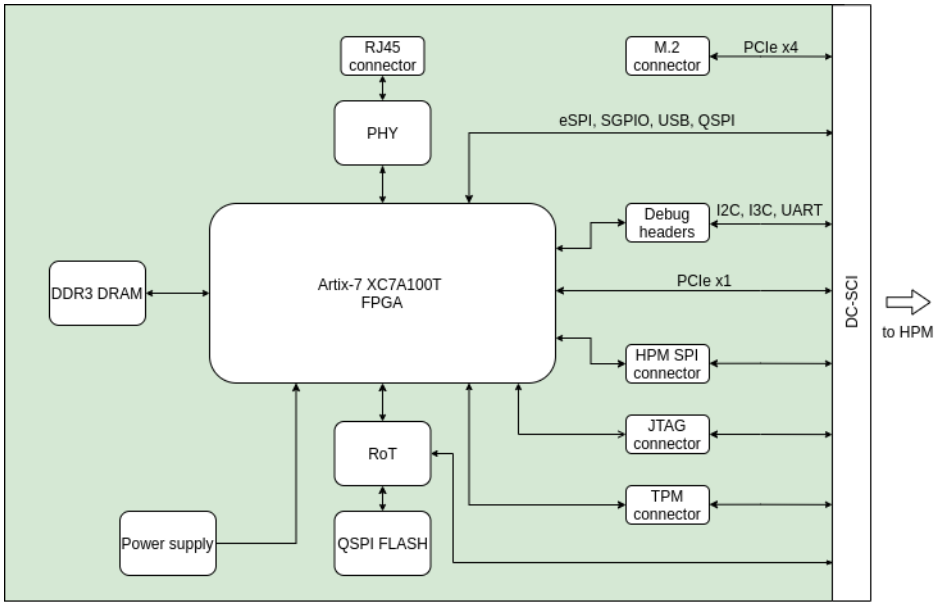
Artix – Datacenter Secure Control Module (DC-SCM)



Sheet: Ethernet
File: ethernet.sch

Sheet: PCIe-connector
File: pcie-conn.sch

Sheet: RoT
File: rot.sch

Sheet: Edge connector
File: edge-connector.sch

Sheet: Interfaces
File: interfaces.sch

Sheet: DDR3
File: ddr3.sch

Sheet: Power supply
File: power-supply.sch

Sheet: FPGA power supply
File: fpga-power-supply.sch

Sheet: FPGA banks
File: fpga-banks.sch

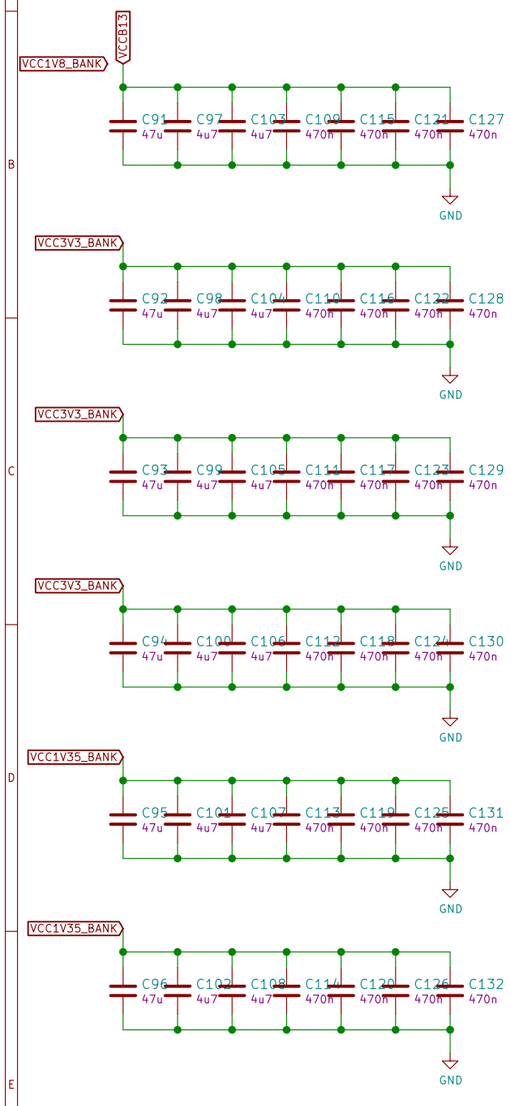
Sheet: /
File: artix-dc-scm.sch

Title: Artix – Datacenter Secure Control Module (DC-SCM)

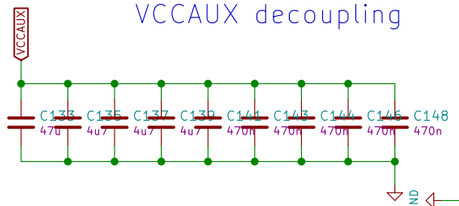
Size: A4	Date:	**Rev: 1.0.0**
KiCad E.D.A. kicad 5.1.5+dfsg1-2bpo10+1		Id: 1/10

FPGA power supply

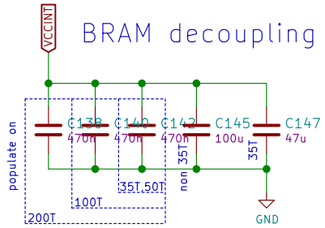
Banks decoupling

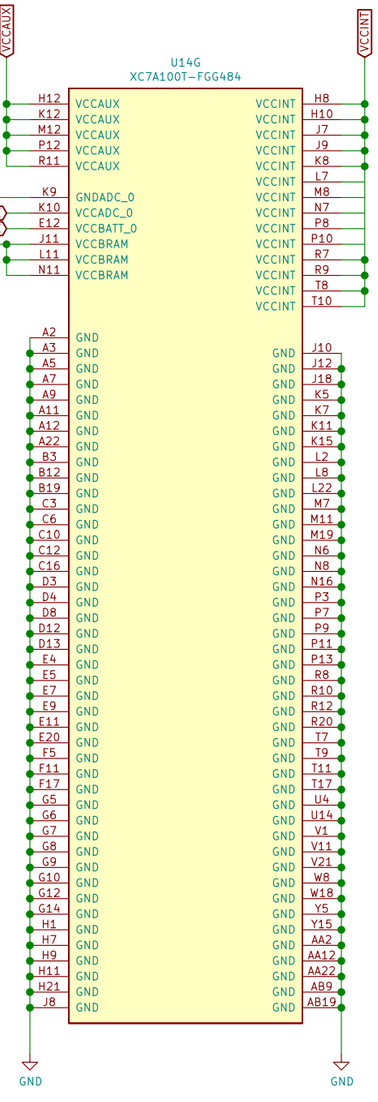


VCCAUX decoupling

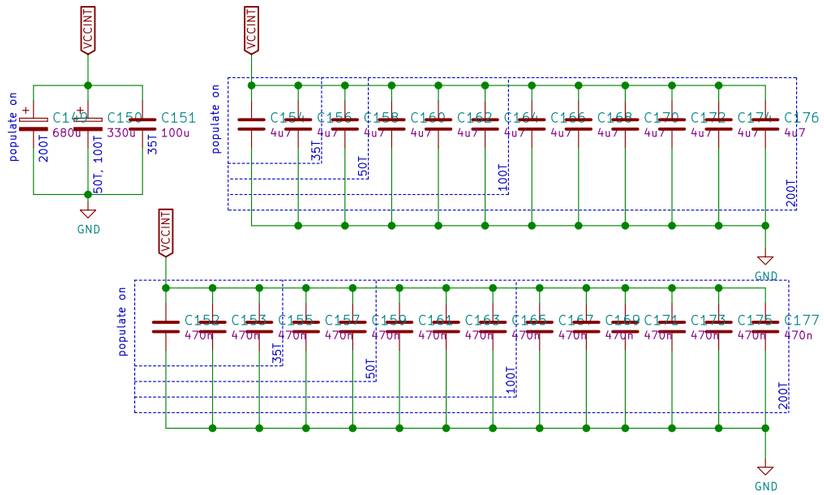


BRAM decoupling

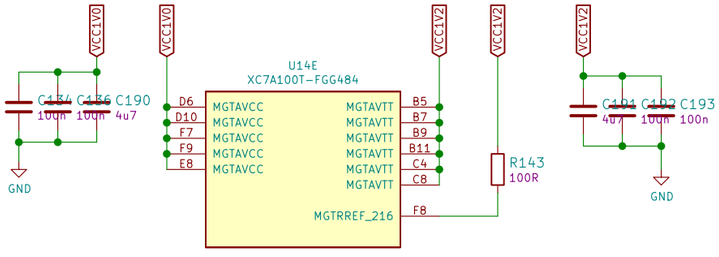




VCCINT decoupling



Transceiver supply



Sheet: /FPGA power supply/		
File: fpga-power-supply.sch		
Title: Artix – Datacenter Secure Control Module (DC-SCM)		
Size: A3	Date:	**Rev: 1.0.0**
KiCad E.D.A. kicad 5.1.5+dfsg1-2bpo10+1		Id: 2/10

FPGA connections to be established while preparing layout

This bank is unavailable on 35T

U14A
XC7A100T-FGG484

U14B
XC7A100T-FGG484

U14C
XC7A100T-FGG484

U14F
XC7A100T-FGG484

DDR3

Status LEDs

Configuration modes

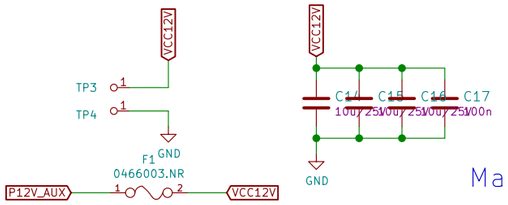
Interfaces status:
done JTAG – needs pre-defined pins (BANK0)
done boot (Q)SPI – needs pre-defined pins (BANK14)
done eSPI
done QSPI0, QSPI1 –
done SPI –
done SGPIO0, SGPIO1 –
done USB client, USB host – free
done PCIe x1 – needs to be connected to transreceivers
done I3C – free
done I2C – free
done NCSI–
done UART
done ethernet – free
done DDR3 – uses B34 as in references
done eMMC – free

Sheet: /FPGA banks/
File: fpga-banks.sch

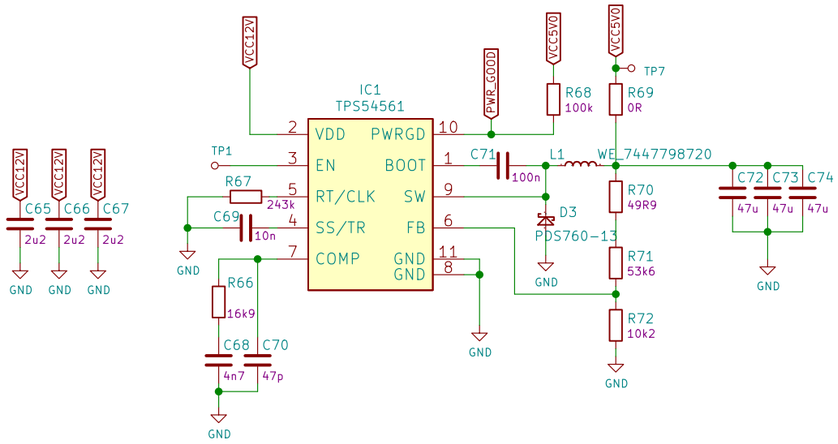
Title: Artix – Datacenter Secure Control Module (DC-SCM)

Size: A3	Date:	Rev: 1.0.0
KiCad E.D.A. kicad 5.1.5+dfsg1-2bpo10+1		Id: 3/10

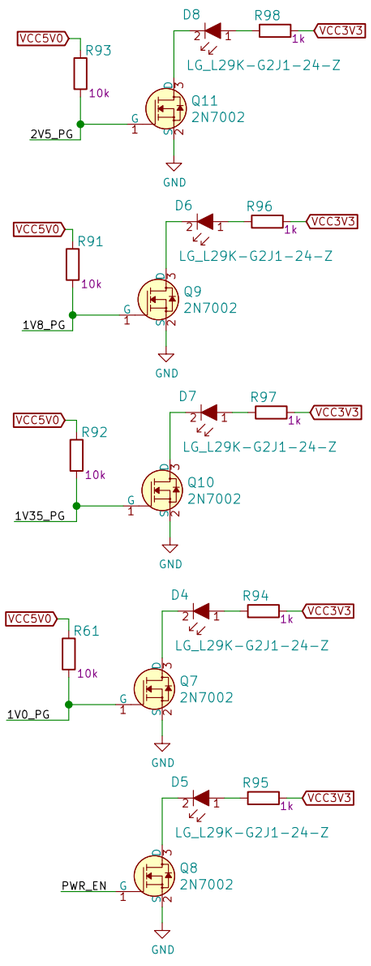
External 12V supply



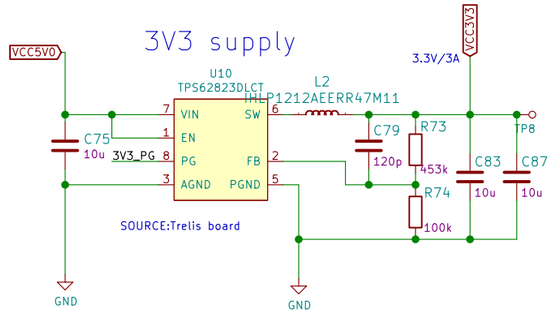
MainSupply (5V 5A)



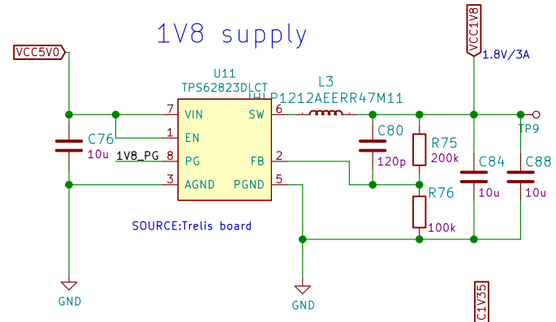
PWR_LED Indicators



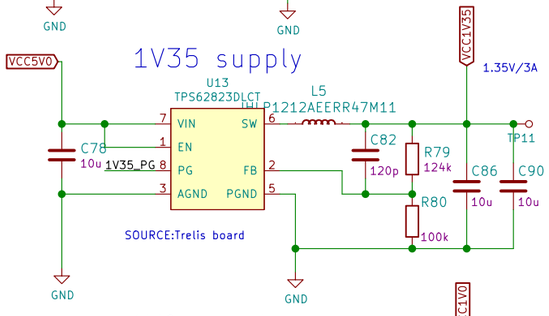
3V3 supply



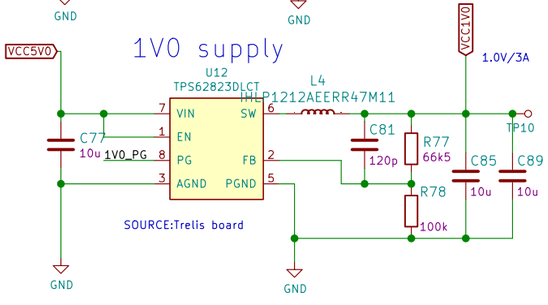
1V8 supply



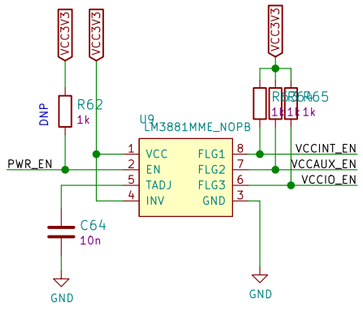
1V35 supply

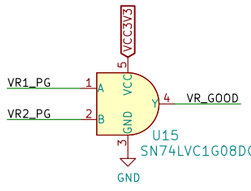


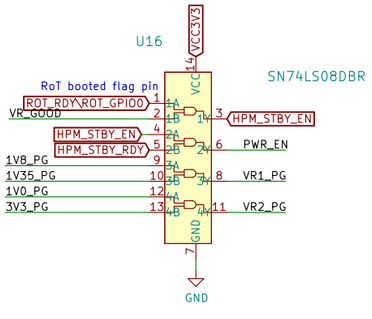
1V0 supply

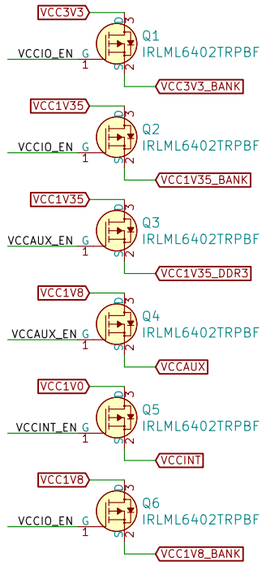


Power sequencer

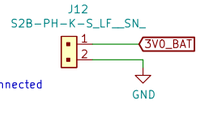






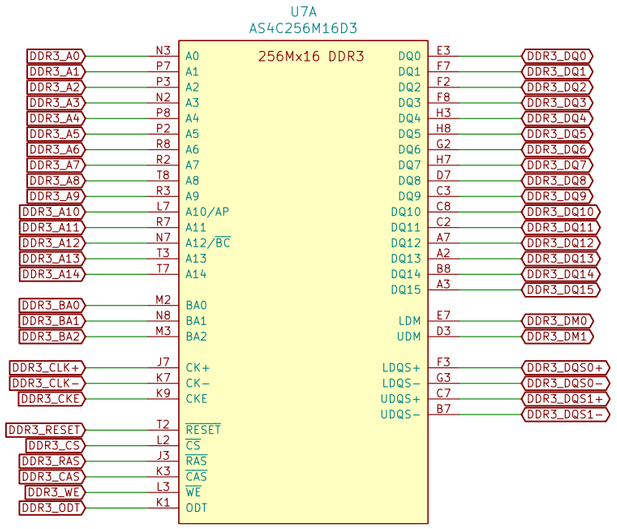


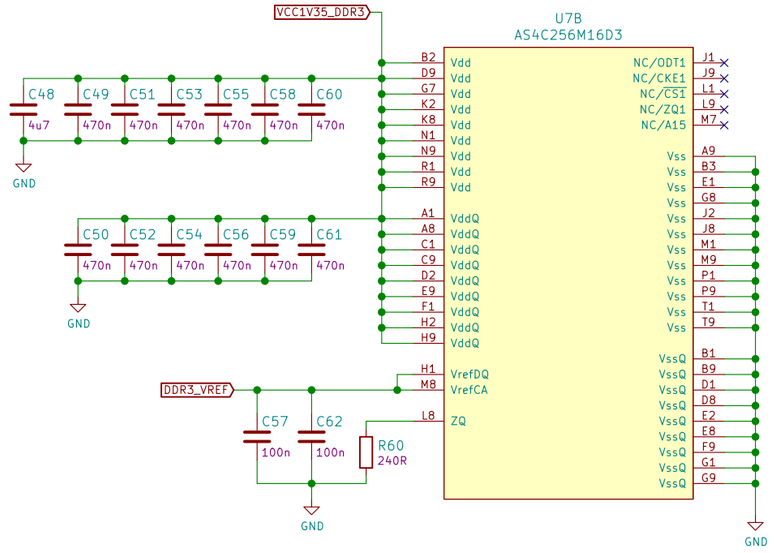
Battery connector

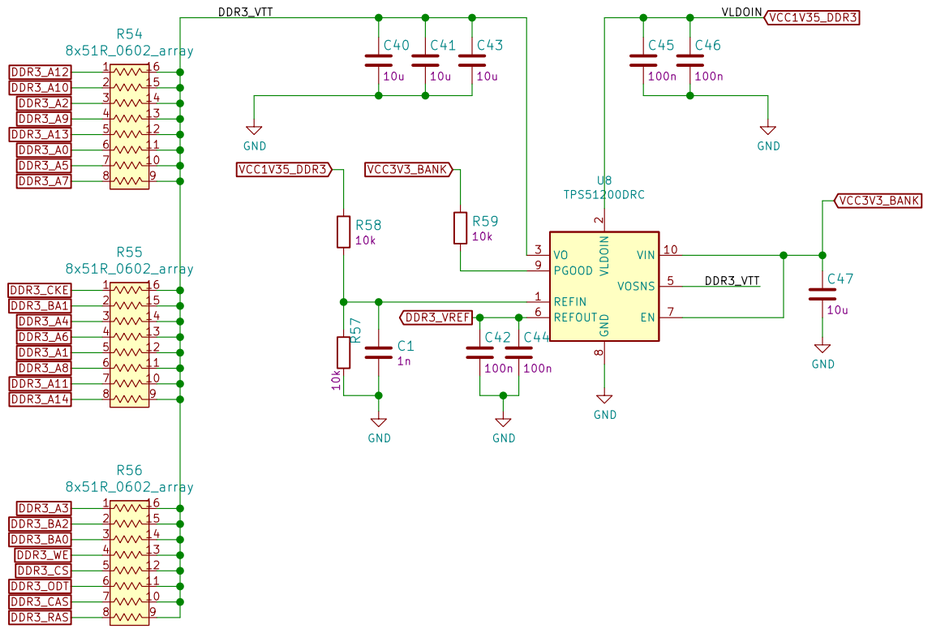


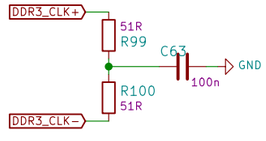
STEP1: VRs start and RoT boots (HPM_STBY_EN when both are done)
STEP2: HPM starts its VRs and sets HPM_STBY_RDY when done
STEP3: FPGA VCCINT (1.0V)
STEP4: FPGA VCCAUX + DDR3 (1.8V, 1.35V)
STEP5: FPGA VCCIO + DDR3 (3.3V, DDRVTT), HPM reset is de-asserted
STEP6: HPM boots
^ TODO: decide which DC-SCI pin connected to FPGA does this

Sheet: /Power supply/	
File: power-supply.sch	
Title: Artix - Datacenter Secure Control Module (DC-SCM)	
Size: A3	Date:
KiCad E.D.A. kicad 5.1.5+dfsg1-2bpo10+1	**Rev: 1.0.0**
	Id: 4/10





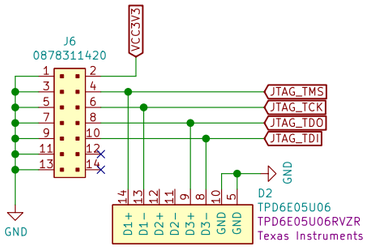




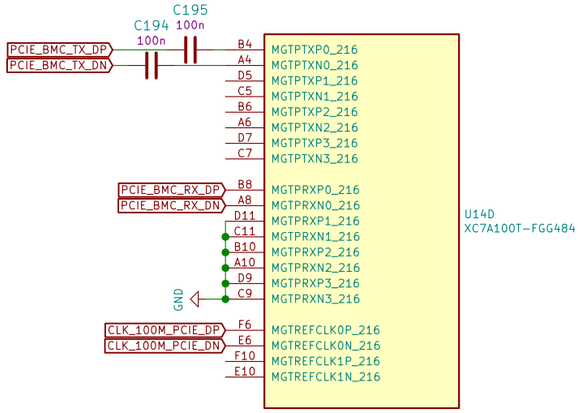
Sheet: /DDR3/		
File: ddr3.sch		
Title: Artix – Datacenter Secure Control Module (DC-SCM)		
Size: A3	Date:	**Rev: 1.0.0**
KiCad E.D.A. kicad 5.1.5+dfsg1-2bpo10+1		Id: 5/10

JTAG

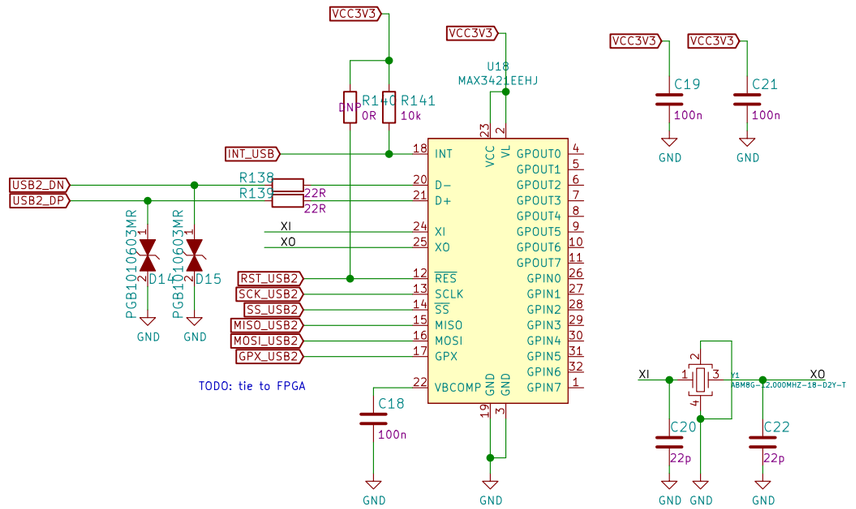
Compatible with Xilinx Platform Cable



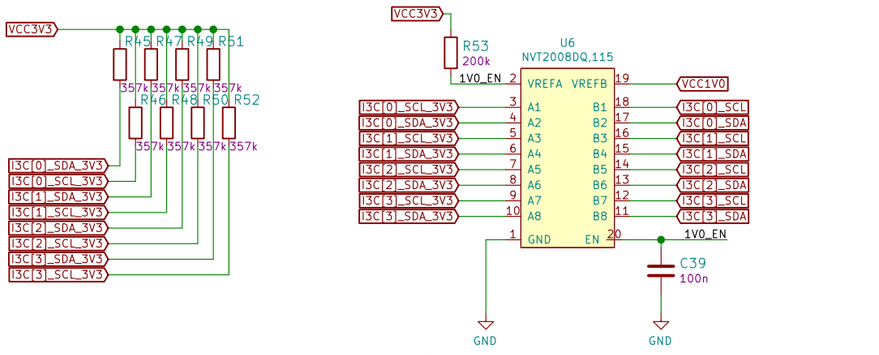
PCIe x1



USB HOST

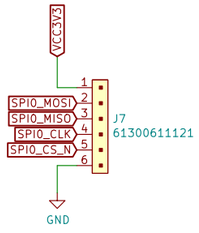


I3C voltage level translation

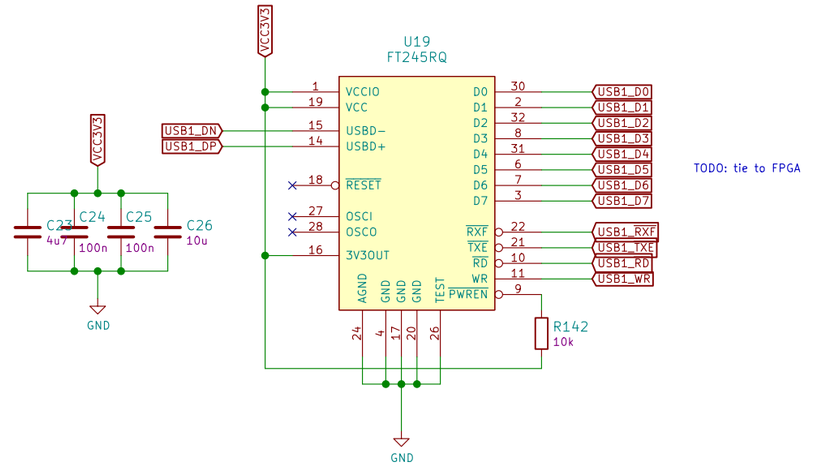


HPM SPI

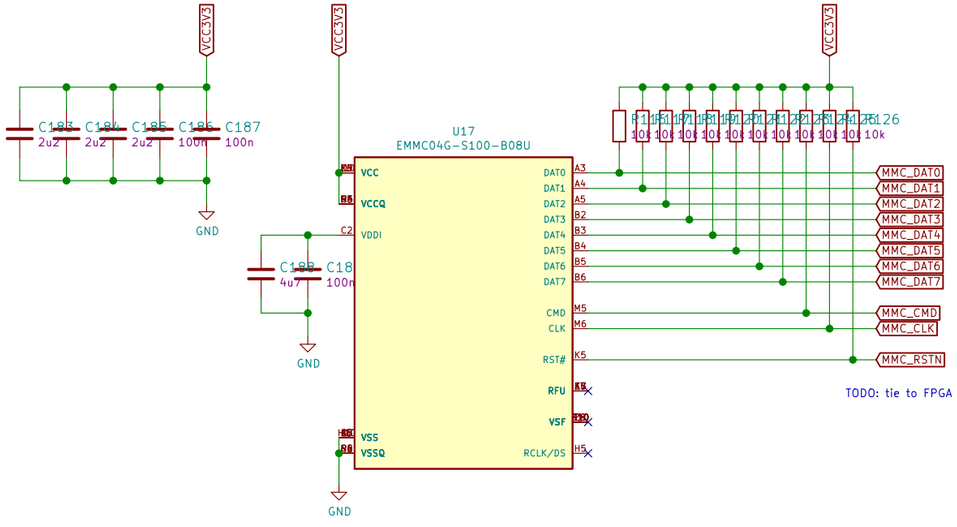
reserved for future use (as of DC-SCI OPC specification)



USB client

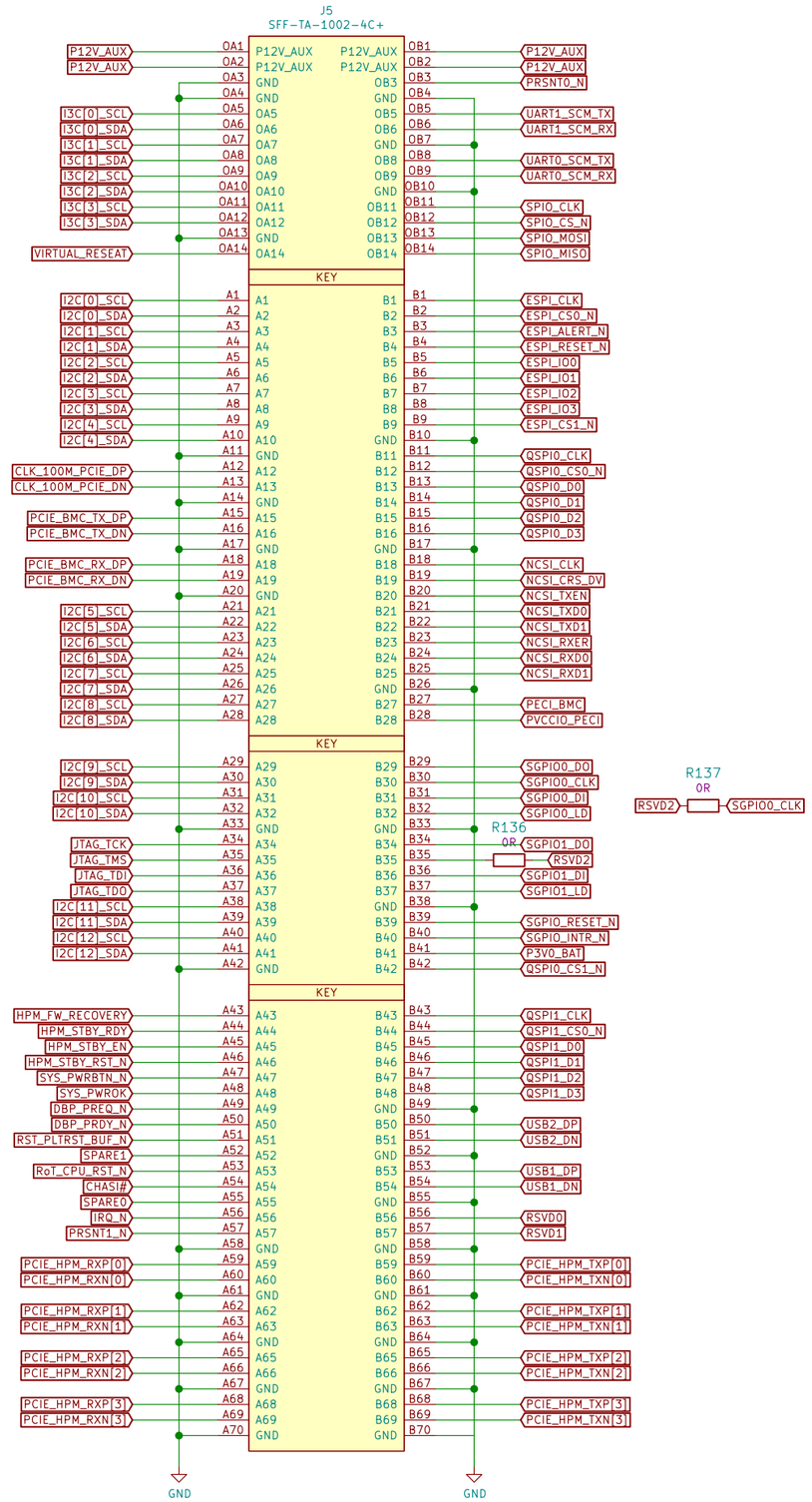


eMMC



Sheet: /Interfaces/		
File: interfaces.sch		
Title: Artix – Datacenter Secure Control Module (DC-SCM)		
Size: A3	Date:	**Rev: 1.0.0**
KiCad E.D.A. kicad 5.1.5+dfsg1-2bpo10+1		Id: 6/10

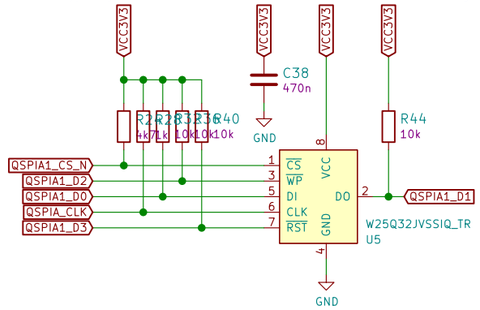
Edge connector

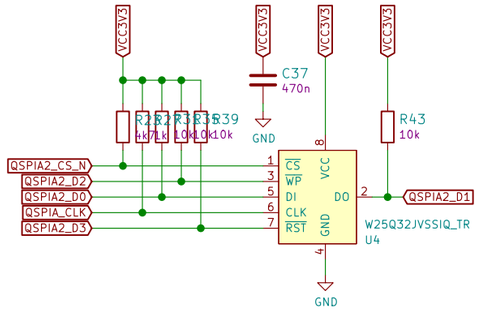


Sheet: /Edge connector/	
File: edge-connector.sch	
Title: Artix – Datacenter Secure Control Module (DC-SCM)	
Size: A3	Date:
KiCad E.D.A. kicad 5.1.5+dfsg1-2bpo10+1	Id: 7/10
	Rev: 1.0.0

BIOS flash

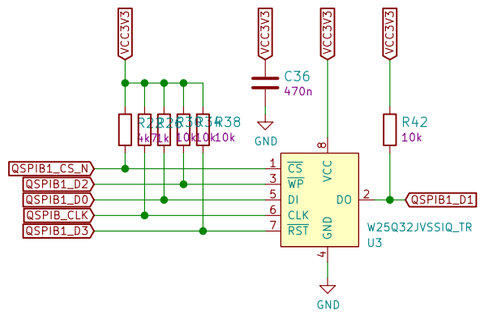
One or typically two flash devices used to contain the BIOS firmware image

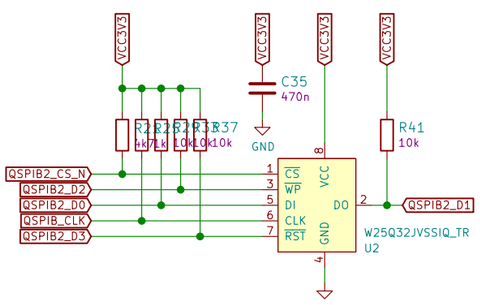




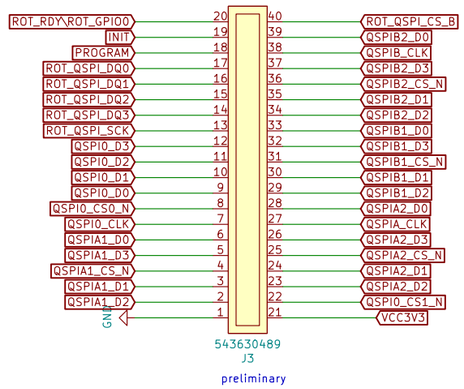
BMC flash

One or typically two flash devices used to contain the BMC firmware image

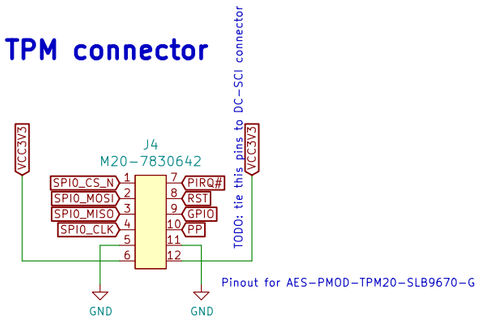




RoT module connector

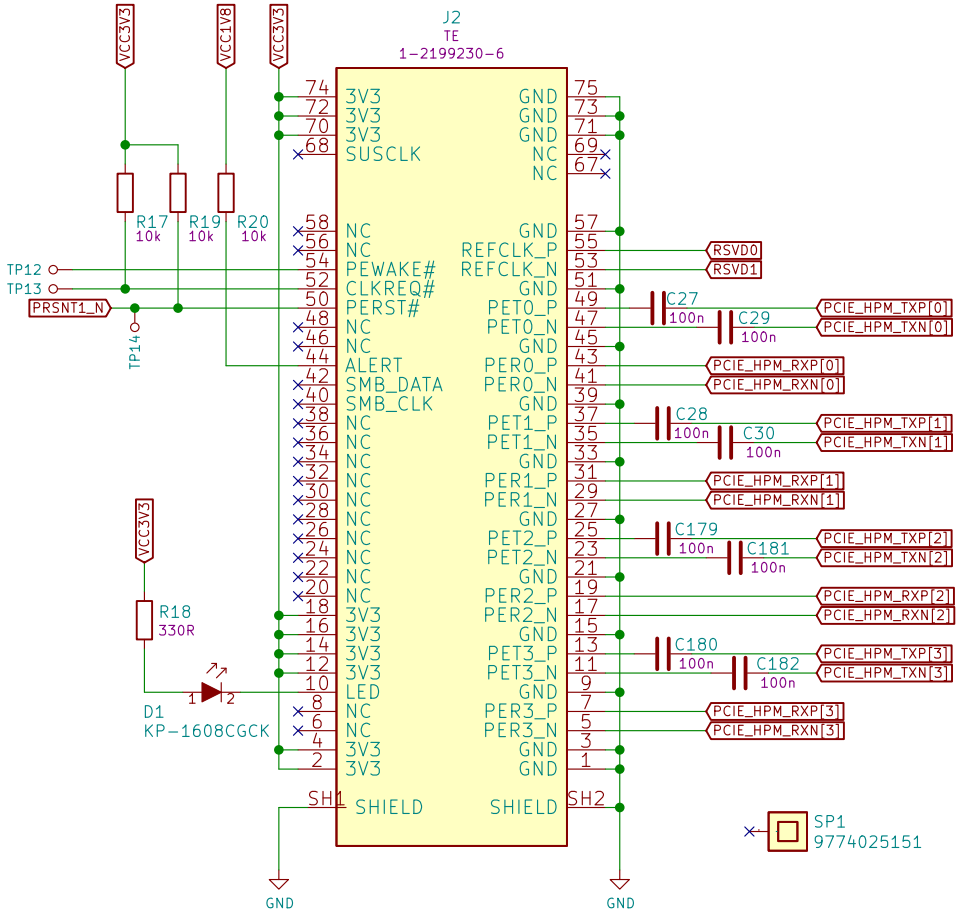


TPM connector



Sheet: /RoT/		
File: rot.sch		
Title: Artix – Datacenter Secure Control Module (DC-SCM)		
Size: A3	Date:	**Rev: 1.0.0**
KiCad E.D.A. kicad 5.1.5+dfsg1-2bpo10+1		Id: 8/10

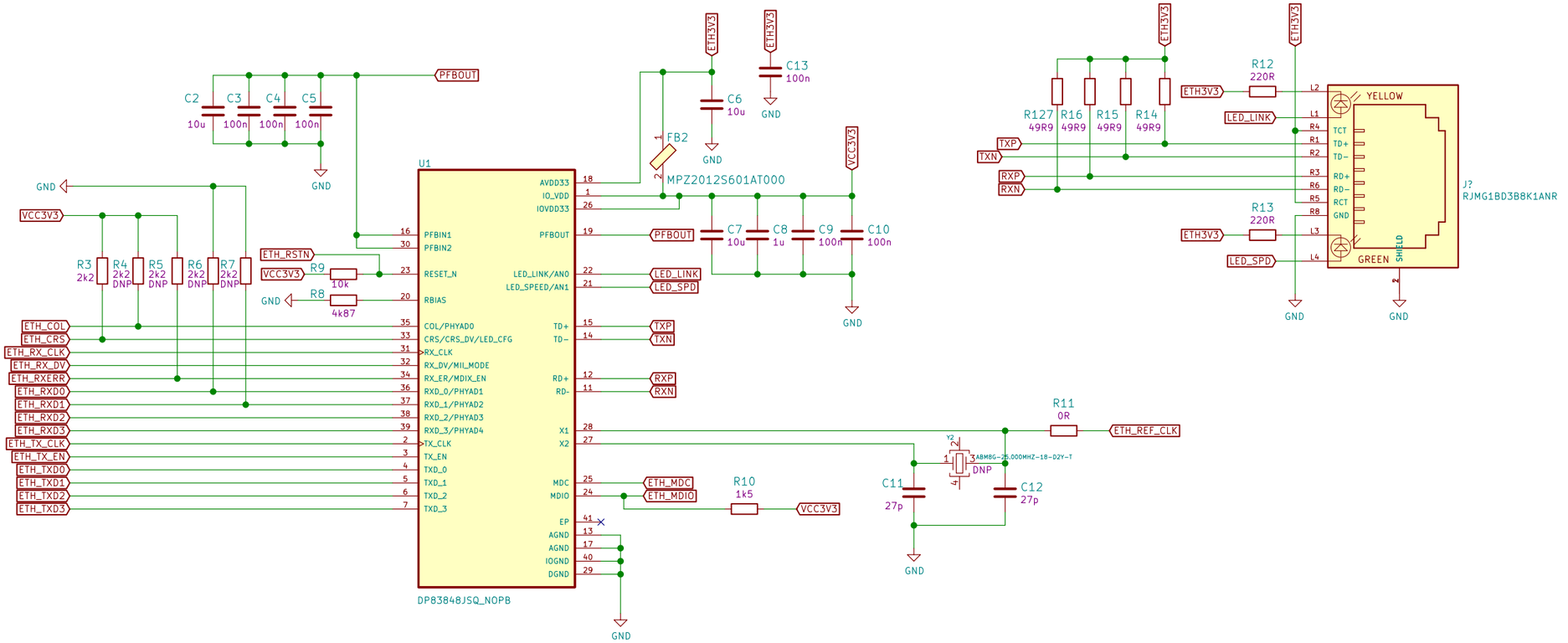
NVMe SSD



Sheet: /PCIe-connector/		
File: pcie-conn.sch		
Title: Artix – Datacenter Secure Control Module (DC-SCM)		
Size: A4	Date:	**Rev: 1.0.0**
KiCad E.D.A. kicad 5.1.5+dfsg1-2bpo10+1		Id: 9/10

Ethernet transceiver

RJ45 Connector



Sheet: /Ethernet/	
File: ethernet.sch	
Title: Artix – Datacenter Secure Control Module (DC-SCM)	
Size: A3	Date:
KiCad E.D.A. kicad 5.1.5+dfsg1-2bpo10+1	Id: 10/10