Tips 'N Techniques

HI-RES CHARACTERS

Use this exact replica of the Apple's character set to add text to your Hi-Res graphics. A short Applesoft program shows you how.

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When working in high resolution graphics on the Apple, the use of the Apple's character set is often required. The four lines of text at the bottom of the screen are not adequate space for complex programs. Therefore, an all-text program is usually the solution to such a dilemma. With the Shape Table presented here, you can say good-bye to your Hi-Res dilemmas for good!

The following Shape Table is an exact replica of the Apple II's character set. All special symbols, numbers, and upper-case letters are included, in the order that they appear in the Apple's character set. Since the Apple's character set and the following Shape Table coincide, Hi-Res characters can easily be drawn.

Using the Shape Table

HI-RES CHARACTERS consists of two parts, a Shape Table and an Applesoft demonstration program. The Shape Table (Listing 1) begins at $6000, and has a length of $313. To use the Shape Table, first enter the Monitor. Then type in the listing as shown. For help in entering machine language code, see the "Welcome to New *Nibble* Readers" in the beginning of this issue. Re-enter BASIC and

BSAVE HI.RES.CHAR.SET,A$6000,L$313

To use the Shape Table, Applesoft's Shape Table pointers must be set to the beginning address of the table. $E8 (decimal 232) holds the low-order byte of the beginning address, and $E9 (decimal 233) holds the high-order byte. Since the Shape Table begins at $6000, $00 (decimal 0) is the low-order byte and $60 (decimal 96) is the high-order byte.

From BASIC, the POKEs 232,0 and 233,96 must be used. From the Monitor, $E8 must be set to $00, and $E9 must be set to $60. Either the Applesoft approach or the Monitor approach may be used.

The Shape Table may be BLOADed at a different address but the Applesoft Shape Table pointers must be set to the new value of the beginning address.

Drawing Your Shapes

To draw a shape from a program, first determine the ASCII code of the letter to be drawn using the ASC function. Subtract 31 from this value; then draw using the result from the subtraction. In other words, DRAW (ASC (letter) - 31) AT X,Y. To obtain double-width characters, first draw the shape at X,Y. Then draw the same shape at (X+1) or (X-1),Y.

CHAR.SET.DEMO (**Listing 2**) shows how to test each shape by comparing it to its counterpart in the Apple character set. A subroutine to draw sentences or phrases is also included and explained.

HI-RES CHARACTERS is a useful yet simple addition to your graphics programs...use it well. 🍎

LISTING 1:

HI.RES.CHAR.SET SHAPE TABLE

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6000-  40 00 82 00 84 00 8B 00
6008-  91 00 9F 00 AD 00 BA 00
6010-  C6 00 C9 00 D4 00 DD 00
6018-  EC 00 F3 00 F8 00 FD 00
6020-  00 01 07 01 15 01 1D 01
6028-  28 01 35 01 42 01 4E 01
6030-  5A 01 65 01 71 01 7D 01
6038-  80 01 84 01 8E 01 96 01
6040-  A0 01 AA 01 B7 01 C3 01
6048-  CF 01 DC 01 E8 01 F4 01
6050-  00 02 0C 02 18 02 22 02
6058-  2A 02 37 02 40 02 4D 02
6060-  5A 02 66 02 70 02 7E 02
6068-  8C 02 97 02 A0 02 AB 02
6070-  B6 02 C2 02 CE 02 D8 02
6078-  E5 02 F3 02 FB 02 08 03
6080-  0E 03 00 00 B6 04 40 18
6088-  24 04 00 18 24 0D 36 04
6090-  00 83 24 6C 36 FF 16 2D
6098-  25 0C 16 17 FE 24 00 24
60A0-  74 39 3F 17 0E 0D 0E 1E
60A8-  27 1E 77 21 00 18 38 2C
60B0-  56 09 B8 17 17 17 4D 35
60B8-  27 00 20 1C 17 76 1E 76
60C0-  65 1C 8C B1 04 00 20 24
60C8-  00 1B 40 18 09 17 1E 36
60D0-  0E 0E 04 00 40 18 0E 0E
60D8-  36 1E 1E 04 00 24 34 50
60E0-  F1 1E 18 1C 96 62 0D 0E
60E8-  1F B4 04 00 2D DF 27 48
60F0-  B6 26 00 12 30 1E 04 00
60F8-  1B 2D 2D 04 00 92 04 00
6100-  40 B9 17 17 17 04 00 0C
6108-  0C 1C 3F 1E 36 2E 1E 0E
6110-  2D 0C 24 24 00 24 BC 96
6118-  31 3E 0D 04 00 65 E4 3F
6120-  1E 96 F1 CE 2D 2D 04 00
6128-  25 05 20 3F 3F 96 4A 09
6130-  F6 3F 1C 04 00 2A 36 04
6138-  28 07 20 24 17 17 17 2E
6140-  04 00 28 1F 27 2C 2D B5
6148-  32 F6 3F 1C 04 00 39 3F
6150-  2C 60 2D 96 32 1E 3F 1C
6158-  24 00 1A 0C 0C 0C 3C 3F
6160-  B7 92 31 04 00 39 E7 2C
6168-  28 75 B6 F6 3F 07 20 04
6170-  00 2D 24 07 38 F7 76 4E
6178-  F1 1E 3F 04 00 B0 04 00
6180-  B0 F6 04 00 1B 0C 0C 04
6188-  96 92 1C 1C 04 00 D8 2D
6190-  2D D6 39 3F 27 00 09 07
6198-  38 E0 96 4A 1E 1E 04 00
61A0-  92 04 20 0C 0C 1C 3F 1E
61A8-  04 00 30 2E 2C 24 1C 3F
61B0-  1E 36 36 0E 2D 25 00 2A
61B8-  25 3C 38 B8 17 36 F5 6E
61C0-  09 24 00 3F 24 2C 2D 15
61C8-  F6 0E F6 3F 27 24 00 09
61D0-  40 03 1C 3F 1E 36 36 15
61D8-  2D 0C 04 00 1B 24 2C 2D
61E0-  0E 36 36 17 3F 27 24 00
61E8-  25 40 3F 3F 36 2E 1E 36
61F0-  2D 2D 04 00 19 2D 40 18
61F8-  3F 3F 36 2E 1E 36 04 00
6200-  0A 46 36 3F 3F 20 24 2C
6208-  28 2D 04 00 2D 24 FC 1B
6210-  36 2E 1E 36 4D 21 24 00
6218-  40 18 2B F5 36 36 3E 0D
6220-  04 00 93 73 2D 0C 24 24
6228-  24 00 63 0C 0C DF 33 36
6230-  36 6E 09 07 38 20 00 1B
6238-  24 B4 12 36 2D 2D 04 00
6240-  64 05 30 36 36 FE 1B 24
6248-  24 24 0E 04 00 18 0E 0E
6250-  56 24 24 24 DF 33 36 36
6258-  26 00 1B 24 05 28 75 36
6260-  36 1F 3F 1C 24 00 65 3C
6268-  38 3F 36 2E 1E 36 04 00
6270-  8A 11 1C 07 68 24 3C 38
6278-  F7 36 36 0E 25 00 65 3C
6280-  38 37 18 36 2E 0E 0E 04
6288-  DF 23 24 00 75 F6 3F 1C
6290-  44 1C 64 2D 0E 04 00 36
6298-  3C 6F 29 96 DA 36 04 00
62A0-  1B 24 6C 09 36 36 F6 3F
62A8-  1C 24 00 92 0C 0C 24 24
62B0-  DF 33 36 AE 04 00 76 0E
62B8-  24 24 24 DF 33 36 36 66
62C0-  04 00 0C 0C FC 1B AE 16
62C8-  17 6E 09 E4 04 00 07 68
62D0-  0C FC 1B B6 4A 36 04 00
62D8-  17 1E 2E 2D 25 40 18 2B
62E0-  20 3F 3F 04 00 1B 24 2C
62E8-  2D F5 1B 36 36 2E 2D DF
62F0-  23 24 00 19 1C 1C 96 49
62F8-  0E 04 00 21 24 3F 6F 2D
6300-  36 36 36 27 B4 3B 27 00
6308-  B8 17 4D E1 04 00 92 1F
6310-  6D 25 00
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