

Overview Single Board Computers

	emSBC-Argon	emCBC-Neon-CM4	emSBC-Neon-CM7	emSBC-Helium	emSBC-Helium-IoT	emSBC-RZN1D	emSBC-SAMA5D36
							
CPU Name	STM32MP157CAC	STM32F479	STM32F769NI	ATSAMA5D27	ATSAMA5D27	R9A06G032NGBG	ATSAMA5D36
CPU Manufacturer	STMicroelectronics	STMicroelectronics	STMicroelectronics	Microchip	Microchip	Renesas	Microchip
CPU architecture	"Dual ARM Cortex-A7 + ARM Cortex-M4"	ARM Cortex-M4	ARM Cortex-M7	ARM Cortex-A5	ARM Cortex-A5	"Dual ARM Cortex-A7 + ARM Cortex-M3"	ARM Cortex-A5
CPU performance	2 x 650 MHz - 2740 DMIPS + 200 MHz - 250 DMIPS	180 MHz - 225 DMIPS	216 MHz - 462 DMIPS	500 MHz - 785 DMIPS	500 MHz - 785 DMIPS	"2 x 500 MHz + 125 MHz"	536 MHz - 850 DMIPS
Co Processor	ARM Neon, FPU	-	-	ARM Neon, FPU	ARM Neon, FPU	ARM Neon, FPU	ARM Neon, FPU
Operating system	Linux	FreeRTOS	FreeRTOS	Linux	Linux	Linux	Linux
CANopen Master/ Slave	on request	on request	on request	on request	on request	on request	on request
EtherNet/ IP	-	-	-	-	-	on request	-
PROFINET CCB RT1	-	-	-	-	-	on request	-
Security	Crypto, TRNG, tamper, secure boot, Trust Zone	-	-	Crypto, TRNG, tamper, secure boot, environmental monitors, Trust Zone	Crypto, TRNG, tamper, secure boot, environmental monitors, Trust Zone	-	Encryption, TRNG, secure boot
SDRAM	512 MB DDR3L SDRAM	32 MB SDRAM	32 MB SDRAM	512 MB DDR3L SDRAM	512 MB DDR3L SDRAM	512 MB DDR3L SDRAM	512 MB DDR3L SDRAM
Nand Flash	8 GB eMMC	-	-	4GB eMMC	4GB eMMC	4GB eMMC	512 MB SLC NAND
NOR Flash	2 MB	up to 16 MB	up to 16 MB	4 MB	4 MB	32 MB	4 MB
internal SRAM	708 kB	384 kB	512 kB	128 kB	128 kB	6 MB	128 kB
internal NOR Flash	-	512 kB	512 kB	-	-	-	-
I ² C	2 x	1 x	1 x	3 x FlexCOM	2 x FlexCOM	-	3 x
USB 2.0 Host	1 x	1 x	1 x	1 x	1 x	-	2 x
USB 2.0 Device	1 x OTG	1 x	1 x	1 x	1 x	-	1 x
SPI	1 x	2 x	2 x	3 x FlexCOM	3 x FlexCOM	-	1 x
CAN 2.0	2 x FD-CAN	1 x with transceiver	1 x with transceiver	1 x	1 x	2 x with transceiver	2 x
UART	3 x (2 x incl RTS/CTS)	2 x (1 x incl RTS/CTS)	2 x (1 x incl RTS/CTS)	1 x (+ 3 x FlexCOM)	1 x RS232, 1 x RS485, 1 x LVTTTL	1 x RS232, 2 x RS485, 1 x LVTTTL	4 x
GPIO	8 x	6 x	6 x	34 x	2 x 24 V	-	up to 52
PWM	5 x	6 x	6 x	2 x	-	-	4 x
ADC	3 x 16 Bit	3 x 12 Bit	3 x 12 Bit	12 x 12 Bit	2 x	-	5 x
DAC	2 x 12 Bit	2 x 12 Bit	2 x 12 Bit	-	-	-	-
MMC/ SDC	1 x Pinheader or µSD-Card	1 x µSD-Card	1 x µSD-Card	1 x micro SD	1 x micro SD	-	1 x micro SD
Ethernet	1 x 100 Base -TX	1 x 100 Base -TX	1 x 100 Base-TX	1 x 100 Base-TX	1 x 100 Base-TX	"2 x 1000 Base-TX + 2 x 100 Base-TX"	"1 x 1000 Base-TX + 1 x 100 Base TX"
SAI	1 x	1 x	1 x	-	-	-	1 x
LCD	1 x DSI, 24 Bit	1 x RGB18	1 x RGB18	1 x RGB18	-	-	1 x RGB18
RTC/Battery	1 x / CR1225	1 x / CR1632	1 x / CR1632	1 x / CR1225	1 x / CR1225	1 x / CR1225	1 x / CR1632
JTAG	No	Yes	Yes	No	No	Yes	Yes
LED	1 x green + 1 x green/ red	-	-	1 x green + 1 x red	1 x green + 1 x red	4 x green	4 x yellow
TPM v 1.2	-	-	-	AT9C3205	-	-	-
Other					optional Wireless Modules (2 x mini PCIe Socket)	Industrial Communication Middlewa-re Goal by Port	
Size in mm	105 x 78 x 16	118 x 54 x 18	118 x 54 x 18	110 x 72 x 16	120 x 100 x 22,5	110 x 90 x 15	135 x 74 x 15
Operating temperature	-25°C ... +85°C	0°C ... +70°C	0°C ... +70°C	-20°C ... +85°C	-20°C ... +85°C	0°C ... 70°C	0°C ... 70°C
Power supply	7 V .. 24 V				5 ... 28 V / 0,5 A @ 24 V	10... 30 V/ 0.2 A @ 24 V	5 V
(Power down/ Wake)	Yes	Yes	Yes	Yes	No	No	Yes
Customer specific solutions	Yes	Yes	Yes	Yes	No	No	No
Easy Layout Integration	"emSTAMP-Argon, 1.0 mm I/O-Pitch"	"emSTAMP Neon, 1.0 mm I/O-Pitch "	"emSTAMP Neon, 1.0 mm I/O-Pitch "	"emSTAMP Helium, 2.54 mm I/O-Pitch"	-	-	-