MICROPOLIS™ NEWS

Micropolis Corporation
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Chatsworth, California 91311
(213) 709-3300 Telex 651486

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NEWS IN BRIEF

MICROPOLIS BREAKS THE 2 MEGABYTE BARRIER

NCC '81 marked another "first" for Micropolis with the introduction of the 1117 series of 5 1/4" floppy disk drives. Four models will be available - 2 single-sided drives (96 or 100 tpi) and 2 double-sided (96 or 100 tpi).

The doubling of capacity was achieved by increasing the bit density to 12,000 bits per inch. Other features include an industry standard bezel, 6ms track-to-track positioning, and a casting with industry standard mounting, as well as the engineering features unique to all Micropolis drives.

These drives are presently OEM configured and evaluation units are scheduled for the fourth quarter of 1981, with production quantities in first quarter 1982.

MICROPOLIS TO INCREASE PRODUCTION CAPACITY

We recently signed a lease on a new 60,000 square foot building located 1/2 block from our present facility in Chatsworth. This new building will increase our space to 110,000 sq. ft. and enable us to double floppy drive production on a single-shift basis. Corporate offices and all floppy production will be located in the new building; rigid disk production remains in the present 50,000 sq. ft. facility. Occupancy of the new building is set for January 1.

SOFTWARE VENDOR DIRECTORY AVAILABLE

Nyack, NY, March 1, 1981 -- Micro-Serve, Inc. announces the publication of the 4th edition of the SOFTWARE VENDOR DIRECTORY — a Directory of microcomputer software companies. The first edition appeared in March, 1980, and since then has been updated and modified in each new printing. This newest edition contains the following features:

- 1001 Software Vendors
- 4195 Products
- Indexed by 80 Hardware Categories and 200 Software Categories

Since March, 1980 the SOFTWARE VENDOR DIRECTORY has been sold throughout the United States and in 11 foreign countries. The price is $100 for the Directory and two updates (which are future full new printings at 6-month intervals). The Directory alone is $57.95, and one update to that Directory is $25. A disk version is also available (under CP/M) at $78 which includes a product named INFORMATION MASTER from Island Cybernetics of Port Aransas, Texas.

The SOFTWARE VENDOR DIRECTORY is available from Micro-Serve, Inc., at 250 Cedar Hill Ave., Nyack, NY 10960, (914) 358-1340. Master Charge, VISA and C.O.D. orders are accepted.

MICROPOLIS USERS GROUP FORMED

Huntsville, AL — March 1, 1981 —A Micropolis Users Group (MUG) has been formed to aid the owners of Micropolis S-100 systems. Its purpose, besides the general sharing of ideas, news, and tips is to encourage the development of software for the Micropolis operating systems. Pursuit of this goal is being made in three areas. First, they are compiling a list of the commercially available software (both Micropolis on Micropolis, and CP/M, or any other operating system, on Micropolis), and making themselves known to these vendors. Second, they are establishing a library of MOD I and MOD II non-commercial software. Finally, they are attempting to document the internal workings of RES, MDOS and BASIC so that individuals can produce more efficient code.

Future planned activities include a monthly BASIC tutorial, articles on graphics, and the establishment of a communication network. Among the current benefits are the discounts given to MUG members by several S/W vendors.

One year (12 newsletters) membership fees are:

U.S., Canada & Mexico	$12	(as of 8/81)	$18
Overseas airmail	$25	"	$26
Overseas surface	$16	"	$21

Single copies are available for $2, $3.50 and $2.50 respectively. All payments should be in U.S. funds.

Membership is for the August to July MUG year, so you'll get all the back issues. Since the group is only eight months old, there aren't any previous year issues. Contact:

Micropolis Users Group
c/o Buzz Rudow
604 Springwood Circle
Huntsville, AL 35803
(205) 883-2621

LEARNING WITH MICROS

by Louis E. Frenzel

Computer Literacy — Who Needs It?

There is a lot of discussion these days about just how much computer knowledge should be taught in school. Teachers, educators, manufacturers, parents and even the kids have all jumped on the bandwagon. Everyone seems so positive about the benefits of learning how computers work and how to use them. I'm enthusiastic, too, but I wonder if my own intense interest and extensive knowledge about micros doesn't bias my opinions. Aren't all of us in the field a little biased?

Perhaps all this is just blowing the whole idea out of proportion. Yes, micros have their place, but we need to reassess their real value. Just how important is it for our kids to know about computers? Should they learn how computers work? Even more important, should they be taught how to program?

The big issue today is in deciding between computer awareness and computer literacy. These terms have never been formally defined, nor their scope agreed upon. And we can rely on dictionary meanings only so far. So it's up to us to interpret.

If you read the literature, computer awareness means just that, being aware that computers exist, how they are used and how they affect our lives. Virtually everybody agrees that computer awareness is a good thing. The real question is, should we all be computer literates?

Literacy means well educated. More specifically, to be literate means to know how to read and write. In computer terms the word literacy is a bit fuzzier. Some people use it to mean broader or deeper awareness. To others, computer literacy implies being able to use and apply computers. In some circles, computer literacy means being able to program. Regardless of the meaning, computer literacy is more than just awareness.

To literacy advocates, the breadth and depth of knowledge of computers to be taught is far greater than just how they affect our lives. It will take a lot of time, effort and money to teach computing in the schools. The question is, should we?

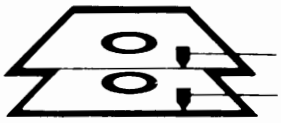
Data Manager
is here!

DATA MANAGER is the Data Management System designed especially for users of MICROPOLIS BASIC. It has been optimized for maximum performance and ease of use because it is not an adaptation of a system written in a different language.

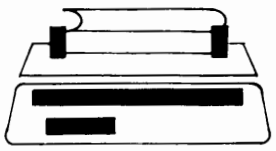
The result of several years of development in turnkey business systems, DATA MANAGER is designed to be used by ordinary office personnel. The entire system is menu driven, allowing use of every feature without learning a command language, thereby increasing operator efficiency. The system is also designed for ease of maintenence, modification, and expansion. The majority of the system is written in BASIC, with machine language utilities used to increase speed where needed.

At the user level, DATA MANAGER makes a microcomputer seem like a much larger machine. Data displays and user interaction are presented in immediately updated page format instead of scrolling, and highlighting and reverse video are used for emphasis on terminals with these features. DATA MANAGER is configured with a special program to use the features of your terminal and printer to best advantage. It will even simulate random cursor addressing on some terminals that don't have this feature.

Data entry is fast and reliable. DATA MANAGER'S data entry and update functions reduce the number of keystrokes required and validation routines keep errors out of the database. For jobs requiring cross-referencing or lookup, several files can be made available for data update or inquiry at the same time.



Files used in the database created with DATA MANAGER are maintained according to a user-defined record structure that is flexible and easy to understand. Files may be of any size up to 10,000 records or until disk drive capacity is exceeded, and several records are stored per disk sector when possible. The size of the database is limited only by available disk storage. Disk access is available in a variety of different modes including instant random access by relative position, fast lookup by key, image fitting, and sequential. DATA MANAGER includes high speed file processing and data transfer features such as a fast multi-level sort, selective edit and copy, and file compression.



The user has complete control over the content and layout of reports, including adaptation to various form sizes, multiple-line titling, footnotes, and any size label format. One of DATA MANAGER'S most powerful features, the report package allows printing of either individual sheets or continuous forms and can make use of special printer features such as expanded print. Any mathematical operation, function or precision available in MICROPOLIS BASIC can be used to compute report information, making the storage of computed data unnecessary. There can even be eight levels of subtotals printed in priority sequence automatically.

DATA MANAGER has applications in every field where records must be kept, data processed, and reports printed. It's generalized nature allows complete flexibility in database maintenance and it's professional design makes it a wise business choice. The standard system, including custom configuration for your terminal and printer is only $450.00 on MICROPOLIS MOD II format diskette. If you are an OEM, System House, or Retail Dealer, we can show you how DATA MANAGER can be customized into an application-oriented turnkey system at a fraction of the cost of custom software. Write on your company letterhead for complete dealer information.

CALL OR WRITE:

DATASMITH
BOX 8036
SHAWNEE MISSION, KANSAS 66208

PHONE: (913) 381-9118

A JOINT VENTURE

Computer Center
. . a BYTE SHOP
the affordable computer store
5815 JOHNSON DRIVE MISSION, KANSAS 66202
PHONE 913-432-BYTE

DATASMITH
Micro Software Systems
Box 8036 Shawnee Mission, Kansas (913) 381-9118

ning computer literacy

For our purposes, let's define computer literacy as being able to program and apply computers to specific applications. The goal of the instruction would be to enable the student to recognize and define a need or problem, determine its applicability to a computer solution, design an algorithm to solve the problem, then program and operate the computer to implement the system.

Well, obviously this can't be taught in elementary schools or even junior highs. Even to do it in high school may be stretching it. If you can keep the problems and examples simple but relevant, most high school kids can handle them. At the lower grades, some form of computer awareness program is certainly proper. At the college level, anything goes.

Now let's say that we will teach computer literacy in the high schools. First the pros. For starters, you won't have much trouble getting the student's attention. Most kids find computers interesting and challenging; and computers are fun to use. Second, a knowledge of computers will better prepare students for college and jobs. They will encounter computers in both places. Third, learning programming will teach problem solving, math and coding (a language). Everyone needs to learn a logical approach to problem solving. The most important part of the whole computer literacy exercise is probably the increased math skills that will be learned. As for coding, that's easy. It just involves memorizing rules and practice in using them.

Now what about the cons? The main issue is that if computer literacy is taught, what else will not get taught? There's only so much time in the curriculum and there are a lot of junk courses in high school today. I'm not saying that computer literacy is a junk course, nor that it's not worthwhile. But since schools are already doing a poor job presenting basic rses, would adding computer literacy further add to the problem?

Another issue is that of rapidly changing technology. A mere five years back, we did not have micros as we know them today. Neither did we have a lot of the neat technological goodies we now take for granted. Imagine what it will be like five years from now. We will be using a totally new generation of computers in ways we don't even suspect. Voice recognition and synthesis will be commonplace. Memories will be astronomical in size but extremely cheap. New software advances will make it even easier to program. In fact, maybe we won't even have to program to use a computer. Computers that can be programmed by voice are one possibility.

Computer software that leads a user by the hand through a series of questions and decisions is being developed to eliminate, or at least greatly simplify, programming as we know it today. If these and other breakthroughs occur, won't most of that computer knowledge we plan to teach suddenly be obsolete? Should we teach our children subjects today that will be obsolete tomorrow? Maybewe should teach them a foreign language instead of a computer language. It will probably serve them better over their lifetime.

Finally, there is the problem of cost. To properly teach computers and programming, every kid must put in time by himself on a computer. Sharing a computer or terminal is just not effective. This means that the schools will have to buy thousands of computers. It could run into hundreds of millions or even billions of dollars. Where will all that money come from? More taxes?

Then there is the teacher training, again representing a nificant investment of time and money. This is not to say we 't get the money or retrain the teachers. But is it worth it?

The issue of computer literacy won't be resolved overnight. More discussion will occur and we will see some testing and experimenting. Gradually we may see a solution evolve.

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MICROPOLIS NEWS PROFILES

Tim Matthews

Tim joined Micropolis in October of 1978 from Pertec via Vector General. He began as a test supervisor, and then moved to production test supervisor. About a year and a half ago he made it out of the factory and into an office as Marketing Specialist -- which means in-house support on hardware and software for floppies.

Tim's present position is Marketing Services Supervisor. He is responsible for the order processing department, which handles all floppy and rigid drive orders (as well as spares), the monthly ship plan, and customer service. Every so often he gets nostalgic for the production line and fixes a drive himself.

Three years in the Army at a Nike missile site provided an introduction to computers. Working at Micropolis, Tim became interested in micros, which led to learning programming the hard way — self-taught.

Tim has a home computer, which consists of Micropolis 1053-II and 1033-II drives, an Imsai look-alike he built himself, a Televideo 912 terminal and Heathkit H14 printer. The system has 56K memory and a Z-80 processor. A lot of the program development for order processing is done on this system, where he can work uninterrupted. He also has a few Adventure games just for fun, and is, in fact, a Grand Master Adventurer with a complete map of the "Colassal Cave" that took 6 months to develop.

Tim's favorite sport is skiing and his goal is to leave California some day and move to a small town in Colorado.

In the last issue we reprinted an article about the "moral" issue of copying software. As a follow on, below are the actual legal facts on the subject.

SOFTWARE PIRATES BEWARE!

by Donna Stein

Computer users may soon find copyright symbols or warnings against unauthorized use appearing on the programs they buy or lease to run on their machines, thanks to the federal Computer Software Act of 1980, which was signed into law last December. The legislation is intended to protect the rights of individuals and companies that develop, sell, and lease computer programs. Experts believe there are a quarter of a million to a half million people working in the software industry, whose annual revenues in the United States are estimated at $2 billion to $4 billion. With such high stakes, it's not surprising that a "software black market" in pirated programs has developed.

Only a few years ago, programs...were written almost exclusively by experienced dp professionals. Programs were usually written to run on specific machines, and were purchased for a single price tag along with hardware as part of a complete system. But as personal computers gained popularity, scores of computer owners with a minimum of special training learned to program their own machines and to reproduce or convert software to run on their models. Computer hobbyist journals, software magazines, and other technical publications now regularly print programs for various applications, and numerous user groups and commercial organizations have instituted software exchanges that enable users to swap programs.

At the same time, commercial software has become a big business, enriching many entrepreneurial individuals and spawning new companies devoted entirely to writing and selling software. From the start, the software industry has been vulnerable to piracy — the theft and reproduction of programs for unauthorized use. Software piracy has grown increasingly prevalent in the minicomputer and microcomputer markets, where programs are virtually being duplicated and sold under different names.

In the past, program writers have sought protection under federal patent laws, but these did not specifically include computer programs as patentable material. The importance of some form of legal protection was illustrated last year in a widely cited case litigated in the Chicago, Illinois federal courts. The case involved a complaint by Data Cash Systems, a Clearwater, Florida manufacturer, charging that JS&A Group Inc., a Chicago mail-order house, was selling a computer chess program identical to one previously distributed by Data Cash. Data Cash lost its copyright infringement claim in a decision handed down by the U.S. Seventh Circuit Court of Appeals last September 2. Specialists in copyright law say that the ruling might have been favorable to Data Cash if the new Computer Software Copyright Act had been in effect when the case was heard.

Software piracy doesn't necessarily mean only the reproduction of a program. It also applies to any unauthorized use of a program. For example, Dr. Portia Isaacson, a computer consultant in Richardson, Texas, reports that a program called V-Copy, which enables the user to make a copy of VisiCalc (the popular financial program developed by Personal Software Inc., of Sunnyvale, Calif.), is available in the Dallas, Texas area for $20. Isaacson says, "The program (V-Copy) itself is not illegal — it's the use you put it to. If you use it to make your own backup copy of a VisiCalc program you've purchased legally, I don't believe you've done anything wrong." On the other hand, she explains, if you use V-Copy to make copies of VisiCalc to sell for profit, you're putting V-Copy to illegal use.

The Software Copyright Act gives the owner or developer of a program the exclusive right to copy it or transfer rights on it, including those covering sale and licensing agreements. The law protects programs as soon as they are put into "any tangible medium of expression," such as a cassette, disk, or instruction manual. Fines, civil damages, or criminal penalties apply to piracy of copyrighted programs, just as they do to any other copyrighted published material.

The new law has been greeted with favorable reactions from the computer industry, but most experts also say that the law is only a first step and additional, more specific legislation is needed. "Videotapes, records, and the like still have piracy problems, notwithstanding their copyrightability. Mass-distributed software can have the same problems," says Daniel Brooks, chairman of a federal advisory commission of software issues.

Isaacson adds, "The copyright law lets you go after anyone who steals a thousand or so copies — anyone who goes into business publishing your software without your permission. The 'onesie' copies (for unauthorized purposes) are the problem, and no matter what laws you have, you probably can't afford the legal resources to go after them."

The above article was reprinted with permission from the February 1981 issue of Output Magazine.

COMMODORE SIGNS ANOTHER MULTI-MILLION DOLLAR ORDER FOR MICROPOLIS FLOPPY DISK DRIVES

Chatsworth, CA - Commodore Business Machines, a leading international manufacturer of low-cost microcomputer-based systems for business and other applications, has ordered additional 5 1/4" floppy disk drives valued at more than $7 million.

Dennis Resnik, vice president of sales at Micropolis, said that the order was a follow-on to an earlier order valued at more than $3 million, bringing to more than $10 million the value of orders received from Commodore in the last two quarters.

"We are now delivering more than 500 double track (96 or 100 tpi) floppy drives per day to our many customers," Resnik noted. "This certainly confirms our position as the number one supplier in the rapidly expanding high track density floppy business Micropolis pioneered in 1976."

CATALOG OF AVAILABLE APPLICATIONS SOFTWARE

The following software has been submitted for publication and is arranged in alphabetical order by author name.

Micropolis assumes no liability for this software, nor has Micropolis evaluated or tested the programs listed.

Advanced Technology Applications -- THE TEST BANK

Version 2.0 provides the means to construct written exams. Writing and editing are done using word processing techniques, while all other operations use single-key commands.

The Test Bank allows items to be written and intermixed, it stores the answers, permits categorizing by ther user-defined criteria and provides searching routines to select and combine items for a test.

Version 2.0 is written in Z-80 machine language and is configured for the Exidy Sorcerer and Micropolis MOD I and II. It is available with a User's Manual for $450. The manual alone is $20. For further information, contact:

Advanced Technology Applications
4296 Tambor Court
San Diego, CA 92124
(714) 569-2693

AFB Micro Controls — PROGRAMS UTILIZING MICROPOLIS BASIC

Complete Attorney's Business Package	$495
Mfg. Order-Entry/Inventory Control	$495
Invoice-Writer	$275

Payroll/Job Cost	$275
Medical/Dental	$495

For further information contact:

AFB Micro Controls
1444 Pioneer Way #11
El Cajon, CA 92020
(714) 442-3152

Arkansas Systems, Inc. — MICRO BUSINESS SOFTWARE

This set of software packages operates on the Micropolis disk systems under the CP/M operating system. ASI has expanded their list of packages offered. In addition to general ledger, accounts receivable, accounts payable, and payroll, they now offer inventory, order entry, job costing, job costing payroll, and job costing accounts payable.

ASI will support any customization or enhancement requirements of its customers on a fee basis.

The price of each individual package is $700. For more information contact:

Arkansas Systems, Inc.
8901 Kanis Road, Ste. 206
Little Rock, AR 72205
(501) 227-8471

Ashley, Allen — PDS DEVELOPMENT SYSTEM

Mr. Ashley has developed a complete 8080/8085/Z80 assembly language development system which includes a relocating macro assembler, an interactive assembler/editor, a text editor, a trace debugger/disassembler, a linkage editor and a linking loader. The programs are written in 8080 assembly language and are supplied on Micropolis MOD II CP/M compatible media. The system requires a CP/M operating system and a minimum of 16K RAM and one MOD II disk drive. The price of $99 includes the diskette and a User's Manual.

— S2000 SERIES DEVELOPMENT SOFTWARE

This cross-assembler enables any CP/M system to serve as a development station for the AMI S2000/2150/2200/2400 single chip processors. It features a macro-assembler, an interactive editor/assembler, and a text editor. System-2000 is available with complete documentation on CP/M Micropolis MOD II (Lifeboat adaptation) diskette for $150. It is also available for the Intel 8048 series, RCA COSMAC 1802, National COP400 series and Zilog Z-8 processor.

— F8/3870 DEVELOPMENT SOFTWARE

This system provides the same features as S-2000 but is for the Fairchild F8/3870 single chip processor. The price is $150.

For more information on any of the above systems, contact:

Mr. Allen Ashley
396 Sierra Madre Villa
Pasadena, CA 91107
(213) 793-5748

Bonjoel Enterprises — BUSINESS SYSTEMS

DATABASE TWO, available from Bonjoel, is a complete data base management system for small businesses or offices. It allows the user to create, maintain, add, edit, delete, sort, search, inspect and print data files of up to 1200 entries each. The system provides up to 30 user defined data fields for each file with the lengths determined by the user. Sorting can be done without disturbing the data in the master file. Reports can be selected with regard to heading information, fields, field sequence, upper and lower limits of a control field, etc. Totals, averages, maximum and minimum values for each field are a user option. All programs are menu driven and emphasis is on operator prompting and error trapping. All programs are written in Micropolis BASIC for use with a system of 48K, dual Micropolis drives and a printer of 80-132 character/line as a minimum system. The program is priced at $40.

Also available from Bonjoel are DATABASE TWO File Modification Programs, and INVENTORY ONE. Both are compatible with the DATABASE TWO system.

A recent addition is REACT in Micropolis 4.0 BASIC. It's a reminder system that allows you to enter dates and reminders into a file and retrieve the reminders in many different ways. Activities can be recorded and retrieved in the same manner. Reminders for each individual can be coded so that only that person's information can be requested. Coding also allows for a specific group of reminders to be requested.

The REACT system is designed for a minimum system of 48K with dual-drives. It can be used at reduced capacity in single-drive systems. A printer is useful but not required. REACT is supplied in Micropolis BASIC source code on MOD II media for $40. For more information contact:

Bonjoel Enterprises
P.O. Box 2180
Des Plaines, IL 60018
(312) 297-2921

CE Software — LISTING DISASSEMBLER

This system utility is a relocatable listing disassembler which writes a named file to disk of the disassembly. The software is totally compatible with the line editor or the assembler currently supplied by Micropolis. Cost is $50 retail; dealer inquiries are welcome.

— DATA MANAGEMENT SYSTEM

This CCA Data Management System distributed by Custom Electronics, will maintain, sort, and print reports or mailing labels for any type file the user needs. The system can be used for such applications as name and address lists, payroll, A/R, A/P, inventory control, customer lists, and many more. The DMS consists of 15 programs written in Micropolis BASIC, and requires a minimum of 32K bytes of RAM. A system printer is optional. Records for any file can be added, updated, deleted, scanned for, or inspected. The system allows the user to define the file and field name for each file. The file scan then can also be easily accessed by user programs written for specialized applications. The report writer allows the user to select such report options as fields, titles, totalling, editing, and record selection. The system is priced at $150.

The CCA Data Management System is available in CP/M with a number of additional features. The CP/M compiled version is priced at $185; the source version is $250 and comes with the compiled version.

A trade-in program is being offered to previous purchasers of the Micropolis BASIC version as follows: the purchase price of either CP/M version is 50% off if you send the original diskette and a copy of the bill of sale along with payment in full for the

Executive Commands

ATTRS	DOS	LISTP	SAVE
AUTO	EDIT	LOAD	SCRATCH
CHANGE	EXEC	MERGE	SEARCH
CLEAR	FORMFEED	PAGESIZE	SEARCHP
COMPILE	FILE	PRINTER1	TITLE
CONFIG	FILES	PRINTER2	TYPE
DELETE	FILESP	PRINTER3	
DIR	HEADER	RENUM	
DIRP	LIST	RESAVE	

Local Edit Commands

ABORT	CHANGE	KILL	SEARCH
ADVANCE	DELETE	LIST	ZAP
APPEND	END	QUIT	
BACKSPACE	INSERT	REPLACE	

Reserved Words

ABS	ERR$	LOG	REM
ASC	ERROR	LPRINTER	RENAME
ATN	EXP	MAP*	REPEAT$
ATTR	FIX	MASKIN$*	RESTORE
ATTRS	FMT	MAX	RETURN
CCOL	FOR	MAX$	RIGHT$
CHAIN	FORMFEED	MEMEND	RND
CHAR$	FRAC	MID$	RUN
CLEAR	FREESPACE	MIN	SCRATCH
CLOSE	FREETR	MIN$	SGN
COMMAND$	GET	MOD	SIN
COMMON	GETSEEK	NAME	SIZE
CONSOLE	GOSUB	NEXT	SIZES
COS	GOTO	NULL	SORT*
CREATE	HEX$	ON * GOSUB	SQR
DATA	IF	ON * GOTO	SPACELEFT
DATE*	IN	ON ERROR GOTO	STEP
DATE$*	INCHAR$	OPEN	STOP
DEBUG	INCLUDE*	OUT	STRING
DEF FA	INDEX	PAGESIZE	STR$
DEF FN	INPUT	PCOL	TAB
DIM	INSTAT	PLINE	TAN
DDIM	INT	PEEK	THEN
DISPLAY	LABEL*	POKE	TO
ECHO	LEFT$	PRINT	TRACKS
ELSE	LEN	PUT	UPCASE$
END	LET	PUTSEEK	VAL
EOF	LINE*	READ	VARADDR*
ERAEOL*	LINK	RECLEN*	VERIFY
ERAEOS*	LN	RECGET	WEND
ERASE	LOAD	RECORD	WHILE
ERR		RECPUT	

*reserved for future implementation

an extended BASIC compiler that does it all!

BASIC/S is efficient —

It generates executable object code, compatible with 8080, 8085, and Z-80 processors. It allows unlimited length variable names, including embedded reserved words, with all characters significant. Absolute cursor positioning is provided, directly from a TAB function. String space is allocated statically so there is never a delay for "garbage-collection". Multiple programs may be linked together with CHAIN, and share only declared COMMON variables. Complete numeric formatting is provided by the FMT function, including zero, space, or asterisk fill, floating dollar sign, and comma insertion. BASIC/S even includes two levels of error trapping, both global (ON ERROR GOTO), as well as local, with direction user specified in each open file.

BASIC/S is accurate —

All math is done in BCD, avoiding "round-off" errors common to binary systems. Zero always equals zero! Integer numerics allow a user-specified precision of from six to eighteen digits. Floating point numerics allow a range from 1E-61 to 1E+61, with a user-specified precision of from six to eighteen digits.

BASIC/S is interactive —

Included is a full function program editor, with advanced features such as global search and change, fourteen local edit commands, and much more. An extensive debugging facility is provided, including line number trace, as well as a unique option to allow "single-stepping" of a compiled program, with continuous display of selected variables. Best of all, each program line is thoroughly tested for proper syntax at the time it is typed! With BASIC/S, you'll never again wait until "run-time" to locate a typographical syntax error.

BASIC/S is here today —

to provide a state-of-the-art solution to your programming needs. Unlike some other systems, BASIC/S requires no royalty payments for compiled object programs which are sold.

BASIC/S IS DESIGNED TO RUN UNDER REV. #4.0 OF THE Micropolis Disk Operating System (MDOS), which is mandatory for operation. It is available on both MODI and MODII diskette formats.

The complete BASIC/S package includes the BASIC/S compiler, the RUN/S run-time package, the TR/I translator utility (to translate programs written for the Micropolis BASIC interpreter), and extensive documentation.

BASIC/S single site package	$345.00
Documentation only	35.00
RUN/S run-time package only	40.00

(RUN/S is included with BASIC/S, but must be purchased seperately by users desiring only to execute BASIC/S object programs.)

Systemation, inc.
P.O. Box 75
Richton Park, Il 60471
(312) 481-2420

CP/M version. In the U.S., a $2.50 shipping fee should be included. Outside the U.S., contact CE Software for proper shipping fees.

For more information contact:

Mr. Dave Culbertson
CE Software
238 Exchange Street
Chicopee, MA 01013
(413) 592-4761

Computer Mart of New Jersey — CP/M FOR MICROPOLIS

CP/M version 2.2 for Micropolis MOD I and MOD II is available, giving the Micropolis disk owner the full capabilities of the CP/M operating system while retaining full access to the Micropolis operating system. The upgrade allows the Micropolis disk owner to participate in the standard by acquiring a superior disk operating system with the following features:

- Automatic execution of any program prior to sign-on when system is cold-started
- Self-configuring logic in both initial system and MOVCPM, for easy system installation
- Machine-readable assembler source code is provided for Boot, CBIOS and Configurator

Dealer inquiries invited. For more information contact:

Computer Mart of NJ
501 Route 27
Iselin, NJ 08830
Attn: Sales Dept.
(201) 283-0600

Datasmith — BUSINESS SOFTWARE

Datasmith offers two programs in Micropolis BASIC - payroll and bookkeeping. The payroll system provides a user-oriented package for performing all commonly required payroll functions for a small to medium-sized business. A menu driven system, its use does not require familiarity with computers or programming, so clerical personnel can use the system after brief instruction. Payroll has been designed for flexibility and can handle a variety of "special" pay amounts and deductions if necessary. The system is fully documented and the programs are written in modular form which facilitates program modification to accomodate changes in tax laws, etc. The price for Payroll is $350.

— DEVELOPMENT PROGRAMS

These are for people who are writing whole systems in BASIC or who wish to trade programs via telecommunications. All the programs below are in 8080 source code with instructions for assembly and use:

TEXT CONVERSION: Converts programs written in Micropolis BASIC to LINEEDIT-compatible text files and back again. $75

VARIABLE LISTER: Searches a program file in BASIC and creates a list of all variables and dimensioned arrays used. $30

MULTIPLE MERGE: Merges a single BASIC program segment into up to ten other BASIC programs without operator intervention. $30

SYSTEM LISTER: Lists on the system printer up to ten BASIC programs without operator intervention. Performs the same function as several LOAD and LISTP operations automatically. $30

SMASH: Removes all comments and non-critical blanks from a BASIC program; reduces program size. $30

DATA MANAGER: For creating and maintaining access to files containing up to 10,000 records or 300,000 characters. Includes a report generation program able to perform extensive mathematical computations, etc. Cost including instruction, documentation and customer configuration to the user's system is $450.

For more information on the above packages, contact:

Datasmith
P.O. Box 8036
Shawnee Mission, KS 66208
(913) 381-9118

Doctor Office Computer Systems — DENTAL BILLING SYSTEM

This system is designed for use by anyone in the medical profession. It will enter, update, alter, delete and list patient records. An Active Accounts report is printed before statements are printed for the current billing period. The system consists of a disk file management program, a sort/merge routine and 8 sub-routines which are menu driven and written in Micropolis BASIC or Microsoft Basic running under CP/M. A minimum of 48K bytes of memory, video display, 2 disk drives and a hard copy printer are required. The price of $195 includes full documentation, listings, sample pre-printed statements, diskette, and easy to follow instructions for merging the system into an existing system.

— STUDENT SCHEDULE & GRADING SYSTEM

With this system the software will maintain an updated student schedule and school master schedule file. Class rolls, student locator cards, grade cards, honor rolls, class rank listings, and end-of-the-year course credit data are generated. The package contains a disk file management program, a sort/merge routine, and 15 subroutines which are menu driven and written in Micropolis BASIC or Microsoft Basic running under CP/M. A minimum of 48K bytes of memory, video display, 2 disk drives and a hard copy printer are required. Price is $295 and includes full documentation, sample listings, diskette, and a system manual. For further information on these two packages, contact:

Doctor Office Computer Systems
Route 7, Box 461-B
Greenville, TN 37743

Greenlaw, Richard — CP/M FILE DISTRIBUTION VIA CUTS CASSETTE TAPE

Three CP/M programs, DISKTAPE, TAPEDISK and MFDT provide a method of transferring files between systems with incompatible disk systems, such as between Micropolis based systems and standard 8" diskette systems. TAPEDISK copies files from a tape to a specified disk drive until a file named END is read. DISKTAPE copies one CP/M file to tape. MFDT allows the user to build up a list of file names and drives and then let writing to tape occur without manual intervention. TAPEDISK and DISKTAPE require about 15K CP/M system. MFDT needs about 26K. All need SOLOS or CUTER monitor program. Prices are $5 for 1200 baud cassette with TAPEDISK and DISKTAPE COM files and a DOC file; $10 for above with addition of the ASM source files, and $20 for above plus MFDT COM file and C language source. For more information contact:

Richard Greenlaw
250 Colony Court
Gahanna, OH 43230

Imagination Software -- ADVENTURE

Not a game but the source of a system for Adventure creation. With this you can write you own Adventures. Written in Assembler (Zilog), this program may be linked to your database to create Adventures with optional split screen depending on your VDU.

- Inputs up to full line, ie: Get ax and look at it then go west
- Abbreviations allowed, directions 1 letter, etc. under database control.
- Main program under 4K, hence games may be created for under 16K use on non-disk systems, TRS-80, etc.

Available on MOD II diskette, minimum 48K, Microsoft Basic, CP/M, Z80 Macro-assembler required. (BASIC not essential.) Price of $48 includes diskette, full documentation, sample run and shipping. For more information contact:

Imagination Software
24 Percy Park
Tynemouth
Tyne & Wear
Great Britain

Investment Analysis Systems — PROPERTY ANALYSIS SYSTEM

is offering a Real Estate Software package for residential, ome and commercial property management and analysis. The package consists of three modules: PROPERTY MANAGEMENT SYSTEM II, PROPERTY ANALYSIS SYSTEM, and BUSINESS SUPPORT SOFTWARE.

PMS II automates most of the accounting required to manage and control all types of income property. It consists of a complete General Ledger, A/R, and A/P optimized for property management and a Data Base Management system for tenant, vendor and owner data files. The system will manage up to 8 properties per disk and provides complete formatted reports; cash receipts, disbursements, balance sheets, budget analysis, operating statements, chart of accounts, etc.

PAS analyzes all types of income properties for cash flow, tax benefit, return on investment and equity. All economic variables are considered and can be changed instantly to show the user the economic effect. This program is ideal for modeling existing or future investments and making sales presentations.

BSS consists of many programs that apply to both real estate and business; depreciation, loan amortization, future value, etc. Each software system can be run separately and is supplied in CBASIC2 object code on CP/M.

The software is available for S-100 computer systems with two Micropolis drives, a CRT with cursor controls and 56K of memory. Prices are as follows:

PMS II	Vers. 6.0	$695
PAS	Vers. 2.11	$245
BSS	Vers. 6.0	$ 65

For more information contact:

Business Software in Micropolis Basic

DATASMITH announces the availability of two new turnkey business systems designed especially for MICROPOLIS-Based computers, including the VECTOR MZ. Both systems are completely menu driven and highly interactive, so they can be used effectively by your present office staff.

- **GENERAL LEDGER.** Everything you need to keep the books. Features easy-to-use data entry and error correction, trial balance, posting, and a variety of comprehensive reports. Automatic error detection keeps the books in balance. Writes checks and makes journal entries in one operation.
- **PAYROLL.** A very flexible system that adapts to a wide variety of needs. Features federal, state, and local tax calculations, EIC credit, and special pay and deduction amounts. Prints all necessary reports, paychecks, and W-2 forms.

Put your computer to work with these comprehensive systems now. Call or write for complete details. Custom services also available.

DATASMITH

Box 8036, Shawnee Mission, KS 66208, (913) 381-9118

Mr. Joseph Castaldo
Investment Analysis Systems
P.O. Box 282
Palos Verdes Est., CA 90274
(213) 375-7784

I/O Technology — POLYMORPHIC I/O DRIVER

I/O Technology is offering a 2708 EPROM that will plug into the user's Polymorphic CPU board or any S-100 compatible EPROM board and replace the CDINIT, CDIN, CDOUT and CDBRK routines in MDOS. The EPROM software allows standard 16 x 64 display, scroll mode, page mode, screen erase, full graphics, cursor control and meets all standard MDOS control code requirements. The 2708 EPROM resides at location F800H and utilizes scratch pad RAM at 00 to 0AH. I/O Technology is offering the EPROM for $35 and will relocate to user's defined area for a $5 service fee.

In addition, I/O Technology offers a detailed description on how to implement their Multi-Functioned I/O board's serial and parallel ports with the Micropolis Operating system. This contains software implementation procedures for CDINIT, CDIN, CDOUT, CDBRK, LDINIT, and LDOUT. For more information on any of the above, contact:

I/O Technology
P.O. Box 2119
Canyon Country, CA 91351
(805) 252-7666

Micro-Ap — SELECTOR III-C2, SELECTOR IV, GLECTOR

This system was designed so that the end-user or applications

designer can store and manage information in the most cost effective manner. It allows you to assign any, or all the fields in the record, as 'key' fields, so that records can be randomly recalled by the contents, or part of the contents, or any one of the assigned key fields. Unique reports can be generated using any combination of selection criteria, and sorted any way you want. SELECTOR III-C2 comes with all but the application programs, pre-compiled. Source code for everything except a machine language key merge utility program, is provided on diskette.

SELECTOR IV is upwardly compatible with SELECTOR III-C2 and adds several capabilities. These include the ability to 'read' a data file in one format and 'write' it in the same or another format. Other features include: computation, global search and replace, page report formatter, an applications tool, hard disk capable and a screen editor.

An add-on to SELECTOR III-C2 and IV is GLECTOR, a transaction code-driven general ledger system. For pricing and other information contact:

Micro-Ap, Inc.
7033 Village Pkwy. Ste. 206
Dublin, CA 94566
(415) 828-6697

Micro Applications Group -- MAGSAM III

MAGSAM III enables users of Micropolis BASIC to create and access data records quickly and directly by user defined keys. The access techniques include random by key, sequential by key, generic by key, etc. Enhancements include secondary indexing with any number of keys, real-time key and record deletes with automatic reclamation of free space and various improvements. MAGSAM runs as a sub-routine to Micropolis BASIC programs and requires 10K of memory over that occupied by BASIC and the catalog program. The package includes the MAGSAM file manager, MAGSAMX tutorial program, MAGSAMD file dump utility, User Guide, Reference Card and 1 year update service. A single site license is $145; the User Guide alone is $15.

-- PRISM/LMS

PRISM/LMS is a low cost list management system that needs no programming. Data to be stored in files is defined by the user, so there is no 'pre-defined' file format imposed. It features a Forms Generator which enables the user to create labels, envelopes, pre-printed forms, Rolodex cards, etc. Selected fields can be printed in specific locations on a form or merged into surrounding text. The Report Generator produces listings of selected fields,and data records and column totals can be printed on any numeric or monetary field. PRISM/LMS will run under CP/M, MP/M, CP/M-86, Onix (Unix for Onyx C8002), and Model II TRSDOS with CBASIC as the host language. The price is $225. For further information contact:

Micro Applications Group
7300 Caldus Avenue
Van Nuys, CA 91406
(213) 881-8076

Organic Software -- DATEBOOK

Datebook provides the user with an instant display of appointment schedules. You can search for an opening, schedule, move or cancel an appointment. Separate schedules can be maintained for up to 27 people for 9 months or more and a conference can be scheduled at a time when members of your office team have no other appointments.

-- MILESTONE

Milestone is an interactive critical-path-network-analysis program for microcomputers. Its primary purpose is to help you clarify a project's steps and communicate your plan to co-workers. For Milestone, a project is any task made up of steps that must be performed in a prescribed sequence. After dividing a project into its composite steps, Milestone can help you plan, schedule and control the project.

-- TEXTWRITER

Textwriter is a text formatting program with the ability to print a table of contents, alphabetize an index, and footnote. It can produce form letters by merging names and addresses from a mailing list and control printers such as Diablo, NEC and Qume and produce justified margins, boldface, underlining and super- and subscripts. Textwriter requires a separate text editing program for document creation.

For more information on any of these packages, contact:

Organic Software
P.O. Box 2069
Livermore, CA 94550
(415) 455-4034

Serendipity Systems, Inc. -- COMMERCIAL SOFTWARE

General Ledger, Accounts Receivable, Accounts Payable and Payroll are still available individually and in combination to form an integrated internal office accounting system. Retail: $795 each, $2795 for all four.

Group Professional Appointments and Job Order Control have been discontinued, as has Individual Appointments and Rental Property Management.

Inventory Control-Retailer, Inventory Control-Manufacturer and Medical Patient Billing and Third Party Billing remain unchanged. Retail: $795 each.

Professional Client Billing will be available only in the new enhanced version, Series III. Retail: $995.

For more information contact:

Serendipity Systems, Inc.
225 Elmira Road
Ithaca, NY 14850
(607) 277-4889

Shaw Labs, Ltd. -- A-FORTH

Shaw Labs now has available a multi-tasking (multi-user if hardware permits) version of FORTH. A-FORTH 2.0 is supplied both stand-alone and in versions which will run under either MDOS or CP/M. The MDOS or CP/M versions are used to configure the I/O for the stand-alone version, or may be run as a complete system under their respective OS. Standard configurations are available as per Micropolis MDOS convention. The system includes A-FORTH with the ammended Forth '79 Standard compatible capability, memory mapped and serial editors, documentation utilities, double numbers, and much more. The package includes A-FORTH on Micropolis diskette, language manual and 1 year warranty. Price is $150 plus applicable taxes.

Also available is a Utilities disk of several programs with source listings. For further information contact:

Acropolis
17453 Via Valencia
San Lorenzo, CA 94580
(415) 276-6050

Syntax Corporation -- SHORTAX

This tax planning program, updated for 1981 taxes, enables tax professionals to forecast and analyze federal and social security taxes. It will calculate federal income tax, the add-on minimum tax, the alternative minimum tax, FICA tax, and self-employment tax. Total input to output time is 4 minutes.

SHORTAX also forecasts positive or negative compound growth rates or constant incremental amounts for up to 99 periods. Files can be stored, retrieved, re-calculated, modified, listed, added together or netted against each other, or deleted with menu prompting functions.

SHORTAX runs on MDOS and a CPU with 48K memory and is available with documentation for $500. Annual updates are $300; the user manual alone is $15. Dealer and OEM inquiries are welcome. For further information contact:

Vernon K. Jacobs
Syntax Corporation
P.O. Box 8137-P
Prairie Village, KS 66208
(913) 362-9667

Systemation, Inc. -- SOFTWARE FOR MICROPOLIS

Offerings now include:

AUTO/EXEC	System Generator	$40
COMPARE	Basic Source Comparator	$35
BEM	Basic Expansion Module	$65
CRUNCH	Basic Program Compactor	$35
DSM-1	8080/8085 Disassembler	$65
EDIT/S	Text Editor	$45
SORT/A	Hybrid Sort	$75
TR/II	BASIC/ASCII Translator	$55
UNDELETE	File Recovery (for CP/M)	$45
XREF	Cross-Reference Generator	$85
UNPROTECT	Source Code Locator	$70
SORT/B	BASIC Sort Program	$75
UTL-1	Disk Utility Package	$95

BASIC/S generates executable object code, compatible with 8080, 8085, and Z80 microprocessors. The complete package includes the BASIC/S compiler, RUN/S run-time package, the TR/I translator utility (to translate programs written for the Micropolis BASIC interpreter), and documentation. Rev. 4.0 of Micropolis MDOS is mandatory for operation. It is available on both MOD I and II diskette formats.

BASIC/S single site package	$345
Documentation only	$ 35
RUN/S run-time package only	$ 40

(RUN/S is included with BASIC/S, but must be purchased separately by users desiring only to execute BASIC/S object programs.)

For more information contact:

Systemation, Inc.
P.O. Box 75
Richton Park, IL 60471
(312) 481-2420

Wordcraft -- THE MICRO LINK

Micro Link enables microcomputer users to communicate with each other, large computers and terminals over telephone lines. Files may be prepared in advance and transmitted automatically and the entire two-way communication may be recorded in memory and on disk.

Micro Link scans The Source, other data bases and bulletin boards quickly, recording segments that interest the user for review off line. It hosts another computer or terminal and operates at one end without being required at the other end.

The Micro Link requires any 8080 or Z-80 computer with serial port and modem, 16K of memory. It runs under Micropolis DOS or CP/M 1.4 and up. The price of $89 includes object code and manual; supplied on 16 sector, 77 track, 5 1/4" disk, 8" disk; inquire about other formats. For more information contact:

Wordcraft
c/o Microcomputer Software Assoc.
1122 B Street
Hayward, CA 94541
(415) 534-2212

TURNING SMALL BUSINESS ON TO COMPUTERS

by Nicholas Rosa

Every computerist knows a small-business entrepreneur who needs a computer, or has heard that having a small computer can do great things for his business. Shopping the name brands, the entrepreneur sees the price tag on a DEC or Wang system and flees. Visiting a store to look at a TRS-80 or a CBM, he is again put off by the price tag -- wondering, "Isn't this really just a toy?"

Help or Harm?

Chances are that you can give some valuable help.

Chances are better that you can do real harm -- such as put the entrepreneur on the road to an expensive disaster.

Computerists are computer-oriented, not business-oriented... seldom even business-aware. At the level where unconscious assumptions rule, the computerist-- whether professional or amateur -- in his own way shares the naivete of the non-computerist entrepreneur. The latter thinks, if you want to wash dishes, you buy a dishwasher -- the appliance approach. The computerist knows there is no magic appliance, but still tends to start with the computer. "To solve the businessman's problem, choose the right hardware and software, or the right software and hardware," depending on the computerist's viewpoint.

To avoid doing harm, and to be of real help, computerists must invert their own orientations. It can be fatal to start at the "computer end" of a business system. The only safe, workable procedure is to start at the business end. The essential question is, "exactly what does this particular business need to have 'computerized'?" What are its real and pressing data processing needs?

Successful use of a business computer system requires several imperative "non-computer" steps (unless money and time are no object).

1. Thoroughly analyze the business. How does it really conduct its business? This has to be done in painstaking detail to find out what's really going on. For example, how many invoices, statements, and checks are written each month, to whom? How many are received, and from whom? Only the owner or manager can do this. It takes work, it's tedious, but it helps start solving problems -- even without a computer.

2. Identify what, precisely, the computer is needed for. What is the specific chimera that has the owner taking antacid and working too many hours? What is the bottleneck? What data are being lost, misused? How else might a computer help?

3. Make informal but detailed charts of what is going on in 1 and 2. From these, spin off charts and specifications for what ought to be going on -- improvements, streamlining.

4. Recognize the time-consumers that can most easily be computerized -- the standard routines any business must follow for accounts receivable, accounts payable, inventory and so on.

5. Generate ideas about how this business's nonstandard or "custom" nightmare might be handled. How should data be used? This will help predict what kind of software will be required.

6. Become acquainted with software concepts and package specifications.

7. Crystallize software needs; start specifying programs and packages. At this stage, the services of a systems consultant are usually needed. The consultant will repeat much of the previous analysis, bringing fresh insights and perspective; asking searching questions; circumventing the owner's blind spots, his unconscious assumptions about his business.

8. Now get the software. Some off-the-shelf packages may be close to the right specs. Have the consultant recommend a custom programmer to take care of custom stuff.

9. Choose good hardware to run the software.

From the standpoint of the history and hallowed traditions of computerdom, this is a "backwards" approach. Our forefathers first built the computer, then found a way to program it, then debugged, debugged, debugged, and then got the patron institution or business to adapt itself to a Procrustean new data-processing system.

That won't do in today's environment. Small entrepreneurs want, and actually need, a sort of appliance.

They need a tool -- something that will immediately start helping to pay for itself -- and they can legitamately expect that. They should expect, demand, and get a system that will start doing something useful the day it is delivered and plugged in.

"Champagne"

Nothing about the small-business computer system should intimidate or frustrate the user.

Businesses of various sizes have acquired computers of various sizes and abandoned them. Since they couldn't live without data processing, they went to timesharing houses or service bureaus. Marginally successful installations meant underutilized systems. Owners never learned how to make full use of them. Some bought "too much computer" for their real needs. Had they taken the imperative steps, they could have avoided misery. Trying to computerize chaos brought expensive disappointment.

The small business operating on a small profit margin stands to increase that margin with a carefully planned and used small-computer system. A carelessly acquired system will eat into the profit margin, perhaps eat it up.

Don't despair. Advise your business entrepreneur friend about those nine reasonable (if "backwards") steps. Encourage him to invest the time. Then you'll sip that installation-day champagne with fully deserved pride.

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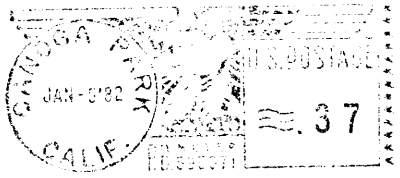

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