Sheet: Power

File: power.sch

Sheet: FPGA Core Power

File: fpga_pwr.sch

Sheet: Debug Interface

File: debug.sch

Sheet: DDR3

File: ddr3.sch

Sheet: PCIe + SATA

File: serdes.sch

Sheet: FPGA IO

File: fpga_io.sch

Sheet: HDMI, GbE, USB

File: ports.sch

Sheet: Misc IO

File: miscio.sch

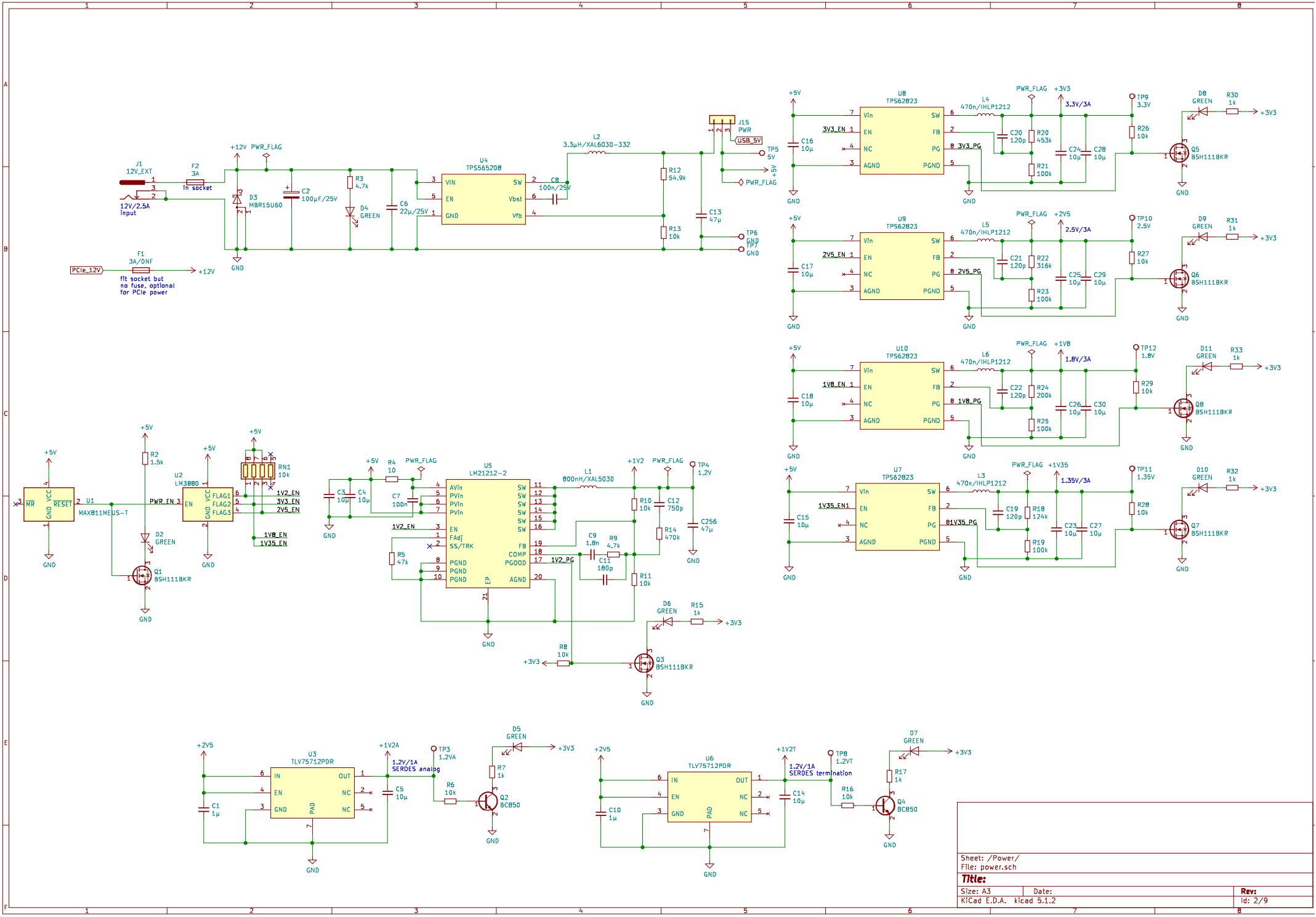
J16
MOUNT
MountingHole:MountingHole_3.2mm_M3_Pad
J17
MOUNT
MountingHole:MountingHole_3.2mm_M3_Pad

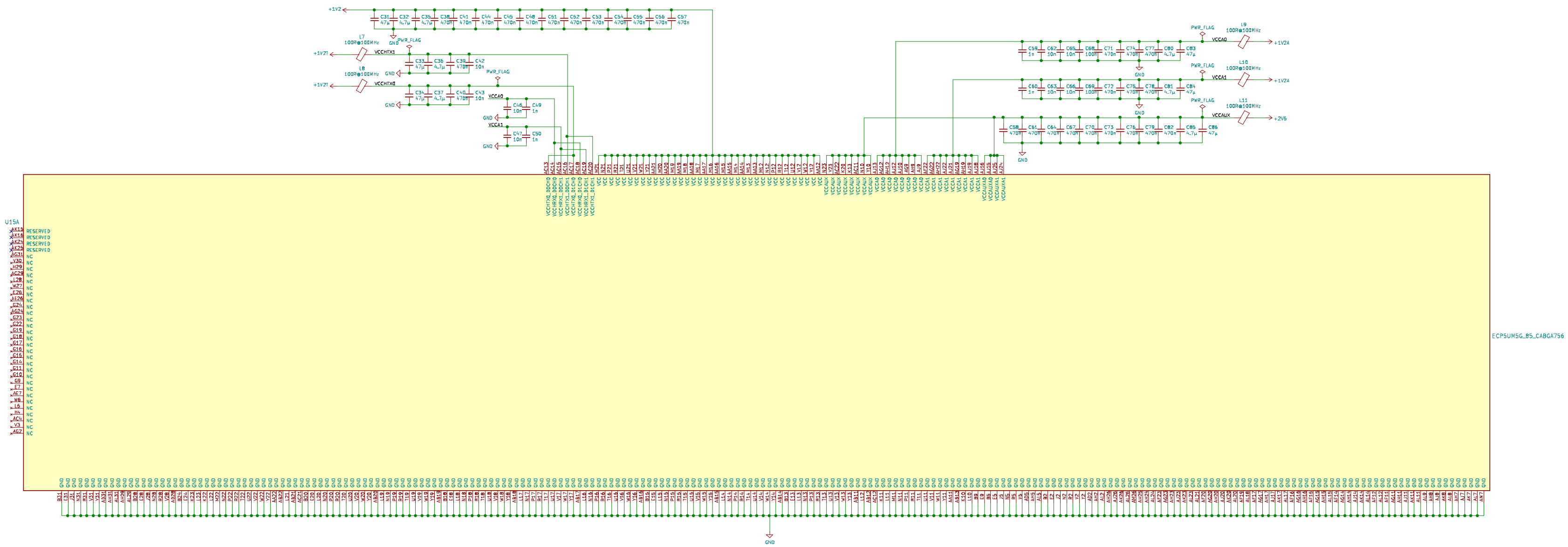
David Shah

Sheet: /
File: ecp5_mainboard.sch

Title: TrellisBoard

Size: A4	Date: 2018-11-20	**Rev: 1.0**
KiCad E.D.A. kicad 5.1.2		Id: 1/9

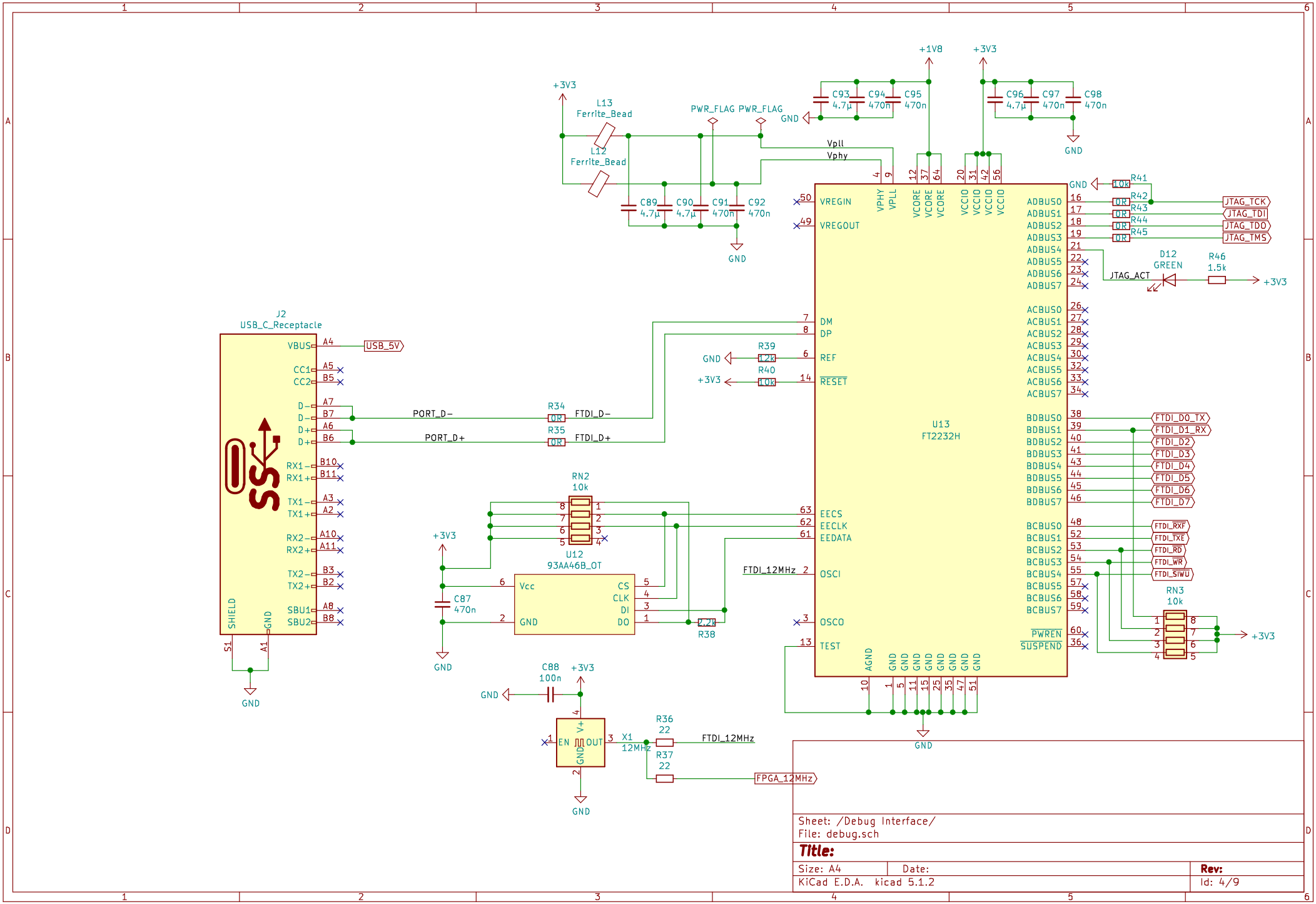

J1
12V_EXT
12V/2.5A
input
F2
3A
In socket
+12V
PWR_FLAG
D3
MBR15U60
C2
100µF/25V
R3
4.7k
D4
GREEN
C6
22µ/25V
U4
TPS565208
VIN
SW
EN
Vbst
GND
Vfb
C8
100n/25V
L2
3.3µH/XAL6030-332
R12
54.9k
R13
10k
C13
47µ
J15
PWR
USB_5V
TP5
5V
PWR_FLAG
TP6
GND
TP7
GND
F1
3A/DNF
PCIe_12V
+12V
fit socket but
no fuse, optional
for PCIe power
GND
U8
TPS62823
Vin
SW
EN
FB
NC
PG
AGND
PGND
3V3_EN
3V3_PG
C16
10µ
L4
470n/IHLP1212
C20
120p
R20
453k
R21
100k
C24
10µ
C28
10µ
3.3V/3A
TP9
3.3V
R26
10k
D8
GREEN
R30
1k
Q5
BSH111BKR
U9
TPS62823
2V5_EN
2V5_PG
C17
10µ
L5
470n/IHLP1212
C21
120p
R22
316k
R23
100k
C25
10µ
C29
10µ
2.5V/3A
TP10
2.5V
R27
10k
D9
GREEN
R31
1k
Q6
BSH111BKR
U10
TPS62823
1V8_EN
1V8_PG
C18
10µ
L6
470n/IHLP1212
C22
120p
R24
200k
R25
100k
C26
10µ
C30
10µ
1.8V/3A
TP12
1.8V
R29
10k
D11
GREEN
R33
1k
Q8
BSH111BKR
U7
TPS62823
1V35_EN1
1V35_PG
C15
10µ
L3
470n/IHLP1212
C19
120p
R18
124k
R19
100k
C23
10µ
C27
10µ
1.35V/3A
TP11
1.35V
R28
10k
D10
GREEN
R32
1k
Q7
BSH111BKR
U2
LM3880
FLAG1
FLAG2
FLAG3
1V2_EN
3V3_EN
2V5_EN
1V8_EN
1V35_EN
RN1
10k
U1
MAX811MEUS-T
MR
RESET
PWR_EN_3
D2
GREEN
Q1
BSH111BKR
U5
LM21212-2
AVin
PVin
EN
FAdj
SS/TRK
PGND
AGND
SW
FB
COMP
PGOOD
EP
R4
10
C3
10µ
C4
10µ
C7
100n
R5
47k
L1
800nH/XAL5030
C9
1.8n
R9
4.7k
C11
180p
R10
10k
R11
10k
C12
750p
R14
470k
C256
47µ
TP4
1.2V
1V2_PG
D6
GREEN
R15
1k
R8
10k
Q3
BSH111BKR
U3
TLV75712PDR
IN
OUT
EN
NC
GND
PAD
C1
1µ
C5
10µ
1.2V/1A
SERDES analog
TP3
1.2VA
R6
10k
D5
GREEN
R7
1k
Q2
BC850
U6
TLV75712PDR
C10
1µ
C14
10µ
1.2V/1A
SERDES termination
TP8
1.2VT
R16
10k
D7
GREEN
R17
1k
Q4
BC850
Sheet: /Power/
File: power.sch
Title:
Size: A3
Date:
Rev:
KiCad E.D.A. kicad 5.1.2
Id: 2/9

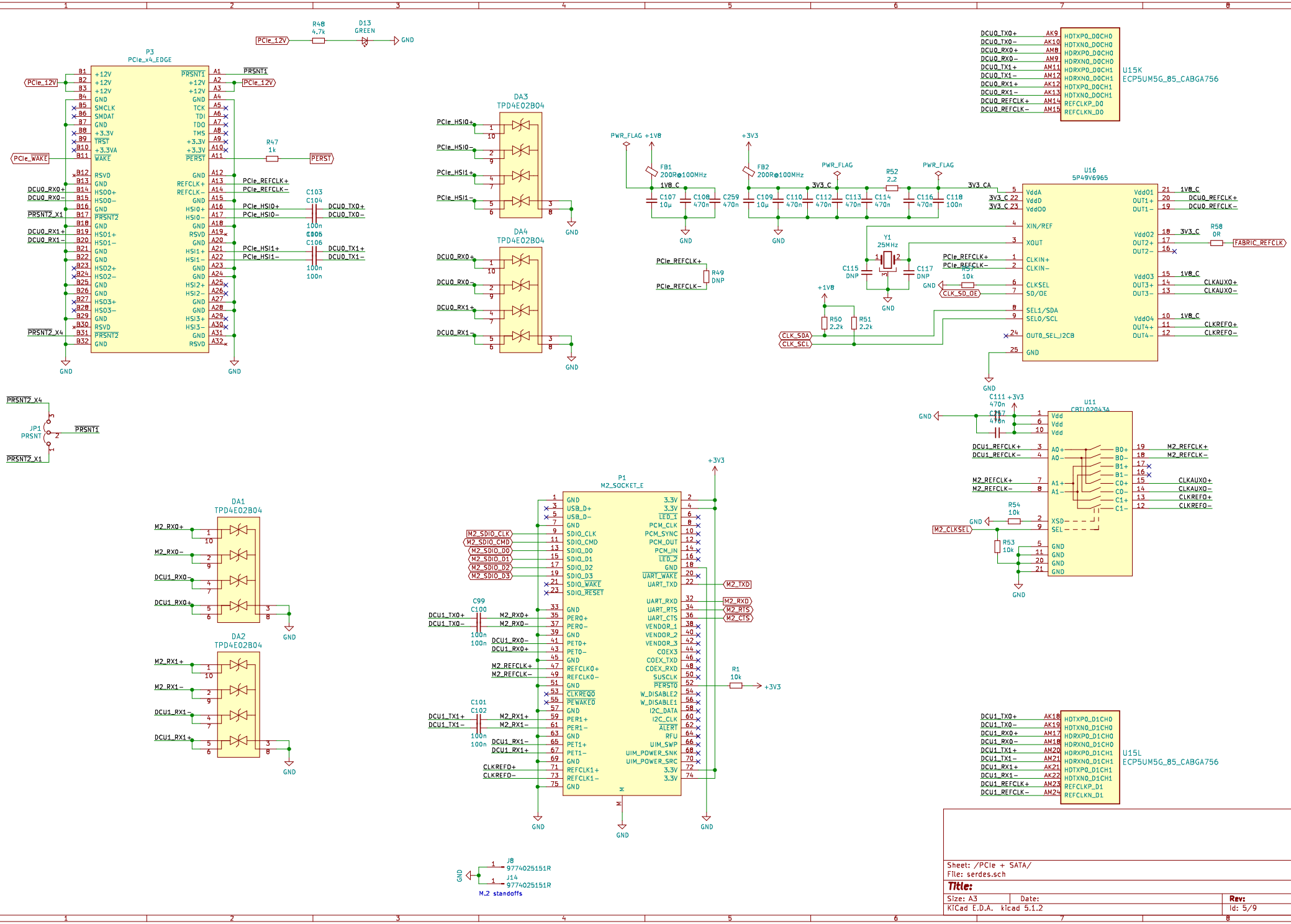


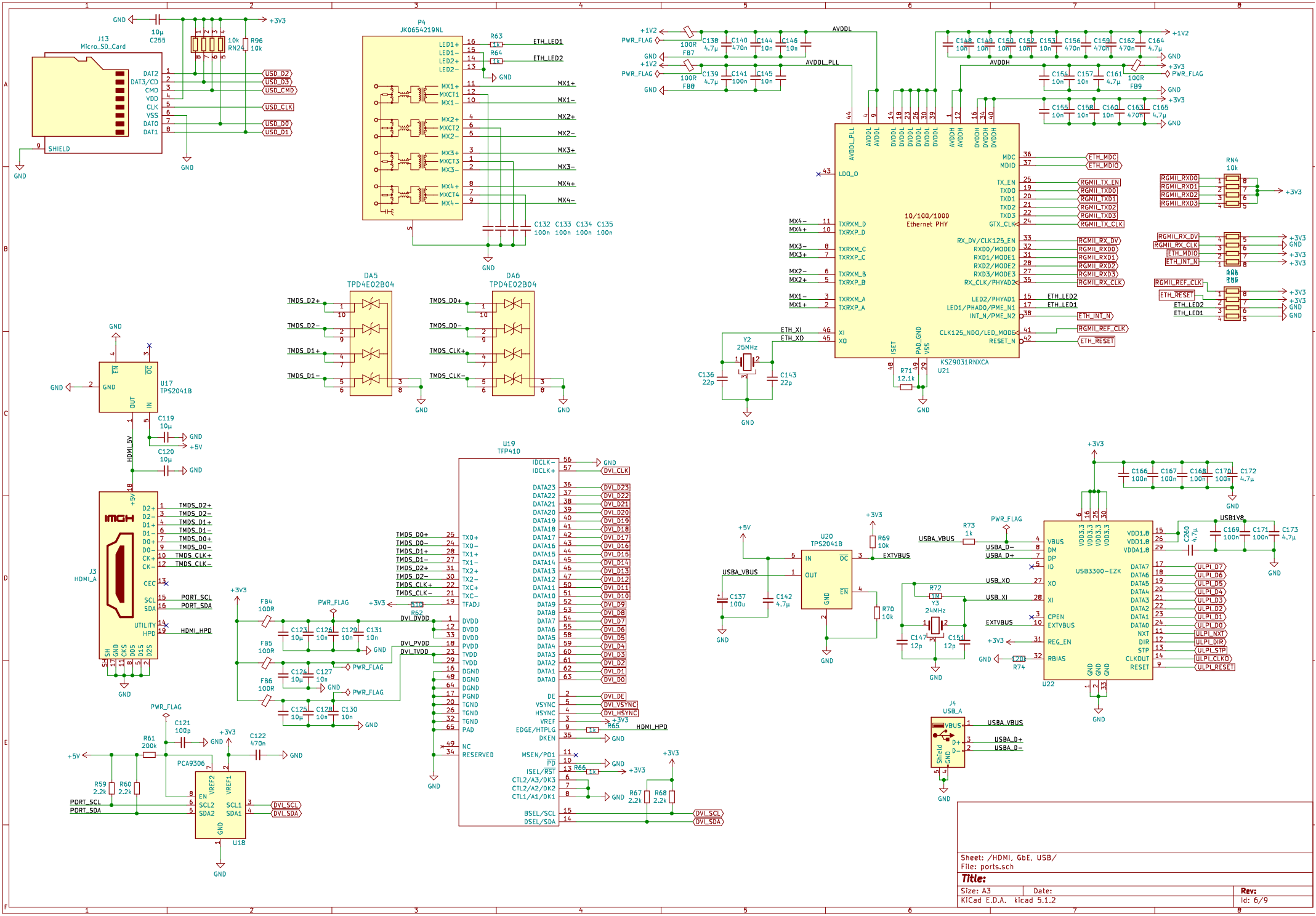
Sheet: /FPGA Core Power/
File: fpga_pwr.sch

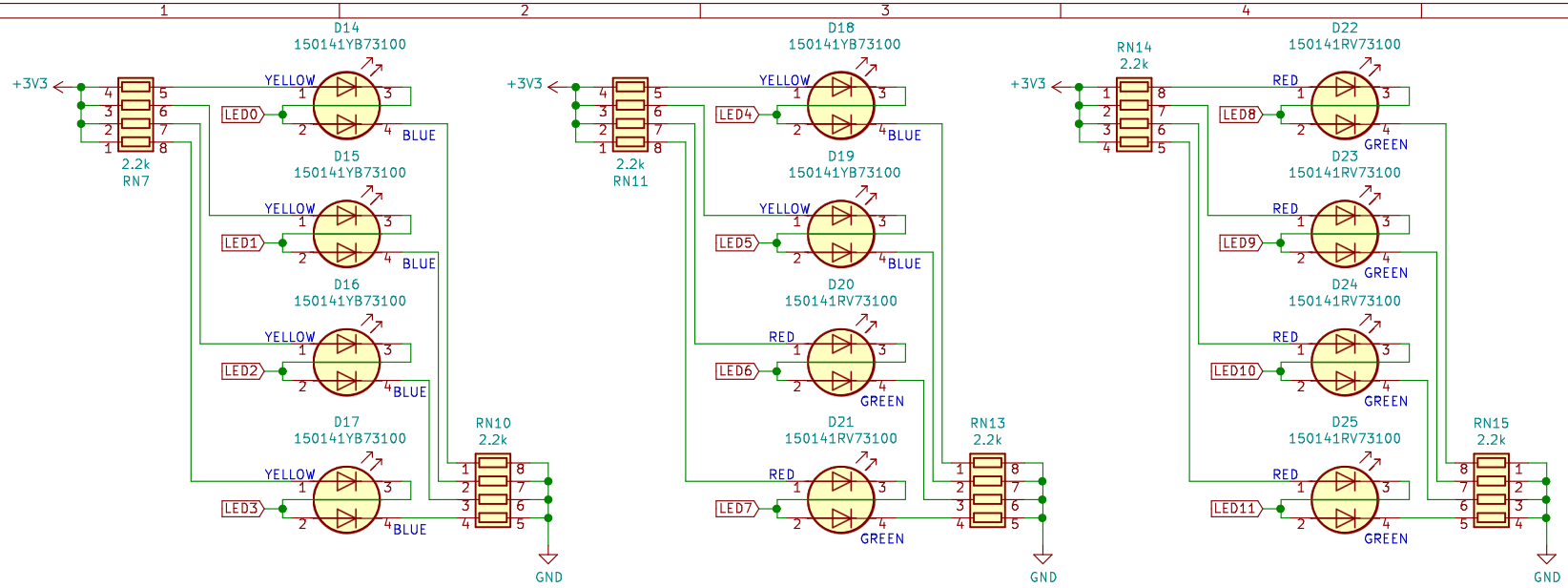
Title:

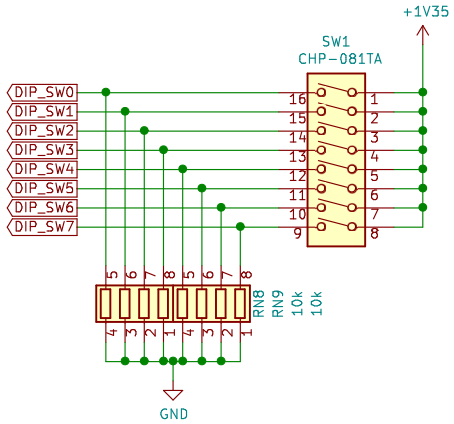
Size: A1	Date:	Rev:
KiCad E.D.A. kicad 5.1.2		Id: 3/9

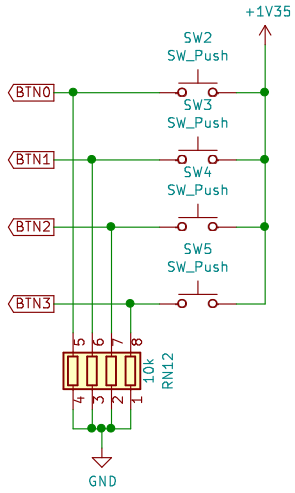

+3V3
L13
Ferrite_Bead
L12
Ferrite_Bead
PWR_FLAG PWR_FLAG
GND
C89 4.7µ
C90 4.7µ
C91 470n
C92 470n
C93 4.7µ
C94 470n
C95 470n
+1V8
Vpll
Vphy
C96 4.7µ
C97 470n
C98 470n
+3V3
GND
J2
USB_C_Receptacle
VBUS
USB_5V
CC1
CC2
D−
D−
D+
D+
PORT_D−
PORT_D+
R34 0R
R35 0R
FTDI_D−
FTDI_D+
SHIELD
GND
S1
A1
U13
FT2232H
VREGIN
VREGOUT
DM
DP
REF
RESET
R39 12k
R40 10k
R41 10R
R42 0R
R43 0R
R44 0R
R45 0R
JTAG_TCK
JTAG_TDI
JTAG_TDO
JTAG_TMS
JTAG_ACT
D12
GREEN
R46 1.5k
ADBUS0
ADBUS1
ADBUS2
ADBUS3
ADBUS4
ADBUS5
ADBUS6
ADBUS7
ACBUS0
ACBUS1
ACBUS2
ACBUS3
ACBUS4
ACBUS5
ACBUS6
ACBUS7
BDBUS0
BDBUS1
BDBUS2
BDBUS3
BDBUS4
BDBUS5
BDBUS6
BDBUS7
FTDI_D0_TX
FTDI_D1_RX
FTDI_D2
FTDI_D3
FTDI_D4
FTDI_D5
FTDI_D6
FTDI_D7
BCBUS0
BCBUS1
BCBUS2
BCBUS3
BCBUS4
BCBUS5
BCBUS6
BCBUS7
FTDI_RXF
FTDI_TXE
FTDI_RD
FTDI_WR
FTDI_SIWU
PWREN
SUSPEND
EECS
EECLK
EEDATA
OSCI
OSCO
TEST
AGND
RN2
10k
RN3
10k
U12
93AA46B_OT
Vcc
GND
CS
CLK
DI
DO
C87 470n
R38 2.2k
FTDI_12MHz
C88 100n
X1
12MHz
R36 22
R37 22
FPGA_12MHz
Sheet: /Debug Interface/
File: debug.sch
Title:
Size: A4
Date:
Rev:
KiCad E.D.A. kicad 5.1.2
Id: 4/9


R48
4.7k
D13
GREEN
PCIe_12V
GND
P3
PCIe_x4_EDGE
PRSNT1
PCIe_WAKE
PERST
R47
1k
PCIe_REFCLK+
PCIe_REFCLK−
C103
C104
C105
C106
100n
DCU0_TX0+
DCU0_TX0−
DCU0_TX1+
DCU0_TX1−
PRSNT2_X1
PRSNT2_X4
DCU0_RX0+
DCU0_RX0−
DCU0_RX1+
DCU0_RX1−
PCIe_HSI0+
PCIe_HSI0−
PCIe_HSI1+
PCIe_HSI1−
DA3
TPD4E02B04
DA4
TPD4E02B04
PWR_FLAG
+1V8
+3V3
FB1
FB2
200R@100MHz
1V8_C
3V3_C
3V3_CA
C107
C108
C259
C109
C110
C112
C113
C114
C116
C118
10µ
470n
100n
R52
2.2
U16
5P49V6965
VddA
VddD
VddO0
XIN/REF
XOUT
CLKIN+
CLKIN−
CLKSEL
SD/OE
SEL1/SDA
SEL0/SCL
OUT0_SEL_I2C
Vdd01
OUT1+
OUT1−
Vdd02
OUT2+
OUT2−
Vdd03
OUT3+
OUT3−
Vdd04
OUT4+
OUT4−
Y1
25MHz
C115
C117
DNP
R57
10k
CLK_SD_OE
R58
0R
FABRIC_REFCLK
R50
2.2k
R51
2.2k
CLK_SDA
CLK_SCL
1V8_C
3V3_C
CLKAUXO+
CLKAUXO−
CLKREFO+
CLKREFO−
U15K
ECP5UM5G_85_CABGA756
DCU0_TX0+
DCU0_TX0−
DCU0_RX0+
DCU0_RX0−
DCU0_TX1+
DCU0_TX1−
DCU0_RX1+
DCU0_RX1−
DCU0_REFCLK+
DCU0_REFCLK−
HDTXP0_D0CH0
HDTXN0_D0CH0
HDRXP0_D0CH0
HDRXN0_D0CH0
HDRXP0_D0CH1
HDRXN0_D0CH1
HDTXP0_D0CH1
HDTXN0_D0CH1
REFCLKP_D0
REFCLKN_D0
JP1
PRSNT
U11
CBTL02043A
C111
C117
DCU1_REFCLK+
DCU1_REFCLK−
M2_REFCLK+
M2_REFCLK−
R54
10k
R53
10k
M2_CLKSEL
CLKAUXO+
CLKAUXO−
CLKREFO+
CLKREFO−
DA1
TPD4E02B04
DA2
TPD4E02B04
M2_RX0+
M2_RX0−
DCU1_RX0−
DCU1_RX0+
M2_RX1+
M2_RX1−
DCU1_RX1−
DCU1_RX1+
P1
M2_SOCKET_E
M2_SDIO_CLK
M2_SDIO_CMD
M2_SDIO_D0
M2_SDIO_D1
M2_SDIO_D2
M2_SDIO_D3
M2_TXD
M2_RXD
M2_RTS
M2_CTS
C99
C100
C101
C102
DCU1_TX0+
DCU1_TX0−
DCU1_TX1+
DCU1_TX1−
CLKREQ0
PEWAKE0
CLKREFO+
CLKREFO−
R1
10k
U15L
ECP5UM5G_85_CABGA756
DCU1_TX0+
DCU1_TX0−
DCU1_RX0+
DCU1_RX0−
DCU1_TX1+
DCU1_TX1−
DCU1_RX1+
DCU1_RX1−
DCU1_REFCLK+
DCU1_REFCLK−
HDTXP0_D1CH0
HDTXN0_D1CH0
HDRXP0_D1CH0
HDRXN0_D1CH0
HDRXP0_D1CH1
HDRXN0_D1CH1
HDTXP0_D1CH1
HDTXN0_D1CH1
REFCLKP_D1
REFCLKN_D1
J8
9774025151R
J14
9774025151R
M.2 standoffs
Sheet: /PCIe + SATA/
File: serdes.sch
Title:
Size: A3
Date:
Rev:
KiCad E.D.A. kicad 5.1.2
Id: 5/9

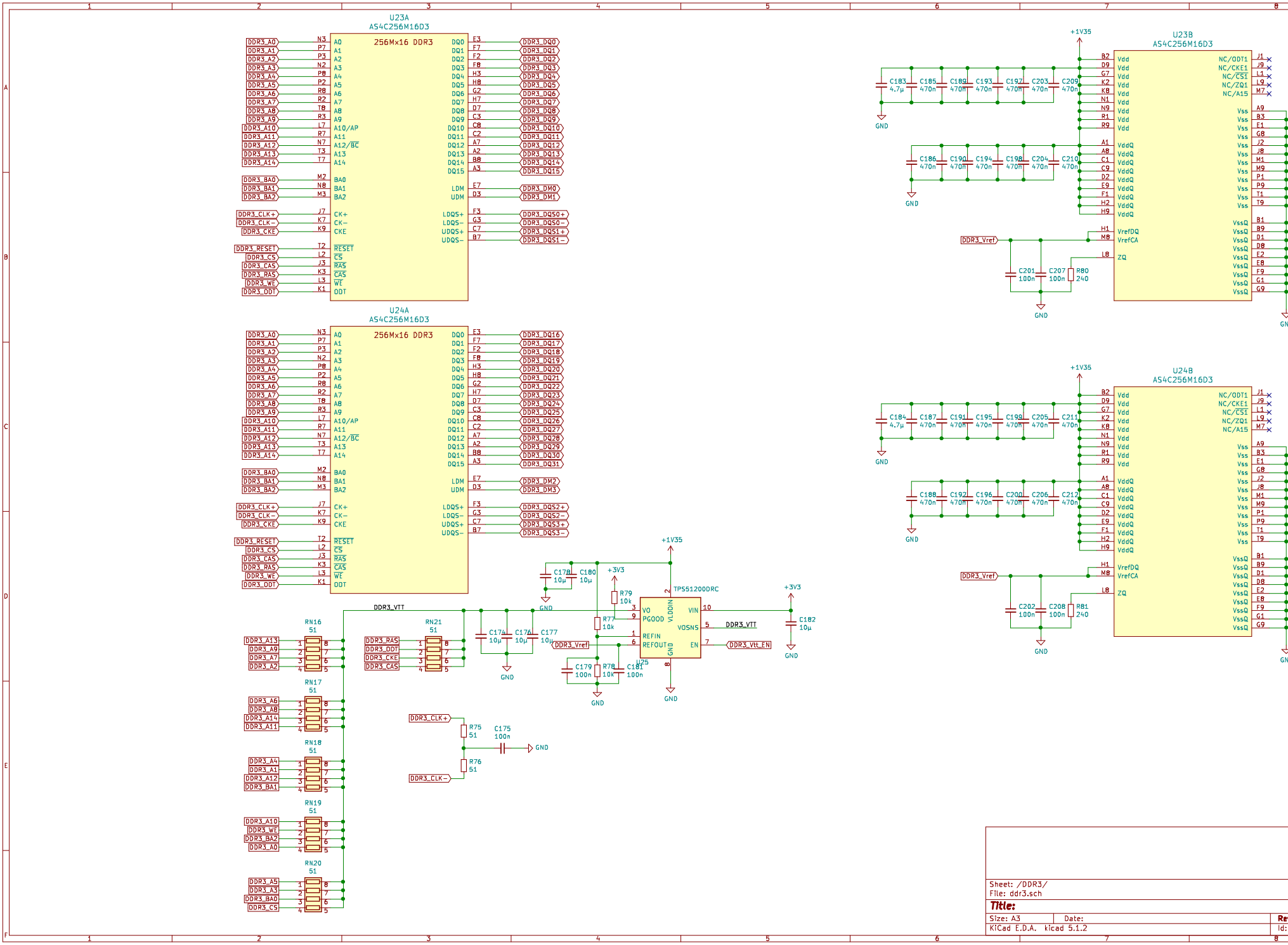

J13
Micro_SD_Card
SHIELD
P4
JK0654219NL
DA5
TPD4E02B04
DA6
TPD4E02B04
U17
TPS2041B
J3
HDMI_A
U19
TFP410
U18
PCA9306
U21
KSZ9031RNXCA
10/100/1000
Ethernet PHY
Y2
25MHz
U20
TPS2041B
U22
USB3300-EZK
Y3
24MHz
J4
USB_A
Sheet: /HDMI, GbE, USB/
File: ports.sch
Title:
Size: A3
Date:
Rev:
KiCad E.D.A. kicad 5.1.2
Id: 6/9

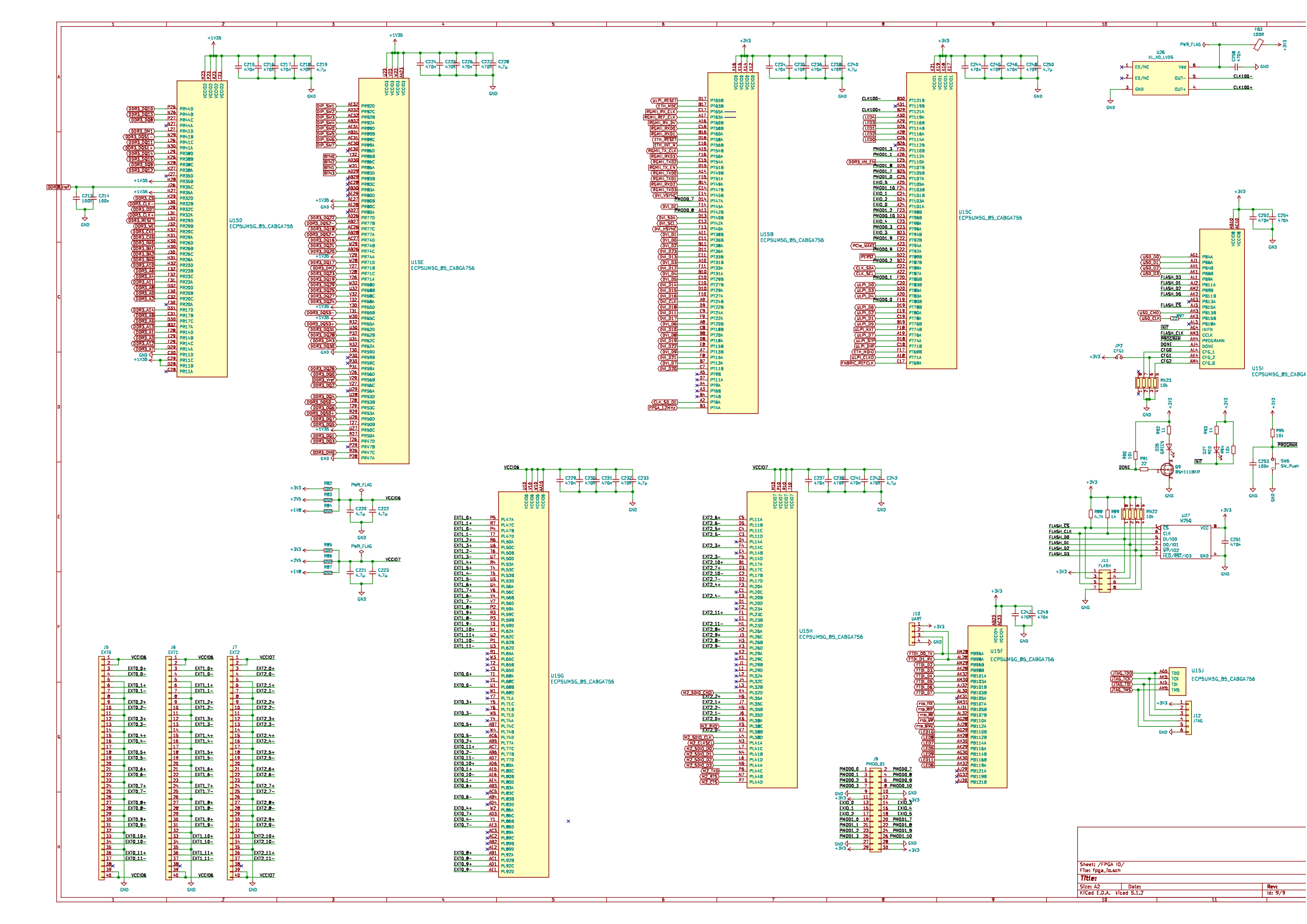






Sheet: /Misc IO/		
File: miscio.sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 5.1.2		Id: 7/9


U23A
AS4C256M16D3
256Mx16 DDR3
U24A
AS4C256M16D3
256Mx16 DDR3
U23B
AS4C256M16D3
U24B
AS4C256M16D3
+1V35
+3V3
GND
DDR3_VTT
DDR3_Vref
DDR3_Vtt_EN
TPS51200DRC
RN16
RN17
RN18
RN19
RN20
RN21
Sheet: /DDR3/
File: ddr3.sch
Title:
Size: A3
Date:
Rev:
KiCad E.D.A. kicad 5.1.2
Id: 8/9


U15D
ECP5UM5G_85_CABGA756
U15E
ECP5UM5G_85_CABGA756
U15B
ECP5UM5G_85_CABGA756
U15C
ECP5UM5G_85_CABGA756
U15I
ECP5UM5G_85_CABGA
U15G
ECP5UM5G_85_CABGA756
U15H
ECP5UM5G_85_CABGA756
U15F
ECP5UM5G_85_CABGA756
U15J
ECP5UM5G_85_CABGA756
U26
XL_XO_LVDS
U27
W25Q
J5
EXT0
J6
EXT1
J7
EXT2
J9
PMOD_01
J10
UART
J11
FLASH
J12
JTAG
JP2
CFG1
SW6
SW_Push
D25
GREEN
D27
RED
Q9
BSH111BKR
PWR_FLAG
Sheet: /FPGA IO/
Files: fpga_1a.sch
Titles
Sizes A2
Dates
Revs
KiCad E.D.A. kicad 5.1.2
Id: 9/9