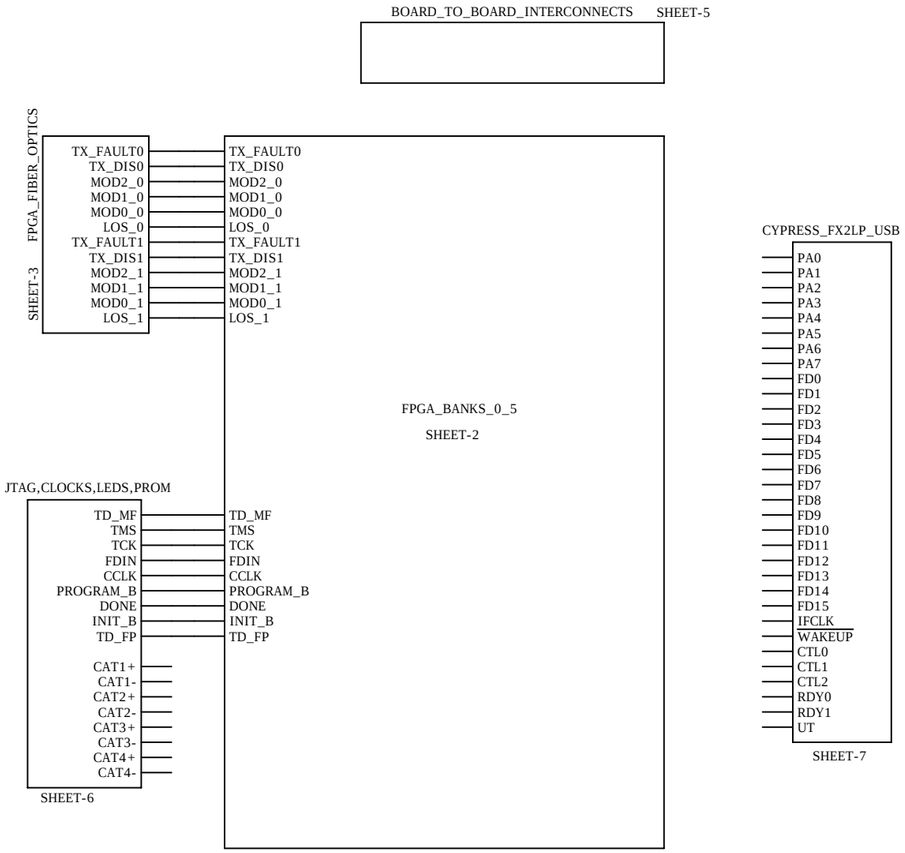


Assembly instructions:

install 2mm 2 pin jumper header 156_DIS and 250_DIS
install GND test points

notes updated 2012-05-16
added size/package notes to schematic

notes updated 2012-10-05
added notes about bank voltages and N18/M18/L10/K10/J2/M10

2013-10-09
pcb: changed 2 pin molex connector to use bigger holes

2013-10-10
sch: changed thermal wall holes to be the skinny type

2013-10-25:

forgot pullup on $\overline{\text{shdn}}$ net for regulators
holes for power connector too small
changed note on what switch #4 does

2013-10-31:

be careful wiring up the 2 pin power connector; pin 1 on the schematic doesn't correspond to pin 1 on the connector

2014-01-09

FPGA is XC6SLX150T-3FGG676I (RoHS; speed grade 3; industrial temp)

2014-02-12:

noticed that DIP sw for disconnecting cypress eeprom should probably be on other side of pull-up resistor

institution:	University of Hawai'i at Manoa High Energy Physics Group Instrumentation Development Lab
title:	SCROD
revision:	A3
IDLAB design #:	IDL_13_037
circuit design:	LJR, MZA, GSV, KAN
PCB design:	LJR, MZA
sheet #:	1 of 7
sheet description:	block diagram
date last modified:	2014-02-12

6 5 4 3 2 1

E D C B A

M0 = 1
M1 = 0
master serial / SPI

ug628 page 210/334 and ug380 page 42/66 says we don't need a pullup on done, program_b nor init_b
ug380 page 40 (note 5) suggests we need a 2.5V Vcc on the SPI flash

FPGA-A

3.3V
80 pins

H7	IO_L1P_HSWAPEN_0	
A24	TCK	TCK
C23	TDI	TD_MF
F21	TMS	TMS
G21	TDO	TD_FHL
G7	IO_L1N_VREF_0	PA0
H8	IO_L2P_0	PA1
G8	IO_L2N_0	PA2
F7	IO_L3P_0	PA3
F6	IO_L3N_0	PA4
C3	IO_L4P_0	PA5
B3	IO_L4N_0	PA6
G6	IO_L5P_0	PA7
F5	IO_L5N_0	FD0
E6	IO_L8P_0	FD1
E5	IO_L8N_VREF_0	FD2
H9	IO_L13P_0	FD3
G9	IO_L13N_0	FD4
A3	IO_L14P_0	FD5
A2	IO_L14N_0	FD6
F9	IO_L15P_0	FD7
E8	IO_L15N_0	FD8
D5	IO_L16P_0	FD9
C5	IO_L16N_0	FD10
H10	IO_L21P_0	FD11
G10	IO_L21N_0	FD12
B4	IO_L22P_0	FD13
A4	IO_L22N_0	FD14
F10	IO_L23P_0	FD15
E10	IO_L23N_0	TX_DIS0
B5	IO_L24P_0	LOS_0
A5	IO_L24N_0	TX_FAULT1
G12	IO_L30P_0	TX_FAULT0
F11	IO_L30N_0	WAKEUP
F12	IO_L31P_0	CTL0
E12	IO_L31N_0	CTL1
J11	IO_L32P_0	CTL2
G11	IO_L32N_0	RDY0
H12	IO_L33P_0	RDY1
G13	IO_L33N_0	TX_DIS1
E13	IO_L34P_GCLK19_0	CLKOUT
D13	IO_L34N_GCLK18_0	MOD2_0
C13	IO_L35P_GCLK17_0	MOD1_0
A13	IO_L35N_GCLK16_0	MOD0_0
B12	IO_L36P_GCLK15_0	MGTCLK0+
A12	IO_L36N_GCLK14_0	MGTCLK0-
B14	IO_L37P_GCLK13_0	IFCLK
A14	IO_L37N_GCLK12_0	MOD2_1
K12	IO_L38P_0	MOD1_1
J12	IO_L38N_VREF_0	MOD0_1
J13	IO_L39P_0	LOS_1
H13	IO_L39N_0	J3_021_H13_SCL0
F14	IO_L40P_0	J3_023_F14_SDA0
E14	IO_L40N_0	J3_024_E14_SCL1
K14	IO_L41P_0	J3_025_K14_SDA1
H14	IO_L41N_0	J3_027_H14_SCL2
J15	IO_L43P_0	J3_028_J15_SDA2
H15	IO_L43N_0	J3_029_H15_SCL3
J16	IO_L48P_0	J3_031_J16_SDA3
J17	IO_L48N_0	
F16	IO_L49P_0	
E16	IO_L49N_0	THERMAL_ALARM
G15	IO_L50P_0	
F15	IO_L50N_0	
F18	IO_L51P_0	LED0
E18	IO_L51N_0	LED1
G16	IO_L56P_0	LED2
F17	IO_L56N_0	LED3
F20	IO_L57P_0	LED4
E20	IO_L57N_0	LED5
H17	IO_L58P_0	LED6
G17	IO_L58N_0	LED7
C21	IO_L59P_0	LED8
B21	IO_L59N_0	LED9
H18	IO_L62P_0	LED10
H19	IO_L62N_VREF_0	LED11
B22	IO_L63P_SCP7_0	LED12
A22	IO_L63N_SCP6_0	LED13
G19	IO_L64P_SCP5_0	LED14
F19	IO_L64N_SCP4_0	LED15
B23	IO_L65P_SCP3_0	I2C_SCL
A23	IO_L65N_SCP2_0	I2C_SDA
D21	IO_L66P_SCP1_0	TRIG
D22	IO_L66N_SCP0_0	

XC6SLX150T-FG676

DIP-SWITCH-5POS
SW-C

RA20
10k
0402

D3.3V

RG1 4.7k 0402
RG2 4.7k 0402
RH1 330 0402

D2.5V

RESET
1A 1B 2
PUSHBUTTON-NO

RA1
10k
0402

0402
2.4k
RA2

FPGA-B

2.5V

W22	VFS	
V19	RFUSE	
V22	VBATT	
Y22	SUSPEND	
N17	IO_L28P_1	J4_052_N17
L23	IO_L29P_A23_M1A13_1	J4_077_L23
L24	IO_L29N_A22_M1A14_1	J4_078_L24
N19	IO_L30P_A21_M1RESET_1	J3_040_N19
N20	IO_L30N_A20_M1A11_1	J3_060_N20
N21	IO_L31P_A19_M1CKE_1	J3_041_N21
N22	IO_L31N_A18_M1A12_1	J4_047_N22
P17	IO_L32P_A17_M1A8_1	J2_072_P17
P19	IO_L32N_A16_M1A9_1	J3_039_P19
N23	IO_L33P_A15_M1A10_1	J4_074_N23
N24	IO_L33N_A14_M1A4_1	J4_046_N24
R18	IO_L34P_A13_M1WE_1	J3_073_R18
R19	IO_L34N_A12_M1BA2_1	J3_064_R19
P21	IO_L35P_A11_M1A7_1	J3_061_P21
P22	IO_L35N_A10_M1A2_1	J4_048_P22
R20	IO_L36P_A9_M1BA0_1	J3_037_R20
R21	IO_L36N_A8_M1BA1_1	J3_062_R21
P24	IO_L37P_A7_M1A0_1	J4_073_P24
P26	IO_L37N_A6_M1A1_1	J4_115_P26
R24	IO_L38N_A4_M1CLKN_1	J4_071_R24
R23	IO_L38P_A5_M1CLK_1	J4_050_R23
T22	IO_L39P_M1A3_1	J4_069_T22
T23	IO_L39N_M1ODT_1	J4_051_T23
U23	IO_L40P_GCLK11_M1A5_1	J4_110_U23
U24	IO_L40N_GCLK10_M1A6_1	J4_109_U24
R25	IO_L41P_GCLK9_IRDY1_M1RASN_1	J4_113_R25
R26	IO_L41N_GCLK8_M1CASN_1	J4_114_R26
V23	IO_L42P_GCLK7_M1UDM_1	J4_055_V23
W24	IO_L42N_GCLK6_TRDY1_M1LDM_1	J4_065_W24
U25	IO_L43P_GCLK5_M1DQ4_1	4NS_CLOCK+
U26	IO_L43N_GCLK4_M1DQ5_1	4NS_CLOCK-
T24	IO_L44P_A3_M1DQ6_1	J4_070_T24
T26	IO_L44N_A2_M1DQ7_1	J4_111_T26
V24	IO_L45P_A1_M1LDQS_1	J4_066_V24
V26	IO_L45N_A0_M1LDQSN_1	J4_107_V26
W25	IO_L46P_FCS_B_M1DQ2_1	J4_105_W25
W26	IO_L46N_FOE_B_M1DQ3_1	J4_106_W26
AA25	IO_L47P_FWE_B_M1DQ0_1	J4_102_AA25
AA26	IO_L47N_LDC_M1DQ1_1	J4_101_AA26
AD24	IO_L48P_HDC_M1DQ8_1	J4_060_AD24
AD26	IO_L48N_M1DQ9_1	J4_095_AD26
AB24	IO_L49P_M1DQ10_1	J4_062_AB24
AB26	IO_L49N_M1DQ11_1	J4_099_AB26
AC25	IO_L50P_M1UDQS_1	J4_098_AC25
AC26	IO_L50N_M1UDQSN_1	J4_097_AC26
Y24	IO_L51P_M1DQ12_1	J4_056_Y24
Y26	IO_L51N_M1DQ13_1	J4_103_Y26
AE25	IO_L52P_M1DQ14_1	J4_093_AE25
AE26	IO_L52N_M1DQ15_1	J4_094_AE26
U21	IO_L53P_1	J3_035_U21
U22	IO_L53N_VREF_1	J4_054_U22
T19	IO_L66P_1	J3_065_T19
T20	IO_L66N_1	J3_036_T20
AA23	IO_L67P_1	J4_058_AA23
AA24	IO_L67N_1	J4_063_AA24
U19	IO_L68P_1	J3_033_U19
U20	IO_L68N_1	J3_066_U20
V20	IO_L69P_1	J3_032_V20
V21	IO_L69N_VREF_1	J3_068_V21
AC23	IO_L74P_AWAKE_1	J4_061_AC23
AC24	IO_L74N_DOUT_BUSY_1	J4_059_AC24
N18	IO_L28N_VREF_1	J3_072_N18_SDA

64 pins

XC6SLX150T-FG676

FPGA-C

AF24	IO_L1N_M0_CMPMISO_2	
AD22	IO_L13P_M1_2	
AF25	DONE_2	DONE
AF2	PROGRAM_B_2	PROGRAM_B
AE3	IO_L65P_INIT_B_2	INIT_B
AE24	IO_L1P_CCLK_2	CCLK
AF3	IO_L65N_CSO_B_2	CSO_B
AF23	IO_L3N_MOSI_CSI_B_MISO0_2	J4_091_AF23/MOSI/MISO0
AD23	IO_L3P_D0_DIN_MISO_MISO1_2	DIN/MISO1
V18	IO_L12P_D1_MISO2_2	J2_056_V18/D1/MISO2
W19	IO_L12N_D2_MISO3_2	J2_057_W19/D2/MISO3
Y19	CMPCS_B_2	
Y21	IO_L2P_CMPCLK_2	J2_049_Y21
AA22	IO_L2N_CMPMOSI_2	J2_052_AA22
W20	IO_L4P_2	J2_048_W20
Y20	IO_L4N_VREF_2	J2_053_Y20
AB22	IO_L5P_2	J2_047_AB22
AC22	IO_L5N_2	J2_054_AC22
AF22	IO_L13N_D10_2	J2_044_AF22
W17	IO_L14P_D11_2	J2_043_W17
W18	IO_L14N_D12_2	J2_058_W18
AA21	IO_L15P_2	J2_041_AA21
AB21	IO_L15N_2	J2_060_AB21
Y17	IO_L16P_2	J2_040_Y17
AA17	IO_L16N_VREF_2	J2_061_AA17
U15	IO_L17P_2	J2_039_U15
V16	IO_L17N_2	J2_062_V16
AA19	IO_L18P_2	J2_037_AA19
AB19	IO_L18N_2	J2_064_AB19
W16	IO_L19P_2	J2_036_W16
Y16	IO_L19N_2	J2_065_Y16
AA18	IO_L20P_2	J2_035_AA18
AB17	IO_L20N_2	J2_066_AB17
Y15	IO_L24P_2	J2_033_Y15
AA16	IO_L24N_VREF_2	J2_068_AA16
V14	IO_L26P_2	J2_032_V14
V15	IO_L26N_2	J2_069_V15
U13	IO_L27P_2	J2_074_U13
V13	IO_L27N_2	J2_076_V13
AA15	IO_L28P_2	J2_031_AA15
AB15	IO_L28N_2	J2_070_AB15
AE15	IO_L29P_GCLK3_2	RSV+
AF15	IO_L29N_GCLK2_2	RSV-
AB14	IO_L30P_GCLK1_D13_2	TRG+
AC14	IO_L30N_GCLK0_USERCCLK_2	TRG-
AE13	IO_L31P_GCLK31_D14_2	RCLK+
AF13	IO_L31N_GCLK30_D15_2	RCLK-
AD14	IO_L32P_GCLK29_2	ACK+
AF14	IO_L32N_GCLK28_2	ACK-
Y12	IO_L33P_2	J2_077_Y12
AA12	IO_L33N_2	J2_023_AA12
W14	IO_L34P_2	J2_073_W14
Y13	IO_L34N_2	J2_078_Y13
V12	IO_L35P_2	J2_021_V12
W12	IO_L35N_2	J2_080_W12
AB13	IO_L36P_2	J2_020_AB13
AA13	IO_L36N_2	J2_081_AA13
Y11	IO_L41P_2	J2_019_Y11
AA11	IO_L41N_VREF_2	J2_082_AA11
V11	IO_L46P_2	J2_017_V11
V10	IO_L46N_2	J2_084_V10
AA9	IO_L47P_2	J2_016_AA9
AB9	IO_L47N_2	J2_085_AB9
AA10	IO_L48P_D7_2	J2_015_AA10
AB11	IO_L48N_RDWR_B_VREF_2	J2_086_AB11
AD6	IO_L49P_D3_2	J2_013_AD6
AF6	IO_L49N_D4_2	J2_012_AF6
W10	IO_L50P_2	J2_088_W10
W9	IO_L50N_2	J2_089_W9
AE5	IO_L51P_2	J2_011_AE5
AF5	IO_L51N_2	J2_009_AF5
Y9	IO_L52P_2	J2_090_Y9
AA8	IO_L52N_2	J2_092_AA8
AB7	IO_L53P_2	J2_093_AB7
AC6	IO_L53N_2	J2_094_AC6
AC5	IO_L61P_2	J2_005_AC5
AD5	IO_L61N_VREF_2	J2_096_AD5
W8	IO_L62P_D5_2	J2_004_W8
W7	IO_L62N_D6_2	J2_097_W7
AD4	IO_L63P_2	J2_003_AD4
AF4	IO_L63N_2	J2_008_AF4
AA7	IO_L64P_D8_2	J2_098_AA7
AA6	IO_L64N_D9_2	J2_024_AA6

2.5V

64 pins

XC6SLX150T-FG676

FPGA-D

2.5V

AB5	IO_L1P_3	J1_063_AB5
AC4	IO_L1N_VREF_3	J1_062_AC4
AA4	IO_L2P_3	J1_055_AA4
AA3	IO_L2N_3	J1_066_AA3
Y6	IO_L7P_3	J3_019_Y6
Y5	IO_L7N_3	J1_054_Y5
AB4	IO_L8P_3	J1_056_AB4
AC3	IO_L8N_3	J1_058_AC3
V7	IO_L9P_3	J3_084_V7
V6	IO_L9N_3	J3_017_V6
U4	IO_L10P_3	J1_048_U4
U3	IO_L10N_3	J1_073_U3
V5	IO_L17P_3	J1_051_V5
W5	IO_L17N_VREF_3	J1_052_W5
U9	IO_L18P_3	J3_074_U9
U8	IO_L18N_3	J3_085_U8
U7	IO_L31P_3	J3_016_U7
T6	IO_L31N_VREF_3	J3_015_T6
AB3	IO_L32P_M3DQ14_3	J1_065_AB3
AB1	IO_L32N_M3DQ15_3	J1_022_AB1
AD3	IO_L33P_M3DQ12_3	J1_059_AD3
AD1	IO_L33N_M3DQ13_3	J1_026_AD1
AC2	IO_L34P_M3UDQS_3	J1_024_AC2
AC1	IO_L34N_M3UDQSN_3	J1_023_AC1
AE2	IO_L35P_M3DQ10_3	J1_028_AE2
AE1	IO_L35N_M3DQ11_3	J1_027_AE1
AA2	IO_L36P_M3DQ8_3	J1_020_AA2
AA1	IO_L36N_M3DQ9_3	J1_019_AA1
Y3	IO_L37P_M3DQ0_3	J1_067_Y3
Y1	IO_L37N_M3DQ1_3	J1_018_Y1
W2	IO_L38P_M3DQ2_3	J1_016_W2
W1	IO_L38N_M3DQ3_3	J1_015_W1
V3	IO_L39P_M3LDQS_3	J1_050_V3
V1	IO_L39N_M3LDQSN_3	J1_014_V1
U2	IO_L40P_M3DQ6_3	J1_012_U2
U1	IO_L40N_M3DQ7_3	J1_011_U1
T3	IO_L41P_GCLK27_M3DQ4_3	J1_074_T3
T1	IO_L41N_GCLK26_M3DQ5_3	J1_010_T1
V4	IO_L42P_GCLK25_TRDY2_M3UDM_3	J1_070_V4
W3	IO_L42N_GCLK24_M3LDM_3	J1_069_W3
R7	IO_L43P_GCLK23_M3RASN_3	J3_013_R7
R6	IO_L43N_GCLK22_IRDY2_M3CASN_3	J3_089_R6
R2	IO_L44P_GCLK21_M3A5_3	J1_008_R2
R1	IO_L44N_GCLK20_M3A6_3	J1_007_R1
R8	IO_L45P_M3A3_3	J3_088_R8
T8	IO_L45N_M3ODT_3	J3_086_T8
U5	IO_L46P_M3CLK_3	J1_071_U5
T4	IO_L46N_M3CLKN_3	J1_047_T4
R10	IO_L47P_M3A0_3	J2_007_R10
T9	IO_L47N_M3A1_3	J3_076_T9
P3	IO_L48P_M3BA0_3	J1_043_P3
P1	IO_L48N_M3BA1_3	J1_006_P1
N6	IO_L49P_M3A7_3	J3_009_N6
P6	IO_L49N_M3A2_3	J3_090_P6
P5	IO_L50P_M3WE_3	J1_077_P5
R5	IO_L50N_M3BA2_3	J1_046_R5
N8	IO_L51P_M3A10_3	J3_011_N8
N7	IO_L51N_M3A4_3	J3_092_N7
R4	IO_L52P_M3A8_3	J1_075_R4
R3	IO_L52N_M3A9_3	J1_044_R3
R9	IO_L53P_M3CKE_3	J3_077_R9
P8	IO_L53N_M3A12_3	J3_012_P8
N5	IO_L54P_M3RESET_3	J1_078_N5
N4	IO_L54N_M3A11_3	J1_042_N4
P10	IO_L55P_M3A13_3	J2_025_P10
N9	IO_L55N_M3A14_3	J3_078_N9
M10	IO_L57P_3	J2_027_M10_SDA
M9	IO_L57N_VREF_3	J3_080_M9

64 pins

XC6SLX150T-FG676

FPGA-E

J1_040_M4	M4	IO_L58P_4
J1_079_N3	N3	IO_L58N_VREF_4
J1_091_N2	N2	IO_L59P_M4DQ14_4
J1_093_N1	N1	IO_L59N_M4DQ15_4
J1_081_M3	M3	IO_L60P_M4DQ12_4
J1_094_M1	M1	IO_L60N_M4DQ13_4
J1_095_L2	L2	IO_L61P_M4UDQS_4
J1_097_L1	L1	IO_L61N_M4UDQSN_4
J1_083_K3	K3	IO_L62P_M4DQ10_4
J1_098_K1	K1	IO_L62N_M4DQ11_4
J1_099_J2_SCL	J2	IO_L63P_M4DQ8_4
J1_101_J1	J1	IO_L63N_M4DQ9_4
J1_034_H3	H3	IO_L64P_M4DQ0_4
J1_102_H1	H1	IO_L64N_M4DQ1_4
J1_103_G2	G2	IO_L65P_M4DQ2_4
J1_105_G1	G1	IO_L65N_M4DQ3_4
J1_089_F3	F3	IO_L66P_M4LDQS_4
J1_115_F1	F1	IO_L66N_M4LDQSN_4
J1_107_E2	E2	IO_L67P_M4DQ6_4
J1_114_E1	E1	IO_L67N_M4DQ7_4
J1_030_D3	D3	IO_L68P_M4DQ4_4
J1_110_D1	D1	IO_L68N_M4DQ5_4
J1_085_J4	J4	IO_L69P_M4UDM_4
J1_035_J3	J3	IO_L69N_M4LDM_4
J3_081_L9	L9	IO_L70P_M4RASN_4
J3_094_L8	L8	IO_L70N_M4CASN_4
J1_039_L4	L4	IO_L71P_M4A5_4
J1_082_L3	L3	IO_L71N_M4A6_4
J3_093_M8	M8	IO_L72P_M4A3_4
J3_008_M6	M6	IO_L72N_M4ODT_4
J1_038_K5	K5	IO_L73P_M4CLK_4
J1_036_J5	J5	IO_L73N_M4CLKN_4
J3_007_L7	L7	IO_L74P_M4A0_4
J3_096_L6	L6	IO_L74N_M4A1_4
J1_109_B2	B2	IO_L75P_M4BA0_4
J1_106_B1	B1	IO_L75N_M4BA1_4
J2_028_L10_SCL	L10	IO_L76P_M4A7_4
J2_029_K10_SDA	K10	IO_L76N_M4A2_4
J1_087_G4	G4	IO_L77P_M4WE_4
J1_032_G3	G3	IO_L77N_M4BA2_4
J3_082_J9	J9	IO_L78P_M4A10_4
J3_098_J7	J7	IO_L78N_M4A4_4
J1_111_C2	C2	IO_L79P_M4A8_4
J1_113_C1	C1	IO_L79N_M4A9_4
J3_020_K9	K9	IO_L80P_M4CKE_4
J3_005_K8	K8	IO_L80N_M4A12_4
J1_031_E4	E4	IO_L81P_M4RESET_4
J1_090_E3	E3	IO_L81N_M4A11_4
J3_097_K7	K7	IO_L82P_M4A13_4
J3_004_K6	K6	IO_L82N_M4A14_4
J3_003_H6	H6	IO_L83P_4
J1_086_H5	H5	IO_L83N_VREF_4

2.5V

48 pins

XC6SLX150T-FG676

FPGA-F

H20	IO_L1P_A25_5	J3_048_H20
G20	IO_L1N_A24_VREF_5	J3_049_G20
B24	IO_L2P_M5A13_5	J2_045_B24
A25	IO_L2N_M5A14_5	J4_006_A25
K18	IO_L3P_M5RESET_5	J3_069_K18
K19	IO_L3N_M5A11_5	J3_045_K19
D23	IO_L4P_M5CKE_5	J4_032_D23
C24	IO_L4N_M5A12_5	J4_090_C24
H21	IO_L5P_M5A8_5	J3_052_H21
H22	IO_L5N_M5A9_5	J4_082_H22
F22	IO_L6P_M5A10_5	J4_085_F22
G23	IO_L6N_M5A4_5	J4_083_G23
J20	IO_L7P_M5WE_5	J3_053_J20
J22	IO_L7N_M5BA2_5	J4_040_J22
E23	IO_L8P_M5A7_5	J4_034_E23
E24	IO_L8N_M5A2_5	J4_087_E24
L19	IO_L9P_M5BA0_5	J3_057_L19
K20	IO_L9N_M5BA1_5	J3_054_K20
C25	IO_L10P_M5A0_5	J4_011_C25
C26	IO_L10N_M5A1_5	J4_010_C26
B25	IO_L11P_M5CLK_5	J4_008_B25
B26	IO_L11N_M5CLKN_5	J4_007_B26
K21	IO_L12P_M5A3_5	J3_047_K21
K22	IO_L12N_M5ODT_5	J4_042_K22
M18	IO_L13P_M5A5_5	J3_070_M18_SCL
M19	IO_L13N_M5A6_5	J3_058_M19
F23	IO_L14P_M5RASN_5	J4_035_F23
G24	IO_L14N_M5CASN_5	J4_036_G24
J23	IO_L15P_M5UDM_5	J4_081_J23
J24	IO_L15N_M5LDM_5	J4_039_J24
E25	IO_L16P_M5DQ4_5	J4_015_E25
E26	IO_L16N_M5DQ5_5	J4_014_E26
D24	IO_L17P_M5DQ6_5	J4_089_D24
D26	IO_L17N_M5DQ7_5	J4_012_D26
F24	IO_L18P_M5LDQS_5	J4_086_F24
F26	IO_L18N_M5LDQSN_5	J4_016_F26
H24	IO_L19P_M5DQ2_5	J4_038_H24
H26	IO_L19N_M5DQ3_5	J4_020_H26
G25	IO_L20P_M5DQ0_5	J4_019_G25
G26	IO_L20N_M5DQ1_5	J4_018_G26
K24	IO_L21P_M5DQ8_5	J4_079_K24
K26	IO_L21N_M5DQ9_5	J4_024_K26
J25	IO_L22P_M5DQ10_5	J4_023_J25
J26	IO_L22N_M5DQ11_5	J4_022_J26
M24	IO_L23P_M5UDQS_5	J4_044_M24
M26	IO_L23N_M5UDQSN_5	J4_028_M26
L25	IO_L24P_M5DQ12_5	J4_027_L25
L26	IO_L24N_M5DQ13_5	J4_026_L26
N25	IO_L25P_M5DQ14_5	J4_031_N25
N26	IO_L25N_M5DQ15_5	J4_030_N26
M21	IO_L26P_5	J3_043_M21
L20	IO_L27P_5	J3_044_L20
L21	IO_L27N_5	J3_056_L21
M23	IO_L26N_VREF_5	J4_075_M23

2.5V

50 pins

XC6SLX150T-FG676

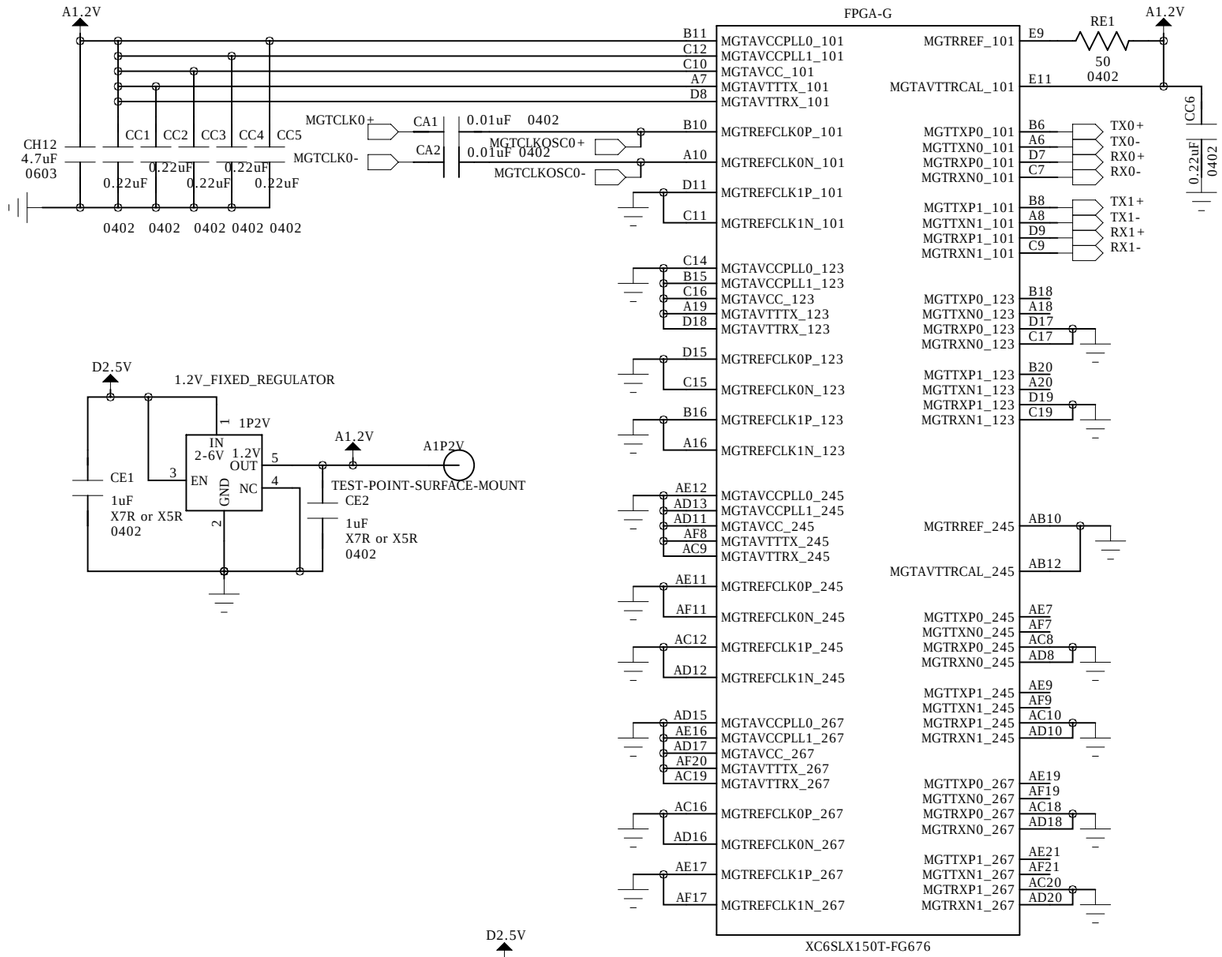
added bank pin counts

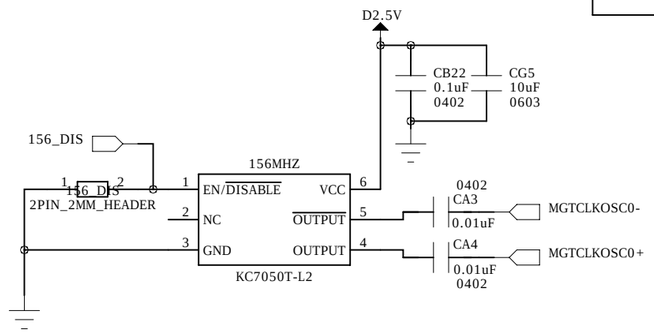
revA2:
changed TX_DIS1 TX_FAULT0 IFCLK TX_DIS0 CLKOUT
revA3:
changed 250_DIS 156_DIS J17 F16 G15 F15 D21 D22

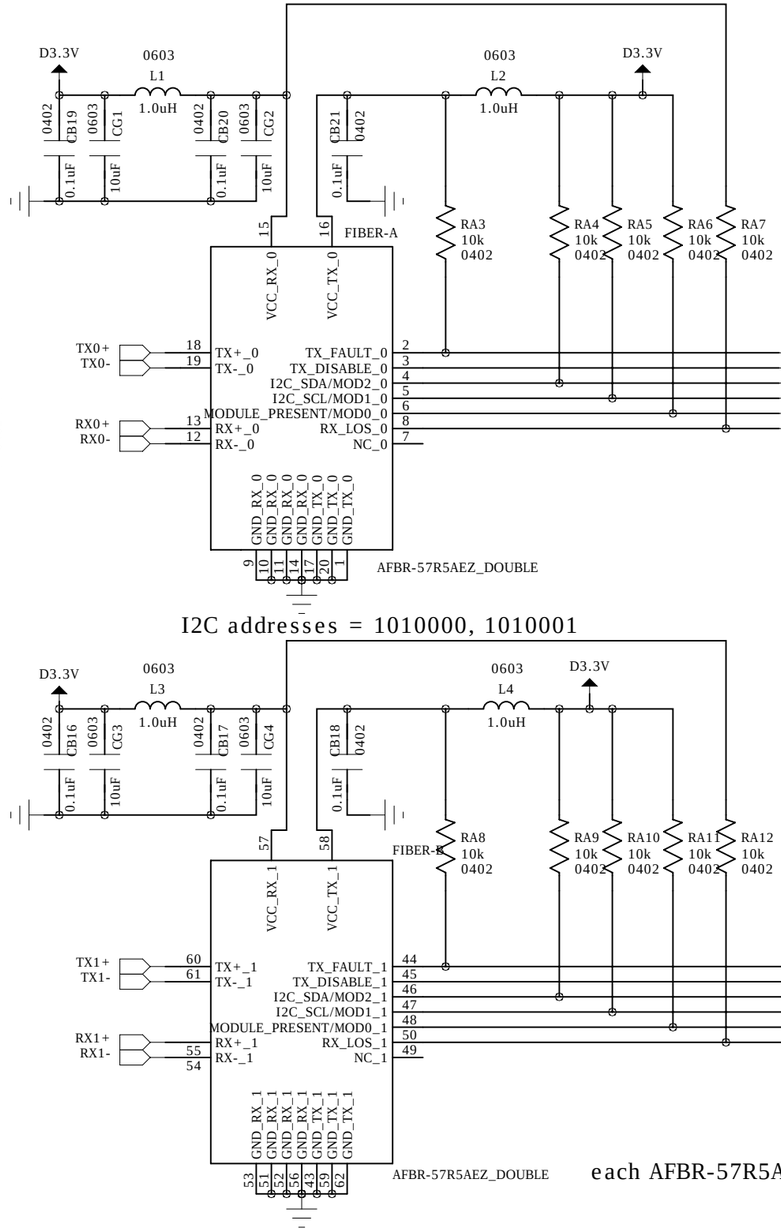
revA2:
TRIGIN: J4_091_B24 -> J4_091_AF23/MOSI/MISO0
TST_OUT_DC9: J2_045_AF23 -> J2_045_B24
SSP_OUT_DC4: J2_007_AF3 -> J2_007_R10
overloaded J2_056_V18 (CH_SEL1)
overloaded J2_057_W19 (CH_SEL0)

institution:	University of Hawai'i at Manoa High Energy Physics Group Instrumentation Development Lab
title:	SCROD
revision:	A3
IDLAB design #:	IDL_13_037
circuit design:	LJR, MZA, GSV, KAN
PCB design:	LJR, MZA
sheet #:	2 of 7
sheet description:	FPGA banks 0-5
date last modified:	2014-02-12

110.1mA per lane (ds162 page 12)





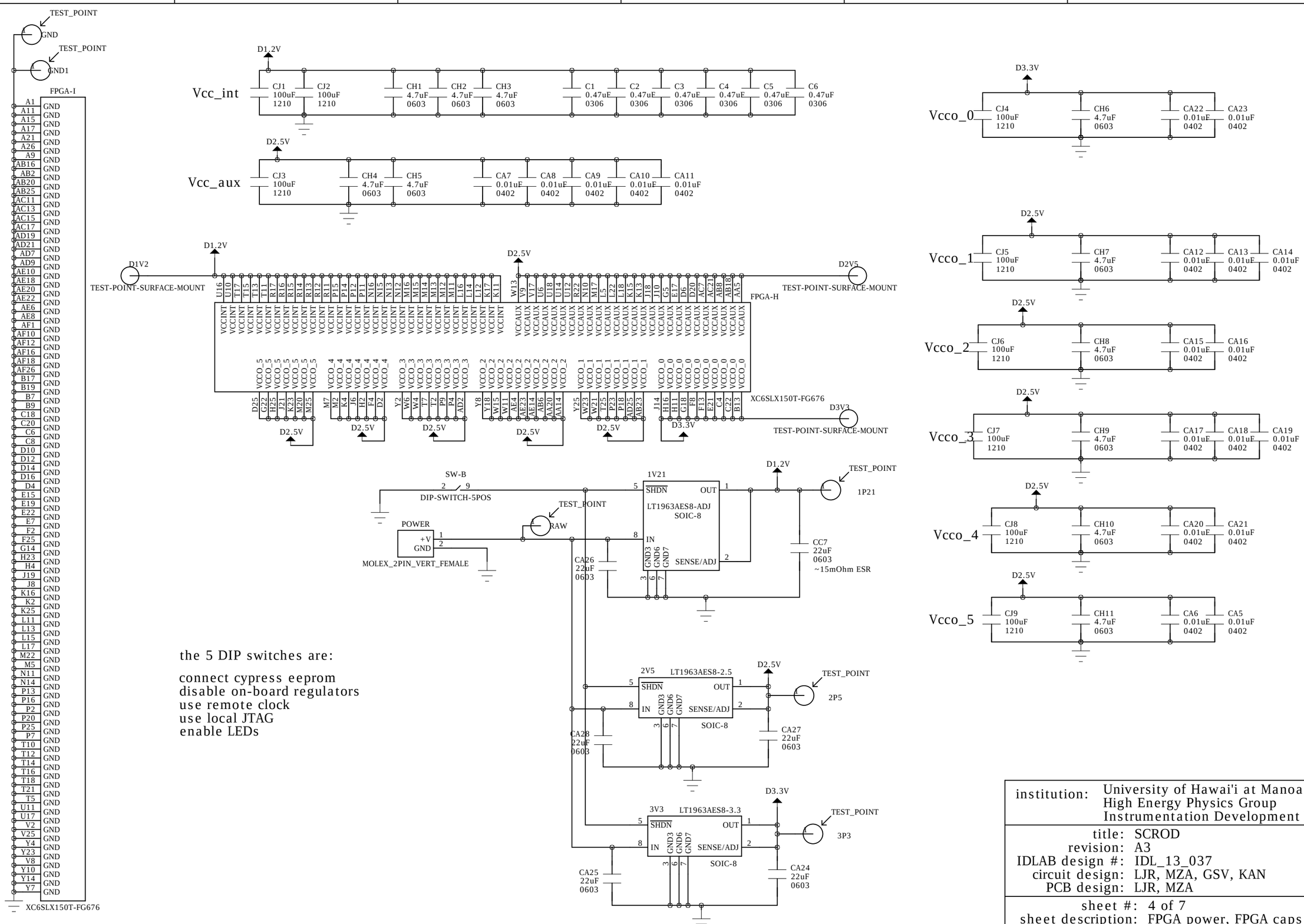


I2C addresses = 1010000, 1010001

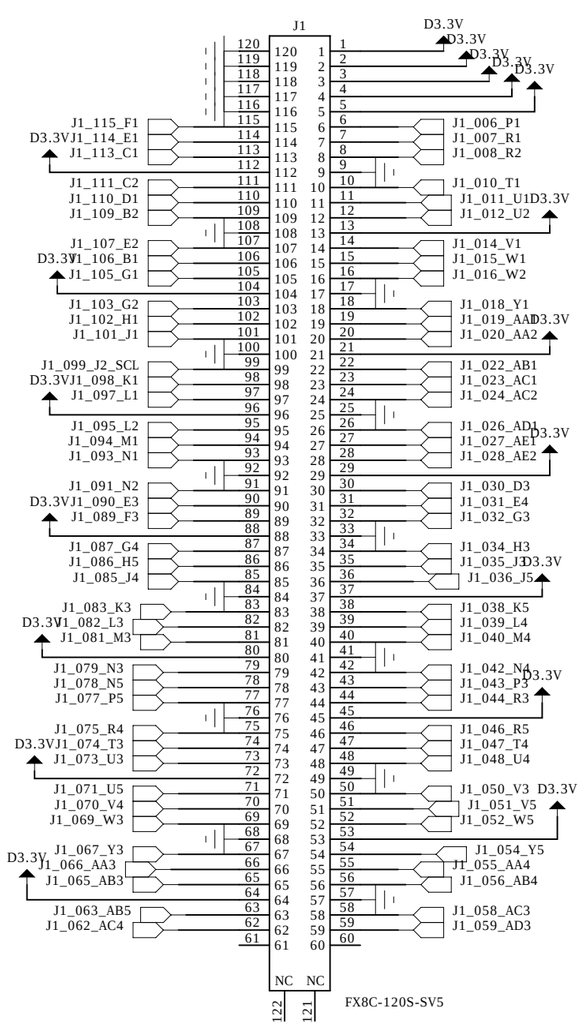
each AFBR-57R5AEZ uses 210mA

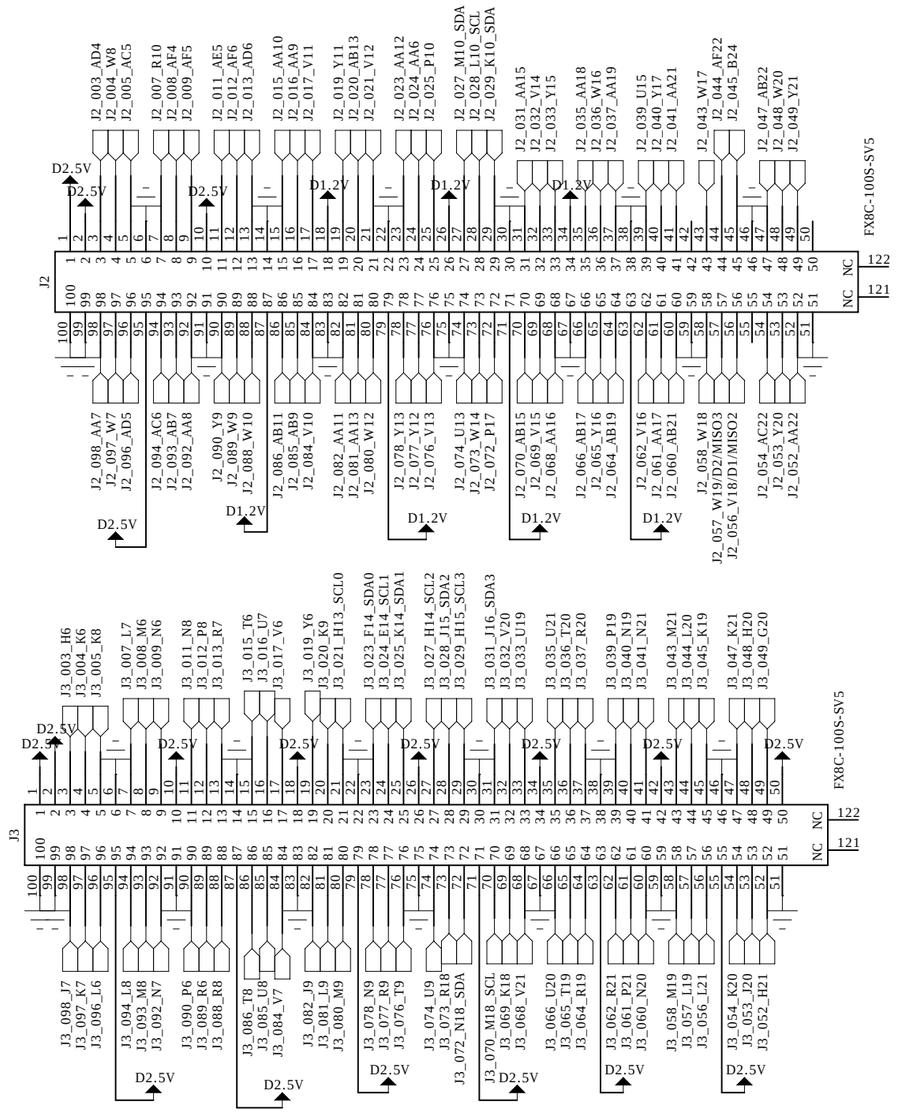
I2C addresses = 1010000, 1010001

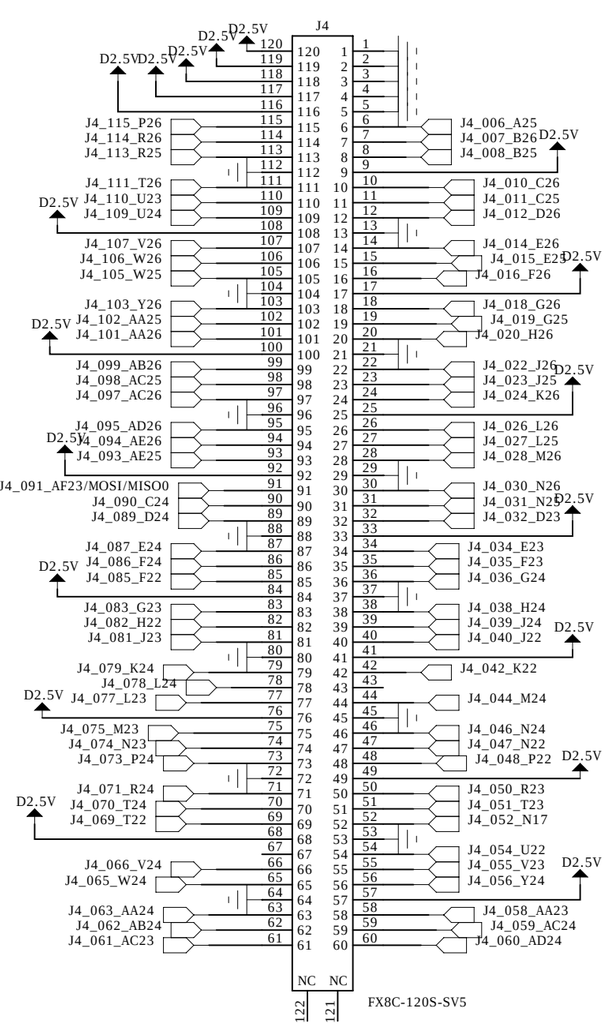
institution:	University of Hawai'i at Manoa High Energy Physics Group Instrumentation Development Lab
title:	SCROD
revision:	A3
IDLAB design #:	IDL_13_037
circuit design:	LJR, MZA, GSV, KAN
PCB design:	LJR, MZA
sheet #:	3 of 7
sheet description:	fiber transceiver, fiber clock
date last modified:	2014-02-12

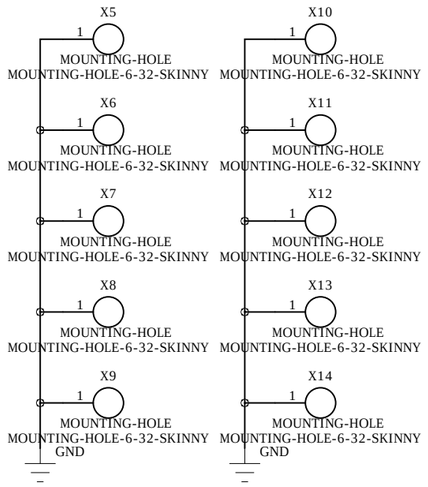


institution:	University of Hawai'i at Manoa High Energy Physics Group Instrumentation Development Lab
title:	SCROD
revision:	A3
IDLAB design #:	IDL_13_037
circuit design:	LJR, MZA, GSV, KAN
PCB design:	LJR, MZA
sheet #:	4 of 7
sheet description:	FPGA power, FPGA caps
date last modified:	2014-02-12





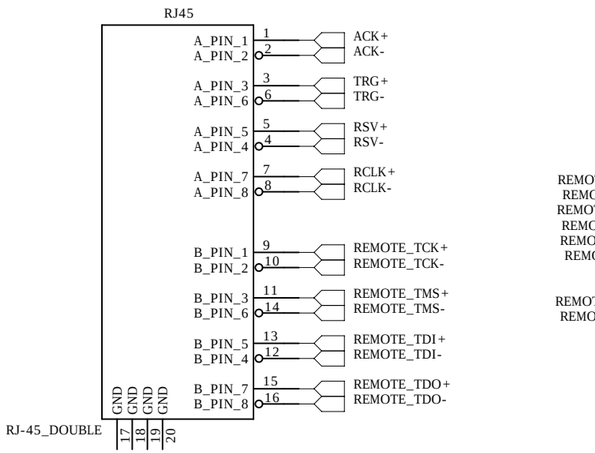


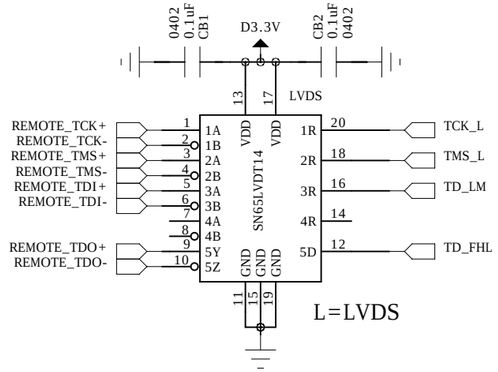


revA2:
removed three 1.8V connections

revA3:

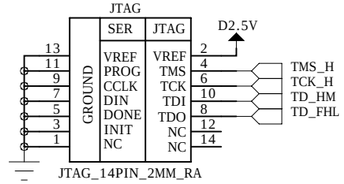
institution:	University of Hawai'i at Manoa High Energy Physics Group Instrumentation Development Lab
title:	SCROD
revision:	A3
IDLAB design #:	IDL_13_037
circuit design:	LJR, MZA, GSV, KAN
PCB design:	LJR, MZA
sheet #:	5 of 7
sheet description:	board-to-board interconnects
date last modified:	2014-02-12





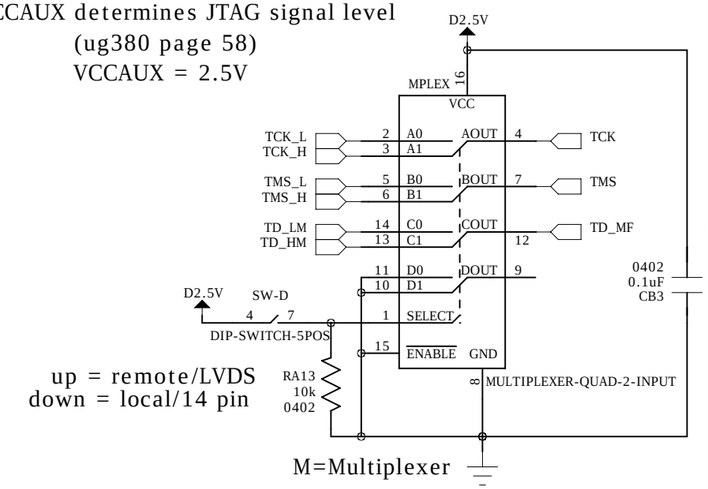
L=LVDS

F=FPGA



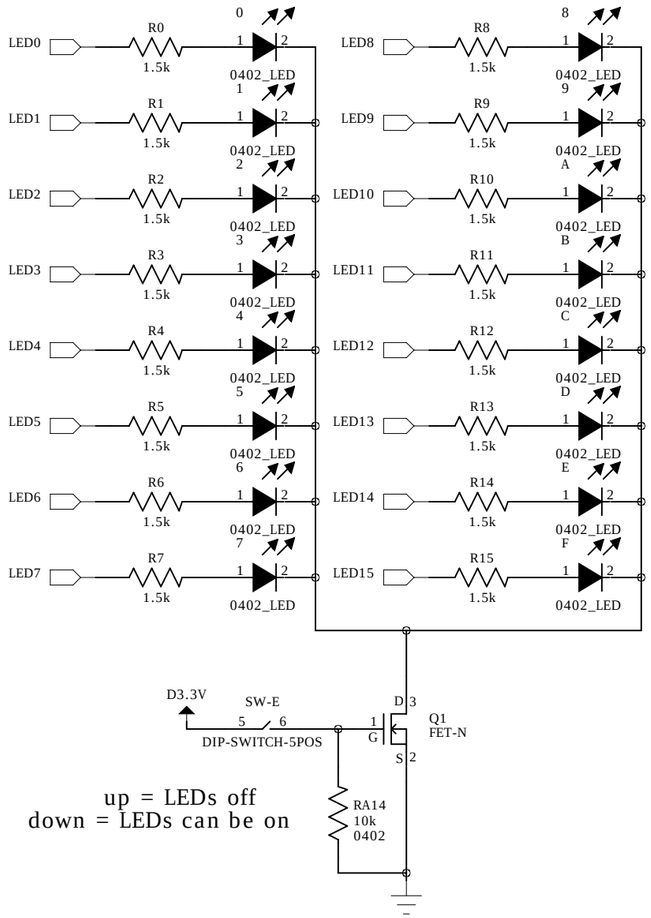
H=Header

VCCAUX determines JTAG signal level
(ug380 page 58)
VCCAUX = 2.5V

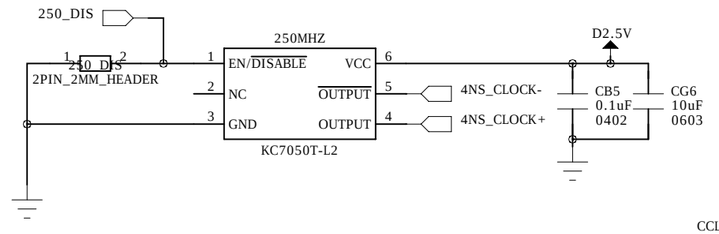


up = remote/LVDS
down = local/14 pin

M=Multiplexer

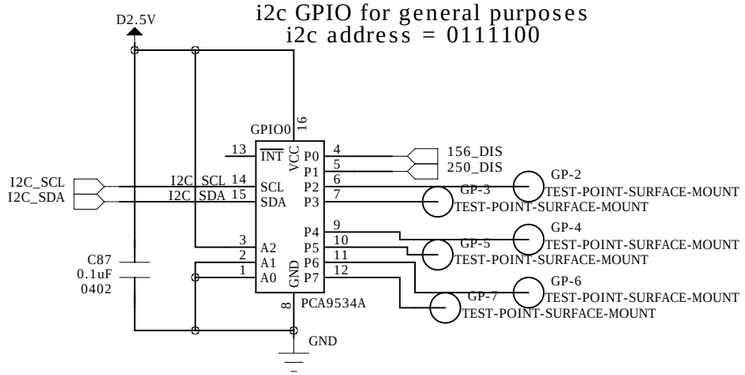


up = LEDs off
down = LEDs can be on

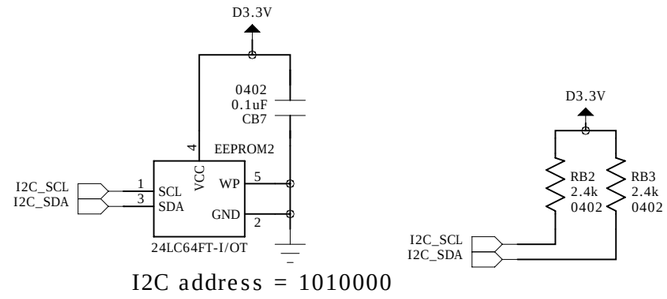


don't drive CSO_B (pin AF3) low during normal running!

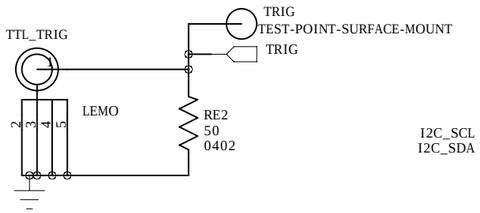
need to check 2.5V/3.3V stuff

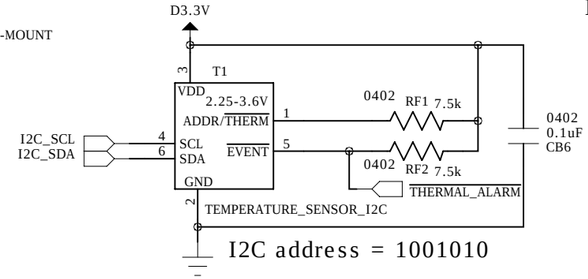


i2c GPIO for general purposes
i2c address = 0111100



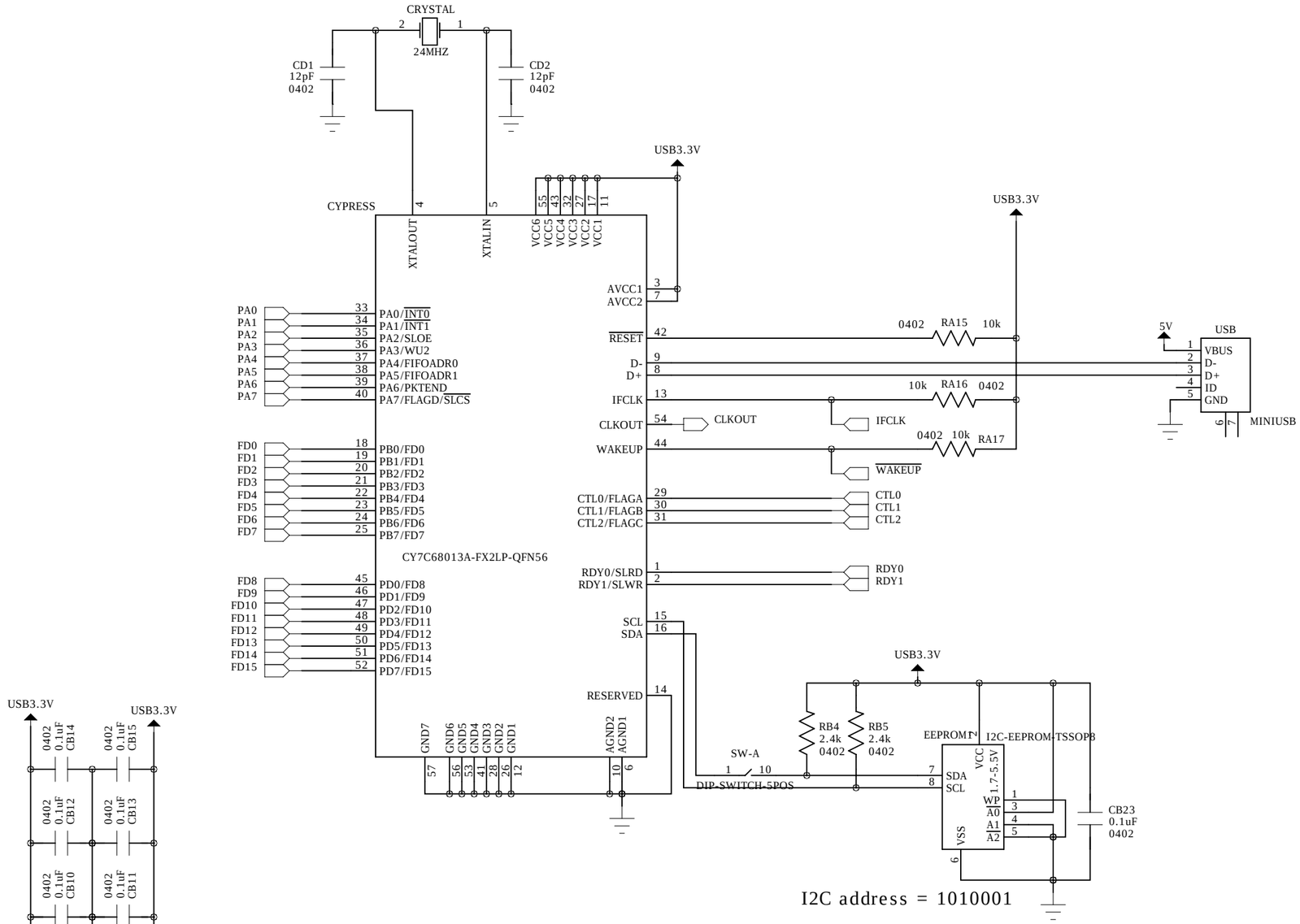
I2C address = 1010000





I2C address = 1001010

institution:	University of Hawai'i at Manoa High Energy Physics Group Instrumentation Development Lab
title:	SCROD
revision:	A3
IDLAB design #:	IDL_13_037
circuit design:	LJR, MZA, GSV, KAN
PCB design:	LJR, MZA
sheet #:	6 of 7
sheet description:	JTAG, CLOCK, LEDs, PROM
date last modified:	2014-02-12



institution:	University of Hawai'i at Manoa High Energy Physics Group Instrumentation Development Lab
title:	SCROD
revision:	A3
IDLAB design #:	IDL_13_037
circuit design:	LJR, MZA, GSV, KAN
PCB design:	LJR, MZA
sheet #:	7 of 7
sheet description:	Cypress FX2LP USB
date last modified:	2014-02-12