

# armStone™ A9r2

## 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 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, 1x WLAN/BT
- Audio Line IN/ OUT/ MIC, Touch via I<sup>2</sup>C
- Linux (Buildroot, Yocto), Windows Embedded Compact 2013
- 5V Low Power Design (about 4W typ.)

### 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/BT. 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™ 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). 5V power supply consumes only about 4W typ.

### On-Board Operating System

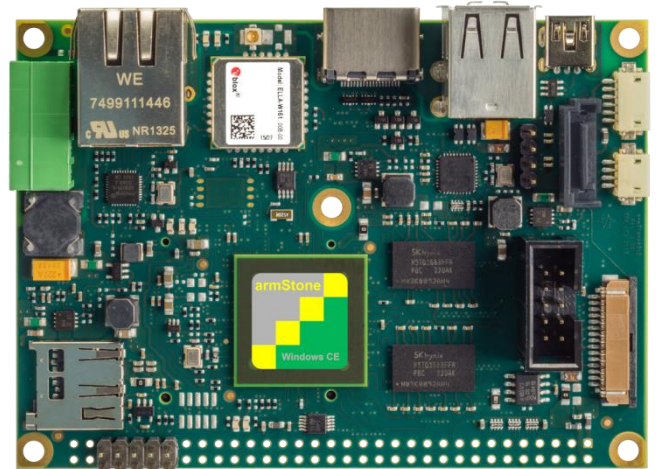


The customized WEC 2013 (Bootloader, Kernel, interface drivers, Silverlight, Mediaplayer, IE) is an efficient real-time operating system.

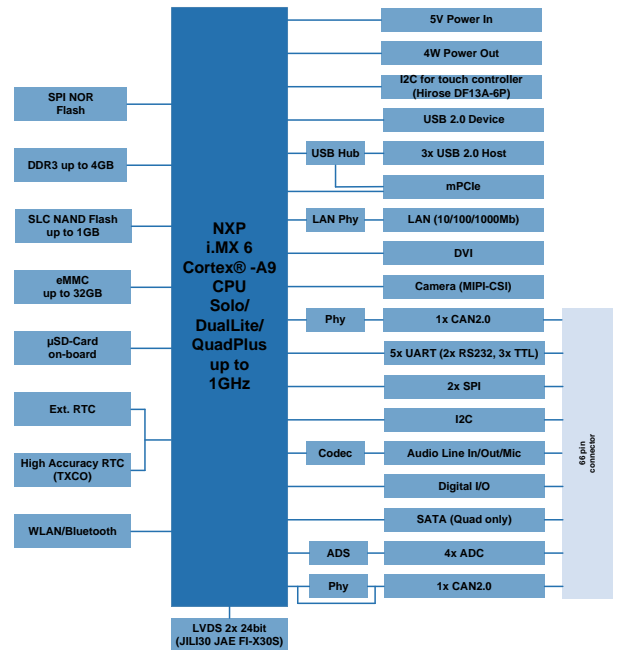
Together with Framework 3.5 it is ideal for software development.



The F&S Linux BSP (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 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/SPH1_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/SPH1_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/SPH1_MOSI	27	GND	38	TXD1 RS232	49	LINEOUT_L	60	nc
6	XGPIO3/COL3/SPI2_CS <sub>n</sub>	17	I2DAT/SPH1_MISO	28	PWMOUT0	39	VCC3.3	50	GND	61	GND
7	XGPIO4/COL4	18	XGPIO10/ROW0/TXD4	29	ADC_IN0	40	VCC5	51	RESETPBTN	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 <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 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

#### 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

#### 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

### Standard Versions/ Order Notations

#### armStoneA9R2-V5-LIN

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

#### 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 Special Versions

Customer-Specific Software	<b>500 pieces</b>
Assembly Variant	<b>1000 pieces</b>

