

THE HP Palmtop Paper

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Editor's Message



Welcome to what may be considered a very nostalgic issue of *The HP Palmtop Paper*. The nostalgia comes from recalling the names of software companies that dominated the early PC/MS-DOS market: Lotus Development Corp. and WordPerfect Company.

Each of these companies had a flagship product, Lotus 1-2-3 and WordPerfect, that brought them fame and fortune. However, both companies produced programs that were not quite as famous. For example, Lotus sold Agenda, a PIM, and Magellan, a file manager. WordPerfect marketed DataPerfect, a relational database management system. These products were extremely versatile but required some effort to learn. They may not have gained market share but they did gain a dedicated group of users who continue to support the software to this day.

All of these products are now available as copyrighted freeware. However they come with no documentation and no company support. They require a commitment to learn how to use the programs from other users and/or the built-in help screens.

Ralph Alvy's article will introduce you to DataPerfect and explain why you might prefer it to the HP Palmtop's built in DataBase engine. Steve Bell's article will get you over the hurdle of installing and using Agenda for the first time. Both articles say where to go for more help and all the program files are available on the 1999 CD InfoBase and on our Web site at www.PalmtopPaper.com. We have also provided pre-installed versions of these programs to let you test drive them as effortlessly as possible.

If you want even more nostalgia take a look at my article on programming with Logo. It will bring out the kid in you. To see what others have done with Logo take a look at the article by Thomas Dow on using the HP 100LX's infrared port to control a robot.

Hal Goldstein's User to User column reinforces what we've known all along, namely, Windows CE machines may be state of the art but they have a long way to go to equal the size and functionality of our HP Palmtops.

Next issue we'll get back to basics—or should that be data-basics—and focus on the database applications built into the HP Palmtop. If you have a favorite data-base tip or technique and would like to see your name in print send me a note at ed@thaddeus.com.

Ed Keefe

The HP Palmtop Paper

Increasing Your Personal
Power By Expanding Your
Palmtop's Potential

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Task Management With Agenda

Agenda from Lotus Development Corp. is now free for personal use. Steve Bell shows how he uses Agenda to manage his personal and professional life.

By Steve Bell

For many people the HP Palmtop's Appointment Book, is more than enough. This PIM application can keep track of ToDo's, appointments and events and display them at the touch of a few keys.

Yet, for others, the Palmtop's applications do not go far enough. For example there's no easy way to cross-reference telephone number with an appointment and, at the same time, link it with a list of client projects.

Also, with AppointmentBook, it's too easy to let the ToDo list fill up with a mix of high and low-priority items. ToDo entries such as "Finish the year-end report" end up getting mixed in with those that nag you to "clean the garage."

Why use Lotus Agenda?

Traditional ToDo lists haven't worked for me; I usually wind up with fewer than half of my ToDo's done at the end of the day.

Using a flat ToDo list, my ToDo items seem to propagate like amoebas; and the list becomes unmanageable. Yet my business and personal life is such that I need portable information i.e., pocket-level portability in an instant-on computer. I want all of my PIM data with me at all times. I constantly need to add new items, rearrange projects and reset priorities while standing in checkout lines, riding in taxis, and sitting in airports.

My choice of Agenda as a Personal Information Manager came after I had tried nearly every PIM on the market. I found that Agenda would let me assign and de-assign items to multiple, cross-referenced ToDo lists in much more realistic fashion. Working with Agenda on the 200LX to manage outstanding tasks, I can have complete control of my information allowing me to get done exactly what I plan to do.

I use Agenda to organize my ToDo's into what I call a "Punch List". Agenda creates this list for me each day and I can then tweak it to suit my objectives at hand, priorities, and plans for the day.

The Essence of Agenda

Agenda is really a free-form database with powerful features of categorizing and searching for data in a huge amount of text.

What makes Lotus Agenda ideal for managing tasks is its ability to cross-reference information in many different categories and then "view" the information from different perspectives.

You can literally put your entire

business into Agenda — activities, projects, timelines, goals, priorities. Then you can slice and dice the data from dozens of perspectives. With these different views in sight it's easy to make plans, set priorities and schedule activities.

This cross-referencing power is complemented by Agenda's scripting language and a level of "artificial intelligence".

Power Has a Price Tag

When you realize that Agenda does for personal information what 1-2-3 does for numeric information and that Agenda is "free-for-the-taking" you might think it's a heck of a deal.

You'll soon realize that there is "no totally free lunch." Like many new Agenda users, you can expect problems installing the program and learning to use it.

First of all, Agenda does not come with any readable documentation. So the price you'll pay for this power is a lot of time spent discovering the nuances of the program.

Books about Agenda are also hard to find. Most of them are out of print and either are collecting dust on



ABOUT THE AUTHOR

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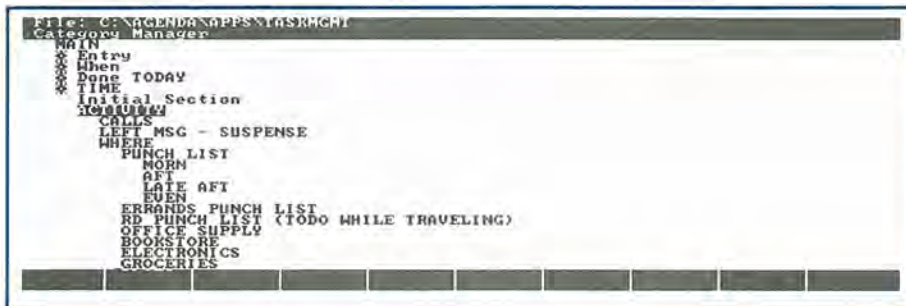
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Screen 1: Agenda's View Manager



Screen 2: Category Manager

library shelves or are at the bottom of the pile in used-book stores.

We've included a database file called AG-PUBS.GDB on this issue's *The HP Palmtop Paper ON DISK*. It contains a list of 13 Agenda books. Hopefully you'll be able to track down one or more of these.

Some Help Getting Started

What follows is a description of an Agenda application file, TASKMG MT.AG, that I developed over the course of six months. Hopefully the description of this application will assist you in using Agenda to manage your business and personal activities. It illustrates Agenda's cross-referencing and indexing capabilities that go far beyond the built-in ToDo application.

Task Management Template

In working with Agenda, it's important to understand the concept of "views". Views are essentially filtered database queries that allow you to look at your information from different perspectives. In some ways they are like Subsets in the Palmtop's built-in database engine.

In the Task Management template I have created 14 views which I'll describe throughout the rest of the arti-

cle. See Screen 1 for a list of these views.

The "index letter" before the name of each view allows quick access to a view. Just press the [F8] key and the given letter and press Enter. If you press [F8] [P] [Enter] to bring up the "Punch List" view, and then press [F8] [B] [Enter] to start the "Business View" you'll be able to use the shortcut key [ALT][F8] to switch between these two views.

Entering data and working with categories

I suggest that you start with the supplied category structure, enter a few of your own data items into the file, assign the Agenda data items into appropriate "categories" (folders) as described below and start working with it. Once you have your own data entered in the Agenda file, enhancements to the data structure will become more apparent. You'll begin to see what fits your work style and what doesn't. That's when you can start to modify the application and make it your own.

Changing the Template

To change the Agenda template you'll need to modify the categories. The [F9] function lets you to do this.

After hitting the [F9] key and pressing the [CTRL] [Fn] [Home] key you'll see an outline view of the categories such as "Entry" (Date), "When" and "Done" as well as two other top-level categories: ACTIVITIES, and OTHER (Screen 2). Most of the subcategories ("siblings") of the Activity category are action-oriented "verbs".

What the Views Represent

The 14 views are the heart of the TASKMGMT application (Screen 1). Understanding each is the key to getting the most out of Agenda. The 14 views were selected carefully after studying time management theory, working with many PIMs for years, and exploring many ways to manage my time and projects. You'll probably want to modify them and add your own.

Objectives View

This Agenda application file is used for capturing, managing, reviewing and tracking my day-to-day and week-to-week projects and activities that are related to my medium and long-term goals. I look at my Goals, Objectives and day-to-day tasks as being related as follows:

1. Goals (long term)
2. Objectives (intermediate to short term)
3. Tasks (day to day)

A complete set of Goals and the related short-term Objectives which will contribute to reaching those goals are tracked inside Agenda. Each Goal shows up as a parent Category near the bottom of the F9 view. Most of my short-term objectives relate to my long-term goals in a hierarchical fashion. Under each Goal is a series of sibling categories that are the Objectives. All of the task-related ITEMS in my Agenda file roll up into one objective or another completing the 4-level hierarchy.

The Objectives view (Screen 3) should display all objectives that you are working toward within a six to ten week period. I find this time frame to be realistic. I can refer to it on a day-

to-day basis to keep my activities focused, motivated and headed in the right direction. I usually keep this view collapsed to keep the sub-items from showing, giving a good high-level perspective on things.

Inbox View

Any time you want to enter an item into Agenda on short notice, just press [F8] [I] [Enter] to get into the inbox view and type in the item.

In this view I display the "MAIN" category as a column so I can see the category assignments as I make them. I use ALT-M after the item is entered. Once it's assigned to the categories I want, I delete the item from the inbox view.

The "Punch List" View

This is the view I work from during the day (Screen 4). It's similar in concept to an old-fashioned ToDo list but it's more focused. Every day it is updated to include the things I intend to do, in time-sequence. During the day I mark items "DONE" as I complete them. I occasionally use [ALT] [F10] to move items to the "Queue to Punch list" section. This is like showing the items across the desk. In the evening or early the next morning I "data-mine" the other views for items I may want to shift in or out of the "Punch list" view for the next day. You can think of the Agenda file as your "data warehouse" of potential ToDo items waiting to be loaded onto the Punch list whenever you are ready.

I still keep my Appointments in the built-in Appointment Book to take advantage of the alarms. Agenda's alarms work only when the 200LX is powered up.

In the Punch List view automatic numbering is turned on for the items and there is a "SORT" numeric field to the left of the items which is used to set the order in which the items appear.

During the day I work through the items in the Punch List as time allows. When an item is finished, I press [F4] to remove it from the Punch list. If I'm falling behind or playing

Screen 3: Objectives View

Screen 4: Punch List View

catch-up, I give myself a break and press [ALT]-[F10] a few times to move items out of the Punch list into the "Queue to Punch List" area for possible re-entry into the Punch list later in the day or tomorrow.

I've found it useful to divide the day into four quadrants: MORN(ing), MID(day), AFT(ernoon), and EVEN(ing). These quadrant names are categories whose parent category, TIME, is displayed as a column and is the primary sort field. The secondary sort field is the ORDER column. Using the two together makes it very easy to keep a very long punch list organized into the proper sequence during the day. Planning and working this way is much more natural than trying to assign times to do things.

It All Adds Up

Notice that each task has a DURATION number assigned to it. It's an estimate, in minutes, of how long the task will take. By leaving the TOTAL displayed I get a much better feel for how over or under scheduled my day is going to be.

This feature alone is worth the effort of learning to use Agenda. Most of us somehow picture ourselves as

super-human and over schedule our activities. Then we discover we're mere mortals and feel guilty for not being "up to the tasks." The Total field definitely helps me schedule the day more realistically.

Here's another item that is useful to know about. If you apply a DATE filter to the view and display the WHEN column to the right of the items, then you can assign recurring properties like "EVERY TUESDAY" to the item in the when field. When you mark the item DONE with [F4] it will disappear and then re-appear the following week (or day or hour depending on how you set the recurrence).

Unlike most ToDo lists, you have the whole of your Agenda database neatly organized by section and view. This lets you "prospect" for the day's punch list. I've found this mode of use very effective for creating project deliverables on short notice or getting ready for a trip.

I've also found it useful to display two additional sections in this view: "QUEUE for PUNCH-LIST", and "PUNCHLIST BY PRIORITY (IMPORTANCE)". The queue list is a repository for undone ToDo's when you've fallen behind.

You can imagine that relegating

Downloading and Installing Agenda for the HP Palmtop

These instructions will help get you over the hurdle of acquiring and installing your own copy of Agenda. You'll need an Internet connection and a PC with a hard disk and 5 floppy disks. You'll also need a way to copy the files from the PC to the HP Palmtop.

PREPARATION

1. Download two files: AG_DISK.ZIP and AG_UPB.ZIP from the Lotus' FTP site: www2.support.lotus.com/ftp/pub/desktop/Agenda/dos/2.0/misc/. These files contain "images" of Agenda's installation disks.

2. Download the DSKIMG.ZIP file from: www2.support.lotus.com/ftp/pub/utills/pubutils/dos/

3. Unzip the files AG_DISK.ZIP and DSKIMG.ZIP into a directory C:\TEMP on your desktop PC.

4. Format five(5) 3.5", 720K disks. (If needed, you can format a 1.44MB diskette to 720K with the command Format A: /F:720 Label the disks AG1, AG2, AG3, AG4, and AG2b.

5. Insert the AG1 diskette in drive A: and, at the DOS prompt, type CD \temp to get to the \TEMP directory.

Type

DSKIMG -p disk1.img -w
and press Enter.

See: "Writing 3.5" 720KB diskette." "WARNING! The diskette in drive A: will be overwritten! Press ENTER to continue. Any other key aborts."

Press Enter.

6. Repeat the above operation for disks AG2, AG3, and AG4, making sure to change the line to disk2.img, etc.

7. Unzip the file AG_UPB.ZIP into C:\TEMP overwriting the DISK1.IMG and Info files.

8. Insert AG2b diskette in A: and type

DSKIMG -p disk1.img -w
and press Enter.

INSTALLATION

9. Insert disk AG1 in drive A: and, at the DOS prompt, type A: and press Enter. Type INSTALL and press Enter. When asked, type in your name and the name of your company. Then pick the C drive and the \AGENDA directo-

ry. Pick the CGA screen. For printing, select GENERIC, DeskJet, LaserJet and IBM Proprinter. Select DeskJet as the Primary Printer. (Of course you may choose other printer(s) to match your setup.)

Follow the directions on the screen that call for the other disks.

10 Eventually you will exit the installation routine. At this point you have installed Agenda 2A.

11. Insert the AG2b disk in drive A: and type A: and press Enter. Type INSTALL C:\AGENDA and press Enter. Wait!

12. When the upgrade install ends, type AGENDA, at the DOS prompt and press Enter. Press any key to get beyond the opening screen and press Enter to accept the default PLANNER.AG file.

Press F10 Utilities Customize Colors from the Menu. Hit the space bar until you see "Mono" in the display.

Press F10 Quit to exit Agenda.

COPYING

13. The essential files to copy to the C:\AGENDA directory on the Palmtop are: A.EXE, AGENDA.RI, AGENDA.ENV.

The optional files are AGENDA.EXE, AGENDA.HLP and all the other printer and font files.

The data files to copy are those in the C:\AGENDA\APPS directory. Copy these to C:\AGENDA\APPS on the Palmtop.

14. If you wish to follow along with this article copy the TASKMGT.AG file that is available in TASKMGT.ZIP on this issue's *The HP Palmtop Paper ON DISK* or in LIB 11 of HPHAND on CompuServe, to C:\AGENDA\APPS on the Palmtop.

SHORTCUT

15. If you wish to accept our version of the installation you can download a file called AG-INST.ZIP from www.PalmtopPaper.com and the 1999 CD InfoBase. It contains a completely installed set of Agenda files for the HP Palmtop. The registration name will be "Courtesy of" and the company name will be "Thaddeus Computing, Inc."

an item to the Queue List is like sliding it across your desk, without refiling it. You can quickly "slide" an item up or down between the punch list and the queue using ALT-F10 (move). Or, just "ALT-M" it into oblivion (into some obscure category) to wait until you're ready to come back to it.

The "Punchlist by Priority" sec-

tion has a Section-sort applied with the sorted field being the numeric Priority Field. This lets you look at the same list but in the order of importance rather than the order in which you plan to do the tasks.

Assignment/Delegation View

This view keeps track of all dele-

gated tasks by a person's name. The names are set up in the [F9] (Category Mgr) view. Generally items are put in this view by using "ALT-M" from a project-oriented view, the inbox view or the Punch list. The sections in this view can be very handy to review before you meet with subcontractors, an assistant, staff members, or colleagues.

Business - Project View

This is the primary work-related view. I use it to keep track of customer-related activity. In my testing firm projects are classified into two categories: Revenue projects (by clients), and Non-Revenue projects, e.g., Accounting, Business Development, etc. The category names for Revenue projects are just the client company's name and, for Non-Revenue projects, the category names are the project names, e.g., Newsletter, Direct Mail, Tax Return, etc.

In this view I display all work tasks by priority. The priority categories act as sections. They use a filter to display only work project-related items. Each task (item) is assigned an estimated duration in the left column, and I display the "People", "Activity", and "When" columns on the right for making and tracking the tasks.

Call / Communications View

I haven't found Agenda very useful as an address/phone database. I keep a list of CALLS PENDING in Agenda. I use the numeric "ORDER" column on the left as an aid to sequence the calls. I use this view before leaving home in the morning to get some low-priority calls out of the way. During the day I use [CTRL]+[M] to move items into this view as I think of them.

Done Item View

This view accumulates DONE items sorted in reverse chronological order.

For many people it's a good practice to periodically review what you've accomplished over the past day, week and month and to compare that with your objectives. Review this for significant accomplishments at the end of the week and you'll probably be surprised that you've accomplished more than you thought.

Done by Project View

In this view I can look at what I've accomplished, sorted by Project (category). I find this very useful in assess-

ing whether my time is really being spent on the right mixture of projects.

Errand View

Whenever I think of an item I need to purchase whether it be office supplies, a household item, clothing, etc. I can use the Errand View. I enter the item along with the type of store, e.g., "Office Supply". I also like to assign these items to a Shopping Area so I can look at the errands in terms of a sequence of stops or visit to a particular mall or downtown shopping area.

Home Projects View

This is where I track all personal projects such as home repair and improvement. It's pretty straightforward. As in a few other views, I keep the "Queue to Punch List" section displayed in the top of this view allowing convenient use of the ALT-F9 command to stage an item in anticipation of moving it into the punch list.

Recreation View

This view is used to track leisure activities. I use this more as an idea database. When I think of something I want to do such as 'Rent a Jet Ski this summer' it goes into this view for later reference.

Travel Plans View

Pending business trips are tracked in this view. As soon as I decide to go on a trip, the name of the city (and date) becomes a section name in this

A Brief History of Lotus Agenda

Agenda was written about ten years ago by Mitch Kapor and Jerry Kaplan, the founders of Lotus. They were frustrated with available tools for time management and as a result wrote a piece of software that stands even today as one of the greatest PIMs ever developed.

There is some interesting history about the evolution of Agenda in Kaplan's book, "Startup". Some say that "Agenda" is an equal to "Lotus 123" in terms of importance and I would certainly not argue with that!

Unfortunately Agenda never attained the commercial success of 123 and Lotus eventually put Agenda out to pasture. However, there are thousands of people still using Agenda today for all kinds of complex data management tasks because they cannot find anything comparable from the Windows/UNIX software vendors. A mind-boggling situation, but true!

view. I then keep track of all the details including airline reservations, hotels, rental cars, etc. as items in this view.

In this view I also keep a section displayed called "Road Punch List (ToDo while traveling)". Any item in any view that might be appropriate for working on during a flight, or in a hotel will get flagged into this section in the days preceding my trip.

Timeliness / Importance View

This view is what I call "the Covey View". It shows all items sorted by IMPORTANCE (Priority) and separately by URGENCY (Time-criticalness). I subscribe to Steven Covey's philosophy that it's always a good idea to remember the difference between Importance (Priority) and Urgency (Time-criticalness). Therefore, I assign each a parameter. Even in my micro-day-management "Punch List" view I have a section that shows ToDo items for the day, sorted in order of importance.

200LX & PC Work View

I have enough Palmtop and PC "hobby" software projects going that I keep my projects in this area of my activities sorted in a separate view.

Where To Get Help

Integrating a program such as Agenda into your daily life is not easy. It implies a commitment to learning some new work habits. It also means that you'll invest more time in plan-

Shareware/Freeware mentioned in this article

Available on this issue of *The HP Palmtop Paper* ON DISK

AG-PUBS.ZIP (1373 bytes, freeware)

TASKMGT.ZIP (31K bytes, copyrighted freeware by Steve Bell)

Agenda-related freeware available on the 1999 CD InfoBase and at www.PalmtopPaper.com or the Web sites mentioned in the article.

AG-INST.ZIP (1.15 M bytes)(pre-installed version for HP 200LX)

TECHNOTE.ZIP (7529 bytes)

AG_HTM.ZIP (3.3 K bytes)

AG-DISK.ZIP (2 M bytes)

AG-UPD.ZIP (667 K bytes)

AG-CHK.ZIP (36 K bytes)

DSKIMG.ZIP (21K bytes)(original installation files)

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Running Agenda on the Palmtop

IMPORTANT: Do not run Agenda from an ATA flash RAM card. This will reduce its performance to the point where Agenda will be of little or no practical use.

To run Agenda from your 200LX's Program Manager, you will need to use MaxDOS. Copy MAXDOS.COM to your 200LX's C: drive root directory. Modify your AUTOEXEC.BAT file to enable MaxDOS with the following lines:

```
maxdos -l
```

```
200
```

```
maxdos -r
```

If you are using Buddy, I suggest using the following AUTOEXEC.BAT lines:

```
maxdos -l
```

```
buddy.com
```

```
200
```

```
maxdos -r
```

To add Agenda to your 200LX's Application Manager screen: Open Application Manager and press F2 and enter the following:

Name: Agenda

Path: c:\agenda\agenda.exe

Comments:

Icon: (use the up/down arrow keys to select an icon.)

If you plan to use Maxdos, shift-

tab back to the Path field and enter c:\maxdos.com c:\agenda\agenda.exe | Hit F10

Now you should see an icon on your Application Manager screen. You can now start Agenda by selecting this icon. If you use Software Carousel, then you should really run Agenda in its own SC session and avoid the use of MaxDos.

Suggestions For Improving Agenda's Performance

1. Run EMM200 available from the SUPER site or TREMM from Times2Tech to enable EMS memory on your 200LX. Agenda will take advantage of this memory.

2. Change Agenda's settings by starting Agenda and opening any .AG file. Press F10 (Menu) and File Properties. Then highlight the dots after "Assigns settings" and press the Space Bar. Leave Text Matching On. Turn Assignment conditions and actions both Off. Turn Apply conditions to Automatically. Press Enter twice.

These settings will speed up Agenda greatly. To make Agenda just a little faster, keep item entries short. Put any extra text in an attached Note.

ning and organizing as well as learning to use an electronic tool. The return on your investment may not show up immediately. Often it helps to talk with people who have gone through the learning process already. They can offer support as well as tips to keep you enthused until you begin to see the rewards for yourself.

The Agenda users are available in the CompuServe's LOTUSB forum. I encourage you to visit with them, ask questions and offer any comments. This is where you go for support.

Even though Lotus distributes Agenda 2.0 as freeware on their Website, they no longer support the product.

For those with complicated lives who are committed to using PIM technology to manage things, Agenda can provide an unparalleled degree of control and flexibility. Running Agenda on the 200LX handheld, is truly a PIM power-user's dream! ■

DataPerfect : A Perfect Database For the Palmtop

If your record keeping needs overwhelm the Palmtop's Database Engine, turn to DataPerfect and be overwhelmed by a relational database with power, speed, excellent support (and it's FREE!).

by Ralph Alvy

The Database engine built into the HP Palmtops is more than enough for most users. However, the engine does have its limitations. It is essentially a flat file database that maintains separate data files for the Appointment Book, Phone Book, NoteTaker and WorldTime programs. There's no easy way to tie these different data files together. You can't bring up Chicago, IL in WorldTime and hop to the phone number of all your contacts in that city and then view the ToDo/Appointment items for each of these contacts.

For this you need a relational database and, unless you already have a program like dBASE III+ or FoxPro, expect to pay big bucks for such a program. Expect to spend a lot of time learning to set up the databases and do the necessary programming. When you finish you'll have something that would run on the Palmtop but without much snap and pizzazz.

But wait! You can now have all the power of a relational database without the steep learning curve of database programming. You can design your own applications and wind up with something that runs almost too fast on a Palmtop.

DataPerfect is the relational database management system (RDBMS) that will do this job for you. The pro-

gram runs on any PC. It even runs on the HP 95LX and HP 1000CX and, of course, on the HP 100/200LX.

The program uses less than 300 K bytes of RAM no matter how large your application and it's very fast. Many consider it the fastest relational database system ever created.

DataPerfect allow developers to create applications using a point-and-shoot process. Nowadays such a tool is called a Rapid Application Development (RAD) tool.

DataPerfect was originally distributed by the WordPerfect Corporation and later by Novell, the company which still owns the rights to the program.

In December 1995, Novell released DataPerfect to the public encouraging its free distribution as copyrighted freeware. They also allowed Lew Bastian, the author of the program, to upgrade the product as he saw fit. Lew is still upgrading and enhancing DataPerfect. He makes new releases publicly available on CompuServe and the Internet almost every month.

Though Novell doesn't support it, DataPerfect is currently supported by a very active community of application developers. Support is found on CompuServe in the WPUSERS Forum Section 11 and on the DataPerfect listserv. To subscribe to the listserv, send email to dataparf@tjalsma.demon.nl, placing the string "subscribe" in the message subject field (it's not case-sensitive). The message body will be ignored, so you can put anything you want there.

Some Specifications

A DataPerfect application can relate up to 99 data files (called panels). Each of those files can hold up to 16 million records and each record allows up to 125 fields. Variable-length text fields, called memo fields in most other databases, can have up to up to 64,000 characters each. (That's twice as much as the Database engine in the Palmtop allows.) AND there is no limit to the number of such memo fields in a record.

A DataPerfect application is fully



ABOUT THE AUTHOR

Ralph Alvy (ralvy@compuserve.com) has been a full-time chiropractor in Santa Monica, California since 1982. He manages his patient billing with a DataPerfect application he wrote for his desktop. Ralph is sysop of the DataPerfect section of WPUSERS (Section 11) on CompuServe. He's the author of Mastering DataPerfect, the most comprehensive text ever written on DataPerfect.

networkable and requires no special drivers or setup. The program allows up to 9,999 users to view and edit the same record simultaneously.

DataPerfect itself consists of two program files (DP.EXE and DP.SYS). As each network user loads DataPerfect, the program creates a unique set of three temporary files (DP*.TMP). Each DataPerfect application consists of a structure file, a single index file, a file containing all data found in variable-length text fields and up to 99 data files.

The Panel and the DataPerfect Paradigm

DataPerfect's way of working differs from that used by most RDBMSs. With most RDBMSs, the developer defines views and forms for each data file (also called a "relation" or a "table"). A view is a way of looking at a particular data file's records and a form is a way of entering, editing or deleting records in a data file. Most RDBMSs allow multiple views and forms per data file. However, when defining a DataPerfect application, the view and form are merged into a single screen entity: the panel. When you create a panel you're creating a data file along with its single view and form. This trick gives DataPerfect its "rapidity" in developing applications. The downside is that each application can only have one view and one form per data file.

The developer can hide, rearrange and select the data that the user will see on the screen. However all the data will still be in the file on the disk.

The Look and Feel of DataPerfect

Screen 1 shows a panel display of a data file containing Attorney records. The upper part of the display is a Help Screen area. What you see in that area was placed there by the developer. In the data area (the lower rectangle) the cursor is sitting on the Last Name field which currently has the string 'Harrington' in it. A Help Screen is tied to a particular field, so each field has its own con-

A lookup here displays Attorneys sorted by Last Name.

BROWSING RECORD [See Smart Lookups (Browse Mode) in my Lookups chapter.1]
Exit-F7 Create-F9 Edit-F6 Lookup-F1 Help-F3

UDSMART.DAT-3
Attorney Panel

ID	Last Name	First Name	Middle Name
00001	Harrington	James	Mitney

Panel Link to Client Panel

Screen 1: DataPerfect Screens can be modified for each database.

A lookup here displays Attorneys sorted by First Name.

BROWSING RECORD [See Smart Lookups (Browse Mode) in my Lookups chapter.1]
Exit-F7 Create-F9 Edit-F6 Lookup-F1 Help-F3

UDSMART.DAT-3
Attorney Panel

ID	Last Name	First Name	Middle Name
00001	Harrington	James	Mitney

Panel Link to Client Panel

Screen 2: Context sensitive help can be tied to each field in DataPerfect

--Beginning--
James Harrington 00001
Sarah Jones 00002
Susan Harrington 00003
--End--

UDSMART.DAT-3
Attorney Panel

ID	Last Name	First Name	Middle Name
00001	Harrington	Sarah	Mitney

Panel Link to Client Panel

Screen 3: Selecting a different record is easy in DataPerfect

figurable Help Screen. After the user hits Tab, landing on the First Name field, the display looks like Screen 2.

Note that the Help Screen refers to the First Name field instead of the Last Name field. Again, that Help Screen was created by the application's definer.

Although the contents of the Help Screen is configurable its size is not. However both the size and position of the data area is configurable.

Lookups

When the user calls a lookup (hitting Up Arrow or F8 when on a field in Browse mode) the lookup display replaces the Help Screen with rows of records with the lookup highlight bar on the currently displayed record.

The lookup display, in Screen 3,

was called while sitting on the First Name field in the panel display.

Under default configuration, moving the lookup highlight bar up and down causes the data area of the panel to match the record being highlighted. You can change that so the panel display updates only after you select a record from the lookup by hitting ENTER.

DataPerfect allows a different lookup scheme for each field on which the enduser can place the cursor. Each such lookup can use a different index to sort that panel's records and display different fields to the user. You can define a panel so that when the user performs a lookup on the First Name field, records are sorted in that lookup by the First Name field and the lookup displays

A lookup here displays Clients for this Attorney sorted by Last Name.

BROWSING RECORD [See Smart Lookups (Browse Mode) in my Lookups chapter.]
 Exit-F7 Create-F9 Edit-F6 Lookup-F1 Help-F3

UDSMART.DAT-3
 Attorney Panel

ID	Last Name	First Name	Middle Name
00001	Harrington	James	Whitney

Panel Link to Client Panel

UDSMART2.DAT-5 — Depth 2 —
 Client Panel

Atty ID	Client ID	Last Name	First Name	Middle Name
00001	00001	Doe	John	...

Screen 4: One database appears "inside" another related database.

Nothing special here. Just a date field.

BROWSING RECORD [See The Data Link Subgroup Lookup in my Lookups chapter.]
 Exit-F7 Create-F9 Edit-F6 Lookup-F1 Help-F3

UDSUBGRP.DAT-13
 TRANSACTION PANEL

Date	Cat	Item	Amount
01/01/1994	0001	SCREEN	25000

Screen 5: The data entry part of the screen can be resized

First Name, Last Name, and Account Number on each row. You could also define the lookup on the Last Name field to sort by the Last Name field and display only the Last Name and First Name on each row. Since you're allowed up to 200 indexes per data file (panel) and 125 fields per panel, the possibilities for various lookups are almost endless.

DataPerfect lookups were the first database lookups allowing the user to pick a record with rapid search. When a lookup is active (as in Screen 3), typing a character brings you to the first record that starts with that character. Type another character, and you get even closer to the record for which you're looking.

Links

As mentioned earlier, a DataPerfect application can have up to 99 panels (data files) each containing up to 16 million records.

For those who have used other RDBMSs to build database applications here are a few points about DataPerfect's relational possibilities:

1. Any panel can be linked to any other panel.
2. A panel can be linked to as

many other panels as desired.

3. Such links don't require common fields to exist between linked data files.

4. All three major relationships are supported (one-to-many, many-to-one, and many-to-many).

What Does "Relational" Mean?

DataPerfect is a relational database management system. So what does that mean? What are the benefits? Let me answer that by referring to the data files I've been using in the different screen shots. One data file contains information about attorneys and the other contains data about clients.

Now suppose you were given the task of relating the attorneys in the one file with the clients in the other file. Could you do it with just the Database application in the Palmtop?

The answer is "yes" but with a lot of extra typing. You'd wind up with one file in which the main field would be the names of the attorneys. In each attorney's record you would have several fields containing the names of clients. If several clients had many attorneys then those clients' names would have to appear many times in the data file. You'd have to make sure that the names were spelled consis-

tently in all cases and you'd have to make sure that the proper fields were changed if a client changed attorneys.

DataPerfect, like other relational database systems, eliminates this redundant data by keeping similar data in separate files and creating links from the records in one file to one or more records in another file. You build these links, on the fly, as you enter data in either file.

When you use the database, you might look for a particular attorney's name. When you find your Attorney you Tab to the "Panel Link to Client Panel" and then hit Down Arrow to arrive in the Client Panel to view Clients attached to that Attorney or create new ones.

The diamond character is a panel link. Hitting Down Arrow on that object will take you to the Client Panel, if that's the way the developer defined that panel link. After hitting Down Arrow on the link you see Screen 4.

The Client Panel overlays the Attorney Panel. Though the Client Panel is current, you still see the Attorney Panel record in the background. Note that the Help Screen now refers to the Client Panel, not the Attorney Panel.

When creating a record for new Clients you never need to enter their Attorney's name. When first in the Attorney Panel pick the Attorney from a lookup and then penetrate the panel link to the Client Panel. The record you create there will be "attached" to the Attorney Panel record you just left.

In the above application, the Attorney-Client relationship is a one-to-many relationship (each Attorney can have many Clients), and that relationship is reflected by the panel link in the Attorney Panel.

Alternatively, the many-to-one relationship is more typically reflected by use of the data link. Let's use a different example to show this (Screen 5).

Here the user sees a Transaction Panel with the cursor sitting on the Date field. Notice the diamond char-

acter attached to the left side of the Item field. That's a data link. A data link is used not so much for navigation from one panel to another (that's the intended function of the panel link); rather, a data link was created to allow for a pick-list lookup display during data entry. The above panel was configured in a way that filters what the user sees in the pick-list lookup display. The pick-list lookup display will display records seen in the linked Item Panel but filter them to conform to what was entered in the Category field to the left.

If the user wants to create a new record in the Transaction Panel he takes the following steps:

- Enter Create mode with F9.
- Type a Date in the Date field.
- Tab to the Category field and type in a Category.
- Tab to the Item field and hit Up Arrow
- Assuming the user entered

---Beginning---
 DOS FOR DUMMIES
 DP FOR DUMMIES
 PERFECTING DATAPERFECT
 ---End---

UDSUBGRP.DAT-13
 TRANSACTION PANEL

Date	Cat	Item	Amount
11/15/98	BOOK	DOS FOR DUMMIES	21.99

UDSUBGRP.DAT-9
 Item Panel

Cat	Item	Amount
BOOK	DOS FOR DUMMIES	21.99

6: Typing errors can be reduced by using related files

Nothing special here. Just a numerical field.

[See The Data Link Subgroup Lookup in my Lookups chapter.]
 Save and Exit-F7 Save-F10 Cancel-F1 Help-F3

EDITING RECORD

UDSUBGRP.DAT-13
 TRANSACTION PANEL

Date	Cat	Item	Amount
11/15/98	BOOK	DOS FOR DUMMIES	29.99

Screen 7: Completed Transaction

11/15/1998 for the Date and 'BOOK' for the Category then, at this point, the screen looks like Screen 6.

Note the Item Panel overlaying

the Transaction Panel with a lookup display waiting for the user to choose an Item. Also notice that the only records in the Item Panel that appear

Magellan 2.0

Magellan 2.0, from Lotus Corp., has recently been made available as copyrighted freeware. It was formerly a commercial program.

Magellan is a file manager and viewer that will let you delete, move and copy files. It will also let you view spreadsheet, database, Word Perfect, etc. files as you would normally see them if you were running their associated program. It even does a respectable job of letting you view and search for text in HP 200LX database files.

Magellan may be found on the 1999 CD InfoBase as well as on the World Wide Web at www.PalmtopPaper.com and/or www2.support.lotus.com/ftp/pub/desktop/Magellan/2.x/misc

There is no documentation for the program: not even a hint about how to install the program.

To get you up and running with

Magellan on the HP Palmtop we have installed the program and placed the relevant files in a \MAGPALM directory on the CD InfoBase. On the Web, at www.PalmtopPaper.com, the file is called MAG2 INST.ZIP.

If you want to try our pre-installed version just copy the files from the Magellan directories on the CD-InfoBase to the C:\MAG2 directory on your Palmtop. Use the D:\DOS\ATTRIB -R /S command on the files in the C:\MAG2 directory to remove the read-only attributes from the files. You will need about 1.7 Megabytes of disk space. You will also need to terminate System Manager and run Magellan from the DOS prompt.

If you are working with the MAG2INST.ZIP file from our Web site, expand it on the hard drive of your desktop with the PKUNZIP -D MAG2INST.ZIP command. Transfer

all the expanded files to the C:\MAG2 directory on the Palmtop.

On the Palmtop you can start Magellan either with the MG or MGFASST command.

Be sure to look at the Tutorial. The F1 key will provide limited but sufficient help to get you started. The F10 key followed by Y or Q will let you exit the program.

Warning: as with all new software, back up all your critical files before running Magellan the first time. On my Palmtop trying to view some data files caused the Palmtop to freeze. Having done a hard reset, I discovered that the C: drive had become corrupted. I was able to use CHKDSK /F to repair the damaged files and directories.

If anyone currently uses Magellan on their HP Palmtop, we'd like to hear from you.

We hope to do a thorough review of Magellan in a future issue of *The HP Palmtop Paper*.

to the user are Books (Screen 6).

If the user entered 'PERI' instead of 'BOOK' in the Category field he would have seen only Peripherals (like Glare Screen or Printer Cable) in the lookup display during Create (or Edit) mode. In both cases the lookup displays records from the Item Panel but that display is filtered by the Category field value.

After the user chooses an Item DataPerfect automatically fills in the appropriate fields in the Transaction Panel. Screen 7 shows what the user sees after highlighting 'PERFECTING DATAPERFECT' and hitting ENTER.

Notice that the Item and Price fields are now filled in. The cursor in this case is in the Amount field. The relation feature just saved the user a lot of typing and eliminated a lot of potential data entry errors.

Who Needs a Relational Database?

If you've pushed the Palmtop's Database engine to the limit and realized that it can't handle the complexity of your data, then you're ready to look at a relational database.

DataPerfect is perhaps the perfect RDBMS for the Palmtop. It's relatively easy to get started using it; it's frugal with memory and fast and above all else: the price is right.

What Version to Get

As of this writing I consider the 2.3d release of DataPerfect to be acceptable for critical data. That's the version I run my office billing data on and feel confident using it. My business application has over 70,000 records in its Transactions Panel and that's only one of about 30 panels in the application. The latest beta version of the program is 2.6c but, as of this writing, I don't consider it ready for critical data. You can find both versions in the "Download Library" of the following DP Web site:

<http://surf.to/dataperfect>

The above Web site tends to be more up to date than the official DP Web site mentioned below.

A DataPerfect Book

If you start to use DataPerfect and decide you want to know more about how to make it do exactly what you want it to do, I suggest getting a copy of my book, Mastering DataPerfect.

The book is about 500 pages long and is available in electronic form. It consists of a WordPerfect file in either 5.1 or 6.x format accompanied by applications I wrote to demonstrate ideas in the book.

Mastering DataPerfect, along with the sample applications, can be found in a password-protected Zip file that can be downloaded from the "Download Library" of the official DataPerfect Web page:

www.sanbachs.com/compusoft

Look for DPBOOK51.ZIP or DPBOOK61.ZIP there (the number in each filename refers to the WordPerfect format of the enclosed document). I sell rights to this package for \$60 and will email you the

Zip file's password upon receiving a credit card payment from you via email. Email me for an order form at ralvy@compuserve.com

If you want to take a peek first, you can peruse the Table of Contents of the book along with the Foreword written by DataPerfect's author (Lew Bastian) on the DataPerfect Web site mentioned above in the "New DP Book" Section. ■

Shareware/Freeware mentioned in this article

DataPerfect ver 2.3d, is available on the 1999 CD InfoBase as well as on this issue's *The HP Palmtop Paper ON DISK*, on CompuServe in the WPUSER forum and at our Website: www.PalmtopPaper.com
NOTE: This file will let you get started. There is a newer version of the database program and many other files available on the 1999 CD InfoBase as well as the following Web sites:

www.sanbachs.com/compusoft/surf.to/dataperfect
www.PalmtopPaper.com

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Networking with the HP 200LX

For fast transfers between your Palmtop and desktop, a Network PC Card will do the job at top speed.

by David Sargeant

Today, most of us are familiar with the term "network." Most companies are running local area networks (LANs) and more and more home PC users are setting up networks between multiple home machines. For palmtop users this has profound implications. How can we take advantage of the explosive growth in networking?

With that in mind, I'm presenting this article on methods, benefits and specifics of networking with the palmtop.

Basics

When I say "networking," I mean connecting the 200LX to an Ethernet network. An Ethernet connection is a direct connection between computers. The cabling used looks like thick telephone cable and is called 10Base-T twisted pair cabling. Most networks now use this standard. If your network uses the older 10Base-2 coaxial-style cabling you will not be able to connect directly with your 200LX. (10Base-2 draws too much current to be used in the palmtop). There are other solutions for 10Base-2 users which will be discussed later.

Why would you want to connect your palmtop to a network? Well, there are many benefits. Chiefly it is possible to transfer files, send and receive e-mail, print things out and

run remote applications. If your LAN is connected to the Internet you can even access that! In addition there are wonderful network diagnostic tools that will run on the palmtop for those palmtop users who are computer professionals.

Some of the things you can do with Ethernet you can also do via a modem or serial cable connection such as transfer files or access the Internet. There is a fundamental difference between the two however. Ethernet is much faster (on the order of twenty times as fast), and Ethernet cards usually take up less power than most modems in the palmtop. The disadvantages are that you need special hardware and you cannot make an Ethernet connection over a regular phone line. Additionally, the distance between you and the computer you are communicating with must be fairly short—a few hundred feet at most. (Unless, of course, your remote computer is hooked up to another network with a longer range, such as the

Internet, and can redirect you. In that manner, you can go around the world via Ethernet. However, direct computer-to-computer connections are fairly limited in distance.)

All things considered, comparing a modem connection with an Ethernet connection is like comparing apples and oranges. Each has its own use. It's probably more beneficial to compare Ethernet to a direct cable connection.

Serial connections which most 200LX users are probably familiar with are often used with programs like LapLink to transfer files from desktop to palmtop or vice-versa. It's a simple matter to buy a cable and set up some file transfer software so you can copy things to and from your 200LX. Most every desktop PC has a serial port you can hook up your cable to so the serial connection is probably the most common. The disadvantage here is that it's the slowest type of connection. The best you can do is 115,000 bps, which translates to roughly 10K per second (and that's if



ABOUT THE AUTHOR

David Sargeant lives in Boulder City, Nevada with his wife and two little girls. He is a computer engineering student at the University of Nevada at Las Vegas and computer system administrator for a local company. In his spare time he maintains the www.hplx.net Web site that is devoted to things "LX". David can be reached at david@hplx.net

you're extremely lucky).

Parallel connections on the palmtop are much rarer because the 200LX has no parallel port built in. There are at least two parallel port cards that work in the 200LX; the better of which seems to be the Transdigital card. With one of these cards in your machine it is possible to connect (via LapLink or InterSvr or other connection software) and do transfers at a higher speed than with a serial connection.

Ethernet connections are the fastest of the bunch with a theoretical maximum of 10Mbps (bits per second, not bytes), or roughly eighty times faster than a serial connection, and 2 to 3 times faster than a parallel connection. Real conditions will yield less speed than this especially on large LANs with many computers but it is still extremely fast. On the palmtop maximum measured speed is around 100KB (bytes, not bits) per second or about 8% of the theoretical maximum. This is probably mostly due to the palmtop's limited processing power. Average speed on a large LAN will probably be more like 50KBs which is still very fast. In addition to this the network card allows many things that simply are not possible with any other link, such as the ability to log into a Netware or Unix server.

With that in mind, let's take a look at what you'll need to get to link your palmtop up to a network.

Hardware

In order for an Ethernet adapter to work in the palmtop, it must be a PCMCIA card that draws less than 150ma. In addition it must have special drivers that allow it to work with the 200LX's nonstandard PCMCIA controller.

The only two types of Ethernet card to work with the 200LX are the Silicom Ethernet Card and the Accton EN2212 or EN2216 cards. There are reports of a third card that works. Supposedly this is being sold by Shier Systems and Software but I was not able to verify this.

The Silicom card was specifically

designed with drivers from the company to work in the HP DOS palmtops. It ships with all necessary drivers and documentation to allow you to use packet-driver applications or log in to a NetWare server. The card itself has a female jack on it and a proprietary twisted-pair cable, with an RJ-45 connector on the end of it, that comes with the card. This allows you to plug directly into a wall jack. Perhaps this is not the most elegant of solutions since the cable is not very long and, if damaged, the user must buy a new one from Silicom. (There have been at least two reported cases of the Silicom cable being defective and needing to be replaced.) The other disadvantage of this card is that it absolutely will not work with a double-speed palmtop. Silicom has no plans to fix this problem.

The Accton EN2212 and EN2216 cards were not designed with the 200LX in mind. However there are drivers available on the SUPER web site called LXETHER3.ZIP which allow use of this card in the palmtop. The EN2216-1 is the recommended model for palmtop usage. The card itself has a female jack on it where a proprietary breakout box plugs in. This box has a female RJ-45 jack on it so you can plug your own twisted-pair cable into it. This breakout box is much shorter and more durable than the Silicom cable and provides the advantage of having LEDs that indicate connection and data movement. Also the drivers for the Accton cards work on both single and double-speed palmtops. The disadvantage of the Accton card is that it only includes support for packet-driver applications. Other functions, such as logging in to a NetWare server, must run over the packet driver if desired which leads to greater complexity.

It is worth noting that there are numerous cards (such as some made by USLogic, a brand sold by Computer City) which are identical to the Accton cards and which will work with the drivers on the SUPER site.

The Silicom card can be had for

between \$100-\$150, depending on where you find it. Precision Guesswork sells the Silicom card bundled with their Lanwatch software and a 200LX as an integrated solution for network administrators or technicians. They will sell the Silicom cards alone as well. The Accton cards can be found many places—a search on ComputerESP will yield the best price. Pricing should be around \$55-\$60.

Remember: if you get an Accton card, go for the EN2216-1, not the -2 version. The 2216-1 is a lighter card and the breakout box is MUCH smaller being just an RJ-45 jack instead of a combined RJ-45 / 10Base-2 coaxial port. The 2216-1 uses less power as well and since the palmtop can't attach to a 10Base-2 network anyway without pulling at least 270ma (and probably damaging the palmtop!) the 2216-1 is the better choice all around.

Connecting

All right, so you've got the card in your palmtop and need to hook it up. How do you do this? Well, the computer you want to connect to must either be on a LAN and have an Ethernet connection to a hub or have an Ethernet card installed. If you are only going to be connecting your 200LX to your otherwise-isolated computer you will probably not have an Ethernet card installed and will need to buy and install one. Something like the a D-Link SN2000 (for ISA bus) or 530-TX (for PCI bus) would be a good, low-cost solution. These cards generally run from \$30-\$50 and can be found at almost any computer store.

If you are trying to connect to a computer that's already on a LAN, for example a computer at the place where you work, you will need an RJ-45 jack that hooks into the LAN. From there you can access the other computer. If you have a spare data jack near your desktop that's good. If not you can buy a cheap hub (which is kind of a "splitter" to join several different cables) and plug your network connection into the "uplink"

port. Then run two more twisted-pair cables from your new hub: one to your desktop and one for the palmtop. And there you go! You now have a connection for your palmtop and your desktop is still connected.

Some companies now offer "microhubs" that are self-powered for this very purpose.

One thing to keep in mind: for a direct connection (i.e. without a hub) between two computers: you need to use a special "crossover" cable. This cable is similar to a "null-modem" serial cable.

You can buy these crossover cables or make one yourself if you have RJ-45 ends (available at Radio Shack and most electronics stores) and a crimper. You must cross over the following wires:

- Pin 1 to Pin 3
- Pin 2 to Pin 6
- Pin 3 to Pin 1
- Pin 6 to Pin 2

Pin 1 would be the first one on the left when looking at the RJ-45 connector from the bottom.

Note that if you have an older 10Base-2 network that you want to hook your palmtop into you can obtain a hub that will allow you to do this. You plug the palmtop's cable into one port on the hub and the coaxial cable from your network into another port. Unfortunately these hubs can be reasonably expensive (at least \$100). Fortunately older network architectures are often being upgraded so the likelihood of encountering a 10Base-2 network is going down every day.

That should be pretty much it as far as connecting your palmtop to the network. So, now what?

Software

One of the most useful features of the Ethernet is the ability to do high-speed backups. This is not as important for palmtops with small internal RAM drives because a small flash card will do the job nicely and be more portable and perhaps even less expensive. If you have NO money you can still do a serial port backup

to your hard drive in a relatively short amount of time. However for larger palmtop RAM drives, such as 32MB, the backup problem becomes critical. A flash card big enough to hold all of the data on your RAM drive is fairly expensive and who wants to waste 32MB of flash card? Serial port backups are way too slow for a full 32MB backup. This is where the Ethernet card shines. It is relatively inexpensive compared to a flash card and yet allows high-speed backups. The downside, of course, is that the Ethernet card will occupy your PCMCIA socket preventing you from also backing up a flash card.

Beyond this, what can you do?

First, let's cover some basics. To run ANYTHING you need to be able to see the Ethernet card in the palmtop. Unfortunately the drivers for most cards won't see them in the palmtop because the 200LX does not use a standard Intel PCIC compatible controller for its socket.

Thank goodness for enablers. Enablers are special programs that configure the card and palmtop to work together. Both the Silicom and Accton cards need to have enablers run before you can do anything with them. It works much like the CIC100 program that allows programs to see and talk to modems.

The enabler for the Silicom card is called SEHP.EXE. You put the Silicom card in the socket and run SEHP and it enables the card.

The enabler for the Accton card is OP2216.EXE. It works the same as the Silicom enabler. Just place the card in the socket and run OP2216.

These enablers are not TSRs like CIC100, so they take up no memory. They merely configure the card and the palmtop and then exit.

One consequence of running the enablers is that you cannot thereafter place other cards in the socket without turning off the machine or rebooting.

After running the enabler for your card you can run the actual drivers for the card, whatever they may be.

Probably the most common driver type is a packet driver. A packet driver is a TSR that will transfer data to and from the card and act as an "interface" for network applications. Other driver types include ODI drivers (for logging in to a NetWare server) or NDIS drivers (for use with MS LanMan and other Windows networks).

These drivers must be specifically designed for the palmtop! Just because you've run the enabler don't think you can just run any driver and have it work. It must be specifically tuned for the palmtop. The Silicom card comes with a packet driver and an ODI driver. The Accton card has a packet driver only.

The ODI driver with the Silicom card will allow you to log in to a NetWare server which is extremely useful—but only if you have a NetWare server to log in to. In this day of Windows NT, those are becoming more and more rare. Still, if you do have a NetWare server you then have access to the server's drive and can do backups, run other programs, etc.

There are Windows network drivers available that will let you access shared drives on a Windows 3.11/95/98 machine. Unfortunately the drivers are currently only available on the palmtop forum of NIFTYserve (the Japanese equivalent to CompuServe). There is a current effort underway to obtain permission to post these drivers to SUPER.

The packet driver is the best driver of all. There are numerous applications that run over a packet driver, including telnet clients, FTP clients, Web browsing applications, e-mail programs, etc. Of course, a 32-bit graphical Web browser won't run on the palmtop but most DOS applications that don't require a 286+ processor to work will. There are even System Manager EXM programs that will use a packet driver. PNR is one of them. As the news and e-mail reader portion of LXTCP it is designed for a modem and PPP but can be run over an Ethernet packet driver instead of a PPP packet driver. In this way you

can get full System Manager compliance and the super-speed of Ethernet to read your e-mail.

Other applications that run over a packet driver include:

— LanWatch, sold by Precision Guesswork. A network analyzer; turns your 200LX into a fantastic network diagnostic tool.

— NFS clients. If you have a Unix machine on your network, or are running NFS on your NetWare, or have an NFS server on your WinNT or 95 desktop, you can mount drives on your 200LX and do backups. Look on SUPER for these clients.

— Printer clients. These can be mounted by NFS software, and allow you to print to remote printers.

— NetWare login clients. Although the Accton cards do not come with an ODI client, you can still log in to a NetWare server by running PDIPX from Intel.

— Standard DOS TCP/IP packages such as CUTCP, WATTCP, etc.

which include utilities like ping, telnet, ftp, and the like. CUTCP, on SUPER, will even let you run an FTP server on the palmtop!

— E-mail and Internet packages. Goin' Postal and LXTCP both support Ethernet connections to download mail at super-speeds. The new version of WWW/LX also supports Ethernet, which makes surfing the Web much faster!

Conclusion

Ethernet on the palmtop is definitely a great thing to have if you want to do fast Internet access, backup your palmtop's drive or even administer your network from your pocket.

If you want to get connected I'd recommend you get an Accton EN2216-1 card and go for it! For more information on using the Accton card in the 200LX see the Jan/Feb 1997 *The Palmtop Paper* or read the article online at www.hplx.net/ptpaccton.html. ■

Commercial products mentioned in this article

PNR is available as part of the LXTCP package on Rod Whitby's Software Page at members.xoom.com/rwhitby

Goin' Postal may be obtained from www.palmtop.net/super.html

Silicom Ethernet Card from Precision Guesswork. For more information visit the Web Site at www.guesswork.com

Accton EN2216-1 — Specs available on Accton's site at www.accton.com and Hardware Street at www.hardwarestreet.com

D-Link SN2000 (for ISA bus) or 530-TX (for PCI bus) — Information available at www.dlink.com. Almost every online store and local computer outlet (e.g., CompUSA) sells these cards.

PDIPX from Intel — Available bundled with other Netware utilities at www.hplx.net/netx.zip.

CUTCP — Available at www.palmtop.net/super.html



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SanDisk CF Cards - some examples:

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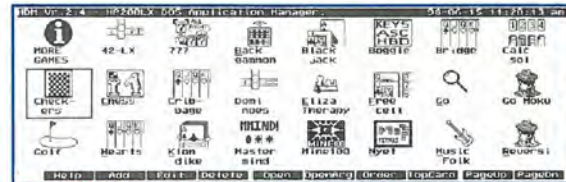
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PE (PalEdit)

A MEMO-like editor with many enhancements including spellchecker.

VR (Vertical Reader)

Lets you read doc files and electronic books, vertically on the palmtop.

DBV (DataBase Viewer)

Fast phone, appt and database file viewer.

View

Lets you view files from a variety of word processing formats.

Tune

Metronome and musical tuner.

ZIP

Fast PC to palmtop serial transfer program.

Draw

Palmtop drawing/paint program.

PC Outline

Enter thoughts, plans, ideas, and organize them into a hierarchical structure.

Stereo Shell

DOS file Manager.

garlic

Fixes corrupt database files.

PKZIP

File archiver/compressor.

LHA

File archiver/compressor.

LXPIC

Lets you view GIF, JPG, BMP, PLX graphics files.

Andrew3

More readable palmtop font.

CloseFlr

Close File! to save memory.

Buddy

Zillion utilities in one.

fastdb

Speeds up database programs (e.g. Phone).

MoreEXM

Breaks system limitation of 7 EXM files. Enable software like ZOOM.

Typing Tutor

Type faster on the palmtop.

Zoom

Wonderful Magnify-like program that enlarges and makes more readable any section of the screen in built-in apps. For example, can blow-up datacard for more readable phone numbers.

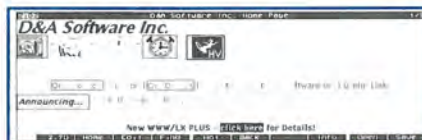
Subst

DOS 5 utility superior to ASSIGN.

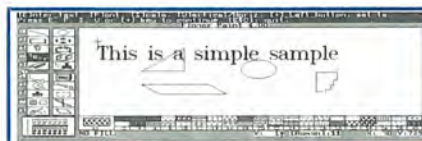
Vclock

Whole screen clock and timer.

Here's a brief preview of what SUPER Software Carousel does for your palmtop!



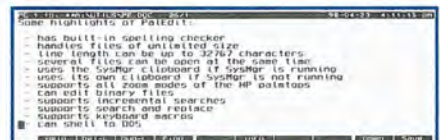
Use HV and LXPIC to view web documents graphics.



Paint, Flowcharts and maps with Draw



LXPIC can view PCX, BMP, JPG, GIF files on your palmtop.



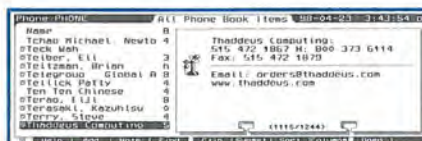
Advanced editing with MEMO-like PalEdit with spell checker.



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Visible Clock: Full screen clock, timer, stopwatch.



Zoom blows up any phone book, appointment book, or database item. Above is a before and after view.



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Tetris

MasterMind

Mine Sweep

Reversi (Othello)

Sokabin

Boggle

Chess

Go

777

Go-Moku

Solitaire (many kinds)

Therapist

Play Music

3-D Tic Tac Toe

Worm

Here's how to order:

Super Software Carousel comes on a CD with complete, easy-to-follow installation instructions and a concise electronic User's Guide.

If you have Thaddeus Computing install it while your palmtop is with us (free installation) you'll still receive the CD. (You can even send your palmtop just for the free Software Carousel installation.)

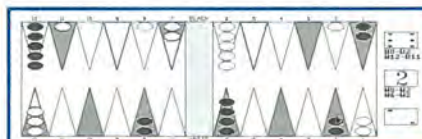
If you are upgrading from a previous version of Software Carousel, see **How Do I Upgrade?** on previous page to save \$60.

Super Software Carousel (New) \$139.95 # SSCN

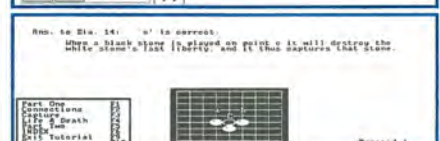
Super Software Carousel (Upgrade) \$79.95 # SSCU

System Requirements

Includes the complete version of Software Carousel, plus lots of additional software. Runs on HP 100LX, 200LX, or 1000CX on flash disk or in system RAM (C drive). Full package requires 5 meg: a little over 2 meg for applications, 2 meg for games, and 1 meg for Software Carousel sessions. Even more applications than listed are included on CD.



Here's how Backgammon, FreeCell, Chess, and a Go tutorial look on the palmtop. Other games include Tetris, Checkers, a music selection, and a palmtop therapist.



Apps

Zoom Anywhere

Games!

User to User: HP 200LX Alive and Well, Thank You!

At COMDEX, HP shows its notebook-sized Jornada, a new kind of Windows CE product.

by Hal Goldstein

I recently returned from Fall COMDEX in Las Vegas, where 200,000 attendees visited some 2400 computer exhibits. Windows CE hardware and software was present everywhere! Even so, I came away believing more firmly that the HP 200LX will be a viable choice for the foreseeable future.

Where are the Palmtops?

Strangely, manufacturers did not promote palmtops — HP 200LX-sized Windows CE devices. If you looked hard, palmtops a little larger than the HP 200LX, could be found in the HP and Sharp booths. Rather, a half a dozen manufacturers proudly displayed PalmPilot-sized Windows CE devices. Even more notably, a new category, the small notebook-sized “Handheld PC Professional” (H/PC Pro) appeared at the HP, Sharp, Vadem, NEC, LG Electronics, and Hitachi booths. HP, the first to ship, showed off its Jornada 820.

The conventional wisdom seems to be that HP 200LX-sized keyboard units are best suited for vertical markets and do not have broad-based appeal. On the other hand the success of the PalmPilot suggests that there is a large market for palm sized units that synch easily with a desktop and carry basic contact and appointment book information. Similarly, manu-

facturers of the H/PC Pro will achieve widespread acceptance.

Why an H/PC Pro When You Can Buy a Laptop?

The obvious question, why are so many manufacturers introducing H/PC Pros, especially now that notebook prices and sizes are coming down. After all, you can buy a low end Windows 98 notebook for \$1000, the price of a Jornada. How well manufacturers can communicate the answer to its corporate and consumer clients will determine the success of the H/PC Pro.

So, why an H/PC Pro? Imagine an enlarged HP 200LX with color screen and touch-typeable keyboard. Suppose it could handle all your email, Web browsing, and desktop PIM synchronization requirements. Instant on, long battery life, light weight, small footprint ... you get the idea.

Right now I am writing this article in a cramped coach airline seat with two burly passengers on either side of me on a 4-hour flight to San Francisco. A passenger next to me, after struggling with his bulky laptop, is now getting a low battery warning. I continue typing away on my NEC 750C Windows CE machine that I described a few issues ago.

There are advantages to the H/PC Pro over a Windows 98 notebook. Like the HP 200LX, an H/PC Pro comes

with lots of built-in software in ROM that just works. No installation. No corrupting or deleting key files by mistake. Built into all H/PC Pros are Windows CE pocket versions of Word, Excel, Access, PowerPoint, Internet Explorer, and Outlook (for email and PIM functions). These and third party apps synch with the desktop versions automatically. Bottom line: total cost of ownership as well as general frustration level is much lower with an H/PC Pro than a Windows 98 notebook. Lots of corporations will seriously look at these machines as cost-effective solutions for mobile professionals who do not have large processing or storage needs.

The Answer for Your Non-Technical Friends?

Microsoft from the start has dubbed Windows CE handhelds, “PC Companions”. Easy, fast synchronization between desktop data and the PC companion, has been Windows CE strongest virtues. This strategy targets the business desktop user. However, if Windows CE manufacturers are unwilling or are unable to educate the average consumer, I think they are missing a huge market.

How many times have you been asked by non-technical friends, what computer should they buy? Most would-be users want email and Internet. Maybe they also want to do

some light word processing and personal finance. They don't really want to devote a desk or a room to a computer. They certainly do not want to struggle learning and "fixing" their (Windows 98) computer. They want to be able to press a button and start working.

It seems to me a \$800-\$1000 Windows CE Handheld PC Professional, perhaps with a printer and a flash card, is an excellent choice. What do you think?

What about the 200LX?

So where does all this leave the HP 200LX? I think in surprisingly good shape. All the DOS software and great PIMs will continue to make it both a solid general, as well as vertical, solution for years. The fact that Windows CE manufacturers are down-playing the palmtop form factor (and making CE versions too large in the first place) will only add to the HP 200LX staying power. Many of us realize that the HP 200LX is a great size — the best of a Jornada and PalmPilot: it fits in your pocket and you can do a reasonable job typing on it.

My conversations with HP indicate that HP has no intention of obsoleting the HP 200LX. It seems that manufacturing, distribution, and sales

of the HP 200LX are on automatic. At the same time HP has no plans to either market or enhance the HP 200LX platform.

The most important function missing from the HP 200LX is synchronization. Many users would like to synch with Microsoft Outlook. Several programmers have said they are working on this. Hopefully, I'll be able to report a solution soon.

That synchronization function which is the strength of Windows CE is also its weakness. Windows CE shares the look but is a totally different operating system than Windows 98. The files are not compatible. You can't directly read desktop Word or Excel files into a Windows CE machine. You have to synchronize first. Personally, I don't like messing with serial cables and software. Somehow, no matter how easy the process is supposed to be, often something goes wrong. I like moving files from my desktop and notebook to my HP 200LX via PC Cards.

A final wish. I wish that the color screen H/PCs could use regular alkalines (or at longer lasting lithium Energizers.) That way, in case of an emergency on long trips or while traveling in foreign lands, backup battery power would always be avail-

able. Rather, H/PC's with color screens commonly use lithium ion rechargeables, which admittedly are better for the environment and give acceptable performance.

Windows CE Goodies for the HP 200LX

HP 200LX users hopefully will benefit from all the Windows CE product development. In particular, I have high hopes for new low-powered storage and I/O CompactFlash cards. Any CompactFlash card using an inexpensive adapter, meeting the CompactFlash specification, potentially can be used in the HP 200LX PC card slot.

Sandisk, just announced 64, 80, 96, and 160MB CompactFlash cards. The advantage over full-size PC cards is that they can be used in more devices including most digital cameras. Iomega and IBM showed two other novel solutions for data storage that may eventually work with the HP 200LX. Iomega's Klik! Drive (www.iomega.com) reads a tiny \$10, 40MB Klik! Disk. Iomega offers solutions whereby the disk can be accessed in a CompactFlash or PC card slot. IBM promised a 340MB shock resistant, mechanical drive (microdrive) that works in a CompactFlash slot at around \$1 per megabyte. No shipping date given.

More exciting to HP 200LX users are new low-powered CompactFlash-sized I/O (input/output) cards. We spoke at length to Pretec about its 56K CompactModem and 10BaseT and 10BaseT/2 CompaqLAN cards. Ready first quarter 1999, are CompactParallel and CompactSerial. Second quarter comes CompactGPS, CompactSSFDC (smart card reader), CompactSCAN, and CompactIRDA. We will be testing these products on the 200LX, and as necessary writing custom software drivers. Hopefully, I will be able to report success in future columns. ■

HP Jornada 820 H/PC Pro - \$999

HARDWARE: 190 MHz StrongARM RISC CPU; 16MB RAM; 16MB ROM; 8.2" (diagonal) 640x480 color VGA screen with 256 colors (not a touchscreen); touch-typeable QWERTY keyboard with integrated touch mouse pad; internal 56k modem; serial port; fast IrDA infrared port; VGA monitor port; modem port; Universal Serial Bus port; Type II PC Card slot; Type II CompactFlash slot; lithium-ion rechargeable battery pack; backup batteries; AC adapter; synchronization cable; Phone cord, quick start and users guides.

SOFTWARE: Windows CE 2.11 operating system; H/PC Pro Pocket applications and accessories; Windows CE Services 2.2 (on CD ROM).

ADDITIONAL SOFTWARE built-in or bundled on disk or CD ROM: Jornada Viewer, Jornada Dialup, Jornada Hot Keys setup, Jornada Settings utility, Jornada Show, Jornada Backup, LandWare's OmniSolve financial calculator, bFAX Pro, bVIEW, bFIND, Proxim RangelAN-2 software driver, HP TopTools Agent, TrueSync CE 2.0 for REX and REX Pro users, Microsoft Java Virtual Machine, Citrix ICA client, and the INSO file viewer.

ACCESSORIES: Synchronization cable, sync/AC cable, AC adapter, standard lithium-ion rechargeable battery pack; extended life lithium-ion rechargeable battery pack, parallel printer cable, serial adapter, 16MB RAM upgrade, 4MB and 10MB CompactFlash cards with PC Card adapter.



Promises, A Partnership and The HP Palmtop

We know that the HP Palmtop can merge several appointment books. Who would have suspected that the Palmtop could help merge two lives and two families? Two new partners tell how they did it.

By Chuck Sutherland and Marilyn Kodish-Sutherland

CHUCK: Marilyn and I first met through our volunteer work in an organization called RESULTS. We were both lobbying for legislation to save children's lives and eliminate the worst aspects of poverty.

We already had many interests in common but when we discovered that each of us had HP 200LX's we knew it was fate.

We were married on August 30, 1998. In our wedding vows we promised each other Partnership, Joy, Love, and Intimacy,

Planning Two Weddings

If you've ever tried to plan a wedding you know how complicated things can get: complicated enough that many people hire professional wedding consultants to plan it for them.

Instead, we used our HP Palmtops to plan our wedding. It was doubly complicated because we actually had two weddings: one in Pittsburgh and one in Dallas a week later. The HP allowed us to stay on top of the details of both weddings. At any given moment we could track wedding invitations, maintain to do lists and manage multiple budgets.

For example, I created the list of invitees for my friends by marking names in my PhoneBook file to cre-

ate a list of invitations.

Basic Pims

MARILYN: I use my Palmtop's built-in PIMs to manage everything.

Whenever I meet someone and they hand me a business card I enter the info directly in the Phone database. When someone gives me directions to their business or home address I enter it in the Notes field. I've apparently gained a reputation for having contact information and directions. People call me to find a phone number or get directions rather than access a locator site on the World Wide Web or call the phone company.

CHUCK: I use Lotus 123 to track my construction and development projects, including Pro-Forma Operating Statements, Cost Projections, and ongoing project budgets. I transfer data back and forth to Excel on my laptop.

MARILYN: I copied the format of my Phone Book when I moved to

Dallas and wanted to create a new phone book for the people who would become my new community. I keep personal and business phone numbers in one book but have a different book for each city that I've lived in. When I moved to a new city I merged active numbers to the new directory but kept the old one for reference..

Keeping Notes

MARILYN: We each use the NoteTaker application as a "grabbag" collection of items which cross our consciousness. Chuck keeps grocery lists, movies to watch, gift ideas for our families. I keep long-term information such as passwords for all my accounts, family social security numbers and health benefits for easy reference.

CHUCK: Both of us are taking a year long course on partnership and one of the assignments is to keep a daily journal for the year. We created a new database using NoteTaker. Each



ABOUT THE AUTHORS

Chuck Sutherland and Marilyn Kodish-Sutherland live in Dallas, Texas. They may be reached at sutherland@swbell.net or kodish@consulting.org.

Chuck Sutherland is a commercial real estate developer and builder. He travels extensively on business throughout the U.S. Marilyn Kodish-Sutherland is a consultant for Anderson Consulting and occasionally travels for work. Due to their recent marriage, they are the parents of five children and the grandparents of one. Each year they give away HP 200LXs to their children and family to expand their "family partnership" in the HP 200LX.

day we insert the date using FN-DATE in the Title Field and write our daily journal entry in the Notes field. The course meets every other month and we use the Category to indicate the course weekend — so we only need to print the entries that are new since the last weekend.

Databases

CHUCK: We use the HP Database PIM to track credit card and account information in one database, while Internet Addresses are in another. Various DOS and other software compatible for the HP are tracked in another database so I can remember where to find it or how to properly configure it for use on the HP.

For work, I track real estate sites on the HP as well to avoid confusion as to the price or status of properties I'm interested in buying.

MARILYN: I use separate databases to track books, movies and CDs I own or want to own. For example, when someone recommends a book I enter it in my Books database by author, book title, category (such as General Business, Organizational Development, Communication, Spiritual) and who referred it to me. If and when I buy it I make a note in the "OWN?" field so I don't accidentally buy a second copy. I do the same for CDs and movies. I sometimes forget which movies I've seen. This ensures I don't rent a movie more than once.

Both of us read extensively and plan to write business books together in the future. I use the memo file to take notes on books when I'm browsing at the bookstore. What we really want is a good bibliography program. Chuck created one in Database but we really want something we could import to PROCITE, a desktop bibliography program I used while working on an MS degree in organizational learning. We currently have PAPYRUS Version 7.0.16a. Its primary feature is its ability to export data into PROCITE on our desktop systems. The demo version of PAPYRUS can be downloaded free from www.rsd.com.

Chuck loves to experiment with both the built-in programs and DOS software. He's always on the search for another DOS program that will run on the Palmtop.

Memo and Word Processing

MARILYN: I use Memo to record longer notes I want to keep and refer to, such as lecture notes from a course, or an important business meeting.

In our volunteer work with RESULTS, it's important that we know the latest status of legislation. To accomplish this, we keep legislative info in Memo and update the file as necessary. This has been extremely valuable in talking to people about the issues.

CHUCK: I use WordPerfect 5.1 on the Palmtop. It promises to be the most important program that we use. Being able to write, edit, format, and print full-scale documents will reduce the time we spend using Microsoft Word on the desktop.

Since I was accustomed to using a mouse with WordPerfect, I bought an EasyCat serial "glide" mouse by Cirque. It plugs into the Palmtop's serial port with a special adapter and uses a mouse.com driver that I scrounged from an old Inteltech disk. While the mouse doesn't work with the Palmtop's built-in software, it works quite nicely in WP 5.1 and many other DOS programs.

Project Management Software

CHUCK: While I have experimented and continue to experiment with many DOS based project management programs (CA Project, Protracs, Mainline, Timeline, Easy Project, Microsoft Project, and Project Vision), I wanted an easy-to-use system. Finally, I invented a simple database program called PROMISES.GDB.

It's based upon the idea that every component of any project is actually a promise from one person to one or more people. Consequently you manage a project by managing your promises and the promises of others. Each Category is a different project. Each item has a Promise (What), Promise Made To (Who), Resources,

Start Date, By When Date, Done, and Notes Field.

By using the Column Display (F8), I can view "By When" for all projects or create a filter (F6) and view the data based upon subsets such as Project, Promise Made To (Whom). It's easy to use and simply requires daily updating.

Backups

MARILYN: We both use TRANS-FILE200 to back up our HP Palmtop@s to our respective desktops. While it seems to take forever it does have the advantage of virtually foolproof operation. ZIP.COM has the advantage of faster file transfer rates but does require more skill and slightly more keystrokes. Chuck uses this for larger program transfers.

Communication

The Partnership course we're currently taking emphasizes the value of communication. We're learning to listen all over again. However, we've taken this one step further. We've taught our Palmtops to listen to each other.

We have exchanged programs and data through the infrared port on our HPs. It's much easier than going through a desktop and relatively error-free.

Sometimes infrared communication is faster than trying to listen and write down numbers and addresses.

When I'm on the road and too far away to use infrared, I use a Wireless Modem connected to Wynd Communications to send and receive quick e-mail or a "fax-note". Marilyn's Palmtop has the same setup. Before she moved to Dallas this was our primary method of keeping in touch. Talk about being "wired together!"

An Absorbing Diversion

CHUCK: There is only one game we play on the Palmtop and its name is FREECELL. We play it frequently and often have Freecell Contests. Our "best bad habit" is that we play the

Continued on page 36

Controlling the LEGO MindStorms Robot from an HP Palmtop

If you're looking for a way to use the Infrared port on the HP Palmtop this article may give you an idea or two.

by Thomas Dow

It used to be that kids went through a progressive set of "construction toys" beginning with building blocks then Lincoln Logs™ and finally settling in with an Erector set.

Nowadays the construction toy of choice seems to be LEGO Blocks. These colored pieces of plastic can be hooked together to let a budding engineer build everything from model dinosaurs to skyscrapers. Some of the more elaborate versions of the LEGO blocks even have motors and, of all things, a robot-control computer.

The MindStorms Robot

The Mindstorms Robot is a programmable 8 bit computer housed within what looks like a large LEGO brick. It has 3 input ports for touch and light sensors and three output ports for driving motors.

The robot kit comes with software that runs only under Windows 95. The language used on the desktop could best be described as Visual Logo, a graphical version of the Logo computer language from the Massachusetts Institute of Technology.

You can develop a complete sequence of tasks for the robot simply by dragging, dropping and connecting various "action-pictures" on the screen. There's very little, if any, coding needed. Programs designed on



Screen 1: The Lego Robot

the desktop are downloaded to the robot through an infrared transmitter attached to the desktop's serial port.

The Palmtop Connection

I've been using The Hewlett-Packard 100LX for many years. It is still unsurpassed as the most versatile palmtop computer available. I've made good use of the PIM software,

Lotus 123 and HP Calc, but I'd never had a reason to use the built-in infrared port.

The instant I bought a MindStorms robot, I began searching for a way to control it from my HP 100LX. The HP Palmtop has a large and loyal following and a lot of third-party software is already available; most of it coded by individual Palmtop enthusiasts. I was aware of a couple of programs that, using the built-in IR port, allowed the Palmtop to imitate a universal remote control. I reasoned that it was likely that one of these could be used to accomplish my goal.

Let the User Beware

It is important to note that the IR port on the HP 100LX and the MindStorms unit are I/O ports just like any hardwired port. It is, therefore, possible to cause permanent damage to your computer or robot by sending incorrect signals through this port. Use caution and common sense when experimenting with the



ABOUT THE AUTHOR

Thomas Dow is a Layout Artist for Walt Disney Feature Animation in Orlando, Florida. He is a member of a team of artists responsible for creating the background images and cinematography behind Disney's popular animated films. Besides being fun to play with, his HP palmtop keeps track of a menagerie of facts and data allowing him more time to concentrate on drawing.



Screen 2: A Sensor



Screen 3: Setup for Programming the Robot



Screen 4: Additional Parts For LEGO Kits

IR port. The experiments I have conducted so far seem to have caused no harm but I cannot be held responsible if you damage your own equipment by experimenting with infrared signals or even by following my own experiments to the letter.

The Remote Control 100 Program

Remote Control 100, written for the HP 100LX by Diomidis Spinellis is a very versatile program which proved to work as a control program for the MindStorms robot. RC100 has two modes of operation: learning

mode and execution mode. You type "rc -r filename.rcf" on the dos command line to start RC100 in learning mode. In this mode, infrared signals will be accepted into the IR port and assigned to the keys of your choice. When you press the ESC key, the program creates a script file (named on the command line) and exits. Analysis of the script file shows the structure of RC100's own simple programming language. The keys bound in learning mode are followed by their respective IR signals: to human eyes, an uncomprehensible string of gibberish. Once you have bound your keys, you can edit the script file using the HP 100LX's Memo editor. The README file included with the Remote Control 100 describes how this can be done.

To control the MindStorms robot, I made use of a feature of the robot which allows it to send and receive IR signals to a second robot. These are the "Send to RCX" and "RCX Sensor Watcher" commands on the Windows 95 programming interface.

The MindStorms robot can send a number, 0 to 255, to another robot. This number can then act as a trigger to activate another set of commands on the receiving robot. Using the RC100 program on my HP 100LX I was able to train the palmtop to imitate another MindStorms robot. I could then program the robot from Windows 95 to monitor for IR signals from the Palmtop and to perform certain tasks, e.g., start, stop, turn left or right when these signals were received.

Putting the Palmtop in Control

These are the steps I took to make my HP 100LX speak the language of the MindStorms robot:

1. Program the robot to send a number through it's IR port. This is done by programming a touch sensor watcher to send the desired number when it is pressed. There are two touch sensors included with the MindStorms kit, so the robot can be programmed to send two numbers.

This is your "training" program.

2. Make a test program which monitors the IR port for those two numbers. I wrote one which made the robot beep when the signal was received. Download this "test" program to a different program slot on your robot than the "training" program.

3. On the HP Palmtop, start up the Remote Control 100 program in learning mode ("rc -r file.rcf"). The program will ask you to press a key that you want to bind to an IR signal. Place the IR window on the robot facing the IR window on the Palmtop and turn the robot on. Start your "training" program. On the Palmtop, press the key you want to bind. The RC program now waits for an IR signal. On the robot, press touch sensor #1. The IR signal should be sent to the Palmtop. Now the Palmtop will ask you to bind another key. Bind this second key to the number sent by touch sensor #2. Press ESC on the Palmtop to exit.

4. The file you named on the RC command line should now exist. You can now start the RC program in execution mode by typing "rc file.rcf". This will cause the keys you bound to become active. By pressing them the Palmtop will send out the same signals it recieved from the robot. The screen on the Palmtop will be blank

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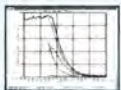
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but the keys will work nonetheless. Start the "test" program on the MindStorms robot. When you press the keys that you bound in the training step, your robot should respond like you programmed it to.

That's it! Now, repeat the above steps so that your Palmtop can learn more MindStorms numbers then edit

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the script files together and dress them up nice.

Some Idiosyncracies

— The RC 100 program only seems to work when it is in 64 column (medium) text mode.

— I could not get the .EXM version of RC 100 to work properly. However you may have better luck than I did. The .EXE version of the program works fine.

— You might need to edit your final script file a couple times before it works right. If you do not observe the correct protocol when cutting and pasting within Memo it does not seem to work.

— Obviously, you should not use an editor that imposes its own for-

matting or reinterprets characters in any way. The characters in the RC script file translate into electrical impulses and should NOT be messed with (see my cautionary note, above).

All images in this article are copyright 1998 by The LEGO Group. LEGO and MindStorms are trademarks of The LEGO Group. The LEGO Group does not endorse the procedure outlined here. Remote Control 100 is copyright 1993, 1994 by Diomidis Spinellis. I have no affiliation with Mr. Spinellis. Please direct specific questions about RC 100 to its author. The HP 100LX was manufactured by Hewlett-Packard. HP no longer makes the 100LX but the procedure outlined here should work on the HP 200LX. ■

Shareware/Freeware mentioned in this article

RC100.ZIP (freeware) is available on this issue's *The HP Palmtop Paper ON DISK* and at www.PalmtopPaper.com as well as <ftp://eddie.mit.edu/pub/hp95lx/hp100lx/rc.zip>

Commercial products mentioned in this article

The LEGO Mindstorms Robot Kit — For more information, visit the Web Page at www.legomindstorms.com The LEGO Robot kit may be purchased at most retail toy stores. The approximate cost is \$230.

HP Palmtop User Groups

Those interested in participating in an HP Palmtop users group should contact the following individuals. Send us contact information formatted as below if you wish to be added as a contact for a users group in your area. Some of the individuals listed offer Palmtop advice but may not be organizing an official users group.

HP Palmtop Worldwide User Group News

Send material about User Group activities to Conrad Cox; E-mail: 76164.467@compuserve.com; Website: www.ccnr.com-cdcx

ARGENTINA — Buenos Aires: Miguel Angel Missen; E-mail: 73070.3665@compuserve.com / Martin Sebastian; Capital Federal; E-mail: marseb@giga.com.ar; Cordoba: Paul Nani; Tel: 54-51-715649; E-mail: pnani@slcordoba.com.ar

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MA—Boston — Bryan Krauthamer; Tel: 617-374-9600 x 197 (work); Fax: 617-374-9620; CompuServe ID: [70444,41].

MI—Detroit — Jeff Zom; Tel: 313-489-1855

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Programming Is Child's Play

If you've ever wondered what programming is like take a tour of Logo programming on your Palmtop or, if not you, get your children a Palmtop and see how quickly they learn to program it.

by Ed Keefe

People often ask "What's the best way to learn programming on the Palmtop?" My answer depends on your reason for wanting to learn programming.

If you want to create programs that have the look and feel of the Palmtop's built-in applications, your best bet would be to start with Rob Koenis's LXBatch programming language.

We featured this programming tool in both the Jan/Feb and Mar/Apr, 1998, issues of *The HP Palmtop Paper*.

Once you've discovered what LXBatch programming is like, you can forge ahead and learn C with the PAL library of Palmtop functions. Be aware, however, that by the time you master C the "look and feel" of the Palmtop will have faded into history.

If your goal is to make a lot of money doing programming then forget about the Palmtop and learn COBOL and Java. You'll spend a lot of time and money moving up this learning curve but at the end you'll be a "professional" programmer.

On the other hand, if you want to discover whether or not you'd enjoy programming then I'd suggest trying the computer language called Logo.

Why Logo?

The answer to "why Logo?" is simple: programming in Logo is fun. Logo

has "instant gratification" built into it.

When you give a Logo command to a computer you see something happen on the screen almost instantly. You don't have to go through a process of compiling and debugging a lot of computer code before you get something to work.

Isn't Logo Just For Kids?

Yes: Logo is for kids but I like to think that Logo is for the kid in all of us.

I've watched pre-schoolers get hooked on Logo as if it were a computer game.

I've also watched advanced pre-schoolers (i.e., college graduates) get addicted to Logo and discover a talent they never knew they had.

True: Logo was popular in elementary schools during the 1980's but Logo has grown up and is now taught at several colleges and universities.

True: you won't find any mission critical applications written in Logo. However you will find an active community of Logo programmers at various sites on the World Wide Web.

You'll also find references to some of the brightest minds in the fields of computer science and education..

True: programming in Logo won't make you any money but then you won't have to spend any money for college courses and books. Everything you need to learn Logo is free. There are three versions of the language that you can use on your Palmtop. There are also versions of Logo available for Windows, Macintosh or Unix desktops. There are electronic books, articles, tutorials and plenty of sample programs: all free.

Try It Yourself

Included on this issue's *The HP Palmtop Paper ON DISK* as well as on our Web site, www.PalmtopPaper.com, is a copy of Ladybug Logo. This is the smallest version of Logo that we could find.

Ladybug Logo runs well on the HP Palmtop and will even run in a DOS session under System Manager. We don't recommend this since Ladybug will take over the serial port and mess it up. The best way to run Ladybug

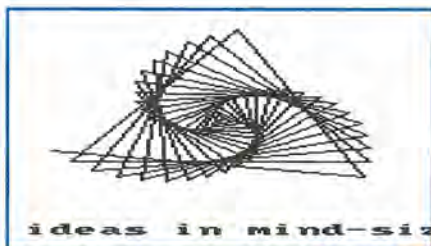


ABOUT THE AUTHOR

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Screen 1: Graphics Commands In Logo



Screen 2: From the Logo Tutorial

Logo is to exit System Manager altogether either by using the More Menu A T and Enter command or switching to a separate DOS session if you're using Software Carousel.

If you want to follow along with this article, get a copy of Ladybug. To install it on the Palmtop just transfer the files in the LADYBUG.ZIP file to a single directory on your Palmtop.

To run the program leave System Manager and switch to the drive and directory where you stored the Ladybug files. At the DOS prompt type Ladybug and press Enter.

The opening screen will ask: "Do you have an IBM monochrome display too?" Press N and then press Enter twice.

The first thing you'll notice is that Ladybug Logo uses a 40 X 25 display for both text and graphics.

The opening screen tells you to press the F3 function key and then press Enter to get Help.

Many people will press F3 and wait for something to happen. Nothing will happen however until you press Enter.

The eight help screens in Ladybug merely give the name of the built-in commands. For example, if you press "1", you'll see the graphics commands shown in Screen 1. To leave the help menu, press any key other than '0' to avoid getting a fake error message.

You can find a lot more help in the LADYBUG.LST text file on your Palmtop..

The Logo Prompt

The question mark is Logo's way of asking you "what do you want to do today?"

If you want to quit, the command is "bye" (without any quotes.) followed by the Enter key.

Some Things to Try

If you do nothing else with Ladybug Logo be sure to use the following command just for fun.

Type
load tutor

and press Enter. The message that appears asks for a "slow-down-factor." Use 10 on a double speed Palmtop and 5 on a standard Palmtop. Press Enter and you'll start a tutorial about Ladybug Logo (Screen 2).

The tutorial will occasionally ask you to type NEXT or MORE and prompt you for the "slow-down-factor." The tutorial takes about 20 minutes to demonstrate almost all of the Ladybug commands.

The tutorial will end abruptly with a "File not found" error message. Perhaps the author of the tutorial didn't complete the last part or forgot to include it in the package: who knows?

Programming Concepts

The Ladybug Tutor program will give you a good introduction to the scope of the language. However learning about a computer language isn't programming.

Programming itself starts with a few concepts and implements them by means of a computer language.

Here's my brief explanation of these concepts.

Every computer program is like an action-story.

In programming, you create a story that is made up of actions and then you tell the computer to memorize your story.

Once that's done, you tell the computer to replay the story and carry out the actions. This is true for every program whether the action-story makes the computer help you write a letter, calculate a budget, send e-mail, or play a shoot-em-up game. The computer just replays the action-story and does what you told it to do. (You won't ever write such elaborate action stories with Logo. For those stories you'll need a more complex language such as C++.)

As in ordinary writing, every story is made up of words.

Ladybug Logo knows the meaning of a few "primitive" words. It teaches your Palmtop these words when you start the Ladybug "action-story" itself. If you need more words you can define them and teach them to the computer.

Besides having a few words, the computer has a set of rules for using these words. In most languages this is called the syntax.

Once you've learned some of the words and a little bit of the syntax you can begin to write "sentences" and see if the computer can make sense of them. (Other instructors call these sentences "statements".)

When you have a handle on writing sentences you can combine several of them to make a paragraph. (Other computer instructors call paragraphs "functions".) Your rhetoric teachers undoubtedly told you that a well written paragraph should have only one idea. The same is true for "computer paragraphs." Keep your computer-paragraphs short and simple.

Programming Strategies

1. Decide What Actions You Want The Computer To Do

The first and most important task

in programming is to decide what action-story you want to create.

You don't have to know anything about a computer language to do this step. You just have to be very specific about what you want the computer to do when it replays your story.

If you throw words and sentences at the computer in a haphazard fashion something will happen (often disastrously). You might "hack" your way to a good story but so could ten thousand monkeys banging on their Palmtop keyboards.

2. Create an Outline

This is the second step in programming. The idea is to write an outline of what you want the computer to do. It doesn't have to contain all the details but it should give an accurate summary of the action-story. In a computer course this outline might be called "pseudocode". Alternatively, if you want to create a diagram of the story use a flowcharting program. (For example you could use the recently rediscovered FLOW-DRAW program on your Palmtop.)

3. Fill In the Details

When you're satisfied with your outline you can use it as the basis for the computer-sentences that will make things happen on the HP Palmtop.

Ladybug Logo provides a couple of tools to help you with this task of "coding" your actions.

The first tool is a "sentence-builder" that lets you type a computer sentence at the Logo question mark and press Enter. Ladybug will immediately show you what the computer does in response to your sentence or it will give you an error message.

Logo's error messages are cryptic but non-judgmental. They usually say something like "I don't know how to subtract."

The second tool is a "paragraph builder". It will let you combine several sentences into a paragraph and give the paragraph a name. The command to start the paragraph builder is

TO para-name

where para-name is the name you

```
to box 4 ffd 100 rt 90  
end  
File: box Line: 1 Col:  
F7=QUIT F9=DONE Sh-4=Und
```

Screen 3: The Built-in Logo Editor



Screen 4: Freehand Smiley

in a paragraph?

Ladybug provides a built-in editor that you run with the "ED Para-name" command. The built-in editor is weak by today's standards but it works. It will let you correct any typing mistakes.

Screen 3 shows a typical editing session. The bottom line on the screen shows that the F9 key will save your work and take you back to the Logo prompt.

On the Palmtop you can exit Ladybug altogether and use PalEdit or Memo as your editor. However, before doing this, save your paragraph with the SAVE Para-name command.

Paragraphs As Building Blocks

The best strategy for creating complex action stories is to work with paragraphs. Keep the paragraphs simple. Get each one working the way you want and then write a separate paragraph that tells the other paragraphs to do their actions.

4. Test Your Action-Story

The final step in the process is to test your action-story. If it doesn't do exactly what you want it to you can always return to a previous step in the process and make corrections or refinements.

A Logo Example

To see how this all fits together we'll use a simple example. Our action-story will get the computer to draw a "smiley face" on the screen. The task sounds trivial. You could do this with any number of drawing programs. That's not the point: we want

give the paragraph. To stop building a paragraph you use the command END. What if you later discover a mistake

to make the idiot computer draw the picture. In other words we want to create an action-story, tell it to the computer and and get the computer to replay it upon demand.

Decide What You Want to Have Happen

To get started, take a piece of scrap paper and a pencil and draw a "smiley face" that might look something like Screen 4. By doing this we've got a good idea of what we want the computer to draw.

Now imagine that you have to tell a machine how to draw this face.

Here are some of the steps you might tell the computer...

1. Draw a large circle.
2. Inside the circle draw a left eye using a small circle and fill in the circle.
3. Do the same for the right eye.
4. Draw an arc for the mouth.

These instructions might be acceptable for a child but the computer is not smart enough to deal with this. It has no idea what you mean by "arc" or "circle" let alone "eye" or "mouth".

If you want to use a new word you have to define it for the computer and make sure the computer understands what you mean. In this example we need to define "arc". We can define a "circle" as a closed arc.

We'll also have to tell the computer when to raise and lower the pen and where to put the eyes and the mouth. Here's a more complete outline:

1. Define an action word "draw.arc" that will...

- get the center point of an arc or circle. The values x and y refer to positions on the screen at which the center of the arc or circle will be located.
- get the radius of the arc
- get the starting angle of the arc relative to the center point
- get the angle through which the arc will sweep
- use "value-holding-words" (variable names) on the same line

as the paragraph name to pass this information into the paragraph

- tell the turtle to raise the pen
- point the turtle in the direction where the arc will begin
- move the turtle in that direction for a distance given by :radius
- turn the turtle so it points in the direction the arc will go
- compute an :amt by which the turtle will move for each 1 degree of arc and save this in the variable "amt"

- put the pen down
- repeat the two commands: forward :amt and right 1 for a number of times given by :angle
- raise the pen
- put the turtle at the center of the arc or circle

2. Define the paragraph called "draw.circle." that will...

- refer to the "draw.arc" word and tells it to start drawing the arc at 0 degrees and sweep out an arc of 360 degrees

3. Prepare the computer with an "Init" paragraph that will...

- clear the screen
- put the turtle at the center of the screen
- set the turtle's pen UP

4. Define a "draw.face" paragraph that will...

- tell the turtle to draw a circle whose center is at the 0 0 coordinated of the screen with a radius of 100 and 360 degrees of arc

5. Define a paragraph "draw.eye" that will...

- tell the turtle to draw a circle at :x = -40 and :y = 25
- tell the turtle to fill the circle

6. Position the turtle for the right eye.

- Tell the turtle to draw and fill in this eye at :x = 40 and :y = 25

7. Define a "draw.mouth" paragraph that will...

- position the turtle for the start of the mouth
- draw an arc that is centered at 0 0 on the screen, has a radius of 70, starts at 120 degree and sweeps an arc of 120 degrees

8. Define a paragraph called "TO smiley" that will...

- initialize the computer
- draw an outline of a face
- draw the left and right eyes
- draw a mouth

With this more complete outline in hand we can translate the English

statements into Logo statements and paragraphs. The end result will be an action-story.

The Logo Encoded Story

The sidebar shows the actual code that will get the computer to draw a smiley face. Once you have Ladybug Logo working on your Palmtop use your favorite editor to key in the code as shown and save the file as SMILEY.BUG in the same directory that contains the rest of the Ladybug files. Start Ladybug and type the command

Load Smiley

and then press Enter. Type the single word

Smiley

and press Enter and see if you get the desired results.

SMILEY.BUG

```
to draw.arc :x :y :radius :start :angle
  penup
  setxy :x :y
  setheading :start
  forward :radius
  right 90
  make "amt :radius * tan 1
  pendown
  repeat :angle [fd :amt rt 1]
  penup
  setxy :x :y
end

to draw.circle :x :y :radius
  draw.arc :x :y :radius 0 360
end

to draw.eye :leftright
  make "x 40 * :leftright
  make "y 25
  draw.circle :x :y 20
  paint 3 3
end

to draw.face
  draw.circle 0 0 100
end

to draw.mouth
  draw.arc 0 0 70 120 120
end

to init
  clearscreen
  setpc 3
  hideturtle
end
```

New! Link-A-Printer II

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Link-A-Printer II is a serial to parallel converter that allows direct printing from your OmniGo 100 to any parallel printer. It also works with the HP 100/200LX.

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When you type in the code, be aware that the first line starts with the word "to" and ends with the word "angle". Be careful how you key in the sentence

```
make "amt :radius * tan 1.
```

There are spaces on either side of the multiplication sign "*". They need to be there or you'll get an error message. The colons before some letters or words tell the computer that this is the name of a place in its memory

About Logo

The Logo computer language first came to life on a large computer in the Artificial Intelligence labs at MIT. The language was a spin-off of a computer language called Lisp.

The inventors of the language hooked the MIT computers to a "robot" that looked like a large, inverted, salad bowl with wheels. Since it looked like a "turtle" that's what they called it.

They used Logo to move the robot in the same way that kids nowadays use radio controls to move toy cars.

Logo in Education

Seymour Papert, an instructor at MIT, proposed that Logo be given to kids to see if they could discover how a computer works.

Logo left the laboratory and entered classrooms inside thousands of Apple II and Texas Instrument 99/4A computers in the 1970's and '80's. The large "turtle" was replaced with a small on-screen triangle.

Logo in Higher Education

Like many other computer languages, Logo grew in complexity and graduated from elementary and high school and showed up on several college campuses where it became the preferred "learning language" for non-computer science students.

If you want a version of Logo that

where there is a value (i.e., a variable.)

We could have written this action story in one large paragraph. However breaking the code into small paragraphs will let you use the command EDIT Para-name rather than the EDIT ALL command. That way you can work with a small amount of code rather than having to scroll up and down through all the code.

Your Task

You may discover a few typing

is used at the University of California, get a copy of the BLOGO.EXE file from our Web site. It runs on the Palmtop and will do everything Ladybug will do and a whole lot more.

If you want to try creating Windows programs then get a copy of MSWLogo from the Softronics company (MS does not stand for Microsoft in this case). It too is free for the taking.

Read More About It

If you want to read more about programming in Logo there are two text files in the Ladybug package. One is called LADYBUG.LST which is a reference manual for Ladybug Logo. The other is labeled DIS-CVR.TXT. "It's really a book about having fun at the computer, about exploring new ideas, about discovering what you and your imagination can do with Ladybug Logo."

Where To Go After Logo

After you've mastered Logo to your satisfaction you should find that programming the LEGO Mindstorms Robot is a "piece of cake." The "LEGO" language is really the Logo language in disguise.

If you want to expand your programming repertoire the next step would be to learn the Scheme or Lisp computer languages.

Finally, if you have an HP 48GX calculator, Scheme or Lisp will give you a better understanding of the Reverse Polish Lisp language built into that machine.

mistakes. To correct these use the "Edit para-name" or "Ed All" command and use the built-in editor. Be sure to press F9 when you've finished making any changes.

As an additional challenge, see if you can make the smiley face frown rather than smile

On this issue's *The HP Palmtop Paper ON DISK*, there is another version of the program. That version uses variables instead of numbers. Loading and running this version of the program will let you adjust the size of the smiley face to make it larger or smaller. The file is called SMILEYB.BUG and you can use the command "Load Smileyb" to bring the file into Ladybug and any of the commands: Smiley 1, Smiley .5 or Smiley 1.5 to run the program.

Summing Up

The Logo language is a good way to introduce the ideas of programming. The one example we've used may be childish. I'd rather refer to it as "child-like". Hopefully it will let you experience the child-like fascination of creating something new and unusual in your Palmtop. ■

Shareware/Freeware mentioned in this article

LDYB-HP.ZIP 212,547 Bytes (freeware by David Smith, 1984) and **FLODRAW2.ZIP** (250K bytes, shareware, by George Freund) are available on this issue's *The HP Palmtop Paper ON DISK* as well as on line at www.PalmtopPaper.com. Other copyrighted freeware mentioned in the article:

BLOGO.EXE (941 K bytes) UC Berkeley Logo along with **UCBL-HP.ZIP** (278 Kbytes) a pre-installed version of BLOGO for the HP Palmtop, are available at www.PalmtopPaper.com

MSWLogo for 16 or 32 bit Windows, from Softronics, is available at www.softtronics.com

• • • BASIC TIPS • • •

Unless otherwise noted, the Basic Tips are by Ed Keefe.

The first tip is the complete version of the Tip from the Nov/Dec, 1998 Issue. This time we put it at the head of the list so it won't get accidentally truncated.

Lotus

Linking Lotus sheets

Excel and other Windows-based spreadsheets use workbooks made up of several worksheets. To access the different worksheets in a workbook you have to click a mouse on a "tab" button usually located at the bottom of the screen.

Even though this feature is not available in the version of 1-2-3 on the HP Palmtops you can simulate something like this by hooking several worksheets together with Lotus macros. The simulated "workbook" will consist of a main worksheet and several more worksheets that are hooked to this main sheet.

For example, you could have twelve different worksheets that track expenses for each month of the year. The main worksheet could contain summary data from each of the twelve worksheets.

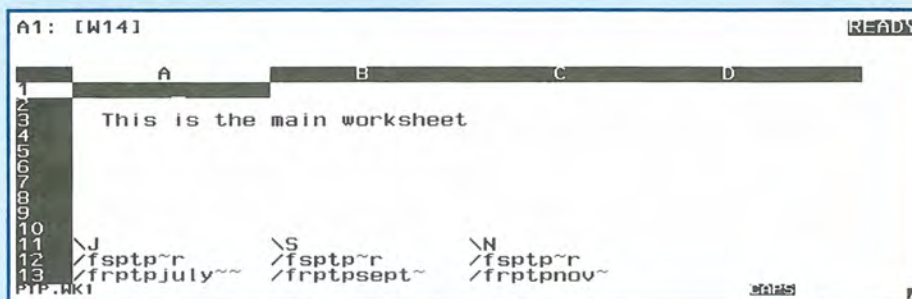
(To review how to use the +<> operator to update cells in one worksheet from another worksheet see the Quick Tip titled "Link Files with Formulas" in the July/August, 1998 issue of *The HP Palmtop Paper*).

To keep things simple, the following example will use a main worksheet and a single "attached" worksheet. Once you see how the technique works you can extend it to however many extra worksheets you want.

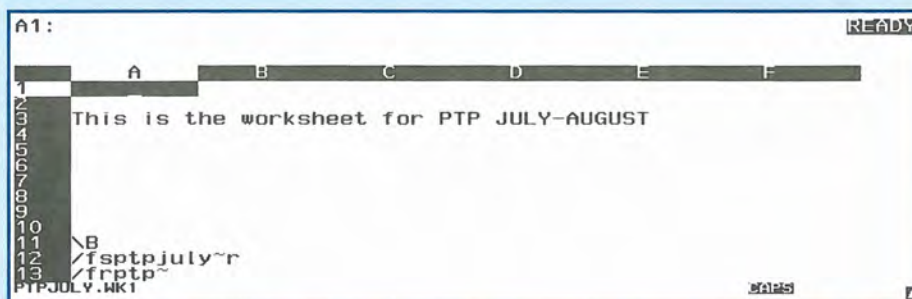
To get started open Lotus 1-2-3 on the Palmtop and press MENU Worksheet, Column, Column range, Set-Width and set the columns A1..D1 to 14 and press Enter. Then key in the text and macros shown in Screen 1.

In cells A11, B11 and C11 be sure to press the apostrophe key before keying in \J, \S and \N otherwise you'll get cells filled with JJJJJJJJJ, etc.. Likewise, when keying in the macros in cells A12..C13, type an apostrophe before typing / otherwise you'll activate the Lotus menu. Once you've keyed in the information, use the command MENU File Save and call the file PTP.

The three macros in the PTP work-



Screen 1: Main File Holds the Links



Screen 2: Sample Macro Linked Worksheet

sheet are similar. The first line issues the command Menu (/) File Save ptp Enter (~) Replace. This will save this worksheet. The second line in the macros are commands to run MENU File Retrieve PTPJULY Enter (~) where PTPJULY will be our attached worksheet.

To set the macros, put the highlighting cursor in cell A11 and use the command MENU Range Name Labels Down. Use the right arrow key to highlight the cells A11 through C11 and press ENTER. (This is a shortcut for naming the macros all at once.)

Having saved the PTP worksheet, issue the command MENU Worksheet Erase Yes and key in a second worksheet shown in Screen 2.

The macro in cells A11..A12 is almost the same as the ones in the PTP worksheet. It saves the current worksheet and retrieves the PTP worksheet. This single macro is labeled \B which stands for "Back" since it will send you back to the main worksheet.

If you add more worksheets, you can press the Fn Copy command and highlight the cells A11..A13 and press Enter to copy the text to the clipboard. You can then use the Fn+Paste keys to paste the text in another worksheet. In these other worksheets, you'll need to modify the name of

the file in the '/fs...~r line and you'll need to use the command MENU Range Name Label Down to set the \B macro.

When you've finished creating the second worksheet, save it with the command MENU File Save PTPJULY. Now you should be able to press the ALT+B key to run the \B macro and you'll find yourself back in the PTP worksheet. There you can press the ALT+J keys to run the \J macro which will take you to the PTPJULY worksheet.

Note that the macros do not need to be located in the cells starting at A11. They can be moved to any place in the worksheet. I've put them in these cells as a reminder that they're keyboard-macro simulations for "Tab" buttons. Likewise the column widths do not need to be set to 14. That was done to make it possible to see all the text in the macros.

Note: The .WK1 files above are available on this issue's *The HP Palmtop Paper ON DISK* as LINK-WK1.ZIP

HP CALC

Roots of Numbers in CALC

You can find cube roots, fourth roots, etc. in the following way. Put the HP calculator

in Math mode with Menu Applications Math. This will expose the LN, e^x , LOG, and 10^x functions. To take the 5th root of a number, for example, all you have to do is divide the LN of the number by 5 and then do the e^x function. This would work exactly the same with the LOG and 10^x functions. A simpler way is to realize that the cube root of a number is simply the number raised to the "one-third" power. That is the cube root of 27 is $27^{1/3}$. If you're using RPN, the keystrokes would be 27 Enter, 1 Enter, 3 /, ^ . The answer is 3.00. Likewise the fourth root of a number is $\text{Number}^{1/4}$ and so on.

Stan Dobrowski—76711,2302

General

Optimization Tips

When I got my HP Palmtop upgraded to Double Speed, it felt like a new machine. I was happy as a clam until I noticed the downside. A set of alkaline batteries that formerly lasted six or more weeks now gave a low battery warning in less than four weeks.

If you're concerned about battery life but you'd still like to coax a little more speed out of a standard HP Palmtop then consider the following.

The two greatest drains on battery life are caused by the serial port and the act of saving information on a PC Card. Saving information on a flash RAM card in the A: drive also happens to be one of the slowest operations in the Palmtop. It can take almost 100 times longer to save the same data on a PC Card as it would to save it on the C: drive.

So the first thing to do in the interest of saving battery life is to shut the serial port off when you're running DOS programs. You can do this with the DOS command `D:\BIN\SERCTL /O` or by starting the Setup program and pressing F6 (Comm) and make sure the "Enable Com1 Port in DOS" box does not have a check mark in it.

If you do not have a PC Card as drive A: then you've done as much as you can to optimize the Palmtop for battery life and speed.

On the other hand, if you do have a PC Card, configure as many programs as possible to use the C: drive instead of the A: drive.

If a program performs a lot of reading and writing to the disk, keep all the data files for that programs on the C: This would include all the files for the database programs such as Appointment

Book, Phone Book, NoteTaker and Database. All of these programs are "disk intensive". On the other hand, 1-2-3, Memo and HP Calc do not perform a lot of reading and writing from disk during their operation.

If you use the database applications you can coax a little bit more life out of a set of batteries and speed up the operation of the database by using the FASTDB program. FASTDB.TSR prevents the database engine from writing to disk until you quit the database.

Also, if you have some database files that seldom need to be updated use the DBV.EXE program to view them. DBV does not write anything to the disk at all. It merely reads and displays the data. This could save some time and energy because, if the file has not been altered since it was last backed up, it won't need to be backed up at the end of the day.

If your C: drive is not large enough to accommodate your frequently used data and program files then it's time to upgrade your Palmtop to a larger C: drive. The cost of such an upgrade is falling. An 8 or 32 Mbyte C: drive will decrease battery life in your Palmtop by a small amount (10-15%), but with the slight increase in speed you can turn your Palmtop off just that much sooner.

To further save on the use of the A: drive, use a file compression program to create backups from the C: drive to the A: drive.

Many Palmtop users favor the Stacker program for transparent compression and decompression of files. I prefer using the free compression program LHA. I just make sure to use the Update option with LHA and to use the -w option to set the work area for the program on the C: drive rather than the A: drive. Certainly, compressing files and then writing them to disk takes longer than merely copying the same files from C: to A:. On the other hand, if you compress a file to 50% of its original size and then save it on the A: drive, the battery drain caused by writing to the A: drive will be cut almost in half for that operation.

Finally, if you use the Appointment Book and ToDo list quite a bit, make it a weekly or monthly practice to remove out of date information from this database application. If you want to preserve this information for an annual performance review, check the "Save Removed Items in Archive" option in the Remove Items dialog box. A leaner Appointment Book will load and close much more quickly, again

saving a little time and battery energy.

LOTUS 1-2-3

Preventing a Disastrous Save

Most people who use 1-2-3 save their spreadsheet-in-progress every few minutes by using the command [Menu] File Save [Enter] Replace. The [Enter] is in response to 1-2-3's display of the name that the file was last saved as. This is a good practice to adopt. Unlike the database applications on the HP Palmtop, Lotus 1-2-3 does not automatically save information on disk while you work. If the Palmtop locks up, you'll lose whatever has not been saved to disk.

However, once you get into the habit of saving your work frequently you may get tripped up by this good habit.

How? Suppose you have started a new worksheet instead of retrieving one from disk. It has no name. If you use the same [Menu] File Save [Enter] Replace keystrokes you won't update an earlier version of the file; instead you'll accidentally write over the first 1-2-3 file that appears in the control panel. You'll also give your new worksheet the same name as the worksheet you just wiped out.

According to Murphy's Laws, this will only happen late at night in a motel room when you're in a rush to finish a spreadsheet and you don't have any backups with you. And the file you'll destroy will probably be "BUDGET.WK1"—the most critical file needed for that 8 AM meeting.

Here's a tip that will save you from doing the right thing (saving often) at the wrong time.

Start 1-2-3 and immediately save an empty worksheet with the name 0.wk1 (That's a zero: not an oh.). This will always be the first file in the list of files when you start the [Menu] File Save command.

Now, press Menu Sys to get to the DOS prompt. Type `D:\BIN\ATTRIB +R 0.WK1` and press Enter. This will make the empty file Read Only.

Then type Exit and press Enter to return to 1-2-3. To test this tip quit and restart 1-2-3 again. Press [Menu] File Save Enter Replace and you should get an error message that the File or Directory is read-only.

... QUICK TIPS ...

All Quick Tips are by Ed Keefe unless otherwise noted.

Database

Trois GDBs

Like many readers you probably turn to the Basic and Quick Tips section of *The HP Palmtop Paper* the minute you get the newsletter out of its wrapper. Often you'll find a tip that is just what you were looking for. Most of the time you may read a tip and tell yourself to remember it for a "rainy day". Of course that day seldom happens but when it does, you might spend hours trying to track down where you saw the tip.

Over the past seven years there have been close to 250 different Basic Tips and 375 Quick Tips, published in these pages. Flipping through back issues or searching through the electronic edition of the Paper is still a time consuming task.

I gave up trying to commit these tips to memory several years ago. I reasoned that since the tips were all Palmtop related the Palmtop itself should remember them for me. So I started a couple of databases called BTIPS and QTIPS and entered those tips that I found useful.

Since taking on the job of editing *The HP Palmtop Paper*, I've completed both databases. Now they contain not only the tips that I found interesting but rather ALL the tips that have been published in these pages. The databases have already proved their worth. When someone submits a new tip I can search the databases for key words and tell in a couple of seconds if we've published a similar tip and the issue in which it appeared.

The databases both have a record structure that includes the following fields:

Title
Author
Issue #

Frequency (i.e., the number of times the same tip has been published. Hopefully there will be no re-runs again.)

HP (95/100/200) LX (Is this tip specific to a particular machine?)

Category (e.g. Calc, Memo, 123, etc.)

Note (the actual tip)

The BTIPS.GDB file is about 340 Kbytes and the QTIPS.GDB is almost 500 Kbytes in size. Each database has its own set of up to 16 subsets for faster browsing. Each database is current as of the Nov/Dec, 1998 issue of the *The HP Palmtop Paper*.

I've decided to give away what I've created. The files will be included on the 1999 CD Infobase. Also by the time you read this the archive file, TROISGDB.ZIP, should also be available for downloading from www.PalmtopPaper.com.

"Trois" means "three" in French. So what's the third GDB file?

The third database in the set is my final version of the long awaited DOSHELP.GDB file. It contains 135 records that hold all the information in the DOS 5.0 HELP database but in a format that is better suited to the HP Palmtop. I've also included several items that pertain to DOS 6.22 as well as the help for EDLIN, the ANSI.SYS Esc sequences and a few undocumented DOS tips.

HP has given us tacit permission to distribute this information as part of the DOS 5.0 set of files. We were not able to put the DOSHELP file on CompuServe without getting involved in copyright issues.

For your browsing pleasure, I highly recommend the DBV.EXE program by Harry Konstas to view these databases. It has an ONLY key (F6) that will let you create subsets on the fly. For instance, I noticed that I didn't create a "system macro" subset in either of the databases. No problem: I simply pressed F6 in DBV and specified macro as String 1 and system as String 2 and checked the Include notes box. Within a few seconds I had a subset of 20 tips that dealt with System Macros. Cool!

Hopefully you'll find these databases of value. You may even add your own items to them and when you do please send a copy of your tip to ed@thaddeus.com. You'll undoubtedly see it in print and in any future updates to the databases.

Miscellaneous

SFF (Super File Finder)

Super File Find is a DOS command line program designed to scan a disk drive finding files in directories and archive files that match any file in a list of files. Super File Find can also find and scan 'executable archives' (self extractors) if so desired. Supported archive formats include : ZIP, ARJ, LZH, PAK, SQZ, ZOO, RAR, ARC.

For example, if you issue the command:

```
SFF /EXE /ARC c:\*.pas *.inc *.h
```

the program will search all of drive C for

any files that have the extensions .PAS, .INC or .H. It will even look inside compressed files, including self-extracting archives for any such files. This is something that most "whereis" programs do not do.

Super File Finder version 1.04 (1995) is the work of John P. Arkins

Synchronize Directories

RECONCYL is a program that will compare two directories and show you the differences and similarities.

You can then 'reconcile' these directories by copying files from one directory to another and/or deleting files from either directory using single key-stroke commands.

RECONCYL also gives you the ability to compare two files as well as edit any file.

RECONCYL is configured to use the QEdit, LIST and FC programs. However you can define and use your own favorite text editor, file lister, and file comparison programs.

Of course, the HP 100/200LX has a File Backup menu command that will do some of the same things. RECONCYL, on the other hand lets you see the different and similar files and decide what you want to do with them.

ReconcyL, version 1.4h is copyrighted shareware from Silver Wolf Software with a registration cost of \$45. The program is dated June 1993. Support for registered users of the program may be obtained at 76470.245@compuserve.com

If \$45 seems a little pricey for a utility program then you might want to take a look at a couple of copyrighted freeware programs that do almost the same thing.

SHOWDUPE and UPDATE

Both of these programs are freeware from PC Magazine: 1992 and 1994 respectively. SHOWDUPE is useful for scanning two disks or directories and showing all the files that are possibly duplicates as judged by their file names. You can then compare both files and get a message that the files are different or identical. At that point, your only option is to delete one or more of the files.

Update, on the other hand, will look at two directories and move files back and forth between the directories so that the most current version of the files are duplicated in both directories. This might be useful if you

have a PC card reader attached to your desktop. You could run Update on the Palmtop to synchronize files on the C: and A: disk and then plug the PC card into your PC and run Update there to synchronize a backup to the hard disk.

SHOWDUPE is the work of

Richard Hale Shaw CIS:72241,155

Update is the work of Peter G. Aitken (no email address given)

Both files are available from www.zdnet.com/pcmag/pcstech/index-ut.html

David's Readme Compiler

In the days before Windows, most program help files were simple text files.

More sophisticated programmers put help screens in their programs thereby increasing the size of the application. Others used a combination of text based hypertext browsers and binary data files to let the user get on screen help.

We mentioned a few examples of such programs in the "Through the Looking Glass" column of *The HP Palmtop Paper*, May/June, 1998.

DRC version 2.1 is yet another type of browser. The unique feature of this program is that it lets you create marked up text files and then compile them into a standalone executable program complete with pull down menus. The end result is a text-based version of a Windows 3.1 Help file. The only thing missing in DRC is hot links. There is a built in search engine and the ability to print portions of the file. The other unique thing about this program is that it's free. DRC21.ZIP may be downloaded from the NOVUSER forum on CompuServe. It is the work of David Harris, the author of the Pegasus email program. david@pmail.gen.nz.

SUBST and JOIN

In the Jan/Feb, 1996, issue of *The HP Palmtop Paper* we offered a Quick Tip about the DOS SUBST command. It's one of the external DOS commands that HP omitted from the Palmtop.

In short the SUBST command lets you substitute a fictitious disk drive label for a directory.

Before you use the SUBST command you must put the line LASTDRIVE=M in your CONFIG.SYS file and reset the Palmtop. Now you can use the command

SUBST C:\BC\INCLUDE H:

and press Enter. At this point the directory C:\BC\INCLUDE will become a fictitious H: drive on your computer. If you

issue the above command before you start System Manager, the H: drive will show up in Filer and you can point to it to get a list of all the files in C:\BC\INCLUDE

If you want, you could use the command SUBST B: C:\BC\INCLUDE and make use of the non-existent B: drive on the Palmtop. If you use this command before starting System Manager you'll be able to open Filer and highlight the [B:] drive and press Enter. You'll see the files in C:\BC\INCLUDE rather than the error message "Drive not ready." Be forewarned however: the command to break the substitution, namely SUBST B: /D will fail. On a typical PC the B: drive is mapped to the A: drive and SUBST can't remove a B: drive. The only way to undo this operation on the Palmtop is to reset the computer.

There's another external DOS command that HP omitted from the Palmtop. It's the opposite of the SUBST command: JOIN.

The command JOIN D: C:\DDRV will create an empty DDRV directory on the C: disk of the Palmtop, and join that directory to the actual D: drive in ROM.

If you issue the JOIN command before you start System Manager, the directory DDRV will appear in Filer. When you highlight DDRV and press Enter you'll be looking at the files and directories on the D: drive.

If you have a 32 or 64 Mbytes Palmtop you could also use the command JOIN C:\FDrive F:.

(In the days of the HP Portable Plus laptop computer the JOIN command was even more useful. If you had an HP-IL card in your PC you could JOIN the hard disk of your desktop computer to a fictitious directory on the laptop and copy and move files back and forth in much the same way as you can with the HP Connectivity Pack and the Palmtop)

CAUTION: Do NOT use any of the following DOS commands on a drive that is the subject of a SUBST or JOIN command: BACKUP, CHKDSK, DISKCOMP, DISKCOPY, FDISK, FORMAT, LABEL, RECOVER, RESTORE, and SYS. Likewise do NOT use any other utility program that work with physical drives instead of logical DOS drives. This would include several of the Norton Utilities. Don't use something like DISK DOCTOR (NDD) on an SUBSTituted, or JOINed drive/directory.

You can get the SUBST.EXE and JOIN.EXE files from a complete set of MS-DOS 5.0 disks. We will also make the files available on this issue's *The HP*

Palmtop Paper ON DISK.

Undocumented DOS Feature

To complete the tip about SUBST and JOIN we will mention the undocumented command TRUENAME.

This is a command that IS available on the HP Palmtop though you won't find it in any file listing since the command is an internal one like DIR and COPY.

The syntax for the command is TRUENAME filename or TRUENAME directory.

For example, if you switch to the C:\BC\INCLUDE directory and type the command TRUENAME DOS.H and press Enter, you'll get the response C:\BC\INCLUDE\DOS.H which is the FULL filespec for that file.

If the path is in a network, the response will start with a \\machine-name

TRUENAME is useful in networks where a physical drive may be mapped to a logical volume and the user needs to know the physical location of the file. It ignores the DOS SUBST, and JOIN commands, or network Mapped drives.

The following command uses TRUENAME to get the true pathname for a file:

c:\> SUBST h: C:\BC\INCLUDE

c:\> TRUENAME h:\dos.h

This will display the line:

C:\BC\INCLUDE\DOS.H

Software Mentioned in the Tips

DBV20.ZIP may be found on the 1998 CD InfoBase, on the 1997 PowerDisk, and in the CompuServe HPHAND forum, Lib 11.: Freeware

KEY100 may be found on the 1998 CD InfoBase, on the 1994 PowerDisk, and in the CompuServe HPHAND forum, Lib 11.: Freeware.

QTIPS43.ZIP (495 bytes) available on *The HP Palmtop Paper ON DISK*, Jan/Feb, 1999.

TROISGDB may be found on the 1999 CD InfoBase, and online at www.PalmtopPaper.com

SUB-JOIN.ZIP (25K bytes) available on *The HP Palmtop Paper ON DISK*, Jan/Feb, 1999 and www.PalmtopPaper.com

RCYL14.ZIP (Shareware, \$45) available at www.PalmtopPaper.com

DRC21 (266K Bytes) available on *The HP Palmtop Paper ON DISK*, Jan/Feb, 1999, www.PalmtopPaper.com, and the NOVUSER forum on CompuServe.

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The richness of *The HP Palmtop Paper* comes from the contributions of Palmtop PC users. We and your fellow users welcome your submissions. (We do not offer payment for articles, your reward is knowing that you've helped others.)

If you have a good idea and want to "go for it," send it in via CompuServe e-mail [75300,2443], Internet: hal_goldstein@thaddeus.com, or send disk or hard copy to Hal Goldstein at the above address. Alternatively, you can send an outline of your idea. We will try to guide you as to when and whether we would use the article and contact you if we need clarification or have any suggestions — please include your phone number. We may want to use an article but for a variety of reasons you may not see it for many months. Please understand that we cannot promise to run any particular article at any particular time.

If you can, especially if you write a Palmtop Profile, send us a photo of yourself.

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Software on The HP Palmtop Paper ON DISK

January/February 1999

You can find all the software described in this issue in our 1999 HP Palmtop Paper CD InfoBase and at www.palmtop.net/super.html which is now sponsored by our new web site www.PalmtopPaper.com.

PRODUCT	FUNCTION	FREWARE/SHAREWARE
AG-PUBS.ZIP	Database of 13 books about Agenda	Freeware
DP23D.ZIP	DataPerfect ver. 2.3d	Freeware
DRC21.ZIP	David's Readme Compiler	Freeware
FLODRAW2.ZIP	Flow Draw, charting program	Shareware
IFF40.ZIP	IFF 4.0 Batch Enhancer	Freeware
LDYB-HP.ZIP	Ladybug Logo preinstalled for HP 200LX	Freeware
LINK-WK1.ZIP	Link 1-2-3 files (a not-so-Quick Tip.)	NA
PTP43.ZIP	Text version of The HP Palmtop Paper	NA
PTPDSK43.ZIP	Database of Files on <i>The HP Palmtop Paper ON DISK</i>	NA
QTIPS43.ZIP	Disable the Print Screen key	NA
RC100.ZIP	Control Robots with IrDA signals	Freeware
SFF104.ZIP	Super File Finder 1.04	Freeware
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SUB-JOIN.ZIP	Substitute and Join from MSDOS 5.0	NA
TASKMGMT.ZIP	Agenda template for time management	Freeware
TOPCARDS.ZIP	Graphics files for use as topcards	Freeware
UPDATE.ZIP	Reconcile two drives or directories	Freeware

Promises, A Partnership and The HP Palmtop

Continued from page 23

game too much.

Marilyn teased me about playing too much until I showed her how to win: now she plays it all the time, too.

Conclusion

MARILYN: The HP 200LX is still the best solution to our hectic travel, work, and play schedules. When we married we promised partnership, joy, love and intimacy. Our HP 200LXs allow us to share informa-

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'79 #GDEV

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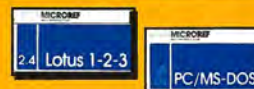


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