

SBC-558P

Half Size Tillamook MMX
CPU Card With LCD,
Ethernet & SSD

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We want you to get the maximum performance from your products. So if you run into technical difficulties, we are here to help. For the most frequently asked questions, you can easily find answers in your product documentation. These answers are normally a lot more detailed than the ones we can give over the phone.

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2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Packing list

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

- 1 SBC-558P All-in-One Single Board Computer Card
- 1 Quick Installation Guide
- 1 Support CD contains the followings:
 - User's Manual (this manual in PDF file)
 - Ethernet drivers and utilities
 - VGA drivers and utilities
- 1 hard disk drive (IDE) interface cable
- 1 floppy disk drive interface cable
- 1 6 pins mini-DIN dual outlet adapter for keyboard and PS/2 mouse
- 1 parallel port adapter (26 pins) and COM2 adapter (for RS-232/422/485)
- 1 bag of screws and miscellaneous parts

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

Notice

Dear Customer,

Thank you for purchasing the SBC-558P board. This user's manual is designed to help you to get the most out of the SBC-558P, please read it thoroughly before you install and use the board. The product that you have purchased comes with an two-year limited warranty, but AAeon will not be responsible for misuse of the product. Therefore, we strongly urge you to first read the manual before using the product.

To receive the latest version of the user manual, please visit our Web site at:

<http://www.aaeon.com>

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General Information

This chapter gives background information on the mainboard.

Sections include:

- Board specifications

- Layout and dimensions

Introduction

The SBC-558P is an all-in-one Intel processor based single board computer (SBC) with a PCI Flat Panel controller, two PCI 100Base-Tx Ethernet interface. The SBC-558P achieves outstanding performance that surpasses any other SBC in its class. In addition, the onboard SSD interface supports M-systems DiskOnChip 2000 series, memory capacity up to 1GB.

Onboard features include two serial ports (one RS-232, one RS-232/422/485), one multi-mode parallel (ECP/EPP/SPP) port, connector for two USB (Universal Serial Bus) ports, a floppy drive controller, and a keyboard/PS/2 mouse interface. The built-in high speed PCI IDE controller supports Ultra DMA/33 mode. Up to two IDE devices can be connected, including large hard disks, CD-ROM drives, and tape backup drives, etc.

The SBC-558P also features power management to minimize power consumption. It complies with the ACPI standard and supports three types of power saving features: Doze mode, Standby mode, and Suspend mode. In addition, the board's watchdog timer can automatically reset the system or generate an interrupt in case the system stops due to a program bug or EMI.

Highly integrated SBC

The SBC-558P is a highly integrated SBC that combines, video, and network functions on a single computer board. It provides up to 1024 x 768 resolution @ 64K colors with on-chip 2MB SDRAM display memory. Major onboard devices adopt PCI technology to achieve outstanding computing performance making the SBC-558P one of the world's best and most powerful all-in-one Single Board Computer.

Features

Intel Tillamook Pentium MMX 266 (BGA) lower power CPU onboard

Supports DiskOnChip (SSD) up to 1GB

C&T 69000 LCD controller supports 36-bit TFT Panels

Two 100Base-Tx Fast Ethernet

Supports H/W status monitoring

Specifications

Standard SBC functions

CPU: Intel Tillamook Pentium MMX 266 MHz (BGA) onboard

- **Bus interface:** PCISA bus.
- **BIOS:** Award 256KB Flash BIOS
- **Chipset:** Intel 430 TX
- **I/O chipset:** Winbond W83977TF with fully 16-bit I/O decoded
- **Memory :** Up to 256MB. Two 144-pin SODIMM sockets onboard
- **Enhanced IDE:** Supports up to two IDE devices. Supports Ultra DMA/33 mode with data transfer rate 33MB/Sec.
- **FDD interface:** Supports up to two floppy disk drives, 5.25" (360KB and 1.2MB) and/or 3.5" (720KB, 1.44MB, and 2.88MB)
- **Parallel port:** One bi-directional parallel port. Supports SPP, ECP, and EPP modes
- **Serial port:** One RS-232 and one RS-232/422/485 serial port. Ports can be configured as COM1, COM2, COM3, COM4, or disabled individually. Two 16C550 serial UARTs.
- **IR interface:** Supports one IrDA Tx/Rx header
- **KB/Mouse connector :** 6 pins mini-DIN connector supports PC/AT keyboard and PS/2 mouse. Additional 5 pins header supports PC/AT keyboard for IPC applications
- **USB connectors:** 5 x 2 header onboard supports dual USB ports
- **Battery:** Lithium battery
- **Watchdog timer:** Can generate a system reset, IRQ15, or NMI. Software selectable time-out interval (32 sec. ~ 254.5 sec., 1 min./step)
- **DMA:** 7 DMA channels (8237 equivalent)
- **Interrupt:** 15 interrupt levels (8259 equivalent)
- **Power management:** I/O peripheral devices support power saving and doze/stanby/suspend modes. APM 1.2 ocmpliant

- **H/W status monitoring:** Winbond W83781D H/W status monitoring IC supports power supply voltages, and temperatures monitoring
- **PC/104 connector:** 104-pin connector for a 16-bit bus
- **PC/104 Plus connector:** 120-pin PC/104 Plus connector onboard

Flat Panel/CRT Interface

- **Chipset:** C&T 69000
- **Display memory:** 2MB SDRAM built in chip
- **Display type:** Supports non-interlaced CRT and LCD (TFT, DSTN, and Mono) displays. Can display both CRT and Flat Panel simultaneously
- **Resolution:** Up to 1024x768@64K colors

Ethernet Interface

- **Chipset:** Intel 82559GD 100Base-Tx Fast Ethernet controller
- **Ethernet interface :** Onboard 100Base-Tx RJ-45 connector

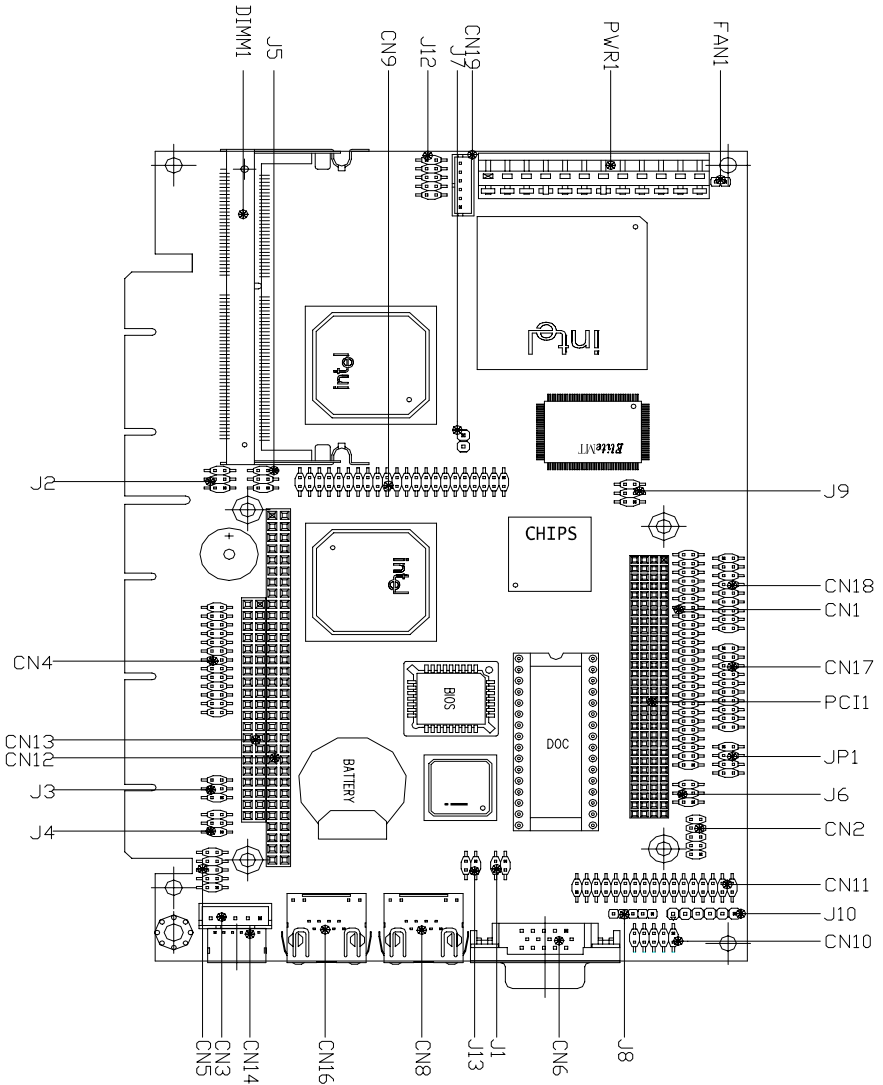
SSD Interface

- One 32 pins DIP socket supports M-Systems DiskOnChip 2000 series up to 1GB

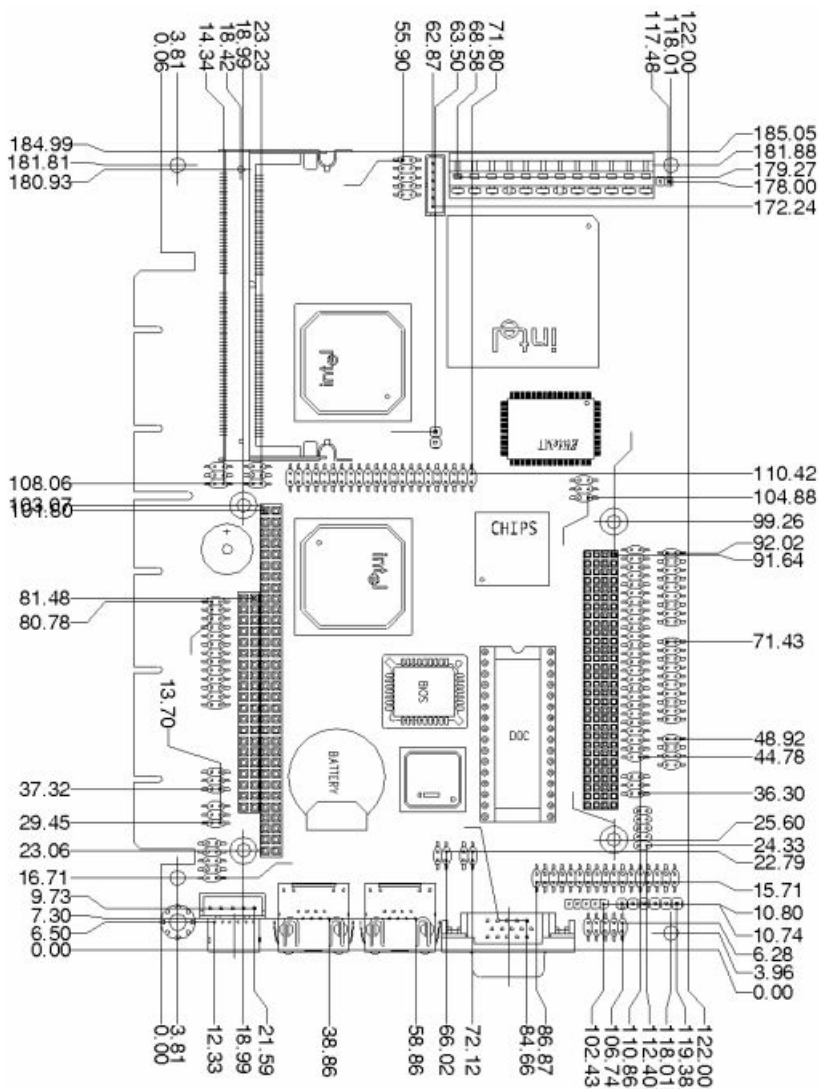
Mechanical and environmental

- **Power supply voltage:** +5V (4.75V to 5.25V),
+12V (11.4V to 12.6V)
- **Power requirement:** +5V @ 2.8A
- **Operating temperature:** 32 to 140°F (0 to 60°C)
- **Board size:** 7.3"(L) x 4.8"(W) (185mm x 122mm)
- **Weight:** 1.2 lb. (0.5 Kg)

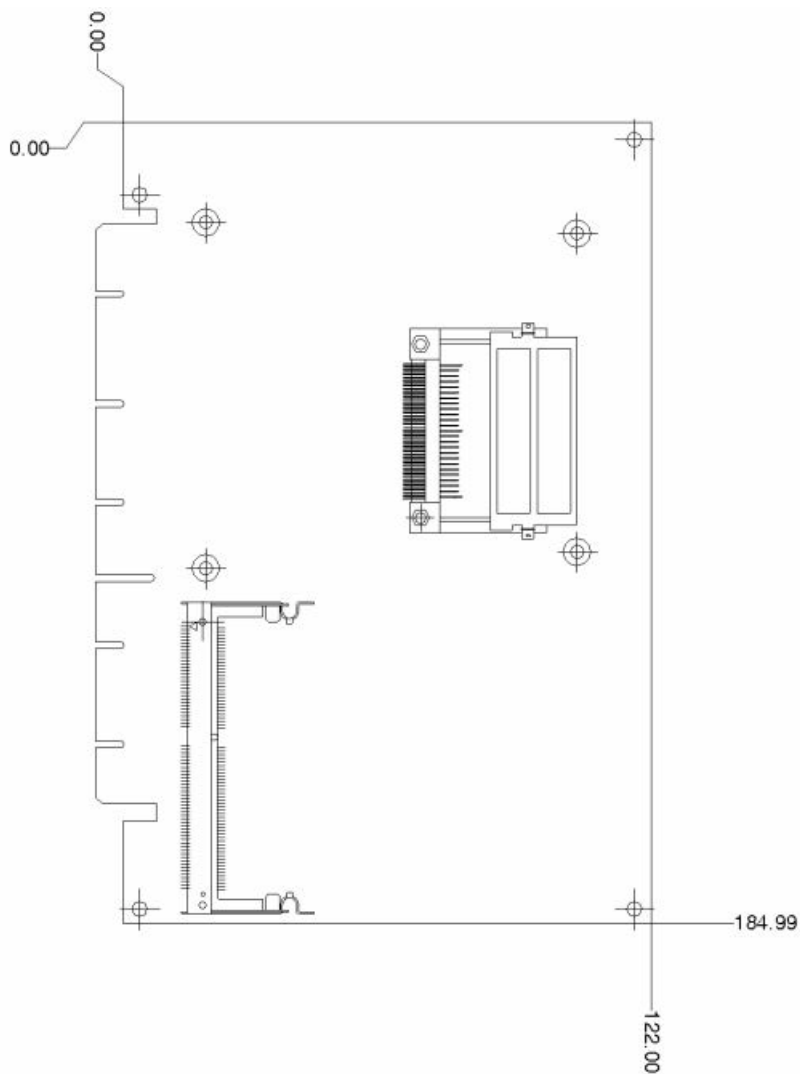
Board layout



Board dimensions



Board dimensions



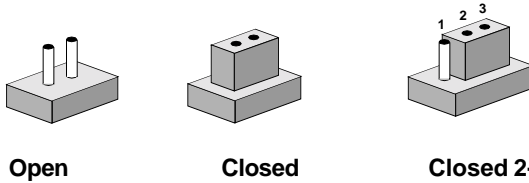
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Installation

This chapter describes how to set up the main board hardware, including instructions on setting jumpers and connecting peripherals, switches, and indicators. Be sure to read all the safety precautions before you begin the installation procedure.

Setting jumpers

You can configure your card to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip. To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case you would connect either pins 1 and 2 or 2 and 3.



The jumper settings are schematically depicted in this manual as follows:



A pair of needle-nose pliers may be helpful when working with jumpers.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

Installing SDRAM (SODIMMs)

System Memory

The upper edge of the SBC-558P contains one sockets for 144 pins dual inline memory module (SODIMM). The socket uses 3.3 V unbuffered synchronous (SDRAM). SODIMM is available in capacities of 16, 32, 64, 128, or 256 MB. The socket can be filled in the SODIMM of any size, giving your SBC-558P single board computer between 16 and 256 MB of memory.

Note: There were two memory modules in the original design. Because of thermal and mechanical limitation, we remove one of the memory socket.

Supplementary information about SODIMM

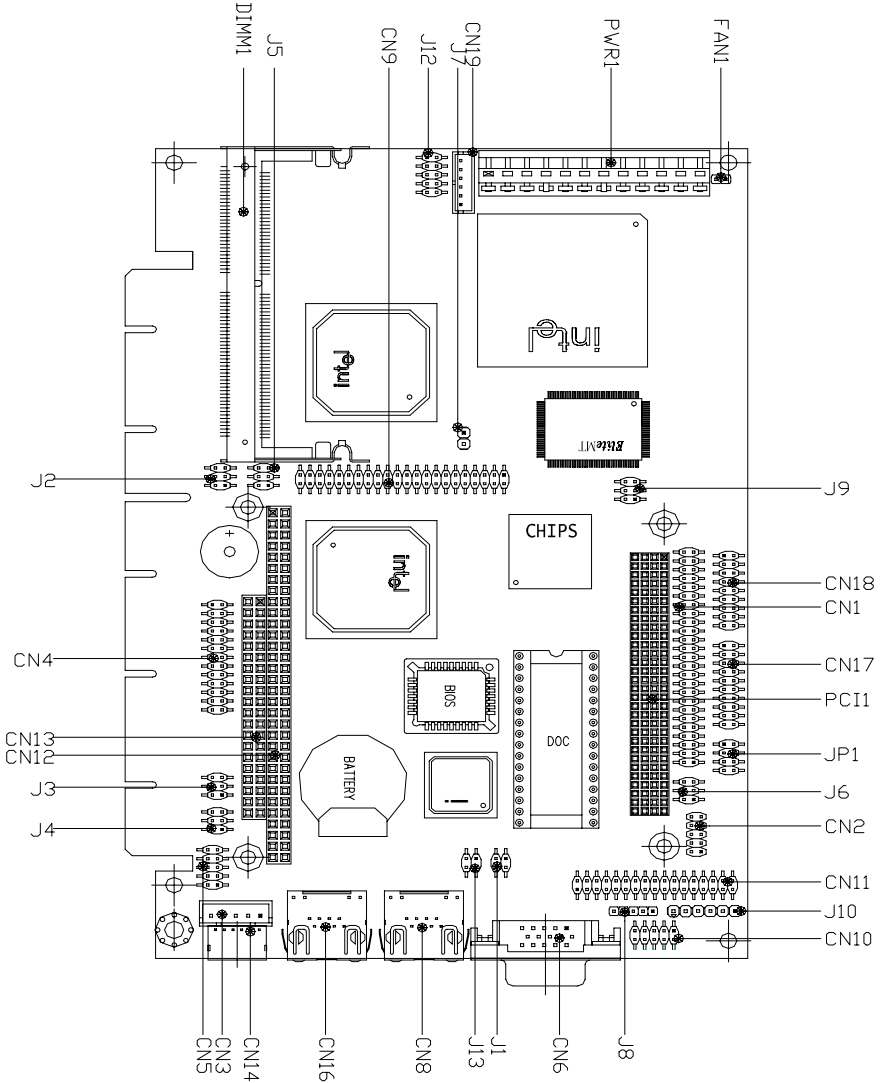
Your SBC-558P can accept both regular and PC-100 SDRAM SODIMM Module(with or without parity). The SBC-558P can only accept PC-100 SDRAM SODIMM Module.

Single-sided modules are typically 16 or 64 MB; double-sided modules are usually 32 or 128 MB.

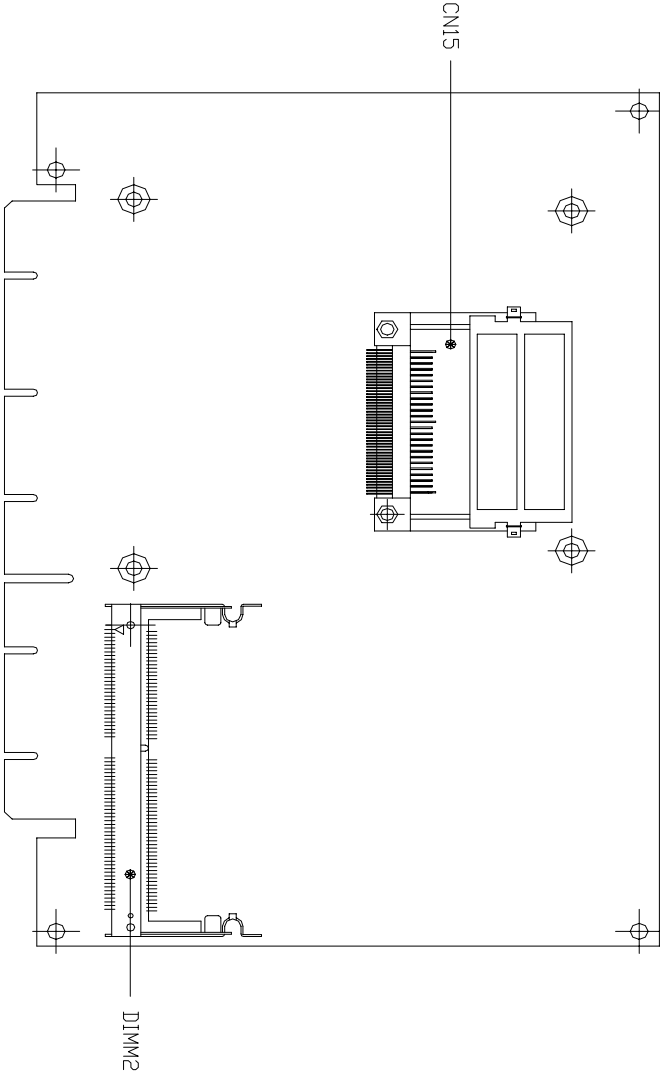
Memory Installation Procedures

To install SODIMM, first make sure the two handles of the SODIMM socket are in the "open" position. i.e. The handles remain outward. Slowly slide the SODIMM module along the plastic guides on both ends of the socket. Then press the SODIMM module right down into the socket, until you hear a click. This is when the two handles have automatically locked the memory module into the correct position of the SODIMM socket. (See Figure below) To take away the memory module, just push both handles outward, and the memory module will be ejected by the mechanism in the socket.

Locating jumpers



Locating connectors



Jumpers

Connectors on the board link it to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

The following tables list the function of each of the board's jumpers and connectors.

Jumpers	
Label	Function
J1	DOC address select
J2, J3, J4	COM2 select
J5	PC/104 Plus voltage select/CMOS setting
J6	LCD clock signal & driving voltage select
J8	Connector for PCM-3730
J9	WDT Control
J10	IrDA Connector
J12	Front Panel Connectors
J13	Lan Enable/Disable
JP1	LVDS Voltage / Backlight Voltage

Connectors

Connectors	
Label	Function
CN1	LCD display Connector
CN2	USB Connector
CN3	Internal keyboard Connector
CN4	Parallel port Connector
CN5	COM port Connector
CN6	VGA display Connector
CN8	10/100Base-Tx Ethernet Connector
CN9	IDE hard drive Connector
CN10	COM port Connector
CN11	Floppy drive Connector
CN12	PC/104 Connector
CN13	PC/104 Connector
CN14	Keyboard and PS/2 mouse Connector
CN15	Compact Flash Connector
CN16	10/100Base-Tx Ethernet Connector
CN17	N/A
CN18	N/A
CN19	AT to ATX Connector
CN20	ATX Power Connector
Fan 1	CPU fan power Connector
PWR1	Power Connector
DIMM1/DIMM2	144-Pin SoDIMM Connector

LCD Display Connector (CN1)

LCD Display Connector (CN1)

Pin	Signal	Pin	Signal
1	+12V BLKVCC	2	+12V BLK VCC
3	GND	4	GND
5	+5v	6	+5v
7	ENAVEE	8	GND
9	P0	10	P1
11	P2	12	P3
13	P4	14	P5
15	P6	16	P7
17	P8	18	P9
19	P10	20	P11
21	P12	22	P13
23	P14	24	P15
25	P16	26	P17
27	P18	28	P19
29	P20	30	P21
31	P22	32	P23
33	P24	34	P25
35	SHF CLK	36	FLM (V_SYS)
37	M	38	LP (H_SYS)
39	GND	40	ENABKL
41	P26	42	P27
43	P28	44	P29
45	P30	46	P31
47	P32	48	P33
49	P34	50	P35

USB Connector (CN2)

USB Connector (CN2)			
Pin	Signal	Pin	Signal
1	VCC	2	GND
3	USBD0-	4	GND
5	USBD0+	6	USBD1+
7	GND	8	USBD1-
9	GND	10	VCC

Internal Keyboard Connector (CN3)

Internal Keyboard Connector (CN3)	
Pin	Signal
1	KB_CLOCK
2	KB_DATA
3	NC
4	GND
5	KB_VCC

Parallel Port connector (CN4)

Parallel port connector (CN4)

Pin	Signal	Pin	Signal
1	/STROBE	2	\AUTOFD
3	DO	4	ERR
5	D1	6	\INIT
7	D2	8	\SLCTINI
9	D3	10	GND
11	D4	12	GND
13	D5	14	GND
15	D6	16	GND
17	D7	18	GND
19	\ACK	20	GND
21	BUST	22	GND
23	PE	24	GND
25	SLCT	26	NC

COM Port Connector (CN5, CN10)

COM Port Connector (CN5, CN10)

Pin	Signal	Pin	Signal
1	DCD	2	RIN
3	SOUT	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

VGA Display connector (CN6)

The SBC-558P PCI SVGA interface can drive conventional CRT displays and is capable of driving a wide range of flat panel displays, including electroluminescent (EL), gas plasma, passive LCD, and active LCD displays. The board has two connectors to support these displays, one for standard CRT VGA monitors and one for flat panel displays.

VGA display connector (CN6)

A simple one-to-one adapter can be used to match CN6 to a standard 15-pin D-SUB connector commonly used for VGA.

Pin	Signal	Pin	Signal
1	Red video	9	Key (on pin)
2	Green video	10	Sync return (GND)
3	Blue video	11	Monitor ID (notused)
4	Not used	12	Monitor ID
5	GND	13	Horizontal Sync
6	Red returned(GND)	14	Vertical Sync
7	Green returned(GND)	15	Not used
8	Blue returned (GND)		

Ethernet RJ-45 Connector (CN8, CN16)

Ethernet RJ-45 Connector (CN8, CN16)

Pin	Signal	Pin	Signal
1	TX+	2	TX-
3	RX+	4	NC
5	NC	6	RX-
7	NC	8	NC
9	NC	10	NC
11	GND	12	GND
13	LED1+	14	LED1-
15	LED2+	16	LED2-

IDE hard drive connector (CN9)

IDE hard drive connector (CN9)			
Pin	Signal	Pin	Signal
1	-HDRST	2	GND
3	ID7	4	ID8
5	ID6	6	ID9
7	ID5	8	ID10
9	ID4	10	ID11
11	ID3	12	ID12
13	ID2	14	ID13
15	ID1	16	ID14
17	ID0	18	ID15
19	GND	20	NC
21	HDRQ-	22	GND
23	HIOW-	24	GND
25	HIOR-	26	GND
27	HRDY	28	GND
29	HACK-	30	GND
31	HIRQ	32	NC
33	HDA1	34	NC
35	HDA0	36	HDA2
37	HCS1-	38	HCS3-
39	HLED1	40	GND
41	VCC	42	VCC
43	GND	44	NC

Floppy drive connector (CN11)

Floppy drive connector (CN11)

Pin	Signal	Pin	Signal
1	GND	2	/REDWC
3	GND	4	NC
5	GND	6	NC
7	GND	8	/INDEX
9	GND	10	/MOTSA
11	GND	12	/DRVSB
13	GND	14	/DRVSA
15	GND	16	/MOTEB
17	GND	18	/DIR
19	GND	20	/STEP
21	GND	22	/WDATA
23	GND	24	/WGATE
25	GND	26	/TK00
27	GND	28	/WPT
29	GND	30	/RDATA
31	GND	32	/SIDE1
33	GND	34	/DSKCHG

Keyboard/Mouse Connector (CN14)

Keyboard Connector (CN14)

Pin	Signal
1	MS_CLOCK
2	MB_CLOCK
3	VCC
4	MS_DATA
5	MB_DATA

AT to ATX Connector (CN19)

Connector (CN19)

Pin	Signal
1	NC
2	GND
3	NC
4	GND
5	PS_ON
6	5VSB









ATX power connector (CN20)

ATX power connector (CN20)

Pin	Signal	Pin	Signal
1	VCC3	11	VCC3
2	VCC3	12	-12V
3	GND	13	GND
4	VCC	14	PS_ON
5	GND	15	GND
6	VCC	16	GND
7	GND	17	GND
8	NC	18	-5V
9	5VBS	19	VCC
10	+12V	20	VCC

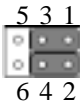

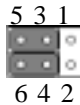
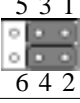
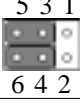
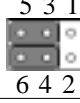

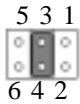
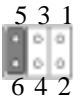
DOC Address Select (J1)

DOC Address Select

D400		D800		DC00		Disable	
1		2		1		2	
3		4		3		4	

COM2 Select (J2, J3, J4)

COM2 Select (J2, J3, J4)

	RS-232*	RS-422	RS-485
J2			
J3			
J4			

*default

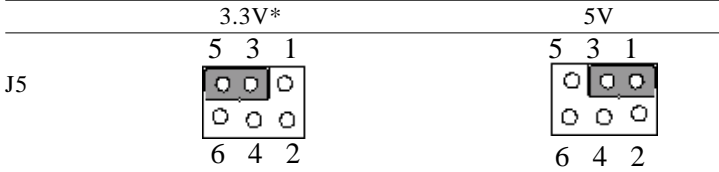
PC/104 Plus voltage select/Clear CMOS (J5)

The SBC-558P's PC/104 plus connector give you the flexibility to attach PC/104 plus expansion modules, you can change the J5 Jumper to select the voltage as your module request, You also can clear the onboard CMOS data by J5, too.

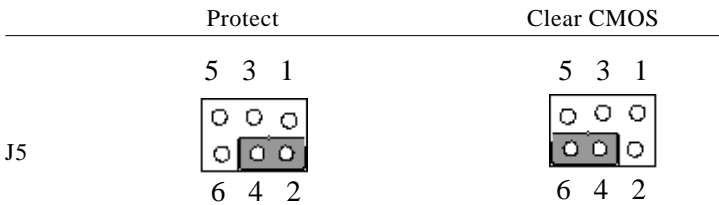
Clear CMOS procedure:

1. Disconnect all power source.
2. Move J5 from 2-4 to 4-6 for few seconds.
3. Move J5 back to 2-4.

PC/104 Plus Voltage Select (J5)



Clear CMOS (J5)

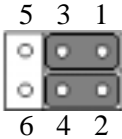
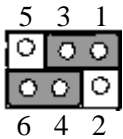
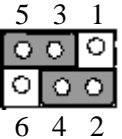
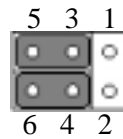


*default

LCD clock signal & driving voltage select (J6)

You can select the LCD connector J6 driving voltage & control signal by setting J6. The configurations are as follows:

LCD clock signal & driving voltage select (J6)




	ASHF CLK / +5V	ASHFCLK / +3.3V
J6		
	SHFCLK / +5V	SHFCLK / +3.3V *
		

*default

Connector for PCM-3730 (J8)

Connector (J8)			
Pin	Signal	Pin	Signal
1	5VSB	2	GND
3	PHRIN	4	SMBDATA
5	SMBCLK		

WDT Control (J9)

	NMI-	Reset*	IRQ15
	5 3 1	5 3 1	5 3 1
J9			
	6 4 2	6 4 2	6 4 2

Default*

IR Connector (J10)

IR Connector (J10)			
Pin	Signal	Pin	Signal
1	VCC	2	FIRRX
3	IRRX	4	GND
5	IRTX	6	CIRRX

Front Panel Connector (J12)

Front Panel Connector (J12)

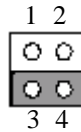
Pin	Signal	Pin	Signal	Function
1	GND	2	5VSB	Power on Bbtn
3	HLED	4	HELD+	HDD LED
5	BUZZ	6	BZ_IN	Speaker
7	NC	8	GND	NC
9	RSTIN	10	GND	HW-Reset

LAN Enable/Disable (J13)

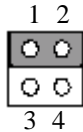
Enable*



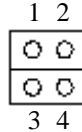
Disable Lan 1



Disable Lan 2



Disable Lan 1/2



Award BIOS Setup

This chapter describes how to configure the BIOS for the SBC-558P.

Starting setup

The Award BIOS is immediately activated when you first turn on the computer. The BIOS reads system configuration information in CMOS RAM and begins the process of checking out the system and configuring it through the power-on self test (POST).

When these preliminaries are finished, the BIOS seeks an operating system on one of the data storage devices (hard drive, floppy drive, etc.). The BIOS launches the operating system and hands control of system operations to it.

During POST, you can start the Setup program in one of two ways:

1. By pressing Del immediately after switching the system on, or
2. By pressing Del or pressing Ctrl-Alt-Esc when the following message appears briefly at the bottom of the screen during POST:

TO ENTER SETUP BEFORE BOOT PRESS 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 pressing Ctr-Alt-Del. If you do not press the keys at the correct time and the system does not boot, an error message appears and you are again asked to

PRESS F1 TO CONTINUE, DEL TO ENTER SETUP

Setup keys

These keys help you navigate in Setup:

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	Main Menu: Quit and not save changes into CMOS RAM Other pages: Exit current page and return to Main Menu
PgDn/+	Increase the numeric value or make changes
PgDn/-	Decrease the numeric value or make changes
F1	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2	Change color from total 16 colors. F2 to select color forward, Shift-F2 to select color backward
F3	Calendar, only for Status Page Setup Menu
F4	Reserved
F5	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6	Load the default CMOS RAM value from BIOS default table, only for Option Page Setup Menu
F7	Load the default
F8	Reserved
F9	Reserved
F10	Save all the CMOS changes, only for Main Menu

Getting help

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 or the F1 key again.

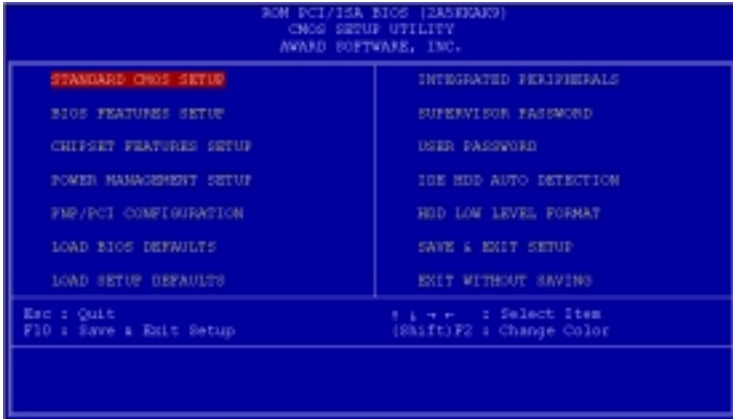
In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the **Award-BIOS** supports an override to the CMOS settings that resets your system to its default configuration.

You can invoke this override by immediately pressing Insert; when you restart your computer. You can restart by either using the ON/OFF switch, the RESET button or by pressing Ctrl-Alt-Delete.

The best advice is to alter only settings that you thoroughly understand. In particular, do not change settings in the Chipset screen without a good reason. The Chipset defaults have been carefully chosen by Award Software or your system manufacturer for the best performance and reliability. Even a seemingly small change to the Chipset setup may causing the system to become unstable.

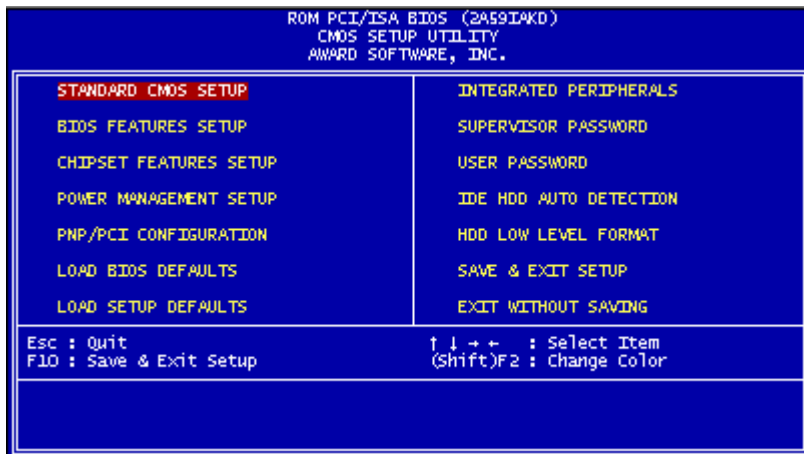
Main setup Menu



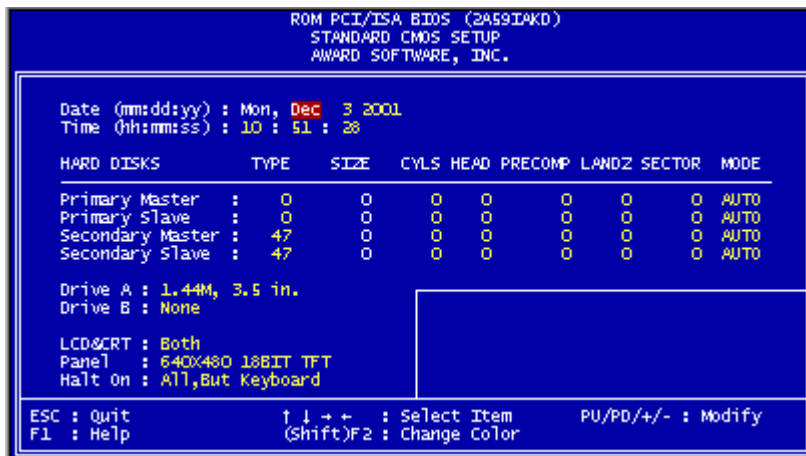
Standard CMOS	Options in the original PC AT-compatible BIOS.
BIOS Features	Award Software enhanced BIOS options.
Chipset Features	Options specific to your system chipset.
Power Management	Advanced Power Management (APM) options.
PnP/PCI Configuration	Plug and Play standard and PCI Local Bus configuration options.
Integrated Peripherals	I/O subsystems that depend on the integrated peripherals controller in your system.
Supervisor/User Password Setting	Change, set, or disable a password. In BIOS versions that allow separate user and supervisor passwords, only the supervisor password permits access to Setup. The user password generally allows only power-on access.
IDE HDD Auto Detection	Automatically detect and configure IDE hard disk parameters.

Load BIOS Defaults	BIOS defaults are factory settings for the most stable, minimal-performance system operations.
Load Setup Defaults	Setup defaults are factory settings for optimal-performance system operations.
Save & Exit Setup	Save settings in nonvolatile CMOS RAM and exit Setup.
Exit Without Save	Abandon all changes and exit Setup.

Standard CMOS setup



When you choose the STANDARD CMOS SETUP option from the INITIAL SETUP SCREEN menu, the screen below is displayed.



This standard setup menu allows users to configure system components such as the date, time, hard disk drive, floppy drive, display, and memory. Online help for each field can be accessed by pressing F1.

Date and Time Configuration

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

Press the left or right arrow key to move to the desired field (date, month, year). Press the PgUp/- or PgDn/+ key to increment the setting, or type the desired value into the field.

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

HARD DISKS

The BIOS supports up to four IDE drives. This section does not show information about other IDE devices, such as a CD-ROM drive, or about other hard drive types, such as SCSI drives.

***NOTE:** We recommend that you select type AUTO for all drives.*

The BIOS can automatically detect the specifications and optimal operating mode of almost all IDE hard drives. When you select type AUTO for a hard drive, the BIOS detects its specifications during POST, every time the system boots.

If you do not want to select drive type AUTO, other methods of

selecting the drive type are available:

1. Match the specifications of your installed IDE hard drive(s) with the preprogrammed values for drive types 1 through 45.
2. Select USER and enter values into each drive parameter field.
3. Use the IDE HDD AUTO DETECTION function in Setup.

Here is a brief explanation of drive specifications:

- **Type:** The BIOS contains a table of pre-defined drive types. Each defined drive type has a specified number of cylinders, number of heads, write precompensation factor, landing zone, and number of sectors. Drives whose specifications do not accommodate any pre-defined type are classified as type USER.
- **Size:** Disk drive capacity (approximate). Note that this size is usually slightly greater than the size of a formatted disk given by a disk-checking program.
- **Cyls:** Number of cylinders
- **Head:** Number of heads
- **Precomp:** Write precompensation cylinder
- **Landz:** Landing zone
- **Sector:** Number of sectors
- **Mode:** Auto, Normal, Large, or LBA
 - **Auto:** The BIOS automatically determines the optimal mode.
 - **Normal:** Maximum number of cylinders, heads, and sectors supported are 1024, 16, and 63.
 - **Large:** For drives that do not support LBA and have more than 1024 cylinders.

- **LBA** (Logical Block Addressing): During drive accesses, the IDE controller transforms the data address described by sector, head, and cylinder number into a physical block address, significantly improving data transfer rates. For drives with greater than 1024 cylinders.

Drive A
Drive B

Select the correct specifications for the diskette drive(s) installed in the computer.

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

LCD & CRT

This field may appear as an alternative to the Video field. select your video display device:

LCD	Liquid crystal display
CRT	Auxiliary monitor
AUTO	The BIOS autosenses the device in use (This value lets you switch between devices without being left "in the dark").
Both	Display on both devices

Pannel:

This selection item allows user to select LCD BIOS to match the LCD types. There are eight, LCD types available for users to select as their LCD display modes as below:

Brand name	Model name	Format
Sharp	LX 15X80	1024 x 768 DSTN
Sharp	LM 64183P	640 x 480 MONO
Sharp	LM 64C35P	640 x 480 DSTN
Sharp	LM 12S40	800 x 600 DSTN
NEC	NL 6448AC33-10	640 x 480 TFT (12 bits)
Toshiba	LTM 10C209A	640 x 480 (18 bits)TFT
NEC	NL 8060AC26-04	800 x 600 TFT
Sharp	LQ 14x03	1024x768 TFT (36 bits)

Halt On

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

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

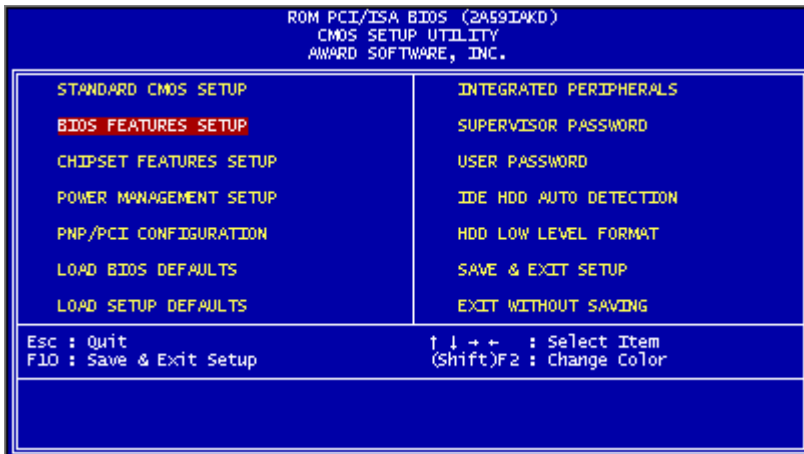
• **Extended Memory**

Above the 1-MB boundary. Early IBM personal computers could not use memory above 1 MB, but current PCs and their software can use extended memory.

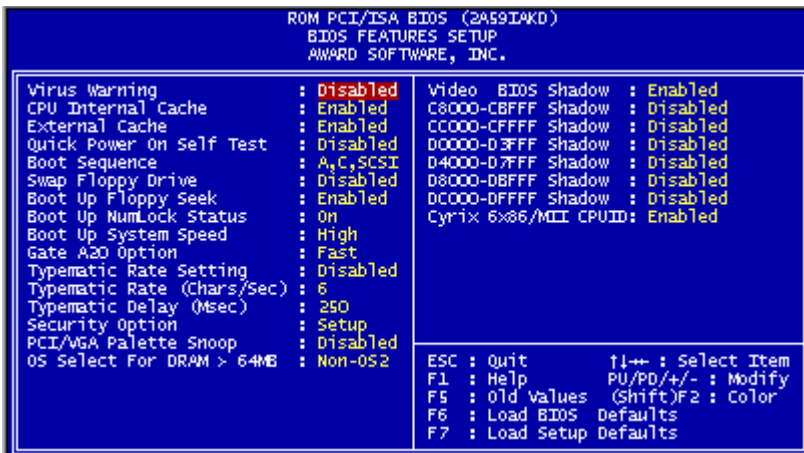
• **Other Memory**

Between 640 KB and 1 MB; often called High memory. DOS may load terminate-and-stay-resident (TSR) programs, such as device drivers, in this area, to free as much conventional memory as possible for applications. Lines in your CONFIG.SYS file that start with LOADHIGH load programs into high memory.

BIOS features setup



By choosing the BIOS FEATURES SETUP option from the INITIAL SETUP SCREEN menu, the screen below is displayed.



The displayed configuration is based on the manufacturer's SETUP DEFAULTS settings.

Virus Warning

When enabled, you receive a warning message if a program (specifically, a virus) attempts to write to the boot sector or the partition table of the hard disk drive. You should then run an anti-virus program. Keep in mind that this feature protects only the boot sector, not the entire hard drive.

NOTE: Many disk diagnostic programs that access the boot sector table can trigger the virus warning message. If you plan to run such a program, we recommend that you first disable the virus warning.

CPU Internal Cache/External Cache

Cache memory is additional memory that is much faster than conventional DRAM (system memory). CPUs from 486-type on up contain internal cache memory, and most, but not all, modern PCs have additional (external) cache memory. When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU.

The External Cache field may not appear if your system does not have external cache memory.

Quick Power On Self Test

Select Enabled to reduce the amount of time required to run the power-on-self-test (POST). A quick POST skips certain steps. We recommend that you normally disable quick POST. Better to find a problem during POST than lose data during your work.

Boot Sequence

The original IBM PCs loaded the DOS operating system from drive A (floppy disk), so IBM PC-compatible systems are designed to search for an operating system first on drive A, and then on drive C (hard disk). However, the BIOS now offers many boot sequence options.

Swap Floppy Drive

This field is effective only in systems with two floppy drives. Selecting enabled assigns physical drive B to logical drive A, and physical drive A to logical drive B.

Boot Up Floppy Seek

When Enabled, the BIOS tests (seeks) floppy drives to determine whether they have 40 or 80 tracks. Only 360-KB floppy drives have 40 tracks; drives with 720 KB, 1.2 MB, and 1.44 MB capacity all have 80 tracks. Because very few modern PCs have 40-track floppy drives, we recommend that you set this field to Disabled to save time.

Boot Up NumLock Status

Toggle between On or Off to control the state of the NumLock key when the system boots. When toggled On, the numeric keypad generates numbers instead of controlling cursor operations.

Gate A20 Option

Gate A20 refers to the way the system addresses memory above 1 MB (extended memory). When set to Fast, the system chipset controls Gate A20. When set to Normal, a pin in the keyboard controller controls Gate A20. Setting Gate A20 to Fast improves system speed, particularly with OS/2 and Windows.

Typematic Rate Setting- Key strokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected.

The choice: Enabled/Disabled

Typematic Rate (Chars/Sec)- Sets the number of times a second to repeat a key stroke when you hold the key down.

The choice: 6, 8, 10, 12, 15, 20, 24, 30

Typematic Delay (Msec)- Sets the delay time after the key is held down before it begins to repeat the keystroke.

The choice: 250, 500, 750, 1000

Security Option

If you have set a password, select whether the password is required every time the System boots, or only when you enter Setup.

PCI/VGA Palette Snoop

The function can detect built in or PCI expansion VGA.

The choice: Enable/Disable

OS Select For DRAM>64MB-Select the operating system that is running with greater than 64MB or RAM on the system.

The choice: Non-OS2, OS2

Shadow

Software that resides in a read-only memory (ROM) chip on a device is called firmware. The AwardBIOS permits shadowing of firmware such as the system BIOS, video BIOS, and similar operating instructions that come with some expansion peripherals, such as, for example, a SCSI adaptor.

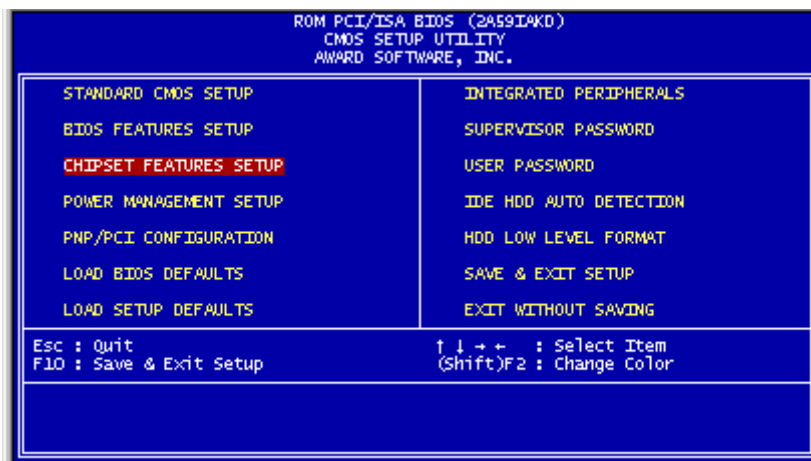
Shadowing copies firmware from ROM into system RAM, where the CPU can read it through the 16-bit or 32-bit DRAM bus.

Firmware not shadowed must be read by the system through the 8-bit X-bus. Shadowing improves the performance of the system BIOS and similar ROM firmware for expansion peripherals, but it also reduces the amount of high memory (640 KB to 1 MB) available for loading device drivers, etc.

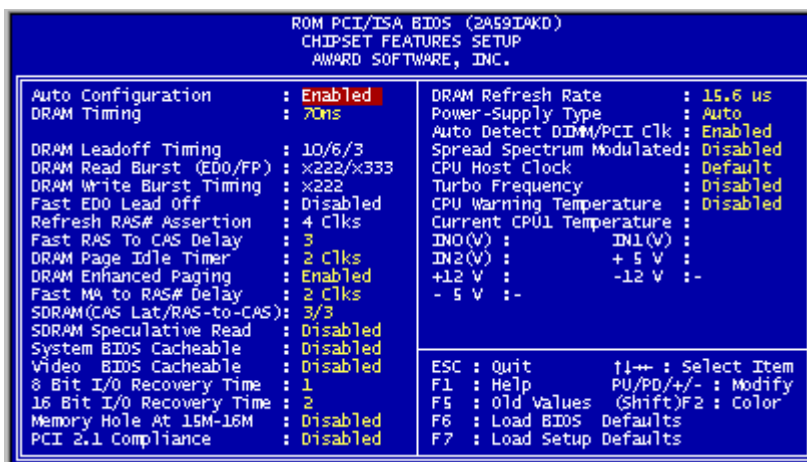
Enable shadowing into each section of memory separately. Many system designers hardwire shadowing of the system BIOS and eliminate a System BIOS Shadow option.

Video BIOS shadows into memory area C8000-DFFFF. The remaining areas shown on the BIOS Features Setup screen may be occupied by other expansion card firmware. If an expansion peripheral in your system contains ROM-based firmware, you need to know the address range the ROM occupies to shadow it into the correct area of RAM.

CHIPSET features setup



By choosing the CHIPSET FEATURES SETUP option from the INITIAL SETUP SCREEN menu, the screen below is displayed.



The displayed configuration is based on the manufacturer's SETUP DEFAULTS settings.

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as SDRAM. It also coordinates communications between the conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

Because of the complexity and technical nature of some of the options, not all of the options are described here.

Auto Configuration

Auto Configuration selects predetermined optimal values of chipset parameters. When Disabled, chipset parameters revert to setup information stored in CMOS. Many fields in this screen are not available when Auto Configuration is Enabled.

SDRAM CAS Latency Time

When synchronous DRAM is installed, you can control the number of CLKs between when the SDRAMs sample a read command and when the controller samples read data from the SDRAMs. Do not reset this field from the default value specified by the system designer.

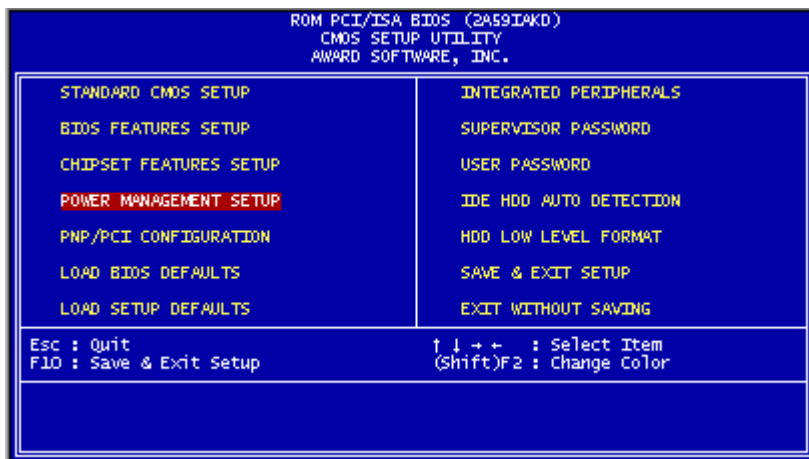
Memory Hole at 15M-16M

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements.

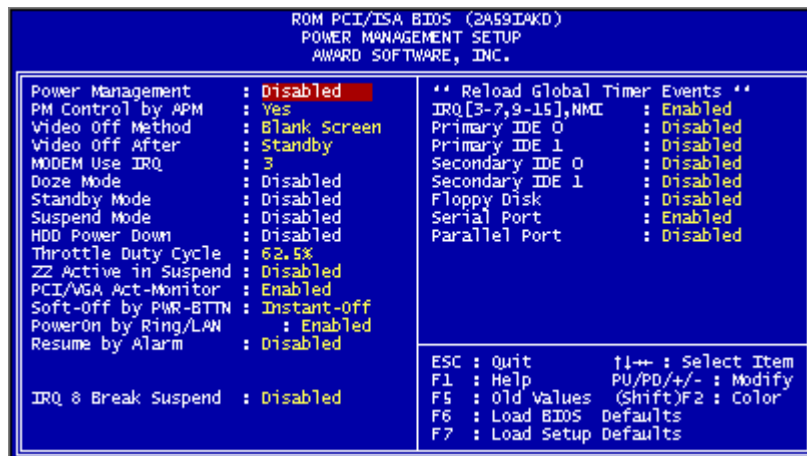
I/O Recovery Time

The I/O recovery mechanism adds bus clock cycles between PCI-originated I/O cycles to the ISA bus. This delay takes place because the PCI bus is so much faster than the ISA bus.

Power management setup



By choosing the POWER MANAGEMENT option from the INITIAL SETUP SCREEN menu, the screen below is displayed.



The displayed configuration is based on the manufacturer's SETUP DEFAULTS settings.

Power Management

This option allows you to select the type (or degree) of power saving for Doze, Standby, and Suspend modes.

This table describes each power management mode:

Max Saving	Maximum power savings. Only Available for SL CPUs. Inactivity period is 1 minute in each mode.
User Define	Set each mode individually. Select time-out periods in the section for each mode, below.
Min Saving	Minimum power savings. Inactivity period is 1 hour in each mode (except the hard drive).

PM Control by APM

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

MODEM Use IRQ

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

Video Off Method

Determines the manner in which the monitor is blanked.

V/H SYNC+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.

HDD Power Down

After the selected period of drive inactivity, any system IDE devices compatible with the ATA-2 specification or later power manage themselves, putting themselves into an idle state after the specified timeout and then waking themselves up when accessed.

Doze Mode

After the selected period of system inactivity, the CPU clock throttles to a small percentage of its duty cycle — between 10 percent and 25 percent for most chipsets. All other devices still operate at full speed.

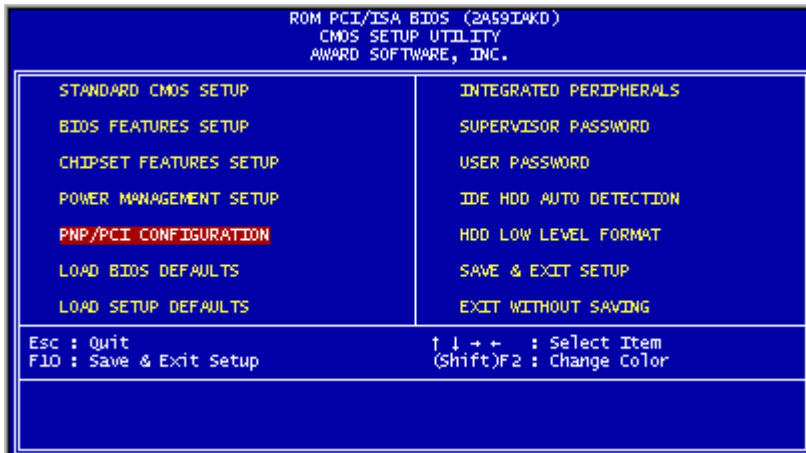
Standby Mode

After the selected period of system inactivity, the CPU clock stops, the hard drive enters an idle state, and the L2 cache enters a power-save mode. All other devices still operate at full speed.

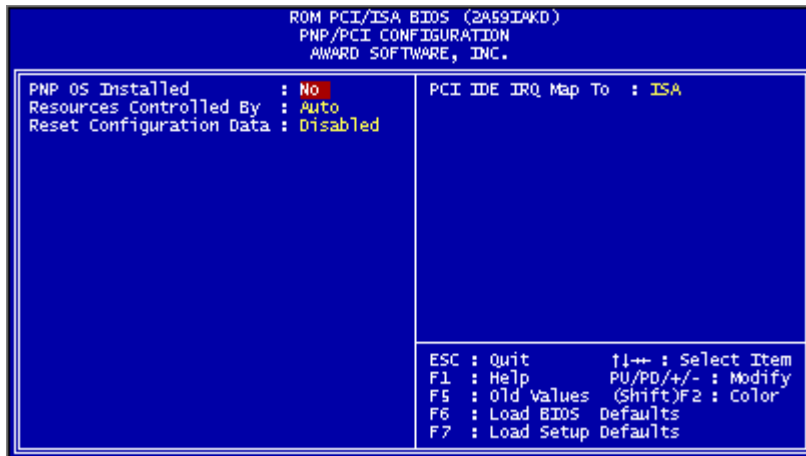
Suspend Mode

After the selected period of system inactivity, the chipset enters a hardware suspend mode, stopping the CPU clock and possibly causing other system devices to enter power management modes.

PNP/PCI configuration setup



By choosing the PNP/PCI CONFIGURATION SETUP option from the initial SETUP SCREEN menu, the screen below is displayed.



The displayed configuration is based on the manufacturer's SETUP DEFAULTS settings.

PNP OS Installed

Select Yes if the system operating environment is Plug-and-Play aware (e.g., Windows 95).

Resources Controlled By

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

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.

IRQ n Assigned to

When resources are controlled manually, assign each system interrupt as one of the following types, depending on the type of device using the interrupt:

Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt (such as IRQ4 for serial port 1).

PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

DMA n Assigned to

When resources are controlled manually, assign each system DMA channel as one of the following types, depending on the type of device using the interrupt:

Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific DMA channel

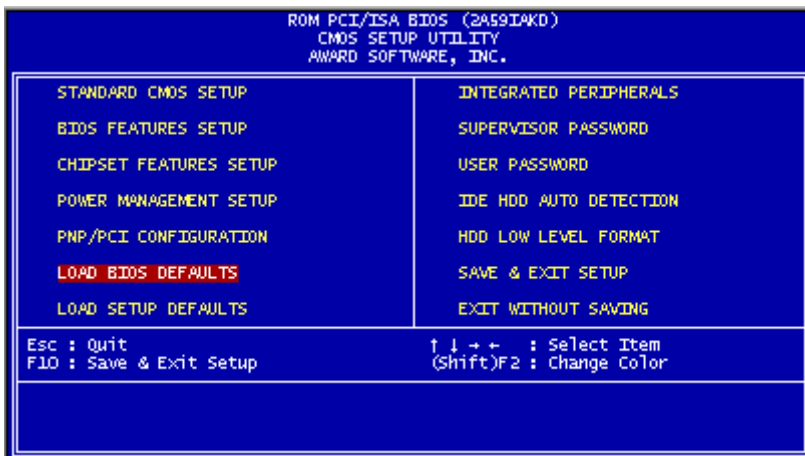
PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

PCI IRQ Activated by

Leave the IRQ trigger set at Level unless the PCI device assigned to the interrupt specifies Edge-triggered interrupts.

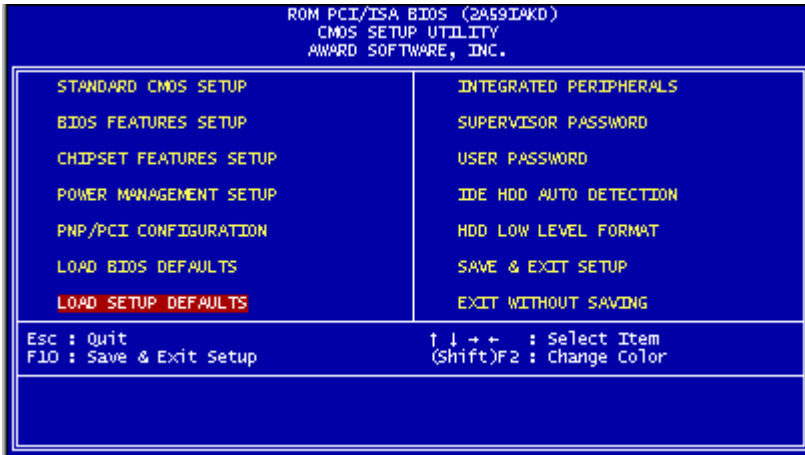
Load BIOS defaults

LOAD BIOS DEFAULTS loads the default system values directly from ROM. The BIOS DEFAULTS provides the most stable settings, though they do not provide optimal performance.

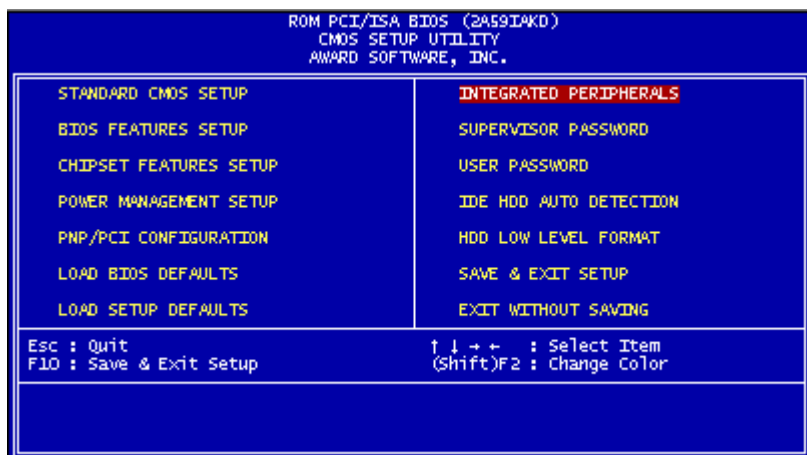


Load setup defaults

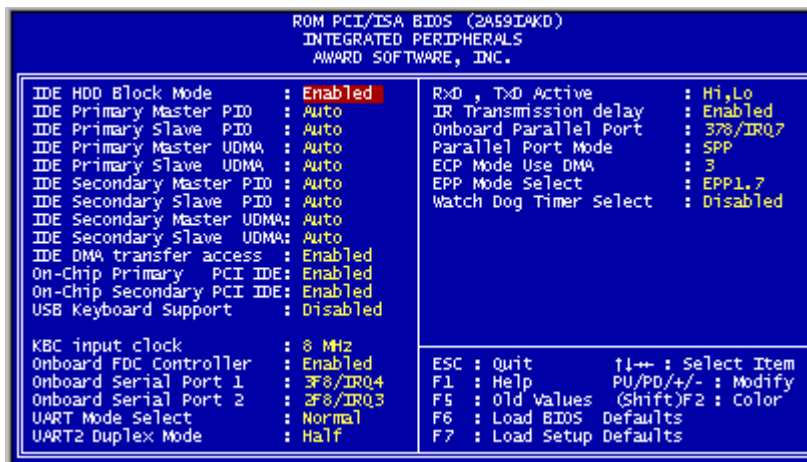
LOAD SETUP DEFAULTS, on the other hand, provides for maximum system performance. If the stored record created by the setup utility becomes corrupted (and therefore unusable), BIOS defaults will load automatically when you turn the power on.



Integrated peripherals setup



By choosing the INTEGRATED PERIPHERALS option from the initial SETUP SCREEN menu, the screen below is displayed.



The displayed configuration is based on the manufacturer's SETUP DEFAULTS settings.

On-Chip Primary IDE

The onboard chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the primary and/or secondary IDE interface. Select Disabled to deactivate this interface, if you install a primary and/or secondary add-in IDE interface.

IDE HDD Block Mode

Select Enabled only if your hard drives support block mode.

IDE Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmable Input/Output) fields let you set a PIO mode (0-1) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

The choices: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Primary/Secondary Master/Slave UDMA

Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33, select Auto to enable BIOS support.

The choices: Auto, disable

On-Chip Primary PCI IDE

The system chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the primary and/or secondary IDE interface. Select Disabled to deactivate this interface, if you install a primary and/or secondary add-in IDE interface.

On-Chip Secondary PCI IDE

The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the secondary IDE interface. Select Disabled to deactivate this interface.

The choices: Enable, Disable

USB Keyboard Support

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

KBC Input Clock

The choice: 6MHz, 8MHz, 12MHz, 16MHz

Onboard FDC Controller

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

Onboard Serial Ports (1, 2)

Normally, the main board's I/O chips will occupy a certain portion of memory space. For each I/O device the computer provides an I/O address. The more devices attached the more address needed to organize the memory storage areas. If all the I/O devices were run through the same address, your devices would come to a near halt. By providing the end user with four serial ports this allows devices to run more efficiently if needed. Also the corresponding interrupt needs to be selected.

Selections of logical COM port addresses are as follows. (3F8/IRQ4, 3E8/IRQ4, 2F8/IRQ3, 2E8/IRQ3)

UART2 Duplex Mode

Select the value required by the IR device connected to the IR prot. Full-duplex mode permits simultaneous two-direction transmission. Half-duplex mode permits transmission in one direction only at a time. If no infrared port is present in the system, select disable

RXD,TXD Active

Consult your IR peripheral documentation to select the correct setting of the TxD and RxD signals.

IR Transmission delay

The choice: Eable, Disable

On board Parallel Port Mode

Two bidirectional parallel ports. Supports SPP, ECP, EPP, ECP + EPP.

ECP Mode Use DMA

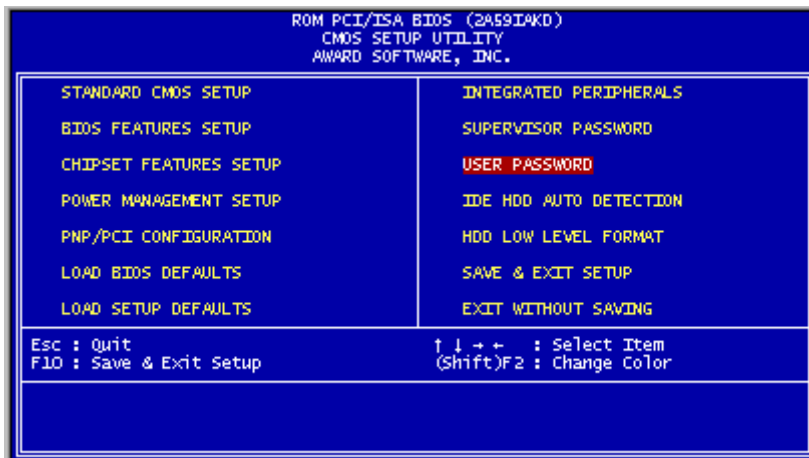
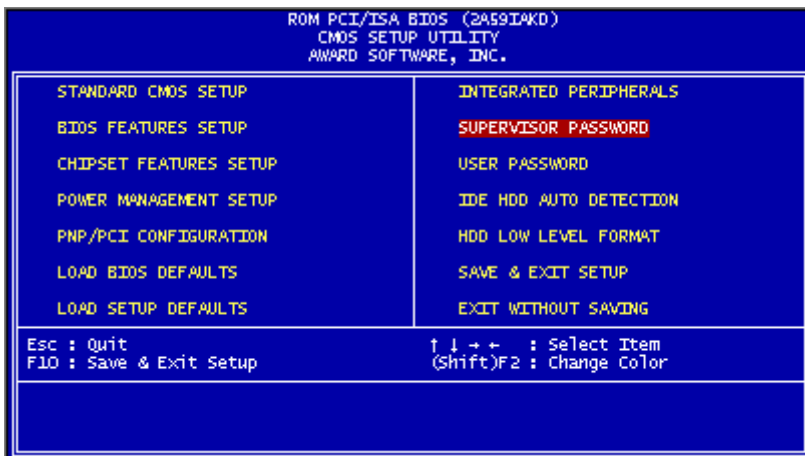
Select a DMA channel for the port.

Watch Dog Timer

You can enable the system watchdog timer, a hardware timer that generates either an NMI or a reset when the software that it monitors does not respond as expected each time the watch dog polls it (select the time period in a separate field) The choice: **Disabled, 10 sec, 20 sec, 30 sec, 40 sec, 1 min, 2 min, 4 min.**

Supervisor/User password setting

You can set either SUPERVISOR or USER PASSWORD, or both of them. The difference between the two is that the supervisor password allows unrestricted access to enter and change the options of the setup menus, while the user password only allows entry to the program, but not modify options.



When you select this function, a message appears at the center of the screen:

ENTER PASSWORD:

Type the password, up to eight characters, and press Enter. Typing a password clears any previously entered password from CMOS memory.

Now the message changes:

CONFIRM PASSWORD:

Again, type the password and press Enter.

To abort the process at any time, press Esc.

In the Security Option item in the BIOS Features Setup screen, select System or Setup:

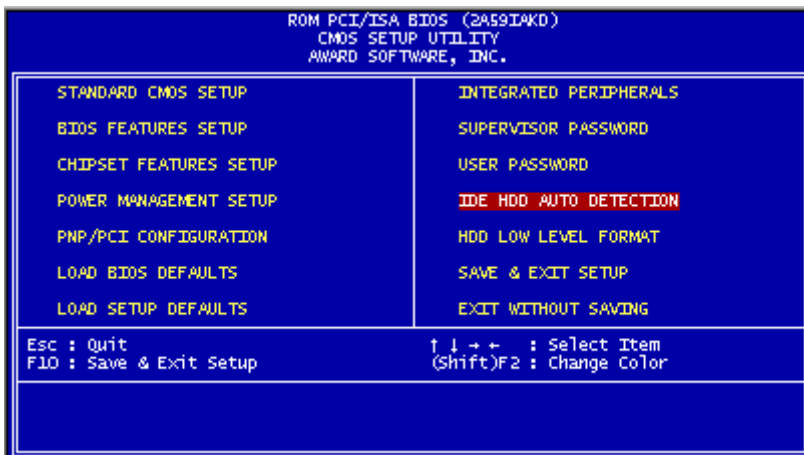
System Enter a password each time the system boots and when ever you enter Setup.

Setup Enter a password when ever you enter Setup.

***NOTE:** To clear the password, simply press Enter when asked to enter a password. Then the password function is disabled.*

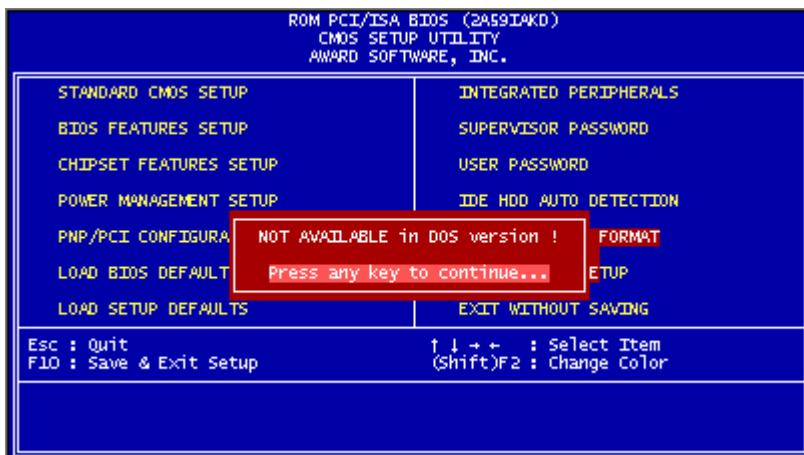
IDE HDD auto detection

The IDE HDD AUTO DETECTION utility can automatically detect the IDE hard disk installed in your system. You can use it to self-detect and/or correct the hard disk type configuration. You need to repeat the setup for each of the IDE combinations:



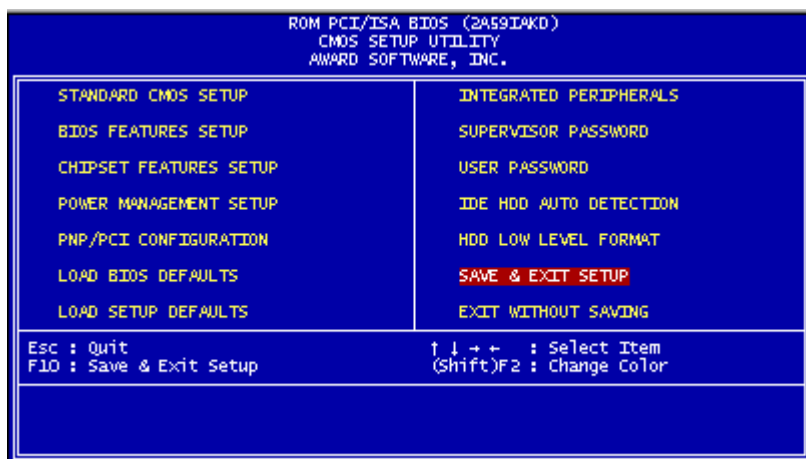
HDD Low Level Format

This item can't work under Dos Mode.



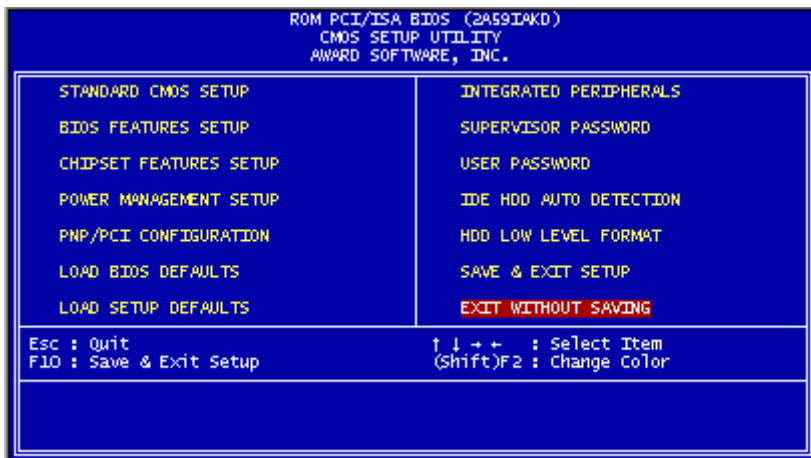
Save & exit setup

If you select this option and press <ENTER>, the values entered in the setup utility will be recorded in the chipset's CMOS memory. The microprocessor will check this every time you turn your system on and compare this to what it finds as it checks the system. This record is required for the system to operate.



Exit without saving

Selecting this option and press <Enter> lets you exit the setup program without recording any new values or changing old ones.



Drivers Installation

This chapter provides information about:

- Driver types and installation

Software drivers

This chapter describes the operation and installation of the display drivers supplied on the *Supporting CD-ROM* that are shipped with your product.

The onboard VGA adapter is based on the CHIPS VGA Flat Panel/CRT controller and is fully IBM VGA compatible. This controller offers a large set of extended functions and higher resolutions. If you intend to use your VGA adapter in standard VGA modes only, you do not need to install any of these drivers. Since your VGA adapter is fully compatible, it does not require any special drivers to operate in standard modes.

The purpose of the enclosed software drivers is to take advantage of the extended features of the CHIPS VGA Flat Panel/CRT controller.

Hardware configuration

Some of the high-resolution drivers provided in this package will work only in certain system configurations. If a driver does not display correctly, try the following:

1. Change the display controller to CRT-only mode, rather than flat panel or simultaneous display mode. Some high-resolution drivers will display correctly only in CRT mode.
2. If a high-resolution mode is not supported on your system, try using a lower-resolution mode. For example, 1024 x 768 mode will not work on some systems, but 800 x 600 mode is supported on most.

Necessary prerequisites

The instructions in this manual assume that you understand elementary concepts of MS-DOS and the IBM Personal Computer. Before you attempt to install any driver from the *Supporting CD-ROM*, you should:

- Know how to copy files from a CD-ROM to a directory on the hard disk
- Understand the MS-DOS directory structure

If you are uncertain about any of these concepts, please refer to the DOS or OS/2 user reference guides for more information *before* you proceed with the installation.

Before you begin

Make sure you know the version of the application for which you are installing drivers. The *Supporting CD-ROM* contain drivers for several versions of certain applications. For your driver to operate properly, you must install the driver for your version of the application program.

Windows® 95

These drivers are designed to work with Microsoft® Windows®. You just install these drivers through the Windows® operating system.

Driver installation

1. Install Windows® 95 as you normally would for a VGA display. Click the **Start** button, go to **Settings** and click on **Control Panel**. Choose the **Display** icon and double click on the icon. In the *Display Properties* window, show as figure 1:

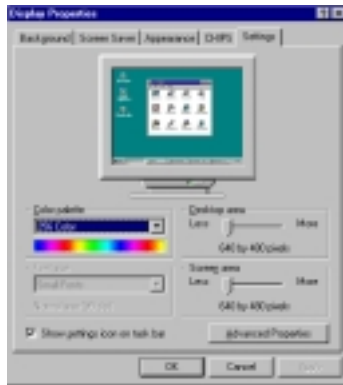


figure 1

Click the setting button, then click the Advanced Properties icon into the *Advanced Display properties* windows, show as figure2:



figure 2

click on **Change Display Type**. In the *Change Display Type* window, click on the **Change** button under Adapter Type into the select Device window show as figure 3: This will bring up the *Select Device* window.



figure 3

2. Place the *Supporting CD-ROM* in your CD-ROM drive.

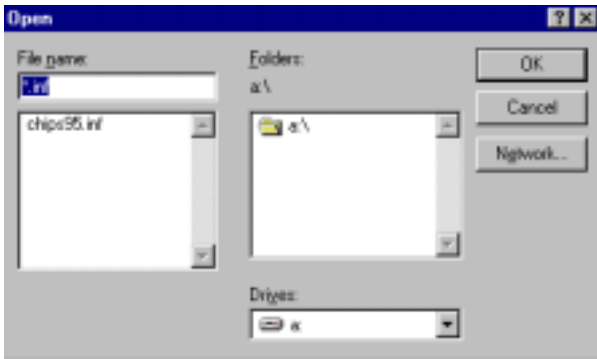


figure 4

In the *Select Device* window, click on **Have Disk**, Select **Browse**, and find the Win95 driver "chips95.inf" in the *Supporting CD-ROM*:

cd-rom: \CD ROM\model name\driver\vga driver
 \win95\chips95.inf and then click OK.

"**cd-rom**" : the drive letter of your CD-ROM drive

"**model name**" : the model number of your product

The name of the *Chips And Tech "69000 PCI "* driver will appear highlighted in the *Models* list box how as figure. Click OK to start the driver installation show as figure 5:



figure 5

3. Once the installation is complete, the *Advanced display Properties* window will reappear. Show as figure 6:

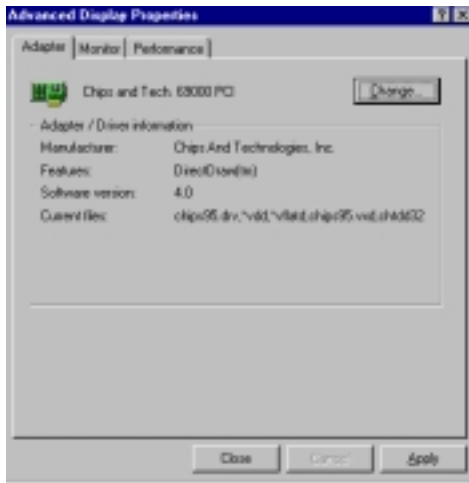


figure 6

Click on close to close the window. Then the *Display Properties* window will reappear. Show as figure 7:



figure 7

Click on **Apply**. Restart the system for the new settings to take effect, show as figure 8:

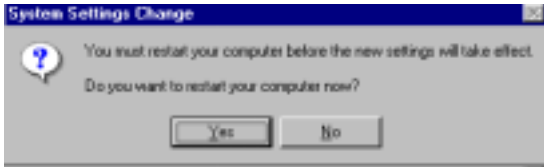


figure 8

Windows® 3.1

These drivers are designed to work with Microsoft Windows Version 3.1. You should install these drivers through Windows.

Driver installation

1. Install Windows as you normally would for a VGA display. Run Windows to make sure that it is working correctly.
2. Place the *Supporting CD-ROM* into your CD-ROM drive. In Windows Program Manager, choose *File* from the Options Menu. Then from the pull-down menu, choose *Run*. At the Command Line prompt, type.

```
cd-rom: \CD ROM\model name\driver\vga driver\win31\setup.exe
```

Press the <ENTER> key or click OK to begin the installation.

"*cd-rom*" : the drive letter of your CD-ROM drive

"*model name*" : the model number of your product

At this point the setup program locates the directory where Windows is installed. **For proper operation, the drivers must be installed in the Windows subdirectory.**

3. Press <ENTER> to complete the installation. Once completed, you can find the icon Chips CPL under the Control Panel. The icon allows you to select and load the installed drivers.

OS/2

These drivers are designed to function with the OS/2 Version 4.0, 3.0 and 2.11 operating systems.

To install this driver, do the following steps:

1. Open an OS/2 full screen or windowed session.
2. Place the *Supporting CD-ROM* into your CD-ROM drive.
3. At the OS/2 command prompt, type the following commands to copy the files to the OS/2 drive:

```
cd-rom:\CD ROM\model name\driver\vga driver\os2\setup.cmd
```

"**cd-rom**": the drive letter of your CD-ROM drive

"**model name**": the model number of your product

When the Setup Program is completed, you will need to perform a shutdown and then restart the system in order for changes to take effect.

A log of the information output during the install can be found in <root>:\OS2\INSTALL\DISPLAY.LOG

4. After restarting the system, perform the following steps:
 1. Open the OS/2 System folder.
 2. Open the System Setup folder.
 3. Open the Display Driver Install Object.

This step will execute the Display Driver Installation (DSPINSTL) utility program to finish installation of the new drivers.

4. When the Display Driver Install window appears, select Primary Display and then select OK.
5. When the Primary Display Driver List window appears, select "Chips and Technologies 69000" from the list of adapter types, then select OK or install the video driver.

6. When the installation is complete, you will need to shut down and then restart the system for the changes to take effect. Make sure to remove the installation diskette before restarting the system.

Windows® NT 3.51

These drivers are designed to work with Microsoft® Windows®.

Driver installation

1. Install Windows® NT 3.51 as you normally would for a **VGA** display. Click the **Star** button, go to **Settings** and click on **Control Panel** icon. Then choose the **Display** and double click on the icon. In the **Display Properties** window, click the **Setting** button, then click the **Display Type** button into the **Display Type** windows, then click on **Change** button from the **Adapter Type** icon. And click on **Have Disk** button in the change display window.

2. Place the *Supporting CD-ROM* into your CD-ROM drive.

and type:

```
cd-rom: \CD ROM\model name\drive\vga drive\  
win98 nt\windows.nt\nt35\Oemsetup.inf
```

"**cd-rom**" : the drive letter of your CD-ROM drive

"**model name**" : the model number of your product

Select the adapter "Chips and Tech 69000PCI" and click OK.

Click on Install to install the selected driver. Once the installation is complete, shut down and restart the system.

Windows® NT 4.0

Driver installation

1. Install Windows® NT 4.0 as you normally would for a **VGA** display. Click the **Star** button, go to **Settings** and click on **Control Panel** icon. Then choose the **Display** and double click on the icon. In the **Display Properties** window, click the **Setting** button, then click the **Display Type** button into the **Display Type** windows, then click on **Change** button from the **Adapter Type** icon. And click on **Have Disk** button in the change display window.

2. Place the *Supporting CD-ROM* into your CD-ROM drive. In the *Select Device* window, click on **Have Disk**, select "**Browse**" and find the NT 4.0 driver from:

```
cd-rom : \CD ROM\model name\dirver\vga driver\  
win98 nt\windows.nt\nt40\Oemsetup.inf
```

"**cd-rom**" : the drive letter of your CD-ROM drive

"**model name**" : the model number of your product

and then click OK. The name of the *Chips and Technologies, Inc. Video Controller* driver will appear highlighted in the Modules list box. Select Chips and Tech. 69000 and Click **OK**. Click **OK** to start the driver installation.

3. Once the installation is complete, the *Change Display Type* window will reappear. Click on close to close the window. Then the *Display Properties* window will reappear. Click on **Apply**. Restart the system for the new settings to take effect.

APPENDIX

A

Watchdog Timer

Watchdog Timer

SBC-558P contains a watchdog timer reset pin. (GP13)

All reference material can be found on the following pages.

What the decoded address of the W83977 ?

The decoded address of the W83977 is 3F0h.

How to enter or exit the configuration mode ?

In order to enter the configuration mode, you must write the value **87h** to the configuration port **3F1h 2 times each.**

In order to exit the configuration mode, you must write the value **AAh** to the configuration port **3F1h.**

How to enable or disable the Watchdog Timer ?

In order to enable the Watchdog Timer, you must write the value **01h** to the register 30 (**CR30**) of the Logic Device 7.

In order to disable the Watchdog Timer, you must write the value **00h** to the register 30 (**CR30**) of the Logic Device 7

How to set time-out value ?

In order to set time-out value, you must write a value which is between 01h and FFh to the register F2 (**CRF2**) of the Logic Device 8.
For example,

01h : Time-out occurs after 32 seconds (16 seconds for the

02h : Time-out occurs after 1 minute and 32 seconds

FFh : Time-out occurs after 254 minutes and 32 seconds

And the following pages show watchdog timer setup Utility program for your reference.

```

=====**
** Title : WatchDog Timer Setup Utility (for W83977 GP13) **
** Company : AAEON Technology Inc. **
** Compiler : Borland C ++ Version 3.0 **
**=====*/

```

```

#include <dos.h>
#include <io.h>
#include <bios.h>
#include <stdio.h>
#include <stdlib.h>
#include <conio.h>

```

```

/* Set I/O Address : 370/371 or 3F0/3F1 */

```

```

#define IO_INDEX_PORT 0x3f0
#define IO_DATA_PORT 0x3f1

```

```

/* Set Watchdog reset pin : 12/13/16 */

```

```

#define watch_dog_output_GP 13

```

```

#define UNLOCK_DATA 0x87
#define LOCK_DATA 0xAA
#define DEVICE_REGISTER 0x07

```

```

void EnterConfigMode()

```

```

{
    outportb(IO_INDEX_PORT, UNLOCK_DATA);
    outportb(IO_INDEX_PORT, UNLOCK_DATA);
}

```

```

void ExitConfigMode()

```

```

{
    outportb(IO_INDEX_PORT, LOCK_DATA);
}

```



```

void SelectDevice(unsigned char device)
{
    outportb(IO_INDEX_PORT, DEVICE_REGISTER);
    outportb(IO_DATA_PORT, device);
}

unsigned char ReadAData(short int reg)
{
    outportb(IO_INDEX_PORT, reg);
    return (inportb(IO_DATA_PORT));
}

void WriteAData(unsigned char reg, unsigned char data)
{
    outportb(IO_INDEX_PORT, reg);
    outportb(IO_DATA_PORT, data);
}

void SetWatchDogTime(unsigned char time_val)
{
    EnterConfigMode();
    SelectDevice(8);
    //Set Register F2
    //Set Watch-Dog Timer 1~ 256
    WriteAData(0xF2, time_val);
    // set counter counts in second (or minute)
    // Register F4 Bit 6 = 0/1 (minutes/seconds)
    // For w83977EF only
    WriteAData(0xF4, 0x40);
    ExitConfigMode();
}

```

```

void init_w83977f_aw_watchdog()
{
    short int value;

    //Enter W83977 Configure Mode
    EnterConfigMode();

    //Select Device 7
    SelectDevice(7);
    //Set Device Active
    WriteAData(0x30, 0x01);

    //caution:skip this step will be a mistake!!
    if (watch_dog_output_GP==12)
    {
        //Set Register E2 to define GP12
        WriteAData(0xE2, 0x0A);
    }
    else if(watch_dog_output_GP==13)
    {
        //Set Register E3 to define GP13
        WriteAData(0xE3, 0x0A);
    }
    else if(watch_dog_output_GP==16)
    {
        //Set Register E6 to define GP16
        WriteAData(0xE6, 0x0A);
    }

    //Select Device 8
    SelectDevice(8);
    //Set Register F3
    //keyboard and mouse interrupt reset Enable
    //When Watch-Dog Time-out occurs,Enable POWER LED
output
    WriteAData(0xF3, 0x0E);
}

```

```

//caution:skip this step will be a mistake!!
if (watch_dog_output_GP==12)
{
//Set Register 2A (PIN 57) Bit 7 = 0/1 (KBLOCK/GP12)
//set to GP12 for WD Rst
WriteAData(0x2A,ReadAData(0x2A)|0x80);
}
else if(watch_dog_output_GP==13)
{
//Set Register 2B (PIN 58) Bit 0 = 0/1 (KBLOCK/GP13)
//set to GP13 for WD Rst
WriteAData(0x2B,ReadAData(0x2B)|0x01);
}
else if(watch_dog_output_GP==16)
{
//Set Register 2C (PIN 119) Bit 5-4 = 01 (GP16)
//set to GP16 for WD Rst
WriteAData(0x2C,ReadAData(0x2C)|0x10);
}

//Exit W83977 Configure mode
ExitConfigMode();
}

void main(int argc, char* argv[])
{
    int time_value=0;
    char *ptr;
    printf("WinBond 83977 WatchDog Timer Setup Utility
Version 1.0 \n");
    printf("Copyright (c) 2000 AAEON Technology Inc.\n");
    printf("This version only for W83977 that using GP%d to
Reset System.\n",watch_dog_output_GP);
}

```

```

if (argc == 1)
{
    printf("\n Syntax: WATCHDOG [time] \n");
    printf(" time range : 1 ~ 256 \n\n");
    return ;
}
if (argc > 1)
{
    ptr = argv[1];
    time_value = atoi(ptr);
}
if (time_value > 0 && time_value < 256)
{
    SetWatchDogTime((unsigned char) time_value);
    init_w83977tf_aw_watchdog();
    printf("Watch Dog Timer set up : %d \n",time_value);
}
}

```