

Ottawa IBM-PC Users Group

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INTEL i486

Intel introduced the i486 at the spring COMDEX in Chicago. Here are a few interesting facts gathered from the release and comments by industry bigwigs.

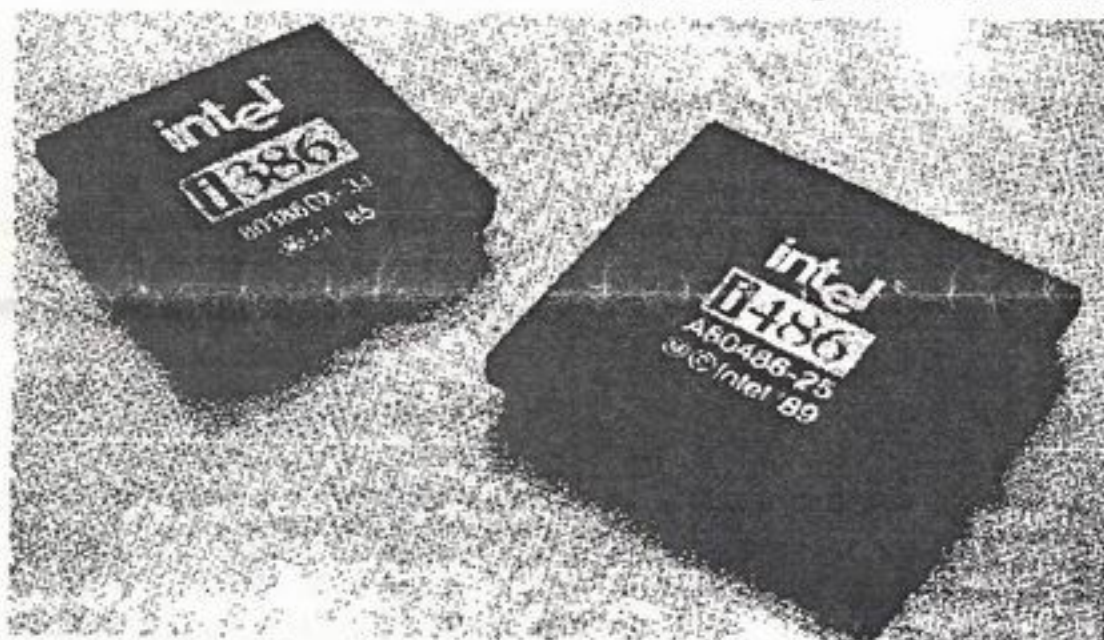
The i486 is an enhanced version of the 386. It includes a RISC (reduced instruction set computing) core, a built-in numeric processor and 8K byte cache in its 1.2 million transistors.

The 25MHz version will be

available in production quantities following in 3-6 months.

According to Intel the i486 provides 15 "VAX MIPS" of processing power, based on one MIPS for DEC's VAX 11/780. Numeric processing rates at 37,000 Dhrystones per second compared to the VAX's 1,700 Dhrystones said Intel.

Comment: This last comparison may be a little misleading as a comparison should be



available in production quantities in the 4th quarter. Not for the faint of heart, the i486 is priced at US\$950 a piece in quantities of 1,000. Think of it as less than 1/10 of a cent per transistor. The 33MHz i486 will be available for sampling in the 4th quarter with produc-

tion quantities following in 3-6 months. Also I would have expected Whetstones to be used for a floating point comparison rather than Dhrystones which were designed to rate CPU speed. For perspective an original PC rates about 330 Dhrystones.

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Special Help Sessions for Beginners

The Ottawa IBM PC Users Group is offering special help sessions for new members and others who would like to know more about using their machines and the elements of DOS. At each meeting there is a short presentation on some topic of interest, and there is ample opportunity for discussion of problems which members have experienced. Topics touched on to date include the use of batch files to simplify life, internal and external DOS commands and some public domain utilities.

Meetings are held immediately before the regular club meetings. The next meeting will be on Wednesday May 31st in the NRC Building on Sussex Drive, starting at 7:00. The security guard will direct interested persons to the meeting room.

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i486

Intel provided PC perspective by stating that the 33MHz 386DX provides 25 times the performance of the original IBM PC and the 25MHz i486 50 times the performance. The internal cache and RISC core provide the explanation of how a chip with a slower clock speed can be twice as fast as its parent.

The i486 is 386 software compatible. It is not physically compatible as it is a bigger chip with a ceramic grid array of 168 pins. Intel also announced an agreement to implement the i486 architecture in an ECL (emitter coupled logic) thermal module. The module is expected to operate at about 120 MIPS.

To date, to the best of our knowledge IBM has not signed a license to produce the i486. Major players announcing 486 systems include: Acer, AST, Banyan, Compaq, Hewlett-Packard, NCR, Olivetti, Phillips, Sun and 3COM.



POWER TO THE PC PEOPLE

by Jackson Hibler OPGC

I built my own "state of the art" surge suppressor several years ago by following the instructions in Steve Ciarcia's article in BYTE. I just had to solder three MOV's into a power strip. It cost about \$20. What's curious is that Don McMillan showed us at last month's meeting that, until you get into devices costing over \$200, my little device still is "state of the art"!

Don warned us that many outfits are selling just the power strips, with one or less MOV's, calling them power protection devices, and charging a lot more than \$20 for 'em, too! What Don did not emphasize enough, however, is that MOV's and Zener Diodes--even in properly wired groups of three--do not constitute a complete power protection system for personal computers. Why? It has to do with the nature of the switching power supplies in our machines.

Back in the prehistoric '70s electronic power supplies were "linear": they started with a power transformer across the power line and rectified and filtered its output. That transformer was heavy and expensive. Then someone got the idea that if you rectified the raw power first, and then put in an oscillator to pulse the rectified output, you could use a little high frequency transformer and filter to get nice clean DC power out the back

end. Voila, a "switching" power supply!

So what's wrong with that? Not a lot, in fact. Switching power supplies are much less sensitive to over- and under-voltage conditions than linear supplies: 80 to 140 volts on the line will do quite well, thank you. Expensive ferroresonant transformer voltage regulators, so necessary to get steady output from linear supplies, are redundant with switching supplies. BUT...there is one trade-off, and it is a nasty one: vulnerability to "common mode" noise.

"Common mode" noise is transient energy that can be measured between ground and either the power (black) line or the neutral (white) line. But neutral is ground, no? Unfortunately, no! Neutral and ground wires are bonded at the power panel, but then follow parallel, separate routes to each outlet. This makes room for voltage differentials to occur: common mode noise.

That big transformer at the front end of the old linear power supplies blocked such noise coming down both the line and neutral by causing it to become 180 degrees out of phase with itself in the primary winding. Switching supplies don't have that protection up front; common mode noise passes right through! And common mode noise doesn't have to be very powerful to cause trouble.

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Power

Logic circuits work with only a few volts to differentiate between 1 and 0...quite small common mode transients can scramble their data or even burn them out.

"Normal mode" noise is transient energy measured between the power (black) line and the neutral (white) line. Switching power supplies are really already rugged enough to absorb most normal mode surges without passing them through to the much more delicate chips beyond. But if these pulses are big enough and last long enough--and Don presented statistics demonstrating that they often can be--they can damage the power supply, and even blast on through to burn out the much more delicate chips beyond. It is this kind of pulse that the Zener Diodes, Metal Oxide Varistor (MOVs) and gas tubes are designed to clip and shunt away to ground.

But now comes the "gotcha": when MOVs, Zeners and gas tubes "fire" to clip normal mode energy spikes, they generate strong common mode spikes themselves! And as if that wasn't enough bad news, it seems that the inverters in many Standby Power Supplies (SPS's) and Uninterruptable Power Supplies (UPS's) also generate strong common mode noise that must somehow be filtered before it gets the chance to pass through that switching power supply and into the chips.

So where does that leave my "state of the art" device? Not in very good repute! Two articles on PC Power by Mark Waller in the October and November 1988 issues of BYTE, and a follow-up letter from Oneac Corporation in the "Letters to BYTE" April 1989 issue, describe a better way: the solution is to use an isolation transformer between your switching power supply and the outside world. That isolation transformer gives a similar kind of protection from common mode noise that the old linear power supply transformers did. And if neutral and ground are bonded together at this point too, that's the end of the common mode noise problem!

And where can we find such an animal? Well...Mr. Waller didn't say in his BYTE articles...and neither did Mr. McMillan in his presentation. Oneac Corporation claims to sell one, but I cannot find an ad in the computer press. The Pylon UPS people attending last month's meeting mentioned that they had transformers at both ends of their machine, but whether these filtered common mode noise, I couldn't find out. Don McMillan showed one "line conditioner" that, at \$300, should have contained an isolation transformer, although I couldn't find out if it did... I wish I could give you better news, but it looks like this is one piece of very important "old technology" that is just too new!

Meetings:

Meetings of the Ottawa IBM-PC Users Group are held on the last Wednesday of the month except in July and December. The meetings are at the National Research Council Auditorium, 100 Sussex Drive (Gothic Building facing King Edward Avenue). Club functions including memberships, library disks, new members and bulk purchasing are available at 7:30 pm with the regular meeting starting at 8 pm. Free parking is available at the rear of the Gothic Building.

Next meeting May 31 The guest speaker will be from Intel. Topic i486.

Following meeting June 28 Tentatively Corel. Topic Corel Draw software.

Tim's Tip

When working with spreadsheet programs, I use the first line to record column widths. I estimate how many columns I will use and enter the default width at the top of each column. I then use the Sum function to add the first line for the columns actually used. If I change a column width I change the recorded width. The sum automatically tells me my maximum required print width. I can easily set margins, or set compressed print to prevent lines wrapping or printing on multiple pages when it is unnecessary.

4DOS

by Chris Taylor

DOS has always been rather rudimentary when it comes to providing basic utility tools. (Any bets on the percentage of the Group that have used EDLIN for more than 1 hour?). Computer users quickly find that they must look elsewhere for those files that will sort directories, setup printers, massage files, change screen attributes, provide desktop tools such as calculators, notepads, calendars, and the like.

Most utility programs in the shareware/public domain are single-purpose. A few are tidy little packages supplying half a dozen or so functions. Imagine my delight when I came across a program by Rex C. Conn and Tom Rawson of J.P. Software that promised to enhance most of the DOS commands as well as add over 30 new ones. Not only are there lots of utility functions, but many are functional equivalents of existing utilities I now use.

4DOS is a replacement for COMMAND.COM, the command interpreter used in all versions of DOS. Among other things, COMMAND.COM is responsible

for giving you the ability to do DIR, DEL, REN, CD, CLS, TYPE and all the other "internal" commands. When you run these commands, DOS already knows how to perform the function. It doesn't have to go to disk and load the program like it has to in the case of FORMAT, DISKCOPY, etc. 4DOS adds all its capabilities (except the on-line help) as internal commands. This means that, while at the DOS prompt, all of

4DOS is shareware available on The PUB (the Group's electronic bulletin board) and from the disk library. It may be ordered and registered from:

J.P. Software
P.O. Box 1470
E. Arlington, MA 02174
(617) 646-3975

Try the program. If you like it and if you intend to continue using it, register it. A \$50 registration will get you the latest version of 4DOS on disk registered to you, one copy of the printed and bound 4DOS manual, an upgrade to the next version of 4DOS for free, reduced rates on future upgrades and technical support via electronic mail or telephone. A \$35 registration provides the disk and notices of future upgrades. Network, site, and corporate licenses are also available.

4DOS's features are instantly available, without waiting for disk accesses.

4DOS is compatible with all versions of DOS from 2.0 up and works with DOS compatible networks. It uses less than 5K if swapping to disk or EMS memory (55K if in non-swapping mode).

Retraction:

The Ottawa IBM-PC Users Group Newsletter apologises for incorrectly attributing the 4DOS article in the April newsletter to Chris Taylor. The April article appears to contain several errors of fact. Chris' article corrects these errors and is featured in the current issue.

Monochrome, CGA, EGA and VGA displays are supported with any number of lines and columns per screen.

Due to the multitude of features in 4DOS, I will just briefly mention the highlights of the program. People who are interested should get a copy of the program and see the full program. Guaranteed to impress!

Flexible wildcard specifications are allowed (eg. *A.* matches any filename containing an A). If that doesn't help you find that elusive file, perhaps 40 character file descriptions (displayed when typing DIR) will do it. Files can be moved across directories and directories can be renamed as well as put on a stack and used to navigate on a disk.

Multiple commands can be executed on a single line and the execution of a second command can be made conditional upon the outcome of the first.

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4DOS

A command can be executed on a group of files excepting a given sub-group (eg. DEL *.* EXCEPT *.EXE). A command may be executed in the current directory and all it's sub-directories (great for DEL *.BAK). There is command line history/editing. Aliases shorten and simplify long or complex commands. The environment variables may be edited.

Batch file processing is greatly enhanced with INKEY and INPUT, GOSUB/RETURN, case-insensitive string comparisons (equal, not equal, greater than, less than), and the ability to set a "local" environment. Predefined environment variables CMDLINE (contents of command line), DOSVER (version of DOS), DISK (logged drive), CWD (current drive/directory), DATE, and TIME allow powerful batch files to be created. The install program actually loads 4DOS in order to use it's advanced batch capabilities and complete the installation.

The editor and staff of the newsletter would like suggestions from club members for a name for the newsletter. Surely we've been around long enough to merit a name of our own. Some current suggestions are: IB News (shades of Isaac Asimov), Blue Notes

We Need You!

"The vital measure of a newspaper is not its size but its spirit" Arthur Hays Sulzberger

The executive would like your newsletter to be mighty in spirit. A document that any member can point to with pride and will want to retain because of its valuable content. Currently the newsletter requires:

- Contributing authors,
- Contributing editors,
- Feature and special purpose editors,
- Reporters,
- Reviewers.

New users and unsophisticated users are required in addition to techies. We would like to keep demands on anyone's time to a minimum.

If you are not a creative writer, but can assist with writing or re-writing a members contribution, the club needs you. Teamwork makes light work. Ideally this will allow you to meet other club members, at least on the phone or in person. It may provide a

forum for you to discuss your personal computing problems.

If you are a member doing something interesting to you, chances are others are interested too. If you would like assistance in writing about it we would like to have someone work with you.

We are particularly interested in Feature editors who would assume responsibility for feature pages from time to time. Features like family computer use, educational, science, games, business, word processing, desktop publishing or anything that might stir your interest.

A feature could be made up from everything from reviews to experiences. You can write an article and add contributions from others or edit contributions from others or solicit and edit contributions. Do it your way. Consider getting all the computer users in your family to make small contributions.

Help us help you.

Name That News

(presumably because IBM is known as "Big Blue"), Ottawa ROM (read only memory), Capital Computer Chronicle, PC Notebook, The User Perspective and Hard Copy.

The Ottawa IBM-PC Users Group Newsletter is 40 characters long which is too long to

fit into a column of print. It does not abbreviate to an easy to use name, nor does it roll off the tongue in speech. Suggestions may be made in person, on The PUB or by phone. You're contributions will be acknowledged.

Magazine Perspective

by John Whelan

If your favourite magazine isn't listed here it certainly isn't alone. However I found over time that the following are good basic sources.

N.B. The following is my own personal biased point of view. Your perspective may differ.

These magazines are covered by DOC17 which is available as a downloadable file on the PUB.

BYTE - One magazine that is extremely well researched with excellent articles. Some are too technical even for me. Some are well written. It has a bias towards Artificial Intelligence and looks at a fairly wide range of computers. Sometimes a bit academic, but carries a lot of basic background material. Tends to be about 5 to 6 months from the time the articles are written to the time you read them and it does show occasionally. If you want to learn about computers this is one of the basics.

BYTE WEEK - Expensive at about \$600 per year. News sheet format about the same size as the Ottawa IBM PC user group news letter. I've probably got more from the clubs newsletter. Much more up to date than Byte, mainly industry trends. If there isn't an entry in DOC17 for it; its probably because I haven't noticed anything worth noting yet. For the reader who simply must read everything.

CANADIAN TELECOM - Very specialised but essential if you want to know who the Canadian players are in the telecommunications area apart from ATI and the etc modem.

COMPUTING CANADA - Newspaper format with ink that comes off in your hand, not terribly interesting.

COMPUTER & COMMUNICATIONS DECISIONS - Has fairly good basic information mainly for managers.

COMPUTING NOW - Canada's answer to Byte and PC Magazine rolled into one. The adverts are useful to find the addresses of the Toronto Clone dealers. Otherwise most stories are written by the editor or the previous editor.

COMPUTER LANGUAGE - Deals with programming languages. If you want to get a good idea of how the latest Borland C compiler stacks up against the rest this is the magazine for you. It includes source code for Q sort, etc. I don't buy every copy but some copies are excellent.

COMPUTER TECHNOLOGY REVIEW - If you want to really know exactly the quality advantages of an 18 pin dot matrix printer over a 24 pin dot matrix printer or why Tall grass tape backup units are inherently more reliable than many other tape backup units then this is the magazine for you. Often the products discussed here will end up in your PC in 12 to 18 months time. Probably most useful for some

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DOC17

By John Whelan

Occasionally I hear requests for details of files contained in the library and at the last meeting Chris Taylor mentioned he would be interested in reading a review of the different magazines of interest to the Ottawa IBM PC users group. I wonder sometimes just how many members actually have an IBM PC and how many have no name Clones but I digress. Being basically lazy, I thought I would combine a review of some magazines with a biased review of DOC17.ZIP. The review is biased simply because I produce DOC17 for my own use and upload a copy to the Pub for other interested users.

I will start with the DOC17 first, it got its name because it was the seventeenth document I wrote with a word processor. It started life on a CP/M system, and has moved through various word processors until eventually it ended up under Word Perfect 5.0. It started with an idea by Guy Tunstall that since there are many magazines and snippets of information that you wish you could recall why not make a note as you read the magazines. Then to find out about a product simply search the file to find the information and which magazine etc.

At one time the searching was done by a convoluted C program that looked for a line

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Perspective

one who builds PCs commercially or the corporate buyer.

COMPUTER WORLD - Probably aimed at mini computer owners with PCs.

DATA COMMUNICATIONS - Very definitely a niche magazine. Mainly packet switched services and ISDN.

FACILITIES DESIGN & MANAGEMENT - Not aimed at PC users: but very occasionally has articles on how effective the use of computers and PCs can be.

HP PROFESSIONAL - Niche magazine aimed at the Hewlett Packard PC and mini area.

GRAPHIC PERSPECTIVE - Another Typesetters magazine that gets into greater depth about Postscript than you even knew existed.

INFOSYSTEMS - Aimed at senior managers.

INFOWORLD - Aimed at the corporate market place.

INTERACT - An obscure magazine produced by an HP users group, that deals with HP machines such as Vectras, HP150 micros (could this be the only IBM PC Clone that doesn't run dBASE?) and HP mini computers. If you have a collection of several hundred HP PCs you might be interested in this one.

MACUSER - Gives a different outlook on life: but many peripherals work on both machines and the general topics are relevant to both.

PC MAGAZINE - It has probably had more impact on the PC market place than IBM. The comparative reviews are excellent. The editors choices are good indications. In fact an editors choice can make an unknown

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DOC17

containing "product name" and the word "review". Today I simply use the string search feature of whichever word processor I'm using. DOC17 not only covers product reviews but also other articles that might be useful. I dropped all references to "bugs" in products some years ago but occasionally I still include them.

Some time ago, our head librarian told me that they had an automated database that could produce articles from periodicals. I decided to try their service. I think we turned up some 230 different periodicals (magazines) that referred to the software program I was looking for a review of. The search cost about \$80. Printing the articles would have cost far more.

Ottawa IBM PC Users Group - 1989 PC Club Executive

President	Stu Moxley	592-4933
Past President	Harry Gross	733-7989
Treasurer	Tony Frith	728-7597 Weekdays 671-0401 Weekends
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Software Assistant	John Ings	
Newsletter Editors	Andre Cyr	561-5207
	Terry Mahoney	225-2630
Newsletter Team	Ted Harvot	733-2710
	Jackson Hibler	836-4863
	Marc Riou	733-2092
BBS System Operator	Mike Schupan	820-0293
Bulk Purchasing	Terry Mahoney	225-2630 226-2615 FAX

Special Interest Groups

PCjr	Tom Mimeo	828-9705
Enable	Bob Laidlaw	995-3708
PC/AT	Gord Hopkins	828-3834
Packages	Eric Clyde	749-2387
Whole Bit TV Show	Sandy Shaw	733-5088

MEDICINE FOR YOUR COMPUTER!

Stabilant 22 is a prescription chemical that provides an ounce of prevention or a pound of cure. Stabilant 22, a Byte Product of the year, is a contact enhancer, lubricant and cleanser. Prescribed in small doses, this \$25.00 wonder drug is known to cure parity errors, flaky drives and many contact related difficulties. Sufficient dosage is supplied to solve problems for many years. P.S. Try it on your VCR or stereo connections. For a prescription call your bulk purchasing and ask doctors Terry, Tim or Suzanne (225-2630 or FAX 226-2615)

LOOKING FOR COMPUTER HARDWARE, SOFTWARE, PERIPHERALS...?

The Ottawa IBM PC User Group bulk purchases exist to serve you, but the service is only as good as you make it. If you require something, tell us. You're not alone. By pooling the group's purchasing power, we can get you better discounts. Unrelated items can be pooled to help all of us. For more information call your bulk purchasing and ask Terry, Tim or Suzanne (225-2630 or FAX 226-2615).

Perspective

companies product an overnight success. Often I have trouble trying to purchase the editor's choice if anyone knows of a dealer who guarantees to stock them all please leave me a note on the board. Be careful about accuracy, in its efforts to provide you with 234 different printers reviewed in one issue sometimes small items can get overlooked. The review of the NEC LC 890 laser printer states it is a 6 pages a minute laser printer. I have yet to find one that prints less than 8 pages a minute. Some of the utilities have definitely got some undocumented features or limitations that you might not expect, (most of these utilities can be found on the club's BBS the PUB). Be careful too about editors choices, some times they pick a 16 oz hammer as the best hammer, make sure that for your particular purpose you need a 16 oz hammer not a sledge hammer. All in all an excellent magazine, definitely a must read for all types of readers.

PC TECH JOURNAL - Recently dropped by its publishers (the same as PC Mag). Aimed at very narrow market of technical programmers who had to know the IBM PC extremely well. Its reviews are

exceptionally detailed and thorough, with good explanations. Lately it has been reviewing databases and CASE tools. If some one tells you they are thinking of throwing their old copies out definitely offer them a home. An absolute must read for Honours Computer Science Students.

PC WEEK - Produced by PC Magazine on a weekly basis. Aimed at the corporate buyer. More up to date than PC Magazine by several weeks has excellent comparative buyer's guides. One of the best sources for comparative information about product specifications. Free to qualified subscribers. A useful source of product information.

PC WORLD - I get the feeling that a professional writer of glossy magazines produces this one. The house style seems to be glossy paper and interesting typefaces. Can be useful if the product review you are interested in is nowhere else. General articles aimed at a more general reader than you might find in an IBM PC user group.

PERSONAL COMPUTING - Fairly light weight, seems to have little depth but is liked by some. Appeals to those on the fringes of PC computing.

PERSONAL PUBLISHER - Once known as Personal Publishing, a surprisingly useful relevant magazine It has its

roots in typesetting: but programs such as Word-Perfect offer us PostScript fonts and the ability to drive a \$100,000.00 typesetter directly from the PC. A very useful guide into the world of typesetting and publishing programs such as Pagemaker. Definitely a must read for newsletter editors.

SCIENTIFIC AMERICAN - This magazine has been described as one of the best architectural magazines today. It also covers the world of computers, mainly from the scientific point of view ie. what happens to the electrons inside your 80286. I've seen one of the best explanations of why you need 9 or 10 chips of 256k to provide 256k of useful memory when the data is only stored in 8 of them. Beware not every issue is devoted to PCs.

SUPER GROUP ASSOCIATION - Yet another Hewlett Packard user group specialist magazine

TELECOMMUNICATIONS - Niche market ISDN, T1, high speed modems etc.

UNIX WORLD - Unix has been making its mind up about what it is and this magazine has too. It started with comparative reviews about mini computers, then started to explain Unix, often talks about 386 chips etc. Useful if you want to keep in touch with what is happening to Unix and the world of international standards.

Memberships

Memberships in the Ottawa IBM-PC Users Group (OPCUG) are \$20 per person per year and include access to the OPCUG Bulletin Board and are valid until March 31, 1990. Members may also subscribe to the OPCUG's Disk of the Month (DOM) service which entitles the subscriber to 10 consecutive

DOMs. The DOM service is offered for \$25 plus the annual membership fee of \$20 for a total of \$45. Please make your cheque payable to the OPCUG and mail it to this address:

Ottawa IBM-PC Users Group 3 Thatcher Street, Ottawa, Ontario, K2G 1S6

Please print or type clearly. Your Name, address, your complete mailing address, Apt.

Number, Street, City, Province and Postal Code. Also your Home and Office phone numbers

Tell us if you are a new member \$20.00, a renewal \$20.00 and if you want the DOM service (an additional \$25.00). If you are willing to help with club activities, like this newsletter, please indicate that as well.