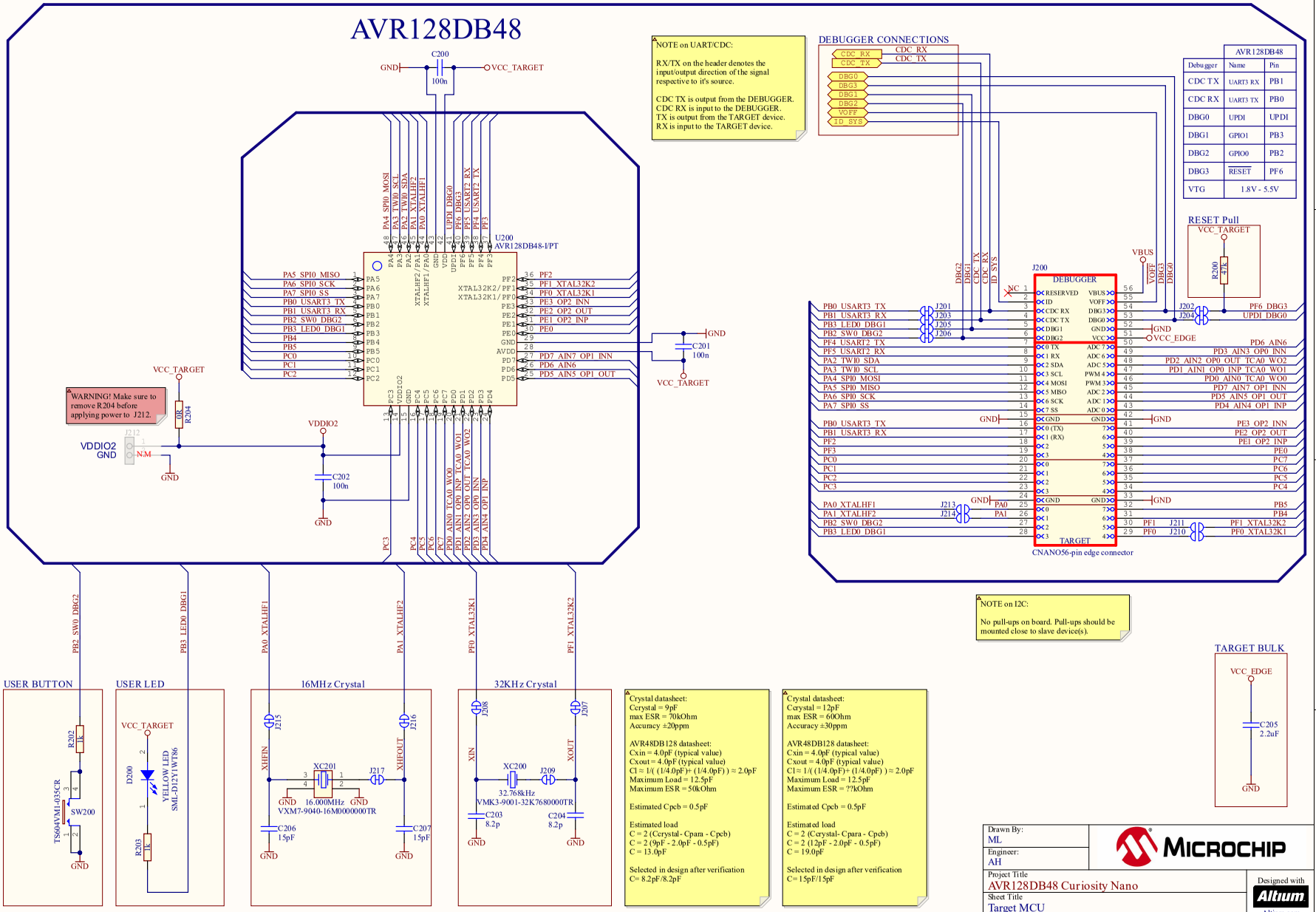
AVR128DB48



NOTE on UART/CDC:

RX/TX on the header denotes the input/output direction of the signal respective to it's source.

CDC TX is output from the DEBUGGER.
CDC RX is input to the DEBUGGER.
TX is output from the TARGET device.
RX is input to the TARGET device.

DEBUGGER CONNECTIONS

AVR128DB48		
Debugger	Name	Pin
CDC TX	UART3 RX	PB1
CDC RX	UART3 TX	PB0
DBG0	UPDI	UPDI
DBG1	GPIO1	PB3
DBG2	GPIO0	PB2
DBG3	RESET	PF6
VTG	1.8V - 5.5V	

NOTE on I2C:

No pull-ups on board. Pull-ups should be mounted close to slave device(s).

TARGET BULK

USER BUTTON

USER LED

16MHz Crystal

32KHz Crystal

Crystal datasheet:
Ccrystal = 9pF
max ESR = 70kOhm
Accuracy ±20ppm

AVR48DB128 datasheet:
Cxin = 4.0pF (typical value)
Cxout = 4.0pF (typical value)
Cl ≈ 1/((1/4.0pF)+ (1/4.0pF)) ≈ 2.0pF
Maximum Load = 12.5pF
Maximum ESR = 50kOhm

Estimated Cpcb = 0.5pF

Estimated load
C = 2 (Ccrystal - Cpara - Cpcb)
C = 2 (9pF - 2.0pF - 0.5pF)
C = 13.0pF

Selected in design after verification
C= 8.2pF/8.2pF

Crystal datasheet:
Ccrystal = 12pF
max ESR = 60Ohm
Accuracy ±30ppm

AVR48DB128 datasheet:
Cxin = 4.0pF (typical value)
Cxout = 4.0pF (typical value)
Cl ≈ 1/((1/4.0pF)+ (1/4.0pF)) ≈ 2.0pF
Maximum Load = 12.5pF
Maximum ESR = ??kOhm

Estimated Cpcb = 0.5pF

Estimated load
C = 2 (Ccrystal - Cpara - Cpcb)
C = 2 (12pF - 2.0pF - 0.5pF)
C = 19.0pF

Selected in design after verification
C= 15pF/15pF

Drawn By:	ML
Engineer:	AH
Project Title	AVR128DB48 Curiosity Nano
Sheet Title	Target MCU
Size	A3
PCB Assembly Number:	A09-3372
PCB Number:	A08-3057
PCBA Revision:	2
PCB Revision:	1
File:	AVR128DB48_Curiosity_Nano_Target_MCU.SchDoc
Date:	24.08.2020
Page:	2 of 4

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