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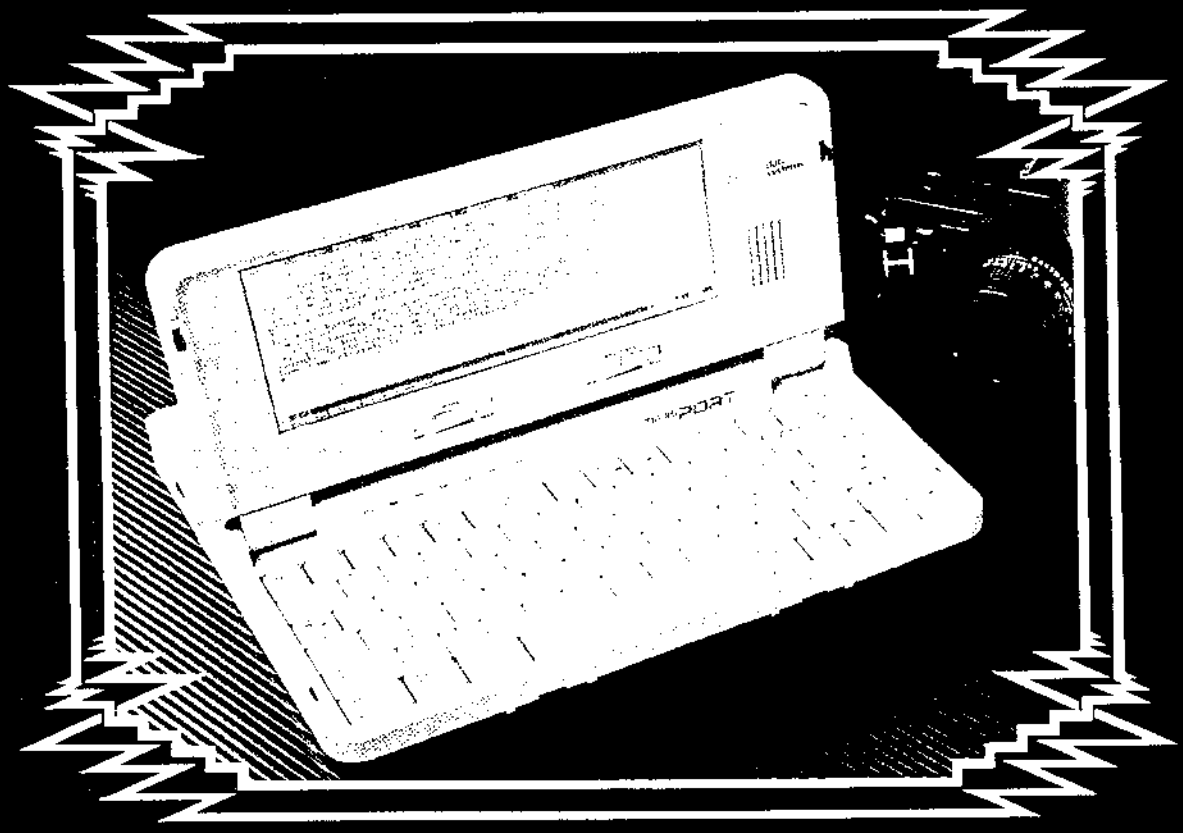

Real World Portability

The MinisPort

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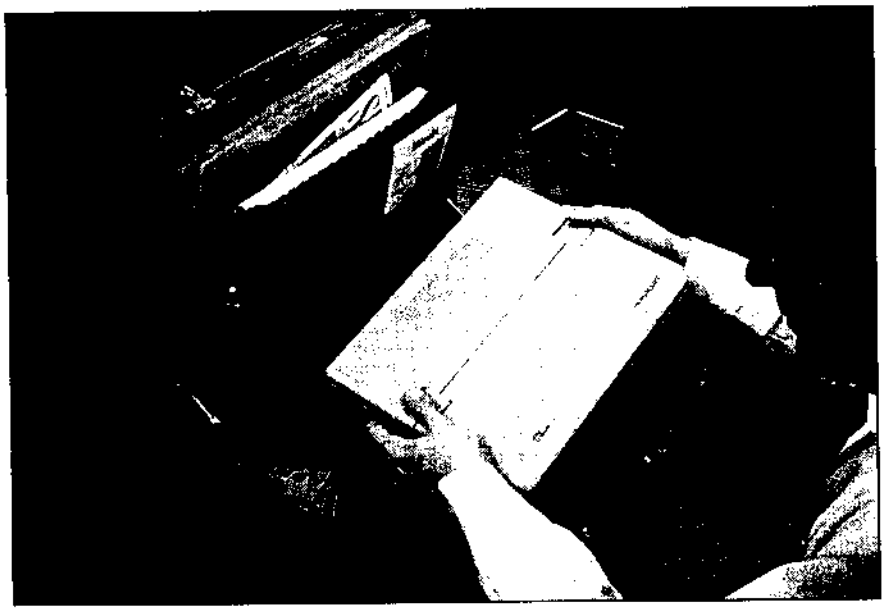
Real World Portability



Nathan Baker
ZDS Publications

or

How I Learned to Stop Worrying And Love the Silicon Disk

You've probably heard someone at some time lampooning portable 8088-based computers, usually it's someone who has a '386 desktop computer or at the very least a '286 based machine. I feel the small, low end machines receive a brunt of undeserved abuse. True, some portable computers, or "luggables", seem to have been developed by people who never intended to use them, but I'm pleased to discover the Zenith Data System's MinisPort portable computer is not one of them.

For my purposes, writing technical documentation and developing a novel in my spare time, the MinisPort is outstanding. It has freed me from the confines of my apartment for doing my personal work. So far I've avoided doing work related documentation under an apple tree, but even that is possible if worse came to worse. At any time I want to add to the story line, make a note, edit a chapter, or store an idea, my computer is a push of the power button away.

To be sure, you won't want to run any CAD or CAE programs on most 8088-based portables (the lack of hard drive storage space and slow processor clock speed can be detrimental to your sanity), but the same holds true for most desktop PC's and XT's. Memory hungry programs still consume most of the MinisPort's meager DRAM, and most games run agonizingly slow. And it can realistically serve as a second computer only. So why do I love the MinisPort?

Well, you can't hide your TurbosPort under your car seat, for one. And would you leave your $8,000+ portable computer, with a nifty (read that "expensive") page white LCD display in a car that goes through a rollercoaster of temperature extremes during the average summer day? Most people wouldn't. Even the SuperSPort 286, the next machine I'd consider for writing purposes, makes my arm longer if I carry it around in the outback of Michigan. Of course, I could have detached my battery and put it in my backpack (adding more weight and consuming more valuable space), but I guess I'm lazy. I want a portable computer that has an internal battery. The external battery idea just doesn't seem to work in the real world, at least for me. The MinisPort, lightweight and dependable, is insignificant enough to pack along with a couple of extra batteries (what! extra batteries?! read on, knave).

The Machine

I normally do not adhere to outdated technology. If there was an 80386-based computer as small as the MinisPort and at the low end price range, I would probably want it. But I don't think it would perform any better than the MinisPort for what I use it for. I'd still want it so the partially computer-literate masses wouldn't groan "Only a PC? Jeez, it's gotta be next to useless." or "It's too small." and "It's too slow." when they discover what it is.

The machine I've been using is a prototype, with 1 megabyte of RAM and a single 2-inch, 720K floppy disk drive. Since it's a prototype, I don't have a modem, or the optional 1 megabyte RAM upgrade, but the machine is still very useful. Some features from more advanced computer designs have found their way into the Minisport, and enhance it considerably.

The setup/configuration menu migrated to this machine from its AT-cousins, giving you a quick, efficient way to customize its operation for your own work style. Among other things, the setup menu lets you turn off various sub-circuits in the machine (serial port, parallel port, backlight timeout, etc.), allowing you to tailer your battery power consumption. For instance, when I'm sitting on a picnic table at lunch during these nice summer days I usually have all the external ports turned off, and the backlight disabled. Sunlight provides enough illumination to see the "supertwist" display, unless I'm wearing my sunglasses.

The MinisPort uses silicon disk technology, that is, essential DOS programs are always available in ROM, which the computer designates as drive C:. Drive C: is write protected by the nature of the ROM. And extra memory above 640K can be allocated as expanded memory or as a RAM disk. If you use the extra memory as a RAM disk, the computer designates it as drive D:. The setup/configuration menu lets you choose the size of the RAM disk or expanded memory easily. Set it once and forget it. I always use the extra memory as a RAM disk. Of course, with only 1M or RAM, that gives me only 368K of RAM disk space. I'll admit, with only 1 megabyte the 368K in drive D: seems paltry, but with some forethought it can be put to good use. For example, six weeks ago I transferred my word processing program to the RAM disk (taking up about 271K), then started cranking out text. A lot of original text can be stored in 97K, about forty or so pages. Every time my material fills up the RAM disk, I make a transfer to floppy disk drive A: (the 2-inch floppy disk drive) and delete the old text from drive D:. Problem solved. Transferring files between the RAM disk and the floppy disk is time consuming, but it's no more time consuming than the same operation on a desktop PC.

By using the RAM disk (which essentially serves as a tiny hard drive), I almost never need to access the floppy disk. And the RAM disk can be made non-volatile. The setup/configuration menu lets you select the option of backing up drive D: (the RAM disk) or not backing it up when you turn the machine off. When you choose to back it up, the computer keeps the RAM disk powered, so you don't loose anything stored there. This feature has performed flawlessly, and seems to have no visible affect on battery life. As I stated earlier, three weeks ago I transferred my word processor to drive D:, and the MinisPort has kept it intact, through many on-off cycles, charging cycles, and battery swaps. During battery swaps the computer relies on two small lithium batteries to keep the RAM disk safe. And the RAM disk is fast. During my usual mode of operation, the RAM disk makes the machine perform almost as fast (and in some cases, faster) than my desktop computer with its internal hard drives. Of course, all the essential files must be in the RAM disk.

To load your desktop computer's programs in the 2-inch floppy disk drive, or into the RAM disk, the MinisPort has built-in software that downloads or uploads data through the serial port. Included with the MinisPort is a cable that connects it to your desktop machine, as long as it has a serial port. The cable has dual connectors (why didn't someone think of this before?) and is designed to hook up to either a 9-pin or a 25-pin connector, so you need not rely on adapters to convert your serial connector to a compatible form.

I've discovered one potential hazard that accompanies this operation, and, as usual, I learned about it the hard way. Don't use the same file names on work your developing concurrently on your portable computer and your desktop computer. If you inadvertently copy files from one machine to the other, your latest version of your work may be overwritten by the last version you might have left in the sending machine. It happened to me, chapter 9 in my desktop (22K original text) was blown away when I did just that, copying the entire disk (with the same chapter 9 file name, but only 6K of text) from my portable to my desktop. Alas, no backup. Live, become enraged, and learn. Now I end all of my portable files with the letter P, such as V202P.doc.

You can also use an external floppy disk drive to enhance the machine, and configure it as drive A: or drive B:, with the help of the setup/configuration menu. The external drive can be a 5.25-inch 360K or 3.5-inch 720K drive. I haven't needed to use an external drive yet, but certain copy protected software that's only available on 5.25-inch or 3.5-inch format could be used with the external drive.

About Batteries

Portable power for the MinisPort is provided by three batteries, one main battery and two small lithium power cells. The AC power supply can charge the main battery in a few hours. The main battery does not have to be installed in the MinisPort for charging, so if you have two batteries, you can operate the computer with the first main battery while you're charging the second battery. I've found most of these main batteries can be fully recharged in about three hours.

From my experience with Zenith's other portable computers, I've learned that battery life is a function of your disk drive accesses, backlight, and Neverready the battery god. When you buy a main battery (for a Z-171, the SupersPort, or the MinsiPort), I suggest praying to the battery god. Batteries run in three types, average, very good, and very poor, and there's no way of telling until you use it a few times. I wish battery technology was better, but it's not, so I make do. For example, the first battery I used in the MinisPort would run for less than an hour (even with all the ports off and the backlight disabled) before it went under. Through experimentation, I discovered other batteries that would give me two or three hours of use before they died. Of course, the average user must decide if he wants to invest in extra battery packs at about $80.00 a shot. In actual use, I've found that three good batteries will usually provide enough power for an average day, as long as you don't squander the energy by leaving the communication ports (or the backlight) turned on, or by making a lot of floppy disk accesses.

If it was a Z-171, or even a SupersPort, carrying around extra batteries wouldn't be a good solution (the batteries are too large and heavy). But the MinisPort main battery is a small, lightweight package, and two extra (fully charged) batteries grace my glove compartment, or my backpack, at all times. This still isn't a solution to poor battery technology, but it's getting closer.

And Then, the Nightmares Began

But life with the MinisPort is not all wine and roses. A couple things about it are nagging at me.

The first problem is the vapor potential of the little machine. It's so small and lightweight, I keep constant vigil over it when I'm in public. I don't want to turn around and suddenly discover my computer has vaporized.

The second problem is the password scheme, which is another option in the setup/configuration menu. It's a good idea, with one potentially fatal drawback. If you insert a password, and forget it, say goodbye to your computer. There is no way to get into it if you don't have the password, which will initiate a very embarrassing trip to your local service center. They can correct the situation, but you can't. I haven't put a password in mine for that reason, but I think I will eventually. I have a recurring nightmare that someone will stop by my apartment, power up my MinisPort, put a password in it out of curiosity, then forget what they wrote. AAAAARRRRGGGGGGGG! For that reason alone I think I'll eventually use a password, but a very simple one like Bogart. Who could forget the great one?

The third problem is only a petty annoyance, and revolves around the lithium batteries. The prototype I'm using was given to me with nearly dead lithium's. The computer would constantly lock up at power up, making it impossible to use. After consulting a knowledgeable engineering assistant, I removed the lithium batteries and tossed them in the trash. The machine worked fine from then on. It does not need the lithium batteries for normal operation, since the setup/configuration information and the RAM disk are energized (when the machine is off) by the main battery when the lithium batteries are gone or dead. However, removing a discharged main battery and installing a charged battery wipes out that information, since with no lithium batteries and no main battery the computer has no power. So, until I installed fresh lithium power cells I couldn't change main batteries without losing the setup and RAM disk data (which contained my priceless original manuscripts). I discovered that even when the main battery was too dead to power up the computer, there was still

enough energy in it to keep the setup and RAM disk data safe. I finally bought a pair of lithium batteries and installed them (a simple operation). Problem solved.

The fourth problem is the keyboard. But I consider that a rather petty annoyance that I outgrew. I like the MinisPort's keyboard better than the one on my desktop machine at work. I'll never learn to like the abominable 101-key keyboard that's currently in vogue, but that's another story.

And finally, to jump on that portable peeve bandwagon, the display can be annoying at times. I mentioned before that it watermelon-o-fies graphics. Text is immune to the compression (since it only displays half a page at a time) so it's not much of a problem. It becomes a problem when I fire up Battlehawks at the end of the pier on a Thursday night, flying a vertically compressed world war II fighter plane can be tough. I guess that's just another terrible drawback I have to live with. Friends who use the TurbosPort and SupersPort models never have to contend with that awful affect, they boast. But I never see them using their portables in as far ranging a manner that I have. In fact, I have yet to see them using a portable computer outside their house. I wonder why?

Portability Pitfalls

Portable products, whatever they are,

should be highly durable. Stress the word highly. If you need to worry about cracking the display, crashing the hard disk, snapping cabinet parts, or breaking your phalanges, it takes the fun (and true portability) out of your new toy.

I also have a Z-181, and have owned a Z-171 (groan). The Z-181 is a nice machine, but it's a porker compared to the MinisPort. And the regular floppy disk accesses I need (to insure my current work) seem to eat up the battery even faster in those earlier "luggables". And of course, the weight. The Z-181 is awkward, and the Z-171, well, 'nuff said. I took it on a trip once and hurt myself.

And the MinisPort is durable. I'm rough on my surroundings (just look at my cars), and to put up with my daily routine my toys have to be durable. The MinisPort I've been using is one of the most durable portables I've had. My Z-181 is a finicky big sister compared to it. The Z-171 was a behemoth, and a piranha for batteries. The MinisPort represents a forward evolutionary step to smaller and better portable computers. The keyboard is about as small as you can get and still touch-type (which is my preferred mode).

I've used the MinisPort while fishing in a rowboat (and those big fish seem to know when your recording your best thoughts, then they take your bait), in a canoe in the middle of the White river, on picnics, in parks, in the middle of a cornfield at night, up a tree, in taverns (not recommended for meeting women), and in my car countless times within the couple months I've played with the little prototype.

I guess I'm a throwback, a user of archaic implements. A user of XT's. But the MinisPort has lived up to my expectations. And, with the future product enhancements I've heard rumors of (a real hard disk drive, and a solar power attachment, for instance), it could only get better. I wish it came in black.

On the Leading Edge

Zenith MinisPort, Upgrading Zenith MS-DOS, MS-DOS 3.3 Plus, Disk Sizes and Formats, Using CTRL-P

One of the dangers of being a manufacturer of PC compatible computers is that, by definition, new computers must follow the current "standard" to some extent. That has occasionally led to some criticism of Zenith because they have generally had to play a "follow-the-leader" game, whoever the leader is at the time. Although IBM was the leader in microcomputers with the IBM PC in the beginning, that is no longer true. Many users have decided not to IBM it, let alone PS/2 it! One only needs to look at the IBM sales figures and units shipped to see that their market share has continually decreased, particularly for the PS/2 series with the Micro Channel Architecture (MCA). In the past few years, there has apparently been little room or opportunity for innovation, regardless of new gadgets like MCA. But the sales in one market have skyrocketed, and that is the laptop.

Zenith has had outstanding success with the highly-rated SupersPort laptops, but they have a new laptop that demonstrates some really new innovations for small computers.

New Zenith MinisPort

The new Zenith MinisPort. It's a new, very small laptop that is truly in the laptop category because it weighs in at just under six pounds. By comparison, the SupersPort 286 weighs about 10 pounds without battery or external power supply. When I travel, I do not carry the battery because of the weight, and I figure that I can find an outlet when I need to use the computer. For various reasons, I'm not interested in using my computer on an airplane, so I don't need the battery. But the MinisPort may change a lot of that, and it has a lot of interesting features.

Size and weight are important when I travel. By the time I have everything ready for traveling with the SupersPort 286, it weighs about 15.5 pounds. That includes the computer, carrying case, external power supply, a manual, and about 20 floppy disks in plastic cases. I also carry a briefcase, but I don't begrudge the weight of the computer because I have found it so valuable in my work. My SupersPort runs like a rocket and has a 40 MB hard drive. Still, I would like to have something lighter and smaller, and the MinisPort is the next step in the evolution of small computers.

small enough to carry
fit in your Lands' End
bag with all cables

The new MinisPort is small enough — about 12.5 inches wide, 9.8 inches deep, and about 1.3 inches high — to carry conveniently in just about any briefcase. Although the computer itself is about 6 pounds, I would guess that the total "travel weight" would be on the order of about 10 pounds with everything, including floppy disks.

The MinisPort is a single, floppy-disk-only system, and Zenith has used a new 2-inch, 720 KB floppy drive to help reduce the overall size of the unit. At the time of this writing, I was unable to get any reliable pricing information for 2-inch floppies, but based on the historical prices of new disk sizes and formats, you can bet they will be several times the cost of commonly available floppies. Standard 3.5-inch, 720 KB floppies are commonly available for about $15 a box in the Dallas area, and I would expect that the new 2-inch floppies will probably sell for a minimum of two or three times that, at least for now. More on 2-inch floppy drives in a minute.

Technically, the MinisPort is an interesting computer. It features the "old" 80C88 microprocessor that can run at 8 MHz, so there is not really any new technology in that. Aside from the usual Zenith features, the MinisPort's ROM contains the Zenith MS-DOS 3.3 Plus and the Fastlynx file transfer program. The system boots almost instantly because there is no disk access delay in reading the operating system during the boot process.

The MinisPort has two standard memory configurations: either 1 MB or 2 MB. Memory above 640 K can be used as a "Silicon Disk Drive" (SDD) which is essentially what most of us called a RAM disk or memory disk that you can install on most systems with VDISK.SYS. Depending on the configuration, you will have about 360 KB or just over 1.3 MB to use as a disk drive. I suggest considering the larger memory unit even though it's more expensive. Given that the MinisPort uses 8088-based technology, you will find it is slower compared to the fast 80286 and 80386 systems. And if you use a lot of commercial software, you will find that the floppy disk technology will be quite slow, especially if you are used to a system with a hard drive. True, you will still have to copy (and configure) programs to use the SDD, but the programs will run a LOT faster. And if you have never experienced the joys of disk swapping with a turtle-paced floppy disk computer, be absolutely sure to try it.

Unlike most systems, however, the SDD (and the SETUP, of course) is not lost when you power off the system because it has a battery backup that uses non-rechargeable lithium batteries. General system power is provided by a rechargeable nickel-cadmium (NiCad) battery that provides about three to four hours of use under most conditions, depending on how much you use the floppy drive and screen backlighting. Since the NiCad battery is small and light (about 10 ounces), and relatively inexpensive (about $80), it may be a good idea to carry an extra one if you need a lot of portable computing power. I would rather carry the recharger and not use the batteries so much when I

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travel.

Transferring files between a desktop computer and the MinisPort should not be too much of a problem because of the Kermit program included with the computer. This allows you to transfer files back and forth between two systems using the serial port. The MinisPort also includes a parallel port and a port for plugging in a full-size CGA monitor if you wish.

Overall, the MinisPort looks like a very nice computer that is priced very competitively with similar "notebook" style units. Perhaps Zenith has finally realized that price is a very important consideration for most of the computer market. I believe that the pricing information on the MinisPort included at the end of this article is correct at the time of this writing, but prices may change by the time you read this. $1999/2799

Disk Sizes and Types

With the introduction of the MinisPort, Zenith has also added another dimension to the wide variety of disk sizes and formats. Single- and double-sided, and single- and double-density 8-inch disks were used on standalone word processors in the "early" days. When 5.25-inch floppies were introduced, they were available in an incredible number of types. For example, the old H-89 included a standard 100 KB hard-sector drive (single-side). You could even add "monster" floppies if you had a soft-sector disk controller (called the Z-37) with a staggering capacity of 640 K (I had one), which was quite advanced for its day. Many people think that IBM was responsible for a lot of this technology, but Heath sold disk drives (and computers) with "high density" capacity long before IBM ever thought of personal computers. Incidentally, the Z-37 controller is the reason that, when you order HUG software, you add a "-37" to the part number if you want the usual soft-sector 5.25-inch floppies for DOS. A bit of history to explain the "strange" number for those of you who may not be familiar with some of the older Heath computers.

Rumor had it that, for some reason, IBM was not convinced that these high capacity drives were not reliable, and the *original* original IBM PC actually had single-sided, soft-sector floppy drives with a capacity of 180 KB. Later versions of the IBM PC had double-sided drives (360 K), and this combination of drives led to all kinds of interesting disk swapping problems for reasons that I won't go into.

The Z-100 was introduced with double-sided 5.25-inch floppy drives (360 K) and this computer (and Zenith MS-DOS version 1, called Z-DOS) also provided support for 8-inch drives too, with a capacity of up to about 1.2 MB. By fooling with the floppy disk controller a little, you could even use the 640 K drives that I mentioned earlier.

Most microcomputer manufacturers stayed with the relatively reliable 5.25-inch 360 K drives for a long time, at least until the 1.2 MB 5.25-inch drive was introduced on the IBM AT. Then, the 3.50-inch drives became the rage, and I admit that I really like them better, too. First, we saw the 720 KB drives, and finally the 1.4 MB drives were introduced.

Up to this point, there were three drive sizes that were popular: 8", 5.25", and most recently, 3.50". Aside from just the physical size of the floppy, there are also an incredible number of disk types based on the type of disk: single, double, quad or high density; not to mention whether a disk has one or two sides, or hard or soft sectors. Virtually all of the disk drives available today use a double-sided disk. Now Zenith has introduced the 2-inch drive in the MinisPort. Will this become a new standard?

It might. I think it will depend on whether or not another microcomputer manufacturer also decides to use this same drive size. It will also depend on which of the 2-inch formats is adopted by another manufacturer, if any. My research indicates that there are at least two different formats of 2-inch disks that are not compatible with each other. Zenith uses a 2-inch Panasonic drive that has the same 720 K capacity as the existing double-density 3.5-inch drives. Sony has a 2-inch drive with a capacity of about 812 K, so it is easy to see that disks written on one drive would not be compatible with the other. The real advantage of the Sony drive is that it is MUCH faster in transferring data, but it is not available in production quantities yet. Part of the floppy disk war is to see which manufacturer's format will win this particular battle for small computers. In the short term, Panasonic clearly has the edge because it is available now. In the long term, that may or may not help.

In the longer term, there are persistent rumblings that super high-capacity 3.5-inch floppy disks (e.g., 10 MB or so) are under development, and it would not surprise me to see that in the next release of drives and floppies. I expect that they will be considerably faster than today's floppies, and they will probably require a new disk controller to accommodate that speed. Most of the floppy drives available today use a 300 or 360 RPM rotation speed, and their disk controllers are only capable of transferring data at 500 Kbps (kilobits per second) maximum. In contrast, the 2-inch Sony drive that I mentioned earlier is designed for just over 14 Mbps (megabits per second) which is over 28 times as fast as current floppy systems.

With the available technology, I think Zenith made the best choice of the alternatives by using the 2-inch Panasonic drive. The 2-inch disks are much like the 3.5-inch disks you have probably seen, just smaller. Since one of the clear objectives of the MinisPort was to build a SMALL computer, it's difficult to see how any other choice could have been made. Using a 3.5-inch drive in the MinisPort would have doubled the weight of the floppy drive, not to mention some kind of modest size increase to accommodate the larger form factor.

From a user perspective, I really don't appreciate another disk size and format very much. I already have PLENTY of different size disks and densities floating around my study: two types of 8-inch disks for the Z-100, 360 KB 5.25-inch, 1.2 MB 5.25-inch, 720 KB 3.5-inch, and 1.4 MB 3.5-inch. Since I only have 6 different types of disks, I obviously need another one to keep track of.

Moving Ahead

As I was working on this column, I received an interesting letter from Ed Wiggins (East Northport, NY) with some interesting comments on my June column on upgrading to Zenith MS-DOS 3.3 Plus. Based on my description of the new capabilities of this latest MS-DOS version in that article, he tells me that he decided to upgrade from version 3.1. Ed pointed out in his letter that neither that article nor the manuals clearly describe how to update to a new DOS version. Although it is also true that it is even less clear how to update an IBM PC-DOS version (based on the information in the manuals), his point is well-taken. It is one of those things that computer users are expected to "know," but is never described in detail. I have written about this subject in some detail in the *Powering Up (Volume 2)* article on "How Disks and DOS Work Together," but I have learned that many people who read one of my columns do not read the other one. And because it will be a few months before that article is published, I thought it would be useful to go through the installation process for Zenith MS-DOS, including those things that are not explicitly mentioned in the manual. In any case Ed, this one's for you.

Installing Zenith MS-DOS

Installing Zenith MS-DOS on a system for the first time has been quite easy because of the SETUP program (in versions prior to 3.3 Plus) that has been around for a long time. For version 3.3 Plus, the SETUP program has been renamed to INSTALL, but it is still basically the same program with some enhancements. Unfortunately, even the current INSTALL program in MS-DOS 3.3 Plus does not provide any specific instructions or procedure on how to upgrade to the new version. This is, as Ed pointed out in his letter, especially important on a hard drive system because INSTALL will run