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***Corsham Technologies, LLC***

*www.corshamtech.com*

*617 Stokes Road, Suite 4-299*

*Medford, NJ 08055*

**SS-30 USB Serial Board**

# Introduction

As are most of our designs, this board was meant to address something that we wanted a better solution to. RS-232 interfaces with DB-9 connectors always need a USB-to-RS-232 converter for use with any laptop and most desktops at this point, so having a pure USB serial interface got rid of some messy cabling on our systems.

This board is fully software compatible with the original SWTPC MP-S board as well as our SS-30 Serial Board. It uses an MC68B50 ACIA just like the other two boards, so software can’t detect any difference between this board and a more traditional serial board.

# Features

* Fully software compatible with more traditional serial boards.
* On-board baud rate generator provides 1200, 2400, 4800 and 9600 baud.
* Uses an FTDI USB/serial chip. Supported by all major OSes (Windows, OS X, Linux).
* Connection to your computer is via a USB B connector.
* CTS can be hard-wired or taken from the serial port.
* Jumper for NMI or IRQ interrupts (not normally used).

# Baud Rate Selection

The on-board baud rate generator provides x16 clocks for 1200, 2400, 4800 and 9600 baud. The baud rate is set via JP2. The standard SS-50 monitors (SWTBUG and SBUG) assume a x16 clock.

# CTS Configuration

Lower 4K is never mapped to memory

At address F000 if SW3 is set to 4K, not present in 2K

At address F800

Offset 1800

Offset 1000

Offset 0000

The MC68B50 needs the CTS line to be active (low) in order to transmit, so jumper JP3 allows the user to select to always force the line low, which is the normal setting, or to take CTS from the serial port (the USB port). Normally JP3 has a jumper between the CTS and GND pins.

# Revision History

|  |  |
| --- | --- |
| Version | Changes |
| 1 | Initial release |

# Parts List

|  |  |  |
| --- | --- | --- |
| Part | Number | Description |
| PCB | 1 | Printed Circuit Board (Corsham Tech) |
| J1 | 5 | Molex 09-52-3101 |
| JP2 | 1 | 2x4 jumper block |
| JP1, JP3 | 2 | 1x3 jumper block |
| C1 | 1 | 10uf, 25v electrolytic capacitor |
| C2, C3, C5, C6 | 4 | .1 uf disc capacitor |
| R1, R2 | 2 | 1K ¼ watt |
| R3, R5 | 2 | 1K |
| OSC1 | 1 | 2.4576 MHz oscillator |
| LED1, LED2 | 2 | 3mm LED (color does not matter) |
| IC1 | 1 | MC68B50 ACIA |
| IC2 | 1 | 78L05 5 VDC 100ma voltage regulator |
| IC3 | 1 | 4060N counter |
| IC4 | 1 | FTDI FT232RL |
| IC5 | 1 | 74LVC1T45 buffer/level shifter |
| USB | 1 | USB B female connector |
|  | 1 | 24 pin wide IC socket for IC1 |
|  | 1 | 16 pin IC sockets for IC3 |
|  | 2 | Jumper for JP2 and JP3 |