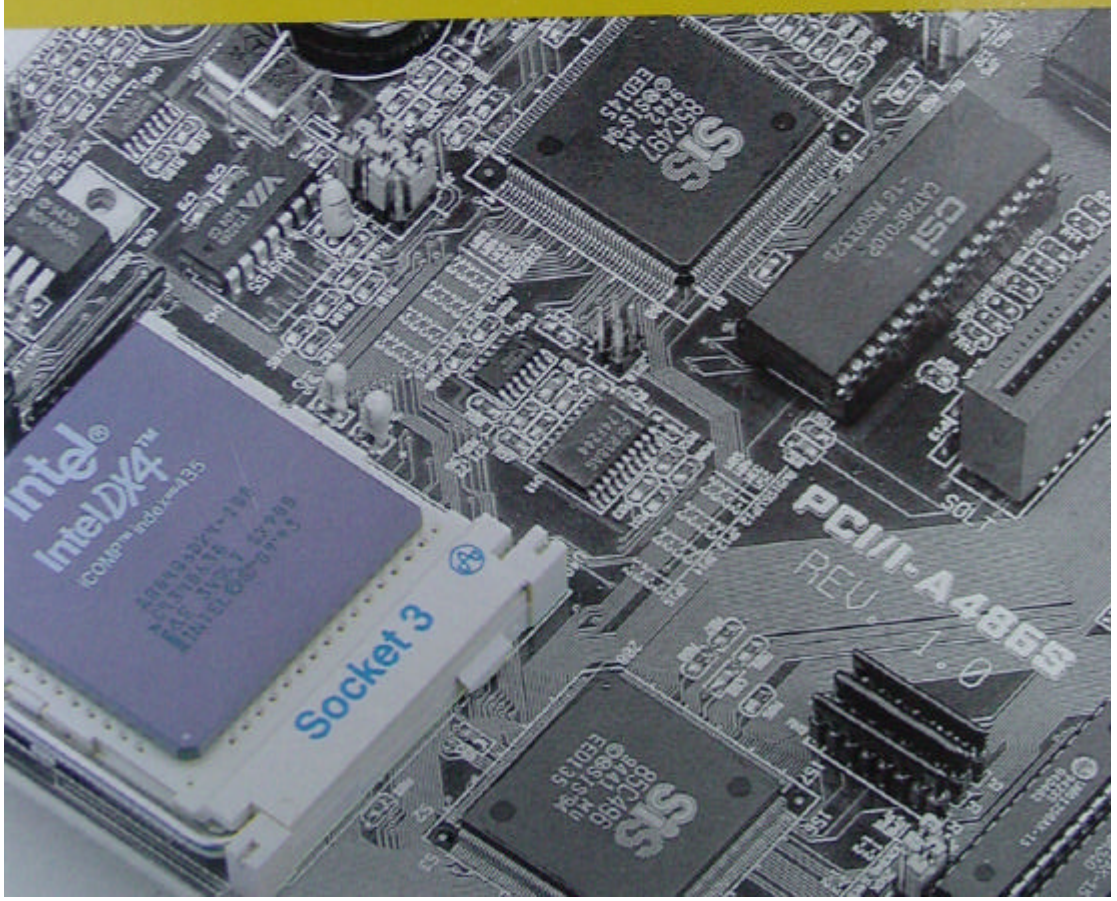
PCI/I-A486S

PCI Bus, All-In-One 486 Mainboard With PCI IDE and Super Multi- I/O



Technical Summary

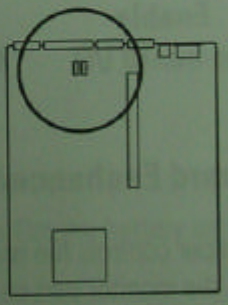
The first part of this section summarizes the mainboard's settings and specifications. The second part explains how to set up the optional PCI-SC200 SCSI Interface card.

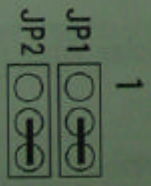
Jumper Setting Summary

DMA Channel Selection for ECP: JP1 – JP2

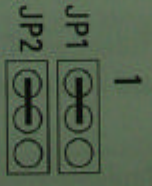
These set the DMA channel for use with the Parallel port's ECP capability. Refer to the manual for the ECP-capable device you want to connect for instructions on which DMA channel to use.

	JP1	*JP2*
DMA CH1	2&3	2&3
DMA CH3	1&2	1&2





DMA CH1

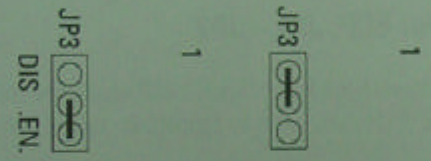


DMA CH3

On-board Multi I/O Selector: JP3

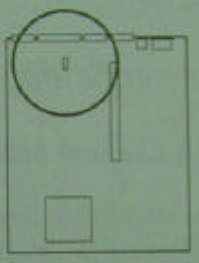
This jumper controls the on-board SMC 37C665 Super Multi I/O chip. When set to Enable, the I/O ports on the board are functional.

	JP3	
Enable	2&3	Default
Disable	1&2	



Enable
On-board I/O

Disable
On-board I/O



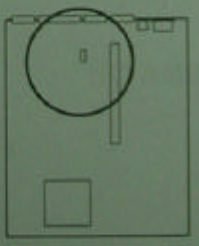
On-board Enahanced VGA Selector: JP4

This jumper controls the on-board Enhanced VGA video display. When set to Enable, the monitor port on the board is functional.

	JP4	
Enable	1&2	Default
Disable	2&3	

Enable
On-board VGA

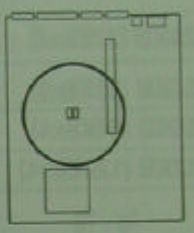
Disable
On-board VGA



Flash EPROM Programming Selector: JP5 & JP6

These enable programming for a 5- or 12-volt flash ROM chip. The EPROM setting is for Normal Read and no programming.

	JP5	*JP6*
5-Volt EPROM	2&3	1&2
12-Volt EPROM	1&2	1&2
EPROM (default)	2&3	2&3

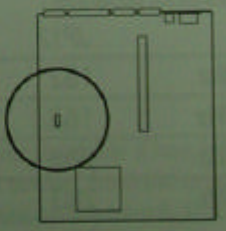


5V EPROM **12V EPROM** **EPROM**

On-board Battery Selector: JP7

This jumper controls the on-board battery. When set to On, the battery on the board is functional.

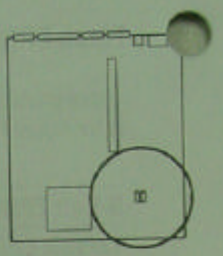
	JP7	
On	Short	Default
Off	Open	



Battery On **Battery Off**

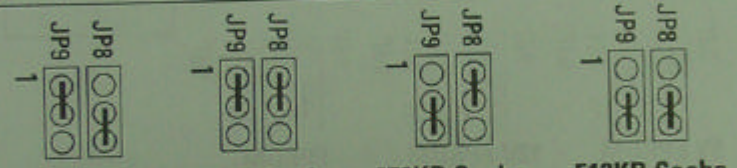
Place the jumper cap over one pin to turn the battery off, that way, you won't lose the cap

Level 2 Cache Size: JP8 – JP9



Set these according to the size of the installed cache.

	JP8	*JP9*
128KB (32K8x4)	2&3	1&2
256KB (32K8x8)	1&2	1&2
256KB (64K8x4)	1&2	2&3
512KB (128K8x4)	2&3	2&3



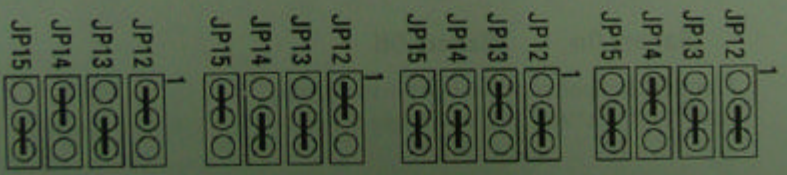
128KB Cache 32Kx4 | **256KB Cache 32Kx8** | **256KB Cache 64K8x4** | **512KB Cache 128Kx4**

CPU External Clock Speed Selector: JP12 -15

Set these according to the CPU's external clock speed.

VT8228 clock generator

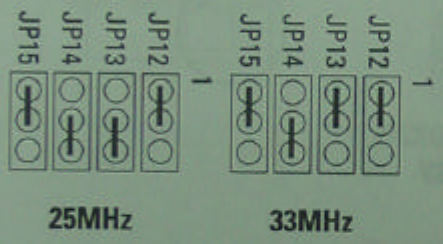
	JP12	*JP13*	*JP14*	*JP15*
25Mhz	1&2	2&3	1&2	2&3
33MHz	1&2	2&3	2&3	1&2
40MHz	2&3	1&2	2&3	2&3
50MHz	2&3	2&3	1&2	2&3

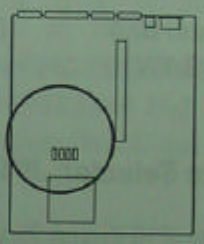


25MHz | **33MHz** | **40MHz** | **50MHz**

AV9155 clock generator

	JP12	*JP13*	*JP14*	*JP15*
25Mhz	1&2	2&3	2&3	1&2
33MHz	1&2	1&2	2&3	1&2
40MHz	2&3	1&2	1&2	2&3
50MHz	2&3	2&3	2&3	1&2



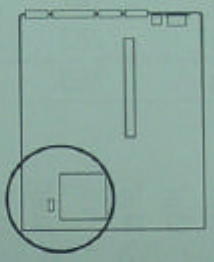


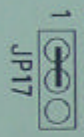
Note: To determine which clock generator your manboar d has, look just above the upper left-hand corner of the CPU socket, from the orientation of the diagram in Chapter 1, for a chip mounted on the board. The VT chip is rectangular and the AV chip is squar e.

CPU Voltage Selector: JP17

This jumper selects the voltage setting for low-voltage CPUs from Intel and Cyrix.

	JP17
Intel DX4 3.45V	1&2
Cyrix DX2-V 3.6V	2&3





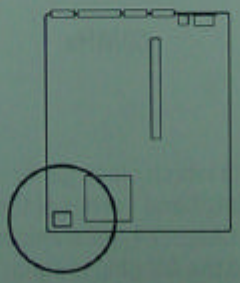
Intel DX4 3.45V

Cyrix DX2-V 3.6V

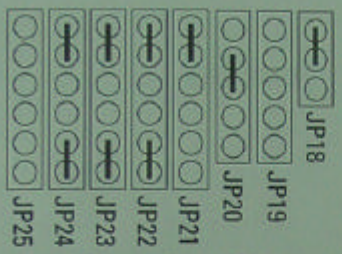
CPU Type Selector: JP18 - 25

Set jumpers JP18 through 25, which work as a block, to correspond with the CPU installed on the mainboard. The following diagrams indicate the settings for the supported CPUs.

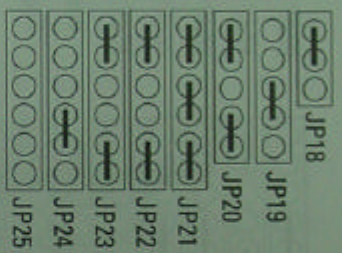
Location of CPU type jumper block JP18-25



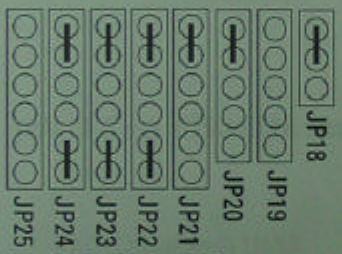
Please Note: There are more jumper caps on the block than required for some settings. If you make a seting that leaves extra caps, place the extra caps over ONE free pin. This keeps the caps from getting lost and does not affect the setting.



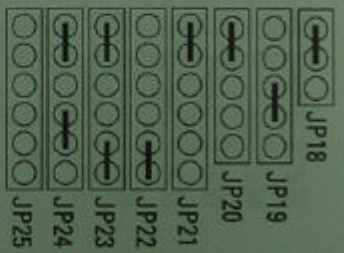
Intel SL 486SX or SX2 and 486SX or SX2



Intel P24D (WB cache)
WT: JP19 short 2&3
[Pentium Overdrive]

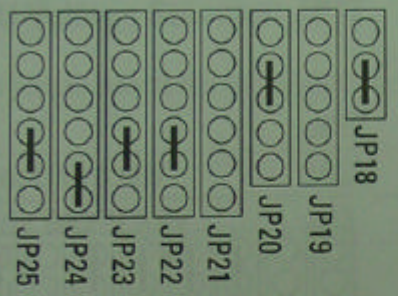


Intel 486DX or DX2, SL 486DX or DX2, Overdrive and 486DX4 (3X clock)

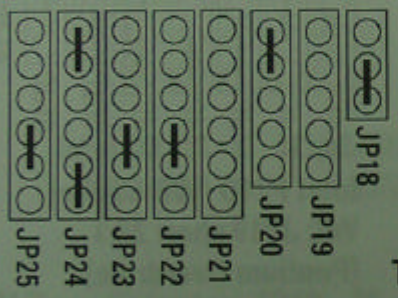


Intel P24T (WB cache)
Intel P24CT (WB, 3X clock)
CT 2X clock: JP25 short 1&2
WT (both): JP19 short 2&3
[SL Pentium Overdrive]

Intel 486DX4 (2X clock)

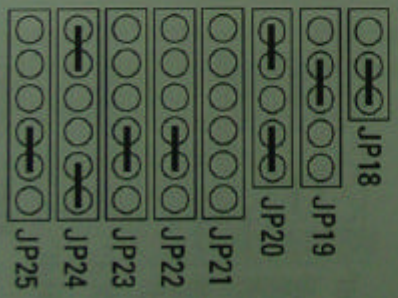


UMC-U5S

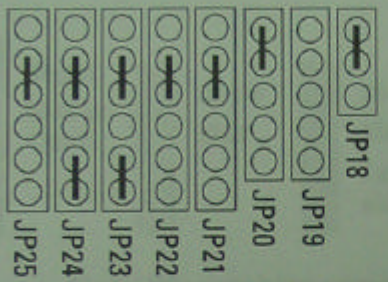


AMD Am486DX4
(3X clock)

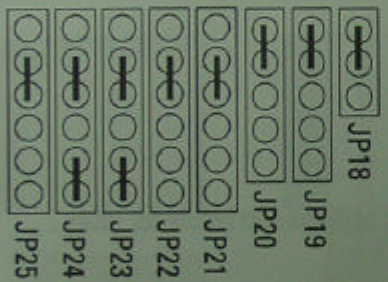
These AMD CPUs are 3.45-Volt



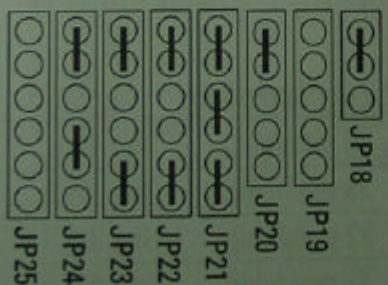
AMD Am486DX2/DX4
(2X clock)



Cyrix Cx486DX, Cx486DX2



Cyrix Cx486DX2-V



Cyrix Cx486DX5 (3X clock)
2X clock: JP25 short 1&2

Memory Subsystem

Memory Specifications:

See pages 2-7.

Memory Configurations

Free-Table. Any specified module in any combination of slots.

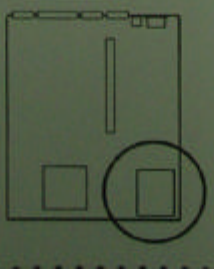
Level 2 Cache Options

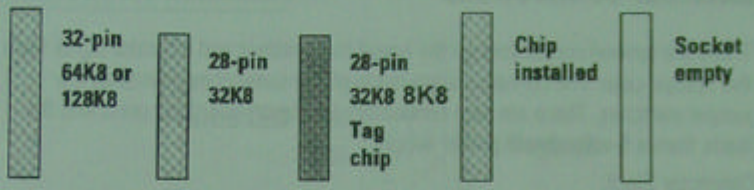
SRAM speed: 15ns

Cache Size: See jumper section for settings and below for other specifications.

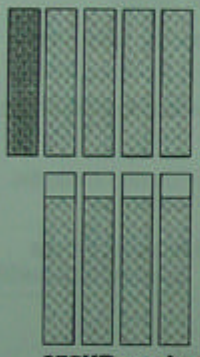
Level 2 Cache Configurations

Cache Size	*Cache Chips*	*Pin Configuration*	*Tag Chip*
128KB	Four 32K8	28 pins/chip	One 8K8
256KB	Eight 32K8	28 pins/chip	One 32K8
256KB	Four 64K8	32 pins/chip	One 32K8
512KB	Four 128K8	32 pins/chip	One 32K8

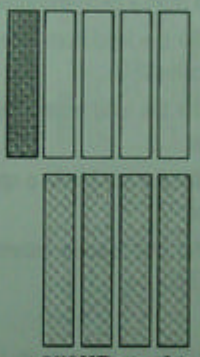




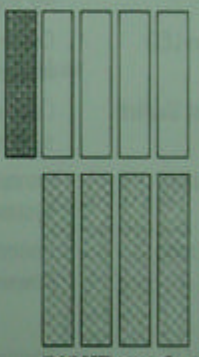
Note: 28-pin chips can use the 32-in sockets



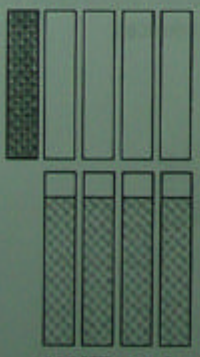
256KB cache
32K8x8



256KB cache
64K8x4



512KB cache
128K8x4



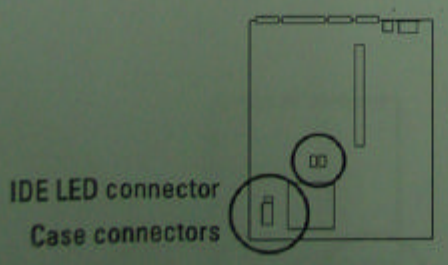
128KB cache
32K8x4

External Connections

There are several connectors on the board for switches and indicator lights from the system case. The connectors are made of the same components as the jumper switches. There are also connectors for the on-board I/O ports and the leads from a 5-volt system power supply.

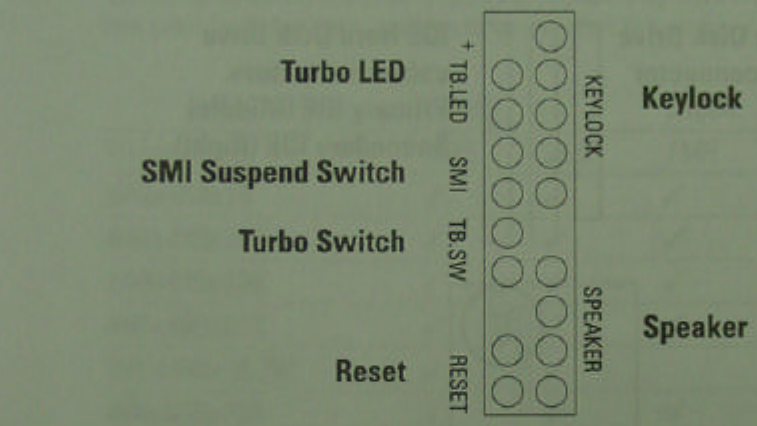
Connector Block:

SMI Switch	Connector for the lead from a case-mounted Suspend switch.
Turbo Switch	Shorted for maximum speed operation (default), or connector for the lead from a case-mounted Turbo Switch.
Turbo LED	Connector for the lead from a case-mounted Turbo Switch status indicator LED.
Reset Switch	Connector for the lead from a Reset switch mounted on the system case.
Speaker	Connector for the lead from a speaker mounted inside the system case.
KeyLock	Connector for both a case-mounted keyboard lock and a Power-On LED.
IDE LED	Connector JP16 for IDE activity LED lead.
SMI Out	Two 2-pin jumpers, J10 & JP11 function in a block as a connector for a power management control signal cable from a "green" power supply or other green devices.

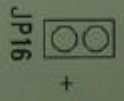


Technical Summary 4

Case Feature Connectors



Other Connectors



IDE LED activity light connector

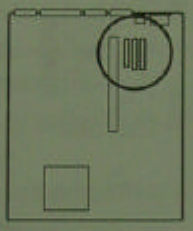
SMI Out connector

I/O Port Connectors

Pin1 is the upper left-hand pin on each connector

Floppy Disk Drive cable connector

IDE Hard Disk Drive cable connectors, Primary IDE (Middle) Secondary IDE (Right)



When you connect a ribbon cable to any of these I/O connectors, you must orient the cable connector so that the Pin 1 edge of the cable is at the Pin 1 end of the on-board connector. The Pin 1 edge of the ribbon cable is colored to indentify it.

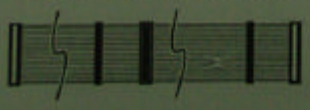
Port & Controller Cables

The mainboard comes with the following cables:

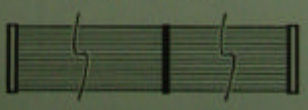
- 1 IDE ribbon connector cable
- 1 floppy disk drive ribbon connector cable

Connector Cables

Floppy Drive ribbon cable



IDE ribbon cable



On-Board Video Display Information

The on-board S3 video display is capab le of displaying a number of resolution and color depth combinations. The following chart lists these.

	Trio32		Trio64	
Resolution	1MB	2MB	1MB	2MB
640x480x16	✓	✓	✓	✓
640x480x256	✓	✓	✓	✓
640x480x32K	✓	✓	✓	✓
640x480x64K	✓	✓	✓	✓
640x480x16.7M	✓	✓		✓
800x600x256	✓	✓	✓	✓
800x600x32K	✓	✓	✓	✓
800x600x64K	✓	✓	✓	✓
800x600x16.7M				✓
1024x768x256	✓	✓	✓	✓
1024x768x32K		✓		✓
1024x768x64K		✓		✓
1152x864x256	✓	✓	✓	✓
1280x1024x16	✓	✓	✓	✓
1280x1024x256		✓		✓
1600x1200x256				✓

Expansion Video DRAM Specification:
Install two 256Kx16 DRAM chips in the expansion sockets to expand display memory to 2MB.

Connecting A Power Supply

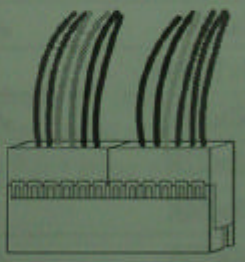
The system power supply connector is for a 5–volt power supply. To connect the leads from the power supply, you should first make sure the power supply is unplugged. Most power supplies have two leads. Each lead has six wires, two of which are black. Orient the connectors so the black wires are in the middle.

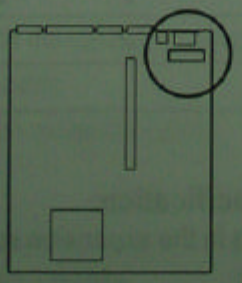
Align the plastic guide pins on lead to their receptacles on the connector. You may need to hold the lead at an angle to line it up. Once you have the guide pins aligned, press the lead onto the connector so that the plastic clips on the lead snap into place and secure the lead to the connector.

This mainboard has a voltage regulator that converts the 5-volt power from the main leads to 3.3-volts for use by the parts of the board that require it.

Connecting Power Supply Leads

The black wires should be in the middle.





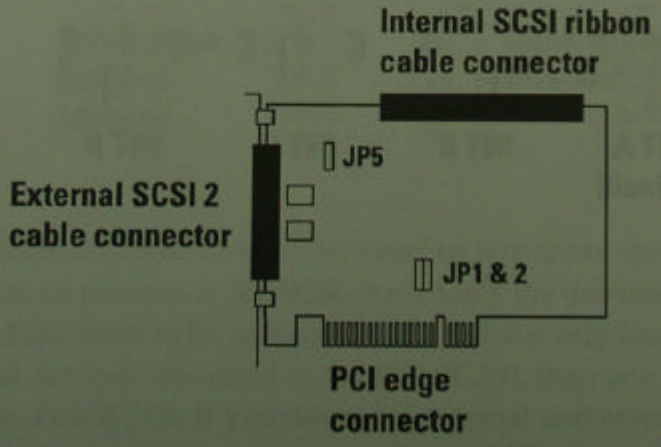
Technical Summary

The PCI-SC200 SCSI Interface Card

Your mainboard may have come with an optional SCSI (Small Computer System Interface) controller card, the PCI-SC200. The card is also available separately. This card works with the SCSI BIOS on the mainboard. Together, they provide a complete PCI Fast SCSI-2 interface. With the card installed in your system you can connect SCSI devices installed in your system case to the internal connector on the card. You also have the additional option of connecting external SCSI devices to the external SCSI-2 connector on the card.

If you get the PCI-SC200 later on as an option, you will need to install it yourself. The setup procedure is explained here. The basic card installation procedure is explained at the end of Chapter 2.

The PCI-SC200 SCSI Interface Card



Setting Up the PCI-SC200

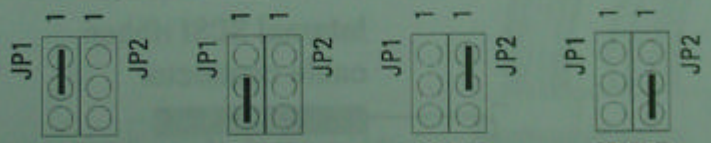
There are two jumper settings you may need to make on the card to set it up. One setting assigns the PCI INT interrupt, the other sets the card's termination.

Setting the INT Assignment

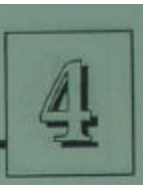
As explained in Chapter 2, any PCI card you install must use PCI INT A. On the PCI-SC200, you assign the INT by setting jumper JP1 or JP2. The default setting for the card already is INT A, so you do not need to change the setting to use the SC-200 with this mainboard.

The INT assignment jumper settings are illustrated below. The settings are printed on the card for your convenience.

JP1 & 2: Interrupt settings



Technical Summary



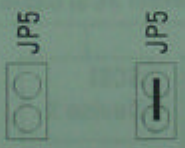
Terminator Settings

SCSI devices are connected together in a "chain" by cables. Internal devices connect to the PCI-SC200 with a fifty-pin flat ribbon cable. External devices connect to the external port with a SCSI-2 cable. If there is more than one internal or external device, additional devices are connected with cables to form a "daisy chain". The SCSI chain must be "terminated" at both ends, or the devices in the chain will not work properly.

Many SCSI devices use a set of terminating resistors to terminate the device. The PCI-SC200 has "active" termination that you set using jumper JP5. If you need to terminate the PCI-SC200, you do it by setting the jumper. The are two settings, terminated and unterminated, as shown below.

JP5: Terminator setting

Termination Enabled (default)



Termination Disabled

Decide whether or not you need to terminate the PCI-SC200 based on its position in the SCSI chain. Only the devices at each end of the chain need to be terminated. If you have *only* internal or *only* external devices connected to the PCI-SC200, then you *must* terminate the PCI-SC200. If you have *both* internal and external devices connected, you *must not* terminate the card. The figures on the next page illustrate these requirements.