MI952

AMD Athlon™ 64 / Athlon™ 64 x2
(Dual Core) / Sempron™
Mini-ITX Motherboard

USER'S MANUAL

Version 1.0

Acknowledgments

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Introduction

Product Description

The MI952 Mini ITX board incorporates the high performance AMD 780E embedded PC chipset optimized for AMD Socket AM2 processors with speeds up to 2.9GHz and with FSB up to 2000MHz. The board has two DDR II DIMM sockets to support a maximum memory capacity of 4GB. Particular attention is given to multiple high-resolution display interfaces including a DVI-I, DVI-D and an HDMI connector at the edge of the board.

MI952 Product Features:

- With AMD 780E / SB710 Chipset
- Supports Socket AM2 CPUs, AMD Athlon™ 64 / Athlon™ 64 x2 (dual core) / Sempron™
- Supports up to 2.9GHz, FSB 2000MHz
- DVI-D, DV-I, HDMI multiple display interface
- Dual PCIe Gigabit LAN (Realtek RTL8111C)
- Dual DDR II DIMM sockets, up to 4GB
- 8x USB, 4x COM, PCIe socket, HD audio, 2x SATAII

Checklist

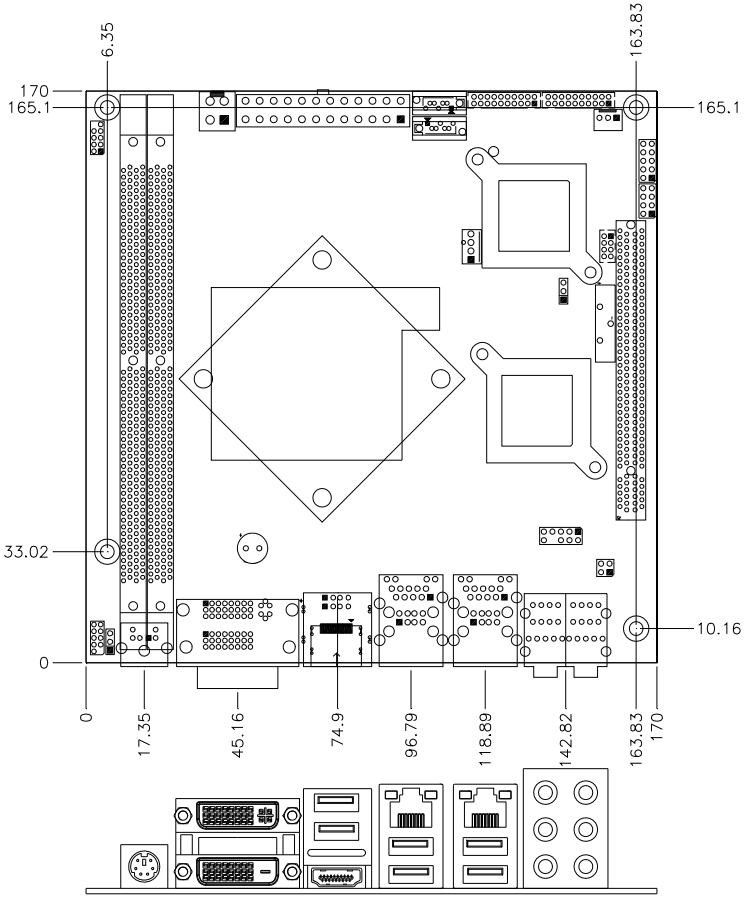
Your MI952 package should include the items listed below.

- The MI952 Mini-ITX motherboard
- This User's Manual
- 1 CD containing chipset drivers and flash memory utility
- Cable kit (USB, Serial port, Serial ATA)

MI952 Specifications

Product Name	**MI952/MI952F (with sideport)**
Form Factor	ITX motherboard
CPU Type	AMD Socket AM2 CPU Single Core Sempron Single Core Athlon 64 Athlon X2 (TDP under 65W)
System Speed	1.0~2.9 GHz
CPU FSB	800~2000MHz
Cache	256~4096 KB L2 cache
BIOS	Award BIOS: supports ACPI Function
Chipset	North Bridge:780E South Bridge: SB710
Memory	2 x DDRII DIMM, Dual Channel, Max. capacity 4GB
VGA	AMD M780**E** built-in Radeon HD3200 IGP w/ 128 MB side port frame buffer (DDR3-800; 32x16) [Optional for MI952F only] Supports full DirectX10.0. Dual concurrent displays (max) **1 x DVI-I** **1 x DVI-D** **1 x HDMI**
Expansion Slots	1x PCIe(x16) slot (x8 actually)
LAN	Realtek RTL8111C PCI-e GbE LAN controller x2
USB	AMD SB710 built-in USB 2.0 host controller, support 8 ports 6 x external ports, 2 ports by pin headers
Audio	AMD SB710 built-in audio controller + HAD ALC888 w/ 7.1 channels
Serial ATA	2 x SATA II connectors; SB710 built-in SATA II Controller
IDE	None
LPC I/O	FINTEK F81865: 4 x COM , Hardware monitor , 2 x FAN connector
RTC/CMOS	SB710 built-in with on board Lithium Battery
Edge Connector	1 x DVI-D + DVI-I connectors (stack) 4 x USB connectors 2x RJ45 connectors 6 x HDA Micro jack Audio connectors (3x2 stack) 2 x USB+HDMI stack connector 1 x PS/2 Mini DIN connector for KB/MS
On Board Headers	1 x pin headers for 2 x USB port 1 x header for front Audio outputs 1 x header for SPDIF in/out 4 x COM 1 x PWR/RST switch Power/HDD LED pin header 1 x System fan pin header (w/Smart fan control) 1 x CPU fan pin header (w/Smart fan control) 1 x GPIO header 4-in/4-out
Watchdog Timer	Yes (256 segments, 0, 1, 2…255. sec/min)
Power Connector	ATX Power connector
RoHS	Yes
PCB Layer	8 Layers
Board Size	170mm x 170mm

Board Dimensions

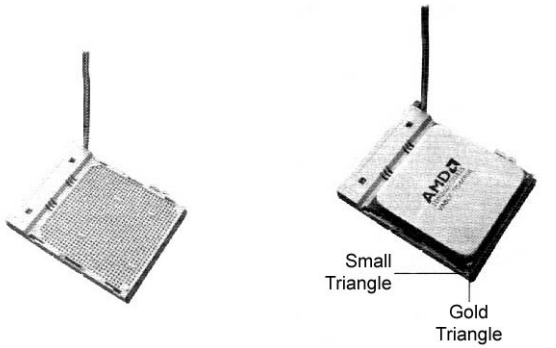


Installations

This section provides information on how to use the jumpers and connectors on the MI952 in order to set up a workable system. The topics covered are:

Installing the CPU

The MI952 board supports a Socket AM2 (940-pin) processor socket for AMD Athlon™ 64 / Athlon™ 64 x2 (dual core) / Sempron™ processors. To install the CPU, unlock first the socket by pressing the lever sideways, then lift it up to a 90-degree angle as shown below. Then, position the CPU above the socket such that the CPU corner aligns with the gold triangle matching the socket corner with a small triangle. Carefully insert the CPU into the socket and push down the lever to secure the CPU. Then, install the heat sink and fan.



***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.*

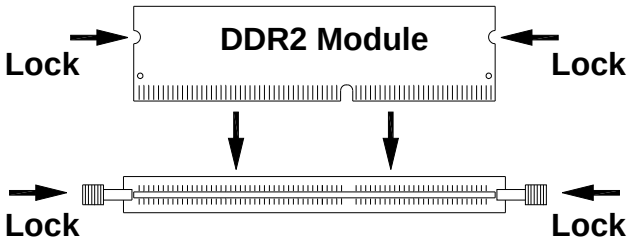
Installing the Memory

The MI952 board supports two DDR2 memory socket for a maximum total memory of 4GB in DDR2 memory type.

Installing and Removing Memory Modules

To install the DDR2 modules, locate the memory slot on the board and perform the following steps:

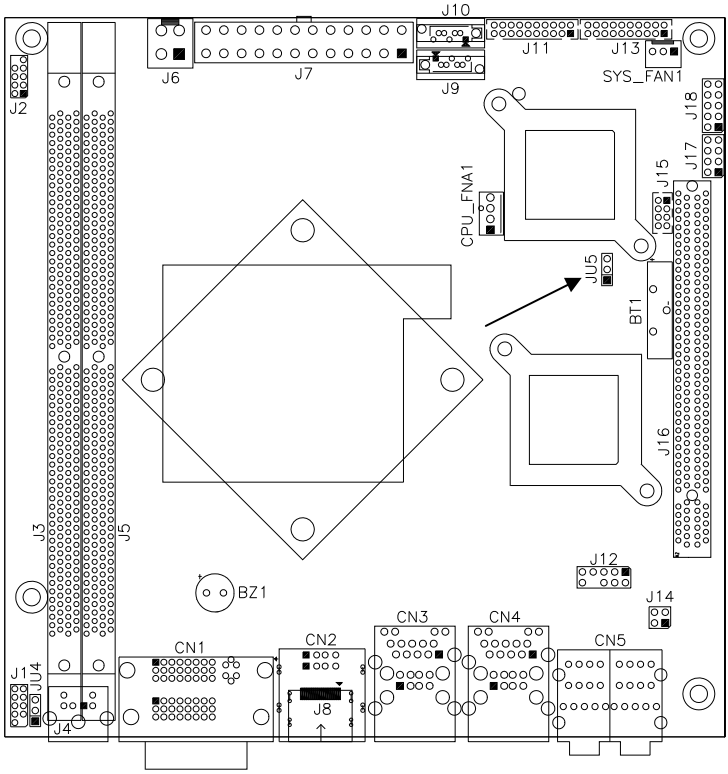
1. Hold the DDR2 module so that the key of the DDR2 module aligned with that on the memory slot.
2. Gently push the DDR2 module in an upright position until the clips of the slot close to hold the DDR2 module in place when the DDR2 module touches the bottom of the slot.
3. To remove the DDR2 module, press the clips with both hands.



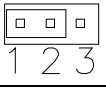
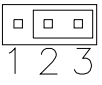
Setting the Jumpers

Jumpers are used on MI952 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 MI952 and their respective functions.

Jumper Locations on MI952

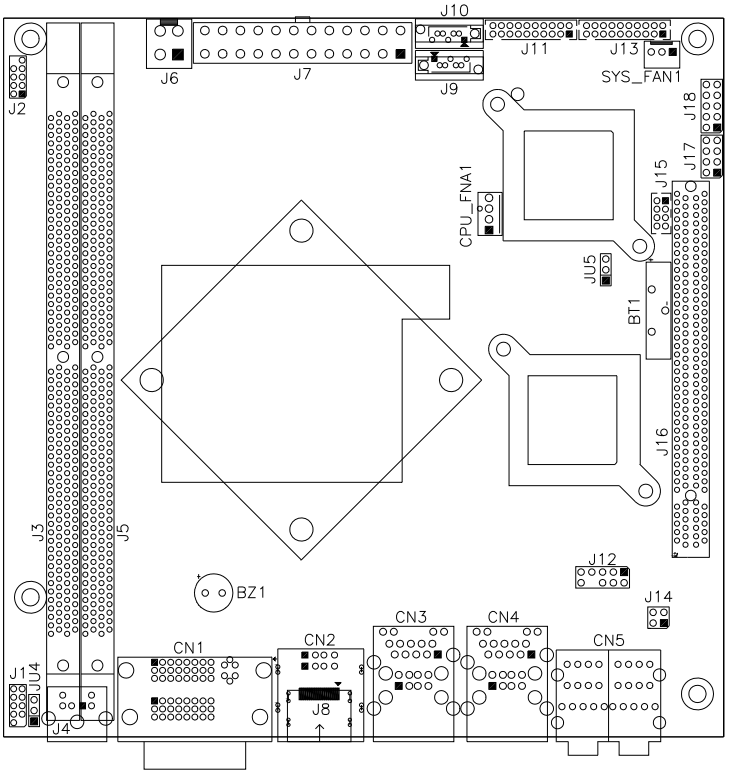


JU5: Clear CMOS Contents

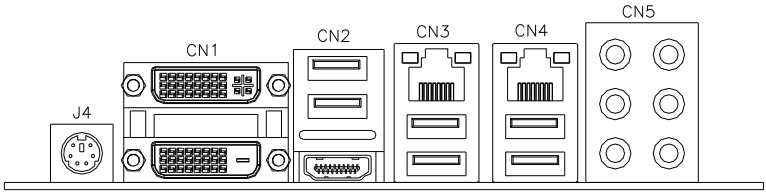
JU5	Setting	Function
	Pin 1-2 Short/Closed	Normal
	Pin 2-3 Short/Closed	Clear CMOS

Connectors on MI952

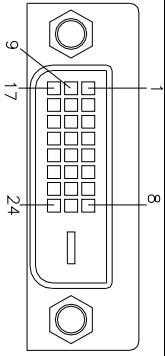
Connector Locations on MI952



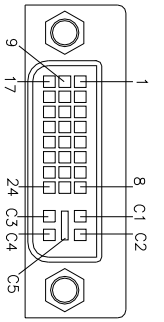
Connector Locations on MI952



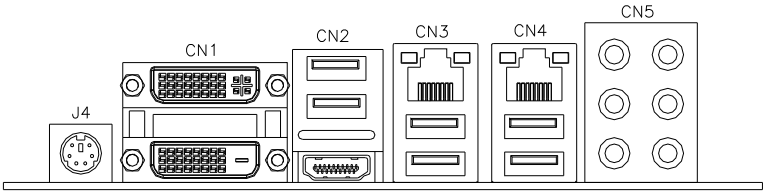
CN1: DVI-D and DVI-I Connector



Signal Name	Pin #	Pin #	Signal Name
DATA 2-	1	16	HOT POWER
DATA 2+	2	17	DATA 0-
Shield 2/4	3	18	DATA 0+
DATA 4-	4	19	SHIELD 0/5
DATA 4+	5	20	DATA 5-
DDC CLOCK	6	21	DATA 5+
DDC DATA	7	22	SHIELD CLK
VSYNC	8	23	CLOCK -
DATA 1-	9	24	CLOCK +
DATA 1+	10	C1	N.C.
SHIELD 1/3	11	C2	N.C.
DATA 3-	12	C3	N.C.
DATA 3+	13	C4	N.C.
DDC POWER	14	C5	N.C.
A GROUND 1	15	C6	N.C.

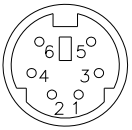


Signal Name	Pin #	Pin #	Signal Name
DATA 2-	1	16	HOT POWER
DATA 2+	2	17	DATA 0-
Shield 2/4	3	18	DATA 0+
DATA 4-	4	19	SHIELD 0/5
DATA 4+	5	20	DATA 5-
DDC CLOCK	6	21	DATA 5+
DDC DATA	7	22	SHIELD CLK
VSYNC	8	23	CLOCK -
DATA 1-	9	24	CLOCK +
DATA 1+	10	C1	A RED
SHIELD 1/3	11	C2	A GREEN
DATA 3-	12	C3	A BLUE
DATA 3+	13	C4	HYNC
DDC POWER	14	C5	A GROUND2
A GROUND 1	15	C6	A GROUND3



J4: PS/2 Keyboard and PS/2 Mouse Connector

J4 uses a Y-cable with dual D-connectors for a PS/2 KB and mouse.



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

CN2: USB4 / USB5 Connectors

On top of the J8 HDMI connector are the stacked USB 4 and USB 5 ports.

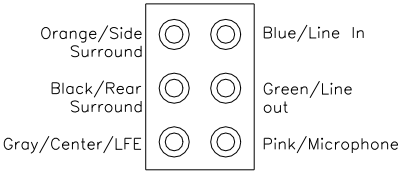
J8: HDMI Connector

Below two stacked USB connectors is the J8 HDMI connector.

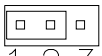
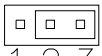
CN3: Gigabit LAN (RTL8111C) RJ45 & USB 2/3

CN4: Gigabit LAN (RTL8111C) RJ45 & USB 0/1

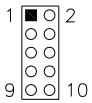
CN5: HD Audio Connector



JU4: SPI Flash select

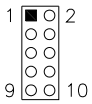
JU4	Setting	Function
	Pin 1-2 Short/Closed	Internal SPI Flash
	Pin 2-3 Short/Closed	External SPI Flash

J1: External SPI flash connecter



Signal Name	Pin	Pin	Signal Name
Key	1	2	NC
CE#	3	4	+3.3VDUAL
Data In	5	6	HOLD#
WP#	7	8	CLK
Ground	9	10	Data Out

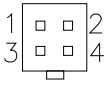
J2: LPC Debug Port



Signal Name	Pin	Pin	Signal Name
LAD0	1	2	PCI RST
LAD1	3	4	LFRAME#
LAD2	5	6	+3.3V
LAD3	7	8	Ground
PCI CLK	9	10	Key

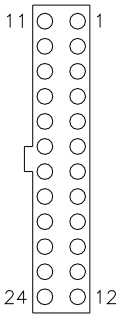
J6: ATX 12V Power Connector

This connector supplies the CPU operating voltage.



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

J7: 24-pin ATX Power Connector

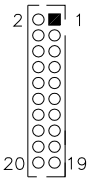


Signal Name	Pin #	Pin #	Signal Name
3.3V	13	1	3.3V
-12V	14	2	3.3V
Ground	15	3	Ground
PS-ON	16	4	+5V
Ground	17	5	Ground
Ground	18	6	+5V
Ground	19	7	Ground
-5V	20	8	Power good
+5V	21	9	5VSB
+5V	22	10	+12V
+5V	23	11	+12V
Ground	24	12	+3.3V

J9, J10: SATAII Connectors

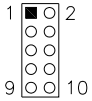
Pin #	Signal Name
1	Ground
2	TX+
3	TX-
4	Ground
5	RX-
6	RX+
7	Ground

J11: COM1, COM2 Serial Port (DF11 Connector)



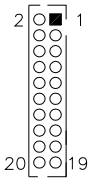
Signal Name	Pin #	Pin #	Signal Name
Data set ready	2	1	Data carrier detect
Request to send	4	3	Receive data
Clear to send	6	5	Transmit data
Ringing indicator	8	7	Data terminal ready
Not used	10	9	Ground
DSR2	12	11	DCD2
RTS2	14	13	RXD2
CTS2	16	15	TXD2
RI2	18	17	DTR2
Not used	20	19	Ground

J12: Audio Pin Header for Chassis Front Panel



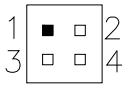
Signal Name	Pin	Pin	Signal Name
MIC IN_L	1	2	Ground
MIC IN_R	3	4	DET
LINE_R	5	6	Ground
Sense	7	8	KEY
LINE_L	9	10	Ground

J13: COM3, COM4 Serial Port (DF11 Connector)



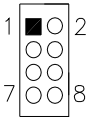
Signal Name	Pin #	Pin #	Signal Name
DSR3 Data set ready	2	1	DCD3 Data carrier detect
RTS3 Request to send	4	3	RXD3 Receive data
CTS3 Clear to send	6	5	TXD3 Transmit data
RI3 Ringing indicator	8	7	DTR3 Data terminal ready
Not used	10	9	Ground
DSR4	12	11	DCD4
RTS4	14	13	RXD4
CTS4	16	15	TXD4
RI4	18	17	DTR4
Not used	20	19	Ground

J14: SPDIF I/O



Pin #	Signal Name
1	SPDIF IN
2	Ground
3	SPDIF OUT
4	Ground

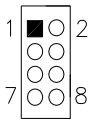
J15: USB6/USB7 Connector



Signal Name	Pin	Pin	Signal Name
Vcc	1	2	Ground
D0-	3	4	D1+
D0+	5	6	D1-
Ground	7	8	Vcc

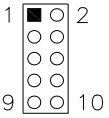
J16: PCI-E X16 slot (X8 LINK)

J17: Front Panel



Signal Name	Pin #	Pin #	Signal Name
Power BTN	1	2	Power BTN
HDD LED	3	4	HDD LED
Reset BTN	5	6	Reset BTN
Power LED	7	8	Power LED

J18: Digital I/O Connector (4 in, 4 out)

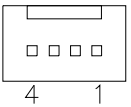


Signal Name	Pin #	Pin #	Signal Name
Ground	1	2	+5V
Out3	3	4	Out1
Out2	5	6	Out0
IN3	7	8	IN1
IN2	9	10	IN0

J5: DDR II DIMM Socket CHA

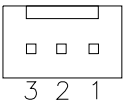
J3: DDR II DIMM Socket CHB

CPU_FAN1: CPU Fan Power Connector



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

SYS_FAN1: system Fan1 Power Connector



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

BIOS Setup

This chapter describes the different settings available in the Award BIOS that comes with the board. 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 various processors. The BIOS provides critical low-level support for a standard device such as disk drives, and serial 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.

Phoenix - AwardBIOS CMOS Setup Utility

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

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

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

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

Standard CMOS Setup

"Standard CMOS Setup" choice allows you to record some basic hardware configurations in your computer system and set the system clock and error handling. If the 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.

Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Wed, Apr 28, 2007	Item Help
Time (hh:mm:ss)	00 : 00 : 00	Menu Level >
IDE Channel 0 Master	None	
IDE Channel 0 Slave	None	
IDE Channel 2 Master	None	
IDE Channel 2 Slave	None	
IDE Channel 3 Master	None	
IDE Channel 3 Slave	None	Change the day, month, Year and century
Halt On	All, but keyboard	
Base Memory	640K	
Extended Memory	129024K	
Total Memory	130048K	

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

Date

The date format is:

Day :	**Sun to Sat**
Month :	**1 to 12**
Date :	**1 to 31**
Year :	**1999 to 2099**

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

Time

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

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

IDE Channel Master/Slave

The onboard PCI IDE connector provides Primary and Secondary channels for connecting up to two IDE hard disks or other IDE devices.

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

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

Remarks: The main board supports two serial ATA ports and are represented in this setting as IDE Channel 0.

Halt On

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

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

Advanced BIOS Features

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

Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features

		ITEM HELP
CPU Feature	Press Enter	
Hard Disk Boot Priority	Press Enter	
Virus Warning	Disabled	
CPU Internal Cache	Enabled	
External Cache	Enabled	
Quick Power On Self Test	Enabled	
First Boot Device	Hard Disk	
Second Boot Device	CDROM	
Third Boot Device	USB-CDROM	
Boot Other Device	Enabled	
Boot Up NumLock Status	On	
Gate A20 Option	Fast	
Typematic Rate Setting	Disabled	
Typematic Rate (Chars/Sec)	6	
Typematic Delay (Msec)	250	
Security Option	Setup	
APIC Mode	Enabled	
MPS Version Control for OS	1.4	
OS Select For DRAM>64MB	Non-OS2	
HDD S.M.A.R.T. Capability	Disabled	

CPU Feature

Press Enter to configure the settings relevant to CPU Feature.

Hard Disk Boot Priority

With the field, there is the option to choose, aside from the hard disks connected, "Bootable add-in Cards" which refers to other external devices.

Virus Warning

If this option is enabled, an alarm message will be displayed when trying to write on the boot sector or on the partition table on the disk, which is typical of the virus.

CPU Internal and External Cache

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

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*, *LS120*, *Hard Disk*, *CDROM*, *ZIP100*, *USB-Floppy*, *USB-ZIP*, *USB-CDROM*, *LAN* and *Disable*.

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

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

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

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

Typematic Rate (Chars/Sec)
When the typematic rate is enabled, the system registers repeated keystrokes speeds. Settings are from 6 to 30 characters per second.

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

Security Option

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

APIC Mode

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

MPS Version Control for OS

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

OS Select for DRAM > 64MB

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

HDD S.M.A.R.T. Capability

By default, this field is disabled.

Advanced Chipset Features

This Setup menu controls the configuration of the chipset.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features

PCIE Configuration	Press Enter	ITEM HELP
IGX Configuration	Press Enter	
Init Display First	IGX	
NB Power Management	Auto	
Memory Hole	Disabled	
System BIOS Cacheable	Disabled	

Phoenix - AwardBIOS CMOS Setup Utility
IGX Configuration

Internal Graphic Mode	UMA	ITEM HELP
UMA Frame Buffer Size	Auto	
IGX Engine Clock Override	Disable	
IGX Engine Clock	500	
NB Azalia	Enable	
Video Display	DFP1+DFP2	

PCIE Configuration

The fields under PCIE Configuration features settings for *Primary Dual Slot Config, GPP Slots Power Limit, GFX ports, GPPs and NB-SB port features.*

Internal Graphics Mode

There are two different setting selections for MI952 and MI952F. The settings for MI952 are *Disabled* and *UMA*; while the MI952F has additional settings of *Sideport* and *UMA+sideport.*

Init Display First

The default setting is ***IGX***.

NB Power Management

The default setting is ***Auto***.

Memory Hole At 15M-16M

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16 MB. The choices are *Enabled* and *Disabled*.

System BIOS Cacheable

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

Integrated Peripherals

This section sets configurations for your hard disk and other integrated peripherals. The first screen shows three main items for user to select. Once an item selected, a submenu appears. Details follow.

Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals

CImx-SB700 Revision	4.7.0	ITEM HELP
Onboard Device	Press Enter	
Onboard SATA Device	Press Enter	Menu Level >
Onboard Serial Port 1	3F8/IRQ4	
Onboard Serial Port 2	2F8/IRQ3	
Onboard Serial Port 3	3E8/IRQ4	
Onboard Serial Port 4	2F8/IRQ3	
PWRON after PWR-Fail	OFF	
USB Device Setting	Press Enter	

Phoenix - AwardBIOS CMOS Setup Utility
Onboard Devices

Onboard Realtek NIC	Enabled	ITEM HELP
Onboard Lan Boot ROM	Disabled	
		Menu Level >

Phoenix - AwardBIOS CMOS Setup Utility
OnChip SATA Device

OnChip SATA Controller	Enabled	
OnChip SATA Type	IDE	
Combined Mode	Disable	Menu Level >

Phoenix - AwardBIOS CMOS Setup Utility
USB Device setting

USB 1.0 Controller	Enable	ITEM HELP
USB 2.0 Controller	Enable	
USB Keyboard Function	Enabled	
USB Mouse	Enabled	
USB Storage Function	Enabled	

Onboard Serial Port

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

Serial Port 1	3F8/IRQ4
Serial Port 2	2F8/IRQ3
Serial Port 3	3E8/IRQ4
Serial Port 4	2E8/IRQ3

PWRON After PWR-Fail

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

Power Management Setup

Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup

		ITEM HELP
ACPI Function	Enabled	
ACPI Suspend	S1&S3	
C2 Disable/Enable	Disabled	
MODEM Use IRQ	3	
Soft-Off by PWR-BTN	Instant-Off	
PowerON by PCI Card	Disabled	
Modem Ring Resume	Disabled	
ACPI XSDT Table	Enabled	
HPET Support	Enabled	
RTC Alarm Resume	Disabled	
Date (of Month)	0	
Resume Time Alarm (hh:mm:ss)	0 : 0 : 0	

C2 Disable/Enable

The default setting of this field is ***Disabled***.

Soft-Off by PWRBTN

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

HPET Support

HPET, or High Precision Event Timer (formerly known as Multimedia Timer) is a hardware timer that is supported under Linux and Windows Vista. It can produce periodic interrupts at a much higher resolution than the RTC and is often used to synchronize multimedia streams, providing smooth playback and reducing the need to use other timestamp calculations such as an x86 CPU's RDTSC instruction.

PNP/PCI Configurations

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

Phoenix - AwardBIOS CMOS Setup Utility
PnP/PCI Configurations

		ITEM HELP
Reset Configuration Data	Disabled	
Resources Controlled By	Auto (ESCD)	
IRQ Resources	Press Enter	IRQ Resources
PCI/VGA Palette Snoop	Disabled	
Assign IRQ For VGA	Enabled	
Assign IRQ For USB	Enabled	
PCI Latency Timer(CLK)	64	
Maximum Payload Size	4096	

Reset Configuration Data

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

Resources Controlled by

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

PCI/VGA Palette Snoop

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

Assign IRQ for VGA/USB

The default value is ***Enabled***

PCI Latency

PCI latency refers to the number of cycles that any device can hold an IRQ before it is disconnected.

Maximum Payload Size

The default setting of the PCI Express Maximum Payload Size is 4096.

PC Health Status

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

Phoenix - AwardBIOS CMOS Setup Utility
PC Health Status

		ITEM HELP
Shutdown Temperature	Disabled	
+3.3V	3.29V	
Vcore	1.35V	
+5V	4.95V	Menu Level >
+12V	11.65V	
+1.8V	1.80V	
+3.3V VSB	3.28V	
+3.3V VBAT	3.24V	
CPU Temperature	43°C	
SYS Temperature	41°C	
CPU Fan Speed	0RMP	
SYS Fan Speed	5338RPM	
CPU Smart Fan	Auto Mode	
CPU Fan Temp	30°C/86°F	
SYS Smart Fan	Auto Mode	
Sys Fan Temp	30°C/86°F	

Shutdown Temperature

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

Temperatures/Voltages

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

Smart Fan Temperature

This field enables or disables the smart fan feature. At a certain temperature, the fan starts turning. Once the temperature drops to a certain level, it stops turning again.

Frequency/Voltage Control

Phoenix - AwardBIOS CMOS Setup Utility
Frequency/Voltage Control

Spread Spectrum	Disabled	ITEM HELP
		Menu Level >

Spread Spectrum

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

Load Fail-Safe Defaults

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

Load 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.

Set Supervisor Password

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

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

Save & Exit Setup

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

Exit Without Saving

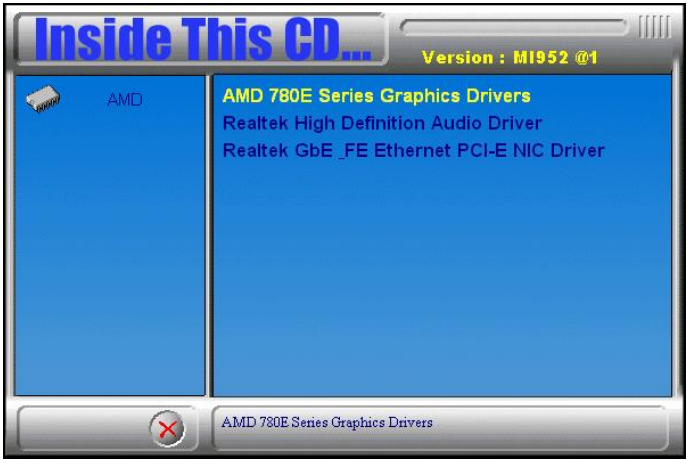
Select this option to exit the Setup utility without saving the changes you have made in this session. Typing “Y” will quit the Setup utility without saving the modifications. Typing “N” will return you to Setup utility.

Drivers Installation

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

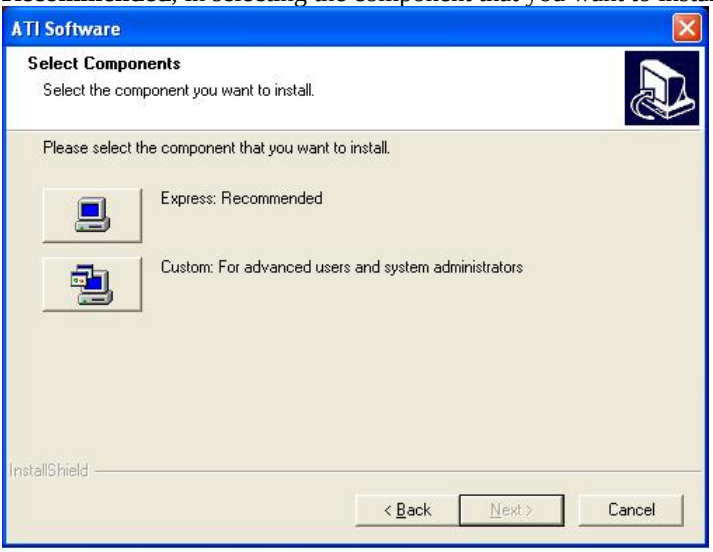
VGA Drivers Installation

1. Insert the CD that comes with the board. Click ***AMD*** and click ***AMD 780E Series Graphics Drivers***.



2. In the Welcome screen, click **Next** to continue. Then, in the License Agreement screen, also click **Yes** to continue.

3. When the **Select Components** screen appears, click **Express: Recommended**, in selecting the component that you want to install.

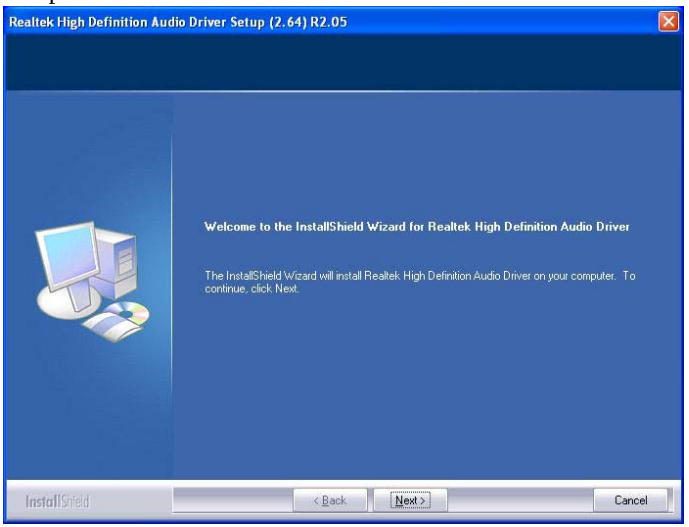


4. When the message regarding Windows Logo testing appears, click **Continue Anyway** to proceed with the driver installation. Setup is now complete. Click **Finish** to restart the computer.

Realtek High Definition Codec Audio Driver Installation

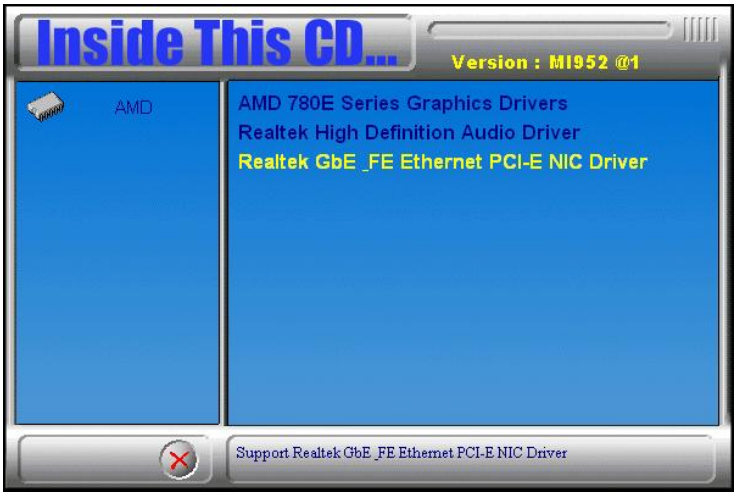
1. Insert the CD that comes with the board. Click ***AMD*** and click **Realtek High Definition Codec Audio Driver**.

2. In the **Welcome** screen, click **Next** to continue. After the driver installation is complete, click **Finish** on the next screen to restart the computer.

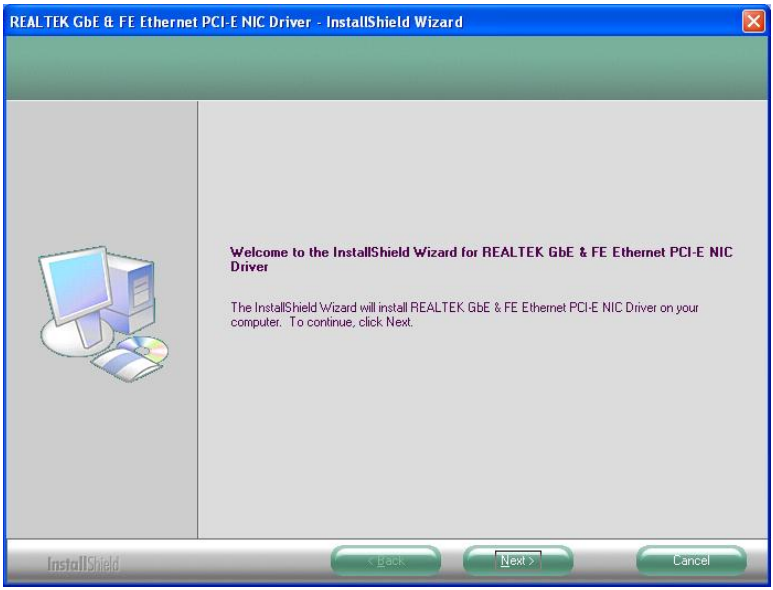


LAN Drivers Installation

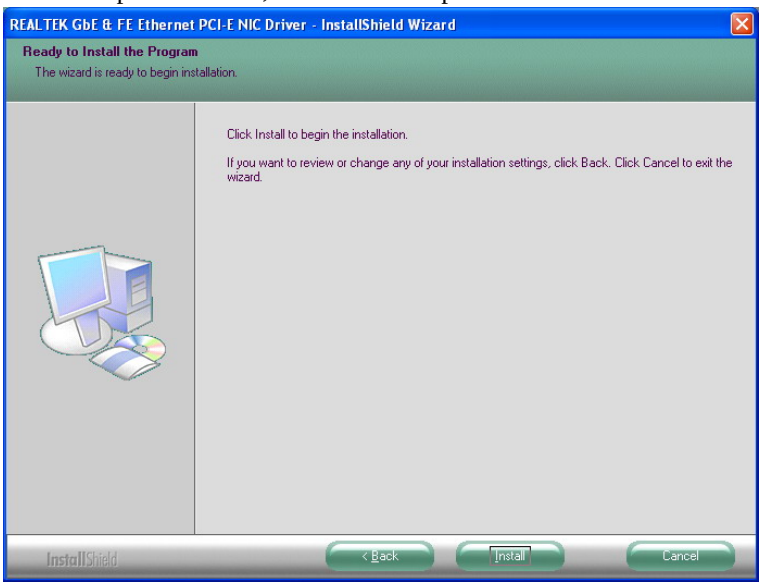
1. Insert the driver CD that comes with the board. Click ***AMD*** and click ***Realtek GbE_FE Ethernet PCI-E NIC Driver***.



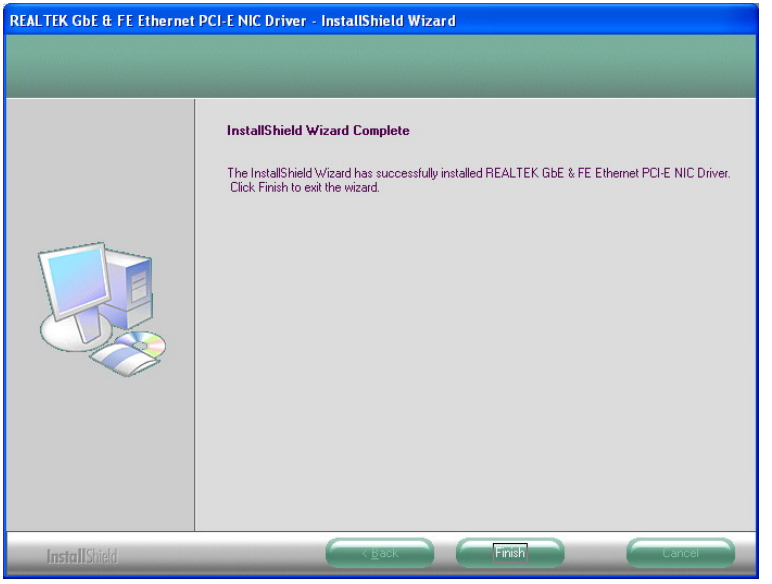
2. When the Welcome screen of the **InstallShield Wizard** appears, click **Next** to continue.



3. On the next screen, you are asked to click **Install** to begin the installtion process. Now, click **Install** to proceed.



4. Installation is now complete, click **Finish** to exit the InstallShield Wizard.



Appendix

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.

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
2E8h - 2FFh	Serial Port #4(COM4)
2F8h - 2FFh	Serial Port #2(COM2)
2B0 - 2DF	Graphics adapter Controller
3C0 - 3CF	EGA adapter
3D0 - 3DF	CGA adapter
3E8h – 3EFh	Serial Port #3(COM3)
3F8h - 3FFh	Serial Port #1(COM1)

B. Interrupt Request Lines (IRQ)

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

Level	Function
IRQ0	System Timer Output
IRQ1	Keyboard
IRQ2	Interrupt Cascade
IRQ3	Serial Port #2, 4
IRQ4	Serial Port #1, 3
IRQ5	Reserved
IRQ6	Reserved
IRQ8	Real Time Clock
IRQ9	Reserved
IRQ10	Reserved
IRQ11	Reserved
IRQ12	PS/2 Mouse
IRQ13	80287
IRQ14	Primary IDE
IRQ15	Secondary IDE

C. Watchdog Timer Configuration

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

SAMPLE CODE:

```
//---------------------------------------------------------------------------
// THIS CODE AND INFORMATION IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY
// KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE
// IMPLIED WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR
// PURPOSE.
//---------------------------------------------------------------------------
#include <dos.h>
#include <conio.h>
#include <stdio.h>
#include <stdlib.h>
#include "F81865.H"
//---------------------------------------------------------------------------
int main (int argc, char *argv[]);
void EnableWDT(int);
void DisableWDT(void);
//---------------------------------------------------------------------------
int main (int argc, char *argv[])
{
            unsigned char bBuf;
            unsigned char bTime;
            char **endptr;

            char SIO;

            printf("Fintek 81865 watch dog program\n");

            SIO = Init_F81865();
            if (SIO == 0)
            {
                        printf("Can not detect Fintek 81865, program abort.\n");
                        return(1);
            }//if (SIO == 0)

            if (argc != 2)
            {
                        printf(" Parameter incorrect!!\n");
                        return (1);
            }

            bTime = strtol (argv[1], endptr, 10);
            printf("System will reset after %d seconds\n", bTime);

            if (bTime)
            {           EnableWDT(bTime);   }
            else
            {           DisableWDT();       }

            return 0;
}
//---------------------------------------------------------------------------
void EnableWDT(int interval)
{
            unsigned char bBuf;

            bBuf = Get_F81865_Reg(0x2B);
            bBuf &= (~0x20);
            Set_F81865_Reg(0x2B, bBuf);  //Enable WDTO
```

```
            Set_F81865_LD(0x07);        //switch to logic device 7
            Set_F81865_Reg(0x30, 0x01);  //enable timer

            bBuf = Get_F81865_Reg(0xF5);
            bBuf &= (~0x0F);
            bBuf |= 0x52;
            Set_F81865_Reg(0xF5, bBuf);  //count mode is second

            Set_F81865_Reg(0xF6, interval);  //set timer

            bBuf = Get_F81865_Reg(0xFA);
            bBuf |= 0x01;
            Set_F81865_Reg(0xFA, bBuf);    //enable WDTO output

            bBuf = Get_F81865_Reg(0xF5);
            bBuf |= 0x20;
            Set_F81865_Reg(0xF5, bBuf);    //start counting
}
//-----------------------------------------------------------------------------
void DisableWDT(void)
{
            unsigned char bBuf;

            Set_F81865_LD(0x07);        //switch to logic device 7

            bBuf = Get_F81865_Reg(0xFA);
            bBuf &= ~0x01;
            Set_F81865_Reg(0xFA, bBuf);  //disable WDTO output

            bBuf = Get_F81865_Reg(0xF5);
            bBuf &= ~0x20;
            bBuf |= 0x40;
            Set_F81865_Reg(0xF5, bBuf);    //disable WDT
}
//-----------------------------------------------------------------------------



//-----------------------------------------------------------------------------
//
// THIS CODE AND INFORMATION IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY
// KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE
// IMPLIED WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR
// PURPOSE.
//
//-----------------------------------------------------------------------------
#include "F81865.H"
#include <dos.h>
//-----------------------------------------------------------------------------
unsigned int F81865_BASE;
void Unlock_F81865 (void);
void Lock_F81865 (void);
//-----------------------------------------------------------------------------
unsigned int Init_F81865(void)
{
            unsigned int result;
            unsigned char ucDid;

            F81865_BASE = 0x4E;
            result = F81865_BASE;

            ucDid = Get_F81865_Reg(0x20);
            if (ucDid == 0x07)                                  //Fintek 81865
            {           goto Init_Finish; }

            F81865_BASE = 0x2E;
            result = F81865_BASE;

            ucDid = Get_F81865_Reg(0x20);
            if (ucDid == 0x07)                                  //Fintek 81865
            {           goto Init_Finish; }

            F81865_BASE = 0x00;
            result = F81865_BASE;
```

```
Init_Finish:
            return (result);
}
//---------------------------------------------------------------------------
void Unlock_F81865 (void)
{
            outportb(F81865_INDEX_PORT, F81865_UNLOCK);
            outportb(F81865_INDEX_PORT, F81865_UNLOCK);
}
//---------------------------------------------------------------------------
void Lock_F81865 (void)
{
            outportb(F81865_INDEX_PORT, F81865_LOCK);
}
//---------------------------------------------------------------------------
void Set_F81865_LD( unsigned char LD)
{
            Unlock_F81865();
            outportb(F81865_INDEX_PORT, F81865_REG_LD);
            outportb(F81865_DATA_PORT, LD);
            Lock_F81865();
}
//---------------------------------------------------------------------------
void Set_F81865_Reg( unsigned char REG, unsigned char DATA)
{
            Unlock_F81865();
            outportb(F81865_INDEX_PORT, REG);
            outportb(F81865_DATA_PORT, DATA);
            Lock_F81865();
}
//---------------------------------------------------------------------------
unsigned char Get_F81865_Reg(unsigned char REG)
{
            unsigned char Result;
            Unlock_F81865();
            outportb(F81865_INDEX_PORT, REG);
            Result = inportb(F81865_DATA_PORT);
            Lock_F81865();
            return Result;
}
//---------------------------------------------------------------------------




//---------------------------------------------------------------------------
//
// THIS CODE AND INFORMATION IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY
// KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE
// IMPLIED WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR
// PURPOSE.
//
//---------------------------------------------------------------------------
#ifndef __F81865_H
#define __F81865_H                                              1
//---------------------------------------------------------------------------
#define      F81865_INDEX_PORT                      (F81865_BASE)
#define      F81865_DATA_PORT                       (F81865_BASE+1)
//---------------------------------------------------------------------------
#define      F81865_REG_LD                                      0x07
//---------------------------------------------------------------------------
#define F81865_UNLOCK                               0x87
#define      F81865_LOCK                                        0xAA
//---------------------------------------------------------------------------
unsigned int Init_F81865(void);
void Set_F81865_LD( unsigned char);
void Set_F81865_Reg( unsigned char, unsigned char);
unsigned char Get_F81865_Reg( unsigned char);
//---------------------------------------------------------------------------
#endif       //__F81865_H
```