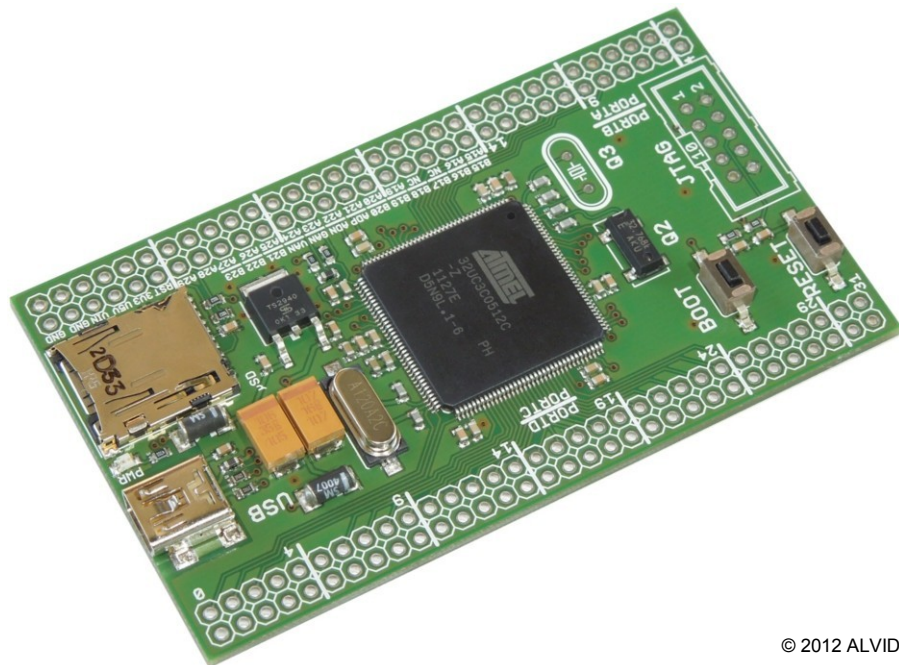
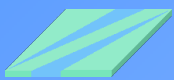


# AVR32-Development Module

**Model: AL-UC3CDB**

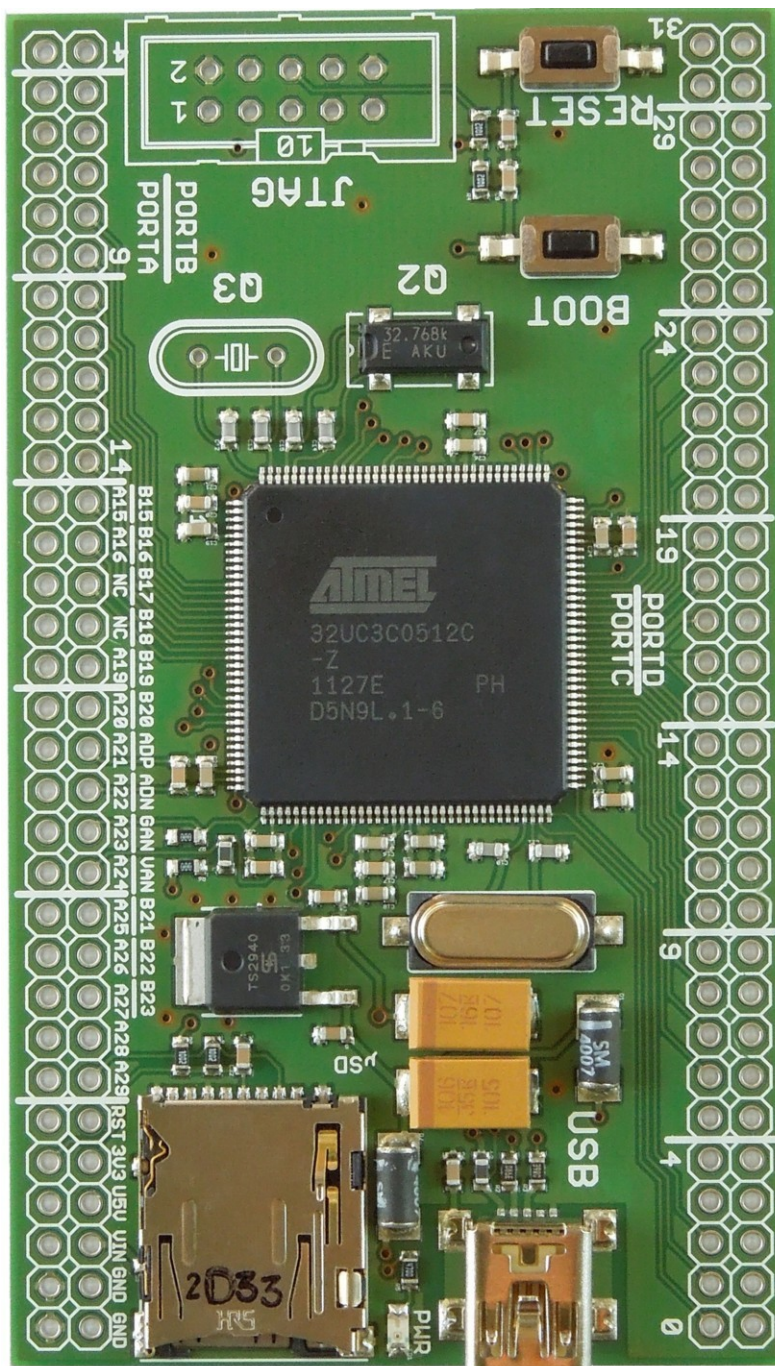
- Summary
- Measures
- Description
- Electrical Characteristics
- Programming
- Settings





## Summary

PA04 | PB04  
 PA05 | PB05  
 PA06 | PB06  
 PA07 | PB07  
 PA08 | PB08  
 PA09 | PB09  
 PA10 | PB10  
 PA11 | PB11  
 PA12 | PB12  
 PA13 | PB13  
 PA14<sup>1</sup> | PB14  
 PA15 | PB15  
 PA16 | PB16  
 NC | PB17  
 NC | PB18  
 PA19 | PB19  
 PA20 | PB20  
 PA21 | ADCREFP  
 PA22 | ADCREFN  
 PA23 | GNDANA  
 PA24 | VDDANA  
 PA25 | PB21  
 PA26 | PB22  
 PA27 | PB23  
 PA28 | PB24  
 PA29 | PB25<sup>3</sup>  
 RESET<sup>2</sup> | PB26<sup>4</sup>  
 3.3V | PB27<sup>5</sup>  
 USB 5V | PB28<sup>6</sup>  
 VCCIN | PB29<sup>7</sup>  
 GND | NC  
 GND | NC



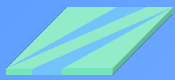
PC31 | NC  
 PC30 | PD30  
 PC29 | PD29  
 PC28 | PD28  
 PC27 | PD27  
 PC26 | PD26  
 PC25 | PD25  
 PC24 | PD24  
 PC23 | PD23  
 PC22 | PD22  
 PC21 | PD21  
 PC20 | PD20  
 PC19 | PD19  
 PC18 | PD18  
 PC17 | PD17  
 PC16 | PD16  
 PC15 | PD15  
 PC14 | PD14  
 PC13 | PD13  
 PC12 | PD12  
 PC11 | PD11  
 PC10 | PD10  
 PC09 | PD09  
 PC08 | PD08  
 PC07 | PD07  
 PC06 | PD06  
 PC05 | PD05  
 PC04 | PD04  
 PC03 | PD03  
 PC02 | PD02  
 PC01 | PD01  
 PC00 | PD00

<sup>1</sup>- connected with Boot key  
<sup>2</sup>- connected with Reset key

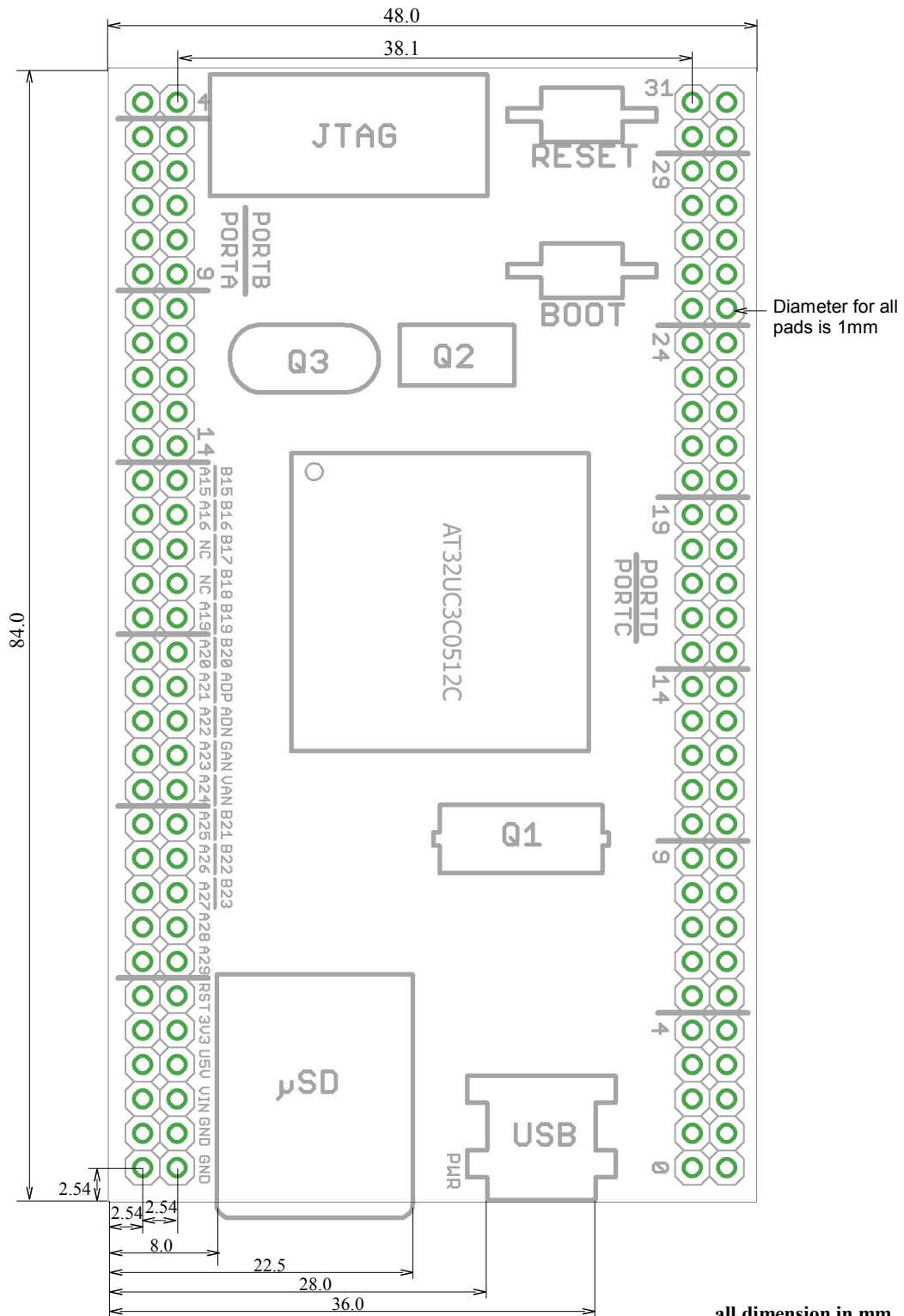
<sup>3</sup>- connected with  $\mu$ SD-/SS  
<sup>4</sup>- connected with  $\mu$ SD-SCK

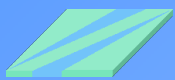
<sup>5</sup>- connected with  $\mu$ SD-MISO  
<sup>6</sup>- connected with  $\mu$ SD-MOSI  
<sup>7</sup>- connected with  $\mu$ SD-SWI

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



## Measures





## Description

| CON1   | CON2  | CON3 | CON4 |
|--------|-------|------|------|
| PA04   | PB04  | PC31 | NC   |
| PA05   | PB05  | PC30 | PD30 |
| PA06   | PB06  | PC29 | PD29 |
| PA07   | PB07  | PC28 | PD28 |
| PA08   | PB08  | PC27 | PD27 |
| PA09   | PB09  | PC26 | PD26 |
| PA10   | PB10  | PC25 | PD25 |
| PA11   | PB11  | PC24 | PD24 |
| PA12   | PB12  | PC23 | PD23 |
| PA13   | PB13  | PC22 | PD22 |
| PA14   | PB14  | PC21 | PD21 |
| PA15   | PB15  | PC20 | PD20 |
| PA16   | PB16  | PC19 | PD19 |
| NC_1   | PB17  | PC18 | PD18 |
| NC_2   | PB18  | PC17 | PD17 |
| PA19   | PB19  | PC16 | PD16 |
| PA20   | PB20  | PC15 | PD15 |
| PA21   | ADCP  | PC14 | PD14 |
| PA22   | ADCN  | PC13 | PD13 |
| PA23   | GND A | PC12 | PD12 |
| PA24   | VDDA  | PC11 | PD11 |
| PA25   | PB21  | PC10 | PD10 |
| PA26   | PB22  | PC09 | PD09 |
| PA27   | PB23  | PC08 | PD08 |
| PA28   | PB24  | PC07 | PD07 |
| PA29   | PB25  | PC06 | PD06 |
| RESET  | PB26  | PC05 | PD05 |
| 3.3V   | PB27  | PC04 | PD04 |
| USB_5V | PB28  | PC03 | PD03 |
| 5-12V  | PB29  | PC02 | PD02 |
| GND_1  | NC_3  | PC01 | PD01 |
| GND_2  | NC_4  | PC00 | PD00 |

- **Controller:** Atmel AVR32 AT32UC3C0512C up to 66 MHz

- **Additional equipping:**

- linear voltage regulator 3.3V
- microSD card slot
- reset and boot key
- Power LED
- JTAG interface
- 2x quartz and 1x additional quartz place
- 113x external I/O

- **optional equipment:**

*on request*

- JTAG connector
- site pin connectors

- **Voltage Supply:**

- external 3.3V or
- external 5.0 - 12V or
- USB 5V

- **Module size:** W x H x D 84 mm x 48 mm x 7 mm

- **Quartz:**

- 12MHz,
- 32.768KHz and
- additional quartz place

- **Interface:**

- USB
- JTAG

- **Compatibility:** compatible with hole matrix board 2.54 mm

- **Circuit:** built on the recommendation of the manufacturer

- **Programming:**

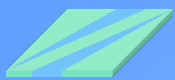
- JTAG MKII Connector (10-pin) or
- USB Boot Loader (USB type B)

- **Pin configuration:** shown at the left picture

- **Functionality:** tested, ready for use

- **Conformity:** **RoHS Compliance**

- **Produced** in Germany



## Electrical Characteristics

| Min | Typ | Max |
|-----|-----|-----|
|-----|-----|-----|

| for <b>all</b> modules with | Operating Temperature |       |
|-----------------------------|-----------------------|-------|
| without SD card slot        | - 40 °C               | 70 °C |
| with SD card slot           | - 25 °C               | 70 °C |

|                  | Voltage Sources |       |      |
|------------------|-----------------|-------|------|
| external 3,3V    | 3.0 V           | 3.3 V | 3.6V |
| external 5-12V * | 3.6 V           |       | 12 V |
| USB 5V           |                 | 5V    |      |

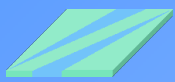
|                     | Frequency |            |        |
|---------------------|-----------|------------|--------|
| operating frequency | 0 Hz      |            | 66 MHz |
| external quartz Q1  |           | 12 MHz     |        |
| external quartz Q2  | 0 Hz      |            | 16 MHz |
| external quartz Q3  |           | 32.768 kHz |        |

|             | Maximum DC Current |      |  |
|-------------|--------------------|------|--|
| per I/O Pin |                    | 3 mA |  |

more electrical characteristics you will find on the page 1248 in the data sheet [AT32UC3C0512C.pdf](#)

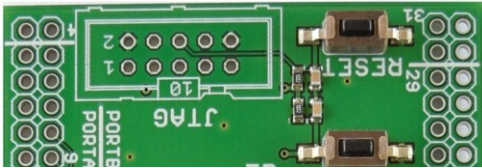
- ▶ voltage regulator TS2940CP-33
- ▶ 4-layer PCB DIN ISO 9001
- ▶ one-side mounted
- ▶ USB connector type mini B

\* by using external power supply on pin 5-12V we recommend to supply with low current (by 12V non-stop operation maximum 100 mA), otherwise cooling of the voltage regulator should be provided.

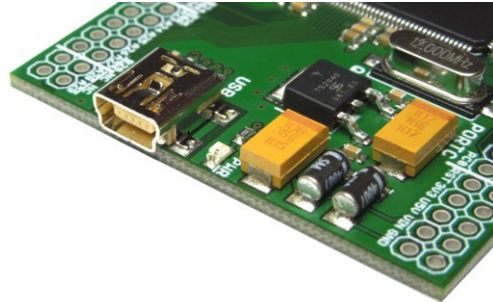


## Programming

### JTAG <sup>1</sup>



### USB <sup>2</sup>



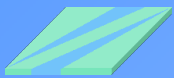
### *Pin Configuration JTAG-Connector*

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

Every AVR32 controller of Atmel is programmed with a boot loader. To be able to use this free program alternative, we have installed two keys: Reset and Boot. To start the boot loader you have to press Reset and Boot key together for a short time.

**1 To program AVR32-controller you need JTAG MKII.**

**2 You find detailed information about the USB programming on our website.**



## Settings

