PicoMOD7A

Single Board Computer with CortexA8

Characteristics

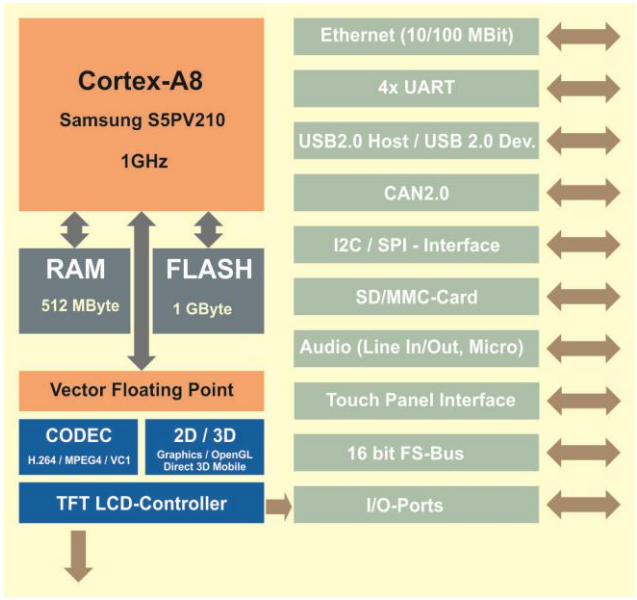
- Samsung S5PV210 with 1GHz
- up to 1GB Flash, up to 512MB DDR2-RAM
- Vector Floating Point (VFP) Co-Processor
- TFT LCD-Controller up to WXGA resolution
- 2D/ 3D graphics (5M triangles/second)
- Multiformat CODEC (MPEG4, H.264, WMV9) H.264 30fps (1080@30fps)
- RGB interface
- Ethernet 10/ 100MBit
- CAN, 4x Serial, I^2C, SPI (optional)
- USB2.0 Device (High Speed), USB2.0 Host
- micro SD-Card, ext. SD-Card, max. 64 I/O
- Audio / Touch Controller / Matrix Keyboard
- Windows CE 6.0/ WEC7 / Linux
- 3.3V Low Power Design (3W typ. at operation)

Original Size

Description

The powerful PicoMOD7A is especially suited for applications needing high performance graphics (2D/ 3D/ OpenGL/ Direct 3D Mobile) and for playing movies (MPEG4/ H.264/ WMV9) at a power consumption of less than 3W. This very compact (80x50mm) board can be used in mobile devices as well as for stationary devices in industrial (-25°C to +85°C) and medical applications. PicoMOD7A offers onboard 128MB Flash, 256MB DDR2-RAM, micro SD Card slot, as well as many interfaces. All common TFT displays up to 1280x800 (WXGA) can be connected. The board is supplied via a single 3.3V supply. A robust industry-compatible 140-pin connector (0.8mm pitch, Tyco) is used to plug the PicoMOD7A on the carrier board of the customer's application. The board is pin compatible to PicoMOD3/ 4/ 6/ 7.

Block Diagram



On-Board Operating System

Windows CE6.0R3/ WEC7 offers bootloader, interface driver and kernel with (e.g) Silverlight, Mediaplayer or IE. This high-performance real-time operating system offers with Compact Framework 3.5 an ideal base for software development.

The Linux Board Support Package (BSP) (3.3., uboot, buildroot, QT, GStreamer) with interface driver (in Source Code) is available, as well as a toolchain for developing own bootloaders, images and application software.

Starterkit

The PicoMOD7A-SKIT is offered in two versions, a RGB-version and a LVDS-version. The starterkit consists of a base board with standard connectors (in PicoITX format), a fitting cable set and the access data for the download area (documentation and software). Additionally, choose from one of the PicoMOD7A (Premium) with RGB or LVDS interface. Optionally, we offer displays (RGB and LVDS), display cables and adapters.

F & S Elektronik Systeme GmbH

Phone: +49(0)711/1237220 Fax: +49(0)711/12372299
Internet: http://www.fs-net.de e-mail: info@fs-net.de

Connector Assignment

J1 – System-Connector

1	I/O64 (SPI CS)	21	I/O5 (COM3 TxD)	41	I/O14	61	*I/O32 (LCD VD0)*	81	*I/O52 (LCD VM)*	101	A2 (Address 2)	121	D11 (Data 11)
2	I/O65 (SPI CLK)	22	I/O4 (COM3 RxD)	42	I/O13	62	GND (System Ground)	82	*I/O51 (LCD VFRAME)*	102	A3 (Address 3)	122	D12 (Data 12)
3	I/O66 (SPI MISO)	23	I/O7 (COM1TxD)	43	I/O16	63	*I/O34 (LCD VD2)*	83	GND (System Ground)	103	A4 (Address 4)	123	D13 (Data 13)
4	I/O67 (SPI MOSI)	24	I/O6 (COM1 RxD)	44	I/O15	64	*I/O33 (LCD VD1)*	84	GND (System Ground)	104	A5 (Address 5)	124	D14 (Data 14)
5	CAN-TX (COM4 TxD)	25	OTGDM (USB)	45	I/O18 (SD-CLK)	65	*I/O36 (LCD VD4)*	85	GND (System Ground)	105	A6 (Address 6)	125	D15 (Data 15)
6	CAN-RX (COM4 RxD)	26	USBDN (USB Host -)	46	I/O17	66	*I/O35 (LCD VD3)*	86	*I/O53 (LCD VCLK)*	106	A7 (Address 7)	126	I/O75 (CF Power En.)
7	RX- (Ethernet)	27	OTGDP (USB)	47	I/O20 (SD-DAT0)	67	*I/O38 (LCD VD6)*	87	I/O70 (CF nCD)	107	A8 (Address 8)	127	CS0 (FS-Bus CS)
8	TX- (Ethernet)	28	USBDP (USB Host +)	48	I/O19 (SD-CMD)	68	*I/O37 (LCD VD5)*	88	I/O71 (CF nIRQ)	108	A9 (Address 9)	128	ETH-ACT (Ethernet)
9	RX+ (Ethernet)	29	I/O9	49	I/O22 (SD-DAT2)	69	*I/O40 (LCD VD12)*	89	nWAIT (CF nWAIT)	109	A10 (Address 10)	129	STA1 (Status 1)
10	TX+ (Ethernet)	30	I/O8 (USB Power1)	50	I/O21 (SD-DAT1)	70	*I/O39 (LCD VD7)*	90	I/O72 (CF INPACK)	110	D0 (Data 0)	130	STA2 (Status 2)
11	+3,3V (Power Supply)	31	I/O11 (I2C-SDA)	51	I/O24 (SD-Detect)	71	*I/O42 (LCD VD14)*	91	CS4 (CF CS2)	111	D1 (Data 1)	131	LOUT (Audio L. Out)
12	+3,3V (Power Supply)	32	I/O10 (USB Power2)	52	I/O23 (SD-DAT3)	72	*I/O41 (LCD VD13)*	92	CS5 (CF CS3)	112	D2 (Data 2)	132	ROUT (Audio R. Out)
13	GND (System Ground)	33	I/O76	53	I/O26 (SD-Write Prot.)	73	*I/O44 (LCD VD18)*	93	I/O73 (CF REG)	113	D3 (Data 3)	133	LIN (Audio Left In)
14	GND (System Ground)	34	I/O12 (I2C-SCL)	54	I/O25 (SD-Power En.)	74	*I/O43 (LCD VD15)*	94	nOE_CF (CF nOE)	114	D4 (Data 4)	134	RIN (Audio Right In)
15	nPONRES (Res CPU)	35	BOOTSEL0	55	*I/O28 (LCD DEN)*	75	*I/O46 (LCD VD20)*	95	nWE_CF (CF nWE)	115	D5 (Data 5)	135	MICIN (Micro In)
16	VBAT (RTC Supply)	36	I/O77	56	*I/O27 (LCD Enable)*	76	*I/O45 (LCD VD19)*	96	nOE	116	D6 (Data 6)	136	MICBIAS (Micro Bias)
17	I/O1 (COM2 TxD)	37	*BOOTSEL1*	57	I/O30 (LCD VCFL On)	77	*I/O48 (LCD VD22)*	97	nWE	117	D7 (Data 7)	137	X+ (Touch X+)
18	I/O0 (COM2 RxD)	38	BOOTSEL2	58	*I/O29 (LCD VLCD On)*	78	*I/O47 (LCD VD21)*	98	I/O74 (CF RESET)	118	D8 (Data 8)	138	X- (Touch X-)
19	I/O3 (COM2 RTS/ COM4 TxD)	39	GND (System Ground)	59	GND (System Ground)	79	*I/O50 (LCD VLINE)*	99	A0 (Address 0)	119	D9 (Data 9)	139	Y+ (Touch Y+)
20	I/O2 (COM2 CTS/ COM4 RxD)	40	GND (System Ground)	60	I/O31 (LCD VEEK)	80	*I/O49 (LCD VD23)*	100	A1 (Address1)	120	D10 (Data 10)	140	Y- (Touch Y-)

LCD Connection

Pico-MOD7	TFT	
	12 bit	18 bit
VD0	-	G0
VD1	-	G1
VD2	-	B0
VD3	-	B1
VD4	B0	B2
VD5	B1	B3
VD6	B2	B4
VD7	B3	B5
VD12	G0	G2
VD13	G1	G3
VD14	G2	G4
VD15	G3	G5
VD18	-	R0
VD19	-	R1
VD20	R0	R2
VD21	R1	R3
VD22	R2	R4
VD23	R3	R5
VCLK	DCLK	DCLK
VLINE	HSYNC	HSYNC
VFRAME	VSYNC	VSYNC
VM	DE	DE
DEN	-	-

Technical Data

Power Supply:	+3.3VDC/±5%
Power Consumption:	2,5W typ.
Digital I/O:	max. 64 I/O port lines
Touch Screen:	4-wire, analogue resistive
Intefaces:	1x Ethernet 10/ 100 MBit 3-4x Serial (1x with RTS/CTS) 1x USB2.0 Host 1x USB2.0 Device 1x CAN2.0 1x I^2C 1x SPI (optional) 1x Audio Line IN/OUT/MIC 1x micro SD-Card slot 1x SD-Card slot (external) 1x Address/ Data Bus interface
TFT LCD-Interface:	TFT up to WXGA
RAM:	256 MB/ 512 MB DDR2-RAM
Program Memory:	128MB/ 1GB Flash
Processor:	Samsung S5PV210 CortexA8 – 1GHz PowerVR SGX540
Temparature Range:	-25°C - +85°C
Dimension:	80mm x 50mm x 10mm (l x w x d)
Weight:	about 20g

Standard Versions/ Order Notations

PicoMOD7A-WCE (delivery lot: 100pcs)
256MB -RAM, 128MB Flash, RGB, WCE 6.0 Core license

PicoMOD7A-LIN (delivery lot: 100 pcs)
256MB -RAM, 128MB Flash, RGB, Linux

PicoMOD7A-ANC-WCE
256MB -RAM, 128MB Flash, Audio, Ethernet, CAN, RGB, WCE 6.0 Core license

PicoMOD7A-ANC-LIN
256MB -RAM, 128MB Flash, Audio, Ethernet, CAN, RGB, Linux

PicoMOD7A-512DANC-WEC7
512MB -RAM, 128MB Flash, Audio, Ethernet, CAN, RGB, WEC7 CE7 license

PicoMOD7A-SKIT
Please create your individual starter kit (see our flyer PicoMOD7A-Starter kit)

Attention: Minimum Oder Quantity for Special Versions: 100 pieces (one shipment)

Order Key

PicoMOD7A-512D1FANC-WCE

RAM DDR-RAM	Flash	Audio	Ethernet	CAN	System
blank 256 MByte	**blank** 128 MByte	**blank** no Audio	**blank** no Ethernet	**blank** no CAN	**WCE** Windows CE 6.0
512D 512 MByte	**1F** 1 GByte	**A** Audio	**N** Ethernet	**C** CAN2.0	**LIN** Embedded Linux
					WEC7 WEC7

F & S Elektronik Systeme GmbH

Phone: +49(0)711/1237220 Fax: +49(0)711/12372299
Internet: http://www.fs-net.de e-mail: info@fs-net.de