



PC SHOWDOWN
We rate and review 9 rigs from renegade vendors

3D SPLENDOR
Aquanox & Ballistics: Prettiest games ever?

2.2GHz P4
We lab-test Intel's new, improved CPU



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FEBRUARY 2002

HEAL YOUR PC!

38 utilities and tools to wipe out all your PC woes



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FIX YOUR CRASHES, STALLS AND CONFLICTS — NOW

HEAL

YOUR

PC!

***18 utilities to help you
diagnose and fix your PC's
most debilitating ailments.***

BY ROBERT LUHN

The PC is like a junkie—always needing another fix. Blame it on the OS, blame it on the BIOS, blame it on Rio, but your typical PC has more breakdowns than Mariah Carey and the Santa Monica freeway combined. Windows takes a left turn into a tree; your modem suddenly starts babbling about checksum errors; you pop a disc into your RW drive and it responds, *Say what?*

If you often encounter these digital snafus, you may be asking yourself, What's wrong?

What can I fix? What should I shove into the nearest landfill? What's that stain on my pants?

Seek no further, for the answers lie herein. Well, if not the answers, at least the programs that should help you find the answers. We've assembled a medicine chest full of the roughest, toughest, probingest—and sometimes wackiest—diagnostic and repair programs on the planet. We're talking about programs that go where *Norton Utilities* sometimes fears to tread. One major plus: Almost all of these software tools are

available as downloadable shareware or nearly fully functional demos, so you can try before you buy.

Have fun in candyland, and don't forget to turn to page 36 for a peak inside our hardware trauma kit.

Continued on page 28

MPCPA
MAXIMUM PC POWER-USER
ASSOCIATION APPROVED

AS WITH ALL POWERFUL MEDICINES,
USE ONLY AS DIRECTED. ALWAYS BACK
UP ALL IMPORTANT DOCUMENTS
BEFORE INSTALLATION.

Continued from page 26

Beyond Norton

Most of these programs are aimed at unearthing information about your PC and peripherals, testing your hardware, offering advice, and in some cases, actually fixing problems. While we didn't focus on speed-up, turbocharging, or über-tweaking programs (those were the focus of our October issue cover story), a few are included in this article because they also perform killer diagnostics before they goose your PC.

Now before you put on your scrubs and begin an invasive PC biopsy, please consider:

- Some of these utilities are hard to configure, hard to run, and lack documentation. In many cases, you'll be leaving the cozy confines of Windows and entering DOSville, where text is green and "07D8:0028" is just another way of saying "keyboard." If you speak Hex, you'll be in your element.

- Many of these utilities crashed our test PCs more than once. Like benchmark tools, they're designed to push your PC to the max, and sometimes your PC will falter. Your angst may vary, depending on what Windows version, BIOS, and etceteras you're stuck with. Always back up your data and Registry before you run any kind of diagnostic or repair tool.

- Some of these tools are from small-time developers. So follow our advice: When playing with "boutique" software, scan *everything* you download off the net with an up-to-date antivirus program.

- Some diagnostic results may be difficult to interpret. Have an engineer pal on call and specialized tech dictionaries bookmarked if you're afraid of winging it.

- Expect minimal tech support. With a *Symantec*-caliber utility, you get comprehensive help, but with many of the util-

ities in this article, you may get little or no hand-holding.

Second and Third Opinions

Before you ask your PC to turn its head and cough, you might ask, How useful are diagnostic and repair tools anyway? For an answer, we turned to hardware gurus Jim Aspinwall and Stephen Bigelow, who have respectively penned such coffee table favorites as *IRQ, DMA, & I/O and Troubleshooting, Maintaining, and Repairing PCs*. These are guys who have solder burns on their fingers and can field-strip a PC in the dark.

Aspinwall says that before using a diagnostic utility, you should first rely on information provided by the PC itself. "If the PC won't boot," he says, "the beep codes will tell you if you have bad RAM, a bad CPU, or a bad system board."

But if you need more info, both say you should forget about petitioning Windows for help and instead turn to diagnostic tools like the ones described in this article. "Using Windows to troubleshoot hardware is a fool's errand, because just about everything has to be working for Windows to boot in the first place," says Bigelow. "You need an OS-independent diagnostic like *TuffTest* that's self-booting."

Bigelow admits that it's hard to tell if a diagnostic is cadging answers from Windows or querying the hardware directly, as it should. To get the real deal, he says, look for diagnostics that are designed to check specific hardware. The best diagnostics will also be self-booting or OS independent. "A real hardware diag that gets into a drive's sectors and performs specific functions can be quite efficient," says Bigelow. "A cosmetic tool that just asks Windows, then pukes out the answer in a pretty dialog is worthless."

For very specific diggin' and fixin', don't forget the utilities that came with your hardware or are on the hardware vendor's web

OUR THREE PC GUINEA PIGS

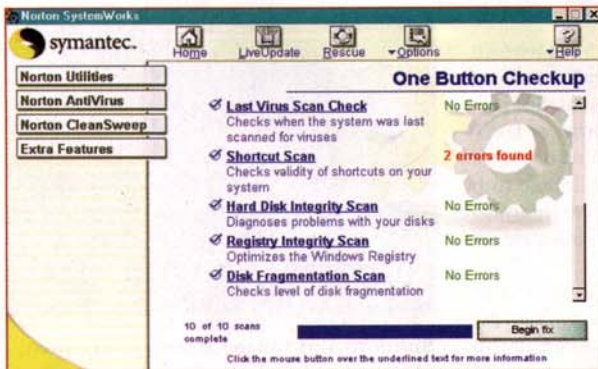
We used three PCs to test all the utilities in this article. One was a spanking-new Dell Dimension 8100 with a 1.3GHz P4, a 60GB hard drive, and 128MB of RAM, running WinME. But the real beasts of burden were two Frankenstein PCs that've been upgraded as often as Pamela Lee.

The first was a once-hot Gateway box that boasts a 150MHz MMX Pentium. Yowza! This machine runs Win98, 32MB of RAM, and a 2GB hard drive. Hooked to the brute is what's affectionately called "The SCSI Chain Of Hell"—an external CD-ROM drive, a CD-RW drive, a Fujitsu MO drive, and a

scanner, all spanning everything from SCSI I to SCSI Wide/Fat/Mondo III. We figured all of this madness would be enough to turn the toughest diagnostic into a puddle of goo.

The other PC was a 200MHz Pentium Pro/Win98 system with 96MB of RAM and a mix of modern devices (a 60GB Maxtor hard drive) and older ones (a 2MB videocard!). This system has known problems—a flaky floppy drive, RW read problems, and occasionally unexplainable crashes.

No, you may not see these PCs. Their ward has been quarantined.



One of SystemWorks 2002's improvements is a one-button checkup.

site. If your hard drive is flipping out, the manufacturer may have a diagnostic/repair tool custom-fit for the job. Just remember: *Don't* run these tools on other products in the vendor's line or other vendors' products. If you do, you might turn your PC into desk pizza.

Finally, don't forget to download upgrades, patches, service packs, flash ROM updates, and so on. These often plug massive security holes, fix bugs, and add diagnostic/repair tools to your system.



DIAGNOSTIC & REPAIR SUITES

The following suites are Swiss Army knives for the PC. All evaluate your hardware and sometimes your OS as well. Some can repair problems; others toss in appealing extras such as fax programs. They don't dig as deep as the specialized tools reviewed later in this article, but they're a good place to start if your PC is on the fritz.

Norton SystemWorks 2002 Professional

A utility suite is kind of like a station wagon: It's not very fast or stylish, but it gets you where you need to go. Usually, *Norton SystemWorks* is the General Motors of the breed—it does a lot of things pretty well, and it's backed by a hefty service and support team. We're talking 24/7 phone help, a web site packed with knowledge bases, FAQs, downloads, and a well-regarded virus research center. It's the biggest name in utility suites, so we'd be remiss in our doctoring duties if we didn't include it in this roundup.

But alas, there's a special hell reserved for *Norton* users if things go terribly awry during installation. On our 1.3GHz Dell patient, *SystemWorks* crashed and burned, upchucked internal errors, and wouldn't uninstall. It took five hours of ripping out Registry entries to undo the damage. Yet installation on our 200MHz

PC went without a hiccup.

The good news is that for all your efforts, you get a suite of rock-solid tools, notably Disk Doctor (for file repair), Windows Doctor (for undoing knots in Windows' hoop skirts), and Speed Disk (a defragger). New to the suite are a lite version of Roxio's *GoBack 3* (which can rollback Windows to a previous state), an applet that can list all active processes (such as DLLs), and a One Button checkup of your Registry, program integrity, virus status, and free space.

If you don't have an all-in-one suite—and you don't need in-depth system information, refined diagnostics, or specialized help—*Norton's* the package to buy. *Supports: Win98, ME, NT 4, 2000 Professional, XP; \$100; www.symantec.com*

PC-Doctor Service Center 2000 2.3

PC-Doctor kicks ass when it comes to analysis. It's also smartly programmed. This Windows/DOS duo is logically laid out, runs quickly, comes with competent, hyperlinked PDF documentation, and includes five loopback plugs (special port attachments that let the program compare transmitted and returned signals for errors.) Then again, the package also costs (ouch) \$500.

The Windows version of the suite sometimes digs deep and other times barely turns the soil. It records only your current video mode, not all the possible ranges of your videocard. The data it provides on your CD-ROM or CD-RW drives is cursory, but the readout on plug-and-play devices, DMA channels, and such is huge. Its hardware testing capabilities are uneven. For example, it beats up your CPU's registers, cache, and such, but elsewhere it simply provides notes like "Video Memory – PASSED." The program also crashed until we disabled its MMX tests, and it was unable to find some of our CD-ROM and RW drives.

Compared to the Windows version, *PC-Doctor* for DOS is the real deal. Boot off the floppy and you're greeted with a simple text menu. You can run prefab quick and normal tests, grab system info in one shot (and save it to a file), or put your PC through an endless test loop to ferret out problems. And, rest assured, the program ferrets indeed. It was

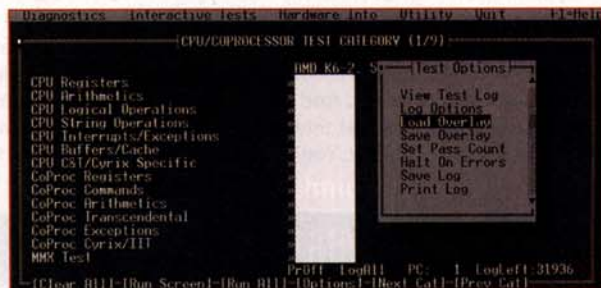
one of the few diagnostics to determine videocard brands and flag specific CD-ROM problems. It also never crashed—a testament to solid programming. Extras you *don't* get in the Windows version include audio tests, a memory debugger, a CMOS editor, and an app that drains your laptop battery. If you can afford the toll—and if you have a capable repair utility—*PC-Doctor* is one diagnostic suite to have on hand. *Supports: 386 or later CPUs, DOS 3.30 and later, Windows 95, 98, ME, NT, 2000; \$500 (\$125 for up to three software updates per year); www.pc-doctorstore.com*

TuffTest-Pro v.3.52F

TuffTest is like a pug—tough and simple, with a tendency to chew on things.

A single executable creates a bootable floppy with all the necessary fixins. Reboot and you get a barebones text interface run with F-keys. You can't save test results to a file or view pretty graphics, but *TuffTest* does examine and torture-test memory, hard and floppy drives, serial and parallel interfaces, your motherboard, keyboard, and a dab of video (up to VGA). That's it—but isn't that enough?

Analysis ranges from modest (you never learn your motherboard BIOS version, for example) to fairly detailed (such as a probe of specific track ranges on disk drives). There's outdated stuff, too, like a destructive media analysis and repair test, which has been passé



PC-Doctor for DOS lets you pick exactly the tests and subtests to run—right down to which CPU registers to probe.

since *SpinRite* pioneered nondestructive, low-level testing years ago.

If you want a lean, affordable, OS-free test program, *TuffTest* is it. But use it in conjunction with a larger suite—something *TuffTest's* developers likewise suggest. *Supports: 8088 through P4 CPUs and compatible processors; \$30 (plus \$30 for three loopback plugs); www.tufftest.com*

QuickTech Personal

This one could serve as a model for all PC diagnostic tools—fast, small, OS-independent,

| CPU Test | | | |
|------------------------------------|---------|------|------|
| Processor : Pentium 4, 1000.00 MHz | | | |
| Co-Processor : (Internal) | | | |
| Level 1 : 32 KB Code + 8 KB Data | | | |
| Level 2 : 256 KB | | | |
| Bus Types : ISA, PCI, USB, IDE | | | |
| Test Mode | Current | Pass | Fail |
| Protected Mode Instructions | Passed | 1 | |
| Stack Manipulation | Passed | 1 | |
| Flag Conditions | Passed | 1 | |
| Arithmetic Instructions | Passed | 1 | |
| Data Transfer Control | Passed | 1 | |
| Control Status | Passed | 1 | |
| Processor Control | Passed | 1 | |
| String Operations | Passed | 1 | |
| IA-32 Instructions | Passed | 1 | |
| Intel IA-32 Instructions | Passed | 1 | |
| AMD 3DNow! Instructions | Skipped | | |
| Internet Streaming SIMD | Skipped | | |

Press any key to stop test

Yo, P4. What up? How ya doin'? *QuickTech Personal* will tease out the details, tap your hardware in every sensitive spot, and report what passes and what fails.

easy to run, and quick to provide detailed and useful output. There's no installation with *QuickTech Personal*. Just pop in the floppy, boot up, and go to town. *QuickTech* sports a lean, logical text menu system that's easy to navigate.

All in all, *QuickTech* is deep, complete, and accurate. It's also one of the few diagnostic tools in this roundup to properly identify Level 1 cache size, the keyboard controller, videocard and motherboard makers, mobo BIOS version, CPU socket type, a ton of details about the CPU (even voltage), what UltraDMA and PIO modes your drives support, and other types of far more specialized information.

System tests—of everything from your CPU to the controller chips—are likewise thorough. For example, the CPU test probes everything from protected mode instructions to AMD 3DNow! support. And unlike some utilities, when it hits a test that's irrelevant, it skips it. What a concept. You can also run

all the tests in a batch.

But *QuickTech* isn't perfect. It froze when it tested a CD-RW drive and can send test results only to a printer. Nor does it test USB, joysticks, FireWire ports, soundcards, or DVD-RAM drives. The manual provides useful, if terse, advice. On the flipside, unlimited tech support via fax, e-mail, and a web interface is free and always available; phone support is a toll call.

If you need stronger medicine for your system, pony up for *QuickTech Pro*. You get deeper information gathering (especially on PCMCIA, USB, peripherals, video, and Y2K compliancy), sound and USB testing, and handy CPU, hard disk, floppy, and video benchmarks. If you're a hardcore user or gamer, go with *Pro*. If not, *QuickTech Personal* should do. *Supports: 486 through Pentium 4, AMD, and Cyrix processors (no OS needed); \$150 (personal version), \$400 (pro version); www.uxd.com*

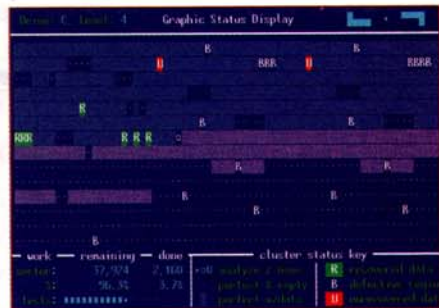


STORAGE: HARD DRIVES

SpinRite 5

SpinRite is the hard disk diagnostic and recovery tool, plain and simple. If this utility can't save your hard disk and files, nothing short of open-platter surgery will raise your dead data. *SpinRite* goes beyond file repair tools like *Norton's Disk Doctor* by scrutinizing every square inch of your disk—essentially writing and reading data gazillions of times to uncover areas that are difficult to read and write. Problem areas are cordoned off, and endangered data is moved to safe areas on your drive.

Like all good diagnostics, *SpinRite* runs off



***SpinRite* scrutinizes every square inch of your hard disk, looking for areas that are failing. This report shows which clusters are OK, which are bad (and cordoned off), and where data has been relocated to.**

a boot floppy. The program runs a series of intense disk-controller diagnostics, followed by a very in-depth, nondestructive disk scan. (In other words, your data isn't trashed.) The initial scan can take all night; subsequent visits are much shorter. You can also interrupt a *SpinRite* session and return to your place later. The tool spits out an array of onscreen reports, from a graphical cluster-by-cluster analysis to a readout of current activity. If you want to preserve your data, *SpinRite* is a must-have. *Supports: IDE, EIDE, SCSI hard drives, Zip and Jaz drives, DOS 2.1 or later, Windows 3.x, 9x/ME \$89; www.grc.com*

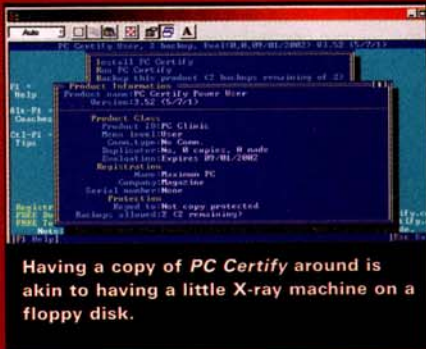
EZ-SMART 5

EZ-SMART is all over your hard disk like Homer on a box of Krispy Kremes. Using the SMART technology built into most hard drives, this utility continually monitors IDE, SCSI, and Ultra ATA drives, and fires off a flare at the

PLAYING DOCTOR WITH PC CERTIFY

If the Swiss Army developed a tool for diagnosing and treating common PC maladies, we think it would look a lot like *PC Certify*. Comprising more than 400 diagnostic tests and utilities, the software fits on a single floppy disk, with room left over for voluminous help files, tutorials, and log files. While you'll still need a decent trauma kit and replacement parts to get a seriously ill PC up and running, *PC Certify* can shave hours of time that might otherwise be spent tediously examining every component in search of the culprit.

PC Certify operates from any pure DOS environment (such as a Safe Mode command prompt; not that DOS-window fakery), and tests can be executed in a batch run or individually, subsystem by sub-



Having a copy of *PC Certify* around is akin to having a little X-ray machine on a floppy disk.

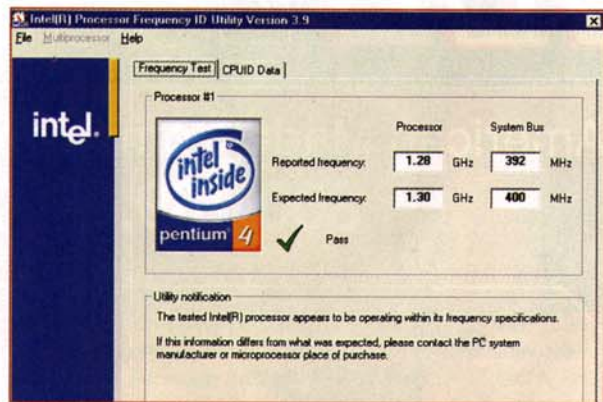
system. Even candystripers will be able to pop in the disk and test hard drives, floppy drives, I/O ports, CPU, and memory for an instantaneous, *Star Trek*-

like diagnoses—all while receiving a basic education on how PCs work (for example, one help file explains how to interpret Hex dumps from crashed programs). Seasoned professionals can trade up to more sophisticated *PC Certify* versions that perform remote diagnostics, back up the Master Boot Record, and place the system under heavy stress for burn-in testing. One of our favorite features backs up CMOS settings, so a battery swap won't force you to re-tweak your BIOS.

Young'uns may find the DOS-based interface a bit jarring to work with, but hey, it's still easier and less awkward than administering a barium enema.

—LOGAN DECKER

Go here for a special deal:
www.pccertify.com/max-pc



What CPU goes there? Intel's CPU-ID frisks your CPU for info on family, speed, and just a bit more.



The great hard disk snoop EZ-SMART constantly watches for failure, and in this screen, can be instructed when and how to warn you.

first sign of trouble. Granted, some PCs will warn you if a SMART drive is failing, but often only after its too late. EZ-SMART, meanwhile, can raise a red flag much earlier, based on your settings. Installation tucks an icon into the Windows Systray. Click and you can tell EZ-SMART when to poll your drive and when to rattle your cage (for example, when free space dips below 10 percent). You can even set it to automatically load a repair or clean-up program. *Supports: Windows 95, 98, ME, NT4, 2000; \$30; www.storagesoft.com*

STORAGE: OPTICAL DRIVES

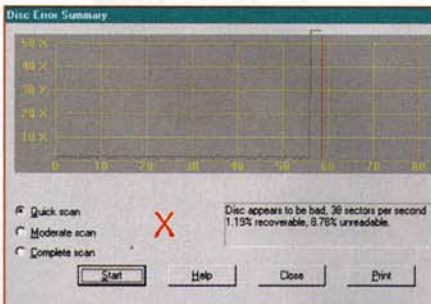
CD-R Inspector 1.2.3

CD-R Inspector pulls back the veil on just about any kind of CD. Better yet, if an RW disc stubbornly refuses access to or won't even show a file, Inspector's advanced snooping tools may be able to get to it. Pop in a disc and Inspector immediately scans it. Click icons on the toolbar to run a battery of tests. There's thorough in-context help in almost every dialog box, explaining what a tool does, what results mean, and more.

So is Inspector worth the \$100? Depends on how much you really need to know about a disc. The program can reveal files and folders normally hidden from Windows view, supply table-of-contents details (type of track, start and end blocks, recording mode), display a readout of your drive hardware (from firmware version to multi-session support), and more. The key diagnostic is the disc error scan—basically a “worst case” scan of potentially unreadable areas of a disc. It flags errors you don't normally see because the drive is correcting them. This is handy information if you're archiving vital data or if you're distributing discs to other people with different kinds of drives (hey, maybe the people who press the Maximum CD should be running this!). All in all, CD-R Inspector earns its keep. Consider it your first line of optical data defense. *Supports: Windows 95, 98, NT, 2000; all CD-ROM and CD-RW drives; \$100; www.cdrom-prod.com/software.html*

CD Data Rescue 1.1

CD-R Inspector covers a lot of bases, but if you need a dedicated CD-ROM, R, or RW resuscitator, CD Data Rescue is your pick. Just be prepared to grapple with a somewhat confusing interface. It's not clear where to start, and the various options aren't very obvious. But if you read the lucid, illustrated help file, you'll figure out the process. Your first step to resuscitation is scanning the disc—always pick the full setting or the program may miss hidden, damaged files. Pick which files/folders to recover, select a destination for the recovered goods, then click the button that matches how badly damaged you think the file is (your choices are Slight, Moderate, Severe, or Extreme). Click Go and



Dead disc spinning! CD-R Inspector's deep disc scan flags errors that haven't caused problems—yet.

the program does its thing—and darn well, too. *Supports: Windows 95, 98, ME, NT, 2000; \$40; www.naltech.com*

CPU

Intel Processor Frequency ID Utility 3.9

Ever buy a PC at the local flea market and wonder if a 1.7GHz chip is really under that Malomarsize fan? Wonder no longer. Whip over to the Intel site and download this appallingly simple utility. Fire it up, and you'll instantly learn how fast that chip and system bus are really cooking, along with such cocktail party chitchat as the size of your L1 Trace Cache in micro-ops. *Note: This tool only works on 533MHz and faster Celerons, 450MHz and faster Mobile Celerons, and P-IIIs and P4s. Free; support.intel.com/support/processors/tools/frequencyid/*

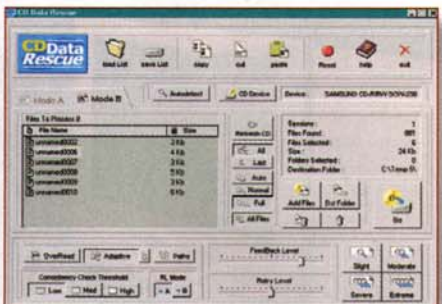
Super Pi 1.1e

Has your CPU gone transcendental? One way to find out is to download this burn-in program used by overclockers of all ages. Super Pi, as the name implies, puts your CPU, memory, and hard disk through the wringer as it calculates the value of Pi out to 33.5 million digits. (Sorry—the world record is somewhere around 200 billions digits.) If you run the program to the end, it can take up to three days—plenty of time to see if your CPU is working correctly and properly cooled under pressure. *Free; www.overclockers.com/tips166/superpi.zip*

MEMORY

DocMemory 1.45a/2.0

The makers of this RAM diagnostic tool exhort you to “Download Now! a \$100 value now



When errors trash your files, you turn to CD Data Rescue. Once files are found, you pick the severity level (slight to extreme) and click Go!

available FREE for only a LimitedTime." We're not sure it's worth a C-note, but as free tools go, it's pretty thorough. Boot off a DOS floppy, and *DocMemory* can run a suite of quick tests, as well as a repeating loop of all the tests, in the memory ranges you pick. The tests are as obscure as you'd expect: Walk 0s, Walk 1s, MATS+, Burst, CheckerBoard, and other patterns designed to see how accurately your RAM stores and reads back information. If bad RAM is found, *DocMemory* beeps and points out the errant chip's address. Shocking: The manual actually tells you how to interpret results and provides troubleshooting tips. Awesome! We appreciate any information that tells us more about how our PCs work. Supports: Windows 95, 98 (1.45a); ME, NT, 2000, XP (2.0); free; www.simmtester.com

RST Pro 1.31

OK, we're cheating here. We thought we'd sneak in a hardware tool, just to show you what they can do. Just be prepared to shell out some serious bucks. Although aimed at technicians, the RAM Stress Pro card is easy to install and use. Turn off your PC, plug the card into a free PCI slot, turn your PC back on, and when the card boots your PC, start picking options from the simple text menu.

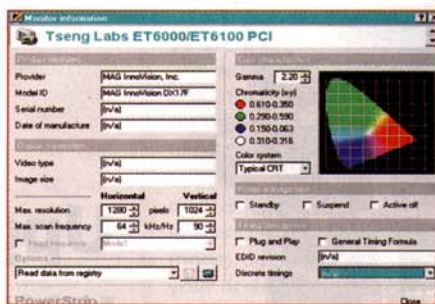
With the push of a cursor key, you can: summon a simple memory map; get details on your RAM's size, speed, manufacturer, module type, and creation date (a good way to confirm you haven't been ripped off); and, of course, run RST's intense memory diagnostic. RST can beat up your cache and up to 64GBs (yes, *gigabytes!*) of system



RST Pro

memory nearly 30 different ways. The card confirms what chipsets your RAM works with, at all relevant speeds, and even simulates different OS access methods to pinpoint potential problems. If an error pops up, RST identifies the address. (Please note you'll need schematics to pinpoint the module and exact chip.)

RST is fast and lets you customize which tests to run, and on which range of memory addresses. You can loop tests, run an unat-



PowerStrip is the über video-tweaking program—but it also reveals a ton about your hardware, such as this readout on a CRT.

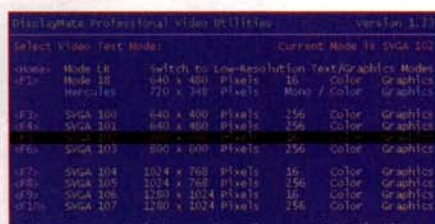
tended burn-in, and benchmark RAM, cache, and CPU. And like any good card, RST Pro is flash-upgradeable. One word of caution: RST Pro can't help a system that won't do a power-on self-test (POST.) For that, you'll need geekier stuff. Supports: all SIMMs, DIMMs, and RIMMs (SDRAM 66-133, DDR 1600-2100, RDRAM 400-800), SRAM, ECC, Parity and Non Parity; \$500; www.uxd.com

VIDEOCARDS AND DISPLAYS

PowerStrip 3.10.228

If you want your monitor to tap dance and change the baby at the same time, *PowerStrip* is your new best friend. This über tweaking tool supports multiple videocards and chipsets, and sports hundreds of video controls. If you're heavy into gaming, video production, graphics, and all things multimedia, *PowerStrip* must be in your medicine chest. But just remember: If you fiddle with the wrong settings (such as timing) or push your monitor beyond its stated specs, it'll probably shut down, and older and cheaper monitors are at risk of even greater damage.

As a diagnostic tool, *PowerStrip* can tell you everything about your videocard (from device ID to AGP configuration) and your CRT (from chromaticity to timing). And, of course, there are tweaking tools galore. You can change the speed of your videocard's core and memory clocks, reclaim system memory, and so on. *PowerStrip* won't boost 2D video performance, but, yes, the program can be used to overclock for faster 3D gaming frame rates. Seek wisdom at www.entechtaiwan.com/faq.htm before going



DisplayMate is the video diagnostic that knows all. Once you pick, say, the video mode to test, DisplayMate will drag you through dozens of interactive screens.

wild. Supports: Windows 95 through XP; \$30; www.entechtaiwan.com

DisplayMate Professional for DOS 1.23

DisplayMate isn't a load-and-walk-away kind of diagnostic. You interact with the program at every step as it tests how well your CRT or LCD tosses stuff onscreen. At *Maximum PC*, we use its "Obstacle Course" for all monitor reviews.

As you'd expect, this is a DOS kind of program run from text menus and F-keys. But it's logically organized, and *DisplayMate* takes you through a retina-boggling retinue of tests, by category, with the press of a key. Each screen tells you what the test does, what results are acceptable, and how to adjust your monitor if they're not. The 370-page manual is a college course on display technology basics.

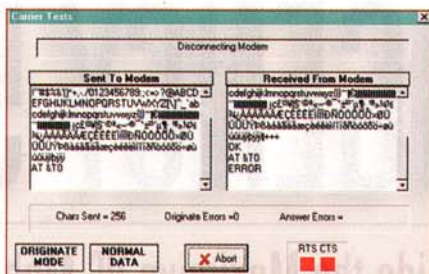
So what does *DisplayMate* test? What *doesn't* it test? Once you manually adjust brightness, contrast, and color (under the program's direction), it whips you through tests of color palettes, text, reverse video, intensity, color fading, sharpness, centering, flicker, moiré patterns, and more, all in a zillion different resolutions and modes. You naturally get a massive readout on your video hardware's specs. Bottom line: If you're a video jock, *DisplayMate Professional for DOS* is a must-have. Supports: DOS 2.0 or later; Windows 3.x, 9x, ME, NT, 2000, XP (in DOS emulation mode); \$250; www.displaymate.com

MODEMS

Modem Doctor for Windows 2.0.0.21

Is your dial-up modem dazed and confused? Yorking up stray bytes? *Modem Doctor* has the cure. The utility probes your modem's setup and tests its reliability (indeed, it found errors with our test unit). To work its magic, the software pummels your modem with AT commands, peeks into your S registers to uncover the modem's settings, checks fax and voice options, and much, much more. It can

even flag a dying serial cable. Wonder what the warning "Modem does not return DCE info" means? *Modem Doctor's* detailed help file has the goods. One plus: You can reconfigure your modem without issuing obscure AT commands. You just check boxes in a dialog to reset your modem's factory settings, tell it to wait for a dial tone, shut off the speaker, set compression, and more. Neat. Neater still: *Modem Doctor* is way cheap. *Supports: dial-up modems (PC, notebook, USB); Windows 95, 98, NT4, 2000; \$15; www.modemdoctor.com*

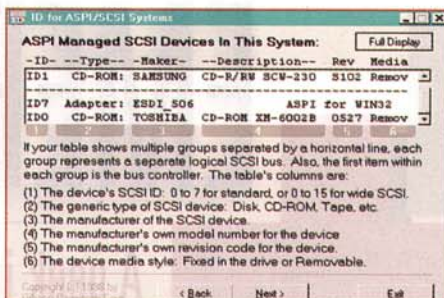


Got modem madness? *Modem Doctor* is the cure. The program probes hidden settings and tests communications integrity by pouring different data patterns to and fro, and checking the results.

to town. *Supports: Windows 95, 98, NT 3.51/4/5; free; grc.com/freestuff.htm*

QuickTech USB

USB DOA? Find out why. Boot off the *QuickTech* floppy and connect a weird little hardware board to the USB port you want to test using the supplied cable. Pick the test options from



ID—simple and to the point. What ASPI and SCSI devices are in your system, and what are their IDs?

the text menu and let 'er rip. *QuickTech USB* will confirm that the port is working up to snuff and test transmission speeds and reliability, voltage (is there enough juice to run peripherals?), power fluctuation and noise (a sign of a faulty connection or USB power problems), and more. You can run tests in a batch in endless loops, pick what's tested and what errors to ignore, save the results to a file, and at the end, automatically shut down the PC. Very cool. Our only quibble? The manual doesn't offer much advice if your USB port has a problem. For that, seek out your local repair shop. *Supports: USB compliant PCs; USB 1.1 ports; \$300; www.uxd.com* ■

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PORTS, SLOTS, AND INTERFACES

ID v.1.0

ID lives up to its humble name. This free app scans your system and reveals basic details about your SCSI and ATAPI devices—ID, manufacturer, device type, and so on. If you lack a diagnostic suite and need this basic info, download this tiny 27K utility and go