

SPRITE CHASER

Official Newsletter of the #1 ADAM USERS' GROUP

#8

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News from the Editor

Once again we have a newsletter full of information. We are still encouraging our readers to submit articles in the form of reviews, tips, or gossip. To further sweeten the pots, if you send them on a disk or DDP we will swap ANY of the PD disks in our Exchange. (The articles will have to be accepted though.) I needed to format a hundred disks quickly and one of our members Monte Jones supplied me with a shareware program called "2FORMA" (it's on disk #124). It formats 2 disks simultaneously at least 5 times faster than the "stock" CP/M or EOS Coleco format programs. Shareware means if you find the program useful and want updates you send the authors a minimal fee (about \$10). We also found a copy of Coleco Personal CP/M and SimpleCalc... They do not work properly and I would imagine that they are BETA (test) versions. I put them in the Exchange only for their collectability (or hackability). I also found an interesting article about 256K and 512K memory expanders from two companies (1 company is In House Service), and would like any of our members to verify them. A 6K memory card has apparently been developed to use with the external slot in the ADAM. It uses a "bank-switching" operating system (supplied with the card) that enables you load various tasks

and switch between them. When you switch, the previous task becomes "frozen" until you switch back again. In CP/M, you can setup the RAM disk to be almost the size of a 360K floppy and when you reset the ADAM, the contents are not dumped! Sounds like a pretty good deal for \$165. The other article deals with repairs for ADAM hardware. The prices look good and I know John Lingrel is a person who wants to ADAM to live on and on. Once again I'd like to thank Greg Daro for his hard work and reviews. He has also developed a nice label printing program. It will recognize various ADAM formats (CP/M, EOS, and CopyCart I believe) automatically. It is disk #125. Please send any technical questions to his address which (or compliments) is listed in after one of his articles. About new software.... as you can see PD is still increasing a great rate. Commercial software is being released at near the same rate! M.W. Ruth's new catalog for the fall season contains MANY MANY new programs. Keep those articles coming in and look for our next issue.

Daro's BITS

Over the past several months I have come upon some new information and may have re-discovered some old. I thought I would

pass it along to Sprite Chaser readers. Tony Moorehan of Canada, has developed a new CCP for the Adam CP/M BIOS. In addition to fixing some bugs in the file routines, he added several new commands: Y is built in so there is no need for Y.COM; GO runs the program in memory (RAM is not cleared when you exit to CP/M from a program); sends a text file to the printer with tabs and page formatting. The system directly supports user defined printers and other devices, such as an 80 col card. The file control block has been modified to accept double sided drives. This is a welcome change to us CP/M users. The new CCP is self installing and can be obtained through the library, ask for disk # 49. While I am on the subject of CP/M, I came across two programs called IMAGE and CLONE. Image creates a CP/M file from a disk or DDP. The file contains all the blocks specified by the user, and can contain the bootblock, directory and all files. The CP/M file can then be copied or sent via a modem. To create a copy (clone) of the original, you run the CLONE program. These are useful in making backup copies of self booting software. Since not all system software uses the entire media, several can fit on one CP/M disk or DDP. To use these programs, you must have CP/M and two drives. **Ed. Note:** Both files are in the Exchange (Disk #84)

By accident, I discovered that JKL Utilities will create a multi-block directory in the standard format. All of the Coleco software and most other software will recognize the additional blocks and the file names will display as if it were one block. The additional directory space is useful when you have a lot of small files or you modify your files frequently. To create a two block directory: boot JKL; place a blank disk (DDP) in the drive; to format, select from the menu, select the drive, then select one side; once formatted, select Init, select the drive, input 2 for the directory size, for volume size input 9D for disk or FD for DDP (JKL requires HEX values). The drive will run and you now have a two block directory.

A company in North Jersey, In House Service Reps (201) 867-7038, is now selling double sided disk drives for the Adam (also the M. W. Ruth Co). I have not used or seen the units, but I have talked the person who designed the control board. The price is \$299.99 and includes some utilities. It is powered by the Adam and runs from Adam-Net. The same people are working on a 3 1/2 inch drive that would replace one of the tape drives inside the machine. If I get to use one of the new drives or hear anymore, I will report on it.

Questions seem to keep coming up about the color bleed problem. The cause is the TI video display processor and the fact that it can only read 16K of RAM. To set each pixel (dot on the screen) to a different color requires four bits for each pixel. That translates into 24K of RAM just for color. The pixel information needs another 6K, plus what is required for sprites and other things. By setting the color every four pixels, the color information only needs 6K. Since the color is set on the horizontal plane, you can minimize the effects by plotting all vertical and diagonal lines first, then the horizontal line.

I have received a copy of instructions on how to add 64K of RAM directly to the Adam motherboard. The procedure involves soldering 8 chips onto the existing 8 Ram chips. You must have good soldering skills to do this modification. I recently did it to my Adam, and now have the 64K expansion on the main board, instead of the slot. This procedure replaces the 64K expander so the slot can be used for other things. The cost is around \$20 (I did it for \$16). If you would like the instructions, please send me a SASE plus one stamp (to cover copy costs).

I hope to have more information to report in the next issue. If you hear of new things or re-discovered some old, why not share them with all by writing to me. If you have some technical questions, let us hear from you, there may be others with the same problem or

others that may have solved it. If you would like a direct answer, please include a self addressed stamped envelope. Thanks... Write to:

Gregory R. Daro
925 Chisholm Court
Toms River, NJ 08753

CompuSERVE RLE Picture Conversion Program

You can use the following program to download excellent pictures on COMPUSERVE and view them on your ADAM computer. The pictures are in a unique ASCII format, this programs converts them into HIRES!

```

100 REM **Developed from programs by**
110 REM **Bill Elkins, Louis Allen**
120 REM **Jim McQuilan & Charlie Summers**
130 REM **This version by Bob Eberly**
135 POKE 17059, 5:TEXT
140 VTAB 8:INVERSE:? " RLE PICTURE DRAWING
PROGRAM"
145 ?? " Type Text to Clear Drawing "
150 VTAB 22:? " Press any key to continue. "
155 GET key$:NORMAL
160 d$=CHR$(4): clr=4
170 cr$=CHR$(13): lf$=CHR$(10)
180 POKE 17059, clr:TEXT:VTAB 3:? " 1) Catalog"
190 ?? " 2) Load File"
200 GET key$:IF key$="1" THEN ? d$; "CATALOG "
210 ???:
220 REM ONERR GOTO 500
230 REM SETUP
240 INPUT " ENTER FILE NAME: "; f$
250 ? d$; "OPEN "; f$
260 ? d$; "READ "; f$
270 HOME:HGR2
280 HCOLOR =3
290 y=0: x=0
300 REM DRAW PICTURE
310 GET b$:IF b$"G" THEN 310
320 GET b$:IF b$"H" THEN 310
330 GET b$:IF b$=cr$ OR b$=lf$ THEN 330
340 b=ASC(b$)-32:IF b THEN 500
350 x=x+b:IF x255 THEN y=y+1: x=x-256
360 GET b$:IF b$=cr$ OR b$=lf$ THEN 360
370 w=ASC(b$)-32:IF w THEN 500
380 IF w=0 THEN 330
390 j=w+x
400 IF j255 THEN 440
410 HPLLOT x, y TO j, y
420 x=x+w
430 GOTO 330
440 HPLLOT x, y TO 255, y
450 i=y+1
460 j=j-256
470 HPLLOT 0, i TO j, i
480 x=x+w
490 GOTO 330
500 ? d$:? d$; "CLOSE"; f$
510 REM LAST LINE

```

Variables and RAM

In the last issue I promised more information about how variables use precious RAM. There are three types of variables available; string, real and integer. Each type is managed by a series of system tables that contain the name and point to the location in RAM where data is stored. A special table, called string space, is set up

for all string variable data. Variables used in programs are tokenized along with the program and a number is assigned to the variable by the system. This number points to the variable name table where information is stored about each variable: Type of variable 1 byte Pointer to location of data 2 bytes (for strings, this points to string space) First two characters in name 2 bytes Only the first two characters of the variable name are held in the name table, the rest of the name is stored with the program in tokenized form. So regardless of the variable type or value held, a minimum of 5 bytes of memory is required. Integer precision variables can take on any value between -32767 and +32767 without a decimal value. The values are stored using two bytes in the standard low byte, high byte format. Integer precision variables consume 7 bytes regardless of the value within the allowed range and are accessed by placing a '%' immediately after the variable name. For numeric values outside the integer range, you must use real precision variables. These values are stored in a special format that requires 5 bytes regardless of the value. The format is similar to exponential format used in scientific notation. The total needed for a real variable is 10 bytes. Let's look at several examples of variables and how they eat up RAM. Take a simple loop counter I. We need 5 bytes as a minimum (remember the variable is also stored in the program) then an additional 5 bytes to store the values for a total of 10 bytes. If we place a '%' after the I (I%), we need 5 bytes plus two bytes or 7 bytes. The three byte savings does not seem like much, but if we now DIMension an array, the savings become obvious.

Setting up an array TEST(100) as real precision requires, 5 bytes as the base, 3 bytes for the array, then 5 bytes per element for a total of 508 bytes. The same array DIMensioned as integer precision, needs the 5 + 3, plus two per element or 208 bytes. This is a savings of 300 bytes. With very large arrays this can add up to a significant savings in memory. String variables are handled quite differently. Space is allocated only on an as needed basis since strings can be up to 256 characters. If memory were allocated to the maximum possible length of each string, at 256 each, it would not take long to eat up all the memory. Again, there is a minimum memory usage of 5 bytes plus 1 byte per character in the string. String array requires the same base amount plus 2 bytes per array element. Memory for storing the elements of a string is not used until a value is placed in the string. Since memory is allocated on an as needed basis, the amount used is based on the number of characters contained in the string or string array. This creates a problem in that as you change the contents of a string variable and increase its size, new memory locations are used to handle the extra data items. Adam will clean up or pack these memory locations as needed. If you use a lot of string variables and change the value frequently, you may notice that the computer seems to hesitate, this is the system packing string space. If you write large programs that use a lot of variables you should use only the precision that you need. Loop counters are usually integer precision, so use the % character and save memory. When ever possible, reuse the same names to conserve memory. If you experience mid-program crashes caused by OUT OF MEMORY errors, it means that you have tried to use a previously unused variable. By DIMensioning your variables in the very beginning of the program and setting all numeric variables to a value (0 is ok), you will know right away if there is enough memory. In addition, this makes good programming sense. I hope this helps some of our readers conserve that precious memory.

Next issue I will be doing an article on the VDP and how to use the operating system to write to the VDP tables. Till next time...
Gregory R. Daro

IMAGE

I found this rather interesting ad on the boards the other day. Do you want to printout graphics on your ADAM screen? Both high

resolution (HGR2, HGR) and low resolution (GR)? Then, what you are looking for is IMAGE, the graphics print-out program. Of course, you say why should I choose IMAGE over the other print-out programs. The answer is simple. IMAGE prints better because it utilizes your printer best resolution. IMAGE is simple and short, and thus, it doesn't conflict with other programs machine code often used by their programmers. IMAGE is always being improved to meet user demand and is updated at a very low cost. For example, owners of version 1.0 upgraded to 1.1 for just \$3.00! Just to further tell you what IMAGE can do, here's a list of what it currently supports: Normal or Inverse printouts in full page, half page, or credit card size of high resolution screens (HGR2, HGR, and PaintMASTER files). Normal, Inverse or simulated color on a B&W printer using patterns in low resolution. Dime sized, credit card size, or half page size. You also get a program to define your own printer codes. Although, most popular printers already have been defined for you. Printers already defined are EPSON, PANASONIC, SG-10, GEMINI 10X, THINK JET, GE PRINTER, plus 3 generic code printers. Once you own IMAGE, you have the ability to print graphics! If interested, send a SASE to:

Vinh Le
9150 Todos Santos
Santee, CA 92071

Math Formulas

While hacking, "PEEKing and POKEing" around my Adam, I got tired of constantly converting back and forth between Hex and Decimal. Here are some of the formulas that I use to locate bytes on tape or disk and to convert memory locations into two byte numbers.

When converting a RAM location in BASIC to the location on disk or tape, there are two off sets that must be taken into account. BASIC starts in block 2, not block 0 and is loaded into RAM starting at address 256, not 0. The first location in RAM for BASIC is block 2, byte 0. The conversion requires two formulas:

$$\text{Byte} = (((\text{add}-256)/1024)-\text{IP}(\text{add}-256)/1024)*1024 \quad \text{Block} = (\text{IP}(\text{add}-256)/1024)+2$$

Where add = the address in RAM and IP = Integer Portion. For example to locate 17115 on a tape or disk, substitute the values in the formulas:

$$\begin{aligned} \text{Byte} &= (((17115-256)/1024)-\text{IP}(17115-256)/1024)*1024 \\ \text{Byte} &= (((16589)/1024)-\text{IP}(16589)/1024)*1024 \\ \text{Byte} &= ((16.46387)-16)*1024 \\ \text{Byte} &= (.46387*1024) \\ \text{Byte} &= 475 \\ \text{Block} &= (\text{IP}(17115-256)/1024)+2 \\ \text{Block} &= (\text{IP}(16589)/1024)+2 \\ \text{Block} &= 16+2 \\ \text{Block} &= 18 \end{aligned}$$

So the value of 17115 in BASIC is block 18 byte 475. You can then use this to make whatever changes you would like to your version of BASIC. Determining the two byte value of an address is quite simple:

$$\begin{aligned} \text{High Byte} &= \text{IP}(\text{add}/256) \\ \text{Low Byte} &= ((\text{add}/256)-\text{IP}(\text{add}/256))*256 \end{aligned}$$

These formulas can be used with a calculator or included as part of a program.

This is the BASIC program of the month... uses some interesting graphics!

```

1 REM ROADER
2 REM by Brian Foley
3 REM from Compute! March 84
4 REM ADAM version by N.J.Lowe
5 HOME
10 LOMEM:29000
11 DIM b1(27), b2(27), sd(9)
12 POKE 16149, 255:POKE 16150, 255:REM this allows pokes
above 54610
20 GOSUB 1870
30 FOR x=28000 TO 28005:READ ml:POKE x, ml:NEXT x:REM to
allow sound
40 FOR x=1 TO 27:READ b1(x), b2(x):NEXT
50 sd(9)=21: sd(8)=23: sd(7)=25: sd(6)=27
100 f=12110GOTO 200
120 POKE 28006, 159:CALL 28000:FOR vol=240 TO 255 STEP 5
130 POKE 28006, 230:CALL 28000:POKE 28006, vol:CALL 28000
140 IF vol=240 THEN uc=1:GOSUB 2140
142 IF vol=245 THEN uc=4:GOSUB 2140
144 IF vol=250 THEN uc=8:GOSUB 2140
146 IF vol=255 THEN uc=8:GOSUB 2140
150 f=18-f
160 us=13: uf=f: ub=0:GOSUB 2110
170 FOR de=1 TO 500:NEXT:NEXT vol
180 us=13: uf=6: ub=0:GOSUB 2110
190 RETURN
200 us=99: us$="223E2A08082A3E2A":GOSUB 2010
210 us=100: us$="447C54100A2E3F7F":GOSUB 2010
220 us=101: us$="00080C1E1E3E3F7F":GOSUB 2010
230 us=104: us$="00181818183C3C00":GOSUB 2010
240 us=120: us$="FFFFFFFFFFFFFFFF":GOSUB 2010
250 us=128: us$="00FF00FF00FF00FF":GOSUB 2010
260 us=13: uf=4: ub=0:GOSUB 2110
270 us=14: uf=15: ub=0:GOSUB 2110
280 us=15: uf=8: ub=0:GOSUB 2110
290 us=16: uf=1: ub=0:GOSUB 2110
300 us=17: uf=8: ub=1:GOSUB 2110
310 ur=1: u1=1: ub=32: uc=768:GOSUB 2000
320 uc=14:GOSUB 2140
340 VTAB 6:HTAB 8:? "c R O A D E R c"
380 VTAB 12:? "STEER WITH THE AND - KEYS"
440 FOR x=1 TO 21:POKE 28006, b1(x):CALL 28000:POKE
28006, b2(x):CALL 28000:POKE 28006, 144:CALL 28000
450 FOR de=1 TO 30:NEXT:NEXT
470 FOR x=21 TO 1 STEP -1:POKE 28006, b1(x):CALL
28000:POKE 28006, b2(x):CALL 28000:POKE 28006, 144:CALL
28000
480 FOR de=1 TO 30:NEXT:NEXT
500 FOR x=1 TO 21:POKE 28006, b1(x):CALL 28000:POKE
28006, b2(x):CALL 28000:POKE 28006, 144:CALL 28000
510 FOR de=1 TO 30:NEXT:NEXT
520 POKE 28006, 159:CALL 28000
530 GOSUB 120
540 uc=14:GOSUB 2140
550 us=13: uf=4: ub=0:GOSUB 2110
560 FOR t=1 TO 250:NEXT t
580 ur=1: u1=1: ub=32: uc=768:GOSUB 2000
590 us=13: uf=7: ub=1:GOSUB 2110
600 oskill=1
610 VTAB 2:HTAB 2:? "ENTER YOUR LEVEL...:?:?:?"
650 HTAB 4:? "ENTER .:?:?"
680 ? TAB(8); "1 FOR NOVICE":?
700 ? TAB(8); "2 FOR PRO":?
710 ? TAB(8); "3 FOR EXPERT":?
740 ? TAB(8); "4 FOR PERFECT":?

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```

780 ? TAB(8); " "; :GET k 785 IF k=9 THEN END
790 IF k4 OR k THEN 780
840 skill=k
860 oskill=skill
880 ??: TAB(8); "HERE WE GO!!"
885 POKE 64885, 0
910 FOR t=1 TO 400:NEXT
930 ur=1: u1=1: ub=32: uc=768:GOSUB 2000
940 uc=2:GOSUB 2140
950 i=.1
960 IF (skill2)*(skill4) THEN 980
970 i=.2
980 n=24
990 j=0
1000 oldn=24
1010 b$="xxxxxxxx"
1015 VTAB 19
1020 FOR c=1 TO 4
1030 ? TAB(18); "h"; b$; "h"
1040 NEXT c
1050 FOR q=1 TO 4
1060 FOR c=9 TO 6 STEP -1
1070 IF c9 THEN 1090
1080 b$="xxxxxxxx"
1090 FOR a=0 TO 6.25 STEP i
1100 y=COS(a)
1110 j=j+1
1120 ? TAB(8*y+10); "h"; b$; "h"
1130 IF (RND(1)>.5) + (skill=1) + (skill=2) THEN 1160
1140 IF j<25 THEN 1160
1150 ur=23: u1=INT(RND(1)*28+2): ub=128:
uc=1:GOSUB 2000
1160 ur=20: u1=n:GOSUB 2150: g=ub
1170 ur=19: u1=oldn: ub=120: uc=1:GOSUB 2000
1180 IF (g=104) + (g=128) + (g=32) THEN 1390
1190 ur=20: u1=n: ub=99: uc=1:GOSUB 2000
1200 oldn=n
1210 k=PEEK(64885):POKE 64885, 0
1240 n=n+(k=161)-(k=163)+xr/4
1250 NEXT a
1260 b$=MID$(b$, 1, c-2)
1270 FOR d=1 TO sd(c) STEP 3
1280 POKE 28006, b1(d):CALL 28000:POKE 28006, b2(d):CALL
28000:POKE 28006, 148:CALL 28000
1290 NEXT d
1300 NEXT c
1310 NEXT q1315POKE 28006, 159:CALL 28000
1320 ur=1: u1=1: ub=32: uc=768:GOSUB 2000
1330 uc=10:GOSUB 2140
1340 HTAB 5:? "YOU MADE IT, MARIO!!"
1350 FOR t=1 TO 10
1360 ?
1370 NEXT
1380 GOTO 1480
1390 ur=19: u1=n: ub=101: uc=1:GOSUB 2000
1400 ur=20: u1=n: ub=100: uc=1:GOSUB 2000
1410 GOSUB 120
1420 uc=2:GOSUB 2140
1430 FOR t=1 TO 500:NEXT
1450 ur=1: u1=1: ub=32: uc=768:GOSUB 2000
1460 us=13: uf=7: ub=1:GOSUB 2110
1470 GOTO 1510
1480 FOR i=1 TO 1000
1490 NEXT
1500 ur=1: u1=1: ub=32: uc=768:GOSUB 2000
1510 uc=14:GOSUB 2140
1520 VTAB 4:HTAB 6:? "YOUR SCORE IS "; j*10*skill
1570 VTAB 7:HTAB 8:? "PLAY AGAIN? "
1580 VTAB 11:HTAB 4:? " - FOR SAME LEVEL"

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```

1585 VTAB 13:HTAB 4:? " -TO CHANGE LEVELS"
1587 VTAB 15:HTAB 4:? " -TO END PROGRAM"
1590 GET a$:POKE 64885, 0
1600 IF a$="s" OR a$="S" THEN 930
1610 IF a$="c" OR a$="C" THEN 580
1620 IF a$="E" AND a$="e" THEN 1590
1630 TEXT:END
1860 STOP
1870 DATA 245,197,1,0,0,62,0,211,191,62,0,211,191,227
1880 DATA 227,227,227,227,227,62,0,211,190,11,120,177,
32,247,193,241,201
1890 DATA 245,62,0,211,191,62,0,211,191,227,227,227,227
1900 DATA 0,0,219,190,50,0,0,241,201,0,0,0,0
1910 ux=PEEK(16102)*256+PEEK(16101)-2
1920 ux=PEEK(ux)+PEEK(ux+1)*256+10
1930 FOR ui=ux TO ux+56:READ ua:POKE ui, ua:NEXT ui
1940 ut=ux+55:POKE ux+50, INT(ut/256):POKE ux+49, ut-
INT(ut/256)*256
1950 RETURN
1960 uw=INT(ua/256): uy=ua-uw*256: uw=uw+64:POKE ux+6,
uy:POKE ux+10, uw:POKE ux+20, ub:POKE ux+4, INT(uc/256)
1970 POKE 17009, 0
1980 POKE ux+3, uc-INT(uc/256)*256:CALL ux
1990 RETURN
1999 REM write to screen
2000 ua=((ur-1)*32+u1-1)+20 48:GOSUB 1960:
ua=ua+4096:GOSUB 1960:RETURN
2009 REM redefine characters
2010 FOR ui=1 TO 16 STEP 2
2020 u1=ASC(MID$(us$, ui, 1))
2030 u2=ASC(MID$(us$, ui+1, 1))
2040 IF u1 < THEN u1=u1-48:GOTO 2060
2050 u1=u1-55
2060 IF u2 < THEN u2=u2-48:GOTO 2080
2070 u2=u2-55
2080 ub=u1*16+u2: ua=(ui+1)/2+us*8-1: uc=1:GOSUB 1960
2090 NEXT ui
2100 RETURN
2109 REM set color of character set
2110 ua=us+8191: ub=uf*16+ub: uc=1:GOSUB 1960:RETURN
2120 POKE 17009, 0
2130 uw=INT(ua/256): uy=ua-uw*256:POKE ux+33, uy:POKE
ux+37, uw:CALL ux+31: ub=PEEK(ux+55):RETURN
2139 REM set color of screen
2140 ua=18176+uc:POKE ux+16, 24:POKE ux+17, 10:GOSUB
1960:POKE ux+16, 227:POKE ux+17, 227:RETURN
2149 REM read from screen
2150 ua=((ur-1)*32+u1-1)+6144:GOSUB 2120:RETURN
2160 DATA 58,102,109,211,255,201
2170 DATA 136,63,132,63,143,62,139,62,134,62,130,62, 141,
61,137,61,133,61,128,61,140,60,1 36,60,132,60
2180 DATA 128,60,140,59,136,59,131,59,143,58,140,58, 136,58,
132,58,128,58,140,57,136,57,1 32,57,129,57,141,56
65535 REM do not remove this line$$$$$ $$$#####
#####
#####
#####

```

256K Card for the ADAM?!?

This is a short test-report on the Orphanware 256k Memory expander. The 256k memory expander goes inside the ADAM in expansion slot 3. This is the same slot that the 64k would use (also available from Orphanware). The board in its present form is hand wire-wrapped by Big John (President of Orphanware) himself and appears to be of quality construction. The best feature of the 256k is the NEW CP/M system that comes with it. This new system was written by our own Tony Morehen and features things like new built-in commands, 246k on drive M:, support for the EVE 320k

drive for a full 304k available, mixing of single and double sided drives, and BEST OF ALL no loss of your files on M: when you hit RESET. If you own the Orphanware 80 column video-unit and or the PAI2 parallel printer interface it will also drive those upon a Cold boot. If you own the 80 CVU it will now show the Smart-keys on the 25th status line in Highlighted roman numerals. And when using the standard Adam CONFIG.COM you will be able to re-configure the Smart-keys just like the regular 30 col. Adam display. When running programs such as dBASE II or WordStar on the Ram-disk the speed increase is about 20 times faster than the DDP drives or 10 times the speed of the Adam disk drives. We are talking Milliseconds in access time instead of seconds. This is faster than a Hard-disk !! Try playing ZORK or any of the Infocom games it's GREAT!!!!!! Just think of after typing the Name and hitting return having your program come up as soon as you hit <RETURN>. Here are some reasons for getting the 256k if you do not have a disk-drive or if you only have ONE disk-drive....

1. You can now utilize downloading of large files without the fear of the other Computer Timing-out while the Adam tries to find a free block on the Data-pack.
2. Now use programs such as Zork or dBASE II that are recommended only for disk-drives.
3. Saves wear and tear on your DDP drives.
4. Speeds-up copying of files with one disk-drive, no more disk swapping!
5. If you are into programming using ASM or a Compiler-type language the speed of the Ram-disk will greatly increase your productivity over that of the DDP drives.
6. If you running an ADAM BBS in CP/M (or are thinking about it) the 256k will increase your storage space and save your Callers On-line time by providing quick access time to the BBS files. If you are really into serious CP/M use, I highly recommend the Orphanware 256k expander. Also included with the 256k expander is the address of the author of the upcoming GOS a new Adam EOS that will allow you to run 4 Coleco application programs at the same time!! This little report was written by me:

Dave Starr - The price is \$165.00 plus postage.
NOTE: IHS has a 256K for less money, and is suppose to do much, much, more. If this is the case IN HOUSE SERVICE is the best bet. More details later.

Product Reviews

There have been many new products released for the Adam recently and Sprite Chaser would like to help readers select the products that best meet their needs. Beginning with this issue and in all future issues, we will be doing brief product reviews. Our intention is not to provide in depth analysis, but to highlight the features of a particular package so that each reader can decide if the package is suited to his/her needs. We may also be able to do hardware reviews as products become available to us. All of the products reviewed are available from M. W. Ruth Co. If there is a particle software package that you would like to see reviewed, please drop me a line. Send your comments to:

Gregory R. Daro
925 Chisholm Court
Toms River, NJ 08753

Title: UltraBASIC

4.0 By: Orbitware
Price: \$19.95
Media: DDP and Disk

UltraBASIC 4.0 is not an enhancement but an actual modified copy of SmartBASIC. The documentation provided is one page and mentions the following specific changes: REM and DATA spacing fixed; cursor handling routine improved; color bleed improved; boot drive is the default for HELLO program. In addition to the documented changes, I found the following: all characters display including ^C; both the INSERT and DELETE keys work as labeled. Orbitware claims that the product is compatible with versions 79 through 84 of Coleco SmartBASIC. I tried the version with several BASIC programs including commercially available products and found it works erratically with other software. The default LOMEM value has been changed allegedly to protect word tables. I do not understand why this was done since I have never heard this to be one of the many BASIC bugs. The BASIC interpreter uses the base of user RAM for some of the BASIC commands which it handles like variables. I saw no improvement in the color bleed problem, but this is hardware related. The cursor routine is faster so screen output is faster.

Title: UltraBASIC 8.4
By: Orbitware
Price: \$24.95
Media: DDP/Disk

The documentation consists of one page and details only three changes: 40 column text mode; flash and inverse intact in 40 col. mode; one POKE location for text color changes. The documented changes work quite well. I did find several other changes that were not documented: ^S is replaced by the WILD CARD key; INSERT and DELETE keys work as labeled; the CLEAR key is the same as ^L; all characters display, including control characters. The HOME command was eliminated, so programs with HOME in them will not run properly. Also, for some reason, ^C does not work. I tried the usual alternates like ESCAPE, but I could not break a program or program listing. I also had erratic results using this version on standard SmartBASIC programs, but the intention is to use this version when running programs written in AppleSoft BASIC. Keep in mind that PEEKS POKES and CALLS are different between the ADAM and the Apple so not all Apple BASIC programs will run.

Title: UltraBASIC II
By: Orbitware
Price: \$29.95
Media: DDP/Disk

The documentation provided is one page and details the following changes: 40 column text mode; "many new features". Two of the primary features of the public domain version of SmartBASIC V2.0 is the use of the memory expander and fix on using random access files. Several other changes to SmartBASIC have been documented in a previous issue of Sprite Chaser. The only difference I could detect between UltraBASIC II and SmartBASIC V2.0 is the addition of the 40 column mode.

Title: SuperiorBASIC v3.0
By: Superior Software
Price: \$19.95
Media: DDP/Disk

The documentation provided is on the media with BASIC and is 2 1/2 pages long. Use Coleco SmartWRITER to print out the file. There are many new features and fixes documented with this version of BASIC. The software includes a demo program and a macro utility. The following commands have been added: TXT40

toggles on the 40 column mode, TEXT turns it off; SETN sets the color of normal text when executed, no need to issue TEXT command; SETI does the same for inverse characters; BKG sets the background color the same way; VCE (0-2) turns on one of the three sound voices; SND followed by frequency then volume activates the sound channel; NZE is used for the noise generator voice; RESTORE requires a line number, so data statements can be selected; SPR is used to write to the VDP primarily for Sprites. In addition to adding commands, many key macros have been added: SmartKeys I-VI have the following functions RUN, LIST, NEW, TEXT, TXT40, CATALOG; CLEAR is ^L; INSERT and DELETE work as labeled; ESCAPE is ^C; WILD CARD is ^S; UNDO is ^X; MV/CPY is NORMAL; ST/GT is FLASH; SHIFT MV/CPY is INVERSE. The reason for the last key changes is that these BASIC commands along with ONERR, STOP, RESUME, CLRERR, TRACE, NOTRACE, SHLOAD, RECALL, STORE, WAIT and SPEED have been eliminated. The color tables have been changed to match the TI values. In addition, some of the error messages have been shortened. All the new features and macros consume all of the previously unused areas of BASIC and use memory locations of the deleted commands. The default setting of LOMEM is unchanged, so you still have the same amount of user RAM. Since commands have been eliminated and other changes made, not all BASIC programs will run. This is, however, the most feature packed version of BASIC that I have seen. If you do a lot of programming for your own use, this version will save you time.

Title: MicroWORKS
By: Strategic Software
Price: \$25.95
Media: DDP only

MicroWORKS is an integrated package consisting of a Text Editor, a Filer (data base) program, spreadsheet, graph editor and picture editor. The documentation for this package consists of a 24 page book and some sample files. All files created in one module are interchangeable to other modules. Since the entire package consists of five modules, I will describe them separately. The program is done in BASIC, so you must first boot BASIC then BRUN MicroWORKS. All of the modules have been TurboLoaded, so they load quickly. The main menu displays the modules and the user makes a selection by pressing the space bar to highlight the desired option, or by pressing one key that corresponds to the menu item. MicroWRITE is the text editor module. This is not a full featured Word Processing program but it does include the most used features and some not included with Coleco SmartWRITER. The screen consists of two rows of SmartKey labels, edit line, then rows of text. The screen scrolls only on the edit line, which makes edit and entry much faster. One important feature left out is word wrap. The system warns you that you are approaching the end of a line, much like a typewriter. Memory is limited, so long documents must be saved as smaller parts. At print time, files can be chained together to form one large document. Graph and spreadsheet files can be included as part of the document. MicroWRITE includes a merging function which allows you to use MicroFILER files to create a form letter. When printed, data from the filer program is made part of the document making personalized form letters. This is a useful feature for small businesses and clubs. MicroFILER is a database-type program. Setting up the files is quite simple using the menus and prompts. The program allows selecting records by any one of the previously defined fields and will present them in user selected order. Records can be edited and added up to the limit of the media. Creating formatted output is a snap. Mailing labels are predefined for easy output. The user can select a specific format by selecting from a menu and through prompts. Certain math calculations can be done automatically on the columns, an extremely helpful feature! Direct printer output is possible or the file can be saved for latter use by the text editor. MicroCALC is the spreadsheet type program and was patterned

after MicroSoft Multiplan. The basic features of a spreadsheet are preserved including moving and copying cells. Since this is done in BASIC, memory limitations required that the exotic math functions and some cell formatting be excluded. The most important functions have been preserved. Automatic graphing of data is part of this package. The graph function sets the parameters of the graph on the user selected area of the spreadsheet. The graph can then be saved and edited using MicroGRAPH. Default labels are selected by the software based on the data range chosen. The file can be saved in MicroWRITE format for use by the text editor or to be included in a document. MicroGRAPH is a business type graph generator. Line, bar and pie charts are all possible. In fact, you can display each one from the same data set to see which looks the best. Graphs generated by MicroCALC can be brought in and edited. The graphing function is very easy to use. Graph files can be saved for use by MicroWRITE. The picture editor, MicroEDIT, creates pictures much like SignSHOP. In fact, SignSHOP pictures can be used with this entire package. For those with Dot Matrix printers, you will have to use a patch program that patches into the OS. The Orphanware patch did not work with this software. There is a PD patch for MultiWrite (also Strategic) that will work with this package.

Title: Diablo
 By: Classic Image, Inc.
 Price \$29.95
 Media: DDP/Disk

Diablo is a graphics oriented strategy game that is quite unique. The screen consist of tracks and a ball. The object is to keep the ball moving through the tracks by moving the tracks around using the cursor control keys. The game speed is quite slow and it is easy to keep up in the beginning. As the ball passes through a track, the track is eliminated making the game more difficult as it progresses. The graphics and sound are excellent. The difficulty level increases as you progress through the screen. Your score is determined by how long you keep the ball moving. I found the game very addictive. Fast reaction is not the key to success, strategy is.

Title: The Pick
 By: A & A Software
 Price \$15.95
 Media:DDP/Disk

This program requires that you have AdamCalc. The software consists of several files set up in Adam Calc to track lottery numbers. The numbers are entered by the user on a weekly or daily basis and averages are automatically generated. The idea is to predict the most likely numbers and cash in on the Lottery. The documentation is satisfactory once you load the files. This may be as good as any method for picking lottery numbers.

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LET'S LINK UP

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After reading Mark Wakefield's report in the Let's Link Up Section in the last issue of the newsletter I ran across a booklet on Modems and thought I would share it with you as it is not copyrighted. We receive many letter on this subject, so I feel this should clear up many of the questions.

MODEMS: A USERS HANDBOOK Rewritten by Jesse Thornhill II

DEFINITION OF A MODEM

WHAT IS A MODEM?

The word modem (MO-DEM) is a contraction of the two words MODulator and DEModulator. It is an electronic device that converts digital signals produced by computers and terminals to analog signals that can be sent thru the telephone lines and vice versa.

Modulation and demodulation is the same technique used to send voice over radio waves. At the radio station the transmitting equipment superimposes (modulates) voice onto a carrier signal that is broadcast to your home over radio waves. When your radio receives this signal, it strips off the voice from the carrier signal (demodulating) the signal and sending it to the speaker.

Each radio station uses a carrier of a different frequency and this way you can tune to any station you want by simply turning the tuning dial on your radio.

The analogy with modems is similar but with some important differences. The modem is both a transmitter and a receiver. Not only do want to send information from your computer but you also want to receive information, so it has to perform both functions. Unlike radio stations that all broadcast at the same time and over the same airwaves there is no need to tune in a modem since only one modem is transmitting to another modem at a given time over the phone line. There are different standards for modems however, and in order to transmit and receive information from one modem to another they must be compatible with the same standard.

WHAT TYPE OF MODEMS ARE THERE?

- Modems are basically classified in the following three ways: 1. How they connect to the phone lines.
 2. The speed at which they transmit and receive data.
 3. The industry standard which they are compatible with.

Connection to the phone lines.

DIRECT CONNECT - Direct connect means that the modem plugs directly into the phone company's modular connector in the wall. The part number for a modular connector is RJ-11C.

ACOUSTIC COUPLERS - This method of connection uses two rubber cups into which the headset of the telephone is temporarily placed. The mouthpiece of the headset actually listens to audible signals coming from the modem in order to transmit the data over the phone lines and the modem receives data coming over the phone line by listening to the audible signals in the earpiece of the headset. Acoustic couplers are generally limited to 300 baud transmission and so are not usually a consideration if you need to go faster.

Although most modems today are direct connect type modems there are advantages and disadvantages to both. The acoustic type modem can be affected by noise levels in the room where the modem is being used. Sometimes the noise levels in a room where the phone is located cannot be controlled such as a factory environment or a large crowd of people. Another consideration of using an acoustic coupler is that you do have to have a telephone. With a direct connect modem you don't necessarily have to have a phone just an RJ-11 modular jack. Not only do you have to have a phone but it must be rather standard type phone since most of the rubber cups are designed assuming that the mouthpiece and the earpiece are round. Many of the new style telephones will simply not fit into the rubber cups of the coupler.

Sometimes locating an RJ-11 modular jack can be a problem. Most homes are wired with the modular jacks. However, most office telephone systems do not provide access to an RJ-11 jack and in order to have a place to plug in your modem you must have the

phone company come out and wire in a modular jack. This problem is not unique to just modems. There are numerous devices today that can be attached to your telephone equipment such as speed dialers and telephone answering machines that also require an RJ-11 jack.

When you have the phone company install a modular jack on your office telephone system you can either have it installed in parallel with an existing line on your system or you can take the line off of the system and dedicate it to the modem. If you parallel it to an existing line on the system then you run the risk of someone picking up that line during a data transmission and causing errors to occur. This is a common problem because with most telephone systems when the modem is using the line the light on the telephone set does not come on to indicate that the line is busy. If however you have a small office and you warn everyone that the line is being used for data transmission or if you only use the line for transmission after working hours then your best choice might be to keep the line on your phone system so it is available to be used for voice most of the time and save the cost of adding an extra line.

SPEED OF TRANSMISSION

Another basic classification for modems is the speed at which they transmit and receive information over the phone lines. The unit of measure is the BAUD. Although not technically true Baud rate is roughly equal to bits per second. 300 Baud transmits roughly 30 characters per second and 1200 Baud transmits roughly 120 characters per second.

The faster the Baud rate the more sophisticated the electronics and the higher the cost of the modem. Both the originating and the answering modem must be operating at the same speed in order to transfer data.

Picking a modem speed, as with most anything else, depends on your own application and budget considerations. Generally speaking most of us think in terms of the faster the better. However, this is not always true and in some cases being faster won't even work.

For example, if your application were to dial up a modem at a remote location and send information directly to a slow printer connected to the modem you wouldn't want to send the data any faster than the printer could print the data or the printer would fall behind and lose information.

Another example where a 300 Baud modem might be totally adequate is with a terminal connected to a remote computer via a pair of modems. If the application is mostly data input by the operator of the terminal and very little data is retrieved from the computer and displayed on the operator's terminal, then 300 Baud or 30 characters per second would be more than adequate. 30 cps equates to over 350 words per minute typing speed.

Another example where faster is not better is an application where you dial up a large data base and initiate a lengthy search through the data base for information. If you dial the data base at 1200 Baud you usually pay a premium rate for your connect time. Since you are transmitting at 4 times the speed of 300 Baud you normally expect to save money since you should be on line only a 1/4th of the time you would be at 300 Baud. However, the speed difference only comes into play when actual data transmission is taking place. Any dead time or disk search time that occurs will be the same no matter what speed modem you are using.

One of the main considerations for picking the speed of your modem is the speed of the modem that you are going to dial up. If your application is totally controlled by yourself then you can pick a pair of modems that operate at the speed and have the features

that you want. However, normally the modem you use will be dictated by the modem used on the system which you will be dialing up.

Most 1200 Baud modems today have 300 and 1200 Baud capabilities so that in one modem you have the flexibility to go either way.

INDUSTRY STANDARDS

There are several different standards to which modems have been designed. So not only do two modems have to be operating at the same speed but they must be compatible with the same standard as well. Fortunately for most micro-computer users there is only one standard for each speed to be concerned with. Bell 103 for 300 Baud modems, 212A for 1200 Baud modems and V.22bis for 2400 Baud modems.

WHY DO I NEED DATA COMMUNICATION SOFTWARE?

Modems were originally designed for terminals. When you hit a key on the keyboard of a terminal the character is transmitted out the serial port on the back of the terminal and directly into the computer or modem depending what it is connected to. When the computer or the modem sends a character to the terminal it is sent in through this same serial port and immediately displayed on the screen of the terminal.

Computers don't work this way. When you hit a key on your computer the information is sent to the processor in the computer and depending on what mode you are in it can be displayed on the screen or sent to the printer or several other possibilities. In order for a modem to work with a micro-computer the computer must be made to operate more like a terminal so that each keystroke is sent directly to the modem and each character received from the modem goes directly to the screen of your computer. This function, like most functions in a computer, is done with software. Software that performs this function is often referred to as terminal emulation or data communication software.

MODEM FEATURES

AUTO ANSWER

This feature is fairly self explanatory but there are some things to consider when using a modem with this feature. Auto answer means that the modem has the ability to answer the phone when it rings. This is also referred to sometimes as the ability to go off hook. If your modem does not have an auto answer feature or if the feature is disabled then you must manually answer the call by pushing a button on the modem forcing it to answer the call.

If you only use your modem for calling other computers then you may never use an auto answer feature at all. In fact this is true with a large number of people who use modems. The only time your modem needs to answer of course is when another computer is calling you.

One of the annoying side effects of an auto answering modem is that if the auto answer mode is on and the phone rings the modem may answer the phone when you don't want it to and the person on the other end of the line is greeted to the loud shriek of the carrier signal and hangs up the phone. To avoid this problem either keep your modem turned off when not in use or disable the auto answer feature.

Another point to make about manually answered modems is that it provides a large degree of security. The only time anyone can dial up and gain access to your system using a modem is when someone at your end is expecting the call and pushes the button. The

Only systems that so called hackers can get into are those systems with modems that are always turned on & in the auto answer mode.

AUTO DIALING

Auto dialing has become a very popular feature in recent times. Auto dialing simply means that the modem will automatically dial the telephone for you. It will dial the number from pre-stored phone numbers that you stored in your computer or directly from the keyboard of the computer. In either case you don't even need a telephone. The modem will connect directly into the same modular jack where your phone normally connects.

There are times however that you may need to have a telephone connected along with the modem. If you dial a computer service such as THE SOURCE or some other data base you can assume that the modem connected to their phone line will be turned on and ready to accept calls. In this case there is no need to have a telephone. However, if you want to communicate with a friend across the country chances are his computer won't be turned on, his communications software won't be loaded and his modem won't be turned on and set to auto answer. Therefore you will need to first talk to him by voice so he can set up his equipment and expect your call. With a telephone in the system you can call by voice first and then engage your modems without having to hang up and dial a second time.

There are two basic types of auto dialing modems. Once again the type you choose will depend on your application. The most common type of auto dialing modem is the Hayes compatible type of auto dialing modem. This type of modem depends upon the computer to store all of the phone numbers and then send the appropriate dialing code and the phone number to the modem when you want the number to be dialed. This works fine if you are using the modem with a computer. However, if you are using your modem with just a terminal you won't have storage capabilities and you will have to type in the phone number you want to call each and every time, and therefore you might as well be pushing the buttons on the telephone.

The other type of modem solves this problem nicely and can be a real advantage particularly if you are using the modem with a terminal. This type of modem provides number storage and intelligence right in the modem. It will place a menu of previously stored telephone numbers on the screen of the terminal upon command and then you can dial phone numbers by selecting the menu numbers. Many modems of this type provide other nice features such as dialing an alternate phone number automatically if the 1st number is busy and so forth. The memory where the phone numbers are stored of course is non-volatile meaning that the numbers will still be there the next time you turn off the modem and then turn it on again.

PULSE AND TONE DIALING

Most auto dialing modems have the ability to dial using either pulse or tone type dialing. The method that you use will depend on the type of service available in your area. If you are currently using touch tone phone then you can use either tone or pulse dialing with your modem. If you have pulse type phones (rotary style) then your phone system could be either tone or pulse type service. Tone dialing with your modem is much faster than pulse dialing and you will want to use the tone type dialing if you can.

ADAPTIVE DIALING

Adaptive dialing simply means that your modem will automatically itself to tone or pulse type dialing depending on which type service you have.

CALL MONITORING

Call monitoring is a feature which has been made somewhat necessary because of autodialing. Without auto dialing you would have to pick up the phone, listen for a dial tone, dial the number, listen for the ring, hear the phone being taken off hook on the other end and then hear the answer tone of the modem and push the answer button on your modem to complete the connection. If you reached a phone that was busy you would hear the busy signal hang up the phone and try again later.

All of this human interaction was useful because based on what you heard in the earpiece of the phone you could make a decision about how to proceed. With autodialing modems many times you don't even have a phone so some of this information might be lost without some sort of call monitoring. Call monitoring can be as simple as English words being sent to your screen indicating what the modem is doing at the time i.e. DIAL TONE, DIALING, CONNECT, BUSY, RINGING, CARRIER LOST, etc..

Another call monitoring feature that is very useful is a built-in speaker in the modem. With the speaker you get to hear the dial tone when the modem takes the phone off-hook. You hear the modem dialing, the answer tone of the other modem and then when a connection is made the speaker cuts out completely so you don't have to listen to the data being transmitted. If the number you are dialing has been disconnected or changed you hear MA BELL'S recording and can write down the new number. Without the speaker the modem would simply hang up and you probably would try several times before giving up. If it is a long distance call this feature can save you money.

AUTO BAUD RATE SENSING

Most 300/1200 modems have the ability to sense when the modem calling it is either 300 or 1200 Baud and then automatically sets itself to receive at the proper Baud rate. This is a nice feature but for most computers and most terminals it doesn't do a lot of good since the ports on the computer or the terminal must be preset to either 300 or 1200 anyway and therefore in order to communicate with someone calling your modem you must know ahead of time what baud rate he is going to use so you can set up your ports.

This is why most large computer systems or database that you dial up have different phone numbers for 300 or 1200 Baud users. Their modems probably have auto baud rate sensing but the ports that the modems are connected to have been preset to either 300 or 1200 baud and can't be changed dynamically. Some computers do have serial ports that can be changed dynamically and most auto baud rate sensing modems can provide some indication to the computer what baud rate that it has connected to. However, there is no standard for this procedure and it complicates the software task to include this feature and so is seldom used.

The auto sensing feature also works when originating a call. It is more of an advantage here since it eliminates you from having to reset your modem each time you change the transmission baud rate on your computer.

LED INDICATORS

One highly touted feature on many modems has to do with the number of RED flashing lights on the front of the modem. There are times during installation and testing where it is nice to have lights on the modem to help you see if every thing is hooked up and running properly. However, under most conditions the various signal indicators are rarely needed and only tend to raise the cost

of manufacturing the product & therefore the price you have to pay.

TERMINOLOGY

In this section several of the more common terms used in data communication are defined and discussed in detail.

WHAT DOES FULL DUPLEX AND HALF DUPLEX MEAN?

The terms full duplex and half duplex really have two separate meanings when used with computers and modems. A full duplex modem is one that has the ability to transmit and receive at the same time. A modem that operates in half duplex means that it can only be transmitting or receiving at any given time and not both. Bell 212A compatible modems are full duplex type modems. The other area where the same terms, full and half duplex, are used has to do with how a character is treated each time you hit a key on your keyboard when using data communication software. If you have your software set to operate in half duplex each time you hit a key the character is sent to the modem and also to the screen. When operating in full duplex mode, each time a key is hit the character again is sent to the modem but is not sent to your screen. If the remote computer that you are connected to is set up to echo back each character that it receives then the character will be immediately sent back to your computer or terminal and displayed on your screen. The advantage to this mode of operation is that you have immediate feed-back each time you hit a key that your communication link is working properly. If you type an "A" and an "A" appears on your screen you know that it has made the entire loop from your computer to the remote computer thru both modems and back again.

If you are communicating with a remote computer that is echoing back each character and you have your system set to half duplex then as you might expect you will see double letters on screen.

WHAT ABOUT ASYNCHRONOUS VS SYNCHRONOUS?

Asynchronous transmission means that the time interval between each transmitted character is not fixed but may vary. Each character is defined by the use of start and stop bits which surround the actual data bits. This is the most common method of transmitting data in low to medium speed applications since most serial devices such as terminals and printers also operate asynchronously.

Synchronous transmission on the other hand does not use start and stop bits to identify a character. Bits are transmitted at regular time intervals in groups. Synchronous transmission requires the use of clocking signals in order to control the timing of the bits transmitted.

Synchronous modems are used primarily in higher speed applications or in conjunction with multiplexers or data concentrators. The synchronous signals are normally only used between the two modems and then is converted back to an asynchronous signal in order to drive a terminal device.

WHAT ABOUT WORD LENGTH, PARITY & STOP BITS?

In order to communicate with another computer your computer and modem must be set to the same settings as the computer you are dialing. First of all, as discussed earlier, you must transmit at the same speed (Baud Rate) and your modem must conform to the same standard i.e. Bell 103 or 212A. In addition your computer must be set to match 3 other settings called word length, parity and number of stop bits.

The choices for these settings are: Word Length 7 or 8 bits; parity, odd, even or none; stop bits, 1, or 2.

The most common choices are: 8 Bits, No Parity and 1 Stop Bit.

Software Exchange

I received many new disks in the past few months but only just began to organize them. "Public Domain" means these programs can be freely modified and exchanged. BE AWARE THAT DISK #69 is "ShareWare". The authors would like a donation (the details are on the disk) if you enjoy the software, find it useful and would like updates. Under no circumstances can they be "sold" for profit. Usually, programs MUST retain a "remark" statement crediting the source of the program. Common sources of public domain software are large databases (i.e. "Compuserve", "PeopleLink"), other PD Exchanges (NIAD, ECN, AUG), listings from magazines, newsletters, and from individual users (Thanks Joe W., Don Z., Monte J., Greg D., Dan D. and the others) contributing to the exchange. Our Exchange includes elements from all of the above. Because of space I cannot describe all the programs. I will try to highlight the few that one should really have. If you have any questions about individual programs you may call me at 201 679 6102 (There is usually an answer machine hooked up and if you specify to call collect you are insured of hearing from me!) You may also send me a SASE to:

STEVE GEORGE
67 STEVENS AVENUE
OLD BRIDGE, NJ 08857

SmartWriter HELP files have an "H" designation. CP/M help files have a ".DOC" or ".TXT" extension. These can be read by using the "type" command. You can print them out by hitting the Control key + the P key (this toggles the printer on and off in CP/M). Following is an example. - **A. type filename.ext <RETURN>**

On BASIC disks any file with an "H" designation can be read in SmartWriter. These are usually "README" files.

Rules:

- 1.) Make all checks payable to "STEVE GEORGE". Postal or Money orders are filled immediately. If you send a personal check expect a 3-8 day delay. Stamps are also accepted. Most disks will go out NEXT DAY!! (I hate to wait for software too!) Take 15% of 10 or more disks and 20% for 20 or more!
- 2.) Questions about programs will be only answered if you send me a SASE.
- 3.) For an updated list of programs available send a SASE + \$1 (to cover Xerox costs).
- 4.) If you have nothing to contribute, a \$7 donation is required. I will ONLY supply disk format. This covers handling, postage, and purchase of disk. If you do not have a disk drive, send a LORAN, M.W. Ruth "PLAIN LABEL", or COLECO DDP + \$5 to cover handling and postage. (Victory and FastForward DDPs are unreliable). I will also include an updated disklist with your order if it has been updated.
- 5.) If you have programs to donate, include a README file + \$2 to cover postage and handling. I will copy your files off and then put the requested disk/DDP on YOUR disk if possible. I will accept DDP only if they are the above mentioned DDPs. You can send me stamps if you want to.
- 6.) You will not always get the same disk you sent. We use single-sided, double-density disks only.

Disks 1 - 47 are in early issues or contact Steve George

New Adam Public Domain Disks

In the past year we have received many disks from other libraries and have decided to include them in our current offering. Be careful though, on some disks there are files that are repeated. For the sake of continuity, we have decided to leave these disks *AS IS*. Please read descriptions carefully....

- Disk #48 Pascal II..This disk goes along with #47
- Disk #49 New CP/M- You must have CP/M to use this. It is an Improved CCP for CP/M 2.2..Several bug fixes, copy command built in! *Expandable Computer News' Library*
- Disk #50 Basic 1..Graphics demos, Piano, Grading program, maillist, envelope printing, joystick demo
- Disk #51 Basic 2..File system, clock, shapemaker, snakerider, musicplayer color-changer, sprite demo
- Disk #52 Basic 4..Football game, Evil adv., Dungeons & dragons game, 8 ball game
- Disk #53 CP/M 1...CP/M Adventure, Screen.com (to convert screen to 32 col.)
- Disk #54 CP/M 2...TinyBASIC (A 3K BASIC for CP/M!!) Full disk
- Disk #55 CP/M 3...PILOT (an authoring language)Full disk
- Disk #56 CP/M 4...a very nice Text Formatter Full disk
- Disk #57 CP/M 5a..EBASIC..A PD CP/M Basic similar to C or MBASIC
- Disk #58 CP/M 5b..EBASIC..Floating Point Package goes with #57
- Disk #59 CP/M 5c..EBASIC Compiler..changes your program to "executable" form.
- Disk #60 CP/M 5d..EBASIC Compiler II (companion disk to #59)plus Othello game
- Disk #61 CP/M 5e..EBASIC Misc..(companion disk to #59, 60)
- Disk #62 CP/M 6...EBASIC Games..Blackjack, Gunner, Civil War, Football, Golf Poker, Lunar Lander
- Disk #63 CP/M 7...EBASIC GamesII..StarTrek..Tweety,Snoopy picture..STMASTER
- Disk #64 CP/M 8a..EBASIC GamesIII..Animal, Bagels, AMAZE, BioRhythm, Mathematical equation solvers, Wumpus, Loan, Keno and many more!
- Disk #65 CP/M 8b..Ebasic GamesIV..BagelsII, Cannons, Chomp, LEM, Poet, Craps Hangman
- Disk #66 CP/M 9...EBASIC GamesV..23Match, Bullseye, Kingdom, SWARMS, Rocket, Checkers
- Disk #67 CP/M 11a.Resource (a CP/M assembler)
- Disk #68 CP/M 11b.A disassembler for Z80 CPU (CP/M & incl.SOURCE CODE)
- Disk #69 CP/M Express 1.0 a CP/M full featured Word Processor..80 columns on-line help files.... *Puget Sound Adam Users*
- Disk #70...Toolkit I MusicMaker, TuneMaker, Pcopy, includes some songs, all four disks contain pertinent text files on the operation of your ADAM.. all four are 90% full
- Disk #71...Toolkit II..CarlCopy, Cruncher, EaselPaint, AlphaSort.. more
- Disk #72...Toolkit III..Lazarus (recovers deleted files) various patches to fix bugs, shapelable docs, new directory utilities
- Disk #73...Toolkit IV..a BASIC Z80 disassembler, LabelMaker, CopyFast, more. *FCAUG Library*
- Disk #74 #1)100% full disk-BASIC programs(some repeats)28 programs,many new!
- Disk #75...#2)Also 100% full MoonBase, StarPatrol, 3D Rippte, StarWars, Multi-Draw, Jet, many others (30 programs in all)
- Disk #76...#3)More games, graphics demos, quatrain, tictactoe, poker, valentine polygon, math, kaledoscope, barrier, spiral, others..
- Disk #77...VideoTunes Data Disk.. a full disk of songs to use with VideoTunes
- Disk #78...AUG BASIC Games..Ski, Tron, Eliminator, Horses, Cannon, Missile Wal-loons, WildWest, more..
- Disk #79...CP/M PL/I Disk 1(A programming environment) Full disk!
- Disk #80...CP/M PL/I Disk 2 (goes with #78 includes some examples)
- Disk #81...CP/M Misc..Areacode, FTNOTE1.2, Find5.1, FindBad5.4, WASH, more..
- Disk #82...CP/M MiscII..NSWP2.07, QWKEY1.2, Make
- Disk #83...CP/M ProLINK Terminal program, Check Balancer
- Disk #84...CP/M Clone, Image (creates file of disk or DDP tracks) TapeUtil2.2 (an in-house Coleco copier)
- Disk #85...CP/M MADAM7 Version 1.3 Terminal Program Disk #86...CP/M Coleco In-House Utilities..DiskTest, BurnIn, Gensave, BuckRogers Test, Blank
- Disk #87...Misc BASIC Games..Cobra, PACPerson, Minotaur, CoinToss, Slot-Machine Obstacle, ShellGame, others
- Disk #88...HiRes Pictures#1 *Must be 18 years old*...Includes 3 utilities.. a printer program, a viewer (in BASIC) to see them on screen Includes some nudes! A must have disk!
- Disk #89...HiRes Pictures#2 Same three utilities (you do not need #88 to purchase

this) All different pictures!

- Disk #90...MBASIC games..you must have MicroSoft BASIC to use this disk Check-ers, CivilWar, Goldmine, Trucker, Chess, Poker
- Disk #91...CP/M Nudes...ASCII Pinups! *Must be 18 years old* Includes TRS2Adam CP/M Transfer utility
- Disk #92...BASIC Check filer, Envelope printer utility
- Disk #93...Temple of Asphai #1 Beta...Has bugs but is playable..a never released version of the EPYX game. Must Have the two disks and a RIGHT directory DDP This disk contains blocks 0-127
- Disk #94...Temple of Asphai #2 Beta..Must go with disk #93.. Has bugs but is play-able.. never released ver. of EPYX game-disk contains blks 128-255..*NIAD Library*
- Disk #95 Pinball #1...A disk full of Pinball games to use with Pinball Construction Set- Thunder, Demon, Ricochet, MadMan, others
- Disk #96 LOGO #1 Not full - but has 14 or so LOGO files on it about 10 new files
- Disk #97 ADAMCalc #1..A disk full of templates to use with ADAMCalc: Family Budget, Inventory, CheckBook, CISLog, TaxForm, others...
- Disk #98 BASIC #1 UtilIDUMP, UtilCopy..A very nice copier, disassembler that is SmartKey generated
- Disk #99 BASIC #2 Many utilities, tutorials on the operation of your ADAM ViewRAM, DirEdit, SpriteEditor, AddressREAD, Renumber, more
- Disk #100 BASIC #4 GRLocator, HGRLocator, PANDORA, Gravity, Animation, QUIZ, WordSEARCH, Fan, LetterChase, more..
- Disk #101 BASIC #5 Budget, Changer, Preschool, Gliders, Interest, Payroll, Roulette, Ratios, GRPaint, DragonLair, Get 'Em, BreakEven, more...
- Disk #102 BASIC #7 DK+TapeEdit, DemoColor, Calculator, AdamKite, Web, Pig-Feeder, SolveXYZ, MultiDrill, Phonebook, WordScram, Mortgage MagicSqr, others ..
- Disk #103 BASIC #10 Mileage, Chomp, Your AGE, Bomber, Baccarat, GOMOKU, Jitterbug, AdamChat, Motherlode, Joy, Haunting, Defuse, others....
- Disk #104 BASIC #16 Gravatar, Cube, Survive, Puzzle, fireplace, Blastoff, mandala, polyhedron, Tolkien adventure, AFILEREADER, Strain, others
- Disk #105 BASIC #17 WordGame, EctoBlaster, Chateau, Colorbar, Banner, Mosquitoes, help files on :pokes, peeks, bsaving...
- Disk #106 BASIC #18 Catch It, Galaxyghr, lottery, 24hrClock, HomeCalc, RayGun, Flagpole, Focalength, starburst, lazer, binomial, others...
- Disk #107 CP/M #1 (Some repeats) UNERA1.9. /, Display, SDDU, Create 3.0, In-ventory, Modem7, SQZ, USQ, Market, ADAMBOOT, others..
- Disk #108 CP/M #2 CatPage, LRUN2.0, BaseBall, Ucat, Split, FMAP, Find, Com-mon, Lu300, I/O Map, others
- Disk #109 CP/M #3 CPMUtil, Dirr, Edit 1.1, NSWP, PrintSq, Sq1.11, Sq 1.10 Multi-Copy, Nu11Lu, MakeSub2, SLOAD, LASM, DDTX3A, Sort, Usq1.20 Others...
- Disk #110 CP/M #5 DUU, SDCPY, VDO2.5, Z80, XMODEM8, others..
- Disk #111 CP/M #7 DU8.9,MMerge,XCCP, WID30, ELIZA, DELIB, XCCPUtl, others
- Disk #112 CP/M #8 Curly, CV2COR, CV2EXM, ZIP, UNIXTOOL, CV2ST
- Disk #113 CP/M #9 MBUtil, NSWP2.07, RENEXT, RESOURCE, TYPEL2.3, TypeL3.4A
- Disk #114 CP/M #12 Flisp, GameSave (Saves Carts to a file that can be run CP/M) Pilot80, L, VF, F83, F83Tool
- Disk #115 CP/M #13 GeneratHospital, DUPUSER, LOCK, Phone, Null, SorDir, VFilter, Survey4, WASH, Vfilersc, WFAST15, UNLOCK, UNERA, MKEYEX, others...
- Disk #116 CP/M #15 Othello, RCPM.lst, Castle, COBOL
- Disk #117 CP/M #16 ModemExecutive (terminal prog)1.28, XModem1.06
- Disk #118 CP/M #18 AreaCode, Banner, BISHOW, LIST, CPMHelp, TinyBas, Probe, EPro, DBL, SAP4.3, XF, others...
- Disk #119 CP/M #19 CkBook2.0, Guessit, SwapCopy, TypeSqueeze, Scroll, Alloc, Barcode, ADAMDir, others..
- Disk #120 Animator1.2..A full Sprite Animation program to be used under BASIC 1.2
- Disk #121 Coleco's Personal CP/M and SimpleCalc..FOR HACKER'S AND COL-LECTORS ONLY! These are not working but probably can be made to work with some "pokeing" around. Currently a collector's item.
- Disk #122 CP/M Arcade Games..Use with 80 Column monitor for best results. Pac-Man, Alien (Space Invaders) others..Uses ASCII Graphics
- Disk #123 CP/M Arcade Games..MCHASE (Pretty nice) ADVENTURE (Not the same as #12).
- Disk #124 CP/M Utilities...2 Disk Formatter! Formats EOS or CP/M..UNPROT- al-lows you to see source code of protected MSBASIC or CBASIC programs ACOPIY... Better than copy verifies, copies using function keys TOWS..A utility to convert DBASEII to MEX files...
- Disk #125 Label Printer...Designed by our own Greg Daro, will print most ADAM for-mats (written in BASIC yets prints CP/M disk labels!)

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