

# armStone™ A9r2

## Single Board Computer with NXP i.MX 6 Processor

### Characteristics

- NXP i.MX 6Solo/DualLite/QuadPlus ARM® Cortex®-A9 with max. 1GHz
- up to 4GB DDR3L RAM, 1GByte SLC Flash, 32GB eMMC
- TFT via 2x LVDS and DVI
- 3D, 2D, OpenGL/ ES, OpenVG
- 1x Ethernet 10/ 100/ 1000Mb
- 1x WLAN/Bluetooth
- 1x USB 2.0 Device, 4x USB 2.0 Host
- 2x CAN 2.0, 1x I<sup>2</sup>C, 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 I<sup>2</sup>C
- Linux (Buildroot, Yocto),  
Windows Embedded Compact 2013

### Description

armStone™ A9r2 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 and WLAN/Bluetooth. The Cortex®-A9 CPU by NXP is available in a QuadPlus, 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™ A9r2 has communication interfaces like CAN, mPCIe, I<sup>2</sup>C, 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 I<sup>2</sup>C. Available operating systems are Windows Embedded Compact 2013 and Linux (Buildroot or Yocto).

### On-Board Operating System

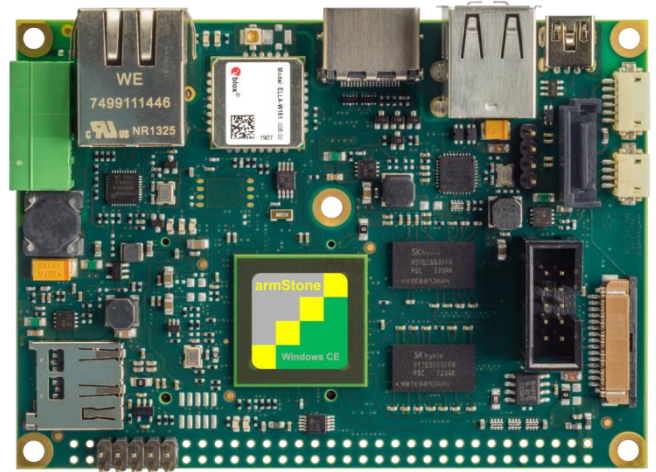


The customized WEC 2013 (Bootloader, Kernel, interface drivers, Silverlight, Mediaplayer, IE) is an efficient real-time operating system.

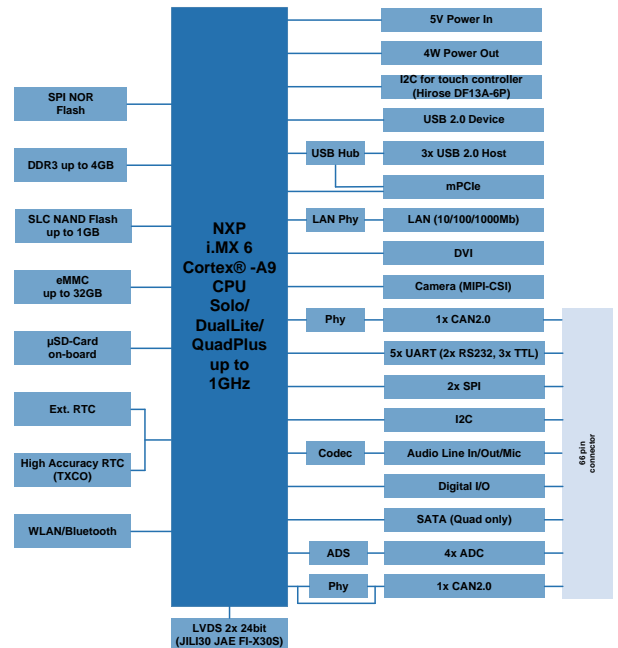
Together with Framework 3.5 it is ideal for software development.



The F&S Linux BSP (3.3., 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™ A9r2-SKIT is available with Linux or WEC 2013. It consists of an armStone™ A9r2-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 2000+ 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 <sub>n</sub>	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 <sub>n</sub>	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

SKU: SINTF-LVDSTOUCH2

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

### Displaykit LVDS

SKU: SINTF-LVDS2

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

### armStone Extension

SKU: aStone-ADP-UN1

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

### Failsafe Flash Filesystem (F3S)

SKU: WCE-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.

### UpDate Software

SKU: WCE-UPDATE

This program package allows a safe and easy update of the application program and the operating system via USB Stick or SD Card. Blackouts and other interferences during the update are considered.

Detailed information on our accessories is available on our homepage.

## Technical Data

Power Supply:	+5V <sub>DC</sub> ± 5%
Power Consumption:	4W typ.
Digital I/O:	max. 66 I/ O ports
Touch Panel:	4-wire, analog resistive and (via I <sup>2</sup> C) capacitive Touch
Interfaces:	1x 10/100/1000Mb Ethernet 1x WLAN/Bluetooth 5x Serial (2x RS232/ 3x TTL) 4x USB Host 1x USB Device 1x I <sup>2</sup> 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 1GB 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

### armStoneA9r2-V1-LIN

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

### armStoneA9r2-V1-W13

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

### armStoneA9r2-V2I-LIN

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

### armStoneA9r2-V2I-W13

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

### armStoneA9r2-V3-W13

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

### armStoneA9r2-V3-LIN

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

## Standard Versions/ Order Notations

### armStoneA9r2-V4-LIN

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

### armStoneA9r2-V4-W13

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

### armStoneA9r2-SKIT-WCE

armStoneA9r2-V3-W13, connection cable and access data to documentation and software

### armStoneA9r2-SKIT-LIN

armStoneA9r2-V3-LIN, connection cable and access data to documentation and software

**Minimum Order Quantity for Custom Versions: 300 pieces**

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