Spin Stamp Microcontroller (SS1-IC)

The Spin Stamp is a 24-pin module similar in form and size to the BASIC Stamp 2 family of 24-pin modules. The purpose of this microcontroller is to introduce the Propeller processor to the engineer who wants the features of the Propeller chip and ease of placement in an existing BASIC Stamp module project. **The Spin Stamp module is not intended to be a direct drop-in replacement for any BASIC Stamp module and there are some important points to consider before purchasing the Spin Stamp.**

Features

- Propeller P8X32A-M44, a multi-processing chip with eight 32-bit processors (cogs) and shared memory with 32KB of RAM and 32 KB of ROM holding a font, math tables, and Spin interpreter
- On-board 32 KB EEPROM, 3.3 V regulator, and 10 MHz crystal oscillator
- Access to 16 Propeller chip I/O pins; each cog can access any I/O pin
- Programming interface pads provided for the PropClip (#32200, not included)
- 24-pin DIP package fits boards designed for Basic Stamp modules where the I/O pins are not assigned to a specific purpose: Board of Education (#28150), BASIC Stamp 2 Carrier Board (#27120) Professional Development Board (#28138)

Programming

- The Spin Stamp can be programmed in Propeller Assembly or Spin, a high-level language. (The Spin Stamp cannot be programmed in PBASIC.)
- The Propeller Tool IDE software, Propeller datasheet, and programming manual may be downloaded free from the Parallax web site: http://www.parallax.com
- A PropClip (Not included, Parallax Stock #32200) is required to program the Spin Stamp. It is plugged into the four-hole connector on the bottom edge of the Spin Stamp with the badge facing up.
- Existing code written for other Propeller development platforms must have the clock parameters changed to _xinfreq = 10_000_000 and _clkmode = xtal1 + pll8x to make it operate on a Spin Stamp.

Electrical

- The Spin Stamp module's I/O voltage is 3.3V compared with the BASIC Stamp module's 5V I/O. **Applying 5V directly to a Spin Stamp I/O pin will damage the Spin Stamp.** Existing projects may require adjustments in software and circuitry to prevent damage to the Spin Stamp.
  - Any input pins that are subject to 5V must have, at least, a 1 kΩ or larger resistor that is series-connected.
- An individual output pin must not exceed 40 mA when in a sink or source state and all output pins together must not exceed 300 mA when in sink and source states.
- The serial port mainly used for programming BASIC Stamp modules is not available for programming or debugging. Use of the serial port requires additional external circuitry to function properly; this functionality is not supported at this time.
- The Spin Stamp is designed to receive power either through the 5.5 to 12 V VIN pin or through the 5V VDD pin. The Propeller processor gets its 3.3 V through a regulator located on the back side of the module.
  - The 5V VDD output can be used to drive other circuits but care must be taken not to exceed the 400 mA current limit of the regulator. Some of this current drawn is dedicated to the Propeller processor and its outputs.

Mechanical Drawing and Pin Description
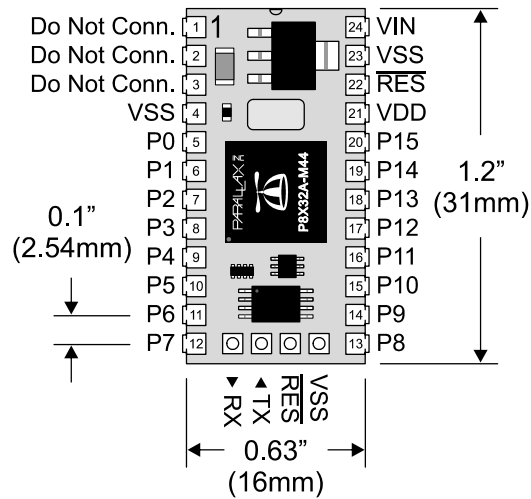
Pin	Name	Description
1	SOUT	Connection details not available at this time.
2	SIN	Connection details not available at this time.
3	ATN	Connection details not available at this time.
4	VSS	System ground: (same as pin 23)
5-20	P0-P15	General-purpose I/O pins: each can source and sink 40 mA. However, the total of all pins should not exceed 300 mA (source or sink).
21	VDD	5-volt DC input/output: if an unregulated voltage is applied to the VIN pin, then this pin will output 5 volts. If no voltage is applied to the VIN pin, then a regulated voltage between 4.5V and 5.5V should be applied to this pin.
22	RES	Reset input/output: goes low when power supply is less than approximately 4.2 volts, causing the Spin Stamp to reset. Can be driven low to force a reset. This pin is internally pulled high and may be left disconnected if not needed. Do not drive high.
23	VSS	System ground: (same as pin 4) connects to power supply's ground (GND) terminal.
24	VIN	Unregulated power in: accepts 5.5 - 12 VDC (7.5 recommended), which is then internally regulated to 5 volts. Must be left unconnected if 5 volts is applied to the VDD (+5V) pin.
--	P30	Propeller port pin P30
--	P31	Propeller port pin P31
--	RST	Propeller port pin RESn
--	VSS	System ground: (same as pin 23)

Schematic