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August 2003**

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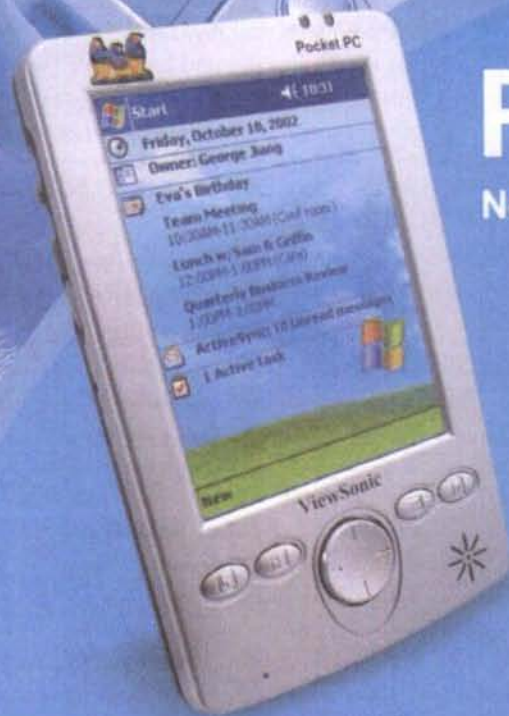
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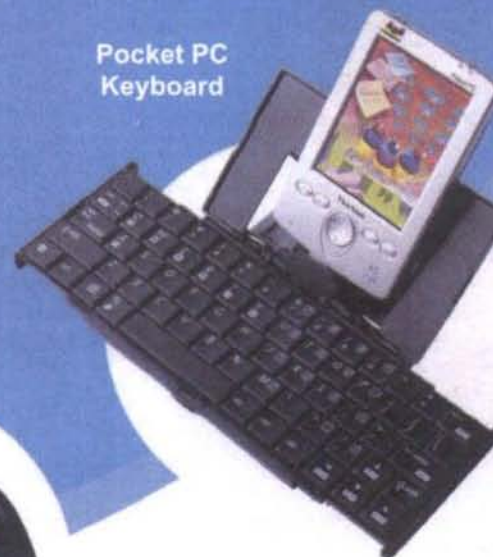
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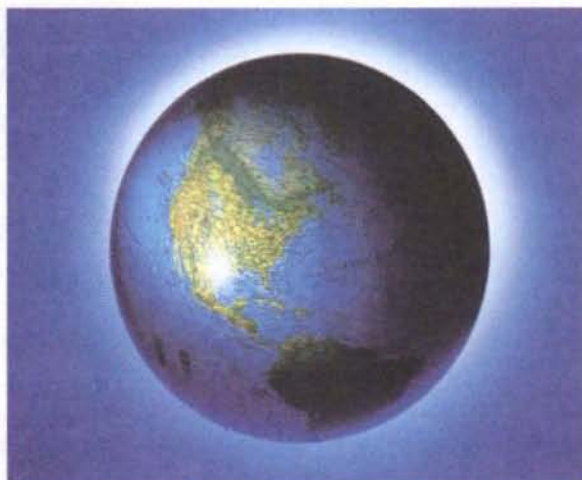
FROM THE
EDITOR

One of the interesting things about working for a magazine like TCP is having a front row seat to watch new technologies emerge. Our writers bring us stories on what's being cooked up in research and development labs or what's on the verge of hitting the market as a commercial product or service—these stories tend to relay the “promise” of a new technology.

The next cycle of coverage follows its release, when we see if it matches the hype: will it change the way we work, communicate, etc., or does it require a little more tweaking back at the lab?

Some products and services seem to disappear almost as quickly as they emerge. This was especially true following the burst of the dot-com bubble. Remember DigiScents? That company was developing a personal computer peripheral that generated synthesized scent, which would be used to sell products online or to enhance multimedia. It made the cover of *Wired* magazine as its hype peaked, and earned the headline “Sniff company is a scratch,” in the *Standard.com* as its fortunes plummeted.

But all was not vapourware. Some technologies just didn't make it as the commercial product originally envisioned, they re-emerged in new forms. Voice recognition for example, was very promising a few years back, with a range of commercial software packages targeting business users. Instead of all that typing and mousing, you created documents and navigated your PC and the Web using your voice. Though most of these products were functional, in practice they were somewhat cumbersome and required a lot of training—of the user and the software. During a demo of one company's voice



software at TCP's offices, the product manager (the person who knows a product inside and out, so they can “sell” it to journalists and vendors) couldn't get through dictation of a shopping list without making several corrections—and this product was hitting retail shelves as he spoke... or tried to. It seemed impractical for serious use, unless typing was not an option for the user.

Though standalone voice-recognition products weren't quite ready for prime time then, the technology has since been incorporated into a range of other products, for individuals (the Tablet PC platform is one several Microsoft developments to include voice-input features, for example) and for large organizations (such as “smarter” automated customer service systems).

This month, we take a look at how some technologies are faring in the “real world”—being used in new and unusual ways.

HUB: Digital Living

Here at Canada Computer Paper Inc., we've been doing a little research and development of our own. You'll see the results beginning Sept. 5, when we launch a new national magazine, *HUB: Digital Living*. It will replace this national magazine and *Toronto Computes!*, bringing readers a completely redesigned monthly publication.

Long-time readers will have noticed that *The Computer Paper* has been expanding its coverage of the digital world beyond the personal computer for some time now. We've reviewed plasma TVs, digital audio equipment, and digital cameras and printers—many are devices that can be connected to a PC, but no longer have to be.

HUB: Digital Living will reflect this direction, with a format that welcomes new technology users but still informs tech-savvy readers. We will continue to deliver the independent, Canadian perspective on technology—adding a healthy dose of personal and home electronics into the mix—that has made this 15-year-old magazine a success.

In the meantime, the next issue of *The Computer Paper* in its current form, hits the streets Aug. 13.

Enjoy the issue,
Megan Johnston
Editor



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Switching loyalties

Although I'm not into networking at all, I read Emru Townsend's article "Macs can no longer just talk amongst themselves" [TCP



July] in its entirety. What got me hooked was the cutline next to Emru's picture which said: "My name is Emru Townsend and I'm a Switcher." I am a potential switcher myself and I hope Emru will expand this

short take on his Windows-to-Mac conversion into a full series. I'm sure there are many of us who would like to get the benefit of a switcher's experience before taking the plunge ourselves.

Ken Young

...

We Mac people have had a simple method of networking and file sharing PC data for years and it is to allow the PC to see the AppleTalk network ["Macs can no longer just talk amongst themselves," TCP July]. Same CAT 5 cable between them, but the PC is loaded with PCMacLAN, an inexpensive software from Miramar. Then the Mac's hard drive, or any other AppleTalk network device, can be mounted or seen on the PC just like another hard drive or printer, etc. Perfect.

John Willis

TCP replies: For the third installment of his Making the Switch series, which will appear in the September issue, Emru Townsend plans to look at this product.

Out of focus

I usually enjoy the many indepth reviews your people do. The recent reviews of digital cameras [cover feature, TCP July] have me puzzled, however. No-one ever mentions aperture as a feature of a digital camera. To get that info, one usually has to go to the Web site of the manufacturer. I would appreciate it if you could get someone to write an article on lens apertures and quality of digital cameras and how they relate to the quality of the pictures.

In SLR cameras, aperture and lens quality is one of the most important factors. But digital cameras come with such minuscule lenses that one has to learn the impact of lens size again from scratch.

The most annoying thing of digital cam-

eras no-one ever mentions is that they are great when you have bright light conditions as you do when working outdoors. But, they are the pits, when you're trying to take a photograph indoors at a distance of over 3 m (10 ft.). If you take them with a flash, you get the things or people in the foreground overexposed, and everything beyond 3 m underexposed. This is the same effect you would have had with a simple \$25 box camera!

Who cares for many megapixels if your picture is too dark?

Another factor often overlooked is the sharpness of the picture. After reading many reviews on the Internet, I found that "blurry images" rank as the main complaint of many cameras. Usually this is related to the quality of the lens, occasionally to the focus mechanism. It seems that camera manufacturers figure that with such a small lens, they don't need the quality, as long as they have the megapixels.

So, please let's hear it from expert photographers: What are digital camera lenses really?

I have heard from one professional photographer that many of them are starting to buy digital bodies for their original SRL camera lenses.

Duke Duyck

Some background on backing up

I wanted to add a few words to Geof Wheelwright's excellent article on the need to backup your mobile computer ("Don't keep all your eggs in one hard drive," TCP June).

Of course the best protection against data loss is a good backup, along with a tested restore procedure. It is also true that we often neglect this and sometimes even backups go bad. All is not lost though, even in these situations.

Professional in-lab data recovery is available. In fact, the business directory of *The Computer Paper* shows several service providers of this kind and our company, recovers lost data from hundreds of failed notebooks, desktops, servers and backups every month.

We have published a guide about data loss prevention and data recovery, available for free at our Web site (www.actionfront.com).

Regards, Ron Austin

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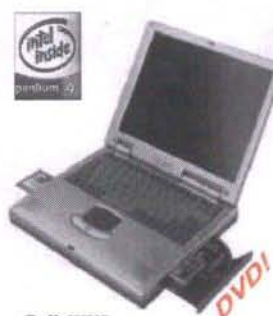
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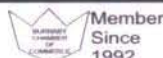
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WHAT'S NEW

By TCP Staff

Every now and then, a device comes along that is sure to draw a crowd, and this one seems to fit the bill. **PrintDreams** (www.printdreams.com) has developed what it calls **PrintBrush**, a handheld printer that lays down text as its user sweeps it across the page.



The company says that the device takes into account all thinkable parameters of hand movements, including rotations and speed changes, and produces a printed document very similar to its digital version. It's about the width of a mobile phone and the length of a pen, and it weighs about 350 g. We won't be able to try it out for a while yet—it isn't expected to hit the market until 2005—but we suspect it would be a good idea to stock up on ink before taking it out in public.

Handspring's (www.handspring.com) impending sale to **Palm** (the deal is expected to close this fall) apparently hasn't been too distracting—the company debuted its newest Treo at the

CeBit America trade show in New York in June, and it was named "best of show" in the wireless and mobile category.



The **Treo 600** series offers an integrated QWERTY keyboard in a case that is smaller and narrower than previous Treo devices, making it more phone-like, according to Handspring. The combined phone and PDA runs on Palm OS 5, offers messaging, email, and Web-browsing on a

colour screen, and has a built-in VGA camera and an expansion slot.

The company is currently working with wireless service providers to customize the device—which can be built to operate on either CDMA or GSM/GPRS networks—for their respective networks and brand offerings. The devices are expected to hit store shelves this fall, but start saving now—they'll be the most expensive in the Treo lineup.

If you spend a lot of time wearing a headset in front of your computer for voice chat, online gaming, or speech recognition applications, wouldn't it be nice to have an option to the ubiquitous foam? How about velvet? **Logitech's** (www.logitech.com) new **Premium USB Headset 300** offers velvet ear pads, plus a few other comfort options like an adjustable headset and a noise-cancelling microphone that can be worn on either the right or the left side. The new **USB Stereo Headset 200** also offers all those



options, except for the velvet. It's a little less expensive—US\$39.99 as opposed to the Premium's US\$49.99—but aren't your earlobes worth a little cushiness?

Running low on memory card space can really take the snap out of snap-shooting, and as picture resolution improves, cards fill up faster. So **Fujifilm** (www.fujifilm.ca) has added a new **512 MB** card to its **xD-Picture Card** lineup. The penny-size card (it measures up at 2x2.5x0.17 cm) reads at a rate of 5 Mbps and writes at 3 Mbps, according to Fujifilm, and is designed to use minimal power. PC Card and CompactFlash adapters are available for those who'd like to use the card with devices without an xD-Picture Card slot. The xD-Picture Card format was developed by Fujifilm and Olympus, and introduced in September 2002. Olympus is also releasing a 512 MB version of the card this summer.

Continued on page 54

WWDC delivers G5, Panther

As predicted (and as leaked on Apple's own Web site days before the official announcement), the **PowerPC G5** processor was unveiled at the Worldwide Developers Conference (WWDC) in late June.

The much-anticipated successor to the G4 was developed with IBM—incorporating its Power architecture—and becomes the first 64-bit desktop processor. IBM has made 64-bit versions of the PowerPC in the past for its mainframe customers, but the new processor is different in that it has built-in support for AltiVec, the technology that helps G4s crunch media files so much more quickly than G3s.

The G5 will make its first appearance in the Power Mac G5, which will be available in August. The top model in the line features a dual-2 GHz G5 processor, 1 GHz front-side bus, 512 MB SDRAM (expandable to 8 GB), and an ATI Radeon 9600 Pro graphics card. The new line will also feature single 1.6 GHz and 1.8 GHz models.

Apple says the new G5 beat 3 GHz



Pentium 4-based and dual-3.06 GHz Xeon-based systems in professional application performance tests and three out of four key benchmark tests.

All models include Gigabit Ethernet, FireWire 800, two FireWire 400 and three USB 2.0 ports, dual-display support, optical digital audio input and output, analogue audio input and output, and a head-phone jack. They also support AirPort

Spotlight

Extreme and Bluetooth. The Power Macs also received a facelift, swapping the plastic enclosure for an aluminum case that features individually controlled fans in each of four quadrants. The result, says Apple, is a quieter computer.

The 1.6 GHz, 1.8 GHz, and dual-2 GHz G5s will be available for \$2,799, \$3,399, and \$4,199, respectively.

The other big new from the WWDC was the preview of Panther, the next version of the Mac OS X, also known as 10.3, which is due to be released by the end of the year.

It will be the first 64-bit-aware version of the Mac OS, a nice complement to the G5. (The current version, Jaguar, is a 32-bit OS.) It will feature a new Finder; Exposé, a new way to see all of your open windows at once; iChat AV, a videoconferencing solution; and FileVault, for securing the contents of a home directory with strong 128-bit AES encryption.

Like Jaguar, Apple will charge for the upgrade: a suggested price of US\$129.

—Justin Siemens and TCP Staff

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Navigating the real world

Manufacturers drive development of telematics, in-vehicle wireless communications

By Sharlene Myers

The first cell phones were often installed in cars like stereos, drawing on the vehicle's battery and even using the horn to get the attention of a driver who had wandered away and was missing a call. Only 12 years ago, a visitor to a construction site might be treated to the spectacle of a horn blowing in the parking area, triggering at least three guys to run madly back to their trucks to catch the call, unsure of which truck was calling.

Now that phones are smaller and we keep them in our pockets, there's no need for the mad dash. But there were and still are advantages to having wireless communications built into cars. The integration of wireless communications with the vehicle's information systems and a global positioning system (GPS), called telematics, could make driving safer and more convenient. According to the hype, it could allow us to avoid many of the worst things about driving: traffic jams, bad weather, accidents, breakdowns, getting lost, and the futile search for parking spaces. The dream can be pretty irresistible, but the question is how much we are willing to pay for it.

What's available now

The most prominent option for those looking for telematics in their vehicles right now is the OnStar (www.onstarcanada.com) package offered with many new GM models. OnStar, which must be factory installed, essentially combines a cellular phone, a GPS system, and a network of sensors in the car with a call centre subscription service accessed through a set of three buttons. Locked your keys in your car? OnStar can unlock your car for you remotely. Lose your way? The call centre operators can give you directions to get you back on track. But what is likely the most appealing to many subscribers are the safety features, including remote diagnostics to tell you if that engine light is signalling a problem serious enough to leave you stranded.

Mike Walsh, marketing communica-



Photo source: OnStar

tions manager for OnStar Canada, explains how this works: "If the owner of the vehicle presses the button and requests what we call a remote diagnostic, OnStar can connect to the vehicle but with a data connection instead of voice, and it can read the onboard computer and find out why, for example, that engine light came on." The operator can then look up the diagnostic code and advise the driver whether or not it's safe to keep driving.

A radio ad illustrates the airbag notification service OnStar offers. The spot features a crash, followed by an OnStar operator paging the driver through the system, sending emergency services to the scene when she hears no reply. The vehicle places an emergency call to OnStar automatically when the airbags are deployed.

According to Walsh, this function will be expanded in future vehicles. Advanced automatic crash notification will be rolled out starting with the 2004 Chevrolet Malibu, incorporating more sensors around the vehicle that will allow OnStar to tell emergency personnel where and how hard the vehicle was hit.

"One of the greatest causes of death from accidents are the injuries that [the paramedics] don't see, things like internal bleeding," says Walsh, "and if they knew that they could expect that type of

injury because of the type of accident, they would be much better off."

Essentially, OnStar is like an insurance policy—the most important features are the ones you hope you'll never need. And like an insurance policy, it can be somewhat painful to pay for.

The system itself will add about \$700 to the price of a vehicle and it often comes bundled with other options in a higher end package. The first year of service is included in the package. After that, drivers who wish to continue the service are offered a choice of three plans that range in price from \$24.95 to \$87.95 per month. Those who wish to use the OnStar service for hands-free personal calling can buy packages of prepaid minutes at rates ranging from 38 cents to 67 cents per minute, depending on the number of minutes and how soon they expire.

There is one limitation drivers should be aware of, especially if they do a lot of driving in remote areas. OnStar communicates via cellular phone signals only, so if you're out of cell phone range, you're out of the service's reach. While the GPS will continue to establish the vehicle's location, without a cell signal, there's no way to communicate the data to the call centre. Walsh did point out, however, that because the system uses the vehicle's battery, which is stronger than the typical cell phone battery, it will allow driv-

ers to venture further before dropping the signal.

Other options

There are alternatives to OnStar, though not many, and not usually on lower priced vehicles. Several manufacturers also offer DVD-based satellite navigation systems, but they tend to be available on luxury models, and can add several thousand dollars to the bottom line.

Mercedes-Benz offers Tele Aid, a three-button system very similar to OnStar that comes standard on most of its models. A DVD- and GPS-based navigational system is also available on some models.

BMW offers Assist, which is also similar to OnStar and Tele Aid, but which requires a vehicle with an on-board navigation system and an activated BMW cellular phone system. The service is priced at \$190 per year.

Lexus offers a DVD-based navigation system on some of its models, usually bundled with premium packages.

DVD- and GPS-based systems use a combination of mapping software, satellite positioning, and a small LCD screen mounted in the dash. Drivers enter their destination and receive routing advice from the system, much like having a paper map with the route highlighted. The helpfulness of a DVD-based system largely depends on the quality of the software, so car buyers planning to invest in a system should ask questions about the areas covered by the mapping software and try it out if at all possible.

The Pontiac Vibe, for example, has an option to add a DVD GPS navigational system, but the online information includes a caveat that at present, detailed map coverage is only available for Toronto, Montreal, Ottawa, and Vancouver. Considering the system will add about \$2,550 to the price of the vehicle, it's worth taking the time to be sure it will be useful.

What's possible

While the idea of getting quick help after an accident is comforting, avoiding the

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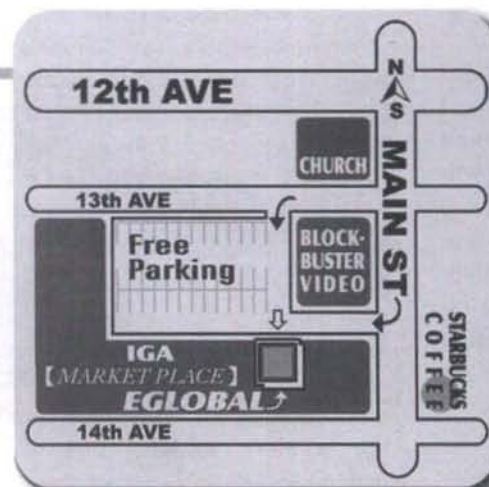
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Navigating the real world*Continued from page 12*

accident altogether would be an even better option. It's a dream that inspires ongoing research at Ford's Research and Advanced Engineering division.

Ron Miller, a physicist who graduated from MIT, has been with Ford for eight years. His specialty is intelligent vehicle technologies, and the results of his projects probably won't hit a car lot before 2008. The value in telematics, as he sees it, lies in "real-time traffic and weather reporting," and Ford has partnered up with the Departments of Transportation in Minnesota and Michigan to figure out how to make it work.

Basically, the system involves three steps: data is collected from vehicles as they move through traffic; it's then sent wirelessly to digital messaging signs operated by the transportation departments; and then back to vehicles through a cell phone or radio signal as a real-time traffic message.

Miller says Ford is working with Delphi to develop a radio that would fit into vehicles and offer both a wireless wide area network (WAN) and a wireless

LAN. This would move the system away from a server-based system to a more decentralized virtual floating network, in which cars talk directly to each other.

"By having these vehicles talk to each other, multi-vehicle accidents are a thing of the past," says Miller, "because somebody slams their brakes on 500 m up in front of me, I normally don't see that until all the brake lights hit, and then all of a sudden, I have to brake hard. If I knew that ahead of time, I would have slowed down in a non-aggressive manner, and the people around me would slow down in a non-aggressive manner, and we'd stop that collision or shock wave that happens when events occur on the highway. So it changes all the dynamics. It provides sustainable mobility, and it keeps people safe."

Safety is a key message in the discussion around telematics systems, and for good reason: studies have shown that safety issues are the strongest selling point in convincing car buyers to pay for the systems.

A survey released in October by Driscoll-Wolfe Marketing and Research Consulting found that of those drivers

with OnStar or Tele Aid (offered in Mercedes vehicles) installed who decided to renew the service after the first year, 93 percent cited the emergency notification feature as a motivator. And a study by J.D. Power and Associates released in December showed that consumers are more interested in safety-related technologies than they are in features that only add entertainment, comfort, or convenience.

What we need to figure out

But not everyone is convinced that telematics systems make vehicles safer. According to Transport Canada, as telematics become more common, they could make roads more dangerous, even for those without the systems installed. A discussion document published in the *Canada Gazette* in June argues that many of the devices are poorly integrated with the car's system or are too complicated and require a lot of visual attention, possibly distracting drivers to the point of causing accidents. Since the federal government has the power to regulate what is built into new vehicles sold in Canada, it seems Transport Canada

has put the industry on notice that the government is ready to step in and regulate the systems if it doesn't think vehicle manufacturers are doing enough to keep drivers focused on driving.

While the Transport Canada paper alleges that human factors, or the way users interact with the machines, are not adequately considered in the design and implementation of telematics devices in vehicles, Miller points to ongoing and extensive research Ford is doing in the area.

"We've got a tremendous effort in that," says Miller, adding that the company uses a full-motion simulator to test driver interfaces.

"You put people in the simulator, you have different tasks they have to perform, you look at eye glance, lane departure, even small lane departures."

Recognizing that there are any number of things that can affect driver focus, the testing program is not limited to advanced technologies. "It goes all the way down to, how do we set up the interior, not only from the advanced technologies we bring in there," says Miller,

Continued on page 20

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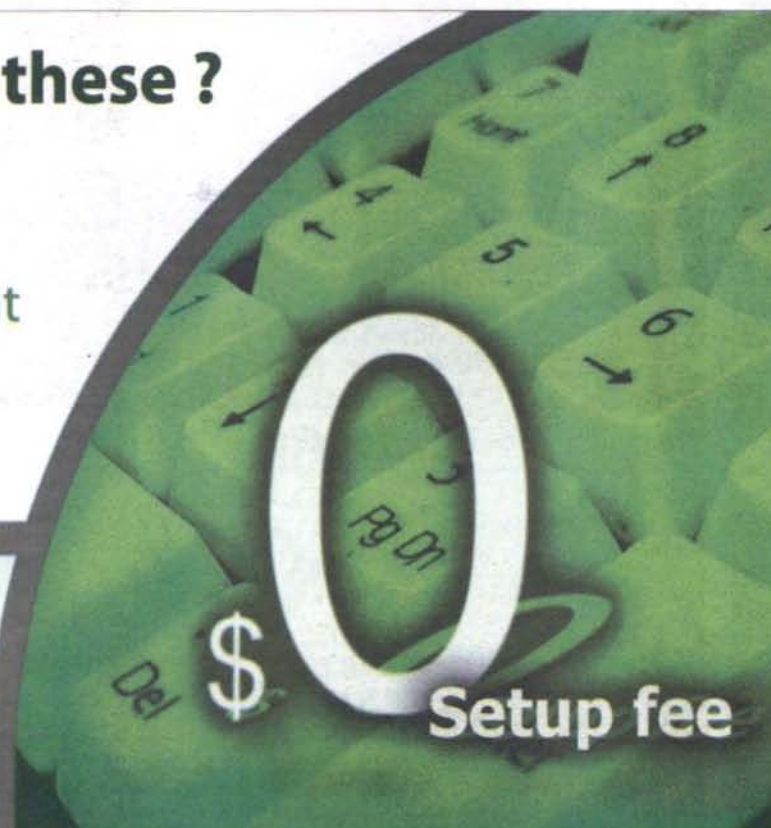
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Sony CPDE540B 21" CRT 1280x1024 @85Hz	\$889.00
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Navigating the real world

Continued from page 14

but also "how far those technologies are from [my] reach... and then can I see them and am I affected by regular ambient conditions that are outside of the technology?"

Mike Walsh, of OnStar Canada, is quick to point out that his company's service is free of visual distraction. "There's a big difference between the kind of service that OnStar provides and things like a cell phone or the navigation devices that have a screen," he says. "When OnStar provides directions, for example, there's nothing to look at except the roads, and nowhere else to put your hands except on the wheel. So the person talking to you will give you the directions, and they can stay on the line with you as well, or just give you the directions and you can hang up. There's nothing to look at, really."

But visual devices may not be the only offenders. A University of Utah study published in the March issue of the *Journal of Experimental Psychology* found that drivers using cell phones,

even hands-free models, are less able to process visual information due to "inattention blindness," and react more slowly to traffic signals and changes in the driving environment.

GM claims its own research is based on precise, real-world situations and shows that use of the OnStar system while driving is safe. The company has the advantage of knowing exactly when an OnStar call intersects with a crash serious enough to deploy airbags. In analyzing 8.1 million embedded cell phone calls to OnStar call centre advisors between October 1996 and May 2000, GM found that during only two calls were drivers on the phone at the time of a crash serious enough to deploy the airbags.

The debate is only just beginning. While those in favour of telematics point out that drivers who eat, read, and chat with passengers are also distracted, Transport Canada counters that while it is not in a position to regulate what drivers can bring into their vehicles with them, it is in a position to regulate what is built into the vehicle and how much of

that equipment is accessible and functional while the vehicle is moving.

What's it worth?

All the dreams, hype, and debated issues may be moot if the industry doesn't manage to find answers to the bottom line question: do people really want telematics in their vehicles, and are they willing to pay the associated costs?

OnStar has been available on 41 models for 2003, and will be expanded to seven more models in the 2004 lineup. But despite the relatively widespread availability, including entry-level models like the Pontiac Sunfire and the Chevrolet Cavalier, the system is only installed in about 20 percent of new vehicles driving off GM lots. And of those who have the service, only about 50 percent renew it for the second year, once they have to start paying for the subscription. Subscribers who stick with the service for a second year are more likely to renew for the third year and beyond.

Ford partnered with Qualcomm in October 2000 to form Wingcast, a serv-

ice similar to OnStar, but then shuttered the company last year without entering the market.

The few Ford-branded vehicles that offer call centre services now are supplied by a contract with ATX Technologies, a third-party service provider that also works behind the scenes for Mercedes Tele Aid and BMW Assist.

While telematics hasn't expanded as rapidly as some predicted it would a few years ago, it seems that automotive companies have not given up completely. They've refocused, concentrating on finding the magic combination of functions and price that will appeal to their customers. As part of this effort, they've joined forces to form a consortium to establish standards.

The Automotive Multimedia Interface Collaboration (AMI-C, at www.ami-c.org) is made up of most of the world's automotive manufacturers, and aims to establish standards for electronic components in vehicles that will result in lower costs and easier upgrades. □

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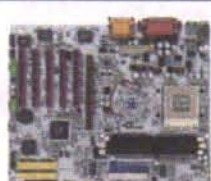
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Simplifying security

Biometrics offer solution to password proliferation

By Geof Wheelwright

Biometric technology has been with us for many years, on television and in films. And pretty much any body part that you can think of has been used as a way of allowing machines to identify people—from fingerprint, hand, retina, and full-body scans to voiceprint analysis.

The downfall of passwords and IDs

So what does all this have to do with you? To answer that question properly, consider the requirements you currently have for establishing your identity in the digital world (and sometimes in the real world) that are based on some form of ID/password scenario. The ID can be something physical (such as a bank card) or merely a set of characters or numbers (such as the ID you might type in at an electronic banking Web site or on a Web mail service at an Internet café). The problem is that these scenarios are not



always secure.

Take, for example, the average corporate user ID/password combination that provides access to a company's network. Most corporate IDs are formed in one of several standard ways. The most common is the first letter of your first name and the whole of your last name (i.e.

Jsmith for Jane Smith). If you work within a company, or are even familiar with those who do, you know how IDs are formulated and can accurately guess them.

Assuming there is little or no security around IDs, the effectiveness of your digital security in the simple ID/pass-

word world is going to depend on how secure your password is. Many people, however, choose their passwords for the sake of convenience. If you know a little about the people whose password you're trying to guess, it sometimes doesn't take much to figure it out.

Here are a few of the more common ones: spouse's name, children's names, pet's names, mother's maiden name, the word "password," the user's own middle name, the ID itself, and so on. The point is that ID/password technology is sometimes not the most effective way to secure your computer or your network.

Password proliferation

As a user, ID/password combinations can be frustrating, considering the number you may have to remember and use in a day: a PIN for your bank debit card, security codes for your home and/or office alarm systems, separate PINs for accessing cell phone and office voice-

Continued on page 26

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Simplifying security*Continued from page 24*

mail, network passwords for your office and home computers, passwords for your office email and Web mail clients, the "unlock" code for your PDA, and on and on.

So what do you do? Write them all down somewhere so you don't forget them or make them all the same so that anyone who guesses the right password can "unlock" your whole life?

Anybody's solution

Or, wouldn't it make sense to be able to eliminate at least some of the ID/password headaches in your life without compromising the security of your personal or business information?

With biometrics, there is nothing to remember. You can't forget your fingerprint, your eyes, or your face. You always have them with you—and should be able to easily produce them when needed. The real issue is whether or not biometric solutions make sense for the average home or small business user.

Biometrics for the home and small office

Do you really need a biometric security solution at your home or in your small business? The answer lies in three words:

security and convenience. The added security comes from knowing that only you—or those people you've selected—can access a biometrically protected system. That security also extends to the mobile environment. If you use a notebook computer or a PDA, there are a growing number of biometric options that allow you to ensure that the work you hold on your mobile system can be kept from hackers and computer thieves.

These solutions can also offer convenience by giving you at least one fewer ID/password combination to remember—freeing up those extra brain cells to remember more important information (such as your spouse's birthday). Only a handful of the wide range of biometric technologies are available to the home and small business PC user, although that number seems to be on the rise.

Common biometric solutions

Here's a breakdown of the most common biometric solutions based on recognizing a body part:

- **Fingerprint recognition:** It's one of those wonderful quirks of nature that no two human fingerprints are identical (perhaps at least until someone breaks the ban on human cloning). This type of system takes a picture of

your fingerprint and compares it to a previously taken picture of your fingerprint to see if the two match.

- **Face recognition:** This technology is more a software marvel than anything else. The hardware is fairly standard camera gear—although it must be said that the better the camera, the more accurate the results are likely to be. FaceIt, a solution from Minnetonka, Minn.-based Identix, works by looking at the unique geometrical relationships within a face and comparing them to a known image of the individual. Others take a different approach. Massachusetts-based Viisage's face-recognition technology, for example, was developed at MIT and uses what it calls "eigen-faces," which map characteristics of a person's face into a multi-dimensional "face space."
- **Iris recognition:** The major applications so far have been aviation security, automatic border crossing controls, database access, computer login, building entry, ATMs, and government programs.

Quasi-biometric solutions

There are also several quasi-biometric recognition systems that require you to

speak, type, or write something:

- **Voice identification:** Notice that this type of solution is called "voice identification" and *not* "voice recognition." While voice identification solutions need to recognize specific voices, their goal is to identify the speaker rather than what the speaker is saying. Voice ID solutions allow you to use your voice to give commands to your computer.
- **Handwriting identification:** Again, handwriting identification should be differentiated from handwriting recognition. The latter is designed to figure out what is written, while the former tries to establish the identity of the writer.
- **Keystroke authentication:** There are a few products based on this notion. The best-known is BioPassword (from Bellvue, Wash.-based NetNanny Software), which learns the unique way you enter characters using a keyboard. It's based on the idea that "typing rhythm" is individual, so a intruder's will not be the same as a computer's owner.

Putting yourself in the biometric picture

The real key to figuring out which bio-
Continued on page 30



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For all defective hard drives within 3 years, exchange a new one for only \$30, no matter where you purchased from.

Motherboards		PRICE	Motherboards		PRICE	CD-RW/DVD-RW		PRICE	Monitors		PRICE	Camera		PRICE	ECS 732 Notebook
ASUS			ECS			Benq 52x24x52		\$50	17" CRT			Canon A300		\$299	P4 2.4G 512K CPU
P4G8X	E7205 AGP8X	\$248	K7S5A Pro		\$65	LG 52X24X52		\$59	Aopen A70E		\$165	Canon A60		\$398	256MB DDR Ram
P4C800-Deluxe	I875P DDR400	\$258	L7S7A2		\$75	MSI 52X24X52		\$55	Acer V771		\$155	Samsung DigiMax 101		\$168	IBM 20G HD
P4T533	I850E S478	\$265	K7SEM		\$65	LITEON 52X24X52		\$63	NEC As70(Black)		\$199	Samsung DigiMax 201		\$199	ATI 8500 M9 64M
P4S533-X	SiS645DX SD/DDR	\$99	P4VXASD2+		\$65	SONY 52x24x52		\$69	17" Flat CRT			Casio Exilim S2		\$399	56K Modem + 10/100M Lan
P4S8X-X	SiS648 S478	\$128	P4VMM2+		\$65	ASUS 52X24X52		\$75	Mag 786PF		\$168				4X USB + IEEE1394
P4B533	I845G S478	\$148	L7VMM2		\$75	Aopen 52X24X52		\$55	Mag 772PF-Silver		\$189	Modem			DVD Rom+CDRW
P4PE-LU	USB2 i845PE	\$138	K7VTA3		\$80	Pioneer DVD-RW 4X		\$278	Viewsonic E70F+SB		\$238	ESS PcTel 56K PCI		\$18	15 TFT LCD Panel
P4PE-GSF	GLAN SATA 1394	\$178	L7VTA		\$80	Plextor 4X DVD+R/RW		\$389	LG E700B		\$159	Aopen 56K PCI		\$25	Li-ion Battery 2.5hrs
P4P800	I865PE USB2	\$118	L4IPEA2		\$85	LG DVD-RW		\$235	Samsung 753DF		\$178	Printer			
P4S800	SiS648FX	\$138				Video Cards			NEC AS75F		\$219	Lexmark Z35		\$59	
A7N8X-DX	NForce2 DDR400	\$178	Hard Drives		Price	TNT2 M64 32M		\$48	Philips 107T5		\$179	Epson C42UX		\$65	
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A7V333	Kt333 SA	\$128	Toshiba			Geforce2 MX400 64M TV-out		\$59	Aopen A90E		\$229	Canon S330		\$89	
A7S333	SiS745 SA	\$98	20 / 30		\$135 / \$165	Aopen Geforce4 Mx440 64M		\$66	NEC AS90		\$259	Canon i550		\$175	
A7V8X-X	Kt400 AGP8X	\$109	/40G		\$199	Asus Gef4 Ti4200 128M8X		\$199	Samsung 950B		\$259	HP 3440V Ink-jet		\$105	
			IBM			Asus G-FX 5600 128M VIVO 8X		\$265	19" Flat CRT			Samsung ML-1430		\$299	
GIGABYTE			20 / 30		\$135 / \$165	Asus G-FX 5200 128Mb DVI 8X		\$148	Samsung 955DF		\$309	Samsung ML-1460		\$399	Monthly Super Special!!!
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GA-8IE533	I845E AGP8X	\$158	IDE 7200 RPM			Asus Gef4 MX440SE 64Mb 8X		\$89	MAG 996TF		\$269	AudioExcel AV512		\$19	ECS K7SOM+ Motherboard
GA-SINXP	SiS655 Dual Ch.	\$228	Maxtor			MSI Geforce4Ti4600 128M		\$338	AOC 9k1r		\$269	Creative SB PCI 128		\$28	256Mb Pc2100 DDRAM
GA-PE800	I845PE 667FSB	\$138	40 / 60		\$83 / \$109	MSI Gf4 Ti4200 128Mb 8X VIVO		\$199	15" LCD			Creative SB Live! 5.1		\$55	Maxtor 30G 7200rpm HDD
GA-8S0800	SiS655 S478	\$125	80 / 120		\$115/ \$149	MSI G-FX 5200 DVI128Mb 8X		\$168	MAG LT 565 LCD		\$379	Creative SB Audigy oem		\$99	Integrated 32mb AGP Video Card
GA-8SQ800 Ultra	SiS655 S478	\$189	200G		\$399	MSI G4 Ti4800 128Mb VIVO 8X		\$249	Samsung 151N		\$389	Creative SB Audigy2		\$109	LG 52X CD-ROM
GA-7VAX	Kt400 AGP8X	\$119	SATA HDD			ATI Radeon 7000 64M		\$59	Aopen F50LS		\$379	Creative SB Audigy MP3		\$115	Integrated 10/100MB Network Card
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GA-8PE667 Ultra	I845PE S478	\$219	60 / 80		\$108 / \$120	ATI Radeon 8500 Retail 128Mb		\$238	Daewoo L150		\$379	LianLi Mobile Rack		\$19	ZTE 180Watt Speaker
GA-8SG667	SiS S478	\$115	120		\$169	ATI Radeon 8500 AIW 128Mb		\$399	Samsung 152T		\$489	Headphone + Mic.		\$15	Samsung 1.44MB Floppy
			ROM Drives			ATI Radeon 8500LE 128Mb		\$158	Philips 150S4		\$389	Microphone		\$10	Wheel Mouse
MICROSTAR			CDROM			ATI Radeon 9200 128Mb TVO		\$120	Sony M51		\$539	250MB Zip Drive		\$148	Win98 Keyboard
865P Neo2	I865P 800Fsb	\$159				ATI Radeon 9000 Pro 128Mb		\$178	ViewSonic VE 500		\$468	250MB Zip Disk		\$25	
865PE Neo2	I865P 800Fsb	\$165				ATI Radeon 9600PRO 128M		\$279	ViewSonic VG 500		\$498	Samsung 1.44 Floppy		\$17	
KT4VL	KT400 SA	\$109				ATI Radeon 9700 Pro 128Mb		\$459	17 LCD			Panasonic 1.44 Floppy		\$15	
K7N2G-L	NForce2 VGA	\$168				ATI Radeon 9700 AIW 128Mb		\$558	ViewsonicVX700		\$658	Networking			
K7N2-L	NForce2 LAN	\$138				ATI Radeon 9800 Pro 128Mb		\$618	Philips 170S		\$658	Aopen AON325 10/100		\$19	
648 Max-L	SiS648 AGP8X	\$118				ATI Rage 128 Pro 32MB		\$43	NEC 1760V		\$658	Dlink 538TX 10/100		\$19	
645E Max-U	SiS645 Audio	\$89				Scanners			Samsung 171N		\$599	Dlink 530TX 10/100		\$19	
645E Max2-LRU	SiS645 Raid	\$99				Acer BenQ 4300U		\$89	Samsung 172T		\$868	SMC 1244TX 10/100		\$19	
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655 Max FISR	SiS655 GIU8X	\$258				Epson PerfectScan 1660		\$288	ViewSonic VX 900		\$1188	EUSSO 5 port hub		\$28	
K7D Master Dual	AMD760MPX	\$315							NEC 1920NX		\$1038	SMC 4 port Switch		\$48	

All Prices subject to change without notice. Please contact us for the latest prices. All systems have 1 yr parts and 3yr labour warranty.

Stealth, smoke, and steel

TCP Lab looks at theft prevention, recovery, and other security solutions

By Dave Chappelle

When you hear the term “computer security,” you probably think of firewalls and anti-virus applications. They are important products—something many of us have learned through experience (find more about these products in archived articles at www.CanadaComputes.com).

Computer security also includes theft prevention and recovery for hardware and data. For this Lab, we’ve broadened our scope to include hardware and software products developed to prevent loss and assist with recovery of stolen hardware or data and to prevent unauthorized access and usage, data corruption, or inadvertent destruction.

The software

PC Phone Home/Mac Phone Home

From: Brigadoon Software,
www.pcphonehome.com

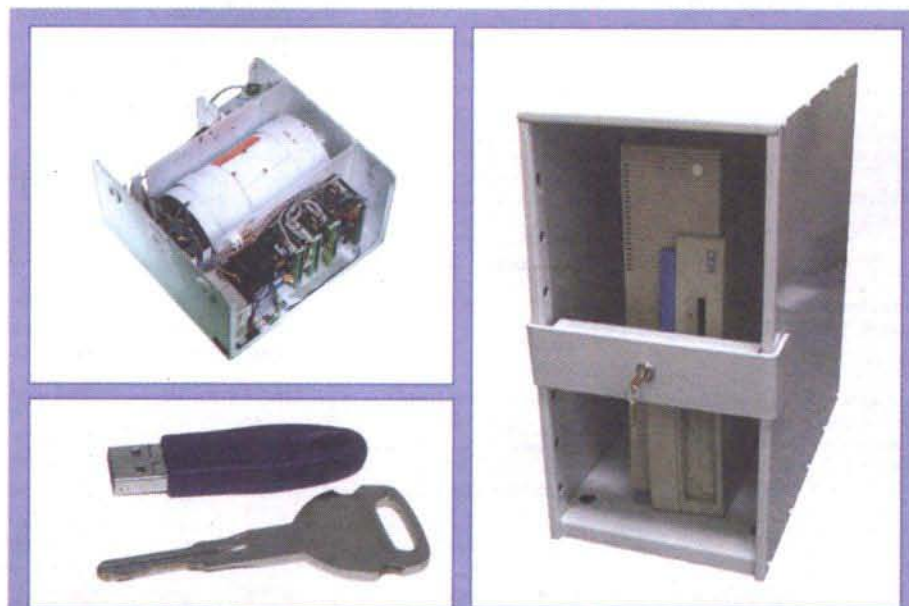
Estimated price: US\$29.95

Requires: Mac OS 8x, 9x, OS X; Windows

9x/Me/2000/XP; modem (dialup or broadband).

PC Phone Home helps get your stolen computer back. Once the software is installed, it sends an email message every time the computer is connected to the Internet. During setup, the system requires your email address and outgoing mail server name. No email client (email program or application) is needed. It’s OK to use your own email address; just make sure that if you change ISPs, you also change the info listed with PC Phone Home. The ownership information you provide during registration must be accurate if police are to be notified or legalities arise about providing false information on a warrant.

We used the same email address for sending and receiving, and each time we logged on, an email message appeared in the inbox within seconds. When connected on another telephone line using another ISP, it took about three minutes to receive the message. Dozens of information reports were sent stealthily, with-



Desktop Lockdown

The range of security software and devices available include: the SmokeCloak (top, left), which generates smoke to hamper thieves when an alarm system is breached; the SecurLock USB key, which controls system access; and the Wrap, a 16-gauge steel PC vault that is bolted to the floor.

out any indication to the user that they were being issued.

The email messages from PC Phone Home contained all of the information we provided during registration, plus the IP address, time connected, user name, serial number, and even the silly name we forgot we’d given the computer when we first installed the operating system.

As PC Phone Home requires email to work, you might think formatting the hard drive or deleting the partition would wipe out the program. Wrong! It remains hidden as a separate, phantom partition disguised as a bad sector. Even if that is deleted, several key files spawn on reboot. Format and Fdisk commands don’t work if the program is properly installed. Registered users can, however, request a special uninstall program to remove PC Phone Home. The company reports that all 31 computers registered with PC Phone Home that have been stolen so far in 2003 have been returned. None were tampered with, reformatted, or re-partitioned.

The user’s manual describes a technique to slow down a thief: make your C:\ drive the first boot device in your

system, and password-protect your BIOS settings. This prevents someone from using a floppy or CD to boot around the protection (many systems now ship with the CD-ROM drive set as the first boot option), and from readily changing the boot-drive order. It is possible to work around this protection, but it’s more likely that many alerts will be sent before PC Phone Home is defeated.

We experienced one mildly annoying event. When not connected online, the dial-up networking adapter kept trying to dial a connection immediately after we booted up the computer. After leaving our computer running all night, we found dozens of dial-up attempts on our taskbar—so many that we couldn’t close them, and were forced to reboot. By experimenting, we learned that simply closing the first two automatic dial-up attempts solved the problem. Note: if the program is configured for use with broadband, this should not occur.

A full version of the software can be downloaded from the PC Phone Home Web site, as can a free 30-day trial version for those who want to try before they buy. Enterprise versions are also available for organizations with several

computers. PC Phone Home has no monitoring fees or other costs.

SecurLock

From: SecurSoftware, www.secursoftware.com

Estimated price: \$199 (1 key); \$278 (2 keys)

Warranty: 1 year

Requires: Windows 2000/XP; 1 MB disk space

A loss prevention device, SecurLock is a USB key/software solution for Windows 2000 and XP. (Note: key in photo indicates scale and is not part of SecurLock system.) When inserted into a USB port on your system, it performs user logon authentication, file encryption, and storage for all of your passwords and logon profiles. It can store this type of information for several users on the same system.

If the “key” is removed from the USB port, you will be prompted to insert it when you boot the computer. If you insert it before turning on the system, or did not remove it when you last shut down the computer, you’ll be prompted to type in the PIN you selected during setup. The computer can’t be accessed at all without the SecurLock USB key. As well, SecurLock blocks access after three incorrect PIN attempts. At this point, only an administrator can unblock it. Of course, if you’ve installed SecurLock on a stand-alone system that only you use, you are the administrator.

Right-click on a file icon to encrypt it with either RC4 or Blowfish algorithm encryption. While it provides stronger encryption, Blowfish increases the size of files, so RC4 is recommended for larger files.

Right-clicking also offers the option of locking a file for transfer on floppy disk or by email, or making it self-extracting. Simply right-click, select the encryption or lock you want, and choose a password. To read the file, the recipient must also know the password.

The Single Sign-On (SSO) feature allows you to store all your logon names and passwords in one encrypted location. Each identity is stored under an icon with individual names. When you go to a Web site that requires a login,

simply drag and drop the appropriate icon onto the Web page and click to enter rather than typing in a name and password.

Unlike some USB keys, SecurLock is internally shielded to protect it from static electricity damage.

Kroll OnTrack Easy Recovery Lite

From: Kroll OnTrack Inc.,

www.ontrack.com/easyrecovery/

Prices: \$89 (Lite), \$199 (Data Recovery), \$499 (Pro), \$399 (File Repair)

Requires: 486 or faster CPU; 150 MB disk space

Kroll OnTrack Easy Recovery lets you try your hand at retrieving data lost due corruption by viruses, accidental deletion, or drive failure. Easy Recovery probably won't cause a sudden decrease in business at professional data recovery labs—which OnTrack acknowledges by placing a Crisis Centre icon on your desktop during installation, with a direct link to its lab and other services.

For our tests, we downloaded a version of Easy Recovery Lite (the 26.6 MB file requires 2.5 hours to download at 33.6 Kbps). Through an easy-to-use Windows interface, the program offers data recovery and file repair, and is subdivided into recovery from various events. Depending on what caused your data loss, you can choose Formatted, Deleted, Virus, Standard, and Raw data recovery. Separate sections exist for repairing damaged Word and Zip files. Straightforward instructions are at the top of each window. You can also use Easy Recover Lite to make an emergency boot disk.

To recover a file, you must have two disks; a "bad" one with the damaged file, and a "good" one that Easy Recovery can write to. If not, you're gently reminded, "The destination path you have chosen is on the source partition. Please select a different destination."

We recovered both formatted and deleted files. Then we deleted and formatted again, and pressed the reset button on the system during a recovery, just to scramble things a bit. Using the Raw recovery function, which is reserved for the most extreme cases, our 400 KB Word file was fully restored, albeit with a different name. A small price to pay for what would have been lost otherwise. We'd love to say "we" recovered the data,

Continued on page 32

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† The Computer Paper, March, 2003.

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Intel Celeron 2.4 \$369 AMD Duron Pro 1800+ \$269

Intel Celeron 2.4 GHz CPU	AMD Duron Pro 1800+ CPU
PCChips M925 P4 Motherboard	PCChips M810 AMD Motherboard
256MB PC2100 DDR RAM	128MB PC2100 DDR RAM
1.44MB Floppy Drive	1.44MB Floppy Drive
30GB (7200rpm) Hard Drive	30GB (7200rpm) Hard Drive
52X EIDE CD-ROM	52X EIDE CD-ROM
AGP SVGA O/B	AGP SVGA O/B
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10/100 Base NIC	10/100 Base NIC
PS/2 Internet Keyboard	PS/2 Internet Keyboard
PS/2 Wheel Mouse	PS/2 Wheel Mouse
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Dual DDR

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512MB PC2700 DDR RAM	512MB PC2700 DDR RAM
1.44MB Floppy Drive	1.44MB Floppy Drive
80GB (7200rpm) EIDE Hard Drive	80GB (7200rpm) EIDE Hard Drive
LG 16X DVD-ROM and	52x24x52 EIDE CD-RW
48x24x48 EIDE CD-RW Combo Drive	Asus GeForce FX 5200 128MB V/C
MSI GeForce4 Ti4200 128MB V/C	6 Channel Audio On Board
6 Channel Audio On Board	10/100 Base NIC
Gigabit Lan	PS/2 Internet Keyboard
Microsoft Optical Mouse	PS/2 Wheel Mouse
Microsoft Multimedia Keyboard	18" ATX Tower Case w/Power Supply
18" ATX Tower Case w/Power Supply	Power Amplified Speakers
Altec Lansing AVS300 Speakers	

Hyper
Threading

Barton
CPU

Motherboard

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AMD Asus A7V8X-WL KT400	\$135
AMD Asus A7N8X Dual DDR	\$152
AMD Gigabyte GA-7VAX KT400	\$126
AMD Gigabyte GA-7VXP 1394	\$139
AMD MSI KT4V-L KT400	\$97
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Asus P4PE-L i845PE DDR333 LAN	\$139
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Asus P4G8X-DX Dual DDR	\$219
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MSI 645E-Max-U	\$129
MSI 865PE Dual DDR400	\$149

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ATI Radeon 9600 Pro 128MB (Box)	\$259
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ATI Radeon AIW 7500 64MB	\$179
ATI Radeon AIW 9700 Pro 128MB	\$499
MSI GF4 MX440 8X 64MB w/TV	\$79
MSI GF4 Ti4200-VTD 8X 128MB VIVO	\$79
MSI FX5200-TDR 128MB w/Remote	\$149
MSI TVanywhere TV Tuner	\$75

Monitor

17" BenQ V772 Monitor	\$145
17" Hansol 730ED 25dp Flat	\$155
17" Philips 107T5 25dp Flat	\$169
17" NEC FE771SB 25dp Flat 1280*1024	\$239
17" Samsung 753DF 25dp Flat 1280*1024	\$179
19" NEC FE991SB 25dp Flat 1792*1344	\$389
19" Samsung 955DF 25dp Flat 1600*1200	\$299
19" MAG 996PF 25dp Flat	\$239
15" Philips 150S Slim LCD	\$349
15" NEC ASLCD5V LCD	\$389
15" Samsung 151N Slim LCD 1024*768	\$385
15" Viewsonic VE155 Slim LCD	\$389
17" Samsung 171N Slim LCD	\$389
17" NEC ASLCD7V LCD	\$609

CD/DVD/CDRW Drives

LG 52x EIDE CD-ROM	\$25
Samsung 16x EIDE DVD-ROM	\$43
Aopen 52x24x52 EIDE CD-RW (Box)	\$52
LiteOn 52x24x52 EIDE CD-RW (Box)	\$59
LG GMA 4020B 2X-R DVD RW (Box)	\$199
Pioneer AO5 4X-R DVD RW (Box)	\$245
HP 300i 4X-R DVD RW (Box)	\$299
LiteOn LDW400D 4X+-R DVD RW (Box)	\$379

Misc.

Logitech Quick Cam Express	\$35
Logitech Optical Wheel Mouse	\$15
Aopen 56K Internal Modem	\$15
Aopen 4 Port 10/100Mbps Switches	\$25
8 Port 10Base Hub	\$15
D-Link DI-604 4 Port Router	\$44
RJ45 Network Cable 10/20/50 ft	\$3/5/10

Storage

Panasonic 1.44MB Floppy Drive	\$10
30GB / 40GB / 80GB (7200rpm)	\$69/79/109
WD 80GB / 120GB 8MB Cache (7200rpm)	\$119/149
Maxtor / Seagate 80GB / 120GB SATA	\$149/199

Speakers & Audio Adaptor

SB PCI 128 / Live! DE5.1	\$26/47
SB Live! Audigy 2	\$99
SB Audigy 2 Platinum 6.1	\$229
160 Watt Speakers	\$3
Altec Lansing ATP3 w/Subwoofer (Box)	\$85
Creative Inspire 4400 4.1 w/Subwoofer (Box)	\$59
Creative Inspire 5200 5.1 w/Subwoofer (Box)	\$95

Software

* With System Purchase Only	
Windows XP Home (OEM Version)	\$130*
Windows XP Professional (OEM Version)	\$199*

Monitor Special

BenQ V772 17" Monitor	\$145
Hansol 730ED 17" Flat Screen Monitor	\$155
Philips 107T5 17" Flat Screen Monitor	\$169
Hansol 920D 19" Flat Screen Monitor	\$225
Philips 150S 15" LCD Monitor	\$349
Samsung 151N 15" LCD Monitor	\$385

< TECH IN THE REAL WORLD >

Simplifying security

Continued from page 26

metric solution is right for you lies in figuring out why you need it. If you are just looking for a little extra security for your desktop computer, a simple low-cost, quasi-biometric solution—such as NetNanny BioPassword (which sells for US\$ 29.99)—using your existing hardware may fit the bill.

If you want something that's more truly biometric, then the most cost-effective solution will probably be a fingerprint-recognition solution—of which there are many. A growing number are now being included in handheld computers (such as HP's new iPAQ Pocket PC h5400 series) as well as being part of add-on keyboards and computer mice.

You're likely to enjoy the maximum benefit of a biometric solution if you use a notebook computer—a device that you may not always be able to physically protect from access. By protecting your notebook with a fingerprint recognition system, you'll be able to ensure that prying eyes can't snoop through the contents of your hard drive, even if you've just stepped out of a cubicle at a client's office or have left your seat on a plane for a few minutes to stretch your legs.

Notebook biometric solutions are largely based on that plug into your computer's USB port or PC Card slot. In looking at such a solution, you want to make sure it's flexible, easy to use, and makes sense for the way you work. If you are right-handed, for example, and you have a notebook computer that has its PC Card slot at the rear left-hand of your notebook, you may not want to go for a PC Card-based fingerprint recognition solution that requires you to awkwardly reach across the notebook every time you want to use it.

Likewise, if you know that you are going to be working regularly in spaces where you have little extra room (on a plane, train, or in a taxi), you won't want to have cords dangling out of the back of your notebook as you work, so a PC Card solution may be best.

And then, of course, there's the issue of price. In the world of biometrics, all the usual rules still apply. One of them is that anything from Sony will be sleek, good-looking, and work really well, but you'll pay a premium for it. That certainly true of the Sony FIU/SS2K (also called the Puppy), which sells for around US\$300, but has garnered strong praise for the integrity of its fingerprint ID security, its good looks, light weight, and ease of use.

If you want a couple of "cheap and cheerful" solutions, consider the Targus

DEFCON Authenticator (available from the Targus site at www.targus.com), which comes in either USB (\$119) or PC Card (\$199) versions. One nice touch in the USB version is that a two-port USB hub is incorporated within it—meaning that you not only get extra security, you get an additional USB port.



Conclusion

In many ways, the commercialization of biometric technology is still very much in its infancy. A number of innovative biometric companies have recently been acquired, gone through mergers or struggled to gain further financing. Others have largely abandoned the retail market to focus on higher-priced solutions for industry or government.

At the same time, companies such as Florida-based AuthenTec have started supplying fingerprint identification solutions to computer manufacturers for as little as \$6 per unit, making it a relatively low-cost add-on to a mid-range notebook or desktop computer.

As demand grows—and competition in the struggling PC industry continues to intensify—it's likely that some form of biometric security will become common on many mid-range and higher-end systems. Over time, it may even become a standard feature on entry-level systems. And it is certainly looking like it will have strong appeal on more "personal" digital devices, such as mobile phones and PDAs.

So our final word of advice on looking for a biometric solution is: caveat emptor. You would do well to buy from a more well-known supplier, and, if you are planning to buy a new system in six months to a year anyway, think about waiting until then and buying a solution that has biometrics built-in. □

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Stealth, smoke, and steel*Continued from page 29*

but all we did was read and follow some instructions. Easy Recovery did the work. A free trial version of the software can be downloaded from the Kroll OnTrack Web site.

eBlaster 3.0

From: SpectorSoft Corp., www.eblaster.com

Estimated price: US\$149.95, US\$99.95 (via Web)

For monitoring unauthorized computer use, eBlaster is personal spyware that generates detailed reports about the computer on which it's installed. Whenever that computer is used to access the Internet, a report is emailed to you, in intervals of your choice, from every 30 minutes to every 24 hours.

Select the online activities you want reported to you from the eBlaster Control Panel. Computer name, user login ID, IP address, keyword summary, applications used, Web sites and chat rooms visited, keystrokes typed, and the screensaver type are all included. If you set a Keyword Alert and that word comes up in an application, email, chat, or

forum discussion, you'll know. In 30 minutes you can have individual keystrokes, nullifying your subject's password protection.

When specifying where you want the reports sent, keep in mind that spam filters on many email servers prevent you from seeing HTML mail. Choose the plain text report option for instant notification, and wait to view the full report later on the subject computer. At any time you may test the reporting function. Reports are sent to you with a bogus reply address, preventing a report from returning to the subject computer and possibly alerting the user.

There are no signs anywhere that eBlaster is installed on a computer. It doesn't appear in the program files or uninstall software. Few users are aware of the existence of the Windows Registry; but we looked thoroughly and found nothing. It has to be in there somewhere, but eBlaster hides very well.

Shouldn't your anti-virus program block an eBlaster installation? SpectorSoft says McAfee and Norton anti-virus programs won't stop even a

remote installation of eBlaster, because the file is not a virus. Grisoft AVG was installed on our test system, yet eBlaster breezed right past it.

Our tests seem to indicate one or two known Windows exploits (security holes) are used to send the keyword alerts. Chat and messaging programs also have well-known exploits, which might also be used to send reports without a user's knowledge.

Two separate spyware detection applications couldn't detect eBlaster. Removing a known Microsoft Internet Explorer exploit disabled the eBlaster keyword reporting function, yet all other spying and reporting functions still worked. The verification provided makes worried parents and employers obvious users of eBlaster. However, SpectorSoft literature avoids mentioning that untrusting spouses form the largest portion of eBlaster purchasers.

The hardware**The Wrap**

From: Security Solutions, www.securitysolutions.ca,
416 410 9410; 888 410 9410

Price (incl. installation): \$275/\$325 (Wrap);

\$425/\$475 (Server Wrap)

Note: Additional charge for installation outside Greater Toronto Area.

Dimensions (cm)	height	width	depth
The Wrap external	52	27.9	51.4-63.5
Max. PC size	48.3	24.8	46.4-57.2
Server Wrap external	55.2	35.6	90.2-101.6
Max. PC size	50.8	31.1	83.2-94.6

One look at this made-in-Canada 16-gauge steel "computer safe," which is attached to the floor, will send a thief looking for your cashbox or jewelry. Without a key, your computer will be destroyed before it ever comes out of this box.

Adjustable front and rear steel flat bars can be locked in position out of the way, or placed to prevent access to drive bays and card interfaces. The 1/2-inch rod pin locking mechanism with key cylinder lock is mounted on the front bar. Keyed-alike locks are also available for locations with multiple units, such as a business, server room, or home with more than one computer.

The Wrap is shipped unassembled for

Continued on page 34

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Duron System	P4Celeron System	XP System	Power System	Barton System	Professional System
AMD Duron XP1800	P4 Celeron 2.0G CPU	AMD Barton CPU 2500+	Intel Pentium4 2.4GHz	Athlon Barton CPU 3000+	Intel Pentium4(800FSB) 3.0GHz
PC Chips 8310 Motherboard	ECS P4VMM2 Motherboard	AsRock K7S8X Motherboard	Asus P4S533-X Motherboard	Asus A7N8X-X Motherboard	Asus P4P800 HyperThreading
256MB DDR RAM	256MB DDR RAM	256MB DDR333 RAM	256MB DDR333 RAM	Dual Channel DDR400 512M	Multi-RAID Motherboard
3D Video 32MB shared	3D Video 32MB shared	GeForce4 MX440SE 64M Video	GeForce4 MX440SE 64M Video	Gainware FX5200 128MB 8xAGP	Dual Channel DDR400 512MB
Maxtor 30GB Hard Drive	Maxtor 40G(7200)Hard Drive	Maxtor 80G(7200)Hard drive	Maxtor 80G(7200)Hard drive	Maxtor 80GB(7200)Hard drive	ATI Radeon 9600Pro 128MB, 8xAGP
Panasonic Floppy Drive	Panasonic Floppy Drive	Panasonic Floppy Drive	Panasonic Floppy Drive	Panasonic Floppy Drive	WD 80G(7200)Hard drive 8M Cache
10/100 Ethernet, USB2.0	10/100 Ethernet, USB2.0	10/100 Ethernet, USB2.0	10/100 Ethernet onboard	LG 52x24x52 CD Burner	Sony 52x24x52 CDRW
LiteOn 52x CD Drive	LiteOn 52x CD Drive	LiteOn 52x CD Drive	LiteOn 52x CD Drive	6 channel 3D Audio onboard	Floppy, Ethernet & 6 channel audio
3D Audio, Speakers 240W	3D Audio, Speakers 240W	3D Audio, 240W Speakers	3D Audio, 240W Speakers	AltecLancing AVS300 speaker	AltecLancing AVS300 speakers
Alpha 17" Case 300W	Alpha 17" Case 300W	Alpha 17" Case 300W	Alpha 17" Case 300W	Alpha 17" Case w/350W	Alpha 17" Case w/350W
Keyboard & Scroll Mouse	Keyboard & Scroll Mouse	Internet Keyboard, Scroll Mouse	Internet Keyboard, Optical Mouse	MS Multimedia KB, Optical Mouse	Microsoft Mltmedia KB, Optical Mouse
\$285.00	\$348.00	\$488.00	\$588.00	\$958.00	\$1428.00

You may make following upgrades to your system package:

You may add following options to your System:

256MB DDR266 Ram -> 512MB	\$48	40G(7200) -> Maxtor 80G(7200rpm) hard drive	\$28	Add: 56K Faxmodem	\$18	Install Linux Operating System	\$29
30G -> Maxtor 40G hard drive	\$8	CD Drive -> Samsung 16x DVD drive	\$16	LiteOn 52x24x52	\$55		

***** The Legend Continues ***** The Legend Continues ***** The Legend Continues ***** The Legend Continues ***** The Legend Continues ***** The Legend Continues *****

HARD DRIVE Specials

Maxtor 40GB(7200rpm)	\$74
Maxtor 80GB(7200rpm)	\$102

Video Specials

ATI(OEM)Radeon 9200 dual video 128M 119	
Gainward FX5200 Pro660 TV/DVI 128M 99	

LCD MONITORS Specials

17" BenQ FT767 LCD with speakers	\$479
15" Mag HD572 LCD, scratch resistant	\$349

DVD/CDRW Specials

Samsung 16x DVD with S/W	\$38
AOpen 52x24x52 CDRW w/Software	\$49

HARD DRIVE & STORAGE

For Notebooks: Toshiba 20/30/40G	119/145/159
Maxtor(7200) 30/40/80/120GB	66/74/102/139
WD(8M Cache) 80/120G	123/166
Serial ATA Seagate 80/120G	175/239
USB Flash drive 64M/128/256M	29/49/96
Portable 2.5"USB Hard drive 20/30/40G	165/195/215
Portable 3.5"USB Hard drive 80G/120G	189/229

Controller Cards

ATA133 IDE / Raid, Promise	69/135
ATA133 IDE RAID Card, Silicon-Image	45
ATA133 IDE RAID Card, Promise	135
Firewire: Tekram/Sunix	35/27
SCSI Adaptor TeeRam 395U/395UW	53/76
PCI USB Adaptor Ver1.1/Ver2.0(NEC)	14/24

VIDEO Card & TV TUNER

Asus V9520/Magic FX5200 128M	99
ATI All-in-wonder Radeon9700Pro 128M(Retail)	579
ATI Radeon 9800Pro 128M(etail)	569
ATI (OEM) Radeon7000 64M Dual SDR/DDR	49/59
ATI (OEM) Radeon7500 64M Dual SDR/DDR	66/76
ATI(OEM) Radeon 9000 64M/128 DVI	85/99
ATI(OEM) Radeon 9000Pro 128M DVI/VIVO	145/159
ATI(OEM)Radeon 9200 8xAGP 128M DVI/VIVO	119/139
ATI(OEM)Radeon 9600Pro 8xAGP 128M	259
ATI(OEM)Radeon 9700Pro/ 9800Pro 128M DVI	509/539
Gainward FX5200 128M / FX5600 256M	99/239
GeForce4 MX440SE 64/128MB	59/77
GeForce4 MX440 128MB 8xAGP+TV	95
GeForce FX5200 8xAGP 128MB +TV	108
MSI FX5200 8xAGP 128M VIVO w/Remote	149
MSI GeForce4 MX440 8xAGP 128M	125
MSI GeForce4 Ti4200 8xAGP128M VIVO	199
MSI GeForce4 Ti4800 8xAGP128M VIVO	229
PowerColor FX5200/FX5600 8xAGP128M DVI	99/239
PowerColor GeForce4 Ti4200 8xAGP128M DVI	189
PCI: GeForce4 MX440se 64M	79
TV Wonder by ATI, (etail) PCI/USB	99/125
TV Tuner with capture, FlyVideo 2000/3000	48/59

CASES/Power Supply

Booksize case for P3 & P4 Beige/Black 4" thick	76
Desktop case for P4 system 5.5" high	59
P4 Tower case: 17"/18"/24"/27"	26/45/99/199
Aluminum Case 17"/18"	105/169
with USB, Firewire, audio ports(PS extra)	
19" Rackmount Case 1U w/300WPower Supply	329
19" Rackmount Case 4U (Power Supply extra)	169
Power Supply(OEM) for P4: 300/420W	19/29
Power Supply (Enermax) 300W/350W	49/75

CPU

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MEMORY

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NETWORKING

Bluetooth USB adapter D-Link DBT120/OEM	64/54
Ethernet card: Intel8460C/DLink538	48/14
Ethernet card: SMC/AOpen/Realtek OEM	9/14/9
PCMCIA Ethernet 32bit: Surecom/DLink	35/56
10M Hub: 5 ports/8 ports	17/19
10/100 Switch: 5/8/16/24 ports	26/39/89/109
10/100M Switch: DLink 5/8/24 ports	45/65/169
Router 4port: DLink DI 604/704P	48/66
Router 4port: SMC7004VBR/After \$30 rebate:	25
Wireless Cardbus: SMC2635W/DLink DWL650+	39/59
Wireless USB Adapter: OTC/Linksys WUSB11	49/79
Wireless PCI Adapter:DLink DWL520+	75
Wireless Router: DLink DI614+/Linksys BEFW11S4/	
SMC7004AWBR	109/115/76
Ethernet cable 6/10/14/25/50/75/100/1000'	5/7/8/9/12/16/19/65

PRINTER

Canon i320/i550	75/165
Epson C62/C82	95/139
Lexmark E210, Laser	249

Scanner

Acer4300/5000U/5300U	59/94/99
Epson 2400Photo	269

Keyboard/Mouse

Keyboard: Foldable Flexi, water resistant	29
Keyboard: Win98/Multimedia/Logitech Internet	8/12/19
Keyboard: Japanese/Korean/Chinese/Russian...	18
Mouse: Scroll/Optical	6/14
Mouse: Logitech Optical	16
MS MltMdia Keyboard & Optical mouse(w/sys)	39
MS Natural MltMdia Keyboard & Optical mouse(w/sys)49	
Wireless Mouse: A4 Rechargeable Optical	43
Wireless Mouse: Logitech Optical	39
Wireless Keyboard & Mouse: Ergonomic Optical	69
Wireless Keyboard & Mouse: MS Desktop (w/sys)	75
Wireless Keyboard & Mouse: Logitech Elite Duo	107

MOTHERBOARDS

ASUS P4S533-X/P4S533-MX	87/95
ASUS P4P800 Deluxe/P4C800 Deluxe	209/263
ASUS A7S333	87
ASUS A7N8X/A7N8X-Deluxe	158/185
ASUS A7V8X-X/A7V8X WL1394	94/153
ASRock K7S8X	75
ASRock P445D, i845d, Hyper-Threading	79
ECS L7S7A2 8xAGP/K7S5APro	73/69
ECS L7VM2 with Video, Audio, LAN	82
ECS K7SOM+ with 1800 Duron CPU	108
ECS P4VMM2	72
Gigabyte 8PE800/8SQ800	113/129
Gigabyte 7VAX-A/7VAXP-A-Ultra	115/179
Intel ServerBoard SE7501BR2	759
Shuttle SB51G P4 Aluminum system	415

MONITORS

LCD 15" Mag LT565/HD572	329/349
LCD 15" Samsung 151SBeige/Silver	379/389
LCD 17" Acer AL718 (after \$50 rebate)	449
LCD 17" BenQ FP767 fast response	485
LCD 17" Mag LT765/HD772	489/519
LCD 17" Samsung 171S, Beige/Silver	589/599
LCD 19" Samsung 191N, Silver	959
17" BenQ V772 0.27dp	138
17" Envision EN-770e 0.25 Flat screen	153
17" Mag Innovision Pure Flat .25dp,1600x1200	166
17" Samsung 753DF, DynaFlat	175
19" AOC 9Klr 0.25dp	269
19" BenQ P992 0.25dp 1600x1200 Flat screen	269
19" LG F900B/F900P, True Flat	389/415
19" Mag Innovision Pure Flat 0.25dp	239
19" Samsung 955DF	299

Multimedia

Creative WebCamPro/Logitech QuickCamWeb	52/47
ORite iWebCam 640x480 w/Mic	37
FM Radio Broadcaster	32
MP3 Player & Flash drive 128MB	93
MP3 Player, recorder, Flash drive 128M, Radio	139
Compact Flash 64/128/256MB	35/48/78
Multi-media Card 64/128M	37/77
Memory Stick for Sony 64/128M	47/73
Smart media Card 64/128MB	34/53
USB Single-Slot Card Reader, USB1.1	14
USB Multi-Slot Card Reader, USB1.1/2.0	22/29

CD-ROM & Floppy

52x Sony/MSI/LG/LiteOn	28/24/24/24
CDRW with Software: -	
AOpen 52x24x52	49
LG/Liteon/Mitsumi 52x24x52	55/55/55
Sony 52x24x52	63
Portable AOpen CDRW 52x24x52 USB2.0	139
Combo Drive: LG 4480B DVD/CDRW	79
DVD 16x LiteOn/Samsung(with S/W)	43/43
DVD 16x AOpen/LG(Drive only)	43/43
DVD 16x Sony/Pioneer(Drive only)	46/49
DVD RW LG GMA-4020B	213
DVD RW Sony DWU10A, 4x Dual mode	399
1.44MB Floppy Drive, internal/external	12/55

Sound

3D sound card/Audio Excel 5.1 Theatre	14/22
AOpen AW840/AW850/AW540Deluxe optical	18/28/49
SB Live5.1/Audigy	43/92
Audigy2(OEM)/Audigy2 Platinum	105/235
Speakers:	
180W/Juster 2.1 Silver LED	7/46
Altec Lancing AVS300/ATP3	33/83
AOpen 805/815/915/Titanium	26/48/89/76
Creative Inspire400/Inspire5200	62/87
Telex Microphone/Stereo Headphone	7/14
Dynamic Headphone XBase-vibration	26

FAX/MODEMS

56K FaxModem	18
Acer 56K FaxModem SV/PLM	19/32
Hardware FaxModem: SmartLink/USR	57/79
External FaxModem AOpen(hardware)	99

Accessories/Drive Enclosure

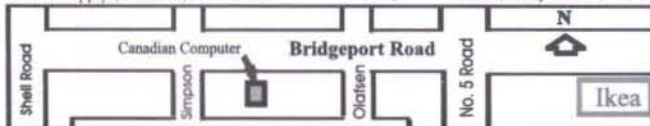
Fan control Front Panel w/USB, Firewire	46
Front panel for USB, Firewire & audio ports	18
External Drive Enclosure	
2.5" USB2.0 for Notebook Hard drive	37
3.5" USB2.0 for Hard drive	65
5.25" USB2.0/Firewire & USB Combo	65/109
H.D.mobile rack ATA133 1 fan/3 fan	14/22
Linksys KVM Intelligent Switch Box 2-ways	56
USB 4Port Hub	15
CDRA0x(50pc)	17
DVD-R 1x/2x/4x(all 2pc)	4.8/5.8/6.8
DVD-RW 1x (2pc)	11
CPU Fan: CP5-6131C/CoolJag352A	12/17

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Stealth, smoke, and steel

Continued from page 32

compactness (four can be shipped in the space of one assembled unit).

While relatively easy to insert, the screws for assembling the Wrap are cross-threaded to discourage, if not prevent, removal once installed. The screw heads require an uncommon driver, which prevents anyone from taking it apart with a common slotted, Philips, or Robertson screwdriver.

Anchoring the Wrap is slightly more complicated than drilling into your concrete floor (over 90 percent of The Wrap installations are on concrete) with a masonry bit and Tapcons (typical hardware-store masonry screws). Unless you're experienced in concrete drilling and mounting, pay a little extra for installation. (Your insurance company may insist on professional installation.) If you have a wood floor, special mounting adapters are available that prevent a thief with a crowbar or lever from simply prying up the entire package.

Smoke Cloak

From: Martin Security Smoke,
www.smokedcloak.com

Price: from \$3,000 (customized installation)

This loss prevention solution sports a "zero dollar loss" record, according to its manufacturer: nothing has ever been stolen from locations—which span the globe—where Smoke Cloak has been installed.

Smoke Cloak connects to existing security systems, so installations are customized for each location, with fire and police departments notified. It includes a separate battery so it works even in event of power failure at the location.

When the security system is breached, the Smoke Cloak quickly distributes smoke it has generated from distilled water and pharmaceutical and food-grade triethylene polyglycols, which won't harm those caught in the room with the smoke (though serious asthmatics might disagree). Unlike theatrical smoke, it leaves no residue. Smoke parti-

cles are one micron in size and non-buoyant. A "cloak sensor" measures the smoke level after the first "firing," producing more for half the duration if needed.

As a room fills rapidly with Smoke Cloak-generated smoke, thieves typically react by running from the "fire," according to the company. We witnessed a 140 sq. ft. room fill completely in under 15 seconds.

With an additional 7.5-second blast, we couldn't see anything. With smoke from a fire, the air is clearer if you get close to the floor—not so here. Even on the floor, you can't see your hand until it touches your nose. It's an eerie feeling: an exit door and fresh air is only about a metre away, yet you're unsure of its direction.

Smoke Cloak backs up its reputation with money: public liability and damage loss insurance of up to \$20 million on unoccupied premises. The exception is first page output from copiers and print-

ers, as the glycol on the drums could cause a bit of smearing on the first page. As well, normal smoke detectors are affected by this smoke, so have to be replaced (about \$30 each) in the event that the Smoke Cloak is used.

The level of the fluid used to make the smoke is monitored by the alarm monitoring station. The sensors shut down the pumps to save them in event of fluid depletion. Because the fluids evaporate at different rates, a licensed technician must service the system once a year.

Initially designed for banks and jewelry stores, this device now protects server rooms, labs, and other rooms used to house a lot of expensive equipment. Some home versions are installed near the main hall, activated by a panic button in the master bedroom.

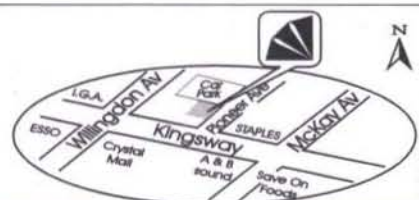
Smoke Cloak renders ugly exterior window bars obsolete. Next time you pass an unbarred building in a shady area, you might be passing a Smoke Cloak location. □



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Kids in driver's seat of new wireless technologies

By Jeff Evans

About a year ago, I went to a Toronto media briefing on short messaging services (SMS), a wireless data technology that lets cell phone users send and receive short text messages. A presentation showed how wildly popular SMS was in Japan and Europe, and how the Canadian telcos were finally getting their act together to make their next-generation cell phones "interoperable," allowing Canadian wireless phone users to communicate digital info with each other.

Fine, interoperable is good, and I didn't think much about it after that.

Then, this spring I began to notice an odd new behaviour among many of my kids' high school and college age friends. They'd be talking with each other, then one would stop, pull out his or her cell phone, silently read something on the phone's screen, and tap in a quick reply.



Photo source: Motorola

They were using SMS, constantly, and as easily as they talked.

I asked around, and was told condescendingly that "everyone" with a cell phone was using SMS. Except me, evidently.

I talked with a couple of Canadian wireless industry experts, Todd Beaman, director of enterprise and mobile applications for Ericsson Canada (www.ericsson.com/ca/), and David Neal, vice-president of new product development at Rogers AT&T Wireless (www.rogers.com), to find out what had happened to the technology and the market in the last six months.

Both Beaman and Neale, as it turned out, were very interested in what Canadian kids were doing with SMS. It turns out that there are two user groups driving much of the progress of wireless voice and data technologies around the world.

Continued on page 42

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HP PAVILION ZE5200	\$1649.99	P4-2.4G / 512M / 60G / DVD-CORW / 56K / NIC / 15" TFT
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TOSHIBA SAT 1110-GMW	\$1149.99	CELE-1.8G / 256M / 20G / DVD-CORW / 56K / NIC / TV-D / 15" TFT
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TOSHIBA SAT 2400	\$1899.99	P4-1.6G / 256M / 40G / DVD-CORW / 56K / NIC / TV-D / 15" TFT
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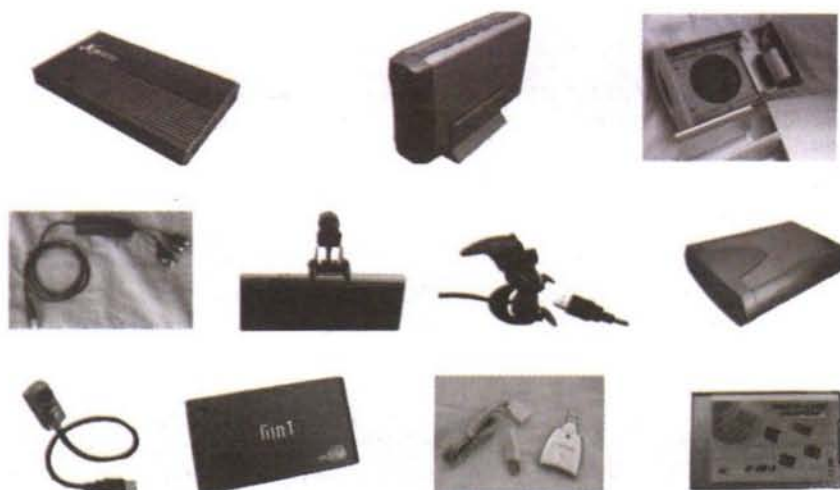
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L7VMM2 SIS730 SocketA Motherboard Video/Audio/Lan/usb	\$88.00
L7SOM And XP1800 2DDR+2SDR Video/Audio/Lan	\$119.00
ASUS P4XP-X Socket 478 With lan/sound Motherboard	\$96.00
P4P8X ASUS P4P8X Socket478 With AC9710/1000/FireWare	\$146.00
ASUS P4P 800-VM 865PE With/Video /Sound /lan	\$156.00
ASUS P4P 800 Deluxe 865PE With/Raid/Glan/Sound	\$198.00
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GIGABYTE GA-7VAX-A KT400 SocketA Motherboard	\$119.00
MSI KT4VL KT400 ATA133 3DDR 8XAGP USB2.0	\$106.00
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MSI 845GLMS-L 2SDR VGA Audio/Lan Motherboard ATX/	\$78.00
MSI 855 Max-Fir S478 8xAGP With/IEEE/Lan /Raid	\$209.00
MSI K7N2D-L MSI K7N2D-L 400FSB DDR400,8XAGP/W/	\$126.00
IS7 ABIT IS7 8xAGP W/Sata+IEEE+A+L Motherboard	\$168.00

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Maxtor 80.0GB ATA-133 7200rpm/8.5ms/2MB Hard Drive	\$109.00
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Toshiba 6100 P4 1.8/256MB/30GB/14.1TFT/56K/DVD-RW/LAN/XP	\$2,166
Toshiba 5200 P4 2.2/256MB/30GB/15" TFT/DVD-CRW V9.2 WinXP	\$3,266
TI Toshiba 1130 C2/30GB/256MB/15.1TFT/DVD-CRW V9.2/XP	\$1,566
Toshiba Tecra S1 PM1.5/40GB/512MB/DVD-CRW/14.1TFT/XP	\$3,198
Fujitsu C2111A P4 1.6GHz/256MB/20GB/RW-DVD/V95/LAN/15.1/XP	\$2,266
Acer Aspire 1304XC AMD1.6G/256MB/30GB/14.1TFT/DVD-CRW/XP	\$1,466

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ATI128MB Radeon 9800 Pro AGP Daul(VGA+DVI)+TVO	\$566.00
ATI-WOND-4M ATI 9700 128MB All-In-Wonder Pro(OEM)	\$509.00
ATI128MB Radeon 9600 Pro AGP Daul(VGA+DVI)+TVO	\$275.00
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ATI128MB Radeon 9700 Pro AGP Daul(VGA+DVI)+TVO	\$466.00
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ASUS V9560/VS Geforce FX5600 128MB DDR AGP8X VIVO	\$269.00
MSI 8847 64MB GeForce4 DDR MX440SE With TV OUT	\$78.00
MSI 8890 64MB GeForce4 AGP Video Card With TV Out	\$85.00
MSI 8907 FX5200 TDR128 8X AGP DVI/TVO Video Card	\$146.00
MSI 8894 128MB GeForce4 TI4200-VTD 8XAGP	\$188.00

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Canon S230 Digital Camera	\$519.00
Canon A70 Digital Camera	\$466.00
Canon S45 Digital Camera	\$739.00
Canon A60 Digital Camera	\$379.00
Canon G3 Digital Camera	\$929.00
EPSON ELPC C02 Digital Camera	\$2,929.00
QuickCam Web USB Camera w/Microphone	\$46.00

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D-Link DFE-538TX 10/100Base PCI RJ45 Network Card	\$14.00
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NEC 17" 1760VFlatPanel LCD	\$679.00
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Samsung 17" 765MB(black) SVGA Color Monitor	\$279.00
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Samsung 17" 753DF SVGA Color Monitor	\$189.00
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SONY 17" SDM-S71R LCD SVGA Color Monitor	\$729.00
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Copier, Scanner Centre	\$229.00
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EPSON C82 InkJet Color Printer	\$149.00
EPSON CX3200 Multifunction	
Printer,Scanner,Coopy	\$188.00
EPSON C82 Color InkJe Printer	\$109.00
HP 3420V Color Printer	\$109.00
HP LaserJet 1000 Printer	\$268.00

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Canon LIDE30 Color Scanner	\$149.00
Epson 2400PH Photo Perfection Scanner	\$278.00
Epson 1260PH Photo Perfection Scanner	\$119.00
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303 PS3D PS/2 MOUSE
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Integrated 32MB SIS370 4xAGP Video
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AC97 Software Sound
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ATI 128MB Radeon 9000 PRO DDR AGP(oem) With /TV OUT
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Aopen 104 Win98 P/S2 Keyboard
Logitech Optical Mouse
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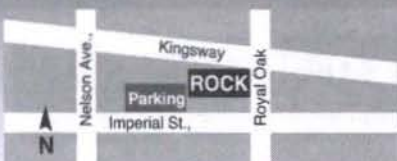
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A healthy perspective

By Sean Carruthers

Microcircuitry has become a part of pretty much every aspect of our daily lives, from cell phones to portable digital audio players, to navigation systems for our cars. The ongoing miniaturization of the technology is also helping people stay on top of their own health, right at home. We had a chance to look at a few new gadgets that will help you stay healthy.

According to the Canadian Diabetes Association, over two million Canadians have diabetes, whether they know it or not. For people who are interested in taking control over regulating and monitoring their blood glucose, computerized monitoring technology is available in the palm of your hand. There are a number of palm-sized monitoring devices available from a handful of companies; we looked at the OneTouch UltraSmart, from LifeScan.

OneTouch UltraSmart

From: LifeScan Canada Ltd., www.onetouch.ca

Estimated price: \$99



The package comes with the glucose meter itself, a device that's a touch smaller than a deck of cards, as well as a sampler that holds a lancet on the end of a spring-loaded trigger. You stick a test strip into the slot on the top of the meter, use the sampler to obtain a blood droplet from either your fingertip or

forearm, and then apply the droplet to the end of the test strip, which is sticking out of the meter. The blood is sucked into the inner core of the strip, where it reacts with a small zap of electricity, and in about five seconds, the meter gives you a result.

What's nice about a monitoring system like this is that it allows you to add comments to results you take, including the food you've eaten, how you're feeling, and any exercise you've done.

As the blood glucose result is entered, the system is designed to display warnings or suggestions as appropriate—if your glucose is dangerously high or low, it will display a large warning on the LCD screen saying so, or if it's on the verge it may just recommend a snack. Also, along the bottom of the device are specific buttons to allow you to enter data at any time about exercise, general health, medications taken, and meals eaten. All of this allows you to better

track your blood glucose levels and how they react to various daily occurrences. The meter allows you to view the information either in log form or as a graph or chart.

The OneTouch UltraSmart comes in a small soft-shell case with a belt loop, so you can always have the kit handy whether you're at work, home, or out on a walk. Two AAA batteries are included, as is a 10-pack of sterile lancets. Testing strips aren't included in the box, so make sure to buy them separately. Also sold separately is a serial cable interface that allows you to connect the meter to your computer, as well as OneTouch Management Software for your Windows PC. (Note: the retail price of the OneTouch UltraSmart is \$99, but there are incentives available through qualified health professionals, which can bring the price of the unit down to as low as \$29. Ask your DEC or doctor for more information.)

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Windows PS/2 KB & mouse & 180w spk

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18" P4-300w Tower Front USB
Windows PS/2 KB & mouse & speaker

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Fujitsu C2210i M2.2G/512M/60G/DVD-RW/CD-RW/W-Lan/15"/XPH	\$2,399
Fujitsu S6120 Centrino 1.4G/256M/30G/DVD-CDRW/13.3"/XPH	\$2,368
Fujitsu E4010A Centrino 1.4/256M/30G/DVD-CDRW/15"/XPP	\$2,288
Fujitsu P5010 Centrino 900/256M/40G/Combo/W-Lan/10.6"/XPH	\$2,288
Acer TM283LC M-2.0G/256M/30G/DVD-CDRW/56K/Lan/15"/XPP	\$1,661*
Acer TM800XCi Centrino1.3/256M/30G/DVD-RW/802.11b/14"/XPP	\$2,157*
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ECS G-733 P4-1.8/256M/20G/DVD-CDRW/1394/USB2.0/TV-out/15"	\$1,399
ECS G-732 P4-1.8/256M/20G/DVD-CDRW/1394/USB2.0/TV-out/15"	\$1,558
ECS G-530 Crusoe 1G Pro/256M/30G/DVD-CDRW/W-Lan/14.1"	\$1,188

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*The price is after rebate.

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Giga GA-8IG1000MK/8IG1000P/8IPE1000/8IPE1000L — \$129/159/126/149
GA-8IK1100/8KNXP/8PE800/8SQ800/8ST800L — \$185/275/104/102/92
MSI 875P-FIS2R/875P LSR/865PE n2-LS/865PE n2-FIS2R — \$255/214/145/234
865P neo/845GE Max-L/845PE Max-L/845PE Max2-FISR — \$116/132/124/222
655 Max-FISR/655 Max-LS/648 Max-L/651M Combo-L — \$200/148/110/88

AMD Socket A

Asus A7N8x/A7N8x-D/A7N8x-VM/A7N266vmw/A7S333 — \$152/182/144/95/86
A7V8X-X/A7V8x-GBL/A7V8x-1394/A7V333 — \$94/169/134/96
Giga GA-7VKMP/7N400L/7N400P/7NNXP/7VAX-A — \$88/116/164/238/106
MSI K7N2D-L/K7N2D-ILSR/K72G-L/K74 U-SIR/K74VL — \$118/179/149/164/98
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A Open

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AX4SG-N i865G/800FSB/Video/SATA	\$178
AX4SG-Max i865G/Video/GLan/SATA	\$248
AK79G-VN nForce2-G/Video/AL/8x	\$154
AK79G-1394 nForce2-G/Video/AL/1394	\$165
AK79D-1394 nForce2-G/AL/1394/8x	\$165
Mk79G-N nForce2-G/Video/AL/8x	\$162

Case

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QF50A-B 17"/black/P4-300W/F-USB	\$78
H600B 18"/black/P4-350W/F-USB	\$118

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Brother HL1435/5040/5050/5070/7050 — \$275/448/538/728/1,458

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Brother MFC3100C/5100C/4800/6800/9700 \$225/308/435/518/828

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Samsung DM101/201/240/360/420/V3/V4 \$169/198/275/375/488/495/538
Kodak CX4230/DX4330/DX6340 — \$285/428/448 Fuji A303 — \$428

More brand and more model available on our website

All Prices are subject to change without notice and reflect 3% cash discount

Centrios Infrared Ear Thermometer Centrios Blood Pressure Monitor

From: InterTAN Canada, www.radioshack.ca

Estimated price: \$40 (thermometer), \$60 (blood pressure monitor)

Taking control of your health at home doesn't necessarily mean drawing and testing your own blood—there are always the basics, and ways to make them even easier. Radio Shack's Centrios brand now features two new products to do just that.

The Infrared Ear Thermometer looks almost like a tube of toothpaste, but with an LCD on one side and an infrared sensor on the tip. When you press the scan button on the side, the infrared sensor takes 512 readings within one second to determine your temperature. When done, the LCD shows your temperature along with a small face to emphasize how you're doing: a smiley face if you're within a normal range, and an unhappy face if you're running a fever. A memory setting allows you to store 10 readings. The unit is powered by a single CR2032 watch-sized battery, and comes with a protective case for storage.



Centrios also offers a new Blood Pressure Monitor, which you fasten to your wrist using an inflatable velcro strap. All you have to do is make sure the back of the unit is properly positioned over your wrist's pulse point, press the button, and let it do its work. It inflates automatically, and takes your blood pressure and pulse as it deflates (for the record, mine is a touch higher than it should be; maybe I should take some time off).

It uses two AAA batteries (not included), which are a bit tough to install, but not impossible. The whole thing is stored in a reasonably small plastic case when not in use. □

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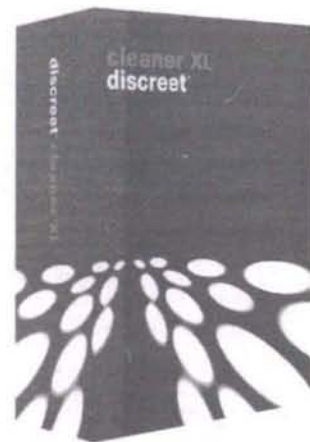
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< HANDS ON >

Cleaner XL still must-have video tool, despite annoying tweaks

By Emru Townsend

Many people who work with digital video have it easy. They know exactly where their video is coming from (say, a DV camera) and exactly where it's going to go when they're done with it (say, a Windows Media file). The rest of us never know where our latest video is coming from, what condition it's in, or where it's going to go.



Cleaner XL
From: Discreet, www.discreet.com
Price: US\$599
System requirements: Windows 2000/XP

So to cover every possibility, our hard drives can become cluttered with multiple programs for converting and cleaning up video in every conceivable format. On the other hand, there's always Cleaner, the latest iteration of which is called Cleaner XL. (The newest Mac version, for OS 9.1 and OS X 10.1, is Cleaner 6.)

Cleaner's job is to take a source video file, convert it to exactly the video resolution, frame rate, and audio sampling rate you need, and spit it out in the format you want. Along the way, it can clean up the image, crop the frame, adjust the colour, and more.

The last time I used Cleaner was about three years ago, when it was owned by Media 100 and called Media Cleaner Pro. What I liked about it then was that it was only as complex as you needed it to be. Creating a batch job was a matter of dragging several video files into the job queue window, and assigning each file an output profile—say, a QuickTime file at 15 frames per second (fps) scaled to half the original image size, or a 30 fps AVI. If you

needed to do some extra tweaks, like changing the colour space or resampling the audio, you would go to the appropriate subsection in the profile and select only what you needed; the options you didn't need remained hidden unless you clicked on their tabs. Once you were done with your settings, you started the ball rolling and found something else to do while the file encoded.

Cleaner XL has a similar workflow, but I'm not sure I like its embellishments. For one thing, every file in a job now has to conform to the same frame format (NTSC or PAL, for instance) and aspect ratio—but isn't the whole point of using a batch processor to let the computer sort out the difference between different files?

In the end, the results are the same; it's just that if you want to convert several files that are in different formats or aspect ratios, you have to create separate jobs, put files in the appropriate job, then put each job in the queue—adding several steps to what used to be a streamlined process.

Other than that, Cleaner XL performs just as well as its ancestor. Selecting an encoder gives you control over every possible parameter of the output file format; the audio and video tracks can be extracted separately; colour and sound can be adjusted almost any way you like. A split-screen preview provides an easy way to see how your settings will affect the final look of your video.

Some notable improvements include the ability to convert the same source file into several output files simultaneously, even to different locations on your hard disk, network, or ftp site.

The Watch Folders feature allows you or other network users to drag and drop files into designated folders for automatic conversion.

Another bonus: Cleaner can output files specifically for the included Kinoma Producer, providing an excellent way to prepare video for Palm OS-based handhelds.

With its steep price tag, Cleaner XL isn't for everyone. But if you work with video professionally—or even if you're just a prolific amateur—it's almost a necessary addition to your toolbox. □

Emru Townsend (emru@pobox.com) swears his video didn't kill the radio star.

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Kids in drivers seat*Continued from page 36*

One group is the business power users: financial industry people, stock-brokers and investment bankers and such, who live with their phones, get stock prices and news headlines, and send and receive email and messages necessary for staying up to date and making fast decisions.

The second, larger group is young people, who have eagerly adopted the successive waves of wireless services as a medium for staying connected with friends, flirting, chatting, playing games, and picking up useful information while it's still fresh.

Motorola's TV ads for the "Moto" lifestyle (direct.motorola.com/hellomoto), with wild club kids and chic cosmopolitan stylishness, only show part of the appeal of wireless for the young. Wireless social connectivity is a 24-hour a day reality, not only a Saturday night fever.

About four percent of Canadian phone users, or about 400,000 people, have picked up the SMS habit—most of them in the last six months. That num-

ber is expected to double and quadruple over the next year, as the number of new phones with SMS capability increases, and more users discover the appeal of SMS.

One reason SMS is such an easy sell to young people, according to Beaman and Neale, is that kids were already big users of Instant Messaging, email, and chat on their computers, as well as dedicated cell phone voice and pager addicts. SMS combines the computer and phone mediums, and is portable.

The importance of a private, immediate way to contact one's friends is shown by the proportion of disposable income young Canadians will spend on their cell phones: monthly bills of \$40 to \$100 are common. A high percentage of kids buy their cell phone time on a pay-as-you-go basis.

Neale claims that there is a combination of group fashion and individual freedom to SMS, which is very appealing to young people.

"It's an intimate form of communication," he commented, noting that this demographic places a lot of emphasis

both on being accepted by their group and forming an individual identity. The private nature of SMS serves both needs.

Beaman looks ahead at regular waves of new wireless hardware and applications hitting the Canadian market over the next three to four years, as higher speed services and more powerful phones with better screens, built-in cameras, and the ability to run Java software become more common.

Beaman also claims that photography and even Webcam-style video over phones will become popular over the next five years, along with games, enhanced email, and Web browsing.

In a recent Ericsson survey, 56 percent of Canadian respondents claimed to be using cell phones, well behind the 93 percent of respondents in a Swedish survey. Beaman notes that if the parts of the population not surveyed (children, people living outside of cell phone coverage areas) were counted, the actual cell phone using population would be roughly 30 to 32 percent of the total population, or about 10 million Canadians.

The cell phone market is still growing steadily, and looking three to four years ahead, Beaman expects to see a real 50 percent penetration rate, or about 15 million Canadian cell phone users.

The next leading edge of wireless is claimed to be multimedia messaging: pictures, sound, music, and animations. Some of these services are already happening in the U.S., but there is a bit of a lag in Canada, as the local service providers wait to see how it flies down south.

Some of the first serious multimedia phone offerings may be rolled out for the holiday season at the end of this year, and looking out a couple of years ahead, there'll be more phones and more services capable of handling streaming types of media: television, news clips, music, live feeds from concerts, and other public events.

When the phone networks' servers and switches are upgraded to third-generation or 3G technology, we may see those streaming apps become very popular. And when every phone comes out with a built-in MP3 player, and there are millions more users, the prices of the

new services will also come down.

When asked whether there'd be security and privacy problems with next-generation phones, Beaman laughed and "no more so than the Internet," which was not very reassuring. He said wireless is just as secure, maybe more so than a desktop PC, because it's not as easy to capture data wirelessly due to phenomena such as frequency hopping. But even if you do manage it, the data's very much the same, neither less nor more secure than the Internet.

Phone fashion report

Next year, according to Beaman and Neale, almost all new phones will have colour screens as a standard, with most also having the capability of handling multimedia messaging at current transmission speeds, with games and downloadable Java applets among the options.

The average cell phone user trades up to a new phone about every 18 months, so within a few years, most Canadian users will be carrying a new generation phone: depending on economic conditions, up to 20 million new phones may enter the Canadian market, according to Beaman.

According to Beaman, Ericsson currently has a smaller share of the Canadian cell phone market compared to industry leaders Motorola and Nokia, but its market share has been increasing steadily in recent years, and it's looking at its sophisticated new multimedia phones to give it an edge.

Both Neale and Beaman expect that young Canadians will always be disproportionately interested in new communication and entertainment technologies, but today's early adopter kids will grow up and turn into business users who are very tech-savvy and accustomed to spending on telecom services.

Because of this group's acceptance of wireless services, they'll become more widely spread every year, as today's kids go to university, graduate, and find jobs, and the wireless lifestyle becomes the standard. □

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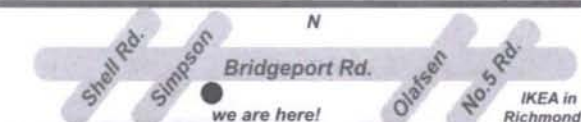


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Plus! audio tools excellent, but video, photo utilities fall short

By Emru Townsend

Microsoft claims that its Plus! Digital Media Edition is "the ultimate photo, music, and movie enhancement pack for Windows XP," but that's a little off the mark. The photo and movie enhancements amount to Plus! Photo Story, which rather lamely helps you unleash your inner Ken Burns; 50 new effects and transitions for Movie Maker 2; and an easy way to transfer media to Pocket PCs. Ultimate? Hardly.



Plus! Digital Media Edition

From: Microsoft, www.microsoft.com

Price: \$34.99

System requirements: Windows XP

Microsoft would have done well to scrap the photo and movie aspect and call this collection of Windows XP add-ons Plus! Digital Music Edition. Like the original Windows 95 Plus! pack, the programs are at turns useful, questionable, and frivolous—but if your main concern is digital music, and you don't mind helping Microsoft's Windows Media Audio (WMA) make further gains on the MP3 format, the emphasis is on "useful."

My two favourite programs in the bundle are Plus! Analog Recorder and Plus! Audio Converter. (In fact, all of the included programs are "Plus!" something or other; I won't bother mentioning it again, I promise.)

Analog Recorder turns your tapes and records into digital audio files—something other programs have been doing for years, but never with this kind of simplic-

ity and elegance. After plugging your tape deck or amplifier into your sound card, Analog Recorder asks you to play one of the louder segments of the music you intend to record; it uses this to automatically set the highest recording level it can get away with using without distortion. Then it's just a matter of clicking Record and playing your tape or record. When you're done recording, the program breaks everything up into separate tracks (you can recombine or further split them if necessary). All you have to do is apply pop and hiss reduction, if you're so inclined, and provide data like track names, album title, and artist. The pop and hiss filters are very simple—each one is either on or off—but they work well with most source material. If you're finicky, you'll want to stick with more advanced software.

Audio Converter doesn't do anything new, either—its sole purpose in life is to convert existing audio files to WMA. You could do the same thing with Microsoft's free Windows Media Encoder utility, but that's really geared for people who need fine control over their settings, want to create streaming media, or don't mind doing a little scripting to handle multiple audio and video files. Audio Converter's spare but clear GUI enables anyone to easily convert whole folders of audio files to WMA with just a few mouse clicks.

The two other programs in the "useful" category are Alarm Clock and CD Label Maker, but both are flawed. Alarm Clock is a Windows clock radio, only with music from your collection instead of a radio station. You can set an alarm to repeat, increase in volume over time, or recognize a key as a "snooze" option (which implies that your computer is a little too close to your bed). All of this is fine, but if you exit and restart Windows, Alarm Clock doesn't restart with it—unless you have the presence of mind to go into the options and make sure it does.

CD Label Maker does what its name says, using playlists to generate a list of song titles. It's pretty straightforward, but

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AC97 Sound / Multimedia Spkr
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Duron 1800+ \$147

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- LAN • 128MB DDR •

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Asus GF4 9520TD, 128MB DDR, DVI, VIVO, 8X \$135
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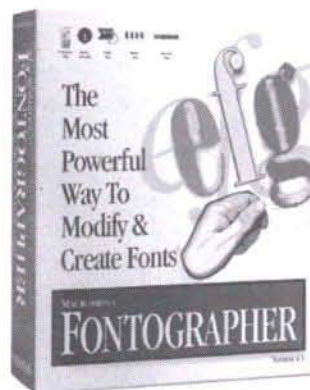
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< HANDS ON >

Macromedia's Fontographer enables fontaholic's addiction

By Brandi Jasmine

Every graphic designer or desktop publisher has had a "font moment." That's when the search for the perfect typeface has nearly driven them around the bend. More than a little late-night hair loss has been caused by this search. You can search through endless CDs and online libraries and spend hours looking for the perfect typeface among the thousands available, only to come up empty-handed.



Fontographer 4.1

From: Macromedia, www.macromedia.com

Estimated price: US\$349

Macromedia's Fontographer 4.1 can put an end to those searches, and increase the library of those fontaholics who don't believe you can be too rich, too creative, or have too many fonts. Fontographer won't replace your font libraries or eliminate online searches, but it can dramatically enhance your creativity and speed up the process of custom typesetting.

You can start from scratch, completely create your own fonts, edit existing Mac and PC fonts, or modify the samples provided. Has your search for a "bold italic" version of an arcane font been long and fruitless? No problem. Just open the font on Fontographer and you can widen and skew the characters by degrees until you get the desired effect. You can even import your favourite fonts, and take out those little imperfections that have been making you crazy.

Never again will you have to search the Internet to find that wild font you're picturing in your mind.

Instead, you can take that time and create your own custom wing dings, font

art or even create a custom one-key signature.

All fonts are compatible with standard PC and Mac programs like Adobe Photoshop. Combining Fontographer with Ulead's Cool 3D or other 3D font manipulation packages further expands the creative possibilities.

Import a bitmap logo into Fontographer and set a key, and you will be able to import that graphic into your documentation, creative work, and publications with a single keystroke and a couple of mouse clicks.

For the advanced typographer, Fontographer offers the opportunity (and challenge) of creating your own commercial typefaces. For the beginner or desktop publisher, it's a handy tool to expand the usefulness of your existing font collection.

It is easy to create individual characters and designs in Fontographer if you have any experience with vector-graphics programs like Adobe Illustrator or Freehand. If not, there is a learning curve; it can be challenging figuring out the different image formats required if you don't already have hands-on experience.

The documentation is simple and straightforward, however, with easy to follow tutorials included in the printed manual.

It's a little more challenging to beginners who will have to figure out such prerequisites as metrics, kerning, and leading, but the more you play with the Fontographer, the faster you'll pick up the basics.

For Windows users, the interface is not totally intuitive. There are no mouse-over help tips on the tools, and the help file is not illustrated, which can make figuring out the various tools a little challenging at first. These are documented in the accompanying manual, however.

Fontographer is compatible with Mac OS versions up to 9.2.2, as well as Windows 95, 98, and NT. However, the program is not compatible with Mac OS X, and those with systems running Windows 2000, Me, or XP may have compatibility issues. □

Brandi Jasmine is a freelance writer, illustrator, photographer and new technology junkie. You can write to her at bj@brandijasmine.com.



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< HANDS ON >

Plus! audio tools excellent . . .

Continued from page 44

no matter what you do it won't print those song titles on a CD label, only on jewel case inserts.

Dancer fits somewhere between the "frivolous" and "questionable" categories: small digitized dancers shake their groove thangs on the lower-left corner of your screen, getting funky to whatever you've got playing. The dancers are mildly entertaining, but their moves aren't always quite in time with the music, which can be jarring. You can still have fun with them, though—watching the b-boy Wade popping and locking to the thoroughly undanceable *Ghost in the Shell* soundtrack was almost hypnotic. And watching the portly Ben dance (in a style that could only be called groovy white guy) to anything is a riot.

Then there's the Party Mode for Windows Media Player, which provides full-screen skins for Windows Media Player 9 and a few extra functions. The idea is that during a party, people can modify the playlist or add messages that will scroll on the screen, but they'll be locked out from the rest of the computer's files and functions. As someone who's handled party music responsibilities from the days of spinning vinyl, I can appreciate Party Mode's ease of use, but I have to wonder why none of the skins would allow me to display Windows Media Player's visualizations—the perfect party eye-candy—at full-screen resolution. For that matter, Microsoft dropped the ball by not allowing the Dancers to hop onscreen during Party Mode. That would be some silly fun.

One notable aspect of Plus! Digital Media Edition is that Microsoft seems to have learned the value of subtlety. All of these programs happily read and work with MP3 and WAV files, as well as WMA. Even the Dancers don't mind working with RealOne Player, WinAmp, or whatever you use to play digital music. But if you want to encode music or take advantage of volume levelling for playback, you're limited to the Windows Media Audio 9 Series format. You can decide for yourself if that's a price you're willing to pay for a visit to Microsoft's Funkytown. □

Four years after the fact, Emru Townsend (emru@pobox.com) is still partying like it's 1999.

Nexttype Station

Entry Level System

- @256MB DDR PC2100
- @1.44 Floppy Drive
- @Maxtor 40GB ATA/133 HDD
- @52x CD-ROM ATAPI
- @Onboard Share RAM AGP Video
- @Onboard AC'97 Sound w/ Speaker
- @Onboard 10/100Base-T LAN
- @18" ATX Tower Case w/ 300W PS
- @107 Key Keyboard & Mouse

		AMD Athlon XP 2200+/2400+	\$489/519
		Intel Celeron 1.7/1.8/2.2GHz	\$411/425/441
		Intel Pentium 4 1.7/2.0GHz	\$551/593

Choose Your CPU Type

AMD Duron 1800+

\$389

Intel Celeron 1.7/1.8/2.2GHz

\$411/425/441

Intel Pentium 4 1.7/2.0GHz

\$551/593

AOpen SOHO FSB800

Intel Pentium 4 FSB800 System

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- @512MB DDR333 (2 x 256MB Dual CH)
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- @AOpen nVIDIA FX 5200 128MB DDR 8X
- @Onboard 5.1 Sound w/ MS805 Speaker
- @Onboard Gigabit LAN, IEEE1394, USB 2.0
- @AOpen QF45 ATX Tower Case w/ 300W
- @AOpen 107 Key Keyboard & Wheel Mouse

		Intel Pentium 4 3.0C	\$1440
		Intel Pentium 4 2.4/3.06 (533MHz)	\$1100/1349

Choose Your CPU Type

Intel Pentium 4 2.4C

\$1119

Intel Pentium 4 2.6C/2.8C

\$1175/1275

Intel Pentium 4 2.4/3.06 (533MHz)

\$1100/1349

AOpen Pro GAMER

AMD Athlon XP System

- @AOpen AK79D-1394 Main Board
- @Swifttech MCX462 Heatsink & Fan
- @512MB DDR333 (2 x 256MB)
- @3.5" 1.44 Floppy Drive
- @Maxtor 80GB ATA/133 7200rpm HDD
- @LG 48xCD-RW & 16x DVD Combo w/ Nero 5
- @AOpen nVIDIA FX 5800 128MB DDR 8X
- @Onboard 5.1 Sound w/ MS805 Speaker
- @Onboard 10/100 LAN, IEEE 1394, USB 2.0
- @AOpen QF45 ATX Tower Case w/ 300W
- @107 Key Keyboard & Wheel Mouse

		AMD Athlon XP 3000+	\$1680
		AMD Athlon XP 2800+	\$1560
		AMD Athlon XP 2400+/2500+	\$1431/1449
		AMD Athlon XP 2700+/2600+	\$1500/1459

Choose Your CPU Type

AMD Athlon XP 3000+

\$1680

AMD Athlon XP 2800+

\$1560

AMD Athlon XP 2400+/2500+

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\$1500/1459

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- Swifttech H2O-2 Complete Liquid Cooling Kit
- Swifttech H2O-2-C372 Complete Liquid Cooling Kit
- Swifttech H2O-2-8 Peripheral Liquid Cooling Kit
- Swifttech H2O 8500A AMD Liquid Cool Kit
- Swifttech H2O 8500AV AMD CPU and VGA Liquid
- Swifttech H2O 8500P4 Liquid Cooling Kit
- Swifttech H2O 8500PV P4 CPU and VGA Liquid
- Ahoran ICEBERG Water Cooling Kit
- Thermaltake Aquanil Liquid Cooling Kit

Thermal Compound

- Arctic Silver 3 Thermal Compound
- Arctic Silver Thermal Adhesive Compound
- Arctic Alumina Premium Thermal Compound
- Arctic Alumina Thermal Adhesive Compound

Thermal Paste

- Alpha PAL80451 Heatsink Only
- Alpha PAL80451 Heatsink & Delta Fan Retail
- Cooler Master D14-7HS3D Socket 478 Heatsink & Fan
- Cooler Master IAC-002 Aluminum Socket 478
- Cooler Master HHC-001 Copper Heat Pipe AMD
- Cooler Master HHC-001 Copper Heat Pipe P4
- Cooler Master HHC-001 Copper Heat Pipe SilentAMD
- Cooler Master HHC-001 Copper Heat Pipe Silent P4
- Swifttech MCXC370 Heatsink & 6800rpm Fan
- Swifttech MCX462 Copper & Delta 80mm Fan
- Swifttech MCX423 Copper & Delta 80mm Fan
- Swifttech MCX4000 Copper Heatsink Only
- Swifttech MCX462+ Heatsink Only for Socket A, 370
- Swifttech MCX462+ Thermoelectric Heatsink Only
- Swifttech MCX4000+ Thermoelectric Heatsink Only
- Thermaltake Volcano 11 Xaser Edition
- Thermaltake Volcano 9 Heatsink & Smart Fan
- Thermaltake Volcano 9 w/ Cool Mode
- Thermal Right AX7 SLK900U

Thermal Right AX7 SLK900U

- Zalman CNP6000A/Cu/CNP6000Cu for AMD
- Zalman CNP6500A-A/Cu for P4
- Zalman CNP6500B-A/Cu/CNP6500A-Cu for P4
- Zalman CNP7000-A/Cu/Cu for P4 & K8

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- Thermaltake Aluminum Heat Spreader for RAM
- Thermaltake Copper Heat Spreader for RAM
- Thermaltake Copper SHM CPU Protector for AMD
- Thermaltake Tiger One Chipset Cooler
- Thermaltake Hardcore 5 HDD Cooler LCD/Fan Con.
- Thermaltake Hardcore 7 W/U-Type LCD Temp.
- Ti Hardcore 8 (4 Channel VR Fan Speed Controller)
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- Thermaltake 2 pieces 80mm Fan Grill
- Vantec Tomado TD8038H 80mm High Speed Fan
- Vantec Tomado TD92038H 92mm High Speed Fan
- Thermoflow TF1205 120mm Fan w/ Thermal Control
- Thermoflow TF8025 80mm Fan w/ Thermal Control
- Thermoflow TF9225 92mm Fan w/ Thermal Control
- Vantec Nexus Multi-Function Panel w/ 3 Color
- Vantec Aluminum Heat Spreader for RAM
- Vantec Copper Heat Spreader for RAM
- Vantec Silver Nexus 201 Fan Speed Controller
- Zalman N8-321 North Bridge Heatsink
- Zalman Fan Mate 1 Fan Speed Control
- Zalman ZM50-HF VGA Heatsink
- Zalman ZM80A-HF VGA Heatsink

Power Supply

- Enemag EG36SP-VE/FC 351W P.S.
- Enemag EG46SP-VE/FC 431W P.S.
- Enemag EG46SP-VE/FC/FA/IFA 431W
- Antec True Power 330W/380W ATX
- Antec True Power 430W/480W ATX
- Antec True Power 550W ATX
- Vantec VAN-420A Aluminum ATX PS w/ 3 Fans
- Vantec VAN-470A Aluminum ATX PS w/ 3 Fans
- Vantec VAN-520A Aluminum ATX PS w/ 3 Fans

COOLING

Socket A Main Board (AMD Duron/XP)

- AOPEN AX79D-1394 nForce2 3PP w/ LAN/SATA
- AOPEN AX79G-1394 nForce2 1GP w/ LAN/VGA/S
- AOPEN AX79G-MAX nForce2 1GP w/ LAN/VGA/S
- AOPEN AX79G-VI nForce2 2IGP w/ LAN/VGA
- AOPEN MK77M-V VIA AGP w/ SOUND/LAN/VGA
- AOPEN MK79G-N nForce2 - G w/ VGA/SOUND/LAN
- Asus A7N8X-X VIA KT400 8X AGP DDR400 LAN
- Asus A7N8X Deluxe nForce2 8X AGP DDR400
- Chaintech 7N12 nForce2 w/ SOUND/VGA/LAN
- ECS K7VMM w/1600+ CPU/VGA/Sound/LAN
- Gigabyte 7NXP nForce2 2 Ultra 400+ w/ S.A.T.A
- Gigabyte 7VAXP DDR400 w/ 6CH/LAN/USB2/RAID
- Gigabyte 7VAXP-A Ultra w/6CH/LAN/USB2/RAID

Socket 478 - Intel P4 mPGA Main Board

- AOPEN AX45-8XN S5 648 BX AGP w/ LAN/1394
- AOPEN AX4C-Max i875P w/ S. ATA/1394/Sound
- AOPEN AX45G-N i865G 800MHz w/ S.A.T.A, VGA, LAN
- AOPEN AX4R-Plus E7205 w/ Sound/LAN/S. ATA
- AOPEN MX4GE i845GE w/ VGA/Sound/LAN
- AOPEN MX4GV i845GV w/ VGA/Sound/LAN
- AOPEN AX4PER i845PE DDR333/USB2.0/SOUND
- Asus P4B53-V i845E w/ USB2.0, Video, LAN
- Asus P4B53-DLX w/ Sound/LAN/S.A.T.A
- Asus P4C800 Deluxe Intel i875P w/ Sound/LAN/S. ATA
- Asus P4P800 Deluxe i865PE 800MHz w/ S. 1394, LAN
- Asus P4S533-X i86545DX w/ Sound
- Asus P4S8X-X i8655 w/ Sound
- Asus P4S8X-X i86548 w/ Sound
- Asus P4X-X i845 SDRAM/DDR w/ Sound, LAN
- Chaintech 9EJL DDR, LAN, 6CH, ATA133, USB2.0
- Gigabyte GA-8K1100 i875P w/ LAN, S.A.T.A, 1394
- Gigabyte GA-8KNXP i875P w/ G. LAN, S.A.T.A RAID

VIA EPIA M1000 Mini-ITX

- 8VIA C3/EDEN 1GHz CPU Build-in
- ED266 Chipset
- Onboard Video & TV out
- Onboard & Channel AC'97 Sound
- Onboard SPDIF Digital Audio
- Onboard USB2.0, IEEE 1394 & LAN
- Onboard Serial & Parallel Port
- 91 PCI Slot

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- Seagate 5. ATA 80/120GB
- Seagate ATA/100 40/80GB
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- Maxtor Diamond Plus 9 ATA/133 80GB
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- Zalman ZM300-AF 300W P.S.
- Zalman ZM400-AF 400W P.S.
- Nexus NX3000 300W P.S.

Shuttle XPC Barebone

\$425

Shuttle SN45G XPC

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SK41G \$379

SN41G2 \$409

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SB51G (Black ED) \$409

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- AOPEN 52x24x52x CD-RW w/ Nero 5 "Black"
- AOPEN 52x24x52x CD-RW w/ Nero 5
- Pioneer Tray Load 16x DVD OEM "Black"
- LG 8520B 52x24x52x CD-RW w/ Software
- LG 8520B 52x24x52x CD-RW "Black" w/ Software
- LG GGG-4480B 16x DVD/48x CD-RW Combo Drive
- LG GGG-4480B 16x DVD/48x CD-RW Combo Black
- LG GMA-4020B CD-RW / DVD-RW Drive Retail
- Lite On 52x24x52x CD-RW w/ Software oem "White"
- Lite On 52x24x52x CD-RW w/ Software oem "Black"
- ME-3202 USB2.0 Ext. Case for HDD/CD-RW/DVD
- ME-3202 Firewire Ext. Case for HDD/CD-RW/DVD
- CoolMax 3.5" USB2.0/Firewire Ext. Case

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- Cooler Master ATC-101-SX2 Andorizing Tower Case
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- Cooler Master ATC-600-DX1 (Dark Gray) Desktop
- Cooler Master ATC-610GX Desktop
- Cooler Master ATC-620C-GX2 / SX2 Desktop
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- Cooler Master ATC-500 Tower Case
- Cooler Master ATC-410 Aluminum Case
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Working on scenarios in Excel

Helen Bradley

OFFICE SUITE
TRAINING

Spreadsheets are great at answering "what-if" questions: design a worksheet in which you change a couple of numbers and it will show you the results of those changes instantly. Being able to manage the results

will help you test your scenarios, allowing you to easily switch between sets of data and compare results side by side.

Enter Excel's scenario manager. This tool lets you save the sets of data you place in cells of a worksheet model and easily restore them rather than entering them again. It can also be used to create summaries for the scenarios you're testing, allowing you to compare both the data and results side by side.

This month, I'll show you how to use the scenario manager to compare various savings goals, so you can see how the final amount saved varies depending on a number of scenarios. We'll create a very simple worksheet for use with the scenario manager that will also be a fully functional worksheet model.

The savings planner will calculate the amount you save over a period of time based on an initial deposit and additional periodical payments.

The basic calculator

To create this worksheet model, open a new Excel file and enter the following data into the cells shown:

Cell	Data
B3	Initial amount deposited
B4	Additional monthly deposits
B5	Interest Rate
B6	Years to save
B8	Total Amount Saved

C3	2500
C4	100
C5	.04
C6	10
C8	=FV(C5/12,C6*12,-C4,-C3)

The formula in cell C8 calculates the amount you'll have saved at the end of 10 years if you invest \$2,500 now and add another \$100 every month, earning four percent annual interest calculated monthly. The negative amounts in the formula are used because you are making payments out.

The result for this savings scenario is \$18,452.06. You will need to format cells C3, C4, and C8 to display currency and cell C5 to display percentages.

Naming cells

Make it easier to read and interpret results by naming the cells containing the variable information: i.e. cells C3 through C8. You will change the values in cells C3 through C6 to test results in cell C8. To name the cells, highlight the block of cells from B3 through C6, click Insert, Name, Create, select the Left Column checkbox, and click OK. Repeat this process to name cell C8, selecting cells B* and C8, then clicking Insert, Name, Create, etc.

The result will be that each cell in column C that contains data will be named, using the headings opposite the cell in column B. If you select cell C4, for example, the name in the formula bar will be Additional_monthly_deposits. Using the Name, Create feature to name cells replaces any spaces in the name with an underscore. Naming cells this way allows you to refer to them by their names rather than cell references. So, cell C5 becomes Interest_rate, making it easier to identify its contents. In fact you can, if you wish, replace the formula in cell C8 with this formula:

```
=FV(Interest_rate/12, Years_to_save*12,
Additional_Monthly_deposits,
Initial_amount_deposited)
```

The scenario manager doesn't require you to name the cells, but it is recommended because these names (rather than cell references) are used as headings in the scenario report.

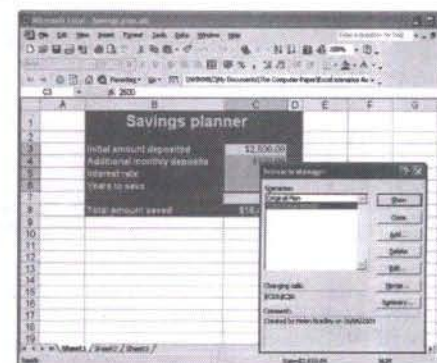
Create a scenario

You can now run a what-if analysis on this worksheet. For example, check to see what would happen if you could get five percent interest instead of four or if your initial deposit was \$5,000 instead of \$2,500. To do this, change the figure in cell C5 to .05 (which is five percent) or alter the figure in cell C3 to \$5,000.

As you start playing with the data, you'll want to save your changes and the subsequent results using the scenario manager. To do this, begin by putting the data back to the way it was when you first created the worksheet. Select cells C3 through C6, click Tools, then Scenarios, and click Add.

The first scenario will be the original data, so in the Scenario Name area type Original plan and check that the Changing Cells area contains the reference C3:C6. Click OK. In the Scenario Values dialogue, make sure the following appear in the list from top to bottom (alter them if needed): 2500, 100, .04, and 10. Click OK.

The Scenario Manager dialogue will appear again with your first scenario appearing in the list under the name Original Plan. Add another scenario by clicking Add. Type the name of this scenario as 5,000 initial savings and click OK. This time you'll test the scenario of investing \$5,000, so make sure the following appear in the list from top to bottom (altering them if required): 5000, 100, .04, and 10. Click OK.



Use the Scenario manager dialogue to enter data and name scenarios in your worksheet.

Add a third scenario called 5% interest rate in which the interest rate is five percent. This time the settings will read (top to bottom): 2500, 100, .05, and 10. Click OK to add this scenario.

One final scenario will allow you to compare the results of making monthly payments of \$110. Add this scenario, calling it Extra \$10 deposit, and set the variables to: 2500, 110, .04, and 10. Click OK.

Back in the Scenario Manager dialogue click Close to exit the Scenario Manager dialogue and save your workbook calling it savings plan.xls.

Viewing a scenario

To view a scenario, display the Scenario Manager dialogue by clicking Tools, Scenarios, select the scenario you want to display from the list, and click the Show button. The worksheet will change immediately to show the results of the scenario you've chosen. If necessary, move the Scenario Manager dialogue to an unused part of the screen by dragging its title bar so you can see the results of applying the scenario to the worksheet model.

If you use the Scenario Manager a lot, you can make it even easier to view your

Continued on page 52

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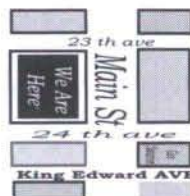
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Working on scenarios in Excel*Continued from page 50*

different scenarios by adding a Scenario dropdown listbox to your toolbar. To do this, click View, Toolbars, Customize, and click the Commands tab. From the Categories list, click Tools, and from the Commands list, scroll down to locate the Scenario dropdown list. With your mouse, drag this out of the dialogue and up and onto one of your visible toolbars. Let go and the dropdown list box will appear on the toolbar. Click Close to exit the Customize dialogue.

Now you can view the results of applying any of the scenarios to your worksheet by choosing the scenario name from the Scenario dropdown list. If necessary, you can edit a scenario from the Scenario Manager dialogue to change the figures it applies to your worksheet.

To do this, click Tools, Scenarios, and click the scenario you want to alter. Click Edit and OK and you can change the figures in the dialogue to your new choices. Click OK then Close to finish. Notice that when you edit a scenario, the original version changes permanently. If you really want a different additional scenario instead, use Add rather than Edit. Only use Edit when you really want to discard

the original data.

You can also add new scenarios using your New Scenario dropdown list on your toolbar. To see how this is done, alter the worksheet so cells C3 to C6 display as follows; \$2,500, \$200, .04, and 10. This will test the scenario in which you double your monthly investment. To add this as a scenario, highlight cells C3 to C6, click the Scenario dropdown list and type Double monthly payments, and press Enter. You'll now see that the new scenario appears in the dropdown with the other scenarios you created using the Scenario Manager dialogue. View it as you would any other scenario by clicking its name.

Create a scenario summary

The scenario manager is a handy tool for managing multiple scenarios. You can store data in it and, when you select a scenario to view, the tool will replace the current worksheet values with those it has stored for that scenario. Scenarios are saved with your worksheet so they'll always be available for viewing and printing.

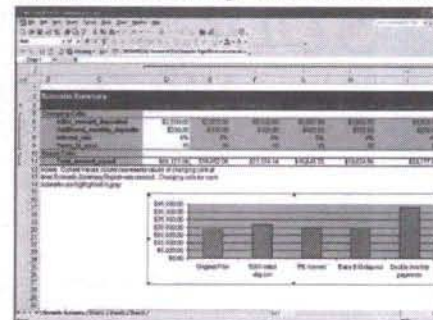
It is also possible to summarize your scenarios into a handy table so you can compare the results of each scenario side by side. To create a summary worksheet,

click Tools, Scenarios, and click the Summary button. From the Scenario Summary dialogue, click the Scenario Summary option and ensure the entry in the Result Cells area is C8 (or Total_Amount_saved). The results cell contains the figure you're interested in seeing—the amount we will have saved if we apply these figures to our model. Click OK to continue.

A new worksheet will appear in your workbook containing the scenario summary report. This is a horizontal table that is already formatted neatly in Outline form. Click the "+" (plus) and "-" (minus) buttons along the top and left of the workbook to collapse or expand different parts of the summary to show more or less of your data. Each of the scenarios you create, as well as the values in the worksheet at the time you created the scenario report, will be displayed. Notice that the cell names you assigned earlier have been used as the row headings, so the information is easy to understand.

You can print this worksheet as you would any other Excel workbook and even generate a chart from the results. To do this, drag over cells D3 to I3 (or E3 to I3 if the first column contains data from a scenario that appears elsewhere in the

table), then hold the Control key as you drag over cells D11 to I11 (or E11 to I11). Click the Chart Wizard button on the toolbar and step through the process of creating a chart from the data. The chart will show the final savings for each scenario.



Creating a chart from the scenario summary table is a very quick process.

As you can see, scenarios can be an important and useful addition to your Excel toolkit. Once you understand them, you'll find plenty of ways use scenarios to analyze data, from calculating savings plans and mortgage repayments to cost and production situations. □

Helen Bradley specializes in writing hands-on tutorials. Her columns appear regularly in a number of publications in Australia, the U.K., and the U.S. Contact Helen at helen@helenbradley.com.

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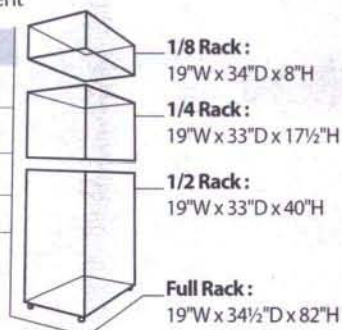
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< NEW & NOTABLE >

WHAT'S NEW

Continued from page 10

Version 7 is so over. AOL has announced the release of AOL 8, the latest version of its online service, with new features the company says its users were asking for. The new version offers users an enhanced sorting function to help prioritize their email, and email attachment scanning from McAfee to reduce the threat of viruses. A new AOL Companion feature stays on the desktop to immediately alert users to email and instant messages, and offers one-click access to functions like Search and Favourites.

The company has also added AOL Entertainment Firsts, a service the company says will offer members exclusive first access to movie clips, clips from new TV shows, as well as premieres of new songs and music videos. Current members can upgrade by entering "upgrade" in the AOL keyword box. New members can download the software from www.aol.ca/membersrule.

If you've been spending your cash on gadgets with built-in Bluetooth connectivity, but would rather not dig any deeper to buy a Bluetooth-enabled PC



to talk to them, here's another idea. Smart Modular Technologies (www.smartm.com) is offering a Bluetooth enabled USB adapter that the company says will add Bluetooth functionality to the PC and will allow users to create a piconet—a network of up to eight Bluetooth-enabled devices. The adapter is compliant with Bluetooth 1.1 and USB 1.1, and carries a suggested retail price of US\$34.99.

Continued on page 80

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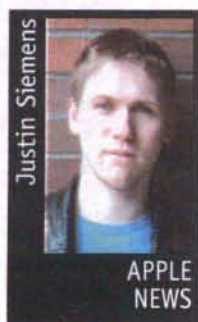
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Final Cut Pro 4's simple, versatile Soundtrack impresses



Justin Siemens
APPLE NEWS

When Final Cut Pro 4 was released at 4 p.m. on June 14, there were parties at most Apple stores across the country. We attended one such event and had a chance to play around

with the new version. We came away very impressed, especially with the new Soundtrack program. Soundtrack is an easy-to-use program that allows you to build soundtracks for your movies using hundreds of built-in samples and loops. You select the category you want from the sidebar, choose a clip, then drag it onto the timeline. In the timeline you can see all the layers of audio you are running, and can control the in and out points of each. We watched customers playing with Soundtrack, and within minutes they were creating simple, catchy compositions. Soundtrack will truly help novice editors give their projects a professional edge with their own compositions.

The other big new feature, which we also tried out, was LiveType. The built-in effects include some wild fonts, animated type effects and backdrops, and it's very easy to create a complex animated title in a short time.

Both LiveType and Soundtrack are separate from the main Final Cut interface, and you can choose to install just the components you want. While the learning curve for both programs is easy, the requirements are quite steep. Final Cut Pro 4 ships on four DVDs, one each for Final Cut and Soundtrack, and two for



LiveType. We saw it demo'd on a single-1 GHz G4 Tower, and it seemed to run well, although the machine only had 256 MB of RAM, which simply isn't enough for many of the real-time effects. We're looking forward to seeing the new DVD Studio Pro 2.0 and trying out the integration between the two packages.

Final Cut Pro 4.0 is available now for \$1,499. DVD Studio Pro 2.0 will be available in August for \$729.

Price drops on all Apple laptops

Once again, Apple has announced an unexpected price drop, this time for its laptop lines. It's good news for consumers and retailers alike, and laptop sales have seen a big boost in the past few weeks. There are several reasons for the drops, the first being the fluctuation in the

Canadian/U.S. dollar exchange rate. The recent rise in the value of the Loonie has been so drastic that the difference on some machines was more than \$500 between the U.S. and Canadian Apple stores.

The other reason for the drop, though, is the imminent release of a new 15.4-inch PowerBook G4, codenamed Aluminium. Although there has been much talk about a refresh to the 15-inch PowerBook since the 12-inch and 17-inch models debuted in January, it hasn't happened, in part because there was still plenty of stock in the channel. With price drops of up to \$800 on some models, it won't be long now before Apple has sold most of its stock of PowerBooks, making summer the perfect time to refresh the line.

We expect to see the Aluminium 15-inch G4 launch with features similar to the current 17-inch PowerBook, and both the 17-inch and 12-inch PowerBooks to get slight speed bumps and bug fixes. In the meantime, now is a great time to get a deal on a PowerBook. The price changes are as follows:

Model	CPU	Drive type	Old price	New price
12-inch	867 MHz	Combo	\$2,899	\$2,249
12-inch	867 MHz	SuperDrive	\$3,199	\$2,549
15-inch	867 MHz	Combo	\$3,699	\$2,849
15-inch	1 GHz	SuperDrive	\$4,499	\$3,699
17-inch	1 GHz	SuperDrive	\$5,299	\$4,699

There are a few important changes to note in the new pricing, particularly concerning the 12-inch model. It is now priced more like an iBook, which is a good thing considering its specs are more iBook than PowerBook. If the next revision of 12-inch G4 includes Level-3 cache, a DVI port, and FireWire 800 then it should go back up in price as a compact PowerBook. With its current feature set, the new price seems right when compared with a 900 MHz 12-inch iBook. Also, the 15-inch PowerBooks are the cheapest they've ever been, with the top-of-the-line model available for well under \$4,000. They got the steepest price cuts because they are the most outdated model, but if you don't need Bluetooth, Airport Extreme or FireWire 800, a 1 GHz PowerBook 15-inch is a great machine. The model that replaces it in the revamped lineup is bound to be \$4,500 to \$5,000.

Continued on page 58

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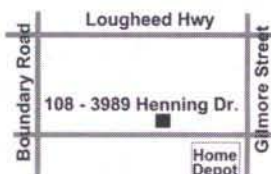


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< PLATFORM NEWS >

Final cut Pro4's simple...

Continued from page 56

Changes to the iBook line were less drastic, although still surprising as they come less than a month after this generation of iBook started to ship. Here are the new Canadian list prices for iBooks:

Model	CPU	Drive type	Old price	New price
12-inch	800 MHz	CD-ROM	\$1,499	\$1,429
12-inch	900 MHz	Combo	\$1,999	\$1,849
14-inch	900 MHz	Combo	\$2,299	\$2,149

These price drops are almost entirely due to the currency fluctuations, as the new iBooks were selling briskly. It's interesting that now the difference in price between a 14-inch iBook and a 12-inch PowerBook is only \$100. Considering that they have the same screen resolution, and the PowerBook is a slicker looking, we'd be surprised if this move didn't hurt sales of the 14-inch iBook.

We don't think these recent drops point to any new iBook models—Apple is likely to update the PowerBooks over the summer but leave the iBooks the same through the back-to-school season, with a possible small speed bump in October/November, or, more likely, an entirely new iBook in early 2004.

In January, Apple chief Steve Jobs predicted that 2003 would be the year of the laptop, and Apple is aiming to have 50 percent of its total units sold be laptops. With aggressive prices like these, we think he could be right.

QuarkXPress 6 for OS X ships

After month of speculation, rumours, and delays, the desktop publishing community will finally get a chance to use QuarkXPress in Mac OS X. The new version, QuarkXPress 6, is very similar to version 5.0, but now runs natively in OS X, and not just in Classic mode. Not only does Quark 6 run in OS X, it actually requires it—10.2 to be exact. The two other main features are multiple undoes and full-resolution previews.

The Quark implementation of multiple undoes is nice. You can get a list of the last five tasks you performed, for example, and undo just the third one leaving the rest untouched. Otherwise, Quark 6 running under OS X looks almost identical to Quark 5 running under OS 9.

For some that will be a blessing as

Continued on page 64

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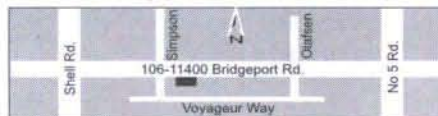
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What a difference a single slot makes

By Sean Carruthers

We recently tested a new Pentium 4 processor teamed up with a Canterwood motherboard—both new products from Intel. During our testing, we ran several benchmark tests on that configuration, as well as benchmark tests on AMD's then-newest Athlon XP processor and the slightly older Pentium 4 3.06 GHz processor on an 845 motherboard. The results showed the new Canterwood combination providing excellent results, though those results lagged very slightly behind those of the older Pentium 4/845 combination by a very small margin.

Well, a few sharp-eyed readers pointed out that the numbers were not all they could be, and they are absolutely right: one of the nicest features of the new Canterwood boards is dual-channel memory support, designed to give better memory bandwidth and speed everything up. With two matched memory sticks, any motherboard with dual-channel support will be able to take advantage of greater performance; this includes boards designed for AMD's Athlon XP, as well. The hitch—and this is what caused our results to suffer—is that they have to be placed into the proper slots in order to put the motherboard into dual-channel mode.

A blast from the past? Well, only kinda.

Old-school readers who have been interested in computer hardware may remember back to the days when computers required pairs of memory in all cases. You couldn't just insert one stick of memory, it had to have a partner in

Processor wars update				
	Pentium 4 3 GHz Canterwood dual-channel mode	Pentium 4 3 GHz Canterwood single-channel mode	Pentium 4 3.06 GHz	Pentium 4 3.06 GHz
PC Mark 2002				
CPU	7,391	7,404	7,512	7,480
Memory	8,964	7,880	6,949	6,999
HDD	900	958	1,006	1,008
SiSoft Sandra Pro 2002				
CPU Math Dhrystone (MIPS)	6,920	6,970	7,199	6,930
CPU Math Whetstone (MFLOPS)	2,410/6,080	2,410/6,038	2,496/6,060	2,475/5,971
Multimedia Integer (it/s)	13,978	13,990	14,423	14,276
Multimedia Floating Point (it/s)	20,815	21,423	21,372	21,173
Mem bandwidth Int Buffered (MB/s)	4,737	2,955	2,569	3,373
Mem bandwidth Float Buffered (MB/s)	4,722	2,988	2,567	3,370
SysMark 2002				
Internet Content Creation	429	407	399	413
Office Productivity	223	210	200	219
SysMark	309	292	282	301
CPU frequency	3 GHz	3 GHz	3.06 GHz	3.06 GHz
Front-side bus speed (MHz)	800	800	533	533
Motherboard used	Intel D875PBZ	Intel D875PBZ	Gigabyte 8PE800 Ultra	Intel D850EMV2
Memory	512MB DDR400	512MB DDR400	512MB DDR400	512MB PC1066 RDRAM
Graphics card	Radeon 9700 Pro	Radeon 9700 Pro	Radeon 9700 Pro	Radeon 9700 Pro
Hard drive	120 GB Seagate SATA	120 GB Seagate SATA	120 GB Seagate SATA	120 GB Seagate SATA

order to function at all. That was eventually done away with when SDRAM was introduced: suddenly you could use one slot at a time and still be A-OK.

With new dual-channel boards, that's not exactly the case: You can use one slot of DDR memory at a time, and the board will run just fine. The catch is that it will only run in single-channel mode.

As the testing last time around shows, the results were still great, but as our readers have pointed out, that's not good enough! The boards are capable of better! We fully agree, and thus we're more than happy to admit our mistake here—

with these new boards, it's a very easy misconfiguration to achieve, and a very easy one to set straight. So let's fix it up.

The proper config is only a slot away

If you've purchased a machine that supposedly features dual-channel memory, you may assume it's configured correctly simply because there are two identical sticks inserted into the motherboard. As well, because many motherboards are automatically configured to boot up silently, there may be no way of knowing the truth unless you bust your way into the BIOS settings and confirm it. (Even

when you've configured the BIOS to boot non-silently—in other words, to display the configuration data for memory, hard drives, and processor—the information may blast past your eyes so quickly that you won't be able to read it.)

If you're putting the machine together yourself, you'll be in a much better position to know if the settings are right. The important thing is to read the motherboard documentation, then read it *again*. Many people who have been building systems for a while may be used to sticking two DDR modules into slots directly next to each other, but that may

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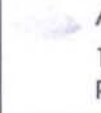
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What a difference a single slot makes*Continued from page 60*

not be the proper configuration! In the case of our Intel 875 motherboard, it means placing them two slots away from each other: either slots one and three, or slots two and four. If you place them into the wrong configuration, the computer will still work and work well, but not optimally.

Rant on?

It's tempting to want to go into full-on rant mode about this kind of nitpicky memory configuration, since most of us were relieved to get rid of this "matched" configuration years ago. That said, it could certainly be a lot worse. With motherboards supporting dual-channel DDR memory, the wrong configuration will send you back to single-channel mode instead of rendering your system completely unusable. (Compare this to the other high-performance memory technology from Rambus; with RIMMs, you need all of your slots populated with either memory or a pass-through module, and you generally have to use RIMMs in pairs. In other words, it's quite possibly a double-whammy with

that configuration.) Even though its easy to configure it incorrectly, the dual-channel DDR setup is much more flexible, allowing you to start with one stick of DDR and then match it later on when you have the extra cash. That sure beats having a system that won't run at all.

The (new) results

For two of our benchmarks, the results are pretty similar: any tests designed to benchmark the CPU performance were unaffected by the bump up to dual-channel mode—in fact, they actually showed a slight decline. The memory tests in both PC Mark 2002 and Sandra Pro, however immediately saw a notable rise in performance. That pays off in SysMark 2002, which now shows the system's performance blowing past the other configurations, including the previous champion: the 3.06 GHz Pentium 4 system teamed up with RDRAM.

Again, it's worth stressing that all we had to do to get this performance gain was move one stick of the DDR memory in our system over to the next slot. That's it. Bango boomo. It took about 10 seconds once we got the side panel off, and it was more than worth the effort. □

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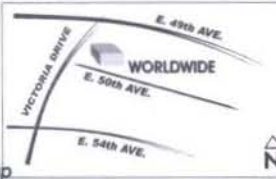
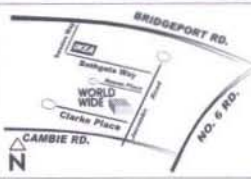
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CPU

P4600X1 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< PLATFORM NEWS >

Final cut Pro4/s simple...

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there is very little to relearn, but on the other hand Quark could have used the jump to OS X to freshen the user interface. People who have switched to Adobe InDesign 2 are not likely to switch back to Quark considering how little is new, but those who have been holding out for an OS X native Quark will be glad it's here. It will be available by the time this issue hits the streets, for \$1,299.

Praise for Disk Warrior 3

Another great product, Disk Warrior, makes the jump to OS X, and as usual with these types of things it's only a few months later than promised.

Originally announced at Macworld in January, Disk Warrior 3 from Alsoft (www.alfsoft.com), was expected to ship in late February. February gave way to March, and then April, at which point the Macworld preview version we had expired. With no updates from Alsoft in April or May, we began to wonder what was going on, and then without warning in the first week of June our final version of Disk Warrior 3 materialized.

Apple resellers also reported receiving large shipments in early June, although most were filling backorders for the first week at least.

So what's the big deal with Disk Warrior 3? Not only is it now OS X native, it's much faster, and fixes even more problems than version 2. The primary reason behind its port to OS X had nothing to do with the software being outdated. Version 2.1, although it started up in OS 9 when booted from the CD, was fully capable of detecting and repairing all OS X-related directory problems. The real issue was when Apple started to ship machines (12-inch and 17-inch PowerBooks, 1 GHz 17-inch iMacs, and the latest G4 Towers) that would only boot to OS X. As they could n't be booted from the Disk Warrior CD, it made disk repair next to impossible. Its main competition, Norton Utilities 7, does run in OS X, but it also boots into OS 9 when started from the CD.

Apple's OS X-only push left most users without a reliable means of repairing their drives for month while they waited to see who would be the first to address the issue. Without routine maintenance the OS can slow down, and if problems get severe enough you might even be pre-

sented with a flashing question mark on reboot. For a reasonable \$129, Disk Warrior 3 can save you several hours in the service department every year.

In addition to the start-up problem, when running Disk Warrior 2.1 on an OS X Mac, the program would get bogged down by the sheer number of files it had to crunch through. With an OS 9 system, it is common to have 20,000 to 40,000 files on a drive, which would take Disk Warrior about 15 to 20 minutes to run. With OS X Jaguar installed, it's common to see 200,000 to 300,000 files on a boot drive, which would take Disk Warrior 2.1 45 minutes to an hour to verify and repair.

The new version, rewritten completely as an OS X application, can now crunch through an OS X boot volume in about 15 minutes, almost four times faster than its predecessor. Disk Warrior 3 includes a copy of 2.1 on the CD, in case you need to run it on a non-OS X Mac. The new version can be installed on your hard drive and can be used to repair your non-system drives, including external USB or FireWire drives, but you must still reboot from the CD when you need to repair your start-up drive.

Another neat new feature is the addition of SMART diagnostics, which work with most new hard drives. The SMART test can query the on-board diagnostics built into most drives sold in the past couple of years. If the SMART diagnostic thinks a drive is starting to fail it can notify you, usually in time to back up your data and replace the drive.

Overall Disk Warrior 3 is a worthwhile upgrade. At this point, it's also the best disk repair utility for OS X on the market. One small disappointment is that Plus Optimizer, which used to be bundled with version 2.1, is no longer included. Plus Optimizer is a simple program that allows you to de-fragment your hard disk, but since no OS X version exists yet, it's no longer part of the bundle.

Even without Plus Optimizer, though, Disk Warrior 3 is a steal for \$129. Norton Utilities 7 is \$179 and, in our experience, did not repair as many problems. We'll see how the new Norton 8 stacks up when it's released later this summer.

Disk Warrior 3 should be considered a mandatory part of any Mac technicians' tool kit. □

Justin Siemens is a Vancouver-based Mac IT specialist. You can reach him at jsiemens@mac.com.

Productivity	PS2 Games	PC Games	Boxed Games (\$5-19)
Act 6	194	Ace Combat 4	32
Adobe Illustrator 10 - Full	569	ArC The Lad	54
Adobe PageMaker 7 Academic	569	ATV Off Road Fury 2	55
Adobe Photoshop Elements V.1	69	Atv Quad Power Racing 2	43
Backup My PC	29	Auto Modellista	49
Cad 3D	9	Cabela's Big Game Hunter 2	37
Corel Draw 8	29	Chessmaster	39
Corel Draw 9	64	Colin McRae Rally 3	50
Corel WP Office 2002 Std (Box)	259	Contra Shattered	38
Corel WP Office Pro 2002	34	Dance Revolution Mix	65
Corel WP Office 11 (New version)	39	Dragon Ball Z	70
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Drive Image 2002	54	Grand Theft Auto - Vice City	35
DVD Copy Plus	49	Grand Theft Auto 3	35
DVD Tools	14	Hack Vol 2	40
DVD Xcopy	9	Hit man 2	55
Easy CD Creator 6 Platinum	9	Hot Shots Golf 3	50
Easy CD Creator Standard	19	Indiana Jones & Emperors Tomb	59
Fireworks MX Academic	179	Jet X20	50
Flash 5 MX Academic	179	Jurassic Park: Operation Genesis	49
Font Library & Tools Pro	14	Kingdom Hearts	59
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Freehand MX Academic	169	Medal of Honour - Playstation 2	69
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Hard Drive tools	14	Mortal Combat Deadly Alliance	59
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Lotus Smart Suite Millennium 9.8	39	NBA Street Street Vol 2	68
Macromedia Web Design Studio MX	379	Pro Race Driver	59
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Master it! MS Excel (Training)	14	Resident Evil Dead Aim	51
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Mastering Excel 6 (Training)	14	Shawn Murray Wakeboarding	59
Mastering Adobe Illustrator 10 (Train)	14	Shinobi	59
Mastering Adobe Premier 6 (Training)	14	Splinter Cell	67
Mastering C# net (Training)	14	Spy Hunter	20
Mastering Corel Draw 11 (Training)	14	Sukoden III	20
Mastering Dreamweaver MX (Train)	14	The Getaway	54
Mastering Flash MX (Training)	14	The Hulk	54
Mastering Frontpage 2002 (Train)	14	The Italian Job	46
Mastering MS Office XP (Training)	14	Tiger Woods Golf 2003 - PS2	66
Mastering MS Win XP (Training)	14	Tom Clancy Ghost Recon	66
Mastering Photoshop 7 (Training)	14	Tomb Raider Angel of Darkness	57
Mastering Project 2002 (Training)	14	Wolverines	59
Mastering Quark Express	14	World Soccer - Winning Eleven 6	54
Mastering Quickbooks Pro 2003 (Train)	14	Xenosaga	59
Mastering Windows XP Registry	14	Yu-Gi-Oh	69
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MS Office XP Pro Upgrade	399		
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MS Works Version 6	29		
MS Works Version 7	79		
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Network Utilities 3000 Pro	14		
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Norton Systemworks Pro 2003	34		
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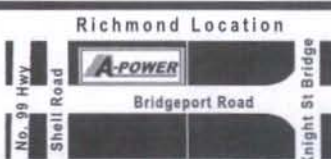
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WillExpert aims for legacy of family harmony

By Jeff Evans

When I was a kid, I remember seeing at least a couple of pictures each year in the newspaper, showing people grappling in the dust on the sidewalks in front of funeral parlours, working out family problems related to the passing of a loved one.

WillExpert

From: Intuit, www.intuit.ca

Price: \$59.95

Pros: Easy to use, informative, educational. Makes an often difficult task easier and less expensive.

Cons: Annoying compulsory online registration before use, program is not compatible with Québec law, so use is limited to TROC (the rest of Canada). Requires some learning of terms and concepts to use most effectively. In some circumstances you may still want to get an opinion from a lawyer to ensure no glaring mistakes.

In my innocence, I couldn't understand what reasons there might be for people to behave in such a strange fashion at such a solemn moment. As the years have passed, I have begun to understand that the way we write our wills and plan the disposal of our "estates" (the sum of the property and other assets we own) can have a deep and lasting effect, for good or ill, on our family and friends. So, when I heard about WillExpert, a new Canadian will and estate planning software package from tax and finance publisher Intuit Canada, I was very intrigued.

According to Intuit Canada's Brad Stromberg, WillExpert is designed to let any person easily plan, write, and print a

basic will and related documents, such as letters to executors and guardians, powers of attorney, and personal health care directives.

Stromberg says about half of all Canadians have never composed a will, and of those written, many are never updated to account for changes in financial or personal circumstances. The results of a poorly written will can include deeply hurt feelings, anger, and conflict among surviving family members, and even substantial legal expenses as survivors squabble over the estate.

Intuit Canada saw a market demand, especially amongst baby boomers, for simple estate planning software and developed WillExpert.

According to Canadian estate planning experts and authors Les Kotzer and Barry Fish, there are good practical reasons to face up to the often difficult subject of making a will: "Planning ahead can often prevent, or at least minimize the risk of family fighting. Planning ahead can avoid costly court actions and it can ease the burden on your loved ones, if and when tragedy strikes."

Kotzer and Fish have published a well-received book on estate planning, *The Family Fight: How to Avoid It*, (www.family-fight.com/canadian/book_intro.htm), which makes a convincing case for planning one's will carefully and promptly.

WillExpert incorporates Intuit's many years of experience designing intuitive user interfaces, offering a simple question and answer format for step-by-step creation of a legally sound, comprehensive will. The software was developed with the aid of Canadian will and estate

lawyers, and all its major features comply with Canadian law as applied everywhere but in Quebec (as much of the law governing estates in Quebec is a provincial responsibility, a considerably different program would be required for use in la belle province).

Out of the box

We installed WillExpert on a Compaq 5330 Pentium 4 computer running Windows XP Home Edition (minimum system requirements are a 133 MHz Pentium, or equivalent, processor with 32 MB RAM, running Windows 95 or higher). Installation was simple: we inserted the CD and followed the installation prompts. WillExpert required online registration to be activated (if you don't have an Internet connection, you can get your activation key by phoning Intuit). The software can only be used on one PC, and the licence is limited to two finished wills.

The compulsory registration and limited user licence, increasingly common with new software, is a bit irritating, but as with its tax software, Intuit is trying to ensure that one copy of software doesn't get passed around to unlimited users.

The program is fairly simple to use and is similar in concept to Intuit tax software in that it has been simple to use and tries to anticipate common questions. At every stage, WillExpert offers a wealth of answers to basic questions about wills and estates, definitions of legal terms, full-motion video advice snippets from experts, and simple onscreen forms.

There is still a learning curve to

WillExpert, though. I'm not a legal expert, and it took me a while to understand the terms and concepts, and practical and legal requirements of even my very simple will. I spent a couple of hours clicking the Learn More button and reading through the program's Planning and User Guide. According to Intuit's Stromberg, for many Canadians with fairly simple finances and limited property, WillExpert may be the only tool you need to create a decent, workable will and related documents. However, he cautions that in cases where the estate is fairly complex, or where the amounts of money and property are substantial, it is still a good idea to show the finished will to a lawyer, to ensure that any glaring errors or omissions are corrected.

According to Stromberg, if you have any particular questions about special circumstances—a relative's disability pensions, institutional care contracts, or other situations that might affect the disposition of an estate's assets, for example—ask a lawyer. A half-hour consultation fee will still be a lot cheaper than the full cost of a lawyer writing your will from scratch, and in the course of using WillExpert, you'll have gained a lot more understanding and control over an important responsibility, and an opportunity to increase your family's long-term harmony and prosperity.

The briefest known will in history was composed by a Czech gentleman, who simply wrote a two-word Czech phrase that means "All to wife." Intuit's Will Expert isn't quite that simple, but it's a big leap in the right direction. □

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Penguin sound bytes: Technology and society

Dee-Ann LeBlanc

USING
LINUX

The Linux world is no stranger to awkward legal and socio-political issues. On the legal front, a dedicated Linux aficionado develops a native understanding of basic legalese between the proliferation of open source, limited source, and other such licenses trying to get the balance between ownership and access "just right"; certain companies' attempts to scuttle the operating system in the courts of law and public opinion; and more. On the social issue front; well, in many ways, that's what Linux and open source are all about. Let's take a look at some of the more interesting dilemmas and discussions amongst the Linux kernel's movers and shakers.

Torvalds refuses to 'play politics'

Linus Torvalds has once again shown the

Linux community why he's such a trusted name. Rather than allowing himself to be dragged into political and ideological issues such as whether digital rights management (DRM) is evil and should be made impossible in the Linux kernel or through changes to licensing, he's simply stated that technologically, DRM is possible under Linux and he sees no need to make sweeping changes despite his personal views on the technology.

After all, it's up to individual programmers and companies to decide their own policies, not to mention the users to choose what they're willing to use. That's what free choice is all about.

Centrino wireless under Linux still a dud

Intel's Centrino wireless capabilities are still unsupported under Linux. From Intel's own Web site's technical support section, you can try to learn this by reading the following several times: "Linux will run on any IA based PC. Intel® Centrino™ Mobile Technology-based sys-

tems include integrated 802.11b wireless LAN capability, requiring particular drivers which currently do not run on Linux."

According to a source inside Intel, every request for Centrino wireless networking drivers for Linux is forwarded to the Centrino team within the company. If there are enough requests, Linux drivers will reportedly be provided. You can write to Intel's technical support through the Contact Us link on its Web site, and you can keep track of Centrino wireless's Linux status through www.intel.com/products/mobile/technology/centrino/.

Part of the problem with the drivers may be related to an overall difficulty in the wireless industry, an issue summarized nicely on the main Linux kernel discussion list. According to participants, the latest cards—all of the ones without Linux drivers, really, including Broadcom's—have programmable options for the frequency used. There are a number of issues inherent in this setup if the average Jane is able to choose any frequency she wants.

For example, what if she chooses an emergency band and it interferes with fire and ambulance vehicles?

Open source drivers make it virtually impossible to prevent people from using certain frequencies since any limits placed could just be removed by an industrious programmer. Expect at least part of any Linux driver for these cards to be "black box." Of course, open source isn't the only culprit. Folks are already breaking the frequency limitations with these same cards in the Windows world. Experts anticipate that the frequency control components will be encrypted in the next generation of cards, to further discourage people from abusing the technology.

Wither to internationalize kernel error messages

Canadians are all too aware that not everyone speaks or reads English. The problem in the programming community is that, while not all programmers and

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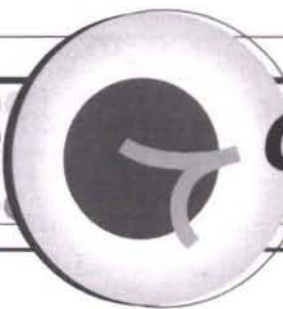
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Penguin sound bytes

Continued from page 68

administrators speak English, every tiny bit of code (text included) adds to a program's size. A regular issue brought up in the Linux kernel development circles is that of adding non-English error messages so administrators around the world don't have to pull out their dictionaries to understand what has gone wrong with the kernel.

Torvalds, a non-native English speaker, summarizes the problem succinctly—though it's phrased for technical readers: "I refuse to clutter the kernel with inane and fragile (and totally unmaintainable) internationalization code. The string lookup can equally well be done in user space where it isn't a stability and complexity issue."

In other words, "if it ain't broke, don't fix it." Any operating system kernel is a massive collection of code. If you've ever programmed or tried to maintain a system, you've probably experienced the platitude that fixing one problem always seems to break something else. Torvalds' concern, apparently, is that adding error messages in dozens of languages might not only make the kernel even larger, it might cause other problems that just complicate the whole effort. Especially since every time a new error is added, all of the translations would have to be added too; hence, his maintenance concern.

But he also offers an alternative. "User space" means, in general, "not kernel space." In other words, there are programs whose jobs are to maintain logs of kernel output. These programs aren't part of the kernel itself, and are therefore in user space, even if that user happens to be root. It is within these programs that non-English versions of kernel error messages can rest. A quick setting can tell the daemon to log all error messages in French, or Metis, or whatever language the administrator prefers.

Of course, as always, this relies on having excellent translators to do the work. Anyone who's cringed at the French translations on many products available in Canada is all too aware of this. □

Dee-Ann LeBlanc has written more than 10 computer books, many articles, and taught classes mostly involving Linux and its programs. You can reach her at dee@renaissoft.com.



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The Power Mac G5 is the world's fastest personal computer and the first with a 64-bit processor — which means it breaks the 4 gigabyte barrier and can use up to 8 gigabytes of main memory. The new G5 processor — available at speeds up to dual 2GHz with a new ultrahigh-bandwidth system architecture featuring AGP 8X and PCI-X — makes the Power Mac G5 a breakthrough in desktop processing power. And models start at just \$1999.



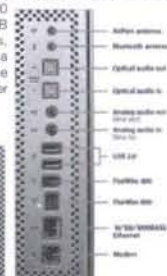
Designed for whisper-quiet operation
The Power Mac G5's enclosure houses four discrete thermal zones to compartmentalize the primary heat-producing components. Fans in the zones spin at very low speeds resulting in a system three times quieter than the Power Mac G4.

How fast is the world's fastest personal computer?

The new Power Mac G5 throttles past both the fastest Pentium 4 and a dual-processor Xeon workstation when tested using industry standard SPEC CPU 2000 benchmarks — SPECint_base2000 and SPECint_rate2000 measure the speed of a single task — either a floating-point calculation or an integer calculation — executing on a single processor. The "SPEC rate" metrics, which recognize multiple processors, more accurately demonstrate the performance of a dual processor system. The results (see chart below) should make your pulse race just a little bit faster.

Plugged in

It's easy to plug printers, scanners and other devices into the Power Mac G5. In addition to sporting a full complement of ports on the back, the front panel has FireWire 400 and USB 2.0 ports, as well as a headphone and speaker minijack.



Ready for the real world

The PowerPC G5 processor dramatically accelerates performance in real world applications, too. When compared head-to-head against the same PCs, in a large series of Photoshop tests the dual 2GHz Power Mac G5 is 2.2 times faster than the 3GHz Pentium 4-based system and almost twice as fast as the dual 3.06GHz Xeon-based system. Additional performance tests reveal similar performance gains for professional music and audio creation, and scientific analysis of genetic research.

Bandwidth to burn

The Power Mac G5's ultra-high bandwidth system architecture features a 1GHz frontside bus — one on each processor — for maximum throughput. And a point-to-point system controller lets

data move directly between subsystems, without affecting processor function.

PCI-X expansion

The Power Mac G5 comes with three PCI-X slots, giving you the benefit of the newest advance in PCI technology. The PCI-X protocol is perfect for high-performance PCI devices, increasing speeds from 33MHz to 133MHz and throughput from 266MBps to 2GBps.

High-speed AGP 8X Pro graphics bus

Compared with the AGP 4X interface, the Power Mac G5's AGP 8X Pro graphics bus effectively doubles the maximum transfer rate and doubles the amount of data transferred in a single AGP bus cycle. The 66MHz AGP 8X Pro bus strobes eight times per clock cycle, achieving a 533MHz data rate and a maximum bandwidth of 2.1GB per second — ideal for the ultrafast graphics cards it ships with, like the ATI Radeon 9800 Pro or NVIDIA GeForce FX 5200 Ultra.



FireWire 800, USB 2.0 and high-performance I/O
The Power Mac G5 ships with a FireWire 800 port and three USB 2.0 ports (plus two USB 1.1 ports on the keyboard). Gigabit Ethernet, FireWire, USB 2.0 and optical digital and analog audio are all integrated through two bidirectional 16-bit, 800MHz HyperTransport interconnects for a maximum throughput of 3.2GB per second.

Three powerful models

The Power Mac G5 product line comes in three muscular configurations — 1.6GHz, 1.8GHz and a dual 2GHz model. They all feature the legendary SuperDrive (DVD-R/CD-RW) as standard equipment across the line. And of course they come with two FireWire 400 ports, three PCI expansion slots, ADC connector, DVI connector, analog audio in, analog audio out, optical S/PDIF in, optical S/PDIF out, front headphone and speaker jack and built-in Gigabit Ethernet — all as standard equipment. All models are AirPort Extreme-ready, and offer Bluetooth capability as a build-to-order option.

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Videoconferencing a bridge between deaf, hearing users

By Geof Wheelwright

Internet-based videoconferencing has slowly been gaining acceptance in the business world, but for a growing number of deaf and hearing-impaired consumers it is opening up a whole new way of communicating with others over long distances.

In recent years, deaf and hearing-impaired users have widely adopted email and instant messaging technology to "chat" online using their computers. Now, however, they can use new videoconferencing-based services to speak to others in sign language and see their replies displayed back to them on the videoconference screen by sign-language fluent operators. And it is being used in all kinds of places.

The University of Washington, for example, promotes the use of this service for its deaf and hearing-impaired students. Known as the Video Relay Service (VRS), it's a supplement to the Telecommunication Relay Service (TRS). Both

services facilitate telecommunication between non-hearing and hearing individuals.

The university says VRS is an important alternative to the original TRS, since many individuals with hearing impairments prefer to use American Sign Language (ASL) as their primary method of communication.

The original TRS provides two-way translation between spoken word and typed text. The hearing user communicates by voice, the non-hearing user communicates by typing on a TTY, and the relay operator serves as a liaison, communicating by voice to the hearing party and by text to the non-hearing party.

The university says VRS is an important alternative to the original TRS, since

many individuals with hearing impairments prefer to use American Sign Language (ASL) as their primary method of communication.

Unlike TRS, VRS is not mandated by federal law in the U.S., and the Federal Relay Service, established through the Telecommunications Enhancement Act of 1988, does not yet provide VRS services. Some states, however, have begun to provide this service, even to consumers who live outside their jurisdictions.

National VRS started being offered last year when U.S. telephone giant Sprint and CSD (a private, non-profit human service agency headquartered in Sioux Falls, S.D. that is the world's largest telecommunications relay service provider) initiated the first nationwide Video Relay Service for the deaf and hard-of-hearing. It allows customers in the U.S. to use ASL in visual conversations over advanced phone networks. The service, known as USA VRS, is available at www.usavrs.com.

VRS is Web-based and entails either special phone terminals or personal com-

puters with a high-speed Internet connection, Microsoft Internet Explorer Web browser, NetMeeting software, and an inexpensive Web cam.

USA VRS, accessible anywhere in the U.S. via the Internet, is free. The service allows callers to use ASL to "converse" with a video interpreter via video link, who then translates those signs into speech for standard voice users or TTY text.

The U.S. Federal Communications Commission (FCC) strongly encourages the use of video interpreting service. Sprint says it is "the nation's leading provider of telecommunications relay services (TRS)" and boasts more than a decade of experience. The U.S. government, 27 states, and the Commonwealth of Puerto Rico currently use Sprint to operate 10 relay centres. Relay services in each state were mandated by the Americans with Disabilities Act of 1990 and are paid for by all local phone customers through state fees included on monthly bills. □

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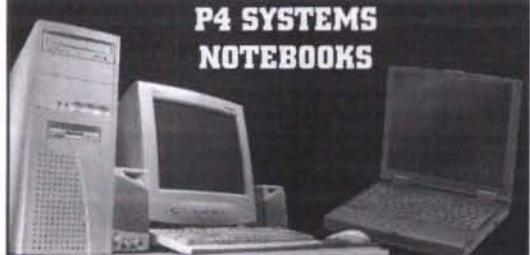
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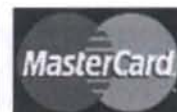


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Technology, Toronto, and the SARS outbreak

By Jeff Evans

It is perversely fitting that Toronto, the nation's high-tech hub, and a major portal between Canada and the global economy, was the epicentre of the Severe Acute Respiratory Syndrome (SARS) outbreak in North America. A traveler from Hong Kong brought the disease into the city, and on March 7, her son, suffering from an unidentified respiratory illness, presented himself at Scarborough Grace Hospital, and was initially diagnosed with tuberculosis. By March 14, SARS' presence was confirmed, and it had begun to spread to health care workers, patients, and their families in Toronto.

The technological weakness of the Toronto Public Health department's disease control system was exposed, as it turned out that the department had failed to ever institute a computerized database for tracking communicable disease cases, despite sales pitches by database vendors over the years, not to mention the threat of bioterrorism since the terror attacks in Washington and New York on Sept. 11, 2001.

According to one Public Health official quoted by the *Toronto Star* and the CBC, at the beginning of the outbreak, records of all SARS patients, suspected patients, and quarantined persons were filled out by hand on paper forms, which were stored in cardboard boxes.

The task of trying to correlate the paper records, in an attempt to track the route of SARS transmission, required manual comparison of many thousands of paper records, which took enormous

numbers of hours of manual labour.

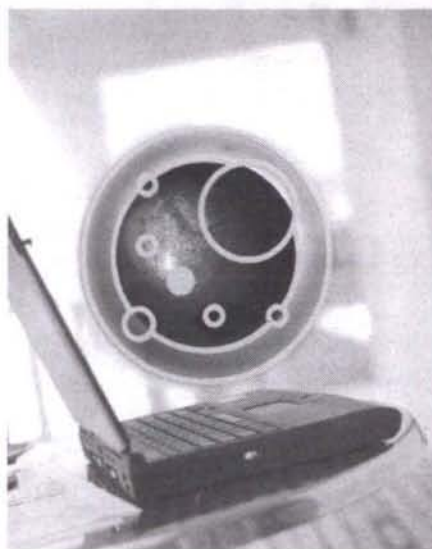
Eventually, an Excel spreadsheet template was cobbled together, and disease transmission and quarantine records were manually entered. However, the template used by Toronto Public Health was incompatible with Excel templates or database forms used by other Canadian health agencies in the provincial and federal governments, as well as international health agencies including the World Health Organization and the U.S. Centres for Disease Control (CDC).

This necessitated manually retyping or cutting and pasting the Toronto Excel spreadsheet information into other systems. Once the data was finally entered into a usable computer format, however, it became much faster and easier to trace transmission routes of the disease.

One outcome of the SARS episode is likely to be a belated attempt by Canada's national, provincial and municipal governments to put aside their endless IT turf wars, at least to the extent of adopting a truly interoperable database system for disease reporting, tracking and control.

As SARS worked its way through some Toronto hospitals, many effects on the technology industry and the financial industry also popped up.

On April 10, Hewlett-Packard Canada (www.hp.ca) stated that it had to send nearly 200 of its Toronto-area workers to home quarantine, allegedly after a worker who was exposed to the disease came to work despite being instructed to stay home in quarantine. As a result of the possible exposure of fellow workers to the virus, 197 HP staff (102 full-time



At the beginning of the outbreak, records of all SARS patients, suspected patients, and quarantined persons were filled out by hand on paper forms, which were stored in cardboard boxes.

employees and 95 contract workers, according to an HP Canada spokesperson) at a Markham facility were sent home for a quarantine period, while other HP Canada staff filled in.

Investment firm Merrill Lynch Canada (www.canada.ml.com), which has its main offices in downtown Toronto, moved its key trading staff out of the downtown area to a backup facility in Streetsville, Ont., for several weeks, to avoid the possible risk of SARS exposure and quarantine of critical employees,

which could have had a crippling effect on the company's multimillion dollars per day investment business in Canada. A Merrill Lynch source claimed that the re-deployment was done as much as a test of the backup facility as it was a response to SARS.

The senior management of IMAX Corp. (www.imax.com), the giant-screen movie company that was founded in Toronto, avoided coming to Toronto for a scheduled shareholders' meeting on June 4. Instead, they preferred to use a videoconference from New York to deliver the company's financial results, their images appearing on an eight-storey high screen in a Toronto theatre.

On June 9, software giant Microsoft (www.microsoft.com/canada) announced that due to SARS fears it had changed the location of its annual partner event from Toronto to New Orleans. The event will go ahead on the originally planned date, October 9 to 12. To soften the blow to Toronto's already staggering tourism, hospitality and convention industry, Microsoft promised to hold next year's partner event in Toronto.

According to financial analysts at investment firms J.P. Morgan and Merrill Lynch, the SARS outbreak centred in the Toronto area is expected to crimp Canada's national economic output, at least in the short term, by as much as 1.5 percent, compared to estimates of GNP growth prior to the outbreak.

However, SARS may also help drive a trend for companies to deploy secure,
Continued on page 77

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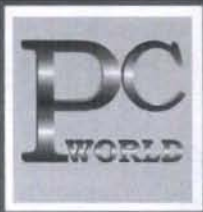
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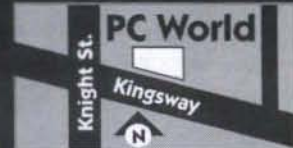


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< TECH IN THE REAL WORLD >

Voice recognition helping customers connect

By Geof Wheelwright

Voice is becoming big business. This fact was very much in evidence at California-based Nuance's annual V-World user conference in San Francisco in late April. The company is a leader in voice recognition and speech applications, producing a range of solutions that are often used in corporate call-routing applications.

Rather than installing a system that requires users to "press one for this, press two for that," and so on, interactive voice-recognition (IVR) systems allow users to state what they want when they call a company and then have the IVR system route the call to where it needs to go. It not only allows customers to get their issues dealt with quickly, but corporations can process higher volumes of calls with lower levels of staff (as many queries can be answered with an automated response).

The theme of the conference was "accelerating the value of voice" (i.e. getting quick return on investment), and one very interesting example of this came from representative of Avon's IT division who gave a talk on how it is using voice recognition technology to evolve its business.

The cosmetics giant—which used to rely heavily on door-to-door sales agents—is currently undergoing a major corporate facelift as it steers through middle age and it is using the Web and voice recognition technology to do so. One of the fascinating things she revealed is that about 28 percent of Avon customers in the U.S. still use rotary dial telephones.

This means that when they dial into the Avon call centre, they have to wait through all the dial pad button option messages before they're put on hold to get through to a human operator. By using voice recognition technology, all those rotary dial customers are now able to start getting help right away—and



One of the fascinating things she revealed is that something like 28 percent of Avon customers in the U.S. still use rotary dial telephones.

customer support agents can get through to the calls that really need human intervention more easily.

"Speech is adding substantial value to businesses around the globe," said Chuck Berger, president and chief executive of Nuance. "From Avon in the United States to UBS in Switzerland and TELUS in Canada, companies are automating tasks, reducing costs, offering new revenue-producing services and setting themselves apart from the competition with speech. The return on investment for these speech solutions is staggering—many pay for themselves in a matter of months."

Industry analysts predict that revenue from voice-enabled services will reach \$1.4 billion by 2004 and analyst firms such as Gartner Group are listing speech recognition as one of 2003's top 10 "strategic technologies." One of the catalysts for market growth is the emergence of packaged speech applications that simplify deployment, reduce time-to-market, and, as mentioned already, speed up the return on investment. Showcased at V-World, Nuance Call

Voice recognition

Continued from page 76

Steering is a packaged speech application that routes customer phone calls to the correct customer care destination accurately and cost-effectively, according to the company.

Also at V-World, speech technology customers presented real-world case study blueprints about how they are putting speech to work in retail, banking, and insurance environments. Keynote presentations from Avon, Bell Canada, EnergySouth, Expedia, Lloyds TSB, TELUS, UBS, Verizon, and Ydilo centered around customer service, going global with speech, empowering sales with speech and improving employee productivity. □

Technology, Toronto, and SARS

Continued from page 74

remote connectivity software that makes them less vulnerable to the closure of facilities or the quarantine of employees. According to a representative of Canadian based Yo, Inc. (www.yo.com), there has been a surge of interest from all sizes of businesses in the company's VisEdge secure remote e-commerce solutions. The VisEdge system "solves the business problem of how to securely, quickly and cost-effectively enable remote users to access internal business applications through the Internet."

According to Frank Stipo, president of Media Replication Services, a VisEdge user, "In an event, such as a quarantine, it is imperative that some of our key personnel have access to key network resources from external locations. VisEdge has become an integral part of our preparedness plan."

SARS is proving to be a hard lesson and a wake-up call for Canada's government agencies and businesses. In the post-SARS Canada, technology will have to be used much more effectively to track, manage, treat, and prevent infectious disease, and to minimize the human health cost and economic damage of outbreaks and epidemics.

Toronto, and the rest of Canada, can use the wake-up call provided by this tragedy to prepare for the future and perhaps become world leaders in the use of appropriate technology to reduce the risks and losses of future outbreaks. □

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Silence of the fans: the quest for a quiet PC

By Steve George

How much noise is too much noise? When it comes to computers, it depends on who you talk to. To the dedicated gamer with her speakers cranked, case noise may mean nothing at all. To the writer focused on the empty white Word document on his screen, even the hum of the power sup-

ply can sound like a jet taking off. For most of us computer noise is annoying only when we become conscious of it, and as computers migrate from the home office into the living room or family room, we're becoming conscious of it more often than not.

We've been living with computer noise for so long it has become the background hum of our lives. Noise, we are

led to believe, is the price we pay for performance. Look at the evolution of today's CPUs—even over the last couple of years—and it's easy to see why. Intel's Pentium III Coppermine (500 to 750 MHz) output 13 to 19 watts, compared to 49 to 75 watts for the early Pentium 4s (1.3 to 2 GHz), and 82 watts and more for the Pentium 4 3.06 GHz chip. AMD chips follow a similar evolutionary path. Think of placing your hand around a 100 watt light bulb. Ouch! All of these chips take some powerful cooling, and that means fans, and that means noise.

High performance CPUs and the fans required to cool them aren't the only source of computer noise, of course, and in some cases may not even be the primary cause. Noise tends to come from five distinct sources: the hard drive, the power supply and its fan, the CPU and its fan, optical drives, and general electrical hum from components, including the monitor.

Depending on your system, you may also have one or more case fans. If you have a dual-processor system, add yet another fan. A cutting-edge system may generate noise in the range of 50 to 60 decibels (dBA), similar to a refrigerator. Compare that to a whispered voice at 30 dBA, or big city freeway traffic at 70 dBA. Saying that a modern PC is as noisy as a jet taking off may not be far off the mark.

If all this makes you doubt that you have any chance of achieving computing silence in your lifetime, relax. It's been done before. When Apple introduced the iMac desktop computer five years ago, it was revolutionary in more ways than

one. In addition to vibrant colours and unconventional design, the iMac brought something else, something unnoticed, to the desktop. Silence. Unlike its PC brethren of the era, the iMac had no CPU cooling fan—it kept its G3 processor at optimal operating temperature with a passive heat sink. If Mac users can benefit from some creative design and attention to silence, then so can PC users.

The big chip manufacturers are aware of the problem. Thermal management without excessive noise is becoming a mantra, though it's still drowned out by the cry for improved performance. Even Microsoft has identified computer noise as one of the big issues that will need to be addressed in the next few years. And there has been progress. Liquid bearings on hard drives are a huge improvement. Innovative designs in heat sinks and fans are another. Some of the new breed of CPUs and motherboards control fan speed based on CPU load, meaning the system remains relatively quiet until it heats up.

So, have hope. The silent PC, or at least the relatively quiet PC, is coming, and probably sooner than you think. In the meantime, for those who can't wait, we offer some suggestions for putting a lid on what may be the noisiest member of your household.

For existing systems

- Drown out the noise: Open up your favourite MP3 player and put on a few tunes. Even low-level background music is usually enough to drown out the noise from a PC.



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- Reposition the box: Where's your box? On your desktop? At your feet? A little rearrangement to place it between the side of the desk and the printer stand, for instance, can baffle a considerable amount of noise.
- Upgrade key components: Even a simple upgrade, like replacing your existing hard drive with a new drive with liquid bearings, can make a dramatic difference to system noise. Upgrade the power supply, too, and you may be well on your way to silence.
- Join the mod squad: Modifying existing hardware is a passion for some, a necessity for others. Your favourite computer supply store can assist you in choosing the appropriate hardware (new fan, heat sink, case, case insulation, and more) to successfully reduce most PC noise. But be careful! The poorly considered modification could lead your system's CPU to fry itself, or underperform.

When buying a new system

- Ask about noise: Your average sales clerk may not be capable of designing

or building a PC, but he or she works around them all day long. You may gain some insight into which systems run more quietly.

- Ask for quiet components: If you are having your system custom built, insist on a machine that runs quietly. Make silence one of your top priorities. System builders have many options open to them when it comes to parts. Quieter components may be a little more expensive, but your ears will thank you.
- Choose a laptop: Laptops of any variety tend to run more quietly than their desktop counterparts. Today's laptops are powerful and have large screens—using one as your primary system is perfectly feasible.
- Become a switcher: Consider switching from PC to Mac, and check out the new iMacs. Attractive and still relatively quiet (they do have fans now), most iMac users continue to rave about the silence of their machines. If PC makers get the message that sales are migrating because of noise, you'll see rapid improvement. □

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< NEW & NOTABLE >

WHAT'S NEW

Continued from page 54

Eurocom (www.eurocom.com) is jumping on the wireless bandwagon. The Nepean, Ont.-based company has launched what it says is the world's first notebook with an integrated internal tri-band GSM/GPRS 900/1800/1900 module, allowing users to connect to the Internet from anywhere they could use their tri-mode mobile phones.

The **Eurocom M1905 World Warrior** notebook uses GPRS (General Packet Radio Service), which allows larger, faster data transfers and an "always on" style connection, much like using a BlackBerry. In Canada, Fido and Rogers offer GSM/GPRS networks.

The notebook includes a Mobile Intel Pentium 4 processor at speeds up to 2.4 GHz, a 12.1-inch TFT screen, up to 1 GB DDR266 DRAM, and up to 60 GB, 5,400 rpm hard drive. Buyers can opt for a CDMA connection module instead of the GPRS. The notebook is available from the company's Web site, with prices starting at \$1,549.



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Continued on page 84

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< NEW & NOTABLE >

WHAT'S NEW

Continued from page 80



And apparently the appliances' communication skills are not the only qualities that make them good citizens. GE says the washer uses up to 40 percent less water than a traditional top-load machine, automatically adjusting water levels to match the size of the load.

The washer also offers agitator-free washing, a Stain Inspector system, and timed release of detergent, bleach, addi-

tives, and fabric softener. The dryer uses two motors, two moisture sensors, and two temperature sensors, as well as an extra low delicate temperature setting, according to GE. Suggested retail prices for the pair start at US\$1,998.

The good news about having an iPod is you have access to your music all the time, wherever you go. The bad news is listening to music through headphones is not always a good idea—it can be unsafe while driving and impolite while visiting with friends. So **Griffin Technology** (www.griffintech.com) came up with the **iTrip**.

The iTrip is an FM transmitter that fits onto the iPod (an updated model for the new iPods has just been released) and will broadcast the iPod's music to any frequency on an FM radio, according to Griffin. It draws its power from the iPod battery, and can keep working even when the iPod is docked or charging.

And in this case, being polite doesn't even cost that much. The iTrip's suggested retail price is US\$35.

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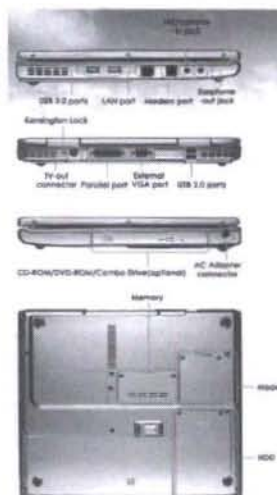


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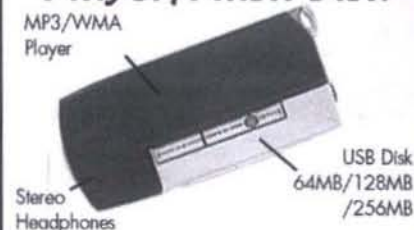


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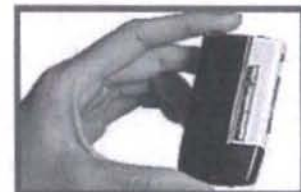
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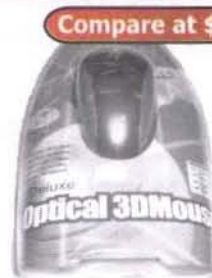
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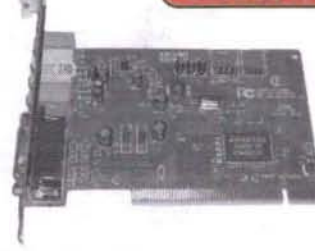
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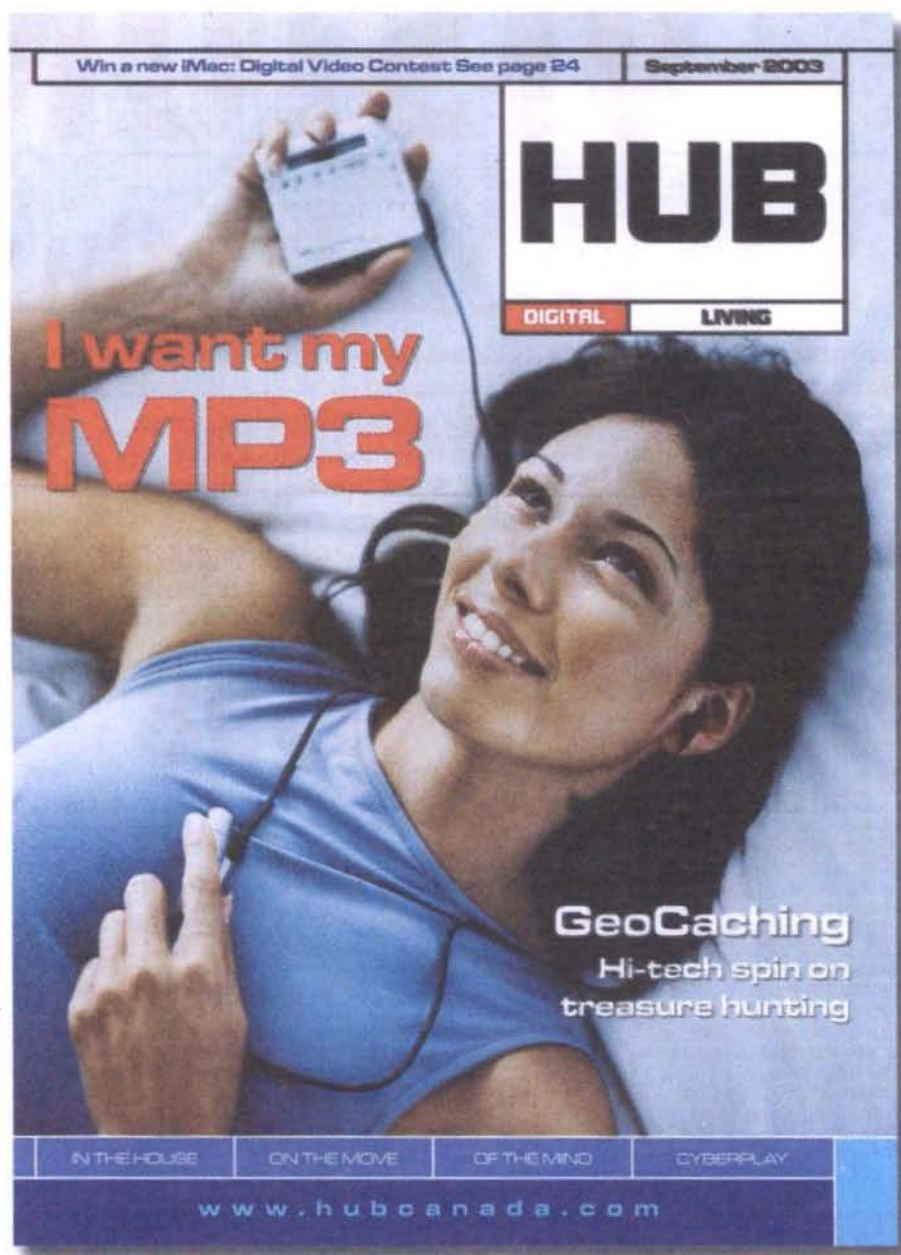
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