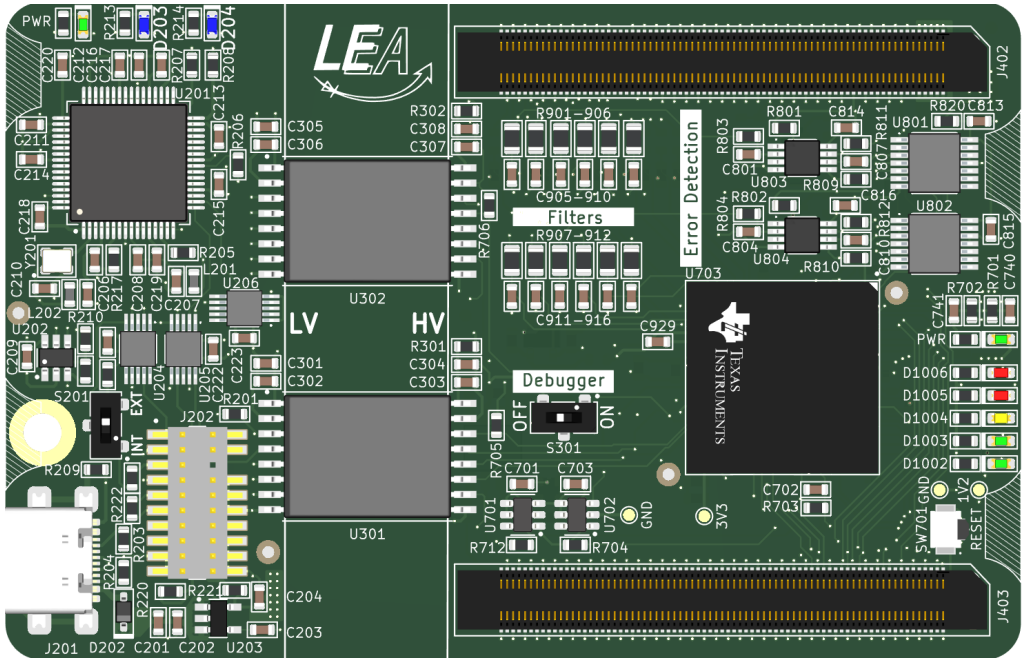

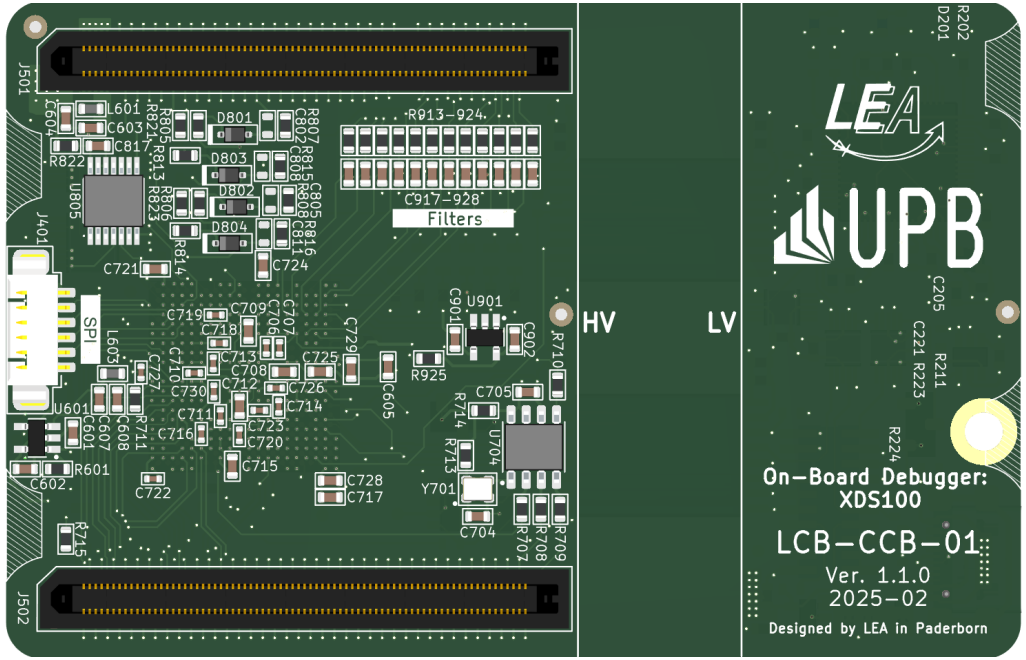

LEA Logo

LEA Logo

Fiducial medium

Fiducial medium

Fiducial medium

Fiducial medium

Fiducial medium

Fiducial medium

Fiducial medium

Fiducial medium

Fiducial medium

Fiducial medium

Fiducial medium

Fiducial medium

USB-C Cable

XDS100 – Page 2

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https://github.com/upb-lea/LEA_control_board

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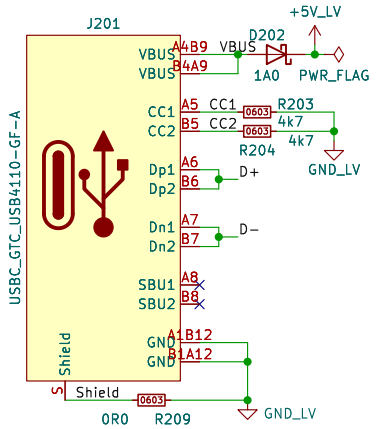
Sheet: /
File: LCB-CCB-01.kicad_sch

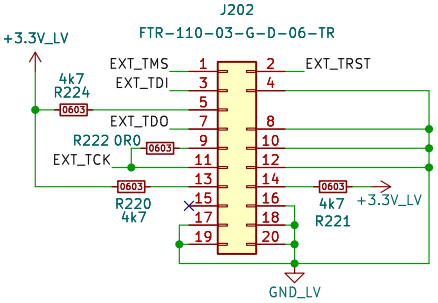
Title: LCB-CCB-01: Control Board – Debugger XDS100 / JTAG

Size: A4	Date: 2025-02-21	**Rev: 1.1.0**
KiCad E.D.A. 8.0.8		Id: 1/11

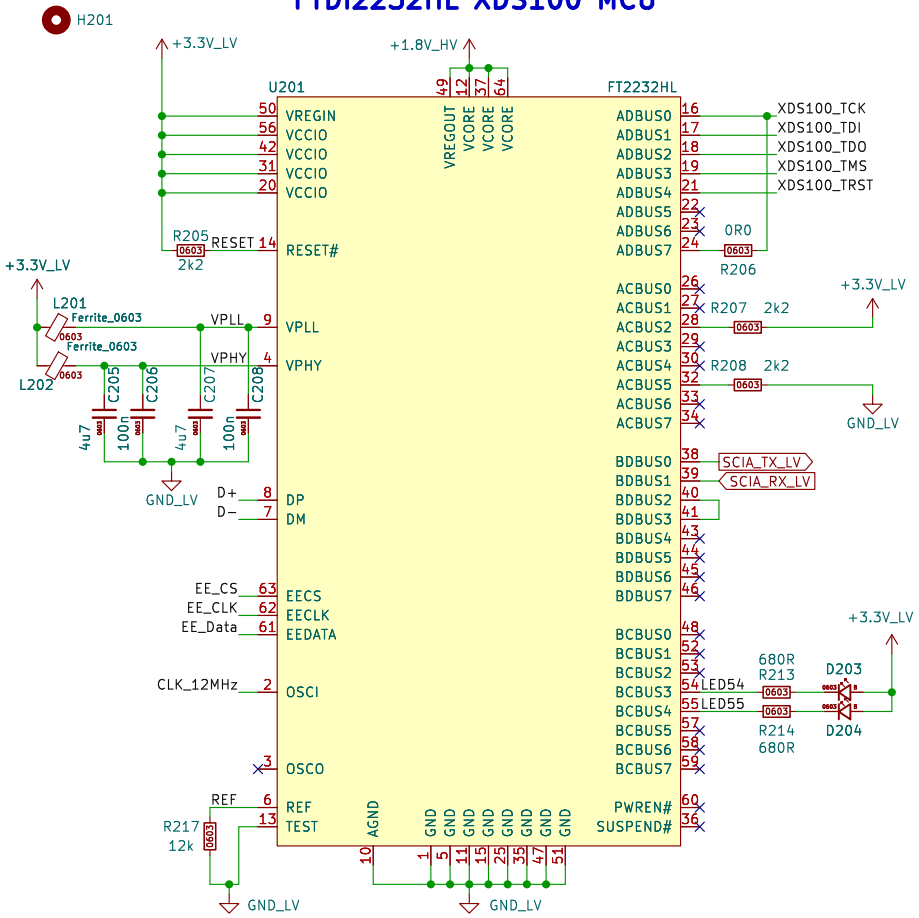
XDS100 USB-C Port



External Debugger

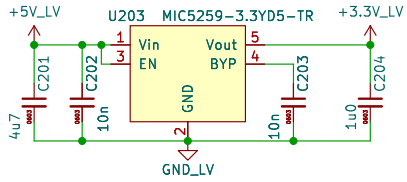


FTDI2232HL XDS100 MCU

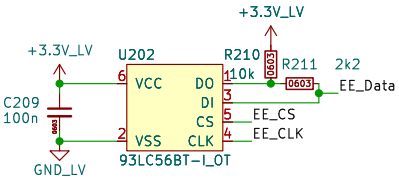


Power Status LED

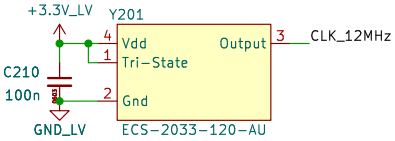
LDO 3.3V



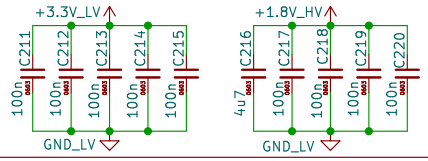
EEPROM XDS100



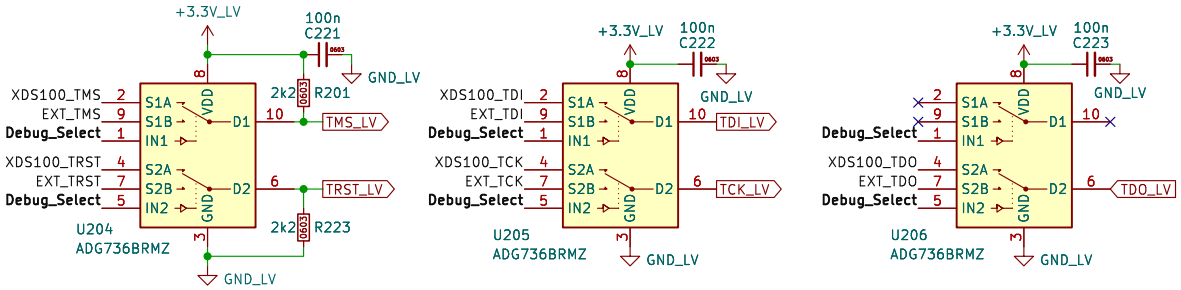
12 MHz Clock

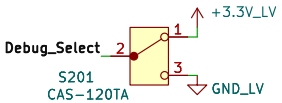


Decoupling Capacitors MCU FT2232HL



Debugger Selection





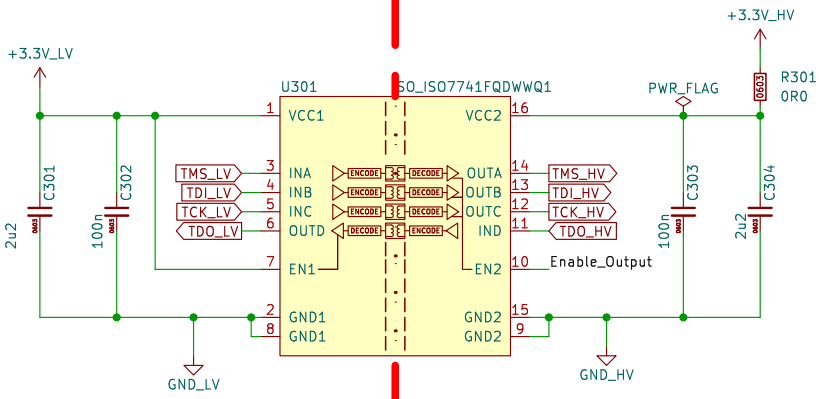
PADERBORN UNIVERSITY DEPARTMENT OF POWER ELECTRONICS AND ELECTRICAL DRIVES

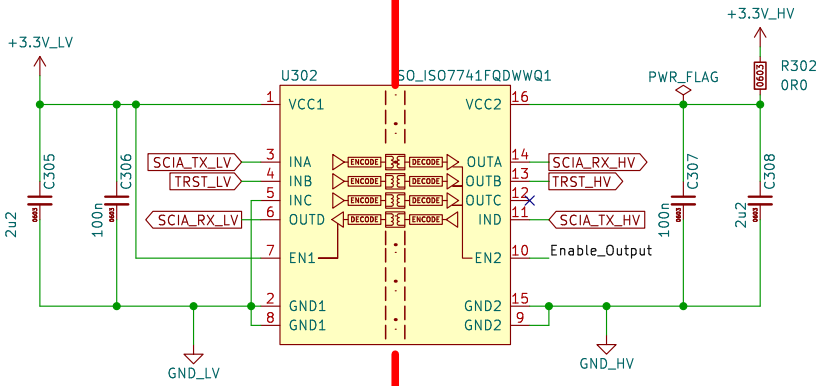
Sheet: /XDS100 - Page 2/
File: Debugger.kicad_sch

Title: LCB-CCB-01: Control Board - Debugger XDS100 / JTAG

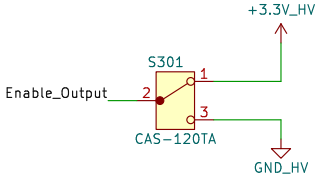
Size: A4	Date: 2025-02-21	Rev: 1.1.0
KiCad E.D.A. 8.0.8		Id: 2/11

JTAG and SCI Isolation





Enable/Disable Debugger



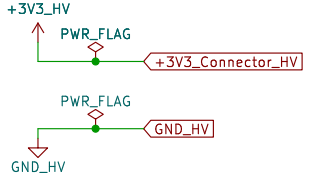
PADERBORN UNIVERSITY DEPARTMENT OF POWER ELECTRONICS AND ELECTRICAL DRIVES

Sheet: /Isolation - Page 3/
File: Isolation.kicad_sch

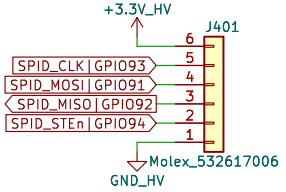
Title: LCB-CCB-01: Control Board - Debugger XDS100 / JTAG

Size: A4	Date: 2025-02-21	**Rev: 1.1.0**
KiCad E.D.A. 8.0.8		Id: 3/11

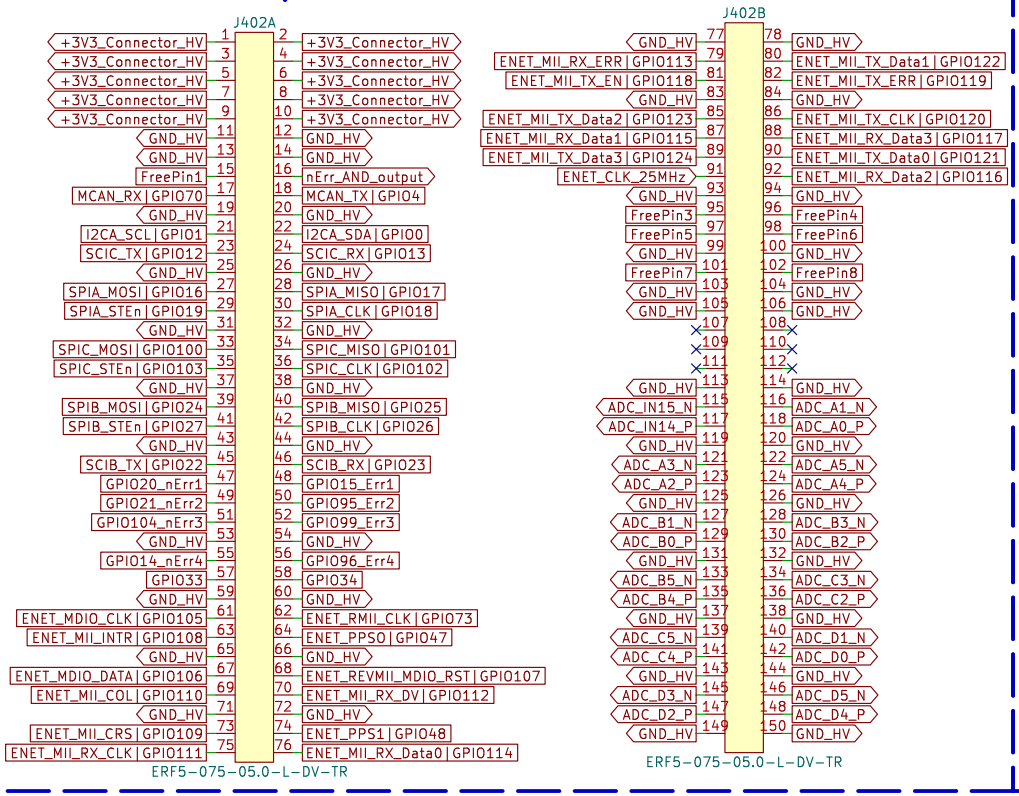
Supply for shield boards



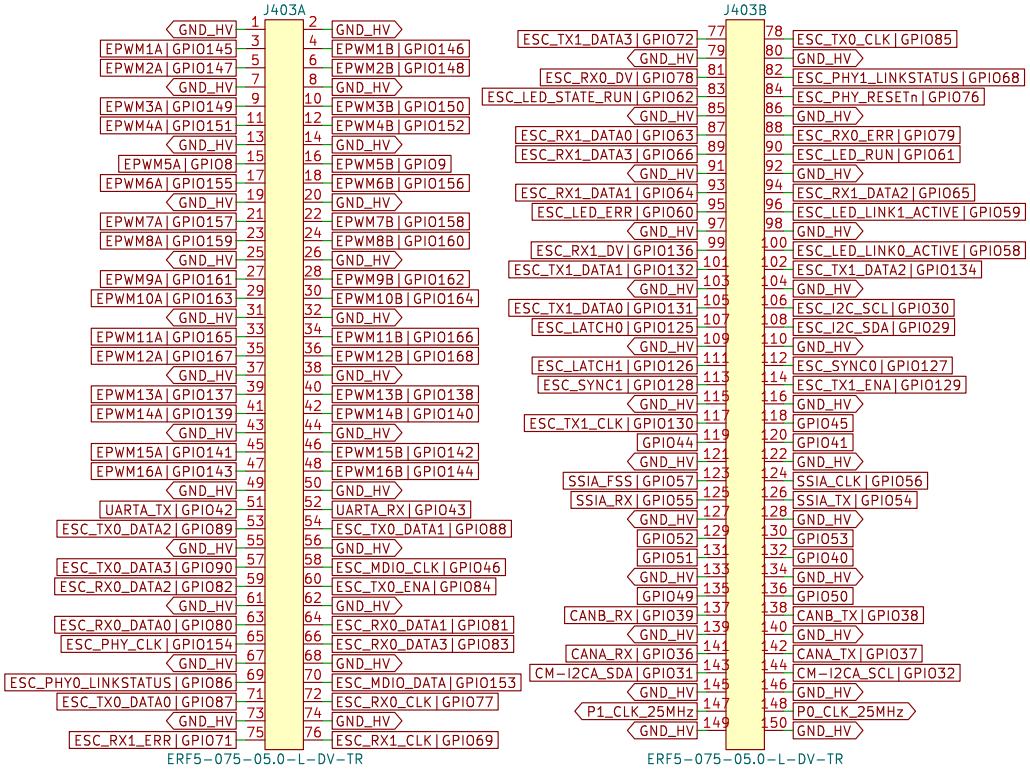
Supply and SPI for extension board



Top J402 Connector



Top J403 Connector



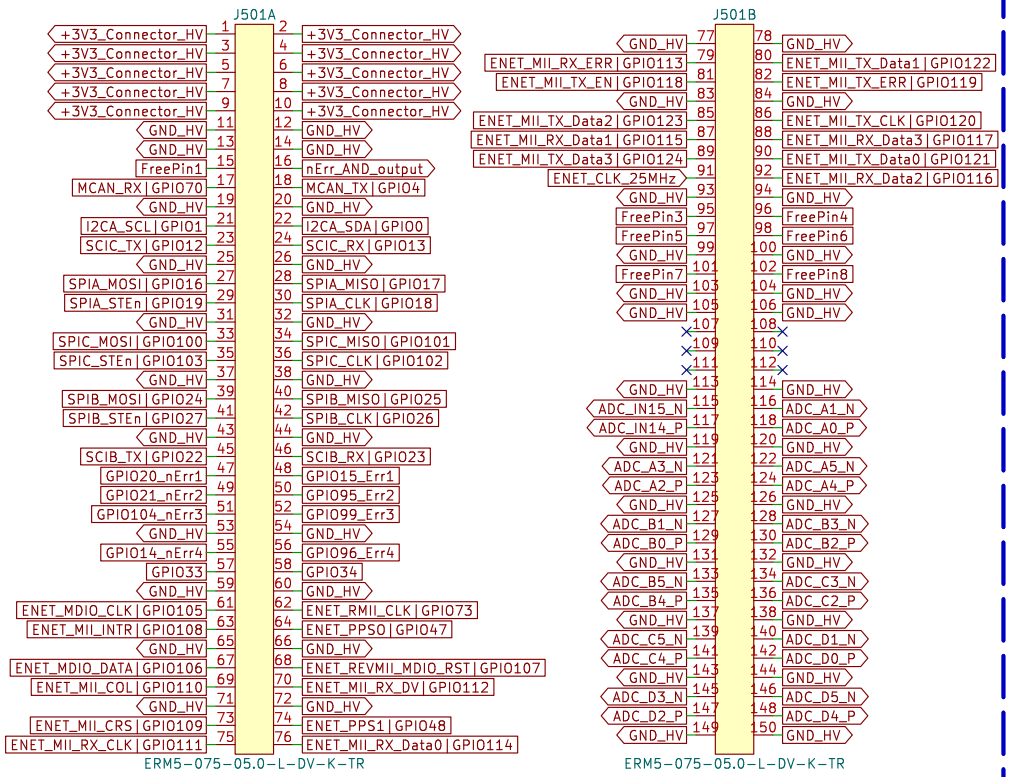
PADERBORN UNIVERSITY DEPARTMENT OF POWER ELECTRONICS AND ELECTRICAL DRIVES

Sheet: /Connector Top – Page 4/
File: Connector_Top.kicad_sch

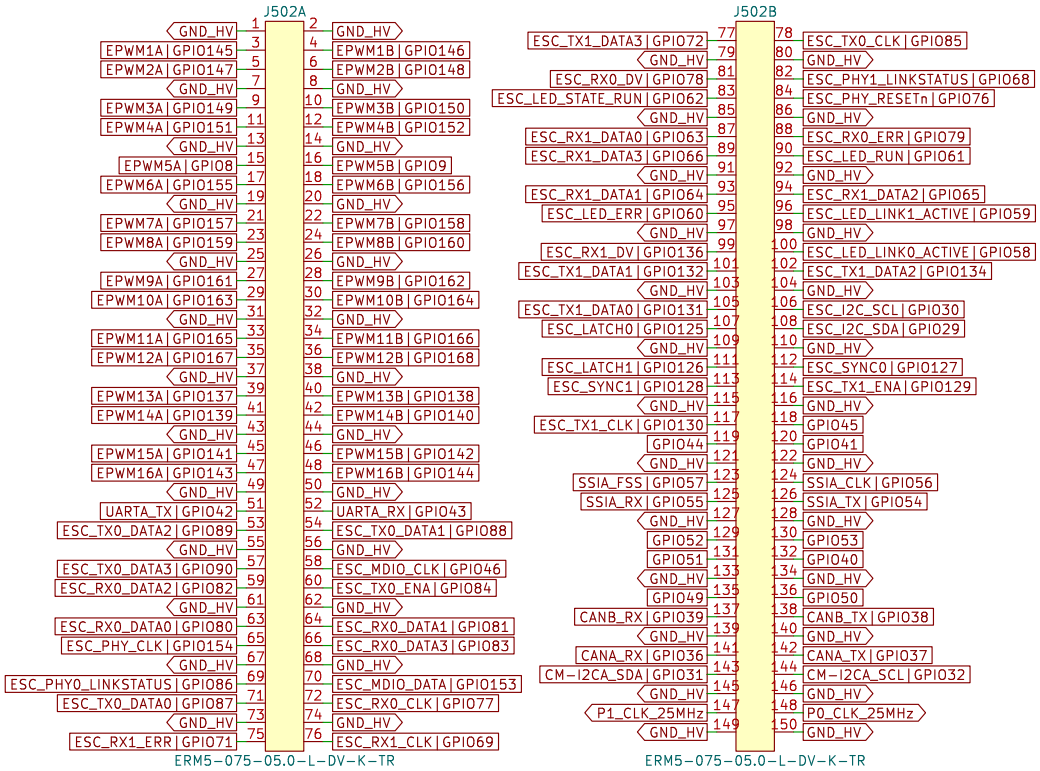
Title: LCB-CCB-01: Control Board – Debugger XDS100 / JTAG

Size: A4	Date: 2025-02-21	**Rev: 1.1.0**
KiCad E.D.A. 8.0.8		Id: 4/11

Bottom J501 Connector



Bottom J502 Connector



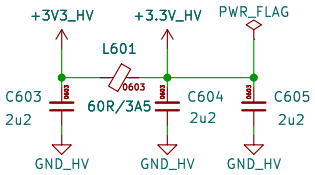
PADERBORN UNIVERSITY DEPARTMENT OF POWER ELECTRONICS AND ELECTRICAL DRIVES

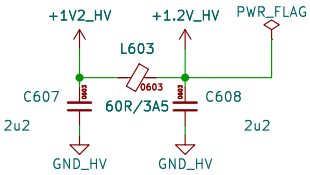
Sheet: /Connector Bottom - Page 5/
File: Connector_Bottom.kicad_sch

Title: LCB-CCB-01: Control Board - Debugger XDS100 / JTAG

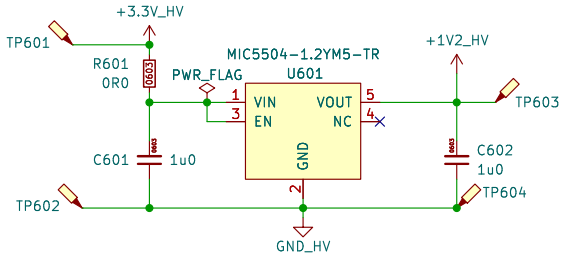
Size: A4	Date: 2025-02-21	Rev: 1.1.0
KiCad E.D.A. 8.0.8		Id: 5/11

Ferrit Beads





LDO 1.2V for MCU Core



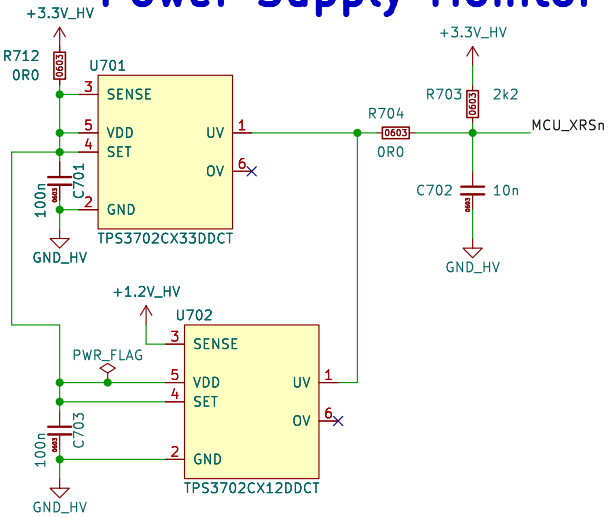
PADERBORN UNIVERSITY DEPARTMENT OF POWER ELECTRONICS AND ELECTRICAL DRIVES

Sheet: /Power – Page 6/
File: Power.kicad_sch

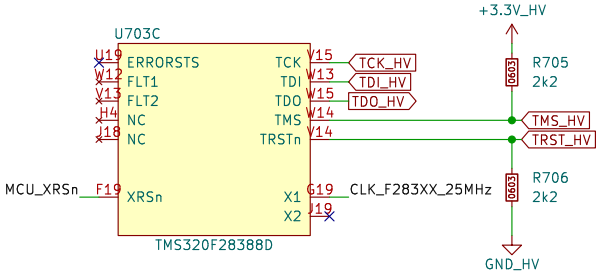
Title: LCB–CCB–01: Control Board – Debugger XDS100 / JTAG

Size: A4	Date: 2025-02-21	**Rev: 1.1.0**
KiCad E.D.A. 8.0.8		Id: 6/11

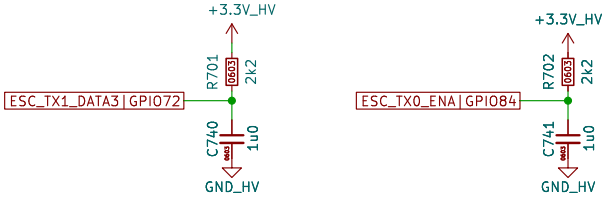
Power Supply Monitor



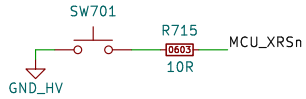
JTAG, CLK, Reset



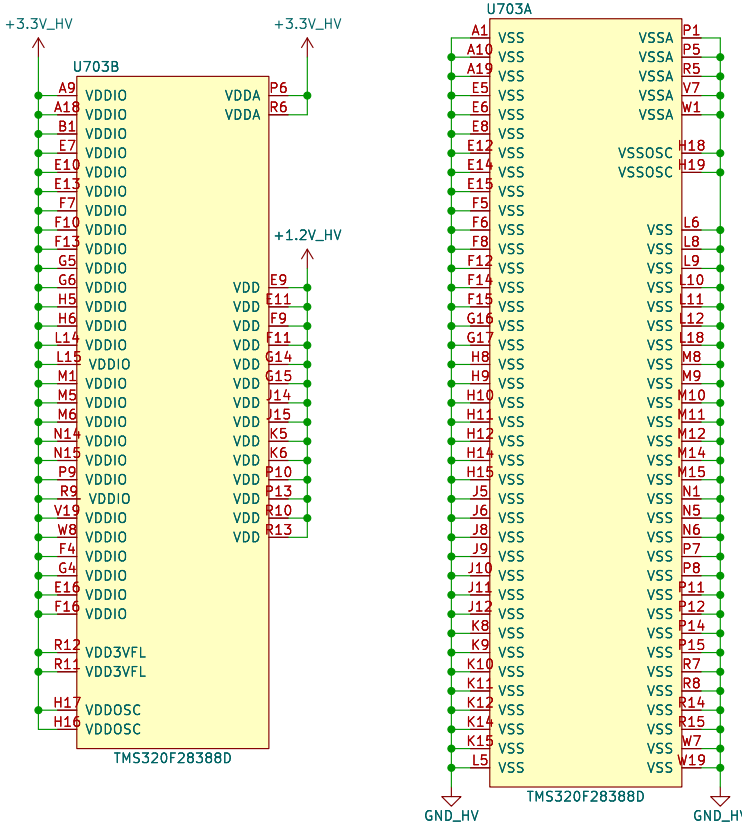
Boot Mode Pins



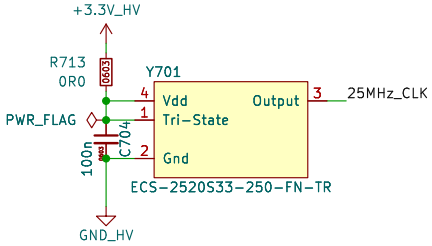
Reset Switch



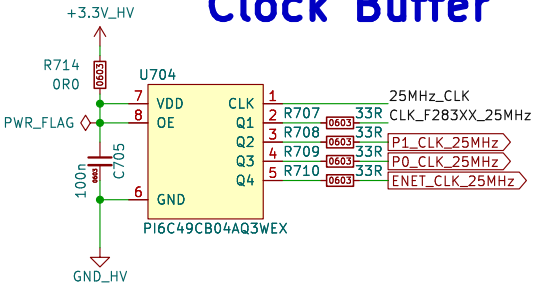
F2838D MCU Supply Pins



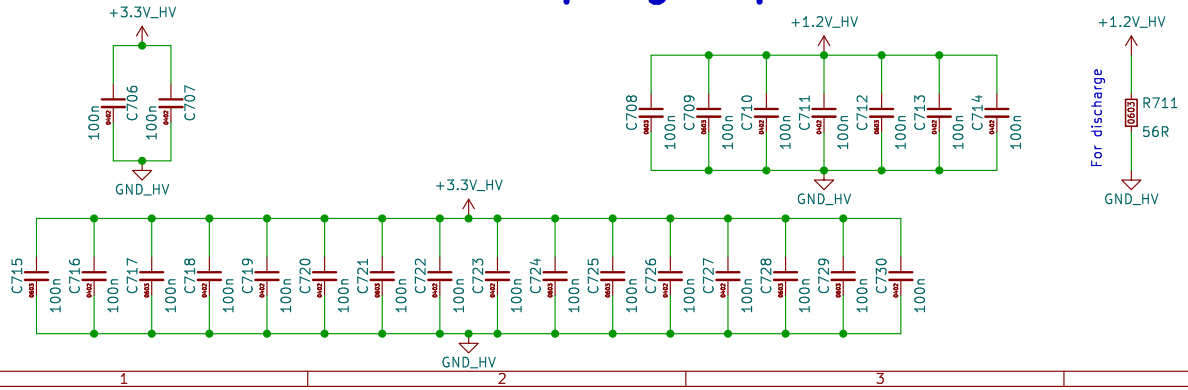
25MHz Clock



Clock Buffer



F28388D MCU Decoupling Capacitors



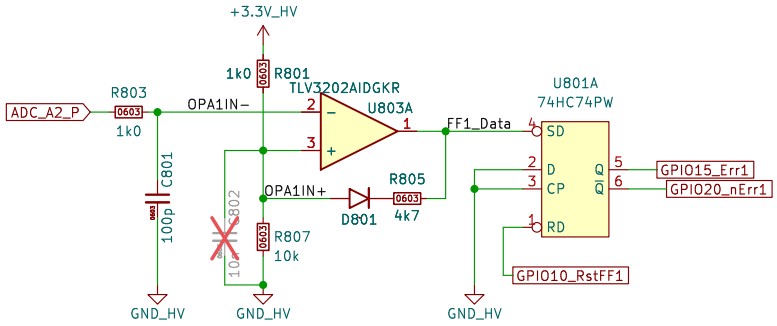
PADERBORN UNIVERSITY DEPARTMENT OF POWER ELECTRONICS AND ELECTRICAL DRIVES

Sheet: /MCU - Page 7/
File: MCU.kicad_sch

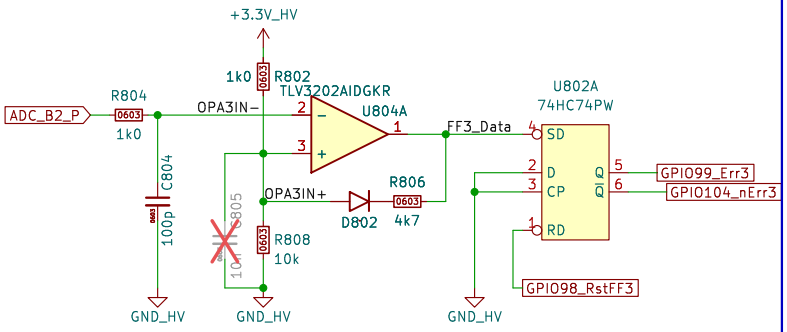
Title: LCB-CCB-01: Control Board - Debugger XDS100 / JTAG

Size: A4	Date: 2025-02-21	Rev: 1.1.0
KiCad E.D.A. 8.0.8		Id: 7/11

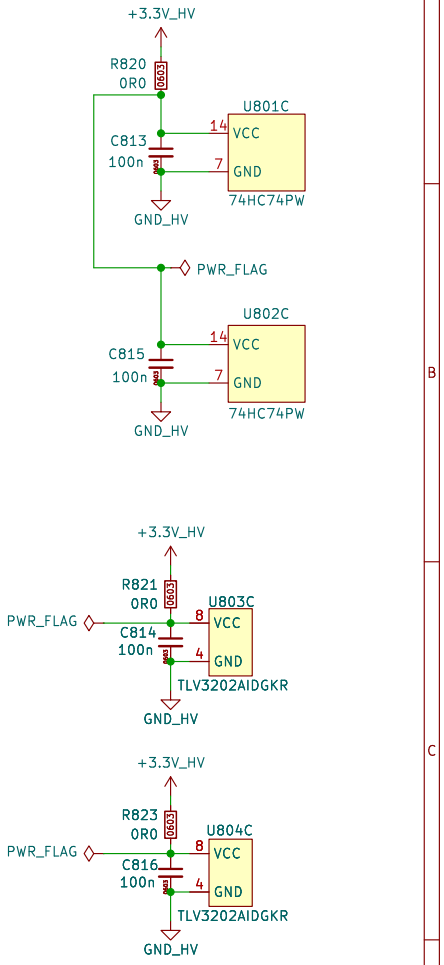
Error1 – A2



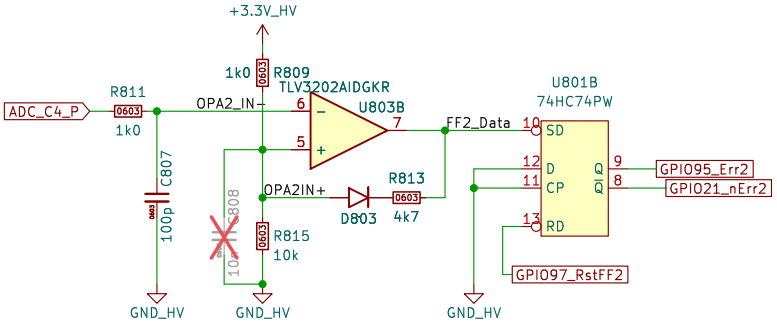
Error3 – B2



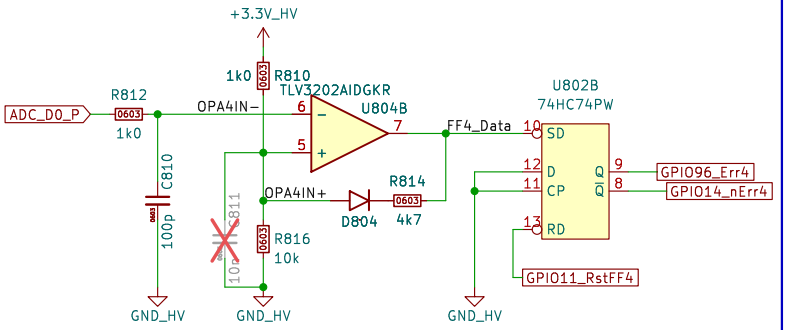
Power Supply



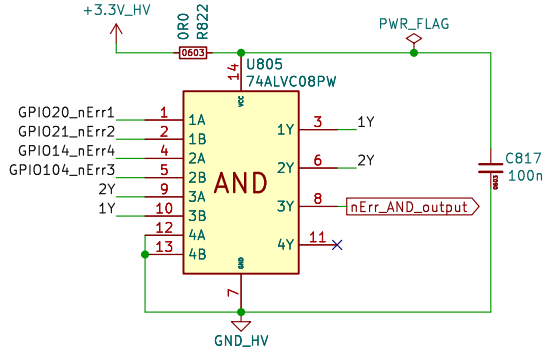
Error2 – C4



Error4 – D0



Error AND Gate



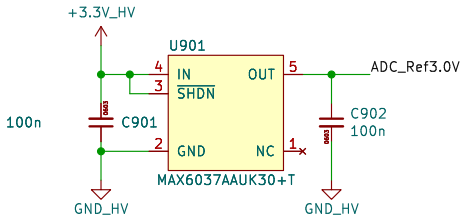
PADERBORN UNIVERSITY DEPARTMENT OF POWER ELECTRONICS AND ELECTRICAL DRIVES

Sheet: /Error Detection – Page 8/
File: ErrorcComparator.kicad_sch

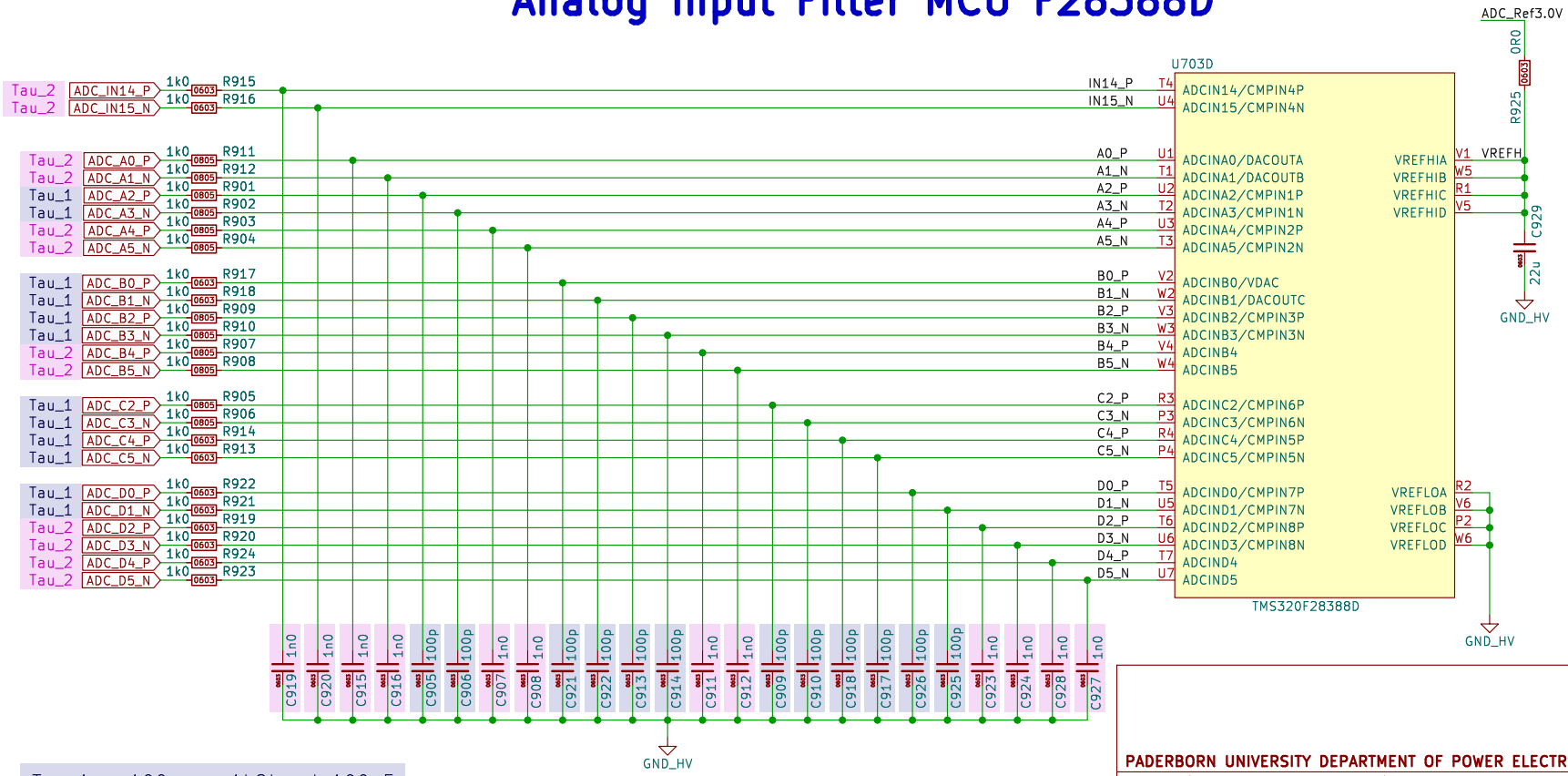
Title: LCB–CCB–01: Control Board – Debugger XDS100 / JTAG

Size: A4	Date: 2025-02-21	Rev: 1.1.0
KiCad E.D.A. 8.0.8		Id: 8/11

3V Reference Voltage



Analog Input Filter MCU F28388D



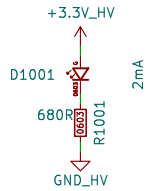
PADERBORN UNIVERSITY DEPARTMENT OF POWER ELECTRONICS AND ELECTRICAL DRIVES

Sheet: /Analog Filter – Page 9/
File: AnalogFilter.kicad_sch

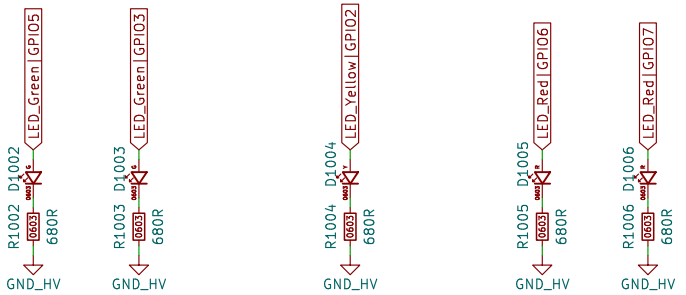
Title: LCB–CCB–01: Control Board – Debugger XDS100 / JTAG

Size: A4	Date: 2025-02-21	Rev: 1.1.0
KiCad E.D.A. 8.0.8		Id: 9/11

Power LED



Status LEDs



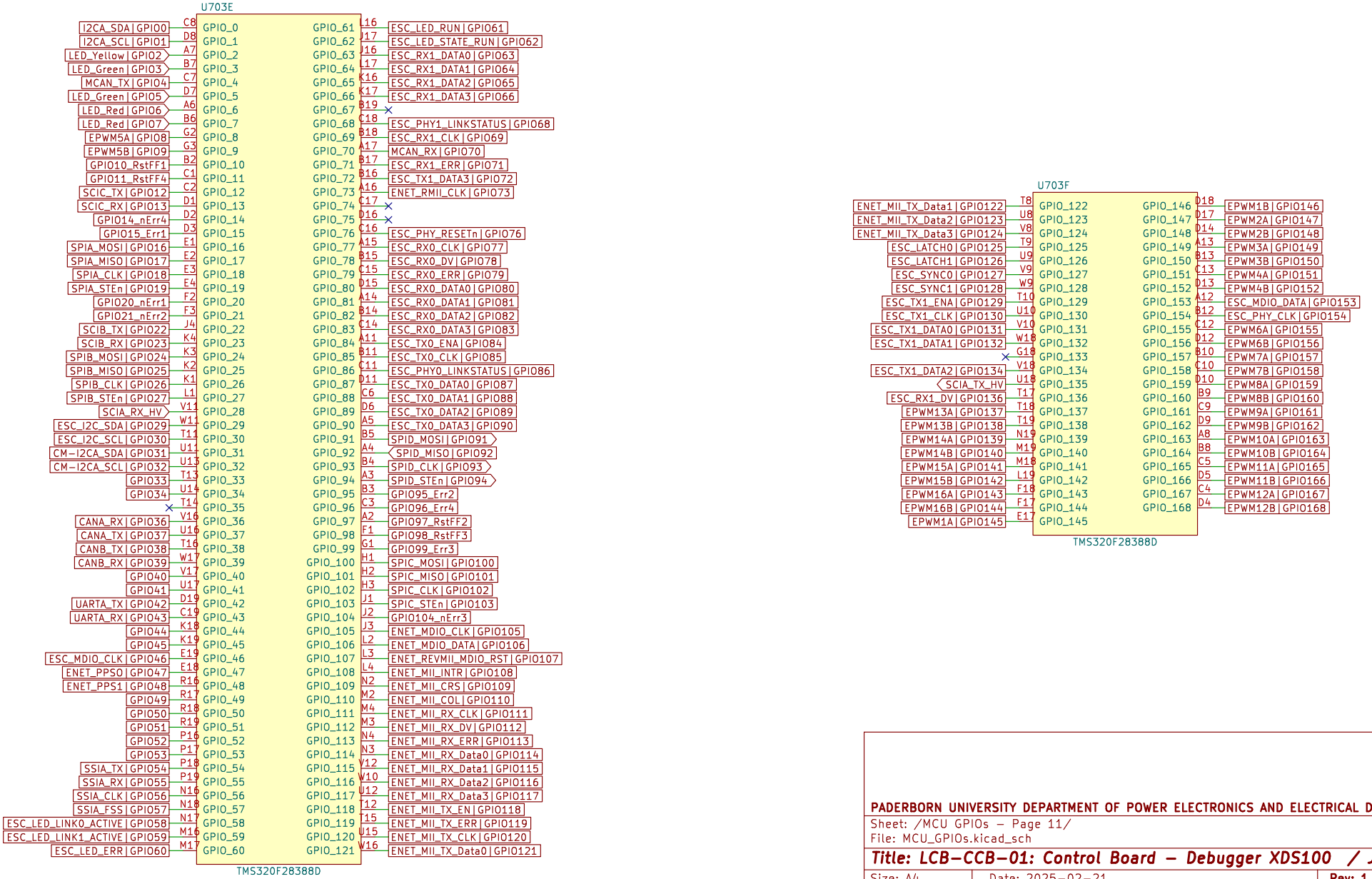
PADERBORN UNIVERSITY DEPARTMENT OF POWER ELECTRONICS AND ELECTRICAL DRIVES

Sheet: /Status LEDs – Page 10/
File: LEDS.kicad_sch

Title: LCB–CCB–01: Control Board – Debugger XDS100 / JTAG

Size: A4	Date: 2025–02–21	**Rev: 1.1.0**
KiCad E.D.A. 8.0.8		Id: 10/11

F28388D MCU GPIO Configuration



PADERBORN UNIVERSITY DEPARTMENT OF POWER ELECTRONICS AND ELECTRICAL DRIVES

Sheet: /MCU GPIOs - Page 11/
File: MCU_GPIOs.kicad_sch

Title: LCB-CCB-01: Control Board - Debugger XDS100 / JTAG

Size: A4	Date: 2025-02-21	**Rev: 1.1.0**
KiCad E.D.A. 8.0.8		Id: 11/11