

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 PA14¹ | 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 | PB25³ RESET² | PB26⁴ 3.3V | PB27⁵ USB 5V | PB286 VCCIN | PB297 GND | NC GND | NC

¹- connected with Boot key

²- connected with Reset key



⁵- connected with μ SD-MISO

⁶- connected with μSD-MOSI ⁷- connected with μSD-SW1

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

³- connected with µSD-/SS

⁴- connected with μSD-SCK

-2-



Measures





Description

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 PD23 PA11 PB11 PC24 PD24 PA12 PB12 PC23 PD23 PA13 PB13 PC21 PD21 PA14 PB14 PC21 PD21 PA15 PB15 PC20 PD20 PA16 PB16 PC19 PD19 NC_2 PB18 PC17 PD17 PA19 PB19 PC16 PD16 PA20 PB20 PC15 PD15 PA21 ADCP PC14 PD14 PA22 ADCN PC13 PD13 PA23 GNDA PC12 PD14		CON1	CON2	CON	3	CON	ŧ
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 PD24 PA14 PB14 PC21 PD21 PA15 PB15 PC20 PD20 PA16 PB16 PC19 PD19 PA15 PB15 PC17 PD17 PA19 PB19 PC16 PD16 PA20 PB20 PC15 PD15 PA21 ADCP PC14 PD14 PA22 ADCN PC15 PD15 PA21 ADCP PC14 PD14 PA22 ADCN PC17 PD17		PA04	PB04	 - PC	31	NC	
PA06 PB06 PC29 PD29 PA07 PB07 PC28 PD28 PA08 PB08 PC27 PD27 PA09 PB09 PC26 PD26 PA10 PB10 PC25 PD23 PA11 PB11 PC25 PD23 PA12 PB12 PC23 PD23 PA13 PB13 PC21 PD21 PA14 PB14 PC21 PD21 PA15 PB15 PC20 PD20 PA16 PB16 PC19 PD19 NC_1 PB17 PC18 PD18 NC_2 PB18 PC17 PD17 PA20 PB20 PC15 PD15 PA21 ADCP PC14 PD14 PA22 ADCN PC15 PD15 PA23 GNDA PC12 PD14 PA24 VDDA PC14 PD14 PA25 PB21 PC10 PD10		PA05	PB05	 - PC	:30	PD30	-
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 PD21 PA14 PB14 PC20 PD20 PA15 PB15 PC20 PD20 PA16 PB16 PC19 PD19 PA16 PB17 PC18 PD18 NC_1 PB17 PC18 PD18 NC_2 PB18 PC17 PD17 PA19 PB19 PC16 PD16 PA20 PB20 PC13 PD13 PA21 ADCP PC14 PD14 PA22 ADCN PC13 PD13 PA23 GNDA PC12 PD11 PA24 VDA PC14 PD14		PA06	PB06	 - PC	29	PD29	
PA08 PB08 PC27 PD27 PA09 PB09 PC26 PD26 PA10 PB10 PC25 PD25 PA11 PB11 PC24 PD24 PA12 PB12 PC23 PD23 PA13 PB13 PC22 PD21 PA14 PB15 PC20 PD20 PA15 PB15 PC20 PD20 PA16 PB16 PC19 PD19 PA16 PB17 PC18 PD18 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 GNDA PC12 PD12 PA24 VDA PC11 PD11 PA25 PB21 PC10 PD10		PA07	PB07	 - PC	28	PD28	-
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 PA19 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 GNDA PC12 PD12 PA24 VDA PC11 PD11 PA25 PB21 PC09 PD09 PA24 VDA PC07 PD07 PA25 PB23 PC09 PD09		PA08	PB08	 - PC	27	PD27	
PA10 PB10 PC25 PD25 PA11 PB11 PC24 PD24 PA12 PB12 PC23 PD23 PA13 PB13 PC22 PD24 PA13 PB13 PC22 PD23 PA14 PB14 PC21 PD21 PA15 PB15 PC20 PD20 PA16 PB16 PC19 PD19 PA16 PB17 PC18 PD17 PA19 PB19 PC17 PD17 PA19 PB19 PC16 PD16 PA20 PB20 PC17 PD17 PA21 ADCP PC14 PD14 PA22 ADCN PC12 PD12 PA23 GNDA PC12 PD11 PA25 PB21 PC10 PD11 PA25 PB23 PC09 PD09 PA24 VDDA PC10 PD10 PA25 PB23 PC09 PD09		PA09	PB09	 PC	26	PD26	-
PA11 PB11 PC24 PD24 PA12 PB12 PC23 PD23 PA13 PB13 PC22 PD22 PA14 PB14 PC21 PD21 PA15 PB15 PC20 PD20 PA16 PB16 PC19 PD19 PA16 PB17 PC18 PD18 NC_1 PB17 PC16 PD16 PA19 PB19 PC17 PD17 PA20 PB20 PC17 PD17 PA21 ADCP PC14 PD14 PA22 ADCN PC12 PD12 PA23 GNDA PC12 PD12 PA24 VDA PC11 PD11 PA25 PB21 PC09 PD09 PA26 PB22 PC09 PD09 PA27 PB23 PC08 PD08 PA29 PB25 PC06 PD06 PA29 PB25 PC05 PD05 J.3V PB27 PC04 PD04 USB_5V PB28		PA10	PB10	 - PC	25	PD25	-
PA12 PB12 PC23 PD23 PA13 PB13 PC22 PD22 PA14 PB14 PC21 PD21 PA15 PB15 PC20 PD20 PA16 PB16 PC19 PD19 PA15 PB17 PC19 PD19 NC_1 PB17 PC18 PD18 PA19 PB19 PC16 PD16 PA20 PB20 PC15 PD15 PA21 ADCP PC14 PD14 PA22 ADCN PC12 PD12 PA24 VDA PC12 PD12 PA24 VDA PC14 PD14 PA25 PB21 PC10 PD11 PA26 PB22 PC09 PD09 PA27 PB23 PC08 PD08 PA29 PB25 PC06 PD06 RESET PB26 PC05 PD05 J.3V PB27 PC04 PD04		PA11	PB11	 - PC	24	PD24	
PA13 PB13 PC22 PD22 PA14 PB14 PC11 PD21 PA15 PB15 PC20 PD20 PA16 PB16 PC19 PD19 NC_1 PB17 PC18 PD18 PA19 PB19 PC16 PD16 PA20 PB20 PC17 PD17 PA21 ADCP PC14 PD14 PA22 ADCN PC13 PD13 PA21 ADCP PC14 PD14 PA23 GNDA PC12 PD12 PA24 VDDA PC11 PD11 PA25 PB21 PC09 PD09 PA26 PB22 PC09 PD09 PA27 PB23 PC08 PD08 PA29 PB25 PC06 PD06 RESET PB26 PC05 PD03 S.3V PB27 PC04 PD04 USB_5V PB28 PC03 PD03		PA12	PB12	 PC	23	PD23	-
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 GNDA PC12 PD12 PA24 VDDA PC11 PD11 PA25 PB21 PC09 PD09 PA26 PB22 PC09 PD09 PA27 PB23 PC08 PD08 PA28 PB24 PC07 PD07 PA29 PB25 PC06 PD06 RESET PB26 PC05 PD03 J.3V PB27 PC04 PD04 USB_5V PB28 PC02 PD02		PA13	PB13	 PC	22	PD22	
PA15 PB15 PC20 PD20 PA16 PB16 PC19 PD19 NC_1 PB17 PC18 PD18 NC_2 PB18 PC17 PD17 PA19 PB19 PC16 PD16 PA20 PB20 PC17 PD17 PA19 PB19 PC16 PD16 PA20 PB20 PC17 PD17 PA21 ADCP PC14 PD14 PA22 ADCN PC13 PD13 PA23 GNDA PC11 PD11 PA24 VDDA PC11 PD11 PA25 PB21 PC09 PD09 PA26 PB22 PC09 PD09 PA27 PB23 PC08 PD08 PA29 PB25 PC06 PD06 RESET PB26 PC05 PD05 J33V PB27 PC04 PD04 USB_5V PB28 PC02 PD02		PA14	PB14	 - PC	21	PD21	-
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 PC12 PD12 PA23 GNDA PC11 PD11 PA25 PB21 PC10 PD10 PA26 PB22 PC09 PD09 PA27 PB23 PC07 PD07 PA29 PB25 PC06 PD06 RESET PB26 PC05 PD05 3.3V PB27 PC04 PD04 USB_5V PB28 PC02 PD02 GND_1 NC_3 PC01 PD01 GND_1 NC_3 PC01 PD01		PA15	PB15	 - PC	20	PD20	
NC_1 PB17 PC18 PD18 NC_2 PB18 PC17 PD17 PA19 PB19 PC16 PD16 PA20 PB20 PC15 PD15 PA21 ADCP PC14 PD14 PA22 ADCN PC12 PD13 PA23 GNDA PC12 PD12 PA25 PB21 PC10 PD10 PA26 PB22 PC09 PD09 PA27 PB23 PC07 PD07 PA29 PB25 PC06 PD06 RESET PB26 PC05 PD05 3.3V PB27 PC04 PD04 USB_5V PB28 PC02 PD02 GND_1 NC_3 PC01 PD01 GND_1 NC_3 PC01 PD01		PA16	PB16	 - PC	:19	PD19	-
NC_2 PB18 PC17 PD17 PA19 PB19 PC16 PD16 PA20 PB20 PC15 PD15 PA21 ADCP PC13 PD13 PA22 ADCN PC12 PD12 PA23 GNDA PC12 PD11 PA24 VDA PC11 PD11 PA25 PB21 PC10 PD10 PA26 PB22 PC09 PD09 PA27 PB23 PC07 PD07 PA29 PB25 PC06 PD06 RESET PB26 PC05 PD05 3.3V PB27 PC04 PD04 USB_5V PB28 PC02 PD02 GND_1 NC_3 PC01 PD01 GND_1 NC_3 PC00 PD00		NC_1	PB17	 - PC	:18	PD18	-
PA19 PB19 PC16 PD16 PA20 PB20 PC15 PD15 PA21 ADCP PC13 PD13 PA22 ADCN PC12 PD12 PA23 GNDA PC11 PD11 PA25 PB21 PC10 PD11 PA25 PB21 PC10 PD10 PA26 PB22 PC09 PD09 PA27 PB23 PC07 PD07 PA28 PB24 PC07 PD07 PA29 PB25 PC06 PD06 RESET PB26 PC03 PD03 USB_5V PB28 PC02 PD02 GND_1 NC_3 PC01 PD01 GND_1 NC_3 PC01 PD01	77	NC_2	PB18	 PC	17	PD17	
PA20 PB20 PC15 PD15 PA21 ADCP PC14 PD14 PA22 ADCN PC13 PD13 PA23 GNDA PC12 PD12 PA24 VDDA PC11 PD11 PA25 PB21 PC10 PD11 PA26 PB22 PC09 PD09 PA27 PB23 PC07 PD07 PA29 PB25 PC06 PD06 RESET PB26 PC05 PD05 3.3V PB27 PC04 PD04 USB_5V PB28 PC02 PD02 GND_1 NC_3 PC01 PD01 GND_1 NC_3 PC01 PD01		PA19	PB19	 - PC	16	PD16	-
PA21 ADCP PC14 PD14 PA22 ADCN PC13 PD13 PA23 GNDA PC12 PD12 PA23 GNDA PC12 PD12 PA24 VDDA PC10 PD10 PA25 PB21 PC09 PD09 PA26 PB22 PC09 PD07 PA27 PB23 PC06 PD06 PA29 PB25 PC05 PD05 3.3V PB27 PC04 PD04 USB_5V PB28 PC02 PD02 GND_1 NC_3 PC01 PD01 GND_2 NC_4 PC00 PD00		PA20	PB20	 - PC	15	PD15	-
PA22 ADCN PC13 PD13 PA23 GNDA PC12 PD12 PA23 GNDA PC12 PD12 PA24 VDDA 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 GND_1 NC_3 PC01 PD01 GND_2 NC_4 PC00 PD00		PA21	ADCP	 - PC	14	PD14	-
PA23 GNDA 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 PC02 PD03 GND_1 NC_3 PC01 PD01 GND_2 NC_4 PC01 PD01		PA22	ADCN	 - PC	13	PD13	
PA24 VDDA PC11 PD11 PA25 PB21 PC09 PD09 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 PC02 PD03 GND_1 NC_3 PC01 PD01 GND_2 NC_4 PC00 PD01		PA23	GNDA	 - PC	:12	PD12	
PA25 PB21 PC10 PD10 PA26 PB22 PC09 PD09 PA27 PB23 PC07 PD07 PA28 PB24 PC07 PD07 PA29 PB25 PC06 PD06 RESET PB26 PC05 PD05 J.3V PB27 PC04 PD04 USB_5V PB28 PC02 PD02 GND_1 NC_3 PC01 PD01 GND_2 NC_4 PC00 PD00		PA24	VDDA	 - PC	11	PD11	-
PA26 PB22 PC09 PD09 PA27 PB23 PC08 PD08 PA28 PB24 PC07 PD07 PA29 PB25 PC06 PD06 RESET PB26 PC05 PD05 JUSB_5V PB28 PC03 PD03 S-12V PB29 PC01 PC02 GND_1 NC_3 PC01 PD01 GND_2 NC_4 PC00 PD00		PA25	PB21	 - PC	:10	PD10	-
PA27 PB23 PC08 PD08 PA28 PB24 PC07 PD07 PA29 PB25 PC06 PD06 RESET PB26 PC05 PD05 J.3V PB27 PC04 PD04 USB_5V PB28 PC03 PD03 5-12V PB29 PC01 PC01 GND_1 NC_3 PC01 PD01 GND_2 NC_4 PC00 PD00		PA26	PB22	 - PC	:09	PD09	
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		PA27	PB23	 - PC	800	PD08	-
PA29 PB25 PC06 PD06 RESET PB26 PC05 PD05		PA28	PB24	 - PC	:07	PD07	
RESET PB26 PC05 PD05 3.3V PB27 PC04 PD04 USB_5V PB28 PC03 PD03 5-12V PB29 PC01 PD01 GND_1 NC_3 PC01 PD01 GND_2 NC_4 PC00 PD00		PA29	PB25	 - PC	:06	PD06	-
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		RESET	PB26	 - PC	:05	PD05	-
USB_5V PB28 PC03 PD03 5-12V PB29 PC02 PD02 GND_1 NC_3 PC01 PD01 GND_2 NC_4 PC00 PD00		- 3.3V	PB27	 - PC	:04	PD04	-
5-12V PB29 PC02 PD02 GND_1 NC_3 PC01 PD01 GND_2 NC_4 PC00 PD00		USB_5	V PB28	 - PC	:03	PD03	-
GND_1 NC_3 PC01 PD01 GND_2 NC_4 PC00 PD00		5-12V	PB29	 - PC	:02	PD02	-
GND 2 NC 4 PC00 PD00		GND_1	NC_3	 - PC	201	PD01	-
		GND_2	2 NC_4	 PC	000	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	Тур	Max
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for <u>all</u> 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 T S2940CP-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.

-5-



Programming

JTAG¹

USB²





Pin Configuration JTAG-Connector

(2)	(4)	(6)	(8)	(10)
GND	VCC	Reset		GND
(1)	(3)	(5)	(7)	(9)
ТСК	TDO	TMS	VCC	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.





-7-