

MAINBOARD

User's Manual

SL586V-PLUS

pentium

User's Manual

011-0070020

User's Manual

Version 1.2

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Introduction

The **SL586V-PLUS** motherboard is a high performance system hardware based on Intel Pentium processor and is equipped with four PCI slots, four standard ISA slots, Super Multi-I/O controller and dual ports PCI-IDE connectors for the future expansion. The hardware dimension is 220mm x 280mm with four layer design technology.

Specification

- Intel 430VX PCiset chipset
- Intel Pentium Processor operating at 75 ~ 200 MHz and P55C with 321 ZIF socket 7 and scalability to accept faster Processors in the future.
- Supports up to 128 MegaBytes DRAM (minimum of 8 MB) on board (72-pin SIMM x 4, 168-pin DIMM x 2), and BIOS auto FP DRAM, EDO DRAM and SDRAM configuration.

- Supports Onboard Burst/Pipelined burst synchronous (the COAST 3.0 solution) L2 Write Back Cache. The cache memory combination could be 256KB/512KB (32KB x 32 or 64KB x 32 SRAM respectively).
- Support three 16-bits ISA slots, four 32-bits PCI slots, and provides two independent high performance PCI IDE interface capable of supporting PIO Mode 3 and Mode 4 devices. The SL586V-PLUS supports three PCI Bus Master and a jumperless PCI INT# control scheme which reduces configuration confusion when plug in PCI I/O controller card(s)
- Supports AT API (e.g. CD-ROM) devices on both IDE interface.
- Supports 1 floppy port, 1 parallel port (EPP, ECP port), and 2 serial port(16550 Fast UART compatible).
- Supports a PS/2 style mouse and standard AT style keyboard connectors.
- Supports Award Plug & Play BIOS. The BIOS is stored in Flash EPROM form . It provides better upgradeability for the system.
- Supports CPU Hardware sleep and SMM (System Management Mode).
- Supports Universal Serial Bus port (USB).
- Supports 115.2Kbps IrDA/ASK IR port.
- **SL586V-PLUS** utilizes Lithium battery whcih provides environmental protection and longer life time.



Hardware Design

2-1 Motherboard Layout

Taylor III

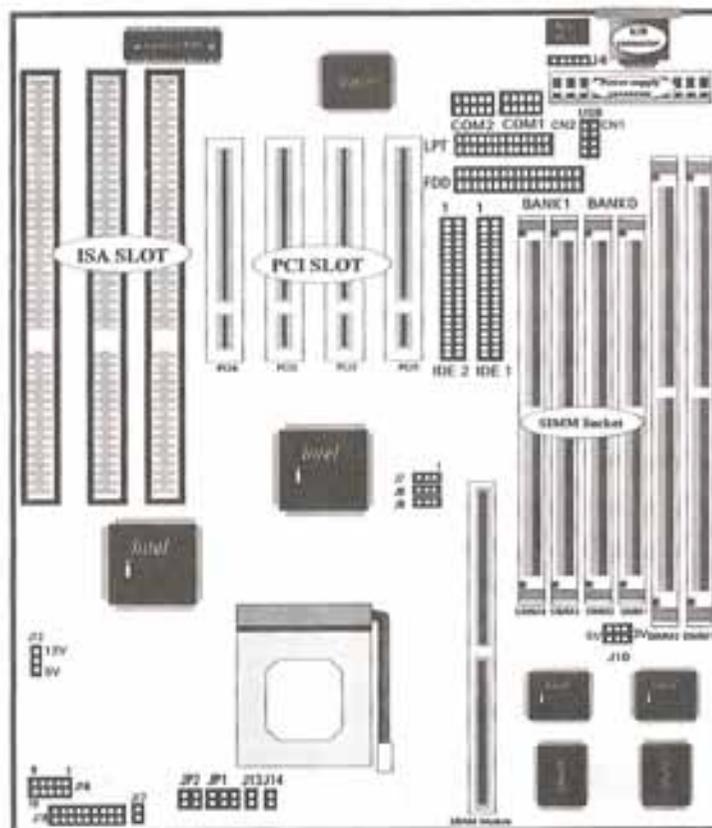
The SL586V-PLUS is designed with Intel 430VX PCiset chipset which is developed by Intel Corporation to fully support Pentium Processor PCI/ISA system. The Intel 430VX PCiset chipset provides increased integration and improved performance designs. The chipset provides an integrated IDE controller with two high performance IDE interfaces for up to four IDE devices (hard devices, CD-ROM device, etc).The Winboard W83877F Super I/O controller provides the standard PC I/O function: floppy interface, two 16Byte FIFO serial ports and EPP/ECP capable parallel port. The SL586V-PLUS layout is shown in previous page (left page) for user's reference. Care must be taken when inserting memory modules, inserting CPU 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 P54C, P54CTB/P55C/K5/6x86 processor due to possible overheat.

The SL586V-PLUS supports minimum of 8MB of system memory and maximum of 128MB while L2 Cache can be 256KB/512KB synchronous SRAM Onboard with the COAST 3.0 "Cache-On-A-Stick" solution to increase system performance. (refer to Page 20 Cache Memory Configuration for the details.)

The SL586V-PLUS supports standard Fast Page, EDO(Extended Data Out or Hyper Page Mode) or synchronous DRAM. The SL586V-PLUS provides four 72-pins SIMM and two 168-pins DIMM sites for memory expansion. The socket support 1M x 32 (4MB), 2M x 32 (8MB), 4M x 32(16MB), and 8M x 32(32MB) single-sided or double-sided memory modules. The memory timing requires 70 ns Fast Page devices or 60 ns EDO DRAM. Memory parity generation and checking is not supported. (DRAM Modules may be parity (x 36) or non-parity (x32)).

The SL586V-PLUS supports Onboard two PCI IDE connectors, and detects IDE harddisk type by BIOS utility automatic.

The SL586V-PLUS supports Award Plug & Play BIOS for the ISA and PCI cards. The BIOS can be located in Flash EPROM . The advantage of having Flash EPROM is much easier to replace BIOS code if necessary.



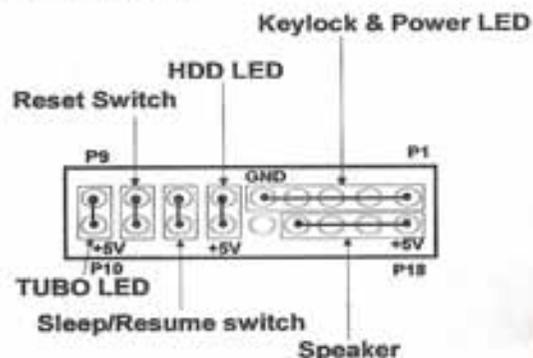
- * The housing of IDE 1 & COM1 is white.
- * The housing of IDE2 & COM2 is black

SL586V-PLUS Mainboard Layout

2-2 Connectors and Jumpers

This section describes all of the connectors and jumpers equipped in the motherboard. Please refer to board layout page 5 for actual location of each connector and jumper

J18 - Keylock & Power LED, Speaker, Reset Switch, SMM Switch, HDD LED



KeyLock - Keyboard lock switch & Power LED connector.

Pin	Description
1	Power LED(+)
2	N/C
3	GND
4	Keylock
5	GND

Speaker - Connect to the system's speaker for beeping

Pin	Description
1	Speaker
2	N/C
3	GND
4	GND

HDD LED indicator - LED ON when Onboard PCI IDE Harddisks activities.

Sleep/Resume switch - Close to enter sleep mode. A keystroke or mouse movement (mouse driver exists). The system will instantly "wake up"

Reset - Close to restart system

Turbo LED indicator - LED ON when higher speed is selected.

J12 - EPROM BIOS Select:

Description	J12
5V Flash EPROM (SST, Winbond).	
12V Flash EPROM (Intel ,MX1C)	

J10 - Synchronous DRAM Voltage Select:

Description	J10
3.3V	
5V	

J4 - PS/2 Mouse Connector:



Pin	Description
1	RED wire
2	NC
3	Green wire
4	Yellow Wire
5	Blue Wire

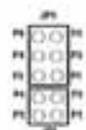
J16 - IRDA/ASK IR Connector:



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

J17 - CMOS Clean Jumper

JP1 & JP2 Voltage Select



JP1 & JP2		
Close		
3.3V	6-5	for P54C CPU
3.52V	4-3	for AMD, Cyrix CPU
3.6V	2-1	for AMD, Cyrix CPU
2.8V	4-3	for P55C, 6x86L, M2 CPU (MMX)
2.9V	2-1	for P55C, 6x86L, M2 CPU (MMX)

J5 - Power Connector

The black wires should be in the middle



Description	Pin	Description	
1	Power Good	7	Ground
2	+5V DC	8	Ground
3	+12V DC	9	-5V DC
4	-12V DC	10	+5V DC
5	Ground	11	+5V DC
6	Ground	12	+5V DC

Intel Pentium Processor Installation

INTEL(P54C) 75 MHz CPU:

External Speed : 50MHz
Frequency Ratio : 1.5x



INTEL(P54C) 90 MHz CPU:

External Speed : 60MHz
Frequency Ratio : 1.5x



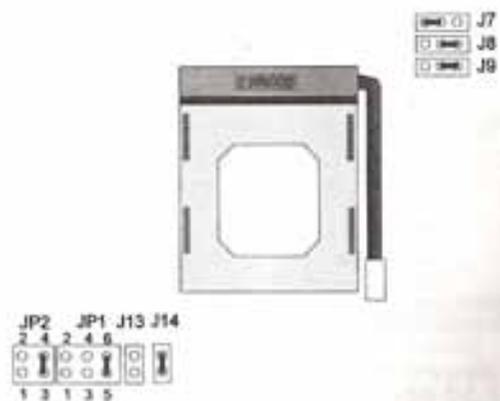
INTEL(P54C) 100 MHz CPU:

External Speed : 66MHz
Frequency Ratio : 1.5x



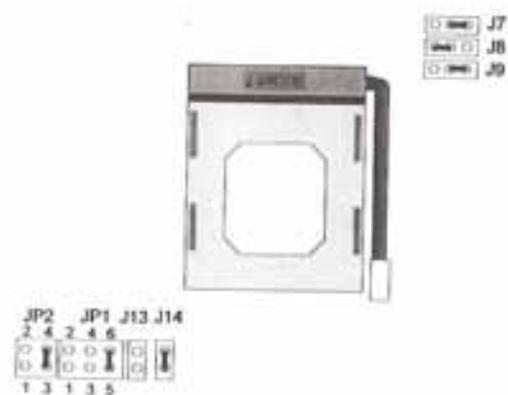
INTEL(P54C) 120 MHz CPU:

External Speed : 60MHz
Frequency Ratio : 2.0x



INTEL(P54C) 133 MHz CPU:

External Speed : 66MHz
Frequency Ratio : 2.0x



INTEL(P54C) 150 MHz CPU:

External Speed : 60MHz
Frequency Ratio : 2.5x



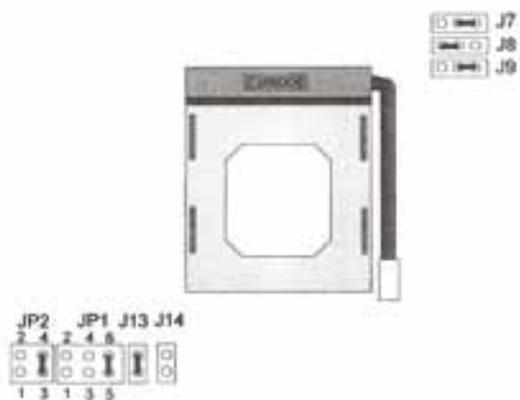
INTEL(P54C) 166 MHz CPU:

External Speed : 66MHz
Frequency Ratio : 2.5x



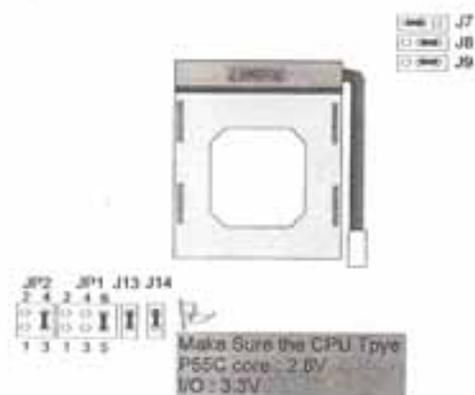
INTEL(P54C) 200 MHz CPU:

External Speed : 66MHz
Frequency Ratio : 3.0x



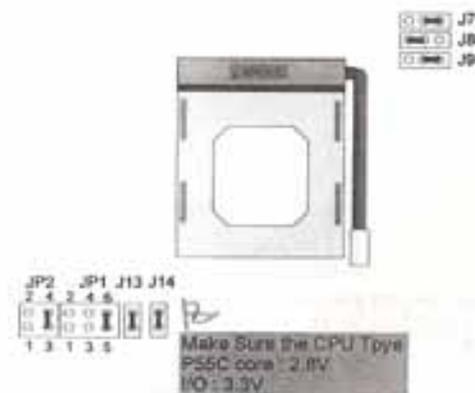
INTEL(P55C) 150 MHz CPU:

External Speed : 60MHz
Frequency Ratio : 2.5x



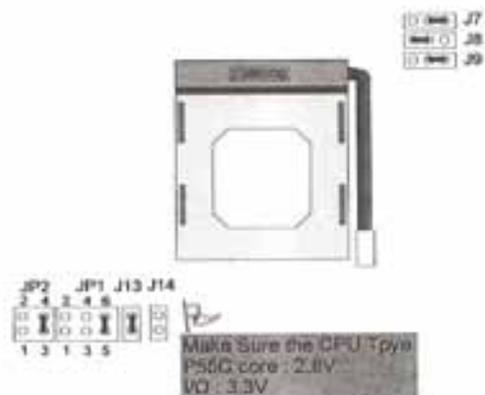
INTEL(P55C) 166 MHz CPU:

External Speed : 66MHz
Frequency Ratio : 2.5x



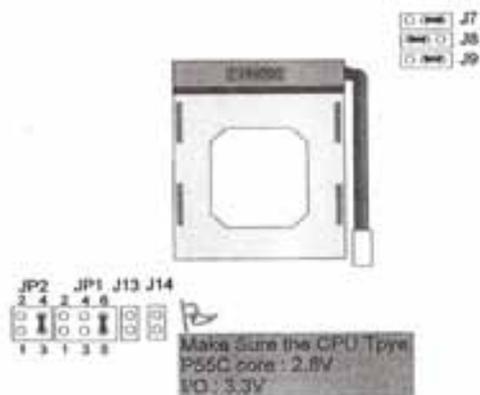
INTEL(P55C) 200 MHz CPU:

External Speed : 66MHz
Frequency Ratio : 3.0x



INTEL(P55C) 233 MHz CPU:

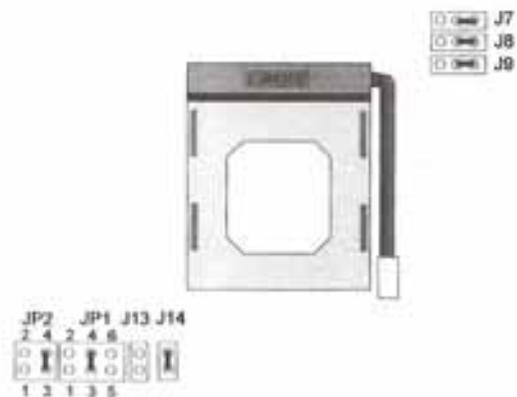
External Speed : 66MHz
Frequency Ratio : 3.5x



Cyrix (6x86) Installation:

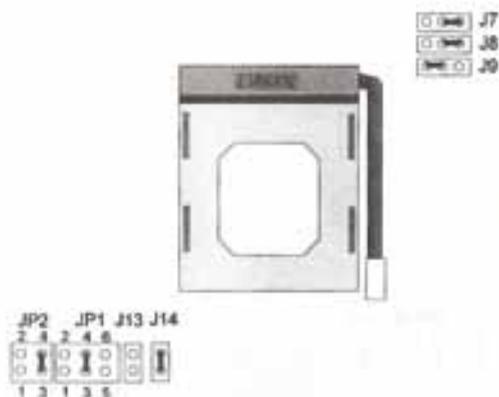
Cyrix (P120+) : 100 MHz

External Speed : 50MHz
Frequency Ratio : 2.0x

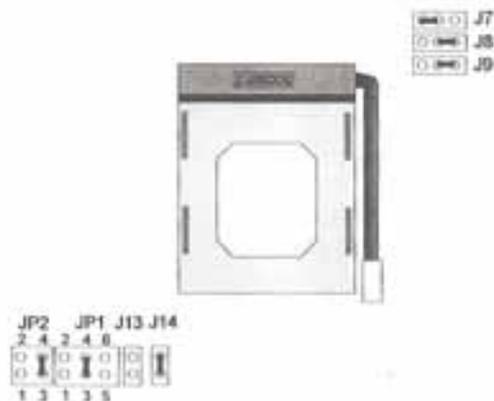


Cyrix (P133+) : 110MHz

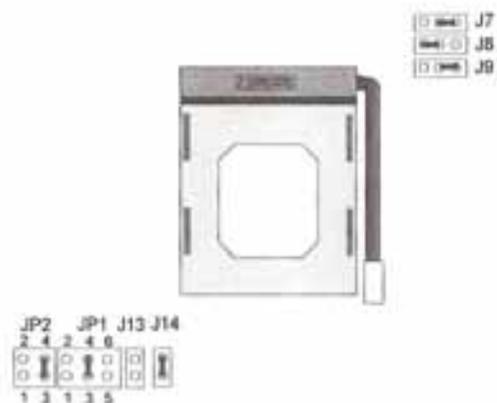
External Speed : 55MHz
Frequency Ratio : 2.0x



Cyrix (P150+) : 120MHz
 External Speed : 60MHz
 Frequency Ratio : 2.0x



Cyrix (P166+) : 133MHz
 External Speed : 66MHz
 Frequency Ratio : 2.0x

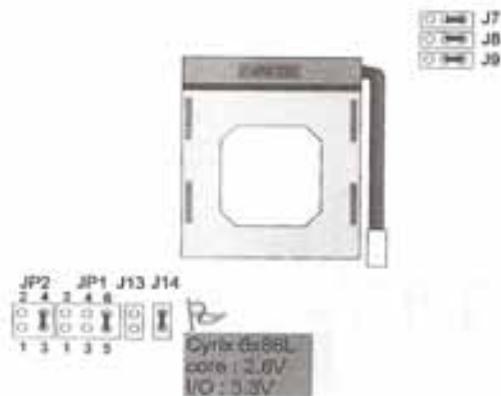


Cyrix (6x86) Installation:
 Cyrix (P200+) : 150 MHz
 External Speed : 75MHz
 Frequency Ratio : 2.0x

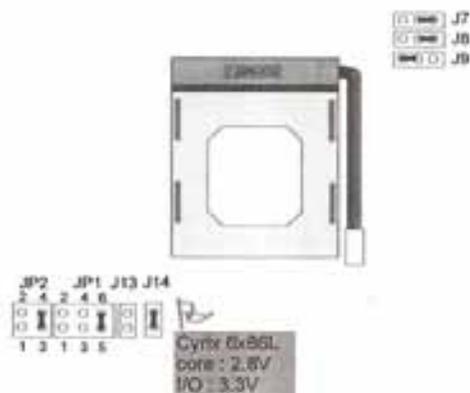


Cyrix (6x86L) Installation:

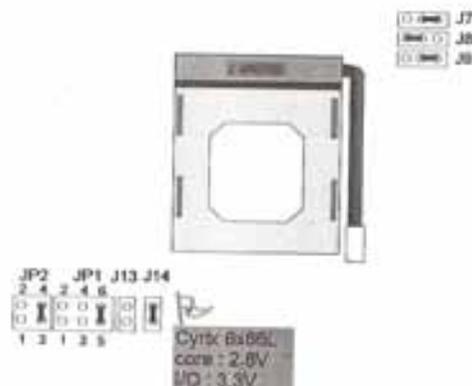
Cyrix (P120+) : 100MHz
 External Speed : 50MHz
 Frequency Ratio : 2.0x



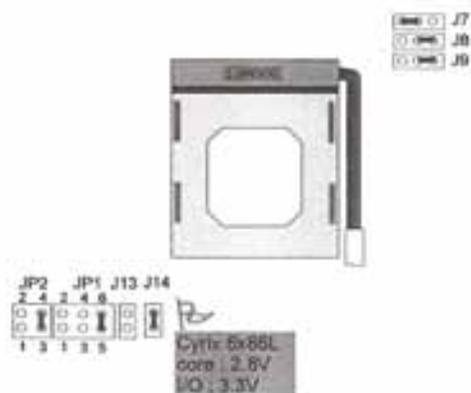
Cyrix (P133+) : 110MHz
 External Speed : 55MHz
 Frequency Ratio : 2.0x



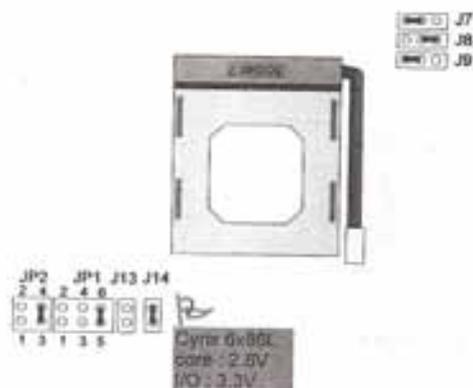
Cyrix (P166+) : 133MHz
 External Speed : 66MHz
 Frequency Ratio : 2.0x



Cyrix (P150+) : 120MHz
 External Speed : 60MHz
 Frequency Ratio : 2.0x



Cyrix (P200+) : 150MHz
 External Speed : 75MHz
 Frequency Ratio : 2.0x



AMD (5k86) Installation

AMD 75 MHz CPU

External Speed : 50MHz
Frequency Ratio : 1.5x



AMD 90 MHz CPU & AMD 120 MHz CPU

External Speed : 60MHz
Frequency Ratio : 1.5x



AMD K6 CPU=Intel P55C(MMX) CPU Jumper Setting

AMD 100MHz CPU

External Speed : 66MHz
Frequency Ratio : 1.5x



AMD 133 MHz CPU

External Speed : 66MHz
Frequency Ratio : 1.5x



2-3 System Memory Configuration

The SL586V-PLUS supports different type of settings for the system memory. There is no jumper nor connector needed for memory configuration. Following figures provides all possible memory combinations.



SIMM 1,2	SIMM 3,4	DIMM 1	DIMM 2	STATUS
BANK 0	BANK 1	BANK 0	BANK 1	
Installed	None	None	None	OK
None	Installed	None	None	OK
None	None	Installed	None	OK
None	None	None	Installed	OK
Installed	Installed	None	None	OK
None	Installed	Installed	None	OK
Installed	None	None	Installed	OK
*Installed	None	Installed	None	Not Allowed Note2
*Installed	Installed	Installed	Installed	Not Allowed Note2

Note:

1. SL586V-PLUS supports both Fast Page DRAM and EDO DRAM SIMMs, but they can not be mixed in the same memory bank.
- *2. Because the DIMM or (SIMM1,2) occupies the same memory block(Bank 0). So they cannot be installed at the same time.
3. DIMM Module Specification:
3.3V/Unbuffered



The SL586V-PLUS supports 168-pin DIMM module to extend system memory size. You can install (3.3V/UNBUFFERED) Fast Page, EDO or Synchronous DRAM.

When you have a DIMM module to plug into a 168-pin dual readout connector, you must make sure that the DIMM module is 3.3V/Unbuffered and supports Intel Pentium Processor System.

2-4 Cache Memory Configuration

The second level (L2) of cache is installed in the motherboard to increase the system performance. The SL586V-PLUS supports different type of combinations for the cache installation. The COAST 2.1 (Cache-On-A-Stick. The cache modules has a TAG SRAM.) solution provides onboard flexibility, allowing Onboard and modules to accommodate 256KB/512KB burst and pipelined burst synchronous SRAM.

SYN.Cache	On Board	On Module	U13
Size	U21, U22	B1	Tag RAM
256KB	256KB	None	8Kx8
256KB	None	256KB	No
512KB	256KB	256KB	16Kx8
512KB	512KB	None	16Kx8
512KB	None	512KB	No

The SL586V-PLUS may have come with an optional COAST Module (Ref. Figure 2-1) to extend the onboard cache size from 256KB to 512KB (When the SL586V-PLUS had mounted 256KB (32Kx32x2 Synchronous SRAM).

Note :

1. When you have a cache module to plug into a 160-pin dual readout connector. You must make sure that the cache module follow the specification of Intel COAST 2.0 or later version. Please contact the modules supplier to avoid not working properly or damaging any modules circuits.
2. Please be noted that some Synchronous SRAM can not support the TWO BANK L2 CACHE. For example, the SEC KM732V588G SRAM from SAMSUNG will not be able to support the TWO BANK function.



Figure 2-1 COAST MODULE

2-5 Integrated PCI Bridge

The SL586V-PLUS utilizes Intel's 430VX PCiset chipset to support Intel Pentium Processor PC/ISA system . The Intel 82430VX PCiset chipset consists of the 82437VX system controller (TSC), two 82438VX Data Path (TDP) devices, and one 82371SB PCI ISA/IDE Accelerator (PIIX3) bridge chip. It provides an interface which translates CPU cycle into PCI bus cycle, and PCI burst read/write capability. In addition, it provides high performance PCI arbitor to support three PCI Masters, Rotating Priority Mechanism, and Hidden Arbitration Scheme Minimizes Arbitration Overhead.

There are four interrupts in each PCI slot:INTA#, INTB#, INTC#,and INTD#. Since the SL586V-PLUS adapts the PCI auto-configuration with the system BIOS Setup utility. When the system is turned on after adding a PCI add-in card, the BIOS automatically configure interrupts, DMA channels, I/O space, and other paramaters. You do not have to configure jumpers or worry potential resource conflicts. Because PCI cards use the same interrupt resource as ISA cards, you must specify the interrupt used by ISA add-in cards in the BIOS Setup utility.

If however, a "Legacy card" (such as plug paddle card and cable into the ISA slot.) is plugged in the system, modification in the ROM SETUP UTILITY become necessary. First, enter PCI CONFIGURATION SETUP utility from ROM SETUP UTILITY main menu to set the "PCI IDE IRQ MAP TO:ISA"

Secondly, you must enter CHIPSET FEATURES SETUP UTILITY from ROM SETUP UTILITY main menu and set the "Onboard Primary PCI IDE: Disabled and Onboard Secondary PCI IDE: Disabled. "When you plugg the PC/ISA IDE card into the system, You should Disabled Onboard Primary and Secondary PCI IDE from CHIPSET FEATURES SETUP UTILITY too.

Some "Legacy card (no paddle card and cable.) you can set the system interrupt request (IRQ) on the "Legacy card" (refer to

user's manual of the card) to a proper system IRQ level (in general, card's Primary assigned to INTA and Secondary assigned to INTB). If the card is plugged into slot 1 (marked PCI#1), you can not use second slot (marked PCI#2) because the Secondary INT signal takes INTB from the slot (refer to Page 40 for circuit diagram). The user then enter PCI CONFIGURATION SETUP utility from ROM STUP UTILITY main menu and set the "PCI IDE IRQ MAP TO: PCI-Slot1"(depend on the slot# where the Legacy card is plugged).



AWARD BIOS SETUP

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

It is possible that CMOS had a battery failure which cause data lose in CMOS RAM. If so, re-enter system configuration parameters become necessary.

To Enter Setup Program

Power on the computer and press key immediately will bring you into BIOS CMOS SETUP UTILITY.

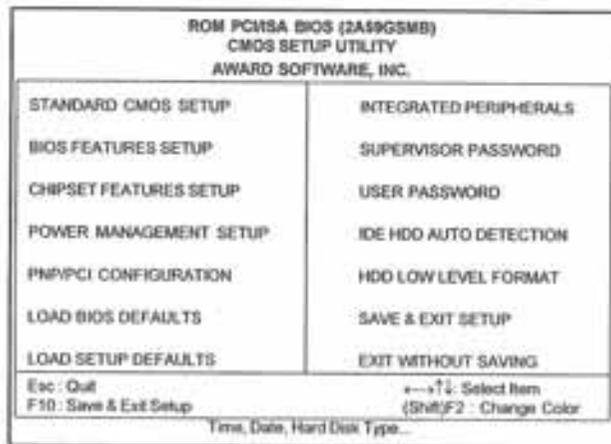


Figure 3-1 CMOS SETUP UTILITY

The menu displays all the major selection items and allow user to select any one of shown item. The selection is made by moving cursor (press any direction key) to the item and press "Enter" key. An on line help message is displayed at the bottom of the screen as cursor is moving to various items which provides user better understanding of each function. When a selection is made, the menu of selected item will appear so the user can modify associated configuration parameters.

3-1 Standard CMOS SETUP

Choose "STANDARD CMOS SETUP" in the CMOS SETUP UTILITY Menu (Fig.3-1). The STANDARD CMOS SETUP allows user to configure system setting such as current date and time, type of hard disk drive installed in the system, floppy drive type, and the type of display monitor. Memory size is auto-detected by the BIOS and displayed for your reference. When a field is highlighted (Direction keys to move cursor and <Enter> key to select),the entries in the field will be changed by pressing

<PgDn> or <PgUp> keys or user can enter new data directly from the keyboard.

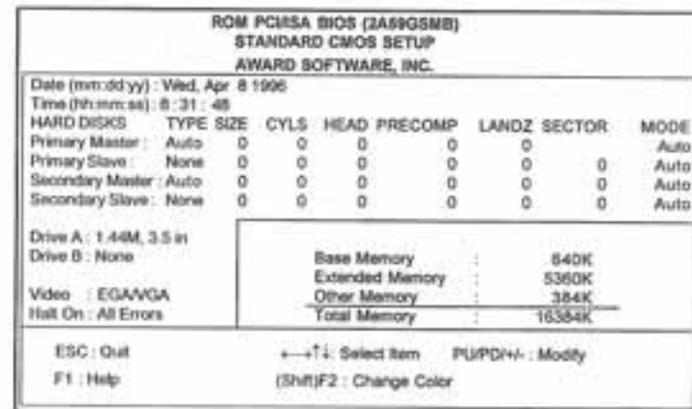


Figure 3-2 STANDARD CMOS SETUP

Note:

If hard disk Primary Master/Slave and Secondary Master/Slave were used Auto, then the hard disk size and model will be auto-detected on display during POST.

The "Halt On" : " field is to determine when to halt the system by the BIOS if error occurs during POST.

3-2 BIOS FEATURES SETUP

Selecting the "BIOS FEATURES SETUP" option in the CMOS SETUP UTILITY menu allows user to change system related parameters in the displayed menu. This menu shows all of the manufacturer's default values of SL586V-PLUS. 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.

This setup program also provides 1 convenient ways to load the default parameter data from CMOS [F7] area if shown data is corrupted. This provides the system a capability to recover from any possible error.

ROM PCIRSA BIOS (2A59G5MB) 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	: Enabled	D0000-D3FFF Shadow	: Disabled
Boot Sequence	: A,C	D4000-D7FFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	D8000-DBFFF Shadow	: Disabled
Boot Up Floppy Seek	: Disabled	DC000-DFFFF Shadow	: Disabled
Boot Up NumLock Status	: On		
Boot Up System Speed	: High		
Gate A20 Option	: Fast		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup		
PCI/VGA Palette Snoop	: Disabled		
OS Select for DRAM=64MB	: Non-SO2		
		ESC : Quit	←→+7: Select Item
		F1 : Help	PUPD/+- : Modify
		F5 : Old Values	(Shift)F2 : Color
		F7 : Load Setup Defaults	

Figure 3-3 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 procedure.

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 the following error message will appear, in the mean time, you can run an anti-virus program to locate the problem. Default value is disabled.

Enabled: Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.

Disabled: No warning message to appear when anything attempts 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 Enable. 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 check items during POST.

Enabled: Enable quick POST

Disabled: Normal POST.

Boot Sequence:

This category determines which drive computer searches first for the DOS (Disk Operating System). Default value is A,C.

- C only : System will search IDE hard disk driver.
- A, C, SCSI : System will first search for floppy disk drive then second search IDE hard disk driver then SCSI hard disk driver.
- C, A, SCSI/ D, A, SCSI/ E, A, SCSI/F, A, SCSI : System will first search for IDE hard disk driver (C: D: or E: or F:) then second search floppy disk driver then SCSI hard disk driver.
- SCSI, A, C : System will first search SCSI hard disk driver then second floppy disk driver then IDE hard disk driver.
- CDROM, C,A: System will first search for the CDROM driver (If the CDROM has a bootable CD title.) and second search hard disk driver then floppy disk driver.
- C,CDROM, A: System will first search for the hard disk driver and second search the CDROM driver (If the CDROM has a bootable CD title,) then floppy disk driver.

Swap Floppy Drive:

The swap floppy drive. Default value is Disabled.

Enabled: Floppy A & B will be swapped under the DOS

Disabled: Floppy A & B will be not swap.

Boot Up Floppy Seek:

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks, 360K type is 40 tracks while 760K, 1.2M, and 1.44M are all 80 tracks, The default value is Disabled.

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:

It selects the default system speed, that the system will run at immediately after system boot.

High : Set the speed to high.

Low : Set the speed to low.

Gate A20 Option : The default value is Fast.

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

Fast : Default : 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 this 2 items and the default is controlled by keyboard.

Typematic 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):

When holding a key, the time between the first and second character displayed.

250 : 250msec.

500 : 500msec.

750 : 750msec.

1000 : 1000msec.

Security Option:

This category allows you to limit access to the system and Setup, or just to Setup. The default value is Setup.

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

Setup : The system will boot; but access to Setup will be denied if the incorrect password is not entered at the prompt.

PCI/VGA Palette Snoop:

This field controls the ability of a primary PCI VGA controller 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 that ISA card connects to VGA monitor and that ISA card uses the RAMDAC of PCI card.

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 32K byte per/unit and the size depends on 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 following menu.

ROM PCI/ISA BIOS (2A5905MB)			
CHIPSET FEATURES SETUP			
AWARD SOFTWARE, INC.			
Auto Configuration	: Enabled	Delayed Transaction	: Disabled
DRAM Timing	: 70ns		
DAM RAS# Precharge Time	: 4		
DAM R/W Leadoff Timing	: 6		
Fast RAS to CAS Delay	: 3		
DRAM Read Burst Timing	: x222/x333		
DRAM Write Burst Timing	: x333		
Fast MA to RAS# Delay CLK	: 1		
Fast EDO Path Select	: Disabled		
Refresh RAS# Assertion	: 5 CLKS		
ISA Bus Clock	: PCICLK4		
System BIOS Cacheable	: Disabled		
Video BIOS Cacheable	: Disabled		
8 Bit I/O Recovery Time	: 1	ESC: Quit	←→+/: Select Item
16 Bit I/O Recovery Time	: 1	F1: Help	PUPD/+/ -: Modify
Memory Hole At 15M-16M	: Disabled	F5: Old Values	(Shift)F2: Color
Peer Concurrency	: Enabled	F7: Load Setup Defaults	
Passive Release	: Enabled		

Figure 3-4 CHIPSET FEATURES SETUP

Auto Configuration :

This category allows you to set the DRAM timing. The default value is Enabled. When disabled this field. You can select the different DRAM's timing that supports by chipset below item.

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 State,for 70nx Fast Page Mode/EDO DRAM.

Video BIOS Cacheable :

The default value is Disabled.

Enabled : This field Enabled the Video BIOS Cacheable to speed up the VGA performance.

Disabled : Disabled the Vidoe BIOS Cacheable function.

8.16 bit I/O Recovery Time : The default value is 1.

8 bit I/O Recovery Time : This field defines the recovery time from 1 to 8 for 8-bit I/O.

16 bit I/O Recovery Time : To define the recovery time from 1 to 4 for 16-bit I/O

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,

Peer Concurrency : The default value is Enabled.

3-4 POWER MANAGEMENT SETUP

Choose the "POWER MANAGEMENT SETUP" in the CMOS SETUP UTILITY to display the following screen.

This menu allows user to modify the power management parameters and IRQ signals. In general, these parameters should not be changed unless it's absolutely necessary.

ROM CMOS BIOS (2A89G3MB) POWER MANAGEMENT SETUP AWARD SOFTWARE, INC.			
Power Management	: Disable	** Power Down & Resume Event**	
PM Control by APM	: Yes	IRQ3 (COM2)	: ON
Video off Method	: VBI SYNC+Blank	IRQ4 (COM1)	: ON
Modem Use IRQ	: NA	IRQ5 (LPT 2)	: OFF
		IRQ6 (Floppy Disk)	: ON
Doze Mode	: Disable	IRQ7 (LPT1)	: OFF
Standby Mode	: Disable	IRQ8 (RTC Alarm)	: OFF
Suspend Mode	: Disable	IRQ9 (IRQ2 Redr)	: OFF
HDD Power Down	: Disable	IRQ10 (Reserved)	: OFF
** Wake Up Events In Doze & Standby**		IRQ11 (Reserved)	: OFF
IRQ3 (Wake-Up Event)	: ON	IRQ12 (PS/2 Mouse)	: ON
IRQ4 (Wake-Up Event)	: ON	IRQ13 (Coprocessor)	: OFF
IRQ8 (Wake-Up Event)	: ON	IRQ14 (Hard Disk)	: ON
IRQ12 (Wake-Up Event)	: ON	IRQ15 (Reserved)	: OFF
		ESC : Quit	+---->T: Select Item
		F1 : Help	PLUP/DI+/- : Modify
		F5 : Old Values	(Shift)F2 : Color
		F7 : Load Setup Defaults	

Figure 3-5 POWER MANAGEMENT SETUP

Again, user can move the cursor by pressing direction keys to the field needed to be modified an press <PgDn> or <PgUp> to alter item selection. You can only change the content of Doze Mode, Standby Mode, and Suspend Mode when the Power Management is set up "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 timeout parameters to control power saving timing. Refer to item B shown below.

B. Timeout 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 timeout setting is from 1 minute up to 1 hour.

System Standby

The "Standby" mode timer starts to count when "System Doze" mode timer timed out and no "PM events" occurred. Valid range is from 1 minute up to 1 hour.

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 1 hour.

3-4-2 Description of the Green Functions

The SL586V-PLUS supports HDD Power Down, Doze and standby power saving functions when Intel Pentium Processor is installed. In addition, the suspend function is supported when the J18 (pin7,12) be close to enter the green function.

The detail description of these functions are provided in next page.

HDD Standby Mode

When system stop 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 timeout occurs.

Standby Mode

When the system standby mode time runs out, it will enter the standby mode and retain CPU at slow working speed. The screen will be blanked out.

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 15 PM Event in the power management mode (Doze, standby & suspend). The user can initialize any PM Event 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"

isn't "Disabled". Once the system Doze timer is timed out, it will process doze power saving procedure by starting the system standby timer. When the standby timer ran out and all of the "Enabled" events remains silent, the system will enter the standby mode. By now, the system will not only process the standby power saving procedures but also start the system suspend timer. When the suspend timer times out, all of the CPU clock will be stopped 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.

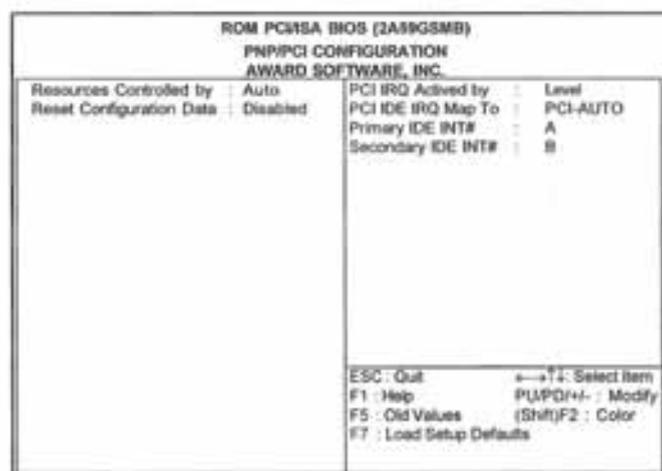


Figure 3-6 PNP/PCI CONFIGURATION

Resource Controlled By:

The default value is Manual.

Manual : The field defines that the PNP Card's resource is controlled by manual. You can set which IRQ-X and DMA-X assigned to PCI/ISA PNP or Legacy ISA cards.

Auto : If your ISA card and PCI card are all PNP cards. To set this field Auto. The BIOS will be assigned the interrupt resource automatically.

Reset Configuration Data:

The default value is Disabled

Disabled : Normal Setting

Enabled : If you had plugged some Legacy cards in the system and there were record into ESCD (Extended System Configuration Data). You can set this field to Enabled and to clear ESCD one time. When some Legacy cards were 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 anything here in the SETUP program. However, if you do not know whether you have a true PCI card or not, please refer to your PCI card user's manual for the details.

When you have a Legacy card (Described in section 2-5) to be plugged into the system, a proper setting is extremely important or it may cause the system to hang up.

The diagram shown below tells you how the Rotating Priority Mechanism is designed.

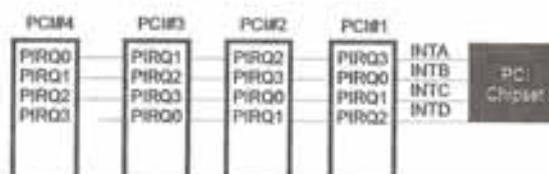


Figure 3-7 The Combination of PCI INT# lines

3-6 LOAD BIOS DEFAULTS

The "LOAD BIOS DEFAULTS" function loads the system default data directly from ROM and initializes associated hardware properly. This function will be necessary only when the system CMOS data is corrupted.

3-7 LOAD SETUP DEFAULTS

The "LOAD SETUP DEFAULTS" function loads the system default data directly from ROM and initializes associated hardware properly. This function will be necessary only when the system CMOS data is corrupted.



Figure 3-7 LOAD SETUP DEFAULT

3-8 INTEGRATED PERIPHERALS

ROM PC/ISA BIOS (2A89GSMB)	
INTEGRATED PERIPHERALS	
AWARD SOFTWARE, INC.	
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
On-Chip Primary PCI IDE	: Enabled
On-Chip Secondary PCI IDE	: Enabled
PCI Slot IDE 2nd Channel	: Enabled
USB Controller	: Disabled
Onboard FDC Controller	: Enabled
Onboard UART 1	: Auto
Onboard UART 2	: Auto
UART 2 Mode	: Standard
Onboard Parallel Port	: 378IRQ7
Parallel Port Mode	: SPP

ESC : Quit ←→↑↓ : Select Item
 F1 : Help PUPD/+- : Modify
 F5 : Old Values (Shift)F2 : Color
 F7 : Load Setup Defaults

Note:

If you don't use the Onboard IDE connector, than use On-card (PCI or ISA card) IDE connector, you will set Onboard Primary PCI IDE : Disabled and Onboard Secondary PCI IDE : Disabled from CHIPSETFEATURES 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 IRQ0 for this port.
 Disabled : Disable secondary IDE port and IRQ0 is available for other device.

On-Chip Primary PCI IDE : The default value is Enabled.
 Enabled : Enable Onboard 1st channel IDE port
 Disabled : Disable Onboard 1st channel IDE port. When use On-card (PCI or ISA card) IDE connector.

On-Chip Secondary PCI IDE :
 The default value is Enabled.
 Enabled : Enable Onboard 1nd 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 FDC Controller :

The default value is Enabled.

Enabled : Enable the Onboard I/O CHIP's floppy drive interface controller.

Disabled : Disable the Onboard I/O CHIP's floppy drive interface controller. When use On-card ISA FDC's controller.

UART 2 Mode:

The default value is standard. This field allows the User to select the COM2 port that can support a serial Infrared Interface.

Standard : Supports a Serial Infrared Interface IrDA.

HPSIR : Support a HP Serial Infrared Interface formats.

ASKIR : Support a Sharp Serial Infrared Interface formats.

Onboard Parallel port :

This field allows the user to select the LPT 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 : Disabled Onboard I/O CHIP's LPT port.

Note:

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

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

Onboard Parallel port Mode:

This field allows the user to select the parallel port mode.

The default value is SPP.

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

EPP : Enhanced Parallel Port mode.

ECP : Extended Capabilities Port mode

EPP+ECP : ECP Mode & EPP Mode

EPP+SPP : EPP Mode & SPP Mode

ECP MODE USE DMA :

This field allows the user to select DMA1 or DMA3 for the ECP mode. The default value is DMA 3.

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

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

3-9 CHANGE SUPERVISOR PASSWORD

To change the password, choose the "USER PASSWORD" 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 Figure 3-1 for the details).

3-10 CHANGE USER PASSWORD

To change the password, choose the "USER PASSWORD" 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 Figure 3-1 for the details).

1. If CMOS is corrupted or the option was 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 user wish to change default password, the SETUP UTILITY will display a 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 8 characters can be entered.

3-11 IDE HDD AUTO DETECTION

The "IDE HDD AUTO DETECTION" utility is a very useful tool specially 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 don't need the "IDE HDD AUTO DETECTION" utility. The BIOS will Auto-detect the hard disk size and model on display during POST.

ROM PCUSA BIOS (2A19G5MB)									
CMOS SETUP UTILITY									
AWARD SOFTWARE, INC.									
HEAD	DISK	TYPE	SIZE	CYLS	HEADS	PRECOMP	LANDZONE	SECTORS	MODE
Primary	Master		343	605	15	65535	864	63	NORMAL
Primary	Slave								
Secondary	Master								
Secondary	Slave								

Note:HDD Modes

The Award BIOS supports 3 HDD modes :NORMAL, LBA &LARGE

NORMAL mode

Generic access mode in which either the BIOS nor the IDE controller will make any transformations during accessing.

The maximum number of cylinders, head & sectors for NORMAL mode are 1024, 16 &63.

	no.Cylinde	(1024)
x	no.Head	(16)
x	no.Sector	(63)
x	no.per sector	(512)
<hr/>		
	528 Megabytes	

If user set his 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

A new HDD accessing method to overcome the 528 Megabyte bottleneck. The number of cylinders, heads & sectors shown in setup may not be the number physically contained in the HDD.

During HDD accessing, the IDE controller will transform the logical address described by sector, head & 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:

$$\begin{array}{r} \text{no.Cylinder} \quad (1024) \\ \times \text{ no.Head} \quad (255) \\ \times \text{ no.Sector} \quad (63) \\ \times \text{ bytes.per sector} (512) \\ \hline 8.4 \text{ Gigabytes} \end{array}$$

LARGE mode

Extended HDD access mode supported by Award Software.

Some IDE HDDs contain more than 1024 cylinder without LBA support (in some cases, user do not want LBA). The Award BIOS provides another alternative to support these kinds of LARGE mode:

<u>CYLS.</u>	<u>HEADS</u>	<u>SECTOR</u>	<u>MODE</u>
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 INT 12h in order to access the right HDD address the right HDD address!

$$\begin{array}{r} \text{no.Cylinder} \quad (1024) \\ \times \text{ no.Head} \quad (32) \\ \times \text{ no.Sector} \quad (63) \\ \times \text{ bytes.per sector} (512) \\ \hline 1 \text{ Gigabytes} \end{array}$$

Note:

To support LBA or LARGE mode of HDDs, there must be some softwares involved. All these softwares are located in the Award HDD Service Routine (1NT 13h). It may be failed to access a HDD with LBA (LARGE) mode selected if you are running under a Operating System which replaces the whole 1NT 13h. UNIX operating systems do not support either LBA or LARGE and must utilize teh Standard mode. UNIX can support drives larger than 528MB.

3-12 HDD LOW LEVEL FORMAT

ROM PC/ISA BIOS (2A59G5MB) HDD LOW LEVEL FORMAT AWARD SOFTWARE, INC.							
Hard Disk Low Level Format Utility		NO.	CYLS	HEAD			
SELECT DRIVE BAD TRACK LIST PREFORMAT							
Current select drive is : C							
DRIVE : C CYLINDER : 0 HEAD : 0							
	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master	1706	3305	16	65535	3304	63	AUTO
Primary Slave	2112	4092	16	65535	4091	63	AUTO
Secondary Master	0	0	0	65535	65535	0	AUTO
Secondary Slave	0	0	0	0	3840	0	AUTO
Up/Down- Select item		ENTER- Accept		ESC-Exit/Abort			
Copyright (C) Award Software, Inc. 1992-94 All Rights Reserved							

SELECT DRIVE : Select the drive C: or D: or E: or F:

BAD TRACK LIST : Use "ENTER" to accept, Up/Down to select item. There are auto scan bad track, add the track, modify bad track, delete bad track, clear bad track table.

PREFORMAT : Interleave : 0 for auto detect.
Auto scan bad track : "Yes" or "No"
Start : "Yes" or "No"

3-13 SAVE & EXIT SETUP

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

3-14 EXIT WITHOUT SAVING

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



Technical Information

4-1 I/O & Memory Map

Memory Map Address Range	Size	Description
[00000-7FFFF]	512K	Conventional memory
[80000-9FBFF]	127K	Extended Conventional memory
[9FC00-9FFFF]	1K	Extended BIOS data area if PS/2 mouse is installed
[A0000-C7FFF]	160K	Available for Hi DOS memory
[C8000-DFFFF]	96K	Available for Hi DOS memory and adapter ROMs
[E0000-EEFFF]	60K	Available for UMB
[EF0000-EFFFF]	4K	Video service routine for Monochrome & CGA adaptor
[F0000-F7FFF]	32K	BIOS CMOS setup utility
[F8000-FCFFF]	20K	BIOS runtime service routine (2)
[FD000-FDFFF]	4K	Plug and Play ESCD data area
[FE000-FFFFF]	8K	BIOS runtime service routine (1)

I/O Map

[000-01F]	DMA controller (Master)
[020-021]	INTERRUPT Controller. (Master)
[022-023]	Chipset control register. I/O ports.
[040-05F]	Timer control registers.
[060-06F]	Keyboard interface controller. (8042)
[070-07F]	RTC ports & CMOS I/O ports
[080-09F]	DMA register.
[0A0-0BF]	INTERRUPT controller. (Slave)
[0C0-0DF]	DMA controller. (Slave)
[0F0-0FF]	MATH coprocessor.
[1F0-1F8]	HARD DISK controller
[278-27F]	Parallel port 2.
[280-2DF]	Graphics adapter controller.
[2F8-2FF]	Serial port 2.
[360-36F]	Network ports
[378-37F]	Parallel port 2
[380-3BF]	Monochrome & Parallel port adapter.
[3C0-3CF]	EGA adapter.
[3D0-3DF]	CGA adapter.
[3F0-3F7]	Floppy disk controller.
[3F8-3FF]	Serial port1

4-2 TIME & DMA Channel Map

Time Map :

Timer Channel 0	System timer interrupt.
Timer Channel 1	DRAM refresh request.
Timer Channel 2	Speaker tone generator.

DMA Channels:

DMA Channel 0	Available
DMA Channel 1	Onboard ECP (Option).
DMA Channel 2	Floppy disk (Winbond CHIP)
DMA Channel 3	Onboard ECP (default)
DMA Channel 4	Cascade for DMA controller1.
DMA Channel 5	Available
DMA Channel 6	Available
DMA Channel 7	Available

4-3 Interrupt Map

NMI: Parity check error

IRQ (HW): 0	System Timer interrupt from Timer0
1	Keyboard output buffer full.
2	Cascade for IRQ 8-15
3	Serial port 2.
4	Serial port 1.
5	Parallel port 2.
6	Floppy Disk (Winbond Chip).
7	Parallel port 1.
8	RTC clock.
9	Available
10	Available
11	Available
12	PS/2 Mouse
13	MATH coprocessor
14	Onboard Hard Disk (IDE1) Channel
15	Onboard Hard Disk (IDE2) Channel

4-4 RTC & CMOS RAM MAP

RTC & CMOS:

00	Second.
01	Second alarm
02	Minutes
03	Minutes alarm
04	Hours
05	Hours alarm
06	Day of week
07	Day of month
08	Month
09	Year
0A	Status register A
0B	Status register B
0C	Status register C
0D	Status register D
0E	Diagnostic status byte.
0F	Shutdown byte.
10	Floppy disk drive type byte.
11	Reserve
12	Hard Disk type byte
13	Reserve
14	Equipment type
15	Base memory low byte.
16	Base memory high byte.
17	Extension memory low byte
18	Extension memory high byte
19-2d	
2E-2F	
30	Reserved for extension memory low byte.
31	Reserved for extension memory high byte.
34-3F	Reserve.
40-7F	Reserved for Chipset setting data.

4-5 Technical Information

J3 : Mini Dim PS/2 Connector (option)

J4: PS/2 Mouse connector

Pin	Signal Name
5	Data (Blue wire)
4	Clock(Yellow wire)
3	GND (Green wire)
2	NC
1	VCC (RED Wire)

COM1, COM2 : Serial Ports connector

Signal name	Pin	Pin	Signal name
DCD	1	6	DSR
SIN	2	7	RTS
SOUT	3	8	CTS
DTR	4	9	RI
GND	5	10	N.C

LPT : Parallel Port connector

Signal name	Pin	Pin	Signal name
Strobe-	1	14	Auto feed-
Data Bit 0	2	15	Error-
Data Bit 1	3	16	INIT-
Data Bit 2	4	17	SLCT IN-
Data Bit 3	5	18	Ground
Data Bit 4	6	19	Ground
Data Bit 5	7	20	Ground
Data Bit 6	8	21	Ground
Data Bit 7	8	22	Ground
ACJ-	10	23	Ground
Busy	11	24	Ground
PE	12	25	Ground
SLCT	13	26	N.C

FDD : Floppy Disk Connector

Signal name	Pin	Pin	Signal name
Ground	1	2	FDHDIN
Ground	3	4	N.C
N.C	5	6	N.C
Ground	7	8	Index-
Ground	9	10	Motor Enable
Ground	11	12	Drive Select B-
Ground	13	14	Drive Select A-
Ground	15	16	Motor Enable
Ground	17	18	DIR-
Ground	19	20	Step-
Ground	21	22	Write Data
Ground	23	24	Write Data
Ground	25	26	Track 00-
Ground	27	28	Write Protect-
Ground	29	30	Read Data
Ground	31	32	Side 1 select
Ground	33	34	Diskette

CN 1,2 USB Connector

CN4		CN5	
Signal name	Pin	Signal name	Pin
USB VCC0	1	USB VCC1	1
USB D0 -	2	USB D1 -	2
USB D0 +	3	USB D1 +	3
USB GND0	4	USB GND1	4

IDE1/IDE2 : Primary, Secondary IDE Connector

Signal name	Pin	Pin	Signal name
Reset	1	2	Ground
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
Ground	19	20	N.C
DRQ	21	22	Ground
I/O Write-	23	24	Ground
I/O Read-	25	26	Ground
IOCHRDY	27	28	
DACK	29	30	Ground
IRQ14	31	32	N.C
Addr 1	33	34	N.C
Addr 0	35	36	Addr 2
Chip select 0-	37	38	Chip select 1-
IDE LED	39	40	Ground