Cologne Chip GateMate FPGA Module: GMM-7550 for CCGM1A 1/2/4 (BGA320, 15x15 mm)

Revision	Date	Notes
0.5	2020-07-08	Initial release of the schematic
1.0	2020-10-01	Schematic freeze, preliminary placement is done. (I/O and BoM changes back ported from PCB)

Sheet: GPIO
File: io.sch

Sheet: Power Converter
File: power.sch

Sheet: Clock and SERDES
File: clk_serdes.sch

Sheet: FPGA Power
File: fpga_pwr.sch

Sheet: Configuration and Control
File: cfg_spi.sch

Sheet: IO Connectors
File: connectors.sch

FID1 FID2 FID3 FID4 FID5 FID6

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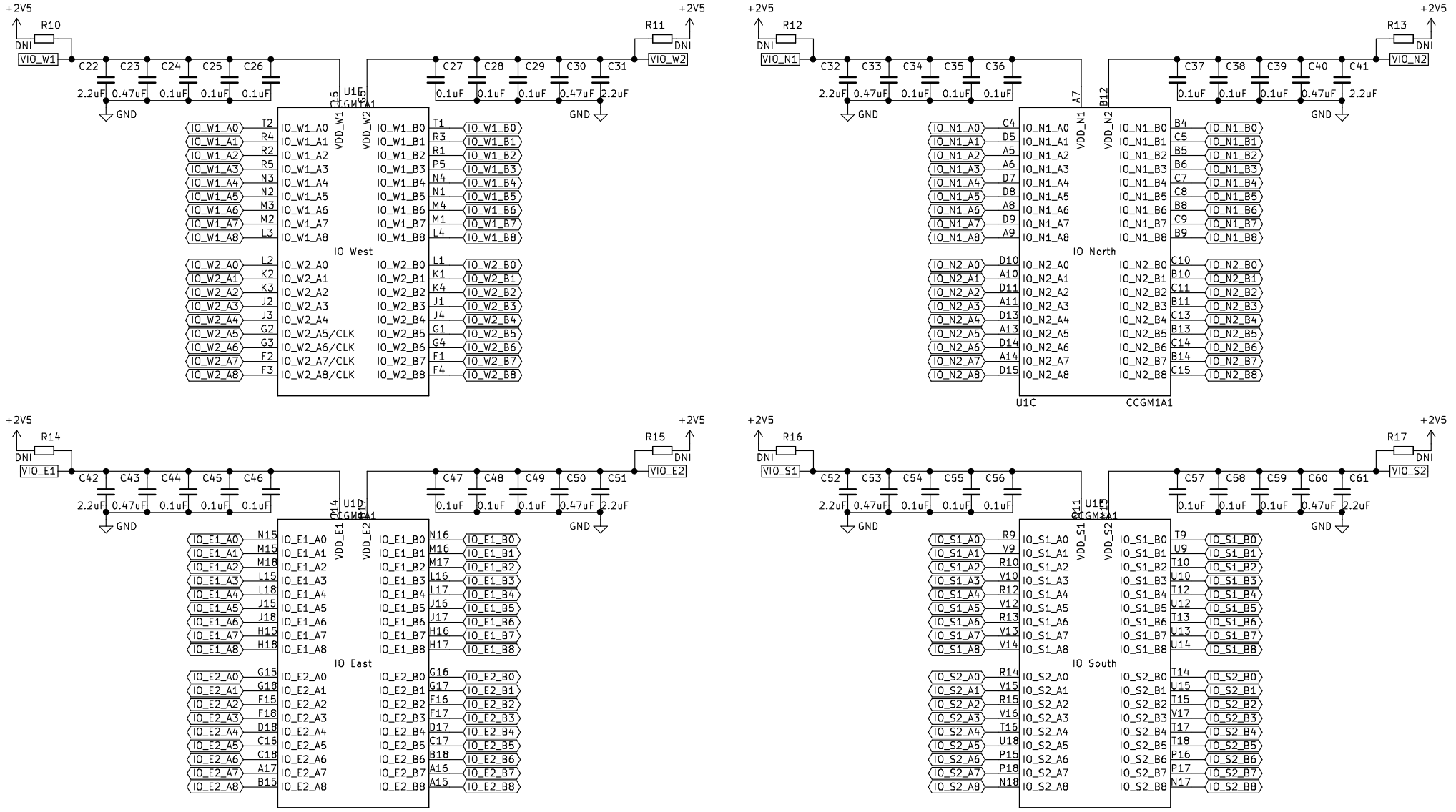
https://github.com/ak-fau/gmm7550.git

Sheet: /
File: gmm.sch

Title: GateMate FPGA Module: GMM-7550

Size: A4	Date: 2020-10-01	**Rev: 1.0**
KiCad E.D.A. kicad 5.1.6		Id: 1/7



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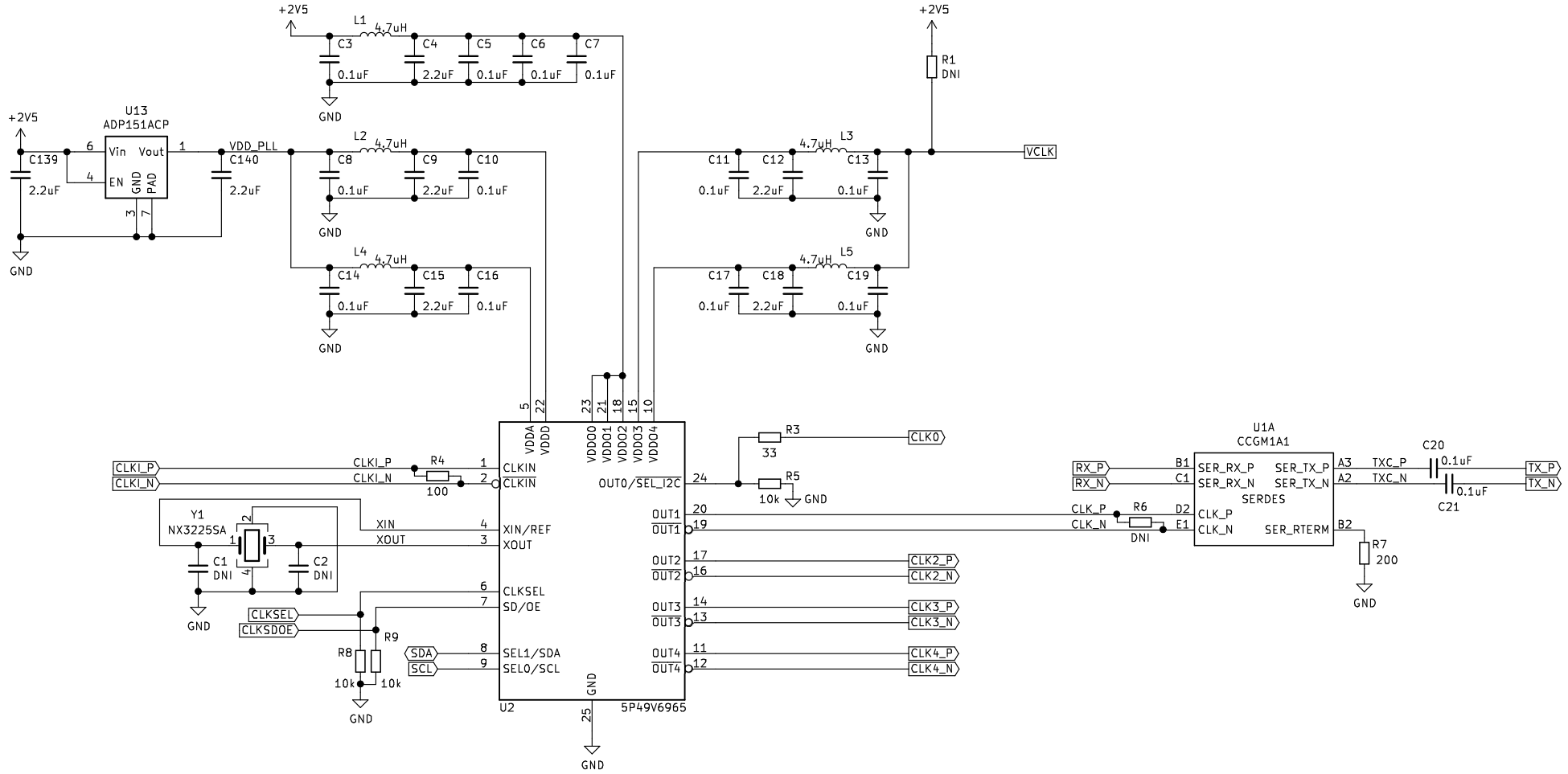
Sheet: /GPIO/
File: io.sch

Title: GateMate FPGA Module: GMM-7550

Size: A4	Date: 2020-10-01	**Rev: 1.0**
KiCad E.D.A. kicad 5.1.6		Id: 2/7



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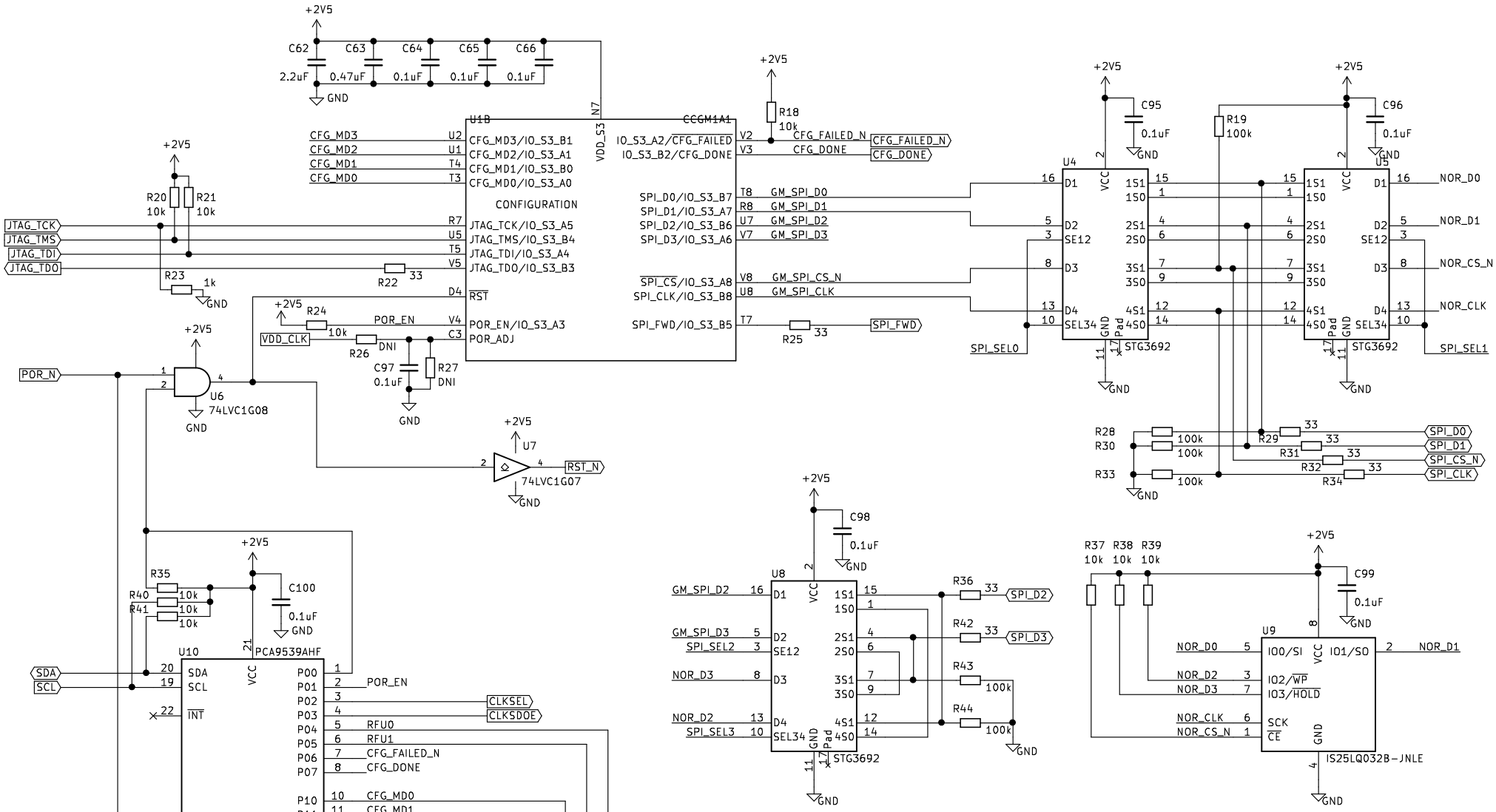
Sheet: /Clock and SERDES/
File: clk_serdes.sch

Title: GateMate FPGA Module: GMM-7550

Size: A4	Date: 2020-10-01	**Rev: 1.0**
KiCad E.D.A. kicad 5.1.6		Id: 3/7



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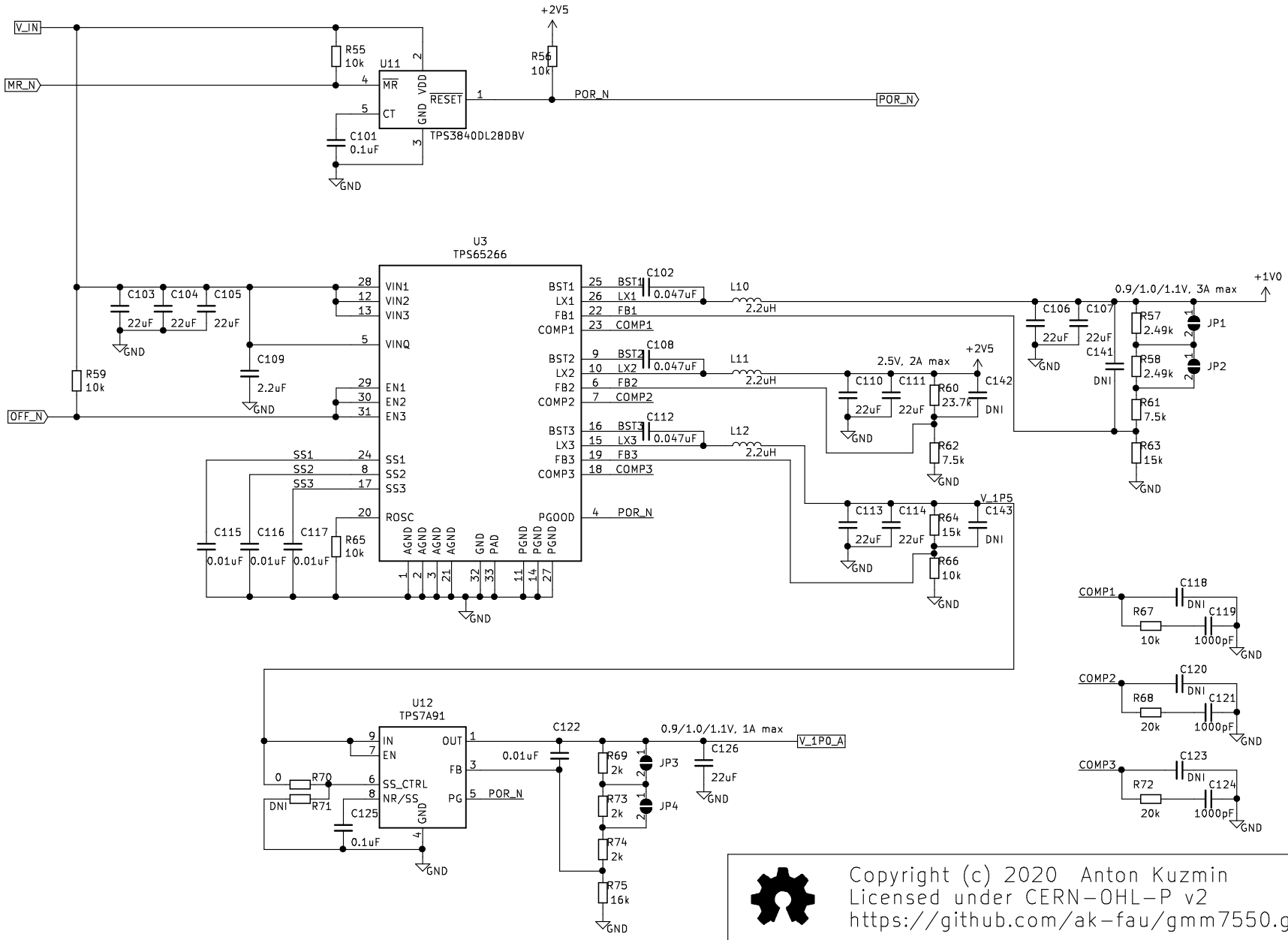
Sheet: /Configuration and Control/
File: cfg_spi.sch

Title: GateMate FPGA Module: GMM-7550

Size: A4	Date: 2020-10-01	**Rev: 1.0**
KiCad E.D.A. kicad 5.1.6		Id: 4/7


V_IN
MR_N
R55
10k
U11
MR
VDD
RESET
CT
GND
TPS3840DL28DBV
C101
0.1uF
+2V5
R56
10k
POR_N
U3
TPS65266
VIN1
VIN2
VIN3
VINQ
EN1
EN2
EN3
SS1
SS2
SS3
ROSC
PGOOD
BST1
LX1
FB1
COMP1
BST2
LX2
FB2
COMP2
BST3
LX3
FB3
COMP3
AGND
PGND
PAD
C103
C104
C105
22uF
C109
2.2uF
R59
10k
OFF_N
C102
0.047uF
L10
2.2uH
C108
L11
C112
L12
C115
C116
C117
0.01uF
R65
10k
0.9/1.0/1.1V, 3A max
+1V0
C106
C107
C141
DNI
R57
2.49k
R58
2.49k
R61
7.5k
R63
15k
JP1
JP2
2.5V, 2A max
C110
C111
R60
23.7k
C142
R62
7.5k
C113
C114
R64
15k
C143
V_1P5
R66
10k
U12
TPS7A91
IN
EN
OUT
FB
SS_CTRL
NR/SS
PG
R70
R71
C125
0.1uF
C122
0.01uF
0.9/1.0/1.1V, 1A max
V_1P0_A
C126
R69
2k
R73
2k
R74
2k
R75
16k
JP3
JP4
COMP1
COMP2
COMP3
C118
C119
C120
C121
C123
C124
R67
R68
R72
10k
20k
1000pF
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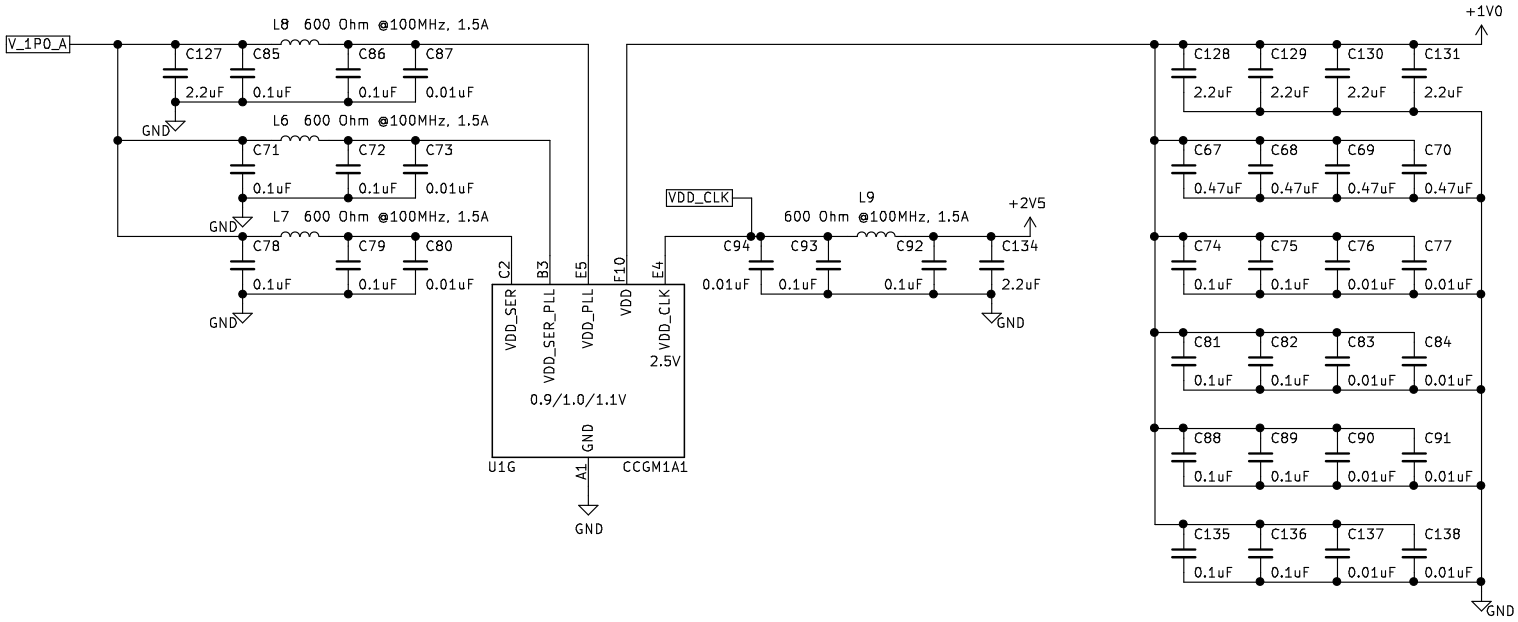
Sheet: /Power Converter/
File: power.sch
Title: GateMate FPGA Module: GMM-7550
Size: A4
Date: 2020-10-01
Rev: 1.0
KiCad E.D.A. kicad 5.1.6
Id: 5/7



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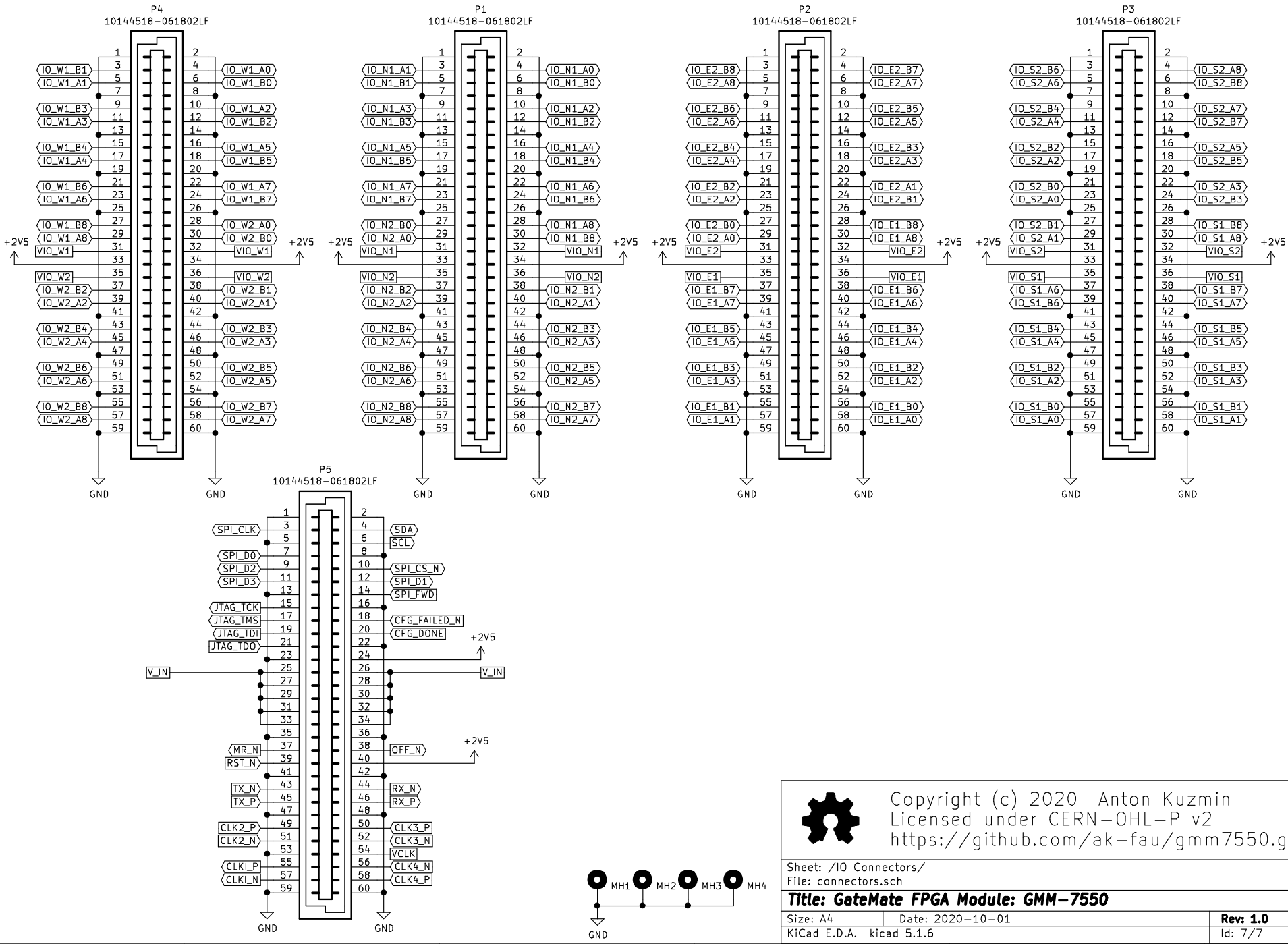
Sheet: /FPGA Power/
File: fpga_pwr.sch

Title: GateMate FPGA Module: GMM-7550

Size: A4	Date: 2020-10-01	**Rev: 1.0**
KiCad E.D.A. kicad 5.1.6		Id: 6/7


P4
10144518-061802LF
IO_W1_B1
IO_W1_A1
IO_W1_B3
IO_W1_A3
IO_W1_B4
IO_W1_A4
IO_W1_B6
IO_W1_A6
IO_W1_B8
IO_W1_A8
VIO_W1
VIO_W2
IO_W2_B2
IO_W2_A2
IO_W2_B4
IO_W2_A4
IO_W2_B6
IO_W2_A6
IO_W2_B8
IO_W2_A8
IO_W1_A0
IO_W1_B0
IO_W1_A2
IO_W1_B2
IO_W1_A5
IO_W1_B5
IO_W1_A7
IO_W1_B7
IO_W2_A0
IO_W2_B0
IO_W2_B1
IO_W2_A1
IO_W2_B3
IO_W2_A3
IO_W2_B5
IO_W2_A5
IO_W2_B7
IO_W2_A7
+2V5
GND
P1
10144518-061802LF
IO_N1_A1
IO_N1_B1
IO_N1_A3
IO_N1_B3
IO_N1_A5
IO_N1_B5
IO_N1_A7
IO_N1_B7
IO_N2_B0
IO_N2_A0
VIO_N1
VIO_N2
IO_N2_B2
IO_N2_A2
IO_N2_B4
IO_N2_A4
IO_N2_B6
IO_N2_A6
IO_N2_B8
IO_N2_A8
IO_N1_A0
IO_N1_B0
IO_N1_A2
IO_N1_B2
IO_N1_A4
IO_N1_B4
IO_N1_A6
IO_N1_B6
IO_N1_A8
IO_N1_B8
IO_N2_A1
IO_N2_B1
IO_N2_A3
IO_N2_B3
IO_N2_A5
IO_N2_B5
IO_N2_A7
IO_N2_B7
P2
10144518-061802LF
IO_E2_B8
IO_E2_A8
IO_E2_B6
IO_E2_A6
IO_E2_B4
IO_E2_A4
IO_E2_B2
IO_E2_A2
IO_E2_B0
IO_E2_A0
VIO_E2
VIO_E1
IO_E1_B7
IO_E1_A7
IO_E1_B5
IO_E1_A5
IO_E1_B3
IO_E1_A3
IO_E1_B1
IO_E1_A1
IO_E2_B7
IO_E2_A7
IO_E2_B5
IO_E2_A5
IO_E2_B3
IO_E2_A3
IO_E2_A1
IO_E2_B1
IO_E1_B8
IO_E1_A8
IO_E1_B6
IO_E1_A6
IO_E1_B4
IO_E1_A4
IO_E1_B2
IO_E1_A2
IO_E1_B0
IO_E1_A0
P3
10144518-061802LF
IO_S2_B6
IO_S2_A6
IO_S2_B4
IO_S2_A4
IO_S2_B2
IO_S2_A2
IO_S2_B0
IO_S2_A0
IO_S2_B1
IO_S2_A1
VIO_S2
VIO_S1
IO_S1_A6
IO_S1_B6
IO_S1_B4
IO_S1_A4
IO_S1_B2
IO_S1_A2
IO_S1_B0
IO_S1_A0
IO_S2_A8
IO_S2_B8
IO_S2_A7
IO_S2_B7
IO_S2_A5
IO_S2_B5
IO_S2_A3
IO_S2_B3
IO_S1_B8
IO_S1_A8
IO_S1_B7
IO_S1_A7
IO_S1_B5
IO_S1_A5
IO_S1_B3
IO_S1_A3
IO_S1_B1
IO_S1_A1
P5
10144518-061802LF
SPI_CLK
SPI_D0
SPI_D2
SPI_D3
JTAG_TCK
JTAG_TMS
JTAG_TDI
JTAG_TDO
V_IN
MR_N
RST_N
TX_N
TX_P
CLK2_P
CLK2_N
CLKI_P
CLKI_N
SDA
SCL
SPI_CS_N
SPI_D1
SPI_FWD
CFG_FAILED_N
CFG_DONE
OFF_N
RX_N
RX_P
CLK3_P
CLK3_N
VCLK
CLK4_N
CLK4_P
MH1
MH2
MH3
MH4
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File: connectors.sch
Title: GateMate FPGA Module: GMM-7550
Size: A4
Date: 2020-10-01
Rev: 1.0
KiCad E.D.A. kicad 5.1.6
Id: 7/7