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Introduction 1

The KS-TG919 mainboard is a highly integrated, high-performance personal computer system board based on the Intel i486SX, i486DX, i486Dx 2, or i486DX4 series CPU.
The mainboard four support power management modes:
Auto, APM, SMI, or DISABLE for Standard cu's. The mainboard provides a flexible and maximum power saving solution for green PC'S, and a "SWIFT-IDE" hard disk accelerator (Patent pending), and a state-of-the-art power management controller.
The mainboard features 8K bytes of cache built into the i486 CPU, as well as 64KB/128KB/256KB/512KKB/IMB of external cache memory. Cache increases system performance to significantly iprove the speed of your programs.
The KS-TG919 mainboard is fully compatible with MS-DOS, OS/2, Xenix 386, Unix, MS Windows 3.0, Novell Ethernet, and thousands of applicatons available for IBM PC/XT/AT commputers.

Features

The advanced features of the KS-TG919 mainboard include:

- Advance state-of-the-art green PC power management control capability to reduce power consumption to less than 5 Watts when system is in SUSPEND state.
- Support of STOP clock for static CPU in SMI/AUTO/APM mode
- Support of SLOW clock for static CPU in SMI/AUTO/APM mode
- On board LED output lead for power saving state indication
- Embedded SWIFT-IDE acceleration function to boost IDE HDD dates transfer rate up to 5M Bytes/Sec when a conventional ISA IDE card is used
- 3 VL-Bus compliant with VESA 2.0 specifications
- Support of L1 CPU cache with WB or WT scheme for P24T, M6 or M 7
- Support of L2 cache with WB or WT scheme in single or dual banks
- Support up to 64MB on board system memory
- Support of CPU external clock rate 1x or 2x from 25MHz to 50 MHz (1x) or 100MHz(2x)
- Either 8 pin or 14 pin two kinds of clock chips for CPU and Chipset clock sources
- BIOS availabel from AWARD, AMI, Mr. BIOS or PHOENIX for true power saving capability

Descrition

CPU

- One 238 pin ZIF or PGA socket for CPUs with 1X or 2X clock from 25MHz to 66MHz.
  - — Intel 486SX, 486DX, 486DX2, S Series & P24T, 486 DX4
  - — Cyrix 486S, 486S2, M7, M6, M8
  - — AMD 486DXL
  - — and Intel 486 CPU pin-to-pin Compatible

Memorise

- On board free sequence 1 bank 30 pin SIMM socket, and 4 banks 72 pin SIMM socket flexible for 1MB, 4 MB or 16MB DRAM chips, up to 64MB maximum on board memory;
- On board 2 banks 28 pin SRAM socket, flexible for single or double bank cache size in configuration of 64KB, 128KB or 256KB; 512KB or 1MB

Bus Slots

- 3 VL-Bus, 3 x 16 bit ISA-Bus and one 8 bit ISA-Bus;
- Support all ISA master modes and two VL-Bus master devices

Power Management

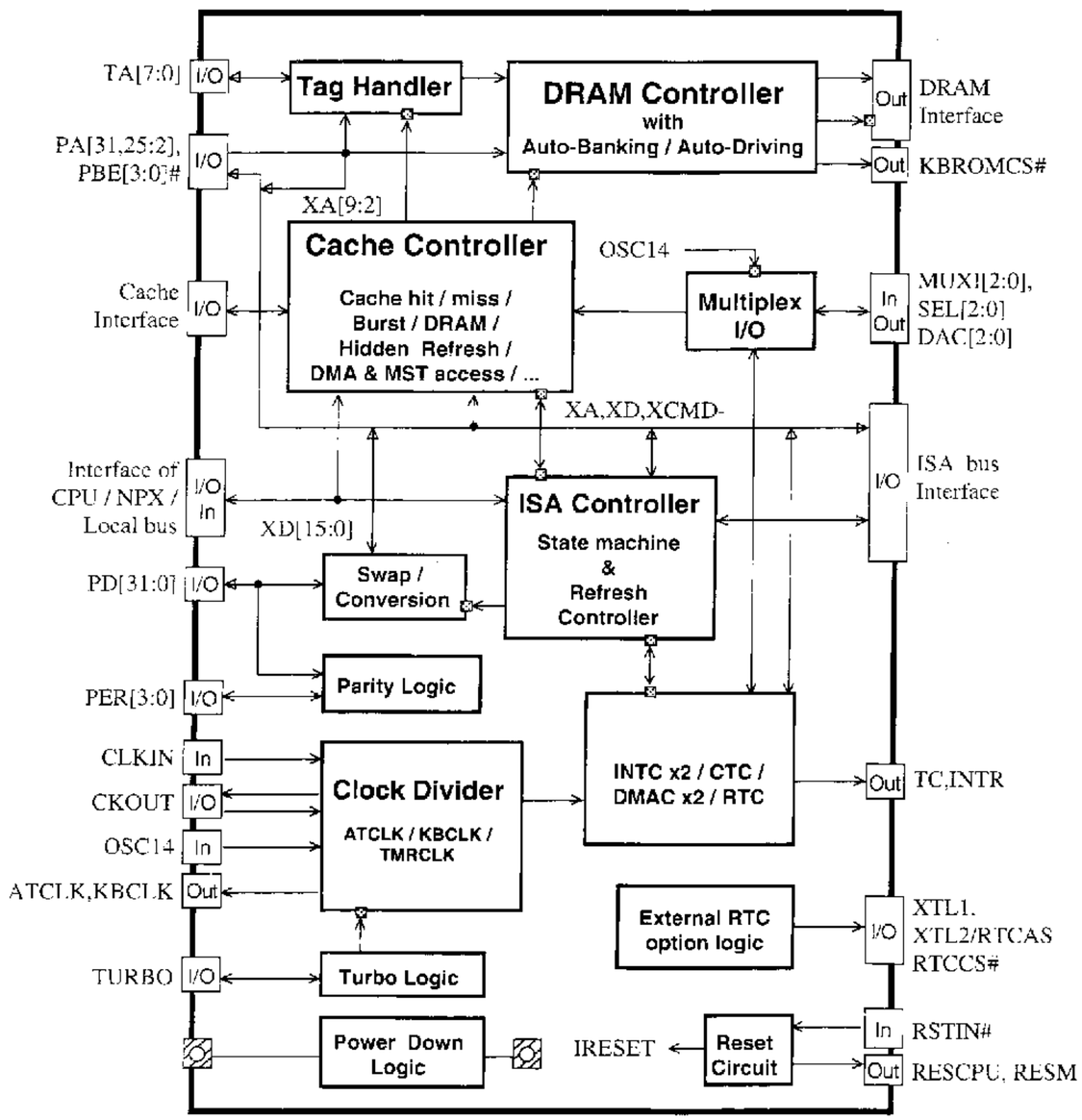
- 4 operation modes:
  - — AUTO (state machine controlled)
  - — SMI
  - — APM
  - — DISABLE
- Full Feature Power Management
  - — 4 software programmabel states READY, INTERMEDIATE, STANDBY and SUSPEND states to reduce CPU speed to 1/2, 1/4, 1/8 or stop in user defineabel time intervals
  - — 5 peripheral power control signal outputs on board

Board Dimension

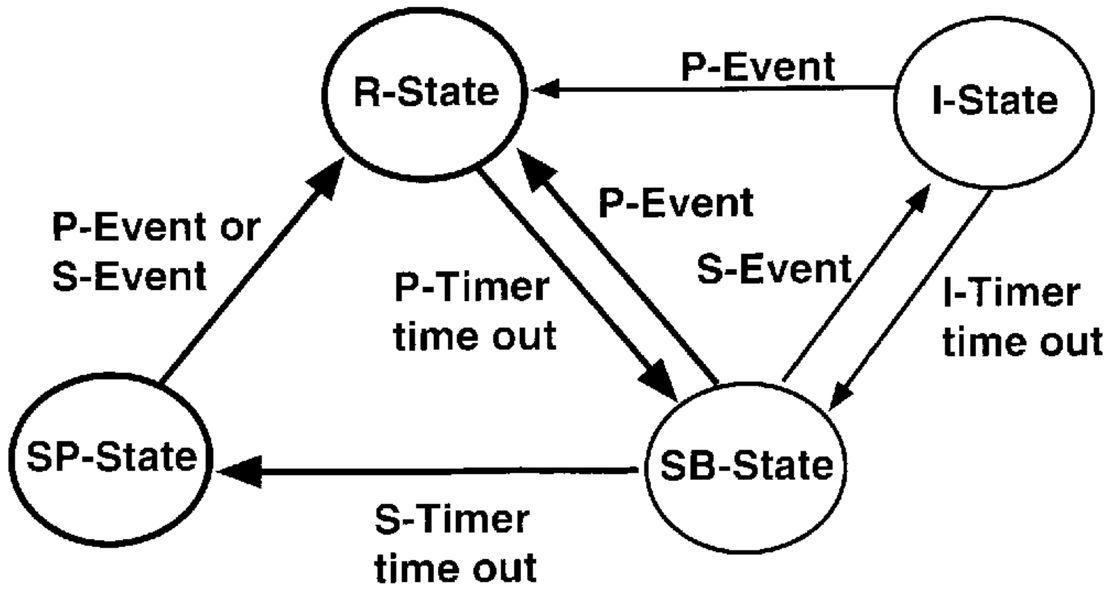
— 270mm x 220mm, 4 Layer PCB

System Block Diagram

IC Block Diagram



System State Block Diagram



P-Event:Primary event
S-Event:Secondary event
R-State:Ready state
I-State:Intermediate state
SB-State:Standby state
SP-State:Suspend state.
I-State is an optional state

2 Hardware Configuration

This chapter explains how to configure the mainboard's hardware. Before you install the mainboard into the system chassis, you may find it convenient to first set the jumpers that configure the system's clock speed and cache size. Next, instll the board's memory modules. After you have inserted the mainboard into the system chassis, attach system peripherals and control panel devices to the mainboard's connectors.
Refer to this chapter whenever you upgrade or reconfigure your system.

Quick Reference Table

Jumper	Setting Description
JP32-JP34, JP47-JP50	Cache Jumpers
JP51	DX4(3.3V)Voltage Selector
JP21,JP25-JP30,JP56 JP22,JP35-JP38	CPU Type Selector
JP42-JP44	CPU Clock Selector
JP45	VL-BUS Clock Selector
JP46	VL-BUS WS Selector
JP6	External Battery Connector
JP12	Green LED Connector
CN1	Keyboard Connector
CN2	Power Supply Connector
RESET	Reset Switch Connector
TUBLED	Turbo LED Connector
TUBSW	Turbo Switch Connector
SPEAKET	Speaker Connector
KEYLOCK	Keylock & Power LED Connector
JP18	Suspend Switch Connector

Jumpers, Connectors, and Cache Bank, Memory Locations

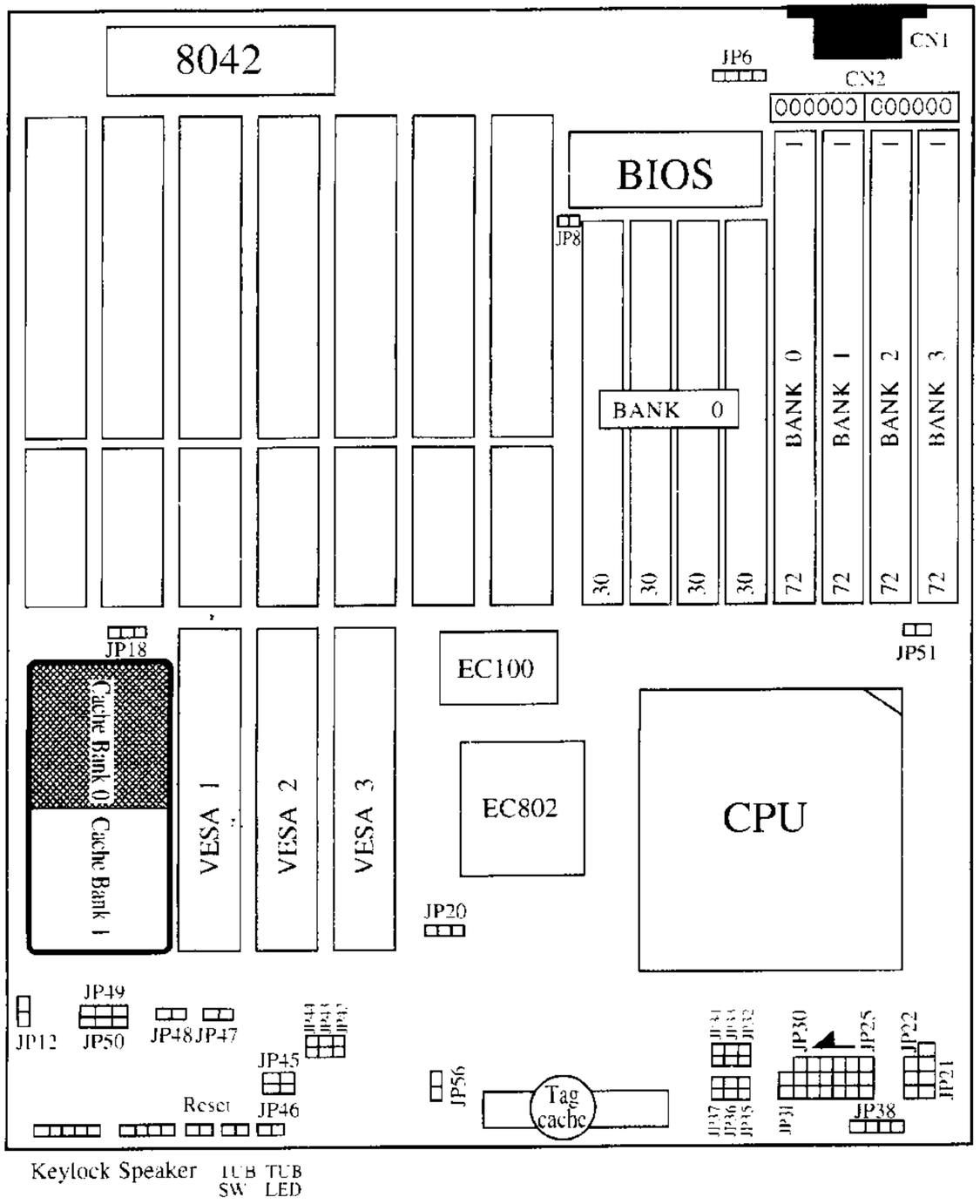


Figure 2-1. Jumpers, Connectors, and Cache Banks, Memary

Setting Jumpers

Your configure some hardware options on the mainboard by setting jumper switches. Jumper switches are rows of small pins on the mainboard that are set by using a jumper cap.

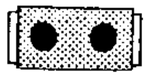
Set a jumper switch as follows:

- Close a jumper switch by inserting the plastic jumper cap over two pins of the jumper.
- Open a jumper switch by removing the jumper cap.

Note:When you open a jumper, attach the plastic jumper cap to one of the pins so you won't lose it.

Symbols:

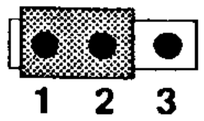
For setting 2-pin jumpers, the following symbols are used:



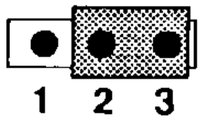
The jumper is Closed when the jumper cap is placed over the two pins of the jumper.

The jumper is Open when the jumper cap is removed from the jumper.

For setting three-pin jumpers, the symbols below are used:

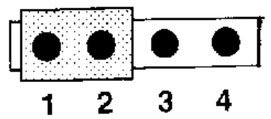


Pins 1 and 2 are Closed with a jumper cap.

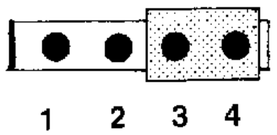


Pins 2 and 3 are Closed with a jumper cap.

For setting four pin jumpers, the following symbols are used



Pins 1 and 2 ard Closed with a jumper cap.



Pins 3 and 4 are Closed with a jumper cap.

JP32～JP34: Cache Configuration JP47～JP50

Select cache size by setting JP32～JP34, JP47～JP50 on the mainboard. Theses jumpers let the mainboard recognize a cacche configuration of 64KB, 128KB, or 256KB, 512KB, 1MB. Refer to Figure 2-1 for the location of jumpers JP32～JP34, JP47～JP50.

The mainboard is available with 64KB, 128KB, or 256KB, 512KB, 1 MB cacche memory on-board. See Figure 2-1 for the locations of cache and tag memory. For cache data memary, the mainboard supports eight 8K×8-bit SRAM chips (64KB cache size), four 32K×8-bit SRAM chips (128KB cache size), or eight 32K×8-bit SRAM chips (256KB cache size), four 128K×8-bit SRAM chips (512KB cache size), or eight 128K×8-bit SRAM chips (1MB cache size). For tag cache memory, one 8K×8-bit chips or 32K×8-bit or 64K×8-bit chipw are required.

The table below describes cache size requirements and socket locations, See the following page for speed requirements.

Cache Size	Data SRAM Chip/Socket	Tag SRAM Chip/Socket
64K	8K×8/U23, U24, U25, U26, U27, U28, U29, U30	8K×8/U20
128K	32K×8/ U23, U24, U25, U26	8K×8/U20
256K	32K×8/U23, U24, U25, U26, U27, U28, U29,U30	32K×8/U20
512K	128K×8/ U23, U24, U25, U26	32K×8/U20
1M	128K×8/U23, U24, U25, U26, U27, U28, U29, U30	64K×8/U20

Setting the Cache Jumper

Set the cache jumper as in the table below.

	JP32	JP33	JP34	JP47	JP48	JP49	JP50
64K	open	open	open	1-2	open	open	1-2
128K	open	open	short	2-3	short	open	2-3
256K	open	short	shrot	1-2	short	open	1-2
512K	short	short	short	1-2	short	2-3	2-3
1M	short	short	short	1-2	short	1-2	1-2

JP51:DX4(3.3V)Voltage Selector

	JP51
3.3V	open
5V	short

JP21, JP25~JP30, JP56
JP22, JP35~JP38 : CPU Type Selector

You must set these jumpers as in the table below for the mainboard to recognize the type of CPU installed. Refer to Figure 2-1 for jumper locations..

	JP21	JP25	JP26	JP27	JP28	JP29	JP30	JP35	JP36	JP37	JP56
INTEL SL	1-2	open	1-2	1-2	2-3	1-2	2-3	open	open	open	open
INTEL DX	1-2	open	1-2	1-2	2-3	open	2-3	open	open	open	short
INTEL DX4	1-2	open	1-2	1-2	2-3	open	2-3	open	open	open	open
CYRIX	2-3	1-2	2-3	2-3	1-2	2-3	2-3	open	open	short	open
AMD	open	open	open	open	2-3	open	2-3	short	open	open	short
AMD DXL	open	open	open	open	2-3	open	2-3	short	short	open	open

	JP38	JP22
486DX (SL)	1-2 3-4	2-3
486SX	2-3	2-3
486DX4	1-2 3-4	1-2

JP31, JP42～JP44: Cpu Clock Selector

The jumper is used to select two kinds of cpu clock speed on the mainboard.

	JP31	JP42	JP43	JP44
33MHz/ 66MHz	open	short	short	short
50MHz	open	open	open	short
40MHz/ 80MHz	open short	short	short	open
25MHz	open	short	open	open
20MHz	open	open	open	open
100MHz	open short			

JP45: VL-Bus Clock Selector

	JP45
<=33MHz	open
>33MHz	short

JP46: VL-Bus Wait State Selector

	JP46
0WS	open
1WS	short

JP6: External Battery Connector

The jumper is used a 3.6V rechargable battery which maintains the information of system configuration in the CMOS RAM and supplies the realtime clock. It can be automatically recharged while the power is on. However, this connector can be connected to an external battery source.

JP8: EPROM Selector

	JP8
Flash ROM	short
Regular	open

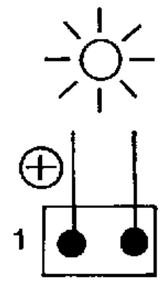
Connectors

Attach the KS-TG919 mainboard to system components via connectors on the mainboard. There are connectors for the keyboard, power supply. speaker, and various control panel switches and indicators. Refer to Figure 2-1 for connector locations and connector pin positions.

JP12: Green LED Connector

This connector attaches to a Green LED on the system case control panel If the mainboard is in Green mode, the LED lights, in NOrmal mode the LED is off.

Green LED Connector



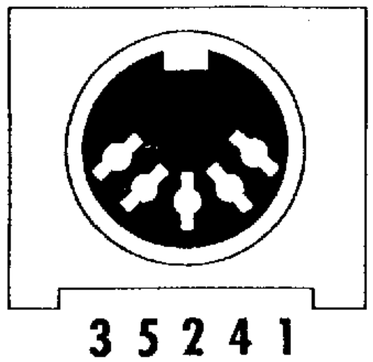
Pin	Description
1	−Anode
2	−Cathode

CN1-Keyboard Connector

The keyboard connector, CN1, is a standard five-pin female DIN connector.
Plug the keyboard cable into this connector.

Keyboard Connector

Pin	Description
1	Keyboard Clock
2	Keyboard Data
3	Spare
4	Ground
5	+5V DC



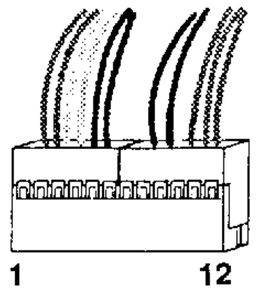
CN2-Power Supply Connector

The power supply connector has two six-pin male header connectors. Plug the dual connectors from the power directly onto the board connector.

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

Power supply connectior

The black wires should be to the inside

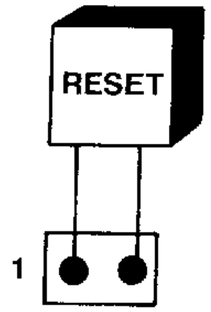


Rest Switch Connector

Attach the Reset switch to this connector. The Reset switch restarts the system.

Setting	Description
Short	Reset
Open	Not Reset

Reset Switch

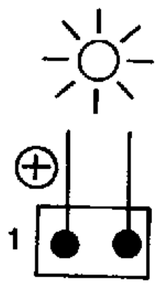


Turbo LED Connector

This connector attaches to a Tubo LED on the system case control panel If the mainboard is in Turbo mode, the LED lights, in NOrmal mode the LED is off.

Pin	Description
1	+Anoe
2	−Cathode

Turled Connector



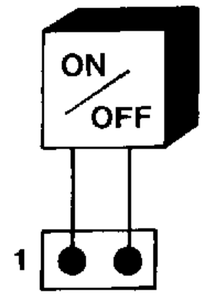
Note: The Turbo LED does not function well if Internal Cache or External Cache are disabled in the BIOS Setup program.

Turbo Switch Connector

This connector attaches to a Turbo switch on the front of the system case. The connector is open for turbo operation and shorted for normal operation.

Settiong	Description
Off	Turbo
On	Noraml

Tursw Switch



Note: In Normal mode the i486 CPU's Internal Cache is disabled. This slows the performance of the i486 to emulate a slower CPU.

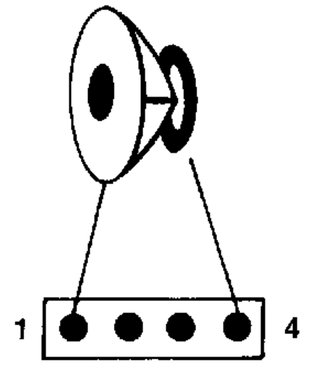
If switch opened the cpu speed is changed by software by deyboard using<CTRL>,<ALT>the <+> or <−>.

Speaker Connector

Attach the system speadker to this connector.

Pin	Description
1	Data Out
2	Not Used
3	Ground
4	+5V

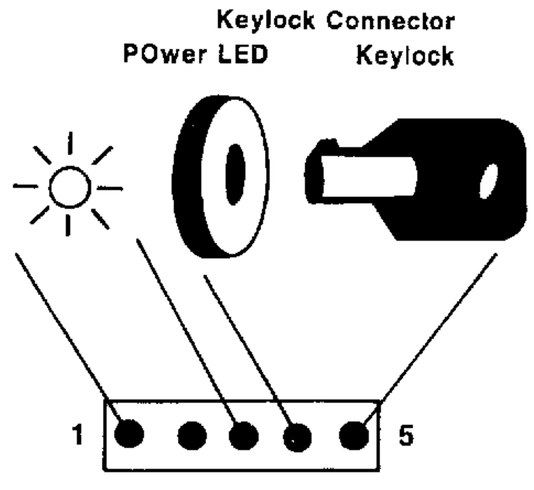
Speaker Connector



Keylock & Power LED Connector

The keylock connector enables and disables the keyboard and Power-LED on the case.

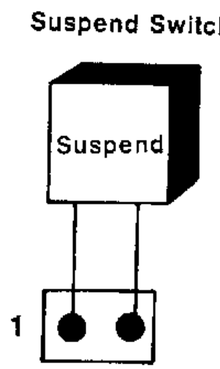
Pin	Description
1	LED power
2	Not Used
3	Ground
4	Keylock
5	Ground



JP:18:Suspend Switch Connector

Attach the Suspend switch to this connector. The suspend switch rest-arts the system.

Setting	Description
Short	Suspend mode
Open	Not Supend



Memory Configuration

Memory Bank Configuration (note: Double side is Bank O, Bank 2 or Bank 1, Bank 3)

BANK 0		BANK 1	BANK 2	BANK 3	MEMORY
30PIN	72PIN	72PIN	72PIN	72PIN	TOTAL SLZE
256Kx4					1M
	1Mx 1-3				1M
256Kx4		1Mx 1-S			2M
	1Mx 1-S	1Mx 1-S			2M
1Mx4					4M
	1Mx 1-S	1Mx 1-S	1Mx 1-S	1Mx 1-S	4M
	4Mx 1-S				4M
1Mx4		4Mx 1-S			8M
	4Mx 1-S	4Mx 1-S			8M
4Mx4		4Mx 1-S			16M
1Mx4		4Mx 1-S	4Mx 1-S	4Mx 1-S	16M
	4Mx 1-S		4Mx 1-S	4Mx 1-S	16M
	16Mx 1-S	16Mx 1-S			16M
4Mx4		16Mx 1-S			32M
	16Mx 1-S	16Mx 1-S			32M
4Mx4		16Mx 1-S	16Mx 1-S	16Mx 1-S	64M
	16Mx 1-S	16Mx 1-S	16Mx 1-S	16Mx 1-S	64M

Installing SIMM

Install a SIMM in a mainboard memory socket as follows:

1. Make sure all power to the mainboard is off.

2. Align the module so that the pin-1 marking on the module corresponds to the SIMM socket pin-1 marking. The module can fit in the socket only one way.

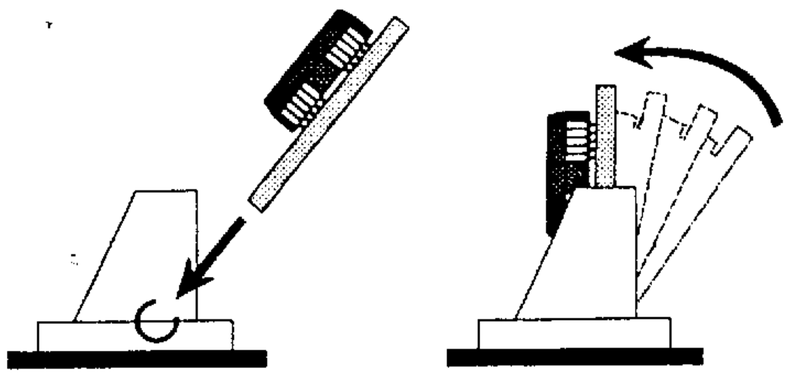
3. Holding the module at about a 70-degree angle to the socket, insert the module's connectors into the socket.

4. Snap the module to a vertical position in the socket. When the module is fully inserted, retaining pegs snap into holes at each end of the module to hold the module firmly in palce.

5. To fill a bank, repeat steps 1~2 until all sockets contain SIMMs.

6. Once you've installed memory, run the BIOS Setup Program to in -dicate to the system how much memory you have installed.

Figure 3-2, Installing a SIMM Module



BIOS Setup 3

Once you have configured the mainboard, and have assembled the components, you can turn on the completed system. At this point, run the software setup to make sure your system information is corrct.

Software setup is accomplished via Basic Input-Output System (BIOS) programming. You setup the BIOS program to tell the operation system what devices are connected to the mainboard.

BIOS setup is also called CMOS setup. You need to run the BIOS setup if hardware is not identical with information contained in the CMOS RAM, or if the CMOS RAM has lost power.

AWARD BIOS CMOS SETUP UTILITY

Setup Program

Version 4.50

Documentation Revision 1.0

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Aware's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed RAM so that it retains the Setup information when the power is turned off.

Entering Setup

Power on the computer and press <Del> immediately will allow you to enter Setup. The other way to enter Setup is to power on the computer, when the below message appears briefly at the bottom of the screen during the POST (Power On Self Test), press <Del> key or simultaneously press <Ctrl>, <Alt>, and <Esc> keys.

TO ENTER SETUP BEFORE BOOT PRESS CTRL-ALT-ESC OF DEL KEY

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously press <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to,

PRESS F1 TO CONTINUE, CTRL-ALT-ESC OR DEL TO ENTER SETUP

Control Keys

Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item in the left hand
Right arrow	Move to the item in the right hand
Esc key	Main Menu-Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu-Exit current page and return to Main Menu
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 key	Change color from total 16 colors
F3 key	Calendar only for Status Page Setup Menu
F4 key	Reserved
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the default
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

The Main Menu

Once you enter Award BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from ten setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> ot accept or enter the sub-menu.
Figure 1 Main Menu

ROM ISA BIOS (2C4X2U02)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC

STANDARD CMOS SETUP	PASSWORD SETTING
BIOS FEATURES SETUP	IDE HDD AUTO DETECTION
CHIPSET FEATURES SETUP	SAVE & EXIT SETUP
POWER MANAGEMENT SETUP	EXIT WITHOUT SAVING
LOAD BIOS DEFAULTS	
LOAD SETUP DEFAULTS	
:Select Item	ESC: Quit
F10: Save & Exit Setup	(Shift)F2: Change Color
Change/Set/Disable Password	

Standard CMOS setup

This setup page includes all the items in a standard compatible BIOS.

BIOS features setup

This setup page includes all the items of Award special enhanced features.

Chipset features setup

This setup page includes all the items of chipset special features.

Power-on with BIOS defaults

BIOS defaults indicates the most appropriate value of the system parameter which the system would be in maximum performance. However, you may change the parameter value through

the Option Page Setup Menu. The OEM manufacturer may change the defaults through MODBIN before the binary image burn into the ROM.

Power-on with chipset defaults

Chipset defaults indicates the values required by the system for the minimum performance. However, you may change the parameter throughthe Option Page Setup menu. The OEM manufacturer may change to defaults through MODBIN beford the binary image burn into the ROM.

Password setting

Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup.

IDE HDD auto detection

Automatically configure hard disk parameters.

Save & exit setup

Save CMOS value changes to CMOS and exit setup.

Exit without save

Abandon all CMOS value changes and exit setup.

Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup menu/Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc>.

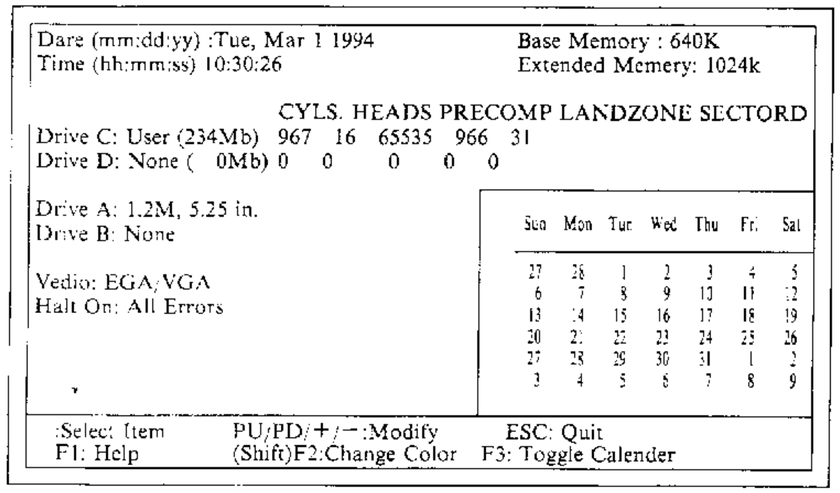
CMOS Setup Utiluty

Standard CMOS Setup menu

The item s in Standard CMOS Setup menu are divided into 10 catgories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

Figure 2 Standard CMOS Setup Menu

ROM ISA BIOS (2C4X2U02)
STAND ARD CMOS SETUP
AWARD SOFTWARE, INC.



Date

The date format is <day>,<date> <month><year>. Press <F3> to show the calendar.

day	The day, from Sun to Sat, determinde by the BIOS and is display-only
date	The date, from 1 to 31 (or the maximum allowed in the month)
month	Tge month, Jan through Dec
year	The year, from 1900 through 2099

Time

The time format is <hour> <minute> <second>. The time is calculated base on the 24-hour military-time clock. For example, 1 p. m. is 13:00:00.

Daylight saving

The category adds one hour to the clock when daylight-saving time begins. It also subtracts one hour when standard time begins.

Enabled	Ebable daylight-saving
Disabled	Disable daylight-saving

Drive C type/Drive D type

The category identify the types of hard disk drive C or drive D theat has been installed in the computer. There are 46 predefined types and a user definable type. Type 1 to Tytpe 46 are predefined. Type User is user-definable.

Press PgUp or PgDn to select a numbered hard disk type or type the number and press <Enter>. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed. you can use Type User to define your own drive type manually.

If you select Type User, related infomation is asked ot be entered to the following items. Enter the information directly from the keyboard and press <Enter>. Those information should be provided in the documentation from your hard disk vendor or the system manufacturer.

CYLS.	number of cylinders
HEADS	number of heads
PRECOMP	write precom
LANDZONE	landing zone
SECTORS	number of sectors

If a hard disk has not been installed select NONE and press <Enter>.

Drive A type/Drive B type

The category identify the types of floppy disk drive A of drive B that has been installed in the computer.

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

Video

The category selects the type of adapter used for the primary system monitor that must matches your video display card and monitor. Although secondary monitors are supported, you do not have to select the type in Setup.

EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SEGA, or PGA monitor adapters.
CGA 40	Color Graphics Adapter, power up in 40 column mode
CGA 80	Color Graphics Adapter, power up in 80 column mode
MONO	Monochrome adapter, includes high resolution monochrome adapters

Error halt

The category determines whether the computer will stop if an error is detected during power up.

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

Memory

The category is display-only which is determined by POST (Power On Self Test) of the BIOS.

Base Memory

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 512K for systems with 512K memory installed on the motherboard, or 640K for systems with 640K or more memory installed on the motherboard.

Extended Memory

The BIOS determines how much extended memory is present during the POST. This is the amount of memory located above 1MB in the CPU's memory address map.

Expanded Memory

Expanded Memory is memory defined by the Lotus/Intel/Microsoft (LIM) standard as EMS. Many standard DOS applications can not utilize memory above 640K, the Expanded Memory Specification (EMS) swaps memory which not utilized by DOS with a section, or frame, os these applications can access all of the system memory, Memory can be swapped by EMS is usually 64K within 1 MB or memory above 1MB, depends on the chipset design.

Expanded memory device driver is required to use memory as Expanded Memory.

Other Memory

This refers to the memory located in the 640K to 1024K address space. This is memory that can be used for different applications. DOS uses this area to load device drivers to keep as much base memory free for application programs. Most use for this area is Shadow RAM.

ORM ISA BIOS (2C403U01)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Virus Warning	:Disabled	System BIOS Shadow	:Enabled
CPU Internal Cache	:Enabled	Video BIOS Shadow	:Enabled
External Cache	:Enabled	C8000-CBFFF Shadow	:Disabled
Boot Sequence	:A,C	CC000-CFFFF Shadow	:Disabled
Swap Floppy Drive	:Disabled	D0000-D3FFF Shadow	:Disabled
IDE HDD Block Mode	:Disabled	D4000-D7FFF Shadow	:Disabled
IDE 32-bit transfer	:Disabled	D8000-DBFFF Shadow	Disabled
Gate A20 Option	:Fast	DC000-DFFFF Shadow	:Disabled
Memory Parity Check	:Disabled	E0000-E3FFF Shadow	:Disabled
Typematic Rate Setting	:Disabled	E4000-E7FFF Shadow	:Disabled
Typematic Rate (Chars/Sec)	:6	E8000-EBFFF Shadow	Disabled
Typematic Delay (Msec)	:250	EC000-EFFFF Shadow	:Disabled
Security Option	:Setup		

ESC :Quit ↑ ↓ →←:Select Item
F1 :Help PU/PD/+/−:Modify
F5 :Old Values (Shift)F2 :Color
F6 :Load BIOS Defaults
F7 :Load Setup Defaults

BIOS Features Stup

BIOS Features Setup Menu

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 run can anti-virus program to locate the problem.

```
! WARNING !
Disk boot sector is to be modified
Type "Y" to accept write or "N" to abort write
Award Software, Inc.
```

Enabled	Activate 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 CUPU/chipset design. The default value is disable.

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 categroy determines which drive computer searches first for the disk operating system (i.e., DOS). Default vlaue is A,C.

C,A	System will first search for hard disk drive then floppy disk drive.
A,C	System will first search for floppy disk drive then floppy disk drive.

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.

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-the speed that the system will urn at immediately after power up.

High	Set the speed to high
Low	Set the speed to low

IDE HDD Block Mode

Enabled	Enable IDE HDD Block Mode
Disabled	Disabel IDE HDD Block Mode

Gate A20 Option

Normal	keyboard
Fast	chipset

Memory Parity Check

Enabled	Normal memory parity check
Disabled	Ignore memory parity check

Typematic Rate Setting

This determines the typematic rate.

Enabled	Enable typematic rate
Disabled	Disable typematic rate

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

250	250 msec
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 to Setup.

System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt. For both system & configure setup.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt. For configure setup only.

Note: To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

System BIOS Shadow

It determines whether system BIOS will be copied to RAM, however, it is optional from chipset design. System Shadow will improve the system performance.

Enabled	System shadow is enabled
Disabled	System shadow is disabled

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/EC000-EFFFF Shadow

These categories determine whether optional ROM will be copied to RAM by 16K byte.

Enabled	Optional shadow is enabled
Disabled	Optional shadow is disabled

Chipset Features Setup

Chipset Features Setup Menu

The items in this menu varies from chipset and motherboard design. Therefore, they will not be listed in this User's Guide.

ROM ISA BIOS (2C403U01)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration	Enabled	IDE hard disk prefetch: Disable
Cache write wait state	:1 W/S	IDE data transfer speed: Slow
External cache burst read	:3-2-2-2	IDE turbo data transfer: Disable
Cache update policy	:Write-Th	
	:	
Video BIOS Cacheable	:Disabled	
ORAM R/W wait state	:Medium	
AT bus clock selection	:CLKI/5	
AT I/O recovery time	:6 AT CYLs	
IDE I/O recovery time	:ATI/O WS	
Extra AT cycle wait state	:Disabled	
DMA Frequency select	:SYSCLK/2	
Local device wait state	:2 WS	

ESC:Quit ↑ ↓ → ←:Select Item
F1 :Help PU/PD/+/−:Modify
F5 :Old Values (Shift)F2 : Color
F6 :Load BIOS Defaults
F7 :Load Setup Defaults

Password Setting

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

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

PASSWORD DISABLED.

If you select System at Security Optiion of BIOS Features Setup Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup. If you select Setup at Security Option of BIOS Featues Setup Menu, you will be prompted only when you try to enter Setup.

Power-On Boot

After you have made all the changes to CMOS values and the system can not boot with the CMOS values selected in Setup, restart the system by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously press <Ctrl>, <Alt>, and <Delete> keys. Upon restart the system, immediately press <Insert> to load BIOS difault CMOS value for boot up.

IDE Auto-Detect & HD Utility

IDE HDD AUTO DETECTION

Automatically configure hard disk parameters.

ROM ISA BIOS (2C4X2U02)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

	CYLS.	HEADS	PRECOMP	LANDZONE	SECTORS
Drive C:(234Mb)	967	16	65535	966	31
Drive D:(0Mb)	0	0	0	0	0

Do you accept this drive D (Y/N)?N

ESC: Skip

Power Management Setup

ROM ISA BIOS (2C4X3U01)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management	User Defined
Vider off Method	:Bland Screen
Standby Mode Timer	:2 Sec
Suspend Mode Timer	:1 Min
Video Stand by Timer	:4 Min
HDD Standby Tiemr	:Disabled
Stand Mode Speed	:1/4 Speed
Suspend Mode Speed	:STOP CLK2
DMA request Check	:Enabled
Keyboard/Mouse Check	:Enabled
Interrupt Check	:Enabled
Parallel Port Check	:Enabled
Serial Port Check	:Enabled
Hard Disk Check	:Enabled
Video Write Check	:Disabled
Local Master Check	:Disabled
Reset V-Timer Event	:Keyboard/Mouse

ESC:Quit ↑ ↓ →←:Select Item
F1 :Help PU/PD/+/−:Modify
F5 :Old Values (Shift)F2: Color
F6 :Load BIOS Defaults
F7 :Load Setup Defaults

OPERATIONS:

- *PLS SELECT "POWER MANAGEMENT SEUP" IN THE MAIN MENU OF CMOS SETUP UTILITY.
- *SUGGEST USER DEFAULT AS SHOWN IN POWER MANAGE-MENT SETUP.
- *"SYSTEM POWER DOWN", ALWAYS DISABLED UNLESS GREEN SWITCHING POWER IS AVAILABLE.

NOTE:

- *PLS SET "POWER MANAGEMENT" TO DISABLE WHILE BURN-IN & PROGRAMTESTING.
- *PTESS "SHIFT" KEY TO WAKE UP FROM SLEEP MODE. OTHER KEYS WILL WORK BUT WILL LEAVE A CHAR-ACTER ON SCREEN OR GIVE A COMMAND.
- *HOLDING ANY KEY DEPRESSED WILL ACTIVATE GREEN FUNCTION.

BIOS Default Drive Table

BIOS Reference-BIOS Default Drive Table

This is a current list of the drive type table contained in Setup.

Type	Size (MB)	Cyli-nders	Heads	Sectors	Write Precomp	Land Zone	Example Model
1	10	306	4	17	128	305	TEAC SD510. MMI 112, 5412
2	20	615	4	17	300	615	Seagate ST225, ST4026
3	30	615	6	17	300	615	
4	62	940	8	17	512	940	
5	46	940	6	17	512	940	
6	20	615	4	17	None	615	Seagate ST125, Tandon TM262
7	30	462	8	17	256	511	
8	30	733	5	17	None	733	Tandon TM 703
9	112	900	15	17	None	901	
10	20	820	3	17	None	820	
11	35	855	5	17	None	855	
12	49	855	7	17	None	855	
13	20	306	8	17	128	319	Disctron 526, MMI M125
14	42	733	7	17	None	733	
15		Reserved					
16	20	612	4	17	0	663	Microscience HH725, Syquest 3250, 3425
17	40	977	5	17	300	977	
18	56	977	7	17	None	977	
19	59	1024	7	17	512	1023	
20	30	733	5	17	300	732	
21	42	733	7	17	300	732	
22	30	306	5	17	300	733	Seagate ST4038
23	10	977	4	17	0	336	
24	40	1024	5	17	None	976	Seagate ST4051
25	76	1224	9	17	None	1023	Seagate ST4096
26	71	1224	7	17	None	1223	Maxtor 2085
27	111	1224	11	17	None	1223	Maxtor 2140, Priam S14
28	152	1024	15	17	None	1223	Maxtor 2190, Priam S194
29	68	1024	8	17	None	1023	Maxtor 1085, Micropolis 1325
30	93	918	11	17	None	1023	Maxtor 1105, 1120, 4780
31	83	925	11	17	None	1023	Maxtor 1170
32	69	1024	9	17	None	926	CDC 9415

33	85	1024	10	17	None	1023	
34	102	1024	12	17	None	1023	
35	110	1024	13	17	None	1023	
36	119	1024	14	17	None	1023	
37	17	1024	2	17	None	1023	
38	136		16	17	None	1023	
39	114	1024	15	17	None	1023	Maxtor 1140, 4380
40	40		6	17	None	820	Seagate ST251
41	42	918 820	5	17	None	1023	Seagate 4053 Miniscribe 3053/6053
42	65	1024 1024	5	26	None	1023	Miniscribe 3053/6053RLL
43	40	809	6	17	None	852	Miniscribe 3650
44	61	809	6	26	None	852	Miniscribe 3675RLL
45	100	776	8	33	None	775	Conner CP3104
46	203	684	16	38	None	685	Conner CP3204
User							