SUPER HI-RES GRAPHICS CONVERTER

oad your old Apple II pictures into one of the new IIGS paint personners and add the color those pictures have been missing for years. Super Converter is a program that allows you to convert standard Hi-Res pictures into a form that the new IIGS paint programs, such as Paintwocks Pius, can load and print using the fallulum colors of the IIGS.

USING THE PROGRAM

Super Converter is menu-driven and reads the picture files off the disk for you, so you don't have to remember the names of your

files. You can do almost everything from the main menu: catalog a disk, change the prefix, load a standard Hi-Res picture, convert to Super Hi-Res, view the Hi-Res or Super Hi-Res screen, and save the Super Hi-Res screen on disk. The main menu options are discussed below.

Run the program by typing

RUN SUPER.CONVERTER

It will first check the current drive to get the name of the disk. If there is no disk in the drive, the program will prompt you and ask you to indicate the correct drive.

Changing the Prefix

If you are running this program off of one disk and your pictures are in a subdirectory or on another disk, use the Change Prefix option to change the prefix to what you require. You need not remember the rame of the disk or subdirectory you want to change to, because Super Converter will read the disk in the drive and list all the available subdirectories. If you don't set the prefix, the program won't know where to look to find your picture flav.

Convert your standard Hi-Res pictures to the IIGS Super Hi-Res format with this new graphics utility. Loading a Standard Hi-Res Picture

When you select the Load Sandand Hi-Res Picture opins, you will be presented with a list of valid Hi-Res pictures within the prefix you've selected. The program will tell you if it can't find any picture files. Remember that this program can load only full standard Hi-Res files, not packed pictures and Double Hi-Res graphies. Because the program lists the valid files on the disk, you can see which nicture flees it will access.

Converting to Super Hi-Res

Converting your picture to Super Hi-Res is the heart of the program. When you choose the Convert Standard To Super option, Super Converter displays another menu containing the types of conversions available: full color, black and to red green or amber monochrome. After you make your choice, the screen will clear and the conversion will bear.

Full color conversion will convert the Hi-Res pictures to Super Hi-Res exactly as they appear in standard Hi-Res. But some pictures, such as those taken with a camera, may look better on a monochrome screen. When one of these is viewed on a color screen, it just doesn't look quite as good. You can use one of the monochrome conversion options to change these pictures to the mode for which they were made.

You may notice that the converted pictures appear horizontally squashed. This is because the standard Hi-Res screen is made up of a map of pixels 280 wide by 192 high and the Super Hi-Res screen this program uses is 320 by 200 causing the converted picture to appear smaller than the original. The difference in resolution also causes the right side of the converted picture to be blank.

Saving the Super Hi-Res Screen

Once you have converted a picture to Super Hi-Res you can save the converted screen to disk with the Save Super Hi-Res Screen option. The resulting file can be loaded by most commercial paint programs for the IIGS.

Some paint programs may require the saved picture to be of a certain file type, namely SCI. This program saves pictures with a file type of BIN, but you can easily change it to any type you need. If you find that your paint program will not load a converted picture because of its file type, simply change line 520 and line 540 to read

520 PRINT D\$"CREATE "A\$", T\$C1": FOR 1 = 1 TO 4 560 PRINT D\$"BSAVE "A\$", A\$4000, L\$2000, B" (1-1) *8192",T\$C1"

ENTERING THE PROGRAM

There are two program listings for Super Converter. One is the main BASIC program; the other is the machine language routine. Only Listing 1, the BASIC program, is required. It will POKE all the required machine language for you. Listing 2 shows the machine language source code for those of you who want to examine it but

it does not need to be typed in. Type in Listing 1 and save it with the command

SAVE SUPER.CONVERTER

For help with entering Nibble listings, see the Typing Tips section.

Monochrome conversion is very simple. Each pixel from the standard Hi-Res screen is transformed onto the Super Hi-Res screen. Color conversion. is a little more difficult.

HOW THE PROGRAM WORKS

Monochrome conversion is very simple. Each pixel from the standard Hi-Res screen is transformed onto the Super Hi-Res screen. If the pixel in standard Hi-Res is on, the program turns on the corresponding Super Hi-Res pixel.

Color conversion is a little more difficult. In standard Hi-Res, a pixel's color is determined first by whether it is on or off. If it is off, its color is always black. If the pixel is on, then its color depends on several things. If an adjacent pixel is on, then the pixel will always be white. If an adjacent pixel is not on, the pixel's color will be selected from four possibilities based on whether the pixel is in an odd or even column and whether or not the byte in memory containing that pixel has its high bit set or cleared

When converting pictures, Super Converter begins by clearing the Super Hi-Res screen and placing a palette of colors matching those of the standard Hi-Res screen into palette 0 of the Super Hi-Res screen. This is accomplished in lines 37-67 of Listing 2. Next it begins a top-to-bottom scan of the standard Hi-Res screen, plotting each pixel on the Super Hi-Res screen according to its color in standard Hi-Res. Super Converter determines pixel color in lines 73 and 74 by first checking whether the pixel is on or off. If the pixel is off. it puts a black pixel on the Super Hi-Res screen at that position. If the pixel is on, it first checks both left and right adjacent pixels to see whether they are on (lines 78-83). If either is on, the program plots a white. If neither is on, Super Converter determines the color from a look-up table and plots one pixel on the Super Hi-Res screen at that position.

If the pixel is to be in a color other than black or white. Super Converter checks to see whether the color appears as one or two pixels wide in standard Hi-Res by checking the pixel located two horizontal positions to the right of the original pixel. If this pixel is on, the color should be two pixels wide to appear as a solid color. If the pixel is off, the color appears as only a single pixel and Super Converter treats it as such

This program allows you to add a wider variety of text to your Super Hi-Res picture... and to use your video digitizer to create Super Hi-Res pictures.

CONCLUSION

This program has more uses than simply converting pictures. For one, it allows you to add a wider variety of text to your Super Hi-Res pictures. You can use your old text programs such as Fontrix or Print Shop to type your message, then convert the picture to Super Hi-Res and use it from Paintworks or 8/16 Paint. This program also allows you to use your video digitizer to create Super Hi-Res pictures. By adding the color yourself, you have a color digitized picture. With a little imagination you should be able to come up with many more uses for Super Converter.

LISTING 1: SLIPER CONVERTER REM

37 10

10 140 REM

```
CØ
      20
           REM

    SUPER.CONVERTER

89
      30
           REM
                       BY TOM DORRIS
                   - COPYRIGHT (C) 1988
AE
      40
           REM
CB
           DEM
                  - BY MICROSPARC, INC.
24
      60
           RFM
                   - CONCORD, MA 01742 -
           DEM
18
      80
           LOMEM: 25088
A3
           PRINT CHR$ (4) PR#3"
      100 DIM DR$(30).PD$(30):SL = 5:DV = 1
D8
                   *** MAIN MENU ARRAY ***
      110
      120 MN$(1) = "CAT DISK":MN$(2) = "CHANGE PREFIX
":MN$(3) = "LOAD STANDARD HIRES PICTURE":MN
$(4) = "VIEW STANDARD HIRES SCREEN":MN$(5)
              "VIEW SUPER HIRES SCREEN
      130 MNs(6) = "CONVERT STANDARD TO SUPER": MNs(7)
            = "SAVE SUPER HIRES SCREEN": MNS(8) = "QUIT
            :MN = 8
```

T BACK TO MAIN' : CN = 5 01 160 ONERR GOTO 198 170 *** GET DISKS NAME *** 07 180 PRINT CHRS (4) PREFIX/": PRINT CHRS (4)" PREFIX": INPUT PRS:CH = 1:CS = 1: POKE 216. 0: GOTO 200

*** CONVERSION MENU ARRAY ***

BLACK AND WHITE": CV\$(3) = "GREEN MONOCHROME :CV\$(4) = "AMBER MONOCHROME":CV\$(5) = "EXI

150 CV\$(1) = "FULL COLOR CONVERSION": CV\$(2) = "

198 POKE 216,0:RT = 4:DS = CHR\$ (4): GOTO 848 83 200 HOME : HTAB 28: VTAB 10: PRINT "SUPER HI-R ES CONVERTER'

630 GOSUB 1550: REM 210 PRINT : HTAB 32: PRINT "BY TOM DORRIS": FA *** MENU MAKER *** 47 640 IF CD = CN THEN 260 HTAB 20: PRINT "COPYRIGHT(C) 1988 BY MICRO SPARC, INC. 54 650 POKE 230.64 220 VTAB 15: HTAB 33: PRINT "ONE MOMENT 2C 660 POKE 24656, 165: POKE 24657, 233: POKE 24658 .5: POKE 24659,234: POKE 24660,240: POKE 24 230 GOSUB 1410: REM *** POKE IN MACHINE LANG 561,22: POKE 24662,32: POKE 24663,19: REM HAGE ... 240 VTAB 15: HTAB 25: PRINT "PRESS RETURN TO C DEFAULT TO COLOR CONVERSION 45 87 670 IF CD = 1 THEN 720 ONTINUE : GET AS POKE 24656,169: POKE 24657.0: POKE 24658.3 02 250 DS = CHRS (4):MC = 1 10 680 2: POKE 24659,184: POKE 24660,96: POKE 2466 52 260 HOME : PRINT : TEXT : POKE 49193.1 1.76: POKE 24662.216: POKE 24663.96: REM 270 HTAB 15: VTAB 1: PRINT "SUPER HI-RES CONVE 9A RTER": HTAB 15: PRINT 'Copyright(c) 1988 Mi CHANGE TO BLACK & WHITE croSPARC, Inc.": HTAB 15: VTAB 4: PRINT "Us FC 698 IF CD = 2 THEN 720 IF CD = 3 THEN POKE 24657.2: GOTO 720: RE e arrow keys to move marker.": HTAB 15: 766 PRINT 'Press Return to make selection': IF CD = 4 THEN POKE 24657.4: REM CHANGE 93 710 HTAB 15: PRINT "Press Escape to Quit." TO AMBER (RED) 8A 280 IF RIGHTS (PRS.1) < > "/" THEN PRS = PRS ng 720 HOME : POKE 49193.163 298 FOR I = 1 TO MN:DR\$(I) = MN\$(I): NEXT :DR 730 CALL 24576 ØA 740 GET AS: POKE 49193.1: GOTO 610 IF CH > 1 THEN 810 10 750 38 300 HTAB 15: VTAB 19: PRINT "PREFIX: "PR\$ 310 CD = MC:MP = 1: GOSUB 1560:MP = 0: REM REM *** CATALOG WITH PREFIX *** 49 770 HOME : ONERR GOTO 800 · MENU MAKER · · · PRINT DS"CATALOG "PRS POKE 216,0: PRINT : PRINT "Press Return t o continue: ":: GET AS: GOTO 260 320 CH = CD:MC = CD FA 780 330 IF CH = MN THEN HOME : VTAB 12: PRINT "AR 18 798 E YOU SURE YOU WANT TO QUIT? ":: POKE - 16 368.0: GET AS: IF AS = "Y" OR AS = "y" THEN CC 800 PRINT : PRINT "ERROR!": GOTO 798 IF CH > 2 THEN 1210 20 810 HOME : PRINT DS PREFIX/": END REM ... CHANGE PREFIX ... 9F 829 ØF 340 IF CH = MN THEN 260 IF CH = 4 THEN HOME : PRINT DS PR#0": 830 RT = 1 350 848 ONERR GOTO 980 PRINT CHR\$ (149): POKE 49232.0: POKE 4923 4.0: POKE 49237.0: POKE 49239.0: GOTO 380: FE 850 HOME BD 860 HTAB 10: VTAB 7: PRINT "Select data disk d REM DISPLAY STANDARD HIRES 7E 360 IF CH < > 5 THEN 390 rive: 370 POKE 49193.163: REM DISPLAY SUPER HIRES 85 879 HTAB 10: VTAB 10: PRINT "Slot: "SL" Drive: "DV 380 GET AS: POKE 49193.1: PRINT DS"PR#3": TEXT GOTO 260 888 IF RT < > 4 THEN HTAB 27: VTAB 15: PRINT Press ESC to return to menu 05 300 IF CH < > 7 THEN 590 890 HTAR 16: VTAR 10: GET AS: IF AS < > CHRS 68 28 400 REM *** SAVE SUPER HIRES SCREEN *** HOME : ONERR GOTO 430 (13) AND A\$ < > CHR\$ (27) AND (A\$ < "1" ØC 410 OR A\$ > "7") THEN 898 85 428 PRINT DS PREFIX PRS: POKE 216.0: GOTO 440 11 900 IF AS = CHR\$ (27) AND RT < > 4 THEN 260 RF 910 IF AS = CHRS (27) THEN 890 75 430 POKE 216.0:RT = 3: GOTO 850 IF VAL (AS) THEN SL = VAL (AS): HTAB 16: VTAB 10: PRINT SL: GOTO 890 HTAB 16: VTAB 10: NORMAL : PRINT SL: HTAB 8D 920 440 HOME 28 450 HTAB 15: VTAB 5: PRINT "Enter the name you would like to save": HTAB 15: PRINT "the p icture as. : HTAB 15: VTAB 9: PRINT "--> PR 34: VTAB 10: GET AS: IF AS < > CHR\$ (13) AND A\$ < > CHR\$ (27) AND A\$ < > "1" AND A\$ < > "2" THEN 930 \$: CHR\$ (29); 10 460 HTAB 18 + LEN (PRS): VTAB 9: INPUT ":AS: EF 940 IF AS = CHR\$ (27) AND RT < > 4 THEN 260 IF NOT LEN (AS) THEN 260 IF AS = CHRS (27) THEN 930 470 NF = 1: FOR I = 1 TO LEN (AS): J = ASC (Ra 950 F8 960 IF VAL (AS) THEN DV = VAL (AS): HTAB 34: 95 MIDS (AS, I, 1)) VTAB 10: PRINT DV: GOTO 930 PRINT : PRINT DS PREFIX /": PRINT DS PREFI 0F 480 NF = ((J > 64 AND J < 91) OR (J = 46) OR (J > 47 AND J < 58 AND I > 1)) AND NF = 1: FB 970 X.S"SL".D"DV: PRINT D\$"PREFIX": INPUT PR\$: NEXT POKE 216.0: GOTO 1000 54 490 IF LEFTS (AS.1) = "." OR LEN (AS) > 15 0 R NF = 0 THEN HTAB 15: VTAB 11: PRINT "Inv 980 POKE 216.0: HOME : HTAB 10: VTAB 7: PRINT "1/D error": PRINT : IF RT < > 4 THEN HTA alid ProDOS filename.": HTAB 15: PRINT "Pre ss Return to continue.";: POKE - 16368.0: B 10: PRINT 'Press Return to return to men :: GET AS: GOTO 260 GET AS: VTAB 10: PRINT : PRINT CHRS (29): 990 HTAB 10: PRINT 'Press Return to try again PRINT CHR\$ (29): GOTO 450 84 :: GET AS: GOTO 850 on POKE 49193.163 41 1000 HOME : PRINT DS'OPEN 'PRS', TDIR": PRINT D S'READ 'PRS 510 ONERR GOTO 580 520 FOR I = 1 TO 4 2D 530 POKE 771,0: POKE 772,1 - 32: POKE 773,225 1010 ONERR GOTO 1060 60 1020 DR = 0 540 POKE 775.0: POKE 776.64: POKE 777.0: POKE

98

14

20

3B

43

4C

1030 INPUT AS: IF LEN (AS) < 21 THEN 1030 IF MIDS (AS.18.3) < > "DIR" THEN 1030

DR < 20 THEN 1030

1070 IF NOT DR THEN 1160

1110 IF CD = DR THEN 1170

D) . I - 1): NEXT I

T 'Accept prefix as shown.

1060 PRINT DS CLOSE

1100 GOSUB 1550

1050 DR = DR + 1:DR\$(DR) = MID\$ (A\$,2,15): 1F

1080 POKE 216.0: HOME : HTAB 15: VTAB 5: PRINT

1120 FOR I = 15 TO 1 STEP - 1: IF MID\$ (DR\$(CD),I,1) = " THEN DR\$(CD) = LEFT\$ (DR\$(C

1089 DR = DR + 1:DR\$(DR) = ">>>ACCEPT<<<"
1090 HTAB 15: VTAB 19: PRINT "PREFIX: "PRS

Select a subdirectory, or': HTAB 15: PRIN

LISTING 1: SUPER.CONVERTER

C6

28 550

D1

30 600 REM

9C

79

791.(I + 1) + 32

590 IF CH < > 6 THEN 750

ENT INTO MAIN MEMORY ...

560 PRINT DS BSAVE "AS . AS 4000 , L\$ 2000 . B (I - 1

580 POKE 49193.1: HOME : HTAB 15: VTAB 7: PRIN T 'Disk error!": PRINT : HTAB 15: PRINT "Pr

ess Return to continue": GET AS: GOTO 260

HOME : HTAB 15: VTAB 5: PRINT 'Choose the desired conversion method:

620 FOR I = 1 TO CN:DR\$(I) = CV\$(I): NEXT :DR

*** CONVERT STANDARD TO SUPER HIRES

*** LOAD NEXT PICTURE SEGM

CALL 768: REM

- 8192 570 NEXT : POKE 49193.1: GOTO 260

= CN

1F		
	1130 IF RIGHTS (PR\$,1) < > "/" THEN PR\$ = PR	3C 1540 DATA 32,64,255,15,15,15,240,0,15,0, 15,240,15,15,240
FB	1140 PR\$ = PR\$ + DR\$(CD)	09 1550 CD = 1
02	1150 A = FRE (0): GOTO 1000	
	1130 A = FRE (0): GOTO 1000	
FA	1160 IF RIGHT'S (PR\$,1) < > "/" THEN PR\$ = PR	18:DT = 18 E8 1578 IF NOT MP THEN HTAB 26: VTAB 21: PRIM
95	1170 IF RT = 1 THEN 260	"Press ESC to return to menu"
D9	1180 IF RT = 2 THEN 1210	8C 1580 FOR I = 1 TO DT: HTAB 15: VTAB 7 + I:
9A	1190 IF RT = 3 THEN 410	OC 1300 FOR 1 = 1 10 DI: HIAD 15: VIAD / + 1:
48	1200 IF RT = 4 THEN 160	PRINT DRS(I): NEXT
92	1210 HOME : ONERR GOTO 1240: REM *** LOAD ST	AC 1590 IF DD THEN FOR I = 1 TO DD: HTAB 55: \ B 7 + I: PRINT DRS(10 + I): NEXT
	ANDARD HIRES ***	6D 1600 HTAB 15: VTAB 7 + CD - (10 + (CD > 10)
63	1220 PRINT DS PREFIX "PRS: IF PRS = PDS THEN 1	IF CD > 10 THEN HTAB 55
	340	0B 1610 INVERSE : PRINT DR\$(CD): NORMAL
F3	1230 GOTO 1250	F2 1620 IF PEEK (- 16384) < 128 THEN 1620
ca	1240 POKE 216.0:RT = 2: GOTO 850	C1 1630 A = PEEK (- 16384) - 128: POKE - 1636
3B	1250 PRINT DS"OPEN "PRS", TDIR": PRINT DS"READ	0: IF A < > 8 AND A < > 10 AND A < >
30	1230 PRINT DS OPEN PRS , IDIR : PRINT DS READ	B: IF A < > 8 AND A < > 10 AND A < >
8C	"PR\$: ONERR GOTO 1300	AND A < > 13 AND A < > 21 AND A < > 2
	1260 PD = 0	THEN 1620
FC	1270 INPUT AS: IF LEN (AS) < 30 THEN 1270	FE 1640 IF A = 27 THEN CD = DR: RETURN
65	1280 IF VAL (MIDS (AS.26.3)) < > 17 THEN 12	A7 1650 HTAB 15: VTAB 7 + CD - (10 + (CD > 10)
	70	A7 1650 HTAB 15: VTAB 7 + CD - (10 * (CD > 10) IF CD > 10 THEN HTAB 55
01		D4 1669 PRINT DRS (CD)
01	1290 PD = PD + 1:PD\$(PD) = MID\$ (A\$,2.15): GOT	D4 1660 PRINT DRS(CD)
	0 1270	43 1670 IF A = 8 OR A = 11 THEN CD = CD - 1 + (
72	1300 POKE 216.0: PRINT DS"CLOSE": IF PD THEN 1	D = 1) - DT): GOTO 1600
8F		86 1680 IF A = 21 OR A = 10 THEN CD = CD + 1 -
	1310 POKE 216.0	CD = DT + DD) * (DT + DD)): GOTO 1600
EE	1320 HOME : HTAB 15: VTAB 5: PRINT 'There are	0C 1690 RETURN
	no standard hires pictures": HTAB 15: PRINT	
	"in this directory."	TOTAL: 7956
D7	1330 PRINT : PRINT 'Press Return to continue:	10142. 7930
0,	1330 PRINT : PRINT Press Return to continue:	
	":: GET A\$:A = FRE (0): GOTO 260	END OF LISTING 1
41	1340 HONE : HTAB 15: VTAB 5: PRINT "Choose pic	
	ture to load:"	
44	1350 CD = PD + 1:PD\$(CD) = "RETURN TO MAIN": FO	
	B. I - 1 TO CO-DOC(I) - REIGHN TO MAIN : FO	
	R I = 1 TO CD:DR\$(I) = PD\$(I): NEXT :DR = C	
	D: GOSUB 1550:PD\$ = PR\$	
71	1360 IF CD = DR THEN 260	LISTING 2: SUPER.CONVERTER Source Code
35	1370 PRINT DS"PR#0"	
72	1380 PRINT CHRS (149): HGR2	
25	1300 PRINT CHRS (149): MGRZ	
	1390 PRINT D\$"BLOAD "PR\$; DR\$(CD)", A\$4000"	1
2F	1400 GET AS: TEXT : PRINT DS PR#3": GOTO 260	2 .
12	1410 FOR I = 0 TO 26: READ A: POKE 768 + I.A:C	3 - ASSEMBLY SOURCE CODE .
	= C + A: NEXT	4 - FOR SUPER CONVERTER -
8E	1420 IF C < > 3025 THEN HOME : PRINT "DATA S	5 - BY TOM DORRIS .
OL.	TATEMENT ERROR!": END	5 * COPYRIGHT (C) 1988 *
55		7 - BY MICROSPARC, INC
22	1430 DATA 162,0,191,0,64,0,159,0,32,225,232	8 - CONCORD, MA 01742 -
	.208.245.238.4.3.238.8.3.173.4.3.201.96.208	9
	,232,96	10 - MERLIN-16 ASSEMBLER .
86	1440 FOR I = 1 TO 365	11
7F	1450 READ A: POKE 24575 + I.A: NEXT	12
47	1460 RETURN	13
		14 ORG \$6000
8A		15 HCDR = SE9
8A	69.32.133.254.169.225.133.255.169.255.135.2	15 HCOR = \$E9 16 VCOR = \$ER
8A	69.32.133.254.169.225.133.255.169.255.135.2 53.230.253.208.248.230.254.165.254.201.157	15 HCOR = \$E9 16 VCOR = \$E8
8A	69.32.133.254.169.225.133.255.169.255.135.2 53.230.253.208.248.230.254.165.254.201.157	15 HCOR = \$E9 16 VCOR = \$EB 17 POS = \$26
8A	69,32,133,254,169,225,133,255,169,255,135,2 53,230,253,208,248,230,254,165,254,201,157, 208,240,160,0,169,0,151,253,209,208,249,169	15 HCOR = \$E9 16 VCOR = \$EB 17 POS = \$26 18 HPOSN = \$F411 CALCS HIRES BASE ADDRESS 19 \$LOC = \$FD SUPER HIRES POINTER
	69.32.133.254.169.225.133.255.169.255.135.2 53.230.253.208.248.230.254.165.254.201.157. 208.240.160.0.169.0.151.253.200.208.249.169 .32.133.254.162.10.189.95	15 HCOR = \$E9 16 VCOR = \$EB 17 POS = \$26 18 HPOSN = \$F411 CALCS HIRES BASE ADDRESS 19 \$LOC = \$FD SUPER HIRES POINTER
	69, 32, 133, 254, 169, 225, 133, 255, 169, 255, 135, 2 53, 230, 253, 238, 248, 230, 254, 165, 254, 201, 157, 288, 240, 160, 0, 169, 0, 151, 253, 200, 208, 249, 169, 32, 133, 254, 162, 16, 189, 95 1480 DATA 97, 159, 0, 158, 225, 202, 16, 246, 169, 0	15 HCOR = \$E9 16 VCOR = \$EB 17 POS = \$26 18 HPOSN = \$7411 CALCS HIRES BASE ADDRESS
	69, 32, 133, 254, 159, 225, 133, 255, 169, 255, 135, 2 53, 239, 255, 269, 246, 239, 254, 165, 254, 261, 157, 268, 240, 150, 0, 159, 0, 151, 253, 209, 208, 249, 169, 32, 133, 254, 162, 10, 189, 95 1480 DATA 97, 159, 0, 158, 225, 262, 152, 246, 169, 0 ,143, 30, 158, 225, 143, 31, 158, 225, 32, 59, 97, 208	15 HCOR = \$E9 16 VCOR = \$EB 17 POS = \$26 18 HPOSN = \$F411 CALCS HIRES BASE ADDRESS 19 SLOC = \$FD SUPER HIRES POINTER 20 CLBSYT = \$7
	69, 32, 133, 254, 169, 225, 133, 255, 169, 255, 135, 2 53, 230, 253, 286, 248, 230, 254, 165, 254, 201, 157, 288, 240, 160, 0, 169, 0, 151, 253, 230, 238, 249, 169 132, 133, 254, 162, 101, 189, 55, 202, 162, 264, 159, 0, 188, 243, 244, 162, 161, 189, 55, 262, 162, 264, 169, 0, 188, 253, 164, 164, 164, 164, 164, 164, 164, 164	15 MCOR = 5E9 16 MCOR = 5EB 17 PCS = 526 18 MPOSN = 5741 28 SUPER HIRES BASE ADDRESS 28 CLEBYT = 57 21 TRASH = 18
	69, 32, 133, 254, 169, 225, 133, 255, 169, 255, 135, 2 53, 230, 253, 268, 248, 230, 254, 165, 254, 201, 157, 208, 244, 160, 0, 169, 0, 151, 253, 200, 208, 249, 169, 32, 133, 254, 162, 10, 189, 95 1480 DATA 97, 159, 0, 158, 225, 202, 16, 246, 169, 0, 143, 30, 158, 225, 143, 31, 158, 225, 225, 269, 72, 208, 169, 15, 32, 184, 96, 76, 216, 96, 165, 233, 5, 234, 240, 22, 32, 19, 97, 326, 50, 97, 244, 113, 32, 39, 97, 1	15 HCOR = \$E9 16 VCOR = \$E8 18 HCOR = \$E8 18 HPOSN = \$F411 CALCS HIRES BASE ADDRESS 19 SLOC = \$FD SUPER HIRES POINTER 28 CLREYT = \$7 27 TRACH = \$8
C8	69, 32, 133, 225, 159, 225, 133, 225, 159, 225, 139, 225, 139, 225, 139, 225, 139, 225, 139, 225, 139, 225, 139, 225, 139, 226, 249, 159, 249, 159, 249, 159, 32, 133, 254, 162, 10, 189, 59, 32, 133, 254, 162, 10, 189, 59, 32, 153, 254, 162, 10, 189, 59, 225, 226, 226, 246, 169, 169, 150, 225, 143, 31, 156, 225, 125, 25, 143, 31, 156, 225, 125, 25, 169, 226, 226, 226, 226, 226, 226, 226, 2	15 MCDR = \$19 16 WCDR = \$18 17 PGS = \$26 18 MPGSN = \$7411 CALCS HIRES BASE ADDRESS 19 SLOC = \$770 SUPER HIRES POINTER 27 TRASH = \$8 22 TRASH = \$8 23 XC
C8	69, 32, 133, 225, 159, 225, 133, 225, 159, 225, 139, 225, 139, 225, 139, 225, 139, 226, 152, 236, 236, 140, 157, 236, 246, 150, 246, 150, 246, 151, 225, 2309, 236, 249, 159, 32, 133, 254, 162, 16, 189, 55, 225, 222, 16, 246, 159, 9, 150, 225, 221, 62, 246, 159, 9, 150, 256, 257, 156, 257, 258, 257, 258, 258, 258, 258, 258, 258, 258, 258	15 NCOR = \$E9 16 NCOR = \$E8 16 NCOR = \$E8 18 NFOSM = \$F411 18 NFOSM = \$F411 30 CLESTT = \$7 20 TRACH = \$7 21 TRACH = \$7 22 TRACH = \$7 23 XC
C8	69.32, 133, 226, 159, 225, 133, 225, 159, 225, 139, 225, 139, 225, 238, 238, 248, 239, 254, 155, 244, 241, 157, 238, 246, 159, 246, 246, 246, 246, 246, 246, 246, 246	15 NCOR = \$69 17 PM 18 PM
C8	69.22.133.294.169.226.133.255.169.295.135.2 53.206.252.86.246.276.24.166.254.261.157. 53.206.252.86.246.276.24.166.254.261.157. 1480 DATA 97.159.4.162.1619.95 1481 DATA 97.159.4.162.1619.95 1481 DATA 97.159.4.162.161.156.225.226.24.162.46 1481.36.156.225.145.31.156.225.226.24.162.46 1481.36.156.225.145.31.156.225.226.246.246.296.09 1481.36.156.225.145.31.156.225.226.246.246.206.206.206.206.206.206.206.206.206.20	15 NGCOS = 543 M
C8	99.22.133.294.169.229.132.255.169.295.135.2 53.236.257.386.266.279.241.65.244.271.157. 53.236.257.386.266.279.241.65.244.271.157. 1400.2071.2071.2071.2071.2071.2071.2071.20	15 FORCE = \$15 M 17 FORCE = \$10 M 17 FORCE = \$10 M 18 FORCE = \$70 SAFER MERIES POLYTER 20 CLERT = \$17 SAFER MERIES POLYTER 21 SAFER MERIES POLYTER 22 SAFER MERIES POLYTER 23 SAFER MERIES POLYTER 24 SEC SAFER MERIES POLYTER 25 SAFER MERIES POLYTER 26 SAFER MERIES POLYTER 27 SAFER MERIES POLYTER 28 SAFER MERIES POLYTER 29 SAFER MERIES POLYTER 20 SAFER MERIES POLYTER 20 SAFER MERIES POLYTER 20 SAFER MERIES POLYTER 21 SAFER MERIES POLYTER 22 SAFER MERIES POLYTER 23 SAFER MERIES POLYTER 24 SAFER MERIES POLYTER 25 SAFER MERIES POLYTER 26 SAFER MERIES POLYTER 27 SAFER MERIES POLYTER 28 SAFER MERIES POLYTER 29 SAFER MERIES POLYTER 20 SAFER MERIES POLYTER 20 SAFER MERIES POLYTER 20 SAFER MERIES POLYTER 20 SAFER MERIES POLYTER 21 SAFER MERIES POLYTER 22 SAFER MERIES POLYTER 23 SAFER MERIES POLYTER 24 SAFER MERIES POLYTER 25 SAFER MERIES POLYTER 26 SAFER MERIES POLYTER 26 SAFER MERIES POLYTER 27 SAFER MERIES POLYTER 27 SAFER MERIES POLYTER 27 SAFER MERIES POLYTER 28 SAFER MERIES POLYTER 28 SAFER MERIES POLYTER 28 SAFER MERIES POLYTER 29 SAFER MERIES POLYTER 29 SAFER MERIES POLYTER 20 SAFER MERIES POLYTER 27 SAFER MERIES POLYTER 28 SAFER MERIES POLYTER 28 SAFER MERIES POLYTER 29 SAFER MERIES POLYTER 20 SAFER MER
C8	69, 32, 133, 254, 169, 225, 133, 255, 169, 255, 135, 25 53, 220, 252, 268, 248, 232, 254, 165, 254, 263, 263, 261, 263, 263, 263, 263, 263, 263, 263, 263	15 NCOC = \$19 17 NCO = \$19 17 NCO = \$74 18 HOON = \$141 CALCS HIRES BASE ADDRESS 18 HOON = \$141 CALCS HIRES BASE ADDRESS 18 HOON = \$70 21 TRASH = \$2 21 TRASH = \$2 24 XC 24 XC 25 26 ST SUCC 27 ST SUCC 29 ST SUCC 29 ST SUCC 20 ST SUCC 20 ST SUCC 21 ST SUCC 22 ST SUCC 23 ST SUCC 24 ST SUCC 25 ST SUCC 26 ST SUCC 27 ST SUCC 28 ST SUCC 29 ST SUCC 20 ST SUCC 20 ST SUCC 20 ST SUCC 21 ST SUCC 22 ST SUCC 23 ST SUCC 24 ST SUCC 25 ST SUCC 26 ST SUCC 27 ST SUCC 28 ST SUCC 29 ST SUCC 20 ST SUCC
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C8	69.22.133.294.169.226.132.255.169.259.136.2 53.206.259.268.248.219.254.169.254.261.157. 53.206.259.268.248.219.254.169.254.261.157. 1480 DATA 97.159.4.162.161.99.95. 1480 DATA 97.159.4.162.101.158.225.22.224.16.246.199.0 1481.38.185.225.146.3.31.158.225.2.224.16.246.199.0 1482.38.185.225.146.3.31.158.225.2.224.16.249.20 240.27.2.31.99.77.325.99.2744.11.32.29.39.97.12 1490 DATA 12.114.99.7.52.19.97.126.99.22.2.3 1490 PATA 97.159.7.169.19.97.169.99.22.2.3 1490 PATA 97.159.19.97.126.99.27.179.32.09.97.179.3	15 1000 = 110 11
C8	99.22.133.294.169.222.132.255.169.295.135.2 99.22.133.294.169.222.132.165.242.273.157.2 202.492.169.202.169.202.169.202.169.202.157.2 202.492.169.202.169.2	15 NCOC = \$429 17 FOS = \$744 18 HOON = \$741 CALCS HIRES BASE ADDRESS 18 HOON = \$741 CALCS HIRES BASE ADDRESS 18 HOON = \$75 18 HOON = \$75 27 TRASH = \$8 21 TRASH = \$8 21 TRASH = \$8 22 TRASH = \$8 24 XC 24 XC 25 XC 26 XC 27 SCOC = \$75 27 SCOC = \$75 27 SCOC = \$75 27 SCOC = \$75 28 SCC = \$75 29 SCC = \$75 29 SCC = \$75 20 SCC = \$75 20 SCC = \$75 20 SCC = \$75 21 COC = \$75 22 SCC = \$75 23 SCC = \$75 24 SCC = \$75 25 SCC = \$75 26 SCC = \$75 27 SCC = \$75 28 SCC = \$75 29 SCC = \$75 20 SC
C8	69, 32, 133, 254, 169, 225, 133, 255, 169, 259, 135, 25 33, 220, 252, 268, 248, 232, 254, 165, 254, 261, 157, 25 33, 230, 252, 268, 248, 232, 254, 165, 254, 261, 157, 261, 261, 261, 261, 261, 261, 261, 261	15 HOOSE = \$42 M 17 HOOSE 18
C8 74 94	99.22.133.294.169.226.132.295.169.295.135.2 53.206.252.086.248.219.254.169.254.261.157. 53.206.252.086.248.219.254.169.254.261.157. 1480 DATA 97.159.1618.955.202.16.246.169.0 1481 DATA 97.159.1618.955.202.16.246.169.0 1491 DATA 12.114.96.76.216.95.165.223.9.214. 240.22.21.91.97.32.5.99.72.461.132.208.97.127.3 1490 DATA 12.114.96.76.216.95.128.97.127.3 1490 DATA 97.216.97.129.97.129.97.129.97.129.3 1590 DATA 97.216.97.129.97.129.97.129.97.129.3 1590 DATA 97.216.97.129.97.129.97.129.97.129.3	15 1000 = 110 11
C8	99. 22. 133. 294. 169. 222. 132. 255. 169. 289. 135. 2 132. 149. 159. 18. 26. 129. 1416. 244. 247. 157. 1 132. 149. 159. 18. 26. 129. 146. 247. 157. 1 1400 CMA 97. 159. 159. 159. 255. 25. 25. 129. 157. 1 1400 CMA 97. 159. 159. 159. 255. 255. 257. 157. 167. 167. 167. 167. 167. 167. 167. 16	15 1000 = 150 15
C8	69, 22, 133, 254, 169, 226, 132, 255, 169, 259, 135, 25, 259, 259, 259, 268, 262, 262, 262, 264, 165, 255, 261, 157, 252, 262, 262, 262, 262, 262, 262, 262	15 HOOSE = \$42 M 1
C8 74 94	69, 22, 133, 254, 169, 226, 132, 255, 169, 259, 135, 25, 259, 259, 259, 268, 262, 262, 262, 264, 165, 255, 261, 157, 252, 262, 262, 262, 262, 262, 262, 262	15 1000 = 1819 17 700 = 120 18 1000 = 17 10 18 1000 = 17 11 18
C8	99.22.133.294.169.226.132.255.169.259.135.2 53.206.252.086.248.209.254.169.254.267.157. 53.206.252.086.248.209.254.169.254.267.254.1157. 1480 DATA 97.159.0.158.252.209.16.246.169.0 151.006.254.162.169.95 151.006.254.162.169.95.252.209.16.246.169.0 151.006.254.162.169.96.76.216.96.169.239.524.24 204.22.23.19.97.732.59.97.246.113.29.97.22.3 1490 DATA 22.184.96.76.216.96.169.239.57.177.38 150 DATA 97.216.97.22.19.97.32.59.97.177.38 150 DATA 97.216.97.22.19.97.32.59.97.177.38 150 DATA 97.216.97.22.19.97.32.59.97.177.38 151 DATA 198.107.97.219.97.32.184.96.22.91.27 2.17.97.22.30.97.23.20.97.168.99.219.97.159.18 151 DATA 198.107.97.37.79.38.41.1779 151 DATA 198.107.97.37.79.34.1.1779	15 1000 = 150 15
C8 74 94	99. 22. 133. 294. 169. 222. 132. 255. 169. 289. 135. 2 91. 22. 133. 294. 169. 222. 132. 155. 252. 272. 135. 2 92. 132. 132. 232. 132. 132. 132. 132. 13	15 LOCAL # SES # 15 LOCAL # 15 LO
C8 74 94	69, 22, 133, 254, 169, 226, 132, 255, 169, 259, 135, 25, 259, 259, 268, 262, 262, 264, 165, 255, 261, 157, 252, 268, 268, 268, 262, 264, 165, 255, 268, 268, 268, 268, 268, 268, 268, 268	15 1000 = 183
C8 74 94	99.22.133.294.169.226.132.255.169.289.135.2 53.206.252.086.248.209.2416.2524.201.157.2 53.206.252.086.248.209.2416.2524.201.157.2 1480.DATA 97.159.0.158.255.202.16.246.169.0 1490.DATA 97.159.0.158.255.202.16.246.169.0 1490.DATA 97.159.7.159.7.259.246.11.32.29.39.22.2 1490.DATA 97.159.7.259.7.269.19.27.268.97.129.28 1490.DATA 97.159.7.259.7.269.19.27.109.7.109.27.20 1490.DATA 129.184.97.20.19.7.20.19.7.109.7.109.20.20 1490.DATA 129.184.97.20.19.7.109.7.109.7.109.109.20 1490.DATA 129.184.97.20.19.7.109.7.109.7.109.109.109.109.109.109.109.109.109.109	15 1000 = 150 15
C8 74 94	90, 22, 133, 294, 169, 220, 132, 255, 169, 289, 135, 253, 239, 231, 232, 232, 232, 232, 232, 232, 232	15 1000 = 150 15
C8 74 94	90, 22, 133, 294, 169, 220, 132, 255, 169, 289, 135, 253, 239, 231, 232, 232, 232, 232, 232, 232, 232	15 1000 = 150 15
C8 74 94	69.22.133.294.169.226.132.255.169.259.135.2 53.206.252.086.248.219.254.169.254.261.157.25 53.206.252.086.248.219.254.169.254.261.157.25 1480 DATA 97.159.0.1618.9 95 1480 DATA 97.159.0.1618.9 95 1481.30.158.225.145.31.158.225.12.83.97.249.1 1492.248.22.31.99.77.25.25.92.246.119.32.93 1490.97.14 32.184.96.76.216.96.22.38.97.22.14 96.76.216.99.72.80.17.22.19.97.32.90.97.117.38 44.122.24.04.192.21.31.71.158.253.34.17.38 44.122.24.04.162.21.31.71.158.253.34.17.38 14.122.24.04.162.21.31.71.158.253.34.17.38 14.122.24.26.21.36.21.36.25.25.25.25.25.25.25.25.25.25.25.25.25.	15 1000 = 150 15
74 94 F2	99.22.133.294.169.226.132.255.169.285.135.2 53.206.252.086.248.209.2416.2524.201.157.2 53.206.252.086.248.209.2416.2524.201.157.2 1480.DATA 97.159.0.158.255.202.16.246.169.0 1490.DATA 97.159.0.158.255.202.16.246.169.0 1490.DATA 97.159.7.159.7.159.27.246.11.32.09.201.214.2 1490.DATA 97.159.7.159.7.159.7.169.9.169.231.9.214.2 1490.DATA 97.159.7.159.7.159.7.169.7.169.109.109.213.4 1490.DATA 129.189.7.201.199.7.169.9.169.21.199.109.21 1490.DATA 129.189.7.199.7.199.7.199.7.199.7.199.109.27 1490.DATA 129.189.7.199.7.201.199.7.199.7.199.109.109.109.109.109.109.109.109.109	15 1000 = 1819 16 1700 = 1828 18 1800 = 1874 11 700 = 1874 18 1800 = 1874 11 700 = 1874 12 700 = 187 12 700 = 187 12 700 = 187 12 700 = 187 12 700 = 187 12 700 = 187 13 500 = 187 14 500 = 187 15 500 = 187 16 500 = 187 17 500 = 187 18 500 =
74 94 F2	99. 22. 133. 294. 169. 222. 132. 255. 169. 259. 139. 2 91. 22. 133. 294. 169. 222. 132. 155. 259. 279. 157. 2 92. 149. 159. 159. 159. 159. 159. 159. 159. 15	15 1000 = 1819 1200 1210
8A C8 74 94 F2	69, 22, 133, 224, 169, 222, 132, 255, 169, 252, 132, 252, 169, 220, 132, 132, 132, 132, 132, 132, 132, 132	15 1000 # 15 0 15 0
74 94 F2	99. 22. 133. 294. 169. 222. 132. 255. 169. 259. 139. 2 91. 22. 133. 294. 169. 222. 132. 155. 259. 279. 157. 2 92. 149. 159. 159. 159. 159. 159. 159. 159. 15	15 1000 = 150 15

LISTING 1: SUPER.CONVERTER

3	AR SCBS			145		JMP	AGAIN	
	LDY	40			NTUP	LDA	#28	
MJK	LDA	10		147		STA	PNT+1 HCOR	
2	STA	[SLOC],Y		149		CMP	#24	MOVE TO NEXT LINE?
3	INY	[5200],1		150		BPL	NXLN	
4	BNE	MJK		151		JMP	AGAIN	NO, PLOT ANOTHER PIXEL
5	LDA	#\$20		152	NXLN	BEQ	SKDC	DID LINE END EVENLY?
5	STA	SLOC+1		153		DEC	PNT+1	NO, DON'T ADD TOO MUCH
7 8 - MOVI		R PALETTE		154	SKDC	STZ	HCOR+1	CLEAR X-COOR
- MOVI	IN COLC	R PALETTE		155		INC	VCOR+1	CLEAR X-COUR
3	LDX	#10		157		LDA	SLOC	GET ADDRESS OF NEXT LINE
MRCLR	LDA	CLRTBL.X		158		CLC	SLOC	GET ADDRESS OF NEXT CINE
2	STAL	SE19E00.X		159	PNT	ADC	#20	
3	DEX			160		STA	SLOC	
1	BPL	MRCLR		161		BCC	CHCK	
5	LDA	#0 \$F19F1F		162		INC	SLOC+1	
7	STAL	SE19E1E		164	CHCK	CMP	#192	BOTTON OF SCREEN?
3	SIAL	actact.		165		BEQ	QUIT	BUTTON OF SCREEN
				166		JMP	AGAIN	NO. PLOT MORE
BEG	IN CONVER	ISION		167	TIUD	RTS		
				158				
				169	DCP0S	DEC	HCOR	
AGAIN	JSR	HSCRN	CHECK PIXEL	178		LDA	HCOR	
	BNE LDA	# \$ ØF	IS IT ON? NO, PLOT BLACK	171 172		CMP BNE	RTN	
	JSR	PLT	NO, PLOT BLACK	172		DEC	RTN HCOR+1	
	JMP	AFTER		174	RTN	RTS	mont+1	
СНКО	LDA	HCOR		175				
	ORA	HCOR+1	IS IT LEFTWOST PIXEL?		INPOS	INC	HCOR	
	BEQ	SKTH	YES, DON'T CHECK LEFT	177		BNE	RTN2	
	JSR	DCPOS	40 0000 00 0000 000	178		INC	HCOR+1	
	JSR RED	HSCRN SKPBK	IS PIXEL TO LEFT ON?		RTN2	RTS		
	JS8 BEQ	SKPBK INPOS	YES, PLOT AS WHITE	180	CHECK	LDA	HCOR	
	LDA	#0	TEO, PLUT AS MHITE	182	UNEUR	AND	#501	
	JSR	PLT		183		BEO	RTN3	
	JMP	AFTER		184		INC	SLOC	
SKPBK	JSR	INPOS	MOVE BACK TO PIXEL	185		BNE	RTN3	
SKTH	JSR	INPOS	MOVE RIGHT ONE PIXEL	186		INC	SLOC+1	
	JSR	HSCRN		187	RTN3	RTS		
	JSR JSR	DCPOS	IS PIXEL TO RIGHT ON? YES. PLOT AS WHITE	188	HSCRN	LDA	VCOR	
3	LDA	10	TES. PLUT AS MALTE	190	HOURN	LDX	#Ø	
	JSR	PLT		191		LDY	10	
	JMP	AFTER		192		JSR	HPOSN	
CLR	STZ	CLRBYT	NO, FIGURE PIXEL COLOR	193		LDY	#0	
	JSR	DCPOS		194		LDA	HCOR	
	JSR	HSCRN		195		LDX	HCOR+1	
	AND	(POS),Y	IS HI-BIT SET?	196		BEQ	NTSET #524	
	BEO	NTHGH	NO. GO ON	198		CLC	4254	
	LDA	#502	YES. BEGIN WITH COLOR 2	199		ADC	#594	
	STA	CLRBYT	1201 02011 11111 002011 2	200	NTSET	CMP	#507	
NTHGH	LDA	HCOR		201		BCC	DONE	
	AND	#501	ADD ONE TO COLOR NUMBER	202		SBC	#507	
	ORA	CLRBYT	IF IN OOD COLUMN	203		INY		
	INC	TRASH		204	DONE	BNE	NTSET	
	JSR	PLT	PLOT ONE PIXEL	205	DONE	LDA	(POS).Y	
	JSR	INPOS	The same same	200		AND	MASK X	
	JSR	CHECK		298		RTS		
	JSR	INPOS		209				
	JSR	HSCRN	CHECK FOR ADJACENT COLOR		- LOOK-	UP TAB	LES	
	TAY	DCPOS		211				
	JSR	DCPOS			MASK	HEX	010204081	02040 0000F00000F
	BFO	SKPLT	NONE, DON'T PLOT		CLRTBL	HEX	FROFE	COURT COURT
	LDA	TRASH	YES, MAKE COLOR APPEAR		CMASK	HEX	OFFO	
	JSR	PLT	SOLID	216			34.0	
SKPLT	JMP	AFTER		210				
PLT	STA	CLRBYT		END OF	LISTING	2		
	ASL							
	ASL							
	ASL							
	ORA	CLRBYT	SET LEFT AND RIGHT PIXEL					
	STA	CLRBYT	TO SAME COLOR					
	LDA	HCOR						
	AND	#\$01						
	LDA	CMASK . X	FIND OUT WHICH NIBBLE TO					
	AND	CLRBYT	STORE COLOR IN					
	STA	CLRBYT	STORE COLOR IN					
	LDA	SMASK, X						
	AND	[SLOC]	CLEAR PIXEL					
	ORA	CLRBYT						
	STA	[SLOC]	STORE COLOR OF PIXEL					
В				11				
9	KI3							
AFTER	JSR	INPOS						
8 9 8 1 AFTER	JSR JSR	CHECK						
7 8 9 8 1 AFTER 2 3	JSR							