

armStone™ A9r4

Single Board Computer with NXP i.MX 6 Processor

Characteristics

- NXP i.MX 6Solo/DualLite/Quad ARM® Cortex®-A9 with max. 1GHz
- up to 4GB DDR3L RAM, 512MB SLC Flash, 32GB eMMC
- TFT via 2x LVDS and DVI
- 3D, 2D
- 1x Ethernet 10/ 100/ 1000Mb
- 1x USB 2.0 Device, 4x USB 2.0 Host
- 2x CAN 2.0, 1x I²C, 2x SPI
- 5x Serial (2x RS232, 3x TTL)
- 1x micro-SD card, 1x mPCIe, 1x SATA
- 1x MIPI-CSI Camera
- Audio Line IN/ OUT/ MIC, Touch via I²C
- Linux (Buildroot, Yocto), Windows Embedded Compact 2013
- 5V Low Power Design (about 4W typ.)

Description

armStone™ A9r4 is another compact and very powerful Single Board Computer in PicoITX form factor.

Compared to armStone™ A9, it comes with eMMC, CAN PHY, additional serial interfaces.

The Cortex®-A9 CPU by NXP is available in a Quad, DualLite or Solo version and it is perfectly suited for multimedia applications. The module comes with a high capacity of RAM, Flash and eMMC memory. armStone™ A9r4 has communication interfaces like CAN, mPCIe, I²C, SATA, Gigabit Ethernet, camera interface, etc., which are highly relevant for medical and industrial fields.

Furthermore it offers 2-channel LVDS and DVI.

Resistive as well as capacitive touch panels can be connected via I²C.

Available operating systems are Windows Embedded Compact 2013 and Linux (Buildroot or Yocto). 5V power supply consumes only about 4W typ.

On-Board Operating System

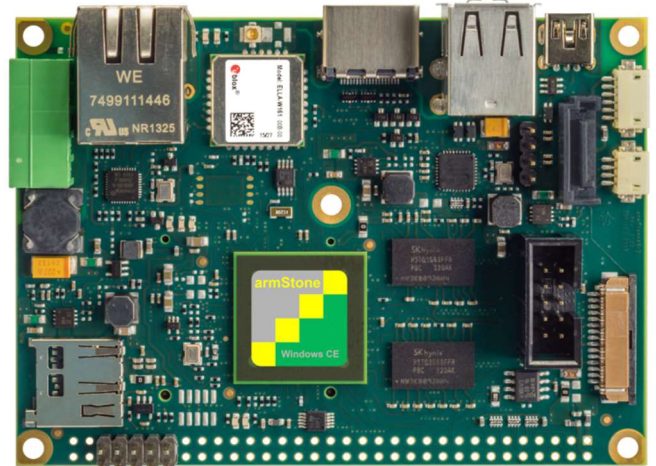


The customized WEC 2013 (Bootloader, Kernel, interface drivers, Silverlight, Mediaplayer, IE) is an efficient real-time operating system.

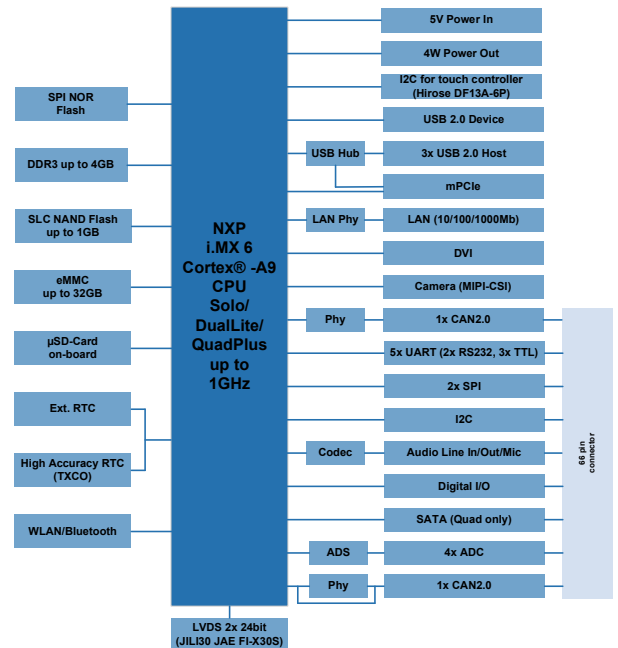
Together with Framework 3.5 it is ideal for software development.



The F&S Linux BSP (uboot, Buildroot, QT, GStreamer) contains the customized kernel and all interface drivers including source. A Cross Compiler Toolchain is offered for the development of own software. Android is available as well.



Block Diagram



Starterkit

The armStone™ A9r4-SKIT is available with Linux or WEC 2013. It consists of an armStone™ A9r4-V3 board, a set of cables and the access data for the download area. In the download area the current software and documentation can be downloaded and installed. A forum with more than 3000 registered customers offers example programs and free support for customers. A workshop and other accessories pave the way for an easy start of development.



Connector Assignment

J1 – Feature Connector											
1	VCC3.3 (J5 pin 26)	12	XGPIO8/SPI1_CLK	23	XGPIO15/ROW5/TXD3	34	Backlight On	45	LINEOUT_R	56	RTS0 (RS232)
2	VCC5	13	GPIO0/TXD2	24	XGPIO16/ROW6/CTS4	35	ADC_IN3	46	GND	57	TX0 (RS232)
3	XGPIO0/COL0	14	XGPIO9/SPI1_CS _n	25	XGPIO17/ROW7/RXD3	36	RXD1 RS232	47	GND	58	CTS0 (RS232)
4	XGPIO1/COL1/SPI2_CLK	15	GPIO1/RXD2	26	XGPIO18 (J5 pin1)	37	GND	48	LINEIN_L	59	nc
5	XGPIO2/COL2	16	I2CLK/SPI1_MOSI	27	GND	38	TXD1 RS232	49	LINEOUT_L	60	nc
6	XGPIO3/COL3/SPI2_CS _n	17	I2DAT/SPI1_MISO	28	PWMOUT0	39	VCC3.3	50	GND	61	GND
7	XGPIO4/COL4	18	XGPIO10/ROW0/TXD4	29	ADC_IN0	40	VCC5	51	RESETBTN	62	VCC5 (COM keypin)
8	XGPIO5/COL5/SPI2_MOSI	19	XGPIO11/ROW1/RTS2	30	PWMOUT1	41	MIC1 (Audio pin 1)	52	VCC3.3	63	CAN1RX/CAN1L
9	XGPIO6/COL6	20	XGPIO12/ROW2/RXD4	31	ADC_IN1	42	GND	53	nc (COM pin1)	64	CAN1TX/CAN1H
10	XGPIO7/COL7/SPI2_MISO	21	XGPIO13/ROW3/CTS2	32	PWMOUT2	43	nc	54	nc	65	BOOTSEL
11	GND	22	XGPIO14/ROW4/RTS4	33	ADC_IN2	44	LINEIN_R	55	RX0 (RS232)	66	BOOTSEL

Accessories

TFT & capacitive Touch

7" WVGA Display with LVDS interface and fitting connection cable (JAE FI-X30 connector), furthermore, the display has a capacitive touch panel.

Displaykit LVDS

7" WVGA Display with LVDS interface and fitting connection cable (JAE FI-X30 connector)

armStone Extension

Routes interfaces of the 66pin feature connector to standard connectors.

Failsafe Flash Filesystem (F3S)

The Failsafe Flash Filesystem F3S offers transaction safety on file level and therefore guarantees the consistency of the data, even in case of a blackout or other interferences while writing.

Detailed information on our accessories is available on our homepage.

Technical Data

Power Supply:	+5V _{DC} ± 5%
Power Consumption:	4W typ.
Digital I/O:	max. 66 I/ O ports
Touch Panel:	4-wire, analog resistive and (via I ² C) capacitive Touch
Interfaces:	1x 10/100/1000Mb Ethernet 5x Serial (2x RS232/ 3x TTL) 4x USB Host 1x USB Device 1x I ² C 2x SPI 2x CAN 1x micro-SD Card on-board 1x Audio (IN/ OUT/ MIC) 1x miniPCIe 1x MIPI-CSI Camera 1x SATA
TFT-LCD Interface:	2x 18/24bit LVDS
Screen:	DVI up to FullHD
RAM:	up to 4GB DDR3L
Program Memory:	up to 512MB SLC + 32GB eMMC
Processor:	NXP i.MX 6 Cortex-A9 (Solo/DualLitw/QuadPlus) max. 1GHz
Temperature Range:	0°C - +70°C (opt. -20°C - +85°C)
Size:	100mm x 72mm x 15mm (l x b x d)
Weight:	~60g

Standard Versions/ Order Notations

armStoneA9r4-V2I-LIN

Solo, 512MB RAM, 256MB Flash, Audio, Ethernet, 2x CAN, DVI, -20°C-+85°C, Linux

armStoneA9r4-V2I-W13

Solo, 512MB RAM, 256MB Flash, Audio, Ethernet, 2x CAN, DVI, -20°C-+85°C, WEC2013

armStoneA9r4-V3-W13

DualLite, 1GB RAM, 256MB Flash, 4GB eMMC, Audio, Ethernet, 2x CAN, PCIe, MIPI-CSI Camera, LVDS/DVI, 0°C-+70°C, WEC 2013

armStoneA9r4-V3-LIN

DualLite, 1GB RAM, 256MB Flash, 4GB eMMC, Audio, Ethernet, 2x CAN, PCIe, MIPI-CSI Camera, LVDS/DVI, 0°C-+70°C, Linux

armStoneA9r4-V4-LIN

Quad, 1GB RAM, 256MB Flash, 4GB eMMC, Audio, Ethernet, 2x CAN, PCIe, SATA, MIPI-CSI Camera, LVDS/DVI, 0°C-+70°C, Linux

armStoneA9r4-V4-W13

Quad, 1GB RAM, 256MB Flash, 4GB eMMC, Audio, Ethernet, 2x CAN, PCIe, SATA, MIPI-CSI Camera, LVDS/DVI, 0°C-+70°C, WEC 2013

Standard Versions/ Order Notations

armStoneA9r4-V5-LIN

DualLite, 1 GB RAM, 256MB Flash, 4GB eMMC, Audio, Ethernet, 2x CAN, MIPI-CSI Kamera, LVDS/DVI, 0°C-+70°C, Linux

armStoneA9r4-V5-W13

DualLite, 1 GB RAM, 256MB Flash, 4GB eMMC, Audio, Ethernet, 2x CAN, MIPI-CSI Kamera, LVDS/DVI, 0°C-+70°C, WEC2013

armStoneA9r4-SKIT-WCE

armStoneA9r4-V3-W13, connection cable and access data to documentation and software

armStoneA9r4-SKIT-LIN

armStoneA9r4-V3-LIN, connection cable and access data to documentation and software

