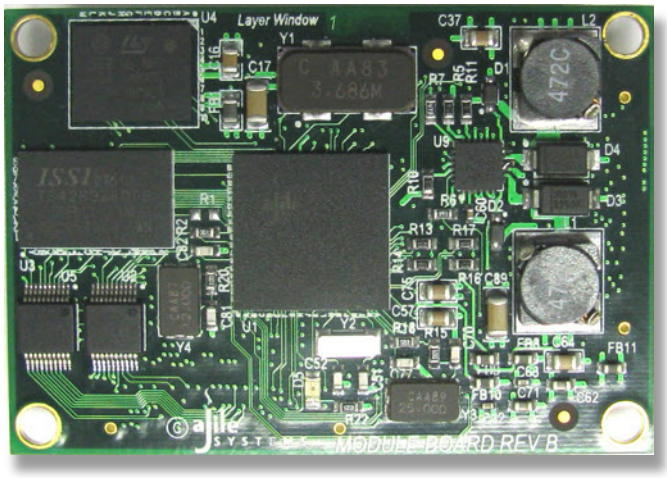
Emdedded Real-Time Direct Execution Processor Module for Java™ Based Applications

Java Virtual Machine and RTOS in Silicon

J-102 MODULE



Processor Features

32-bit Direct Execution Java Processor

- Native JVM bytecode instructions
- Fixed-point Multiplier Accumulator (MAC)
- Embedded RTOS kernel
  - Thread-to-thread yield in less than 1µsec
- Two independent JVM's in hardware
- 32 KB writeable control store (WCS)

Integrated LCD Controller

- 24-bit TFT LCD panel interface
- Resolution up to 1280 x 1280
- Input modes (RGB, color palette, YcbCr422/420)
- 256 entries 16-bit RGB color palette RAM
- Output formats (RGB parallel, ITU-R BT. 656)
- Video Scalar (up & down)
- Video Output Port (ITU-R BT. 656)
- External Bus Interface (EBI)
- Peripheral Interrupt Controller
- Three 24-bit Timer/counters
- Eight (PWM's)
- Watchdog Timers
- Real Time Clock (battery backup)
- Four 16550 Compatible UART's
- General Purpose I/O Ports
- DMA Controller
- Synchronous Serial Port (SSP)
- I^2S/AC97/SPI
- I^2C Interface
- SD/ SDIO/ MMC Memory Card
- CF Memory Card Interface version 1.4
- Single-chip USB OTG Controller version 2.0
- Encryption/decryption Engine
- 10/100 T-Base Ethernet Controller

- IEEE 1149.1 (JTAG) Interface
- Clock and PLL's
- Fully static operation up to 180 Mhz
- Commercial temperature
- ROHS compliance

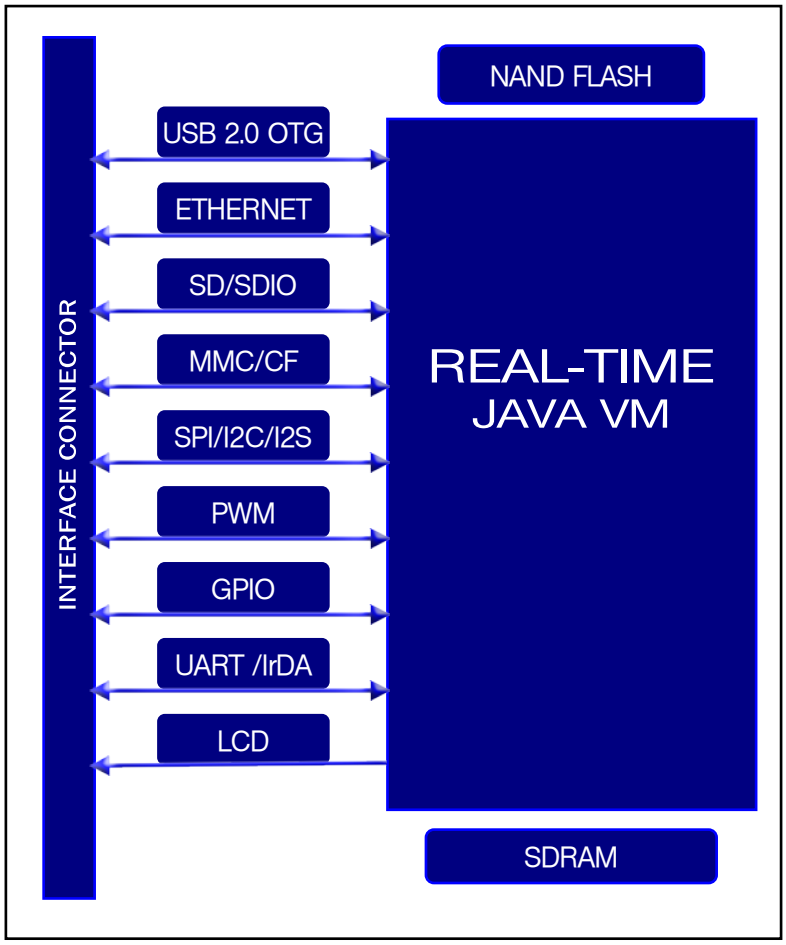


Figure 1. J-102 Module I/O Diagram

Overview

The j-xxx is a family of system-on-a-chip module device that executes both Java Virtual Machine (JVM) bytecode instructions, and real-time Java threading primitives. The native JVM bytecode implementation eliminates the typical interpreter or JIT software layers, and provides the most optimal Java performance in both memory requirements and execution time. The Java threading primitives ensure fast, atomic executive operations like context switching, object synchronization, scheduling and interrupt processing, and provide an embedded RTOS kernel.

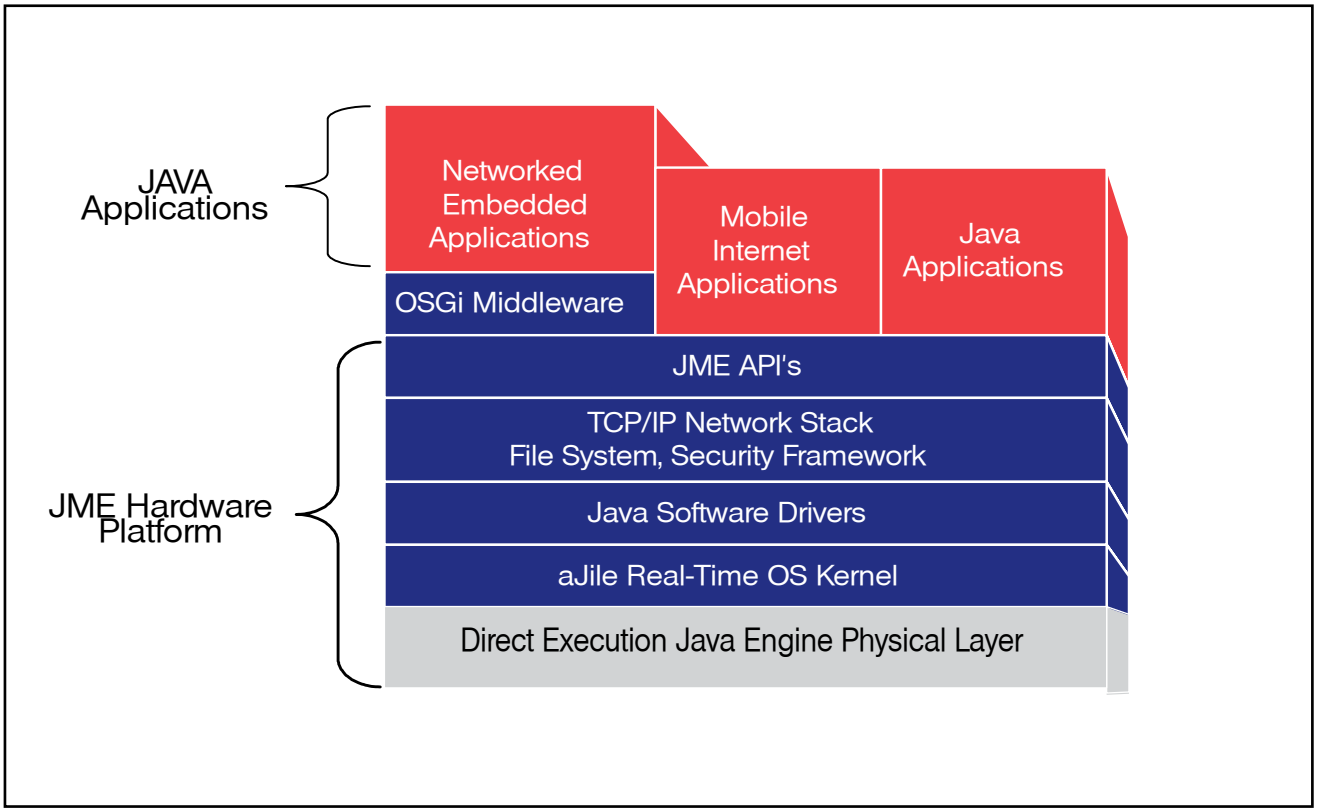


Figure 2. The silicon-based JME Platform

System Development Support

The J-102 Module bundled with the a optimizing application builder (JEMBuilder), debugging tools and an evaluation board provides a complete silicon-based solution for the JME platform. The key components are:

Java RTOS

The Java RTOS is implemented entirely in Java as illustrated in figure 2. In addition, the aJile Multiple JVM (MJM) enables multiple applications to execute concurrently and independently in a deterministic, times-liced schedule. This allows hard real-time applications to run independently and safely exist with networked applications.

Development Tools

The development environment allows the use of any off-the-shelf IDE that produces Java standard class files such as Eclipse or Netbeans. It consists of the following key components:

- Optimizing Linker/Application Builder (JEMBuilder)
- Application Debugging Tools
- J-102 Module
- J-102 Evaluation Platform

Silicon Valley Technology Marketing, LLC
1346 The Alameda #7-298
San Jose, CA 95126
Tel:(408)874-6113
Fax:(800)746-0091
Email:info@svt-llc.com
www.svt-llc.com