PicoCOM4

Single Board Computer with ARM926EJ-CPU

Characteristics

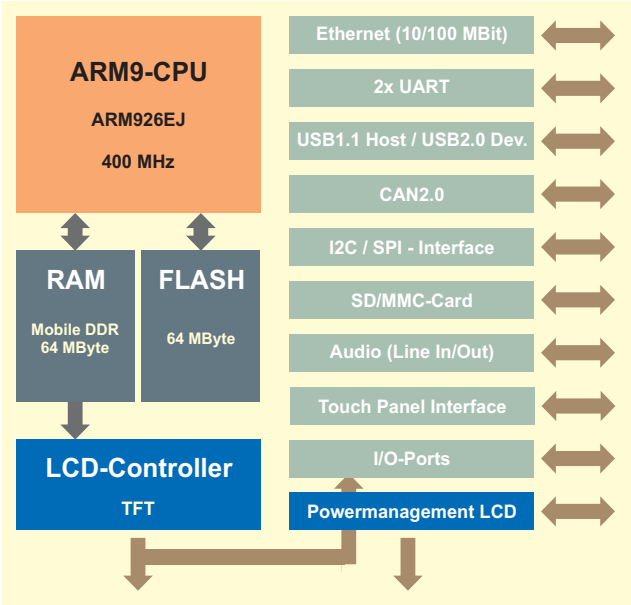
- CPU ARM926EJ 400MHz
- 64MB Flash, 64MB mobile DDR-RAM
- LCD-interface to TFT-LCDs
  up to WVGA-resolution (800 x 480 pixel)
- Ethernet 10/100MBit
- 2x Serial (RS232/RS485 with 3,3V-level)
- 1x USB1.1 Host, 1x USB2.0 Device
- 1x CAN2.0 interface
- 1x I2C-/SPI-interface
- external SD-Card-Slot
- Audio / Touchcontroller
- Windows CE 6.0 or embedded Linux
- 3,3V low power design (<1W at operation)

Full-Scale Representation

Description

The PicoCOM4 is a small LCD-controller module with integrated operating system. All common TFT displays up to WVGA resolution (800x480) 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 curcuitry) 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 400MHz ARM CPU. By default the PicoCOM4 is equipped with 64MB RAM and 64MB flash. PicoCOM4 is pin compatible to PicoCOM2.

Block diagram



On-Board Operating System

Windows CE6.0R3, installed on PicoCOM4 offer bootloader, interface driver and images with functions like silverlight, mediaplayer and IE. This powerful realtime OS with compact framework 3.5 offer an fast and easy way to design the application software.

The software department of F&S support also an Linux BSP (2.6.28, uboot, buildroot, QT, GStreamer) with necessary interface drivers incl. the source files. Available is also a tool chain to design custom specific bootloader, image and application code also.

Starter-kit

For a quick and easy start we have designed a starter-kit. It consists of a baseboard with mounted PicoCOM4, 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 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 PicoCOM forum, and drivers, examples and documentation are available there, too.

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Connector assignment

J1 - System-Connector									
	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	HDPA (USB Host 1)	35	IO15 / DAT1 (SD-/MMC-Card)	51	IO30 / LCD8	67	IO44 / CFL Power On
4	RX+ (Ethernet)	20	HDMA (USB Host 1)	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
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 Device)	40	IO20 / IRQ0 (Interrupt)	56	IO35 / LCD13	72	GND (System Ground)
9	VBAT (+3V...3,6V / RTC Supply)	25	GND (System Ground)	41	IO21	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	SHDN (Shut Down Power)	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 / 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)	31	CAN-RX (CAN-Bus)	47	IO26 / LCD4	63	IO40 / LCDHSYNC	79	LIN (Line in left)
16	IO3 / CTS0 (Serial Port 0)	32	IO12 / SDA (I2C)	48	IO27 / LCD5	64	IO41 / LCDVSYNC	80	RIN (Line in right)

LCD-connection

PicoCOM4 LCD...	TFT	
	12 bit	15 bit
0		R0
1	R0	R1
2	R1	R2
3	R2	R3
4	R3	R4
5		
6		G0
7	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	DCLK	
HSYNC	HSYNC	
VSYNC	VSYNC	
DEN	DE	
CC	PWM CFL bright.	

Technical data

Power Supply:	+3,3V_{DC} / ±5%
Power consumption:	< 300mA
Digital I/O:	max. 46 I/O-port lines (alternative with interfaces allocated)
Interfaces:	1x Ethernet 10/100 MBit 2x Serial (RS232/RS485 with 3,3V-level) 2x USB1.1 Host 1x USB2.0 Device 1x I2C 1x SPI (optional) 1x CAN2.0 1x SD-Card-Slot (external) 1x Audio (Line in/out, analogue) 1x 4 wire touch input, resistive
LCD-interface:	TFT: up to 320 x 240 pixel, 65536 colours up to 800 x 480 pixel, 256 of 65536 col.
RAM: Program memory:	64 MByte mobile DDR Opt. 128 MByte 64 MByte Flash (optional 1 GByte)
Prozessor:	CPU with ARM926EJ Core, 400MHz
Temperature range:	0°C ... 70°C (optional -25°C ... 85°C)
Dimension: Weight:	50mm x 40mm x 10mm (l x w x h) ca. 15 gr

Standard versions / Order notation

PicoCOM4-WCE6.0
64MB DDR, 64MB Flash, Ethernet, CAN2.0, Audio, Touch, Windows CE 6.0

PicoCOM4-LIN
64MB DDR, 64MB Flash, Ethernet, CAN2.0, Audio, Touch, Embedded Linux

PicoCOM4-SKIT-WCE
Starter-kit with PicoCOM4-WCE6.0, baseboard, cables, TFT-LCD

PicoMOD4-SKIT-LIN
Starter-kit with PicoCOM4-LIN, baseboard, cables, TFT-LCD

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

Order key

PicoCOM4-64D64FnNCA-WCE6.0

Typ	DDR	Flash	Net	CAN	Audio	System
PicoCOM4	blank 64 MByte	blank 64 MByte	blank Ethernet	blank CAN	blank Audio/Touch	WCE6.0 Windows CE 6.0
	128D 128 MByte	1F 1 GByte	nN no Ethernet	nC no CAN	nA no Audio	LIN Embedded Linux

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