



SX Virtual Peripheral Library

Q1 CY99

A Virtual Peripheral is a module of software which provides a specific function when running on the SX microcontroller. Due to major advancements made in both performance and predictability, the SX is capable of providing solutions using Virtual Peripherals that other microcontrollers can only provide in hardware or through external components. Using Virtual Peripherals on an SX provides software configurability, resulting in major benefits to your system cost, flexibility, and time to market.

Available for download @ http://www.scenix.com						
Peripheral Name	Description	Memory	USAGE	Number of I/O Used	Required CPU Performance MIPS @ 50MHz	Library File Name
		Program Flash (Words)	RAM (Bytes)			
2400-230.4K UART	A simplified software module that communicates over an RS-232 port to a PC and echoes back what is received. Compatible with the SX Demo Board.	51	10	2	.1 - 4.5	uart_vp.src
Eight UART (19.2K Baud)	Configures the Port B pins as inputs and Port C pins as outputs for the respective UARTs. Offers an impressive example of the power of virtual peripherals.	308	55	16	13	uarts.src
Dual 8-Bit PWM's	Software module that creates an 8-bit PWM signal on one output port pin. Compatible with the SX Demo Board.	10	5	2	4	pwm_vp.src
Eight 8-Bit PWM's	Provides 8 PWM outputs on the PORT B pins. Each PWM is individually adjustable for different duty cycles (frequencies of up to 1MHz are available).	25	17	8	8	pwms.src
Two 8-Bit ADC	Implements a simple 8-bit A/D converter on any CMOS input to the SX device. Compatible with the SX Demo Board.	25	7	4	8	adc_vp.src
LCD Driver	Uses two software A/D converters to read in a known resistance value, and compare it to an unknown, and then outputs the results on an 8-segment LCD.	280	21	15	Example Code	lcd.src
2 16-Bit Timer	Creates a 16-bit independent timer. Each timer consumes only 11 instruction cycles. Compatible with the SX Demo Board.	20	8	2	8	timer_vp.src
I2C Master Interface	Works with the SX Demo Board provided by Parallax to write to, read from or erase the serial EEPROM memory device.	117	7	2	varies w/ usage	i2cm_vp.src
I2C Slave Interface	Works with the SX Demo Board to read from, write to, or erase the serial EEPROM memory device.	n/a	n/a	3	varies w/ usage	i2cs_vp.src
SPI/uWire Master Interface	Add Low-speed SPI communication capability to the SX (up to 500 Kbps SPI Master).	102	11	5	varies w/ usage	spi_m1.src
SPI/uWire Master Interface	Adds High-speed SPI communication capability to the SX (500K to 1.72MHz SPI Master).	74	13	4	varies w/ usage	spim.src
SPI/uWire Slave Interface	Adds SPI communication capability to the SX (up to 1.1MHz SPI Slave).	108	13	4	varies w/ usage	spis.src
PWM Stepper Motor Control	This routine excites the stepper motor using half-step sequence (the excitation method can be changed to any sequence you choose)	27	6	4	6	stepper.src
4x4 Keyboard Scan	Presents programming techniques for scanning a 4x4 keyboard, usually found in both consumer and industrial applications, for simple numeric data entry.	102	7	4	1	keyscan.src
Real-Time Clock	Implements a real time clock that keeps a 16-bit millisecond count, and has the option for full time clock capabilities, including seconds, minutes, hours, and days.	39	9	0	5	clock_vp.src
8-Bit LCD Interface	Interfacing an SX uC to a Hitachi HD44780-driven LCD display, using an 8-bit parallel data bus without interrupts.	120	2	11	2 when writing continuously	lcd8xmpl.src
4-Bit LCD Interface	Interfacing an SX uC to a Hitachi HD44780-driven LCD display, using an 4-bit parallel data bus without interrupts.	109	4	8	2 when writing continuously	lcd4xmpl.src
Driving 7 Segment LED	Binary to 7 segment LED converters	29	0	11	Example Code	seven_seg.src
Push Button Debounce	Presents programming techniques for implementing and debouncing from 1-4 push buttons.	48	5	0	2	buttons_vp.src
Path Switcher	Demonstrates the use of a path switcher (combined with a simple real-time clock) to reduce the execution time of each interrupt.	7	0	0	2	buttons_vp.src
Sigma Delta ADC	Reading an external voltage by employing bitstream continuous calibration to create a simple, low cost 8-bit analog to digital converter with an input range of 0-5V.	25	7	4	8	adc_vp.src
DTMF Detection	Detects DTMF (Touch-Tone) digits within 14ms without error detection or within 48ms with error detection. Uses 2 pins.	295	52	2	40	contact sales@scenix
DTMF Generation	DTMF Generation using 1 PWM output. Includes 1 UART for software interface with a PC.	89	15	1	5	dtmf_gen_1_3.src
FSK Detection	Demodulation of an FSK signal using one pin.	42	2	1	4	simple_fsk_rcv.src
FSK Generation	Converting an RS-232 input into an FSK modulated signal using one PWM output.	47	8	1	4	simple_fsk_gen.src
Artificial Sine Wave Generator	Sine Wave Generation utilizing one PWM output and an algorithmic approach to sine generation.	30	8	1	4	artificial_sine.src
Caller ID	Detects and demodulates the Caller-ID signal which appears between the first and second ring.	tbd	tbd	tbd	tbd	contact sales@scenix
Ring Detect	Detects the ring signal from a Telephone Line.	tbd	tbd	tbd	tbd	contact sales@scenix
Call Progress Detect	Dial-tone detection using one I/O pin.	295	52	2	40	contact sales@scenix
Call Progress Generation	Dial-tone generation using one PWM output.	89	15	1	5	contact sales@scenix
Available for download @ http://www.scenix.com						