

Junior TTY Monitor



A minimal monitor with TTY support and a hex loader that automatically handles both MOS-HEX (paper-tape format) and Intel-HEX. Connection uses two free port pins: PB0 (TX) and PB5 (RX). Ports and pins can be changed easily.

The monitor is highly minimized — no assembler or other legacy parts. With today's compilers it's easy to generate MOS- or Intel-HEX output.

Terminal setup: 2400 baud, 8 data bits, no parity, 1 stop bit (8-N-1). Set character delay to 1 ms and line delay to 10 ms.

Start the upload with a single click by pressing the PC button. In the terminal window you will see:

- TTY>
- receiving...

Now paste the HEX code — loading starts. On success you will see (for example):

- Ok, \$0087 bytes received!
- Intel-Hex or
- MOS-Hex

If loading fails, the message will be:

- Err!

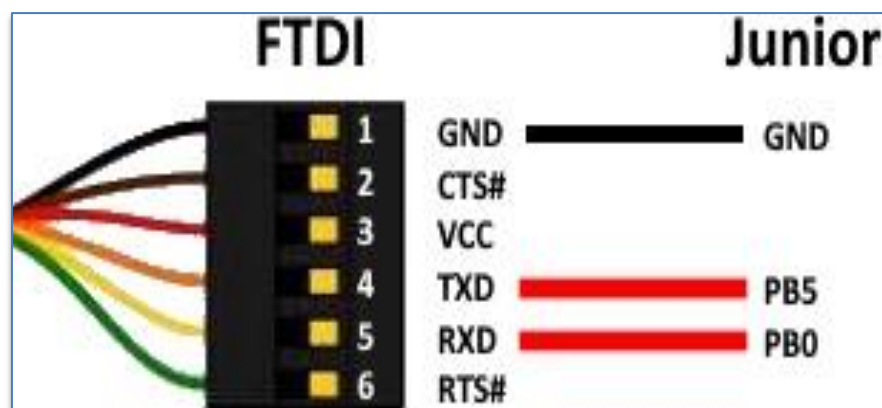
The HEX input should use uppercase hex digits only and must not contain delimiters such as spaces, tabs, or control characters. After loading, the monitor's start address is set to the start address contained in the HEX record. Press the GO key to start the program.

Pressing RESET returns to the usual Junior input address \$0200, already in data mode and ready for input.

Available TTY support routines:

| <u>NAME</u> | <u>ADDRESS</u> | <u>DESCRIPTION</u> |
|--------------------|-----------------------|---|
| TTY_INIT | \$FD3F | Call this routine before using TTY routines. |
| TTY_PUTC | \$FDA7 | Display the character in A. |
| TTY_PUTS | \$FDD8 | Display a zero-terminated string at (TTY_PSTR_LO=\$E3, TTY_PSTR_HI=\$E4). |
| TTY_PUTDEC | \$FDE9 | Display the number in A in decimal format (0..255) without leading zeros. |

| | | |
|-------------------|---------------|---|
| TTY_PUTHEX | \$FE27 | Display the hexadecimal value in A (00..FF). |
| TTY_GETC | \$FE59 | Wait for a terminal character and return it in A. |
| TTY_GETHEX | \$FEA1 | Read two hex digits from the terminal and return the byte in A. |
| TTY_CRLF | \$FE4E | Output \$0D and \$0A (CR/LF) to the terminal. |



An example is shown for an FTDI USB-serial converter; other converters must be wired accordingly. I've used Tera Term for testing and it worked even without any char or line delay.

Source code was assembled with the 64tass compiler.