

**SBC-670S**

Full-size PCI/ISA  
Pentium Pro CPU Card  
with Ultra-Wide SCSI Interface

**SBC-670**

Full-size PCI/ISA  
Pentium Pro CPU Card



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## Packing list

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

- 1 SBC-670S CPU card (or SBC-670 CPU Card)
- 1 6-pin mini-DIN dual outlet adapter for keyboard and PS/2 mouse
- 1 Hard disk drive (IDE) interface cable (40 pin)
- 1 Floppy disk drive interface cable (34 pin)
- 1 Parallel port adapter (26 pin) and PS/2 adapter (4 pin) kit
- 1 Accessory for SBC series screw & support
- 1 SCSI cable (50 pin) (For SBC-670S only)
- 1 Ultra wide SCSI cable (68pin) (For SBC-670S only)
- Two Driver Disketts; One for Dos, Windows 3.1; One for Netware V3.1x/V4.0/V4.1x , OS/2, WinNT 3.5X, Win95 (For SBC-670S only)

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

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## **General Information**

This chapter gives background information of SBC-670S.

Sections include:

- Card specifications
- Board layout

# Introduction

---

The SBC-670S is an all-in-one, single board Pentium Pro computer with an on-board, high performance Ultra-wide SCSI interface. It packs all the functions of an industrial computer on a single, full-sized card. The SBC-670S is fully PC/AT compatible, thus your software will run without modifications.

The Ultra-wide SCSI interface speeds up the transfer rate to 40 MB/sec and is capable of connecting 15 devices. An 8-bit PCI SCSI-II interface is available as an option.

Other on-board features include a PCI Enhanced IDE interface, two RS-232 ports with 16C550 UARTs, one bi-directional parallel port and a floppy controller.

The SBC-670S' PCI Enhanced IDE interface support (through ATA PIO) mode 3 and mode 4 hard disks, enabling data transfer rates in excess of 11 MB/sec. Up to four IDE devices can be connected, including hard disks, CD-ROM drives, tape backup drives and other IDE devices.

If program execution is halted by a program bug or EMI, the watch-dog timer will automatically reset the CPU or generate an interrupt. This ensures reliability in unmanned or standalone systems.

The SBC-670S supports BEDO, EDO DRAM or Fast page DRAM for system memory. It provides four 72-pin SIMM (Single In Line Memory Module) sockets in two banks giving you the flexibility to configure your system from 8 MB to 128 MB in the most economical way.

## Features

---

- Intel Pentium Pro CPU 150~200MHZ, Socket 8 ZIF socket
- Intel 440 FX chipset
- Supports up to 128MB BEDO, EDO or Fast Page DRAM
- Built-in Ultra wide SCSI interface with 40MB/sec high transfer speed and capable of connecting 15 devices
- Support two USB ports
- Fast PCI enhanced IDE controller supports four IDE drives(large hard disks, CD-ROM, tape backup, etc.)
- 32-bit PCI-bus, PICMG 2.0 standard
- PnP I/O address & IRQ selection
- Two high-speed serial RS-232 ports (16C550 UARTs with 16-byte FIFO)
- One enhanced bi-directional parallel port supporting SPP/EPP/ECP.
- On-board keyboard and PS/2 mouse connector
- 9-bit GPIO interface
- Green functions

# Specifications

---

<b>CPU:</b>	Intel Pentium Pro CPU 150~200MHZ
<b>Bus interface:</b>	PCI/ISA bus, PICMG 2.0 standard
<b>Bus speed:</b>	ISA: 8~12 MHZ PCI: 25~33 MHZ
<b>Data bus:</b>	64-bit
<b>Processing ability:</b>	64-bit
<b>PCI SCSI-II interface:</b>	8-bit SCSI-II interface
<b>PCI Ultra-wide SCSI interface:</b>	16-bit Ultra-wide SCSI interface (40MB/sec)
<b>PCI Enhanced IDE interface:</b>	Supports up to four IDE devices including hard disk drives with PIO mode 3, 4
<b>RAM memory:</b>	8 MB to 128 MB in two banks of 72-pin SIMM sockets, supporting BEDO, EDO, Fast page DRAM
<b>Shadow RAM memory:</b>	Supports system and video BIOS shadow memory
<b>Floppy disk drive interface:</b>	Supports up to two floppy disk drives, 5.25" (360 KB and 1.2 MB) and/or 3.5" (720 KB, 1.44 MB and 2.88 MB)
<b>Parallel port:</b>	One bi-directional parallel port. Supports SPP/ECP/EPP mode
<b>Serial ports:</b>	Two RS-232 ports (IrDA Tx/Rx header as an option). Both use 16C550 UARTs with 16-byte FIFO.
<b>GPIO port:</b>	9-bit GPIO port supported
<b>BIOS:</b>	AMI Flash BIOS supports DMI, PnP, Green features; Adaptec 7880 Ultra-wide SCSI RAID BIOS (For SBC-670S only)
<b>Watchdog timer:</b>	The timeout interval is software selectable. (1 sec ~ 129 min., 7 sec/step)
<b>DMA channels:</b>	7
<b>Interrupt levels:</b>	15

**Keyboard/ mouse connector:** 6-pin mini DIN connector supports standard PC/AT keyboard and a PS/2 mouse.

**USB:** Supports 2 USB ports

**Power supply voltage:** +5V (4.75V to 5.25V), +12V power supply

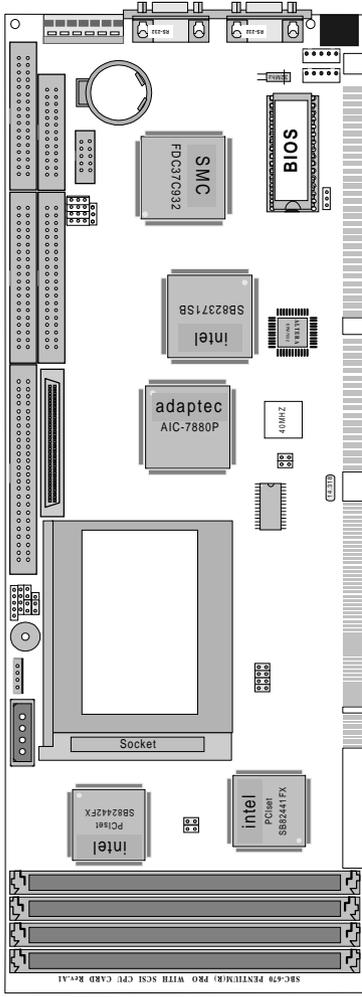
**Max. power requirement:** +5V @ 12A

**Operating temperature:** 32° F to 140° F (0 to 60° C)

**Board size:** 13.3" (L) x 4.8"(W) (338mm x 122mm)

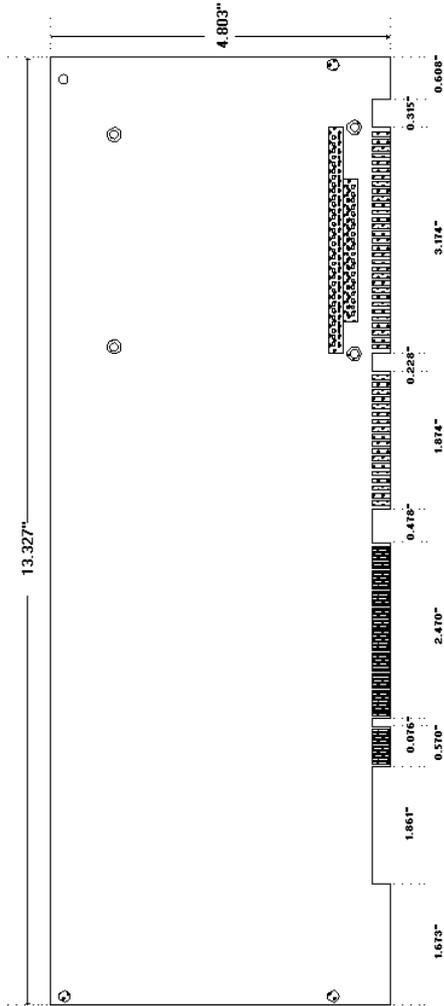
**Board weight:** 1.2 lbs (0.5Kg)

# Board layout



# Card dimensions

---





# CHAPTER 2

## **Hardware Configuration**

This chapter gives background information of the SBC-670S. It explains how to configure the card and prepare it for installation into your PC.

Sections include:

- Jumper settings
- Installing DRAM(SIMMs)

## Jumpers and connectors

---

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 allows you to configure your system to suit your application. The table below lists the function of each of the board jumpers and connectors.

---

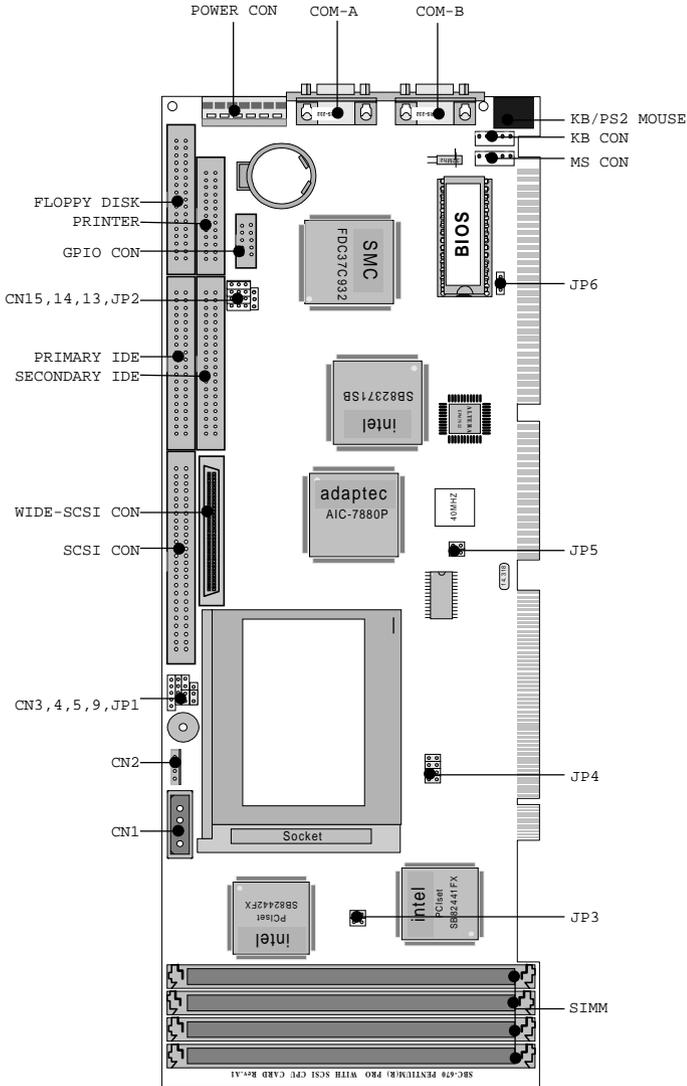
### Jumpers and connectors

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<b>Label</b>	<b>Function</b>
JP1	SCSI Terminator Select
JP2	ISA Bus Clock select (Reserved)
JP3	CPU Bus Frequency Select
JP4	CPU Frequency Select
JP5	CPU Clock Select
JP6	Flash Device Select
CN1	4P Power Connector
CN2	4P Fan Power Connector
KEYLOCK(CN3)	Keyboard Lock
IDE LED(CN4)	IDE device
SPKER(CN5)	Speaker Connector
CN6 SCSI HEADER	SCSI-II Connector
INTERNAL	
CN7 PRIMARY IDE	Primary IDE Connector
CN8 FLOPPY DISK	Floppy Drive Connector
RESET(CN9)	RESET Connector
WIDE-SCSI CON (CN10)	Ultra-Wide SCSI Connector
CN11 SECONDARY IDE	Secondary IDE Connector
CN12 PRINTER	Printer Port
CN13,CN14	USB Connector
CN15	IrDA Tx/Rx Header
GPIO CON(CN16)	GPIO Connector
MS CON(CN17)	Mouse Connector
POWER CON(CN18)	6P Power Connector
COM-A(CN19)	COM1 Connector
COM-B(CN20)	COM2 Connector
KB CON(CN21)	Keyboard Connector
KB/PS2 MOUSE (CN22)	Keyboard and PS/2 Mouse Connector

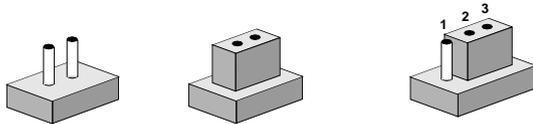
---

# Locating jumpers and connectors



# Setting jumpers

You 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.



**Open**

**Closed**

**Closed 2-3**

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



**Open**

**Closed**

**Closed 2-3**

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.

Generally, you simply need a standard cable to make most connections.

## Safety precautions

---

**Warning!**  Always completely disconnect the power cord from your chassis whenever you are working on it. Do not make connections while the power is on, sensitive electronic components can be damaged by the sudden rush of power. Only experienced electronics personnel should open the PC chassis.

**Caution!**  Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis.

## Installing the CPU

---

The SBC-670S CPU card supports Intel Pentium Pro150~200 at 66/60/50 MHz (external clock speed). The system's performance depends on the CPU types. You can install or upgrade the CPU in the board's ZIF socket by following the procedures outlined below. If your system has an existing CPU, you need to remove it before installing the new CPU.

### Removing a CPU

1. If there is a CPU fan, remove the CPU fan first.
2. Push the lever on the side of the ZIF socket out a little and raise it up as far as it will go.
3. Lift the CPU out of the socket.

### Installing the CPU

1. Make sure the ZIF socket lever is up as far as it can go.
2. Insert the CPU into the socket. If it does not go in easily, lift the lever higher or insert the CPU with another orientation.
3. Press the lever down. The sliding plate will move forward to position the CPU. You will feel some resistance in the lever as the CPU is secured into place. When the CPU is properly installed, the lever will snap into place at the side of the ZIF socket.

When you install a new CPU into the socket, you have to adjust other settings on the board, such as CPU clock and PCI speed, to accommodate it. Make sure that the settings are correct for your CPU. **Improper settings may damage the CPU.**

## CPU Frequency Select (JP4)

JP4 must be set to match the clock ratio of CPU. The chart below shows the proper jumper setting.

---

### CPU Frequency Select (JP4)

---

	JP4			
freq ratio = 2				
	2 1	4 3	6 5	8 7
freq ratio = 2.5				
	2 1	4 3	6 5	8 7
freq ratio = 3*				
	2 1	4 3	6 5	8 7
freq ratio = 3.5				
	2 1	4 3	6 5	8 7
freq ratio = 4				
	2 1	4 3	6 5	8 7

\*default

## CPU Bus Frequency Select (JP3)

JP3 must be set to match the CPU Bus frequency. The chart below shows the proper jumper setting.

---

### CPU Bus Frequency Select (JP3)

---

	JP3	
60 MHz	2 1	   
66 MHz*	2 1	   

\*default

## CPU Clock Select (JP5)

JP5 must be set to select the CPU Clock or the external clock speed.

---

### CPU Clock select (JP5)

---

	JP5			
CPU clock = 50 MHz	2		4	
	1		3	
CPU clock = 60 MHz	2		4	<input type="radio"/>
	1		3	<input type="radio"/>
CPU clock = 66 MHz*	2	<input type="radio"/>	4	<input type="radio"/>
	1	<input type="radio"/>	3	

\* default

## ISA Bus Frequency Select (JP2)

JP2 is reserved. It will not give any function or affect the system even though it still exists on the board.

## Flash Device Select (JP6)

JP6 must be set to match the type of flash device you want to install.

---

### Flash Device Select (JP6)

---

	JP6		
5V (write cycle) 1M device*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	1	2	3
12V (write cycle) 1M device		<input type="radio"/>	
	1	2	3
2M device	<input type="radio"/>		
	1	2	3

\* default

## SCSI Terminator Select (JP1)

You can select the SCSI Terminator to ensure reliability of the SCSI bus communication enable or setting by SCSI BIOS. The configuration is as follows:

---

SCSI Terminator select (JP1)	
Terminator enable*	
	1 2 3
Terminator select by SCSI BIOS	
	1 2 3

---

\* default

## Installing DRAM (SIMMs)

The SBC-670S has four 72-pin SIMM (Single In-Line Memory Module) sockets that provide anywhere from 1 MB to 128 MB of DRAM. Each socket accepts from 1MB to 64 MB of DRAM. For more detailed information, refer to the memory configuration table below.

**Table 1: Dual or Quad SIMM (64-bit) boot-up**

Total Memory	Bank 0		Bank 1	
	SIMM 1	SIMM 2	SIMM 3	SIMM 4
2 MB	1 M	1 M		
4 MB	2 MB	2 MB		
4 MB	1 MB	1 MB	1 MB	1 MB
8 MB	4 MB	4 MB		
8 MB	2 MB	2 MB	2 MB	2 MB
16 MB	8 MB	8 MB		
16 MB	4 MB	4 MB	4 MB	4 MB
32 MB	16 MB	16 MB		
32 MB	8 MB	8 MB	8 MB	8 MB
64 MB	16 MB	16 MB	16 MB	16 MB
64 MB	32 MB	32 MB		
128 MB	32 MB	32 MB	32 MB	32 MB
24 MB	4 MB	4 MB	8 MB	8 MB
48 MB	8 MB	8 MB	16 MB	16 MB
96 MB	16 MB	16 MB	32 MB	32 MB
40 MB	4 MB	4 MB	16 MB	16 MB
80 MB	8 MB	8 MB	32 MB	32 MB
128 MB	64 MB	64 MB		
72 MB	4 MB	4 MB	32 MB	32 MB

# CHAPTER 3

## **Connecting Peripherals**

This chapter introduces how to connect peripherals, switches and indicators to the SBC-670S board. You can access most of the connectors from the top of the board while it is installed in the chassis. If you have a number of cards installed, or your chassis is very tight, you may need to partially remove the card to make all the connections.

The following table lists the connectors on the SBC-670S. See Chapter 1 for locating the connectors.

SBC-670S Connector functions	
Connector	Function
CN1	4P Power Connector
CN2	4P Fan Power Connector
KEYLOCK(CN3)	Keyboard Lock
IDE LED (CN4)	IDE device
SPKER(CN5)	Speaker Connector
CN6 SCSI HEADER INTERNAL	SCSI-II Connector
CN7 PRIMARY IDE	Primary IDE Connector
CN8 FLOPPY DISK	Floppy Drive Connector
RESET(CN9)	RESET Connector
WIDE SCSI CON(CN10)	Ultra-Wide SCSI Connector
CN11 SECONDARY IDE	Secondary IDE Connector
CN12 PRINTER	Printer Port
CN13, CN14	USB Connector
CN15	IrDA Tx/Rx Header
GPIO CON(CN16)	GPIO connector
MS CON(CN17)	Mouse Connector
POWER CON(CN18)	6P Power Connector
COM-A(CN19)	COM1 Connector
COM-B(CN20)	COM2 Connector
KB CON(CN21)	Keyboard Connector
KB/PS2 MOUSE(CN22)	Keyboard and PS/2 Mouse Connector

The following sections tell how to make each connection. In most cases, you will simply need to connect a standard cable.

**Warning!** Always completely disconnect the power cord from your chassis whenever you are working on it. Do not make connections while the power is on. Sensitive electronic components can be damaged by the sudden rush of power. Only experienced electronics personnel should open the PC chassis.



**Caution!** Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis.



## IrDA Tx/Rx Header (IR CON)

---

This connector supports the optional wireless transmitting and receiving infrared modules. This module mounts on to a small opening on system cases that support this feature. You must also configure the setting through BIOS setup to select whether UART2 is assigned for use with COM2 or IrDA

---

IrDA Tx/Rx header (IR CON)

---

Pin	Function
1	IrRx
2	GND
3	IrTx
4	Vcc

---

## Power LED and Keyboard LOCK (KEYLOCK)

---

You can use a LED to indicate that the CPU card is on. Pin 1 of KEYLOCK is the LED's power, and Pin 3 is the ground.

You can use a switch (or a lock) to disable the keyboard so that the PC will not respond to any input. This is useful if you do not want anyone to change or stop a running program. Connect the switch between Pins 4 and 5 of KEYLOCK.

---

Power LED and keylock

---

Pin	Function
1	LED power (Vcc)
2	NC
3	GND
4	Keyboard lock (IRQ1)
5	GND

---

## External Speaker (SPKER)

---

The CPU card has its own buzzer. You can also connect to the external speaker on your computer chassis. Pin assignments for SPKER are shown below:

---

External speaker (SPKER)	
Pin	Function
1	VCC
2	SPEAKER-
3	Internal Buzzer
4	SPEAKER-

---

## Hard Drive LED (IDE LED)

---

You can connect a LED to the connector of IDE LED to indicate that the HDD is active.

## Reset Switch (RESET)

---

You can connect an external switch to easily reset your computer. This switch will restart your computer if you hit the RESET switch.

## Enhanced IDE (PRIMARY IDE, SECONDARY IDE)

---

You can attach four IDE (Integrated Device Electronics) drives to the SBC-670S internal controller. The SBC-670S CPU card has two EIDE connectors, PRIMARY IDE and SECONDARY IDE.

Wire number 1 on the cable is red or blue, and the other wires are gray. Connect one end to PRIMARY IDE or SECONDARY IDE on the CPU card. Make sure that the red (or blue) wire corresponds to pin 1 on the connector (on the right side).

## Floppy Drive (FLOPPY DISK)

---

You can attach up to two floppy disk drives to the SBC-670S' on-board controller. You can use any combination of 5.25" (360 KB and 1.2 MB) and 3.5" (720 KB, 1.44 MB and 2.88 MB) drives.

The card comes with a 34-pin daisy-chain drive connector cable. On one end of the cable is a 34-pin flat-cable connector. On the other end are two sets of floppy disk drive connectors. Each set consists of a 34-pin flat-cable connector (usually used for 3.5" drives) and a printed-circuit-board connector (usually used for 5.25" drives). You can use only one connector in each set. The set on the end (after the twist in the cable) connects to the **A** drive. The set in the middle connects to the **B** drive.

## Universal Serial Bus Connector (USB Connector)

---

The SBC-670S CPU card has two USB Connectors, their connection pin assignment is as follows.

USB Connector	
Pin	Function
1	Vcc
2	DATA -
3	DATA +
4	GND

## Parallel Port (PRINTER)

---

The parallel port is normally used to connect the CPU card to a printer. The SBC-670S includes an on-board parallel port, accessed through PRINTER, a 26-pin flat-cable connector. The card comes with an adapter cable which lets you use a traditional DB-25 connector. The cable has a 26-pin connector on one end and a DB-25 connector on the other, mounted on a retaining bracket. The bracket can be installed at the end of an empty slot in your chassis, giving you access to the connector.

To install the bracket:

1. Find an empty slot in your chassis.
2. Unscrew the plate that covers the end of the slot, and screw in the bracket.
3. Attach the flat-cable connector to PRINTER on the CPU card. Wire 1 of the cable is red or blue, and the other wires are gray. Make sure that wire 1 corresponds to pin 1 of PRINTER. Pin 1 is on the right side of PRINTER.

# Power Supply connections

---

## 6P Power supply connector (POWER CON)

In single-board computer (non-passive backplane) applications you will need to connect a power directly to the SBC-670S board using the connector labeled POWER CON. This connector is fully compatible with the standard PC power supply connector. See the following table for its pin assignments:

---

6P Power Connector (POWER CON)

---

Pin	Function
1	PG
2	+5V
3	+12V
4	-12V
5	GND
6	GND

---

## 4P Power Connector (CN1)

This connector provides a 4 pin power outlet port. See the following table for its pin assignments:

---

4P Fan Power Connector (CN1)

---

Pin	Function
1	+5V
2	GND
3	GND
4	+12V

---

## 4P Fan Power Connector (CN2)

This connector provides a 4 pin power outlet to a device such as a CPU fan.

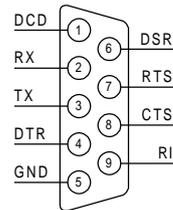
4P Fan Power Connector (CN2)

Pin	Function
1	+5V
2	GND
3	GND
4	+12V

## Serial Ports (COM-A, COM-B)

The SBC-670S offers two RS-232 serial ports, COM1 and COM2, which let you connect to serial devices (a mouse, a MODEM, etc.) or a communication network. COM-A is COM1, and COM-B is COM2.

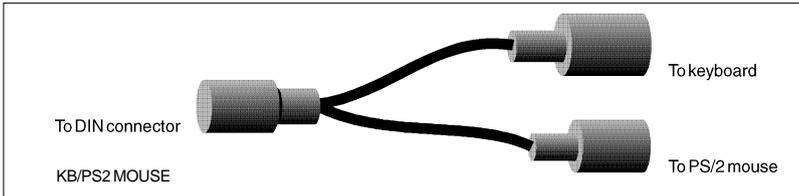
You can disable each port or select its address (3F8H [COM1], 2F8H [COM2] or 3E8H) using the AMIBIOS Setup program. (see Peripheral Setup in Chapter 4)



Different devices implement the RS-232 standard in different ways. If you get problems, be sure to check the pin assignments for the connector. The figure above shows the pin assignments for the card's RS-232 ports:

## Keyboard & PS/2 Mouse (KB/PS2 Mouse, KB CON, MS CON)

KB/PS2 Mouse, the card's keyboard connector, is a 6-pin mini-DIN connector on the card mounting bracket. The SBC-670S also comes with an adapter to convert the mini-DIN connector to a PC/AT keyboard connector and a PS/2 mouse connector.



The SBC-670S provides a second connector designed for external keyboard input (KB CON) and mouse input (MS CON).

---

### Keyboard Connector (KB CON)

---

Pin	Function
1	KBCLK
2	KBDATA
3	NC
4	KB GND
5	KB Vcc

---

### Mouse Connector (MS CON)

---

Pin	Function
1	MSCLK
2	MSDATA
3	NC
4	KB GND
5	KB Vcc

---

## Ultra-Wide SCSI Connector (WIDE-SCSI CON)

---

The Ultra-Wide SCSI Connector is a 68-pin, 16-bit SCSI Connector. If you are connecting internal SCSI devices, make sure you have an internal SCSI cable with enough connectors to accommodate all of your devices.

1. Prepare each SCSI device for installation. Be sure to configure the device's SCSI ID and terminators (see the device's documentation).
2. Install the SCSI device in your system
3. Plug one end of the internal SCSI cable into the host adapter's internal SCSI Connector.
4. Plug the remaining SCSI cable connectors into the corresponding connectors on the back of each individual device.
5. Connect the DC power cable into the SCSI's power connector.

The pin assignments are shown on the opposite page:

---

**Ultra-Wide SCSI Connector (WIDE-SCSI CON)**

---

<b>Pin</b>	<b>Function</b>	<b>Pin</b>	<b>Function</b>	<b>Pin</b>	<b>Function</b>	<b>Pin</b>	<b>Function</b>
1	GND	18	TPWR	35	-D12	52	TPWR
2	GND	19	NC	36	-D13	53	NC
3	GND	20	GND	37	-D14	54	GND
4	GND	21	GND	38	-D15	55	-ATTN
5	GND	22	GND	39	-DPH	56	GND
6	GND	23	GND	40	-DO	57	-BSY
7	GND	24	GND	41	-D1	58	-ACK
8	GND	25	GND	42	-D2	59	-RST
9	GND	26	GND	43	-D3	60	-MSG
10	GND	27	GND	44	-D4	61	-SEL
11	GND	28	GND	45	-D5	62	-CD
12	GND	29	GND	46	-D6	63	-REQ
13	GND	30	GND	47	-D7	64	-IO
14	GND	31	GND	48	-DPL	65	-D8
15	GND	32	GND	49	GND	66	-D9
16	GND	33	GND	50	GND	67	-D10
17	TPWR	34	GND	51	TPWR	68	-D11

---

## SCSI-II Connector (SCSI HEADER INTERNAL)

---

The SCSI CON is a 50-pin, 8-bit SCSI connector available for internal SCSI device use. Connection of SCSI devices requires special attention, especially when determining the last drive in the SCSI chain. Refer to your device's operating manual for detailed installation advice. The pin assignments are shown below.

---

SCSI-II Connector (SCSI CON)

---

<b>Pin</b>	<b>Function</b>	<b>Pin</b>	<b>Function</b>
1	GND	2	-D0
3	GND	4	-D1
5	GND	6	-D2
7	GND	8	-D3
9	GND	10	-D4
11	GND	12	-D5
13	GND	14	-D6
15	GND	16	-D7
17	GND	18	-DPL
19	GND	20	GND
21	GND	22	GND
23	GND	24	GND
25	NC	26	TRMPWR
27	GND	28	GND
29	GND	30	GND
31	GND	32	-ATTN
33	GND	34	GND
35	GND	36	-BSY
37	GND	38	-ACK
39	GND	40	-RST
41	GND	42	-MSG
43	GND	44	-SEL
45	GND	46	-CD
47	GND	48	-REQ
49	GND	50	-IO

---



# CHAPTER 4

## **AMIBIOS Setup**

This chapter describes how to set BIOS configuration data.

# General information

---

AMIBIOS Setup configures system information that is stored in CMOS RAM.

## Starting AMIBIOS setup

As POST executes, the following appears;

Hit <DEL> if you want to run SETUP

Press <DEL> to run AMIBIOS setup.

## AMIBIOS main menu

The AMIBIOS setup screen appears as follows:

AMIBIOS SETUP — BIOS SETUP UTILITIES (C) 1995 American Megatrends, Inc. All Rights Reserved
Standard CMOS Setup Advanced CMOS Setup Advanced Chipset Setup Power Management Setup PCI/ Plug and Play Setup Peripheral Setup Change User Password Change Supervisor Password Change Language Setting Auto Configuration with Optimal Settings Auto Configuration with Fail Safe Settings Save Settings and Exit Exit Without Saving
Standard CMOS setup for changing time, date, hard disk type, etc. ESC: Exit    ~:Sel    F2/F3: Color    F10: Save & Exit

# Standard CMOS Setup

The AMIBIOS Setup options described in this section are selected by choosing the Standard CMOS Setup from the AMIBIOS Setup main menu selection screen, as shown below.

The Standard CMOS Setup screen appears:

AMIBIOS SETUP — STANDARD CMOS SETUP										
(C) 1995 American Megatrends, Inc. All Rights Reserved										
Date (mm/dd/yyyy):	Wed Aug 21, 1996									
Time (hh/mm/ss):	12: 19: 46									
Floppy Drive A:	1.44 MB 3½"									
Floppy Drive B:	Not Installed									
	Type	Size	Cyln	Head	WPcom	Sec	LBA Mode	Blk Mode	PIO Mode	32 Bit Mode
Pri Master :	Auto						On	On	Auto	On
Pri Slave :	Auto						On	On	Auto	On
Sec Master :	Auto						On	On	Auto	On
Sec Slave :	Auto						On	On	Auto	On
Boot Sector Virus Protection	Disabled									
Month:	Jan - Dec						Esc: Exit --:Sel			
Day:	01-31						PgUp/PgDn: Modify			
Year:	1901 -2099						F2/F3: Color			

## Date, Day and Time Configuration

The current values for each category are displayed. Enter new values through the keyboard.

## Floppy A, Floppy B

Select the appropriate specifications to configure the type of floppy drive that is attached to the system: 360 KB 5¼", 1.2 MB 5¼", 720 KB 3½", 1.44 MB 3½", and/or 2.88 MB 3½". The settings have not been pre-installed.



### Quick Boot:

Set this option to Enabled to instruct AMIBIOS to boot quickly when the computer is powered on. This option replaces the old Above 1 MB Memory Test Advanced Setup option.

Setting	Description
<i>Disabled</i>	AMIBIOS test all system memory. AMIBIOS waits up to 40 seconds for a READY signal from the IDE hard disk drive. AMIBIOS waits for .5 seconds after sending a RESET signal to the IDE drive to allow the IDE drive time to get ready again. AMIBIOS checks for a <Del> key press and runs AMIBIOS Setup if the key has been pressed.
<i>Enabled</i>	AMIBIOS does not test system memory above 1 MB.  AMIBIOS does not wait up to 40 seconds for a READY signal from the IDE hard disk drive. If a READY signal is not received immediately from the IDE drive, AMIBIOS does not configure that drive. AMIBIOS does not wait for .5 seconds after sending a RESET signal to the IDE drive to allow the IDE drive time to get ready again.  You cannot run AMIBIOS Setup at system boot, because there is no delay for the <i>Hit &lt;Del&gt; to run Setup</i> message.

### Boot Up Sequence:

This option sets the sequence of boot drives (floppy drive A:, hard disk drive C:, or CD-ROM drive) that the AMIBIOS attempts to boot from after AMIBIOS POST completes.

### Boot Up Num Lock:

Set this option to *Off* to turn the Num Lock key off when the computer is booted so you can use the arrow keys on both the numeric keypad and the keyboard. The settings are *On* or *Off*.

**Floppy Drive Swap:**

Set this option to *Enabled* to permit drives A: or B: to be swapped. The settings are *Enabled* or *Disabled*.

**Floppy Drive Seek:**

Set this option to *Enabled* to specify that floppy drive A: will perform a Seek operation at system boot. The settings are *Enabled* or *Disabled*.

**PS/2 Mouse Support:**

When this option is set to *Enabled*, AMIBIOS supports a PS/2-type mouse. The settings are *Enabled* or *Disabled*.

**System Keyboard:**

This option specifies that a keyboard is attached to the computer. The settings are *Present* or *Absent*.

**Primary Display:**

This option specifies the type of display monitor and adapter in the computer. The settings are *Mono*, *CGA40x25*, *CGA80x25*, *VGA/EGA*, or *Absent*.

**Password Check:**

This option enables password checking every time the computer is powered on or every time AMIBIOS Setup is executed. If *Always* is chosen, a user password prompt appears every time the computer is turned on. If *Setup* is chosen, the password prompt appears as AMIBIOS is executed.

**Parity Check:**

Set this option to *Enabled* to check the parity of all system memory. The settings are *Enabled* or *Disabled*.

**OS/2 Compatible Mode:**

Set this option to *Enabled* to permit AMIBIOS to run with IBM OS/2. The settings are *Enabled* or *Disabled*.

**Wait for 'F1' if Error:**

AMIBIOS POST error messages are followed by:

Press <F1> to continue

If this option is set to *Disabled*, AMIBIOS does not wait for you to press the <F1> key after an error message. The settings are *Enabled* or *Disabled*.

**Hit 'DEL' Message Display:**

Set this option to *Disabled* to prevent :

Hit <DEL> if you want to run Setup

from appearing on the first AMIBIOS screen when the computer boots. The settings are *Enabled* or *Disabled*.

**Internal Cache:**

This option specifies the caching algorithm used for L1 internal cache memory. The setting are:

<b>Setting</b>	<b>Description</b>
<i>Disabled</i>	Neither L1 internal cache memory on the CPU nor L2 secondary cache memory is enabled.
<i>WriteBack</i>	Use the write-back caching algorithm.

**System BIOS Cacheable**

When this option is set to *Enabled*, the contents of the F0000h system memory segment can be read from or written to L2 secondary cache memory. The contents of the F0000h memory segment are always copied from the BIOS ROM to system RAM for faster execution.

The settings are *Enabled* or *Disabled*.

**C000,16k Shadow**  
**C400,16k Shadow**  
**C800,16k Shadow**  
**CC00,16k Shadow**

**D000,16k Shadow**  
**D400,16k Shadow**  
**D800,16k Shadow**  
**DC00,16k Shadow**

These options control the location of the contents of the 16KB of ROM beginning at the specified memory location. If no adapter ROM is using the named ROM area, this area is made available to the local bus. The settings are:

<b>Setting</b>	<b>Description</b>
<i>Enabled</i>	The contents of C0000h - C3FFFh are written to the same address in system memory (RAM) for faster execution.
<i>Cached</i>	The contents of the named ROM area are written to the same address in system memory (RAM) for faster execution, if an adapter ROM will be using the named ROM area. Also, the contents of the RAM area can be read from and written to cache memory.
<i>Disabled</i>	The video ROM is not copied to RAM. The contents of the video ROM cannot be read from or written to cache memory.

# Advanced Chipset Setup

Select the Advanced Chipset Setup from the AMIBIOS Setup main menu to enter the Chipset Setup. The following configurations are based on Fail-Safe default 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 DRAM and the external cache. 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.

AMIBIOS SETUP — ADVANCED CHIPSET SETUP (C) 1995 American Megatrends, Inc. All Rights Reserved		
Auto Configure DRAM Timing	Enabled	
DRAM Speed (ns)	60	
DRAM Read Burst Timing (B/E/F)	x2/2/3	
DRAM Write Burst Timing (B/E/F)	x2/2/3	
RAS Precharge	3 Clocks	
RASx# to CASx# Delay	Disabled	
MA Wait State	Disabled	
DRAM Integrity Mode (ECC)	Disabled	
DRAM Refresh Type	CAS/RAS	
DRAM Refresh Queue	Enabled	
VGA Frame Buffer USWC	Disabled	
PCI Frame Buffer USWC	Disabled	
Fixed Memory Hole	Disabled	
CPU To IDE Posting	Enabled	
USWC Write Posting	Enabled	
CPU To PCI Posting	Disabled	
PCI To DRAM Pipeline	Enabled	
PCI Burst Write Combine	Enabled	
Read Around Write	Enabled	
8-Bit I/O Recovery Times	1 SysClk	
16-Bit I/O Recovery Times	1 SysClk	
Universal Serial Bus	Disabled	
USB Keyboard Support	Disabled	
		ESC: Exit    --:Sel PgUp/PgDn: Modify F2/F3: Color

## Universal Serial Bus

Set this option *Enabled* to enable the system BIOS USB (Universal Serial Bus) functions. The settings are *Enabled* or *Disabled*.

## USB KeyBoard support

Set this option to *Enabled* to enable keyboard support on the universal serial bus. The settings are *Enabled* or *Disabled*.

# Power Management Setup

The POWER MANAGEMENT SETUP allows you to configure your system for the most effective use of energy while operating in a manner consistent with your own style of computer use.

AMIBIOS SETUP — POWER MANAGEMENT SETUP (C) 1995 American Megatrends, Inc. All Rights Reserved		
Power Management/APM	Disabled	Available Options: Disabled Enabled Inst-ON
Green PC Monitor Power State	Standby	
Video Power Down Mode	Disabled	
Hard Disk Power Down Mode	Disabled	
Hard Disk Time Out (Minute)	Disabled	
Standby Time Out (Minute)	Disabled	
Suspend Time Out (Minute)	Disabled	
Suspend Date Time Update	Enabled	
MODEM USE IRQ	NA	
IRQ3	Ignore	
IRQ4	Ignore	
IRQ5	Ignore	
IRQ7	Ignore	
IRQ8	Ignore	
IRQ9	Ignore	
IRQ10	Ignore	
IRQ11	Ignore	
IRQ12	Ignore	ESC: Exit --:Sel Pg Up/Pg Dn: Modify F2/F3: Color
IRQ13	Ignore	
IRQ14	Ignore	
IRQ15	Ignore	

## Power Management/APM

Set this option to *Enabled* to enable the power management and APM (Advanced Power Management) features. The settings are *Enabled* or *Disabled*.

## Green PC Monitor Power State

This option specifies the power state that the green PC-compliant video monitor enters when AMIBIOS places it in a power savings state after the specified period of display inactivity has expired. The settings are *Off*, *Blank*, *Standby*, or *Suspend*.

### **Video Power Down Mode**

This option specifies the power conserving state that the VESA VGA video subsystem enters after the specified period of display inactivity has expired. The settings are *Disabled*, *Standby*, or *Suspend*.

### **Hard Disk Power Down Mode**

This option specifies the power conserving state that the hard disk drive enters after the specified period of hard drive inactivity has expired. The settings are *Disabled*, *Standby*, or *Suspend*.

### **Hard Disk Time Out (Minute)**

This option specifies the length of a period of hard disk drive inactivity. When this length of time expires, the computer enters power-conserving state specified in the **Hard Disk Power Down Mode** option. The settings are *Disabled*, *1 (min)*, *2 (min)*, *3 (min)*, *4 (min)*, *5 (min)*, *6 (min)*, *7 (min)*, *8 (min)*, *9 (min)*, *10 (min)*, *11 (min)*, *12 (min)*, *13 (min)*, or *14 (min)*.

### **Standby Time out (Minute)**

This option specifies the length of a period of system inactivity while in Full power on state. When this length of time expires, the computer enters Standby power state. The settings are *Disabled*, *1 (min)*, *2 (min)*, *3 (min)*, *4 (min)*, *5 (min)*, *6 (min)*, *7 (min)*, *8 (min)*, *9 (min)*, *10 (min)*, *11 (min)*, *12 (min)*, *13 (min)*, or *14 (min)*.

### **Suspend Time out (Minute)**

This option specifies the length of a period of system inactivity while in Standby state. When this length of time expires, the computer enters Suspend power state. The settings are *Disabled*, *1 (min)*, *2 (min)*, *3 (min)*, *4 (min)*, *5 (min)*, *6 (min)*, *7 (min)*, *8 (min)*, *9 (min)*, *10 (min)*, *11 (min)*, *12 (min)*, *13 (min)*, or *14 (min)*.

### **Suspend Date Time Update**

This option specifies whether date and time will be updated after the suspend mode. The settings are *Disabled* or *Enabled*.

### **MODEM USE IRQ**

This option specifies the IRQ used by the MODEM. The settings are *NA*, *IRQ3*, *IRQ4*, *IRQ5*, *IRQ7*, *IRQ9*, *IRQ10*, or *IRQ11*.

**IRQ3**

**IRQ4**

**IRQ5**

**IRQ7**

**IRQ8**

**IRQ9**

**IRQ10**

**IRQ11**

**IRQ12**

**IRQ13**

**IRQ14**

**IRQ15**

When set to *Monitor*, these options enable event monitoring on the specified hardware interrupt request line. If set to *Monitor* and the computer is in a power saving state, AMIBIOS watches for activity on the specified IRQ line. The computer enters the full on power state if any activity occurs.

AMIBIOS reloads the Standby and Suspend timeout timers if activity occurs on the specified IRQ line.

The settings for each of these options are *Monitor* or *Ignore*.

# PCI/Plug and Play Setup

This section describes configuring the PCI bus system and covers some very technical items. It is Strongly Recommended that only experienced users should make any changes to the default settings.

.AMIBIOS SETUP — PCI / PLUG AND PLAY SETUP (C) 1995 American Megatrends, Inc. All Rights Reserved		
OnBoard SCSI	Enabled	Available Options:
Plug and Play Aware O/S	No	Disabled
PCI Latency Timer (PCI Clocks)	32	Enabled
PCI VGA Palette Snoop	Disabled	
PCI IDE BusMaster	Disabled	
OffBoard PCI IDE Card	Auto	
OffBoard PCI IDE Primary IRQ	Disabled	
OffBoard PCI IDE Secondary IRQ	Disabled	
PCI VGA Used IRQ Line	No	
Used ESCD Information	No	
1st Priority IRQ for PCI	Auto	
2nd Priority IRQ for PCI	Auto	
3rd Priority IRQ for PCI	Auto	
4th Priority IRQ for PCI	Auto	
IRQ3	PCI/PnP	
IRQ4	PCI/PnP	
IRQ5	PCI/PnP	
IRQ7	PCI/PnP	
IRQ9	PCI/PnP	
IRQ10	PCI/PnP	
IRQ11	PCI/PnP	
IRQ12	PCI/PnP	
IRQ14	PCI/PnP	
IRQ15	PCI/PnP	
DMA 0	PCI/PnP	
DMA 1	PCI/PnP	
DMA 3	PCI/PnP	
DMA 5	PCI/PnP	
DMA 6	PCI/PnP	
DMA 7	PCI/PnP	
Reserved Memory Size	Disabled	ESC: Exit --:SeL
Reserved Memory Address	C8000	Pg Up/Pg Dn: Modify F2/F3: Color

## OnBoard SCSI

Set this option to *Enabled* to allow SCSI device be detected by the BIOS. The settings are *Enabled* or *Disabled*.

### **Plug and Play Aware OS**

Set this option to *Yes* if the operating system installed in the computer is Plug and Play-aware. AMIBIOS only detects and enables PnP ISA adapter cards that are required for system boot. The Windows 95 operating system detects and enables all other PnP-aware adapter cards. Windows 95 is PnP-aware. Set this option to *No* if the operating system (such as DOS, OS/2, Windows 3.x) does not use PnP.

*You must set this option correctly or PnP-aware adapter cards installed in your computer will not be configured properly.*

The settings are *No* or *Yes*.

### **PCI Latency Timer (PCI Clocks)**

This option sets latency of all PCI devices on the PCI bus. The settings are in units equal to PCI clocks. The settings are 32, 64, 96, 128, 160, 192, 224, or 248.

### **PCI VGA Palette Snoop**

This option must be set to *Enabled* if an ISA adapter card requires VGA palette snooping. The settings are *Enabled* or *Disabled*.

### **PCI IDE BusMaster**

Set this option to *Enabled* to specify that the IDE controller on the PCI local bus has bus mastering capability. The settings are *Disabled* or *Enabled*.

### **OffBoard PCI IDE Card**

This option specifies if an offboard PCI IDE controller adapter card is used in the computer. You must also specify the PCI expansion slot on the motherboard where the offboard PCI IDE controller card is installed. If an offboard PCI IDE controller is used, the onboard IDE controller on the motherboard is automatically disabled. The settings are *Auto*, *Slot1*, *Slot2*, *Slot3*, or *Slot4*.

If *Auto* is selected, AMIBIOS automatically determines the correct setting for this option.

**OffBoard PCI IDE Primary IRQ**

This option specifies the PCI interrupt used by the primary IDE channel on the offboard PCI IDE controller. The settings are *Disabled, INTA, INTB, INTC, INTD, or Hardwired.*

**OffBoard PCI IDE Secondary IRQ**

This option specifies the PCI interrupt used by the secondary IDE channel on the offboard PCI IDE controller. The settings are *Disabled, INTA, INTB, INTC, INTD, or Hardwired.*

**PCI VGA Used IRQ Line**

The settings of this option is *No* or *Yes*.

**Used ESCD information**

The settings of this option is *Yes* or *No*.

**1st Priority IRQ for PCI**  
**2nd Priority IRQ for PCI**  
**3rd Priority IRQ for PCI**  
**4th Priority IRQ for PCI**

These options specify the IRQs assigned to the *1st*, *2nd*, *3rd*, or *4th* priority IRQ for PCI.

**IRQ3**  
**IRQ4**  
**IRQ5**  
**IRQ7**  
**IRQ9**  
**IRQ10**  
**IRQ11**  
**IRQ12**  
**IRQ14**  
**IRQ15**

These options specify the bus that the named interrupt request lines (IRQs) are used on. These options allow you to specify IRQs for use by legacy ISA adapter cards.

These options determine if AMIBIOS should remove an IRQ from the pool of available IRQs passed to BIOS configurable devices. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the pool, the end user can use these PCI/PnP Setup options to remove the IRQ by assigning the option to the *ISA/EISA* setting. Onboard I/O is configurable by AMIBIOS. The IRQs used by onboard I/O are configured as *PCI/PnP*.

The settings are *PCI/PnP* or *ISA/EISA*.

**DMA 0**  
**DMA 1**  
**DMA 3**  
**DMA 5**  
**DMA 6**  
**DMA 7**

This item allows you to determine the specified DMA Channel assigned to the ISA/EISA bus, or configured as Plug and Play (PnP).

**Reserved Memory Size**

This option specifies the size of the memory area reserved for legacy ISA adapter cards.

The settings are *Disabled*, *16k*, *32k*, or *64k*.

**Reserved Memory Address**

This option specifies the beginning address (in hex) of the reserved memory area. The specified ROM memory area is reserved for use by legacy ISA adapter cards.

The settings are *C0000*, *C4000*, *C8000*, *CC000*, *D0000*, *D4000*, *D8000*, or *DC000*.

# Peripheral Setup

To access Peripheral Setup, select the Peripheral icon in the AMI-BIOS main menu. The following configurations are based on Fail-Safe default settings.

AMIBIOS SETUP — PERIPHERAL SETUP (C) 1995 American Megatrends, Inc. All Rights Reserved		
OnBoard FDC	Auto	Available Options: Auto Disabled  ESC: Exit -_:_Sel Pg Up/Pg Dn: Modify F2/F3: Color
OnBoard Serial Port1	Auto	
OnBoard Serial Port2	Auto	
OnBoard Parallel Port	Auto	
Parallel Port IRQ	Auto	
Parallel Port Mode	Normal	
Parallel Port DMA Channel	None	
OnBoard IDE	Both	

## OnBoard FDC

This option enables the floppy drive controller on the CPU board. The settings are *Auto*, *Enabled* or *Disabled*.

## OnBoard Serial Port 1

This option enables serial port 1 on the CPU board and specifies the base I/O port address for serial port 1.

The settings are *Auto*, *Disabled*, *3F8h*, *3E8h*, *2E8h*, *2F8h*.

## OnBoard Serial Port2

This option enables serial port 2 on the CPU board and specifies the base I/O port address for serial port 2. The settings are *Auto*, *Disabled*, *3F8h*, *2F8h*, *3E8h*, *2E8h*.

### **OnBoard Parallel Port**

This option enables the parallel port on the CPU board and specifies the parallel port base I/O port address. The settings are *Auto, Disabled, 378h, 278h, 3BCh*.

### **Parallel Port IRQ**

IRQ7 is used for the Parallel Port(LPT 1). The IRQ can be changed to IRQ5, or auto-selected(Auto) .

### **Parallel Port Mode**

This option specifies the parallel port mode. ECP and EPP are both bidirectional data transfer schemes that adhere to the IEEE P1284 specification. The settings are:

<b>Setting</b>	<b>Description</b>
<i>Normal</i>	The normal parallel port mode is used. This is the default setting.
<i>Bi-Dir</i>	Use this setting to support bidirectional transfers on the parallel port.
<i>EPP</i>	The parallel port can be used with devices that adhere to the Enhanced Parallel Port (EPP) specification. EPP uses the exiting parallel port signals to provide asymmetric bidirectional data transfer driven by the host device.
<i>ECP</i>	The parallel port can be used with devices that adhere to the Extended Capabilities Port (ECP) specification. ECP uses the DMA protocol to achieve transfer rates of approximately 2.5 Mbs. ECP provides symmetric bidirectional communications.

### **Parallel Port DMA Channel**

This option is only available if the setting for the **Parallel Port Mode** option is *ECP*.

The settings are *Auto, None, 0, 1, 2, 3*.

### **Onboard IDE**

This option specifies the onboard IDE controller channels that will be used. The settings are *Primary, Secondary, Both, or Disabled*.

## **Change Supervisor Password**

---

- 1) Select this option from the main menu
- 2) Enter the Password and Press <Enter>
- 3) Retype the Password and Press <Enter>

If you forget the password, please contact your distributor for another password which you can use to enter the BIOS setup and change your own password.

## **Auto Configuration with Optimal Settings**

---

You can load the optimal default settings for the AMIBOIS setup options by selecting it from the main menu. The optimal default settings are best case values that should optimize system performance. If CMOS RAM is corrupted, the optimal settings are loaded automatically.

## **Auto Configuration with Fail Safe Settings**

---

You can load the Fail Safe setting for the AMIBOIS setup options by selecting it from the main menu. The Fail Safe setting provides the most stable settings, though they may not provide optimal performance. Use this option as a diagnostic aid if the system is behaving erratically.

## **Save Settings and Exit**

---

If you select this option press <Enter>, the values entered in the setup utilities 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 pressing <Enter> lets you exit the Setup program, without recording any new values or changing old ones.



# CHAPTER 5

## **SCSI Driver Installation**

This chapter provides the information needed to install and use the Adaptec 7800 family Manager(driver) for SBC-670S only. The Adaptec 7800 Family Manager Set is a software(driver), that allows your Adaptec 7800 Family host adapter to communicate with your computer installing different operating systems: Novell Netware v3.1x and v4.x, Win95, Win3.1, WinNT3.5, WinNT4.0, DOS, OS/2.

## Windows 95 Driver Installation

---

To update or install the Win95 driver if Windows 95 is already installed, follow these instructions:

1. Start windows 95.
2. Click the Start button on the Windows 95 task bar, and then point to Settings.
3. Click Control Panel.
4. Double-click the System icon.
5. On the Device Manager tab, click the plus sign next to the SCSI controller icon.

(NOTE: If Windows 95 cannot determine the type of host adapter installed in your computer, a yellow question mark labeled Other devices appears instead of the SCSI controller icon. To continue, click the plus sign next to the question mark: a yellow question mark labelled PCI SCSI Bus Controller then appears.)

6. Double-click the 7800 Family host adapter you wish to update, or if a yellow question mark labelled PCI SCSI Bus Controller is displayed, double-click the question mark.
7. Insert the Adaptec 7800 Family Manager Set v2.0 Diskette into drive A:
8. Select the Driver tab.

(NOTE: If the version of Windows 95 you are using now displays a window with a Update Driver button instead of a Change Driver button, the remainder of your install procedure is covered in Updating the Driver for Windows 95, Version OSR 2, described below.)

9. Click Change Driver. You may be asked to select the hardware type; if so, select SCSI Controllers.
10. Click the Have Disk button and enter a:\win95 as the path.
11. Click OK.
12. Select the Adaptec 7800 Family host adapter, and click OK.
13. Again, click OK. The driver is now installed.
14. You must restart your computer for the changes to take effect. Click Yes to restart your computer. Click No to return to the system properties window.

## Windows NT v4.0 Driver Installation

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Follow these instructions only if Windows NT v4.0 is already installed.

1. Click the Start button on the Windows NT task bar, and then point to Settings.
2. Open the Control Panel, double-click on SCSI Adapters.
3. Select the Drivers tab, and click the Add button.
4. In the "Install Driver" window, click the Have Disk button.
5. Insert the Adaptec 7800 Family Manager Driver v2.0 diskette.
6. At the "Copy manufacturer's files from" text box, type `a:\winnt\4_0`, and click OK.
7. At the Install Driver window, click OK.
8. In response to "Do you want to use the currently installed driver(s) or install new one(s)", select the New button.
9. Again type `a:\winnt\4_0` and click continue. The driver is now installed.
10. You must restart your computer for the changes to take effect. Click Yes to restart your computer. Click No to return to the SCSI Adapters window.

## Windows NT v3.5x Driver Installation

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Follow these instructions only if Windows NT v3.5x is already installed.

1. Select and start the Windows NT Setup program. (Its icon is usually found in the Main program group.) There is a brief pause while Windows NT Setup scans your hardware configuration.
2. Select the Options pull-down menu and then select Add/Remove SCSI adapters. The SCSI adapter setup program displays a list of all host adapters currently installed.
3. Click the Add button to add another host adapter type to the list. A list of additional SCSI adapters appears.
4. Expand the list of additional SCSI adapters; select Other and press ENTER. (Requires disk provided by the hardware manufacturer).
5. Insert the Adaptec 7800 Family Manager Set v2.0 diskette for Windows NT into drive A; enter the following path to the installation files and then click OK.

a:\winnt\3\_5

6. The screen displays the adapter drivers supported on the diskette. The "Adaptec AHA-29x/AHA-394x/AHA-4944 or AIC-78xx PCI SCSI Controller (NT 3.5x)" driver is highlighted by default, Click OK. The driver is added to the list of SCSI adapters.
7. Select "Adaptec AHA-294x/AHA-394x/AHA-4944 or AIC-78xx PCI SCSI Controller (NT 3.5x)" from the list of SCSI adapters and click Install.

At this point, Windows NT setup checks to see if the specified driver (in this example, aic78xx.sys) has already been copied to the system disk.

8. If the following message appears, click New to replace the existing driver and skip to Step 10.

The driver(s) for this SCSI Adapter are already on the system. Do you want to use the currently installed driver(s) or install new one(s).

If the following message appears, continue with Step 9: Please enter the full path to the Windows NT SCSI Adapter files.

9. Change the path to the directory (i.e., a:\winnt\3\_5) with the desired device driver, then click Continue.

The device driver is copied to your system disk and the Windows NT configuration is updated so that the new device driver loads when Windows NT reboots.

10. When the installation is complete, Windows NT Setup again displays a list of currently installed host adapter types. Verify that the new host adapter appears on the list; the string should look similar to "Adaptec AHA-294x/AHA-394x/AHA-4944 or AIC-78xx PCI SCSI Controller (NT 3.5x)".

11. Add other types of host adapters if necessary (see Step 4 above), or click close to exit the SCSI adapters portion of Windows NT Setup, and then close the program.

12. When you see this message, click OK to exit:

The changes you have made will not take effect until the computer is restarted.

If this message does not appear, no changes have been made to the Windows NT system configuration.

13. Restart your computer and Windows NT. It is possible that some drive letter assignments may change from the previous configuration.

## NetWare v3.1x/v4.0/v4.1x Driver Installation

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To update or install the driver when NetWare is already installed, follow the instructions in this section. The procedures are similar for all versions of NetWare. Procedures that are specific to a NetWare version are noted when necessary.

1. Make a backup copy of the old driver (if it exists) before installing the new driver.
2. Copy the `aic7870.dsk` driver from the 7800 Family Manager Set v2.0 diskette for NetWare into the server's startup directory (e.g., `c:\nwserver`, `c:\server.40`, `c:\server.312`) on your hard disk. This overwrites any existing version of the driver in the directory.

(NOTE: For NetWare v3.1x, the `aic7870.dsk` file is located in the `\netware\v3_1x` directory on the diskette; for NetWare v4.0 and v4.1x, the file is in `\netware\v4_xx`.)

3. If necessary, modify the load command line in the `startup.ncf` so that the proper path to the driver and all appropriate command line options are specified.

The correct syntax to load the 7800 Family driver is

```
load [pathname]aic7870[options]
```

Command line options are not case sensitive. Placing commas between command line options is optional.

## OS/2 2.1x/Warp Driver Installation

---

Installing a New Driver or Updating an Existing Driver for OS/2 2.1X/Warp

1. Open the OS/2 System Folder, then open the System Setup folder.
2. If running OS/2 Warp 4.0, open the Install/Remove Folder.
3. Double-click on Device Driver Install.
4. Insert the Adaptec 7800 Family Manager Set 2.0 floppy in the appropriate drive.
5. Change to the directory where the driver is located, usually \OS2.
6. When you find the driver (AIC7870.ADD), select INSTALL.
7. After the install finishes, select EXIT to reboot the computer.

You may also install the driver manually.

If running OS/2 2.1X, copy AIC7870.ADD to C:\OS2.

If running OS/2 Warp 3.x or 4.0, copy AIC7870.ADD to C:\OS2\Boot.

Add a line to your CONFIG.SYS that says

```
BASEDEV = AIC7870.ADD /V
```

## Windows 3.1x Driver Installation

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If running Win3.1x, insert the "Win3.x Driver Disk" into your floppy drive and run SETUP.EXE.

Follow the instructions.

When the Adaptec EZ-SCSI installation is complete, please select the "EZ-SCSI README" option for additional information.

## Dos Driver Installation

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If running DOS, insert the "Dos Driver Disk" into your floppy driver, change to your floppy's drive letter, and run DOSINST.BAT. For example:

```
C:\>A:
```

```
A:\>DOSINST <ENTER>
```

Follow the instructions.

When the Adaptec EZ-SCSI installation is complete, please select the "EZ-SCSI README" option for additional information.



## **Programming the Watchdog Timer**

The SBC-670S is equipped with a watchdog timer that resets the CPU or generates an interrupt if processing comes to a standstill for whatever reason. This feature ensures system reliability in industrial stand-alone and unmanned environments.

# Programming the watchdog timer

---

If you decide to program the watchdog timer, you must write data to I/O port 443 (hex). The output data is a value timer. You can write from 80 (hex) to FF (hex) for input minute data plus from 00 (hex) to 7F (hex) for input second data, and the related timer is 0 second to 127 minutes plus 127 seconds sec.

After data entry, your program must refresh the watchdog timer by rewriting the I/O port 443 (hex) while simultaneously setting it. When you want to disable the watchdog timer, your program should write I/O port 80 (hex) a Hex value.

The following procedure is a sample program for the watchdog timer:

- Start watchdog timer and set function "Reset" type;
  - o 444 0 <Enter>; out 444h data 0
- Input Watchdog timers time-out interval of 3 minutes type;
  - o 443 83 <Enter>; out 443h data 83
- Input Watchdog timers time-out interval of 5 seconds type;
  - o 443 05 <Enter>; out 443h data 05
- Disable the watchdog timer type;
  - o 80 x <Enter>; out 080h data x (x can be any Hex value)

The time interval data of the watchdog timer is shown in binary code (8 bits).

8	7	6	5	4	3	2	1
x							

If bit 8 is "1" = To input "minute"

If bit 8 is "0" = To input "second"

Sample 1: 3 minutes

1	0	0	0	0	0	1	1
---	---	---	---	---	---	---	---

Sample 2: 5 seconds

0	0	0	0	0	1	0	1
---	---	---	---	---	---	---	---