

CIE People's Software News

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New SuperPIMx is 'do everything' computer program

Now, with one \$15.95 program from CIE, and no programming, your TRS-80 computer can help with many of the boring details of modern life, whether you be a businessman or student, professional or just citizen.

CIE believes this is the first major consumer breakthrough in software. Programs of this quality have not been available for less than 10 times the cost. SuperPIMx is to software what the TRS-80 was to computers—a price breakthrough.

With this one program, any TRS-80 owner can use his computer to do the following:

- Maintain checkbook balance,
- Keep a current list of department store charges,
- List personal inventory in case it is necessary for insurance purposes,
- Keep track of tax-deductible expenses, by category, for use in preparing tax forms,
- Direct mail, invitations, notices, cards to friends or members of club or for business purposes.
- Keep track of computer programs, music, books and articles.
- Or use your "electronic file clerk" to organize research for a book or term paper, thesis, dissertation or article.

SuperPIMx is the electronic equivalent of an accountant's columnar pad. There are up to 20 columns, and a 48K system will allow in excess of 200 records, or to continue the simile to an accountant's pad, "entries".

TERMS USED IN DATABASE

Lest "entries" confuse you (with the key Enter), let us use the real words of database management: field, record, and file.

A field is what our accountant would call a "column" on his pad. Each field has its

own name. Our accountant would write that name up at the top of the column.

A record is one of the horizontal lines on the accountant's pad. It includes one entry for every field (column) in the database.

A file is a group of records belonging to a database.

At CIE, we have a database of address records, more than 20,000 of them. This database is being converted to SuperPIMx because SuperPIMx is faster, easier to use, more flexible and versatile—more powerful than the expensive system we were using before.

Our old database had four fields: code gave us information about how the person's name got on the list, and a name line, address line and city-state-zip line.

With SuperPIMx, we are carving the record up into more fields. Besides code, we have first and last name, address, city, state and zip. We now can sort on any of those fields in far under ten seconds, where we once could sort only on zip, and the average file took 10 to 20 times that long. Now we can routinely do an alphabetical sort and duplicate-purge, then a zip sort and duplicate purge, all in a fraction of the time it once took us only to sort by zip.

LOWERCASE

One of the nicest features of the new database conversion, however, is going to be what we call pseudo lowercase. No longer will CIE News be coming with a label written in all capital letters. SuperPIMx will rewrite the database in caps and lowercase, a rather civilized touch, we think. Within the foreseeable future, we think we will be able to do word processing with this database. Think about that. Little CIE, with its five TRS-80 model 1s, thinks it soon could write 20,000 letters in a couple work days, nearly all automatically. We're already talking to a manufacturer about a demonstration, using a 2400 lpm, \$3950 printer.

WRITING TERM PAPER

While the ability to maintain a 20,000-plus-name address list indicates considerable power, let's consider what might be a more common application, writing an eighth-grade term paper on U.S. presidents.

Our eighth grader consults several references and decides he wants to list the presidents. He creates a database which includes the following: name, number, birth date, birth place, education, religion, married to... (and date), children, political party, previous biography, term of office, administration highlights, death date, death place, death cause.

Our student does not really know what he wants to do with this term paper. He needs to be able to assemble data and work with it, then bring it out one way and another.

He has come up with 15 fields, the things our accountant would call columnar headings. This is well within the limits of SuperPIMx, which holds us to no more than 20. (Should the user want more than 20 fields, he could simply change a DIM20 statement to DIM30 or some other number, within the limits of user memory).

UNCRAMPED STORAGE

Using most sequential database programs, the student would be required to define length of each of his 15 fields, and they could not total more than 255 characters (many programmers hold it to 240 as a safety margin).

As in most other areas of comparison, SuperPIMx is different. With SuperPIMx, our student will be able to have variable-length fields, and any or all fields can be as long as 255 characters. Thus, with SuperPIMx, records can total 5,100 characters each!

Printout can be as a list, with the fields each on a different line, or columnar. Sorts are via machine language, and are very fast. Any field can be sorted. Thus our

(Continued on back page)

CIE \$99 Cobol runs on 16k

You can now have CIE Cobol for much less than ever before! CIE has arranged to distribute TP/M, a Z80-enhanced operating system compatible with CP/M. The CIE price for TP/M will be just \$59.95. FMG CP/M will still be available for immediate delivery, at \$145 for those who want the original CP/M.

CIE Cobol is simple, easy-to-use and learn, and very fast. It brings to you and your micro all the power and simplicity of the most universal business language of all—Cobol.

It is ideal for use on small computers with simple operating systems, since all the facilities you need are provided in a single integrated package. All you need, in addition to the CIE Cobol compiler and run-time package is a text editor—and one comes with the CP-M that is required to run Cobol. This text editor is used to prepare the Cobol source program.

Ellis Computing, developer of the compiler, first implemented Nevada Cobol on a microprocessor in January of 1979. Since inception the powerful compiler has proven its reliability to hundreds of satisfied micro users worldwide. Compare its structure and its price!

FAST, HIGH-PERFORMANCE

Compiling rate is up to 10-times faster than some major competitors.

CIE Cobol requires approximately 8K bytes, exclusive of the operating system and table space. It consists of several overlays, each executed in turn in the same memory space.

"Two-pass", the source code is read while an intermediate file is written, then the intermediate file is read and the generated object code is written.

It was written in 8080 assembly language, using minimal memory, 16K, and is very fast. It generates in-line machine-language object code and subroutine calls (threaded code).

DOCUMENTATION

Ellis Computing supplies an easy-to-read Cobol reference manual describing in detail how to write a program, compile it, load it into memory and execute it. Includes many examples and 10 complete sample programs showing program-to-program linkage as well as all file types.

The run-time system is very fast, and requires only about 8K RAM. It handles functions such as arithmetic, string manipulation and editing, in addition to managing sequential and relative files.

Object code generated by the compiler is not interpreted. To save disk space, the special loader and common support subroutines are placed in a separate runtime package—not bound with the object modules. (It is a waste of valuable disk

space to have each program contain 8K or more of common routines. If you consider that you may have as many as 300 object programs, that translates to a 2.4 megabyte savings—quite significant, whether you're using 5 1/4", 8" floppy or fixed disk.)

COBOL POPULARITY

Cobol beginners across the country are seeking the means of gaining a valuable, comprehensive exposure to Cobol, but without spending a small fortune.

At \$99.95 CIE Nevada Cobol is fast becoming a micro-user favorite.

Cobol contains English-like phraseology making it easy to understand and learn. Unique error-finding messages are also in English, making programming mistakes easy to detect and correct. The big surprise to most is that Cobol is as easy to learn, if not easier to learn, than Basic. And you need not have any Basic background to begin. You can start immediately with Nevada Cobol.

Perhaps the major disadvantage of the industry's emphasis on Basic is that too many people have become content with its often limited capabilities. Your computer can't do more than its language lets it do. CIE Nevada Cobol opens new vistas of programming power and increases the possibilities open to you—lets you make the most of your micro.

LANGUAGE OF BUSINESS

Today's small business owners and managers are faced with a more rapidly changing set of business and economic factors than ever before.

Increasing government regulations, inflationary trends, rapidly-changing costs, annually fluctuating tax tables and more are all demanding that all business managers put their hands on greater and greater precision in cash flow, inventory control, receivables, payables, in fact, all business variables.

That takes time. Time to update, revise, rewrite and maintain whatever software programs process this virtual data. And time costs money. To make this program maintenance job easier and faster at reduced cost, the universally-preferred language is that which was specifically designed for business in the first place: Cobol. The number of large businesses using Cobol, the unchallenged business

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Language teacher

Language teacher, by Acorn Software Products and available from CIE, is a series of language tutorial programs on disk, for TRS-80 Model I.

Initial programs in French, Spanish, German and Italian are in a drill-learning format, with language-to-English or English-to-language options. Each program offers hundreds of word combinations, phrases, and verb conjugation forms to inform and challenge the student.

Language Teacher's sophisticated

capabilities provide full record access, as well as optional printing features.

Of special interest to teachers is a feature enabling the user to print out a multiple-choice test. Students and teachers will both benefit from a full quiz diagnostic routine.

More advanced programs are under development for those users who master these first in the Language Teacher series.

Each Language Teacher disk program is priced at \$19.95.

NewBasic

EXPANDS DISK BASIC

Now configure your Basic to do any or all of the following:

- convert decimal to hex, and vice versa, provide character representation for each, or the hex/dec number of any character
- Blinking cursor • repeat key • audible key entry (each key makes a sound) • directory command from Basic • disk load and disk save command file • graphic functions, including drawing blocks, lines, filling-in blocks • lowercase driver • RS232 driver (LPRINT/LLIST) • call function, hex-order number will execute subroutine • spooler and despooler • print toggle, lprints your video display

CIE from Modular Software Associates \$24.95
by Ken Brown and Clarence Felong (\$26.45 CA)

PasPatch adds disk, printer to Shack, CIE tiny Pascal

PasPatch from CIE lets you make a full-blown disk system, with printer support, of Radio Shack's \$19.95 tiny Pascal. This Pascal is the same as the one formerly sold by SuperSoft, and by CIE as Tape 6. Required is 32 or 48K RAM and one or more disk drive. PasPatch is compatible with all versions of TRSDOS, NewDOS, and VTOS. Two categories of functions are implemented under tiny Pascal monitor system: **Utility**—allows for printer output, keyboard debounce, auto repeat, and check of user memory remaining. **Directory** check and exit to DOS also are implemented. **Disk**—allows for saving, loading, and killing of source and-or-P-code files as well as allowing object ("CMD") files.

CIE \$15.95 (16.91 CA)

Games for color TRS-80

Tape contains the following:

- PONG-80 • ENTRAP • DEMOLISH (breakout-like) • TRAFFIC Grand Prix auto race • BETA TREK space game • SHUTTLE rocket ship game

from Modular Software Associates
CIE by Ken Brown, Clarence Felong and Gary Shute \$19.95
(\$21.15 CA)

Music sampler, head alignment

CIE's music-synthesizer sampler tape is in stock, and by early January a head-azimuth alignment tape will be available to help TRS-80 users do the critical head alignment on their tape recorders. Either tape is just \$3.95. The music synthesizer tape lets you compare the two music synthesizers now available for TRS-80, and decide which one you wish to buy. Reproduction quality of the music tape is excellent. The head alignment yields a high-degree of accuracy, using a 10KC tone.

CIE \$3.95 ea (\$4.19 CA)

BASIC3

UPGRADES TO MODEL 3

BASIC3 by Gerald Abear at Personal Computer Service not only upgrades any 16k-minimum Level 2 TRS-80 to be software-compatible with the Model 3 Basic but adds additional features of its own.

Gerald has added a lowercase driver and printer routine that allows you to lineprint what you see on video at the press of just two keys.

Also, it will now load into any system, even those with any known DOS.

Except for those enhancements, **BASIC3** is user-identical to Level III Basic, which costs twice as much, and is resident on a Model 3.

Level 2 and 3 are said to be as different as Levels 1 and 2, except that all Level 2 programs run on Level 3.

BASIC3 adds the features of disk basic to the tape user, without his having to buy expansion box and disk drives. Its advanced graphics virtually turn your TRS-80 screen into an electronic drawing board.

Personal Computing Service's **BASIC3** uses only about 5K of RAM, leaving about 10K of memory for user programs.

//**BASIC3** includes the following new features not found in Level 2:

- **NAME** command automatically renumbers program line numbers, and does it as you specify. You can renumber a program beginning at any specific line number, and increment it by any number (1, 10, etc). Line numbers following GOTOs, GOSUBs, etc. are automatically changed to the proper line number for the new sequence. This helps you write programs.

CIE

\$24.95 (\$26.45 CA)

or—rewrite them, and eliminates re-keyboarding when you run out of space between program lines.

- **LSET** provides a keyboard shorthand for keying in programs. This gives the user 26 user-changeable shift-key shorthand entries. When not in the lowercase mode, hitting shift/R will RUN a program. Typing shift/J and shift/K-enter gives you a list of all the LSET shorthand keys. And they are all easily changed to anything you want them to say!

- Error messages are all spelled out, instead of abbreviated.

- **LINE INPUT** allows punctuation in an input response.

- **INSTR** lets you search a string for a substring.

- There are user-defined functions, and automatic hex and octal conversion.
- The standard LEN, MIDS, DEFUSR and USR(n) features have been enhanced, too.

BASIC3 provides greatly-expanded programming possibilities in all areas, and is compatible with Micro-Soft and Radio Shack Level III Basic. You also can write Level II programs, using **BASIC3**. **BASIC3** is just \$24.95 postpaid from CIE.

SOFTWARE *from* CIE

Utilities

Super Step

Everything that was left to your imagination is now brought to the screen! Namely: before-after Z80 processor models animated in response to a disassembled listing plus an intelligent RAM window that selects memory environments to show you what is going on. Single-step or trace with background-foreground breakpointing, variable speed control, keyboard interrupt, dynamic skip key and more. Thirty-six key functions service the display or help you edit, plus faster tape I/O, relocatability. 16K Level 2. Tbug required.

Allen Gelder

\$19.95

TRS Mod 1 to Mod 2

Program enables computerist moving up to Model II TRS-80 to "filter out" all of that sloppy code that the Model I Disk Basic allowed user to get away with (but Model II won't). Adjusts all screen printing to the larger screen size of the Model II. Corrects the IF...THEN...ELSE statements and identifies anything that would be illegal on the Model II for "on-line" correction. Creates "filtered" program on Model I diskette ready for "up-line" to Model II. A real time-saver if you are "on the move".

NEPENTHE PROGRAMS \$19.95 (\$21.15 CA)

Autoboot

Simplifies automatic Basic program loading from DOS. Permits sequencing through your choice of DOS commands, selects files and memory size to your specification and loads or runs selected program. Allows user to see directory and free space before program runs automatically. Supplied on cassette.

Peripheral People

\$15 (\$15.90 CA)

Sir Echo

Program echoes keyboard to printer, giving you an electric typewriter. Functions standalone or can be merged into programs to echo screen to printer. Supplied on cassette.

Peripheral People

(\$10.60 CA)

Super Tlegs

Onboard relocater for Tbug lets Tbug move out of the way of intersecting programs. Gives not only total address space access, but ability to populate RAM with parallel-independent Tbugs. Also will independently relocate Super STEP.

Allen Gelder

\$9.95 (\$10.55 CA)

File Manager-80

With FM-80 you can virtually ignore pages 7-37 through 7-75 of your Disk Basic manual. The hottest thing since floppies, FM-80 is an input/output control system (IOCS) which will automatically create disk file input/output instructions as well as automatically document your file layouts and variable names. A real timesaver for the Disk Basic program developer, three programs and extensive documentation. Documentation alone \$3.

NEPENTHE PROGRAMS \$49.95 (\$52.95 CA)

Generalized program utilities

Provides assistance in Basic program development and documentation. Program provides five modules which are initiated from a main menu of functions. These include:

- Change strings of characters within a program.
- Line number cross-reference of a program.
- Locate any string of characters in a program.
- Formatted program listings
- Program compression, in three different degrees.

These functions provide the programmer with a "tool kit" of programming essentials. Documentation alone \$2.

NEPENTHE PROGRAMS \$29.95 (\$31.75 CA)

B17 f-a-s-t tape

B17 is a software system developed to increase the I/O speed of your Model 1 Level 2 tape system. B17 lets you save and load Basic or System programs up to four-times faster than normal. B17 will let you save and load DATA files over 400 times faster than normal, too! Load 1,000 integer data items in 10 seconds!

No unusual technical information needed to use B17. Operating instructions were written in easy-to-understand format which serves equally well the inexperienced or seasoned programmer.

If your TRS-80 has an XRX modification from Radio Shack, you need to switch that out. Instructions are provided.

ABS Suppliers \$24.95 (\$26.45 CA)

Languages

BASIC Compilers

Compiles Level 2 Basic integer subset with only minor constraints (no dynamic redefinition of names, statistically-associated FOR/NEXT loops) to fast Z80 machine code. Performance of the compiled program can be spectacularly improved in speed while size remains reasonable due to extensive use of ROM routines. ACCEL itself is of small size and is self relocating, so even 16K machines can utilize the power of compilation. The compiled Basic program requires only 256-bytes of ACCEL run-time routines. With no royalties on the derived code (except inclusion of copyright notice), the ACCEL-produced speed improvements are available to the commercial software writer for production work. It is like having a 100MHz clock!

Allen Gelder \$44.95 (\$47.65 CA)
ACCEL 2 (full disk) \$88.95
Basic (\$94.29 CA)

People's Pascal

"Tiny" Pascal fully implemented for TRS-80 16K and up, giving you everything you need to write structured Pascal programs, and compile them into Z80 code:

- tiny Pascal compiler • complete text editor for writing programs • complete tiny Pascal monitor • sample Pascal programs • large user's manual (S-80 Computing issue 1:4).
- People's Pascal is both a powerful structured language and "cpu expeditor". People's Pascal programs execute at least four times faster than Basic, and often eight times faster! Special functions open up the complete graphic capability of TRS-80. Here is a partial list of People's Pascal features:
- recursive procedure / functions • for (loop) • case if/then/else • one-dimensional arrays • write • read constant • repeat/until (loop) • peek & poke • plot (graphics).

CIE \$19.95 (\$21.15 CA)

COBOL

COBOL ANSI '74 subset, runs on any 16K or larger disk system with CP/M:

for Model 1 (5") \$99.95 (\$105.95 CA)

for Model 2 (8") \$99.95 (\$105.95 CA)

manual only \$25 (\$26.50 CA)
COBOL applications book \$25
APPLICATIONS DISKS:
budget planning \$25 (CA tax)
personal finance (PFR) \$25
labels \$25
PRECOBOL \$25
CPM:
for Model 1 \$145 (\$153.70)
for Model 2 \$170 (\$180.20)
TPM \$59.95 (\$63.55 CA)

Business



Cash Register

Use your TRS-80 as a point-of-sale terminal with automatic inventory lookup, pricing, and inventory update. Set up to 4 discount rates for discount pricing, set a sales tax rate, print sales slips with user-created formats, and receive end-of-day reports with all cash, charge, and check sales by sales person. Cash Register 80 requires Inventory+, 48K memory and one disk minimum (2 recommended).

Edu-Ware \$24.95 (\$26.45) on tape
supplied on disk \$29.95 (\$31.75)

Inventory

An interactive inventory program which will create, maintain, and update your stock files. INVENTORY+ will give you aging reports, reorder reports, total inventory listings, costs of remaining stock items, total items sold, and profit based on retail sales. Inventory+ will let you delete items from stock and recover the disk space. All reports have printer routines with user-selected page lengths. Find out what items are selling and which are not. INVENTORY+ can save much more money than it costs. Stores up to 3000 entries, depending on disk configuration. Includes operating documentation.

Edu-Ware \$24.95 (\$26.45) tape
disk (32K, 1 drive min) \$29.95 (\$31.75)

Docu-Writer

A text-editor-word-processor just made for the programmer. Uses the familiar Basic Editor instead of a bunch of special control characters for text editing. Will concatenate text files for printing larger documents; will print upper and lowercase characters without hardware modification (uppercase identified on video screen); and will hyphenate, right justify, indent, page title and number, and perform "global" modifications—with only five control characters. Includes capability of inserting "variable" information into printed text—and more! One program and extensive documentation.

Note: Includes routine to initialize program to your printer and your way of doing business. Documentation alone \$2.

NEPENTHE PROGRAMS \$39.95 (\$42.35 CA)

Tiny Payroll

We've taken this from Computer Programming for the Complete Idiot, thus it is very well documented.

CIE \$10.95 (\$11.61 CA)
Book \$5.95 (\$6.31 CA)

MiniBiz

Custom bookkeeping system provides current financial status report whenever needed.

MiniBiz is a cash-basis bookkeeping and management information system for small business.

Data entry from single document to menu-driven system module. Accounts for every penny going into or out of your business.

Operations performed using chart of accounts tailored to your business that may be modified to meet your changing requirements.

Inventory valuation computed if required based upon cyclic inventory or "book value". Will accommodate up to eight inventories.

Checkbook and petty cash reconciliation. Optional interface to AR and AP.

Documentation only \$15. Full system just \$250. Write for further information.

Accounts Receivable (A-R)

A generalized A-R that provides expandable files to accommodate business growth. No transaction detail limit per account per billing period. Customer statements and one- or three-wide mailing labels. Interim statement preparation (between billing cycles); on-line account viewing and correction; hard-copy accounts summary and status of receivables; 30-, 60-, 90-day statement aging; selective allocation of payments; automatic interest inclusion for past-due amounts; and much more. May be configured to either two- or three-disk operation. Four programs and extensive documentation. Documentation alone \$2.

NEPENTHE PROGRAMS \$69.95 (\$74.15 CA)

HORKS

Home-Office Records

Home-Office Record Keeping System allows up to 33 user-assigned major account codes per credit or debit file (or use as single-entry system). Has change or delete function with automatic audit trail; 32 or 48K disk systems (1 to 4 drives); retains all entries, not just a summary; credit and debit summaries with 3 different formats—total, monthly, and account code—with optional printer routines; search function with ability to totalize all entries found; profit-loss statement; 800 to 9200 credit-debit entries, depending on memory-disk configuration; eight packed pages of documentation. HORKS will keep record of charge card purchases, telephone & utility expenses, rent payments, taxes, interest charges, etc. Do your budget, keep your checkbook or small business records.

EDU-WARE \$24.95 on cass., \$29.95 disk

Time accounting, billing

This system has particular significance for the data processing professional as well as any other vocation for which estimating may be performed using a structured set of events or tasks. For example, TABS will perform time estimation of data processing systems development based upon such tasks as analysis, design, programming, testing, documentation, and installation-testing. The task names are easily modified to your requirements. The estimates are performed at the "module" level. "Modules" are then consolidated at the "application" level. "Applications" are then consolidated at the "client" level which serve as the basis for services contracts. TABS will then track progress, create client statements based upon completed effort and client payments, and provide status reports of remaining workload. Three programs and detailed documentation. Documentation alone \$2.

NEPENTHE PROGRAMS \$69.95 (\$74.15 CA)



Telephone dialer

Telephone dialer program stores up to 500 names & numbers in 16K computer. Simple dialing circuit requires about \$5 worth of parts (Radio Shack) and a few minutes to connect and plug onto Remote side of cassette cord.

BLECHMAN ENTERPRISES \$10 (\$10.60 CA)

Database Managers

Periodical cross-reference

Uses your TRS-80 to catalog magazine articles by subject, publication, date, page and title. You can build a file using any subjects or publications you like, search through a file and list (to CRT or printer) only those articles under a particular subject or publication, or list all the entries. You can edit, delete, or sort entries. You can load a file, make additions or corrections, and save it back on disk or tape. Disk version also includes a tape-to-disk conversion program for your data tapes in case you upgrade to disk at a later date, and a sample data file.

David Stambaugh \$14.95 cas., \$19.95 disk

People's Database Mgr.

—SuperPIMS

PIMS has been greatly speeded up and simplified, with machine-language sorts, key debounce, produces lowercase on labels or reports. Up to 20 fields, limited by 240-character maximum per record. Easy revise, add records, and sum. Customized for tape, tape & disk. TC8 Poor Man's Floppy, B17, Stringy Floppy, and Beta 80—all on one tape! Includes excellent mailing labels program, with advanced labels module to come, easily able to manage 20K lists!

CIE \$15.95 (\$16.95 CA)
SCELEBI (book) \$11.95 (\$12.67 CA)

Programmers | Publishers | Store Owners | Club Secretaries | Educators



ElectraSketch

from Macrotronics
\$14.95 (\$15.85 CA)

Designed by Tim Vaughan

Animation and Graphics Compiler
Animate your TRS-80!! Continuous, smooth animation. No flicker. No jumping. Fast action. Create your own animated MOVIE sequences.

Programmers and Publishers

Combine graphics and plain text to create attractive program title pages. Add animation sequences in your program to add pizzazz.



Store Owners

Put your TRS-80 to work during store hours to help sell your products. Create an animated sequence to quickly and effectively attract attention to a pro-

duct exhibit. Prepare ad layouts in minutes and either use the printer output as-is or as a mock-up for your ad agency. Radio Shack store owners: Nothing will attract more attention to your TRS-80 than a customized animated sequence.



Club Secretaries

Electra-Sketch allows you to rapidly create newsletter cover pages, then print them on your line printer for camera-ready artwork. Create a unique and clever cover page for each issue. It takes only a few minutes with Electra-Sketch!!

Educators

Add lively animation to your tutorial programs. Take full advantage of the

computer as a dynamic visual learning medium. Dress up your bulletin boards with contemporary computer-generated art and novel announcements.



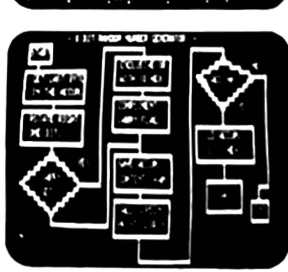
How It Works

Create a picture frame using simple one key commands to control cursor direction, draw, erase, draw vectors, fill in backgrounds with any sequence of characters (previously drawn lines and characters are preserved), create titles or any textual material, save on disk, recall a frame from disk, review all previously saved frames, change the graphics print character, and print the frame on the line printer. Saved frames may then be animated by displaying them in either forward or reverse sequence. A particularly novel feature is the ability to instantly change the speed of the animation from slow motion to rapid play in 10 increments (while the animation is taking



place!) Only the changes from one frame to the next in succession are saved in RAM, thereby conserving memory and allowing longer sequences for a given size computer.

Information is included in the user's manual on how to call up frames for use in your own programs. Also presented is information on how to call up the animator as a subprogram. Several demonstration frames and animation sequences are included on the diskette to quickly demonstrate the potential of the package and show off your TRS-80 to friends. These clever demos are practically worth the entire price of Electra-Sketch.



- Requires the disk operating system
- Supplied on cassette with instructions on how to transfer the software onto your own diskette.



Personal Micro Computer (PMC-80)

The PMC-80 is a "work-alike" computer to the popular TRS-80 Model I, Level II by Tandy, Radio Shack. The PMC-80 has 16K bytes of RAM and the complete Level II 12K BASIC ROM by Microsoft that makes it 100% software compatible with programs from Radio Shack and from the hundreds of other independent suppliers. The built-in cassette player reads standard Radio Shack programs for the TRS-80.

The PMC-80 will operate with any of the many peripherals Radio Shack and other independent vendors have invented to plug into the TRS-80. Most importantly, the Interface Adapter permits Expansion Interfaces with memory expansion to 48K to be added. An Expansion Interface will also permit the addition of Radio Shack compatible 5 1/4" disks and disk operating systems, RS 232, printers, etc.

FEATURES

- Software compatible: Level II BASIC and SYSTEM tapes
- Hardware compatible with PMC 40-pin Interface Adapter
- Video output for both TV monitor and TV set (ch. 3)
- Unitized construction—just plug into power outlet and TV
- Integrated cassette recorder has automatic volume control
- Complete operating, instruction and programming manuals

*TRS 80 is a registered trademark of Tandy Radio Shack.

OPTIONS

1. FASTLOAD Cassette Interface System. Searches by name and loads standard Level II BASIC or SYSTEM cassette tapes 16 times faster at 8000 baud. (Requires Option 3)
2. Upper/Lower Case Modification. Compatible with two popular word processor software packages: Electric Pencil by Michael Shroyer and Scripsit by Radio Shack.
3. Interface Adapter. Converts PMC-80 50-pin bus to standard 40-pin bus for connection to Radio Shack TRS-80 peripherals.

90-day warranty period. Units may be returned for free repair or replacement within 90 days of shipment for any defect in material or workmanship. One week turn around provided.

PMC-80 with lowercase modification, add \$75

SPECIFICATIONS

- Memory: 16K bytes RAM externally expandable to 48K
- Basic Interpreter: 12K Level II by Microsoft provides software compatibility
- Cassette: Built-in, loads all Level II programs with automatic volume control
- Display: Remote control disconnect switch permits manual control
- ASCII character set: TV Monitor plus TV Modulator (CH3)
- Text format: Upper case standard, lower case optional
- Graphics: 64 x 16 or 32 x 16 in 2 pages (expanded character for TV set)
- Power supply: 128 x 48 or 64 x 48 in 2 pages
- Interface: Self-contained and fused
- Size: 50-pin bus to S-100 chassis or 40-pin for TRS-80 peripheral compatibility

Compare the PMC-80 with other 16K memory micros in its class.

Feature	PMC-80	TRS-80	PET	APPLE II	ATARI
CPU Processor	Z-80	Z-80	6502	6502	6502
ROM Memory Size	12K	12K	14K	12K+	12K
Maximum RAM/in Unit	48K/16K	48K/16K	48K/48K	48K/48K	48K/48K
Characters per Line	64/32	64/32	40	40	40
Lines per Screen	16	16	25	24	24
Character Sizes	2	2	1	1	1
Display Type	Monitor or TV (not supplied)	Monitor	Monitor	TV (not supplied)	TV (not supplied)
Colors	No	No	No	15	16
Graphics	128 x 48	128 x 48	Character Oriented	192 x 280 Hi Res 40 x 40 Low Res	192 x 280
Mass Storage Type	Cassette plus second port	Cassette	Cassette plus second port	(not supplied)	Cassette plus second port
Data Transfer Rate	62.5 cps. Stand. 1000 cps Opt.	62.5 cps	62 cps	125 cps	37.5 cps
C-20 Storage Capacity	75K Bytes	75K Bytes	75K Bytes	150K Bytes	56K Bytes
Sound and Joysticks	No	No	No	Yes	Yes
Bus	50-pin stand. 40-pin Opt.	40-pin	IEEE-488	Apple-50	Atari-25
Basic Interpreter	Microsoft	Microsoft	Microsoft	Microsoft	Microsoft
Price	\$ 645	\$ 849	\$ 995	\$1195	\$1229

Interface adapter—converts PMC-80 bus to standard 40-pin bus for connection to Radio Shack '80 peripherals and add-on products. **\$35**

EPROM Programmer, model EPP-80—allows programming of 2716-type (5v) EPROMs, using Radio Shack's editor/assembler version 1.2 (not supplied). User must furnish 25v @50ma and 5v @1a. Accessory CAB-40 required. **\$195**

ROM Extender, Model REX-80—enables use of 2014 empty address locations between end of Basic ROM and RAM in TRS-80 or PMC-80. Program 2716 EPROMs with EPP-80 above. Accessories CAB-40, PWR-80 required. **\$40**

Analog input module, model AIM-80—eight-port analog signal (0-5v) input device for joysticks, temperature sensors, microphone, etc. Eight-bit A/D converter provides plus/minus 1-bit resolution. Accessories CAB-40, PWR-80 required. **\$40**

CAB-40 Interconnect ribbon cable—12" long, has 40-pin PCB connector each end. **\$25**

PWR-80 ac power converter—115vac to 9v @ 500 ma. **\$8**

COMPILER DEMO TAPE JUST \$3.95

Because of very strong interest in compilers, CIE has arranged a demonstration tape with two programs both in normal interpretive Basic and compiled, also, the Bullseye demonstration program from CIE Tiny Pascal.

Because the CIE Cobol runs only under the CP-M operating system, we are unable to demonstrate it on this tape.

CIE has four compilers in its lineup of software: the Cobol and Tiny Pascal compilers, and Accel and Accel2 Basic compilers.

Tiny Pascal is just \$19.95 postpaid, and compiles Z80 native code program tapes that load under System mode.

The Cobol is just \$99.95, but requires CP-M (\$145).

ACCEL and ACCEL2 Basic compilers are just \$44.95 and \$88.95 for tape and disk systems, respectively.

In the two months that CIE has had

ACCEL and ACCEL2, we have been able to compare them to other compilers on the market, and although they are less expensive, we believe they are the best of the Basic compilers.

The compiler demonstration tape lets you load a game of Life, by Dennis Kitz, and run it under your resident Basic. Then you can load the compiled Life. Dennis' program is based on his 80 Microcomputing article which appeared in June.

The other Basic program is Three Blind Mice, from Southern Software, developer of the compiler. Uncompiled, it takes 117 seconds to run 40 cycles of the program, and it requires 3642 bytes of RAM. Compiled, it runs in 6 seconds, and requires 4458 bytes.

Anyone contemplating buying a Basic compiler should consider buying the demonstration tape. It is just \$3.95 postpaid, from CIE.

Data separator ends read errors

Percom Data Company is manufacturing a simple plug-in adapter for TRS-80 computers that corrects a design deficiency in the disk controller circuit.

The problem, which causes disk read errors, has been traced to Tandy's

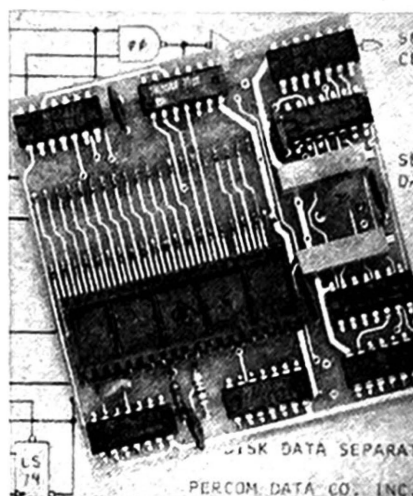
reliance on a circuit internal to the FD1771 controller IC to perform the function of separating clock and data pulses. Use of the internal chip circuit for reliable data-clock separation is a design shortcut which the manufacturer of the controller IC warns against.

The Percom solution, a PC card adapter called the Separator, eliminates the problem by substituting an explicit data separator circuit—one which has been used reliably by Percom disk controllers since 1977—for the internal IC separator circuit.

The Separator is installed without modifying the host system. The user merely removes the FD1771 IC from the host controller, installs the IC in the DIP socket on the Separator card, and plugs the adapter into the vacated socket of the host controller.

Percom cautions that opening the expansion interface of the TRS-80 computer, as is required to install the Separator, may void the computer's limited 90-day warranty.

The Separator sells for \$29.95 postpaid from CIE.



INTERFACE EXPANSION BOARD

For the TRS 80*



The Interface Expansion Board gives your computer these features:

Phone Modem

2K E-PROM PC Board & user manual

32 K Memory

Real-Time Clock

Parallel Port

RS-232 Port

Dual Cassette Line

Floppy Disk Controller*

On Board Supply

Silk Screen

Solder Mask

Expansion Port

Manual

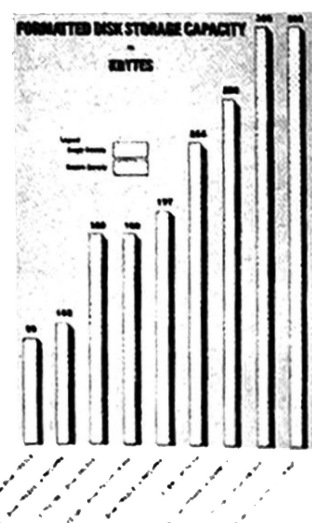
ONLY \$74.95

Add 3.00 for shipping & handling

*MDX 2 W/DC

TRS-80* Model I Computer Owners . . .

Store Up to 350 Kbytes on a 5" Disk



The DOUBLER™. It packs almost twice the data on a disk track as your single-density system. Depending on the type of drive, you can store up to **four** times more data on one side of a minidiskette than you can store using a standard Model I mini-disk drive.

- The DOUBLER™ reads, writes and formats either single- or double-density minidiskettes.
- Proprietary design allows you to continue to run TRSDOS™, NEW-DOS™, Percom OS-80™ or other single-density software without making any changes to software or hardware. Switch to double-density operation at any convenient time.
- Includes DBLDOS™, a TRSDOS™ compatible double-density disk operating system.

- CONVERT utility, on DBLDOS™ minidiskette, converts files and programs from single- to double-density or double- to single-density.
- The DOUBLER™ circuit card includes high performance data separator, write precompensation circuits for reliable disk read operations — even with 80-track drives.
- Plug-in Installation — The DOUBLER simply plugs into the disk controller socket of your Ex-

pansion Interface, requiring no strapping or trace cutting. Expansion Interface disk controller may be completely restored to original configuration by simply removing the DOUBLER™ and re-installing the original disk controller chip.

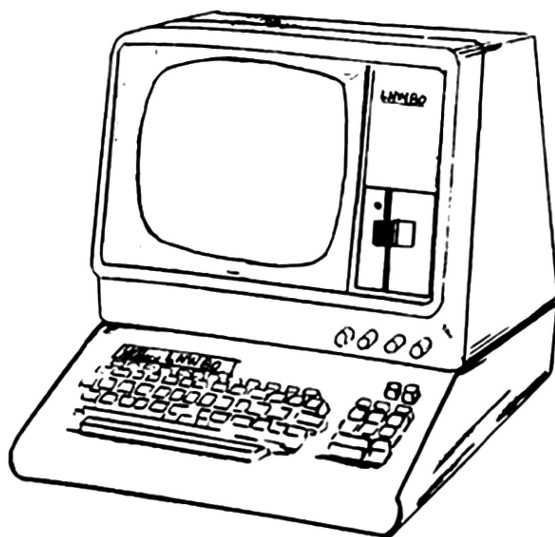
- Works with standard 35-, 40-, 77- and 80-track mini-disk drives rated for double-density operation.
- Introductory price, including DBLDOS™ and format conversion utility on minidiskette, only

\$219.95

THE FIRST TRS-80[®] COMPATIBLE COMPUTER WITH HIGH DENSITY COLOR GRAPHICS!

PERFORMANCE:

The LNW80 utilizes the fast Z80A microprocessor which executes at a speed of 4 MHz—over twice the speed of the TRS-80 model 1.



LNW RESEARCH introduces the LNW80, a high performance color computer, compatible with the TRS-80[™] Model I. The fully integrated LNW80 is a sophisticated and versatile microcomputer with the following powerful features.

COMPATIBILITY:

Hardware and software compatible with the radio Shack TRS-80 Model 1 computer, providing the widest software base of any microcomputer. Compatible with model 1 cassette, expansion bus.

DISPLAY:

Quality upper and lowercase display.

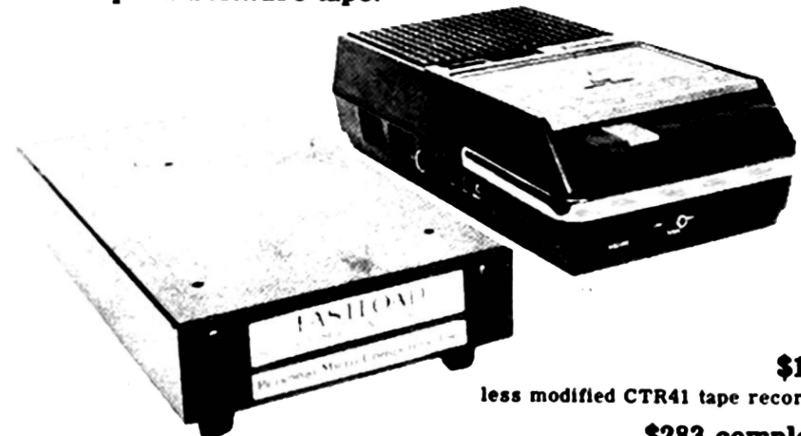
Two modes of color graphics: high-resolution 384x192 in 8 colors (higher density than Apple II), or low density 128x192, also in 8 colors.

High-resolution black-and-white graphics: 384x192 mixed with text and TRS-80 standard graphics. Reverse video, composite video RF output.

PC board \$89.95

Add \$3 for shipping and handling (UPS)
CA residents add \$5.40 tax—\$92.45 outside CA, \$98.35 in

CIE uses Fastload to check each People's Software tape!



\$188

less modified CTR41 tape recorder

\$283 complete

shipped freight collect—CA residents add tax

Fastload Cassette Interface (FCI-80)

The FASTLOAD Cassette Interface, Model FCI-80, permits standard cassettes of TRS-80[™] Model I, Level II computers and PMC-80[™] in BASIC or SYSTEM formats to be loaded at 8000 baud. This means a 15K-byte program will load in 15 seconds rather than the normal time of 4 minutes. For short programs FASTLOAD is thus faster than disk because of disk startup time. FASTLOAD is capable of searching at high speed for BASIC programs by a single character designation or for SYSTEM programs by a name of up to six characters.

The FASTLOAD attaches to the cassette recorder and plugs into the back of the TRS-80[™] or PMC-80[™] computers, or into the Expansion Interface through the 40-pin interface bus. In order to load at fast-forward speed, a modified model CTR-41 cassette recorder must be used. Modification instructions are available for those who own a CTR-41 or the modified recorder may be obtained from Personal Micro Computers.

Within FASTLOAD, a PROM containing the operating program uses the empty addresses above the computer's basic ROM and below RAM memory so that computer memory is not used. This program allows the user to enter into FASTLOAD operations with a single command and to break from FASTLOAD operations back to BASIC with no memory loss.

**PMC 80, a trademark of PERSONAL MICRO COMPUTERS, INC. and a "work alike" computer to the TRS-80, may also use the FASTLOAD.

TRS 80 is a trademark of Radio Shack, Tandy Corp.

FCI-80M P0114B

FEATURES:

- 16 Times Faster Load (8000 Baud)
- Loads BASIC or SYSTEM Cassettes
- No Need to Reformat Programs
- Program + Commands in ROM
- Search and Load by Name
- Load First Program Without Name

SPECIFICATIONS:

Program Load Speed	8000 Baud (Average)
Program Save Speed	500 Baud (Standard)
Acceptable Cassette Length	C-20, Maximum, Standard Audio Cassette
Commands in ROM	Call from BASIC or Disk BASIC
Cassette Recorder	CTR-41 with Modifications or Equivalent
Computer Capability	TRS-80 Model I, Level II, or PMC-80

ADDITIONAL FEATURES:

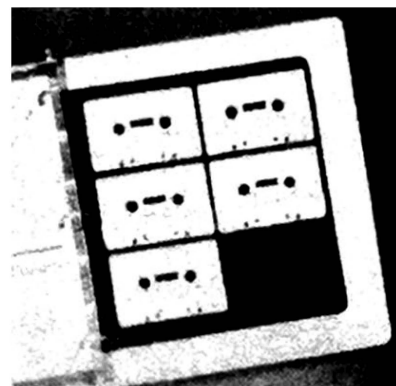
- Built into FCI-80 which can be selected when desired:
 - Keyboard debounce program
 - Automatic key repeat routine for all keys
 - Key beep via cassette speaker
- Reliable loading at maximum volume setting for most cassettes
- Single command to remember: "LOAD" in BASIC or SYSTEM call in Disk BASIC
- Operating system does not occupy any program storage memory
- Break key will return to BASIC from LOAD at any time
- Loading operation will not "hang-up" if started in program area
- Distinguishes between intermixed BASIC and SYSTEM programs on same tape
- Determine name of each program on tape quickly
- Hear recording of programs for confidence feedback
- Confidence monitoring with audible signal during loading
- Normal cassette I/O is retained also

Physical Connection: The FASTLOAD should be located to the left of the computer keyboard chassis. The FASTLOAD Cassette Interface is attached to the modified cassette recorder. A cable with a miniature phone jack from the FASTLOAD plugs into the EAR jack on the cassette recorder. A ribbon cable connects from the rear of the FASTLOAD Cassette Interface to the connector at the rear of the computer keyboard unit or, if an Expansion Interface is connected there, to the 40-pin port on the Expansion Interface.

The FASTLOAD includes FCI-80, alignment tape, 9VDC power converter, 40 conductor ribbon cable and instruction manual. Optional is the CTR-41M cassette recorder with power cord.

Disk storage pages

Plastic inserts allow you to file floppy disks in standard three-ring notebook. Five-inch version holds two diskettes, 8" one. Just \$8.49 per package of ten. Advise whether you want 5" or 8".



Cassette storage pages

Here's great versatility for cassette storage: 9 1/4" x 9" pages are made with a side flange which is 3-hole punched, ready to use in standard binders. Backs of pages are smoothly finished with textured vinyl so pages also may be stacked, boxed or filed. Each page has 6 compartments to hold cassettes securely without hub rotation. Pages are 1/2" deep.

COLOR: Black	Price each
12	\$1.75
25	1.65
50	1.58
100	1.48

floppies:

5 1/4" or 8" (state which)
box of 100:

MEMOREX

single-density (#3401) \$25.00

plain-label double-density reinforced \$26.50

Add 40 cents per box postage

TERMINAL DATA CORPORATION

MODEL 1200 RS-232 DATA SPLITTER
available in kit form or fully assembled

Model 1200K gives the terminal or micro processor user a second interface for a printer, plotter, cassette or tape drive. It operates at any speed & isolates the two output devices from each other, while providing 2 RS-232 interfaces from the terminal or microprocessor.

The kit consists of 3 RS-232 connectors, printed circuit board, all necessary components, enclosure, mounting hardware & assembly instructions. \$67.00 assembled, tested \$135.00

Model 1204—a 4 in, 1-out data splitter. Assy. time 6 hrs. Kit \$99.00 assembled, tested \$170.00

Model 2204—a 4-in, 2-out, kit \$149.00 assembled, tested \$229.00

YOU NEED

NOW: FD-08 DISKETTE DRIVE HEAD CLEANING KIT



JUST \$24.95

Removes harmful contamination buildup from read/write heads • Cuts computer downtime and reruns due to read/write error • Reduces maintenance costs technician not needed for head cleaning • extends media life • Effective, low cost, fast Available for 8" and 5 1/4" drives

TRS-80 Disassembled (ROM) Handbook

By ROBERT M. RICHARDSON

Has revolutionized assembly-language programming for TRS-80. Its very unique concept begins with a number of short demonstration programs that derive for the user all Basic functions' CALL addresses in ROM plus a number of chapters demonstrating their use in simple assembly-language programs. After digesting book reviewer was able to write double-precision arithmetic, trigonometric, log, exponent, etc. program in minutes, with only a few lines. 69pp 8 1/2 x 11" vol. 1 !10 (\$10.60 CA) Volume 2, 174pp \$15 (\$15.90 CA) Volume 3, 237pp \$18 (\$19.08 CA) (Writing disassembler programs, Fastest Footrace contest..., spooling theory-practice, TRS-80 interrupts, interfacing to outside world via Telesis VAR-80, A-D, D-A, high-speed Morse transmit program, computer bulletin board systems, radio teletype...etc.

Z80 Instruction Handbook

By NAT WADSWORTH

A complete guide to the powerful Z80 instruction set. Machine codes are presented in both octal and hexadecimal format. A convenient index lists all instructions alphabetically, along with machine codes and timing information. Industry-standard mnemonics used throughout. Convenient, pocket size. SCLEBI \$5.95 (\$6.31 CA)

TRS-80 Disk & Other Mysteries

By Harvard C. Pennington

"TRS-80 users, this is not only a worthwhile book but a great book. It's great for two reasons: It presents information on TRS-80 disk organization and file management that can be found nowhere else! Secondly, it is available when you need it—now! The book discusses how disks are organized, how space is allocated, how files are loaded on disk, and the tools that one may use to look at disk files and directories. Not only does it provide a general discussion of these topics, however, but it also gives clear information on how to fix disk problems such as lost files, Electric Pencil bugs and other snafus. This is a clearly-presented book packed with good disk information!"—Wm. Barden Jr.

IJG \$22.50 (\$23.85 CA)

Basic from the Ground Up

By DAVID E. SIMON

Newcomers to the computer field can now learn all about the Basic language and computers in this simple, direct book that doesn't require a heavy mathematical background on the reader's part. All the features of Basic are covered. And you are told what actually is going on inside the computer when you are programming. The book covers one version of each of the Basic statements and points out some of their variations. This approach prepares readers to write programs in any version they encounter.

Hayden \$10.75 (\$11.40 CA)

Basic BASIC:

An Introduction to Computer Programming, Second Edition

By JAMES S. COAN

The author uses over 100 sample programs to illustrate the essential techniques of the language and to integrate Basic programming with mathematics. Each language statement or capability is clearly explained at the time that it is first used in a sample program. Every section is followed by practice problems. Solutions to even-numbered problems appear in the text, the remainder in a separate teacher's guide. Hayden \$10.50 (\$11.13 CA)

Personal Information Management System

By MADAN L. GUPTA

PIMS makes an excellent introduction to database management, and the CIE SuperPIMS makes it really work, and do it fast, more conveniently, with any of the following 16K or larger systems: tape, tape-disk, TC8, Stringy Floppy, Zoom, B17, or Beta 80. Book teaches how to manage data in home or business. PIMS will allow you to unleash the power of your microcomputer, make it work for you. Use your computer for accounts receivable-payable, inventory, keep track of your credit-card purchases. Or apply PIMS to personal chores and let it help you improve your ability to plan...save money...locate important facts quickly. Specifics such as management of income tax deductions, department store charges, keeping track of personal disbursements, and more, can be managed through your computer, and book tells how. Let PIMS introduce you to a new way of living. Enjoy a better lifestyle, through the better command of information that PIMS can bring about

SCLEBI \$11.95 (\$12.67 CA)
CIE tape \$15.95 (\$16.91 CA)

Microsoft Basic Decoded & Other Mysteries

By JAMES FAVOUR

More than 6,500 lines of comments for the disassembled Level II ROMs, said to be the most complete information ever published. Rumor has it these comments are more complete than those of the original source code! In addition to the 124 pages of comments there are six additional chapters describing every Basic subroutine, with assembly language routines showing the reader how to use them.

Flow charts are given for all major routines, giving the reader a real insight into how the interpreter works. Microsoft's copyright is not infringed by this book, since the user has to supply his own disassembler. Use Tape 7. 230 pages soft cover 8 1/2 x 11", 1.75 lbs. IJG Computer Services \$29.95 (\$31.75 CA)

Z80 Microcomputer Handbook

By WILLIAM BARDEN JR.

The book will acquaint the reader with the hardware of the Z80, present the multitudinous (in number of instructions) software aspects of the Z80, and describe the other microcomputer systems built around the Z80.

Organizationally, the book is arranged in three sections. Section I discusses Z80 hardware. Chapters 2 and 3 look at architecture, interface signals, and timing. Chapters 4 and 5 handle addressing modes and instructions. Chapter 6 the effect of arithmetic and other operations on CPU flags, interrupts, and 8 interfacing examples of I/O on memory devices.

Section II presents the Z80 software with a representative assembler program being introduced in the first chapter of the section. Machine language aspects are covered, as well. Chapters 10 through 15 detail the common programming operations of moving data, arithmetic operations, list and table procedures, subroutine use, and I/O functions relative to instruction set groups. The last chapter offers some commonly-used subroutines written in Z80 assembly language. Section III discusses microcomputers built around the Z80.

Howard W. Sams \$8.95 (\$9.49 CA)

Are You Computer Literate?

By KAREN BILLINGS and DAVID MOURSUND

A fun introduction to computers for junior high students, high school students and anyone who wants to learn something about computers. What is a computer? How are computers used? How do they affect people? How can you use one? These and other questions are answered in an enjoyable, easy-to-read style.

Dilithium \$8.95 (\$9.49 CA)

Practical Basic Programs

Edited by LON POOLE

How often have you started to write a program, knowing that the program you need has undoubtedly been written before by thousands of people? Designed to conserve your valuable programming time, this collection of 40 Basic programs provides quick reference access to financial, mathematical, scientific and management decision-making programs people use all the time. And they have been designed to work on most microcomputers without modification.

Each program is presented with a verbal description, sample run, practice problems and Basic source listing. Programs are income averaging, current T bill value, bond accrued interest, continuous interest compounding, rule of 78s interest. Also, tax deduction present value, investment future value (uneven cash flow), investment net present value.

Also lease-buy decision, syndicated investment analysis, depreciation switch, appointment by ratios, internal rate of return, financial management rate of return, and financial statement ratio analysis. Also, profit sharing contributions, checkbook reconciliation, home budgeting, critical path method, and program evaluation and review technique (PERT). Also, transportation algorithm, Swedish machine (queueing theory), Markov analysis, and nonlinear breakeven analysis.

Also, payoff matrix analysis, bayesian decision analysis, economic order quantity, economic production quantity, statistical estimation theory, and statistics. Also, unbiased estimator of standard deviation, chi-square, data forecasting divergence, Newtonian interpolation, and Lagrangian interpolation. Also, sums of powers, factorials, temperature conversion, numeric base conversion, and musical transposition.

Osborne-McGraw-Hill \$15 (\$15.90 CA)



BOOKS from CIE

BASIC

MY COMPUTER LIKES ME WHEN I SPEAK IN BASIC (1)

Bob Albrecht

This book is about people computers and a programming language called BASIC. It is an inch by inch step by step guide to program your computer so it will do what you want it to do. Easy to read and a valuable tool for the computer hobbyist.

\$3.95 paper (\$4.19 CA)



INSTANT BASIC

by Jerald R. Brown

As claimed by educators and users alike, this easy to read informal approach to DEC's BASIC PLUS language is the painless way to learn BASIC. Profoundly illustrated and designed for self-instruction with your home computer, this is the simple fun way to approach the first encounter with programming language.

Dilithium Press \$9.95 paper (\$10.55 CA)

MICROSOFT BASIC

by Ken Knecht

The BASIC book for TRS-80 users! A complete introduction and tutorial on programming in MICROSOFT. Save valuable programming time and effort with this valuable little tool.

Dilithium Press \$9.95 paper (\$10.55 CA)



The BASIC Handbook an Encyclopedia of the BASIC Computer Language

By David A. Lien

This book is unique. It is not a textbook, it is far more than a dictionary. It is a virtual encyclopedia of the Basic language. While not favoring one computer over another, it explains over 250 Basic words, how to use them, and alternate strategies. Since over 50 computers are represented, it is likely to be of help in making about any Basic program run on TRS-80. \$14.95 paper (\$15.85 CA)

Introduction to Basic

By JEFFREY B. MORTON

Outgrowth of notes used in a first-year course taught at the University of Virginia. Divided into two parts, the first half teaches Basic, and the second half is oriented on projects, which include simulation of a self-reproducing system, computer graphics, the great motorcycle jump, superlanker simulator, area under a curve, world dynamics simulation, simulation of the Rhine test for ESP, computer dating, the Porsche 917 race car, queueing, determination of roots and extrema, optimization by linear programming.

Malrix Publishers, 6x9 paper 206pp \$9.95 paper (\$10.55 CA)



Beginning Basic

By Paul M. Chirlian

Elementary text is intended for students of high school, junior college or university level who have no experience either in computer programming or with computers. Material is presented in an elementary way so that the beginner will not be confused. However, the book is complete so that the reader can become familiar with all aspects of Basic. Procedures used to actually run Basic programs are considered, including timesharing and batch processing. Students can start running Basic programs immediately. When the beginner has gone through the text, he will be familiar with almost all aspects of Basic.

Dilithium Press 5x8 1/2 paper 224pp \$9.95 paper (\$10.55 CA)



TRS-80 BASIC: A Self-Teaching Guide

By Bob Albrecht, Don Inman, Ramon Zamora

Now at last there is a unique self-teaching manual that leads you step by step to maximum use and enjoyment of Level II. It is geared toward the beginner, but contains a wealth of information for more advanced programmers. The popular authors, associated with Dymax Corp. of Menlo Park, CA, are editors of Recreational Computing. Albrecht is co-author of three other Wiley Self-Teaching Guides: BASIC, BASIC for Home Computers, and Atari Basic.

\$4.95 paper (\$9.49 CA)

NEW

Computer Programming for the Complete Idiot

By DONALD McCunn

Here is a text about Basic that assumes you have a TRS-80 (of somewhat minimal configuration), that you don't know anything about it but you want to do something practical with it! So once the most basic fundamentals are covered, it starts telling you how to write a payroll program. Teaches Basic, programming, and a little systems design. 125pp 8 1/2 x 11" \$5.95 paper (\$6.31 CA) Design Enterprises Enterprises of San Francisco



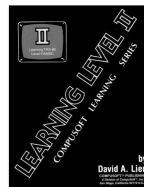
Tape, by CIE \$10.95 (\$11.66 CA)

Learning Level II

By David A. Lien

Learning Level II picks right up where the Level I TRS-80 User's Manual left off. Written by the same author, it teaches Level II Basic, plus the many command features, in the same easy-to-learn style that made the Level I Manual famous. Each CompuSoft Learning Series book is carefully planned and written by Dr. Lien, prominent educator and master teacher with many years' experience in private technical schools, public colleges and universities. Author of books in a variety of technical areas, his most widely known work to date is the TRS-80 Level I Users' manual, with hundreds of thousands of copies in print.

COMPUFT PUBLISHING \$15.95 paper (\$16.91 CA)



\$\$\$ MONEY \$\$\$

Lemonade or Champagne?

The Anatomy of the Development of a Microcomputer System

By WILL HAGENBUCH

A "lemonade stand" computer business is one operated out of the home. Will addresses the problem of how, without worrying about ABC regulations, to turn that business into champagne-class operation. Things you always wanted to know about the development of microcomputer systems—but did not really know how to ask: problem definition, system analysis, system design, program development, unit and system testing, documentation, implementation and maintenance. With special emphasis on TRS-80 disk file design, random files, random accessing techniques, optional file structures—and some recommended software solutions. Nepenthe Programs, 5 1/2 x 8 1/2 52pp

\$2.95 paper (\$3.13 CA)

INCREDIBLE SECRET MONEY MACHINE

By Don Lancaster

The Incredible Secret Money Machine is your own small-scale computer, technical, or craft business. You'll find this cookbook and guide essential to give you the key insider details of what's really involved in starting up and going with your own secret money machine.

Another one of those get-rich-in-five-minutes-of-your-spare-time books? Hardly. First, the author has been there, is there now, and knows whereof he speaks. Secondly, instead of the usual outrageous promises, Lancaster simply shows realistic and proven ways to reduce taxes, never pay a utility bill, to profit on "investments," to get free and even paid for vacations, to get totally free insurance, to have others pay you for your fun, and to show you the ultimate solution to start-up financing.

Howard W. Sams \$5.95 paper (\$6.31 CA)



HOW TO MAKE MONEY WITH YOUR MICROCOMPUTER

by Carl Townsend & Merl Miller

Got an entrepreneur with a micro in your household? Here is the perfect gift. It's chock full of ideas for turning that micro into a money-making machine!

Robotics Press \$5.95 paper (\$9.49 CA)



BOOKS from CIE

Using CP/M

By JUDI N. FERNANDEZ and RUTH ASHLEY

Complete, detailed, self-paced introduction to CP-M, the most widely-used microcomputer operating system. By fully understanding how CP-M works, you can operate your computer at its full potential.

Two best-selling Wiley computer authors explain in logical, step-by-step sequence how to implement all the functional programs provided by CP-M. How to create, erase, and copy files, run other programs, translate and test 8080 assembler language programs, print data from files, display the directory of a disk, and more. This clear, comprehensive guide assumes no prior computer experience.

The authors are co-presidents of DuoTech, San Diego, and use CP-M daily in their own work.

John Wiley \$8.95 (\$9.49 CA)

The CP-M Handbook

By Dr. RODNAY ZAKS
CP-M (Control Program for Microprocessors) is the industry standard in operating systems for small computers. This book is for first-time computer users, input typists, business users and experienced programmers. Simple, clear, practical, CP-M Handbook is both an introduction to the use of CP-M (or MP-M, TP-M) equipped computers and a reference text. For beginners this book offers step-by-step instructions for using CP-M without fear. Experienced programmers will find comprehensive description of all CP-M facilities and resources, and advanced operations.

Sybox \$13.95 (\$14.80 CA)

INTRODUCTION TO T-BUG

by Don Inman & Kurt Inman

At least a comprehensive guide to the TRS-80 machine language monitor operations. By the author of our best-selling INTRODUCTION TO TRS-80 GRAPHICS. Bound to be the best of its kind.

dilithium Press \$6.95 paper (\$7.37 CA)



TRS-80 Interfacing, book I

By Dr. Jon Titus

Details hands-on experiments in the use of the various signals and buses to design interfaces for transferring information or control signals between the TRS-80 and external devices. Uses BASIC, not assembly language programming, and an inexpensive breadboard to access the TRS-80 bus. Another in the Blacksburg Continuing Education Series by the authors of the BUGBOOKS. Write for information on the series.

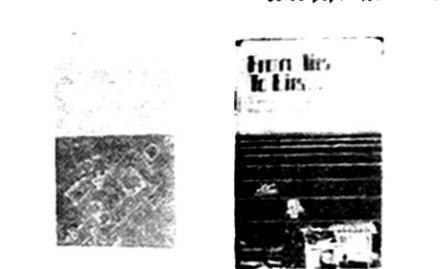
Howard W. Sams \$8.95 paper (\$9.49 CA)

Understanding Computers

By PAUL M. CHIRLIAN

Describes how computers work. It is written for people who use small computers, are contemplating using them or who are just generally interested in computers. Starting with the most elementary gates and working up to the complete computer, the author discusses all phases of computer development. In addition to discussing machine parts, he discusses elementary machine language programming, assembly languages and higher-level languages. The object of the book however is not to teach specific languages but to provide an understanding of what languages are and how they operate in a computer.

dilithium Press 5 1/2 x 8 1/2 \$8.95 paper (\$9.49 CA)



From Dits to Bits: A personal history of the electronic computer

By Herman Lukoff

In From Dits to Bits the reader is given a very personal look behind the scenes at the Moore School at the University of Pennsylvania. There, in the late 1940s, a group of young scientists struggled in their quest to devise a technology that could one day relieve man of the burdens which so encumbered his imagination and wasted his free time. This book says, perhaps above all other things, that the roots of this technology are grounded in motives and ideas as altruistic as those of any artist. Here are recounted the problems, successes and failures experienced by the author as he worked alongside John Mauchly, Presper Eckert and a number of others who are today recognized as the prime innovators in this field. This is the story of the people whose efforts and imagination gave birth to man's most significant extension of his own potential—the computer.

Robotics Press \$12.95 hard (\$13.73 CA)

Recommended

RUNNING WILD: The next Industrial Revolution

By Adam Osborne

Within the next decade, roughly half of today's jobs will change drastically, or disappear altogether, robots will take over assembly-line jobs from blue collar workers, microelectronics devices will perform many white collar duties as well. New technology will usher in the miracles of bionics, it will increase communications and, possibly, make real every man's dream of more leisure than labor. At the same time, microelectronics will open new horizons for computer crime. Will the coming years prove to be a dream or a nightmare? Understanding the facts of microelectronics' advancements could make the difference. Running Wild has been written for the layman, to educate and help prepare today's citizen for the coming 25 years.

Osborne-McGraw Hill \$3.95 paper (\$4.19 CA)



QWIKTRAN: Quick Fortran Programming

By C. Kevin McCabe

This book is written by a user, for a user. The book emphasizes simplicity without sacrificing utility. No knowledge of electronics, data processing, or math beyond algebra is assumed or required. The text is divided into three parts. The first presents the most elementary Fortran statements. This may well be enough to permit you to modify "canned" programs and do other simple programming tasks. In the second part you will become fully acquainted with the language, including such things as sub-programs, character manipulation, automatic logics and arrays. The last part picks up the odds and ends.

dilithium Press \$11.95 paper (\$12.67 CA)

Software design for Microcomputers

By Carol Anne Ogdin

Emphasizes software design which must precede its implementation. Software is presented as a bonafide discipline, rather than a loose collection of tricks and gimmicks. Although presentation of theory is avoided, sound theoretical principles underlie the entire presentation. Up to date techniques are provided, among them structured programming and contemporary management techniques. Many realistic examples of specific software design strategies are provided. A Pascal-like design notation and Basis language coding are both used at different stages. Emphasis is balanced between the design and data structures and the design of procedure structures.

PRENTICE HALL \$9.95 paper (\$10.55 CA)

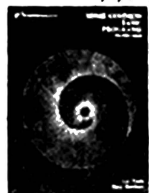
Some Common Basic Programs

By Lon Poole and Mary Borchers

Is designed for people who can use a variety of practical Basic programs. The 76 programs are written in a restricted version of standard Basic and are compatible with many versions of Basic now available to microcomputer users. Program descriptions, examples, and remarks accompanying the listings to help the reader follow Basic programming logic. All programs from this book are also available on cassette from People's Software, tape 2, for \$7.50 plus \$5.00 postage and handling.

Osborne-McGraw Hill \$12.50 paper (\$13.25 CA)

BOOK 1



TAPE 2 LEVEL 2

Fully documented in Some Common Basic Programs by Lon Poole & Mary Borchers (Osborne & Associates, 630 Bancroftway, Berkeley CA 94710—or from CIE—\$12.50 postpaid from CIE, via UPS, CA residents add tax (to \$13.25)).

Investment, future value, regular deposits, regular withdrawals, initial minimum (for withdrawals), nominal interest, effective & earned interest, depreciation rate, amount depreciation, salvage value, discount commercial paper, loan principal, regular and last payment, remaining balance, term loan, mortgage amortization, greatest common denominator, integer prime factors, polygon area, triangle parts, analysis, operations two vectors, radian degree, degree-radian conversion, coordinate, polar equation, functions plot, linear, curvilinear interpolation, Simpson's & trapezoidal rules, Gaussian quadrature integration, derivative.

Side 2—quadratic equation, polynomial (Newton) & half-interval search roots, trig polynomial, simultaneous equations, linear programming, matrix addition, subtraction, scalar multiplication, inversion, permutations & combinations, Mann-Whitney U test, mean, variance, standard deviation, geometric mean & deviation, binomial, Poisson, normal, Chi-square distribution, Chi-sq., student's T-distribution test, F-distribution, linear correlation coefficient, linear, multiple linear, Nth order, geometric, exponential regression, system reliability, future projections, Federal withholding taxes, tax depreciation schedule, check writer, recipe cost, map check, day of week, days between two dates, anglo to metric, alphabetize.

INTRODUCTION TO TRS-80 GRAPHICS

by Don Inman

Our best-selling TRS-80 book to date and no wonder. From line drawing through geometrics and moving figure animation its graphics made simple with explanation and examples. A must for the TRS-80 owner!

dilithium Press

\$8.95 paper (\$9.49 CA)



PEANUT BUTTER & JELLY GUIDE TO COMPUTERS

by Jerry Willis

Essential information on the microcomputer revolution. The ideal volume for the new kid on the block who wants to know all about computers and their uses. A great introduction for the initiated.

dilithium Press

\$7.95 paper (\$8.43 CA)

YOU NEED THIS!

Home Computers: A Beginners' Glossary & Guide

By Merl K. Miller & Charles J. Sippl

Here's a little 58-page introduction to microcomputing, coupled with an about-90-page glossary of terms, even graphic symbols. Anyone who feels he needs such a text, and isn't sure he wants to pay the price of the big one, should get this book! Size: 4 1/2 x 8 1/2 147pp.

dilithium Press

\$6.95 paper (\$7.37 CA)



Microcomputer Dictionary & Guide

By Charles J. Sippl and David A. Kidd

The need for a Microcomputer Dictionary that offers clear explanations of products, procedures, systems, techniques and components appears quite apparent, but the dictionary and its definitions cannot be standard, pure or "idealized". The work must reflect the current literature—the use of the words as they are spoken and written by today's inventors, teachers, lecturers, writers and leaders. Few explanations can be curt or brief because they must be real, down-to-earth, simplified, but also tutorial and expository. Microcomputer Dictionary attempts to fill this need with more than 5000 entries.

Matrix Publishers 10x6 1/2 680pp \$19.95 paper (\$21.15 CA)

Programs

People's Software \$10.95 ea.

TAPE 1 LEVEL 2

Mortgage calculations, Dow Jones Industrial, cash flow, inventory change, California income tax, journal ledger (BK), loan amortization, perpetual calendar, bio rhythm, payroll, diet planning, speed reading, touch typing, sales receipt tally, decision maker, mail addressing, straight depreciation, double declining depreciation, and revolving charge account.

Also, math problems, queen, Star Trek I, number guessing, wheel of fortune, World War II bomber, rock-scissors-paper, seek, Star Trek II, Red Baron, mini-Trek, strategy, pilot, battleship, "On A Snowy Evening", mastermind, tic-tac-toe, grand prix auto race, capitals, etch sketch, hangman.

TAPE 4 LEVEL 1

Election returns, business percentage, ups and downs of business, index, inventory control, sales receipt tally, gas mileage, driving distance, mixed monthly sales report, payroll, annual earnings, speech recording aid, and double declining depreciation.

Also, math problems, cash register, chase, snoopy, commander-in-chief, Christmas graphic, air raid, balance scale, stock market, tic-tac-toe and On A Snowy Evening.

TAPE 5 LEVEL 2

Memory test, mortgage payments, tension breaker, lineprinter screen & vice versa utilities, Federal income tax, election returns, business percentage, vacation planner, car pool (disk), diet planning 2, mailing list (disk) and first aid.

Also spelling bee, Star Trek 3, mind bender, tachistoscope, chase, common factor, klingon capture, spelling practice, Hamurabi, animals, Snoopy, cryptogram, starship ants, Yesterday, and Pilot (disk). Pilot is the language of computer aided instruction (CAI).

TAPE 7 LEVEL 2

Disassembler, Pilot, roster, dropout, memory loader, memory sort, inventory control, graph, land surveying, mixed monthly sales report, shopping list, diet planning 3, loan progress chart, hex decimal conversion.

Also Star Trek 4, states and capitals, battleships 2, spelling practice 2, number guessing, hangman 2, shark, slot machine, cipher, target, surround, adder, termiles, lunar lander, multiplication exercise, five-a-row, Bastem, and write. A number after a program indicates there are other similar People's Software programs. Pilot is the same as the disk pilot on tape 5, except runs on 16K tape systems.

PASCAL

Introduction to Pascal

by Jim Welsh & John Elder

Suitable for novice or experienced programmer, the complete language is described & use of all Pascal features illustrated. Language described does not contain any features peculiar to any particular implementation—indeed great care is taken to isolate and stress the implementation-dependent features. General principles of programming are illustrated implicitly, stressing structured programming and stepwise refinement. The material is based on courses given at Queen's College Belfast.

Prentice-Hall \$14.95 (\$15.85 CA)



Structured Programming and Problem-Solving with PASCAL

By RICHARD B. KIEBURTZ

Computer programming is presented as a problem-solving activity. Techniques of program development are integrated with phased introduction to the Pascal language, explaining the control and data-structuring facilities of the language. The book is especially recommended for first courses in computer science, but appeals to wider audience as well. 320 pages 7x9.

Prentice-Hall \$12.95 (\$13.95 CA)

A Primer on Pascal

By CONWAY, GRIES & ZIMMERMAN

Book offers a working knowledge of Pascal in the context of an elementary first encounter with computing. It teaches a simple-but-adequate subset of Pascal, making communication with the computer easier and more rewarding for the student. Numerous exercises, problems, and detailed descriptions add to the value and applications of the text.

Winthrop Publishers \$10.95 (\$11.61 CA)

Tape 8

Forty-two programs or variations, including B17 high-speed system-tape loader (version 1). Includes:

Business: billing (up to 50 clients), depreciation (straight-line, declining-balance, sum-of-years' digits), disk secretary (helps keep appointments), and letter writer.

Educational: alphabet puzzle, donut shop business simulation, jumble word solver, math drill, and spelling test.

Games: byte reader guessing game, card sharks, circle game, craps, horse race with sound, lunar lander simulator, maze, pro football team quiz, spacecraft simulator, and sub attack.

Household: auto cost, comparison shopping, electric typewriter, message board, metric-anglo equivalents, photographer's programmable timer, and record album timing aid.

Utilities: 123 lineprinter (lineprints screen), B17 system module (version 1), copy and load tape, formatter, find name of machine program, machine language sort (16, 32, 48K tape & disk), merge, minisort, renumber, teletype interface, and variable names locator.

Tape 9

(Ready in February)

Convert changes number bases from hexadecimal, decimal, octal, binary—from any one to any other! This is from Chuck House, author of SuperPIMx.

Disassembler is the winner in the Richcraft Engineering (Disassembled Handbook for TRS80) Fastest Footrace contest.

Morse is three Basic programs which allow transmitting and receiving Morse code at speeds to 40 words-per-minute, without clock speedup (correspondingly higher). These programs are courtesy Robert M. Richardson, Disassembled Handbook author. The Morse programs appeared in Disassembled vol. II and III.

Also, loan payoff, by Dan Connors, resonant frequency by Steve Simcik, and backup, by Michael Wahlstedt. Backup will copy about any program, and do it automatically, from memory buffer.

Also, feedback system stability analysis, by Phil Dunn, and distance formula for X-Y axis, by Gary Petersen. And Bruno M. Larsen submitted a mailing list and sales-recordkeeping program.

Games include solitaire, boggle, an extremely fine hangman, and a four-part quiz on American history, inventions, American wars and U.S. territories. The quiz is by Ronald N. Goulden, and is followed by a part two on presidents and states, which is so difficult the challenge is to answer at least half the questions correctly.

MUSIC SAMPLER HAS 25 SELECTIONS

Ever wonder if perhaps you should buy your TRS-80 a music synthesizer board so your computer can play music?

The synthesizers, which are reasonably priced from Newtech and The Software Affair, produce surprisingly good sound.

CIE, in cooperation with Newtech and TSA, has recorded a C48 cassette with the sounds of the new boards.

About 25 selections are contained on the new audio tape, many of them played on both products, so a buyer can compare them.

This is an audio tape, not a computer tape. It simply plays through any cassette player, although unless it is piped-through a high fidelity system the user will not be able to hear the quality

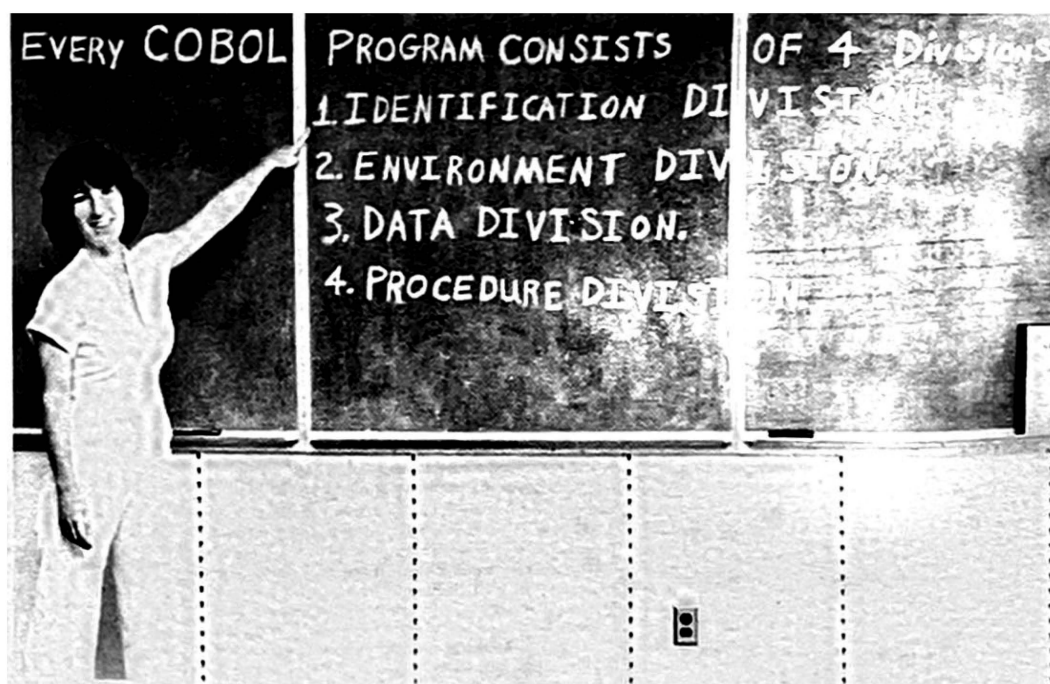
possible with the synthesizers.

This tape was produced very carefully, using only quality audio components and good recording techniques.

Music selections include a number of Scott Joplin rags, the Bach Prelude in C Minor, a Fugue and Invention No. 8, as well as the first movement from his Concerto for two Violins.

By Handel we have a gigue and Harmonious Blacksmith, and the very interesting sarabande by Johann Jakob de Neufville Bokelman, as well as two German dances by Mozart, the Funeral March of a Marionette by Gounod and the Lone Ranger theme from William Tell Overture by Rossini, as well as assorted popular music.

The music sampler tape is just \$3.95 postpaid from CIE.



MODEL 1 SUPPORT CONTINUES FROM CIE

Starting with the arrival of this issue, we understand Radio Shack has some surprises for model 1 TRS-80 users: declining support!

While CIE eventually will fully support model 3 and color computer users, we anticipate no lessening of support for model 1 users. In fact, we intend to increase it!

Fort Worth strategy apparently is to convince users that their model 1s are obsolete, that they should buy a new model 3 or color computer.

CIE feels that the model 1 is still a good investment, and that model 1 users who may be considering buying additional computers should stay with the model-1 standard.

We at CIE are buying additional model 1s, not from Radio Shack, but from LNW Research and Personal Microcomputer Company. These are compatible with our present model 1s, yet have additional features.

CIE feels that at the start of this new year, the model-1-compatible industry needs support so it can exist on its own. CIE is going to give this emerging industry all the support we can give it.

We are selling both computer boards and complete computers, as

well as expansion interface boards and innovative accessories.

No other computer system offers some of the imaginative features CIE is experimenting with: magnetic card reader-writer, light pen input, computer networking of databases, connecting several computers-printers together. We think now is the time for people to show confidence in the model 1, the people's computer.

SuperPIMx 'do all' computer program

(Continued from page 1)

student can print the list of presidents arranged via religious persuasion, or chronologically, alphabetically—even by wife's maiden name, if he wished.

As our student becomes more advanced, he can create data bases on each president, or on a more restricted subject, such as Indian affairs or Westward expansion.

SERIES OF ENHANCEMENTS
SuperPIMx is the basic "do everything" program that lets people use a computer for something important even if they do not know how to program. Of course there are limits to what can be put in even a "do everything" program. So there will be more advanced versions of SuperPIMx that will have more powerful features.

Advanced Labels will be a version that CIE uses to maintain its address lists. This will put an index on each data disk, and allow the program to print all the files on a disk without any operator intervention. Each additional disk will only require that the operator put the diskette in the drive, and press enter.

Advanced File Handling will be another extension, and another will allow additional mathematical calculations. SuperPIMx now allows you to sum or sum and

Win 3-drive Micropolis floppy system

In order to celebrate its second birthday this fall, People's Software is offering a three-drive Micropolis floppy disk system to the person developing the best People's Software program before March 31.

People's Software will do the judging, and employees of CIE are not eligible.

Any program submitted from the beginning of People's Software, until March 31st, will be considered. Both royalty and public domain software.

The Micropolis system has two 77-track drives and one standard 35-track drive, plus 77-track NewDos Plus.

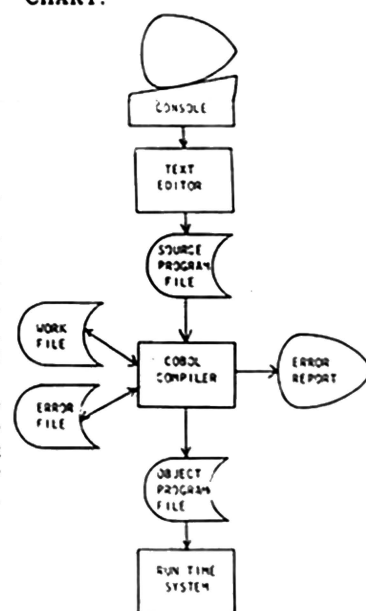
COBOL CONTINUED from page 2

standard for two decades, outnumber those using all other languages combined. Your optimum price-performance package is Nevada Cobol from CIE.

Professional Cobol programmers across the country have given Nevada Cobol from CIE high-performance ratings in power, function, speed, efficiency and ease-of-use. Designed with the most widely-used facilities of ANSI'74, it delivers a broad-band of computational power, fast compile and run time, yet consumes only a minimum of 16K RAM.

A growing number of CIE Nevada Cobol programmers are, in fact, developing Cobol application object code programs for sale to third parties. Unlike many competitors, Ellis Computing allows sale and distribution of such software on a royalty-free basis.

CIE COBOL GENERAL SYSTEMS FLOW CHART:



USER COMMENTS

"The only thing I can say is I'm extremely satisfied and I'm very surprised at the price... I have about 10 years experience in Cobol. I gave it a pretty good workout and I could not find any problem. It does everything that I want it to. I haven't found anything anything that I haven't been able to do," Eric Farr of San Antonio, TX.

"I'm using it to learn Cobo. So far everything that we've done with

COMPUTER SCIENCE instructors are finding Nevada Cobol from CIE an excellent tool to introduce their students to the elegant simplicity of Cobol, its power, logic, and speed, its easy-to-understand English-like phrases. Presently in use at several university and high school classrooms, reasonably-priced CIE Cobol has the engineered programming architecture it takes to demonstrate and teach the most widely-used facilities of ANSI'74. Made a part of an existing curriculum, CIE Cobol can spark new interest in the classroom.

It at the university has run fine. I thought since it wasn't that expensive I'd give it a try. I think it's great software. I was really impressed by what it would do—a lot more than I expected. I'd recommend it to anyone. In fact, I've had several professors at the university go over it and they were equally impressed with what it would do," Tom Shirely, Manhattan KS.

"I'm very pleased with it and using it extensively. I run a micro-programming consulting business and I'm trying to develop a school-attendance package with it. I purchased it basically due to price and because I like Cobol over several other languages," Jerry Bell, Fairfax OK.

People's Software on diskette?

Why no People's Software on diskette?

It would be nice, but unfortunately, media costs make that impractical. Each People's Software public domain tape would require two standard disks. Media would cost about ten times what it now does. And this would have a multiplier effect, because we have priced People's Software to allow for dealer sales, with discounts to 50 per cent.

Many programs on the tapes are for disk systems, and most People's Software programs run on disk with no or little modification, but tape remains the ideal distribution medium.

WORD PROCESSING LETTER TO RESUME IN JANUARY

CIE plans to resume publishing its Word Processing Letter, as far as we know the only journal of text processing with personal computers.

With personal computers becoming popular, and supported with good WP software, textual uses for the systems are becoming common.

At the same time, the field is expanding in quantum leaps:

• IBM has announced a system that includes a built-in 50,000-word dictionary.

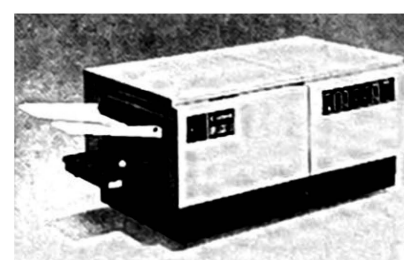
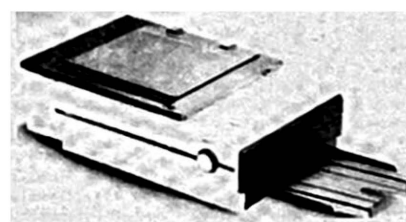
• Canon, Minolta and Konishiroku have announced electrostatic printers similar to office copiers that output from 10 to 30 pages per minute, of typeset

quality, with graphics capability, plotting, line and halfstone. One of these machines also functions as an ordinary office copier.

• Meanwhile, strikeon has progressed a generation beyond the daisy wheel, with correspondence quality at ten-times the speed of the fastest "daisies", or 510 characters per second. With optional fabric ribbon, the printer doubles as a standard line printer, with 340 lines-per-minute throughput.

Details on these new systems in the upcoming Word Processing Letter, which is going to be keeping a close watch on both software and hardware for word processing uses of personal computers.

NEW PRINTERS—Next year, a new class of printers such as this Canon, right, Minolta, below, and others will take computer signals and typeset pages as large as 11x14 at speeds to 30 copies per minute. Expected to be priced



in the \$15,000 to \$20,000 bracket, these machines will revolutionize typesetting and word processing. The Minolta is expected to also be able to function as an office copier, or combination of the two (adding letterhead or forms-imaging to a page, for instance).



STANDOUT—About 10X as fast as the quickest daisy, this correspondence-quality machine costs about \$5,000, has nationwide service.

Description	Qty	Price	Total

Name _____
 Shipping Address _____

 Daytime Phone # _____

Sub Total _____
 6% Calif. Sales Tax _____
 Shipping & Handling _____
 Total Amount _____

BOOKS-via UPS to street address
 Software and book prices include postage & handling

Make checks payable to CIE

☐ Charge my VISA or Master Charge

CIE MASTERING-QUALITY BLANK CASSETTES

Account number _____
 Expires _____
 Signed _____

☐ 10 C-12, \$8.50
☐ 10 C-45, \$13
 CA residents' prices are:

☐ 10 C-20, \$11
☐ 10 C-60, \$14
☐ 10 'poly' soft plastic boxes \$1.75
 \$9.01, \$11.66, \$12.72, \$13.78, \$14.84, \$1.86
 quantity discounts available

**Send to CIE
 or phone**

Add 80 cents postage per 10 cassettes,
 40 cents per 10 poly boxes or diskettes

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Dated Material