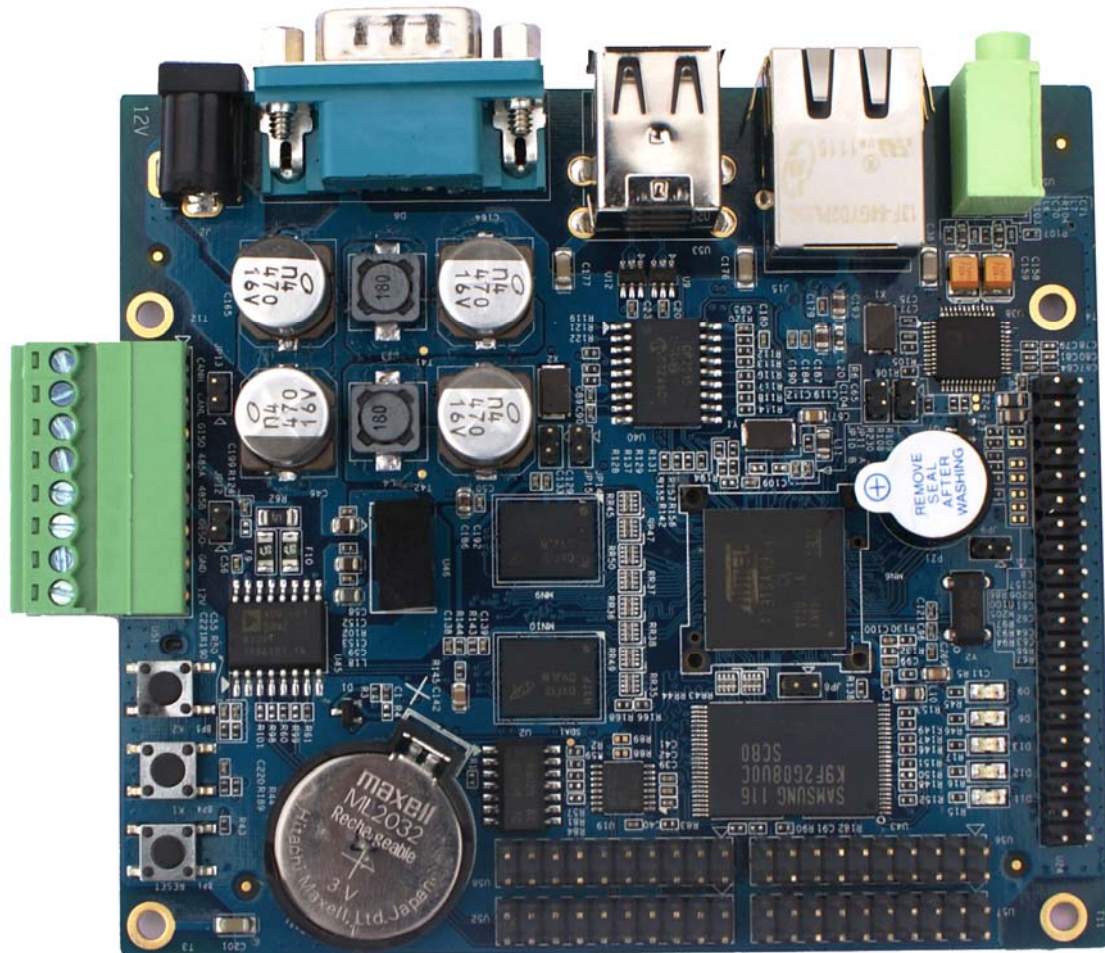


SBC6845 Single Board Computer

- *ATMEL AT91SAM9G45 Processor with 400MHz ARM 926EJ-S Microcontroller*
- *On board 128MB DDR2, 256MB Nand Flash and 4MB Data Flash*
- *5 UARTs , 2 USB Host, RS485, CAN, Ethernet, Audio out, LCD, SD, Keypad, ...*
- *Optional RGB-to- LVDS Converter Board Supports for Connecting to Large Size LCD*
- *Ready-to-Run Linux 2.6.30 and WinCE 6.0 OS*



Overview

Embest SBC6845 Single board computer is a high-performance ARM embedded single board computer (SBC) with popular ATMEL AT91SAM9G45 Processor. It is a compact board with frequently used functions and also with small size. It is designed for a wide range of applications including Industrial Control Terminal, Intelligent Instrumentation, Data Acquisition and Analysis, Medical products, Network Terminal, etc.

The SBC6845 Single board computer has 128MBytes DDR2 SDRAM, 256MBytes Nand Flash and 4MBytes Data Flash on board. It extends many hardware interfaces including serial ports, USB Hosts, CAN, RS485, Ethernet, SD card, Audio out, keypad, LCD, Touch screen and etc.

Embest offers 4.3 inch and 7 inch size LCDs including touch screen for options, user can connect the LCD/TSP through one 2.54mm pitch 2*20-pin connector on board, the driver has already provided and user can use it already. If user wants to use large size LCD with the SBC6845 board, Embest also offers one RGB-to-LVDS converter board as an option which can convert the LCD RGB signal to LVDS signal to create the large size LCD connection possibility.

SBC6845 Single board computer is ready to run Linux 2.6.30 open source operating system and WinCE 6.0 operating system. We provide Linux source code, WinCE BSP, User Manual and part of development tools to help customer with their own development. So the board is a stand platform ideal for evaluation and early development work. The board also has a compact and logic layout and user can use it directly for their next embedded design which can help to shorten the time from embedded board to products.

Hardware Features

The ARM926EJ-S based AT91SAM9G45 features the frequently demanded combination of user interface functionality and high data rate connectivity, including LCD Controller, resistive touch-screen, audio, Ethernet 10/100 and high speed USB. With the processor running at 400MHz and multiple 100+ Mbps data rate peripherals, the AT91SAM9G45 has the performance and bandwidth to the network or local storage media to provide an adequate user experience.

SBC6845 Single board computer is based on ATMEL AT91SAM9G45 Processor. This board is characterized as following:

Mechanical Parameters

- Dimensions: 106.5mm x 94mm (6-layer PCB design)
- Power Supply: +12V
- Power consumption: +12V@0.16A (working without LCD)
- Working Temp.: -40~85°C
- Humidity Range: 0% ~ 90%

Processor

- 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

Memory

- 64MBytes*2 DDR2 SDRAM
- 256MBytes NAND Flash
- 4MBytes Data Flash

Audio/Video Interfaces

- Audio output port (supports playing MP3)
- 2.54mm pitch 2*20-pin 16-bit RGB LCD interface (provide 4.3" and 7" LCD for options)
- 4-wire resistive touch screen interface
- Buzzer

Data Transfer Interfaces

- Serial Ports
 - Debug: 3-wire RS232 serial port (TTL is designable)
 - COM0: 3-wire TTL serial port (RS232 is designable)
 - COM1: 5-wire TTL serial port (RS232 is designable)
 - COM2: 3-wire RS485 serial port with isolation (TTL is designable)

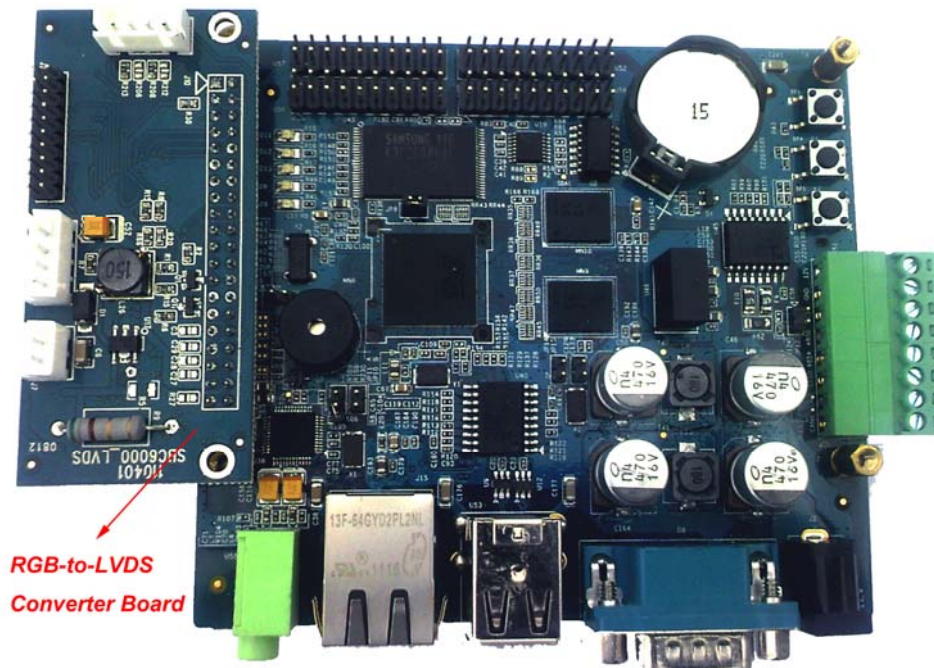
- COM3: 3-wire RS232 serial port (TTL is designable)

- One CAN 2.0 interface (with power and signal isolation)
- Two High-speed USB 2.0 Host ports, 480Mbps
- One 10/100Mbps Ethernet port (RJ45 with LED)
- One SDHC card slot (Hot plug-and-play)
- One 2.54mm pitch 2*10-pin expansion interface (SPI, I2C, PWM, ADC are led out from this connector)

Input/Output Interfaces and Other Facilities

- 6*6 matrix keypad interface (through one 2.54mm pitch 2*10-pin connector)
- 16 GPIOs extended from CPU (through one 2.54mm pitch 2*10-pin connector)
- 3 Keys (one for Reset and two for user defined)
- Precise RTC, battery backed (user need to prepare the battery themselves, recommended Model: CR2032)
- 5 LED status indicators

Optional RGB-to-LVDS Converter Board



SBC6000_LVDS RGB-to-LVDS Converter Board Connect to SBC6845 Board



Power12V Debug USB Host Ethernet Audio Out

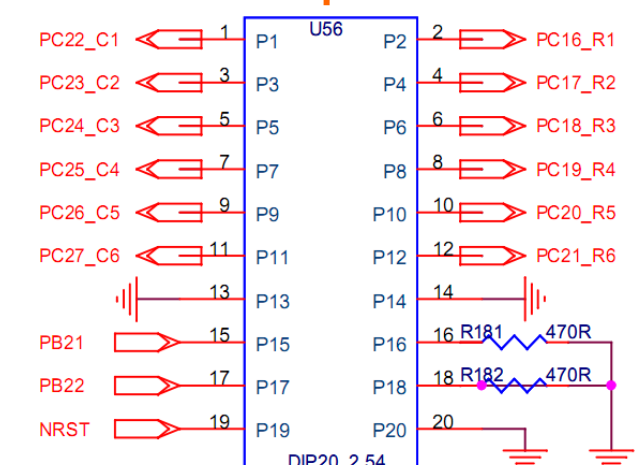
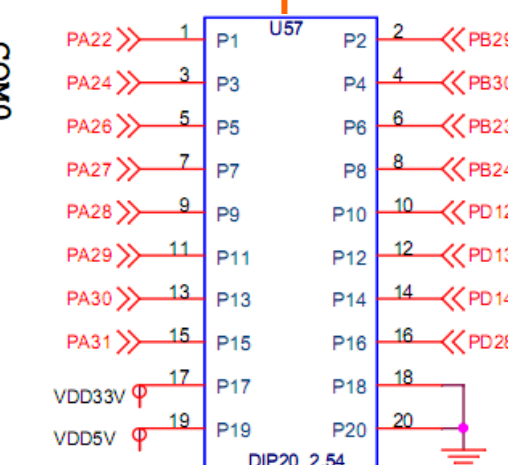
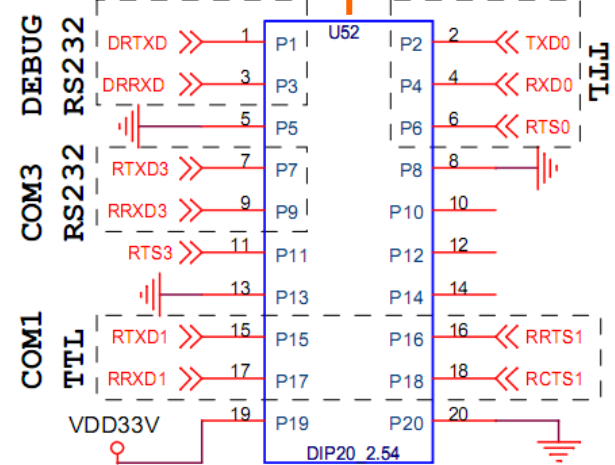
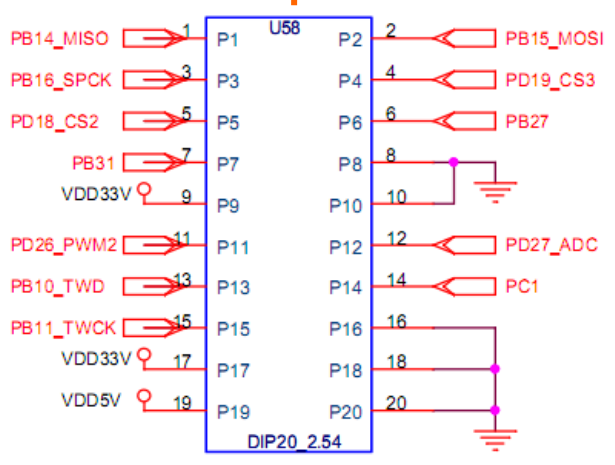
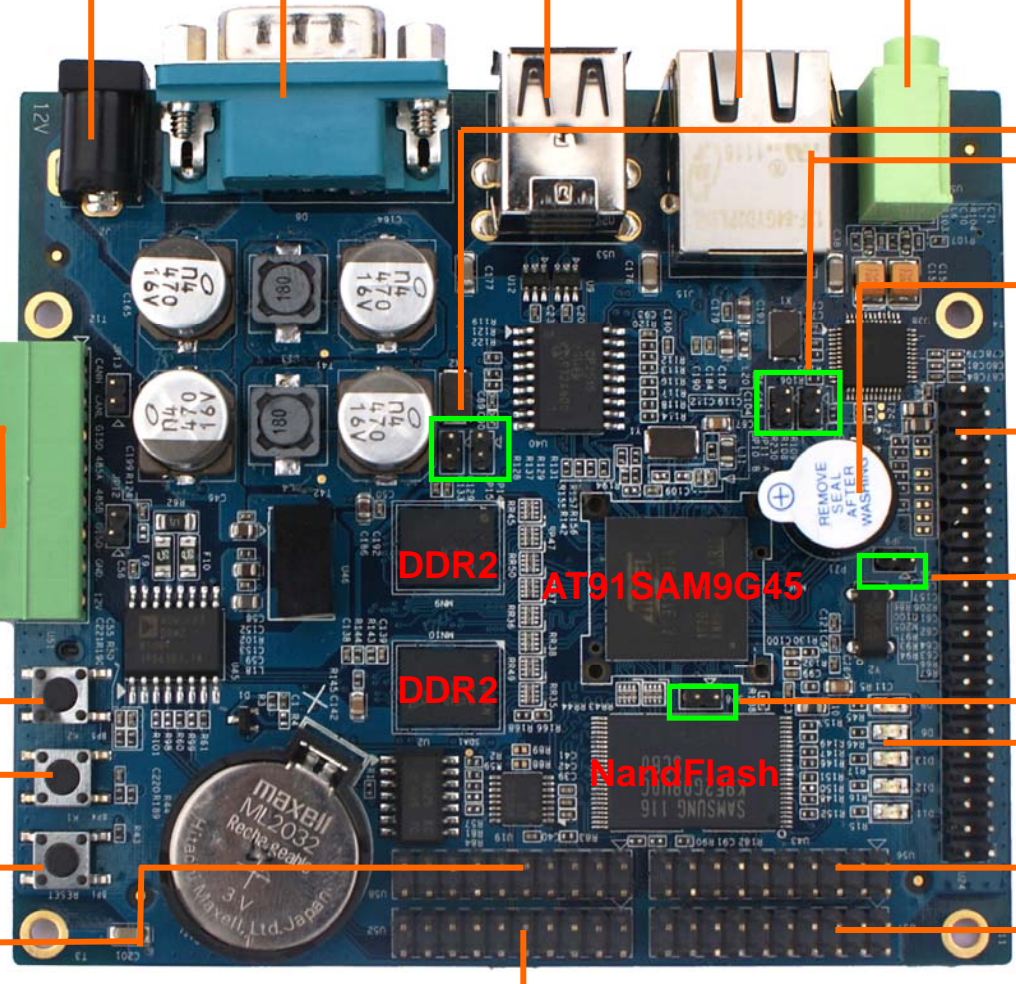
JP15	JP14
dataflash WP	dataflash NPCS0
Fit:protect	Fit:Enable
NC:None	NC:None

JP10	JP11	LCD
0	0	4.3"
1	0	5.6"
0	1	7"
1	1	10.4"

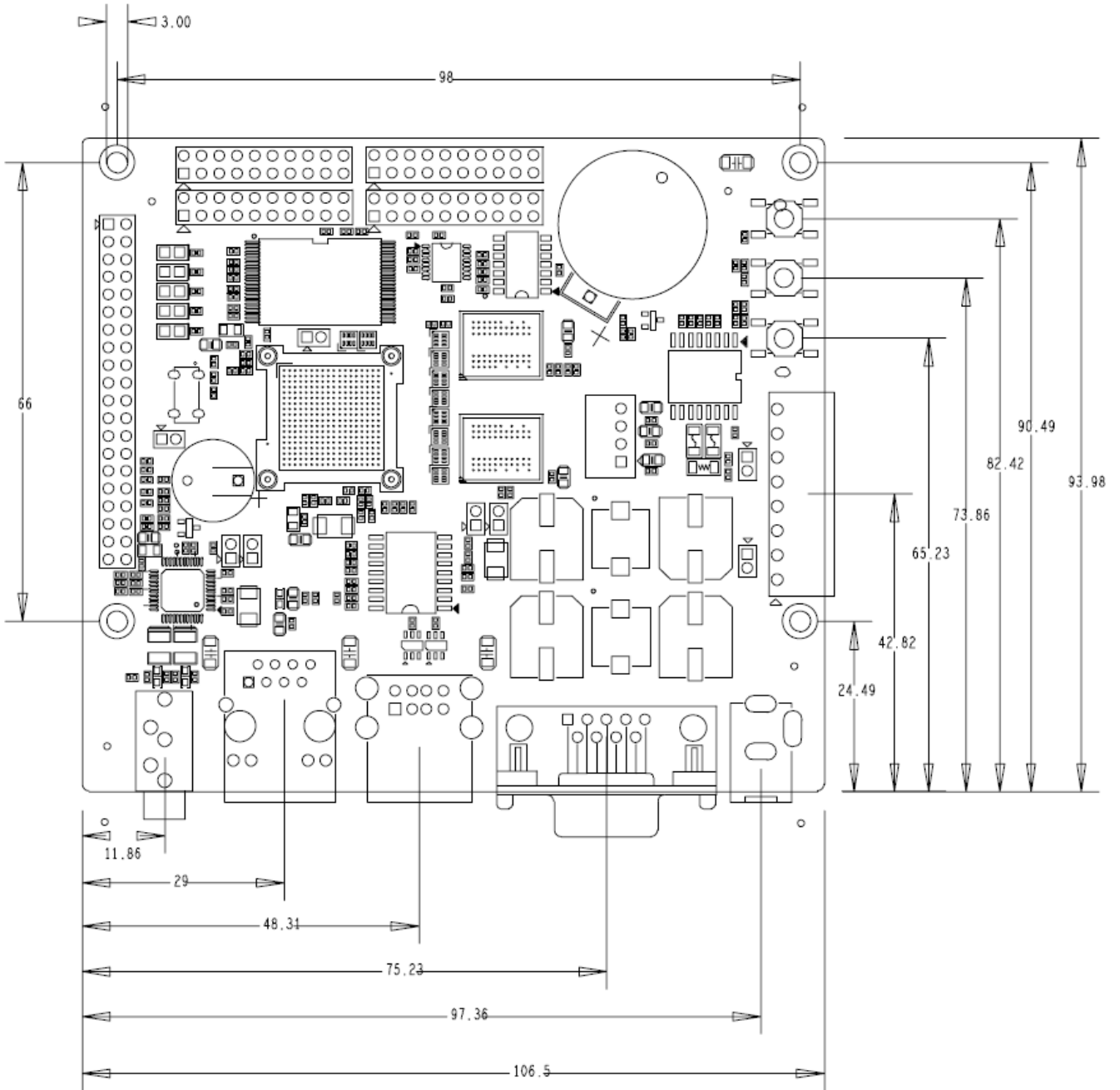
(JP10,JP11) NC
Default (0,0)

CAN CANH
CANL GISO
RS485 485A
485B Power In
GND
+12V

User Key K2
K1 Reset Key
SPI&IIC&PWM&ADC

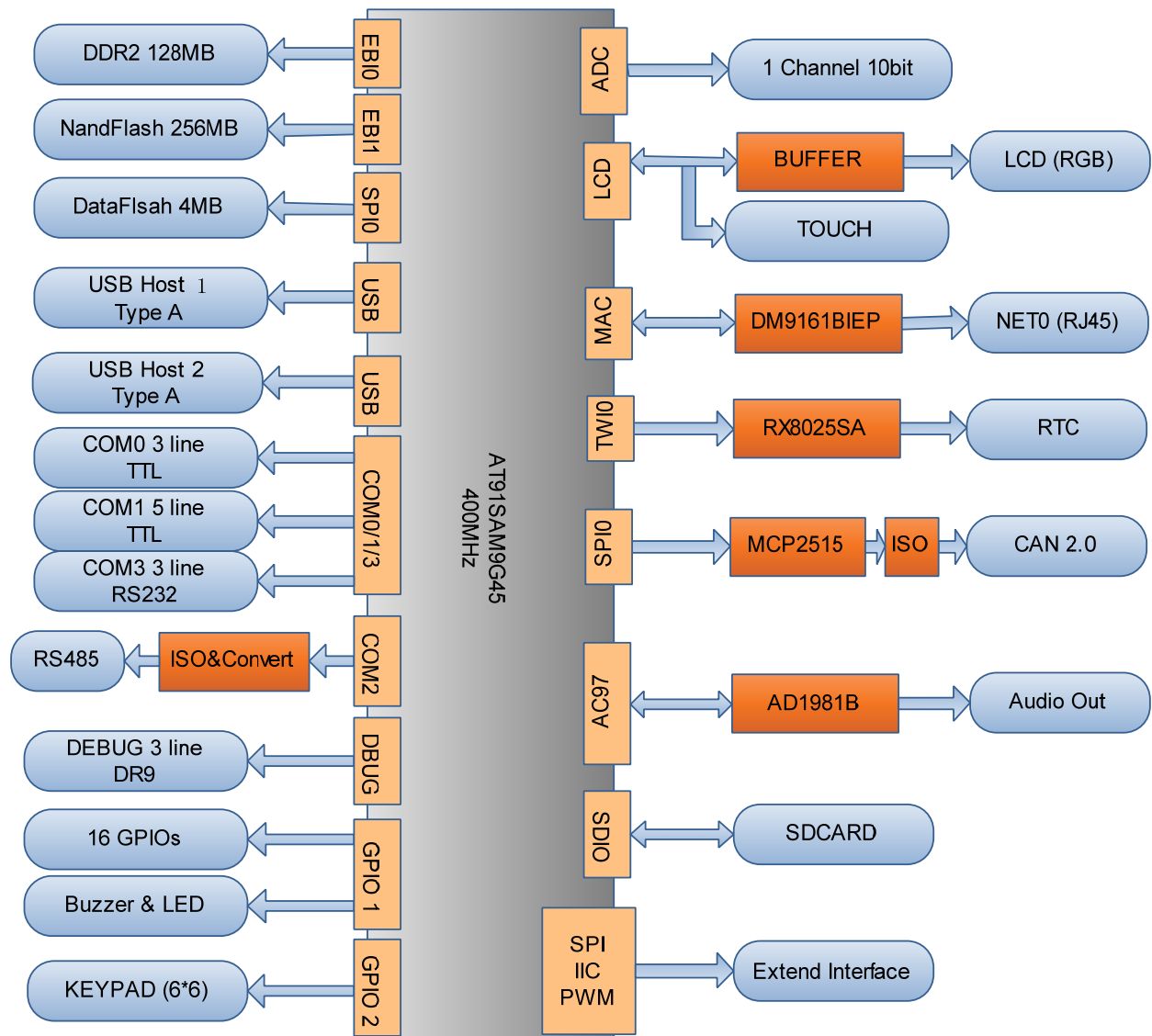


Dimensions



Unit: mm

Function Block Diagram



Software

OS	Item	Remark	
Linux	Startup code	Version	U-boot 1.3.4
		Boot up mode	Support booting from DataFlash
		Download mode	Support downloading kernel and file system from Ethernet
		Update Kernel	Support programming kernel image into DataFlash and NandFlash
		Update file system	Support programming Yaffs2 file system into NandFlash
	Kernel	Version	Linux 2.6.30
		File system format	ROM/CRAM/EXT2/RAMDISK/YAFFS2/FAT32
		Serial port	Five serial port driver, one 5-wire serial port with hardware flow cntrol
		RS485	RS485 Driver
		RTC	Hardware real-time driver, save and restore system time after power off
		Ethernet	10/100M Ethernet driver
		LCD	TFT-LCD driver, supporing 480*272, 640*480, 800*480 and 800*600 resolutioin
		Touch screen	Touch screen driver
		Audio	Audio output driver
		SD Card	SD Card driver
		USB Host	USB host driver
		CAN	Extended CAN Bus driver, providing driver and test program
		Keypad	6*6 matrix keypad driver
		LED	LED driver
		Buzzer	Buzzer driver
	GPIO	GPIO driver	
	File system	Format	Yaffs2 file system, can be read and written
	Network protocol	TCP/IP	Complete TCP/IP protocol
	System configuration and service	Network Ping	Ping command, used in checking network system
		Ifconfig, route, inetd	Used in network configuration and related service program
		Login, telnet, echo, discard	Login other program
	Basic tools	Common linux command	Cat, chmod, discard, echo, flashwrite, flashfsd, Free, genhtml, init, kill, loader, Ls, mkdir, mount, ps, reboot, rm, smanaged, sysconf, yes, insmod, Ismod, rmmmod
Graphics library	Qt/Embedded Qtopia	Already ported	

WinCE	Startup code	Version	Eboot (wince 6.0)
		Boot mode	Support booting from NandFlash
		Download mode	Support downloading from Network or VS2005 or SAM-BA
	Kernel	Version	WINCE 6.0
		Serial	Five serial prots driver
		RS485	RS485 Driver
		RTC	Hardware real-time driver, save and restore system time after power off
		Ethernet	10/100M Ethernet driver(extended from CPU)
		LCD&TSP	TFT LCDand touch screen driver
		Audio	Audio output driver
		SD Card	SD Card driver
		USB Host	USB host driver
		CAN	Extended CAN Bus driver, providing driver and test program
		GPIO	GPIO driver
		Keypad	6*6 matrix keypad driver
LED	LED driver		
Buzzer	Buzzer driver		

Order Information

Order No.	T6010158
Item	SBC6845 Single board computer
Deliveries	<ul style="list-style-type: none"> • One SBC6845 board • One 12V Power adapter • One Serial cable • One Ethernet cable • One USB cable • One CD with product reference
Options	<ul style="list-style-type: none"> • 4.3" or 7" TFT LCD (including touch screen) • SBC6000_LVDS RGB-to-LVDS converter board



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