

THE Portable Paper

Personalized Software to Stop Selling HP Portable and HP150 Products

Frequently Asked Questions

Independent Review of FastPlus Upgrade

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A great gift, a great buy!

How many people do you know (family members, business associates, friends, yourself) that can benefit from using an HP Portable?

Dear HP Portable User:

You know how practical these HP Portable computers are. Couldn't you use a second or third one? Couldn't your son or daughter use one in school? How about your spouse, your business associates. At these prices, won't these machines pay for themselves in no time?

Now is the time to buy because these offers are good only until October 11.

Look at these prices, then call us right away because we will operate on a first come first served basis: we will not replenish our inventory.

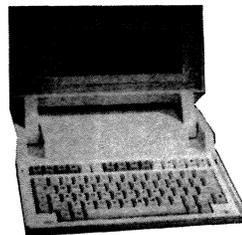
Prices good only while supplies last. Buy the most practical, long-battery life, rugged HP Portable available -- TODAY!.

Sincerely



Hal Goldstein

P.S. In the unlikely event that your HP Portable needs repair, Larry Baldozier, our technician, will continue to service your maintenance needs.



**HP110s
for
\$199.95!**

LIGHT WEIGHT, 12-20 HOURS OF BATTERY LIFE, COMES WITH A BUILT-IN WORD PROCESSOR, LOTUS 1-2-3, AND INTERNAL MODEM.

This 8-lb. wonder was far ahead of its time when introduced by Hewlett-Packard. Even now it compares remarkably well to the current crop of fragile, short-battery-lived notebook computers.

These portables are indestructible, and hardly anything ever wears out on them. The programs are built in on ROM and there's enough internal RAM memory to store 80 pages of word processing text.

With most other computers, used means worn out. But the only moving parts on an HP110 are the keys, so we expect many to be in use well into the 21st century. Every HP110 we sell is fully tested and guaranteed to work.

Remember, this is a liquidation sale. Once we're out of HP110s, we won't sell any more. The time has come, and the price can't be beat. The sale ends October 11, or when our limited supplies run out!

HP110 Portable Computer - \$199.95
(Includes Time Manager, Productivity Disk)
Prod.# PQ11UC

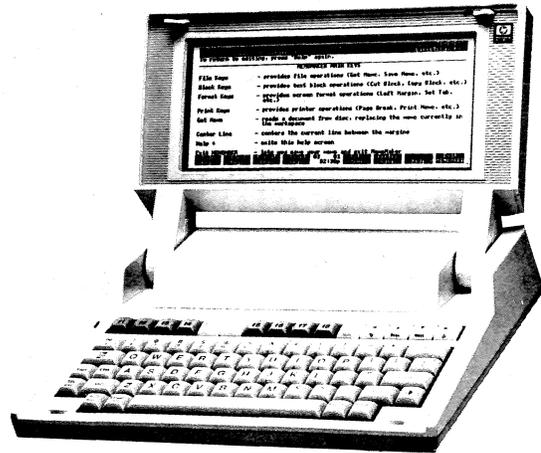
Call 800-373-6114 before October 11!

HP Portable Plus

(never used, and in its original packaging)

Only \$450*

-- used \$375!*



GRAB THIS LAST CHANCE TO BY A NEVER-USED PORTABLE PLUS AT A VERY AFFORDABLE PRICE.

These are the last of the unused Portable Pluses produced by Hewlett-Packard. They are still in their factory packaging. They are from the last production run of the Portable Plus, and when they are gone, there are no more such Pluses. *(Some of these units were originally configured for European use. We have substituted U.S. keys and English documentation as necessary.)*

The Portable Plus, like its predecessor the HP110, is one of the most rugged portable computers ever built. These computers use RAM and ROM memory for program/file storage, instead of a fragile mechanical hard disk. The only moving parts in a Portable Plus are its keys. This means that there is almost nothing to wear out and you should be able to expect years of trouble-free computing from these portables.

All our Portable Pluses come with 512K of internal RAM expandable to 1.5 MB. All come with a new battery and manuals. Each comes ready to accept a RAM expansion drawer and/or a ROM software drawer. A free ROM drawer is included if you buy a ROM, with your Portable Plus purchase during this liquidation sale.

* Deduct \$25 if you don't need manuals.

Never-Used Portable Plus -- \$450*
(In factory packaging. If originally a European unit, U.S. keys and manual substituted.)
Prod.# PP46UC

Used Portable Plus -- \$375*
Prod.# PQ11UC

These special prices available only with purchase of Portable Plus

ROM Drawer -- FREE
(With purchase of any ROM)
Prod.# SW11UR

FastPlus upgrade -- \$145
Prod.#FA11NG

128K Memory Drawer -- \$25
Prod.# MM13UC

256K Memory Drawer -- \$59
Prod.# MM19UC

384K Memory Drawer -- \$99
Prod.# MM12UC

1 MB Memory Drawer -- \$295
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30 Day Warranty

We guarantee that every component of your hardware and software will be free from malfunction for 30 days after delivery date. In the unlikely event that something does go wrong (not through misuse), we will repair or replace the unit (our choice) at no charge, or refund your money.

Shipping Charges / Payment Terms

US SHIPPING: ONE item - \$4. TWO OR MORE items - \$7. HP Portable or 150 system: \$25. SHIPPING OUTSIDE USA: Minimum per order: \$17, minimum per HP Portable or 150 system: \$75 - actual shipping charges if greater. PAYMENT TERMS: Cash/Credit Card. Net-15 P.O.s. accepted from long-term customers with record of paying bills in timely fashion. Payment in U.S. funds, drawn on U.S. banks.

Orders must be postmarked or phoned in by OCTOBER 11.
All sales final except if merchandise is defective.

ROMs ROMs ROMs ROMs

Cheap Cheap Cheap Cheap

Dear Portable Plus User,

Make your software a permanent part of your Portable Plus by putting your applications on ROM chips.

Fortunately for you, we purchased many hundreds of our custom-manufactured Portable Plus ROMs right before we realized that we could no longer make a profit supporting HP Portable and HP150 users. That means we are very motivated to sell ROMs.

In order to sell them quickly we have done two things:

1. Greatly reduced the price of ROM software -- many complete ROM packages are priced at only \$79.

2. Greatly reduced the price of ROMBO units and associated EPROMS.

Enjoy!

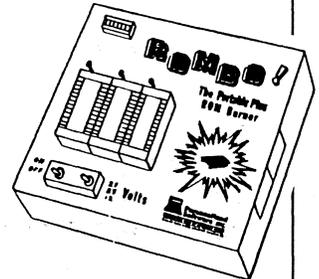
Sincerely,



Hal Goldstein

ROMBO!

Portable Plus users:
Now you can easily put programs
and data on ROM yourself
- up to 1.5 megabytes
per ROM drawer!



Now you can easily put any program - and important data - on ROM chips and store them in your Portable Plus's ROM drawer. "Burning" your own eraseable ROMs is easy - even for a computer novice - with our Portable Plus ROM Burner. All you do is connect the ROM burner to your Plus, and follow the simple instructions we provide for using the software that comes with ROMBO.

HERE'S WHAT YOU GET

A must for every Portable Plus user, ROMBO: our ROM Burning package includes:

1. Personalized Software ROM Burner for the Portable Plus, with serial cable. Burns commercially available 64K byte ROMs or special Personalized Software 128K byte ROMs.
2. Ultraviolet eraser. Erases 64K or 128K EPROMs for return.
3. All necessary software.
4. Two Personalized Software 128K byte EPROMs (eraseable, programmable ROMs).
5. Complete user manual.

ROMBO - \$475

Personalized Software ROM Burner Package for the Portable Plus (includes ROM burner, serial cable, ultraviolet eraser, software, two 128K byte EPROMs, and user manual).

Prod.# EP10NH

One 128K EPROM -- \$45

Set of four 128K EPROMs -- \$169

(Personalized Software 128K byte erasable programmable ROMs for the Portable Plus.)

1 EPROM, Prod.# EP11NR.

Set of 4 EPROMs Prod.# EP12NX

One 128K non-eraseable Programmable ROM -- \$36

Set of four non-eraseable Programmable ROMs -- \$129

(Personalized Software 128K byte non-eraseable ROMs for the Portable Plus. Ideal for making multiple copies of ROMs)

1 ROM, Prod.# EP18NR. Set of 4 ROMs, Prod.# EP19NX

Call 800-373-6114 before October 11!

Build your software into your Portable Plus with ROM Chips!

Super ROM!



The Editor

SuperROM provides one of the best values of any ROM backup package available. It contains five programs:

The Editor -- Easy-to-use yet powerful word processor.

PrinterTalk and Format110 -- Lets you control the format of your word processing documents.

SideWinder -- prints your word processing or spreadsheet files sideways to the ThinkJet Printer.

Shelp -- Lets you pop-up a calculator, notepad, and use system-wide macros.

SuperROM -- \$79
(Editor I, Format110, PrinterTalk, Shelp, Sidewinder on 1 ROM)
(Part # SU11NK)

Combo ROM



HPduette

AS-EASY-AS -- a spreadsheet program compatible with 1-2-3, version 2.01. If you already use another spreadsheet, you have very little new to learn. If your new to spreadsheets, you'll find As-Easy-As powerful, yet easy to learn.

SideWinder -- lets you print wide documents sideways on HP printers.

TermPlus -- for sending files between computers via modem

HPduette -- for P.Plus to PC compatible PC file transfer via serial port.

TetPlus -- a clone of Tetris, the popular Russian game of falling blocks.

Combo ROM -- \$159
(2-ROMs include As-Easy-As, SideWinder, TermPlus, HPduette, TetPlus)
(Prod.# RO11NK)

Writer's ROM



The Editor II



This two-ROM set transforms your Portable Plus into a dedicated word processor.

The Editor II -- easy-to-use word processor that lets you edit two files at once.

Webster's Spelling Checker -- easy-to-use spell checker with a 100,000 word dictionary.

FormatPlus -- formats your word processing documents.

FilePlus -- a great file manager.

Shelp -- see SuperRom.

Writer's ROM -- \$159
(2-ROMs include Editor II, Webster's Speller, FormatPlus, FilePlus, and Shelp)

(Prod.# WR11NK)

Executive Card Manager

Easy-to-use ROLODEX-type database lets you organize and locate contact information, print letters/mailling labels, quickly.

Exec. Card Manager -- \$79
(Prod.# EC11UR)

Norton Utilities (Advanced Edition)



Recover deleted files and organize your electronic and external disks with this top-selling utilities program.

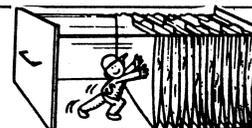
Norton Utilities (Adv.) -- \$79
(Prod.# NU12NR)

MemoMaker/TimeManager

MemoMaker - HP's simple word processor providing the basic functions of a full-featured program. **TimeManager** - HP's acclaimed Personal Information Manager including appointments calendar and to-do list.

MemoMaker/Time Manager -- \$49
(Prod.# MM21UR)

Squish Plus



A must for every Plus user, increasing Edisk storage by 50% or more. SquishPlus operates automatically in the background, compressing/uncompressing your files.

Squish Plus -- \$79
(Prod.# SQ11NK)

Make your HP Portable more usable for little money...

Only you must order by October 11.
Prices good only while supplies last.

Dear HP Portable Customer,

Print your letter, report, or spreadsheet on the ThinkJet printer.

Back up your files with an HP 9114 Disk drive. Use the HP 9114 to transfer files between your PC compatible and your Portable Plus.

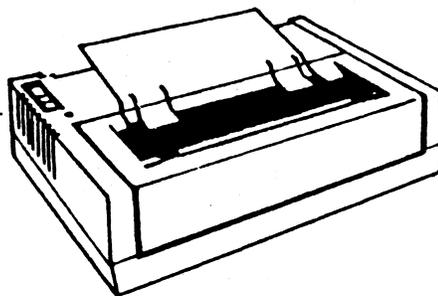
Store more files on your Portable Plus using a memory drawer.

The disk drive, the printer, and memory drawers are all available at liquidation prices. But act now, since these prices are good only until **October 11** while supplies last.

Sincerely,



Hal Goldstein



ThinkJet Printer

QUIET, HIGH-QUALITY INKJET PRINTER - FOR A SONG!

Thousands of these tough little inkjet printers are in use in offices, factories, and labs throughout the world. HP's rugged construction along with the ThinkJet's few moving parts insures that this printer will perform flawlessly, year after year.

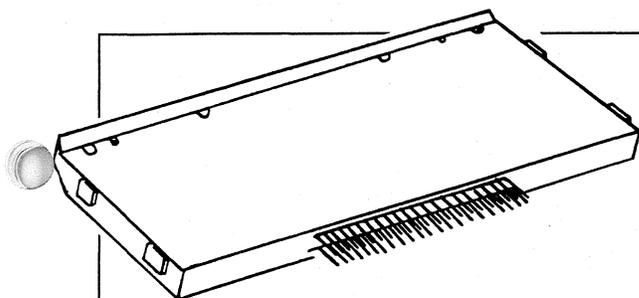
These refurbished ThinkJets produce high-quality printing (500 pages per ink cartridge) at a fast 150 characters/second. The ThinkJet covers less desk space than a piece of letterhead paper and weighs only 6 lbs.! Great for office or on-the-road use.

Battery powered ThinkJet -- \$150
Prod.# TJ11UC

AC powered ThinkJet -- \$175
Prod.# TJ11UX

ThinkJet Empowerer -- \$59
(AC Power Supply for the ThinkJet!)
Prod.# EM14NH

Call 800-373-6114 before October 11!



**RAM DRAWERS ARE THE WAY TO
EXPAND THE RAM MEMORY OF
YOUR PORTABLE PLUS.**

Add up to 1 megabyte of RAM to increase your Memory / Edisc capacity. This lets you run larger software application programs and store more files on your Portable Plus.

With more RAM memory, you can work with larger Lotus spreadsheets, or store larger word processing documents, ready to use them when you want.

More RAM memory means less reliance on the external disk drive of the Portable Plus. This means greater portability and fewer hassles on the road, or in the office.

Memory Drawers*

128K Memory Drawer -- \$45
Prod.# MM13UC

128K Memory Card -- \$75
(Lets you increase the size of your 128K drawer from 128K or 256K to a maximum of 384K)
Prod.# MM14UC

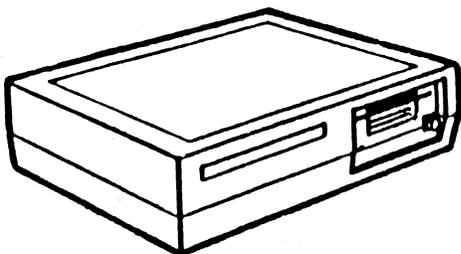
256K Memory Drawer -- \$99
Prod.# MM19UC

384K Memory Drawer -- \$175
Prod.# MM12UC

1 MB Memory Drawer -- \$595
Prod.# MM11UC

ROM Drawer -- \$35
Prod.# SW11UR

* We'll consider trade-ins -- call!



**AN EXTRA DISK DRIVE COMES IN
HANDY, AND NOW IT'S AFFORDABLE!**

Keep one at the office, and at home, and travel lighter, with less hassle.

Take advantage of our liquidation sale to grab one (or two) of these drives. We have battery-powered and AC-powered drives. The AC powered drives are ideal for use at home or in your office. The battery-powered 9114s travel well, and are a must if you intend to access floppy disks while on the go.

HP 9114 Disk Drive

HP9114A Disk Drive -- \$175
Battery powered
Prod.# DD11UC

HP9114B Disk Drive -- \$199*
Battery powered
Prod.# DD12UC

HP9114B Disk Drive -- \$225*
AC powered
Prod.# DJ11UX

HP 9114 Empowerer -- \$59
(AC Power supply for the 9114)
Prod.# EM13NH

* Deduct \$25 if you wish to receive an HP 9114B with minor chips or cracks in the case (insides fine - these units never used).

30 Day Warrenty

We guarantee that every component of your hardware and software will be free from malfunction for 30 days after delivery date. In the unlikely event that something does go wrong (not through misuse), we will repair or replace the unit (our choice) at no charge, or refund your money.

Shipping Charges / Payment Terms

US SHIPPING: ONE item - \$4, TWO OR MORE items - \$7. HP Portable or 150 system: \$25. SHIPPING OUTSIDE USA: Minimum per order: \$17, minimum per HP Portable or 150 system: \$75 - actual shipping charges if greater. PAYMENT TERMS: Cash/Credit Card. Net-15 P.O.s. accepted from long-term customers with record of paying bills in timely fashion. Payment in U.S. funds, drawn on U.S. banks.

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PUBLISHER'S MESSAGE

FOR HANDY REFERENCE: Items *directly* relevant to the three HP Portables are denoted in this issue as follows:
110 110 Portable P+ Portable Plus PV Portable Vectra US₁₂ Vectra LS/12
When items are *partly* or *indirectly* relevant they are denoted as:
110 110 Portable P+ Portable Plus PV Portable Vectra US₂ Vectra LS/12



Hal Goldstein

I finally did it. After six years writing about HP Corvallis, Oregon, Portable computers, I made my first pilgrimage to Corvallis. (By the way, unless you pronounce the state "OreGUN," they know you're a foreigner.) In Corvallis I attended an independently sponsored HP 48SX/ 95LX

handheld (hackers) conference.

At the HP site I saw the assembly line for turning out HP 95LX's as well as the "museum" of calculators produced by the Corvallis division. Conspicuously absent were any mention or signs that the HP110, HP Portable Plus, and HP Vectra CS were produced in Corvallis.

I met a number of HP people. I renewed my respect for the caliber of people at HP involved in the various phases of design, production, marketing, and support.

At the conference I found out that I am not alone in my addiction to the HP 95LX Palmtop. My wife teases me: I am inseparable from my HP 95LX. It turns out the others at the conference are the same way (as are the users that write about their experiences on the HP CompuServe forum.) The combination notepad, phone and appointment book, calculator, and spreadsheet in one package (with a few built-in games on the side) make the HP 95LX my constant companion. ("Is that a computer in your pocket or are your glad . . ." - couldn't resist).

The response to our offering of the HP 95LX newsletter has been overwhelming. We expect to have as many as twice the number of PALMTOP PAPER subscribers as PORTABLE PAPER subscribers by the time the first PALMTOP PAPER reaches its readers in October. I do hope that most of you will stay with us and subscribe.

Finally, as you probably have noticed by our advertisements this issue, we must get out of the HP Portable / HP150 business as soon as possible. This is not an easy decision to make. I have wonderful people working for me, and it will mean letting most of them go. We also have great customers whom we would like to continue to support.

It turns out to properly conduct a business selling and supporting the hundreds of items related to the HP150 and HP Portable requires an incredibly large sized staff. We need sales, marketing, repair, accounting, shipping, MIS, R&D, and desktop publishing people to do the job properly. We could not come up with a reasonable way to do it half way.

What that means is that by the end of October, we will have reduced our permanent staff from 18 to 5. We will cease the mail order part of our operation in October and focus on publishing the last issue of The Portable Paper and the first issues of The Palmtop Paper. We probably will not sell Palmtop products, at least for the first six months of *The Palmtop Paper*.

We still have an inventory — Portable Pluses never opened in the original packaging, HP110's, ThinkJets, Disk Drives. We also have memory drawers, and software on ROM and disk.

For those thinking of purchasing ROMBO's and extra 128K EPROMs, do it now. By the time you receive the last Portable Paper, the plan is to have closed down the mail order part of the business. If we have some inventory left, there may be no one to talk to and no one to ship them. If we have inventory left, it is possible that we may let you mail in your requests, but it would be wise not to count on that.

Larry Baldozier, our R & D manager will continue to service your units for the foreseeable future. Larry will honor all warranties we have made and continue to repair your units at a reasonable price.

I wish we could continue offering products and supporting our wonderful customers, but there does not seem to be a way to make the numbers work without jeopardizing the Palmtop part of the business.

Subscribe to The Palmtop Paper and watch us start all over again.

LETTERS

Communicate between the Portable Plus, the HP 95LX and Poqet PC

I was wondering how I go about transferring files between the Portable Plus and the Poqet PC computers as well as the Plus and the HP 95LX.

T10

P+

Sam Elter
San Francisco, CA

[The Poqet has a proprietary port and communications cable, but the cable ends in two standard female connectors, one 25-pin and one 9-pin. You should be able to use our serial modem cable (part # CA13HC), or have Radio Shack make you an adapter to connect the Portable Plus to the Poqet. Then you need to run the Poqet's built-in communications program and one of the Portable Plus communications programs available (Kermit, TermPlus, or Reflection) Note: we have not tested this.

For information on how to communicate between the Portable Plus and the HP 95LX, please see the Savvy User column, this issue, page 28 — Rich.]

Wants an HP notebook computer

T10

P+

PV

LS

As a frequent traveler in the engineering profession, I rely on laptops/notebooks to do a lot of my away-from-home work. Since I tote a briefcase with me (necessary for the files, reports, etc. that I must carry anyway), I have been waiting patiently for the day Hewlett-Packard would respond to the fact that so many professionals travel this way.

Imagine my disappointment when I heard that they have been pouring their research and development into something with an undersized keyboard and less than a full 80-column by 25-line screen. A vast market may respond to this new Palmtop, but I'm not one.

I'm going to sit back and wait for a slightly larger machine, with the same features as the Palmtop, but with a full-size keyboard and screen, hopefully for nearly the same price. I have no doubt that Hewlett-Packard is capable of it. What do you think, Hal? The question is, has Hewlett-Packard done their market research on folks like me?

I would like to see HP produce a notebook computer, in the tradition of superior HP quality.

R.C. Smith
7404 Petris Avenue
Bakersfield, CA 93308

[Comment from Rich Hall, Managing Editor: HP did its research and came to the conclusion that they needed to focus on the palmtop niche. It appears that the market is validating their decision. The 95LX is selling two to three times faster than they thought it would. They are having to put on extra shifts in Corvallis to meet the demand.

On the other hand, I agree with you completely. I'm an editor and writer and I can't (won't) do it on the 95LX. But it's sure a nice computer and, in my opinion, the perfect personal/business organizer. That's the niche HP identified, and they created something very nice to fill it!

On the political side of things, Corvallis is HP's calculator division. They are charged with developing calculators, not notebook computers. Perhaps it was easier for them to justify producing a calculator-sized computer.

Another factor that may have weighed on HP's mind is the already flooded notebook market. On my recent trip to the COMDEX in Atlanta I saw hundreds of 6-7 lb notebook computers, all nearly identical. HP could certainly compete with any of them in terms of quality and uniqueness. A small notebook with the built-in applications and other features of the 95LX would, I think, be very attractive to many people. But, again, people perceive the market to be flooded with notebooks and it might be difficult for HP to differentiate another notebook computer in the minds of the consumer. HP may be smart in holding off a while longer.

SPECULATION

Will HP introduce a light-weight notebook based on the 95LX advances? It seems silly not to. The 95LX will establish HP as the premier player in the palmtop game. Once this is done I think Hewlett-Packard could leverage the acclaim generated by the 95LX along with HP's general reputation for quality, and very successfully market a light-weight notebook computer.

The HP notebook I'd like to see would incorporate the 95LX advances, but have a higher-power word processor (with spell checker and thesaurus) and database program. It would, of course, have a bigger screen and keyboard, but not too large a keyboard please! (I found the Poqet PC's keyboard only a little too small, but I loved the fact that I didn't have to reach very far for the keys.) With a good set of built-in applications I don't need a 20MB hard drive. And I would gladly sacrifice a floppy drive for a RAM card slot if it means I can get the kind of battery life the 95LX gives. Besides, with no hard or floppy drive it shouldn't be difficult for HP to keep the weight of the notebook under 3 lbs., and that is important to me.

I completely agree with you on the subject of pricing. I don't see why a 95LX-type notebook would have to cost much

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POSTMASTER: Please send any address changes to Personalized Software, Attn: The Portable Paper, P.O. Box 869, Fairfield, IA 52556.

more than the 95LX — say \$1,000 tops.

Interestingly enough Fujitsu, who now owns about 85% of Poqet Computers, is planning to introduce a 2-3 lb notebook based on the technology developed by fares. It will be interesting to see how that fares.

Will HP do it? I think so — Rich.]

Running Turbo Pascal 6.0 on the Portable Plus

I am sorry to hear that *The Portable Paper* is going to end. I personally have learned a great deal from it over the past four years and will miss it. I do hope to remain on your mailing list as I intend to purchase a ROMBO unit in November. I would also be interested in a 1MB RAM/ 4MB Flash EPROM Drawer if and when they become available at a price below \$1,500. I have a long wish list, but those are two of my top priorities.

P+

I just wanted to let you know that Turbo Pascal 6.0 is up and running on my Portable Plus (a 512K unit with 386K RAM, FastPlus upgrade, and an HP ROM board). In fact, Ed Keefe's Turbo Integrator from Personalized Software worked with it, right out of the box. I didn't have to change any of Ed's configurations, Stereo Shell works fine, etc. Furthermore, I found the TP 6 system to work with a minimum of 208K RAM partition, but only for very small programs.

I must admit, even though the TP 6 system works great NOW, I had almost given up trying to run it. Several times I had dumped everything from the Plus onto a backup disk and loaded TP 6 from the Personalized Software disk trying different memory configurations, re-reading the on-disk instructions and printed information, etc. All to no avail.

While I could get the Turbo Integrator to run, create and edit a program, use Stereo Shell for file manipulation and everything else, I couldn't get it to compile and run a program!

I kept getting an error message, but couldn't find the error. Finally it dawned on me to copy the TPC.EXE file (command line compiler) from my Borland disk into the Plus! That's all it took. Boy do I feel like an idiot! It's obvious when you think about it, but still I wish the instructions with the Personalized Software disk had started with a comment regarding the need to load the command line compiler from the IBM Borland disk. It would have saved me a lot of grief. I only hope this note can keep someone else from repeating my mistake.

William J. Pinnick
Chem-micro-Metrics
1689 Scarborough Road
Greenville, NC 27858

95LX, Wizard, Expense of publishing

110

P+

PV

LS/12

Recently I found that I had to move up to a full-fledged desktop computer, and though I had found the HP110 useful in the past, the lack of IBM compatibility was a major hindrance. I have given it to a friend who lives in a rural area in the hope that he will be able to make some use of it.

I have seen the HP 95LX and while impressed, as always, with HP's quality, I was not impressed with the 95LX's limitations. It has a poor keyboard layout and size, lacks memory, and has a poor display. Why did they not use the new DOS 5.0? There are spreadsheets other than Lotus. And the schedule function is rather poor as well.

The Sharp Wizard 8200 fits my needs 80% of the time. Now that they have a fax/modem for it I will be able to do 95% of all I need when I travel. Having been an HP user from the old HP35 days, I am not down on HP too much. However, it does seem to take them several generations to really address the real and changing needs of the user.

One of my pet peeves is that the people who review hardware and software are too much into the intricacies of things and fail to communicate to the common users point of view. I would say, though, that *The Portable Paper* has been of enormous help to me and I do wish you well on your new ventures. I'll continue to send the remaining issues of *The Portable Paper* to my friend, and should I purchase a 95LX I would certainly subscribe to your new publication.

One comment to Mr. Pidgeon is in order, however (see Letters, Vol.6, No.4, Pg.5). The expense of publishing a limited (or not so limited) circulation magazine is very high. Most who read them never know of the cost in dollars or time that is needed. If one wants a scholarly magazine with no advertising, then be prepared to pay a lot more — unless, of course, it is subsidized by some governmental agency or university.

I think you have done a fine job and have been of service to many. Now it is time to move on. The world does change and the needs of computer users do as well. Thanks!

L. Reafsnnyder
Sanindo Budokan
P.O. Box 8733
Albuquerque, NM 87108

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Making More of Your HP Portable

by Hal Goldstein

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More on the HP 95LX Palmtop

By Hal Goldstein

My enthusiasm for the HP 95LX continues to grow. I use it daily to take notes, perform calculations, do spreadsheets, beep me when it's time for an appointment, and keep my to-do list wherever I happen to be. It is always with me.

I am not alone in my enthusiasm. HP 95LX users

flood the HP CompuServe forum with activity: people sharing tips and wondering how a piece of software or peripheral works with the 95LX. The HP 95LX is unique enough so that *The Palmtop Paper*, just like *The Portable Paper*, will serve a real need for users.

In the past weeks I've had an opportunity to talk with a number of third party 95LX vendors. Vendors are going to town with creative ways to use the infrared port, the 4-pin serial port, and the RAM/ROM card slot.

In addition a number of System Compliant software products are being planned for the HP 95LX. A product is "System Compliant" if it runs with HP 95LX built-in software.

For example, I have talked with Ed Gilbert about getting The Editor II to run in System Compliant mode on the HP 95LX. Since the HP 95LX is IBM compatible, The Editor II will run without modification on the HP 95LX. However, currently to use The Editor II, I have to exit from all built-in System Compliant applications including Lotus 2.2, HP Calc, my Appointment and Phone books, before I can enter DOS to start The Editor II. From DOS I cannot call any of the built-in (System Compliant) applications such as Lotus, HP Calc, Memo, or my Phone or Appointment book.

Normally, the nice feature about the built-in System Compliant software is that I can switch from one program to another and back (from Lotus to my Phone directory back to Lotus) without losing my place in any of the applications I have opened. By making The Editor II System Compliant, the HP 95LX would be able to switch back and forth between The Editor II and any built-in application.

One unfortunate discovery is that Everett Kaser, TigerFox author and HP engineer, snuck in an undocumented, highly addictive, game of logic called Hearts and Bones into the HP 95LX. We reveal the secret of how to install this System Compliant game in our first mailing to all those requesting a free issue of The Palmtop Paper. The game is really elegant in its simplicity and its test of logical thinking.

HP 95LX CONNECTIVITY PACK

Most HP 95LX users will want the Connectivity Pack for their Desktop PC. The Connectivity Pack gives you all the built-in HP 95LX software on your PC (excluding Lotus 123 which needs to be purchased separately). The simplicity and power of the HP Calculator make it almost worth the \$99.95 price of the Connectivity Pack alone.

In addition, you get for your PC the simple HP 95LX Editor, phone book, appointment book, and filer described in more detail in last month's issue.

You could, for example, type in (or translate) your phone book on the PC and then transfer it to your HP 95LX. The PC Connectivity pack merge program eliminates the danger of duplicates. Or, if you keep an appointment book on your office PC, you could copy your current schedule to the 95LX and take it with you on a business trip. While away you could make changes to the schedule on the 95LX, and your assistant back in the office could also add new appointments to your desktop's scheduler. When you return you can connect up and merge the two (now different) appointment schedules to make a new, updated version or your appointment book.

TRANSFERRING FILES BETWEEN THE PC AND AN HP 95LX

Connecting the HP 95LX to a PC requires the HP-82222A serial cable for the HP 95LX. This cable is included with the Connectivity Pack, or can be purchased separately from it.

There are three ways of directly transferring files between a PC compatible and an HP 95LX. These ways all use the serial cable to physically connect the HP 95LX and the PC.

1. If the PC does not have the Connectivity Pack software, a communications package (like ProComm for an IBM compatible, TermPlus for a Portable Plus, Terminal for the HP110, or SoftPC on a Mac) can be used to transfer files. To do the transfer, built-in COMM needs to be run on the HP 95LX with the communications program running on the other computer. Files are transferred in the same way that they would be transferred if a modem was used.
2. Users can transfer files by using the Filer program both on the HP 95LX and on the PC compatible (part of The Connectivity Pack). Files are transferred in a fashion similar to HPduette or Laplink: tagged and then sent.
3. Users can transfer files by making the HP 95LX a "slave" to the PC compatible (similar to the way a PC HP-IL card works). This is accomplished by running a file transfer program on the 95LX and a slightly different one on the PC (programs included in the Connectivity Pack). For example, if these programs were run, the A drive of the HP 95LX might become the D drive of the PC, and its files would be accessible.

CONTENTS OF CONNECTIVITY PACK

The HP 95LX Connectivity Pack comes with a 4-pin to 9-pin serial cable and a 9-pin to 25-pin serial adapter, included to connect the 95LX to a serial port on the desktop. Connectivity Pack software, documentation, and a registration form are also included. (Duplicate copies of the software are on one 3.5" floppy and two 5.25" floppy disks).

The software includes desktop PC versions of the following 95LX applications:

- Filer
- Appointment Book
- Phone Book
- Memo Editor
- Setup Utility
- Financial Calculator

- Merge Utility — for combining two appointment or phone books into one.
- Translate Utility — for converting files of other popular appointment and phone book software between their formats and the 95LX format.
- DOS Connect — for accessing 95LX files from your desktop PC.

USING THE CONNECTIVITY PACK

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12 The computer you will communicate with must be an IBM PC compatible with a hard disk and a floppy drive (either 3.5" or 5.25"). The computer's operating system must be MS DOS 3.1 or higher and the computer must have a serial port.

Installation of the Connectivity Pack software is relatively straightforward — you just run the install program which uncompresses Connectivity Pack software and puts them on your PC hard disk. DOS 5.0 users may need to use the following command to work around a bug in the decompression software:

C:\DOS\LOADFIX A:INSTALL

IMPRESSIONS

The product is not as clean as one might expect. The PC version does not take advantage of the larger normal screen. It simply runs on a 16 line by 40 character partial screen on the PC. With the exception of HPCalc, the software is adequate but no more. In addition, there are a few annoying unnecessary glitches: there is a limit to the size of the length of the path name where the Connectivity Pack can be installed; you cannot change the default drive from C to another drive name.

Still, if you have a PC, The Connectivity Pack is the only transfer package available for the HP 95LX. The file transfer software itself runs smoothly. In addition, it is convenient to be able to have the HP 95LX applications accessible on your PC. The Connectivity Pack is definitely a worthwhile investment if you plan to transfer many files between desktop PC compatible and the HP 95LX.

ORDERING INFORMATION

As more HP 95LX Palmtops have become available, we have been able to lower our prices for the HP 95LX to \$579. That price includes a subscription to *The Palmtop Paper* (and Subscribers Disk) worth \$39, so the effective price becomes \$540. Personalized Software's prices are as follows:

- 1-Year Subscription to The Palmtop Paper
Part # PTPA01, Retail: \$39.00, Subscriber price \$39.00
- 2-Year Subscription to The Palmtop Paper
Part # PTPA02, Retail: \$69.00, Subscriber price \$69.00
- HP 95LX Palmtop PC
(Comes with Lotus 1-2-3, version 2.2. Includes free subscription to *The Palmtop Paper* (worth \$39).)
Part #: PTCOM1, Retail: \$699.00, Subscriber price . . \$579.00
- 128K RAM Card
(Expands 95LX file storage capabilities)
Part #: PTRAM1, Retail: \$199.95, Subscriber price . . \$179.95
- 512K RAM Card
(Expands 95LX file storage capabilities)
Part #: PTRAM5, Retail: \$399.95, Subscriber price . . \$359.95
- Connectivity Pack
(Lets you connect 95LX to PC-compatibles)
Part #: PTCOM1, Retail: \$99.95, Subscriber price . . . \$89.95
- Serial Interface Cable
(Connects between 95LX and serial printers like the LaserJet)
Part #: PTSIC1, Retail: \$35, Subscriber price \$35.00
- AC Adapter
(For U.S./Canada, lets you conserve battery life)
Part #: PTVOL1, Retail: \$15, Subscriber price \$15.00
- Serial Cable Adapter Kit
(Lets you adapt the serial cable to serial printers and modems)
Part #: PTSAK1, Retail: \$15, Subscriber price \$15.00
- Dictionary/Thesaurus Card
(Adds 116,000 word dictionary, 500,000 thesaurus to your 95LX. Can be used with the Memo Editor)
Part #: PTDTC1 Available in late 1991

Five Ways to Restart Your Portable Plus or HP110

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P+ In the unfortunate event your computer hangs up (no matter what you do, nothing happens) there are five ways to reset it. The gentlest thing you can try is pressing the **Shift** key with the **Break** key. (This is identical to pressing the **Ctrl** key and the letter C.) If you're very lucky, you lose no data and things go back to normal. Otherwise, either nothing happens, or PAM reappears and you lose the work you have done since your last SAVE.

If nothing happens using Break, you must issue a hard reset, which means you lose your work since your last SAVE. For a hard reset, hold down the **CTRL**, **Shift**, and **Break** keys and PAM reappears.

If that reset fails, holding the **contrast** key (half moon key) down for 15 seconds resets your computer. This key is wired directly to the Portable hardware.

(All other keys are be controlled by software).

If you create a CONFIG.SYS file you can get into trouble. Normally, when you reset your Portable, the system looks to the A drive first for a CONFIG.SYS file. A bad CONFIG.SYS file can cause the computer to hang up. The way out of this jam is to press **CTRL, Shift, Extend char** with the **Break** key. The system bypasses the A drive and PAM comes up again. Then you can delete or modify your bad CONFIG.SYS file.

If all else fails, remove the cover in back that protects the battery pack, and press the little button. This resets your computer and restarts the battery indicator at 99% even though the battery may not be fully charged. Use this method as a last resort since **IT MAY WIPE OUT THE FILES ON YOUR A DRIVE!** Also, you probably will have to reset your **f6** System Config and **f5** Datacom Config settings.

In general, exit naturally from any program you are using rather than doing a hard reset, otherwise it is possible to lose the data you're working on, or even destroy files on your disk.

Using Lotus 123 as a Calculator

It is possible to use Lotus 1-2-3 as a calculator without disturbing your current spreadsheet. Just follow these steps:

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1. Move to an empty cell for safety's sake
2. Press **f2**: the Edit key
3. Do any legal Lotus mathematical operation without pressing the Return key.
4. Press **Calc (Shift f1)**. Note the answer, which appears in the edit line in the upper left hand corner.
5. Press the **Esc** key.
6. The unchanged worksheet awaits your command.

The Most Frequently Asked Questions about HP Portables

LOTUS 123

Q. What is causing a memory full message in Lotus?

- A. A memory full message in 1-2-3 indicates all internal memory of the computer (RAM) has been used and no additional data may be entered in the current worksheet.

INCREASE SYSTEM RAM

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When you load a spreadsheet file, Lotus loads the whole file in RAM memory. This limits the size of the spreadsheet you can work with. Say, for example, your Portable Plus has 512K of RAM and you have it configured so that you have the entire 512K available as system RAM. Approximately 67K or the RAM is used for the Operating System and the Lotus program. About 445K remains and is available for the spreadsheet. If you tried to load a spreadsheet larger than 445K, you would get a memory full message. (In this case, since you have no Edisc, you would, of course, be loading the worksheet file from another source, the floppy drive for instance.)

In reality you have your RAM divided between system RAM and Edisc, so you have even less system RAM to work with. This further limits the size of the spreadsheet you can load.

There are a number of ways to work around this situation. If you consistently use large worksheets and the memory full message is encountered, the best solution for Portable Plus users is to increase the amount of system RAM available while running Lotus. Enter the Portable Plus' System Config. Menu (press **f6**) and configure your computer for a smaller Edisc. This will give you more system RAM to work with. If you need more RAM than is physically available, you can add an additional memory board to the system and increase the RAM by as much as 1MB. This will allow you to have a full 512K of system RAM available, and an Edisc for file storage.

DECREASE SIZE OF THE SPREADSHEET

The other way to deal with the problem is to minimize the size of the spreadsheet you are working with. Create your worksheet by arranging data that begins in cell A1 and avoids blank rows and columns between the data; this will maximize available memory. Because blank cells use memory, minimizing blank cells where possible will increase memory availability.

In addition, keep in mind that blank formatted cells also use memory. To determine where blank formatted cells are located in the worksheet, press the Select key and the home cursor key (diagonal arrow key); this will place the cursor at the outermost cell where data is entered (values, labels, formulas, or formats). If the outermost cell does not have a value, formula, or a label, then you have determined that there are formatted blank cells. To eliminate these cells use the **/File eXtract** command to extract only the portion of the spreadsheet containing data. This creates a new worksheet containing only data and no blank formatted cells, thereby increasing memory available for the worksheet.

PERIPHERALS

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Q. I have a ThinkJet Printer connected to my Portable. When I try to print, I get the message "Printer Not Ready". What's wrong?

A: Check your cables to make sure they are properly connected (refer to section 3-2 of "Using the HP110" manual or 6-3 or 6-6 in the Portable Plus Owner's Documentation). In the SYSTEM CONFIG menu, set PRINTER INTERFACE to "HP-IL".

Q. How do I change the print pitch for the ThinkJet Printer?

A: You can change the print pitch by choosing one of the values supplied in the PRINT PITCH field of PAM's f6 SYSTEM CONFIG menu. The choice of pitches is "Normal", "Expanded", "Compressed", or "Expanded-Compressed".

Q. What is required for using the DeskJet or LaserJet Printer with the Portable?

A: If you're using The Portable built-in serial port, you will need an HP92221P cable or a Personalized Software SC13NM cable. In SYSTEM CONFIG menu, set PRINTER INTERFACE to "Serial". In the DATACOM CONFIG menu, set SERIAL PORT to "RS-232", BAUD RATE to "9600", WORD LENGTH to "8-bits", STOP BITS to "1", PARITY to "Even", and XON/XOFF PACING to "On". Set remaining fields in the left column to "Ignore".

For use with HP-IL / RS-232-C converter, set PRINTER INTERFACE to "HP82164A" and set right column of DATACOM CONFIG menu to the above choices.

PAM/MS-DOS

Q. How can I get the Function Key labels to be displayed on the screen?

A: Press the MENU soft key while in DOS.

Q. Can I have the Portable "awakened" in DOS instead of PAM?

A: In order to bypass PAM, use Memomaker to create a file that contains the following line:

```
shell=b:\bin\command.com b:\bin\lp
```

Save this file as A:CONFIG.SYS. Then press Ctrl-Shift-Break to activate the file.

Q. I have a program that takes up 100K of RAM memory to run. When I try to load it, the system just locks up, and doesn't load the program. Why is this happening?

A: If you run your program from PAM, you not only need enough memory for your application, you also need to account for the system overhead of 4K for PAM, and 27K for MS-DOS. Therefore, you will need a minimum of 121K available in RAM to run your program.

Quick Maneuvers in 1-2-3

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As the story goes, the salesman was lost somewhere in Vermont. He stopped to ask a local resident directions and was told "ya can't get there from here." And so it sometimes seems while maneuvering inside a large Lotus spreadsheet, but not so! There are some simple tricks to get from here to there quickly!

1. VIEW THE BOTTOM OF A COLUMN — Forget the Down Arrow and Page Down keys, and don't bother using GOTO. Just position the pointer in one of the first occupied cells of the column and press **End** and **DownArrow** (For End on the HP110 or Portable Plus, press **Extend Char** and **RightArrow**). The pointer is moved to the occupied cell prior to the next empty cell. If there are no empty cells in the column, this moves the pointer to the bottom of that column. (Press **End**, **RightArrow** to move to the end of a row of non-empty cells.)

If there are empty cells in the column you want to view the bottom of, move your pointer to an empty column (create one if you have to), press **End** and **DownArrow** to move to the bottom of the spreadsheet, move back to the desired column, and press **End UpArrow** to move the pointer to the bottom of that column.

2. ADD UP A COLUMN USING @SUM — Move pointer to the first empty cell after the column of numbers you wish to add up and type **)@SUM(**. Then press the **Up Arrow**, type a "." (period), press **End**, **Up Arrow**, enter a ")" (closing parenthesis), and press **Return**.

With this procedure you don't have to type a range into your @SUM formula or move your pointer to a cell to point to a range.

3. **Copying and moving with the Backspace key** — it is common to position the pointer in the upper-left cell of the range you wish to copy from and issue the COPY command. The status line will then display a prompt asking for the FROM range. However, using the Backspace key can be more convenient in some cases.

First position the pointer on the cell that will be the upper-left corner of the TO range. Then issue the Copy command, press the Backspace key, move the pointer to the upper-left corner of the range that you want to copy from, and press the period. Then use the ArrowKeys to expand the FROM range and press Return to select this range. The pointer automatically moves to the cell in the upper-left corner of the TO range. Press Return, and the data from the FROM range will appear.

This procedure also works with the MOVE command. It uses fewer keystrokes and becomes very useful when working with large worksheets with FROM/TO ranges separated by many cells.



Is the Force Xbase Compiler for the Portable Plus?

By Jim Scheef

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One of my frequent frustrations about the Portable Plus is my inability to move small database applications between the Portable Plus and my desktop computers. I would like to be able to write small applications in a quick and productive language like dBASE III and then use the same programs on both computers. The problem has been the old bugaboos of size and compatibility. Over the past couple of years there have been short notes in *The Portable Paper* about people who have been successful in running Xbase applications on the Portable Plus (see side bar on Xbase). While these work, the size of the resulting programs or the disk space required for the interpreter have resulted in the Portable Plus being dedicated to that one application.

What has been needed is a compiler that produces program files that are sufficiently small to be of real use on the limited resources of the Portable Plus yet is easy enough to use that mere mortals can write programs that get the job done. The Force Compiler from Sophco, Inc. has the potential to be that tool. The key word here is 'potential.' As it stands, the Force compiler is an excellent product that produces executable files sufficiently small to be of real value for the Portable Plus (perhaps even the HP 95LX?) user.

While Force is another Xbase-compatible compiler

in an already crowded market, it is not an Xbase clone by any means. Force offers significant enhancements to the Xbase language while offering features of interest to the Portable Plus user. The thing that first got my attention was Force's ability to use either DOS or the BIOS for screen output in addition to the direct screen writes that make most programs incompatible with the Portable Plus. Using DOS or BIOS should result in a 'well-behaved' program that will run on the Portable Plus as well as a PC compatible.

Does this work? Well, yes and no. It is possible to write a program using Force that is completely compatible with the Portable Plus. If screen I/O is limited to TTY output through DOS or the BIOS, everything is fine. Unfortunately the standard Xbase-formatted screen command, the @..SAY..GET syntax, does not presently work on the Portable Plus. This limits screen formatting to Esc sequences in simple TTY output. On the Portable Plus, simple I/O using the ? <string> syntax can be directed through DOS or the BIOS. While BIOS should be faster, it does not allow using Esc sequences to control the screen. This type of output is sufficient to display reports, but is almost unworkable for serious data input. More on screen I/O later.

To test Force on the Portable Plus, I wrote a small program to list the TimeManager ToDo file. I chose this project because it demonstrates the generalized file I/O possible with Force. In other words, Force can read and write files other than standard Xbase databases. Of course you must do more of the work yourself when reading from or writing to a non-Xbase format. For example, the ToDo list program must parse each record by looking for the spaces between fields. If the file were in Xbase format, all of the fields would be available based on the database declaration and the header that is part of the Xbase file format.

Those familiar with the Xbase language know that it is fairly freeform. Force, on the other hand, requires a Pascal-like block structure that makes the code very modular. In addition, everything must be declared in Force before it can be used in a program. This includes variables (memory variables in Xbase parlance) and database structures. The result is that Force code does not look much like typical Xbase at first glance, but most of the familiar commands are there. All this structure is what enables the Force compiler to output such compact executable files. In other words, by declaring variables and database structures in these special blocks, the programmer is doing some of the work a compiler would need to do to optimize the resulting code. It took some time for a typical Xbase programmer like myself to get used to this syntax, but once over the initial hurdle, Force becomes a very productive language.

Another benefit is the size of the compiler itself. My initial tests found that the Force compiler would run in 256K. More work revealed that it was happier with more room, a little over 300K. The complete Force compiler with its library and header files, and the DOS linker fits on a single 720K diskette. By compiler standards, this is quite compact. The Microsoft C compiler fills twelve 720K diskettes and some of the files are compressed! So Force can easily be used from a 9114. By eliminating the sample files, there is enough space left on the diskette for source code files. I do my editing on the Portable Plus Edisk and direct all compiler output to the Edisk as well.

Ok, so if Force is so great what are the problems? Well, the primary problem has already been mentioned: the limitations on screen I/O. I've been hoping that Sophco would solve this problem. Sophco runs an excellent product support BBS and I have mentioned the I/O problem several times. Several months back, they reported a possible solution. This involves replacing the routine that Force uses to write characters to the screen when formatted output is called for as in the @..SAY..GET command. Force provides a way for the programmer to replace this routine, although it is not documented in the user manual. This involves assembly language programming, something that is beyond my expertise. All this dismal news for Portable Plus users should not be a problem for 95LX users, since the 95LX screen follows the IBM monochrome adapter standard. Since I don't have a 95LX, I can't check this out.

So is this the end for the Force compiler on the Portable Plus? I hope not. While I can't be sure of the work involved, a screen output routine should not be difficult to write if one is familiar with the Portable Plus screen memory. So how about it? Is there a Portable Plus guru out there reading the last issues of *The Portable Paper* who would like to work on this?

If you want more information on Force on the Portable Plus or would just like to talk about HP portables in general, contact me on the HPSystems or FUSE Forum on CompuServe. My PIN is 76702,1654. If you'd like a copy of my To-Do list program with its source code, I can upload it to CompuServe.

[Jim's article is based on Force, version 1.0. Sophco, Force's developer, is currently shipping version 2.1e — Rich.]

What is an Xbase program?

dBASE is Ashton-Tate's trademark for its popular micro-computer database program. Over the last two years, Ashton-Tate has sued competitors who have produced compatible database programs for copyright infringement. To avoid legal hassles with Ashton-Tate, the press has adopted the name Xbase to indicate the collection of language dialects based on the original dBASE II and dBASE III. Products in this category include Clipper from Nantucket, FoxBase and FoxPro from Fox, QuickSilver and dBXL from Wordtech Systems, and A-T's own dBASE IV. Each of these products has enhanced the Xbase language in some unique way but none have changed the syntax in the same way as Force. (Recently Ashton-Tate was purchased by Borland International.)

[For more on these Xbase databases check the following back issues of The Portable Paper: CLIPPER — Vol.3, No.6, Pg.32-33; Vol.4, No.2, Pg.27. dBXL — Vol.3, No.1, Pg.12, 39; Vol.3, No.2, Pg.12, 14; Vol.3, No.5, Pg.3, 30; Vol.3, No.6, Pg.33; Vol.4, No.6, Pg.25-26; Vol.5, No.1, Pg.4. dBase — Vol.2 No.2 Pg.22, 23; Vol.3 No.1 Pg.8, 12; Vol.3 No.2 Pg.4; Vol.3 No.6 Pg.32; 41, Vol.4 No.2 Pg.8; Vol.5 No.6 Pg.28. FoxBase & FoxPro — Vol.3, No.6, Pg.17. QuickSilver — Vol.3, No.1, Pg.39; Vol.3, No.2, Pg.14.]

ORDERING INFORMATION

Force 2.1e. lists for \$495. However, Sophco is running a special promotion and is discounting Force to \$199 for the time being. A Sophco emphasized that the special promotion may end soon. For more information contact Sophco directly at:

Sophco
P.O. Box 7430
Boulder, CO 80306-7430
(800) 922-3001 or (303) 444-1542

Analog to Digital Conversion and the Portable Plus

By Marcus Otto and Richard Hall

A working prototype of the Analog to Digital Converter (ADC) for the Portable Plus (see Vol.6, No.2, Pg.23) has been successfully developed. This device is

designed to allow the Portable Plus to collect external analog information.

Real-world events are usually collected as "analog" information. A liquid thermometer, a spring-operated bathroom scale, the speedometer on your car, all measure what's going on in a continuous manner that is analogous to the real event. For example, the pointer on a bathroom scale (an old spring-operated model) rotates in a circle when you step on it and sweeps out an arc of, say, 210 degrees. You don't weigh 210 degrees, you weigh, say, 180 lbs. But the 210 degrees is analogous to your true weight, hence the bathroom scale is an analog measuring device.

On the same bathroom scale the manufacturer has painted numbers around the circle to indicate weight. You stand on the scale, look at where the pointer is resting, and translate that into digital information: "I weigh 180 this morning." You have become an Analog to Digital Converter.

The Portable Plus and most other computers are digital devices. They store data as discrete bits of information, and cannot handle analog input. Analog data must be converted to digital data before it can be stored on, or used and input for a computer.

ADC PROTOTYPE

The Analog to Digital Converter is a working prototype that would require refinements to be used in specific applications. The analog to digital conversion is done by a MAXIM AD163 integrated circuit. The ADC is connected to the Portable Plus via two LS245 8-BUS-Drivers, one NAND, and a single Inverter IC. Other IC chips, resistors, capacitors, and a power supply are used in the ADC.

SPECIFICATIONS

A/D resolution:	12 bit
Sampling rate:	(71,300 +/- 50) Hz; max 120,000 Hz
Analog input:	-5V to +5V
Power Consumption:	a lot (it's just a prototype!)

Software needs to be written depending on the application you want to use the ADC for. The developer tested Turbo Pascal and MS Macro Assembler with the ADC and developed a simple Turbo Pascal 5.5 routine for it. The maximum sampling rate was about 10 Khz (although MASM allows sampling rates up to 71 Khz). The Turbo Pascal 5.5 routine developed by Marcus Otto has the following available features:

CONTINUOUS MODE

(writes data to screen as pixels)

TIME BASE	
AMPLIFICATION	
OFFSET	
DEFAULT	(sets default values)
SHOW	(to keep current pixel on screen)

TRIGGER (triggers at the value that was measured when the trigger key was hit)

HOLD MODE
(actual data displayed, lines drawn between pixels)

REGULATION (of AMPlification OFFSET)	
DEFAULT	
GRID	(draw a grid over data point)
CURSOR	(displays current position and relative movement from last position) INF (displays x/time in seconds, y/ampl. in millivolts, offset in millivolts at current cursor position)
SAVE	(save 512 data points with information in a 1,048 byte data file)
LOAD	(load a data file)
PLOT	(generate an HPGL file)

The Turbo Pascal 5.5 routine measures 512 data points (but can be modified so that more are measured) and then writes them into an array. The values are then transformed to 480 screen addresses.

The V30-CPU causes the acquisition loop to be too fast to read one value after the other. A wait loop was included to slow down the procedure. The counter-minimum for this wait loop is 4! Increasing this counter will increase the TIME BASE.

FOR FURTHER INFORMATION

Further development depends upon user interest. For more information contact the developer directly.

Marcus Otto
HERON Computer
Lepsiusstr. 81
W-1000 Berlin 41 GERMANY
Tel: 0049-30-7912073
Fax: 0049-30-7919957

HP-IL Interface Adapters

110 P+ These adapters expand the capabilities of your computer by making it a part of an HP-IL system. This allows your Poqet, Portfolio, Toshiba, or other PC-compatible to interact with a wide variety of devices with HP-IL interfaces.

The interface adapter, similar to HP's portable to desktop Link HP-IL card, will allow your computer to operate as an HP-IL controller or as an HP-IL device. In addition, the adapter will enable loop use of PC storage and display systems. The Interface Adapters will help facilitate communication between the HP110 or Portable Plus, and any other computer outfitted with the device.

Interloop of San Jose, California, markets the HP-IL adapters for the Atari Portfolio, the Toshiba, and

HP Portable Products Available only until OCTOBER 11, 1991

HP110, PORTABLE PLUS COMPUTERS

DESCRIPTION **PRODUCT #** **LIQUIDATION PRICE**

Never-used Portable Plus PP36UC \$ 450.00*
(In factory packaging. If originally European unit, US keys/manuals substituted.)

Used, Portable Plus PP16UC 375.00*
HP 110 PQ11UC 199.95
(Includes Time Manager and Productivity Disk)

* Deduct \$25 if you do not require a manual!

OPTIONS ONLY WITH PORTABLE PLUS PURCHASE:

These reduced priced options are available only with each purchase of a Portable Plus.

ROM Drawer with ROM purchase	SW11UR	Free
FastPlus upgrade	FA11NG	\$ 145.00
Memory drawer (128K)	MM13UC	25.00
Memory drawer (256K)	MM19UC	59.00
Memory drawer (384K)	MM12UC	99.00

PERIPHERALS

MODEMS

Used 1200 baud Internal	BM11UC	\$ 295.00
Acoustic coupler	AC11NC	39.00
WorldPort 1200, 2400, MNP portable modems and accessories		CALL

HP-IL PRINTERS, PLOTTER

ThinkJet (Battery Power)	TJ11UC	\$ 150.00
ThinkJet (AC Powered)	TJ11UX	175.00
Empowerer II, ThinkJet	EM14NH	59.00
7470A Plotter	PL11UM	195.00

DISK DRIVES

HP9114A Disk Drive	DD11UC	\$ 175.00
HP9114B Disk Drive	DD12UC	199.00*
HP9114B (AC Powered)	DJ11UX	225.00*
Empowerer II, HP9114	EM13NH	59.00

* Deduct \$25 if you wish to accept an HP9114B with minor chips and cracks in case (insides fine, units never used.)

MEMORY, SOFTWARE DRAWERS (Portable Plus)

1 MB HP RAM Drawer	MM11UC	\$ 595.00
384K HP RAM Drawer	MM12UC	175.00
256K HP RAM Drawer	MM19UC	99.00
128K HP RAM Drawer	MM13UC	45.00
128K HP Memory Card	MM14UC	75.00
HP ROM Software Draw.	SW11UR	35.00

ROM BURNING (Portable Plus)

ROM Burning kit	EP10NH	\$ 475.00
<i>(ROM burner & eraser, cable, 2 128K EPROMs, software, manual)</i>		
128K byte EPROM	EP11NR	45.00
(4) 128K byte EPROMs	EP12NX	169.00
128K PROM (no erase)	EP18NR	36.00
(4) 128K PROMs (no erase)	EP19NX	129.00

INTERFACE CARDS

HP-IL Card For IBM PC	IL11UC	\$ 79.00
HP-IL/Serial Interface	IL12UC	39.00

SOFTWARE ON ROM

(for the Portable Plus)

If the product number ends with "UR", it is a ROM originally manufactured by HP. If it ends with "NK", it is a new Personalized Software disk plus ROM backup.

DESCRIPTION **PRODUCT #** **LIQUIDATION PRICE**

Combined ROMs

COMBO ROM	RO11NK	\$159.00
<i>(2 ROMs: AsEasyAs, HP Duette, TermPlus, Sidewinder, and TetPlus)</i>		
SuperROM	SU11NK	79.00
<i>(1 ROM: Editor I, Format110, PrinterTalk, Shelp, SideWinder)</i>		
WordPerfect Speller	RO13NK	175.00
<i>(3 ROMs; Also including: HPDuette, Shelp, FilePlus, Tetplus)</i>		
Writer's ROM	WR11NK	159.00
<i>(2 ROMs: Editor II, Webster's, FormatPlus, FilePlus, Shelp)</i>		
Writer's ROM II	WR12NK	159.00
<i>(2 ROMs: RightWriter and Outline Plus)</i>		

Communications

Advanced Mail	AD12UR	\$ 50.00
Reflection	RF11UR	79.00
TermPlus	TE13NK	79.00

Productivity Boosters / Games

DOS Tools	DT12NK	\$ 79.00
GamesPlus	GA11NK	79.00
HP Duette	DU13NK	79.00
Norton Utilities (Adv.)	NU12NK	79.00
Squish Plus	SQ11NK	79.00
Typing Whiz	TW12NK	79.00

Programming Languages

MSBasic	MS21UR	\$ 79.00
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Spreadsheets and Database

COMBO ROM	RO11NK	\$ 159.00
<i>(2 ROMs: AsEasyAs, HP Duette, TermPlus, Sidewinder, and TetPlus)</i>		
Exec. Card Mgr	EC11UR	79.00
Lotus 123,1A (no manual)	LT14UR	249.00
Lotus 123,2.01 (no manual)	LT15UR	395.00
SideWinder	SW12NK	79.00

Word Processors

Editor II	ED12NK	\$ 79.00
MemoMkr/TimeMgr	MM21UR	49.00
MSWord	MS20UR	79.00
MultiMate	MM20UR	79.00
WordPerfect 5.0	WD11NK	495.00
WordPerfect Speller	RO13NK	175.00
<i>(3 ROMs; Also including: HPDuette, Shelp, FilePlus, Tetplus)</i>		
WordPerf. Thesaurus-3 ROMs	RO12NR	129.00
Writer's ROM	WR11NK	159.00
<i>(2 ROMs: Editor II, Webster's, FormatPlus, FilePlus, Shelp)</i>		

Word Processing Utilities

HPrint	HP12NK	\$ 79.00
OutlinePlus	OU11NK	79.00
RightWriter	RW11NK	129.00
Writer's ROM II	WR12NK	159.00
<i>(2 ROMs: RightWriter and Outline Plus)</i>		

30 Day Warranty

We guarantee that every component of your hardware and software will be free from malfunction for 30 days after delivery date. In the unlikely event that something does go wrong (not through misuse), we will repair or replace the unit (our choice) at no charge, or refund your money.

Shipping Charges / Payment Terms

US SHIPPING: ONE item - \$4; TWO OR MORE items; - \$7; Portable or 150 system - \$25. SHIPPING OUTSIDE OF USA: Minimum per order - \$17; Minimum per HP Portable or 150 system - \$75. Actual shipping charges if greater. PAYMENT TERMS: Cash/Credit Card. Net-15 P.O.s. accepted from long-term customers with record of paying bills in timely fashion. Payment in U.S. funds, drawn on U.S. banks.

Orders must be post marked or phoned in by **OCTOBER 11.**
All sales final except if merchandise is defective

First come, first served — liquidation prices good ONLY WHILE SUPPLIES LAST!

SOFTWARE ON DISK

DESCRIPTION	PRODUCT #	LIQUIDATION PRICE
Communications		
Kermit	KE11NS	\$ 19.00
Relay Gold (Plus)	RG11NS	79.00
TermPlus	TE12NS	39.00
Term110	TE11NS	39.00
YTERM	YT11UC	29.00

Database/Accounting Software

Condor 3	CR11NS	\$129.00
Condor Jr	CR13NS	59.00
Dac-Easy Accounting	DC11NS	79.00
Used dBase II	DB11UC	79.00

File Transfer

HPDuetta for P.Plus	DU11NS	\$ 39.00
ReadHP	RD11NS	69.95
Link110	LK12NS	69.00
LinkPlus	LK11NS	69.00

Integrated Package

T/Master	TM12NS	\$39.00
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Learning Material for HP110, P.Plus

How to Use the HP Portables Video Tapes	VP11NM	\$ 39.00
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Productivity Boosting Utilities / Games

BacTools	BC11NS	\$ 39.00
DOS Tools	DT11NS	39.00
FilePlus	FE12NS	39.00
GamesPlus	GA11NS	39.00
HP110 Utilities Disk	UD11NS	20.00
HP110 Productivity Disk	SB11NS	29.00
Keefe Kollection	KE12NS	29.00
Norton Utilities Adv.	NU12NS	59.00
Norton Utilities	NU11NS	49.00
PrintMaster	PR11NS	39.00
Shelp	SH11NS	39.00
Squish Plus (P.Plus)	SQ11NS	49.00
Tiger Fox	TF11NS	19.00
Time Manager (Included in HP110 Productivity Pack above.)		
Typing Whiz	TW11NS	29.00

Programming

Compiled BASIC (USED)	MS13UC	\$ 79.00
MS BASIC (USED)	MS11UC	79.00
MS GW BASIC (USED)	GW11UC	79.00
T.Pascal 3.0 Optimizer	TP17NS	25.00

Project Management

Milestone	ML11NS	\$ 59.00
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SpreadSheet and Statistics

101 Macros	MC11NS	\$ 39.00
As-Easy-As	AS11NS	59.00
SideWinder and Utilities	SW13NS	39.00
Statistix 2.0	ST11NS	79.00

Word Processors

The Editor II	ED11NS	\$ 39.00
Editor Pack	FM16NX	99.00
(Editor II, FormatPlus, Webster Speller)		
PlusPerfect	WD14NS	59.00
VI (Unix-like editor)	VI11NS	39.00
WordPerfect 5.0 P. Plus	WD17NS	375.00
(Includes PlusPerfect)		

Word Processing Utilities

FormatPlus	FP11NS	\$ 39.00
HPrint	HP11NS	59.00
MS Spell	MS12vc	49.00
OutlinePlus	OU11NS	39.00
PrinterTalk, Format110	PT12NS	39.00
RightWords Dict. Ext.	RW12NS	10.00
RightWriter	RW11NS	59.00
Webster's Speller	WB11NS	39.00

THE PORTABLE PAPER

DESCRIPTION	PRODUCT #	LIQUIDATION PRICE
All 1986-91 issues/disks ¹	PL11PK	\$ 99.95
All 1986-90 issues/disks ¹	PL14PB	79.00
Individual back issue	PP99PB	9.20
PP Binder Vol.6	PB16NM	7.00
PP Binder Vol.1-6	PB15NM	19.00

¹ Subscribers Disks only available with purchase of 1986-90 and 1986-91 issues.

ACCESSORIES, SUPPLIES

BATTERIES

HP110 Battery ²	BT12HC	\$ 39.00
Portable Plus Battery ²	BT11HC	59.95
Refrub. ThinkJet Battery	BT12NG	59.00
Refrub. 9114 Battery	BT11NG	59.00

² Includes instructions, torx screwdriver, nut driver.

CABLES & KEYBOARD ACCESSORIES

Serial modem for 110, Plus	WM14NM	25.00
Serial printer for 110, Plus	SC13NM	25.00
SafeSkin ³	SA11NM	19.00

³ Specify HP110/Portable Plus, LS/12, or UltraLite.

POWER SUPPLIES, RECHARGERS

European charger	ER11HC	25.00
(for the P.Plus, 110, 9114, ThinkJet)		
Empowerer II, HP9114	EM13NH	59.00
Empowerer II, ThinkJet	EM14NH	59.00
Mobile Recharger	PR11NM	39.00
Power Cube	PR13NM	59.95

UPGRADES / REPAIRS

FastPlus (P.Plus CPU Upgrade)	FA11NG	150.00
Repairs	CALL	CALL

HP 75D COMPUTERS

HP 75D	HP75DX	\$35.00
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(As is, with expansion pod and extra memory and an excellent version of BASIC programming language. Does not include batteries, HP-IL cords, manuals, or chargers.)

ITEMS ESPECIALLY SUITED FOR HP110 USERS

Condor Jr	CR13NS	\$ 59.00	PrinterTalk/Format110	PT12NS	39.00
DOS Tools	DT11NS	39.00	ReadHP	RD11NS	69.95
How to Use the HP			SideWinder & Utilities	SW13NS	39.00
Portables Video Tapes	VP11NM	39.00	Term110	TE11NS	39.00
HP-IL Card For IBM PC	IL11UC	79.00	The Editor II	ED11NS	39.00
HP110 Productivity Disk	SB11NS	29.00	Tiger Fox	TF11NS	19.00
HP110 Utilities Disk	UD11NS	20.00	Time Manager (Included in HP110 Productivity Pack above.)		
Link110	LK12NS	69.00	Typing Whiz	TW11NS	29.00
Norton Utilities	NU11NS	49.00			

All items under ACCESSORIES, SUPPLIES (except Portable Plus battery)

All items under SOFTWARE ON DISK: Programming

HP 95LX PALMTOPS & ACCESSORIES

The Palmtop Paper		
1-year subscription	PTPA01	\$ 39.00
2-year subscription	PTPA02	69.00
HP95LX Palmtop PC	PTCOM1	579.00
(Comes with Lotus 1-2-3, version 2.2 & free subscription to The Palmtop Paper.)		
128K RAM Card	PTRAM1	179.95
512K RAM Card	PTRAM5	359.95
(Expands 95LX file storage capabilities)		
Connectivity Pack	PTCON1	89.95
Connect 95LX to PC-compatibles		
Serial Interface Cable	PTSIC1	35.00
Serial Cable Adapter Kit	PTSAK1	15.00
Voltage Adapter	PTVOL1	15.00
(For U.S./Canada, conserve batteries)		

the PC-compatibles. The HP-IL adapter card for the PC-compatibles fits in any of the PC's internal expansion slots and provides HP-IL ports for any PC-compatible computer.

The HP-IL interface adapter for the Atari attaches to the Portfolio's side slot. The adapter card for Toshiba portables (models T1100+; T1200F, FB, H, & HB; T1600, 3100, 3200SX, 5100, & 5200) fits in the dedicated modem slot. The adapter card for the Toshiba 1000 provides the option of an additional port for the HP Smart Wand.

These adapters allow for 23 to 30 HP-IL devices on a loop and transmit data at up to 7,000 bytes/second, 3,000 bytes/second typical.

The Poqet interface adapter, a small box with the two HP-IL ports, connects to the Poqet's proprietary port via a special cable that is included.

HP-IL ADAPTER FOR THE HP 95LX

Lew Thomas, the developer of the HP-IL Adapter for the Poqet PC, is working on one for the HP 95LX. HP-IL adapters for the Atari (\$275), Toshiba (\$200 - \$300), and PC-compatible computers (\$200) are available directly from:

Interloop
706 Charcot Avenue
San Jose, CA 95131
Phone: (408) 922-0520
Fax: (408) 0545

Installing ROMs and EPROMs

By Richard Hall

The big advance the Portable Plus made over the HP110 was the inclusion of RAM/ROM software drawers. This made it possible to expand the Portable Plus' RAM memory and add new software on ROM, saving Edisk space. The installation of ROM chips into the ROM drawer is a relatively simple procedure, but some care must be taken.

SOME IMPORTANT PRELIMINARY NOTES!

- **P+** ROM/EPROM chips are sensitive to static electricity in the environment! Ground your body before touching any ROM chip.

Your body, or any object in the environment, has a natural static electric charge on it. If the charge on your body is greater than the charge on the ROM chip you are working with, then the electric charge will flow from your body to the ROM chip, possibly damaging the ROM chip.

Neutralize the difference in electrical potential by first touching a metal object on the table that the ROM chip is lying on. Then pick up the ROM chip carefully, not touching the metal pins. This step-by-step procedure neutralizes any difference in electrical charge between you and the chip.

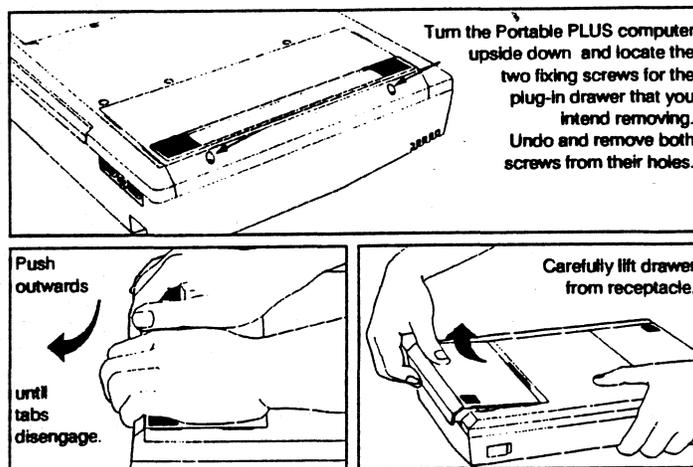
When you put the ROM chip in the ROM Drawer of the Portable Plus, follow a similar procedure. Hold the ROM chip carefully in one hand and touch the ROM Drawer with the other hand BEFORE inserting the ROM/EPROM chip in the ROM socket.

- Install burned (programmed) ROMs and EPROMs in the ROM drawer immediately, or store them in a dark place.

EPROMs are erasable by exposure to ultraviolet light and a certain amount of this light occurs naturally in sun or room light. Avoid exposing an EPROM to light after burning.

- Be very careful when inserting ROM and EPROM assemblies into the ROM drawer — do not use excessive force!

The ROM and EPROM assemblies should be treated carefully. Make sure all the pins are aligned properly before pushing down. Also, it's better to push down on the edge of the assembly.



ROM Drawer Removal

Damage can result if pressure is applied to the top of the chip.

ROM/EPROM INSTALLATION STEPS

P+ Removing the ROM drawer for ROM chip installation will probably cause the loss of anything stored on the Edisk. Be sure and back up your Edisk before proceeding any further.

To insert or remove a drawer you will need one of the following: A small, flat-bladed screwdriver or a number 8 TORX screwdriver.

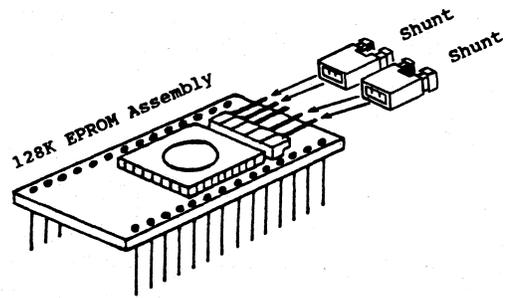
A. Remove the Software Drawer (Not the Portable Plus Memory Drawer!!)

After you have backed up your Edisk, remove the Software Drawer as follows:

1. **TURN OFF THE PORTABLE PLUS** — Press **F8** from the main PAM screen, close the computer and turn it over.
2. **REMOVE THE TWO SCREWS ON OUTSIDE EDGE OF SOFTWARE DRAWER** — Use a small flat-bladed screwdriver or a number 8 TORX driver to unscrew counterclockwise and remove these screws completely.
3. **DISENGAGE THE CONNECTOR PINS** — Place computer face down on a table with the Software Drawer furthest away from you. Place your palms on the drawer with fingers over the edge. Push down and away from you until the connector pins are disengaged and the restraining tabs on either side of the drawer are free.
4. **LIFT THE DRAWER UP AND OUT OF THE RECEPTACLE** — Be careful, the connector pins are delicate and bend easily.

B. Insert the ROM in a ROM Drawer Socket

1. (For Personalized Software 128K ROMs and EPROMs only.) **REINSTALL THE TWO "SHUNTS" REMOVED WHEN YOU CONNECTED THE ID MODULE TO THE 128K ROM ASSEMBLY.** There are five pins on the top of the 128K ROM Assembly that the ID Module cable connects to. The outer two left-hand pins are connected when covered by one shunt and the outer two right-hand pins are connected when covered by the other shunt.



Use two shunts, one for each of the outer two pins. The central pin is always left empty.

2. **POSITION ROM DRAWER WITH CONNECTOR POINTED TOWARDS YOU.** Position the ROM above the socket with the notched end pointing left. (The Personalized Software 128K ROM should have the shunts pointing left.) Carefully line the ROM chip pins up with the socket's pin holes and gently press chip into the socket. The pins are delicate so it is best not to repeatedly insert and remove chips. Chips are also very sensitive to static electricity as described above.
3. **CAREFULLY ALIGN THE ROM PINS WITH THE SOCKET HOLES.**
4. **GENTLY INSERT THE ROM CHIP IN THE ROM DRAWER SOCKET.**

MORE IMPORTANT POINTS

The ROM Drawer is laid out in six pairs or **BANKS** of ROM sockets (total of 12 individual sockets available). The **BANKS** are numbered 0, 1, 4, 5, 6, and 7. Each **BANK** has two ROM sockets labeled "H" and "L" and can accept two ROMs (see diagram below). In addition:

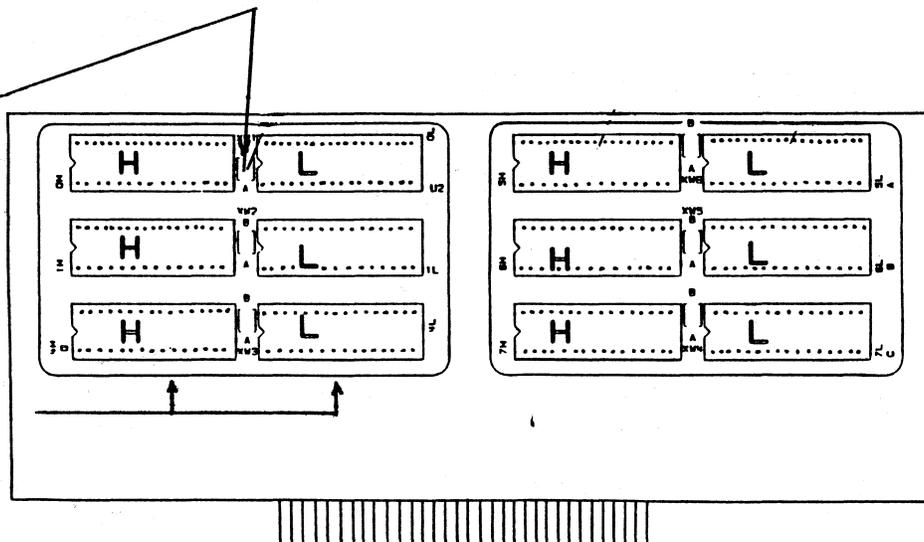
- **JUMPERS SHOULD BE SET IN POSITION "A"** — The jumpers are tiny pin switches located between the sockets in each bank of the ROM Drawer (please see jumper illustration, next page). They are used to configure the ROM banks and are set in the "A" position at the factory. Double check to see that they are still in the "A" position.
- **AN INDIVIDUAL ROM CHIP** — can go in any of the ROM Software Drawer's 12 sockets.
- **A LINKED PAIR OF ROM CHIPS MUST GO IN THE SAME BANK** — i.e. adjacent sockets in the ROM Drawer.
- The ROM with the **EVEN** bytes is named **FILENAME.EVN** and must go in the ROM socket marked **L**.

JUMPER

A tiny pin switch located between a pair of H and L sockets. There are 6 Jumpers in the drawer.

BANK

One bank consists of two adjacent H and L sockets. There are 6 banks in the drawer.



Portable Plus Software Drawer

- The ROM with the ODD bytes is named **FILENAME.ODD** and must go in the ROM socket marked **H**.
- **ALIGN THE ROM CHIP PINS WITH THE SOCKET** – You may need to bend the rows of the ROM chip pins slightly to insure that they align with the pin holes in the sockets. These pins are very delicate so don't do this very often or they may break.
- **EXTRACTING A ROM CHIP** – Use a small insulated screwdriver. Gently pry one end of the ROM chip out a little, and then the other. Alternate this process until the chip is completely out. Don't rock the chip back and forth too much. It can bend or break the pins and damage the ROM socket.
Do not use a commercially available ROM chip extractor on the Personalized Software 128K EPROM assembly. It doesn't work and it can damage the EPROM.
- **GET A SECOND ROM SOFTWARE DRAWER** – If most of the sockets in your ROM Drawer are full, you might consider getting a second ROM Drawer.

C. REINSTALL THE ROM DRAWER IN THE PORTABLE PLUS

Reverse the procedure described in point A above by following these steps:

1. **INSERT ROM DRAWER IN PORTABLE PLUS** – Align the drawer's side tabs with those on the case of the Plus and carefully lower the drawer into the receptacle. Using the palms of both hands, push down and slide the ROM drawer towards you carefully until the ROM Drawer pin connector is fully engaged.
2. **INSERT AND TIGHTEN THE TWO SCREWS ON SOFTWARE DRAWER** – Tighten the screws clockwise, being careful not to over tighten or you will strip the threads in the case.

RESTORING THE PORTABLE PLUS AND TESTING THE ROM CHIP

TURN ON AND RESTORE PORTABLE PLUS: turn the Plus over and open its lid. Press the contrast key to awaken the Plus from the "deep sleep mode" it goes into when a drawer is removed. When installing a drawer the Plus checks the memory before resetting and therefore may appear to take a long time to start up. It may take 60 seconds before the computer responds. Re-pressing the **CONTRAST KEY** may speed up the process. You will probably receive a "MEMORY LOST!" message. If so, you need to reformat the Edisk or you will run into difficulties accessing data.

A. Reformat the Edisk — press **f1** after the "MEMORY LOST" message appears.

B. Restore and Configure the Portable Plus — Turn the Portable Plus on and restore the following:

- RESTORE SETTINGS TO THE SYSTEM CONFIGURATION MENU — press **f6** from PAM. Make sure you reset the Main/Edisk memory partition along with other settings you wish to change. Be sure to allow enough Main Memory. You will most likely have to increase the Main Memory from its present setting of 80. (The Plus defaulted to a Main Menu setting of 80 when you reformatted the disk after installing the new ROM chip.)
- RESTORE SETTINGS TO DATACOM CONFIGURATION MENU — press **f5** from PAM.
- RESTORE DESIRED FILES TO THE EDISK

P+ C. Test the Newly-Installed ROM Chip — All files on your ROM will be located on the B drive. The subdirectory containing the ROM files will automatically be in the DOS path (unless you made the subdirectory name too long and outgrew your environmental space). Test newly-installed programs as follows:

- FROM DOS OR PAM TYPE THE NAME OF AN .EXE, .COM, OR .BAT FILE LOCATED ON THE new ROM CHIP — that program should execute.
- FROM DOS TYPE DIR B: AND LOOK FOR THE SUBDIRECTORY NAME.
- SELECT THE APPLICATION FROM THE PAM MENU SCREEN — if you created and installed a PAM.MNU file on the ROM, the program files on your ROM should appear on the PAM menu screen. Move the pointer to the appropriate box and press return.

AdvanceMail on the Portable Plus

AdvanceMail for the Portable Plus is an electronic mail application that ties the Portable Plus to HP DeskManager (HPDesk), HP's electronic mail package for the HP 3000.

AdvanceMail provides the user with the ability to send and receive electronic mail messages with the Portable Plus. AdvanceMail sends messages from the user to HPDesk via modem, or direct computer connection, and receives messages to the user from

HPDesk. HPDesk acts like a central post office, routing messages and files between different users.

The main features of AdvanceMail are as follows:

- **In Tray** — which contains messages received from other HPDesk users. They are received from HPDesk during previous transfers and will stay in the In Tray until they are deleted by the user.
- **Out Tray** — which contains messages which the user has written on the Portable Plus and wants to send to other users. They are sent to HPDesk at the next transfer.
- **Mail Room** — which lists all of the user's HPDesk messages, both those that AdvanceMail received during the last transfer, and those that were not transferred. Messages may not be transferred due to user requests or errors during the transfer.
- **Message transfers** — these take place between AdvanceMail and HPDesk when the user specifies. They can be done while the user is away or sleeping. A transfer moves any messages waiting in the Out Tray to HPDesk for distribution to the people to whom the user addressed the messages. In addition, any messages waiting for the user in HPDesk are moved to the AdvanceMail In Tray to read later at the user's convenience.
- **Saving money** — the reading and creation of messages can be done off line at the user's convenience. The actual transfers can be batched, which results in reduced charges. The user selects a preset configuration prior to message transfer.

SYSTEM REQUIREMENTS

The Portable Plus version of AdvanceMail needs 384K of RAM to run. The Portable Plus must also have a software drawer, the AdvanceMail ROMs, the Reflection 1 application ROM, and a datacom connection. The datacom connection to the HP 3000 can be made via modem or by direct connection via a serial cable.

INSTALLATION

Installation requires site-specific customization. The same work is required whether there are 1000 users or just one. AdvanceMail must be customized to fit the particular HP 3000 configuration (dial-in procedures, intermediary data switches, security programs, etc.) The customization is done in the Command and Configuration files, which are then distributed to the users of AdvanceMail. After these files are created, AdvanceMail can be installed on the individual Portable Pluses.

The AdvanceMail transfer mechanism can be used to automatically transfer information without user intervention. An example situation may better explain some of AdvanceMail's capabilities.

A sales force for a chemical distributor has been outfitted with portable computers. During the day each sales representative uses the Portable Plus to record sales call activities on a template. When the sales representatives get home at night, they compose additional messages using AdvanceMail. Prior to going to bed, they connect the phone line to the Portable Plus and set a transfer time for the Portable Plus to wake up and initiate the transfer. At this transfer time prior to logging on to the HP 3000, special preprocessing will occur unbeknownst to the user. An MS DOS program will be executed that appends a time and date stamp to the sales call report. A permanent send specification has been stored during the installation of AdvanceMail that will always send the sales call report file to the sales representative's manager. The sales representative does

P+

not have to mail the sales call report each day. A permanent receive specification has also been created that will automatically update the price list spreadsheet on the Portable Plus. If a message with "PRICE UPDATE" in the subject field is found in the HPDesk Mailroom, this message is automatically received and stored in the DOS file "PRICE.WKS" for reading by Lotus 123. These advanced capabilities provide a mechanism for controlling file transfers and automatically performing tasks that could be forgotten.

ORDERING INFORMATION

Available through Personalized Software on ROM for a limited time while in stock. Subscriber price is \$50 for AdvanceMail without Reflection and \$99 for AdvanceMail with Reflection.




NEWS FROM
Personalized Software INC.

Products that make HP Portables smarter

P.O. Box 869, Fairfield, Iowa 52556 515 472-6330

By Hal Goldstein

Liquidating our Inventory

As explained in the Publisher's Message and advertisements, we will soon no longer stock and sell HP Portable items. We are, at least for the time being, getting out of the mail order business. Our plan is to sell all items by October 11. We will probably not be open for sales after that date.

That means that if you are going to purchase any HP Portable equipment, now is the time. The reason is threefold:

1. There probably will not be any other opportunity.
2. We've reduced most of the prices to liquidate the equipment as soon as possible.
3. Even if we continue to sell a few products after October 11, we will only sell what is left and what is inexpensive to mail order. (Disk drives, for example, are something we will not sell because they are expensive for us to process. They require proper testing, cleaning, battery installation, an AC adapter, an HP-IL cable, professional packing, and a warranty.)

HP PORTABLE PLUS, HP110 BARGAINS

If you are reading this you know that HP Portables offer a number of features keyed to portability, still not matched in the marketplace. In particular:

1. Long battery life — You can be on an airplane or in the woods and not have to worry about the system shutting off.
2. Ruggedness — The HP Portables are virtually indestructible which means you don't have to worry about bumping or dropping a unit - inevitable events when you travel with it.
3. Built-in ROM based software and RAM based storage — Portable users are self-sufficient wherever they may be without worrying about floppy disks.

You, more than anybody, know the value of the machines and what we are offering. Look into purchasing a second or third machine for yourself or a family member. Tell you associates and friends.

See our advertisements this issue and in the accompanying flier for our reduced pricing.

In particular, if you really want a bargain - consider our never-used Portable Pluses.

These Portable Pluses come in the original packaging - they have never been used - they are among the last units that came off the assembly line.

Some of these units came to us with European-language keyboards and manuals. We reconfigure these systems so that the unit acts just like a U.S. Portable Plus. We move the keys in the keyboard to the proper U.S. location and replace the uniquely European-language keys with U.S. keys. We supply an English language manual. (We'll deduct \$25 if you do not need a manual).

What makes these Portable Pluses an exceptional bargain is that they have never been used — they come packaged as they were when HP produced them: only we made the changes described above, and we warrant the product.



FastPlus Upgrade

By Jim Scheef

P+ While preparing to write this article, I realized that my Portable Plus is now almost five years old. I purchased it used in early 1987 and have been in love with it ever since. However, over the last couple of years I've watched the performance advantages of the Portable Plus disappear. The machine's initial speed advantages came from its internal Edisk and the fact that the processor ran slightly faster than that of an IBM XT. Now, as laptops are introduced that use 386 microprocessors, the wait for TimeManager to process and display each day's appointments and to-do list seems longer and longer. Certainly the Portable Plus has not become slower, but the world is definitely running on a faster clock. There have even been times that I have considered moving to another machine. Well, perish the thought! There is a cure for the processor speed blues, my friend, and it's called the "FastPlus" upgrade! And it's not snake oil, either.

HARDWARE MODIFICATIONS IMPROVE PERFORMANCE

The physical changes made to your Portable Plus are simple in concept. The 80C86 microprocessor (CPU) originally installed in the Portable Plus is removed and an NEC V30 is put in its place. At the same time the internal clock that controls the movement of data within the Portable Plus is increased from 5.33 Mhz to 8 Mhz.

The two modifications work together to give a noticeable improvement in performance. The NEC V30 is pin-compatible with the 80C86 it replaces. The V30, however, executes several machine code instructions faster than the 80C86. This makes a machine using the V30 from 10 to 20 percent faster without any other changes. The second modification increases the clock rate of the Portable Plus. This is the speed at which the computer executes instructions and moves data within the computer. Since compute speed is directly related to clock speed, the performance improvement should be proportional. A check of Table 1 (next page) shows that when I switched my XT from 4.88 Mhz (its original speed) to 7.37 Mhz, I received a 34% increase in speed according to the Dhrystone test (see sidebar on next page for more on selecting benchmark tests). Looking at the Portable Plus column, we see that the combination of both processor and clock speed resulted in an 83% increase in the Dhrystone test. But I'm getting ahead of myself.

Since the changes made in the FastPlus upgrade are permanent, the "before" tests had to be run before I sent my Plus to Personalized Software for the modifi-

cations. This made picking the suite of tests more difficult. To be sure I had a valid test I looked for a measurable change in results when my home XT was switched from "stock" to "high speed." The three programs I used are (1) the Dhrystone test, (2) a Lotus spreadsheet recalculation, and (3) the Norton "SI" test from the Norton Utilities. Once these programs were selected, I ran them on the Portable Plus, recorded the results and sent them by machine off to Personalized Software for the FastPlus upgrade. When the machine was returned, I restored my files and re-ran the tests. All of the tests were run with the exact same configuration. The battery was recharged prior to all of the tests. More on this later.

The table of results on the next page gives the average of all the tests run. The Dhrystone test turned out to be the best "standard" benchmark program I could find. This test is intended to represent a "typical" program to a computer. The algorithm was one of the earlier attempts at creating a "standard" benchmark for computers. In addition, this version has the overwhelming advantage that it runs on the Portable Plus. Dhrystone results are given in "Dhrystones per second" and this is what the numbers shown represent.

The second benchmark is a 1-2-3 spreadsheet written using trigonometric functions to make it as compute-intensive as possible. The spreadsheet is quite simple, so to make the test measurable I enlarged the spreadsheet until I could time the recalculation with a stopwatch. The variation between individual tests was less than 1/2 second so I'm satisfied that the comparisons are accurate.

The last program is the SI diagnostic from the Norton Utilities. This was a widely quoted benchmark in PC advertising until 386 machines ran the numbers up to meaningless heights. The number given is an index based on the original IBM XT as 1.0. Does a rating of 4.4 mean that the Portable Plus is now almost 4 and 1/2 times faster than the old XT? I would say not, given the results of the other tests. The program is widely available and included here so you can test your own machine and compare your results with mine.

The tests shown in Table 2 were an afterthought. I did not do any tests of either the HP-IL or the serial port before the upgrade. It was during my integrity testing of the upgrade that I realized that I did have benchmarks. *The Portable Paper* (Vol.2, No.6, Pg.28) contains my review of HPduette, the serial port file transfer utility. Since these tests were run on the same machines, I compared the FastPlus upgrade to the results in that article. To my amazement, the throughput of both ports has improved with the faster processor. Apparently the improvement comes from the fact that interrupts can be serviced sooner by the faster processor in the upgraded Plus.

Table 1
CPU Benchmarks Test

Test	Portable Plus		XT with V20& 8087	
	Before	After	4.88	7.37
Dhrystones/Sec	83.60	153.04	53.96	72.05
percent change	83%		34%	
Lotus Recalc/Sec	41.67	21.60	22.46	17.02
percent change	48%		24%	
Norton SI	1.3	4.4	1.8	2.4
percent Change	238%		33%	

Table 2
Portable Plus to IBM File Transfer
Benchmark Tests (single 124K file transferred)

	IBM to Plus	Plus to IBM
HPduette Transfers		
Before	30	29
FastPlus	27	27
% improvement	8.5%	8.1%
HPIL Transfers		
Before	35	32
Fastplus	28	27
% improvement	18.6%	16.7%

BATTERY LIFE NOT AFFECTED

When Hal and I first discussed a review of the FastPlus upgrade, he suggested a test of battery consumption. We thought that the faster CPU would deplete the batteries more quickly. I can only report that I cannot detect a measurable difference in battery life under normal computing. Logic says that with everything flying around in the Portable Plus 50% faster, it should use more juice. While I can't say that it doesn't, I can't say that it does either. By checking the battery voltage before and after a long compute-intensive test (10 iterations of the Dhrystone test lasting over 30 minutes), I was hoping I could document battery consumption under controlled conditions. Unfortunately (or fortunately, depending on your outlook), I could not measure the change in battery voltage. I made this check before and after the upgrade and the result was not affected. Perhaps with a more sensitive voltmeter I might find something.

So, after all this, is the FastPlus worth the expense? For me the answer is an unqualified YES! The upgrade extends my Portable Plus' useful life for years to come.

ORDERING INFORMATION

The FastPlus upgrade is available through Personalized Software for \$199 (which includes regular return shipping, overnight return shipping \$35 extra). Give us a call at (515) 472-6330 and ask for the FastPlus up

Selecting the Benchmark Programs

The first task in writing this review was to find some meaningful benchmark programs. This proved to be quite a challenge. The first problem was, you guessed it, PC compatibility. An exhaustive search of seven or eight Forums on CompuServe and the Listings area of BIX yielded many programs that sounded interesting. One that I had high hopes for was the LANPerf benchmark written by PC Magazine as it is designed to simulate a typical workload on a PC connected to a LAN. While the program will run on the Portable Plus, it looks for LAN software and refuses to do anything without it. Many other programs, written to benchmark newer PCs, required a 386 microprocessor or a true PC-compatible. It's interesting to note that many of the programs that would run on my XT did not return accurate results. Many could not identify the V-20 microprocessor and one claimed that my old XT has a MicroChannel bus! (IBM's latest and greatest from their line of PS/2s.)

One of the most important criteria used to select the benchmark programs was a measurable change when I switch speeds on my home IBM XT. This ensured that I would get meaningful results when the Portable Plus was returned and retested. (My home computer is mildly souped up with a faster clock and an NEC V-20 processor. Sounds a lot like a FastPlus, huh?) And, of course the program must give repeatable results. None of this "Your mileage may vary" stuff here!

As I mentioned, the Dhrystone test is intended to simulate a "typical" application program. While this may have been the intent of the author, it uses all integer arithmetic. To balance this, I made the spreadsheet recalculation test lean toward floating point calculations. To achieve this I used as many trig functions as I could fit. The spreadsheet is about 100K in size, which happened to be the point where I saw measurable differences when I changed speeds on my XT.

While the SI program from the Norton Utilities may not be the most meaningful test available, it is a known and familiar quantity that is readily available.

grade. You'll receive a Service Number and instructions on where to ship your Portable Plus.

[Jim has been in systems development for a Fortune 100 company for 13 years, during which time he's developed systems running on mainframes and PCs. Recently he helped start a forum on CompuServe that supports FOCUS, a fourth generation language and database management system. Jim frequents the HP forum on CompuServe and his ID number is 76702,1654 — Rich.]



Through the Looking Glass

by Ed Keefe

THE HP 95LX AND THE HP 48SX

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Charles Dickens' story, *The Tale of Two Cities*, begins with the line, "It was the best of times. It was the worst of times." For users of the HP 110 and Portable Plus, this could be the worst of times. The final issue of *The Portable Paper* sounds the knell for the end of an era.

From a different perspective, this is the best of times for Hewlett-Packard devotees. The folks at HP-Corvallis, the designers of the HP110 and Portable Plus, have reentered the computer marketplace with two handheld computers that are sure to be around for another five to ten years, at least.

A TALE OF TWO HANDHELDS

Even as one era ends, a new era is beginning. The era of the handheld (a.k.a. "palmtop") computer is upon us. Support is already growing for the HP 48SX ("SX" for "Scientific Expandable") and the HP 95LX ("LX" for "Lotus Expandable"). Sales of these machines are so brisk that HP has held off mass advertising until the supply matches the demand.

THE HP 48SX

Over the past several weeks I've been exploring the capabilities of the HP 48SX calculator. This is Hewlett-Packard's latest, handheld, scientific calculator/computer. The more I dig into this machine, the more difficult it becomes to describe it. Learning about all the features in this machine reminds me of the story of the seven blind men who were asked to describe an elephant. They all touched different parts of an elephant and they all came away with their own description of the animal.

The 48SX is, above all else, an analytical engine. It has been designed, from the processor on up, to work with numbers: floating point numbers. This is some-

thing the 48SX can do immediately. To get a desktop computer to perform the same kind of arithmetic, you would have to use a math co-processor. And, I'm not even sure that an ordinary math co-processor could outperform the 48SX.

The processor, or brain, of the 48SX is a proprietary chip from HP. It's a descendent of the Saturn chip used in the HP-71 and the HP-28 computer/calculators. HP has souped it up so that it runs at 2 MHz, which is about the same speed as an early Apple computer. This is about 20 times faster than the HP-41C calculator. However it is still too slow to make the What-You-See-Is-What-You-Get Equation Writer practical.

The 48SX is a mathematician's tool. It is not limited to numbers. It can work with symbolic math as well. This is something that a desktop computer can do only with software costing hundreds of dollars.

One of the first things that I did was to review several notebooks full of programs that I had collected or written for the HP-41CV, one of the predecessors of the 48SX. I was looking for programs that could be made to work on the newer calculator.

Having used the HP 48SX for several months, I'd like to share some of the things I've learned.

Of the hundred or so programs that I looked at, only two were worth the effort to rewrite for the HP 48SX. All the other programs for the 41C could be done on the 48SX at the push of a couple of keys.

For example, one of the programs that I wrote for the HP-41CV turned that calculator into a financial calculator. The financial analysis program took me several weeks to write on the 41C. It featured interchangeable solutions and was completely automated.

To get the same thing to happen on the 48SX, I simply had to look up the text book formula for compound interest. I then keyed the formula into the Equation Writer on the calculator, pressed the Solve key and waited a couple of seconds. Up popped a running program that would let me key in interest, principal values, payments, future value and compounding and payment frequencies. I could enter some values and solve for others at the touch of a few menu keys. All the programming was done by the calculator itself.

I took a look at the calculator-generated program and found that it was full of commands like DUP, DUP2, PICK, ROLL, ROT, CASE, WHILE, REPEAT. If you have ever played with the Forth programming language, these computer commands should look familiar to you.

The 48SX is a programmer's delight. The computer has a new and different programming language, dubbed Reverse Polish Lisp (RPL). It is more than a new language. It is a new approach to handheld programming: object-oriented programming.

No longer is a programmer limited to writing programs in keystroke notation. RPL programs can become quite elaborate. And, if RPL is not fast enough,

registered developers can order an assembler programming language for the machine.

RLP is very much like Forth. However, the typical Forth "stack", which can only contain whole numbers, has been replaced, in the HP 48SX, with a stack that can hold anything. This includes strings of characters, lists of programs, and even entire graphics screens that can be made to pop-up at the push of a key. In a sense, the stack, in the HP 48SX, could best be compared to a HyperCard program on a Macintosh computer.

HP also offers a complete desktop programming environment for this machine. All the programming can be done using a full screen display and standard keyboard. The final results can be transferred to the 48SX for testing and debugging. The 48SX can even be operated remotely from a desktop computer.

The 48SX can display graphic objects. The 48SX produces its own graphs and charts by way of the mathematical plotting function. I've managed to come up with a method of producing pictures on the Portable Plus and porting them to the handheld.

Without going into all the details, the method involves using a program called PPRLE which will put Run Length Encoded pictures on the screen of the Portable Plus. The screen grabber from Personalized Software's Sketch program lets me save the picture as a Sketch file. I then use a home-brew program to convert the Sketch file to an 48SX GROB file.

It is all rather complicated, but, so far, I've been able to put the face of Albert Einstein and a map of the US on the display of the 48SX.

If you're at all interested in this procedure, please download all of my work from the HP Forum on Compuserve. It's currently available in Data Library #13. The file's name is SK2GR2.ZIP.

The 48SX is also a computer-gamester's plaything. I've written a version of MasterMind for the HP 48SX. The game is called FMD48. It, too, is available on the HP Forum of Compuserve.

However, the program that wastes batteries more than anything else is a very fast and difficult version of, you guessed it, Tetris. How about that? When you get tired of using the 48SX to solve your toughest boundary value problem, you can turn the machine into a Nintendo Game Boy. The particular version of Tetris contains no fancy stuff. It doesn't preview the next game piece nor keep scores. It's just brute strength Tetris. The game is every bit as addictive as it is on a desk top computer. The Tetris program is available from the HP-Corvallis Electronic Bulletin Board.

THE HP 95LX

I've been using the HP 95LX for about two weeks. I'd like to share some of my early impressions of this machine.

First of all, the HP 95LX is not a hacker's tool. I'll never be able to run Turbo Pascal 6.0, nor Borland C++ on it. For one thing, I'd need lots more memory and a bigger display. On the other hand, there is a full desktop emulator for the HP 95LX for those who are serious about writing programs for this computer. The kicker is that the emulator program costs about \$600 and runs only on an 80386 or 80486 computer.

The HP 95LX reminds me of an updated HP110 that has been given the "Honey, I Shrunk The Computer" treatment. The HP 95LX is about one eighth the size of an HP110. Not only will it fit in a brief case, it could also fit in some shirt pockets. My advice: don't put it in your shirt pocket. The first time you bend over, you'll find out just how tough this machine really is. You'll also find out how strong your heart is!

The HP 95LX could be called an AT class machine. Actually, the 95 has the speed and capabilities of an early IBM-XT computer. However, for me, it's an AT computer, because when I use it, I hold it in both hands and press the keys with my thumbs. It's an All Thumbs computer! Ouch.

While exploring some of the HP 95LX's capabilities, I was also in the process of preparing a four-day training seminar for a local engineering firm. I used the Outliner program, on the Portable Plus, to develop the course. When I was ready, I set the Outliner's right margin to 40 columns and reformatted the whole document. Then I sent the outline to the HP 95LX using Kermit on both machines.

During the actual training session, the 95LX helped me keep track of where I was. The display is very readable. I used a combination the 95LX's MEMO program and Appointment Book, set to 15 minute intervals, to keep on schedule.

A side benefit to using the HP 95LX during the presentation was that the Little Black Box did a lot to establish my credibility as a Computer-Guru. There's nothing like being the first kid on the block with a new toy to arouse interest in what you have to say.

The HP 95LX is not entirely glitch-free, there is, at least, one anomaly that I have found. Every time I try to quit using Kermit the screen of the 95LX goes blank. It's easy to recover from the glitch. Just press the Menu button and the computer is restored to normal operation. Other than that, I have not been able to crash the machine. Believe me: I've tried!

The HP 95LX is not all business: it can be fun to play with, too. When you press the ON button, the 95LX shows an opening screen with your name and address. However I've managed to get the display to present a mock Windows 3.0 screen or a fake Macintosh screen, complete with the trash can. That causes a few raised eyebrows.

Having discovered that the TigerFox game is just as difficult to beat on the 95LX as it was on the HP110, I tried the "hidden" game, Hearts and Bones. I found that

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game too obtuse to master. So, instead, I managed to convert several game programs to run on the 95. The games include GoMoku, Reversi, Petals-Around-the-Rose, and Fox-n-Hounds. I'll have to rewrite Tetris real soon now. No portable computer is complete without that particular battery-waster.

THE HP 95LX IS ADDICTIVE

It's all too easy to become psychologically dependent on this computer. It can go anywhere you go. To paraphrase a TV commercial: "It's your computer: don't leave home without it!"

I've already keyed in all my appointments, birthday reminders, class schedules and To-Do lists for the rest of this year and most of next year. I guess I better keep this computer. What would happen if I lost it? I may have to write a program that will sound an alarm, at full volume, in case I ever leave the 95 behind.

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HP-BULLETIN BOARD

Much of what I had to show Hal came from the Hewlett-Packard electronic bulletin board in Corvallis, OR. This seems to be the main source for exchanging information about the HP 48SX and the 95LX Palmtop PC. It is a most unusual BBS: not at all user friendly, hard to get onto, and subject to occasional crashes.

If you're in the market for a great math, scientific calculator or you're thinking about getting an HP 95LX, you'll probably want to explore this BBS. However, be forewarned that you're in for several hours of frustration until you get used to the vagaries and idiosyncrasies of the HP-BBS.

[The 95LX section in the CompuServe HP forum is incredibly active — over 100 messages a day and climbing (GO HP, HP Systems, section 14). If you have a 95LX, join this forum. Corvallis BBS phone is 1-503-750-4448 - Hal.]

GAMES FOR THE HP-150

Last time I was at Personalized Software I met Larry Baldozier, the man in charge of R&D. He's the person to turn to if you have questions about Flash-ROM drawers. Larry is also the person to turn to if you are trying to get the infamous Stereo Shell file manager to work on the Portable Plus. Larry managed to get the program to work on the first try. Nice going, Larry.

Larry showed me his latest creation, a disk full of games for the HP150 desktop. I recalled my failing effort to put together such a games disk for this cantankerous machine. Larry has managed to get about eight different games to work on the HP150. The best of them, in my estimation, is the one called "Artillery." Attaboy, Larry!

KERMIT

Let me make one product announcement, and one correction to a procedure in a previous column. The newest version of the Kermit telecommunications program is now available for the HP110, the HP150, and the Portable Plus. Thanks to John Nyenhuis of Purdue University for a fine job of making the Kermit program work on the HP machines.

Version 3.10 of Kermit is several thousand bytes larger than the previous version (3.02). However, it does not appear to be functionally different from the 3.02 version. Apparently there have been some bug fixes and upgrades to the program, but they are none that I would notice.

If you want a copy of Kermit, version 3.10, look for it in the HP Forum on Compuserve. Be sure to order a copy of *USING MS-DOS KERMIT: Connecting Your PC to the Electronic World*, by Christine M. Giannone, published by Digital Press. You might want to wait a couple of months for the latest edition of this book. It is the official documentation for the Kermit program and is an excellent guide for using it.

The only problem that I encountered with Kermit, other than relearning how to use it, has been with the Remote Host command. The Remote Host command is supposed to run one computer from another. I wanted to run the HP 48SX, handheld, from the keyboard of the Portable Plus. I even wrote a recipe showing how to do this. The recipe appeared in the May-June, 1991 issue of *The Portable Paper*. Much to my consternation the recipe worked only until that issue of the Paper went to press. After that it failed repeatedly. All I could get was an error message: "Error: failed to create file CON." Several calls to Hewlett-Packard and to the folks at Kermit Central proved fruitless.

Finally, John Nyenhuis was able to solve the problem. The trick is to run Kermit from the PAM program on the Portable Plus. That seems to work best, and I can close the books on that one. Thanks, John.

The problem with the Remote Host command does not occur with the HP 95LX. HP has replaced the Remote Host command, on the palmtop, with a TSR program for a desktop PC along with a 65K byte program for the 95LX. When both programs are running, and the computers are connected, the desktop computer can run the 95LX in much the same way that we've been able to use HP-IL on the Portable Plus. Nice going, HP!

As always, until next time....happy porting.

[Ed Keefe is an author, programmer, computer science instructor, and long-time contributor to The Portable Paper. He is the president of the Fast Aid Company, 314 SW Logan, Ankeney, IA 50021. Ed's CompuServe ID# is 73277,1064.]

THE SAVVY USER

By Tom Page

110 This has been an interesting summer for PCs at my house. My roommate purchased a 386/33 Mhz Super VGA scream machine with 4 MB of RAM memory and a 200 MB hard disk, while I bought a little-bitty HP 95LX palmtop. The contrast between these machines became apparent the day I set up the 95LX Connectivity Pack programs on the 386 and experimented with transferring files between the two computers. The 95LX appeared so tiny sitting next to the super-extended keyboard of the larger 386 machine that I could not help laughing.

Unbelievably within about three weeks of acquiring the big computer we installed on it enough software to almost half fill the 200 meg disk of the big computer. Of course, no effort was made to separate wheat from chaff. Our intention is to review a number of programs and games, including DOS 5.0 which was installed by the manufacturer. We'll also review Microsoft Windows, included as standard equipment although we had to install it.

Readers of this column will recognize that this is antithetical to my philosophy of managing memory on computers. It is certainly not the way to use the 95LX which has only 512K of memory, including about 256K that is reserved as a RAM disk. Of course when the hard disk is so big there is little incentive to practice conservation. Perhaps, deep inside, I am no different than the typical unimaginative PC user who doesn't take the time to learn about his programs, to figure a way to better use his resources.

I have not had the 95LX long enough to make any definitive comments about its effectiveness, or to recommend much about how to use it. However, I think its Personal Information Manager (PIM) functions to be of greatest interest. Since the file formats are not compatible with the Time Manger formats used by my Portable Plus, and since I have not been interested in keying large amounts of data that already exist, I have done very little with these programs. HP has developed utilities to translate data between common PIM programs and the 95LX PIM programs. Unfortunately Time Manager, although developed by HP, is not a popular

PIM format and there is not yet a file translation utility. I hope some hacker will soon do this for us.

USING THE 95LX WITH A PORTABLE PLUS

The 95LX Connective Pack provides an effective method for transferring files between the palmtop and an IBM compatible, but it doesn't do much for transferring files between the palmtop and a Portable Plus since it will not run on the Portable Plus. My first thought was to solve this problem by using HPduette and its fast file transfer capability. To save critical disk space I compressed, using LZEXE, the IBM version of the file and transferred it to my Palmtop. Unfortunately ,HPduette /IBM did not run correctly on the 95LX, so I had to come up with another idea. My solution was to do XMODEM file transfers using the 95LX's built-in terminal program and my Portable's Reflection terminal program. The two computers were connected by installing the 10-pin to 25-pin adapter on the 95LX serial cable and connecting it to the 9122M modem cable attached to the Portable Plus.

I loaded Reflection and the 95LX terminal program. Typing a few characters on each computer verified that I had a connection. I then pressed the **Menu** key on the 95LX and executed the commands needed to receive a file using the XMODEM protocol (**Menu XRfilename**). I then pressed **f6** on the Portable Plus and entered the command to transmit a file using XMODEM (**f6 XSfilename**). After a few retries the computers locked together and the file was transferred.

Actually, the number of retries indicated by the 95LX seemed excessive. In a few attempts the 95LX took a "time out" before the computers could link. I did not experience this problem transferring files from the 95LX to the Portable. This tweaked my suspicion that there might be a bug in the 95LX, but I figured this difficulty might result from not being able to quickly enter file transfer commands on the 95LX. There is certainly room for improvement in the way file transfers are initiated on the palmtop. Perhaps transfer configuration menus on the order of the original HP Portable's terminal program might be appropriate.

I later decided that knowing how to transfer files between the 95LX and other computers would be wise, so I tried some XMODEM file transfers between the 95LX and my roommate's 386 using Crosstalk on the big computer. I tried several times but was unable to get the computers to link together to download a file from the big computer. I tried uploading some files to the 386 computer and had no difficulty at all. This experience convinces me there is likely a bug in the 95LX's terminal program.

USING THE 95LX WITH THE WORLDPORT MODEM

One of the greatest powers of a computer is its ability to transfer data over great distances using a modem and the telephone system. I was unable to immediately test the 95LX with my WorldPort 2400 MNP modem since I did not have the necessary adapter to mate the 25-pin female port with the 95LX serial cable. A trip to my neighborhood Radio Shack store yielded a 25-pin male/female null modem and a 25-pin male/male gender changer. Although not especially elegant these two parts provided a suitable bridge between the end of the 95LX serial cable with 25-pin adapter and the WorldPort. Since the 95LX, unlike my Portable Plus and most other computers, does not provide a DTR signal I had to adjust switch #3 in the modem to cause it to turn on in response to data transmission from the computer. Switch #3 is the second from the left as viewed through the battery compartment. In my configuration all other switches are down except #3, which is up.

Although the modem turned on after I moved switch #3 from the down to the up position, I spent a number of fruitless sessions attempting to connect with CompuServe before I decided I should try connecting the WorldPort to AC power to eliminate the problem of turning the modem on. Plugging in the WorldPort's battery eliminator causes the modem to turn on and stay on as long as the battery eliminator is connected. Unfortunately my WorldPort's battery eliminator had decided to go "South for the Winter" long before the end of Summer. A Saturday morning stroll down to Electrotex, my other neighborhood electronics supplier, produced a suitable replacement.

After I connected the battery eliminator I discovered I could very easily control the modem from the 95LX's terminal program and had no trouble dialing and connecting with CompuServe. Since I am somewhat hard headed and would just as soon control the modem with AT commands, I did not test the 95LX's dialing feature. After I connected with CompuServe I went to the HP forum and tried downloading some files from the 95LX library. I tried several times, but I was unable to download any files using the XMODEM protocol. Later I called back and tried to download using Kermit. Again I was not successful, but I must admit that I have no experience with Kermit. After reading the manual I had no difficulty capturing data that displayed on the computer's screen to a file.

CROSSTALK ON THE 95LX

I then decided to run a standard communications program on the 95LX and see how it would work. My choice for this was Crosstalk XVI, version 3.61. To

minimize its size I processed the program with LZEXE before transferring it to 95LX. This reduced its size from 80,308 bytes to 41,735 bytes. The standard Crosstalk configuration file, STD.XTK, added an additional 1196 bytes. I did not even think about transferring Crosstalk's very large help file.

Although Crosstalk expects a 25-line by 80-column display, I had little difficulty using Crosstalk on the 95LX. Crosstalk is my favorite PC communications program and I have been using it for over seven years. I avoided changing communications parameters by presetting them with the default configuration file. When it became necessary to enter a Crosstalk command, I simply pressed **Shift-Alt** and **UpArrow** to display the Crosstalk command line. Using Crosstalk I had no difficulty establishing a connection with CompuServe and downloading files. To provide maximum control, rather than depending on Crosstalk's built-in automation, I placed Crosstalk in its 'local mode' and directly controlled the modem by typing the AT command.

After this fortunate experience I took another look at my modem manual and discovered a recommendation that the modem be configured to ignore DTR if DTR is not being used for power-on. This is accomplished by sending the command, **AT&D0&W**, to the modem. I tried this and then again tried using the 95LX terminal program with the modem on battery power. I achieved no better results. It looks like the 95LX terminal program either needs improving, or there is something more to learn about it. It seems to me that if a 5-year-old version of Crosstalk will work on the 95LX, a program designed especially for the 95LX should be just about perfect.

I have discovered a number of 95LX features I find extremely commendable. The best of these is the **Menu** key that causes the command menu to display in all programs. As long as I have used computers I have wondered why no one has created a key in an easily accessible position for this purpose. I hope future developers will remember what the Menu key is for. Another effective feature is the manner most programs display function key menus at the bottom of the screen. I was concerned about 95LX's size when I first read about it. Now that I have one, I find that the 95LX fits quite well in the inner breast pocket of my suit coats, and without much difficulty in most of my side pants pockets.

I don't want to come down too hard on any 95LX application at this time since some of the things I am finding wrong may just be my failure to adjust to a different concept rather than a flawed concept. Non-standard concepts can be especially effective when applied to miniature equipment. For example, I own an old HP 38E calculator that has the operator keys (+, -, multiply, and divide) on the left side of the keyboard rather than the traditional right side. The left side is

where they belong since it makes 10-key touch operation possible. The small operator keys are easily pressed with the strong index finger. Touch-key operation with the operator keys on the right requires attempting to access them with the little finger, which I find much less effective.

95LX HP CALCULATOR

110 The 95LX's implementation of an HP calculator is quite good. At least it does nothing stupid like displaying a calculator keyboard on the screen. Most sensibly it uses the screen to display values in the calculator's various registers. Unfortunately the program is not without flaws. Erasing the X-register (the keyboard data entry register) requires pressing three keys (**Menu**, **E**, and **C**). Erasing this register should be a one-key operation because so many errors are made entering data. Fortunately the backspace works just like it should to delete entries in the X-register. One press of the backspace key completely deletes a completed entry and removes the last character keyed of an entry in process. It seems that the calculator is missing a round-off key. Pressing the **Menu**, **Options**, **Format** sequence is too many keys to change the round off of a number, but again maybe I am missing something.

I have tried using the 95LX Memo program, but have been unable to warm up to it at all. I am looking forward to replacing it with The Editor. Adding new software via RAM/ROM cards should be easy, but I am curious about opportunities for soldering-iron programming. As fine as the 95LX is, I see it as a prototype for a line of job-specialized computers. And don't expect these computers to be built into the same 95LX case. Some ideas that occur to me are: navigation, surveying, sales, and nursing.

Having the two new computers around has made me appreciate even more some the Portable Plus features I have taken for granted, such as the block cursor, 60 line back-scrollable DOS display, bottom of screen function key display, dedicated editing keys that work with almost all applications, and an ESC key

placed near the primary keys.

I don't know what direction computing is taking for me today. The 95LX is certainly not a replacement for my Portable Plus, but then neither is a powerful desktop computer. I have not seen a notebook computer that makes me want to abandon my Plus, even though it is now one of the heaviest laptops around. Unfortunately, some of the 1-2-3 jobs I started on my Portable Plus have grown so large that it can no longer load them. This is no real problem since I have been promoted and, although I retain supervisory responsibility, I am no longer directly responsible for these jobs. I am doing more writing now and I have not found an editing tool I like nearly as much as The Editor.

Although I would like to have a pop-up thesaurus and dictionary, I am not significantly troubled by having to exit The Editor to check my spelling, and even the old version of Webster's spelling checker still seems pretty effective to me. Although grammar checking programs such as RightWriter can be helpful, I am not convinced it is a tool I would use every day, even if I had the latest version on my Portable Plus.

My roommate and I have experimented with Microsoft Windows on her computer and neither of us have found that it has much to offer other than a pretty display. Certainly the perception that it makes a computer easy to use is not true. Windows is complicated, and hides a computer's basic filing system. It makes it almost impossible for any but the most sophisticated computer users to organize and customize their machines for maximum benefit. We are attempting to learn about Windows because it appears to be the wave of the future. Windows may be the program of the Pepsi-generation, but for slacking thirst, Pepsi is not an improvement over water from the kitchen faucet.

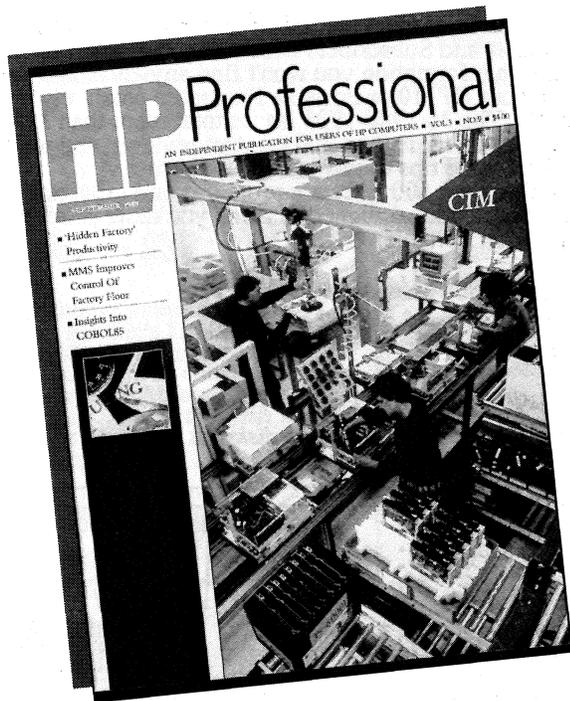
[Tom works for a natural gas pipeline company in Houston, Texas, and was one of the first to use PCs in the natural gas industry. His excellent contributions to The Portable Paper have proved beyond a shadow of a doubt that he is truly "The Savvy User."]



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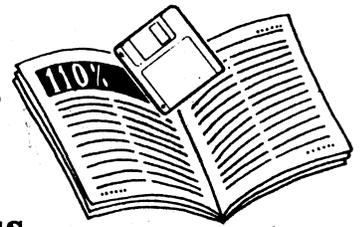
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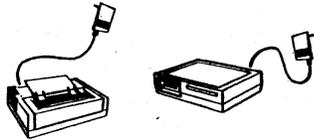
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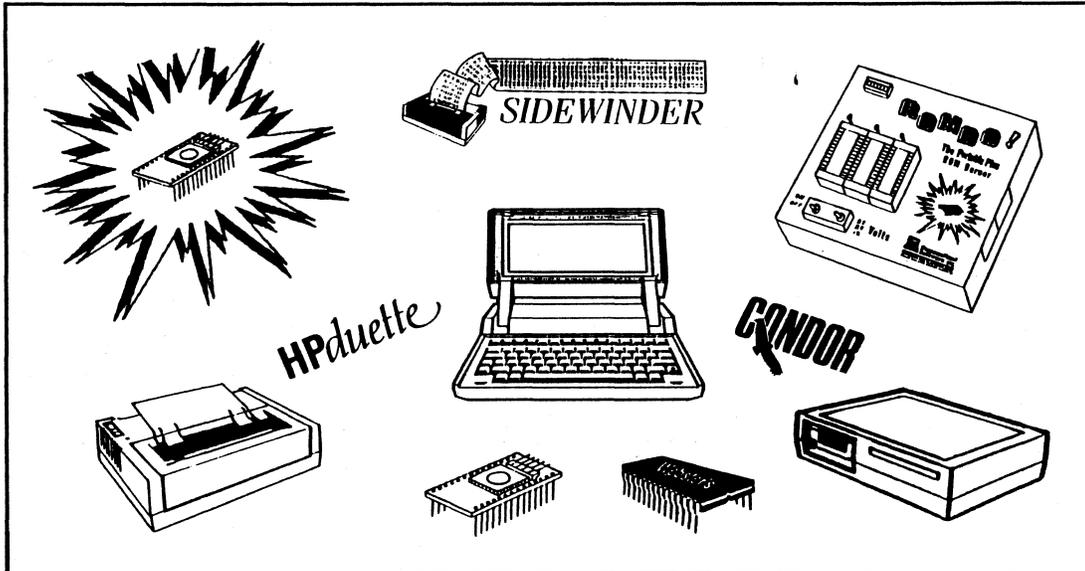
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