

Powerfull OEM module for rapid application development based on Atmel's AVR ATmega128 processor.

BASIC SPECIFICATIONS

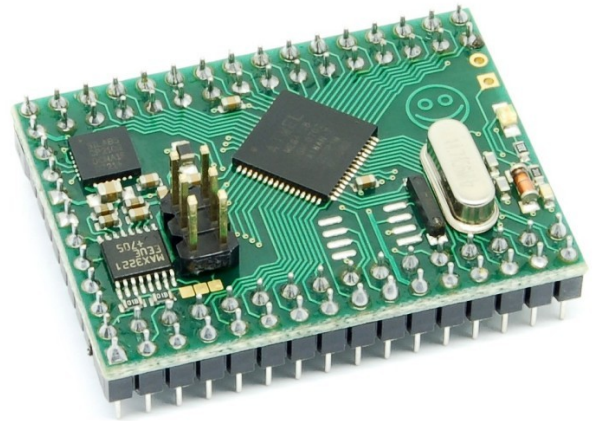
| Module | Processor | RAM | EEPROM | Flash | Peripherals |
|-------------------------------|------------|----------|------------|-------------|---|
| Crumb128 V3.0 | ATmega128 | 4kB SRAM | 4kB EEPROM | 128kB Flash | - CP2102 USB-UART converter - MAX3221 RS232 transceiver |
| Crumb128 V3.0 with CAN option | AT90CAN128 | 4kB SRAM | 4kB EEPROM | 128kB Flash | - CP2102 USB-UART converter - MAX3221 RS232 transceiver - PCA82C251 CAN transceiver |

High Performance

- up to 16MHz operating frequency
- single 2.7-5V power supply

Familiar Integrated AVR Peripherals

- up to 51 IO pins available
- two 8 bit, two 16 bit timer/counter
- two 8 bit PWM, six 16 bit PWM channels
- input capture and output compare functions
- real time clock counter
- two programmable UARTs
- master/slave SPI interface
- two wire interface (I²C comp.)
- analog comparator
- 8 channel 10 bit ADC
- watchdog timer
- ISP and JTAG interface
- CAN controller (with CAN option)



Enhanced Onboard Peripherals

- CP2102 USB to UART converter
- MAX3221 RS232 transceiver
- PCA82C251 CAN transceiver (with CAN option)
- HC49 type crystal (frequency selectable)
- 32768Hz clock crystal preinstalled
- standard 6 pin Atmel AVR ISP connector
- status LED (connected to PB7)

Expansion Headers

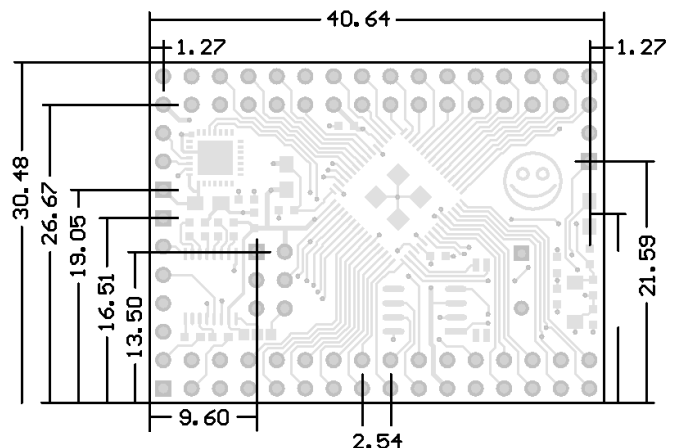
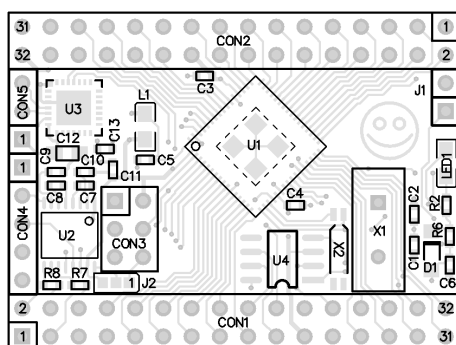
- standard 2.54mm headers with all controller signals and signals from onboard peripherals

SCOPE OF DELIVERY

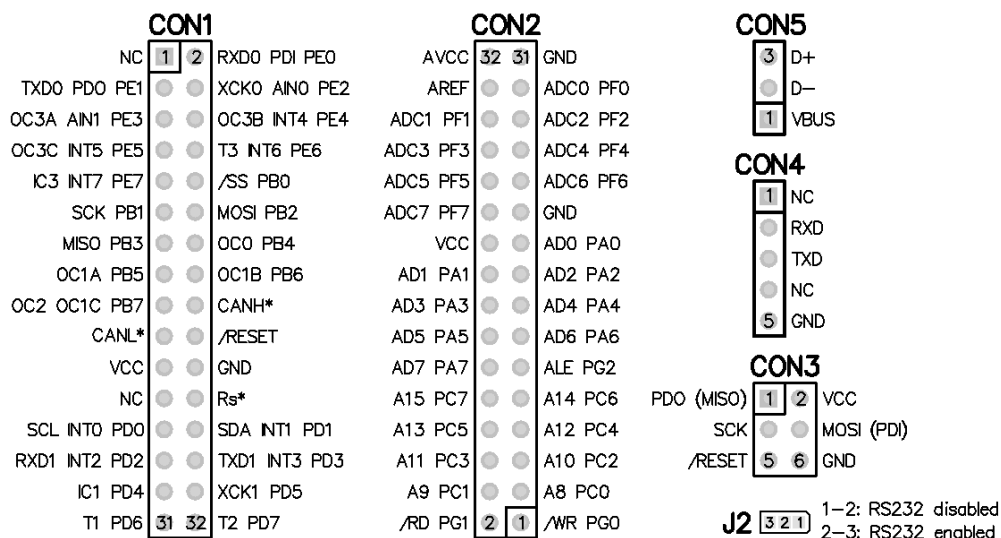
This module is being shipped without pin headers (THT components) preinstalled. A Connector Kit with high quality pin headers and receptacles is available separately or any suitable 2.54mm (1/10inch) grid pins can be used.

PHYSICAL DIMENSIONS

Values are [mm] unless otherwise noted.



PIN CONFIGURATION



OPERATING CHARACTERISTICS

| Symbol | Parameter | Condition | Min | Typ | Max | Units |
|--------|---|--------------------------|-----|-----|-------|-------|
| Vcc | Supply Voltage | 0-8 MHz | 2.7 | | 5.5 | V |
| | | 0-16 MHz | 4.5 | | 5.5 | V |
| | | true RS232 | 3.0 | | 5.5 | V |
| | | with CAN active | 4.5 | | 5.5 | V |
| Icc | Power Supply Current (Icc strongly depends on CPU activity, like frequency, power saving modes, etc. as well as external circuitry, io pin input and output current, etc. The values denoted here are for reference only and can differ from final application vallues.) | Active 8MHz Vcc = 3V | | 16 | | mA |
| | | Active 16MHz Vcc = 5V | | 30 | | mA |
| | | USB bus active | | +26 | | mA |
| | | CAN bus dominant | | | +85 | mA |
| | | CAN bus recessive | | | +10mA | |
| T | Operating Temperature (industrial temperature range on request) | | -20 | | +70 | °C |

DESIGN AND HANDLING GUIDELINES

This module – just like any other semiconductor devices – is susceptible to damage by ESD. Suitable precautions should be taken when handling and transporting devices. The possible damage to devices depends on the circumstances of the handling and transporting, and the nature of the device. The extent of damage can vary from immediate functional or parametric malfunction to degradation of function or performance in use over time. Devices suspected of being affected should be replaced.

DEVELOPMENT TOOLS

The free WinAVR C/C++ compiler toolset provides a powerful and stable development environment, which is nicely integrated into Atmel's AVR-Studio development suite. Please visit the following pages for more details:

- Atmel AVR Studio: http://www.atmel.com/dyn/products/tools_card.asp?tool_id=2725
- WinAVR compiler toolset: <http://winavr.sourceforge.net/>

WHAT ELSE DO YOU NEED?

- An ISP adapter for in-system programming of the ATmega2560, see <http://www.chip45.com/Programmer> for suitable devices.
- The USB driver for the CP2102 USB UART converter (see <http://www.chip45.com/Crumb128> download page)
- A development environment and compiler/assembler (see above DEVELOPMENT TOOLS)

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