



OTTAWA PC NEWS

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April 2001

HARDWARE REVIEW

High speed wireless internet, anyone?

by Paul Cooper

I think most users of the Internet are looking for high speed access to the web. The limitations of the telephone system make surfing the web and downloading big files a frustrating business — particularly in rural areas where 56 kbps means realistically 30 kbps+ is the most you can hope for.

Sitting out here on a farm near Metcalfe I had long ago resigned myself to dial-up service with the faint future possibility of a high speed satellite hook up. This dream connection was promised to users of Expressvu and Star Choice, but so far hasn't come on stream. Imagine my surprise when I read an article in a local rural paper that indicated that High Speed Wireless Internet was now available in the Metcalfe area and a number of other Eastern Ontario locations. A quick phone call confirmed this.

The local hub is on a Bell tower in Metcalfe, a scant two miles from my house with a perfect line-of-sight path for the signals. What speed could I expect? "Oh, our residential system will handle up to 2 Mbps", was the reply... Wow! This was really tempting, but what would it cost? Well it turned out installation (which includes a rooftop antenna, a radio modem, an Ethernet card in one's PC and configuration of the computer) was \$400. Monthly charges for unlimited access were \$50. I hesitated until

a phone call to my accountant confirmed the fact that all the expenses could be written off against the farm. That decided it, and a few days later the installation crew arrived and got everything set up in just a few hours.

So what is it like? Well its certainly a lot faster than that old 56 kbps dial-up modem, but the speed is all over the place. I spent several hours trying out the various speed tests available on the web and the results — no surprise — are highly variable. The same test repeated gives different answers each time. Some web pages snap onto the screen almost immediately while others take several seconds to load. Mail, downloaded from a local server, comes in at blinding speed. I'm now encouraging my friends to send me e-mails with lots of attached photos! For example 15 JPEG images arrived this morning (750 kb in total) and took about six seconds to download.

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Next meeting: **WEDNESDAY, April 11th, 2001**

COMING UP IN APRIL

Ron Thompson from Information Technology Security Inc. will speak on the new *Personal Information Electronic Documents Protection Act*.

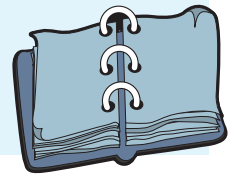
This presentation will have important information for website developers and any business or people involved with collecting personal data electronically.



UPCOMING MEETING TOPICS

May: **Chris Taylor** will talk about VMWare virtual computers software — terrific for those who must test to see if things function properly under various operating systems.

June: In time for summer this presentation will feature demonstrations of Olympus digital cameras, digital printers and digital audio recorders. Olympus reps **Norm Dutcher** and **Jean Pierre Serre** will have sample products on hand for attendees to try.



RAFFLE

At the April 11th general meeting, there will be a raffle for a copy of Drive Image 4. This was generously donated by PowerQuest. You can read a review of this great software at opcug.ottawa.com/public/reviews/driving4.htm.

As usual, prices for raffle tickets are 1\$ for one, \$2 for three, or \$5 for ten.



CALENDAR

Meetings	Date	Time and venue
OPCUG General Meeting	Wednesday, April 11 th	7:30 p.m. Auditorium of the National Museum of Science and Technology, 1867 St. Laurent Blvd.
Ottawa Paradox Users Group	Third Thursday of each month	6:00-8:00 p.m. — Corel Bldg 1600 Carling Ave
PIG SIG (i.e., Wing SIG)	April 11 th — After SIGs are finished	“Good Times” cafe at Shoppers City West, Baseline and Woodroffe
Internet SIG (I-SIG)	Wednesday, April 11 th	Come and join our discussions!
Developers SIG	Wednesday, April 11 th	Immediately following the main OPCUG presentation, and occasionally at other locations in the region.
Delphi User Group	April 26	8:00 p.m. at Chapters Store in the Pinecrest Mall (at the Queensway)

Please note that unless otherwise noted, SIGs meet at 9:00 p.m. (immediately following the OPCUG General Meeting).

High Speed Internet *...continued from front page*

My McAfee virus DAT updates — a file of just over 1Mb — took 20 seconds to download as compared to 10 minutes over phone lines. Another good example is the radar weather scan I get from Rochester, New York. A great picture of precipitation right across the province. The scan can be “animated”, essentially six hourly scans are displayed in sequence so you can see those rain showers moving across the screen just like on TV. With the old modem it took 3–4 minutes to download the images before the animation began. With the High Speed connection, its up and running in about five seconds.

Well, enough of these generalities. I’ve spent some time on my two modems to give you some comparisons of performance using some of the speed tests available on the web. Bear in mind what I mentioned earlier that test results are variable but I hope the figures below will give you a little better idea of the improvements I’m now experiencing. Where possible I have bracketed the 56k phone line modem results for the same test.

1. MSN bandwidth speed test 2472 kbps (26 kbps)
2. Cable modem speed test [10Mb file from Winnipeg]. . . 700 kbps
3. Sympatico [1 Mb file] 2091 kbps (93 kbps)
4. CNET speed test. 132 kbps (26 kbps)
5. Modem speed test page [700 kb image] . . . 179 kbps (3.31 kbps!)
6. Interland, Atlanta Georgia [1 Mb image]. 965 kbps
7. CNET (MSN) 75.7 kbps

By the way, my PC is an older 133 MHz Pentium with a not-very-fast video card. The internal bus speed seems more than capable of handling anything the High Speed modem can feed it.

Where can you get this service from? Well the company is Storm Internet, www.storm.ca, and they are strictly in the rural areas of Eastern Ontario. No service is available within the City proper. Click on “map” www.storm.ca/corp_services/corp_services.html and you can see if you are within their projected coverage. You need a line-of-sight path to the local tower. Trees in the way are a no-no at these frequencies.

Well is it all worth it? I think I would have to say “It depends...” If you regularly download large files or receive big attachments to e-mails it could be worth the extra money. As far as the web is concerned, the faster web surfing is nice to have but not worth the expense. On balance I wouldn’t have upgraded without the assurance that the whole package would be a farm expense. So if you are running a home business, go for it, but otherwise read a newspaper while you wait for the next web page to download!



TIPS & TRICKS



Had it with spam? *by Chris Taylor*

If you have an Internet email address, you almost certainly have received spam. This “unsolicited commercial email” seems to just go with the territory. I am often asked how to make it stop. My reply is almost inevitably; “Just hit the delete key and get on with your life. It is not worth the effort to do anything about it.”

For those who are inclined to go to a bit of effort to actually try to stem the tide, I tell them to go to <http://spamcop.net>, where an automated process will take the information in the header of your spam and do its best to trace the true origin of the spam. It also allows you to report the spam to the ISPs used by the spammer. Best of all, you can use this service for free.

I recently came across an interesting Web site that details the great lengths someone went to in order to deal with a spammer. This person really knew what they were doing and it is a fascinating tale. If you have some time to spend – it is a *very* long tale – fire up your web browser and go to <http://belps.freewebsites.com/index2.htm>.



A tale of three serials by Dunc Petrie

Yesterday

Historically, serial connections have often been regarded as the poor cousins when speed was the criterion. Their tasks have included printers (almost universally replaced eons ago by the faster parallel port), a mouse port and a modem. Speed was — until recently — the fiat of parallel bus connections: for example, printer parallel ports, IDE/EIDE hard drive connectors and SCSI.

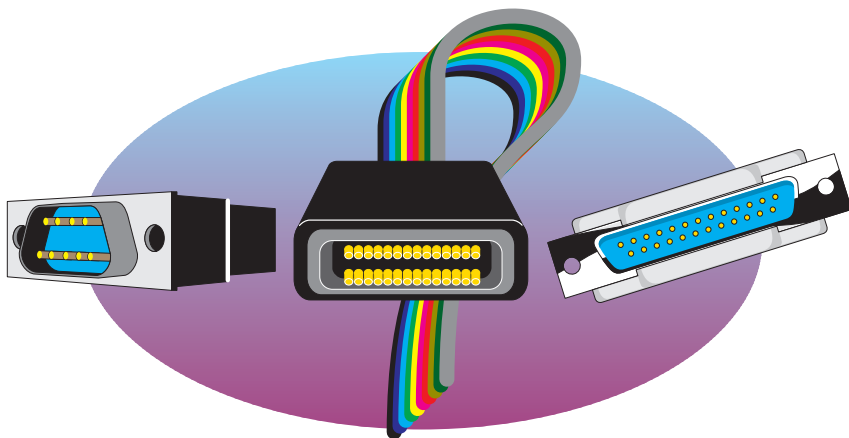
Today

Serial connections are reborn: they can boast speeds that shame their parallel bus competition and they are poised to make inroads into other traditional parallel connection territory.

Most desktop users today have Ultra DMA/66 as the hard drive interface “flavour of the year.” This interface is capable of data transfers up to 66 Mb (bytes, not bits) per second (burst mode) although the sustained rate is proportionately lower. SCSI is an option; however, for most users it suffers a significant cost disadvantage. Not only are the hard drives more expensive but also users must purchase the host adapter. Most home and small business users opt to use the built-in IDE/EIDE connectors.

As processor power and speed accelerate, data must arrive faster to prevent a bottleneck. To compensate, several design approaches, singly or in combination, are available: for example, faster platter rotation speeds, greater areal density, RAID drive arrays, larger on-drive caches and faster algorithms.

Indeed, a faster protocol — Ultra DMA/100 — has appeared and chipsets to support it are becoming available. Already, the next increment, Ultra DMA/133 awaits official blessing.



Tomorrow

High speed serial connections were resurrected with the arrival of Universal Serial Bus (USB). Motherboard support is integrated with connectors on ATX form boards; a wide range of peripherals (for example, keyboards, mouse, printers, scanners and digital cameras) utilize the convenience of hot plugging. USB is only the pioneer; indeed, it is scheduled for an imminent speed boost. Also waiting in the wings is IEEE 1394 (aka Firewire — trademark of Apple Computers, or iLink — trademark of Sony, or high speed serial bus or high speed serial interface) and Serial ATA. IEEE 1394 was originally relegated to digital video interconnections; however, it has gained prominence as other peripherals (chiefly hard drives) arrive in retail channels.

Serial ATA

The incremental progression of “Ultra” may soon be replaced by an entirely different protocol: Serial ATA. Gone would be ribbon cables: the hallmark of the present parallel signal interface. The major problem with the present scheme is signal noise and crosstalk between adjacent wires. To minimize this interference Ultra DMA/66 (and beyond) specifies an 80 conductor ribbon instead of the more common 40 wire; for backward compatibility the familiar 40 pin connector remains. These connectors are significantly more expensive locally. Switching to a serial interface allows fewer wires and lower voltages; both are conducive to less signal noise and crosstalk (with less heat and better cable organization as freebies).

Features/Benefits of Serial ATA

- Increased transfer rates — initially up to 150 MB (again, bytes not bits) per second (MBps) with projected incremental increases to 600 MBps)
- a round, 8 pin (PS/2 mouse connector style), seven conductor, cable instead of a

wide ribbon—promoting better airflow and requiring less motherboard space

no need to daisy-chain (each drive will have an individual cable)
point-to-point protocol — the end of master/slave jumpers (Each drive would have a single-purpose connector that would connect to a motherboard hub. For those versed in LAN topology this would be a star configuration.)

parallel operation of devices (currently, only one drive on a bus can be working)

first party DMA (allows device access to host memory — uncertain of details but supposedly improved from the current algorithm)

lower logic signal voltages and differential signalling (500 millivolts proposed versus the current 5 volts) — less noise, crosstalk

reduced motor voltage (3.3 versus 5.0) for less heat production: a boon for portables

transparent support for CDs, CD-R, CD-RW, DVDs, tape devices, high capacity removable media devices, zip drives

intended only for internal use — no external connectors anticipated for peripherals (marketing strategy to keep costs down; avoids bogging down hard drive performance with slower peripherals)

one meter maximum cable length (ideal for Ultra is less than 0.5 meter) permitting greater flexibility of internal case layout

forward and backward compatibility with existing hardware provided by adapters (both new drives to the old interfaces and old drives to Serial ATA)

OS and BIOS transparent (Microsoft Windows 9x, Me, and 2000; Linux and presumably Mac)

compatible with all current software (register level transparent)

device driver changes not necessary

hot pluggable at manufacturer's option (less expensive hard drive arrays?)

provisional timetable: 1.0 release fall 2001, first commercially available products late 2001, broad adoption in 2002.

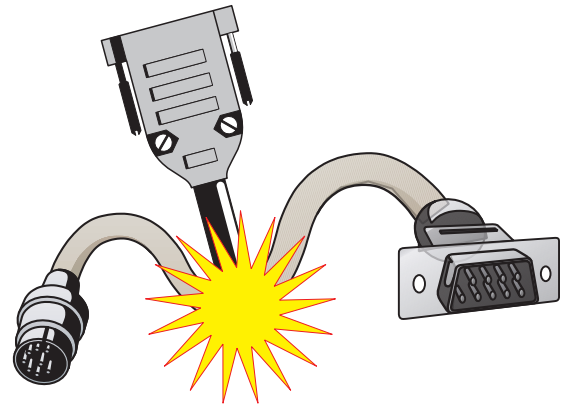
identical connectors for desktop (3.5 inch form factor) and mobile (2.5 inch form factor) drives

cost competitive with present ATA/ATAPI

USB

The specification for the current Version (1.1) supports transfer rates of 1.2–1.5 MBps; the proposed 2.0 specification would raise it to 60 MBps (in 2002) while providing backwards and forwards compatibility. That is, a version 2 device would work when connected to a version 1.1 interface (only at the slower rate) and a version 1.1 device would work when connected to a version 2.0 port (but would not speed up). For external peripherals like scanners this offers the expectation of SCSI-like performance without the additional cost of the host adapter.

USB was originally intended for low-impact, narrow bandwidth peripherals (like keyboards and mice). Indeed, the USB chipset and cabling designs are not ideal for wide bandwidth devices like hard drives. Intel, the parent of USB, in conjunction with Microsoft



originally indicated that IEEE 1394 was the high-end counterpart and co-existence was the operating strategy. Are the gloves off? This new variant offers comparable performance to IEEE 1394 (SCSI beware) and enjoys de facto motherboard integration that reduces costs (IEEE 1394 is integrated on few systems; most implementations utilize a PCI expansion card).

USB Specifications

intended only for external devices

integrated on motherboard

cable up to 6 meters per link

not bootable

hot pluggable

foolproof, one-way cables (not IEEE 1394 interchangeable)

IEEE 1394

This serial protocol was faster than the original implementation of USB and entered the arena in digital video applications. Given this niche application, higher implementation costs and “no other game in town” it has languished in the PC marketplace. Some manufacturers are offering “Firewire” hard drives that use a conventional hard drive in a suitable external package with this interface but with a considerable price premium. By increasing USB's data transfer rates into IEEE 1394 territory, the latter would be hard-pressed to break out of its mold given the higher cost of implementation. Still, what it does, it does well and for technical reasons USB is not ideally engineered to provide large amounts of data at high speed (mass storage data transfers).

IEEE 1394 Specifications

aimed at high bandwidth peripherals (digital video) and mass storage
higher implementation costs (also possibly royalties)
originally much faster than USB 1.1; roughly comparable to USB 2.0 (IEEE 1394 is scheduled to increase in 2005 to 200 MBps)
intended for external devices only
motherboard integration seems unlikely (Intel holds the reins here and a more complicated protocol requires supporting chipsets that are at a cost disadvantage when compared to USB)
not bootable
hot pluggable
foolproof, one-way cables (not USB interchangeable)
up to 4.5 meters per link

Conclusions

Given the momentum behind Serial ATA (most major manufacturers are committed) it would appear to be a “no brainer.” Faster processors require greater data bandwidth and the current protocol has reached the end of its lifespan. The new approach will offer greater data throughput, headroom for future speed increases, internal design improvements (better airflow, less heat generation) and ultimately lower costs. During transition, inexpensive (hopefully) adapters will allow gradual phase-in with minimal disruptions.

USB appears to have the upper hand. It is positioned to support a diverse range of peripherals and motherboard integration offers the benefits of low cost and end-user simplicity. Otherwise, both buses are surprisingly alike. Casual end-users, I suspect, will be quite satisfied with the already present USB. For them, USB fulfills their peripheral connection requirements. IEEE 1394 has made no attempt (to date) to move into the USB arena of connecting a mouse or keyboard.

The exotics of digital video aside, consider connecting a scanner. Given the choice, would you purchase: a USB version that you can literally plug in and run the software; a SCSI version that requires obtaining and configuring a host adapter, setting the device ID and arranging termination in addition to the software; or, an IEEE 1394 version that requires purchasing a card, installing software drivers and then the scanner software. Yes, IEEE 1394 is arguably easier than SCSI but why would you purchase, at additional expense, any add-in board (regardless of protocol), with the complications of setup (tongue in cheek: Plug and Pray) and drivers when your motherboard has all you need?

Surprisingly, IEEE 1394 and USB (Version 2.0) are more alike than different with specifications that are very similar. Marketing considerations originally positioned them to address, respectively, the high end and the low end of the peripheral arena. If IEEE 1394 were integrated on the motherboard, instead of an expansion card, could/would end-users notice much difference? Would they care? In both cases, I doubt it.



CLUB NEWS

Financial review (Y2K)

John Archibald has completed his reconciliation of the club's books for calendar year 2000. His report to the BOD follows:

I have examined the OPCUG's account records for calendar year 2000 as requested and have the following to report:

1. The year began with a bank balance of \$7,918.82 in January 2000.
2. I found no items, or discrepancies, in the records I examined that could not be rationalized.
3. On November 20, 2000 a GIC asset, in the amount of \$5000.00, matured and was cashed. Accrued interest of \$219.40 was also deposited for a total of \$5,219.00. To this amount \$2,280.60 was added and used to purchase a GIC in the amount of \$7,500.00.
4. The last transaction for the year 2000 was December 29, on which date the bank balance stood at \$5,689.04 and this will be the starting amount for the year 2001.
5. The amount in item 4 above, together with assets stated in item 3 total \$13,189.04. The difference between cash on hand at beginning of Year 2000 and end of Year 2000 is rationalized by the \$2,280.60 expended for GIC purchase, leaving a surplus of \$50.82 against the year 2000 cost of operation.

Attested to by John Archibald, OPCUG



On behalf of the OPCUG Board of Directors, I'd like to thank both John and Treasurer **James Fridrich** for all their work and allowing us to finalize the books in what must be record time.

— Morris Turpin

Command line techniques

by Chris Taylor

Often, a graphical user interface really gets in the way. In particular, it typically makes it really difficult to automate procedures. This article shows some techniques for combining multiple actions that may be used at a command prompt or from within a batch file. In Windows 9x, the command prompt is known as the *MS DOS Prompt*. Under Windows NT and Windows 2000 it is known simply as the *Command Prompt*.

Most people know about using the pipe character “|” to use the output of one command as the input for a second command. For example;

```
dir | find "bytes free"
```

would send the output from the *dir* command to the *find* command, which would look for the string *bytes free* and display only lines containing that string to the screen.

Most people are also familiar with the redirection symbols “>” and “<”. The greater-than sign redirects screen output to another device, typically a file. For example;

```
dir c:\*.exe /s > c:\exe.txt
```

will do a directory listing of all *.exe files on drive c and send the output to a file in the root of drive c: called exe.txt.

The less-than sign is used to get input (normally the keyboard) from another source. For example;

```
del *.*
```

will normally prompt you to make sure you really want to delete all files in the current directory. If you create a text file — let’s call it d:\y.txt — with the response in it (i.e., the letter Y) and run the command;

```
del *.* < d:\y.txt
```

the response to the question will be obtained from the text file. The result is that all files will be deleted from the current directory without waiting for an answer to the prompt.

Under Windows NT and Windows 2000, there are some less-known symbols you can put between commands that are quite useful. First a note that this will not work with all commands or programs. The only way to be sure is to test. The program must be designed to return error codes to the operating system when it exits. These return codes can normally be detected by testing “*errorlevel*” in a batch file. Although I don’t want to go into great detail here on using *errorlevel*, for anyone familiar with the concepts, the following symbols will detect an *errorlevel* of 0 (success) or greater than 0 (failure)

If you put two ampersands “&&” between two commands, the second command only executes if the first command was successful.

```
copy c:\*.txt f:\ && del c:\*.txt
```

This would copy all the text files from the root of drive c to the root of drive f. If the copy command did not return with an error, the text files at the root of drive c would then be deleted. If an error occurred, such as drive f being a network drive and the file server being down when the command was run, the text files on drive c would not be deleted.

If you put two pipe symbols “||” between two commands, the second command only executes if the first command failed.

```
copy c:\*.txt f:\ || blat -s "Error copying files" -t bob@host.com
```

In this case, if the copy failed, the program *Blat* would run to send an email with the subject “Error copying files” to bob@host.com. (blat180.zip is available on PUB II in the Internet file area)

Both sets of symbols may be used on a single line so that one action will take place if the first command is successful and a different action will take place if the first command failed.

Putting together the examples used above into a single command;

```
copy c:\*.txt f:\ && del c:\*.txt || blat -s "Error copying files" -t bob@host.com
```

If the text files get successfully copied from the root of drive c to the root of drive f, the files are deleted from the root of drive c. Otherwise, an email is sent to bob@host.com with a subject of “Error copying files”

Hopefully you will find these additional techniques will help you build more robust, powerful and concise batch files.



OTTAWA PC NEWS

Ottawa PC News is the newsletter of the Ottawa PC Users' Group (OPCUG), and is published monthly except in July and August. The opinions expressed in this newsletter may not necessarily represent the views of the club or its members.



Member participation is encouraged! If you would like to contribute an article to *Ottawa PC News*, please submit it to the newsletter editor (contact info below). Deadline for submissions is three Saturdays before the General Meeting.

Group Meetings

OPCUG meets on the second Wednesday in the month, except July and August, at the National Museum of Science and Technology, 1867 St. Laurent Blvd, Ottawa. Meetings are 7:30–9:00 p.m. and Special Interest Groups go until 10 p.m.

Fees

OPCUG annual membership: \$25 per year.

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CLUB LIFE

Reduce, Reuse, Recycle

Bring your old computer books, software, hardware, and paraphernalia you want to **GIVE AWAY** to the General Meetings, and leave them at the table near the auditorium's entrance. *Please limit magazines to publication dates of less than two years old.*

You may **TAKE AWAY** any items of use to you. Stuff left over at the end of the meeting will be sent to the recycle bin.



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