



## Our Company

Systems Integration Solutions, Inc. (Si Solutions) is a single-board computer manufacturer and integrator providing advanced products for embedded OEM's. Our products are based on the Intel® StrongARM processor for use in application areas including medical devices, biometric interfaces, and web tablets. We provide immediate, cost effective solutions for medium to large scale manufacturers requiring a quick time to market. With today's tightly integrated operating systems, customers need more than a hardware provider – they need a solutions provider. This includes not only reliable hardware, but also platform support such as device driver and application development. Si Solutions can provide custom driver and application development for the Windows® CE 3.0 and Linux operating systems. Depending upon your needs, we can also support your staff during development. Our staff provides customers a smooth transition to the embedded world.

## The SA1-MM Single Board Computer Module

The SA1-MM (micro-module) is a scalable performance and power computer module rich in serial I/O. It is targeted to battery applications that require burst-based processing requirements such as biometric fingerprint recognition. The micro-module boasts a powerful Intel® StrongARM processor optimized to deliver 260MIPS@235MHz with a memory bus speed of 143MHz. Based on the popular ARM processors, this high-speed RISC processor provides an excellent power-to-performance ratio for deeply embedded algorithms.

Along with the intense processing, what makes the micro-module, micro? Its small size of 1.65" x 2.00", yes, but really it is the low power consumption in its deepest power-down mode. With a power consumption of less than half a micro watt the SA1-MM can sip on a pair of batteries for a very long time.

The SA1-MM is available with an embedded biometric application supporting Authentec's AF-S2 fingerprint sensor. This application supports two different serial control protocols, one intended for advanced applications requiring advanced enrollment, verification, and database management of fingerprint templates and a second byte-based protocol intended for simple microcontroller enroll, delete, match functions. The advanced protocol is utilized by the Windows Template Manager which allows fingerprint capture, enrollment, deletion, verification, quality, and viewing of the database contained in the SA1-MM. The simple byte-based microcontroller protocol is implemented in either the SA1-MM on-board power-management controller for simple latch open applications or in an external microcontroller for more advanced control.

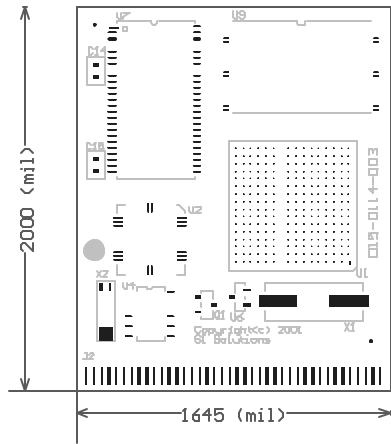
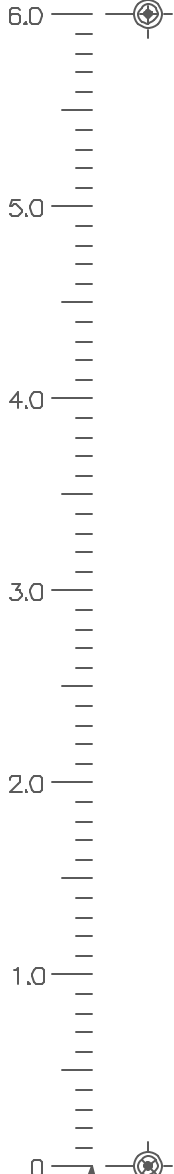
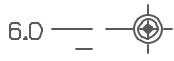
## Features

- Intel® StrongARM processor 262MHz@235MHz
- USB Slave 12Mbps
- Flash: 1MB to 8MB
- SDRAM: 1MB or 4MB
  
- 143Mhz memory interface
- Two high speed 750Kbps UARTs
- Deep 64-byte buffers
- One high speed UART w/ full flow control
  
- Support for microcontroller interface via:
  - COM1 to StrongARM
  - COM2 to StrongARM
  - SSP synchronous serial port
  
- 8 StrongARM GPIO
- 5 microcontroller GPIO for use during shutdown
  
- Wake on Finger Detect
- Wake on User Interface button
  
- High speed software updates via USB
  
- Very low power:
  - 4 power modes

|          |                |                |
|----------|----------------|----------------|
| Active   | (3.3V @ 250mA) | 825mW @ 235MHz |
| Idle     |                |                |
| Sleep    | (3.3V @ 50mA)  | 165mW          |
| Shutdown | (3.3V @ 100nA) | .33uW          |
  
- Small form factor (1.65"W x 2.00"L)

For more information contact:  
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[www.s-i-solutions.com](http://www.s-i-solutions.com)

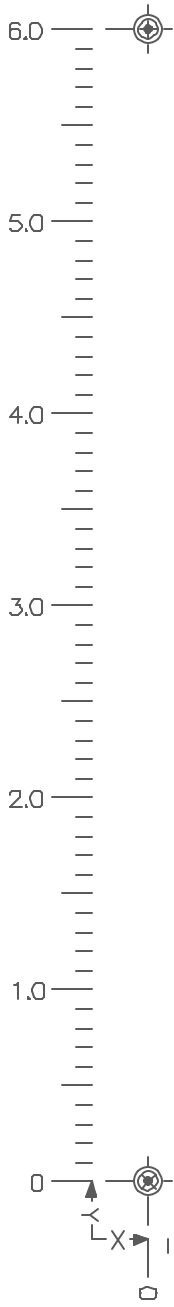
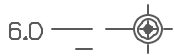
# Si Solutions SA1MM Physical Dimensions



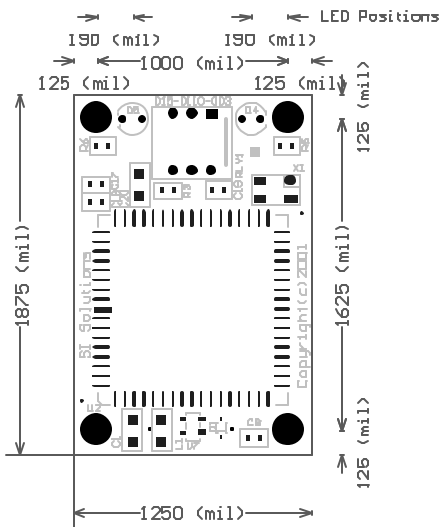
|   |                           |                 |                  |
|---|---------------------------|-----------------|------------------|
| SI Solutions                                    |                           | PLACE LOGO HERE |                  |
| ENGINEER:<br>Todd Canard<br>PHONE: 813-830-1911 | TITLE:<br>SA1MM           |                 |                  |
| ENGINEER:<br>PHONE:                             | PART NO: AWO114           | REV: P2         | DATE: 6-May-2002 |
| FILE NAME: SA1MM3.PCB                           | LAYER: Mechanical Layer 4 | GERBER: .GTD    |                  |



# Si Solutions Fingerloc Sensor Physical Dimensions



Mounting holes: 100 mil, 4 plcs.



|   |                              |                 |                     |
|---|------------------------------|-----------------|---------------------|
| SI Solutions                                    |                              | PLACE LOGO HERE |                     |
| ENGINEER:<br>Todd Canard<br>PHONE: 813-830-1911 | TITLE:<br>FingerLoc Sensor   |                 |                     |
| ENGINEER<br>PHONE                               | PART NO:<br>AW0110           | REV:<br>P3      | DATE:<br>6-May-2002 |
| FILE NAME:<br>floc3.pcb                         | LAYER:<br>Mechanical Layer 4 | GERBER:<br>.GTD |                     |



SA1MM Micro-Module



SI-FLS Fingerprint Sensor

