SCSI Definition:

SCSI stands for *Small Computers Systems Interface.* SCSI interfaces provide for faster data transmission rates (up to 320 megabytes per second) than standard serial and parallel ports . In addition, you can attach many devices to a single SCSI port, so that SCSI is really an I/O bus rather than simply an interface. Despite SCSI being a standard there are many different variations of it. This article will attempt to wade through that mess.

SCSI Types:

SCSI-1 (narrow or regular SCSI)	8 bits wide, 5 MBps transfer rate, 7 devices plus HBA.
Wide SCSI	16 bits wide, 20 MBps transfer rate, 15 devices plus HBA.
Ultra Wide SCSI	16 bits wide, 40 MBps transfer rate, 15 devices plus HBA.
Fast SCSI	8 bits wide, 10 MBps transfer rate, 7 devices plus HBA.
Fast Wide SCSI	16 bits wide, 20 MBps transfer rate, 15 devices plus HBA.
Ultra SCSI	16 bits wide, 40 MBps transfer rate, 15 devices plus HBA.
Ultra2 SCSI	16 bits wide, 80 MBps transfer rate, 15 devices plus HBA.
Ultra3 SCSI	16 bits wide, 160 MBps transfer rate, 15 devices plus HBA.
Ultra 320 SCSI	16 bits wide, 320 MBps transfer rate, 15 devices plus HBA.

Each device on a SCSI chain is assigned a unique SCSI id. The SCSI id's are often defined by jumper settings that have a binary value assigned to them. See table below.

SCSI ID's:

Device ID	Jumpers	Binary	Device ID	Jumpers	Binary
0		0000	8		1000
1		0001	9		1001
2		0010	10		1010
3		0011	11		1011
4		0100	12		1100
5		0101	13		1101
6		0110	14		1110
7		0111	15		1111

Termination:

The last device on any SCSI chain must terminate the SCSI chain. There are three types of termination. Active, passive, and automatic termination.

Active Termination uses a voltage regulator so that the proper termination voltage is used.

Passive Termination uses resistors to terminate the SCSI chain. Only used for low performance SCSI devices and for short SCSI chains.

Automatic termination sets the termination voltage automatically if the device is at the end of a SCSI chain.

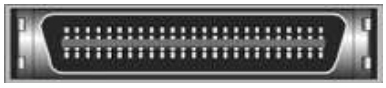
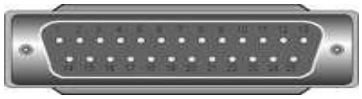
SCSI Signaling:

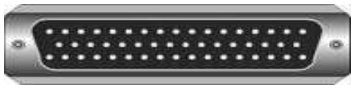
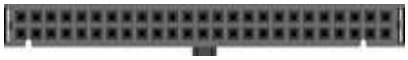
SE (Single Ended) The most common for of SCSI signaling. Almost all 50 pin SCSI devices fall into this category. It uses a half the wires in the cable for the signal and the rest for grounds. It only uses one wire to send a data bit. A zero voltage signal on the wire represents a 0 and a positive voltage signal represents a 1. SE signaling supports a bus length of 1.5 meters.

LVD (Low Voltage Differential) Uses differential signaling. Differential signaling uses two wires to send a signal, unlike SE signaling which uses only one wire. Differential signaling uses the same signaling technique as SE signaling does on the first wire, but instead of the second wire of the pair being a ground it sends the first wire's logical inversion. The receiving device determines the signal by the differences in voltage from the pair of wires. LVD uses 3.3 volts DC for signaling. LVD signaling supports up to 12 meter bus lengths.

HVD (High Voltage Differential) Also uses the same differential signaling techniques as LVD, but with 5 volts DC. Allows for bus lengths of 25 meters. CAUTION: You do not want to mix HVD devices with LVD and SE devices.

SCSI Connectors:

VHCD 68-pin		Used for scsi-3 applications: RAID. The VHDCI 68-pin connector has 68-pins arranged in two rows one on top of the other. The top row has 34 pins and the lower row has 34 pins. Also has been called scsi-5.
Micro DB68		Used for scsi-3 applications: scanner, removable storage drive, controller, external cdr/cdrw, ultra/2. The Micro DB68 connector has 68-pins arranged in two rows one on top of the other. The top row has 34 pins and the lower row has 34 pins.
Micro DB50		Used for scsi-2 applications: scanner, removable storage drive, controller, external cdr/cdrw. The Micro DB50 connector has 50-pins arranged in two rows one on top of the other. The top row has 25 pins and the lower row has 25 pins.
Micro Centronics 50		Used for scsi applications: proprietary scsi-2 interface(rare). The Micro Centronics 50 connector has 50-pins arranged in two rows one on top of the other. The top row has 25 pins and the lower row has 25 pins.
Centronics 50		Used for scsi-1 applications: older scanners, controllers, external scsi device cases. The Centronics 50 connector has 50-pins arranged in two rows one on top of the other. The top row has 25 pins and the lower row has 25 pins.
DB25		Used for parallel, serial or scsi applications: modem, null modem, laplink, printer, scanner, removable storage drive, Apple scsi. The DB25 connector has 25-pins arranged in two rows one on top of the other. The top row has 13

		pins and the lower row has 12 pins.
DB50		Used for early scsi applications. The DB50 connector has 50-pins arranged in three rows one on top of the other. The top row has 17 pins, the middle row has 16 pins and the lower row has 17 pins.
Micro Centronics 60		Used for scsi applications: IBM RS-6000. The Micro Centronics 60 connector has 60-pins arranged in two rows one on top of the other. The top row has 30 pins and the lower row has 30 pins.
Micro Centronics 68		Used for scsi applications: IBM RS-6000. The Micro Centronics 68 connector has 68-pins arranged in two rows one on top of the other. The top row has 34 pins and the lower row has 34 pins.
Internal 50-pin		Used for internal scsi-1/scsi-2 applications: hard drive, cd-rom, removable storage drive.
Internal 68-pin		Used for internal scsi-3/ultra2/lvd applications: hard drive, cd-rom, removable storage drive.