SBC-570

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

SBC-570N

Full-size PCI/ISA
Pentium CPU Card

FCC STATEMENT

Acknowledgements

Packing list

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

- 1 SBC-570 CPU card/or SBC-570N CPU Card
- 1 Synchronous Cache Memory Module (160 Pin) - 256K
- 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-570 only)
- 1 Ultra wide SCSI cable (68pin) (For SBC-570 only)
- Two SCSI Driver Disketts; One for Dos, Windows 3.1; One for Novell-Netware V3.1x/V4.0/V4.1x , OS/2, WinNT 3.5X , WinNT4.0, Win95 (For SBC-570 only)

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

Contents

General Information

This chapter gives background information on the SBC-570.

Sections include:

- Card specifications

- Board layout

Introduction

The SBC-570 is an all-in-one single board Pentium computer with an on-board high performance Ultra-wide SCSI interface. It packs all the functions of an industrial computer on a single, full-size card. The SBC-570 is fully PC/AT compatible; thus your software will run without modifications. The Ultra-wide SCSI interface boosts transfer rates to 40MB/sec and is capable of connecting 15 devices. An 8-bit PCI SCSI_II interface is also available.

Other on-board features include a PCI Enhanced IDE interface, two RS-232 ports with 16C550 UARTS, one bi-directional parallel port and a flopppy drive controller. In addition to a 586 chip's 16 KB of on-chip cache memory, the SBC-570 includes an extra 256 KB/ 512 KB of second level (L2) cache memory on-board.

The SBC-570's PCI Enhanced IDE interfaces supports (through ATA PIO) mode 3 and mode 4 hard disks, which enables 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 or 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-570 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 to give you the flexibility to configure your system from 8 MB to 128 MB of DRAM using the most economical way.

Features

- Accepts Intel Pentium CPU 75-200 MHz/P55C, AMD 5k86/K6, Cyrix 6x86/M2, Socket 7 ZIF socket.

- Intel Triton VX chipset.

- Supports BEDO, EDO or Fast Page DRAM up to 128 MB.

- Supports Intel COAST cache module up to 512 KB to provide a high-performance Level-2 cache subsystem.

- Built-in, Ultra wide SCSI interface with high speed 40MB/sec transfer rates and capable of connecting 15 devices.

- Fast PCI enhanced IDE controller supports four IDE drives (large hard disks, CD-ROM, tape backup, ect.).

- 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. Supports SPP/EPP/ECP.

- On-board keyboard and PS/2 Mouse connector, 16-bit PC/104 module connector.

- Green functions.

Specifications

- **CPU**:   Intel Pentium CPU 75-200 MHz/ P55C, AMD 5k86/K6, Cyrix 6x86/M2

- **Bus interface**: PCI/ISA bus

- **Bus speed**: ISA: 8 MHZ
PCI: 25 ~ 33 MHz

- **Data bus**: 64 bit

- **Processing ability**: 64 bit

- **PCI SCSI-II interface:** 8-bit SCSI-II interface

- **PCI Ultra-wide SCSI interface:** 16-bit Ultra-wide SCSI interface (40MB/sec data transfer rate)

- **PCI Enhanced IDE interface:** Supports up to four IDE devices including hard disk drives with PIO mode 3, 4

- **RAM memory**: 8 MB to 128 MB. Uses two banks of 72-pin SIMM sockets, supports BEDO, EDO, Fast page DRAM

- **L2 Cache memory size**: Supports up to 512 KB Intel COAST module

- **Shadow RAM memory**: Supports system and video BIOS shadow memory

- **Floppy disk drive interface:** Supports up to two floppy disk drives, 5.25" (360 KB an 1.2 MB) and/or 3.5" (720 KB, 1.44 and 2.88 MB)

- **Parallel port**: One bi-directional parallel port. Supports SPP/EPP/ECP mode

- **Serial ports**: Two serial RS-232 ports; (IrDA Tx/ Rx header as an option). Both use 16C550 UARTs with 16-byte FIFO.

- **BIOS**: AMI flash BIOS supports DMI, PnP, Green features
  Adaptec 7880 Ultra-wide SCSI RAID BIOS (For SBC-570 only)

- **Watchdog timer**: The timeout interval is software select able. (1 sec ~ 129 min 7 sec.)

- **DMA channels**: 7

- **Interrupt levels**: 15

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

- **PC/104**: 104-pin connector for a 16-bit bus

- **USB:** Supports 2 USB ports (reserved for future use without testing).

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

- **Max. power requirements**: +5 V @ 5 A

- **Operating temperature**: 32º F to 122º F (0 to 50º C)

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

- **Board weight:** 1.2 lbs (0.5 kg)

Board layout
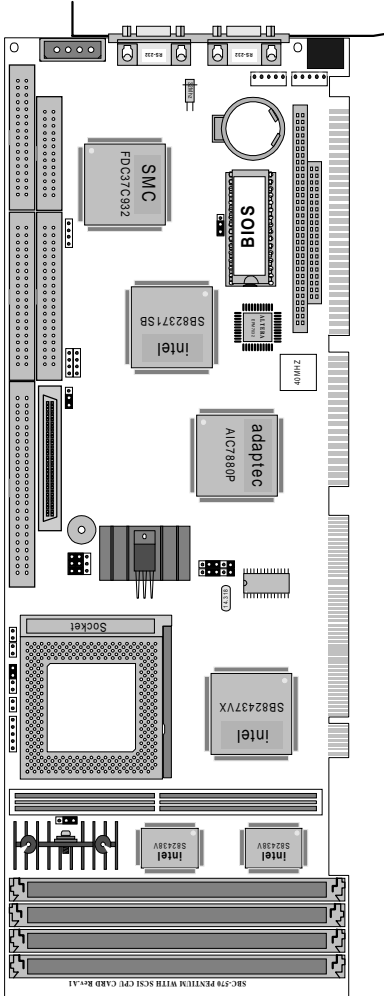
Card dimensions
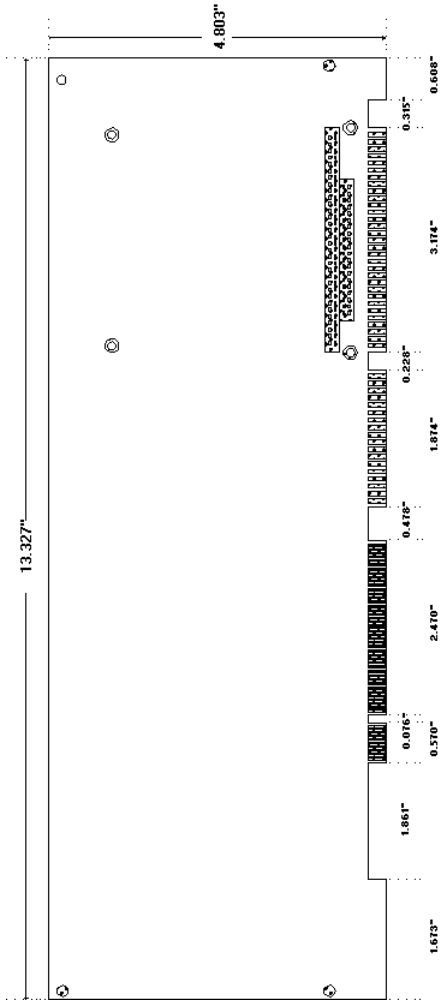
Hardware Configuration

This chapter gives background information on the SBC-570. It explains how to configure the card and prepare it for installation into your PC.

Sections include:

- Jumper settings

- Safety precautions

- 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

Label	Function
JP1	CPU I/O Voltage Select
JP2	SCSI Terminator Select
JP3	CPU Voltage Select
JP4	CPU Core Voltage Select
JP5	CPU Frequency Ratio Select
JP6	CPU Clock Select
JP7	Flash BIOS Protect
J1, J2	USB Connector
J4	PC/104 connector
CN12	Cache Socket
IR CON	IrDA Tx/Rx header
KEYLOCK	Keylock connector
SPKER	Speaker connector
SCSI LED	SCSI LED connector
IDE LED	HDD LED connector
RESET	RESET connector
PRIMARY IDE	Primary IDE Connector
SECONDARY IDE	Secondary IDE Connector
FLOPPY DISK	Floppy drive Connector
PRINTER	Printer Port
SCSI CON	SCSI-II Connector
WIDE-SCSI CON	Ultra-wide SCSI Connector
COM-A	COM1
KB/PS2 MOUSE	Keyboard and PS/2 mouse connector
MS CON	Mouse connector
KB CON	Keyboard connector
COM-B	COM2
POWER CON	Power connector (+5V, +12V, Gnd)

Locating jumpers and connectors
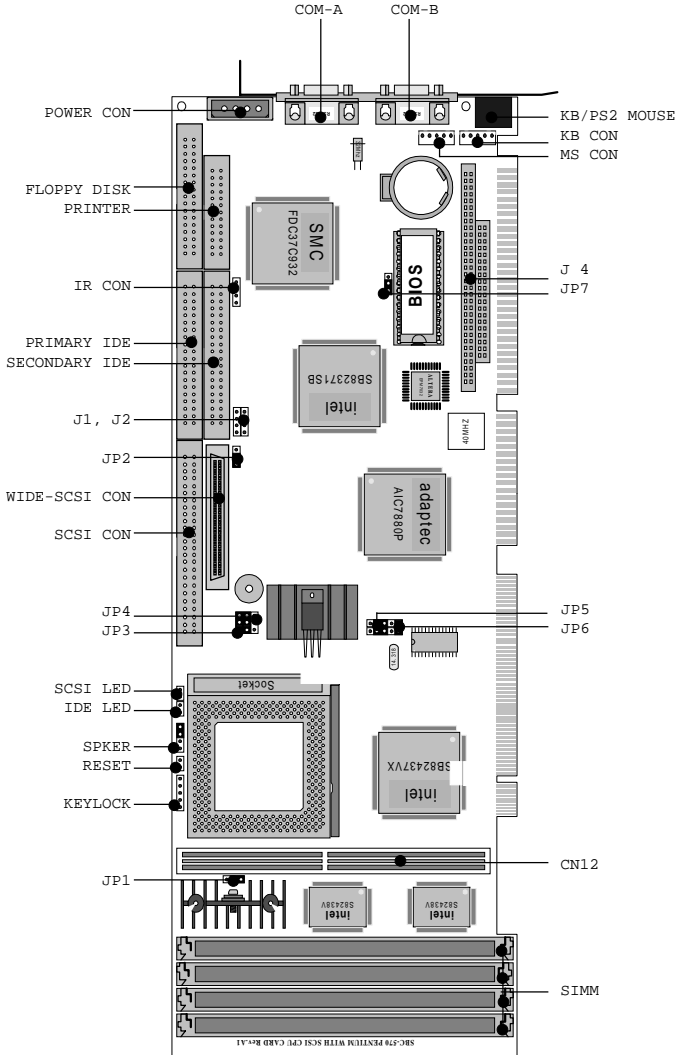
Setting jumpers

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.
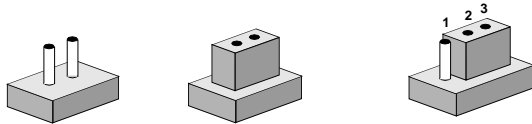
Open   **Closed**   **Closed 2-3**

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-570 CPU card supports Intel Pentium 75~200 and other compatible CPUs at 66/60/55/50 MHz (external clock speed). The system's performance depends on the CPU you choose. 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. Pull the lever on the side of the ZIF socket out a little and raise it up as far as it will go.

2. Lift the CPU out.

Installing the CPU

1. Make sure the ZIF socket lever is up as far as it can go. The Pin 1 position is at the arm corner.

2. Match Pin 1 on the CPU with the Pin 1 position on the ZIF socket. The pins on the three inner rings of the CPU should be aligned with the holes on the ZIF socket.

3. Insert the CPU. If it does not go in easily, lift the lever higher.

4. 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, you may have to adjust other settings on the board, such as CPU type, 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 Speed Reference Table

Refer to the CPU speed Reference Table (below) for instructions on adjusting the internal clock according to the base CPU speed.

CPU speed Reference Table				
CPU Speed (MHz)	75	90	100	120
Clock Setting	50	60	66	60
Frequency ratio	1.5	1.5	1.5	2
CPU Speed (MHz)	133	150	166	200
Clock Setting	66	60	66	66
Frequency ratio	2	2.5	2.5	3

CPU Clock Slelect (JP6)

JP6 set to select the CPU Clock.

CPU/PCI Clock Select (JP6)	
	JP6
CPU clock = 66 MHz*	1 ○ ○ 2 3 ●—● 4
CPU clock = 60 MHz	1 ●—● 2 3 ○ ○ 4
CPU clock = 55 MHz	1 ○ ○ 2 3 ○ ○ 4
CPU clock = 50 MHz	1 ●—● 2 3 ●—● 4

* default

CPU Frequency Ratio Select (JP5)

JP5 must be set to match the clock ratio of CPU. The chart below shows the proper jumper setting.

CPU Frequency Ratio Select (JP5)	
JP5	
freq ratio = 3	1 ■ ○ 2 3 ■ ■ 4 5 ○ ■ 6
freq ratio = 2.5*	1 ○ ○ 2 3 ■ ■ 4 5 ■ ■ 6
freq ratio = 2	1 ○ ■ 2 3 ■ ■ 4 5 ■ ○ 6
freq ratio = 1.5	1 ■ ■ 2 3 ■ ■ 4 5 ○ ○ 6

* default

CPU Voltage Select (JP3)

CPU Voltage can be set by JP3 to reduce CPU Core Voltage lower than CPU I/O Voltage or the same.

CPU Voltage Select (JP3)	
Single Voltage*	2 4 6 ■ ■ ■ 1 3 5
Dual Voltage	2 4 6 ○ ○ ○ ○ ○ ○ 1 3 5

* default

CPU Core Voltage Select (JP4)

CPU Core Voltage can be set by JP4 to reduce power Consumption and heat.

CPU Core Voltage Select (JP4)	
	JP4
CPU Core Voltage = 2.8V	1 2 3
CPU Core Voltage = 2.9V	1 2 3
CPU Core Voltage = 3.2V*	1 2 3

* default

CPU I/O Voltage Select (JP1)

JP1 must be set to match the CPU type. The chart below shows the proper jumper setings for their respective CPU I/O Voltage:

CPU I/O Voltage Select (JP1)		
	JP1	**JP4**
CPU I/O Voltage = 3.3V	1 2 3	1 2 3
CPU I/O Voltage = 3.45 V*	1 2 3	1 2 3
CPU I/O Voltage = 3.52 V	1 2 3	1 2 3

* default

Flash BIOS Protect (JP7)

You can set the JP7 to protect BOIS and CMOS write-enable. The Configuration is as follows

Flash BOIS Protect (JP7)	
Write protect	○ ●━● 1 2 3
Write enable*	●━● ○ 1 2 3

* default

SCSI Terminator Select (JP2)

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

SCSI Terminator select (JP2)	
Terminator enable*	●━● ○ 1 2 3
Terminator select by SCSI BIOS	○ ●━● 1 2 3

* default

Installing DRAM (SIMMs)

The SBC-570 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 1 to 32 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 O		Bank 1	
	SIMM 1	SIMM 2	SIMM 3	SIMM 4
2MB	1M	1M		
4MB	2MB	2MB		
4MB	1MB	1MB	1MB	1MB
8MB	4MB	4MB		
8MB	2MB	2MB	2MB	2MB
16MB	8MB	8MB		
16MB	4MB	4MB	4MB	4MB
32MB	16MB	16MB		
32MB	8MB	8MB	8MB	8MB
64MB	16MB	16MB	16MB	16MB
64MB	32MB	32MB		
128MB	32MB	32MB	32MB	32MB
24MB	4MB	4MB	8MB	8MB
48MB	8MB	8MB	16MB	16MB
96MB	16MB	16MB	32MB	32MB
40MB	4MB	4MB	16MB	16MB
80MB	8MB	8MB	32MB	32MB

Connecting Peripherals

This chapter describes how to connect peripherals, switches and indicators to the SBC-570 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-570. See Chapter 1 to help locate the connectors.

SBC-570 Connector functions	
Connector	Function
J1, J2	USB connector
J4	PC/104 connector
IR CON	IrDA Tx/Rx header
KEYLOCK	Keylock connector
SPKER	Speaker connector
SCSI LED	SCSI LED connector
IDE LED	HDD LED connector
RESET	RESET connector
PRIMARY IDE	Primary IDE connector
SECONDARY IDE	Secondary IDE connector
FLOPPY DISK	Floppy drive connector
PRINTER	Printer port
SCSI CON	SCSI-II connector
WIDE-SCSI CON	Ultra-Wide SCSI connector
COM-A	COM1
COM-B	COM2
MS CON	Mouse connector
KB CON	Keyboard connector
KB/PS2 MOUSE	Keyboard and PS/2 mouse connector
POWER CON	Power Connector (+5V, +12V, Gnd)

The following sections describe how to make each connection. In most cases, you 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 module. This module mounts on a small opening on system cases. 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 Keylock (KEYLOCK)

You can use a LED to indicate the status that the CPU card is on. Pin 1 of KEYLOCK provides 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 hard drive to indicate the status that the HDD is active.

Reset Switch (RESET)

You can setup an external switch to easily reset your computer. This switch restarts your computer as if you have turned off the power, then turned it back on.

SCSI Device LED (SCSI LED)

You can connect an LED to indicate that a SCSI device is in use.

Enhanced IDE (PRIMARY IDE, SECONDARY IDE)

You can attach four IDE (Integrated Device Electronics) drives to the SBC-570 's internal controller. The SBC-570 CPU card has two EIDE connectors, PRIMARY IDE and SECONDARY IDE.

Wire number 1 on the cable is red or blue, 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-570's 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 (J1, J2)

The SBC-570 CPU card has two USB Connetors, their connection pin assignment is as follows.

USB Connector (J1, J2)	
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-570 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, allowing you to access 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

Power supply connector (POWER CON)

In single-board computer (non-passive backplane) applications you will need to connect power directly to the SBC-570 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:

Power Connector (POWER CON)	
Pin	**Function**
1	+12V
2	GND
3	GND
4	+5V

Serial Ports (COM-A, COM-B)

The SBC-570 offers two RS-232 serial ports, COM1 and COM2, which let you connect to serial devices (a mouse, printers, 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 BIOS Advanced Setup program.
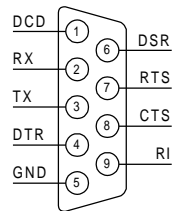
Different devices implement the RS-232 standard in different ways. If you get problems in a serial device, please check the pin assignments of the connector. The above figure shows the pin assignments of the card's RS-232 ports:

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

KB/PS2 Mouse, the card's keyboard connector, is a 6-pin mini-DIN connector on the card mounting bracket. The SBC-570 also comes with an adapter to convert the mini-DIN connector to a PC/AT keyboard connector and a PS/2 mouse connector.
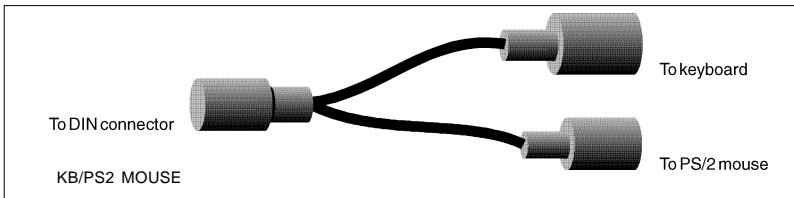
The SBC-570 provides a second connector designed for external keyboard input (KB CON).

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 devices of 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)							
Pin	Function	Pin	Function	Pin	Function	Pin	Function
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 CON)

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 on the following page.

SCSI-II Connector (SCSI CON)

Pin	Function	Pin	Function
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

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 HIFLEX SETUP UTILITY — VERSION 1.07
(C) 1996 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
              Auto-Detect Hard Disks
              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.
```

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) 1996 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
                                                          LBA    Blk    PIO   32Bit
                 Type    Size  Cyln  Head  WPcom  Sec    Mode   Mode   Mode  Mode
Pri Master:      Auto
Pri Slave        Auto
Sec Master       Auto
Sec Slave        Auto

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.

Master Disk, Slave Disk

Select the appropriate values to configure the hard disk type you are using for the master and the slave. The settings have not been pre-installed. Available types are 1~46, User, Auto, Not Installed and CDROM.

Boot Sector Virus Protection

Enabling this option allows the system to issue a warning when any program (or virus) issues a disk format command or attempts to write to the boot sector of the hard disk drive. Further confirmation is required before accessing this particular section of the hard disk drive.

Advanced CMOS Setup

Select the Advanced CMOS Setup from the AMIBIOS Setup main menu to enter Advanced setup.

The Advanced Setup options described in this section are the standard options as shown on the following screen. The following configurations are based on Fail-Safe default settings.

```
AMIBIOS SETUP — ADVANCED CMOS SETUP
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Quick Boot                  Disabled       Available Options:
BootUp Sequence             A:, C:, CDROM  Disabled
BootUp Num-Lock             On             Enabled
Floppy Drive Swap           Disabled
Floppy Drive Seek           Disabled
PS/2 Mouse Support          Enabled
System Keyboard             Present
Primary Display             VGA/EGA
Password Check              Setup
Parity Check                Disabled
OS/2 Compatible Mode        Disabled
Wait For 'F1' If Error      Enabled
Hit 'DEL' Message Display   Enabled
Internal Cache              WriteBack
External Cache              Disabled
System BIOS Cacheable       Disabled
C000, 32k Shadow            Enabled
C800, 16k Shadow            Disabled
CC00, 16k Shadow            Disabled
D000, 16k Shadow            Disabled
D400, 16k Shadow            Disabled      ESC: Exit  ¯¬:Sel
D800, 16k Shadow            Disabled      PgUp/PgDn: Modify
DC00, 16k Shadow            Disabled      F2/F3: Color
```

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
Disabled	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.
Enabled	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 *Hit <Del> to run Setup* 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:

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

External Cache

Set this option to *Enabled* the L2 secondary cache.

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.*

C000,32k Shadow	D000,16k Shadow
C800,16k Shadow	**D400,16k Shadow**
CC00,16k 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:

Setting	Description
Enabled	The contents of *C*0000h - C3FFFh are written to the same address in system memory (RAM) for faster execution.
Cached	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.
Disabled	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.

```
              AMIBIOS SETUP — ADVANCED CHIPSET SETUP
         (C) 1996 American Megatrends, Inc.  All Rights Reserved

Memory Hole                        Disabled    Available Options:
DRAM Timing Setting                Auto        Disabled
  Fast MA to RAS# Delay            1 clock     512K-640K
  EDO: SPM Read Burst Timing       x333:x444   15M-16M
  DRAM Write Burst Timing          x333
  Fast RAS to CAS Delay            3 Clocks
  DRAM Leadoff Timing              10-6-4
  Refresh RAS# Assertion           5 Clocks
  Fast EDO Path Select             Disabled
  SDRAM CAS# Latency               3
  SDRAM RAS# Timing                3:5:8
8Bit I/O Recovery Time (Sysclk)    1
16Bit I/O Recovery Time (Sysclk)   1
PCI 2.1 Passive Release Enable     Enabled
Delayed Transaction Enable         Enabled
USB Function Enable                Disabled
USB KeyBoard Support               Disabled    ESC: Exit  ↑↓ :Sel
USB Passive Release Enable         Disabled    PgUp/PgDn: Modify
USB Clock                          48 Mhz      F2/F3: Color
```

Memory Hole

This option allows the end user to specify the location of a memory hole. The settings are *Disabled*, *512K-640K*, or *15M-16M* (from 15 MB to 16 MB).

DRAM Timing Setting

Set this option to *Auto* to make the BIOS auto defect the DRAM timing setting. Select *Manual* to manually choose the the DRAM timing setting.

8Bit I/O Recovery Time
This option specifies the length of a delay inserted between consecutive 8-bit I/O operations. The settings are *Disabled*, *1 (SYSCLK), 2 (SYSCLKs), 3 (SYSCLKs), 4 (SYSCLKs), 5 (SY-SCLKs), 6 (SYSCLKs)*, or *8 (SYSCLKs)*.

16Bit I/O Recovery Time
This option specifies the length of a delay inserted between consecutive 16-bit I/O operations. The settings are *Disabled*, *1(SYSCLK), 2 (SYSCLKs), 3 (SYSCLKs), or 4 (SYSCLKs)*.

PCI 2.1 Passive Release Enable
Set this option to *Enabled* to enable the PCI passive release feature defined in Version 2.1 of the PCI specification. The settings are *Enabled* or *Disabled*.

Delayed Transaction Enable
Set this option to *Enabled* to enable the delayed transaction feature. The settings are *Enabled* or *Disabled*.

USB Funtion Enable
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.

USB Passive Release Enable
Set this option to *Enabled* to enable passive release on the universal serial bus. The settings are *Enabled* or *Disabled*.

USB Clock
This option sets the clock for the Universal Serial Bus. The settings are *24 Mhz* or 48 *Mhz*.

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 consistant with your own style of computer use. The following configurations are based on Fail-Safe default settings.

```
                 AMIBIOS SETUP — POWER MANAGEMENT SETUP
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  Power Management/APM              Disabled    Available Options:
  Instant-On Timeout (Minute)      Disabled    Disabled
  Green PC Monitor Power State      Standby     Enabled
  Monitor Power down mode           VESA
  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
  Slow Clock Ratio                  1:8
  Display  Activity                 Ignore
  IRQ3                              Ignore
  IRQ4                              Ignore
  IRQ5                              Ignore
  IRQ7                              Ignore
  IRQ9                              Ignore
  IRQ10                            Ignore
  IRQ11                            Ignore
  IRQ12                            Ignore
  IRQ13                            Ignore    ESC: Exit  --:Sel
  IRQ14                            Ignore    Pg Up/Pg Dn: Modify
  IRQ15                            Ignore    F2/F3: Color
```

Power Management/APM
Set this option to *Enabled* to enable the power management and APM (Advanced Power Management) features. The settings are *Inst-ON, 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*, *Standby*, or *Suspend*.

Monitor Power down mode
The settings of Monitor Power down mode are *VESA* or *Blank off*.

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 Timeout (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 steeings 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 timeout (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)*.

Slow Clock Ratio

This option specifies the speed at which the system clock runs in power saving states. The settings are expressed as a ratio between the normal CPU clock speed and the CPU clock speed when the computer is in the power-conserving state. The settings are *1:1, 1:2, 1:4, 1:8, 1:16, 1:32, 1:64, or 1:128.*

Display Activity

This option specifies if AMIBIOS is to monitor display activity for power conservation purposes. When this option is set to *Monitor* and there is no display activity for the length of time specified in the **Standby Timeout (Minute)** option, the computer enters a power savings state. The settings are *Monitor* or *Ignore*.

IRQ3
IRQ4
IRQ5
IRQ7
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) 1996 American Megatrends, Inc.  All Rights Reserved

ON BOARD SCSI                        Enabled     Available Options:
Reset NVRAM                          No          Disabled
Plug and Play Aware O/S              No          16K
PCI IRQ Priority Auto Setting        Yes         32K
1st Available IRQ                    IRQ 11      64K
2nd Available IRQ                    IRQ 10
3rd Available IRQ                    IRQ 9
4th Available IRQ                    IRQ 12
PCI Latency Timer (PCI Clocks)       32
Assign IRQ to PCI VGA Card           No
PCI IDE BusMaster                    Disabled
OffBoard PCI IDE Card                Auto
OffBoard PCI IDE Primary IRQ         Disabled
OffBoard PCI IDE Secondary IRQ       Disabled
DMA Channel 0                        PnP
DMA Channel 1                        PnP
DMA Channel 3                        PnP
DMA Channel 5                        PnP
DMA Channel 6                        PnP
DMA Channel 7                        PnP
IRQ3                                 PCI/PnP
IRQ4                                 PCI/PnP
IRQ5                                 PCI/PnP
IRQ7                                 PCI/PnP
IRQ9                                 PCI/PnP
IRQ10                                PCI/PnP
IRQ11                                PCI/PnP
IRQ14                                PCI/PnP     ESC: Exit  ¯ :Sel
lRQ15                                PCI/PnP     Pg Up/Pg Dn: Modify
Reserved Memory Size                 Disabled    F2/F3:  Color
Reserved Memory Address              C8000
```

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

Reset NVRAM
Set this option to *Yes* to reset NVRAM. The settings are *Yes* or *No*.

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 IRQ Priority Auto Setting

Set this option to *Yes* to auto set PCI IRQ Priority by the BIOS. The settings are *Yes* or *No.*

1st Available IRQ
2nd Available IRQ
3rd Available IRQ
4th Available IRQ

If PCI IRQ Priority Auto Setting is set to *No*, you can manually select 1st available or 2nd available IRQ. The settings are *IRQ 3, IRQ 4, IRQ 5, IRQ 7, IRQ 9, IRQ 10, IRQ 11, IRQ 12.*

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.*

Assign IRQ to PCI VGA Card

Set this option to *Yes* to assign IRQ to PCI VGA Card. The settings are *Yes* or *No.*

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*.

DMA Channel 0
DMA Channel 1
DMA Channel 3
DMA Channel 5
DMA Channel 6
DMA Channel 7

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

IRQ3
IRQ4
IRQ5
IRQ7
IRQ9
IRQ10
IRQ11
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*.

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 Periperal Setup, select the Periperal icon in the AMIBIOS main menu. The following screen appears

.

```
                AMIBIOS SETUP — PERIPHERAL SETUP
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OnBoard FDC                          Auto      Available Options
OnBoard Serial Port 1                Auto      Auto
OnBoard Serial Port 2                Auto      Disabled
 Serial Port 2 Receive Polarity      High      Enabled
 Serial Port 2 Transmit Polarity     High
 Serial Port 2 IR Mode               Disabled
 Serial Port 2 Duplex                Full
OnBoard Parallel Port                Auto
 Parallel Port IRQ                   Auto
 Parallel Port Mode                  Normal
 Parallel Port DMA Channel           None
OnBoard IDE                          Both
                                               ESC: Exit  – _ :Sel
                                               Pg Up/Pg Dn: Modify
                                               F2/F3: Color
```

OnBoard FDC
This option enables the floppy drive controller on the mother-board. The settings are *Auto*, *Enabled* or *Disabled*.

OnBoard Serial Port 1
This option enables serial port 1 on the motherboard 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 motherboard and specifies the base I/O port address for serial port 2. The settings are *Auto*. *Disabled, 3F8h, 2F8h, 3E8h, 2E8h.*

Serial Port2 Receive Polarity
The settings of this option are *High* or *Low*.

Serial Port2 Transmit Polarity
The settings of this option are *High* or *Low*.

Serial Port2 IR Mode
The settings of this option are *Disabled*, *IrDA* or *ASK-IR*.

Serial Port2 Duplex
Set this option to *Full* Duplex or *Half* Duplex.

OnBoard Parallel Port
This option enables the parallel port on the motherboard 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.

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

Setting	Description
Normal	The normal parallel port mode is used. This is the default setting.
Bi-Dir	Use this setting to support bidirectional transfers on the parallel port.
EPP	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.
ECP	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 communlations.

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.*

Auto-detect hard disk

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.

```
                    AMIBIOS SETUP — STANDARD CMOS SETUP
                  (C) 1996 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
                                                       LBA   BLK   PIO   32-bit
                  Type    Size  Cyln  Head  WPcom  Sec  Mode  Mode  Mode  Mode
Pri Master:       Auto    41    1050   2    65535   40  OFF   ON    0     ON
Pri Slave         Auto
Sec Master        Auto
Sec Slave         Auto

Boot Sector Virus Protection            Disabled

Month:   Jan - Dec                                     Esc: Exit ¯– :Sel
Day:     01-31                                         PgUp/PgDn: Modify
Year:    1901 -2099                                    F2/F3: Color
```

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.

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.

SCSI Driver Installation

This chapter provides the information needed to install and use the Adaptec 7800 family Manager(driver) for SBC-570 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

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 buttton.

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 buttton.

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

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 aready 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 installtion 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 andWindows NT. It is possible that some drive letter assignments may change from the previous configuration.

NetWare v3.1x/v4.0/v4.1x Driver Installtion

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

BASEDEV=AIC7870.ADD /V.

Windows 3.1x Driver Installation

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

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

Programming the Watchdog Timer

The SBC-570 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:

• To start watchdog timer and set function "Reset" type;
   o 444 0 <Enter>; out 444h data 0

• To input Watchdog timers time-out interval of 3 minutes type;
   o 443 83 <Enter>; out 443h data 83

• To input Watchdog timers time-out interval of 5 seconds type;
   o 443 05 <Enter>; out 443h data 05

• To 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

Installing PC/104 Modules

This appendix gives instructions for installing PC/104 module.

Installing PC/104 modules

The CPU Cards PC/104 connectors give you the flexibility to attach PC/104 expansion modules. These modules perform the functions of traditional plug-in expansion cards, but save space and valuable slots. Modules include:
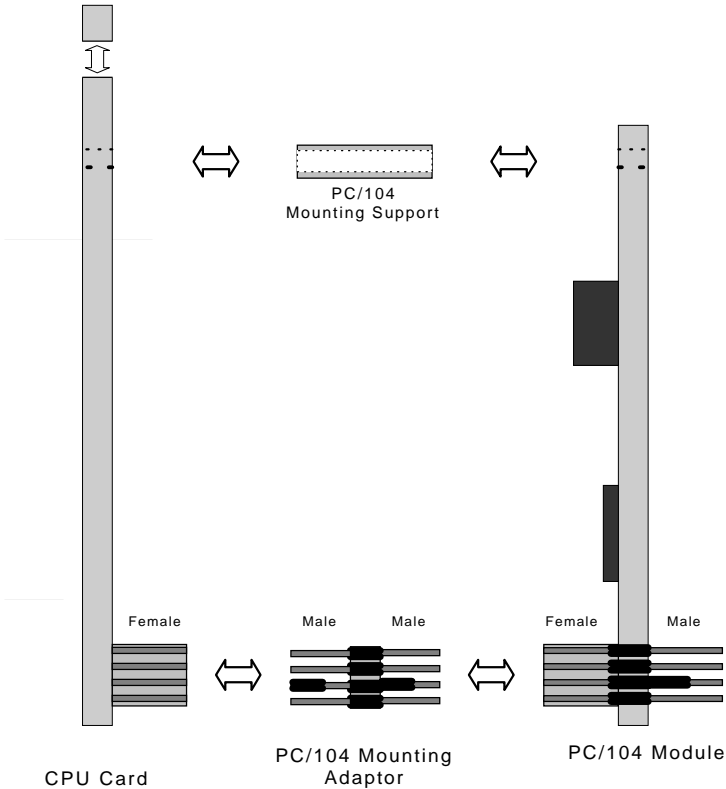
- **PCM-3600**   FAX/Modem Module
- **PCM-3420**   Fast SCSI-2 Module
- **PCM-3200**   Sound Module
- **PCM-3810**   Solid State Disk Module
- **PCM-3820**   High Density Flash Disk Module
- **PCM-3115**   PCMCIA Module (two slots)
- **PCM-3610**   Isolated RS-232 and RS-422/485 Module
- **PCM-3660**   Ethernet Module
- **PCM-3718**   30 KHz A/D Module
- **PCM-3724**   48-channel DIO Module
- **PCM-3910**   Breadboard Module

To install these modules on the CPU Card is a quick and simple operation. The following steps show how to mount the PC/104 modules:

Step1   Remove the CPU Card from your system paying particular attention to the safety instructions already mentioned above.

Step2   Make any jumper or link changes required to the CPU card now. Once the PC/104 module is mounted you may have difficulty in accessing these.

Step3   Normal PC/104 modules have "male" connectors and mount directly onto the main card. However, for reasons that ensure better bus matching, the connectors on the CPU Card and the PC/104 module are both "female". For this reason you need to plug-in a "male-male" adapter connecter (included with the CPU Card). Please refer to the following PC/104 module mounting diagram on the following page. After this is in place you then have the correct mounting connector to accept your PC/104 module.

Step4   Mount the PC/104 module onto the CPU card. Do this by pressing the module firmly but carefully onto the mounting connectors.

Step5   Secure the PC/104 module onto the CPU card using the four mounting spacers and srews.

PC/104 module dimensions (inches $\pm$ 5 %)

PC/104 Mounting Support

Female   Male   Male   Female   Male

CPU Card   PC/104 Mounting   PC/104 Module
              Adaptor

PC/104 Module Mounting Diagram