

# PicoMOD7A-LVDS

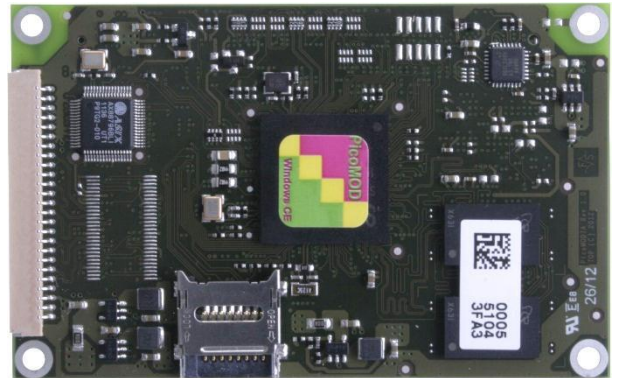
## Single Board Computer with CortexA8



### 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)
- LVDS interface 6/ 8Bit, HDMI
- Ethernet 10/ 100 bit, camera interface
- CAN, 4x Serial, I<sup>2</sup>C, 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
- 3.3 Low Power Design (3W typ. at operation)

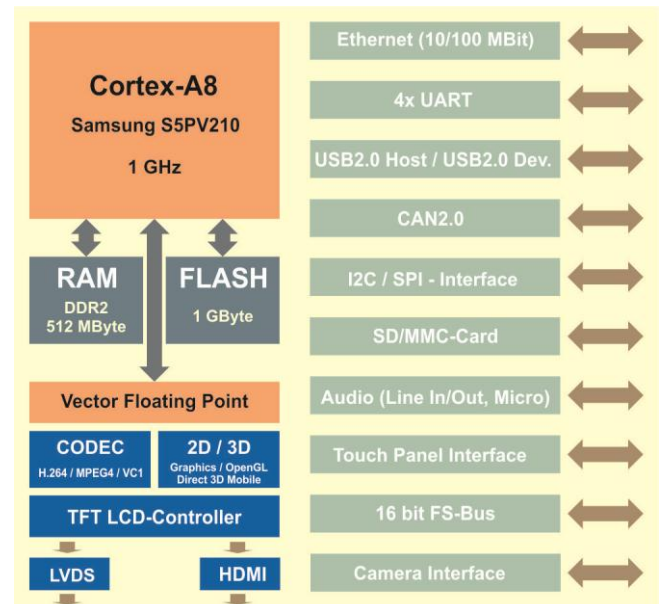
### Original Size



### Description

The powerful PicoMOD7A is especially suited for applications needing high performance graphics (2D/ 3D/ OpenGL/ Direct 3D Mobile) and to play movies (MPEG4/ H.264/ WMV9) at a power consumption of less than 3W typ.. The very compact (80x50mm) PicoMOD7A can be used in mobile devices, as well as for stationary devices in industrial and medical applications (-25°C - +85°C). PicoMOD7A offers 128MB Flash, 256 MB DDR2-RAM. A high number of interfaces like Serial, Ethernet, USB2.0, CAN2.0, I<sup>2</sup>C, I/O, Audio, Touch, and SD-Card, offer a wide application field. All common TFT displays up to 1280x800 (WXGA) can be connected. HDMI is also available. The power supply of the board is a single 3.3V supply. A robust 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.

### Starter Kit

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.

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## Connector Assignment

J1 – System Connector													
1	I/O64 (SPI CS)	21	I/O5 (COM1 TxD)	41	I/O14	61	CAM_DATA0	81	CAM_FIELD	101	A2 (Address 2)	121	D11 (Data 11)
2	I/O65 (SPI CLK)	22	I/O4 (COM1 RxD)	42	I/O13	62	GND (System Ground)	82	CAM_VSYNC	102	A3 (Address 3)	122	D12 (Data 12)
3	I/O66 (SPI MISO)	23	I/O7 (COM3 TxD)	43	I/O16	63	CAM_DATA1	83	GND (System Ground)	103	A4 (Address 4)	123	D13 (Data 13)
4	I/O67 (SPI MOSI)	24	I/O6 (COM3 RxD)	44	I/O15	64	TMDS Data2+	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	CAM_DATA2	85	GND (System Ground)	105	A6 (Address 6)	125	D15 (Data 15)
6	CAN-RX (COM4 RxD)	26	USBDM (USB Host+)	46	I/O17	66	TMDS Data2-	86	CAM_PCLK	106	A7 (Address 7)	126	I/O75 (CF Power En.)
7	RX- (Ethernet)	27	OTGDP (USB)	47	I/O20 (SD-DAT0)	67	CAM_DATA3	87	I/O70 (CF nCD)	107	A8 (Address 8)	127	CS0 (FS-Bus CS)
8	TX- (Ethernet)	28	USBDM (USB Host +)	48	I/O19 (SD-CMD)	68	TMDS Data1+	88	I/O71 (CF nRQ)	108	A9 (Address 9)	128	ETH-ACT (Ethernet)
9	RX+ (Ethernet)	29	I/O9	49	I/O22 (SD-DAT2)	69	CAM_DATA4	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	TMDS Data1-	90	I/O72 (CF INPACK)	110	D0 (Data 0)	130	STA2 (Status 2)
11	+3,3V (Power Supply)	31	I/O11 (I <sup>2</sup> C-SDA)	51	I/O24 (SD-Detect)	71	CAM_DATA5	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	TMDS Data0+	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	CAM_DATA6	93	I/O73 (CF REG)	113	D3 (Data 3)	133	LIN (Audio Left In)
14	GND (System Ground)	34	I/O12 (I <sup>2</sup> C-SCL)	54	I/O25 (SD-Power En.)	74	TMDS Data0-	94	nOE_CF (CF nOE)	114	D4 (Data 4)	134	RIN (Audio Right In)
15	nPONRES (Res CPU)	35	BOOTSEL0	55	I/O28	75	CAM_DATA7	95	new_CF (CF nWE)	115	D5 (Data 5)	135	MICIN (Micro In)
16	VBAT (RTC Supply)	36	I/O77	56	I/O27	76	TMDS Clock+	96	nOE	116	D6 (Data 6)	136	MICBIAS (Micro Bias)
17	I/O1 (COM2 TxD)	37	NC (internal pulldown)	57	I/O30 (LCD VCFL On)	77	CAM_MCLK	97	nWE	117	D7 (Data 7)	137	X+ (Touch X+)
18	I/O0 (COM2 RxD)	38	BOOTSEL2	58	VDD_CAM	78	TMDS Clock-	98	I/O74 (CF RESET)	118	D8 (Data 8)	138	X- (Touch X-)
19	I/O3 (COM2 RTS)	39	IGND (System Ground)	59	GND (System Ground)	79	CAM_HREF	99	A0 (Address 0)	119	D9 (Data 9)	139	Y+ (Touch Y+)
20	I/O2 (COM2 CTS)	40	GND (System Ground)	60	I/O31 (LCD VEEK)	80	CAM_RESET	100	A1 (Address1)	120	D10 (Data 10)	140	Y- (Touch Y-)

### LCD Connection

Pico-MOD7	LVDS Connector	
	6 bit	18 bit
1	VLCD *	VLCD *
2	VLCD *	VLCD *
3	GND	GND
4	GND	GND
5	LVDS_DATA0-	LVDS_DATA0-
6	LVDS_DATA0+	LVDS_DATA0+
7	GND	GND
8	LVDS_DATA1-	LVDS_DATA1-
9	LVDS_DATA1+	LVDS_DATA1+
10	GND	GND
11	LVDS_DATA2-	LVDS_DATA2-
12	LVDS_DATA2+	LVDS_DATA2+
13	GND	GND
14	LVDS_CLK-	LVDS_CLK-
15	LVDS_CLK+	LVDS_CLK+
16	GND	GND
17	-	LVDS_DATA3-
18	-	LVDS_DATA3+
19	GND	GND
20	GND	GND
21	GND	GND
22	GND	GND
23	VLCD*	VLCD*
24	VLCD*	VLCD*
25	CFL PWM signal	CFL PWM signal

\*3.3V switched

### Technical Data

<p>Power Supply: +3.3VDC/±5%</p> <p>Power Consumption: 2,5W typ.</p> <p>Digital I/O: max. 64 I/O port lines</p> <p>Touch Screen: 4-wire, analogue resistive</p> <p>Interfaces:</p> <ul style="list-style-type: none"> <li>1x Ethernet 10/ 100 MBit</li> <li>3-4x Serial (1x with RTS/ CTS)</li> <li>1x USB2.0 Host</li> <li>1x USB2.0 Device</li> <li>1x CAN2.0</li> <li>1x I<sup>2</sup>C</li> <li>1x SPI (optional)</li> <li>1x Audio Line IN/ OUT/ MIC</li> <li>1x micro SD-Card Slot</li> <li>1x SD-Card Slot (external)</li> <li>1x Address/ Data Bus Interface</li> <li>1x DVI/ HDMI interface</li> <li>1x Camera Interface</li> </ul> <p>TFT LCD Interface: TFT up to WXGA (1280x800 LVDS)</p> <p>RAM: 256 MB/ 512 MB DDR2-RAM</p> <p>Program Memory: 128MB/ 1GB Flash</p> <p>Processor: Samsung S5PV210 CortexA8 – 1 GHz PowerVR SGX540</p> <p>Temperature Range: -25°C - +85°C (L1) 0°C - +85°C (L2)</p> <p>Dimension: 80mm x 50mm x 10mm (l x w x d)</p> <p>Weight: about 20g</p>	<p>Power Supply: +3.3VDC/±5%</p> <p>Power Consumption: 2,5W typ.</p> <p>Digital I/O: max. 64 I/O port lines</p> <p>Touch Screen: 4-wire, analogue resistive</p> <p>Interfaces:</p> <ul style="list-style-type: none"> <li>1x Ethernet 10/ 100 MBit</li> <li>3-4x Serial (1x with RTS/ CTS)</li> <li>1x USB2.0 Host</li> <li>1x USB2.0 Device</li> <li>1x CAN2.0</li> <li>1x I<sup>2</sup>C</li> <li>1x SPI (optional)</li> <li>1x Audio Line IN/ OUT/ MIC</li> <li>1x micro SD-Card Slot</li> <li>1x SD-Card Slot (external)</li> <li>1x Address/ Data Bus Interface</li> <li>1x DVI/ HDMI interface</li> <li>1x Camera Interface</li> </ul> <p>TFT LCD Interface: TFT up to WXGA (1280x800 LVDS)</p> <p>RAM: 256 MB/ 512 MB DDR2-RAM</p> <p>Program Memory: 128MB/ 1GB Flash</p> <p>Processor: Samsung S5PV210 CortexA8 – 1 GHz PowerVR SGX540</p> <p>Temperature Range: -25°C - +85°C (L1) 0°C - +85°C (L2)</p> <p>Dimension: 80mm x 50mm x 10mm (l x w x d)</p> <p>Weight: about 20g</p>
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### Standard Versions/ Order Notations

**PicoMOD7A-ANCL1-WCE**

256MB RAM, 128MB Flash, Audio, Ethernet, CAN, 6Bit LVDS, WCE 6.0 Core license

**PicoMOD7A-ANCL1-LIN**

256MB RAM, 128MB Flash, Audio, Ethernet, CAN, 6Bit LVDS, Linux

**PicoMOD7A-512DANCL1-WEC7**

512MB RAM, 128MB Flash, Audio, Ethernet, CAN, 6Bit LVDS, Linux

**PicoMOD7A-512DANCL2-WEC7 (delivery lot: 100 pcs.)**

512MB RAM, 128MB Flash, Audio, Ethernet, CAN, 8Bit LVDS, WEC7 CE7 license

**PicoMOD7A-SKIT**

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

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

### Order Key

#### PicoMOD7A-512D1FANCL1-WCE

RAM	Flash	Audio	Ethernet	CAN	LVDS	System
blank	blank	blank	blank	blank	L1	WCE
256 MByte	128 MByte	no Audio	no Ethernet	no CAN	6Bit LVDS	Windows CE 6.0
512 MByte	1 GByte	Audio	Ethernet	CAN2.0	8Bit LVDS	LIN Embedded Linux
						WEC7 WEC7

