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Packing List

Thank you very much for choosing our products. Please check your package completely as the following item checklist first, if you find any components lost or damaged, please contact your retailer.

■ MITX-6891 motherboard	1pcs
■User's Manual	1pcs
■Drive Disk	1pcs
■SATA Data Cable	2pcs
■Serial port converts cable	1pcs
■Jumpers	4pcs



Chapter 1

General Information

Chapter1 General Information

1.1 Introduction

MITX-6891 is High Performance Mini-ITX motherboard based on Intel G45+ICH10 chipset ,supports Intel® Virtualization Technology LGA775 Intel® Core™2 Duo、Intel® Core™2 Quad and Intel® Celeron®440 (Conroe-L) processor. .MITX-6891 has two 240-pin DDRIII 800/1066MHz DIMM socket support system memory max. upto 2GB. Northbridge integrated Intel GMA X4500, 4xDVI video output (3x DVI-D, 1x DVI-I). Networks using Marvell PCIe Gigabit PHY 88E8075 chip support WOL, PXE, DASH technology to provide an RJ-45 Gigabit LAN PCIe_1X to support 10/100/1000 Mbps self-adaptive , Provide two SATA II , seven USB2.0, one COM etc.

MITX-6891 is an integrated powerful computing platform with standard digital input/output ports、Mini PCI-E slot、IrDA、Watchdog Timer. It is specially suitable for POS、kiosk、ATM and Rail Transportation applications.

1.2 Specifications

Configuration Standard

- Mini-ITX Standard motherboard

Dimensions

- 170mm X 170mm (L×W)

Processor

- Supports the Intel® Core™2 Duo and Intel® Core™2 Quad processors with Intel® Virtualization Technology, and Intel® Celeron®440 (Conroe-L) processor
- FSB: 800/1066/1333MHz

Chipset

- North Bridge: Intel®G45 Express chips
- South Bridge: Intel®ICH10
- The DMI interface connected the South and North Bridge, and support upto 2GB/s data transmission speed. This interface has increased the data transmission speed of the system.

Display

- Chipset: Intel®G45 integration Intel® Graphics Media Accelerator X4500HD
- DVI: Onboard DVI Display Controller (G45 integration), 3x DVI-D output, 1x DVI-I output (DVI-I Signal can be converted to VGA signal). Support resolution up to 2560x1600

RAM

- MITX-6891 has two 240 Pin DIMM DDRIII 800/1066MHz socket support system memory max. upto 4GB.
- No Support ECC
- Supporting DDRIII800MHz, its bandwidth can reach up to 12.8GB/s in dual channel model
- Supporting DDRIII1066MHz, its bandwidth can reach up to 17GB/s in dual channel model

Storage

- 2x Serial ATAII Ports, The transfer speed is up to 300MB/s

LAN

- Chipset:Marvell PCIe Gigabit PHY 88E8075, Supports WOL,PXE,DASH technology
- 1x GbE PCIE_1X NIC, Support 10/100/1000 Mbps adapting
- 1x RJ45 port

Audio

- Chipset: ALC888
- Audio Controller: Supports AC97 Audio stereo sound
- Audio Interface:Speaker out, MIC-IN

USB Port

- 7x USB2.0 ports, The transfer speed is up to 480Mbps
- Backpanel 4x USB ports
- 3 group 1x5Header ports, can convert to 3x standard USB ports

Expansion slot

- 1x Mini PCI-E slot

I/O Functions

- IO Chipset: Winbond W83627DHG
- Provide One 2x5Pin serial port, support RS232
- Norma PS/2 keyboard and mouse port
- 1x IrDA port
- Programmable input/output interfaces, 2x6Pin, 6input/6output

Power Supply

- +12V plug + Standard ATX PowerSupply

Watchdog

- Support H/W reset function

BIOS

- 8MB SPI Flash BIOS
- Support ACPI Power manage

Environmental

- Operate Temp: 0-60°C
- Storage Temp.: -40-85°C
- Operating Humidity: 5%-95%



Chapter 2

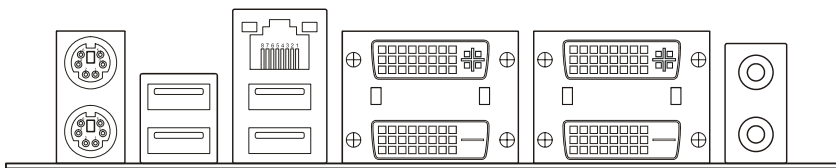
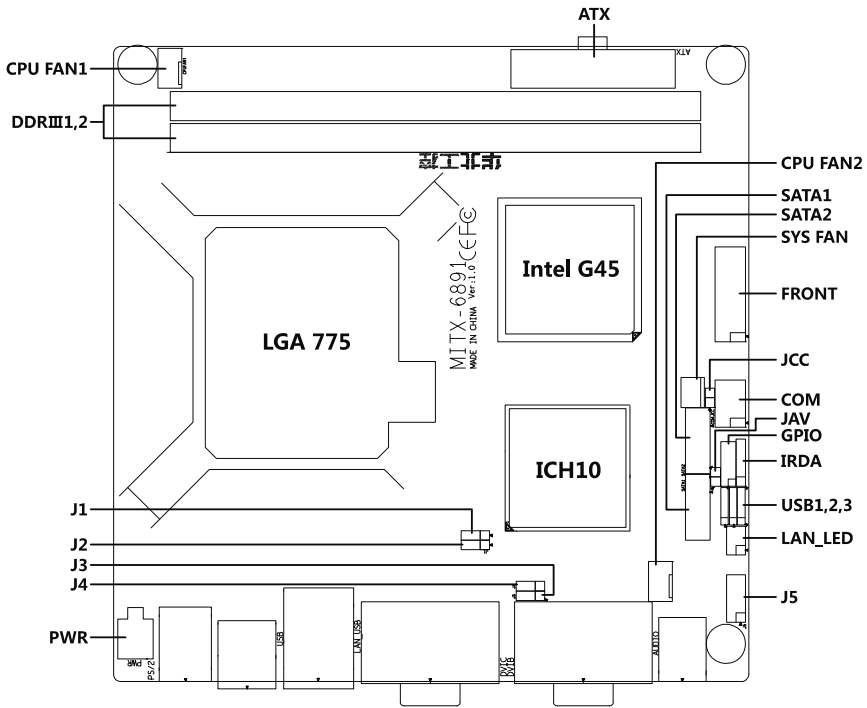
Installation Instructions

Chapter2 Installation Instructions

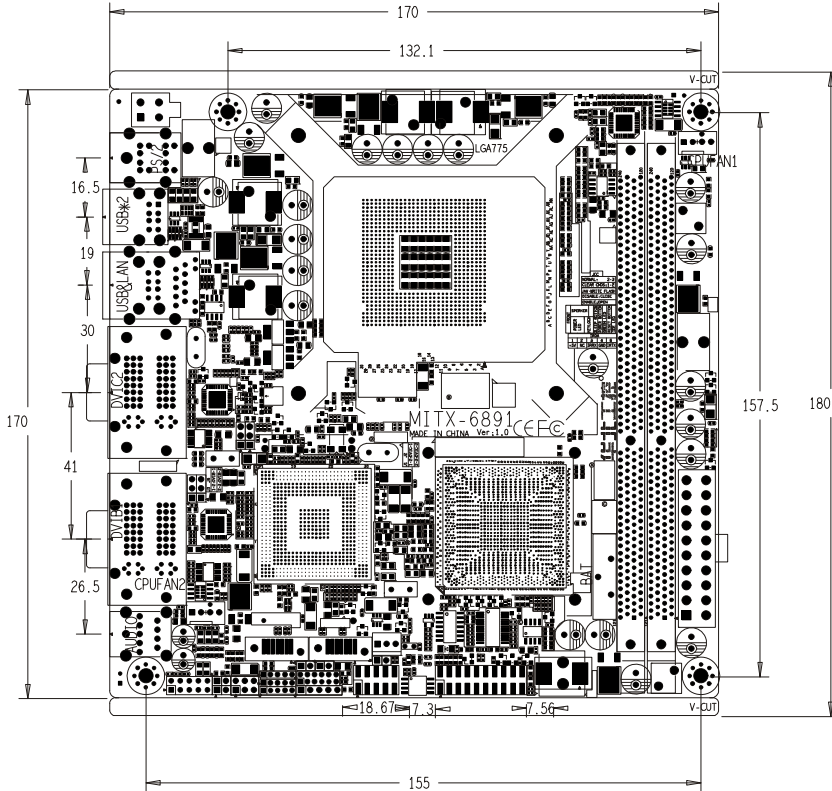
2.1 Connector Locations and Dimensions

The following picture is interface index for MITX-6891, when you install your devices, please consult it and read the following guide. During installation please care: for some devices, if incorrectly install, it will not work normally.

Notice: During installation, in order to protect the part of board, please put on antistatic gloves.



MITX-6891 Connectors Locations



MITX-6891 Dimensions

2.2 Installation Steps

Please refer to the following steps to install your computer:

1. Adjust all Jumpers on the MITX-6891 per this manual.
2. Installing System memory
- 3: Installing CPU and CPUFAN
4. Connect all of the signal line, cable, panel-control circuitry and power supply
5. Finish BIOS setup

⚠ Key components of this motherboard are Integrated circuit, and these components will be easily damaged by electrostatic influence. So, before installing motherboard, you should always follow the following precautions:

1. Disconnect your Computer from the power supply before handling it.
2. Hold side by the edges; don't touch any component or pins on the board
3. Use a grounded wrist strap while getting in touch with integrated circuit component (like as CPU, RAM).
4. Place components on a grounded antistatic bag that came with the Single Board Computer, when these components are separated from the system.

2.3 2.3 Installing a DIMM

CAUTION: Unplug the power supply before adding or removing DIMMs or other system components. Failure to do so can cause severe damage to both the motherboard and the components.

To install a DIMM:

1. Unlock a DIMM socket by pressing the retaining clips outward.
2. Align a DIMM on the socket such that the notch on the DIMM matches the break on the socket.
3. Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM is properly seated.

IMPORTANT:

- A DDRIII DIMM is keyed with a notch so that it fits in only one direction. Do not force a DIMM into a socket to avoid damaging the DIMM.
- The DDRIII DIMM sockets do not support DDR/DDR II DIMMs. Do not install DDR/DDR II DIMMs to the DDRIII DIMM sockets.

2.4 Central Processing Unit (CPU)

The motherboard comes with a surface mount LGA775 socket designed for the Intel processors.

NOTE:

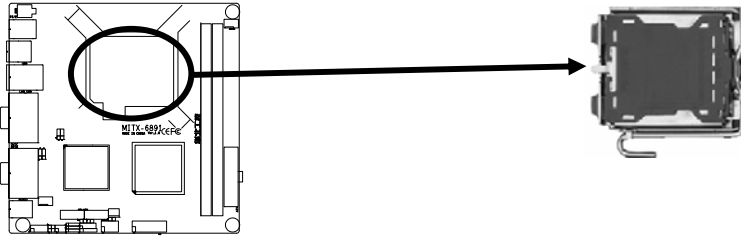
- 1: Make sure that all power cables are unplugged before installing the CPU.
- 2: Connect the chassis fan cable to the CHA_FAN1 connector to ensure system stability.
- 3: Ensure this motherboard support the CPU you choose, if the direction you inserted was wrong, CPU may be damaged. After system boot, BIOS will examine CPU type and frequency automatically, BIOS setting won't allow you change the CPU frequency, in order to make

system work steadily, please set your CPU exterior frequency by its specification, and we don't suggest you over clock your CPU. At present most Intel ® CPU frequency multiplication have been set when them leave factory, can not be changed.

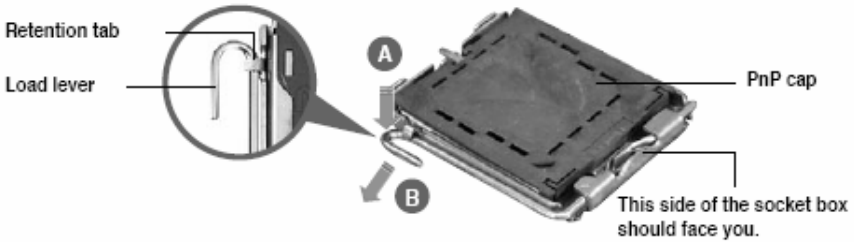
2.4.1 Installing the CPU

To install a CPU:

1: Locate the CPU socket on the motherboard

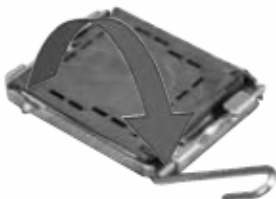


2: Press the load lever with your thumb (A), then move it to the left (B) until it is released from the retention tab.

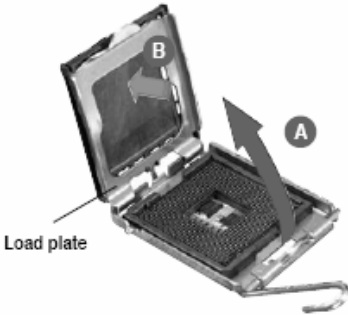


NOTE: To prevent damage to the socket pins, do not remove the PnP cap unless you are installing a CPU.

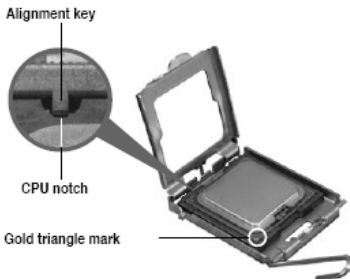
3: Lift the load lever in the direction of the arrow to a 135° angle.



4: Lift the load plate with your thumb and forefinger to a 100° angle (A), then push the PnP cap from the load plate window to remove (B).



5: Position the CPU over the socket, making sure that the gold triangle is on the bottom-left corner of the socket then fit the socket alignment key into the CPU notch.



NOTE: The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU!

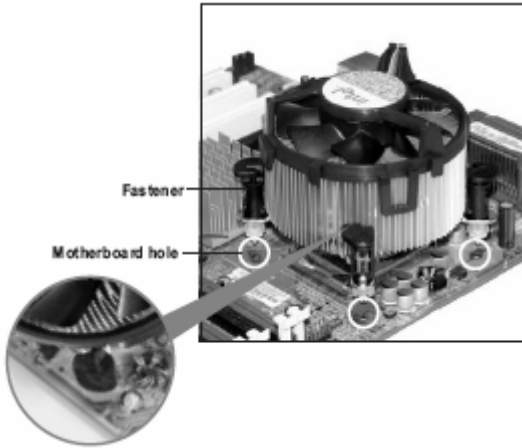
6: Close the load plate (A), then push the load lever (B) until it snaps into the retention tab.



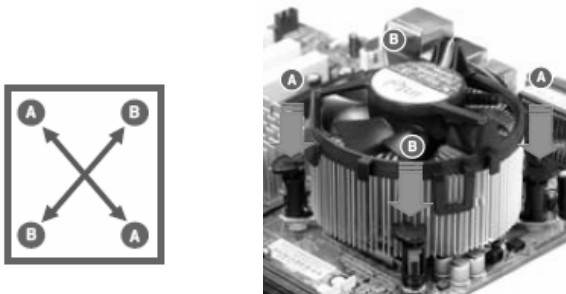
2.4.2 Installing the CPU heatsink and fan

To install the CPU heatsink and fan::

1: Place the heatsink on top of the installed CPU, making sure that the four fasteners match the holes on the motherboard.



2: Push down two fasteners at a time in a diagonal sequence to secure the heatsink and fan assembly in place.



3: Connect the CPU fan cable to the connector on the motherboard labeled CPU_FAN. Do not forget to connect the CPU fan connector! Hardware monitoring errors can occur if you fail to plug this connector.

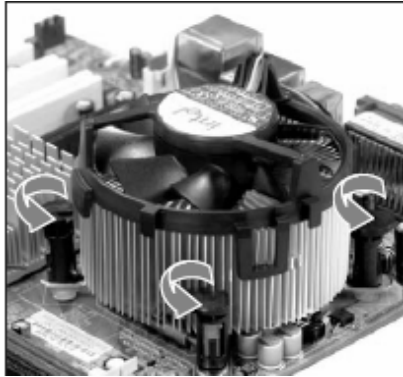
NOTE: Before fixing, daub coolant on the surface of the heat sink connect CPU first to swell the cooling function, check CPU work on or not regularly, to insure the CPU in good ventilate

situation.

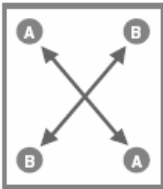
2.3.3 Uninstalling the CPU heatsink and fan

To uninstall the CPU heatsink and fan:

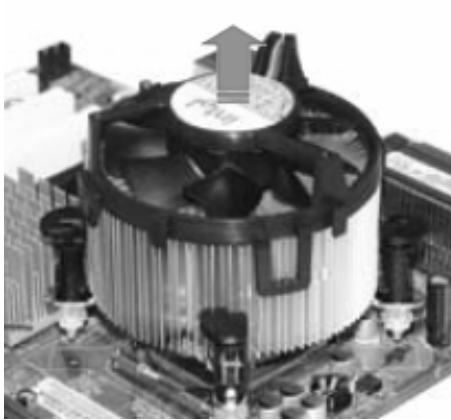
- 1: Disconnect the CPU fan cable from the connector on the motherboard.
- 2: Rotate each fastener counterclockwise.



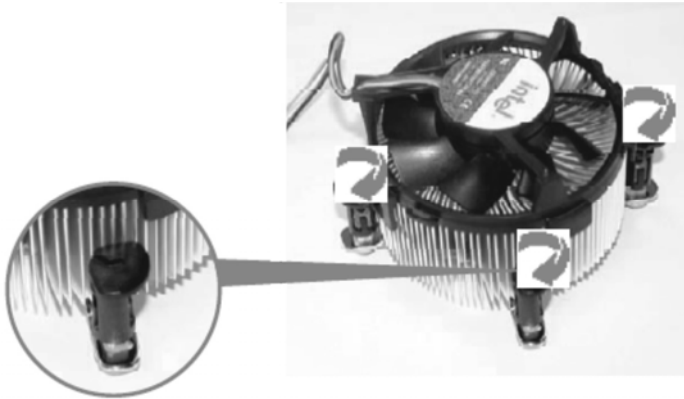
- 3: Pull up two fasteners at a time in a diagonal sequence to disengage the heatsink and fan assembly from the motherboard.



- 4: Carefully remove the heatsink and fan assembly from the motherboard.



5: Rotate each fastener clockwise to ensure correct orientation when reinstalling.



The narrow end of the groove should point outward after resetting. (The photo shows the groove shaded for emphasis.).



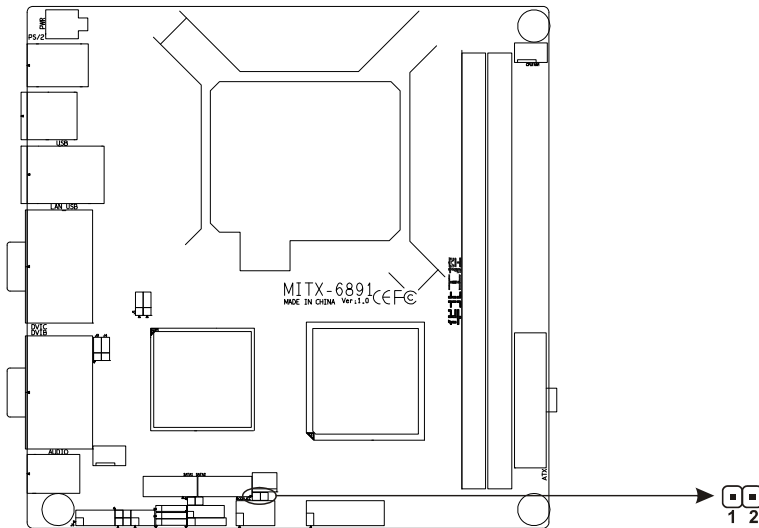
2.5 Setting Jumpers

Jumpers are located on the motherboard, they represent clear CMOS jumper JCC etc. pin1 for all jumpers are located on the side with a thick white arrow refer to the motherboard's silkscreen , jumpers with three pins will be shown as 1-2 to represent pin1&pin2 connected and 2-3 to represent pin2&pin3 connected.


2.5.1 Clear CMOS (JCC)

This jumper is used to erase CMOS data and reset system BIOS information.The procedure for clearing CMOS is:

1. Turn off the system.
2. Set JCC closed for just a few seconds.
3. Turn on the system. The BIOS is now reset to its default setting
4. Save&exit setup.

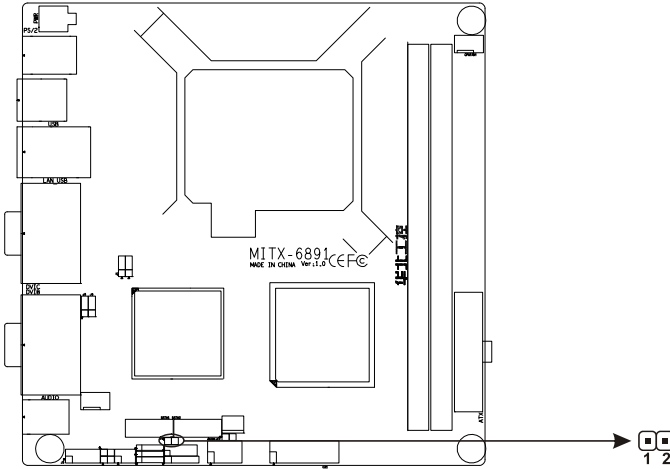


setting	JCC
Close	Clear CMOS(BIOS renew to initialization)
Open	Nomal status(default)

 Do not clear CMOS when power switch on, or it harm to the motherboard.

2.5.2 BIOS-protect Jumper (JAV)

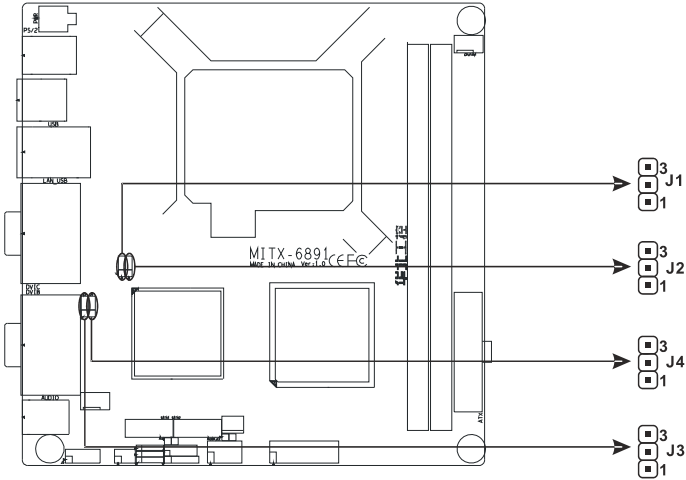
The BIOS of the CPU card is contained in the Flash ROM. If the jumper JAV1 is set as dlosed, you will be unable to flash the BIOS. However in this status, the system BIOS is protected from being attacked by serious virus such CIH virus.



Setting	JAV
Open	Enable to flash BIOS
Close	Disable to flash BIOS(default)

2.5.3 DVI Connector Jumper (J1, J2, J3, J4)

The motherboard provides 3x DVI-D output and 1x DVI-I output, J1, J2 to set DVIC, J3, J4 to set DVIB. When the J1, J2 is set to 1-2. When the J1, J2 is set to 1-2, the bridge chip only DVIC-1 signal, if connected to a display, please take in the DVIC-1. When the J1, J2 is set to 2-3, the bridge chip only DVIC-2 signal, if connected to a display, please take in the DVIC-2. J3, J4 set by reference to J1, J2.



J1, J2:

J1	J2	Port Select
1-2	1-2	DVIC-1
1-2	2-3	DVIC-2

J3, J4:

J3	J4	Port Select
1-2	1-2	DVIB-1
1-2	2-3	DVIB-2

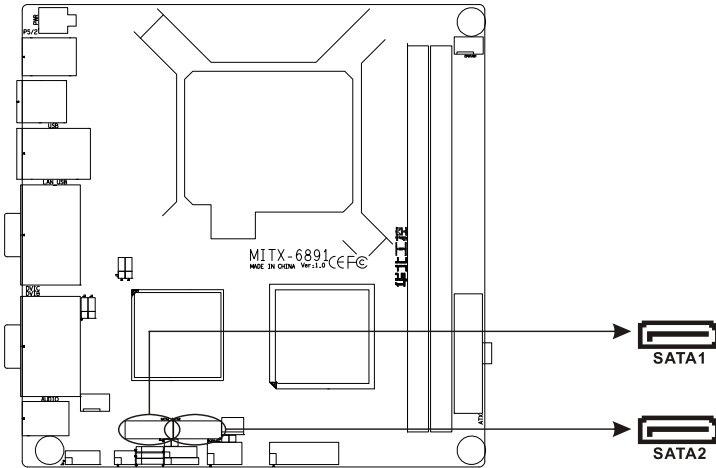
Remarks: J1 and J2, J3 and J4 to simultaneously setup.

2.6 External Connector

! Please carefully read this manual when connecting external connector, so as to avoid damage to the motherboard!

2.6.1 SATA Connector (SATA1, SATA2)

The board provide 2 Serial ATA II Ports, The transfer speed is up to 300MB/s.

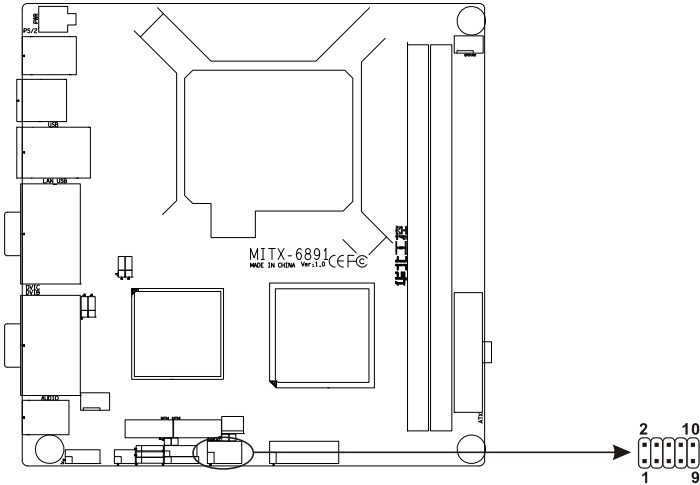


SATA1,SATA2:

Pin	Pin Name
1	GND
2	SATA_TXP
3	SATA_TXN
4	GND
5	SATA_RXN
6	SATA_RXP
7	GND

2.6.2 Serial port (COM)

The motherboard provide one serial port, support RS232 transmission mode.

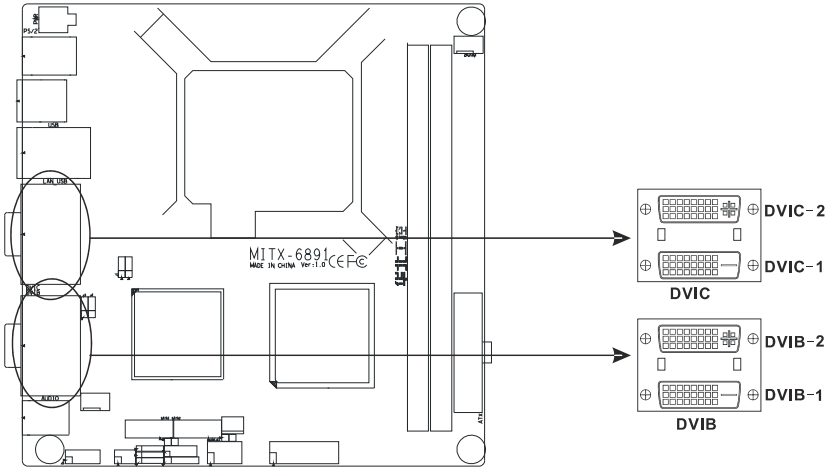


COM:

Pin Name	Pin		Pin Name
HDSD1-	1	2	HDSR1-
HRXD1	3	4	HRTS1-
HTXD1	5	6	HCTS1-
HDTR1-	7	8	HRI1-
GND	9	10	GND

2.6.3 Display Connector (DVIB, DVIC)

The board provides 3x DVI-D output, 1x DVI-I, DVI-I(DVIC-2)Signal can be convert to VGA signal, Use the adaptor to change the standard DVI-I interface to VGA interface (DB15) .DVI connector jumper settings please refer to "2.5.3".you can recognize them by location,The DVIB-1and DVIC-1 is the jack near PCB, and the DVIB-2and DVIC-2 is at the far end of PCB.



DVIB-1:

Pin Name	Pin		Pin Name
D2-A	1	2	D2+A
GND	3	4	NC
NC	5	6	SC-DDC_A
SD-DDC_A	7	8	NC
D1-A	9	10	D1+A
GND	11	12	NC
NC	13	14	VCC5
GND	15	16	HDMI_PLUG_A
D0-A	17	18	D0+A
GND	19	20	NC
NC	21	22	GND
CLK+A	23	24	CLK-A
GND	49	50	GND

DVIB-2:

Pin Name	Pin		Pin Name
D2-B	25	26	D2+B

GND	27	28	NC
NC	29	30	SC-DDC_B
SD-DDC_B	31	32	NC
D1-B	33	34	D1+B
GND	35	36	NC
NC	37	38	VCC5
GND	39	40	HDMI_PLUG_B
D0-B	41	42	D0+B
GND	43	44	NC
NC	45	46	GND
CLK+B	47	48	CLK-B
GND	51	52	GND

DVIC-1:

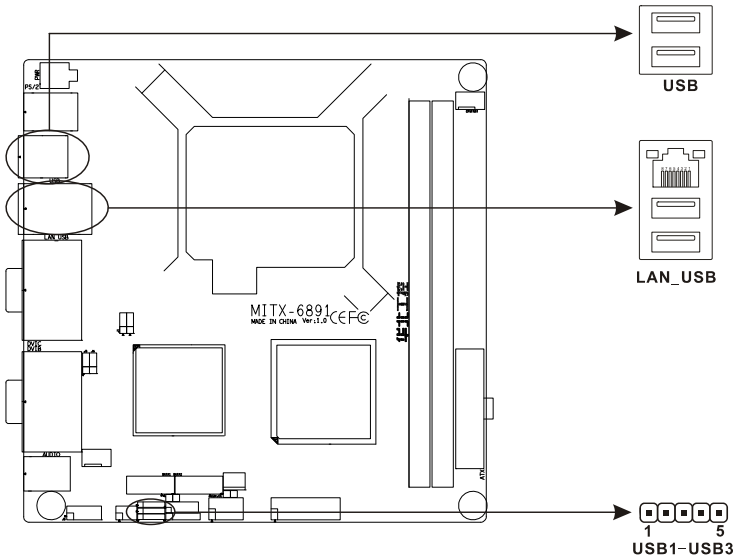
Pin Name	Pin		Pin Name
D2-C	1	2	D2+C
GND	3	4	NC
NC	5	6	SC-DDC_C
SD-DDC_C	7	8	NC
D1-C	9	10	D1+C
GND	11	12	NC
NC	13	14	VCC5
GND	15	16	HDMI_PLUG_C
D0-C	17	18	D0+C
GND	19	20	NC
NC	21	22	GND
CLK+C	23	24	CLK-C
GND	49	50	GND

DVIC-2:

Pin Name	Pin		Pin Name
D2-D	25	26	D2+D
GND	27	28	NC
NC	29	30	SC-DDC_D
SD-DDC_D	31	32	NC
D1-D	33	34	D1+D
GND	35	36	NC
NC	37	38	VCC5
GND	39	40	HDMI_PLUG_D
D0-D	41	42	D0+D
GND	43	44	NC
NC	45	46	GND
CLK+D	47	48	CLK-D
GND	51	52	GND

2.6.4 USB&Ethernet ports (USB,LAN_USB,USB1-3)

The board provides up to seven USB Ports, One RJ45 Ethernet interface. thereinto, USB_RJ include 2x USB2.0 ports and 1x 10/100/1000Mb RJ45 Ethernet interface. The board provides 3 group 1 x 5 pin header connectors (USB_1, USB_2, USB_3). You will need an adapter cable if you use a standard USB connector. Two LEDs beside RJ-45, Ethernet LAN port LED status:



RJ45 PORT LED state description:

LILED state		Network link status	ACTLED(Yellow) state	Message transfer status
On	Green (100Mbps)	effective	On	transferring
	Orang (1000Mbps)			
Off		noneffective	Off	No message transferring

Standard USB ports define:

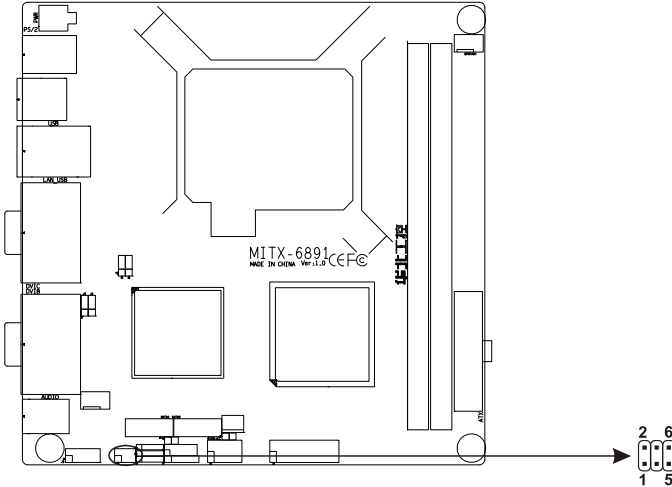
Pin Name	Pin
1	+5V
2	USB DATA-
3	USB DATA+
4	GND

USB1, USB2, USB3ports define:

Pin Name	Pin
1	+5V

2	USB DATA-
3	USB DATA+
4	GND
5	GND

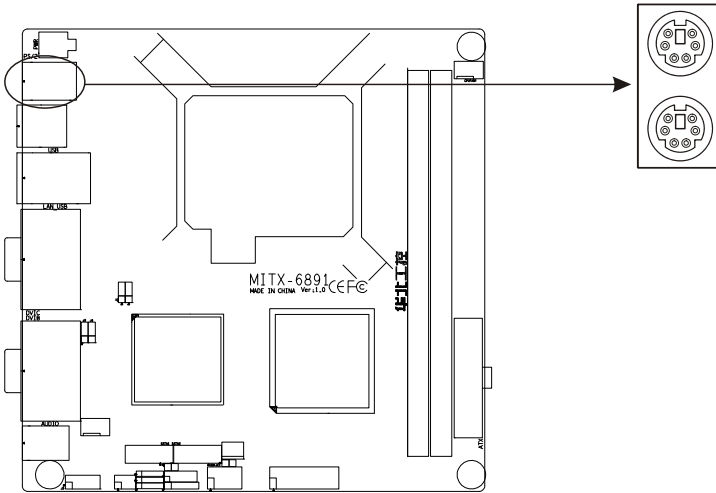
2.6.5 LAN LED (LAN_LED)



Pin Name	Pin		Pin Name
WAN	1	2	VCC3SB
PAN	3	4	VCC3SB
LAN	5	6	VCC3SB

2.6.6 Keyboard and Mouse port (PS/2)

Two PS/2 ports for KB/MS: Green for Mouse and Purple for Keyboard.



Mouse:

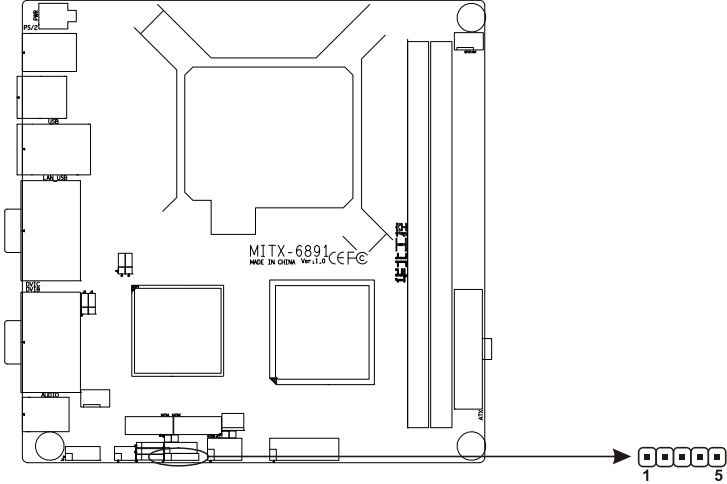
Pin Name	Pin
7	+5V
8	GND
9	NC
10	MS_DAT A
11	MS_CLK
12	NC

Keyboard:

Pin	Pin Name
1	+5V
2	GND
3	NC
4	KB_DATA
5	KB_CLK
6	NC

2.6.7 IRDA interface (IRDA)

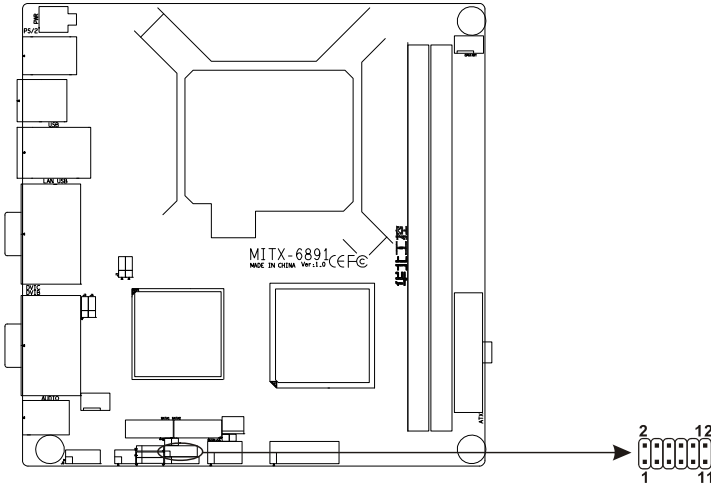
This board provides a group of IrDA pins, supports IrDA version1.0 SIR or SHARP ASK-IR protocol infrared ray data transmission function.



Pin	Pin Name
1	+5V
2	NC
3	IRRX
4	GND
5	IRTX

2.6.8 GPIO (GPIO)

The board supports 12-bit GPIO through the GPIO connector. The 12 digital input/output can be programmed to read or control devices, with input or output defined. The default setting is 6 bits input and 6 bits output.

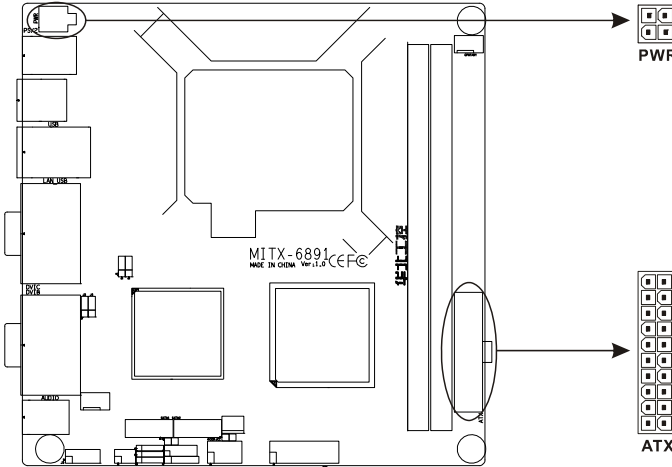


GPIO:

Pin Name	Pin		Pin Name
GPIN_1	1	2	GPOUT_1
GPIN_2	3	4	GPOUT_2
GPIN_3	5	6	GPOUT_3
GPIN_4	7	8	GPOUT_4
GPIN_5	9	10	GPOUT_5
GPIN_6/GPIO_VCC	11	12	GPOUT_6/GND

2.6.9 Power Supply Connectors (ATX, PWR)

ATX Power supply, 20PIN Special power supplies, with +12V plug.



ATX:

Pin Name	Pin		Pin Name
+3.3V	11	1	+3.3V
-12V	12	2	+3.3V
GND	13	3	GND
PS-ON	14	4	+5V
GND	15	5	GND
GND	16	6	+5V
GND	17	7	GND
-5V	18	8	PW-OK
+5V	19	9	+5V SB
+5V	20	10	+12V

PWR:

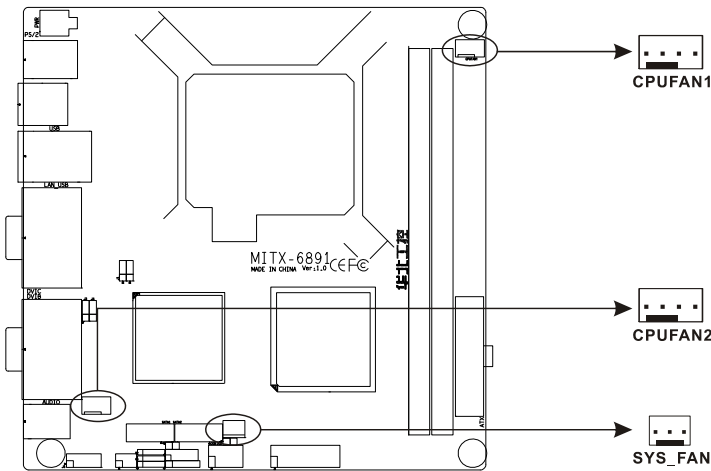
Pin Name	Pin		Pin Name
+12V	3	1	GND
+12V	4	2	GND

2.6.10 Fan Socket (CPUFAN1,CPUFAN2,SYS_FAN)

This board provide two 4Pin CPU fan socket(CPUFAN1,CPUFAN2) and one 3Pin system fan socket(SYS_FAN), attention:

(1) Electric current for fan≤350mA (4.2W, 12V).

(2) Please ensure that the fan wire is consistent with the wire for this socket. The power cord must be in the middle position. In addition, ensure the GND cord wire (usually black) and fan rotation output pulse signal wire (in other color). It is recommended that the fan with rotary speed detection be used.



CPUFAN1,CPUFAN2:

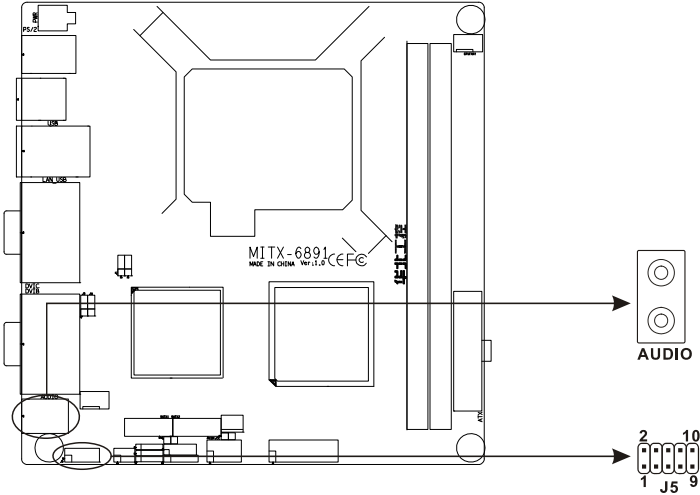
Pin	Pin Name
1	GND
2	+12V
3	Speed Detect
4	Speed Control

SYS_FAN:

Pin	Pin Name
1	GND
2	+12V
3	Speed Control

2.6.11 Audio Port(AUDIO,J5)

The onboard audio controller provides SPEAKER-OUT or MIC-IN function, and you can recognize them by location (The MIC-IN is the jack near PCB, and the SPEAKER-OUT is at the far end of PCB) or color (Red is MIC-IN, and green is SPEAKER-OUT).The board provides one group 2x5Pin audio connector, You will need an adapter cable if you use a standard audio connector.

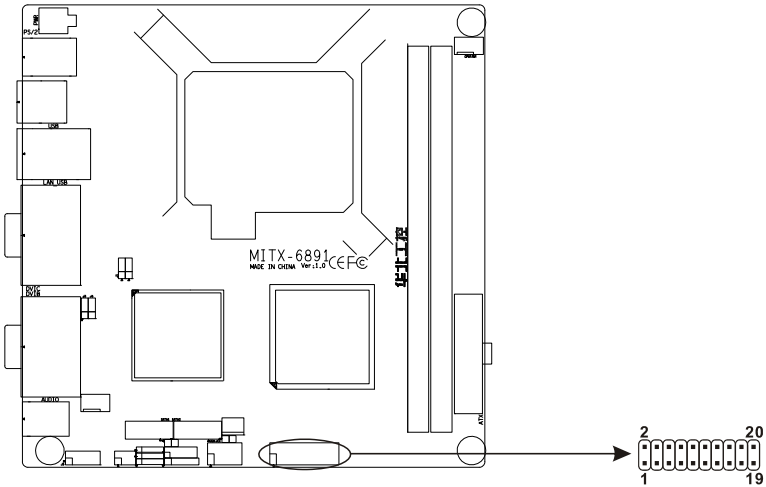


J5:

Pin Name	Pin		Pin Name
GND	1	2	MIC*R
FRON*L	3	4	FRONT*R
GND	5	6	GND
GND	7	8	GND
LINE*L	9	10	LINE*R

2.6.12 Front Panel connector (FRONT)

FRONT use to connect function button or LED on front panel.



Front Panel connector Pin define:

Pin Name	Pin		Pin Name
VCC5	1	2	VCC5
GND	3	4	NC
GND	5	6	NC
KELOCK-	7	8	SPK-
GND	9	10	VCC5
GND	11	12	SLEEPSW+
GND	13	14	PWRBTN-
VCC5	15	16	PWR_LED-
GND	17	18	RSTBTN-
ICH_SATA_LED_N	19	20	HDD_LED+

Particular connection as below, according to the table above, advert to their polarity; When relevant polarity connected wrong, relevant function won't work normally.

POWER LED	SPERKER
KEYLOCK	
SLEEP BUTTON	
POWER BUTTON	
GREEN LED	
RESET BUTTON	
IDE LED	

1) System Power LED Pins (pin1&pin2 for PWLED)

Connecting system power LED cable and these pins, (pin 1 is LED anode),when system power switch on, power LED on; When system power switches off, power LED off.

2) Buzzer Pins (pin 2&pin 8 for SPEAKER)

External Buzzer Pins, for it have buzzer on this CPU card, users can choose to connect external buzzer or not by yourself.

3) KEYLOCK Pins (pin7&pin9 for KEYLOCK)

Connecting keylock function-control cable and these pins, then it can carry out keylock function.

4) Sleep key Pins (pin11&pin12 for SLEEP BUTTON)

Connecting sleep button with these pins, you can press button to achieve sleeping.

5) Power On/Off Control Pins (pin13&pin14 for PWRSW)

Connect these two pins with bounce switch on panel of chassis, can switch-on or switch-off power.

6) Sleep LED Pins (pin15&pin16 for GREEN LED)

Connect these two pins with power LED, when it is power-on, LED light on; power-off, LED light off; Winking means sleeping.

7) Reset Button Pins(pin17&pin18 for RESET)

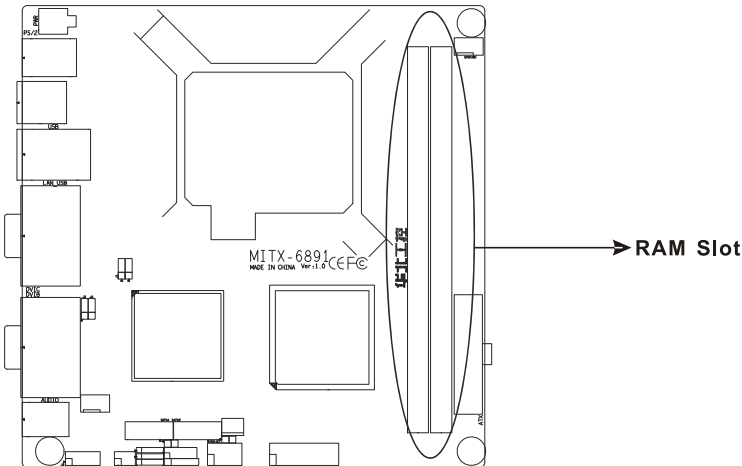
Connect this pins and RESET switch on panel of chassis with cable. When system can not work on, reset can make system restart, without turning on/off the power, thereby it can prolong system serviceable life.

8) IDE LED Pins (pin19&pin20 for HDD LED)

As a rule, there is a IDE LED on the panel of chassis, while IDE device (like hard Disk) is reading or writing (no matter which IDE device), LED will flash, shows that IDE device is running. Connect IDE LED on chassis panel and these pins (pin19 is LED anode).

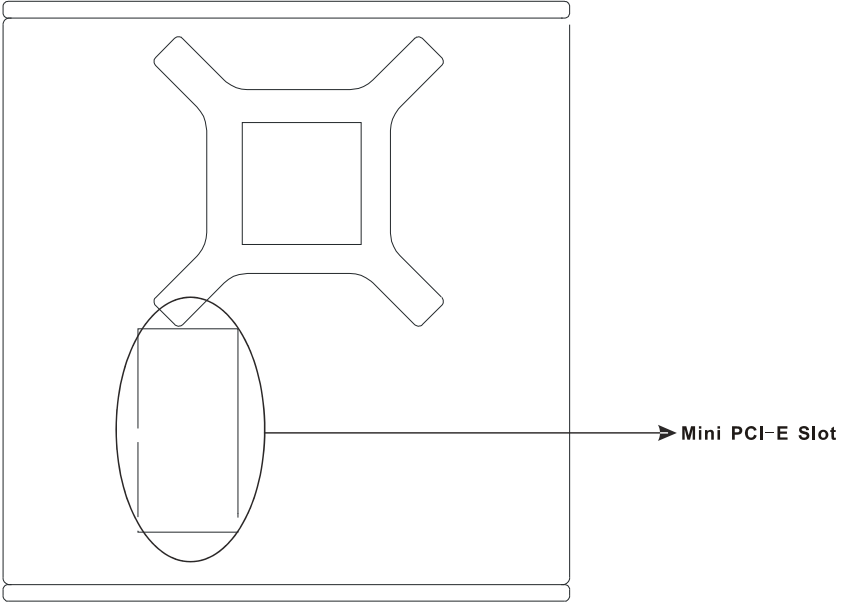
2.6.13 RAM Socket(DIMM1,DIMM2)

MITX-6891 has two 240 Pin DIMM DDRIII 800/1066MHz socket support system memory max. upto 4GB.



2.6.14 Mini PCI-E Slot (Mini PCI-E)

The back device of motherboard provides a mini PCI-E slot, the user can expand mini PCI-E according to own need.





Chapter 3

BIOS Setup

Chapter3 BIOS Setup

Award BIOS upgrade

It is true that hardware and software are upgrading all the time. When your IPC can not support the newest processor (for example), you should upgrade the BIOS to try to keep up with the latest technology. Upgrading (or flashing) the BIOS is not an easy attempt. To make sure upgrade succeed, please follow the instruction below:

AWDFLASH.EXE is the program for BIOS to modify and upgrade, need to be run in DOS mode.

Use boot disk load DOS, run Amiflash.exe and write the newest file:XXXX.bin into the Flash IC.

Order format: A:\Awdflash XXXX.bin

If you need to add other parameters, please add <space>/? after the order format.

Example: Awdflash 68911100.bin /P /B /C /N /X

Remarks:

1. Upgrading BISO may cause your system crash, so please operate carefully.
2. Please use the upgrading program in the CD-ROM provided by us
3. Please do not power off or reboot the system when upgrading, otherwise, the BIOS maybe be damaged.
4. Please backup your BIOS before upgrading

Award BIOS Description:

Awards BIOS ROM has a built-in setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed memory (CMOS RAM) so that it retains the setup information when the power is turned off

Award BIOS Setup

Power on your computer, when this information display in your screen: Del->SETUP please press "DEL", then it will enter BIOS setup interface.

1. Power on or reset computer.
2. When "Press to enter setup" in screen, please press .
3. Use the "←→" to choose the option which your want to modify, press <Enter> and show

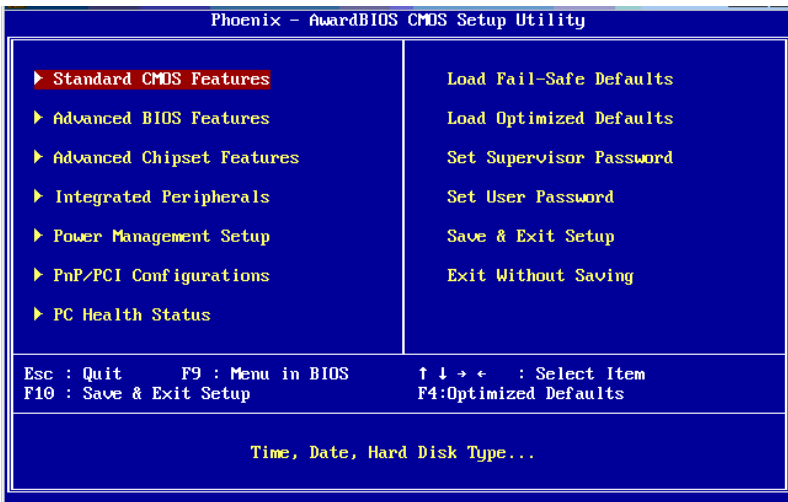
the sub-menu.

4. Use the “←↑→↓”and <Enter> to modify the value.

5. At any time, press<Esc> can back to the father-menu

Note: The default BIOS settings for this motherboard apply for most conditions to ensure optimum performance. If the system becomes unstable after changing any BIOS settings, load the default settings to ensure system compatibility and stability. The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.

When the SETUP program starts, you can see the CMOS Setup Utility Main screens are as follows:

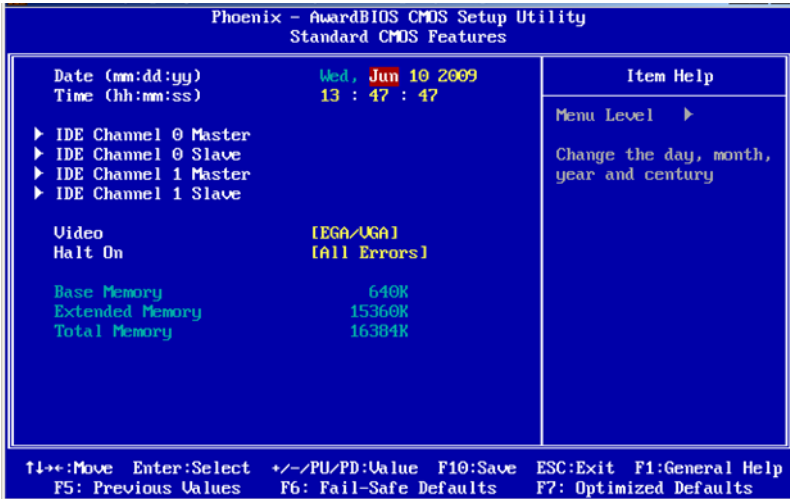


Award BIOS on the map is the main menu. Main Menu 11 set to provide the functions and two out of the way, the user needs according to their own set of corresponding projects. The following BIOS settings will be explained the various items.

3.1 Standard CMOS Setup

The CMOS RAM is powered by an onboard button cell battery. When you finish BIOS setup, the data in CMOS RAM will be automatically backed up to Flash ROM. If operation in harsh industrial environments causes a soft error, BIOS will recheck the data in CMOS RAM and automatically restore the original data in Flash ROM to CMOS RAM for booting.

Note: If you intend to change the CMOS setting without restoring the previous backup, you have to click on "DEL" within two seconds of the "CMOS checksum error..." display screen message appearing. Then enter the "Setup" screen to modify the data. If the "CMOS checksum error" Message appears again and again, please check to see if you need to replace the battery in your system.



Date

Format: Day/Month/Date/Year ;< Day><Month><Date><Year> can be set by user.

Time

The times format in <hour> <minute> <second>, base on the 24-hour time

IDE Channel 0/1 Master/Slave

These 4 options are IDE HDD setting items. Important: Please select the right option for your IDE devices. Please make sure that the specifications of the IDE devices are comply with the content of the device list. If not: the device will be fail. In the main menu, we have another auto detection function item to facilitate the settings.If the HDD interface is SCSI, please select Not Installed.

1. <LBA/Large>: HDD LBA/Large mode On/Off mode switch. Currently, HDD that size is bigger than 540MB should turn on this Option. But in some Novell Netware 3.xx or 4.xx etc version netbased OS need it be off.

2. <Block Mode>: Turn this option to be On will help the R/W speed of HDD to be faster. But some of the old HDD don't support this mode, and this option should be Off in this case.
3. <PIO Mode>: Support PIO Mode0~Mode5(DMA/33)。 Use BIOS program to auto check the HDD, this option of PIO mode will be set.

Important: If your system installed an IDE device (i.e. HDD, CD-ROM Driver), you should go to the BIOS setting, and let the system auto detect the device. If you are using swappable HDD, you can change the type to Auto, or set the Primary and Secondary to Auto. Here, Primary means the first IDE interface: IDE0 on the motherboard; and Secondary means the second IDE device, and it refers to the IDE1 interface on the motherboard.

Every IDE device can have two IDE devices as Master/Slave.

Video

Select EGA or VGA display.option item: <EGA/VGA>, <CGA 40>, <CGA 80>, <MONO>.

Halt On

The item determines whether the computer will stop if an error is detected during power up.

<No Errors>: The system boot will not stop for any error.

<All Errors>: Whenever the BIOS detects a non-fatal error the system will be stopped

<All, But Keyboard>: The system boot will not stop for a keyboard error; it will stop for all other errors. (Default value)

Base Memory

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system.

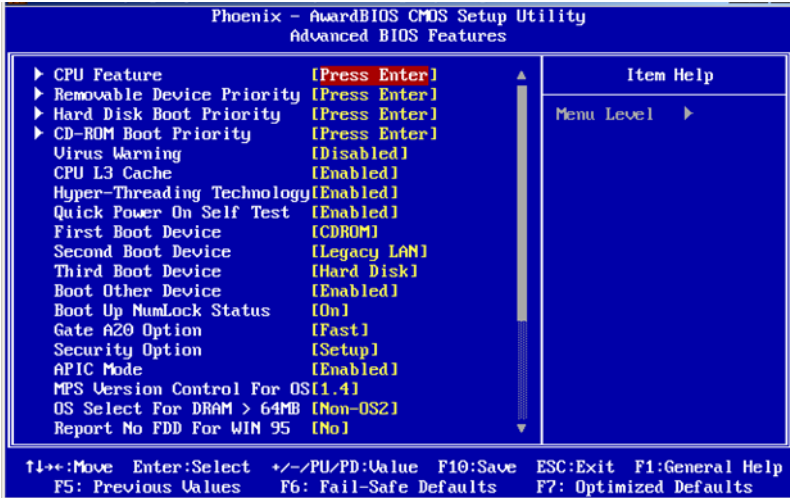
Extended Memory

The BIOS POST will determine the amount of extended memory (above 1 MB in CPU's memory address map) installed in the system.

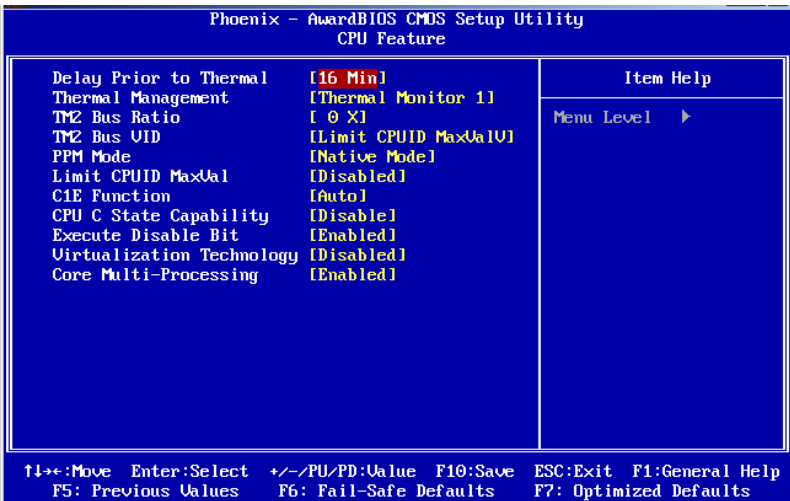
Total Memory

This item displays the total system memory size.

3.2 Advanced BIOS Features



3.2.1 CPU Feature



Delay Prior to Thermal

When the temperature of CPU has reached the preset temperature by the factory, the clock of the motherboard will be delayed. The temperature device is activated, and the detector inside the CPU is also activated to maintain the limit of temperature of CPU. This can be set to <4 Min>, <8 Min>, <16 Min>, <32 Min>.

Thermal Management

Choice of thermal management monitor. option: <Thermal Management 1(default)>, <Thermal Management 2>.

TM2 Bus Ratio

Performance Management bus will be activated when the hard mode detector turn hot from cool. Min=0 Max= 255 Input DEC code = Option :< 0X (Default)>.

TM2 Bus VID

Performance Management bus voltage will be activated when the hard mode detector turn hot from cool.Option: <0.8375 V (Default)>,<0.8375-1.6000>.

PPM Mode

This project has two options, namely [SMM Mode: default] and [Native Mode], SMM Mode collectively English System Management Mode is a power saving mode, Native Mode collectively English Native Command Queuing Mode is overclocking mode PPM Mode SMM Mode is actually EIST, and SMM Mode and Native Mode is EIST different models inside Native Mode. But this is a relatively old overclocking mode only. to the default [SMM Mode] replaced by [Native Mode] will be helpful for overclocking. Intel SpeedStep technology option is EIST switch, after the choice of open <Native Mode> better performance than <SMM Mode>.

Limit CPUID Maxval

Set CPU ID MaxVal, Max is 3. In WinXP, it is set as<Disabled>. Option: <Disabled (Default)>, <Enabled>.

C1E Function

CPU C1E Function option. Option: <Auto (default)>.

Execute Disable Bit

Set if the CPU is protected by hardware antivirus Option: <Disabled>, <Enabled(Default)>.

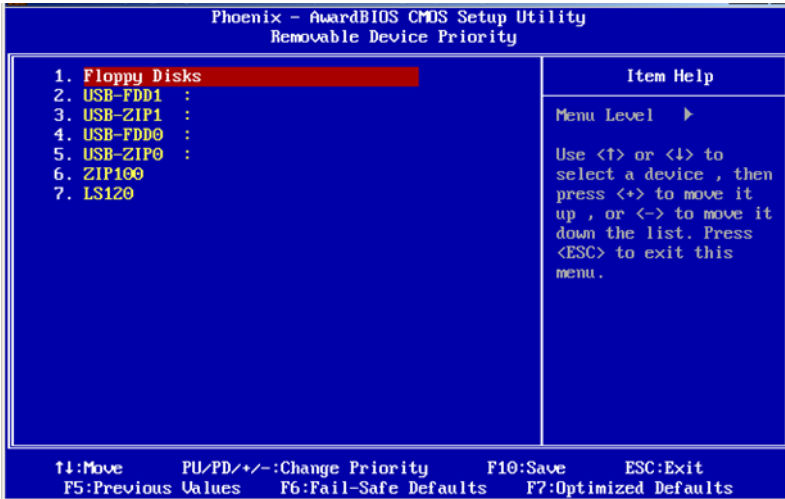
Virtualization Technology

Set if use the additional hardware funtion provided by Vanderpool technology. Option: <Disabled>, <Enabled(Default)>.

Core Multi-Processing

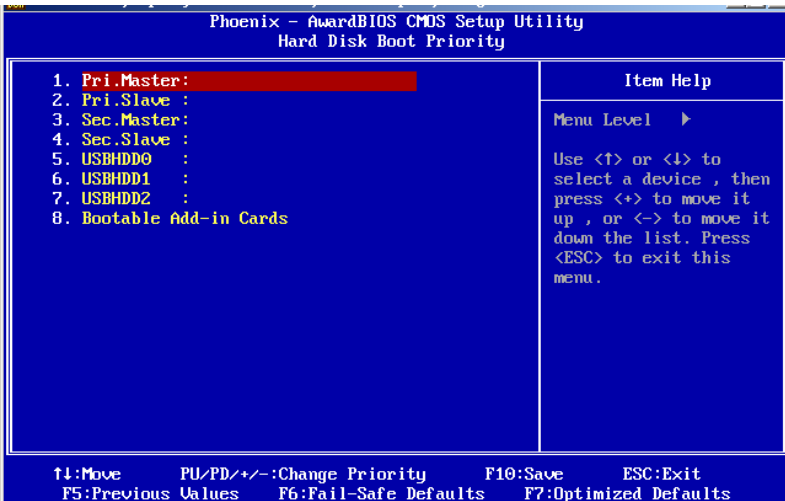
This option can ensure kernel load dual-processor in best way <Enabled>: use multi-kernel CPU,<Disabled>: use one of CPU.

3.2.2 Removable Device Priority



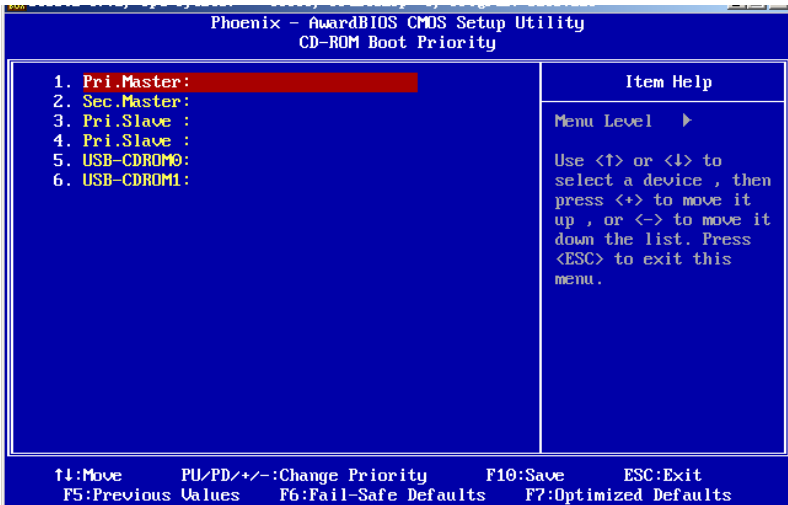
The above-mentioned items are the order of boot devices, can not be amendment.

3.2.3 Hard Disk Boot Priority



The above-mentioned items are the order of boot devices, can not be amendment.

3.2.4 CD-ROM Boot Priority



The above-mentioned items are the order of boot devices, can not be amendment.

Virus Warning

If enabled, a warning message and alarm beep activates if someone attempts to write here. The commands are <Enabled> or <Disabled>.

CPU L3 Cache

This item allows the user to <Enabled (default)>/<Disable> CPU L3 cache.

Hyper-Threading Technology

This item allows the user to Enabled/Disabled Hyper-threading support for the Intel® Pentium®4 processor with HT Technology. The Choices : < Enabled (default)> , <Disabled>.

Quick Power On Self Test

This option speeds up the Power-On Self Test (POST) conducted as soon as the computer is turned on. When enabled, BIOS shortens or skips some of the items during the test. When disabled, the computer conducts normal POST procedures.

First/Second/Third Boot Device

The BIOS tries to load the OS with the devices in the sequence selected. Choices are: <Floppy>, <LS/ZIP>, <HDD>, <SCSI>, <CDROM>, <LAN>, and <Disabled>.

Boot Other Device

If this option is set as [Enabled], system can be booted from other devices if it is fail to boot from the first, second or third device. Options: <Disabled (Prohibited)>; <Enabled (Default)>.

Boot Up NumLock Status

This item allows the user to activate the Number Lock key at system boot. The Choices :< On (Default)>, <Off>

Gate A20 Option

<Normal>: A pin in keyboard controller controls GateA20

<Fast (Default)>: Chipset controls GateA20

The typematic rate is the rate key strokes repeat as determined by the keyboard controller. The commands are "Enabled" or "Disabled." Enabling allows the typematic rate and delay to be selected.

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 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>.

Report NO FDD For WIN95

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

Full Screen LOGO Show

The splash screen can display the company LOGO. Option: <Enabled>, <Disabled>.

Small Logo (EPA) Show

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

Summary Screen Show

This item allows you to open or close the screen shows a summary. Option: <Disabled (default)>, <Enabled>.

DMI Event Log

DMI Event Log: <Disabled>: closed, <Enabled>: Open.

Clear ALL DMI Event Log

Clear ALL DMI Event Log: [Yes]: clear, [No]: Not clear.

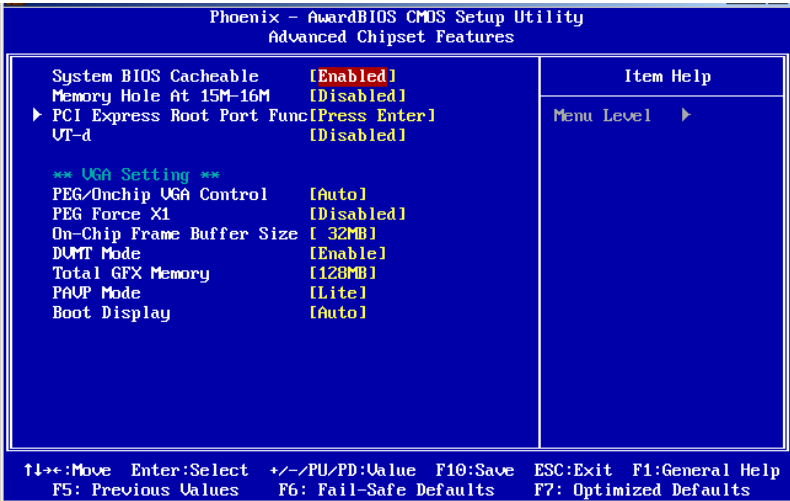
View DMI Event Log

View DMI Event Log: <Disabled>: closed, <Enabled>: Open.

Mark DMI Events as Read

DMI record will be marked as read-only

3.3 Advanced Chipset Features



System BIOS Cacheable

The setting of Enabled allows caching of the system BIOS ROM at F0000h- FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

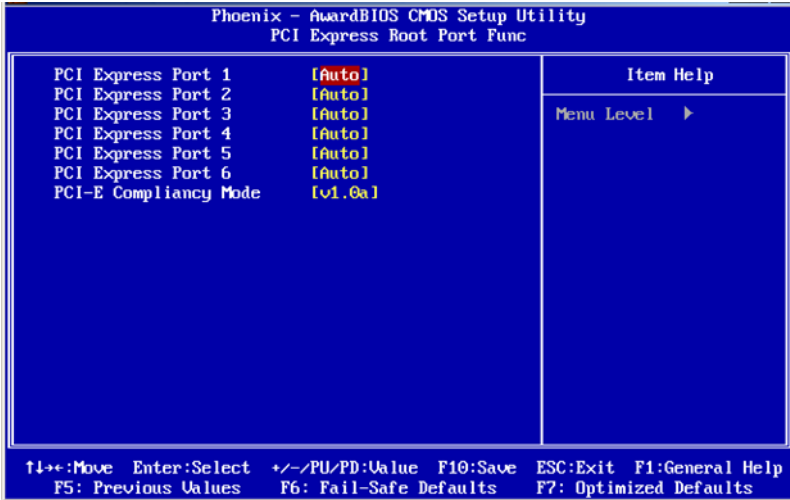
Memory Hole At 15M-16M

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

VT-d

Virtualization solutions enhanced by Intel VT allow a platform to run multiple operating systems (OSs) and applications as independent virtual machines, allowing one computer system to function as multiple "virtual" systems. For example, IT managers can create a single build with multiple and different OSs, software, and legacy applications. The choices are <Enabled> and <Disabled>.

PCI Express Root Port Func



PCI Express port 1-6

Set whether use PCI-E 1-6 port. The choices:<Auto(default)>, <Disabled>, <Enabled>.

PCI-E Compliancy Mode

This option allows you to choose the PCI-E Compliancy Mode. The choices: <v1.0a (default)>, <v1.0>.

VGA Setting

PEG/Onchip VGA Control

This item is setting for start up video output from an add-on-card or onboard device. The choices: <Onchip VGA>, <PEG Port>, <Auto>.

PEG Force X1

PCI Express Graphics port transmission speed setting

<Enabled>:x1 mode,

<Disabled>: default

On-Chip Frame Buffer Size

This item allows the user to adjust on-chip graphics of memory buffer. The choices: <1MB>, <8MB(default)>.

DVMT Mode

This item allows the user to adjust Intel's Dynamic Video Memory Technology (DVMT). Bios provides three options to choose (DVMT, FIXED and Both).

Total GFX Memory

This item displays the total system memory size.

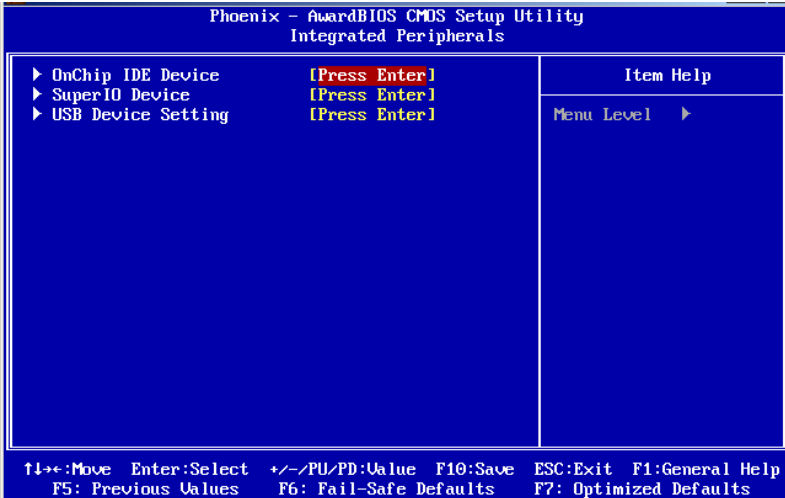
PAVP Mode

The main protection against the high-definition movie content playback, the general set to [Lite] mode.

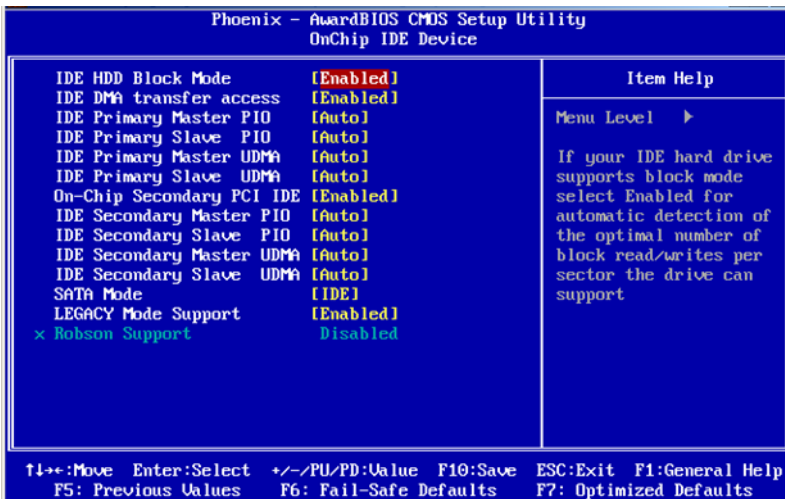
Boot Display

The default setting is <Auto> Default. The options available include:<Auto>, <CRT>, <LVDS>, <CRT+LVDS>, <DVI>, <CRT+DVI>, <CRT+TV>.

3.4 Integrated peripherals



3.4.1 OnChip IDE Device



IDE HDD Block Mode

You can enable the Primary IDE channel and/or the Secondary IDE channel. Any channel not enabled is disabled. This field is for systems with only SCSI drives.

IDE DMA transfer access

DMA transfer access, The choices: <Disabled>, <Enabled(default)>.

IDE Primary/Secondary Master/Slave PIO

Four IDE PIO (Programable Input and Output) options can allow you to assign PIO mode(1-4) for each IDE device. Mode 0 to 4 provides the increasing performance. In Auto mode, the system will auto detect the best working mode. The choices: <Auto>, <Mode 0>, <Mode 1>, <Mode 2>, <Mode 3>, <Mode 4>.

IDE Primary/Secondary Master/Slave UDMA

Ultra DMA/33/66/100 can be used when your IDE HDD support this kind of function. In the meantime, the OS includes a DMA driver (Windows 95 OSR2 or third-party IDE BUS control and driving program) .If your HDD and your OS can support Ultra DMA/33, Ultra DMA/66 or Ultra DMA/100, Select Auto to enable BIOS support. Options: [Auto], [Disabled].

On-Chip Secondary PCI IDE

Options:[Disabled], [Enabled].

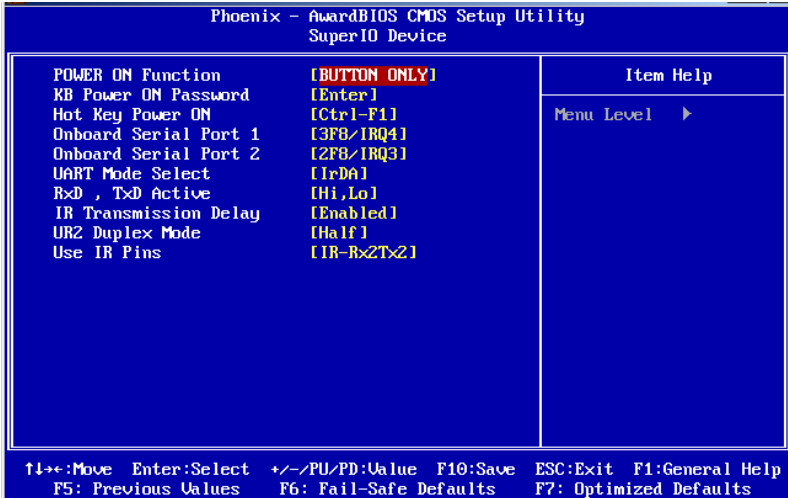
SATA Mode

SATA configuration mode selection, you can set it as [RAID], [AHCI] or [IDE].

LEGACY Mode Support

This allows you to activate or closed the LEGACY Mode Support, The option :[Disabled (default)], [Enabled].

3.4.2 Super IO Device



POWER ON Function

Select the method to start the computer. Button only is use the power button to control. Keyboard 98 isuse some special power switch. Hotkey is use shortcut of Ctrl+F11 or ALT+F12. If the keyboard is too old, the boot of the computer may fail. Mouse Left and Mouse Right is use mouse to start the computer, some PS/2 mice probably don't support this option. The choices: <Button Only>, <Keyboard 98>, <Hot Key>, <Mouse Left>, <Mouse Right>.

KB Power ON Password

If this is setted as <Password> in POWER ON Function, you can use this to set the password for the booting of PS2 mouse.

Hot Key Power ON

If this is setted as <HotKey> in POWER ON Function, you can use this to set the hot key for PS/2 keyboard, options are from CtrlF1 to CtrlF12.

Onboard Serial Port 1/2

For settings reference the Appendix for the serial resource allocation, and Disabled for the onboard serial connector. The choices: [Auto], [3F8/IRQ4], [2F8/IRQ3], [3E8/COM4], [2E8/COM3], [Disabled].

UART Mode Select

This item allows you to select UART mode. The choices: < IrDA>, <ASKIR>, <Normal>.

RxD, TxD Active

This item allows you to determine the active of RxD, TxD. The Choices: <Hi, Hi,> ,<Lo, Lo,> ,<Lo,Hi,>, <Hi, Lo.>.

IR Transmission Delay

This item allows you to enable/disable IR transmission delay. The choices :< Enabled>, <Disabled>.

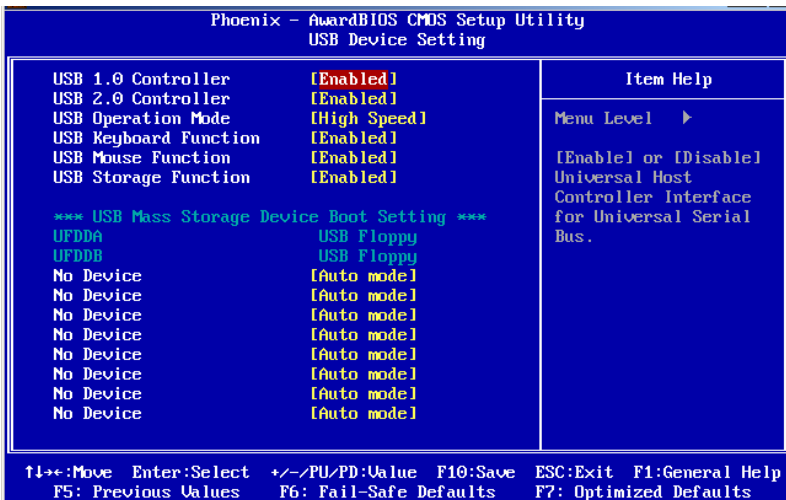
UR2 Duplex Mode

This item allows you to select the IR half/full duplex function. The choices :< Half>, <Full>.

Use IR Pins

Please refer to your IR equipment, setting the correct signal TxD and RxD. Option: <RxD2>, <TxD2>, <IR-Rx2Tx2>.

3.4.3 USB Device Setting



USB 1.0 Controller

Select Enabled, if your system contains a Universal Serial Bus (USB) controller and you

have USB peripherals. The choices are <Enabled> and <Disabled>.

USB 2.0 Controller

This entry is used to disable/enable the USB 2.0 controller only. The BIOS itself may or may not have high-speed USB support. If the BIOS has high speed USB support built in, the support will automatically turn on when a high speed device is attached. The choices are <Enabled> or <Disabled>.

USB Operation Mode

Set the USB 2.0 controller to< Hi Speed (480 Mbps)> or <Full Speed (12 Mbps)>.

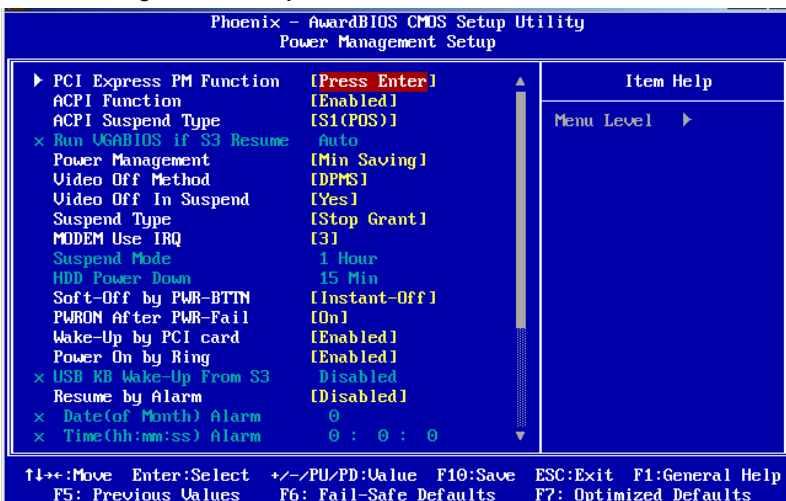
USB Keyboard/Mouse Function

Select .Enabled. if you plan to use a USB keyboard/Mouse. The choices are<Enabled>and <Disabled>.

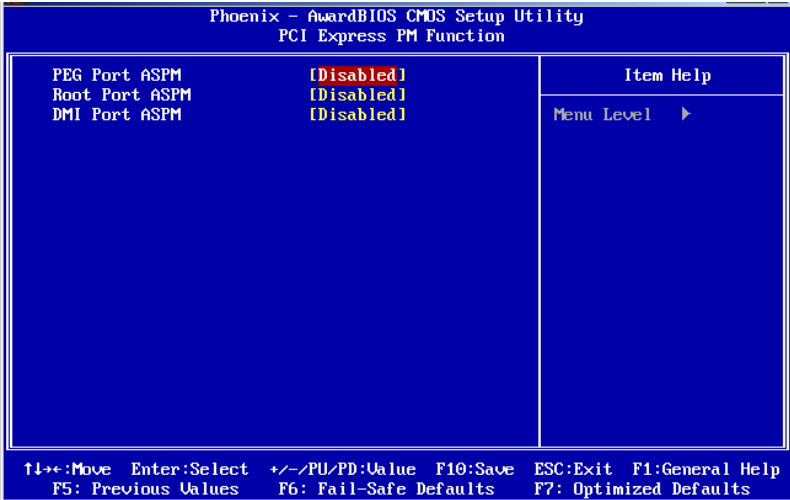
USB Storage Function

Select <Enabled> if you plan to use an external USB storage device to boot system under DOS mode. The choices are <Enabled> and <Disabled>.

3.5 Power Management Setup



PCI Express PM Function



PEG Port ASPM

The option: <Disabled>, <l0s>and<l1/l0s>.

Root Port ASPM

The option: <Disabled>, <l0s>,< l1>and<l1/l0s>.

DMI Port ASPM

The option: <l0s> and<Disabled>.

ACPI Function (ACPI)

This is item to activate the ACPI function. If you OS support ACPI-aware. For example: Windows 98SE/2000/ME, choice <Enabled>.Option: <Enabled>, <Disabled>.

ACPI Suspend Type

This item allows user to select sleep state when in suspend.

<S1 (POS)>: The suspend mode is equivalent to a software power down;

<S3 (STR) (default)>: The system shuts down with the exception of a refresh current to the system memory.

Power Management

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

1. HDD Power Down
2. Suspend Mode

There are four selections for Power Management, three of which have fixed mode settings <User Define(default)>: Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hour. except for HDD Power Down which ranges from 1 min. to 15 min. and disable

<Min Saving>: Minimum power management. Suspend Time Out = 1 Hour, HDD Power Down = 15 Min

<Max Saving>: Maximum power management. Suspend Time Out = 1 Min, HDD Power Down = 1 Min

Video Off Method

This item allows user to determine the manner in which the monitor is blanked.

V/H SYNC+Blank: This option will cause system to turn off vertical and horizontal synchronization ports and write blanks to the video buffer.

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

<DPMS(default)>: Initial display power management signaling.

Video Off In Suspend

This item allows users to turn off video when system is in suspend mode. option item:

<No>, <Yes (default)>.

Suspend Type

This item allows users to determine the suspend type. option item: <Stop Grant (default)>, <PwrOn Suspend>.

MODEM Use IRQ

This determines the IRQ in which the MODEM can use. The choices: <3(default)>, <4>, <5>, <7>, <9>, <10>, <11>, <NA>.

Soft-Off by PER-BTIN

If you choose "Instant-Off", then pushing the ATX soft power switch button once will switch the system to "system off" power mode. You can choose "Delay 4 sec." If you do, then pushing the button for more than 4 seconds will turn off the system, whereas pushing the button momentarily (for less than 4 seconds) will switch the system to "suspend" mode. The choices: <Instant-off (default)>, <Delav 4 Sec>.

PWRON After PWR-Fail

Use this to set up the system after power failure. The "Off" setting keeps the system powered off after power failure, the "On" setting boots up the system after failure, and the "Former-Sts" returns the system to the status before power failure. Default setting :<on>.

Wake-Up by PCI Card

Select [Enabled] when the incident occurred in any PCI cards, PCI cards will be issued by PME signal so that the boot system back to full status.The choices : <Enabled>、<Disabled(default)>.

Power On by Ring

When Enabled an input signal on the serial Ring Indicator (RI) line (in other words, anincoming call on the modem) awakens the system from a soft off state. The choices :< Enabled (default)>, <Disabled>.

Resume by Alarm

When Enabled, your can set the date and time at which the RTC (real time clock) alarm awakens the system from Suspend mode. The choices :< Enabled>, <Disabled (default)>.

Primary and Secondary IDE 0/1

When Enabled, the system will resume from suspend mode if Primary IDE 0 /1 or Secondary IDE 0/1 is active. The choices :< Enabled>, <Disabled>.

FDD, COM, LPT Port

When Enabled, the system will resume from suspend mode if FDD, COM port, or LPT port is active. The choices :< Enabled>, <Disabled>.

PCI PIRQ[A-D]#

When Enabled, the system will resume from suspend mode if interrupt occurs. The choices :< Enabled>, <Disabled>.

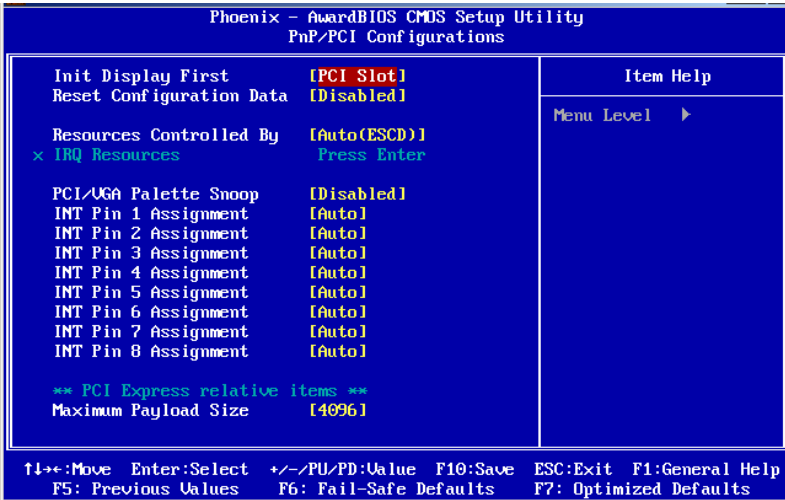
HPET Support

The option:<Enabled(default)>, <Disabled>.

HPET Mode

The option:<32-bit mode (default)>, <64-bit mode>.

3.6 PnP/PCI Configurations



Init Display First

This option has two options: <PCI slot>/<AGP>, and you can use the options to select the sequence of display card when boot up. If you use AGP display card, you can set to <AGP>; If you are using he PCI display card, you can set it to [PCI slot].

It is recommended using the <AGP> display card, and the graphic performance will be increase dramatically.

Reset Configuration Data

Default is <Disable>. Select Enable to reset Extended System Configuration Data (ESCD) if you have installed a new add-on and system configuration has caused such a conflict that OS

cannot boot.

Resources Controlled By

The commands here are <Auto> or <Manual>. Choosing <manual> requires you to choose resources from each following sub-menu. <Auto> automatically configures all of the boot and Plug and Play devices but you must be using Windows 95 or above.

PCI/VGA Palette Snoop

When set to <Enabled>, various VGA devices which are working on different bus can handle data from CPU on different color palette of different video device. Stored in the 5th bit in the PCI device command cache is the VGA color palette (0 is disabled). For example: if there are two VGA devices (one is PCI and the other is ISA), the setting should be like: if any ISA adaptor installed in the system require VGA color palette, this item should be set to <Enabled>.

INT Pin1-8 Assignment

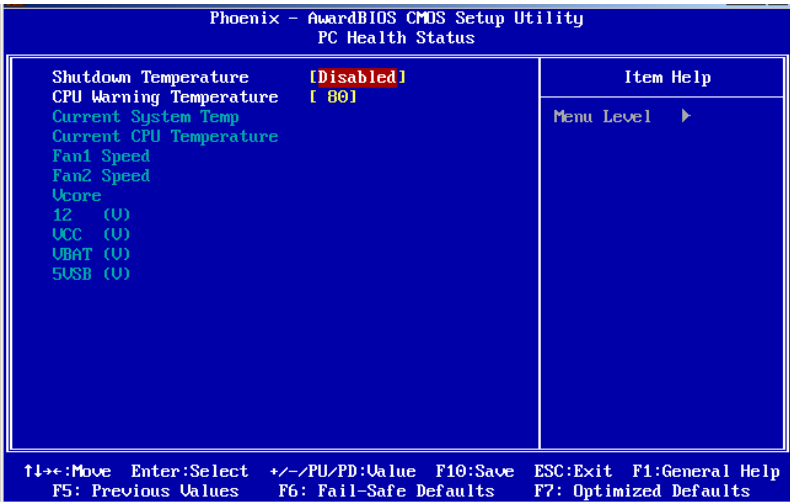
The option to connect to the computer's motherboard, a PCI interface device designated IRQ allocation, The choice: <AUTO>, <3>, <4>, <5>, <7>, <9>, <10>, <11>.

Maximum Payload Size

This allows you to set the PCI Express devices largest TLP (Transport Layer Packet) payload value. The choice: <128>, <256>, <512>, <1024>, <2048>, <4096>.

3.7 PC Health Status

Annotate: (Green shows the following numerical values for the read-only)



Shutdown Temperature

Setup CPU Shutdown Temperature. This feature is only in ACPI mode effective. The option:<70°C/158°F (default)>, <60°C/ 140°F>, <65°C/ 149°F>, <Disabled>.

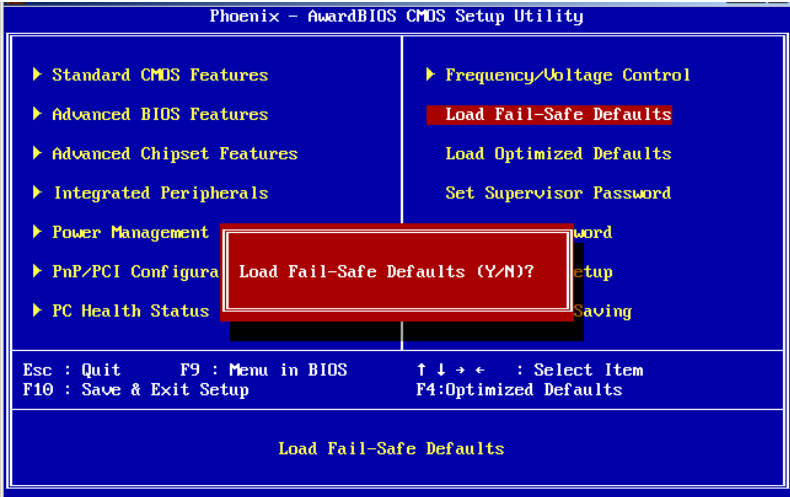
CPU Warning Temperature

The system will give an automatic warning if the CPU temperature goes over the selected setting.default setting :< disabled>.

Current SYS Temperature, VCore, V1.8, 5V, 12V, Fan Speed

This shows the current monitoring of all hardware devices / components such as CPU voltage state, temperature and speed of all fans.

3.8 Load Fail-Safe Defaults



If the system is not stable after installation, this function can be helpful. In this case, the system will cancel some of the function which enhance the system, and the system will run in very strict status. So, it is easy to find the safe value and remove errors from the motherboard. When this option is selected, the host windows will prompt:

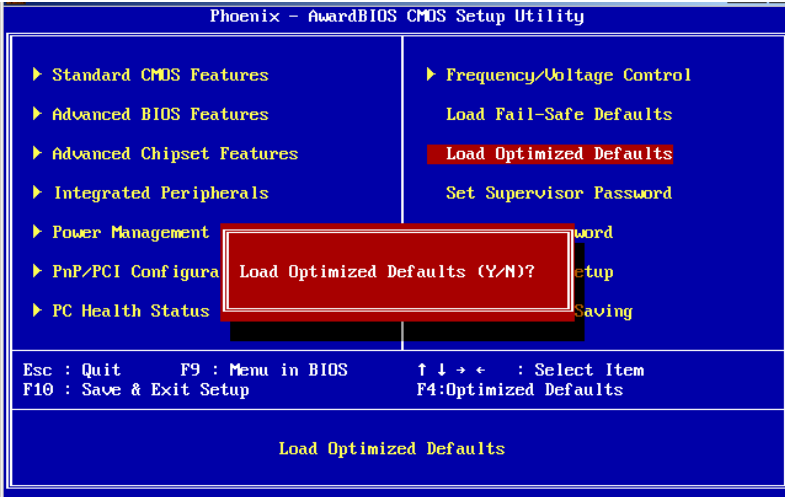
Load BIOS Defaults (Y/N) ?

Keyin "Y", and press Enter to execute this function.

important: This function will not influence the [Standard CMOS Setup].

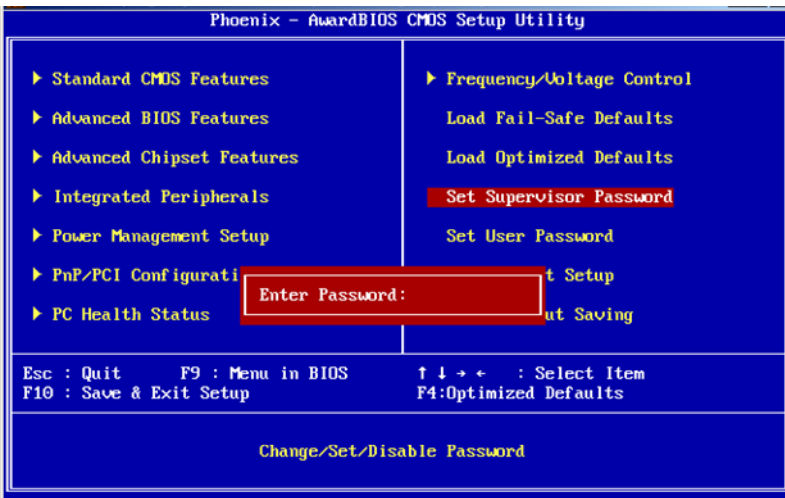
Keyin Supervisor Pass word can input and revise CMOS BIOS's value, and Supervisor Password is set to protect the CMOS against willful revising. If IDE HDD is used by user, function can get the parameters of the HDD and record them to standard CMOS settings. Max four IDE parameters can be get from HDD.

3.9 Load Optimized Defaults



Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs. Press <Y> to load the default values setting for optimal performance system operations.

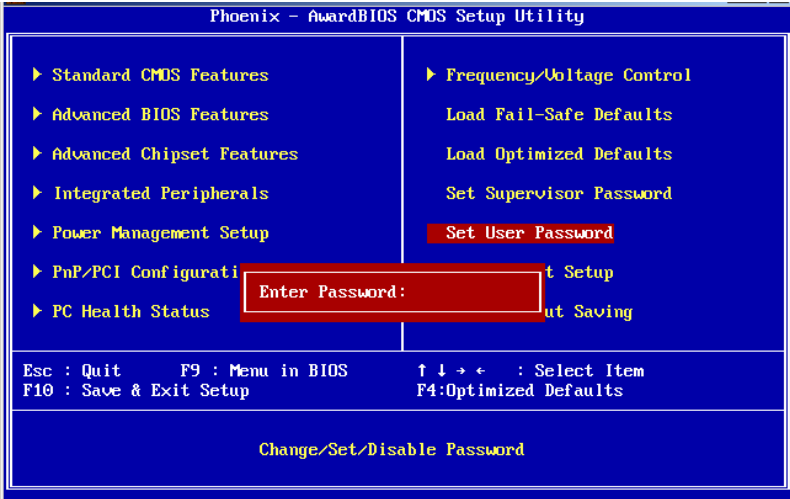
3.10 Set Supervisor Password



Supervisor password level is high than users, you can load CMOS, amend setup by supervisor, also can be used to boot PC. If you select this option and press enter ,the

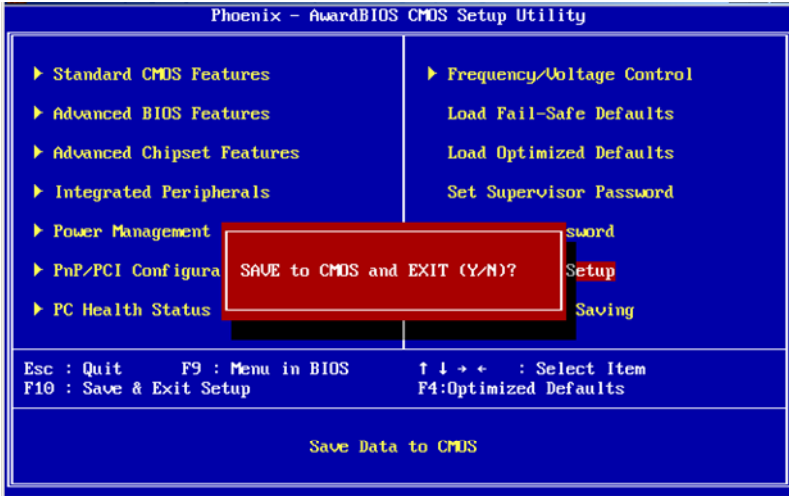
information "ENTER PASSWORD" will be shows on screen, here you can input your password. do not be excess than 8 characters, then press enter, the password you inputted will replace the former one. Press enter again to confirm.

3.11 Set User Password



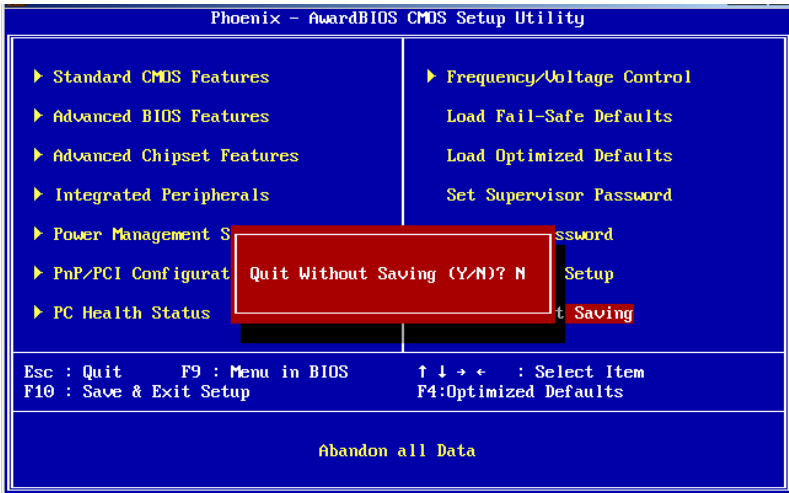
<User Password Setting> function for a setting password. If you want to set the password, first enter the current password to identify your password by y, the screen automatically return to the main screen. Enter the User Password can use the system, but can not modify the contents of CMOS

3.12 Save&Exit Setup



If you select this and press <Enter>, the values entered in the setup utilities will be recorded in the CMOS memory of the chipset. The microprocessor will check this every time you turn your system on and compare this to what it finds as it checks the system. This record is required for the system to operate.

3.13 Exit Without Saving



Selecting this option and pressing <Enter> lets you exit the setup program without recording any new values or changing old ones.



Appendix

Appendix

Appendix 1: Driver Installation

Please install the driver as per the following steps:

Plug programme disk into CD-ROM, so installation of the driver can be made either automatically or manually. Now manually installation instructions are given as below:

- 1) A variety of options available regarding manually installation, which you can check from Device Manager.
- 2) Right click "my computer ", select "management", and go to "Device Manager"
- 3) Right click "display controller" in the menu of graphic card, select "Properties ", click "Driver", select "update driver".
- 4) Select "Show the list of all drivers which are designated locations so that choices can be made from it ", select "next."
- 5) Select the location of display driver, click "ok"
- 6) Implement the installation, restart the system.

Proceed with the installation of other drivers after restarting the system, till all installations are implemented. Then user can see that it says device is working

Appendix 2 : Watchdog programmer guide

watchdog reference code (ASM) :

Set the port to realize watchdog function through DEBUG order, so that it can carry out Watchdog Timer's various functions.

port instruction:

2EH : Address register

2FH : Data register

Example: Set Watchdog Timer for 30 Seconds, DEBUG in DOS:

C:\>debug

-o 2e 87

-o 2e 87 ; Decode

-o 2e 2b

-o 2f e0 ; bit4=0, set pin as watchdog func

-o 2e 07

-o 2f 08 ; Choose register

-o 2e 30

-o 2f 01 ; Activation logic devices

-o 2e f5

-o 2f 00 ; Set timer units as second / (set as min: o 2f 08)

-o 2e f6

-o 2f 1E ; Set Timer Count to 30 sec. (Max support FF = 255, when it set as 00

Watchdog function stop

-o 2fe aa ; locked register

-q

C:\>

=====

watchdog reference code(**c++ language**):

```
outputb (0x2e, 0x87)
outputb (0x2e, 0x87) // Open SUPER IO register
outputb (0x2e, 0x2B)
outputb (0x2f, 0xE0) //bit4=0 ,set pin as watchdog func
outputb (0x2E, 0x07)
outputb (0x2F, 0x08) //select logical device
outputb (0x2e, 0x30)
outputb (0x2f, 0x01) //active the device
outputb (0x2e, 0xF5)
outputb (0x2f, 0x00) // Set timer units as second / ( Set timer units as minute: outputb (0x2f,
0x08) )
outputb (0x2e, 0xF6)
outputb (0x2f, 0x1E) // Set Timer Count to 30 sec
outputb (0x2E, 0xAA) // locked register
//----- code end -----
```

Appendix3 : GPIO Instruction

MITX-6891 provides a five way input and a five way output programmable interface. Input and output of the interfaces are independent. In the GPIO interface, there are 12 Pin which are link to 10 digital bits. This interface is generated by the onboard chip on PCI bus, and the bus number is 0, device number is 18 and function number is 0. This interface is using the 3rd basic address register. According to PCI standard, the basic address are allocated by the BIOS dynamically, and it is a MUST normally to obtain the basic address before program this interface(if there are no other PCI expansion device, the basic address is: CC00H).

GPIO's interface debugging program is attached in the CD of the packinglist. Running the GPIO executable file will start the GPIO debug program.

Appendix 4: Glossary

ACPI

Advanced Configuration and Power Management Interface for short.ACPI specifications allow OS to control most power of computer and its extended devices. Windows 98/98SE, Windows 2000 and Windows ME are all support ACPI, it provide users a flexible system power management.

ATX

AT extended, a motherboard layout according with modern standard replaced BabyAT. It changes disposal of many components, and do some new high efficiency design, so it is widely used now.

BIOS

Basic in/out system.It's a kind of software including all in/out control code interface in PC. It will do hardware testing while system booting, then system runs, it provides an interface between OS and hardware. BIOS is stored in a ROM chip.

BUS

In a computer system, it's the channels among different parts for exchanging data; it's also a group of hardware line. BUS here means part lines inside CPU and main components of memory.

Chipset

Integrated chips for executing one or more function.Here "Chipset" means system level chipset structured by Southbridge & Northbridge; it decides motherboard's structure and main functions.

CMOS

Complementary Metal-Oxide Semiconductor, a widely used semiconductor with the characteristic of high speed but low power. CMOS we mention here means part of obligate space in on-board CMOS RAM, for saving date, time, system information and system parameter etc.

COM

Computer-Output Microfilm. A universal serial communication interface, usually adopts normative OB 9 connector.

DIMM: Dual Inline Memory Module. It's a small circuit board with memory chipset, providing 64bit bus width.

DRAM

Dynamic Random Access Memorizer. It's a normal type of memory often with a transistor and a capacitance to store 1 bit. With the development of the technology, more and more types and specification of ORAM exist in computer application. Now: SDRAM, DDR SDRAM and RDRAM are generally used.

IDE

Driver specification for integrated device electronics, for connecting HDD / CD-ROM device.

IRDA

Infrared Data Association for short, here means infrared transmit interface, to connect infrared transmit devices. This sort of device transmits data by infrared light-wave without connecting any cables. It has been developed a standard now.

LAN

Network interface. Network grouped by correlative computers in a small area, generally in a company or a building. Local area network is buildup by sever, workstation, some communications links, as a rule. Terminals can access data and devices anywhere through cables, so, many users can share costly device and resource.

LED

Light-Emitting Diode. A semiconductor device that shines when power supply is connected, often use to denote info lightly, for example, to denote power on or HDD work normally.

LPT

Line print terminal. The denomination reserved by DOS, is used to denote universal parallel

interface, and connect printer in a general way.

POST

Self-test when power on. While booting, BIOS will do once uninterrupted testing operation to the system, including RAM, keyboard, hard disk driver etc. Check them in normal situation and work well.

PS/2

A keyboard & mouse connective interface specification developed by IBM.PS/2 is a DIN interface with only 6PIN; it also can connect other devices, like modem.

USB

It's Universal Serial Bus for short. A hardware interface adapts to low speed external devices, and is always used to connect keyboard, mouse etc. One PC can connect 127 USB devices Max, providing 12Mbit/s transmit bandwidth; USB supports hot swap and multi- data stream, namely, you can plug USB devices while system is running, system can auto-detect and makes it work on.

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