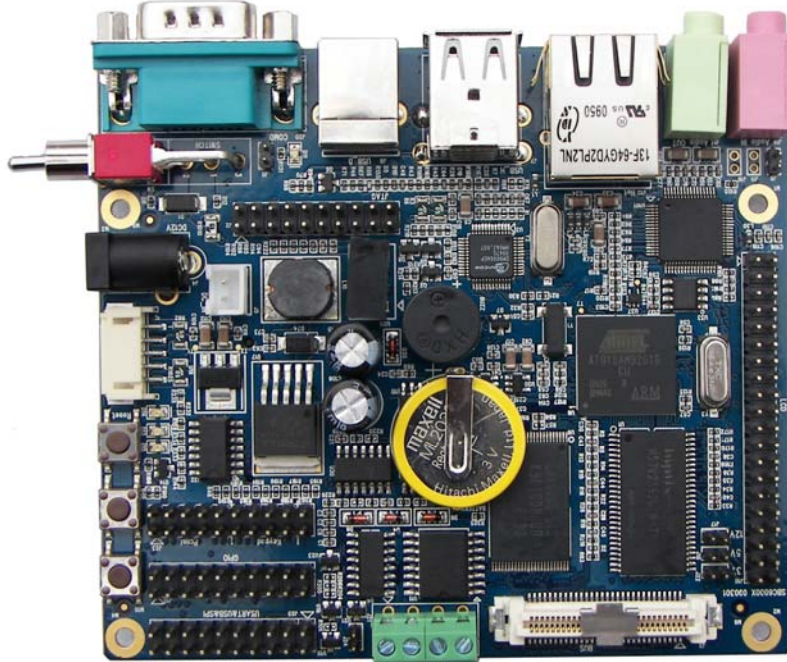# SBC6000X Single Board Computer

- ARM926EJ-S Single-board Computer based upon Atmel AT91SAM9261S
- USB Host/Device, Ethernet, Serial Ports, LCD, SD, Audio, Keyboard…
- Extended Precise RTC, RS485 with Isolation
- Supports Linux 2.6 OS and WinCE6.0 OS

Embest SBC6000X Single Board Computer

Description

Embest SBC6000X is an embedded single board computer using Atmel's AT91SAM9261S microprocessor with low power and high reliability. The board is a compact board with various peripheral interfaces including USB Host/Device, Ethernet, LCD/Touch Screen, Serial ports, Keyboard, Audio, SPI, SD and BUS. It's peripheral interfaces features ESD protection. The board is capable of supporting both Windows CE 6.0 and Linux 2.6.24 OS and Embest provides BSP package, user manual and some other tools and documents to help customer better understand this board. User can use Microsoft EVC or provided linux tool chain for development to speed your time to market.

The SBC6000X has various industrial Bus interfaces which can work stably in -10℃~70℃ temperature or in any rigorous environment, specially some fields needs high requirements for communication, such as industrial field control, intelligent instrument, industrial control terminal and car electronics.
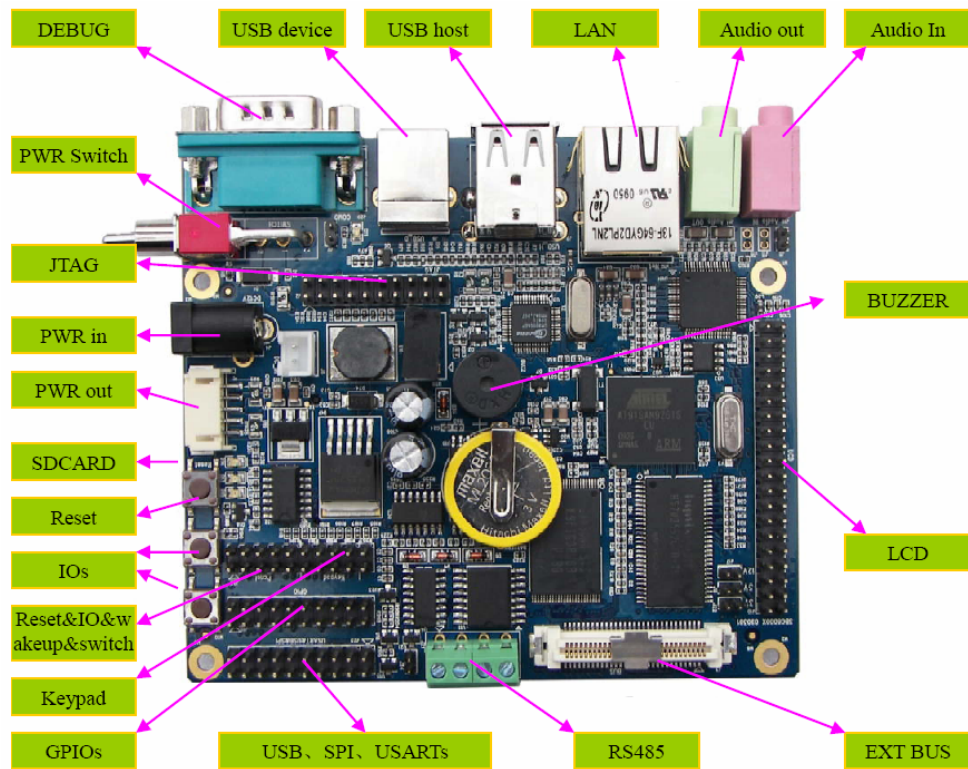.

Hardware Features

The Atmel AT91SAM9261S processor is an ARM926EJ-S based high-performance 32-bit RISC Microcontroller with 16K byte instruction and 16K byte data cache memories; it is pin-to-pin compatible with the AT91SAM9261. It has additional 32K Bytes ROM, 16K Bytes SRAM embedded memories and can operate at 210 MIPS with a 190 MHz clock. Its extensive peripheral set includes USB 2.0, External Bus Interface, LCD Controller, Bus Matrix, System Controller, Reset Controller, Shutdown Controller, Clock Generator, Power Management Controller, Advanced Interrupt Controller, Debug Unit, Periodic Interval Timer, Watchdog Timer, Real-Time Timer, Three 32-bit PIO Controllers, Nineteen Peripheral DMA Channels (PDC), Multimedia Card Interface (MCI), Three Synchronous Serial Controllers (SSC), Three Universal Synchronous/Asynchronous Receiver Transmitters (USART), Two Master/Slave Serial Peripheral Interface (SPI), One Three-channel 16-bit Timer/Counters (TC), Two-wire Interface (TWI), IEEE 1149.1 JTAG Boundary Scan.
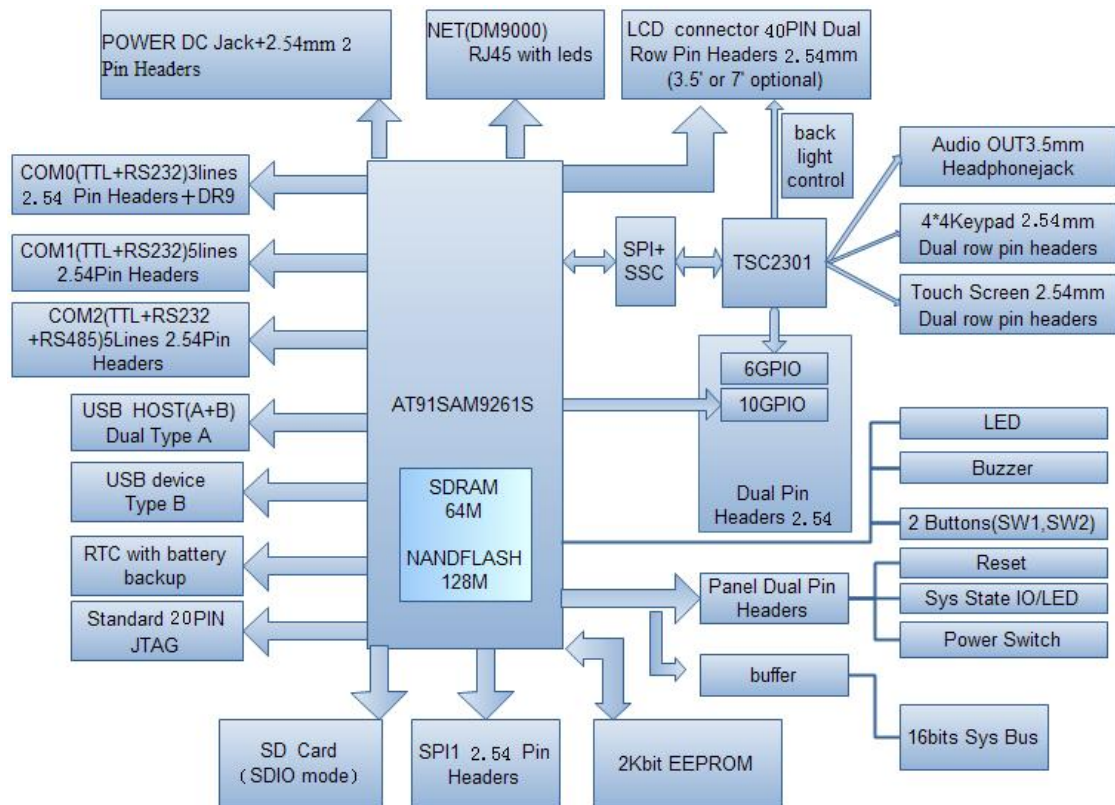
The SBC6000X board is integrated with AT91SAM9261S microcontroller, Nand Flash, EEPROM and SDRAM and various other peripheral interfaces. This board is characterized as follows:

- Dimensions: 106.4mm x 96mm
- Working temperature: -10~70 Celsius
- Power supply: +12V
- Power output interface: +5V and Vin ($\pm5\%$)
- Atmel AT91SAM9261S (ARM926EJ-S core with MMU capable of 200MHz operation)
- 64Mbyte SDRAM (2*16-bit, support up to 128Mbyte)
- 128Mbyte Nand Flash (support up to 256Mbyte)
- 2Kbit EEPROM
- 4/8Mbyte DataFlash (bootable, Reserved for soldering)
- 1 2*20-pin LCD interface
- Touch panel (4-channel 12-bit ADC)
- 1 SPI interface
- 1 10M/100M Ethernet interface (RJ45)
- 3 serial ports (COM0: 3-wire Debug serial port, COM1: 5-wire RS232/TTL serial port, COM2: 5-wire RS232/TTL/RS485 serial port)
- 2 USB host and 1 USB device
- 4 x 4 keyboard interface
- Audio Input/Output Jacks
- RTC (battery backed)
- SD card socket
- LED (CPU working station indicator)
- 3 Buttons (two for user defined, one for Reset)
- 1 Power switch
- 16 GPIOs (10 from CPU, 6 from extension)
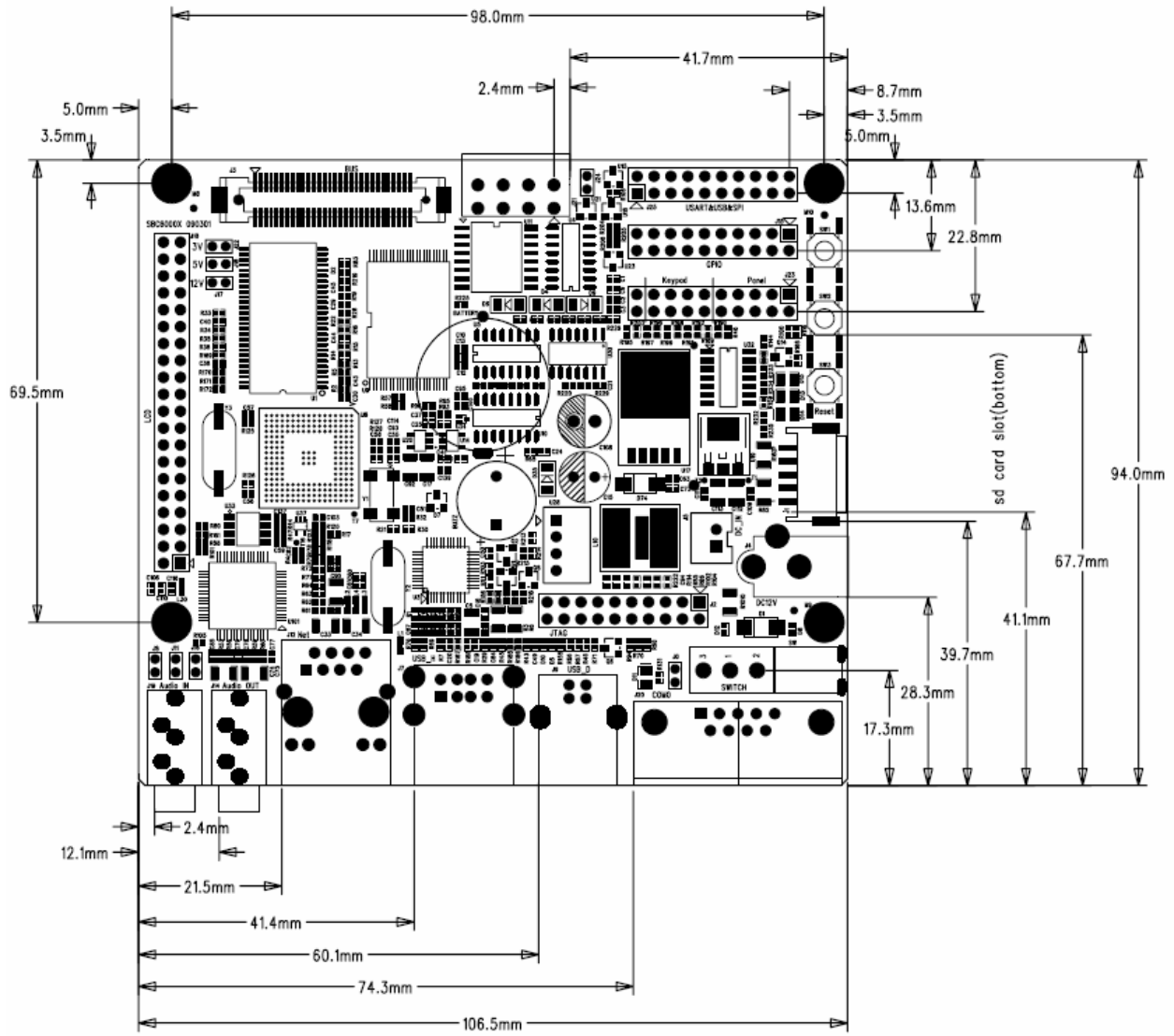- BUS interface (with buffer)

Onboard Interfaces and Connectors

DEBUG | USB device | USB host | LAN | Audio out | Audio In

PWR Switch

JTAG

PWR in

PWR out

SDCARD

Reset

IOs

Reset&IO&wakeup&switch

Keypad

GPIOs | USB、SPI、USARTs | RS485 | EXT BUS

BUZZER

LCD

Function Diagram

POWER DC Jack+2.54mm 2 Pin Headers

NET(DM9000) RJ45 with leds

LCD connector 40PIN Dual Row Pin Headers 2.54mm (3.5' or 7' optional)

back light control

Audio OUT3.5mm Headphonejack

COM0(TTL+RS232)3lines 2.54 Pin Headers+DR9

COM1(TTL+RS232)5lines 2.54Pin Headers

COM2(TTL+RS232 +RS485)5Lines 2.54Pin Headers

SPI+ SSC

TSC2301

4*4Keypad 2.54mm Dual row pin headers

Touch Screen 2.54mm Dual row pin headers

AT91SAM9261S

6GPIO

10GPIO

LED

Buzzer

USB HOST(A+B) Dual Type A

USB device Type B

SDRAM 64M

NANDFLASH 128M

Dual Pin Headers 2.54

2 Buttons(SW1,SW2)

Reset

Sys State IO/LED

Power Switch

RTC with battery backup

Standard 20PIN JTAG

Panel Dual Pin Headers

buffer

16bits Sys Bus

SD Card (SDIO mode)

SPI1 2.54 Pin Headers

2Kbit EEPROM

Dimension

Software

OS	Item	Features	Description
Linux	Startup code	Version	u-boot 1.3.4
		Boot up mode	Support booting from NandFlash or SD card
		Download mode	Support downloading kernel and file system from Ethernet
		Updating kernel	Support programming kernel image into NandFlash
		Updating file system	Support programming Yaffs2 file system into NandFlash
	Kernel and Drivers	Version	Linux 2.6.24
		File system	ROM/CRAM/EXT2/RAMDISK/YAFFS2/FAT32
		Serial	Three serial ports drivers, two 5-wire serial ports have hardware stream control
		RTC	Hardware clock driver, save and restore system clock
		Ethernet	10/100M Ethernet (DM9000) driver
		LCD	LCDs driver
		Touch screen	Touch screen driver
		Audio	Audio output driver
		MMC/SD	MMC mode driver
		USB host	USB host driver, can support USB device hot plug
		USB device	USB device driver
		Keypad	4*4 keyboard driver
		EEPROM	Provide EEPROM read and write driver
		GPIO	Provide driver
		Buzzer	Provide driver
	File system	Format	yaffs2 file system, can be read and written
	Network protocol and applications	TCP/IP	Complete TCP/IP protocol
	System configuration and service	Network Ping	Ping command, used in checking system
		Ifconfig, route, inetd	Used in network configuration and relative service program
		Login, sh, echo, discard	Login and other program
		Webserver	Use apache-1.3.41
	Basic command	Cat, chmod, discard, echo, flashwrite, flashfsd, free, genhtml, init, kill, loader, Ls, mkdir, mount, ps, reboot, rm, smanaged, sysconf, yes, insmod, lsmod, rmmod	Linux command
	Graphics library	GTK2.0+graphics Development library	Has already transplanted into system

Item	Features	Description
WinCE		
Startup code	Version	eboot (WinCE 6.0)
	Boot up mode	Support booting up from NandFlash or SD card
	Download mode	Support downloading NK from Ethernet, SAM-BA
Kernel	Version	WinCE 6.0
	Serial	Three serial ports driver, one 3-wire and two 5-wire
	RTC	Hardware clock driver, save and restore clock
	Ethernet	10/100M Ethernet (DM9000A) driver
	LCD/TSP	LCD and Touch screen driver
	Keyboard	4*4 keyboard driver
	Audio	Audio output driver
	MMC/SD	Include PDC and SDIO two modes driver
	USB host	USB host driver (Support USB mouse and USB keyboard)
	USB device	USB device driver
	GPIO	GPIO driver

Order Information

Order No.	T6010073
Item	Embest SBC6000X Single Board Computer (Standard Configuration)
Configuration	● SBC6000X board ● 1 serial cable ● 1 net cable ● 1 USB cable ● 12V power adapter ● 1 CD with product reference
Options.	3.5"/4.3"/5.6"/7"LCD

Embest Info&Tech Co., LTD.
Room 509, Luohu Science&Technology Building,
#85 Taining Rd., Shenzhen, Guangdong, China 518020
Tel: +86-755-25635656/25636285
Fax: +86-755-25616057
Email: market@embedinfo.com
http://www.embedinfo.com/english
http://www.armkits.com