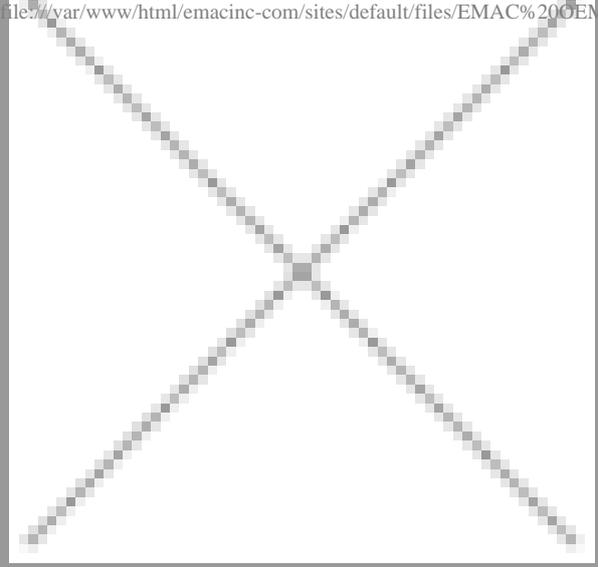


## SoM-9G45M ARM System on Module



image not found

[file:///var/www/html/emacinc-com/sites/default/files/EMAC%20EM%20LOGO-web-opt-500x450px\\_22.png](file:///var/www/html/emacinc-com/sites/default/files/EMAC%20EM%20LOGO-web-opt-500x450px_22.png)



Small, 200-pin SODIMM form factor (2.66" x 2.375")

Embedded Atmel ARM9 Jazelle AT91SAM9G45 400MHz Processor

10/100BaseT Ethernet with on-board PHY

5 Serial ports (4 with Handshake)

1 USB 2.0 (High Speed) Host Port

1 USB 2.0 (High Speed) Host/Device (USB OTG) Port

Up to 256 MB DDR2 RAM, 133 MHz SDRAM

Up to 1 GB NAND Flash

Up to 8 MB Serial Data Flash

SD/MMC Flash Card Interface

Battery backed Real Time Clock

On-Module Micro SD Card Socket

1x I2S Audio Port

1 I2C Port

2 SPI Ports

Image Sensor Interface (ISI), ITU-R BT 601/656

Timer/Counters and Pulse Width Modulation (PWM) ports

4x A/D Channel with 10-bit Analog-to-Digital Converter

4-wire Touch Screen Interface

Graphic LCD Interface with 2D acceleration up to 1280 x 860 Resolution

Multi-format Video Decoder (SoM-9M10 only)

True Random Number Generator

Typical power requirement less than 1 Watt

JTAG for debug, including real-time trace

FREE Eclipse IDE with GCC & GDB development tools

Linux

Green Hills Integrity BSP in development

Designed and manufactured in the USA the SoM-9G45 is a System-on-Module (SOM) based on the Atmel ARM9 AT91SAM9G45 processor. This Fanless ARM9, 400 MHz SoM has an Ethernet PHY included along with 4 serial ports. It utilizes up to 256MB of external DDR2 / SDRAM, 1GB of NAND Flash and includes an MMU which allows it to run Linux Operating System. A SoM is a small embedded module that contains the core of a microprocessor system.

This Fanless ARM9, 400 MHz SoM has an Ethernet PHY included along with 4 serial ports. It utilizes up to 256MB of external DDR2 / SDRAM, 1GB of NAND Flash and includes an MMU which allows it to run Linux Operating System. A SoM is a small embedded module that contains the core of a microprocessor system.

Using the same small 200 pin SODIMM form-factor utilized by other EMAC SoM modules, the SoM-9G45 is the ideal processor engine for your next design. All of the ARM processor core is included on this tiny board including: Flash, Memory, Serial Ports, Ethernet, I2S Audio, PWMs, Timer/Counters, A/D, digital I/O lines, video, Clock/Calendar, and more.

The SoM-9G45 is designed to plug into a carrier board that contains all the connectors and any custom I/O required for the application. This

requirements without having to worry about the processor, memory, and standard I/O functionality. With this System on Module approach, a semi-custom hardware platform can be developed in as little as a month.

In addition to the option of developing a Carrier board, one can be purchased off-the-shelf from EMAC. EMAC provides off-the-shelf Carrier boards that feature A/D, D/A, MMC/SD card, keypad, LCD, Touchscreen, and Audio interfaces. The recommended off-the-shelf

Carrier Board for the SoM-9G45 is the **SoM-200ES** which allows the user to immediately start coding their application using the powerful

Linux Operating System and Tools.

The System on Module approach provides the flexibility of a fully customized product at a greatly reduced cost.

### Specifications

SOM Type:

Microcontroller SODIMM Modules

Processor

Embedded Atmel ARM9 Jazelle AT91SAM9G45

Clock Speed:

400 MHz

Real Time Clock:

Processor Misc.:

System Reset: Supervisor with external Reset Button provision

Memory

Primary Flash:

up to 1GB NAND Flash

Secondary Flash:

up to 8MB of Serial Data Flash

Memory Misc.:

Flash Disk: 4-bit Parallel or SPI serial SDHC/MMC interface

Up to 1GB of NAND Flash Option Available (MOQ may apply)

Primary I/O

32x GPIO (16 ma. drive when used as an output)

Disk Interface:

SD/MMC Flash Card Interface

Video Out:

LCD Video Interface with up to 1280 x 860 resolution

SPI:

2x High-Speed SPI ports with Chip Selects

Audio:

1x I2S Synchronous Serial Controllers with analog interface support

#### Ethernet:

1x 10/100 BaseT Ethernet with on-board PHY

#### USB:

1x USB 2.0 High Speed Host

1x USB 2.0 High Speed Host/Device (OTG)

#### Serial Ports:

5x Serial Ports (4x RTS/CTS handshaking

1x RS485)

#### I2C:

2 multi-mode I2C port

#### Watchdog:

#### Secondary I/O Timers/Counters/PWM:

2x 3 channel, 16-bit timers/counters with capture, compare, and PWM

20-bit interval timer plus 12-bit interval counter

#### LPT Port:

#### Keypad:

#### PS/2:

#### Touch:

10-Bit, 4 wire analog resistive Touchscreen interface

#### Expansion Bus Misc.:

Power: Power Management Controller allows selectively shutting down on processor I/O functionality and running from a slow clock

#### Analog A/D:

#### A/D Channels:

4

#### D/A:

#### Analog Misc.:

Analog I/O: 8 channel, 10-bit Analog-to-Digital converter (ADC), with 4 channels utilized for 4-wire Touch Screen Interface.

#### Dimensions Dimensions:

2.66 × 2.375 in

#### Form Factor:

200-pin SODIMM

#### Power Requirements Voltage:

3.3 V

#### Idle Current:

270 mA

#### Constant Busy Loop Current:

290 mA

#### Typical Current:

300 mA

#### Max Boot Current:

300 mA

#### Power Misc.:

Idle system with Ethernet PHY disabled: 205 mA.

Constant busy loop with Ethernet PHY disabled: 235 mA.

APM sleep mode using slow clock with Ethernet PHY disabled: 70 mA.

APM sleep mode using slow clock with Ethernet PHY enabled: 105 mA

Environmental  
Low Operating Temperature:

-40 C

High Operating Temperature:

85 C

Upper Operating Humidity:

90%

Pricing  
SoM-9G45M-120

w/ AT91SAM9G45 CPU, 256 MB FLASH 128 MB RAM

\$190.00

Stock

Order:

0

Base Product:

SoM-9G45M

Non-Stock NCNR:

0

Carrier Boards:

SoM-200GS-000

Standard 200-pin Carrier with SD Card, Audio, CAN, PLD & 4.3" LCD

\$245.00

Base Product:

SoM-200GS

SoM-200GS-001

Deluxe 200-pin Carrier with WiFi, Audio, CAN, PLD & 4.3" LCD, without SD Card Socket

\$295.00

Base Product:

SoM-200GS

SoM-200GS-007

Bare Bones 200-pin Carrier w/SD Card & CAN, without Audio, PLD & LCD

\$145.00

Base Product:

SoM-200GS

SoM-212ES-000

Standard Carrier Board with Touch Screen

\$175.00

Base Product:

SoM-212ES

SoM-212ES-003

Deluxe Carrier Board with Touch Screen, POE, and Stereo Audio

\$225.00

Base Product:

SoM-212ES

SoM-212ES-007

Bare Bones Carrier Board

\$110.00

Base Product:

SoM-212ES

SoM-250GS-000

Standard Carrier Board with CAN, Audio, 7" LCD & Touch Screen, WiFi

\$399.00

Base Product:

SoM-250GS

SoM-250GS-001

Deluxe Carrier Board with CAN, Audio, 10" LCD & Touch Screen, WiFi

\$399.00

Base Product:

SoM-250GS

SoM-250GS-007

Bare-Bones Carrier Board with CAN, Audio, WiFi, without LCD

\$250.00

Base Product:

SoM-250GS

---

Source URL: <https://www.emacinc.com/content/som-9g45m-arm-system-module>