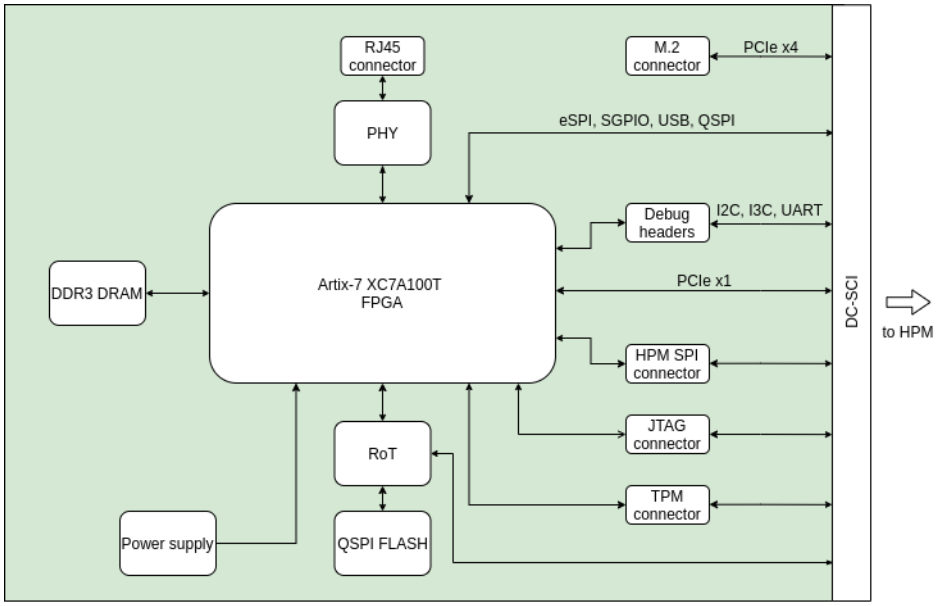
Artix – Datacenter Secure Control Module (DC-SCM)



Ethernet

File: ethernet.sch

PCIe-connector

File: pcie-conn.sch

RoT

File: rot.sch

Edge connector

File: edge-connector.sch

Interfaces

File: interfaces.sch

DDR3

File: ddr3.sch

Power supply

File: power-supply.sch

FPGA power supply

File: fpga-power-supply.sch

FPGA banks

File: fpga-banks.sch

Logo N2 oshw_logo

Logo N1 antmicro_logo

MP1 PCB_Mount_Hole_2.9_5.5

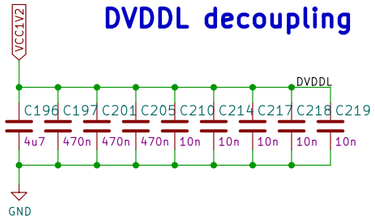
MP2 PCB_Mount_Hole_2.9_5.5

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

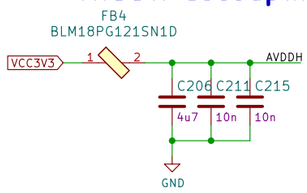
Title: Artix – Datacenter Secure Control Module (DC-SCM)

Size: A4	Date:	**Rev: 1.1.0**
KiCad E.D.A. kicad 6.0.5+dfsg-1~bpo11+1		Id: 1/10

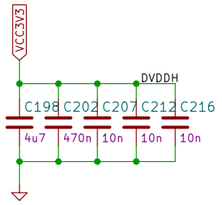
DVDDL decoupling



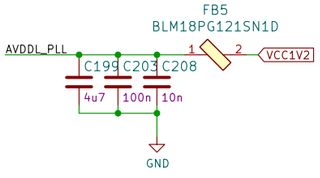
AVDDH decoupling



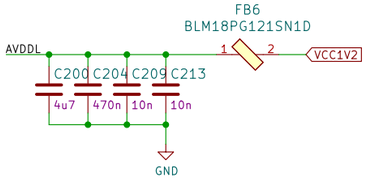
DVDDH decoupling



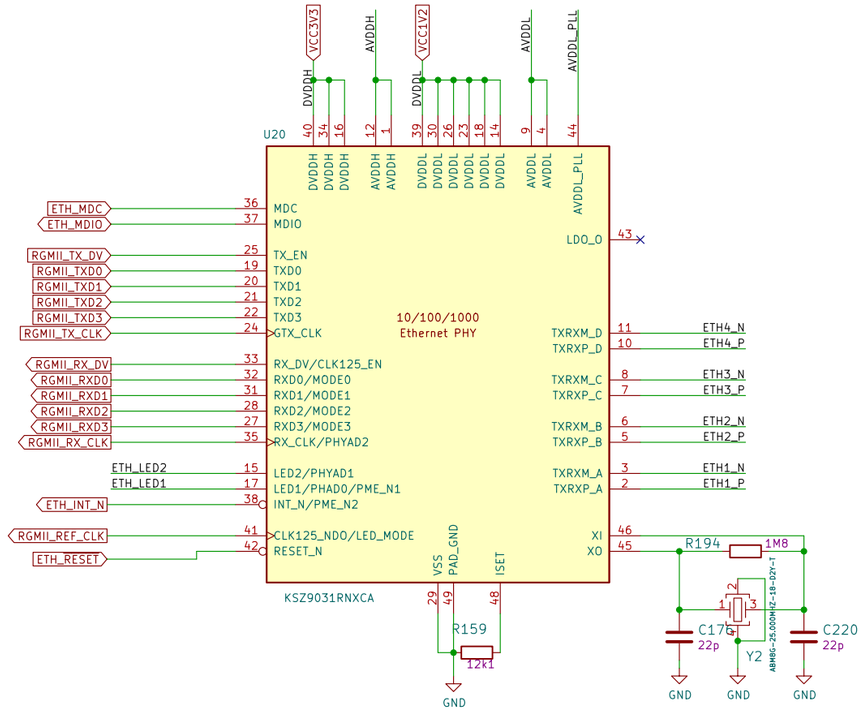
AVDDL_PLL decoupling



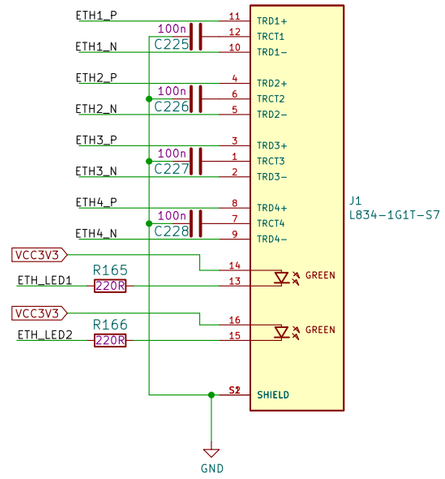
AVDDL decoupling



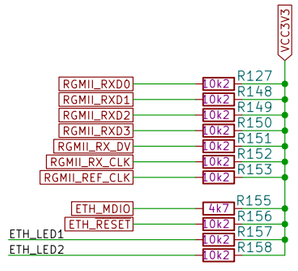
PHY



RJ45 Connector



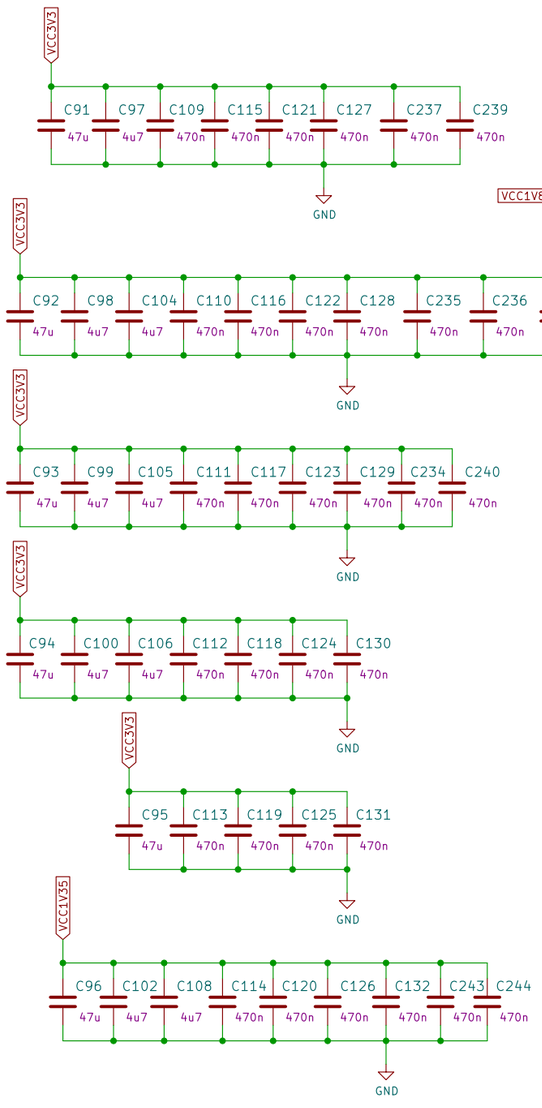
Pull up resistors



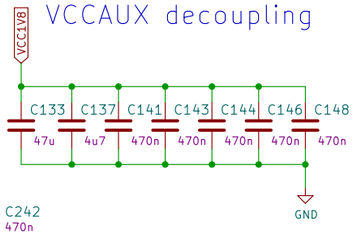
Sheet: /Ethernet/		
File: ethernet.sch		
Title: Artix – Datacenter Secure Control Module (DC-SCM)		
Size: A3	Date:	**Rev: 1.1.0**
KiCad E.D.A. kicad 6.0.5+dfsg-1-bpo11+1		Id: 2/10

FPGA power supply

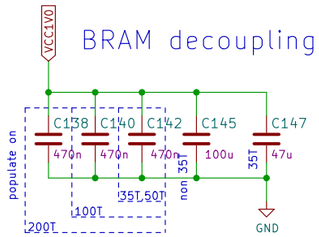
Banks decoupling

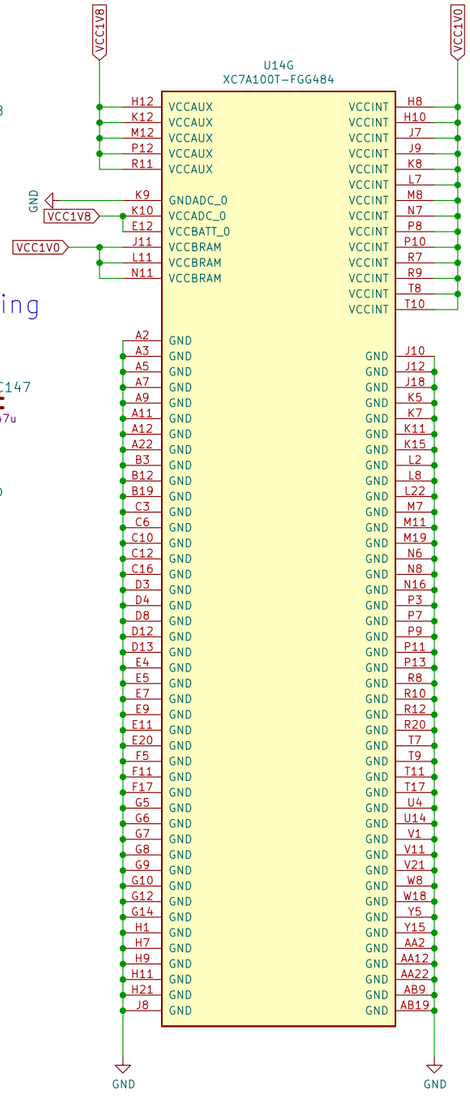


VCCAUX decoupling

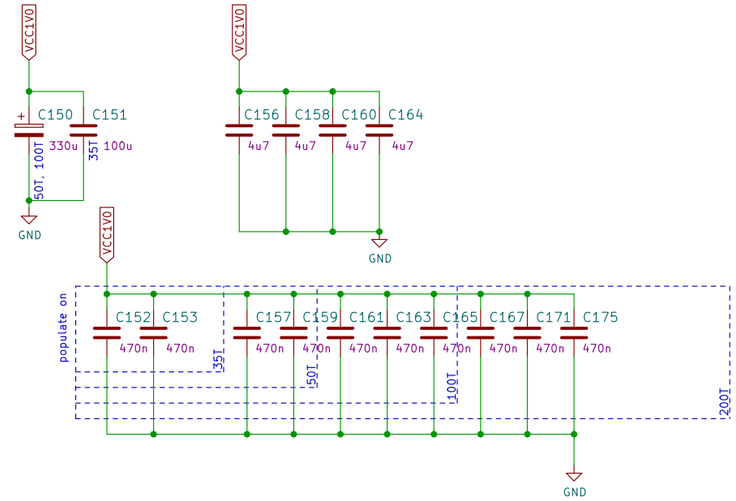


BRAM decoupling

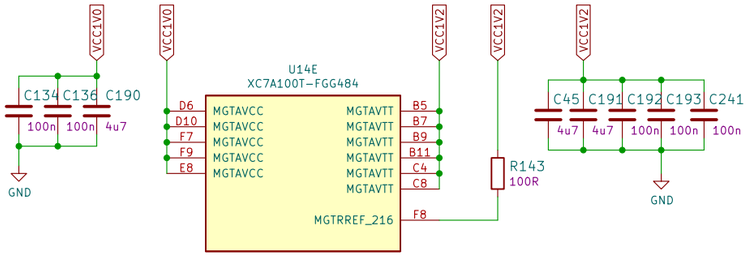




VCCINT decoupling

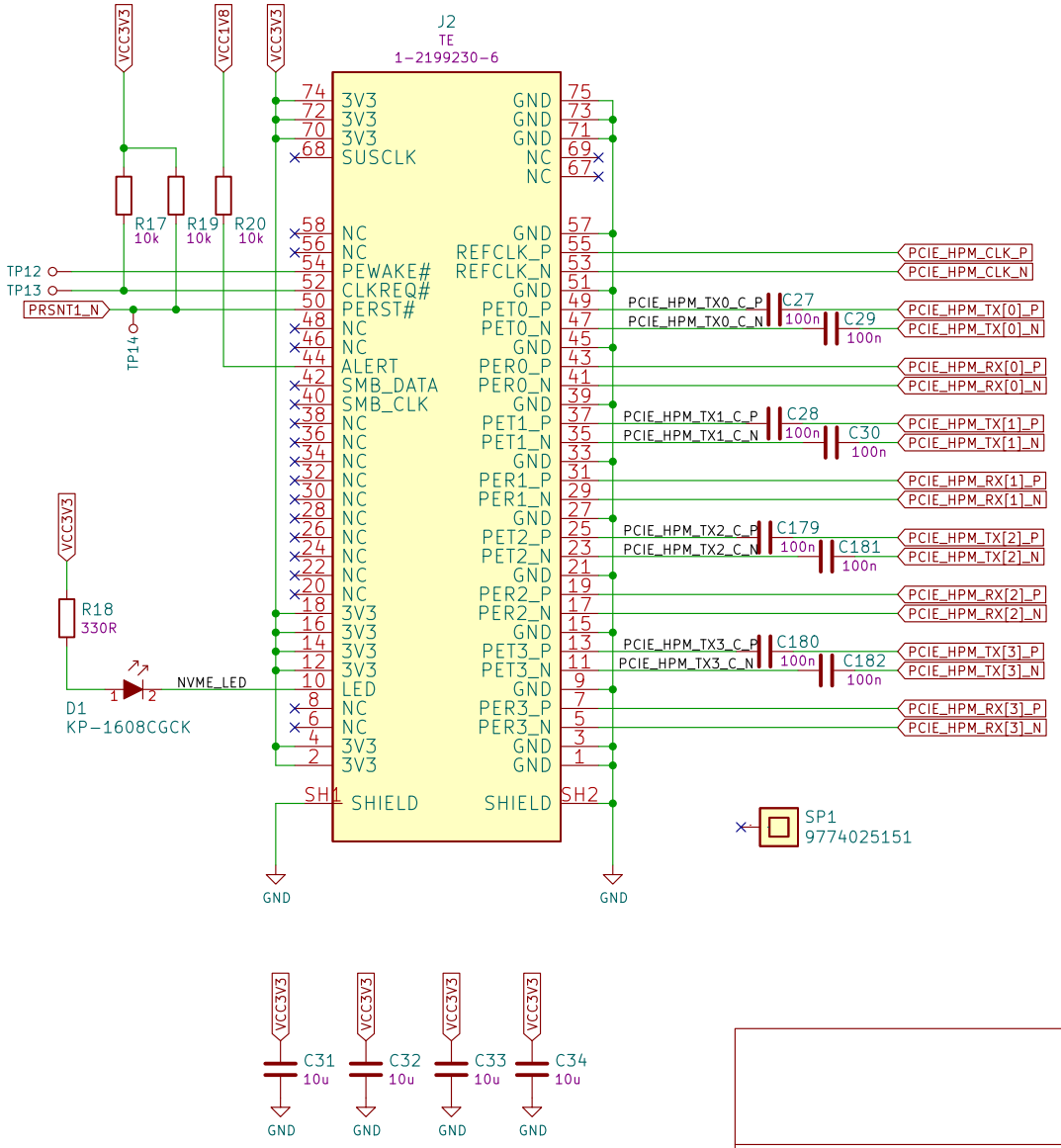


Transceiver supply



Sheet: /FPGA power supply/		
File: fpga-power-supply.sch		
Title: Artix – Datacenter Secure Control Module (DC-SCM)		
Size: A3	Date:	**Rev: 1.1.0**
KiCad E.D.A. kicad 6.0.5+dfsg-1-bpo11+1		Id: 3/10

NVMe SSD



Sheet: /PCIe-connector/	
File: pcie-conn.sch	
Title: Artix – Datacenter Secure Control Module (DC-SCM)	
Size: A4	Date:
KiCad E.D.A. kicad 6.0.5+dfsg-1~bpo11+1	**Rev: 1.1.0**
	Id: 4/10

DDR3

HPM Control Jumpers

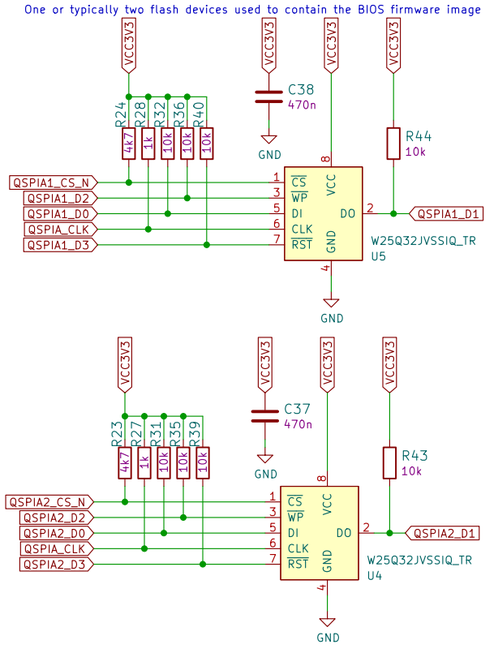
Status LEDs

Configuration modes

Sheet: /FPGA banks/	
File: fpga-banks.sch	
Title: Artix – Datacenter Secure Control Module (DC-SCM)	
Size: A3	Date:
KiCad E.D.A. kicad 6.0.5+dfsg-1-bpo11+1	Id: 5/10
	Rev: 1.1.0

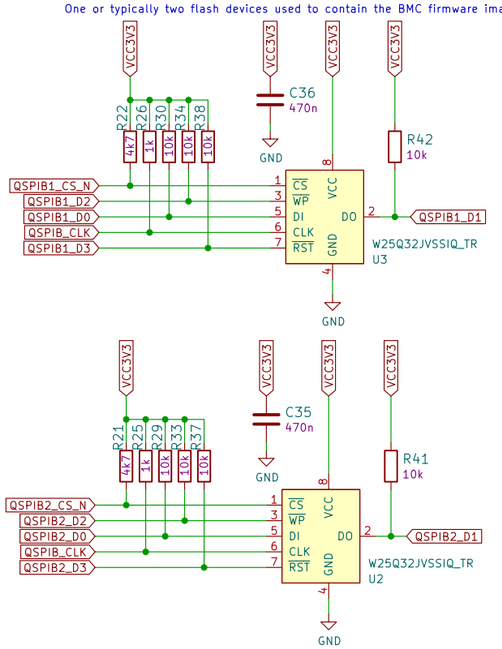
BIOS flash

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

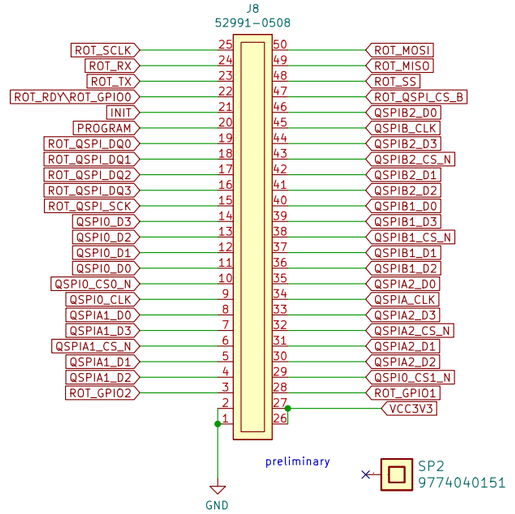


BMC flash

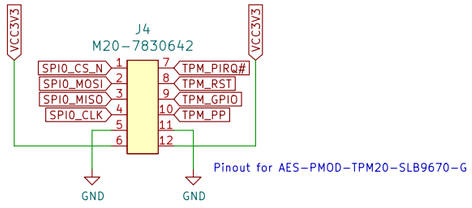
One or typically two flash devices used to contain the BMC firmware image



RoT module connector

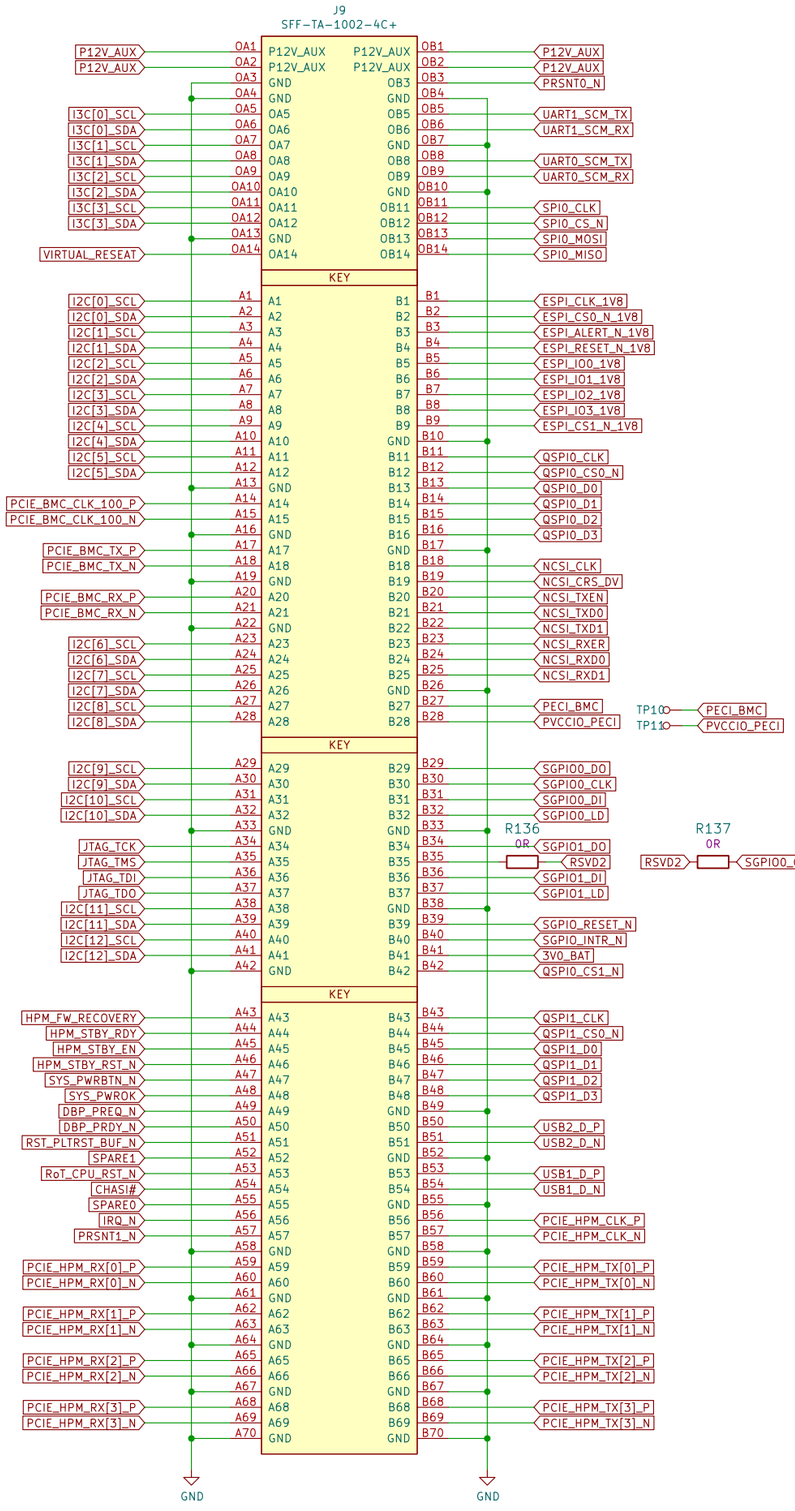


TPM connector



Sheet: /RoT/		
File: rot.sch		
Title: Artix – Datacenter Secure Control Module (DC-SCM)		
Size: A3	Date:	**Rev: 1.1.0**
KiCad E.D.A. kicad 6.0.5+dfsg-1~bpo11+1		Id: 6/10

Edge connector



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

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

Size: A3	Date:	Rev: 1.1.0
KiCad E.D.A. kicad 6.0.5+dfsg-1-bpo11+1		Id: 7/10

PCIe x1

C195 100n
C194 100n
PCIE_BMC_TX_C_P
PCIE_BMC_TX_C_N
PCIE_BMC_RX_P
PCIE_BMC_RX_N
PCIE_BMC_CLK_100_P
PCIE_BMC_CLK_100_N

U14D
XC7A100T-FGG484
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
Littelfuse

Debug USB

U19
FT4232HQ
VREGIN
VREGOUT
VCORE
VCCIO
VPHY
VPLL
DM
DP
REF
RESET
EECS
ECLK
EEDATA
OSCI
OSCO
TEST
PWREN
SUSPEND
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
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
C149 100n
C154 4u7
C6 100n
C7 100n
C107 100n
C135 100n
C139 100n
C162 4u7
Y1
Abracon
ABM8G-12.000MHZ-18-D2Y-T
C160 18p
C168 18p
C169 100n
C170 100n
C172 100n
C173 100n
C174 100n

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
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
USB1_D_N
USB1_D_P
R6 1k
R10 0R
R5 12k
C5 100n
U24
ASEMB-24.000MHZ-LC-T
STDB
GND
VDD
OUT
C10 100n
C11 100n
C13 100n
C19 100n
C23 4u7
C249 100n
C20 100n
C247 4u7
C25 100n
C246 4u7

I3C voltage level translation

U6
NVT2008DQ,115
VREFB
VREFA
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
1V0_EN
1V0_PG
R53 200k
R45 357k
R47 357k
R49 357k
R51 357k
R46 357k
R48 357k
R50 357k
R52 357k
C39 100n
C17 100n

ESPI level translation

U21
LSF0108RKSR
DNP
EN
VREF_A
VREF_B
EXP_PAD
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_CLK
ESPI_CS0_N
ESPI_ALERT_N
ESPI_RESET_N
ESPI_IO0
ESPI_IO1
ESPI_IO2
ESPI_IO3
R12 200k
C253 100n
C251 100n
C254 100n
C252 100n
R62 200k
U22
LSF0101DRYR
ESPI_CS1_N_1V8
ESPI_CS1_N

USB CLIENT

U18
USB3300-EZK-TR
USB2_D_N
USB2_D_P
R8 1k
R11 0R
R7 12k
C4 100n
U23
ASEMB-24.000MHZ-LC-T
C12 100n
C18 100n
C21 100n
C24 100n
C222 4u7
C248 100n
C26 100n
C177 4u7
C22 100n
C245 4u7

eMMC

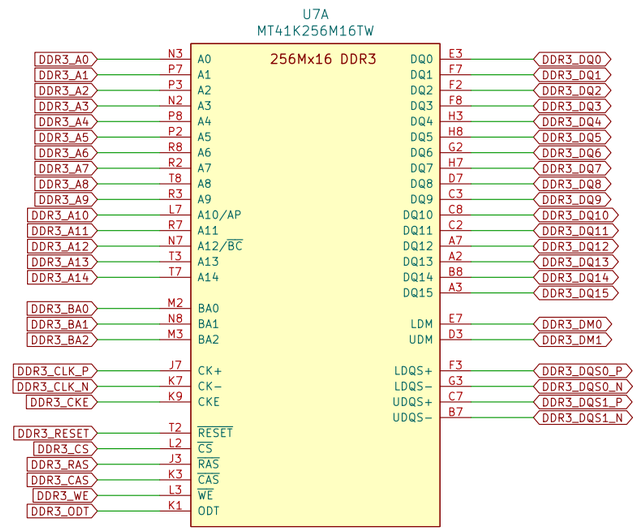
U1
MTFC16GAPALNA-AIT
100-ball TBGA 14x18
VCC
VCCQ
VDDIM
DS
VSS
VSSQ
CLK
RST_N
CMD
DAT0
DAT1
DAT2
DAT3
DAT4
DAT5
DAT6
DAT7
MMC_CLK
MMC_RSTN
MMC_CMD
MMC_DAT0
MMC_DAT1
MMC_DAT2
MMC_DAT3
MMC_DAT4
MMC_DAT5
MMC_DAT6
MMC_DAT7
R9 22R
R117 47k
C183 2u2
C184 2u2
C185 2u2
C186 100n
C187 100n
C188 4u7
C189 100n
TP3
C223 100n
C224 100n
C229 100n
C230 100n
C231 100n
C232 100n

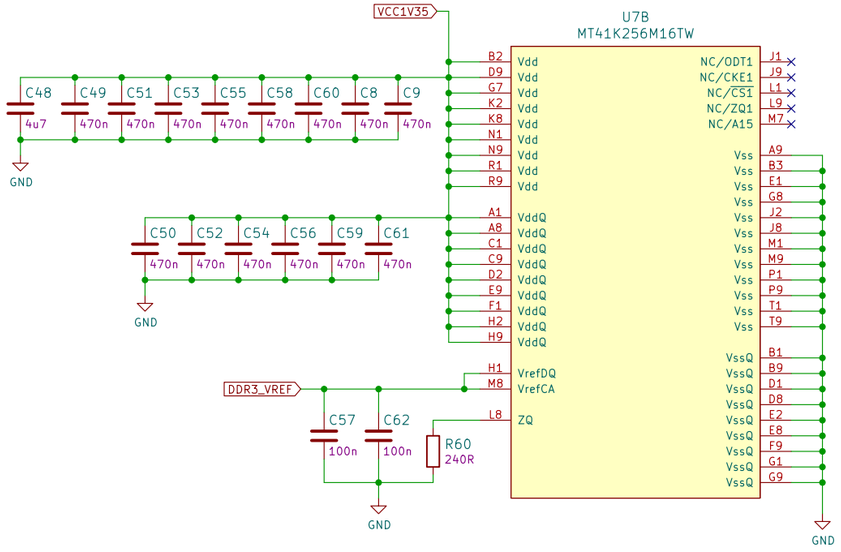
HPM SPI

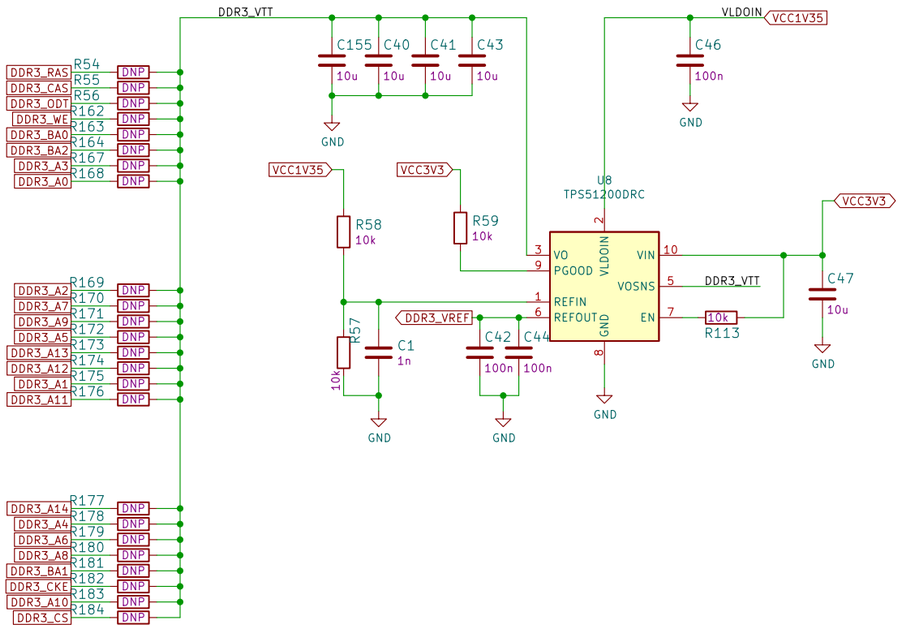
reserved for future use (as of DC-SCI OPC specification)

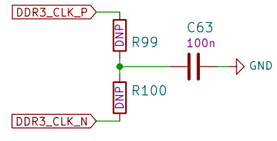
J7
61300611121
SPI0_MOSI
SPI0_MISO
SPI0_CLK
SPI0_CS_N

Sheet: /Interfaces/	
File: interfaces.sch	
Title: Artix – Datacenter Secure Control Module (DC-SCM)	
Size: A3	Date: 2021-03-29
KiCad E.D.A. kicad 6.0.5+dfsg-1-bpo11+1	Id: 8/10
	Rev: 1.1.0



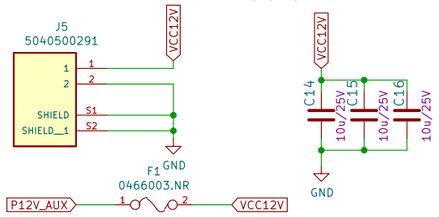




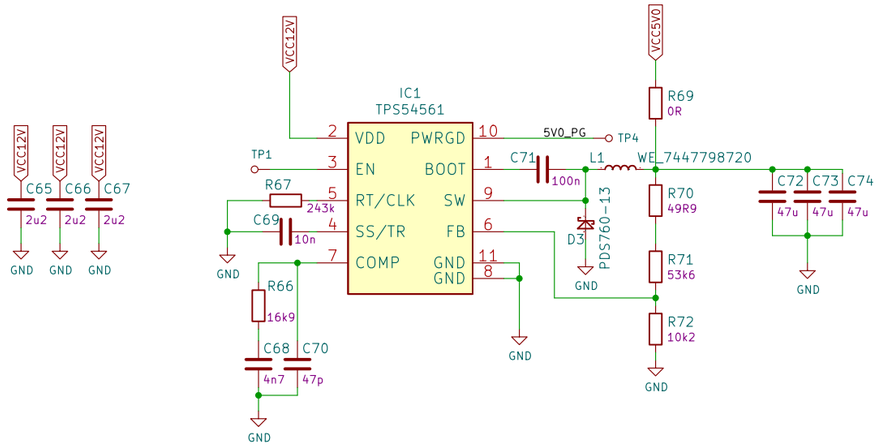


Sheet: /DDR3/		
File: ddr3.sch		
Title: Artix – Datacenter Secure Control Module (DC-SCM)		
Size: A3	Date:	**Rev: 1.1.0**
KiCad E.D.A. kicad 6.0.5+dfsg-1-bpo11+1		Id: 9/10

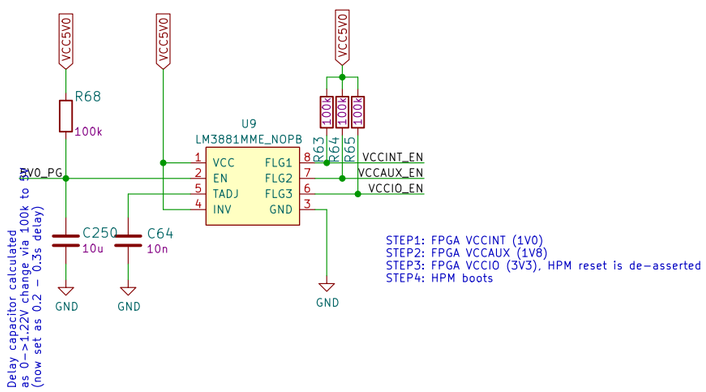
External 12V supply



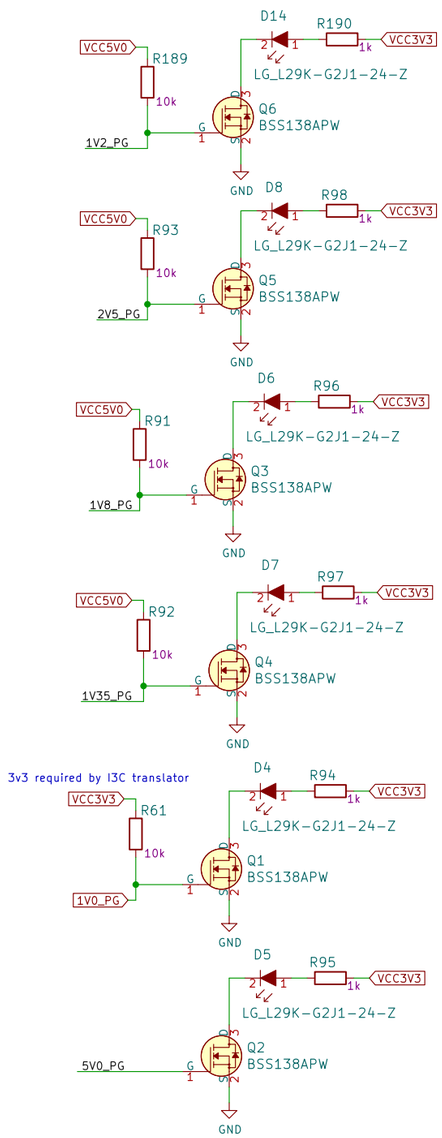
MainSupply (5V 5A)



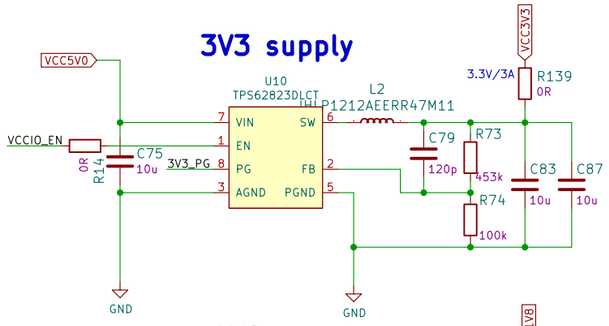
Power sequencer



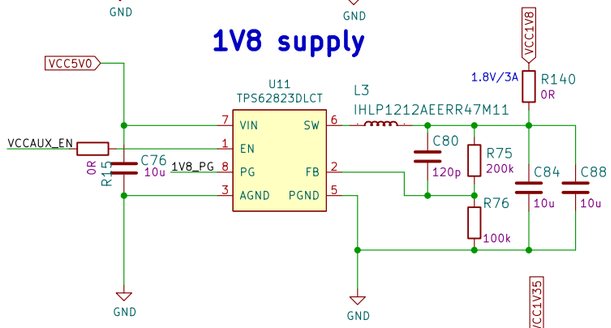
PWR_LED Indicators



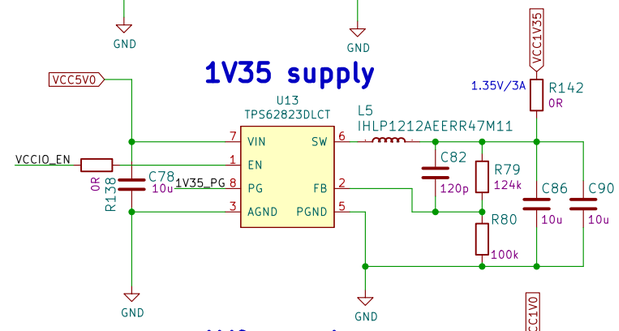
3V3 supply



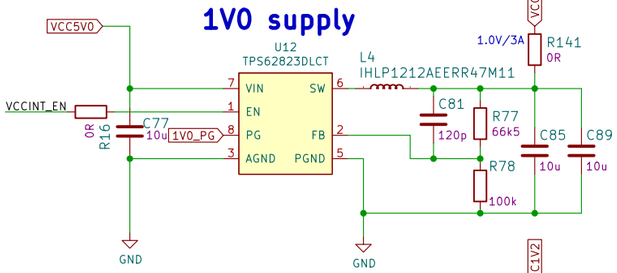
1V8 supply



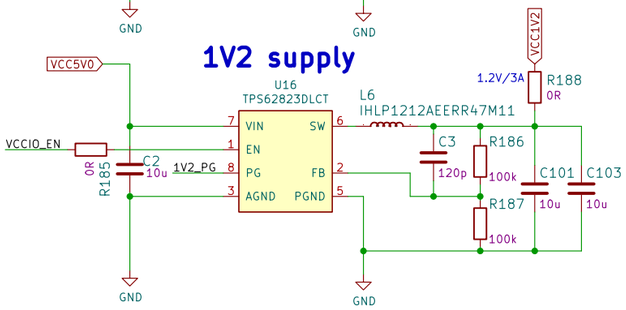
1V35 supply



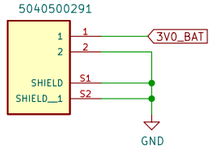
1V0 supply



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. kicad 6.0.5+dfsg-1-bpo11+1	Id: 10/10

Rev: 1.1.0