

# armStone™ A5

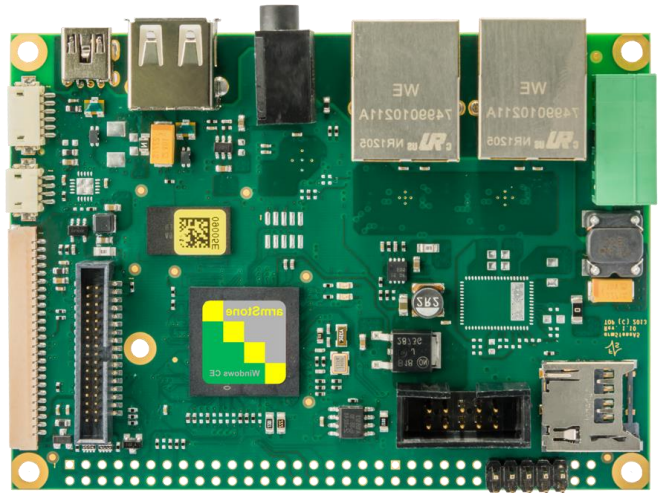
## Single Board Computer with NXP Vybrid Processor

### Characteristics

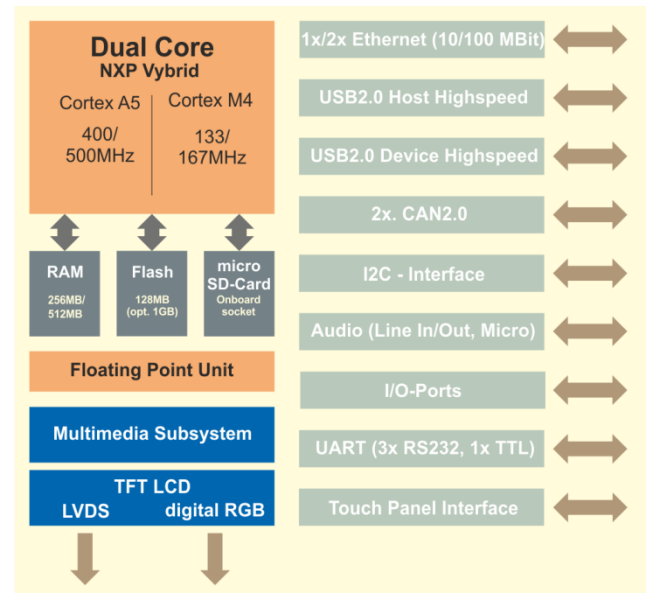
- NXP Dual-Core Vybrid Cortex®-A5 - 400MHz (500MHz) & Cortex® M4 - 167MHz
- up to 1GB SLC Flash, up to 512MB RAM
- TFT up to XGA- (LVDS-)/ SVGA- (RGB-) resolution
- 2x Ethernet 10/ 100Mbit
- 1x USB 2.0 Device
- 1x USB 2.0 Host
- 2x CAN 2.0
- 1x I<sup>2</sup>C
- 1x SPI
- 3x Serial (2x RS232, 1x TTL 3,3V level)
- 1x micro-SD Card
- Audio Line IN/ OUT/ MIC, Touch Controller
- Windows Embedded Compact 7/2013/  
Windows Embedded CE 6.0, Linux

### Description

The armStoneA5 is a compact and cost-efficient Single Board Computer. The PicoITX form factor is perfectly suited for the development of small but powerful applications. The Dual-Core Vybrid CPU by NXP has a Cortex™ A5 - 500MHz as well as a Cortex™ M4 - 167MHz core. The CPU is available for at least 10 years. Up to 512MB RAM, up to 1GB Flash and many communication interfaces (for example USB Host/ Device, CAN, I<sup>2</sup>C, SPI,...) are available. Furthermore, the board is equipped with a LVDS interface up to XGA and a RGB interface up to SVGA (can be used alternatively). Touch Panel interfaces for resistive and capacitive Touch Panels are offered as well.



### Block Diagram



### On-Board Operating System



WEC 7/2013 offers bootloader, interface drivers and kernel with (e.g.) Silverlight, Media-player or IE.

This high-performance real-time operating system comes with Compact Framework 3.5 and is an ideal base for software development.



The Linux BSP 3.3 (uboot, Buildroot, QT and GStreamer) with interface drivers (in Source Code) is available, as well as a Toolchain for the development of own bootloaders, images and application software.

### Starterkit

The armStoneA5-SKIT is available with either a Linux- or a WEC 2013-version. It consists of the armStone board, a kit of connection cables, a 7" EDT TFT with resistive Touch, adapter board and cable. Software and documentation are accessible in our download area.

A forum with 2000+ registered customers offers example programs and free support. An additional workshop helps with a quick start of development.

## Connector Assignment

J1 – Feature Connector											
1	VCC3.3 (J5 pin 26)	12	XGPIO8/SPI_CLK	23	XGPIO15/ROW5	34	VCFL_ON	45	LINEOUT_R	56	RTS0 (RS232)
2	VCC5	13	TX1/GPIO0	24	XGPIO16/ROW6	35	ADC_IN3	46	GND	57	TX0 (RS232)
3	XGPIO0/COL0	14	XGPIO9/SPI_CS <sub>n</sub>	25	XGPIO17/ROW7	36	RXD2 (RS232)	47	GND	58	CTS0 (RS232)
4	XGPIO1/COL1	15	RX1/GPIO1	26	XGPIO18	37	GND	48	LINEIN_L	59	nc
5	XGPIO2/COL2	16	I2CLK/SPI_MOSI	27	GND	38	TXD2 (RS232)	49	LINEOUT_L	60	nc
6	XGPIO3/COL3	17	I2DAT/SPI_MISO	28	PWMOUT0	39	VCC3.3	50	GND	61	GND
7	XGPIO4/COL4	18	XGPIO10/ROW0	29	ADC_IN0	40	VCC5	51	RESEBTBN	62	VCC5 (COM keypin)
8	XGPIO5/COL5	19	XGPIO11/ROW1	30	PWMOUT1	41	MIC1 (Audio pin 1)	52	VCC3.3	63	CANRX/CANL
9	XGPIO6/COL6	20	XGPIO12/ROW2	31	ADC_IN1	42	GND	53	nc (COM pin1)	64	CANTX/CANH
10	XGPIO7/COL7	21	XGPIO13/ROW3	32	PWMOUT2	43	nc	54	nc	65	BOOTSEL
11	GND	22	XGPIO14/ROW4	33	ADC_IN2	44	LINEIN_R	55	RX0 (RS232)	66	VCC3.3

### LCD Connection

#### TFT & Cap. Touch

7" WVGA Display with LVDS interface and fitting connection cable (25pol connector), furthermore, the display has a capacitive touch panel

#### Displaykit LVDS

7" WVGA Display with LVDS interface and fitting connection cable (25pol connector)

#### Displaykit RGB

7" WVGA Display with RGB interface and resistive Touchpanel, fitting connection cable, display adapter and touch cable

#### Safe Filesystem (F3S)

It 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

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.

#### armStone Extension

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

### Technical Data

Power Supply:	5V or 8-14V (opt.) $\pm 5\%$
Power Consumption:	3W typ.
Digital I/O:	max. 66 ports
Touch Panel:	4-wire, analogue resistive PCAP-Touch interface via I <sup>2</sup> C
Interfaces:	1-2x Ethernet 10/ 100 MBit 3x Serial (1x with RTS/ CTS) 1x USB 2.0 Host 1x USB 2.0 Device 2x CAN 2.0 (1x TTL) 1x I <sup>2</sup> C 1x SPI 1x Audio-Line IN/ OUT/ MIC 1x micro SD Card Slot
TFT LCD Interface:	TFT up to XGA (1024x768, 65536 colors) via LVDS 6bit TFT up to SVGA (800x600, 65536 colors) via RGB
RAM:	256MB (512MB opt.)
Program Memory:	128MB Flash (1GB opt.)
Processor:	NXP Vybrid Cortex® A5-400MHz (500MHz opt.) And Cortex® M4-167MHz (opt.)
Temperature Range:	0°C - +70°C, -20°C - +85°C (opt.)
Size:	100mm x 72mm x 15mm (l x b x d)
Weight:	about 40g

### Standard Versions/ Order Notations

#### aStoneA5-V2-W13/WEC7/WCE

Cortex®-A5 - 500MHz & Cache & Cortex®-M4, 256MB RAM, 128MB Flash, Audio, 2x Ethernet, 2x CAN, RGB, LVDS, 5V Supply, 0°C - +70°C, WEC 7/2013/WCE 6.0

#### aStoneA5-V2-LIN

Cortex®-A5 - 500MHz & Cache & Cortex®-M4, 256MB RAM, 128MB Flash, Audio, 2x Ethernet, 2x CAN, RGB, LVDS, 5V Supply, 0°C - +70°C, Linux

#### aStoneA5-V1-W13/WCE

Cortex®-A5 - 500MHz, 256MB RAM, 128MB Flash, Audio, 1x Ethernet, 1x CAN, RGB, LVDS, 5V Supply, 0°C - +70°C, WEC 2013/WEC 6.0

#### aStoneA5-V1-LIN

Cortex®-A5 - 500MHz, 256MB RAM, 128MB Flash, Audio, 1x Ethernet, 1x CAN, RGB, LVDS, 5V Supply, 0°C - +70°C, Linux

#### aStoneA5-V1-WEC7

Cortex®-A5 - 500MHz, 256MB RAM, 128MB Flash, Audio, 1x Ethernet, 1x CAN, RGB, LVDS, 5V Supply, 0°C - +70°C, WEC 7

Minimum Order Quantity for Special Versions: 500 pieces

### Standard Versions/ Order Notations

#### aStoneA5-SKIT-W13

aStoneA5-V2-W13, cable kit, 7" EDT TFT Res. Touch with adapter board and cable

#### aStoneA5-SKIT-LIN

aStoneA5-V2-LIN, cable kit, 7" EDT TFT Res. Touch with adapter board and cable

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