

# SaJe

# PRELIMINARY

# SYSTRONIX®

# Real-Time Native Java™!

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Have your cake and eat it too -- with the first commercially available native Java processor chip.

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All the benefits of Java -- with FAST native execution and real-time capability!

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Imagine the power of Java with the speed of native execution...

Deterministic real-time control is a reality with the aJile aJ-100 processor for Java™ technology.

Imagine what a native Java embedded control system with real time capability could do for you -- all the benefits of Java with native execution speed, and Real Time Java support!

Multi-tier network capability (TCP/IP and 1-Wire now, CAN soon) and typical RTOS functionality is all included.

SaJe (Systronix aJile euroboard) includes four MBytes of Flash and one MByte of high speed SRAM, 10 BaseT ethernet, dual RS232 serial (DCE/DTE or IrDA), 1-Wire network, JTAG programming/debug port, and more.

- 1 MByte 10 nsec SRAM, 4 MBytes 90 nsec Flash. 32-bit wide memory interface for maximum performance.
- SaJe operates at the full rated speed of the aJ-100 (100 MHz). ( SaJe prototypes actually run at 140 MHz)
- Dual RS232 ports, each can be DCE, DTE, or IrDA
- A pushbutton and LED for your use
- on-board voltage regulator, 8-20VDC input, over 500mA at 5VDC available for use with SBX expansion.
- Optional keypads and character LCDs (requires SBX2 expansion module)
- Complete technical data and secure online ordering at: [www.systronix.com](http://www.systronix.com)

aJ-100 is a trademark of aJile Systems  
Java is a TradeMark of Sun Microsystems, Inc  
1-Wire is a trademark of Dallas Semiconductor Corp  
SaJe is a trademark of Systronix, Inc

## Native Java Execution with Real Time Java Support!

SaJe uses the powerful new aJ-100 native Java processor from aJile Systems ([www.ajile.com](http://www.ajile.com)). This provides fast and efficient Java instruction execution, plus a small memory footprint - 2 to 3 times denser than code for 32-bit RISC machines.

The aJ-100 includes a microprogrammed real-time Java thread manager so that a typical RTOS is not needed. It includes Java threading primitives implemented as atomic instructions, a priority-based preemptive scheduler, extremely fast context switching and interrupt response.

The aJ-100 supports multiple application execution through "multiple JVMs". Applications execute in a deterministic, time-sliced schedule. Applications can be memory protected with selectable code/data sharing, and each application has its own thread management and event handlers.

### Timers and Counters

The aJ-100 has multiple timers and counters, including PWM output.

### Memory

SaJe is ready for serious work with 4 MBytes of 90 nsec flash and 1 MByte of 10 nsec SRAM. Code can be executed from flash or SRAM.

### I/O Expansion

The industry standard 8-bit SBX "mezzanine bus" interface is an easy way to plug on additional memory mapped I/O from dozens of vendors, or create your own with an SBX prototyping board. The 1-Wire network provides plug-in support for a variety of low cost sensors and actuators including ADC, DAC, counters, and relays.

### Easy JTAG Programming and Debugging

The aJ-100 uses a JTAG interface for programming and debugging with aJile's JEM Builder and Charade development tools.

### Development Tools and Examples

The SaJe development system includes a SaJe board, aJile development tools, JTAG programming adapter, and example programs.

### How do I order?

You can order (sometime in March 2001) in our secure on-line store at [www.systronix.com](http://www.systronix.com). Our web site will always have the newest information on released products.

Pre-production SaJe systems are in use now, production versions will ship in March 2001. Please check our web site for more SaJe details as we release them. The SaJe area will have provision to email you automatically when new information is available.

#### SBX2, LCD, and Keypad Option:

Plug on SBX2 for a basic user interface and digital I/O. SBX2 provides a 16-pin latching header for an LCD, a 4x5 keypad decoder, bidirectional I/O capable of sinking 150 mA, a piezo buzzer, and a hardware UART. The digital I/O header is a standard Opto-22 type 25x2 for easy industrial I/O buffering.

#### Prices:

Visit [www.systronix.com](http://www.systronix.com) for current prices. Options include DIN rail mounting, cables and enclosures.

## TECHNICAL DETAILS

**Microcontroller** aJ-100, 32-bit direct JVM bytecode execution - no interpreter or JIT compiler.

**Memory** 32-bit wide data path to 4 MBytes of flash and 1 MByte of SRAM.

**Power** Unregulated 8-20 VDC from a 5.5x2.5 mm jack. Efficient switching regulator is reverse-polarity, short-circuit and over-temperature protected. 5V @ 500 mA available for user. Recommended power source is the Systronix 12VDC 1A power cube. On board switching regulators provide 5VDC 1A and 3.3V 1A.

**Serial I/O** Two RS232 serial I/O, DB9M wired as DTE, serial1 can also be switched to the 1-wire network.

**Ethernet** 10BaseT with RJ45 wired in a NIC configuration.

**1-Wire** Dallas 1-Wire network support with a DS2480B on serial1, and an RJ12 connector wired in the standard Dallas/Systronix pinout.

**LEDs and Switches** One pushbutton and one LED are provided for experimentation.

**Expansion** 8-bit SBX connector with up to 16 decoded addresses and two interrupts. Dallas 1-wire/iButton port for low-cost remote sensing & control. SBX2 is a plug-on module with character LCD interface, 4x5 keypad scanner, 24 buffered digital I/O bits, and a 16550 UART supporting RS232 DCE, RS232 DTE, RS485, or IrDA.

**Easy Programming** Instructions and tutorials on line at [www.systronix.com](http://www.systronix.com).

**Size** Standard 100x160 mm single Eurocard size, hundreds of enclosures available (some stocked by Systronix) including RF shielded, NEMA rated, etc.

**Environmental** Commercial temperature 0 to 70 deg C.

**Support & Warranty** Friendly technical support. One year warranty against defects (processor is warranted separately by aJile Systems).

## PRELIMINARY INFORMATION SUBJECT TO CHANGE WITHOUT NOTICE

#### All development systems include:

- CD-ROM data sheets, tutorial, power cube (120 VAC US plug input), IEE1284 to JTAG adapter. Free on-line updates.
- once you have purchased at least one development system, additional SaJe boards are available alone.

# SYSTRONIX®

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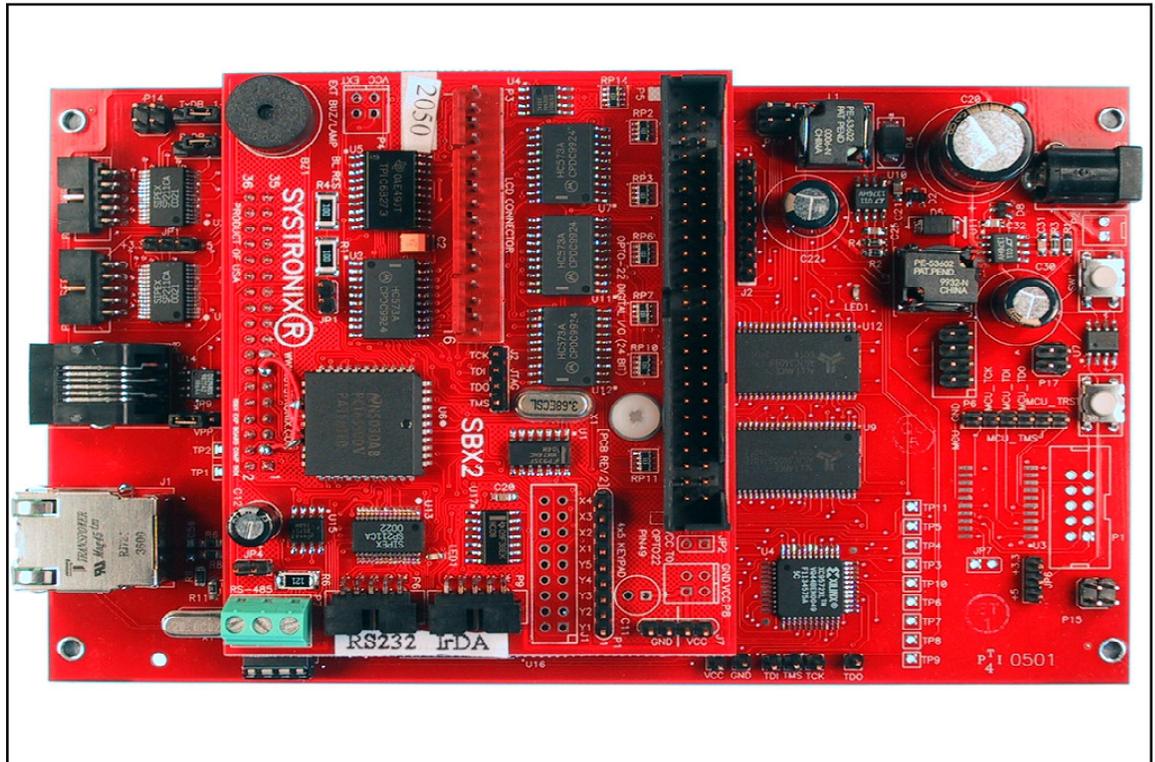
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SaJe prototype with SBX2 installed.

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RS485 screw terminals are in the lower left corner of SBX2.

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SaJe prototype being brought up fully for the first time at aJile headquarters, 03 Feb 2001.

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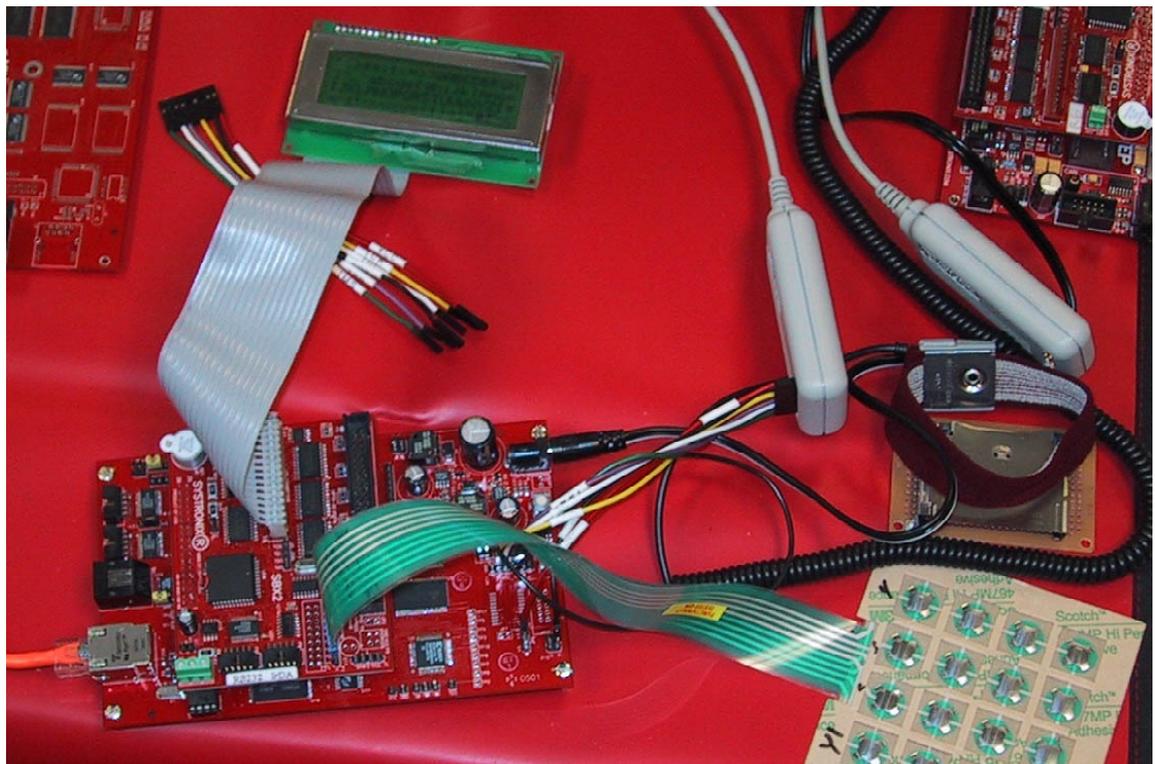
SaJe development prototypes run at 140 MHz with "2T" (15 nsec) memory cycle times!

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SBX2 is installed, and you can see the 20x4 LCD and 4x4 keypad attached.

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The gray pods with flying leads are Xilinx JTAG cables, used to program and debug aJ100 code.



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