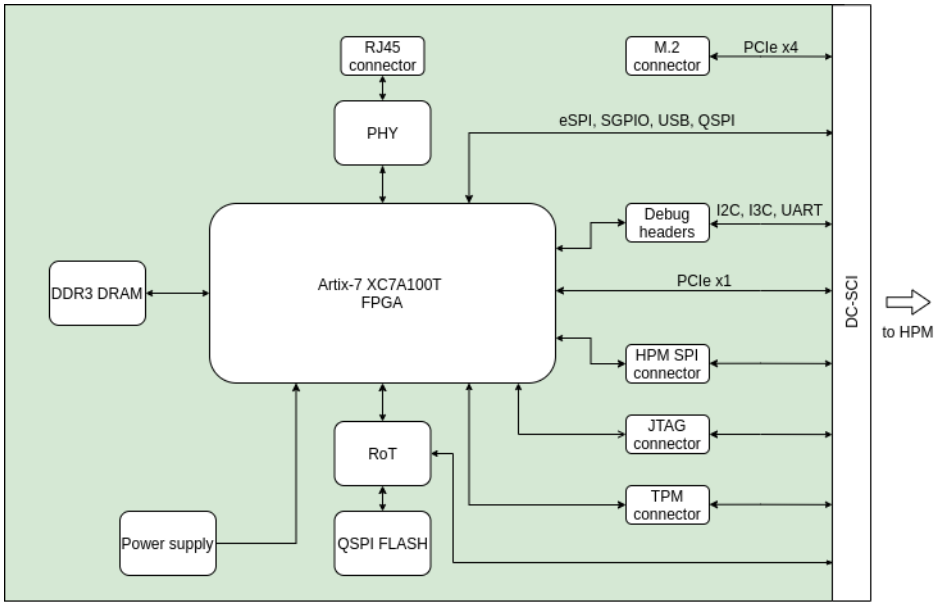
Artix – Datacenter Secure Control Module (DC-SCM)



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

Logo N2 oshw_logo

Logo N1 antmicro_logo

MP1 PCB_Mount_Hole_2.9_5.5

MP2 PCB_Mount_Hole_2.9_5.5

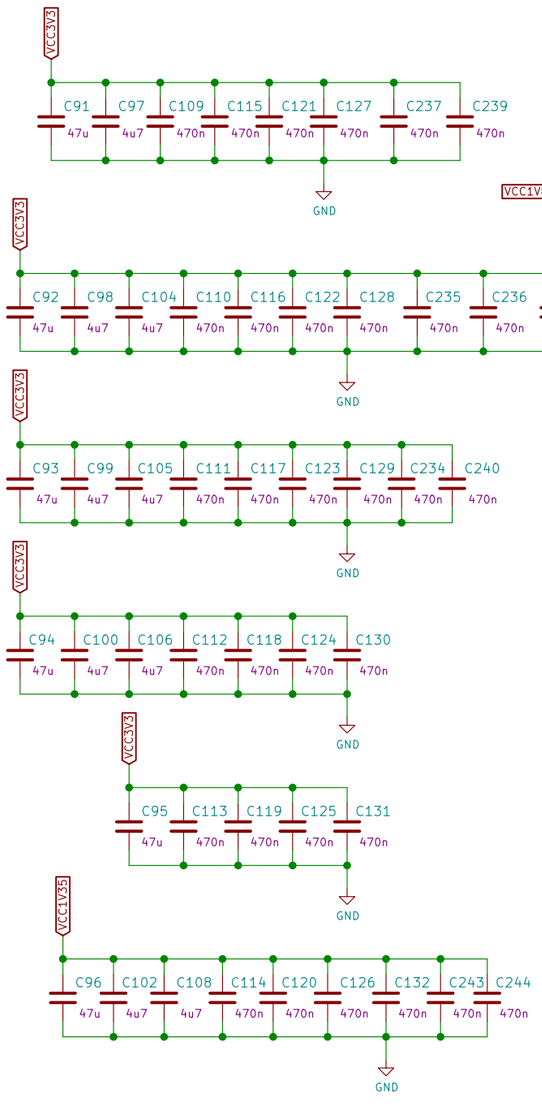
Sheet: /
File: artix-dc-scm.sch

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

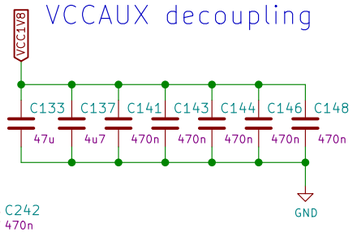
Size: A4	Date:	**Rev: 1.0.6**
KiCad E.D.A. eeschema 5.1.5+dfsg1-2bpo10+1		Id: 1/10

FPGA power supply

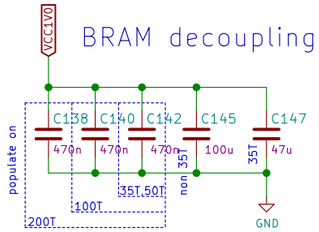
Banks decoupling

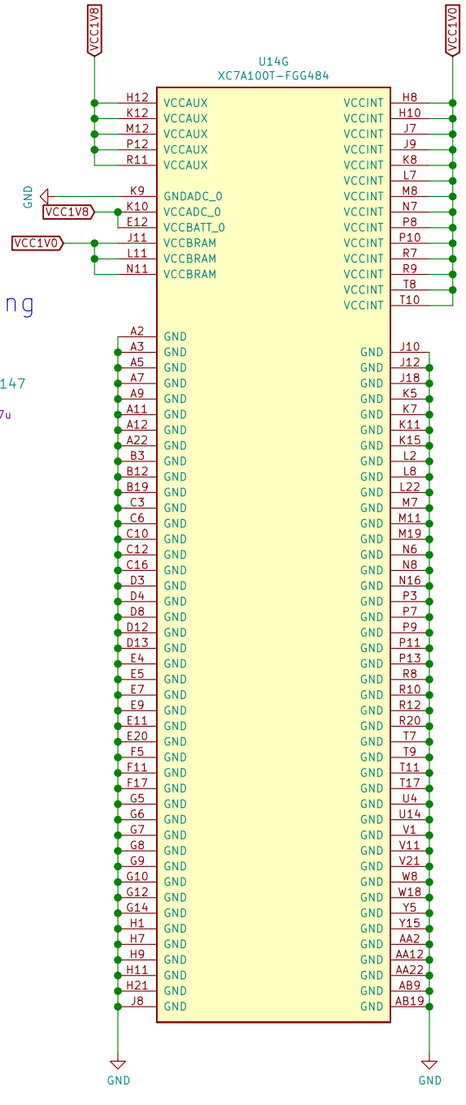


VCCAUX decoupling

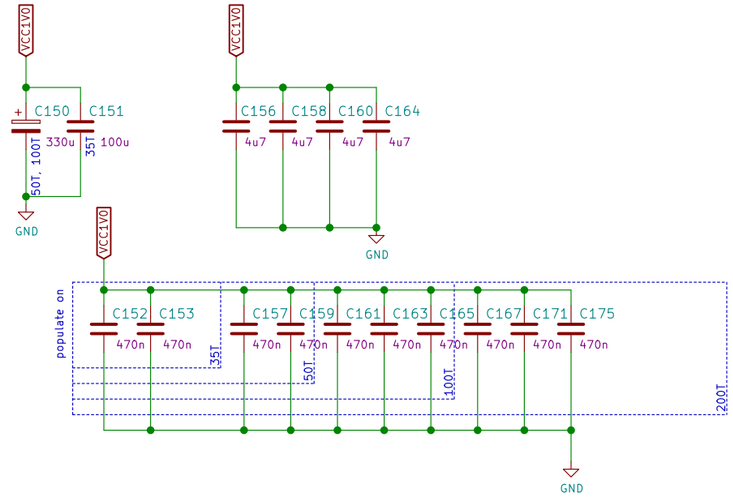


BRAM decoupling

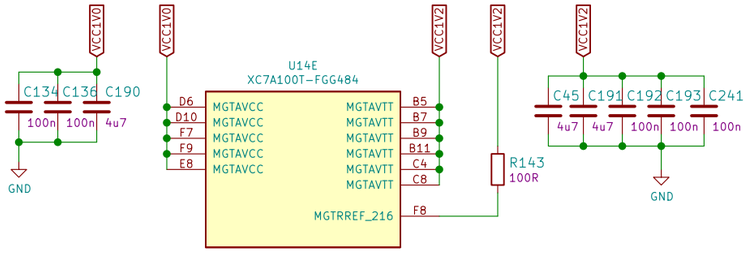




VCCINT decoupling

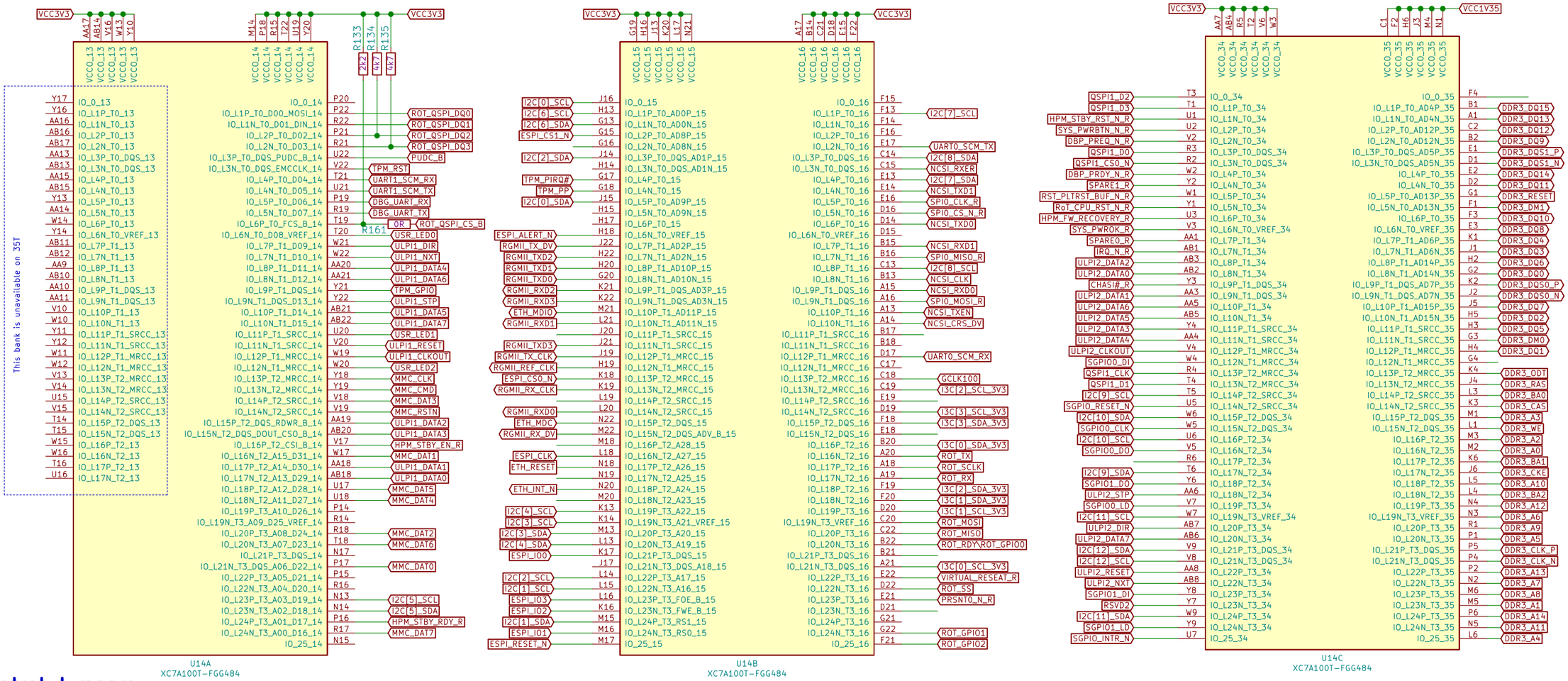


Transceiver supply

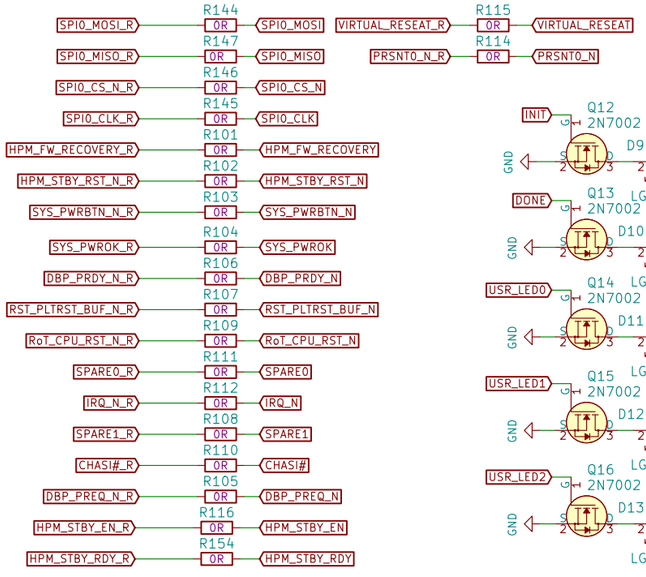


Sheet: /FPGA power supply/		
File: fpga-power-supply.sch		
Title: Artix – Datacenter Secure Control Module (DC-SCM)		
Size: A3	Date:	**Rev: 1.0.6**
KiCad E.D.A. eeschema 5.1.5+dfsg1-2bpo10+1		Id: 2/10

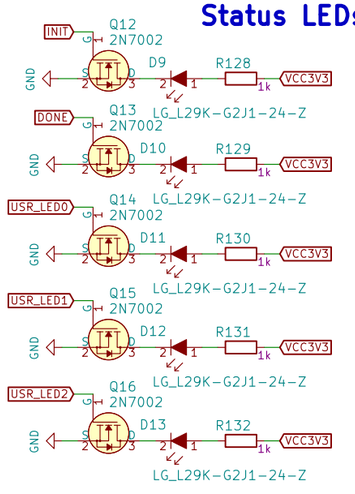
DDR3



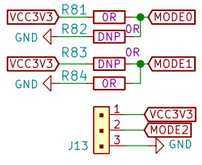
HPM Control Jumpers

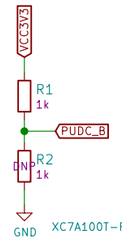


Status LEDs

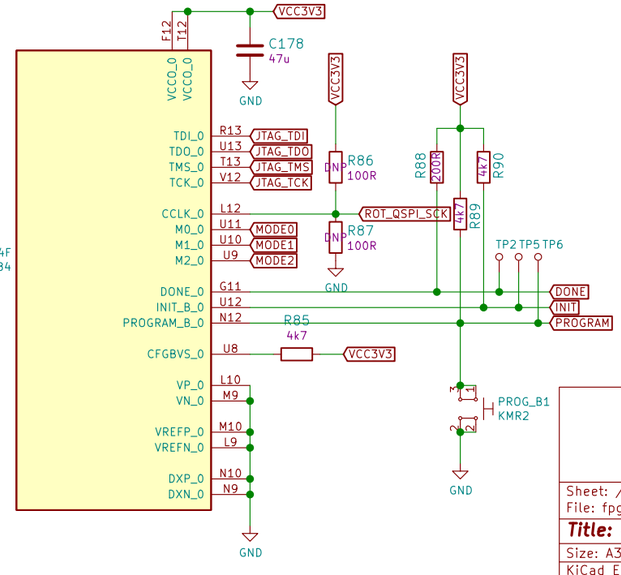


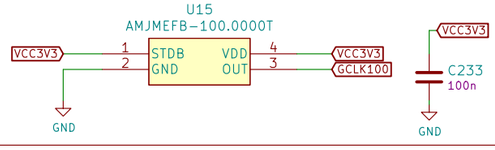
Configuration modes





U14F
XC7A100T-FGG484



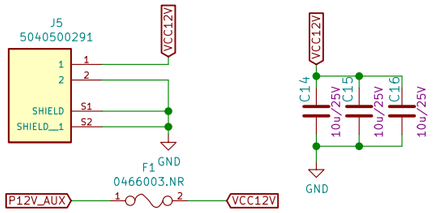


Sheet: /FPGA banks/
File: fpga-banks.sch

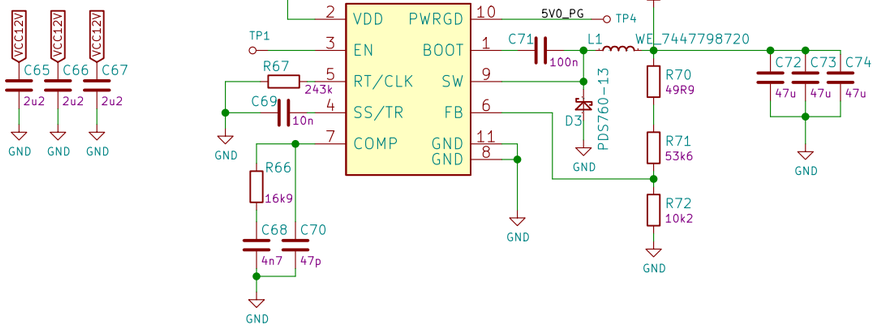
Title: Artix – Datacenter Secure Control Module (DC-SCM)

Size: A3	Date:	Rev: 1.0.6
KiCad E.D.A. eeschema 5.1.5+dfsg1-2bpo10+1		Id: 3/10

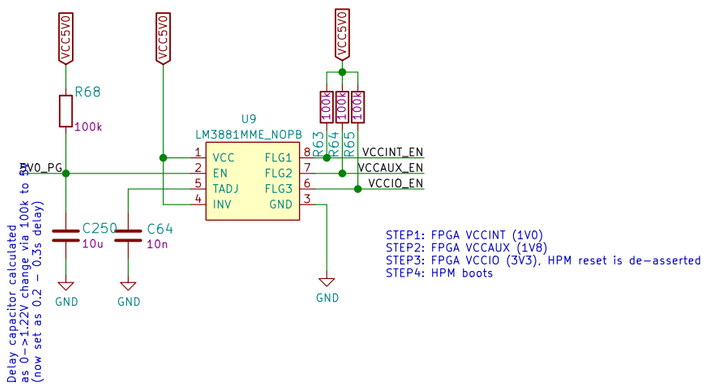
External 12V supply



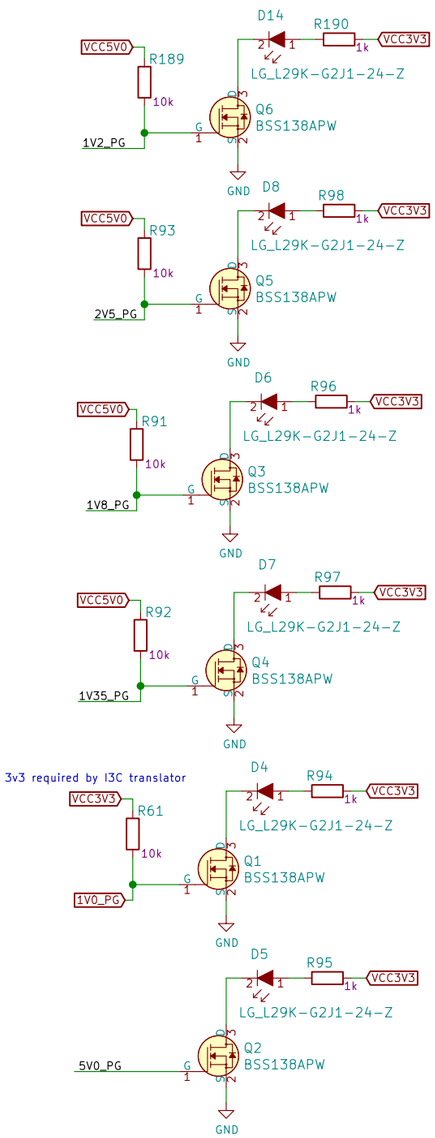
MainSupply (5V 5A)



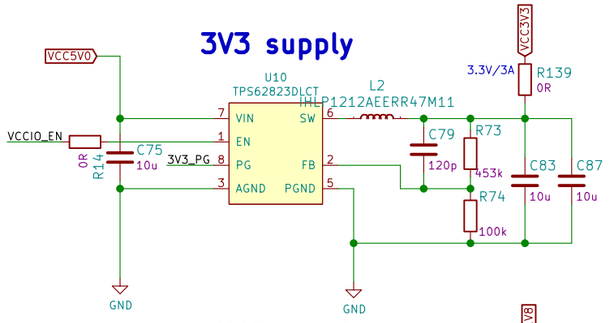
Power sequencer



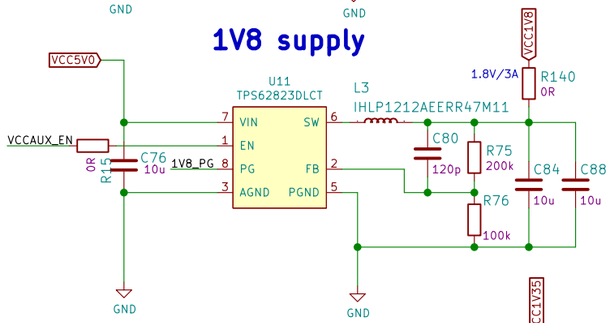
PWR_LED Indicators



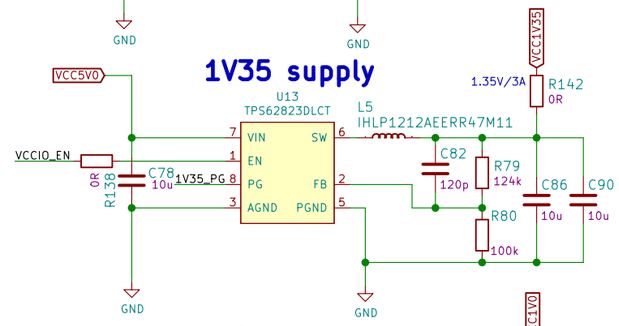
3V3 supply



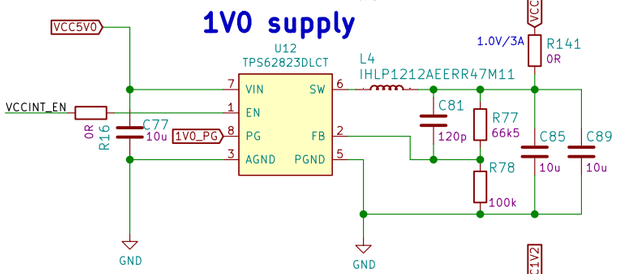
1V8 supply



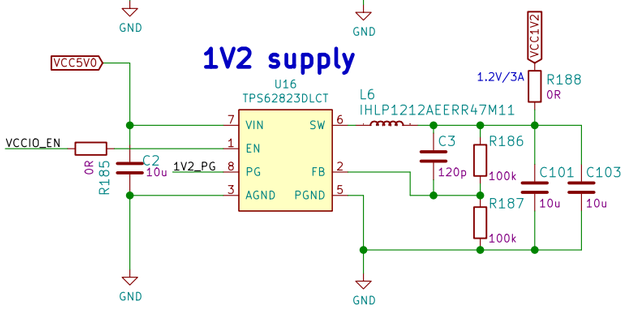
1V35 supply



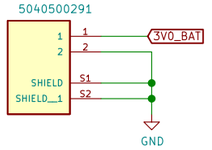
1V0 supply



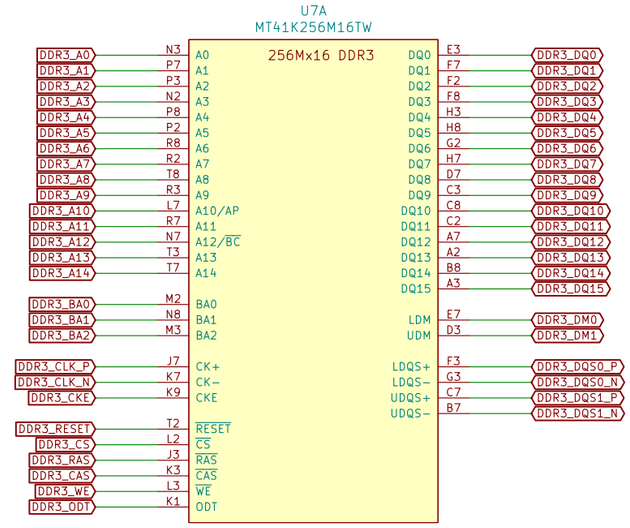
1V2 supply

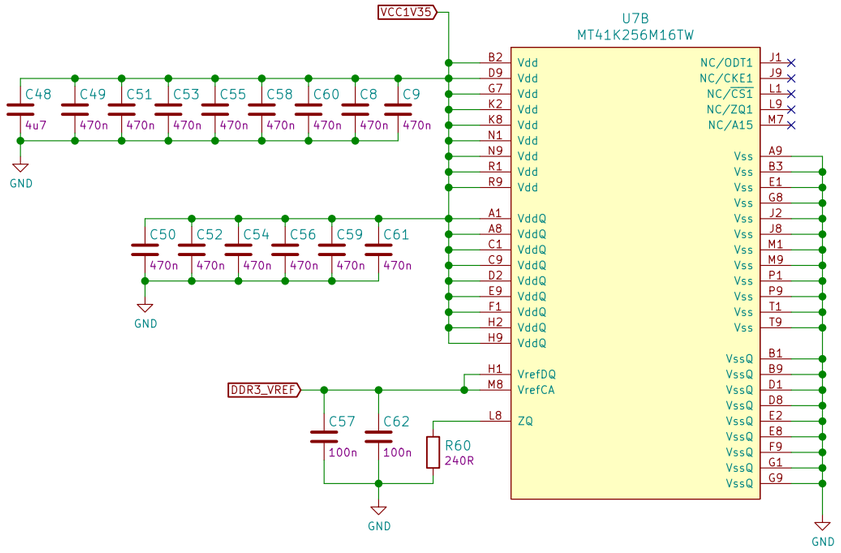


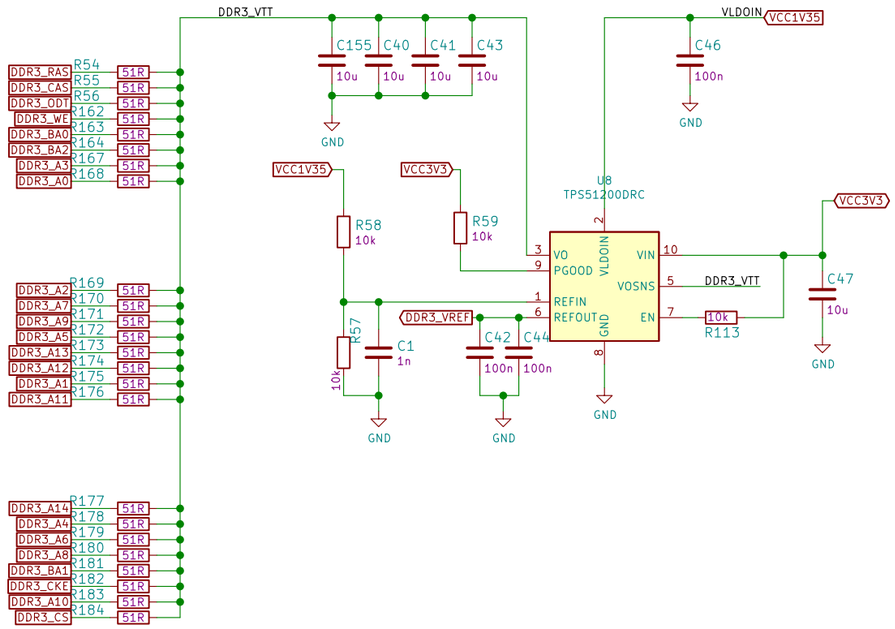
Battery connector

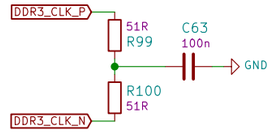


Sheet: /Power supply/	
File: power-supply.sch	
Title: Artix – Datacenter Secure Control Module (DC-SCM)	
Size: A3	Date:
KiCad E.D.A. eeschema 5.1.5+dfsg1-2bpo10+1	**Rev: 1.0.6**
	Id: 4/10









Sheet: /DDR3/		
File: ddr3.sch		
Title: Artix – Datacenter Secure Control Module (DC-SCM)		
Size: A3	Date:	**Rev: 1.0.6**
KiCad E.D.A. eeschema 5.1.5+dfsg1-2bpo10+1		Id: 5/10

PCIe x1

U14D
XC7A100T-FGG484

C195 100n
C194 100n

PCIE_BMC_TX_C_P
PCIE_BMC_TX_C_N
PCIE_BMC_TX_P
PCIE_BMC_TX_N
PCIE_BMC_RX_P
PCIE_BMC_RX_N
PCIE_BMC_CLK_100_P
PCIE_BMC_CLK_100_N

MGTPTXP0_216
MGTPTXN0_216
MGTPTXP1_216
MGTPTXN1_216
MGTPTXP2_216
MGTPTXN2_216
MGTPTXP3_216
MGTPTXN3_216
MGTPRXP0_216
MGTPRXN0_216
MGTPRXP1_216
MGTPRXN1_216
MGTPRXP2_216
MGTPRXN2_216
MGTPRXP3_216
MGTPRXN3_216
MGTREFCLK0P_216
MGTREFCLK0N_216
MGTREFCLK1P_216
MGTREFCLK1N_216

JTAG

J6
0878311420

JTAG_TMS
JTAG_TCK
JTAG_TDO
JTAG_TDI

D2
SP3011-06UTG
SP3011-06UTG
Littlefuse

Debug USB

U19
FT4232HQ

VREGIN
VREGOUT
VCORE
VCCIO
VPHY
VPLL
DM
DP
REF
RESET
EECS
EECLK
EEDATA
OSCI
OSCO
TEST
ADBUS0
ADBUS1
ADBUS2
ADBUS3
ADBUS4
ADBUS5
ADBUS6
ADBUS7
BDBUS0
BDBUS1
BDBUS2
BDBUS3
BDBUS4
BDBUS5
BDBUS6
BDBUS7
CDBUS0
CDBUS1
CDBUS2
CDBUS3
CDBUS4
CDBUS5
CDBUS6
CDBUS7
DDBUS0
DDBUS1
DDBUS2
DDBUS3
DDBUS4
DDBUS5
DDBUS6
DDBUS7
PWREN
SUSPEND
AGND

FB1 BLM15AG601SN1D
FB2 BLM15AG601SN1D

R160 22R
R191 22R
R192 22R
R193 22R
JTAG_TCK
JTAG_TDI
JTAG_TDO
JTAG_TMS
TP8

R195 22R
R196 22R
DBG_UART_RX
DBG_UART_TX

DBG_USB_D_N
DBG_USB_D_P
R3 12k1
R197 4k7
R4 10k

J3
10118192-0001LF

VBUS
TP7
D15
TPD2E009

USB HOST

U17
USB3300-EZK-TR

VBUS
DM
DP
ID
XO
XI
CPEN
EXTVBUS
REG_EN
RBIAS
VDD3.3-3
VDD3.3-2
VDD3.3-1
VDD3.3
VDD1.8-1
VDD1.8
VDDA1.8
DATA[7]
DATA[6]
DATA[5]
DATA[4]
DATA[3]
DATA[2]
DATA[1]
DATA[0]
NXT
DIR
STP
CLKOUT
RESET
GND-1
GND
EXP

R6 1k
R10 0R
R5 12k

USB1_D_N
USB1_D_P

ULPI1_DATA7
ULPI1_DATA6
ULPI1_DATA5
ULPI1_DATA4
ULPI1_DATA3
ULPI1_DATA2
ULPI1_DATA1
ULPI1_DATA0
ULPI1_NXT
ULPI1_DIR
ULPI1_STP
ULPI1_CLKOUT
ULPI1_RESET

U24
ASEMB-24.000MHZ-LC-T

STDB
GND
VDD
OUT

Y1
Abracon
ABMBG-12.000MHZ-18-D2Y-T

I3C voltage level translation

U6
NVT2008DQ,115

1V0_PG
1V0_EN
VREFB
VREFA
B1
B2
B3
B4
B5
B6
B7
B8
A1
A2
A3
A4
A5
A6
A7
A8
EN
GND

I3C[0]_SCL_3V3
I3C[0]_SDA_3V3
I3C[1]_SCL_3V3
I3C[1]_SDA_3V3
I3C[2]_SCL_3V3
I3C[2]_SDA_3V3
I3C[3]_SCL_3V3
I3C[3]_SDA_3V3
I3C[0]_SCL
I3C[0]_SDA
I3C[1]_SCL
I3C[1]_SDA
I3C[2]_SCL
I3C[2]_SDA
I3C[3]_SCL
I3C[3]_SDA

R45 357Ω
R46 357Ω
R47 357Ω
R48 357Ω
R49 357Ω
R50 357Ω
R51 357Ω
R52 357Ω

ESPI level translation

U21
LSF0108RKSR

U22
LSF0101DRYR

EN
VREF_A
VREF_B
A1
A2
A3
A4
A5
A6
A7
A8
B1
B2
B3
B4
B5
B6
B7
B8
GND
EXP_PAD

R12 200k
R62 200k

ESPI_CLK_1V8
ESPI_CS0_N_1V8
ESPI_ALERT_N_1V8
ESPI_RESET_N_1V8
ESPI_IO0_1V8
ESPI_IO1_1V8
ESPI_IO2_1V8
ESPI_IO3_1V8
ESPI_CS1_N_1V8
ESPI_CLK
ESPI_CS0_N
ESPI_ALERT_N
ESPI_RESET_N
ESPI_IO0
ESPI_IO1
ESPI_IO2
ESPI_IO3
ESPI_CS1_N

USB CLIENT

U18
USB3300-EZK-TR

R8 1k
R11 0R
R7 12k

USB2_D_N
USB2_D_P

ULPI2_DATA7
ULPI2_DATA6
ULPI2_DATA5
ULPI2_DATA4
ULPI2_DATA3
ULPI2_DATA2
ULPI2_DATA1
ULPI2_DATA0
ULPI2_NXT
ULPI2_DIR
ULPI2_STP
ULPI2_CLKOUT
ULPI2_RESET

U23
ASEMB-24.000MHZ-LC-T

eMMC

U1
MTFC16GAPALNA-AIT
100-ball TBGA 14x18

VCC
VCCQ
VDDIM
DS
VSS
VSSQ
CLK
RST_N
CMD
DAT0
DAT1
DAT2
DAT3
DAT4
DAT5
DAT6
DAT7

R9 22R

MMC_CLK
MMC_RSTN
MMC_CMD
MMC_DAT0
MMC_DAT1
MMC_DAT2
MMC_DAT3
MMC_DAT4
MMC_DAT5
MMC_DAT6
MMC_DAT7

HPM SPI

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

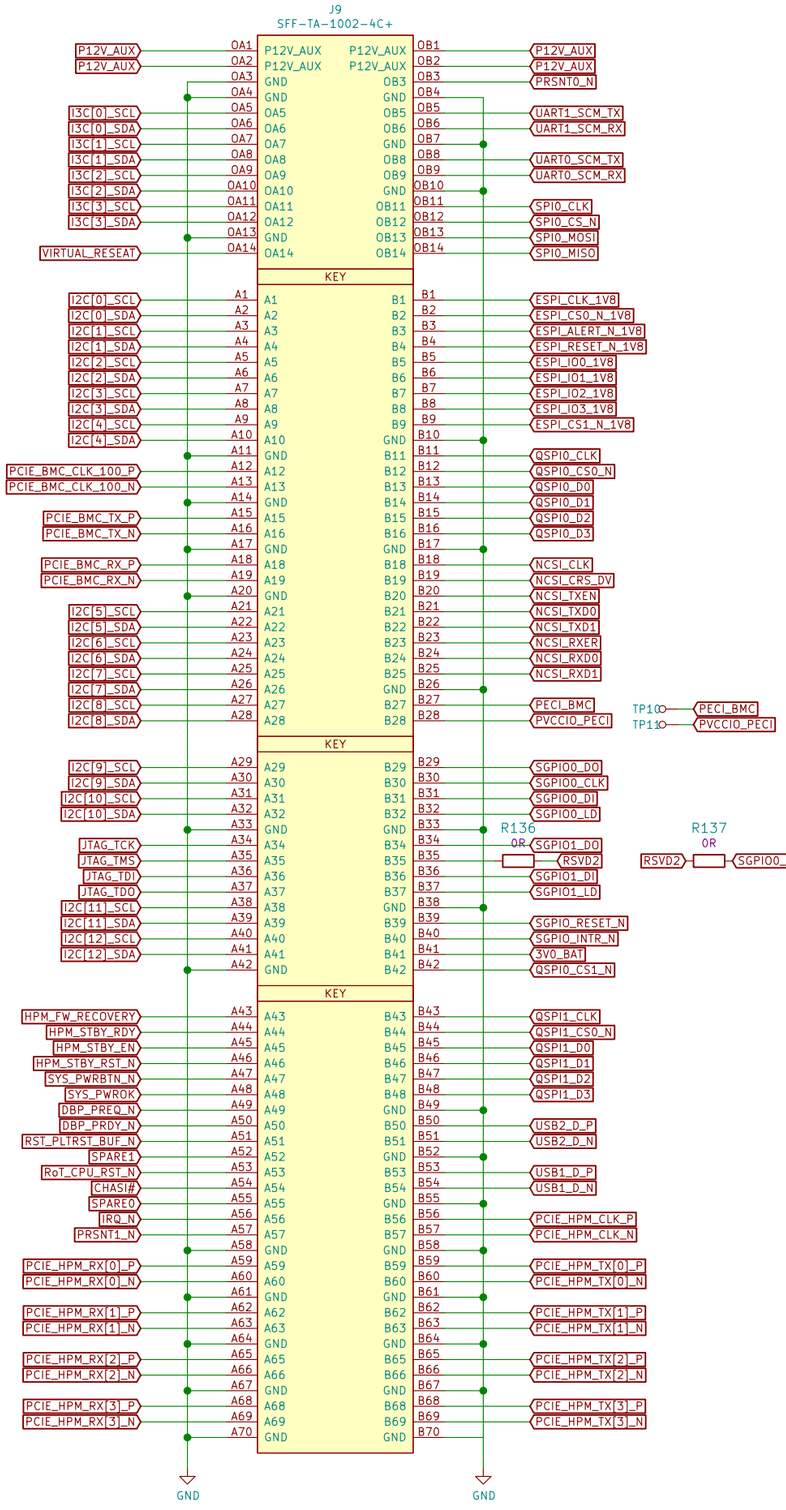
J7
61300611121

SPI0_MOSI
SPI0_MISO
SPI0_CLK
SPI0_CS_N

Sheet: /Interfaces/	
File: interfaces.sch	
Title: Artix – Datacenter Secure Control Module (DC-SCM)	
Size: A3	Date: 2021-03-29
KiCad E.D.A. eeschema 5.1.5+dfsg1-2bpo10+1	Id: 6/10

Rev: 1.0.6

Edge connector



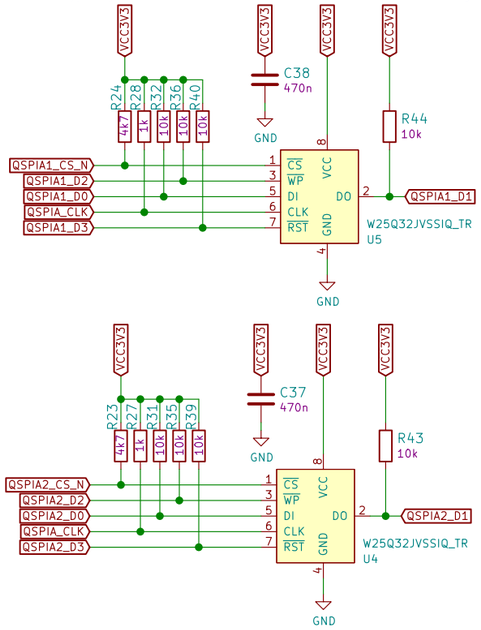
Sheet: /Edge connector/
File: edge-connector.sch

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

Size: A3	Date:	Rev: 1.0.6
KiCad E.D.A. eeschema 5.1.5+dfsg1-2bpo10+1		Id: 7/10

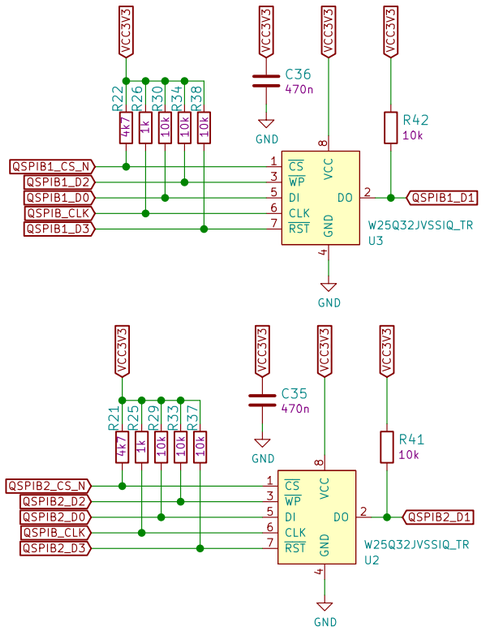
BIOS flash

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

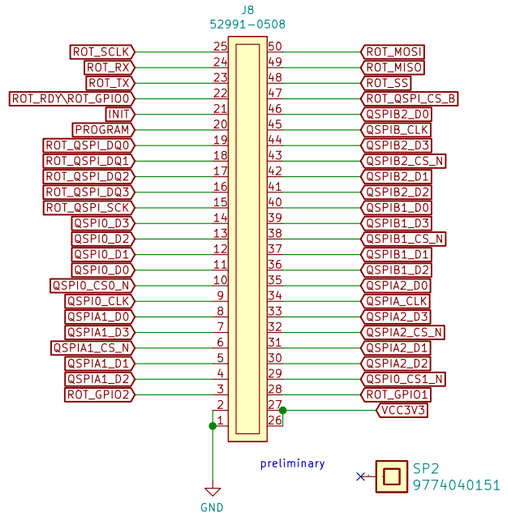


BMC flash

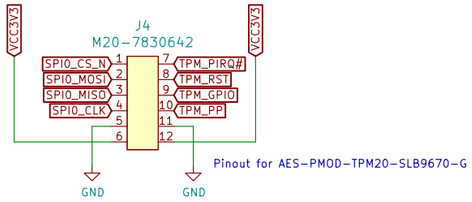
One or typically two flash devices used to contain the BMC firmware image



RoT module connector

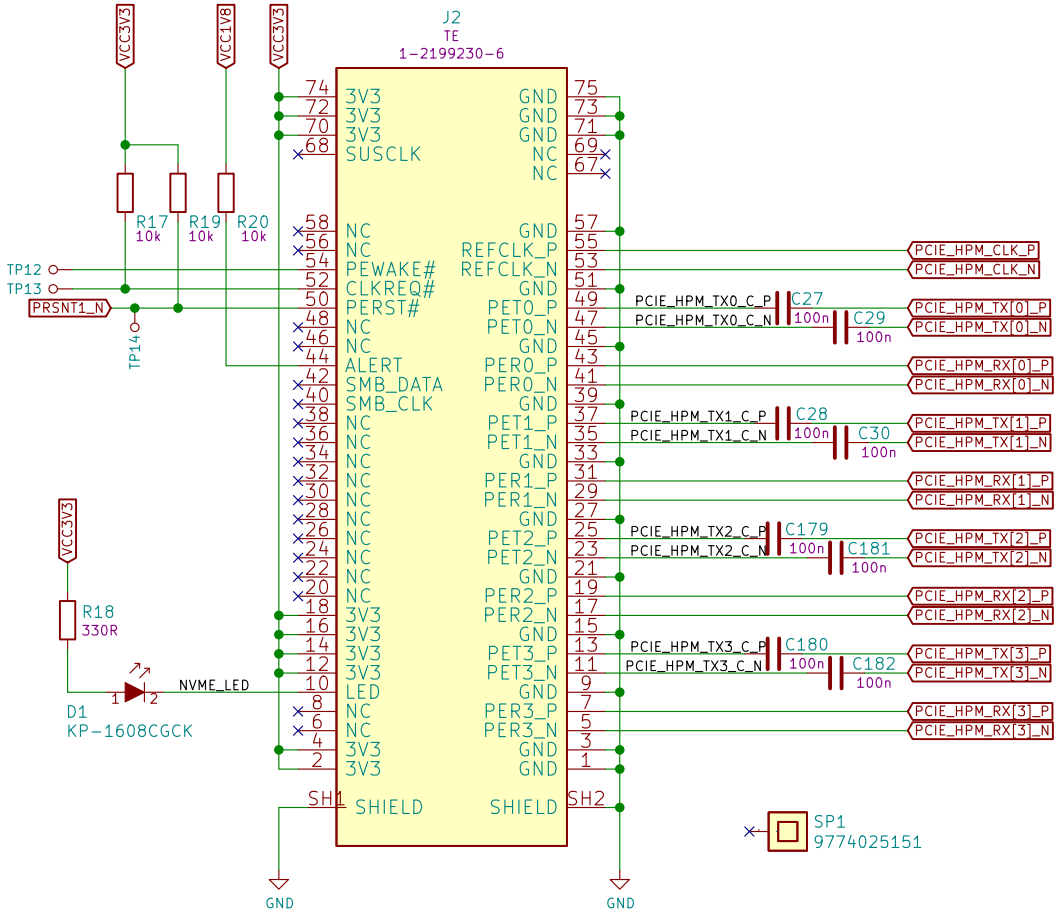


TPM connector



Sheet: /RoT/		
File: rot.sch		
Title: Artix – Datacenter Secure Control Module (DC-SCM)		
Size: A3	Date:	**Rev: 1.0.6**
KiCad E.D.A. eeschema 5.1.5+dfsg1-2bpo10+1		Id: 8/10

NVMe SSD



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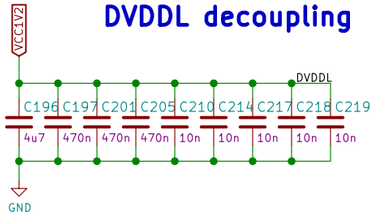
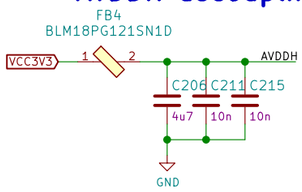
KiCad E.D.A. eeschema 5.1.5+dfsg1-2bpo10+1		Id: 9/10

DVDDL decoupling



AVDDH decoupling



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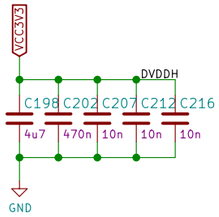
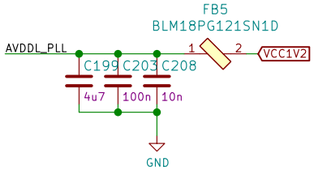
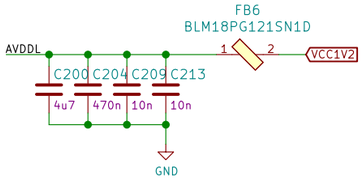


AVDDL_PLL decoupling



AVDDL decoupling



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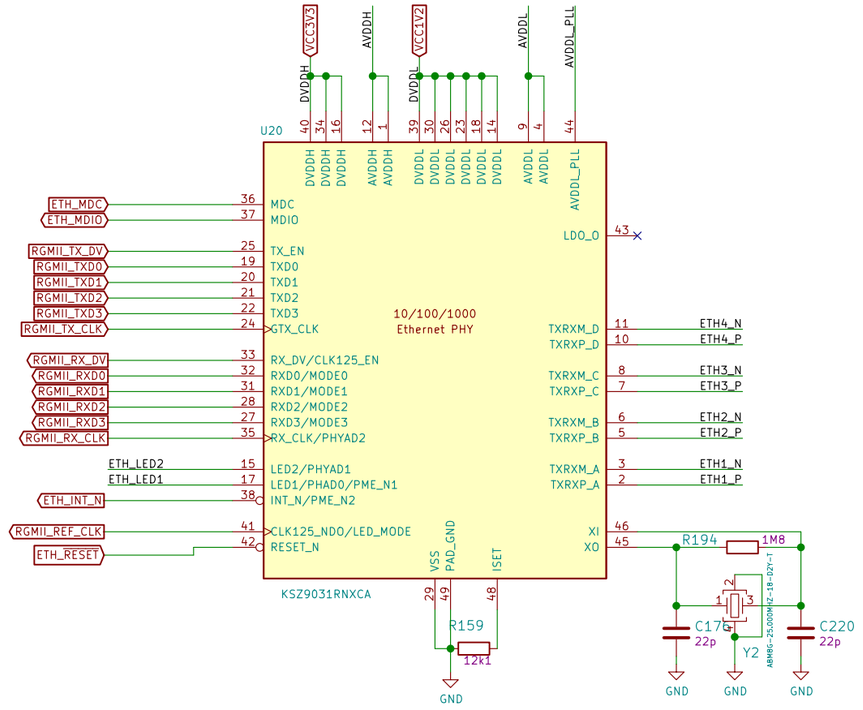
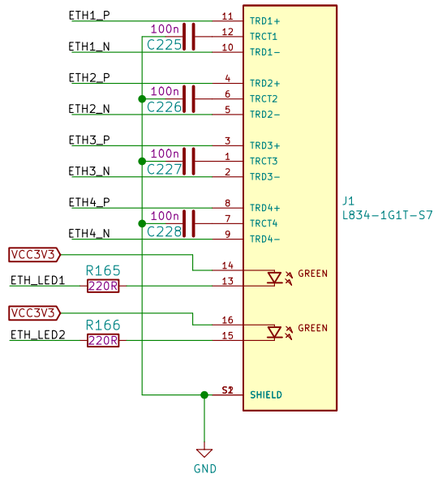
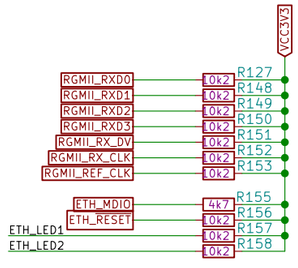


RJ45 Connector



Pull up resistors



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