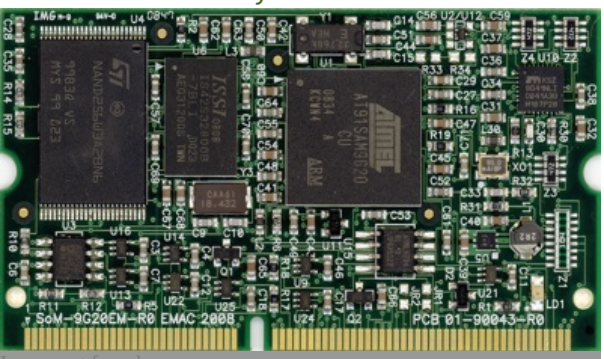
SoM-9G20M ARM System on Module



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Small, 144 pin SODIMM form factor (2.66" x 1.5")

Atmel ARM9 Jazelle AT91SAM9G20 400Mhz Processor

10/100BaseT Ethernet with on-board PHY

6x Serial ports (4x with Handshake; 7x Serial Ports Optional)

2x USB 2.0 (Full Speed) Host ports

1x USB 2.0 (Full Speed) Device port

Up to 64 MB of SDRAM

Up to 1 GB of NAND Flash

Up to 8 MB of Serial Data Flash

Battery backed Real Time Clock

SD/MMC Flash Card Interface

2x SPI ports

1x I2S Audio port

Image Sensor Interface (ISI), ITU-R BT 610/656

Timer/Counters and Pulse Width Modulation (PWM) ports

4 Channel 10-bit Analog-to-Digital converter

Typical power requirement less than 1 Watt

JTAG for debug, including real-time trace

FREE Eclipse IDE with GCC & GDB development tools

Green Hills Integrity BSP

RoHS 2 (2011) compliance

Designed and manufactured in the USA the SoM-9G20M is an ARM System-on-Module (SOM) based on the Atmel ARM9 AT91SAM9G20 processor. This ARM9 core processor has an Ethernet MAC built-in along with 7 serial ports. It utilizes external SDRAM and includes an MMU which allows it to run Linux and WinCE Operating Systems. A SoM (System on Module) is a small embedded module that contains the core of a microprocessor system.

Using the same small SODIMM form-factor utilized by other EMAC SoM modules, the SoM-9G20 is the ideal processor engine for your next design. All of the ARM processor core functionality is included on this tiny board including: Flash, Memory, Serial Ports, Ethernet, I2S Audio, PWMs, Timer/Counters, A/D, digital I/O lines, Clock/Calendar, and more.

The SoM-9G20M is designed to plug into a carrier board that contains all the connectors and any custom I/O required for the application.

This approach allows the customer or EMAC to design a Custom Carrier Board, that meets the customer's I/O, dimensional, and connector

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 the 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, Audio, and Modem interfaces. The recommended off-the-shelf Carrier

Board for the SoM-9G20M is the SoM-150ES which allows the user to immediately start coding their application using the powerful Linux

or WinCE 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

Processor:
Embedded Atmel ARM9 AT91SAM9G20
Clock Speed:
400 MHz
Real Time Clock:

Memory

Primary Flash:
up to 4GB eMMC Flash
Secondary Flash:
up to 16MB of Serial Data Flash
Memory Misc.:
System Reset: Supervisor with external Reset Button provision

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

Primary I/O

GPIO:
32x GPIO
16 ma. drive when used as an output
SDIO:
1x SDIO Port
Audio:
I2S Synchronous Serial Controller with analog interface support
USB:
2x USB 2.0 Full Speed Host
1x USB 2.0 Full Speed Device ports
Serial Ports:
6x Serial ports (4x with Handshake; 7x Serial Ports Optional)
I2C:
Hardware 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:

Analog on

A/D:
D/A:
Analog Misc.:

Analog I/O: 4 channel, 10-bit Analog-to-Digital converter (ADC)

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

Dimensions

Dimensions:

2.66 × 1.5 in

Form Factor:

144-pin Headless SODIMM

Power Requirements

Voltage:

3.3 V

Idle Current:

175 mA

Constant Busy Loop Current:

225 mA

Typical Current:

200 mA

Typical Voltage:

3.3 V

Max Boot Current:

225 mA

Power Misc.:

Constant busy loop with Ethernet PHY disabled: 90 mA

Idle system with Ethernet PHY disabled: 65mA

APM sleep mode using slow clock with Ethernet PHY disabled: 15mA

Environmental

Low Operating Temperature:

-40 C

High Operating Temperature:

85 C

Upper Operating Humidity:

90%

Pricing

SOM-9G20M-120

ARM9 ETH/USB/256MB FL/32MB RAM

$175.00

Stock

Order:

0

Base Product:

SoM-9G20M

SoM-9G20M-130

w/ CPU, 1 GB FLASH 64 MB RAM

$190.00

Stock

Base Product:

SoM-9G20M

SoM-9G20M-110
w/ CPU, 512 MB FLASH 16 MB RAM
$155.00
Non-Stock
Base Product:
SoM-9G20M
SoM-9G20M-132
w/ CPU, 1 GB FLASH 64 MB RAM / 7com
$210.00
Non-Stock
Base Product:
SoM-9G20M
Non-Stock Minimum Order:
50
Non-Stock NCNR:
1
Carrier Boards:
SoM-150ES-000
Standard Carrier Board
$150.00
Base Product:
SoM-150ES
SoM-150ES-007
Bare-Bones Carrier Board
$100.00
Base Product:
SoM-150ES
SoM-150ES-031
Deluxe Carrier Board with A/D, D/A, Audio
$220.00
Base Product:
SoM-150ES
