PEEK (65)

The Unofficial OSI Users Journal

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#4

Column One

We are OSI fans. We sell OSI computers and publish this little newsletter for other OSI fans. However, as the loyal consuming public, we feel it our duty to make negative as well as positive comments. Herewith a couple of negatives:

We just installed a computer with a brand new Payroll program from OSI, dated March 1980. It calculates 1979 Federal taxes. We can and will change it, but why?

All DMS modules come set for a device #5 line printer. We have spent 3 days defeating this so a client can use a Centronics 704 in his level 3 time-sharing system.

It is very hard to find a space anywhere in 65U where we can POKE some information we need to save. We use 21, the null count, but this slows printing. Are there any holes? Where?

The above problems, and our move to our nice new larger offices have delayed this issue of PEEK(65) a couple of days. Sorry!!

THY NEIGHBOR'S COMPUTER
by Wallace Kendall

In the beginning thy neghbor had no computer. And then one day he and his family looked upon thine.

The children of thy neighbor did battle upon the screen with the wicked Klingons.

The wife of thy neighbor admired, upon the selfsame screen, her biorythms.

And thy neighbor himself saw thy computer complete in three minutes a business calculation that would have taken him an hour -- yea! more than an hour.

Wherupon thy neighbor said in a loud voice, "I want one, How much do they cost? Do they break down? How hard is it to learn to program? Do you get full information along with it? Are there plenty of programs available?"

Thy neighbor is clearly one smart cookie. His questions are both good news and bad news.

The good news first:

If your neighbor gets equipment like yours you can help each other in many ways. When one of you has a software problem the other may have the answer. When one of you has a hardware problem you can correct it as the experts do -- exchanging components until it works and then change the last item exchanged.

If one of you has a rush job and his equipment dies he can either borrow a piece of equipment or take his cassettes or disks under his arm and go borrow an entire system to get the rush job out.

Now for the bad news:

You can fracture a friendship with an answer that is hesitant, guarded, uncertain, glib or overenthusiastic. Your problem is not only to explain some fairly complicated facts; in doing so you must firmly establish in his consciousness that you gave him a realistic picture of the world he wants to move into.

Practice these kinds of replies:

"Yes, anything breaks down sooner or later, but once a computer gets past the 'Infant Mortality' period -- ther first one or two months -- breakdowns are usually rare."

"Well, learning to program a computer is not unplesant. It's a lot of fun, and there are a lot of things you can learn easily and quickly. So can your kids. But if you really want to dog into it, you could earn a couple of Ph. D.'s and still have a lot more to learn."

"Yes, you get a lot of information with it, but you'll want a lot more."

"No, I don't htink it'll interfere with the kid's homework. In fact, I think it'll help them with it."

"There isn't any answer to that question. It's like asking, 'How much does a camera cost?' Are you going to take a snapshot of your wife standing in front of the house? Or a full-page ad for a national magazine? Or a major motion picture in full color? Or a picture of the earth from an orbiting satellite?"

"No, don't decide yet. Think about what you want to do with the system, now and later, and how much you want to learn about hardware and software."

There are more questions -- many more. If you can answer half of them you are a pillar of wisdom. Otherwise, both you and you neighbor need to join forces with others of us who are trying to open the window a bit wider: Peek(65), a newsletter which will concentrate on OSI information, and OSIO, a non - profit, national organization which will include a newsletter, member discounts, program exchange and educational services.

Tech Notes

by Dick McGuire

The handling of large mailing lists by a micro-computer is often a problem primarily because of the slow sort speeds of micros. Even machine language sorts such as Jim Sander's Sort-Merge or BPS's BPSORT run very slowly due to the slow disk access speed (slow compared to mainframe speeds). Another problem -- not limited to micros -- is prevention of duplicate records.

The answer to slow sort speeds is.....don't sort. Design, instead, a system that doesn't require sorting. This can be done is several ways. One of the most elegant I have heard about is to use a very large file and create a "hash code" from the name, zip and street address to convert into a disk address. This is great because it solves both the sorting problem and the duplicate problem. Obviously, a duplicate record will result in a duplicate record address. There is, however, a problem with this method. The file must be ten to twenty times larger that would otherwise be necessary. This would place the system cost above what many users would be willing to pay.

Fortunately there is a compromise available. The system can be designed to use "linked lists." In this scheme, each record contains the disk address of the next record. Often these systems are implemented with links in both directions.

One may very well ask, "What do you need back links for?" The back link is needed to maintain the list. When a new name is added, the physical record is stored on the disk in a location determined from a table of available record locations, and its forward and backward links are adjusted to place it in the correct sequence. However, this correct place is usually in the middle of something and the links of those records must be adjusted to include the new record.

Even this method of doing things has its drawbacks. In order to find the correct place to logically insert the new record, some sort of search must be taken. Either you start and one end or the other and check record by record until you find the proper place to insert the new record or you do something else. One possiblity might be to pick records at random until you found one close to where you wanted to insert the new one's pointers and then go record by record in either direction until you found the right place. Might be kinda slow, huh?

I was faced with having to implement a system for about 25,000 names. I chose to combine linked lists with OS-DMS Keyfile archeitecture, and I came up with a system which I think combines some of the best features of all of these ideas.

After the Master File was created, I created and loaded a keyfile. I sorted that keyfile once. I first linked all records with a like ZIP code. Since the customer is a local magazine, there aren't too many ZIPs. I then removed from the Keyfile all but the first reference to a specific ZIP. Now when a record is added, it becomes the record pointed to by the Keyfile and it points to the record which the Keyfile used to point to.

When a record is deleted the program caused the two records which the deleted record had linked with to point to each other.

This has the advantage of small file size when compared to a direct access file and relatively short editing time when compared to a fully linked list. Of course the condensed Keyfile must be sorted before printing, but because it is much smaller than a full Keyfile sort times are very acceptable.

Two or three times a year the file should be printed to a scratch file in ZIP code order eliminating inactive records and performing other maintenance. This will have the advantage reducing print times considerably since several records will be read with a single disk access. Of course all the links will have to be redone, but since the file will be in sequential order it will go very easily.

Duplicate record detection is another matter. One way is to hash the record to generate a code. I recommend the ZIP code, the first four consonants of the last name, three numbers of the street address and the initial of the first name be used. These codes are then stored in a scratch file as new records are added to the file. At the end of the day each is checked against the file and suspected duplicates are printed so that they can be checked against each other. This is a slow process, but in a given day there will not be many.

On another subject entirely, Allen Cohen, 473 Jefferson Blvd., Staten Is., NY. 10312 has a problem maybe some of you can help with. He has a C2-8P for which he has purchased Shugart type 800/801 drives. He has everything working, but he does not know how to option the drives. Shugart says OSI does it and OSI says Shugart does it. If any of you have a machine with Shugart 8" drives, drop Allen a line or call him and tell him how your drives are configured.

LETTERS

ED: you seek letters, comments, requests etc. So here's a bagful!

While I've acquired some knowledge in Basic through reading, I'd welcome articles on the more subtle OSI Basic. In particular, right now, I'd like to discover some way of "calling up" any single point of the 256X 256 video capability, instead of the limited potential of POKE X,46 or whatever. That way one could develop really "smooth" graphics and games, without the jerkiness of the 8x8 matrix jumps. Also, function graphing could be much more refined.

I have and IBM Selectric (I'm a writer). Would like to interface in to my C-1P. With a good editorial/word processing program I would hope to be able to correct, edit my manuscripts on the video display, then hit 'run' or whatever, and have my Selectric type out perfect manuscript copy. Is that possible? If so, can someone help me along in that direction?

Star Trek (SCG-946) seems about the most intelligent game I've run into so far (but it comes without directions. Took me about 3 hours to figure it out. (At least 6 games before I actually came out on top.) Can you or your readers recommend other 'intelligent' games and/or things with more subtle graphics? My kids say that things I've put together are superior to Space War (SCG-942) Tiger Tank (SCG-950) etc.

Being into 'ham' radio (WB6CKN) I'd like to use my computer for code practice, RTTY, Slow scan TV, a host of other hammy things. Any (detailed) plans available for us C-1P owners in that direction?
Best wishes!

John F. Leahy
Gonzales, CA

ED:

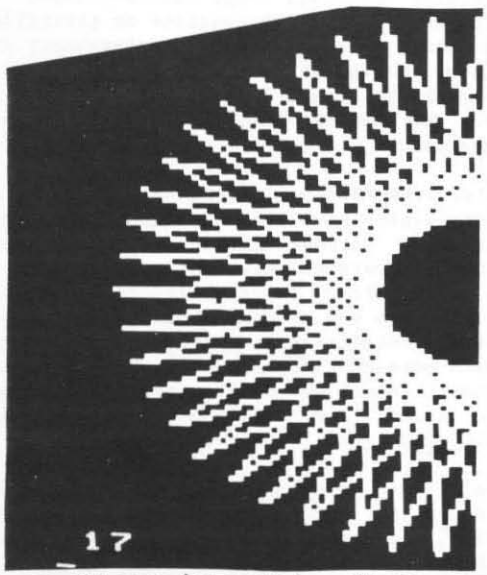
I have created a custom character generator chip using a 2716 EPROM. This EPROM has the identical pin-out as OSI's ROM except that the signals to pins 18 and 20 must be inverted. In fact the 540 board provides a jumper to do this. The price of 2716's has now dropped to $29.00 (For example-AB Computers). It is very easy to program. All you need is a 25 volt supply. Enclosed is a photograph of what can be accomplished with pixel control on the 440 board.

The 440 video board has now been discontinued. OSI recommends the 540 board with the character generator chip.

Instead, I have increased the dot density to 128 by 156. I now am able to display amateur radio slow-scan television pictures with my 440 video board.

Write to me if you are interested.

Earl Morris
3200 Washington
Midland, Michigan 48640



We are all very interested. Please send more details, perhaps in the form of a story we can publish!

ED:

As my subscription to "6502 Users Notes" ran out, that publication was incorporated into "Compute" magazine. So, I received one copy. Two articles therein told of the problems occuring between Commodore Business Machines (mfgr. of PET) and PET owners and dealers.

The stories sound not unlike some tales of OSI and OSI owners and dealers. So it would seem that the personal computer industry may be prone to such problems at this point in time.

My theory in this regard is: those who start personal computer manufacturing have 1) quite a bit of money, 2) substantial technical know-how, BUT 3) little business savvy or customer regard or dealer interest. It really is too bad that people with abilities to create such useful hardware don't have the common sense to plan ahead. Their chief concern should be the people (both customers and dealers) from whom come the profits. Let us teach our children that it is people - not things - that really are the source of happiness. Without Mike & Charity Cheiky, there would BE no OSI...no superboard II's...no C2's...no C3's etc. Likewise without dealers and customers Mike and Charity would still be just dreamimg of owning a computer factory.

Bruce Showalter
Abilene, TX

ED:

After a week of thinking my C4P was shipped with screwed up color graphics. I learned from a fellow at American Data that you must also clear the RAM for color.

```
10 POKE 56832,5
20 FOR X= 53248 TO 55295
30 POKE X,161
40 POKE X+4096,15
50 REM you can use any color you like.  I
like the inverted black.
60 NEXT X
```

George Fike
Severna Park, MD

ED:

We recently bought a C8PDF with 48K and OS-65U.

I am very impressed with the amount of information contained in the two issues I just received of your journal and would like to offer a couple of suggestions and ask for your assistance.

1. The following set of pokes make a very useful change in keyboard operation. Namely, (a) CONT H becomes the character erase key (b) RUBOUT becomes the line erase key (c) the underline and @ characters are now usable in programs (d) the LINE FEED key is activated (e) the input will accept all ASCII characters.

```
POKE 1382, 0: POKE 1386, 255:
 POKE 1394, 8: POKE 1390, 127
```

2. With the above pokes in place, a very fast screen clear is available in Basic. Example:

```
      10 Gosub 1000

      1000 A$ = "32 line feeds" : PRINT
A$: RETURN
```

3. I know that my machine generates graphics characters because they are on screen at power-up. However, I have not been able to access them (including lower case letters) from either the keyboard or the CHR$ function to display them on the video. I have been able to print lower case on a line printer. Can anyone help me?

G.R. Laverick
St. Paul, MN

ED:

In furthering my last letter, does anybody know where I can get an OSI complete catalog?

You guys are doing a great job. Try this on a C1P:

```
10 FOR Y = 0 TO 255
20 FOR X = 53379 TO 54170
30 POKE X, (Y)
40 NEXT X
50 NEXT Y
60 GOTO 10
```

Brian Fearnow
Forest, IN

ED:

Small point of interest. Try the following program:

```
10 DIM A (10) ,B (10)
20 FOR I=1 TO 20:A (I) =RND (9) :NEXT
30 FOR I=1 TO 1841:T=RND (9) :NEXT
40 FOR I=1 TO 20:B (I) =RND (9) :NEXT
50 FOR I=1 TO 20:PRINT A (I) ;B (I)
  :NEXT,
```

and you may be somewhat surprised to see (as I was) an identity between the two columns. That is, the OSI BASIC random number generator has a cycle of only 1861. (Feel free to change the 9s to 6s or tan (37) or whatever -- the result stands.) This unfortunate feature makes the RND command totally inadequate for many applications, including mine: dealing bridge hands. (A 2NT opening bid might come up once every couple of sessions; in OSI BASIC, you'll see about forty 2NT openers at most, before they inevitably repeat. Bridge has a little more variety than that.) The answer must be a USR routine using a little theory from a first-year computer science course: as soon as I get mine going I'll let you know.

My two major projects now are a bridge hand dealing program and a machine language utility to fill a table with a PRINT message. (PRINT routines are easy in BASIC, but a total pain in the machine language. The subroutine at BF2D prints the ASCII character stored in A -- but filling the table with the desired characters gets a bit messy.) Is anyone interested?

Best of luck with the new venture! What is the significance of the title?

Eric Anderson
New York, NY

We PEEK into the 6502, 65D, 65U, etc. to see what's really in there.

ED:

I have been the happy owner of my C2-4P for a couple of months now.
Does anyone know how to add a RS-232 port to the C2-4P?

For C2-4P users, use the following routine for the screen clear:

```
10 FOR I=1 TO 64:SC$=SC$+" ":NEXT I
20 (REST OF PROGRAM)
30 GOSUB5000     (CALL SCREEN CLEAR)
40 (REST OF PROGRAM)
5000 LO=PEEK(129) :HI=PEEK(130):
    POKE 129,255:POKE 130,215
5010 A$=SC$:FOR I=1 TO 32:A$=A$+" ":NEXT I
5020 POKE 55295,32:POKE 129,LO:
     POKE 130,HI:RETURN
```

William Hwang
Wayne, NJ

ED:

The "B" error code mentioned by Valerie Winer means "subscript out of range." It occurs, at least on my C1P, when the following program is run:

```
 10 FOR X = 1 TO 15
 20 READ A(X)
 30 NEXT
100 DATA 1,.....,15
```

The failure to dimension A causes the error. Note that this error only occurs where the subscripts exceed the default value of 10, and that it will also occur with a DIM statement wich is smaller than the number of reads.

I'm enjoying PEEK (65), but it would be helpful if your authors would identify the OSI models they're using, particularly when they're discussing memory map locations.

Has anyone disassembled the ROM proram at F800-FBFF in the C1P? I assume it's a floppy disk routine since it makes references to address C000. Has anyone interfaced non-OSI mini-floppies or full-sized disk drives to the C1P or C4P?

idney Sosin
Chicago, IL

ED:

In general I think OSI has the finest line of micros for the money that you can buy. However, there are (in my opinion) two glaring weeknesses that are inexcusable. The first is documentation. One word succinctly describes it--lousy! I do know that great documentation (clarity, readibility, completeness, etc.) is a rarity. However, I don't believe it is too much to ask to have reasonable proofreading and testing of the examples to make sure they work.

The second weakness is the lack of an editor (except under OS-65U). I assume OSI realizes that most of us buying their equipment do so to write our own program. To do so without any editing capability (please don't bring up the extended monitor) is ridiculous. I did notice in the same issue with Mr. McClure's letter that AARDVRK has a cursor control program which, according to Paul Bower's letter, allows one to line edit. I will certainly look into this. At least it's a start.

Remembering you have some real novices in your audience, it is important to spell out which systems, hardware and software, the information you are supplying is applicable to. For example, in the February issue a memory map of the 65U operating system was shown. Then in the March issue (which, by the way, was neither dated nor did it contain a volume number--that makes for difficult filing and retrieving) Valerie Winer listed a set of locations which "were <u>not</u> shown in your last issue." To me this meant they were also for 65U. But on looking closer, I think it matches the 65D system. Am I right? That raises another point. How similar in RAM usage are the two systems?

Finally, may I suggest that since Mr. T.L. Wallis and Ms. Valerie Winer were so kind in sharing their knowledge, that we now build on this base. That is, have everyone who submits a program using a location not defined in these lists define it so that the rest of us can add it to our notebook for future reference. Also, even if it exists in the list, further clarification for some locations would be greatly appreciated, at least by me. An

example is location 57088. The March issue definition is "Keyboard-Keypad-Joystick". In the card shuffle program this location is PEEKed and the resulting value compared to 190; right next to this program is a program segment by Mark Minasi in which the value is compared to 254. I think most novices would appreciate a further explanation of location 57088.

Jack Eddington
425 11th Street
Oakmont, PA 15139

Thanks for your thoughtful letter. We all certainly do need each other. There are at least a half-dozen different systems out there with OSI on the front panel. One (65U) allows line editing. All use RAM differently, though 65D and 65U are quite similar. Do keep a notebook, test it and send in any changes you discover; we will share them.

Al

AD$

65U Machine Language sort, 5 keys. Correctly sorts numeric or ALPHA fields, provides sorted key file or restructures original file, $200. Asset file/depreciation program lists schedules as required for tax returns, correctly calculates declining balance or straight line depreciation regardless of purchase date or fiscal year end. Lists new assets for investment credit schedule. Proven in use. Requires 65U Operating System. $100. Cassette multi-purpose teaching program for C4P, etc. Especially useful for teaching spelling. $6. Tom Stover -- Consultant, Star Rt., Gering, NE., 69341

ALL ABOUT OSI BASIC IN ROM a 59 page referance manual. Better organized than OSI's with errors fixed, ommissions restored & subtle points explained. Much about the machine language implementation of BASIC. Memory Maps of pages $00, 02, FE, FF & A000 - BFFF. $8.95. Maps only: $2.95. Edward Carlson, 3872 Raleigh Dr., Okemos, MI. 48864

ED:

I noticed that you use OS-DMS and have written routines that add to the power and flexibility of the system. What I would like to see is a flexible crosstab program such as is available in SPSS, MINI-TAB, or SAS. I am aware that the enviroment is a little different on our machines than on the large ones these systems usually run on, but it would seem that any truly powerful anaylsis capability needs the editing and labeling such as they have. I am thinking of conditionally creating new variables, alebraically or logically, or simply recoding existing variables. Data set wide editing and variable labeling as well as variable value labeling would make output intelligible, even.

Ralph Requa
Glendale, AZ

ED:

I have found two bugs (?) in the OSI software to date. First, the FRE(X) function sometimes causes the system to "hang" after the first use, any suggestions? Second, the RND(X) function must be a flakey generator because it eventually generates a relatively short random sequence loop. A memory map would allow me to work on both of these problems.

I have written a BASIC renumber program based on a PERSONAL COMPUTING article in March, 1979. I plan to write a BASIC source code compressor in BASIC as soon a I crack some more u-soft code.

YES, I too want a BASIC editor!!

Gary Sitton
Houston, TX

rumor

We have heard from an extremely reliable source that OS-CP/M V2.0 has been up and running at Lifeboat Associates since last October. Since CP/M 2.0 is necessary in order for CP/M to access the hard disks we are now selling, we wonder why we cannot buy it, if it has been running for 6 months. Any comments from OSI or Lifeboat would be welcomed!

ED:

Your March issue of PEEK(65) contains some errors in a letter of mine. In the routine for shuffling cards, these changes should be made:

```
140 S=INT(RND(5)*52:
 IF PEEK(53248+S)>0 THEN 140
150 POKE 53248+S,Q*10+R
160 IF PEEK(57088)=190
 THEN S=RND(5):
 GOTO 160
```

The OSI BASIC-in-ROM Reference Manual states, "all registers can be modified by the user routine without affecting BASIC; however, no page zero locations can be modified!" This is not true. Some page zero locations can be modified, since they are not affected by the ROM routines. I have found that on my C1P (casette) page zero locations 216 to 250 are available. for use in user routines..
User routines may be stored in 546 to 762 of page two. Also starting at 323 of page 1. The exact number of bytes here will depend on the size of the stack but has averaged around 100 for me.

One other thing. The Reference Manual discusses passing values from the BASIC program to the user routine and vice versa, but I have never quite figured out how to make it work. Does anyone out there know?

David Hille
San Antonio, TX

ED:

You make a great work in PEEK(65)! I would like to correspond with other users of the SII or C1P, to exchange software and hardware improvements. We are planning to work on 32 or 64 Char/line, color and sound, phone memory and dialer, phone commo, etc. We are a group of guys in university and local CEGEP and are working to improve the system. I also am searching for a Baudot to ASCII and ASCII to Baudot converter for the C1P. Can somebody help me?

Andre St-Louys
C.P.444
Cap de la Madeleine
P. Que, G8T 7W6
Canada

ED:

I have a problem that I would appreciate help on.

* System -- equal to C2-8P but mostly older OSI boards built by owner. Indcludes disk, 400 or 500 CPU boards and an ASCII (not polled) keyboard with 440 or 540 display board.
* System works OK with older boards and ROMs using FFC4/2200 loading sequence. Unit seems to hang up during auto loading with new equipment, particularly at track five where DOS determines the type of keyboard.
* I am currently isolating the kbd output (SWTP KB-5, which uses the output of a 2736 directly) from the switched 8T26 of the 540 but have no results.
* I wonder if the problem is in the PROM (65V2P? -- not labelled) in the area between FEE9 and FEF9.
* Can anyone having previous problems in this area or able to check the contents of the ROM help?

Jack Schott
Paoli, PA

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