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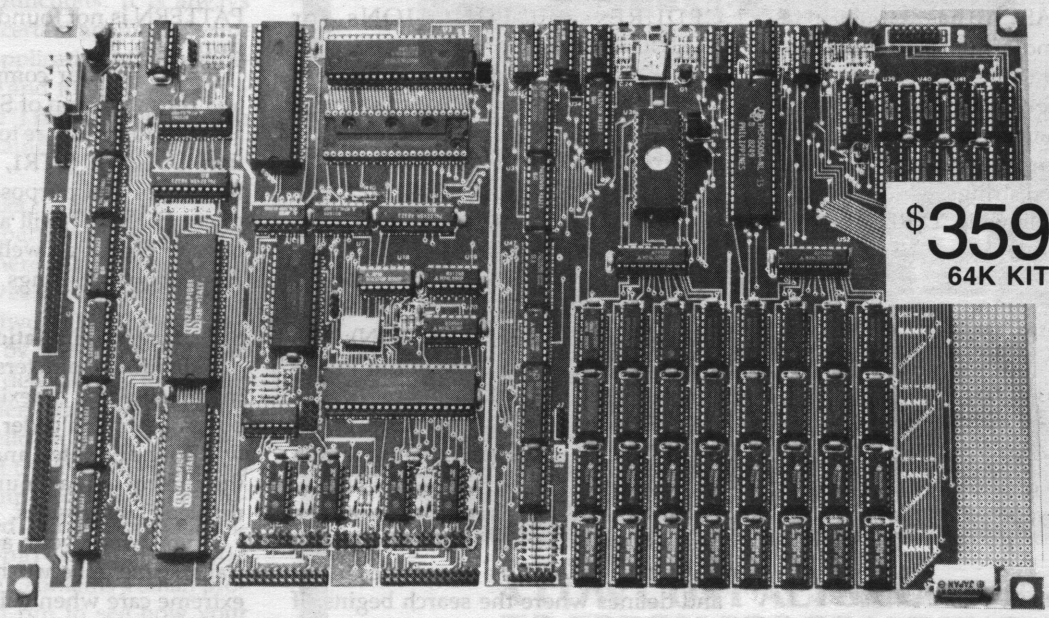

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Pascal Procedures

By John P. Jones

6245 Columbia Ave.
St. Louis, MO 63139
314-645-1596

Standard PASCAL has no built-in facilities for handling character strings. Arrays of characters can, however, be used as fixed-length strings. The strong data typing built into standard PASCAL limits the kinds of manipulations that are allowed for fixed strings.

Given the following TYPE and VAR declarations:

```
TYPE
     fixed_short = ARRAY [1..20] OF CHAR;
     fixed_long  = ARRAY [1..128] OF CHAR;
VAR
     fs1,fs2,fs3 : fixed_short;
     fl1,fl2,fl3 : fixed_long;
```

Only variables of the same type may be assigned or compared so that the statement,

```
fs1 := fs2;
```

is correct, but the statement,

```
fl2 := fs3;
```

would generate an error. Similar constraints apply to comparisons of character arrays.

In order to manipulate fixed strings, a series of procedures and functions have to be written to handle the arrays at the character level. The alternative is to declare all fixed strings to be the same length.

The String

Fortunately, all the popular PASCAL compilers have extensions to handle a non-standard type called STRING. A STRING is a dynamic (variable length) character array. As mentioned in an earlier column, there is an implied TYPE declaration for STRING of:

```
TYPE STRING = RECORD
  current_length : 1..max;
  char_array     : ARRAY [1..max] OF CHAR;
  END;
```

If the maximum length for the STRING variable is not specified in its declaration the compiler assumes a default length, usually 80 characters.

String Procedures and Functions

Compilers which provide the type STRING will also include several PROCEDUREs and FUNCTIONs for STRING manipulation.

COPY (SOURCE, START, LENGTH); is used to extract a copy of a substring of LENGTH from SOURCE beginning at array position START.

Using the same syntax, DELETE (SOURCE, START, LENGTH); will remove the substring from SOURCE, updating the current length in the process.

The reverse procedure INSERT (SOURCE, TARGET, POSITION); will insert SOURCE into TARGET at POSITION.

The function LENGTH (SOURCE); returns the current (not maximum) length of SOURCE, and POS (PATTERN, SOURCE, START); is used to locate the position of substring PATTERN within SOURCE. START is usually optional and defines where the search begins. If PATTERN is not found, the function returns zero.

Finally, if your compiler does not allow concatenation of STRINGs with the '+' operator it is sure to include the function CONCAT (STR1, STR2, STR3, ... STRn); for that purpose. For some compilers CONCAT will accept parameters of type CHAR as well as dynamic and literal (quoted) strings.

Substring Manipulations

Individual characters in a string can be manipulated by indexing into the array, but caution is in order. Dynamic length will not be updated and indexes beyond the current or maximum length will give unpredictable results.

If you want your applications to be transportable between compilers, use extreme care when using STRINGs and

Figure 1 - Error Checking in Pascal String Routine

```
CONST     namesize = 20;

TYPE      name = STRING [20];

VAR       last, first, entire : name;
.
.
.
IF ( LENGTH (last) + LENGTH (first) ) <= (namesize - 1)
  THEN entire := CONCAT ( first, ' ', last)
  ELSE entire :=
    CONCAT ( COPY (first, 1, namesize -1 -LENGTH(last)),
             ' ', last);
```

Figure 2 - Pascal String Compare Routine

```
PROGRAM string_compare (INPUT, OUTPUT);
VAR
     str1,str2 : STRING;

BEGIN
  REPEAT
    WRITE ('String 1 : ');
    READLN (str1);
    WRITELN;
    WRITE ('String 2 : ');
    READLN (str2);
    WRITELN;
    WRITE ('<', str1, '> is ');
    IF str1 = str2
      THEN WRITE ('equal to')
      ELSE IF str1 < str2
             THEN WRITE ('less than')
             ELSE WRITE ('greater than');
    WRITELN (' <', str2, '>.');
  UNTIL str1 = 'END';
END.
```

their associated functions. It is always best to include a certain amount of error checking in any application both to minimize side effects and to eliminate (pronounced "reduce") run time errors. See Figure 1 for an example.

Comparing Strings

STRING comparisons are another area for which there may be significant differences between compilers. As a general rule, the two STRINGs are compared character by character with the first unequal pair determining the result. For some compilers trailing spaces are insignificant ('Hello' = 'Hello '). Other compilers act as if the lengths of the two STRINGs are compared before the contents are examined. Literal strings can always be compared to dynamic STRINGs. Figure 2 contains a small program you should run to see how your compiler handles STRING comparisons.

A note of warning for those of you who may be using JRT PASCAL for program development. JRT PASCAL has relaxed type restrictions for structured variables. To quote from the JRT PASCAL manual, "Structured variables may be compared (all six operators), assigned, input/output, concatenated, used as parameters and as function return values without restriction." This freedom makes writing JRT PASCAL programs easier in the short run but can make transportability impossible and often has unexpected side effects. Use with caution!

Coming Up

By next time I hope to be able to report on a new native code PASCAL compiler, Turbo PASCAL from Borland International. The ad for the product has some impressive claims and if they turn out to be correct it will be an impressive product, especially when you consider the introductory price of $50.

If you have any questions, comments, or suggestions please send them either to Micro Cornucopia or directly to me. We want to keep the PASCAL Procedures column as interesting and informative as possible.

■ ■ ■

The Kaypro Column

By David Thompson

Kaypro has suddenly become IBM "compatible" with its inclusion of the Co-Power 88 board on special versions of the Kaypro II and 4. The Co-Power board raises the price of the Kaypro by about $400.

How easy is the Co-Power Mod?

This is an easy mod. A small interface board plugs into your Z80 socket, your original Z80 simply plugs onto the adapter board. Now a cable from the adapter board gives the 8088 on the Co-Power board access to all the Kaypro I/O. So it uses the drives, the power, the video, the serial and parallel ports from the original Kaypro. Otherwise it lives pretty much on its own. It can act as a RAM disk for the Z80, however.

IBM Compability

IBM compatibility is the magic word, however. Yes, this board runs MSDOS just like the IBM, however, there are some I/O differences, especially in the display. You see, the IBM is capable of graphics and as yet, there is no way for the Kaypro to display graphics the same way.

The MicroSphere color graphics board supports CP/M standard graphics (which is considerably more powerful than either IBM or Apple graphics) but is not compatible with either IBM or Apple.

Is IBM Exciting?

People sometimes lose sight of the fact that IBM did not design the PC to be particularly powerful or a particularly good value. IBM designed around hardware that was mature when they started the design. In fact, in many cases the 4 MHz Z80 runs the same instructions faster than the 4.77 MHz 8088.

Sure, the 8088 can address more memory than the Z80, but the memory is addressed in 64K chunks (similar to bank switching on the Z80). Also, programs that were written in assembly language on the Z80 to maximize speed and minimize program size are often being written in high level languages for the IBM because there is so much more memory. These programs run slower than their assembly language counterparts. So, the trend has been toward larger, slower programs.

784K per drive

Would you believe 784K per drive on a Kaypro II or 4? Well, believe it. See the article in this issue on doing your own upgrades for these systems. 784K on a 5" drive is really incredible, especially when you figure that we are using whole bits (half-bits are still in the experimental stage and two-bit technology is, of course, dead). And, of course this new Pro-8 is compatible with the II and the 4.

Interference and the Older Kaypro

Some rural readers have noted that they can't run their Kaypros and their TVs at the same time. So, in recognition of marital bliss week—and to avoid putting old Kaypros out to pasture prematurely—I have a few suggestions.

AC Cord

The oldest (and noisiest) Kaypros have an AC cord that is permanently connected the back panel (not a plug and socket). These units don't have an AC line filter (the AC wires go directly to the on/off switch).

If you have one of these units, the first thing you need to do is purchase an AC line filter. You can get one that mounts on the inside of the cabinet, then you connect very short leads from the power cord to the filter. Or, even better, you can purchase a new cord and filter combination (the filter has a power socket built in).

Cabinet Lid

Now, check the inside edge of your cabinet lid. There should be rectangles of shiny bare aluminum which match up with shiny bare rectangles on the main cabinet (they line up with the screw holes). These rectangles provide electrical contact between the cover and the main cabinet. If you don't have the rectangles, get a good file and make some shiny spots around the screw holes.

These two modifications should cure most of the problem. (You remembered to replace the lid, right?) If you are still having problems then you need to check out the radiation from the keyboard and printer cables.

Take an AM/FM pocket radio and place it near the Kaypro. Tune around on both bands noting any strong signals (might be raspy). Any signals generated by the Kaypro will disappear when you turn the power off.

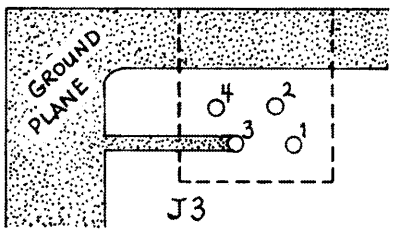
Move the radio around the Kaypro and see where the signals are the loudest. If your cover is doing its job, the cabinet will be quiet and the signals will be loudest around the keyboard, the keyboard cable, and the printer or modem cable.

You can purchase shielded RS232 and parallel interface cables (or just get shielded multiconductor wire and add your own shielded connectors). Or you can keep the serial and parallel cables disconnected during prime time.

Keyboard

The keyboard is another matter. It's hard to do much with the Kaypro when the keyboard is unplugged and I haven't heard of any shielded phone cables that you could use for the keyboard.

However, you can try bypassing the the keyboard interface. Solder a .01 disc ceramic capacitor (25V or higher rating) between ground and pins 1, 2, and 4 on J3. J3 pin 3 is grounded and you can see the ground plane running to it on top of the circuit board. (Look for J3 stenciled on the top of the circuit board, right above where the keyboard plugs in.) The pin diagram and numbers are stenciled right behind the pins themselves.



Gently scrape the green solder mask from the ground plane (large copper area) so you'll have a space to solder the capacitor leads. Keep the capacitor leads very short.

When you get done with all this, you should have the quietest Kaypro on the block. If that isn't quiet enough then to heck with marital bliss.

Lubricating drives

Drive manufacturers have universally insisted that you shouldn't lubricate their drives. I bought that line until one day my trusty (though noisy) Shugart 8" boat anchor locked up solid. I was desperate and I had nothing to lose, the drive was no good to me the way it was.

So I rummaged through the garage looking for something that might be slick or slippery. The choice was axel grease, gear lube, 3-in-1 oil, 30-weight Valvoline, Liquid Wrench, or WD-40. I chose WD-40 (after all, it worked on hood latches) and very lightly moistened a q-tip.

I used the q-tip to lubricate everything that wiggled, slid, squeeked, twisted, or groaned. I didn't use much, you understand. In fact I used so little that it took a while for things to free up. But they did free up very nicely and for the last year and a half, has been the quietest drive in the house.

Some kind person called me and suggested that I try lubricating my 5" Tandons (makes them silent he said). Well, I wrote his name down and immediately lost the slip—probably because he was so quiet. Anyway, until he calls again, he will also be anonymous.

He recommended that I use either Tri-Flon or Tri-Flow—available in any sporting goods or lock store. However, WD-40 had worked before (and I've since learned that Xerox computer repair centers use it) so I got out my trusty can, soaked a new q-tip, and went to work.

Removing the Drives

First, you need to remove the drives from the cabinet. If you have the stacked horizontal drives (newer Kaypro) you need to take out the PC board and then remove the 8 allen screws along the sides of the drive housing (on the older units, remove the 8 standard screws, 4 on top and 4 underneath). Then the drives pull out the front of the cabinet. Remove the the power and control cables as you pull the drives forward.

Mark drive A with a piece of masking tape if you're not sure you're going to be able to tell A from B after they are out.

Opening up a Drive

Remove the circuit board from the drive by disconnecting plug 6 (as well as plug 5 if the drive is double-sided), remove the two screws holding down the board. Then slide the board back slightly and pull it up and away from the drive. Now you can see the head assembly.

Greasing the Skids

Lightly lubricate the steel rods the head rides on. Then move the head assembly back and forth gently to spread the lubricant. Be very careful how you handle the head carriage, don't stress it. The head assembly will always have some drag because of the permanent field in the stepper motor, so don't expect it to slide lightly from end to end.

Before you turn the drive over, lubricate the door latch rod and take a close look at the head(s). Shine a strong light on them and look closely at the light's reflection off the surface of the head.

If the heads are clean and shiny (no marks) then leave them alone. If they have dull spots or lines, then saturate a clean q-tip in rubbing alcohol and gently swab them. Let them dry a minute or two and see if they are clean. If not, repeat the swabbing.

If there are marks that don't come off, then you need a new head (usually cheaper to get a new drive). Don't use a standard head cleaning disk, they are very abrasive! (Sure, the salesmen like to sell head cleaning disks but the folks I know who repair drives refuse to use them. In fact, they refuse to even swab the heads unless they need it.) Sure, inspect the heads every few months, but don't destroy them.

Now turn the drive over. Gently remove the drive belt and use a phillips-head screwdriver to remove the screw from the large drive wheel (the one with all the little timing spokes). Pull the wheel free (rock it gently).

Here, I used the little tube on the WD-40 can to inject (dribble) a tiny amount of lubricant into the exposed bearing. (Not all over it, just a touch, then rotate the bearing so you can feel it get freer.) Replace the wheel (you'll probably have to hold the shaft on the disk side to tighten the screw again).

Also dribble a tiny amount of lubricant onto the drive motor bearing (under the small pulley) and onto the stepper motor bearing (through the little hole in the plastic). Don't expect either motor to spin freely, steppers are supposed to be rachety feeling.

Back Together

Reinstall the drive belt, the circuit board, and the plug(s) for the head(s). Note that a plug's number should be up so you can see it and should correspond with the number printed on the circuit board. Now put the drives back into the cabinet.

CAUTION: Most folks think that if a little lubricant is good, then more lubricant is better. Not here. More lubricant just runs all over, ruining disks and collecting dirt (then system bugs start tracking gooey, oily dirt all over). Use only enough lubricant to free things up.

Slow RAM

I have a report that some Kaypros are not making 5 MHz because of slow RAM. Don Williams called to say that about 10 percent of the systems they modified wouldn't run 5 MHz until they changed the eight 64K RAM chips (U20-27). That's surprising because the older Kaypros that I've seen have been 200 ns (usually a -2 after the part number).

Locating a Slow Part

Heat is a real problem in the Kaypro II and 4 if you have one or more parts that are marginal. As ICs warm up they slow down, so marginal parts finally give up.

Once your system is really out to lunch (it won't respond to anything but a greasy hamburger or a reset) then slip off the lid and start cooling the parts one at a time (leave the system powered up). Start cooling the 40 pin ICs first, then the smaller ones like the ROMs and RAMs.

Two Ways to Cool It

There are two ways to cool a part. You can purchase a can of freeze spray (it comes under various brand names) and then spray a part until it is covered with frost and try doing whatever didn't work. Unfortunately these cans contain fluorocarbons. Fluorocarbons are not good for the ionosphere (or you either).

You can put an ice cube in a plastic bag and then hold the bag firmly against the IC. This method isn't as fast as the freeze spray but I've found it just as effective. You need to hold the cube against the IC for about 60 seconds to be sure the circuit inside the chip has cooled down. Then try the system.

Perfect Help

Perfect Software has moved its technical help department from Eugene, Oregon to 702 Harrison St, Berkeley, Ca, 94701. Their number is 415-524-1926 (7 a.m. to 6 p.m. Pacific Time).

■ ■ ■

SBASIC

Column by John S. Steinhauser

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Denver, Colorado 80210

Kaypro owners, you have a diamond in your rug. I'm talking about SBASIC, part of the software package that is included with most Kaypros. SBASIC may not be as easy to use as an interpreter like Microsoft Basic (also included with Kaypros since March 1983) but it more than makes up for this difficulty.

Features

SBASIC is a true native code compiler that not only uses many BASIC commands but also includes many features found only in the newer structured languages.

1. It has six data types: single and double precision floating point, integers, fixed decimal (financial), characters and strings.

2. All variables are local to the procedure in which they are defined unless they are specifically defined as globals.

3. Global variables (variables which can be accessed throughout a program—standard for most BASICs) can be global to a single program or available to chained programs. (A program is chained when it is called and run from another program.) Variables can even be positioned dynamically.

4. You have logical blocks using BEGIN and END statements. You can use a block anywhere you could use a single statement. (You Pascal buffs with us so far?)

5. You can choose from all the standard structure statements such as PROCEDURE, FUNCTION, BEGIN & END, IF THEN ELSE, WHILE, REPEAT, CASE, and, of course, local variables.

6. You can develop your own library of PROCEDURES, and access them through $INCLUDE statements in the source. This cuts development time substantially.

7. Functions and procedures are recursive, that is they can call themselves.

8. The I/O statements, INPUT and PRINT give you lots of formatting flexibility.

9. SBASIC can generate and access random and serial files in either ASCII or binary form. Binary files use less disk space than ASCII. File I/O is one of the most versatile available.

10. The compiler has a trace feature as well as compile-time and run-time error statements. The compile-time and run-time statements indicate the type of error found and its location.

11. It also supports statements like TEXT and COMMENT so you dispense with repeated PRINT or REM statements. Menus and program documentation become a breeze.

History

The compiler is the brainchild of Gilbert Ohnysty (sounds like honesty). Gilbert began his involvement with microcomputers in the early seventies "before anyone knew what they were." Frustrated by inadequate tools available for micros, he resolved in early 1979 to develop a very advanced BASIC.

Ohnysty had two goals. First, he wanted to create a language that would be easy for BASIC hackers to move up to. Second, he wanted to meet the needs of experienced commercial programmers who wanted a powerful structured language they could use in the micro environment.

The compiler took two years to develop and though it was an enormous task, it was pretty much a one man effort. Every algorithm, every piece of code, was conceived and written from scratch.

In 1982, Topaz, Gilbert's company, was purchased lock, stock, and compiler by Kaypro, and Gilbert wound up as Kaypro's chief of software engineering. It's not too surprising that all Kaypros (except, unfortunately, the latest Kaypro IIs) have been shipped with SBASIC and it's not too surprising that much of the custom software included with the Kaypro is written in this neat language.

An interesting footnote is that some of the material that Kaypro computer owners receive as SBASIC documentation was really part of the original technical specifications for SBASIC, written before the program development began.

Documentation

SBASIC's major problem is its manual. When I complained about the documentation to the technical support staff at Kaypro, I was told that the documentation was perfectly adequate for an experienced programmer. Well, it is, and it isn't. But either way, what about those of us who are trying SBASIC as a first language?

I later described my frustrations to Ohnysty and he replied that the SBASIC manual was not intended as a tutorial but rather as a compact reference source.

"It is no place to learn concepts," he noted, suggesting that I purchase books on advanced programming concepts at my favorite bookstore.

After much trial and error, I have succeeded in figuring out large portions of the language. Still, I feel that some bright person could do us all a favor by putting together the right kind of documentation for SBASIC. It would be accurate, friendly, and easy to use.

For those of you who can't wait for the book, I suggest you read the first part of the SBASIC manual and start trying things. Examples of SBASIC programs can be found by TYPEing out the three programs included on the Kaypro CP/M disk, XAMN.BAS, DPLAY.BAS, and FAC.BAS. But be careful out there, don't try to byte off too much at once!

Editor's note:

I have been digging around here to see if I have any texts to recommend to those of you who would like to learn programming in SBASIC the right way.

BASIC with Style is a very good little book for learning style when you are limited to a classic BASIC. But SBASIC is so far beyond the classic Dartmouth or even MicroSoft BASIC in its structurability that the examples in this little book are worthless. Still, it has some very good ideas about how you can go about conceiving, diagramming, and finally coding really good programs. Plus, it is easily to follow. A good beginner's book. BASIC with Style is published by Hayden Book Company, ISBN 0-8104-5115-8, about $7.00.

Software Tools by Kernighan and Plauger is an excellent book. There are two versions of this. One has the program examples in RATFOR (RATional FORtran) a language whose structure and syntax closely resembles C. It should be quite easy to take many of the RATFOR examples and rewrite them in SBASIC. The other version of this book has the examples in Pascal, which also has program structures similar to SBASIC, so you could pick up either version.

(continued on page 34)

SPECIAL EDITION

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Official Newsletter of the KAYPRO USERS' GROUP

AN INVITATION TO JOIN KUG

KUG, The International Kaypro Users' Group, cordially invites you to join the many thousands of members who share in mutual Kaypro computer excitement.

The Kaypro Users' Group was established at the same time the Kaypro computer was being introduced. That was back in the autumn of 1982. Since then we have both grown and matured. **KUG** now has members in all 50 states and countries half-way around the globe. Although **KUG** is an entirely independent organization, we rely on the information that is passed on to our members from the Kaypro Corporation. That information, as well as information from members and **KUG** staff, is presented in our bi-monthly **"KUGRAM®"** newsletter.

The articles and programs in **KUGRAM®** are aimed at the first time user and the "pro." We have received welcoming comments from both. Our article (tutorial) on CP/M, titled **CP/M STUFF**, is regarded as a fine learning experience in working with the Kaypro operating system. Other columns include **BOX 100** (letters from members), **CHAPTERS** (new chapters from around the world), **IN RESPONSE** (answers to many of the questions we receive), **VENDORS** (suppliers of Kaypro compatible products) and **REVIEWS** of software and hardware for the Kaypro.

KUG also operates its own Bulletin Board system. You can meet and communicate with other **KUGGERS** through this electronic medium. The **KUG** library has an excellent public domain modem program. In fact our disk library has many other catagories such as **GAMES** (Adventure, Pac-Man, Eliza and more), **UTILITIES** (programs to make your file handling easier), **HELPS** (helpful hints on **MBASIC, CP/M**, and other languages) plus others that are constantly being added and updated.

Other services include free information on starting your own local **KUG** chapter (just send a self-addressed stamped envelope to Chapters, Box 100, Malverne, NY 11565), printer configurations for the Kaypro, software and hardware update information and much more.

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SBASIC Learning Disk

Review by David Thompson

After I spent a couple of frustrating hours trying to get a very simple program to compile under SBASIC, I purchased a copy of the SBASIC Learning Diskette from Clifford B. Godley, (doing business as TARP Consulting).

After all, I figured a few good examples would help a lot. What I got was a disk full of tiny programs, each program a good example of how NOT to program in SBASIC. But, before I get to the programs, let's talk about the documentation.

Documentation

There is a manual, of sorts, on the disk. It describes what the programs do and how to compile them. The descriptions are there, I suppose, but the sentences aren't sure of their task, they just sort of fumble along.

The manual was written and formatted for the Select word processor. Anyone with the (mis)fortune of having this editor can see the manual all printed and formatted. The rest of us get to pick through formatting commands.

The documentation starts out as follows: (Please note that the following is, error for error, an exact copy of his first paragraph.)

This text is written as a partical guide for applied utilization of SBASIC programming. Learning through the supplied examples can provide the ability necessary for complex programming. As in all endeavors, increased knowledge can lead to superior results or more efficient application, but programming is best measured by functional output. In the near term, the amount of time necessary to learn sufficient engineering and computer science to fully optimize the language or machine will no doubt serve to significantly reduce the amount of functional output. An alternate outlook for the near term, using this text, is a partical application of SBASIC and the Kaypro to produce functional output.

From here it continues generally downhill although occasionally he actually says something. If you want a good example of a documentation style that sends me to the restroom, take a close look at the above. In fact, this drove me right back to the SBASIC manual—at least it recognizes English as a means of communication.

The Examples

I have seen some examples of really good programming in SBASIC. These good programs would hold their own in any Pascal or C structured programming class.

I have seen many more examples of really bad programming in SBASIC. The bad examples remind me strongly of old time BASIC programming. The programmers simply left out most of the line numbers and turned the rest into alphanumeric substitutes and then figured they were writing good structured code. This is what Godley did.

He mentions in the introduction that his disk is not meant for beginners. You see, he feels that beginners should start by picking up standard text on BASIC.

```
REM     PROGRAM TO READ FILES
        FILES R(128)
        VAR SORT,REC,MODE=INTEGER
        VAR KEY,LKEY,DAT1,DAT2=REAL
        VAR FILENAME=STRING:15
        INPUT "ENTER FILENAME TO PRINT";FILENAME
        OPEN #0;FILENAME
0INPUT  INPUT "PRINTER -- OFF=0  ON=1";MODE
        IF MODE<>1 AND MODE<>0 THEN 0INPUT
        FOR REC=1 TO 1000
            READ #0,REC;KEY,DAT1,DAT2
            IF KEY=9999 THEN 0END
            PRINT #MODE;KEY,DAT1,DAT2
            IF KEY>=LKEY THEN 0REC
            SORT=1
0REC        LKEY=KEY
            NEXT REC
0END    IF SORT=0 THEN 0SORT
        PRINT "FILE NOT SORTED"
0SORT   PRINT "NUMBER OF RECORDS:";REC-1
        END
```

Figure 1 - Example Tarp Consulting Program

No! No! No! That's like teaching someone to touch type by insisting that first they must hunt and peck for two years. It's obvious that Godley's background is BASIC and that he's going to cripple anyone else who comes into contact with him. See Figure 1 for an example of Godley's style.

Get a Pascal book! Take a Pascal class! If you don't know programming, don't learn BASIC first. (On the other hand, you would do very well learning SBASIC first, if you learn it right.)

So, Godley has missed the primary need. The need is for a text and disk that will help beginners (as well as advanced programmers) get started right with SBASIC.

SBASIC Learning Diskette $15.75
Tarp Consulting
3851 N 28th St #141-B
Phoenix, AZ 85016

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(SBASIC Column continued)

Software Tools gets into advanced programming concepts fairly quickly so I wouldn't recommend it as a first programming book for the rank beginner. However, those of you who feel comfortable with structured languages would really benefit from browsing through this one. (I used this book in graduate school.)

Software Tools is published by Addison-Wesley, ISBN 0-201-03669-X. I paid $12.70 in the college bookstore.

A course in Pascal at your local college would also be an excellent way to learn good programming skills while getting started with SBASIC. (Don't even whisper the word BASIC—S or otherwise—in a Pascal class. A lot of people wouldn't understand.) Also check with your local Pascal instructor and see what texts he recommends.

One of the first things you will probably notice about Pascal and other structured languages is that you are strongly encouraged to write programs without GOTOs or GOSUBs. Pascal does have a GOTO statement but any Pascal freak caught using a GOTO would, no doubt, be sentenced to 5 years hard programming in BASIC.

I strongly encourage all of you (no matter what language you're working in) to totally obliterate line numbers and GOTO/GOSUBs from your vocabulary. If the language doesn't allow you to do that, then find another language.

At first it'll be hard for those of you who came up through the BASIC ranks to break this stringy habit. However, your programs will no longer reek with the foul smell of old spaghetti when you go back and try to modify the code.

Please, any of you who have written large or small programs in SBASIC (even unstructured), put them on disk and send them in (with source). We'll send you a Kaypro or other disk in return. Free.

Also, remember us with your cards and letters (and in your will) when you find bugs, ways around bugs, etc. Put these smaller hints etc. on paper and send them in. SBASIC is too good to waste, and that is the truth. Ohnystly.

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Adventuring Alone

By David (the Troll) Thompson

5 Bridge Path
Plugh, OR

I've received a number of calls from novice adventurers who are going absolutely stark raving mad. This irritating condition usually happens within the first hour and closely mimics the mental condition of a small publisher I know.

If you are trying adventure for the first time without advice from more experienced folks, perhaps I can help. (I'm not the one to ask for really advanced information; I haven't had time to get very far with this one.)

First, be prepared to spend some time. A good friend at Tektronix (Lynn Cochran) is probably the most adept adventurer I know. He spent over 10 hours a day for months before mastering a version of this game called Dungeons. He was willing to try everything that was feasible as well as everything else.

He passed along the following tips that I have found invaluable:

Make a map

As obvious as this is, it's amazing how many people don't do it. There are two ways (that I know of) to make maps. One is to get a very large piece of butcher paper and draw circles or boxes for the rooms as you encounter them. Then use lines (marked N, S, E, W . . .) to connect the rooms together. This method works best for simple adventures.

The other way (which I now use) is to make a chart on gridded engineering paper. I draw a set of columns, the first column contains a number that I have assigned to the room or location. (I assign the numbers sequentially as I discover the rooms.)

The second column contains the name of the room.

The third column lists the objects that I found in the room (sword, the word plugh, etc) along with any special comments about what I can say or do in the room. Note that special phrases you see on walls, for instance, can be used forward, backward, or one word at a time. They may do something only in a certain room under a certain circumstance. They might work magic when used correctly but kill you any other time. If something kills you, don't assume that it is useless. Keep a record of everything that happens.

The rest of the columns are very narrow (just room for a number) and they are marked at the top with the directions: N, S, E, W, NE, SE, SW, NW, UP, DOWN and OTHER. The OTHER column is a little wider, so I have room to put magic words and their destination numbers. As I find a new room, I enter it at the bottom of the list and assign it the next consecutive number. Then I put the new number in the appropriate column of the room that I had just left.

One of the main advantages of the chart is that you can see immediately which directions you haven't tried. Enter an 'X' in the directions which don't work, and you won't have to try them again (remember, one of the tricks to this is trying everything).

Words and Objects

I'm sure you've noticed that adventure has a frustratingly limited vocabulary. However, you can take advantage of this.

Any time you find a word that it recognizes—even though the word might not help at all in the present situation—write it down. I'm tickled to death when it says "I don't know how to do that here." Entering random words—one at a time—can be just as productive as exploring rooms.

In many cases, you'll have to do the same kind of sleuthing when dealing with objects. I haven't yet figured out what to do with the food or the magazines, but I'm definitely going to keep them in mind. Meanwhile, I can drop them in the "maze of passages all alike." (The "maze of passages all different" is pretty easy if you read the text closely.)

Save the Game

As you get farther into adventure you'll find that your exploring will go much faster if you save the game once in a while. Simply enter "SAVE" in place of a regular command and you will be terminated (not as bad as it sounds). Don't worry about the "30 minutes" note, you can get right back in. On reentering simply type "RESTORE" when you are outside the building.

When you restore a game, the saved file (ADVD.SAV) is automatically erased (the creators of this program were crafty devils), so if you get into dire straights and quit, you can't restart again where you were.

However, if you use PIP to make a copy of the saved game (ADVD.SAV) under a different name before restarting, you will be in luck. I called one saved game "OGRE.SAV" because I had just killed the ogre before saving the game (quite a feat I might add). Then I used pip to make a copy of "OGRE.SAV" called "ADVD.SAV" so I could start with a dead ogre at my feet as many times as I wanted.

Of course, once you have saved the game, you can move on with great abandon, stabbing the troll, taunting the dwarves, and jumping into bottomless canyons. When you get killed, it won't hurt so much, just make another copy of the saved game, and you're on your way.

A few tips

Dwarves are pretty easy to dispatch as long as you aren't too loaded down, the bird does interesting things to the snake, and you need a special diet to get the sword.

The pirate is most likely to show up when you are carrying lots of treasures, but you have to let him take something from you before you can find his chest.

If you have a Kaypro II, you can't save a game on your adventure disk because the disk is already full. However, if you put your adventure disk into drive B and use PIP to copy ADV.COM from B to A, then you can erase ADV.COM from drive B. Now log onto drive B and enter "A:ADV" and you'll have room on the disk to save the game.

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LETTERS

Dear Editor,

If anyone is looking for a cheap monitor, Rondure Company, 2522 Butler St, Dallas TX 75232, may still have some 9" used Motorola monitors for $20.00 each. The one I received came with no specs, but it looks like it has never been touched and it works fine. It requires composite video and -12V at 0.9 amp. The two lines coming out of the capacitor are the power connections.

I am looking for a low cost Z80 debugger/disassembler similar to DDT.

Murray Voahes
86 Waterloo St
Waterloo, Ontario, Canada N2J 1X9

Dear Editor,

I have located Falco Data Products Inc. They are at 1286 Lawrence Stations Road, Sunnyvale CA 94086, 408-745-7123. They have a number of very nice terminals but they aren't cheap. Their TS-1 is $1295 retail. They are intelligent and they do graphics (the terminals, I mean).

Check into the Freedom 100s; they are much better for the money.

Bob Carol
216 Oswego #4
Huntington Beach, CA 92648

Dear Editor,

I found a fellow who can supply parts, information, and repair service for MFE drives. He bought out the factory supplies when it went out of business. He is Richard Brailinger, 51 Washpond Rd. Hampstead NH 03841, 603-839-1921 ext 231. He supports the MFE's as a sideline.

Charles Woodward
3302 Owl Dr
Rolling Meadows, IL 60008

Dear Editor,

I have just ordered my fourth Kaypro disk from you folks and feel compelled to tell you that your products are excellent, the prices are fair, and your service has been outstanding. Well done!

Now, how about a bit of advice? I am new to CP/M and still lack some fundamental knowledge, so a lot of CP/M seems like magic. I don't understand how the CP/M disks are organized, hex is beyond me, and I'm unclear about tracks, sectors, groups, etc. I can PIP, DUMP, FINDBAD, and FIX but I don't know what went wrong in the first place. Can you recommend, or better yet, sell me a good CP/M book? There are so many on the market.

LCDR John Connell, Jr
Executive Officer
USS Vreeland (FF 1068)
FPO Miami, FL 34093

Editor's note:

Yes, John, I can recommend a very good book. Get a copy of Inside CP/M by David E. Cortesi (ISBN 0-03-059558-4). This book will take you from the very basics of CP/M to the depths of disk parameter blocks and programming interfaces. It is well written and well organized.

We are trying to arrange to sell this book (my copy is so popular that I usually can't find it) but for now, you'll have to get it elsewhere.

Dear Editor,

I got Beigun and Associates EPROM programmer and I'm very pleased with it. It is totally menu driven and there are no jumpers to change when switching EPROM types. I got so excited, I used up all my EPROMS. Otherwise I'd send in this note in a 2716.

J.L. Mangrum
30904 8th Ave S
Federal Way, WA 98003

Editor's note:

I wondered why there has been a shortage of EPROMs lately. (Obviously someone needs to loan you an eraser, quickly.)

Dear Editor,

The broken drive door latch really hit home. I was getting write errors so I removed the drive and discovered the broken hinge. No glue would work (I should have thought of the soldering iron trick). Anyway, I found some coathanger wire and made a temporary fix.

I ordered the Tandon manual, which now costs $29.95, up front. I could find no dealer who would sell me the latch and I got the usual quote of $40 to $50 to have them install the parts. I may be desperate but I refuse to fatten rip-off artists. I guess we have to pressure Tandon to make a better latch. (Or are they looking for the 1000% markup on a 10 cent plastic part? We aren't all as rich as the

department of defense.)

Thanks for the excellent magazine and for inspiring me to tear into my Kaypro. It ain't easy to take a screwdriver to over a month's salary without encouragement and reassurance!

William Fletcher
1531 Stinnett Road
Huntingtown, MD 20639

Dear Editor,

I'd like to see more high-tech advertising in Micro C. I like to read ads from small companies with something special in terms of price or product. I buy as much through Micro C as through Byte.

Also, I'm starting my own business: a computer repair and speed shop. It's called "Your Computer Works."

Charles Johnsen III
19704 E Loyola Circle
Aurora, CO 80013

Dear Editor,

I'd like to get into touch with other people who have Andy Bakker's BB I winchester interface. Let's share information.

Karl Hoffman
1260 N University Dr
Plantation, FL 33317
305-474-6704 weekdays

Dear Editor,

It should be possible to set up the disk controller for any stepping rate, even 3 ms on a 1771. The trick is to use the step-in, step-out, and force-interrupt commands.

The code should be fairly straightforward. If you think there would be any interest, I could write a patch for PFM either as a .COM file or as an addition to the CBIOS. The columns on C are great!

Wesley Ebisuzaki
550 Memorial Dr 16E
Cambridge, MA 02139

Editor's note:

Yes, Wesley, I'm interested. A number of drives are much quieter and, of course, much faster at 3 ms. 6 ms is the fastest that a 1771 will normally go, so it would be neat to see the drives really fly.

Dear Editor,

I installed a factory upgrade kit on my Kaypro 10 (purchased in September) because I couldn't get it to boot off the floppy (and I was getting strange errors). The kit was free and the hardware was easy to install.

The software was a little more difficult until I figured out that I needed to boot the 10 off the new system disk (rather than the winchester) before I ran the install program that came with the kit.

The errors have vanished and I can boot off the disk drive. However, now I have to hit the escape key three times to get into the system.

Anonymous

Editor's note:

I try to make sure that people's names get on their letters and other submissions, but sometimes I miss. Thank you Mr/Ms Anonymous for the important information.

Please, everyone, put your name and address (phone if you'd like) on all submissions. That way you can receive due credit.

Dear Editor,

I am a ham and would like to interface my Kenwood TS-180-S to my Kaypro so I can send and receive RTTY (radio teletype). Plus, I would like to keep my 10-10 numbers in the system and list them by call or number. Is anyone else working on this kind of project?

Edward S Beer N6IGZ
127 E Louise #7
Long Beach, CA 90805

Dear Editor,

I am interested in working with someone on a CW/RTTY interface for the Big Board/Xerox 820. I could handle some of the software.

David Howard
8787 Stemmons Fwy
Dallas, TX 75247
214-245-1327 (home)

Editor's Note:

I too would like to see such an interface. It would make a great article for Micro C because quite a number of readers are hams (when not computing). An interface that would work on the Kaypro would also work on the BB I and Xerox 820-1. Anyone wanting to participate should contact David Howard.

Dear Editor,

I purchased a keyboard from D&W Associates and it has about 600 wires coming out of it. They send a sheet of paper explaining which wires are which, but I still don't understand which wire attaches to which pin on the BB I. If anyone has a D&W keyboard and has figured out an exact wire for wire connection list, I would very much appreciate a copy.

Gerald Brandt
484 Newman St
Winnipeg, Manitoba, Canada R3G 2V5

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Hard Goods and Soft Goods

Your Fortune in the Microcomputer Business ..... $26.45 (US, Can, Mex)
..... $36.45 (Other foreign)
This is the best, most complete collection of "working for yourself" information I've found (and I've heard nothing but good comments from those who have received it). This two-volume set is a perfect for those blustery fall evenings when you snuggle up in front of the fire and dream of great riches.

Micro Cornucopia
P.O. Box 223
Bend, OR 97709
(503) 382-8048

MasterCard VISA

BB II DRIVE INTERFACE
For 5¼" and 8" Drives
Andy Bakkers is making this special software package available through Micro C. Complete source, HEX, & documentation files on an 8" SS SD disk. Also outlines on disk the hardware changes needed.
$29.95

BB I, BB II, and XEROX 820 USERS DISKS

The following are full 8" disks of software. Each program has a .DOC (documentation) file and many come with source.

USERS DISK #1
1-Two fast disk copiers
2-The manual for Small C+
3-Crowe Z80 Assembler
4-Two disk formatters
5-Modem 7
6-Othello
7-Serial print routine-Port B

USERS DISK #2
1-Two single disk drive copy programs, both with source
2-Crowe Z80 Assembler source
3-New Crowe.COM file, debugged version
4-New CBIOS with parallel print driver & other extensions for CP/M 1.4 & 2.2
5-Disk mapper with source

USERS DISK #3
1-EPROM burning software for BB 1
2-Reset bit 7 (unWordStar a file)
3-Disk file CRC checker
4-New fast copy program & source
5-DU77, disk inspector/editor
6-FINDBAD, isolates bad disk sectors
7-Print fancy page headings

USERS DISK #4
1-CBIOS, custom bios for Tandon drives
2-ZCPR, dynamite CCP checks drive A for missing .COM files; improved commands
3-ZCPRBLOC, identifies CCP location

USERS DISK #5
1-CAT, disk cataloging routines
2-Modem 7 for Port A
3-Modem 7 for Port B
4-PACMAN, the arcade game
5-FAST, buffers the disk to speed up assemblies
6-NOLOCK, removes BB 1 shift lock
7-VERIFY, cleanup & verify a flaky disk
8-DUMPX, enhanced for BB 1
9-UNLOAD, create .HEX file from .COM file

USERS DISK #6
1-REZ, 8080/Z80 disassembler, TDL mnemonics
2-PRINTPRN, prints Crowe listings
3-RUNPAC, run-time utility package for 8080 assembly language programs. Has 51 functions. Includes source which assembles under ASM.

USERS DISK #7
1-CHNGPFM, PFM monitor mods
2-TERM, terminal routines let you set up BB as simple terminal, as a file receiver, or as a file sender
3-Checkbook balancing package
4-Disk Utilities - copy to memory, from memory, and dump.

USERS DISK #8
1-BDSCIO, custom BDSC I/O for BB 1 (both .h and .c)
2-YAM, Yet Another Modem program in source & .COM form. Turns BB into paging intelligent terminal, complete with printer interface, baud rates to 9600.
3-ROFF, text formatter
4-SIGNS, prints large block letters

USERS DISK #9
1-ADVENTURE, expanded 550 pt version
2-Keyboard translation program
3-CBIOS, serial & parallel printer interface
4-EPROM programming package for BB II, for 2732s only

USERS DISK #10 - Lots of Disk Utilities
1-REBOOT, sets up the CP/M auto load
2-SWEEP, directory/file transer routine
3-A, Lets BB I recognize a double sided drive as one drive with 494K of usable space
4-FIX, super disk utility, does everything, much easier to use than DU77
5-Compare files routine
6-UNERA, retrieve erased files
7-FIND, check all drives on system for a file
8-MENU, menu program for CP/M
9-NEWCAT, enhanced disk catalog program
10-Single drive copy program that does track by track copies rather than file by file

USERS DISK #11 - Printer Utilities
1-Microline 92 printer routine
2-Graphics display package for MX-80 with Graftrax, very fancy
3-Epson MX80 setup for BB 1 with 59.5K CP/M
4-Epson MX8 setup for any CP/M, lets you set print modes.
5-Micro Tek print driver, Ports A & B

USERS DISK #12 - Games for BB I
1-ALIENS, a fast, exciting arcade game
2-ZCHESS, chess with a 1-6 level look ahead
3-MASTERMIND, match wits with the computer
4-BIO, Biorhythm charts complete with graphics on the BB I
5-LIFE, so fast it's real animation!
6-CRAPS, see how much you'd lose in Vegas
7-WUMPUS, a caver's delight, kill the Wumpus or be killed
8-PRESSUP, similar to Othello
9-Games, 7 games in one program, includes blackjack, maze and animal

USERS DISK #13 - General Utilities, BB 1
1-ZZSOURCE, disassembles to real Zilog mnemonics
2-EX14, superset of submit or supersub
3-MOVPATCH, lets you use MOVECPM on other copies of CP/M
4-XMON, 3K expanded BB I monitor, use in ROM or as overlay .
5-CURSOR, prompts you for cursor char you want
6-UMPIRE, very fancy RAM test
7-ZSIDFIX, display improvement for ZSID
8-PIPPAT, modify PIP so you can reset system from within PIP
9-@, Lets you use the BB as a calculator, including HEX
10-SORT, sort package written in C80.

USERS DISK #14 - BB II Software
1-PRO32, latest 2732 reader & programmer
2-SMODEM2, lets BB II talk to Hayes Smartmodem
3-GRAFDEMO, demonstrates BB II graphics (in BASIC)
4-ATTRTEST, demonstrates BB II graphics (in JRT Pascal)
5-INITSIO, initializes port B for 300 or 1200 baud
6-MENU, displays menu of .COM files, enter number to run file
7-SETCLK, sets realtime clock built into BB II
8-PRINT2, modified print which accesses BB II clock
9-BOX, draws a thin line box on screen determined by HL and BC
10-ALIENS, space invaders arcade game
11-LISTSET, printer interface, auto-enables RTS, ignores DCD.

USERS DISK #15 - Word Processing
1-EDIT, very fancy line editor similar to EX (Unix). Includes help menu, programmable key, and full manual on disk.
2-TED, simple minded line editor, easy to learn & use. Very fast.
3-TTYPE, typing training program written in BASIC
4-TINYPLAN, very simple-minded spreadsheet. Whets your appetite for a fancy one.
5-C80 Text Utilities
6-CHOP, cuts off file after N bytes
7-ENTAB, replace spaces with tabs where possible
8-MS, double or triple spaces a file to output
9-RTW, removes trailing spaces from file
10-TRUNC, truncates each line to specified length
11-WRAP, wraps at column 80, plus pretty pretty printing, page #s . . .

USERS DISK #16 - BB I Modem Software
1-RCPM27, list of U.S. bulletin boards
2-SMODEM, interfaces BB I with Hayes Smartmodem
3-PLINK66, easy to use with non-CP/M host, for port A
4-BBPAT, menu selection of BAUD rate, bits/char, parity, & stop bits
5-MODEM 7+, Modem 7 plus BBPAT, lets you talk to anything from port A

USERS DISK #17 - Small C version 2
SMALLC2, this substantially expanded version of Small C now includes for, goto, label, switch (case); external declarations; new preprocessor commands; expanded I/O includes redirection; initializers; plus 12 new expressions. The I/O and runtime libraries have been greatly expanded (including printf). Source & documentation on one full disk.

USERS DISK #18 - FORTH
IFORTH, this is Idaho FORTH which can be burned into ROM or loaded from disk. It replaces the PFM monitor & handles all the monitor functions. See issue #11 FORTH column for more info about IFORTH and this disk.

USERS DISK #19 - BB I Double Density
New BB I Monitor, BIOS, character ROM, Winchester Interface, ZCPR, and formatter from Trevor Marshall. See BB I expansion article in Issue #11.

USERS DISK #20 - Assemblers
CROWEASM: This is the Crowe assembler modified so that it runs on any CP/M system (including the BB I, BB II, Xerox . . .). Includes .COM .Z80 and .DOC files.
LASM: This assembler is similar to the ASM that comes with CP/M except that it can link files at assembly time.
PRINTPRN: Print routine for CROWEASM .PRN files.
LIBRARY: Utilities which let you combine many files into one, then you can run, type, or extrace any file within the larger system.

USERS DISK #21 - Winchester Utilities
BACKUP: Helps you back-up the winchester onto multiple floppies. Creates a catalog of the files on each disk and includes the date of the latest backup. Will not back-up an unchanged file more than once. Plus many more super features.
FLOPCOPY: Lets you make floppy copies (with only one floppy drive) by using the winchester as a buffer.
BIGBURST: Backs up a very large winchester file onto multiple floppies. Joins the copies to recreate the original file.
MULTCOPY: Use this like PIP but it prompts you to change disks. Accepts ambiguous file names.
MDIR: Displays files in all user areas on selected drive. Many features.
MAKE, MOVE: PIP-like utilities that make it easy to move files between user areas.
SWEEP: The famous disk cleanup and transfer routine that does just about everything you can do with TYPE, ERA, DIR, and PIP.
UNSQ: This is the latest, greatest file unsqueezer. Enter UNSQ *.* and it will check every file on the disk. All squeezed files will be unsqueezed.

8" Users Disks

$15.00 each

OTHER GOODIES

Screen Editor in Small C $39.00
A simple but full-function screen text editor plus a text formatter, all written in Small C by Edward Ream. This package includes the editor and formatter .COM files setup for the Big Board, Small C itself, and source code for all. With the documentation this is over 400K on a flippy disk. Edward is selling this package for $50, you can buy it from us for $39 (and Ed gets a royalty). Where else can you get an editor, a formatter, a C compiler, and source for all, for under $40?

More ROMS: Fast monitor ROMs for speed freaks and our famous 'better than Texas' character ROM (V2.3) for screen freaks.
Fast Monitor ROM BB1 ..... $29.95
Deluxe Character ROM BB1 or KayPro $29.95

From Micro Cornucopia

CP/M-86 DISKS

DISK 86-1 — Disk Utilities

D.CMD/A86, SD.CMD/A86, XDIR.CMD/A86: Three extended directory programs. Each does it differently, so we included all three.
FILE-EXT.CMD/A86: Disk status program with good display format.
PAGE. CMD/A86: A text paging program. Displays 24 lines at a time.
PRINT.CMD/A86: File printing routine. Puts a header at the top of each page along with page number and file name.
MUCHTEXT.CMD/A86: Counts words and lines in a text file.
ERQ.CMD/A86: Selective file erase program. Displays all selected files and then asks you one at a time for a Y/N.
INUSE.CMD/A86: Prints "In Use" on your terminal and asks for a password. It will not release the console until you enter the password.
FINDBAD.CMD/A867. Finds and collects bad sectors on a disk. If there are no bad sectors, information on the disk is unaltered.

Disk 86-2 — DU and Modem Programs

DU-V75.CMD/A86/DOC: This is the popular disk utility from CP/M 80. It lets you read, write, and modify disk sectors.
MODEM4.CMD/A86: This is a modem program set up for the Slicer. This program includes a built-in help file.
MODEM7SL.CMD/A86/DOC: No modem disk would be complete without this standard. This is modem7 set up for the Slicer. It displays a menu when it is called.

Disk 86-3 — Small C

C86.CMD: This is the original Small C compiler which appeared in Dr Dobbs Journal in 1980. It runs under CPM-86 and generates 8086 source for the ASM86 assembler.
C86. COM: This is the C86 compiler which runs under CPM-80. This 8080 program produces 8086 assembly language.
C86LIB.A86: This is the C86 I/O library.
SMALLC86.DOC: Documentation on Small C.
C?????.C: Source of the C86 compiler.

Plus, there are a number of demonstration files and ENTAB (insert tabs in place of spaces) and DETAB (replace tabs with spaces) programs all written in Small C.

REMEMBER

FREE Users Disks in exchange for submitted software or articles

KayPro Schematic

This is a complete schematic of the KayPro, logically laid out on a single 24″ x 36″ sheet — no more searching to see where a signal goes or comes from. Even the unused gates are shown.

It's drawn in positive logic, lines are labeled, and we've tossed in hours and hours of careful checking for accuracy. Then we added a **Theory of Operation** that's keyed to the schematic.

KayPro Schematic Package $20.00

8″ CP/M-86 Disk

$15.00 each

KAYPRO II USERS DISKS

The following are full disks of software assembled specifically for the KayPro II. Each program has a .DOC (documentation) file and many come with source.

KayPro Disk K1 - Modem software

This disk is absolutely priceless if you will be using a modem to communicate with bulletin boards, other micros or mainframes.
MODEMPAT. COM: Menu selection of baud rate, bits/character, stop bits, & parity for serial port.
MODEM7.COM: Very popular MODEM 7 configured for KayPro.
MODEM7+.COM: This is MODEM7 & MODEMPAT combined - you can communicate with anything!
KMDM795.COM: Super-version of MODEM7 set up for KayPro.
TERM.MAC: Commented disassembly of the TERM program you get with your KayPro so you can configure it for any interface.
SQ/USQ.COM: Programs to squeeze and unsqueeze files for faster transfer.

KayPro Disk K2 - Utilities

Really oodles of spiffy little (and big) programs to help you get full use of your KayPro.
ZESOURCE.COM: A true Zilog format disassembler for 8080 and Z80 object(.COM) files. Now you can turn .COM files into . MAC files.
UNERA.COM: Simply enter "UNERA" followed by the name of the file you just erased and presto, the erased file is back! A lifesaver.
FINDBD54.COM: Checks an entire disk, reports bad sectors, and then creates a special file containing those sectors. You save a bundle on disks.
CAT2: This a group of programs which create and maintain a single directory of all the programs you have on all your disks. Even keeps track of which programs are backed up and which aren't.
UNSPOOL.COM: Use your KayPro II and print files at the same time. Doesn't slow down system response!
DUMPX, DU-77, COMPARE, SUPERSUB, FORMFEED, DIR-DUMP, . . . and all have documentation on disk.

KayPro Disk K3 - Games

PACMAN.COM: Despite the KayPro's lack of graphics, this one looks and plays amazingly like the real thing! Keep it hidden.
ZCHESS.COM: Chess with a 1-6 level look ahead.
OTHELLO.COM: You learn it in minutes, master it in years.
BIO.COM: Generates custom graphic biorhythm charts.
MM.COM: Master Mind.
WUMPUS.COM: Classic wumpus hunter's game.

KayPro Disk K4 - Adventure

This disk contains one 191K game, Adventure.
ADV.COM: This is the latest, greatest, most cussed adventure ever devised by half-mortals. This is the 550-point version so the cave is greatly expanded and the creatures are much smarter.

KayPro Disk K5 - MX-80 Graphics

A complete MX-80 graphics package including example files.

KayPro Disk K6
Word Processing Utilities

A powerful line oriented text editor that looks like Unix's EX, plus a scad of text utilities written in C which handles pretty printing, shortening a file, multiple space output, add tabs, remove trailing whitespace, and more.

5″ KayPro Disks

$12.00 each

KayPro Disk K7
Small C Version 2 Compiler

This is a greatly extended version of Ron Cain's original C compiler. Version 2 includes many more expressions, a substantially extended library, and much more. This disk contains the compiler, documentation, and library.

KayPro Disk K8 - Small C Version 2 Source

More of Small C Version 2. This disk contains the compiler, documentation, and the source of Small C version 2. It compiles itself.

KayPro Disk K9 - ZCPR

ZCPR: The big news on this disk is the self-installing version ZCPR available only from Micro C. Once you have ZCPR in your CP/M, you'll never go back to straight CP/M! For instance, ZCPR searches drive A for any program not found on drive B, so, even an empty disk in drive B appears to contain every program on A. It's great for text editors, compilers, etc. Plus many more new features to make CP/M easier to live with. In fact, Digital Research incorporated many features of ZCPR into CP/M 3.0.
PASWORD: Lets you encrypt and decrypt your precious files. Includes source.
EX14: a super replacement for SUBMIT and XSUB. Plus many more: **TREK, FIX, FIND, SNOOPY ALIENS and DIF2.**

KayPro Disk K10 - Assemblers

We've received a lot of requests for a Z80 assembler. So Dana put in some long hours getting the Crowe Z80 assembler to run on the KayPro (and every other Z80 machine).
CROWECPM: This is a first class Z80 assembler. We use this assembler daily (and we included its source). Takes standard Zilog mnemonics.
LASM: This is a more powerful version of the ASM assembler you received with the KayPro. This will link multiple programs together at assembly time.
PRINTPRN: This program makes it easy to print the listing files generated by the Crowe assembler.

KayPro Disk K11
Library & Checkbook Programs

We've had excellent response to both these programs from Big Boarders and numerous requests from KayPro folks.
CHECKS: This has been a very popular group of programs. Categorizes checks so you can keep track which are tax deductible and which get charged to which projects. Includes source and excellent example check files. Very powerful.
LIBR: This is a complete set of library routines which let you group files into a single file called a library. Then CP/M sees them as a single program, but with the library routines, you can list them out separately, run them separately, or divide them up again. Almost like a unix environment.
DISPLAY, VLIST, PGLST: Additional screen and print utilities.

KayPro Disk K12 - FORTH

Yep, this is FORTH, one of the most unique, most extendable languages know, and for a paltry $12.00. This disk contains not just one FORTH, but two, along with an editor, decompiler and 8080 assembler! The editor even uses the cursor control keys.
FORTH: This is true fig-FORTH.
KFORTH: A very nicely extended version of fig-FORTH.
PLUS, all the rest of the FORTH goodies. (Forth Heaven!)

KayPro Disk K13
Source of fig-FORTH

All this disk contains is the 40K ASM source of fig-FORTH with the hooks in place for the KayPro. This disk is for FORTH hackers who just can't leave anything alone. (Look, you probably have faults, too.) The source of FORTH is here because there isn't room on K12. This is the only disk that isn't stuffed.

KayPro Disk K14 - Smartmodem Programs

This is the disk for you if you have a Smartmodem compatible modem. With this disk you can communicate with anything but a recalcitrant spouse. Handles goodies like autodial along with multiple directories.
SMODEMK: Smartmodem program set up for the KayPro (and source).
XMODEM: Lets you remotely control your KayPro from a distant computer.
KAYTERM: This is the information you need to run or write modem software on the KayPro.

KayPro Disk K15

BACKUP: Helps you back-up KayPro 10 winchester onto multiple floppies. Creates a catalog of the files on each disk and includes the date of the latest backup. Will not back-up an unchanged file more than once. Plus many more super features.
FLOPCOPY: Lets you make floppy copies (with only one floppy drive) by using the winchester as a buffer.
BIGBURST: Backs up a very large winchester file onto multiple floppies. Joins the copies to recreate the original file.
MULTCOPY: Use this like PIP but it prompts you to change disks. Accepts ambiguous file names.
MDIR: Displays files in all user areas on selected drive. Many features.
MAKE, MOVE: Pip-like utilities that make it easy to move files between user areas.
SWEEP: The famous disk cleanup and transfer routine that does just about everything you can do with TYPE, ERA, DIR, and PIP.
UNSQ: This is the latest, greatest file unsqueezer. Enter UNSQ *.* and it will check every file on the disk. All squeezed files will be unsqueezed.

NEW!

Kaypro Disk K16 — Pascal

This is a public domain version of Pascal and though it doesn't include floating point, records, or pointers, it does generate a real .COM file and it compiles itself. All the source is included, as well as example Pascal programs.

NEW!

Kaypro Disk K17 — Z80 Tools

XLATE2.COM.MAC.DOC Translates 8080 assembly language into Z80. Output can be used by Crowe assembler.
DASM.COM.MAC.DOC Easier to use version of the disassembler on disk K2. Generates Z80 source.

On Your Own

By David Thompson

Something very important came in the mail on November 27th. It came quickly though it came from a company that has (up to now) been very slow about sending out anything. It was a bankruptcy notice.

JRT Files Bankruptcy

JRT Systems has filed chapter 11 bankruptcy. I know many of you waited months for your Pascal while JRT sat on your checks and Visa cards (or is still sitting on your checks and Visa cards). I guess we now have an inkling why.

Growth, the Good and the Bad

JRT Pascal was an incredibly successful product by most measures. There are lots and lots of copies out there generating lots and lots of P code. I talked to Gary Peiffer at JRT systems and he told me that they averaged 500-600 orders a week for version 3.0 during the first quarter of 1983. During their best week, they received orders for 1192 copies. That's not bad, even at $29.95 per copy.

However expenses managed to keep up with the revenue. They began doing a lot of advertising, they moved into larger quarters and they hired new employees (at the peak, there were 11 people working at JRT).

They had announced version 3.0 in January but it was March before it was ready to ship. JRT was getting a reputation for slow shipment. Plus, people were finding that it was much easier to find a friend and get their own copy (copying is OK, you know) than to wait for JRT to ship orders. So, by June, the order rate was down to 200 per week. (It has stayed pretty constant since then.)

More Headaches

The optimistic product announcements and slow shipments weren't the only problems. They were contracting out the disk copying and they were supporting many different disk formats. Of course, any time the copying service had a quality control problem, it became JRT's quality control problem. Also, the multitude of formats made stocking disks a real nightmare.

They grew rapidly, so they weren't careful enough about the people they hired. I understand that poor employees caused many additional problems.

What did JRT systems learn? Hire carefully—really check people out before taking them on. Don't announce products before they are really ready. Ship orders immediately. Do your own disk copying. Keep the number of disk formats to an absolute minimum (they are now shipping only 8" SSSD, 5" Kaypro, 5" Osborne, and 5" Apple). (Also, they are now down to 5 employees, plus Jim.)

What does Chapter 11 Mean?

A chapter 11 filing means that the company gets protection from its creditors (including you folks who paid for software but haven't received it yet) for approximately 6 months.

JRT's creditors will have to wait while JRT comes up with a plan to make the business viable and pay off its debts. JRT systems has 6 months (or more if they get an extension from the judge) to come up with a plan that satisfies the court. If JRT doesn't come up with a plan satisfactory to the court within the allotted time then the creditors can file their own plans.

What does all this mean to those of you who placed orders?

If you placed an order on or before Nov 18, 1983, you'll have to wait. Your wait may be fairly short if the judge lets JRT start shipping back orders. But if that doesn't happen, you might wind up waiting a long time—anywhere from 6 months to a year (or forever if they don't survive).

If you placed an order after Nov 18, you are not part of the chapter 11 action and you should get your order sooner.

Gary mentioned that they are trying to ship version 4.0 within 48 hours (version 4 is a somewhat upgraded version 3 which they are selling for $69.95). The ads say that the version 4 is twice as fast as version 3. The compiler is twice as fast, the program will run the same speed as it would under version 3. (And the compiler's output is not object code, it's P-code which requires a run time interpreter).

He mentioned that they were also trying to ship version 3.0 faster (but not as quickly as version 4). The price of version 3.0 has been raised to $39.95.

Gary said they were expecting to start shipping Modula II by the end of December (it's been advertised since September). It will be a P-code compiler and interpreter combination like their Pascal. Chances are, they are using much of their Pascal code in creating the Modula II. Modula II will sell for $99.95.

Something Learned

Probably the most important lesson we can learn from the bankruptcy is that success of a product is no guarantee that the business will survive.

Look at Osborne and now JRT. Probably the biggest problem new companies have is the temptation to spend money before they've earned it. It's awfully easy to let the outgo catch up with the income. (After all, income is continuing to rise, right?)

It would be very easy to make that mistake here at Micro C. We receive a year's subscription up front. That's cash in the bank that we could spend.

Fortunately, Sandy is very good at accounting (and very strict with the purse strings). The money you send in for a magazine does not become earned revenue until we send you the magazine. With each magazine you receive, we earn 1/6 of a subscription.

That way, even if all of you cancelled at once we'd have the money to refund all the issues you didn't receive. (Please don't do it, though, I'm not sure I could go back to a straight job. This is just too much fun.)

Other Computer Businesses

I talked to Ms Hardin who is a legal assistant with the firm that is handling JRT's chapter 11 filing.

She said that Osborne and JRT appear to be just the tip of the iceberg.

"There are so many software companies out there that aren't savvy about profit and loss that we will be seeing many new bankruptcies in the near future," she said.

"There are too many elements that aren't within their control. IBM or DEC can come out with a new product or withdraw a product and these companies are left without a market."

She also mentioned that it is so easy to start a new software operation with little

or no capital that many of these start ups have no way to weather hard times.

Update on BCN

I got a call from Richard Kost of Business Computer Network. He had heard that I had mentioned BCN in this column and he wanted to let me know how they were doing.

Well, BCN has had a product on the market for two months now and already they are talking about going public (you know, a stock offering and so forth). A public offering, if it goes, usually makes a lot of paper work for the company and a lot of money (millions) for the original owners.

He said that they really have distributed about 65,000 copies of their software on disk and, now, two months later they have almost 2,000 subscribers to their service and they are getting between 25 and 50 new customers a day. They aren't breaking even yet, but they are not only optimistic about this product, they are already working on new products.

More Ideas

They are also working on a hardware/software package that will let people connect up with the big networks. It will be complete, terminal and all, and it will be cheap.

How cheap? He doesn't know yet, but it might be something ridiculous like $7.95 and three Campbells soup labels. (They'd donate the labels to a charity.) Of course, then they'd sell network time to the new users. It would make sense for them to pick up a bunch of surplus Timex/Sinclair systems (they retail here in Bend for $12), add a little communications software and a home TV and customers would have a complete system.

BCN is also finishing up a modem package for the PC which they plan to distribute on free disks just as they did for Kaypro. (IBM has found that a large majority of PCs have gone to businesses so BCN is probably on the right track.) Richard also mentioned that another project will be aimed at Europe, but he wouldn't say what it was. Whatever it is, anyone thinking that big is definitely worth watching.

■■■

(continued from page 1)

32 16K bit RAM chips; this made the board smaller. They also replaced the 1771 single density floppy controller with a 1793 double density package. They also removed the three ICs that handled the scroll in the video circuit.

They left all the ports and port addresses as they were. In fact, the Kaypro II and 4 have two PIO chips. They are using half of one for the parallel printer interface and half of the other one for system control. They could have used just one but the BB I had two PIOs. (Stick around, we'll be using the other half of those two in the near future.)

They had to rewrite the monitor routines and the BIOS because of the changes. They had to support double density 5" drives and they had to handle screen scrolling in software.

The choice of double density was very important since it gave the Kaypro II a very definite edge over the Osborne—the 9" screen and 80 columns were also a very good choices—but the choice of software scroll was unfortunate.

Try using the Kaypro as a terminal and set the baud rate over 1200. Once the screen fills, it starts dropping characters each time the screen has to scroll. You see, the processor has to move every character in video memory during a scroll (which takes a while). Meanwhile, the Z80 ignores all about the characters that are coming in the serial port.

With the hardware scroll, the video circuitry automatically shifts everything by one line and points the processor to the correct spot in video memory. The processor doesn't have to so much as raise an address line.

One of the big reasons that speeding up the Kaypro processor improves the performance so much is this silly scroll problem. The Z80 spends most of its time just rewriting the screen. If you purchase one of the many speed-up boards that slows down to 2.5 MHz when writing to the screen, you don't gain much.

Documentation

Non Linear found it easier to produce systems than service manuals. So, it was not unusual to find a Kaypro dealer with a set of Big Board schematics, trying to translate the IC numbers from one system to the other and trying to figure out what was left in, what was left out, and what changed. Somehow it all seemed very familiar.

Character Sets

The evolution of the BB character set is also worth a look. The first BB I boards shipped by Digital Research had an interesting character set. The uppercase characters were very standard uppercase characters. The lower case characters were simply shorter versions of the uppercase. A screen full of text looked very strange—and if you had all one case or the other, you really had trouble telling which you had.

Well, a group of us at Tektronix had placed an order for 7 boards right when the first ad hit the mags. Ours was the first order out the door and I have board A000014.

Anyway, we didn't appreciate the character set, so I took a few minutes one afternoon (with the help of Randy Dietrich and Lynn Cochran) and came up with a real lower case character set. It wasn't very fancy—the y, g, and q were just plain ugly—but the screen looked ten times better than before, so everyone in the group asked for a copy.

I told Jim Tanner that I had changed the characters. He said they were working on a new character ROM themselves and he asked if I would exchange my character ROM for a copy of his when he finished with it.

So I sent him mine. Six months later I called him to find out what had happened to his. He told me not to worry, they had decided to ship Big Boards with my character ROM (he calls it version II).

I mentioned that I had been hoping to sell my character ROM as a way to help finance the start up of Micro Cornucopia. So there I was, my first new product for the BB I was being duplicated by the hundreds and shipped with every new board. (He sent me a BB I kit as payment.)

So I went back to work on the character set and cleaned up the tail draggers that looked so unique (and ugly) and advertised the upgrade in Micro C. The response wasn't earth shaking, but it has helped us get started.

Then one day a friend suggested I take a look at the Kaypro. Well, looking at the Kaypro screen was like homecoming. There were my ugly g, y, q, f, t . . . There was no doubt about it. I knew that within that Kaypro there lay a heart of BB I and inside the character ROM were the remnants of an afternoon at Tek.

So I combined my new character set with the Kaypro Greek characters and produced the Greek PRO-CHARACTER ROM. I also left out the special characters altogether and called it the Clean PRO-CHARACTER. The Clean character set was for those who were being driven to distraction by the funny little greek characters (mostly folks into data communications with mainframes.)

I sent a copy of my character ROM to Non Linear (after getting a non-copying agreement from David Kay). They have upgraded their characters somewhat since receiving mine but they haven't gone all the way with it.

Finally

This is just an overview of the BB I. There have been, for instance, a number of other duplications by user groups and commercial companies.

There are a lot of people who still swear by their original BB I. My old #14 still turns out all the 8" user disks that go out of here and keeps the books on the side (it accounts for itself better than a lot of people I know—and some of my best friends are people).

The BB I was unique in its time. Since

S-100 was the power in the CP/M world three years ago, a single board "unexpandable system" was a break with tradition. The BB I was much smaller than the equivalent S-100 hardware because it was designed with LS (low power schottky) parts which used about 1/10 the power of the standard TTL parts. LS parts could be packed closely together without heat problems and lower power drain meant that power supplies could be much smaller and cheaper.

It turned out, however, that you don't tell a Micro C reader that something is unexpandable—at least not without major consequences. So there are BB Is that bear little resemblance to their original form.

People have added 256K, RAM disks, 5 MHz clocks, double density drives, 8088 co-processors, and 20 Mbyte winchesters. Now folks are working on full blown CP/M 3, MS DOS, and (no doubt) Unix.

It's too bad the BB I is so limited.

S-BASIC

John Steinhauser was very kind to volunteer to do the first S-BASIC column. His introduction to this fascinating language is in this issue.

I'd like to put together folks who would like contribute to the column. I'm especially looking for S-BASIC programmers who have a strong background in Pascal. When BASIC programmers see what happens when they totally leave the line-number/goto style of coding and write really structured code they usually never go back. But the transition is sometimes difficult.

Also, I especially encourage you heavyweight Pascal types—who can leap tall algorithms with a single call, write 10,000 lines of code without a goto, and spot spaghetti coding at 100 paces—to try this language.

I'd like Micro C to become a clearing house for S-BASIC information and programs. It's certainly a very exciting language and this is certainly the right group of people for it.

Third Annual SOG

The third Annual SOG (Semi Official Get-together) will be July 27, 28, and 29 here in Bend. We are now working out the details, but we have already lined up a large log building with a kitchen, balconies for seminars and lots of covered space for people to display what they've been working on for the Big Board, Slicer, and Kaypro.

The building is on the site of an old fish hatchery. The hatchery is no longer there but the river and a large pond are still there. It's a very quiet and beautiful spot about 2 miles west of Bend.

We are going to have another white water raft trip. It is absolutely the best way to get acquainted (or reacquainted) with all those great folks who are building and writing and modifying, and expanding these neat systems.

You'll also get to see the new Micro C office. It's a cute little house in downtown Bend and we're just about moved in. More about moving Micro C out of our house for the first time in future issues.

Anyway, put the last weekend in July down on your calendar. This is one of the most popular areas for exploring, fishing, camping, sightseeing, and skiing in the Northwest. Come see what we've found.

David Thompson
Editor & Publisher

WANT ADS

The following folks are reaching you for only 20 cents per word. If you would like to reach the same audience, send your words and 20 cents for each to Micro Cornucopia.

Protect your schematics. Heavy duty vinyl sheet protector, 11X17, 3-hole punched, perfect for BB schematics! Six for $6.00 postpaid. Tony Ozrelic, LA Software, 6708 Melrose, Los Angeles CA 90038.

Xerox 820 boards completely assembled and tested with documentation. $150.00 plus shipping. Call evenings 213-340-5410 or write Jiri Kratt, 20311 Sherman Way #316, Canoga Park CA 91306.

Need money for bills. For sale: Z80 CP/M Big Board II ($800), two Shugart 800's ($150 each), case and power supply ($150), 15 MHz monitor ($50), unwired keyboard. Whole package with CP/M 2.2 for $1150 plus shipping. Tom Mason, 216-575-8195 days, 216-836-7254 evenings.

Looking for Kaypro users in Japan. Is there anyone here? T.R. Hofmann, Toyama University, Toyama. 0764-41-4038

BB I, dyna-disk, floppy, keyboard, monitor, software $900. 415-532-7971.

For Sale: Big Board I with all options except serial ports. Modified, running at 4 MHz, RAM power protection circuit $200. Same mounted in old TI914 terminal with power supply, keyboard, and monitor $350. Bruce Kinney, 4201 Tynes Dr, Garland TX 75042. 214-276-7650.

Kaypro. Need more workspace? Add 1½ sq. ft. of level workspace right on top of the Kaypro. 18 Ga. steel will support books, even a printer. Adjustable angle. Send $27 (includes shipping) or a SASE for more info. MetroWest, 822 N Spring, LaGrange Park IL 60525.

Wanted: 1 SDSS 8" drive, 220v/50Hz. Used/working OK. Rex Buddenberg (503) 756-2180 eves/wknd.

TECHNICAL TIPS

Electronic Prototype Construction

Book Review by David Thompson

This book, Electronic Prototype Construction is supposedly for those of you who build prototypes, and there is some good information on prototyping methods. However, the real strength of this book is its thorough coverage of printed circuit board design and manufacture.

I know that most of you don't lay out printed circuit boards for prototypes but once you have a prototype running it's usually time to generate a board.

This book really opened my eyes to the kinds of problems I would face trying to design, etch, and finish top quality circuit boards. (I've laid out and etched my own PC boards, but quality wise, they stunk.) Also, this book has made it much easier for me to judge the work of the commercial board houses. (Plus, I can now speak their language.)

Chapter 1 covers wire wrapping. Chapters 2 through 10 thoroughly cover printed circuit board design, photography, etching, printing, and machining. Chapter 11 covers system packaging. (You can see the emphasis on printed circuit processes.)

The book is well written and there are many illustrations. Most of the pictures do a good job of illustrating the point. The graphic designer made good use of boldface subheads to help you find a particular piece of information.

Unfortunately, many of the illustrations appear to be stock photos from equipment manufacturers. Stock photos are an inexpensive way to illustrate a text but the poor graphic quality of many of the photos lends a 1950's feeling to the book.

Stephen Kasten, the author, is a chemist by trade so it's not surprising that he is especially knowledgeable about the printed circuit process. I recommend this book to anyone interested in using PC boards on new project.

Electronic Prototype Construction
by Stephen Kasten
Published by Howard W Sams
ISBN 0-672-21895-X
$17.95 (paperback)

■ ■ ■

Chess Fix

The chess program on the Kaypro and Big Board user disks outputs characters with bit 7 set. I didn't notice anything unusual on the BB and Kaypro II because they automatically reset (0) that bit before sending characters to the screen (otherwise they'd flash).

Well, the Kaypro 10 doesn't reset that bit so the 10 displays garbage. You can patch the program yourself quite easily. See Figure 1.

Dana Cotant
Micro C

```
DDT ZCHESS.COM

A107 <CR>
107     CALL    1F00 <CR>
10A <CR>
A1F00 <CR>
1F00    MVI     C,02 <CR>
1F02    MOV     E,A <CR>
1F03    RET <CR>
1F04 <CR>
^C

SAVE 32 ZZCHESS.COM
```

Figure 1 - Chess Fix for the Kaypro 10

Xerox 820 Composite Video

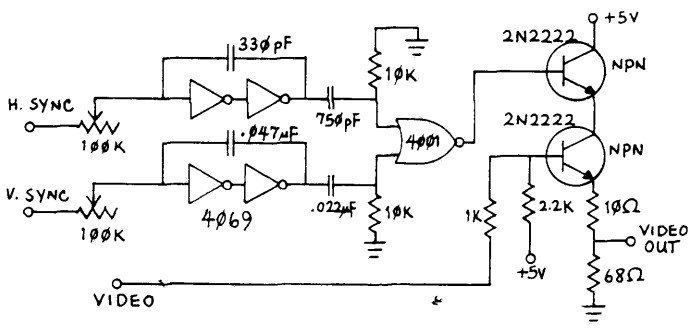
This is a really easy circuit for generating composite video for the Xerox 820. Handle the CMOS ICs carefully, they are sensitive to static. On both the ICs, pin 7 should go to ground, pin 14 should go to +5V. Ground the unused inputs on the 4001. Keep the sync and video leads from the 820 short. I used 6" hook up wire. See Figure 3.

Most of the components are available from Radio Shack.

Also, those of you building up 820 systems, remember to ground pin 2 on J1 if you are running 5" drives and leave it open (or pull it high) if you are running 8" drives.

Herb Graeber
3604 Meadow Oaks
Bryan, TX 77801

Figure 3 - Xerox 820 Composite Video



Using Monostables

Avoid monostables of the 123 variety (74S123 . . .). Use a 538 (such as a 14538B). Tolerances on the 123 are 35%, on the 538 they are 1%. The 538s are not pin compatible with the 123s.

You can hide the problems with the 123s by using large mica capacitors with small resistors to get the same time constant. That hides the current leakage in the 123.

Controlling Frequency Response

I sometimes see caps to quiet noise on transistor bases or IC leads. The capacitors connect between the leads and ground (see C1 in Figure 2). However, since every device has come input capacitance, a series resistor can do the same thing (see R1 and R2 in Figure 2). A 33 ohm resistor in the base of a 2N2222 will give a frequency roll off starting at about 20 MHz, 10K ohms in the same place will make the transistor look like a Lo-Fi audio unit. If you have high impedance leads that are picking up near-by radio stations, try the resistor fix.

A quick note: I'd like to see little single-subject paper backs for beginners on such subjects as: DUMP, DDT, MOVCPM, XAMN . . . Add lots of examples so one can get the details quickly and easily.

Harvey DeGering
1245 E Washington Blvd
Pasadena CA 91104

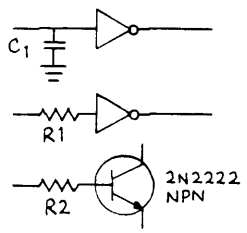


Figure 2 - Controlling Frequency Response

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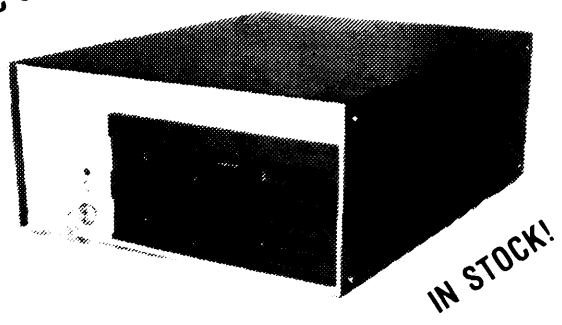

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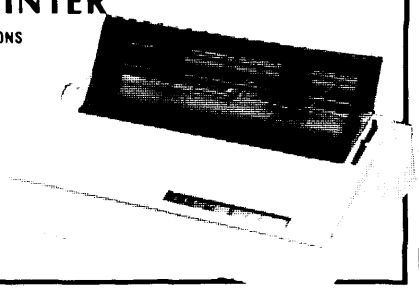

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Kaypro ROMs from Micro Cornucopia

There are two ROMs in each Kaypro a monitor ROM and a character ROM. The Monitor ROM supplies information for the Z80 processor on such things as how to get information from the disk drives, and which character to use as a cursor. The character ROM works entirely in the video circuit and it determines what the characters look like on the screen (for instance, does the "f" have a high, small cross bar, or a lower, longer one of the Micro C character ROM). When you speed up your Kaypro, you are speeding up the processor clock so you have to use monitor ROM that will also run at the higher speed. You are not changing the video clock when you speed up the Kaypro so you don't need to change the character ROM (unless you want the nicer looking character set). Since the monitor ROM tells the processor how to do disk accesses you are going to have to change that ROM in order to upgrade to larger drives.

Pro-Monitor II for Kaypro II

1. This ROM is a fast part so you can run 4 or 5 MHz with your Kaypro II.
2. It gives you a non-blinking block cursor (much less irritating), though you can specify a standard blinking underline if prefer it.
3. It does faster disk accesses (even if you don't speed up your system).
4. It throws away null characters (those little asterisks that sometimes garbage the screen during data communications).
5. Includes complete printed instructions for simple plug-in installation. (takes 5 minutes).

Pro-Monitor 4 for Kaypro 4

This ROM does everything the Pro-Monitor II does, only it's for a Kaypro 4. Though the ROM that comes in your Kaypro 4 will run 4 or 5 MHz (unlike the ROM that comes in the II), this ROM also gives you:

1. Non-blinking block cursor.
2. Faster disk accesses.
3. Throws away null characters.
4. Complete printed instructions for simple plug-in installation (takes 5 minutes).

Prices:

Pro-Monitor II	29.95
Pro-Monitor 4	29.95
Pro-Monitor 8 (package)	49.95
Pro-Character (either Greek or Clean)	29.95
Pro-Set II (Pro-Monitor II & Pro-Character)	55.00
Pro-Set 4 (Pro-Monitor 4 & Pro-Character)	55.00
Pro-Set 8 (Pro-Monitor 8 package & Pro-Character)	70.00

Pro-Monitor 8 package for Kaypro 4

This ROM package does everything the Pro-Monitor II and 4 do (it will run at 5 MHz, ignores nulls, has the fast disk accesses). In fact, even if you are just upgrading your II to a 4 (and will be using the 390 K drives for now) you can use this ROM package. The Pro-Monitor 8 features include:

1. You get 784K per disk with quad density (96 tpi, double sided) Tandon 100-4 (or equivalent) drives.
2. You can use any combination of Tandon 100-1 (Kaypro II), 100-2 (Kaypro 4), or 100-4 drives as drives A and B.
3. You can boot from any disk with normal system tracks (Kaypro II, Kaypro 4, or Kaypro 8). The disk needs no modification.
4. You can choose any character (including space) as a cursor and you can choose to make the character blink or not blink. Plus, you can change the cursor at will.
5. You get a disk which contains a new copy routine for copying and formatting 784K disks, and a drive diagnostic routine for checking out the quad density drives.
6. You get complete printed insturctions for installation of ROM and drives (takes 10 to 15 minutes, including drives).
7. The installation requires no cuts or jumpers, everything simply plugs into a Kaypro 4. (If you have a Kaypro II, see the modification article in Micro C issue 15 to turn your II into a 4.)

Pro-Character ROM (for Kaypro II and 4)

The character ROM gives you a nicer looking character set. Kaypros have come with two different character ROMs, the early character ROMs had a rotten g, y, q, f, and t as well as commas and semi-colons that were hard to tell from periods and colons. On the newer systems (manufactured since Sept 83) half of the characters (notably the g) have been improved, but they haven't gone all the way.

Also, many of the older character ROMs were poor quality parts so they generated snow as information scrolled up the screen. This white flecky snow disappears when you install a Pro-Character ROM.

The character ROM comes in two flavors:

1. The standard Greek Pro-Character has the nicer character set plus the standard Kaypro Greek characters.
2. The Clean Pro-Character has the nicer character set but no Greek characters. This is the ROM for people who get strange Greek characters on the screen when interfacing with Mainframe systems.
3. Complete printed instructions for simple plug-in installation (takes 5 minutes).