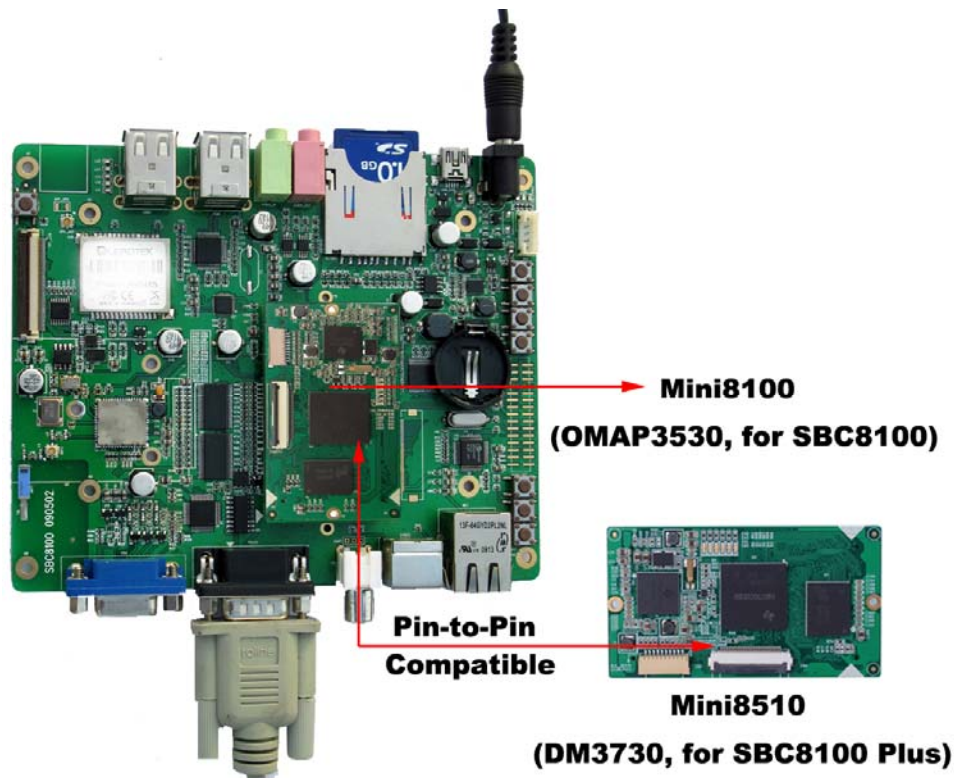


SBC8100 Single Board Computer

- ✓ *TI OMAP3530 Processor based on 600MHz ARM Cortex-A8 core (for SBC8100)*
- ✓ *TI DM3730 Processor based on 1GHz ARM Cortex-A8 core (for SBC8100 Plus)*
- ✓ *Flexible Design with a Tiny CPU Board mounted on Expansion Board*
- ✓ *Memory supporting 256MByte DDR SDRAM and 256MByte NAND Flash*
- ✓ *UART, USB, Ethernet, WiFi/Bluetooth, GPS, Camera, Audio, SD, Keyboard...*
- ✓ *Supports 24-bit TFT LCD, VGA, S-Video/TV Output Display*
- ✓ *Supports Linux2.6.29 and WinCE 6.0 OS (for SBC8100)*
- ✓ *Supports Linux2.6.32, Android2.2 and WinCE 6.0 OS (for SBC8100 Plus)*



Overview

The SBC8100 Single Board Computer is a high-performance controller board introduced by Embest after Devkit8000. It is designed based on the Mini8100 processor card which integrates an OMAP3530 microcontroller, 256MByte DDR SDRAM, 256MByte Nand Flash, RTC, LEDs and one Camera interface on board. It is connected with SBC8100 expansion board through two 1.27mm space 2*45-pin dip connectors.

In addition to those features provided by the CPU board Mini8100, the expansion board has exposed many of other features of the OMAP3530. It has integrated RS232, USB, Ethernet, WiFi/Bluetooth, GPS, Audio In/Out, Keyboard, LCD, VGA, S-Video/TV out, SD card and more other functions on board. So many hardware resources provided by the expansion board, it becomes a solid reference board for customer design.

Embest also offers a complete software development package to customers. The board supports linux 2.6.29 and WindowsCE 6.0 operating system and is provided with complete basic drivers which enable a quick channel to evaluate the TI OMAP3530 processor and customize application software. It would be an ideal development platform for multimedia and communication applications.

The SBC8100 Plus integrates Mini8510 as the CPU board which compatible with Mini8100 but

using TI's DM3730 as its CPU core board. This is convenient for customers who used SBC8100 or Mini8100 before to upgrade to SBC8100 Plus or Mini8510 so as to migrate from the OMAP3530 to DM3730 for their embedded designs. Embest provides Linux2.6.32, Android 2.2 and WinCE6.0 BSP for the SBC8100 Plus board.

Embest also offers various modules for SBC8100 and SBC8100 Plus which greatly extends the functions of the board and would be flexible for customer selection to meet their own needs.

SBC8100 OMAP3530 Single Board Computer				
Item	Description	Interface to Board	Linux	WinCE
CAM8000-A	Analog Camera Module	Camera	Support*	Not yet
WF8000-U	WiFi Module	USB Host	Support*	Not yet
CDMA8000-U	3G Module (CDMA2000 standard)	USB Host	Support*	Support*
WCDMA8000-U	3G Module (WCDMA standard)	USB Host	Support*	Support*
CAM8000-D	Digital Camera Module	Camera	Not yet	Support#
CAM8100-U	Digital Camera Module	USB Host	Support*	Support*

SBC8100 Plus DM3730 Single Board Computer					
Item	Description	Interface to Board	Linux	Android 2.2	WinCE
CAM8000-A	Analog Camera Module	Camera	Support*	Not yet	Support*
WF8000-U	WiFi Module	USB Host	Support*	Support#	Support#
CDMA8000-U	3G Module (CDMA2000 standard)	USB Host	Support*	Support*	Support#
WCDMA8000-U	3G Module (WCDMA standard)	USB Host	Support*	Support*	Support#
CAM8000-D	Digital Camera Module	Camera	Support#	Support#	Support*
CAM8100-U	Digital Camera Module	USB Host	Support*	Support*	Support#

* = Provided with Source Code

= Not Provided with Source Code

Hardware Features

The OMAP3530 processor is based on the market's first broad offering of the ARM® Cortex™-A8 core to provide an unprecedented combination of laptop-like performance at handheld power levels in a single chip. With more than four times the processing power of today's 300MHz ARM9 devices, the superscalar 600 MHz Cortex-A8 core is integrated into four new OMAP35x applications processors. The processor offer a variety of combinations of the Cortex-A8 core, multimedia- rich peripherals, OpenGL® ES 2.0 compatible graphics engine, video accelerators and TMS320C64x+ DSP core.

The Texas Instruments' DM3730 DaVinci™ digital media processor is powered by up to 1-GHz (also supports 300, 600, and 800-MHz operation) ARM Cortex-A8 and 800-MHz (also supports 250, 520 and 660-MHz operation) C64x+ DSP core, and has integrated 3D graphics processor, imaging and video accelerator (IVA), USB 2.0, MMC/SD memory card, UART and many more.

DaVinci DM3730 video processor is pin-to-pin compatible with Sitara AM37x devices and software compatible with the OMAP35x processors. The C64x+ DSP and hardware video accelerator enable audio and HD 720p video decoding and encoding independent of the ARM processor. The programmable DSP engine allows multiple signal processing tasks such as image processing and analysis, digital filtering, and math functions. DaVinci DM3730 video processor is suitable for 720p HD (High Definition) video applications which require large amount of data processing.

The SBC8100 Single Board Computer is based on OMAP3530 processor and designed with a tiny processor card Mini8100 mounted directly onto an expansion board. The SBC8100 Plus Single Board Computer is based on DM3730 processor and designed with a tiny processor card Mini8510 mounted directly onto the same expansion board of the SBC8100. The two boards are characterized as follows:

CPU Board Mini8100/Mini8510



Mini8100 Processor Card (OMAP3530)



Mini8510 Processor Card (DM3730)

Mechanical Parameters

- Dimensions: 67 mm x 37 mm
- Input Voltage: +3.3V
- Power Consumption: 0.17A @ 3.3V
- Temperature Range: 0 °C ~ 70 °C
- Temperature Range: 20% ~ 90%

Processor

- TI OMAP3530 microprocessor for SBC8100, 600MHz ARM Cortex-A8 Core, 412MHz TMS320C64x+ DSP Core (compatible with TI OMAP35x series processors)
- TI DM3730 DaVinci Digital Media Processor for SBC8100 Plus, 1GHz ARM Cortex-A8 Core, 800-MHz TMS320C64x+™ DSP Core (pin-to-pin compatible with TI AM3715)

Memory

- 256MByte DDR SDRAM, 166MHz
- 256MByte NAND Flash, 16bit

Input Interface

- 1 Camera interface (30-pin FPC connector on CPU board, support CCD or CMOS camera)

Others

- RTC (Real-time clock)
- Six programmable status LEDs
- Two 1.27mm space 2*45-pin dip connectors for connecting with expansion board

Expansion Board of SBC8100/SBC8100 Plus

Mechanical Parameters

- Dimensions: 144.9 mm x 114.1 mm
- Input Voltage: +5V
- Power Consumption: 0.34A @ 5V
- Temperature Range: 0 °C ~ 70 °C
- Humidity Range: 20% ~ 90%

Audio/Video Interfaces

- A 4 line S-VIDEO interface / A TV out interface
(can only select one to use at present)
- A audio input interface
- A two-channel audio output interface
- A TFT LCD interface, resolution supporting up to 2048*2048
- 4 line Touch Screen
- A standard VGA interface

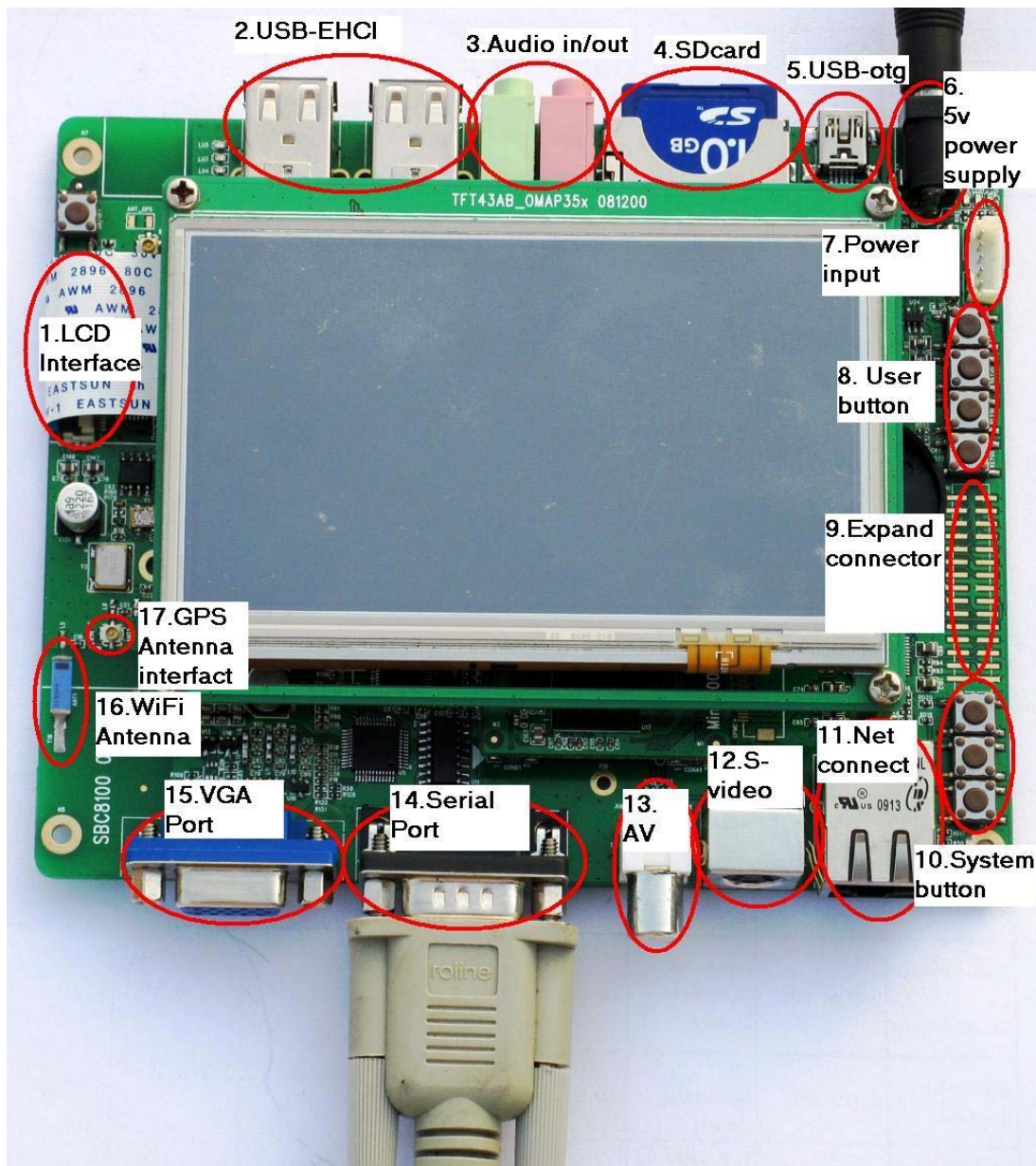
Data Transfer Interface

- Serial port:
 - 1 x 3 line Debug serial port, RS232 voltage
 - 1 x WiFi/Bluetooth Module (WG7210, Bluetooth can only used for data transmitting at present)
 - 1 x GPS Module
- USB port:
 - 1 x USB2.0 OTG, High-speed, 480Mbps (Can only be used as USB Device at present.)
 - 4 x USB2.0 Host, High-speed, 480Mbps
- SD card slot:
 - 1 channel SD card slot, support 3.3V and 1.8V logic voltage
- Ethernet: 10/100Mbps, RJ45 connector
- 1 channel McSPI Interface (Multichannel Serial Port Interface)
- 1 channel I2C interface
- 1 channel HDQ interface (HDQ/1-Wire)
- 2 channel ADC input
- 1 channel PWM output

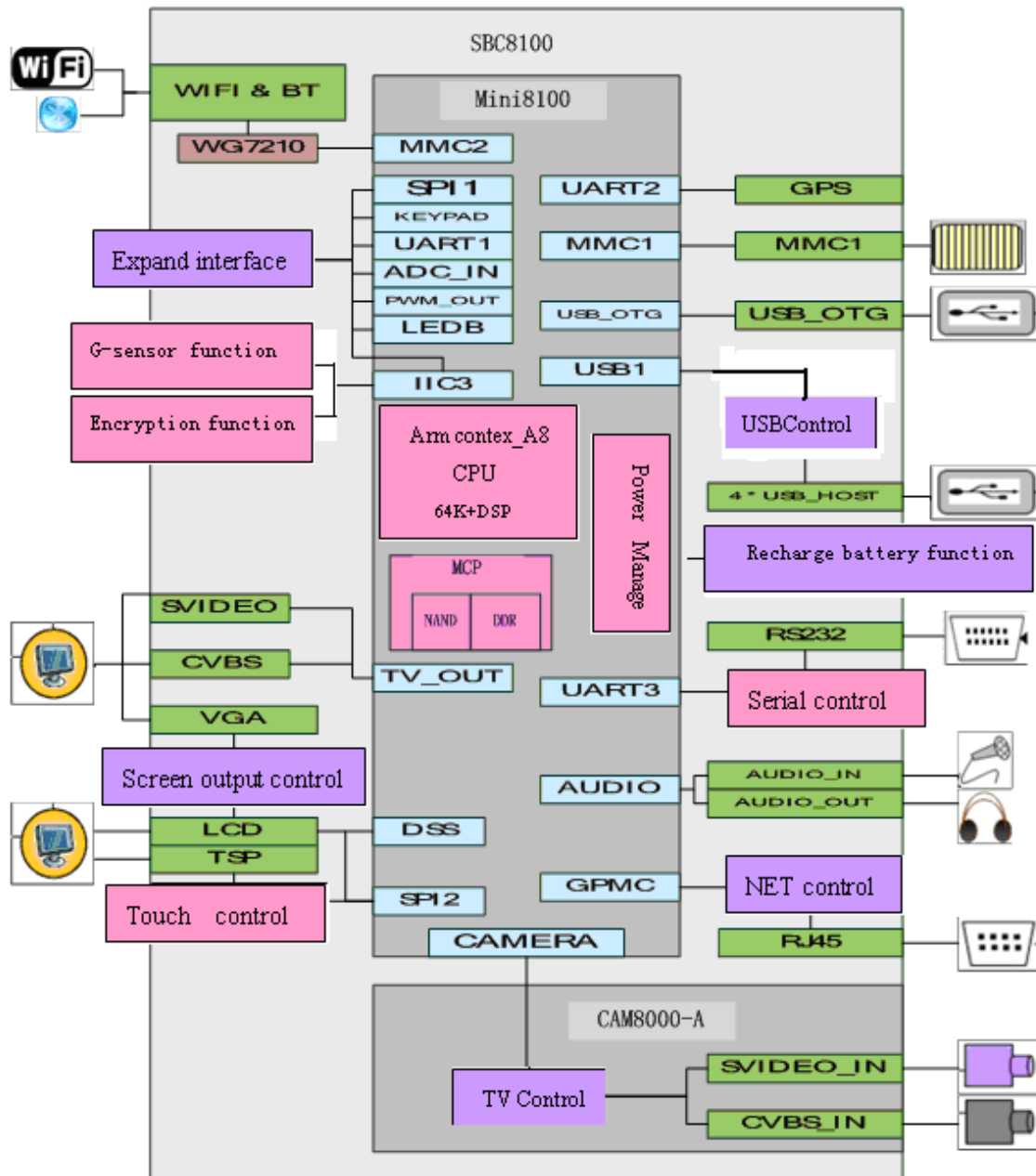
Input Interface

- 4*5 keyboard interface
- One BOOT button
- One RESET button
- One USER button
- One ON/OFF button

Interface Introduction



Function Block Diagram



Software

The SBC8100 Single Board Computer is provided with Window CE 6.0.net BSP and Linux 2.6.29 BSP and the SBC8100 Plus is provided with Windows CE 6.0.net BSP and Linux 2.6.32 and Android 2.2 BSP with steady-going drivers, many of which are all in source code. Please refer to below table.

Note: WiFi/Bluetooth function is not working on SBC8100 Plus yet.

OS	Item	Feature	Description
Linux	Boot	Version	X-loader-1.41 U-boot 1.3.3
		Boot Mode	Boot Linux from SD card, NAND Flash or Ethernet
		Image update	Support updating image from SD card or Ethernet
		Logo update	Support updating logo
	Kernel and drivers	Version	Linux 2.6.29 (for SBC8100) Linux 2.6.32 (for SBC8100 Plus)
		File System Format	ROM/CRAM/EXT2/EXT3/FAT/NFS/ JFFS2/UBIFS
		Driver	Serial, RTC, Net, Flash, LCD, Touch screen, S-Video, TV out, VGA, Audio In/Out, SD, USB Host, USB OTG, Keypad, WiFi, GPS, LED
	File System	File System Format	Ramdisk File System, UBI File System
		function	Provided Lib (ALSA -lib, tslib, glibc), udev support
	Demo	Android	Google developed a platform based on Linux open-source mobile phone operating system
DVSDK		Support MPEG4, MPEG2, H264, mp3, aac audio/video formats and Codecs	
Android	Kernel	Android 2.2	Only provided for SBC8100 Plus
	Drivers		Serial, RTC, Net, Flash, LCD, Touch screen, Audio In/Out, SD, USB Host, USB OTG, Keypad, GPS, LED
			2D/3D (do not provide source code)
WinCE	Boot	Version	x-load-1.41, eboot
		Boot Mode	Boot WINCE from SD card or NAND Flash
		Image update	Support updating image from SD card or Ethernet
	System	Characteristics	KITL kernel debug, Reboot, Watchdog, RTC
		Driver	display driver (DVI, TFT LCD)
			Serial, RTC, Net, Flash, LCD, Touch screen, S-Video, TV out, VGA, Audio In/Out, SD, USB OTG, USB Host, Keypad, WiFi/BT, GPS, LED, VRFB, DSPLINKK/CMEMK, PWM, ADC, GPIO/I2C/SPI/MCBSP
		System function	Power Management (backlight drive, battery-driven, sleep/ wake-up function)
			Hive registry support
			ROM file system support
		Software features	
	.NET Compact Framework 3.5		

Order Information

Order No.	T6010092
Item	SBC8100 / SBC8100 Plus Single Board Computer
Hardware	<ul style="list-style-type: none"> ✓ One SBC8100 or SBC8100 Plus Single Board Computer ✓ One 2GB SD card ✓ One Serial cable ✓ One net cable ✓ One USB cable (Type A Male to Type Mini-B Male) ✓ One S-Video cable ✓ One 5V@2A Power adapter
Software and Documents	<ul style="list-style-type: none"> ✓ Documents (user manual, Datasheet, Schematic drawing of SBC8100 expansion board) ✓ WinCE.net 6.0 BSP ✓ Linux 2.6.29 BSP (for SBC8100) ✓ Linux 2.6.32 BSP (for SBC8100 Plus0) ✓ Android 2.2 BSP (for SBC8100 Plus only)
Options	<ul style="list-style-type: none"> ✓ 4.3 inch or 7 inch TFT LCD (With Touch panel) ✓ CAM8000-A Analog Camera Module(Only support linux, provided with Linux driver source code, supporting analog camera with BNC connector and PAL or NTSC video output) ✓ Analog Camera (work with CAM8000-A) ✓ WF8000-U USB WiFi module ✓ CAM8100-U USB Digital Camera Module ✓ CAM8000-D Digital Camera Module ✓ CDMA8000-U USB 3G function module (CDMA2000 standard) ✓ WCDMA8000-U USB 3G function module (WCDMA standard) ✓ XDS100v2 USB JTAG Emulator ✓ DVD (Code Composer Studio V4 Installation Software)
Price	Please contact us.


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