

## Real-Time Low-power Network Direct Execution Microcontroller Module for the Java™ Platform jMCU-102™

### Overview

The aJile Systems jMCU-102 is the real-time, low-power computer module for the Java ME platform. It's mainly based on the aJile aJ-102 microprocessor that executes Java Virtual Machine (JVM) bytecodes directly, real-time Java threading primitives, and a secured TCP/IP networking.

The jMCU-102 features of the aJile microprocessor "aJ-102", 32~64 Mbytes of NAND Flash, 32~64 MB of SDRAM, and B2B connectors. All aJ-102 peripheral pins are available via a B2B connectors. It's housed in a compact form factor.

The jMCU-102 processor bundled with aJile real-time operating system (RTOS), optimizing application builder, debugging tools and evaluation board (aJ-102evb) provides the complete computer for the JME platform.

The jMCU-102 is intended for support of the development of aJ-102-based embedded systems.

It provides customers a complete MCU for evaluation of the aJ-102 processor technology. This allows customers to rapidly implement a prototype, and develop the application software. It also can be used in the final product. The simplified block diagram of jMCU-102 is illustrated in the figure 1



**Figure 1. Block Diagram of aJ-102**

It's ideally suited to power the next generation of

- Internet edge devices
- Smart sensors
- Cellular handheld devices
- Mobile POS terminals
- Industrial PCs

# aJ-102 CPU Module for the Java™ Platform

## aJ-102CPUModule™

### Features

aJile processor aJ-102

Memory footprint

- 32/64 MB NAND Flash
- 32/64 MB SDRAM

Flexible power supply regulator: 4.5-24V

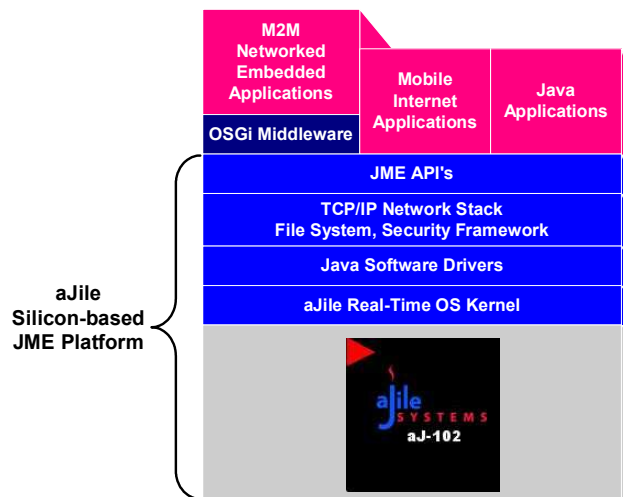
B2B connectors

- Three 24-bit Timer/counters
- Eight Pulse Width Modulations (PWMs)
- Watchdog Timer
- Real Time Clock (RTC)
- Four 16550 Compatible UART's
- General Purpose I/O Ports
- Synchronous Serial Port (SSP)

- I2S/AC97/SPI
  - I2C Interface
  - SD / SDIO/ MMC Memory Card Interface
  - CF Memory Card Interface V1.4
  - Single-chip USB OTG Controller version 2.0
  - Single-chip 10/100 T-Base Ethernet Controller
  - Encryption/decryption Engine
  - LCD Controller
  - IEEE 1149.1 (JTAG) Interface
- Industrial operating temperature
- Compact form factor
- 24 mm x 45 mm
- RHOS compliant

### System Development Support

The jMCU-102 computer module, bundled with aJile RTOS, optimizing application builder, debugging tools and evaluation board provides a complete silicon-based for the JME platform. The aJile RTOS is implemented entirely in Java as illustrated in the below figure 2. This allows the development of Java applications to fully leverage Java's proven the benefits of lower development and maintenance cost, increased productivity, portability and security at all levels.



**Figure 2. The silicon-based JME platform**