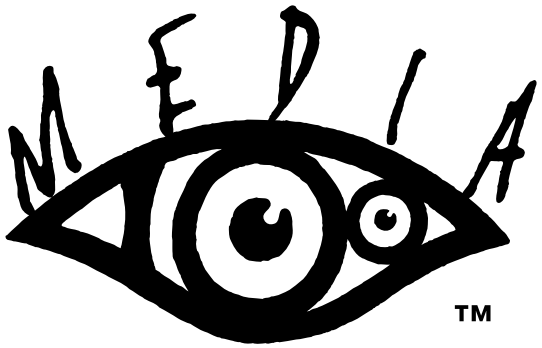


Media 100® Compatible Peripherals Guide

(Includes Media 100qx, Media le, Media 100 lx, Media 100 xe, Media 100 xs, Media 100 xr)

August 20, 1998

What is the Media 100 Compatible Peripheral's Guide?

Media 100 Digital Editing Systems are open systems that are compatible with most third-party peripherals. Since there are so many choices and possible configurations currently on the market that are expanding daily, Media 100 Inc. has a dedicated group to test and recommend third-party peripherals on a continuing basis. All Media 100 products are extremely sophisticated and we are constantly adding new capabilities. High quality digital video and real-time effects demand extremely fast throughput and performance; therefore, we want to make sure that you configure complete systems that will allow the Media 100 to run at its optimum performance. The Media 100 Compatible Peripherals Guide is a reference document that should be used as a guideline. [It is not required that you only use peripherals that appear in these documents. It is, however, recommended since technical support can better assist you and your customers if they are familiar with the equipment you are using.]

The peripherals in this guide have been tested for their capability and functionality for use with all Media 100 systems. We do no long-term reliability testing since we only evaluate small quantities for a limited period of time. Also keep in mind that all of the disk arrays in the same category are not equal. It is the responsibility of the reseller and consumer to research the peripherals for additional features, quality, price, support and warranty information.

What's New in the Compatible Peripherals Guide?

1. JEMs Data has released the new Jemini Blox. This is a compact, award winning case design that houses 2 ultra 2 10,000rpm drives for affordable, stackable , and fast storage. Se e the enclosed data sheet.

2. We have been testing new LVD drives with the new ATTO Technologies Express PCI UL2S controller .

3. The DLI MicroVault 18GB subsystem utilizes the Diverse Logistics Inc.'s 2XFR hardware RAID controller which we were able to get category one performance out of. They now hav the 3XFR which has 3 channels and will allow up to 4 drives per channel.

4. Media 100 has started testing the nStor CR8e storage subsystem. nStor has a line of high end subsystems with optional dual RAID controllers, dual redundant power su;;lies and cooling fans. The CR8j (jbod system) utiling 10.000rpm Ultra SCSI can be converted to differential, LVD or Fibre Channel with the addition of a RAID controller.

5. We have approved the Videonics Effetto Pronto board with the G3 and are in the process of testing it with a variety of other system configurations.

6. We have tested the Rorke Data Max Array 72LVD array for category one.

7. We are in the process of testing the Exabyte Mammoth tape drive and automated tape library.

Remember - With the introduction of real-time effects, static titles, audio cross fades, and real-time audio EQ, Media 100 is increasing its demand on CPUs and disk drive performance. In the past, a certain configuration of peripherals would either be capable of 300KB NTSC/360KB PAL with eight audio tracks or not. Now with the variety of different Real-time effects, performance can vary depending on the length and type of transition used.

Just because a product does not appear in a certain category, does not mean that it will not perform with a specific Media 100 model at a different rate. An example of this is: 2 x 9GB Ultra drives with an Ultra MC card was listed as Category 1 - 300KB NTSC/360KB PAL w/8 tracks of audio prior to the introduction of real-time effects, titles and cross fades. Today, this same array is listed as Category 2 - 200KB NTSC/240KB PAL w/6 tracks of audio and cross fades and real-time titles and dissolves. If you utilize all real-time features with this configuration, you will achieve 200KB (240KB PAL) w/6 tracks of audio. However, if you limit the use of or shorten the titles and effects, the same array might perform at 250KB to 300KB w/6 to 8 tracks of audio. Of course, if you eliminate the use of real-time, this array will perform at 300KB (360KB PAL) w/8 tracks of audio.

Our tests are done using 2-5 second long real-time transitions at 2-5 second intervals with real-time static titles, real-time audio EQ, and audio cross dissolves during the transition. Your results will vary if your real-time effects are longer with a shorter distance between them. You will get better results if they are shorter and there is a greater distance between them. For example, if you have back to back titles, the buffer may not have time to flush and the second title may need to be rendered.

Technical Notes

- Ultra SCSI will not work on older three slot PCI machines (7500, 7600, 7300, 8500 and 8600) with Media 100. If you have an Adaptec 2940UW or a 3940UW, you will need to turn off Ultra SCSI by using the Power Domain software that comes with the Adaptec cards. To do this, run the Power Domain Control software. Select a SCSI bus. Under the "Board" menu, select "set target options." Then click in the box next to Ultra SCSI to turn it off. If you have an ATTO ExpressPCI PSC or DC card, run the ExpressPCI setup (or ExpressPro Tools) software. Select the arrow to the right of the bus to expand the SCSI bus. Select one of the devices (drives). Under the "Options" menu select "advanced options." A dialog box will appear, click on OK. Then click the Config button. You should then select the pull down menu next to the "synchronous xfer rate MB/sec." and slow down the transfer rate from 40MB/sec. (32 bit) to 20MBs/sec. (16 bit). This is not the case with the Apple Power Macintosh G3 machines.

- As with Ultra SCSI , SSA and Fibre Channel controller cards will also have problems in an older 3 slot PCI machine with Vincent. This is not the case with the Apple Power Macintosh G3 machines.

- We have found some issues concerning RAM in the Power Macintosh systems. It is very important that the DIMMs that you use are identical. Be sure that the RAM is the same speed and that the refresh rate on the RAM is the same for all DIMMs. Multi Processor CPUs are especially susceptible to inferior or mismatched RAM. If there are differences you may intermittent problems such as system crashes and locking up. The RAM will also not interleave which is critical for video playback. This is not the case with the Apple Power Macintosh G3 machines since these machines use a different type of RAM that does not require interleaving.

Disclaimers for Media 100 System Configuration and Compatible Peripherals Guide

Included in this guide are specific system configurations and compatible peripherals that have been tested to date by Media 100 Inc. To ensure optimum performance of a Media 100 system, it is very important that these specified configurations be followed.* As we continue our testing, this list of supported system configurations and compatible peripherals will be updated, expanded and distributed on a regular basis.

1. The peripherals in this guide have been tested for their capability and functionality for use with Media 100 systems. We do no long term reliability testing since we only evaluate small quantities for a limited period of time.

2. All category one disk arrays are not equal. It is the responsibility of the reseller and consumer to research the peripherals for additional features, quality, price, support ,and warranty information.

3. The revisions of the drive mechanisms are subject to change without notice. Different firmware can affect the performance of the drive. Usually the newer the revision, the better the performance since the drive manufacturer may enhance the product or fix problems.

4. The Media 100 Compatible Peripheral Guide should be used when making system configuration recommendations. Our separate Media 100 qx Compatible Peripherals Guide is not applicable when configuring Media 100 systems.

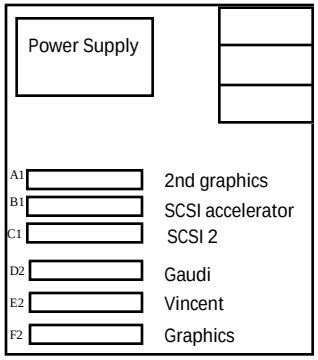
(* Technical Support will provide support to customers regardless of the computer equipment that they have. However, issues that arise from systems not conforming to our published peripheral guidelines may not be able to be resolved.)

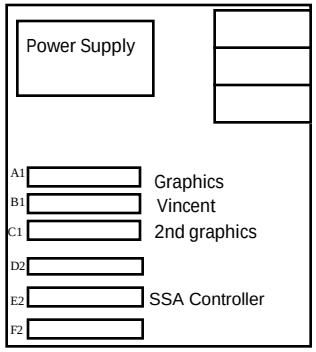
Slot Configuration

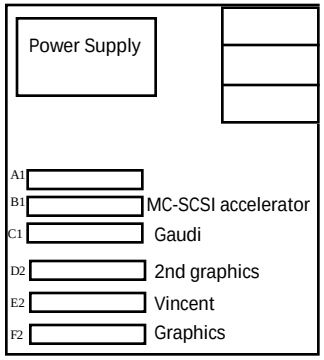
There are many different combinations of PCI cards that can be installed and work together. Our recommendations are guidelines for you to follow but if you with your particular configuration, run into compatibility problems, you may need to try different slot assignments.

For Media 100 xs system Configurations (without the Media 100 HDRfx card)

The upper PCI slots A1, B1, and C1 are controlled by one PCI arbitrator chip. This chip also handles the Power Macintosh I/O functions. A separate PCI arbitrator chip handles the traffic for the lower PCI slots D2, E2, and F2. Because this chip doesn't handle I/O traffic it has better bandwidth. We recommend Vincent in slot E2 for several reasons. 1.) It is in the lower "cleaner" PCI bus with less traffic. 2.) It is far from the heat of the CPU card and 3.) It is not the bottom slot where components could become damaged by the plastic tabs of the CPU Chassis. We also recommend that the graphics card be located in the same bus as Vincent since we do direct access to the graphics card for the subsampler (edit suite). We strongly recommend that the SCSI accelerator card (or SSA and FC-AL) is in the other PCI bus since they are more demanding on PCI bus throughput and can cause bus contention. At some point Apple made some improvements to the PCI arbitrator chip and how it handles requests from Bus Master cards. Most of the 9500/120 and 9500/132 systems have the earlier version and the 9500/150s and higher have the new version. For slightly better performance, we recommend that Gaudi is in the same PCI bus as Vincent (slot D2). However, if you have an earlier version of the PCI arbitrator chip, you could run into occasional "Bad Video Frame" messages. If you do then Gaudi should be placed in the other PCI bus (slot c1).



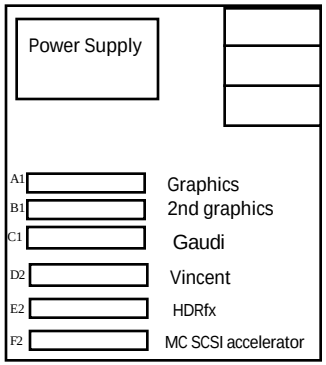


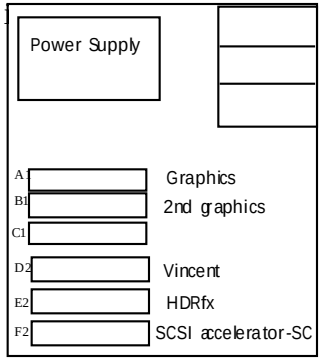


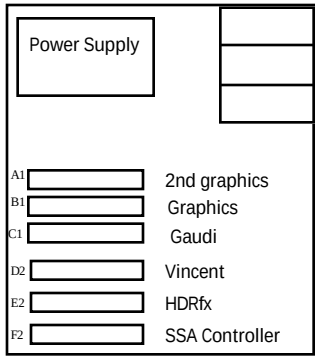
NOTE: Without the HDRfx board, the data must travel to and from the Vincent board via the PCI bus and Mac memory. If the SCSI controller is in the same PCI bus, there can be bus contention that results in bad video frame errors.

For Media 100 xr system Configurations with the new HDRfx card

The Vincent Card and the HDRfx card must be next to each other since they are connected by an over the top connector cable. We recommend that they be placed in slots D2 and E2 for several reasons. 1.) It is in the lower "cleaner" PCI bus with less traffic. 2.) It is far from the heat of the CPU card (the coolest spot in the computer) and 3.) It is not the bottom slot where components could become damaged by the plastic tabs of the CPU Chassis. With the HDRfx card present it is necessary to have the SCSI controller in the same PCI bus. The reason for this is that the HDRfx card contains RAM and we can now use that memory instead of going through the PCI bus to the Mac memory. We now do direct memory transfers within the PCI bus and having the SCSI controller on the same bus eliminates the need for the data to travel through the PCI bridge chip to the second PCI bus thus increasing performance.







NOTE: The HDRfx board contains RAM. This enables Vincent to do Direct Memory Access to the RAM on the HDRfx board, which eliminates the bottleneck of the Mac System Memory. Because of this, you will have optimum performance if you have the SCSI controller in the same PCI bus. This will eliminate the need for the data to have to travel through the PCI Bridge chip to the other PCI bus to the SCSI controller.

Categories and Requirements

Media 100 xr category 1 - 300KB NTSC/360KB PAL, Real-Time Wipes, Dissolves, Static Titles and 8 audio tracks.

The Vincent card with the HDRfx card is capable of real-time effects at 300KB NTSC/360KB PAL. This means that your disk array must read two streams of 300KB NTSC/360KB PAL instead of one. That translates into 9MB/second for each stream of video. Add to that audio channels and you will need a sustained read rate of about 24MB/sec. You must also consider the speed of the whole system not just the disk array. Your Computer should be a 9500/150 or greater.

Recommended CPUs:

Apple Power Macintosh 9500/150, 9500/180, 9500/200, 9600/200, 9600/233, 9600/300, 9600/350
Daystar Genesis 400MP, Genesis 720 MP, Genesis 800MP
Power Computing Power Tower Pro 225 and the Power Tower Pro 250

Recommended Disk Drive controllers:

ATTO Technology ExpressPCI - DC
ATTO Technology ExpressPCI-MCU
ATTO Technology ExpressPCI-UL2S
Adaptec 3940UW (firmware version 3.0)
Jackhammer -DC differential Rev. B with 1.3 firmware
Pathlight Technology Streamline SSA controller
Emulex FC

For best results you should use a dual channel Ultra SCSI accelerator. However, a single channel Ultra SCSI accelerator in the same PCI bus as Vincent and HDRfx will give you adequate performance as long as you are using ultra SCSI drives.
ATTO ExpressPCI-PSC
Adaptec 2940UW (firmware version 2.5)

Recommended Drive Mechanisms	Configuration
IBM Scorpian 4.5GB SSA	6-8 drives looped on a network
IBM Scorpian 9GB SSA	6-8 drives looped on a network
IBM Ultrastar 18XP	2-4 drives striped on 2 channels
Fujitsu 3182SP , 18GB	4 drives striped on 2 channels
Fujitsu 3091SP, 9GB	4 drives striped on 2 channels
Seagate ST39102LW, Cheetah 9GB	2-4 drives striped on 2 channel or 1 LVD
Seagate ST34501W, Cheetah 4.5GB	4 drives striped on 2 channels
Seagate ST19101W, Cheetah 9GB	4 drives striped on 2 channels
Seagate ST118273W, Barracuda 18GB	2-4 drives stiped on 2 channels
Seagate ST39173LW, Barracuda 9LP	2-4 drives striped on 2 channels or 1 LVD
Seagate ST34371W, Barracuda 4LP 4.3GB	4-6 drives striped on 2 channels
Seagate ST34571W, Barracuda 4LP 4.5GB	4-6 drives striped on 2 channels
Seagate ST 15150W, Barracuda 4 4.2GB	4-6 drives striped on 2 channels
Seagate ST 19171W, Barracuda 9 9.1GB	4-6 drives striped on 2 channels
Seagate ST 19171FC, Barracuda 9 Fibre Channel	8 drives on a FC-AL loop

Media 100 xs category 2 - 300KB NTSC/360KB PAL, Real-time Preview Wipes, Dissolves, Real-time Static Titles and 8 audio tracks.

For a disk array to be in the Media 100 xs category 2, it will need to be connected to a 9500/150,/180/200, a 9600/200 /233/300/350 with at least 96MB of RAM. It must be capable of playing a 5-minute program consisting of 5-second real-time wipes at 2-second intervals. In addition to each transition ,there will be a real-time static title and four audio tracks with cross fades at each transition. It must play through several times without dropping any audio or video frames. Below are general configurations that we recommend with xs. The actual data rate that you are getting is not always the determining factor on what type of Media 100 performance you will get. You must also take into account the processor speed, the SCSI controller and the access time and sometimes the firmware revision of the drives. With the newer Seagate drives we were able to achieve 300KB NTSC/360KB PAL with only two drive mechanisms.

Recommended CPUs:

We are now recommending the Apple Computer G3/233 MHz and the G3/266 MHz Minitower and Desktop CPUs for Category 2. However, since this is a 3 PCI slot machine the compatiblity of peripherals is different from the following CPUs. See the next page for known compatibility issues and configurations.

Apple Computer Power Macintosh 9500/150, 9500/180, 9500/200, 9600/200, 9600/233, 9600/300, 9600/350
Daystar Digital Genesis 400MP, Daystar Digital Genesis 720MP, Daystar Genesis 800MP
Power Computing Power Tower Pro 225, Power Computing Power Tower Pro 250.

Recommended Disk Drive controllers:

Adaptec 2940UW (2 single channels works but not recommended because of limited upgrade path)
Adaptec 3940UW
ATTO ExpressPCI PSC(2 single channels works but not recommended because of limited upgrade path)
ATTO ExpressPCI-dc
ATTO Technology ExpressPCI-MCU
Streamlogic Jackhammer -DC differential
Pathlight Technology Streamline SSA controller

Recommended Drive Mechanisms	Configuration
IBM Scorpian 4.5GB SSA	6-8 drives -looped on a network
IBM Scorpian 9GB SSA	6-8 drives -looped on a network
IBM Ultrastar 18XP	2-4 drives striped on 2 channles
Seagate ST34501W, Cheetah 4.5GB	2 -4 drives striped on 2 channels
Seagate ST39102LW, Cheetah 9GB	2-4 drives striped on 2 channel or 1 LVD
Seagate ST19101W, Cheetah 9GB	2 -4 drives striped on 2 channels
Seagate ST 32171W, Barracuda 4LP 2.1GB	4-6 drives striped on 2 channels
Seagate ST 32271W, Barracuda 4LP 2.2GB	4-6 drives striped on 2 channels
Seagate ST34371W, Barracuda 4LP 4.3GB	4-6 drives striped on 2 channels
Seagate ST34571W, Barracuda 4LP 4.5GB	4-6 drives striped on 2 channels
Seagate ST 15150W, Barracuda 4 4.2GB	4-6 drives striped on 2 channels
Seagate ST118273W, Barracuda 18GB	2-4 drives stiped on 2 channels
Seagate ST39173LW, Barracuda 9LP	2-4 drives striped on 2 channels or 1 LVD
Seagate ST 19171W, Barracuda 9 9.1GB	4-6 drives striped on 2 channels
Seagate ST19101N, Cheetah 9GB ultra Narrow	4 drives striped on 2 channels
Seagate ST 34501N, Cheetah 4 Ultra Narrow	4 drives striped on 2 channels
Quantum Atlas II, 4GB, 7200rpm	4 drives striped on 2 channels
Seagate ST34501W, Cheetah 4.5GB	2 drives striped on 1 channel

G3 Configuration guide

Both the G3 Minitower and the G3 Desktop models have been tested and are being recommended. The advantages of the Minitower are that the RAM is expandable to 384MB while the desktop model is expandable to 192MB and the Minitower has 2 additional device bays. The Power Macitosh G3 has 3 DRAM expansion slots that utilize 3.3 volt SDRAM 168 pin DIMMs. We recommend either 32MB, 64MB or 128MB DIMMs. The G3 has 3 PCI slots and a built-in video personality card. You do not need to add a graphics accelration card unless you want to drive two monitors. The G3 /300 with the Ultra Wide internal SCSI drives is not compatible with the Media 100. Media 100, Inc. recommends the G3 systems configured with the internal IDE drive.

Graphics cards - recommended

ATI Xclaim - ROM version 113
Number 9 Imagine 128
IXMicro Twin Turbo 128 - the older versions of this card work well.
We have seen "bad video frame errors" with the new Twin Turbo 128M2 card

Does not work

Radius Precison Color

SCSI Host adapters - recommended

Adaptec 3940
Adaptec 2940
Jackhammer MC diff
ATTO ExpressPCI-MCU
ATTO ExpressPCI PSC
ATTO Express PCI UL2S

Other Host Adapters

Emulex Fibre Channel

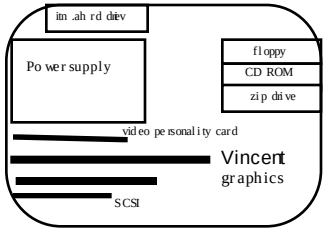
Does not work

ADAPTEC Fibre Channel Host Adapter

*ATTO ExpressPCI - dc *ATTO Technology has new firmware for the Express PCI-dc board so that it is compatible with the G3. We are currently in the process of testing this.

Without HDRfx

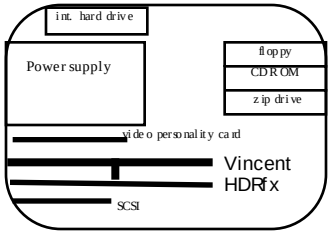
G3 Slot configuration



The placement of the boards in the PCI slots does not seem to be relevant in regards to performance. We have tested the boards in a variety of positions with the same results. The configuration to the left is a good recommendation due to the flow of air in the machine.

With HDRfx

G3 Slot configuration



The placement of the boards in the PCI slots does not seem to be relevant in regards to performance. We have tested the boards in a variety of positions with the same results. The configuration to the left is a good recommendation due to the flow of air in the machine

Below are some test results with various SCSI accelerators and Striping software when used in a G3 with HDRfx - Testing is still in progress.

	ATTO Express PCI UL2S	ATTO ExpressPCI-PSC	ATTO ExpressPCI-DC	Adaptec 2940UW	Adaptec 3940UW	Adaptec 2940U2W	JackHammer SC (dif)
Anubis Raid 2.01	Pass	Pass	**Pass**	Pass	**Pass**	Pass	Pass
ATTO Express Raid 1.2	Pass	Pass	**Pass**	Pass	Pass	Pass	Pass
Remus 1.4	Pass	Pass	**Pass**	Pass	Pass	Pass	Not tested
RTK 2.06	Not tested	Pass	**Fail** (won't boot)	Not tested	Not tested	Not tested	Pass

Media 100 xe category 3 - 200KB NTSC/240KB PAL, Real-time Dissolves, Real-time Static Titles, motion and color effects and 6 audio tracks. All of the Category 1a products - plus the following CPU and drive configurations.

Recommended CPUs:

In addition to the CPUs listed for Media 100xs, the following CPUs can be used for the Media 100 xe system configurations.
Apple Computer Power Macintosh 9500/120, 9500/132

Recommended Disk Drive controllers:

Adaptec 2940UW
Adaptec 3940UW
ATTO ExpressPCI-PSC
ATTO ExpressPCI-MCU
ATTO ExpressPCI - DC
ATTO ExpressPCI-UL2S
Jackhammer DC - differential
Jackhammer SC - differential
Pathlight Technology Streamline SSA controller

Recommended Drive Mechanisms	Configuration
IBM Scorpian 4.5GB SSA	2 drives striped together
IBM Scorpian 9GB SSA	2 drives striped together
Seagate ST19171N, Barracuda 9 Ultra Narrow	2-4 drives striped on 2 channels or daisy chained on a single channel.
Seagate ST 15150N, Barracuda 4 Ultra Narrow	2-4 drives striped on 2 channels or daisy chained on a single channel.
Seagate ST410800W, Elite 9 SCSI 2 Wide	4 drives striped on 2 channels
Seagate ST423451W, Elite 23 Ultra Wide	4 drives striped on 2 channels
Seagate ST 32171W, Barracuda 4LP 2.1GB	2 drives striped on 1 channel
Seagate ST 32271W, Barracuda 4LP 2.2GB	2 drives striped on 1 channel
Seagate ST34371W, Barracuda 4LP 4.3GB	2 drives striped on 1 channel
Seagate ST34571W, Barracuda 4LP 4.5GB	2 drives striped on 1 channel
Seagate ST 15150W, Barracuda 4 4.2GB	2 drives striped on 1 channel
Seagate ST 19171W, Barracuda 9 9.1GB	2 drives striped on 1 channel

Media 100 Ix and Media 100 Ie category 4- 150KB NTSC or 180KB PAL with four tracks of audio and real-time dissolves.

Recommended CPUs:

Please note that even though 3 slot PCI machines work great at 150KB, you will be limited with upgrade options.
In addition to the CPUs listed in other categories, the following CPUs can be used for the Media 100 Ix and Ie system configurations.
Apple Computer Power Macintosh 7600/120, 7600/180, 7600/200, 8500/150, 8600/200

Recommended Disk Drive controllers:

Adaptec 2940UW
ATTO ExpressPCI-PSC
Jackhammer PCI - SC

Recommended Drive Mechanisms	Configuration
Seagate ST410800W, Elite 9 SCSI 2 Wide	2 drives striped on 1 channel
Seagate ST423451W, Elite 23 Ultra Wide	2 drives striped on 1 channel
Quantum Atlas II, 4GB, 7200rpm	2 drives striped on 1 channel
Seagate ST34501W or N , Cheetah 4.5GB	1 drive on 1 channel
Seagate ST19101W or N, Cheetah 9GB	1 drive on 1 channel

Media 100 qx - Media 100 qx has several categories of performance based on the system configuration. If you have a very fast CPU you will be able to capture at data rates as high as 300KB.

Recommended CPUs:

Media 100 qx is very CPU dependant and the faster the processor on the CPU, the better the performance you will get.

Recommended CPUs	SCSI controllers	Disk Arrays	Acheivable Data Rate
Power Mac G3/266	Atto Express PCI-UL2S	Jems Jemini Jaguar 36GB	300KB NTSC, 360KB PAL
Power Mac G3/266	Adaptec 3940 UW	Sagitta 54GB Ultra array	300KB NTSC, 360KB PAL
Power Mac 9600/200	Adaptec 2940UW	Digital Microware Raid 5	300KB NTSC, 360KB PAL
Power Mac 9500/266-G3	Jackhammer dc - diff	Sledge Pro 4	300KB NTSC, 360KB PAL
Power Macintosh G3/266	ATTO expressPCI-PCS	Xistor 36GB	300KBNTSC, 360KB PAL
Power Tower Pro 250	ATTO expressPCI-dc	xistor 36GB	250KB NTSC, 300KB PAL
Power Macintosh G3/266	Adaptec 2940UW	Consan 2 drive and 4 drive arrays	300KB NTSC, 360KB PAL
Power Macintosh G3/266	Adaptec 2940UW,	Prodirect 2 drive and 4 drive arrays	300KB NTSC, 360KB PAL
Power Tower Pro 250	ATTO Express PCI-dc	Jems Jemini UWF-36	300KB NTSC, 360KB PAL
9600/200, Power Tower 225Genesis 400 or 800MP, 8600/200	Jackhammer dc - diff, ATTO ExpressPCI-MCU		250KB NTSC, 300KB PAL
9500/150, 9500/132, 8500/132, 8500/150, 7300/200, 7300/180	Jackhammer dc - diff, ATTO ExpressPCI-MCU		200KB NTSC, 240KB PAL
7600/120, 8500/120, 7500/100	Adaptec 2940UW, ATTO ExpressPCI-PSC, Jackhammer SC		150KB NTSC, 180KB PAL

Approved Configurations

Below are approved configurations by drive vendors that specialize in providing quality storage solutions for digital video.

Manufacturer	Model	Description	Drive Mechanism	Configuration	Media 100 Category
AV Digital	16GB array	Four 4GB Ultra Wide 7,200 rpm drives	Seagate ST15150	4 drives striped across 2 channels	Category 2 Media 100xs
Computech International	4 drive tower	Four 9GB Ultra Wide 10,000 rpm drives	Seagate ST19101W	4 drives stiped across 2 channels	Category 1 Media 100 xr
Cybernetics	CY-50XP	Eight 6GB UltraWide 5,400 rpm drives	Seagate	8 drives striped together with 2 Raid controllers	Category 1 Media 100xr
Cybernetics	2 CY-25XP	Eight 6GB UltraWide 5,400 rpm drives	Seagate	4 drives striped together with Raid controller and then software striped with another unit	Category 1 Media 100xr
Cybernetics	CY-25XP	Four 6GB UltraWide 5,400 rpm drives	Seagate	4 drives striped together with Raid controller	Category 2 Media 100xs
Digital Microware	Citadel 40UW	Raid 3 Ultra Wide Raid system	IBM DHA 38451	Raid 3 tower with hardware controller	Categogy 1 Media 100xr * Since it is Raid 3 perf. is lower than Raid 0 systems
DLI	Dilog MicroVault 18G	Hardware Raid 0 subsystem	Seagate or IBM	RAID 0 hardware RAIdD controller	Category 1 Media 100 xr
Eurologic	Voyager Storage Array-24GB	Six 4GB Ultra Wide 7,200 rpm drives in a split bus tower	Seagate ST 34501W	6 drives striped across 2 channels with ATTO ExpressPCI-MCU	Category 1 Media 100 xr
Eurologic	Voyager Storage Array-54GB	Six 9GB Ultra Wide 7,200 rpm drives in a split bus tower	Seagate ST 19171W	6 drives striped across 2 channels with ATTO ExpressPCI-MCU	Category 1 Media 100 xr
Eurologic	Voyager Storage Array-36GB	Four 9GB Ultra Wide 10,000 rpm drives in a split bus tower	Seagate ST 19101W	4 drives striped across 2 channels with ATTO ExpressPCI-MCU	Category 1 Media 100 xr

Eurologic	Voyager 3000 RAID Array	Six 9GB Ultra Wide 7,200 rpm drives with a Hardware RAID controller	Seagate ST 19171W	RAID 3 controller	Category 2 Media 100 xs
Hammer Storage	SledgePro 4	Four 4.5GB Ultra Wide 7,200 rpm drives	Seagate ST34572WD	4 drives striped across 2 channels with a Jackhammer DC differential (Rev. B)	Category 1 Media 100 xr
Hammer Storage	SledgePro 4	Four 9GB Ultra Wide 7,200 rpm drives	Seagate ST19171W	4 drives striped across 2 channels with a Jackhammer DC	Category 2 Media 100 xs
Hammer Storage	SledgePro 4	Four 9GB Ultra Wide 10,000 rpm drives	Seagate ST19101W	4 drives striped across 2 channels with a Jackhammer DC	Category 2 Media 100 xs
Hammer Storage	SledgePro 4	Four 4GB Ultra Wide 7,200 rpm drives	Seagate ST15150W	4 drives striped across 2 channels with a Jackhammer DC	Category 2 Media 100 xs
Hammer Storage	SledgePro 2	Two 9GB Ultra Wide 10,000 rpm drives	Seagate ST19101W	2 drives striped across 2 channels with a Jackhammer DC	Category 2 Media 100 xs
Hammer Storage	SledgePro 2	Two 4GB Ultra Wide 10,000 rpm drives	Seagate ST34501W	2 drives striped across 2 channels with a Jackhammer DC	Category 2 Media 100 xs
JEMS Data	JEMINI-UWC-36	Four 9GB Ultra Wide 10,000 rpm drives in single enclosure	Seagate ST19101W (Cheetah)	4 drives striped across 2 channels with ATTO ExpressPCI-MC U	Category 1 Media 100 xr
JEMS Data	JEMINI-UWF-72	Four 18GB Ultra Wide 7,200 rpm drives in single enclosure	Fujitsu 3182SP	4 drives striped across 2 channels with ATTO ExpressPCI-MC U	Category 1 Media 100 xr
JEMS Data	JEMINI-UWS-16	Four 4GB Ultra Wide 7,200 rpm drives in single enclosure	Seagate ST34501W (Baracuda)	4 drives striped across 2 channels with ATTO ExpressPCI-MCU	Category 1 Media 100 xr
JEMS Data	JEMINI-UWS-36 JEMINI-UWF-36	Four 9GB Ultra Wide 7,200 rpm drives in single enclosure	Seagate ST19171W (Baracuda) Fujitsu 3091SP	4 drives striped across 2 channels with ATTO ExpressPCI-MCU	Category 1 Media 100 xr
JEMS Data	JEMINI-UWS-18	Two 9GB Ultra Wide 7,200 rpm drives in single enclosure	Seagate ST19171W (Baracuda)	2 drives striped across 2 channels with ATTO ExpressPCI-MCU	Category 2 Media 100 xs
JEMS Data	JEMINI-UWS-08	Two 4GB Ultra Wide 7,200 rpm drives in single enclosure	Seagate ST34501W (Baracuda)	2 drives striped across 2 channels with ATTO ExpressPCI-MCU	Category 2 Media 100 xs
JEMS Data	Jemini Voyager 24	Six 4GB Ultra Wide 7,200 rpm drives in a split bus tower	Seagate ST 34501W	6 drives striped across 2 channels with ATTO ExpressPCI-MCU	Category 1 Media 100 xr

JEMS Data	Jemini Voyager 27	Three 9GB Ultra Wide 10,000 rpm drives on a single bus	Seagate ST19101W	3 drives striped across 1 channel with ATTO Express PCI-SC	Category 2 Media 100 xs
JEMS Data	Jemini Jaguar 4	Four 9GB Ultra 2 7,200 rpm drives on a single lvd bus	Seagate ST39173LC	4 drives striped across 1 channel with ATTO ExpressPCI -UL2S	Category 1 Media 100 xr
JEMS Data	Jemini Blox	Two 9GB Ultra2 10,000 rpm drives on a single LVD bus	Seagate ST19101LW	2 drives striped together on a single ATTO Express PCI UL2S	Categroy 2 Media 100xs
JEMS Data	Fibre Channel 4 drive array	Four 9GB Fibre channel, 10,000 rpm drives connected point to point	Seagate ST 39102FC	4 drives striped with Anubis Raid	Category 2 Media 100 xs *There is an issue with the HDRfx board preventing Cat 1
JEMS Data	Jemini 3000	Six 9GB Ultra Wide 7,200 rpm drives with a Hardware RAID controller	Seagate ST 19171W	RAID 3 controller	Category 2 Media 100 xs
LaCie, Limited	Speed 2 SSA array	Two 4.5GB SSA 7,200 rpm drives	IBM Scorpian 4.5GB	2 drives striped together on a single loop	Category 3 Media 100 xe
LaCie, Limited	Speed 2 SSA array	Two 9GB SSA 7,200 rpm drives	IBM Scorpian 9GB	2 drives striped together on a single loop	Category 3 Media 100 xe
Megadrive	Enterprise 8 24GB	Six 4GB Ultra Wide 7,200 rpm drives on a split backplane	Seagate ST34501W	6 drives striped across 2 channels	Category 1 Media 100 xr
Megadrive	Enterprise 8 54GB	Six 9GB Ultra Wide 7,200 rpm drives on a split backplane	Seagate ST19171W	6 drives striped across 2 channels	Category 1 Media 100 xr
Megadrive	Enterprise 8 72GB	Eight 9GB Ultra Wide 7,200 rpm drives on a split backplane	Seagate ST19171W	8 drives striped across 2 channels	Category 1 Media 100 xr
Megadrive	Enterprise 8 16GB	Four 4GB Ultra Wide 7,200 rpm drives on a split backplane	Seagate ST34501W	4 drives striped across 2 channels	Category 2 Media 100 xs
Megadrive	Enterprise 2	Two 4GB removables in an two drive chassis	Seagate ST34501W	2 drives striped across 1 channel	Category 3 Media 100 xe
MicroNet Technology	DDW437MC	Four 9GB Ultra Wide 10,000 rpm removable drives in two 2 bay DataDocks	Seagate ST19101W (Cheetah 9GB)	4 drives striped across 2 channels	Category 1 Media 100 xr
MicroNet Technology	DDW236PMC	Two 18GB Ultra Wide 7,200 rpm drives in a 2 bay DataDock	IBM Ultrastar 18XP	2 drives striped on one channel	Category 1 Media 100 xr

MicroNet Technology	DDW218MC	Two 9GB Ultra Wide 7,200 rpm removable drives in a 2 bay DataDock	Seagate ST19171W	2 drives striped across 2 channels	Category 3 Media 100 xe
MicroNet Technology	DDW472PMC	Four 18GB Ultra Wide 7,200rpm drives in two 2 bay Data Docks	IBM Ultrastar 18xp	4 drives striped across 2 channels	Category 1 Media 100 sr
MicroNet Technology	DD7D654MC	Six 9GB Ultra Wide 7,200 rpm removable drives in split bus DD 7000 tower or rack	Seagate ST19171W	6 drives striped across 2 channels	Category 1 Media 100 xr
MicroNet Technology	DD7D655MC	Six 9GB Ultra Wide 10,000 rpm removable drives in split bus DD 7000 tower or rack	Seagate ST19101W (Cheetah 9GB)	6 drives striped across 2 channels	Category 1 Media 100xr
MicroNet Technology	DD7D437MC	Four 9GB Ultra Wide 10,000 rpm removable drives in split bus DD 7000 tower	Seagate ST19101W (Cheetah 9GB)	4 drives striped across 2 channels	Category 1 Media 100 xr
MicroNet Technology	DD7D6108PMC	Six 18GB Ultra Wide 7,200 rpm removable drive in a split bus DD 7000 tower	IBM UltraStar 18	6 drives striped across 2 channels	Category 1 Media 100 xr
MicroNet Technology	DDW436MC	Four 9GB Ultra Wide 7,200 rpm removable drives in two 2 bay DataDocks	Seagate ST19171W	4 drives striped across 2 channels	Category 1 Media 100 xr
MicroNet Technology	DDW219MC	Two 9GB Ultra Wide 10,000 rpm removable drives in a 2 bay DataDock	Seagate ST19101W	2 drives striped across 2 channels	Category 2 Media 100 xs
MountainGate	Stampede™II	8 bay 2x4 rackmount single ended	Seagate ST19171W	6 or 8 drives striped across 2 channels	Category 1 Media 100 xr
MountainGate	Stampede Mini Array	Four bay chassis with split backplane 4GB Ultra Wide 7,200 rpm drives	Seagate ST 34501W	4 drives striped on 1 channel	Category 2 Media 100 xs
MountainGate	Stampede Mini Array	Four bay chassis with split backplane 9GB Ultra Wide 7,200 rpm drives	Seagate ST 19171W	4 dirves striped on 1 channel	Category 2 Media 100 xs
MountainGate	Stampede Mini Array	Four bay chassis with split backplane with two 23GB Ultra Wide 5,400 rpm drives	Seagate ST 423451W	2 drives striped on 1 channel	Category 3 Media 100 xe
nStor	CR8e 72GB	Eight bay Ultra S2S RAID controller subsystem	Seagate ST19101W	8 drives striped across 2 channels	Category 1 Media 100xr
Optima	Diskovery 18000W	Two 9GB Ultra Wide 7,200 rpm drives	Seagate ST 19171W	2 drives striped across 2 channels with Adaptec 3940W	Category 3 Media 100 xe

Optima	Diskovery 8200	Two 4GB Ultra Wide 7.200 rpm drives	Seagate ST 15150W	2 drives striped across 2 channels with Adaptec 3940W	Category 3 Media 100 xe
ProDirect	36GB fixed array	Four 9GB Ultra Wide 10,000 rpm drives	Seagate ST19101W	4 drives striped across 2 channels with Atto PSC-dc	Category 1 Media 100xr
ProMax Systems	CR8e-36071WPU	Four 9GB Ultra Wide 7,200 rpm drives	Seagate ST19171WC	4 drives striped across 2 channels	Category 2 Media 100 xs
ProMax Systems	CR8e-36071WC	Eight 9GB Ultra Wide 7,200 rpm drives	Seagate ST19171WC	8 drives striped across 2 channels	Category 2 Media 100 xs
ProMax Systems	PR4-36071WPU2	Four 9GB Ultra Wide 7,200 rpm drives	Seagate ST19171WC	4 drives striped across 2 channels	Category 2 Media 100 xs
Rorke Data	MaxArray FC	Two to eight 9GB Fibre Channel drives	Seagate ST19171FC	2, 4, 6, or 8 drives striped .	Category 1 Media 100xr
Rorke Data	MaxArray 16C	Four 4GB Ultra Wide 10,000 rpm drives	Seagate ST 34501W	4 drives striped across 2 channels with ATTO ExpressPCI- DC	Category 1 Media 100 xr
Rorke Data	MaxArray 27C	Six 4GB Ultra Wide 10,000 rpm drives	Seagate ST 34501W	6 drives striped across 2 channels with ATTO ExpressPCI- DC	Category 1 Media 100 xr
Rorke Data	MaxArray 36C	Four 9GB Ultra Wide 10,000 rpm drives	Seagate ST 19101W	4 drives striped across 2 channels with ATTO ExpressPCI- DC	Category 1 Media 100 xr
Rorke Data	MaxArray 54C	Six 4GB Ultra Wide 10,000 rpm drives	Seagate ST 19101W	6 drives striped across 2 channels with ATTO ExpressPCI- DC	Category 1 Media 100 xr
Rorke Data	MaxArray 16	Four 4GB Ultra Wide 7,200 rpm drives	Seagate ST 34371W	4 drives striped across 2 channels with ATTO ExpressPCI- DC	Category 1 Media 100 xr
Rorke Data	MaxArray 27	Six 4GB Ultra Wide 17,200 rpm drives	Seagate ST 34371W	6 drives striped across 2 channels with ATTO ExpressPCI- DC	Category 1 Media 100 xr
Rorke Data	MaxArray 36	Four 9GB Ultra Wide 7,200 rpm drives	Seagate ST 19171W	4 drives striped across 2 channels with ATTO ExpressPCI- DC	Category 1 Media 100 xr
Rorke Data	MaxArray 54	Six 9GB Ultra Wide 7,200 rpm drives	Seagate ST 19171W	6 drives striped across 2 channels with ATTO ExpressPCI- DC	Category 1 Media 100 xr

Rorke Data	Max Array 72	Four 18GB Ultra2 7200 rpm drives	Seagate ST118273LW	4 drives striped on a single ATTO Express PCI UL2S	Category 1 Media 100 xr
Rorke Data	Max Array 36	Four 9GB Ultra2 10,000 rpm drives	Seagate ST39173LC	4 drives striped on a single ATTO Express PCI UL2S	Category 1 Media 100 xr
Rorke Data	MaxArray 8	Two 4GB Ultra Wide 7,200 rpm drives	Seagate ST 34371W	2 drives striped across 2 channels with ATTO ExpressPCI- DC	Category 2 Media 100 xs
Rorke Data	FlexArray 16	Four 4GB Ultra Wide 7,200 rpm drives	Seagate ST34371W	4 Drives striped on 1 channel with ATTO ExpressPCI-PSC	Category 3 Media 100 xe
Rorke Data	FlexArray 36	Four 9GB Ultra Wide 7,200 rpm drives	Seagate ST19171W	4 Drives striped on 1 channel with ATTO ExpressPCI-PSC	Category 3 Media 100 xe
Rorke Data	Flex18-FLW Flex18-RLW	Two 9GB Ultra2 7,200 rpm Fixed Two 9GB Ultra2 7,200 rpm Removable	Seagate ST39173LW	2 Drives striped on 1 Channel with ATTO ExpressPCI	Category 2 Media 100 xs
Rorke Data	Max36-FLW Max36-RLW	Four 9GB Ultra2 7,200 rpm Fixed Four 9GB Ultra2 7,200 rpm Removable	Seagate ST39173LW	4 Drives striped on 2 Channel s with ATTO ExpressPCI-dc	Category 1 Media 100 xr
Rorke Data	Flex18-FLW10K Flex18-RLW	Two 9 GB Ultra2 10,000 rpm Fixed Two 9GB Ultra2 10,000 rpm Removable	Seagate ST39102LW	2 Drives striped on 1 Channel with ATTO ExpressPCI-UL2S	Category 1 Media 100 xr
Rorke Data	Flex36-FLW Flex18-RLW	Two 18 GB Ultra wide 7,200 rpm Fixed Two 18GB Ultra wide 7,200 rpm Removable	Seagate ST118273W	2 Drives striped on 1 Channel with ATTO ExpressPCI-UL2S	Category 1 Media 100 xr
Rorke Data	FlexArray 8	Two 4GB Ultra Wide 7,200 rpm drives	Seagate ST 34371W	2 Drives striped on 1 channel with ATTO ExpressPCI-PSC	Category 4 Media 100 lx, le
Sagitta Performance Systems	S9000 SSA	Six 4.5GB SSA 7,200 rpm drives	IBM Scorpian 4.5GB	6 drives striped together on a single loop	Category 1 Media 100 xr
Sagitta Performance Systems	S9000 SSA	Six 9GB SSA 7,200 rpm drives	IBM Scorpian 9GB	6 drives striped together on a single loop	Category 1 Media 100 xr
Sagitta Performance Systems	S9000 SSA	Four 9GB SSA 7,200 rpm drives	IBM Scorpian 9GB	4 drives striped together on a single loop	Category 2 Media 100 xs
Sagitta Performance Systems	S9000 SSA	Four 4.5GB SSA 7,200 rpm drives	IBM Scorpian 4.5GB	4 drives striped together on a single loop	Category 2 Media 100 xs

Sagitta Performance Systems	S1000 SSA	Two 4.5GB SSA 7,200 rpm drives	IBM Scorpian 4.5GB	2 drives striped together on a single loop	Category 3 Media 100 xe
Sagitta Performance Systems	S1000 SSA	Two 9GB SSA 7,200 rpm drives	IBM Scorpian 9GB	2 drives striped together on a single loop	Category 3 Media 100 xe
Sagitta Performance Systems		Six 9GB Ultra Wide 7,200 rpm drives on a dual bus	IBM DDRS39130W	6 drives striped together Raid 0 across two busses	Category 1 Media 100xr
TechExport	Cobra Drive Tower 36GB	Four 9GB Ultra Wide 10,000 rpm drives	Seagate ST19101W	4 drives striped across 2 channels	Category 1 Media 100 xr
Transoft	9GB FC-AL disk array	six to eight 9GB Fibre Channel 7,200 rpm drives	Seagate ST19171FC	6 drives striped together using an Emulex card	Category 1 Media 100 xr
Transoft	9GB FC-AL disk array	Two 9GB Fibre Channel 7,200 rpm drives	Seagate ST19171FC	2 drives striped together using an Emulex card	Category 3 Media 100 xe
Transoft	9GB FC-AL disk array	Four 9GB Fibre Channel 7,200 rpm drives	Seagate ST19171FC	4 drives striped together using an Emulex card	Category 2 Media 100 xs
xistor	dd.400/xi.raid 18GB	Two 9GB Ultra Wide 10,000 rpm drives	Seagate ST19101W	2 drives striped across 2 channels	Category 2 Media 100xs
xistor	dd.400/xi.raid 36GB	Four 9GB Ultra Wide 10,000 rpm drives	Seagate ST19101W	4 drives striped across 2 channels	Category 1 Media 100 xr
xistor	dd.400/xi raid 36GB	Two 18GB Ultra Wide 7,200 rpm drives	IBM Ultrastar 18xp	2 drives striped across 2 channels	Category 1 Media 100xr
xistor	dd.400/xi raid 72 GB	Four 18GB Ultra Wide 7,200 rpm drives	IBM Ultrastar 18xp	4 drives striped across 2 channels	Category 1 Media 100xr

Miscellaneous Peripherals

Graphic Cards					Notes	
	ATI	Apple OEM version	2MB VRAM			R
	ATI	XCLAIM	2MB or 4MB			R
	Diamond MultiMedia	Javelin Video 3400XL	4MB VRAM		Not recommended on 3 slot CPUs	R
	Integrated Micro Solutions	Twin Turbo-128M	4MB VRAM			Works with Acceleration off
	Matrox	MGA Millennium	4MB-8MB VRAM		Not tested with the G3	R
	Number Nine	Imagine 128	4MB or 8MB			R
	Radius	Precision Color 8/1600	2MB or 4MB		Not recommended with G3	NR
	Radius	Thunder			Bad Video frame errors	NR
SCSI/Disk Accelerators						
	ADAPTEC	AHA2940UW	Single Channel	firmware v2.5	Not rec. w/HDRfx	R
	ADAPTEC	AHA3940UW	Multi Channel	firmware v3.0		R
	ADAPTEC	AHA2940U2W	Ultra2 Single channel		currently in testing	IP
	ATTO	ExpressPCI -MCU	Multi Channel			R
	ATTO	ExpressPCI -PSC	Single Channel		Not rec. w/ HDRfx	R
	ATTO	ExpressPCI-DC	Multichannel			R
	ATTO	ExpressPCI-UL2S	Single channel low voltage differential			R
	Hammer Storage	PCI Jackhammer Ultra SE	Single Channel			R
	Hammer Storage	PCI Ultra SCSI JackHammer Diff. PCI Ultra SCSI Jackhammer SE	Dual Channel	firmware version 1.3	Revision B	R
	Pathlight Technologies	StreamLine-PCI	SSA Accelerator			R

RAID Software						
	FWB	Raid Tool Kit	2.06			R
	Trilliun Research	Remus	1.4			R
	CharisMac	Anubis RAID	2.01g		Note: Do not use ver. 1.27	R
	ATTO Technology	ExpressRAID	1.2			R
	MicroNet Technology	Disk Works				NR
Accelerated effects						
	Integrated Computing Engines, Inc.	Green Ice ICEfx	4.0			R
	Videonics	Effetto Pronto			Recommended in G3, still in testing on other models	R
Editing tools						
	Post-Op Video	EZ Keys	Media 100 Keyboard template			R
Backup Subsystems						
	Cybernetics	CY-8000-ASP				R
	Rorke Data	RDD1000-AIT-25W				R

Backup and Tape Subsystems

Tape Backup systems have always been a good idea but the speed of tape mechanisms and the cost have been a big deterrent. Since there have been some improvements in that area and we have been receiving questions, I would like to go over the some products that we have looked at recently. Because of the increased speed and flexibility, these products can be a great investment and used for off-line storage.

The Cybernetics CY-8000-ASP is a very flexible dual AIT drive. From the front panel you can select various operation modes. It is capable of striping two AIT tapes for faster backups. It allows mirroring so that you have two copies of your backup if you want to archive or store one off site. It can be set to cascade mode so when one tape is full it automatically continues the backup on the second tape so you do not have to be available to swap tapes. It will also work in independent mode as two separate tape drives and there is also an off-line mode which will allow you to make duplicate tapes for off-site storage of data exchange.

Work Group and Video Server Solutions

The technology is advancing quickly and we are investigating several networking options. There are many different configurations and our tests will be ongoing. The following Workgroup Solutions have been tested or are in use at various customer sites. We will be providing more information as we test different configurations. With all of the workgroup solutions, it is important to first design your work flow and how the storage will be shared. We have found that it is best to have separate arrays dedicated to stations that do very heavy access work like the digitizing station for example. Keep in mind that if you have several stations accessing the same drives you will experience dropped frames.

Company	Product	Type	Configuration	Capacity	Status
ATTO Technology	AccelNet	Differential SCSI Hub	SCSI 3 differential accelerator cards to one Single ended Fast wide SCSI chain	2-3 users	Recommended 150KB NTSC / 180KB PAL
ATTO Technology	AccelNet Ultra	Differential Ultra SCSI Hub to Single ended (4) Barracuda drives	4-8 ultra SCSI drives	3-4 users	Recommended
Jems	SSA workgroup server	Pathlight SSA controller with ImageNet software	8, 4GB SSA drives	3-4 users	Recommended
Mercury Computer Systems	MDVS Mercury digital Video Server	Video server with ethernet hub and choice of Ultra SCSI, SSA or FC-AL drive technology	Ultra SCSI Raid 7	3-4 users	Recommended
MountainGate	Centravision	Fibre Channel	72GB Fibre Channel	3-4 users	*Recommended
Pathlight Technology	ImageNet	Pathlight SSA controller with ImageNet software	SSA with Xryatex tower 8, 4GB drives	7-8 users (not at 300KB)	Recommended
Rorke Data	StudioNet FC	Fibre Channel	72GB	8 users	Recommended
Transoft	StudioBOSS-FC	Fibre Channel	72GB	3-4 users	*Recommended
Transoft	StudioBOSS-SC (SCSINet)	SCSI 3 differential	8 drives	2-3 users	Data rates under 150KB NTSC/180KB PAL - no real-time

Please be aware that this is still an evolving technology. There are some known issues and limitations that are currently being worked on. It is important that you work closely with your network provider and reseller to configure a workgroup solution that will best suit your needs and to provide you with ongoing support.

Many drive vendors have been working very hard to make Fibre Channel solutions a reality and work around some of the problems that we have seen in the past. A lot of progress has been made in the past few months and I expect it to become even more stable in near future. It is still extremely important to work closely with the Vendor to make sure that the system is configured to meet your needs.

* - Recommended based on Media 100 customer installation

Third Party Peripheral Partners

Company Name	Address	Phone number	Fax Number	Web site
Adaptec	691 S. Milpitas Blvd. Milpitas, CA 95035	408-945-8600	408-957-5602	www.adaptec.com
Andataco	10140 Mesa Rim Road San Diego, CA 92121	800-334-9191 619-453-9191	619-453-9294	www.andataco.com
ATTO Technology, Inc.	40 Hazelwood Dr., #106 Amherst, NY 14228	716-691-1999	716-691-9353	www.attotech.com
AVDigital	1100 East 80th Street Bloomington, MN 55420	800-927-7474	612-851-9889	
CharisMac Engineering, Inc.	66 P&S Ln., Suite D Newcastle, CA 95658	916-885-4420	916-885-1410	
Computech International	525 Northern Blvd., Suite 102 Great Neck, NY 11021	516-487-0101	516-487-5070	under construction
Cybernetics	111 Cybernetics Way Yorktown, VA 23693	757-833-9200	757-833-9290	www.cybernetics.com
Daystar Digital	5556 Atlanta Hwy. Flowery Branch, GA 30542	404-967-2077	404-967-3018	
Diamond Multimedia	2880 Junction Ave. San Jose, CA 95134	408-325-7312	408-325-7070	
Digital Microware	41877 Enterprise Circle North Temecula, CA 92590	909-506-5445	909-506-4330	
Direct Connections	7668 Executive Dr. Eden Prairie, MN 55344	612-937-6283	612-937-6285	
Direct Tech Systems, Inc.	7625 Golden Triangel Dri. Suite R Eden Prairie, MN 55344	800-279-5520	612-942-0430	www.directtech.com
Diverse Logistics Inc.	2862 McGaw Avenue Irvine, CA 92714	714-476-7171	714-476-0633	www.dilog.com
EuroLogic Systems Inc.	201 Great Road Acton, MA 01720	508-266-9224 353-1-2958366	508-266-9228 353-1-2959488	www.eurologic.com
Integrated Computing Engines	460 Totten Pond Road Waltham, MA 02154	617-768-2300		
Integrated Micro Solutions	2085 Hamilton Ave. San Jose, CA 95125	408-369-8282	408-369-0128	www.integratedmicro.com
Iomega Corporation	1821 W. Iomega Way Roy, UT 84067	801-778-4477	801-778-4250	www.iomega.com
JEMS Data Unlimited, Inc.	3 Dundee Park, Unit 202 Andover, MA 01810	800-838-JEMS	508-749-9932	www.jemsdata.com
LaCie Limited	22985 NW Evergreen Parkway Hillsboro, OR 97124	503-844-4500	503-844-4501	www.lacie.com

Matrox Graphics, Inc.	1025, boul, Saint-Regis Dorval, Quebec Canada H9P 2T4	514-969-6320	514-969-6363	
Mercury Computer Systems	199 Riverneck Road Chelmsford, MA 01824	508-256-1300	508-256-3599	www.mc.com
MegaDrive Systems, Inc.	9201 Oakdale Ave. Chatsworth, CA 91311	818-700-4600	818-700-7611	www.megadrive.com
MicroNet Technology, Inc.	80 Technology Irvine, CA 92718	714-453-6100	714-453-6101	www.micronet.com
MicroTech International, Inc.	158 Commerce St. East Haven, CT 06512	800-666-9689	203-468-9447	
MountainGate	9393 Gateway Drive Reno, NV 89511	702-851-9393	702-851-5533	www.mountaingate.com
nStor Corp.	450 Technology Park Lake Mary, FL 32746	407-829-3500 800-724-3511	407-829-3633	www.nstor.com
Optima Technology	17526 Von Karman Irvine, CA 92714	714-476-0515	714-476-0613	www.optimatech.com
Pathlight Technology, Inc.	767 Warren Rd. Ithaca, NY 14850	607-266-4000	607-266-4010	www.pathlight.com
Pinnacle Micro	19 Technology Irvine, CA 92718	800-553-7070	714-789-3150	www.pinnaclemicro.com
Power Computing Corp.	2400 South IH 35 Round Rock, TX 78681	512-388-6868	512-388-6799	www.powercc.com
ProMax Technology	16 Technology Dr., #106 Irvine, CA 92718	1-800-XPROMAX	714-727-3546	www.scsidisk.com
Rorke Data	9700 West 76th St. Eden Prairie, MN 55344	800-328-8147	612-829-0988	www.rorke.com
Sagitta Performance Systems	Mail Point 26/20, P.O. Box 6 Langstone Road, Havant PO9 1SA	Tel: +44 (0) 1705 498851	Fax +44 (0) 1705 498853	www.sagitta-ps.com
Hammer Storage	7015 Gateway Blvd. Newark, CA 94560	510-608-4000	510-608-4010	www.hammerstorage.com
Techexport	One North Avenue Burlington, MA 01803	781-229-6900	781-229-7706	www.techexport.com
Trillium Research, Inc.	220 Locust St. Hudson, WI 54016	715-381-1900	715-381-1901	
Transoft Technology Corp.	425 East Cota St. Santa Barbara, CA 93101	805-897-3350	805-897-3355	www.transoft.net
xistor	1790 Skyline Boulevard Reno, NV 89509	800-xistor1 800-947-8671	702-825-3016	www.xistor.com
Xyratex	PO Box 6, Havant Hampshire P09 1SA, U.K.	614-337-2033	603-642-7808	www.xyratex.com