ALVIDI

# AVR-Development Module with 128K Bytes external SRAM

## Model: AL-ERAM128_256

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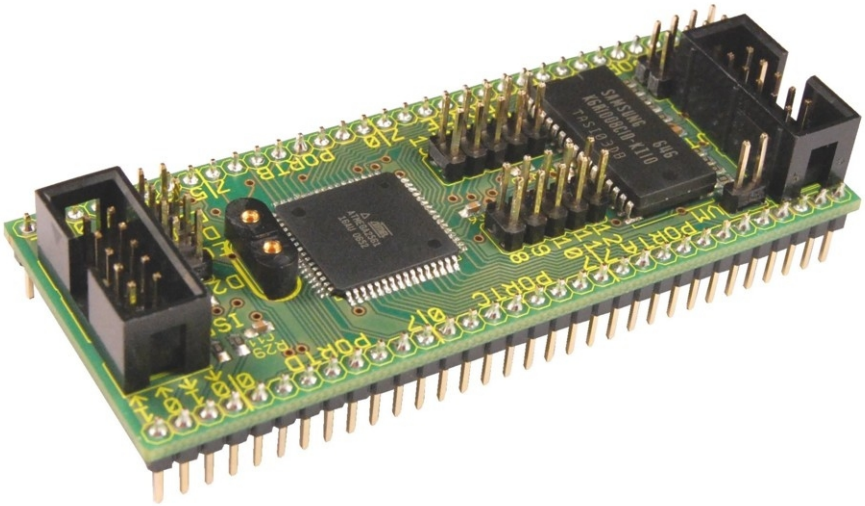
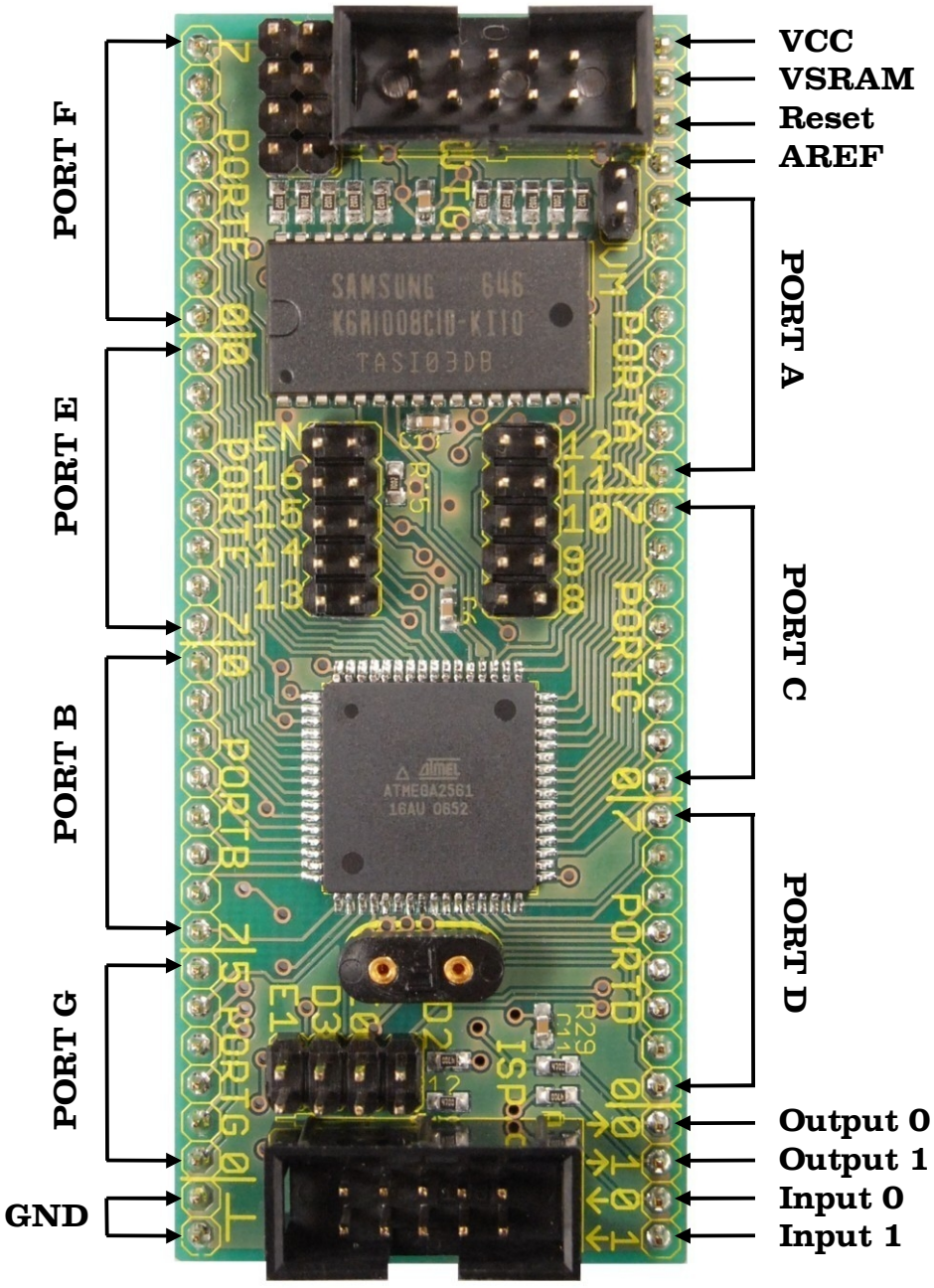
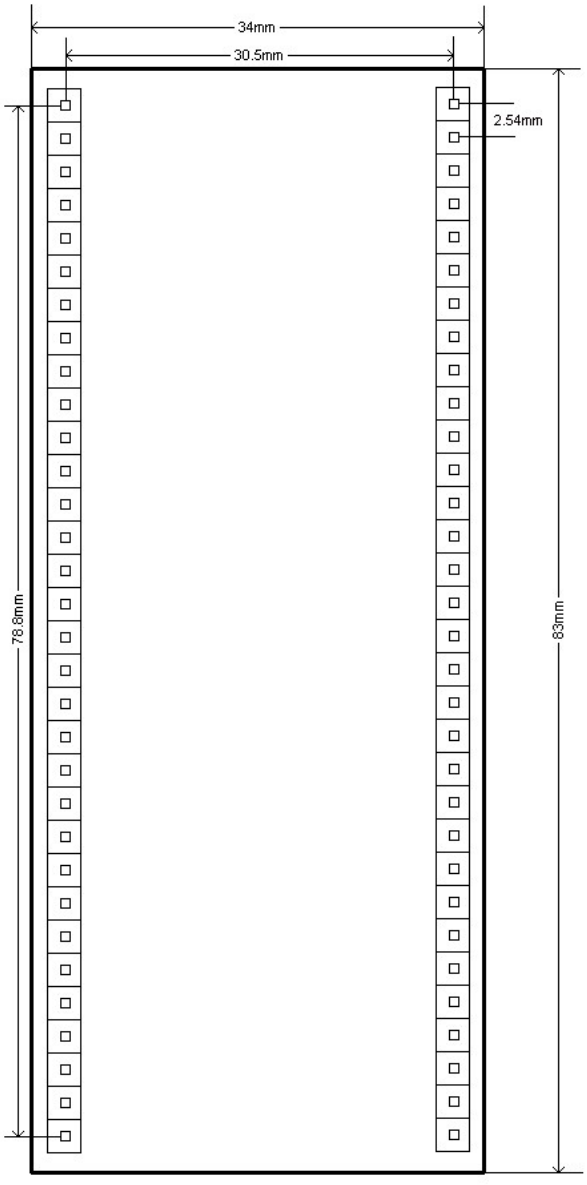


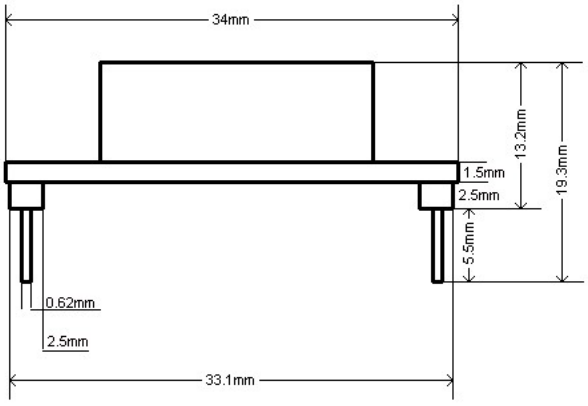
# Summary



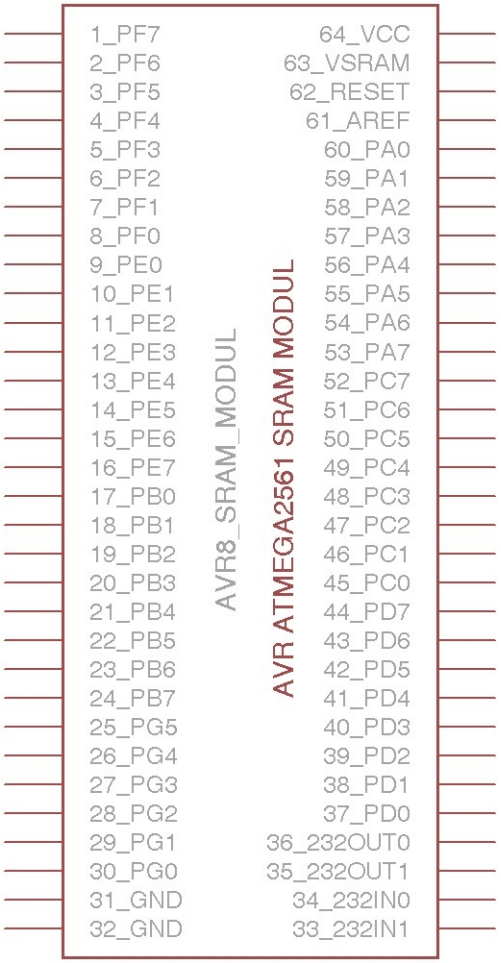

**Attention! Polarity reversal and overvoltage may cause a destruction of the electronic components!!!**

# Measures



# Description




- **Controller:** Atmel AVR ATmega2561-16AU up to 16 MHz
- **Additional equipping:** 128K Bytes external SRAM
- **External SRAM:** internal or external voltage, ON/OFF switchable
- **Supply voltage:** 5 V
- **Module size:** W x H x D 34 mm x 83 mm x 19.3 mm
- **Quartz socket:** simple and fast quartz exchange
- **PC-Connection:** 2 x RS232, separable with jumpers
- **Compatibility:** compatible with hole matrix board (hole distance 2.54 mm)
- **Circuit:** built on the recommendation of the manufacturer
- **Programming:** ISP or JTAG connector
- **Pin configuration of AVR-Module:** shown at the left picture
- **Pin configuration ISP & JTAG connectors:** 10-pin, standard of Atmel
- **Functionality:** tested, ready for use
- **Conformity:** RoHS Compliance
- **Produced** in Germany
- **Description:**

We offer you more flexibility by the development. By means of quartz socket it is possible to choose another frequency easier and faster. External SRAM solves the saving problem, if the internal 4K Bytes SRAM is not enough. Due to Jumper configuration of SRAM there are following setting possible: internal or external voltage, ON/OFF switching of external SRAM and using all occupied ports after the Jumper separation, so that the ports may be used in a normal way, when SRAM is not needed. All pins of micro controller are connected with the pins of module and positioned in the logical order, that makes the development work easier. The circuit of the module is built on the recommendation of the manufacturer: A/D converter, reset, ISP, JTAG, RS232, SRAM. Jumper configuration helps you to make the right settings. A suppressor diode is responsible for the security of AVR-Module. We offer you a very simple installation and use of AVR-Module for the beginner as well as for the advancer.

# Electrical Characteristics

| | Min | Typ | Max |
|---|---|---|---|
| for **all** modules with | **Operating Temperature** | | |
| MAX3232EID (actual) | **- 40 °C** | | **85 °C** |
| MAX3232IDR (actual) | | | |
| MAX202ECSE | **0 °C** | | **70 °C** |
| MAX3232ECD | | | |
| | **Operating Voltage** | | |
| • with 5 V version (actual) | 4.5 V | 5 V | 5.5 V |
| • with 3.3 V version | 3.0 V | 3.3 V | 3.6 V |
| | **Operating Frequency** | | |
| • with 5 V version (actual) | 0 Hz | | 16 MHz |
| • with 3.3 V version | 0 Hz | | 8 MHz |
| | **Maximum DC Current per I/O Pin** | | |
| • with 5 V version (actual) | | | 20 mA |
| • with 3.3 V version | | | 10 mA |
| | **Maximum Access Time of SRAM** | | |
| • with 5 V version (actual) | | | 10 nS |
| • with 3.3 V version | | | 10 nS |

more electrical characteristics you will find on the page 370 in the data sheet ATmega2561.pdf

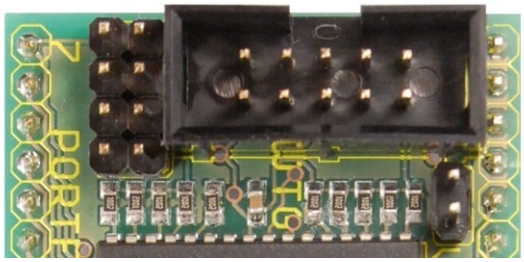
- ► Suppressordiode P6SMB6.8A
- ► 2-layer Leiterplatte DIN ISO 9001
- ► with UL-Approbation
- ► double-side mounted
- ► SRAM CY7C1019D
- ► Latch 74HC573

**Possible Modifications**

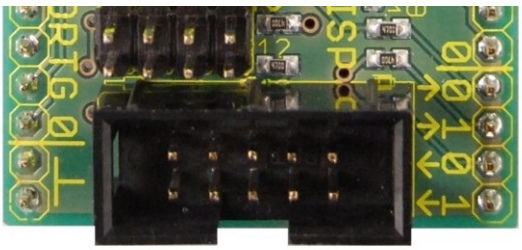
¤ 3.3V Version
¤ with mounted quartz (without quartz socket)
¤ without laterally pins

# Programming

## JTAG [1]



## ISP [2]



### *Pin Configuration JTAG-Connector*

| | | | | |
|---|---|---|---|---|
| (9) TDI | (7) VCC | (5) TMS | (3) TDO | (1) TCK |
| (10) GND | (8) | (6) Reset | (4) VCC | (2) GND |

### *Pin Configuration ISP-Connector*

| | | | | |
|---|---|---|---|---|
| (2) VCC | (4) GND | (6) GND | (8) GND | (10) GND |
| (1) MOSI | (3) GND | (5) Reset | (7) SCK | (9) MISO |

1 When programming with JTAG the JPl-(1-4)-jumpers should be set.

2 When programming with ISP the UART-jumpers JP2-3 and JP2-1 should not be set.

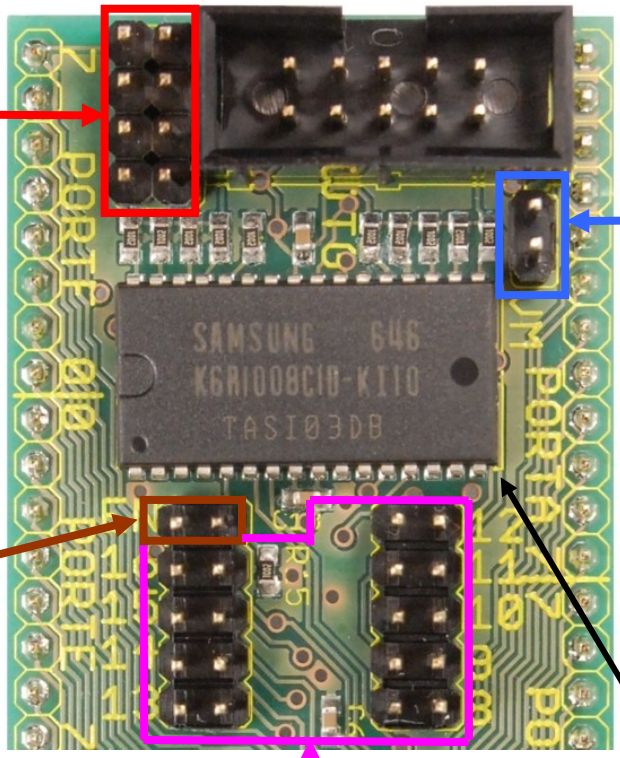
# Settings

**JTAG-jumpers**

| | |
|---|---|
| **JP2-1** | **Pin: PF7** |
| **JP2-2** | **Pin: PF6** |
| **JP2-3** | **Pin: PF5** |
| **JP2-4** | **Pin: PF4** |

**When programming with JTAG the jumpers should be set in the red square.**

**JP4-5:** CS\ Chip-Select.
If jumper is set, SRAM is switched on.
If jumper is not set, SRAM is switched off.




**VSRAM-jumper**

If **JP3 is set:** internal SRAM power supply. On pin: VSRAM is a supply voltage applied

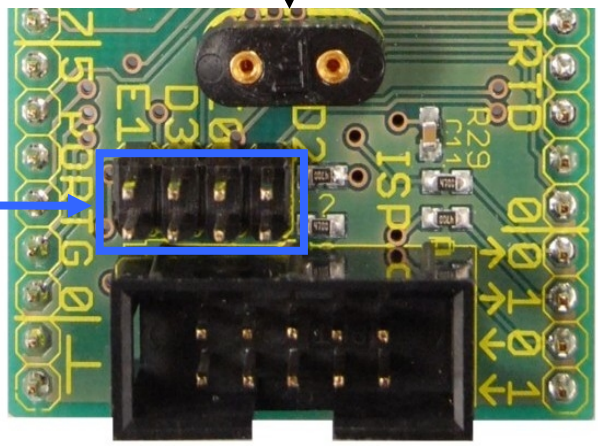
If **JP3 is not set:** only external SRAM power supply. Therewith the data buffering is possible, but only when the uninterruptible supply is guaranteed.

**128K Bytes external SRAM**

**JP1-(1-5) and JP4-(1-4):**
When **the jumpers are set**, external SRAM is switched on and as a consequence port A, port C and pins PG0, PG1 and PG2 are busy and cannot be used.

When **the jumpers are not set**, external SRAM is switched off and as a consequence port A, port C and pins PG0, PG1 and PG2 are not busy and can be used.

Quartz socket

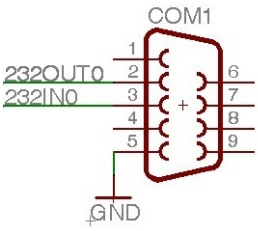


UARTs-jumpers

| JP5-1 | JP5-2 | JP5-3 | JP5-4 |
|---|---|---|---|
| Pin:PE1 | Pin:PD3 | Pin:PE0 | Pin:PD2 |

The UARTs-pins can be parted from RS232 transceivers with these jumpers.
**When programming with ISP the UART-jumpers JP5-3 (PE0) and JP5-1 (PE1) should not be set.**

## Connection of D-SUB 9-pin female connector (serial port/COM1)




| | D-SUB 9-p. | AL-ERAM128_256 |
|---|---|---|
| CH 0 example in the left picture | Pin 2 | 36_232OUT0 |
| | Pin 3 | 34_232IN0 |
| | GND | 32_GND |
| CH 1 | Pin 2 | 35_232OUT1 |
| | Pin 3 | 33_232IN1 |
| | GND | 32_GND |