



## Product Information

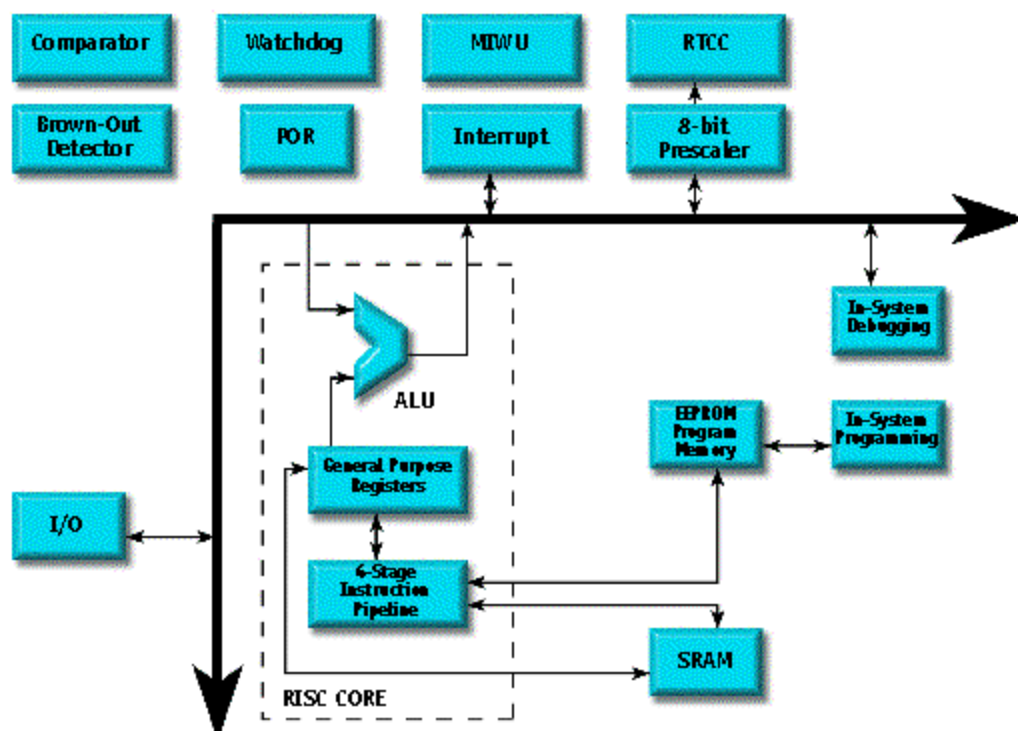
SX18/20/28AC

The SX18AC, SX20AC, and SX28AC are members of the powerful family of SX 8-bit microcontrollers. The advanced process, combined with RISC-based architecture, allow high-speed computation, flexible I/O control, and efficient data manipulation.

50 MIPS Performance

Jitter-Free Interrupt Response

In-System Programming



### 50 MIPS PERFORMANCE

- DC - 50 MHz operation
- 1 instruction per clock (branches 3)
- 20 ns instruction cycle, 60 ns interrupt response

### EE/FLASH PROGRAM MEMORY

- In-system programming via oscillator pins
- Access time of 10 ns provides single cycle access
- EE/Flash rated for 10,000 rewrite cycles

### FAST INTERRUPT

- Hardware context save/restore of PC, W, STATUS, and FSR
- Jitter-free 3-cycle internal interrupt response
- External wakeup/interrupt capability on Port B (8 pins)

### FLEXIBLE I/O

- All pins individually programmable as I/O
- Inputs are TTL or CMOS level selectable
- All pins have selectable internal pull-ups
- Selectable Schmitt Trigger inputs on Ports B and C

- All outputs capable of sinking/sourcing 30 mA
- Port A outputs have symmetrical drive
- Analog comparator on Port B (RB0 out, RB1 in-, RB2 in+)
- Synchronous I/O operation

### COMPONENT REDUCTION

- Internal RC oscillator with configurable rate from 31.25 KHz to 4 MHz (+-8%) lowers EMI and power consumption
- On-board brown-out detector
- Power-on-reset, multi-input wakeup

### GENERAL

- 2048x12 EE/Flash program memory
- 136x8 SRAM
- Two 16-bit multi-function timers with 8-bit prescalers
- Operating voltage - 2.5V to 5.5V
- Fast table lookup capability through run-time readable code
- User selectable clock modes
- DIP-18/28, SSOP-20, SOIC-18/28
- Complete third party development tools support

SX 18-PIN			
RA7	1	18	RA1
RA3	2	17	RA0
RTCC	3	15	OSC1
MCLR	4	15	OSC2
V <sub>SS</sub>	5	14	V <sub>DD</sub>
R10	6	13	RB7
R31	7	12	RB6
R32	8	11	RB5
R33	9	10	RB4

SDIP/SOIC

SX 20-PIN			
RA2	1	20	RA1
RA3	2	19	RA0
MCLR	3	18	OSC1
MCLR	4	17	OSC2
V <sub>SS</sub>	5	16	V <sub>DD</sub>
V <sub>SS</sub>	6	15	V <sub>DD</sub>
R30	7	14	RB7
RD1	8	13	RB6
RB2	9	12	RB5
RB3	10	11	RB4

SSOP

SX 28-PIN			
RTCC	1	28	V <sub>CLR</sub>
V <sub>DD</sub>	2	27	OSL1
n.c.	3	26	OSC2
V <sub>SS</sub>	4	25	RC7
n.c.	5	24	RC6
RA0	6	23	RC5
RA1	7	22	RC4
RA2	8	21	RC3
RA3	9	20	RC2
R30	10	19	RC1
RD1	11	18	RC0
RB2	12	17	RB7
RB3	13	16	RB5
RB7	14	15	RB5

SDIP/SOIC

SX 28-PIN			
V <sub>SS</sub>	1	28	MCLR
RTCC	2	27	OSC1
V <sub>DD</sub>	3	26	OSC2
V <sub>DD</sub>	4	25	RC7
RA0	5	24	RC6
RA1	6	23	RC5
RA2	7	22	RC4
RA3	8	21	RC3
RB0	9	20	RC2
RD1	10	19	RC1
RB2	11	18	RC0
RB3	12	17	RB7
RB7	13	16	RB5
V <sub>SS</sub>	14	15	RB5

SSOP

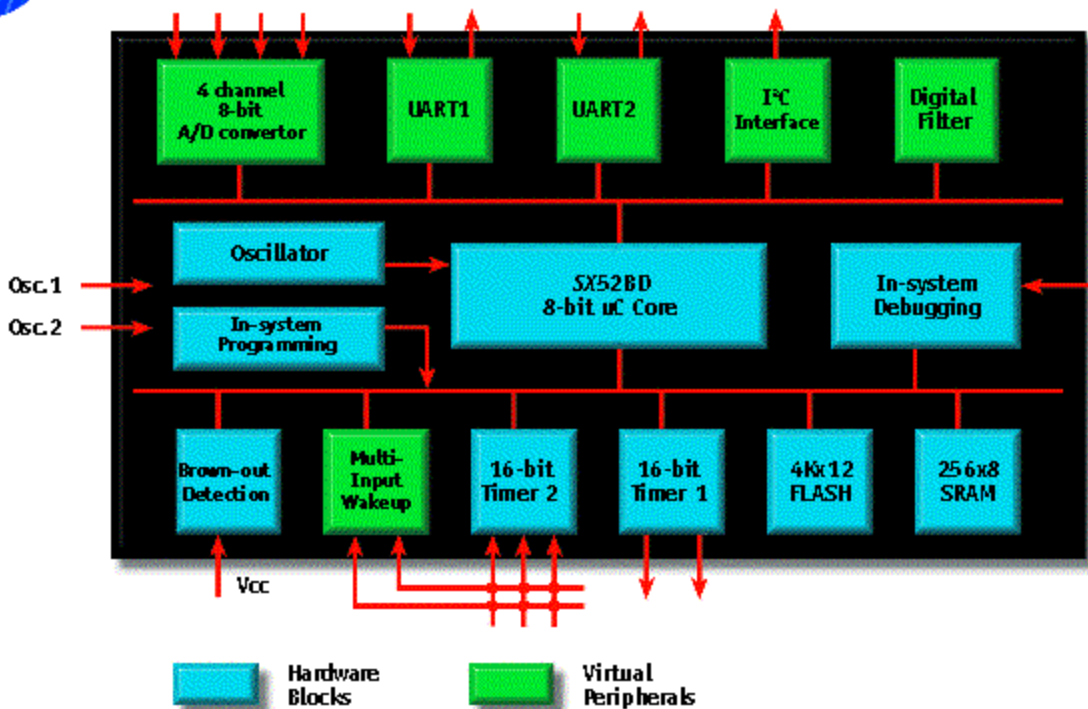
### Examples of Virtual Peripheral Code and Performance Needs

Peripheral Function	EEPROM Words	SRAM Bytes	% of 50 MIPS
UART @ 2400 Baud	98	13	1%
16-Bit Timer	10	5	6%
Real-Time Clock	39	9	9%
2-Ch 8-bit ADC	25	7	16%
FSK Transmit	125	7	8%
FSK Receive	249	9	8%
DTMF Receive	318	38	16%

Virtual Peripherals

Deterministic Program Execution

Real-Time Processing



With 50 MIPS performance, the SX provides efficient implementation of software modules from a library of Virtual Peripherals to replace on-chip hardware functions.



**Scenix Semiconductor**  
3160 De La Cruz Boulevard  
Suite 200  
Santa Clara, CA 95054

**contact:** sales@scenix.com  
<http://www.scenix.com>

**tel.:** (408) 327 - 8888  
**fax:** (408) 327 - 8880

### COLLATERAL SUPPORT

- Application Notes and Source Code
- Running eight different Virtual Peripherals
- FSK generation
- DTMF generation
- Multiple UART
- Multiple PWM

- ADC (8-bit)
- I<sup>2</sup>C master/slave
- SPI/μWire
- Real-Time Clock
- Mathpack

• Datasheet and User's Manual at [www.scenix.com](http://www.scenix.com)