SPX EXPANSION MODULES

Simplified I/O Expansion



- Cost effective I/O expansion
- Bolts to PC/104 stack (optional)
- Off-the-shelf and custom modules available

Highlights

Small Footprint
1.2" x 3.8" size is ideal for space-constrained applications.

Industrial Temperature
All SPX™ modules designed for -40° to 85°C operation.

Multiple I/O Expansion
Up to four SPX modules can be used in each system.

Ease of Use
Simple cable-based interface.

Flexibility
Mount on expansion stack, or up to two feet away.

Custom I/O Functions
Custom I/O solutions are quick to develop.

RoHS-compliant
Standard modules are fully compliant.

Overview

VersaLogic's SPX expansion modules provide a new level of economy and convenience for routine I/O expansion. Their small size, low cost, and simplified system interface are possible due to high levels of integration and miniaturization that were not previously available.

Unlike larger expansion formats such as PC/104, the extremely compact SPX format does not require a stacking connector or a position in the expansion stack. Connected by a single 14-pin cable to any SPX-enabled base board, SPX expansion modules can be mounted in any position, up to two feet from the host. The small (1.2" x 3.8") SPX modules may optionally be attached to the base board using PC/104 stand-offs.

Up to four SPX modules can be daisy-chained together to meet targeted I/O requirements at a substantial cost and space savings. Typical functions available include:

- 8-channel Analog Input
- 16-bit Digital I/O
- 4-channel Analog Output
- CANbus Controller
- 8-channel Solid State Switch

SPX modules can be used with baseboards (single board computers) that include an SPX expansion connector. This includes products such as VersaLogic's Python and Sidewinder SBCs. SPX modules can also be used with other systems that include an SPI signaling interface. Custom cabling and signaling restrictions may apply when connecting to generic SPI signals.

All VersaLogic SPX modules are fully RoHS-compliant, and are backed by VersaLogic's standard two-year limited warranty. All SPX modules are rated for extended temperature operation (-40° to 85°C).

Like all VersaLogic products, SPX I/O modules are designed to support OEM applications where high reliability and long-term availability are essential. From ease of application design-in to a five year availability guarantee, their quality and longevity provide low-cost, long-term solutions for demanding applications. SPX modules are manufactured to the highest quality standards.

In addition to standard off-the-shelf modules, VersaLogic can design custom SPX modules for a nominal fee.

Ordering Information

VL-SPX-1 .....8-channel Analog Input, RoHS
VL-SPX-2 ..... 16-bit Digital I/O, RoHS
VL-SPX-3 ..... CANbus Controller, RoHS
VL-SPX-4 .....4-channel Analog Output, RoHS
VL-SPX-5 ....8-channel 5-24 VDC Solid State Switch, RoHS

Accessories

VL-CBR-1401 .....2-module SPX Cable (RoHS)
VL-CBR-1402 .....4-module SPX Cable (RoHS)
VL-HDW-101..... Standoff Pkg, Metric Thread

RoHS

SPX

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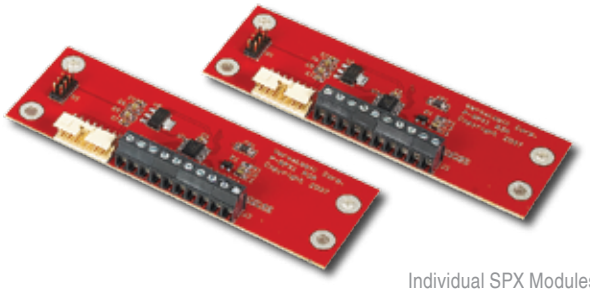
Details

The SPX platform uses SPI signaling with a defined interconnect using a 14-pin 2 mm cable. This allows a single chip interface between the I/O device and the SPX interface. The simplified system interface means that custom I/O functions are inexpensive and straightforward to implement.

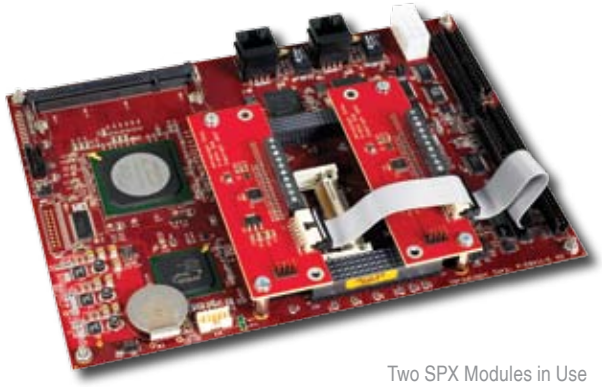
Multiple SPX modules, up to four per system, can be used at once. Modules of the same or different I/O type can be daisy-chained together using a single cable with multiple connectors. The modules are connected to the baseboard via a 14-pin cable.

External I/O signals are typically connected directly to SPX modules via the on-board screw terminals. The 14-pin SPX interface cable typically provides up to 500mA of fused +5V power for use by the connected modules.

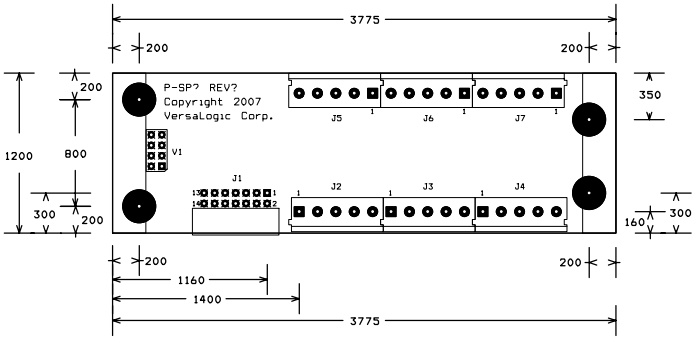
Custom modules for most functions are very easy to develop on the SPX platform. Contact VersaLogic for a quote on a custom device.



Individual SPX Modules



Two SPX Modules in Use



SPX Mechanical Specification

SPX Products	
SPX-1	8-channel Analog Input Module ▪ 12-bit, single-ended ▪ 0 to +4.095V (1 mV per bit) ▪ 500 KSPS
SPX-2	16-bit Digital I/O Module ▪ 3.3V CMOS Interface ▪ Bit programmable ▪ IRQ generation
SPX-3	CANbus Controller ▪ CAN V2.0B @ 1 Mb/s ▪ Receive buffers, masks and filters
SPX-4	4-channel Analog Output Module ▪ 12-bit resolution, 5µs settling time ▪ 10mA per channel output current ▪ 0 to +4.095V (1 mV per bit)
SPX-5	8-channel Solid State Switch Module ▪ High-side / low-side switches ▪ 5.5V–26.5V (externally supplied) ▪ 2 channels with PWM inputs

Specifications		
General	Power Requirements	+5V only
	Compatibility	▪ SPX expansion connector ▪ 3.3V signaling SPI interface, 8 MHz clock max. 24" max cable length.
	Compliance	▪ RoHS ▪ SPX expansion module
Mechanical	Board Size	30.5 mm x 96 mm (1.2" x 3.775")
	Storage Temperature	-40° to 85°C
	Operating Temperature	-40° to 85°C
	Thermal Shock	5°C/min over operating temperature
	Vibration, Sinusoidal Sweep	2g constant acceleration from 5 to 500Hz, 20 minutes per axis, MIL-STD-202G, Method 204, Modified Condition A
	Vibration, Random	.02g²/Hz (5.35g rms) 15 minutes per axis, MIL-STD-202G, Method 214A, Condition A
	Mechanical Shock	30g half-sine, 11 ms duration per axis, MIL-STD-202G, Method 213B, Condition J
	Humidity	Less than 95%, noncondensing

Data represents standard operation at 25°C with 5.0V supply unless otherwise noted. Specifications are subject to change without notice. PC/104 is a trademark of the PC/104 Consortium. SPX is a trademark of VersaLogic Corporation.

DOC-07-118-R3 03-10-08

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