

*Comments
from Vince*

**CHARACTER EDITOR
EXTERNAL SPECIFICATION**

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CHARACTER EDITOR BASELINE

Introduction

There is a need for a character editor that can create characters for any of the Character Graphics modes available on the Atari 800. Current character editors not only do not support all Graphics modes, but they have some problems that make using them very hard.

This document proposes a baseline for a character editor that can produce characters for all Graphics modes and that is human engineered.

*define n/a
limit context.*
The editor will allow users to create fonts of characters and to store them on a disk file for later use by programs. Any character in a font can be created from scratch or can be derived from any other character in the same font or in a different font.

The character being edited will be displayed in its own mode and in a large pixel map. It may also be displayed at the center of a 3 by 3 matrix surrounded by any characters desired. At any time a strike of the font may be displayed. Also, a printed version of the bit map(s) may be obtained on the 825 printer for either the character being edited or for the whole font.

The pixel editing capabilities are extensive and allow operations on individual pixels, rows of pixels, or on columns of pixels. Inserts, deletes, copies, moves, exchanges, and toggles are possible. Whole characters may be manipulated by various rotations and reflections, and parts of characters may be manipulated by reflections.

For those modes allowing multiple colors, color and luminance may be set from menus of the actual hues and luminances.

Finally, assignment of a particular character pixel map may be made by entering the decimal or hex ATASCII code for the character, by the keystroke to be associated with that character, or by selecting, in a strike of the font, the character to be replaced by the newly edited pixel map.

The remainder of this baseline discusses the details of the character editor.

(file CEDIT.EL1)

CHARACTER EDITOR BASELINE

Display

The display presented by the editor will consist of several parts vertically arranged on the screen.

The top 4 lines are the header and will display:

show screen

- Character Mode and Editor title
- File being edited and Second file, if any
- Character code in Hex and Decimal ATASCII and Hex and Decimal
- Keyboard code and the size of the font in characters
- Current command and Prompt

The next area will contain the pixel map of the character being edited and may contain a color menu and a luminance menu as well. When selecting characters for the adjacent characters display, a strike of the font will be displayed in this area instead of in the third area.

The third area will contain an actual display of the character being edited in its own graphics mode and colors and the 3 by 3 matrix of adjacent characters. This area may also contain a strike of the whole font unless the 3 by 3 matrix is being displayed.

As the user performs editing operations, the display will be updated appropriately. In particular, the Command line and prompt line will be updated to indicate what is expected next. When pixel map manipulations are expected, the prompt line will indicate the allowable items to be manipulated using the abbreviations "P", "R", and "C" to indicate, respectively, Pixel, Row, or Column.

where on the screen

(file CEDIT.BL2)

CHARACTER EDITOR BASELINE

User Interaction

When the editor is started, it will come up in Mode 2 (Basic Mode 0) with a completely zero pixel map displayed. It will prompt the user for a command.

Normally, the first command will be either a "G" to set the graphics mode or an "N" to retrieve a font file created in a previous session with the editor. If "N" is the first command, and the file specified is an existing file, the graphics mode is set from the data in the file and from then until the file is written, the graphics mode cannot be changed. If the "N" file does not exist, the graphics mode can still be changed by the "G" command.

If the first command is the "O" command to retrieve an optional file of pixel maps and the graphics mode has not yet been set by "G" or "N", the graphics mode will be set to the mode of the "O" file. Any other first command will lock the graphics mode to 2 (Basic mode 0).

The method of operation is always to type a single character that is a command. The editor will prompt for what it is expecting if the character typed is a legal command. Otherwise it will display an error prompt that specifies why the command character is illegal.

Once a command is in effect, the command is invoked by either joystick manipulations or by further keyboard entries or both. Each command has its own requirements in this respect which are spelled out in detail later in this specification. Generally, the joystick is used to select something on the screen by moving the cursor to it and pressing the trigger button to perform the selection. Some commands will immediately be performed upon the selection. Others require a second selection and will be performed then. Some commands require additional information, usually entered through the keyboard.

To aid users, two special commands are available. The "R" or reset command resets to the current command character with any selections removed. This allows users who accidentally select the wrong thing to abort the execution on that wrong selection. The "U" command will undo the last completed command. This is used to recover from errors on commands that execute at the first selection or from completely erroneous commands.

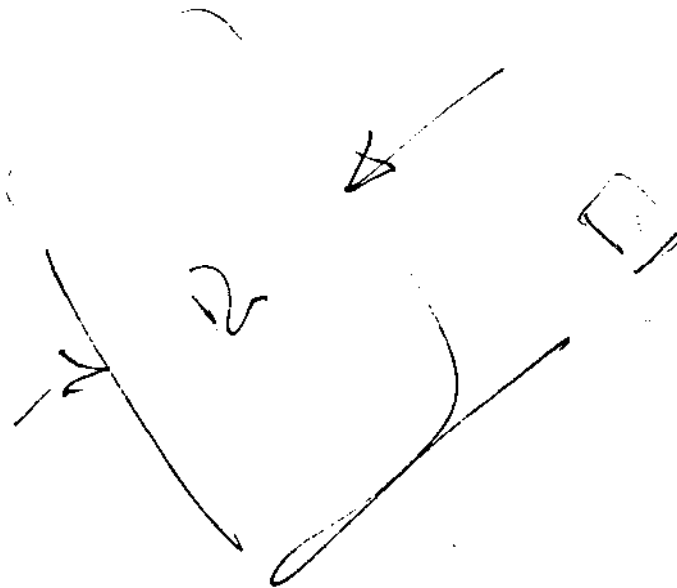
At (almost) any time, a new command character may be typed in. If it is a new command, any selection in effect will be removed (as if the reset command had been given), and the new command will become the current command.

Some commands are like sub-commands and will not change the current command. For example, when a character pixel map is completed, it can be stored in any character in the font. The character may be specified from the keyboard or the "S" command may be entered which will display a strike of the whole font on the screen but will not change the current command. The user may then use the joystick to select the character in which to place the new bit map.

A final word about the user interaction. As the joystick is used to move the cursor, the cursor will change shape to match the item that would be selected if the trigger button were struck at that moment. Thus, when the cursor is on a pixel, it will outline that pixel. When it is at a row, it will indicate the whole row with brackets. When it is between rows, it will indicate that fact with insertion arrows that point between the rows. Thus the user can tell from the shape of the cursor exactly what would be selected if he hit the trigger button at that moment.

*good intent
but is not clear.*

(file CEDIT.EL3)



CHARACTER EDITOR BASELINE

Command Operation Details

Each of the commands for this character editor are described in detail. Information included is the command character, the function of the command, which graphics modes it is allowed with, the steps needed to invoke execution of the command, and any special considerations.

Note on Specifying Characters

Several commands require specifying a character to display or manipulate. This can be performed in one of four ways:

1. Type in a Hex ^{ATASCII} character code "\$nn" where the "n" are hex digits.
2. Type in a Decimal ^{ATASCII} character code "nn" where the "n" are decimal digits.
3. Type "Kx" where "K" indicates a keystroke selection and where "x" is whatever keystroke is desired. The ATASCII code corresponding to the keystroke will be used for the character code.
4. Type "S" to display a strike of the font being edited if it is not already displayed. Then use the joystick to position the cursor on the character desired. Hit the trigger button to select the character.

Note on Row-Column Correspondence

Some commands in some Graphics Modes allow rows and columns to be interchanged during the middle of command invocation (e.g. a row can be moved to a column). The correspondence of row pixels to column pixels is that the leftmost pixel in a row corresponds to the topmost pixel in a column.

The next section of this specification contains details of each command. The next page is a summary of the commands that can serve as an index into the detailed descriptions which follow.

(file CEDIT.BL4)

CHARACTER EDITOR BASELINE

CEDIT Command Summary

0 set pixels, rows, columns to "0" or "00" ?
1 set pixels, rows, columns to "1" or "01"
2 set pixels, rows, columns to "2" ("10")
3 set pixels, rows, columns to "3" ("11")

A set Adjacent characters display
C Copy pixels, rows, columns
D Delete pixels, rows, columns
E Edit character from "N" file (initialize editing pixel map from "N" font file)
F edit character From "O" file (initialize editing pixel map from "O" font file)
G set Graphics mode
H set Hue
I Insert pixels, rows, columns
K Kill--quit but don't write font file (requires verification)
L set Luminance
M Move pixels, rows, columns
N New font file name
O Optional font file name (optional source of pixel maps)
P Print pixel maps
P C = print Current character pixel map
P S = print Strike of all character pixel maps
Q Quit and write font file (file "N") (requires verification)
R Reset selections
S display Strike of font (all characters)
T Toggle (or cycle) pixels, rows, columns
U Undo last command
W Write font file ("N" file) (requires verification)
X eXchange two pixels, rows, columns
Z Zero editing pixel map

/ reflect character on / diagonal
\ reflect character on \ diagonal
- reflect rows on - axis (top to bottom mirror image)
| reflect columns on | axis (left to right mirror image)
< rotate 90 degrees counter clockwise (top goes <)
> rotate 90 degrees clockwise (top goes >)
/\
invert pixels (Atari Key)

= save editing pixel map in "N" font file
* remember current cursor position
. return cursor to remembered position
? for help display

(file CEDIT.SUM)

CHARACTER EDITOR BASELINE

Command Descriptions

"0" Set Pixels, Rows, Columns to "0" or "00"

All Graphics Modes

1. Select pixel, row, column with joystick
2. Trigger button sets pixel (all pixels in row, column) to "0" in modes 2 (B0), 3, 6 (B1), and 7 (B2)
3. Trigger button sets pixel (all pixels in row, column) to "00" in modes 4 and 5

"1" Set Pixels, Rows, Columns to "1" or "01"

All Graphics Modes

1. Select pixel, row, column with joystick
2. Trigger button sets pixel (all pixels in row, column) to "1" in modes 2 (B0), 3, 6 (B1), and 7 (B2)
3. Trigger button sets pixel (all pixels in row, column) to "01" in modes 4 and 5

"2" Set Pixels, Rows, Columns to "2" ("10")

Graphics Modes 4 and 5

1. Select pixel, row, column with joystick
2. Trigger button sets pixel (all pixels in row, column) to "10"

"3" Set Pixels, Rows, Columns to "3" ("11")

Graphics Modes 4 and 5

1. Select pixel, row, column with joystick
2. Trigger button sets pixel (all pixels in row, column) to "11"

(file CEDIT.BL5)

CHARACTER EDITOR BASELINE

"A" Set Adjacent Characters Display

All Graphics Modes

1. If the display is not already on the screen it will be placed on the screen in the bottom display area
2. The display consists of a 3 by 3 matrix with the character currently being edited in the center position
3. The other 8 positions can be set to any character from the font being edited (not from the "0" file font)
4. Select character position with the joystick
5. Trigger button will prompt for character to display at selected character position
6. Select character by Hex or Decimal value, by Keystroke, or from a strike of the font
7. Each of the 8 surrounding character positions can be filled or changed by repeating steps 4 through 6

"C" Copy Pixels, Rows, Columns

All Graphics Modes

1. Select pixel, row, column to copy with the joystick
2. Trigger button selects the pixel, row, column as the copy source
3. Select pixel, row, column as the copy destination with the joystick
4. Trigger button copies pixel, row, column from step 1 to destination
5. If a pixel was selected as source, it can only be copied to another pixel
6. If a row was selected as source, it may be copied to a row or column in Graphics Modes 2 (E0), 3, 6 (B1), and 7 (B2) (since 1 bit per pixel)
7. If a column was selected as source, it may be copied to a row or column in Graphics Modes 2 (E0), 3, 6 (B1), and 7 (B2)
8. If the Graphics Mode is 4 or 5 (2 bits per pixel), a row may only be copied to another row and a column only to another column

"D" Delete Pixels, Rows, Columns

All Graphics Modes

1. Select pixel, row, column with joystick
2. Trigger button deletes pixel, row, column
3. A pixel is always deleted from a row and will cause all pixels from the deleted pixel to the right end of the row to be moved left with a "0" or "00" pixel inserted as the rightmost pixel in the row
4. Deletion of a row will cause all rows below the deleted row to be moved up and an all "0" or "00" row will be inserted at the bottom
5. Deletion of a column will cause all columns to the right of the deleted column to be moved left with an all "0" or "00" column inserted as the rightmost column

CHARACTER EDITOR BASELINE

"E" Edit Character (From "N" File)

All Graphics Modes

1. Select character by Hex or Decimal value, by Keystroke, or from a strike of the font
2. Character pixel map is copied into the large editing map in the center display area

"F" Edit Character (From "O" File)

All Graphics Modes

1. Select character by Hex or Decimal value, by Keystroke, or from a strike of the "O" file font
2. Character pixel map is copied into the large editing map in the center display area

"G" Set Graphics Mode

1. This command may only be used if the Graphics Mode is not currently locked by virtue of an earlier command
2. The Graphics Mode may be unlocked by writing out the font file currently being edited or by specifying a new "N" file
3. Explicit setting of the Graphics Mode may be by chip mode or BASIC mode by typing:

"2" or "B0"
"3"
"4"
"5"
"6" or "B1"
"7" or "B2"

in response to the prompt

(file CEDIT.BL7)

CHARACTER EDITOR BASELINE

"H" Set Hue

All Graphics Modes

1. The color register whose hue is to be set can be specified explicitly by entering the name as:

"BAK"
"PF0"
"PF1"
"PF2"
"PF3"

in response to the prompt

2. The color register can be specified implicitly by selecting a pixel on the screen with the joystick and hitting the trigger button.
3. Upon specification of the color register, a hue menu in the form of a vertical band of color down the right side of the screen will be displayed and the cursor will move to the current hue of the chosen color register.
4. To the right of the hue menu will be another vertical band of color containing the 8 luminances of the color under the cursor with the current luminance of the chosen color register indicated.
5. Use the joystick to move the cursor to the desired color in the hue menu (the luminance menu will be updated to match).
6. Hitting the trigger button with the cursor on the hue menu will set the selected hue into the chosen color register with whatever luminance that color register had before.
7. Moving the cursor right into the luminance menu will lock in the hue that the cursor exited and allow setting the luminance as well.
8. Move the cursor vertically in the luminance menu to select the luminance desired.
9. Hitting the trigger button with the cursor on the luminance menu will set the hue and luminance selected into the chosen color register.

(file CEDIT.BL8)

CHARACTER EDITOR BASELINE

"I" Insert Pixels, Rows, Columns

All Graphics Modes

1. Select position to the left of a pixel or column or above a row with the joystick
2. Hitting the trigger button will insert a "0" or "00" pixel or row or column of "0" or "00" pixels at the location of the cursor
3. A pixel is always inserted into a row and will cause all pixels to the right of the insertion point to move right with the rightmost pixel of the affected row being deleted
4. Insertion of a row will cause all rows below the insertion point to move down with the bottom row being deleted
5. Insertion of a column will cause all columns to the right of the insertion point to move right with the rightmost column being deleted

"K" Kill Execution

All Graphics Modes

1. Kill allows exiting the editor without writing the "N" file
2. The editor will ask for verification in the form of a "RETURN" to prevent accidental loss of data entered during the editing session

"L" Set Luminance

All Graphics Modes

1. The color register whose luminance is to be set can be specified explicitly by entering the name as:

"BAK"
"PF0"
"PF1"
"PF2"
"PF3"

in response to the prompt
2. The color register can be specified implicitly by selecting a pixel with the joystick and hitting the trigger button
3. Upon specification of the color register, a hue menu and luminance menu in the form of two bands of color will be displayed down the right side of the screen and the cursor will move to the current luminance of the chosen color register
4. From this point, the "L" command acts just like the "H" command (which see for details of operation)

CHARACTER EDITOR BASELINE

"M" Move Pixels, Rows, Columns

All Graphics Modes

1. Select pixel, row, column to move with joystick
2. Trigger button selects the pixel, row, column as the move source and deletes it from the pixel map
3. Select position to left of a pixel or column or above a row with the joystick
4. Trigger button moves the pixel, row, column to the new position by inserting it and shifting the pixel map around as necessary
5. Note that a move acts exactly like a "D" command followed by an "I" command except that the item inserted is the previously deleted item rather than "0" or "00" pixels, rows, or columns
6. A pixel may only be moved to another pixel location
7. A row may be moved to a row or column location in Graphics Modes 2 (B0), 3, 6 (B1), and 7 (B2) (since 1 bit per pixel)
8. A column may be moved to a row or column location in Graphics Modes 2 (B0), 3, 6 (B1), and 7 (B2)
9. If the Graphics Mode is 4 or 5 (2 bits per pixel), a row may only be moved to another row location and a column only to another column location

"N" New Font File Name

All Graphics Modes

1. If the Graphics Mode is not locked (at start of execution or after writing out previous font file), this command will open the file name specified after the prompt
2. If the file does not exist, a new file of the requested name is created but the Graphics Mode is not locked
3. If the file does exist, it is opened and the Graphics Mode is set and locked from information in the file and the font is entered into the editor tables ready for editing
4. If the Graphics Mode is locked (because some editing has been performed already), and an "N" file name has already been entered, the editor asks whether the current editing results should be written to the file to save it
5. If "Y" is the response, the prior "N" file is written and the editor unlocks the Graphics Mode and prompts for a new "N" file name
6. Any response but "Y" unlocks the Graphics Mode and clears the editor tables of any prior editing results
7. If the Graphics Mode is locked (because of prior editing), but no "N" file name has been given, the editor asks whether the current editing results should be destroyed
8. If "Y" is the response, the editor unlocks the Graphics Mode and clears the editor tables
9. Any other response exits the command with no action

NOTE: This is one of the few commands that cannot be undone with the "U" command

CHARACTER EDITOR BASELINE

"O" Optional Font File Name

All Graphics Modes

1. The file specified in response to the prompt must already exist
2. If the Graphics Mode is locked, the file specified must be compatible with that Graphics Mode (i.e. if the Graphics Mode is a 1 bit per pixel mode, the "O" file must be a 1 bit per pixel font file and similarly for the 2 bits per pixel modes)
3. If the Graphics Mode is not yet locked, it will be set and locked to the mode of the "O" file specified
4. Access to the OS ROM based character set as the "O" file is provided by accepting "E:" or "S:" as legitimate "O" file names
5. The file specified is opened and the font is entered into the editor tables for use by the "E" command thus destroying the previous "O" file table contents.

NOTE: This is one of the few commands that cannot be undone with the "U" command

"P" Print Pixel Maps

All Graphics Modes

1. This command prompts for a second entry to specify what is to be printed
2. "C" will print the current contents of the large pixel map
3. "S" will print a strike of the whole font
4. A pixel map will be printed as an 8 by 8 array
5. 1 bit per pixel maps will be printed with blanks for "0" and asterisks for "1"
6. 2 bit per pixel maps will be printed with "0." for "00" pixels, "1." for "01" pixels, "2." for "10" pixels, and "3." for "11" pixels
7. The Graphics Mode and "N" file name will be printed as a header for the printout as a whole (i.e. it will only be printed once when a strike of the font is being printed)
8. For strike printouts, the contents of all color registers will be printed as a header
9. The Hex, Decimal, and Keystroke values for each character will be printed as a header for the character

(file CEDIT.BLB)

CHARACTER EDITOR BASELINE

"Q" Quit and Write "N" File

All Graphics Modes

1. This command will prompt for verification that the editing session is really over
2. If no "N" file has been specified, a file name and [RETURN] may be typed and the results of the editing session will be written to the specified file before exiting back to the operating system
3. If no "N" file has been specified and only a [RETURN] is typed, the editor will simply exit to the operating system
4. If an "N" file exists, a [RETURN] will write the font to the "N" file and exit to the operating system
5. If an "N" file exists, it can be overridden by typing a file name and [RETURN] whereupon the font will be written to that file instead of the "N" file before exiting to the operating system
6. Any non-alphabetic character will be taken to mean that the "Q" was a mistake

"R" Reset Selections

All Graphics Modes

1. This command is used to unselect any selections (and maybe restore the pixel map) in commands like "C", "H", "L", "M", and "X" and "Y"
2. It has no effect if not in the middle of a multi-part command

"S" Display Strike of a Font

All Graphics Modes

1. This command will display the complete font in its own Graphics Mode in either the middle or bottom display area, depending on the command in effect when "S" is typed
2. If the "F" command is in effect, the strike will be from the "O" file
3. For any other command, the strike will be from the "N" file

(file CEDIT.BLC)

CHARACTER EDITOR BASELINE

"T" Toggle (Cycle) Pixels, Rows, Columns

All Graphics Modes

1. Select a pixel, row, column with the Joystick.
2. In Graphics Modes 2 (B0), 3, 6 (B1), and 7 (B2), a pixel (every pixel in the row, column) will be toggled from "0" to "1" or from "1" to "0" when the trigger button is pushed.
3. In Graphics Modes 4 and 5, pixel value(s) will be cycled from:

"00" to "01"

"01" to "10"

"10" to "11"

"11" to "00"

when the trigger button is pushed.

"U" Undo Prior Command

All Graphics Modes

1. All pixel manipulation commands save a copy of the pixel map before the command is commenced and this command restores the pixel map from that copy.
2. Commands that clear tables and write files cannot be undone!!!

"W" Write "N" Font File

All Graphics Modes

2. This command will prompt for verification that the "N" file is really to be written.
3. A [RETURN] will write the current font to the "N" file.
4. A file name and [RETURN] will write the font to that file.
5. After the file is written, the Graphics Mode is unlocked and the font tables are cleared.

NOTE: This is one of the few commands that cannot be undone with the "U" command.

(file CEDIT.BLD)

CHARACTER EDITOR BASELINE

"X" Exchange Pixels, Rows, Columns

All Graphics Modes

1. Select a pixel, row, column with the joystick.
2. Trigger button selects the pixel, row, column as first member of pair to exchange
3. Select a second pixel, row, column with the joystick.
4. Trigger button selects the pixel, row, column as the second member of the pair to exchange and performs the exchange
5. Selection of the first item copies it to a holding register and when a row and column are exchanged, there is a pixel overlap. The overlapped pixel in the result is from the first item selected since the operation copies the second item into the location of the first and then copies the holding register content to the second item
6. A pixel may only be exchanged with another pixel
7. A row may be exchanged with a row or column in Graphics Modes 2 (B0), 3, 6 (B1), and 7 (B2)
8. A column may be exchanged with a row or column in Graphics Modes 2 (B0), 3, 6 (B1), and 7 (B2).
9. In Graphics Modes 4 and 5 a row may only be exchanged with another row and a column with another column

"Z" Zero Pixel Map

All Graphics Modes

1. The current contents of the large editing pixel map is filled with "0" or "00" pixels

(file CEDIT.BLE)

CHARACTER EDITOR BASELINE

"/" Reflect Character Diagonally

Graphics Modes 2 (B0), 3, 6 (B1), and 7 (B2)

1. This command reflects the pixel map across the lower left to upper right diagonal

"\" Reflect Character Diagonally

Graphics Modes 2 (B0), 3, 6 (B1), and 7 (B2)

1. This command reflects the pixel map across the upper left to lower right diagonal

"-" Reflect Rows (Top to Bottom Mirror Image)

All Graphics Modes

1. Select a row as a boundary with the joystick
2. Trigger button sets the selected row as one boundary of the set of rows to be reflected
3. Select a row as a second boundary with the joystick
4. Trigger button sets the selected row as the second boundary of the set of rows to be reflected
5. Select a row or a space between two rows within the selected set of rows for the reflection axis with the joystick
6. Trigger button causes reflection about the reflection axis
7. Any rows reflected outside the pixel map are discarded
8. Any rows not reflected into are unchanged
9. Note that rows outside the set reflected will be changed if the reflection axis is not centered in the reflected set

"|" Reflect Columns (Left to Right Mirror Image)

All Graphics Modes

1. Select a column as a boundary with the joystick
2. Trigger button set the selected column as one boundary of the set of columns to be reflected
3. Select a column as a second boundary with the joystick
4. Trigger button set the selected column as the second boundary of the set of columns to be reflected
5. Select a column or a space between two columns within the selected set of columns for the reflection axis with the joystick
6. Trigger button causes reflection about the reflection axis
7. Any columns reflected outside the pixel map are discarded
8. Any columns not reflected into are unchanged
9. Note that columns outside the set reflected will be changed if the reflection axis is not centered in the reflected set

CHARACTER EDITOR BASELINE

"<" Rotate 90 Degrees Counter Clockwise

Graphics Modes 2 (B0), 3, 6 (B1), and 7 (B2)

1. This command rotates the pixel map 90 degrees counter clockwise so that the top row becomes the leftmost column

">" Rotate 90 Degrees Clockwise

Graphics Modes 2 (B0), 3, 6 (B1), and 7 (B2)

1. This command rotates the pixel map 90 degrees clockwise so that the top row becomes the rightmost column

"/\" (Atari Key) Invert Pixels

Graphics Modes 2 (B0), 3, 6 (B1), and 7 (B2)

1. This command converts all "0" pixels to "1" and all "1" pixels to "0" in the editing pixel map

"=" Save Editing Pixel Map in "N" Font File

All Graphics Modes

1. Select character by Hex or Decimal value, by Keystroke, or from a strike of the font
2. The editing pixel map contents are copied into the font table for the specified character (the file is not actually written)
3. The old content of the character is saved so that the "U" command can restore the original character

"x" Remember Current Cursor Position

All Graphics Modes

1. This command simply saves the coordinates of the current cursor position for later use by the "." command

"." Return Cursor to Remembered Position

All Graphics Modes

1. This command returns the cursor to the last position saved by the "x" command (no action if no position remembered with "x")

CHARACTER EDITOR BASELINE

"?" Help Display

All Graphics Modes

1. This command displays a more detailed explanation of what the editor is waiting for the user to do

(file CEDIT.BLH) CHARACTER EDITOR

CHARACTER EDITOR BASELINE

Font File Format

The format of the font file created by CEDIT is:

<u>Byte(s)</u>	<u>Content</u>
0	Graphics Mode
1	BAK contents
2	PF0 contents
3	PF1 contents
4	PF2 contents
5	PF3 contents
6--21	Bit vector of legitimate characters
22--?	Bit maps of all characters suitable for use by ANTIC

(file CEDIT.ELI)

Approximate Screen Copy of CEDIT

MODE 2 (B0) CHARACTER EDITOR
N=D1:NEWFIL.XXX O=D2:OPTFIL.XXX
A #41 65 K #7F 127 128 CHARS
COMMAND exchange select 2nd R C

```

  +-----+
  |***  ***|
  |**   ***|
  |*   *  **|
  |   ***  *|
  |   ***  *|
  |   ***  *|
  |   ***  *|
  |*****|
  +-----+
>                                     <

```

A

```

XXX  !"#$%&'()*+,-./0123456789:;<=>?
XAX  @ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^_
XXX  `abcdefghijklmnopqrstuvwxyz{|}~

```