



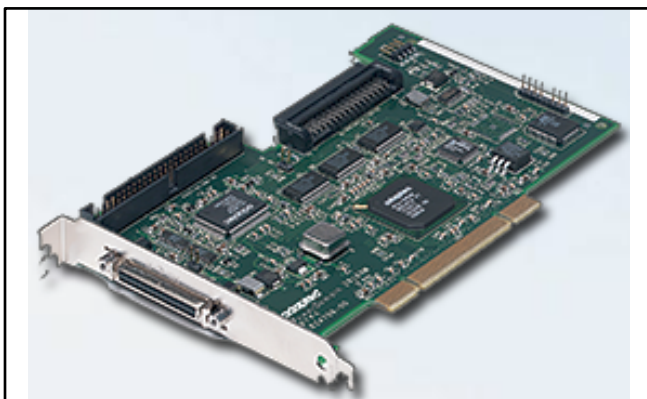
Connecting a SCSI Scanner to a Mac

There are several ways to connect your SCSI connected scanner to your computer. You could use a computer that has or can accept a SCSI card. Another way is to use a SCSI to Firewire adapter. The third way is to use a SCSI card that fits into a laptop with a PC Card slot.

First lets review a couple of things about SCSI. SCSI is a parallel interface that was used for internal hard drives, CD Rom drives and many external devices. Those external devices included disk drives, card readers, scanners etc.

Early versions would handle 8 devices. Each device had an ID from 0-7. Computers had a SCSI Controller card that installed in the computers expansion bus. More on that later. Standard versions of SCSI devices were not "hot swappable." That meant you could not unplug or plug them in without shutting off the computer. Later, special terminators allowed for "hot swapping."

SCSI is a chain of devices and it needs to know where the end of the chain is. To tell the controller where the end is, a device called a terminator is used. Some devices have built in terminators. Those have to be the last thing on the chain. The SCSI card received power from the power supply in the computer and sent some power through the chain. We will see later how that becomes important for SCSI to Firewire devices. Pictured below is an Adaptec ADA 29160 SCSI card.



By far the most reliable way to connect your scanner is a computer with a SCSI card or built in SCSI. There are several factors involved. As far as I know the SCSI cards that work with the scanners are no longer being manufactured. Used cards are readily available on the internet. There were different bus configurations used in different models of computers. Support was discontinued in the OS by Apple. So we need a computer that the card will work in, running a version of the OS that supports SCSI and is reliable. It also needs to be a combination that can be kept running for years to come.

Lets talk about computers first. Any of the Power PC's with a card slot will work. While I have run my scanner with a computer as old as a 7600, you will probably want a G-3 or later so you can run OS 10.

One of the deciding factors may be what SCSI card you have available. Adaptec is the brand I am most familiar with and they still have drivers and support info available on their web site. The website is now www.microsemi.com. Atto was another popular brand but I was not able to find much legacy info on their website. But they were a good controller.

The bus configuration determines which cards will work. Adaptec 2906 and 2930 cards are 5v PCI bus and fit up to G-5 macs. Most G-5 Macs have PCI-X buses and need an ADA 29160 or ADA 39160 card. Some G-5's have PCI Express slots and no cards are available for them. I don't think any of the Intel Macs support SCSI cards. To determine if the computer you have or intend to buy will support SCSI cards check the expansion slot information on www.EveryMac.com. They have a page that shows which G-5's have which slots. Once you know the bus type you have, you can pick a card.

The next issue is the Operating System. OS-9.x and OS-10.1 through OS-10.5.8 will work and have built in drivers. Adaptec also has updated drivers on their website. The speed of the card is not an issue. The

SCSI scanners only transfer 10MB/sec so any of the cards will work fine. The 2906 and 2930 cards are 32 bit cards while the 29160 and 39160 are 64 bit cards. They also use an ultra wide 68 pin connector which requires a more expensive cable. That is the card I pictured above.

Cable length is a factor and if you are using a long (6 foot) cable you may need an active or a powered terminator. Cable quality is a factor and the best I have found come from www.granitedigital.com They have powered and troubleshooting terminators as well. When you get to their web page, search for SCSI.

The next way to hook up you scanner is a SCSI to Firewire Adapter. There were 2 such devices made. The first on the market was a device from several companies. 2nd Wave, Belkin, Microtech and Orange Micro all sold this device. It is identical inside the case. Here is the Microtech version.



At the time Imacon introduced the P-2 to P-3 upgrade we shipped all new scanners with the 2nd Wave adapter. Success was very mixed and what we didn't know then was a power issue. Remember I said the SCSI chain gets power from the card. These devices get their power from the Firewire connection. Most of the time it was not enough power to made it down the SCSI chain to the terminator.

To correct that you use a powered terminator. If the firewire port gives enough power for the adapter to be powered you are in business. A short cable may help. If the port does not supply enough power you need to use an external power supply. That is a 9v 500ma center pin positive power supply.

The little green light on top of the unit is your guide. If it is on with a steady green light and you have a powered terminator, you are good to go. No solid green light, no work. If you are using the power supply on the adapter, you might get enough power to feed the terminator. If either the adapter or the terminator is not getting enough power it won't work.

At best I would call these devices fragile. I have had 2 quit working on me. I suggest if you are not using your scanner unplug the firewire cable from the computer.

The other SCSI to Firewire device is the Rato FR1SX adapter. This came along later but has also been discontinued. It seems to be a better device but is no less temperamental to get working. Here is what it looks like.



To get it to work you must downgrade the firmware to version 1.23. You must also set the configuration menu. Below are the settings for this.



The Power Supply adapter is a 5V/2A center positive, 1.7 x 4.0mm plug. This power supply is required.

No special drivers should be required. There are drivers as well as lot of good info on Ratoc's website even though the device is discontinued.

If you are not getting enough power to the SCSI terminator a powered terminator may be required. Most users have not reported that as necessary.

As for computers and operating system It can pretty much be any Mac's that will boot up on OS 9.x or OS 10.1 to OS 10.6.8. That includes G-3 to G-5 running OS 10.1 to OS 10.5.8. OS 10.6 requires an Intel processor, so Intel machines booted up on 10.6 should work. See EveryMac.com to see what OS came installed on your machine. OS 10.7 and later does not have Rosetta which allowed Classic Apps to run, so it will not work.

Ratoc users report a unique startup procedure. After the firmware is downgraded and the configuration menu is set, shutdown the computer, unplug the power supply, start up the Imacon and wait for it to finish it's startup procedure. It should have a blinking light.

Plug the power adapter into the FR1SX and wait for the green light. When it is on steady, startup the Mac.

FlexColor 4.04 or earlier is required. FlexColor 4.5 and later dropped support for SCSI machines. Many users scan in FlexColor 4.04 and move their files to FlexColor 4.8.x to process them. Both also support the .fff format.

There is another way to connect your scanner to a computer. Adaptec made a device called SlimSCSI 1480. Below is a picture of it.



This is a device that inserts into a PCMCIA cardbus and converts the cardbus to a SCSI connection. It will support up to 7 devices. It draws it's power from the

cardbus. Just like the 2nd Wave, the SCSI terminator needs to be powered.

This is a great device for notebooks which have the cardbus. Apple called them PC Card port. To see which laptops have the port check EveryMac.com.

I know one of the great choices was the G-4 PowerBook 17" titanium. Run OS 10.5.8 with FlexColor 4.04 and scan away. They had a great screen and were pretty fast. Although computer speed doesn't matter for scanning. One thing that did help was enough ram memory so that FlexColor didn't have to use virtual memory.

So you see, there are a lot of choices for connecting the older Flextight's.

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