ST268G
USER'S MANUAL

Version 1.1

Acknowledgments

Table of Contents

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Introduction

Product Description

ST268G is a high-performance flexible embedded board based on the VIA CLE 266 chipset. The chipset is based on an innovative and scaleable architecture with proven reliability. It is a two-chip set consisting of the VT8623 North Bridge Controller and VT8237 South Bridge Controller.

ST268G supports the Via C3 processors with speeds of up to 1GHz and with front side bus of up to 133MHz. Two 184-pin DDR DIMM sockets supports can accommodate a total memory size of 1GB.

Combining a fully integrated video processing feature set, Integrated UniChrome™ 2D/3D graphics engine and ultra efficient VIA DDR memory controller, the VIA Unichrome™ CLE266 Chipset is designed to enable high quality digital video streaming and DVD playback in a new generation of small form factor PCs and IA devices

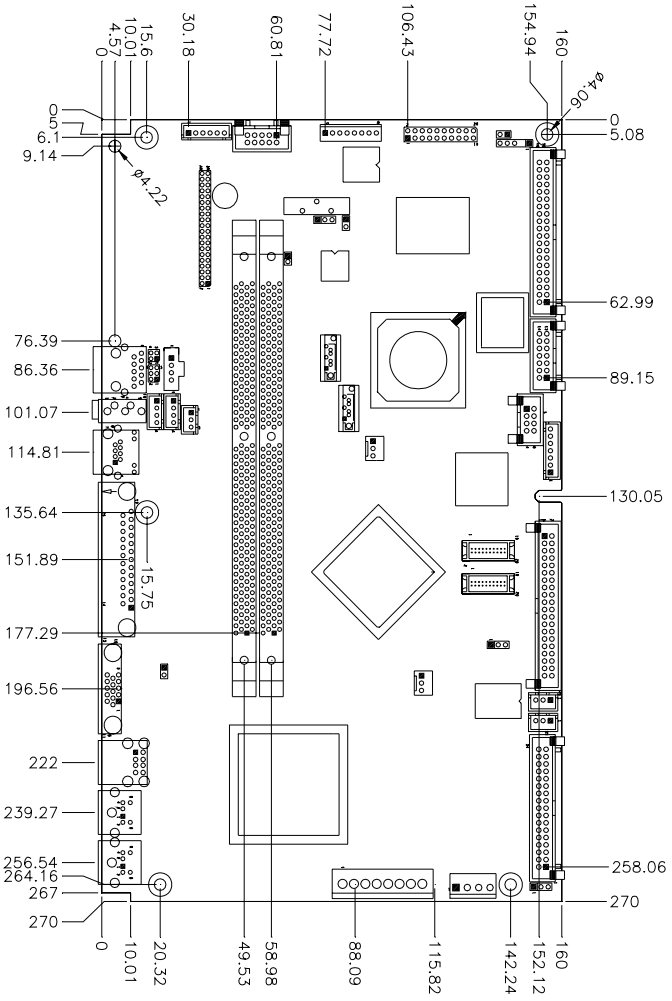
One 10/100mbps Ethernet is supported by the Realtek 8100C single chip Ethernet controller. With a secondary LPC I/O chip, the board supports six RS232 COM ports.

With dimensions of 270mm by 160mm, ST268G has other features and connectors such CF card socket, two IDE channels, and four USB .1/2.0 compliant ports.

Specifications

Product Name	ST268G
CPU Type	VIA C3 EBGA CPU
CPU Voltage	1.1V~1.85V
System Speed	1GHz
CPU External Clock	66/100/133Mhz
Green / APM	APM1.2
Chipset	VIA CLE266 North Bridge: 548 pin BGAVT8623 (2D/3D) South Bridge: 487 pin VT8237
BIOS	Award BIOS, 2Mbit, supports ACPI function
Cache	CPU integrated
Memory	Two 184-pin DDR DIMM socket, DDR200/266 DIMM modules, Max.1GB
VGA	VT8623 integrated AGP 4X VGA controller
LCD Interface	Support 18 bit LVDS panel (DF13-20) *2
LAN	Realtek RTL8100C (10/100Mb) single chip Ethernet controller.
Sound	AC97
LPC I/O	Winbond 83697HF: Parallel x1, COM1, COM2, FDC 1.44MB hardware monitor (2 thermal inputs
Secondary LPC I/O	Fintek F81216D COM3, 4, (RS232) ITE 8874 COM5,6
Uart/16550A(6 ports)	COM1, 2, 3, 4, 5, 6: RS232
RTC/CMOS	Built in VT8237
Battery	Lithium Battery
Keyboard/Mouse	Built in VT8237
Parallel IDE (40 pin)	Built in VT8237, IDE1, IDE2 (UDMA 33/66/100/133)
Seria ATA IDE	2 Ports
CF card connector	One port (share IDE2 slave)
USB	4 ports, USB 1.1/2.0, (D-Sub x2, Pin header x2)
Operating Temperature	0°C ~ 60°C (32°F ~140°F)
Storage Temperature	-20°C ~ 80°C (68°F ~176°F)
Relative Humidity	10% ~ 90% (non-condensing)
Dimensions	270mm x 160mm

Board Dimensions



Installations

This section provides information on how to use the jumpers and connectors on the ST268G in order to set up a workable system. The topics covered are:

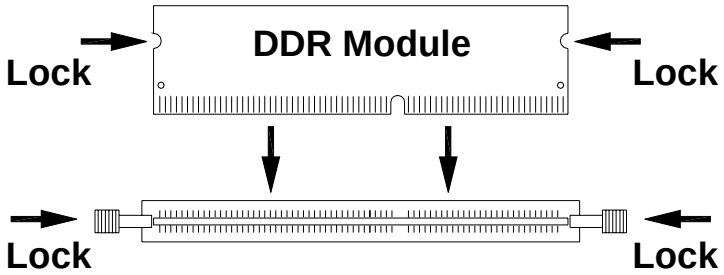
Installing the Memory (DDR DIMM)

The ST268G board supports two 184-pin DDR DIMM socket for a maximum total memory of 1GB in DDR DRAM type. The memory module capacities supported are 64MB, 128MB, 256MB, and 512MB.

Installing and Removing DIMMs

To install the DDR DIMM, locate the memory slot on the board and perform the following steps:

1. Hold the DIMM so that the two keys of the DIMM align with those on the memory slot.
2. Gently push the DIMM in an upright position until the clips of the slot close to hold the DIMM in place when the DIMM touches the bottom of the slot.
3. To remove the DDR module, press the clips with both hands.

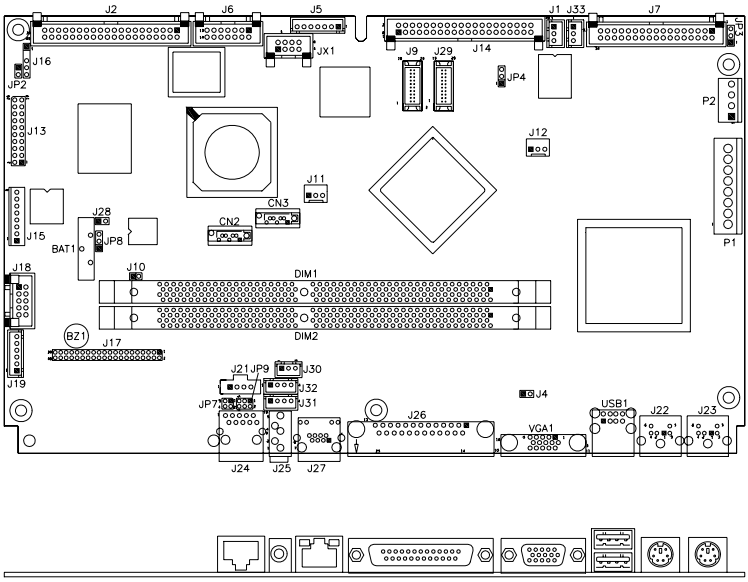


Top View of DIMM Socket

Setting the Jumpers

Jumpers are used on ST268G to select various settings and features according to your needs and applications. Contact your supplier if you have doubts about the best configuration for your needs. The following lists the connectors on ST268G and their respective functions.

Jumper Locations on ST268G



JP2: CF Card Master / Slave Selection

JP2	Setting	Master / Slave
	Short/Closed	Master
	Open	Slave

JP3: FDD Pin 1/3/5 Power Selection

JP3	Setting	Voltage
	Pin 1-2 Short/Closed	5V
	Pin 2-3 Short/Closed	GND (Default)

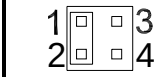
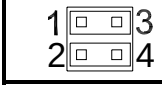
JP4: LCD Power Selection

JP4	Setting	Function
	Pin 1-2 Short/Closed	3.3V (Default)
	Pin 2-3 Short/Closed	5V

JP8: Clear CMOS Content

JP5	Setting	Function
	Pin 1-2 Short/Closed	Normal Operation
	Pin 2-3 Short/Closed	Clear CMOS Content

JP7: VFD's DSR / CTS Selection

JP7	Setting	Function
	Pin 1-2 Short/Closed	No VFD
	Pin 1-3, 2-4 Short/Closed	VFD Enable

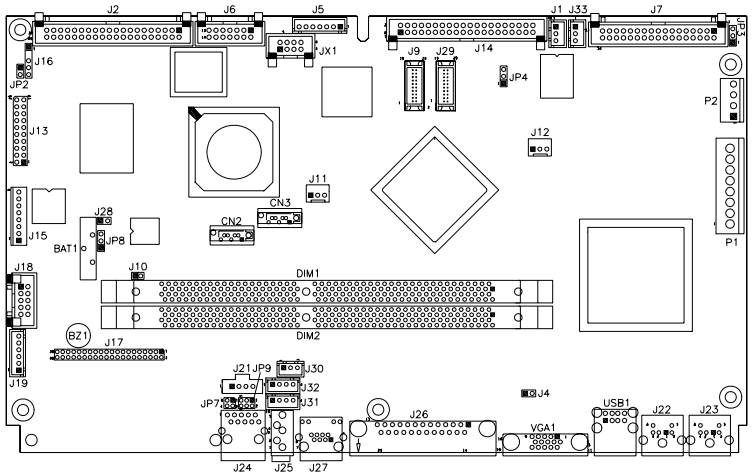
JP9: COM1 Pin 10 Selection

Signal Name	Pin #	Pin #	Signal Name
RI	1	2	RJ10-RI
5V	3	4	RJ10-RI
12V	5	6	RJ10-RI

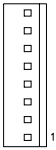
Connectors on ST268G

The connectors on ST268G allows you to connect external devices such as keyboard, floppy disk drives, hard disk drives, printers, etc. The following table lists the connectors on ST268G and their respective functions.

Connector Locations on ST268G



P1: Power Connector



Signal Name	Pin #	Pin #	Signal Name
+5V	1	5	GND
+5V	2	6	+12V
GND	3	7	+5VSB
GND	4	8	PS_ON

P2: HDD Power Connector

Pin #	Signal Name
1	+12V
2	GND
3	GND
4	+5V

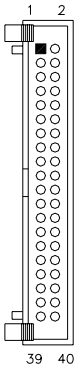
J1: Primary LCD Inverter Connector

Pin #	Signal Name
1	ENVEE
2	GND
3	+12V

J33: Secondary LCD Inverter Connector

Pin #	Signal Name
1	ENVEE
2	GND
3	+12V

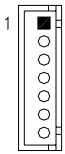
J2, J14: Primary and Secondary IDE Connectors



Signal Name	Pin #	Pin #	Signal Name
Reset IDE	1	2	GND
Host data 7	3	4	Host data 8
Host data 6	5	6	Host data 9
Host data 5	7	8	Host data 10
Host data 4	9	10	Host data 11
Host data 3	11	12	Host data 12
Host data 2	13	14	Host data 13
Host data 1	15	16	Host data 14
Host data 0	17	18	Host data 15
GND	19	20	Protect pin
DRQ0	21	22	GND
Host IOW	23	24	GND
Host IOR	25	26	GND
IOCHRDY	27	28	Host ALE
DACK0	29	30	GND
IRQ14	31	32	No connect
Address 1	33	34	IDE PATADET
Address 0	35	36	Address 2
Chip select 0	37	38	Chip select 1
Activity	39	40	GND

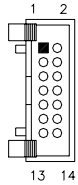
CN1: CompactFlash Socket

J5: System Function Connector



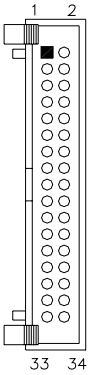
Pin #	Signal Name
1	+5VSB
2	GND
3	+5V
4	PW_BUTTON
5	GND
6	5V PULL HIGH
7	IDE LED

J6: Touch Screen Connector



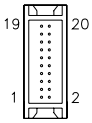
Signal Name	Pin #	Pin #	Signal Name
DCD2	1	2	DSR2
RXD2	3	4	RTS2
TXD2	5	6	CTS2
DTR2	7	8	+5V
GND	9	10	No connect
GND	11	12	GND
NC	13	14	NC

J7: Floppy Drive Connector



Signal Name	Pin #	Pin #	Signal Name
5V/GND	1	2	RM/LC
5V/GND	3	4	NC
5V/GND	5	6	NC
GND	7	8	Index
GND	9	10	Motor enable 0
GND	11	12	Drive select 1
GND	13	14	Drive select 0
GND	15	16	Motor enable 1
GND	17	18	Direction
GND	19	20	Step
GND	21	22	Write data
GND	23	24	Write gate
GND	25	26	Track 00
GND	27	28	Write protect
GND	29	30	Read data
GND	31	32	Side 1 select
GND	33	34	Diskette change

J9, J29: Primary and Secondary LVDS Connector (DF13-20)



Signal Name	Pin #	Pin #	Signal Name
TX0-	2	1	TX0+
GND	4	3	GND
TX1-	6	5	TX1+
5V/3.3V	8	7	GND
TX3-	10	9	TX3+
TX2-	12	11	TX2+
GND	14	13	GND
TXC-	16	15	TXC+
5V/3.3V	18	17	ENABKL
+12V	20	19	+12V

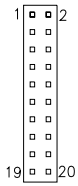
J11: System Fan Power Connector

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

J12: CPU Fan Power Connector

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

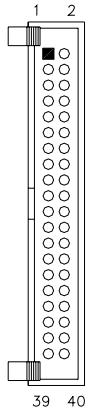
J13: IR Connector



*Default
13-14
17-18
Short

Signal Name	Pin #	Pin #	Signal Name
+5VSB	1	2	+5VSB
NC	3	4	KB_Clk1
NC	5	6	NC
NC	7	8	KB_Data1
GND	9	10	GND
GND	11	12	GND
MSDAT-	13	14	MSDAT#
NC	15	16	NC
MSCLK-	17	18	MSCLK#
+5V	19	20	+5V

J14: Primary IDE Connector



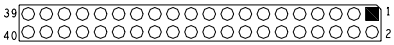
Signal Name	Pin #	Pin #	Signal Name
Reset IDE	1	2	GND
Host data 7	3	4	Host data 8
Host data 6	5	6	Host data 9
Host data 5	7	8	Host data 10
Host data 4	9	10	Host data 11
Host data 3	11	12	Host data 12
Host data 2	13	14	Host data 13
Host data 1	15	16	Host data 14
Host data 0	17	18	Host data 15
GND	19	20	Protect pin
DRQ0	21	22	GND
Host IOW	23	24	GND
Host IOR	25	26	GND
IOCHRDY	27	28	Host ALE
DACK0	29	30	GND
IRQ14	31	32	No connect
Address 1	33	34	IDE PATADET
Address 0	35	36	Address 2
Chip select 0	37	38	Chip select 1
Activity	39	40	GND

J15: CON 8/F (Card Reader)

Pin	Signal Name
1	KB_CLK2
2	KBCLK#
3	KB-DATA2
4	KBDAT#
5	GND
6	GND
7	+5V
8	+5V

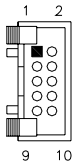
J17: COM3/4/5/6 Serial Ports

J17 is a 40-pin connector for the COM3/4/5/6 serial ports on ST268G.



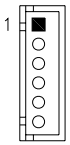
Pin #	Signal Name (RS-232)
1	DCD, Data carrier detect
2	RXD, Receive data
3	TXD, Transmit data
4	DTR, Data terminal ready
5	GND
6	DSR, Data set ready
7	RTS, Request to send
8	CTS, Clear to send
9	RI, Ring indicator
10,20	+12V
30,40	+5V

J18: Scanner Device Connector



Signal Name	Pin #	Pin #	Signal Name
+5V	1	2	GND
RXD1	3	4	TXD1
RTS1	5	6	CTS1
KB_DATA2	7	8	KBDAT-
KB_CLK2	9	10	KBCLK-

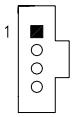
J19: CON 6/F VFD Connector



Pin	Signal Name
1	+12V
2	GND
3	VDSR
4	DSR1
5	TXD1
6	VTXD

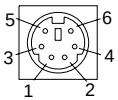
J21: CD-in Connector

J21 is the 4-pin CD-in connector.



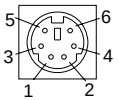
Pin #	Signal Name
1	Right
2	GND
3	GND
4	Left

J22: PS/2 Keyboard Connector



Pin	Signal Name
1	Keyboard data
2	KB_Data1
3	GND
4	+5V
5	Keyboard clock
6	KB_Clk1

J23: PS/2 Mouse Connector



Pin	Signal Name
1	Mouse data
2	NC
3	GND
4	+5V
5	Mouse clock
6	NC

J24: COM1 Serial Port

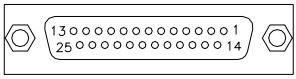
The COM1 serial port uses a typical RJ45 connector as its interface connector.

Signal Name	Pin #	Pin #	Signal Name
DCD1	6	1	VDSR
DTR1	7	2	GND
VCTS	8	3	GND
RTS1	9	4	VTXD
RJ10	10	5	RXD1

J25: Line Out Connector

The line out connector comes in a phone jack type connector.

J26: Primary Parallel Port Connector



Signal Name	Pin #	Pin #	Signal Name
Line printer strobe	1	14	AutoFeed
PD0, parallel data 0	2	15	Error
PD1, parallel data 1	3	16	Initialize
PD2, parallel data 2	4	17	Select
PD3, parallel data 3	5	18	GND
PD4, parallel data 4	6	19	GND
PD5, parallel data 5	7	20	GND
PD6, parallel data 6	8	21	GND
PD7, parallel data 7	9	22	GND
ACK, acknowledge	10	23	GND
Busy	11	24	GND
Paper empty	12	25	GND
Select	13		

J27: RJ45 Connector for LAN

J30: Mic-in Connector

Pin #	Signal Name
1	Mic
2	GND
3	BIAS

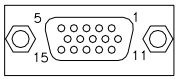
J31: Audio-out Connector

Pin #	Signal Name
1	LineOutR
2	GND
3	LineOut L
4	GND

J32: Audio-in Connector

Pin #	Signal Name
1	LineIn R
2	GND
3	LineIn L
4	GND

VGA1: VGA CRT Connector



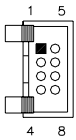
Signal Name	Pin	Pin	Signal Name
Red	1	2	Green
Blue	3	4	NC
GND	5	6	GND
GND	7	8	GND
NC	9	10	GND
NC	11	12	NC
HSYNC	13	14	VSYNC
NC	15		

USB1: USB Connector

USB1 consists of a two stacked USB ports. Refer to the section below for the respective pin assignments.

Pin #	Signal Name
1	+5VSB
2	USB-
3	USB+
4	GND

JX1: USB3/4 Connector



Pin #		Signal Name
1	5	+5VSB
2	6	USB-
3	7	USB+
4	8	GND

CN2, CN3: Serial ATA (SATA) Connectors

The SATA connectors support serial ATA 150. Each connector can only use one serial ATA hard disk. CN2 is port 1 and CN3 is port 2.

BIOS Setup

This chapter describes the different settings available in the Award BIOS that comes with the board. The topics covered in this chapter are as follows:

BIOS Introduction

The Award BIOS (Basic Input/Output System) installed in your computer system's ROM supports VIA C3 processors. The BIOS provides critical low-level support for a standard device such as disk drives, serial ports and parallel ports. It also adds virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

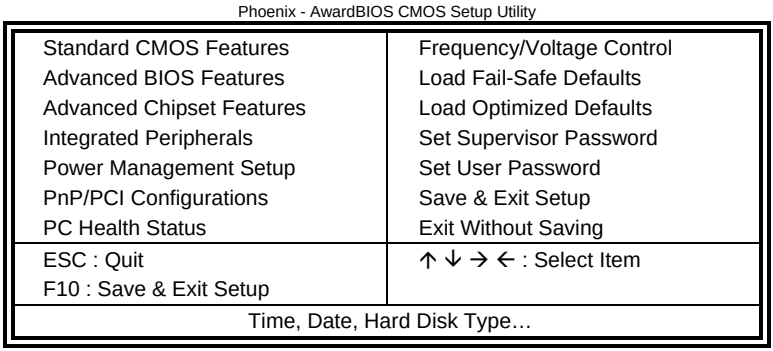
BIOS Setup

The Award BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn on the computer, the Award BIOS is immediately activated. Pressing the <Del> key immediately allows you to enter the Setup utility. If you are a little bit late pressing the <Del> key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system Off and back On again. The following message will appear on the screen:

```
Press  <DEL>  to  Enter  Setup
```

In general, you press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help and <Esc> to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit choices.



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

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

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

Standard CMOS Setup

"Standard CMOS Setup" choice allows you to record some basic hardware configurations in your computer system and set the system clock and error handling. If the board is already installed in a working system, you will not need to select this option. You will need to run the Standard CMOS option, however, if you change your system hardware configurations, the onboard battery fails, or the configuration stored in the CMOS memory was lost or damaged.

Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Tue, Mar 26 2000	Item Help
Time (hh:mm:ss)	00 : 00 : 00	Menu Level
IDE Primary Master		Change the day, month,
IDE Primary Slave		Year and century
IDE Secondary Master		
IDE Secondary Slave		
Drive A	1.44M, 3.5 in.	
Drive B	None	
Video	EGA/VGA	
Halt On	All, But Keyboard	
Base Memory	640K	
Extended Memory	129024K	
Total Memory	130048K	

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

Date

The date format is:

Day : **Sun to Sat**
Month : **1 to 12**
Date : **1 to 31**
Year : **1994 to 2079**

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

Time

The time format is:

Hour	**:**	**00 to 23**
Minute	**:**	**00 to 59**
Second	**:**	**00 to 59**

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

IDE Primary HDDs / IDE Secondary HDDs

The onboard PCI IDE connectors provide Primary and Secondary channels for connecting up to four IDE hard disks or other IDE devices. Each channel can support up to two hard disks; the first is the "Master" and the second is the "Slave".

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

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

The Access Mode selections are as follows:

Auto	
Normal	(HD < 528MB)
Large	(for MS-DOS only)
LBA	(HD > 528MB and supports Logical Block Addressing)

Drive A / Drive B

These fields identify the types of floppy disk drive A or drive B that has been installed in the computer. The available specifications are:

360KB	1.2MB	720KB	1.44MB	2.88MB
5.25 in.	5.25 in.	3.5 in.	3.5 in.	3.5 in.

Video

This field selects the type of video display card installed in your system. You can choose the following video display cards:

EGA/VGA	For EGA, VGA, SEGA, SVGA or PGA monitor adapters. (default)
CGA 40	Power up in 40 column mode.
CGA 80	Power up in 80 column mode.
MONO	For Hercules or MDA adapters.

Halt On

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

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

Advanced BIOS Features

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

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Advanced BIOS Features

Hard Disk Booty Priority	Press Enter	ITEM HELP
Virus Warning	Disabled	Menu Level
CPU Internal Cache	Enabled	
CPU External Cache	Enabled	
CPU L2 Cache ECC Checking	Enabled	
Quick Power On Self Test	Enabled	
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	Hard Disk	
Third Boot Device	CDROM	
Boot Other Device	Enabled	
Boot Up Floppy Seek	Disabled	
Boot Up Numlock Status	On	
Gate A20 Option	Fast	
Typematic Rate Setting	Disabled	
Typematic Rate (chars/Sec)	6	
Typematic Delay (Msec)	250	
Security Option	Setup	
APIC Mode	Enabled	
MPS Version Control for OS	1.4	
OS Select For DRAM>64MB	Non-OS2	
Video BIOS SHadow	Enable	

Hard Disk Booty Priority

This item allows you to arrange the priority of the devices where the system boots from.

Virus Warning

This item protects the boot sector and partition table of your hard disk against accidental modifications. If an attempt is made, the BIOS will halt the system and display a warning message. If this occurs, you can either allow the operation to continue or run an anti-virus program to locate and remove the problem.

CPU Internal /External 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. These items allow you to enable (speed up memory access) or disable the cache function. By default, these items are ***Enabled***.

CPU L2 Cache ECC Checking

When enabled, it allows ECC checking of the CPU L2 cache. Enabling this feature is recommended because it will detect and correct single-bit errors in data stored in the L2 cache. It will also detect double-bit errors but not correct them.

Processor Number Feature

This feature enables the reading of the CPU's serial number read by external programs. Enable this if your secure transactions require you to use such a feature.

Quick Power On Self Test

When enabled, this field speeds up the Power On Self Test (POST) after the system is turned on. If it is set to *Enabled*, BIOS will skip some items.

First/Second/Third Boot Device

These fields determine the drive that the system searches first for an operating system. The options available include *Floppy*, *LS/ZIP*, *HDD-0*, *SCSI*, *CDROM*, *HDD-1*, *HDD-2*, *HDD-3*, *LAN* and *Disable*.

Boot Other Device

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

Swap Floppy Drive

This item allows you to determine whether or not to enable Swap Floppy Drive. When enabled, the BIOS swaps floppy drive assignments so that Drive A becomes Drive B, and Drive B becomes Drive A. By default, this field is set to ***Disabled.***

Boot Up Floppy Seek

This feature controls whether the BIOS checks for a floppy drive while booting up. If it cannot detect one (either due to improper configuration or its absence), it will flash an error message.

Boot Up NumLock Status

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

Typematic Rate Setting

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

Typematic Rate (Chars/Sec)

When the typematic rate is enabled, the system registers repeated keystrokes speeds. Settings are from 6 to 30 characters per second.

Typematic Delay (Msec)

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

Security Option

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

MPS Version Control for OS

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

OS Select for DRAM > 64MB

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

Video BIOS Shadow

This item allows you to change the Video BIOS location from ROM to RAM. Video Shadow will increase the video speed.

Advanced Chipset Features

This Setup menu controls the configuration of the chipset.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features

DRAM Clock / Drive Control	Press Enter	ITEM HELP
AGP & P2P Bridge Control	Press Enter	Menu Level
CPU & PCI Bus Control	Press Enter	
Memory Hole	Disabled	
System BIOS Cacheable	Enabled	
Video RAM Cacheable	Disabled	
VGA Share Memory Size	32M	
Select Display Device	CRT+ LCD	
Panel Type	02	

Phoenix - AwardBIOS CMOS Setup Utility
DRAM Clock/Driver Control

Current FSB Frequency		ITEM HELP
Current DRAM Frequency		Menu Level
DRAM Clock	By SPD	
DRAM Timing	Auto By SPD	
DRAM CAS Latency	2.5	
Bank Interleave	Disabled	
Precharge to Active (Trp)	4T	
Active to Precharge (Tras)	9T	
Active to CMD(Trcd)	3T	
DRAM Command Rate	2T Command	

Phoenix - AwardBIOS CMOS Setup Utility
AGP & P2P Bridge Control

AGP Aperture Size	64M	ITEM HELP
AGP Mode	4X	
AGP Driving Control	Auto	Menu Level
AGP Driving Value	DA	
AGP Fast Write	Disabled	
AGP Master 1 WS Write	Disabled	
AGP Master 1 WS Read	Disabled	

Phoenix - AwardBIOS CMOS Setup Utility
CPU & PCI Bus Control

CPU to PCI Write Buffer	Enabled	ITEM HELP
PCI Master 0 WS Write	Enabled	
PCI Delay Transaction	Enabled	Menu Level
Vlink mode selection	Mode 1	Menu Level
Vlink 8x Support	Enabled	

DRAM Clock / Drive Control

This field provides settings related to DRAM. The fields are listed below.

Current FSB Frequency
The default setting of the FSB Frequency is 100MHz.

Current DRAM Frequency
The default setting of the DRAM Frequency is 133MHz.

DRAM Clock
The default setting of the DRAM clock is SPD.

DRAM Timing
This option refers to the method by which the DRAM timing is selected. The default is By SPD.

DRAM CAS Latency
This is the period between when the chipset requests data from memory and when the memory is ready to send the data across the bus.

Bank Interleave
This decides how multiple memory modules communicate. It will only make a difference if you have more than one memory module.

Precharge to Active(Trp)
Theamount of time from a bank precharge request to when it can be activated.

Active to Precharge(Tras)
The Active to Precharge timing controls the length of the delay between the activation and precharge commands – the length of time after activation can the access cycle be started again.

Active to CMD(Trcd)
This is the time between a row access request and a column access request.

DRAM Command Rate
The time to wait after a chip select before activate and read can be started.

AGP & P2P Bridge Control

The fields related to AGP & P2P Bridge Control are listed below.

AGP Aperture Size
The field sets aperture size of the graphics. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. The default setting is 64M.

AGP3.0 Mode
The default setting is 4X.

AGP Driving Value
This decides how multiple memory modules communicate. It will only make a difference if you have more than one memory module.

AGP Fast Write

This accelerates memory write transactions from the chipset to the AGP device.

AGP Master 1 WS Write

When enabled, this changes the default from a 2ws to a 1ws which will increase AGP Writing.

AGP Master 1 WS Read

By default, the AGP busmastering device waits for at least 2 wait states before it starts a write transaction. When enable, this option sets the delay to 1 wait state.

CPU & PCI Bus Control

The fields related to CPU & PCI Bus Control are listed below.

PCI Master 0 WS Write

This determines whether the chipset inserts a delay before any writes from the PCI bus.

PCI Delay Transaction

This is used to meet the latency of PCI cycles to and from the ISA bus.

Vlink mode selection

The default is set to Mode 1.

Vlink 8X Support

By default, this field is enabled.

Integrated Peripherals

This section sets configurations for your hard disk and other integrated peripherals.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Integrated Peripherals

VIA OnChip IDE Device	Press Enter	ITEM HELP
VIA OnChip PCI Device	Press Enter	Menu Level
SuperIO Device	Press Enter	
Init Display First	PCI Slot	
2nd SuperIO Device	Press Enter	

VIA OnChip IDE Device

Upon pressing Enter on this field, another window appears. Below are the fields shown with their respective default settings:

OnChip SATA – Enabled
SATA Mode – RAID
OnChip IDE Channel0 – Enabled
OnChip IDE Channel1 – Enabled
IDE Prefetch Mode – Enabled
Primary Master PIO – Auto
Primary Slave PIO – Auto
Secondary Master PIO – Auto
Secondary Slave PIO – Auto
Primary Master UDMA – Auto
Primary Slave UDMA – Auto
Secondary Master UDMA – Auto
Secondary Slave UDMA – Auto
IDE HDD Block Mode – Enabled

VIA OnChip PCI Device

Upon pressing Enter on this field, another window appears. Below are the fields shown with their respective default settings:

VIA-3058 AC97 Audio – Auto
VIA-3043 OnChip LAN – Enabled
OnChip USB Controller – All Enabled
OnChip EHCI Controller – Enabled
USB Device Function – Disabled
USB Emulation – OFF
USB Keyboard Support – Disabled

SuperIO Device

Upon pressing Enter on this field, another window appears. Below are the fields shown with their respective default settings:

Onboard FDC Controller – Disabled
Onboard Serial Port 1 – 3F8/IRQ4
Onboard Serial Port 2 – 2F8/IRQ3
UART Mode Select – Normal
Onboard Parallel port – 278/IRQ5
Parallel Port Mode – SPP

2nd PCI Device

Upon pressing Enter on this field, another window appears. Below are the fields shown with their respective default settings:

Onboard Serial Port 3 – 3E8h
Onboard Serial Port 4 – 2E8h

Power Management Setup

The Power Management Setup allows you to save energy of your system effectively.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Power Management Setup

ACPI Function	Enabled	ITEM HELP
ACPI Suspend Mode	S1(POS)	
Power Management Option	User Define	Menu Level
HDD Power Down	Disabled	
Suspend Mode	Disable	
Video Off Option	Suspend -> Off	
Video Off Method	V/H SYNC+Blank	
Modem Use IRQ	3	
Soft-Off by PWR-BTTN	Instant-Off	
Run VGABIOS is S3 Resume	Auto	
IRQ/Event Activity Detect	Press Enter	

Phoenix - AwardBIOS CMOS Setup Utility
IRQs Activity Monitoring

Primary INTR	ON	ITEM HELP
IRQ3 (COM2)	Enabled	Menu Level
IRQ4 (COM1)	Enabled	
IRQ5 (LPT 2)	Enabled	
IRQ6 (Floppy Disk)	Enabled	
IRQ7 (LPT 1)	Enabled	
IRQ8 (RTC Alarm)	Disabled	
IRQ9 (IRQ2 Redir)	Disabled	
IRQ10 (Rserved)	Disabled	
IRQ11 (Reserved)	Disabled	
IRQ12 (PS/2 Mouse)	Enabled	
IRQ13 (Coprocessor)	Enabled	
IRQ14 (Hard Disk)	Enabled	
IRQ15 (Reserved)	Disabled	

ACPI Function

Enable this function to support ACPI (Advance Configuration and Power Interface).

Power Management Option

This field allows you to select the type of power saving management modes. There are four selections for Power Management.

Min. Power Saving	Minimum power management
Max. Power Saving	Maximum power management.
User Define	Each of the ranges is from 1 min. to 1hr. Except for HDD Power Down which ranges from 1 min. to 15 min.

HDD Power Down
When enabled, and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

Suspend Mode
BIOS will turn the HDD's motor off when system is in SUSPEND mode. By default, this field is disabled.

Video Off Option
This field sets the video off option. By default, video goes into suspend state and then Off.

Video Off Method
This field defines the Video Off features. There are three options.

V/H SYNC + Blank	Default setting, blank the screen and turn off vertical and horizontal scanning.
DPMS	Allows BIOS to control the video display.
Blank Screen	Writes blanks to the video buffer.

Modem Use IRQ
The default setting of this field is 3.

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

AC Loss Auto Restart
This field sets the auto restarting function of the system when there is AC power loss.

IRQ/Event Activity Detect

The items under this field are I/O events that can prevent the system from entering a power saving mode or can awaken the system from such a mode. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.

Phoenix - AwardBIOS CMOS Setup Utility
IRQ/Event Activity Detect

		ITEM HELP
VGA	OFF	
LPT & COM	LPT / COM	
HDD & FDD	ON	
PCI Master	OFF	
PowerOn by PCI Card	Disabled	
Modem Ring Resume	Disabled	
RTC Alarm Resume	Disabled	
IRQs Activity Monitoring	**Press Enter**	

IRQ Activity Monitoring

When you press Enter on this field, the following window appears.

Phoenix - AwardBIOS CMOS Setup Utility
IRQs Activity Monitoring

		ITEM HELP
Primary INTR	ON	Menu Level
IRQ3 (COM2)	Enabled	
IRQ4 (COM1)	Enabled	
IRQ5 (LPT 2)	Enabled	
IRQ6 (Floppy Disk)	Enabled	
IRQ7 (LPT 1)	Enabled	
IRQ8 (RTC Alarm)	Disabled	
IRQ9 (IRQ2 Redir)	Disabled	
IRQ10 (Rserved)	Disabled	
IRQ11 (Reserved)	Disabled	
IRQ12 (PS/2 Mouse)	Enabled	
IRQ13 (Coprocessor)	Enabled	
IRQ14 (Hard Disk)	Enabled	
IRQ15 (Reserved)	Disabled	

PNP/PCI Configurations

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

Phoenix - Award WorkstationBIOS CMOS Setup Utility
PnP/PCI Configurations

Reset Configuration Data	Disabled	ITEM HELP
		Menu Level
Resources Controlled By	Auto (ESCD)	
IRQ Resources	Press Enter	Default is 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 OS cannot boot
PCI/VGA Palette Snoop	Disabled	
Assign IRQ for VGA	Enabled	
Assign IRQ for USB	Enabled	
PCI Latency Time(CLK)	64	

Reset Configuration Data

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

Resources Controlled by

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

PCI/VGA Palette Snoop

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

Assign IRQ for VGA

This field enables the assigning of an IRQ for VGA.

Assign IRQ for USB

This field enables the assigning of an IRQ for USB.

PCI Latency Timer

This field sets the PCI latency clock. By default, the setting is ***64***.

PC Health Status

Phoenix - Award WorkstationBIOS CMOS Setup Utility
PC Health Status

		ITEM HELP
CPU Warning Temperature	Disabled	
Current System Temp.	39°C/102°F	
Current CPU Temp.	32°C/89°F	
Current System FAN Speed	0 RPM	
Current CPU FAN Speed	0 RPM	
Vcore (V)	1.63V	
Vcc3(V)	3.37V	
+5V	5.05V	
+12V	12.09V	
-12V	-12.03V	
-5V	- 4.79V	
VBAT(V)	3.21V	
+5VSB(V)	5.05V	
Shutdown Temperature	Disabled	

Thermal Duty Cycle

By default, this field is disabled.

CPU Warning Temperature

This field allows the user to set the temperature so that when the temperature is reached, the system sounds a warning. This function can help prevent damage to the system that is caused by overheating.

Temperatures/Fan Speeds/Voltages

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

Shutdown Temperature

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

Frequency/Voltage Control

This section shows the user how to configure the processor frequency.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Frequency/Voltage Control

VIA C3 Clock Ratio	Default	ITEM HELP
Auto Detect PCI/DIMM Clk	Disabled	Menu Level
Spread Spectrum	Disabled	

VIA C3 Clock Ratio

This field will function only if the motherboard supports clock ratio to be adjusted.

Auto Detect PCI/DIMM Clk

This field enables or disables the auto detection of the PCI/DIMM clock.

Spread Spectrum

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

Load Fail-Safe Defaults

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

Load Optimized Defaults

This option allows you to load the default values to your system configuration. These default settings are optimal and enable all high performance features.

Set Supervisor/User Password

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

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

Save & Exit Setup

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

Exit Without Saving

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

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Appendix

A. I/O Port Address Map

Each peripheral device in the system is assigned a set of I/O port addresses, which also becomes the identity of the device. The following table lists the I/O port addresses used.

Address	Device Description
000h - 01Fh	DMA Controller #1
020h - 03Fh	Interrupt Controller #1
040h - 05Fh	Timer
060h - 06Fh	Keyboard Controller
070h - 07Fh	Real Time Clock, NMI
080h - 09Fh	DMA Page Register
0A0h - 0BFh	Interrupt Controller #2
0C0h - 0DFh	DMA Controller #2
0F0h	Clear Math Coprocessor Busy Signal
0F1h	Reset Math Coprocessor
1F0h - 1F7h	IDE Interface
278 - 27F	Parallel Port #2(LPT2)
2F8h - 2FFh	Serial Port #2(COM2)
2B0 - 2DF	Graphics adapter Controller
378h - 3FFh	Parallel Port #1(LPT1)
360 - 36F	Network Ports
3B0 - 3BF	Monochrome & Printer adapter
3C0 - 3CF	EGA adapter
3D0 - 3DF	CGA adapter
3F0h - 3F7h	Floppy Disk Controller
3F8h - 3FFh	Serial Port #1(COM1)

B. Interrupt Request Lines (IRQ)

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

Level	Function
IRQ0	System Timer Output
IRQ1	Keyboard
IRQ2	Interrupt Cascade
IRQ3	Serial Port #2
IRQ4	Serial Port #1
IRQ5	Reserved
IRQ6	Floppy Disk Controller
IRQ7	Parallel Port #1
IRQ8	Real Time Clock
IRQ9	Reserved
IRQ10	Serial Port 3
IRQ11	Serial Port 4
IRQ12	PS/2 Mouse
IRQ13	80287
IRQ14	Primary IDE
IRQ15	Secondary IDE

C. Panel Type Selection

The table below shows the different panel ID and corresponding resolution, number of channels and dithering feature.

Panel ID	Resolution	Channel	Dithering
0	640x480	1	Enable
1	800x600	1	Enable
2	1024x768	1	Enable
3	1280x768	1	Enable
4	1280x1024	2	Enable
5	1400x1050	2	Enable
6	1600x1200	2	Enable
7	1280x800	1	Enable
8	800x480	1	Enable
9	1024x768	2	Enable
A	1024x768	1	Disable
B	1024x768	2	Disable
C	1280x768	1	Disable
D	1280x1024	2	Disable
E	1400x1050	2	Disable
F	1600x1200	2	Disable

Note: Dithering Enable is for 18 bits panel and Disable is for 24 bits panel.

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