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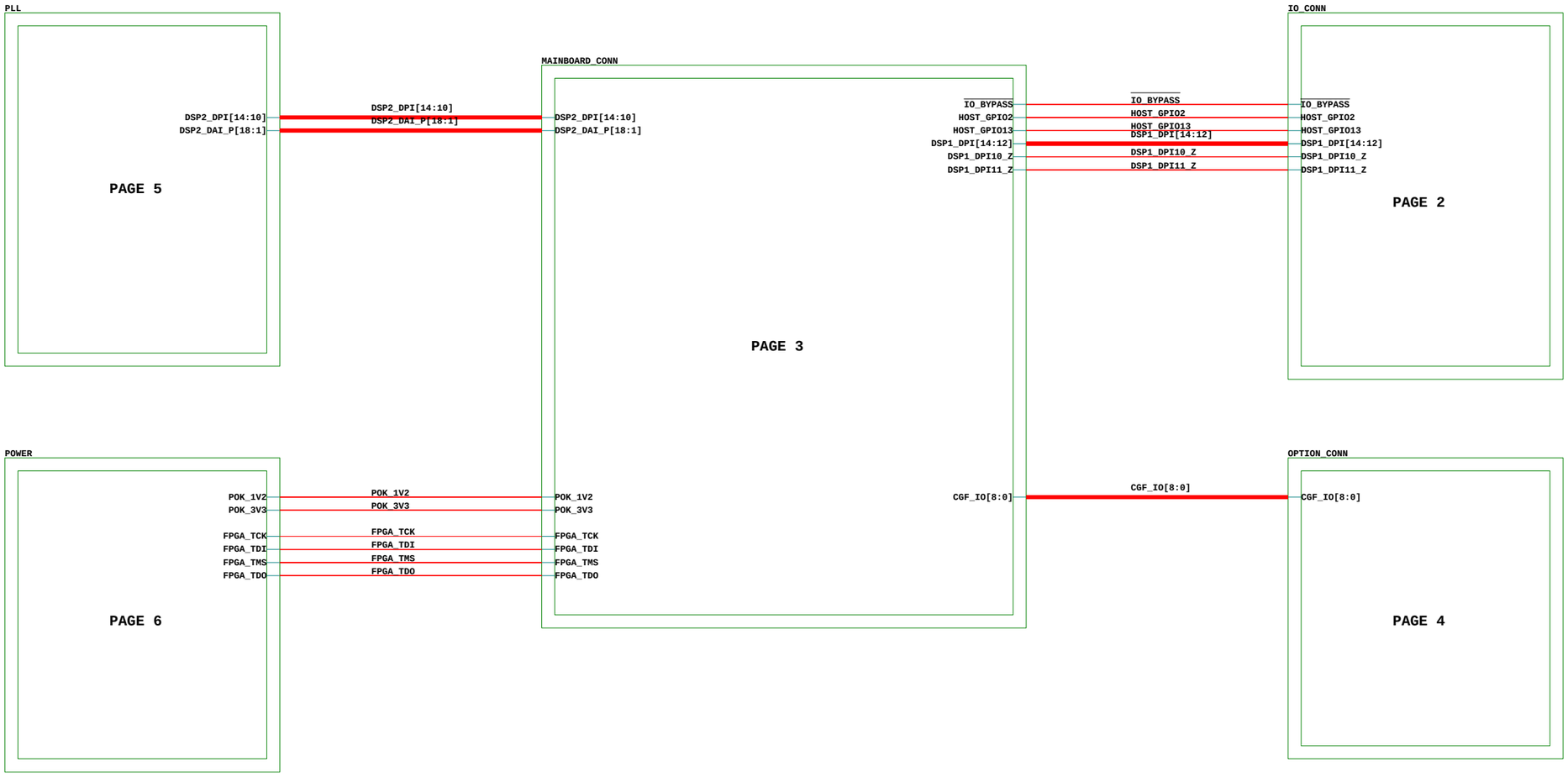
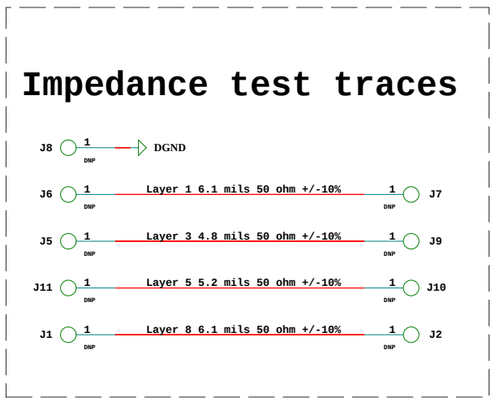


Impedance test traces



M1

P56082-A

tc electronic
TC Electronic is an individual of tcgroup

Designer(s)				CGF/MFA/MC
Title				Module title
1247 - METRO FPGA AES				TOP
Number	Revision	Variant	Version	Board type
P56082	A	A	E	TOKYO I/O
Date	Filename			Page / of
26/05/2014:11:01	P56082-A			1 / 6

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FRONT-END BOARD CONN. 1

J15 — 1.27mm Pinheader 2x15

1	IO1_TX0		
2	D+3V3		
3	IO1_TX1		
4	DGND		
5	IO1_TX2		
6	DGND		
7	IO1_TX3		
8	DGND		
9	IO1_RX0		
10	DGND		
11	IO1_RX1		
12		IO_BYPASS	IO_BYPASS
13	IO1_RX2		
14	D+5V		
15	IO1_RX3		
16	IO1_TX7		
17		HOST_GPIO2	HOST_GPIO2
18	IO1_TX6		
19	DGND		
20	IO1_TX5		
21	DGND		
22	IO1_TX4		
23	DGND		
24	IO1_RX7		
25	DGND		
26	IO1_RX6		
27	DGND		
28	IO1_RX5		
29	D+3V3		
30	IO1_RX4		

R12 — 47R

IO1_TX3	IO1_TX3_Z
IO1_TX2	IO1_TX2_Z
IO1_TX1	IO1_TX1_Z
IO1_TX0	IO1_TX0_Z

R13 — 47R

IO1_TX7	IO1_TX7_Z
IO1_TX6	IO1_TX6_Z
IO1_TX5	IO1_TX5_Z
IO1_TX4	IO1_TX4_Z

R14 — 33R

IO1_RX0	IO1_RX0_Z
IO1_RX1	IO1_RX1_Z
IO1_RX2	IO1_RX2_Z
IO1_RX3	IO1_RX3_Z

R15 — 33R

IO1_RX4	IO1_RX4_Z
IO1_RX5	IO1_RX5_Z
IO1_RX6	IO1_RX6_Z
IO1_RX7	IO1_RX7_Z

IC1 — XC6SLX45 — BANK 1

IO2_TX6_Z	F15	IO_L1P_A25_1	
IO2_TX4_Z	F16	IO_L1N_A24_VREF_1	
IO2_RX7_Z	C17	IO_L29P_A23_M1A13_1	
IO2_RX6_Z	C18	IO_L29N_A22_M1A14_1	
NC	F14	IO_L30P_A21_M1RESET_1	
NC	G14	IO_L30N_A20_M1A11_1	
IO2_RX5_Z	D17	IO_L31P_A19_M1CKE_1	
IO2_RX4_Z	D18	IO_L31N_A18_M1A12_1	
NC	H12	IO_L32P_A17_M1A8_1	
NC	G13	IO_L32N_A16_M1A9_1	
IO2_TX7_Z	E16	IO_L33P_A15_M1A10_1	
IO2_TX5_Z	E18	IO_L33N_A14_M1A4_1	
NC	K12	IO_L34P_A13_M1WE_1	
NC	K13	IO_L34N_A12_M1BA2_1	
IO2_RX3_Z	F17	IO_L35P_A11_M1A7_1	
IO2_RX2_Z	F18	IO_L35N_A10_M1A2_1	
NC	H13	IO_L36P_A9_M1BA0_1	
IO2_TX3_Z	H14	IO_L36N_A8_M1BA1_1	
IO2_TX1_Z	H15	IO_L37P_A7_M1A0_1	
IO1_TX6_Z	H16	IO_L37N_A6_M1A1_1	
IO2_TX2_Z	G16	IO_L38P_A5_M1CLK_1	
IO2_RX1_Z	G18	IO_L38N_A4_M1CLKN_1	
NC	J13	IO_L39P_M1A3_1	
NC	K14	IO_L39N_M1ODT_1	
	L12	IO_L40P_GCLK11_M1A5_1	
Bank1_loop	L13	IO_L40N_GCLK10_M1A6_1	
IO2_TX0_Z	K15	IO_L41P_GCLK9_IRDY1_M1RASN_1	
IO1_TX4_Z	K16	IO_L41N_GCLK8_M1CASN_1	
	L15	IO_L42P_GCLK7_M1UDM_1	IO1_TX1_Z
	L16	IO_L42N_GCLK6_TRDY1_M1LDM_1	IO1_TX5_Z
	H17	IO_L43P_GCLK5_M1DQ4_1	IO2_RX0_Z
	H18	IO_L43N_GCLK4_M1DQ5_1	IO1_RX7_Z
	J16	IO_L44P_A3_M1DQ6_1	IO1_TX7_Z
	J18	IO_L44N_A2_M1DQ7_1	IO1_RX6_Z
	K17	IO_L45P_A1_M1LDQS_1	IO1_RX5_Z
	K18	IO_L45N_A0_M1LDQSN_1	IO1_RX4_Z
	L17	IO_L46P_FCS_B_M1DQ2_1	IO1_RX2_Z
	L18	IO_L46N_FOE_B_M1DQ3_1	IO1_RX3_Z
	M16	IO_L47P_FWE_B_M1DQ0_1	IO1_TX2_Z
	M18	IO_L47N_LDC_M1DQ1_1	IO1_RX1_Z
	N17	IO_L48P_HDC_M1DQ8_1	IO1_TX3_Z
	N18	IO_L48N_M1DQ9_1	IO1_RX0_Z
	P17	IO_L49P_M1DQ10_1	NC
	P18	IO_L49N_M1DQ11_1	DSP1_DPI12
	N15	IO_L50P_M1UDQS_1	NC
	N16	IO_L50N_M1UDQSN_1	NC
	T17	IO_L51P_M1DQ12_1	DSP1_DPI13
	T18	IO_L51N_M1DQ13_1	DSP1_DPI10_Z
	U17	IO_L52P_M1DQ14_1	DSP1_DPI14
	U18	IO_L52N_M1DQ15_1	DSP1_DPI11_Z
	M14	IO_L53P_1	NC
	N14	IO_L53N_VREF_1	NC
	L14	IO_L61P_1	NC
	M13	IO_L61N_1	NC
	P15	IO_L74P_AWAKE_1	NC
	P16	IO_L74N_DOUT_BUSY_1	IO1_TX0_Z

FRONT-END BOARD CONN. 2

J16 — 1.27mm Pinheader 2x15

1	IO2_TX0		
2	D+3V3		
3	IO2_TX1		
4	DGND		
5	IO2_TX2		
6	DGND		
7	IO2_TX3		
8	DGND		
9	IO2_RX0		
10	DGND		
11	IO2_RX1		
12		IO_BYPASS	IO_BYPASS
13	IO2_RX2		
14	D+5V		
15	IO2_RX3		
16	IO2_TX7		
17		HOST_GPIO13	HOST_GPIO13
18	IO2_TX6		
19	DGND		
20	IO2_TX5		
21	DGND		
22	IO2_TX4		
23	DGND		
24	IO2_RX7		
25	DGND		
26	IO2_RX6		
27	DGND		
28	IO2_RX5		
29	D+3V3		
30	IO2_RX4		

R54 — 47R

IO2_TX3	IO2_TX3_Z
IO2_TX2	IO2_TX2_Z
IO2_TX1	IO2_TX1_Z
IO2_TX0	IO2_TX0_Z

R17 — 47R

IO2_TX7	IO2_TX7_Z
IO2_TX6	IO2_TX6_Z
IO2_TX5	IO2_TX5_Z
IO2_TX4	IO2_TX4_Z

R18 — 33R

IO2_RX0	IO2_RX0_Z
IO2_RX1	IO2_RX1_Z
IO2_RX2	IO2_RX2_Z
IO2_RX3	IO2_RX3_Z

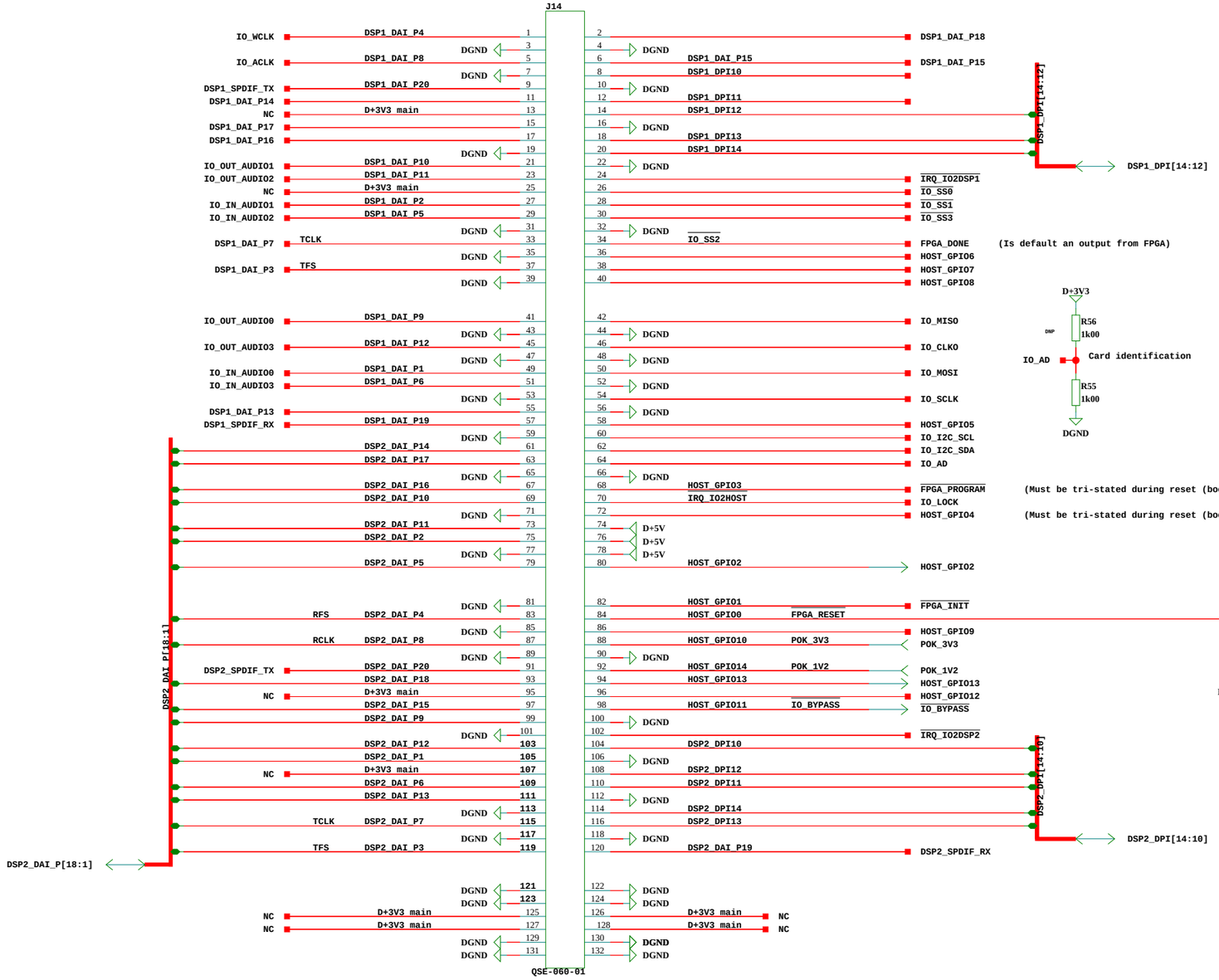
R19 — 33R

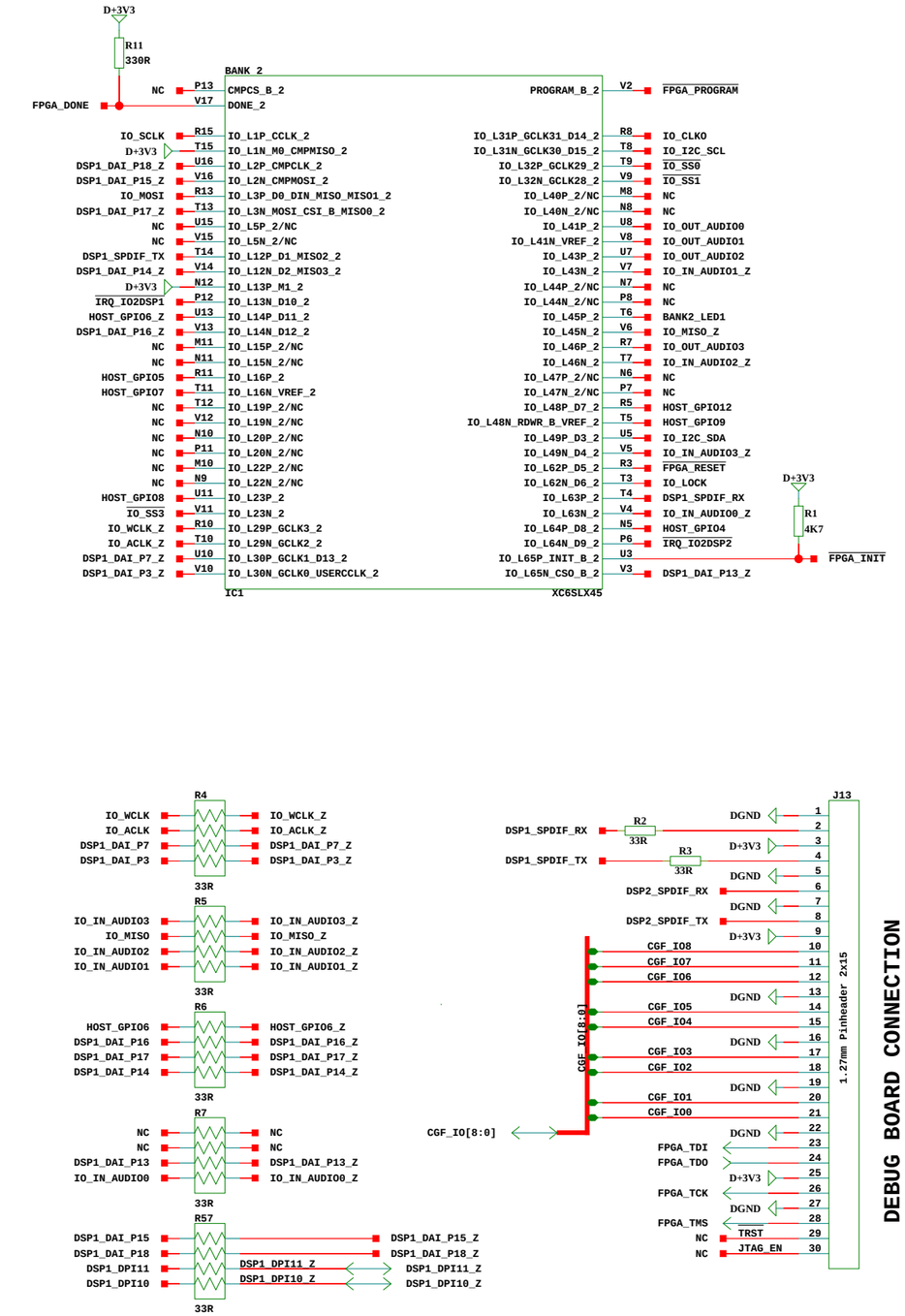
IO2_RX4	IO2_RX4_Z
IO2_RX5	IO2_RX5_Z
IO2_RX6	IO2_RX6_Z
IO2_RX7	IO2_RX7_Z

DSP1_DPI[14:12] ⟷ DSP1_DPI[14:12]

tc electronic	TC Electronic is an individual of tcgroup	Designer(s)	CGF/MFA/MC
Title	1247 - METRO FPGA AES	Module title	I/O connection
Number	P56082	Revision / Variant / Version	A / A / E
Board type	TOKYO I/O		
Date	26/05/2014:11:00	Filename	IO_CONN
Page / of	2 / 6		

MAINBOARD CONNECTION





DEBUG BOARD CONNECTION

tc electronic — TC Electronic is an individual of tcgroup				Designer(s)	CGF/MFA/MC
Title: 1247 - METRO FPGA AES				Module title	MAINBOARD I/F
Number: P56082	Revision: A	Variant: A	Version: E	Board type	TOKYO I/O
Date: 26/05/2014:11:01	Filename: MAINBOARD_CONN			Page / of	3 / 6

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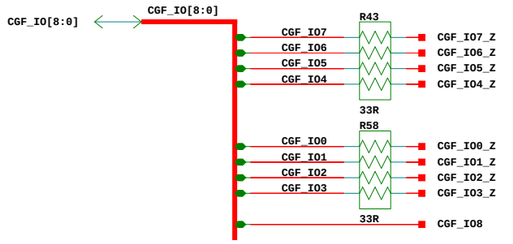

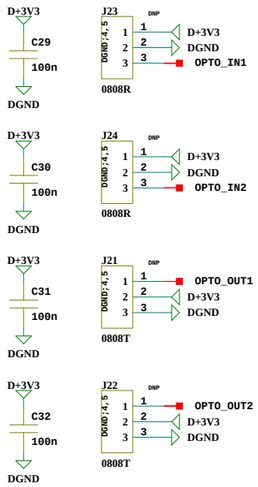

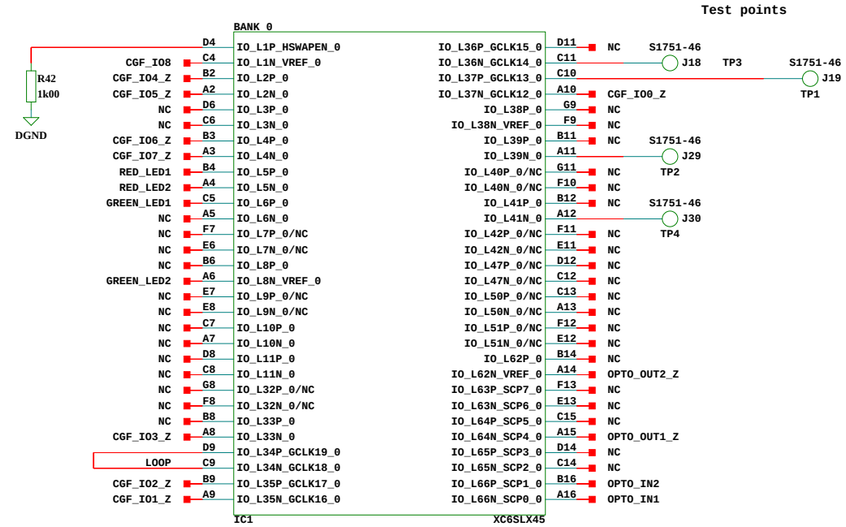

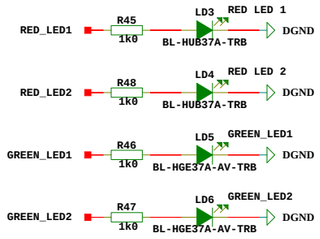

tc electronic — TC Electronic is an Instrument of tcgroup				Designer(s): CGF/MFA/MC
Title: 1247 - METRO FPGA AES				Module title: Option connection
Number: P56082	Revision: A	Variant: A	Version: E	Board type: TOKYO I/O
Date: 26/05/2014:11:01	Filename: OPTION_CONN			Page / of: 4 / 6

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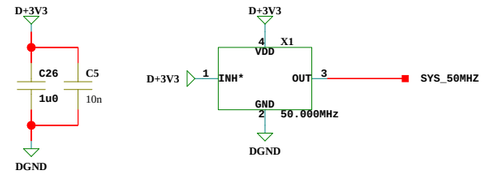
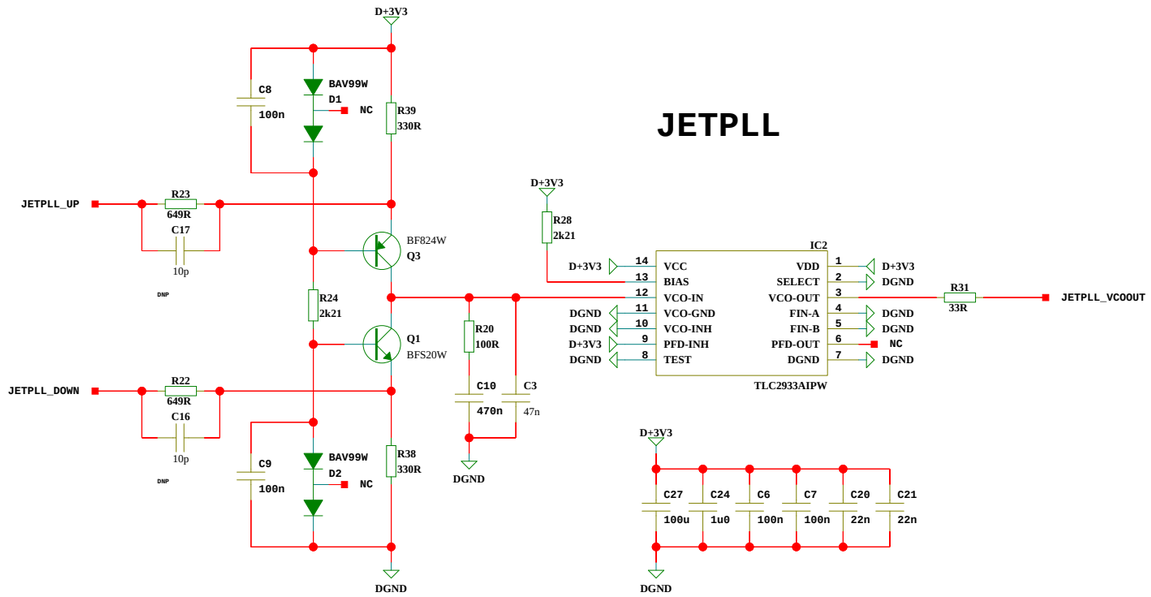
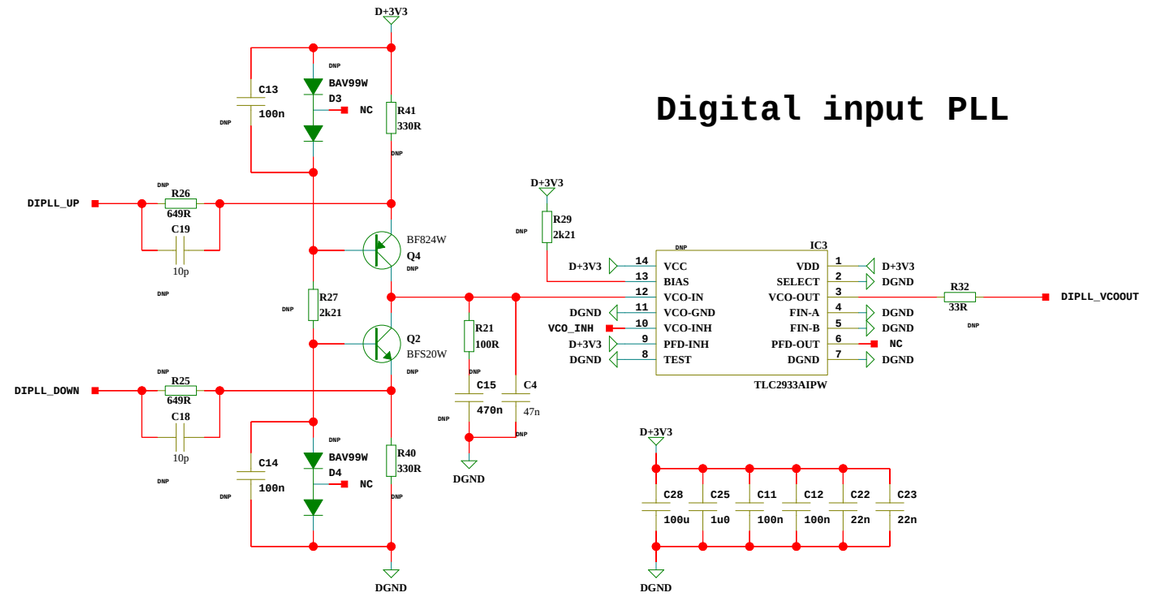
50MHz reference osc

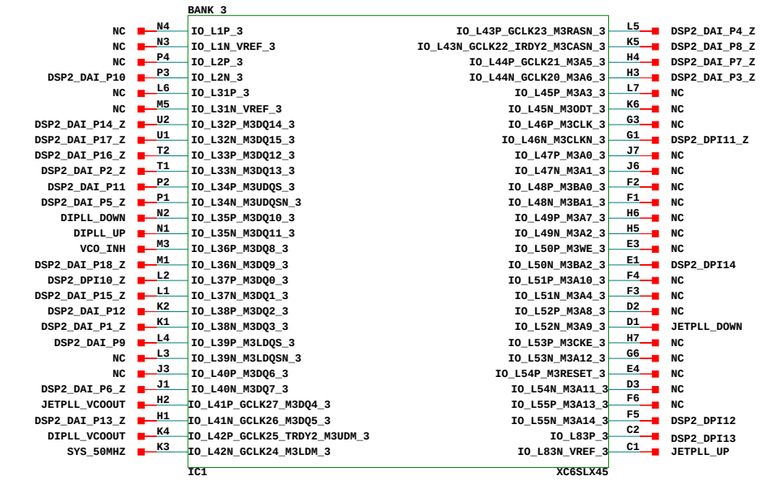


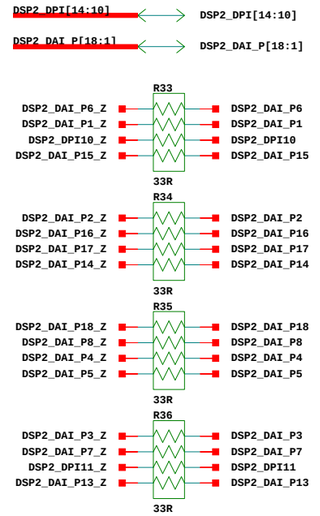
JETPLL



Digital input PLL







tc electronic — TC Electronic is an Individual of tcgroup				Designer(s): CGF/MFA/MC
Title: 1247 - METRO FPGA AES				Module title: PLL and CLOCK
Number: P56082	Revision: A	Variant: A	Version: E	Board type: TOKYO I/O
Date: 26/05/2014:11:00	Filename: PLL			Page / of: 5 / 6

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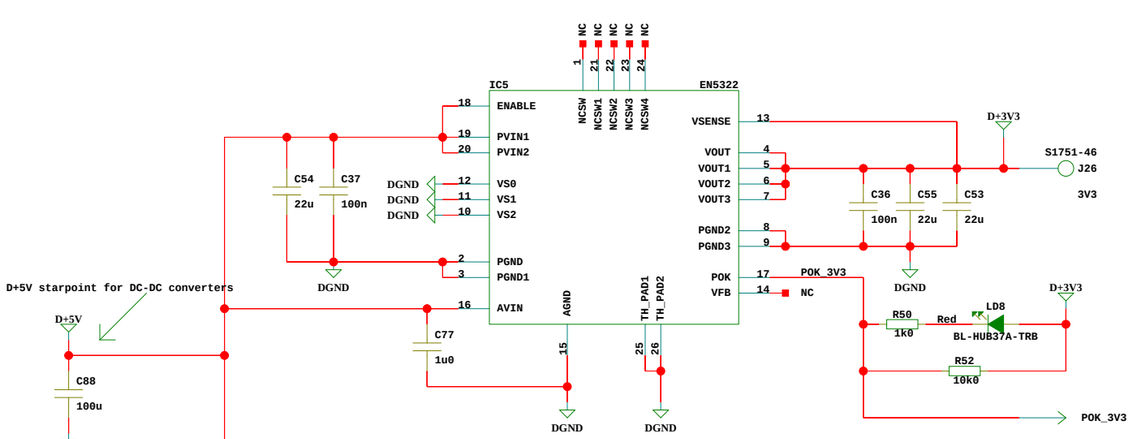

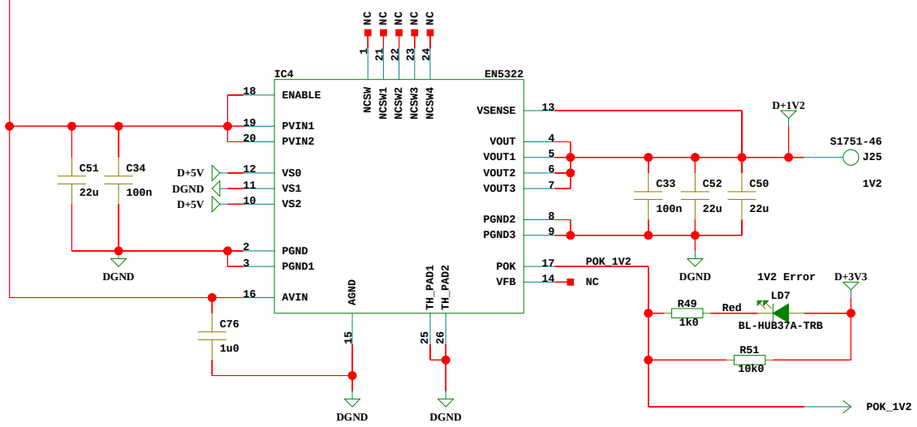

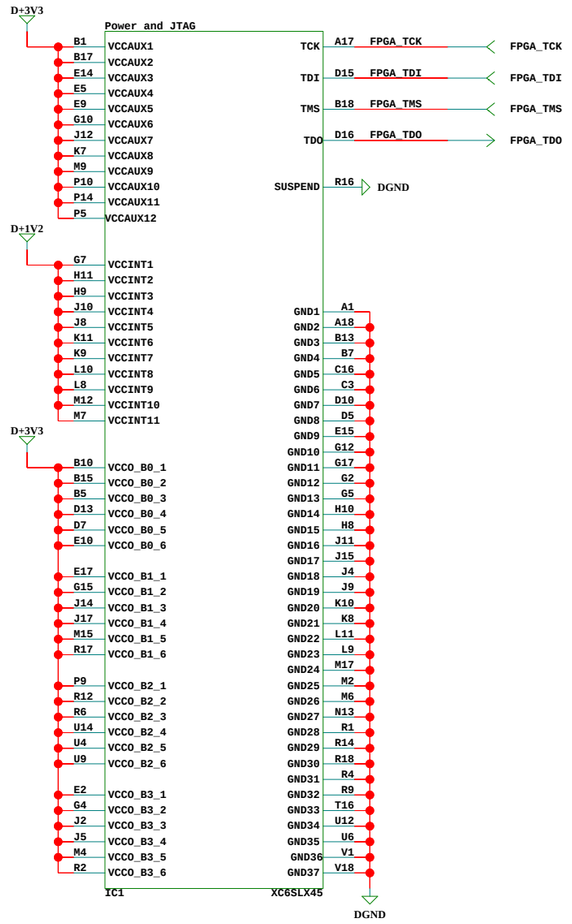

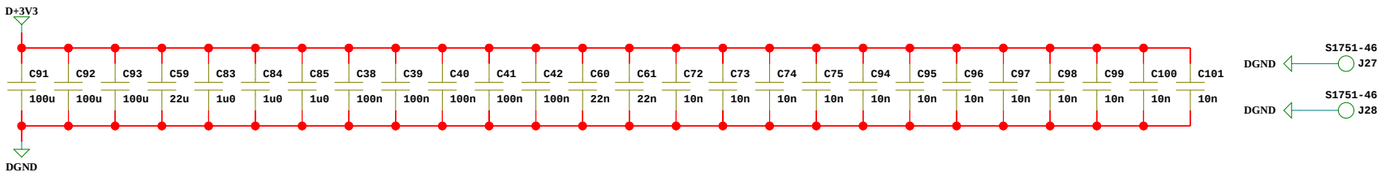

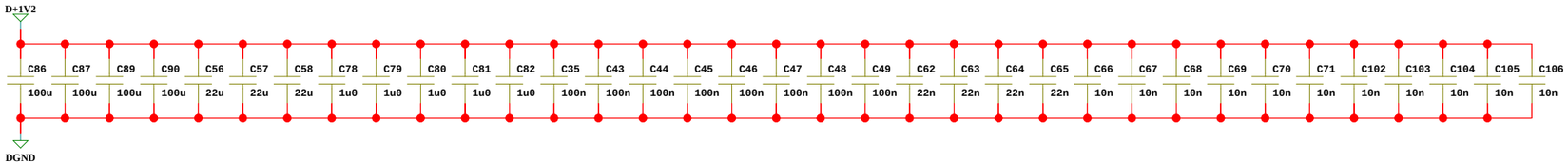

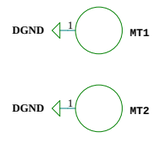

tc electronic — TC Electronic is an Individual of tcgroup				Designer(s): CGF/MFA/MC
Title: 1247 - METRO FPGA AES				Module title: POWER
Number: P56082	Revision: A	Variant: A	Version: E	Board type: TOKYO I/O
Date: 26/05/2014:11:00	Filename: POWER			Page / of: 6 / 6