

SCNEO Version 1

SCNEO is a new monitor for the Southern Cross Computer (SC) that uses the SC-SERIAL 6850 ACIA add-on board exclusively for serial communication and replaces the bit-bang serial routines with buffered, interrupt driven serial communication.

It will not replace SCMON but will be developed to take advantage of the faster serial port.

There are a few things to be aware of;

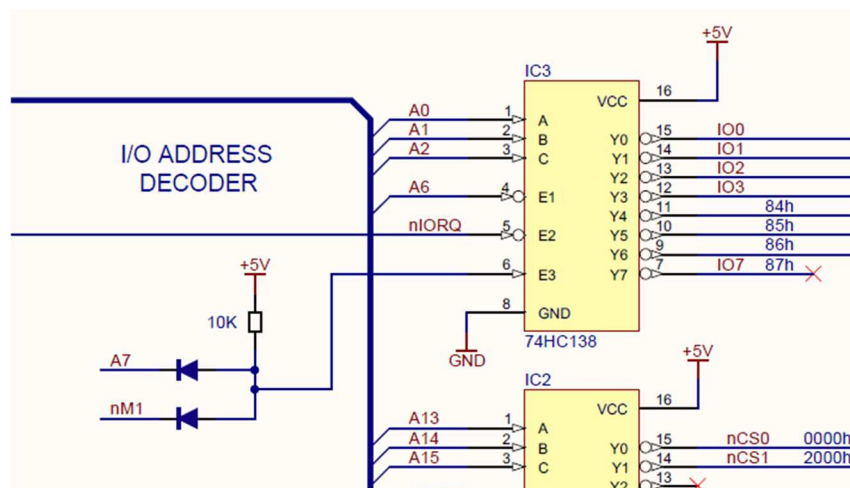
1. Interrupt Acknowledge

The ACIA code uses the Z80 Interrupt Mode 1 (IM1) to provide a vectored interrupt.

The Z80 inserts an Interrupt Acknowledge (/IORQ and /M1 are both low) when it detects an /INT.

This Interrupt Acknowledge is used in IM2 interrupt mode to get the partial vector address from the interrupting peripheral but has no function in IM1.

The SC does not use /M1 in the I/O decoding so to avoid unwanted I/O behaviour the following modification is required;



2. I/O address

The default I/O address for the 6850 in the Grant Searle design is \$80.

Unfortunately, this clashes with the SC on-board I/O, using 2 of the I/O addresses assigned to the 16 pin I/O port on the top of the SC.

It is easy enough to re-assemble the monitor with changed I/O mapping so I have set the SC-SERIAL I/O address to \$4E in this monitor. Change the A6 and A7 jumpers on the SC-SERIAL board from the top to the bottom position (to the 'O'side), and move the IO SELECT strap to position 7.

3. Download speed

The monitor can *almost* achieve 115200 INTEL hex download speed running on a 4MHz Z80. I have found that a small 'line delay' of 1mS in the Serial Terminal software (I use Teraterm) will get it to work. If your Z80 is fast enough, you can use the 7.3728MHz crystal on the SC-SERIAL board as the Z80 clock which removes the need for the transmit delay.

4. Software Breakpoint

In this initial version the INT 38H vector is used exclusively by the ACIA Interrupt service. Therefore hardware single stepping is not supported by this monitor.

The software breakpoint has been moved to RST 28H, inserting a RST 28H in you code will display the registers as before.