ECM-CX700

3.5" VIA CX700M Eden V4 1 GHz Micro Module

User's Manual

1st Ed – 19 March 2007

Part No. E2017371400R

FCC Statement

THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINTST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTATLLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

Notice

This guide is designed for experienced users to setup the system within the shortest time. For detailed information, please always refer to the electronic user's manual.

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Product Warranty

Avalue warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Avalue, or which have been subject to misuse, abuse, accident or improper installation. Avalue assumes no liability under the terms of this warranty as a consequence of such events. Because of Avalue's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If any of Avalue's products is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time, and freight. Please consult your dealer for more details. If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU type and speed, Avalue's products model name, hardware & BIOS revision number, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information available.
3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your good return more quickly.
4. Carefully pack the defective product, a complete Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Contents

1. Getting Started

1.1 Safety Precautions

Warning!

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution!

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

1.2 Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:

- 1 x ECM-CX700 VIA Eden V4 Micro module
- 1 x Quick Installation Guide for ECM-CX700
- 1 x DVD-ROM or CD-ROM contains the followings:
  - User's Manual (this manual in PDF file)
  - Ethernet driver and utilities
  - VGA drivers and utilities
  - Audio drivers and utilities
- 1 x Cable set contains the followings:
  - 1 x IDE HDD cable (40-pin, pitch 2.54mm)
  - 1 x USB cable (10-pin/2.54mm-10pin/2.0mm)
  - 1 x Audio cable (12-pin, pitch 2.0mm)
  - 2 x Serial ATA cable (7-pin, standard)
  - 1 x Serial port cable (10-pin, pitch 2.0mm)
  - 1 x PS/2 Keyboard & Mouse Y cable (6-pin, Mini-DIN)

If any of the above items is damaged or missing, contact your retailer.

1.3 Document Amendment History

Revision	Date	By	Comment
1st	Nov. 2006	Lingo Tsai	Initial Release
	Mar. 2007	Lingo Tsai	Logo changed

1.4 Manual Objectives

This manual describes in detail the Avalue Technology EPI-CX700 Single Board.

We have tried to include as much information as possible but we have not duplicated information that is provided in the standard IBM Technical References, unless it proved to be necessary to aid in the understanding of this board.

We strongly recommend that you study this manual carefully before attempting to interface with EPI-CX700 series or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

Please be aware that it is possible to create configurations within the CMOS RAM that make booting impossible. If this should happen, clear the CMOS settings, (see the description of the Jumper Settings for details).

If you have any suggestions or find any errors concerning this manual and want to inform us of these, please contact our Customer Service department with the relevant details.

1.5 System Specifications

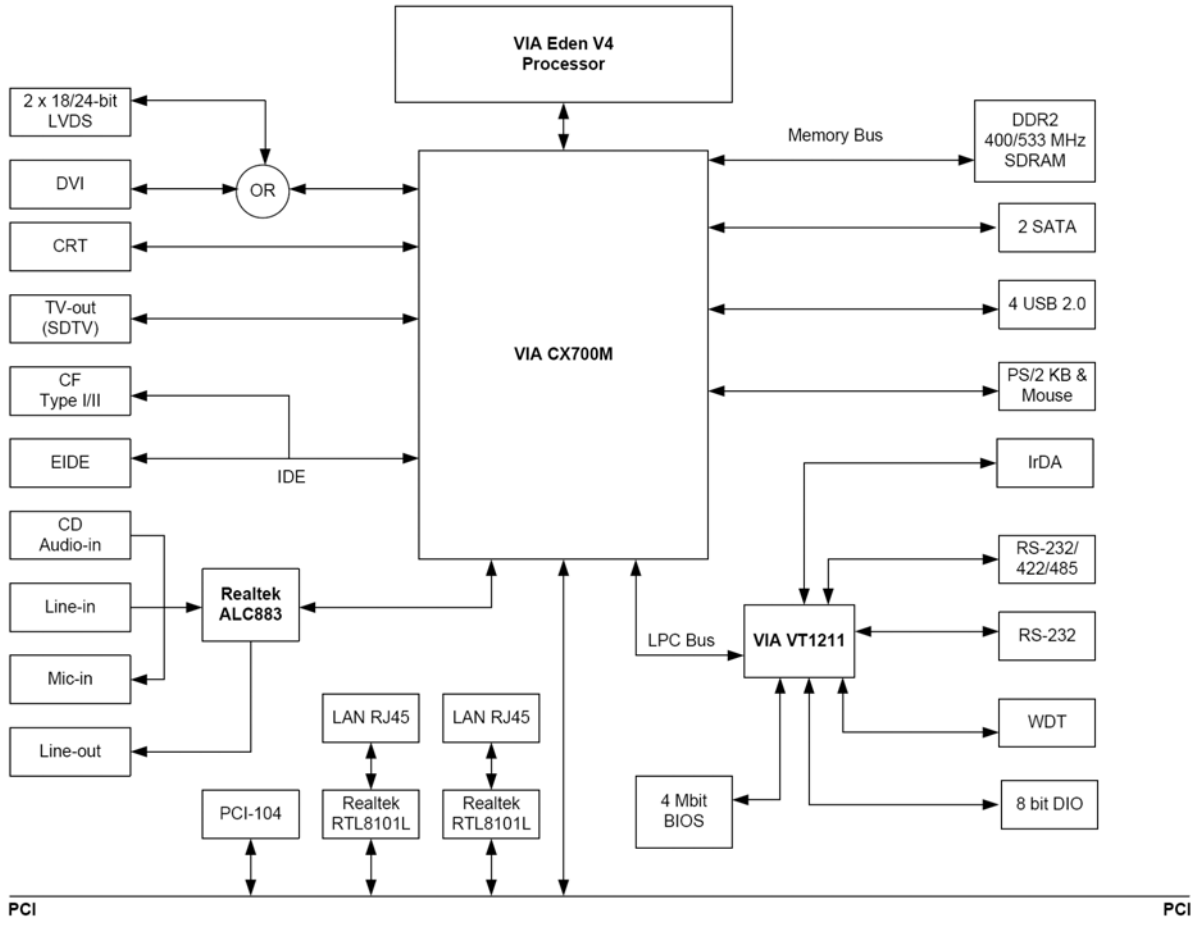
System	
CPU	Onboard VIA Eden V4 1 GHz
BIOS	Award 512 KB Flash BIOS
System Chipset	VIA CX700M
I/O Chip	Winbond W83697HG-AW
System Memory	One 200-pin SODIMM supports up to 1 GB DDR2 400/533 SDRAM
SSD	One CompactFlash Type I/II socket
Watchdog Timer	Reset: 1~255 min. and 1 sec. or 1 min./step
H/W Status Monitor	
Expansion	One PCI-104 connector
I/O	
MIO	1 x EIDE (Ultra DMA 100), 2 x SATA, 1 x LPT, 1xFDD, 1 x RS-232, 1 x RS232/422/485, 1 x K/B & Mouse
IrDA	115k bps, IrDA 1.0 compliant
USB	4 x USB 2.0 ports
Display	
Chipset	VIA CX700M with integrated 2D and 3D Graphics engine supporting MPEG-4 accelerator, MPEG-2 decoder and WMV9 Video acceleration
Display Memory	32 / 64 / 128 MB frame buffer using system memory
Resolution	CRT mode: 1920 x 1440 @ 24 bpp (75 Hz) LCD/Simultaneous mode: 1600 x 1200 @ 24 bpp (60 Hz)
LVDS	Dual-channel 18/24-bit LVDS
Built-In Touch Screen (Optional)	
Chipset	PenMount DMC6000
Touch Screen Interface	With 9 pin 2 mm box header (can be selected with 4/5/8-wire connector)

Audio	
Chipset	VIA VT8251
AC97 Codec	VIA VT1708A supports 7.1 CH Audio
Audio Interface	Mic in, Line in, CD Audio in, Line out
Ethernet	
Chipset (LAN1)	Dual Realtek RTL8100C
Chipset (LAN2)	Dual Realtek RTL8101L
(Optional)	Realtek RTL8110S Gigabit LAN
Ethernet Interface	100Base-Tx Fast Ethernet compatible: Realtek RTL8100C, RTL8101L 1000Base-T Fast Ethernet compatible: Realtek RTL8100S
Mechanical & Environmental	
Power Requirement	+3.3 V @ 1.60 A (with VIA Eden ESP10K 1 GHz & 1 GB DDR2 SDRAM)
Power Type	AT/ATX
Operation Temperature	0~60® C (32~140® F)
Operating Humidity	0%~90% relative humidity, non-condensing
Size (L x W)	4.5" x 6.5" (115 mm x 165 mm)
Weight	0.51 lbs (0.23 kg)

1.6 Architecture Overview

1.6.1 Block Diagram

The following block diagram shows the architecture and main components of EPI-CX700 Series.



The following sections provide detail information about the functions provided onboard.

1.6.2 VIA CX700M

The VIA CX700M integrates premium graphics, audio, memory, storage, and HDTV support all in a single chip design. This unified design enables the creation of smaller form factor designs, reduced power consumption, and easier cooling, all of which opens the door for an expanded range of embedded solutions. This is all done in a single chip package exactly the same size as a North bridge, i.e. 37.5mm x 37.5mm, representing a saving of over 34% in board real estate. This represents a major breakthrough for the embedded industry where ultra compactness is essential, and will have significant benefit for embedded boards such as PC/104 and VIA EPIA mainboards.

Complementing the power-efficient VIA C7 and fanless VIA Eden processors it supports, the VIA CX700M is based on a highly sophisticated power efficient architecture that enables such rich integration into a compact package with a maximum power envelope of just 3.5 watts. A number of key power management technologies are incorporated that monitor activity and dynamically control power according to system load requirements.

Targeted for key embedded applications such as Point of Sales (POS) equipment, industrial PCs (IPC) and ultra compact, low power desktop systems such as thin clients, the VIA CX700M has been designed from the ground up to deliver excellent performance, features and power efficiency. The reduction in board space and operating power requirements together with the extensive multimedia, memory, connectivity and display flexibility provides embedded customers with the ideal chipset to take their ultra compact systems to the next stage.

The VIA CX700M utilizes the VIA UniChrome™ Pro Integrated Graphics Processor (IGP) ensuring optimal performance for all multimedia, entertainment, and productivity applications. With an internal data flow equivalent to the latest AGP 8X graphics cards, a 200MHz 2D/3D graphics engine and features dedicated 128-bit data paths for pixel data flow and texture/command access.

The VIA UniChrome Pro IGP graphics core also features the Chromotion™ video engine raising the bar for digital entertainment support on PC systems. The Chromotion™ video engine employs a multi-faceted approach to displaying multimedia content, implementing a number of advanced tools at every stage of video processing. These include integrated MPEG-2 decoding, for flawless digital video playback with ultra-low CPU-utilization, and advanced rendering tools such as Adaptive De-Interlacing and Video Deblocking, which ensure clearer playback of digital content on all display devices.

ECM-CX700

The benefit of VIA CX700M can be introduced as below:

- Advanced HDTV Display Support

Flexibility is extended to display technologies, with the VIA CX700M integrating a built in HDTV encoder for connection to the latest displays, and multi-configuration LVDS/DVI transmitter.

- VIA UniChrome™ Pro Graphics Core

With an internal data flow equivalent to what is available to the latest AGP 8X graphics cards, VIA UniChrome Pro has a separate 128-bit data path between the North Bridge for pixel data flow and texture/command access. Separate 128-bit 2D and 3D graphics engines ensure optimal performance for all multimedia, entertainment, and productivity applications.

- Chromotion Video Engine

VIA UniChrome Pro includes native support for the most popular digital video and audio formats through hardware MPEG-2 playback and acclaimed VIA Vinyl HD Audio suite, supporting up to eight high definition channels delivering a richer all-around digital media experience. The image enhancement technology delivering a Hi-Def™ visual experience including advanced video acceleration for MPEG-2, MPEG-4, and WMV9.

- Advanced Memory Controller

VIA's renowned memory controller technology has been incorporated into the VIA CX700M, with support for both DDR400 and the high-bandwidth DDR2 533 memory up to 4GB with ECC capability, and 32-bit as well as 64-bit system memory to extend performance, design and cost flexibility to developers.

- VIA Advanced Connectivity

The VIA CX700M offers broad connectivity with support for SATA, SATA II and PATA drives, two COM and six USB2.0 ports, and four PCI slots, allowing for considerable flexibility in board configuration. Additionally, developers can also integrate support for ISA through an ITE PCI bridge chip, combining legacy ISA connectivity with high bandwidth DDR2 memory support for more powerful embedded systems.

- Unified VIA Hyperion Pro Drivers

VIA's unified approach to drivers has been established for eight generations of chipsets, allowing end users to benefit from seamless hardware and software compatibility.

Here are the brief key features for VIA CX700M:

- 533MB/sec Front Side Bus
- Supports up to 4GB DDR2 533/400MHz or DDR400/333/266MHz SDRAM

Integrated VIA UniChrome Pro Graphics

- Integrated VIA UniChrome Pro Graphics
- Built in HDTV Encoder
- Chromotion™ video engine

- MPEG-2 Decoder
- Video De-blocking
- Adaptive De-Interlace
- DuoView+™
- Optimized Unified memory Architecture (UMA)
- 200MHz Graphics Engine Clock with separated 128-bit data paths
- 128-bit 2D and 3D Graphics engine
- Multi-configuration LVDS/DVI transmitter
- Support for VIA Vinyl HD Audio
- Serial ATA support for up to 2 devices
- Parallel ATA133/100/66 support for up to 2 devices
- Support for up to 6 USB 2.0 ports

1.6.3 Realtek ALC883 AC'97 Codec

VIA Vinyl HD Audio codecs are intended to fulfill the requirements of a new generation of PCs that are taking on increasingly complex communication and entertainment roles. As the PC platform increasingly becomes the central device for home entertainment, the HD Audio codecs provide home theatre quality performance with support the latest high definition audio content. For applications such as VOIP, the HD Audio standard also enables advanced support for devices such as array microphones that enable more accurate speech input.

VIA Vinyl HD Audio codecs are compliant with the Intel® High Definition Audio Rev. 1.0 specification. Integrating stereo DACs with a 100dB S/N ration the VIA HD Audio codecs enable support the latest 7.1 channel, 24-bit, 192KHz audio content. The VIA HD Audio Codecs also integrate leading features such as a high quality headphone amplifier, enhanced recording support, and advanced power management features making them ideal for mobile devices.

To fill out the solution VIA offers a stylish easy to use driver with the VIA Vinyl HD Audio codecs enabling full access to its wide range of features. The VIA VT1708 driver also optionally supports leading QSound technology that offers unmatched technologies to transforms the PC Audio experience with enhancements for games, music, and movies as well as advanced feature control that allows users to fully customize their audio experience.

Target markets for the VIA HD Audio codecs include audio on motherboard solutions, and new convergence devices based on the x86 platform.

Here are the brief key features for VIA VT1708:

- Intel High Definition Audio Specification Rev.1.0 Compliant
- Premium Audio Quality
  - Supports 44.1K/48K/96K/192KHz DAC Independent Sample Rate
  - All ADCs Support 48K/192KHz Independent Sample Rate
  - Built in High Quality Headphone Amplifier
  - Exceeds Microsoft PC2001 Requirements
- Various Output Format
  - 4 Stereo DACs Support 24-bit, 192KHz Samples
  - DAC with 100dB S/N Ratio
  - 2 Stereo ADCs Support 24-bit, 192KHz Samples
  - ADC with 95dB S/N Ratio
  - 8-Channels of DAC Support 16/20/24-bit PCM Format for 7.1 Audio Solution
  - 16/20/24 bit S/PDIF TX Supports 24-bit, 44.1K/48K/96KHz Samples
  - 16/20/24 bit S/PDIF RX Supports 24-bit, 44.1K/48K/96KHz Samples

1.6.4 VIA VT1211 Super I/O

The W83697HF/HG is to provide an economical implementation of I/O's interface with lower pin count and still maintains equivalent performance as its ISA interface counterpart. With this additional freedom, more devices can be implemented on a single chip as demonstrated in W83697HF/HG's integration of Game Port and MIDI Port. It is fully transparent in terms of software which means no BIOS or device driver update is needed except chip-specific configuration.

The disk drive adapter functions of W83697HF/HG include data separator, write pre-compensation circuit, decode logic, data rate selection, clock generator, drive interface control logic, and interrupt and DMA logic.

The W83697HF/HG provides two high-speed serial communication ports (UARTs), one of which supports serial Infrared communication. Each UART includes a 16-byte send/receive FIFO, a programmable baud rate generator, complete modem control capability, and a processor interrupt system. Both UARTs provide legacy speed with baud rate up to 115.2k bps. In addition, the W83697HF/HG provides IrDA 1.0.

The W83697HF/HG supports one PC-compatible printer port (SPP), Bi-directional Printer port (BPP) and also Enhanced Parallel Port (EPP) and Extended Capabilities Port (ECP). Through the printer port interface pins, also available are: Extension FDD Mode and Extension 2FDD Mode allowing one or two external floppy disk drives to be connected.

The configuration registers support mode selection, function enable/disable, and power down function selection. Furthermore, the configurable PnP features are compatible with the plug-and-play feature demand of Windows 95/98TM, which makes system resource allocation more efficient than ever.

The W83697HF/HG is made to fully comply with Microsoft PC98 and PC99 Hardware Design Guide, and meet the requirements of ACPI.

The W83697HF/HG contains a game port and a MIDI port. The game port is designed to support 2 joysticks and can be applied to all standard PC game control devices. They are very important for a entertainment or consumer computer.

The W83697HF/HG provides Flash ROM interface. That can support up to 4M legacy flash ROM.

The W83697HF/HG support hardware status monitoring for personal computers. It can be used to monitor several critical hardware parameters of the system, including power supply voltages, fan speeds, and temperatures, which are very important for a high-end computer system to work stably and properly. Moreover, W83697HF/HG support the Smart Fan control system, including the thermal CruiseTM" and speed CruiseTM" functions. Smart Fan can make system more stable and user friendly.

1.6.5 Ethernet

1.6.5.1 Realtek RTL8101L Ethernet Controller

The Ethernet interface is based on an Realtek RTL8101L Ethernet controller which supports both 100Mbit as well as l0Mbit Base-T interface.

The Ethernet controller is attached to the PCI bus and use PCI bus mastering for data transfer. The CPU is thereby not loaded during the actual data transfer.

The Realtek RTL8101L is a highly integrated and cost-effective single-chip Fast Ethernet controller that provides 32-bit performance, PCI bus master capability, and full compliance with IEEE 802.3u 100Base-TX specifications and IEEE 802.3x Full Duplex Flow Control. It also supports the Advanced Configuration Power management Interface (ACPI), PCI power management for modern operating systems that are capable of Operating System Directed Power Management (OSPM) to achieve the most efficient power management possible. The RTL8101L no longer supports CardBus mode as RTL8139C does. In addition to the ACPI feature, the RTL8101L also supports remote wake-up (including AMD Magic Packet, LinkChg, and Microsoft® wake-up frame) in both ACPI and APM environments. The RTL8101L is capable of performing an internal reset through the application of auxiliary power.

To provide cost down support, the RTL8101L is capable of using a 25MHz crystal or OSC as its internal clock source. The RTL8101L keeps network maintenance costs low and eliminates usage barriers. It is the easiest way to upgrade a network from 10 to 100Mbps. It also supports full-duplex operation, making 200Mbps bandwidth possible at no additional cost. To improve compatibility with other brands' products, the RTL8101L is also capable of receiving packets with InterFrameGap no less than 40 Bit-Time. The RTL8101L is highly integrated and requires no "glue" logic or external memory.

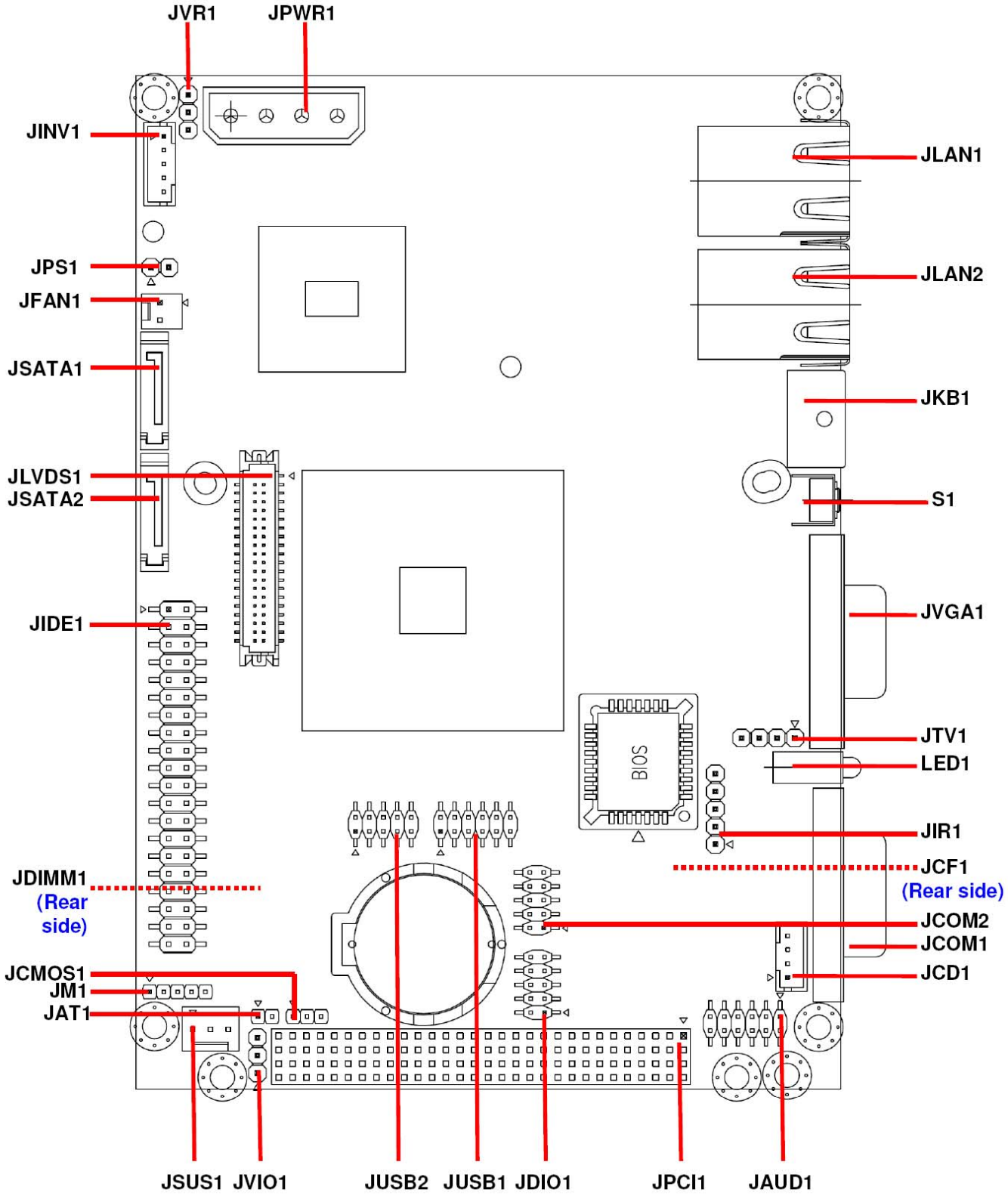
The RTL8101L includes a PCI and Expansion Memory Share Interface (Realtek patent) for a boot ROM and can be used in diskless workstations, providing maximum network security and ease of management.

1.6.6 Compact Flash Interface

A Compact Flash type II connector is connected to the secondary IDE controller. The Compact Flash storage card is IDE compatible. It is an ideal replacement for standard IDE hard drives. The solid-state design offers no seek errors even under extreme shock and vibration conditions. The Compact Flash storage card is extremely small and highly suitable for rugged environments, thus providing an excellent solution for mobile applications with space limitations. It is fully compatible with all consumer applications designed for data storage PC card, PDA, and Smart Cellular Phones, allowing simple use for the end user. The Compact Flash storage card is O/S independent, thus offering an optimal solution for embedded systems operating in non-standard computing environments. The Compact Flash storage card is IDE compatible and offers various capacities.

2. Hardware Configuration

2.1 Product Overview



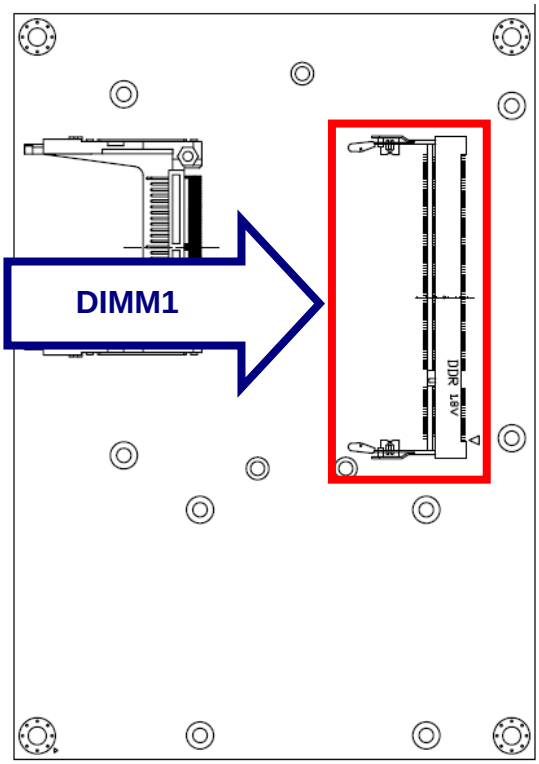
2.2 Installation Procedure

This chapter explains you the instructions of how to setup your system.

1. Turn off the power supply.
2. Insert the SODIMM module (be careful with the orientation).
3. Insert all external cables for hard disk, floppy, keyboard, mouse, USB etc. except for flat panel. A CRT monitor must be connected in order to change CMOS settings to support flat panel.
4. Connect power supply to the board via the ATXPWR.
5. Turn on the power.
6. Enter the BIOS setup by pressing the delete key during boot up. Use the “LOAD BIOS DEFAULTS” feature. The ***Integrated Peripheral Setup*** and the ***Standard CMOS Setup*** Window must be entered and configured correctly to match the particular system configuration.
7. If TFT panel display is to be utilized, make sure the panel voltage is correctly set before connecting the display cable and turning on the power.

2.2.1 Main Memory

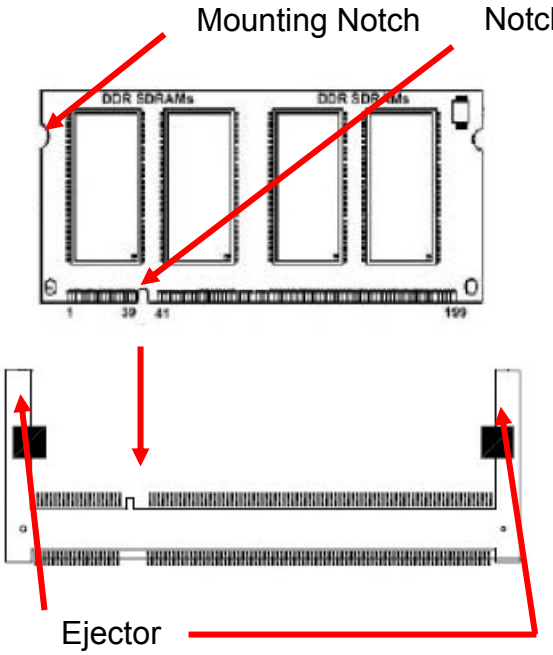
EPI-CX700 series provides one 200-pin DIMM sockets to support DDR2 SDRAM. The total maximum memory size is 1GB.



(Rear Side)

Make sure to unplug the power supply before adding or removing SODIMMs or other system components. Failure to do so may cause severe damage to both the board and the components.

- Locate the SODIMM socket on the board.
- Hold two edges of the SODIMM module carefully. Keep away of touching its connectors.
- Align the notch key on the module with the rib on the slot.
- Firmly press the modules into the socket automatically snaps into the mounting notch. Do not force the SODIMM module in with extra force as the SODIMM module only fit in one direction.



200-pin DDR2 SODIMM

- To remove the SODIMM modules, push the two ejector tabs on the slot outward simultaneously, and then pull out the SODIMM module.

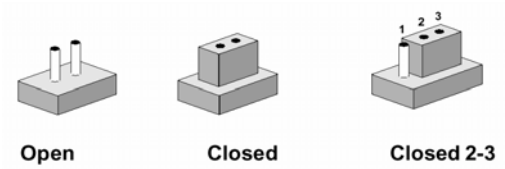
Note: (1) Please do not change any DDR2 SDRAM parameter in BIOS setup to increase your system's performance without acquiring technical information in advance.

(2) Static electricity can damage the electronic components of the computer or optional boards. Before starting these procedures, ensure that you are discharged of static electricity by touching a grounded metal object briefly.

2.3 Jumper and Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip. To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.



The jumper settings are schematically depicted in this manual as follows:

A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

The following tables list the function of each of the board's jumpers and connectors.

Jumpers

Label	Function	Note
JAT1	AT/ATX power select	2 x 1 header, pitch 2.00mm
JSUS1		3 x 1 header, pitch 2.54mm
JCMOS1	Clear CMOS	3 x 1 header, pitch 2.00mm
JVIO1	PCI 104 voltage select	3 x 2 header, pitch 2.54mm

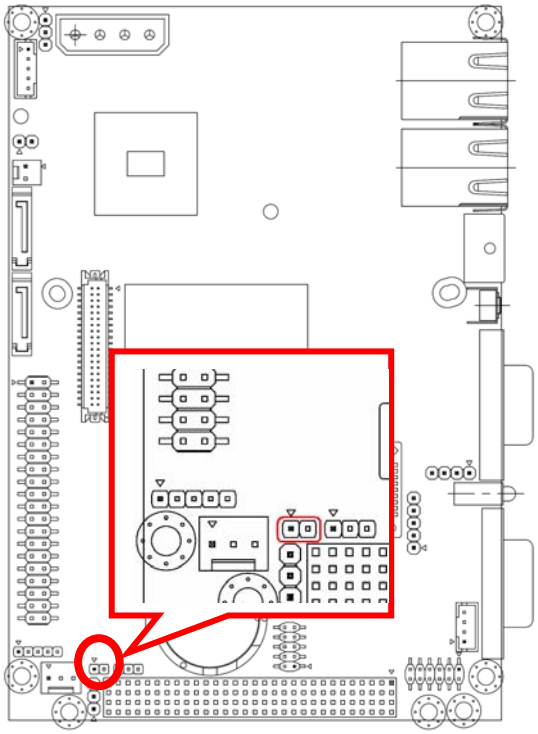
Connectors

Label	Function	Note
JAUD1	Audio connector	6 x 2 header, pitch 2.0mm
JCD1	CD-ROM audio input connector	4 x 1 w, pitch 2.0mm
JCF1	Compact Flash card connector	
JCOM1	Serial port 1 connector	5 x 2 header, pitch 2.0mm
JCOM2	Serial port 2 connector	5 x 2 header, pitch 2.0mm
JSODIMM1	DDR2 SOSODIMM 1.8V	200-pin DDR2 SOSODIMM socket
JDIO1	General purpose !/O connector	5 x 2 header, pitch 2.0mm
JFAN1	CPU fan connector	2 x 1 wafer, pitch 2.54mm
JIDE1	Primary IDE connector	20 x 2 header, pitch 2.54mm
JINV1	LCD inverter connector	5 x 1 wafer, pitch 2.0mm
JIR1	IrDA connector	5 x 1 header, pitch 2.54mm
JKB1	PS/2 keyboard & mouse connector	6-pin mini DIN
JLAN1	RJ-45 Ethernet 1	
JLAN2	RJ-45 Ethernet 2	
JLVDS1	LVDS connector	HIROSE DF13-40DP-1.25V
JM1	Lord Port (for Firmware updating only)	5 x 1 header, pitch 2.0mm
JPCI1	PCI-104 connector	5 x 2 header, pitch 2.0mm
JPS1	ATX power switch connector	2 x 1 header, pitch 2.54mm
JPWR1	Power connector	Wafer box 4P 5.08mm
JSATA1	Serial ATA connector 1 Floppy connector	Wafer 7P pitch 1.27mm
JSATA2	Serial ATA connector 2	Wafer 7P pitch 1.27mm
JTV1	Video signal OUT	4 x 1 header, pitch 2.54mm
JUSB1	USB connector 0 & 1	5 x 2 header, pitch 2.0mm
JUSB2	USB connector 2 & 3	5 x 2 header, pitch 2.0mm
JVGA1	VGA connector	D-sub 15-pin, Female
JVR1	LCD backlight brightness adjustment	3 x 1 header, pitch 2.54mm
LED1	Power & HDD indicator	
S1	Reset button	

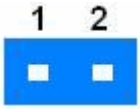
2.4 Setting Jumpers & Connectors

2.4.1 AT/ATX Power Select (JAT1, JSUS1)

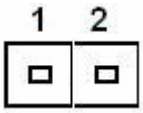
JAT1



AT*

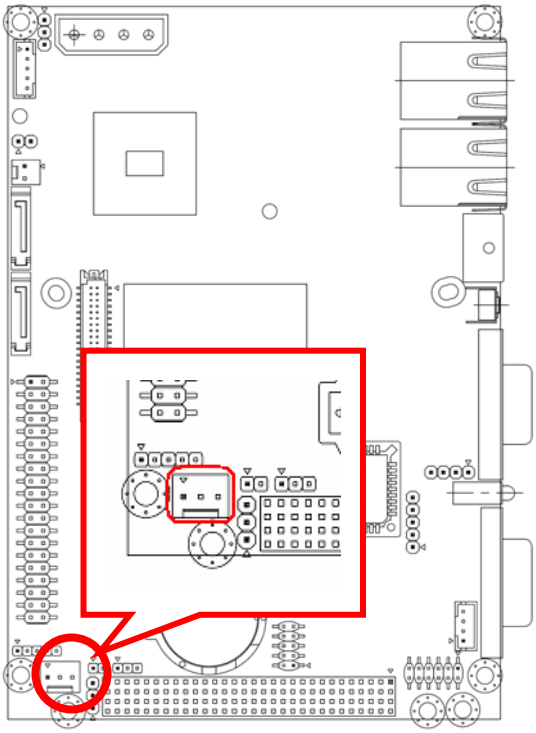


ATX



*** Default**

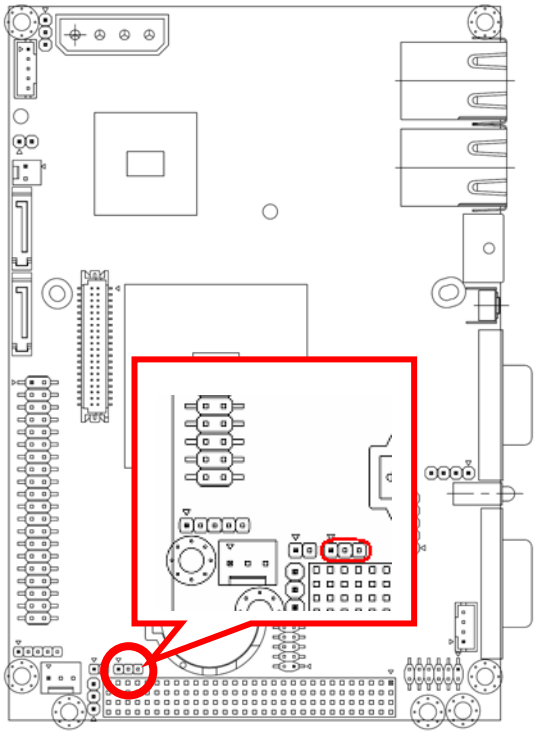
JSUS1



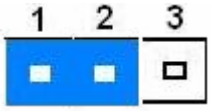
Signal	PIN
PWR_ON	1
+5V	2
VCCSB	3

Note: The default sets 2-3 closed for AT power used.

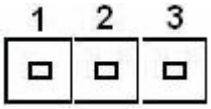
2.4.2 Clear CMOS (JCMOS1)



Protect *

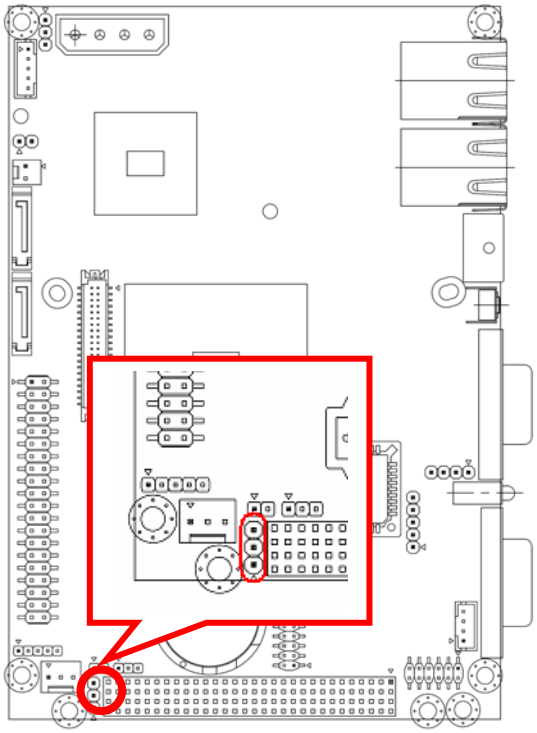


Clear CMOS

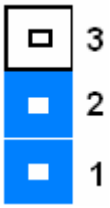


*** Default**

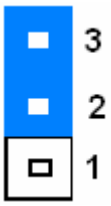
2.4.3 PCI-104 Voltage Select (JVIO1)



+5V*

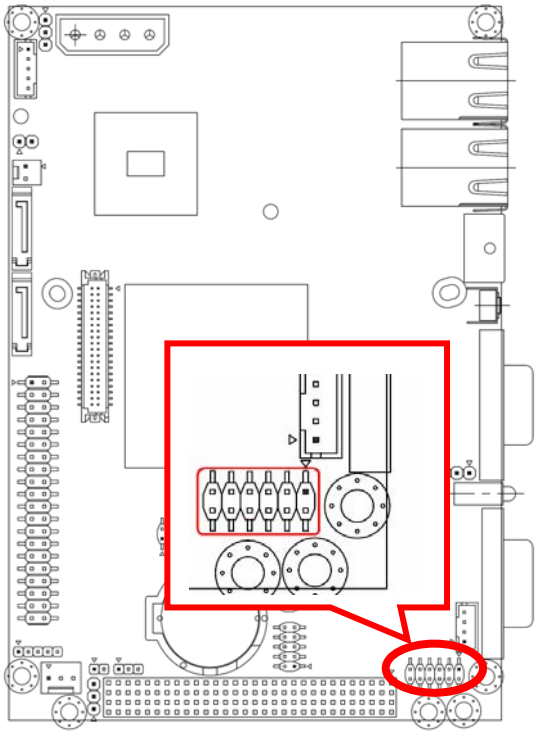


+3.3V



*** Default**

2.4.4 Audio connector (JAUD1)



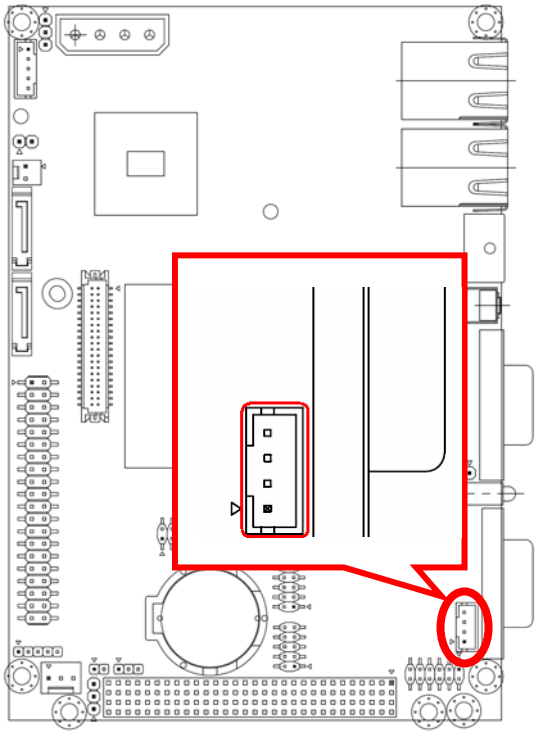
Signal	PIN	PIN	Signal
LINEOUT_L	1	2	LINEOUT _R
GND	3	4	LFE-OUT
LIN_L	5	6	LIN_R
Mic-in	7	8	CEN-OUT
SURR-OUT-L	9	10	SURR-OUT-R
SPDIF OUT	11	12	GND

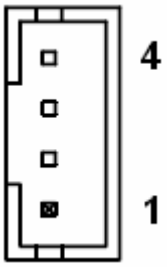
*** Default**

2.4.4.1 Signal Description – Audio Connecter (JAUD1)

Signal	Signal Description
LINEOUT L/R	Left and right speaker output. These are the speaker outputs directly from the speaker amplifier.
LFE-OUT	Low Frequency Effect Out channel (un-amplified)
Line-In L/R	Left and right line in signals.
LN L/R	Left and right line out signals. Both signals are capacitor coupled and should have GND as return.
Mic-in	The MIC signal is used for microphone input. This input is fed to the left microphone channel.
CEN-OUT	Center Out channel (im-amplified)
SURR-OUT L/R	Surround Out Feft and Right channel
SPDIF OUT	PCM Non-Audio Sony/Philips Digital I/F Output (Internal pulled high).

2.4.5 CD-ROM Audio Input Connector (JCD1)



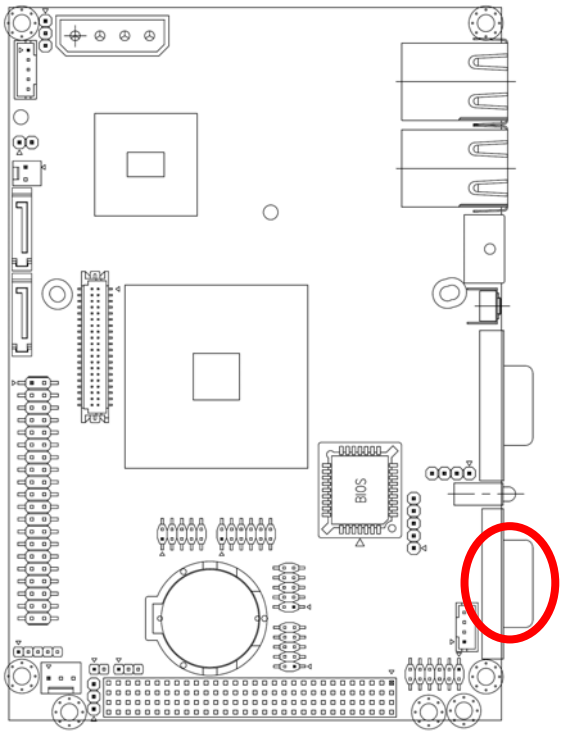


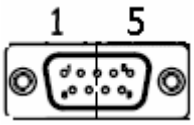
Signal	PIN
CD_L	4
GND	3
CD_R	2
GND	1

2.4.5.1 Signal Description – CD-ROM Audio Input Connecter (JCD1)

Signal	Signal Description
CD_R	Right CD-IN signal
CD_L	Left CD-IN signal.

2.4.6 Serial Port 1 Connector (JCOM1)



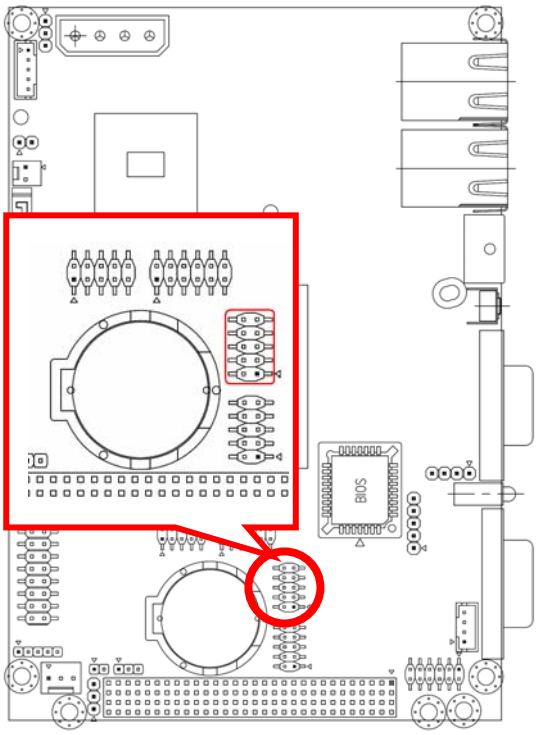


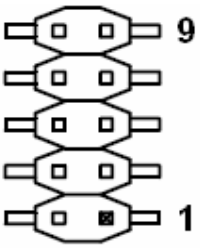
Signal	PIN	PIN	Signal
GND	5		
		9	RI
DTR	4		
		8	CTS
TxD	3		
		7	RTS
RxD	2		
		6	DSR
DCD	1		

2.4.6.1 Signal Description – Serial Port 1 Connector (JCOM1)

Signal	Signal Description
TxD	Serial output. This signal sends serial data to the communication link. The signal is set to a marking state on hardware reset when the transmitter is empty or when loop mode operation is initiated.
RxD	Serial input. This signal receives serial data from the communication link.
DTR	Data Terminal Ready. This signal indicates to the modem or data set that the on-board UART is ready to establish a communication link.
DSR	Data Set Ready. This signal indicates that the modem or data set is ready to establish a communication link.
RTS	Request To Send. This signal indicates to the modem or data set that the on-board UART is ready to exchange data.
CTS	Clear To Send. This signal indicates that the modem or data set is ready to exchange data.
DCD	Data Carrier Detect. This signal indicates that the modem or data set has detected the data carrier.
RI	Ring Indicator. This signal indicates that the modem has received a telephone ringing signal.

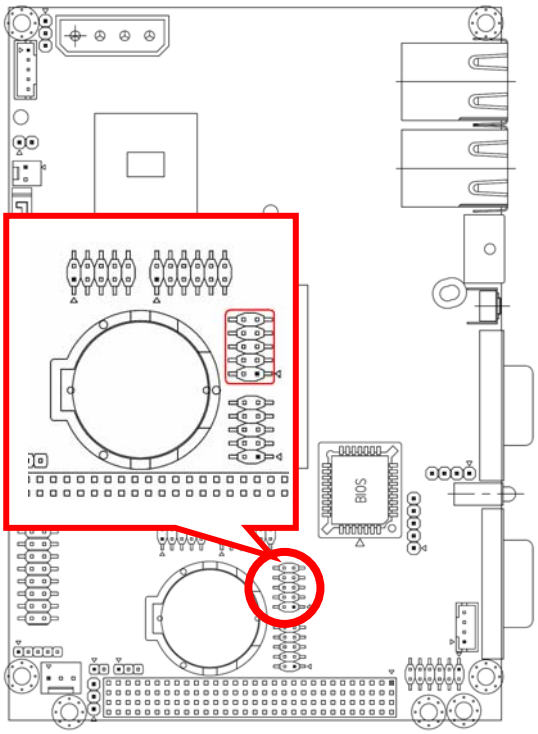
2.4.7 Serial Port 2 Connector in RS-232 Mode (JCOM2)

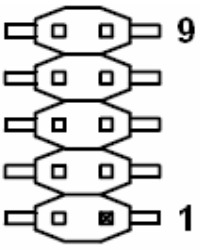




Signal	PIN	PIN	Signal
GND	10	9	RI
CTS	8	7	RTS
DSR	6	5	GND
DRT	4	3	TxD
RxD	2	1	DCD

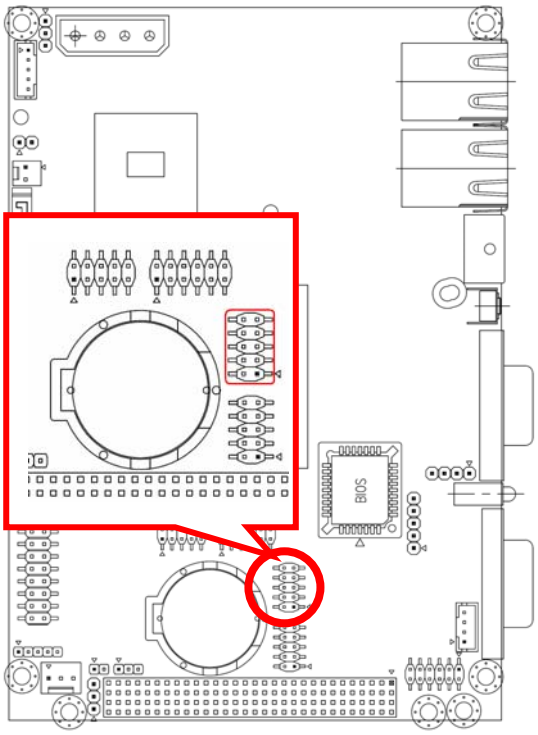
2.4.8 Serial Port 2 Connector in RS-422 Mode (JCOM2)

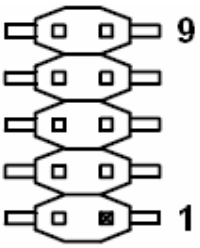




Signal	PIN	PIN	Signal
GND	10	9	GND
RxD-	8	7	NC
TxD+	6	5	GND
NC	4	3	NC
RxD+	2	1	TxD-

2.4.9 Serial Port 2 Connector in RS-485 Mode (JCOM2)





Signal	PIN	PIN	Signal
GND	10	9	GND
NC	8	7	NC
DATA+	6	5	GND
NC	4	3	NC
NC	2	1	DATA-

2.4.9.1 Signal Description – Serial Port 2 Connecter (JCOM2)

Signal	Signal Description
TxD	Serial output. This signal sends serial data to the communication link. The signal is set to a marking state on hardware reset when the transmitter is empty or when loop mode operation is initiated.
RxD	Serial input. This signal receives serial data from the communication link.
DTR	Data Terminal Ready. This signal indicates to the modem or data set that the on-board UART is ready to establish a communication link.
DSR	Data Set Ready. This signal indicates that the modem or data set is ready to establish a communication link.
RTS	Request To Send. This signal indicates to the modem or data set that the on-board UART is ready to exchange data.
CTS	Clear To Send. This signal indicates that the modem or data set is ready to exchange data.
DCD	Data Carrier Detect. This signal indicates that the modem or data set has detected the data carrier.
RI	Ring Indicator. This signal indicates that the modem has received a telephone ringing signal.
TxD+/-	Serial output. This differential signal pair sends serial data to the communication link. Data is transferred from Serial Port 2 Transmit Buffer Register to the communication link, if the RTS register of the Serial Port 2 is set to LOW.
RxD+/-	Serial input. This differential signal pair receives serial data from the communication link. Received data is available in Serial Port 2 Receiver Buffer Register.
DATA+/-	This differential signal pair sends and receives serial data to the communication link. The mode of this differential signal pair is controlled through the RTS register of Serial Port 2. Set the RTS register of the Serial Port 2 to LOW for transmitting, HIGH for receiving.

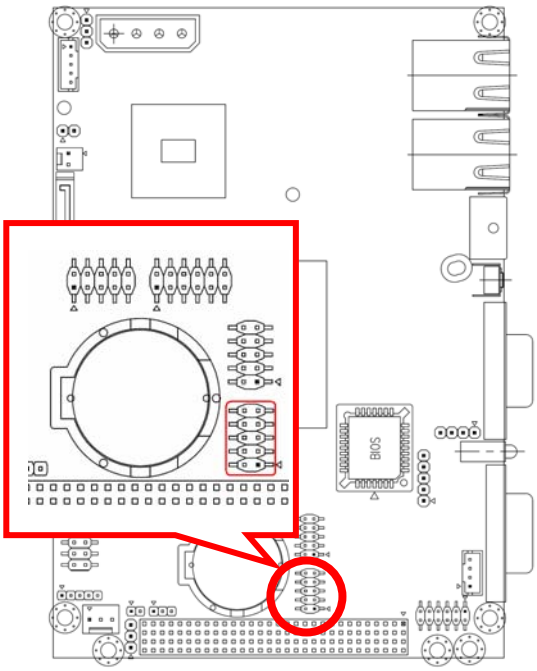
Do not select a mode different from the one used by the connected peripheral, as this may damage CPU board and/or peripheral.

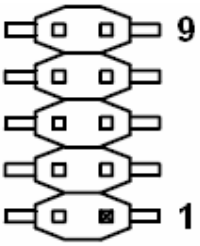
The transmitter drivers in the port are short circuit protected by a thermal protection circuit. The circuit disables the drivers when the die temperature reaches 150 °C.

RS-422 mode is typically used in point to point communication. Data and control signal pairs should be terminated in the receiver end with a resistor matching the cable impedance (typical 100-120 Ω). The resistors could be placed in the connector housing.

RS-485 mode is typically used in multi drop applications, where more than 2 units are communicating. The data and control signal pairs should be terminated in each end of the communication line with a resistor matching the cable impedance (typical 100-120 Ω). Stubs to substations should be avoided.

2.4.10 General Purpose I/O Connector (JDIO1)



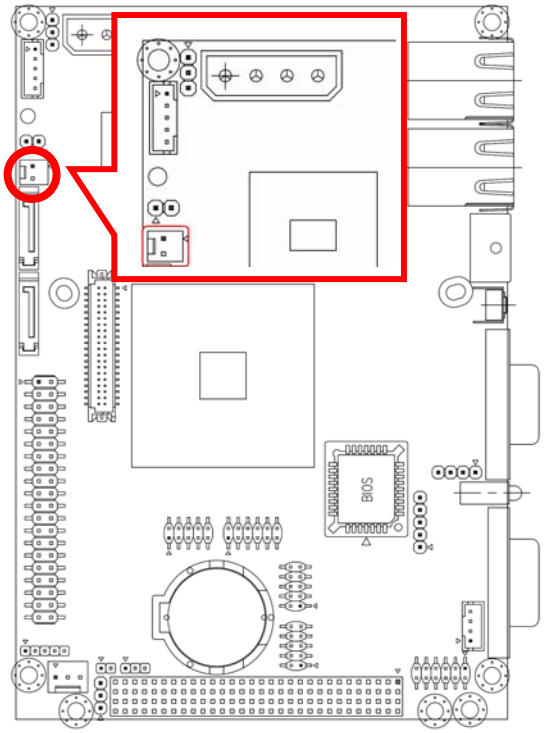


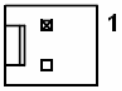
Signal	PIN	PIN	Signal
GND	10	9	+5V
GP17	8	7	GP13
GP16	6	5	GP12
GP15	4	3	GP11
GP14	2	1	GP10

2.4.10.1 Signal Description – General Purpose I/O Connecter (JDIO1)

Signal	Signal Description
GP [10:17]	Digital Input/Output Data Bit 0 to Bit 8

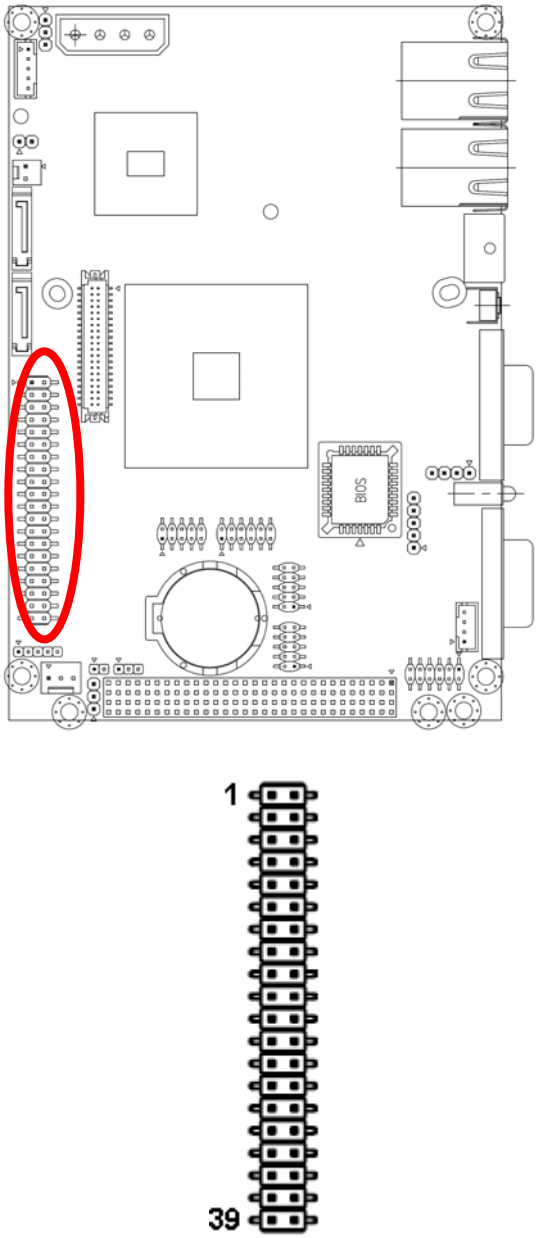
2.4.11 System Fan Connector (JFAN1)





Signal	PIN
GND	1
VDD	2

2.4.12 Primary IDE Connector (JIDE1)

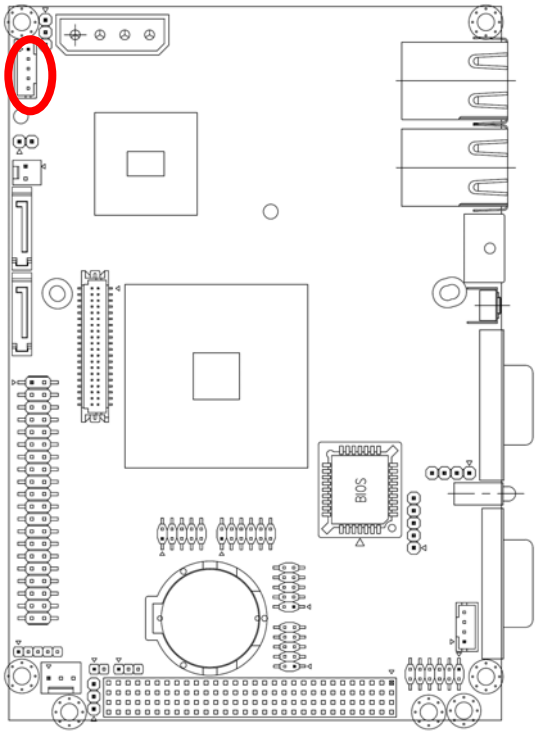


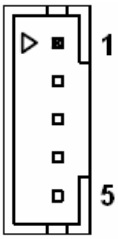
Signal	PIN	PIN	Signal
RESET#	1	2	GND
PDD7	3	4	PDD8
PDD6	5	6	PDD9
PDD5	7	8	PDD10
PDD4	9	10	PDD11
PDD3	11	12	PDD12
PDD2	13	14	PDD13
PDD1	15	16	PDD14
PDD0	17	18	PDD15
GND	19	20	NC
PDREQ	21	22	GND
PDIOW#	23	24	GND
PDIOR#	25	26	GND
PIORDY	27	28	GND
PDDACK#	29	30	GND
IRQ14	31	32	NC
PDA1	33	34	NC
PDA0	35	36	PDA2
PDCS1#	37	38	PDCS3#
IDEACTP#	39	40	GND

2.4.12.1 Signal Description – Primary IDE Connector (JIDE1)

Signal	Signal Description
PDA [2:0]	IDE Address Bits. These address bits are used to access a register or data port in a device on the IDE bus.
DCS1#, DCS3#	IDE Chip Selects. The chip select signals are used to select the command block registers in an IDE device. DCS1# selects the primary hard disk.
PDD [15:0]	IDE Data Lines. D [15:0] transfers data to/from the IDE devices.
PIOR#	IDE I/O Read. Signal is asserted on read accesses to the corresponding IDE port addresses.
PIOW#	IDE I/O Write. Each signal is asserted on write accesses to corresponding the IDE port addresses.
PIORDY	When deasserted, these signals extend the transfer cycle of any host register access when the device is not ready to respond to the data transfer request.
RESET#	IDE Reset. This signal resets all the devices that are attached to the IDE interface.
PIRQ14	Interrupt line from hard disk. Connected directly to PC-AT bus.
PDREQ	The DREQ is used to request a DMA transfer from the South Bridge. The direction of the transfers is determined by the IOR#/IOW# signals.
PDACK#	DMA Acknowledge. The DACK# acknowledges the DREQ request to initiate DMA transfers.
PDACT#	Signal from hard disk indicating hard disk activity. The signal level depends on the hard disk type, normally active low. The signal is routed directly to the LED1.

2.4.13 LCD Inverter Connector (JINV1)





Signal	PIN
+12V	1
GND	2
ENBKL	3
VR	4
+5V	5

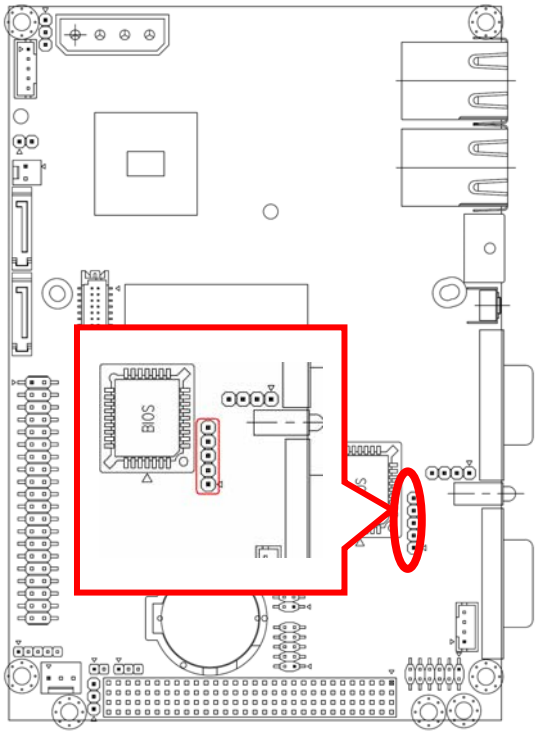
Note:

For inverters with adjustable Backlight function, it is possible to control the LCD brightness through the VR signal controlled by **VR1**. Please see the **VR1** section for detailed circuitry information.

2.4.13.1 Signal Description – LCD Inverter Connector (JINV1)

Signal	Signal Description
VR	Vadj = 0.75V ~ 4.25V (Recommended: 4.7KΩ, >1/16W)
ENBKL	LCD backlight ON/OFF control signal

2.4.14 IrDA Connector (JIR1)

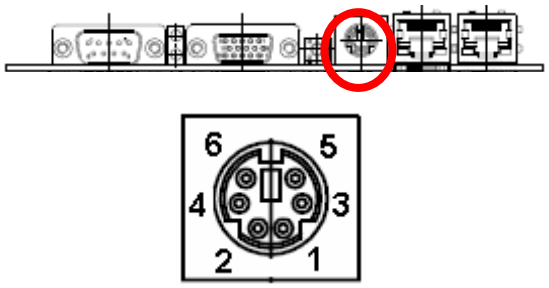


Signal	PIN
IRTX	5
GND	4
IRRX	3
NC	2
+5V	1

2.4.14.1 Signal Description – IrDA Connector (JIR1)

Signal	Signal Description
IRRX	Infrared Receiver input
IRTX	Infrared Transmitter output

2.4.15 PS/2 Keyboard & Mouse Connector (JKB1)

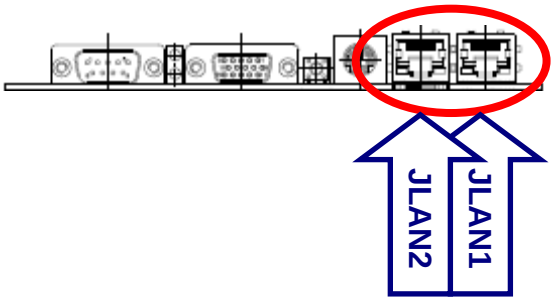


Signal	PIN	PIN	Signal
MDAT	6	5	KDAT
GND	4	3	+5V
KCLK	2	1	MCLK

2.4.15.1 Signal Description – PS/2 Keyboard & Mouse Connector (JKB1)

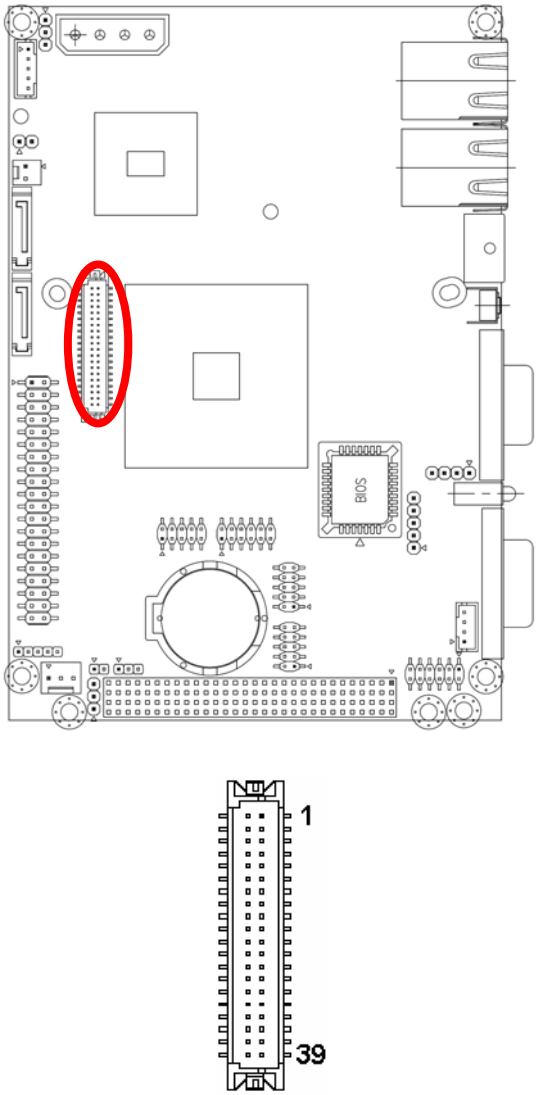
Signal	Signal Description
KCLK	Bi-directional clock signal used to strobe data/commands from/to the PC-AT keyboard.
KDAT	Bi-directional serial data line used to transfer data from or commands to the PC-AT keyboard.
MCLK	Bi-directional clock signal used to strobe data/commands from/to the PS/2 mouse.
MDAT	Bi-directional serial data line used to transfer data from or commands to the PS/2 mouse.

2.4.16 RJ-45 Ethernet (JLAN1, JLAN2)



Port	Description
RJ-45	Allows connection to a Local Area Network (LAN) through a network hub.

2.4.17 LVDS Connector (JLVDS1)

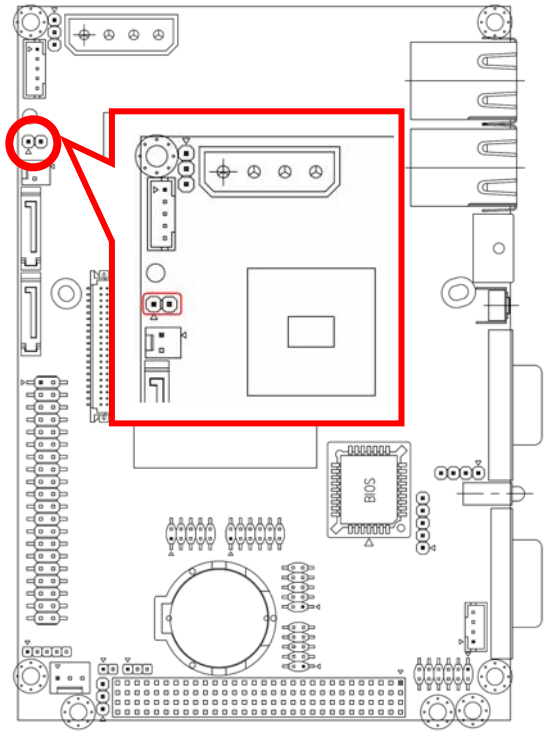


Signal	PIN	PIN	Signal
+5V	2	1	+3.3V
+5V	4	3	+3.3V
I^2C_DAT	6	5	I^2C_CLK
GND	8	7	GND
Txout0	10	9	Txout1
Txout0#	12	11	Txout1#
GND	14	13	GND
Txout2	16	15	Txout3
Txout2#	18	17	Txout3#
GND	20	19	GND
E_Txout0	22	21	E_Txout1
E_Txout0#	24	23	E_Txout1#
GND	26	25	GND
E_Txout2	28	27	E_Txout3
E_Txout2#	30	29	E_Txout3
GND	32	31	GND
Txclk	34	33	E_Txclk
Txclk#	36	35	E_Txclk#
GND	38	37	GND
+12V	40	39	+12V

2.4.17.1 Signal Description – LVDS Connector (JLVDS1)

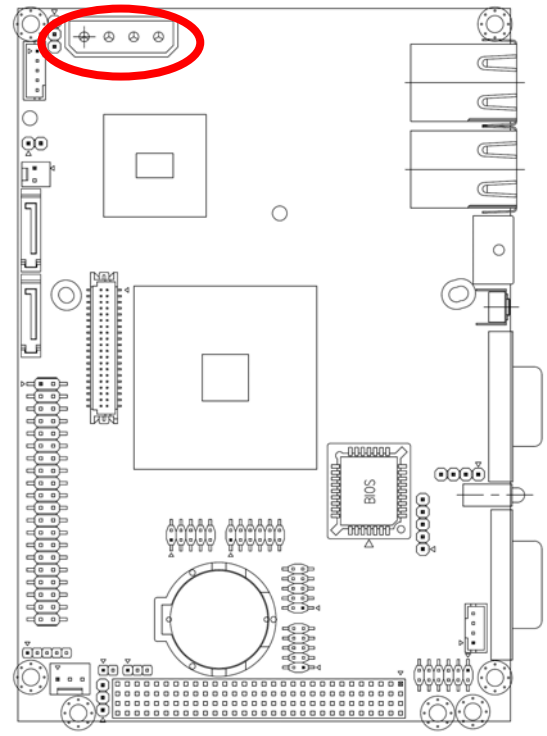
Signal	Description
I^2C_DAT, I^2C_CLK	I^2C interface for panel parameter EEPROM. This EERPOM is mounted on the LVDS receiver. The data in the EEPROM allows the EXT module to automatically set the proper timing parameters for a specific LCD panel.

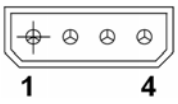
2.4.18 ATX Power Switch Connector (JPS1)



Signal	PIN
GND	2
PW_BN	1

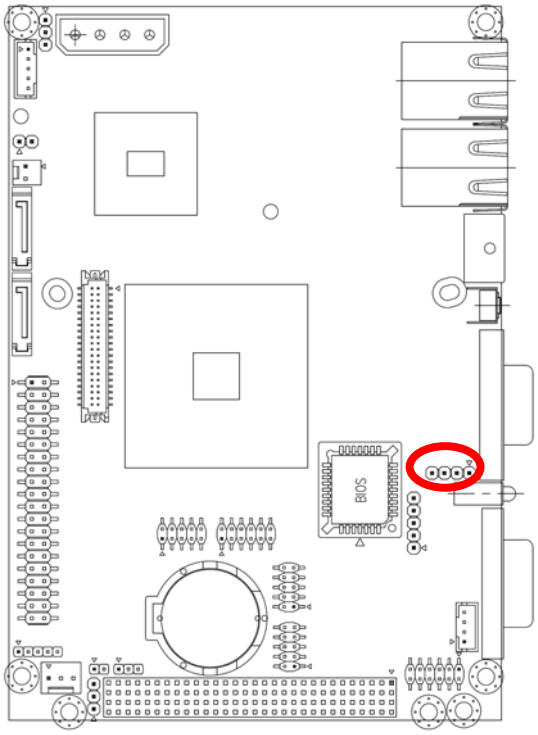
2.4.19 Power Connector (JPWR1)





PIN	Signal
1	+12V
2	GND
3	GND
4	+5V

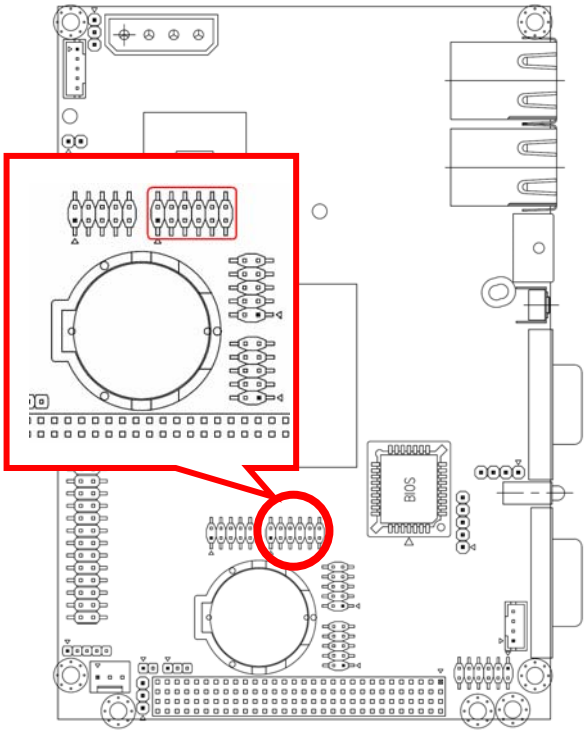
2.4.20 TV Connector (JTV1)

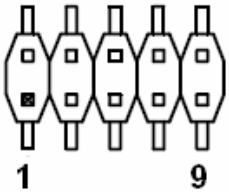


Signal	PIN
R/Pr/C	1
G/Y	2
B/Pb/CVBS	3
GND	4

DAC Output Mode			
S-vide, AV-signal	Y	C	CVBS
TV-Signal	R	G	B
HDTV-Signal	Pr	Y	Pb
	C	Y	Yi

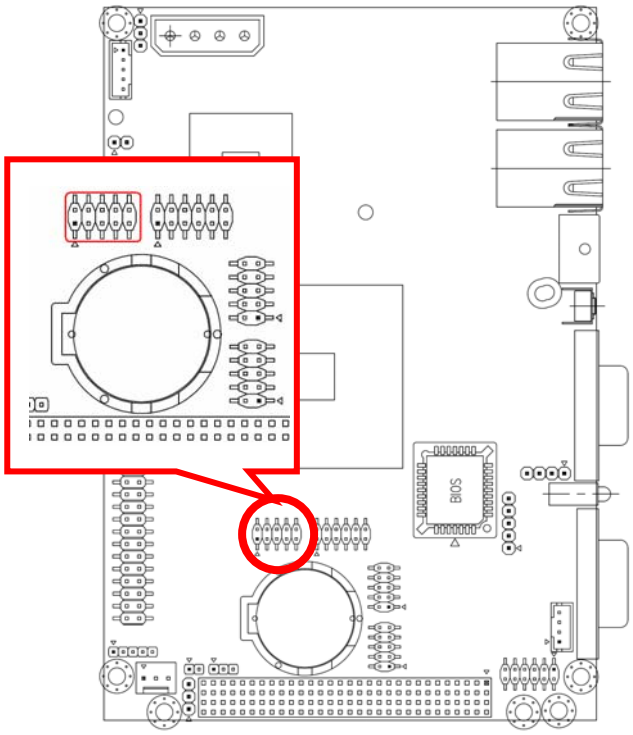
2.4.21 USB Connector 0 & 1 (JUSB1)

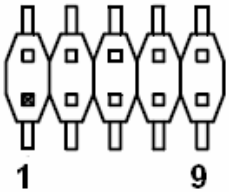




Signal	PIN	PIN	Signal
+5V	1	2	GND
D1-	3	4	GND
D1+	5	6	D0+
GND	7	8	D0-
GND	9	10	+5V

2.4.22 USB Connector 2 & 3 (JUSB2)



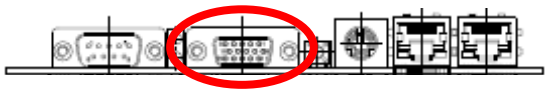


Signal	PIN	PIN	Signal
+5V	1	2	GND
D3-	3	4	GND
D3+	5	6	D2+
GND	7	8	D2-
GND	9	10	+5V

2.4.22.1 Signal Description – USB Connector 0, 1, 2 & 3 Connector (JUSB1, JUSB2)

Signal	Signal Description
D0+/-, D2+/-	Differential bi-directional data signal for USB channel 0, 2. Clock is transmitted along with the data using NRZI encoding. The signalling bit rate is up to 12 Mbs.
D1+/-, D3+/-	Differential bi-directional data signal for USB channel 1, 3. Clock is transmitted along with the data using NRZI encoding. The signalling bit rate is up to 12 Mbs.

2.4.23 VGA Connector (JVGA1)

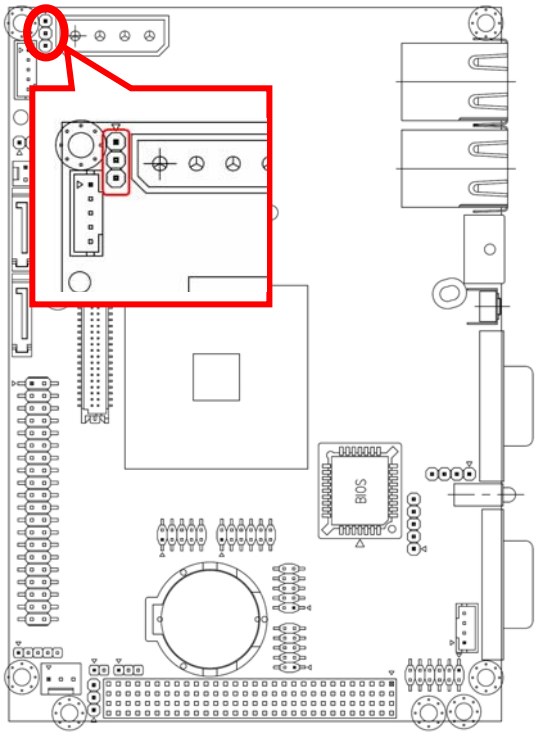


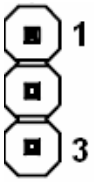
Signal	PIN			Signal
		6		GND
RED	1		11	NC
		7		GND
GREEN	2		12	DAT
		8		GND
BLUE	3		13	HSYNC
		9		VCC
NC	4		14	VSYNC
		10		GND
GND	5		15	DCK

2.4.23.1 Signal Description – VGA Connecter (JVGA1)

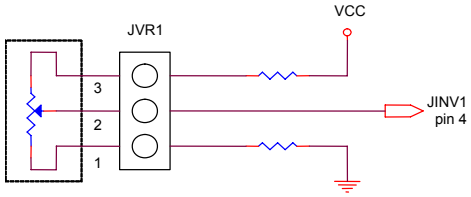
Signal	Signal Description
HSYNC	CRT horizontal synchronisation output.
VSYNC	CRT vertical synchronisation output.
DCK	Display Data Channel Clock. Used as clock signal to/from monitors with DDC interface.
DAT	Display Data Channel Data. Used as data signal to/from monitors with DDC interface.
RED	Analog output carrying the red colour signal to the CRT. For 75 Ω cable impedance.
GREEN	Analog output carrying the green colour signal to the CRT. For 75 Ω cable impedance.
BLUE	Analog output carrying the blue colour signal to the CRT. For 75 Ω cable impedance.

2.4.24 LCD Backlight Brightness Adjustment Connector (JVR1)





Signal	PIN
GND	1
VR	2
+5V	3



Variation Resistor

(Recommended: 4.7KΩ, >1/16W)

3. BIOS Setup

3.1 Starting Setup

The AwardBIOS™ is immediately activated when you first power on the computer. The BIOS reads the system information contained in the CMOS and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:

By pressing <Del> immediately after switching the system on, or

By pressing the <Del> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test).

Press DEL to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to.

Press F1 to Continue, DEL to enter SETUP

3.2 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Button	Description
↑	Move to previous item
↓	Move to next item
←	Move to the item in the left hand
→	Move to the item in the right hand
Esc key	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
(Shift) F2 key	Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward
F3 key	Calendar, only for Status Page Setup Menu
F4 key	Reserved
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the default
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

- **Navigating Through The Menu Bar**

  Use the left and right arrow keys to choose the menu you want to be in.

Note: Some of the navigation keys differ from one screen to another.

- **To Display a Sub Menu**

  Use the arrow keys to move the cursor to the sub menu you want. Then press <Enter>. A "➢" pointer marks all sub menus.

3.3 Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the F1 key again.

3.4 In Case of Problems

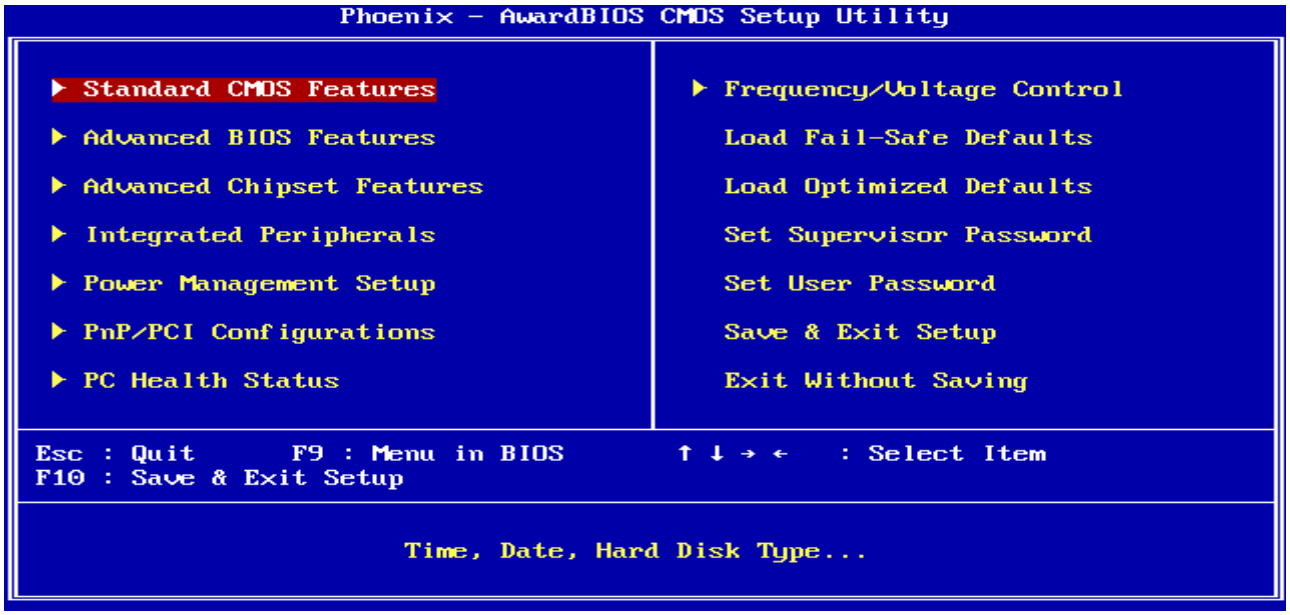
If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the AwardBIOS™ supports an override to the CMOS settings which resets your system to its defaults.

The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

3.5 Main Menu

Once you enter the AwardBIOS™ CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

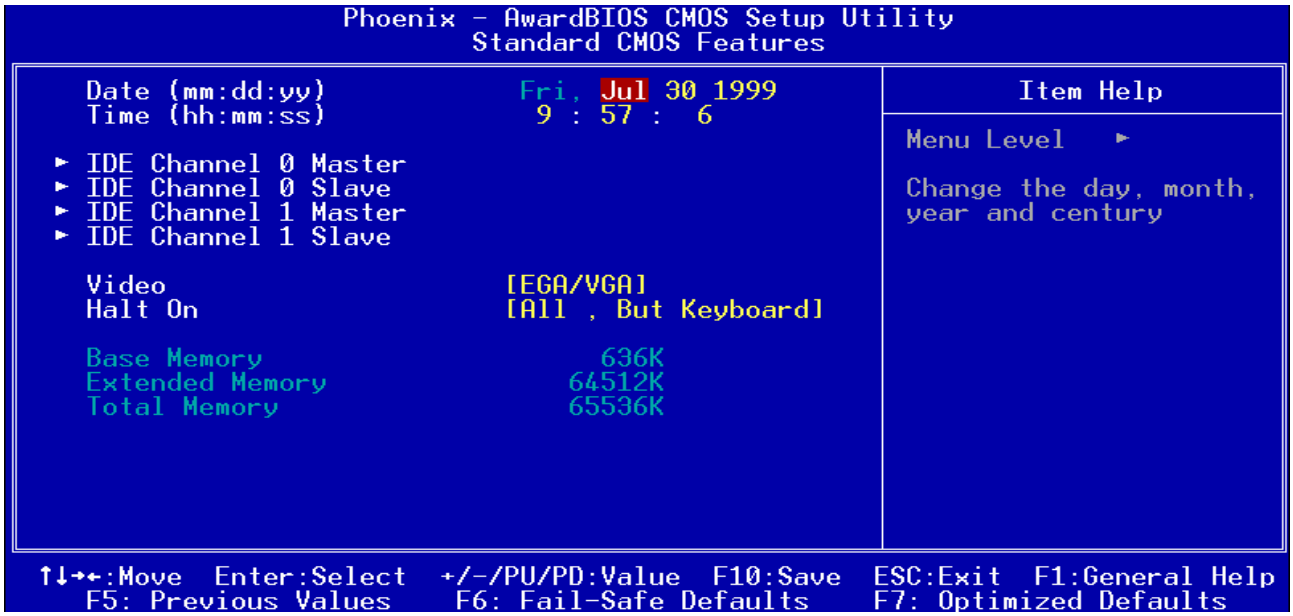
Note that a brief description of each highlighted selection appears at the bottom of the screen.



Note: The BIOS setup screens shown in this chapter are for reference purposes only, and may not exactly match what you see on your screen.
Visit the Avalue website (www.avalue.com.tw) to download the latest product and BIOS information.

3.5.1 Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into few categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.



3.5.1.1 Main Menu Selection

This reference table shows the selections that you may make on the Main Menu.

Item	Options	Description
Date	MM DD YYYY	Set the system date. Note that the 'Day' automatically changes when you set the date
Time	HH : MM : SS	Set the system time
IDE Channel 0 Master IDE Channel 0 Slave IDE Channel 1 Master IDE Channel 1 Slave	Options are in 3.5.1.2	Press <Enter> to enter the sub menu of detailed options
Video	EGA/VGA CGA 40 CGA 80 MONO	Select the default video device
Halt On	All Errors No Errors All, but Keyboard All, but Diskette All, but Disk/Key	Select the situation in which you want the BIOS to stop the POST process and notify you

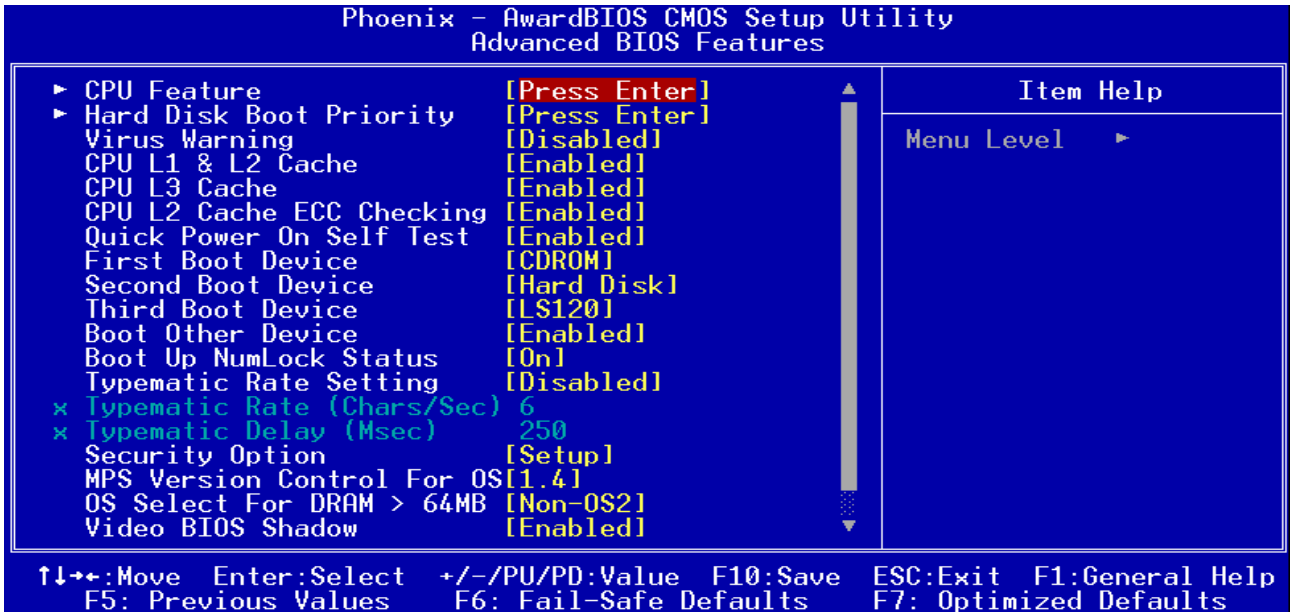
3.5.1.2 IDE Adapter Setup

The IDE adapters control the hard disk drive. Use a separate sub menu to configure each hard disk drive. The below Figure will shows the IDE primary master sub menu.

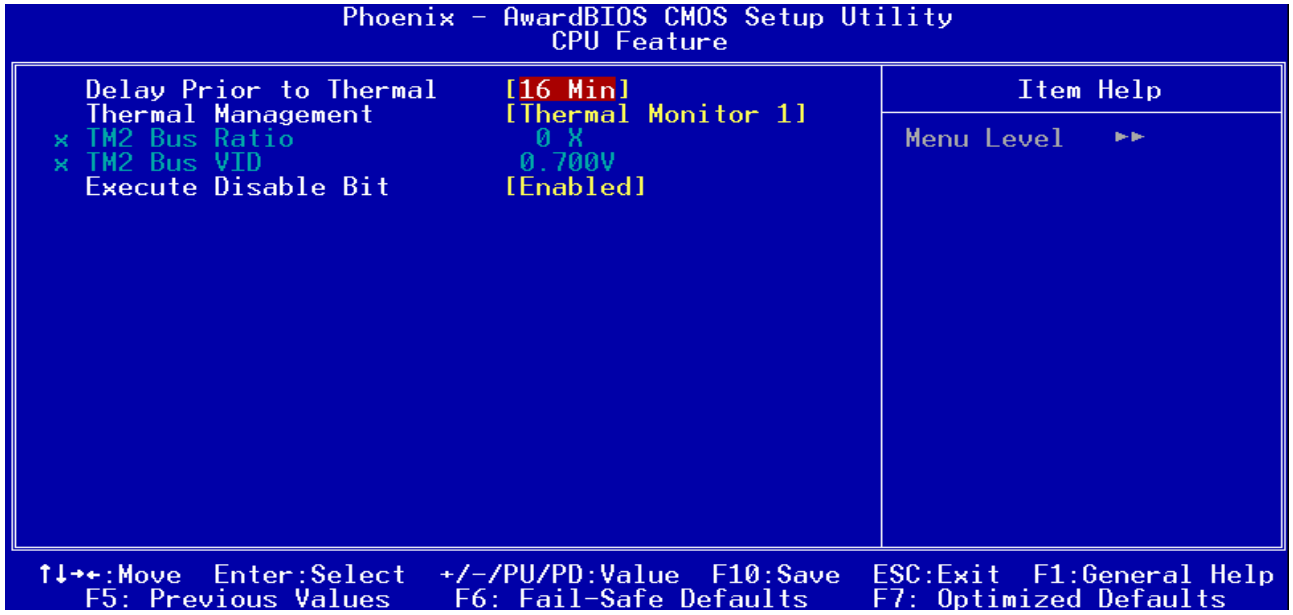
Item	Options	Description
IDE HDD Auto-detection	Press Enter	Press Enter to auto-detect the HDD on this channel. If detection is successful, it fills the remaining fields on this menu.
IDE Channel 0 Master IDE Channel 0 Slave, IDE Channel 1 Master, IDE Channel 1 Slave	None Auto Manual	Selecting 'manual' lets you set the remaining fields on this screen. Selects the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc. Note: PRECOMP=65535 means NONE !
Access Mode	Normal LBA Large Auto	Choose the access mode for this hard disk
The following options are selectable only if the 'IDE Channel …' item is set to 'Manual'		
Cylinder	Min = 0 Max = 65535	Set the number of cylinders for this hard disk.
Head	Min = 0 Max = 255	Set the number of read/write heads
Precomp	Min = 0 Max = 65535	**** **Warning**: Setting a value of 65535 means no hard disk
Landing zone	Min = 0 Max = 65535	****
Sector	Min = 0 Max = 255	Number of sectors per track

3.5.2 Advanced BIOS Features

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.



3.5.2.1 CPU Features



Item	Options	Description
Delay Prior to Thermal	4 Min, 8 Min, 16 Min, 32 Min	This item is to set whether to run Delay Prior to Thermal.
Thermal Management	Thermal Monitor 1 Thermal Monitor 2	Allow you to choose the thermal management method of your monitor.
Execute Disable Bit	Enabled, Disabled	To stop buffer overflow attacks against the operating system.

3.5.2.2 Hard Disk boot Priority

This item allows you to select the Hard Disk device boot up priority.

Item	Description
Pri.Master	Boot up from IDE Primary Master Hard Disk
Pri.Slave	Boot up from IDE Primary Slave Hard Disk
Sec.Master	Boot up from IDE Secondary Master Hard Disk
Sec.Slave	Boot up from IDE Secondary Slave Hard Disk
USBHDD0	Boot up from First USB Hard Disk
USBHDD1	Boot up from Second USB Hard Disk
USBHDD2	Boot up from Thrid USB Hard Disk
Bootable Add-in Cards	Boot up from other Add-In Card Hard Disk Device.

3.5.2.3 Virus Warning

Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.

Item	Description
Enabled	Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.
Disabled	No warning message will appear when anything attempts to access the boot sector or hard disk partition table.

3.5.2.4 CPU L1 ,L2 & L3 Cache

Depending on the CPU/chipset in use, you may be able to increase memory access time with this option.

Item	Description
Enabled	Enable cache
Disabled	Disable cache

3.5.2.5 CPU L2 Cache ECC Checking

This item allows you to enable the CPU external L2 cache use ECC checking method in memory access.

Item	Description
Enabled	Enable ECC checking
Disabled	Disable ECC checking

3.5.2.6 Quick Power On Self Test

This category speeds up Power On Self Test (POST) after you power up the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.

Item	Description
Enabled	Enable quick POST
Disabled	Normal POST

3.5.2.7 First / Second / Third / Other Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items.

Item	Description
Floppy	Floppy Device
LS120	LS120 Device
Hard Disk	Hard Disk Device
CDROM	CDROM Device
ZIP100	ZIP-100 Device
USB-FDD	USB Floppy Device
USB-ZIP	USB ZIP Device
USB-CDROM	USB CDROM Device
Legacy LAN	Network Device
Disabled	Disabled any boot device

3.5.2.8 Boot Up NumLock Status

Select power on state for NumLock.

Item	Description
Enabled	Enable NumLock
Disabled	Disable NumLock

3.5.2.9 Typematic Rate Setting

Key strokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected.

Item	Description
Enabled	Enable typematic rate/delay setting
Disabled	Disable typematic rate/delay setting

3.5.2.10 Typematic Rate (Chars/Sec)

Sets the number of times a second to repeat a key stroke when you hold the key down. The choice: 6, 8, 10, 12, 15, 20, 24, 30.

3.5.2.11 Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke. The choice: 250, 500, 750, 1000.

3.5.2.12 Security Option

Select whether the password is required every time the system boots or only when you enter setup.

Item	Description
System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

Note: To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

3.5.2.13 MPS Version Control For OS

This feature is only applicable to multiprocessor board as it specifies the version of the Multi-Processor Specification (MPS) that the board will use.

The choice: 1.4, 1.1.

3.5.2.14 OS Select for DRAM > 64MB

Select the operating system that is running with greater than 64MB of RAM on the system.

Item	Description
Non-OS2	Disable OS for over 64 MB DRAM
OS2	Enable OS for over 64 MB DRAM

3.5.2.15 Video BIOS Shadow

To allow copying Video BIOS into shadow RAM to improve video performance.

Item	Description
Enable	Copy Video BIOS into shadow RAM
Disable	Do not copy Video BIOS into shadow RAM

3.5.2.16 Full Screen LOGO Show

If the BIOS had the full screen logo in it, this item could allow enable/ disable the full screen logo show on display.

Item	Description
Enable	Enable full screen logo show
Disable	Disable full screen logo show

3.5.2.17 Small Logo (EPA) Show

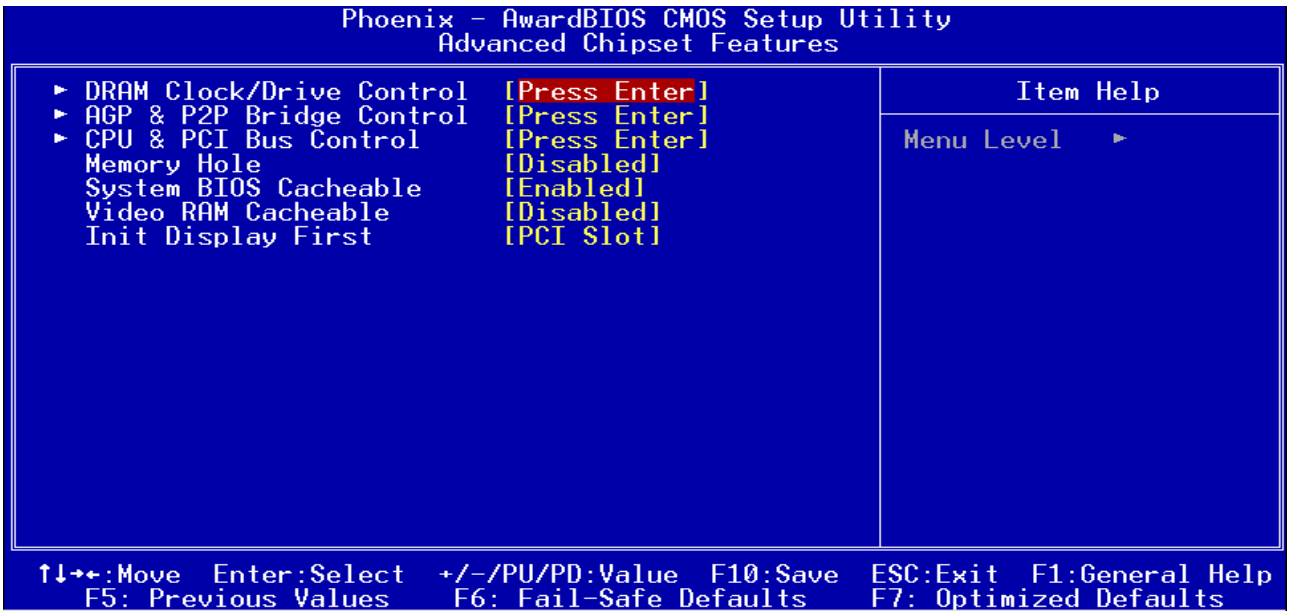
This item allows you enabled/disabled the small EPA logo show on screen at the POST step.

Item	Description
Enabled	EPA Logo show is enabled
Disabled	EPA Logo show is disabled

3.5.3 Advanced Chipset Features

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

The first chipset settings deal with CPU access to dynamic random access memory (DRAM). The default timings have been carefully chosen and should only be altered if data is being lost. Such a scenario might well occur if your system had mixed speed DRAM chips installed so that greater delays may be required to preserve the integrity of the data held in the slower memory chips.



3.5.3.1 DRAM Clock/Drive Control

This section can set the DRAM clock/driver timing.

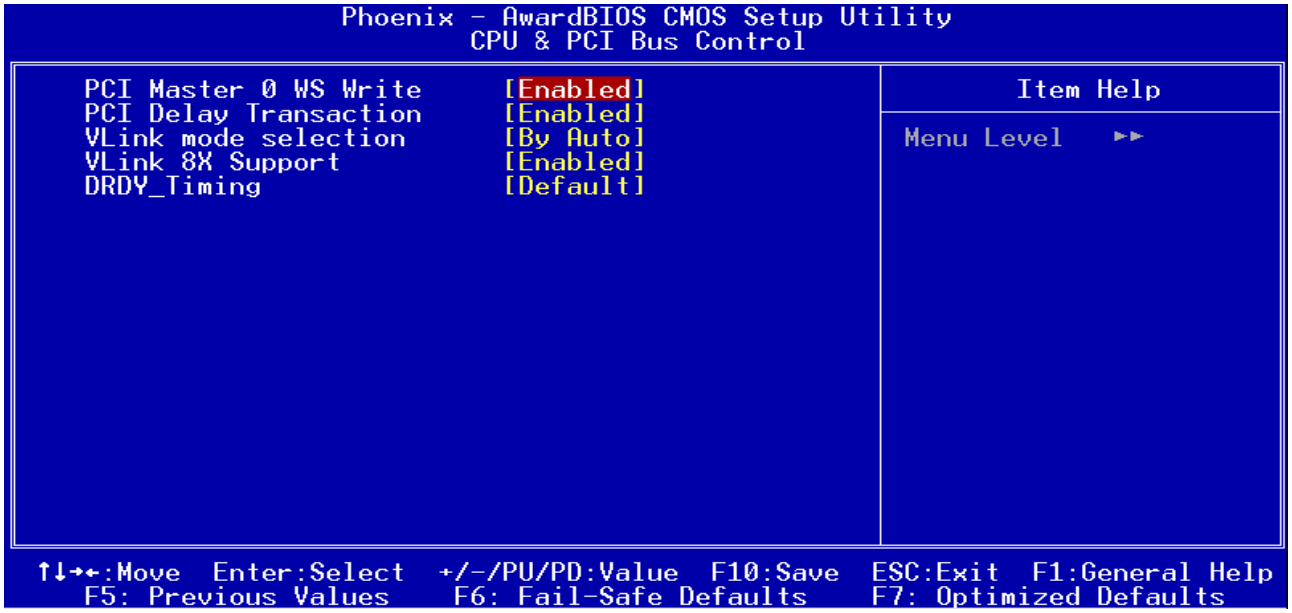
Item	Options	Description
DRAM Clock	By SPD 100NHz 133 MHz 166 MHz 200 MHz 266 MHz	Set the memory bus frequency to operate at various values for the proper memory clock setting
DRAM Timing	Manual Auto By SPD	Set the memory timings for the said timings or DRAM Cycle Lengths of 2 or 2.5.
SDRAM CAS Latency	1.5/2 2/3 2.5/4 3/5	This controls the time dealy passing before the SDRAM starts to carry out a read command after receiving it.
Bank Interleave	Diabled 2 Bank 4 Bank 8 Bank	Enables to set the interleave mode of the SDRM interface which allows banks of SDRAM to alternate their refresh and access cycles.
Precharge to Active(Trp)	2T 3T 4T 5T	This item sets the length of time taking to precharge a row in the memory module before a row being active and appears only when **DRAM timing** is set at **Manual**. Longer values are safer but probably not acting the best performance.
Active to Precharge(Tras)	05T, 06T, 08T,09T 10T, 11T, 12T, 13T 14T, 15T, 16T, 17T 18T, 19T, 20T	This item sets the length of time that a row staying active fore precharging and appears only when **DRAM timing** is set at **Manual**. Longer values are safer but probably not acting the best performance.
Active to CMD(Trcd)	2T 3T 4T 5T	This timing controls the length of the delay between when a memory bank is activated to when a read/write command is sent to that bank.
REF to ACT/REF to REF(Trfc)	08T, 09T…~70T, 71T	Set the REF to ACT/REF to REF timing. This field appears when **DRAM Timing** is set at **Manual**.
ACT(0) to ACT(1) (TRRD)	2T 3T 4T 5T	Set the minimum time interval between successive ACTIVE commands to the different banks. This field appears when **DRAM Timing** is set at **Manual**.
Read to Precharge (Trtp)	2T 3T	This bits control the number of clocks that are inserted between a read command to a row precharge command to the same rank.
Writ to Read CMD (Twtr)	1T/2T 2T/3T	Allows to set the Write to Read CMD function.
Write Recovery Time (Twr)	2T 3T 4T 5T	Write recovery time is a standard DDR2 timing parameter minimum time between a write command and subsequent prechanrge command to the same bank. The parameter is programmable on DDR2 SODIMMs and the value used above must match the largest delay programmed in any SODIMM in the system.
DRAM Command Rate	2T Command 1T Command	Allows to set the DRAM Command Rate.
RDSAIT Mode	Manual Auto	Allows to select RSDAIT Mode.
RDSAIT Selection	3	Allows to set RSDAIT selectiion.

3.5.3.2 AGP & P2P Bridge Control

This item stores the onboard AGP and P2P function information. The reference table is as below.

Item	Options	Description
AGP Aperture Size	32M, 64M, 128M, 256M, 512M, 1G	Select the size of Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.
AGP 2.0 Mode	4X, 2X, 1X	This item allows you to select the AGP 2.0 mode to 4X,2X or 1X.
AGP Driving Control	Auto Manual	This item allows you to select the AGP Driving Control to auto / disable Mode.
AGP Driving Value	00 ~ FF	This item allows you to set the AGP Driving value
AGP Fast Write	Enabled Disabled	This feature controls the AGP bus's Fast Write capability. It accelerates memory write transactions from the chipset to the AGP device.
AGP Master 1 WS Write	Enabled Disabled	Enabled this item to increase AGP writing
AGP Master 1 WS Read	Enabled Disabled	Enabled this item to increase AGP reading
AGP 3.0 Calibration Cycle	Enabled Disabled	This option allows you to disable the AGP 3.0 calibration cycle. This cycle ensures that the on-die termination impedance signal swing and slew rate of the AGP signals are calibrated on a periodic basis to ensure signal integrity. It is recommended to keep this setting enabled.
VGA Share Memory Size	Disabled 16M 32M 64M	Select the size of onboard video controller's frame buffer. The buffer size are share from system memory unit.
Direct Frame Buffer	Enabled Disabled	This item allows you to select the Direct Frame Buffer to enabled / disabled.
Select Display Device	CRT LCD, CRT+LCD,	Select Display Device that the screen will be shown
Panel Type	640x480 1x18B 800x600 1x18B 1024x768 1x18B 1280x768 1x18B 1400x1050 2x18B 1600x1200 2x18B 1280x800 1x18B 800x480 1x18B 1024x768 2x18B 1024x768 1x24B 1024x768 2x24B 1280x768 1x24B 1280x1024 2x24B 1400x1050 2x24B 1600x1200 2x24B	Select Panel Resolution that will be displayed depending on the LCD Panel (LFP)

3.5.3.3 CPU & PCI Bus Control



Item	Options	Description
PCI Master 0 WS Write	Enabled Disabled	To write PCI bus while zero wait state is executed.
PCI Delay Transaction	Enabled Disabled	This feature is used to meet the latency of PCI cycles to and from the ISA bus. The ISA bus is much, much slower than the PCI bus. Thus, PCI cycles to and from the ISA bus take a longer time to complete and this slows the PCI bus down. However, enabling **PCI Delayed Transaction** enables the chipset's embedded 32-bit posted write buffer to support delayed transaction cycles. This means that transactions to and from the ISA bus are buffered and the PCI bus can be freed to perform other transactions while the ISA transaction is underway. This option should be **enabled** for better performance and to meet PCI 2.1 specifications. “Disabled” is set only if the PCI cards cannot work properly or if an ISA card that is not PCI 2.1 compliant is used.
VLink Mode Selection	By Auto Mode 0 Mode 1 Mode 2 Mode 3 Mode 4	The North Bridge interface to the South Bridge through a high speed(up to 1GB/Sec)8x, 66MHz Data Transfer interconnect bus caller “V-Link”. This item allows you to select the V-Link mode from 0 to 4.
VLink 8X Support	Enabled Disabled	The feature is to toggle the V-Link bus mode between the original V-Link and the newer and faster 8X V-Link.
DRDY_Timing	Slowest Default Optimize	Allows to set the timing for each cycle that data is transferred.

3.5.3.4 Memory Hole

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved it cannot be cached. The user information of peripherals that need to use this area of system memory usually2 discussed their memory requirements.

The choices: Disabled, 15M-16M.

3.5.3.5 System BIOS Cacheable

This feature is only valid when the system BIOS is shadowed. It enables or disables the caching of the system BIOS ROM at **F0000h-FFFFFh** via the L2 cache. This greatly speeds up accesses to the system BIOS. However, this does **not** translate into better system performance because the OS does not need to access the system BIOS much.

Item	Description
Enabled	Cacheable
Disabled	Non-Cacheable

3.5.3.6 Video RAM Cacheable

It enables or disables the caching of the video RAM at **A0000h-AFFFFh**. This greatly speeds up the video performance.

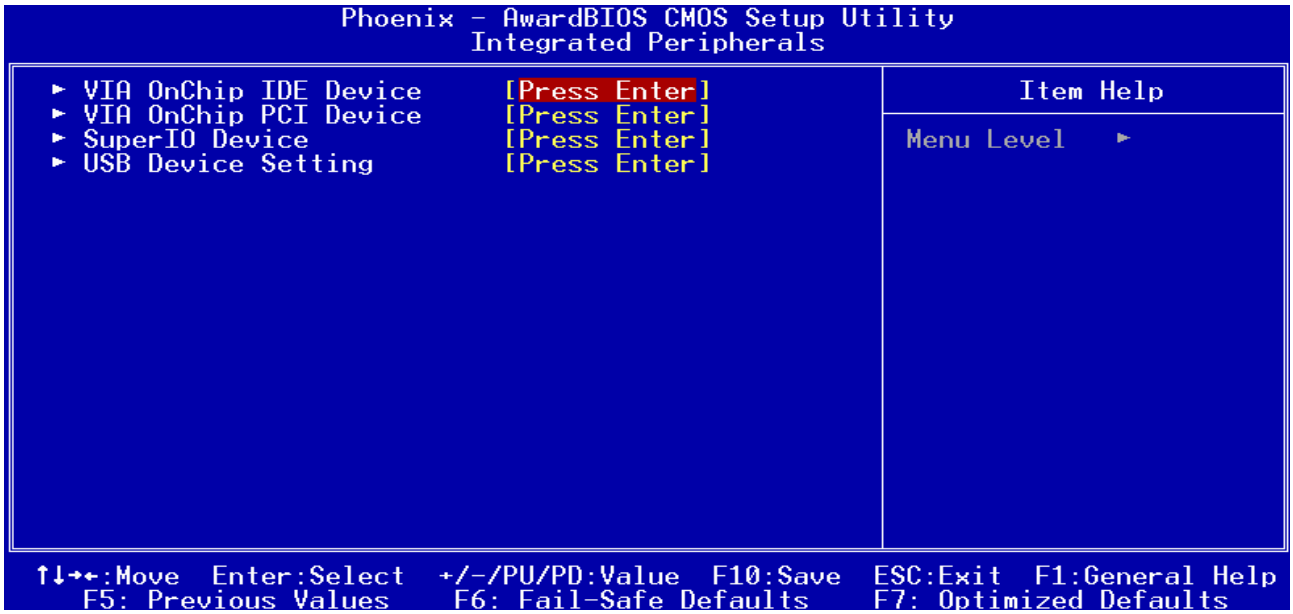
Item	Description
Enabled	Cacheable
Disabled	Non-Cacheable

3.5.3.7 Init Display First

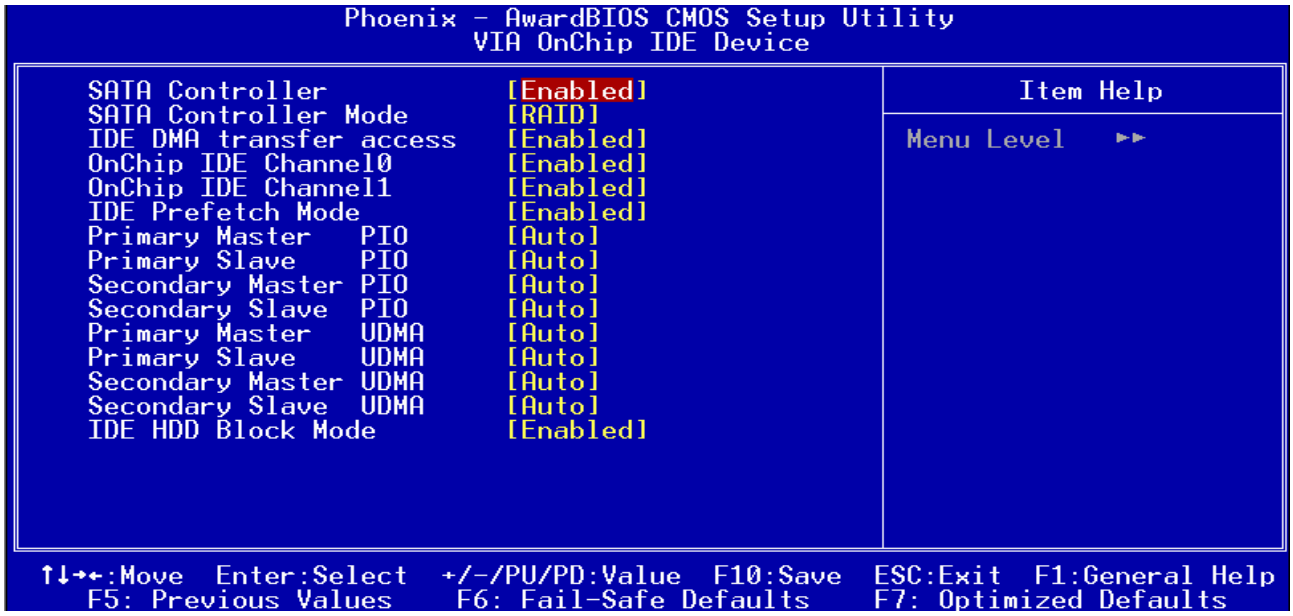
This item allows you to decide to active whether PCI Slot or Onboard/AGP first.
The choices: PCI Slot, AGP.

3.5.4 Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

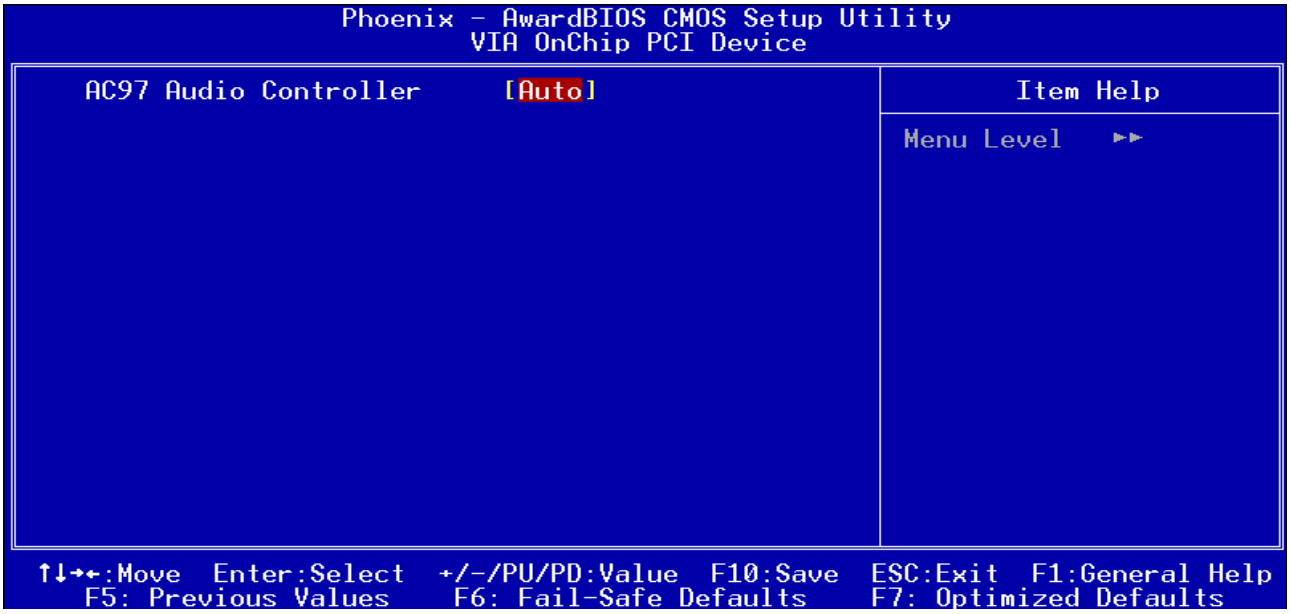


3.5.4.1 VIA OnChip IDE Device



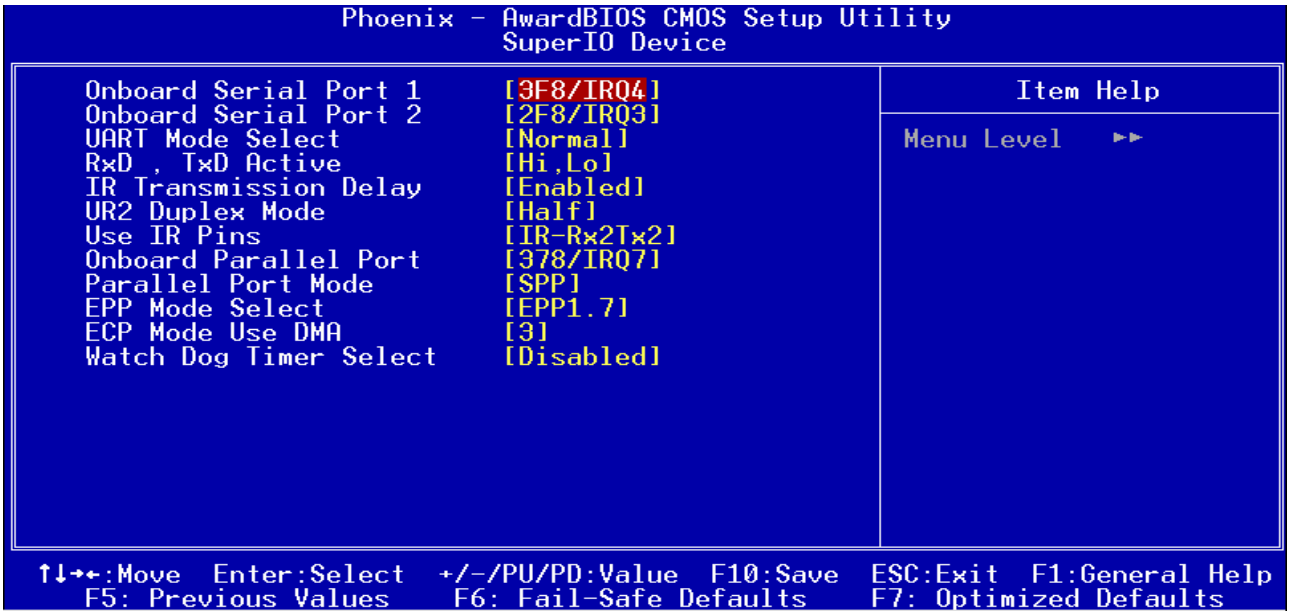
Item	Options	Description
OnChip SATA	Enabled Disabled	The chipset contains a SATA IDE interface with support for two IDE channels. Select Enabled to activate the primary IDE interface (Channel0). Select Disabled to deactivate this interface.
SATA Mode	IDE RAID AHCI	Setup the onboard SATA Mode.
IDE DMA Transfer Access	Enabled Disabled	This BIOS feature allows you to enable or disable DMA (Direct Memory Access) support for all IDE devices
OnChip IDE Channel10/11	Enabled Disabled	The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the primary / secondary IDE interface (Channel 10/11). Select Disabled to deactivate this interface.
IDE Prefetch Mode	Enabled Disabled	For faster drive accesses. If you install a primary and/or secondary add-in IDE interface, set this field to Disabled if the interface does not support prefetching.
Primary Master PIO Primary Slave PIO Secondary Master PIO Secondary Slave PIO	Auto Mode 1 Mode 2 Mode 3 Mode 4	The IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.
Primary Master UDMA Primary Slave UDMA Secondary Master UDMA Secondary Slave UDMA	Auto Disabled	Ultra DMA implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If the hard drive and the system software both support Ultra DMA, select Auto to enable BIOS support.
IDE HDD Block Mode	Enabled Disabled	Block mode is also called block transfer, multiple commands, or multiple sector read/write. If the IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

3.5.4.2 VIA OnChip PCI Device



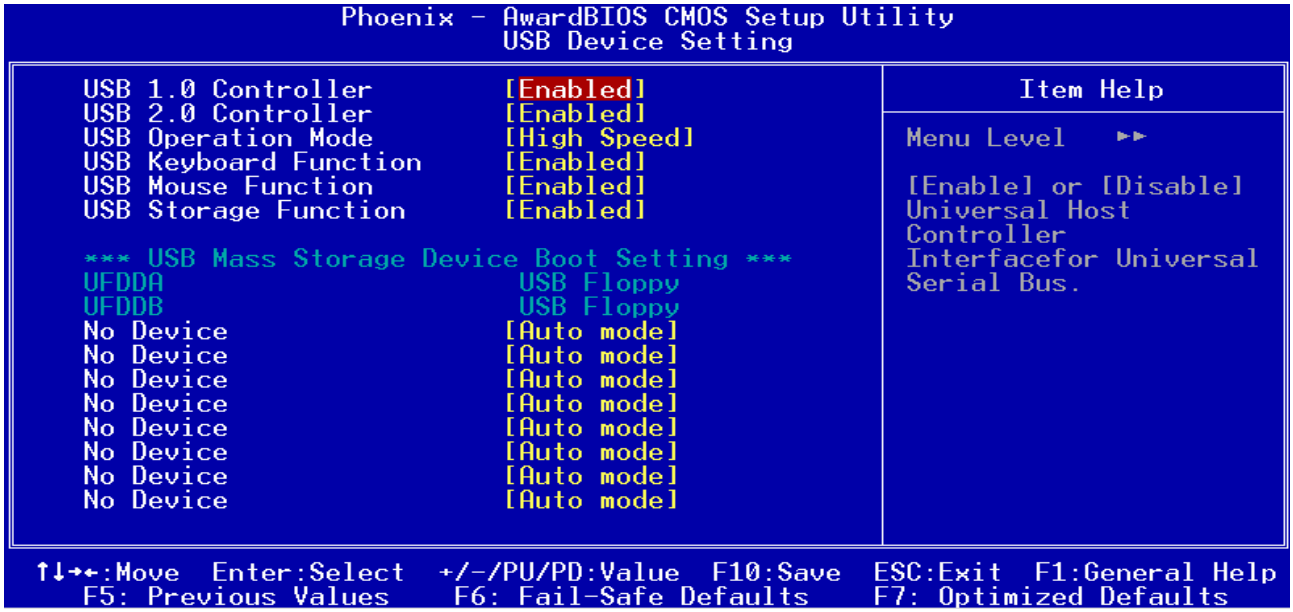
Item	Options	Description
AC97 Audio Codec	Auto Disabled	This item allows you to decide to enable/disable the VIA chipset family to support AC97 Audio.

3.5.4.3 Super IO Device



Item	Options	Description
Onboard Serial Port 1 Onboard Serial Port 2	Disable 3F8/IRQ4 2F8/IRQ3 3E8/IRQ4 2E8/IRQ3 AUTO	Select an address and corresponding interrupt for the first and second serial ports.
UART Mode Select	IrDA ASKIR Normal	This item allows you to determine which Infrared (IR) function of onboard I/O chip.
RxD, TxD Active	Hi,Hi, Hi,Lo Lo,Hi, Lo,Lo	The item determines the active of RxD, TxD.
IR Transmission Delay:	Enabled Disabled	The field enables or disables IR transmission delay function.
UR2 Duplex Mode	Full Half	Select the value required by the IR device connected to the IR port. Full-duplex mode permits simultaneous two-direction transmission. Half-duplex mode permits transmission in one direction only at a time.
Use IR Pins	RxD2,TxD2 IR-Rx2Tx2	Select the correct setting of TxD and RxD signals.
Onboard Parallel Port	Disabled 378/IRQ7 278/IRQ5 3BC/IRQ7	Select a matching address and interrupt for the physical parallel (printer) port.
Parallel Port Mode	SPP EPP ECP ECP+EPP Normal	Select an operating mode for the onboard parallel port. Select Compatible or Extended unless you are certain both your hardware and software support EPP or ECP mode.
EPP Mode Select	EPP1.9 EPP1.7	Select EPP port type 1.7 or 1.9.
ECP Mode Use DMA	1 3	Select a DMA channel for the port.
Watch Dog Timer Select	Disabled 10, 20, 30, 40 Sec. 1, 2, 4 Min	This option will determine watch dog timer.

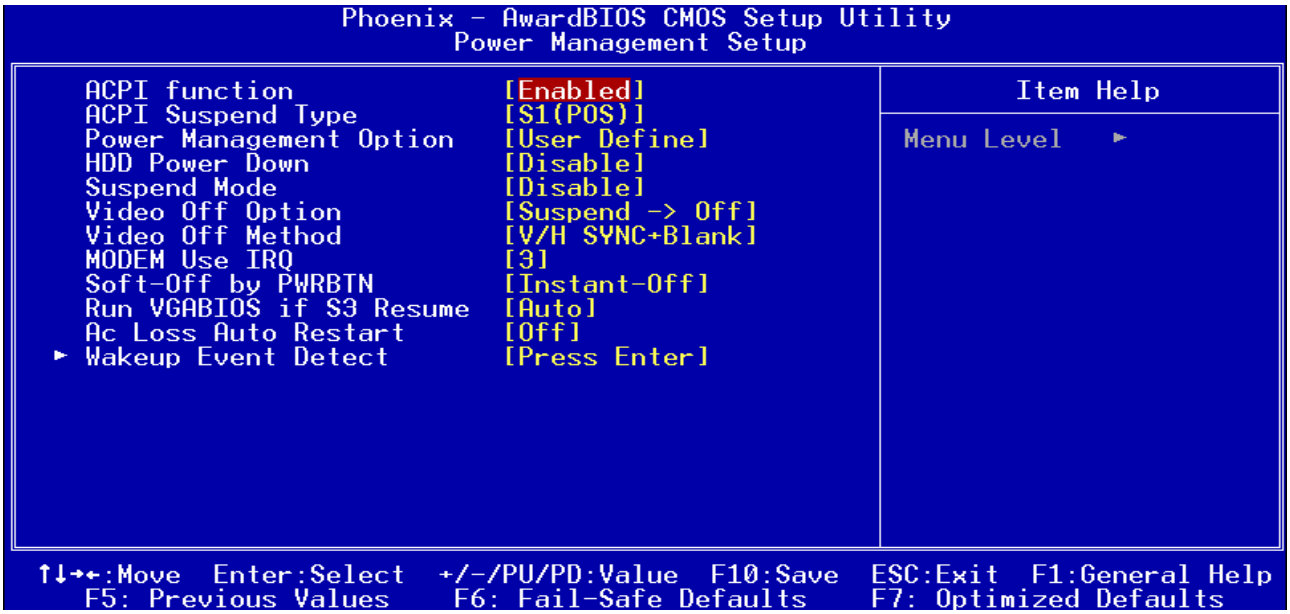
3.5.4.4 USB Device Setting



Item	Options	Description
USB 1.0 Controller	Enabled Disabled	This item allows you to enable or disable the USB 1.0 support.
USB 2.0 Controller	Enabled Disabled	This item allows you to enable or disable the USB 2.0 support.
USB Operation Mode	Full/Low Speed High Speed	This item allows you to select USB operation mode.
USB Keyboard Function	Enabled Disabled	This item allows you to enable or disable the USB keyboard support.
USB Mouse Function	Enabled Disabled	This item allows you to enable or disable the USB mouse support.
USB Storage Function	Enabled Disabled	This item allows you to enable or disable the USB storage support.

3.5.5 Power Management Setup

The Power Management Setup allows you to configure you system to most effectively save energy while operating in a manner consistent with your own style of computer use.



3.5.5.1 ACPI Function

This item allows you to enable/disable the ACPI function.

The choices: Enable, Disable.

3.5.5.2 ACPI Suspend Type

The item allows you to select the suspend type under the ACPI operating system.

The choices: S1(POS), S3(STR)

3.5.5.3 Power Management Option

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

Item	Description
Min. Power Saving	Minimum power management, HDD Power Down = 15 Min,
Max. Power Saving	Maximum power management, HDD Power Down =1 Min,
User Defined	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

3.5.5.4 HDD Power Down

There are three selections for Power Management Option; both of them have fixed mode settings.

The choices: Disabled, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 Min.

3.5.5.5 Suspend Mode

This setting defines the number of minutes before the system enters "suspend mode", the deepest level of system inactivity shutdown. The exact definition depends on the system, but in general this mode means that all system devices are shutdown (except for any that the BIOS is specifically told to keep running) and the processor is shut down to a trickle mode..

The choices: Disabled, 1, 2, 4, 6, 8, 10, 20, 30, 40 Min, 1 Hour.

3.5.5.6 Video Off Option

This determines the manner in which the monitor is always on or turned off during suspend mode.

The choices: Blank Screen, V/H SYNC+Blank, DPMS Support.

3.5.5.7 MODEM Use IRQ

This determines the IRQ in which the MODEM can use.

The choices: NA, 3, 4, 5, 7, 9, 10, 11.

3.5.5.8 Soft-Off by PWRBTN

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has “hung”.(Only could working on ATX Power supply)

The choices: Delay 4 Sec, Instant-Off.

3.5.5.9 Run VGABIOS if S3 Resume

Select whether to run VGA BIOS if resuming from S3 state. This is only necessary for older VGA drivers..

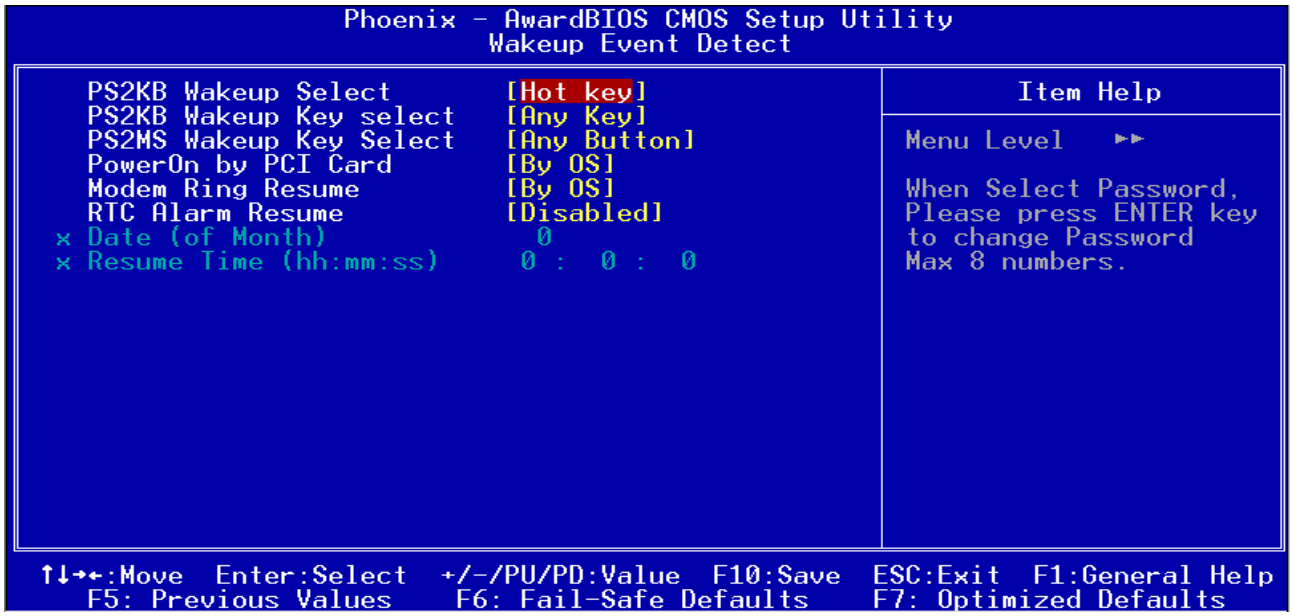
The choices: Auto, Yes, No.

3.5.5.10 Ac Loss Auto Restart:

This item is to set whether to run Ac Loss Auto Restart.

The choices: Off, On, Former-Sts.

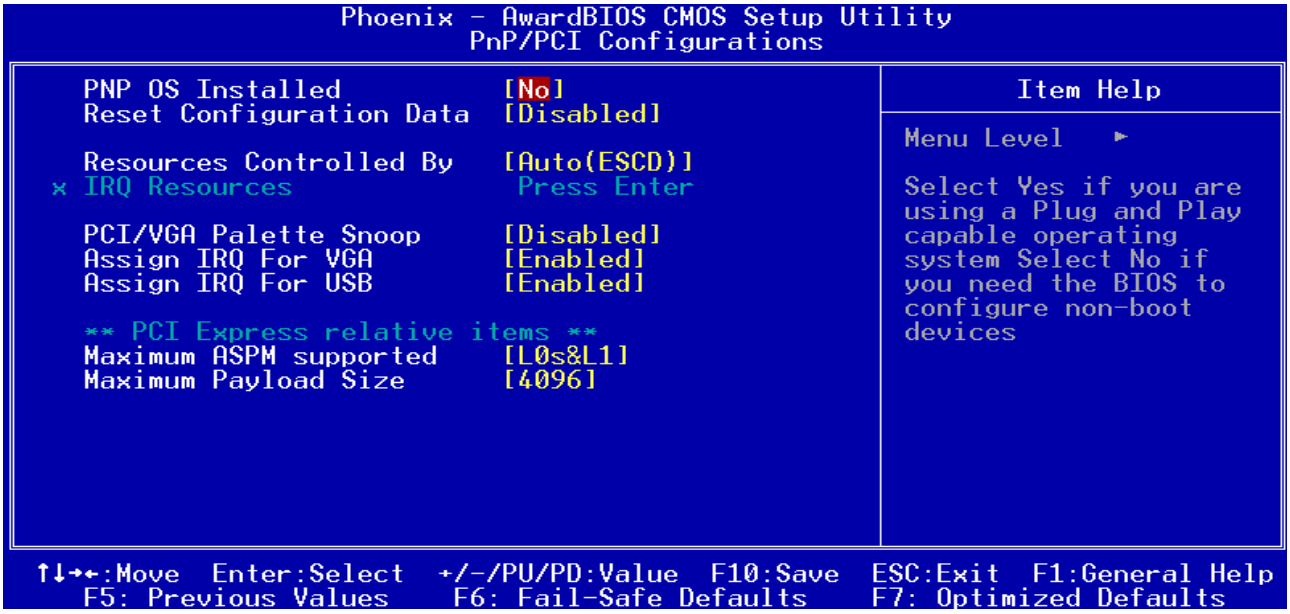
3.5.5.11 Wakeup Event Detect



Item	Options	Description
PS2KB Wakeup Select	Hot Key Password	This item allows you to select Hot Key or Password to wake-up the system by PS2 Keyboard. When select Password, please press ENTER key to change password max 8 numbers.
PS2KB Wakeup Key Select	Ctrl+F1, Ctrl+F2 Ctrl+F3, Ctrl+F4 Ctrl+F5, Ctrl+F6 Ctrl+F7, Ctrl+F8 Ctrl+F9, Ctrl+F10 Ctrl+F11, Ctrl+F12 Disabled, Power Wake, Any Key	This item allows you to set a Hot Key to wake-up the system by PS2 Keyboard. Note: Power and Wake are Windows98 Keyboard button.
PS2MS Wakeup Key Select	Any Button Left Button Right Button	This item allows you to set a Hot Key to wake-up the system by PS2 mouse.
PowerOn by PCI Card	By OS Enabled	Enable activity detected from any PCI card to power up the system or resume from a suspended state.
Modem Ring Resume	BY OS Enabled	This item allows the modem ring to wake up the computer system from a power saving mode.
RTC Alarm Resume	Enabled Disabled	Sets a scheduled time and/or date to automatically power on the system.

3.5.6 PnP / PCI Configuration

This section describes configuring the PCI bus system. PCI, or **P**ersonal **C**omputer **I**nterconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.



3.5.6.1 PNP OS Installed

This item allows you to determine install PnP OS or not.

The choices: Yes, No.

3.5.6.2 Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.

The choices: Enabled, Disabled.

3.5.6.3 Resources Controlled By

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®95. If you set this field to “manual” choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a “➢”).

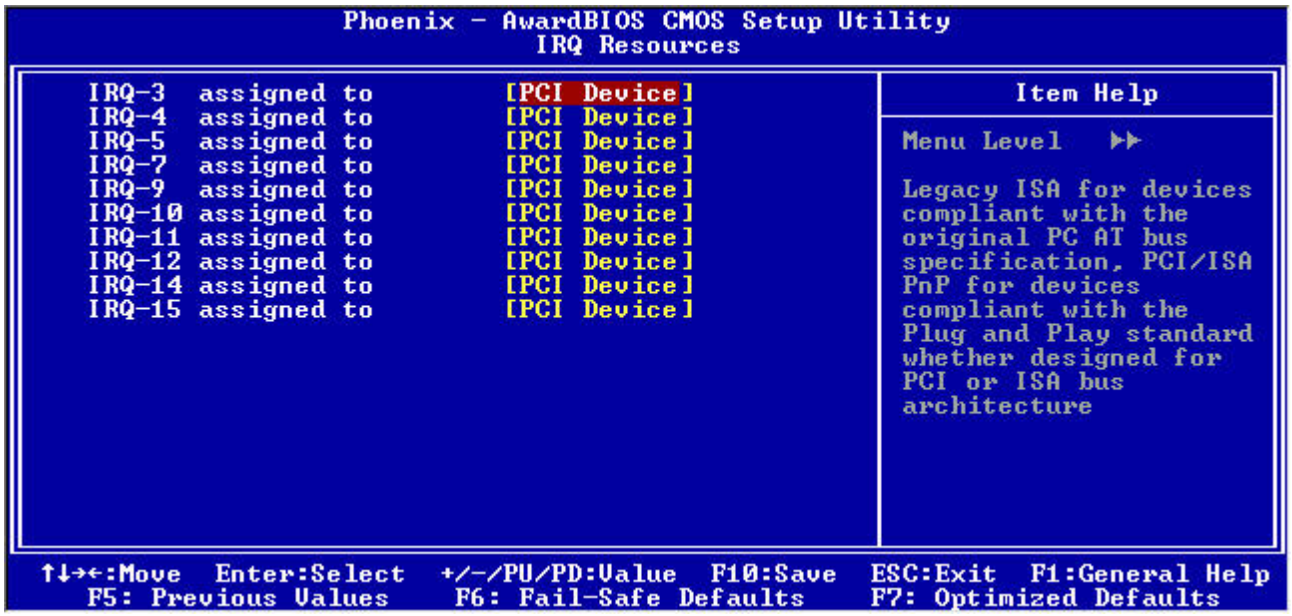
The choices: Auto(ESCD), Manual.

3.5.6.4 IRQ Resource

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

This item allows you to determine the IRQ assigned to the ISA bus and is not available to any PCI slot. Legacy ISA for devices compliant with the original PC AT bus specification, PCI/ISA PnP for devices compliant with the Plug and Play standard whether designed for PCI or ISA bus architecture.

The Choices: Legacy ISA, PCI/ISA PnP.



3.5.6.5 PCI / VGA Palette Snoop

Leave this field at Disabled.

The choices: Enabled, Disabled.

3.5.6.6 Assign IRQ For VGA

While the system has one VGA controller and more than one VGA devices are connected, then "Enabled" is set. If the system VGA controller is not used, then "Disabled" is set.

The choices: Enabled, Disabled.

3.5.6.7 Assign IRQ For USB

While the system has one USB controller and more than one USB devices are connected, then "Enabled" is set. If the system USB controller is not used, then "Disabled" is set.

The choices: Enabled, Disabled.

3.5.6.8 Maximum ASPM Supported

This field is used to control the maximum level of supported ASPM on the given PCI Express link on the system

The choices: L0, Los, L1, L0s&L1.

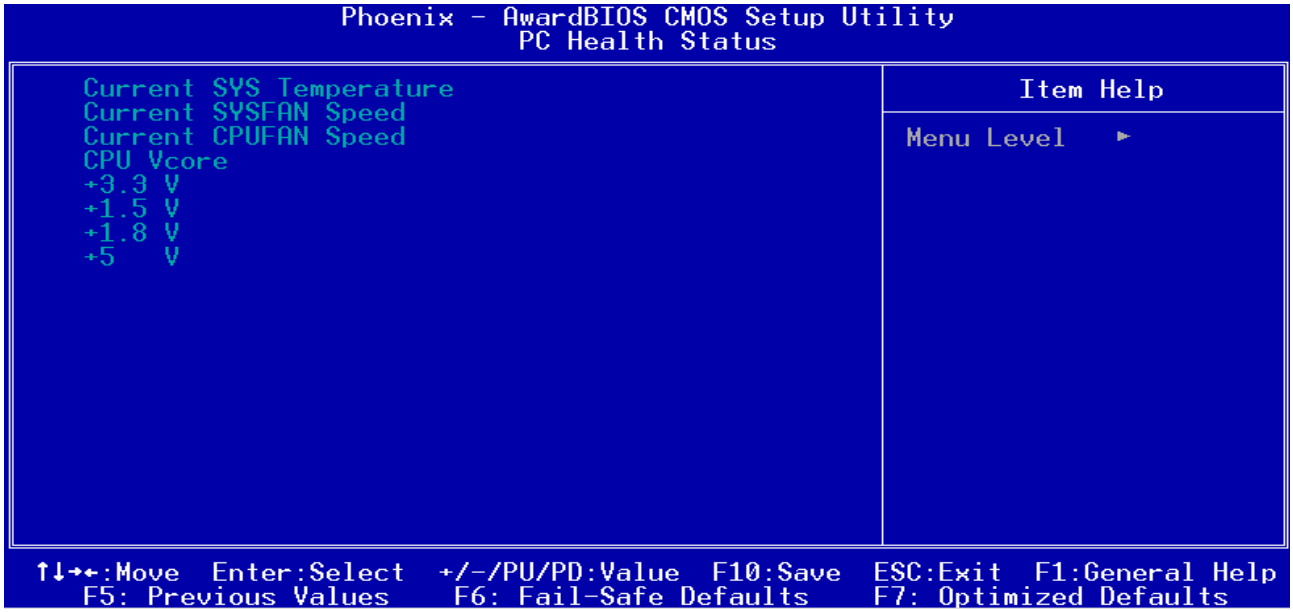
3.5.6.9 Maximum Payload Size

This field is used to select the maximum TLP payload size of the PCI Express devices. The unit is byte.

The choices: 128, 256, 512, 1024, 2048, 4096.

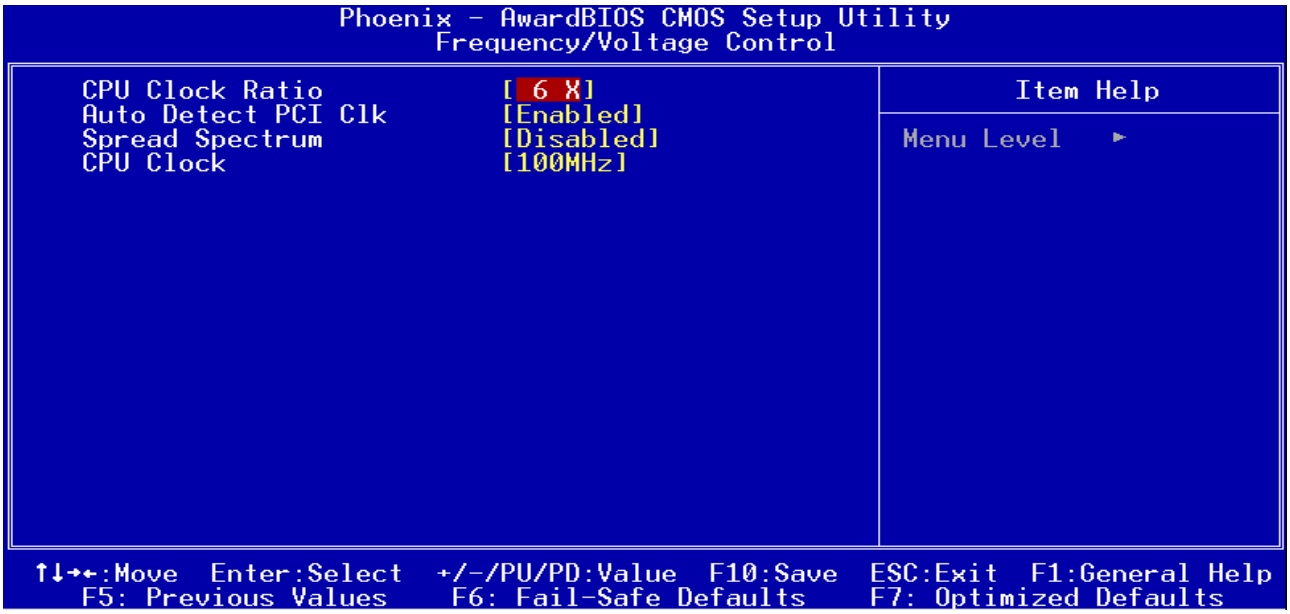
3.5.7 PC Health Status

This section shows the status of your CPU, Fan & System.



3.5.8 Frequency / Voltage Control

This menu specifies your setting for frequency/voltage control.



3.5.8.1 Auto Detect PCI/SODIMM Clk:

This item allows you to enable/disable auto detect PCI/SODIMM Clock.

The choices: Enable, Disable.

3.5.8.2 Spread Spectrum

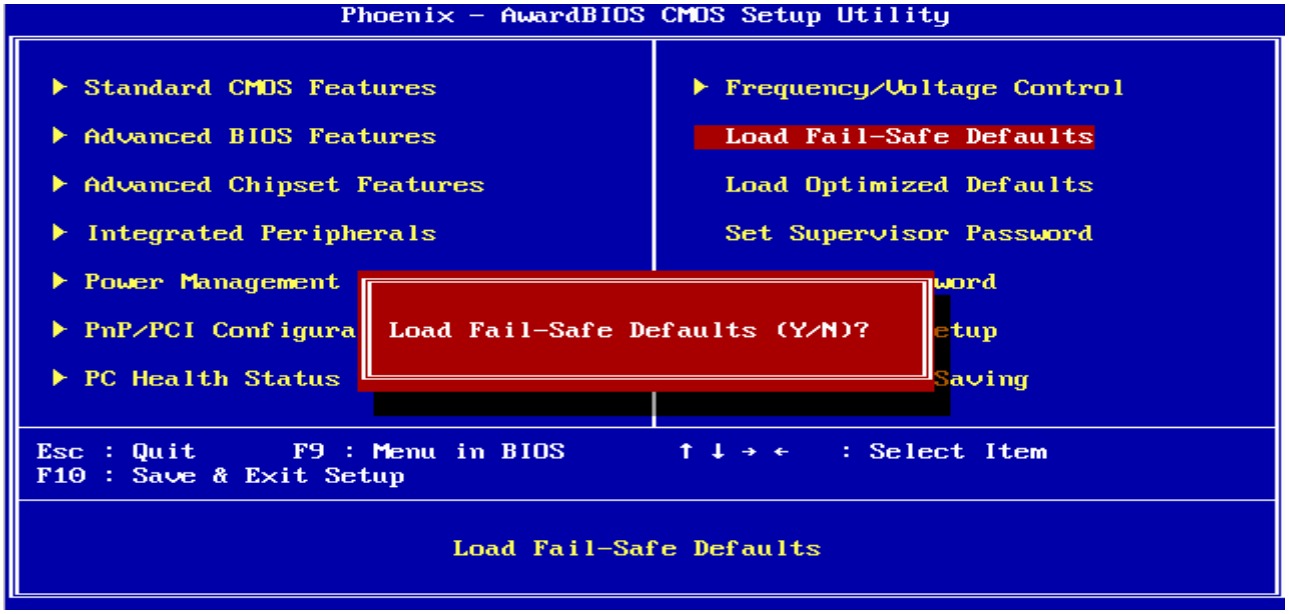
This item is to adjust extreme values of the pulse for EMI test.

The choices: Enable, Disable.

3.5.9 Load Fail-Safe Defaults

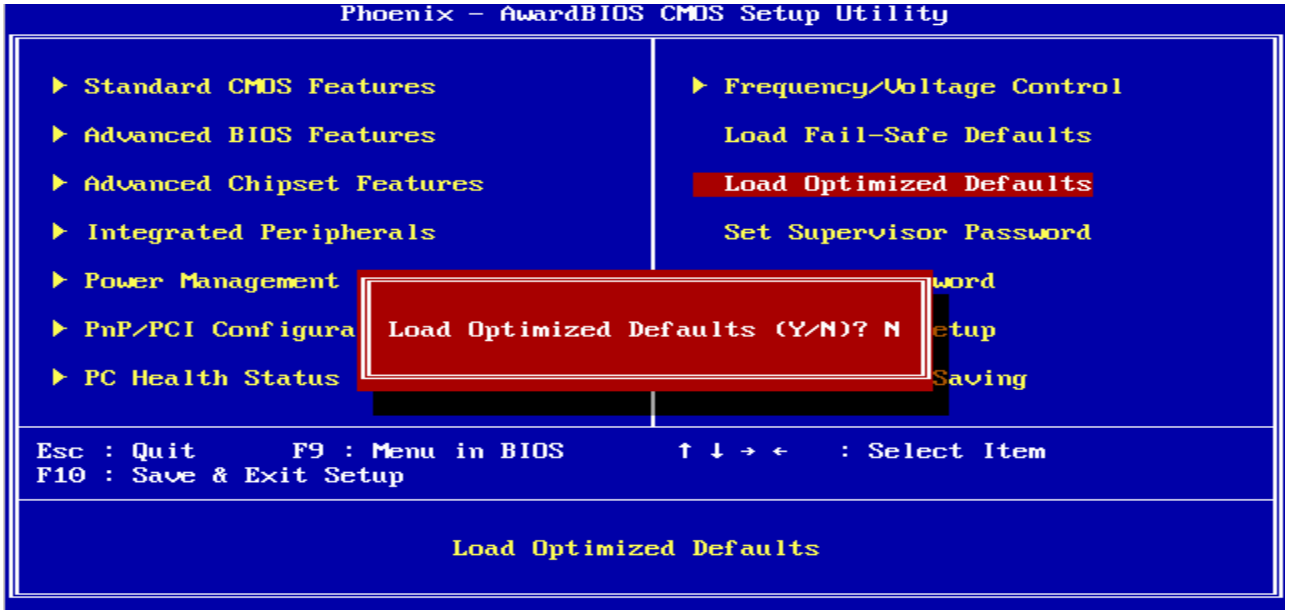
Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

Press <Y> to load the BIOS default values for the most stable, minimal-performance system operations.



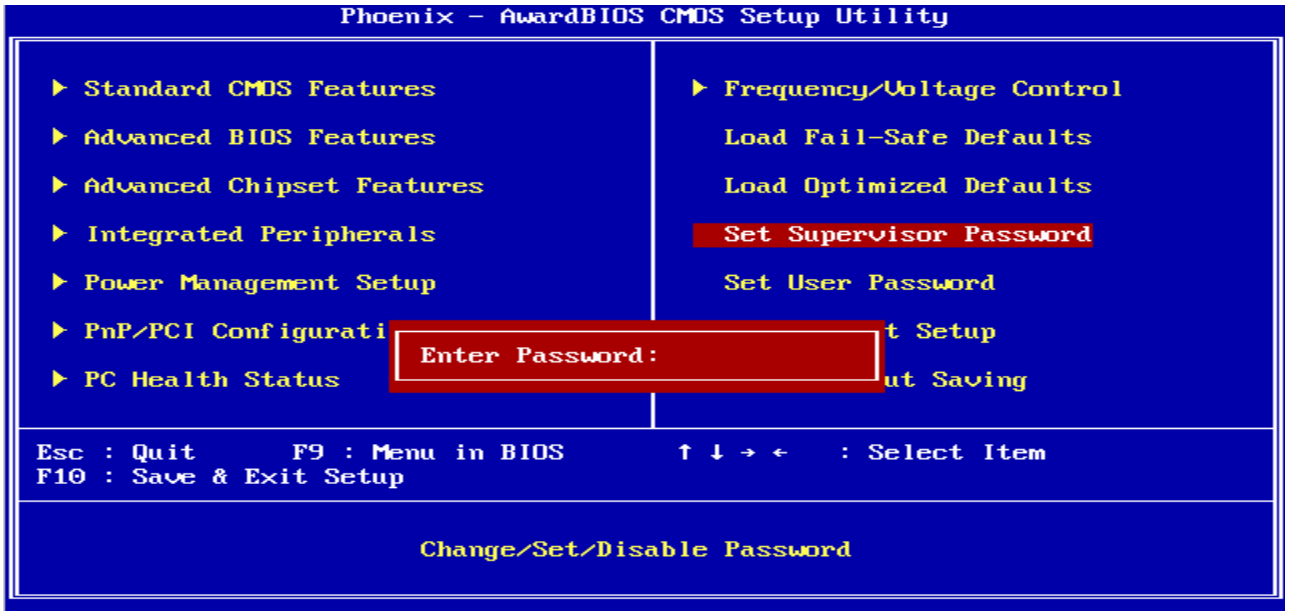
3.5.10 Load Optimized Defaults

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.

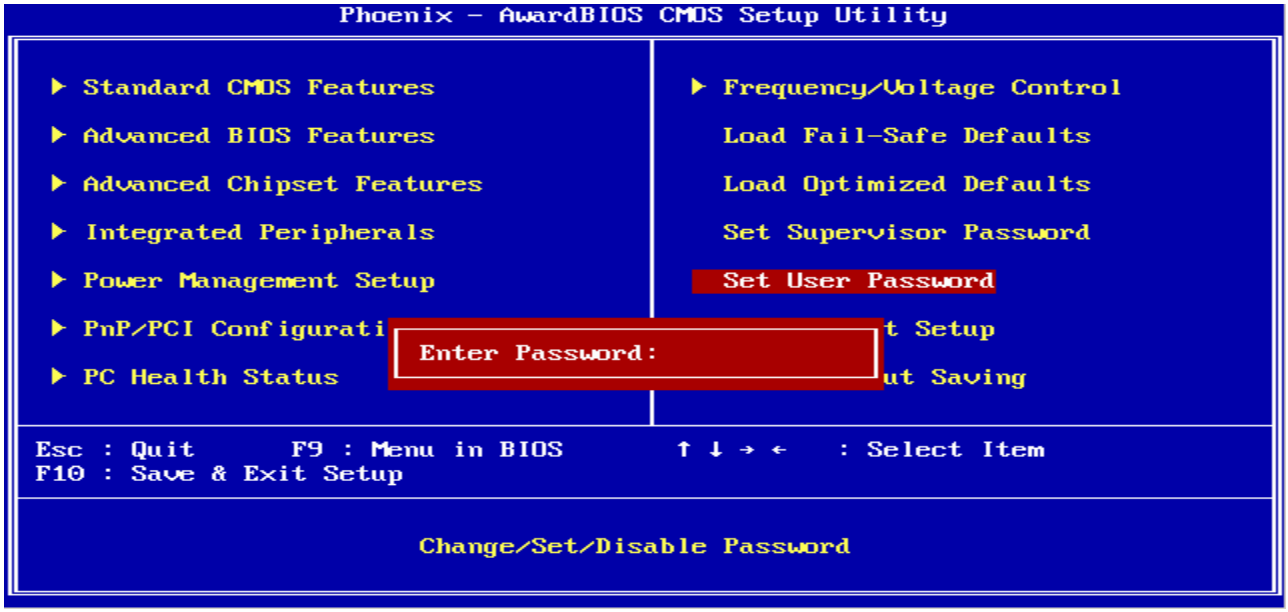


3.5.11 Set Supervisor / User Password

You can set either supervisor or user password, or both of them.
Supervisor Password: able to enter/change the options of setup menus.



User Password: able to enter but no right to change the options of setup menus.



Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password. To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

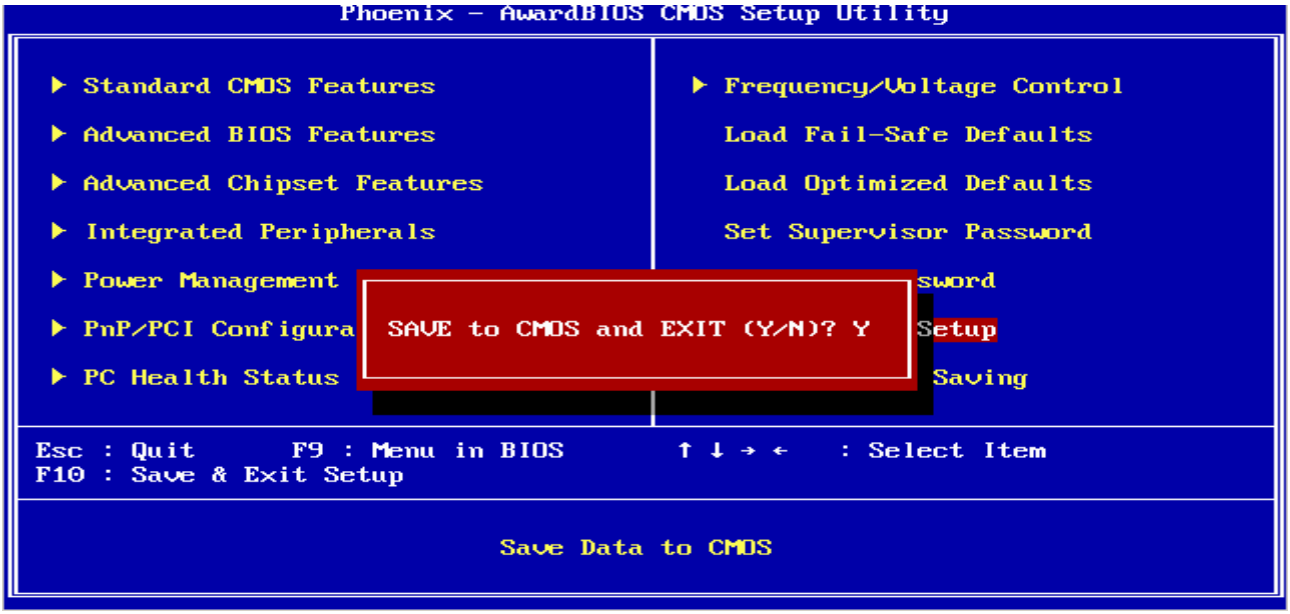
When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration. Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer. You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to "System", the password will be required both at boot and at entry to Setup. If set to "Setup", prompting only occurs when trying to enter Setup

3.5.12 Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

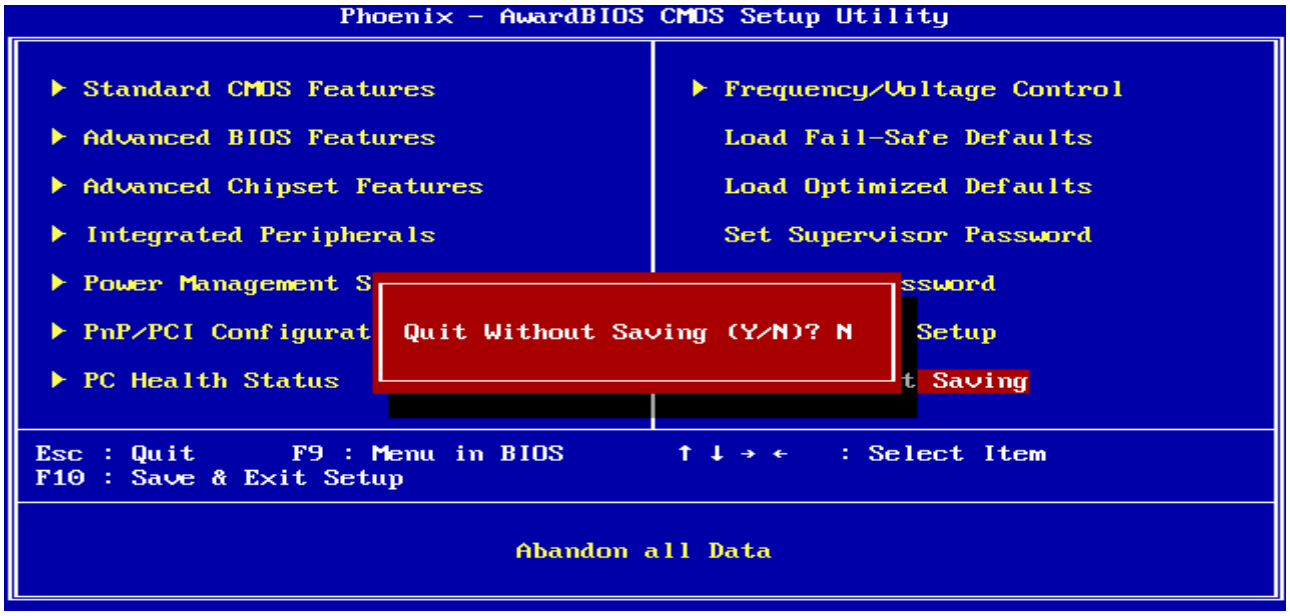
Enter <Y> to store the selection made in the menus in CMOS, a special section in memory that stays on after turning the system off. The BIOS configures the system according to the Setup selection stored in CMOS when boot the computer next time.

The system is restarted after saving the values.



3.5.13 Exit Without Save

Abandon all CMOS value changes and exit setup, and the system is restarted after exiting.



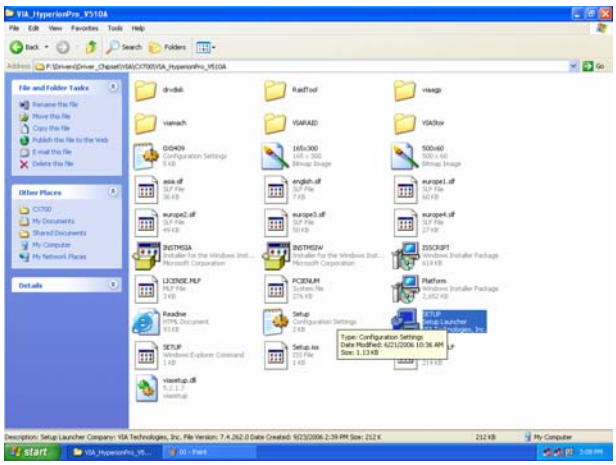
4. Drivers Installation

Note: Installation procedures and screen shots in this section are for your reference and may not be exactly the same as shown on your screen.

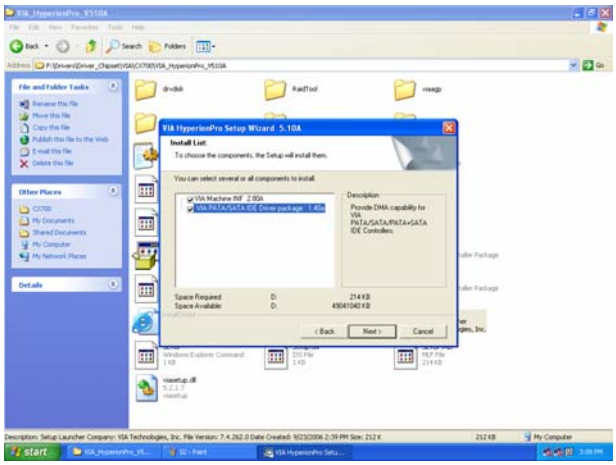
4.1 Install Chipset Driver (For VIA CX700M)

Insert the Supporting CD-ROM to CD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to **\Driver_Chipset\VIA\CX700.**

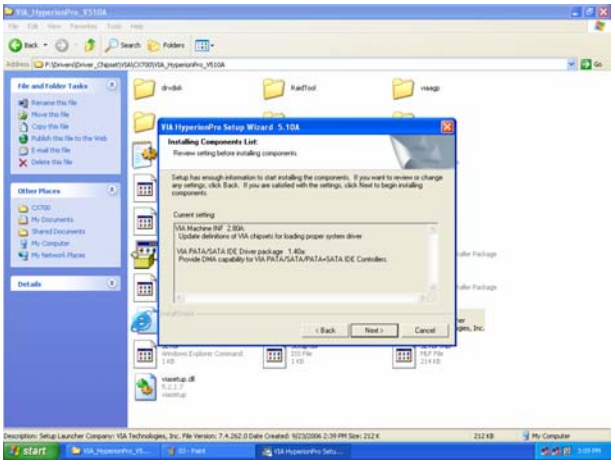
Note: The installation procedures and screen shots in this section are based on Windows XP operation system.



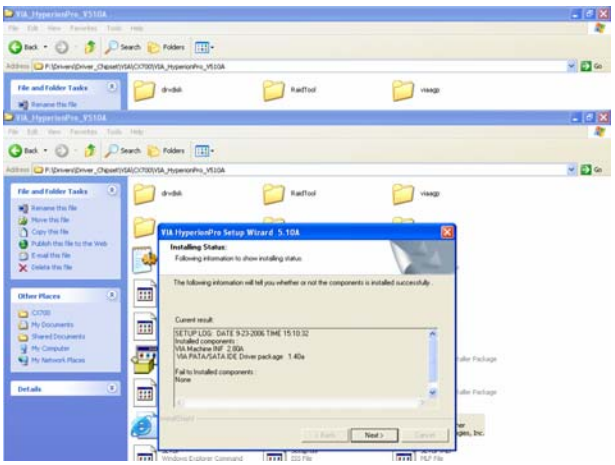
Step 1. Locate「\Driver_Chipset\VIA\CX700\VIA_HyperionPro_V510A\setup.exe」.



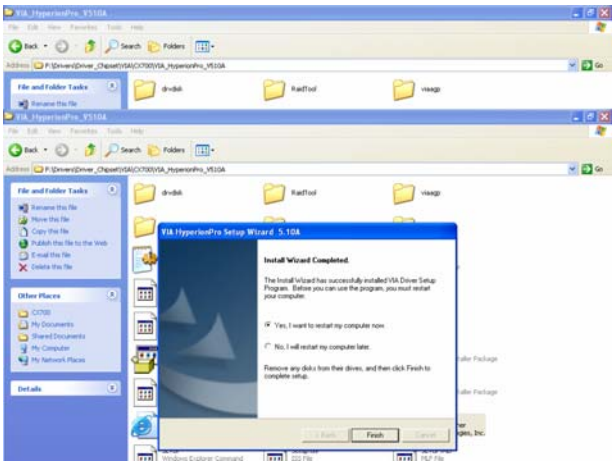
Step 2. Click **Next** to run the setup.



Step 3. Click **Next** to run the setup.



Step 4. Click **Next** to run another installation procedure.

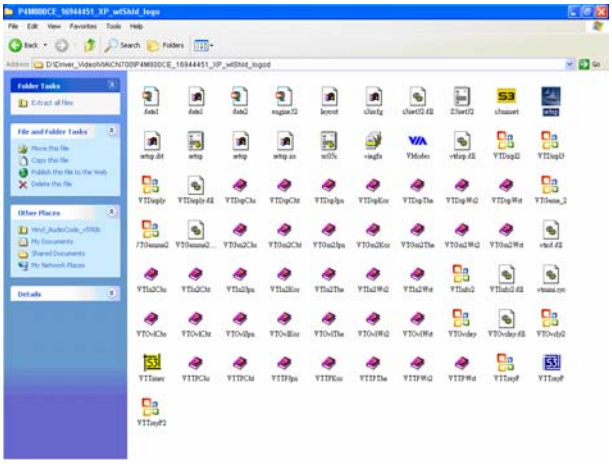


Step 5. Click **Finish** to restart the PC.

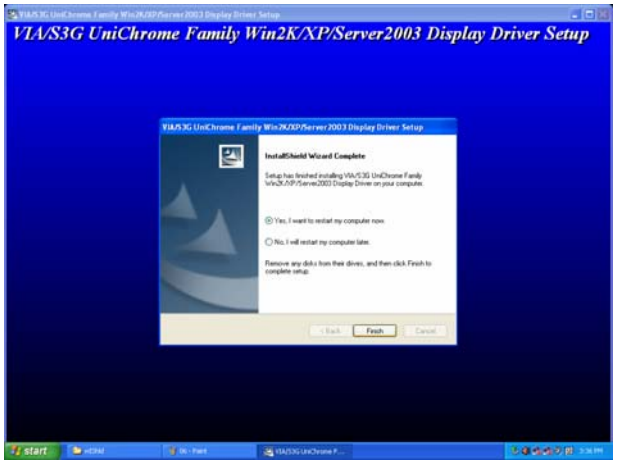
4.2 Install Display Driver (For VIA CX700)

Insert the Supporting CD-ROM to CD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to **\Driver_Display\VIA\CX700**.

Note: The installation procedures and screen shots in this section are based on Windows XP operation system.



Step1. Locate 「\Driver_Chipset\VIA \CX700\cx700_xp_16-94-44-64_VGA \VT3324_WinXP_16-94-44-64_wIShld \wIShld\Setup.exe」.

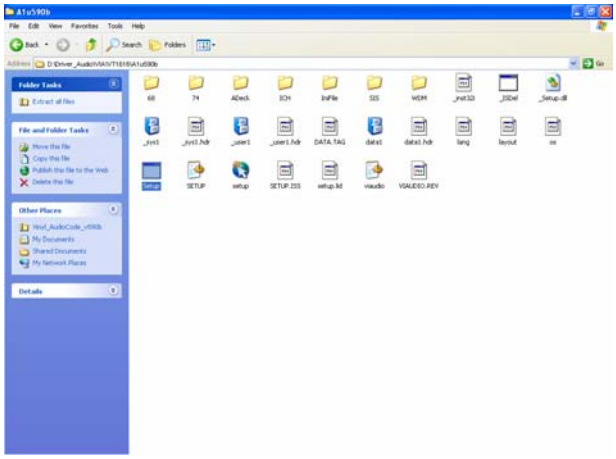


Step 2. Setup will run the installation automatically, then click **Finish** to restart the PC..

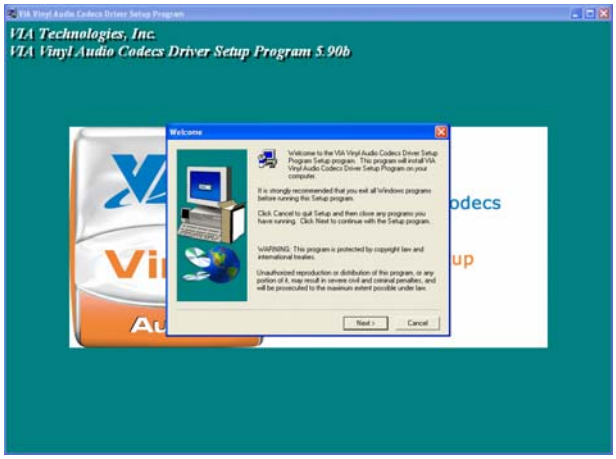
4.3 Install Audio Driver (For Realtek ALC883)

Insert the Supporting CD-ROM to CD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to **\Driver_Audio\Realtek\ALC883.**

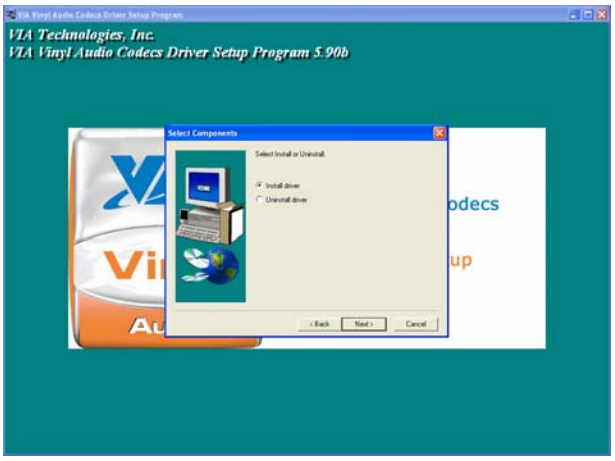
Note: The installation procedures and screen shots in this section are based on Windows XP operation system.



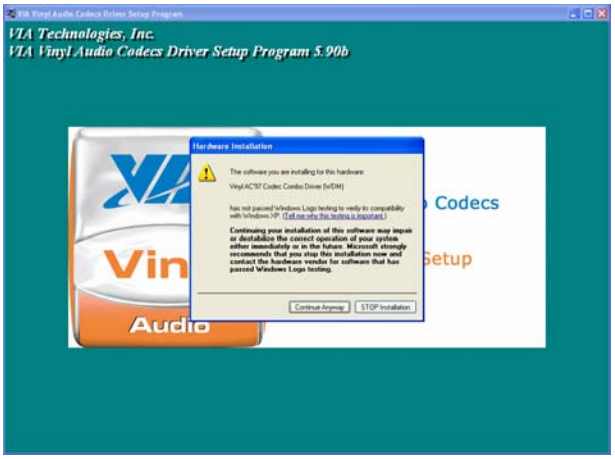
Step 1. Locate「\Driver_Audio\Realtek\ ALC883\Windows XP\WDM_R145\ 5288_PG215_R145_UAAV10a-5013\ setup.exe」.



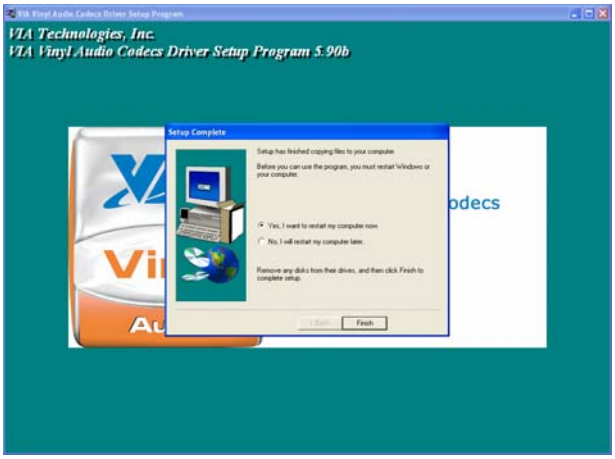
Step 2. Click **Next**.



Step 3. Select **Install Driver** and click **Next** to the following step.



Step 4. Click **Continue Anyway** to run the setup.

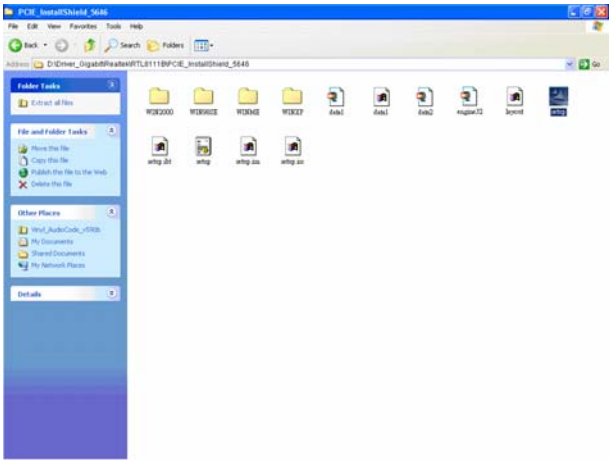


Step 5. Click **Finish** to complete the setup and restart the PC.

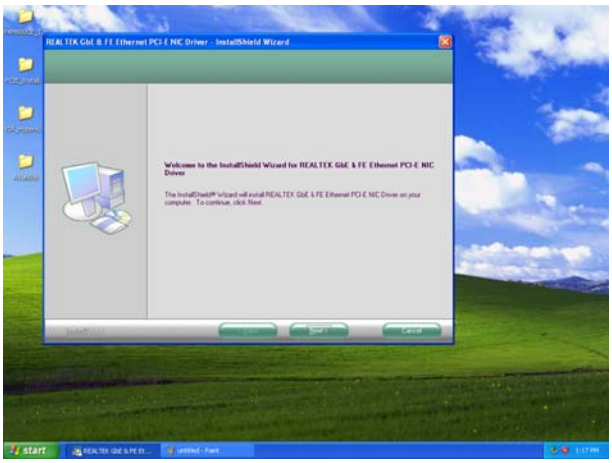
4.4 Install Ethernet Driver (For Realtek RTL8111B)

Insert the Supporting CD-ROM to CD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to **D:\Driver_Gigabit\Realtek\ RTL8111B**.

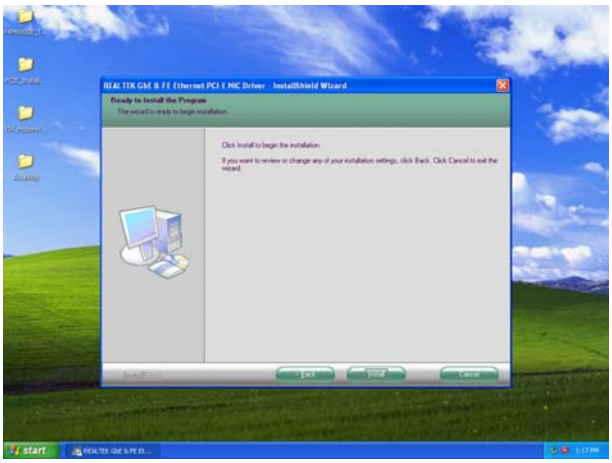
Note: The installation procedures and screen shots in this section are based on Windows XP operation system.



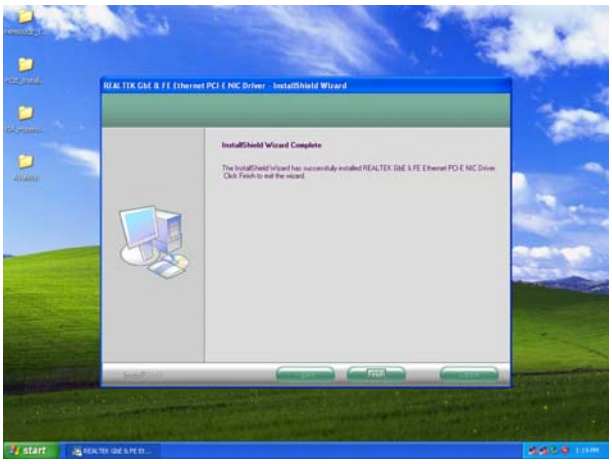
Step 1. Locate 「\Driver_Gigabit\Realtek\ RTL8111B\PCIE_InstallShield_5646 \Setup.exe」.



Step 2. Click **Next**.



Step 3. Click **Next** to run the installation.

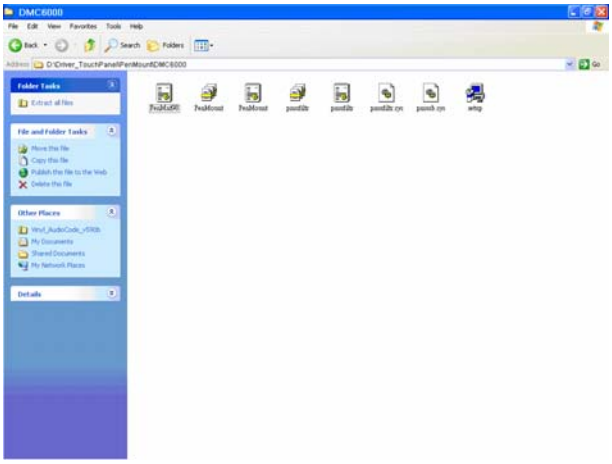


Step 4. Click **Finish** to complete the setup.

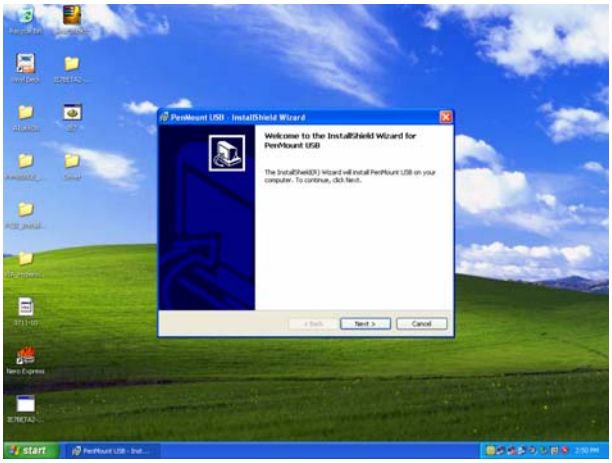
4.5 Install Touch Panel Driver (For PenMount DMC6000)

Insert the Supporting CD-ROM to CD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to **\Driver_TouchPanel\PenMount\ DMC6000.**

Note: The installation procedures and screen shots in this section are based on Windows XP operation system.

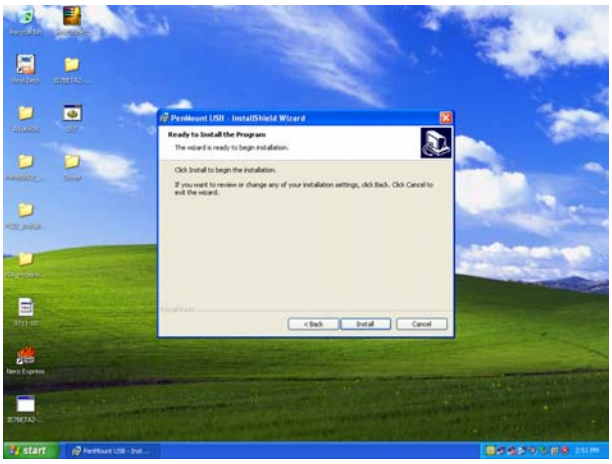


Step 1. Locate「\Driver_TouchPanel\ PenMount\DMC6000\setup.exe」.



Step 2. Click **Next**.

Step 3. Select **I Agree** and click **Next** to the following step.

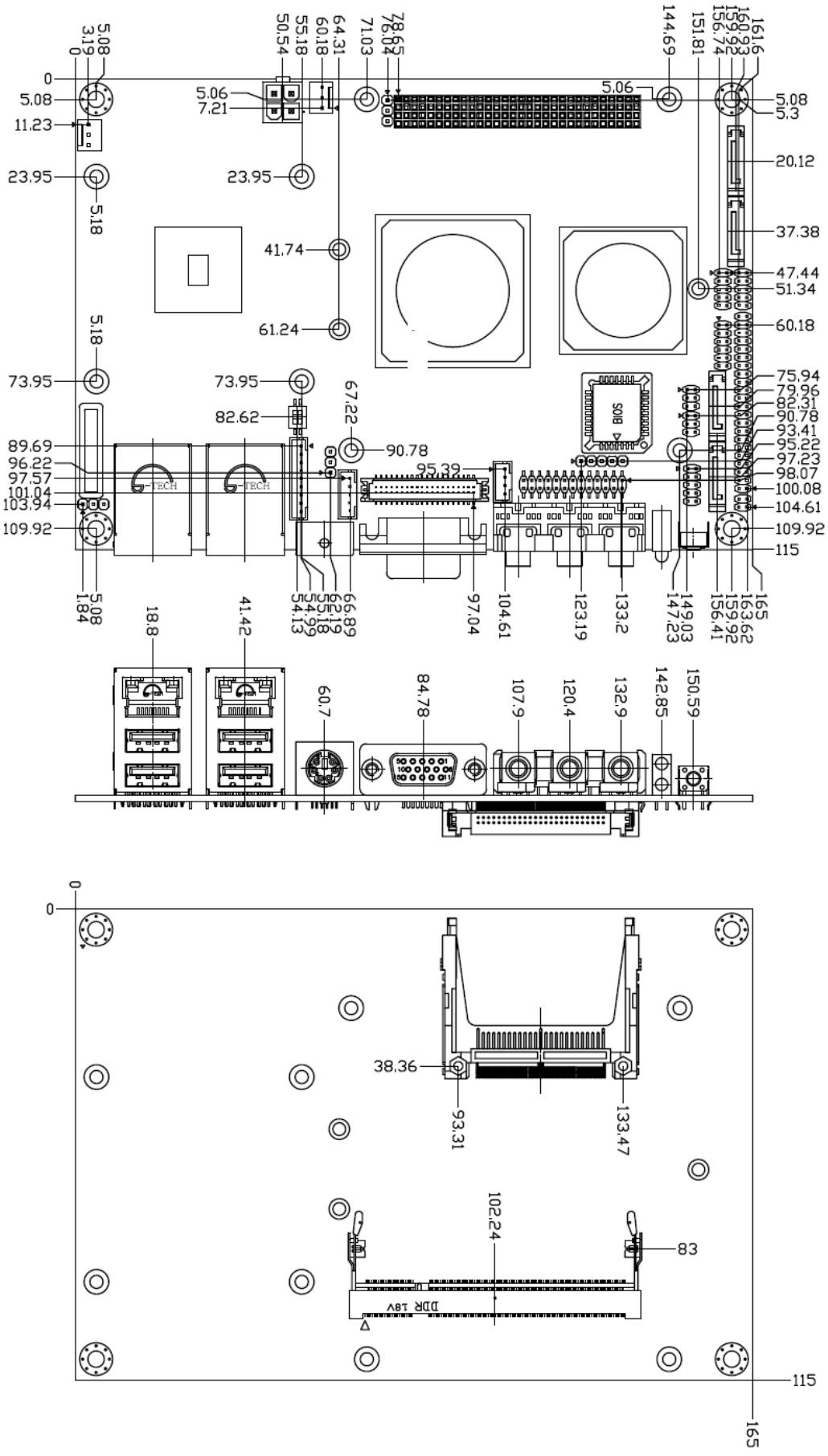


Step 4. Click **Install** to run the setup.

Step 5. Click **Continue Anyway**.

Step 6. Click **Continue Anyway** and the installation will complete automatically.

5. Measurement Drawing


0
5.08
11.23
23.95
5.18
73.95
89.69
96.22
97.57
101.04
103.94
109.92
5.08
1.84
18.8
41.42
5.06
7.21
50.54
55.18
60.18
64.31
71.03
78.65
78.04
23.95
41.74
61.24
73.95
82.62
67.22
90.78
95.39
54.13
54.99
62.19
66.89
97.04
104.61
123.19
133.2
144.69
151.81
156.74
160.93
161.6
5.06
5.08
5.3
20.12
37.38
47.44
51.34
60.18
75.94
79.96
82.31
90.78
93.41
95.22
97.23
98.07
100.08
104.61
109.92
115
147.23
149.03
156.41
159.92
163.62
165
60.7
84.78
107.9
120.4
132.9
142.85
150.59
38.36
93.31
133.47
102.24
83
DDR 1.8V
115
165

(Unit: mm)

Appendix A: BIOS Revisions

BIOS Rev.

New Features

Bugs/Problems Solved

Known Problems

Appendix B: AWARD BIOS POST Messages

Overview

During the Power On Self-Test (POST), if the BIOS detects an error requiring you to do something to fix, it will either sound a beep code or display a message.
If a message is displayed, it will be accompanied by:
PRESS F1 TO CONTINUE, CTRL-ALT-ESC OR DEL TO ENTER SETUP

Post Beep

Currently there are two kinds of beep codes in BIOS. This code indicates that a video error has occurred and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by two short beeps. The other code indicates that your DRAM error has occurred. This beep code consists of a single long beep repeatedly.

Error Messages

One or more of the following messages may be displayed if the BIOS detects an error during the POST. This list includes messages for both the ISA and the EISA BIOS.

1. CMOS BATTERY HAS FAILED

CMOS battery is no longer functional. It should be replaced.

2. CMOS CHECKSUM ERROR

Checksum of CMOS is incorrect. This can indicate that CMOS has become corrupt. This error may have been caused by a weak battery. Check the battery and replace if necessary.

3. DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER

No boot device was found. This could mean that either a boot drive was not detected or the drive does not contain proper system boot files. Insert a system disk into Drive A: and press <Enter>. If you assumed the system would boot from the hard drive, make sure the controller is inserted correctly and all cables are properly attached. Also be sure the disk is formatted as a boot device. Then reboot the system.

4. DISKETTE DRIVES OR TYPES MISMATCH ERROR - RUN SETUP

Type of diskette drive installed in the system is different from the CMOS definition. Run Setup to reconfigure the drive type correctly.

5. DISPLAY SWITCH IS SET INCORRECTLY

Display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different setting than indicated in Setup. Determine which setting is correct, and then either turn off the system and change the jumper, or enter Setup and change the VIDEO selection.

6. DISPLAY TYPE HAS CHANGED SINCE LAST BOOT

Since last powering off the system, the display adapter has been changed. You must configure the system for the new display type.

7. EISA Configuration Checksum Error
PLEASE RUN EISA CONFIGURATION UTILITY

The EISA non-volatile RAM checksum is incorrect or cannot correctly read the EISA slot. This can indicate either the EISA non-volatile memory has become corrupt or the slot has been configured incorrectly. Also be sure the card is installed firmly in the slot.

8. EISA Configuration Is Not Complete
PLEASE RUN EISA CONFIGURATION UTILITY

The slot configuration information stored in the EISA non-volatile memory is incomplete.

Note: When either of these errors appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

9. ERROR ENCOUNTERED INITIALIZING HARD DRIVE

Hard drive cannot be initialized. Be sure the adapter is installed correctly and all cables are correctly and firmly attached. Also be sure the correct hard drive type is selected in Setup.

10. ERROR INITIALIZING HARD DISK CONTROLLER

Cannot initialize controller. Make sure the cord is correctly and firmly installed in the bus. Be sure the correct hard drive type is selected in Setup. Also check to see if any jumper needs to be set correctly on the hard drive.

11. FLOPPY DISK CNTRLR ERROR OR NO CNTRLR PRESENT

Cannot find or initialize the floppy drive controller. Make sure the controller is installed correctly and firmly. If there are no floppy drives installed, be sure the Diskette Drive selection in Setup is set to NONE.

12. Invalid EISA Configuration
PLEASE RUN EISA CONFIGURATION UTILITY

The non-volatile memory containing EISA configuration information was programmed incorrectly or has become corrupt. Re-run EISA configuration utility to correctly program the memory.

Note: When either of these errors appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

13. KEYBOARD ERROR OR NO KEYBOARD PRESENT

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

If you are purposely configuring the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. This will cause the BIOS to ignore the missing keyboard and continue the boot.

14. Memory Address Error at ...

Indicates a memory address error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

15. Memory parity Error at ...

Indicates a memory parity error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

16. MEMORY SIZE HAS CHANGED SINCE LAST BOOT

Memory has been added or removed since the last boot. In EISA mode use Configuration Utility to reconfigure the memory configuration. In ISA mode enter Setup and enter the new memory size in the memory fields.

17. Memory Verify Error at ...

Indicates an error verifying a value already written to memory. Use the location along with your system's memory map to locate the bad chip.

18. OFFENDING ADDRESS NOT FOUND

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem cannot be isolated.

19. OFFENDING SEGMENT:

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem has been isolated.

20. PRESS A KEY TO REBOOT

This will be displayed at the bottom screen when an error occurs that requires you to reboot. Press any key and the system will reboot.

21. PRESS F1 TO DISABLE NMI, F2 TO REBOOT

When BIOS detects a Non-maskable Interrupt condition during boot, this will allow you to disable the NMI and continue to boot, or you can reboot the system with the NMI enabled.

22. RAM PARITY ERROR - CHECKING FOR SEGMENT ...

Indicates a parity error in Random Access Memory.

23. Should Be Empty But EISA Board Found
PLEASE RUN EISA CONFIGURATION UTILITY

A valid board ID was found in a slot that was configured as having no board ID.

Note: When either of these errors appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

24. Should Have EISA Board But Not Found
PLEASE RUN EISA CONFIGURATION UTILITY

The board installed is not responding to the ID request, or no board ID has been found in the indicated slot.

Note: When either of these errors appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

25. Slot Not Empty

Indicates that a slot designated as empty by the EISA Configuration Utility actually contains a board.

Note: When either of these errors appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

26. SYSTEM HALTED, (CTRL-ALT-DEL) TO REBOOT ...

Indicates the present boot attempt has been aborted and the system must be rebooted. Press and hold down the CTRL and ALT keys and press DEL.

27. Wrong Board In Slot
PLEASE RUN EISA CONFIGURATION UTILITY

The board ID does not match the ID stored in the EISA non-volatile memory.

Note: When either of these errors appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

28. FLOPPY DISK(S) fail (80) → Unable to reset floppy subsystem.
29. FLOPPY DISK(S) fail (40) → Floppy Type dismatch.
30. Hard Disk(s) fail (80) → HDD reset failed.
31. Hard Disk(s) fail (40) → HDD controller diagnostics failed.
32. Hard Disk(s) fail (20) → HDD initialization error.
33. Hard Disk(s) fail (10) → Unable to recalibrate fixed disk.
34. Hard Disk(s) fail (08) → Sector Verify failed.
35. Keyboard is locked out - Unlock the key.

BIOS detect the keyboard is locked. P17 of keyboard controller is pulled low.

36. Keyboard error or no keyboard present.

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

37. Manufacturing POST loop.

System will repeat POST procedure infinitely while the P15 of keyboard controller is pull low. This is also used for M/B burn in test.

38. BIOS ROM checksum error - System halted.

The checksum of ROM address F0000H-FFFFFH is bad.

39. Memory test fail.

BIOS reports the memory test fail if the onboard memory is tested error.

40. POST Codes

POST (hex)	Description
CFh	Test CMOS R/W functionality.
C0h	Early chipset initialization: -Disable shadow RAM -Disable L2 cache (socket 7 or below) -Program basic chipset registers
C1h	Detect memory -Auto-detection of DRAM size, type and ECC. -Auto-detection of L2 cache (socket 7 or below)
C3h	Expand compressed BIOS code to DRAM
C5h	Call chipset hook to copy BIOS back to E000 & F000 shadow RAM.
0h1	Expand the Xgroup codes locating in physical address 1000:0
02h	Reserved
03h	Initial Superio_Early_Init switch.
04h	Reserved
05h	1. Blank out screen 2. Clear CMOS error flag
06h	Reserved
07h	1. Clear 8042 interface 2. Initialize 8042 self-test
08h	1. Test special keyboard controller for Winbond 977 series Super I/O chips. 2. Enable keyboard interface.
09h	Reserved
0Ah	1. Disable PS/2 mouse interface (optional). 2. Auto detect ports for keyboard & mouse followed by a port & interface swap (optional). 3. Reset keyboard for Winbond 977 series Super I/O chips.
0Bh	Reserved
0Ch	Reserved
0Dh	Reserved
0Eh	Test F000h segment shadow to see whether it is R/W-able or not. If test fails, keep beeping the speaker.
0Fh	Reserved
10h	Auto detect flash type to load appropriate flash R/W codes into the run time area in F000 for ESCD & DMI support.
11h	Reserved
12h	Use walking 1's algorithm to check out interface in CMOS circuitry. Also set real-time clock power status, and then check for override.
13h	Reserved
14h	Program chipset default values into chipset. Chipset default values are MODBINable by OEM customers.

POST (hex)	Description
15h	Reserved
16h	Initial Early_Init_Onboard_Generator switch.
17h	Reserved
18h	Detect CPU information including brand, SMI type (Cyrix or Intel) and CPU level (586 or 686).
19h	Reserved
1Ah	Reserved
1Bh	Initial interrupts vector table. If no special specified, all H/W interrupts are directed to SPURIOUS_INT_HDLR & S/W interrupts to SPURIOUS_soft_HDLR.
1Ch	Reserved
1Dh	Initial EARLY_PM_INIT switch.
1Eh	Reserved
1Fh	Load keyboard matrix (notebook platform)
20h	Reserved
21h	HPM initialization (notebook platform)
22h	Reserved
23h	1. Check validity of RTC value: e.g. a value of 5Ah is an invalid value for RTC minute. 2. Load CMOS settings into BIOS stack. If CMOS checksum fails, use default value instead. 3. Prepare BIOS resource map for PCI & PnP use. If ESCD is valid, take into consideration of the ESCD's legacy information. 4. Onboard clock generator initialization. Disable respective clock resource to empty PCI & SODIMM slots. 5. Early PCI initialization: -Enumerate PCI bus number -Assign memory & I/O resource -Search for a valid VGA device & VGA BIOS, and put it into C000:0.
24h	Reserved
25h	Reserved
26h	Reserved
27h	Initialize INT 09 buffer
28h	Reserved
29h	1. Program CPU internal MTRR (P6 & PII) for 0-640K memory address. 2. Initialize the APIC for Pentium class CPU. 3. Program early chipset according to CMOS setup. Example: onboard IDE controller. 4. Measure CPU speed. 5. Invoke video BIOS.
2Ah	Reserved
2Bh	Reserved
2Ch	Reserved

POST (hex)	Description
2Dh	1. Initialize multi-language 1. Put information on screen display, including Award title, CPU type, CPU speed ….
2Eh	Reserved
2Fh	Reserved
30h	Reserved
31h	Reserved
32h	Reserved
33h	Reset keyboard except Winbond 977 series Super I/O chips.
34h	Reserved
35h	Reserved
36h	Reserved
37h	Reserved
38h	Reserved
39h	Reserved
3Ah	Reserved
3Bh	Reserved
3Ch	Test 8254
3Dh	Reserved
3Eh	Test 8259 interrupt mask bits for channel 1.
3Fh	Reserved
40h	Test 8259 interrupt mask bits for channel 2.
41h	Reserved
42h	Reserved
43h	Test 8259 functionality.
44h	Reserved
45h	Reserved
46h	Reserved
47h	Initialize EISA slot
48h	Reserved
49h	1. Calculate total memory by testing the last double word of each 64K page. 2. Program writes allocation for AMD K5 CPU.
4Ah	Reserved
4Bh	Reserved
4Ch	Reserved
4Dh	Reserved
4Eh	1. Program MTRR of M1 CPU 2. Initialize L2 cache for P6 class CPU & program CPU with proper cacheable range. 3. Initialize the APIC for P6 class CPU. 4. On MP platform, adjust the cacheable range to smaller one in case the cacheable ranges between each CPU are not identical.
4Fh	Reserved
50h	Initialize USB

POST (hex)	Description
51h	Reserved
52h	Test all memory (clear all extended memory to 0)
53h	Reserved
54h	Reserved
55h	Display number of processors (multi-processor platform)
56h	Reserved
57h	1. Display PnP logo 2. Early ISA PnP initialization -Assign CSN to every ISA PnP device.
58h	Reserved
59h	Initialize the combined Trend Anti-Virus code.
5Ah	Reserved
5Bh	(Optional Feature) Show message for entering AWDFLASH.EXE from FDD (optional)
5Ch	Reserved
5Dh	1. Initialize Init_Onboard_Super_IO switch. 2. Initialize Init_Onbaord_AUDIO switch.
5Eh	Reserved
5Fh	Reserved
60h	Okay to enter Setup utility; i.e. not until this POST stage can users enter the CMOS setup utility.
61h	Reserved
62h	Reserved
63h	Reserved
64h	Reserved
65h	Initialize PS/2 Mouse
66h	Reserved
67h	Prepare memory size information for function call: INT 15h ax=E820h
68h	Reserved
69h	Turn on L2 cache
6Ah	Reserved
6Bh	Program chipset registers according to items described in Setup & Auto-configuration table.
6Ch	Reserved
6Dh	1. Assign resources to all ISA PnP devices. 2. Auto assign ports to onboard COM ports if the corresponding item in Setup is set to “AUTO”.
6Eh	Reserved
6Fh	1. Initialize floppy controller 2. Set up floppy related fields in 40:hardware.
70h	Reserved
71h	Reserved
72h	Reserved

POST (hex)	Description
73h	(Optional Feature) Enter AWDFLASH.EXE if : -AWDFLASH is found in floppy drive. -ALT+F2 is pressed
74h	Reserved
75h	Detect & install all IDE devices: HDD, LS120, ZIP, CDROM…..
76h	Reserved
77h	Detect serial ports & parallel ports.
78h	Reserved
79h	Reserved
7Ah	Detect & install co-processor
7Bh	Reserved
7Ch	Reserved
7Dh	Reserved
7Eh	Reserved
7Fh	1. Switch back to text mode if full screen logo is supported. -If errors occur, report errors & wait for keys -If no errors occur or F1 key is pressed to continue: ◆Clear EPA or customization logo.
80h	Reserved
81h	Reserved
82h	1. Call chipset power management hook. 2. Recover the text fond used by EPA logo (not for full screen logo) 3. If password is set, ask for password.
83h	Save all data in stack back to CMOS
84h	Initialize ISA PnP boot devices
85h	1. USB final Initialization 2. NET PC: Build SYSID structure 3. Switch screen back to text mode 4. Set up ACPI table at top of memory. 5. Invoke ISA adapter ROMs 6. Assign IRQs to PCI devices 7. Initialize APM 8. Clear noise of IRQs.
86h	Reserved
87h	Reserved
88h	Reserved
89h	Reserved
90h	Reserved
91h	Reserved
92h	Reserved
93h	Read HDD boot sector information for Trend Anti-Virus code

POST (hex)	Description
94h	1. Enable L2 cache 1. Program boot up speed 2. Chipset final initialization. 3. Power management final initialization 4. Clear screen & display summary table 5. Program K6 write allocation 6. Program P6 class write combining
95h	1. Program daylight saving 1. Update keyboard LED & typematic rate
96h	1. Build MP table 2. Build & update ESCD 3. Set CMOS century to 20h or 19h 4. Load CMOS time into DOS timer tick 5. Build MSIRQ routing table.
FFh	Boot attempt (INT 19h)