

# PicoCOMA7

## Computer on Module with NXP i.MX 6ULL Processor

### Characteristics

- NXP i.MX 6ULL applications processor  
Cortex®-A7 – 900MHz
- up to 512MB Flash, 1GB DDR3L RAM
- LCD interface for TFT: RGB up to WXGA resolution  
(1280x768 Pixel)
- 2x Ethernet 10/ 100MBit
- 2x Serial (with RTS/ CTS)
- 1x USB 2.0 Host
- 1x USB 2.0 Device
- 2x CAN 2.0, 2x I<sup>2</sup>C, 1x SPI
- 1x SD Card Slot (external)
- Audio (Line In/ Out)
- Resistive Touch Controller, PCAP via I2C
- WEC 2013/ WEC7/ Linux
- 3,3V Low Power Design (1W typ.)



### Description

The PicoCOMA7 is another compact and very powerful module in the PicoCOM form factor.

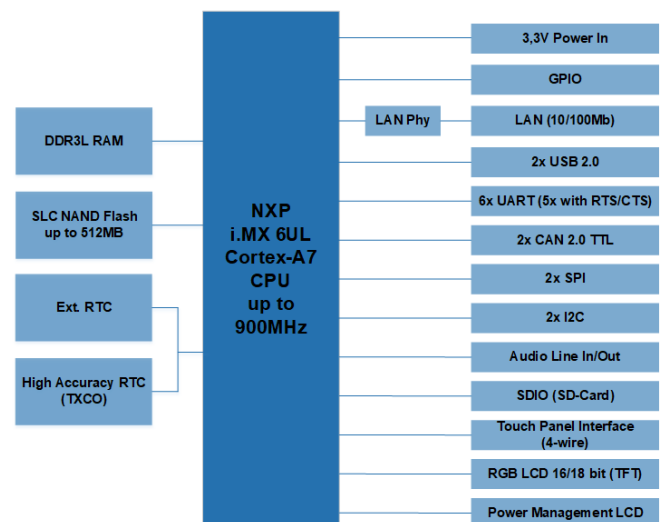
The PicoCOM form factor is perfectly suitable for applications in medicine or industry with a compact design. With 40 x 50mm, PicoCOM can also be accommodated in a top-hat rail housing.

The PicoCOMA7 is based on a NXP single-core applications processor from the very successful i.MX 6 series and contains a Cortex®-A7 core. A NEON unit is also available. The PicoCOM product family usually includes 1-2x Ethernet, audio, CAN and RGB.

Another feature is the long availability until at least 2030. All common TFTs with RGB interface up to WXGA can be controlled.

The adapted operating system (WEC 2013 / WEC7 or Linux) supports all interfaces, so simple software development can be guaranteed without extensive hardware knowledge. There are many other interfaces available, including a resistive touch panel. A capacitive touch panel can be connected via I2C. Of course, the PicoCOMA7 is pin compatible to PicoCOM4 and PicoCOMA5.

### Block Diagram



### On-Board Operating System



With the adapted WEC 2013 and WEC7 (bootloader, kernel, interface drivers, Silverlight, media player, IE), a powerful real-time operating system is available that forms the ideal basis for software development with Compact Framework.



The F&S Linux BSP (uboot, Yocto, QT, GStreamer) contains the adapted kernel and all interface drivers including source.

In addition, a cross compiler toolchain is provided for creating your own boot loader, kernel or other software.

### Starterkit

The PicoCOMA7 starter kit is available in a WEC 2013 (WEC7 can be installed later) and in a Linux version. The starter kit consists of a base board with attached PicoCOMA7, a cable set, the access data to the download area (documentation and software) and a 7 "WVGA display with 4-wire touch panel.

The forum with over 3000 registered customers offers sample programs and is online around the clock for your support requests.



## Pin Assignment

J1 – System-Connector (Standardbelegung)									
1	TX- (Ethernet)	17	IO4 / TxD1 (Serial Port1)	33	IO13 / SCL (I <sup>2</sup> C)	49	IO28 / LCD6	65	IO42 / LCDCC (PWM)
2	RX- (Ethernet)	18	IO5 / RxD1 (Serial Port 1)	34	IO14 / DAT0 (SD-/MMC-Card)	50	IO29 / LCD7	66	IO43 / LCD Power On
3	TX+ (Ethernet)	19	HDPA (USB Host)	35	IO15 / DAT1 (SD-/MMC-Card)	51	IO30 / LCD8	67	IO44 / Backlight Power On
4	RX+ (Ethernet)	20	HDMA (USB Host)	36	IO16 / DAT2 (SD-/MMC-Card)	52	IO31 / LCD9	68	IO45 / LCD Enable
5	+3,3V (Power Supply)	21	DDP (USB Device)	37	IO17 / DAT3 (SD-/MMC-Card)	53	IO32 / LCD10	69	IO46 / RTS1
6	+3,3V (Power Supply)	22	DDM (USB Device)	38	IO18 / CLK (SD-/MMC-Card)	54	IO33 / LCD11	70	ELED0 (Ethernet)
7	GND (System Ground)	23	IO6 / USB CNX (USB Device)	39	IO19 / CMD (SD-/MMC-Card)	55	IO34 / LCD12	71	X+ (Touch)
8	GND (System Ground)	24	IO7 / USB PWR (USB Host)	40	IO20	56	IO35 / LCD13	72	GND (System Ground)
9	VBAT (+3V...3.6V/RTC Supply)	25	GND (System Ground)	41	IO21 / PWM	57	IO36 / LCD14	73	GND (System Ground)
10	nRES (Reset CPU)	26	IO8 / MISO (SPI)	42	GND (System Ground)	58	IO37 / LCD15	74	X- (Touch)
11	IO47 / CTS1	27	IO9 / MOSI (SPI)	43	IO22 / LCD0	59	IO38 / LCDCLK	75	Y+ (Touch)
12	IO48 / SD-CD (SD-/MMC-Card)	28	IO10 / SPCK (SPI)	44	IO23 / LCD1	60	IO39 / LCDDEN	76	Y- (Touch)
13	IO0 / TxD0 (Serial Port 0)	29	IO11 / PCS0 (SPI)	45	IO24 / LCD2	61	GND (System Ground)	77	LOUT (Line Out Left)
14	IO1 / RxD0 (Serial Port 0)	30	CAN-TX (CAN-Bus)	46	IO25 / LCD3	62	GND (System Ground)	78	ROUT (Line Out Right)
15	IO2 / RTS0 (Serial Port 0) / TxD2	31	CAN-RX (CAN-Bus)	47	IO26 / LCD4	63	IO40 / LCDHSYNC	79	LIN (Line In Left)
16	IO3 / CTS0 (Serial Port0) / RxD2	32	IO12 / SDA (I <sup>2</sup> C)	48	IO27 / LCD5	64	IO41 / LCDVSYNC	80	RIN (Line In Right)

### LCD Connection

Pico-COMA7	TFT		
	12 bit	16 bit	18 bit
LCD0		R0	R1
LCD1	R0	R1	R2
LCD2	R1	R2	R3
LCD3	R2	R3	R4
LCD4	R3	R4	R5
LCD5		G0	G0
LCD6		G1	G1
LCD7	G0	G2	G2
LCD8	G1	G3	G3
LCD9	G2	G4	G4
LCD10	G3	G5	G5
LCD11		B0	B1
LCD12	B0	B1	B2
LCD13	B1	B2	B3
LCD14	B2	B3	B4
LCD15	B3	B4	B5
LCD16		HSYNC	B0
LCD17		VSYNC	R0
LCDDEN		DE	
LCDCLK		DCLK	
LCDCC		PWM (Backlight Dimming)	

### Standard Versions/ Order Notations

#### PCOMA7-V1-W13/WEC7

Cortex®-A7 – 900MHz, 256MB DDR3L RAM, 256MB SLC NAND Flash, Ethernet, CAN, Audio, RTC, Touch, RGB, 0°C - +70°C, WEC 7/ 2013

#### PCOMA7-V1-LIN

Cortex®-A7 – 900MHz, 256MB DDR3L RAM, 256MB SLC NAND Flash, Ethernet, CAN, Audio, RTC, Touch, RGB, 0°C - +70°C, Linux

#### PCOMA7-V3-W13/WEC7

Cortex®-A7 – 900MHz, 256MB DDR3L RAM, 256MB SLC NAND Flash, 2x Ethernet, CAN, RTC, Touch, RGB, 0°C - +70°C, WEC 7/ 2013

#### PCOMA7-V3-LIN

Cortex®-A7 – 900MHz, 256MB DDR3L RAM, 256MB SLC NAND Flash, 2x Ethernet, CAN, RTC, Touch, RGB, 0°C - +70°C, Linux

### Technical Data

Power Supply:	+3.3V <sub>DC</sub> ±5%
Power Consumption:	1W typ.
In / Out:	max. 48 I/O, alternatively occupied with interfaces
Touch Panel:	4-wire, analog resistive, PCAP-Touch via I <sup>2</sup> C
Interfaces:	1-2x Ethernet 10/ 100MBit 2x Serial 1x USB 2.0 Host 1x USB2.0 Device 1-2x I <sup>2</sup> C 1x SPI 1-2x CAN2.0 (2x opt.) 1x SD-Card Slot (external) 1x Audio (Line In/ Out)
LCD Interface:	TFT up to 1280x768 pixel, 16/ 18 Bit colors
RAM:	up to 1GB DDR3L
Program Memory:	up to 512GB SLC NAND
Flash Memory:	
Processor:	Cortex®-A7 – 900MHz
Operating Temperature:	0°C - +70°C (-25°C - +85°C opt.)
Size:	50 x 40 x 10 mm
Weight:	about 15 g

### Standard Versions/ Order Notations

#### PCOMA7-SKIT-W13

Starter kit with PCOMA7-V1-W13, base board, cable set, 7 "TFT-LCD, access data for SDK and documentation (WEC7 can be installed later)

#### PCOMA7-SKIT-LIN

Starter kit with PCOMA7-V1-LIN, base board, cable set, 7 "TFT-LCD, access data for BSP and documentation

**Minimum Order Quantity for Special Versions**  
**Software Adaption from 500 pieces**  
**Assembly variants from 1000 pieces**