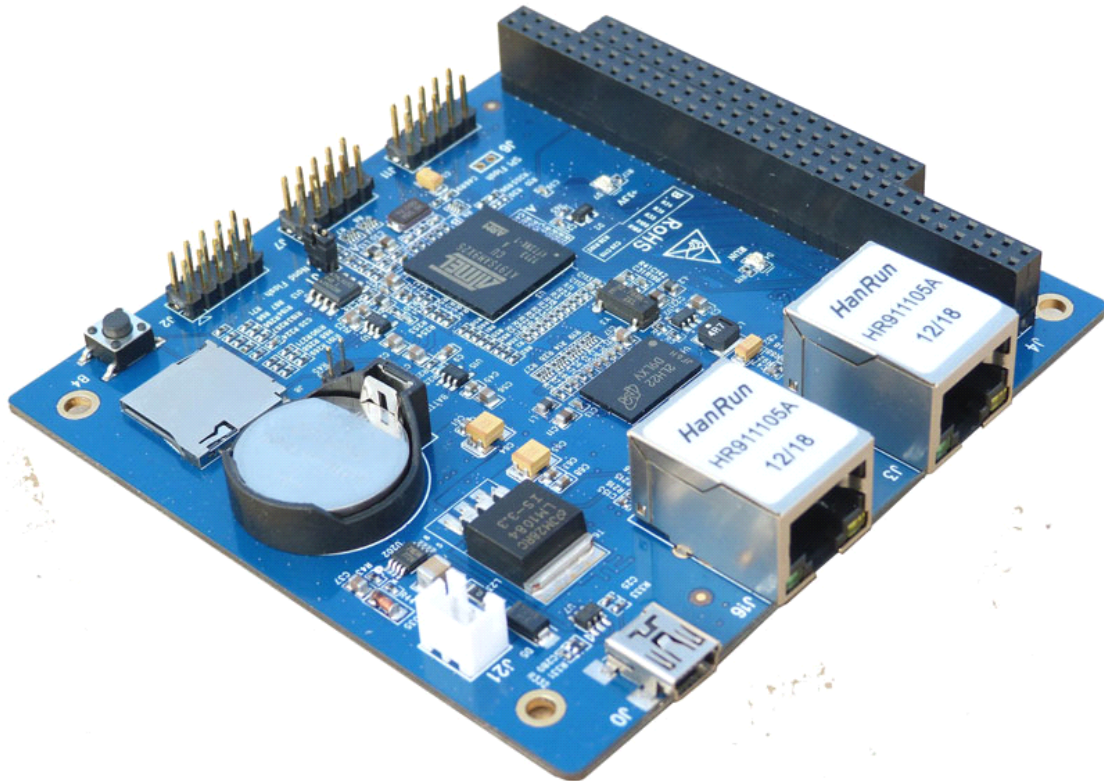


## SOC-SAM9X25 Industrial PC Overview

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### SOC-SAM9X25 Industrial PC Overview



- **CPU:** Atmel AT91SAM9X25 ARM926EJ-S Core Microprocessor
- **RAM:** 128MB DDR2 RAM
- **Flash:** 256MB Nand FLash
- Two Ethernet, TF card, USB Deveice and RTC on board support
- **Dimensions:** 96mm\*90mm, 6 layer
- **Working Temperature:** -40 to +85 Celsius
- 104Pin connector for more I/O, CAN, Uart, Modem and so on

### Overview

The SOC-SAM9X25 is a System on Module aim at Industrial Automation Area based on Atmel 2012 newest AT91SAM9X25. With high-performance (up to 400MHz ARM ARM926EJ-S 32bit RISC Core), the SOC-SAM9X25 pins out all of the GPIO resources (including PA0-PA14, PA21-PA30, PB11-PB18, PC0-PC17, PD14-PD21 etc.) and industrial peripheral resources (CAN、ADC、UART、 USB+PHY、 Soft Modem, Zigbee) by flexible Embedded Industrial Control Bus connector—PC104. Besides, The SOC-SAM9X25 integrate AT91SAM9x25, FLASH、 DDR and Ethernet, which solves the most complex problem of connection between DDR and CPU so that customers can use AT91SAM9x25 easily、 save the product development cycle dramatically and reduce the complexity and cost of the product effectively.

CoreWind offers Linux 2.6.39 for the boards. They are high-performance single board computer for industrial needs.



## Hardware

**Processor: Atmel AT91SAM9X25**

- Up to 400MHz ARM ARM926EJ-S Core Microprocessor

**RAM:** 128MByte DDR2

**Flash:** 256MB Nand Flash

**LED:** 1x power supply indicator and 1 x programmable indicator

**EEPROM:** 1x 256KB I2C EEPROM

**Power connector:** 5V DC

**NET:** Two Ethernet interface, RJ45 connector

**USB:** 1x USB 2.0 Device interface

**Debug:** 1 RS232 Debug Serial port(2x5 Pin header)

**UART:** 1 TTL Serial Port(Support expand RS485 or RS232 voltage)

**CAN:** One CAN bus interface(TTL voltage)

**PC104 connector**

- Five Serial Port(TTL voltage)
- Two CAN bus(TTL voltage)
- Two USB Host
- One Soft Modem
- Four-channel 16-bit PWM
- 12-channel 10-bit ADC
- One Two-wire Interface(same as IIC)
- Two SPI interface
- One SSC bus(Synchronous Serial Controller)

**Other connector resources**

- 1 x Nand Flash CS Jumper
- 1x Reset Button

## SoftWare

CoreWind offers Linux 2.6.39 for the boards. They are high-performance single board computer for industrial needs.

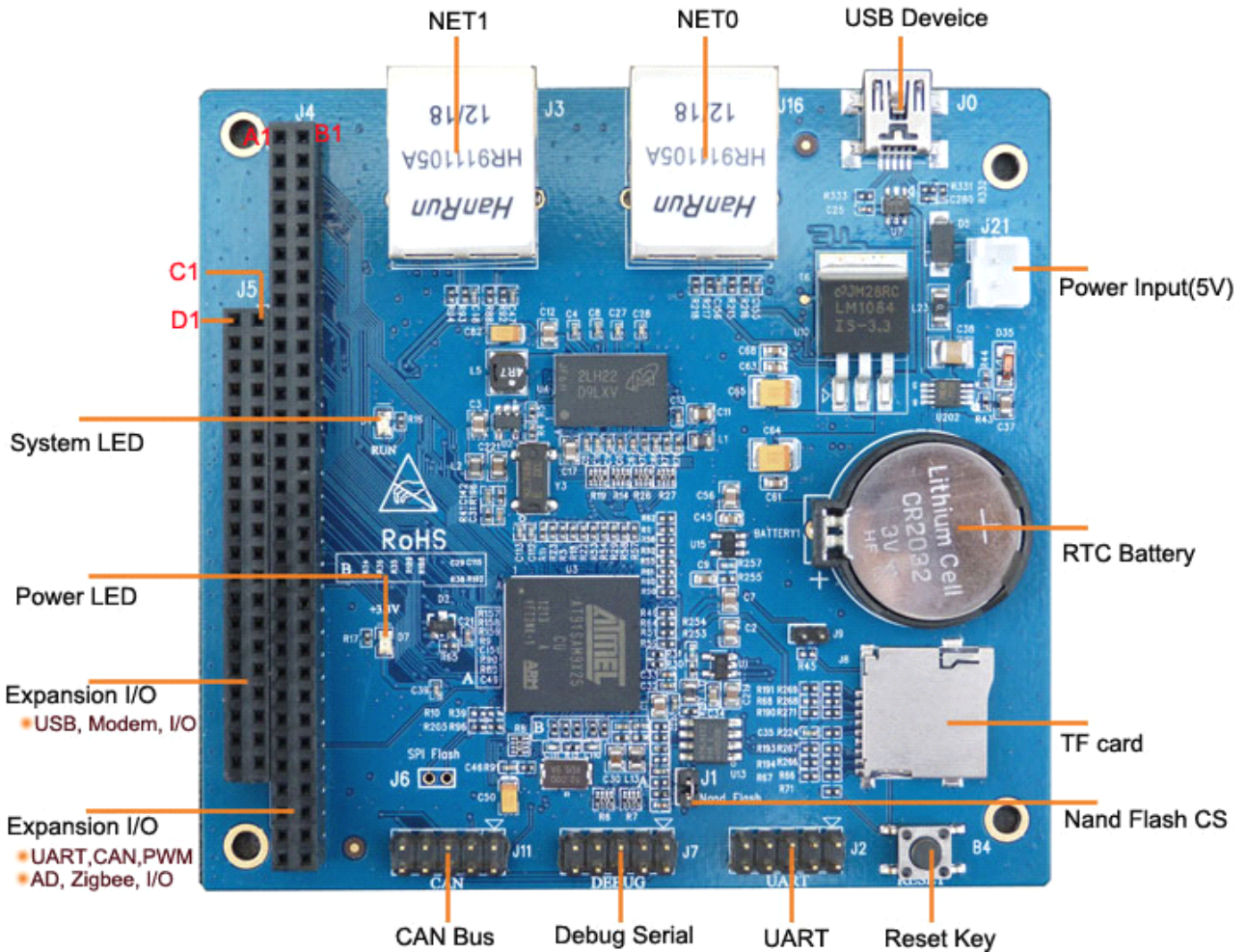
**Linux System:**

- **Update method:** Update the system by Samba or Tftp
- **Linux Version:** Linux 2.6.39 System
- **Driver Support**
  - Serial port, CAN bus driver, Ethernet Driver, Telnet, TCP/IP
  - USB Host, TF card , Soft Modem
- **FileSystem Support**
  - UBI Filesystem



## Connector On board

SOC-SAM9X25 Industrial PC have two connector for expanding all the IO from the CPU. Detailed pin explanation for the expansion connectors are as following:



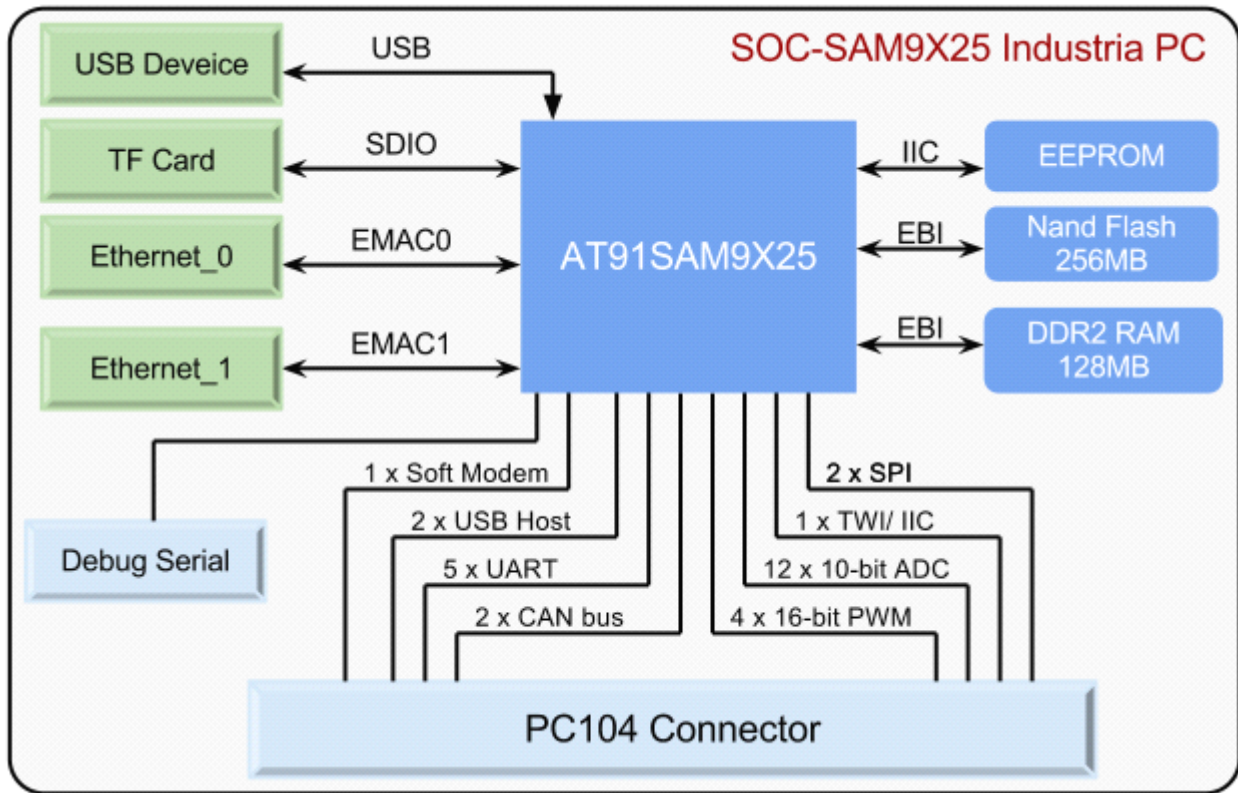
More Pin define, please see the **Appendix 1**.

## Application Field

- Data acquisition
- Home and Building Automation Control System
- Industrial Automation Peripheral
- Industrial PLC Application
- Industrial control



## Block diagram:



## Operating Condition

Environment	Min	Normal	Max
Temperature (Industrial Version)	-40°C	/	85°C
Temperature (Commercial Version)	0°C	/	70°C

## Electric Parameter

Symbol	Condition	Min	Normal	Max	Unit
Static parameter (Ta=+20° C)					
V <sub>Input</sub>	VDD5V supply voltage	4.7	5.0	5.3	V
I <sub>Input</sub>	EXT_5V supply current	TBD	TBD	TBD	mA
I/O parameter					
V <sub>IH</sub>	High electrical input	2			V
V <sub>IL</sub>	Low electrical input			0.8	V
V <sub>OH</sub>	High electrical input	3.3V-0.4			V
V <sub>OL</sub>	Low electrical input			0.4	V

• Recommend using 5V as the supply voltage of SOC-SAM9X25.

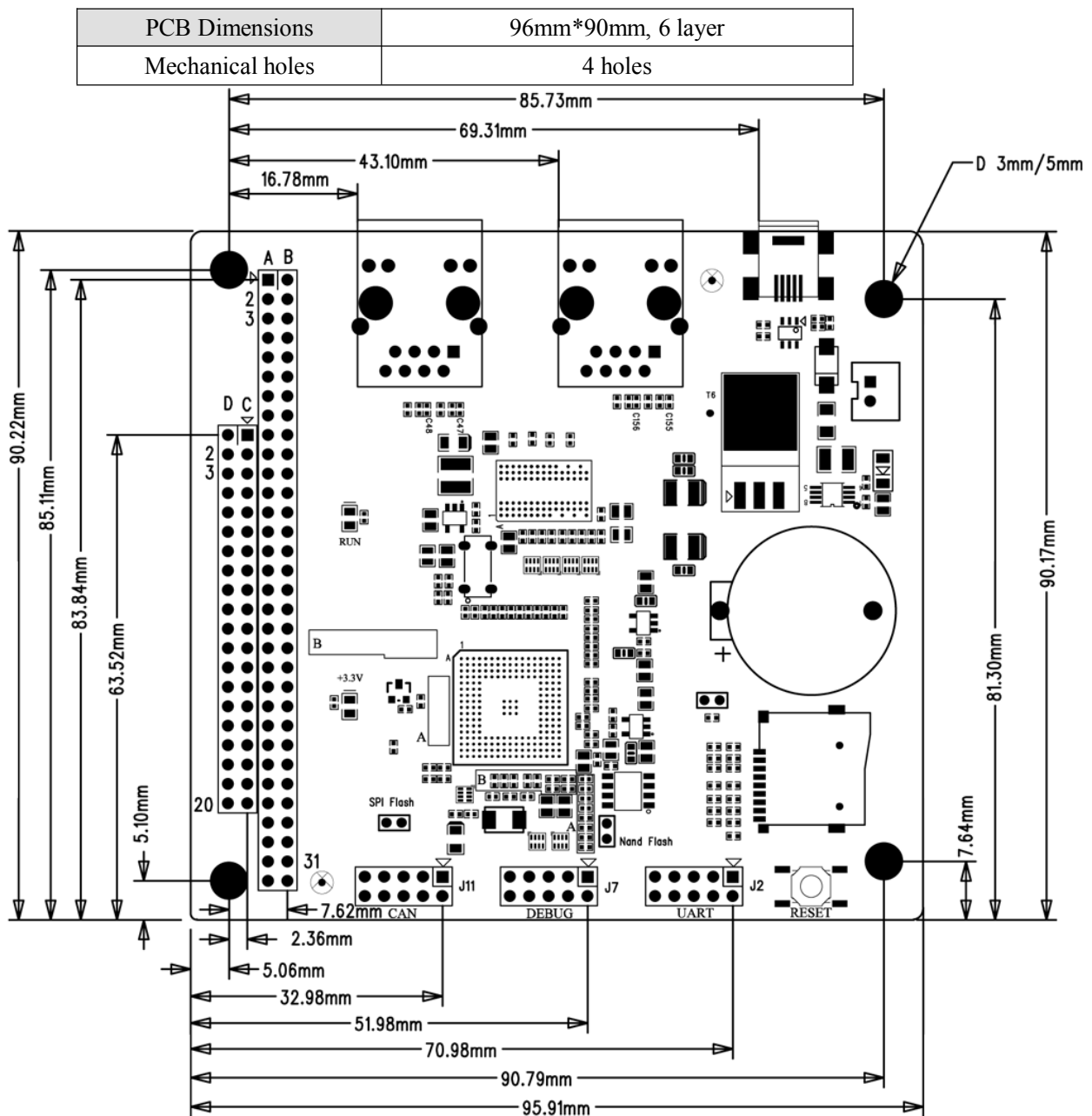


# SOC-SAM9X25 Industrial PC Overview

[www.armdevs.com](http://www.armdevs.com)

- The minimum consumption is measured value. During the measure, the system on module is power off and all the external supply power has been cut off.
- The normal consumption is measured value. During the measure, the system on module and the baseboard are working at full speed.
- The maximum consumption is estimated value. The estimated condition is that the SOM at full speed and all the external power supply network with the maximum current foreign power supply.

## Mechanical Data





## Order Information

Order No.	SOC-01
Item	SOC-SAM9X25 Industrial PC
HardWare	<ul style="list-style-type: none"><li>• One SOC-SAM9X25 Board</li><li>• One Serial cable(Include: 2*5Pin Header to DB9 adapter )</li><li>• One net cable</li><li>• One Mini-USB cable</li><li>• One 5V@2A Power adapter</li><li>• One CD</li></ul>
Software	<ul style="list-style-type: none"><li>• Documents (user manual, Datasheet, Schematic)</li><li>• Linux 2.6.39 BSP</li></ul>
Price	Please contact us ( <a href="mailto:market@armdevs.com">market@armdevs.com</a> ) Buy it on our website: <a href="http://www.armdevs.com">www.armdevs.com</a>



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**Website**: [www.armdevs.com](http://www.armdevs.com)



## Appendix 1

The Connector Define:

**Table 1 Connector J4(2x32Pin)**

J4	Define	Reuse Function	J4	Define	Reuse Function
A1(Pin1)	PB12	AD1/PWM1	B1	PB11	AD0/PWM0
A2	PB14	AD3/PWM3	B2	PB13	AD2/PWM2
A3	PB16	AD5	B3	PB15	AD4
A4	PB18	IRQ/LED	B4	PB17	AD6
A5	GND	Power GND	B5	GND	Power GND
A6	PC0	TWI1 TWD	B6	PC1	TWI1 TWCK
A7	PC2	Time/Control3	B7	PC3	Time/Control3
A8	PC4	Time/Control3	B8	PC5	Time/Control4
A9	PC6	Time/Control4	B9	PC7	Time/Control4
A10	PC8	UART UTXD0	B10	PC9	UART URXD0
A11	PC10	PWM0	B11	PC11	PWM1
A12	PC12	Time/Control5	B12	PC13	Time/Control5
A13	PC14	Time/Control5	B13	PC15	PCK0
A14	PA0	USART TXD0 /SPI1_NPCS1	B14	PC17	UART1 URXD1
A15	PA2	USART RTS0	B15	PA1	USART RXD0 /SPI0_NPCS2
A16	PA4	USART SCK0	B16	PA3	UART CTS0
A17	PA6	USART RXD1/CANRX1	B17	PA5	USART TXD1/CANTX1
A18	PA8	USART RXD2 /SPI1_NPCS0	B18	PA7	USART TXD2/SPI0_NPCS1
A19	PA10	DTXD/CANTX0	B19	PA9	DRXD/CANRX0
A20	PA12	SPI0_MOSI	B20	PA11	SPI0_MISO
A21	PA14	SPI0_NPCS0	B21	PA13	SPI0_SPCK
A22	GND	Power GND	B22	GND	Power GND
A23	PA26	SSC TD	B23	PA22	SPI1_MOSI
A24	PA27	SSC RD	B24	PA21	SPI1_MISO
A25	PA24	SSC TK	B25	PA30	SPI1_NPCS3/TWD0
A26	PA28	SSC RK	B26	PA23	SPI1_SPCK
A27	PA29	SSC RF	B27	PA25	SSC TF
A28	NRST	CPU Reset	B28	PA31	SPI1_NPCS2/TWCK0
A29	SHDN	Shut-Down Control	B29	WKUP	Wake-Up Input
A30	-		B30	VSBAT	RTC battle
A31	-		B31	-	
A32	VDD5V	Power In 5V	B32	VDD5V	Power In 5V



**Table 2 Connector J5(2x20Pin)**

J5	Define	Reuse Function	J5	Define	Reuse Function
D1	GND	Power GND	C1(Pin1)	GND	Power GND
D2	-		C2	-	
D3	-		C3	-	
D4	-		C4	-	
D5	-		C5	-	
D6	-		C6	-	
D7	PD14	I/O	C7	PD17	I/O
D8	PD16	I/O	C8	PD19	I/O
D9	PD18	I/O	C9	PD21	I/O
D10	PD20	I/O	C10	PC24	USART RTS3
D11	PC22	USART TXD3	C11	PC25	USART CTS3
D12	PC23	USART RXD3	C12	-	
D13	GND	Power GND	C13	GND	Power GND
D14	-		C14	HHSDPC	USB HOST C FS D-
D15	-		C15	HHSDMC	USB HOST C FS D+
D16	-		C16	DIBN	Soft Modem Signal
D17	-		C17	DIBP	Soft Modem Signal
D18	-		C18	HHSDMB	USB HOST B HS D-
D19	-		C19	HHSDPB	USB HOST B HS D+
D20	VDD5V	Power In 5V	C20	VDD5V	Power In 5V