PEEK (65)

The Unofficial OSI Users Journal

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Column One

Publishing PEEK(65) is, among other things, a balancing act. This month we received letters asking for (1) more stuff on the C1P for beginners; and (2) less trivial beginner stuff which can be bought in any BASIC text as well as every issue of most other computer magazines, and more technically sophisticated stuff which is directly applicable to OSI equipment, since this sort of stuff cannot be found all over the newsstands.

Of course, I am proud of this month's mix. We have a couple of good technical articles and letters for C1Pers, as well as some stuff for the advanced business applications programmer. And everybody in between. Sure, it would be easier if OSI didn't make such a wide range of machines for people with such a wide range of interests, but that wouldn't be half as much fun, now would it?

Now that we are paying for published articles (the payment formula is complex -- $10 per PEEK(65) page unless the article is too short or too long to make this come out to a meaningful and noninflationary figure, plus or minus some for our evaluation of the article and the amount of work we have to do to it [that means articles sent to us on WP-2 disks with no typos, with well-drawn graphics, get more] plus or minus a little depending on our mood -- anyway, nobody gets much, everybody gets at least $5 -- anyway, this sentence is too long!), we are getting more and better technical material. If you would like to see your name in print, help your fellow computerists, establish yourself as the World's Foremost Authority on something or other and get a few bucks for your trouble, submit an article to PEEK(65). If you can't write, but can draw, submit a cartoon! All manuscripts will be returned if you enclose a stamped, self-addressed envelope for us to send it back in. Otherwise, they will pile up in my desk drawer until I figure out what to do with them.

THE FEDERATION STRIKES BACK

(At Software Problems)

Three of the largest distributors of OSI hardware, Cybertronics of Houston, Tek-Aids of Chicago and Tri- Comp of Denver, have announced the formation of the "Software Federation." The purpose of the Federation is to provide improved access to quality applications software with good documentation and support. They propose to do this, according to an exclusive PEEK(65) interview with president Jeff Beamsley, by a combination of methods, long used in the computer industry but mostly applied for the first time to microcomputers.

First, each software package considered by the Federation must be thoroughly tested and running.

Second, the Federation will work with the vendor to develop accurate, consistent documentation and a meaningful demonstration package. If the vendor is not willing or able to develop documentation and demonstration materials, the Federation will do this with its 4 full-time programmers, if the package warrants.

Third, each vendor enters into a contract with the Federation to support his software in specified ways. Documented bugs must be fixed within a specified time; enhancements requested by end users must be supplied or refused within a short time, and if the vendor is not willing to make the requested enhancements, the

Federation has the right to do so -- but will give the enhancements to the vendor after they are made.

Fourth, the Federation will do all the paperwork to actually copyright all programs, will vigorously prosecute all instances of copyright violation, and, for valuable packages, will actually supply a serial-numbered boot ROM for the computer in which the software is to run. Once this ROM is installed, the system will boot as normal, do everything normal machines will do, plus run the software package for which the ROM is coded. Without this ROM, the package will not boot or run.

Finally, the Federation plans to advertise extensively in BYTE and other national publications (including PEEK(65) of course) and thus make a valuable market for quality software packages.

Packages now available include two business packages, FORTH, a WP-2 -- DMS file integrator, an Amway Distributors' package, a six-disk PASCAL library and a manufacturer's control (inventory, etc.) package.

If the Software Federation is successful in backing its software as planned, it will become a major force in OSI software and a valuable addition to the community. PEEK(65) can make no recommendation, since as yet the Federation is little more than an idea, but we fully support the aims of the Federation and wish them the best.

RUMORS RUMORS RUMORS

FIRST, OSI has been said to have announced that a new BASIC-IN-ROM, on one chip, will soon be sold.

SECOND, OSI is said to be working on software for new 16-bit machines which will be sold in 6 months to 1 year. This is logical: OSI has been in the forefront of technological breakthroughs, with a list of firsts as long as your arm. 16-bit machines are coming; why not from OSI first?

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MODIFYING THE AARDVARK EDITOR
by C. Eugene Murray, Columbus OH

The Text Editor program as sold by Aardvark for my C2-4P (BASIC-in ROM) is a very useful machine-language routine which loads as a series of DATA statements preceded by some intructions and a POKE-into-memory routine. The program is short, but highly effective; it does the job for which it was intended (editing of lines being entered or already entered in BASIC) and can serve as the jumping-off point for other programs needing access to the line input buffer (string search editors, compressors, expanders, etc.).

Aardvark's machine code starts at $1EB0 and can be disassembled readily using the O.S.I. Extended Monitor. No assembly language source code listing is provided with the program.

Rather than re-invent the wheel with row-and-column scans, the keyboard input routine at $FD00 was used. This is a useful way of obtaining keyboard input without scrolling the screen. The program of Listing #1 lets you see what codes are generated by various key closures. $FD00 stores the imput at $0213 (531 dec.). You can use this program to find the decimal values for the various control commands used in the Text Editor. While you are about it, get the codes for all the various combinations of SHIFT UNLOCK, SHIFT LOCK, and CTRL with all the keys, for your notebook. YOU DO KEEP A NOTEBOOK, DON'T YOU?

Using this information, I was able to easily substitute RUBOUT for a CTRL < as the character delete key, by substituting a value of 127 for the only occurrence of 236 in the DATA statements. Alternately,

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I could have exeuted POKE 8005,127 in the immediate mode. In a similar vein, LINE FEED was substituted for CTRL > to feed blank spaces into a line (replace the first occurrence of 236 with a 10, or POKE 7963,10) and the ESC key was established in place of the (undocumented) CTRL E as the "escape clause" by substituting a 27 for the only occurrence of 5 in the DATA (or POKE 8065,27).

The DATA statements are very short and can easily be concatenate d if you delete line 220 before RUNning the program. It will

then NOT erase itself. They can very handily be concatenate d two-for-one, with some slight juggling if you like a space after the word DATA.

You might wish to delete lines 135-170 inclusive, and substitute the code of Listing #2.

When a space is fed into a line, text is shifted to the right one character at a time until another space is encountered. This space is "consumed" and the text is thereby compacted. This is sometimes helpful and sometimes irritating. I would like to use CTRL-LINE FEED for this mode, and have regular LINE FEED "consume" only the second consecutive space to the right of text. This is left as an exercise for the student. Please turn your homework in to PEEK(65) soon! Another valuable enhancement would be a line-swapping routine which would permit an underline, rather than an overlay, cursor. That should qualify for extra credit!

LISTING #1

```
10  POKE 11,0    :REM...LO BYTE OF $FD00
20  POKE 12,253  :REM...HI BYTE OF $FD00
30  X=USR(X)     :REM...GET KEYBOARD INPUT
40  Y=PEEK(531)  :REM...RETRIEVE VALUE
50  PRINT Y      :REM...DISPLAY ON SCREEN
60  GOTO 30      :REM...EXIT BY CTRL-C
```

LISTING #2

```
135  S1$ = "RUBOUT deletes. LINE FEED
     opens space."
140  S2$ = "CTRL-L, -R, -U, -D move "
145  S$ = S1$+S2$
150  X1 = 55231
155  FOR X=1 TO LEN(S$)
160  Q$ = MID$(S$,X,1)
165  POKE X1+X,ASC(Q$)
170  NEXT X
175  POKE X1+X,161
```

COLD START/SYSTEM CRASH RECOVERY
by Jim Williams, Calumet City IL

Most system crashes are caused by errant POKE statements. A very common problem is a POKE with an undefined variable as the address. Since undefined variables have

the value zero, this results in changing location $0000. Since warmstart, <ctrl>-C, and end of BASIC program, (either immediate mode or normal) all re-enter BASIC by jumping to location $0000, that POKE has crashed the system. Sometimes a loop may do several POKEs at the bottom of memory before hurting things enough to stop BASIC execution. In any event, the first thing to check if the keyboard is dead, is the contents of the first few locations of RAM. Using the monitor, verify that the first six locations contain exactly the following: ($)4C,74,A2,4C,C3,A8. These are the jumps into BASIC to restart and to the message printer that gives the familiar 'OK'. If they are wrong, often fixing them up will bring the system back up.

There are lots of other critical places in page zero the changing of which can bring the system to its knees. All of these are reset by our friend (yes, friend!) the coldstart routine. Unfortunately, coldstart also resets the pointers that let the system find your program. The two pointers that must be restored to their pre-coldstart values for the program to RUN again are $7B,7C (beginning of variable storage space) and $301,302 (pointer to second line of BASIC program). The best/easiest way to do this is to use the monitor to find their values and write them down before coldstarting. Then go to coldstart (<break>,C), and answer the MEMORY SIZE question explicitly with the size of your machine's memory (i.e., 4096 for a 4K machine). Hitting <return> here will make the system fill the memory with test bytes until it doesn't get them back

to find out memory size, thus completely and irrevocably destroying your program. (If you had been running with space reserved at the top of memory for something, enter the memory size you had before.) Then answer TERMINAL WIDTH as usual, and use the monitor to replace the values of $7B,7C and $301,302 with what you wrote down.

If your program was not damaged during the system crash, you should be back to normal operation. If part of your program was overwritten by whatever happened, (when the system goes away, it is still executing some kind of code somewhere in memory, and that random code might be telling it to write over your program with garbage) about the only thing you can do is to try to repair it. If a pointer in the program was damaged in certain ways, when you LIST you'll get repeated lines of garbage.

In that case, save the program to tape, coldstart again (NEWing may be enough) and reload what's left. If, however, only system stuff was hurt in the crash, your program should RUN as normal. If you hit <break>-C before you write the contents of those pointers, just hit <break> again and go into the monitor. The pointers haven't been reset yet. But even if you go through the whole coldstart procedure, and get the startup message, your program is still there. (Assuming, of course, that you didn't reply to MEMORY SIZE with <return>!)

Here's how to replace the pointers then: first, $301,302. All that is reset is the pointer to the second BASIC statement. The rest of the program is still there. Use the monitor to look through memory starting at $305. ($301 and $302 will have been reset to $0,$0.) Note the address of the first zero byte after $305. Add one to that address and put the new address, low byte first, into $301,302. (Example: starting at $305, you find that the first $00 is at location $30A. Then go and put $0B in location $301 and $03 in $302.) Your program will LIST now, though it won't RUN until $7B,7C are restored.

A 'trick' for resetting the $301,302 pointer was discovered by Dave Edson of Meridian, ID. After coldstarting (with MEMORY SIZE answered explicitly, of course), POKE 770,1. LISTing should produce the first line of your program, followed by a strangely numbered line probably containing only a two digit number, followed by repeated garbage. You'll have to hit and hold the <break> key to stop the LIST so you can read that strange line number. Warmstart, and type that line number, as if to delete it. Your program will probably LIST correctly now. Through a fortuitous series of unliklinesses, the delete routine will have fixed the $301,302 pointer. How it works is mysterious; when asked, Dave didn't know either. It obviously points the pointer of the first BASIC line to the bottom of page 1, where the ASCII representation of numbers to be printed are manufactured. When it gets there, the most recently printed number is the first line number of your program. A line number 10, or 20 or 30 etc. will produce a bogus line number of 12288, with 'contents' of 88. (The 88 is from manufacturing the line number there at the bottom of page !) Most variations of this scheme don't work, but this one seems pretty reliable.

To fix $7B,7C, first LIST the program. ($301,302 must be OK to do this, and the LIST must terminate normally, without repeated garbage.) Then immediately go into the monitor and look at the contents of locations $AA and $AB. After any LIST command (including LIST num) those locations contain the address of the pointer of the next line of BASIC after the last one LISTed. With a complete LIST, that is the double zero pointer that flags the end of a BASIC program. Variable workspace begins immediatlely after that. So add two (for the two zero bytes mentioned) to the address in $AA,AB, and put that new address in $7B,7C. (Example: after LIST, you find that $AA contains $4F and $AB contains $0E. Put a $51 into location $7B, and a $0E into $7C.) Your program should now RUN normally.

This information is from one of the Hints in the Hints and Kinks chapter of The First Book of OSI available from Aardvark. Coming next: how to edit a program, restart it, and have all your variables still be there!

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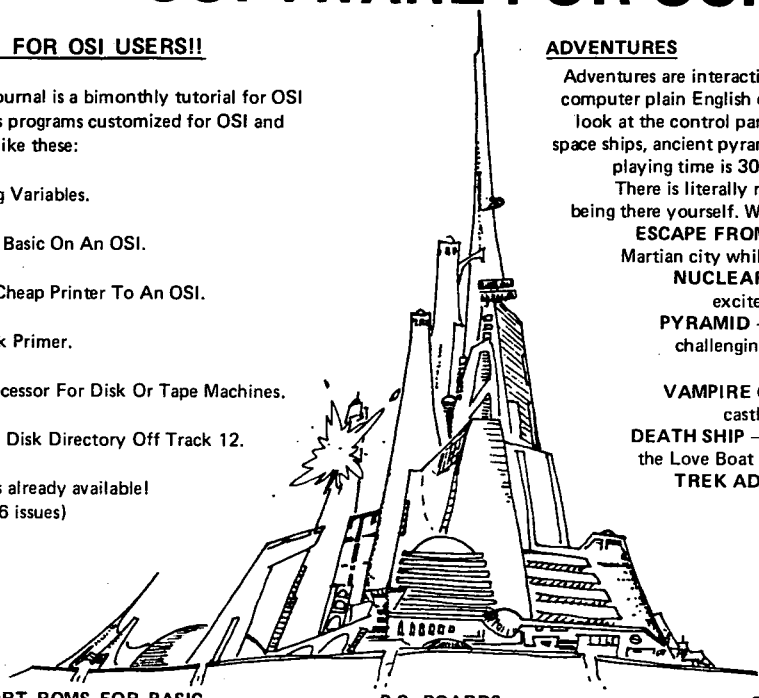

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C1P OR SUPERBOARD II GET ROUTINE

by Maurice P. Lewton, Santa Maria, CA

Enclosed is a OSI 1P or Superboard II Keyboard program that provides a "GET" routine. It is in BASIC, but pokes in a machine language program that takes only 256 bytes of memory.

It can be relocated anywhere in memory providing it starts on an even hex page such as 1F00, 8E00, 0700 etc. As written, it starts at 1F00 hex (7936 dec) to 1FFF, but can be relocated by changing line 10002 to reflect the new page start and line 10200, first Data item, to reflect the new hi byte of the new page the program will be relocated to. Also do not forget to change the USR pointer to reflect the new start address and to change top of memory to just below this program.

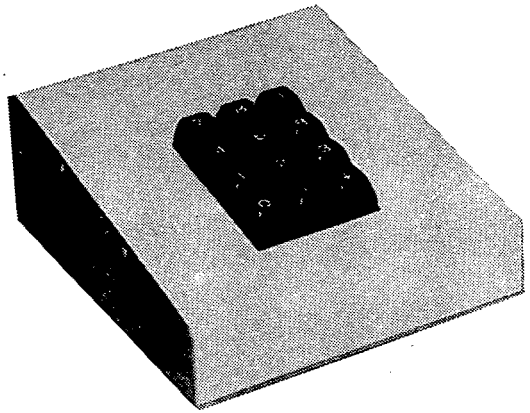
The keyboard table starts at line 10260 which represents the top row of keys read, right to left, as shown for the 600 board in the OSI Graphics Manual. The first 8 data lines from 10260 represent unshifted characters. The next 8 represent shifted.

Depressing shift then rub-out will clear the screen.

If you are short of memory, it can be loaded with the data statements, RUN then type in NEW and your program.

```
4 REM O.S.I. 1P or SUPERBOARD II
5 REM Typewriter Polled Keyboard
6 REM BY    M.P.LEWTON  WA6PHR
7 REM       1323 VIA DEL CARMEL
8 REM       SANTA MARIA
9 REM       CALIFORNIA 93455
10 REM SET TOP OF MEM TO
11 REM 7935 DEC (1EFF HEX)
12 POKE133,255:POKE134,30
19 REM POKES IN MACHINE LANGUAGE PROGRAM
20 GOSUB10000
48 REM SET USR POINTER TO
49 REM 7936 DEC (1F00 HEX)
50 POKE11,0:POKE12,31
51 REM MEMORY LOCATION FOR CHARACTER
52 REM DEPOSITED FROM KEYBOARD
53 C=531
55 X=USR(X):Y=PEEK(C)
65 PRINTCHR$(Y);
70 REM INSERT WHAT YOU WANT IT TO DO **?
80 GOTO 55
10000 REM PROGRAM INSERTION
10002 FORX=0TO255:READY:POKEX+7936,Y
10003 NEXT X
10004 RETURN
10100 DATA 216,162,8,169,0,133,34,169
10110 DATA 254,133,32,133,33,165,32,141
10120 DATA 0,223,160,8,173,0,223,197
10130 DATA 33,240,14,56,38,33,136,208
10140 DATA 246,169,254,56,38,32,202,208
10150 DATA 226,224,8,208,12,152,24,105
10160 DATA 250,144,6,169,64,133,34,208
10170 DATA 232,138,10,10,10,132,32,56
10180 DATA 229,32,201,63,240,31,24,101
10190 DATA 34,201,74,240,30,170,189,128
10200 DATA 31,240,7,133,35,205,20,2
10210 DATA 240,7,141,20,2,141,19,2
10220 DATA 96,169,0,240,2,165,35,141
10230 DATA 19,2,96,162,0,169,32,157
10240 DATA 0,208,157,0,209,157,0,210
10250 DATA 157,0,211,232,208,241,240,225
10260 DATA 0,55,54,53,52,49,50,49
10270 DATA 0,0,127,45,58,48,57,56
10280 DATA 0,0,0,13,10,111,108,46
10290 DATA 0,105,117,121,116,114,101,119
10300 DATA 0,107,106,104,103,102,100,115
10310 DATA 0,44,109,110,98,118,99,120
10320 DATA 0,112,59,47,32,122,97,113
10330 DATA 0,0,0,0,0,27,16,26
10340 DATA 0,39,38,37,36,35,34,33
10350 DATA 0,0,0,61,42,94,41,40
10360 DATA 0,0,0,8,64,79,76,62
10370 DATA 0,73,85,89,84,82,69,87
10380 DATA 0,75,74,72,71,70,68,83
10390 DATA 0,60,77,78,66,86,67,88
10400 DATA 0,80,43,63,32,90,65,81
10410 DATA 0,0,0,0,0,27,16,76
```

OSI



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LANGUAGES

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The gift of prophecy has somehow escaped me all these years. Heaven knows, I've tried. I remember the pronouncement I made just after the first computer was delivered to the big office where I worked, when I had learned just a little about computer language and logic.

"Great," I exulted. "At last we have a clear, unambiguous language, and an impersonal judge, the computer, to tell us whether we have stated something correctly."

"As greater numbers of us learn how to use computers, we'll learn more about avoiding ambiguity in our use of English."

As you may have guessed, I was not one of the people who attended that monster and its thousands of vacuum tubes, in its specially-air-conditioned room, with the humidity control and the raised floor and the rows of tape drives and the ten-foot console.

It's hard even now for me to understand that my Challenger III packs more sheer computer power, and has more memory, than that one did.

I couldn't touch The Computer, of course; I had an occasional chore to be done on it, but I had to turn the data over to the specialists, who ran it when they got around to it.

My job was to explain some complicated matters in a simple way; if possible, to make the explanation interesting enough to get people's attention; and finally, to connect the explanation to the listener's other interests so that he or she would remember it.

Lots of people have written books to tell you how to do this. One of my favorites was published by the Bureau of Mines in 1909 (that's no typo; it was 71 years ago.) It told geologists and other scientists how to write about their research. In that little book is this jewel: "Clarity is not infantile, nor is complex opacity profound."

When I made my prediction that computers would help to improve ordinary language, I knew very little about the languages that had been developed for computers; I had heard that they were logical and precise, knew that we needed more logic and precision in our reading and writing, and was confident that we would soon begin to transfer into our daily communication some of the logic and precision we would learn from using computers. When I heard about BASIC I was sure the time had come.

Well, I guess I forgot that mathematics is another logical language, that it's been with us a long time, and people don't seem to let it revolutionize their use of English.

English is younger than mathematics, of course, but quite a bit older than BASIC -- and there are unending arguments over what is "good" or "bad" English. Maybe it's too early to expect consensus on what a "good" BASIC program should look like.

So maybe I shouldn't be surprised at long, shapeless programs that challenge understanding and must be traced out laboriously from one end to the other before they can be updated or modified. But what about my prediction that familiarity with computer languages and computer logic -- and specifically the easy-to-understand BASIC -- would improve our use of English?

Could it be that instead of bringing improvements to our daily language, BASIC itself has been corrupted, in actual use, by bad habits that are part of our speech, our writing, our thinking?

Maybe so, but we prophets don't look back. We look to the future. And right now I'm pushing my original prophecy. The advantages of clarity and accuracy may not always be evident in ordinary speaking and writing, but they are immediately obvious in a computer program.

(Yeah, you know 'em when you get 'em, but how do you get 'em?)

Well, the first step is to want 'em. Many programmers, deep down in their hearts, don't. They believe, somehow, that there's no glory in writing a short program that anyone can understand; they really seem to aspire to write long, convoluted, abstruse programs.

These are the programmers who should try to find a copy of that fine little 1909 booklet from the Bureau of Mines and reflect on the timeless wisdom it contains.

"Clarity is not infantile, nor is complex opacity profound."

That's not about words. It's about attitudes, about motives.

Once we understand and believe it, maybe we really will be able to transfer some of that BASIC clarity to our English.

I reaffirm my prophecy, threadbare though it may be, and look forward in confidence that it will be fulfilled.

MORE ON OS-65U PASSWORD FILE PROTECTION

By J.R.Criscione Jr.,M.D.
Leasing Systems, Inc.
635 Gaslite Ln.,
St. Louis, Mo. 63122
(314)-966-4759

I must say that I found the letter from Mr. Martn regarding changing passwords with the CHANGE utility (Vol. I, No. 7) most interesting. As I am sure everyone realizes, the OSI password system is poor at best. Even if the passwords were not available to view on the disk by using some of the display opportunities in the various utilities, a four character password is just not sufficent. As a provider of turnkey software systems, we have developed a few methods for providing security to our programs and data. If one is obtaining the system and providing programs for the end user, one can effectivly lock the system so that only the programs which the user should have access to may be run. If on the other hand, the user is obtaining the system for themselves, it is impossible to keep their hands off the manuals and various utilities provided by OSI.

One rudimentary method of locking a user out of the system if they do not have access to a system copy of their own is to simply disable the various control characters which interupt program flow and to provide for system error recovery, then by disabling the LIST command or ending each program with NEW, the user is prevented from viewing the source code. Obviously, if the user has their own system this is not workable due to the ease of CHANGEing the password, or if the password is known, booting up the new system and then LOADing the program in question from either the other drive or switching diskettes.

Finally, although Mr. Martin has a good idea in CHANGEing the password to view protected programs, I would like to suggest that the following might prove useful to some of your readers. This is a method we have been using for a number of years and it is really quite simple. We have incorporated it into the OSI DIR program with some additional formatting items so that the password will print out on the same line as the regular DIR listing. Please note that the password displayed is probably not the one with which the file was created, but this is really irrelevant as it will work when used as a password for the file in question. The line numbers should correspond to the line numbers in the DIR program as distributed by OSI. Please note that this will only work under OSI 65U Level I, Version 1.1. The reason for this is that under Version 1.2 the DIR program does not solely use the machine language access routines and hence if the password for the directory is not known the program will bomb. In any event, here is the program.

```
625 REM (C) 1980
    J.R.Criscione Jr.,M.D.
641 XX=PEEK(RT+6):XY=XX-(INT(XX/16)*16):
    XX=INT(XX/16)
642 YY=PEEK(RT+7):YX=YY-(INT(YY/16)*16):
    YY=INT(YY/16)
643 IF XX=15 THEN XX=90:GOTO 645
644 XX=XX+65
645 IF XY=15 THEN XY=65:GOTO 647
646 XY=XY+78
647 IF YY=15 THEN YY=90:GOTO 649
648 YY=YY+65
649 IF YX=15 THEN YX=65:GOTO 651
650 YX=YX+78
651 PRINTCHR$(XX);CHR$(XY);
  CHR$(YY);CHR$(YX)
```

GOODIES for OSI Users!

[ ] C1P Sams Photo-Facts Manual. Complete schematics, scope waveforms and board photos. All you need to be a C1P or SII Wizard, just $7.95 $_____

[ ] C4P Sams Photo-Facts Manual. Includes pinouts, photos, schematics for the 502, 505, 527, 540 and 542 boards. A bargain at $15.95 $_____

[ ] OSI's Small Systems Journals. The complete set, July 1977 through April 1978, bound and reproduced by PEEK(65). Full set only $10.00 $_____

[ ] RESEQ 5.2 -- BASIC program resequencer plus much more. Global changes, tables of bad references, GOSUBs & GOTOs, variables by line number, resequences parts of programs or entire programs, handles line 50000 trap. Best debug tool I've seen. MACHINE LANGUAGE -- VERY FAST! Requires 65U. Manual & samples only, $5. Everything for $50.00 $_____

[ ] KYUTIL -- The ultimate OS-DMS key file utility package. Creates, loads and sorts multiple-field, conditionally loaded key files, sorting at over 200 entries per second! Never sort another master. $100.00 $_____

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LETTERS

ED:

A new User's group has formed for OSI people in the Michigan area. It is OSI-Michigan User's Group (OSI-MUG), 3247 Lakewood Ave., Ann Arbor, MI 48013.

Now to my main issue. I publish a quarterly journal, CRYPTOLOGIA. I purchased an OSI C3-S1 system last November with an NEC Spinwriter (which my OSI dealer did not know how to hook up and in fact did not hook up for me; it turns out that he did not even know that I would need the CA-10X interface board!!!), and I also purchased, separately, a Data-Media terminal. I have been in a hassle ever since, either with OSI or with MicroPro about WordStar on the OSI. I am very interested in your situation with regard to the C3, the Spinwriter and WordStar. From your few comments on this it seems that you have got hold of what to do to get the system to work.

My question is this. Can you give me a step by step algorithm to use so that I can set my system to drive WordStar (and my CP/M in general) and print on the Spinwriter using all the features of both, including proportional spacing? I saw your subroutine in the January 1980 issue from Lifeboat. At the present time I am without the computer as my newly found knowledgeable dealer, Larry Rakozy, Computer Connection, Farmington, MI is attending to a faulty drive which I never realized was faulty. And he also found out a way to get CP/M to make the NEC print under CP/M's Microsoft BASIC offered for the C3. Yes, the C3 under CP/M would not cause the printer to print. I guess that it was one of OSI's little jokes on its public. They thought that we should all be happy that it printed under 65U and it might be too much to expect it to print under CP/M!!! But I have to do the POKE routine 1 (below) each time I run BASIC or OBASIC. This does work. We tried it in the Dealer's place. I have not had a chance to see if when I bring up WordStar under the new CP/M as modified by 2. (below) whether it will cause the printer to print under CP/M and WordStar. In any case it is ridiculous to have to boot BASIC, POKE twice and then load WordStar, cross one's fingers and try to print. There must be an easier way. Please share it with me for you have obviously licked it. I need it as soon as you can for I have had to produce several issues of our journal on the old typewriter scheme even though I have all these goodies because the damn printer would not work, and still may not work right when I get it all together when the C3 returns.

Have you been able to take advantage of the special Math Tech thimble under WordStar? How do you send a symbol to the printer (NEC) under WordStar to print a general ASCII Character to make the thimble under its Roman Times Math Tech thimble print that character? Please let me know if you have figured that out.

Brian J. Winkel
Albion, MI

1. To get CP/M to print in OBASIC
   a. Bring up OSBASIC
   b. POKE 52992,3 (52992 is CF00)
   c. POKE 52992,17

2. To get OSI CP/M ready to print by changing SYSGEN type the following where CR is carriage return.

```
SYSGEN CR
?SOURCE CR
DESTINATION CR
SAVE 48 CPM48.COM CR (Opens space in RAM)
DDT CPM48.COM CR
S 1E90 CR
47 CR (Put 47 in location 1E90)
. CR
CTL C
SAVE 48 CPM48.COM CR
DESTINATION? A CR
CR
CTL C
```

Information given by Larry Rakozy, Computer Connection c. 27 June 1980.

Brian:

Actually, you are ahead of us. We wanted to shift over to WordStar soon (but may change our mind after your letter!), but we are using OS-WP-2 on our C3 for PEEK(65). We may change to WP-6502

instead after what you have said--it is very easy to use and Dwo Quong Fok Lok Sow is very cooperative--but it does not do proportional spacing or right justification. Read your NEC manual to figure out how to send control characters to the NEC to print the "extra" characters on the thimble. I think it is a PRINT#8,CHR$(14) or CHR$(15), but I'm sure the manual says. Who else knows? And who out there knows if WordStar, OS-CP/M and the NEC will work together well? Will the parallel NEC supplied by OSI work better than the serial NEC Prof. Winkel has?

AL

ED:

In response to Ed Carlson's query about location $FFE2:

This location is a reference to the print routine in Basic, so that the same routine can drive the Superboard's 24 x 24 display, or the C2/C4's display of 64 x 32, specifically, it uses the data in this location to branch to two different routines which store the contents of the accumulator at D3XX or D7XX (XX= the character counter, location $0200).

By the way, location $FFE1 contains the maximum character length for one reference (for the Superboard, this location contains 17 hex, 23 decimal). Also, location $FFE0 contains the initial value of the character counter (65 hex, 101 dec), which is copied into location 0200 after break is pressed.

For those ambitious people who would like to improve their SBII displays, these locations are the important parameters.

Unfortunately, this requires burning-in another 2716 EPROM, and copying all of the monitor's data, except for these 3 locations. Obviously, if these parameters are changed, especially locations $FFE0 and $FFE2, another 1k of video memory is required.

If you have a decent wide-bandwidth monitor, and you want to be able to use all 32 character locations, just change $FFE1 to 20 hex (32 dec).

I'm currently working on an 80 x 24 display for the Superboard II including subroutines for a <u>real</u> backspace and an improved polled-keyboard routine that includes the ability to immediately poke graphics characters on the screen. Perhaps I will submit this to your readers when I have finished.

Mike Stevens
New York, N.Y.

Mike:

Please do submit it!
AL

ED:

This fix will allow you to drive the UART on a 430 board or a D&N serial board as port #5 instead of #3.

The fix will, however disallow the use of the parallel port which is normally designated as port #5.

I feel that the D&N Microproducts serial interface is a superior product to the OSI CA-101, because the handshake line allows you to transmit to the printer at 9600 baud without over-running the printer. On a printer with support for this feature (eg TI-810, NEC Spinwriter) you can transmit your print line in 1/10 second, freeing the processor for other tasks while the printer is emptying its buffer.

D&N Micro Products address:
Fort Wayne, Indiana 46815

Put the following statement at the end of your "BEXEC*" to initialize the UART:

```
L=15*4096+11*256+6:PEEK(L):POKE L-1,255
```

The above is equivalent to the following machine code:

```
LDA  $FB06
LDA  #$FF
STA  $FB05
```

```
RUN"CHANGE","PASS"

DISK CHANGE UTILITY
```

```
MODE: HEX(H), DEC(D) ? H
UNIT ? A
ADDRESS OFFSET ? C00
ADDRESS ? 3E02
00003E02    A9 ? AD
00003E03    00 ? 05
00003E04    8D ? FB
00003E05    B7 ? 10
00003E06 8  38 ? FB
00003E07    AD ? AD
00003E08    00 ? B6
00003E09    F4 ? 38
00003E0A J  4A ? 8D
00003E0B    90 ? 8D
00003E0C    0C ? FB
00003E0D    A9 ? 60
00003E0E    0C ? X


OK
REM  THEN RE-BOOT, YOUR 430 OR D&N
     SERIAL BOARD


CAN NOW BE ACCESSED AS PORT #5...
```

Kurt Gritter
Milwaukee, WI

ED:

Tom Westhoff in #6 asked about a CREATE that would be able to use previously deleted files. I am at this time finishing a routine for a new CREATE, DELETE and FILEU (file update). This routine will enable a dual disk user to automatically rearrange their disk for a more compact use of disk space by finding empty file space and alerting the user, at which time FILEU can be run for file manipulation. I hope that this will fill a need that I have felt, and I'm sure others have, in the job of good housekeeping.

David T. Sigafoos
Portland, OR

David:

Please let us have a look at your new programs when they are ready. They sound very interesting!

AL

ED:

As an Ohio Scientific Dealer, let me tell you that we REALLY appreciate your work with PEEK(65). We would also like to endorse one of your advertiser's products, namely SOFTWARE CONSULTANTS OS 65D V3.2 Disassembly Manual. It is truly worth its weight in gold for the 65D user. Hopefully, someone will come out with a similar product for 65U. One thing that really gripes me about the layout of PEEK(65) is the extra white space on the outside of each page. If the extra space was at the binding, we wouldn't have to punch binding holes in the right margin and file the book backwards in our permanent file.

Bill Brachhold
Gainesville, FL

Bill:

We plan to change the format of PEEK(65) by January to facilitate binder filing.

AL

All About
OSI
BASIC-IN-ROM

PEEK(65): "goes far enough to hold the interest of advanced programmers..."

Aardvark Journal: "It is the book you were hoping was packed with your computer at the factory."

All statements and commands. Loops. Arrays. Bugs. Tapes: BASIC, Autoload and homemade. USR(X). Floating point. Variable tables. Binary structure of source code. Maps of pages $00,01,02,FE,FF. Location of routines in $A000 to $BFFF.

PEEK(65): "...intend to re-read this book periodically for a while, and ... will learn a new trick or two each time..."
From your dealer or send check to me: $8.95 postpaid.
Edward H. Carlson
3872 Raleigh Dr.
Okemos MI 48864

ED:

1. How do you transfer tape programs to disk more-or-less directly. That is, by loading in the tape program and then dumping it to disk. Or is this possible? (I have a C1P-MF with two drives.)

2. Regardless of the amount of memory in my machine - 8K or 32K (which I normally use) - the case of the 1P just above the power supplies gets very hot. At one time I had a 4P (8K) which behaved the same way. In fact, the transformers (which are bolted to the underside of the top of the case in both computers) get so damn hot that you can barely touch them. Yet so far I've had no crashes. Have others found this to be so? Actually, with my 1P, I put a fan on top of the case where the transformers are bolted. This keeps the case cooler than it was without the fan. Do I really need the fan? If anyone decides he'd like a fan there, this can be accomplished quite neatly by mounting a female Jones plug in one of the open holes near the power switch. Use a two-prong chassis mount female and parallel the wires from the other fan, which will be there if you have the floppy board. If you don't have the "regular" chassis fan, it's a good idea to mount one--using a Sprite whisper fan--not that wind tunnel version that OSI supplies. Anyway, for the external fan, use a "standard" sized whisper fan, mounting a Jones 2-prong male on the power cord. Plug this into the chassis-mounted female and the fan will turn on when you turn the machine on. (I point mine so that the hot air from the top of the chassis is exhausted upward.)

3. What besides the graphics ROM is involved in the size and number of alphanumeric characters in the 1P? Isn't there some relatively simple, straight forward way of setting the 1P up to put out a display like the 4P? (By "number" above, I mean, of course, number of characters per line.) There are a couple of kits on the market to produce a 32 character line (with a 64 character option), but the one I bought --and don't plan to install--is really a mess. There's got to be a better way!

4. When are the "good old folks" at OSI going to take a course in how to win friends and influence people?

Now just to prove that I can do something besides complain and ask questions, here are some tid-bits that may be of interest:

1. If you have a 1P-MF with an RS-232 mod and OS 65D and WP6502 word processor (highly recommended!) and a BASE-2 printer (lots of features for the money) and you want to get your text out to the printer, here's what you have to do. (You know, of course, that 65D has no LP driver, which means that Device 4 is non-existent so far as 65D is concerned.) When WP6502 asks whether you want to change codes, you say Y, but all you need to change as the options come up on the screen, is the output device, which should be set to 1, the serial port. Then, prior to typing your text, you must type in the following command sequence, which won't be printed out, but which will get the printer up and running:

#C27#C66#C27#C68#C27#C55

Then, in the body of your text, you must type a Line Feed command at every point in the text where you want a new line. The Carriage Return in WP6502 is NOT used for this purpose. The command list above is concerned with alerting the printer to the CR/LF sequence necessary to print the text properly. If you are not using the word processor, but want to write BASIC programs from the disk out to the printer, you have to write a "pre-program" using the CHR$ function and the same codes (e.g.,PRINT CHR$(27);CHR$(66),etc.)

I must say that I think this is all a bit of a pain. My Heath system does it better! But that's another story!

PEEK (65)ers may be interested in knowing about Technical Products Company's FORTH package, available on cassette or disk. I have the disk version, with which I am very pleased. FORTH is a very clever programming language of the "threaded" type--very different from BASIC. (What a pleasure to get away from those endless POKES!) In certain respects, it's similar to assembly language, but it's used in its own unique way. If you're an imaginative

programmer, this is an extremely powerful and flexible language. For a complete language, the price can't be beaten: $34.95, cassette or disk.
I hope you will start a 1P-MF column. This particular package (including 65D) actually has a lot of potential--although very little information seems to be available. Since I do my "heavy" computing with my Heath system, I haven't had much time to spend on the OSI (which I keep in my office at the college where I teach), but I (and, I suppose, a lot of others) would be very interested in what the hot and heavy 1P-MF people are doing. This in turn will doubtlessly prompt people like me into doing more. I am using the OSI system in a course I'm teaching.

Hope all of this hasn't put you to sleep! Keep up the good work!

Henry F. Beechhold
W. Trenton, N.J.

ED:

I have a C8P-DF with 48K. What can be done about the keyboard scan routine in ROM so that it works properly in the non-shift lock mode? Mine gives different results for right shifts than for left shifts; some keys give proper lower case, others don't. When using OS-65U VI.2 the cursor on the monitor does not backspace; the character is deleted but the cursor moves to the right. You don't know where you are in the line. When running WP-2, 90% of the attempts to print on the spinwriter result in the message "WP PRINTER NOT READY". Repeating the command several times eventually brings proper results. Any hints? Thank you.

Tim Boege
Cedar Falls, Iowa

ED:

I do disagree with your policy of not publishing full addresses of your correspondents. I have found writing letters to other users a very interesting part of the computing hobby.

The OSI bus connectors which everyone has such a hard tme finding can be purchased for $4.95 for a set of 4 pairs from

Technical Products
Box 12983 University Station
Gainsville, Florida 32604

E. Morris
Midland, Michigan

ED:

In response to your reply in Issue No. 8 to my letter, please be advised that the change to CREATE does NOT require a larger directory file. If you will notice the directory says that 64 Files are possible. The first 32 are on track 08, sector 1 and from line 560 the pgm. goes to a subroutine at 20000 where the directory is checked for free entries before entering a new FILE. If none is found the SR is terminated with FL=0. Then on line 570 the test for FL=1 fails and line 580 sets the remaining 32 FILES on track 08, sector 2 and the program should have gone to subroutine 20000 not 10000.

Tried your suggestion for paging to Port #3, no good. On my system, a C2-8S SF, the only thing accomplished by the poke to 11686 was to change the output distribution flag. By the way, the OS-65U is Version 1.1.

Robert H. Foltz
Bronx, N.Y.

ED:

In recognition of our work with the deaf, we have received a donation of an OSI Superboard II (8K). Since then, we have made headway in getting the deaf to interact and expressing themselves with the hearing in a most wonderful way.

Any help you can render in helping us get more out of this machine by way of game tapes, hard copies or magazines in this community project is appreciated by one and all.

Henry Kong
Church of Christ
Ghim Moh P.O.Box 1113
Singapore 9127

A VISIT WITH A CONSULTANT

There are a number of independent dealers, consultants and programmers whose efforts make it much more enjoyable to own an OSI computer. From time to time, we will be talking about these people in PEEK(65). This month, we will let you know some of what we know about Software Consultants of Memphis, Tennessee.

SC offers several products, primarily for the disk - system programmer. Of course, they have printed a complete, annotated source listing for OS-65D which will be very useful for anyone doing machine - language programming under D, as well as those of us who work primarily with OS-65U, since many of the locations and routines are the same. The listing is complete and accurate, and well worth the price.

Less well known is that SC has written OSBU, the software which drives the Alloy Engineering tape drive unit used for tape backup of large hard-disk systems. This package has also been well received in the community, since it gives us the ability to back up large hard - disk systems much more quickly and easily than the alternative of rolling off multiple megabytes 250K at a time onto floppies!

Finally, Software Consultants distributes a "Terminal Extensions Package" through dealers and PEEK(65). This package is designed for the OS-65U BASIC programmer, and provides him with some of the capabilities our brothers working on minis and mainframes have.

To use the package, you replace the BEXEC* (the program which runs when you boot up) on your 65U disk with the BEXEC* which your dealer sends you. Then, each time your system is booted up, it pauses for about 10 seconds while several machine - language routines are POKEd into the system. Afterwards, the system acts like normal when programs are run, either asking the question "FUNCTION" or proceeding to run your menu program, or whatever. But programming is different, and execution of programs may change:

First of all, a number of POKEs which many of us make individually in all our programs are made, invoking some of the convenience features of OS-65U. They are nice to have all in one place, but hardly worth buying a new system for.

Second, cursor positioning is invoked. That is to say, when the programmer types PRINT@(3,10)"TEST", the word TEST appears in column 10 of row 3 on the terminal. This is used to position the cursor immediately to any spot on the terminal screen, in order, for instance, to "paint" a sample of a form onto the screen, so that a data entry program can input data in a form which will be easy and familiar for typists.

Also, a number of mnemonics have been added. Instead of remembering that a CHR$(12) is a clear, home, which clears the screen and sends the cursor to the upper left (home) position, the programmer can type 'CH'; 'BL' rings the bell; there are a number of others.

Perhaps the most intriguing feature of the terminal extensions package is its number formatting. Simply declare a couple of variables to tell the program how you would like numbers formatted, then input a number as a string, and GOSUB to a routine provided to be added to any program, and you instantly get the number back with the desired number of decimal points, with leading asterisks if you wish, and with as many leading spaces or zeros as you want. Print the strings one under the other, and you have a column of figures with the same decimal positin and number of spaces. Like a "PRINT USING" only better, since there are a half dozen options.

The only disadvantage of the package is that it uses the same locations in RAM as the OS-65U Editor, so they can't both be used. Of course, you can type in programs with the extensions package, then edit them as needed with the editor enabled, then run them with the extensions package.

If your local dealer sells the extensions package, try it out and start programming like the mini-users do. If not, send $50 to PEEK(65) and we will send you the disk and documentation (end users only).

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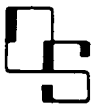

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