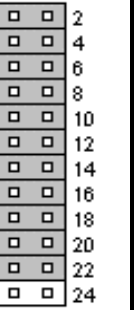
JP9	Setting	Function
	Pin 2-3	D8000-DFFFF(default)
	Pin 1-2	D0000-D7FFF

JP10: RS232/422/485 Selection

COM1/COM3/ COM4 are fixed for RS-232 use only.

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

The following table describes the jumper settings of this connector.

COM2 Function	RS-232	RS-422	RS-485
Jumper Setting (pin closed)	all jumpers open	1-2 3-4 5-6 7-8 11-12 15-16 17-18 19-20 23-24	1-2 3-4 5-6 7-8 9-10 11-12 13-14 15-16 17-18 19-20 21-22
Jumper Illustration			

Connectors on the Mungo540

The connectors on the Mungo540 allow you to connect external devices such as keyboard, floppy disk drives, hard disk drives, printers, etc. The following table lists the connectors on Mungo540 and their respective functions.

?	Connector Locations on the Mungo540	17
	J1: Speaker Connector	18
	J3: Reset Switch Connector	18
	J4: Hard Disk Drive LED Connector	18
	J5: SMI/Hardware Switch	19
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	J7: Digital I/O Connector	19
	J10, J11: LCD Panel Connector	20
	J2, J8: EIDE Connectors	24
	J12: VGA CRT Connector	25
	J13: 82559 LAN Output Connector	25
	J14: Parallel Port Connector	25
	J15: COM1, COM2, COM3, COM4: Serial Ports	26
	J16: Floppy Drive Connector	27
	J17: IrDA Connector	27
	J18: USB1/ USB2; J19: USB3/ USB4 Connectors	28
	J20: AC'97 Audio Enable/Disable	28
	J21: PS/2 Keyboard/Mouse Connector	28
	J22: CD-ROM Audio In Connectors	29
	Fan1, Fan2 CPU Fan Power Connector	29
	P1: Peripheral Power Connector	29
	P2: Main Power Connector	29
	JP3: 82562ET LAN Output Connector	30

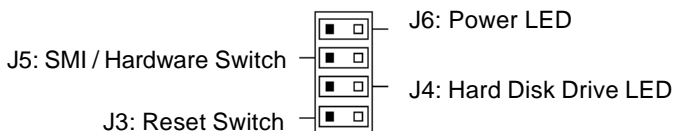
Front Bezel Connector

J1: Speaker Out: Pins 1 - 4

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

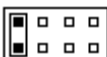


Pin #	Signal Name
1	Speaker out
2	No connect
3	Ground
4	+5V



J3: Reset Switch: Pins 1 and 2

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.



Pin #	Signal Name
1	Reset
2	Ground

J4: Hard Disk Drive LED Connector: Pins 1 and 2

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



Pin #	Signal Name
1	HDD
2	5V

J5: SMI/Hardware Switch: Pins 1 and 2

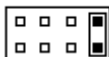
This connector supports the "Green Switch" on the control panel, which, when pressed, will force the system into the power-saving mode immediately.



Pin #	Signal Name
1	Sleep
2	Ground

J6: Power LED Connector: Pins 1 and 2

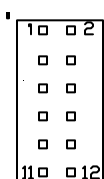
The Power LED will always be 5V when attached to this connector.



Pin #	Signal Name
1	5V
2	Ground

J7: Digital I/O Connector

This 10-pin Digital I/O connector supports TTL levels and is used to control external devices requiring ON/OFF circuitry.



Signal Name	Pin #	Pin #	Signal Name
DO0	1	2	Vcc
DO1	3	4	DI0
DO2	5	6	DI1
DO3	7	8	DI2
Ground	9	10	DI3
Ground	11	12	+12V

SPECIFICATIONS:

Digital Input

Input channels: 2 bits

Input Voltage: High: 2.0V (min)
Low: 0.8V (max)

Input Load: High: 0.05mA max at 2.7V
Low: 0.4mA max at 0.5V

Register Address: 240H

Register Format: BIT: D1 D0
Value: D11 DI0

Digital Output

Output channels: 4 bits

Output voltage: High: Source -0.4mA at 2.4V min

Low: Sink 8mA at 0.5V max

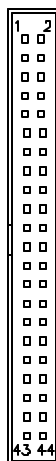
Register Address: 240H (Write)

Register Format: BIT: D1 D0

Value: DO1 DO0

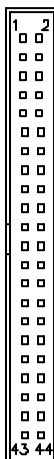
J10, J11: LCD Panel Connector

J10 and J11 are the pin headers for flat panel LCD displays. The following shows the pin assignments of this connector.



J10,

Signal Name	Pin #	Pin #	Signal Name
+12V	1	2	+12V
GND	3	4	GND
5V/3.3V	5	6	5V/3.3V
ENAVEE	7	8	GND
P6	9	10	P7
P0	11	12	P1
P2	13	14	P3
P4	15	16	P5
P14	17	18	P15
P8	19	20	P9
P10	21	22	P11
P12	23	24	P13
P22	25	26	P23
P16	27	28	P17
P18	29	30	P19
P20	31	32	P21
GND	33	34	GND
SHFCLK	35	36	FLM
MDE	37	38	LP
GND	39	40	ENABKL
GND	41	42	NC
DNAVDD	43	44	5V/3.3V



J11

Signal Name	Pin #	Pin #	Signal Name
+12V	1	2	+12V
GND	3	4	GND
5V/3.3V	5	6	5V/3.3V
ENAVEE	7	8	GND
P24	9	10	P25
P26	11	12	P27
P28	13	14	P29
P30	15	16	P31
P32	17	18	P33
P34	19	20	P35
P36	21	22	P37
P38	23	24	P39
P40	25	26	P41
P42	27	28	P43
P44	29	30	P45
P46	31	32	P47
GND	33	34	GND
SHFCLK1	35	36	FLM1
MDE1	37	38	LP1
GND	39	40	ENABKL1
GND	41	42	NC
DNAVDD	43	44	5V/3.3V

Flat Panel Display Interface Pin Descriptions

@ Figure 1

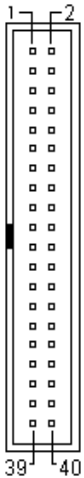
Pin Name	DSTN		TFT				
	16-bit	24-bit	9-bit	12-bit	18-bit	24-bit	12-bitx2
LP/FHSYNC	LP	LP	HSYNC	HSYNC	HSYNC	HSYNC	HSYNC
FP/FVSYNC	FP	FP	VSYNC	VSYNC	VSYNC	VSYNC	VSYNC
FPCLK	XCK	XCK	CK	CK	CK	CK	CK
DE			ENAB	ENAB	ENAB	ENAB	ENAB
FPEN	FPEN	FPEN	FPEN	FPEN	FPEN	FPEN	FPEN
FPVDDEN	VDD	VDD	VDD	VDD	VDD	VDD	VDD
VBIASEN	VEE	VEE	VEE	VEE	VEE	VEE	VEE
FPDATA35							
FPDATA34							
FPDATA33							
FPDATA32							
FPDATA31							
FPDATA30							
FPDATA29							
FPDATA28							
FPDATA27							
FPDATA26							
FPDATA25							
FPDATA24							
FPDATA23		UD11				R7	RB3
FPDATA22		UD10				R6	RB2
FPDATA21		UD9			R5	R5	RB1
FPDATA20		UD8			R4	R4	RB0
FPDATA19	UD7	UD7		R3	R3	R3	RA3
FPDATA18	UD6	UD6	R2	R2	R2	R2	RA2
FPDATA17	UD5	UD5	R1	R1	R1	R1	RA1
FPDATA16	UD4	UD4	R0	R0	R0	R0	RA0
FPDATA15	UD3	UD3				G7	GB3
FPDATA14	UD2	UD2				G6	GB2
FPDATA13	UD1	UD1			G5	G5	GB1
FPDATA12	UD0	UD0			G4	G4	GB0
FPDATA11		UD11		G3	G3	G3	GA3
FPDATA10		UD10	G2	G2	G2	G2	GA2
FPDATA9		LD9	G1	G1	G1	G1	GA1
FPDATA8		LD8	G0	G0	G0	G0	GA0
FPDATA7	LD7	LD7				B7	BB3
FPDATA6	LD6	LD6				B6	BB2
FPDATA5	LD5	LD5			B5	B5	BB1
FPDATA4	LD4	LD4			B4	B4	BB0
FPDATA3	LD3	LD3		B3	B3	B3	BA3
FPDATA2	LD2	LD2	B2	B2	B2	B2	BA2
FPDATA1	LD1	LD1	B1	B1	B1	B1	BA1
FPDATA0	LD0	LD0	B0	B0	B0	B0	BA0

@ Figure 2

Pin Name	18-bitx2	24-bitx2 ; TFT/18bitx2	TFTs: FP1+FP2
DE	DE	DE	FP1 DISP
FP FVSYNC	FP FVSYNC	FP FVSYNC	FP1 FVSYNC
LP FHSYNC	LP FHSYNC	LP FHSYNC	LP1 FHSYNC
FP SCLK	FP SCLK	FP SCLK	FP1 SCLK
FPEN	FPEN	FPEN	FPEN
FPVDDEN	FPVDDEN	FPVDDEN	FPVDDEN
VBIASEN	VBIASEN	VBIASEN	VBIASEN
FPDATA47	RB5	RB7	FB2 R7
FPDATA46	RB4	RB6	FB2 R6
FPDATA45	RA5	RA7	FB2 R5
FPDATA44	RA4	RA6	FB2 R4
FPDATA43	GB5	GB7	FB2 R3
FPDATA42	GB4	GB6	FB2 R2
FPDATA41	GA5	GA7	FB2 R1
FPDATA40	GA4	GA6	FB2 R0
FPDATA39	BB5	BB7	FB2 G7
FPDATA38	BB4	BB6	FB2 G6
FPDATA37	BA5	BA7	FB2 G5
FPDATA36	BA4	BA6	FB2 G4
FPDATA35	RB3	RB5	FB2 G3
FPDATA34	RB2	RB4	FB2 G2
FPDATA33	RA3	RA5	FB2 G1
FPDATA32	RA2	RA4	FB2 G0
FPDATA31	GB3	GB5	FB2 B7
FPDATA30	GB2	GB4	FB2 B6
FPDATA29	GA3	GA5	FB2 B5
FPDATA28	GA2	GA4	FB2 B4
FPDATA27	BB3	BB5	FB2 B3
FPDATA26	BB2	BB4	FB2 B2
FPDATA25	BA3	BA5	FB2 B1
FPDATA24	BA2	BA4	FB2 B0
FPDATA23	RB1	RB3	FB2 VSYNC
FPDATA22	RB0	RB2	FB2 HSYNC
FPDATA21		RB1	FB1 R5
FPDATA20		RB0	FB1 R4
FPDATA19	RA1	RA3	FB1 R3
FPDATA18	RA0	RA2	FB1 R2
FPDATA17		RA1	FB1 R1
FPDATA16		RA0	FB1 R0
FPDATA15	GB1	GB3	FP2 DE
FPDATA14	GB0	GB2	
FPDATA13		GB1	FP1 G5
FPDATA12		GB0	FP1 G4
FPDATA11	GA1	GA3	FP1 G3
FPDATA10	GA0	GA2	FP1 G2
FPDATA9		GA1	
FPDATA8		GA0	
FPDATA7	BB1	BB3	
FPDATA6	BB0	BB2	
FPDATA5		BB1	FP1 B5
FPDATA4		BB0	FP1 B4
FPDATA3	BA1	BA3	FP1 B3
FPDATA2	BA0	BA2	FP1 B2
FPDATA1		BA1	FP1 B1
FPDATA0		BA0	FP1 B0
LVD SCLK			FP2 SCLK

J2,J8: EIDE Connectors

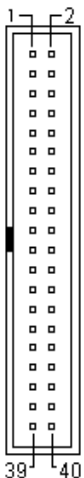
J2: Secondary IDE1 Connector



IDE1

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

J8: Primary IDE0 Connector

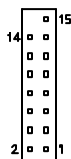


IDE0

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
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

J12: VGA CRT Connector

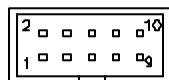
J12 is a 15-pin header for an external VGA CRT female connector.



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

J13: 82559B LAN Output Connector

J13 is 82559B connector which is for the external LAN connector. Mungo540 supports both 10Mbps and 100Mbps LAN facilities.

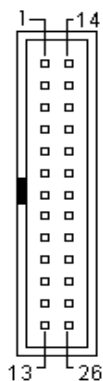


J13

Signal Name	Pin #	Pin #	Signal Name
3VSB	1	6	ACT LED
RX+	2	7	RX-
Link LED	3	8	GND
3VSB	4	9	GND
TX+	5	10	TX-

J14: Parallel Port Connector

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

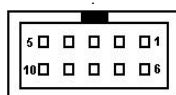


J14

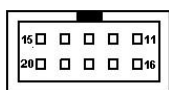
Signal Name	Pin #	Pin #	Signal Name
Line printer strobe	1	14	AutoFeed
PD0, parallel data 0	2	15	Error
PD1, parallel data 1	3	16	Initialize
PD2, parallel data 2	4	17	Select
PD3, parallel data 3	5	18	Ground
PD4, parallel data 4	6	19	Ground
PD5, parallel data 5	7	20	Ground
PD6, parallel data 6	8	21	Ground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

J15: COM1, COM2, COM3, COM4: Serial Ports

COM1, COM2, COM3, COM4 both 10-pin header connectors, are the onboard serial ports of the Mungo540. The following table shows the pin assignments of this connector.



COM1

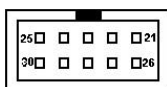


COM2

Pin #	Signal Name
1	DCD, Data carrier detect
2	RXD, Receive data
3	TXD, Transmit data
4	DTR, Data terminal ready
5	GND, ground
6	DSR, Data set ready
7	RTS, Request to send
8	CTS, Clear to send
9	RI, Ring indicator
10	NC

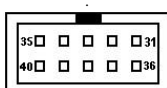
COM3, COM4: Serial Ports

COM3 and COM4 both 10-pin header connectors, are the onboard serial ports of the Mungo540. The following table shows the pin assignments of this connector.



COM3

Pin #	Signal Name	Pin #	Signal Name
1	-HD3D3	6	-HDSR4
2	HSIN3	7	-HR3S3
3	HSOUT3	8	-HCTS3
4	-HDTR3	9	HRI3
5	Ground	10	NC

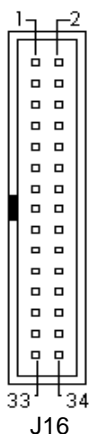


COM4

Pin #	Signal Name	Pin #	Signal Name
1	-HD3D4	6	-HDSR4
2	HSIN4	7	-HR3S4
3	HSOUT4	8	-HCTS4
4	-HDTR4	9	HRI4
5	Ground	10	NC

J16: Floppy Drive Connector

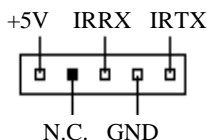
J16 is a 34-pin header and will support up to 2.88MB floppy drives.



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

J17: IrDA Connector

This connector is used for an IrDA connector for wireless communication.



Pin #	Signal Name
1	+5V
2	No Connect
3	Ir RX
4	Ground
5	Ir TX

J18: USB1/ USB2; J19: USB3/ USB4 Connectors

J18- USB1/ USB2 and J19- J19USB3/ USB4 are the standard USB external connectors consisting of two ports. USB support allows connections of up to 64 plug and play external peripherals per channel. The following table shows the pin outs of these ports.

Signal Name& Pin #			Signal Name& Pin #		
PORT2	Pin #	Signal Name	PORT2	Pin #	Signal Name
1 □			1 □		
□ □	1	Vcc	□ □	1	Vcc
□ □	2	USB-	□ □	2	USB-
4 □ □ 8	3	USB+	4 □ □ 8	3	USB+
PORT1	4	Ground	PORT1	4	Ground
USB1			USB2		

J20: AC'97 Audio Output Connector

Onboard AC '97 CODEC supports the Audio function. Please refer to the default jumper setting before you proceeding with system installation.

Signal Name	Pin #	Pin #	Signal Name
LOUTR	1	2	LOUTL
Ground	3	4	Ground
Linr	5	6	LINL
Ground	7	8	Ground
Mic	9	10	BIAS
Ground	11	12	NC

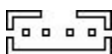
J21: PS/2 Keyboard/Mouse Connector

J21, a 10-pin header connector, has functions for both keyboard and mouse. The following table shows the pin assignments of this connector.

Signal Name	Pin #	Pin #	Signal Name
N.C.	10	5	N.C.
KB clock	9	4	Mouse clock
KB data	8	3	Mouse data
Vcc	7	2	Vcc
Ground	6	1	Ground

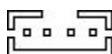
J22: CD-ROM Audio In Connectors

J22 is the onboard CD-ROM audio in connector. Below is their pin assignments.



1 2 3 4

J22



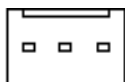
1 2 3 4

J22

Signal Name	Signal Name	Signal Name
1	1	Ground
2	2	Left
3	3	Ground
4	4	Right

Fan1, Fan2 CPU Fan Power Connector

Fan1, Fan2 are 3-pin header for the CPU fans. These fans must be 12V fan.



1 2 3

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

P1: Peripheral Power Connector

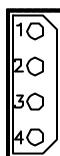
The P1 peripheral power connector has the following pin assignments.



Pin #	Signal Name
1	Ground
2	-5V
3	Ground
4	-12V

P2: Main Power Connector

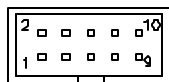
The P2 main power connector has the following pin assignments.



Pin #	Signal Name
1	+12V
2	Ground
3	Ground
4	+5V

JP3: 82562ET LAN Output Connector

JP3 is a 82562ET LAN Output connectors which is for the external LAN connector. Mungo540 supports both 10Mbps and 100Mbps LAN facilities.



JP3

Signal Name	Pin #	Pin #	Signal Name
3VSB	1	6	ACT LED
RX+	2	7	RX-
Link LED	3	8	GND
3VSB	4	9	GND
TX+	5	10	TX-

Watchdog Timer Configuration

The function of the watchdog timer is to reset the system automatically and is defined at WinbonW83627HF. To enable the watchdog timer and allow the system to reset, the timer has a tolerance of 20% for its intervals.

The following example is writing in Intel 8086 assembly language and describes how the timer should be programmed.

The setting Active allows you to select logic device 8.

```
MOV DX, 2EH
MOV AL, 87H
OUT DX, AL
OUT DX, AL
```

```
MOV DX, 2EH
MOV AL, 07H
OUT DX, AL    point to Logical Device Number Reg.
```

```
MOV DX, 2FH
MOV AL, 08H
OUT DX, AL    select logical device 8
```

```
MOV DX, 2EH
MOV AL, 30H
OUT DX, AL    select CR30
```

```
MOV DX, 2FH
MOV AL, 01H
OUT DX, AL    update CR30 with value 01H, Active GPIO2
```

Exit extended function mode

MOV DX, 2EH
MOV AL, F5H
OUT DX, AL

MOV, DX, 2FH
MOV AL, 00L
OUT DX, AL

Noted: In minutes setting function, it is recommended that this value number is 08; In seconds setting function, it is recommended that this value number is 00.

MOV DX, 2EH
MOV AL, F6H
OUT DX, AL

MOV, DX, 2F
MOV AL, 05
OUT DX, AL

Noted: To get enable message, you can choose the values from 1; By the same token, to get disable message, you can select the values from 0.

To setup watchdog timer function by debug.exe file, you can consult the sample setting from this table.

WATCHDOG TIMER CONTROL TABLE

Level	Value	Time/sec
0	0	Disable
1	1	0.5
2	2	1.5
3	3	2.5
4	4	3.5
5	5	4.5
6	6	5.5
.	.	.
.	.	.
255	255	254.5

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Chapter 3

BIOS Configuration

This chapter describes the different settings available in the Award BIOS that comes with the Mungo540. The topics covered in this chapter are as follows:

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BIOS Introduction

The Award BIOS (Basic Input/Output System) installed in your computer system's ROM supports Intel Pentium II processors in a standard IBM-AT compatible I/O system. 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

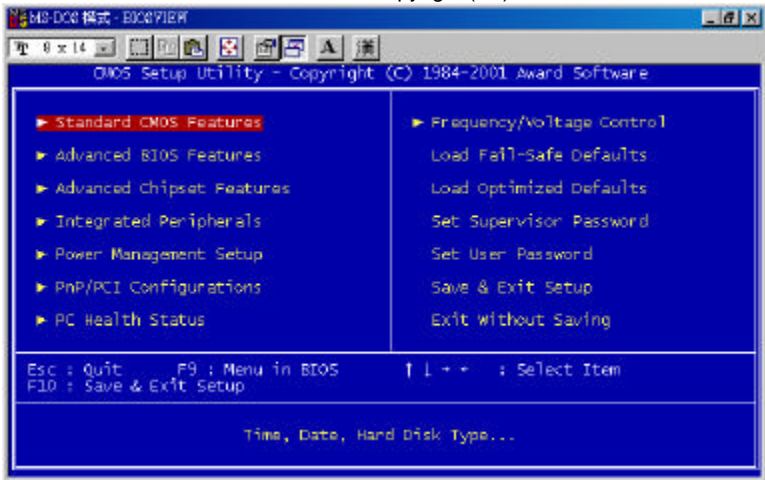
The Award BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn on the computer, the Award BIOS is immediately activated. Pressing the key immediately allows you to enter the Setup utility. If you 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.

CMOS SETUP UTILITY-Copyright (C) 1984-2001



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.

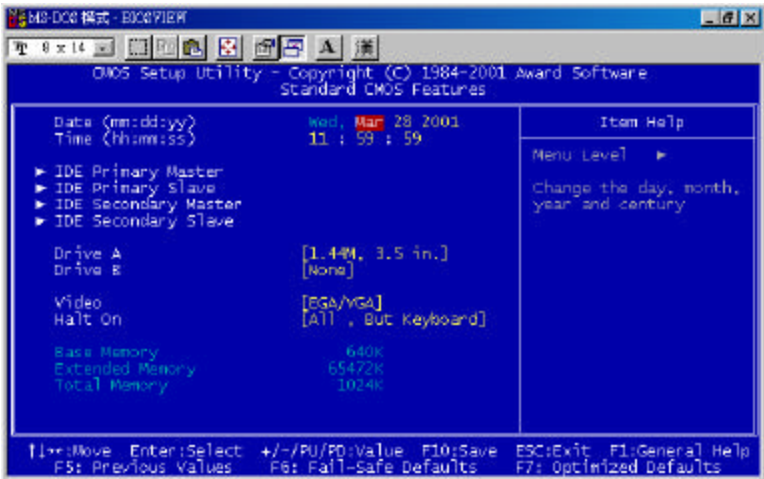
NOTE: *If your computer cannot boot after making and saving system changes with Setup, the Award BIOS supports an override to the CMOS settings that resets your system to its default.*

We strongly recommend 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.

Standard CMOS Setup

The “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 motherboard 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.

CMOS Setup Utility – Copyright (C) 1984-2001
STANDARD CMOS SETUP
AWARD BIOS INC.



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.

Primary HDDs / 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”.

To enter the specifications for a hard disk drive, you must select first a “Type”. There are 45 predefined types and 4 user definable types are for Enhanced IDE BIOS. Type 1 to 45 are predefined. Type “User” is user-definable. For the Primary Master/Slave as well as Secondary Master/Slave, you can select “Auto” under the TYPE and MODE fields. This will enable auto detection of your IDE drives and CD-ROM drive during POST.

Press <PgUp>/<PgDn> to select a numbered hard disk type or type the number and press the <Enter> key. The hard disk will not work properly if you enter incorrect information for this field. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually. If you select Type User, related information is asked to be entered to the following items.

CYLS : Number of cylinders
HEAD : Number of read/write heads
PRECOMP : Write precompensation
LANDZ : Landing zone
SECTOR : Number of sectors
SIZE : Automatically adjust according to the configuration
MODE (for IDE HDD only) : Auto
 Normal (HD < 528MB)
 Large (for MS-DOS only)
 LBA (HD > 528MB and supports
 Logical Block Addressing)

NOTE: *The specifications of your drive must match with the drive table. The hard disk will not work properly if you enter incorrect information in these fields. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually.*

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 board installed in your system. You can choose the following video display boards:

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 the system will halt if an error is detected during power up.

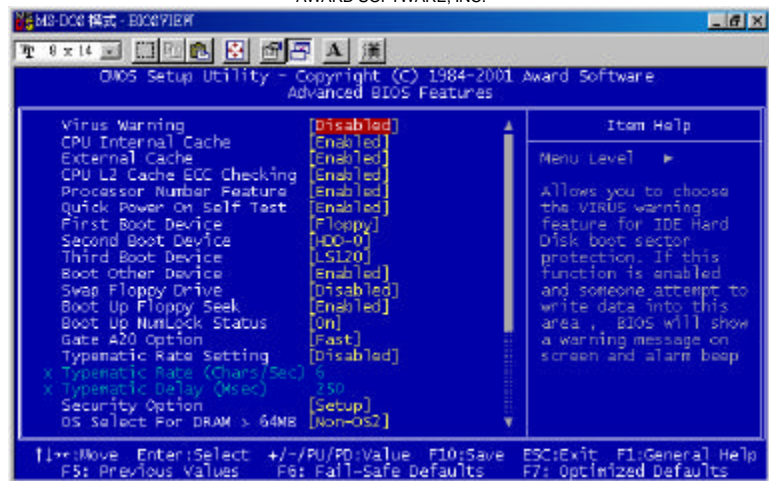
No errors	The system boot will not be halted for any error that may be detected. (default)
All errors	Whenever the BIOS detects a non-fatal error, the system will stop and you will be prompted.
All, But Keyboard	The system boot will not be halted for a keyboard error; it will stop for all other errors
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.

Figure 1.

CMOS Setup – Copyright (C) 1984-2001
Advanced Chipset Feature Setup
AWARD SOFTWARE, INC.



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.

CPU Internal Cache / External Cache

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*.

CPU L2 Cache ECC Checking

When enabled, this allows ECC checking of the CPU's L2 cache. By default, this field is *Enabled*.

Processor Number Feature

This field only appears if the processor on board is a Pentium III processor. The Processor Number Feature can be enabled or disabled.

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. By default, this field is set to *Enabled*.

Boot Up NumLock Status

This allows you to activate the NumLock function after you power up the system. By default, the system boots up with *NumLock* On.

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

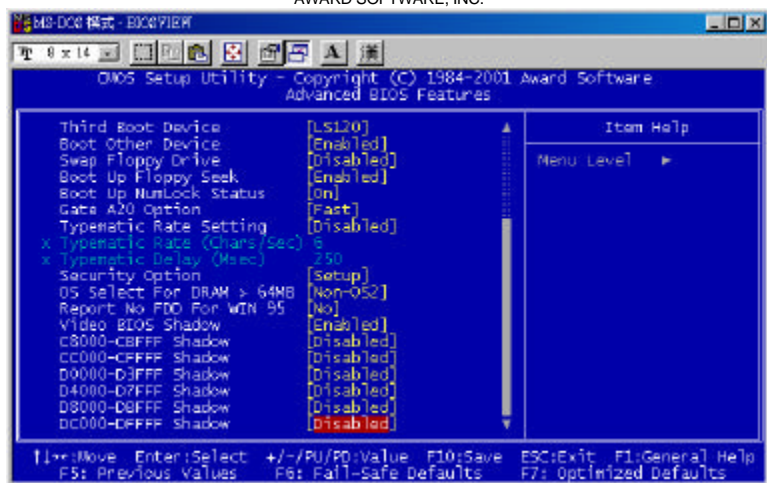
When disabled, continually holding down a key on your keyboard will generate only one instance. When enabled, you can set the two typematic controls listed next. By default, this field is set to *Disabled*.

Typematic Rate (Chars/Sec)

When the typematic rate is enabled, the system registers repeated keystrokes speeds. You can select speed range from 6 to 30 characters per second. By default, this item is set to *6*.

Figure 2.

CMOS Setup – Copyright (C) 1984-2001
Advanced Chipset Feature Setup
AWARD SOFTWARE, INC.



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.

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*.

Report No FDD For WIN 95

This option allows Windows 95 to share with other peripherals IRQ6 which is assigned to a floppy disk drive if the drive is not existing. The default setting is *No*

Video BIOS Shadow

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

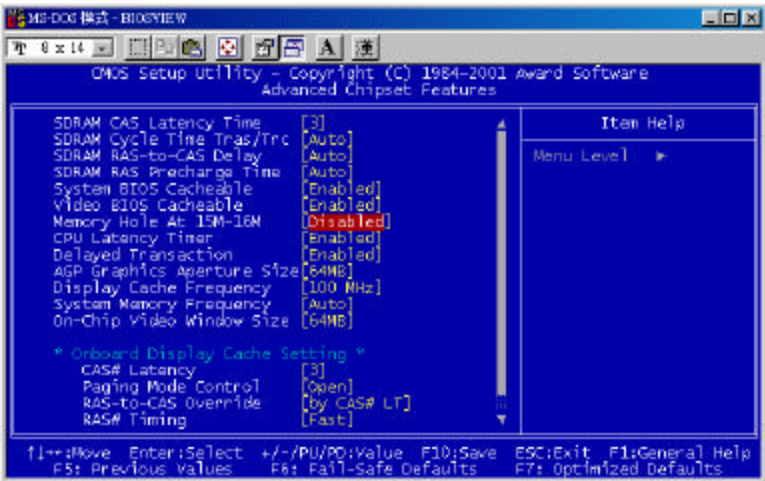
C8000 - CBFFF Shadow/DC000 - DFFFF Shadow

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

Advanced Chipset Features

This Setup menu controls the configuration of the motherboard chipset.
Figure 1.

CMOS Setup Utility – Copyright (C) 1984-2001
Advanced CHIPSET FEATURES
AWARD SOFTWARE INC.



SDRAM CAS Latency Time

You can select CAS latency time in HCLKs of 2/2 or 3/3. 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. The choices are 2 and 3.

SDRAM Cycle Time Tras/Trc

The settings available for the SDRAM Cycle Time Tras/Trc are 6/8 and 5/7. The default setting is 6/8.

SDRAM RAS-to-CAS Delay

You can select RAS to CAS Delay time in HCLKs of 2/2 or 3/3. 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. The choices are 2 and 3.

SDRAM RAS Precharge Time

This option defines the length of time for Row Address Strobe is allowed to precharge. The choices are 2 and 3.

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 boards. This memory must be mapped into the memory space below 16 MB. The choices are *Enabled* and *Disabled*.

CPU Latency Timer

This field enable or disable the CPU latency timer. The default setting is *Enabled*.

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.

AGP Graphics Aperture Size

The field sets aperture size of the graphics. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. The options available are 4M, 8M, 16M, 32M, 64M, 128M and 256M. The default setting is *64M*.

Display Cache frequency

The Frequency setting available for this item are 100MHz, 133MHz and Auto. The default setting is 100MHz.

System Memory frequency

The Frequency setting available for this item are 100MHz, 133MHz and Auto. The default setting is Auto.

On-Chip Video Window Size

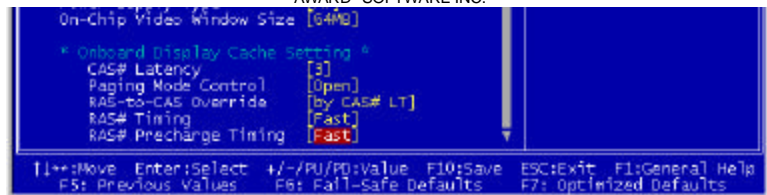
The setting choices for the On-Chip Video Window Size are *64MB* and *32MB*. By default, this option is set to **64MB**.

Onboard Display Cache Setting

The default setting and optional setting for the onboard display cache functions are as follows:

CAS# Latency 3(default), 2(option)
Paging Mode Control Open (default), Close (option)
RAS-to-CAS Override by CAS# LT (default), Override (2)(option)
RAS# Timing Fast (default), Slow (option)
RAS# Precharge Timing Fast (default), Slow (option)

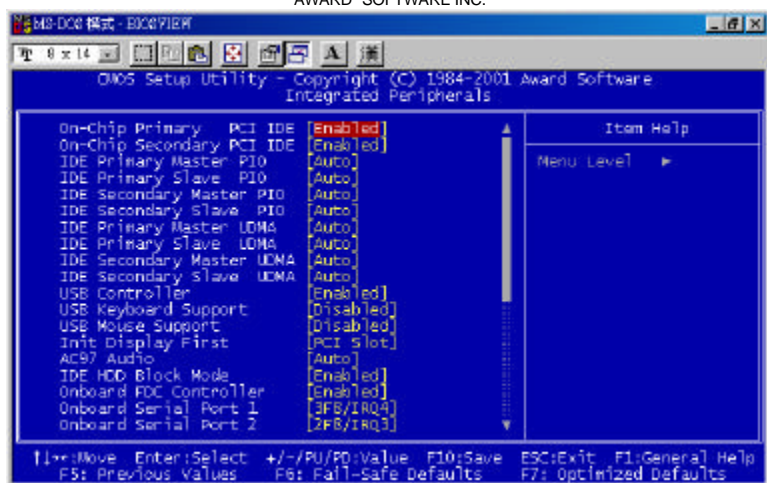
CMOS Setup Utility – Copyright (C) 1984-2001
ADVANCED CHIPSET FEATURES
AWARD SOFTWARE INC.



Integrated Peripherals

This option sets your hard disk configuration, mode and port.

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INTEGRATED PERIPHERAL
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On-Chip Primary/Secondary PCI IDE

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

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. The options are *Auto* and *Disabled*.

USB Controller

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

USB Keyboard Support

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

USB Mouse Support

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB mouse.

Init Display First

This field allows the system to initialize first the VGA board on chip or the display on the PCI Slot. By default, the *PCI Slot* VGA is initialized first.

AC97 Audio

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

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.

Onboard FDC Controller

Select *Enabled* if your system has a floppy disk controller (FDC) installed on the system 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
Parallel Port	378H/IRQ7

UART Mode Select

This field determines the UART mode in your computer. The settings are *Normal*, *IrDA* and *ASKIR*. The default value is *Normal*.

RxD, TxD Active

The settings for this field are *Hi,Lo*, *Lo,Hi*, *Lo,Lo*, and *Hi,Hi*.

IR Transmission Delay

By default, this field is set to *Enabled*.

UR2 Duplex Mode

The settings available for this field are *Half* (default) and *Full*.

Use IR Pins

The settings for this field are *IR, Rx2Tx2* (default) and *RxD2, TxD2*.

Onboard Parallel Port

The setting for this field are *378/IRQ7, 278/IRQ5, 2BC/IRA7* and *Disabled*. By default, the onboard parallel port is set to **378/IRQ7**.

Parallel Port Mode

This field allows you to determine parallel port mode function.

SPP	Normal Printer Port
EPP	Enhanced Parallel Port
ECP	Extended Capabilities Port

Onboard Serial/Parallel Port

These fields allow you to select the onboard serial/parallel port and its address. The default values for these ports are:

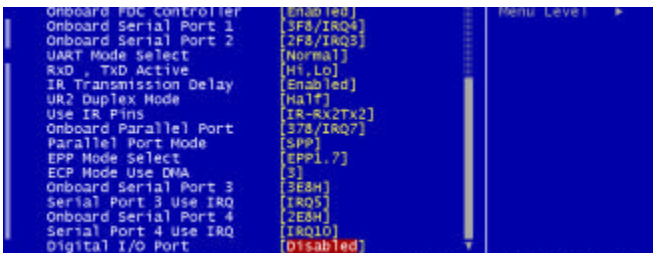
Serial Port 1	3F8/IRQ4
Serial Port 2	2F8/IRQ3
Serial Port 3	3E8/IRQ10
Serial Port 4	Disable
Parallel Port	378H/IRQ7

Noted: If both PC 104 taken effect, the item of IRQ5 will be used with manual selected. If you do not use them, please select IRQ5 with COM4.

Digital I/O Port

This function is support TTL levels and is used to control external devices. The options are Disable, 220h, 240h and 260h.

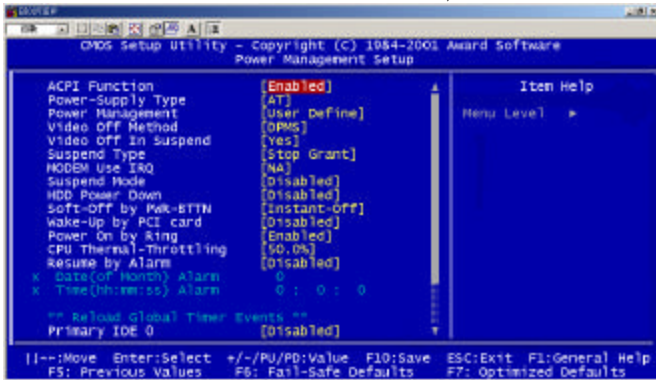
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Power Management Setup

The Power Management Setup allows you to save energy of your system effectively. It will shut down the hard disk and turn off video display after a period of inactivity.

ROM PCI/ISA BIOS
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.



ACPI Function

This Item allows you to Enabled/Disabled the Advanced Configuration Power Management (ACPI). The settings are Enabled and Disabled.

Power-Supply Type

You can select AT or ATX Power either.

Power Management

This field allows you to select the type of power saving management modes. There are four selections for 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)
Min. Power Saving	Minimum power management
Max. Power Saving	Maximum power management.

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 board if it supports the DPMS feature.

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

Video Off In Suspend

This determines the manner in which the monitor is blanked. The settings are: Yes and No.

Suspend Type

Select the Suspend Type. The settings are: PWRON Suspend, Stop Grant

Modem Use IRQ

This field names the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system. By default, the IRQ is set to 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 PWR-BTTN

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 places the system in a very low-power-usage state, with only enough circuitry receiving power to detect power button activity or Resume by Ring activity (see next field) when pressed for less than 4 seconds. The default value is *Instant-Off*.

Wake-Up by PCI Board (PEM)

The settings for this field are *Enabled* and *Disabled* (default).

PWR On by Ring

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.

CPU Thermal-Throttling

The CPU Thermal Throttling function, by default, is set to 62.5%

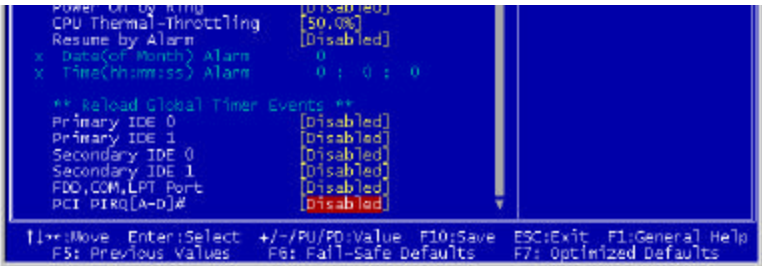
Resume by Alarm

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.

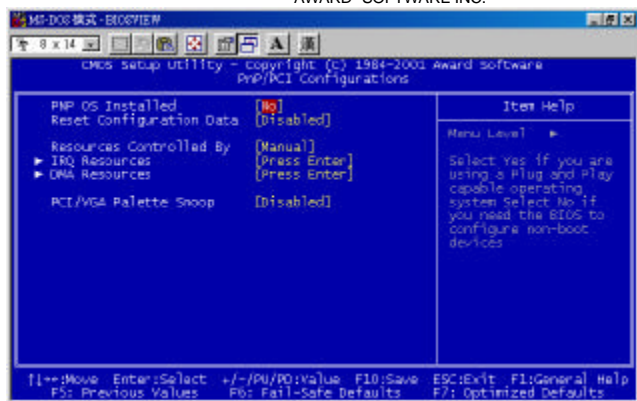
ROM PCI/ISA BIOS
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.



PNP/PCI Configuration

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

ROM PCI/ISA BIOS
PNP/PCI CONFIGURATION
AWARD SOFTWARE INC.



PNP OS Installed

This field allows you to specify if the operating system installed in your system is plug and play aware.

Reset Configuration Data

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

Resources Controlled by

This PnP BIOS can configure all of the boot and compatible devices automatically. However, this capability needs you to use a PnP operating system such as Windows 95. The default value is *Manual*.

IRQ Resources/DMA Resources

To configure the IRQ Resources and DMA Resources, these *Resources Controlled By* field should be set to *Manual*. **Noted:** IRQ-3, 5, 7 are assigned to ISA by manual.

```
IRQ-3 assigned to [Legacy ISA]
IRQ-4 assigned to [Legacy ISA]
IRQ-5 assigned to [PCI/ISA PnP]
IRQ-7 assigned to [Legacy ISA]
IRQ-9 assigned to [PCI/ISA PnP]
IRQ-10 assigned to [PCI/ISA PnP]
IRQ-11 assigned to [PCI/ISA PnP]
IRQ-12 assigned to [PCI/ISA PnP]
IRQ-14 assigned to [PCI/ISA PnP]
IRQ-15 assigned to [PCI/ISA PnP]
```

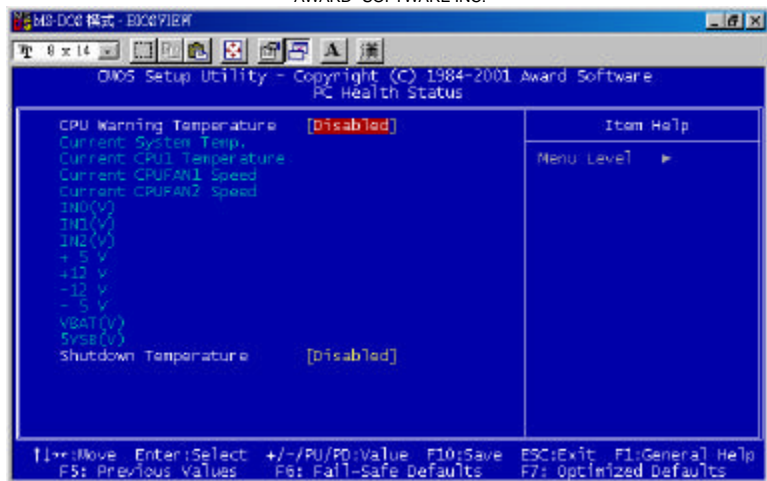
PCI / VGA Palette Snoop

Leave this field at Disabled. These settings are Enabled, Disabled.

PC Health Status

This section the States of your CPU, Fan, Warning for overall system status.

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PC Health Status
AWARD SOFTWARE INC.



CPU Warning Temperature

During Enabled, this will warn the user when the CPU temperature reach a certain temperature.

Temperatures/Fan Speeds/Voltages

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

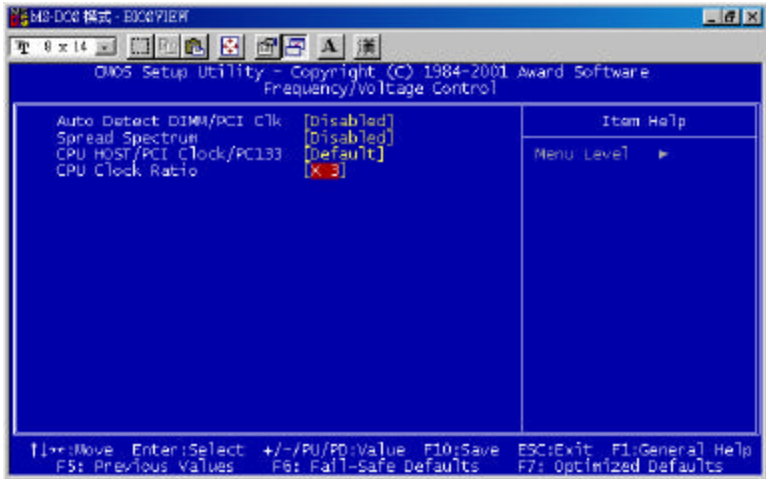
Shutdown Temperature

This option is for setting the Shutdown temperature level for the processor. When the processor reaches the temperature you set, this will shutdown the system.

Frequency/ Voltage Control

This section is for setting CPU Frequency/ Voltage Control.

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Frequency / Voltage Control
AWARD SOFTWARE INC.



Auto Detect DIMM/PCI Clk

This item allows you to enable/disable auto detect DIMM/PCI Clock. The settings are: Enabled / Disabled.

Spread Spectrum

This item allows you to set the CPU Clock / Spread Spectrum.

CPU Host /PCI Clock/PC133

The CPU Host /PCI Clock/PC133 has the setting of *Default* which supports 133MHz only or above by the system.

CPU Clock Ratio

The CPU Ratio, also known as the CPU bus speed multiplier, can be configured as 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, and 8.

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 Fail-Safe Defaults Setup Utility – Copyright ©1984-2001 Award Software

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	

Load Optimized 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.

Load Optimized Defaults Setup Utility – Copyright ©1984-2001 Award Software

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	

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.

Set Supervisor / User Password Utility – Copyright ©1984-2001 Award Software

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	Set User Password
PnP/PCI Configuration	Enter Password:
PC Health Status	Exit without Saving
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	

Save & Exit Setup

This option allows you to determine whether to accept the modifications or not. 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.

Save & Exit Setup Utility – Copyright ©1984-2001 Award Software

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	Set User Password
PnP/PCI Configuration	Save to CMOS and Exit (Y/N)? N
PC Health Status	Exit without Saving
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	

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.

Exit Without Saving Utility – Copyright ©1984-2001 Award Software

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	Load Fail-Safe Defaults
PnP/PCI Configuration	Load Optimized Defaults
PC Health Status	Set Supervisor Password
Quit Without Saving (Y/N)? N	
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	

Chapter 4

815E Chipset Driver Installation Guide

This chapter provides information on how to install the 815E Chipset Driver that comes in this driver CD with the package. Please follow the instructions set forth in this chapter carefully. Please note that this 815E Chipset Driver must be installed in your system first before you could proceed to install the relevant drivers.

The following items are covered in this chapter:

Installing the Drivers for Windows 98SE	63
Installing the Drivers for Windows 2000	63

Installing the 815E Chipset Drivers for Windows 98SE Windows 2000

The following section describes the 815E Chipset driver installation procedures for Windows 98SE and Windows 2000.

Step 1: Insert driver CD into CD-ROM.

Step 2: Click *Intel Chipset*.

Step 3: Click *Intel 815E 815EP Chipset*.

Step 4: Click *815E, 815EP Chipset Driver*.

Step 5: Click *Next*.

Step 6: Click *Yes*.

Step 7: Click *Next*.

Step 8: Click *Finish*. You must restart your computer now.

Chapter 5

VGA Driver Installation Guide

This chapter provides information on how to install VGA drivers that comes in this CD driver with the package. Please follow the instructions set forth in this chapter carefully. Please note that there must be relevant software installed in your system before you could proceed to install the VGA drivers.

The following items are covered in this chapter:

Installing the Drivers for Windows 98SE.....	65
Windows Me and Windows 2000.....	65
Windows Me and Windows Millennium Edition.....	65
Windows Me and Windows NT 4.0.....	65

Installing the SMI721 VGA Drivers for Windows 98SE Windows 2000 Windows Millennium Edition Windows NT 4.0

The following section describes the SMI721 VGA driver installation procedures for Windows 98SE, Windows 2000, Windows Millennium Edition and Windows NT 4.0.

Step 1: Insert driver CD into CD-ROM.

Step 2: Click **VGA Device**.

Step 3: Click **SMI721 VGA Driver**.

Step 4: Click **Next**.

Step 5: Click **Finish**. You must restart your computer now.

Chapter 6

Audio Driver Installation Guide

This chapter provides information on how to install the AC'97 CODEC Audio Driver that comes in this driver CD with the package. Please follow the instructions set forth in this chapter carefully. Please note that there must be relevant software installed in your system before you could proceed to install the Audio drivers.

The following items are covered in this chapter:

Installing the Drivers for Windows 98SE.....	67
Installing the Drivers for Windows 2000	67
Installing the Drivers for Windows Me	67
Installing the Drivers for Windows NT 4.0.....	67

Installing the Audio Drivers for Windows 98SE Windows 2000 Windows Millennium Edition Windows NT 4.0

The following section describes the Audio driver installation procedures for Windows 98SE, Windows 2000, Windows Millennium Edition and Windows NT4.0.

Step 1: Insert driver CD into CD-ROM *D* **Sound Device**.

Step 2: Click **AD1881 AC97 Codec Sound**.

Step 3: Click **Next**.

Step 4: Click **Yes**.

Step 5: Click **OK**. You must restart your computer now.

Chapter 7

LAN Driver Installation Guide

This chapter describes LAN features and driver installation of the onboard Intel ICH2.

The following items are covered in this chapter:

Introduction.....	69
Features	69
Software Drivers Support	69
Installing LAN Driver for Win98SE.....	70
Installing LAN Driver for Windows 2000	72
Installing LAN Driver for Windows NT 4.0.....	77
Installing LAN Driver for Windows Me	78

Features

- SAUPPORT OF Wired for Management (WfM) Rev 2.0Compliant
- Interface to discrete LAN connect component
- 10/100 Mbit/sec Ethernet support
- 1Mbit/sec HomePNA support
- Support wake-up on interesting packets and link status change
- Support for remote power-up using Wake on LAN (WOL) technology
- Deep power-down mode support
- Backward compatible software with 82557, 82558 and 82559
- Support for Intel's Adaptive Technology

Installing LAN Driver for Windows 98SE

This section describes the procedures to install Windows 98SE driver for Intel ICH2 LAN adapter.

Noted: You can select item “82559 ICH2 82562ET LAN driver MakeDisk” from this driver CD to **Make Diskette** before the procedures are installing.

Step 1: Insert Driver CD into CD-ROM Drive \rightarrow **82559 ICH2 82562ET LAN driver MakeDisk** \rightarrow **MakeDisk Utility**.

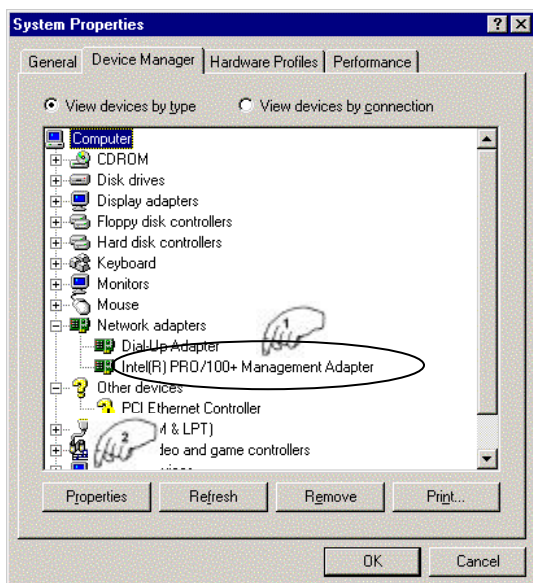


Step 2: Inset a blank disk into floppy drive \rightarrow **Windows 98SE** \rightarrow **Create Disk**.

Step 3: Click **Start** \rightarrow **Settings** \rightarrow **Control Panel**.

Step 4: Double click **System**.

Step 5:



Step 6: Click *Driver* \rightarrow *Update Driver*.

Step 7: Click *Next*.

Step 8: Select *Display a list of the drivers in a specific location so you can select the driver you want* \rightarrow *Next*.

Step 9: Click *Have Disk* and then insert your floppy into your floppy drive.

Step 10: *OK* \rightarrow *OK* \rightarrow *OK*.

Step 11: Select *A:* \rightarrow *OK*.

Step 12: Click *Next* \rightarrow *OK* \rightarrow Select *A:* \rightarrow *OK*.

Step 13: Insert 98SE disk into CD-drive \rightarrow *OK* \rightarrow *OK*

Step 14: Click *Finish* \rightarrow *Yes* and restart your computer.

Step 15: Click *Start* \rightarrow *Settings* \rightarrow *Control Panel*.

Step 16: Double click *System*.

Step 17: Click *Driver* \rightarrow *Update Driver*.

Step 18: Click *Next*.

Step 19: Select *Display a list of the drivers in a specific location so you can select the driver you want* \rightarrow *Next*.

Step 20: Select *Network Adaptor* \rightarrow *Next* \rightarrow *Have Disk*.

Step 21: Insert your floppy into your floppy drive \rightarrow *OK*.

Step 22: Select *Intel®RPO/100VE Network Connection*

Step 20: *OK* \rightarrow *Yes* \rightarrow *Next*

Step 21: Click *Finish* \rightarrow *Close* and restart your computer.

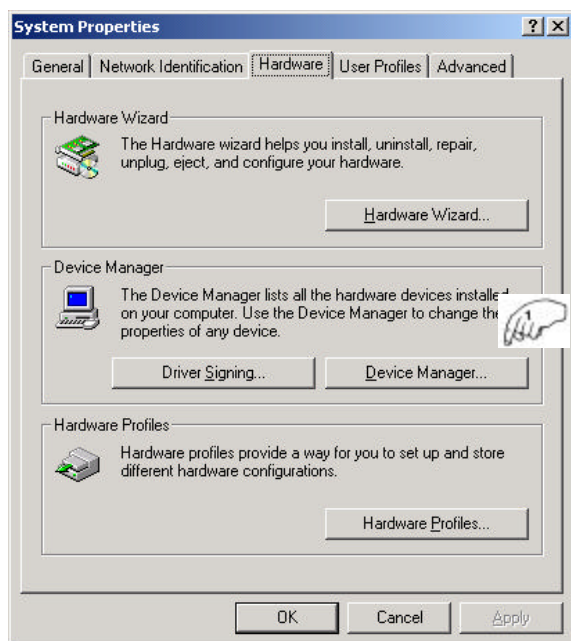
Installing LAN Driver for Windows 2000

This section describes the procedure to install Windows 2000 driver for Intel ICH2 LAN adapter.

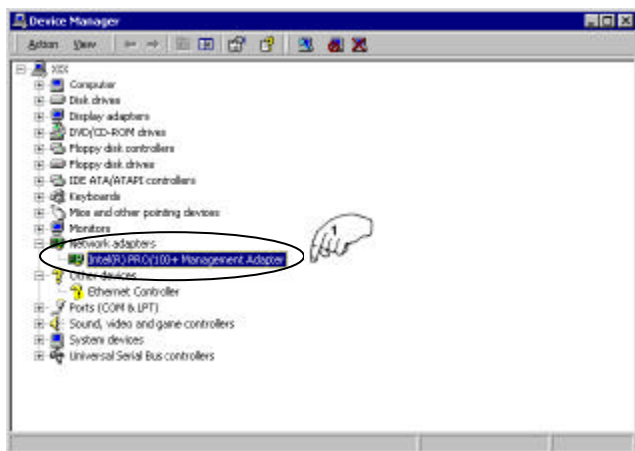
Step 1: Click **Start** \triangleright **Settings** \triangleright **Control Panel**.

Step 2: Double click **System**.

Step 3:



Step 4:



Step 5: Click *driver* ⇒ *Update driver*.

Step 6: Click *Next*.

Step 7: Click *Next*.

Step 8: Insert driver CD into CD-ROM.

Step 9: Select *specify Location*

Step 10: *Next*

Step 11: Type: *D:\Lan\8255x*

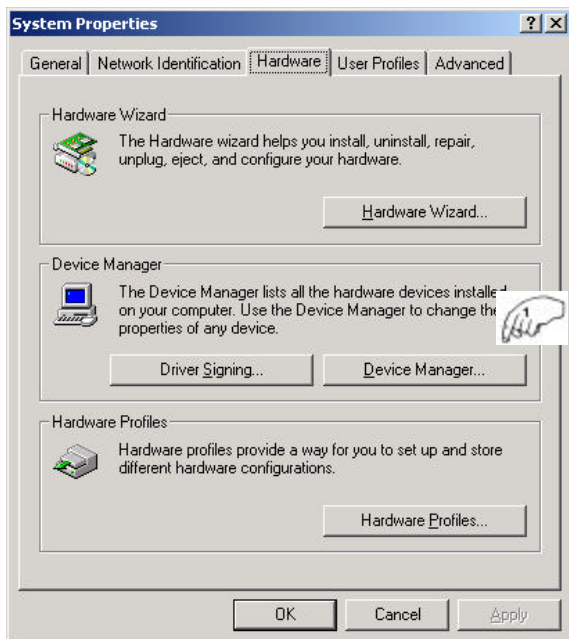
Step 12: *OK* ⇒ *Next*

Step 13: Click *Finish*. You must restart your computer now.

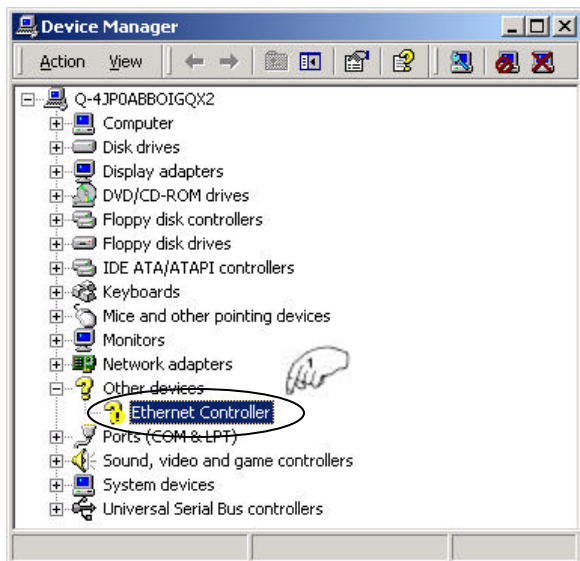
Step 14: Click *Start* ⤴ *Settings* ⤴ *Control Panel*.

Step 15: Double click *System*.

Step 16:



Step 17:



Step 18: Click *Reinstall driver*.

Step 19: *Next*

Step 20: Select *Display a list of the known driver for this device so I can choose a specific driver* *Next*.

Step 21: Select *Network Adaptor* *Next* *Have Disk*.

Step 22: Type: *d:\LAN8255x* *OK*

Step 23: Select *Intel®RPO/100VE Network Connection*

Step 24: *Next* *Yes* *Next*

Step 25: Click *Finish* *Close* and restart your computer.

Installing LAN Driver for Windows NT 4.0

You should install the Windows NT 4.0 Service Pack 3 or above first before installing the drivers. If you do not have the Windows NT 4.0 Service Pack 3 or above, please contact your software vendor or download it from Microsoft's web site. The procedures below show you how to install the LAN drivers for Windows NT 4.0.

Noted: You can use the function of "Intel 8255X MakeDisk Utility" with this driver CD to make diskette before the procedures are installing.

Step 1: Click **Start** *P* **Settings** *P* **Control Panel**.

Step 2: Double click **Network**.

Step 3: Click **Adaptor** *P* **ADD**.

Step 4: Insert diskette into floppy *P* **Have Disk**.

Step 5: Click **OK**.

Step 6: Click **OK**.

Step 7: Click **Close**.

Step 8: The LAN adapter must be filled in IP Address, Subnet Mark and Default Gateway *P* **OK**.

Step 9: Click **Yes**. You must restart your computer now.

Installing LAN Driver for Windows Millennium Edition

This section describes the procedure to install Windows 2000 driver for Intel ICH2 LAN adapter.

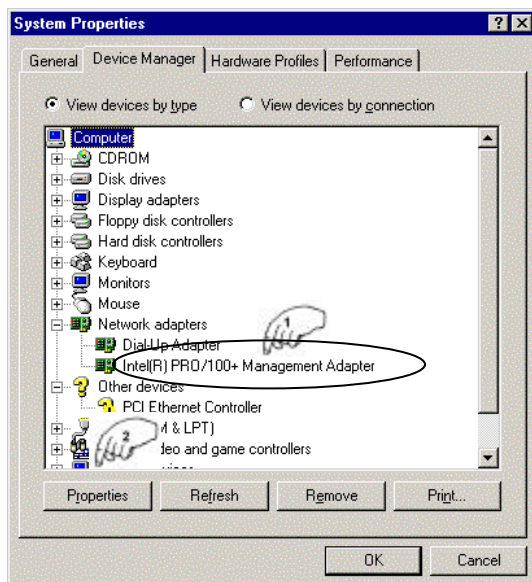
This section describes the procedures to install Windows 98SE driver for Intel ICH2 LAN adapter.

Noted: You can use the function of “Intel 8255X MakeDisk Utility” with this driver CD to make diskette before the procedures are installing.

Step 1: Click **Start** *P* **Settings** *P* **Control Panel**.

Step 2: Double click **System**.

Step 3:



Step 4: Click **Driver** *P* **Update Driver**.

Step 5: Select **Specify the location**

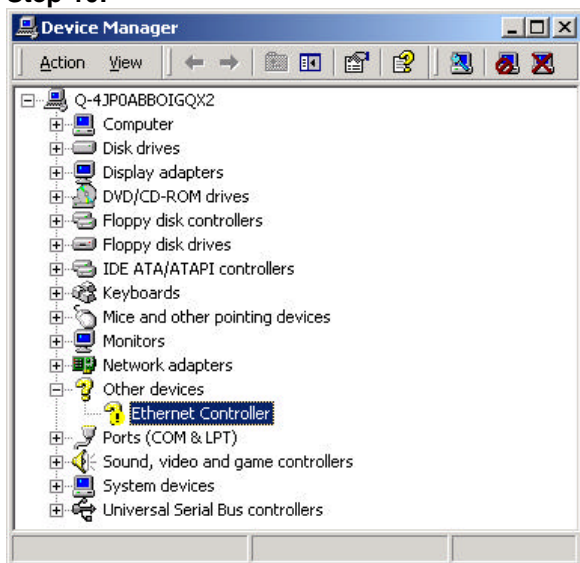
Step 6: Click **Next** *P* **Next** *P* **Next**

Step 7: Click **Finish** *P* **Yes** *P* restart your computer.

Step 8: Click **Start** *P* **Settings** *P* **Control Panel**.

Step 9: Double click **System**.

Step 10:



Step 11: Click *Driver* \bar{P} *Update Driver*.

Step 12: Select *Specify the location of the driver*

Step 13: Click *Next*.

Step 14: Select *Specify the location of the driver*
and type *D:\LAN825X* on the blank.

Step 15: Click *Next*.

Step 16: Select *Display a list of the know driver for this device
so I can choose a specific driver* \bar{P} *Next*.

Step 17: Select *Network Adaptor* \bar{P} *Next* \bar{P} *Have Disk*.

Step 18: Type: *d:\ LAN825x* \bar{P} *OK*

Step 19: Select *Intel®RPO/100VE Network Connection*

Step 20: *Next* \bar{P} *Yes* \bar{P} *Next*

Step 215: Click *Finish* \bar{P} *Close* and restart your computer.

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Chapter 8

Ultra ATA IDE Driver Installation Guide

This chapter provides information on how to install the Ultra ATA IDE Driver that comes in this CD driver with the package. Please follow the instructions set forth in this chapter carefully.

The following items are covered in this chapter:

Installing the Drivers for Windows 98SE, Windows 2000, Windows Millennium Edition and Windows NT 4.081

Installing Ultra ATA IDE the Drivers for Windows 98SE Windows 2000 Windows Millennium Edition Windows NT 4.0

The following section describes the Ultra ATA IDE driver installation procedure for Windows 98SE, Windows 2000, Windows Millennium Edition and Windows NT 4.0.

Step 1: Insert driver CD into CD-ROM.

Step 2: Click *Intel Chipset*.

Step 3: Click 815E, 815EP Chipset

Step 4: Click 815E, 815EP *Ultra ATA Storage Driver*.

Step 5: Click *Next*.

Step 6: Click *Yes*.

Step 7: Click *Next*.

Step 8: Click *Next*.

Step 9: Click *Finish*. You must restart your computer now.

Appendix

A. I/O Port Address Map

B. Interrupt Request Lines (IRQ)

A. I/O Port Address Map

Each peripheral device in the system is assigned a set of I/O port addresses, which also becomes the identity of the device. There is a total of 1K port address space available. The following table lists the I/O port addresses used on the Mungo540.

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
278 - 27F	Parallel Port #2(LPT2)
2F8h - 2FFh	Serial Port #2(COM2)
2B0 - 2DF	Graphics adapter Controller
378h - 3FFh	Parallel Port #1(LPT1)
360 - 36F	Network Ports
3B0 - 3BF	Monochrome & Printer adapter
3C0 - 3CF	EGA adapter
3D0 - 3DF	CGA adapter
3F0h - 3F7h	Floppy Disk Controller
3F8h - 3FFh	Serial Port #1(COM1)

B. Interrupt Request Lines (IRQ)

There are a total of 15 IRQ lines available on the Mungo540. Peripheral devices use interrupt request lines to notify CPU for the service required. The following table shows the IRQ used by the devices on the Mungo540.

Level	Function
IRQ0	System Timer Output
IRQ1	Keyboard
IRQ2	Interrupt Cascade
IRQ3	Serial Port #2
IRQ4	Serial Port #1
IRQ5	Parallel Port #2
IRQ6	Floppy Disk Controller
IRQ7	Parallel Port #1
IRQ8	Real Time Clock
IRQ9	Software Redirected to Int 0Ah
IRQ10	Reserved
IRQ11	Reserved
IRQ12	Reserved
IRQ13	80287
IRQ14	Primary IDE
IRQ15	Secondary IDE