

# PicoCOM1

Single Board Computer with ARM926EJ-CPU



## Characteristics

- CPU ARM926EJ 210MHz
- 32MB Flash, 32MB SDRAM
- Ethernet 10/100MBit
- 3x Serielle (RS232/RS485 with 3,3V-level)
- 2x USB2.0 Host, 1x USB2.0 Device
- 1x CAN2.0 interface
- 1x I2C-interface
- 1x SPI-interface
- external SD-Card-Slot
- Audio (input/output, analogue)
- Windows CE 6.0 or embedded Linux
- 3,3V low power design (<1W at operation)
- extended temperature range (-20°C ... +85°C)

## Description

The PicoCOM1 is a small and inexpensive communication module with integrated operating system. 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 circuitry) 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 210MHz ARM CPU. By default the PicoCOM1 is equipped with 32MB RAM, 32MB flash, and the board is already suited for extended temperature range (-20°C to +85°C).

## On-Board Operating System

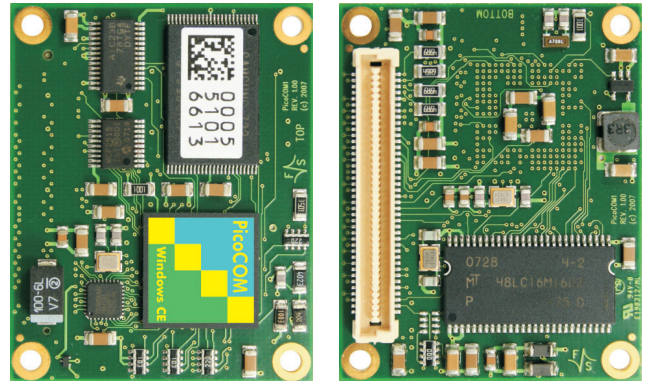


The PicoCOM1 uses Windows Embedded CE 6.0. All interfaces are supported by software drivers. With Visual Studio .NET (not included), applications can be programmed in C, C++, C# and Visual Basic.

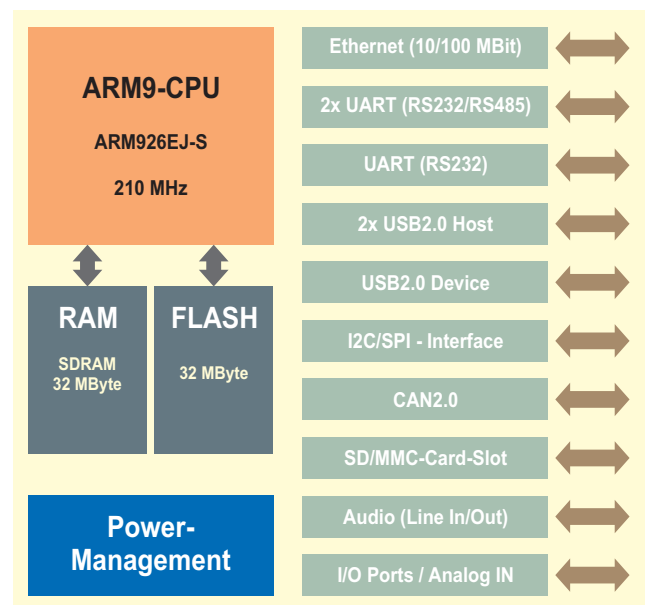


The Linux Evaluation Board Support Package (BSP) is already supplied with the starterkit. This package supports all basic interfaces and even allows development on a Windows PC. The additionally available Professional BSP offers the full capacity of the PicoCOM1 and development integration into the Eclipse 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 PicoCOM1 and a set of cables. The baseboard offers connections for: Ethernet, USB Host, USB Device, 2x RS232, RS485, CAN2.0, SD-Card Slot, I2C, SPI, Audio (Line In, Line Out), and I/O Ports. It requires a 5V power supply. After registration of the starter-kit on [www.picocom.de](http://www.picocom.de), the current operating system image can be downloaded and stored on the module. Any support requests can be placed in the especially established PicoCOM1 forum, and drivers, examples and documentation are available there, too.

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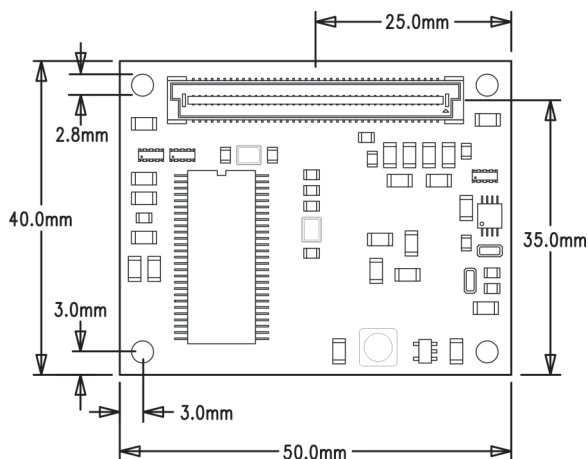
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e-mail: [info@fs-net.de](mailto:info@fs-net.de)



## Connector assignment

| J1 - System-Connector |                                  |    |                            |    |                             |    |                             |    |                          |
|-----------------------|----------------------------------|----|----------------------------|----|-----------------------------|----|-----------------------------|----|--------------------------|
| 1                     | TX- (Ethernet)                   | 17 | IO4 / TxD1 (Serial Port 1) | 33 | IO9 / SCL (I2C)             | 49 | IO24 / RTS1 (Serial Port 1) | 65 | IO34                     |
| 2                     | RX- (Ethernet)                   | 18 | IO5 / RxD1 (Serial Port 1) | 34 | IO10 / DAT0 (SD-/MMC-Card)  | 50 | IO25 / CTS1 (Serial Port 1) | 66 | IO35                     |
| 3                     | TX+ (Ethernet)                   | 19 | HDPA (USB Host 1)          | 35 | IO11 / DAT1 (SD-/MMC-Card)  | 51 | CAN+ (CAN-Bus)              | 67 | IO36                     |
| 4                     | RX+ (Ethernet)                   | 20 | HDMA (USB Host 1)          | 36 | IO12 / DAT2 (SD-/MMC-Card)  | 52 | CAN- (CAN-Bus)              | 68 | IO37                     |
| 5                     | +3.3V (Power Supply)             | 21 | DDP (USB Device)           | 37 | IO13 / DAT3 (SD-/MMC-Card)  | 53 | HDPB (USB Host 2)           | 69 | IO38                     |
| 6                     | +3.3V (Power Supply)             | 22 | DDM (USB Device)           | 38 | IO14 / CLK (SD-/MMC-Card)   | 54 | HDMB (USB Host 2)           | 70 | IO39                     |
| 7                     | GND (System Ground)              | 23 | IO6 / USB CNX (USB Device) | 39 | IO15 / CMD (SD-/MMC-Card)   | 55 | IO26 / MISO (SPI)           | 71 | ELED0 (Ethernet)         |
| 8                     | GND (System Ground)              | 24 | IO7 / USB PWR (USB Device) | 40 | IO16 / IRQ1 (Interrupt)     | 56 | IO27 / MOSI (SPI)           | 72 | GND (System Ground)      |
| 9                     | VBAT (+3V ... 3.6V / RTC Supply) | 25 | GND (System Ground)        | 41 | IO17                        | 57 | IO28 / SPCK (SPI)           | 73 | GND (System Ground)      |
| 10                    | nRES (Reset CPU)                 | 26 | nTRST (JTAG)               | 42 | GND (System Ground)         | 58 | IO29 / CS0 (SPI)            | 74 | IO40 / AD1 (Analog in 1) |
| 11                    | SHDN (Shut Down Power Supply)    | 27 | TMS (JTAG)                 | 43 | IO18 / TxD3 (Serial Port 3) | 59 | IO30 / CS1 (SPI)            | 75 | IO41 / AD2 (Analog in 2) |
| 12                    | WKUP (Wake Up CPU)               | 28 | TDI (JTAG)                 | 44 | IO19 / RxD3 (Serial Port 3) | 60 | IO31 / CS2 (SPI)            | 76 | IO42 / AD3 (Analog in 3) |
| 13                    | IO0 / TxD2 (Serial Port 2)       | 29 | TDO (JTAG)                 | 45 | IO20 / DSR2 (Serial Port 2) | 61 | GND (System Ground)         | 77 | LOUT (Line out left)     |
| 14                    | IO1 / RxD2 (Serial Port 2)       | 30 | TCK (JTAG)                 | 46 | IO21 / DCD2 (Serial Port 2) | 62 | GND (System Ground)         | 78 | ROUT (Line out right)    |
| 15                    | IO2 / RTS2 (Serial Port 2)       | 31 | JTAGSEL (JTAG)             | 47 | IO22 / DTR2 (Serial Port 2) | 63 | IO32                        | 79 | LIN (Line in left)       |
| 16                    | IO3 / CTS2 (Serial Port 2)       | 32 | IO8 / SDA (I2C)            | 48 | IO23 / R2 (Serial Port 2)   | 64 | IO33                        | 80 | RIN (Line in right)      |

### Dimension



### Technical data

|                    |   |
|--------------------|---|
| Power Supply:      | +3.3V <sub>DC</sub> / ±5%   |
| Power consumption: | < 400mA   |
| Digital I/O:       | max. 42 I/O-port lines<br>(alternative with interfaces allocated)   |
| Interfaces:        | 1x Ethernet 10/100 MBit<br>3x Serial (RS232/RS485 with 3,3V-level)<br>2x USB2.0 Host<br>1x USB2.0 Device<br>1x I2C<br>1x SPI<br>1x CAN2.0<br>1x SD-Card-Slot (external)<br>1x Audio (Line in/out, analogue)<br>max. 3 analogue inputs<br>(alternative with I/O-ports allocated) |
| RAM:               | 32 MByte SDRAM Opt. 64 MByte  |
| Program memory:    | 32 MByte Flash Opt. 64 MByte  |
| Processor:         | CPU with ARM926EJ-S Core, 210MHz  |
| Temperature range: | -20°C ... 85°C  |
| Dimension:         | 50mm x 40mm x 10mm (l x w x h)  |
| Weight:            | ca. 15 gr   |

### Standard versions / Order notation

#### PicoCOM1-WCE6.0

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

#### PicoCOM1-LIN

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

#### PicoCOM1-SKIT-WCE

Starter-kit with PicoCOM1-WCE6.0, baseboard, cables

#### PicoMOD1-SKIT-LIN

Starter-kit with PicoCOM1-LIN, baseboard, cables

Attention:

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

### Order key

#### PicoCOM1-64D64FnNCA-WCE6.0

| Typ      | SDRAM             | Flash             | Net               | CAN          | Audio          | System                      |
|----------|-------------------|-------------------|-------------------|--------------|----------------|-----------------------------|
| PicoCOM1 | 16D<br>16 MByte   | 16F<br>16 MByte   | blank<br>Ethernet | blank<br>CAN | blank<br>Audio | WCE6.0<br>Windows<br>CE 6.0 |
|          | blank<br>32 MByte | blank<br>32 MByte | nN<br>no Ethernet | nC<br>no CAN | nA<br>no Audio | LIN<br>Embedded<br>Linux    |
|          | 64D<br>64 MByte   | 64F<br>64 MByte   |                   |              |                |                             |

