

Apollo VP3/MVP3 AGP set
P5VP3 & P5MVP3
ISA//PCI/AGP Main Board
With Qnboard PCI IDE and Super Multi-I/O

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Rev:A

Date:December,1998

Read me first

1. The “LOAD SETUPD EFAULTS” function loads the system default data directly from ROM and initializes the associated hardware properly . This function is Necessary When you accept this mainboard , or the system CMOS data will corrupt .

```
ROM PCI / ISA BIOS (2A5LESH9)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.
```

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP / PCI CONFIGURA	FORMAT
LOAD BIOS DEFAULT	ETUP
LOAD SETUP DEFAULTS	Load SETUP Defaults (Y/N)? Y
	EXIT WITHOUT SAVING
ESC : Quit	↑ ↓ → : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Load setup defaults except standard CMOS SETUP	

LOAD SETUP DEFAULT

2. KBPO(Key Board Power On) Function : There is a basic requirement that the “+5V SB”power of the ATX power supply must be $\geq 0.1A(100Ma)$.

Package Checklist

Please check your package which should include all items listed below.

If you find any item damaged or missed , please contact your supplier.

- One mainboard
- One manual
- One IDE ribbon cable
- One floppy ribbon cable
- One Parallel port ribbon cable
- One Serial port ribbon cable(COM1,COM2)
- One PS/2 mouse cable(Optional)
- One AGP driver&Ultra_DMA IDE driver CD

Contents

	page
Chapter 1-Introduction.....	4
1-1 Notice.....	5
Chapter 2-Hardware Design.....	6
2-1 Mainboard Layout.....	6
2-2 Jumpers/connectors settings.....	9
2-3 System Memory Configuration.....	18
2-4 ATX Power ON/OFF Control.....	20
2-5 External Modem Ring-in Power ON and Keyboard Power ON Functions.....	21
Chapter 3-Award BIOS Setup.....	22
3-1 Standard CMOS Setup.....	23
3-2 BIOS Features Setup.....	24
3-3 Chipset Features Setup.....	29
3-4 Power Management Setup.....	32
3-5 PNP/PCI Configuration.....	36
3-6 Load Setup Detectios.....	38
3-7 Integrated Periphera.....	39
3-8 Change Supervisor or User Password.....	43
3-9 IDE HDD Auto Detection.....	43
3-10 HDD LOWLEVEL FORMAT.....	46
3-11 Save & Exit Setup.....	47
3-12 Exit Without Saving.....	47

Chaper 1 Introduction

This mainboard is a high performance system hardware based on Intel Pentium processor and is equipped with an AGP slot , three PCI slots, Three standard ISA slots , Super Multi-I/O controller and dual port PCI -IDE connectors for the future expansion .The hardware dimension is 220mm x 230mm with VP3&MVP3 dual Design and a four-layer-design technology .

Specification

- VIA Apllo VP3/MVP3 dual Design AGP/PCIsset chipset
- Intel Pentium Processor , Pentium Processor with MMX technology , AMD K5/K6 , Cyrix 6x86L/6x86MX & idt C6 operating at 120~500MHZ with 321 ZIF socket 7 provides scalability to accept faster Processors in the future .
- Supports up to 640 MegaBytes of memory (168-Pin DIMM SOCKET x2 & 72 -Pin SIMM SOCKET x2) .
- Supports 512KB(Pipelined Burst SRAM)L2 Cache .
- Supports three 16 bit ISA slots , three 32 bit PCI slots and AGP lot and Provides two independent high performance PCI IDE interfaces capable of supporting PIO Mode 3/4 and Ultra-DMA33 devices .
- Supports a floppy port , a parallel port (EPP , ECP port) , two serial ports(16550 Fast UART compatible) , 1USB Connector , a PS/2 style mouse connector and an AT style keyboard connector .
- Supports Award Plug & Play BIOS .

- Supports CPU Hardware sleep , APM (Advanced Power Management) and ACPI (Advanced Configuration Power Interface) .
- Supports an ATX power supply connector for a Remote On/Off , a phone-Ring power On and a Keyboard power On Function .
- Supports Switching Regulator for CPU power supply .
- Support hardware monitor function .

1-1 Notice :

- 一. **This mother board adept dual Chips Design of VP3(VT82C597AT)& MVP3(VT82C598AT) .**

P5VP3 and P5MVP3 difference :

1. **P5VP3(VT82C597AT) Support 60MHZ~83 HZ: Bus clock**
2. **P5MVP3 (VT82C598AT) North Bridge Support 60MHZ~100MHZ : Bus clock (Support 100MHZ)**

- 二. **When you adjust 100MHZ on P5MVP3**

Suggest you use DIMM module . Because

The DIMM and SIMM is mixed. If The SIMM timing

Is not the same with DIMM, maybe Can't match with DIMM.

Chapter 2 Hardware design

2-1 Mainboard Layout

This mainboard is designed with VIA Apollo VP3/MVP3 AGP/PCIsset chipset which is developed by VIA Corporation to fully support Pentium Processor PCI/ISA system . By providing a massive increase in the bandwidth available between the video card and the processor (66MHZ) , the unique feature of AGP supported by VIA Apollo MVP3 chipset improves the speed of rendering and texturing for 3D graphics . The chipset also provides an integrated IDE controller with two high Performance IDE interfaces for up to four IDE devices (hard devices , CD-ROM device , etc) . The SMC37C669 Super I/O controller provides the standard PC I/O function: one floppy interfacd , two 16 Byte FIFO serial ports and one EPP/ECP capable parallel port . This mainboard layout is shown in the next page for user's reference . care must be taken when inserting memory modules, CPUs or even plugging PCI card into associated slots to avoid damaging any circuits or sockets on board. A cooling fan is strongly recommended when installing Pentium/Pentium MMX/K5 /K6/6x86/6x86L/6x86MX/C6 processor due to possible overheat .

This mainboard supports a minimum of 8MB and a maximum of 640MB

of system Memory while Onboard 512KB cache to increase system performance .

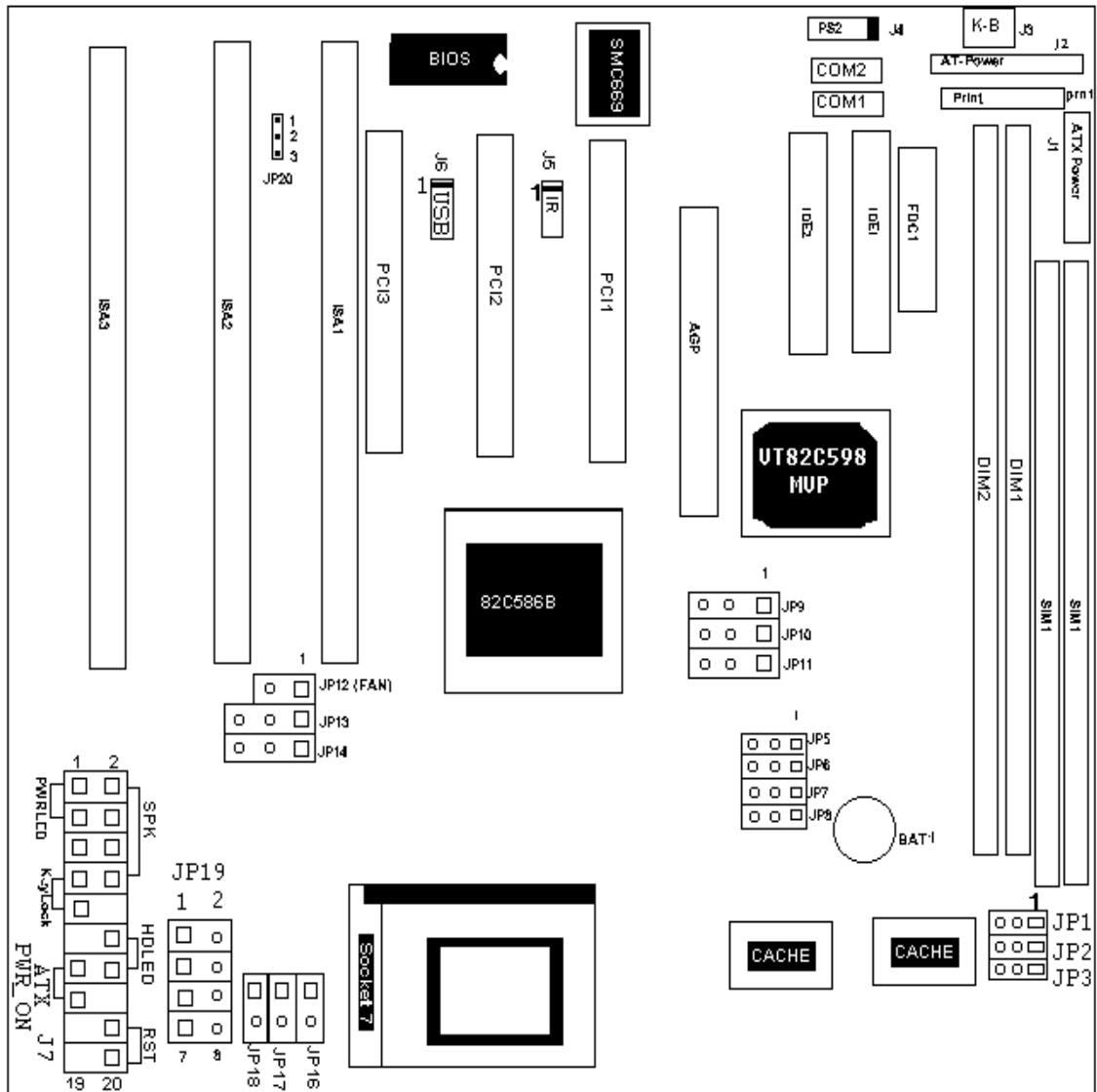
This mainboard supports standard Fast Page,EDO (Extended Data Out or Hyper Page Mode) or synchronous DRAM . This mainboard provides two 168-pin DIMM & two 72-pin SIMM sites for memory expansion.The sockets support 1Mx64(8MB),2Mx64(16MB), 4Mx64(32MB), and 8Mx64(64MB) single-sided or double-sided memory modules . The memory timing requires 70 ns Fast page devices or 60ns EDO DRAM . (DRAM Modules be parity [x36] or non-parity [x32] .

This mainboard supports two Onboard PCI IDE connectors , and automatically detects IDE harddisk type by BIOS utility automatic .

This mainboard supports Award Plug & Play BIOS for the ISA and PCI cards . The BIOS can be located in Flash EPROM which can replace BIOS code easily if necessary

P5MVP3 Layout

Figure 2-1



2-2 Jumpers/Connectors Settings

This section describes some of the connectors on the mainboard .

一. PRN1-Parallel Port

This mainboard provides a 2 x 13-pin parallel port connector .

二. COM1/COM2-Serial Port Connectors

This mainboard provides two 2 x 5-pin serial port connectors .

COM1 and COM2 .

三. FDC1-Floppy Drive Connector

This mainboard has a 2 x 17-pin floppy drive connector .

四. IDE1/IDE2-Primary/Secondary IDE Connectors

This mainboard has a 32-bit Enhanced PCI IDE Controller that

Provides two connectors, IDE0 (primary) and IDE1 (secondary) .

五. Jumper Setting :

JP1: 1-2 (5V For ISSI TAG RAM)

2-3 (3.3V For UMC TAG RAM)

JP2: 1-2 (Reserved)

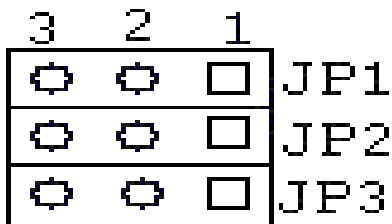
2.3

For 512k cache

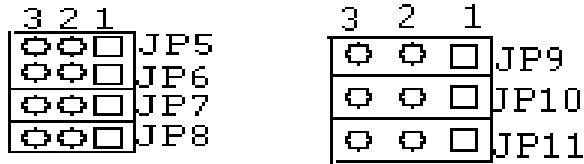
JP3: 1-2 Interleave Burst

2.3

linear Burst



P5~JP11: clock generator Jumper



1. DRAM clock adjust

DRAM Speed	JP5	JP9	
Run AGP clock 66MHZ	2-3	1-2	← Fixed as 66MHZ
Run CPU clock 66/75/83/95/100MHZ	1-2	2-3	← SDRAM clock = CPU Bus clock

2. The system Bus clock Jumper setting

CPU Bus	JP6	JP7	JP8	JP10	JP11	
60MHZ	2-3	2-3	2-3	2-3	×	
66MHZ	1-2	2-3	2-3	2-3	×	
75MHZ	2-3	1-2	2-3	1-2	1-2	
83MHZ	1-2	1-2	2-3	1-2	1-2	
95MHZ	2-3	1-2	1-2	1-2	2-3	← only For MVP3
100MHZ	1-2	1-2	1-2	1-2	2-3	← (VT82C598MVP)


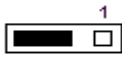
※ When you adjust CPU Bus clock to 100MHZ

The SDRAM has to can support 100MHZ timing

JP12:CPU Fan connector

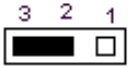
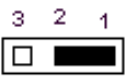
Pi n	Description
1	Ground
2	+12v

JP13:AT/ATX power Select

power Type	JP13
AT power(default)	
ATX power	

JP14:Clear CMOS Data

Clear the CMOS memory by shorting this jumper momentarily;
then remove the cap to retain new settings.

COMS Data	JP14
Clear Data	
Internal Battery	

JP16~JP18:CPU Speed selectors

Multiplier	JP16	JP17	JP18
1.5x/3.5x	OFF	OFF	OFF
2.0x	ON	OFF	OFF
2.5x	ON	ON	OFF
3.0x	OFF	ON	OFF
4.0x	ON	OFF	ON
4.5x	ON	ON	ON
5.0x	OFF	ON	ON
5.5x	OFF	OFF	ON

Pentium/MMX AMD K5/K6&K6-2-3D idt-C6	Multiplier	Bus clock	Cyrix/IBM 6x86L 6x86MX
133MHZ	2 x	66MHZ	6x86L/MX-PR166
150MHZ		75MHZ	6x86L/MX-PR200
150MHZ	2.5 x	60MHZ	6x86MX-PR166
166MHZ		66MHZ	6x86MX-PR200
188MHZ		75MHZ	6x86MX-PR233
210MHZ		83MHZ	6x86MX-PR266
250MHZ		100MHZ	
180MHZ	3 x	60MHZ	
200MHZ		66MHZ	6x86MX-PR233
225MHZ		75MHZ	6x86-PR266
250MHZ		83MHZ	
300MHZ		100MHZ	
233MHZ	3.5 x	66MHZ	MII-300GP
262MHZ		75MHZ	
290MHZ		83MHZ	
333MHZ		95MHZ	
350MHZ		100MHZ	
240MHZ	4 x	60MHZ	
266MHZ		66MHZ	
300MHZ		75MHZ	
333MHZ		83MHZ	
400MHZ		100MHZ	
300MHZ	4.5x	66MHZ	

333MHZ	5x	66MHZ	
366MHZ	5.5x	66MHZ	

JP20:Flash ROM Voltage Select

Flash Voltage	JP20
12V	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3
5V	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3

JP19:CPU Vcore voltage selection : For Pentium Processor with MMX technology AMD K6 and cyrix 6x86L/6x86MX

JP19(Vcore voltage setting)

Vcore voltage	1-2	3-4	5-6	7-8
2.1V	ON	OFF	OFF	OFF
2.2V	OFF	ON	OFF	OFF
2.5V	ON	OFF	ON	OFF
2.8V	OFF	OFF	OFF	ON
2.9V	ON	OFF	OFF	ON
3.2V	OFF	OFF	ON	ON
3.52V	ON	ON	ON	ON

CPU Type	Vcore
Pentium(P54C),6x86,K5	3.52V
K6-233(or higher)	3.2V
K6-166/200,6x86MX(M2)	2.9V
MMX (P55C),6x86L	2.8V
K6-PR/3D,266/300	2.2V

NOTE: 1. Refer to the table above to choose the correct voltage

For the CPU everytime that you install a CPU , and , make sure that your JP19 is matched with the CPU voltage , otherwise will damage the CPU or make the system unstable .

2. When the new CPU is announced and is not listed on this manual , please refer to the above table , select the correct voltage setting for it .

J1:ATX Style Power Connector

The ATX power supply a single 20-pin connector .

Pin	Description	Pin	Description
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	Ground	13	Ground
4	+5V	14	PS-ON
5	Ground	15	Ground
6	+5V	16	Ground
7	Ground	17	Ground
8	Power OK	18	-5V
9	5VSB	19	+5V
10	+12V	20	+5V

Software Power-Off

Follow the steps below to use the “Software Power-Off Control” function in Windows 95 with ATX power supply .

1. Click the START button on the Windows 95 task bar .

2. Select Shut Down The Computer to turn off the computer .
The message “It is now safe to turn off your computer .”will not be shown when using this function .

J7(13,15)(PWR ON)-Power Button & Suspend Switch Connector

When the system is turned off , push the power button to turn the system back on .

When the system is on , push the power button rapidly to switch the system to the Suspend mode , and , by pushing and holding the button for more than 4 seconds to turn the system completely off .
When the system is in the Suspend mode , push the power button rapidly to turn the system on .

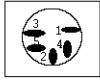
J2:AT Power – Power Supply Connector

This power supply connector has two sets of six-wire connectors .
Plug the dual connectors onto the board and make sure that the black leads are in the center .

Note: Before connecting the power supply , make sure it is not connected to the power source .

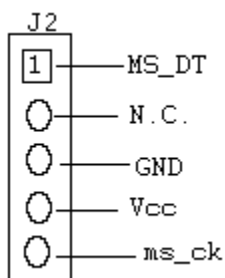
J3: Keyboard Connector

A 5-pin female DIN keyboard connector is located at the upper Right corner of the mainboard . Plug the keyboard jack directly into this connector .



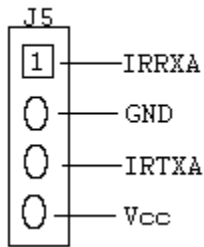
J4: PS/2 Mouse Connector

Attach mouse cable to this 5-pin connector .



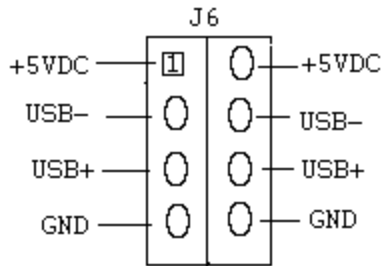
J5: IR → Infrared Port Module Connector

The system board provides a 4-pin infrared connector-J5 as an optional module for wireless transmitting and receiving .

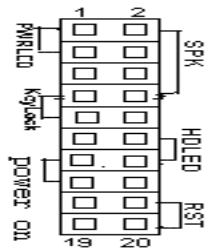


J6:USB Connector

Attach the USB cable to provide connection to USB devices .



J7-Pin Description



J7(2,4,6,8)(SPK)-Speaker Connector

Pin	Description

2	+5V
4	Ground
6	NC
8	Data out

The speaker connector is a 4-pin connector for connecting the system and the speaker .

J7(1,3,5,7,9) (Key-Lock)- Keylock & power LED Connector

Pin	Description
1	LED Output
3	Ground
5	Ground
7	Keylock
9	Ground

J7(12,14) (HD-LED)-HDD LED Connector

Pin	Description
14(+)	+5V
12(-)	Active Low

Attach the cable of hard disk drive LED to this connector . The LED lights when an HDD is active .

J7(18,20) (RST)-Reset Switch Connector

Attach the reset push button cable to this connector

Setting	Description
---------	-------------

Open	Normal Mode
Close	Reset System

The system board has a 2-pin connector for rebooting your Computer without having to turn off your power switch . This Prolongs the life of the system's power supply .

2-3 System Memory Configuration

This mainboard supports different type of settings for the system memory . The following figures and provides all possible memory combinations .

DIMM1 BANK0	DIMM2 BANK1	SIMM1 BANK0	SIMM2 BANK1	TOTAL memory																								
<table border="0"> <tr><td>8MB</td><td rowspan="6">x1</td></tr> <tr><td>16MB</td></tr> <tr><td>32MB</td></tr> <tr><td>64MB</td></tr> <tr><td>128MB</td></tr> <tr><td>256MB</td></tr> </table>	8MB	x1	16MB	32MB	64MB	128MB	256MB	<table border="0"> <tr><td>8MB</td><td rowspan="6">x1</td></tr> <tr><td>16MB</td></tr> <tr><td>32MB</td></tr> <tr><td>64MB</td></tr> <tr><td>128MB</td></tr> <tr><td>256MB</td></tr> </table>	8MB	x1	16MB	32MB	64MB	128MB	256MB	<table border="0"> <tr><td>8MB</td><td rowspan="4">x1</td></tr> <tr><td>16MB</td></tr> <tr><td>32MB</td></tr> <tr><td>64MB</td></tr> </table>	8MB	x1	16MB	32MB	64MB	<table border="0"> <tr><td>8MB</td><td rowspan="4">x1</td></tr> <tr><td>16MB</td></tr> <tr><td>32MB</td></tr> <tr><td>64MB</td></tr> </table>	8MB	x1	16MB	32MB	64MB	MAX= 640 MB
8MB	x1																											
16MB																												
32MB																												
64MB																												
128MB																												
256MB																												
8MB	x1																											
16MB																												
32MB																												
64MB																												
128MB																												
256MB																												
8MB	x1																											
16MB																												
32MB																												
64MB																												
8MB	x1																											
16MB																												
32MB																												
64MB																												

This mainboard supports 2 Kinds of powerful and flexible SDRAM frequency selections . These can be synchronous with CPU bus clock or fixed as 66MHZ.

By implementing the VCS (Virtual Clock Synchronization) technology, this mainboard refers to the use of delay-locked-loop (DLL) to enable synchronous and pseudo-synchronous operation of the processor and DRAM, AGP and PCI buses. The JP5, JP9 allows user to set the SDRAM Frequency between 66/100MHz.

SDRAM Clock select

DRAM Speed	JP5	JP9	
Run AGP Clock 66MHz	2-3	1-2	← Fixed as 66MHz
Run CPU clock 66/75/83/100	1-2	2-3	← SDRAM clock =CPU Bus clock

Jumpers position:

Notice: When you adjust 100MHz. Please only use DIMM module (Recommended), Because the DIMM and SIMM both be installed. The SIMM timing is not the same maybe can't match with DIMM.

JP5(2-3), JP9(1-2):

Pseudo-synchronous Status (Fixed as 66MHz)

A more stable and compatible operation condition for non-100MHz based SDRAM when you are using 100MHz based CPU. This setting is suitable for those users who are like to remain the usage of current SDRAM module.

JP5(1-2),JP9(2-3),JP10(1-2),JP11(2-3):Synchronous Status(SDRAM Clock = CPU Bus Clock Increasing the bus speeds from the traditional 66MHZ to 100MHZ greatly improves system performance because the speed at which data traveling between the CPU and memory is increased by 50% . However , there is one thing you should bear in mind . Please make sure you are using 125MHZ(-8) based or above SDRAM module.

2-4 ATX Power ON/OFF Control

This mainboard equips an ATX power connector which is a single 20-PIN input device for an ATX power supply . An ATX power supply provides a build-in remote Power ON/OFF function . To implement the function , a momentary switch which is normally open should be connected to the position J7 (PIN 13, 15) as the system 's power ON/OFF button . Note that an AT power supply does not offer this function .

Based on the ATX power connector , this mainboard has been designed to support both ACPI and Soft-OFF functions . According to the definition of ACPI , a Suspend mode will be enabled while you push the J7(system power ON/OFF) button less than 4 seconds . Nevertheless , the system will be turned off by pressing for more than 4 seconds . Regarding the Soft-OFF(coming from this mainboard circuit controller) , it is another way to turn off your system . Your system can be shut down automatically by an operation system such as Windows 95 .

2-5 External Mode Ring-in Power ON Functions

On The basis of bounded functions in I/O Chipset , the serial ports are able to Support the External Modem Ring-in Power On function.

Once user connect the External modem to COM1 or COM2, this mainboard mainboard allows user to turn On their system through the remote and host's dial-up control.

Chapter 3 AWARD BIOS SETUP

Award's ROM BIOS provides a built-in setup program which allows user to modify the basic system configurations and hardware parameters . The modified data will be stored in a battery-backed CMOS RAM so that data will be retained even when the power is turned off .In general , the information saved in the CMOS RAM stays unchanged unless there is a configuration change in the system , such as a hard drive replacement or a new device installation .

If this does happen , you will need to reconfigure your configuration parameter .

To Enter Setup Program

Power on the computer and press Key immediately . This will bring

you into BIOS CMOS SETUP UTILITY .

```
ROM PCI/ISA BIOS (2A5LESH9)
CMOS SET UP UTILITY
AWARD SOFTWARE, INC.
```

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	HDD LOW LEVEL FORMAT
LOAD BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING

```
ESC : Quit          ↑ ↓ ← → : Select Item
F10 : Save & Exit Setup (shift) F2 : change color
```

Time,Date,Hard Disk Type...

Figure3-1 CMOS SETUP UTILITY

The menu displays all major selection items . Select the item you need to reconfigure .The selection is made by moving cursor (press any direction key) to the item and press the ‘Enter’ key . An on-line help message is displayed at the bottom of the screen as the cursor is moving to various items which provides a better understand-ing of each function . When a selection is made , the menu of selected item will appear so the user can modify the associated configuration parameters .

3-1 STANARD COMS SETUP

Choose “STANDARD COMS SETUP” in the CMOS SETUP UTILITY Menu(Fig3-1) The STANDARD CMOS SETUP Allows user to configure system setting such as the Current date and time , type of hard disk installed , floppy type , and display type . Memory

Size is auto-detected by the BIOS and displayed for your reference . When a field is Highlighted(use direction keys to move cursor and <Enter> key to select),the entries in theField will be changed by pressing <pgDn> or<PgUp>keys or user can enter new data directly From the keyboard .

```

ROM PCI/ISA BIOS (2A51ESH9)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

```

Date (mm:dd:yy) : Wed, May 20 1998							
Time (hh:mm:ss) : 8:54:59							
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR MODE
Primary Master	: Auto	0	0	0	0	0	0
Primary Slave	: Auto	0	0	0	0	0	0
Secondary Master	: Auto	0	0	0	0	0	0
Secondary Slave	: Auto	0	0	0	0	0	0
Base Memory :							640K
Extended Memory :							48128K
Other Memory :							384K
Total Memory :							49152K
ESC : Quit	↑ ↓ → : Select Item			PU/PD/+/- : Modify			
F1 : Help	(Shift)f2 : Change color						

Figure3-2 STANDARD CMOS SETUP

NOTE:If the Primary Master/Slave and the Secondary Master/Slave are set as “Auto”, the hard disk size and model will be auto-detected .

NOTE:The “Halt On:”field is to determine when to halt the system by the BIOS if an error occurs.

3-2 BIOS FEATURES SETUP

By selecting the “BIOS FEATURES SETUP” option in the CMOS SETUP UTILITY Menu , user can change system related parameters in the displayed in the displayed menu .This menu shows all of the manufacturers default values of this mainboard . Again , user Can move the cursor by pressing direction keys and <PgDn>or<PgUp>keys to modify the Parameters . Pressing [F1] key to display help message of the selected item .

ROM PCI/ISA BIOS (2ASLES9)
 BIOS FEATURES SETUP
 AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
External Cache	: Enabled	CC000-CFFFF Shadow	: Disabled
Quick Power On Self Test	: Disabled	D0000-D3FFF Shadow	: Disabled
Boot Sequence	: C,A,SCSI	D4000-D7FFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	D8000-DBFFF Shadow	: Disabled
Boot UP Floppy Seek	: Enabled	DC000-DFFFF Shadow	: Disabled
Boot UP NumLock status	: On	Diskette Access For	: All
Boot UP System Speed	: High		
Gate A20 Option	: Fast		
Memory Parity/ECC Check	: Enabled		
Typeatic Rate Setting	: Disabled	ESC :Quit ↑↓→ Select Item	
Typeatic Rate (Chars/Sec)	: 6	F1 : Help FU/PD/+/-:Modify	
Typeatic Delay (Msec)	: 250	F5 :Old Values(shift)F2 : Color	
Security Option	: setup	F6 : Load BIOS Defaults	
IDE Second Channel Control	: Enabled	F7 : Load Setup Defaults	
PCI/VGA Palette Snoop	: Disabled		
OS Select For DRAM > 64MB	: Non-os2		
Report No FDD WIN 95	: No		

Figure3-3 BIOS FEATURES SETUP

Note: The **Security Option** contains “**setup**” and “**system**”. The “**setup**” indicates that the password setting is for CMOS only while the “**system**” indicates the password setting is for both CMOS and system boot up.

- **Virus Warning** :This category flashes on the screen . During and after the system boots up.

Any attempt to write to the boot sector or partition table of the hard disk drive will halt the system and an error message will appear . You should then run an anti-virus program to locate the virus program to locate the virus . Keep in mind that this feature protects only the boot sector , not the entire hard drive . Default value is Disabled .

Enabled : Activates automatically when the system boots up causing a warning

Message to appear when any attempt to access the boot sector or hard disk partition table .

Disabled : No warning message to appear when any attempt to access the boot sector or Hard disk partition table .

● **CPU Internal Cache/External Cache** : These two categories speed up Memory access . However , it depends on CPU/chipset design .The default value is Enabled . If your CPU is without Internal Cache then this item “**CPU Internal Cache**” will not be shown .

Enabled : Enable cache .

Disabled : Disable cache .

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

Enabled : Enable quick POST.

Disabled: Normal post.

● **Boot Sequenc** : This category determines which drive is searched first for the O/S(Operating System) . The default value is A,C .

A,C : The system will search for floppy disk drive first then hard disk drive .

C,A : The system will search for hard disk drive first then floppy disk drive .

Swap Floppy Drive : This will swap your physical drive letters A & B if you are using two floppy disks . The default value is Disabled .

Enabled : Floppy A & B will be swapped under the O/S .

Disabled : Floppy A & B will be not swapped .

● **Boot Up Floppy Seek** : During Power-On-Self-Test(POST),BIOS will determine if the

Installed floppy drive is 40 or 80 tracks . Only 360K type is 40 tracks while 760K , 1.2M and 1.44M are all 80 tracks . The default value is Enabled .

Enabled : BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks . Note that BIOS can not tell from 720K , 1.2M or 1.44M drive type As they are all 80 tracks.

Disabled :BIOS will not search for the type of floppy disk drive by track number .Note that there will not be any warning message if the drive installed is 360K .

● **Boot Up NumLock Status** : The default value is On .

On :Keypad is number keys .

Off : Keypad is arrow keys .

● **Boot UP System Speed** : Select default system speed . The system will run at the Selected speed after the system boots .

High : Set the speed to high .

Low :Set the speed to low .

- **Gate A20 Option** : This refers to the way the system addresses memory above 1MB (extended memory). The default value is Fast .

Normal : The A20 signal is controlled by keyboard controller or chipset hardware.

Fast : The a20 signal is controlled by Port 92 or chipset specific method .

- **Typematic Rate Setting** :This determines the typematic rate .

Enabled :Enable typematic rate and typematic delay programming .

Disabled : Disable typematic rate and typematic delay programming .

The system BIOS will use default value of 2 items

and the default is controlled by the Keyboard .

- Typematec Rate(Chars/Sec):

6 : 6 characters per second . 8: 8 characters per second.

10:10 characters per second . 12:12 characters per second.

15:15 characters per second . 20:20 characters per second.

24:24 characters per second. 30:30 characters per second.

- **Typematic Delay(Msec)** : This determines the time between the first and second

Character displayed , when holding a key .

250 :250msec.

500:500 msec.

750:750 msec.

1000:1000 msec.

- **Security Option** :This category allows you to limit access to the system and Setup, or just or Setup. The default value is Setup .

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

Setup : The system will boot , but the access to Setup will be denide if the correct password is not entered at the prompt .

- **PCI/BGA Palette Snoop** :This filed controls the ability of a primary PCI VGA Conntroller to share a common palette (when a snoop write cycles) with an ISA Video card . The default value is Disabled .

Enabled : If an ISA card connects to a PCI VGA card via the VESA connector and the ISA card connects to VGA monitor and uses the RAMDAC of PCI card , the PCI/VGA Palette Snoop is enabled .

Disabled : Disable the VGA card Palette snoop function .

- **Video BIOS Shadow** :It determines whether video BIOS will be copied to RAM . However , it is optional from chipset design . Video Shadow will increase the video Speed.

Enabled : Video shadow is enabled .

Disabled: Video shadow is disabled .

- **C8000 - CBFFF Shadow** :
- CC000 – CFFFF Shadow** :
- D0000 – D3FFF Shadow** :
- D4000 – D7FFF Shadow** :
- D8000 – DBFFF Shadow** :
- DC000 – DFFFF Shadow** :

These categories determine whether optional ROM will be copied

to RAM by 16K byte or 32Kbyte per unit and the size depends on the chipset .

Enabled : Optional shadow is enabled.

Disabled : Optional shadow is disabled .

3-3 CHIPSET FEATURES SETUP

Choose the “CHIPSET FEATURES SETUP” in the CMOS

SETUP UTILITY Menu to display the following menu .

ROM PCI/ISA BIOS (2A51ESB3)	
CMOS SET UP UTILITY	
CHIPSET FEATURES SETUP	
Bank 0/1 DRAM Timing : SDRAM 10ns	Onchip USB /onchip USB : Enabled
Bank 2/3 DRAM Timing : SDRAM 10ns	USB Keyboard Suppor : Enabled
Bank 4/5 DRAM Timing : EP/EDO 70ns	Auto Detect DIMM/PCI Clk: Enabled
SDRAM Cycle Length : 3	Spread Spectrum : Disabled
DRAM Read Pipeline : Enabled	CPU Warning Temperature : 60°C/140°F
Cache R4+CPU Wt Pipeline : Enabled	Current CPU Temperature : 33°C/91°F
Cache Timing : Fast	
video BIOS Cacheable : Enabled	
System BIOS Cacheable : Enabled	
Memory Hole at 15Mb Addr: Disabled	ESC :Quit ↑↓→: Select Item
AGP Aperature Size : 64M	F1 :Help F11/F12/F13: Modify
	F5 :Old Valuse (Shift)F2: Color
	F6 :Load BIOS Defaults
	F7 :Load Setup Defaults

Figure3-4 CHIPSET FEATURES SETUP

Note : When you insert slower memory modules in the system and set a faster timing , maybe the system will hang up.

● **DRAM Timing** :The default value is 60ns.

60ns : 2 (faster) Burst Wait State , for 60~70ns Fast Page Mode/EDO DRAM.

70ns: 3 (slower) Burst Wait Slate , for 70ns page Mode/EDO DRAM.

● **SDRAM Cycle length**: The default value is 2.

2:2 HCLKS.

3:3 HCLKS.

- **DRAM Read Pipeline** :The default value is Enabled.
 - Disabled** :Normal Setting.
 - Enabled** :This field enables the pipelining of DRAM read cycle.
- **Cache RD+CPU Wt Pipeline**: The default value is Enabled.
 - Disabled** :Normal Setting.
 - Enabled** :This field enables the pipelining of Cache reads and CPU writes cycle.
- **Cache Timing** :The default value is fastest.
 - Fast** :Cache burst mode timing =3 1 1 1 2 1 1 1.
 - Fastest** : Cache burst mode timing=3 1 1 1 1 1 1 1.
- **Video BIOS Cacheable** :The default value is Enabled.
 - Enabled** :Enabled the Video BIOS Cacheable to speed up the VGA Performance.
 - Disabled** :Normal Setting.
- **System BIOS Cacheable** : The default value is Enabled .
 - Enabled** :Allow caching of the system BIOS ROM at F0000h-FFFFFh.
 - Disabled** :Normal Setting.

- **Memory Hole at 15M-16M** :The default value is Disabled.
 - Disabled** :Normal Setting.
 - Enabled** :This field enables the main memory(15~16MB) remap to ISA BUS.
- **AGP Aperture Size** :The amount of the system memory that the AGP card Is allowed to share .The options available are4M,8M,16M, 32M, 64M, 128M,256M.The default value is 64M.

- Onchip USB:Enabled
USB Keyboard Support : Enabled
Enabled :Enabled USB Keyboard.
- Auto Detect DIMM/PCI CLK : use the default setting.
- **System/CPU Warning Temp** : The default value 60°C/140°F.
Disabled :Normal Setting
Enabled : The options available is 50°C/122°F~70°C/158°F.
- **Current CPU Temp** : This is the current temperature of the CPU.

3-4 POWER MANAGEMENT SETUP

Choose the “**POWER MANAGEMENT SETUP**” in the **CMOS SETUP UTILITY** to display the following screen . This menu allows the user to modify the power management parameters and IRQ signals . In general , these parameters should not be changed unless it is

absolutely necessary.

```

ROM PCI/ISA BIOS (2AS1ESH9)
POWER MANAGEMENT SETUP
AWARD SOFTWARE INC.

```

Power Management	: User Define	Primary INTR	: ON
PM Control by APM	: Yes	IRQ3 (COM2)	: Primary
Video off Option	: Suspend -> off	IRQ4 (COM1)	: Primary
Video off Method	: V/H SYNC+Blank	IRQ5 (LPT2)	: Primary
MODEM Use IRQ	: 3	IRQ6 (Floppy Disk)	: Primary
Soft-off by FWRBTN	: Delay 4 Sec	IRQ7 (LPT1)	: Primary
* * PM Timers * *		IRQ8 (RTC Alarm)	: Disabled
HDD Power Down	: Disable	IRQ9 (IRQ2 Redir)	: Secondary
Doze Mode	: Disable	IRQ10 (Reserved)	: Secondary
Doze Mode	: Disable	IRQ11 (Reserved)	: Secondary
Suspend Mode	: Disable	IRQ12 (PS/2 Mouse)	: Primary
* * PM Events * *		IRQ13 (Coprocesor)	: Primary
VGA	: OFF	IRQ14 (Hard Disk)	: Primary
LPT & COM	: LPT/COM	IRQ15 (Reserved)	: Disabled
HDD & FDD	: ON		
DMA/master	: OFF		
		ESC: Quit	: SelectItem
		F1: Help	: PU/PD/+/-: Modify
		F5: Old Value (Shift)F2: Color	
		F6: Load BIOS Defaults	
		F7: Load Setup Defaults	

Figure3-5 POWER MANAGEMENT SETUP

Again , users can move the cursor by pressing direction keys to the field needed to be Modified and press <PgDn>or<PgUp>to alter item selection. You can only changeThe content of Doze Mode, Standby Mode, and Suspend Mode when the PowerManagement is set to ‘User Define’.

3-4-1 The Description of the Power Management

A. Power Management mode selection:

Disabled :The system operates in NORMAL conditions

(Non-GREEN) And the Power Management

function is disabled.

Max.saving :This mode will maximize the power saving capability.

Min.saving :This mode will minimize the power saving capability.

User define :Allow user to define time-out parameters to control power saving mode .Refer to item B shown below.

B. Time-out parameters:

HDD Standby

HDD Standby timer can be set from 1 to 15 minute(s).

System Doze

The “System Doze” mode timer starts to count when there is no “PM events” occurred. The valid time-out setting is from 1 minute up to 1hour.

System Suspend

This function works only when the Pentium Processor is installed . The timer starts to count when “System Standby” mode timer is timed out and no “PM Events” occurred. Valid range is from 1 minute up to 1hour.

3-4-2 Description of the Green Functions

This mainboard supports HDD power Down, Doze and Suspend power saving Functions . The detailed description of these functions is provided in the next page.

- **PM Controlby APM**

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

- **Video Off Method**

Determines the manner in which the monitor is blanked.

V/HSYNC+Blank:System turns off vertical and horizontal synchronization ports and writes blanks to the video buffer.

DPMS Support:Select this option if your monitor supports

the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards Association(VESA).Use the software supplied for your video subsystem to select video power Management values.

Blank Screen:System only writes blanks to the video buffer.

- **Video off Option**

Determines when to activate the video off feature for monitor power management.

The settings are Video off after Suspend/standby/Doze/(N/A).

- **Soft-off by PWRBTN**

This field is for the soft-off function setting. When the board utilizes an ATX Power supply , two types of settings are offered: Delay 4 Sec. And instant-off. When the setting is Delay 4 Sec, users can power off the system by pressing POWER-ON button(J7) for 4 seconds. However, if users press POWER-ON Button for less than 4 seconds, the system will enter the Suspend Mode. When the setting is instant-Off, users first press on POWER-ON button will power off the system, but the second press will power on the system.

HDD Standby Mode

When system stops reading or writing HDD, the timer starts to count .

The system Will cut off the HDD power when timer runs out of time .

The system will not resume Operation until either a read from or a write to HDD command is executed again.

Doze Mode

The system hardware will drop down CPU clock from normal working speed when Doze mode time-out occurs.

Suspend Mode

When the system suspend timer times out, the system will enter the suspend mode and the chipset will stop CPU clock immediately. The power consumption in Suspend Mode is lower than in standby mode. The screen is also blanked out.

PM Events:

AWARD BIOS defines 7 PM Events in the power management mode (Doze & Suspend). The user can initialize any PM Events to be "Enable" or "Disable". When the system detects all of the enabled events do not have any activity, it will start the system Doze timer first if the "Power Management" is not "Disabled". Once the system Doze timer is timed out, it will process doze power saving procedure by starting the system suspend timer. When the suspend timer times out, all of the CPU clock will stop by dropping system clock down to zero and remains this way until any one of the "Enabled" event occurs.

3-5 PNP / PCI CONFIGURATION

The PNP / PCI configuration program is for the user to modify the PCI/ISA IRQ signals when various PCI/ISA cards are inserted in the PCI or ISA slots.

WARNING : Any misplacing IRQ could cause system can't pick

out the resources.

ROM PCI/ISA BIOS (2A51ESH9)		
PNP/PCI CONFIGURATION		
AWARD SOFTWARE, INC.		
PNP OS Installed	: Yes	CPU to PCI Write Buffer : Enabled
Resources Controlled By	: Manual	PCI Dynamic Bursting : Enabled
Reset Configuration Data	: Disabled	PCI Master o Vs write : Enabled
ACPI I/O Device Node	: Enabled	PCI Delay Transaction : Enabled
IRQ-3 assigned to	: Legacy ISA	PCI Master Read Prefetch: Enabled
IRQ-4 assigned to	: Legacy ISA	PCI#2 Access #1 Retry : Disabled
IRQ-5 assigned to	: PCI/ISA pnp	AGP Master 1 ws write : Enabled
IRQ-7 assigned to	: Legacy ISA	AGP Master 1 ws Read : Disabled
IRQ-9 assigned to	: PCI/ISA pnp	
IRQ-10 assigned to	: PCI/ISA pnp	PCI IRQ Activd By : Level
IRQ-11 assigned to	: PCI/ISA pnp	Assign IRQ For USB : Disabled
IRQ-12 assigned to	: PCI/ISA pnp	Assign IRQ For VGA : Enabled
IRQ-14 assigned to	: Legacy ISA	
IRQ-15 assigned to	: Legacy ISA	
DMA-0 assigned to	: PCI/ISA pnp	ESC: Quit ^+ : SelectItem
DMA-1 assigned to	: PCI/ISA pnp	F1 :Help PU/PD/+/- : Modify
DMA-3 assigned to	: PCI/ISA pnp	F5 :Old Value (Shift)F2 :Color
DMA-5 assigned to	: PCI/ISA pnp	F6 :Load BIOS Defaults
DMA-6 assigned to	: PCI/ISA pnp	F7 :Load Setup Defaults
DMA-7 assigned to	: PCI/ISA pnp	

Figure3-6PCICONFIGURATIONSETUP

Resource Controlled By:The default value is Manual.

Manual: The field defines that the PNP Card's resource is controlled by manual. You can setup whether IRQ-X or DMA-X is assigned to PCI/ISA PNP Or legacy ISA Cards.

Auto: If you ISA card and PCI card are all PNP card. Set this field to “Auto” The BIOS will assign the interrupt resource automatically.

- **Reset Configuration Data:**The default value is Disabled.

Disabled: Normal Setting

Enabled:If you plug some Legacy cards in the system and record into ESCD (Extended System Configuration Data). You can set this field to be Enabled and to clear ESCD at one time, when

some Legacy cards are Removed.

- **PCI IDE IRQ Map To:**The default value is PCI/AUTO.

When you have true PCI card(s) plugged into the system , you will not need to change any thing here in the **SETUP** program. However, if you do not Know whether you are using a true PCI card, please refer to your PCI Card users manual for the details.

When you have a Legacy card (described in section 2-5) to plug Into the system ,a proper setting is extremely important or it may cause The system hung up. The diagram shown below tells you how the Rotating Priority Mechanism is designed.

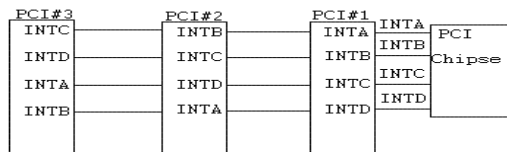


Figure3-7The Combination of PCIINT#lines

3-6 LOAD SETUP DEFAULTS

The “**LOAD SETUP DEFAULTS**” function loads the system default data directly from ROM and initializes the associated hardware properly.

This function will be necessary only when the system CMOS data is corrupted.

ROM PCI / ISA BIOS (2A5LESH9)	
CMOS SETUP UTILITY	
AWARD SOFTWARE, INC.	
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP / PCI CONFIGURA	FORMAT
LOAD BIOS DEFAULT	ETUP
LOAD SETUP DEFAULTS	Load SETUP Defaults (Y/N)? Y
	EXIT WITHOUT SAVING
ESC : Quit	↑ ↓ → : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Load setup defaults except standard CMOS SETUP	

Figure 3-8 LOAD SETUP DEFAULT

3-7 INTEGRATED PERIPHERALS

ROM PCI/ISA BIOS (2A5LESH9)
 INTEGRATED PERIPHERALS
 AWARD SOFTWARE INC.

Onchip IDE First Channel : Enabled	Onboard Paralle 1 Port : 378 / IRQ 7
Onchip IDE Second Channel : Enabled	Parallel Port Mode : Normal
IDE Prefetch Mode : Enabled	
IDE HDD Block Mode : Enabled	
IDE Primary Master PIO : Auto	
IDE Primary Slave PIO : Auto	
IDE Secondary Master PIO : Auto	
IDE Secondary Slave PIO : Auto	
IDE Primary Master UDMA : Auto	
IDE Primary Slave UDMA : Auto	
IDE Secondary Master UDMA : Auto	
IDE Secondary Slave UDMA : Auto	
Init Display First : PCI Slot	
Onboard FDC Controller : Enabled	
Onboard UART 1 : Auto	ESC: Quit F4: SelectItem
Onboard UART 2 : Auto	F1: Help F2/F3/F4/F5: Modify
Onboard UART 2 Mode : Standard	F5: Old Value (Shift) F2: Color
	F6: Load BIOS Defaults
	F7: Load Setup Defaults

Note: If you don't use the Onboard IDE connector, but use On-card (PCI or ISA card)IDE connector. You have to set Onboard Primary PCI IDE, Disabled and Onboard Secondary PCI IDE: Disabled From CHIPSET FEATURE SETUP UTILITY.

The Onboard PCI IDE cable should be equal to or less than 18 inches(45cm).**IDE HDD Block Mode:** The default value is Enabled.

Enabled: Enabled IDE HDD Block Mode. The HDD transfer rate is better than Disable.

Disabled: Disable IDE HDD Block Mode.

- **PCI Slot IDE 2nd Channel:** The default value is Enabled.

Enabled :Enable secondary IDE port and BIOS will assign IRQ15 for this port.

Disabled :Disable secondary IDE port and IRQ15 is available for other device.

- **Onboard Primary PCI IDE:** The default value is Enabled.

Enabled :Enable Onboard 1 st channel IDE port.

Disabled: Disable Onboard 1 st channel IDE port .When use On-card
(PCI or ISA Card) IDE connector.

- **Onboard Secondary PCI IDE**: The default value is Enabled.

Enabled:Enable Onboard 2nd channel IDE port.

Disabled :Disable Onboard 2nd channel IDE port When use On-card
(PCI or ISA Card) IDE connector.

- **IDE Primary Master PIO**:The default value is Auto.

Auto :BIOS will automatically detect the Onboard Primary Master
PCI IDE HDD Accessing mode.

Mode0~4:Manually set the IDE Accessing mode.

- **IDE Primary Slave PIO**:The default value is Auto.

Auto :BIOS will automatically detect the Onboard Primary Slave PCI
IDE HDD Accessing mode.

Mode0~4 : Manually set the IDE Accessing mode.

- **IDE Secondary Master PIO** :The default value is Auto.

Auto : BIOS will automatically detect the Onboard Secondary Master
PCI IDE HDD Accessing mode.

Mode0~4:Manually set the IDE Accessing mode.

- **IDE Secondary Slave PIO** :The default value is Auto.

Auto : BIOS will automatically detect the Onboard Secondary Slave
PCI IDE HDD Accessing mode.

Mode0~4:Manually set the IDE Accessing mode.

- **Onboard FDCController** :The default value is Enabled.
Enabled : Enable the Onboard floppy drive interface controller.
Disabled :Disable the Onboard floppy drive interface controller,
When using On-card ISA FDC's controller.
- **Onboard UART1**:This field allows the user to select the serial port.
The default Value is 3F8H/IRQ4.
COM1:Enable Onboard Serial port1 and address is 3F8H/IRQ4
COM2:Enable Onboard Serial port1 and address is 2F8H/IRQ3
COM3: Enable Onboard Serial port1 and address is 3F8H/IRQ4
COM4: Enable Onboard Serial port1 and address is 2F8H/IRQ3
Disabled:Disable Onboard Serial port 1.
- **Onboard UART2**:This field allows the user to select the serial port.
The default Value is 2F8H/IRQ3.
COM1:Enable Onboard Serial port2 and address is 3F8H/IRQ4
COM2:Enable Onboard Serial port2 and address is 2F8H/IRQ3
COM3: Enable Onboard Serial port2 and address is 3F8H/IRQ4
COM4: Enable Onboard Serial port2 and address is 2F8H/IRQ3
Disabled:Disable Onboard Serial port 2
- **Onboard UART 2 Mode**: The default value is standard .This field allows
the User toSelect the COM2 port that can support a serial Infrared Interface.
Standard:Support a Support a Serial Infrared Interface IrDA.

HPSIR:Support a HP Serial Infrared Interface format.

ASKIR:Support a Sharp Serial Infrared Interface format.

- **Onboard Parallel port:**This field allows the user to select the LP port.

The default Value is 378H/IRQ7.

378H :Enable Onboard LPT port and address is 378H and IRQ7

278H : Enable Onboard LPT port and address is 278H and IRQ5

3BCH : Enable Onboard LPT port and address is 3BCH and IRQ7

Disabled :Disable Onboard LPT port.

NOTE:Parallel Port address is 378H/3BCH that selects the routing of IRQ7 for LPT1.

Parallel Port address is 278H that selects the routing of IRQ5 for LPT1.

- **Parallel port Mode** :This field allows the user to select the parallel port mode.

The default value is ECP+EPP.

Normal :Standard mode, IBM PC/AT Compatible bidirectional parallel port.

EPP :Enhanced Parallel Port mode.

ECP :Extended Capability Port mode.

EPP+ECP :ECP Mode&EPP Mode.

ECP Mode USE DMA:This field allows the user to select DMA1 or DMA3 for The ECP mode .The default value is DMA3.

DMA1 :The filed selects the routing of DMA1 for the ECP mode.

DMA3 :The filed selects the routing or DMA3 for the ECP mode.

3-8 CHANGE SUPERVISOR or USERPASSWORD

To change the password, choose the **“SUPERVISOR PASSWORD or USER PASS-WORD”** option from the **CMOS SETUP UTILITY** menu and press[Enter].

NOTE:Either **“Setup”**or **“System”** must be selected in the **“Security Option”** of the **BIOS FEATURES SETUP** menu(Refer to Figure3-3 for the details).

1. If CMOS is corrupted or the option is not used, a default password stored in the ROM Will be used. The screen will display the following message.

Enter Password:

Press the [Enter]key to continue after proper password is given.

2. If CMOS is corrupted or the option was used earlier and the use wish to change Default password, the **SETUP UTILITY** will display message and ask for a Confirmation.

Confirm Password:

3. After pressing the [Enter] key (ROM password if the option was not used) or current Password (user-defined password), the user can change the password and store new One in CMOS RAM. A maximum of 8characters can be entered.

3-9 IDE HDD AUTO DETECTION

The **“IDE HDD AUTO DETECTION”** utility is a very useful tool especially when you Do not know which kind of hard disk type you are using . You can use this utility to detect the correct disk type installed in the system automatically . **But now you can set HARD DISK TYPE to Auto in the STANDARD CMOS SETUP.** You do not need the **“IDE HDD AUTO DETECTION”**utility.The BIOS will Auto-detect the hard disk size and model on Display during POST.

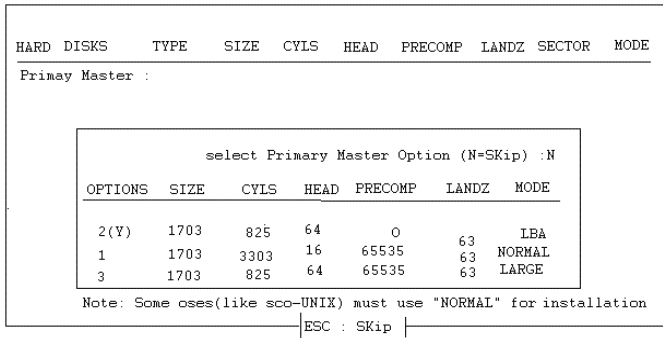


Figure3-9 IDE HDD AUTODETECTION

NOTE:HDD Modes

The Award BIOS supports 3 HDD modes:NORMAL,LBA and LARGE NORMAL mode.

Generic access mode that is neither the BIOS nor the IDE controller will make transformations during accessing.

The maximum numbers of cylinders,head§ors for NORMAL mode are 1024,16 and 63.

- no Cylinder (1024)
- x no.Head (16)
- x no.Sector (63)
- x no.per sector (512)

528 Megabytes

If an user sets the HDD to NORMAL mode. The maximum accessible HDD Size Will be 528 Megabytes even though its physical size may be greater than that!

LBA(Logical Block Addressing) mode:This is a new HDD accessing method to Overcome the 528 Megabyte bottleneck.

The number of cylinders,heads and sectors shown in the setup may not be the number Physically contained in the HDD.

During the HDD accessing ,the IDE controller will transform the logical address Described by sector, head and cylinder into its own physical address inside the HDD.

The maximum HDD size supported by LBA mode is 8.4 Gigabytes which is Obtained by the following formula:

$$\begin{aligned} & \text{no Cylinder (1024)} \\ & \times \text{ no.Head (255)} \\ & \times \text{ no.Sector (63)} \\ & \times \text{ bytes per sector (512)} \end{aligned}$$

8.4Gigabytes

LARGE mode:This is an extended HDD access mode supported by Award Software. Some IDE HDDs contain more than 1024 cylinders without LBA support(in some Cases,user does not want LBA).The Award BIOS provides another alternative to Support these kinds of LARGE mode:

	CYLS	HEADS	SECTOR	MODE
1120	16	59		NORMAL
560	32	59		LARGE

BIOS tricks DOS(or other OS) that the number of cylinders is less than 1024 by dividing it by 2.At the same time,the number of heads is multiplied by 2.A reverse transformation process will be made inside INT12h in order to access the right HDD address

Maximum HDD size:

no Cylinder (1024)
x no.Head (32)
x no.Sector (63)
x bytes per sector (512)

1 Gigabytes

Note:

To support LBA or LARGE mode of HDDs , there must be some softwares involved. All Softwares are located in the Award HDD Service Routine(1NT 13h). It may fail to accessA HDD with LBA (LARGE)mode selected if you are running under on Operating System Which replaces the whole 1NT13H.UNIX operating system do not support either LBA Or LARGE and must utilize the Standard mode.UNIX can support drives larger than 528MB.

3-10 HDD LOWLEVEL FORMAT

Interleave

Select the interleave number of the hard disk drive that you wish to perform a low Level format on. You may select from 1 to 8.

Check the documentation that Came with drive for the correct interleave number, or select 0 for automatic Detection.

Auto scan bad track This allows the utility to scan first then format by each track .Start Press<Y>to start low level format

3-11 SAVE&EXIT SETUP

The “SAVE&EXIT SETUP” option will bring you back to boot up procedure with all the changes you just recorded in the CMOS RAM.

3-12 EXIT WITHOUT SAVING

The “EXIT WITHOUT SAVING” option will bring you back to normal boot up procedure without saving any data into CMOS RAM. All old data in the CMOS will not be destroyed.