3301150

User's Manual
Version 1.0

5.25" Socket 478 Pentium 4 up to 3.06GHz CPU SBC w/CRT / Flat Panel / TV-Out, Intel ICH4 10/100 LAN, AC97, Intel 845GV/PE & Intel ICH4 Chipsets, (1) DIMM Socket for up to 1GB DDR266/333, 32-Bit Mini-PCI Exp Bus, WT, Award BIOS, Multi I/O Ports, etc

Warning

Single Board Computers and their components contain very delicate Integrated Circuits (IC). To protect the Single Board Computer and its components against damage from static electricity, you should always follow the following precautions when handling it :

1. Disconnect your Single Board Computer from the power source when you want to work on the inside
2. Hold the board by the edges and try not to touch the IC chips, leads or circuitry
3. Use a grounded wrist strap when handling computer components.
4. Place components on a grounded antistatic pad or on the bag that came with the Single Board Computer, whenever components are separated from the system

Replacing the lithium battery

Incorrect replacement of the lithium battery may lead to a risk of explosion.

The lithium battery must be replaced with an identical battery or a battery type recommended by the manufacturer (CR2032).

Do not throw lithium batteries into the trashcan. It must be disposed of in accordance with local regulations concerning special waste.

Technical Support

If you have any technical difficulties, Please do not hesitate to call or e-mail our customer service at: http://www.globalamericaninc.com

Table of Contents

Replacing the lithium battery 3
Technical Support 3

Packing list 6

Ordering Codes 7

Specifications 8

General Specifications 8
High Speed Multi I/O 8
Network Interface Controller 9
Display Controller 9
Environmental and Power 9

Board Image 10

Board Layout 11

Board Dimension 12

Jumper/Connector Quick Reference 13

Jumper/Connector Quick Reference 14

CMOS Jumper Settings 15

J2 Watchdog Output 15

Mode Setting 15

Serial Port Selection (RS232C/422/485) 16

RS-422/485 Mode on COM2 16

LVDS LCD Power Selection 17

TV-out Connector 17

VGA Connector 18

INV Connector 18

LVDS LCD Connector 19

TMDS Connector Definition 20

USB1 / USB2 Connector 21

Audio Interface 21

FDD Connector 22

Enhanced IDE Connector 23

Enhanced IDE Connector 24

LPT1 25

LAN Connector 26

CDIN Connector 26

ATX Power Connector 27

ATX 12V Connector 28

Infrared (IR) Connector 29

Keyboard & PS/2 Mouse 29

Switches and Indicators 30

CPU Fan Connector 31

System Fan Connector 31

LAN LED Connector 32

AWARD BIOS Setup 33

Setup Items 34
Standard CMOS Setup 35
IDE HDD AUTO DETECTION 37
Advanced BIOS Features 39
Advanced Chipset Features 42
Integrated Peripherals 45
Power Management Setup 48
PnP/PCI Configurations 51
PC Health Status 52
Frequency/Voltage Control 53

How-to : Flash the BIOS 54

What if things go wrong 55

Contact Information 56

Packing list

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

> 1 x 3301150 5.25" Embedded Pentium 4 FSB 400/533MHz SBC

> 1 x Driver Installation CD-ROM with manual

Optional Kit

Cable Kits contains the followings: Content

Part No.

. 1 x Ultra DMA 100 IDE Flat

. 1 x IDE cable

. 1 x Parallele Port Cable

. 1 x FDD Flat Cable

. 2 x USB 2 Port Cable

. 1 x VGA Cable

. 1 x Audio Cable

. 1 x Serial Port 4 in 1 Cable

. 1 x Giga or 100Mbps LAN Cable

. 1 x Driver Disc

•SCDB-1223 DVI cable kit

•SCDB-1290 3-slot riser card

•1U Heat Sink

•TV-out kit (S-Video AV-Video)

•TV-out kit (S-Video output)

•S-Video output cable

•S-Video & A/V output cable

Ordering Codes

3301150A
5.25" Intel Socket-478 Pentium4 CPU Board with one DDR DIMM socket, Flat Panel/ CRT/TV-OUT, one Mini PCI, one PCI slot, one LAN 10/100Mbps, 4 COM ports and four USB2.0 ports.
3301150B
5.25" Intel Socket-478 Pentium4 CPU Board with one DDR DIMM socket, with ATI VGA, Flat Panel/CRT/DVI/TV-OUT, one Mini PCI, one PCI slot, one Giga LAN, 4 COM ports and four USB2.0 ports.

Specifications

General Specifications

- **CPU** : PGA 478 for Intel Pentium 4 with data transfer rate of 400Mhz /533Mhz
- **Chipset** : Intel 845GV (3301150A)
  - ICH4 South Bridge

  Intel 845PE, ATI M7 (3301150B)
  - ICH4 South Bridge
- **BIOS** : AWARD® Flash BIOS
- **Green Function** : power saving supported in BIOS. DOZE / Suspend modes, ACPI, APM
- **L1 Cache** : Integrated on CPU
- **L2 Cache** : Integrated on CPU
- **DRAM Memory** : One DDR socket supports PC2100/PC2700 DDR266/DDR333 up to 1GB
- **Enhanced IDE with UltraDMA** : supports 2 port (one is 40-pin DMA100, the other is 44-pin DMA33) and up to 4 ATAPI devices, Ultra DMA transfer 100/33 MB/sec.
- **Watchdog Timer** : 254 level, system reset or NMI

High Speed Multi I/O

- **Chipset** : Winbond 83627HF
- **Serial Ports** : Three high speed RS-232C ports (COM1 / COM3 / COM4). One high speed RS-232C/422/485 port COM2 (jumper selectable). Both with 16C550 compatible UART.
- **USB** : 4 onboard USB ports Ver 2.0
- **Floppy Disk Drive Interface** : One port and up to 2 floppy disk drives
- **Bi-directional Parallel Port** : SPP, EPP and ECP mode.
- **Keyboard and Mouse Connectors** : external PS/2 KB/Mouse port (6-pin wafer)
- **Audio Chipset**: ICH4 integrated audio with AC'97 Codec
  Audio Interactive (MIC in, Line-in, Speaker out, AC'97 ver. 2.3)

Network Interface Controller

- **Chipset** : ICH4 integrated Ethernet, 10/100 Base-Tx (3301150A)
  or
  Intel 82540EM Gigabit LAN (3301150B)
- **Connector** : 9-pin header

Display Controller

- **Chipset** : 845GV (3301150A), ATI M7 (3301150B)
- **Display Type** : CRT (VGA, SVGA, XGA, SXGA) and LCD
- **Connectors** : external DB15 for CRT on-board, LCD interface supports LVDS & TMDS
- **Resolution**:

>3301150A

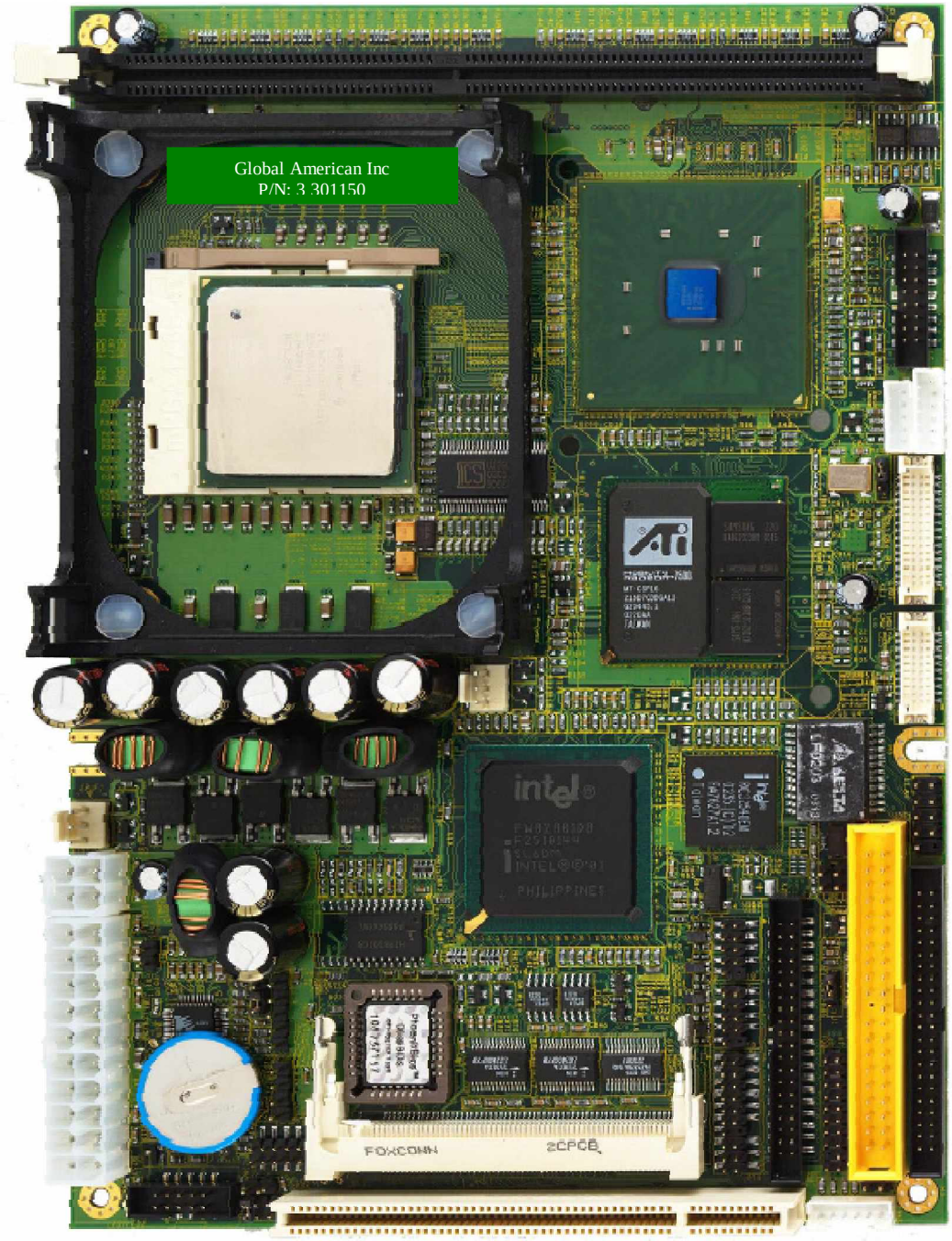
Maximum Resolution Supported: 1600x1200x32 @85Hz
Supported Resolution Type: 640x480, 800x600, 1024x768, 1280x1024, 1600x1200
Special Resolution Type: 720x1280, 768x1024, 864x1152, 960x1280, 1024x1280, 1152x864, 1280x720, 1280x960, 1400x1050, 1600x900

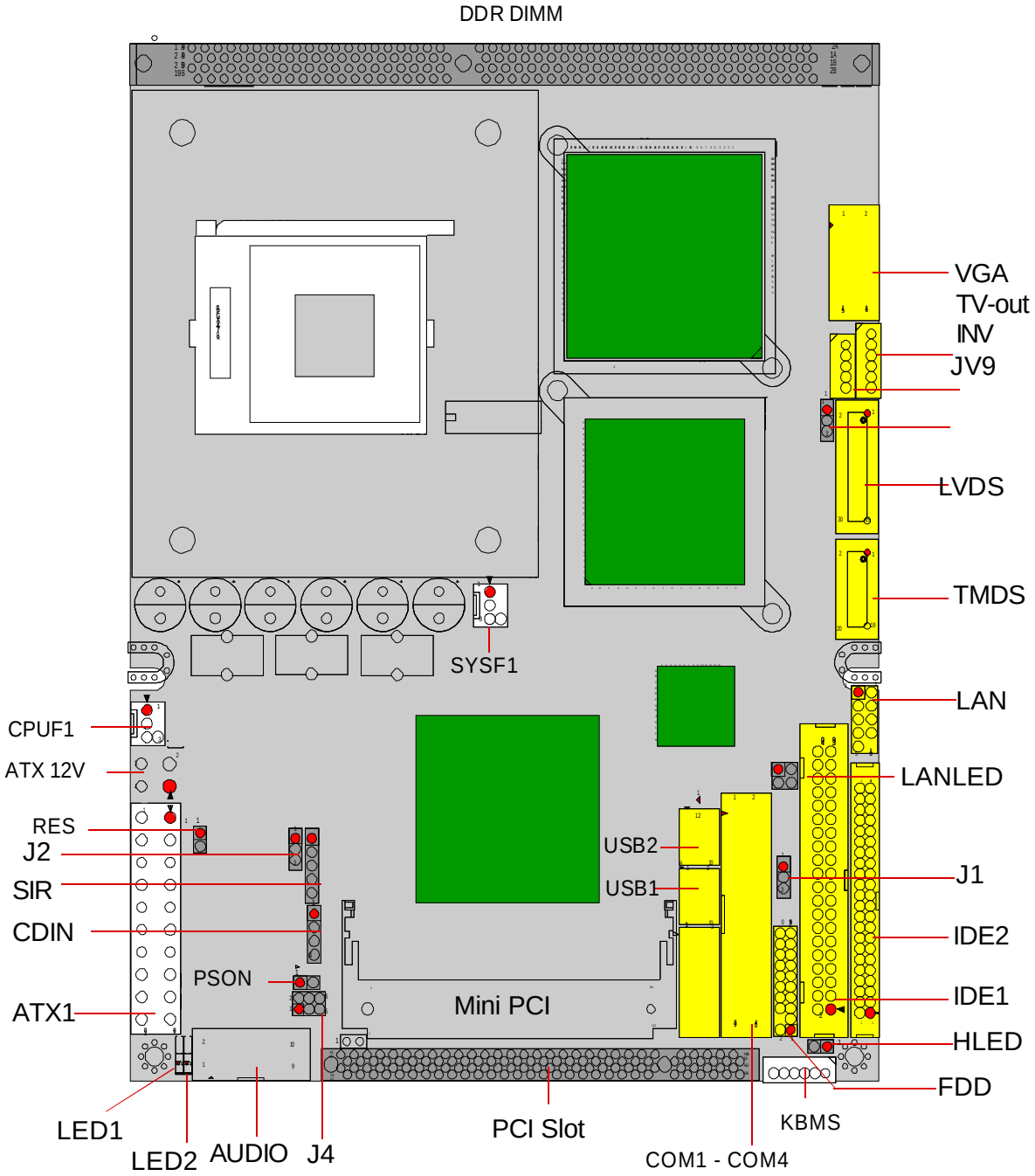
>3301150B
Maximum Resolution Supported 1600x1200x32 @85Hz
Supported Resolution Type: 640x480, 800x600, 1024x768, 1280x1024, 1600x1200
Special Resolution Type: 1152x864, 1280x768, 1192x1344, 1800x1440, 1920x1080, 1920x1200, 1920x1440, 2048x1536

Environmental and Power

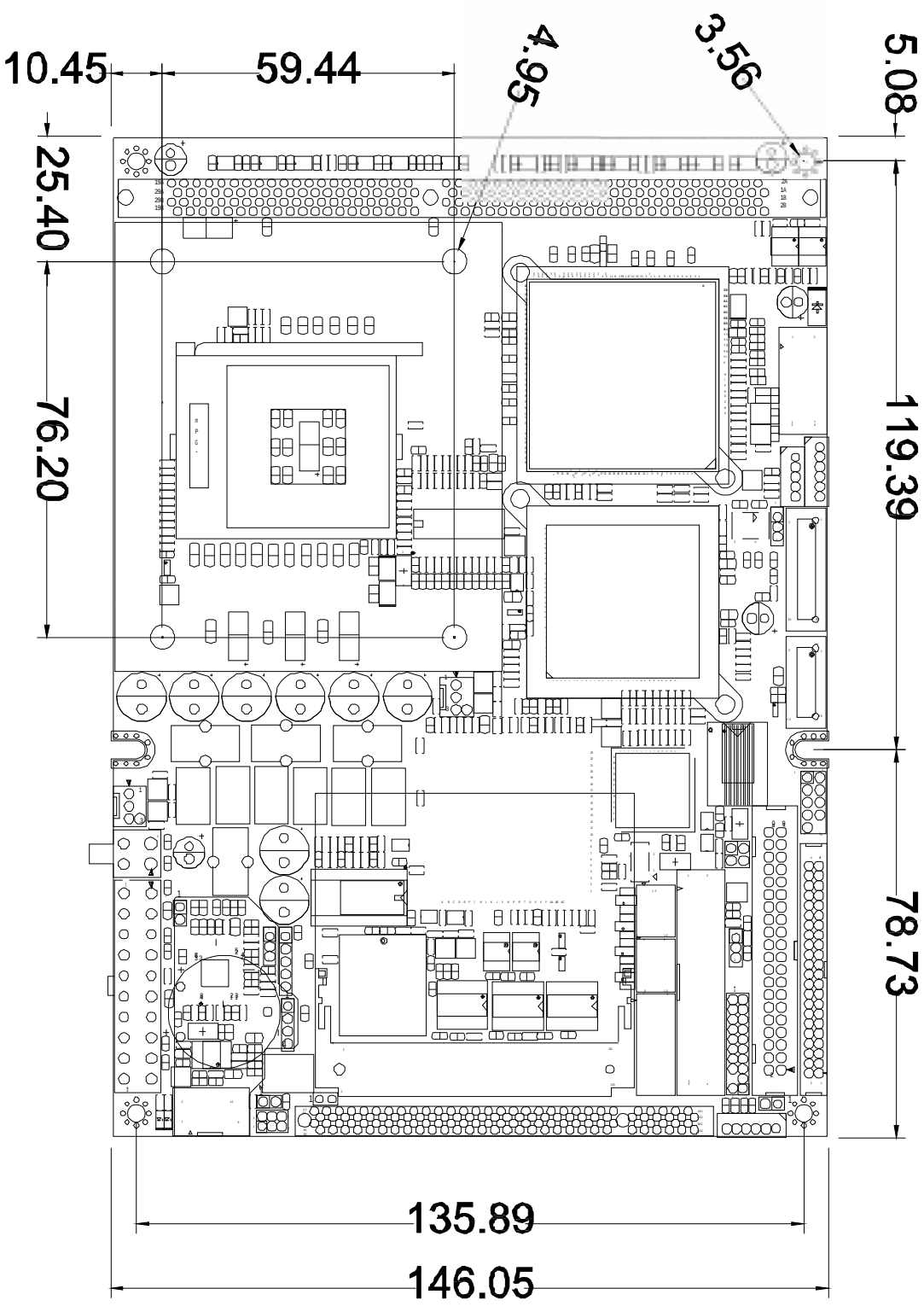
- **Power Requirements (P4-3.06 + 512M DDR)** :
  3301150A -> +5 V @ 0.88 A, +12 V @ 4.56 A, +3.3 V @ 1.25 A
  3301150B -> +5 V @ 1.22 A, +12 V @ 4.75 A, +3.3 V @ 1.48 A
- **Board Dimensions** : 145mm x 203mm
- **Board Weight :** 0.176kg
- **Operating Temperature** : 0 to 60˚C(32˚ to 140˚F)
- **Operating Humidity** : 0%~90%

Board Image




DDR DIMM
VGA
TV-out
INV
JV9
LVDS
TMDS
LAN
LANLED
J1
IDE2
IDE1
HLED
FDD
KBMS
COM1 - COM4
PCI Slot
SYSF1
CPUF1
ATX 12V
RES
J2
SIR
CDIN
PSON
ATX1
USB2
USB1
Mini PCI
LED1
LED2
AUDIO
J4

Board Dimension



Jumpers

Label	Function
J1	Clear CMOS
J2	Watchdog Output
J4	COM2 RS-232C / 422 / 485 Selections
JV9	LVDS LCD power select

Jumper/Connector Quick Reference

Connectors

Label	Function
VGA	VGA Display Connector
LVDS	LVDS LCD Connector
TMDS	TMDS LCD Connector
IDE1	Primary IDE Connector
IDE2	Secondary IDE Connector
USB1	USB Port 0,1
USB2	USB Port 2,3
AUDIO	Audio Interface Port
SIR	Infrared (IR) Connector
KBMS	Keyboard and PS/2 Mouse
FDD	Floppy Drive Connector
LAN	10/100/1000 M LAN1 Connector
LPT1	Parallel Port
COM1-4	RS-232C Serial Port (COM1 - 4)
LED1	power standby LED (Orange)
LED2	power-on/suspend LED (Green)
CDIN	CD-ROM Audio Input
PSON	Power-on button
ATX1	ATX power connector
ATX12V	ATX12V
TV	TV-out connector
INV	LCD Inverter connector
LANLED	LAN LED connector
CPUF1	CPU Fan connector
SYSF1	System Fan connector
RES	Reset Switch
HLED	IDE Activity LED

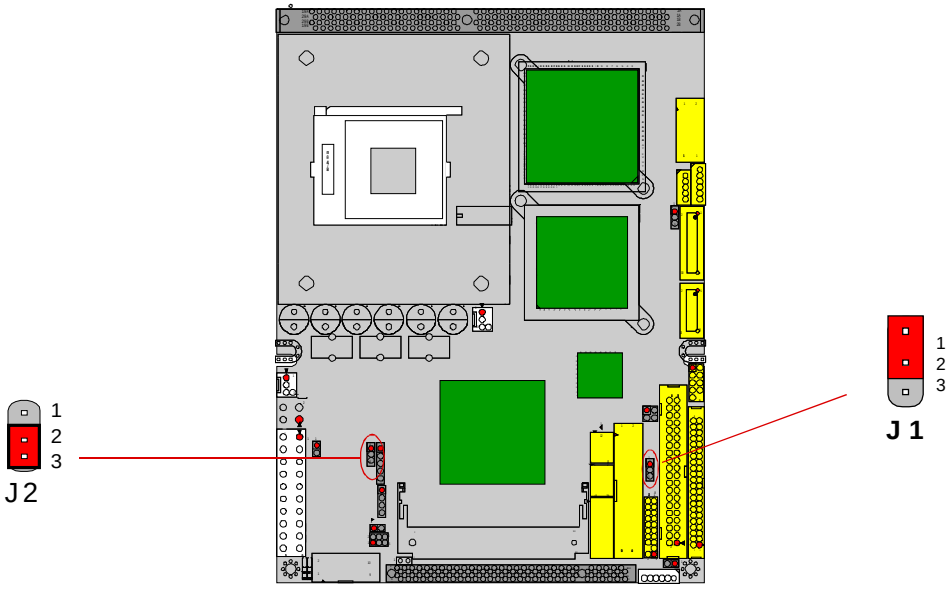
CMOS Jumper Settings

CMOS Operation (J1)
Type : J1: onboard 3-pin header

If the 3301150 refuses to boot due to inappropriate CMOS settings here is how to proceed to clear (reset) the CMOS to its default values.

CMOS Setup (J1)	J1	Status
Normal Operation	1-2	ON
Clear CMOS	2-3	ON

default setting 1-2 ON



J2 Watchdog Output

Mode Setting

Type : J2: onboard 3-pin (1*3) header

Watchdog mode	J2
Enabled for Active NMI	1-2
Enabled for System Reset	2-3
Disable Watchdog Timer	None

default setting Enabled for System Reset

Serial Port Selection (RS232C/422/485)

RS-232C/422/485 Mode select (J4)

Type : J4: onboard 6-pin(2*3) header

RS-422/485 Mode on COM2

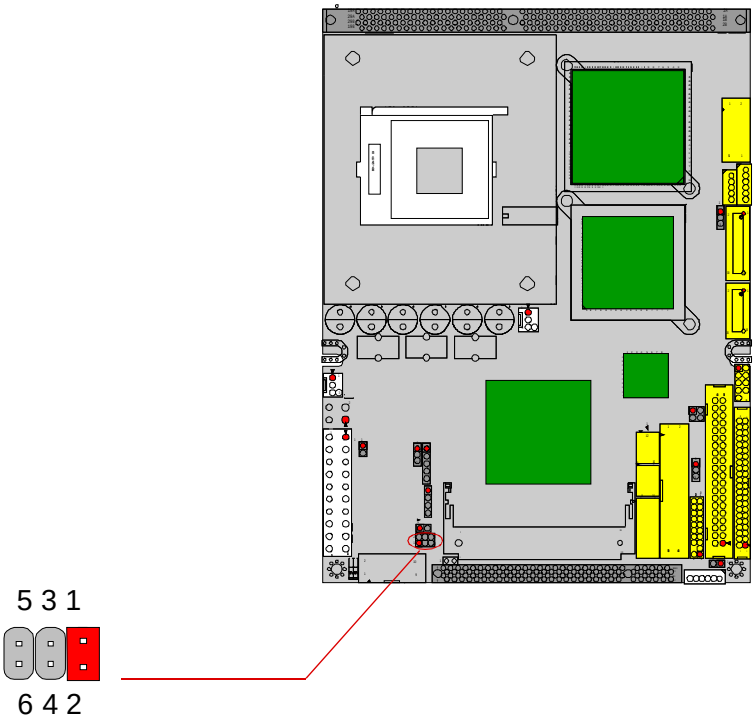
The onboard COM2 port can be configured to operate in RS-422 or RS-485 modes. RS-422 modes differ in the way RX/TX is being handled. Jumper J4 switches between RS-232C or RS-422/485 mode. All of the RS-232C/422/485 modes are available on COM2.

COM2

Pin Defined:	RS-232C	RS-422	RS-485
Pin1 :	DCD	Tx+	RTx+
Pin2 :	RXD	Tx-	RTx-
Pin8 :	CTS	Rx+	x
Pin9 :	RI	Rx-	x

J4 Selection	**1-2**	**3-4**	**5-6**
RS-232C	ON	OFF	OFF
RS-422	OFF	ON	OFF
RS-485	OFF	OFF	ON

default setting RS-232C

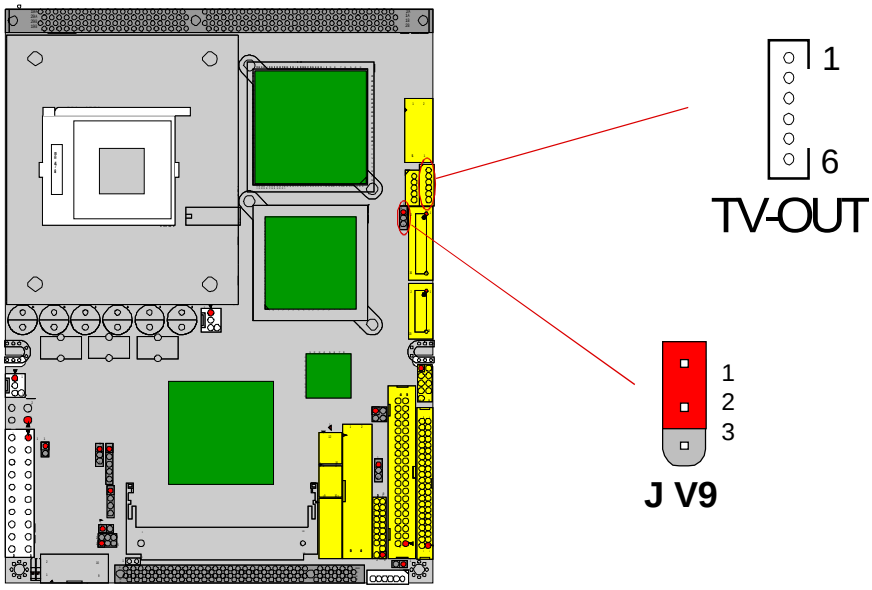


LVDS LCD Power Selection

Type : JV9: onboard 3-pin header

The voltage of LCD panel could be selected by JV9 in 5V or 3.3V.

Mode	JV9
3.3V	1-2
5V	2-3
default setting 3.3V	



TV-out Connector

Connector : TV Connector

Type: Onboard 6-pin wafer

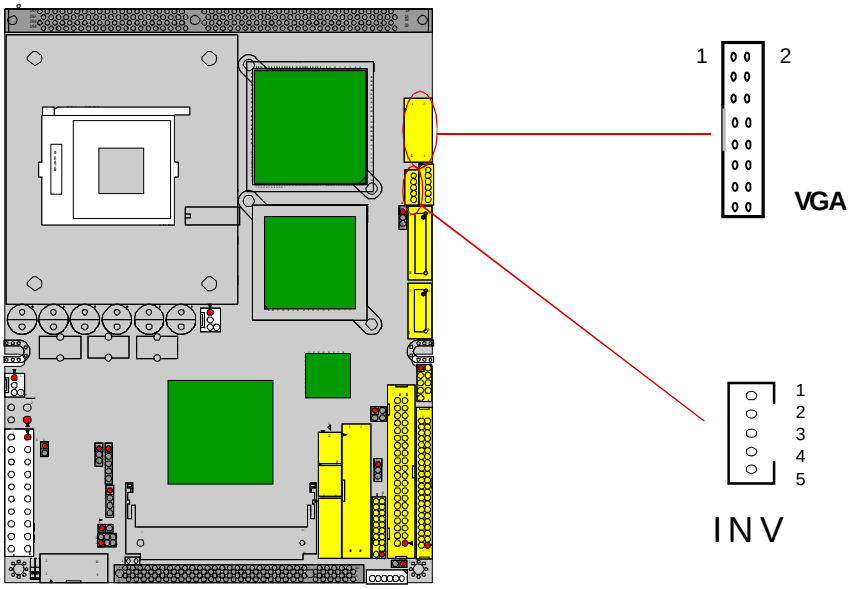
PIN	Description
1	Composite Video
2	GND
3	S-Video Y
4	GND
5	S-Video C
6	GND

VGA Connector

Connector : VGA Connector

Type: Onboard 16-pin mini boxheader

Pin	Description	Pin	Description	Pin	Description
1	RED	6	GND	11	NC
2	GREEN	7	GND	12	VDDAT
3	BLUE	8	GND	13	HSYNC
4	NC	9	Vcc	14	VSYNC
5	GND	10	GND	15	VDCLK
16	NC				



INV Connector

Connector: LCD Inverter connector

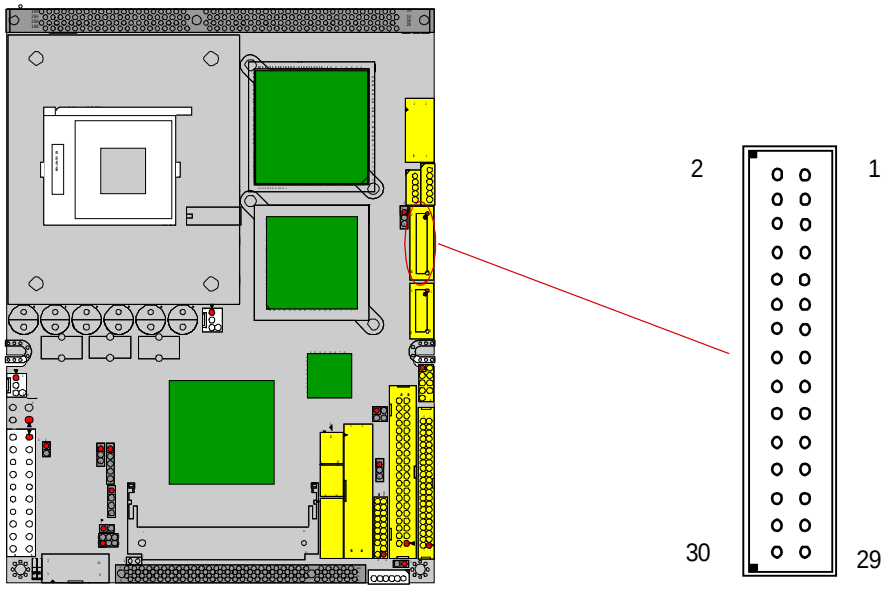
Type : Onboard 5-pin wafer

Pin	Description	Pin	Description
1	+12 V	2	GND
3	on/off	4	brightness control
5	GND		

LVDS LCD Connector

Type : onboard 30-pin DF-13 Connector

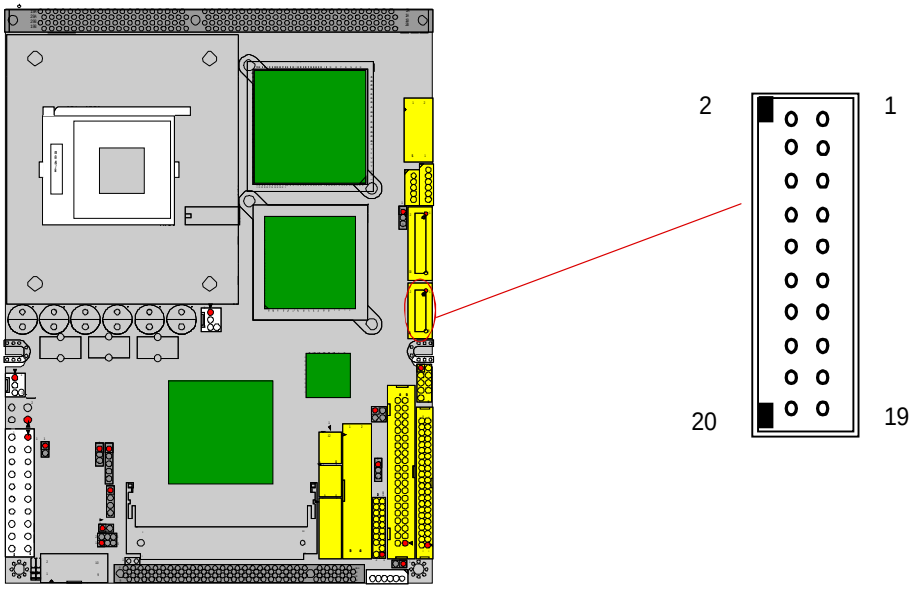
Pin	Signal	Pin	Signal
1	VDD	2	VDD
3	TX1CLK+	4	TX2CLK+
5	TX1CLK-	6	TX2CLK-
7	GND	8	GND
9	TX1D0+	10	TX2D0+
11	TX1D0-	12	TX2D0-
13	GND	14	GND
15	TX1D1+	16	TX2D1+
17	TX1D1-	18	TX2D1-
19	GND	20	GND
21	TX1D2+	22	TX2D2+
23	TX1D2-	24	TX2D2-
25	GND	26	GND
27	TX1D3+	28	TX2D3+
29	TX1D3-	30	TX2D3-



TMDS Connector Definition

Type: Onboard 20-pin DF-13 Connector

Pin	Description	Pin	Description
1	Vcc (+5V)	2	Vcc (+5V)
3	TXO+	4	CLK+
5	TXO-	6	CLK-
7	GND	8	GND
9	TX1+	10	DDC CLK
11	TX1-	12	DDC Data
13	GND	14	GND
15	TX2+	16	Hot Plug Detect
17	TX2-	18	NC
19	GND	20	NC



USB1 / USB2 Connector

Connector : USB connector

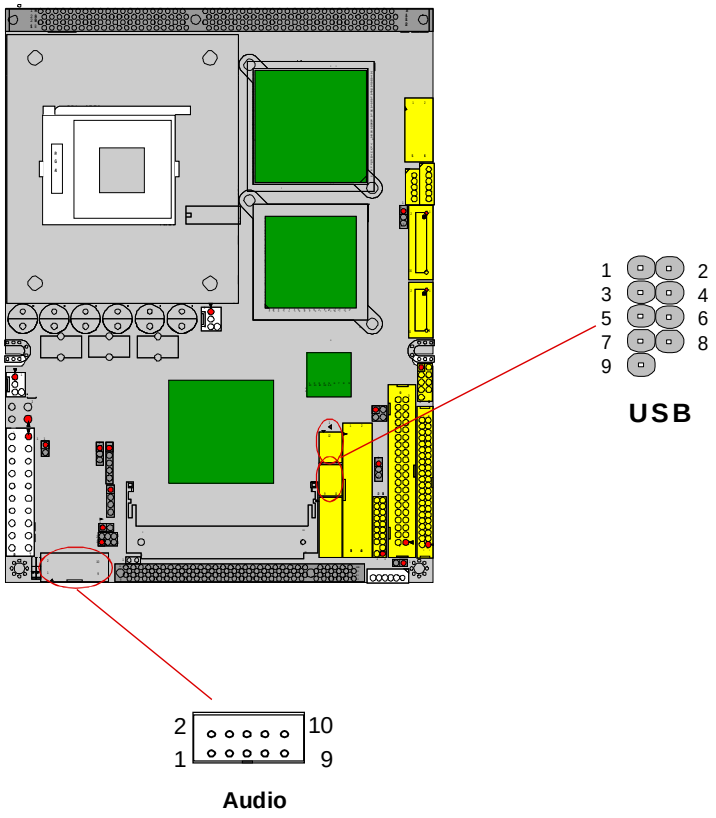
Type:onboard Two 9-pin box headers

Pin	Description	Pin	Description
1	VCC	2	VCC
3	DATA-	4	DATA-
5	DATA+	6	DATA+
7	GND	8	GND
9	GND		

Audio Interface

Connector : **Audio**
Type : Onboard 10-pin box header

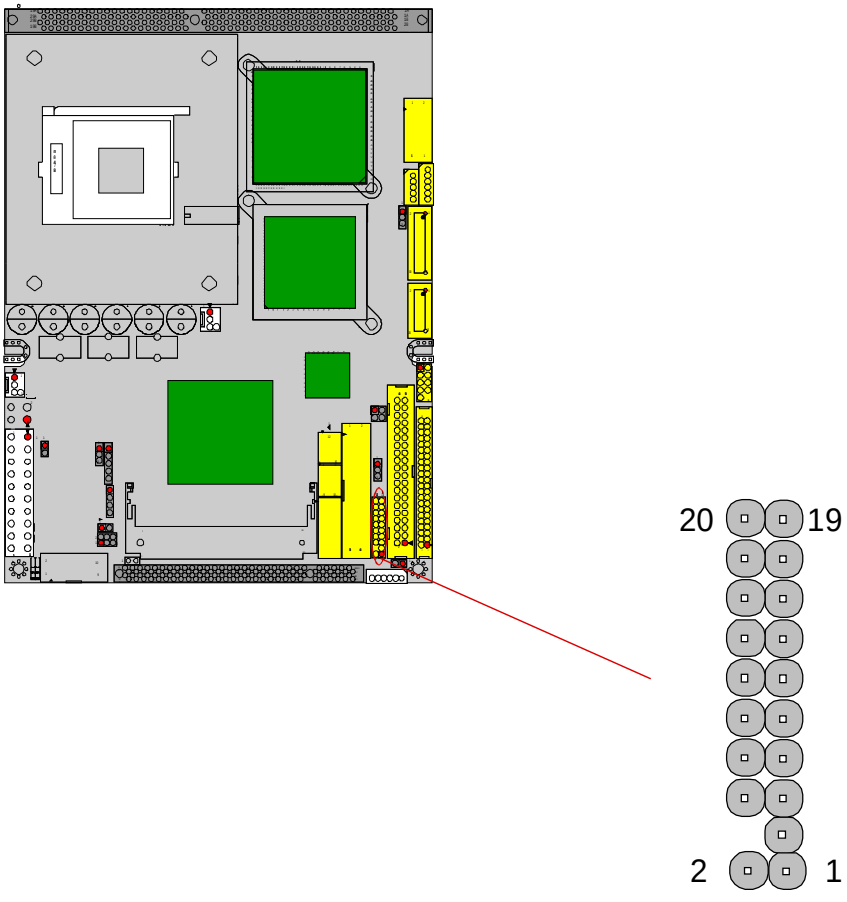
Pin	Description	Pin	Description
1	LINE IN LEFT	2	LINE IN RIGHT
3	GND	4	GND
5	MIC	6	NC
7	GND	8	GND
9	SPEAKER LEFT	10	SPEAKER RIGHT



FDD Connector

Type : Onboard 20-pin header

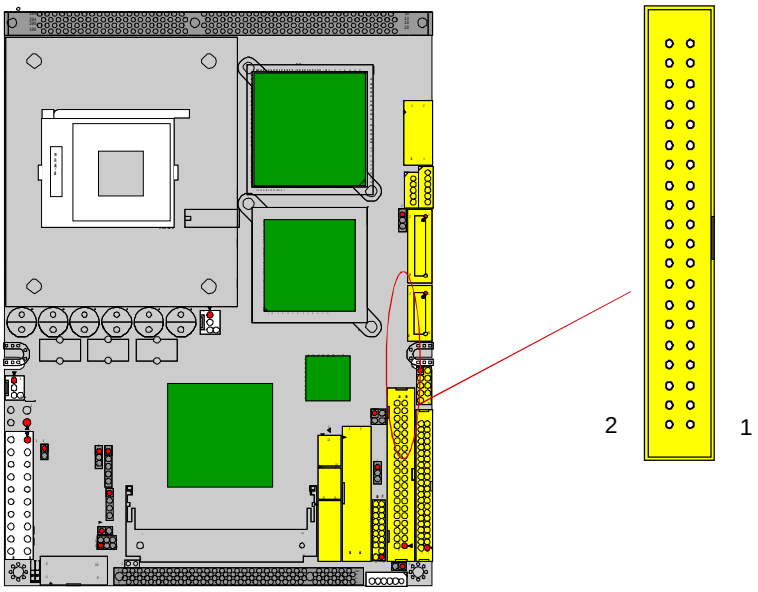
Pin	Description	Pin	Description
1	GND	2	Drive density select 0
3	GND	4	NC (Key)
5	GND	6	Drive density select 1
7	#Write data	8	#Index
9	#Write gate	10	#Motor enable A
11	#Track 0	12	#Driver select B
13	#Write protect	14	#Driver select A
15	#Read data	16	#Motor enable B
17	#Head select	18	#Direction
19	#Disk change	20	#Step



Enhanced IDE Connector

Connector : **IDE1**
Type : Two onboard 40-pin box headers, primary and secondary IDE

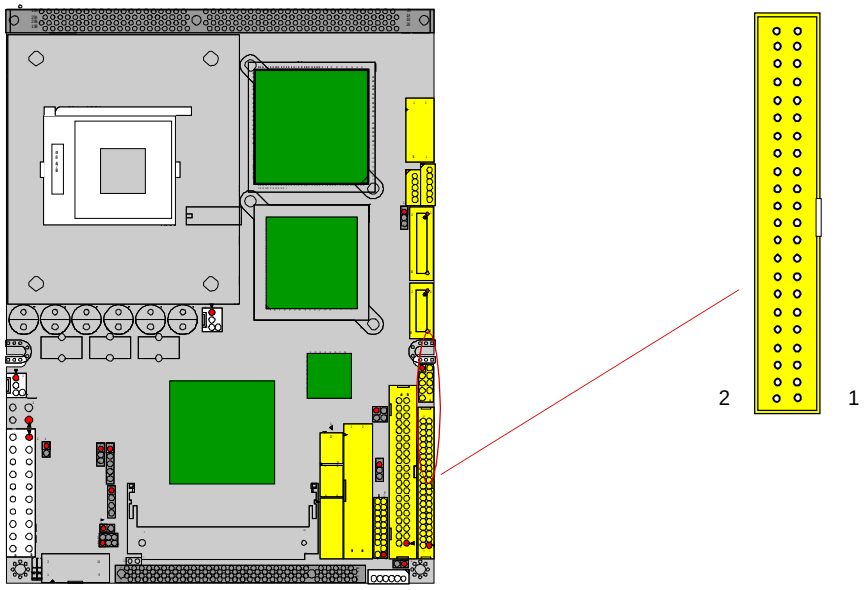
Pin	Description	Pin	Description
1	#RESET	2	GND
3	D7	4	D8
5	D6	6	D9
7	D5	8	D10
9	D4	10	D11
11	D3	12	D12
13	D2	14	D13
15	D1	16	D14
17	D0	18	D15
19	GND	20	NC/(Vcc)
21	REQ	22	GND
23	#IOW	24	GND
25	#IOR	26	GND
27	#IORDY	28	IDESEL
29	#DACK	30	GND
31	IRQ	32	NC (-IOCS16)
33	ADDR1	34	CBLID
35	ADDR0	36	ADDR2
37	#CS1	38	#CS3(#HD SELET1)
39	#ACT	40	GND



Enhanced IDE Connector

Connector : **IDE2**
Type : One onboard 44-pin box headers, primary IDE

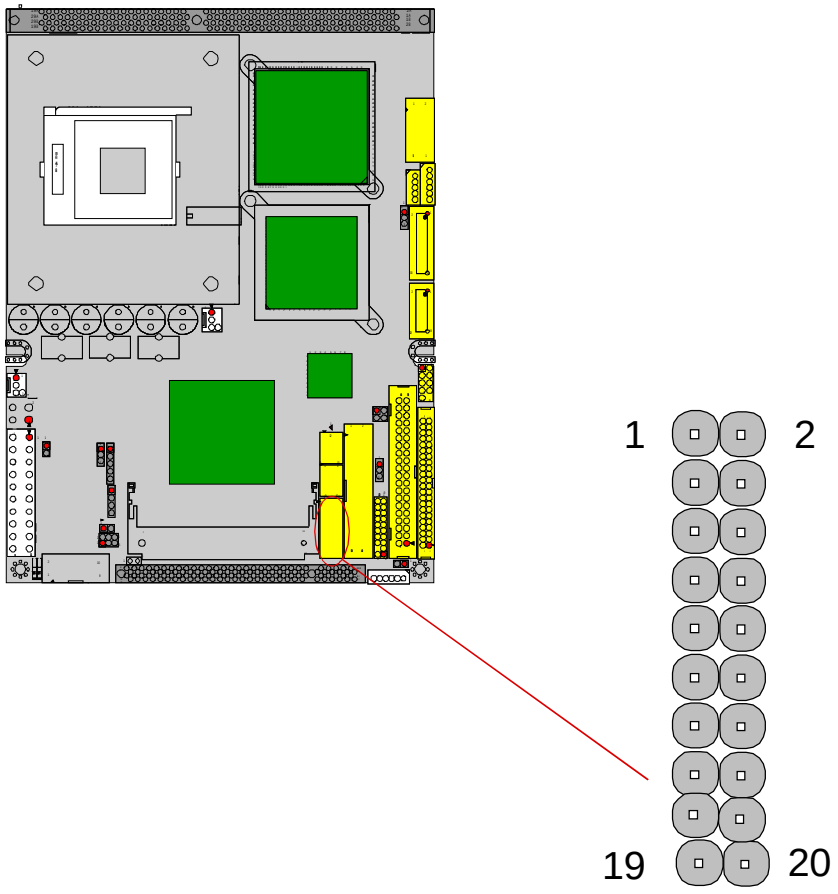
Pin	Description	Pin	Description
1	#RESET	2	GND
3	D7	4	D8
5	D6	6	D9
7	D5	8	D10
9	D4	10	D11
11	D3	12	D12
13	D2	14	D13
15	D1	16	D14
17	D0	18	D15
19	GND	20	NC
21	REQ	22	GND
23	#IOW	24	GND
25	#IOR	26	GND
27	#IORDY	28	IDESEL
29	#DACK	30	GND
31	IRQ	32	NC (-IOCS16)
33	ADDR1	34	CBLID
35	ADDR0	36	ADDR2
37	#CS0	38	#CS1(#HD SELET1)
39	#ACT	40	GND
41	Vcc	42	Vcc
43	GND	44	NC



LPT1

Type : Onboard 20-pin header

Pin	Description	Pin	Description
1	#STROBE	2	#Auto feed
3	Data 0	4	#Error
5	1	6	#Initialize
7	2	8	#Select Input
9	3	10	GND
11	4	12	GND
13	5	14	NC (KEY)
15	6	16	Busy
17	7	18	Paper Empty
19	#Acknowledge	20	Select

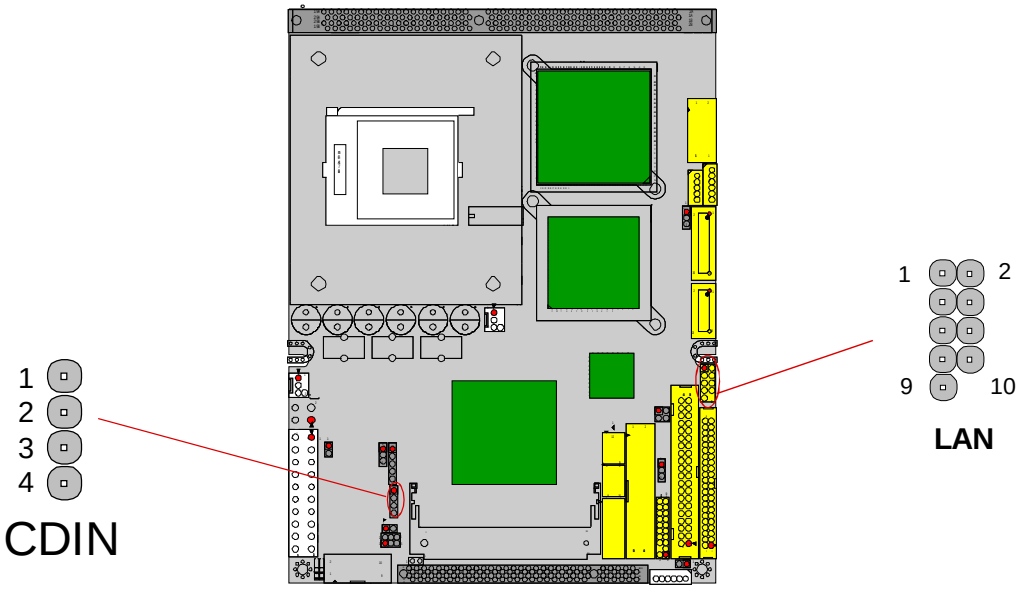


LAN Connector

Connector : LAN Connector

Type : onboard 9-pin header

Pin	Description	Pin	Description
1	TX1+	2	TX1-
3	RX1+	4	RX2+
5	RX2-	6	RX1-
7	TX2+	8	TX2-
9	NC	10	Key



CDIN Connector

Connector : CD-ROM Audio Input

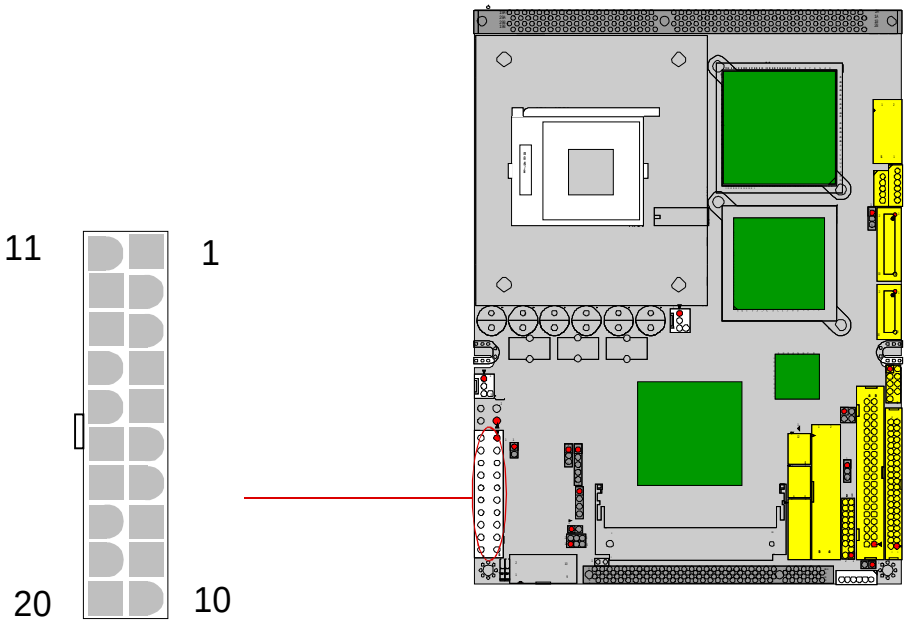
Type : onboard 4-pin header

Pin	Description	Pin	Description
1	CD Left	2	GND
3	GND	4	CD Right

ATX Power Connector

Connector : **ATX1**
Type : 20-pin onboard ATX Connector

Pin	Description	Pin	Descripition
1	+3.3V	2	+3.3V
3	GND	4	+5.0V
5	GND	6	+5.0V
7	GND	8	PWR_OK
9	+5.0VSB	10	+12V
11	+3.3V	12	-12.0V
13	GND	14	PS_ON#
15	GND	16	GND
17	GND	18	-5.0V
19	+5.0V	20	+5.0V

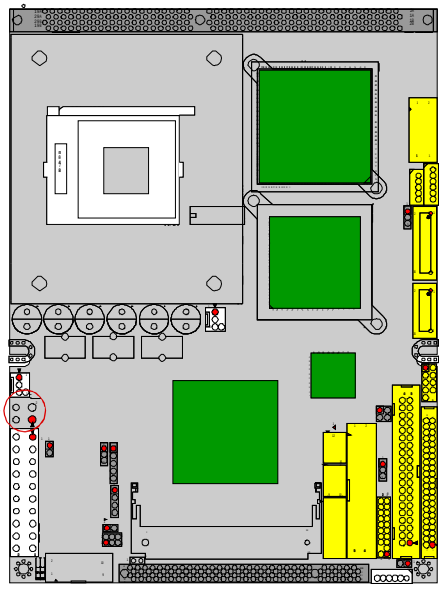


ATX 12V Connector

Connector : ATX12V

Type : 4-pin Onboard ATX12V Connector

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

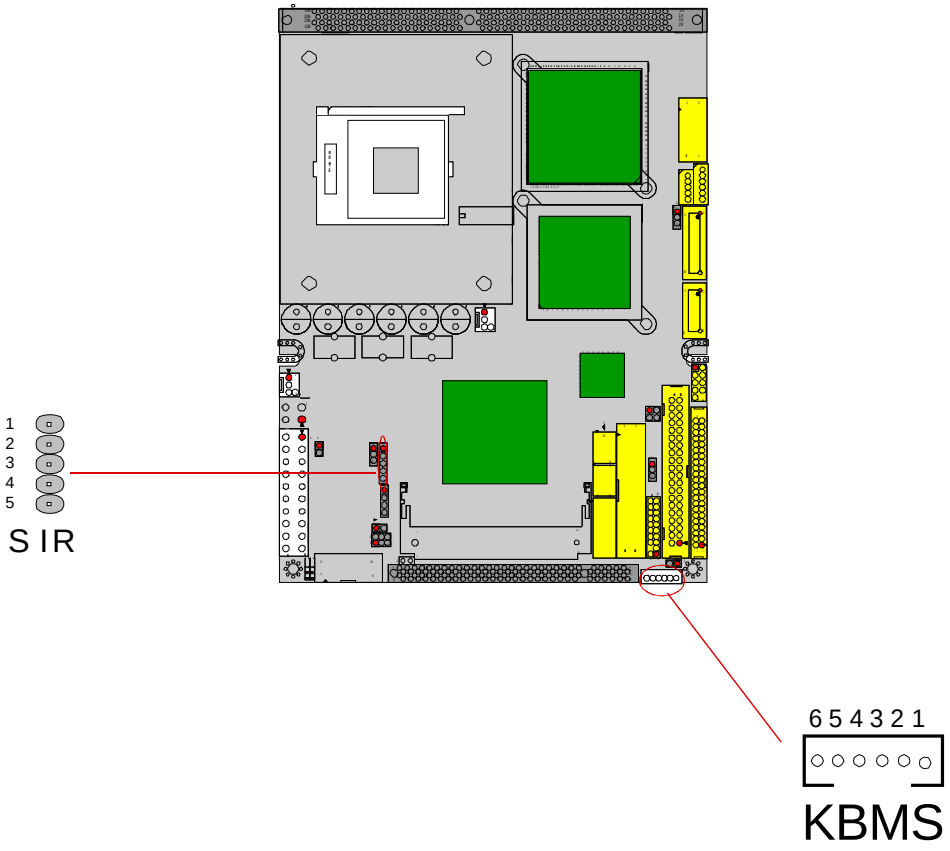


Infrared (IR) Connector

Connector : **SIR**

Type : SIR1: onboard 5-pin header

Pin	Description	Pin	Description
1	Vcc	2	NC
3	IRRX	4	GND
5	IRTX		



Keyboard & PS/2 Mouse

Connector : **KBMS**

Type : KBM2: onboard 6-pin wafer

Pin	Description	Pin	Description
1	KB_DATA	2	GND
3	MS_DATA	4	KB_CLK
5	+5V	6	MS_CLK

Connector : **PSON (Power-on Push Button)**
Type : onboard 2-pin header

Pin	Description
1	PS-ON
2	+5VSB (Standby)

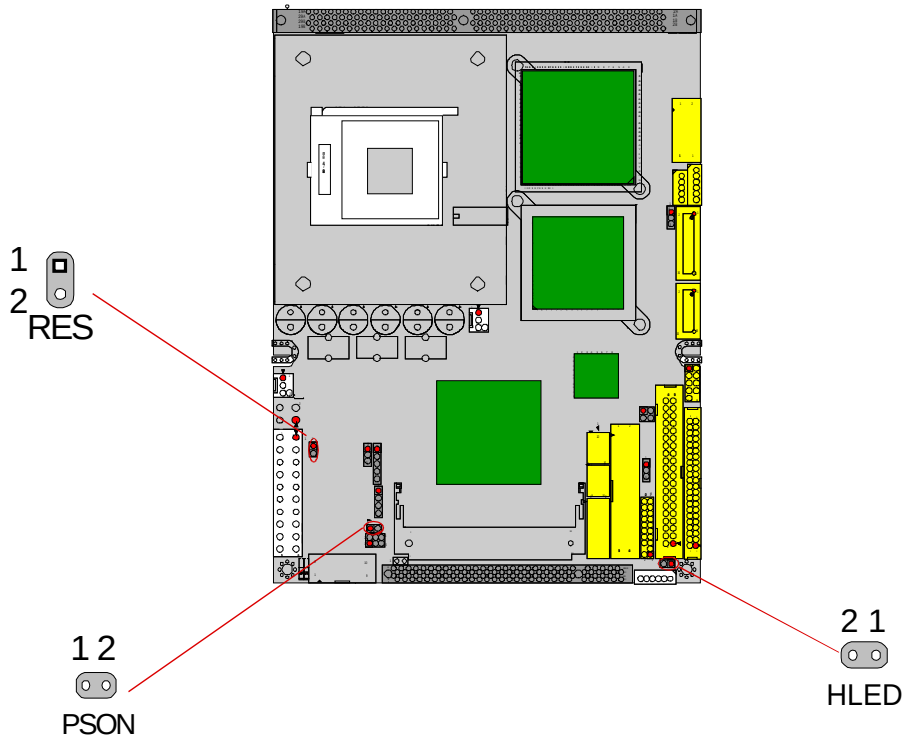
Connector : **Reset**

Type: onboard 2-pin header

Pin	Description
1	RES
2	GND

Connector : **HLED (IDE Activity LED)**
Type : onboard 2-pin header

Pin	Description
1	LED (+)
2	LED (-)



CPU Fan Connector

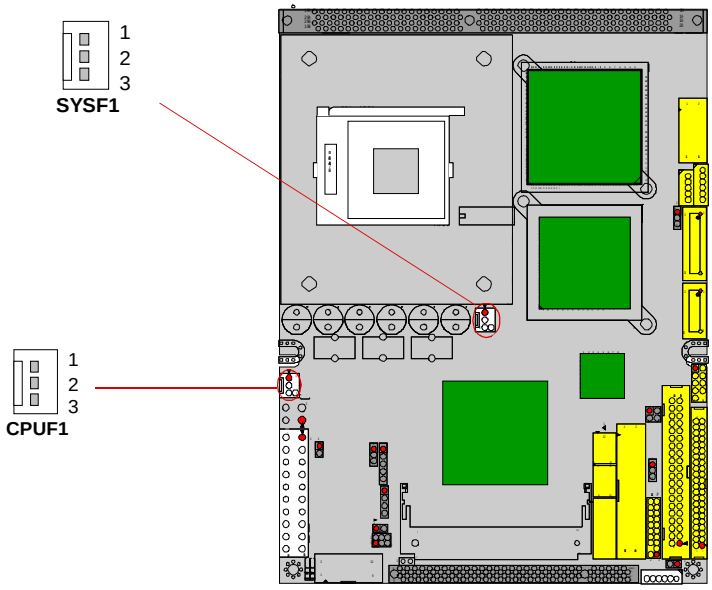
Connector : **CPUF1**
Type : onboard 3-pin wafer connector

Pin	Description
1	GND
2	+12V
3	FAN Dectect

System Fan Connector

Connector : **SYSF1**
Type : onboard 3-pin wafer connector

Pin	Description
1	GND
2	+12V
3	FAN Dectect

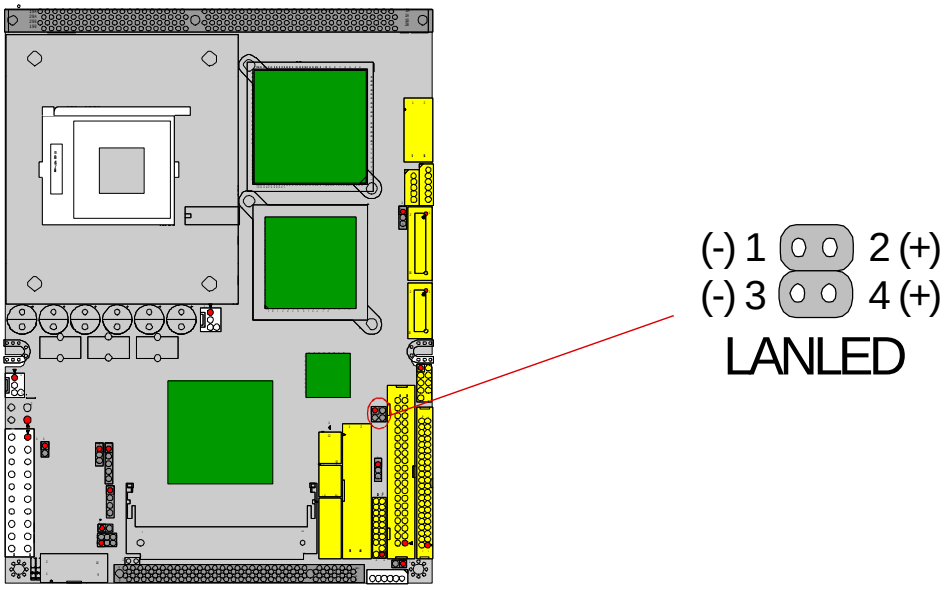


LAN LED Connector

Connector : LANLED

TYPE : Onborad 4-pin header

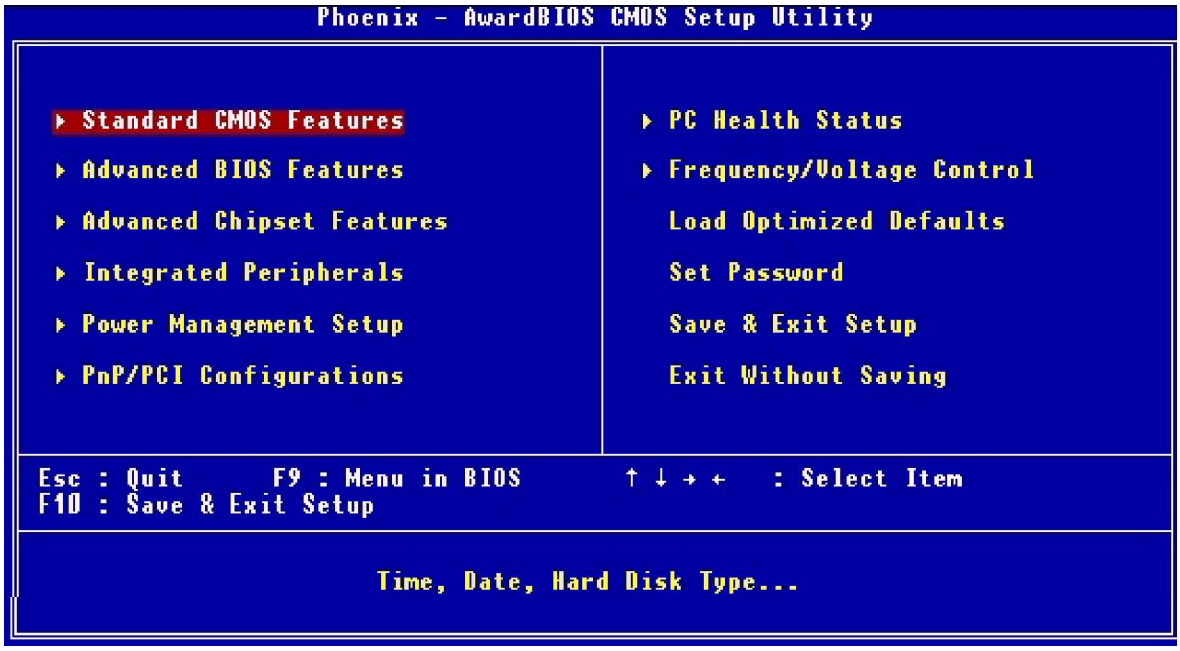
Pin	Description
1-2	Activity
3-4	Link



AWARD BIOS Setup

The SBC uses the Award PCI/ISA BIOS ver 6.0 for the system configuration. The Award BIOS setup program is designed to provide the maximum flexibility in configuring the system by offering various options which could be selected for end-user requirements. This chapter is written to assist you in the proper usage of these features.

To access AWARD PCI/ISA BIOS Setup program, press <Del> key. The Main Menu will be displayed at this time.



Once you enter the Award BIOS™ 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.

Setup Items

The main menu includes the following main setup categories. Recall that some systems may not include all entries.

Standard CMOS Features
Use this menu for basic system configuration.

Advanced BIOS Features
Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features
Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals
Use this menu to specify your settings for integrated peripherals.

Power Management Setup
Use this menu to specify your settings for power management.

PnP / PCI Configurations
This entry appears if your system supports PnP / PCI.

PC Health Status
This entry appears CPU temperature for the system.

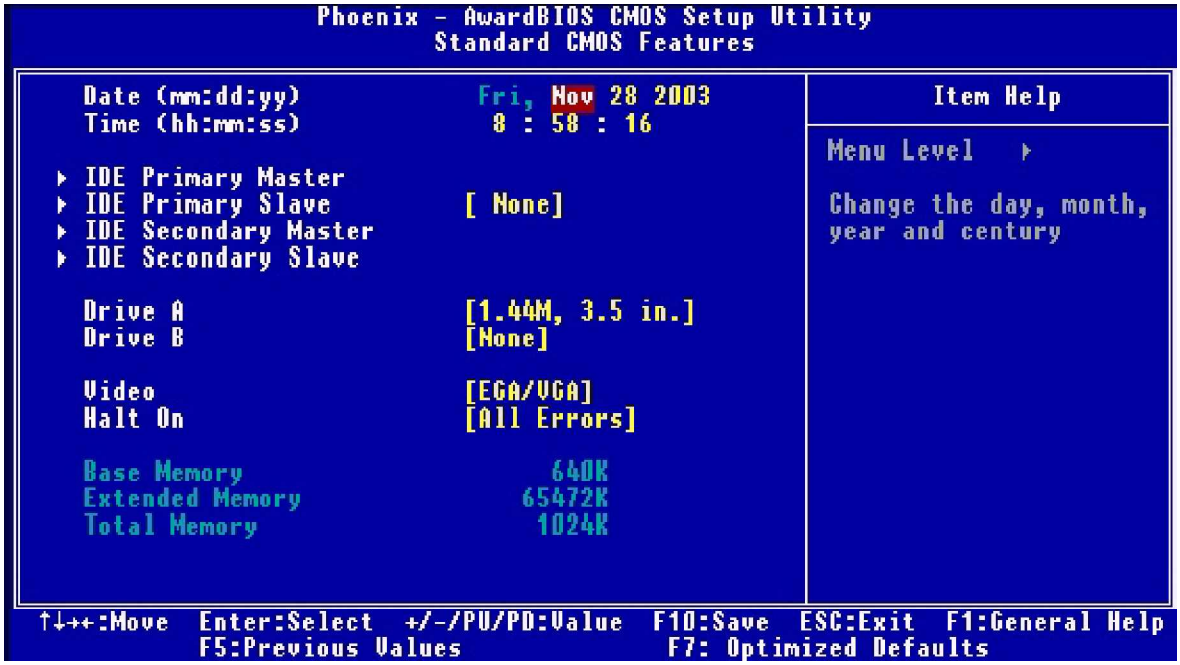
Frequency/Voltage Control
Use this menu to specify your settings for frequency/voltage control.

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.

Set Password
Use this menu to set User and Supervisor Passwords.

Save & Exit Setup
Save CMOS value changes to CMOS and exit setup.

Exit Without Save



Date
The BIOS determines the day of the week from the other date information; this field is for information only.

Time
The time format is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Press the ↑ or ↓ (key to move to the desired field . Press the PgUp or PgDn key to increment the setting, or type the desired value into the field.

IDE Primary & Secondary Master/Slave
Selecting "Manual" lets you set the remaining fields on this screen.
Select the type of fixed disk.
"User Type" will let select the number of cylinder, head, etc.
Note: PRECOMP=65535 means NONE!
[NONE]

Drive A, B
Select the correct specifications for the diskette drive(s) installed in the computer.

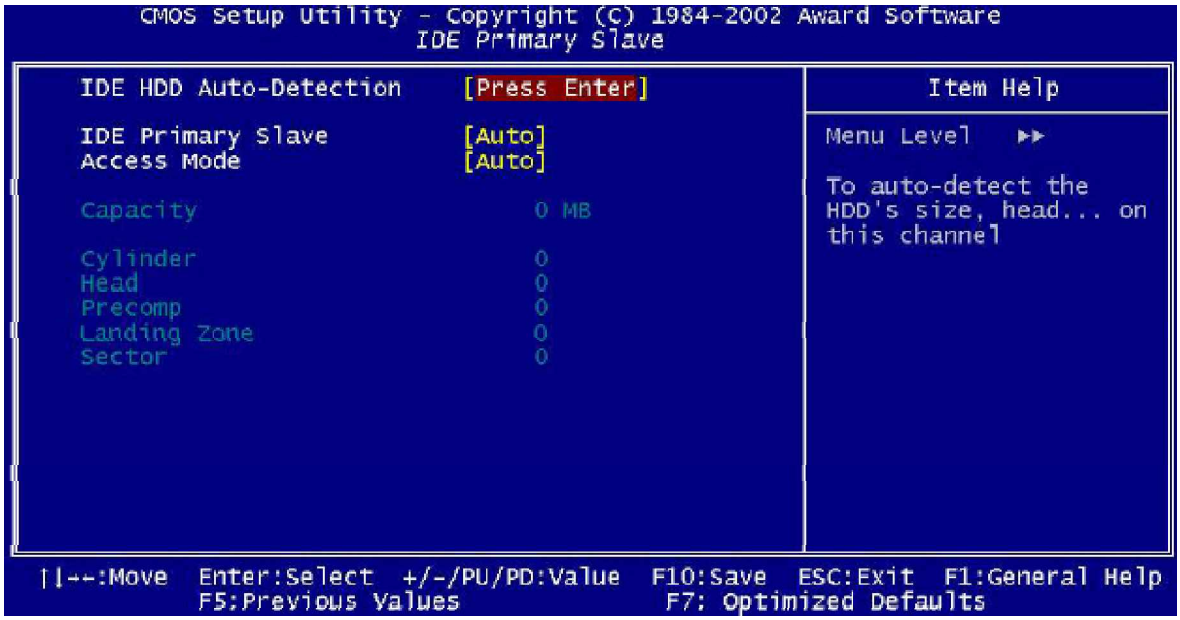
None : No diskette drive installed
360K ; 5.25 in 5-1/4 inch PC-type standard drive
1.2M ; 5.25 in 5-1/4 inch AT-type high-density drive
720K ; 3.5 in 3-1/2 inch double-sided drive
1.44M ; 3.5 in 3-1/2 inch double-sided drive
2.88M ; 3.5 in 3-1/2 inch double-sided drive

Video Select the type of primary video subsystem in your computer. The BIOS usually detects the correct video type automatically. The BIOS supports a secondary video subsystem, but you do not select it in Setup.

Halt On During the power-on self-test (POST), the computer stops if the BIOS detects a hardware error. You can tell the BIOS to ignore certain errors during POST and continue the boot-up process. These are the selections:

No errors	POST does not stop for any errors.
All errors	If the BIOS detects any non-fatal error, POST stops and prompts you to take corrective action.
All, But Keyboard	POST does not stop for a keyboard error, but stops for all other errors.
All, But Diskette	POST does not stop for diskette drive errors, but stops for all other errors.
All, But Disk/Key	POST does not stop for a keyboard or disk error, but stops for all other errors.

IDE HDD AUTO DETECTION



IDE HDD Auto-detection
Press Enter to auto-detect the HDD on this channel. If detection is successful, it fills the remaining fields on this menu.

IDE Primary Master
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!

Capacity
Disk drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk given by a disk checking program.

Access Mode
Normal, LBA, Large or Auto Choose the access mode for this hard disk

The following options are selectable only if the 'IDE Primary Master' 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

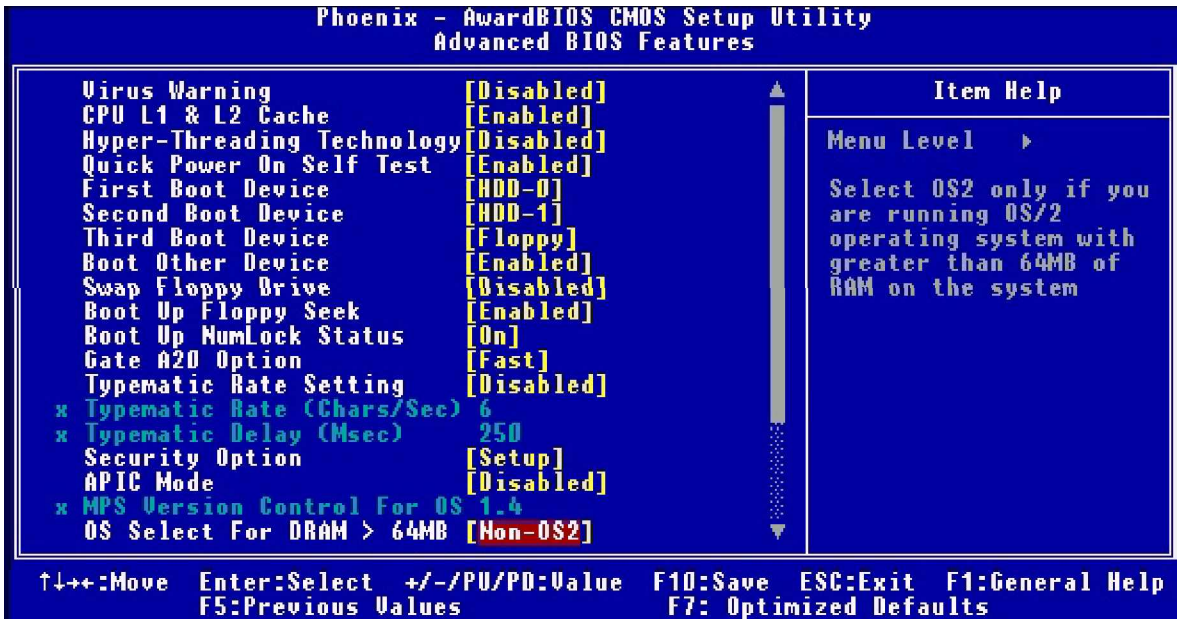
Precomp Min = 0 Max = 65535
**** Warning: Setting a value of 65535 means no hard disk

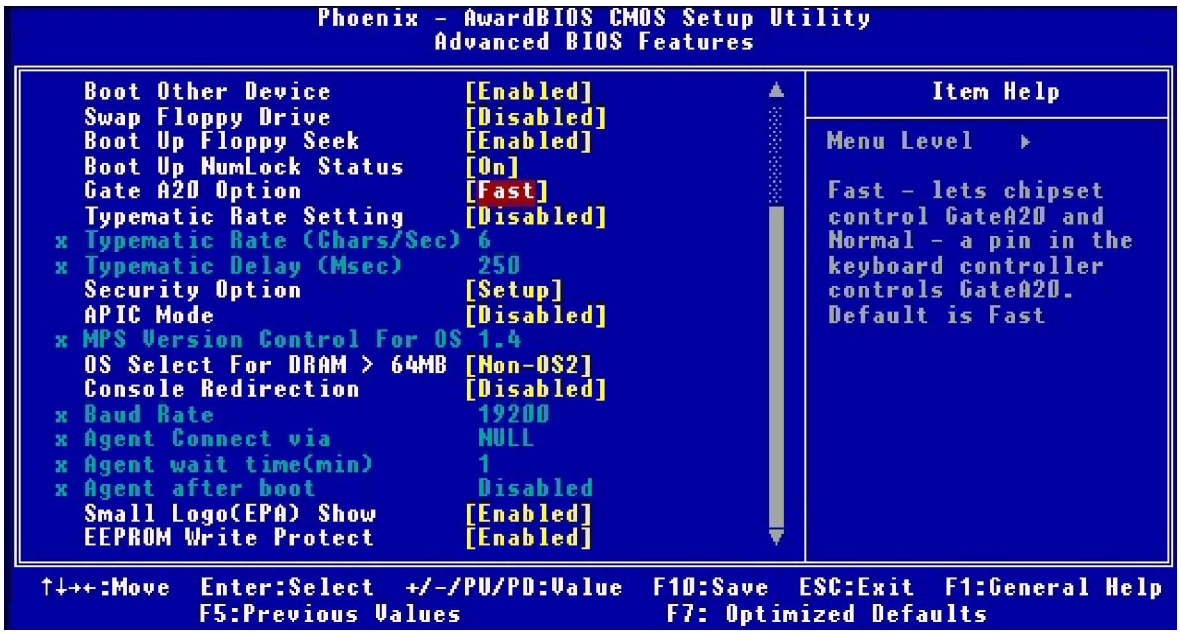
Landing zone Min = 0 Max = 65535
**** Warning: Setting a value of 65535 means no hard disk

Sector Min = 0 Max = 255
Number of sectors per track

We recommend that you select Type "AUTO" for all drives. The BIOS will auto-detect the hard disk drive and CD-ROM drive at the POST stage.

If your hard disk drive is a SCSI device, please select "None" for your hard drive setting.





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 will beep.

CPU L1 & L2 Cache ---> Cache memory is additional memory that is much faster than conventional DRAM (system memory). CPUs from 486-type on up contain internal cache memory, and most, but not all,

modern PCs have additional (external) cache memory.

When the CPU requests data, the system transfers the request ed data from the main DRAM into cache memory, for even faster access by the CPU.

Extrnal Cache ---> Cache memory is additional memory that is much faster than

conventional DRAM (system memory). CPUs from 486-type on up contain internal cache memory, and most, but not all, modern PCs have additional (external) cache memory.

When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU.

Quick Power On Self Test ---> Allows the system to skip certain tests while booting.

This will decrease the time needed to boot the system.

Fist Boot Device ---> Select Your boot Device Priority.

Second Boot Device ---> Select Your boot Device Priority.

Third Boot Device ---> Select Your boot Device Priority.

Boot Other Device ---> Select Your boot Device Priority.

Swap Floopy Seek ---> If the system has two floppy drives, choose enable to assign physical drive B to logical drive A and vice-versa.

Boot Up Floopy Seek ---> Enabled tests floppy drives to determine whether they have 40 or 80 tracks.

Boot Up NumLock Status ---> Selects power on state for NumLock.

Gate A20 Option ---> Fast - lets chipset control GateA20 and Normal

a pin in the keyboard controller controls GateA20.

Default is Fast

Typematic Rate Setting ---> Keystrokes repeat at a rate determined by the keyboard controller when enabled, the typematic rate and typematic delay can be selected.

Security Option ---> Select whether the password is required every time the system boots or only when you enter Setup.

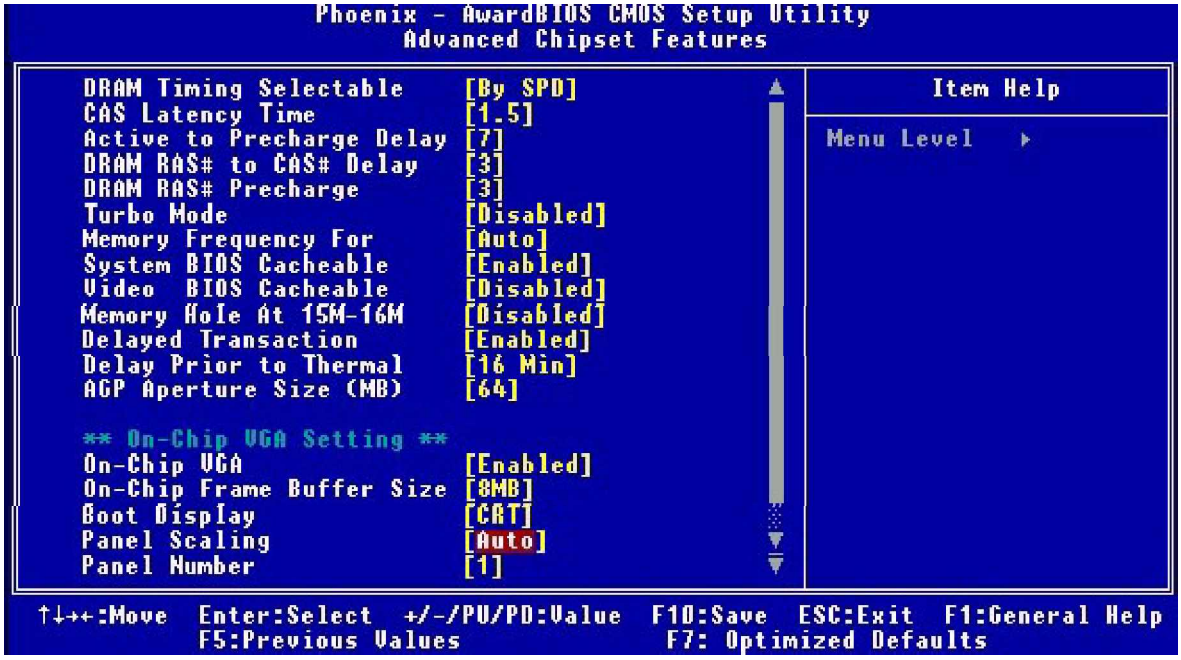
APIC Mode ---> Setting it to Enabled is to extend the number of IRQ.

OS Select For DRAM > 64MB ---> Select OS2 only if you are running OS/2 operating system with greater then 64MB of RAM on the system.

Small Logo(EPA) Show ---> Select Enabled if your system has a small Logo(EPA) show If you has no small logo show, select Disabled in this field.

EEPROM Write Protect ---> Select Enabled to prevent EEPROM text screen from being changed when the display is not in configuration mode.

Advanced Chipset Features



DRAM Timing Selectable
When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on DRAM timing.
The choices: By SPD (default), Manual

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

Active to Precharge Delay
Delay that results when two different rows in a memory chip are addressed one after another.

DRAM RAS# to CAS# Delay
When RAS is asserted, there must be a small wait before the CAS can be pulled. This setting controls length of the wait. Like CAS latency, it's a delay before you get your data, so while your system is faster at a lower setting, it's also more stressful at that setting. Your RAM may handle it, or it may not.

DRAM RAS Precharge
The third part of the x-y-z notation used in SDRAM, the other two being CAS and RAS to CAS. Like its brethren, it's better lower but also more stressful lower. See the pattern 2.5 is only available with DDR.

Turbo Mode

Memory Frequency For
Lets you set the frequency of the DDR memory if needed. The setting ranges from

DDR266, DDR320, DDR400 and Auto, giving an ample array of options most useful when overclocking the system.

System BIOS Cacheable
Allows the system BIOS to be cached for faster system performance.

Video RAM Cacheable
This item allows you to "Enabled" or "Disabled" on Video RAM Cacheable.

Memory Hole At 15M-16M
If you enable this feature, 1MB of memory (the 15th MB) will be reserved exclusively for the ISA card's use. This effectively reduces the total amount of memory available to the operating system by 1MB. If you disable this feature, the 15th MB of RAM will not be reserved for the ISA card's use. The full range of memory is therefore available for the operating system to use. However, if your ISA card requires the use of that memory area, it may then fail to work.

Delayed Transaction
The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1.
Delay Prior to Thermal
Controls the activation of the Thermal Monitor's automatic mode. It allows you to determine when the Pentium 4's Thermal Monitor should be activated in automatic mode after the system boots. For example, with the default value of 16 Minutes, the BIOS activates the Thermal Monitor in automatic mode 16 minutes after the system starts booting up.
AGP Aperture Size
Options : 4, 8, 16, 32, 64, 128, 256

This option selects the size of the AGP aperture. The aperture is a portion of the PCI memory address range dedicated as graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without need for translation. This size also determines the maximum amount of system RAM that can be allocated to the graph- ics card for texture storage.

AGP Aperture size is set by the formula : maximum usable AGP memory size x 2 plus 12MB. That means that usable AGP memory size is less than half of the AGP aperture size. That's because the system needs AGP memory (uncached) plus an equal amount of write combined memory area and an additional 12MB for virtual addressing. This is address space, not physical memory used. The physical memory is allocated and released as needed only when Direct3D makes a "create non-local surface" call.

On-Chip VGA
If your system contains a VGA controller and you want to activate it, select Enabled. The next option will become available.

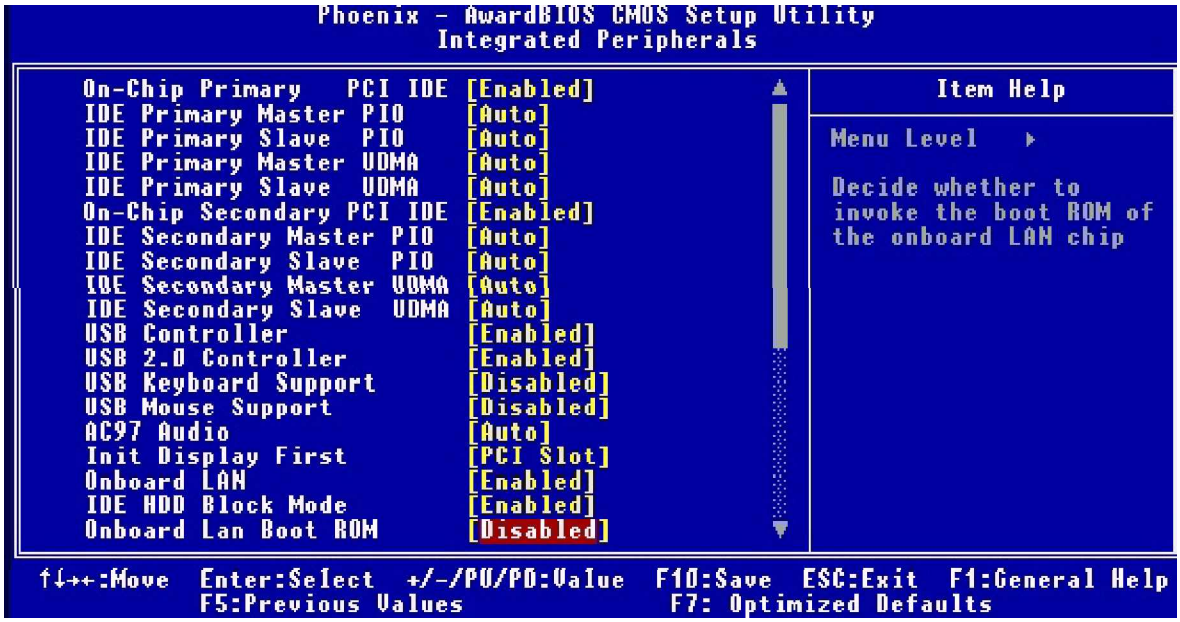
On-Chip Frame Buffer Size
The On-Chip Frame Buffer Size can be set to 1MB or 8MB. This memory is shared with system memory.

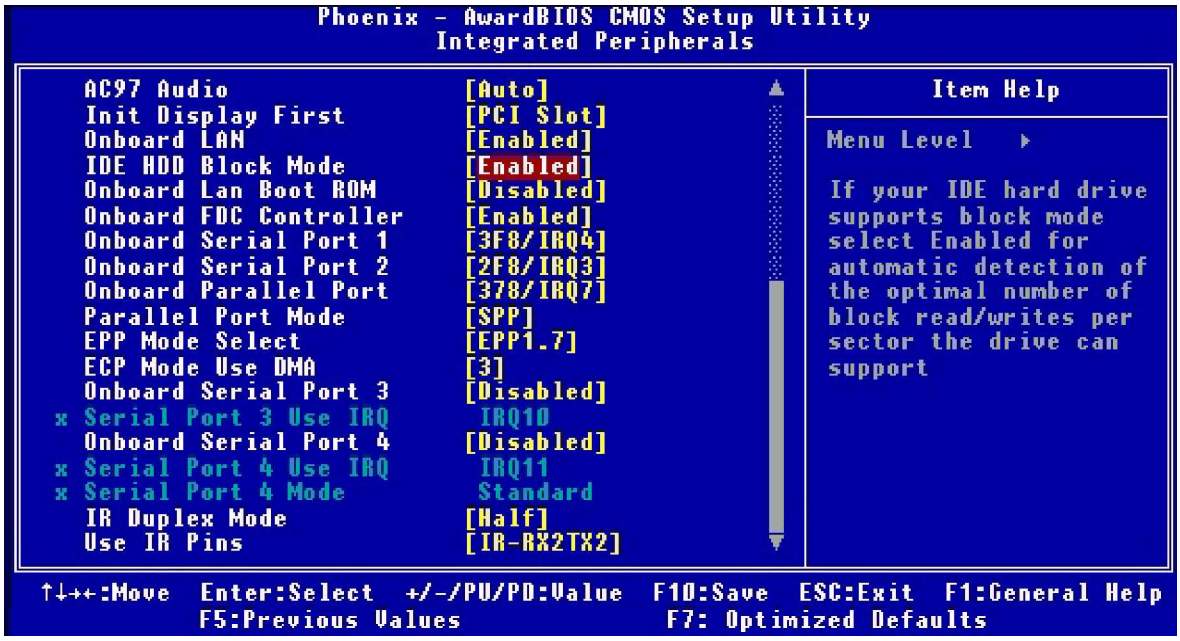
Boot Display
This option let you select the display devices.

Panel Scaling
Setting this field to choose the initial state of Panel Fitting. A new state will overwrite the initial state and be remembered if Panel Fitting Hotkey is requested. Panel Fitting can only be enabled when in LFP only display. This panel fitting state is checked to update the hardware status after changing Video mode or Switching Display devices.

Panel Number
This option let you select the type of panel.

Integrated Peripherals





OnChip Primary / Secondary PCI IDE
The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select Enabled to activate each channel separately.

Primary & Secondary Master/Slave PIO
These four PIO fields let you set a PIO mode (0-4) for each of four IDE devices.

When under "Auto" mode, the system automatically set the best mode for each device

Primary & Secondary Master/Slave UDMA
When set to "Auto" mode, the system will detect if the hard drive supports Ultra DMA mode.

USB Controller
Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals.

USB 2.0 Controller
Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have USB 2.0 peripherals.

USB Keyboard Support
Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

USB Mouse Support
Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB mouse.

AC97 Audio
AC97 Audio selection.

Init Display First
This item allows you to decide to activate whether PCI slot or on-chip VGA first
Onboard LAN---> Select "Enabled" if your system contains onboard LAN supports.
IDE HDD Block Mode --->

Block mode is also called block transfer, multiple commands, or multiple sector read/ write. If your 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.

Onboard Lan Boot ROM---> The default setting is "Disabled" that to shorten the booting time.

Onboard FDC Controller --->

Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install an add-in FDC or the system has no floppy drive, select Disabled in this field.

Onboard Serial Port 1 --->

Select a logical COM port name and matching address for the first and second serial ports. Select an address and corresponding interrupt for the first and second serial ports.
Onboard Serial Port 2 --->

Select a logical COM port name and matching address for the first and second serial ports. Select an address and corresponding interrupt for the first and second serial ports.
Onboard Parallel Port --->

Select a logical LPT port address and corresponding interrupt for the physical parallel port.

Parallel Port Mode ---> Select an operating mode for the onboard parallel (printer) port. Select Normal, Compatible, or SPP unless you are certain your hardware and software both support one of the other available modes. For information about parallel port modes, see http://www.fapo.com/1284int.htm

EPP Mode Select
You can use this feature to choose which version of EPP to use. For better performance, use EPP 1.9. But if you are facing connection issues, try setting it to EPP 1.7. Most of the time, EPP 1.9 will work perfectly well.

ECP Mode Use DMA
By default, the parallel port uses DMA Channel 3 when it is in ECP mode. This works fine in most situations.

Onboard Serial Port 3 --->

Select a logical COM port name and matching address for the third serial ports. Select an address and corresponding interrupt for third serial ports.

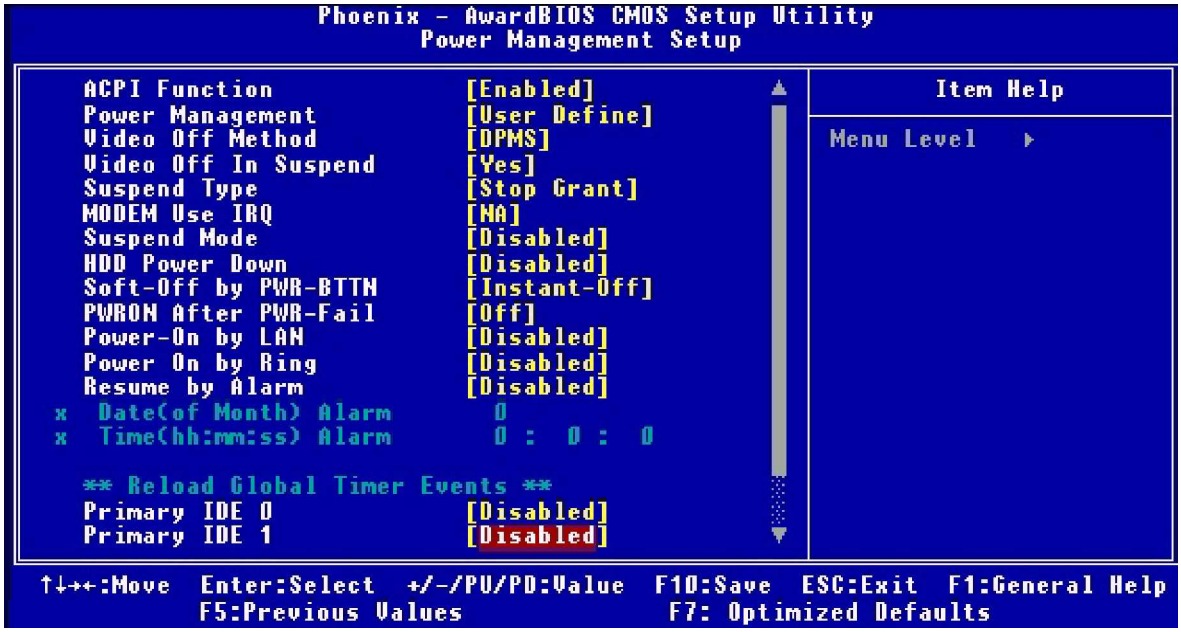
Onboard Serial Port 4 --->

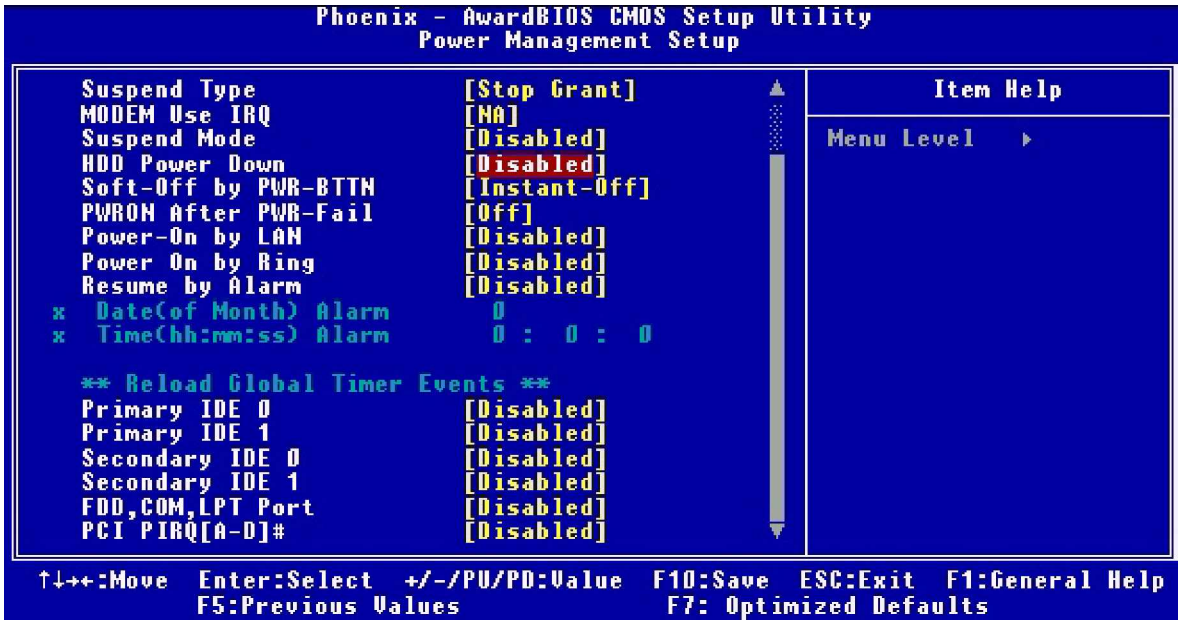
Select a logical COM port name and matching address for the fourth serial ports. Select an address and corresponding interrupt for fourth serial ports.

IR2 Duplex Mode
This item allows you to select the IR half/full duplex function.

Use IR Pins
This item allows you to select IR transmission routes, IR-Rx2Tx2, RxD2 and TxD2.

Power Management Setup





ACPI Function
Select enabled only if your computer's operating system supports ACPI (the Advanced Configuration and Power Interface) specification. Currently, Windows 98 and Windows2000 support ACPI.

Power Management
There are 6 selections for Power Management, 3 of which have fixed mode :

PM Control by APM — If Advanced Power Management (APM) is installed on your system, selecting Yes gives better power savings.

Video Off Method
This determines the manner in which the monitor is blanked.

Video Off In Suspend

Controls what causes the display to be switched off
Suspend -> Off Always On All Mode -> Off
Suspend Type
S1 (POS) Power On suspend
All devices are powered up except for the clock synthesizer. The Host and PCI clocks are inactive and PIIX4 provides control signals and 32-kHz Suspend Clock (SUSCLK) to allow for DRAM refresh and to turn off the clock synthesizer. The only power consumed in the system is due to DRAM Refresh and leakage current of the powered devices. When the system resumes from POS, PIIX4 can optionally resume without resetting the system, can reset the processor only, or can reset the entire system. When no reset is performed, PIIX4 only needs to wait for the clock synthesizer and processor PLLs to lock before the system is resumed. This takes typically 20 ms.

S3 (STR) Suspend To RAM
Power is removed from most of the system components during STR, except the DRAM. Power is supplied to Suspend Refresh logic in the Host Controller, and RTC and Suspend Well logic in PIIX4. PIIX4 provides control signals and 32-kHz Suspend Clock (SUSCLK) to allow for DRAM refresh and to turn off the clock synthesizer and other power planes.

Modem Use IRQ
Name the interrupt request (IRQ) assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.

Suspend Mode
When the suspend mode has been enabled after the selected period of system inactivity, all devices except CPU will be shut down.

HDD Power Down
After the selected period of drive inactivity, the hard disk drive powers down while all other devices remain active.

Soft-Off By PWR-BTTN
The field defines the power-off mode when using an ATX power supply. The Instant-Off mode means powering off immediately when pressing the power button. In the Delay 4 Sec mode, the system powers off when the power button is pressed for more than four seconds or places the system in a very low-power-usage state, with only enough circuitry receiving power to detect power button activity or resume by ring activity when press for less than four seconds. The default is 'Instant-Off'.

PWRON After PWR-Fail
Setting whether system powers on after power failure.

Power-ON by LAN
There are two options can be selected: [Enabled] & [Disabled].

Power-ON by Ring
There are two options can be selected: [Enabled] & [Disabled].

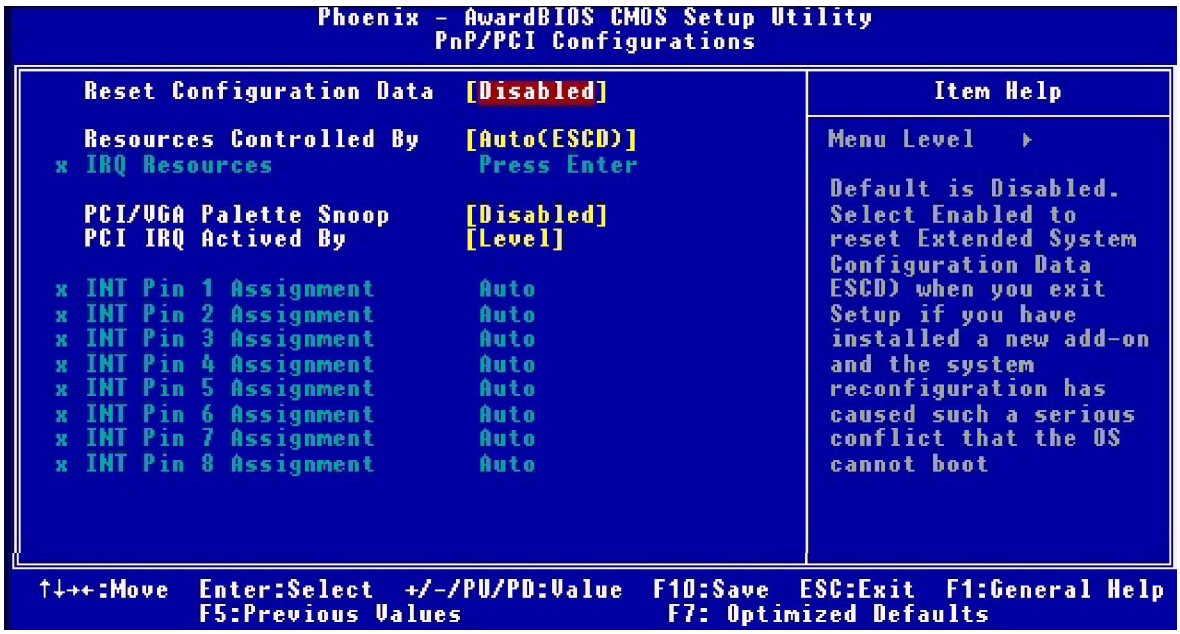
Resume by Alarm
Allows your system to turn on at a pre-selected time.

Primary IDE 0/1
Select "Disabled" to turn off Primary IDE.

Secondary IDE 0/1
Select "Disabled" to turn off Secondary IDE.

FDD,COM,LPT Port
Select "Disabled" to turn off these I/O.

PCI PIRQ[A-Q]#
Enabled or Disabled PCI,PIRQ[A-D]#IRQ status.



This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, 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.

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset ESCD (Extended System Configuration Date) 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.

Resource Controlled By

The Award Play and Play BIOS can automatically configure all the boot and Plug-and-Play compatible devices. If you select Auto, all the interrupt request (IRQ) and DMA assignment fields disappear, as the BIOS automatically assigns them.

PCI/VGA Palette Snoop

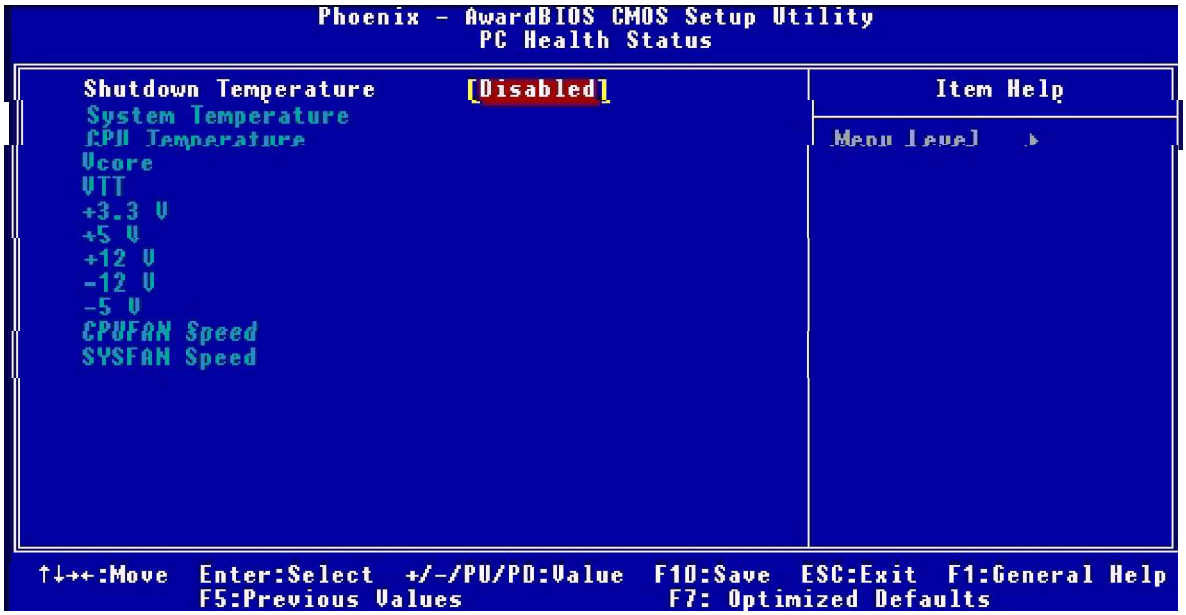
Normally this option is always Disabled! Nonstandard VGA display adapters such as overlay cards or MPEG video cards may not show colors properly. Setting Enabled should correct this problem. If this field set Enabled, any I/O access on the ISA bus to the VGA card's palette registers will be reflected on the PCI bus. This will allow overlay cards to adapt to the changing palette colors.

PCI IRQ actived By

The default value is [Level].

Level	PCI IRQ actived by Level.
Edge	PCI IRQ actived by Edge.

PC Health Status



This section describes CPU temperater for the system.

Shutdown Temperature
This item allows you to set up the CPU shutdown Temperature. This item only effective under windows 98 ACPI mode.

System Temperature
This field displays the current system temperature.

CPU Temperature
These fields display the current CPU temperature, if your computer contains a monitoring system.

Vcore
These fields display the current voltage of up to seven voltage input lines, if your computer contains a monitoring system.

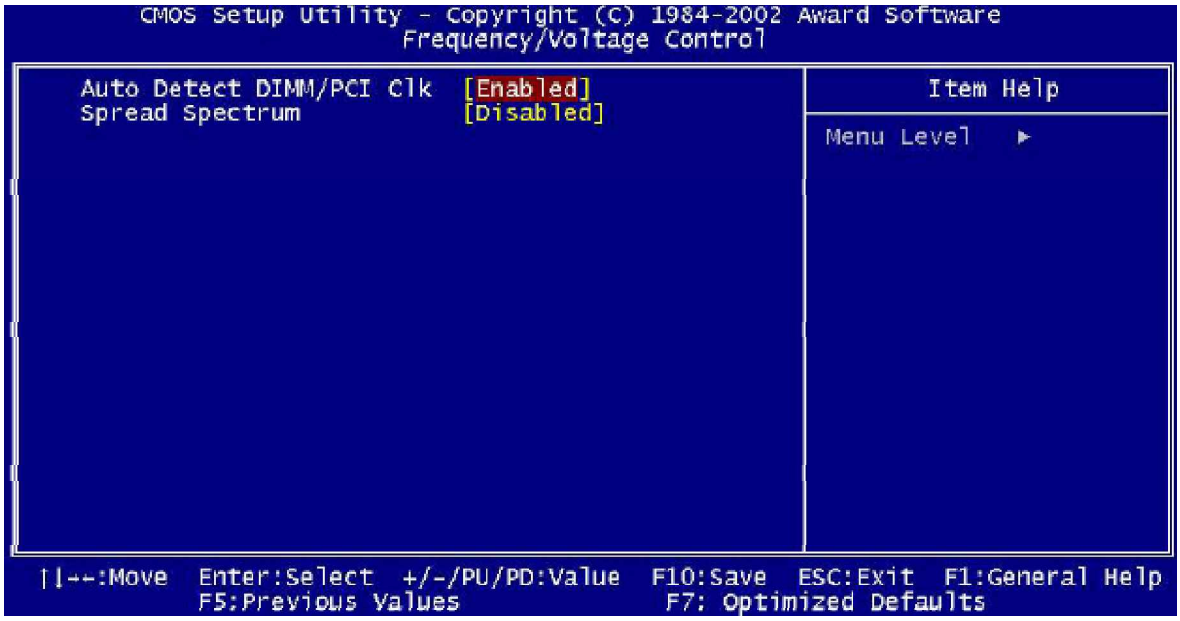
VTT
One type of CPU voltage

+3.3V, +5V, +12V
Show you the voltage of +3.3V, +5V, +12V

CPUFAN Speed
These fields display the current speed of up to three CPU fans, if your computer contains a monitoring system.

System FAN Speed
Show you the current SystemFAN operating speed

Frequency/Voltage Control



Auto Detect PCI Clk

[Enabled]

[Disabled]

Spread Spectrum

[Disabled]

[Enabled]

Howto : Flash the BIOS

To flash your BIOS you'll need

1) a xxxxx.bin file that is a file image of the new BIOS

2) AWDFLASH.EXE a utility that can write the data-file into the BIOS chip.

Create a new, clean DOS 6 bootable floppy with "format a: /s".
Copy flash utility and the BIOS image file to this disk.

Turn your computer off. Insert the floppy you just created and boot the computer. As it boots up, hit the [DEL] key to enter the CMOS setup. Go to "LOAD SETUP (or BIOS) DEFAULTS," and then save and exit the setup program. Continue to boot with the floppy disk.

Type "AWDFLASH" to execute the flash utility. When prompted, enter the name of the new BIOS image and begin the flash procedure. Note: If you reboot now, you may not be able to boot again.

After the flash utility is complete, reboot the system.

What to do when the Award flasher says:
Insufficient memory

1. In CMOS Chipset Features Setup, Disable Video Bios Cacheable.
2. Hit Esc, F10, Save and exit.
3. Flash the BIOS and reboot
4. Enter CMOS Chipset Features Setup and Enable Video Bios Cacheable, hit Esc, F10, Save and reboot.

What if things go wrong

if you use the wrong Flash BIOS or if the writing process gets interrupted, there is a fat chance that your computer won't boot anymore.

How can you recover a corrupt BIOS ?

Boot-block booting (this works only for Award BIOS)

Modern motherboards based on Award BIOS have a boot-block BIOS. This is small area of the BIOS that doesn't get overwritten when you flash a BIOS. The boot-block BIOS only has support for the floppy drive. If you have the AGP video enabled you won't see anything on the screen because the boot-block BIOS only supports an ISA videocard.

If you do not want to change your AGP video setting than proceed as follows:

The boot-block BIOS will execute an AUTOEXEC.BAT file on a bootable diskette. Copy an Award flasher & the correct BIOS *.bin file on the floppy and execute it automatically by putting awdflash *.bin in the AUTOEXEC.BAT file.

Solution 2: Hot-swapping

1. Replace the corrupt chip by a working one. The working BIOS doesn't have to be written for your board, it just has to give you a chance of booting to DOS.

BIOS's for the same chipset mostly work. (Chipsets that not differ too much also mostly work. (e.g. Triton FX chipset and Triton HX chipset)

2. Boot the system to DOS (with floppy or HD)

3. Be sure that the System BIOS cacheable option in your BIOS is enabled! If so replace (while the computer is powered on) the BIOS chip with the corrupt one. This should work fine with most boards because the BIOS is shadowed in RAM.

4. Flash an appropriate BIOS to the corrupt chip and reboot.

NOTE: Use a flasher from MRBIOS (**http://www.mrbios.com**). Utilities that come with your motherboard often use specific BIOS-hooks. Because you have booted with a BIOS not written for your motherboard they usually don't work. The MR Flash utilities communicate directly with your Flash Rom and always work. In most cases they flash a non-MR- BIOS to your BIOS chip without problems.

CONTACT INFORMATION

Thank you for purchasing from Global American Inc. We will stand by our slogan,

"Integration with Integrity".

Please let us know how your product is performing and if we can help you with anything!

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