SEMCO

DATA BUS

Official Newsletter
SouthEastern Michigan
Computer Organization, Inc.

NO MEETING IN APRIL EASTER SUNDAY

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SEMCO MEETINGS
Sunday, May 9, 2004

Board Meeting	**12:00pm**
General Meeting	**1:30pm**
SIG-IBM Meeting	**1:45pm**
Social Period	**3:15pm**
IBM Novice Group	**3:45pm**
SIG-IBM Intermediate	**3:45pm**

DEALS COLUMN
from the DealsGuy
Greater Orlando Computer UG
by Bob "The Cheapskate" Click

Lotusphere Show

My wife and I worked the Lotusphere show held at the Dolphin and Swan hotels at Walt Disney World in Florida this year. There were between five and six thousand attendees from around the globe. One could pay as much as $1,600 depending on how many sessions you attend and how early you registered. Attendees received an expensive looking backpack/carrying bag. It was a three-day show, and much was packed in on the show's exhibit floor. There were no booths featuring any particular vendors, although Lotus was conspicuous, since they were the hosts.

Lotus focused on Workplace 2.0, featuring integration with Eclipse open source tools and tools tailored to nonprogrammers. Eclipse offers tools for improving the ability to pull in the traditional feel of Notes, also offering drag and drop as well as offline capabilities. They debuted Workplace Builder, also included in Eclipse 2.0, offering other tools for nonprogrammers. They revealed more details of the Notes Domino version 7 messaging platform, due out around the end of 2004 or early 2005. There's more, but I don't really understand much of what I just said. <G>

The show floor was covered with small stands roughly eight feet tall and seven feet in diameter with a computer and product sign on each side. Their term for what I called stands was "pedestal." There was room for another exhibitor on each side of a pedestal, but in most cases that space was for brochures and give-a-ways. Many products were Notes and Domino plug-ins. Even though the show floor was very busy, there was plenty of room, since all the pedestals were small and offered ample space for three or four people around a vendor. There were 90 two-station pedestals, 8 three-station pedestals, and 4 five-station pedestals. Also counters with FREE Starbucks coffee and your favorite cappuccino, which had long lines that sometimes included my wife or myself.

That arrangement allowed many vendors to show products in a small exhibit hall. Vendors liked it because large vendor's gigantic booths did not overshadow small companies, and everybody had about the same space to work. I'm sure it was one of the cheaper shows for exhibitors to show products. This isn't computer oriented, but I also found a few finger foods near the coffee, and some great give-a-ways at many pedestals around the show, although I skipped the many free CDs since I am not into networking, Notes, or Domino.

All of the stands and operations were networked with a very fast connection, considerably faster than a T3 line, and I doubt I would correctly repeat their explanation to me. The network's speed

was actually restricted by the outside telephone lines, fast as they were. The IT guys I talked to had no certifications at all, but seemed very competent and said they travel all over setting up networks at trade shows. My wife and I only worked in the Dolphin Hotel, but to my knowledge, many of the sessions and some meals were held at the Swan Hotel with attendees going back and forth (sometimes in the rain). There was only 60,000 sq. ft of exhibit space, but 325,000 sq. ft. of meeting space for the learning sessions. 1,600 people could be served at each meal in the area where I was checking badges.

I felt few would be interested in a Sun System for two or three home-PCs, or an IBM high speed networking system of some kind, so I didn't bother asking about deals. As a matter of fact, most of the products were very much over my head, so I doubt I could describe them. I did ask one vendor about their antivirus products for the home user, but their marketing person was not there. In fact, my time on the show floor was limited because I was supposed to be working the show, not attending it. While IBM had a presence there, they actually had their own show about three weeks earlier with exhibits in only one hall of the Orange County Convention Center in Orlando, and parts of it also at the Swan and Dolphin Hotels at Disney World. We worked the "Super Show" during those dates, so I missed IBM's show. The Super Show is an equally interesting large international sports supply show taking up the entire 1.6 million sq. ft. of the new convention center and was very interesting.

Document Delivery Anyone?

I don't know if you have read about it, but FedEx is buying Kinko's. You may wonder what they would want with Kinko's. FedEx is in the business of delivery, and perhaps you didn't realize that so is Kinko's. Many business people turn to Kinko's as a form of portable business office, so many of the documents handled by Kinko's are in digital form, including both incoming and outgoing, meaning FedEx will expand their document delivery business.

Update On Last Month's Column

My proofreader said my final release was incorrect in the statement about installing Diskeeper on a Windows Server. Since I am not knowledgeable in it, please check that out for yourself to get it right if a server installation is intended. You can go to<http://www.execsoft.com/diskeeper/diskeeper.asp> for more information about the different versions of Diskeeper and the OSs they work with, or to <http://consumer.execsoft.com/home.asp> for more information and to order the Diskeeper and Undelete bundle at the special price while it's still good.

Actually Free For Anyone

I received feedback on last month's AARP item saying the volunteer tax service is NOT confined to just AARP members. I actually knew that, but the volunteers here said they don't advertise that fact because they might be overwhelmed. Anyway, everybody is eligible, if your taxes are not too complicated, and they want you to know that. One volunteer in another city said that volunteers there sometimes sit around with nothing to do. My apologies to the AARP volunteers for that misconception.

Check This Deal From MediaFour

I think all user groups received this special offer announcement from Sue

Nail, PR Director for MediaFour. I'll include it here for my readers, using her words:

"XPlay is the smart way to use your Apple iPod with Windows. XPlay brings the power of the ultimate MP3 player to Windows users. Just plug your Apple iPod into your Windows computer, and XPlay makes it easy to load your MP3 music and other files.

"$29.95 - Downloadable version

"$39.90 - Physical copy

"MacDrive for PC users. MacDrive 5 is the best way to use Mac disks with Windows. MacDrive software makes Mac disks act like normal PC disks, so it's a great way to get files both from Macs to PCs and from PCs to Macs. MacDrive wins its awards for simplicity as well as power!

"$49.95 - Downloadable version

"$59.95 - Physical copy

"Contact me for the special user group offer!!! Sue Nail. <suenail@cableone.net> <www.mediafour.com>. Phone 605-235-1991."

The deadline for this offer is June 1, 2004, and I thank Sue for allowing the DealsGuy column to publish it.

Can That Spam!

Aladdin Software announced a special offer for users groups on SpamCatcher that they claim blocks 99% of the spam. Since these announcements often go only to designated officers in a user group who are usually very busy people, it doesn't always get passed on to the members, or if you missed the meeting it was announced at, you now know about this deal. I posted it on my Web site, so I suggest you take a look at the posting on my announcements/Aladdin page <http://www.dealsguy.com>. Using their order form lets you purchase SpamCatcher (MSRP $29.99) at 40% off for just $17.95 + S&H <http://www.aladdinsys.com/store>. Remember to enter the code "User Group" (exactly as shown) in the "discount code" field. A 40% discount will be given when you hit "apply."

Also posted in that announcement is Spring Cleaning 3.0 (MSRP $29.99) for 40% off at $17.95 + S&H, which is a great saving. Check their Web site if you want more description. I have not tried either product myself, so I cannot speak from experience on how they work.

That's it for this month. Meet me here again next month if your editor permits. This column is written to make user group members aware of special offers or freebies I have found or arranged, and my comments should not be interpreted to encourage, or discourage, the purchase of any products, no matter how enthused I might sound. Bob (The Cheapskate) Click <Bobclick@mindspring.com>. Visit my Web site at <http://www.dealsguy.com> for past columns and many interesting articles I have taken from various users group newsletters.

Monitors

By Charlie Paschal
Palmetto Personal Computer Club, Columbia, SC

Just as understanding computer memory can be confusing, so can understanding a computer display, one of the most important parts of a computer.

The display, which also can be called a monitor, is connected to a computer by a cable that attaches to a video card inside a computer. Troubles with a

display can be traced to a number of things—the cable, the card inside the computer, software that drives the card, the display itself or some piece of equipment nearby.

Monitors can be found in various sizes and shapes, but even the best of monitors can be made to look bad if any of the other parts and pieces are not working correctly or are of poor quality. A monitor is only as good as the video card in your computer and the software that runs that video card and monitor.

Let's focus first on the monitor. Of all the parts and pieces that make up a computer system, the monitor is one part that you shouldn't scrimp on. If you plan to have a computer for a long time, then buck up and spend the money for a good one. Although you may buy a new computer, you can always use your old monitor on it—especially if you buy a good quality monitor.

In that purchase, there's a lot to consider. Although you can find monitors less than 17 inches in size, I don't recommend buying one. Since some very cheap systems come with smaller monitors, it's something you should guard against when looking at buying a system that comes with a monitor.

Resolution and dot pitch are very important when it comes to monitors. A computer screen is made up of dots, and these are measured in dot pitch. In this case, you always go with the lowest number, with an upper cutoff of 28 dot pitch. Anything larger than that will give you a grainy display. More expensive models come with a dot pitch of 24.

Resolution is another measure of a monitor. Common resolutions include 640x480, 800x600, 1024x768, and 1280x1024. Even if your monitor can do higher resolutions, if your video card can't, then you won't be able to use them.

Why should you care about resolution? By using higher resolutions, you can fit more on your screen. A Web page viewed at 640x480 displays very little information. By boosting your resolution to 800x600 or 1024x768, you can fit more pixels on the screen, thus increasing your viewing area.

Another feature to check before buying a monitor is its refresh rate. Although many makers claim their monitors are able to display higher resolutions, these are often delivered at a rate lower than 72Hz, meaning that your eyes will see flicker. This is hard on your eyes and will make your eyes tire quicker than a higher refresh rate.

In today's world, the hot item is a "flat panel" LCD monitor; but, just because it's hot and the salesmen are pushing it, doesn't mean you should buy it.

Although many of us lust after a flat panel, there are drawbacks: Small type often doesn't look good on one. If you're considering one, be sure to look at some small type faces in the store before you buy it. If a salesperson is handy, get him to start Wordpad (or Word) and make the type 9 or 10 point. Be sure to check around the edges of the LCD to see if the image blurs on either side.

Often, an LCD is "fixed" to a certain resolution, such as 1024x768. Be sure that you like the way icons and type appear on screen before buying. If the type is too small (or too large), try another resolution. If the type appears jagged or blurry, then you might improve it by setting the LCD at a different resolution.

Color is not rendered sharply by less expensive flat panels. If it's a bargain basement flat panel, the color on a normal CRT probably will be better.

The availability of these flat panels means that CRT monitors—the old style larger monitors—are getting less expensive. About a year ago, I purchased a 21-inch Sony (almost top of the line) for less than $500 off the Internet. It has beautiful color, and is capable of rendering high resolutions at a high refresh rate.

The push to flat panels also has opened up a huge market for used monitors, since many people are replacing the older CRTs with this new style of monitor. Because of this, I've found used 17-inch monitors for less than $80 and 19-inch monitors for about $125.

Bottom line: A good rule of thumb for monitors is at least a 1024x768 resolution at 72Hz, no dot pitch larger than 26, and no smaller than 17 inches.

Unless you've got a space problem (CRTs are much larger than flat panel monitors), I'd stick with CRT monitors rather than a flat panel, which will cost even less in the future as manufactures ramp up production of them. You can bet on that.

Charlie Paschal is Editor/ Publisher, Palmetto Personal Computer Club, Columbia, SC. Contact him at <cpaschal@netside.com>.

There is no restriction against any non-profit group using this article as long as it is kept in context with proper credit given the author. The Editorial Committee of the Association of Personal Computer User Groups, of which this group is a member, brings this article to you.

The Hard Drive

By John Duda

The hard-drive in your computer is the permanent repository for all your files, system, program, and data files. This drive stores the data by magnetically recording the data on a number of very smooth and flat platters of a non-magnetic material, usually in the past aluminum, but recent drives are using glass. Over this platter, during manufacturing, a layer of magnetic oxide is laid into which the data is recorded.

One of the platters, called the servo platter, contains the information used to allow the drive to seek to any area on the drive to get the data you need. The drive usually has an odd number of data heads plus one servo head. There is one head for each side of each platter.

A hard-drive is in an enclosure, which in the recent past was 5 inches wide. Today most desktop computers use a 3½ inch enclosure. Laptop computers to save space use a 2½ inch drive. In the old days most mainframe hard drives, or disk drives, were in an 18-inch enclosure. Today we see even physically smaller drives like the micro drive, which is about an inch square. Micro drives are currently available with up to 1GB, but have recently been

announced at 2 and 4 GB. In the future I would assume that drives get even smaller as they hold more data, a confusing rule but one that has proved accurate over the years.

The drive is divided into two parts. One is a printed circuit card called a PCB or PCA, depending on the manufacturer, for Printer Circuit Board or Assembly. The PCB contains the logic components, which make up the drive logic, and the control unit in the case of IDE drives. The control unit for SCSI drives is on a separate SCSI controller card, which can run 8 to 16 drives. The other major component of the drive is the HDA or Head Disk Assembly. The HDA contains the spinning array of platters and the read/write heads mounted between the platters.

As the platters spin they drag along an air layer which causes the the head arms, to lift. Now like an airplane the heads are flying. The heads only lift slightly; a particle of cigarette smoke is bigger than the gap between the head and the platter. But this small gap keeps them from wearing. When the drive spins down and quits spinning, the heads land back onto the platters; without wheels they belly land there in your hard drive, on your precious data. Most people will impress on you the cleanliness required inside the HDA. I have worked on drives using a particle counter monitoring the cleanliness as I worked, and I can verify the filth in there. Anytime you do a seek, or bang the drive, the particle counter went berserk.

The HDA contains all the platters, which are mounted to a shaft called the spindle. The spindle is driven by a 12 volt DC motor. On one end of the spindle is a "spindle ground," which discharges any buildup of static. The heads are mounted on an assembly called the cam tower, a metal casting. The cam tower physically propels the heads between the platters by an actuator, using an electronic servo system. On today's drives the actuator swings the head arms between the platters, whereas on the old mainframe drives the actuator moved the heads linearly, into the platters on rails. From each read/write head there is a flexible lead, a "flex lead," which transfers the signals read or written as the heads are moving.

On each platter are circles of data, like on a 45 rpm record, except that on a 45 rpm record the circles never end and spiral inward. On a disk drive the data is recorded on multiple circles. The circles are smaller as you move toward the center of the platter, but each is separate, and you get back to the same point once in each revolution. Unless the heads are moving, called seeking, they are sitting over a "cylinder" made up of each track on each platter in the current position. The platter of course is spinning, so we can read all the data on this track. So the cylinder is made up of a track for each platter. We use both sides of each platter. We could then read all the data on each of the heads, in a particular cylinder, merely by switching on a head, called a head seek.

Each track is divided into parts called sectors. Each of the sectors, if a data sector, contains 512 bytes of data. Each sector is preceded by two additional fields: the Count and Key fields. When Windows writes a file, it uses groups of sectors, called a cluster. A cluster in the Windows fat32 system uses a minimum of 8 clusters to store a

particular file. Thus, if a file is smaller than 4kB you're wasting space, possibly even whole sectors. If you need more than 4kB you get another cluster added. I've been wondering for years why we don't just increase the cluster size to a more reasonable size. How many files on your computer are under 512 bytes? I just looked at autoexec.bat, a very basic system file; on this computer its 66 bytes long. So to store this file we waste 7 entire sectors.

Most descriptions of disk drives describe each sector as a pie shaped piece, assuming you're looking at an overhead view of a platter. If you assume that each sector is proportional as you move to the center they would get smaller progressing toward the spindle. The problem with this is that most of the center is made up of a big hole in the platter through which the spindle runs. There are also rings used to create the space between each platter. The other mistake is that there are large areas of the platter unused both in the outer and inner region. These areas are called Outer Guard Band and Inner Guard Band. So an overhead view would look like what I would describe as a strudel. Not a pie section.

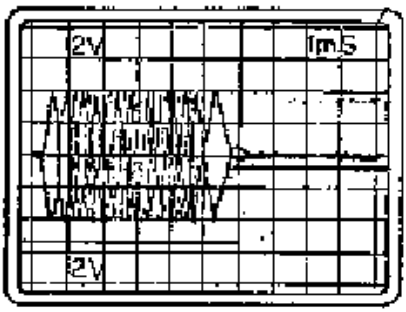
To move to a different cylinder is a very dangerous operation. It takes a long time, at least in computer time. Of all the errors that occur on a disk drive the act of moving the heads causes the most. These errors are called servo errors. To move the heads, called a cylinder seek, we turn on the electrical drive to the actuator. By controlling the voltage to the actuator we can control the speed that it moves. By controlling the polarity we can control the direction. Assuming we're moving a long way, we start out at 200 ips, or inches per second. As we near the cylinder we need we slow the actuator to 5 ips. These numbers may vary some depending on the manufacturer, which for us is irrelevant as we're only looking at the big picture in this article. How, you ask do we know where we're at and when to slow.

A servo system is made up of a way of moving a device and some means of getting feedback that monitors the movement. In our case we use the servo platter, which has its own head, the servo head. On the servo platter there are prerecorded tracks that we can count as we're seeking. When the heads are not moving we sit between two tracks. The electronics on the PCB monitor these signals called dibits. The heads are always wandering around, but as they wander they move closer to one dibit and farther from the other. Since we're monitoring both simultaneously, the one signal goes lower, the other, that we're getting closer to, gets higher. The servo system then gently moves the cam tower till it's back midway between servo tracks. Now each dibit is equal in amplitude, and the circuit shuts off. Of course its not going to be long till this starts over again. So we're never really sitting still; we're always wandering a little. This wandering affects the data heads also of course. As you wander off track, all the heads will move together, so you're signal amplitude will decrease.

When we want to do a seek, we start moving at 200 ips. Now this same circuitry sees the signals not from adjacent dibits but from those associated with each cylinder that we cross. We're now going to count "crossings." If we want to seek from cylinder 38 to cylinder 138 we need to make 100 crossings.

On the PCB we have registers, one to remember the current position and one to remember the address we need to seek to. By subtracting one from the other we know how many cylinders we need to cross, and which direction to go. As we begin moving, we subtract from the "difference counter" as we cross each track. As the count gets lower we slow down, to 5 ips, so we don't overshoot. But we do anyway; we always overshoot and have to back up, several times. We overshoot each time by less until we're "ontrack," and we're back to merely wandering again. So the servo system is always running, either while we're seeking or while we're staying on track.

Below is a picture of an oscilloscope view of the dibits. The vertical view is showing voltage amplitude, and horizontally the scope displays time, in this case one millisecond per division, called a graticule. This scope is showing two separate signals, one made up of the two dibits, the other the "minus move" signal, which is a 5 volt logic signal.



So starting on the left we see the first waveform taking almost a whole graticule, or 1ms. We're doing a 64 track seek which takes about 6 ms on this drive. The last two crossings are the ones where we see the time increasing as we slow, and finally the cateye crossing where we're almost stopped. I'm talking about the small one about a half a graticule high at the sixth vertical graticule.

In the old days we fixed hard drives, or disk drives as we called them. Most of the work was on the servo system. We had an adjustment called a servo adjustment where we adjusted the appearance of the overshoot signals using an oscilloscope. We adjusted the signals on the screen to get a nice "cat eye" at the end of each seek. This work probably took the majority of the time we spent working on disk drives. On the really old drives though the data packs were removable. We had to align the heads to match the packs. On those drives the head alignments were the majority of the work. On some manufacturers drives, clean-ups from the frequent head crashes made a big workload. Today we just throw drives away instead. The consequence of this is that, since no one is working on drives, we don't need any useful information.

I understand that there are drives that do not have a separate servo platter, but I have never owned one. To tell you the truth I don't know if I'd buy one. I've already stated the servo system is the most unstable part of a hard drive.

One other thing the dibits are used for is an index signal, which occurs once for each revolution of the platters. As the platters spin you see the same sequence in the dibit signal, except at index time the signals change crossings, indicating to the PCB circuitry the index signal.

Before we leave this section we need to discuss average access time. Average access time is the time it takes to not

only seek to an average cylinder, but also to wait while the platter spins to the sector we're looking for. Depending on all the factors that go into the manufacturing of a particular drive, we get a number. You can buy a drive with a 4 millisecond average access time, or you can select one with a 15 ms time. In computer time a millisecond is an eternity. If you bought a new computer to get one with a 3000 MHz CPU, when you wait one millisecond you lose the time it takes to execute 3 million instructions. If to you the CPU MHz number is the all-important criteria, how could you ignore average access time? The difference in the two above drives is 11 milliseconds, which means you'd lose 33 million instructions on the slower drive. If you don't have enough memory in your computer, it will use your hard-drive instead of memory to store what should be in memory. I'm taking time out to belabor my point. There are other things more important than CPU MHz to look at when we select a new computer. How many of us know what the CPU speed is, but how many of us know what the average access time of our hard drive is. Do you?

On the read/write heads, as we're spinning "on track," we read the sectors as we spin around. There are more than just the data sectors though. From "index," as we spin, we get to other sectors. First is "Home Address" and then "Record Zero." Following that are the data sectors, and finally are extra sectors, used as replacements should one of the data sectors go bad. In the "HA," or home address, and "R0," or Record Zero, is information such as the actual cylinder address we're sitting over. You wouldn't trust that error prone servo circuitry to get us to the right cylinder would you? Another bit of information there is an alternate sector address, in case one or more sectors on this track is bad. We need to know which is bad and where the replacement is.

Should we run out of alternate sectors on this track, we could assign an alternate track to replace this one. That means that we have to seek again, probably way into the center of the platter to one of the spare cylinders. After we read the replacement, we need to seek probably all the way back where we came from.

From my experience knowledgeable customers would never allow an HDA in their data center that had an alternate track assigned. They insisted on a new HDA. What would you do? Would you pay to replace your drive? Is that covered on your three-year warranty? Will your computer manufacturer replace your hard-drive for this reason? That three year warranty is slowly decreasing to one year recently as quality falls, and that's only if you bought the drive and it came in a box. The rest of us get a one-year warranty. That's another reason to build your own real computer or have a friend build you one.

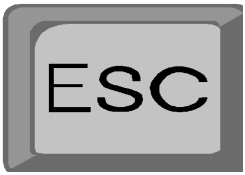
So how do we read or, more critically, write to the disk drive. The first thing we need to do is the seeks. You seek cylinder, seek head, and seek sector—CHS, or cylinder, head, sector. As the platter spins, you near the target sector. You need to be getting the data or you'll get an overrun. You're in position with no data to write if you're writing. If your reading as the sector passes, the head you seeked to, or switched on, reads the data serially to the PCB. On the PCB you deserialize the data into bytes and then make words

of data from groups of bytes. The data is then transferred to the CPU in words. Except that in the latest greatest fiasco, we convert the data to bytes, then to words, and then convert it back to serial and transfer it serially to the motherboard. This is known as Serial ATA. What's important with Serial ATA is the cable size. Ostensibly the cables interfere with the air flow needed to cool the heat generated by an overly fast CPU. The real reason I suspect is to cut down the expense of the current IDE cables.

But back to read the data. The data is read serially, bit by bit, very slowly as the data comes off the platter. This then is the real transfer rate of this drive. As the platter spins, the RPM of the drive and the density the data is recorded at are the only things that affect the transfer rate. The transfer rate of the interface is only a factor in that it must be large enough to transfer the data coming off the platter.

As we stated, if you're writing, you need the data as the sector approaches. You can't back up; the motor spins the platter in one direction. The head is helpless to do anything but write the data into the sector as appropriate. The data is written serially.

This article is reprinted with permission from the November 2003 issue of PACC Talk, the newsletter of the Pittsburgh Area Computer Club, of which John Duda is the President. John Duda can be reached at <johnfduda@yahoo.com>.



PCI Express Say Goodbye to AGP and PCI Slots

By Timothy Everingham

Those of you who have been around personal computers for a while might remember plug in card slots referred to as ISA, EISA, Microchannel, and VESA Local Bus. ISA, EISA, and Microchannel were replaced by PCI. VESA Local bus was primarily for video cards, and was replaced by PCI, then AGP slots. It was a fun time during these card slot transitions, because many times you could not use the plug in cards from your old machine in your new computer or motherboard, or if you did, it could slow down the entire system. Well guess what, its time to do it all over again. Intel has come up with a new slot standard, PCI Express, which will start to show up in computers/ motherboards this spring.

PCI came out in 1992. Today these slots, and their data bus technology are used for things not envisioned when it was under development over 12 years ago. PCI has its limitations, and the PCI pro slots never became popular. The limitations are coming to the forefront in delivering multimedia content and Gigabit Ethernet. Of course, getting higher frame rates at higher resolution and quality for video games also is an issue. PCI has been evolving over time, increasing its speed to five times the original, but it has reached its limits of development. Many say that stretching out the AGP to 8x speed might be pushing at its limit too.

First let us look at the current PCI architecture you will find on most motherboards. The CPU/Microprocessor

communicates with the first of two data bridges, normally referred to as the Memory Bridge or Northbridge. The Northbridge not only communicates with the CPU, but also communicates to the AGP port, which is where your main graphics card is (usually the only graphics card). It also communicates with your RAM. The fourth thing it communicates with is the second data bridge, known as the Input/Output (I/O) Bridge or Southbridge. The Southbridge also communicates to your plug in slots/cards, drive controllers, and USB, Fireware/1394, parallel, serial, game, keyboard and mouse ports. The theoretical speed limit of the Southbridge communication to I/O, including the PCI slots, is 133 MB/second. All of the communications in the system are parallel, with none of the data having any priority over any other. Blocks of data have to be sent one at a time and cannot be done concurrently. Therefore the data is transferred from one section of the motherboard to the next section based on the order received, not the importance or whether a piece of data arriving by a certain time to its destination is critical.

PCI Express, instead of using a parallel bus architecture, uses serial networking typology with only two wires for each direction. At higher speeds, it allows concurrent transfer of data while having a similar look and the same type of Northbridge/Southbridge architecture as currently in desktops and laptops.

However, in servers the Southbridge is eliminated, producing greater data throughput. The PCI slots initially have a 250 MB/second throughput, but the scalable width technology (increasing the number of wire pairs) enables slots and cards to communicate at 32 times that speed in later implementations using longer slots. But the typology can also use network switching type technology, giving data priority and quality of service functions. Hot plug/swap of components is a native part of the architecture.

The PCI Express Graphics Port, replacing the AGP Port, will have a 4GB/second transfer rate in its initial configuration, double that of the current 8x AGP ports. For laptop units there will be a new plug-in card to replace PCMCIA called ExpressCard. It will come in two forms, one that looks more like a PCMCIA card, referred to as the 34 module form factor (34 x 75 x 5 mm) and a more oversized L looking card, called the 54 module form factor (54 x 75 x 5 mm). This new architecture is compatible with existing operating systems. Also the new PCI Express slot is capable of being placed alongside current type PCI slots, so a choice can be made which type of card can be used in a motherboard just as was done with ISA slots and current PCI slots. The standard PCI Express slots being put in motherboards this spring (1x) will be a lot shorter than the standard PCI slots.

All of this will mean that a lot of issues having to do with multimedia on desktop and laptop computers will have been solved. It also opens wider use of Gigabit Ethernet on local area networks. It also enables the prospects of new motherboard form factors and computer case designs. As the transition from ISA to PCI was an interesting transition with computer buyers having to do more research and planning on their purchases, the move from PCI to PCI Express will do the same. However, as with the previous transition, the

performance and capability increases of computers will be profound. Further information on PCI Express can be found at <www.express-lane.org>.

Timothy Everingham is a member of TUGNET (The User's Group Network) and CEO of Timothy Everingham Consulting in Azusa, California. He is also Vice Chair of the Los Angeles Chapter of ACM SIGGRAPH and is on the Management Information Systems Program Advisory Board of California State University, Fullerton. In addition he is the Vice President of the Windows Media Users' Group of Los Angeles. He can be contacted at <teveringham@acm.org>. Further information can be found at <http://home.earthlink.net/~teveringham>.

There is no restriction against any non-profit group using this article as long as it is kept in context with proper credit given the author. The Editorial Committee of the Association of Personal Computer User Groups, an international organization of which this group is a member, brings this article to you.

GETTING ADVICE ON A DIGITAL CAMERA

A Collection Of E-Mail Advice To David Burke, President Coastal Area Users Group (CAUG)

David asked: OK, camera folks, is the following camera a good deal, and does it have everything I would want?

CANON PowerShot A40 Digital Camera at $249.00.

Here are some answers he got from his User Group members:

David:

Only you can answer, "Does it have everything I want?" Sounds great for the money. Where do you get it for that price? I would search DPReview for references to how close the 16 cm macro focus can get: 1-to-2 or what. You should plan on never wanting anything bigger than 5x7 size printouts, and never getting just-the-right-moment action shots, because of typical digital camera shutter-lag time. Also, remember you need a bigger CF card ($20 per 64 MB is good), a set of NiMH AA batteries for $15, an intelligent battery charger (a 1-hr possibly), and perhaps a CF card-reader for about $20. A multi-card-reader might come in handy later on for $10 more.

Look for deals to get free compact flash cards and gift cards with purchases. The features and price of the Canon Powershot A40 sound superb.

Bruce Switalla <bswit@usa.net>

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David:

This looks like it would be just fine. The main personal caution I have on it right off the bat is the use of conventional batteries. This drives me nuts on the low to medium end cameras. Manufacturers oughta be shot for even thinking of designing alkalines into a digital camera. They just don't work well. Not even the ones that say they're for digitals. Balderdash and hogwash. If you can't get a camera with a lithium battery (best), spend $60 extra for two sets of rechargables and the charger/conditioner (always keep a backup set of batteries in the chute). Don't even think of using alkalines. Waste of time and money. You won't

believe how fast you can go through them once the shooting frenzy begins. We're talking minutes here, quite frequently, not hours. Rechargables will last a lot longer, even using the flash (which REALLY eats up battery juice).

Also, immediately purchase at least one additional flash memory card. You can get 16 MB or 32 MB; but don't. Get a 64 MB. That's really the smallest capacity you want to mess with. A 128 MB card is better. Sounds massive, but once you start shooting, remember that your images are going to be about 700 kB or so each at a 2.0 megapixels resolution, and the math becomes more evident. If you play with the MPEG function, it'll eat up space like a tapeworm on speed. Forget the free 8 MB; use it for an emergency backup only. You won't get nearly enough pics on it before you run out of room and get frustrated. Trust me on this point.

Otherwise, looks like you get a lot of bang for your buck for this baby.

By the by, Digital E-Tailer lists the camera for $222.

PattyBeasley<patty@ccbirding.com>

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David:

Uh, do you use the same computer you did 20 years ago? Technology constantly changes, and I'm quite happy with 35mm, actually, but I got my second Canon from Best products since all I had to do was add a body to go automatic exposure. Then they added auto focus, and now my lens collection is old tech.

For a digital purchase, I would go for a recent price drop. We are, however, in a deflationary state with this technology and only recently, I think, have digital price drops affected the stagnant 35mm pricing structure. I think everybody wants sharp 8x10s, which necessitate at least 3 Megapixels.

I prefer zooms that include 28mm equivalent, because you never know when you need to shoot in a tight room. The Minolta D7 series does this, but not as sharply to a very critical eye as the Nikon 5700. But the Nikon only widens to 38mm. I checked out <dpreview.com> to find that out.

Some very exciting things are on the way in digital, like the ability to pile all color information into one pixel instead of three, as the new Sigma SLR does. It uses one-third the file space. Also, the new Canon and Fuji (Nikon lenses) SLRs use a larger CMOS, so there's no wasted lens or "telephoto effect" on all your lenses which focus on a too-small area, as on all the top digital SLRs except, those mentioned.

So, just like computers, there's always going to be a "carrot" out in front of us that we never catch up to. Plan on giving your cameras to someone who will appreciate them—just like you replace computer parts. I feel good about spending only $99 for my HP when it was similar to $600 models when they came out.

Bruce Switalla <bswit@usa.net>

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David Burke, president of the Coastal Area Users Group (CAUG) in Corpus Christi, TX, can be reached at <http://www.ccatech.com>.

There is no restriction against any non-profit group using the article as long as it is kept in context, with proper credit given to the author. This article is brought to you by the Editorial Committee of the Association of Personal Computer User Groups , an international organization to which this user group belongs.

Steve Bass
Contributing Editor, PC World
steve_bass@pcworld.com

Browser Fun and Games

Tweak Internet Explorer For Fun And Productivity

My wife says I get cranky easily. She says it's a gene, or maybe a strand of my DNA, but I'm definitely crabby whenever the computer starts acting up.

See, the last time I re-installed Microsoft's Internet Explorer, my Standard Button Bar, Address Bar, and Links were in different spots. To make me feel even crabbier, when I upgraded to a new version of Microsoft's Media Player, Radio Bar appeared in the same spot my Links Bar should have been.

Going Back

The first thing I had to do was get my Bars back in order. In IE, just right mouse click on any blank area on the upper portion of the toolbar and click the check mark for each item you want to see or hide.

Toolbar Customizing

The neat thing about IE's bars is you can drag them onto other toolbars—up, down, left, or right—move them to the very top menu bar, and easily resize them.

I have the Pull Down menus at the very top with an add-on Browser Recorder to the right. Below that is IE's Button bar, one I customized to add buttons I use often, and to remove rarely touched buttons. (Do it by clicking a blank portion of the toolbar area and selecting Customize. Be very careful you don't inadvertently hit the poorly placed Reset button in the dialog box.)

Next down is the Link bar with buttons linked to the spots I go to daily, followed below by IE's standard Address bar and Google's add-on browser towards the right.

If you start fiddling and foul up the size or placement of the bars, try this: From IE's Tools menu, click Internet Options, choose Programs, and click the Reset Web Settings. Then start over again.

The Magic of the Links Bar

One incredibly powerful—and underutilized—feature in IE is the Links bar. Mine has a button for each of the three search engines I use regularly. Other single-use buttons include PC World, Yahoogroups, PIBMUG, eBay, TVGrid, and a Web-based e-mail program.

Three more buttons are multi-function. When I click on any of them, a list of other links drops down. I use one for sites I visit almost every day, another for weekly visited sites, and the third for pages I've visited that I might want to go to again.

Link Bar Fix-Me-Ups

Microsoft has official advice for adding items to your Links Bar. They say to drag the icon for the page from your Address bar to your Links bar, or just drag a link from a Web page. That works fine for a new link. But when you're ready to modify a link, you're stuck with using a right click on the mouse. You can do it but there's a slicker way.

Open PowerDesk or Windows Explorer and go to your Windows\Favorites directory (now called Folders). With PowerDesk, open another window pane (use Control-F3) or in Explorer, open another Explorer.

Now you're going to do a few things, and you needn't do it in this order:

1. Rename the filename: Make it shorter, but remember that each file should end in "URL." Use F2 or the right mouse button. Doing this will give you room for more items on the Links bar. For instance, Google is just "gog," PIBMUG is "PIB," TVGRID is "TV."

2. Change the Icon: Right mouse click on the file and select Properties. Click Change Icon, and Browse. You'll see many files, and some will contain icons. You can go up one level to the Windows folder for other icons. Just click on any file that has an icon (you'll see them) and click it. That icon then represents the URL.

3. Add or Remove: You may have a URL you often use in your favorites. Treat it as you would any other file—drag and drop it onto the Links folder. Want a Folder on your Links Bar? Nothing to it: In Explorer, it's File/ New Folder, and then just add items (filenames ending with URL) to the folder. In PowerDesk, just click F7.

By the way, the changes are dynamic—you can see them immediately in Internet Explorer.

Continued on page 18

Letter From The Editor

I Did It!

Last month I described my fear and trepidation about upgrading my PC from Windows Me to Windows XP. Well, I did it! Well, I didn't really do it myself; I hired an expert to do it for me. It's a good thing I did because I could have gotten into all kinds of trouble if I'd gone at it myself. The first thing my expert told me is "You don't want to upgrade over Me, because that causes lots of trouble; you need to do a clean install." That meant back up everything you want to save in the way of documents and data to CDs or another hard drive, everything except applications for which you have reinstall disks. I spent the better part of a week doing that. It was a pain getting stored e-mail messages, addresses, and favorites, and filter data (dirty words), etc., but I managed. Then XP went on along with Office 2003, and the applications were reinstalled. I even managed to get a PowerPoint presentation prepared in time to meet a deadline.

Even with the expert installation I still had some of the troubles that I had feared. It took almost a week to get my two mail accounts working. I never did get my old Netscape e-mail to work, but Outlook did, and I'm learning to use it now. I couldn't get either my ftp site to work or, disaster of all disasters, PageMaker, the program used for DATA BUS. Fortunately, my SEMCO mentor, Bob Clyne, got me out of those fixes.

So I'm in business again, more or less. I'm not sure I'm better off. I'm financially poorer, perhaps safer, maybe a little less paranoid, but somehow more right with the world. Staying challenged keeps you young, they say.

Challenged R. Bill

Continued from page 17

Favorites? While We're Here

You might as well examine all the other items in your Favorites folder. They're all part of Internet Explorer's Favorites—you know, the stuff you see when you click the Favorites button. Many of these are poorly named, outdated, or useless. And I'll bet the majority of them could be better organized. Instead of using IE's Organize Favorites, use the method above. It's faster and substantially easier.

Steve Bass is a Contributing Editor with PC World. Write to him at <steve_bass@pcworld.com>. Check PCW's current edition at <www.pcworld.com/resource/toc/index.asp> and sign up for the Steve Bass online newsletter at <www.pcworld.com/bass_letter>.

TAX DEDUCTIBLE DONATIONS

Beth Fordyce is accepting Macintosh computers, components, peripherals, manuals, and software (working or broken) for St. Gerard School PreK–8th grade, 175-200 students for computer science classes.

Contact Beth
734/453-0349 10am–10pm or
bfordyce@sbcglobal.net
You may also contact the school
W-Th-F, 1-4 pm: Maurice Roberts
19900 Evergreen, Detroit
(Just south of 8 Mile Road)
313/533-4353

No Meeting in April

Since our normal meeting time falls on Easter Sunday in April, the April meeting is canceled. Meet next on May 9 (Bring your Mother).

BOARD MEETING
3/14/04
Carol Sanzi

Board Members Present

President Gary DeNise, Secretary Carol Sanzi, SIG-IBM Co-Chairman Tom Callow, Warner Mach representing SIG-IBM Intermediate Chairman Jack Vander-Schrier, Publications Committee Chairman Bill Agnew, and Members at Large Bob Clyne and Chuck Moery. The meeting was called to order at 12:08 p.m.

Old Business

Tom Callow gave the Treasurer's report. He reported that the bank balance is $4705.80 with $180 not deposited. SEMCO's membership stands at 87 with renewals due from Randy Mims, John Samarian, and Claude Watson.

Bob Clyne moved that SEMCO pay Oakland University $600 for projector use for the 2004 calendar year. Bill Agnew seconded the motion, and it was carried.

Bob Clyne moved to reimburse Warner Mach $8.68 for refreshments. Tom Callow seconded the motion, and it was carried.

Bob Clyne moved to reimburse Carol Sanzi $53.00 for the cookie bouquet sent to Roger Gay. Tom Callow seconded the motion, and it was carried.

New Business

Bob Clyne moved that SEMCO approve the budget as submitted. Carol Sanzi seconded the motion, and it was carried.

Jack Vander-Schrier's personal obligations will prevent him from being present for the upcoming SIG-IBM

Continued on page 19

SPECIAL INTEREST GROUPS (SIGS)

SIG-IBM
Tom Callow
Warner Mach

May 9: Networking Basics: SIG-IBM Co-Chairman Tom Callow will discuss the basics of setting up a home network.

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Continued from page 18

Intermediate meeting. A discussion followed as to who might be able to stand in for him.

Bob Clyne moved to adjourn. Gary DeNise seconded the motion, and it was carried. The meeting adjourned at 12:30 p.m.

March Meeting Attendance: 32

New Meeting Location

After March 2004 SEMCO will be meeting in Rooms 235, 208, and 210 in Elliott Hall at Oakland University. The General and SIG meetings will be in Room 235. You can park in the northeast corner of lot 36 (see map on page 23) and enter the main entrance of Elliott Hall. Immediately inside, Room 235 is in the hallway to the left. Rooms 208 and 210 are farther down the main hallway and to the right.

SIG-IBM INTERMEDIATE
Jack Vander-Schrier

May 9: Music How To: Sig-IBM Intermediate Chairman Jack Vander-Schrier will discuss how to rip tracks from a CD and turn them into MP3 files, and how to create playlists and burn your own CD of your favorites.

NOVICE-IBM GROUP
Rotating Volunteer Hosts

May 9: Q & A: Discussion directed by the audience.

NO MEETING IN APRIL

SIG-ADVANCED
Franz Breidenich

May 3: Meetings held first Monday, 6:45 pm, at the Oak Park Library. The library is located at 14200 Oak Park Blvd., Oak Park, MI. Phone: (248) 691-7480. **Topic: Wide ranging discussion of computers and computing.**

May 2004 DATA BUS DEADLINE (7th day after meeting)

SEMCO Input and Members' Ads — Deadline: Sun, April 18, 11:59 p.m.

Members' personal ads are free. To mail, use Editor address on Page 2; e-mail address: <agnew@bignet.net>. PLEASE send to arrive sooner than deadline.

Business Ads - Deadline: Second Friday monthly. Mail **unfolded** camera-ready copy; payment in full made out to SEMCO, to the Editor (address Page 2).

Bill Agnew
agnew@bignet.net
(to post monthly computer group info)

CALENDAR-OF-EVENTS OTHER GROUPS

AAIICI (American Association of Individual Investors, Computerized Investors)
April 24–Saturday, 10am (4th Saturday); W. Bloomfield Twp. Library, 4600 Walnut Lake Rd., 1 mile west of Orchard Lk Rd., Info: Jack Lockman at <thunder@tir.com or 313-341-8855.

COMP (Computer Operators of Marysville & Port Huron)
Apr. 7–Wednesday, 7 p.m. (1st Wednesday): Rm 201, Clara E. Mackenzie Library-Science Bldg, St. Clair Community College, 323 Erie St., Port Huron. Ron Walters, 810-679-4144. Web: <http://www.bwcomp.org>.

DCOM Computer Club
April 9–Friday, 6:30 - 8:30pm (2nd Friday); Henry Ford C.C., Patterson Tech Bldg, Ford Rd/ Evergreen, Rm T143, Parking Lot C. Info: Doug Piazza 313-582-2602.

DPUG (Detroit Palm Users Group)
Apr. 8–Thursday, 7pm (2nd Thursday); Kelly Services Building, 999 West Big Beaver, corner Crooks & Big Beaver Rds, Troy, MI. <http://www.dpug.org>. Topic: Rick Broida, author of "How To Do Everything With Your Palm Handheld." **Free membership.**

FACE (Flint Area Computer Enthusiasts)
Apr. 13–Tuesday, 6:30pm (2nd Tuesday); Kettering Univ. Academic Bldg. Rm I-817 (enter Security Door, back of building by parking lot). <http://www.gfn/FACE/index.html>.

MacGroup Detroit
April 18–Sunday, 3pm-5pm (2nd or 3rd Sunday); Bloomfield Twp. Library, 1099 Lone Pine Rd. (corner of Telegraph Rd.). Info: Terry White, <terry@macgroup.org> or 313-571-9817. <http://www.macgroup.org>. Topic: Member Digital Film Festival.

MacTechnics, (MAC User Group)
April 17–Saturday, (3rd Saturday); 11:00am main meeting (SIGs at 9:30); Changed Location: Washtenaw County Library, 4135 Washtenaw Ave., Ann Arbor, MI 48107. <http://www.mactechnics.org>). Info: Cassie at <cassiemac@yahoo.com> or 313-971-8743.

MCUG (Michigan Computer Users Group)
April 15–Thursday, 7pm (3rd Thursday); 35271 Rockingham Dr, Sterling Hts., MI 48310-4917; Info: Jerry Zinger, Pres., <kahuna15@comcast.net> 810-792-3394.

Michigan Apple Computer User Group
Apr. 8–(2nd Thur), MAC SIG; Apr. 8–(2nd Thur), Golden Masters SIG; Mar. 18–(3rd Thur), Green Apple SIG; Eagles Hall in Clawson, 174 Bowers St (one block North of 14-Mile and one block East of Main). Carl Pendracki 248-647-8871 or <carlpen@aol.com>. Web: <http://www.themichiganapple.com>.

Oak Park Computer Club
Meets every Friday, 10:15am at Oak Park Recreation Bldg., Oak Park Blvd. west of Coolidge.

SHCC (Sterling Heights Computer Club)
May 4–Tuesday, 7:30pm (1st Tuesday); Carpathia Club, 38000 Utica Rd, Sterling Hts, Pres. Don VanSyckel at <Don@VanSyckel.net>, 586-731-9232; Web: <http://www.SterlingHeightsComputerClub.org>.

SVCA (Saginaw Valley Computer Assoc.)
Apr. 8–(2nd Thursday), 6:30-9:00pm; Zauel Library, Shattuck & Center Rds., Saginaw. Web: <http://www.svca.org>.

Wayne State U. Mac User Group
April 10–(2nd Saturday), 10:00am-Noon (2nd Saturday); at Mich.com, 21042 Laurelwood, Farmington. Info: Lorn/JoAnn Olsen 248/478-4300 or Denny MeLampy 248-477-0190.

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MARCH
REFRESHMENT
DONORS
Warner Mach, Coordinator
Betty MacKenzie
Al Bochenek
Carol Sanzi
Anonymous

Your **SEMCO** membership card is good for a **$1 discount** (not valid with any other offer) on admission to
A1-Super Computer Sales
shows. See
www.a1-supercomputersales.com
or **www.a1scs.com**
for show schedule.

COMPUTER RESOURCE PEOPLE

This is a list of members willing to be resources for other members to call when they have hardware or software questions.

Are you willing to help members learn?

Which software programs are you familiar enough with?

It is not necessary to be an expert, but just have some familiarity with the program and be willing to help someone starting to learn it. Please give this some thought and volunteer at the next group meeting.

Almost Anything: Vander-Schrier
AutoCAD: Comptois, Gay
Genealogy: Cook
IBM PC Hardware Issues: Clyne, Gay, Yuhasz
Operating Systems: Callow, Clyne, Yuhasz
MAC Hardware and OS Issues: Yuhasz
MS Office for Windows: Callow
MS Word: Clyne
Networking: Callow
Novell Netware: Yuhasz
Quicken: Clyne, Gay
Geocaching: Cook

Clyne, Bob—810-387-3101, 9am-10pm ..... clyne@lodden.com
Callow, Tom—248-642-1920 9am–5pm ..... tcallow@vmddlaw.com
Comptois, Jerry—248-651-2504, anytime ..... jerrycandotoo@juno.com
Cook, Stephen—313-272-7594, eves ..... scook48227@ameritech.net
Gay, Roger—248-641-7799, 9am-10pm ..... rgay@voyager.net
Vander-Schrier, Jack—586-739-7720, 12-8pm ..... jvanders@myself.com
Yuhasz, Steve ..... Help@yuhasz.org

SOUTHEASTERN MICHIGAN
COMPUTER ORGANIZATION, INC.

SEMCO CALENDAR—May/June

NO MEETING IN APRIL

ELLIOTT HALL, OAKLAND UNIVERSITY
ROCHESTER, MICHIGAN

May 9–SUNDAY (Meet 2nd Sunday)

SEMCO Board Meeting at 12:00 noon, **Room 235.** For Officers and SIG Chairpersons. Other members are invited to attend.

SEMCO General Meeting at 1:30 pm, **Room 235.**

Special Interest Groups (SIGs)

SIG-IBM 1:45 pm, **Room 235. Program: Networking Basics:** SIG-IBM Co-Chairman Tom Callow will discuss the basics of setting up a home network.

SOCIAL PERIOD 3:15 pm, **Room To Be Announced At The General Meeting.** Refreshments! (Reminder: We must maintain a neat environment.)

NOVICE-IBM GROUP 3:45 pm, **Room 208 or 210. Program: Q&A Discussion Directed By The Audience.**

SIG-IBM Intermediate 3:45 pm, **Room 235. Program: Music How To:** Sig-IBM Intermediate Chairman Jack Vander-Schrier will discuss how to rip tracks from a CD and turn them into MP3 files, and how to create playlists and burn your own CD of your favorites.

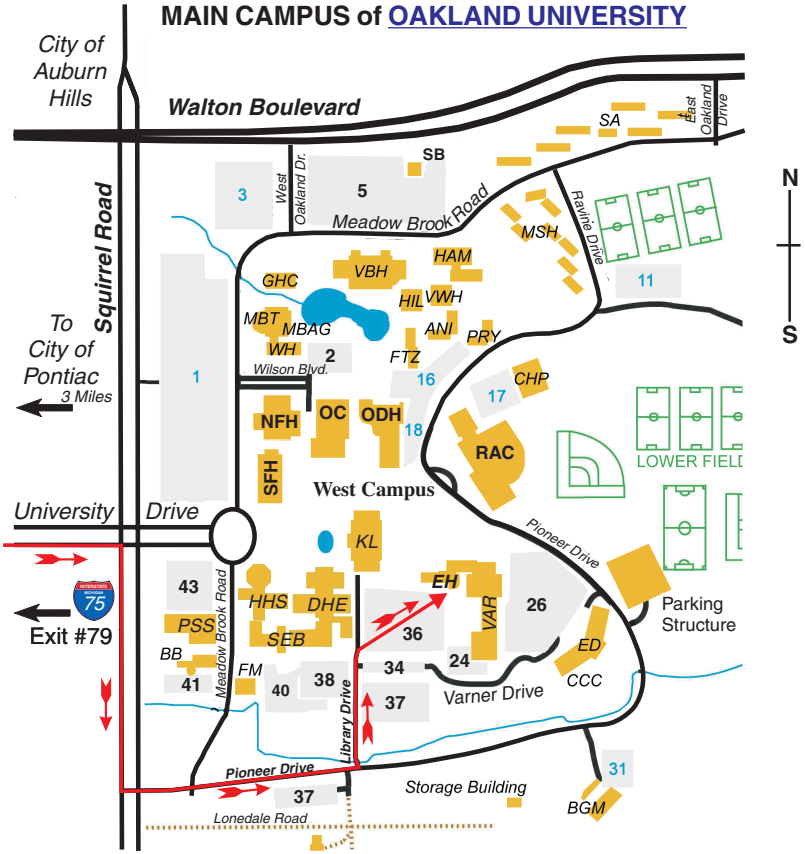
May 3–MONDAY , 6:45 pm (Meets first Monday), SIG-ADVANCED Oak Park Public Library, 14200 Oak Park Blvd.,Oak Park, MI. Phone: (248) 691-7480. Directions: Oak Park Blvd. is 9 1/2 mile Road, located west of Coolidge. Best route from freeway: take I-696 to the Coolidge exit. Head south on Coolidge for 1/2 mile to Oak Park Blvd. and turn right. Info: Franz Breidenich 248-398-3359. **TOPIC: Wide-Ranging Discussion Of Computers & Computing.**

June 13–SUNDAY (Meet 2nd Sunday). SEMCO, 1:30 pm. **Topics: To Be Announced.**

http://www.semco.org

PUBLIC INVITED

(Please copy this and the next page to post on your bulletin board)



MAP LEGEND

EH Elliott Hall
VAR Varner Hall
DHE Dodge Hall of Engineering
KL Kresge Library

DIRECTIONS

Driving north on I-75 (from Detroit and suburbs), take Exit 79 (University Drive); stay to the right on University Drive to campus entrance. Turn right (south) on Squirrel Road (at traffic light that is just outside campus); turn left on Pioneer Drive (next street to left). Turn left off Pioneer Drive onto Library Drive (second left) toward Kresge Library. When you get to parking lot 36, proceed to the far (northeast) corner of the parking lot. After parking, go into the nearest entrance. Follow the "SEMCO" signs.

The meetings at Oakland University are sponsored by the University's Academic Computer Services (ACS).
SEMCO thanks Oakland University and ACS for their assistance.

Member of

Association of Personal Computer User Groups
APCUG

SouthEastern Michigan
Computer Organization, Inc.
P.O. Box 707
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FIRST CLASS MAIL
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SEMCO (future meetings)
No Meeting in April
May 9
June 13

SEMCO: A Community Organization
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