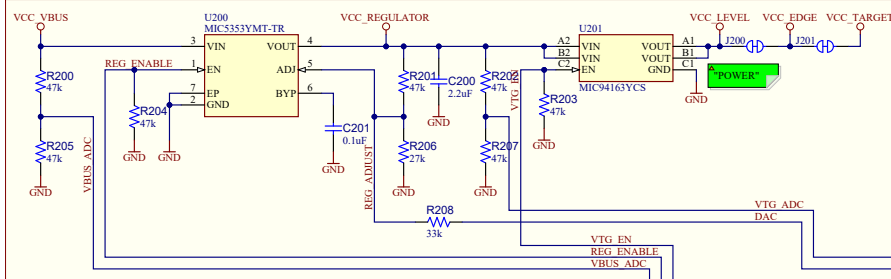


TARGET ADJUSTABLE REGULATOR



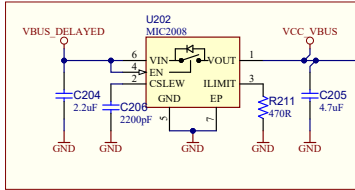
J200:
 - Cut-strap used for full separation of target power from the level shifters and on-board regulators.
 - For current measurements using an external power supply, this strap can be cut for more accurate measurements. Leakage back through the switch is in the micro ampere range.
J201:
 - For current measurements using the on-board power supply, this strap must be cut and an ammeter connected across.

MIC3553:
 Vin: 2.6V to 6V
 Vout: 1.25V to 5.1V
 Imax: 500mA
 Dropout (typical): 50mV @ 150mA, 160mV @ 500mA
 Accuracy: 2% initial
 Thermal shutdown and current limit
 Maximum output voltage is limited by the input voltage and the dropout voltage in the regulator. ($V_{max} = V_{in} - \text{dropout}$)

Interface	ICSPM TARGET	UPDI TARGET	SWD TARGET
CDC TX	UART RX	UART RX	UART RX
CDC RX	UART TX	UART TX	UART TX
DBG0	DAT	UPDI	SWDAT
DBG1	CLK	GPIO	SWCLK
DBG2	GPIO	GPIO	SWO/GPIO
DBG3	MCLR	RESET	RESET
VCC	-	-	-

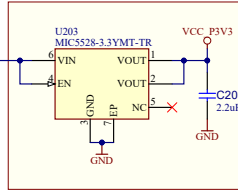
ADJUSTABLE OUTPUT AND LIMITATIONS:
 - The DEBUGGER can adjust the output voltage of the regulator between 1.25V and 5.1V to the target.
 - The voltage output is limited by the input (USB), which can vary between 4.0V to 5.2V
 - The level shifters have a minimal voltage level of 1.65V and will limit the minimum operating voltage allowed for the target to still allow communication.
 - The MIC94163 has a minimal voltage level of 1.70V and will limit the minimum voltage delivered to the target.
 - Firmware configuration will limit the voltage range to be within the target specification.

VBUS SLEW RATE- & CURRENT-LIMIT



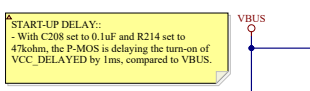
SLEW RATE LIMIT:
 - With C206 set to 2200pF, the slew rate of VCC_VBUS is limited to 2 V/ns by the power switch MIC2008.
CURRENT LIMIT:
 - With R211 set to 470ohm, the current through the power switch MIC2008 is limited to 500mA.

DEBUGGER REGULATOR



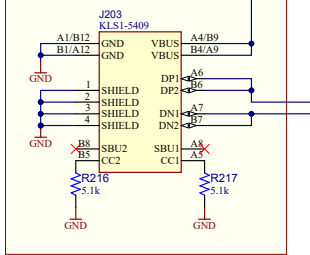
MIC5528:
 Vin: 2.5V to 5.5V
 Vout: Fixed 3.3V
 Imax: 500mA
 Dropout: 260mV @ 500mA

VBUS START-UP DELAY



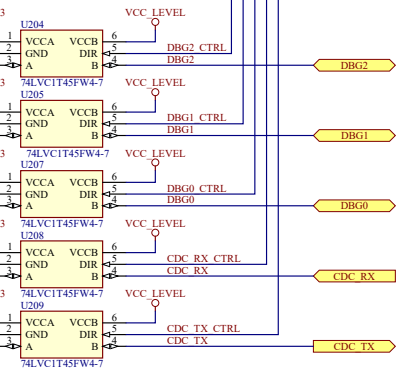
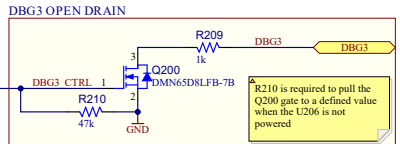
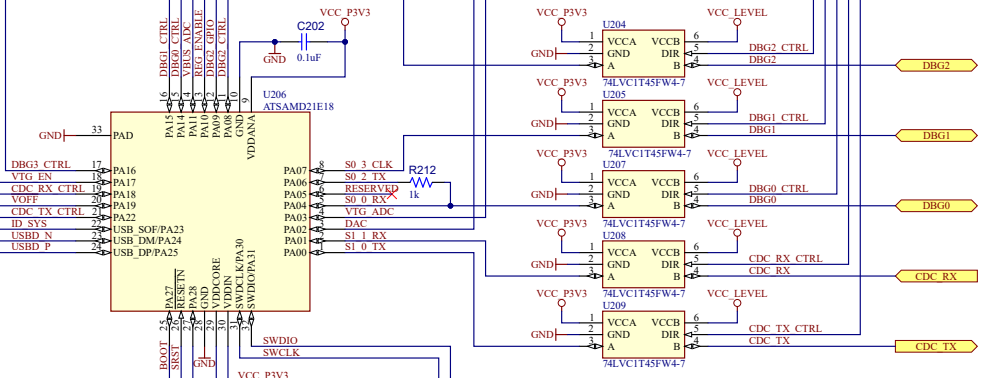
START-UP DELAY:
 - With C208 set to 0.1uF and R214 set to 47kohm, the P-MOS is delaying the turn-on of VCC_DELAYED by 1ms, compared to VBUS.

DEBUGGER USB-C CONNECTOR

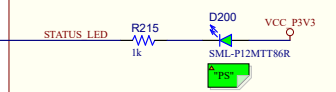


TP200 and TP201 are MTG Holes in the corners of the PCB close to the DEBUGGER section labelled "GND" on the silkscreen.

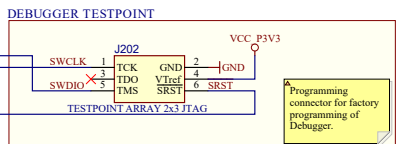
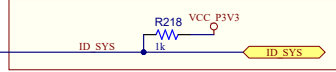
DEBUGGER



DEBUGGER POWER/STATUS LED



ID PIN



Project Owner:
 S. Tanbergmoen
 PCB Layout Contact:
 S. Tanbergmoen

Project Title:
PIC18F56Q24 Curiosity Nano

Variant: Default Assembly

PartNumber: E3V10E36A
 Sheet Title: **Debugger**

Size: A3
 SCH #: 02-00868
 Rev: 1
 Date: 2023-11-13

Rev: 1
 Sheet 3 of 4

Designed with
Altium
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File: PIC18F56Q24_Curiosity_Nano_Debugger_Sch.Dxc