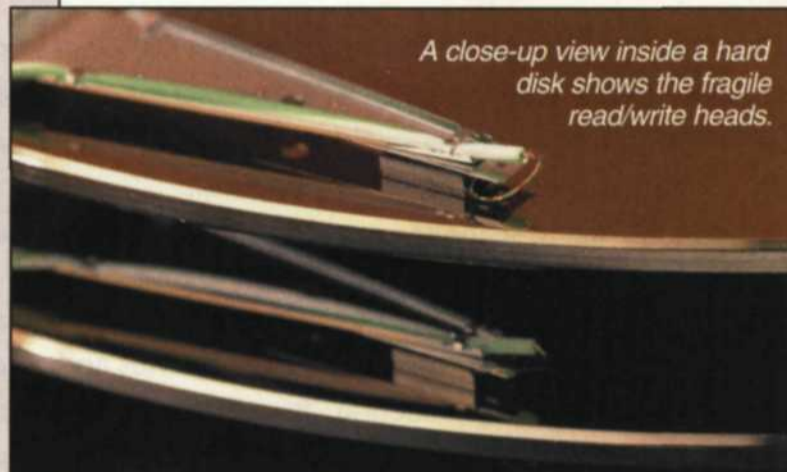


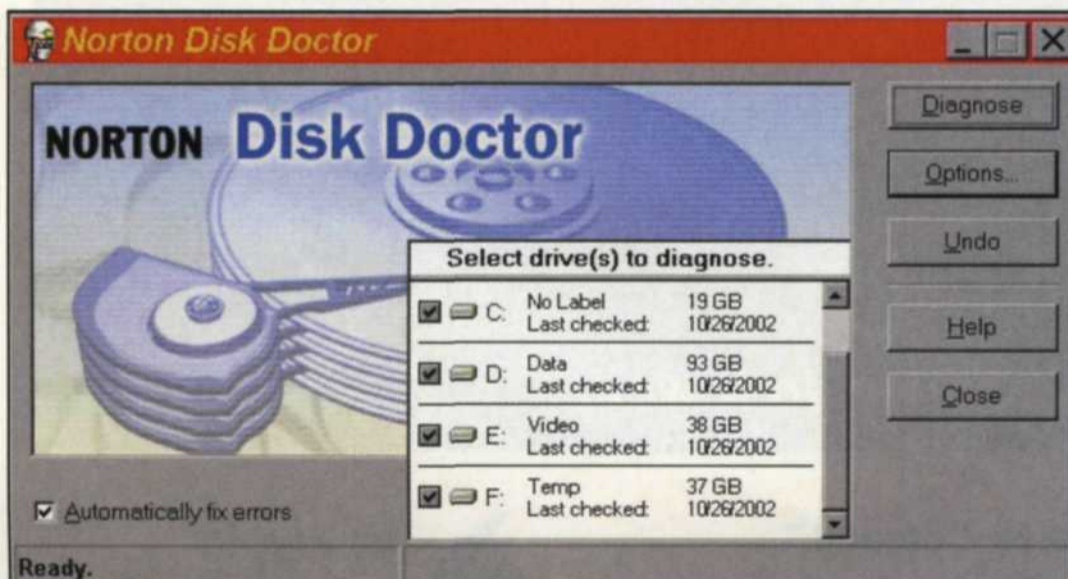
Digital Directions



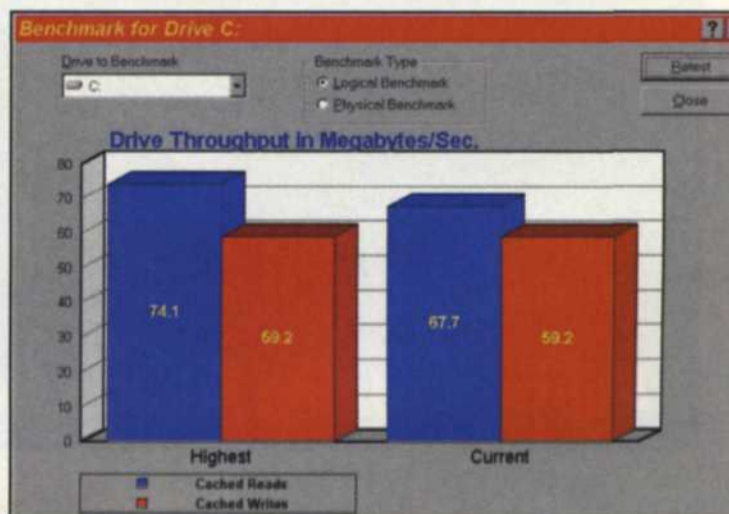
If you're a digital imager, you know all too well that there is a dark side to digital that can make life difficult. The multitude of hardware and software parts in the digital process can fail at any given moment—always, it seems, when there's a tight deadline!

Hard Drive Meltdown: There Are Some Solutions!

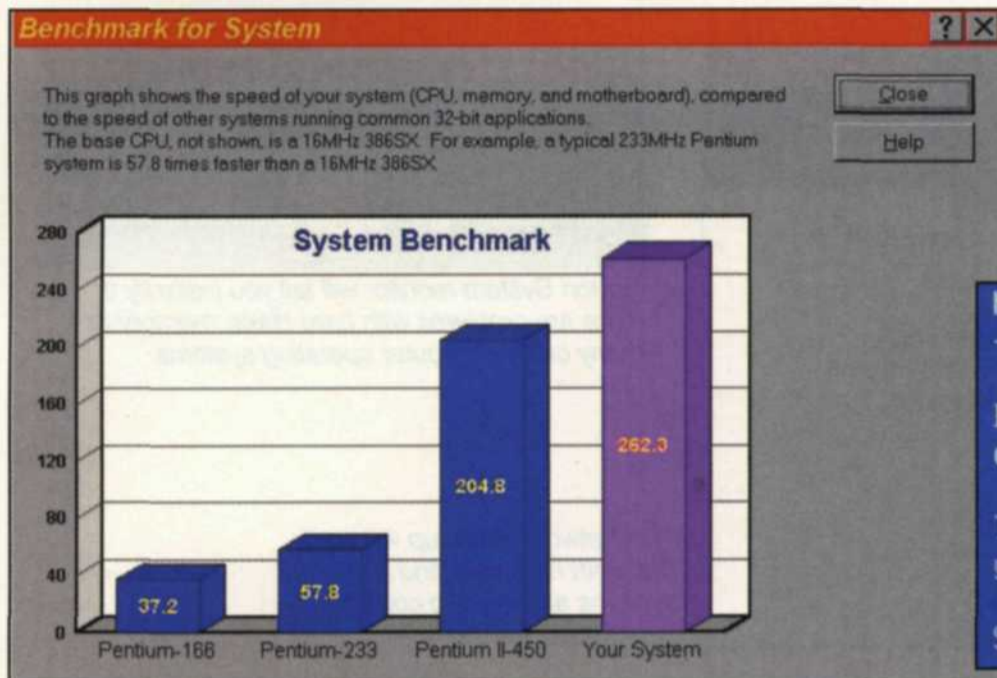
Jack and Sue Drafahl



Norton Disk Doctor can be used as a maintenance program to check the status of a drive, or used to fix problems that occur during an improper shutdown.



Norton System Works can also be used to test the read/write speed of your drive to see if it matches the original specifications.



Norton System Works can also be used to test the read/write speed of your drive to see if it matches the original specifications.

Microsoft Windows Scandisk usually initiates when the computer is shut down improperly. If the problem is severe, it may start from the DOS blue screen. With less severe problems, it will start from inside Windows.

Microsoft ScanDisk

Because Windows was not properly shut down, one or more of your disk drives may have errors on it.

To avoid seeing this message again, always shut down your computer by selecting Shut Down from the Start menu.

ScanDisk is now checking drive C for errors:

DOWN TIME IN a digital lab can be costly. Hoping that computer problems will never appear in your digital lab is unrealistic. So let's take a close look at some of the problems and provide possible solutions to keep your digital lab running smoothly.

Loss of Data: Hard Disk Hell

A common occurrence in any lab that uses the computer systems regularly is system error. Failures usually occur at the most inopportune times, such as during peak

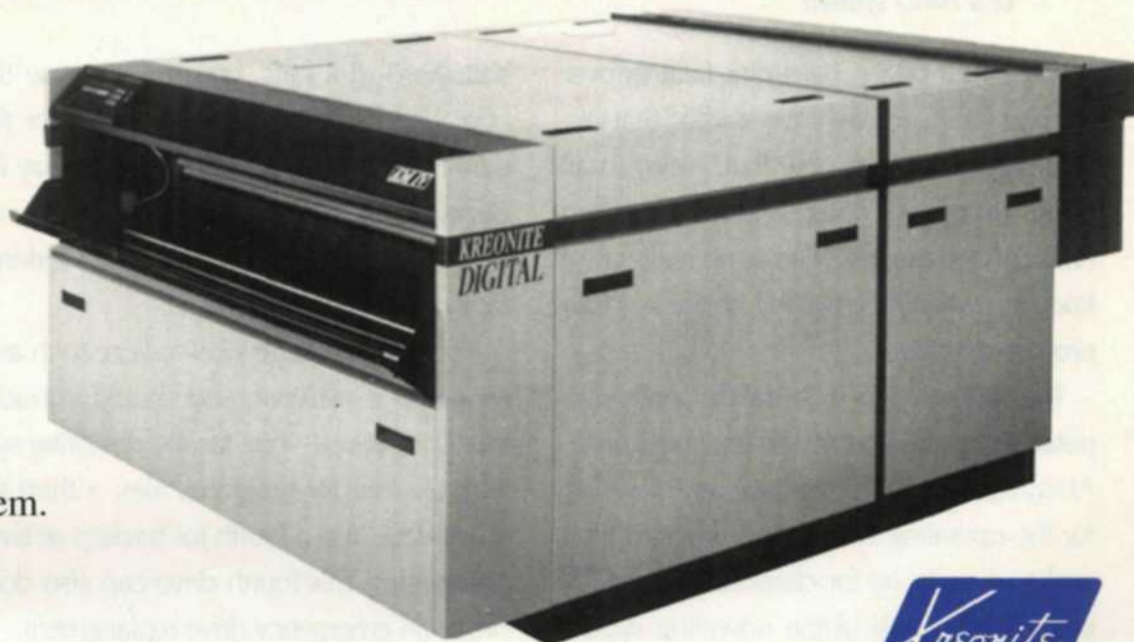
storage of data, or when you are on a very tight deadline. You run the risk of losing everything when a failure appears, or at the least, you are looking at a full day of down time.

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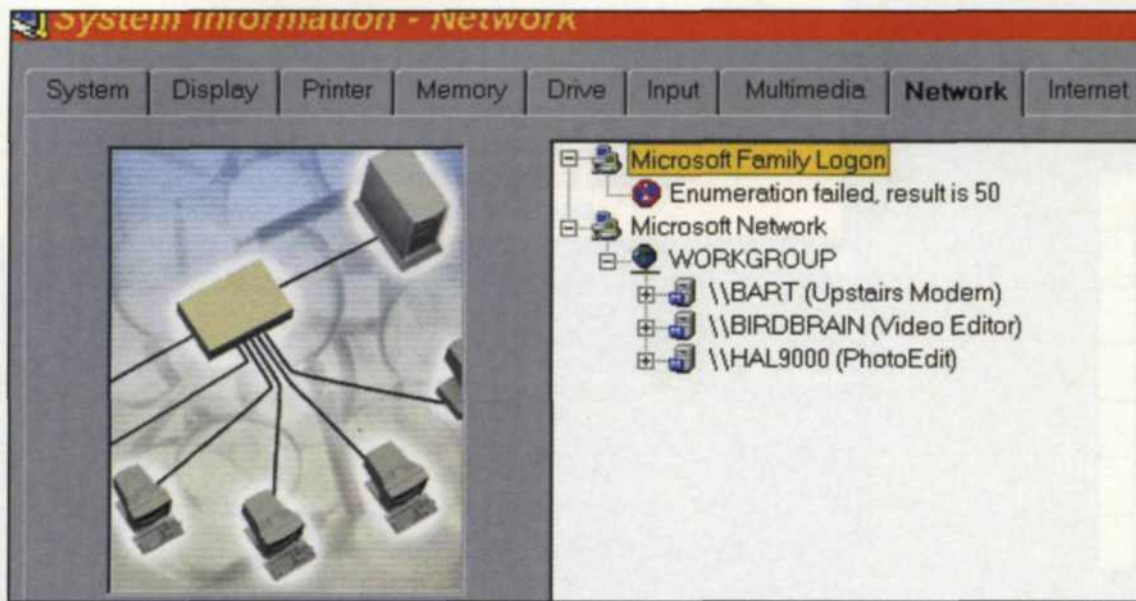
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Hard Drive Meltdown



Norton System monitor will tell you instantly if there are problems with hard disks, memory or many of the computer operating systems.

The Network Checkup will verify that both hardware and software systems are working correctly in your network system.



A removable drive bay is used to move a data drive quickly from one computer to another. The drive can be controlled from an IDE motherboard cable, or as part of a RAID system.

more than a dozen hard disk failures over the past five years, we have learned that failures can occur with new hard disks, small ones, expensive ones, and every brand name on the market. There is no real way of knowing when they will fail, so the key is to prepare for failure.

The first solution is to divide your computer system down into multiple hard disks. At minimum you should have one hard disk for the operating system and program files, and a second one for client data storage. If you have a crash of the operating system hard disk, you can recover the data in several ways. You can move the data hard disk to another workstation, or just wait until your operating system is back on line. If the

data hard disk fails, you still can use the operating hard disk to try and recover the data files. We use a hot swap drive bay for our data disk so that we can easily move it to another computer and keep on working, thus minimizing down time.

If you have a large workstation, such as a server on a network, you should consider four hard drives—one for the operating system, another for programs files, a third for client data, and a fourth for backup or temporary files. This fourth drive can also double as an emergency drive replacement.

This is the system we use for our server and it works extremely well. At the end of each day or at the end of a large job, we use a file synchronizer to update an exact copy

of the data disk onto the backup drive. The updating process takes just minutes to write the new files, and gives you confidence in the system.

We also constantly use hard disk maintenance programs like Norton Disk Doctor to check the status of all hard disks on our system. A random error on a hard disk can usually be fixed with minimal effort, but repeated errors usually indicate a pending hard disk failure.

Another solution to minimize loss of data, is with the use of a Redundant Array of Independent Drives (RAID). This is where you have identical hard drives linked together to mirror each other. The data is saved to both drive systems so that if either one fails, you can easily recover the data. Even this system has a weak link. If the RAID board itself fails, you lose access to both sets of data until you replace the board. We had this happen in our lab, and fortunately we had a duplicate RAID board that allowed us to quickly recover the data.

When you do have a complete hard disk failure, make sure that the unit has truly failed and data recovery is impossible before you do anything to the system. Log on to your drive manufacturer's technical support page, and see if they have any solutions. You are probably not the first one to have this failure, so often these companies have special data recovery programs to help you recover lost data.

If you stand to lose critical data and all rescue resources have been exhausted, then

you might consider a hard disk data recovery service. Check your yellow pages or the Web by doing a search for "hard disk failure." Many have extremely detailed trouble shooting guides to help determine if you can save the hard disk yourself or require the services of their company.

If your hard disk is toast, don't heave it into the trash, although that is your first thought. Instead, grab your serial number and log onto the Web and check the status of your warranty. Most hard disk warranties are from one to three years. In the last five years in our digital darkroom, 11 of the 12 hard disk failures were covered with a full replacement warranty. Since this replacement takes a couple of weeks, we always keep an extra hard disk on hand just in case.

System failures usually boldly announce themselves with words like "operating system not found," "system failure," "hard disk failure," or "unrecoverable system error" etched across your computer screen. You may also find yourself facing a blue screen, no screen at all, or one frozen in time. These failures can occur for a variety of reasons, the most common being improper shut-downs, the installation of new hardware or software, hardware failures, or just bad luck.

In the Windows environment, you may be able to navigate in a safe mode and use diagnostic software like Norton Works to help troubleshoot the problem. If your system locks up, carefully and slowly try keyboard strokes that might get you out of the system lockup. In Microsoft Windows, pressing the Ctrl/Alt/Del keys may allow you to see the problem programs and shut the computer down for rebooting. Under no circumstances should you run your hand across the keyboard in frustration as this can cause disastrous results. Again, we speak from experience.

If you have to physically turn the power off to reboot your system, make sure you wait at least 30 seconds before you restart. If you don't, the CMOS on the motherboard may reset to the default settings, losing valuable information about the system's installed hardware. On a recent system failure we restarted too soon, and then received an

"operating system not found" error. Luckily the fix was simple—we found the CMOS settings had changed the data drive settings. We simply changed them back and the system was back on line.

Before you install a new program or hardware, we recommend that you do an updated backup of your computer system.

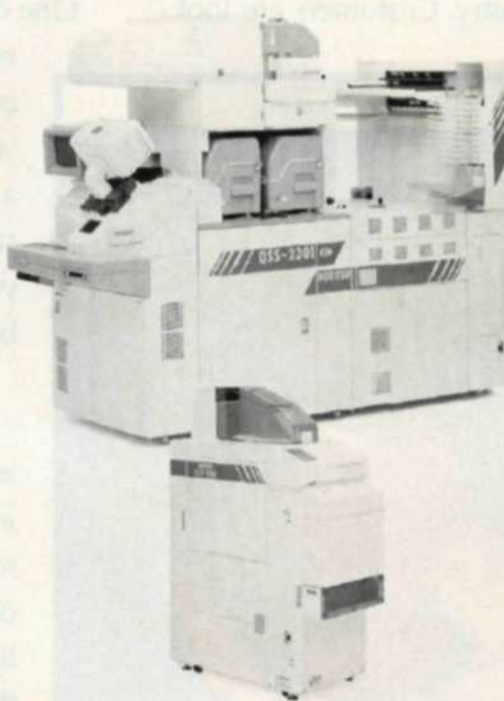
This way you can easily restore it if you encounter problems with the install. There are a variety of third party backup systems on the market that will make a backup of your entire system, and update it on a regular basis.

We have tried both the "restore" and
(Continued on page 39)

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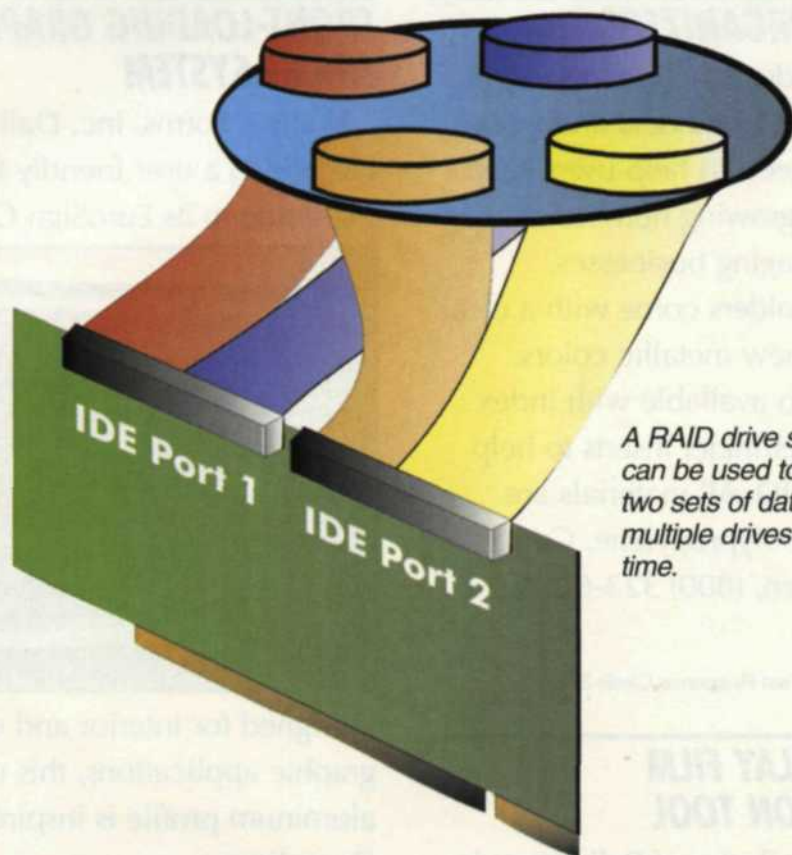
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Hard Drive Meltdown

(Continued from page 25)



A RAID drive system can be used to send two sets of data to multiple drives in real time.

"backup" programs in Microsoft Windows, and found the "backup" program to be more reliable. It recovered 90% of the system problems while only 10% of our failures were restored using the "restore" command.

When you make backups of your computer system, be sure not to store the backup file on the same hard disk, or it may become as useless as the system it was designed to save. We use a DVD recorder on all our main workstations to write backup files to the 4.7 gigabyte DVD disks for less than 75 cents. We don't use the rewritable versions as we feel more secure with our data on a one write system.

Preventive maintenance is your best method for preventing disasters. Be sure to have an individual in your employ who is computer savvy. It is money ahead to keep that technician educated in minor computer hardware and software repair. Be sure you allow some down time each week for your workstations to be routinely maintained. Usually an hour of downtime per week will keep them working at peak efficiency. As prices keep dropping on computer systems, you may find that it may be cheaper to replace a problem workstation than to be continually repairing it.

Make sure that all systems are turned on for a couple of hours each week, even if you don't need to use them. Many system failures occur when an out-of-the-way workstation sits idle for too long.

As you keep adding workstations, you should consider keeping an older workstation as a backup system. Keep it on the network so that you can transfer working files over to the older system while the newer system is being serviced. When the main system is back on line, you can easily update the files using a file synchronizer.

Author's postscript: A couple of weeks after we had submitted this article for publication, we updated our Norton Works program to the 2003 version. Included with it was the Roxio GoBack 3 program, which works much like the Microsoft restore program, but is more aggressive.

We tested it on several workstations, and found it to work flawlessly in restoring crashes due to hardware and software installation, and overall system failures. The program works in the background when you are not working, and can restore both program and data files lost in a crash. Definitely worth taking a look at. ●

Jack and Sue Drafaehl are freelance writers and professional photographers living on the Oregon Coast.

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