

VCMA9

ARM9 CPU Module with 250 MHz

General Description

The VCMA9 is a small highly integrated and robust Versatile Computer Module. It is based on a micro-controller using the sophisticated ARM920T core and implements a full set of common system peripherals. Besides these, the VCMA9 offers Ethernet, CAN and DAC. As main memory up to 128 MB SDRAM are available onboard and for storage media NAND-Flash. An expansion bus connector is also provided. All the incorporated features make the single board computer extremely flexible and versatile. The VCMA9 can be used stand alone, in connection with expansion boards or as CPU module on a base board.

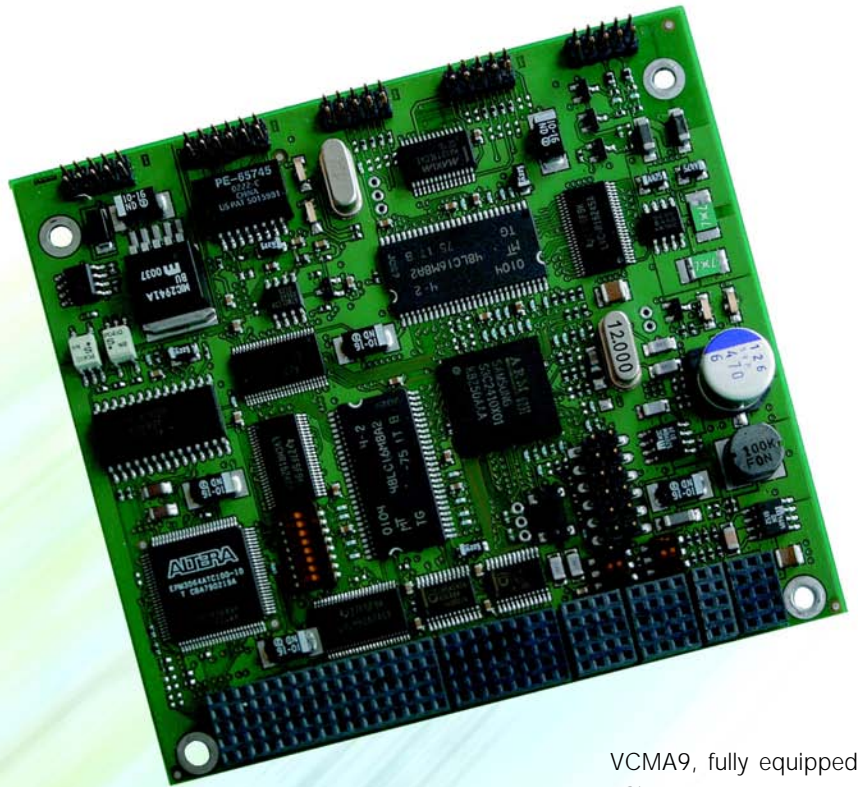
The VCMA9 Specialties

are among many others the extreme low power consumption (<1.5W). An ARM920T core based solution with soldered SDRAM, NAND-Flash as mass storage device and a complete set of peripherals like 3 serial ports, USB, LCD, Ethernet, CAN and many more. An open source bootloader, LINUX & Windows® CE board support packages are available.

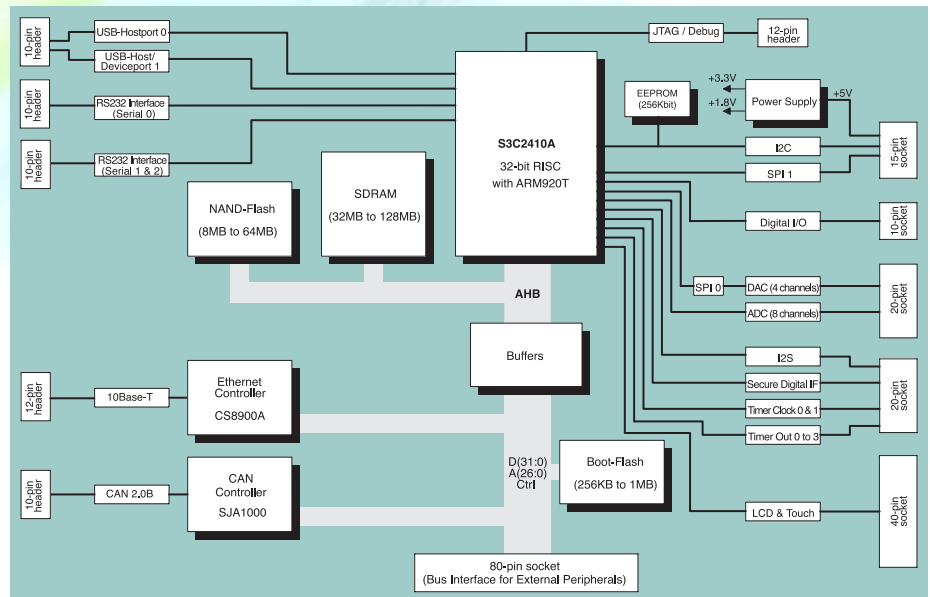
- Low power, high performance
- Project Starter-Kit
- Low cost solution
- Depopulated and tailored to customer requirements versions are available

Those features make

the VCMA9 to the ideal solution for applications where a high quality, small size, low power, expandable Industrial Single Board Computer is needed. The VCMA9 is used in medicine, handheld devices, transportation or any other industrial application.



VCMA9, fully equipped
Size: 90 x 100 x 8 mm



Technical Features VCMA9

Board Key Data

| | | |
|-------------------------|---|---|
| Processor | 32-bit ARM920T core (S3C2410A) Enhanced ARM architecture | integrated Memory Management Unit separate 16 KB instruction and data cache |
| CPU Speed | Up to 250 MHz | adjustable |
| Memory | Up to 128 MB SDRAM | soldered onboard |
| Mass Storage | Up to 64 MB NAND-Flash | soldered onboard |
| Boot | 512 KB Flash EEPROM | easy to update, bootloader enclosed |
| RTC | Alarm functions; millisecond tick for RTOS | can be backed with external battery |
| Ethernet | 10-Base-T | 10 Mbit/s |
| CAN | Supports CAN 2.0B protocol | opto isolated interface |
| Serial Line | 3 ports (one with handshake signals) | RS232 level |
| USB | 2 ports (one Host; one selectable Host or Device) | USB 1.1 ports (12 Mbit/s) |
| LCD | STN and TFT support 3.3V and 5 V panels | max. 24 bpp; max. 4 MB virtual screen size various screen sizes & resolutions are possible |
| Touch | Controller built in microprocessor | external transistor logic required |
| ADC | 10-bit, 8-channel multiplexed | max. 500 ksp/s |
| DAC | 8-bit, 4-channel | with high and low reference input |
| Digital I/O | At least 8 (up to 64 possible) | TTL-level |
| I2C | 256 Kbit serial EEPROM onboard | up to 400 Kbit/s |
| SPI | 2 channels built in microprocessor | DAC is controlled via SPI channel 0 |
| I2S | Controller built in microprocessor | for audio interface with DMA-based operation |
| SD | Controller built in microprocessor | compatible with SD Memory/IO Card Protocol |
| Watchdog | Selectable timeouts | built in microprocessor |
| Timers | One 16-bit internal timer Four 16-bit timer | DMA- or IRQ-based operation with Pulse Width Modulation (PWM) |
| Keyboard, Mouse, Floppy | Over USB port | Matrix Keyboard via SPI Interface |
| Indicators | 4 activity LED's | Power, Reset, LAN-Link, LAN-Activity |
| Expansion | 32-bit bus interface | via 80-pin 2 mm pitch socket |

Physical / Power

| | | |
|--------------------------------|---|--|
| Size (length x width x height) | 90 x 100 x 8 mm | 3.545 x 3.935 x 0.315 inches |
| Weight | 65g / 0.14 lbs | fully equipped |
| Power | +5VDC ±5% | Input via 2 mm pitch socket |
| Power consumption | typically less than 1,5 W | 128 MB SDRAM, 64 MB NAND-Flash, LAN, CAN |
| Temperature Range | -20 °C up to 70 °C, optional -40 °C up to 85 °C | without heat sink |
| Humidity | 5% to 95% non condensing | Optional coating available |

Standard Compliance

The VCMA9 is designed to meet or exceed the most common standards. Particular references are:

| | |
|------------------------|---|
| EMC | EN 55022, EN 55024, EN 61000, MIL-STD-461E |
| Shock & Vibration | EN 60068 |
| Environmental & Safety | EN 50155, MIL-STD-810-F, EN 60601, EN 60950 |
| Approval Lists | CE, EN 60945, IACS E10 |

VCMA9 versions

- Complete version
- Depopulated versions
- Coated versions
- Extended temp. versions

Expansions & Options

- Base/Carrier board available (VCMA9-BB2)
- Over the expansion bus connector
- Customer solutions

Operating Systems

- LINUX & Windows® CE distributions
- Open source boot loader for other OS

The VCMA9 is fully developed, designed and produced by MPL AG in Switzerland.
For further requirements contact MPL.

Other MPL Products

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|-----------------------|--|
| Industrial PCs | Fanless, rugged Packed Industrial PCs with Intel CPUs in various housings and with many accessories. Products for extended temperature (-40° up to +75°C) and with long-term availability. |
| Panel PCs | Fanless, IP65/NEMA4 protected Panel PCs (all around). Solutions with 6" - 19" LCDs and Touch in special aluminum or stainless steel case. |
| Engineering & Support | Professional engineering, support and consulting through MPL engineers on Hardware and Software. |