PEEK (65)

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Column One

This month's PEEK(65) sees something of a resurgence of business articles. We have an article on tax preparation, a review of the DiskDoubler, which will be of interest to small business users perhaps more than hobbyists, and a report on a "big system" user.

Of course, we are very glad to see this. We have no particular prejudice in favor of business (or hobbyist) users -- it's just that since our readers have a variety of machines of all sizes, we do strive for a balance.

You can help. Let the word go forth from this place that there is another

CALL FOR ARTICLES

for PEEK(65). For a while there, we had more material than we could possibly publish, but now the supply is dropping. Was it the Holiday season, the Winter blahs? Who knows -- but anyway, do send us an article about your latest breakthrough in computer science. We will publish it and send you some $$money$$.

One thing we really need is a "beginner's corner." You remember when you first got your computer. The manuals seemed to be written in some obscure foreign tongue. The machine stubbonly refused to work as it should. Your programs were much more adept at producing error messages than any intelligible output.

Then, as you gained more experience and learned a few tricks, it actually became possible to write programs which worked. PEEK and POKE lost their mystery. Re-reading the same manuals revealed that they were in English after all, though a strange type of English which assumed far too much knowledge on the part of the readers. It all became much clearer.

So now you are an expert. Why not share some of this expertise, and some of your memories, with other beginners? Write a letter, or a column (really just a series of letters with some coherent topic and connecting thread) or an article or two for beginners, helping them over the same pitfalls and rough spots you encountered.

Speaking of computer science breakthroughs, we all read of the marvelous things money has motivated our colleagues to do for the IBM PC and its cousins. However, even if you don't own a PC, don't forget that some of the stuff they are doing is directly or indirectly applicable to your machine as well.

Of course this is true of any serial-interface printer or other peripheral. But also many of the new techniques in software and hardware design will be or have been adapted for other machines. If you see an ad for an OSI-compatible RAM disk, or the multiprocessor systems using the Denver Boards, or a disk doubler, or ... but you get the point. What is good for one is good for all.

One of the most exciting of the new devices for the business system user is the new low-price (relatively!) laser-beam printer announced by Canon. Imagine if you will a desktop copier, but with no glass on top for the document to be copied. Instead, a computer cable protrudes from the back of the device. The signals sent to the machine (from an OSI or any other computer) drive a laser beam which exposes the copier drum, painting the images of the characters in dots, like a very fine dot-matrix printer. In fact, the dots are so close together that each character appears to be fully formed, like a daisy wheel printer.

As we watch the machine run, it quietly feeds out 8 pages of printed copy per minute, in several type styles intermixed on any line. With no clatter or rattle. Onto plain paper which was loaded into the IN tray. With no forms tractors or other paper-handling devices needed. All fully letter-quality, and at about 400 lines per minute effective printing speed!

Sure, laser-beam printers have been available for a couple of years. I saw one work last year, an IBM unit which cost about $65,000. The exciting thing about the Canon device is that it will sell for less than $3.000! For a business with a multi-user computer, a business which had planned on buying both a dot-matrix printer for speed (maybe 150 lines per minute) and a letter-quality printer for quality output, this is very exciting news.

TAX PREPARATION

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By: Robert S. Baldassano
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Here 1984 was approaching fast and I still hadn't written myself a tax preparation program like I planned. True, I did complete a program to keep track of tax data under 65Dv3.2, and I did recently finish a program to do depreciation analysis under 65Dv3.3, but still no tax computation program.

About this time, a friend gave me an old copy (April 1981) of PERSONAL COMPUTING. To my surprise it had a tax program in it for a TRS-80 Level II with a 32k disk system. I scanned the article and liked some of the ideas, but since this was for 1980 taxes, I knew I had a major rewrite on my hands. Little did I know how much of a job it would turn out to be.

As I scanned the program, my first problem was to figure out what the author was doing with his code, as he had no REMS in the program. This took a 1980 tax return and a BASIC translation handbook so I could see what was going to be needed to make this program work on an OSI.

The one thing I was able to keep intact was the method of storing tax tables and schedules in an array. But the tax laws and tax forms had changed so much, that I was going to have to write my own calculation codes. In addition, I noted that the program listing was full of errors and even had some missing code, so more sleuthing was necessary.

I decided to start the conversion, making corrections and adding features as I went. I especially wanted to take advantage of 65Dv3.3 color capa-

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TAX PREPARATION PROGRAM

```
10 O$="#######.##":DN=178:POKE13026,32:POKE2888,0:POKE8722,0:SW=0:TS=0
15 PRINT!(20)&(8,10)!(1)"TAX PREPARATION":O$=CHR$(34)
20 PRINT&(4,13)"by ROBERT S. BALDASSANO":PRINT&(2,15)"(C) 1984 ALL";
25 PRINT" RIGHTS RESERVED":FORX=1TO5550:NEXT:PRINT!(21)!(28)
30 REM CORRECTED AND UPDATED VERSION OF TRS-80 1980 TAX PROGRAM BY
35 REM JOSEPH J.ROEHRIG IN PERSONAL COMPUTING COMPUTING VOL.V,NO.4,
40 REM APRIL 1981. MODIFIED FOR OSI BPDF AND 65DV3.3
45 REM PERSONAL USE BY PEEK(65) SUBSCRIBERS IS ALLOWED. OTHER USES
50 REM NEED APPROVAL OF AUTHOR AT 4045 ASHBROOK CIR; SAN JOSE CA 95124
55 DIM D$(10),I(DN),I$(DN),L$(DN),T(3,14,2)
60 DEF FNA(X)=INT(100*X+.5)/100
65 REM MAKE SW=1 TO SEE LINE TITLES;TS=1 TO TEST NEW TAX TABLES
70 FORA=1TODN:PRINT!(31,11)&(0,0);"PLEASE WAIT---LOADING";A;" OF ";DN
75 READZ$:I$(A)=LEFT$(Z$,12):L$(A)=RIGHT$(Z$,3):NEXT:PRINT!(28):I(1)=1
80 IF SW THEN FOR A=1TODN:PRINT#1,A,L$(A),I$(A):NEXT:END
85 FORA=0TO3:FORB=0TO14:READT(A,B,0),T(A,B,1),T(A,B,2):NEXTB,A
90 IF TS THEN INPUT"ENTER FILING STATUS";I(1)
95 IFTSTHEN INPUT"ENTER TAXABLE INCOME";I(39):GOSUB1115:PRINTD:GOTO90
100 DISK!"IO ,02"
105 PRINT!(20)!(31,5)"YOUR MENU CHOICES ARE:":PRINT:PRINT!(25)" <0> END"
110 PRINT" <1> READ A FILE":PRINT" <2> SAVE A FILE":PRINT" <3>";
115 PRINT" START A NEW FILE":PRINT" <4> INPUT 1040":PRINT" <5> INPUT A"
120 PRINT" <6> INPUT B":PRINT" <7> INPUT C":PRINT" <8> SHOW TAXES"
125 PRINT" <9> PRINT 1040":PRINT"<10> PRINT A":PRINT"<11> PRINT B"
130 PRINT"<12> PRINT C":PRINT"<13> INCOME AVERAGE":POKE 13026,171:PRINT
135 INPUT"YOUR SELECTION";A:PRINT!(21):IFA<0ORA>13THEN105
140 IFA=0THENDISK!"SE A":POKE2888,27:POKE8722,27:RUN"BEXEC*"
145 PF=0:IFA<8THEN160
150 PRINT&(0,24)!(1)"OUTPUT TO PRINTER";:INPUT X$:PRINT!(28)
155 PRINT!(25):IFLEFT$(X$,1)="Y"THENDISK!"IO ,03":PF=1
160 ONAGOTO165,390,820,385,440,495,520,250,420,445,500,650,280,195
165 PRINT!(28)!(1):INPUT"FILE NAME";Z$:GOSUB1255
170 PRINT!(28):DISK OPEN,6,Z$:POKE13026,32
175 FORA=1TODN:PRINT!(31,10)&(0,0);"PLEASE WAIT---READING ";A;" OF ";DN
180 INPUT#6,I(A):INPUT#6,I$(A):NEXT:FORA=1TO10:INPUT#6,D$(A):NEXT
185 INPUT#6,D1$,D2$,D4$,D5$,D6$,D1,D7$,D2:DISK CLOSE,6:POKE13026,171
190 A=14:GOTO150
195 PRINT!(28):PRINT:PRINT:PRINT"THE ID DATA FOR ";Z$;" FILE IS:"
200 PRINT"=====================================":PRINT:PRINT!(31,6)
205 PRINT"NAME:"TAB(14);D$(1):PRINT"ADDRESS:";TAB(14);D$(2)
210 PRINTTAB(14);D$(3)
215 PRINT"SOCIAL SEC. : ";"#1 ";D$(4):PRINTTAB(14);"#2 ";D$(5)
220 PRINT"OCCUPATION. : ";"#1 ";D$(6):PRINTTAB(14);"#2 ";D$(7)
225 PRINT"DEPENDENT CHILDREN: ";D$(8)
230 PRINT"OTHER DEPENDENTS:    ";D$(9):PRINTTAB(20);D$(10)
235 PRINT"$1-ELECT. CAMP.:";"#1 ";D1$;" #2 ";D2$
240 PRINT"OVER 65? ";"#1 ";D4$;" #2 ";D6$
245 PRINT"BLIND?   ";"#1 ";D5$;" #2 ";D7$:GOSUB1230:GOTO100
250 PRINT!(20):PRINT:PRINT!(1)"YOUR TAX SUMMARY IS:":PRINT!(25):PRINT
255 PRINTUSINGU$"TOTAL TAXES    ";I(58)
260 PRINTUSINGU$"TOTAL PAYED    ";I(66)
265 A=I(58)-I(66):BL$="BALANCE OWED  ":IFA<=0THENBL$="CREDIT BALANCE"
270 PRINTUSINGU$!(31,2)BL$;ABS(A):IFA<=0THENPRINT!(2,5,2)
275 GOSUB 1230:GOTO105
280 PRINT!(20)!(31,2)"--------WARNING--------":PRINT"YOU MUST HAVE ";
285 PRINT"THE SAME FILING":PRINT"STATUS FOR THE LAST FIVE YEARS,"
290 PRINT"AND COMPUTED YOUR TAXABLE":PRINT"INCOME ON YOUR 1040 FORM"
295 PRINT"TO USE THIS SECTION":FORX=1TO9900:NEXT:PRINT!(21)!(25):PRINT
300 PRINT"TAXABLE INCOME FOR 1979,1980 LESS $1000 FOR EACH"
305 INPUT"EXEMPTION CLAIMED IN EACH OF THOSE YEARS";S1,S2:PRINT
310 INPUT"TAXABLE INCOME FOR THE YEARS 1981,1982";S3,S4:PRINT
315 INPUT"ALL FOREIGN EARNED INCOME EXCLUDED FOR '79 THRU '82";S5:PRINT
320 INPUT"PREMATURE KEOGH OR TRUST ACCUMULATION DISTRIBUTIONS";S6:PRINT
325 INPUT"ADJ. OF COMUN. PROP. INCOME IF SEPARATE RETURN '83";S7:PRINT
330 S=I(39):A1=S1+S2+S3+S4+S5:B1=A1*.3:S=S-S6-S7:IFS<OTHENS=0
335 IA=S-B1
340 IFIA<=3000THENPRINT!(31,2)"YOU DO NOT QUALIFY FOR INCOME AVERAGING
345 IFIA<=3000THENPRINT!(25):INPUT"PRESS ANY KEY FOR MENU";M$:GOTO100
350 C1=B1+(IA*.2):S6=1:J=I(39):I(39)=B1:GOSUB1115:B1=D:I(39)=C1
355 GOSUB1115:C1=D:B1=(4*(C1-B1))+C1:I(39)=J:S6=0:GOSUB1115
360 PRINTUSINGU$!(1)"YOUR TAX BILL IS ";FNA(B1);" IF YOU INCOME AVERAGE
365 PRINTUSINGU$!(31,12)"VERSUS";FNA(D);" IF YOU DON'T"
370 INPUT"WILL YOU INCOME AVERAGE";AN$:IF LEFT$(AN$,1)<>"Y"THEN380
375 I(40)=B1:I(42)=I(40)+I(41):GOSUB1070
380 GOSUB1230:GOTO100
385 S1=1:S2=1:S3=70:GOTO525
390 PRINT!(28)!(1):INPUT"FILE NAME";Z$:GOSUB1255:DISK OPEN,6,Z$
395 PRINT!(28):FOR A=1TODN:PRINT!(31,11)&(0,0)"PLEASE WAIT--WRITING ";
400 PRINTA;" OF ";DN:PRINT#6,I(A):PRINT#6,O$;I$(A);O$:NEXT
405 FORA=1TO10:PRINT#6,O$;D$(A);O$:NEXT:PRINT#6,D1$:PRINT#6,D2$
410 PRINT#6,D4$:PRINT#6,D5$:PRINT#6,D6$:PRINT#6,D1:PRINT#6,D7$
415 PRINT#6,D2:DISK CLOSE,6:GOTO100
420 S1=3:S2=33:S=2:PRINT!(31,13)"FORM 1040   -PAGE 1"
425 PRINT"==================":PRINT:GOSUB760:GOSUB1230:S1=34:S2=70:S=3
430 PRINT"FORM 1040   -PAGE 2":PRINT"=================="
435 PRINT:GOSUB760:GOSUB1230:GOTO100
440 S1=2:S2=71:S3=100:GOTO525
445 S=3:S1=71:S2=100:PRINT!(31,4)"SCHEDULE A ITEMIZED DEDUCTIONS"
450 PRINT"============================":PRINT:GOSUB760
455 PRINTUSINGU$!(31,5)"TOTAL MEDICAL";TAB(44);FNA(I(79))
460 PRINTUSINGU$"TOTAL TAXES";TAB(44);FNA(I(85))
465 PRINTUSINGU$"TOTAL INTEREST";TAB(44);FNA(I(90))
470 PRINTUSINGU$"TOTAL CONTRIBUTIONS";TAB(44);FNA(I(95))
475 PRINTUSINGU$"TOTAL CASUL.& THEFT";TAB(44);FNA(I(96))
480 PRINTUSINGU$"TOTAL MISCELLANEOUS";TAB(44);FNA(I(100))
485 PRINTUSINGU$"LESS";TAB(44);FNA(N9):PRINT:PRINT!(31,1)"TOTAL";
490 PRINTUSINGU$" DEDUCTIONS";TAB(44);FNA(I(35)):GOSUB1230:GOTO100
495 S1=3:S2=101:S3=133:GOTO525
500 S1=101:S2=118:PRINT!(31,8)"SCHEDULE B":PRINT"==========":PRINT:S=3
505 GOSUB760:PRINTUSINGU$!(1)"TOTAL INTEREST";TAB(44);I(4)
510 PRINT:PRINT!(31,8):GOSUB1230:S=6:S1=119:S2=133:GOSUB760
515 PRINTUSINGU$!(1)"TOTAL DIVIDENDS";TAB(44);I(5):GOSUB1230:GOTO100
520 S1=4:S2=134:S3=DN
```

8,638

Listing Cont.

bilities, which the original program did not have.

The original method used for computing taxes was almost correct, but had a bug in that it computed the tax too low at break points in the tax tables. I added code to fix that, and had it working perfectly.

What I thought would be my toughest task turned out to be simple to execute, although it took me awhile to figure out. The answer turned out to be buried in the 65DV3.3 manual. The original program used leading spaces in the names of tax form lines to skip over lines that the program computed when they were presented for input. After trying many methods with no success, I finally used the pokes in line 10 of the program along with CHR$(34) in lines 400 and 410. This combination allows you to store and retrieve data with leading spaces from a disk file.

As my program does, the original program had a menu option to read a stored file on disk. The only problem with the original was it never showed you any identifying data, it only loaded the data. I added the code to show identification information when the file is downloaded.

Another feature I added was cents rounding, as the IRS does not like columns that do not total properly. This in conjunction with PRINTUSING, gives very nice output.

I also decided to modify the income averaging part of the original program, since I was going to have to totally rewrite this code anyway. In its original form, it computed your tax by the income average method, but did not use the results in the 1040 printout portion. I added code to allow this option.

I added another bell and whistle to the SHOW TAXES portion of the program. If you owe taxes it shows in red as balance owed; if you overpaid, it shows in inverted green as credit balance. As I said earlier, I added a lot of color to the program, putting warnings in red, and giving each schedule printout a different color. In doing this I discovered a strange reaction to the color code on my EPSON printer with GRAFTRAX plus. I had originally coded the 1040 to print to the screen in skyblue. It is now in inverted skyblue as in the old form.

```
525 INPUT"INPUT A LINE NUMBER OR ALL TO INPUT ALL LINES";Z$
530 IFZ$="ALL"THEN 610
535 A=LEN(Z$):IFA=0THEN645
540 IF A>2THEN555
545 IF A=1THENZ$="  "+Z$
550 IFA=2THENZ$=" "+Z$
555 FORA=52TO53:IFZ$=L$(A)THEN565
560 NEXT:PRINTZ$;" IS AN INVALID LINE NUMBER":GOTO595
565 IF LEFT$(I$(A),1)<>" "THEN575
570 IFMID$(I$(A),2,1)<>" "THEN590
575 IFLEFT$(I$(A),2)<>"  "THEN590
580 INPUT"THE NAME OF THIS LINE ";Z$:Z$=Z$+"                "
585 I$(A)=LEFT$(Z$,32):Z$=""
590 PRINT"GIVE YOUR INPUT FOR ";I$(A);:INPUT"  ";I(A)
595 Z$="":INPUT"RETURN TO END OR A LINE NUMBER TO CONTINUE ";Z$
600 A=LEN(Z$):IFA=0THEN645
605 GOTO535
610 Z$=" ":FORA=52TO53:IFLEFT$(I$(A),1)<>" "THEN620
615 IFMID$(I$(A),2,1)<>" "THEN640
620 IFLEFT$(I$(A),2)<>"  "THEN635
625 PRINT"INPUT TITLE FOR LINE ";L$(A);:INPUT"";Z$
630 Z$=Z$+"              ":I$(A)=LEFT$(Z$,32):Z$=""
635 PRINTL$(A);"    ";I$(A);"    ";:INPUT" AMOUNT ";I(A)
640 NEXT
645 GOSUB975:GOSUB665:GOSUB730:GOSUB795:GOSUB975:GOTO100
650 S1=134:S2=DN:S=3:PRINT!(31,10)"SCHEDULE C"
655 PRINT"==========":PRINT:GOSUB760:GOSUB1230:GOTO100
660 REM SCHEDULE A CALCULATIONS
665 I(72)=.01*I(34):I(73)=I(71)-I(72):IFI(73)<0THENI(73)=0
670 I(77)=0:FORS=73TO76:I(77)=I(77)+I(S):NEXT
675 I(78)=.05*I(34):I(79)=I(77)-I(78):IFI(79)<0THENI(79)=0
680 I(85)=0:FORS=80TO84:I(85)=I(85)+I(S):NEXT
685 I(90)=0:FORS=86TO89:I(90)=I(90)+I(S):NEXT
690 I(95)=0:FORS=91TO94:I(95)=I(95)+I(S):NEXT
695 I(100)=0:FORS=97TO99:I(100)=I(100)+I(S):NEXT
700 S=3400:IFI(1)=1ORI(1)=4THENS=2300
705 IFI(1)=3THENS=1700
710 I(35)=I(79)+I(85)+I(90)+I(95)+I(96)+I(100)-S:N9=S
715 IF0>I(35)THENI(35)=0
720 RETURN
725 REM SCHEDULE B CALCULATIONS
730 I(111)=0:FORS=101TO110:I(111)=I(111)+I(S):NEXT
735 I(115)=I(112)+I(113)+I(114):I(117)=I(115)-I(116)
740 I(118)=I(111)+I(117):I(4)=I(118)
745 I(128)=0:FORS=119TO127:I(128)=I(128)+I(S):NEXT
750 I(132)=I(129)+I(130)+I(131):I(133)=I(128)-I(132):I(5)=I(133)
755 RETURN
760 FORA=51TO52:IF LEFT$(I$(A),1)<>" "THEN775
765 IF MID$(I$(A),2,1)=" "THEN785
770 PRINTL$(A);"  ";I$(A);TAB(44);:PRINTUSINGU$;I(A):GOTO780
775 PRINTL$(A);"    ";I$(A);TAB(44);:PRINTUSINGU$;FNA(I(A))
780 S=S+1:IFS=22THENGOSUB1230
785 NEXT:RETURN
790 REM SCHEDULE C CALCULATIONS
795 I(136)=I(134)-I(135):I(138)=I(136)-I(137)
800 I(141)=I(138)+I(139)+I(140)
805 S=0:FORA=142TO163:S=S+I(A):NEXT:I(166)=I(164)-I(165)
810 FORA=166TO176:S=S+I(A):NEXT:I(177)=S:I(DN)=I(141)-S:I(10)=I(DN)
815 RETURN
820 Z$="       ":FORS=1TODN:I(S)=0:NEXT:FORS=102TO110:I$(S)=Z$:NEXT
825 FORS=112TO114:I$(S)=Z$:NEXT:FORS=119TO127:I$(S)=Z$:NEXT
830 FORS=168TO176:I$(S)=Z$:NEXT
835 PRINT!(28):Z$="                                        "
840 PRINT"              ====================================="
845 INPUT"NAME        ";AN$:S=1:GOSUB955
850 INPUT"ADDRESS 1/2";AN$:S=2:GOSUB955
855 INPUT"ADDRESS 2/2";AN$:S=3:GOSUB955
860 INPUT"SS# 1       ";AN$:S=4:GOSUB955
865 INPUT"SS# 2       ";AN$:S=5:GOSUB955
870 INPUT"OCCUPAT. #1";AN$:S=6:GOSUB955
875 INPUT"OCCUPAT. #2";AN$:S=7:GOSUB955
880 INPUT"#1 $1-CAMP.";D1$:INPUT"#2 $1-CAMP.";D2$
885 INPUT"FILING STATUS 1 TO 5";I(1):IFI(1)<1ORI(1)>5THEN885
890 I(2)=1:IFI(1)=2THENI(2)=2
895 INPUT"#1 ARE YOU OVER 65";D3$:D4$=D3$:GOSUB960
900 INPUT"#1 ARE YOU BLIND";D3$:D5$=D3$:GOSUB 960
905 INPUT"#2 ARE YOU OVER 65";D3$:D6$=D3$:GOSUB960
910 INPUT"#2 ARE YOU BLIND";D3$:D7$=D3$:GOSUB960
915 INPUT"HOW MANY DEPENDENT CHILDREN";S:I(2)=I(2)+S:D1=S
920 IF D1=0THEN930
925 INPUT"THEIR NAMES";AN$:S=8:GOSUB955
930 INPUT"HOW MANY OTHER DEPENDENTS";S:I(2)=I(2)+S:D2=S
935 IFS=0THEN950
940 INPUT"DATA LINE 1 FOR OTHER DEPENDENTS";AN$:S=9:GOSUB955
945 INPUT"DATA LINE 2 FOR OTHER DEPENDENTS";AN$:S=10:GOSUB 955
950 GOSUB1230:GOTO100
955 AN$=AN$+Z$:D$(S)=LEFT$(AN$,36):AN$=Z$:RETURN
960 IFLEFT$(D3$,1)="Y"THENI(2)=I(2)+1
965 D3$="":RETURN
970 REM UNEMPLOYMENT COMPENSATION WORKSHEET
975 I(7)=I(5)-I(6)
980 I(22)=I(3)+I(4)+I(21):FORA=7TO14:I(22)=I(22)+I(A):NEXT
985 FORA=16TO19:I(22)=I(22)+I(A):NEXT
990 I(32)=I(23)+I(24)+I(25)+I(27)+I(28)+I(29)
995 A=I(22)-I(32)+I(19)
1000 B=0:IFI(1)=1ORI(1)=4ORI(1)=5THENB=12000
1005 IFI(1)=2THENB=18000
1010 IFI(1)=3THENB=0
1015 C=A-B:IFC>0THEN1025
1020 C=0:GOTO1030
1025 C=C*.5:IFC>I(19)THENC=I(19)
1030 I(20)=C:I(22)=I(22)+I(20)
1035 REM 1040 CALCULATIONS
1040 I(32)=I(32)+I(30)+I(31):I(33)=I(22)-I(32):I(34)=I(33)
1045 I(36)=0:IFI(35)=0THENI(36)=(I(91)+I(92)+I(93))*.25
1050 IF I(36)>25THENI(36)=25
1055 IF I(36)>12.50 AND I(1)=3 THEN I(36)=12.50
```

Continued

my printer and screen did what looked like a move to top of form prior to starting the print cycle, as a CHR$(12) would do. So it looks like !(31,12) may be taken that way by the printer. Has anyone else experienced this?

So what did I end up with for my late nights and many frustrations? I now have a program better than the original, with color and other added features that will store tax form data, compute and print out the data for the Federal 1040, Schedule A, B, and C, as well as compute all taxes automatically from the proper tax tables or schedules and do income averaging as well.

The program is basically self prompting, but there are a few pointers which will make its use easier. First of all, if you plan to store data to a disk file, you must have created it prior to use of this program as it does not have disk file create features. Second, that file must be at least two tracks long (8 inch disk). If you have not loaded data from a file, menu selections <8> and on will not show any results unless you have input data into the forms. In fact, Schedules B and C are the only forms that are not dependent on data from the 1040. Therefore, inputs must be made to the 1040 (option <4>) to see tax liabilities and use income averaging. One further point of interest is that I have added sleeper code to allow you to test new tax schedules and also see how line titles are allocated. See lines 10,65,80,90 and 95 for more details.

Cont.on p.6

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```
1060 I(37)=I(34)-I(35)-I(36):I(38)=I(2)*1000:I(39)=I(37)-I(38)
1065 GOSUB1115:I(40)=D:I(42)=I(40)+I(41)
1070 I(50)=0:FORA=43TO49:I(50)=I(50)+I(A):NEXT
1075 I(51)=I(42)-I(50):IFI(51)<0THENI(51)=0
1080 I(58)=0:FORA=51TO57:I(58)=I(58)+I(A):NEXT:I(66)=0
1085 FORA=59TO65:I(66)=I(66)+I(A):NEXT:A=I(58)-I(66)
1090 IFA<0THENI(67)=0-A
1095 IFI(67)>0THENI(68)=I(67)-I(69)
1100 IFI(67)=0THENI(69)=0
1105 I(70)=0:IFA>0THENI(70)=A
1110 RETURN
1115 A=I(1):IFA=5THENA=2
1120 A=A-1
1125 D=I(39)
1130 IFSG<>1THENIFI(39)<50000THEN1155
1135 FORB=0TO14:IFD<=T(A,B,0)THEN1145
1140 NEXT
1145 D=D-T(A,B-1,0):D=D*T(A,B,2):D=D+T(A,B,1)
1150 RETURN
1155 IFD>T(A,1,0)THEN 1165
1160 D=0: RETURN
1165 FORB=0TO14:IFD<=T(A,B,0)THEN1175
1170 NEXT
1175 BR$=STR$(D):BR$=RIGHT$(BR$,2):BR=VAL(BR$)
1180 IFD<3000THEN1215
1185 IFBR=00RBR=50THENBR=1
1190 E=INT(D/50):IF(50*E)<>DORBR=1THENE=E+1
1195 F=E-1:E=E*50:F=F*50
1200 E=E-T(A,B-1,0):E=E*T(A,B,2):E=E+T(A,B,1)
1205 F=F-T(A,B-1,0):F=F*T(A,B,2):F=F+T(A,B,1)
1210 D=INT((E+F+1)/2):RETURN
1215 IFBR=00RBR=25THENBR=1
1220 E=INT(D/25):IF(25*E)<>DORBR=1THENE=E+1
1225 F=E-1:E=E*25:F=F*25:GOTO1200
1230 DISK!"IO ,02"
1235 PRINT&(20,0)"CONTINUE";:INPUT X$
1240 IFLEFT$(X$,1)<>"Y"THEN100
1245 IFPFTHENDISK!"IO ,03"
1250 S=0:PRINT!(28):RETURN
1255 PRINT" which drive ?":PRINT
1260 INPUT"Type A,B,C or D and depress RETURN <A> ";DI$
1265 IFDI$=""THENDI$="A"
1270 IFDI$<"A"ORDI$>"D"ORLEN(DI$)<>1THENGOTO1255
1275 DISK!"SE "+DI$:PRINT!(25):RETURN
1280 DATA "F. STATUS    1-5","EXEMPTIONS  6-E","WAGES         7
1285 DATA"INTEREST       8","DIVIDENDS    9A","EXCLUSIONS   9B"
1290 DATA" T. DIVIDEND  9C","STATE & L RE 10","ALIMONY REC  11"
1295 DATA" BUS. INCOME  12","CAPITAL GAIN 13","DISTRIBUTION 14"
1300 DATA"SUPPLE. GAIN  15","FUL TX  P&A  16","OTHER P&A   17A"
1305 DATA"TAX AMT WS  17B","RENT ROYALTY 18","FARM INCOME  19"
1310 DATA"UNEMPLOY COM20A"," TAX UNEMPL.20B","OTHER INCOME  21"
1315 DATA" TOTAL INC.  22","MOVING EXP   23","EMPLOYEE EXP  24"
1320 DATA"PAY IRA     25A","PAY+ IRA    25B","PAY KEOGH      26"
1325 DATA"INT PENALTY  27","ALIMONY PAID 28","WORK COUPLE    29"
1330 DATA"DISAB. EXCL    30"," TOTAL ADJ. 31"," ADJ. GROSS    32"
1335 DATA" ADJ. GROSS   33"," ITEMIZE DED 34A","NITEM CHAR.  34B"
1340 DATA" ADJ.GRO-DED 35"," EXEMP.X$1000 36"," TAX INCOME   37"
1345 DATA" TAX          38","ADD. TAXES   39"," TOTAL TAX    40"
1350 DATA"CR ELDERLY   41","CR FOREIGN T 42","INVEST CR.     43"
1355 DATA"CR POL CONTR 44","CR CHILD CA  45","JOBS CREDIT    46"
1360 DATA"RESID ENG CR  47"," TOTAL CR.  48"," BALANCE      49"
1365 DATA"SELF EMP TAX 50","ALTER. MINUM. 51","TX RCAP. INV  52"
1370 DATA"FICA ON TIPS 53","UNCOLL. FICA   54","TAX ON IRA    55"
1375 DATA" TOT TAX     56","FED TAX WITH   57","EST TAX PAY  58"
1380 DATA"EARN INC CR  59","PAID ON 4868   60","EXCESS FICA  61"
1385 DATA"CR ON FUELS  62","REG CO CREDI    63"," TOT PAYED   64"
1390 DATA" OVERPAID    65"," REFUND TO Y    66","APPLY EST TX 67"
1395 DATA" AMT YOU OWE 68","MED & DRUGS      1"," 1% OF GROSS  2"
1400 DATA" 1 LESS 2     3","DOC-DENT-N-H    4A","TRANSPORT    4B"
1405 DATA"OTHER         4C"," TOT 3-4C       5"," 5% OF GROSS  6"
1410 DATA" 5 LESS 6     7","STATE & L I      8","REAL ESTATE   9"
1415 DATA"GEN SALES    10A","GEN SALE MV    10B","OTHER TX      11"
1420 DATA" TOT TX 8-11  12","MORTG INST.    13A","MORTG INDIV 13B"
1425 DATA"CREDIT CARDS  14","OTHER EXP      15"," TOT INT EXP  16"
1430 DATA"CASH CON<$3K 17A","CASH >$3K      17B","NON CASH      18"
1435 DATA"CARRYOVER     19"," TOT CONTRIB   20","LOSS F4684    21"
1440 DATA"UNION DUES     22","TAX PRE FEE   23","OTHER MISC    24"
1445 DATA" TOT MISC      25","S-FIN MRT INT  1","              2A"
1450 DATA"              2B","              2C","              2D"
1455 DATA"              2E","              2F","              2G"
1460 DATA"              2H","              2I"," TOT 1 & 2    3"
1465 DATA"              4A","              4B","              4C"
1470 DATA" TOT ASC INT    5","ASC EXCLUS.    6"," 5 LESS 6     7"
1475 DATA" TOT 3 & 7      8","              9A","              9B"
1480 DATA"              9C","              9D","              9E"
1485 DATA"              9F","              9G","              9H"
1490 DATA"               9I"," TOT 9A-9I    10","CAP GAIN DIS   11"
1495 DATA"NONTX DIST     12","PUB UTIL EXC 13"," TOT 11-13     14"
1500 DATA" 10 LESS 14    15","GROSS SALES   1A","RETURNS       1B"
1505 DATA" BALANCE       1C","COST OF GOOD   2"," GROSS PROF    3"
1510 DATA"WN PROF TX CR  4A","OTHER INCOME 4B"," GROSS INCOME  5"
1515 DATA"ADVERTISING     6","BAD DEBT       7","BANK CHARGES  8"
1520 DATA"CAR & TRUCK     9","COMMISSIONS    10","DEPLETION     11"
1525 DATA"DEPRECIATION   12","DUES & PUBS    13","EMPLOY BEN    14"
1530 DATA"FREIGHT        15","INSURANCE      16","INT ON BUS    17"
1535 DATA"CLEANING       18","LEGAL & PROF   19","OFFICE EXP    20"
1540 DATA"PENSION & PLAN 21","RENT ON PROP   22","REPAIRS       23"
1545 DATA"SUPPLIES      24","TAXES          25","TRAVEL & ENT  26"
1550 DATA"UTIL & PHONE  27","WAGES          28A","JOBS CREDIT 28B"
1555 DATA" 28A LESS 28B 28C","WIN TX WITH    29","              30A"
1560 DATA"              30B","              30C","              30D"
1565 DATA"              30E","              30F","              30G"
1570 DATA"              30H","               301"," TOTAL DED  31"
1575 DATA" NET PROFIT    32"
1580 REM TAX SCHEDULE DATA FOR 1983--SINGLE SCHEDULE X
1585 DATA 0,0,0,2300,0,0,3400,0,.11,4400,121,.13,8500,251,.15
1590 DATA 10800,866,.17,12900,1257,.19,15000,1656,.21
```

Listing cont. on P. 6

From Gander Software *The Ultimate Data Base Manager*

THE DATA SYSTEM

AFTER 2½ YEARS OF DEVELOPMENT, THE MUCH RUMORED & SOUGHT DBM IS HERE!
WITH IMPROVEMENTS OVER THE OTHER SIMILAR ITEM

- Stored Report Formats
- Stored Jobs, Formats, Calcs.
- Multiple Condition Reports
- Multiple File Reports
- Calc. Rules Massage Data
- Up to 100 Fields Per Record
- User Designed Entry/Edit Screens
- Powerful Editor
- Merges - Append, Overlay, Match
- Posting - Batch Input
- Nested Sorts - 6 Deep
- Abundant Utilities

HARDWARE REQUIREMENTS: 48K OSI, Hard Disk, serial system, OS-65U 1.42 or Later; Space required: 1.3 megabytes for programs and data.

TECHNICALITIES: User configurable to either 1.42 or 1.43 and Later; 9 job files, each saving up to 40 report formats, 40 calculations, 40 merge routines, or 40 posting routines, 40 file editors, and all those on up to 9 conditions each! Will convert older Type 10 and Type 20 file headers to the new Type 30; Etc., etc.

PRICE: $650.00 (User Manual $35.00, credited towards TDS purchase). Michigan residents add 4% sales tax. 30 day free trial, if not satisfied, full refund upon return.

DEALERS: This package is the new standard in DBM's. We are out to make it your standard too! Give us a call to find out how we can make TDS very worth your while.

SIMPLY POWERFUL AND COMPLETE: This DBM has external simplicity, and a manual that is written in English; complete from Tutorial to Definition of Terms. Although Gander provides support by the author, it shouldn't be necessary.

TDS's power is derived from all the things you would expect of a DBM, plus a list of capabilities (menu selectable and self-instructing) which include: Reports in any format, constructed on screen, giving only the desired data from up to three files with key file access; Move fields from one record to another; Sub Totals and Totals where wanted, etc.; Calc. Rules are similar in syntax to OSI's Planner Plus; PRTMAP modified to work with all system printers, with paging and still user independent; Quick File's QF Sort speeds sorting with no record length limits; Many machine language Utilities expedite the system; for instance Pack File is 2850% faster.

GANDER SOFTWARE

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Hastings, MI 49058
(616) 945-2821

"It Flies"

FROM THE FOLKS WHO BROUGHT YOU:
Financial Planner
Time & Task Planner

AND THERE IS MORE COMING SOON:
Program Generator for TDS
Proposal Planner
Time and Billing A/R

Since this is a long listing, I will provide this program and my depreciation program under 65Dv3.3 on an 8 inch disk for $15 for those of you who find typing in a program a taxing exercise.

```
1595 DATA 18200,2097,.24,23500,2865,.28,28800,4349,.32,34100,6045,.36
1600 DATA 41500,7953,.40,55300,10913,.45,9999999,17123,.50
1605 REM JOINT SCHEDULE Y
1610 DATA 0,0,0,3400,0,0,5500,0,.11,7600,231,.13,11900,504,.15
1615 DATA 16000,1149,.17,20200,1846,.19,24600,2644,.23,29900,3656,.26
1620 DATA 35200,5034,.30,45800,6624,.35,60000,10334,.40,85600,16014,.
1625 DATA 109400,27278,.48,9999999,38702,.50
1630 REM MARRIED FILING SEPARATELY SCHEDULE Y
1635 DATA 0,0,0,1700,0,0,2750,0,.11,3800,115.50,.13,5950,252,.15
1640 DATA 8000,574.50,.17,10100,923,.19,12300,1322,.23,14950,1828,.26
1645 DATA 17600,2517,.30,22900,3312,.35,30000,5167,.40,42800,8007,.44
1650 DATA 54700,13639,.48,9999999,19351,.50
1655 REM HEAD OF HOUSEHOLD SCHEDULE Z
1660 DATA 0,0,0,2300,0,0,4400,0,.11,6500,231,.13,8700,504,.15
1665 DATA 11800,834,.18,15000,1392,.19,18200,2000,.21,23500,2672,.25
1670 DATA 28800,3997,.29,34100,5534,.34,44700,7336,.37,60600,11258,.4
1675 DATA 81800,18254,.48,9999999,28430,.50
```

EXPANDING THE C1P/SBII

PART 4

By: David Tasker
111 Bass Highway
Tasmania, Australia 7303

Expanding to the Motherboard

The Motherboard is required if you wish to add more than 1 card of RAM or any other card such as an EPROM card or I/O.

I called the motherboard an 8+1; 8 slots for expansion cards, and 1 slot to take the 40 pin ribbon cable connection from the 1st RAM card - this is the input from the CPU.

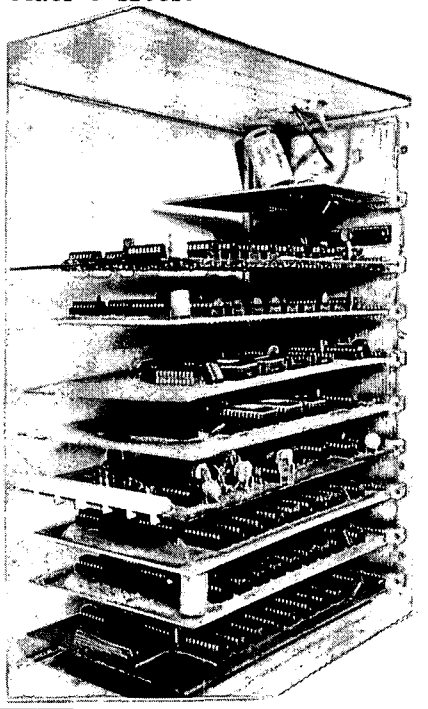
Each expansion card is 8 1/2" x 5" (approx.) with 4" of edge connections at one end; (36 lines spaced 0.1" apart). The connectors to use are readily available. The original connectors that I used were 2 rows of 36 tags numbered 1-36. 37-72. On the motherboard continue opposite pins i.e. 1,37 - 2,38 etc.

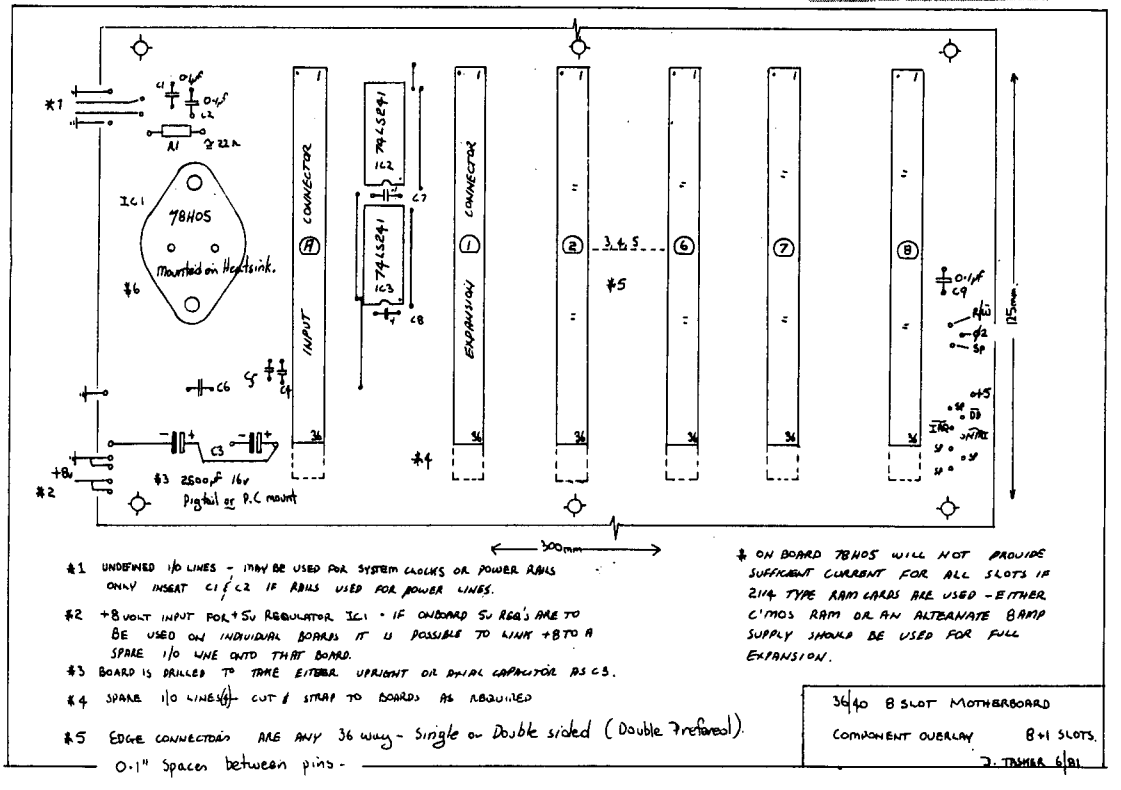
On all boards so far designed, except the 24K CMOS board, they are all single sided boards. so it does not matter whether single or double row edge connectors are used. However, the 24K RAM card uses 4 lines on the top side of the board. It is, however, quite easy to drill a hole and connect a wire link through.

The motherboard has address buffers and provision for a small 5 volt regulator for a couple of cards, but a more substantial 5v. at 10A is recommended.

There are 4 spare unconnected bus lines that may be "jumped" as specials to individual boards.

A +8 volt line - unused so far, is available if you have a board with on board regulator. When the motherboard is to be used, you need to cut and separate the 2 sections of your number 1 RAM card. The ribbon cable assembly plugs into the "A" slot and the RAM card plugs into any of the other 8 slots.





Cont.p8

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PS-1 (9137) +5 +12 -9 ..... $ 79.00
QS-24 +24 volt/2.5 amp for floppy .. $ 39.00
PS-35 +5 volt/3 amp for floppy ..... $ 20.00

DISK DRIVES . .

Siemans FDD 100-8 8″ s/s (new) $199.00
Siemans FDD 100-8 8″ s/s (used) $149.00
Shugart SA 801 8″ s/s (new) $299.00

WOW

SPARE PARTS BONANZA!!

CA-9 CENTRONICS PARALLEL PRINTER INTERFACE w/CABLE (WOW!) ..... *$ 99.00*
CA-9D Diablo 12 bit Parallel interface w/ribbon cable ..... *$ 79.00*
CM-10 8K Executive Memory for level 3 or CP/M (WHILE THEY LAST!) ..... *$ 69.00*

510c CPU w/6502-Z80-6800 2 mhz (New) *$199.00*
CM-3a 520 Rev C 16K Static Memory 2 mhz ..... *$ 79.00*
CM-3 520 Rev B 16K Static Memory 1 mhz ..... *$ 49.00*
CM-6 535 48K Dynamic Memory @ 1 mhz *$199.00*

8-SB Std 8 slot backplane populated (Removed from new comp) ..... *$ 49.00*
542 Polled keyboard w/num pad, case and cable ..... *$ 69.00*
540 Rev B Color Video Board ..... *$ 99.00*

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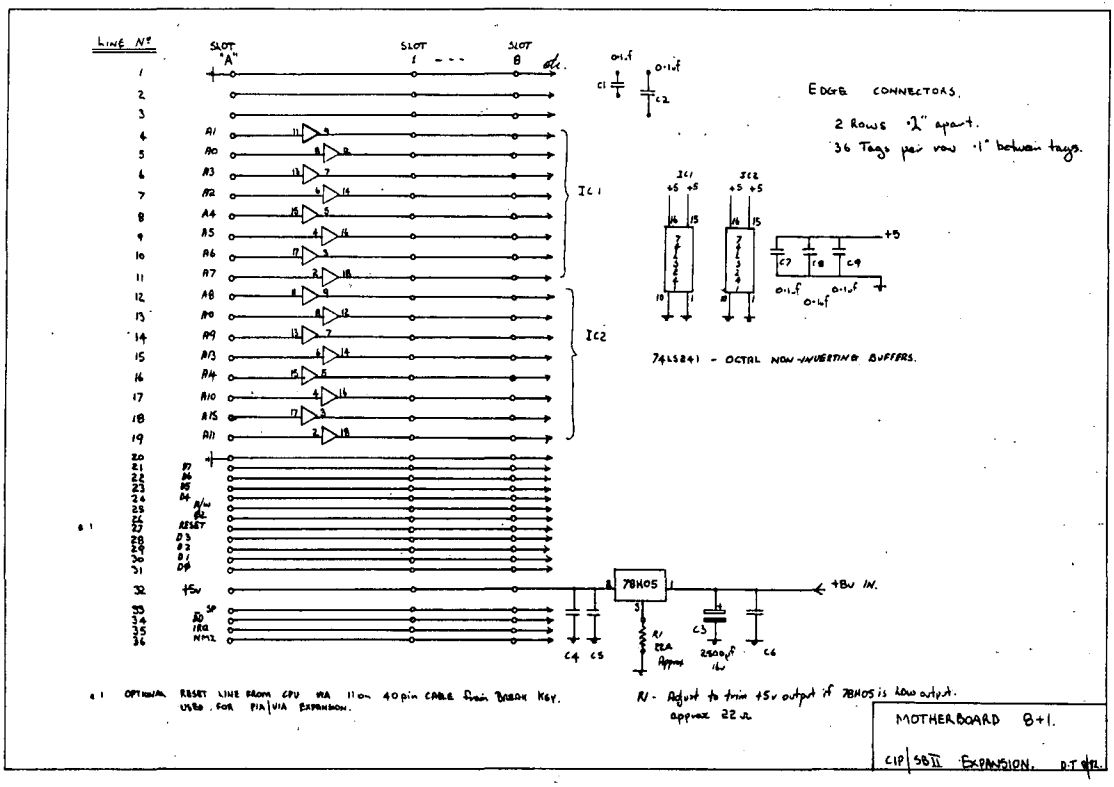

★ ★ ★

DISKDOUBLER: DOUBLE YOUR PLEASURE, DOUBLE YOUR STORAGE

A Review By:
Daniel D. Christian
Written by:
Donna Allgaier Christian
154 Fairview
Kalamazoo, MI 49001

After a year of anxiously waiting, our DiskDoubler finally arrived. The Diskdoubler, as its name implies, allows OSI 5" and 8" disk users to double their capacity for storing data.

Upon opening the professionally wrapped package, we found a simple-to-read instruction manual, and the necessary parts. These instructions encouraged us to take an inventory of the package contents, which we did in less than 5 minutes.

The DiskDoubler kit includes: a manual with easy reading instructions, a diskette with software necessary to run in double density mode, a DiskDoubler main circuit board containing the hardware interface to the standard diskette controller board, an I.C. extractor tool, 24 conductor cable to connect the DiskDoubler with a users disk interface board, a toggle switch attached to a cable to enable the user to manually select single or double density operation, and 2-16 pin DIP headers that replace the read and write one-shot I.C.s on your disk interface board.

We found the inclusion of the I.C. extractor tool to be most unusual and welcomed. Not your common household or workbench tool, its addition is invaluable to the novice engineer.

The instructions are also worth noting. The simple, detailed drawings enabled us to install the DiskDoubler in about 20 minutes.

INSTALLATION:

Our machine is a C3-OEM with two double-side diskette drives, 52K, a 74 MEG, hard disk, and Hazeltine 1500 terminal. It is installed in a desk with its cover already removed and two extra muffin fans for heat dissipation. We simply:-

1. Pulled our computer out of the desk.

2. Removed the floppy disk interface board.

3. Removed the read and write I.C.s and the ACIA.

4. We then inserted the two 16 pin DIP headers into the read and write sockets.

5. Inserted the removed ACIA into the DiskDoubler circuit board.

6. Inserted the interboard cable into the empty ACIA socket on the floppy interface board.

7. Reinserted this board into the computer.

8. Inserted the DiskDoubler board in front of the floppy disk interface board.

9. Connected the interboard cable between the DiskDoubler and floppy interface boards.

10. And finally connected the miniature toggle switch cable to the DiskDoubler board.

Modular Systems instructions are detailed enough, easy to follow, and use drawings to assist the novice in the proper placement of the I.C.s. In ten simple steps the system is ready to plug in and test. They even tell the user which way to twist the cable to aid in the installation. (This step took 20 minutes.)

CHECK OUT:-

The toggle switch is used to

D&N MICRO PRODUCTS, INC.

3702 N. Wells St.
Fort Wayne, Ind. 46808
(219) 484-6414

TERMS $3.00 shipping. Foreign orders add 15%, Indiana residents add 5% sales tax.

COMPUTER

MICRO-80 COMPUTER

Z-80A CPU with 4Mhz clock and CP/M 2.2 operating system. 64K low power static memory. Centronics parallel printer port. 3 serial ports. 4" cooling fan. Two 8" single or double sided floppy disk drives. IBM single density 3740 format for 243K or storage, double density format for 604K of storage. Double sided drives allow 1.2 meg on each drive. Satin finish extruded aluminum with vinyl woodgrain decorative finish. 8 slot backplane, 48 pin buss compatible with OSI boards.

MODEL 80-1200 **$2995**
2 8" Single sided drives

MODEL 80-2400 **$3495**
2 8" Double sided drives

MICRO-65 COMPUTER

6502 CPU with 2Mhz clock and DOS-65 operating system. 48K of low power static memory. 2 serial ports and 1 Centronics parallel port. 2 8" single or double sided drives. Satin finish extruded aluminum with vinyl woodgrain finish. 8 slot backplane, 48 pin buss compatible with OSI. Will run OSI 65D and 65U software.

MODEL 65-1 **$2995**
2 8" Single sided drives

MODEL 65-2 **$3495**
2 8" Double sided drives

BP-580 8 Slot Backplane . . . . . **$ 47**
OSI 48 pin Buss compatible

MEM-CM9 MEMORY/ FLOPPY CONTROLLER

24K memory/floppy controller card uses 2114 memory chips, 1 8K and 1 16K partition. Supports OSI type disk interface

24MEM-CM9 . . . . . **$325**
16MEM-CM9 . . . . . **$260**
8MEM-CM9 . . . . . **$180**
BARE MEM-CM9 . . . . . **$ 50**
Controller on assembled unit add . . . . . **$ 90**

BIO-1600 Bare IO card . . . . . **$ 50**
Supports 8K of memory, 2 16 bit parallel ports, 5 serial ports, with manual and Molex connectors.

PRINTERS

Okidata

ML82A, 120 cps, 10" . **$409**
ML83A, 120 cps, 15" . **$895**
ML84 Parallel, 200 caps, 15" . **$1150**

C. Ioth

8510AP Prowriter, parallel . . . **$419**
120 cps, correspondence quality
8510APD Prowriter, serial **$585**
F10-40PU Starwriter, parallel **$1319**
Letter quality daisy wheel
F10-40RU Starwriter, serial . . **$1319**
F10-55PU Printmaster **$1610**
parallel, Letter quality daisy wheel
F10-55RU Printmaster, serial **$1610**

DISK DRIVES AND CABLES

8" Shugart SA801 . . . . . **$385**
single sided
8" Shugart SA851 **$585**
double sided
FLC-6 6 ft cable from D&N **$69**
or OSI disk controller to 8" drive
5¼" MPI B51 disk drive with . . **$450**
cable, power supply and cabinet. Specify computer type.
FLC-5¼ cable for connection . **$75**
to 5¼ drive and D&N or OSI controller, with data separator and disk switch. Specify computer type

HARDWARE

OSI COMPATIBLE

IO-CA10X Serial Printer Port . . **$125**
Specify Device #3 or #8
IO-CA9 Parallel Printer Port . . **$150**

CMOS-MEM

64K CMOS static memory board, uses 6116 chips, 3 16K, 1 8K and 2 4K blocks, Partitionable for multi-user, OSI type disk controller, 2 IO mapped serial ports for use with D&N-80 CPU. Ideal way to upgrade from cassette to disk.

64K CMOS-MEM **$490**
48K CMOS-MEM **$390**
24K CMOS-MEM **$250**
16K CMOS-MEM **$200**
Controller add . **$ 90**
2 IO mapped serial ports add. **$125**
on assembled memory board
Z80-IO 2 IO mapped serial **$160**
ports for use with D&N-80 CPU card
FL470 Disk Controller **$155**
Specify 5¼ or 8" drive

STANDARD CP/M FOR OSI

D&N-80 CPU CARD

The D&N-80 CPU allows the owner of an OSI static memory computer to convert to Industrial Standard IBM 3740 single density disk format and CP/M operating system. Double density disk operation is also supported for 608K of storage on an 8" diskette. When used with a 5¼" disk system 200K of storage is provided. Includes parallel printer and real time clock. Also available for polled keyboard and video systems. Compatible with C2, C3, C4 and 200 series OSI computers.

D&N-80-P **$349**

CP/M 2.2 . . . . . **$150**

64K CMOS-MEM with D&N-80 CPU card **$450**

HARD DISK DRIVER **$140**
Allows D&N-80 CPU board to control OSI 40 or 80 meg hard disk unit. Will not destroy OSI files. Will also allow for a true 56K CP/M system. Specify 40 or 80 meg drive.

BUSS TRANSFER **$135**
Allows for D&N-80 and OSI CPU to be in the computer at the same time. Toggle switch provides for alternate CPU operation.

DISK TRANSFER **$100**
Utility program to transfer OSI CP/M format disk to IBM 3740 single density format. Will also transfer IBM to OSI format.

SYSTEM HARDWARE REQUIREMENTS
D&N-80 CPU, D&N FL470 or OSI 470 controller, 48K memory at 0000-BFFF, 4K memory at D000-DFFF, two disk drive cables.

FORMAT TRANSFER **$15**
You supply software on 8" diskette D&N will transfer OSI CP/M format to IBM 3740 CP/M format. Can also transfer IBM 3740 CP/M format to OSI CP/M format. Original diskette returned.

control the selection between single and double density operations. or, it can be set so that the density is selected through their modified basic "DEV" command. The first check out instruction is to test out the operation of the switch and the software commands. There is a light emitting diode on the DiskDoubler board which indicates the mode you are in. This light is easy to see (upper left corner of the DiskDoubler board) if you place the Diskdoubler in the first slot of the system back plane. If you seem to be having trouble with a diskette. the light tells you what format the diskette is being read in. If this happens. chances are you have selected the wrong density. (This step took 4 minutes.)

OPERATION:-

After booting up the included system disk, we tried running the included "DDCOPY" program to create a backup diskette. The system disk was not configured for our CRT or printer as delivered. After running "CRTSET" and "PRTMAP", we were off and running. Telephone conversations with Modular Systems caused them to add this step to their instructions. They also include a program called, "DDTEST" that tests repeated reads and writes to the users diskettes. Modular Systems recommend you run either the 5 minute or the 48 minute test for newer machines, and the 8 hour test if your older drives have a history of read/write errors. We only ran the 5 minute test, as we were anxious to begin to use the system.

The other utilities included are:

DBLDNS - required on all program disks to load the necessary software routines into memory.

BEXEC* - modified to call "DBLDNS".

CONVRT - utility to convert your single density diskettes to double density.

COPYFX - to copy single density files to a double density disk one file at a time.

WRTEST - utility to test only. writes to disk (similar to "DDTEST").

Modular systems includes an extension to the "DEV" command to control the switching densities. At installation time, the user is given a chance to select the location that the software subroutines are loaded into during boot up.

SELLER CHANGES:-

One of our biggest concerns was that the DiskDoubler would work on our hard disk system. To be certain that it would be compatible, we called Rich Edwards of Modular Systems, the DiskDoublers designer.

Edwards explained that in theory the DiskDoubler should work with a hard disk and he was currently loading his routines in the hard disk controller area. He offered to look into the changes necessary to allow use of the DiskDoubler with an OSI hard disk system. Edwards then modified his software allowing the user the option of selecting the area in which to store his routines.

The user can now store the DiskDoubler software routines in the hard disk driver area, in the top of the 48K system memory. the EDITOR area, or a user selected area.

HISTORY:-

Some astute readers may have noticed the time lapse in advertising of the DiskDoubler to the actual marketing of the product. While Edwards was developing the kit for OS-65D, many inquiries,including ours, were coming to him by mail and phone.

With each release of the OS-65U (1.40-1.44), by OSI, Edwards had to modify and retest his new package.

He says he spent weeks hand disassembling the operating system to check for changes that might have effected the operating of his hardware/ software.

The biggest holdup in the cycle of this product was that with each new release. new programs had to be written and rewritten. Imagine trying to get a product on the market when external changes led to testing and retesting before release was possible.

In corresponding with Edwards, he summarized the problems he had to overcome in order to get his product on the market:

"The OSI hardware, in which all disk timing (including reading and writing) is controlled and often limited by processor timing, is not readily accessible for modification.

The OSI software, in which the system structure is not the result of centralized planning but of evolutionary growth, is characterized by decentralized system changes and system code comprising innumerable patches.

The continuing changes in two operating systems (both in the system itself and in BASIC utilities) require constant checking, documentation, and updating.

The DiskDoubler as initially developed was not for a 5" OS-65D system. As such processor timing was not a problem, in that the speed requirements for 5" double density are the same as one version of the OS-65D, in which the system structure was relatively straight-forward, having few patches. In addition, the disk utilities were not OSI utilities (in which every operation had its own program) but were utilities that I had written in which all common functions were centralized so that no redundant changes were required.

It has been a source of profound disappointment for

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me to see a carefully designed product held back by some hadware limitations and endless software modifications to a constantly changing operating system."

CONCLUSION:-

In testing this system under version 1.42, 1.43, and 1.44 of the OS-65U operating system, we found out that it did indeed work as stated. We have been using this product since July of 1983, and have found only a few program procedures that were confusing. Two new OSI utilities in the new release had not yet been modified by Modular Systems to allow full storage capabilities of this package. They had modified all other OSI utilities and referred to them in their documentation.

After relaying this information to Edwards, the changes were included in the next release of the software. What a pleasant surprise it was and indicates a vendor who cares about his product. I would suggest that if he were to organize the documentation on each of his utilities in the form of a handy one page programmer reference sheet, then his package would be complete for the user.

I would recommend the Disk-Doubler for any user of OSI equipment who wish to double their diskette storage capacity without having to convert to a hard disk or double sided disk drives at a cost much greater than the cost of this package.

Depending on the users computer model and whether they wish the manual toggle switch only, or both manual and software switchable, user cost will be approximately $270 to $360. Another $40 should be planned on if the user machine is a 1MHz OS65U system.

OS-65U File Directory for DEVice A

Name	Type	Access	Address	Length	Sec Bnd	Sec Len
DIREC*	Other	None	25088	3584	Yes	Yes
BEXEC*	Basic	Read	28672	7168	Yes	Yes
DIR	Basic	Read	35840	7168	Yes	Yes
DBLDNS	Basic	R/W	265216	3584	Yes	Yes
DDTEST	Basic	R/W	268800	7168	Yes	Yes
CONVRT	Basic	R/W	275968	10752	Yes	Yes
COPYFX	Basic	R/W	286720	7168	Yes	Yes
DDCOPY	Basic	R/W	293888	3584	Yes	Yes
WRTEST	Basic	R/W	297472	7168	Yes	Yes

★ ★

```
 10 0000          ; SCREEN TO PRINTER DUMP for OSI BASIC
 20 0000          ;        by LZ JANKOWSKI
 30 7000                     * = $7000
 40 7000                FIRST = $F1
 50 7000          ;
 60 7000          ; Change these 5 CONSTANTS to suit your screen
 70 7000                WIDTH = 64    of screen, stored in FIRST
 80 7000                LINES = 30    printed. Stored  in FIRST+1
 90 7000                LOSCR = 00    lo-byte scr addr in FIRST+2
100 7000                HISCR = $D0   hi-byte scr addr in FIRST+3
110 7000                DONEL = 0     # of lines printed, FIRST+4
120 7000          ;
130 7000                PRDMP = $FCB1 send to printer, not screen
140 7000                SAVE  = $0205 printer port
150 7000          ;
160 7000 40       CONSTS .BYTE WIDTH,LINES,LOSCR,HISCR,DONEL
160 7001 1E
160 7002 00
160 7003 D0
160 7004 00
170 7005 A200             LDX #0        store CONSTANTS in FIRST etc
180 7007 BD0070   LOOP    LDA CONSTS,X
190 700A 95F1             STA FIRST,X
200 700C E8               INX
210 700D E006             CPX #6
220 700F D0F6             BNE LOOP
230 7011 EE0502           INC SAVE      make printer port ready
240 7014          ;
250 7014 A000             LDY #0
260 7016 A200     PRINT   LDX #0           X reg := # of char printe
270 7018 B1F3     DUMP    LDA (FIRST+2),Y  load a char from screen &
280 701A 20B1FC           JSR PRDMP        dump to printer
290 701D E8               INX           count # of characters printe
300 701E C8               INY           next screen addr (lo-byte)
310 701F C000             CPY #0        increment hi-byte of scr adr
320 7021 D002             BNE HUP       no.
```

continued

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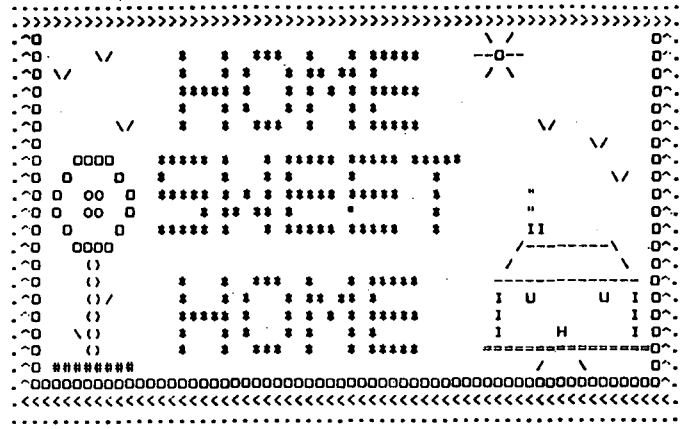
SCREEN-TO-PRINTER DUMP PROGRAM

By: LZ Jankowski — CAR Z
Otaio RD1 Timaru
New Zealand

Got a printer? If so, this short program could prove useful. To adapt it to other Basics merely change lines 40, 120, and 130. Then, in lines

```
330 7023 E6F4           INC FIRST+3   yes.
340 7025 E4F1    HUP    CPX FIRST     line of characters printed?
350 7027 D0EF           BNE DUMP      if no, then go print next on
360 7029 A90A           LDA #$0A      yes, do LF & CR
370 702B 20B1FC         JSR PRDMP
380 702E A90D           LDA #$0D
390 7030 20B1FC         JSR PRDMP
400 7033 E6F5           INC FIRST+4   add 1 to lines done
410 7035 A5F2           LDA FIRST+1
420 7037 C5F5           CMP FIRST+4   check, LINES done?
430 7039 F002           BEQ END       yes.
440 703B D0D9           BNE PRINT     no, go & print another line
450 703D        ;
460 703D CE0502  END    DEC SAVE      printer port 'off'
470 7040 60             RTS           return to caller
```



```
100 REM SCREEN TO PRINTER DUMP
110 REM FOR OSI 8K BASIC
120 REM by LZ JANKOWSKI.
130 REM X=USR(X) will RUN
140 REM the program.
150 :
160 POKE 133,0: POKE 134,31
170 FOR X=7936 TO 8000
180 READ N: POKE X,N :NEXT
190 :
200 DATA 64,30,0,208,0,162,0
210 DATA 189,0,31,149,241,232
220 DATA 224,6,208,246,238,5
230 DATA 2,160,0,162,0,177
240 DATA 243,32,177,252,232
250 DATA 200,192,0,208,2,230
260 DATA 244,228,241,208,239
270 DATA 169,10,32, 177,252
280 DATA 169,13,32,177,252
290 DATA 230,245,165,242,197
300 DATA 245,240,2,208,217
310 DATA 206,5,2,96
320 :
330 POKE 11,5:POKE 12,31
340 END
```

70-100, make the changes necessary to suit your screen.

This program gives a simple but effective way of saving the contents of a screen, be it a graph, a table or a long calculation done in immediate mode. No special commands to the printer or complicated bit-graphic calculations are required. In fact, if the characters sent to the printer comply with standard ASCII codes, any section of computer memory, RAM or ROM, could be dumped. Merely change the values of LOSCR and HISCR to suit your requirements.

All 5 constants are accessed using indirect addressing, making the program flexible and adaptable, even if it is placed in ROM. The constant values could be POKEd in from BASIC and the program would then be run from the section wich initializes the printer, omitting the dump to zero-page.

The BASIC listing of the program is for OSI BASIC with 8K RAM. Entry would be at $1F05.

★

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SYSTEM DISK UTILITY
FOR OS65D

By: David L. Kuhn
109 Shaw Avenue
Lewistown, PA 17044
717-248-5550

The DELETE-ALL program is a very useful utility for use with OS65D. The only way that I know to initialize a diskette AND make it bootable is to first initialize it and then to copy the first 13 Tracks of my System disk. Then I have to go through the drudgery of eliminating from the directory all the uncopied files that the operating system (or at least the directory) "thinks" are on the disk. This program eliminates the need for that by eliminating all files except the operating system and the BEXEC* automatically! Now I can create a usable working diskette very quickly!

```
10 REM DELALL
20 REM THIS PROGRAM IS DESIGNED TO DELETE ALL
30 REM DIRECTORY ENTRIES EXCEPT:
40 REM           OS65D3 AND BEXEC*
50 REM
60 REM WRITTEN FOR OSI BY:
70 REM           David L. Kuhn
80 REM           109 SHAW AVENUE
90 REM           LEWISTOWN, PA 17044
100 REM          (717)248-5550
110 REM
120 PRINT!(20)"*** DELETE ALL ***"
130 PRINT:PRINT "This utility will delete"
140 PRINT:PRINT "EVERY DIRECTORY ENTRY":PRINT
150 PRINT:PRINT "Except 'OS65D3' and"
155 PRINT "the 'BEXEC*'"
160 PRINT "PLEASE use with caution!"
170 PRINT:INPUT "Password: ";PASS$
180 IF PASS$="PASS" THEN 200
190 PRINT "Incorrect Password!"
193 PRINT "Loading BEXEC*"
195 RUN "BEXEC*"
200 REM START LOCATION IN MEMORY WHERE THE DIRECTORY WILL BE DUMPED
210 START=11897  — 24576
220 DISK!"CA 2E79=12,1"
225 GOSUB 1010
230 DISK!"SA 12,1=2E79/1"
235 DISK!"CA 2E79=12,2"
240 GOSUB 1010
250 DISK!"SA 12,2=2E79/1"
260 PRINT !(20)"*** FINISHED ***"
270 PRINT:PRINT"=== LOADING BEXEC* ==="
280 CLEAR:RUN "BEXEC*"
290 END
999 REM START OF ROUTINE TO DELETE ALL DIRECTORY ENTRIES
1010 FOR I=START TO START+248 STEP 8
1015 NAME$=""
1020 FOR X=I TO I+5
1030 NAME$=NAME$+CHR$(PEEK(X))
1040 NEXT X
1050 IF NAME$="OS65D3" OR NAME$="BEXEC*" THEN NEXT I
1060 FOR SCRTCH=I TO I+5:POKE SCRTCH,ASC("#"):NEXT SCRTCH
1070 POKE I+6,0:POKE I+7,0:NEXT I
1100 RETURN
```

★ ★ ★

READER PROFILE

ED:

As a long term subscriber (2 copies to date), I note that you are always requesting reader profiles, articles, questions, etc., so here goes.

We operate a C3C 3 user 2MHZ V1.44 with Mime 2A and Sphere CCT100 terminals, linked to one Microline 84 and two IDS Paper Tiger printers. The C3C is still a mish mash of the multitude of OSI boards circa 79-81. This C3C has given so much trouble that we also purchased a C3OEM originally as a test vehicle for the C3C boards.

The OEM has been rejuvenated by tossing most OSI boards and replacing with D&N/Overtask modified boards. It is now set up with D&N combined CPU/floppy driver, 590 and 525 HD interface, 3 x 48K Cmos overtask partitions, D&N modified jungle board, and a CA10X configured for three No. 8 printers. The 594 HD board is jammed in with the power supply (no more slots). It also has a Shugart SA 4008 23mb nailed on. This OEM (for want of another description) has now operated "error free" for some months and is the main computer. The C3C being relegated to development work.

In our checkered history, we have also owned Citizen and Diablo printers, Lear and Informer terminals. Two Citizen printers blew up in three weeks and the Diablo was incompatible as No. 5 at 2MHZ. The Lear was sold and the Informer junked when it became economically unrepairable.

On the software side, we purchased Level 3 V1.2, an Australasianized version of Amcap and DMS Nucleus. After fighting Amcap for 4-5 months, we threw it out as total junk. It probably works fine on ten clients and 50 invoices and 50 inventory, but with 1000 customers, 2000 invoices and 12000 inventory it was just not on.

Next, we studied DMS and decided to write our own system around DMS files. Created some files and started putting inventory in. Had about 1000 in and decided to sort the key file using the DMS sort. Three days later it bombed out - unsorted. Undeterred, we wrote our own Basic quick sort. We still use the basic Quick sort, which sorts into blocks, but now use the OSI Machine sort for the blocks. A sort of 12000 items takes about 30 minutes including a pointer file to the key file.

The system was fully developed using mainly DMS files, but these are now mostly gone. The reasons for conversion to fixed position files are:-

1. Lost time reading headers.
2. Lost time using space strings and mid strings.
3. File size - all files must be maximum - no averaging permitted.

The software is approximately 700K with most utilities available only from floppy. It is a totally integrated system and includes Debtors, Creditors, Private Ledger, Inventory, Payroll, Plant, Job costing, Government taxes, etc.

The office occupies one partition and handles all office procedures plus batch processing from a country branch. The office also handles two small subsidiary companies and the internal Superannuation fund - these last three are floppy based.

The other two partitions operate in an "on line" environment - one is sales and the other a repair division.

Our hard disk is divided in two by Sysdir and we backup

Continued

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from System 1 to System 2 daily. Approximately 7MB of the 11MB are "live" files and the backup takes 8 1/4 minutes. "Copier" takes around 40 minutes for the same file size. As a throw away, I enclose a listing for the backing up of floppies. Sorry REM's are not my long shot.

```
1 REM  REMOVE  1 - 4 REMS
2 REM  UNDER 1.2 BASIC FILE SIZE IS 22500 CREATED IN LEVEL 1
3 REM  OTHERWISE FILE IS 25088 BYTES
4 REM  PROGRAM IS INPUT AFTER - NEW 21510
5 REM    BACKUP
6 REM
7 PRINT:PRINT"COPIES FROM < A > TO < B >":PRINT
8 INPUT"ENTER < Y > WHEN READY  ";Y$:IFY$<>"Y"THENEND
10 FA=25088:NB=21504:LG=275967:RA=24576:GA=FA
20 POKE8778,192:POKE8779,36:POKE9432,243:POKE9433,40
30 POKE9435,232:POKE9436,40:CB=9889:Q=256
40 X=X+1:DA=FA:IFX=12THENNB=14336
45 PRINTX;TAB(8);"FROM  ";DA;TAB(28);:GOSUB100
50 DEV"A":RW=0:ER=USR(RW):IFER<>0GOTO200
60 DEV"B":DA=GA:PRINT"TO  ";GA:GOSUB100:RW=1:ER=USR(RW)
65 IFER<>0GOTO200
70 FA=FA+NB:GA=GA+NB:CLOSE:IFFA<LGGOTO40
90 GOTO210
100 DH=INT(DA/16777216):RM=DA-DH*16777216
110 DM=INT(RM/65536):RM=RM-DM*65536
120 DL=INT(RM/256):RM=RM-DL*256
130 POKECB+1,RM:POKECB+2,DL:POKECB+3,DM:POKECB+4,DH
140 POKECB+5,NB-INT(NB/Q)*Q:POKECB+6,INT(NB/Q)
150 POKECB+7,RA-INT(RA/Q)*Q:POKECB+8,INT(RA/Q)
160 RETURN
200 PRINT"ERROR  ";ER;"  AT  ";DA;"  RW=  ";RW
205 INPUT"CONTINUE  ";Y$:IFY$<>"Y"GOTO210
206 FA=FA+NB:GA=GA+NB:GOTO40
210 POKE8778,208:POKE8779,16:CLOSE
220 PRINT"END OF COPY":RUN
```

Now for a few tips to the other "basic" nuts.

1. With big files we have found it helps "find" statements to have a pointer file at the top of key files to get a start-stop block and use the "limited find routine" for the final find. In this way we access any one of 12000 items in less than one second.

2. Eliminate house-keeping time. When re-using large string arrays, poke relevant data, indexes, counts, totals, etc. into high memory - clear - peek back the relevant figures and re-dimension. This is so much faster, it is unbelievable.

3. Moving large blocks of data. Use the DOS routine in the 1.2 manual. See PEEK(65) for memory map to calculate appropriate RAM addresses and number of bytes that can be shifted in each loop. Do a "clear" first and use a minimum number of variable (numeric) for maximum byte shift.

This really hacks the time off Input % - Print % routines and I don't care what arrays you use.

So much for the profile and tips - now come the problems and I hope someone out there can help.

1. Can someone help with a direct data transfer between computers? C3C to OEM or vice versa.

2. We own a 48K 522 board using 8104 chips. Can anyone sell me three or four chips, please?

3. A funny thing under V1.44 - We have a file of 1000 - 20 field records at 256 byte spacing. In an accumulating type program we collect 70 of these records from file 1 and write them sequentially (256 bytes apart) in file 2. This routine is repeated until all records are re-arranged in file 2. We have been using a "Kill" and "Dim" statements after each loop. Record numbers 561 to 630 have stray (and definitely unwanted) carriage returns sprinkled through them. All records up to 560 and over 630 are ok. We have written them to a totally different area of disk but still get the same idiot results. If someone has discovered (and fixed) this lulu, please write to PEEK(65).

4. What hardware - software is required for multiple hard disks on the one computer e.g. Dev "E" and "F".

What do I want? - Articles on speed - program hints - details on new hardware and software, particularly utility stuff - e.g. does someone have a 6502 65U spreadsheet - problems and remedies on B I G systems.

Finally - A message to other multi user buffs - If only 12 of us are willing to do one article per year each then we can maybe force PEEK(65) to give us "The Biggie" corner.

Come on you multi users - give the word processor a "bash" and do an article or at least dump a program or two.

Ian Mutch
Brisbane, QLD, Australia

Ian:

Wow! Where to start? How about No. 1?

1. It can be and has been done. We know one meticulous programmer who has done it, but because it is not documented, he's reluctant to let it go.

2. 8104s are scarce, but word has it that some of those who advertise in PEEK do have some. Who knows, ISOTRON may even have some.

3. On this we are awaiting an answer from ISOTRON, but in the meantime, we suggest that you insure that the file is properly (all the way out) initialized.

4. We'll try to give complete details next month, but if you know your way around, try this: Replace 8AT26 with 75183. On the 592 fill the 4 empty sockets, and add another edge connector. Make a cut and jumper on the OSI HD board. Caution with CD-23s. They are always different.

Miscellaneous: Spread sheets - there are two; OSI's Planner Plus and Micro-Software International's Busi Calc.

Not that we don't appreciate your letter, but how about describing in technicolor detail, with listings, your above mentioned tips? Or, the details of your apparently multi-user D&N C3C.

Finally, a note to those other 12 B I G system users. We would be delighted to do a "Biggie Corner." What more incentive do you want?

Peek Staff

* * * * *

ED:

My wife and I own two OSI machines, a C4PDMF-48K and a C4P that I have upgraded to

48K and one mini-floppy using a board from Micro Interface. I have enjoyed your journal since 1980 when I purchased my first OSI machine, the C4P. I guess it is about time I did my fair share for my fellow OSI users and I'd like to share some of my experiences.

Although my wife and I do use BASIC from time to time, we primarily use the UCSD p-System on our C4PDMF-48K. I have been unable to get the p-System to run on my upgraded C4P. I have not heard much about the p-System and its usage on the OSI machine. Is there anyone else out there who uses it? I have had several adventures with the p-System which might interest others who may have it. We use the p-System for programming in PASCAL and for word-processing. I have written a PRINTER: driver, and an Adjust-And-Page program to do those things the system editor does not do. I would like to write an article or articles about my adventures. Would anyone be interested in articles about the p-System on the OSI machine?

Our most recent acquisition is the Color Plus board from Generic Computer Products; we bought the 16 pin bus version. If you've ever longed for the graphics capabilities that your friends with Apples and such have, you don't have to wait any longer. I love it. Installation was simple; one simply connects a 16 pin ribbon connector, plugs a male cable into the video out of the computer, and connects the cable from the monitor into a female cable on the Color Plus. The software extensions to OS65-D are excellent. The board comes with two disks of demo software that you'll love and software extensions for V3.2 and V3.3. I have not tested the joystick interfaces yet, but I did write a simple program using an OSI joystick in which I had a 'Starship Enterprise' sprite, a cross-hairs sprite, and an explosion sprite; this was a very serious application program.

Has anyone used GENEROS? I am anxiously waiting for the mini-floppy version. Where can I get DOS 65 for the OSI on a mini-floppy? On pg 29 of 'Ohio Scientific Professional Computers Set Up and Operations Manual', PASCAL and FORTRAN are mentioned as being available for 65D and 6502 based. Does anyone know anything about them?

William Beshures
Rochester, NY 14615

William:

There are reported to be a small number of P-System users. Let's hear from them again. In the meantime, please do tell us about your "adventures" William.

DOS 65 is available from:

Micro Software Technology
1363 Nathan Hale Dr.
Phoenixville, PA 19460

For more information on FORTRAN and PASCAL, we suggest you give Bill Thompson at ISOTRON, Aurora a call, (216) 562-2020, then please drop us a line so we can share the word with fellow PEEKers.

Peek Staff

LETTERS

ED:

I would like to recount my experiences with VICTORY SOFTWARE's GREATEST HITS FOR THE C1 (vol. 1). One reviewer claimed the documentation was 'thorough'. What that means is, there is a brief description of each and every program. The listings of each program are available, separately, for $2.00 ea. or $10.00 for the lot.

I agree that the graphics are good --- what I could see of them. Unfortunately, the programs are written exclusively for challengers without the 540 video addresses. My C1 has the Progressive Computing 64 ch. video, so the programs won't work on my machine.

I called VICTORY SOFTWARE to see if they could provide me with corrections to the code so that I could use the games on my 64 ch. display. They said no. I could rewrite the programs myself, except they are hybrids - BASIC and machine code, and machine is out of my league.

I have sent the tapes back, asking for a refund. These programs are a great buy if 1) you have an unmodified C1, 2) you prefer to simply LOAD and RUN a program as is, or 3) you enjoy DEC-HEX conversion and machine language.

It is too bad that software dealers are forsaking the C1 users. I see a fairly lucrative market for some machine language whiz to rewrite these programs for all us non-disk Challenger users out here. I have rewritten non-OSI BASIC programs for my C1 and am willing to do so for others for a small fee. Any takers?

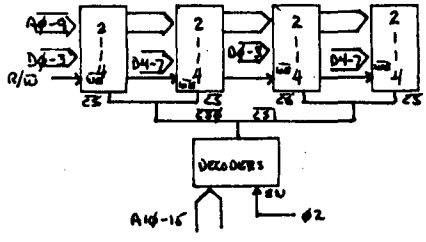
Any m.l. programmers interested in a joint venture?

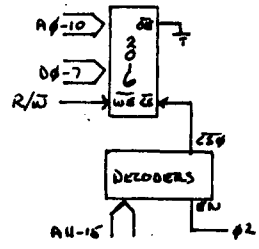
Now, to another subject. - For those interested in building their own memory boards, I invite their attention to the enclosed diagrams. Both show a 2K block of RAM.

Figure 1 shows the conventional 2114 chips, while Figure 2 illustrates the newer Toshiba TMM 2016. The first most significant difference is the reduction of the parts count (4 RAMs vs 1). Note also the greater wiring simplicity, with every 2016 being connected to all 8 DATA lines. Lastly, the Decoder circuitry is simpler.

Compare the price, too. The 2016 is going for $4.15 each vs $6.96 for four 2114s (mail order price).

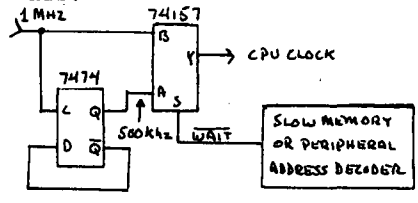
IF speed is important to you, consider that the prices I quoted are for 200 n.s. 2016s and 45 n.s. 2114s. The 2016's also require less power.





Here's an answer to Jim McConkey's letter in PEEK vol 4 No 8 (Aug '83).

OSI used a WAIT function to select either a 1mhz or 500khz CPU clock. A simple circuit would look something like this:



Now a few thoughts on the letters in the September '83 issue... The polled keyboard can be modified by changes to the machine code routines that interpret the keystrokes. Keytops can be switched around or relabeled. I'm not a machine-code programmer, but I'm sure there are several out there who could write an article about it.

Bruce Showalter
Abilene, TX 79601

* * * * *

ED:

In answer to some questions from Frank Glandorf that appeared in the November. 1983 issue of PEEK(65): The location 9976 ($26F8) must be used to disable the colon function in OS65U, or very old releases of OS65D before version 3.2, as this location 9976 ($26F8) is in the tail end of the 65D DOS set-track routine which checks for a valid track number and then moves the disk head to that track. Note the track number remains in the accumulator upon exit of this routine. My advice concerning this POKE location, DO NOT use that POKE and cross it off your PEEK/ POKE list.

As to the use of leading blanks (and double quotes), entered into inputs, try this poke to turn off BASIC's space eating compression function on inputs, etc.

```
POKE x, 36  <off>
POKE x, 240 <on -Normal>
```

VERSION of BASIC	VALUE OF x
OS65D v3.2	x=207
OS65D v3.3	x=203

These values are for 8" disks.

BASIC-IN-ROM USERS x=203
Should work for all BASIC-IN-ROMS.

The pokes for OS65D should work for the 5-inch disks, too.

The decimal number 36 POKEd into the proper location depending on the system in use, will turn off BASIC's space compression on all input buffer operations, even when entering lines of BASIC CODE with line numbers. Try it by typing in the correct poke for your computer. Then enter the line number normally, then press the space bar and hold it down until the cursor is at least half way across the screen on your video monitor (this should work on serial systems as well), then type in any reserved keyword, example REM, PRINT <or> ?, LET y=10, etc. Press <RETURN> key and type LIST <RETURN> and you will see that the spaces are still all there between the line number and your entered command or phrase.

This poke location is in the page zero character-get routine in OSI's BASIC. The routine checks for a basic statement separator (colon), and space characters. If the routine finds a space, it skips it and continues to look at the line of code until it finds something other than a space. The routine is a little different between the BASIC-IN-ROM, and even the disk Basic's are a little different. The reason that the page zero poke is different for OS65D v3.3, is because OS65D v3.3 has a patch, which I have added to my OS65D v3.2 to make both disk BASICs more compatible in the use of upper and lower case. I hide the upper case convert routine in my compacted math package section of BASIC, where I put ROR's in to save space and SPEED UP the math operations even faster than they were before. So now my page zero, space compression pokes on OS65D v3.3 and OS65D v3.2 are the same for compatibility and

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by gosh, they are even compatible with BASIC-IN-ROM. In OS65D v3.2, I use x with a value of 203 (x=203), so my software will translate very easily, for anything using this page zero poke. The OS65D v3.3 page zero patch lets BASIC use upper and lower case letters for variables along with reserved words; the BASIC changes the reserved keywords to upper case, but leaves the rest of the program in lower case if it was entered in lower case. It makes the programs much easier to read, by having the computer separate the reserved keywords by capitalizing them, and leaving the variables in lower case.

On the last point about double quotes, first use the correct page zero POKE outlined earlier and turn BASIC's space compression off. Then to enter the double quote into an input statement variable, at the input prompt, press the space bar once before entering the double quote and whatever else you want. You can even close the double quote on the end, or any number of times, anywhere else in the input line for that matter.

I have known about this POKE, space eating compression kill for well over a year, I just didn't think it was that useful. I sure hope this helps you out Frank, and anyone else who's trying to do something like this. Also, since this routine is in page zero, you BASIC-IN-ROM people can make changes and modify this character-get routine to make use of upper and lower case, or do other neat things.

Disk users, and BASIC-IN-ROM users! Use great caution when changing this page zero character get routine. The reason is it's a little bit hard to change this routine too much by pokes, as this routine is used to interpret the execution line statements, and the line input buffer. Disk users will find it is best and easier to make any big changes on the disk, (MAKE A BACK-UP DISK TO EXPERIMENT ON!). The reason for this is, when you type EXIT <RETURN>, the entire contents of page zero and the stack (page 1), are swapped off to protect their contents. So, when you type RE-ENTER MON <RETURN>, at the kernel mode prompt, to change anything in page zero, as soon as you re-enter the operating system kernel mode and type RE-START BASIC, everything is swapped back and overwrites anything that was there. Funny thing about this swap, if you exit basic and re-enter to the machine window monitor mode, all your changes will still be there, just the same as when you left them. You see, it saves this also when you re-enter BASIC. Funny huh! It's like when you use the DISK!"<CMD>" command you can use all of page zero (and the stack, too), until you return to BASIC. OS65D v3.3 makes very good use of this feature to get twice the size of the normal page zero.

Sorry, I might have been a bit long, but I wanted to get it all clear for once. If requested by PEEK(65) or any readers concerning how to make these changes on disk, etc., I can provide a machine code source and a better explanation of any ideas covered here.

Al Adams
407 Rollcrest
Midland, MI 48640

Peek(65) so "requests", please Al, share the whole story with our readers.

Ed

* * * * *

ED:

I have noted that several people have written in to your publication about the possibility of installing a processor such as the 6809 on the OSI. Anyone who has looked into the 6809 knows that it is slightly better than the 6502 for some types of operations but is hardly enough of an improvement to make it worthwhile to adapt it to the OSI.

I, however, have a suggestion that might be of interest to some of the OSI users who are interested in a drastically improved processor that will allow them to both run faster and to learn something about the Motorola 68000 16/32 bit processor.

Some of your readers may be aware of the Digital Acoustics 68000 boards. Their products now include a 12.5 MHZ processor board with up to 92k of static memory, expansion boards with 128k of static memory, a 12.5 MHZ dynamic memory processor board with up to 1 megabyte of memory, and some new high resolution graphics boards that interface to the processor boards.

The Digital Acoustics boards were designed to be interfaced with microcomputers as an "attached processor". For the most part these boards are now interfaced to Apple computers. For further information, see the September 82 issue of Micro magazine. Digital Acoustics also publishes a newsletter called, The Journal of Simple 68000 Systems. This newsletter provides information on both software and hardware for the Motorola 68000. I strongly recommend this newsletter to anyone interested in the Motorola 68000.

Now, then why am I telling OSI people about this? Because I now have an interface to the Digital Acoustics Motorola 68000 boards. I have a printed circuit board that will plug into any OSI computer with the 48 pin bus (yes, even business systems) and it can be decoded (switch selectable) into one of several unused memory locations of the OSI.

This board also includes an expansion interface that includes all address lines, control lines, clock and data lines that are already buffered with a data direction control line that goes to the buffers. This expansion connector is perfect for adding such things as a RAM disk or any type of hardware.

In addition to the hardware, I also have some software available to interface the 68000 to the OSI computer. This software consists of a floating point math package for the 68000 with the hooks into the Microsoft BASIC, a program called "Hand Assemblers Helper" that can be used as a primitive assembler and also to help learn 68000 assembly language and several utilities and demonstration programs. In the near future, I hope to have a real assembler available. At this time, people are working on and actually have versions of FORTH, BASIC, and other languages working with the Digital Acoustics 68000 boards. In addition. Digital Acoustics is working on a new language that maintains many of the features of BASIC but will be able to run at least ten times faster and does not suffer from the problem of long programs running slower than the total of the pieces. This means that you can put your subroutines where you want them.

The software comes with complete documentation to explain how the software interfaces to the OSI computer. At this time, the software is avail-

able on 8" disk for OS 65D. As soon as I get access to a 5.25" disk system, I will be able to provide the software on 5.25" disks also. In the near future, I expect to make the same software available for OS 65U.

The price for the board with software will be $160 plus shipping. I am now trying to make arrangements to have all parts shipped from the U.S. to avoid the shipping charges from Belgium. Until I am able to make these arrangements, or I return to the U.S. to live, the cost for shipping will probably be about $10-$15.

David Livesay
ave de la Resistance No. 6
B4920 Embourg, Belgium

* * * * *

ED:

I know that the OSI and the Apple computers have the same CPU (6502). As we all know, there is a real shortage in OSI compatible software whereas there is an abundance of Apple compatible software. My question to the readers: Can any simple changes be made to the OSI to allow it to run Apple programs? I'm sure a lot of the other OSI owners feel the same as I do - we bought a machine with good hardware capabilities at that time (the late '70s), but since the machine wasn't a big seller (as the Apple and TRS-80) we are now stranded without a good library of software. Can anyone help me? (I have a C1P, Series I).

T. J. Hirasuna
Yonkers, NY 10703

T.J.:

The quick answer is to look back in the Oct and Nov issues of PEEK from software listings.

The longer answer is "it depends." If the program is simple (no printer, no files), probably next to nothing. But if special Apple syntax, files or graphics are involved, you can count on rewriting those portions. Apple does have a booklet on their version of Microsoft BASIC that should help.

Peek Staff

* * * * *

ED:

As a new subscriber to PEEK and having just gotten my disk system working, I do have questions.

I received the 65D v3.3 system a couple of weeks after ordering it last December from ISOTRON (they do deliver). It does work, but not always according to the manual.

I have a 500 board and 527 memory plus home built disk interface and video display. And as stated in the manual, their system is only partially compatible with serial systems.

The Assembler is the main problem as I cannot get it to work. The cursor stops at the end of the second line of the title just after "OSI". Any key in will only produce a CR/LF. Any suggestions?

V3.3 doesn't have a NULL command. Is there a byte somewhere that can be poked to add Nulls after a CR?

I thought I might get a clue from v3.2. but on that disk the NULL does the same thing as RUN!

I've enjoyed your magazine, keep up the good work. Any insight you might have with my problems would be greatly appreciated.

Loren Jacobson
Lennox, SD 57039

Continued

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ED:

The enclosed memory maps for Steve Hendrix's HEXDOS 4.0 disk operating system may be useful to other ClP owners who use this DOS. I have developed this information over the year and half period I have been using HEXDOS. It is derived from the HEXDOS manual, information presented in the HEXDOS news, and from my own exploration of this system as I customized it to my hardware configuration. The first list presents the entry points for the major subroutines in the system and the location of the constants table. The other list identifies the location and initial values of system parameters and vectors. Since HEXDOS appears to be an evolving system these memory maps may not apply to earlier versions or perhaps not even to all copies of the current 4.0 version.

Jim Hayes
Seattle, WA 98116

HEX	DECIMAL	VALUE	FUNCTION
0000	0	4C 3C 03	Warm start
0003	3	4C 83 0A	Message vector
0006	6	A5 06	USR input vector
000A	10	4C 6D 04	USR vector
00BC	188	4C 9C 0A	Parser vector
00BF	191	4C B4 0A	Next byte vector
00D8	216	00	Active drive track #
00D9	217	*	Temp. address
00DA	218	*	Temp. address
00DB	219	*	Temp. address
00DC	220	*	Temp. address
00DE	222	*	Program start track #
00DF	223	*	program end track # +1
00E0	224	FF	Edit flag
00E1	225	80	Idle drive track #
00E2	226	00	I/O device #
00E3	227	FF	I/O mask
00E6	230	00	Seek error flag
00E7	231	00	Temp. current parser byte
00E8	232	00	RT clock (L)
00E9	233	00	RT clock (M)
00EA	234	00	RT clock (H)
00EB	235	FF	Error #
00EC	236	FF	Timeout flag
00ED	237	FF	Error flag
00EE	238	FC	Disk motor timer (L)
00EF	239	*	Timeout timer (H)
00F0	240	*	USR address (L)
00F1	241	*	USR address (H)
00F2	242	*	Temp. address
00F3	243	*	Temp. address
00FD	253	*	Temp. address
00FE	254	*	Temp. address
00FF	255	*	Temp. # pages to load
0130	304	4C F1 03	NMI vector
0200	512	*	Cursor position
0201	513	*	Character under cursor
0202	514	*	Output storage
0203	515	00	Load flag
0212	530	00	Control C flag
0218	536	B3 08	BASIC input vector
021A	538	92 09	BASIC output vector
021C	540	0C 04	Control C vector
021E	542	7C 05	LOAD vector
0220	544	2D 07	SAVE vector
0236-02FD	566-765	FF	Data file headers (8 bytes ea.)
0300-0AFF	768-2815	*	HEXDOS
04ED	1261	18	Head step delay in 5/4 ms.
0B00+	2816+	*	BASIC workspace

START	END	FUNCTION
0397	03B5	Constants
03B6	03E5	Move data
03E6	03F0	Get byte @ (F2;0)
03F1	040B	NMI
040C	046C	Control C
046D	04C9	USR
04CA	04D1	Strip drive flag from track # in A
04D2	04F2	Step head on active drive
04F3	056D	Seek track # in A & verify
055D	056D	Wait for index hole
056E	057B	Patch BASIC line pointers
057C	067C	LOAD
05B0	05C6	Load track # in A to address X:Y
0628	0640	Error handler
067D	068E	Buffer #)A
068F	06A1	Get track # & address
06A2	06AD	Get value of next arith. expression
06AE	06BD	Length of BASIC prog. in tracks)A
06BE	060A	Directory lookup
070B	0717	Write byte in A to disk
0718	072C	???
072D	08B2	SAVE
0754	0791	Save address X:Y to track # in A
0792	07C0	Write track header
08B3	0991	BASIC input
0992	0A82	BASIC output
0A83	0A9B	Message handler
0A9C	0AFF	Parser
0AB4	0ABF	Next byte)A)E7

* * * * *

Continued from page 19

Loren:

The only thing we can think of is that there may be a memory problem. It is quite possible that the Assembler uses a bit that is not required by the rest of what you have got. Usually if that is the case, the COPY utility will fail. Otherwise, run a MEM test to locate the offender. A good one is documented in the SSJ (see PEEK goodies list).

The NULL count can be changed by POKE 21, (0TO255) for the number of nulls. This should work for all versions of 65D and U.

Peek Staff

* * * * *

ED:

Enclosed is a printout of examples of errors which we are getting on a Land Surveying program that I am trying to write.

In line #1, an extra "0001" shows up on the end of a number. It will not edit away. You can only get rid of it, if you change the last digit in the original number.

In line #2, the end number in the line number, shows up in place of a slope distance number. The correct slope distance number, may or may not have been used by the computer in its calculations.

In line #3, the number input was not used, and a calculated number was substituted in its place.

At first I suspected that there was an error (or errors) in the program, but after writing a little 9 line test program and running it with some selected numbers, it appears that it must be either a hardware or firmware problem.

My equipment is a C3A, ACT 5A, NEC 5515 and Microtek MT-80P printers, using 65U V1.2. The problem shows up on either printer. What appears on the CRT is not always the same thing that prints out. I have no idea of the cause of the problem, nor the location of a repair shop that could correct it. Any help that you could give will be greatly aprecciated.

In anticipation of your help, I have also enclosed the listing of a program which I wrote in order to see the effects of

changing various items that make up the operating expenses of a small Engineering and Land Surveying business.

A printout of one such calculation is included. Note that the program gives Man-hours and Income required for a year containing from 36 to 48 working weeks. This is due to not being able to work outdoors during bad weather. A data file called "OPRDAT" is used by the program. The program is 12032 bytes long and the data file is 512 bytes long. Lines 30 thru 90 are a password trap that I probably do not need anyway, since business is so bad.

Thanks again for your help. I really enjoy and look forward to PEEK(65).

*** RAW FIELD DATA ***

LINE	AZIMUTH	VERT. ANG.	S. DIST. NO. 1	S. DIST. NO. 2	AVE. S. DIST.	SS ROD	HORZ. DIST.
340-354	63 55 42	81 09 20	81,7620001	0	81.762	150	265.059
40-39	113 51 09	65 58 36	84.26	39	84.259	***	252.493
6-7	37 35 28	97 33 16	172.633	91.103	360.548	***	1172.633

Gene B. Leslie
Pikeville, KY 41501

Gene:

The problem is a "binary round off error." That means that BASIC handles numbers in binary form and there are some fractional values that cannot be perfectly represented in this form. You can avoid this by shifting the decimal point to the right to form a whole number, immediately after a number is INPUT ie

X=INT(I*100+5).

In your case, the 100 should be 1,000 as you are using three decimal places. When you print X, just divide it by the same factor. This fix also works well for dollar amounts which are printed thus:

PRINT$R,X/100.

Try the listing below.

As to your other problems, it is hard to guess without seeing the code. Regrettably, at this point it sounds like code not machine.

Finally, we would suggest that you update your OS-U from 1.2 to 1.43. It is not expensive and the improvements and additions are well worth it.

```
10 INPUTDV,A
20 PRINT#DV,A
30 A=INT(A*1000)
40 PRINT#DV,A
50 PRINT#DV,A/1000

91.1040001
91104
91.104
```

Peek Staff

* * * * *

ED:

I do appreciate your publishing my letter in the November PEEK, but I grew impatient and reworked OSI's modem routine. First, I purchased the book MICRO ON THE OSI (Micro's parting shot at us OSI'ers) and was very pleased to find that the ROM memory map for my computer was very accurate and complete! With that information I was able to re-write the CRT emulator (currently in ROM) and add it to the modem routine supplied by OSI. Incredibly, the video swap now is unneeded and has found a new home in my basement!

To use the routine, enter '16000' when "Memory size?" prompt comes up after the cold

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start. The original commands still work as usual (Control D for full duplex and Control B for return to basic). If you don't have at least 21K of memory (I wrote the new routine at the top of memory in case I wanted to add any enhancements in Basic later), you'll have to change the addresses which I underlined in the program printout.

The pokes in lines 3045 and 3046 will allow you to tailor your screen size as needed up to (presumably) a 12 X 48.

```
4 REM ADAPTED MODEM ROUTINE WITH VIDEO SWAP BY S. MCGINNIS
6 REM ENTER '16000' TO 'MEMORY SIZE?'-WRITTEN FOR 21K,C1PII
10 POKE 61440,9:REM RECONFIGURE ACIA TO COMPUSERVE
12 POKE 515,0:REM TURN OFF LOAD FLAG
15 FORI=1TO30:PRINT:NEXT
18 INPUT"DO YOU WANT THE 10 X 44 DISPLAY(Y/N)?";B$
19 IF B$="Y" THEN POKE 55296,1
20 PRINT"MODEM ROUTINE LOADING"
30 Y=PEEK(2):Z=PEEK(64774)
40 IFZ=32THENGOSUB3000:GOTO60
50 GOSUB4000
60 REM JUMP TO MACHINE CODE
65 FOR I=1 TO 32:PRINT:NEXTI:PRINT"MODEM READY:START WITH A 'SPACE'"
66 PRINT:PRINT
70 X=USR(X)
80 RESTORE
85 POKE 55296,0
90 END
1500 FORI=0+FT0216+F:READX
1510 IFX=-1THENX=INT(I/256)
1520 POKEI,X:NEXT
1530 IF B$="N" THEN RETURN
1545 REM POKE IN NEW CRT EMULATOR ROUTINE
1590 FOR I=21103 TO 21303:READ X:POKE I,X:NEXTI
1600 RETURN
2000 DATA 32,13,37,173,0,240,74,144,6,173,1,240,32,67,35
2010 DATA 32,93,-1,240,239,201,2,240,22,201,4,240,21,72,32
2020 DATA 67,35,173,0,240,74,74,144,249,104,141,1,240,76,37
2030 DATA -1,76,13,37,173,63,-1,73,12,141,63,-1,208,225,138
2035 DATA 72,152,72
2040 DATA 169,1,32,190,252,32,198,252,208,5,10,208,245,240,83
2050 DATA 74,144,9,42,224,33,208,243,169,27,208,33,32,200,253
2060 DATA 152,141,19,2,10,10,10,56,237,19,2,141,19,2,168,138
2070 DATA 74,240,49,136,200,74,144,252,208,42,234,185,207,253,205
2080 DATA 21,2,208,38,206,20,2,240,43,160,5,162,200,202,208,253
2090 DATA 136,208,248,240,67,201,1,240,53,160,0,201,2,240,54,160
2100 DATA 192,201,32,240,48,169,0,141,22,2,141,21,2,169,2,141
2110 DATA 20,2,208,36,162,150,205,22,2,208,2,162,14,142,20,2
2120 DATA 141,22,2,169,1,32,190,252,32,207,252,74,144,3,76
2130 DATA 143,253,208,194,160,32,76,167,253,169,0,76,183,253
2150 REM MACHINE CODE FOR NEW CRT EMULATOR ROUTINE
2205 DATA141,2,2,72,138,72,152,72,173,2,2,240,51,172,6,2,240
2210 DATA8,162,64,202,208,253,136,208,248,201,10,240,43,201
2215 DATA 13,208,6,32,23,83,76,175,82,141,1,2,32,4,83,238
2220 DATA 0,2,173,57,83,24,109,56,83,205,0,2,48,9,32,32
2225 DATA 83,104,168,104,170,104,96,32,26,83,32,4,83,173
2230 DATA56,83,41,224,141,2,2,162,7,189,243,191,157,7,2,202
2235 DATA 16,247,190,251,191,169,32,172,57,83,192,32,48,1,10
2240 DATA141,8,2,160,0,32,7,2,208,251,238,9,2,238,12,2,236,9
2245 DATA2,208,240,32,7,2,204,2,2,208,248,169,32,32,10,2,206
2250 DATA 8,2,208,248,240,168,174,0,2,173,1,2,172,58,83,208
2255 DATA 4,157,0,211,96,157,0,215,96,32,4,83,173,56,83
2260 DATA 141,0,2,174,0,2,189,0,211,172,58,83,240,3,189,0,215
2265 DATA 141,1,2,169,95,208,213,76,243,191
3000 REM
3005 IFY=4THENPOKE574,34:POKE575,66:F=16930:GOTO1500
3008 F=546:GOSUB1500
3010 POKE546,44:POKE592,96
3020 POKE559,251:POKE560,2:POKE576,251:POKE577,2
3030 POKE 763,41:POKE764,127
3035 IF B$="N" THEN POKE 765,76:POKE766,45:POKE767,191
3038 REM NEW ADDRESS IN MODEM ROUTINE TO JUMP TO THE NEW CRT ROUTINE
3040 IF B$="Y" THEN POKE 765,76:POKE766,111:POKE767,82
3045 POKE 21304,12:REM HOME POSITION OF CURSOR**********
3046 POKE 21305,44:REM LINE LENGTH DEFAULT VALUE**********
3047 POKE 21306,0:REM SCREEN SIZE TYPE(C1=0, C2=1)********
3050 POKE11,34:POKE12,2:RETURN
4000 GOSUB3000
4010 POKEF+65,141:POKEF+66,0:POKEF+67,223
4020 POKEF+68,174:POKEF+69,0:POKEF+70,223
4030 POKEF+193,141:POKEF+194,0:POKEF+195,223
4048 POKEF+196,173:POKEF+197,0:POKEF+198,223
4050 POKEF+1,68:POKEF+2,38
4060 POKE F+47,68:POKE F+48,38
4070 POKEF+5,252:POKEF+11,252:POKEF+34,252:POKEF+42,252
4080 IFY=4THENPOKE63235,52:POKE64512,2
4090 RETURN
OK
```

S. B. McGinnis
Ridgeway, PA 15853

* * * * *

ED:

I would like to offer my assistance to those who might be using C2-4P's or C4P's in a net. We completely rewrote the OSI multi package and have been using it with 19 of the above computers for over four years at the community college here in Charlottesville. What fantastic service we've had from these machines. It's a good thing, since our good friend George Harris decided to throw in the towel at H/B Computers.

In all these years, I have not seen another system that works so consistently well as does ours. We use the computers primarily for teaching BASIC (10 classes of 24 per quarter) and for CAI. We customize all of it for our faculty. Any of you who are in education are welcome to a copy of our CAI program, just give me a call.

Keep up the good work at PEEK (65).

G. Larry Brown
Program Head, Data Processing
Piedmont Va. Community College
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Charlottesville, VA 22901
(804) 977-3900

* * * * *

ED:

I have been a subscriber to your magazine for a number of years and enjoy the information you impart concerning OSI equipment. I own several other computers, and as far as I am concerned OSI is still the most reliable and best.

I mostly use 65U and have an entire library of programs and programming aids. If any of your readers are having a particular problem in the applications area, I would be most willing to hear from them. In most cases a solution can be reached if they would include a copy of their program (well documented), a description of the problem they are encountering, or what desired results they are trying to obtain. Also, anyone having trouble programming a particular terminal, I can probably help.

I have had many requests for help with Lear Siegler Terminals, the ADM-3A in particular, concerning Cursor Addressing. It seems that all the company included in their manual was instructions to use Escape plus Equal to load the cursor and then some ASCII representations to position the cursor. For those of you who have been unable to position your cursor, you must off-set the absolute cursor (R+C) position by 31 (dec). Try the following routine:

```
10  R=0 : C=0 : Rem top left
    corner of screen
*
*
100 GO SUB 60000:PRINT"
    INSTRUCTIONS"
110 R=R+2:C=C+2:GO SUB 60000
```

```
115 PRINT"1) INITIALIZE FILE "
120 R=R+2:C=C+2:GO SUB 60000
125 PRINT"2)  EDIT FILE"
130 ETC.ETC.
*
*
*
60000PRINT CHR$(27);CHR$(61);
    CHR$(R+31);CHR$(C+31):
    RETURN
```

Tom Badgett of Bluefield, W.V. deserves most of the credit for this routine, as he has been extremely helpful to me in a lot of areas concerning terminals and 65U.

I would also like to hear from any of your readers who has a Bowling Secretary Program that will run on OSI. It should be able to handle no less than 16 teams and preferably be applicable to a mixed league. I will buy, trade, barter, or swap for such a program.

Keep up the good work with the magazine. OSI users are pretty much by themselves these days. I doubt if ISOTRON improves things very much for the existing equipment. I understand the smallest machines they are interested in are the 200 or 300 series and are working around the clock to get back orders out. Cleveland Computer is back on line with some parts, but mostly in a Support Mode according to Bill.

Walt Thomas
Linden, PA 17744

* * * * *

ED:

The capability of merging two or more BASIC programs is a useful feature that is not supported by HEXDOS 4.0. Solutions to this problem are available in the form of BASIC programs as a part of the HEXDOS Library Disk #1 and as a listing in the third issue of the HEXDOS News. The alternative is to modify HEXDOS itself so as to add a new command providing this capability. The following listing shows the changes necessary to HEXDOS to accomplish this.

The additional code needed to support the new command is located in the area originally used to support the tone generator. Since I never made the required hardware modifications to use this feature, this block of code is not usable on my system. The tone generator code occupies the bytes from $049D to $04C9. Thirty four bytes of this space is required to add the new command. The first three bytes provide a return if the tone generator is inadvertently called. The two NOPs allow room for a jump to some other routine, if desired. The last line of the listing shows the patch required to link in the new command. The original bytes at $05CF were $20, $BE, and $06. The changes made to HEXDOS can be saved on the disk by entering the command SAVE#0,768.

The new command is evoked by entering LOAD&[filename] where [filename] refers to a standard HEXDOS file designator, e.g. LOAD&"MYFILE". The procedure for merging programs is to load the first program using LOAD[filename]. Append subsequent programs by using LOAD&[filename]. Programs should be merged in line number order and should not have overlapping line numbers or line numbers in common. After merging, the composite program can be SAVEd as you would any other program.

```
049D 60          '    1181  RTS
049E EA               1182  NOP
049F EA               1183  NOP
04A0 4C BE 06 L       1184  JMP 1726
04A3 C9 26     &      1187  CMP #38
04A5 D0 F9            1189  BNE 1184
04A7 68        h      1191  PLA
04A8 68        h      1192  PLA
04A9 20 B4 0A         1193  JSR 2740
04AC 20 BE 06         1196  JSR 1726
04AF B0 03            1199  BCS 1204
04B1 4C D4 05 L       1201  JMP 1492
04B4 86 DE            1204  STX 222
04B6 84 DF            1206  STY 223
04B8 A5 7B     {      1208  LDA 123
04BA A6 7C     |      1210  LDX 124
04BC 4C F6 05 L       1212  JMP 1526


05CF 20 A3 04         1487  JSR 1187
```

Jim Hays
Seattle, WA 98116

AD$

Send for free catalog, Aurora Software, 37 South Mitchell, Arlington Heights. IL 60005. Phone (312) 259-3150.

* * * * *

Software for non-C1P disk systems. DEBUG: a fast, disk-based assembler for OS-65D V3.3. Allows linked source files, multiple drives, and disk swapping. OSI Assembler compatible, but 10 times faster. Includes WP style editor. 65D V3.2 version available. Price:$50.00. Term-Plus: smart terminal software for OS-65D V3.3. Capture any size text. Sends BASIC or assembler programs as text. Sends and formats WP-2/WP-3 files. Many utilities included. CompuServe VIDTEX (tm) compatible. UTI version available on "as is" basis - please specify! Price: $25.00. Deduct $10.00 from either above by sending CompuServe User ID. Specify 5 or 8". Richard L. Trethewey, 8 Duran Court, Pacifica, CA 94044

* * * * *

C2-OEM (two cases) with 48K RAM, dual 8" floppies, includes Centronics interface. RS-232C board, OS-65D, OS-65U, plus miscellaneous software. Almost brand new. No documentation. Must sell. $1000 (includes shipping) or offer. Rick Brown, 316 California #712, Reno, Nevada 89509, 702-322-9936.

* * * * *

For Sale: C8PDF, 32K RAM dual 8" Floppies. Excellent condition. Software includes OS-65D3.2, 3.3, 3.5, OS65U1.2, Data Base Manager, and Word Processor. OSI color monitor. 3 dozen floppies. All documentation including SAMS and back issues of OSIO and PEEK. Asking $1,400. Telephone (814) 838-3553.

* * * * *

Ohio Scientific C20EM with RS-232 Serial Printer Drive, 1420 Hazeltine CRT, OS65-U Software, Bank of the West, Tempe, AZ 85282, Mr. Grove, 602-894-1291.

* * * * *

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