User's Manual

EPIA-TC
Mini-ITX Mainboard

P/N 99-51-012821-12

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FCC-B Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the 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 1

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2

Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

Tested To Comply
With FCC Standards
FOR HOME OR OFFICE USE

Safety Instructions

1. Always read the safety instructions carefully.
2. Keep this User's Manual for future reference.
3. Keep this equipment away from humidity.
4. Lay this equipment on a reliable flat surface before setting it up.
5. The openings on the enclosure are for air convection hence protects the equipment from overheating. DO NOT COVER THE OPENINGS.
6. Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.
7. Place the power cord in such a way that people cannot step on it. Do not place anything over the power cord.
8. Always unplug the power cord before inserting any add-on card or module.
9. All cautions and warnings on the equipment should be noted.
10. Never pour any liquid into the opening. Liquid can cause damage or electrical shock.
11. If any of the following situations arises, get the equipment checked by a service personnel:
    - The power cord or plug is damaged
    - Liquid has penetrated into the equipment
    - The equipment has been exposed to moisture
    - The equipment has not work well or you cannot get it work according to User's Manual.
    - The equipment has dropped and damaged
    - If the equipment has obvious sign of breakage
12. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT UNCONDITIONED, STORAGE TEMPERATURE ABOVE 60 C (140F), IT MAY DAMAGE THE EQUIPMENT.

Caution:

Only use the appropriate battery specified for this product.

Do not reuse, recharge, or reheat an old battery.

Do not attempt to force open the battery.

Do not discard used batteries with regular trash.

Discard used batteries according to local regulations.

BOX CONTENTS

- 1 x VIA Mainboard
- 1 x User's Manual
- 1 x ATA-66/100/133 IDE Ribbon Cable
- 1 x IDE Power Cable
- 1 x Driver Utilities CD

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CHAPTER 1

Specifications

The ultra-compact and highly integrated VIA EPIA-TC Mini-ITX Mainboard is the smallest form factor mainboard specification available today, developed by VIA Technologies, Inc. as part of the company's open industry-wide total connectivity initiative. The mainboard enables the creation of an exciting new generation of small, ergonomic, innovative and affordable embedded systems. Through high level of integration, mini-ITX only occupy 66% of the size of FlexATX mainboard form factor. The mainboard comes with an embedded VIA Processor, boasting ultra low power consumption and cool, quiet operation.

MAINBOARD SPECIFICATIONS

CPU

- VIA C3 / EDEN EBGA Processor (onboard)
- Enhanced Ball Grid Array Package (EBGA)
- Internal L1 128KB and L2 64KB cache memory

Chipset

- VIA CLE266 North Bridge
- VT8235 South Bridge

Memory

- 1 x 200-pin DDR266 SODIMM socket (up to 1 GB)

Expansion Slot

- 1 x PCI

Graphics

- Integrated VIA UniChrome AGP graphics

Audio

- VT1612A, two-channel or
- VT1616, six-channel AC'97 Codec

LAN

- VIA VT6103 10/100 Base-T Ethernet PHY

IDE

- 2 X UltraDMA 66/100/133 Connector

OnModule CardBus/CF (optional)

- RICOH 476II

Back Panel I/O Ports

- DC-in power jack
- 1 x PS2 mouse port
- 1 x PS2 keyboard port
- 1 x VGA port
- 1 x RJ-45 LAN port
- 2 x USB 2.0/1.1 ports
- 1 x Serial port
- 3 x Audio jacks: line-out, line-in and mic-in
- 1 x Cardbus slot & CF slot (optional)

Onboard I/O Connectors

- 2 x USB 2.0/1.1 connector (USB 2.0 support included in South Bridge)
- 1 x Front audio connector
- 1 x KBMS connector
- 1 x Wake-on-LAN connector
- 2 x Fan connectors (CPU Fan, System Fan)
- 1 x LVDS connector (optional)
- 1 x Serial port connector for second COM port
- 1 x LPT port connector
- 1 x 12V connector
- 1 x SPDIF connector
- 1 x I^2C Pin-header

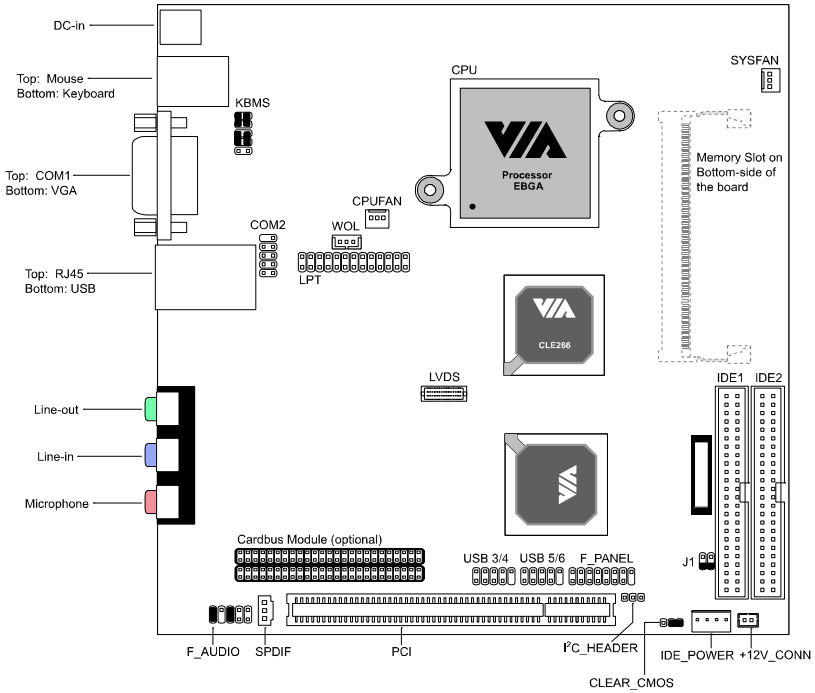
BIOS

- Award BIOS on 2/4Mbit flash memory

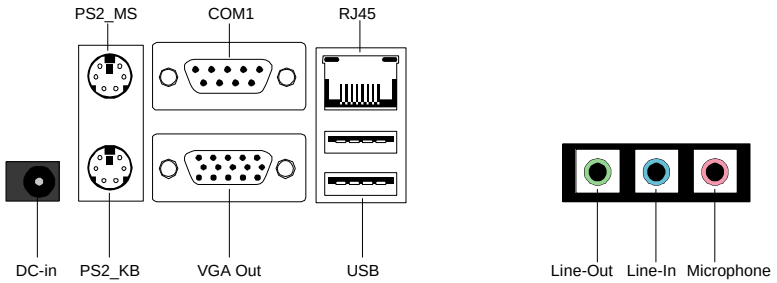
Form Factor

- 17 cm X 17 cm Mini-ITX (4 layer)

MAINBOARD LAYOUT



Back Panel



BACK PANEL PORTS

Port	Description
Audio Jacks	Line-Out, Line-In, Microphone
COM1	Serial port
DC-in Power Jack	DC Power input
PS2-KB	PS2 keyboard port
PS2-MS	PS2 mouse port
RJ45	10/100 NIC port
USB1-2	Universal Serial Bus ports 1 - 2
VGA Out	VGA out port

SLOTS

Slot	Description
PCI	Expansion card slot
DDR_SODIMM 1	Memory module slot

ONBOARD CONNECTORS AND JUMPERS

Connector/Jumper	Description
+12V_CONN	+12V power connector
CLEAR_CMOS	Jumper to reset CMOS settings to default
COM2	Second serial port connector
F_AUDIO	Front audio connector
F_PANEL	Case connectors
Fans	CPU Fan, System Fan
I^2C Header	I^2C header
IDE_POWER	IDE power connector
IDE1 & 2	IDE hard disk drive connectors
J1	IDE 20th pin voltage selector
KBMS	CIR/PS2(EXT_KBMS) connector
LPT	LPT port connector
LVDS (optional)	LVDS connector
SPDIF	Sony Philips Digital Interface
USB 3/4 & USB 5/6	Universal Serial Bus connector
WOL	Wake On LAN connector

CHAPTER 2

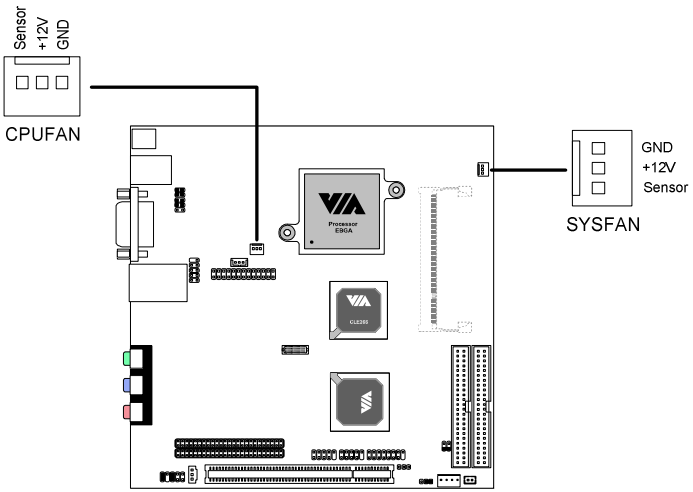
Installation

This chapter provides you with information about hardware setup procedures. While installing the mainboard, carefully hold the components and closely follow the installation procedures. Some components may be damaged if they are installed incorrectly.

It is recommended to use a grounded wrist strap before handling computer components. Static electricity can damage some components.

CPU

The VIA EPIA-TC Mini-ITX Mainboard includes an embedded VIA Eden Processor or VIA C3 E-Series Processor. The CPUFAN (CPU fan) and SYSFAN (system fan) run on +12V and maintain system cooling. When connecting the wire to the connectors, always be aware that the red wire is the Positive and should be connected to the +12V. The black wire is Ground and should be connected to GND. Both CPU and System fan connectors have sensors to detect fan speed.

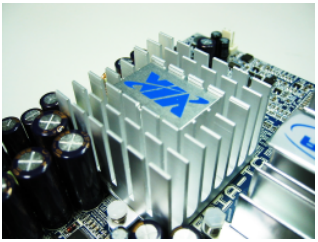


The VIA C3 E-Series Processor

With low power consumption and advanced thermal dissipation properties, the embedded VIA C3 E-Series requires only a small fan to guarantee performance and reliability. Ensure that the CPU Fan Connector is correctly installed as shown.

The VIA Eden Processor

Providing ultra-low power consumption and advanced thermal dissipation properties, the VIA Eden Processor features a fanless design. The VIA Eden Processor requires only a heatsink as shown.

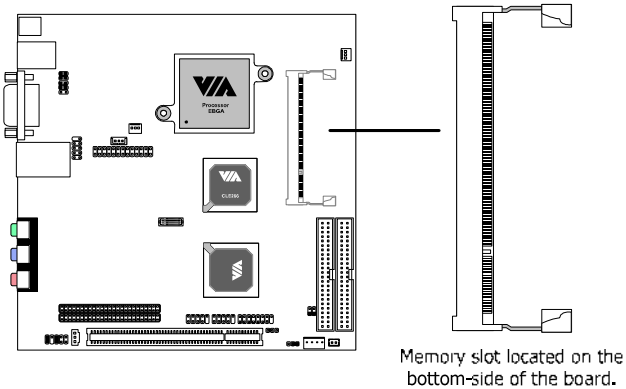


Caution:

This motherboard is not designed to support overclocking. Any attempt to operate beyond product specifications is not recommended. We do not guarantee the damages or risks caused by operation beyond product specifications.

MEMORY MODULE INSTALLATION

The VIA EPIA-TC Mini-ITX Mainboard provides one SODIMM slot on the bottom-side of the board. It uses 200-pin DDR266 memory modules



DDR SDRAM Module Installation Procedures

1. Make sure the notch is on the proper side.
2. Insert the memory module into the slot at a 30 degree angle (30 degrees from the board). You should feel it lightly snap into place.
3. Push the module up against the board and release your finger when the clips lock the module.

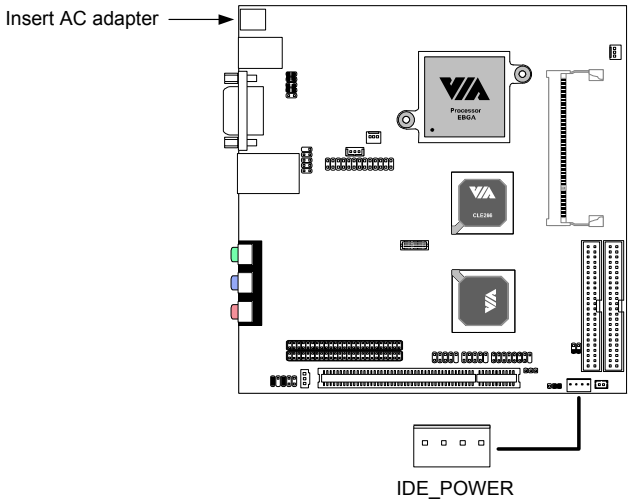
Available DDR SDRAM Configurations

Refer to the table below for available configurations on the mainboard.

Slot	Module Size	Total Memory
SODIMM (Bank 0 & 1)	64MB, 128MB, 256MB, 512MB, 1GB	64MB – 1GB
Maximum System Memory Supported		64MB – 1GB

CONNECTING THE POWER SUPPLY

The VIA EPIA-TC Mini-ITX Mainboard has an onboard DC-to-DC converter. It requires an AC adapter that has a 12V DC output. Always make sure that all components are installed correctly to ensure that no damage will be caused.



Disk Drive Power: IDE_POWER

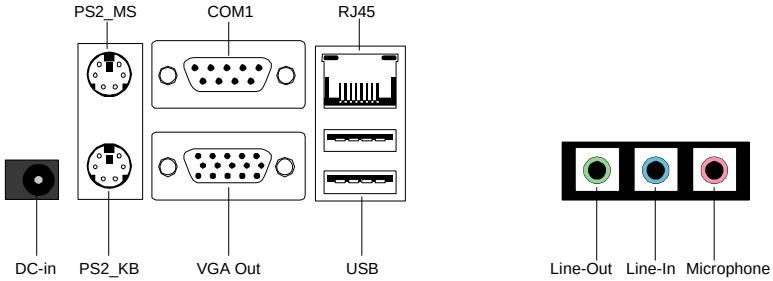
The mainboard provides a special power connector for the IDE devices connected to the IDE slots. There is a maximum of 60 watts available.

Note:

Please refer to Appendix C for the onboard power specifications.

BACK PANEL PORTS

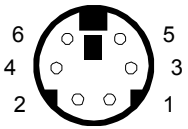
The back panel has the following ports:



Mouse Port: PS2_MS

The mainboard provides a standard PS/2 mouse connector for attaching a PS/2 mouse. You can plug a PS/2 mouse directly into this connector. The connector location and pin assignments are as follows.

Pin	Signal	Description
1	Mouse DATA	Mouse data
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Mouse Clock	Mouse clock
6	NC	No connection

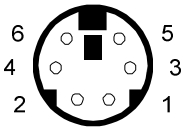


PS2 Mouse (6-pin female)

Keyboard Port: PS2_KB

The mainboard provides a standard PS/2 keyboard connector for attaching a PS/2 keyboard. You can plug a PS/2 keyboard directly into this connector.

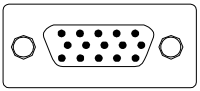
Pin	Signal	Description
1	Keyboard DATA	Keyboard data
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Keyboard Clock	Keyboard clock
6	NC	No connection



PS2 Keyboard (6-pin female)

VGA Out

A DB-15 pin female connector that connects to a VGA monitor.



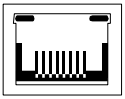
USB Ports

The mainboard provides 2 USB 2.0/1.1 ports (plus 2 pin-headers for up to 4 additional USB 2.0/1.1 ports, see page 18). USB-compatible devices can be plugged directly into these ports.

Pin	Signal	Description
1	VCC	+5V
2	-DATA	Negative Data Channel
3	+DATA	Positive Data Channel
4	GND	Ground

RJ45 10/100 NIC Port

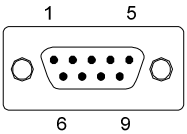
The mainboard provides one standard RJ-45 port for connection to the Local Area Network (LAN). You can connect a network cable to the LAN port.



Serial Ports: COM1

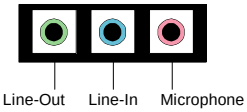
The mainboard offers one 9-pin male Serial Port connectors COM1. You can attach a serial mouse or other serial devices directly to these ports.

Pin	Signal	Description
1	DCD	Data Carry Detect
2	SIN	Serial In or Receive Data
3	SOUT	Serial Out or Transmit Data
4	DTR	Data Terminal Ready
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicate



9-Pin Serial Port

Audio Jacks: Line-In, Line-Out, Microphone



The **Line-Out** jack is for connecting to external speakers or headphones.

The **Line-In** jack is for connecting to an external audio device such as a CD player, tape player, etc....

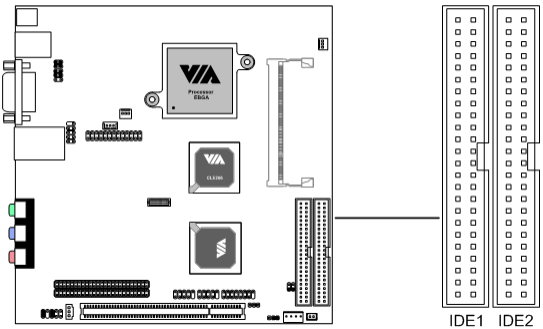
The **Mic** jack is for connecting to a microphone.

If the mainboard is equipped with the VT1616 audio chip, then the board also capable of six-channel audio. See Appendix A: Smart 5.1.

CONNECTORS

Hard Disk Connectors: IDE1 & IDE2

The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA 66/100/133 controller that provides PIO mode 0~4, Bus Master, and Ultra DMA 66/100/133 functions. You can connect up to four hard disk drives, CD-ROM, LS-120 or other IDE devices. The included IDE power cable has two large connectors and two small connectors. The large connectors can be used for IDE devices such as hard disks and optical drives. One of the small connectors can be used for IDE devices such as slim optical drives, but the other must be connected to IDE_POWER (see page 12)



The first hard drive should always be connected to IDE1. Master and Slave drives can be connected to both IDE connectors. You must configure the drives to the desired mode by setting the jumper accordingly. If you install two hard disks on a single cable, you must set the jumper on the second hard disk drive to slave mode. Please refer to the hard disk documentation supplied by hard disk vendor for the jumper settings.

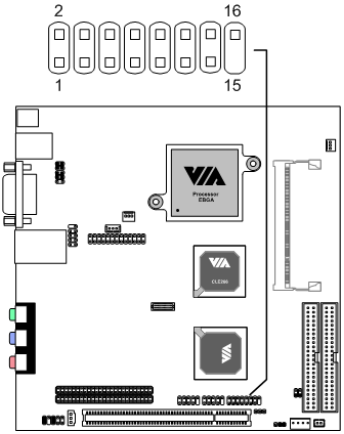
Both IDE1 and IDE2 have a 20th pin included. The 20th pin was added to provide extra voltage to power 40-pin Disk-on-Modules (DOM). See Voltage Selector: J1 on page 23. You must use IDE cables that do not block the 20th pin.

Note:
Before adding IDE devices, refer to Appendix C for the onboard power specifications to figure out how many devices can be supported.

Case Connector: F_PANEL

The F_PANEL connector block allows you to connect to the power switch, reset switch, power LED, HDD LED, SLED and the Speaker on the case.

Pin	Signal	Pin	Signal
1	PWR LED+	2	HDD LED+
3	PWR LED+	4	HDD LED-
5	PWR LED-	6	PW_BN+
7	SPEAKER+	8	PW_BN-
9	NC	10	RESET+
11	NC	12	RESET-
13	SPEAKER-	14	SLP_LED+
15	NC	16	SLP_LED-



Power Switch (PW_BN)

Connect to a 2-pin push button switch. Pressing this button will turn the system power on or off.

Reset Switch (RESET)

The Reset Switch is used to reboot the system rather than turning the power ON/OFF. Avoid rebooting while the HDD is working. You can connect the Reset Switch from the system case to this pin.

Power LED (PWR LED)

The LED is lit when the system is power on. If the system is in S1 (POS - Power On Suspend) or S3 (STR - Suspend To RAM) state, the LED will blink.

HDD LED

HDD LED shows the activity of a hard disk drive. Avoid turning the power off while HDD LED is lit. Connect the HDD LED from the system case to this pin.

SLP_LED

The SLP_LED is lit when the system is in the S1 (POS-Power On Suspend) state.

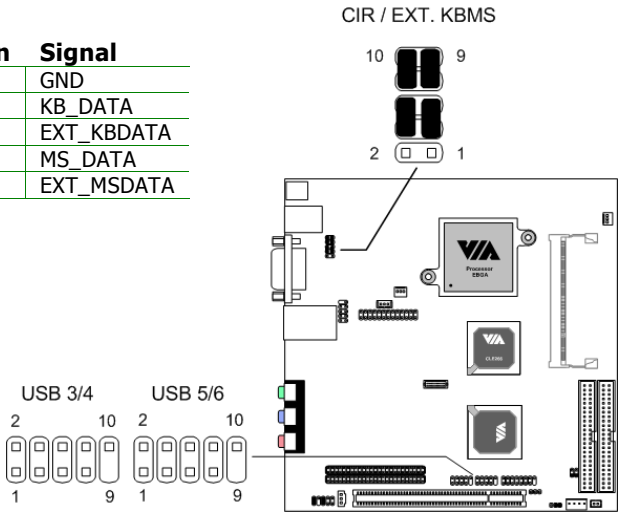
Speaker

The speaker from the system case is connected to this pin.

Consumer Infrared Module / PS2 Header: KBMS

When the leader is not in use, please short pin 3&5, pin 4&6, pin 7&9, and pin 8&10.

Pin	Signal	Pin	Signal
	+5V	2	GND
3	KB_CLK	4	KB_DATA
5	EXT_KBCLK	6	EXT_KBDATA
7	MS_CLK	8	MS_DATA
9	EXT_MSCLK	10	EXT_MSDATA



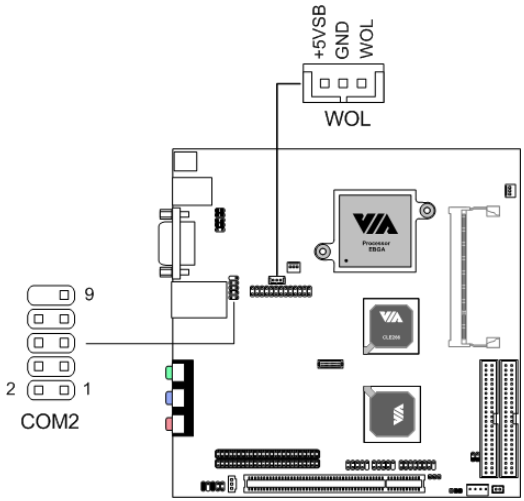
USB pin-header: USB 3/4, USB5/6

The mainboard provides 2 USB pin-headers, allowing up to 4 additional USB ports.

Pin	Signal	Pin	Signal
1	VCC	2	VCC
3	USB 0-	4	USB 1-
5	USB 0+	6	USB 1+
7	GND	8	GND
9	NC	10	GND

Wake-on LAN: WOL

This connector allows you to connect a network card with the Wake-On LAN function. The connector will power up the system when a signal is received through the network card. Please note that the function of ACPI WOL may be disabled when users unplug the power cord or turn off the power button manually.



COM2: The Second Serial Port

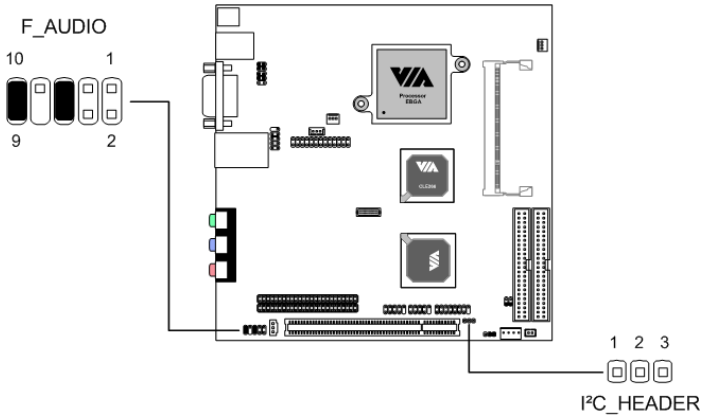
COM2 is a pin header for second serial port.

Pin	Signal	Description
1	DCD	Data Carry Detect
2	SIN	Serial In or Receive Data
3	SOUT	Serial Out or Transmit Data
4	DTR	Data Terminal Ready
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicate

Front Audio Panel: F_AUDIO

This connector allows you to connect a front audio panel to the mainboard. Only the line-out and microphone functions are available for use on the front panel. To connect the front audio cable, first remove the two red plastic jumpers.

Pin	Signal	Pin	Signal
1	FRN_MIC	2	AGND
3	AUD_MIC_BIAS	4	+5V
5	LINE_OUT_R	6	NEXT_R
7	NC	8	Blank
9	LINE_OUT_L	10	NEXT_L



I²C Connector: I²C_HEADER

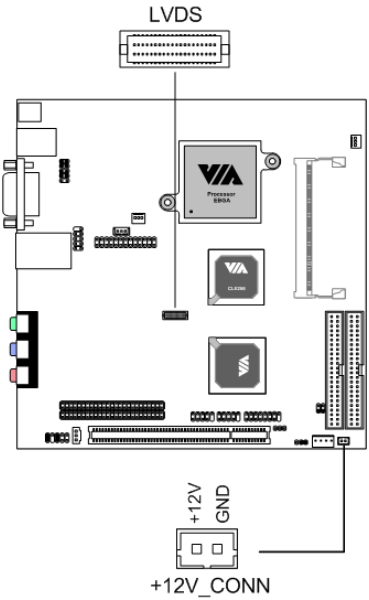
This is for connecting an I²C device.

Pin	Signal
1	SMBCLK
2	SMBDT
3	GND

LVDS Connector (Optional)

This connector is for devices requiring access to the signals listed in the table below. The LVDS connector may not be available on your mainboard. This is an option that is added during the manufacturing process. If you would like a mainboard with the LVDS connector, please contact your vendor or sales contact for more information. See Appendix B for a list of available add-on modules.

Pin	Signal	Pin	Signal
1	GFPDE	2	GFPD3
3	GFPD0	4	GFPD4
5	GFPD1	6	GFPD5
7	GFPD2	8	GFPCLK
9	GFPHS	10	GFPD6
11	GFPVS	12	GFPD7
13	GFPD11	14	GFPD8
15	GFPD12	16	GFPD9
17	ENPVDD	18	GFPD10
19	ENPVEE	20	GFPD13
21	FPBKLP	22	GFPD14
23	PWRGD_SB	24	GFPD15
25	SPCLK2	26	GFPD16
27	SPD2	28	GFPD17
29	GND	30	GFPD18
31	GND	32	GFPD19
33	3.3V	34	GFPD20
35	GND	36	GFPD21
37	5V	38	GFPD22
39	5V	40	GFPD23



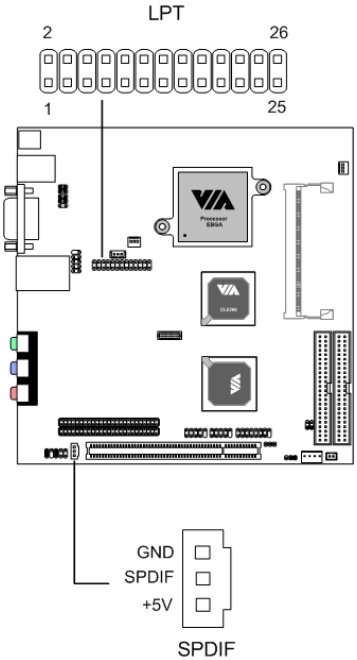
Auxiliary +12V Connector: +12V_CONN

This connector is reserved to power add-on cards such as LVDS. When connecting the wire to the connectors, always be aware that the red wire is the Positive and should be connected to the +12V. The black wire is Ground and should be connected to GND.

LPT Pin Header: LPT

The mainboard provides a pin header to attach a parallel port.

Pin	Signal	Pin	Signal
1	STROBE	2	AUTO FEED#
3	DATA0	4	ERR#
5	DATA1	6	INIT#
7	DATA2	8	SLIN#
9	DATA3	10	GND
11	DATA4	12	GND
13	DATA5	14	GND
15	DATA6	16	GND
17	DATA7	18	GND
19	ACK#	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SELECT	26	NC



Digital Audio Connector: SPDIF

This connector is for connecting the SPDIF bracket.

The SPDIF output provides digital audio to external speakers or compressed AC3 data to an external Dolby Digital Decoder. The feature is available only with stereo system which has digital output function.

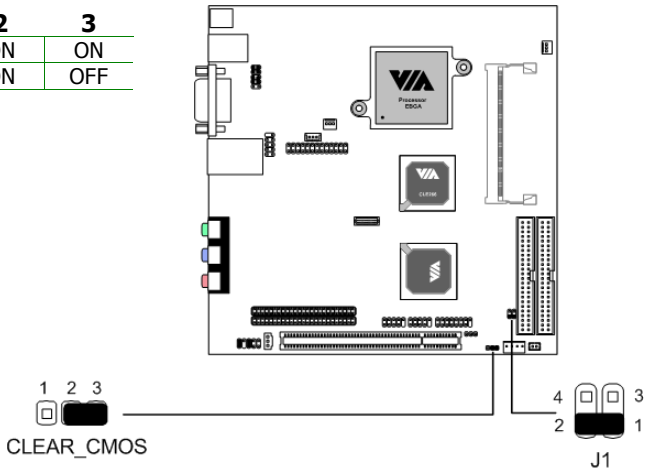
JUMPERS

The mainboard provides jumpers for setting some mainboard functions. This section will explain how to change settings of the mainboard's functions through the use of the jumpers.

Clear CMOS: CLEAR_CMOS

The onboard CMOS RAM stores system configuration data and has an onboard battery power supply. The long-life battery has a lifetime of at least 5 years. If you want to clear the system configuration data from the CMOS RAM, use the CLEAR_CMOS (Clear CMOS jumper). You can clear the CMOS by shorting pins 1 and2 while the system is off. Then return it to the 2-3 pin position. Shorting the jumper while the system is on will damage the mainboard. The default position of the jumper is on pins 2 and 3.

Setting	1	2	3
Keep	OFF	ON	ON
Clear	ON	ON	OFF



Voltage Selector: J1

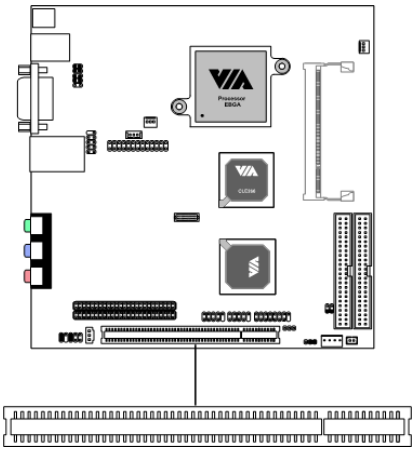
The 20th pin on both IDE connectors can provide either 3.3V or 5V to the IDE device.

Pin	Signal
1	DOM_POWER
2	+5V
3	DOM_POWER
4	+3.3V

SLOTS

Peripheral Component Interconnect: PCI

The PCI slot allows you to insert PCI expansion card. When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to make any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.



PCI Interrupt Request Routing

The IRQ are hardware lines over which devices can send interrupt signals to the microprocessor. The "PCI & LAN" IRQ pins are typically connected to the PCI bus INT A# ~ INT D# pins as follows:

	Order 1	Order 2	Order 3	Order 4
PCI Slot	INT B#	INT C#	INT D#	INT A#

Caution:

The PCI slot does not support any PCI card requiring -12V.

CHAPTER 3

BIOS Setup

This chapter gives you detailed explanation of each BIOS setup functions.

ENTERING SETUP

Power on the computer and press **Delete** straight away to enter the BIOS setup menu. If you missed the BIOS setup entry point, you may restart the system and try again.

CONTROL KEYS

Keys	Description
Up Arrow	Move to the previous item
Down Arrow	Move to the next item
Left Arrow	Move to the item in the left side
Right Arrow	Move to the item in the right side
Enter	Select the item
Escape	Jumps to the Exit menu or returns to the main menu from a submenu
Page Up / +	Increase the numeric value or make changes
Page Down / -	Decrease the numeric value or make changes
F1	General help, only for Status Page Setup Menu and Option Page Setup Menu
F5	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6	Load the default CMOS value from Fail-Safe default table, only for Option Page Setup Menu
F7	Load Optimized defaults
F9	Jumps to the Main Menu
F10	Save all the CMOS changes and exit

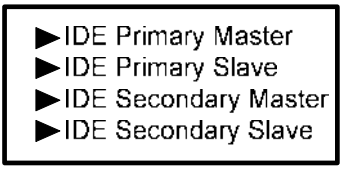
GETTING HELP

Main Menu

The main menu displays all BIOS setup categories. Use the control keys **Up/Down Arrow Keys** to select any item/sub-menu. Description of the selected/highlighted category is displayed at the bottom of the screen.

Sub-Menu

If you find a right pointer symbol (as shown in the right view) appears on the left of certain fields, this means a sub-menu is available. The sub-menu contains additional options. You can use control keys **Up/Down Arrow Keys** to highlight the field and press **Enter** to enter the sub-menu. To return from the sub-menu press **Esc.**

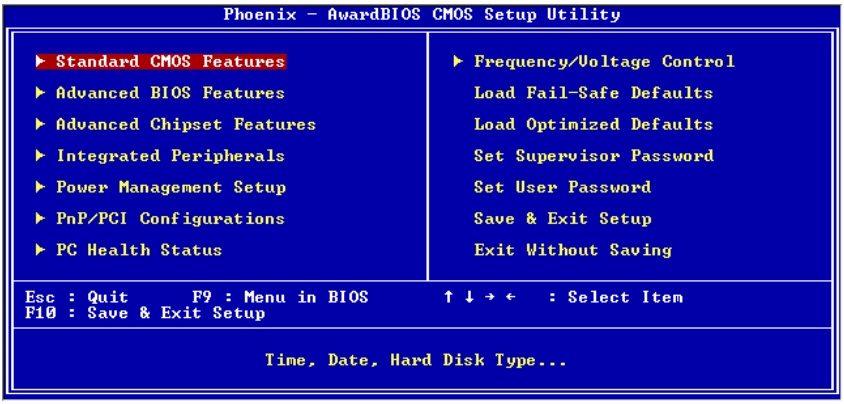


General Help: F1

The BIOS setup program provides a General Help screen. You can call up this screen from any menu/sub-menu by pressing **F1**. The help screen displays the keys for use and navigate the BIOS setup. Press **Esc** to exit the help screen.

MAIN MENU

The Main Menu contains twelve setup functions and two exit choices. Use arrow keys to select the items and press **Enter** to accept or enter the sub-menu.



Standard CMOS Features

Use this menu to set basic system configurations.

Advanced BIOS Features

Use this menu to set the advanced features available on your system.

Advanced Chipset Features

Use this menu to set chipset specific features and optimize system performance.

Integrated Peripherals

Use this menu to set onboard peripherals features.

Power Management Setup

Use this menu to set onboard power management functions.

PnP/PCI Configurations

Use this menu to set the PnP and PCI configurations.

PC Health Status

This menu shows the PC health status.

Frequency/Voltage Control

Use this menu to set the system frequency and voltage control.

Load Fail-Safe Defaults

Use this menu option to load the BIOS default settings for minimal and stable system operations.

Load Optimized Defaults

Use this menu option to load BIOS default settings for optimal and high performance system operations.

Set Supervisor Password

Use this menu option to set the BIOS supervisor password.

Set User Password

Use this menu option to set the BIOS user password.

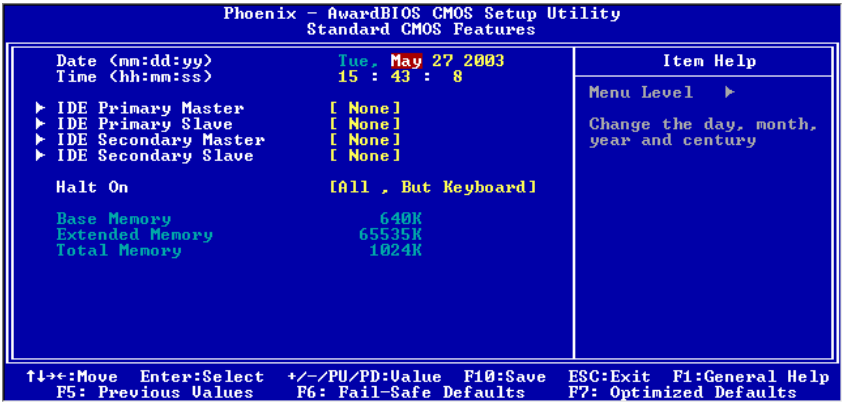
Save & Exit Setup

Save BIOS setting changes and exit setup.

Exit Without Saving

Abandon all BIOS setting changes and exit setup.

STANDARD CMOS FEATURES



Date

The date format is <Day><Month><Date><Year>.

Day - day of the week, for example Friday. Read-only.

Month - the month from Jan to Dec.

Date - the date from 1 to 31.

Year - the year, range from 1999 to 2098.

Time

The time format is <Hour><Minute><Second>

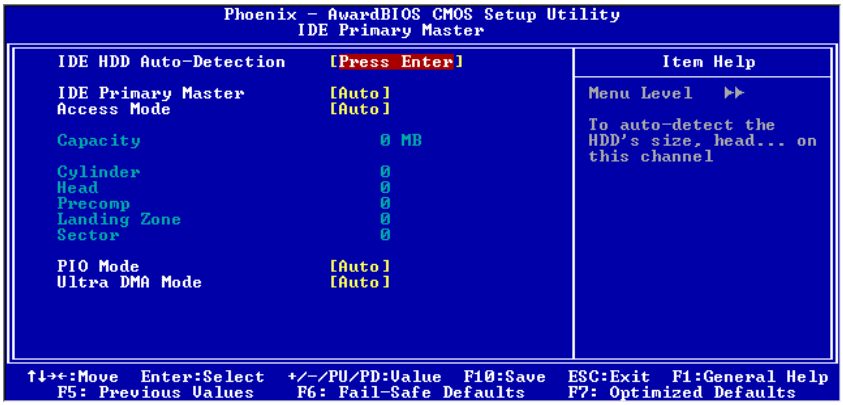
Halt On

Determine the system behavior if an error is detected at boot. Settings are:

All Errors	System halts when any error is detected.
No Errors	System does not halt for any error.
All, But Keyboard	System halts for all non-key errors.

IDE PRIMARY MASTER/SLAVE, SECONDARY MASTER/SLAVE

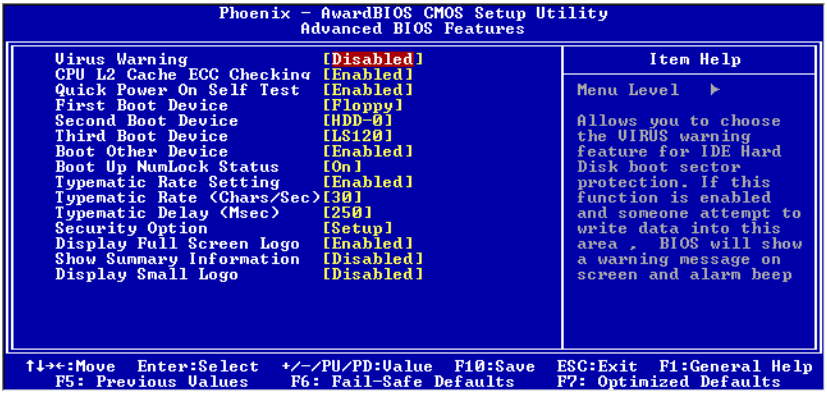
Press **Enter** to enter the sub-menu and the following screen appears:



The specifications of your drive must match with the drive table. The hard disk will not work properly if you enter incorrect information in this category. Select *Auto* whenever possible. If you select *Manual*, make sure the information is from your hard disk vendor or system manufacturer.

IDE <Primary Master>	The name of this menu item will match the name of the menu. The settings are *None, Auto, Manual*.
Access Mode	The settings are *CHS, LBA, Large, Auto*.
Capacity	Formatted size of the storage device.
Cylinder	Number of cylinders
Head	Number of heads
Precomp	Write precompensation
Landing Zone	Cylinder location of the landing zone
Sector	Number of sectors
PIO Mode	The settings are *Mode 0/1/2/3/4*, *Auto*.
Ultra DMA Mode	The settings are *Disabled* and *Auto*

ADVANCED BIOS FEATURES



Virus Warning

Set the Virus Warning feature for IDE Hard Disk boot sector protection. If the function is enabled, any attempt to write data into this area will cause a beep and warning message display on screen. Settings: *Disabled* and *Enabled*

CPU L2 Cache ECC Checking

Set the ECC (Error-Correcting Code) feature for Level 2 cache. Facilitates error detection/correction when data passes through Level 2 cache. Settings: *Enabled* and *Disabled*

Quick Power On Self Test

Shorten Power On Self Test (POST) cycle and enable shorter bootup time. Allow BIOS to skip some check items during POST. Settings: *Enabled* and *Disabled*

First/Second/Third Boot Device

Set the boot device sequence as BIOS attempts to load the disk operating system. The settings are:

LS120	The system will boot from LS-120 drive.
HDD-0	The system will boot from first HDD.
SCSI	The system will boot from SCSI.
CD-ROM	The system will boot from CD-ROM.
HDD-1	The system will boot from second HDD.
HDD-2	The system will boot from third HDD.
HDD-3	The system will boot from fourth HDD.
ZIP100	The system will boot from ATAPI ZIP drive.
USB-FDD	The system will boot from USB floppy drive.
USB-ZIP	The system will boot from USB ZIP drive.
USB-CDROM	The system will boot from USB CDROM.
USB-HDD	The system will boot from USB HDD.
LAN	The system will boot from network drive.
Disabled	Disable this sequence.

Boot Other Device

Enable the system to boot from other devices if the system fails to boot from the First/Second/Third boot device. Settings: *Enabled* and *Disabled*

Boot Up NumLock Status

Set the NumLock status when the system is powered on. *On* will turn key pad into number keys, and *Off* will turn key pad into arrow keys. Settings: *On* and *Off*

Typematic Rate Setting

When *Disabled*, the following two items (Typematic Rate and Typematic Delay) are irrelevant. Keystrokes repeat at a rate determined by the keyboard controller in your system. When *Enabled*, you can select a typematic rate and typematic delay. Settings: *Enabled* and *Disabled*

Typematic Rate (Chars/Sec)

When Typematic Rate Setting is enabled, this item allows you to set the rate (characters/second) at which the keys are accelerated. Settings: *6, 8, 10, 12, 15, 20, 24* and *30*

Typematic Delay (Msec)

When Typematic Rate Setting is enabled, this item allows you to select the delay between when the key was first pressed and when the acceleration begins. Settings: *250, 500, 750* and *1000*

Security Option

If you have set a password, select whether the password is required every time the System boots, or only when you enter Setup. Settings are described below:

Setup	The password prompt appears only when end users try to run Setup.
System	A password prompt appears every time when the computer is powered on or when end users try to run Setup.

Display Full Screen Logo

Show full screen logo during BIOS bootup process. Settings: *Enabled* and *Disabled*

Show Summary Information

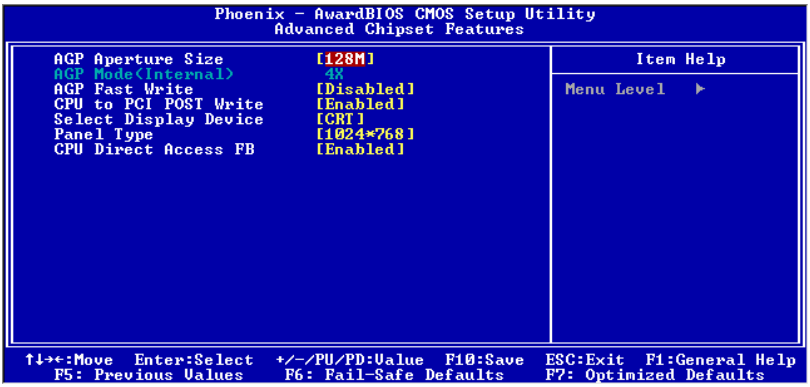
Settings: *Enabled* and *Disabled*

Display Small Logo

Show small energy star logo during BIOS boot up process. Settings: *Enabled* and *Disabled*

ADVANCED CHIPSET FEATURES

The Advanced Chipset Features menu is used for optimizing the chipset functions.



Caution:

Do not change these settings unless you are familiar with the chipset.

AGP Aperture Size

This setting controls how much memory space can be allocated to AGP for video purposes. The aperture is a portion of the PCI memory address range dedicated to graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. Settings: *4MB, 8MB, 16MB, 32MB, 64MB, 128MB* and *256MB*

AGP Mode (Internal)

This mainboard supports the AGP 4x interface. When the AGP 4x video card is used, it can transfer video data at 1066MB/s. AGP 4x is backward-compatible, leave the default 4x mode on if unsure. When set to 1x mode, the maximum transfer rate it at 266MB/s, and 2x mode transfers data at 533MB/s. AGP8x mode can be detected automatically once you plug in the AGP8x card. Settings: *4X, 2X* and *1X*

AGP Fast Write

When *Enabled*, the speed of the memory write operations will increase. Settings: *Enabled* and *Disabled*

CPU to PCI POST Write

When *Enabled*, CPU can write up to four words of data to the PCI write buffer before CPU must wait for PCI bus cycle to finish. If *Disabled*, CPU must wait after each write cycle until PCI bus signals that it is ready to receive more data. Settings: *Enabled* and *Disabled*

Select Display Device

This setting refers to the type of display being used with the system. Settings: *CRT, LCD, CRT + LCD, DVI* and *CRT + DVI*

Panel Type

This setting refers to the native resolution of the display being used with the system. Settings: *1600x1200, 1400.1050, 1280, 1024, 1280x768, 1024x768, 800x600* and *640x480*

CPU Direct Access FB

Settings: *Enabled* and *Disabled*

INTEGRATED PERIPHERALS

```
Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals

▶ SuperIO Device              [Press Enter]        Item Help

  Onboard IDE Channel 1       [Enabled]            Menu Level  ▶
  Onboard IDE Channel 2       [Enabled]
  IDE Prefetch Mode           [Enabled]

  Display Card Priority       [PCI Slot]
  Frame Buffer Size           [32M]

  AC97 Audio                  [Auto]
  VIA OnChip LAN              [Enabled]

  OnChip USB Controller       [All Enabled]

  USB Keyboard Support        [Disabled]
  Onboard Lan Boot ROM        [Disabled]

↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
  F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults
```

Onboard IDE Channel 1/2

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Choose *Enabled* to activate each channel separately. Settings: *Enabled* and *Disabled*

IDE Prefetch Mode

This allows your hard disk controller to use the fast block mode to transfer data to and from the hard disk drive. Block mode is also called block transfer, multiple commands or multiple sector read/write. *Enabled* enables IDE controller to use block mode; *Disabled* allows the controller to use standard mode. Settings: *Enabled* and *Disabled*

Display Card Priority

This setting specifies which VGA card is your primary graphics adapter. Settings: *PCI Slot* and *AGP*

Frame Buffer Size

This setting instructs the BIOS to reserve the specified amount of memory for the internal video controller. Settings: *16M, 32M, 64M*

AC'97 Audio

Auto allows the mainboard to detect whether an audio device is used. If the device is detected, the onboard VIA AC'97 (Audio Codec'97) controller will be enabled; if not, it is disabled. Disable the controller if you want to use other controller cards to connect to an audio device. Settings: *Auto* and *Disabled*

VIA OnChip LAN

This setting allows you to make VIA OnChip LAN enabled or disabled. Settings: *Enabled* and *Disabled*

OnChip USB Controller

Settings: *All Enabled* and *All Disabled*

USB Keyboard Support

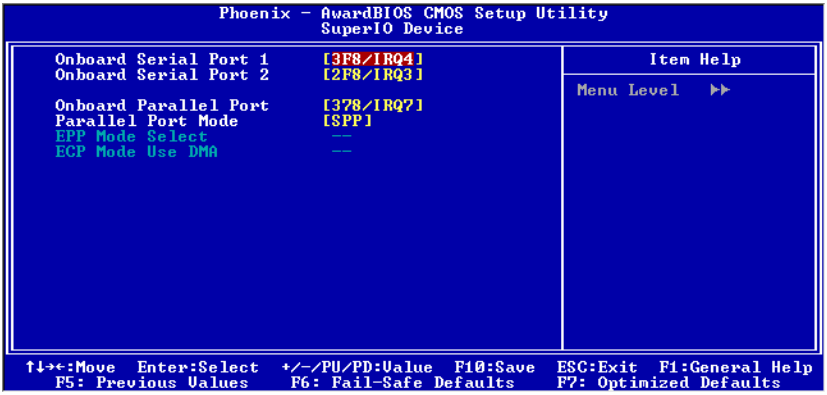
Enable USB Keyboard Support for DOS and Windows. Settings: *Enabled* and *Disabled*

Onboard Lan Boot ROM

Enable Onboard Lan Boot ROM for DOS and Windows. Settings: *Enabled* and *Disabled*

SuperIO Device

Press **Enter** to enter the sub-menu and the following screen appears:



Onboard Serial Port 1/2

Set the base I/O port address and IRQ for the onboard serial port A/serial port B. Selecting *Auto* allows BIOS to automatically determine the correct base I/O port address. Settings:

Port	Settings					
1	Disabled	3F8/IRQ4	2F8/IRQ3	3E8/IRQ4	2E8/IRQ3	Auto
2	Disabled	3F8/IRQ4	2F8/IRQ3	3E8/IRQ4	2E8/IRQ3	Auto

Onboard Parallel Port

This specifies the I/O port address and IRQ of the onboard parallel port. Settings: *Disabled, 378/IRQ7, 278/IRQ5, 3BC/IRQ7*

Parallel Port Mode

Set the parallel port mode. To operate the onboard parallel port as Standard Parallel Port, choose *SPP*. To operate the onboard parallel port in the EPP mode, choose *EPP*. By choosing *ECP*, the onboard parallel port will operate in ECP mode. Choosing *ECP + EPP* will allow the onboard parallel port to support both the ECP and EPP modes simultaneously. Settings: *SPP, EPP, ECP, ECP + EPP*

EPP Mode Select

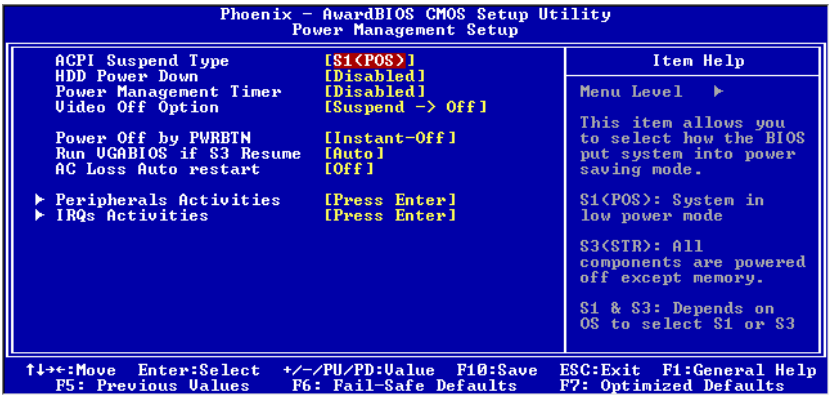
EPP (Enhanced Parallel Port) comes in two modes: 1.9 and 1.7. EPP 1.9 is the newer version of the protocol and is backwards compatible with most EPP devices. If your EPP device does not work with the EPP 1.9 setting, try changing the setting to EPP 1.7.
Settings: *EPP 1.9, EPP 1.7*

ECP Mode Use DMA

ECP (Extended Capabilities Port) has two DMA channels that it can use. The default channel is 3. However, some expansion cards may use channel 3 as well. To solve this conflict, change the ECP channel to 1. Select a DMA channel for the port. Settings: *1, 3*

POWER MANAGEMENT SETUP

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



ACPI Suspend Type

Set the power saving mode for ACPI function. Settings are:

S1(POS)	S1/Power On Suspend (POS) is a low power state. In this state, no system context (CPU or chipset) is lost and hardware maintains all system contexts.
S3(STR)	S3/Suspend To RAM (STR) is a power-down state. In this state, power is supplied only to essential components such as main memory and wakeup-capable devices. The system context is saved to main memory, and context is restored from the memory when a "wakeup" event occurs.
S1 & S3	Depends on the OS to select S1 or S3.

HDD Power Down

Set the time to power down HDD after hard disk inactivity. Settings: *Disabled* and *1~15* (minutes)

Power Management Timer

Set the idle time before system enters power saving mode. ACPI OS such as Windows XP will override this option. Settings: *Disabled* and *1/2/4/6/8/10/20/30/40* (minutes) and *1* (hour)

Video Off Option

Select whether or not to turn off the screen when system enters power saving mode, ACPI OS such as Windows XP will override this option. Settings are:

Always On	The screen is always on even when system enters power saving mode.
Suspend -> Off	The screen is turned off when system enters power saving mode.

Power Off by PWRBTN

This field configures the power button on the chassis. Settings are:

Delay 4 Sec	The system is turned off if power button is pressed for more than four seconds.
Instant-Off	The power button functions as a normal power-on/-off button.

Run VGABIOS if S3 Resume

Select whether to run VGA BIOS if resumed from S3 state. This is only necessary for older VGA drivers, select *Auto* if in doubt. Settings: *Auto, Yes* and *No*

AC Loss Auto restart

The field defines how the system will act after an AC power loss during system operation. *Off* will keep the system in an off stat until the power button is pressed. When set to *On* the system will restart when the power is back. *Former-Sts* will restore the system to its previous state. Settings: *Off, On, Former-Sts*

Peripheral Activities

Press **Enter** to enter the sub-menu and the following screen appears:

```
Phoenix - AwardBIOS CMOS Setup Utility
Peripherals Activities

VGA Event                          [Off]
LPT & COM Event                    [LPT/COM]
HDD Event                          [On]
PCI Master Event                   [Off]

PS2KB Wakeup Select                [Hot key]
PS2MS Wakeup from S3/S4/S5         [Disabled]
PS2KB Wakeup from S3/S4/S5         [Disabled]
USB Resume                         [Disabled]
PowerOn by PCI Card                [Disabled]
Wake On LAN/Ring connector         [Disabled]

RTC Alarm Resume                   [Disabled]
Date (of Month)                     --
Resume Time (hh:mm:ss)              --: -- : --

Item Help
Menu Level  ▶▶
Decide whether or not the power management unit should monitor VGA activities.

↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
F5: Previous Values  F6: Fail-Safe Defaults  F7: Optimized Defaults
```

VGA Event

Decide whether or not the power management unit should monitor VGA activities. Settings: *Off* and *On*

LPT & COM Event

Decide whether or not the power management unit should monitor parallel port (LPT) and serial port (COM) activities. Settings: *None, LPT, COM* and *LPT/COM*

HDD Event

Decide whether or not the power management unit should monitor hard disks drives activities. Settings: *Off* and *On*

PCI Master Event

Decide whether or not the power management unit should monitor PCI master activities. Settings: *Off* and *On*

PS2KB Wakeup Select

When select *Password*, please press **Page Up** or **Page Down** key to change *Password*, 8 characters maximum. Please note that PS2MS Wakeup from suspend and PS2KB Wakeup from suspend will be disabled while changing the password. Settings: *Hot key* and *Password*

PS2MS Wakeup from S3/S4/S5

This setting can be used to wakeup the system from power saving mode through mouse. Settings: *Disabled* and *Enabled*

PS2KB Wakeup from S3/S4/S5

Select which Hot-Key to wake-up the system from power saving mode. Settings: *Disabled, Ctrl+F1, Ctrl+F2, Ctrl+F3, Ctrl+F4, Ctrl+F5, Ctrl+F6, Ctrl+F7, Ctrl+F8, Ctrl+F9, Ctrl+F10, Ctrl+F11, Ctrl+F12, Power, Wake* and *Any Key*

USB Resume

Decide whether or not USB devices can wake the system from suspend state. Settings: *Disabled* and *Enabled*

PowerOn by PCI Card

Decide whether or not any PCI card can power up the system or resume from suspend state. Such PCI cards include LAN, onboard USB ports, etc. Settings: *Disabled* and *Enabled*

Wake On LAN/Ring Connector

Decide whether or not any Ring-In signals from the modem can wake up the system or resume from suspend state. Settings: *Disabled* and *Enabled*

RTC Alarm Resume

The field is used to enable or disable the feature of booting up the system on a scheduled time/date. Settings: *Disabled* and *Enabled*

Date (of Month)

This field can only be set if RTC Alarm Resume is enabled. The field specifies the date for *RTC Alarm Resume.*

Resume Time (hh:mm:ss)

This field can only be set if RTC Alarm Resume is enabled. The field specifies the time for *RTC Alarm Resume.*

IRQs Activities

Press **Enter** to enter the sub-menu and the following screen appears:

```
Phoenix - AwardBIOS CMOS Setup Utility
IRQs Activities

Primary INTR              [On]                    Item Help
IRQ3  (COM 2)             [Disabled]
IRQ4  (COM 1)             [Enabled]               Menu Level  ▶▶
IRQ5  (LPT 2)             [Enabled]
IRQ6  (Floppy Disk)       [Enabled]               If you choose Disabled
IRQ7  (LPT 1)             [Enabled]               , the power management
IRQ8  (RTC Alarm)         [Disabled]              unit will not monitor
IRQ9  (IRQ2 Redir)        [Disabled]              any IRQ activities.
IRQ10 (Reserved)          [Disabled]
IRQ11 (Reserved)          [Disabled]
IRQ12 (PS/2 Mouse)        [Enabled]
IRQ13 (Coprocessor)       [Enabled]
IRQ14 (Hard Disk)         [Enabled]
IRQ15 (Reserved)          [Disabled]

↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
F5: Previous Values      F6: Fail-Safe Defaults    F7: Optimized Defaults
```

Primary INTR

Selecting *On* will cause the system to wake up from power saving modes if activity is detected from any enabled IRQ channels. Settings: *Off, On*

IRQ3~IRQ15

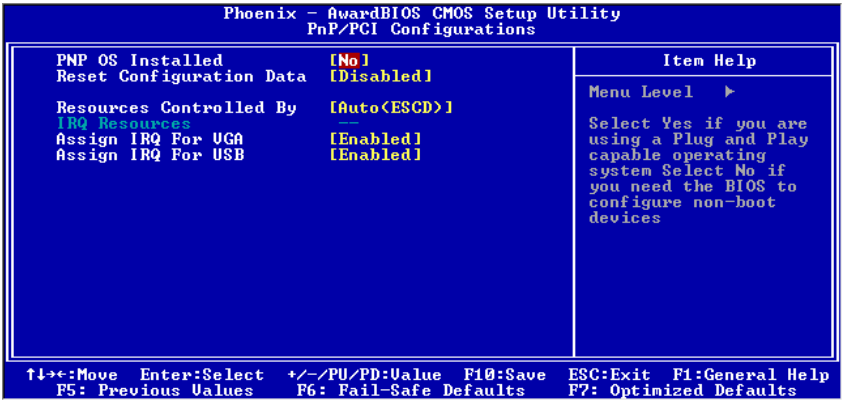
Enables or disables the monitoring of the specified IRQ line. If set to *Enabled*, the activity of the specified IRQ line will prevent the system from entering power saving modes or awaken it from power saving modes. These fields are only available if Primary INTR is on. Settings: *Enabled* and *Disabled*

Note:

IRQ (Interrupt Request) lines are system resources allocated to I/O devices. When an I/O device needs to gain attention of the operating system, it signals this by causing an IRQ to occur. After receiving the signal, when the operating system is ready, the system will interrupt itself and perform the service required by the IO device.

PNP/PCI CONFIGURATIONS

This section describes the BIOS configuration of the PCI bus system. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.



PNP OS Installed

When set to *Yes*, BIOS will only initialize the PnP cards used for booting (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system like Windows 95 or 98/98SE. When set to *No*, BIOS will initialize all the PnP cards. Set to *Yes* the operating system is Plug & Play capable. Settings: *No* and *Yes*

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. Settings: *Enabled* and *Disabled*

Resource Controlled By

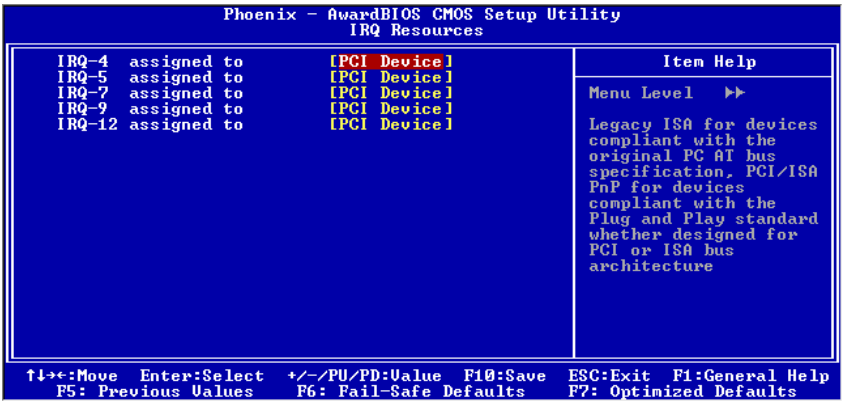
The BIOS can automatically configure all the boot and Plug and Play compatible devices. Choose *Auto(ESCD)* if unsure, the BIOS will automatically assign IRQ, DMA and memory base address fields. Settings: *Auto (ESCD)* and *Manual*

Assign IRQ For VGA/USB

Assign IRQ for VGA and USB devices. Settings: *Disabled* and *Enabled*

IRQ Resources

The items are adjustable only when *Resources Controlled By* is set to *Manual*. Press **Enter** and you will enter the sub-menu of the items.

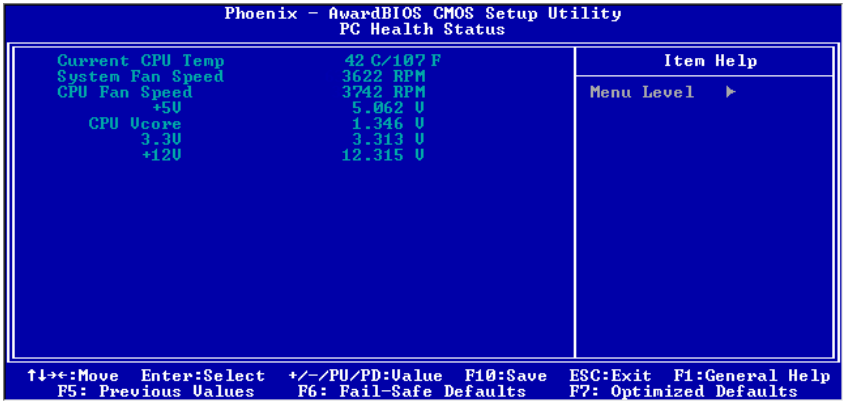


IRQ Resources list IRQ 4/5/7/9/12 for users to set each IRQ a type depending on the type of device using the IRQ. Settings:

PCI Device	For Plug-and-Play compatible devices designed for PCI bus architecture.
Reserved	The IRQ will be reserved for further request.

PC HEALTH STATUS

This section shows the status of your CPU, fan and warning for overall system status.



The PC Health Status displays the current status of all of the monitored hardware devices/components such as CPU voltages, temperatures and fan speeds.

FREQUENCY / VOLTAGE CONTROL

```
Phoenix - AwardBIOS CMOS Setup Utility
Frequency/Voltage Control

DRAM Clock                    [By SPD]        Item Help
DRAM Timing                   [By SPD]
DRAM CAS Latency               --             Menu Level  ►
Bank Interleave                --
Precharge to Active(Trp)       --
Active to Precharge(Tras)      --
Active to CMD(Trcd)            --
DRAM Command Rate             [1T Command]
DRAM Burst Len                [8]
DRAM Voltage                  [Default]
CPU Clock                     [133MHz]

Spread Spectrum               [Enabled]

↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
F5: Previous Values  F6: Fail-Safe Defaults  F7: Optimized Defaults
```

DRAM Clock

The chipset supports synchronous and asynchronous mode between host clock and DRAM clock frequency. Settings: *100 MHz, 133 MHz* and *By SPD*

DRAM Timing

The value in this field depends on the memory modules installed in your system. Changing the value from the factory setting is not recommended unless you install new memory that has a different performance rating than the original modules. Settings: *Manual* and *By SPD*

DRAM CAS Latency

This item adjusts the speed it takes for the memory module to complete a command. Generally, a lower setting will improve the performance of your system. However, if your system becomes less stable, you should change it to a higher setting. This field is only available when "DRAM Timing" is set to "Manual". Settings: *2, 2.5*

Bank Interleave

Set the interleave mode of the SDRAM interface. Interleaving allows banks of SDRAM to alternate their refresh and access cycles. One bank will undergo its refresh cycle while another is being accessed. This improves performance of the SDRAM by masking the refresh time of each bank. This field is only available when "DRAM Timing" is set to "Manual". Settings: *Disabled, 2 Bank, 4 Bank*

Precharge to Active (Trp)

This field controls the length of time it takes to precharge a row in the memory module before the row becomes active. Longer values are safer but may not offer the best performance. This field is only available when "DRAM Timing" is set to "Manual". Settings: *2T, 3T*

Active to Precharge (Tras)

This field controls the length of time it a row stays active before precharging. Longer values are safer but may not offer the best performance. This field is only available when "DRAM Timing" is set to "Manual". Settings: *5T, 6T*

Active to CMD (Trcd)

This field is only available when "DRAM Timing" is set to "Manual". Settings: *2T, 3T*

DRAM Command Rate

This field controls how fast the memory controller sends out commands. Lower setting equals faster command rate. Please note that some memory modules may not be able to handle lower settings. Settings: *2T Command, 1T Command*

DRAM Burst Len

This field sets the length of time for one burst of data during a read/write transaction. Longer settings equal better memory performance. Settings: *4, 8*

DRAM Voltage

This field sets the voltage for the memory module. Settings: *2.8V, 2.7V, 2.6V, Default*

CPU Clock

This field sets the CPU clock speed.

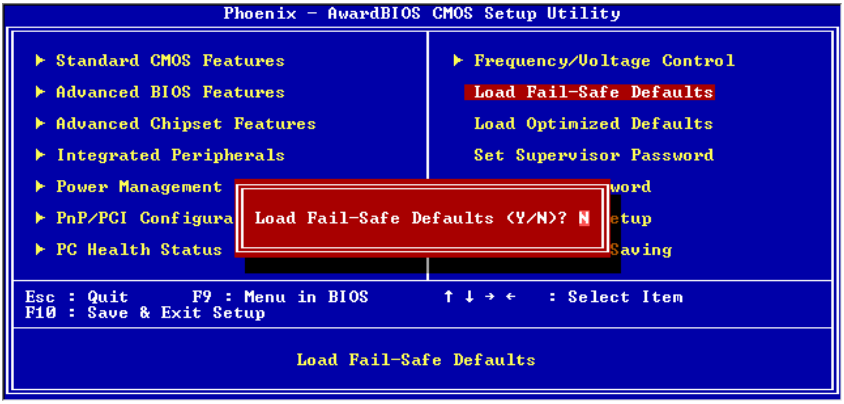
Spread Spectrum

When the mainboard's clock generator pulses, the extreme values (spikes) of the pulses creates EMI (Electromagnetic Interference). The Spread Spectrum function reduces the EMI generated by modulating the pulses so that the spikes of the pulses are reduced to flatter curves.

LOAD FAIL-SAFE DEFAULTS

This option on the main menu allows users to restore all the BIOS settings to the default Fail Safe values. These values are set by the mainboard manufacturer to provide a minimal and stable system.

When you select Load-Fail Safe Defaults, a message as below appears:

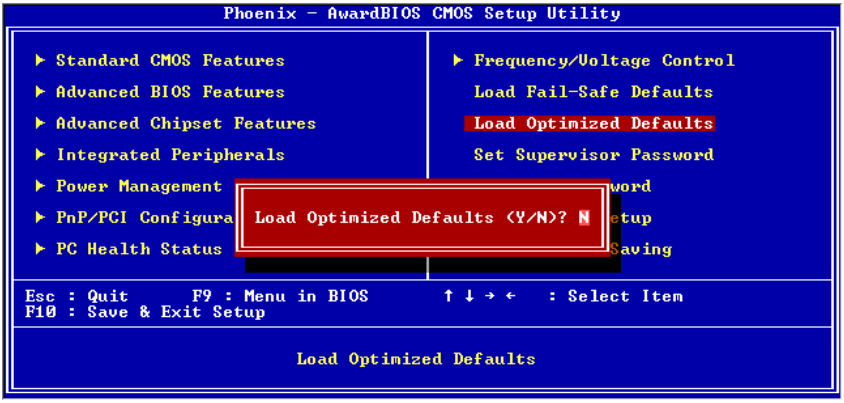


Entering *Y* loads the default BIOS values that provide a minimal and stable system configuration.

LOAD OPTIMIZED DEFAULTS

This option on the main menu allows users to restore all the BIOS settings to the default Optimized values. The Optimized Defaults are the default values also set by the mainboard manufacturer for both optimized and stable performance of the mainboard.

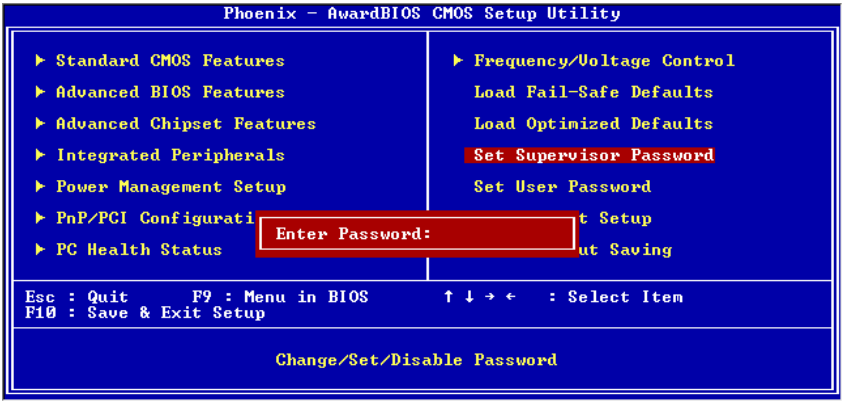
When you select Load Optimized Defaults, a message as below appears:



Entering *Y* loads the default values that are factory settings for optimal and stable system performance.

SET SUPERVISOR / USER PASSWORD

When you select this function, a message as below will appear on the screen:



Type the password, up to eight characters in length, and press **Enter**. The password typed now will clear any previously set password from CMOS memory. You will be prompted to confirm the password. Re-type the password and press **Enter**. You may also press **Esc** to abort the selection and not enter a password.

To clear a set password, just press **Enter** when you are prompted to enter the password. A message will show up confirming the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup without entering any password.

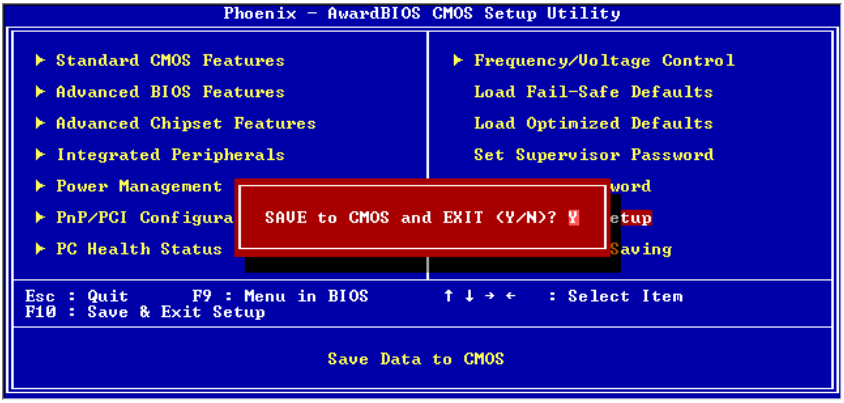
When a password has been set, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

There are two types of passwords you can set. A Supervisor password and a User password. When a Supervisor password is used, the user can start BIOS Setup program and change the settings of the setup menus. When a User password is used, the user can start the BIOS Setup program but does not have the right to change the settings of the setup menus.

Additionally, when a password is enabled, you can also have BIOS to request a password each time the system is booted. This would prevent unauthorized use of your computer. The setting to determine when the password prompt is required is the Security Option of the Advanced BIOS Features menu. If the Security Option is set to *System*, the password is required both at boot and at entry to Setup. If set to *Setup*, password prompt only occurs when trying to enter Setup.

SAVE & EXIT SETUP

When you want to quit the Setup menu, you can select this option to save the changes and quit. A message as below will appear on the screen:

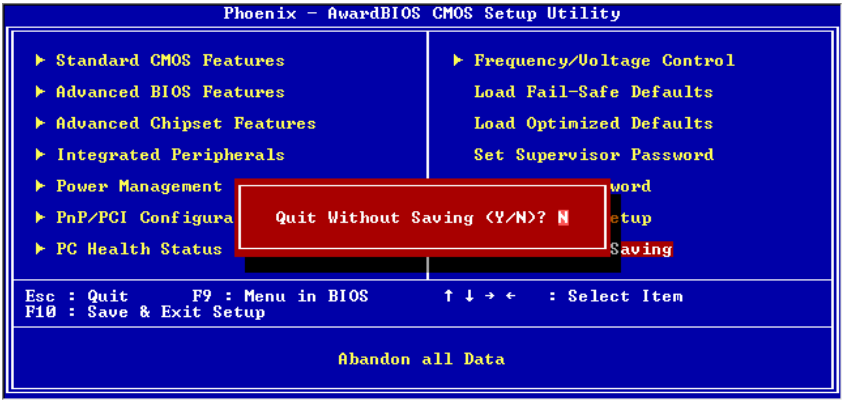


Entering *Y* will allow you to quit the Setup Utility and save the user setup changes to RTC CMOS.

Entering *N* will return to the Setup Utility.

EXIT WITHOUT SAVING

When you want to quit the Setup menu, you can select this option to abandon the changes. A message as below will appear on the screen:



Entering *Y* will allow you to quit the Setup Utility without saving any changes to RTC CMOS.

Entering *N* will return to the Setup Utility.

CHAPTER 4

Driver Installation

This chapter gives you brief descriptions of each mainboard driver and applications. You must install the VIA chipset drivers first before installing other drivers such as audio or VGA drivers. The applications will only function correctly if the necessary drivers are already installed.

DRIVER UTILITIES

Getting Started

The mainboard includes a Driver Utilities CD which contains the driver utilities and software for enhancing the performance of the mainboard. Please check that you have this CD in your retail box. If the CD is missing from the retail box, please contact the local dealer for the CD.

Note:
The driver utilities and software are updated from time to time. Please visit our website (http://www.viaembedded.com) for the latest updated mainboard driver and utilities.

Running the Driver Utilities CD

To start using the CD, just simply insert the CD into your local CD-ROM or DVD-ROM drive. The CD should run automatically when you close your CD-ROM or DVD-ROM drive. The driver utilities and software menu screen should then appear on your desktop. If the CD does not run automatically, you can run the CD manually by typing "D:\Setup.exe" at Start\Run.

Note:
D: might not be your CD-ROM/DVD-ROM drive letter. Make sure you type the correct letter of CD-ROM/DVD-ROM drive on your system.

CD CONTENT

The driver utilities and software in this CD are:

- **VIA 4in1 Drivers:** Contains VIA ATAPI Vendor Support Driver (enables the performance enhancing bus mastering functions on ATA-capable Hard Disk Drives and ensures IDE device compatibility), AGP VxD Driver (provides service routines to your VGA driver and interface directly to hardware, providing fast graphical access), IRQ Routing Miniport Driver (sets the system's PCI IRQ routing sequence) and VIA INF Driver (enables the VIA Power Management function).
- **VIA VGA Driver:** Enhances the onboard VIA graphic chip.
- **VIA Audio Driver:** Enhances the onboard VIA audio chip.
- **VIA LAN Driver:** Enhances the onboard VIA LAN chip.
- **VIA USB 2.0 Driver:** Enhances VIA USB 2.0 ports.

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APPENDIX A

Smart 5.1

This chapter gives you a brief description of how Smart 5.1 is enabled if your board is equipped with VT1616 six-channel AC'97 codec.

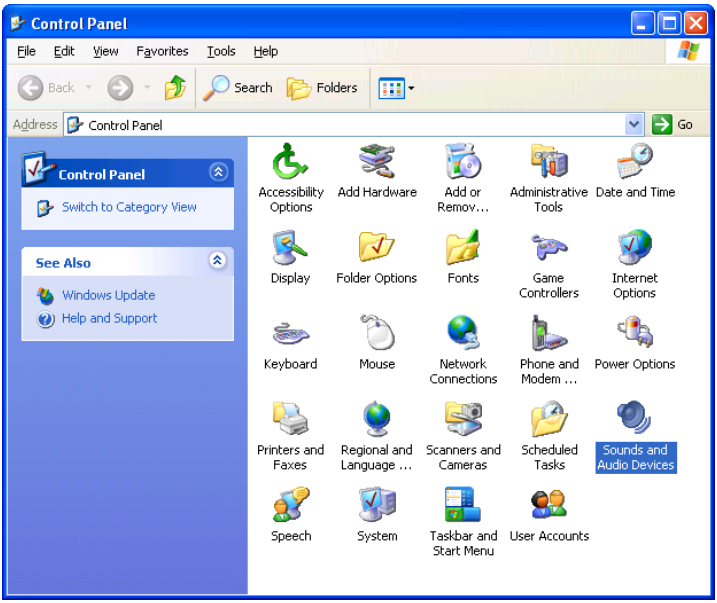
INTELLIGENT 6-CHANNEL AUDIO

Enabling Smart 5.1 Intelligent 6 Channel Audio

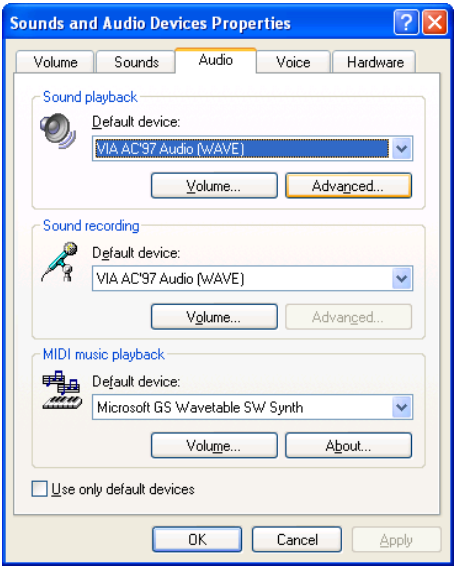
Smart5.1 allows the user to output 6 channel audio directly from the audio jacks on the mainboard, using the traditional line-in and microphone jacks as output jacks. For it to work properly, both the OS and the software application used need to support 6 channel audio. Win98 supports 4 channel only. Please follow the example A and B to enable the Smart 5.1 function, and the examples are based on Windows XP. Start the settings in Control Panel of your computer.

Example A

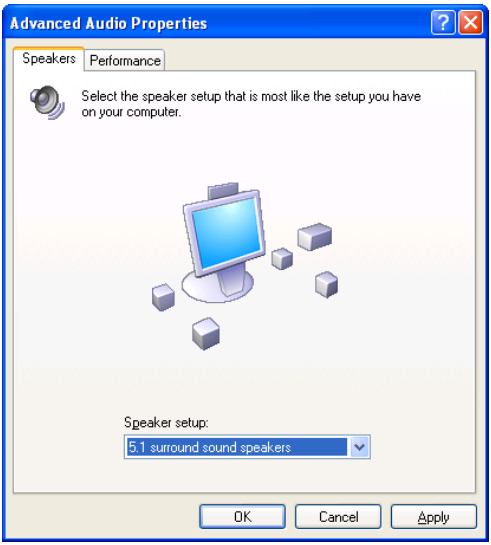
1. Double click [Sounds and Audio Devices] icon in Control Panel.



2. The panel of [Sounds and Audio Devices Properties] appears and select [Audio] tab. Then press [Advanced] as shown in the picture.

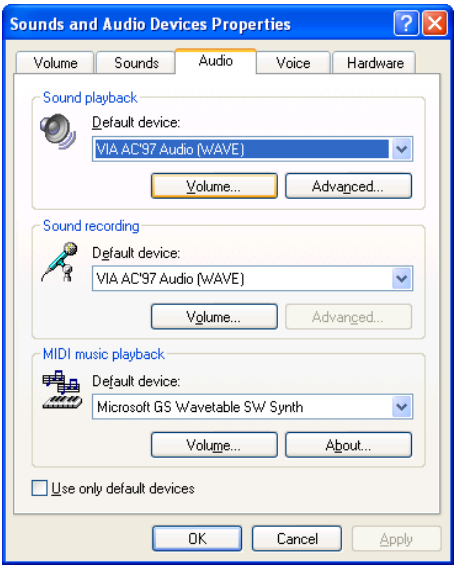


3. Choose [5.1 surround sound speakers] to support the 6 channel function.

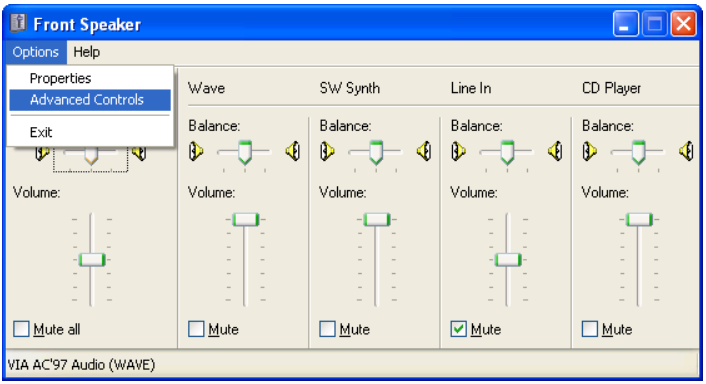


Example B

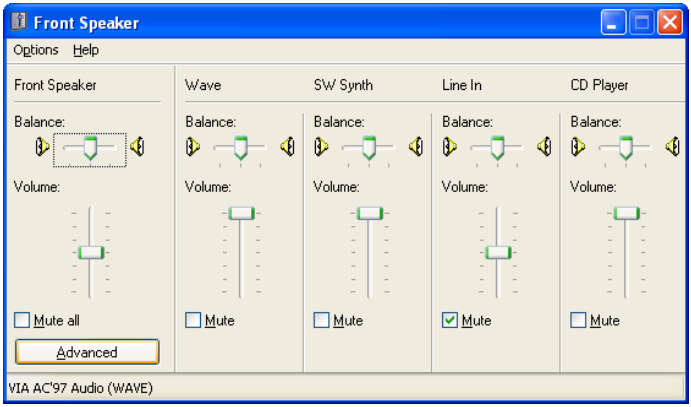
1. Double click [Sounds and Audio Devices] icon in Control Panel and then select [Audio] tab on the panel as shown below. Press [Volume] button in the [Sound playback] column.



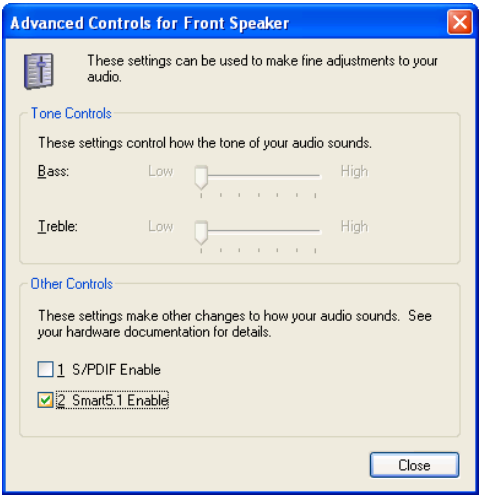
2. [Front Speaker] panel appears and then select [Options] menu to check the item [Advanced Controls].



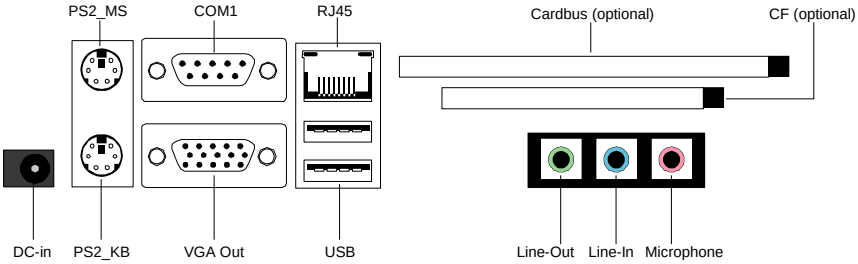
3. Then [Front Speaker] panel displays [Advanced] button and press it.



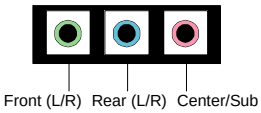
4. Check the item [Smart5.1 Enable] in the panel below.



After completing the previous settings, you just have to connect your speakers to the 3 Jack Connector like shown below. Now your Smart 5.1 capabilities are enabled.



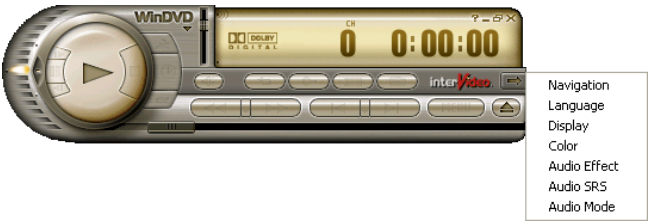
Shown below are the corresponding connections to setup the six-channel system.



Following the system setup, users need to install software for playing DVD. Currently the two main DVD-playing applications are WIN-DVD v4.0 and Power DVD XP v4.0. Both of them are able to support 5.1 channel. Please follow the instructions below to do the proper settings for Smart 5.1.

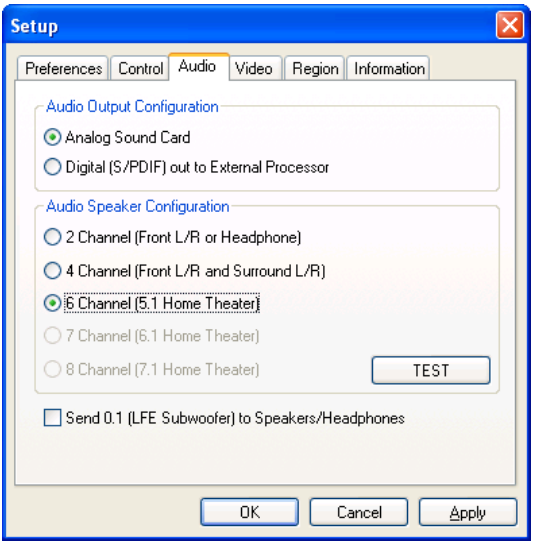
WIN-DVD v4.0

1. Open the application and click on the right arrow icon shown as the picture below. Then select [Audio Effect].



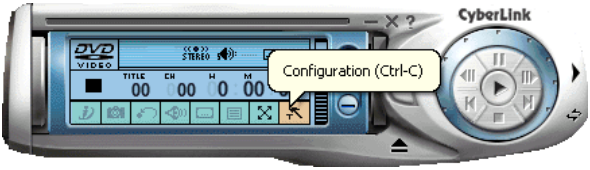
2. The panel of Audio Effect appears and click on the lower right corner button as shown in the picture below.

3. The [Setup] panel appears and select [Audio] tab. Then choose the item [6 Channel (5.1 Home Theater)] in the column of [Audio Speaker Configuration]. Finally users can click [Test] button to verify the channel output. You will hear sound of flowing water from different speakers if each setup has been completed successfully.

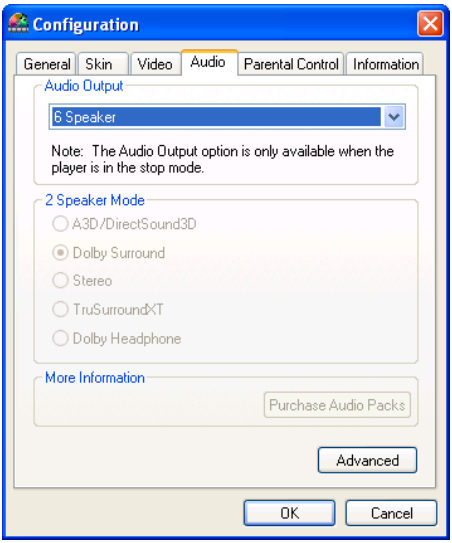


Power-DVD XP v4.0

1. Open the application and click on the [Configuration] icon shown as the picture below.



2. The panel of Configuration appears and select [Audio] tab. Then choose [6 Speaker] in the column of [Audio Output] and click [Ok].



Through the system operation and software settings, users can take advantage of Smart 5.1 6-channel output with ease!

APPENDIX B

Add-on Modules

This chapter gives you a brief description of the optional add-on modules that are available for this board.

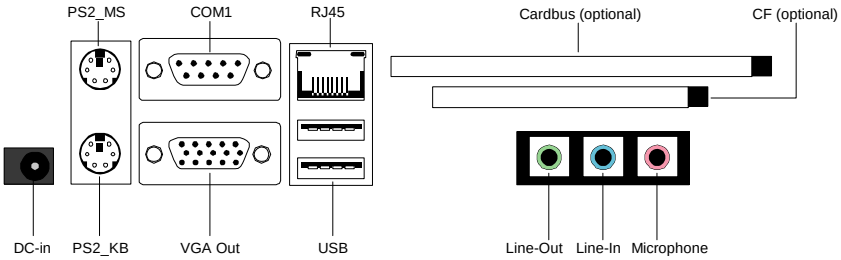
Caution:

A special BIOS maybe be required when any of the accessories listed in this appendix are used with the mainboard. For more information, please visit http://www.viaembedded.com

CCM-01

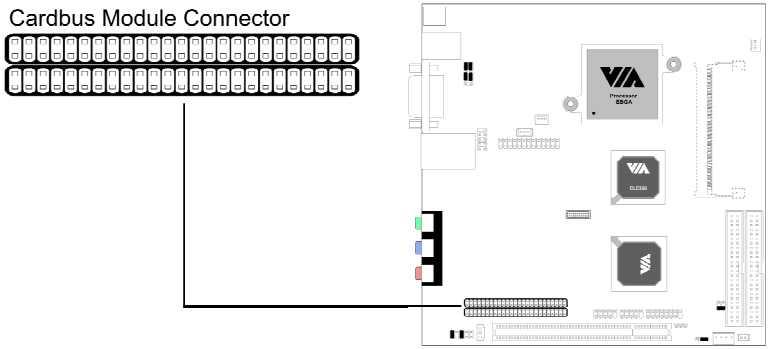
The CCM-01 cardbus module is equipped with a cardbus slot and a compactflash slot. This module is an optional accessory for this board. The CF slot supports both Type I and Type II. The Cardbus slot supports Type I and Type II. These slots are accessed on the same side as the back-panel ports.

Once the module has been installed, the back panel will have two more slots in addition to the existing ports. See the picture below.

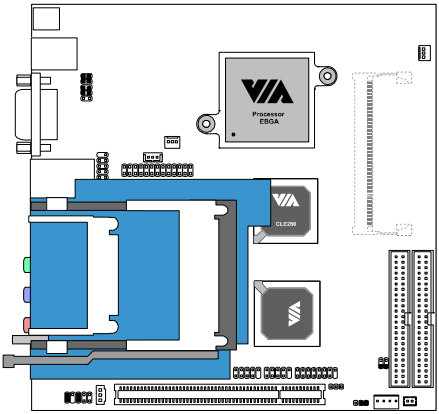


Placement of CCM-01

To install the CCM-01 module, mount it on the connector shown below.

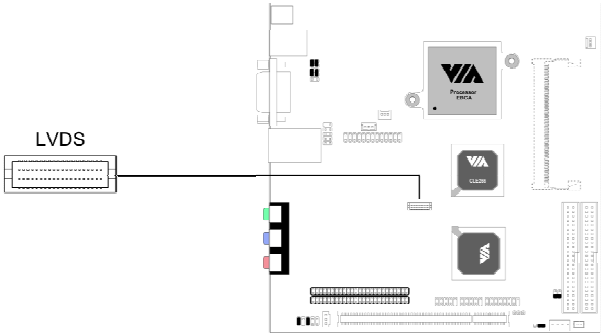


After the module has been connected, its placement should be like what is shown below.



LVDS-04

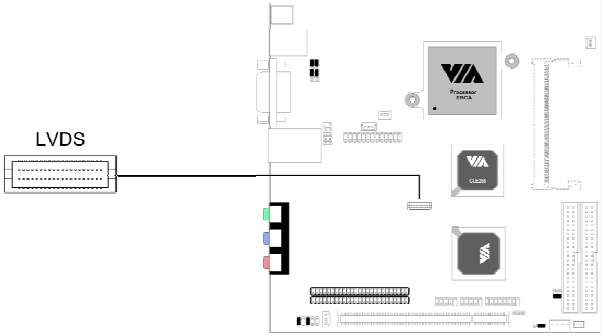
The LVDS-04 module connects to the LVDS connector shown below.



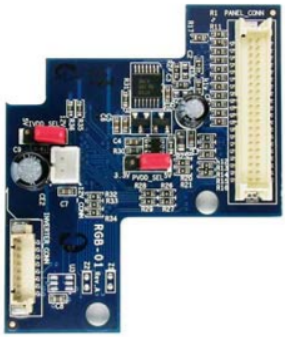
The LVDS-04 module is equipped with the VT1631 transmitter. It provides a way to connect to LCD panel displays. It supports 18/24-bit LCD panels. The native resolution is 1024 x 768.

RGB-01

The RGB-01 module connects to the LVDS connector shown below.

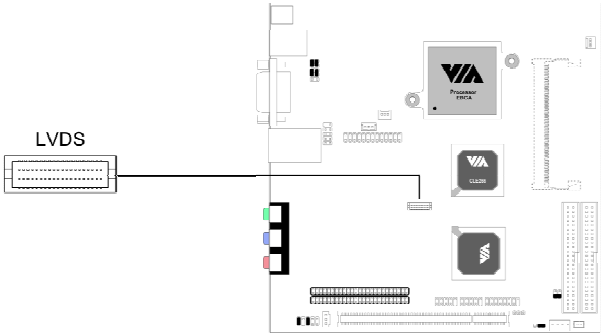


The RGB-01 module provides support for TTL panel displays. It supports up to 18-bit panels.



DVI-01

The DVI-01 module connects to the LVDS connector shown below.



The DVI-01 module is equipped with a VT1632 transmitter. It provides support for digital video interfaces.

APPENDIX C

Onboard Power Specifications

This chapter gives you a brief description of the onboard power converter specifications.

Note:
This section is intended to be a brief overview. For detailed information regarding the power specifications, please refer to the EPIA-TC operating guide. The operating guide can be downloaded at http://www.viaembedded.com

DC-TO-DC SPECIFICATION

	TYP	MAX	MIN	Units
Input Voltage	12V	12.6V	11.4V	VOLTAGE
Output Voltage	3.3V	3.465V	3.135V	
	5V	5.25V	4.75V	
	12V	13.2V	10.8V	

	TYP	MAX	MIN	Watt (MAX)
Input Current	12V	5A	N/A	60W
Output Current	3.3V	5A	0A	16.5W
	5V	5A	0A	25W
	12V	1.5A	0A	18W

POWER CONSUMPTION (BOARD ONLY)

Power consumers:

- EPIA-TC with C3 Nehemiah 1.0 GHz CPU
- Memory: Transcend W942508CH-75 256MB DDR266 SODIMM CL2.5

Idle State, +12V-Input, Total Watts: 14.899W

	Measured Voltage	Measured Amp.	Watts	Available Amp.
Main Board +3.3V	3.295	2.529	8.333	2.471
Main Board +5V	4.986	0.919	4.582	4.081
Main Board +12V	12.321	0.161	1.984	1.339

Run C.C. Winstone 2001, +12V-Input, Total Watts: 24.214W

	Measured Voltage	Measured Amp.	Watts	Available Amp.
Main Board +3.3V	3.296	2.703	8.909	2.297
Main Board +5V	4.963	2.676	13.281	2.324
Main Board +12V	12.269	0.165	2.024	1.335

POWER CONSUMPTION (WITH IDE)

Power consumers:

- EPIA-TC with C3 Nehemiah 1.0 GHz CPU
- Memory: Transcend W942508CH-75 256MB DDR266 SODIMM CL2.5
- HDD: Maxtor D740X-6L 40GB ATA/133
- DVD ROM: ASUS DVD-E616/ASUS/16X/G

Idle State, +12V-Input, Total Watts: 23.011W

	Measured Voltage	Measured Amp.	Watts	Available Amp.
Main Board +3.3V	3.295	2.524	8.317	2.476
Main Board +5V	4.975	1.711	8.512	3.289
Main Board +12V	12.291	0.503	6.182	0.997

Run C.C. Winstone 2001, +12V-Input, Total Watts: 32.701W

	Measured Voltage	Measured Amp.	Watts	Available Amp.
Main Board +3.3V	3.295	2.689	8.860	2.311
Main Board +5V	4.951	3.486	17.259	1.514
Main Board +12V	12.234	0.538	6.582	0.962