#159: Hard Disk Hacking

See also: Technical Note #96—SCSI Bugs
Technical Note #134—Hard Disk Medic
The Device Manager

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For those of a technical bent with some extra time, you can build your own hard disk system from a cheap SCSI drive and a driver that you write. This is not a project for those short on time, so beware.

We often get questions regarding the feasibility of connecting a ‘generic’ SCSI drive to the Macintosh, usually the Macintosh II. It is possible to use a standard drive, but it is important to be aware that there is a reason why a fully assembled drive costs more. When buying a hard disk you have two choices:

1) buy a fully assembled drive, formatting and driver software included
2) buy the pieces necessary to assemble your own: the drive itself, power supply if needed, cables, and development system to write a driver and formatter.

The second choice will often appear to be cheaper, since you don’t have to pay for a fancy case with a fancy label. However, you are also missing the chance to pay for some fancy software that took some fancy amounts of time to write.

Do not underestimate the difficulty of building your own hard disk. SCSI drives are only partially standardized so a driver written for one drive will probably not work (at least not well) on another drive. All drives come with a formatting utility that also contains a driver for reading and writing sectors to the disk. For example, the Apple drives come with a program called HD SC Setup. Most third-party drives have a similar utility that is specific to their drive. The formatting operation varies widely depending on the drive, and the driver also may have to know about specific timing problems with a given drive. HD SC Setup only supports the drives which we produce.

If you decide that you want to hack together your own drive, you will need to write this formatter/driver program. It is non-trivial, and this is part of what you pay for when you buy an off-the-shelf drive. If you have the time, you may save some money. If you are writing your own formatter/driver program we can help you with problems you run into, but you must be familiar with SCSI terminology, the SCSI Manager, and be able to use an assembly level debugger like Macsbug or TMon. You may run into timing difficulties that require the use of a logic analyzer or SCSI analyzer to resolve.

This may sound like it is hard to write your own driver. It is. This may sound like we are trying to scare you off from writing your own driver. We are.