

# Tech Info Library

## TITLE

Power Macintosh G3 and G4: Differentiating Between Available SCSI Cards

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## TOPIC

The Power Macintosh G3 (Blue and White) and Power Mac G4 have a number of SCSI cards available. What are the differences between them?

## DISCUSSION

The three Apple SCSI cards available as configure-to-order options are as follows, with a shortened name in parentheses:

- o Ultra SCSI PCI Card (Ultra)
- o Single Channel Ultra2 LVD SCSI Card (Single)
- o Dual Channel Ultra2 LVD SCSI Card (Dual) version 1 and 2

The version 2 dual channel SCSI card is functionally equivalent to the version 1 card, though it has been tested and approved for use with the Power Mac G4 (AGP Graphics) computer. Refer to the chart below for more specific technical information. The card is based on the ATTO ExpressPCI UL2D card. You may refer to the ATTO Web site at <http://www.attotech.com> for more information about the card.

Table 1 differentiates the various Apple cards based on their features. The Ultra card is best utilized for connecting slower, legacy SCSI-1 and SCSI-2 devices such as tape drives, hard drives, and scanners, as well as Ultra Narrow SCSI devices.

While there is some overlap among the cards, you should make your purchase decision based on what type of device you intend to connect to the card.

Specification	Ultra SCSI Card	Single Channel Card	Dual Channel Card version 1	Dual Channel version 2
Supported Computer	Power Macintosh G3 (Blue and White) and Power Mac G4	Power Macintosh G3 (Blue and White)	Power Macintosh G3 (Blue and White)	Power Mac G4 (AGP Graphics)
Max. Transfer Rate (MB/Sec)	20	80	80 per channel	80 per channel
Apple Supported Types	SCSI-1, SCSI-2 (Fast), Ultra Narrow	Ultra2 LVD	<b>Channel A:</b> SCSI-1, SCSI-2 (Fast), Ultra Narrow, Ultra Wide, Ultra2 LVD <b>Channel B:</b> Ultra2 LVD	<b>Channel 1:</b> SCSI-1, SCSI-2 (Fast), Ultra Narrow, Ultra Wide, Ultra2 LVD <b>Channel 2:</b> Ultra2 LVD
Internal Connector	50-pin standard (Male) (Not Apple Supported)	68-pin high-density Ultra2 (Female)	<b>Channel A:</b> 68-pin high-density Ultra2 (Female) <b>Channel B:</b> 68-pin high-density Ultra2 (Female), and 50-pin standard (Male) *	<b>Channel 2:</b> 68-pin high-density Ultra2 (Female)
External Connector	50-pin high-density (Female) Includes a high density 50-pin to DB25 adapter	68-pin high-density Ultra2 (Female)	<b>Channel A:</b> 68-pin high-density Ultra2 (Female) **	<b>Channel 1:</b> 68-pin VHDCI Ultra2 (Female)
Max. Devices Int/Ext	Up to 7 total	Up to 15 total	Up to 30 total	Up to 30 total

Maximum Cable Length Internal/External	3 meters w/non-Ultra devices; 1.5 meters w/Ultra devices or a mix of Ultra and non-Ultra devices	12 meters w/only Ultra2 LVD devices	<b>Channel A:</b> 3 meters w/non-Ultra devices; 1.5 meters w/Ultra devices or a mix of Ultra and non-Ultra devices; 12 meters w/only Ultra2 LVD devices <b>Channel B:</b> 12 meters w/only Ultra2 LVD devices	<b>Channel 1:</b> 3 meters w/non-Ultra devices; 1.5 meters w/Ultra devices or a mix of Ultra and non-Ultra devices; 12 meters w/only Ultra2 LVD devices <b>Channel 2:</b> 12 meters w/only Ultra2 LVD devices
PCI System Bus	32 bit	32 bit	64 bit	64 bit
Driver Compatibility	Compatible with SCSI Manager 4.3, and earlier drivers	Requires SCSI Manager 4.3 compliant driver	Requires SCSI Manager 4.3 compliant driver	Requires SCSI Manager 4.3 compliant driver

**Table 1 Apple SCSI Card Specifications**

\* For maximum performance, the internal connector (Channel B) is recommended for Ultra2 devices only.

\*\* The internal/external (Channel A) connectors are recommended for use with all SCSI types.

All three Apple SCSI cards allow you to boot your Power Macintosh G3 (Blue and White) from an attached device that has the appropriate system software installed.

Maximum throughput (Ultra2) is only possible when only Ultra2 devices are on the SCSI bus. When you connect a non-Ultra2 device to the single or dual channel card, the SCSI manager will negotiate with each device for maximum speed for that particular device.

**Definitions**

Additional definitions may be found at the following Web sites:

<http://www.seagate.com:80/support/disc/faq/scsirev.shtml>

<http://www.adaptec.com/tools/glossary/general.html>

**Notes**

1. The term Low Voltage Differential (LVD) can be used interchangeably with the term Ultra2.
2. High Voltage Differential, also known as Differential devices, are not supported.
3. With regards to the Ultra2 LVD SCSI cards, there are adapters to connect a Narrow device to the Wide bus, but this may leave a portion of the signal unterminated resulting in possible data transmission errors or data loss. Using such an adapter is not an Apple-recommended or supported solution.
4. Though Apple SCSI cards may be similar to certain Adaptec cards, use **only** Apple SCSI Card Firmware Updates on Apple cards. Do **not** use Apple Firmware Updates on Adaptec Power Domain cards. Similar firmware updates for Adaptec SCSI cards may be available from Adaptec.
5. For more information on the Apple Ultra SCSI PCI Card, see the following Tech Info Library article:  
Article 58245: "[Power Macintosh G3 \(Blue and White\): About The Ultra SCSI PCI Card](#)"

This article provides information about a non-Apple product. Apple Computer, Inc. is not responsible for its content. Please contact the vendor for additional information.

The following Tech Info Library article can help you search for a particular vendor's address and phone number:

Article 17159: "[Locating Vendor Information](#)"

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**EXTENDED Information - [Apple Internal Use - Service Providers and Support Professional](#)**

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**Document Information**

Product Area: Computers; Power Mac G4

Category: Power Macintosh; Power Mac G4 Hardware

Sub Category: Macintosh Server G3; Power Macintosh G3 - Blue and White; General Topics

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