ACPCUG

IF YOU'RE GOING TO UPGRADE, GET READY NOW

By Steve Bass, Pasadena IBM Users Group

I'm going to upgrade. Yep, I'm breaking one of Bass International's number one rules, but I think it's going to be worth it.

I'm can't give you all the details because it's coming out in December's PC World Home Office column (hey, they pay the mortgage). What I can do, however, is share parts of my upgrade experience, things that I didn't have space to say in the PCW column.

DOS Programs: Every legacy application I tried worked. A 1988 version of FoxBASE+ 2.10, WordStar 7.0, Norton Commander, and even a 1984 copy of Autodex 1.0, something few of you could possibly remember.

More intriguing is Win XP's ability to run these programs better—faster and with more stability—that Win 9x. Why? Who knows, folks, magic maybe, but it does. I had trouble with only one program—an early Windows version of Ventura Publisher. It turns out that even the current version of VP won't run under Windows XP. Advice: Read MS's "Reliability Improvements" article that explains why XP's more stable than Win 9.x. It's at http://www.microsoft.com/windowsxp/pro/techinfo/planning/reliability/prevention.asp

Then read "Windows XP Application Compatibility Technologies," a very comprehensive article that explains how to tweak apps so they'll run in XP. Play special attention to the QfixApp, a tool that gets you

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Rolling Your Own
Building your own PC is Easy. Sometimes.

by Rich "Doc" Colley, Pasadena IBM Users Group

"Uncle Rich, we just bought a computer! A name brand. It's great and we only paid $2500!"

After I pulled myself off the floor and stopped laughing, I pondered the novice's situation.

Many of them often only have the name brand to recognize along with the computer tech (the one with the pimples) at Circuit Wallet to direct their purchase. Neither are good prospects. But big bucks and flashy advertising have always enticed buyers and the surge in high tech products is no exception.

When if comes right down to it, most new users are afraid to roll their own and don't even trust the local small outlets to build one for them. But what about the experienced users? Was I surprised--and dismayed to discover many are using the same pimply faced kid to guide them!

Okay, not all of us do it that way, but too many do, enough so that I worry. We are the ground swell that moves the tech wave ahead and we don't--or won't-- build our own. Oh, I know the excuses. No warranty. No service. No guarantees. But that's not altogether true. For instance, I've never built a system without at least a two-year warranty on all the parts. All name brand components and peripherals have warranties stated and expressed. And service? Heh, if I built it, I service it! So where's your excuse now? No knowledge? Well, we are going to

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January 7th, 2002

Stark Technical College,

North Canton, Ohio

EZ CD Creator 5 - Murray Davis
Video Files and CD Burning - Charlie Costas

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change that immediately.

Take a Look Inside

Computers, at least desktop systems (if you're contemplating building a laptop, don't you can stop reading. You're way ahead of us) are really rather easy to construct. Five years ago, that wasn't true. I bought my first desktop at a computer show in the San Fernando Valley in 1991. I had little or now computer background with the exception of a mechanical engineering degree which I'd never used and some keypunch experience from 1969! One week after I got this SX33 home I opened the case, removed the heat sink and discovered I actually had an Intel DX2-66! Wow! Imagine that, just opening the case and I'd already upgraded my first PC. I did try to call the vendor, but they didn't understand my English and said I didn't know what I was doing. So for $1000 and some change, I got a top of the line $1450 unit! And didn't have to change anything.

Keep Looking Inside!

So here's your first rule: If you don't know what is in your own PC, how do you know you got what you paid for? I can't count the times I've been called out to service a i233 system with 64MBs of RAM only to find it's a i166 with 32! All vendors are not honest and even the honest ones can make a mistake. If you buy the components, You'll know exactly what's in your machine. I have put together 400Mhz Celeron systems with 64 MBs of RAM, 6GB drives and great video, sound and CD-ROM drive components for less than $750. And that includes a 17-inch monitor! Systems with an AMD processor cost even less.

Okay, I've made the brag, now I'll back it up. Quit listening to your friends. They'll tell you, "Don't buy at the computer shows. They're all rip offs." Don't buy over the Internet. They'll sell your credit card and send you an empty box." Sure there are corrupt vendors. They're everywhere. Beginning with the IRS and all the way down to the hole in the wall shop with Pentium III 500's for $199!

So you have to know your product before buying. First, go to your local Crown Books or Barnes book store, spend a few dollars on the latest computer magazines, and buy a dummies 'how to' build your own PC. Go home, turn off the TV for a few hours and read. You do remember how?

You'll see that many components and peripherals, while manufactured by different companies, all install and setup in the same manner. You'll find the dummies book will convince you that 'even you' can build a decent PC system, save mucho dinero and get an education in the bargain. Now we'll pick up the pace. Here's what you'll need.

Gimme Some Room

You need adequate space to get started. Find a desktop or a bench and mark off a section about eight feet long and three feet deep. Make sure you have at least two good outlets that are not running your dishwasher, washing machine and refrigerator. Clean electricity is a must. Buy a good surge suppresser. It must be 1449 URL rated and have a clamping voltage of below 430 v and a rating of above 900 Joules. The first company that comes to mind is Belkin. There are others--just don't buy cheap!

You'll also need a long Phillips head screw driver, a regular screw driver, a pair of needle nose pliers, a good flashlight or overhead light, and a rubber mat on the bench and on the floor (for static electricity suppression--you can buy expensive ones that clamp everywhere, you get what you pay for). Grab a couple of tins to hold screws and such, some extension / retractors-- devices that have a plunger on one end that extends three or four prongs outward, when released the prongs close over whatever you've lost in those hard to get places and pulls it out. Best bet? Go to an electronics hobby store and buy a computer repair kit. They usually have everything you'll ever need, including torx heads and so forth. Set up your workbench.

The Components.

Now the fun begins. What's a computer made of? Case, power supply, motherboard, RAM (random access memory), 1.44 3.5-inch floppy drive, CD-ROM drive (DVD, CDR, or DCRW--but just begin easy, a CD!), a hard drive (ATA/33, ATA/66, EIDE, UDMA, DMA mode 2, SCSI, SCSI W--don't go crazy. EIDE HD is what you most likely want for your first system).

Of course, you'll also need a decent video card, a sound card, speakers and finally a mouse and keyboard. That's the system. If you want to 'see' what you've created, you'll need a monitor. Many suggest beginners use a 15-inch but prefer 17-inch. That's because they are so cheap today there's no real reason to cut corners. Now there are other components that you could purchase, but lets begin simple. Now 'who's' product do you buy? Start by making a list.

Those magazines you bought may have some reviews, check 'em out. The coverage in mainstream mags can be slanted by the advertising dollar, but if the company can spend that dollar, they'll usually be around to warranty your purchase.

Same thing on the Internet and at the computer shows. It costs money to do business. If the company has been doing business for over two years, and hasn't filed chapter eleven, well, they'll probably be around for a bit longer. At the shows? Well, those displays are purchased by the square footage or booth. When you see a vendor with only one booth, no tee shirts or vendor logos, then they're running low budget. If you really know what you are about, you can get a manufactured warranted product there and find it for a few bucks less.

However, if you aren't that knowledgeable (and we'll assume you aren't--sorry) then stick with the vendors who have 5 and 6 booths connected together. Space costs a whopping amount at the local computer shows here in the Los Angeles region. These vendors have outside clients who buy and buy and they've been around a long time. Their prices will often be a few dollars more than the shoe string companies, but they will warranty the product and do the RMA'ing (returning merchandise) if a product fails. They usually all offer a three-year, two-year coverage including labor and parts. None of the vendors at the shows will support on site single user service unless you buy it! But those name brands, though they say they do, will always ask you how good you are with tools and are you afraid to open your new case? They'll come out, the second Tuesday of next week!

Going Online

What about the Internet? Well, there are many good sites on the web. But you don't have a PC yet. We're trying to build one, remember? But if you have a buddy with access and your trusty credit card, you can cut some great deals on the WWW. While this is by no means an exclusive list, I shop at CDW, NecX Direct, and Buycomp. After you've been at it awhile, you'll find individual vendors who have better bargains or sell their expertise when you buy, but for the time being, go large. Whatever your venue will be, make a list and stick to it!

Components Suggestions

Cases Okay, these are really important. And there are certain types of cases that will not run certain types of motherboards (its a power supply thing--later, okay?) I've bought cases from Enlight, Asus, InWin, Minma, and ProCase. The cases come in either AT or ATX power source configurations. The newer ones use ATX and I would suggest

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that you stick with the latest concepts (why build obsolete?). There are many other case makers, but those are good brands.

Generally you get a power supply with the case, as well as various screws, nut, bolts and standoffs (the new cases are building the 'standoff' into the case--it holds the motherboard away from the case siding, no electrical contact, no shorts). In addition, there are inserts for the various LPT, Serial and mouse/keyboard configurations on different MOBOs (motherboards).

Power supplies should hum and not screech or chatter or growl. If they do, that usually means the cooling fan inside has bad bearings! Return the case or the separate PS, but don't keep it. And don't plug in the case without all the peripherals in it (the HD, the Floppy drive, the CD) and then turn it on! The PS needs a draw, it will not run without the connections being completed. And in some cases I've heard that this will harm the PS. Why chance it. Complete a portion of your build before powering on. More on this later.

Motherboards (or the 'mother' of all boards)? All your cards, all your peripherals and all you memory plug directly into the motherboard (MOBO). These are now being made with 'jumperless' menus or Soft-Menus. This means that you don't have to use those needle nose pliers to set 'jumpers' (a jumper is used to close or open an electrical connection represented by three or four tiny prongs. You would cover those you wanted closed.) This is great! But not all boards use it yet and those that don't have made the use of jumpers much easier by placing most of them in one area or using a toggle box (DIP Switch) with all the jumpers set by toggling a tiny switch for each jumper. Easy. Some good MOBOs? Asus, Abit, MSI, Gigibyte, Soyo, Shuttle, AOpen, EpoX, Chaintech and Tyan. Are there others? Yes. On your friend's system, do an Internet search for 'review' sites. There are numerous ones. Spend some time and read. Form a consensus, and then buy a MOBO.

What's Left

Okay, in a nutshell:

Hard Drives Stick to the big makers. Use Quantum, WD, Maxtor, IBM or Fujitsu. I personally like Quantums, but everyone has an opinion. All of these makers will honor their product for the warranty period. Floppy drives? Teac, Toshiba or IBM all make a version. There are others and they're not expensive.

CD-ROM Drives Everyone has a favorite but there are several decent makers. Asus, Teac, Toshiba, Creative Labs, Panasonic, Yamaha and Plextor. There are many, many more and often one maker will put different names on their product. Any of these will be fine in IDE mode.

Video cards Want a firestorm of disagreement? Just say, "This one is the best" and duck! There are so many cards out there that it is virtually impossible to say, "Go buy this." That said, if you aren't doing heavy gaming or Photoshop work, CAD and graphics (yeah, a newbie is saying, "What he say?") you only need a 4 or 8 MB card. Select the AGP version, it's newest. For non-intensive machines, a Trident chip card can be had with 8MBs onboard for about $40 or so, even less at the show. Makers include Diamond, Matrox, ATI, Videologic, Hercules, STB and others too numerous to list. Start simple until you know your needs, and then replace your first inexpensive card with something fancier.

Sound cards? ESS, Diamond or Creative, TurtleBeach, Digital, Esoniq, Hi-Val and a million others. Go simple, try an ESS to begin with and advance as your needs and pocket book allow. I won't mention speakers. Just get a two-speaker setup for about $15 and go from there.

Memory Lets not forget (Last, but of great importance) the memory or RAM! Big decisions here and many to select from. A memory SIMM (single inline memory module) or DIMM (double in line memory module) is made up of the memory chip and the PCB (printed circuit board). Many makers of great chips sell their 'seconds' to memory makers who attach them to only 'fair' PCBs. See, you can by Micron memory (wonderful chips) on someone else's PCBs... but it's not really MICRON memory. Same with Seimans, Texas Instrument, Toshiba, Samsung and the others. Toss in PC66 and PC100 (soon to be PC133--all regarding the bus speed the memory supports) and you can have confusion galore.

I would suggest 'not' buying memory at the computer shows until you know who has what and why. So, my advice is to buy from Crucial Technologies or Mushkin, Inc. I know, I know, hard and fast rules here. But I can say that the prices are competitive and the products extremely well supported. Memory is important and I don' think you can go wrong buying from either company. How much? Well, prices are low and 64 MBs of RAM will keep you in the pink for some time. Thirty two as a minimum, no less.

CPU Last and most important: The CPU. This is the big kahoona baby! The rock and roll of the whole shooting match. Where the rubber meets the road! The 'big two' are fighting for your dollar. Intel and AMD (okay, I left out Cyrix as Via just bought them and who knows what will happen) are in a war over the fastest, least expensive, most versatile CPU for every computer in the whole world. Well, okay, that's an exaggeration. But we benefit so lets endorse this war! Intel has an advertising budget that is near the whole budget of AMD. Yet AMD has some great products and I'd say you won't notice much performance difference in any nonspecific home system for basic use.

Others will argue that for a first time user on a budget, the AMD is a bargain. So is the Intel Celeron processor. And the older Intel Pentium IIs. Basically, any competitive processor on the market today will give you a good deal of performance for a price. Don't go cutting edge Pentium III right now, they're still pricey. Same with the new)()) K7 by AMD, pricey at first. You have options. The slot 1 CPUs are Intel's. The Celerons will fit in slot ones but the latest Celerons are knows as 370 chips and require a 'sloket' or socket 370 to Slot 1 converter board (many makes, lets not go there now.) The AMD uses a 'super' socket 7 which looks very much like your average socket 7 or 5 boards and you don't

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Upgrading to Windows XP

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to the database of compatibility fixes included with XP.
http://www.microsoft.com/windowsxp/pro/techinfo/planning/appcompat/default.asp

Drivers and Upgrades: My Turtle Beach Santa Cruz sound card wouldn't work with XP.
Advice: As with any Operating System upgrade (excluding Amiga and GEOS), dig out the drivers and upgrades before you start the upgrade. If you can, burn them onto a CD-ROM.

Networking: Lots, lots easier than in Win 9.x with one proviso...you'll have to dump NETBEUI on the other PCs in the network. Win XP relies totally on TCP/IP.
Advice: Hone up on your networking skills or hire a consultant to up to speed. Read MS's “Home and Small Office Network Topologies,” article at:
http://www.microsoft.com/windowsxp/pro/techinfo/planning/networking/topologies.asp

Internet Explorer: IE 6.0 doesn't support Netscape-style plug-ins. The only one I missed—and was annoyed with MS's removal of--Apple's QuickTime player. That meant I couldn't play MOV videos. MS's claims it's for security. I say it's hogwash and a way to lock out Apple. By the time you read this, MS and Apple have probably tweaked the Quick-

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want to make any mistakes here. Get the super socket 7 board by the maker of your choice.

Research it! Every MOBO maker has boards for each type of CPU. Just make sure you get the right board for your selection of CPU. AMD's do not fit Slot 1 boards and Celerons won't fit super socket seven MOBOs. I'm leaving out L2 cache considerations on purpose as it is somewhat complicated for new users. Okay, last thing to understand about CPUs is the FSB speed (front side bus speed). The newest boards in both genres support 100 MHz FSB speed. But some of the newest Celeron CPUs still run at 66 MHz FSB. No problem, the boards will support that speed also, as well as many in between. Just remember that the faster the FSB, the better the performance. AMD K6IIIs work at 100Mhz FSB . Issues such as clock locking and overclocking are beyond where we want to go in terms of experience. Let's just get this guy up and running with his home built screamer.

Building the Box

All the pieces are present? You have your case with the PS? A compatible MOBO? HD? RAM? Video Card? Sound card? Monitor? CD? Floppy drive? Speakers? CPU? Surge protection? Good! Remember that "Dummies" book? Make sure you have it present. Tell the wife and kids to stay away, put the dog out and let's begin.

The first precaution you should take is against electrical static discharge. This is the same stuff that you get after sliding across a car seat and trying to kiss the wife or kids. "Zap!" "Ouch, daddy, don't ever kiss me again. You hurt." And a juvenile delinquent is born. Okay, that's about 3000v.

That's the same transient surge of static electricity that can ruin a memory module a motherboard, or almost anything else in the PC. So, plug your surge protector into the wall. Plug the 'off' computer case PS into the surge suppresser (don't turn it on!!!) That third prong ground plug is helpful in the war against ESD! Electrostatic discharge. Drum roll please. Your computer's sworn enemy! You can create 35000 volts just by walking across your thick carpet on a warm, dry day! Touch your new motherboard, 'zap' (you might not even feel it), kiss it good-bye! So, the PS ground helps. So does using a mat under the case and under you and being barefoot will also help.

If you're very worried, you can go as far as wearing a strap that, connected correctly, will continually discharge you (like you wife with a credit card) as you work. But extremes reinforce letting 'someone else' do it and we want you to do 'it'. So, use the actual case to ground yourself before touching exposed components. Before you take your motherboard out of the static free shipping wrap, grab the sides of your open (oh, did I forget to tell you to open it? You're reading the "dummies" book? Then don't be one!) case and hold for a second. This will discharge you for a while. Important, do this often. And always touch the end of any tool that you use to that case 'before' you touch it to anything else.

All right, the basics are done. You know how not to fry your new components. Your case is open, the PS is connected but off and your motherboard is out of the static proof wrap and resting on your bench. Open the MOBO manual and read the installation instructions. Maybe even have a magnifying glass handy. There is some small print. Discharge yourself, pick up the MOBO and eyeball the line up with the case standoffs or standoff screw holes. Most boards have about 6 to 8 screw down holes. They are usually isolated from the trace circuitry by the maker and you don't have to use dead paper washers.

See how things line up and, if the standoffs aren't built in, put your board on the bench, screw in the brass standoffs that came with your case and discharge yourself again. Check out your alignment? Screw holes line up? Good.

Now double-check your MOBO external LPT and Serial connections. These are where You'll plug in your mouse, keyboard, ext. modem (oh, we didn't mention that. Well You'll need a modem. Either external or internal. For newbies, external gives you more visual references to what is going on, so I suggest external at first. US Robotics, Zoom, Creative, all make decent ones. Don't get what is called a "Winmodem"--if the package says something like, 'requires a Pentium 100 or better.' it's a Winmodem. Stay away for now) printer (later, dude!) and other external port peripherals. Most boards conform to one or two configurations. Pick the correct 'cover' from those that came with your case and insert this cover into the appropriate location on the case (you'll see, not hard at all). Okay, discharge yourself. Now the real stuff begins.

Take the MOBO (are you static free?) and place it into the case(). Press it into the slot configuration you just put in the case. See how the various ports line up? Good. Use the screws that came with your case to begin securing the MOBO to the standoffs. Don't tighten any single screw down until all are in their proper places and you're satisfied that the board lines up in all ways. (Note: some case makers, InWin and others, have a removable 'back plate'--that plate to which the MOBO attaches--this makes things so much easier as the plate can be flat on your static free bench and out of the case.)

Then take your Phillips head screwdriver, touch it to the side of the metal case to discharge it, screw down the MOBO. Tight is tight, do not over tighten as you might 'tweak' or bend the MOBO and break one of those pressed traces. Not good. Okay, the motherboard is on the back plate, either in or out of the case. Good job. Take a break.

Refreshed and confident, let's return to our static free work place. The MOBO is attached. Now let's place in our RAM DIMM (Double inline memory module). These are long modules that have small gold or silver fingers that make contact in a slot on the motherboard. This is simple as these will not fit anyplace else and you're using the MOBO manual to locate the DIMM slots. Right? If not, open the darn thing now! Locate the DIMM slot(s). See how the DIMM has two unequal lengths of 'fingers'.

Well, the slot has a separator that only allows the DIMM to be inserted in one manner, the correct way. You can't make a mistake here, unless you use a hammer. Discharge yourself, pick up the DIMM and make sure that the two 'retaining mechanisms' are spread to their widest placement. Insert the DIMM in the first DIMM slot, nearest the CPU location (use that manual, darn it!) and press down. You'll note that the ends of the DIMM contact the retainers and, as you press downward, actually close those retainers in such a way as to lock in the memory module. Cool, huh? Okay. Memory in. Retainers snugged down and 'snapped' into tight placement. Whew! You're doing great. Take a break. Go pet the dog.

Okay, after petting the dog, discharge yourself. Use the manual you received with the MOBO and the CPU to install the CPU into the MOBO. If you have a Slot 1 CPU, the slot is set up similar to the DIMM slots. You can only insert the CPU one way. A super socket board has the same restraints, but they are harder to discern. One corner of the CPU, on the underside, will be cut short. There is a missing pin there and there will be no opening or pin hole on the socket. Every other corner (three of them) will be squared off and have an outer most pin for that corner connection.

On the top or upper portion of the CPU you'll usually find a small dot over that particular corner that does not have a pin. This is how you line it up. Take note! The Slot 1 CPU (as well as the Super socket seven) like (well, require if you ask me, unless You're in an igloo in the Arctic) cooling fans. It is far easier to install the Slot1 CPU fan 'before' inserting the CPU into the MOBO. The opposite goes for the S.S.Seven CPUs. Do the fan after the insertion. And use heat sink gel or goo (tech term, goo)

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between the fan and the CPU. The 'dummies' book should mention this but if not, use a small, small amount on the crest of the CPU and spread it thin. If there is a pre-installed pad of contact goo on the Pentium CPU, scrape it off and use the goo. It makes a much better contact. Well, let's continue. You're almost ready to fire that mother up.

The MOBO is in the case. The memory and the CPU are in the MOBO. Now, place the Floppy drive in the case and secure it. Do the same for the CD and the Hard drive. Keep the hard drive as low in the case as possible without causing obstacles to placing the MOBO back in the case. I suggest that if it is out as some allow, to keep it out while you place these more bulky items into the casing.

Discharge yourself! Use that 'dummies' book to help you with specific questions and don't screw down any of these components too tightly. Just snug. Now the case contains the hard drive, the CD-ROM and the floppy drive. Great. Place the MOBO back in the case. Discharge yourself before picking it up! If the case did not allow you to remove the MOBO, then it is already there so ignore the previous (jeez, I was only kidding about the dummies book, but I guess there are 'some' who really need it!) Now let's do some wiring. Again, this is a plugged in case that is turned off. If you feel more comfortable in unplugging it as you connect these small wires, go ahead. Just use precautions to ground yourself.

At the front lower portion of your case there will be several small wire connectors. These go to the case speaker, the LED for the power and hard drives (lights that tell you when it's on and working) and the reset button and power switch. Some even have two power switches now (I usually connect the one plug and tie off the other). Your MOBO manual will advise you regarding the placement of these connectors. A bit of experience.

If you have a black and any other color wire on any connector, the black is usually the ground wire. If there is a white and 'almost' (blue, green, yellow) any other color, the white is the ground. If you have a red and black, I select the black as ground. White and red? I use the red. These connections are not high voltage and, if you make a mistake in their placement the worst that will happen is an LED won't come on or you'll not have a functioning reset button. Just reverse the slide on and you'll be right as rain. Watch the front of the machine on our first test boot to see if all is well with the LEDs. Good. Now for the main power supply.

Coming from the PS, there are many wires that you use for power to peripherals and to the MOBO. Most of these have either 4-pin connectors that run the hard drive and CD-ROMs or smaller 4 pin slide ons that power the floppy drives. These are easily inserted as there are rounded corners on one side that prohibit the improper connection. Also from the PS is a larger, square connector with two rows of squarish inserts. These go into the main power connection on the MOBO (use your manual, but it is the only insert of it's kind on the board.). This connector 'clicks' into place and usually has a small locking lever that must be pressed to disconnect the wires. This description is for an ATX PS.

If you have an AT power source, there are two separate connectors that do resemble the smaller 4 pin power connections. They are to be inserted into the main power connection on the MOBO so that the BLACK wires are next to each other after insertion. That is an absolute must. Those wires are to be adjacent to each other! Your manual for an AT board will also point this out. Don't make any mistakes with the main power. Good. The MOBO is in, RAM and CPU inserted and the components placed in the case. The main power is attached to the MOBO and the various LED and case speaker wires are attached. Just about ready for our first test.

Now some simpler stuff. The video card. Discharge yourself, remove the card from its static proof bag and insert it into the AGP slot on the MOBO. That's the top slot of all the slots and looks like no other slot on the board. Check your MOBO manual. Use some pressure on this as the AGP must be inserted firmly and deeply into the slot! Press straight down until you hear it 'snap' into place. Viola! Connect the monitor to the video card. Plug the monitor into the surge suppresser. We are getting close.

Let's see what we've created? Plug the PS into the surge suppresser (assuming you unplugged it earlier, as mentioned). Turn on the machine with the front power button. What? Won't turn on. Don't worry. Many ATX power supplies and some AT power supplies come with a second switch for the PS. It's located on the back of the PS next to the power wire and needs to be toggled. Now try the front button. Great! Hear the fans spin up?

Now recall we hooked up the case speaker (but we've not hooked up the sound card, video, hard drive, CD-ROM, or monitor)? You should hear one single beep. This is excellent! If you hear two or more beeps, shut off the machine (in ATX machines, depress the front button for five seconds and that should shut the machine down. For AT, just depress the front power button.). Reseat the video card, press down on it firmly. Also check the RAM and make sure it is seated. Last, press down on the CPU from the top. Careful, don't crush anything. Okay, reboot. Ahh, there's that single beep. Great! It's alive, it's alive.

Finally let's connect the cables to their components and motherboard inserts. Use IDE1 (see your MOBO manual) for the HD connection, make sure you have listed the hard drive as either single or master. Look at the side of the hard drive for jumper placements for that purpose. Connect the cable and the power supply. All, all, all, repeat all, HD and CD-ROM cable connections are pin1 to pin1. You can delineate pin1 by the red edge on the cable. Often the red edge is striped or somehow otherwise marked. You MUST connect pin1 to pin1 or your machine will not read the data on the CD or HD. Good.

Discharge yourself and connect the cables and power to the components. The floppy drive is somewhat weird. Even though there are almost no 5.25-inch floppies, there are still connectors on the floppy cable for them. This can be confusing. Just connect the very last connector to the 1.44 MB 3.5-inch floppy drive. Often there is a plastic finger that allows only one way of connecting. If not, you're on your own to figure out how the cable works. Usually the red pin1 wire is closest to the power insert on the floppy. When you boot, watch the small light on the floppy. If it stays on (it will come on, but should blink and shut off) while You're booting and after, then shut down and reverse the cable. Now it will work. Ready to rock!

You have the latest operating system. Windows 98. Wonderful. Here's where we will leave you. Insert the boot diskette that comes with Win98. It will find and supply drivers for you HD and CD. It will format you HD. It will do almost everything except pat you on your back for a job well done. You built your own PC. You know every inch of it's anatomy and you can fix anything that might go wrong. Excellent work! You've saved bucks and learned at the same time.

Rich "Doc" Colley is a member of the Pasadena IBM Users Group, an RSI expert, Novell Certified Engineer, and a networking maven. You can reach him at doc@ecom.net

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Next Meeting - January 7th, 2002 Stark State Technical College

First Class Mail

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Upgrading to Windows XP

Time Player to support ActiveX controls for IE 6.

Advice: If the QuickTime player doesn't work, find the patch on MS's site.

Getting a Jump: One good place to see if your PC is ready for XP is with PC Pitstop. They have a neat-o XP test site that examines your PC's operating system, CPU speed, BIOS version, amount of memory, available hard drive space, and video capabilities. The results tell you how your machine matches up to XP's minimum and recommended requirements. The tool is available for you to try at http://www.pcpitstop.com/xpready

MS also has many good articles if you're a tinkerer:

** The "Consumer Desktop PC Design Checklist for Windows XP" provides technical details for building a new PC for XP. http://www.microsoft.com/hwdev/pcdesign

** You might want to continue using W2K while experimenting with XP. Read "Multibooting with Windows 2000 and Windows XP" http://www.microsoft.com/windows2000/techinfo/administration/management/mltiboot.asp

I'll have more to say about my XP upgrade experience next month. §

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

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Future Events