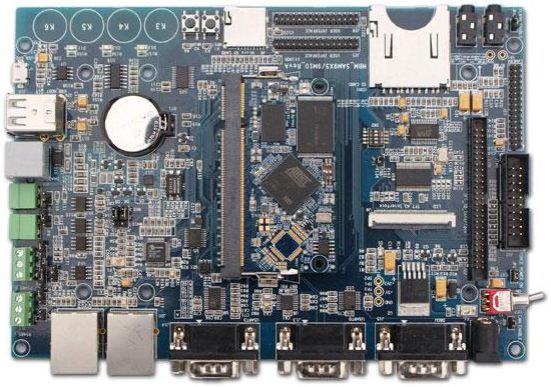
ATMEL MBS-SAM9G15 SBC Board

Order#: MBS-SAM9G15 Delivery Wt:1.5lb

ATMEL AT91SAM9G15 based MBS-SAM9G15 SBC board is the latest product produced by Embest. it is consisted of one base board (MBM-SAM-9G) and one processor card (MBC-SAM9G15),.this core board is the smallest 9X5 core on the market. It is so tiny that it can reduce much space of your products. You can use it easily to complete your project development and save much of your time to the market . Using industrial connectors can realize seamless connection with base board, greatly improve the stability of the products.



MBS-SAM9G15 SBC board operates at up to 400MHz, with 256 Mbytes NandFash ,128MB DDR II,4MB serial DataFlash and 64KB serial EEPROM. It supports Linux ,and offer angstrom and android-2.3.5_r1 test .The board provides a wide range of peripherals, including a high-speed USB2.0 port(480MHz), an Ethernet 10/100 interface, audio interface, a JTAG debug port,Micro SD card interface,SD/MMC card interface, CMOS camera interface.It supports video data collection.

Core Board Features:

- Processor AT91SAM9G15
- Core Board Size:67mm*34mm
- 12MHz crystal oscillator
- 32.768MHz crystal oscillator
- 128MB DDR2 memory
- 256MB nandflash memory with chip selection control switch
- 4MB SPI Serial dataflash with chip selection control switch
- 64KB EEPROM
- 256B 1-wire EEPROM
- On-board power regulation
- Two user LEDs
- Optional PHY
- SDIOIMM200 card edge interface

Base board features

- The MBM-SAM-9G Base Board is a common main board to connect 9m10 core board & 9x5 core board.
- Base Board Size:181mm*165mm
- Supply Voltage:5V DC
- Supply Current:2A
- Temperature Range:0~70℃
- ONE WIRE EPPROM(1024-bit) ;
- 1×JTAG Interface ;
- 1×Camera Interface(9M10 and 9G25) ;
- 2×24 bit LCD Interface（Resistive Touch Panel） ;
- 1×DBGU Interface（3-wire） ;
- 2×UART Serial Port（1×5-wire、1×3-wire） ;
- 2×10/100Mb Ethernet Interface（core board and base board each have a PHY chip） ;
- 2×RS485 Interface ;
- 2×CAN Bus Interface ;
- 1×Smart DAA interface ;
- 2×USB 2.0 Host Interface ;
- 1×USB High-Speed USB2.0 OTG Interface ;
- 4×touch buttons（QTOUCH） ;
- 2×physical buttons（reset,wakeup） ;
- 1×Micro SD Interface ;
- 1×SD card Interface ;
- 3×user LED ;
- 1×Analog Output (connected to speaker by default)
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- 1×RTC Unit (without battery) ;
- 50 GPIO User Extension Interface

Software Features

NO.	Example Programs
1	adc_touchscreen
2	adc_touchscreen
3	dma
4	lcd

5	getting-started
6	periph_protect
7	pmc_clock_switching
8	pwm
9	qtouch
10	smc_psram
11	spi_slave
12	ssc_dma_audio
13	sysc
14	tc_capture_waveform
15	twi_eeprom
16	twi_slave
17	usart_hw_handshaking
18	usart_serial
19	usart_spi
20	usart_synchronous
21	hsmci_multimedia_card
22	hsmci_sdcard
23	hsmci_sdio
24	smc_nandflash
25	spi_serialflash
26	usb_audio_looprec
27	usb_cdc_serial
28	usb_core
29	usb_hid_keyboard
30	usb_hid_mouse
31	usb_hid_msd
32	usb_hid_tansfer
33	usb_iad_cdc_cdc
34	usb_iad_cdc_hid
35	usb_iad_cdc_msd
36	usb_masstorage

Linux software resources table

Type	function	Desciprion
Bootloader	AT91Bootstrap	Guide to Uboot
	Uboot	1.Support NandFlash to erase,read and write 2. Support net to download Image 3.Support to set and keep environment variables 4.Support memory to appear , compare and modify 5. Support boot and bootargsto set
Kernel	Serial driver	USART0
		DBGU
	USB	USB_HOST*2
		USB_OTG
	SD card driver	Micro SD
		SD Card
	SMD driver	
	LCD+Touch	
	Zigbee driver	
	SPI driver	
	TWI driver	
	Qtouch key driver	
	DMA driver	
	GPIO driver	
File system	Angstrom file system	
	Android file system	

Core

- ARM926EJ-S™ ARM® Thumb® Processor running at up to 400 MHz @ 1.0V +/- 10%
- 16 Kbytes Data Cache, 16 Kbytes Instruction Cache, Memory Management Unit

Memories

- One 64-Kbyte internal ROM embedding bootstrap routine: Boot on NAND Flash,SDCard, DataFlash® or serial DataFlash. Programmable order.
- One 32-Kbyte internal SRAM, single-cycle access at system speed

- High Bandwidth Multi-port DDR2 Controller
- 32-bit External Bus Interface supporting 8-bank DDR2/LPDDR, SDR/LPSDR, Static Memories
- MLC/SLC NAND Controller, with up to 24-bit Programmable Multi-bit Error Correcting Code (PMECC)

System running at up to 133 MHz

- Power-on Reset Cells, Reset Controller, Shut Down Controller, Periodic Interval Timer, Watchdog Timer and Real Time Clock
- Boot Mode Select Option, Remap Command
- Internal Low Power 32 kHz RC and Fast 12 MHz RC Oscillators
- Selectable 32768 Hz Low-power Oscillator and 12 MHz Oscillator
- One PLL for the system and one PLL at 480 MHz optimized for USB High Speed
- Twelve 32-bit-layer AHB Bus Matrix for large Bandwidth transfers
- Dual Peripheral Bridge with dedicated programmable clock for best performances
- Two dual port 8-channel DMA Controller
- Advanced Interrupt Controller and Debug Unit
- Two Programmable External Clock Signals

Low Power Mode

- Shut Down Controller with four 32-bit Battery Backup Registers
- Clock Generator and Power Management Controller
- Very Slow Clock Operating Mode, Software Programmable Power Optimization Capabilities

Peripherals

- LCD Controller with overlay, alpha-blending, rotation, scaling and color conversion
- USB Device High Speed, USB Host High Speed and USB Host Full Speed with dedicated On-Chip Transceiver
- Two High Speed Memory Card Hosts
- Two Master/Slave Serial Peripheral Interfaces
- Two Three-channel 32-bit Timer/Counters
- One Synchronous Serial Controller
- One Four-channel 16-bit PWM Controller
- Three Two-wire Interfaces
- Three USARTs, two UARTs
- One 12-channel 10-bit Touch-Screen Analog-to-Digital Converter
- Soft Modem

I/O

- Four 32-bit Parallel Input/Output Controllers
- 105 Programmable I/O Lines Multiplexed with up to Three Peripheral I/Os

- Input Change Interrupt Capability on Each I/O Line, optional Schmitt trigger input
- Individually Programmable Open-drain, Pull-up and pull-down resistor, Synchronous Output

Package

- 217-ball BGA, pitch 0.8 mm

PACKING LIST

NO	NAME / TYPE	QTY	DESCRIPTION	Inspection
1	MBS-SAM9G15 SBC Board	1	Core board and Base board	Standard Configuration
2	Power Adapter (5V, 1.25A rating)	1	5V,1.25A supply power to the board	Standard Configuration
3	Micro USB Cable	1	To supply power to the board or for downloading programs and debug	Standard Configuration
4	10/100 Ethernet Cable	1	Connect to the network	Standard Configuration
5	DB9-IDC10 Cable	1	DB9(F) to IDC(10 pins) cable	Standard Configuration
6	TFT LCD Panel	1	LCD & Touch Panel（4.3''，7.0''）	Optional