



SimScroll™ Interface Reference Design Guidelines

WEDC has developed a digital interface reference design that is a simple, low cost method of interpreting SimScroll™ functionality. This allows for faster development time and smooth system integration.

The circuit (Figure 1) has these functional elements:

- 1) 16 bit Parallel to Serial Shift Register
 - a. (2) TI 74HC166 8-bit shift registers
<http://focus.ti.com/docs/prod/folders/print/sn74hc166.html>
- 2) Analog Switch - Standby power control for battery powered applications
 - a. (1) Fairchild FSA1156, normally open SPST analog switch
<http://www.fairchildsemi.com/ds/FS%2FFSA1156.pdf>
- 3) 100K Ohm Resistors – (16) Pull-up resistor array
 - a. (2) Vishay CRA12 resistor arrays (circuit 20)
<http://www.vishay.com/docs/31003/cra12es.pdf>
- 4) SimScroll™ Array – (16) SimTouch™ switches

It is assumed that the customer system microcontroller has the ability to clock in serial data. The serial interface minimizes signal count, maximizing utilization of customer system resources.

Movement around the SimScroll™ ring can be interpreted by the data location in the 16 bit data field. For example, if actuation begins at the top of the ring at switch 1

1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

(8000h)

With possible overlap of switches 1 and 2 the following could appear

1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

(C000h)

As actuation moves around the ring:

0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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(4000h)

0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

(6000h)

0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
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(2000h)

Depending on the end-user, data presented will sequence with one, two or possibly three bits activated in the data field. Customer firmware will need to be tailored to effectively interpret these actions to control system function.

SimScroll Interface Block Diagram

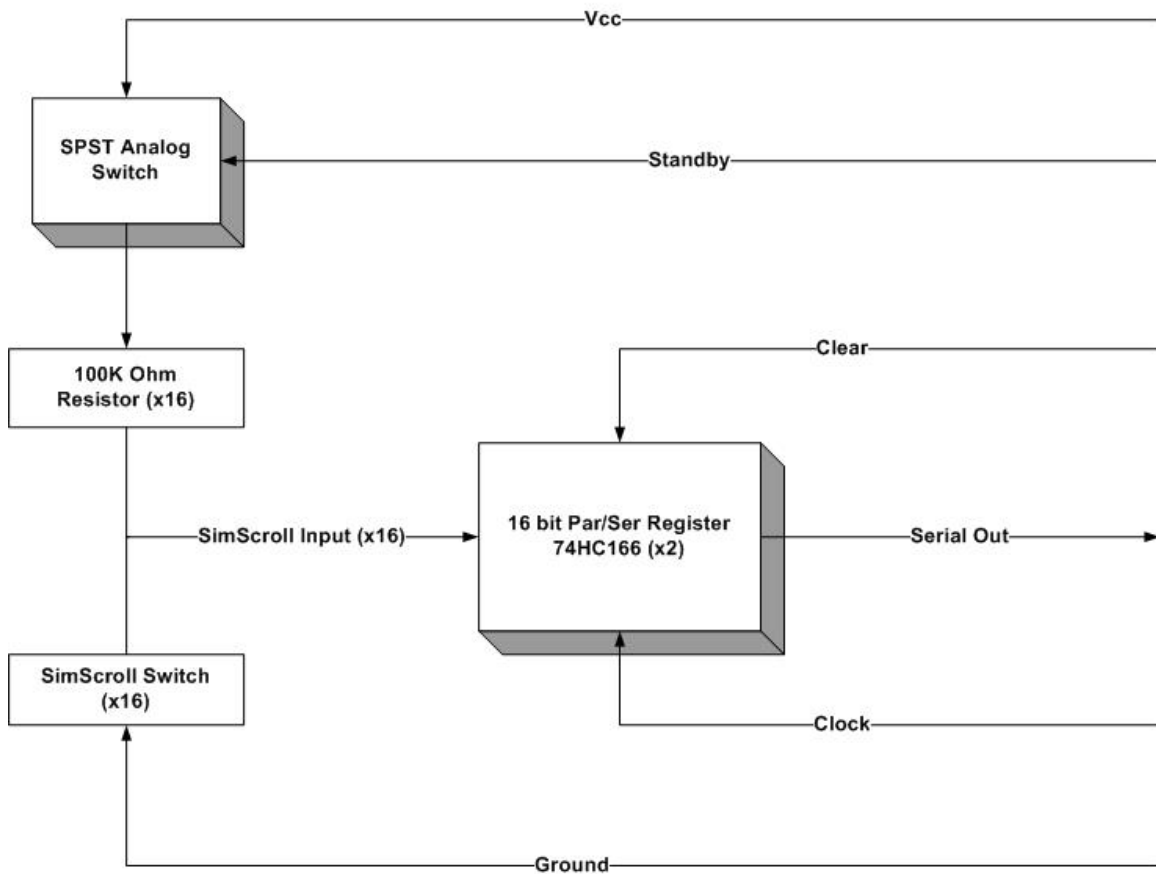


Figure 1