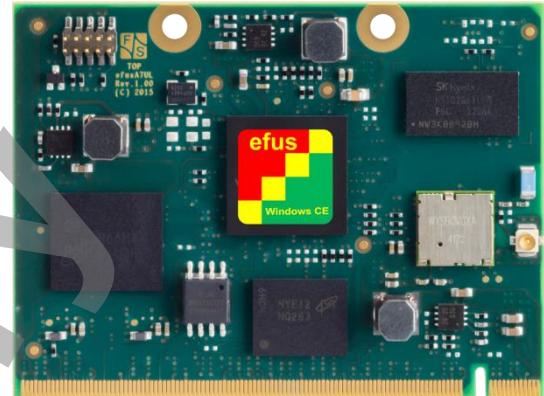


## Characteristics

- Freescale i.MX 7UltraLite applications processor Cortex-A7 – 528MHz
- 1GB SLC NAND Flash, 1GB RAM, 32GB eMMC
- LCD Interface for TFT: RGB up to WXGA resolution, 18 Bit
- 2x Ethernet 10/ 100Mbit
- 1x USB Host, 1x USB Device
- 4x UART, 2x CAN, 2x I<sup>2</sup>C, 2x SPI
- 2x SD Card Slot (external), Audio (via I2S external)
- Touch (4-wire and PCAP via I<sup>2</sup>C, external)
- WLAN IEEE802.11b/g/n, Bluetooth BT3.0
- Linux (Buildroot/ Yocto), Windows Embedded Compact 2013
- 5V (2W typ.), 230Pin MXM2, 47 x 62mm
- 0°C - +70°C (-20°C - +85°C opt.)



## Description

efus™ A7UL is another compact and inexpensive module in efus™ form factor. It is perfectly suited for applications with numerous interfaces in medical and industrial engineering.

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™ A7UL is based on a Freescale single-core applications processor from the very successful i.MX 6 series and has a Cortex-A7 core with 528MHz. This very inexpensive CPU consumes far less power compared to i.MX 6 CPUs with Cortex-A9 core.

The processor has 930DMIPS (2400DMIPS on Cortex-A9) and NEON Security, but no OpenGL or Video Decode.

Just like every other efus™ module, efus™ A7UL comes with adequate RAM, NAND Flash and eMMC.

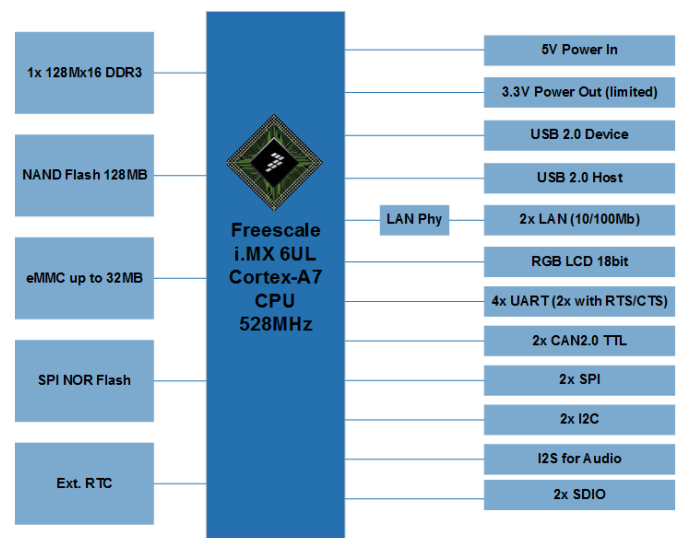
efus™ A9X and efus™ A7UL both offer 2x Ethernet and optional WLAN/BT. It has an 18bit RGB interface but no LVDS or HDMI/DVI.

Software compatibility to the other i.MX 6 applications processors is assured. Another feature is the long availability to at least 2030.

The customized operating system (Windows Embedded Compact 2013 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. Of course, efus™ A7UL is pin compatible to efus™ A9 and efus™ A9X.

## Block Diagram



## On-Board Operating System



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

Together with .NET Compact Framework it is ideal for software development. With Compact 2013 you can use Visual Studio 2013 for development.



The F&S Linux BSP (uboot, Yocto, 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.

## Starterkit

efus™ A7UL-SKIT is available in a WEC 2013 (WEC 7 can be installed subsequently) and a Linux version. The SKIT includes a base board with a plugged on efus™ A7UL, 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 2000+ 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, WEC 2013)  
 F&S Support, free of charge

**functional**

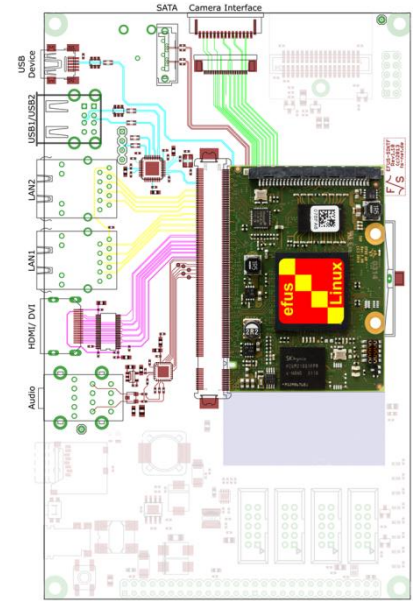
many interfaces  
 expandable with wireless modules (ReDesign)  
 easy base board  
 based on "EasyLayout" standard

**universal**

visualization  
 communication  
 control

**small**

47 x 62mm only  
 5V supply



**Accessories**

**Failsafe Flash Filesystem (F3S)**

Order no. WCE-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**

Order no. aSt-RGBKIT

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

**Workshop**

Order no. NDCU-WS1

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.

**Standard Versions/ Order Notations**

**efusA7UL-V2-W13**

Cortex-A7 – 528MHz, 256MB DDR RAM, 256MB Flash, 1x Ethernet, 2x CAN2.0, RGB, WEC 2013

**efusA7UL-V2-LIN**

Cortex-A7 – 528MHz, 256MB DDR RAM, 256MB Flash, 1x Ethernet, 2x CAN2.0, RGB, Linux

**efusA7UL-V4-W13**

Cortex-A7 – 528MHz, 512MB DDR RAM, 256MB Flash, 4 GB eMMC, WLAN/BT, 2x Ethernet, 2x CAN, RGB, WEC 2013

**efusA7UL-V4-LIN**

Cortex-A7 – 528MHz, 512MB DDR RAM, 256MB Flash, 4 GB eMMC, WLAN/BT, 2x Ethernet, 2x CAN, RGB, Linux

**efusA7UL-SKIT-WCE**

Starterkit with efusA7UL-V4-W13, base board, cable kit, 7" TFT-LCD, access data to SDK and documentation

**efusA7UL-SKIT-LIN**

Starterkit with efusA7UL-V4-LIN, base board, cable kit, 7" TFT-LCD, access data to BSP and documentation

**Minimum Order Quantity for Custom Versions: 500pcs**

**Technical Data**

Power Supply:	+5V <sub>DC</sub> / ±5%
Power Consumption:	2W (typ.)
Interfaces:	2x Ethernet 10/100Mb 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, external) 2x SDIO (SD-Card, external)
TFT LCD Interface:	18bit RGB
RAM:	256MB up to 1GB
Program Memory:	SLC NAND 256MB up to 1GB (opt. eMMC 2GB up to 32GB) (opt. SPI NOR)
Processor:	ARM Cortex-A7 Single-Core 528MHz
WLAN/BT	IEEE802.11b/g/n BT3.0
Temperature Range:	0°C - +70°C , (-20°C - +85°C Option)
Size:	47mm x 62.1mm x 11mm (lxbxd)
Weight:	about 15g