

MYS-SAM9X5 Single Board Computer

- 400MHz Atmel AT91SAM9X5 Series ARM926EJ-S Processors
- 128MB DDR2 SDRAM, 256MB Nand Flash, 4MB Data Flash, 64KB EEPROM
- Serial ports, USB, Ethernet, CAN, SD, Audio, LCD
- One Ethernet for SAM9G25/9G35/9X25/9X35
- Two CAN for SAM9X25/X35
- 4.3 or 7 inch LCD/TSP for SAM9G15/G35/X35
- Ready-to-Run Linux 2.6.39 and Android 2.3.5
- Complete MDK-ARM Sample Codes
- Supports -40 to +85°C Extended Temperature Operation

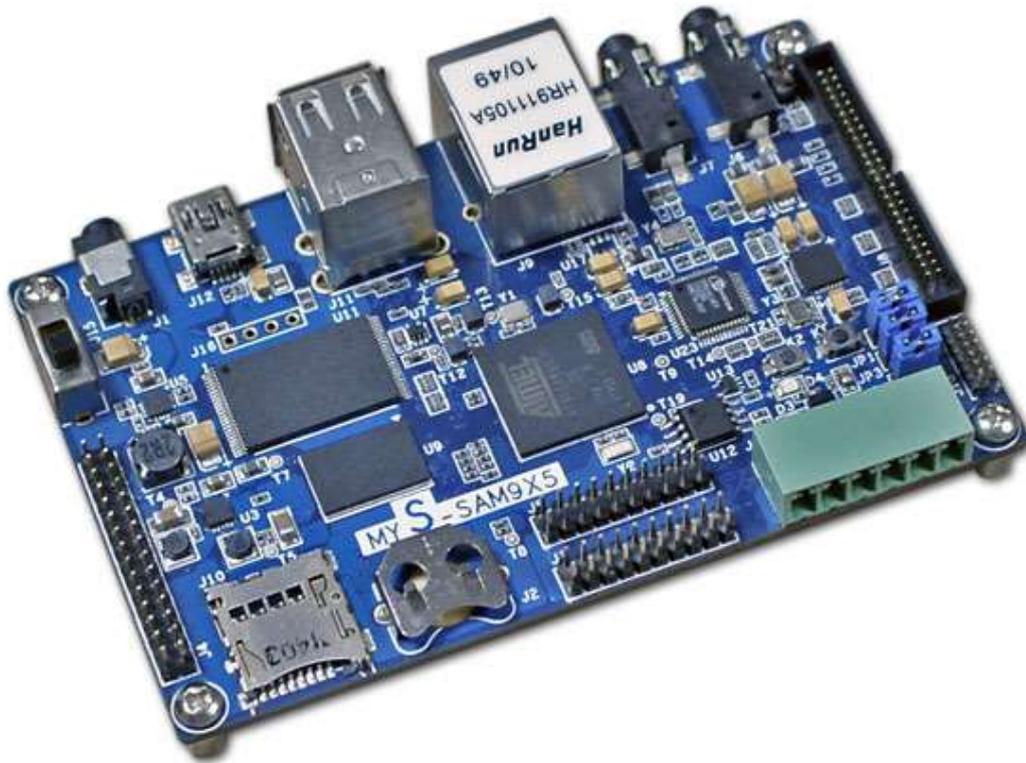


Figure 1-1 MYS-SAM9X5 Single Board Computer

The MYS-SAM9X5 Single Board Computer (SBC) family is designed based on Atmel's AT91SAM9X5 series ARM9 processors: AT91SAM9X35, SAM9X25, SAM9G35, SAM9G25 and SAM9G15 which are able to work at up to 400MHz. It is capable of running Linux and Android operating systems and also provided with complete sample codes bundle for the peripherals using Keil's MDK-ARM to enhance debugging capabilities for non-OS development. 4.3- and 7-inch LCD panels are add-on options. It can work in harsh environment supporting -40 to +85°C extended temperature operation.

The board has 128MB DDR2 SDRAM, 256MB Nand Flash, 4MB Data Flash and 64KB EEPROM as well as a set of peripherals including serial ports, USB Host, OTG, Ethernet, LCD, CAN, TF card slot and etc. It can be equipped with one of the five processors to form below types:

- [MYS-SAM9G15 Single Board Computer](#) (base on AT91SAM9G15)
- [MYS-SAM9G25 Single Board Computer](#) (base on AT91SAM9G25)
- [MYS-SAM9G35 Single Board Computer](#) (base on AT91SAM9G35)

[MYS-SAM9X25 Single Board Computer](#) (base on AT91SAM9X25)

[MYS-SAM9X35 Single Board Computer](#) (base on AT91SAM9X35)

The five boards are with same circuit design but only minor configuration settings.

Item	MYS-SAM9G15	MYS-SAM9G25	MYS-SAM9X25	MYS-SAM9G35	MYS-SAM9X35
Processor	AT91SAM9G15	AT91SAM9G25	AT91SAM9X25	AT91SAM9G35	AT91SAM9X35
Ethernet	0	1 x 10/100M	1 x 10/100M	1 x 10/100M	1 x 10/100M
LCD	1	0	0	1	1
CAN	0	0	2	0	2

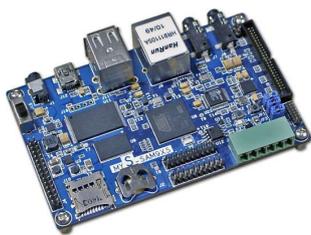
Table 1-1 Comparison for Model Selection

From table 1-1, we can see if you need Ethernet, except the MYS-SAM9G15, other four models all can support; if you need two CANs, one Ethernet but no need LCD, the MYS-SAM9X25 is a good choice; if you want to evaluate the performance of this industrial board, the MYS-SAM9X35 has the most complete functions.

The MYS-SAM9X5 SBC board comes along with necessary cable accessories, detailed documents and full developed software package to make a reference as a solid evaluation kit to help users extensively evaluate, customize, develop hardware and software applications. MYIR offers 4.3 or 7 inch LCD including touch screen as option for [MYS-SAM9G15](#), [MYS-SAM9G35](#) and [MYS-SAM9X35](#) platforms.

The MYS-SAM9X5 SBC board series are smart in size with compact interfaces layout, which help user embed it into their products as controller board directly, improve system quality, save project time and cost. They can be broadly used in many fields such as consumer appliances, printers, video process, industrial control, display system, security device, electric power control system, PDA device and web terminals.

The whole MYS-SAM9X5 Development Kit includes following items:



MYS-SAM9X5 board



Ethernet cable



Serial cable



USB cable



Product DVD



JTAG and UART conversion board



Optional 4.3- or 7-inch LCD/TSP

Figure 1-2 MYS-SAM9X5 Development Kit

Hardware Specification

The Atmel® [SAM9G](#) and [SAM9X](#) embedded MPUs are high-performance, highly integrated processors built the good foundation of the Atmel® ARM926-based embedded MPU line. Running at 400 MHz, they are designed to complement the power of the ARM926 core; these flexible devices deliver a rich combination of peripherals including up to two Ethernet, two CAN, three USB ports and seven UARTS. Additional features include an integrated soft modem, TFT LCD controller and LPDDR/DDR2 memory support. A multilayer bus matrix architecture and multiple DMA channels ensure uninterrupted data transfer with minimum processor intervention. Low voltage, low power consumption and reduced system cost make these devices ideal for cost-sensitive machine-to-machine applications.

The MYS-SAM9X5 series single board computers take full features of the Atmel SAM9G and SAM9X processors and are characterized as in below table 1-2:

Item	MYS-SAM9G15	MYS-SAM9G25	MYS-SAM9G35	MYS-SAM9X25	MYS-SAM9X35
Processor	AT91SAM9G15	AT91SAM9G25	AT91SAM9G35	AT91SAM9X25	AT91SAM9X35
	32-bit ARM RISC processor running at up to 400MHz 16 KB Data Cache, 16KB Instruction Cache 32KB Chip SRAM, 64KB ROM				
Dimensions	100 x 64mm				
PCB Layer	8-layer design				
Power Supply	5V/2A or USB Power supply				
Working Temp.	0~70 Celsius or -40~85 Celsius				
Memory	CPU internal 32KB of SRAM and 64KB of ROM On board 128MB DDR2 SDRAM, 256MB Nand Flash, 4MB Data Flash, 64KB EEPROM				
Storages	One Micro SD card slot				
Serial ports	Debug serial port (J13) RS232 serial port (UART0, J13)				
USB	One high-speed USB 2.0 Host port One full-speed USB 2.0 Host port One high-speed Mini USB 2.0 OTG port (configured as USB Device by default)				
Ethernet	0	1	1	1	1
CAN	0	0	0	2	2
Audio	Audio input/output port				
	Support	Not support	Support	Not support	Support
LCD/TSP	Supports 24-bit true color TFT LCD, resolution up to 1280 x 860 pixels 4-line resistive touch screen 4.3-inch LCD for option (including Touch screen, with resolution 480 x 272 pixels) 7-inch LCD for option (including Touch screen, with resolution 800 x 480 pixels)				
JTAG	One JTAG interface				
RTC	Battery backed RTC socket				
Buttons	One Reset button and One Wakeup button				
LED	One Power indicator One user LED				
Expansion Interface	There expansion interfaces (J3, J4 & J5) bring out: 3 x UARTs (UART 1, 2, 3), 2 x SPI, 2 x I2C, 12 x ADC, 54 x GPIOs <i>Note: The resources brought out from the expansion interfaces may be multiplexed with others. Please refer to the product user manual and schematics for details for your development.</i>				

Function Block Diagram

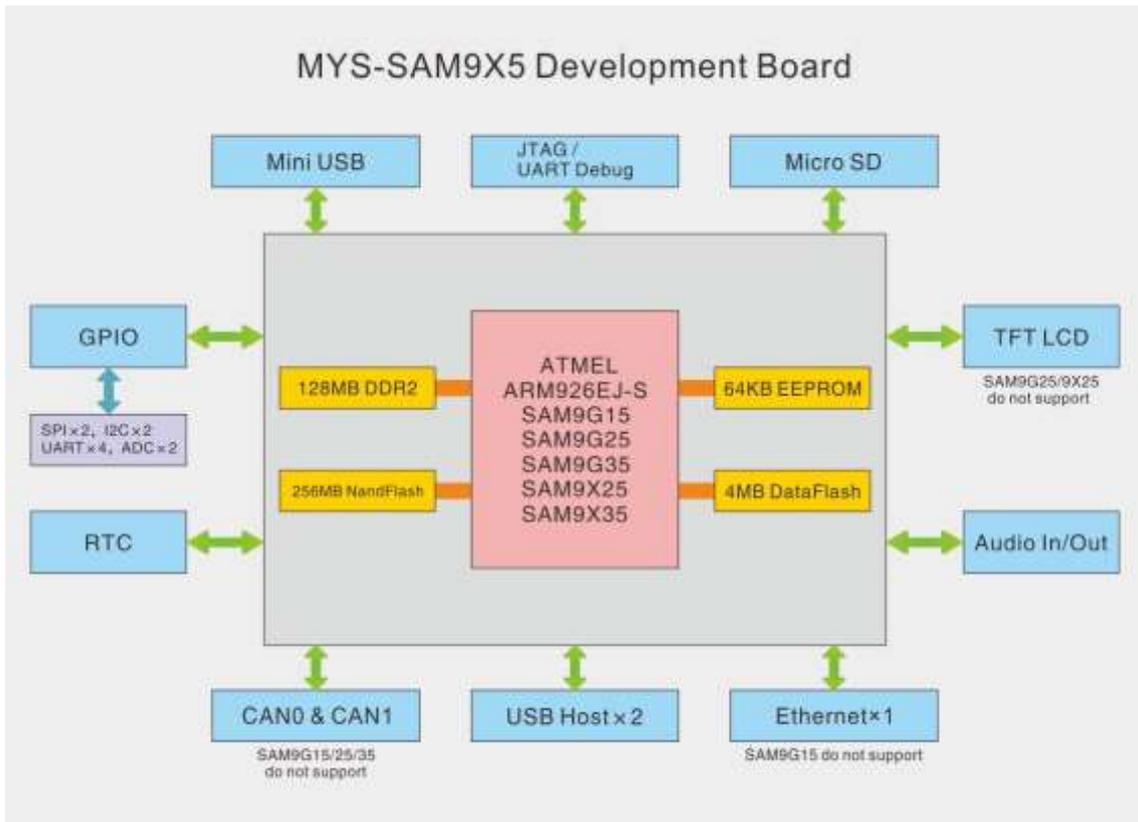


Figure 1-3 Function Block Diagram of MYS-SAM9X5

Peripheral Interface Diagram

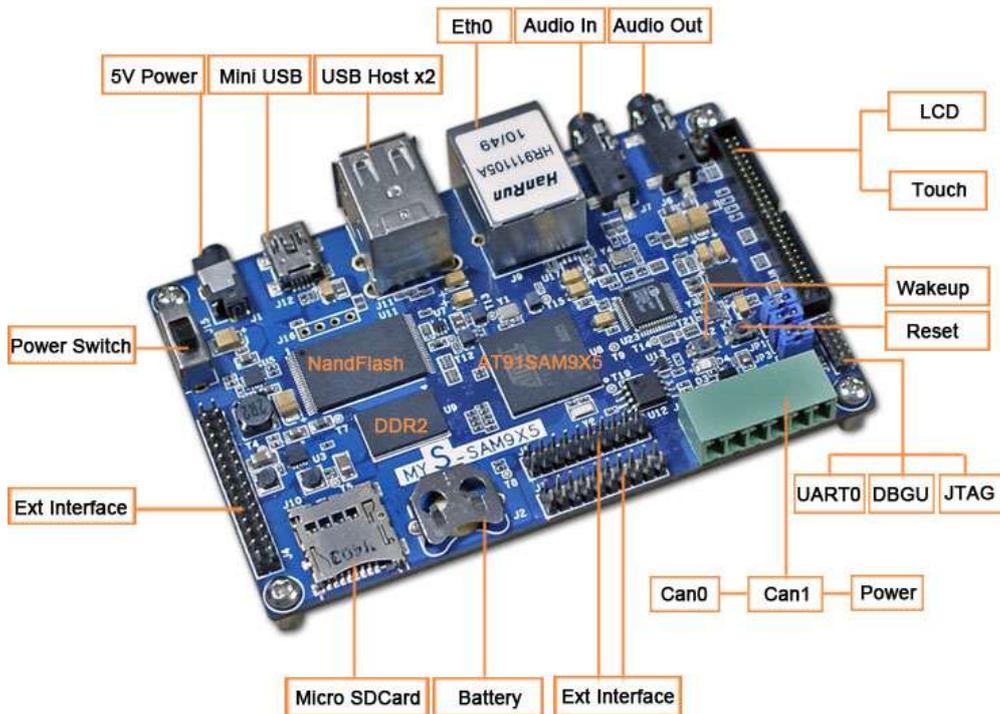


Figure 1-4 Peripheral Interface Diagram of MYS-SAM9X5

Software Features

MYIR has ported Linux 2.6. 39 and Android 2.3.5 OS on the MYS-SAM9X5 board and software development package is provided along with the board, many of the drivers are in source code. MYIR also offers plenty of MDK-ARM sample codes for this board. Customers can create their own applications based on the material. Please refer to the software features below:

OS	Item	Features	Description
Linux	Boot	Boot Strap	First boot program (source code available)
		u-boot	Secondary boot program, uboot1.3.4 (source code available)
		Boot Mode	Boot Linux from NAND Flash
		Image update	Support programming kernel image into Nand Flash through USB
		File system update	Support programming file system into Nand Flash through USB
	Kernel	Version	Linux 2.6.39 (source code available)
		File system	Supports ROM/CRAM/EXT2/EXT3/FAT/NFS/ JFFS2/UBIFS
File system	Format	UBIFS file system	
Drivers	USB Host, USB Device, Ethernet, MMC/SD, CAN, NandFlash, TWI (I2C), SPI, WM8731 (Audio), LCD Controller, RTC, Touch-Screen, PWM, UART, LED (source code available)		
Graphical Library	QT	Already ported (source code available)	
Android	Kernel	Version	Android 2.3.5
	Drivers	Ethernet, Serial port driver (USART0, DBGU), USB (USB_HOST*2,USB_OTG), MMC/SD, SPI, TWI, DMA, LCD+touch (LCD and touch screen driver), GPIO driver	
-	MDK Sample Code Bundle	Development tool	MDK-ARM 4.53
		Sample code	getting-started, adc_adc10, adc_touchscreen, can, dma, lcd, periph_protect, pmc_clock_switching, pwm, ssc_dma_audio, twi_eeprom, usart_serial, emac0, emac1, hsmci_multimedia_card, hsmci_sdcard, smc_nandflash, spi_serialflash, usb_audio_looprec, usb_cdc_serial, usb_core, usb_hid_keyboard, usb_hid_mouse, usb_hid_msd, usb_hid_transfer, usb_iad_cdc_cdc, usb_iad_cdc_hid, usb_iad_cdc_msd, usb_massstorage

Order Information

Product Item	Part No.	Packing List
MYS-SAM9G15 Development Board	MYS-SAM9G15	<ul style="list-style-type: none"> ➤ One MYS-SAM9X5 Single Board Computer ➤ One DB9-to-DB9 Serial cable ➤ One Net cable ➤ One USB cable ➤ One JTAG and UART conversion board ➤ One Product DVD (including user manual, datasheet, schematic in PDF format and software packages)
MYS-SAM9G25 Development Board	MYS-SAM9G25	
MYS-SAM9G35 Development Board	MYS-SAM9G35	
MYS-SAM9X25 Development Board	MYS-SAM9X25	
MYS-SAM9X35 Development Board	MYS-SAM9X35	
MY-LCD43TP 4.3-inch LCD Module	MY-LCD43TP	
MY-LCD70TP 7-inch LCD Module	MY-LCD70TP	
		Add-on Options <ul style="list-style-type: none"> ➤ MY-LCD43TP 4.3-inch LCD Module ➤ MY-LCD70TP 7-inch LCD Module
<p><i>Remark:</i></p> <ol style="list-style-type: none"> 1. For Price information, please contact MYIR. 2. Our products are delivered of commercial grade (0~70 Celsius) by default. Anyhow the MYS-SAM9X5 board based on Atmel ARM926EJ-S processor can work in harsh environment with working temperature ranging from -40 to 85 Celsius. Please contact us for price and availability of products of industrial grade if you needed. 3. We accept custom design based on the MYS-SAM9X5, whether reducing, adding or modifying the existing hardware according to customer's requirement. 		

More details about the [MYS-SAM9X5](#) can be found at:

<http://www.myirtech.com/list.asp?id=431>



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