PEEK (65)

The Unofficial OSI Users Journal

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Editor: A' Peabody
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Column One

In this month's PEEK(65), you will see a couple of letters which are answered by 'Dick' and 'Brian.' Dick, of course, is Dick McGuire, our technical editor, the same fellow who writes Tech Notes from time to time, when he has time and something interesting to share with us. Brian is Brian Hartson, a hardware- oriented type who is a great help to all of us around here.

All this brings up once more the fact that PEEK(65) is no longer a one- or two-man effort. There are at least 5 of us who work on it regularly, with occasional help from still more. I hope that we will be able to change our credit box in the next month or two to reflect some of the hard work which these nice people put into PEEK(65) each month.

This month's issue continues our series on the CP/M connection with a Microspell review. I am very excited about this series, and you should be too, whether you have a C3 or not. If you have a C3, of course you are excited that you can now run CP/M with the wealth of software written for it. But even if you have a C1P, the CP/M connection has meaning for you. How so? Like so...

A year or two back, we had 65D. Other folks had their Appledos or Cdos or Trsdos; most folks had Nodos, because most folks had no disk to dos. Now, lots of us have 65U, increasing numbers of us have CP/M, and all of us are peering into the not too hazy future to see what is coming along. And it looks good. New 16-bit machines. New user-friendly operating systems. New languages. New applications software and games and lots more, increasingly portable from machine to machine and even level to level (Mini to Micro, even Mainframe to Micro).

Still unmoved? Still wondering what that has to do with your personal computer with no disk? OK, let's think about it a little more. What kind of car do you drive? What kind of car did you drive 5 years ago? In most cases, the answers to those two questions are not the same. Point is, we do change equipment, we do update our systems, swap 'em in on newer and better ones; so it will pay you to keep your eye on what is coming around the bend, to take an interest when somebody from the factory says the new generation of OSI machines will start off with a 5 MByte 'mini-winnie' 5.25" Winchester technology hard disk, and progress to 30 Megabytes on line in the same space in a few years. It is significant to you that these machines will run CP/M, MP/M, Oasis, 65U, 65D and who knows just what all.

Even if you never swap your good old faithful C1P, there will be new expansion boards, alternate memories, new systems of software; it all trickles (or maybe pours) down. This issue also has a mention of the use of non- OSI boards in a reader's system. 'Hey, self,' I said to myself when I read that, 'you mean we can use other folks' boards in this machine?' Obviously, we can. Just ponder a moment the significance of that bit of intelligence, both for now and more particularly for next year. I can see it now, the C1P to S-100 adapter, cheapo model for I/O and RAM boards only (which already gives you a few dozen to choose from), deluxe model for $10 more to cover the cost of the Z-80 it carries to allow you to hook up ANY S-100 board known to man to your SII.

Of course, there will be more to it than that, limitations and problems I haven't even thought of, and let me make it perfectly clear that I have no inside dope on any such adapter, factory or otherwise. I am just dreaming. Same way I used to dream, way back 10 months or so ago, about a desktop computer with a hard disk for less than a Porsche.

The PEEK(65) CBBS has fallen on hard times. We have been plagued with pesky software and hardware problems (which, as usual, I believe are now solved), causing some good PEEKers to waste their hard-earned nickels on phone bills when the system answered the phone, but then wouldn't work with them. Suffice it to say it is back up now, running fine, with several new commands (maybe our continual expansion and improvement has something to do with the problems) and ready for your messages. Faithful users, thanks. New users, welcome. Non-users, give us a call! Computing by phone is fun and easy.

ae

THE CP/M CONNECTION

** a MICROSPELL review **

Automatic Spelling Aid

by Al Peabody

Last month, in our first CP/M product review, we had a brief look at the standard which many people use to judge word processing programs, WordStar, and we were indeed impressed. Since then, we have been using WordStar quite a bit, and nothing we have seen has changed our initial high opinion of it. It does have a few problems, as we mentioned last month, but they are minor and, in our opinion, more than compensated by its low price (compared to a dedicated word processor) and ease of use. Familiarity has bred increased respect.

This month, we would like to have a look at another phenomenon, and one representative of the phenomenon in particular. The phenomenon is the proliferation of companion programs designed to work with WordStar, both programs written by MicroPro and those of other venders. WordStar is coming to be an entire system of interacting software, not just a nice program.

The particular member of the WordStar family with which this review is concerned is called Microspell. As the name indicates, Microspell is intended to turn your micro into a spelling machine. The way it does this is quite interesting.

Microspell does not just look through your WordStar files and compare every word with some giant dictionary looking for misspellings: that would require a dictionary far too large for practical use. Instead, Microspell uses 4 dictionaries, each for a certain section of the alphabet (LEX1, for example, covers words beginning with A through D). Furthermore, Microspell is "intelligent" enough to recognize that "covers" is "cover" plus "s", that "denies" is "deny" - "y" + "ies," and so forth. This intelligence greatly expands the effective size of the dictionary and the capability of the program.

When Microspell encounters a word it thinks it recognizes by applying rules like these, it prints out its guesses, such as:

```
DENY - Y + IES
```

and proceeds. When it stumbles across a word it does not recognize, but which is fairly close to one or more words it **DOES** recognize, the display looks something like:

```
PROCEAD: I GUESS:
  1)PROCEED
  2)RECEDE
```

and all you have to do is tell it which guess is right, or of course type in the correct word if none of the guesses is right.

Finally, Microspell may run into a word in your WordStar file which it just doesn't recognize at all. Then it prints out the word, and asks you to decide whether it is right or wrong. If it is right, you can type in a control code and it will be recognized as correct for the rest of the document, making it unnecessary to tell it over and over again. You can even insert the new word into the permanent dictionary, though that uses up disk space, and slows down the operation of the program; so you wouldn't want to do that for words not likely to occur in other documents.

How well does Microspell work, and how does it feel to use it? To find out, I tried it out on the file containing last month's WordStar review. All I had to type was

```
A> SPELL B: WordStarRVU.DOC
```

and we were off. A confusing array of guesses as to plurals and indirect forms of words flashed on the screen, but I soon got used to them, and was glad I didn't have to tell Microspell that "awaited" was the past tense of "await." Then we got to the first time "WordStar" came up, and it wasn't in the dictionary. I decided to accept it. Then came CP/M, then OSI, then 65U, etc., etc. Actually, all the A-D words came up first, followed by the E-J words, then the rest in two more passes. I guess it went through the 2-column review faster than I could have proofed it myself, and I had the security of **knowing** every single word was spelled correctly...

made me proof it again, and sure enough, there were still some mistakes! But only the sneaky ones. Like when I typed "in" when I should have typed "is."

Unfortunately, in my particular case, it turns out that these are my most common sort of mistake. Between them, and the tendency of Microspell to make unwarranted assumptions (blindly following its rules to make plurals out of words which were just plain typos), I found I had to proof my work pretty carefully, anyway. And still doubtless missed some mistakes!

Conclusions? Draw your own. Microspell is not very expensive, and while it is not blindingly fast, it is quicker than I can read carefully. It does require that you watch it carefully, being sure its guesses are right (that's why it prints them out for you... the instructions tell you to watch closely!) And it **will** catch plain old typos like "teh" and "adn" just about every time. So if you are a member of the "fatfinger" school of typists, but need to turn out beautiful work, Microspell might very well help you do so. It's worth a try just to read the very complete and well-written manual!

Next month -- CP/M itself.

★

INDIRECT JUMPS FOR THE C2/C4

submitted by: A. Penaloza
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Morton Grove, IL 60053

OVERVIEW

The C2/C4 system monitor (SYNMON Ver 1.0) on the 502 board has absolute jumps to the BASIC input, output, control c, save and load routines. If you have a disassembly, these jumps are seen in memory $FFEB to $FFE9. In the C1. these are indirect jumps.

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The C1 monitor transfers these jump addresses from ROM into RAM, whenever the break key is pressed. This gives the C1 users an easy way to tie in their special functions, i.e. cursor control. All they need to do is to change the appropriate jump addresses, that had been moved to RAM, to point to their new routines.

However, C2 users are faced with a problem. The SYNMON does not transfer these jump addresses to RAM, but instead calls them from ROM when needed. This makes C2 users despair at the thought of adding new functions, e.g., BASIC Shorthand. Additions cannot be done easily, since ROM contents cannot be changed.

C2/C4 users can, however, now easily add fancy functions or better yet, use already published software written for the C1s. The solution is to improve the monitor by reprogramming it into a 2716 EPROM.

A 2716 EPROM is similar to a 2316B SYNMON but for 2 pins, 18 and 20. The 2716 contains 2048 bytes of memory. Therefore, its address range is from $0000 to $07FF. The C2 monitor routines, for non-disk systems, are in addresses $0200 to $04FF of the SYNMON chip. The rest of SYNMON contains the bootstrap for disk systems. This is why SYNMON is not directly addressed by non-disk systems. The address $FD00 is really SYNMON address $0200. So, when the improved monitor is programmed, make sure to put it at addresses $0200 to $04FF of the 2716. Otherwise, the new monitor will not work.

SOFTWARE

The following software changes will give the C2 user the indirect jumps of the C1, USR(X) callable screen clear and move the IRQ vector out of BASIC's stack.

There are three sections to be changed. The first at addresses $FE00 to $FE29 (screen clear). The second at addresses $FF00 to $FF37 (screen clear). The third at addresses $FFEB to $FFFF (absolute jumps).

Thanks must go to David Jones for his modification of changing an in-line screen clear into a subroutine (Peek (65), Jan. '81). His change wipes out the initialization

TABLE 1

	OLD CODE			NEW CODE		
(FE00)	4300 A228	LDX	#$28	4300 A228	LDX	#$28
	4302 9A	TXS		4302 9A	TXS	
	4303 D8	CLD		4303 D8	CLD	
	4304 AD06FB	LDA	$FB06	4304 200EFE	JSR	$FE0E
	4307 A9FF	LDA	#$FF	4307 84FF	STY	$FF
	4309 8D05FB	STA	$FB05	4309 84FB	STY	$FB
	430C A2D8	LDX	#$D8	430B 4C43FE	JMP	$FE43
	430E A9D0	LDA	#$D0	430E 48	PHA	
	4310 85FF	STA	$FF	430F A208	LDX	#$08
	4312 A900	LDA	#$00	4311 A000	LDY	#$00
	4314 85FE	STA	$FE	4313 84FE	STY	$FE
	4316 85FB	STA	$FB	4315 A9D0	LDA	#$D0
	4318 A8	TAY		4317 85FF	STA	$FF
	4319 A920	LDA	#$20	4319 A920	LDA	#$20
	431B 91FE	STA	($FE),Y	431B 91FE	STA	($FE),Y
	431D C8	INY		431D C8	INY	
	431E D0FB	BNE	$431B	431E D0FB	BNE	$431B
	4320 E6FF	INC	$FF	4320 E6FF	INC	$FF
	4322 E4FF	CPX	$FF	4322 CA	DEX	
	4324 D0F5	BNE	$431B	4323 D0F6	BNE	$431B
	4326 84FF	STY	$FF	4325 68	PLA	
	4328 F019	BEQ	$4343	4326 60	RTS	
	432A 20E9FE	JSR	$FEE9	4327 FF	???	
	432D C92F	CMP	#$2F	4328 FF	???	
				4329 FF	???	
				432A 20E9FE	JSR	$FEE9
(FE2D)				432D C92F	CMP	#$2F

TABLE 2

	OLD CODE			NEW CODE		
(FF00)	4400 D8	CLD		4400 D8	CLD	
	4401 A228	LDX	#$28	4401 A228	LDX	#$28
	4403 9A	TXS		4403 9A	TXS	
	4404 2022BF	JSR	$BF22	4404 2022BF	JSR	$BF22
	4407 A000	LDY	#$00	4407 A000	LDY	#$00
	4409 8C1202	STY	$0212	4409 8C1202	STY	$0212
	440C 8C0302	STY	$0203	440C 8C0302	STY	$0203
	440F 8C0502	STY	$0205	440F 8C0502	STY	$0205
	4412 8C0602	STY	$0206	4412 8C0602	STY	$0206
	4415 ADE0FF	LDA	$FFE0	4415 ADE0FF	LDA	$FFE0
	4418 8D0002	STA	$0200	4418 8D0002	STA	$0200
(FF1B)	441B A920	LDA	#$20	441B 200EFE	JSR	$FE0E
	441D 9900D7	STA	$D700,Y	441E BD2BFF	LDA	$FF2B,X
	4420 9900D6	STA	$D600,Y	4421 9D1802	STA	$0218,X
	4423 9900D5	STA	$D500,Y	4424 E8	INX	
	4426 9900D4	STA	$D400,Y	4425 E00A	CPX	#$0A
	4429 9900D3	STA	$D300,Y	4427 D0F5	BNE	$441E
	442C 9900D2	STA	$D200,Y	4429 F00D	BEQ	#4438
	442F 9900D1	STA	$D100,Y	442B B8	CLV	
	4432 9900D0	STA	$D000,Y	442C FF	???	
	4435 C8	INY		442D 67	???	
	4436 D0E5	BNE	$441D	442E FF	???	
				442F 99FF89	STA	$89FF,Y
				4432 FF	???	
				4433 94FF	STY	$FF,X
				4435 FF	???	
				4436 FF	???	
				4437 FF	???	
	4438 B95FFF	LDA	$FF5F,Y	4438 B95FFF	LDA	$FF5F,Y
(FF3B)	443B F006	BEQ	$4443	443B F006	BEQ	$4443
(FFEB)	44EB 4CB8FF	JMP	$FFB8	44EB 6C1802	JMP	($0218)
	44EE 4C67FF	JMP	$FF67	44EE 6C1A02	JMP	($021A)
	44F1 4C99FF	JMP	$FF99	44F1 6C1C02	JMP	($021C)
	44F4 4C89FF	JMP	$FF89	44F4 6C1E02	JMP	($021E)
	44F7 4C94FF	JMP	$FF94	44F7 6C2002	JMP	($0220)
(FFFA)	44FA 3001	BMI	$44FD	44FA 3001	BMI	$44FD
	44FC 00	BRK		44FC 00	BRK	
	44FD FF	???		44FD FF	???	
	44FE C001	CPY	#$01	44FE 0F	???	
				44FF 02	???	

CONTINUED

for the old 430 board, but users without this board are unaffected.

The screen clear at $FE00 is replaced by Jones' mod. The second screen clear at $FF00 is replaced with a JSR to Jones' mod., a routine to transfer the jump address to RAM and the address table. The absolute jumps at $FFEB are replaced by indirect jumps like the C1's.

PROCEDURE:

1. Use the extended monitor to move the contents of SYNMON (from $FD00 to $FFFF) into any open RAM space. I used $4200 to $44FF. Remember that the new monitor must occupy EPROM addresses $0200 to $04FF.

2. Make the changes as shown in the tables.

3. Program into a 2716 EPROM.

HARDWARE

To make the monitor socket capable of accepting the 2716, two pin connections (18 & 20) need to be cut and rejumpered. Jumper pads are provided on the 502 board for this purpose. (NOTE: this will void any existing warranty.)

PROCEDURE:

1. Unplug computer, remove 502 board.

2. Position board as shown in fig. 1. Locate SYNMON ROM and BASIC 2 ROM.

3. Locate jumper pads at top of BASIC 2 ROM.

4. Cut foil and solder a jumper as shown. (This takes care of pin 18.)

5. Locate jumper pads at top of U17 (5404), between and beneath BASIC 3 and 4.

6. Cut foil and solder a jumper as shown. (This takes care of pin 20.)

7. Check your work. Make sure the foils are open where cut and connected where jumpered.

8. Replace SYNMON with the improved 2716 monitor and power up.

CONCLUSION

You now own a unique hybrid. The C2/C4 is still compatible with its own series and is easily able to use similar special routines that use the C1 vectors (input, output, ctrl/c, save and load). In addition, you now also have a USR(X) callable screen clear routine, and an IRQ vector at $020F to $0211. Look into back issues of MICRO and AARDVARK JOURNAL for fancy functions, that use the C1P vectors, to use with your new C2/C4.

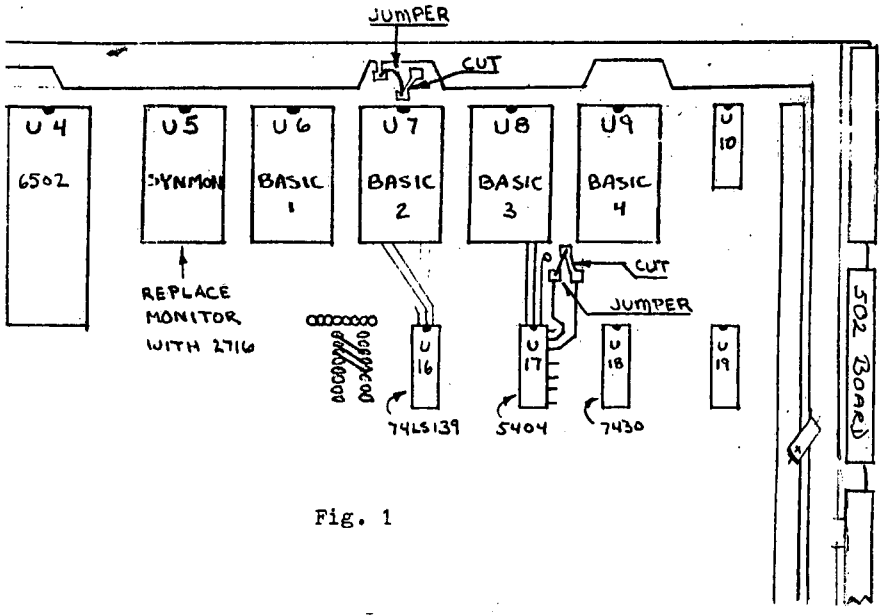

Fig. 1

For those who would like all of the above, but do not have access to an EPROM programmer, I will program one for you at a cost of $15.00. This includes cost of EPROM, mailing and handling. Please allow four weeks for delivery.

TECH NOTES
by Dick McGuire

First, there have been several requests to modify RESEQ to work on a hard disk. The author, Jim Sanders, has kindly worked these out for me and I'll pass them on to you at this time.

Before we start you must understand that there are several versions of RESEQ, RESEQ5, RES6 around and they are all numbered differently so I will describe the approximate position of the lines to be changed and will give you the old line and the change to be made.

First create a new slave system to hold your RESEQ files and copy the files from your RESEQ disk to the hard disk. Then load RESEQ and look toward the end of the program for the line

```
CLOSE: DEV"A": OPEN "RES*D*",1: CLOSE: RETURN
```

delete this line while noting its line number. Then look in the first 10-15 lines to find the line containing the instruction

```
FLAG9:GOSUBnnnn:FLAG10
```

where nnnn is the number of the line you just deleted. Delete this portion of that line. Then about 30-40 lines from the top of the program look for the line

```
POKESB,0:POKESB+216,0:POKE SB+217,0:REM
```

change this line to read

```
POKESB,0:POKESB+216,128:POKESB+217,128
```

Save this program back where it came from. Do the same with RESEQ5 and RES6. Your RESEQ will now work on the hard disk. All you have to do to use it is to load the program you want to resequence, POKE 13314 and 13315 to the cylinder address of the RESEQ system and operate as normal.

Second, there have also been several requests to know how to write a program which will allow simultaneous editing of the same file without contention. There are two ways to do this, one is easy but has problems while the other is harder (and slower) but has fewer problems.

The first method is adequately described in OSI's Multi-User

manual and essentially requires locking the entire file for the entire time that a record will be displayed on the screen. The problem with this method is that operator "A" may get a telephone call before finishing and leave the file locked for a long period of time.

The second method is more difficult, but it eliminates that problem. The sequence of events is this: 1) WAIT FOR the resource, 2) OPEN the file, 3) READ the record, 4) MARK the record busy flag (a field in the record), 5) WRITE the record on the disk, 6) CLOSE the file, 7) CLEAR the wait, 8) UPDATE the record in memory, 9) WAIT FOR the resource, 10) OPEN the file, 11) READ the record again being sure not to read the old information in on top of your updated information 12) WRITE the updated information, 13) CLEAR the record busy flag, 14) CLOSE the file, and finally 15) CLEAR the wait again.

The record busy flag is a field in the record which must be tested by the user program to see if the record is busy. If it is not busy the program may proceed, but if the record is busy some option must be made available to the operator to update another record or wait or something. This flag must be written in the record on disk before proceeding. This is assured by the CLOSE in 6.

Once the record has been updated and is ready for writing on to the disk, it must first be read. This is to insure that the copies in RAM of the records on either side of the updated record are the most current. It would be possible otherwise for operator "A" to update record 100 while operator "B" updated record 101. Because the computer reads into its buffer not just the selected record but the entire track within which the selected record resides, one operator could update one record while another operator was updating another record from the same track. When they wrote their updated records back on the disk, the rest of the track would be restored to the condition it was before the last operator to write first read the disk. Of course it is necessary to prevent the second read from overlaying the updated record in RAM. In fact, it is only necessary to read something on the same track.

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"EXTRACTS FROM THE PEEK (65) CBBS"

OHIO SCIENTIFIC SOFTWARE DIRECTORY

OSI is forming a software DIR of outside users. If you want your programs listed in this DIR, please fill out the following information and send to the address at the end of the form. My name is Rich Comeau. I am an OSI employee. My Peek (65) CBBS number is 3512.

****

SOFTWARE CATALOG QUESTIONAIRE

Product name:
Description:
Date of First Installation:
Number of Installations:
As of Date:
Application Size Limitations (e.g. number of inventory records, etc.)
Features:
Capacity:
Operating System Needed:
OS-DMS Compatibility:
Hardware Requirements:
RAM in KBYTES:
Disk in KBYTES:
Terminals Supported:
Modification Required to OS:
Which System will It Run On:
Floppy Disk Single Sided:
Double Sided:
Hard Disk CD-7:
CD-36:
CD-74:
Time Sharing (Level 3):
Network (Level 3):
Items Supplied with Package:
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Technical Man( )
5" Diskette( ) End User Man( )
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OSI HIGH RESOLUTION GRAPHICS EXPANDER 541 BOARD

The model 541 graphics expander is a standard OSI 48 line bus circuit card which expands the capabilities of OSI's 540 video text and character graphics display to include 256*512 individual point addressable graphics.

The 541 uses 8K of on board memory to memory map the 256*512 points. The output of the display is mixed with the 540's output providing extremely versatile and convenient to program displays which have alpha characters, graphics characters, up to 16 colors and High Resolution Point Graphics on one video screen.

The 541 also has a total of 24K 2114 type RAMs which allows it to completely emulate OSI's 527 24K RAM board. When placed in the second 24K segment of the address space of a 48K user partition, the board can be used either totally as a program memory card with the graphics turned off or the lower 8K can be used for program memory (yielding 32K workspace) and the upper 16K for memory mapped graphics.

The 541 is available immediately in specially factory configured C4P and C8P computers. C4PMF-HR & C8PDF -HR.

The 541 can be added to existing C4P and C8P computers. However, it requires several modifications. This will only be offered as a factory mod.

REAL TIME CLOCK NOW STANDARD

OSI now produces all floppy based systems to include a real time clock at no additional cost!!! This is a big plus for any people moving up to a disk drive.

NEW TERMINALS AT OSI

OSI now supports other terminals besides the Hazeltine 1420. This is due to MA/COM. Data Communications International, Inc. is a MA/COM company also. They sell the DEC line of terminals. New terminals supported: DEC VT-100, DEC LA-120, DEC LA-36, DEC LA-34 and TELETYPE 43(TTL)

OSI SERVICE NETWORK

Alanthus Data Communications and OSI, Inc. have announced jointly that Alanthus will commence third party maintence on OSI business computers. This capability will assure all OSI customers of nation wide service by placing a highly professional experienced field service organization at the disposal of multi location customers as well as single users.

OSI MULTI-USER Z80 SYSTEM

OSI has signed a contract with phase one for the installation and distribution rights to the OASIS operating system. This version of OASIS will be a full multi-user Z80 based system which will run on C3-B and C3-C computers.

OSI DATA COMMUNICATIONS CAPABILITY

OSI will soon be offering differential tranceiver cards to extend the range of cluster ports as well as offering a convenient kit of cables and connectors for installation. This fall OSI will offer an ethernet controller and tranceiver to allow users to tie 16 or more data bases together as well as communication over a standard Xerox ethernet cable with other devices.

VOCALIZER I & II NOW IN STOCK AT FACTORY

Vocalizer I runs under OS-65D or 65U. This software package accepts conventional English spelling and outputs the phonetic spelling to the vortrax module in real time.

Vocalizer II uses disk look up for the 3000 most common words and generation by rules for words not on file. This package generates the most legible speach now attainable via totally synthetic means. Capable of operating on a C3-B or C3-C with at least two partitions.

Contact your dealer for pricing information.

★

SUPERBOARD II to CARD CAGE EXPANSION

by Alex Jackson
1707 Providence Road
Towson, MD 21204

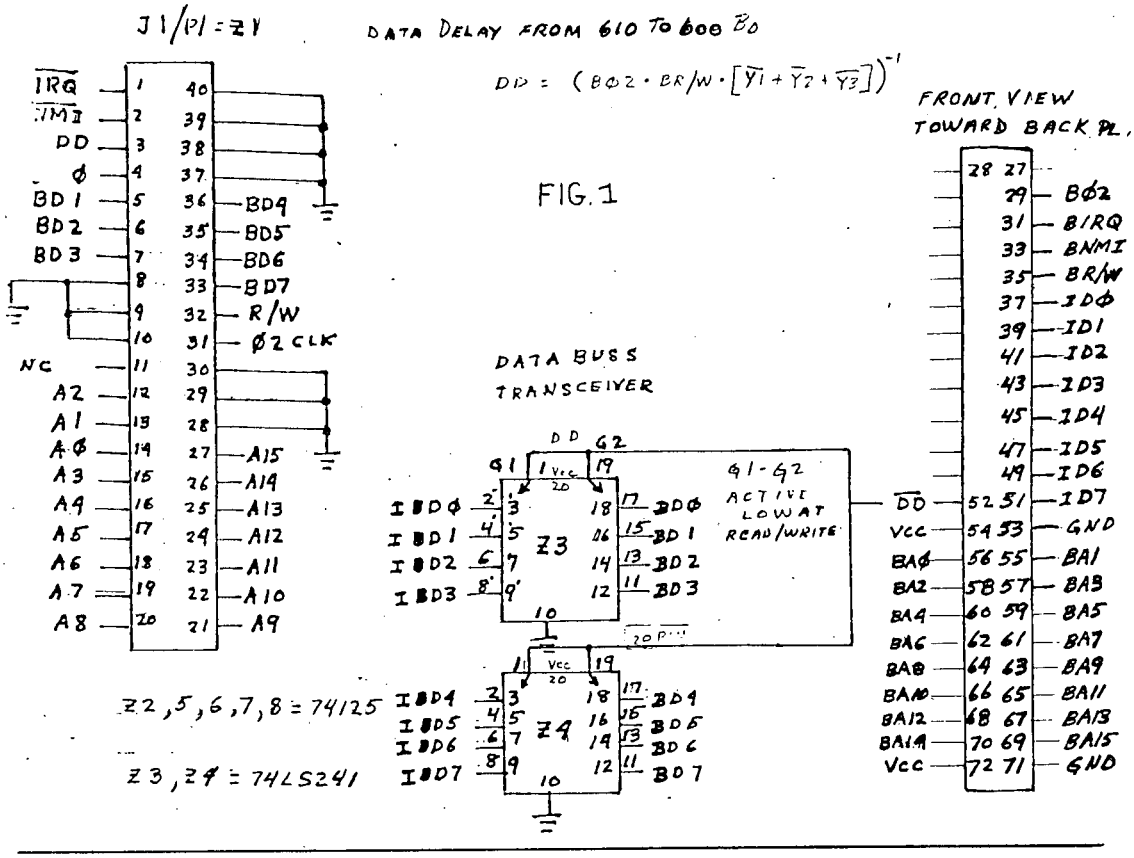
Encouraged by Bruce Showalter's experience (Aug. '80, pg. 9) I decided to build a wire wrap Static Memory card. Using readily available parts (to me) I now have a 16K memory board and buffer interface to the Super-II expansion socket.

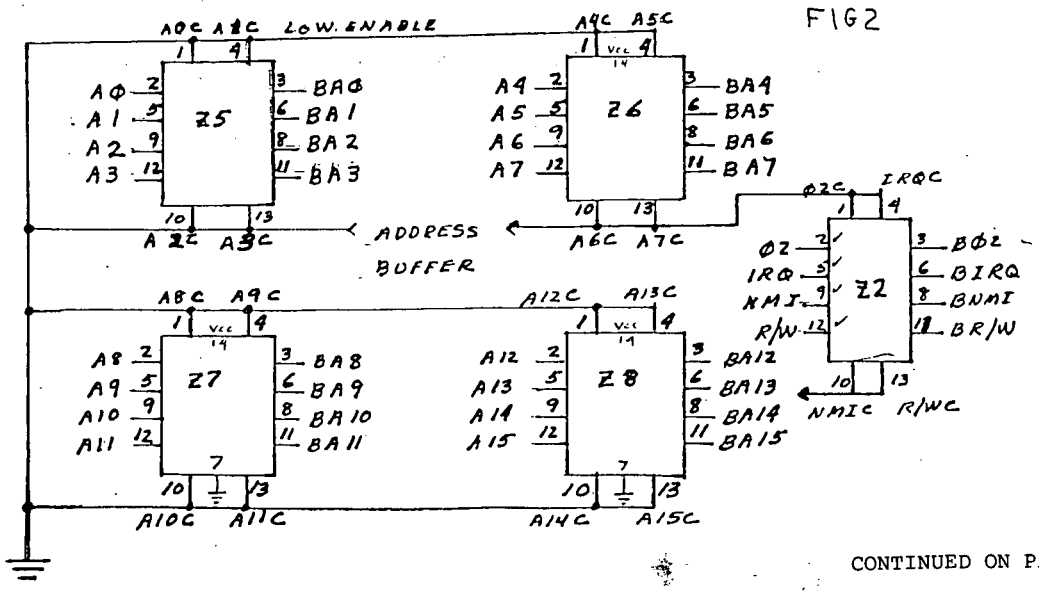
These and any future projects will slide into a rack mountable card cage with a wire wrapped back plane.

The I/O board is a too small Radio Shack type 244 which buffers all lines. Individual buffering is probably redundant, but acceptable for an early developement project such as this. Notice fig. 1, the address lines are always on together with 02 clock, read/write, etc. Whenever memory expansion is addressed data direction (DDX) goes low permitting data flow to or from the bus.

The 74LS241 was chosen for availability and cost. As configured it works well with the 600 board's 8T28's.

The memory expansion calls for two 16K memory cards. Addressing is from $2000 to $5FFF on the first card and $6000 to $9FFF on the second card. So far I've only built MEM-BD-1. Addressing for the second board would use Y3X and





CONTINUED ON PAGE 10

OSI

AARDVARK NOW MEANS BUSINESS!

OSI

WORD PROCESSING THE EASY WAY— WITH MAXI-PROS

This is a line-oriented word processor designed for the office that doesn't want to send every new girl out for training in how to type a letter.

It has automatic right and left margin justification and lets you vary the width and margins during printing. It has automatic pagination and automatic page numbering. It will print any text single, double or triple spaced and has text centering commands. It will make any number of multiple copies or chain files together to print an entire disk of data at one time.

MAXI-PROS has both global and line edit capability and the polled keyboard versions contain a corrected keyboard routine that make the OSI keyboard decode as a standard typewriter keyboard.

MAXI-PROS also has sophisticated file capabibilities. It can access a file for names and addresses, stop for inputs, and print form letters. It has file merging capabilities so that it can store and combine paragraphs and pages in any order.

Best of all, it is in BASIC (0S65D 51/4" or 8" disk) so that it can be easily adapted to any printer or printing job and so that it can be sold for a measly price.

MAXI-PROS – $39.95

THE EDSON PACK ALL MACHINE CODE GAMES FOR THE 8K C1P

INTERCEPTOR –You man a fast interceptor protecting your cities from Hordes of Yukky Invaders. A pair of automatic cannon help out, but the action speeds up with each incoming wave. It's action, action everywhere. Lots of excitement! $14.95

MONSTER MAZE – An Arcade style action game where you run a maze devouring monsters as you go. If one sees you first, you become lunch meat. Easy enough for the kids to learn, and challenging enough to keep daddy happy. $12.95

COLLIDE – Fast-paced lane-switching excitement as you pick up points avoiding the jam car. If you succeed, we'll add more cars. The assembler code provides fast graphics and smooth action. $9.95

SPECIAL DEAL–THE ENTIRE EDSON PACK– ALL THREE GAMES FOR $29.95

THE AARDVARK JOURNAL

FOR OSI USERS – This is a bi-monthly tutorial journal running only articles about OSI systems. Every issue contains programs customized for OSI, tutorials on how to use and modify the system, and reviews of OSI related products. In the last two years we have run articles like these!

1) A tutorial on Machine Code for BASIC programmers.
2) Complete listings of two word processors for BASIC IN ROM machines.
3) Moving the Directory off track 12.
4) Listings for 20 game programs for the OSI.
5) How to write high speed BASIC – and lots more –

Vol. 1 (1980) 6 back issues - $9.00
Vol. 2 (1981) 2 back issues and subscription for 4 additional issues - $9.00.

ACCOUNTS RECEIVABLE – This program will handle up to 420 open accounts. It will age accounts, print invoices (including payment reminders) and give account totals. It can add automatic interest charges and warnings on late accounts, and can automatically provide and calculate volume discounts.

24K and 0S65D required, dual disks recommended. Specify system.
Accounts Receivable. $99.95

*** * * SPECIAL DEAL – NO LESS! * * ***

A complete business package for OSI small systems – (C1, C2, C4 or C8). Includes MAXI-PROS, GENERAL LEDGER, INVENTORY, PAYROLL AND ACCOUNTS RECEIVABLE – ALL THE PROGRAMS THE SMALL BUSINESS MAN NEEDS. $299.95

P.S. We're so confident of the quality of these programs that the documentation contains the programmer's home phone number!

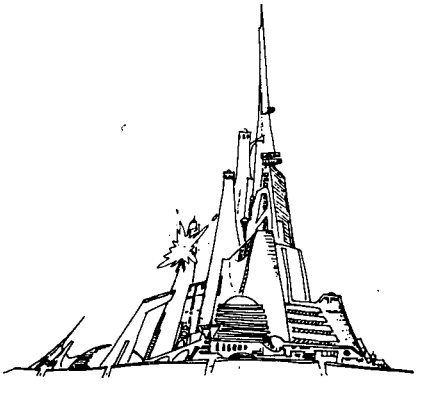
SUPERDISK II

This disk contains a new BEXEC* that boots up with a numbered directory and which allows creation, deletion and renaming of files without calling other programs. It also contains a slight modification to BASIC to allow 14 character file names.

The disk contains a disk manager that contains a disk packer, a hex/dec calculator and several other utilities.

It also has a full screen editor (in machine code on C2P/C4)) that makes corrections a snap. We'll also toss in renumbering and program search programs – and sell the whole thing for – SUPERDISK II $29.95 (5 1/4") $34.95 (8").

AND FUN, TOO!



BOOKKEEPING THE EASY WAY – WITH BUSINESS I

Our business package 1 is a set of programs designed for the small businessman who does not have and does not need a full time accountant on his payroll.

This package is built around a **GENERAL LEDGER** program which records all transactions and which provides monthly, quarterly, annual, and year-to-date PROFIT AND LOSS statements. GENERAL LEDGER also provides for cash account balancing, provides a BALANCE SHEET and has modules for DEPRECIATION and LOAN ACCOUNT computation.
GENERAL LEDGER (and MODULES) $129.95.

PAYROLL is designed to interface with the GENERAL LEDGER. It will handle annual records on 30 employees with as many as 6 deductions per employee.
PAYROLL - $49.95.

INVENTORY is also designed to interface with the general ledger. This one will provide instant information on suppliers, initial cost and current value of your inventory. It also keeps track of the order points and date of last shipment.
INVENTORY - $59.95.

GAMES FOR ALL SYSTEMS

GALAXIAN - 4K - One of the fastest and finest arcade games ever written for the OSI, this one features rows of hard-hitting evasive dogfighting aliens thirsty for your blood. For those who loved (and tired of) Alien Invaders. Specify system – A bargain at $9.95

MINOS - 8K - – Features amazing 3D graphics. You see a maze from the top, the screen blanks, and when it clears, you are in the maze at ground level finding your way through on foot. Realistic enough to cause claustrophobia. – $12.95

NEW – NEW – NEW

LABYRINTH - 8K - This has a display background similar to MINOS as the action takes place in a realistic maze seen from ground level. This is, however, a real time monster hunt as you track down and shoot mobile monsters on foot. Checking out and testing this one was the most fun I've had in years! – $13.95.

TIME TREK - 8K - Real Time and Real graphics Trek. See your torpedoes hit and watch your instruments work in real time. No more unrealistic scrolling displays! – $9.95

SUPPORT ROMS FOR BASIC IN ROM MACHINES – C1S/C2S. This ROM adds line edit functions, software selectable scroll windows, bell support, choice of OSI or standard keyboard routines, two callable screen clears, and software support for 32-64 characters per line video. Has one character command to switch model 2 C1P from 24 to 48 character line. When installed in C2 or C4 (C2S) requires installation of additional chip. C1P requires only a jumper change. – $39.95
C1E/C2E similar to above but with extended machine code monitor. – $59.95

Please specify system on all orders

This is only a partial listing of what we have to offer. We now offer over 100 programs, data sheets, ROMS, and boards for OSI systems. Our $1.00 catalog lists it all and contains free program listings and programming hints to boot.

VISA

OSI

AARDVARK TECHNICAL SERVICES, LTD.
2352 S. Commerce, Walled Lake, MI 48088
(313) 669-3110

OSI

CONTINUED FROM PAGE 8

Y4X generated on the first, see fig. 2.

The first problem arose when generating DDX which was originally inverted.

Noise has been the only obvious remaining problem. Grounding all unused fingers to the back plane has made the system reliable at 1Mhz. The 600 board ran great at 1.3 Mhz. by itself.

The Sam's schematics were a necessity to laying out this design. The Vector "slit-n-wrap" tool P 180 also is considered a necessity. It would have taken an order of magnitude longer to construct the memory board without the tool. The greatest single expense was the 2124L Rams. A dynamic Ram board would be cheaper and use less real estate.

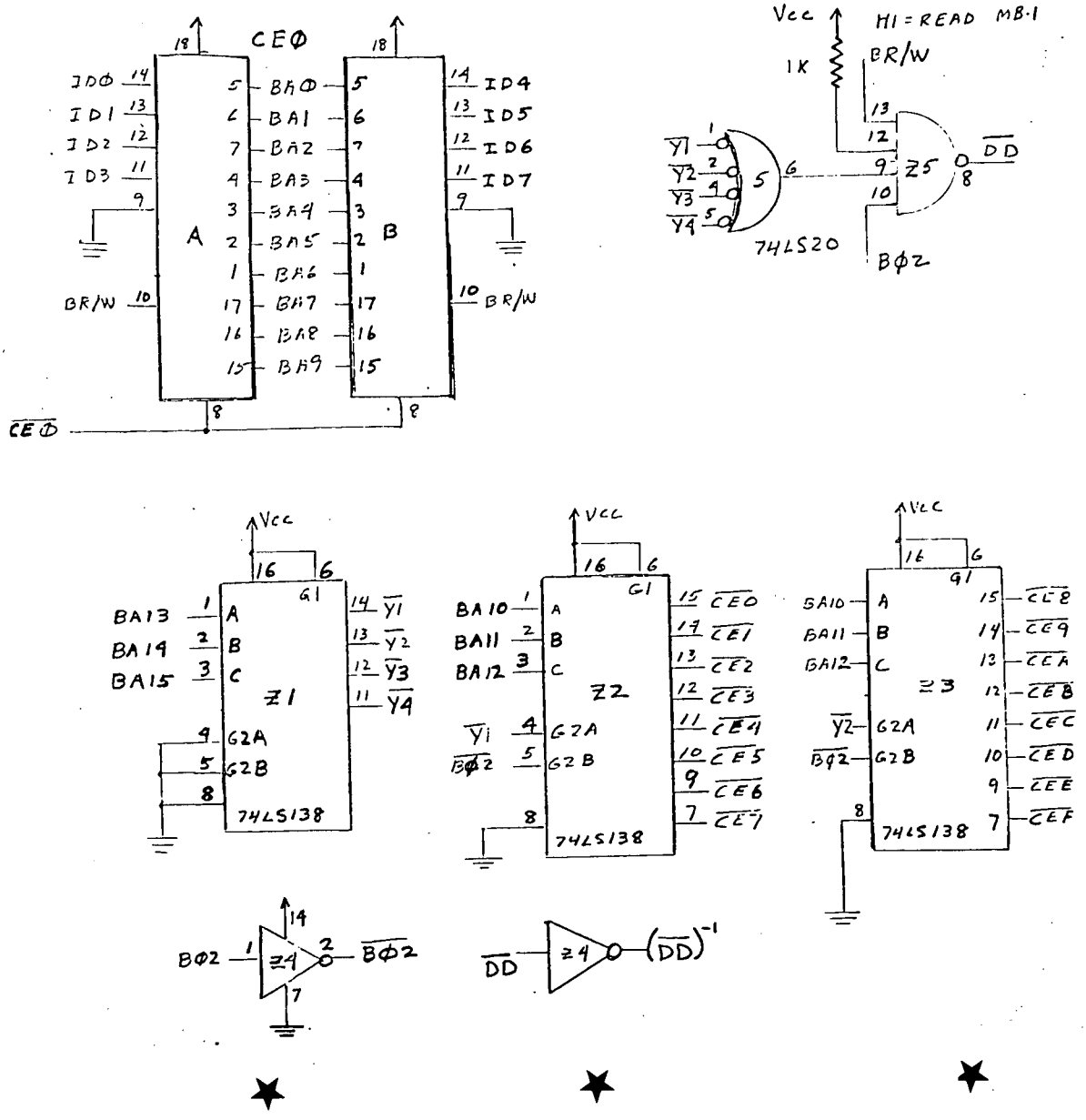
The 24K memory now on line has allowed me to load really big utilities to support software developement.

Not shown on figure 2 are the .01 mfd. bypass caps or 50 mfd., 16v electrolytics. Use one bypass per 1K memory and 4 to 8 filter caps depending on board size and shape.

Board layout should minimize long traces provide for modest expansion in case of design change and adequate power capability.

The next design will be bigger and better I/O board. 5 months of reliable operation is all the proof I need that this project can be expanded.

MEMORY BOARD #1.1



LETTERS

ED:

This tip may be of value to ClP users who have bought or intend to buy the SARGON II program from Hayden.

I had a great deal of problems getting my copy to load. I kept getting a checksum error at the line starting at 1E00. In fact, I could only get one or two successful loads out of six. I'd rewind and run, but it always hung up at the same spot.

I returned it for another copy. Same problem, same spot. I tried another recorder. Ditto.

Since Hayden would not give out a code listing so that I could make the correction manually, I found another solution.

Using the Aardvark 'Peek-a-Port' utility:

```
10 A=61440:B=A+1
20 WAIT A,1:PRINT CHR$
   (PEEK(B));:GOTO20
```

I could read the line with the error, find the faulty bit (at 1E0B), correct the program manually and make a copy. With a CEGMON ROM, this part was easy.

Also, since I have modified my ClP to save and load at 1200 baud, the program loads in about four minutes, rather than fifteen, a real time sver for those of us who don't have disks. Anyone else have this problem?

Gary E. Wolf
Clifton, NJ

* * * * *

ED:

Has anybody out there interfaced a bar code wand to an OSI machine? (See BYTE April 1980.) I seem to recall reading about it in an old Peek (65), but could not find it in the back issues. We have green folding money for bright lad who's whipped this problem.

Daniel C. Smith
DCS Software Products

* * * * *

ED:

Dale Mayers has pointed out that my garbage collector failure demonstration program (March '81 Peek) does not fail. This is probably the only case on record where a typographical error has made a program designed to fail, run properly. Lines 40 and 50 should be interchanged. The following program:

```
10 DIM Z$(11)
20 Z$(1)="I LIKE"
30 Z$(2)=" MICRO"
40 PRINT FRE(8)
50 Z$(3)=Z$(1)+Z$(2)
60 PRINTZ$(3)
```

When run on OSI ROM BASIC will print "I LIKE MICRO" followed by a long string of nonsense characters. The M. Minasi dimensioning trick does prevent the garbage collector from crashing. However, subscripted string variables can be garbled. The bug is very fickle. It can be affected by memory size, program position and string length. For example, the following program will run correctly for a three letter input such as "BUG" but garble strings if "PEEK" is input.

```
10 INPUT A$
20 DIM A$(11)
30 FOR X=0 TO 11
40 A$(X)=A$
50 NEXT
60 PRINT FRE(8)
70 FOR X=0 TO 11
80 PRINTX;A$(X)
90 NEXT

0 BUG   0 PEEK
1 BUG   1 PEEK
2 BUG   2 PEEKPEEKPEEKPEEK$$$$
          $$$$$$$$$$$$$$$$$$
3 BUG   3 PEEK
4 BUG   4 PEEK
5 BUG   5 $$$$PEEKPEEKPEEKPEEK
          PEEKPEEK$$$$$$$$$$
6 BUG   6 PEEK
7 BUG   7 $$$$
8 BUG   8 $$$$$$$$$$$$$$$$PEEK
          PEEKPEEKPEEKPEEKPEE
9 BUG   9 PEEK
10 BUG 10 $$$$
11 BUG 11$$$$$$$$$$$$$$$$$$$$
          $$$$$$$$$PEEKPEEKPEE
```

By the way, if the improved machine code from the June Peek is installed, Dale Mayer's program will run correctly.

```
 5 DIMA$(5)
 7 A$(0)="WET"
10 A$(1)="I LIKE"
20 A$(3)="PEEK(65)      "+A$(0)
25 A$(3)=" TO READ "
30 A$(2)=A$(1)+A$(3)
40 PRINTFRE(8)
50 PRINTA$(2)
60 PRINTA$(3)
OK
RUN
23602
I LIKE TO READ
 TO READ
```


RE: Boolean Contest

Suppose you need a subroutine to produce a random number between 1 and 4, but you wish to control the probability differently for each number. For example, I desire "1" 60% of the time "2" 20% "3" 15% and "4" 5% of the time. The subroutine at line 102 will do this.

Listed below is a program to call the subroutine 2000 times and print out the actual occurance of each digit.

```
LIST
10 FORX=1TO2000:GOSUB100:A(K)=
   A(K)+1:NEXT
50 FORX=1TO4
60 PRINTX,A(X)/20
70 NEXT
99 END
100 N=RND(9)
102 K=-1+(N<.4)+(N<.2)+(N<.05)
104 K=-K:RETURN
OK


RUN

1   59.7
2   21.75
3   14.45
4   4.1
```

The only place I have seen such a construction used was in OSI's "Star Trek" to determine the number of Klingons in each quandrant.

```
130 k=K+(N<X2)+(N<Y2)+(N<.28)+
    (N<.08)+(N<.03+(N<.01):K9=
    K9-K:GOTO 160
```

RE: Question by Jay Jackson regarding number of nulls after Cr.

The number of nulls is

controlled by a routine in the system monitor. For the 2P the code is:

```
$FF7B LDX #$0A  decimal 10
$FF7D LDA #$ 00 null
$FF7F JSR $BF15 output
$FF82 DEX
$FF83 BNE $FF7F again ?
```

The code for the 1P is similar. The number 10 ($0A) is fixed unless you replace the system monitor with EPROM. Since the output vector in the 1P is in RAM, you can move the routine $FF69 - FF8A into RAM and point the output vector to it. You are then free to change the LDX #$0A operation to any number of nulls wanted.

RE: Letter by Pete Hitt regarding replacing character generator ROM

The stock OSI character generator is a 2316 ROM. The March issue, page 6 of PEEK (65) explains the two pin correction which must be made. Since the character generator is always enabled, these are D.C. levels. For OSI's ROM pins 18 and 20 are connected to +5 volts. If you want to install a 2716 EPROM with custom characters, pins 18 and 20 must be grounded. Some OSI boards even have a jumper provided to do this. Would you believe an OSI computer that outputs in Japanese??

E. Morris
Midland, MI

* * * * *

C.D. Lombard of Olympia, WA, sends the following listing, which allows cursor positioning on the C1 or C4. Changing the values of L and H in line 10, allows your input prompt to be positioned anywhere on the screen for whatever effect you desire.

```
 10 L=0:H=212
 15 GOSUB20:GOTO100
 20 POKE9666,L:POKE9667,H:
 25 POKE9674,L:POKE9675,H
 30 POKE9682,L:POKE9683,H:
 35 POKE9719,L:POKE9720,H
 40 POKE9726,L:POKE9727,H:
 45 POKE9733,L:POKE9734,H
 50 POKE9745,L:POKE9746,H:
 55 POKE9753,L:POKE9756,H
 60 POKE9773,L:POKE9774,H
 70 RETURN
100 FORI=1TO 32 PRINT" TEST
    IT" NEXT
110 L=0 H=215
120 GOSUB20
```

AL

* * * * *

ED:

```
10 DATA2,5
20 READ VOLUME,NUMBER
30 RESTORE
40 IF SUBSSRIPTIONEXPIRY>
   NUMBER+6THEN80
50 INPUT"EXPIRY DATE";SUB$
60 POKE PEEK(65),VAL(SUB$)
70 SUBSCRIPTIONEXPIRY=
   SUBSCRIPTIONEXPIRY+12
80 GOSUB99
90 GOTO20
99 REM
```

I don't recall where I first heard of Mittendorf Engineering (905 Villa Nueva Dr., Litchfield Park, AZ 85340), but it was at least a year ago, and I'm surprised that I've read nothing about them since. This is a travesty which I will make my life's work, for the next few minutes, to correct.

First of all, they are fast. Up here in the Frozen North where the post office measures time in months (it's now quarter to June), I received what must be instant turn-around time on my questions and/or comments. That brings me to point number two: every response is detailed, knowledgeable, informative, and typed for heaven's sake! No scribbles on the bottom of your own letter, but a personal response! And they answer every question, no matter how (retrospectively) simple. And that was before I ordered anything.

Their catalogue is comparable to the old Progressive Computing and Aardvark (before the Journal came out) catalogues... sprinkled with tips and advice. But rather than specializing in programs, ME has an excellent line of peripheral boards. I bought their High Resolution Graphics Board and Music Synthesizer (not just sound generator) Board; the quality is virtually OEM and the documentation! Oh, the documentation!! Written in English, with foolproof insructions and illustrations, examples of use, and periodic updates. Clear, concise, and obviously well thought out.

I was particularly impressed by the fact that the peripherals could be purchased in any configuration. I couldn't afford $185 for the High Resolution Graphics Board Complete, (and didn't find out the cost of a complete kit), so I got the bare board and 43 pages of documentation for $30. Modifications to my C1P

were minimal, and involved a few jumpers using existing sockets and plated-through holes. The boards themselves were easy to put together, even easier to connect, and don't disrupt normal computing activities. I won't even try to describe the results... they are as described in the literature, and up to the quality of everything else already mentioned.

To make a long story even longer, I am most definitely IMPRESSED with the service and the products offered by Mittendorf; I have no hesitation in urging other C1P'ers to expand their horizons, and in fact, I'm a little surprised that this company has so far been "undiscovered". It's really a shame, because the potential is there, and they are more than eager to please.
RETURN

John Kula
Victoria, Canada

John:

For me...
10 compose ad for Peek (65)
20 send it in
30 hire more order-takers!

AL

* * * * *

ED:

To Jay Jackson, who wanted to know how to get rid of the 10 nulls at the end of each line when he uses a Model 33 TTY:

Those nulls are put there by the write-to-cassette-port code so that when a SAVEd tape is re-LOADed the system has time at the end of each line to process the input. To get rid of the nulls, you need to usurp the write-to-cassette-port function. Here is a short program that will suffice.

```
48 NONULL PHA        save the
          character at loca-
          tion $0222, in the
          'dead' area not
          used by OSI.
29 02     AND #$02   drop all
          but out status
F0 F9     BEQ LOOP   not
          ready, try again
68        PLA        get the
          character
8D 01 F0  STA $F001  write it
          to port
4C 69 FF  JMP $FF69  and go to
          regular code
```

This code can be located anywhere in memory since it has no hard-coded addresses in it. Locations $021A-B must be changed to point to the beginning of the routine, low address byte first, then high byte. One good location to place it would be at location $0222, in the 'dead' area not used by OSI.

The operation sequence will be*

1) Enter the program in memory (perhaps using the monitor, or a BASIC program and POKEs). This need only be done once.

2) Cold start BASIC.

3) BREAK and go to the monitor.

4) Enter '.021A/22<02. 0000G' where '<' represents a carriage return. This assumes the routine is at $0222; if not, change the '22<02' to the correct address. This sequence of commands changes the output vector at $021A-B to point to the new routine and then performs a warm start of BASIC.

5) You do not have to SAVE to start sending output to the TTY, this should occur immediately. If you need a delay at the end of each output line (most TTYs will, I think) use the NULL command.

Good luck!

++hobbitt
* * * * *
ED:

```
10 REM - MICROCOMPUTER
   APPLICATIONS, BOX 2914,
   ABILENE, TX., 79604
15 REM NAME OF THIS PROGRAM IS
   'FILLOC'
20 REM THIS PROGRAM WILL
   CALCULATE THE FILES THAT
   ARE LOCKED
21 REM AND WRITE THEM ON THE
   SCREEN
22 REM THE NUMBERS THUS
   PRESENTED NEED TO BE
   UNLOCKED BY
23 REM THE USE OF 'WAITCLEAR
   N' FOR EACH NUMBER SHOWN
30 PRINT"THE FOLLOWING
   NUMBERED RESOURCES ARE
   LOCKED"
40 FORN=1 TO255
50 IF(PEEK(55333+N/8)AND2^(N-
   INT(N/8)*8))>OTHENGOTO70
65 PRINTN
70 NEXTN
80 PRINT:PRINT:PRINT:PRINT
90 END
```

This formula comes from page 8-21 of OSI multiple user computer systems manual (c) OSI 1978. In my manual there was a typographical error which I could not fathom until I searched through several of the OSI 65U utility programs which gave a "DIRECTORY BUSY" message. I found a similar formula and filled in the blanks as above.

It works for me in the level 3 mode when I lock up a terminal while debugging; just RUN"FILLOC" on another terminal and clear it up!

Verle Byars
Abilene, TX

P.S. I use a CIIIB (74) with two terminals, soon to add two more.

Verle:

This routine should be used with great caution as it clears, ALL resource locks, even those put in place by another user.

Dick

* * * * *

ED:

In response to Jim Sanders, Peek (65), June 1981.

The selection of the scratch pad RAM is done by causing RAMCE to be High (for those of you who have a Sams Manual and like those things). Setting RAMCE high is accomplished by setting the signal RS low. RS is PA4 of the PIA on the 510 board. This can be done (refer to Assembler Programmers Guide to OSI board Interfacing published in Peek (65)) by the following:

continued

```
POKE 63233,4  Select PORT A
     Data Direction Register
POKE 63232,16 Set bit PA4 to
     Output
POKE 63233,0  Select PORT A
     Data Register
POKE 63232,X  Set PORT A bits
     (1=Hi,0=Lo)
```

You must be very careful with the last POKE because the other bits on PORT A are used for software selection of the Z80, 6800 and 6502 and for partition selection.

Brian Hartson

* * * * *

ED:

A "gotcha" recently discovered: Anyone using the code below to obtain a true rubout (this was popular before the Tech note fix from OSI to give destructive backspace came out) will find that running NECDRV with the latest NECDRV fixes for left-hand margin will still result in loss of the left hand margin. To solve the problem, replace the code below with the OS-65U destructive backspace outlined in Tech note 28-8.

```
GOSUB5000
5000 POKE 21340,95:POKE1373,76:
5010 POKE1374,0:POKE1375,92
5040 READ MAC:POKEPTR,MAC:
                        RETURN
5020 FORPTR=23552TO23573
5040 READ MAC:POKEPTR:RETURN
DATA 201,95,208,15,169,8,32,8,
     40,72
DATA 169,32,32,8,40,104,76,76,
     5,76,97,5
```

If O.G. Haywood (Peek (65), June '81) has a parallel Spinwriter, the problem with stopping at end of page in BASIC is solved by disabling the NECDRV paging function, e.g. POKE 25164,234:POKE25165, 234:POKE25166,234. Remember to SAVE"NECDRV" after the POKEs.

William W. Gibbs
Shenandoah Microcomuter
Services, Inc.

* * * * *

ED:

I have an OSI C4P cassette version and I would like to expand the memory from 8K. Do you or your readers have any information on the 527 memory expansion board? If so, will it plug directly into the OSI backplane without any modifications? If it doesn't, do you have any other suggestions or diagrams on different ways to expand the memory?

John Frankforther
Maumee, OH

John:

The 527 memory expansion board is an OSI standard 48 pin bus board having a maximum of 24K bytes of memory. The only problem that you might have is addressing. If your C4P has the 502 CPU board, then it has 8K of RAM on it beginning at $0000 and ending at $1FFF . The 527 board comes standard addressed from $0000 to $5FFF.

With some modifications to the 527 board or 502 board, you could move it to $2000 to $7FFF, giving you a total of 32K bytes of RAM. Probably the easiest to modify is the 527 board. To accomplish the modification, cut jumper W2 free from IC UF9, pin 13 and connect it to IC UF9 pin 10. This modification should put the 527 board at $2000 to $7FFF .

Before doing this, you should purchase the Sams Photo-Fact Manual for the C4, catalog #TM200 and familiarize yourself with the 527 board part locations. Good Luck!

Brian

* * * * *

ED:

I have just received Vol. 2, #5 of Peek (65), in which my letter concerning the character generator code was published. I appologize that my reference to the "enabling logic" of the Char. generator ROM was not clearly understood. My first impulse was to provide a direct answer to your question but I believe that a more general response will give you and readers of Peek (65) a better understanding of the 2716/2316 EPROM/ROM Family. This information will be applicable to the monitor ROM and BASIC-in-ROM chips as well as the character generator ROM. Let me state at the outset that I cannot lay claim to being one of the "smart guys" you refer to, but I know a couple of those "smart guys" and I have researched the subject enough to be able to build an EPROM programmer.

First of all we must understand a feature of these chips (and any other chip which connects to the data bus) called "tri-state logic". Since the CPU, buffers, ROM memory and RAM memory are all tied directly to the data bus there has to be a "traffic cop" to allow only one byte of data on the bus at a time. Without special control all of these devices would be dmping data onto the bus at once and the results would be chaos. For purposes of this discussion "tri-state" means that pins of chips connected to the data bus can be:

1. AT 5 VOLTS (A LOGIC HIGH...A '1' BINARY BIT
2. AT 0 VOLTS (A LOGIC LOW....A '0' BINARY BIT
3. AT HIGH IMPEDANCE...NO COMMUNICATION AT ALL EITHER TO OR FROM THE DATA BUS

This third state, high impedance, is the 'traffic cop' and it is accomplished by controlling the logic state, either high or low, of certain other pins on the chip which are call "enable" or "chip-select" pins.

The 2713 ROM (read only memory) is identical to the 2716 EPROM (erasable, programmable, read only memory) with the following exceptions: 1) It cannot be erased, 2) It is programmable only by the manufacturer, 3) It is cheaper (if you buy them by the thousands) and 4) The chip-select logic (whether the chip-select pins must be high or low to enable the chip) can be specified by the customer. In fact, this last exception is the reason why everyone who has replaced the system monitor ROM with an EPROM must change some jumpers on their boards...the chip-select logic is different.

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5 to 10 times faster than Basic. Once you use it, you'll never go back to BASIC! $ 75.00
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First class throughout. A must for any 65D user.
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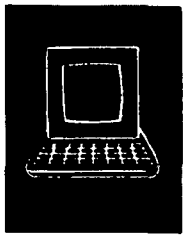

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The chip-select pins on the 2716 and 2713 are pins #18, #20, and #21 (my first letter is in error in identifying these pin numbers). They are called, respectively, CS2, CS1 and CS3. The monitor ROM and BASIC ROMS are address decoded, meaning that the address lines are routed through decoder chips and the resulting decoded signal(s) are connected to one or more of the chip-select pins so that the ROMS are enabled if and only if the proper address appears on the address bus. The character generator ROM is different in this respect in that it is constantly enabled. This causes no problems because its output pins are not connected to the data bus but instead to the video output. The CG ROM in my superboard has pins 18, 20 and 21 connected directly to +5 volts. This means that all three chip-select pins must be at the logic high state to enable the CG ROM. If the character generator were replaced by a programmed 2716 then the chip enabling logic would have to be changed by removing pins 18 and 20 from 5 volts and connecting them to ground (0 volts). Pin 21 would be left connected to +5 volts. This would hold the new EPROM character generator constantly in the "READ" (or enabled) condition.

I hope that this explanation (by no means complete) will give you a better understanding about how these ROMs and EPROMs work and encourage some of you who would like to play around with the system firmware.

I would be happy to try to answer any questions which might arise, but please include a S.A.S.E.. Sometimes it seems that if the IRS doesn't break me, the post office will!

Pete Hitt
P.O. Box 266
La Luz, NM

Pete:

Thanks for the lesson and clarification. Why not write an article for Peek (65) on your adventures with your EPROM programmer?

AL

* * * * *
ED:

I have enjoyed Peek (65) and the latest comments on information networks and electronic mail. However, after perusing my last month's phone bill, my enthusiasm has dimmed somewhat.

A contrubuting factor to the length of my calls to your CBBS is my inability to get the editor part of your software to work right. It is, no doubt, my problem and not yours. However, using the control fuctions has never produced the intended result for me. In all probability, more information would help me a bit, but I feel the fundamental problem is using the phone line interactively.

Your comments and concerns about protocols are in order. I believe that for a service to be priced attractively, one must be able to compose off-line and then dial-up and send a message, or alternatively, request and download a message. Time on long distance should be used for transmission, primarily, a quick inquiry with a negative result should take less than a minute, (Nothing for me? OK, 'bye.) even several pages of text would take little time if uninterupted.

If the service were designed to used as a drop-off and pick-up point, then, a directory could be requested and down loaded first, then one would log off, to resume when choices are made and command lines are edited and ready. I realize this seems a step backwards, back to more of a batch orientation, but with computing power spread out, let's use our computers for processing and yours (or any central CBBS) as a central storage and retrieval point, not as an in-line editor for our messages!

This would also make better use of one scarce resource, your phone lines and ports. We would be able to offer more ports on our time share system here if some way of getting on and off the system easily existed. Optimimally, this would all be transparent to the user, but because of the intervention of the phone lines, one can't easily disconnect/reconnect.

Some simplified protocol for block transmission, perhaps similar to disk-file usage, would allow messages to be 'left' for someone, or, picked up. Actually, picking up messages is already more or less of a block transmission activity, and, once in the compose mode on the CBBS, lines followed by carriage returns printed to the modem from a file should behave as if done from the keyboard. So perhaps it will not be so difficult after all, although setting up a system to respond to, say, search parameter requests, building and saving a response file, would require some design work.

By the way, you discussion of indirect files was welcome. I tried to use them when I first got my C8P, unfortunately, as I recall, they don't work on my video system between 65U and WP-2. This is all the more galling as the 65U's editor doesn't either! Any hints or thoughts about how to make them work would be appreciated by all us non C-3ers, for sure.

Ralph K. Requa
Glendale, AZ

Ralph:

The present version of the 65U line editor uses the same RAM area as the 540 video driver board, so they are not compatible. I hear a new EDITOR located in a different area of RAM, is soon to be released.

Good ideas for the board. I'll get to work on them!

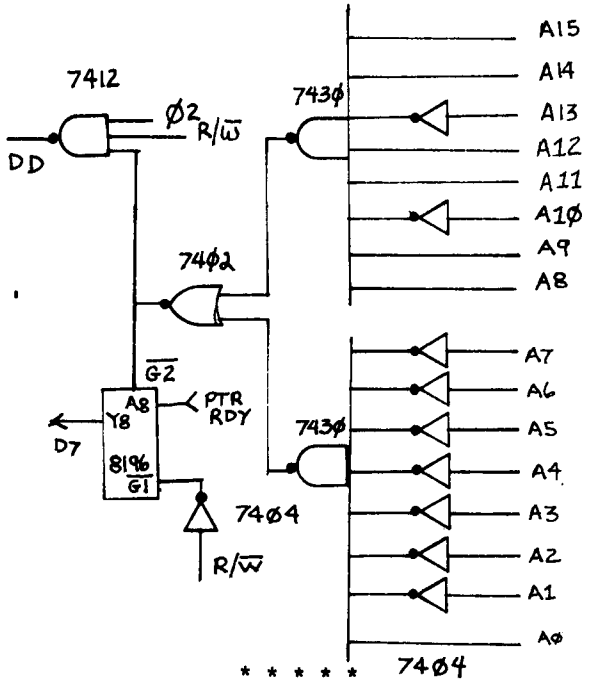
AL

* * * * *

ED

I am responding to Michael B. Carroll's letter on page 20 of issue #5, May 1981.

I suspect that his DD line is not being properly derived. Here is what I suggest:



ED:

In response to Fred Schaeffer, Peek (65), June 1981.

Multiple partition system utilities is a utilities package that is shipped with each multi user system by OSI, along with a manual. It usually resides in the hard disk buffer, but once loaded, is relocatable. Contact your local dealer for a copy of the disk and manual.

Brain Hartson

* * * * *

ED:

The most basic book for 6502 Assembly language is the MOS Programming Manual for MCS6500 Microcomputer Family. Not only does it cover all the instructions, but the Appendices hold a ready reference section for quick look-ups.

Shirley Emerson
Kaneohe,
HI

* * * * *

This circuit enables the 8196 when R/W is high and the address is $DB01. DD is enabled low when R/W is high and 02 is high and the address is $DB01.

Bruce Showalter
Abilene, TX

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-Duplication of a line of BASIC without re-typing it.

-'rubout' key corrects the last character entered by a real 'back-space' function.

CONTINUED

ED:

We have some corrections to the article on modifying WP-3 to support terminals other than the Hazeltine 1420. The locations we sent you were off by one in most cases - the result of misreading a dis-assembly. A correct table of keystroke locations follows:

FUNCTION	CORRECT LOCATION	PRINTED LOCATION	CURRENT VALUE
Forward space-1	$1979	$1978	10
Forward space-2	$19DE	$19DE	10
Forward space-3	$1A2B	$1A2B	10
Back space	$1975	$1974	08
Tab	$1989	$1988	09
Skip to end line	$1985	$1984	12
Skip to start line	$1981	$1980	06

Our apologies.

Daniel C. Smith
DCS Software Products

* * * * *

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★ ★ ★

BIGBAG is a bundle of software packaged together that should meet a little of everyone's needs. The software is geared for OS65D ClP or C4P mini floppy disks. The COPY7 program automates copying disks on a single disk machine copping up to 7 tracks on a flip with a 20K machine. BIGBAG contains a neat data management system that allows you to create data files and maintain them on disk without writing programs. This DMS runs comfortably in a 24K machine and includes simple sorting and reporting. If you need to transmit files over the telephone to another computer the trans program will do that with complete error checking and retransmission of data errors. Disk directory problems can be quickly fixed with the VTOC program which allows you to add entries or delete entries without touching the data in the file as create does. Accompanying VTOC is a menu program that lists in sorted order all files on disk either at boot time or any time you run menu. If you have been plagued with the excess baggage and inconvenience of having the file disk buffers in low memory here is your delight. Upper memory disk buffers put them out of your way where they belong. With spool D you don't have to have a lot of memory for indirect operations. You can do them within the 2K buffer of a disk file. Then you can input them to concatenate programs. Plus, you can do some really bizarre things like capturing dialogues on disk for later printing. For those who want to timeshare "TTY43" makes your computer act like a terminal to the timeshare computer. A patch in DOS loads and unloads the disk head after each IO which gives added disk protection when power fails, and it lets you in on the disk activity during those lulls, and for a little extra you can get a disk file word processor for your own personal needs which is easier to use than a typewriter. As the ad says it truly is a BIG BAG for the bucks.

Computer Power
Fallston, MD

★ ★ ★

HEXDOS is a new disk operating system for the ClP MF, written by Steven P. Hendrix.

Peek (65) does not have a ClP, therefore, this product could not be tested. For more information contact Steven P. Hendrix, 415 S. Pierce, Enid, OK 73701.

HEXDOS FEATURES

* Completely resident in only 2K of RAM; a copy resides on track zero of every disk.

* Uses named program and data files, with automatic file creation when necessary during program save; also allows named machine language files with automatic linking to BASIC. The number of open data files is limited only by memory available for buffers.

* Direct access to individual disk tracks when desired.

* Real-time clock, including the ability to set up a machine language program to be called at a specified time.

* Tracing and single-stepping of BASIC programs.

* Tone generator which can be called from BASIC specifying pitch and duration.

* Keyboard functions to suspend output to read it, repeat your last command with a single keystroke, and instant screen clear.

* Line editing on the current line or previously entered lines with cursor control.

* LIST#, INPUT#, and PRINT# allow IO to the keyboard, screen, cassette port (which may be connected to a printer or modem), and disk data or program files.

* Resides at the beginning of free RAM and automatically finds the end of useable RAM with a memory test.

* Includes an interactive disassembler and diskette formatter, and subroutines for random access disk files, written in BASIC.

* Allows chaining of BASIC programs (one program can call another from disk and run it).

* Runs on the Challenger 1P MF, or on either the Challenger 1P or Superboard II with disk expansion.

* Programs available for use with HEXDOS include games (REVERSI, SURROUND, BACKGAMMON, and FIFTEEN), a machine-language version of LIFE, a controller for the BSR home control system marketed by Radio Shack and Sears (uses software to generate ultrasonic signals to the control console).

★ ★ ★

AD$

65D Magic Boot: Adds renumber, full cursor editing, memory pack, screen clear and color background to BASIC. All routines are superfast machine code and handle All cases. These are not USR (x) routines, but extensions to BASIC itself. All you do is boot and these commands are ready to use--in immediate mode or in your programs. Also includes new BEXEC* and disk utilities. $50.00. UNIVERSAL SYSTEMS, 2020 West County Rd. B, MPIS., MN 55113.

65D Segs: Adds segmentation commands to BASIC. Allows segment calls (like GOSUB'S) to subroutines stored on disk. By nesting calls, LARGE programs may be written and will run in (24K) memory. (Requires Magic Boot) $25.00. UNIVERSAL SYSTEMS, 2020 West Country Rd. B, MPIS., MN 55113.

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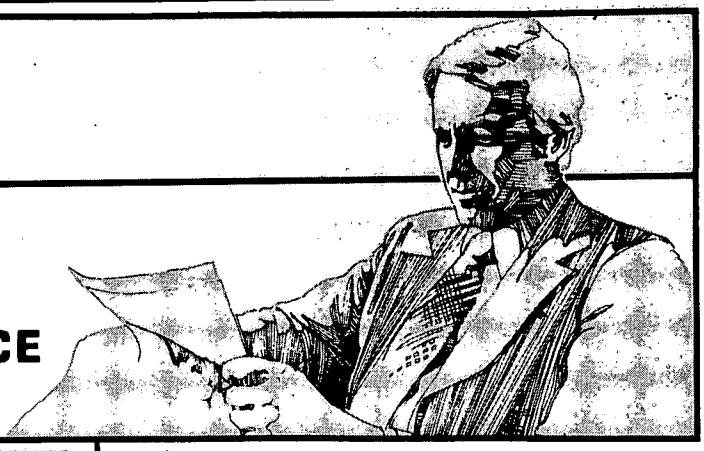

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