

# PicoCOM2

Single Board Computer with ARM926EJ-CPU



## Characteristics

- CPU ARM926EJ 240MHz
- 32MB Flash, 32MB SDRAM
- LCD-interface to STN-, CSTN- and TFT-LCDs up to VGA-resolution
- Ethernet 10/100MBit
- 2x Serial (RS232/RS485 with 3,3V-level)
- 1x USB2.0 Host, 1x USB2.0 Device
- 1x CAN2.0 interface
- 1x I2C-/SPI-interface
- external SD-Card-Slot
- Audio / Touchcontroller
- Windows CE 6.0 or embedded Linux
- 3,3V low power design (<1W at operation)

## Description

The PicoCOM2 is a small LCD-controller module with integrated operating system. All common STN, CSTN and TFT displays up to VGA resolution (640x480) can be connected. An important design objective was to offer as many standardized interfaces as possible, completely supported by the integrated OS. This allows for fast and straightforward implementation of the required communication tasks without requiring any in-depth hardware knowledge. Integrating the module into the surrounding hardware should be equally uncomplicated. Therefore the whole power-management (power supply, reset curcuiaty) is provided on-board and the module is connected to the main application via a pluggable 80-pin connector. Only some signal driver components for the requested interfaces need to be added. The computing power is provided by a 240MHz ARM CPU. By default the PicoCOM2 is equipped with 32MB RAM and 32MB flash.

## On-Board Operating System

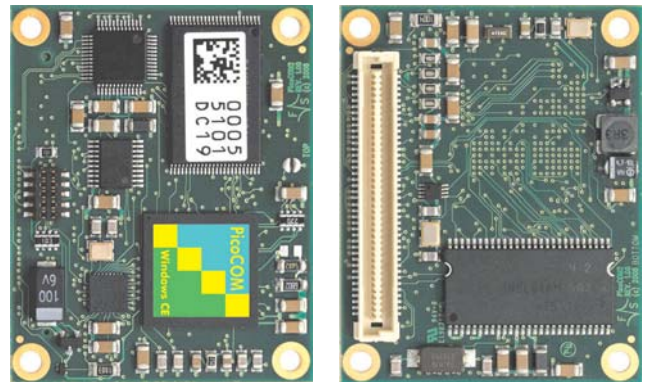


The PicoCOM2 uses Windows Embedded CE 6.0. All interfaces are supported by software drivers. With Visual Studio .NET (not included), applications can be programmed in C, C++, C# and Visual Basic.

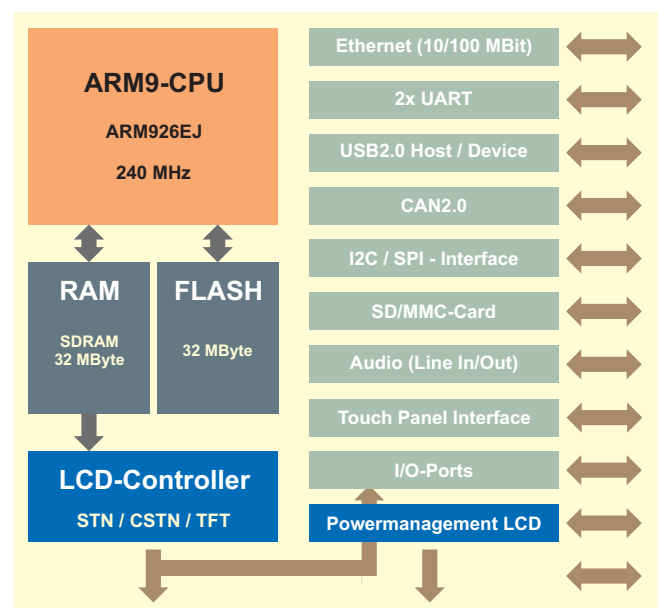


The Linux Evaluation Board Support Package (BSP) is already supplied with the starterkit. This package supports all basic interfaces and even allows development on a Windows PC. The additionally available Professional BSP offers the full capacity of the PicoCOM2 and development integration into the Eclipse IDE.

## Full-Scale Representation



## Block diagram



## Starter-kit

For a quick and easy start we have designed a starter-kit. It consists of a baseboard with mounted PicoCOM2, a set of cables and one 320x240 TFT-LCD. The base-board offers connections for: Ethernet, USB Host, USB Device, 2x RS232, CAN2.0, SD-Card Slot, I2C, SPI, Audio (Line In, Line Out), Touch and I/O Ports. It requires a 5V power supply. After registration of the starter-kit on \_\_\_\_\_, the current operating system image can be downloaded and stored on the module. Any support requests can be placed in the especially established PicoCOM forum, and drivers, examples and documentation are available there, too.

## Connector assignment

J1 - System-Connector									
1	TX- (Ethernet)	17	IO4 / TxD1 (Serial Port 1)	33	IO13 / SCL (I2C)	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	HDBA (USB Host 1)	35	IO15 / DAT1 (SD-MMC-Card)	51	IO30 / LCD8 / TxD3	67	IO44 / CFL Power On
4	RX+ (Ethernet)	20	HDMA (USB Host 1)	36	IO16 / DAT2 (SD-MMC-Card)	52	IO31 / LCD9 / RxD3	68	IO45 / LCD Enable
5	+3.3V (Power Supply)	21	DDP (USB Device)	37	IO17 / DAT3 (SD-MMC-Card)	53	IO32 / LCD10 / PCS1 (SPI)	69	IO46 / RTS1
6	+3.3V (Power Supply)	22	DDM (USB Device)	38	IO18 / CLK (SD-MMC-Card)	54	IO33 / LCD11 / PCS2 (SPI)	70	ELED0 (Ethernet)
7	GND (System Ground)	23	IO6 / USB CNX (USB Device)	39	IO19 / CMD (SD-MMC-Card)	55	IO34 / LCD12 / CTS1	71	X+ (Touch)
8	GND (System Ground)	24	IO7 / USB PWR (USB Device)	40	IO20 / IRQ0 (Interrupt)	56	IO35 / LCD13 / AD0 (Analog In)	72	GND (System Ground)
9	VBAT (+3V ... 3.6V / RTC Supply)	25	GND (System Ground)	41	IO21 / PWM3	57	IO36 / LCD14 / AD1 (Analog In)	73	GND (System Ground)
10	nRES (Reset CPU)	26	IO8 / MISO (SPI)	42	GND (System Ground)	58	IO37 / LCD15 / AD2 (Analog In)	74	X- (Touch)
11	SHDN (Shut Down Power Supply)	27	IO9 / MOSI (SPI)	43	IO22 / LCD0	59	IO38 / LCDCLK	75	Y+ (Touch)
12	WKUP (Wake Up CPU)	28	IO10 / SPCK (SPI)	44	IO23 / LCD1	60	IO39 / LCDDEN	76	Y- (Touch)
13	IO0 / TxD2 (Serial Port 2)	29	IO11 / PCS0 (SPI)	45	IO24 / LCD2	61	GND (System Ground)	77	LOUT (Line out left)
14	IO1 / RxD2 (Serial Port 2)	30	CAN+ (CAN-Bus)	46	IO25 / LCD3	62	GND (System Ground)	78	ROUT (Line out right)
15	IO2 / RTS2 (Serial Port 2)	31	CAN- (CAN-Bus)	47	IO26 / LCD4	63	IO40 / LCDHSYNC	79	LIN (Line in left)
16	IO3 / CTS2 (Serial Port 2)	32	IO12 / SDA (I2C)	48	IO27 / LCD5	64	IO41 / LCDVSYNC	80	RIN (Line in right)

## LCD-connection

PicoCOM2 LCD...	Mono STN		Color STN		TFT	
	4 bit	8 bit	Single	Dual	12 bit	15 bit
0	D0	D0 (UD0)	D0	UD0		R0
1	D1	D1 (UD1)	D1	UD1	R0	R1
2	D2	D2 (UD2)	D2	UD2	R1	R2
3	D3	D3 (UD3)	D3	UD3	R2	R3
4		D4 (LD0)	D4	LD0	R3	R4
5		D5 (LD1)	D5	LD1		
6		D6 (LD2)	D6	LD2		G0
7		D7 (LD3)	D7	LD3	G0	G1
8					G1	G2
9					G2	G3
10					G3	G4
11						B0
12					B0	B1
13					B1	B2
14					B2	B3
15					B3	B4
CLK	CL2		CP		DCLK	
HSYNC	CL1		LOAD		HSYNC	
VSYNC	FLM		FRM		VSYNC	
DN	M		M		DE	
Enable	nDISPOFF		nDISP			
CC	PWM VEE or CFL brightness				PWM CFL bright.	

## Technical data

Power Supply:	+3.3V <sub>DC</sub> / ±5%
Power consumption:	<300mA
Digital I/O:	max. 47 I/O-port lines (alternative with interfaces allocated)
Interfaces:	1x Ethernet 10/100 MBIT 2x Serial (RS232/RS485 with 3.3V-level) 2x USB2.0 Host 1x USB2.0 Device 1x I2C 1x SPI (optional) 1x CAN2.0 1x SD-Card-Slot (external) 1x Audio (Line in/out, analogue) max. 3 analogue inputs (alternative with I/O-ports allocated) 1x 4 wire touch input, resistive
LCD-interface:	STN: up to 640 x 480 pixel, single/dual scan 16 shades of grey CSTN: up to 640 x 480 pixel, single/dual scan 16/256 colours of 65536 TFT: up to 320 x 240 pixel, 65536 colours up to 640 x 480 pixel, 256 of 65536 col.
RAM:	32 MByte SDRAM Opt. 64 MByte
Program memory:	32 MByte Flash Opt. 64 MByte
Processor:	CPU with ARM926EJ-S Core, 240MHz
Temperature range:	0°C ... 70°C (optional -25°C ... 85°C)
Dimension:	50mm x 40mm x 10mm (l x w x h)
Weight:	ca. 15 gr

## Standard versions / Order notation

### PicoCOM2-WCE6.0

32MB SDRAM, 32MB Flash, Ethernet, CAN2.0, Audio, Touch, Windows CE 6.0

### PicoCOM2-LIN

32MB SDRAM, 32MB Flash, Ethernet, CAN2.0, Audio, Touch, Embedded Linux

### PicoCOM2-SKIT-WCE

Starter-kit with PicoCOM2-WCE6.0, baseboard, cables, TFT-LCD

### PicoMOD2-SKIT-LIN

Starter-kit with PicoCOM2-LIN, baseboard, cables, TFT-LCD

### Attention:

Special versions only for order quantities of at least 1000 parts!

## Order key

### PicoCOM2-64D64FnNCA-WCE6.0

Typ	SDRAM	Flash	Net	CAN	Audio	System
PicoCOM2	16D 16 MByte	16F 16 MByte	blank Ethernet	blank CAN	blank Audio/Touch	WCE6.0 Windows CE 6.0
	blank 32 MByte	blank 32 MByte	nN no Ethernet	nC no CAN	nA no Audio/Touch	LIN Embedded Linux
	64D 64 MByte	64F 64 MByte				

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