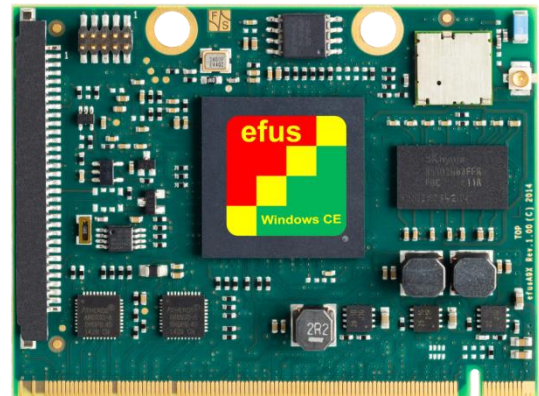


### Characteristics

- NXP i.MX 6 SoloX applications processor  
Cortex®-A9 – 1GHz and Cortex®-M4 -200MHz
- GPU: GC400T 2D, 3D
- 512MB NAND Flash, 2GB DDR3 RAM, 32GB eMMC
- LCD interface for TFT: RGB up to XGA resolution, 18Bit, LVDS up to WXGA resolution, 24Bit, optional 18 Bit LVDS via MXM2
- 2x Ethernet 10/ 100/ 1000Mbit, PCIe
- 1x USB 2.0 Host, 1x USB 2.0 Host/Device
- 4x UART, 2x CAN 2.0, 2x I<sup>2</sup>C, 2x SPI
- 2x SD Card Slot (external), Audio (I2S), GPIO, PWM
- Touch (4-wire and PCAP via I<sup>2</sup>C, external)
- Camera (Analog & Parallel), WLAN/BT (opt.)
- High Precision TXCO (opt.)
- Linux, WEC 2013/ WEC 7
- 5V (2W typ.), 230Pin MXM2, 47 x 62mm



### Description

efus™ A9X is another compact and inexpensive module in efus™ form factor. It is perfectly suited for applications with numerous interfaces in medicine and industry. Along with the attribute of an easy baseboard (EasyLayout), efus™ has a size of 47x62mm only and is therefore suitable for compact housings. The low power loss of only 2 Watt (typ.) makes it easy to cool the module.

efus™ A9X is based on a NXP single-core applications processor from the very successful i.MX 6 series and has a Cortex®-A9, as well as a Cortex®-M4 core. Cortex®-M4 can be used for fast control and regulation functions or for processing fast interface protocols. SoloX is the second processor in NXP's portfolio which supports Asymmetric Multiprocessing. Both cores (A9+M4) are connected to the internal bus fabric and have the possibility to access all peripherals.

In addition to Vybrid, SoloX comes with Resource Domain Controller which makes it easier to protect memory or other peripherals from each other.

Compared to other i.MX 6 application processors, SoloX offers much more bandwidth on the two GBit LAN interfaces.

2D, 3D, NEON, FPU and OpenGL are available, ensuring software compatibility to other i.MX 6 applications processors. Another characteristic is the **long-time availability to at least 2035**. The customized operating system (WEC 2013/ WEC7 or Linux) supports all interfaces, guaranteeing an easy software development without a deeper understanding of hardware.

Audio Codec as well as touch controller are found on the base board. WLAN and BT with chip antenna or antenna socket can be offered as well. Of course, efus™ A9X is pin compatible to efus™ A9.

### On-Board Operating System

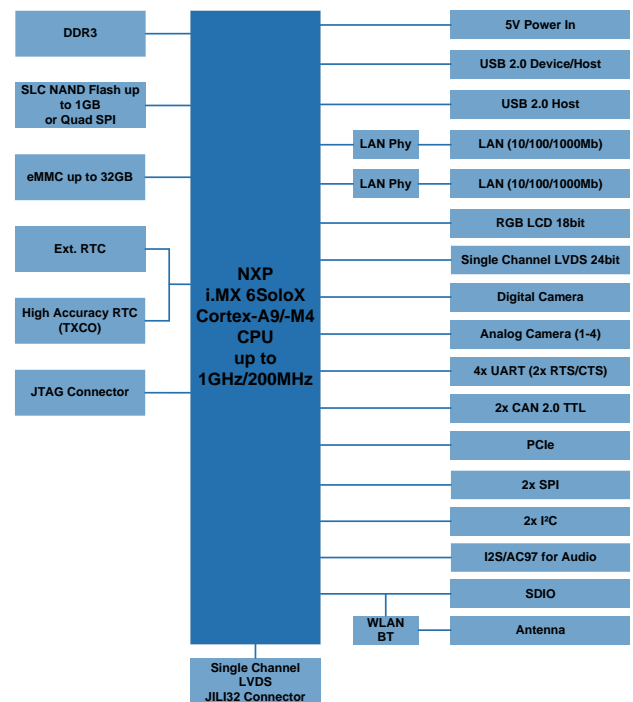


The customized WEC 2013/WEC7 (Bootloader, Kernel, interface drivers, XAML, Mediaplayer, IE) is a real-time operating system. Together with .NET Compact Framework it is ideal for software development under Visual Studio.



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 to create own bootloaders, kernels or other software. Android is available as well.

### Block Diagram



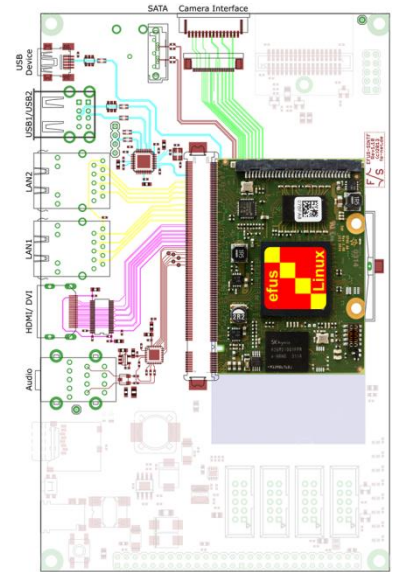
### Starterkit

efus™ A9X-SKIT is available in a WEC 2013 (WEC7 can be installed subsequently) and a Linux version. The SKIT includes a base board with a plugged on efus™ A9X-V4, a cable kit, access data to the download section (documentation and software) and a 7" WVGA display with 4-wire touch panel. Audio Codec and touch controller are available on the base board. Schematic and EAGLE data are ready to download.

Our forum with more than 3000 registered customers offers example programs and it is always online for your support requests. For a fast and easy start of development, you also have the possibility to book a workshop.

efus™ stands for 20 years of experience in the RISC boards sector.

- easy** starterkits  
customized operating systems  
(Linux, Android, WEC 7, WEC2013)  
F&S Support, free of charge
- functional** many interfaces  
expandable with wireless modules (ReDesign)  
easy base board  
based on "EasyLayout" standard
- universal** visualization  
communication  
control
- small** 47 x 62mm only  
5V supply



### Accessories

#### 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.

#### Displaykit RGB

7" WVGA display with RGB interface and touch panel, connection cable (40poles film cable), display adapter and touch cable.

#### Workshop

Four-hour workshop at F&S in Stuttgart. Our workshop will help you start working with Windows CE/ Linux and the F&S products easier.

Detailed information on our accessories is available on our homepage.

### Technical Data

Power Supply:	+5V <sub>DC</sub> / ±5%
Power Consumption:	2W (typ.)
Interfaces:	2x Ethernet 10/100/1000MB 4x Serial 1x USB2.0 Host 1x USB2.0 Device 2x CAN2.0, 2x I <sup>2</sup> C, 2x SPI 1x I2S (Audio Codec, extern) 2x SDIO (SD-Card, extern), PCIe (2.0) Camera Interface (Analog/ Parallel) /YUV4:2:2 CCIR-656, [4x 12Bit ADC]
RTC	Yes [high accuracy RTC (TXCO)]
TFT LCD-Interface:	18bit RGB up to XGA 24bit LVDS up to WXGA opt. 18 Bit LVDS via MXM2
RAM:	DDR3L 256MB up to 2GB
Program Memory:	SLC NAND 256MB up to 512MB [eMMC 4GB up to 32GB] [QSPI]
Processor:	ARM Cortex®-A9 Single-Core 1GHz ARM Cortex®-M4-200MHz GPU: GC400T 2D, 3D
WLAN/BT	IEEE802.11b/g/n 2.4/ 5GHz and BT with antenna socket or chip antenna (opt.)
Temperature Range:	0°C +70°C, (-20°C +85°C option)
Size:	47mm x 62.1mm x 11mm (l x b x d)
Weight:	~15g

### Standard Versions/ Order Notations

#### efusA9X/ A9Xr2-V2-W13/ LIN

Cortex®-A9–1GHz + Cortex®-M4–200MHz, 512MB DDR RAM, 256MB Flash, 2x Ethernet, 2x CAN2.0, camera, PCIe, RGB+LVDS, RTC, WEC 2013 or Linux, 0° + 70°C

#### efusA9X/ A9Xr2-V4-W13/ LIN

Cortex®-A9–1GHz + Cortex®-M4–200MHz, 1GB DDR RAM, 256MB Flash, min. 4GB eMMC, WLAN+BT, 2x Ethernet, 2x CAN2.0, camera, PCIe, RGB+LVDS, RTC, Linux or WEC 2013, 0° + 70°C

#### efusA9X-V5-W13-LIN

Cortex®-A9–1GHz + Cortex®-M4–200MHz, 512MB DDR RAM, 256MB Flash, **WLAN+BT**, 1x Ethernet, 2x CAN2.0, camera, PCIe, RGB+LVDS, RTC, Linux or WEC 2013, 0° + 70°C

#### efusA9X-V8-W13

Cortex®-A9–1GHz + Cortex®-M4–200MHz, 512MB DDR RAM, 512MB Flash, **WLAN+BT with chip antenna**, 1x Ethernet, 2x CAN2.0, camera, PCIe, RGB+LVDS, RTC, WEC 2013, 0° + 70°C

### Standard Versions/ Order Notations

#### efusA9X-V9-LIN

Cortex®-A9–800MHz + Cortex®-M4–200MHz, 1GB RAM, 256MB Flash, 4GB eMMC, **WLAN+BT with chip antenna**, 2x Ethernet, 2x CAN2.0, camera, PCIe, RGB+LVDS, Linux

#### efusA9X-V9.3-LIN

Cortex®-A9–800MHz + Cortex®-M4–200MHz, 1GB RAM, 256MB Flash, 4GB eMMC, **WLAN+BT with chip antenna**, **no Ethernet**, 2x CAN2.0, camera, PCIe, RGB+LVDS, Linux

#### efusA9X-SKIT-LIN/ W13

efusA9X-V4-LIN/ W13, base board, cable kit, 7" EDT RGB TFT with resistive touch incl. adapter and cables, access data to documentation and software

<b>Minimum Order Quantity for Special Versions</b>	
<b>Customer-Specific Software</b>	<b>500 pieces</b>
<b>Assembly Variant</b>	<b>1000 pieces</b>

