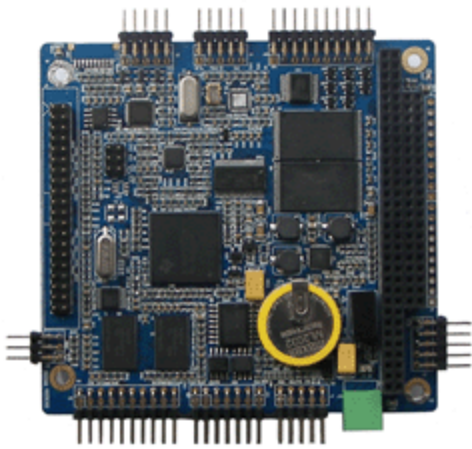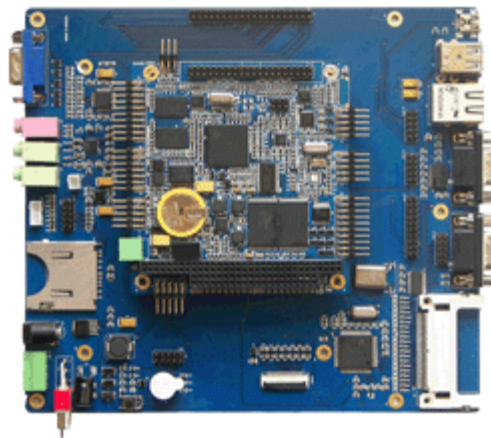# SOC8200 Single Board Computer

Order#: SOC8200 (T6010107B)

- 600MHz TI AM3517 Sitara ARM Cortex-A8 Microcontroller

- 256MB DDR2 SDRAM + 256MB Nand Flash + 4MB Nor Flash

- UARTs, RS485, CAN, Ethernet, 2 USB Host, USB Device, Camera, …

- Supports LCD, VGA, S-Video/AV out Video output modes

- Ready-to Run Linux 2.6.32 and WinCE 6.0 OS

SOC8200 Single Board Computer **SOC8200 Development Kit**

Features

Mechanical Parameters

-
  o SOC8200 Single Board Computer Dimensions: 96mm x 90mm (8 layer PCB design)

  o SOC8200 Expansion Board Dimensions: 170mm x 190mm

  o Input voltage: +5V (CPU board), +12V (Expansion Board)

  o Working Temp.: -40 ~ 85°C

SOC8200 Single Board Computer

Processor

-
  o TI AM3517 industrial applications processors

    - NEON SIMD Coprocessor

    - 600MHz Sitara ARM Cortex-A8 Core

    - POWERVR SGX Graphics Accelerator (AM3517 only)

    - 16KB I-Cache, 16KB D-Cache, 256KB L2-Cache, 112KB ROM, 64KB Share SRAM

Memory

-
  o 256MB DDR2 SDRAM, 32bit

- o 256MB NAND Flash, 8bit
- o 4MB NOR Flash, 16bit (driver has not been provided at present)

Signals Routed to Pins

-
  - o One 5-wire Debug serial port (RS232)
  - o One 5-wire serial port (TTL)
  - o Two USB 2.0 Host High-speed ports, 480Mbps
  - o One USB 2.0 Device High-speed port, 480Mbps
  - o Audio (IIS)
  - o 16-bit LCD output
  - o 10-bit Camera video input
  - o 1-channel S-Video output
  - o 1-channel AV output
  - o One RS485 serial port
  - o 1-channel CAN bus
  - o 10/100Mbps Ethernet port
  - o SD/MMC card
  - o Multi-functional expansion interface (McBSP, IIC, McSPI, TV-OUT)
  - o PC104 expansion interface (GPMC Bus, MMC, USB, McSPI, UART1, Clock, HDQ)
  - o JTAG interface

SOC8200 Expansion Board

Audio/Video Interfaces

-
  - o Audio input port
  - o Stereo audio output port
  - o 15-pin standard VGA output interface
  - o Buzzer

Communication Interfaces

-
  - o One 5-wire RS232 serial port (DB9)
  - o One 9-wire RS232 serial port (DB9)
  - o One 9-wire TTL serial port (2*5pin 2.5mm pitch connector)
  - o Two High-speed USB 2.0 Host ports, 480Mbps
  - o One High-speed USB 2.0 Device port, 480Mbps
  - o One 10/100Mbps Ethernet port (RJ45)
  - o 10-bit Camera interface
  - o Reset button
  - o SD/MMC card slot
  - o CF card slot

Add-on Hardware Options and Support OS

Item	Description	Interface to Board	Linux	Android	WinCE
WF8000-U	WiFi Module	USB Host	Support*	Not yet	Not yet
CDMA8000-U	3G Module (CDMA2000 standard)	USB Host	Support*	Not yet	Not yet
WCDMA8000-U	3G Module (WCDMA standard)	USB Host	Support*	Not yet	Not yet

* = Provided with Source Code

 # = Not Provided with Source Code

Software

OS	Item	Feature	Description
Linux	Bootloader	x-loader	NAND/ONENAND
			MMC/SD
			FAT
		u-boot	NAND/ONENAND
			MMC/SD
			FAT
			NET
	Kernel and Drivers	Version	Linux 2.6.32
		File system	ROM/CRAM/EXT2/EXT3/FAT/NFS/JFFS2/UBIFS
		Driver	LED, Serial, RTC, NET, RS485, CAN, Buzzer, MMC/SD, CF, USB Device, USB ehci, Video output, GPIO, LCD, Touch Screen, VGA, Analog camera, Audio out, Analog input, Nand Flash
	Compiler	gcc cross compiler tool	gcc version 4.3.3 (Sourcery G++ Lite 2009q1-203)

|			
WinCE	Boot	Version	x-load-1.41, eboot
		Boot Mode	Boot WinCE from SD card, NAND Flash or Ethernet
		Image update	Support updating image from SD card
	System	Drivers	ILT, Reboot, Watchdog, RTC, NLED, Serial, 6*6 keyboard, Audio out, NAND, LCD, Touch Screen, SD, NET, USB OTG, USB EHCI, VRFB, GPIO, PWM, ADC, Buzzer, CAN
		Function	Power Management (backlight drive, battery-driven, sleep/wake-up function)
			Hive registry support
			ROM file system support
		Software features	Support KITL kernel debug
			Support .NET Compact Framework 3.5

General Description

Embest SOC8200 is a highly-integrated single board computer with PC104 form factor. It employs TI's high-performance **AM3517** microcontroller which is based on 600Mhz ARM Cortex-A8 Core with NEON SIMD Coprocessor and POWERVR SGX™ Graphics Accelerator and offers video, image, and graphics processing capable of supporting single board computers, home and industrial automation, and digital signage.

The SOC8200 board has onboard 256MB DDR2 SDRAM, 256MB Nand Flash and 4MB Nor Flash and extends various functions through pins including serial port, Ethernet, CAN, RS485, SD/MMC card, CF card, Audio In/Out, Camera, LCD, USB Host, USB Device, expansion connector and JTAG.

Embest has designed an expansion board for the SOC8200, along with some accessories, software package and documents, it is an ideal development kit which would be convenient for customers to evaluate the functionality of Texas Instruments' Sitara AM3517 microprocessor. The SOC8200 board supports for both Linux 2.6.32 and Windows CE6.0 operation systems. Embest provides all drivers in source code and together with user manual and some other tools and documents to help customer immediately start with their code development.

The board industrial level can work stably in wide temperature range from -40°C to 85°C which enables it to fit specific industrial needs and can be used in various applications such as industrial control, consumer electronics, medical equipment, instrumentation, security monitoring and so on.

Function Block Diagram
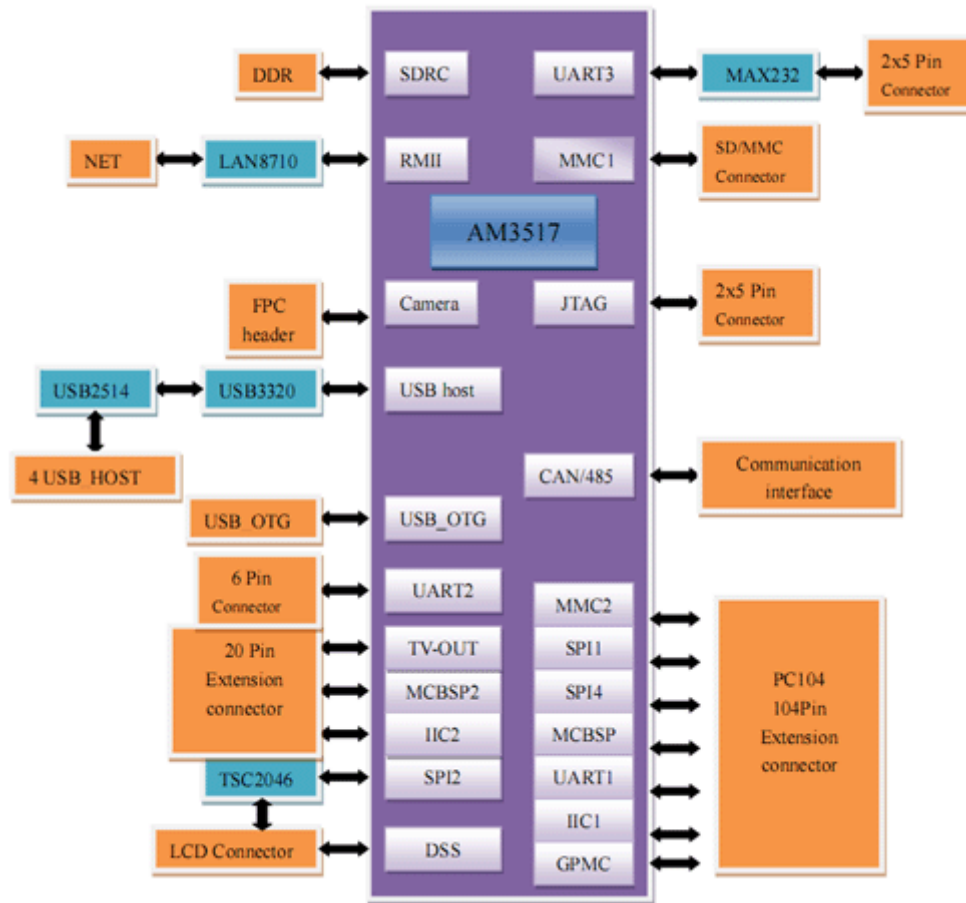
Onboard Interfaces and Connectors