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## The text window

After starting up the computer or after a reset, the firmware uses the entire display. However, you can restrict video activity to any rectangular portion of the display you wish. The active portion of the display is called the *text window*. COUT1 or BASICOUT puts characters into the window only; when it reaches the end of the last line in the window, it scrolls only the contents of the window.

You can set the top, bottom, left side, and width of the text window by storing the appropriate values into four locations in memory. This enables your programs to control the placement of text in the display and to protect other portions of the screen from being written over by new text.

Memory location 32 (hexadecimal \$20) contains the number of the leftmost column in the text window. This number is normally 0, the number of the leftmost column in the display. In a 40-column display, the maximum value for this number is 39 (hexadecimal \$27); in an 80-column display, the maximum value is 79 (hexadecimal \$4F).

Memory location 33 (hexadecimal \$21) holds the width of the text window. For a 40-column display, it is normally 40 (hexadecimal \$28); for an 80-column display, it is normally 80 (hexadecimal \$50).

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<b>Original Ile</b>	COUT1 truncates the column width to an even value on the original Apple Ile.
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<b>Warning</b>	On an original Apple Ile, be careful not to let the sum of the window width and the leftmost position in the window exceed the width of the display you are using (40 or 80). If this happens, it is possible for COUT1 to put characters into memory locations outside the display page, possibly into your current program or data space.
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Memory location 34 (hexadecimal \$22) contains the number of the top line of the text window. This is normally 0, the topmost line in the display. Its maximum value is 23 (hexadecimal \$17).

Memory location 35 (hexadecimal \$23) contains the number of the bottom line of the screen, plus 1. It is normally 24 (hexadecimal \$18) for the bottom line of the display. Its minimum value is 1.