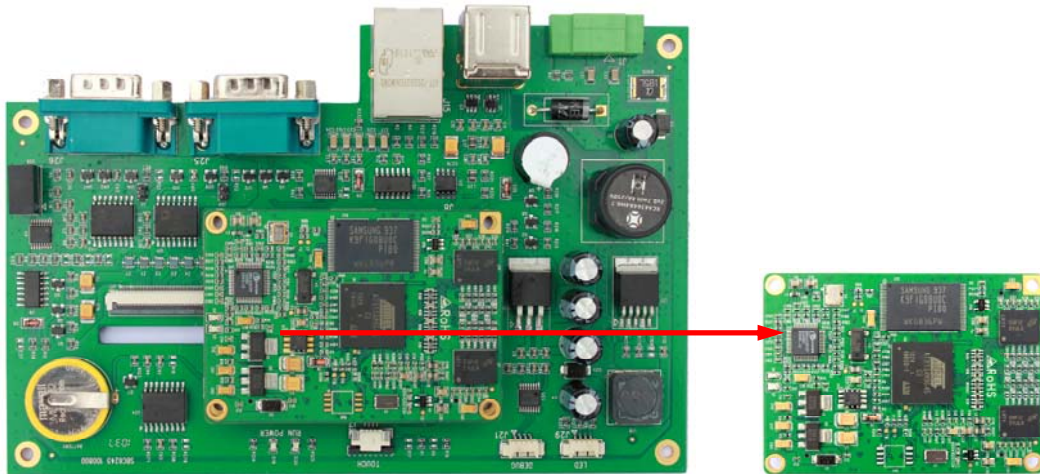


SBC6245 Single Board Computer

- 400MHz Atmel AT91SAM9G45 ARM 926EJ-STM Microcontroller
- On Board 128MB Nand Flash plus 128MB DDR2 SDRAM
- RS232, RS485, Ethernet, USB Host, LCD, Touch Screen, RTC, ...
- Supports for Linux 2.6.30 and WinCE 6.0 Operating Systems



SBC6245 Single Board Computer

Mini6245 Processor Card

Description

Embest SBC6245 is an ARM embedded single board computer (SBC) using Atmel AT91SAM9G45 microcontroller which is capable of operating at up to 400MHz. It employs the Mini6245 processor card as the CPU core board and the expansion board has brought out the headers for many hardware peripherals including Serial ports, Ethernet, USB Host, LCD, Touch Screen, RTC and etc. The CPU core board Mini6245 has integrated the AT91SAM9G45 CPU, 128MB DDR2 SDRAM, 128MB Nand Flash, 1Kbit EEPROM, Ethernet controller on board and connects to the expansion board through two 1.27mm pitch 80-pin connectors.

The board is capable of supporting Linux 2.6.30 and WinCE 6.0 operating systems. Embest provides BSP package, user manual and some other tools and documents to help customer with their development.

Embest has also designed a reliable and nice metal case for the SBC6245 board with 5.6 inch TFT LCD and touch screen which can be used directly for HMI applications, the whole kit is called TH056A1, customer can create their own applications on the platform. This will greatly short your product time to market.

Hardware Features

The AT91SAM9G45 embedded microprocessor is based on the integration of an ARM926EJ-S processor with fast SRAM, and a wide range of peripherals. It is designed to provide a high performance processor solution with a high flexibility for general and multimedia oriented applications. The internal multi-layer bus architecture associated with a multi-port DDR2, a 32-bit External Bus Interface and 64KBytes of internal SRAM allows the SAM9G45 to sustain the high bandwidth required by its high speed peripherals. The AT91SAM9G45 power management (APMC) features an efficient clock gating which, associated with the ARM926EJ-S low power modes, greatly reduces power consumption under all conditions of use.

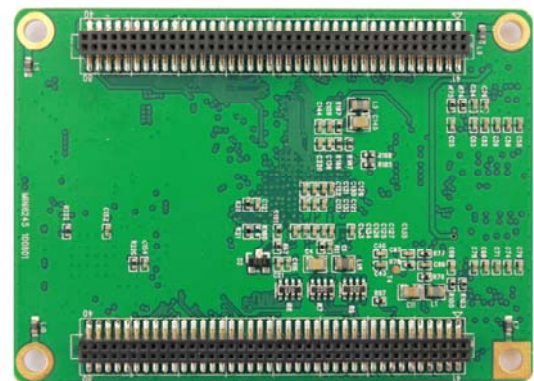
To reduce the overall system cost, the AT91SAM9G45 integrates many hardware peripherals such as High Speed (480 Mbps) USB Device and Host with transceivers, a 10/100 Mbps Ethernet controller, a High Speed Multimedia Card interface, an LCD controller supporting STN and TFT displays up to 1280*860, a camera interface and several communication peripherals such as USARTs, Serial Synchronous Controllers and Two Wire Interface. All these peripherals are DMA oriented, reducing the CPU overload.

The SBC6245 has a CPU board Mini6245 integrated with AT91SAM9G45 microcontroller, Nand Flash, EEPROM and DDR2 SDRAM on it, which exposes many of these features to the user in support of developing specific solutions. The CPU board can be mounted directly onto the expansion board through two 1.27mm pitch 80-pin expansion connectors. This board is characterized as follows:

The SBC6245 CPU Core Board (Mini6245)



Mini6245 Top-view



Mini6245 Bottom-view

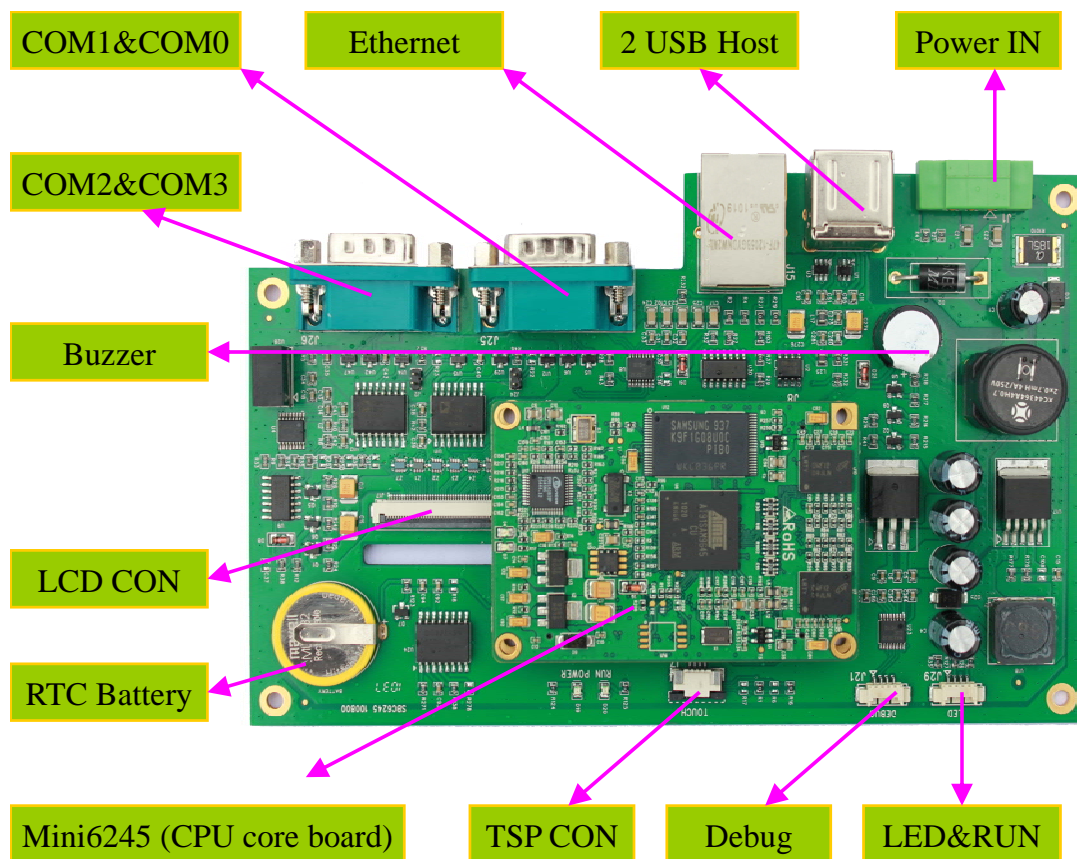
- Dimension: 70mm x 49.9mm
- Working temperature: -10°C ~ +70°C
- Atmel AT91SAM9G45 ARM926EJ-S Core Microprocessor (compatible with AT91SAM9M10)
 - 32 KBytes Data Cache, 32 KBytes Instruction Cache, MMU
 - One 64-kbyte internal SRAM and One 64-kbyte internal ROM
 - Can work at up to 400MHz
- External Memory
 - 128Mbyte (64MB*2) DDR2 SDRAM
 - 128Mbyte NAND Flash

- 1Kbit EEPROM (with encryption)
- 10/100M Ethernet controller
- One power indicator
- One system working status indicator
- Two 1.27mm pitch dual row 80-pin female headers (UART 0-3, Debug serial port, Ethernet, USB Host, 2 SPI, 2 TWI, SDIO, PWM, AC97, LCD, Touch Screen, JTAG and all IOs are led out via the two connectors.)

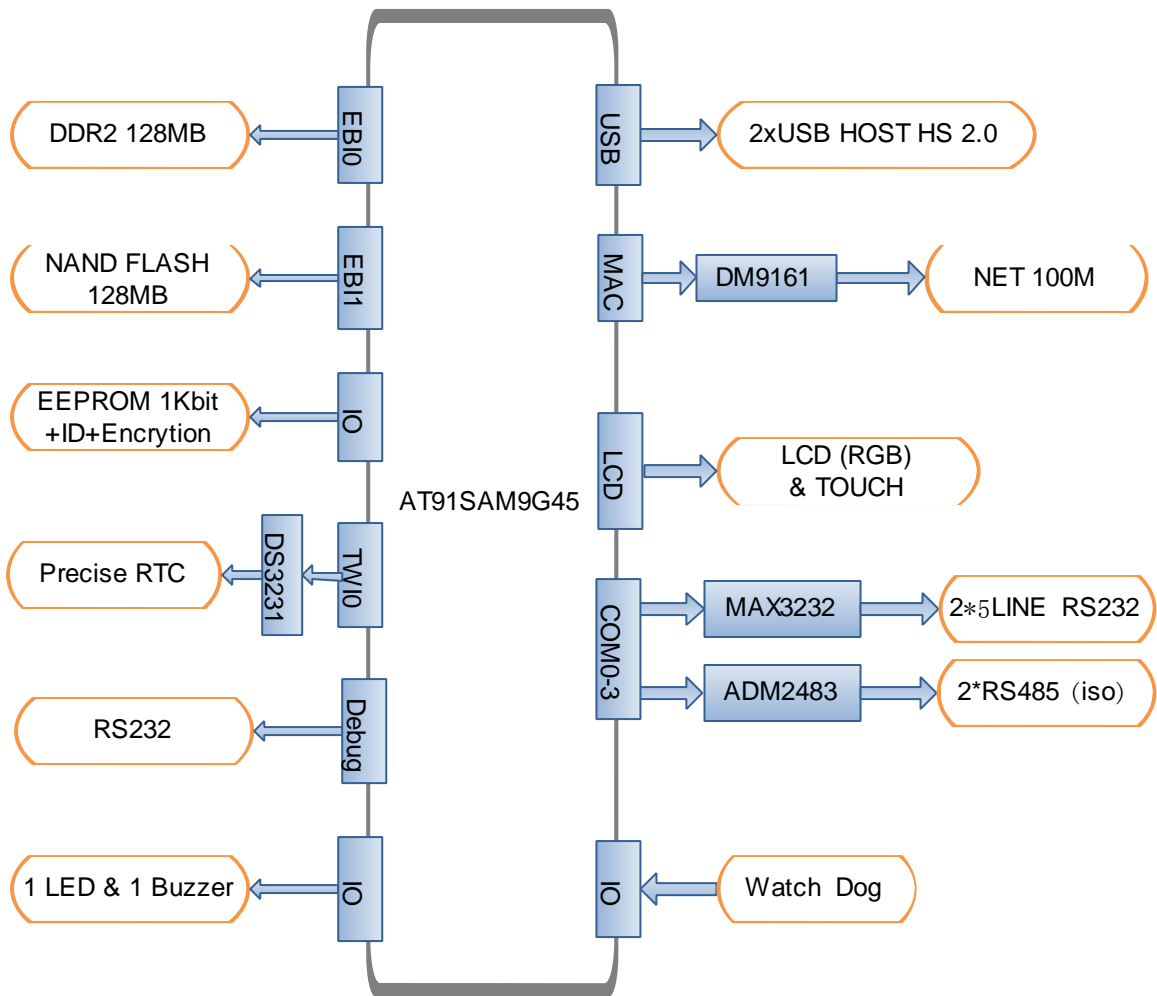
The SBC6245 Expansion Boards

- Power supply: 24V
- One 3-wire RS232 Debug serial port
- Two 5-wire RS232 serial ports (COM1 & COM2)
- Two RS485 serial ports (COM0 & COM3, with isolation)
- Two High-speed USB 2.0 Host ports, 480Mbps (One channel can be configured as Device)
- One 10/100Mbps Ethernet port (RJ45)
- TFT LCD interface
- 4-wire resistive Touch screen interface
- Buzzer
- Battery backed RTC

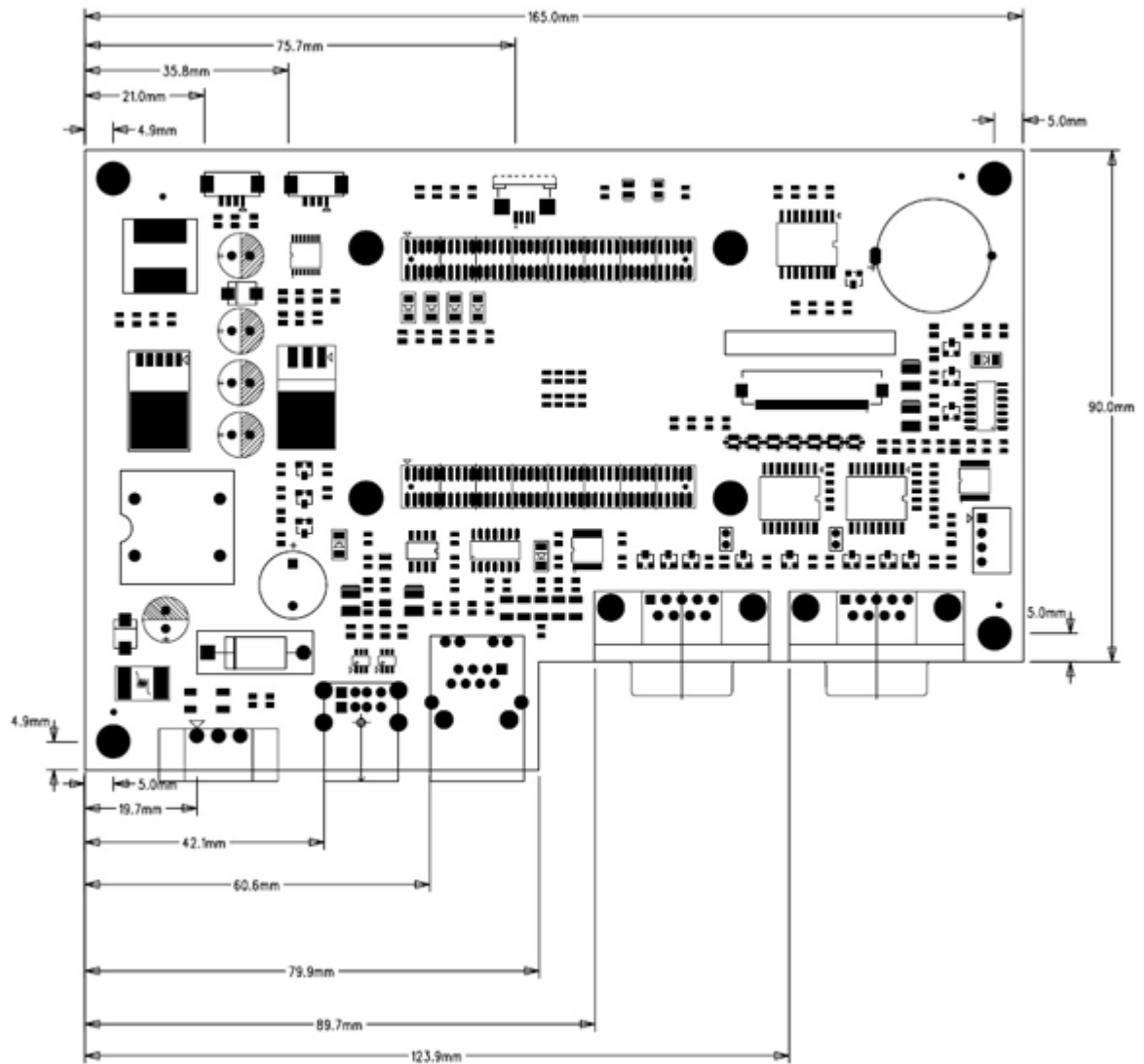
Onboard Interfaces and Connectors



Onboard Interfaces and Connectors



Dimensions



Software Features

OS	Item	Feature	Description
Linux	Bootloader	Version	u-boot 1.3.4
		Boot Mode	Support booting from Nandflash
		Download Mode	Support download kernel from SAM-BA or Ethernet
	Kernel	Version	Linux 2.6.30
		File System	Supports ROM/CRAM/EXT2/RAMDISK/YAFFS2/FAT32
		LED	LED driver
		Serial	Serial ports drivers
		RTC	RTC driver
		Ethernet	10/100M Ethernet driver
		RS485	RS485 driver
		Buzzer	Buzzer driver
		USB Host	USB Host driver, Hot plug-and-play
		USB Device	USB Device driver
		EEPROM	Provide EEPROM read and write driver
		LCD&TSP	TFT LCD and touch screen driver
		NandFlash	Provided with driver
	File system	File system	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
	Basic command	Ifconfig, route, inetd	Used in network configuration and relative service program
Linux command		Cat, chmod, discard, echo, flashwrite, flashfsd, free, genhtml, init, kill, loader, Ls, mkdir, mount, ps, reboot, rm, smanaged, sysconf, yes, insmod, lsmod, rmmmod	

OS	Item	Feature	Description
WinCE	Boot	Version	Eboot (WinCE 6.0)
		Boot Mode	Support booting from Nandflash
		Download Mode	Support downloading NK from Ethernet, SAM-BA
	Kernel	Version	WinCE6.0
		Serial	Two RS232 serial ports drivers, two RS485 serial port drivers and one 3-wire debug serial port driver
		RTC	Hardware clock driver, save and restore clock
		Ethernet	10/100M Ethernet driver
		LED	LED driver
		Buzzer	Buzzer driver
		USB Host	USB Host driver, support usb keyboard, usb mouse
		USB Device	USB Device driver
LCD&TSP	5.6-inch TFT LCD and 4-wire resistive touch screen driver		

Order Information

Order No.	T6010148
Item	Embest SBC6245 Single Board Computer
Configuration	<ul style="list-style-type: none"> ● SBC6245 board ● 1 serial cable ● 1 net cable ● 1 customized serial port converter cable ● 24V power adapter with customized power converter cable ● 1 CD with product reference
Options.	5.6" LCD



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