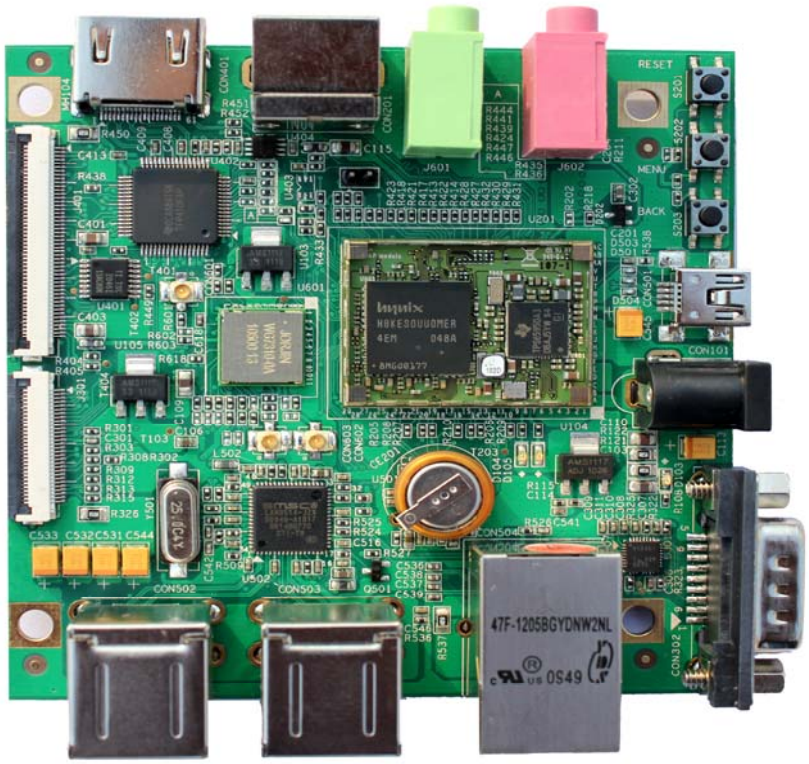
SBC8530 Single Board Computer

- ***TI DM3730 Processor based on 1GHz ARM Cortex-A8 core***
- ***512MByte DDR SDRAM and 512MByte NAND Flash***
- ***UART, 4 USB Host, USB OTG, Ethernet, WiFi/BT, Audio, TF, ...***
- ***Supports 24-bit TFT LCD, DVI-D and S-Video Output Display***
- ***Supports VGA, Camera, GPS, GPRS, WiFi and 3G Functions through Modules***
- ***Supports for Linux2.6.32, Android 2.2 and WinCE 6.0***



Overview

Measuring only 86mm by 86mm, Embest SBC8530 Single Board Computer provides a high-performance and highly-integrated single-board solution to support using in various applications such as navigation systems, media player, medical patient monitoring devices, industrial test and measurement devices, industrial vision and portable communication.

The SBC8530 Single Board Computer is with small form factor and uses POP (Package on Package) CPU/Memory chip to interface the 1GHz DM3730 processor to 512MBytes of Nand flash and 512MBytes of DDR SDRAM. The board has exposed many interfaces including serial port, USB, Ethernet, Camera, Audio, LCD, Touch screen, DVD-D, S-Video and etc. It also features a WiFi and Bluetooth module WG7310 on board to enhance the wireless network functions. On the rear of the board there is a TF card slot to extend the storage capabilities as well as an expansion interface to allow user's development extension.

The board is able to support for Linux 2.6.32 and WinCE 6.0 operating systems. It is provided with complete software BSP, the drivers of which are many in source code. The board has two methods to boot the system and you can boot the board from either TF card or NAND Flash. Besides, it is provided with Android 2.2 demo with driver source code. Embest gives instructions on how to boot Android demo image from NAND flash with TF card.

If user purchases the complete configuration of the SBC8530 Single Board Computer, the deliveries will include the SBC8530 board and all necessary accessories and user manual, schematic drawing, datasheet documents, software BSP in one DVD. This enables users to quickly start their own development based on this platform. The board is preloaded with Linux OS in NAND flash and WinCE OS in TF card. User can display the system by using a 4.3" or 7"TFT LCD and Touch screen or using a DVI-D monitor with an HDMI to DVI-D cable, or using a TV for NTSC or PAL video display.

Cross Net cable

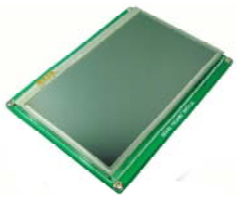
USB cable
A to Mini-A, A to Mini-B

DB 9-DB9
Serial cable

S-video cable

HDMI to DVI-D cable

SBC8530 board



4.3" or 7"LCD+Touch Screen

DVD

5V@2A Power adapter

WiFi antenna

2G TF card

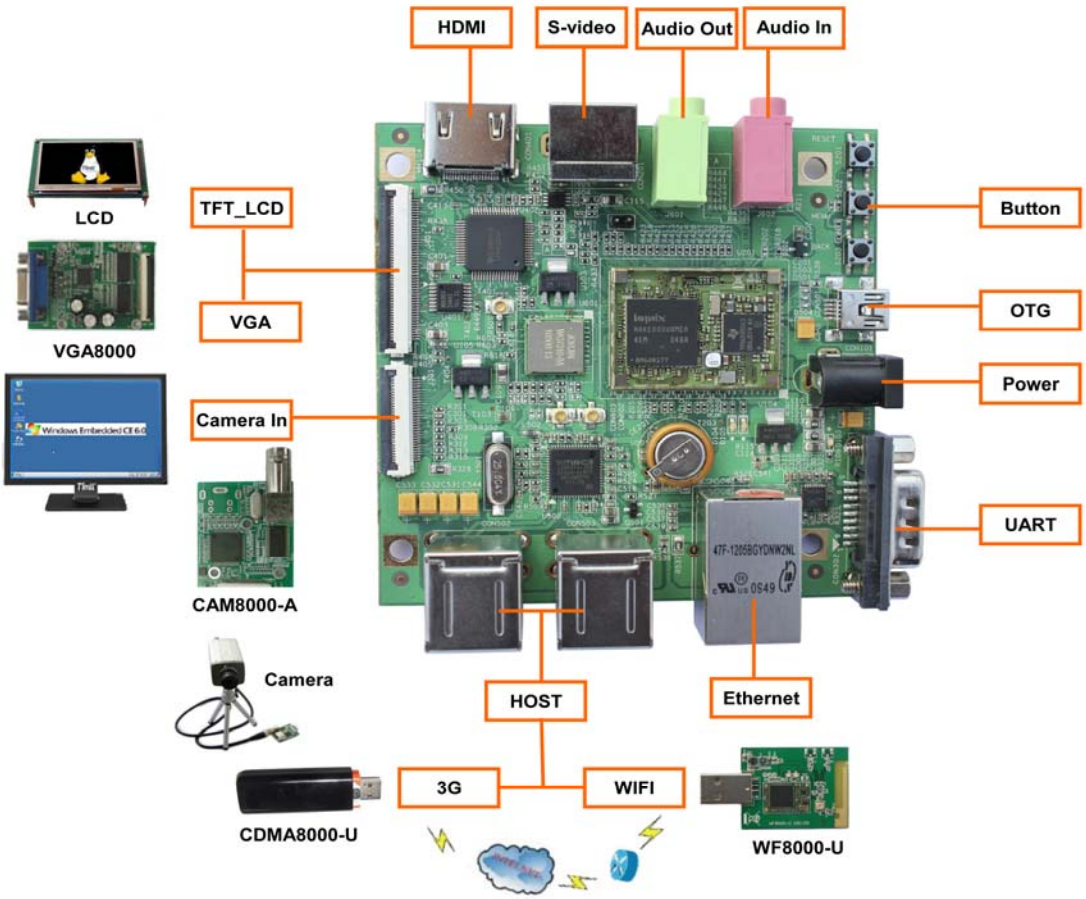
SBC8530 Single Board Computer (Complete Configuration)

Optional Function Modules

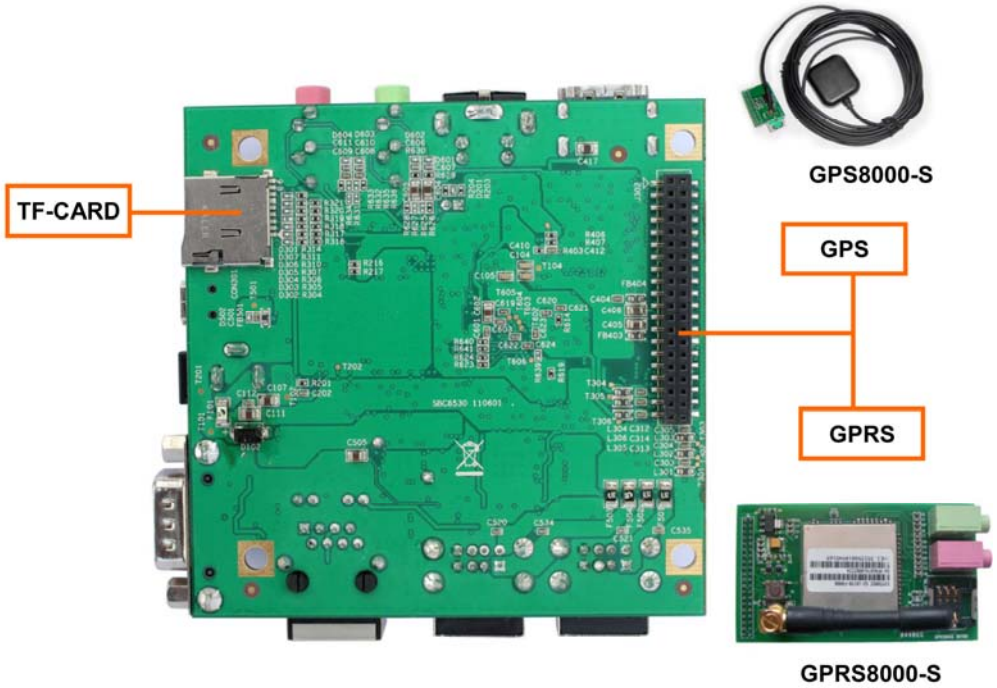
Additionally, Embest offers various functions modules for SBC8530 including VGA, WiFi, Analog Camera, GPS, GPRS, 3G and Digital Camera modules which greatly extends the functions of the board and would be flexible for customer selection to meet their own needs.

Module	Description	Interface to Board	Linux	Android	WinCE
VGA8000	VGA Module	LCD	Support*	Not yet	Support*
CAM8000-A	Analog Camera Module	Camera	Support*	Not yet	Not yet
CAM8100-U	Digital Camera Module	USB Host	Support*	Support*	Support#
CAM8000-D	Digital Camera Module	Camera	Support*	Support#	Support*
WF8000-U	WiFi Module	USB Host	Support*	Not yet	Support#
CDMA8000-U	3G Module (CDMA2000 standard)	USB Host	Support*	Support*	Support#
WCDMA8000-U	3G Module (WCDMA standard)	USB Host	Support*	Support*	Support#
GPS8000-S	GPS Module	UART	Support*	Not yet	Support*
GPRS8000-S	GPRS Module	UART	Support*	Support*	Support*

= Provided with Source Code
 # = Not Provided with Source Code



SBC8530 Single Board Computer with Function Modules (Top View)



SBC8530 Single Board Computer with Function Modules (Bottom View)

Hardware Features

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 SBC8530 Single Board is based on DM3730 processor and takes full features of the processor. This board is characterized as follows:

Package on Package POP CPU/Memory chip

- TI DM3730 DaVinci Digital Media Processor

  - Up to 1-GHz ARM® Cortex™-A8 Core, also supports 300, 600, and 800-MHz operation
  - Up to 800-MHz TMS320C64x+™ DSP Core, also supports 260, 520 and 660-MHz operation (DM3730 only)
  - NEON™ SIMD Coprocessor
  - POWERVR SGX™ Graphics Accelerator
  - ARM: 32KB I-Cache; 32KB D-Cache; 256KB L2 Cache
  - Onchip 32KB ROM and 64KB Shared SDRAM
- 512MByte DDR SDRAM, 32bit, 200MHz
- 512MByte NAND Flash, 16bit

Audio/Video

- S-VIDEO display interface
- DVI high-resolution image output port (HDMI interface, support 720p, 30fps signal)
- Audio input interface
- Two-channel audio output interface
- TFT LCD interface, 24-bit true color, resolution supporting up to 2048*2048
- 4-line Touch Screen interface
- Camera interface (30-pin FPC connector, supports CCD or CMOS camera)

Data Transfer Interface

- 1 x 5 line Debug serial port, RS232 (DB9 connector)
- USB port:
  1 x USB2.0 OTG, High-speed, 480Mbps (can only be configured as USB Device)
  4 x USB2.0 Host, High-speed, 480Mbps
- TF card slot (on the rear of the board)
- Ethernet: 10/100Mbps, RJ45 connector
- WiFi/Bluetooth Module (WG7310)

Input Interface and Other Facilities

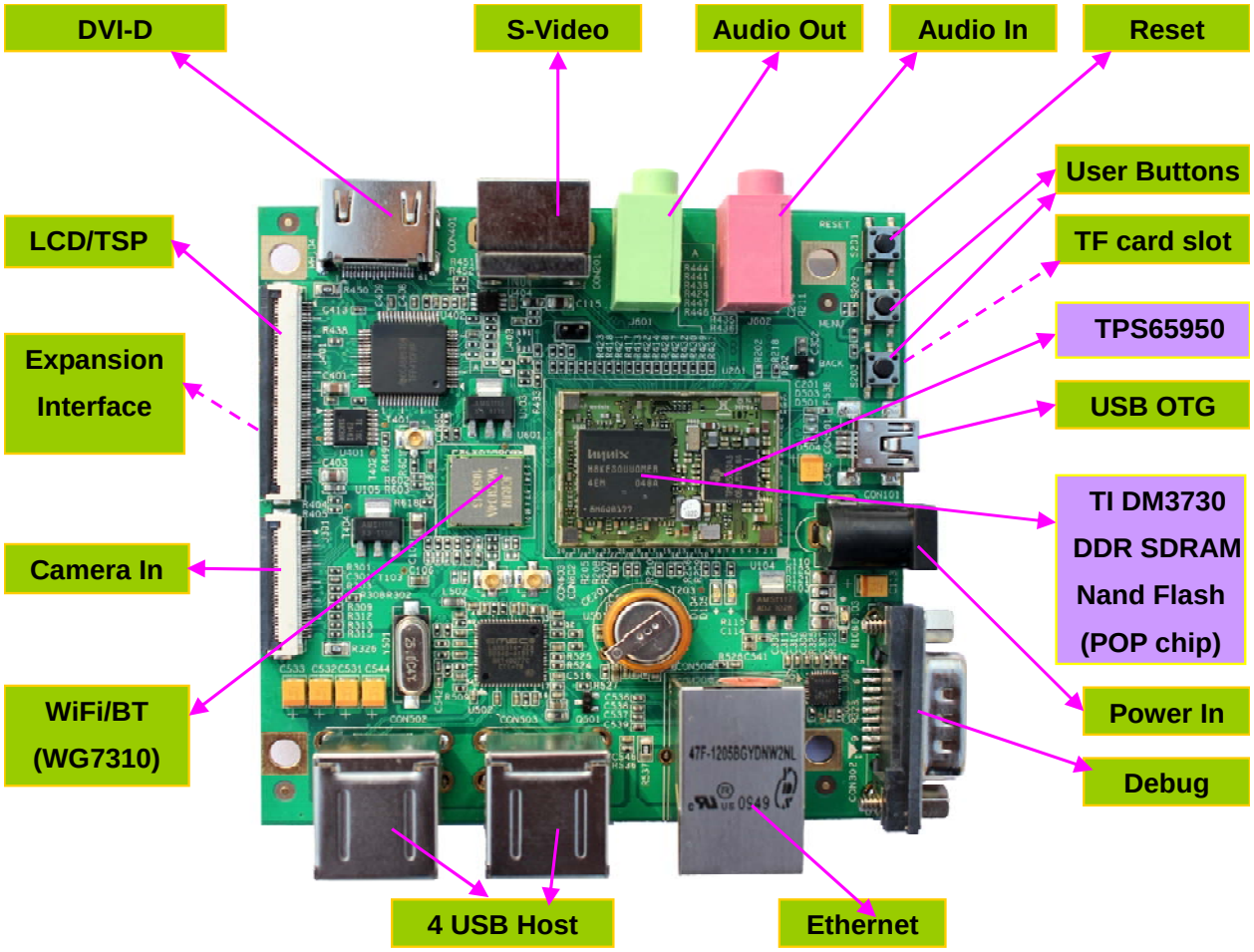
- One RESET button
- Two USER buttons (Defined as MENU and BACK in Android system)
- One expansion connector (2.0mm 40-pin SMT Female Pin Header, on the rear of the

board)
- 1 x 5 line serial port, TTL voltage
- 1 x 3 line serial port, TTL voltage
- 1 channel McSPI Interface (Multichannel Serial Port Interface)
- 1 channel McBSP interface (Multi-Channel Buffered Serial Port)
- 1 channel I2C interface
- 1 channel HDQ interface (HDQ/1-Wire)

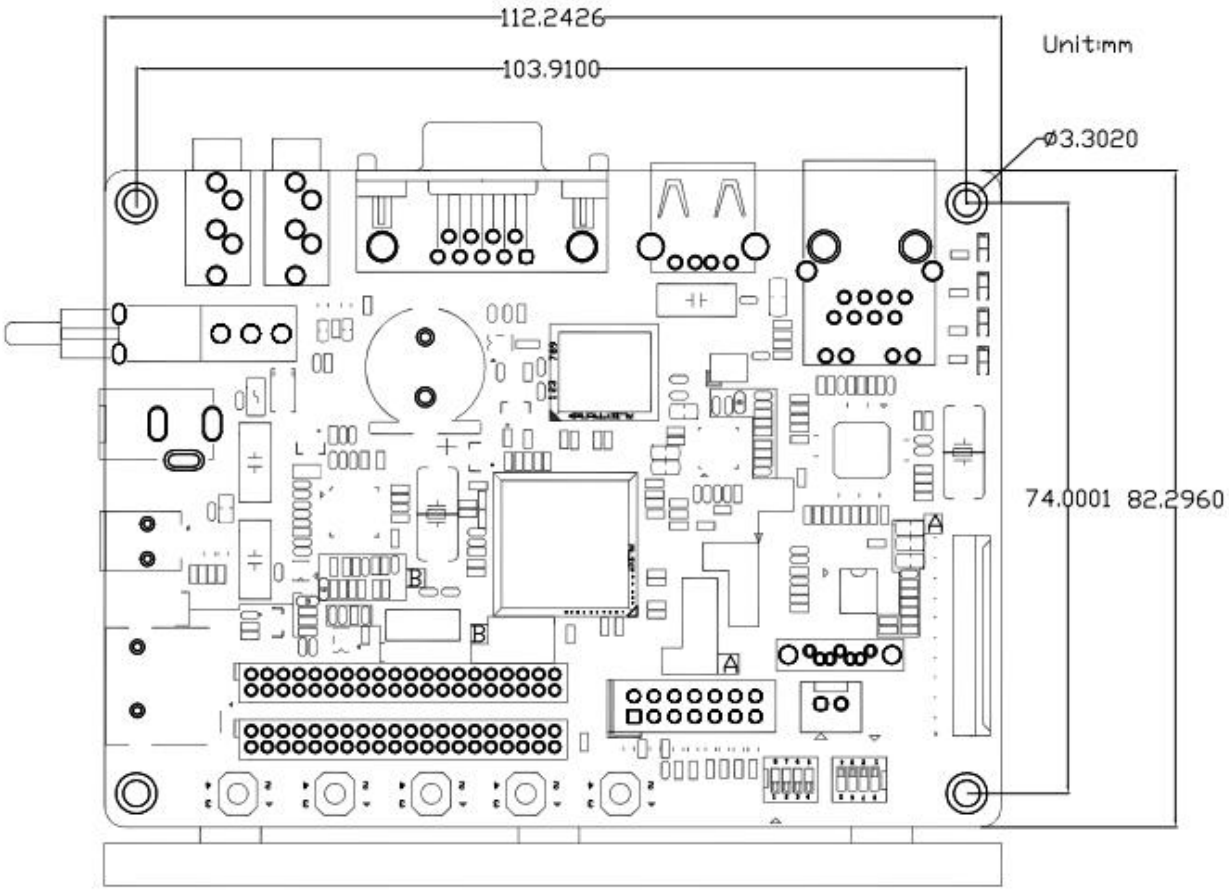
Mechanical Parameters

- Dimensions: 86 mm x 86 mm
- Input Voltage: +5V
- Working Temp.: 0 ℃ ~ 70 ℃
- Humidity Range: 20% ~ 90%

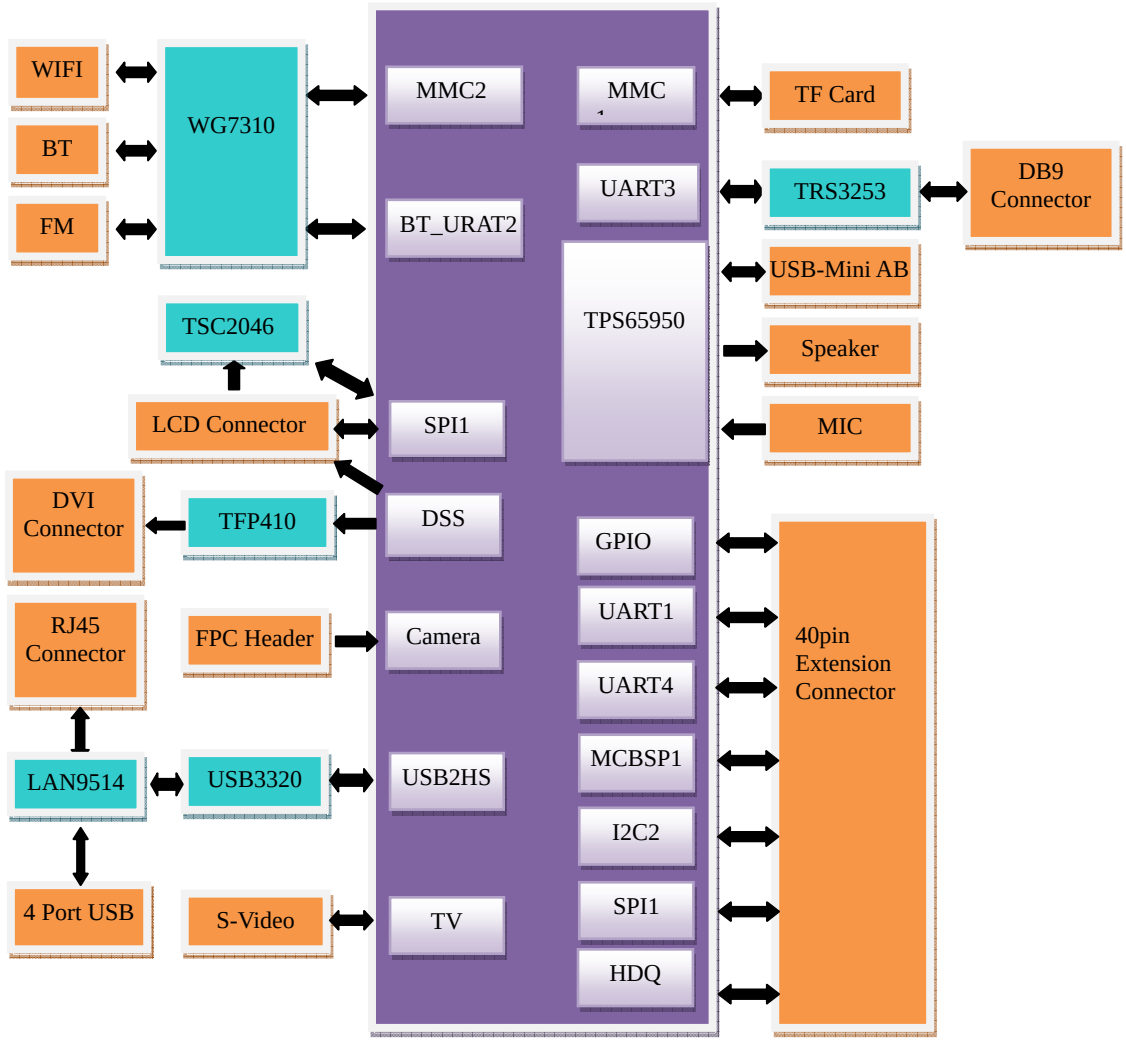
Interface Introduction



Dimensions (Unit: mm)



Function Block Diagram



Software

The SBC8530 Single Board Computer provides Window CE 6.0 BSP, Linux 2.6.32 BSP and Android 2.2 BSP, with steady-going drivers, many of which are all in source code. Please refer to below table.

OS	Item		Remark
Linux	BIOS	x-loader	NAND / ONENAND
			TF
			FAT
		u-boot	NAND / ONENAND
			TF
			FAT
			NET
	Kernel	Linux-2.6.32	Supports ROM/CRAM/EXT2/EXT3/FAT/NFS/ JFFS2/UBIFS file systems
	Device Driver	Debug Serial port, RTC, Ethernet, Nand Flash, LCD, Touch screen, DVI-D, S-Video, TF card, USB OTG, USB ehci, Audio input/output, keys, LED, WiFi/BT (provided with source code)	
		Power Management (backlight)	
	Testing Demo	Keys, LED, Camera	
Android	Kernel	Android 2.2	
	Device Driver	Debug Serial port, RTC, Ethernet, Nand Flash, LCD, Touch screen, TF card, USB OTG, USB ehci, Audio input/output, keys, LED (provided with source code)	
		WiFi, Bluetooth, 2D/3D (not provided with source code)	
		Power Management (backlight)	
	Apps	Application module	MP3/MPEG4/H264 DSP hardware decoder
WinCE	BIOS	x-loader	NAND
			ONENAND
			TF
		e-boot	NAND
			ONENAND
			TF
	Device Driver	Debug Serial port, Ethernet, Nand Flash, LCD, Touch screen, DVI-D, S-Video, TF card, USB OTG, USB ehci, Audio input/output, keys, LED, 2D/3D (provide source code)	
		RTC, WiFi, Bluetooth (not provided with source code)	
		Power Management (backlight, battery, Sleep/Wakeup)	
	Apps	Application module	Flash Player plug-in and Flash player
			MP3/MPEG4/H264 DSP hardware decoder
	Testing Demo	GPIO	

Order Information

Order No.	T400295	
Item	SBC8530 Single Board Computer	
Deliveries	• One SBC8530 board • One Product DVD (including user manual, schematic in PDF format, datasheet, Linux 2.6.32 BSP, Android 2.2 BSP and WinCE 6.0 BSP)	
Order No.	T6010165	
Item	SBC8530 Standard Configuration	
Deliveries	• One SBC8530 board • One 2GB TF card • One Serial cable (DB9-DB9) • One 5V@2A Power adapter • One USB cable (Type A Male to Type Mini-B Male) • One USB cable (Type A Female to Type Mini-A Male) • One Cross Ethernet cable • One HDMI to DVI-D cable • One S-Video cable • One WiFi antenna • One Product DVD (including user manual, schematic in PDF format, datasheet, Linux 2.6.32 BSP, Android 2.2 BSP and WinCE 6.0 BSP)	
Order No.	T6010166 (with 4.3” LCD)	T6010167 (with 7” LCD)
Item	SBC8530 Complete Configuration	
Deliveries	• One SBC8530 Standard Configuration • One 4.3" LCD or 7" LCD (With touch screen) Remark: 4.3”LCD (resolution: 480*272), 7"LCD (resolution: 800*480)	
Options	• VGA8000 VGA Module • CAM8000-A Analog Camera Module • CAM8100-U USB Digital Camera Module • CAM8000-D Digital Camera Module • WF8000-U USB WiFi Module • GPS8000-S Module • GPRS8000-S Module • CDMA8000-U USB 3G Module (CDMA2000 Standard) • WCDMA8000-U USB 3G Module (WCDMA Standard)	
Price	Please contact us.	

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