SoM-400EM

- Small, 144 pin SODIMM form factor (2.66" x 1.5")
- 10/100BaseT Ethernet with on-board PHY
- 3 serial port with handshake
- 1 non-isolated CAN port
- Up to 2 MB of low power battery backed RAM
- 2 MB of Flash
- Nonvolatile RAM/File System
- Battery backed Real Time Clock
- 1-Wire® Network provision
- High-speed math accelerator for 16/32-bit multiply and divide
- Typical power requirement of about 1.5 Watts
- TINI SDK 1.12 and Java 1.4x
- Robust FREE Java development tools

The SoM-400EM is based on the 8051 code compatible Maxim/Dallas™ DS80C400 TINI® processor. The Tiny InterNet Interface (TINI®) processor is a Java programmable processor that is ideal for use in Internet appliances and Web based applications.

This 8-bit 8051 code compatible processor has an Ethernet MAC built-in along with 3 serial ports. It can directly access 16 MB of memory and has a UNIX type OS that features a complete file system.

The only drawback to this processor was that it does not have a hardware SPI port. To overcome this drawback, EMAC designed a PLD SPI engine that connects directly to the processor's data bus. This allows the EMAC SoM-400EM to meet customer SPI speed requirements, that a bit-banged SPI could not. EMAC also added a programmable oscillator and 10 general-purpose digital I/O lines to this SoM.

Using the same SODIMM form-factor that Maxim/Dallas™ used on their reference board, EMAC then added additional higher speed memory, an Ethernet PHY, a hardware SPI port, and digital I/O lines. EMAC also wrote a custom native SPI driver to support the hardware SPI port. A special version of the board can be purchased that is backwards compatible with the Maxim/Dallas™ reference board.

Since the SoM-400EM normally runs a Java Interpreter, it can tend to be slow executing certain tasks. In order to provide more throughput for the customers that need it, EMAC has designed a hardware compatible 32-bit SoM which can offer the user a higher speed alternative. For more info on this SoM click here.

The SoM-400EM 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, and Modem interfaces. The off-the-shelf Carrier Board (SoM-100ES) allows the user to immediately start coding their application using a powerful Embedded Java Compiler 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:
Dallas™ TINI® DS80C400 8-bit
Clock Speed:
30 MHz
Real Time Clock:

Memory

BIOS/ Bootloader:
Resident Flash Bootloader
Primary Flash:
2 MB Flash
Memory Misc.:

- **RAM:** 1 MB SRAM (55 ns). 1 MB SRAM (40 ns) and 2 MB SRAM optional
- **Memory:** 16 MB linear memory map with on-chip select lines

Primary I/O

GPIO:

5 dedicated Digital Inputs and 5 dedicated Digital Outputs with 25 ma. drive
SPI:
PLD based SPI engine with two chip selects externally decodable to four
two standard SPI selectable clock frequency of 2 MHz and 512 KHz
Ethernet:
10/100BaseT with on-board PHY
Serial Ports:
3 Serial Ports
1 SPI
Watchdog:

Secondary I/O

CAN:
CAN 2.0B
Timers/ Counters/ PWM:
4x 16-bit timers/counters with 1x up/down timer/ capture and baud-rate generation features
LPT Port:
Keypad:
PS/2:

Analog on

A/D:
D/A:

Dimensions

Dimensions:
2.66 × 1.5 in
Weight:
0 g
Form Factor:
144-pin SODIMM

Power Requirements

Voltage:
3.3 V
Typical Current:
200 mA
Typical Voltage:
3.3 V

Environmental

Low Operating Temperature:
0 C
High Operating Temperature:
70 C
Upper Operating Humidity:
90%

Pricing

Non-Stock Minimum Order:
50
Non-Stock NCNR:

1
Carrier Boards:
Title: SoM-100ES-000
Standard Carrier Board
$150.00
Base Product:
SoM-100ES
Title: SoM-100ES-030
Standard Carrier Board with A/D, D/A
$250.00
Base Product:
SoM-100ES
Title: SoM-100ES-007
Bare Bones Carrier Board
$95.00
Base Product:
SoM-100ES

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