

**Buttons, Switches,
LEDs**
SHEET 2

DDR III
SHEET 3

FMC CONN
SHEET 4, 5

ARRIA 10 I/O
SHEETS 6-16

FPGA Configuration
SHEETS 17

ARRIA High Speed Bank
SHEETS 18-21

ARRIA 10 POWER
SHEETS 22-24

ARRIA 10 GROUND
SHEETS 25

USB
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POWER SEQUENCER
SHEET 28

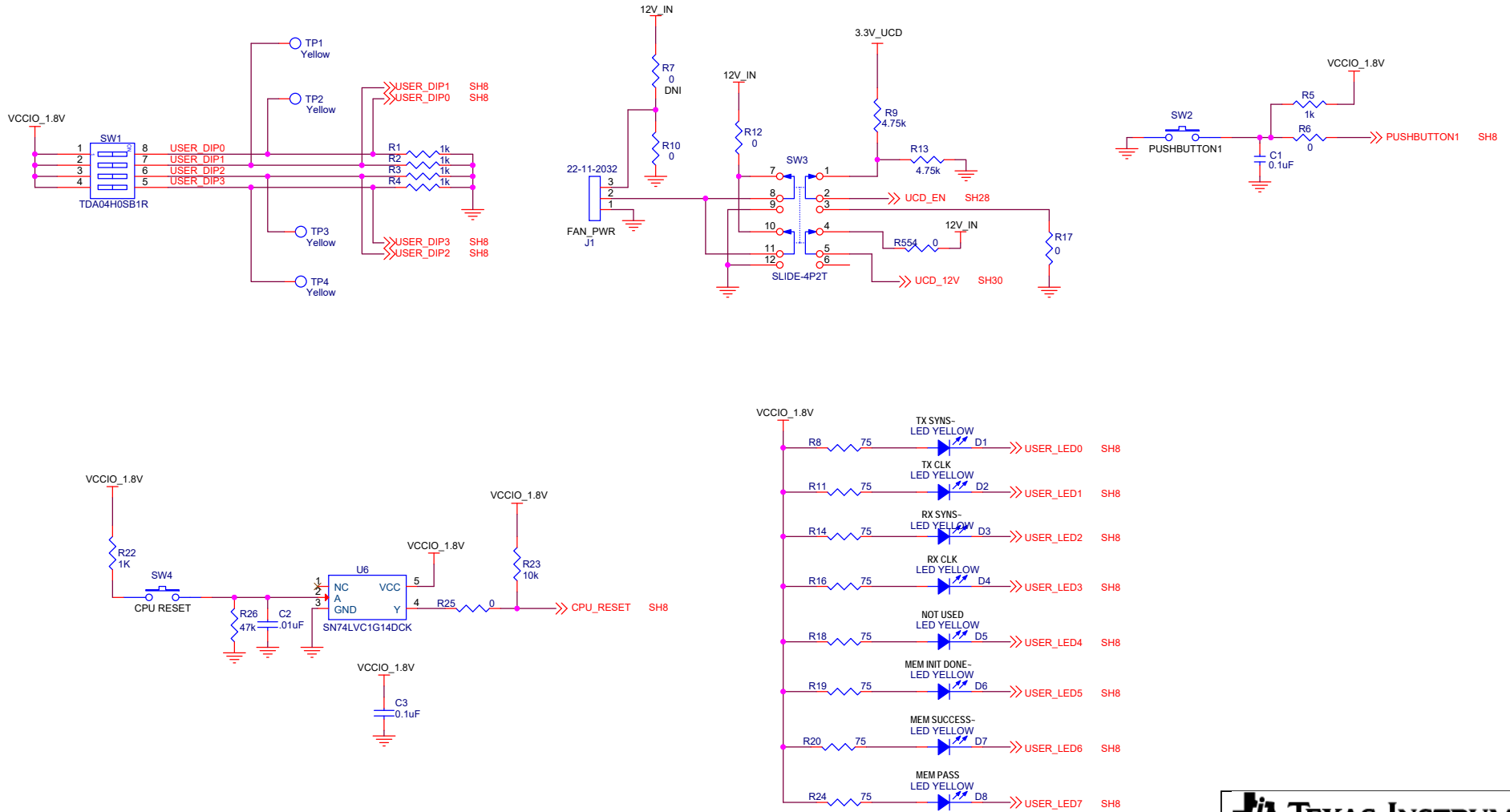
POWER SUPPLIES
SHEET 29-32

NOTE: DNI = DO NOT INSTALL COMPONENT.

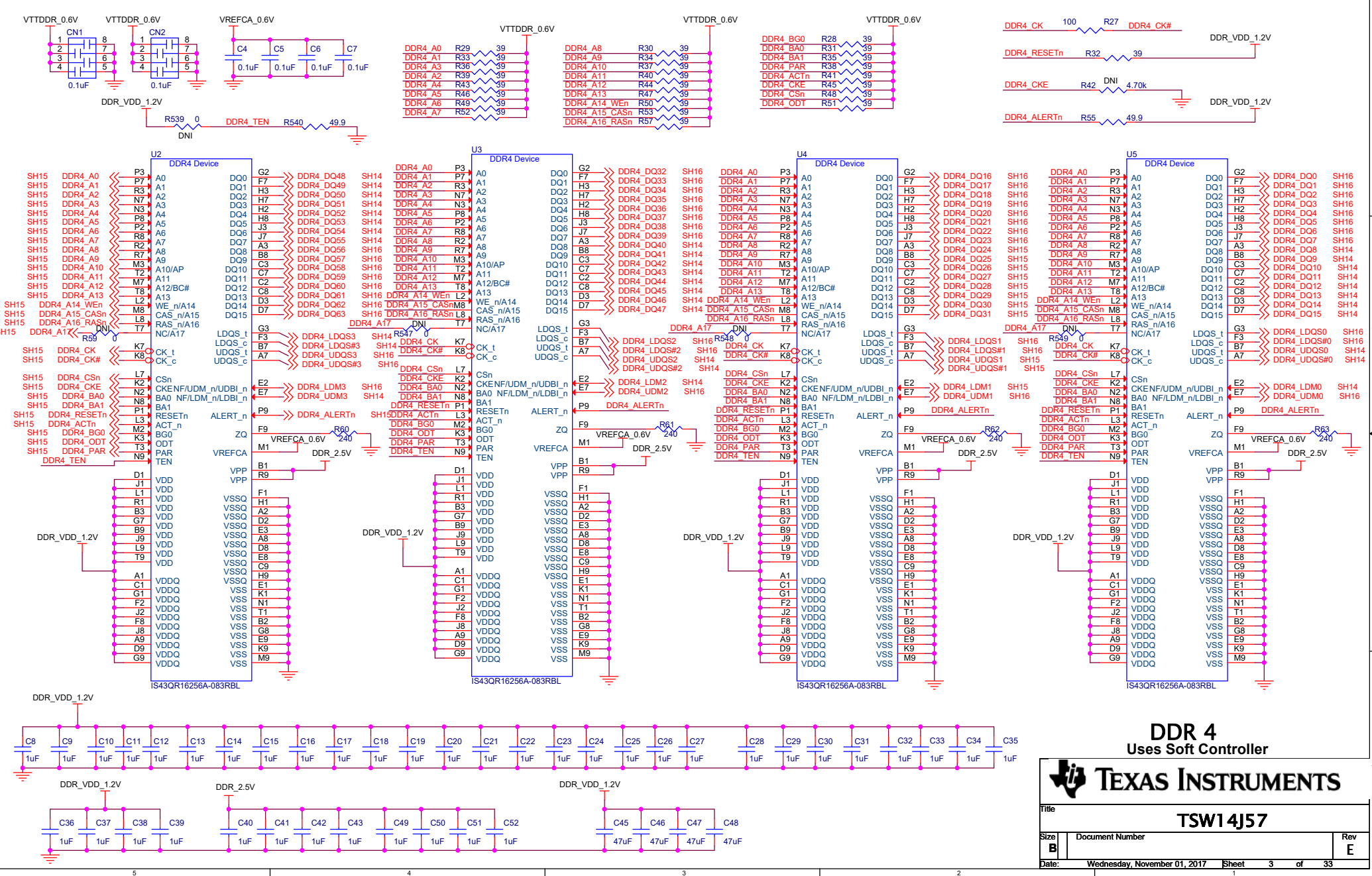


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Engineer: J. SETON / E. DWOBENG	Date: Wednesday, November 01, 2017	Sheet 1 of 33
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Buttons, Switches, LEDs



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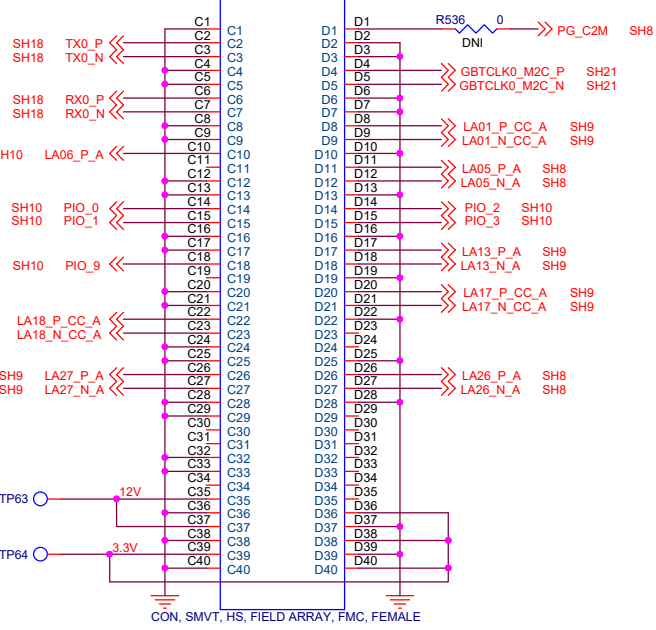
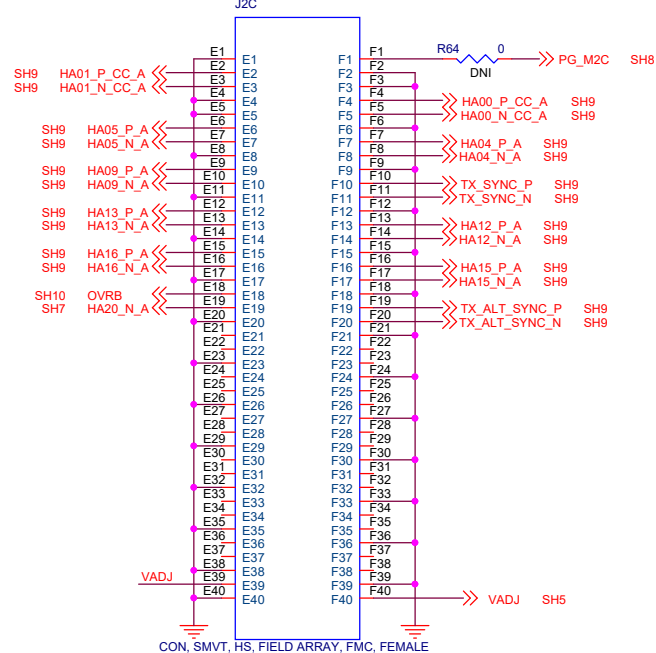
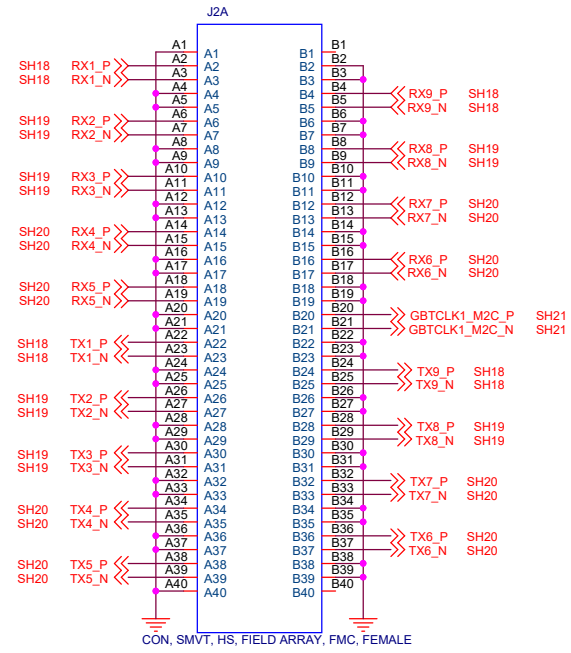
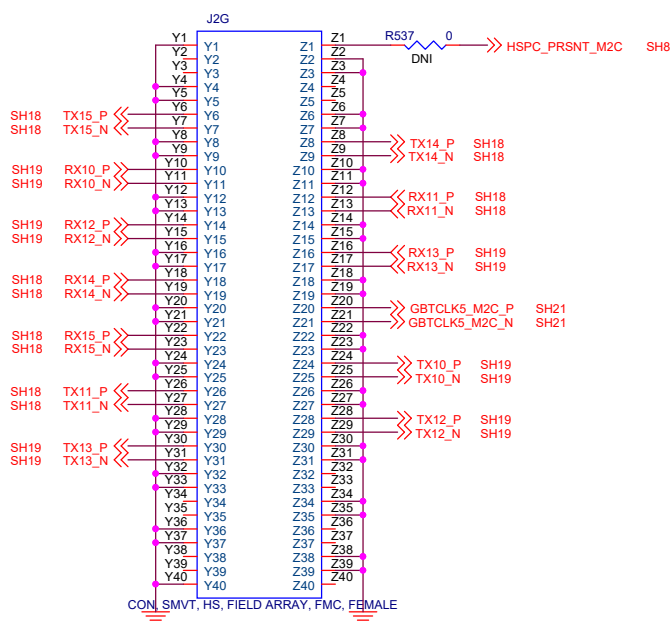


DDR 4 Uses Soft Controller

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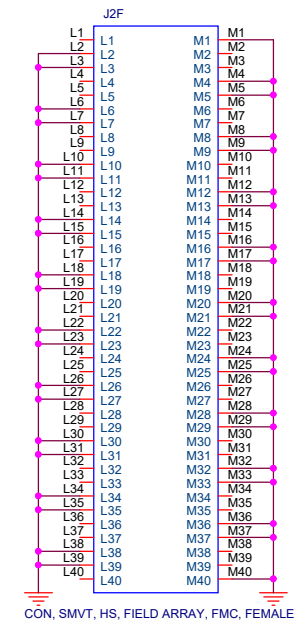
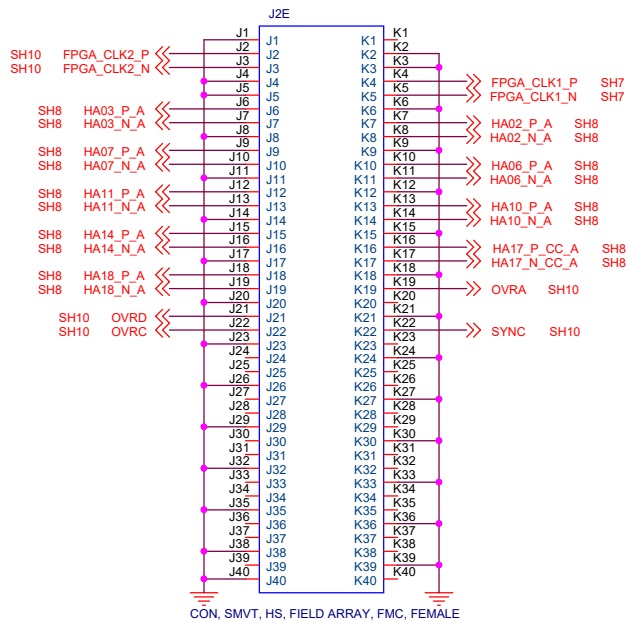
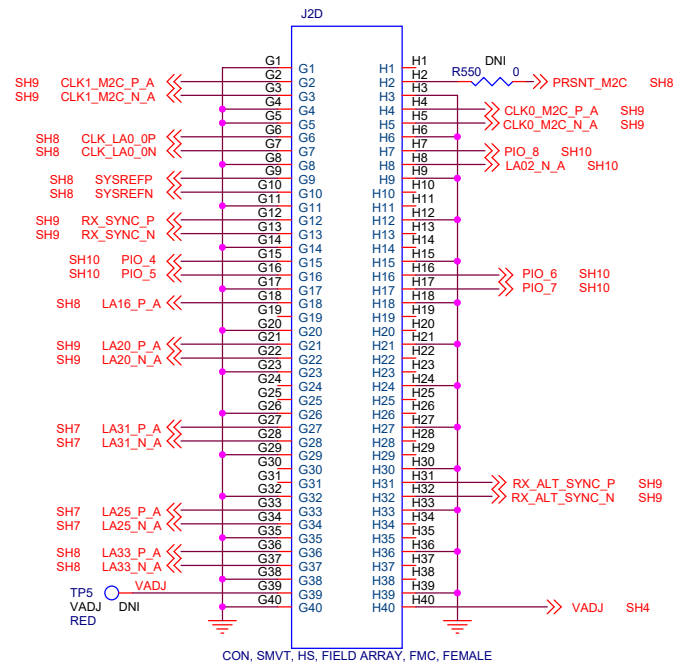


FPGA=CARRIER
 DUT=MEZ
 M2C - ADC
 C2M - DAC

FMC HPC CONNECTOR



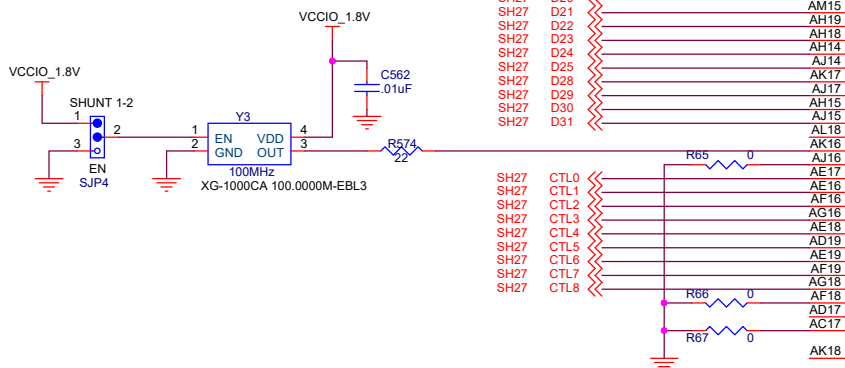
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FMC HPC CONNECTOR



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U1-3

SH27 D18	AM16	IO_2A_AM16/PLL_2A_CLKOUT1N/DATA18/LVDS2A_10N/DQSN29/CQN29
SH27 D19	AL16	IO_2A_AL16/PLL_2A_CLKOUT1P/PLL_2A_CLKOUT1,PLL_2A_FB1/DATA19/LVDS2A_10P/DQSN29/CQ29
SH27 D26	AH17	IO_2A_AH17/PLL_2A_CLKOUT0N/DATA26/LVDS2A_15N/DQ30
SH27 D27	AG17	IO_2A_AG17/PLL_2A_CLKOUT0P/PLL_2A_CLKOUT0,PLL_2A_FB0/DATA27/LVDS2A_15P/DQ30
SH27 D0	AK13	IO_2A_AK13/DATA0/LVDS2A_1N/DQ28
SH27 D1	AL13	IO_2A_AL13/DATA1/LVDS2A_3P/DQ28
SH27 D2	AP17	IO_2A_AP17/DATA2/LVDS2A_2N/DQ28
SH27 D3	AP16	IO_2A_AP16/DATA3/LVDS2A_2P/DQ28
SH27 D4	AP15	IO_2A_AP15/DATA4/LVDS2A_3N/DQ28
SH27 D5	AN15	IO_2A_AN15/DATA5/LVDS2A_3P/DQ28
SH27 D6	AM13	IO_2A_AM13/DATA6/LVDS2A_4N/DQSN28/CQN28
SH27 D7	AN13	IO_2A_AN13/DATA7/LVDS2A_4P/DQSN28/CQ28
SH27 D8	AP12	IO_2A_AP12/DATA8/LVDS2A_5N/DQ28
SH27 D9	AN12	IO_2A_AN12/DATA9/LVDS2A_5P/DQ28
SH27 D10	AP14	IO_2A_AP14/DATA10/LVDS2A_6N/DQ28
SH27 D11	AN14	IO_2A_AN14/DATA11/LVDS2A_6P/DQ28
SH27 D12	AM18	IO_2A_AM18/DATA12/LVDS2A_7N/DQ29
SH27 D13	AN18	IO_2A_AN18/DATA13/LVDS2A_7P/DQ29
SH27 D14	AM17	IO_2A_AM17/DATA14/LVDS2A_8N/DQ29
SH27 D15	AN17	IO_2A_AN17/DATA15/LVDS2A_8P/DQ29
SH27 D16	AK14	IO_2A_AK14/DATA16/LVDS2A_9N/DQ29
SH27 D17	AL14	IO_2A_AL14/DATA17/LVDS2A_9P/DQ29
SH27 D20	AL15	IO_2A_AL15/CLK_2A_1N/DATA20/LVDS2A_12N/DQ29
SH27 D21	AM15	IO_2A_AM15/CLK_2A_1P/DATA21/LVDS2A_12P/DQ29
SH27 D22	AH19	IO_2A_AH19/CLK_2A_0N/DATA22/LVDS2A_13N/DQ30
SH27 D23	AH18	IO_2A_AH18/CLK_2A_0P/DATA23/LVDS2A_13P/DQ30
SH27 D24	AH14	IO_2A_AH14/DATA24/LVDS2A_14N/DQ30
SH27 D25	AJ14	IO_2A_AJ14/DATA25/LVDS2A_14P/DQ30
SH27 D28	AK17	IO_2A_AK17/DATA28/LVDS2A_16N/DQSN30/CQN30
SH27 D29	AJ17	IO_2A_AJ17/DATA29/LVDS2A_16P/DQSN30/CQ30
SH27 D30	AJ15	IO_2A_AJ15/DATA30/LVDS2A_17N/DQ30
SH27 D31	AL18	IO_2A_AL18/NCEO/LVDS2A_11N/DQ29
SH27 CTL0	AK16	IO_2A_AK16/CLKUSR/LVDS2A_18N/DQ30
SH27 CTL1	AJ16	IO_2A_AJ16/PR_REQUEST/LVDS2A_18P/DQ30
SH27 CTL2	AE17	IO_2A_AE17/PR_READY/LVDS2A_19N/DQ31
SH27 CTL3	AE16	IO_2A_AE16/NPERSTL0/LVDS2A_19P/DQ31
SH27 CTL4	AG16	IO_2A_AG16/PR_DONE/LVDS2A_20N/DQ31
SH27 CTL5	AE18	IO_2A_AE18/NPERSTL1/LVDS2A_20P/DQ31
SH27 CTL6	AD19	IO_2A_AD19/PR_ERROR/LVDS2A_21N/DQ31
SH27 CTL7	AE19	IO_2A_AE19/NPERSTR1/LVDS2A_21P/DQ31
SH27 CTL8	AF19	IO_2A_AF19/CVP_CONF/DONE/LVDS2A_22N/DQSN31/CQN31
	AG18	IO_2A_AG18/INIT_DONE/LVDS2A_23N/DQ31
	AF18	IO_2A_AF18/DEV_OE/LVDS2A_23P/DQ31
	AD17	IO_2A_AD17/CRCERROR/LVDS2A_24N/DQ31
	AC17	IO_2A_AC17/DEV_CLRN/LVDS2A_24P/DQ31
	AK18	IO_2A_AK18/RZQ_2A/LVDS2A_11P/DQ29

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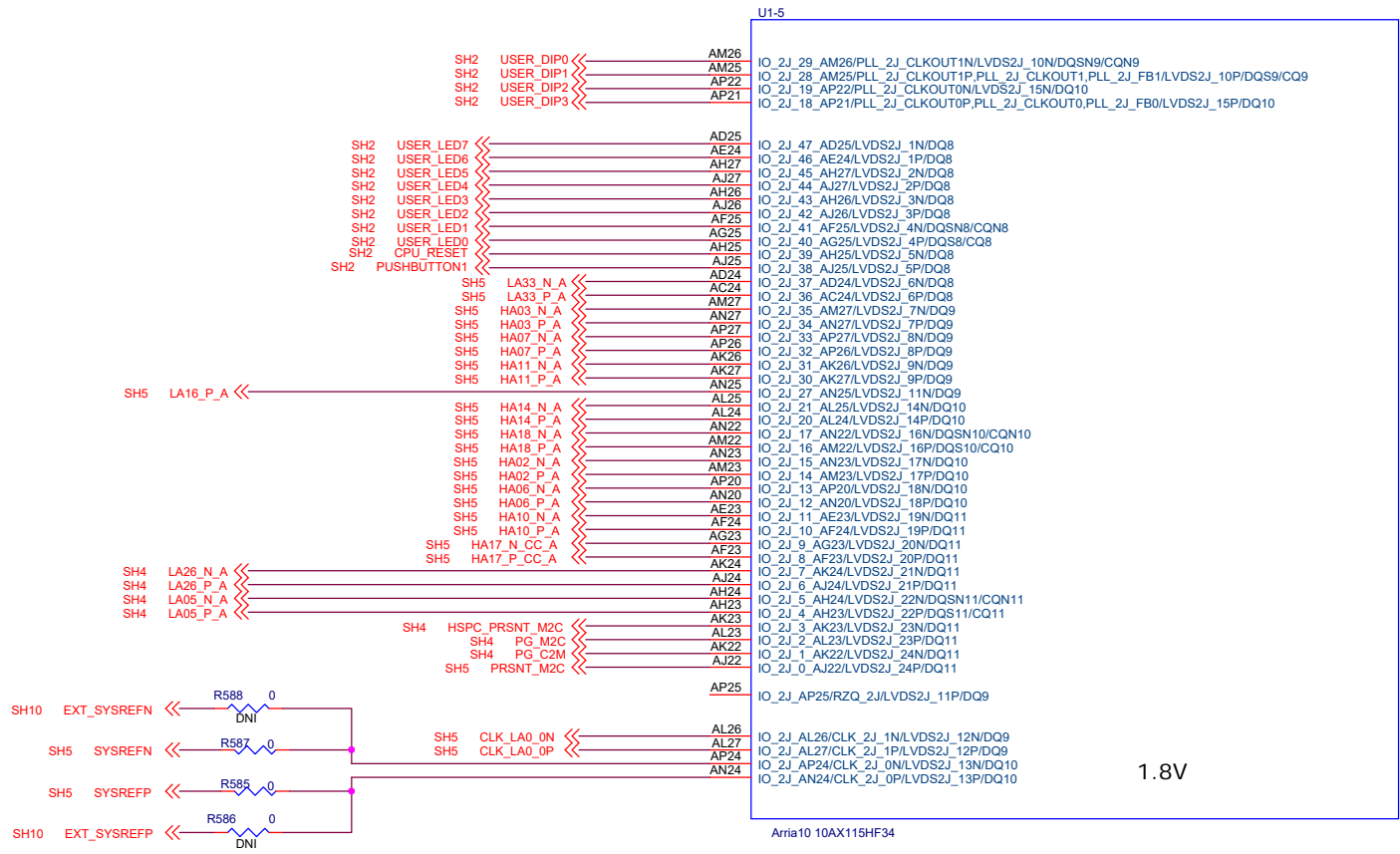
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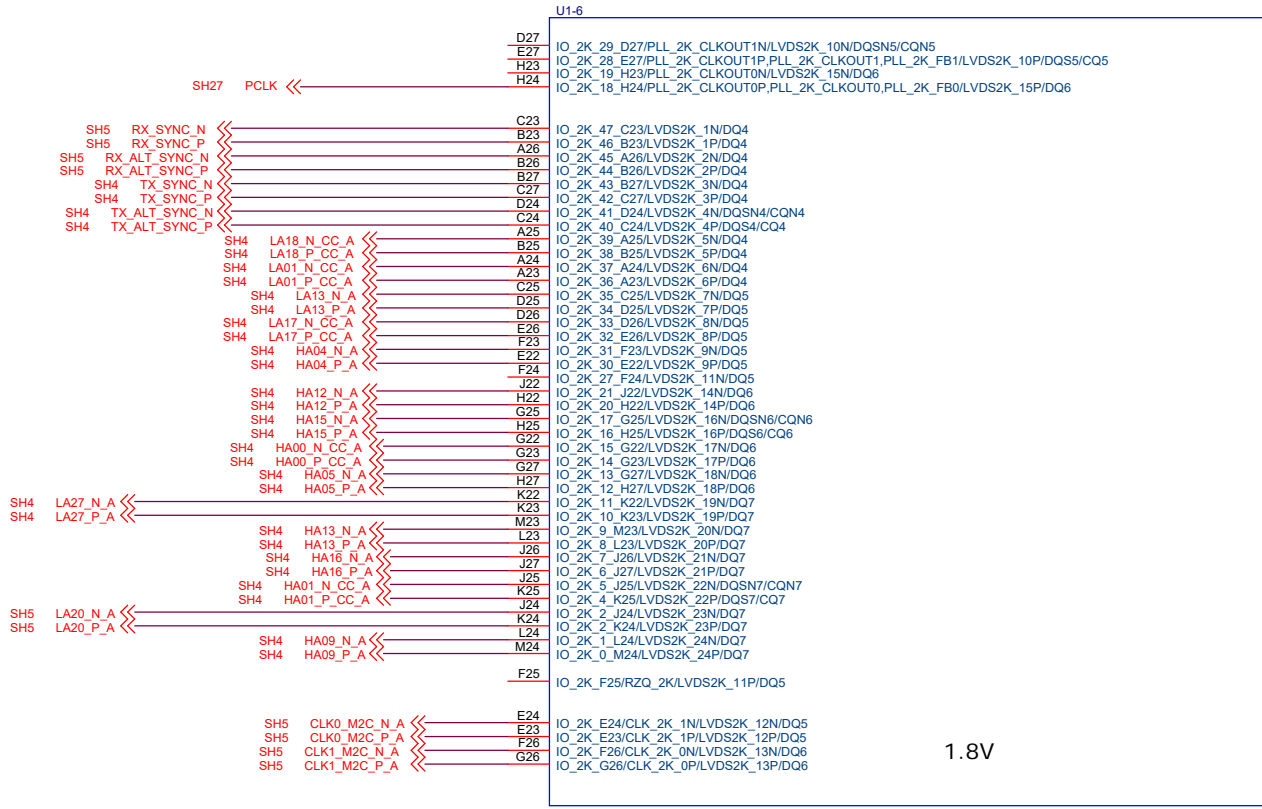
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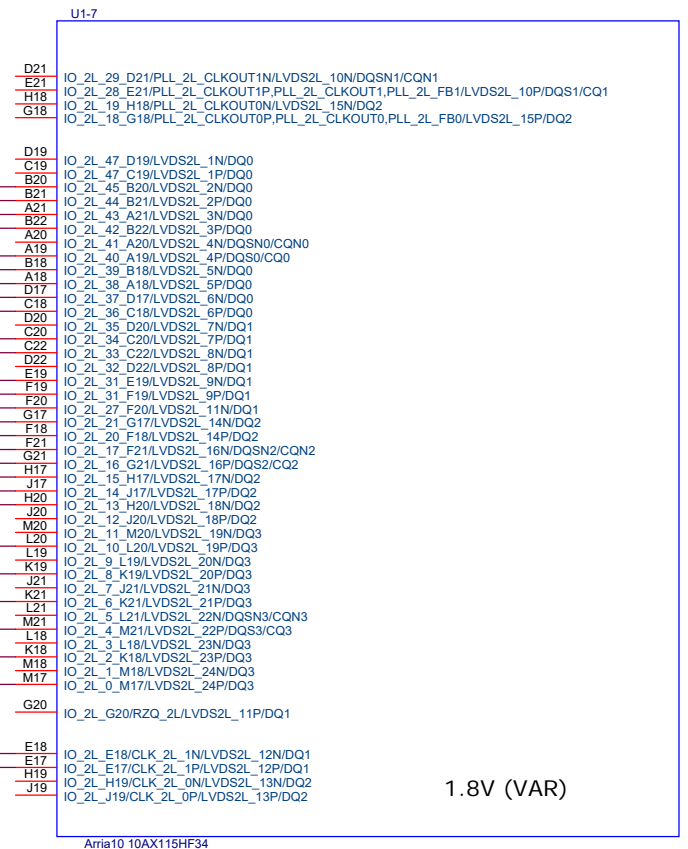
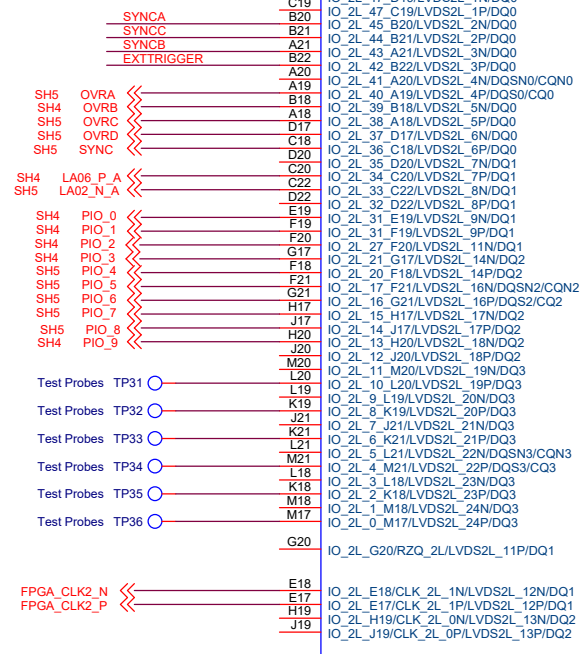
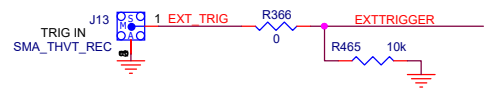
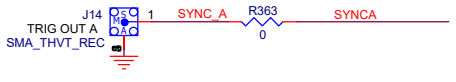
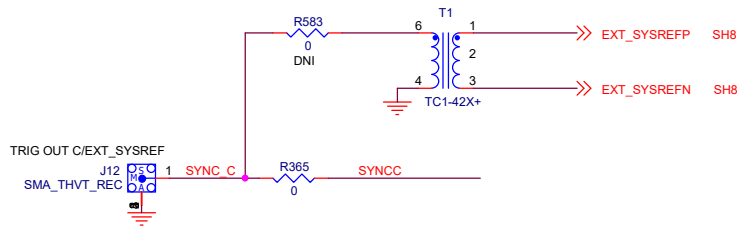
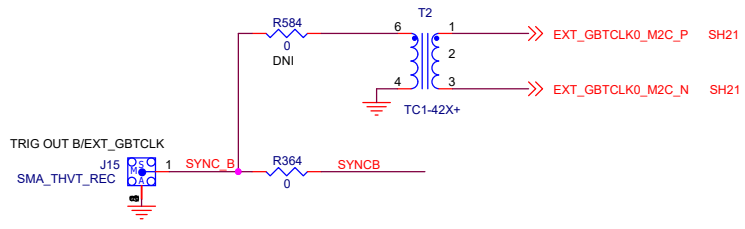


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AK9	IO_3A_AK9/CLK_3A_1N/LVDS3A_12N/DQ61
AJ9	IO_3A_AJ9/CLK_3A_1P/LVDS3A_12P/DQ61
AL4	IO_3A_AL4/CLK_3A_0N/LVDS3A_13N/DQ62
AL5	IO_3A_AL5/CLK_3A_0P/LVDS3A_13P/DQ62
AJ7	IO_3A_AJ7/RZQ_3A/LVDS3A_11P/DQ61
AE9	IO_3A_47_AE9/LVDS3A_1N/DQ60
AF9	IO_3A_46_AF9/LVDS3A_1P/DQ60
AF8	IO_3A_45_AF8/LVDS3A_2N/DQ60
AH9	IO_3A_44_AH9/LVDS3A_2P/DQ60
AH10	IO_3A_43_AH9/LVDS3A_3N/DQ60
AF10	IO_3A_42_AH10/LVDS3A_3P/DQ60
AG10	IO_3A_41_AF10/LVDS3A_4N/DQSN60/CQN60
AF11	IO_3A_40_AG10/LVDS3A_4P/DQSN60/CQ60
AE11	IO_3A_39_AF11/LVDS3A_5N/DQ60
AE12	IO_3A_38_AE11/LVDS3A_5P/DQ60
AG8	IO_3A_37_AE12/LVDS3A_6P/DQ60
AH8	IO_3A_36_AE12/LVDS3A_6P/DQ60
AG7	IO_3A_35_AG8/LVDS3A_7N/DQ61
AH7	IO_3A_34_AH8/LVDS3A_7P/DQ61
AK7	IO_3A_33_AG7/LVDS3A_8N/DQ61
AJ6	IO_3A_32_AH7/LVDS3A_8P/DQ61
AK6	IO_3A_31_AK8/LVDS3A_9N/DQ61
AK7	IO_3A_30_AK7/LVDS3A_9P/DQ61
AL6	IO_3A_27_AJ6/LVDS3A_11N/DQ61
AM2	IO_3A_21_AK6/LVDS3A_14N/DQ62
AM1	IO_3A_20_AL6/LVDS3A_14P/DQ62
AM5	IO_3A_17_AM2/LVDS3A_16N/DQSN62/CQN62
AM6	IO_3A_16_AM1/LVDS3A_16P/DQSN62/CQ62
AN4	IO_3A_15_AM5/LVDS3A_17N/DQ62
AN4	IO_3A_14_AN4/LVDS3A_17P/DQ62
AP4	IO_3A_13_AN4/LVDS3A_18N/DQ62
AN5	IO_3A_12_AP4/LVDS3A_18P/DQ62
AP5	IO_3A_11_AN5/LVDS3A_19N/DQ63
AP6	IO_3A_10_AP5/LVDS3A_19P/DQ63
AP7	IO_3A_9_AP6/LVDS3A_20N/DQ63
AN8	IO_3A_8_AP7/LVDS3A_20P/DQ63
AN8	IO_3A_7_AN8/LVDS3A_21N/DQ63
AN9	IO_3A_6_AN8/LVDS3A_21P/DQ63
AP9	IO_3A_5_AN9/LVDS3A_22N/DQSN63/CQN63
AL8	IO_3A_4_AP9/LVDS3A_22P/DQSN63/CQ63
AL9	IO_3A_3_AL8/LVDS3A_23N/DQ63
AM7	IO_3A_2_AL9/LVDS3A_23P/DQ63
AN7	IO_3A_1_AM7/LVDS3A_24N/DQ63
AN7	IO_3A_0_AN7/LVDS3A_24P/DQ63

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U1-9

~~AD9~~ IO_3B_29_AD9/PLL_3B_CLKOUT1N/LVDS3B_10N/DQSN57/CQN57
~~AC8~~ IO_3B_28_AC8/PLL_3B_CLKOUT1P,PLL_3B_CLKOUT1,PLL_3B_FB1/LVDS3B_10P/DQS57/CQ57
~~AF3~~ IO_3B_19_AF3/PLL_3B_CLKOUT0N/LVDS3B_15N/DQ58
~~AF4~~ IO_3B_18_AF4/PLL_3B_CLKOUT0P,PLL_3B_CLKOUT0,PLL_3B_FB0/LVDS3B_15P/DQ58

~~AB11~~ IO_3B_47_AB11/LVDS3B_1N/DQ56
~~AB10~~ IO_3B_46_AB10/LVDS3B_1P/DQ56
~~AD1~~ IO_3B_45_AD1/LVDS3B_2N/DQ56
~~AD2~~ IO_3B_44_AD2/LVDS3B_2P/DQ56
~~AD4~~ IO_3B_43_AD4/LVDS3B_3N/DQ56
~~AE4~~ IO_3B_42_AE4/LVDS3B_3P/DQ56
~~AB7~~ IO_3B_41_AB7/LVDS3B_4N/DQSN56/CQN56
~~AB8~~ IO_3B_40_AB8/LVDS3B_4P/DQSN56/CQ56
~~AB5~~ IO_3B_39_AB5/LVDS3B_5N/DQ56
~~AB6~~ IO_3B_38_AB6/LVDS3B_5P/DQ56
~~AC5~~ IO_3B_37_AC5/LVDS3B_6N/DQ56
~~AC4~~ IO_3B_36_AC4/LVDS3B_6P/DQ56
~~AC7~~ IO_3B_35_AC7/LVDS3B_7N/DQ57
~~AD7~~ IO_3B_34_AD7/LVDS3B_7P/DQ57
~~AD6~~ IO_3B_33_AD6/LVDS3B_8N/DQ57
~~AD5~~ IO_3B_32_AD5/LVDS3B_8P/DQ57
~~AC10~~ IO_3B_31_AC10/LVDS3B_9N/DQ57
~~AC9~~ IO_3B_30_AC9/LVDS3B_9P/DQ57
~~AE7~~ IO_3B_27_AE7/LVDS3B_11N/DQ57
~~AF5~~ IO_3B_21_AF5/LVDS3B_14N/DQ58
~~AG5~~ IO_3B_20_AG5/LVDS3B_14P/DQ58
~~AE1~~ IO_3B_17_AE1/LVDS3B_16N/DQSN58/CQN58
~~AF1~~ IO_3B_16_AF1/LVDS3B_16P/DQSN58/CQ58
~~AF6~~ IO_3B_15_AF6/LVDS3B_17N/DQ58
~~AG6~~ IO_3B_14_AG6/LVDS3B_17P/DQ58
~~AK1~~ IO_3B_1_AK1/LVDS3B_24N/DQ59
~~AL1~~ IO_3B_0_AL1/LVDS3B_24P/DQ59
~~AG3~~ IO_3B_13_AG3/LVDS3B_18N/DQ58
~~AH3~~ IO_3B_12_AH3/LVDS3B_18P/DQ58
~~AG2~~ IO_3B_11_AG2/LVDS3B_19N/DQ59
~~AG1~~ IO_3B_10_AG1/LVDS3B_19P/DQ59
~~AH2~~ IO_3B_9_AH2/LVDS3B_20N/DQ59
~~AJ1~~ IO_3B_8_AJ1/LVDS3B_20P/DQ59
~~AH4~~ IO_3B_7_AH4/LVDS3B_21N/DQ59
~~AJ4~~ IO_3B_6_AJ4/LVDS3B_21P/DQ59
~~AK3~~ IO_3B_5_AK3/LVDS3B_22N/DQSN59/CQN59
~~AK4~~ IO_3B_4_AK4/LVDS3B_22P/DQSN59/CQ59
~~AJ2~~ IO_3B_3_AJ2/LVDS3B_23N/DQ59
~~AK2~~ IO_3B_2_AK2/LVDS3B_23P/DQ59

~~AE6~~ IO_3B_AE6/RZQ_3B/LVDS3B_11P/DQ57

~~AD11~~ IO_3B_AD11/CLK_3B_1N/LVDS3B_12N/DQ57
~~AD10~~ IO_3B_AD10/CLK_3B_1P/LVDS3B_12P/DQ57
~~AE3~~ IO_3B_AE3/CLK_3B_0N/LVDS3B_13N/DQ58
~~AE2~~ IO_3B_AE2/CLK_3B_0P/LVDS3B_13P/DQ58

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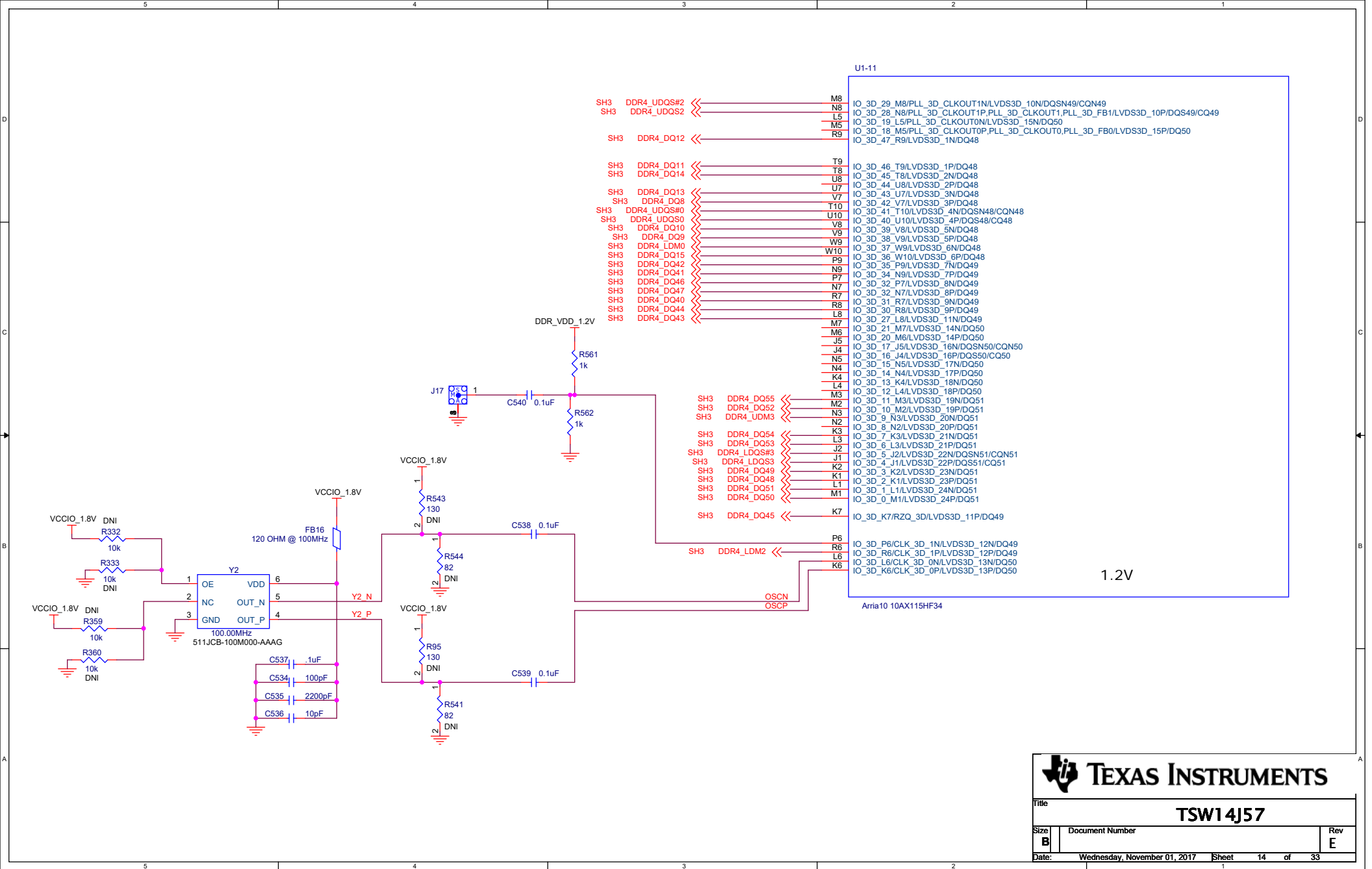
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W5	IO_3C_28_U1/PLL_3C_CLKOUT1P/PLL_3C_CLKOUT1_PLL_3C_FB1/LVDS3C_10P/DQS53/CQ53
W4	IO_3C_19_W5/PLL_3C_CLKOUT0N/LVDS3C_15N/DQ54
	IO_3C_18_W4/PLL_3C_CLKOUT0P/PLL_3C_CLKOUT0_PLL_3C_FB0/LVDS3C_15P/DQ54
R4	
T4	IO_3C_47_R4/LVDS3C_1N/DQ52
P5	IO_3C_46_T4/LVDS3C_1P/DQ52
P4	IO_3C_45_P5/LVDS3C_2N/DQ52
R3	IO_3C_44_P4/LVDS3C_2P/DQ52
T3	IO_3C_43_R3/LVDS3C_3N/DQ52
T6	IO_3C_42_T3/LVDS3C_3P/DQ52
T5	IO_3C_41_T6/LVDS3C_4N/DQSN52/CQN52
U5	IO_3C_40_T5/LVDS3C_4P/DQS52/CQ52
U6	IO_3C_39_U5/LVDS3C_5N/DQ52
V4	IO_3C_38_U6/LVDS3C_5P/DQ52
V5	IO_3C_37_V4/LVDS3C_6N/DQ52
R2	IO_3C_36_V5/LVDS3C_6P/DQ52
P2	IO_3C_35_R2/LVDS3C_7N/DQ53
P1	IO_3C_34_P2/LVDS3C_7P/DQ53
R1	IO_3C_33_P1/LVDS3C_8N/DQ53
V3	IO_3C_32_R1/LVDS3C_8P/DQ53
U3	IO_3C_31_U3/LVDS3C_9N/DQ53
U2	IO_3C_30_U3/LVDS3C_9P/DQ53
Y9	IO_3C_27_U2/LVDS3C_11N/DQ53
Y8	IO_3C_21_Y9/LVDS3C_14N/DQ54
W7	IO_3C_20_Y8/LVDS3C_14P/DQ54
W6	IO_3C_17_W7/LVDS3C_16N/DQSN54/CQN54
AA9	IO_3C_16_W6/LVDS3C_16P/DQS54/CQ54
AA8	IO_3C_15_AA9/LVDS3C_17N/DQ54
AA6	IO_3C_14_AA8/LVDS3C_17P/DQ54
AA5	IO_3C_13_AA6/LVDS3C_18N/DQ54
Y4	IO_3C_12_AA5/LVDS3C_18P/DQ54
Y3	IO_3C_11_Y4/LVDS3C_19N/DQ55
AA4	IO_3C_10_Y3/LVDS3C_19P/DQ55
AA3	IO_3C_9_AA4/LVDS3C_20N/DQ55
AB3	IO_3C_8_AA3/LVDS3C_20P/DQ55
AB2	IO_3C_7_AB3/LVDS3C_21N/DQ55
AC2	IO_3C_6_AB2/LVDS3C_21P/DQ55
AC3	IO_3C_5_AC2/LVDS3C_22N/DQSN55/CQN55
Y2	IO_3C_4_AC3/LVDS3C_22P/DQS55/CQ55
Y1	IO_3C_3_Y2/LVDS3C_23N/DQ55
AA1	IO_3C_2_Y1/LVDS3C_23P/DQ55
AB1	IO_3C_1_AA1/LVDS3C_24N/DQ55
	IO_3C_0_AB1/LVDS3C_24P/DQ55
V2	
	IO_3C_V2/RZQ_3C/LVDS3C_11P/DQ53
W2	
W1	IO_3C_W2/CLK_3C_1N/LVDS3C_12N/DQ53
Y7	IO_3C_W1/CLK_3C_1P/LVDS3C_12P/DQ53
Y6	IO_3C_Y7/CLK_3C_0N/LVDS3C_13N/DQ54
	IO_3C_Y6/CLK_3C_0P/LVDS3C_13P/DQ54

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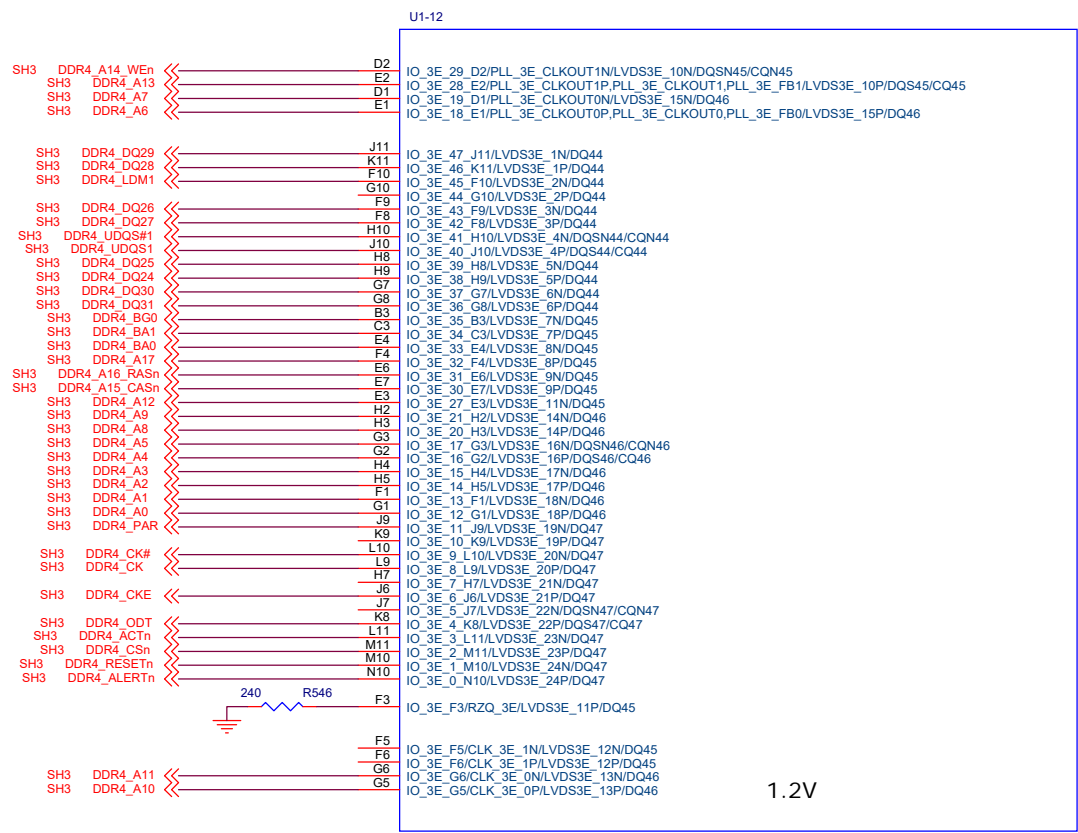


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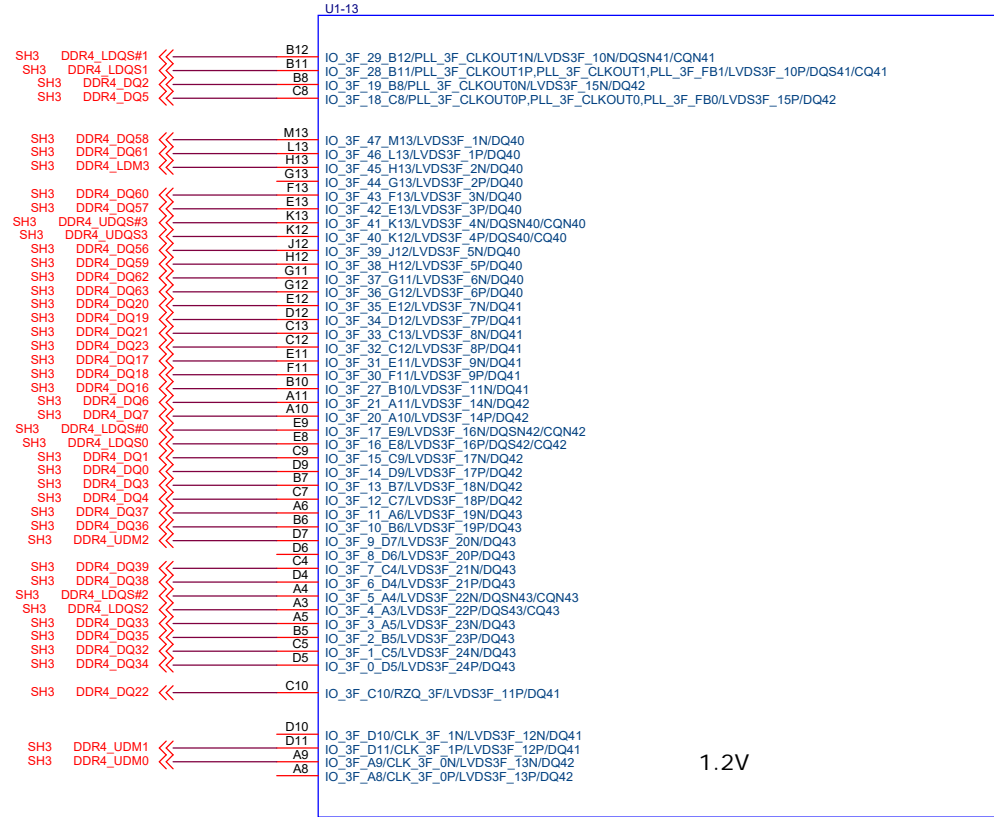



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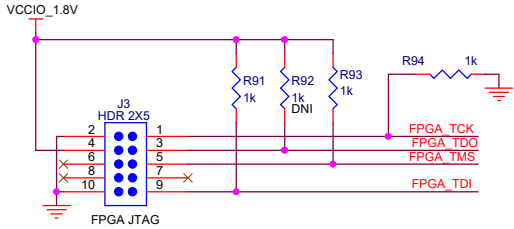
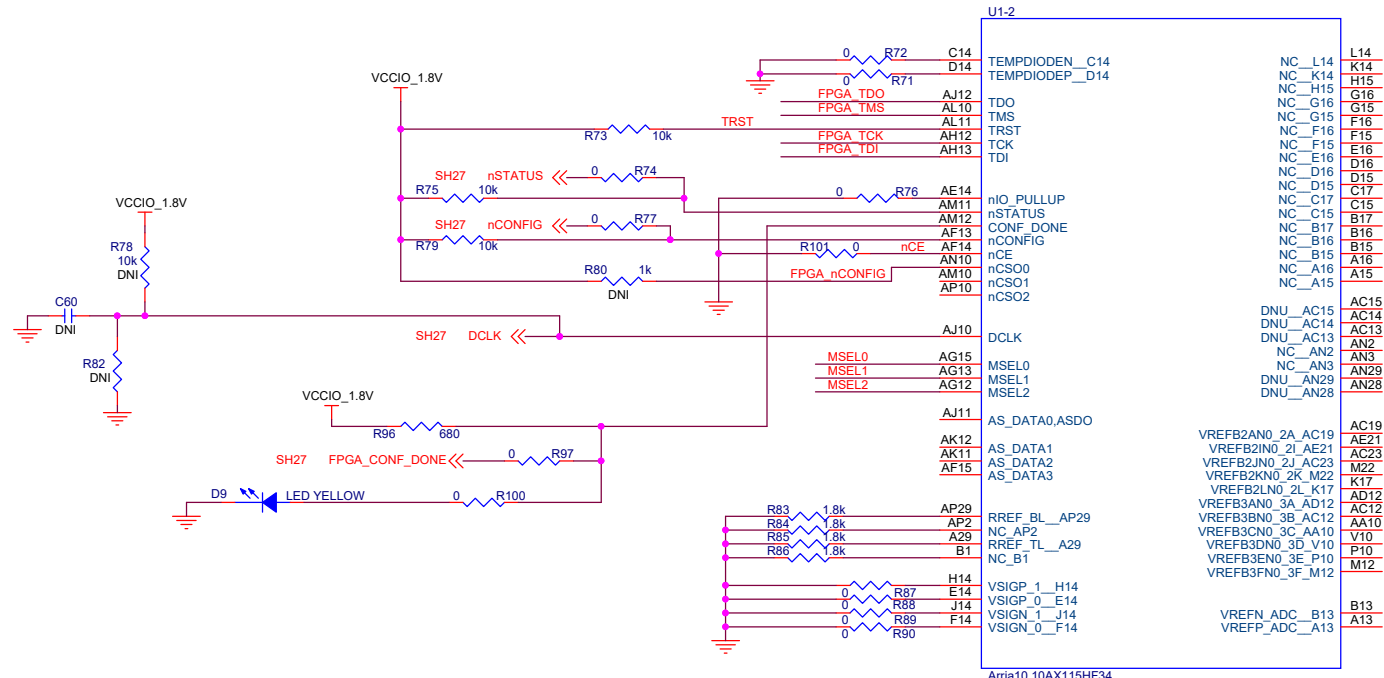
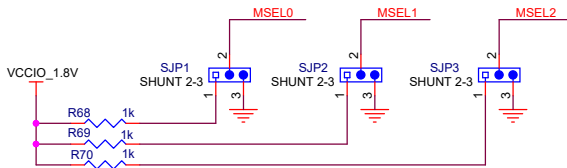
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FPGA CONFIGURATION



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SH4	RX0_N	>>	AL29	GXBL1C_RX_CH0N,GXBL1C_REFCLK0N_AL29
SH4	RX0_P	>>	AL30	GXBL1C_RX_CH0P,GXBL1C_REFCLK0P_AL30
SH4	RX1_N	>>	AJ29	GXBL1C_RX_CH1N,GXBL1C_REFCLK1N_AJ29
SH4	RX1_P	>>	AJ30	GXBL1C_RX_CH1P,GXBL1C_REFCLK1P_AJ30
SH4	RX9_N	>>	AG29	GXBL1C_RX_CH2N,GXBL1C_REFCLK2N_AG29
SH4	RX9_P	>>	AG30	GXBL1C_RX_CH2P,GXBL1C_REFCLK2P_AG30
SH4	RX11_N	>>	AF31	GXBL1C_RX_CH3N,GXBL1C_REFCLK3N_AF31
SH4	RX11_P	>>	AF32	GXBL1C_RX_CH3P,GXBL1C_REFCLK3P_AF32
SH4	RX15_N	>>	AE29	GXBL1C_RX_CH4N,GXBL1C_REFCLK4N_AE29
SH4	RX15_P	>>	AE30	GXBL1C_RX_CH4P,GXBL1C_REFCLK4P_AE30
SH4	RX14_N	>>	AD31	GXBL1C_RX_CH5N,GXBL1C_REFCLK5N_AD31
SH4	RX14_P	>>	AD32	GXBL1C_RX_CH5P,GXBL1C_REFCLK5P_AD32
SH4	TX0_N	<<	AP31	GXBL1C_TX_CH0N_AP31
SH4	TX0_P	<<	AP32	GXBL1C_TX_CH0P_AP32
SH4	TX1_N	<<	AM31	GXBL1C_TX_CH1N_AM31
SH4	TX1_P	<<	AM32	GXBL1C_TX_CH1P_AM32
SH4	TX9_N	<<	AK31	GXBL1C_TX_CH2N_AK31
SH4	TX9_P	<<	AK32	GXBL1C_TX_CH2P_AK32
SH4	TX11_N	<<	AH31	GXBL1C_TX_CH3N_AH31
SH4	TX11_P	<<	AH32	GXBL1C_TX_CH3P_AH32
SH4	TX15_N	<<	AN33	GXBL1C_TX_CH4N_AN33
SH4	TX15_P	<<	AN34	GXBL1C_TX_CH4P_AN34
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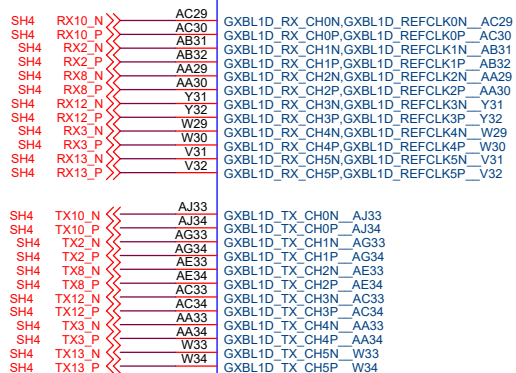
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HIGH SPEED BANK




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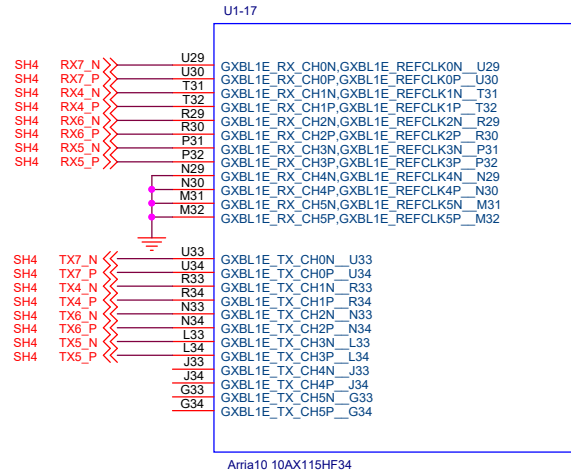


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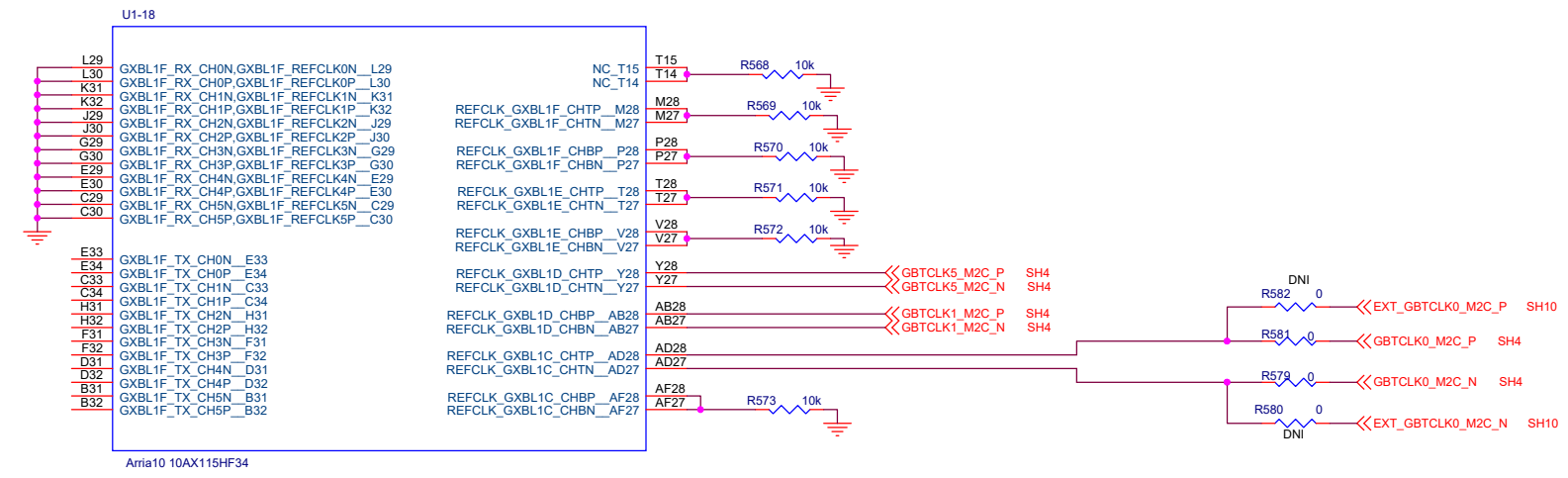


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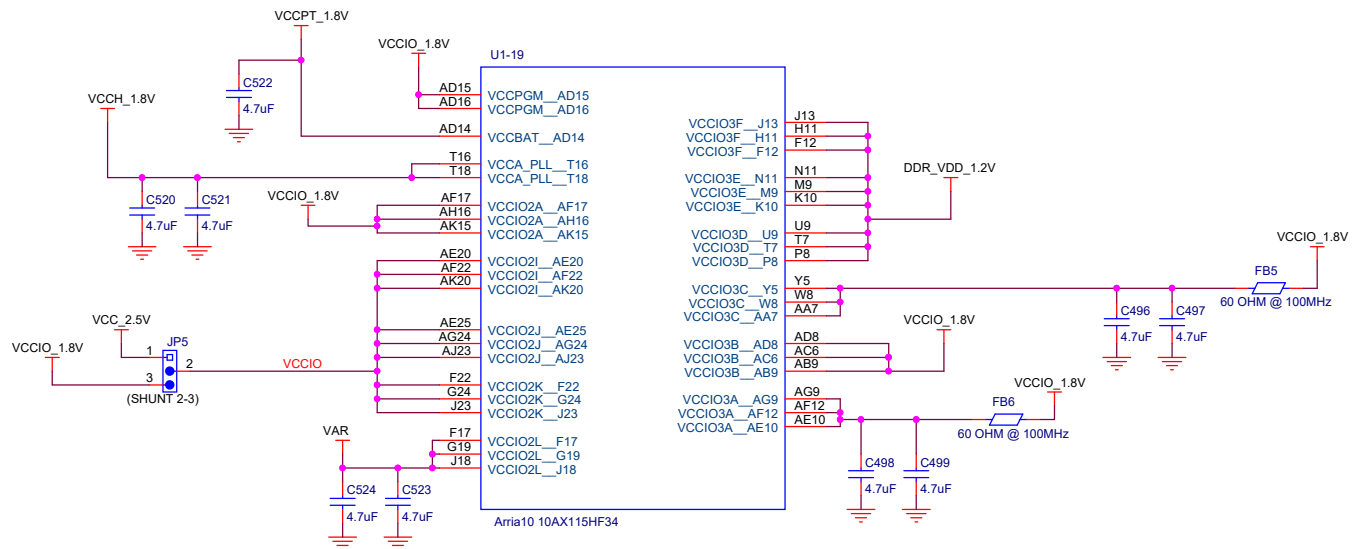
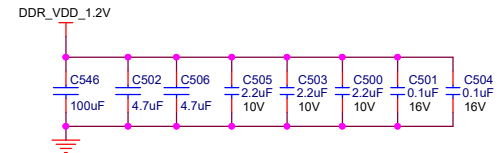
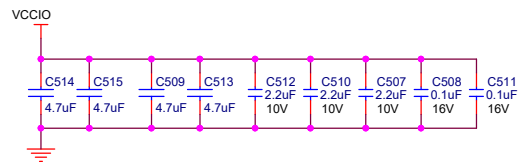
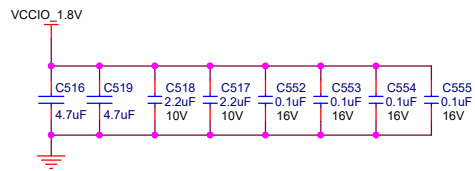
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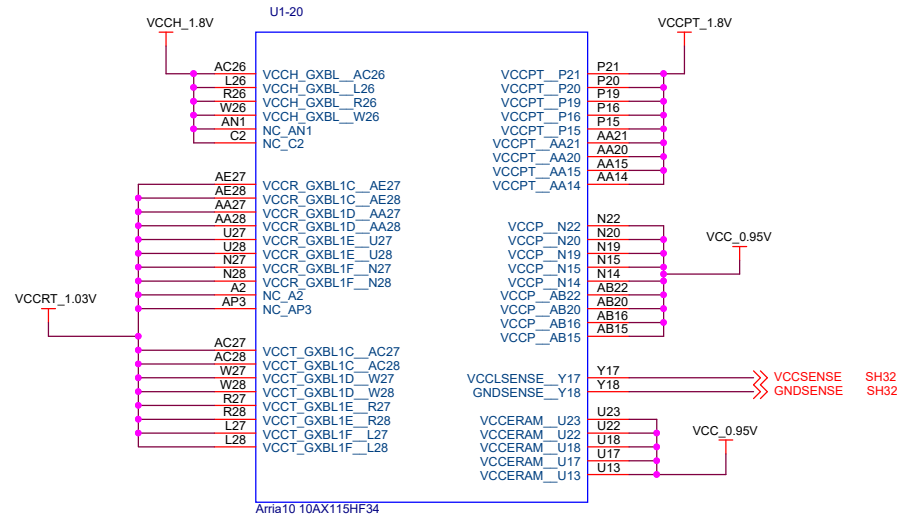
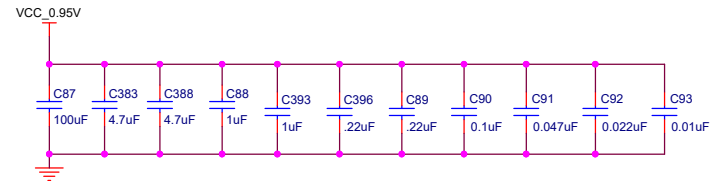
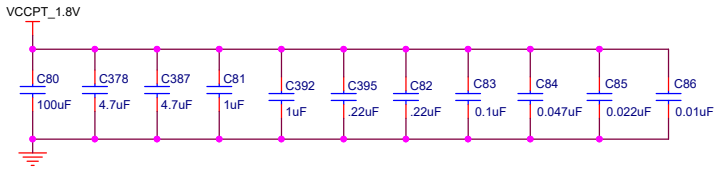
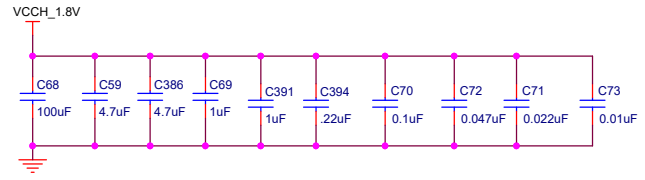
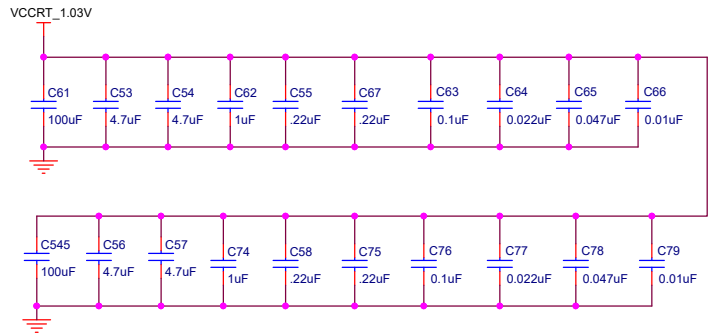


FPGA POWER

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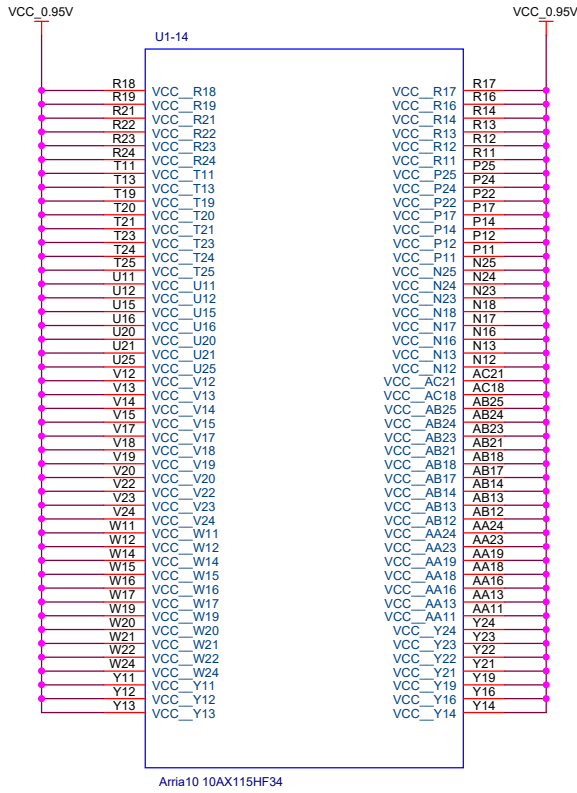
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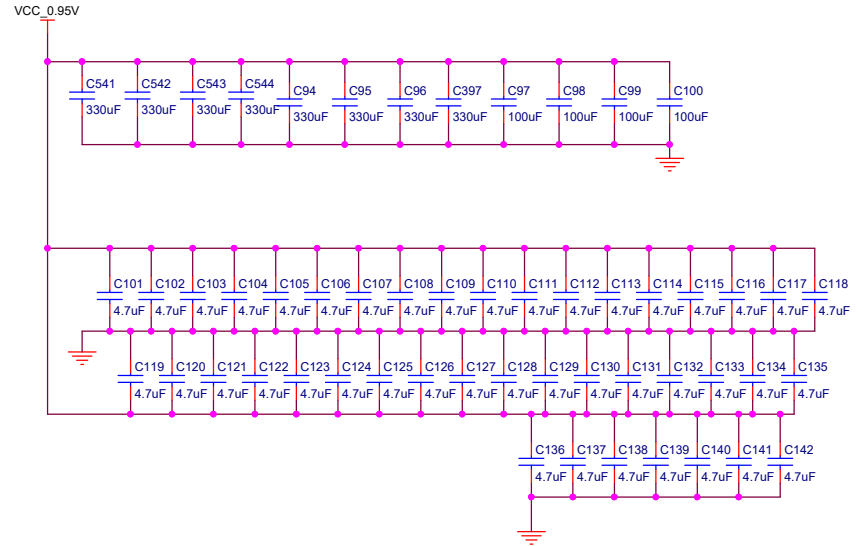
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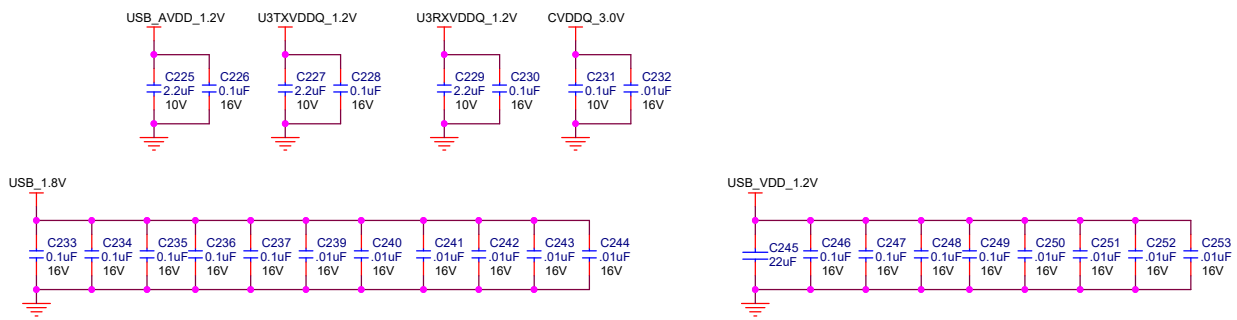
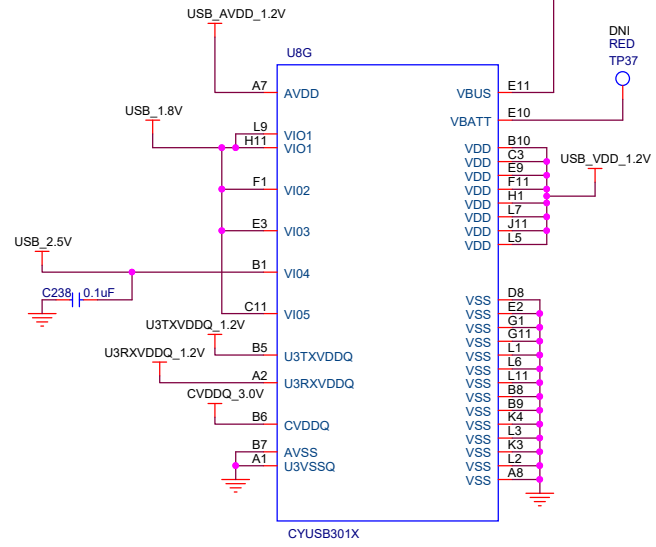
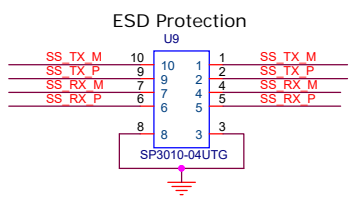
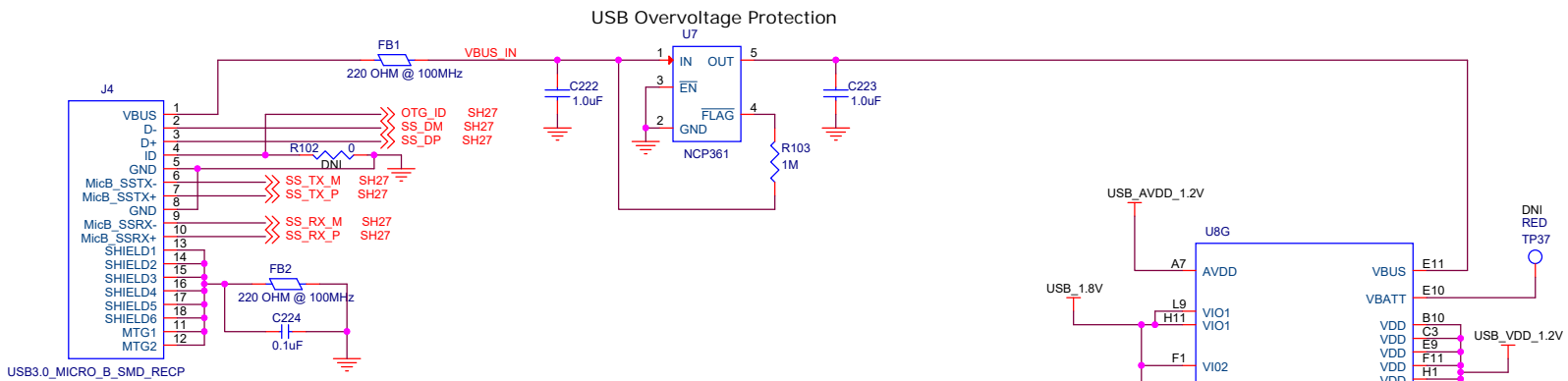
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FPGA GROUND



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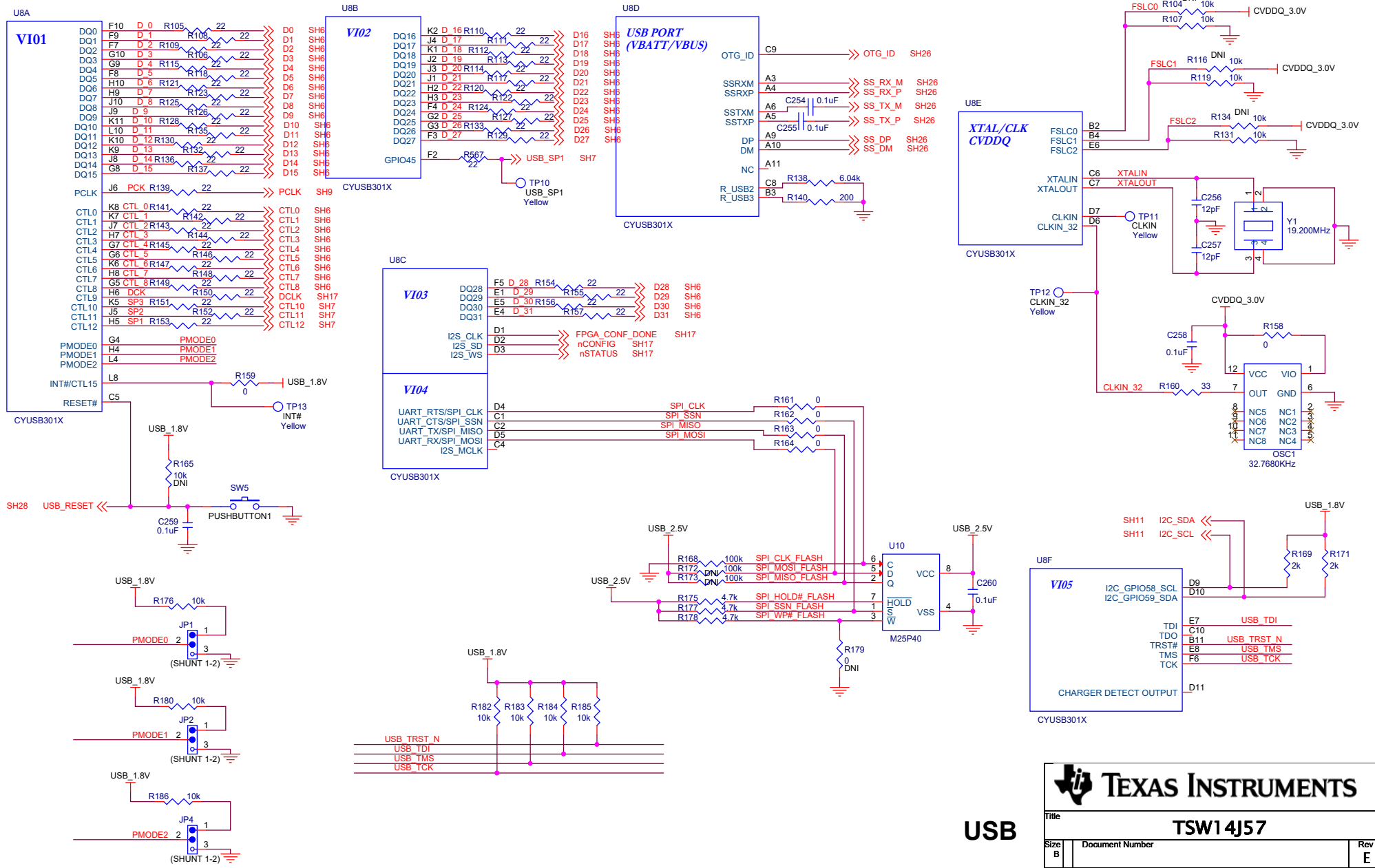
USB

TEXAS INSTRUMENTS

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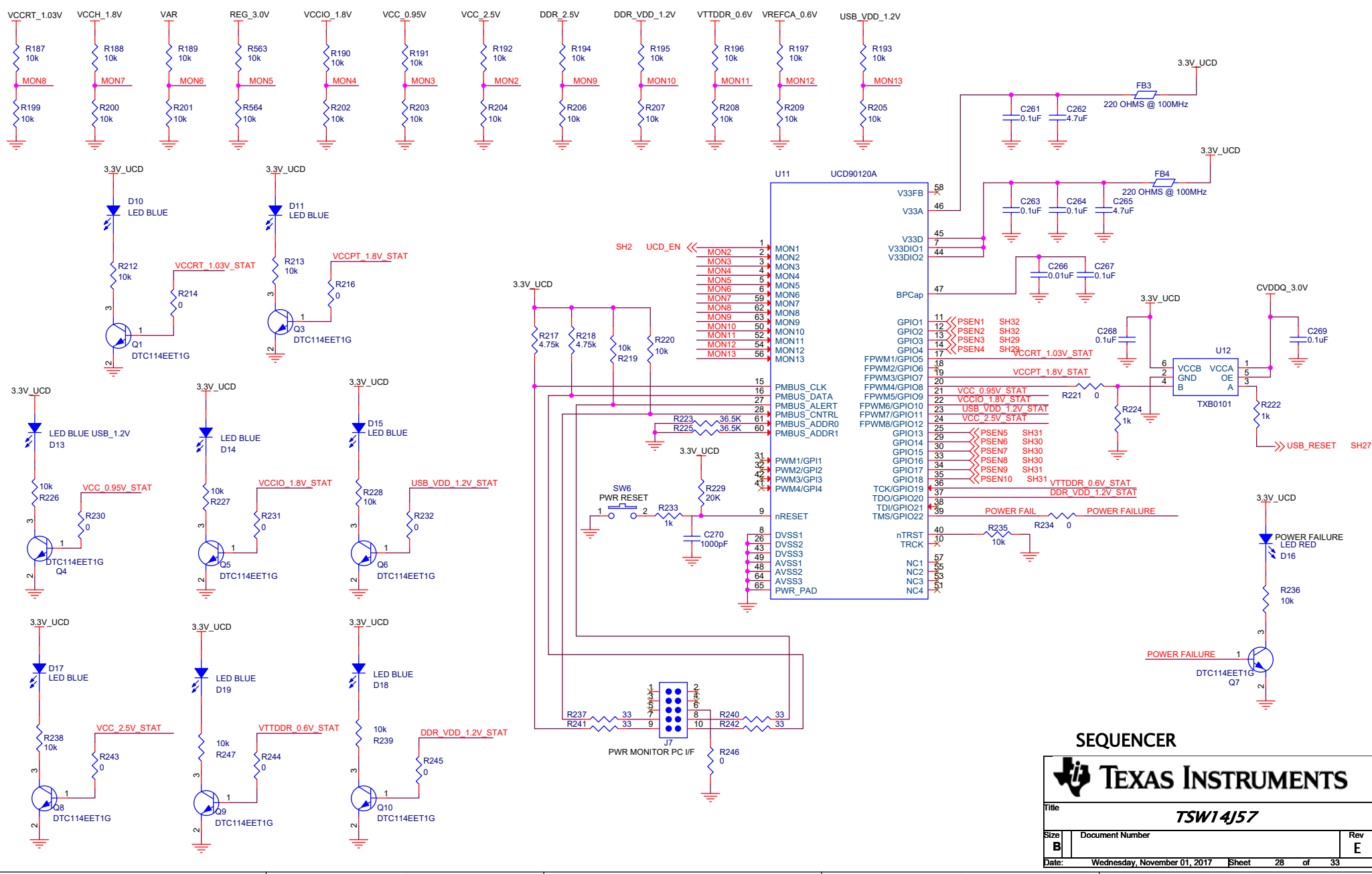


USB

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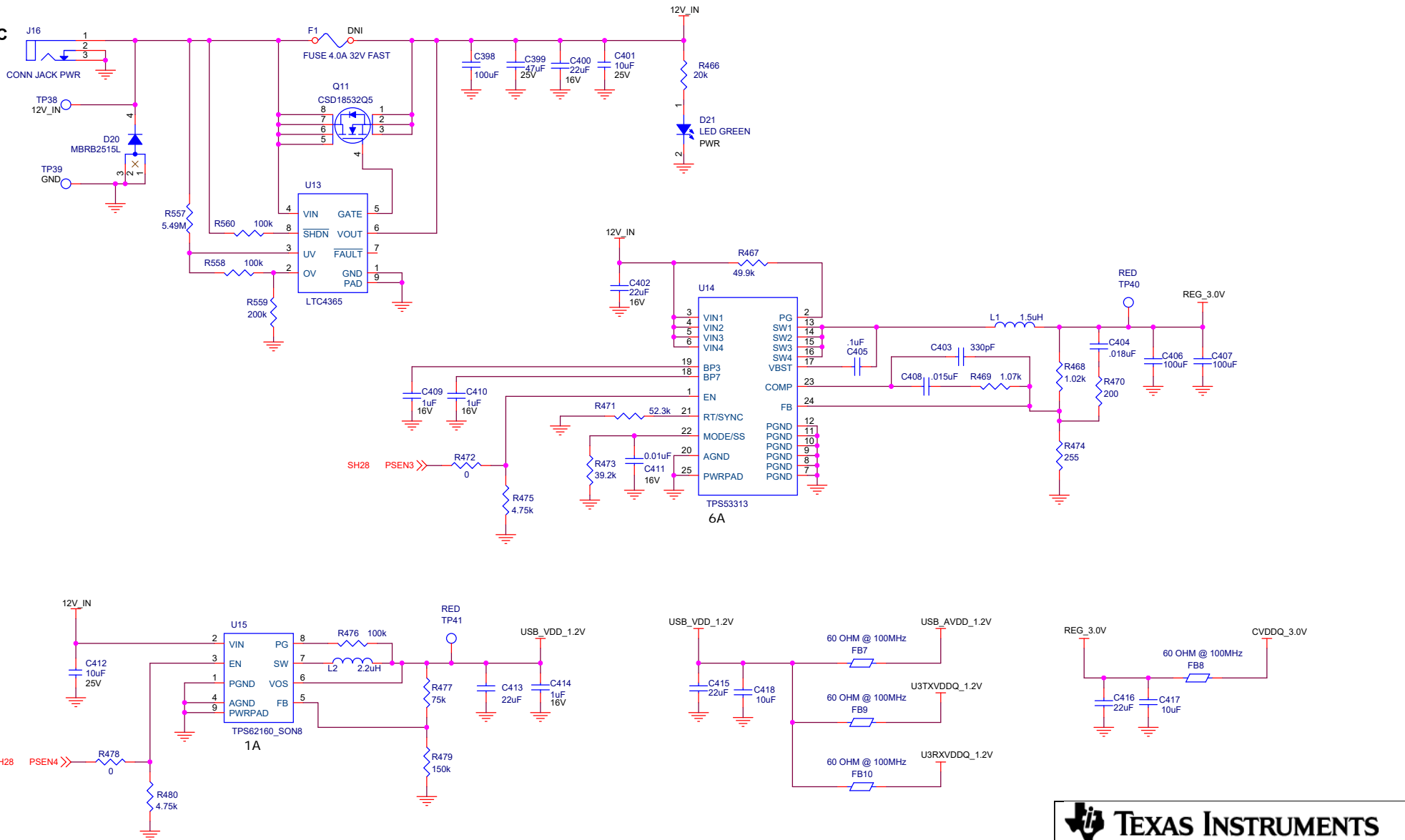


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12V DC INPUT



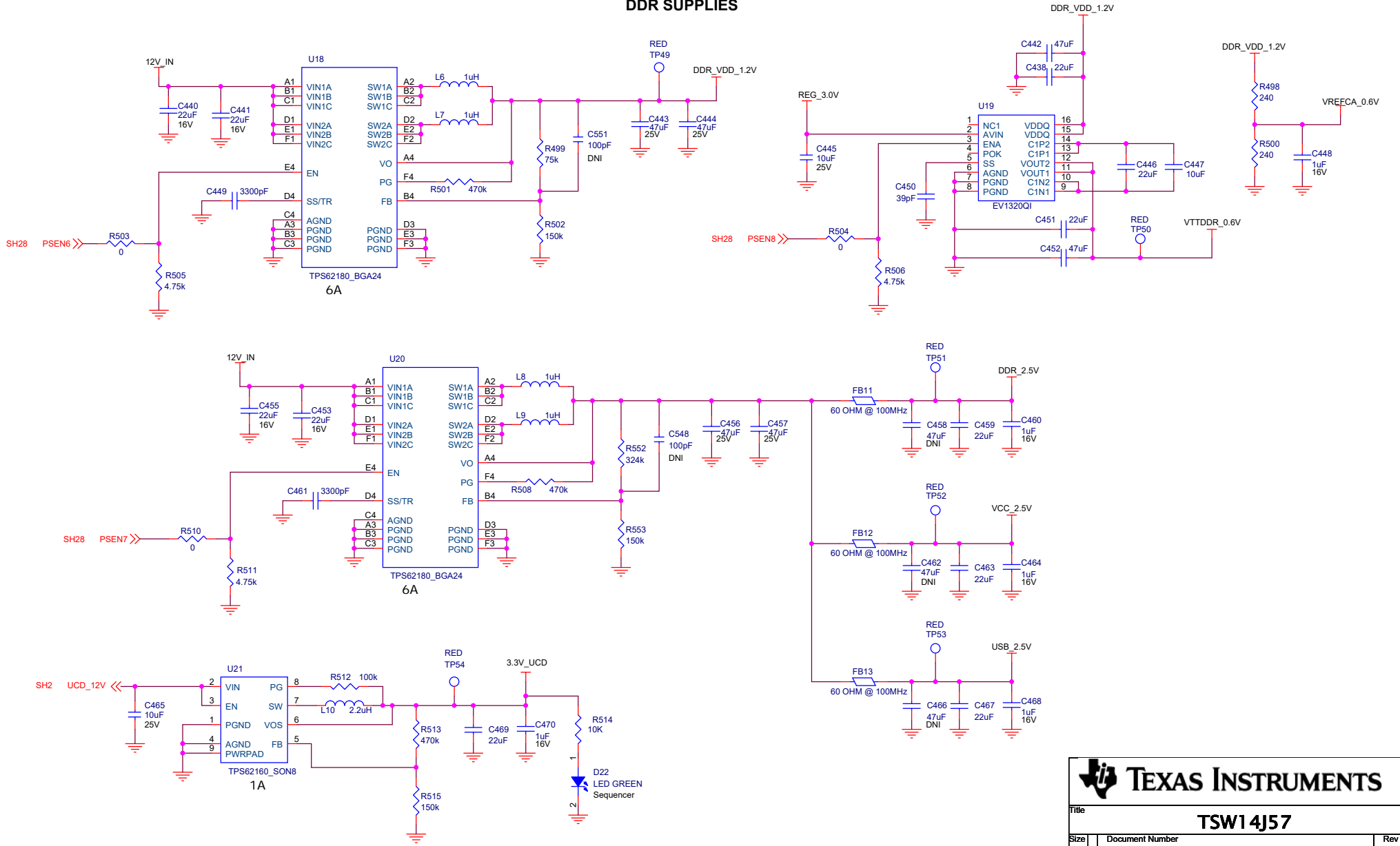
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DDR SUPPLIES

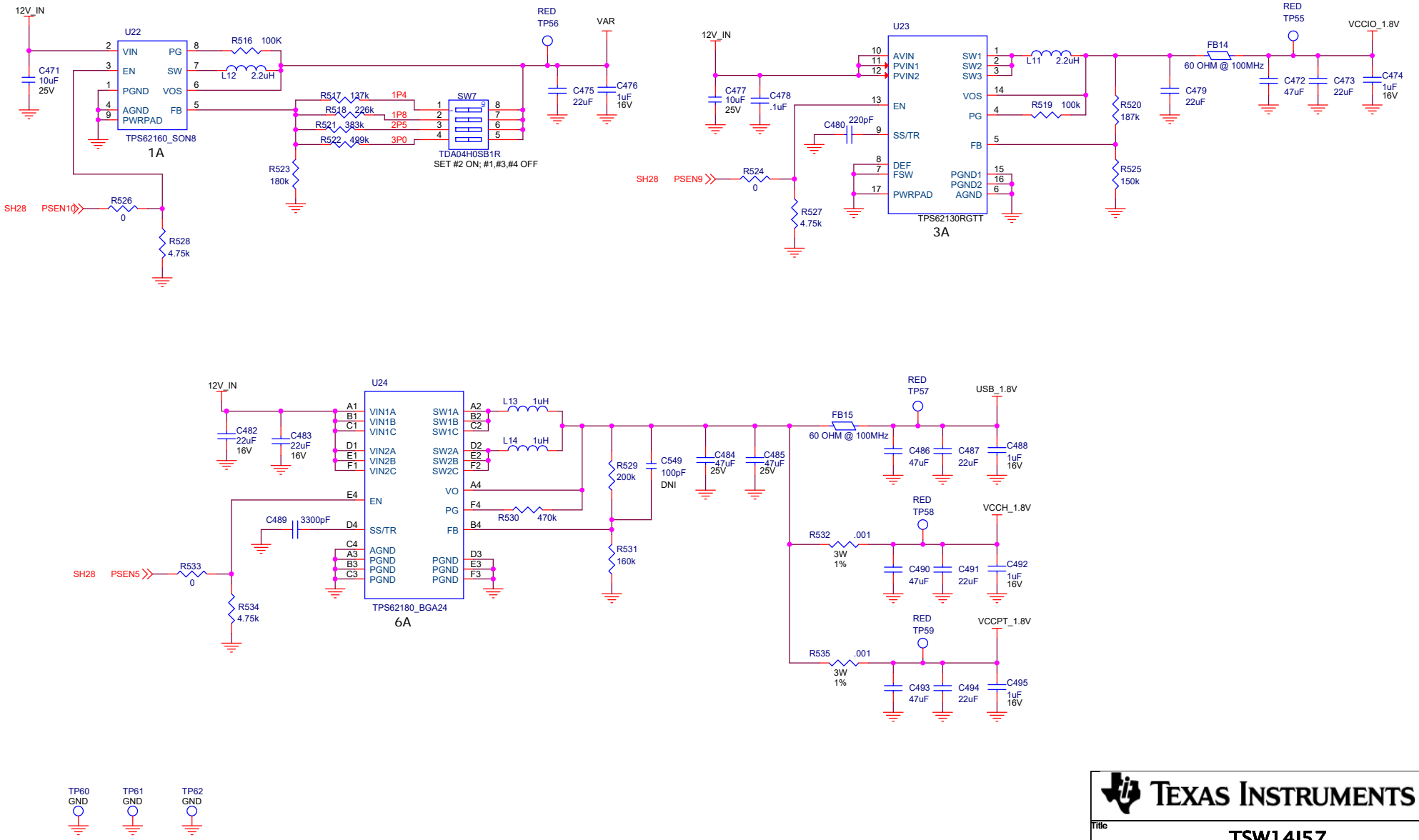


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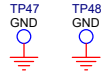
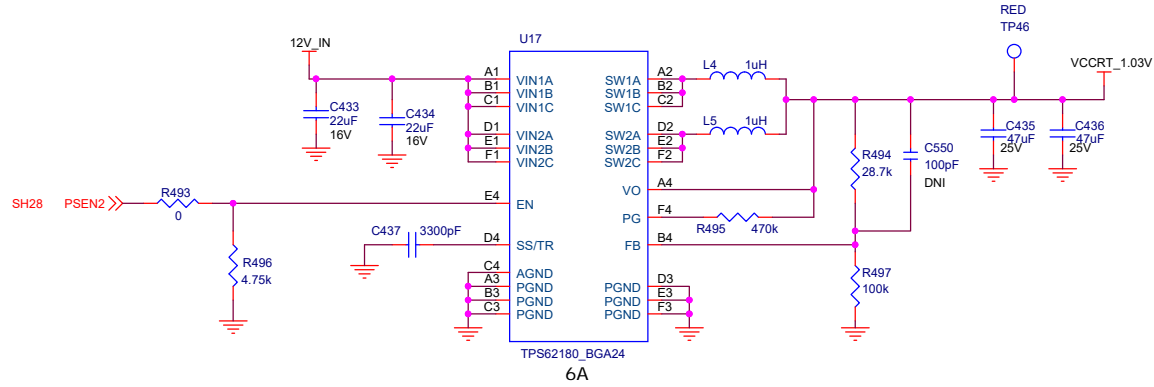
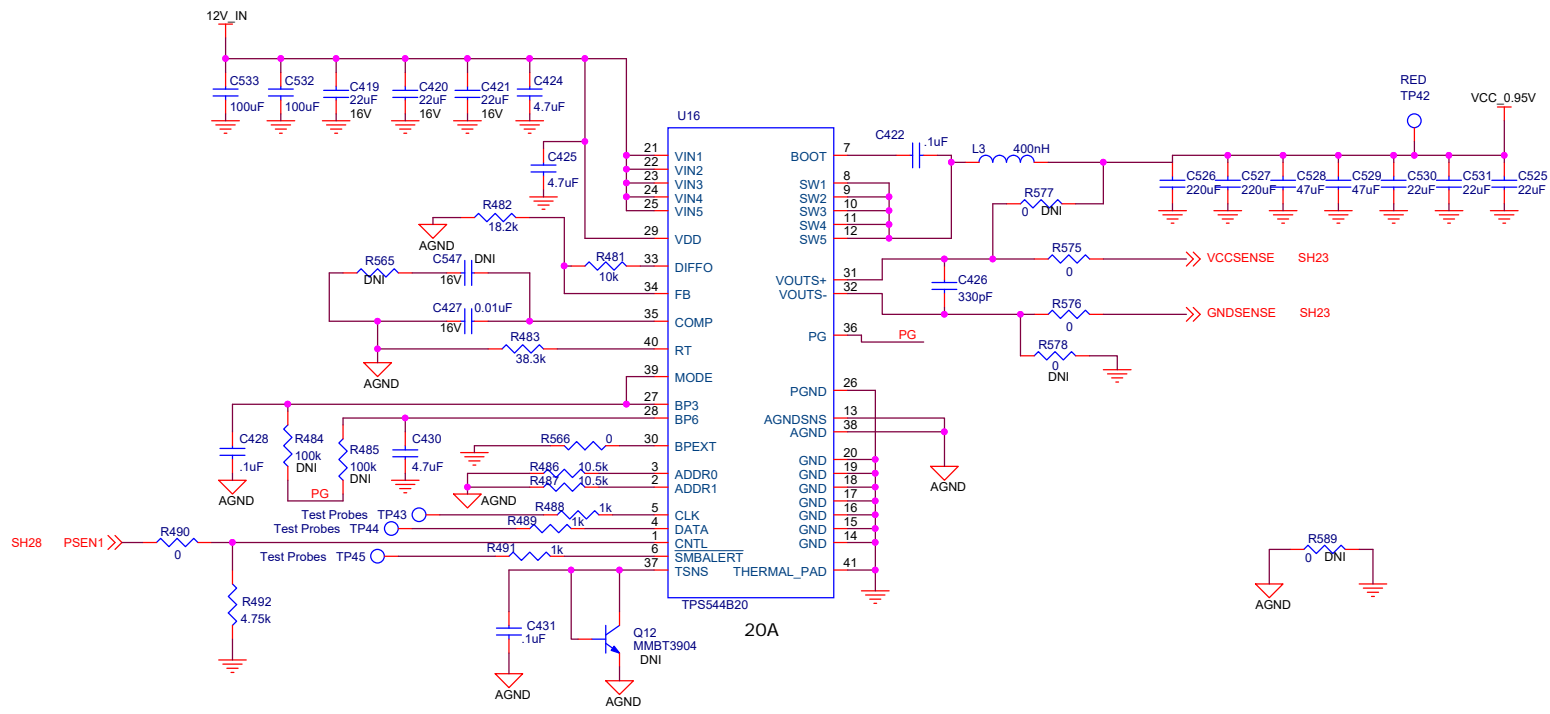
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FPGA SUPPLIES

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Z_FANHEATSINK1



12V FAN HEATSINK FOR FPGA



PCB, TSW14J57 rev E

MECHANICAL PARTS

Z_STANDOFF_SCREW1



PANHEAD SCREW 4-40 x 3/8

Z_STANDOFF1



STANDOFF ALUM HEX 4-40 x 3/4"

Z_STANDOFF_SCREW2



PANHEAD SCREW 4-40 x 3/8

Z_STANDOFF2



STANDOFF ALUM HEX 4-40 x 3/4"

Z_STANDOFF_SCREW3



PANHEAD SCREW 4-40 x 3/8

Z_STANDOFF3



STANDOFF ALUM HEX 4-40 x 3/4"

Z_STANDOFF_SCREW4



PANHEAD SCREW 4-40 x 3/8

Z_STANDOFF4



STANDOFF ALUM HEX 4-40 x 3/4"

Z_STANDOFF_SCREW5



PANHEAD SCREW 4-40 x 3/8

Z_STANDOFF5



STANDOFF ALUM HEX 4-40 x 3/4"

Z_STANDOFF_SCREW6



PANHEAD SCREW 4-40 x 3/8

Z_STANDOFF6



STANDOFF ALUM HEX 4-40 x 3/4"

HARDWARE



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