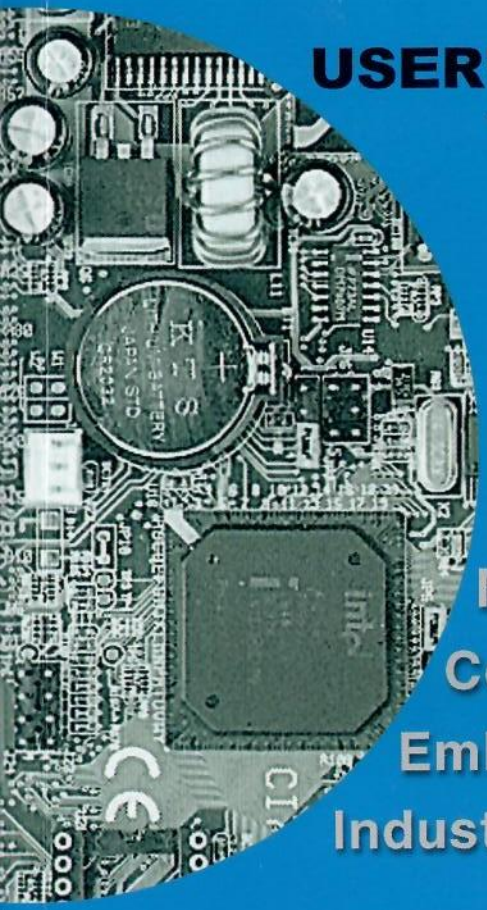
MB700

Socket 370 ATX
Industrial Motherboard



USER'S MANUAL

Version 1.0B

SBC
MicroPCI
CompactPCI
Embedded Board
Industrial Motherboard

User's Manual

MB700

Socket 370 ATX
Industrial Motherboard

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Version 1.0B

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Table of Contents

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Introduction

Product Description

MB700 is a high-performance multimedia Industrial Motherboard based on the Intel 440BX AGPset. It features a Socket 370 architecture that supports Intel Celeron and Coppermine processors using 66MHz and 100MHz front side bus respectively.

The MB700 packs all the functions of a versatile system, including VGA, Audio, Ethernet and Hardware Monitoring features, into the ATX form factor. System memory is provided by three DIMM sockets that accommodates up to 768MB SDRAM.

The Award BIOS facilitates easy system configuration and peripheral setup. Other advanced features include *DiskOnChip flash disk* support, watchdog timer, USB and IrDA interface.

DiskOnChip flash disks are storage devices that has no moving parts and emulates FDD/HDD with Flash/RAM/ROM offering reliable data/program storage and long life span. They are reliable and suitable for industrial or other harsh environments characterized by motion, shock, vibration, adverse temperature, dust and humidity. Other features include faster data access, longer MTBF, lower power consumption, cost effective for small capacity and small form factor.

Checklist

Your MB700 package should include the items listed below. Damaged or missing items should be reported to your supplier.

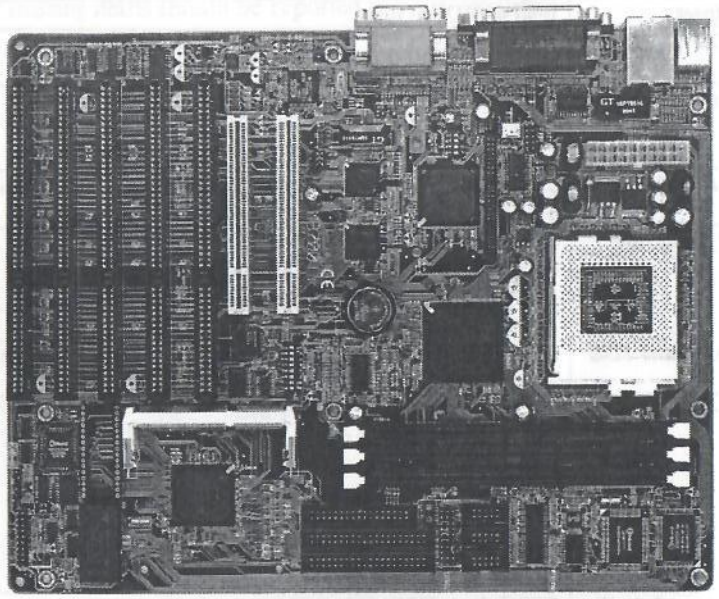
- The MB700 Industrial Motherboard
- This User's Manual
- One compact disc containing the following:
  - Intel PCI IDE Driver and Flash Memory Utility
  - C&T 69000 VGA Drivers
  - Intel 82559 Fast Ethernet Drivers
  - ESS Solo-1 ES1938S Audio Drivers
- Optional cables such as:
- 1 IDE Ribbon Cable
- 1 Floppy Ribbon Cable
- 1 Bracket for 1 Serial Port
- 1 Bracket for 2 Serial Ports

Specifications

Processor Supported	Socket 370 support Intel Celeron / Coppermine, 300MHz~850MHz, 66MHz/100MHz Bus Speed*
Chipset	Intel 440BX AGPset
BIOS	Award BIOS Supports ACPI, DMI, PnP
System Memory	3x DIMM sockets support up to 768MB capacity 3.3V supported ECC supported
Multi I/O Chipset	Winbond 83977TF and 83877TF (keyboard controller is built-in 83977TF)
I/O Features	1x FDD (up to 2.88MB, 3 Mode, LS120) 1x Parallel Port (EPP, ECP Port) 4x Serial Ports (3x RS232, 1x RS232/422/485) 1x IrDA TX/RX Headers
Bus Master IDE	2x IDE interfaces for up to 4 devices; supports PIO Mode 3/4 or Ultra DMA/33 IDE HDD, and ATAPI CD-ROM
On-board VGA	C&T 69000 PCI VGA Controller Support CRT & LCD Panels VGA CRT connector on board 1024x768 (High Color) resolution 2MB embedded memory Optional C&T 69030 VGA Controller with 4MB embedded memory
On-board Audio	ESS Solo-1 (ESS1938) PCI Single Audio Chip Provides high-quality audio processing
On-board Ethernet	Intel 82559 Ethernet Controller (1x LAN or 2x LAN) 32-bit performance, PCI bus master capability Supports 10/100Mbps data transfer rates
Hardware Monitoring	Winbond W83781D IC Monitors CPU/system temperature and voltages
SSD Interface	For M-Systems 2MB~144MB DiskOnChip flash disk
Watchdog Timer	16 levels
Digital I/O	2 In / 2 Out
Expansion Slots	5 ISA slots, 2 PCI slots, 1 MicroPCI socket
Form Factor	ATX
Dimensions	305mm x 244mm (12" x 9.6")
Power Requirement	+5V : 10A (max) +3.3V : 5A (max) +/-12V : 200mA (max)

* MB700 does not support Intel 0.13-micron Tualatin processors.

MB700 Picture



Installations

This section provides information on how to use the jumpers and connectors on the MB700 in order to set up a workable system. The topics covered are:

Installing the CPU

MB700 supports a Socket 370 processor socket for Intel Celeron/ Coppermine processors.

The Socket 370 processor socket comes with a lever to secure the processor. Raise this lever to about a 90° angle to allow the insertion of the processor. Place the processor into the socket by making sure the notch on the corner of the CPU corresponds with the notch on the inside of the socket. Once the processor has slide into the socket, return the lever to the lock position. After you have installed the processor into the socket, check if the jumpers for the CPU type and speed are correct.

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

MicroPCI Daughter Card Installation

MB700 is integrated with one MicroPCI socket that uses SO-DIMM 144-pin connectors. These sockets can accommodate the VGA, Ethernet or SCSI MicroPCI daughter cards.

To insert a MicroPCI daughter card, position it at about 30° (Figure 1) to the PCB and gently push it into the MicroPCI socket. Once inserted, slowly press the card towards the PCB until it locks on both sides to the clips of the connector (Figure 2). Screw the card to the PCB to secure the installation.

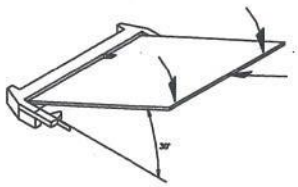


Figure 1.

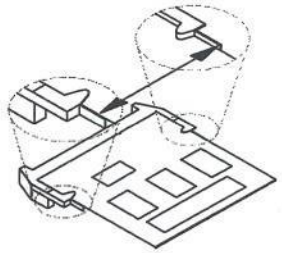


Figure 2.

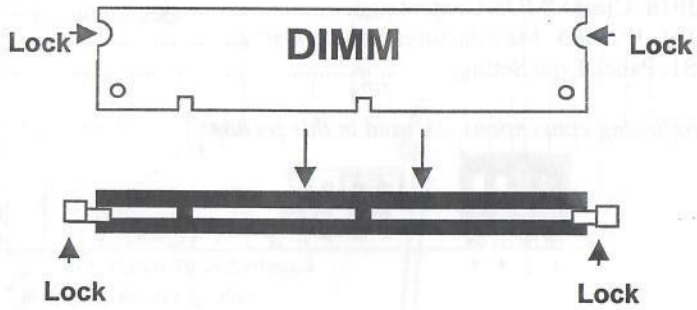
Installing the Memory (DIMM)

The MB700 Industrial Motherboard supports three 168-pin DIMM sockets for a maximum total memory of 768MB in SDRAM type. The memory capacities supported are 32MB, 64MB, 128MB and 256MB.

Installing and Removing DIMMs

To install the DIMM, locate the memory slot on the Industrial Motherboard and perform the following steps:

1. Hold the DIMM so that the two keys of the DIMM align with those on the memory slot.
2. Gently push the DIMM in an upright position until the clips of the slot close to hold the DIMM in place when the DIMM touches the bottom of the slot.
3. To remove the DIMM, press the clips with both hands.

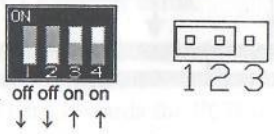


Top View of DIMM Socket

Setting the Jumpers

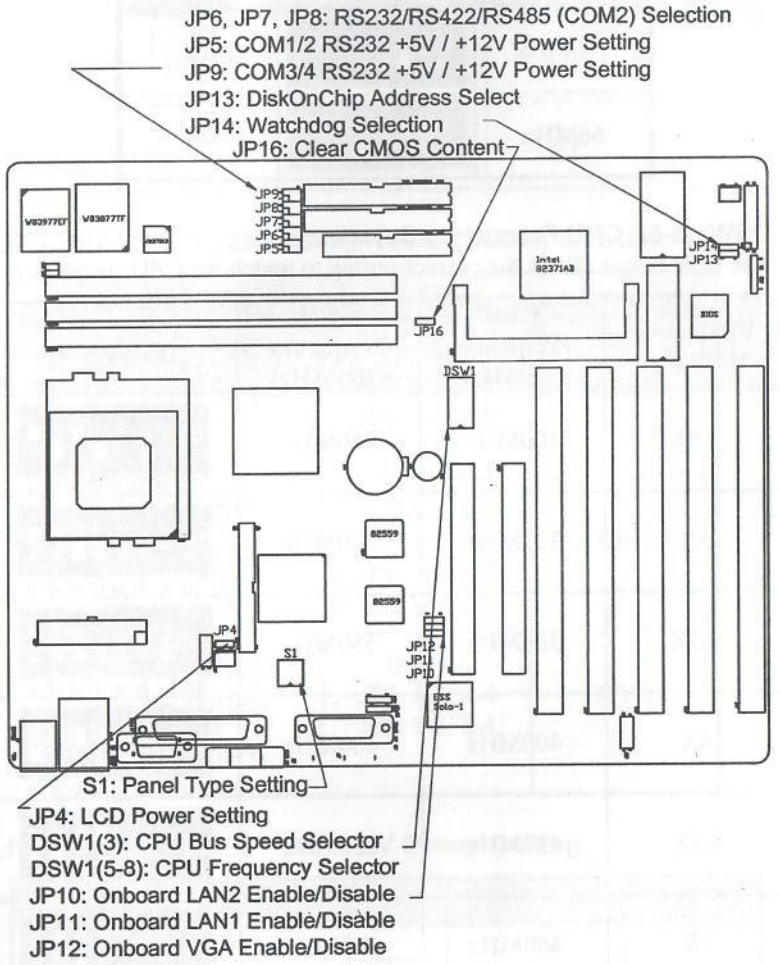
Jumpers are used on the MB700 to select various settings and features according to your needs and applications. Contact your supplier if you have doubts about the best configuration for your needs. The following lists the connectors on MB700 and their respective functions.

The following conventions are used in this section:



Pin 1-2
Short/Closed

Jumper Locations on MB700

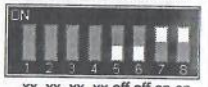
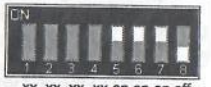
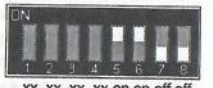
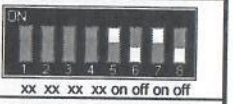
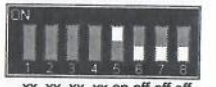
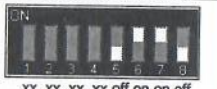


DSW1(3): CPU Bus Speed Selector

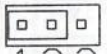
Bus Speed	DSW1(3)	Switch Setting
100MHz		off
66MHz		on

DSW1(5-8): CPU Frequency Selector

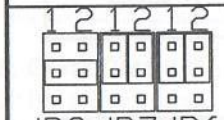
The table below shows the correct setting to match the CPU frequency.

Frequency Multiplier	CPU Frequency (66MHz)	CPU Frequency (100MHz)	DSW1(5-8)
4.5X	300MHz	450MHz	 xx xx xx xx off on off on
5X	333MHz	500MHz	 xx xx xx xx off off on on
5.5X	366MHz	550MHz	 xx xx xx xx off off off on
6X	400MHz	600MHz	 xx xx xx xx on on on off
6.5X	433MHz	650MHz	 xx xx xx xx on on off off
7X	466MHz	700MHz	 xx xx xx xx on off on off
7.5X	500MHz	750MHz	 xx xx xx xx on off off off
8X	533MHz	800MHz	 xx xx xx xx off on on off

JP4: LCD Power Setting

JP4	Setting	Function
 1 2 3	Pin 1-2 Short/Closed	3.3V
 1 2 3	Pin 2-3 Short/Closed	5V

JP6, JP7, JP8: RS232/RS422/RS485 (COM2) Selection

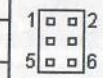
JP8, JP7, JP6	Pin Short	Function
 1 2 1 2 1 2 JP8 JP7 JP6	JP8: 1-2 JP7: 3-5, 4-6 JP6: 3-5, 4-6	RS232
 1 2 1 2 1 2 JP8 JP7 JP6	JP8: 3-4 JP7: 1-3, 2-4 JP6: 1-3, 2-4	RS422
 1 2 1 2 1 2 JP8 JP7 JP6	JP8: 5-6 JP7: 1-3, 2-4 JP6: 1-3, 2-4	RS485

JP5: COM1/2 RS232 +5V / +12V Power Setting

JP5 Pin #	Signal Name	JP5	Signal Name	JP7 Pin #
1	+5V	 1 2 5 6	+5V	2
3	Pin 9 (COM1)		Pin 9 (COM2)	4
5	+12V		+12V	6

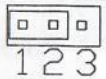
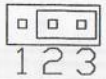
COM1 Settings: Pin 1-3 short = +5V, Pin 3-5 short = +12V
COM2 Settings: Pin 2-4 short = +5V, Pin 4-6 short = +12V

JP9: COM3/4 RS232 +5V / +12V Power Setting

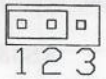
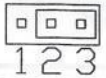
JP9 Pin #	Signal Name	JP9	Signal Name	JP7 Pin #
1	+5V		+5V	2
3	Pin 9 (COM3)		Pin 9 (COM4)	4
5	+12V		+12V	6

COM3 Settings: Pin 1-3 short = +5V, Pin 3-5 short = +12V
COM4 Settings: Pin 2-4 short = +5V, Pin 4-6 short = +12V

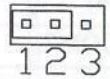
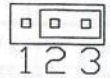
JP10: Onboard LAN2 Enable/Disable

JP10	Setting	LAN2 Function
	Pin 1-2 Short/Closed	Enabled
	Pin 2-3 Short/Closed	Disabled

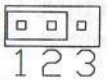
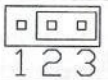
JP11: Onboard LAN1 Enable/Disable

JP11	Setting	LAN1 Function
	Pin 1-2 Short/Closed	Enabled
	Pin 2-3 Short/Closed	Disabled

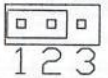
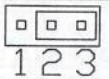
JP12: Onboard VGA Enable/Disable

JP12	Setting	VGA Function
	Pin 1-2 Short/Closed	Enabled
	Pin 2-3 Short/Closed	Disabled

JP13: DiskOnChip Address Select

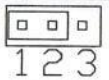
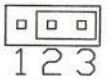
JP13	Setting	Address
	Pin 1-2 Short/Closed	D0000-D7FFF (default)
	Pin 2-3 Short/Closed	D8000-DFFFF

JP14: Watchdog Selection

JP14	Setting	Function
	Pin 1-2 Short/Closed	Reset (default)
	Pin 2-3 Short/Closed	NMI

JP16: Clear CMOS Contents

Use JP16, a 3-pin header, to clear the CMOS contents. *Note that the ATX-power connector should be disconnected from the CPU card before clearing CMOS.*

JP16	Setting	Function
	Pin 1-2 Short/Closed	Normal
	Pin 2-3 Short/Closed	Clear CMOS

JP1, JP2, JP3: Manufacturer Testing Use

JP1, JP2 and JP3 have no definition in this manual and are used for manufacturer testing purposes.

S1: Panel Type Setting

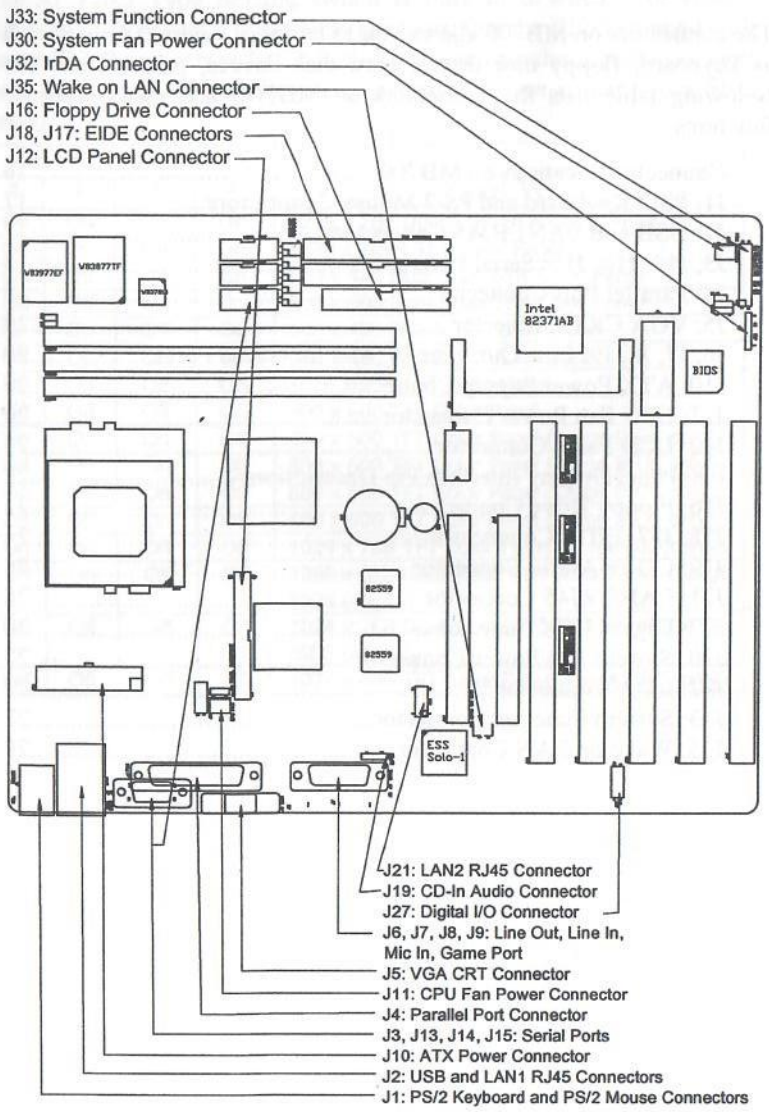
The S1 Panel Type Setting switch is only used when your system supports LCD panels. Please note, however, that the BIOS shipped with your MB700 supports only CRT. You will need another BIOS to support your LCD panel. If you have any question, please contact your SBC vendor.

SW DIP Switch				
1	2	3	4	Panel Type
On	On	On	On	1024 x 768 Dual Scan STN Color Panel
Off	On	On	On	1280 x 1024 TFT Color Panel
On	Off	On	On	640 x 480 Dual Scan STN Color Panel
Off	Off	On	On	800 x 600 Dual Scan STN Color Panel
On	On	Off	On	640 x 480 Sharp TFT Color Panel
Off	On	Off	On	640 x 480 18-bit TFT Color Panel
On	Off	Off	On	1024 x 768 TFT Color Panel
Off	Off	Off	On	800 x 600 TFT Color Panel
On	On	On	Off	800 x 600 TFT Color Panel (Large BIOS only)
Off	On	On	Off	800 x 600 TFT Color Panel (Large BIOS only)
On	Off	On	Off	800 x 600 TFT Color Panel (Large BIOS only)
Off	Off	On	Off	800 x 600 TFT Color Panel (Large BIOS only)
On	On	Off	Off	1024 x 768 TFT Color Panel (Large BIOS only)
Off	On	Off	Off	1280 x 1024 Dual Scan STN Color Panel (Large BIOS only)
On	Off	Off	Off	1024 x 768 Dual Scan STN Color Panel (Large BIOS only)
Off	Off	Off	Off	1024 x 600 TFT Color Panel (Large BIOS only)

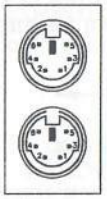
Connectors on MB700

The connectors on MB700 allows you to connect external devices such as keyboard, floppy disk drives, hard disk drives, printers, etc. The following table lists the connectors on MB700 and their respective functions.

Connector Locations on MB700



J1: PS/2 Keyboard and PS/2 Mouse Connectors



PS/2 Mouse

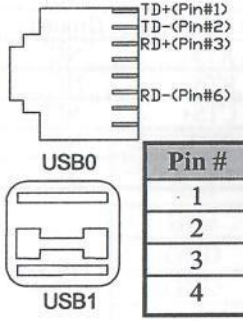
PS/2 Keyboard

Below are the pin-out assignments of the connectors.

Signal Name	Keyboard	Mouse	Signal Name
Keyboard data	1	1	Mouse data
N.C.	2	2	N.C.
GND	3	3	GND
5V	4	4	5V
Keyboard clock	5	5	Mouse clock
N.C.	6	6	N.C.

J2: USB and LAN1 RJ45 Connectors

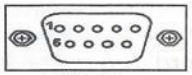
J2 consists of an RJ-45 connector (top) and two stacked USB ports. Refer to the section below for their respective pin assignments.



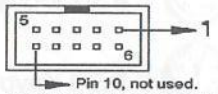
Pin #	Signal Name
1	Vcc
2	USB-
3	USB+
4	Ground

J3, J13, J14, J15: Serial Ports

J3 (COM1) is a DB-9 connector, while J13 (COM2), J14 (COM3) and J15 (COM4). Refer to the table below for their pin assignments.



COM1



COM2/COM3/COM4

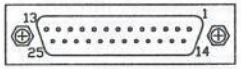
Signal Name	Pin #	Pin #	Signal Name
DCD, Data carrier detect	1	6	DSR, Data set ready
RXD, Receive data	2	7	RTS, Request to send
TXD, Transmit data	3	8	CTS, Clear to send
DTR, Data terminal ready	4	9	RI, Ring indicator
GND, ground	5	10	Not Used

J13 (COM2) is jumper selectable for RS-232, RS-422 and RS-485.

Pin #	Signal Name		
	RS-232	R2-422	RS-485
1	DCD	TX-	DATA-
2	RX	TX+	DATA+
3	TX	RX+	NC
4	DTR	RX-	NC
5	Ground	Ground	Ground
6	DSR	RTS-	NC
7	RTS	RTS+	NC
8	CTS	CTS+	NC
9	RI	CTS-	NC
10	NC	NC	NC

J4: Parallel Port Connector

J4 is a DB-25 external connector situated on top of the VGA and serial ports. The following table describes the pin-out assignments of this connector.

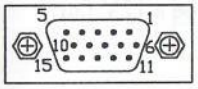


J4 Parallel Port

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: VGA CRT Connector

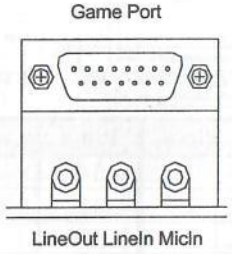
J5 is a DB-15 VGA connector located beside the COM1 port. The following table shows the pin-out assignments of this connector.



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

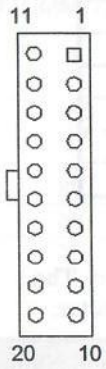
J6, J7, J8, J9: Line Out, Line In, Mic In, Game Port

The figure below shows the location of J6 (Line Out), J7 (Line In), J8 (Mic In), and J9 (Game Port).



J10: ATX Power Supply Connector

J10 is a 20-pin ATX power supply connector. Refer to the following table for the pin out assignments.



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

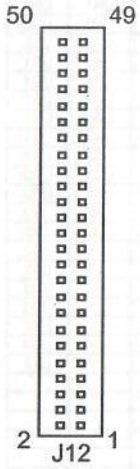
J11: CPU Fan Power Connector

J11 is a 3-pin header for a CPU fan. The fan must be a 12V fan.

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

J12: LCD Panel Connector

J12 is the pin header for flat panel LCD displays. The following shows the pin assignments of this connector.



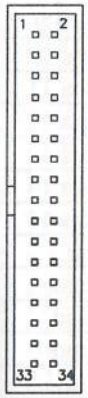
Signal Name	Pin #	Pin #	Signal Name
GND	1	2	P33
P34	3	4	P31
P35	5	6	P32
P30	7	8	P28
P29	9	10	P27
P25	11	12	P26
P24	13	14	P21
P23	15	16	P22
P16	17	18	P20
P17	19	20	P18
P19	21	22	P14
P13	23	24	P12
P15	25	26	P11
P7	27	28	P10
5V or 3.3V	29	30	5V or 3.3V
P9	31	32	P8
P4	33	34	P6
P3	35	36	P5
P2	37	38	P1
M	39	40	P0
SHFCLK	41	42	ENABKL
FPVDD	43	44	FLM(V SYNC)
FPVEE	45	46	LP(H SYNC)
GND	47	48	GND
+12V	49	50	+12V

Flat Panel Display Interface Pin Descriptions

	Mono SS	Mono DD	Mono DD	Color TFT	Color TFT	Color TFT	Color TFT	Color TFT+HR	Color STN-SS	Color STN-SS	Color STN-DD	Color STN-DD
Pin Name	8-bit	8-bit	16-bit	9/12/16 bit	18/24 bit	36-bit	18/24 bit	8-bit (4bP)	16-bit (4bP)	8-bit (4bP)	16-bit (4bP)	24-bit
P0	D0	UD3	UD7	B0	B0	FB0	FB0	R1	R1	UR1	UR0	UR0
P1	D1	UD2	UD6	B1	B1	FB1	FB1	B1	G1	UG1	UG0	UG0
P2	D2	UD1	UD5	B2	B2	FB2	FB2	G2	B1	UB1	UB0	UB0
P3	D3	UD0	UD4	B3	B3	FB3	FB3	B3	R2	UB2	UR1	LR0
P4	D4	LD3	UD3	B4	B4	FB4	SB0	G4	G3	LR1	LR0	LG0
P5	D5	LD2	UD2	G0	B5	FB5	SB1	R5	B2	LG1	LG0	LB0
P6	D6	LD1	UD1	G1	B6	SB0	SB2	B5	R3	LB1	LB0	UR1
P7	D7	LD0	UD0	G2	B7	SB1	B3		G3	LR2	LR1	UG1
P8			LD7	G3	G0	SB2	FG0		B3		UG1	UB1
P9			LD6	G4	G1	SB3	FG1		R4		UB1	LR1
P10			LD5	G5	G2	SB4	FG2		G4		UR2	LG1
P11			LD4	R0	G3	SB5	FG3		B4		UG2	LB1
P12			LD3	R1	G4	FG0	SG0		R5		LG1	UR2
P13			LD2	R2	G5	FG1	SG1		G5		LB1	UG2
P14			LD1	R3	G6	FG2	SG2		B5		LR2	UB2
P15			LD0	R4	G7	FG3	SG3		G6		LG2	LR2
P16					R0	FG4	FR0					LG2
P17					R1	FG5	FR1					LB2
P18					R2	SG0	FR2					UR3
P19					R3	SG1	FR3					UG3
P20					R4	SG2	SR0					LR3
P21					R5	SG3	SR1					LG3
P22					R6	SG4	SR2					LB3
P23					R7	SG5	SR3					
P24						FR0						
P25						FR1						
P26						FR2						
P27						FR3						
P28						FR4						
P29						FR5						
P30						SR0						
P31						SR1						
P32						SR2						
P33						SR3						
P34						SR4						
P35						SR5						
SHFCLK	SHFCLK	SHFCLK	SHFCLK	SHFCLK	SHFCLK	SHFCLK	SHFCLK	SHFCLK	SHFCLK	SHFCLK	SHFCLK	SHFCLK
Pixels/Clk:	8	8	16	1	1	2	2	2-2/3	5-1/3	2-2/3	5-1/3	8

J16: Floppy Drive Connector

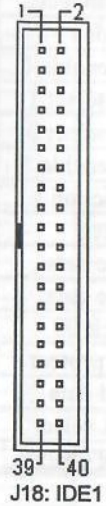
J16 of the MB700 is a 34-pin header and will support up to 2.88MB floppy drives.



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

J18, J17: EIDE Connectors

J18 is the *primary* IDE connector. J17 is the *secondary* IDE connector.



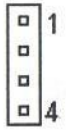
J18: IDE1

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

J17: IDE2

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
DACK1	29	30	Ground
MIRQ0	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

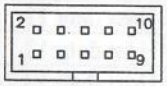
J19: CD-In Audio Connector



Pin #	Signal Name
1	CD Audio L
2	Ground
3	Ground
4	CD Audio R

J21: LAN2 RJ45 Connector

J21, an RJ45 connector, is for the external LAN connector. The MB700 supports both 10Mbps and 100Mbps LAN facilities.



Signal Name	Pin #	Pin #	Signal Nam
LED1+	1	2	LED1-
RX+	3	4	RX-
LED2-	5	6	Ground
LED2+	7	8	Ground
TX+	9	10	TX-

J27: 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
DI0	1	6	Vcc
DI1	2	7	DO0
No Connect	3	8	Ground
No Connect	4	9	DO1
Ground	5	10	+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: 260H
Register Format: BIT: D1 D0
Value: DI1 DI0

Digital Output

Output channels: 2 bits
Output voltage: High: Source -0.4mA at 2.4V min
Low: Sink 8mA at 0.5V max
Register Address: 260H (Write)
Register Format: BIT: D1 D0
Value: DO1 DO0

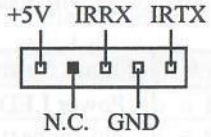
J30: System Fan Power Connector

J30 is a 3-pin header for the system fan. The fan must be a 12V fan.

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

J32: IrDA Connector

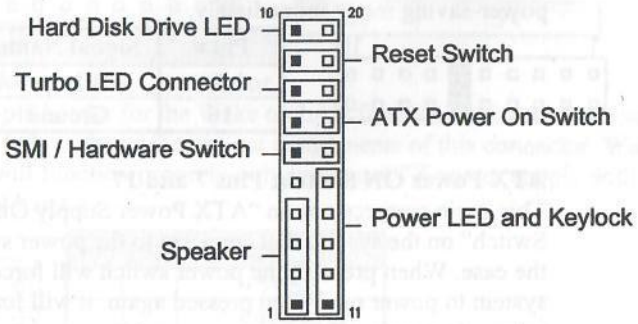
This connector is used for an IrDA connector for wireless communication.



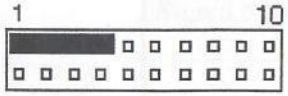
Pin #	Signal Name
1	+5V
2	No Connect
3	Ir RX
4	Ground
5	Ir TX

J33: System Function Connector

J33 provides connectors for system indicators that provides light indication of the computer activities and switches to change the computer status. J1 is a 20-pin header that provides interfaces for the following functions.

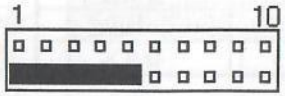


Speaker: Pins 1 - 4
This connector provides an interface to a speaker for audio tone generation. An 8-ohm speaker is recommended.



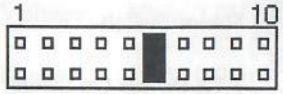
Pin #	Signal Name
1	Speaker out
2	No connect
3	Ground
4	+5V

Power LED and Keylock: Pins 11 - 15
The power LED indicates the status of the main power switch. The keylock switch, when closed, will disable the keyboard function.



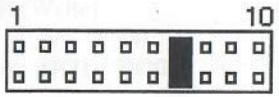
Pin #	Signal Name
11	Power LED
12	No connect
13	Ground
14	Keylock
15	Ground

SMI/Hardware Switch: Pins 6 and 16
This connector supports the "Green Switch" on the control panel, which, when pressed, will force the system into the power-saving mode immediately.

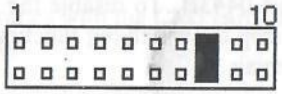


Pin #	Signal Name
6	Sleep
16	Ground

ATX Power ON Switch: Pins 7 and 17
This 2-pin connector is an "ATX Power Supply On/Off Switch" on the system that connects to the power switch on the case. When pressed, the power switch will force the system to power on. When pressed again, it will force the system to power off.

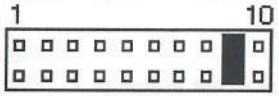


Turbo LED Connector: Pins 8 and 18
There is no turbo/deturbo function on the CPU card. The Turbo LED on the control panel will always be On when attached to this connector.

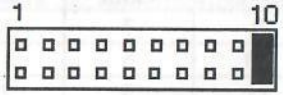


Pin #	Signal Name
8	5V
18	Ground

Reset Switch: Pins 9 and 19
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.

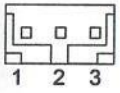


Hard Disk Drive LED Connector: Pins 10 and 20
This connector connects to the hard drive activity LED on control panel. This LED will flash when the HDD is being accessed.



Pin #	Signal Name
10	Ground
20	5V

J35: Wake on LAN Connector
J35 is a 3-pin header for the Wake on LAN function on the motherboard. The table below shows the pin out assignments of this connector. Wake on LAN will function properly only with an ATX power supply with 5VSB that has 1A.



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

Watchdog Timer Configuration

The function of the watchdog timer is to reset the system automatically and is defined at I/O port 0443H. To enable the watchdog timer and allow the system to reset, write I/O port 0443H. To disable the timer, write I/O port 0441H for the system to stop the watchdog function. The timer has a tolerance of 20% for its intervals.

The following describes how the timer should be programmed.

Enabling Watchdog:

```
MOV   AX, 000FH (Choose the values from 0)
MOV   DX, 0443H
OUT   DX, AX
```

Disabling Watchdog

```
MOV   AX, 00FH (Any value is fine.)
MOV   DX, 0441H
OUT   DX, AX
```

WATCHDOG TIMER CONTROL TABLE

Level	Value	Time/sec	Level	Value	Time/sec
1	F	0	9	7	16
2	E	2	10	6	18
3	D	4	11	5	20
4	C	6	12	4	22
5	B	8	13	3	24
6	A	10	14	2	26
7	9	12	15	1	28
8	8	14	16	0	30

BIOS Setup

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

BIOS Introduction

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 <Del> key immediately allows you to enter the Setup utility. If you are a little bit late pressing the <Del> key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system Off and back On again. The following message will appear on the screen:

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

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

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

ROM PCI/ISA BIOS
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	SAVE & EXIT SETUP
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
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 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.*

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

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 card is already installed in a working system, you will not need to select this option. You will need to run the Standard CMOS option, however, if you change your system hardware configurations, the onboard battery fails, or the configuration stored in the CMOS memory was lost or damaged.

ROM PCI/ISA BIOS
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Wed, Mar 4 1998
Time (hh:mm:ss) : 00 : 00 : 00

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master	Auto	0	0	0	0	0	0	Auto
Primary Slave	Auto	0	0	0	0	0	0	Auto
Secondary Master	Auto	0	0	0	0	0	0	Auto
Secondary Slave	Auto	0	0	0	0	0	0	Auto

Drive A	: 1.44M, 3.5in	Base Memory	: 640K
Drive B	: None	Extended Memory	: 15360K
		Other Memory	: 384K
Video	: EGA / VGA		
Halt On	: All Errors	Total Memory	: 16384K

ESC : Quit ↑↓→← : Select Item PU / PD / + / - : Modify
F1 : Help (Shift) F2 : Change Color

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	2MB	720KB	44MB	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 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 key-board or disk error; it will stop for all others.

BIOS Features Setup

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

ROM / PCI ISA BIOS
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
External Cache	: Enabled	CC000-CFFFF Shadow	: Disabled
CPU L2 Cache ECC Checking	: Enabled	D0000-D3FFF Shadow	: Disabled
Processor Number Feature	: Enabled	D4000-D7FFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	D8000-DBFFF Shadow	: Disabled
Boot Sequence	: A, C, SCSI	DC000-DFFF Shadow	: Disabled
Swap Floppy Drive	: 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		
PCI /VGA Palette Snoop	: Disabled		
OS Select For DRAM>64MB	: Non-OS2	ESC : Quit	↑ ↓ → ← : Select Item
Report No FDD For WIN 95	: Yes	F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift) F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

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.

Boot Sequence
This field determines the drive that the system searches first for an operating system. The options are:

A, C, SCSI	D, A, SCSI	SCSI, C, A
C, A, SCSI	E, A, SCSI	C only
C, CDROM, A	F, A, SCSI	LS/ZIP, C
CDROM, C, A	SCSI, A, C	

The default value is ***A, C, SCSI***.

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 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. The default setting is ***Fast.***

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.***

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.

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.

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..

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.

Chipset Features Setup

This Setup menu controls the configuration of the chipset.

ROM PCI/ISA BIOS
CHIPSET FEATURES SETUP
AWARD SOFTWARE INC.

SDRAM RAS-to-CAS Delay	: 3	CPU Warning Temperature	: 66°C/151°F
SDRAM RAS Precharge Time	: 3	Current System Temp.	: 41°C/ 105°F
SDRAM CAS Latency Time	: 3	Current CPU Temp.	: 27°C/ 80°F
SDRAM Precharge Control	: Disabled	Current CPU Fan Speed	: 2789 RPM
DRAM Integrity Mode	: Non-ECC	Current Chassis Fan Speed	: 2045 RPM
System BIOS Cacheable	: Disabled	VCCP (V) : 1.98 V VTT (V) : 1.50 V	
Video BIOS Cacheable	: Disabled	VCC3 (V) : 3.45 V +5 V : 4.99 V	
Video RAM Cacheable	: Disabled	+12 V : 12.46 V -12 V : -12.54V	
8 Bit I/O Recovery Time	: 3	-5V : - 5.21 V	
16 Bit I/O Recovery Time	: 2		
Memory Hole At 15MB-16MB	: Disabled		
Passive Release	: Enabled		
Delayed Transaction	: Ensabled		
AGP Aperture Size (MB)	: 64		
		ESC : Quit	↑↓→←: Select Item
Auto Detect DIMM/PCI Clock	: Disabled	F1 : Help	PU/PD/+/- : Modify
Spread Spectrum	: Disabled	F5 : Old Values	(Shift) F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

SDRAM RAS-to-CAS Delay

When DRAM is refreshed, both rows and columns are addressed separately. This field allows you to determine the timing of transition from Row Address Strove (RAS) to Column Address Strobe (CAS). The default setting is *3*.

SDRAM RAS Precharge Time

The precharge time is the number of cycles it takes for the RAS to accumulate its charge before DRAM refresh. If insufficient time is allowed, refresh may be incomplete and the DRAM may fail to retain data. The default setting is *3*.

SDRAM CAS Latency Time

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value specified by the system designer. The default value is *3*.

SDRAM Precharge Control

By default, the SDRAM Precharge Control field is set to ***Disabled***.

System BIOS Cacheable

When enabled, access to the system BIOS ROM addressed at F0000H-FFFFFH is cached, provided that the cache controller is disabled.

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.

Video RAM Cacheable

Selecting *Enabled* allows caching of the video BIOS ROM at C0000h to C7FFFh, resulting in better video performance. However, if any program writes to this memory area, a memory access error may result.

8 Bit I/O Recovery Time

This option specifies the length of the delay (in sysclks) inserted between consecutive 8-bit I/O operations. The settings are 1, 2, 3, 4, 5, 6, 7, and 8. The default setting is *3*.

16 Bit I/O Recovery Time

This option specifies the length of the delay (in sysclks) inserted between consecutive 16-bit I/O operations. The settings are 1, 2, 3, and 4. The default setting is *2*.

Memory Hole at 15MB - 16MB

In order to improve performance, certain space in memory can be reserved for ISA cards. This field allows you to reserve 15MB to 16MB of memory address space to ISA expansion cards. This makes memory from 15MB and up unavailable to the system. Expansion cards can only access memory up to 16MB. By default, this field is set to ***Disabled***.

Passive Release

When enabled, CPU to PCI bus accesses are allowed during passive release. Otherwise, the arbiter only accepts another PCI master access to local DRAM.

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. The default setting is ***Disabled***.

AGP Aperture Size (MB)

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***.

Auto Detect DIMM/PCI Clk

When enabled, the system automatically shuts off clocks of unused DIMM/PCI slots. The default setting is ***Disabled***. This field is for CE testing use only.

Spread Spectrum

This field sets the value of the spread spectrum. Options are Disabled, 0.25% and 0.5%. The default setting is ***Disabled***. This field is for CE testing use only.

CPU Warning Temperature

This field sets the threshold temperature at which an alert is sounded through the system's speaker. The CPU temperature is monitored by the onboard thermal sensor to prevent the CPU from overheating.

Current System Temp./ Current CPU Temp.

These read-only fields reflect the functions of the hardware thermal sensor that monitors the chip blocks and system temperatures to ensure the system is stable.

Current CPU Fan Speed/Chassis Fan Speed

These optional and read-only fields show the current speeds in RPM (revolution per minute) for the CPU fan and chassis fan as monitored by the hardware monitoring IC.

VCCP / VTT / VCC3

These optional and read-only fields show the current voltages in the voltage regulators and power supply as monitored by the hardware monitoring IC.

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	: Enabled	** Reload Global Timer Events **	
Power Management	: User Define	IRQ3 (3-7, 9-15), NMI	: Disabled
PM Control by APM	: Yes	Primary IDE 0	: Enabled
Video Off Method	: V/H SYNC +Blank	Primary IDE 1	: Enabled
Video Off After	: Standby	Secondary IDE 0	: Disabled
MODEM Use IRQ	: 3	Secondary IDE 1	: Disabled
Doze Mode	: Disabled	Floppy Disk	: Disabled
Standby Mode	: Disabled	Serial Port	: Enabled
Suspend Mode	: Disabled	Parallel Port	: Disabled
HDD Power Down	: Disabled		
Throttle Duty Cycle	: 62.5%		
PCI VGA Active Monitor	: Disabled		
Soft-Off by PWR-BTTN	: Instant-Off		
Power On by Ring	: Disabled		
Resume by Alarm	: Disabled		
IRQ 8 Break Suspend	: Disabled	ESC : Quit	↑ ↓ → ← : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift) F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

ACPI Function

This field allows you to enabled or disable the ACPI function on the motherboard. By default, this field is set to ***Disabled***.

Power Management

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

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

NOTE: *In order to enable the CPU overheat protection feature, the Power Management field should not be set to Disabled.*

PM Control by APM
This field allows you to use the Advanced Power Management device to enhance the Max. Power Saving mode and stop the CPU's internal clock. If the Max. Power Saving is not enabled, this will be preset to NO.

Video Off Method
This field defines the Video Off features. There are three options.
V/H SYNC + Blank Default setting, blank the screen and turn off vertical and horizontal scanning.
DPMS Allows the BIOS to control the video display card if it supports the DPMS feature.
Blank Screen This option only writes blanks to the video buffer.

Video Off After
As the system moves from lesser to greater power-saving modes, select the mode in which you want the monitor to blank.

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*.

Doze Mode
When enabled, and after the set time of system inactivity, the CPU clock will run at a slower speed while all other devices still operate at full speed.

Standby Mode
After the selected period of system inactivity, the fixed disk drive and the video shut off while all other devices still operate at full speed.

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.

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

PCI VGA Active Monitor
When enabled, any video activity restarts the global timer for Standby mode. The default setting is ***Enabled***.

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***.

Power 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.

Resume by Alarm
This allows a computer to be turned on automatically through the timer set in the BIOS to make the system more schedulable. By default, this field is set to ***Disabled***.

IRQ 8 Break Suspend
You can enable or disable the monitoring of IRQ 8 (Real Time Clock) so it does not awaken the system from Suspend mode.

Reload Global Timer Events
This section determines the reloading of the 'timers' after entering the Full On You can enable or disable the monitoring of IRQ 8 (Real Time Clock) so it does not awaken the system from Suspend mode.

PNP/PCI Configuration

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.

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

PNP OS Installed	: No	Used MEM base addr	: N/A
Resources Controlled by	: Manual		
Reset Configuration Data	: Disabled		
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		
DMA-0 assigned to	: PCI/ISA PnP		
DMA-1 assigned to	: PCI/ISA PnP	ESC : Quit	↑ ↓ ← : Select Item
DMA-3 assigned to	: PCI/ISA PnP	F1 : Help	PU/PD/+/- : Modify
DMA-5 assigned to	: PCI/ISA PnP	F5 : Old Values	(Shift) F2 : Color
DMA-6 assigned to	: PCI/ISA PnP	F6 : Load BIOS Defaults	
DMA-7 assigned to	: PCI/ISA PnP	F7 : Load Setup Defaults	

PNP OS Installed

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

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***.

Reset Configuration Data

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

IRQ3/4/5/7/9/10/11/12/14/15, DMA0/1/3/5/6/7 assigned to

These fields allow you to determine the IRQ/DMA assigned to the ISA bus and is not available to any PCI slot.

Used MEM base addr

Select a base address for the memory area used by any peripheral that requires high memory. The default setting is ***N/A***.

Load BIOS 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.

ROM PCI/ISA BIOS
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAG	ETECTION
PNP/PCI CONFI	UP
LOAD BIOS DE	AVING
LOAD SETUP D	
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Load BIOS Defaults except Standard CMOS Setup	

Load BIOS Defaults (Y/N)? N

To load BIOS defaults value to CMOS SRAM, enter "Y". If not, enter "N".

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.

ROM PCI/ISA BIOS
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAG	ETECTION
PNP/PCI CONFI	UP
LOAD BIOS DE	AVING
LOAD SETUP D	
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Load BIOS Defaults except Standard CMOS Setup	

Load Setup Defaults (Y/N)? N

To load SETUP defaults value to CMOS SRAM, enter "Y". If not, enter "N".

Integrated Peripherals

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

ROM PCI/ISA BIOS
INTEGRATED PERIPHERALSP
AWARD SOFTWARE INC.

IDE HDD Block Mode	: Enabled	Onboard FDC Controller	: Enabled
IDE Primary Master PIO	: Auto		
IDE Primary Slave PIO	: Auto	Onboard Serial Port 1	: 3F8/IRQ4
IDE Secondary Master PIO	: Auto	Onboard Serial Port 2	: 2F8/IRQ3
IDE Secondary Slave PIO	: Auto	UART Mode Select	: Normal
IDE Primary Master UDMA	: Auto		
IDE Primary Slave UDMA	: Auto		
IDE Secondary Master UDMA	: Auto		
IDE Secondary Slave UDMA	: Auto	Onboard Serial Port 3	: Disabled
On-Chip Primary PCI IDE	: Enabled		
On-Chip Secondary PCI IDE	: Enabled	Onboard Serial Port 4	: Disabled
USB Keyboard Support	: Disabled		
Init Display First	: AGP		
KBC input clock	: 8 MHz		
PWRON After PWR-Fail	: Off	Digital I/O Address	: 260h
Onboard Parallel Port	: 378/IRQ7	ESC : Quit	↑ ↓ ← : Select Item
Parallel Port Mode	: SPP	F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift) F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

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 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*.

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.

USB Keyboard Support

Select *Enabled* if your system is using a USB keyboard.

Init Display First

This field allows the system to initialize first the VGA card/hardware when system is turned on.

KBC input clock

The default setting of the KBC input clock is 8 MHz.

PWRON After PWR-Fail

Enabling this field causes the system to power on by itself when power is restored, in case the system shuts down due to power failure.

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
Serial Port 3: Disabled, Serial Port 4: Disabled
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***.

Parallel Port Mode

This field allows you to determine parallel port mode. Settings include SPP (Standard Printer Port), EPP (Enhanced Parallel Port), and ECP (Extended Capabilities Port.)

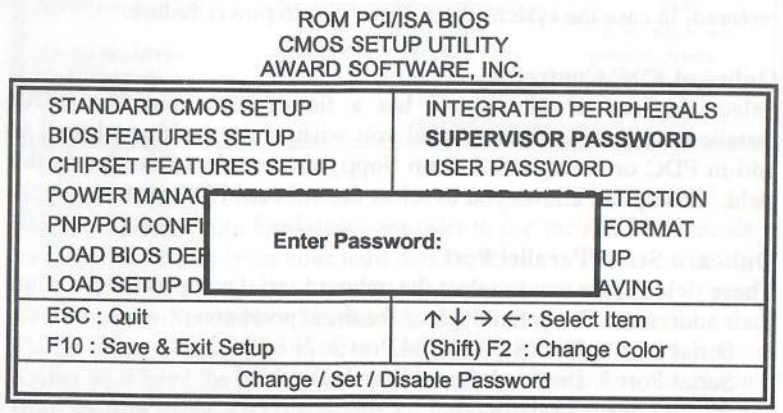
Digital I/O Address

The default value of the digital I/O address is 260h.

Supervisor / User Password

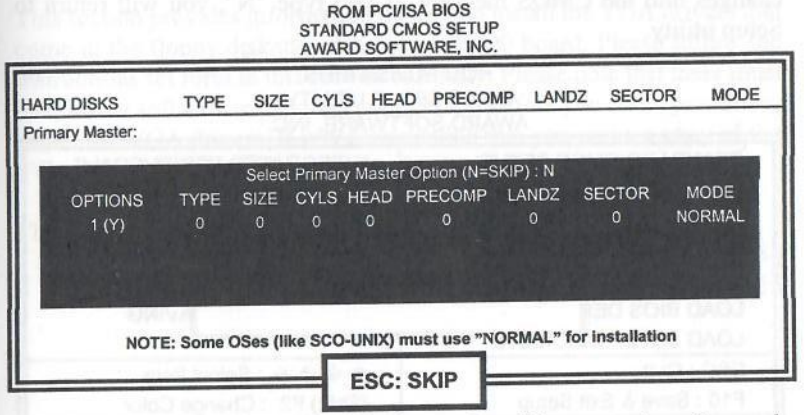
These two options set the system password. Supervisor Password sets a password that will be used to protect the system and Setup utility. User Password sets a password that will be used exclusively on the system. To specify a password, highlight the type you want and press <Enter>. The Enter Password: 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.



IDE HDD Auto Detection

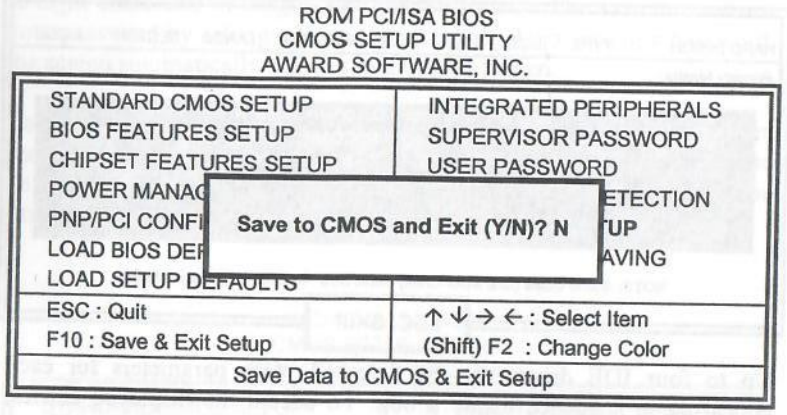
This option detects the parameters of an IDE hard disk drive, and automatically enters them into the Standard CMOS Setup screen.



Up to four IDE drives can be detected, with parameters for each appearing in sequence inside a box. To accept the displayed entries, press the "Y" key; to skip to the next drive, press the "N" key. If you accept the values, the parameters will appear listed beside the drive letter on the screen.

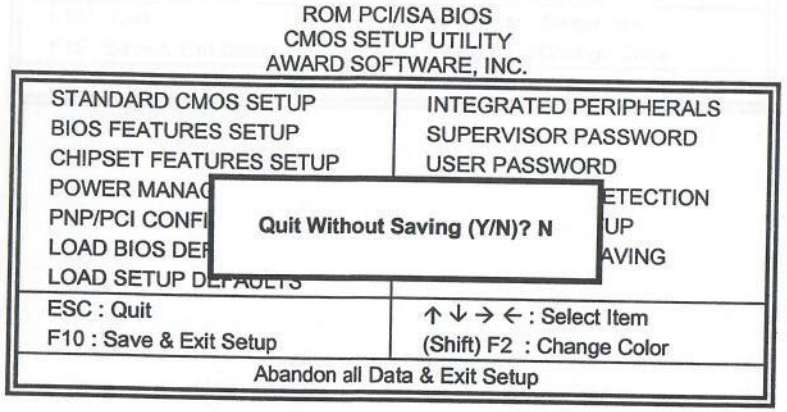
Save & Exit Setup

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.



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.



VGA Drivers Installation

This section provides information on how to install the VGA drivers that come in the floppy diskette with your MB700 board. Please follow the instructions set forth in this section carefully. Please note that there must be relevant software installed in your system before you could proceed to install the VGA drivers. It is recommended that you make a copy of the VGA driver diskette and put the backup copy in a safe place.

The following items are covered in this section:

Installing the Drivers for Windows 95/98

The following section describes the normal display driver installation procedures for Windows 95/98. Use the following procedures when installing the display drivers for Windows 95/98.

1. Click **Start**, then **Settings**, then **Control Panel**.
2. Double click **Display**.
3. Select the **Settings** tab, click the **Change Display Type** button.
4. Click the **Change** button under **Adapter Type**.
5. Click the **Have Disk** button and press **OK**.
6. Specify the path to the new driver and press **<ENTER>**:

Example 1: Insert the driver CD in the CD-ROM drive, and enter d:\vga\ct69000\win95 (assuming D: is the CD-ROM drive.)

Example 2: If you're not sure exactly where the drivers are, click the **Browse** button to find them.

7. The *Select Device* dialog box will appear. Select the hardware that corresponds to the one you installed in your machine and click **OK**.
8. Windows 95/98 will copy the display drivers to the proper directories on your system.
9. Continue by choosing **Close**. You will be asked to restart your machine. Do so accordingly.
10. After the system has restarted, you can go back into the **Display** applet and select alternate screen resolutions and color depths.

Installing the Drivers for Windows NT 4.0

Once you are in the Windows NT 4.0 environment, follow the procedures below to install the VGA drivers that come with your board.

1. Click the **Start** button, then go to **Settings** and click on **Control Panel**.
2. Click on the **Display** icon to start the *Display Properties* window.
3. Click on the **Settings** tab, and then click on **Display Type**.
4. In the *Change Display Type* window, click on **Change Adapter Type**. This will bring up the *Select Device* window.
5. In the *Change Display* window, click on **Have Disk**. Enter the directory where the Windows NT driver files are located as **d:\vga\ct69000\winnt40** (assuming D: is the CD-ROM drive.) Then select **OK**, or press **ENTER**.
6. Select **Chips Video Accelerator** from the display list provided, then click **OK** or press **ENTER**.
7. You will then see a warning panel about Third Party Drivers. Click on **Yes** to finish the installation.
8. Once the installation is complete, the system must be shut down and restarted for the new drivers to take effect.
9. When the system has restarted, the default graphics mode (usually 640x480x256color) has been automatically selected. Click the **Start** button, and then go to **Settings** and click on **Control Panel**. Click on the **Display** icon to start the *Display Properties* window. Click on the **Settings** tab. A new screen setting can be selected using either of the following methods:
   A. Use the slide-bar in the Desktop Area to select new setting.
   B. Click on **List All Modes**. From the list provided, select a new setting, then click **OK** or press **ENTER**.
   C. Click on **Test** to test the newly selected graphics mode. Follow the instructions given on screen. A test screen should appear, followed by the *Testing Mode* window. Click on **Yes** to continue. Click on **Apply** to switch to the new graphics mode. Graphics modes are changed dynamically on NT 4.0, so you do not need to shut down and restart for the new screen settings to work.

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LAN Drivers Installation

This section describes LAN features and driver installation of the Intel 82559 Ethernet function available with the IBD99 or IBD59 MicroPCI card.

The following items are covered in this section:

Introduction

Intel 82559 a 32-bit 10/100MBps Ethernet controller for PCI local bus-compliant PCs. It supports bus mastering architecture, and auto-negotiation feature that can be used for both 10Mbps and 100Mbps connection.

Making Floppy Disks for NetWare and Windows Installation

You need to use a floppy disk to install the LAN drivers. Use the MAKEDISK.BAT utility located in the \LAN\I8255X\MAKEDISK directory on the CD.

MAKEDISK [operating system] [destination]

where [operating system] is the OS for which you are creating the diskette, and [destination] is the drive letter and path (such as A:). If no destination is specified, the A: drive will be used.

The possible [operating system] options are:

NT = Microsoft Windows NT
W2K = Microsoft Windows* 2000
W9X = Microsoft Windows* 95 and Windows 98
NW = Novell NetWare servers and clients
DOS = Microsoft DOS and IBM OS2

Make sure you have a 1.44 MB formatted, non-bootable diskette in the floppy drive when using this utility.

NOTE: The utility MUST be run from the \LAN\I8255X \MAKEDISK directory.

Alternately, you can use the following .BAT files (located in the root directory on this CD) to simplify this process:

MAKEW9X.BAT -- Creates a drivers disk for Windows 95 and Windows 98.
MAKENT.BAT -- Creates a drivers disk for Windows NT.
MAKEW2K.BAT -- Creates a drivers disk for Windows 2000.
MAKENW.BAT -- Creates a drivers disk for Novell NetWare servers and clients.

Installing LAN Drivers for Windows 95

Follow these steps to install the Intel 82559 LAN/Ethernet driver for Windows 95:

1. From the **Control Panel**, double-click the **System** icon.
2. Click the **Device Manager** tab.
3. Double-click **Other Devices** (question mark icon) in the list area.
4. Double-click a PCI Ethernet Controller.
5. Click the **Driver** tab, then click **Update Driver**.
6. Insert the Configuration and Drivers disk or CD in the appropriate drive, and at the Update Device Driver Wizard, select "**No**" and click **Next**.
7. Click **Have Disk**, insert the Configuration and Drivers disk in the appropriate drive, and click **OK**.
8. At the Select Device dialog box, click **OK** again.
9. Follow any prompts for Windows 95 installation disks and restart when prompted.

Note: The Windows 95 system files are typically available on the Windows 95 CD in the win95 directory (D:\win95).

Installing LAN Drivers for Windows 98

Follow these steps to install the Intel 82559 LAN/Ethernet driver for Windows 95:

1. From the **Control Panel**, double-click the **System** icon.
2. Click the **Device Manager** tab.
3. Double-click **Other Devices** or Network Adapters in the list area.
4. Double-click a PCI Ethernet Controller.
5. Click the **Driver** tab, then click **Update Driver**.
6. Click **Next** at the Update Device Driver Wizard.
7. Select "**Display a list of all the drivers...**" and click **Next**.
8. Insert the Intel adapter disk and click **Have Disk**.
9. Enter the appropriate drive for your disk media (A:) and click **OK**.
10. Click **OK** at the Select Device dialog box.
11. The Update Wizard displays the message that it has found the driver. Click **Next**.
12. Click **Finish**.
13. Restart your computer when prompted.

Installing LAN Drivers for Windows NT

Note: It is recommended that you install the latest Service Pack for Windows NT 4.0, available through Microsoft.

Follow the instructions below to configure it the Ethernet hardware under Windows NT.

1. Double-click the **Network** icon in the **Control Panel**.
2. Select the **Adapter** tab.
3. Click **Add**. You'll see a list of adapters.
4. Don't select an adapter from this list. Instead, insert the Intel adapter disk or CD into the appropriate drive and click **Have Disk**.
5. Enter the appropriate drive for your disk media (A:) and click **OK**. Then follow the prompts to complete installation. When the adapter is added you'll see a new adapter listed in the Network adapters list.
6. Click **Close** to finish and configure any protocols as prompted.
7. Restart Windows NT when prompted.

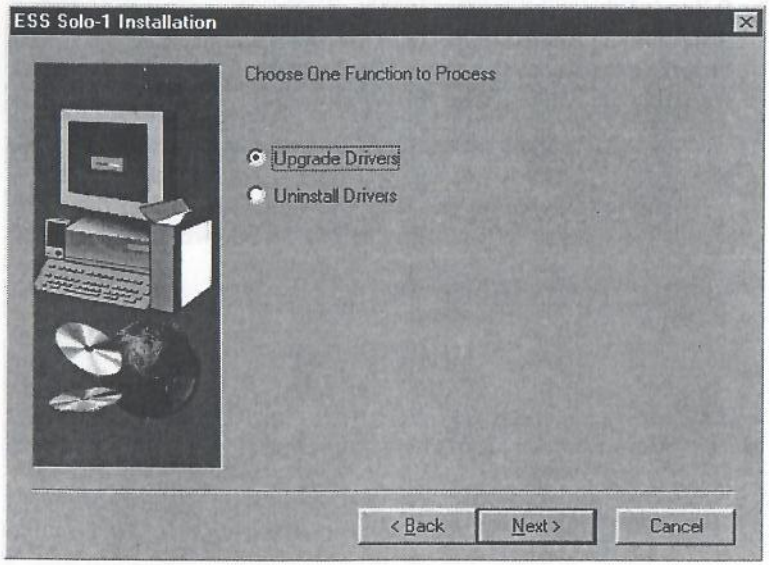
Audio Drivers Installation

This section provides information on how to install the audio drivers for ESS Solo-1 ES1938S that come in floppy diskettes with your MB700 board. Please follow the instructions set forth in this section. It is recommended that you make a copy of the drivers and put the backup copy in a safe place.

The following items are covered in this section:

Installing the Audio Driver for Windows 95

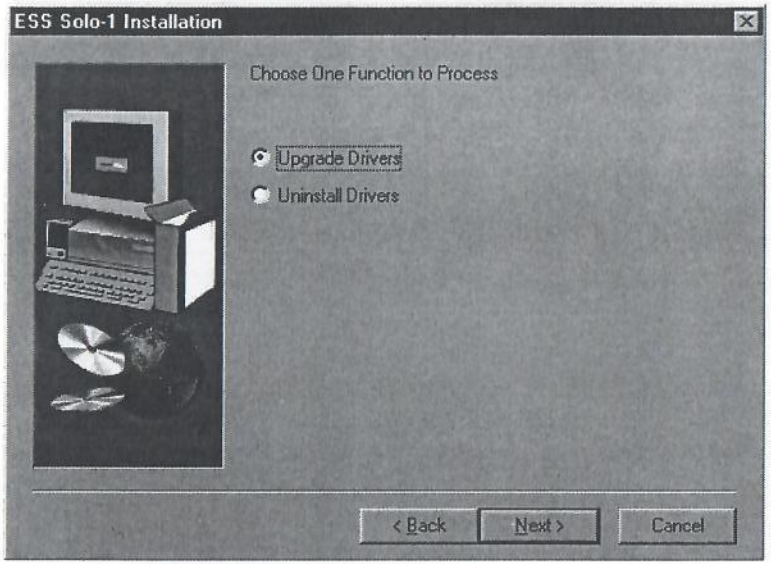
1. Turn on the computer and start Windows 95.
2. Insert the CD containing the ESS Solo-1 ES1938S audio drivers for Windows 95.
3. The CD autoruns and shows a screen with options for you to choose. Click on **Sound** and select **ESS Solo-1** to install the audio software and drivers. The welcome screen is then displayed.
4. Click the **Next** button to continue the installation process. When the ESS Solo-1 Installation window appears, select **Upgrade Drivers** and click the **Next** button.



5. After file copying is done, restart Windows 95.
6. When Windows restart, it will detect a **PCI Multimedia Audio Device**. Insert the audio driver CD and click the **Next** button to start file copying, then click Finish.
7. When prompted to insert the Windows 95 CD, do accordingly and click **OK**. Key in the path (for example, d:\win95) where the Windows 95 files are located and click **OK**. The installation is complete.

Installing the Audio Driver for Windows 98

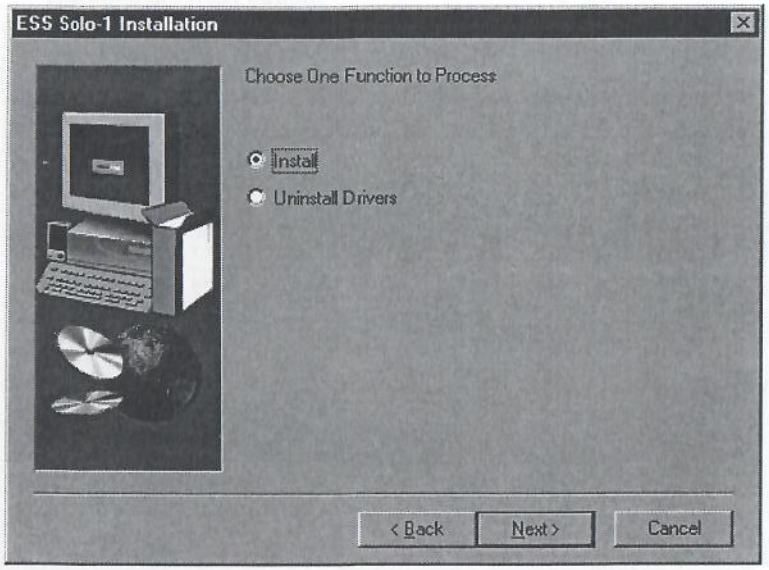
1. Turn on the computer and start Windows 98.
2. Insert the diskette containing the ESS Solo-1 ES1938S audio drivers for Windows 98.
3. The CD autoruns and shows a screen with options for you to choose. Click on **Sound** and select **ESS Solo-1** to install the audio software and drivers. The welcome screen is then displayed.
4. Click the **Next** button to continue the installation process. When the ESS Solo-1 Installation window appears, select **Upgrade Drivers** and click the **Next** button.



5. After file copying is done, restart Windows 98.
6. When Windows restarts, it will detect a *PCI Multimedia Audio Device*. Insert the audio driver CD and click the **Next** button. Click on the **Search for the best driver** checkbox, then click **Next**. Now install *The Update driver, ESSSolo-1 PCI Audio Device*. Click **Next** and then **Next** again to start file copying. After file copying is done, click **Finish**
7. Now, Windows detects a new hardware which is the gameport joystick. Click **OK** and insert the Windows 98 CD and key in the path (for example, d:\win98) where the Windows 98 files are located and click **OK**. The installation is complete.

Installing the Audio Driver for Windows NT

1. Turn on the computer and start Windows NT.
2. Insert the diskette or CD containing the ESS Solo-1 ES1938S audio drivers for Windows NT.
3. The CD autoruns and shows a screen with options for you to choose. Click on **Sound** and select **ESS Solo-1** to install the audio software and drivers. The welcome screen is then displayed.
4. Click the **Next** button to continue the installation process. When the ESS Solo-1 Installation window appears, select **Upgrade Drivers** and click the **Next** button.



5. When the *Choose Driver Language* window appears, choose **English** and click the **Next** button to start file copying. After file copying is done, click **Finish** to restart Windows NT and for changes to take effect.

Appendix

A. I/O Port Address Map
B. Interrupt Request Lines (IRQ)
C. Memory Mapping

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. The following table lists the I/O port addresses used on the Industrial Motherboard.

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)

Peripheral devices use interrupt request lines to notify CPU for the service required. The following table shows the IRQ used by the devices on MB700.

Level	Function
IRQ0	System Timer Output
IRQ1	Keyboard
IRQ2	Interrupt Cascade
IRQ3	Serial Port #2/#4
IRQ4	Serial Port #1/#3
IRQ5	Parallel Port
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

C. Memory Mapping