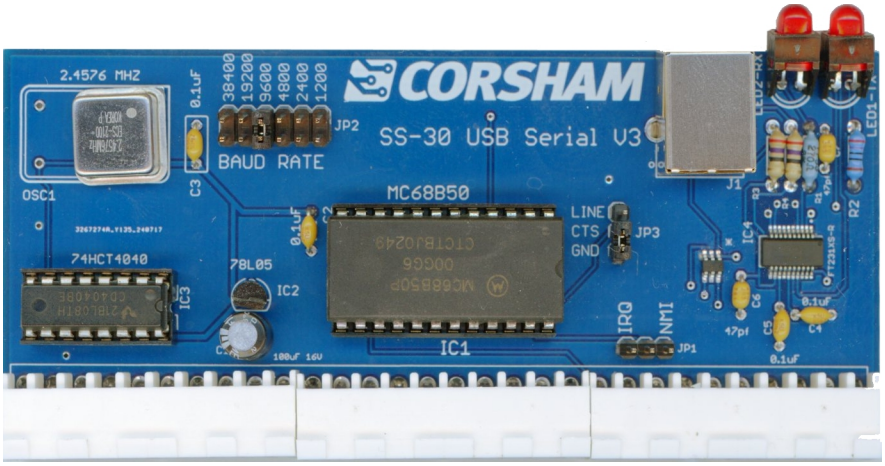
Corsham Technologies, LLC

SS-30 USB Serial Board V3 Reproduction

This board was based on the Corsham V1 schematic and a photo of the V2 board. As such this is more of a evolution of the Corsham board rather than a strict reproduction.



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.

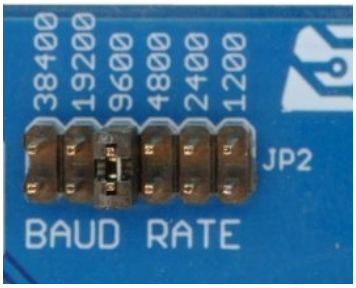
This board is fully software compatible with the original SWTPC MP-S board as well as our SS-30 Serial Board. It uses an MC68B50 ACIA just like the other two boards, so software can't detect any difference between this board and a more traditional serial board.

Features

- Fully software compatible with more traditional serial boards.
- On-board baud rate generator provides 1200, 2400, 4800,9600,19200 and 38400 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.

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

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.

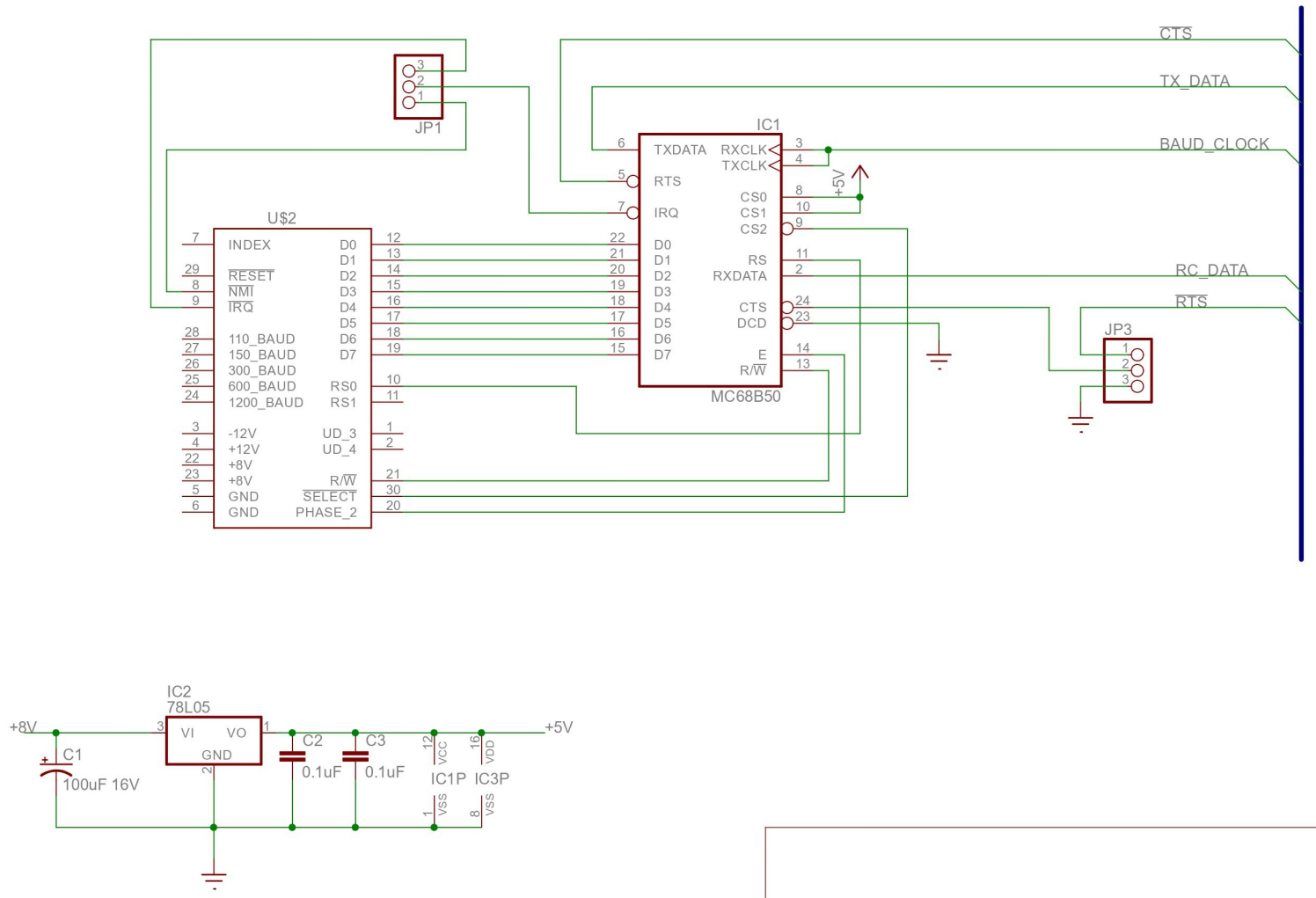
Revision History

Version	Changes
1	Initial release
2A	FT232RL replaced with FT231XS-A
3	Reproduction Version

Parts List

Part	Number	Description
PCB	1	Printed Circuit Board
	3	Molex 09-52-3101
JP2	1	2x6 jumper block
JP1, JP3	2	1x3 jumper block
C1	1	100uf, 16v electrolytic capacitor
C2, C3, C4, C5	4	.1 uf disc capacitor
C6,C7	2	47 pf
R1, R2	2	270 ohm ¼ watt
R3, R4	2	27 ohm
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	74HCT4040 counter
IC4	1	FTDI FT231XS-R *
IC5	1	74LVC1T45W6-7 * buffer/level shifter
USB	1	CUI Devices - UJ2-BH-BL1-TH - 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

* Use care when purchasing the surface mount parts. They come in different package sizes. The generic part 74LVC1T45 comes in 3 different package sizes.



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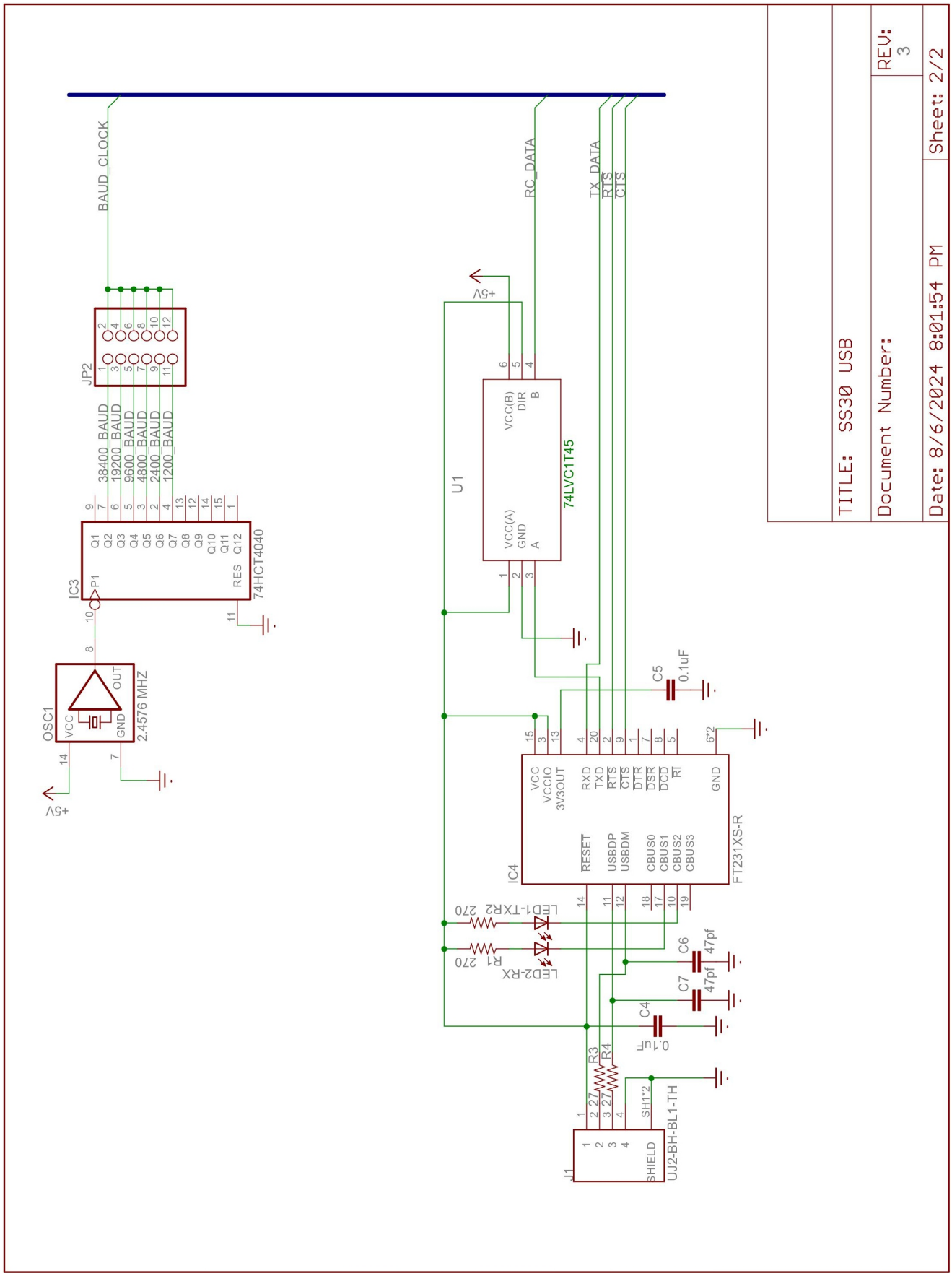
BAUD_CLOCK
JP2
38400_BAUD
19200_BAUD
9600_BAUD
4800_BAUD
2400_BAUD
1200_BAUD
IC3
74HCT4040
OSC1
2.4576 MHZ
+5V
U1
74LVC1T45
RC_DATA
TX_DATA
RTS
CTS
C5
0.1uF
IC4
FT231XS-R
LED1-TXR2 270
LED2-RX
R1 270
C6
47pf
C7
47pf
C4
0.1uF
R3
R4
J1
UJ2-BH-BL1-TH
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