Front End

OUT1_P
OUT1_N
CH1_P
CH1_N
OUT2_P
OUT2_N
CH2_P
CH2_N
OUT3_P
OUT3_N
CH3_P
CH3_N
OUT4_P
OUT4_N
CH4_P
CH4_N
VCM
TERM_[4..1]
ATTEN_[4..1]
DC_CPL_[4..1]
SPI_SCLK
SPI_SDIO
PGA_CSn_[4..1]
SCL
SDA

FE

5V2: 1.05A (5.46W) pre-config, 0.807A (4.20W) post-config
3V3: 0.184A (0.61W) for 4.5V relays
3V3: 0.408A (1.35W) for 3V relays
0.74W saved

REFINOUT1
REFINOUT2
R106 0
R107 0
REFINOUT

ADC

3V3: 0.519A (1.71W)

IN1_P
IN1_N
IN2_P
IN2_N
IN3_P
IN3_N
IN4_P
IN4_N
VCM
REFINOUT
D1A_P
D1A_N
D1B_P
D1B_N
D2A_P
D2A_N
D2B_P
D2B_N
LCLK_P
LCLK_N
FCLK_P
FCLK_N
D3A_P
D3A_N
D3B_P
D3B_N
D4A_P
D4A_N
D4B_P
D4B_N
ACQ_EN
OSC_OE
PLL_RSTn
ADC_CSn
ADC_SDATA
ADC_SCLK
SPI_SDIO
SPI_SCLK
PLL_SCL
PLL_SDA
SCL
SDA

TP33
ACQ_EN

ADC

SYNC1
SYNC2
R108 0
R109 0
10K
R110
+3V3
SYNC
TP7
FE_EN
TERM_[4..1]
ATTEN_[4..1]
DC_CPL_[4..1]
SPI_SCLK
SPI_SDIO
PGA_CSn_[4..1]
PROBE_COMP

TE0712 3V3: 0.519A (1.71W)

FPGA Module

FPGA

POWER

ACQ_EN
FE_EN

PWR

J1
R10 0
U1
SN74LVC1G17
VCC
OUT
NC
IN
GND
C1 100n
R2 10K
PROBE_COMP

TP5
TP6

Connectors for muti-scope connection

REFINOUT2
SYNC2
J11
D6
D7
TVS TPD1E1B04_D7

REFINOUT1
J9
D5
TVS TPD1E1B04_D5

SYNC1
J7
D4
TVS TPD1E1B04_D4

BNC

PCIe_X4

PCIe_TXP[0..3]
PCIe_TXN[0..3]
PCIe_RXP[0..3]
PCIe_RXN[0..3]
PCIe_REFCLK_P
PCIe_REFCLK_N
PCIe_PERST#

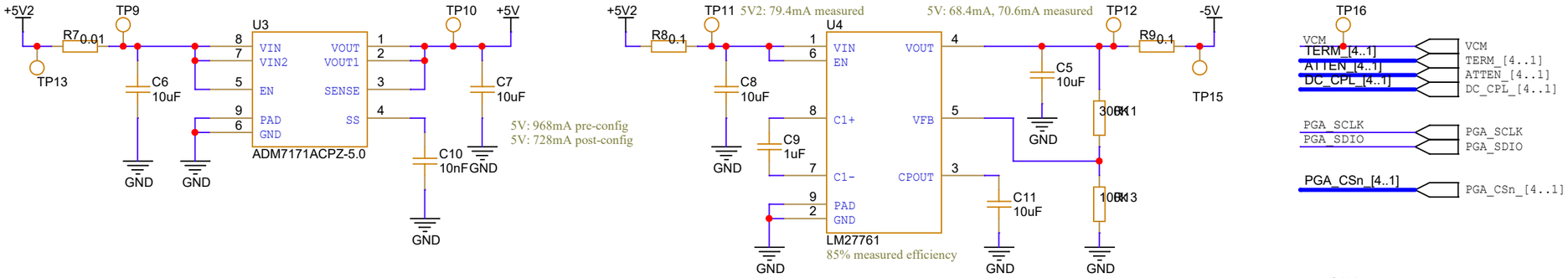
CON_PCIe_X4

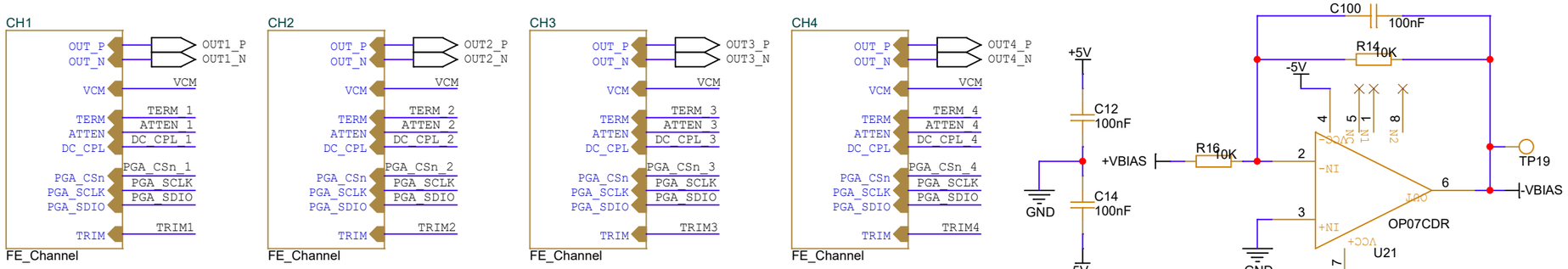
SHLD1
9204

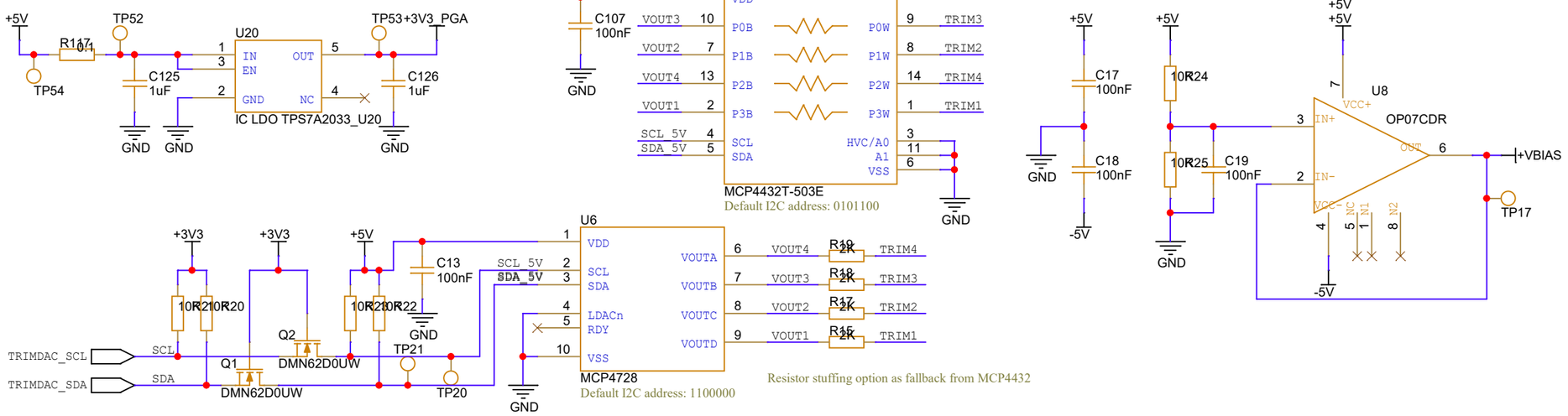
M.2_Key_M

M2_TXP[0..3]
M2_TXN[0..3]
M2_RXP[0..3]
M2_RXN[0..3]
M2_REFCLK_P
M2_REFCLK_N
M2_PERST#
M2_GPIO1
M2_GPIO2

M2_KEY_M


+5V2
TP9
R7 0.01
TP13
C6 10uF
GND
U3
VIN
VIN2
EN
PAD
GND
VOUT
VOUT1
SENSE
SS
ADM7171ACPZ-5.0
TP10
+5V
C7 10uF
C10 10nF
5V: 968mA pre-config
5V: 728mA post-config
+5V2
TP11
5V2: 79.4mA measured
R8 0.1
C8 10uF
C9 1uF
U4
VIN
EN
C1+
C1-
PAD
GND
VOUT
VFB
CPOUT
LM27761
85% measured efficiency
5V: 68.4mA, 70.6mA measured
TP12
C5 10uF
C11 10uF
R9 0.1
-5V
TP15
TP16
VCM
TERM_[4..1]
ATTEN_[4..1]
DC_CPL_[4..1]
PGA_SCLK
PGA_SDIO
PGA_CSn_[4..1]


CH1
CH2
CH3
CH4
OUT_P
OUT_N
OUT1_P
OUT1_N
OUT2_P
OUT2_N
OUT3_P
OUT3_N
OUT4_P
OUT4_N
VCM
TERM
ATTEN
DC_CPL
PGA_CSn
PGA_SCLK
PGA_SDIO
TRIM
TERM_1
ATTEN_1
DC_CPL_1
PGA_CSn_1
TRIM1
TERM_2
ATTEN_2
DC_CPL_2
PGA_CSn_2
TRIM2
TERM_3
ATTEN_3
DC_CPL_3
PGA_CSn_3
TRIM3
TERM_4
ATTEN_4
DC_CPL_4
PGA_CSn_4
TRIM4
FE_Channel
Before PGA Config: 242mA @ V+, 17.1mA @ V-, 46mA @ 3.3V per channel
After PGA Config: 182mA @ V+, 17.1mA @ V-, 46mA @ 3.3V per channel
+5V
C12 100nF
+VBIAS
R16 10K
C14 100nF
-5V
GND
C100 100nF
R14 10K
-5V
TP19
+VBIAS
OP07CDR
U21
+5V
-5V
GND


+5V
TP52
R117 0.1
TP54
C125 1uF
GND
U20
IN
EN
GND
OUT
NC
IC LDO TPS7A2033_U20
TP53+3V3_PGA
C126 1uF
+5V
C107 100nF
U17
VDD
P0B
P1B
P2B
P3B
SCL
SDA
P0W
P1W
P2W
P3W
HVC/A0
A1
VSS
VOUT3
VOUT2
VOUT4
VOUT1
SCL_5V
SDA_5V
TRIM3
TRIM2
TRIM4
TRIM1
MCP4432T-503E
Default I2C address: 0101100
+3V3
+3V3
+5V
C13 100nF
Q2
Q1
DMN62D0UW
DMN62D0UW
TP21
TP20
TRIMDAC_SCL
TRIMDAC_SDA
SCL
SDA
U6
VDD
SCL
SDA
LDACn
RDY
VSS
VOUTA
VOUTB
VOUTC
VOUTD
MCP4728
Default I2C address: 1100000
Resistor stuffing option as fallback from MCP4432
+5V
C17 100nF
C18 100nF
-5V
GND
+5V
R24
R25
C19 100nF
U8
VCC+
IN+
IN-
VCC-
OUT
OP07CDR
+VBIAS
TP17
+5V
-5V
GND

50x Attenuator

J2A BNC

K1AA4 K1AB K1AC FTR-B3SA4.5Z D2A 1N4148

R43A 10 0603

C22A 2pF 250V

R32A 680K R33A 680K C21A 5.1pF 0603 250V

C23A 240pF R35A 20

K2AA4 K2AB K2AC FTR-B3SA4.5Z D3A 1N4148

R30A 10 0603 0.33W R29A 30 0603 0.33W R31A 10 0603 0.33W

C20A 2pF 250V

R44A 0.33W 0603

ATTEN_OUT

TP22A ATTEN R47A 10K Q3A DMN62D0UW R49A 10K

TP23A TERM R48A 10K Q4A DMN62D0UW R50A 10K

SHLD3A 2118728-2

SHLD2A 2118727-2

FTR-B3SA003Z has 64.3 Ohm Coil Resistance, 2.25V Must Operate Voltage, 0.051A @ 3.3V
FTR-B3SA4.5Z has 145 Ohm Coil Resistance, 3.38V Must Operate Voltage, 0.023A @ 3.3V
All 4.5V relays tested worked down to 3V

Max current for 35.7kOhm R_Bias: 24mA @ V+ and 24mA @ V-
100k R_Bias wil be lower: 17mA per rail was measured on the EVM

U9A BUF802 (CLH, Vso+, Vs+, IN, IN_Bias, IN_Aux, NC, NC2, NC3, PAD, OUT, R_Bias, Aux_Bias, Vs-, Vs-1, Vso-, CLL)

+VFFE -VFFE

ATTEN_OUT R53A 30 R54A 30 C26A 22nF 100V R65A 909k R55A 100k R56A 0

U10A IC SWITCH SPST TS12A4516DBV_U10 (V-, NO, IN, V+, COM) -VFFE DC_CPLn +VFFE

R96A 909k C27A 22nF 100V R122A 90.9k

80uA @ V+ and 80uA @ V-

U18A OP07CDR R100A 2K C29A 100pF C30A 100pF

Test values from 10pf to 100pf

R98A 90.9k R99A 90.9k R121A 10K R123A DNP R124A 5K

-VBIAS FB4A 0 C28A 100nF C129A 100nF

+VBIAS FB6A 0 C130A 100nF R116A 1K R119A 1K C131A 100nF FB7A 120@100MHZ C31A 100nF TRIM

+3V3_PGA R51A 10 TP24A

U7A LMH6518 (CSn, SDIO, SCLK, IN_P, IN_N, PAD, GND2, GND, VCC, VCC1, VDD, OUT_P, OUT_N, VCM, AUX_P, AUX_N, AUX_VCM)

PGA_CSn PGA_SDIO PGA_SCLK

+VPGA +3V3_PGA OUT_R_P OUT_R_N VCM TP25A

R52A 0 R97A 0 OUT_P OUT_N

J3A UFL J4A UFL

C36A 100nF C32A 1nF C33A 10nF C34A 100nF C35A 1uF FB8A 120@100MHZ C132A 1uF +5V

Max VCC current before configuration (AUX output on): 0.225A
Max VCC current after configuration turns off AUX output: 0.165A
Max VDD current: 0.35mA

TP26A DC_CPL R126A 10K Q5A DMN62D0UW DC_CPLn R125A 10K R127A 10K +VFFE

FB9A 120@100MHZ +5V C111A 2.2uF C37A 100nF C38A 2.2uF C39A 100nF C63A 100nF C64A 100nF C78A 100nF C101A 100nF

GND

C133A 2.2uF C102A 2.2uF C108A 100nF C109A 100nF C110A 100nF C124A 100nF C127A 100nF C128A 100nF

FB10A 120@100MHZ -5V -VFFE

50x Attenuator

J2B BNC

K1BA4 K1BB K1BC FTR-B3SA4.5Z D2B 1N4148

R43B 10 0603

C22B 2pF 250V

R32B 880K R33B 880K C21B 5.1pF 0603 250V

C23B 240pF

R35B 20

TP22B ATTEN R47B 10K Q3B DMN62D0UW R49B 10K

K2BA4 K2BB K2BC FTR-B3SA4.5Z D3B 1N4148

R29B 30 0603 0.33W

R30B 10 0603 0.33W

R31B 10 0603 0.33W

C20B 2pF 250V

R41B 0.33W 0603

ATTEN_OUT

TP23B TERM R48B 10K Q4B DMN62D0UW R50B 10K

FTR-B3SA003Z has 64.3 Ohm Coil Resistance, 2.25V Must Operate Voltage, 0.051A @ 3.3V
FTR-B3SA4.5Z has 145 Ohm Coil Resistance, 3.38V Must Operate Voltage, 0.023A @ 3.3V
All 4.5V relays tested worked down to 3V

SHLD3B 2118728-2

SHLD2B 2118727-2

Max current for 35.7kOhm R_Bias: 24mA @ V+ and 24mA @ V-
100k R_Bias wil be lower: 17mA per rail was measured on the EVM

U9B BUF802 (CLH, Vso+, Vs+, IN, IN_Bias, IN_Aux, NC, NC2, NC3, PAD, OUT, R_Bias, Aux_Bias, Vs-, Vs-1, Vso-, CLL)

R55B 100k R56B 0

U10B IC SWITCH SPST TS12A4516DBV_U10 (V-, IN, V+, NO, COM)

R96B 909k C27B 22nF 100V R122B 90.9k

80uA @ V+ and 80uA @ V-

U18B OP07CDR

R53B 30 R54B 30 C26B 22nF 100V R65B 909k

R100B 2K C29B 100pF C30B 100pF

Test values from 10pf to 100pf

R98B 90.9k R99B 90.9k R121B 10K R123B DNP R124B 5K

C28B 100nF C129B 100nF C130B 100nF C131B 100nF

FB4B 0 FB6B 0 FB7B 120@100MHZ FB8B 120@100MHZ

R118B 1K R119B 1K C31B 100nF

U7B LMH6518 (CSn, SDIO, SCLK, VCC, VCC1, VDD, IN_P, IN_N, OUT_P, OUT_N, VCM, AUX_P, AUX_N, AUX_VCM, PAD, GND2, GND)

PGA_CSn PGA_SDIO PGA_SCLK

+3V3_PGA R51B 10 TP24B TP25B +VPGA

OUT_R_P OUT_R_N VCM

R52B 0 R97B 0 OUT_P OUT_N

J3B J4B UFL

C36B 100nF C32B 1nF C33B 10nF C34B 100nF C35B 1uF C132B 1uF

Max VCC current before configuration (AUX output on): 0.225A
Max VCC current after configuration turns off AUX output: 0.165A
Max VDD current: 0.35mA

TP26B DC_CPL R126B 10K Q5B DMN62D0UW R125B 10K R127B 10K DC_CPLn

FB9B FB10B 120@100MHZ

C111B C133B 2.2uF

C37B C38B C39B C63B C64B C78B C101B C102B C108B C109B C110B C124B C127B C128B 100nF

50x Attenuator

J2C BNC GND

K1CA4 K1CB K1CC FTR-B3SA4.5Z D2C 1N4148 Q3C DMN62D0UW

+3V3 R47C 10K R49C 10K TP22C ATTEN

R43C 0 0603 C22C 2pF 250V R32C 880K R33C 880K C21C 5.1pF 0603 250V C23C 240pF R35C 20

K2CA4 K2CB K2CC FTR-B3SA4.5Z D3C 1N4148 Q4C DMN62D0UW

R29C 30 0603 R30C 10 0603 0.33W R31C 10 0603 0.33W C20C 2pF 250V R41C 0.33W 0603 ATTEN_OUT

+3V3 R48C 10K R50C 10K TP23C TERM

FTR-B3SA003Z has 64.3 Ohm Coil Resistance, 2.25V Must Operate Voltage, 0.051A @ 3.3V
FTR-B3SA4.5Z has 145 Ohm Coil Resistance, 3.38V Must Operate Voltage, 0.023A @ 3.3V
All 4.5V relays tested worked down to 3V

SHLD3C 2118728-2 SHLD2C 2118727-2

Max current for 35.7kOhm R_Bias: 24mA @ V+ and 24mA @ V-
100k R_Bias wil be lower: 17mA per rail was measured on the EVM

+VFFE U9C BUF802 CLH Vso+ Vs+ IN IN_Bias IN_Aux NC NC2 NC3 PAD OUT R_Bias Aux_Bias Vs- Vs-1 Vso- CLL

ATTEN_OUT R53C 30 R54C 30 C26C 22nF 100V R65C 909k R55C 100k -VFFE R56C 0

U10C IC SWITCH SPST TS12A4516DBV_U10 V- NO IN V+ COM -VFFE DC_CPLn +VFFE R96C 909k C27C 22nF 100V R122C 90.9k

U18C OP07CDR VCC+ VCC- IN+ IN- OUT R100C 2K C29C 100pF C30C 100pF

80uA @ V+ and 80uA @ V-

Test values from 10pf to 100pf

R98C 90.9k R99C 90.9k R121C 10K R123C DNP R124C 5K

-VBIAS FB4C C28C 100nF C129C 100nF

+VBIAS FB6C C130C 100nF R116C 1K R119C FB7C 120@100MHZ C131C 100nF C31C 100nF TRIM

+3V3_PGA R51C 10 TP24C

U7C LMH6518 PGA_CSn PGA_SDIO PGA_SCLK CSn SDIO SCLK IN_P IN_N PAD GND VCC VCC1 VDD OUT_P OUT_N VCM AUX_P AUX_N AUX_VCM

+VPGA +3V3_PGA OUT_R_P OUT_R_N VCM TP25C

Max VCC current before configuration (AUX output on): 0.225A
Max VCC current after configuration turns off AUX output: 0.165A
Max VDD current: 0.35mA

R52C 0 R97C 0 OUT_P OUT_N

J3C J4C UFL UFL

+3V3_PGA C36C 100nF

+VPGA C32C 1nF C33C 10nF C34C 100nF C35C 1uF FB8C 120@100MHZ C132C 1uF +5V

TP26C DC_CPL R126C 10K Q5C DMN62D0UW R125C 10K DC_CPLn R127C 10

+5V -5V GND FB9C 120@100MHZ FB10C 120@100MHZ

C111C 2.2uF C37C 100nF C38C 2.2uF C39C 100nF C63C 100nF C64C 100nF C78C 100nF C101C 100nF

C133C 2.2uF C102C 2.2uF C108C 100nF C109C 100nF C110C 100nF C124C 100nF C127C 100nF C128C 100nF

50x Attenuator

FTR-B3SA003Z has 64.3 Ohm Coil Resistance, 2.25V Must Operate Voltage, 0.051A @ 3.3V
FTR-B3SA4.5Z has 145 Ohm Coil Resistance, 3.38V Must Operate Voltage, 0.023A @ 3.3V
All 4.5V relays tested worked down to 3V

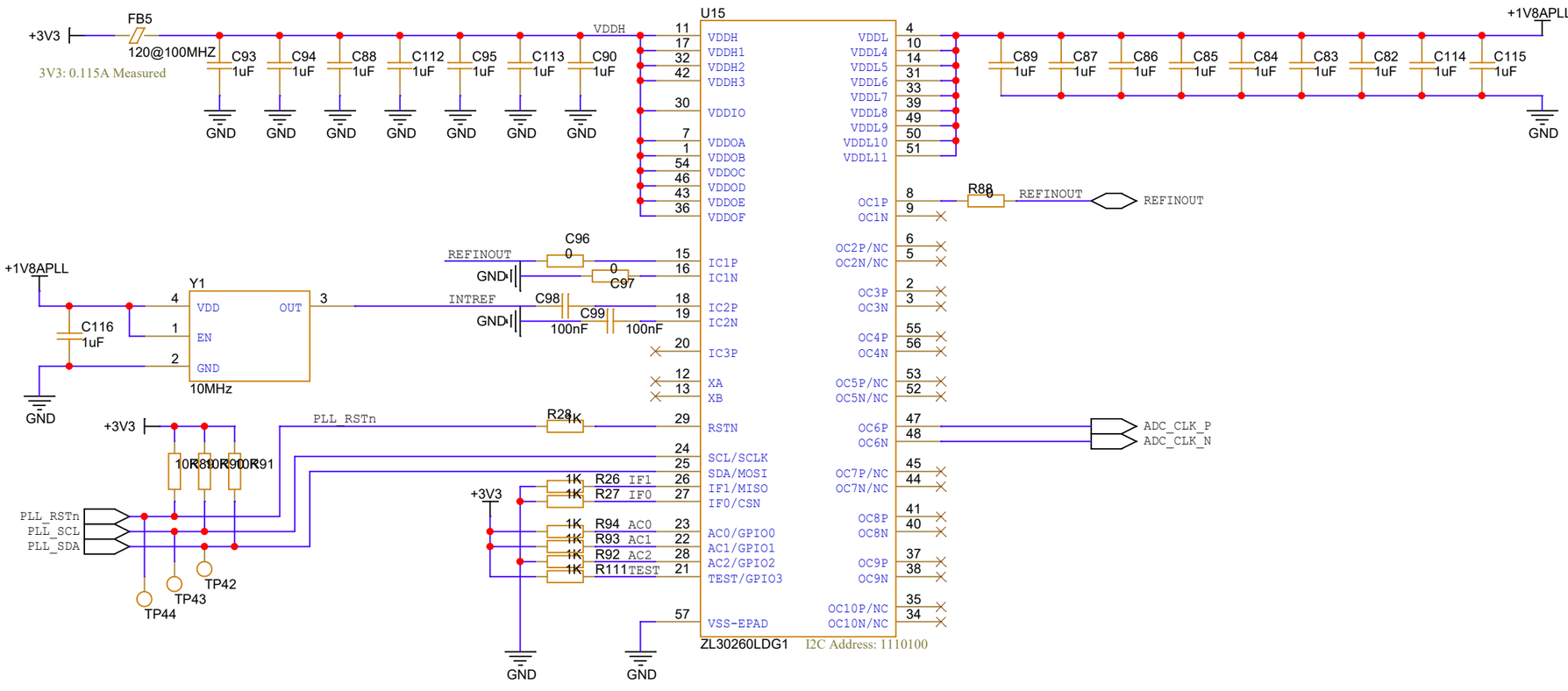
Max current for 35.7kOhm R_Bias: 24mA @ V+ and 24mA @ V-
100k R_Bias wil be lower: 17mA per rail was measured on the EVM

Max VCC current before configuration (AUX output on): 0.225A
Max VCC current after configuration turns off AUX output: 0.165A
Max VDD current: 0.35mA

80uA @ V+ and 80uA @ V-

Test values from 10pf to 100pf

+3V3
TP27
R36 0.01
U11
VIN
SW
EN
FB
GND
PG
IC BUCK TPS62A01_U11
L2
1uH
+1V92
TP28
404mA Measured
C52 10uF
C51 39pF
C53 22uF
78% measured efficiency
GND
+1V8A
+1V8D
C41 1uF
C42 1uF
C43 10nF
C44 10nF
C45 1nF
C46 1nF
C47 10nF
C48 10nF
C49 1uF
C50 1uF
C54 1uF
C55 10nF
C56 1nF
C57 10nF
C58 1uF
+3V3
TP29
R46 10K
ADC_CSn
ADC_SCLK
ADC_SDATA
U12
PD
RSTn
CSn
SCLK
SDATA
VCM
IN1+
IN1-
IN2+
IN2-
IN3+
IN3-
IN4+
IN4-
CLK+
CLK-
AVDD
AVDD4
AVDD2
DVDD5
DVDD
OVDD
AVSS3
AVSS2
AVSS1
AVSS
EPAD
DVSS
DVSS3
HMCAD1511
0.74W Measured
0.71W Expected
D4B- D4B+ D4B_N D4B_P
D4A- D4A+ D4A_N D4A_P
D3B- D3B+ D3B_N D3B_P
D3A- D3A+ D3A_N D3A_P
FCLK- FCLK+ FCLK_N FCLK_P
LCLK- LCLK+ LCLK_N LCLK_P
D2B- D2B+ D2B_N D2B_P
D2A- D2A+ D2A_N D2A_P
D1B- D1B+ D1B_N D1B_P
D1A- D1A+ D1A_N D1A_P
TP34
TP35
C134 100nF
IN1_N
IN1_P
IN2_N
IN2_P
IN3_N
IN3_P
IN4_N
IN4_P
543mA Measured
Total: 529mA Expected
+1V92
TP36
R58 0.01
TP38
U13
VIN
VOUT
EN
FB
VBIAS
GND
LD57100JR
C59 100nF
C61 2.2uF
73% total efficiency
vs. 55% direct to LDO
0.46W saved
TP37
FB1
FB2
FB3
120@100MHZ
+1V8A
270mA Expected
+1V8D
125mA Expected
+1V8APLL
134mA Measured
C60 10uF
J5
J6
UFL
PLL
PLL_SDA
PLL_SCL
PLL_RSTn
ADC_CLK_P
ADC_CLK_N
REFINOUT
C103 0
C104 0
All inputs have polarity swapped
Use ADC reg 0x24 to invert


+3V3
FB5
120@100MHZ
3V3: 0.115A Measured
C93 1uF
C94 1uF
C88 1uF
C112 1uF
C95 1uF
C113 1uF
C90 1uF
GND
VDDH
U15
VDDH 11
VDDH1 17
VDDH2 32
VDDH3 42
VDDIO 30
VDDOA 7
VDDOB 1
VDDOC 54
VDDOD 46
VDDOE 43
VDDOF 36
VDDL 4
VDDL4 10
VDDL5 14
VDDL6 31
VDDL7 33
VDDL8 39
VDDL9 49
VDDL10 50
VDDL11 51
+1V8APLL
C89 1uF
C87 1uF
C86 1uF
C85 1uF
C84 1uF
C83 1uF
C82 1uF
C114 1uF
C115 1uF
R88 0
REFINOUT
OC1P 8
OC1N 9
OC2P/NC 6
OC2N/NC 5
OC3P 2
OC3N 3
OC4P 55
OC4N 56
OC5P/NC 53
OC5N/NC 52
OC6P 47
OC6N 48
ADC_CLK_P
ADC_CLK_N
OC7P/NC 45
OC7N/NC 44
OC8P 41
OC8N 40
OC9P 37
OC9N 38
OC10P/NC 35
OC10N/NC 34
C96 0
C97 0
C98 100nF
C99 100nF
IC1P 15
IC1N 16
IC2P 18
IC2N 19
IC3P 20
XA 12
XB 13
RSTN 29
SCL/SCLK 24
SDA/MOSI 25
IF1/MISO 26
IF0/CSN 27
AC0/GPIO0 23
AC1/GPIO1 22
AC2/GPIO2 28
TEST/GPIO3 21
VSS-EPAD 57
ZL30260LDG1
I2C Address: 1110100
Y1
VDD
OUT
EN
GND
10MHz
C116 1uF
INTREF
+1V8APLL
+3V3
R28 1K
PLL_RSTn
PLL_SCL
PLL_SDA
R26 IF1
R27 IF0
R94 AC0
R93 AC1
R92 AC2
R111 TEST
TP42
TP43
TP44
3.3V: 0.19W operation w/ one input one output:
0.62W Measured

MH1 MH2 MH3 MH4
M3 M3 M3 M3
GND GND GND GND

+3V3 R67 1K D1 GREEN LED

DC_CPL_[4..1]
ATTEN_[4..1]
TERM_[4..1]
PGA_CSn_[4..1]

DONE: Backwards compatibility with TE0712

ADC Diff Pairs on JM1 +3V3_IN

JM1

+3V3_IN R100 10R R101 10R R102 10R
EN1
PGOOD
TP2

VCCIO16 +2V5
+3V3_IN R66 10K RESIN

MERGED SPI BUSSES
PGA_SDIO
PGA_SCLK

D1A_P D1A_N D1B_P D1B_N
D2A_P D2A_N D2B_P D2B_N
D3A_P D3A_N D3B_P D3B_N
D4A_P D4A_N D4B_P D4B_N

LCLK_P LCLK_N
PROBE_COMP
FCLK_P FCLK_N
JTAGEN R103 10K GND
LED SYNC

LSHM-150-02.5-L-DV-A-S-K-TR
GND GND

+3V3_IN Other IO on JM2 +3V3_IN

JM2

ATTEN_1 DC_CPL_1 TERM_1 PGA_CSn_1 ATTEN_2 DC_CPL_2 TERM_2 PGA_CSn_2 ATTEN_3 DC_CPL_3 TERM_3 PGA_CSn_3

M2_GPIO1
M2_GPIO2
ADC_CSn Was FE_PG
OSC_OE
ACQ_EN
FE_EN
SDA
SCL

ATTEN_4 Was ADC_PD
DC_CPL_4 Was ADC_RSTn
TERM_4 Was ADC_CSn
PGA_CSn_4 Was ADC_PG

JTAG_VREF
TMS
TDI
TDO
TCK

J8
Digilent JTAG Header

LSHM-150-02.5-L-DV-A-S-K-TR
GND GND

These connectors are hermaphroditic. Odd pin numbers on the module are connected to even pin numbers on the baseboard and vice versa.

C62 C15 100nF PCIe_PER_N3 PCIe_PER_P3
C16 C65 100nF M2_PER_N3 M2_PER_P3
MGT_TX0_N MGT_TX0_P

C66 C67 100nF PCIe_PER_N2 PCIe_PER_P2
C68 C69 100nF M2_PER_N2 M2_PER_P2
MGT_TX1_N MGT_TX1_P

C70 C71 100nF PCIe_PER_N1 PCIe_PER_P1
C72 C73 100nF M2_PER_N1 M2_PER_P1
MGT_TX2_N MGT_TX2_P

C74 C75 100nF PCIe_PER_N0 PCIe_PER_P0
C76 C77 100nF M2_PER_N0 M2_PER_P0
MGT_TX3_N MGT_TX3_P

C40 C79 100nF PCIe_REFCLK_N PCIe_REFCLK_P
C80 C81 100nF M2_REFCLK_N M2_REFCLK_P
MGT_CLK1_N MGT_CLK1_P

R68 0 R69 0 PCIe_PET_N3 PCIe_PET_P3
R70 0 R71 0 M2_PET_N3 M2_PET_P3
MGT_RX0_N MGT_RX0_P

R72 0 R73 0 PCIe_PET_N2 PCIe_PET_P2
R74 0 R75 0 M2_PET_N2 M2_PET_P2
MGT_RX1_N MGT_RX1_P

R76 0 R77 0 PCIe_PET_N1 PCIe_PET_P1
R78 0 R79 0 M2_PET_N1 M2_PET_P1
MGT_RX2_N MGT_RX2_P

R80 0 R81 0 PCIe_PET_N0 PCIe_PET_P0
R82 0 R83 0 M2_PET_N0 M2_PET_P0
MGT_RX3_N MGT_RX3_P

PCIe_REFCLK_N PCIe_REFCLK_P
PERST# R84 49.9 PCIe_PERST#

PCIe_TXP[0..3] PCIe_PET_P0 PCIe_PET_P1 PCIe_PET_P2 PCIe_PET_P3
PCIe_TXN[0..3] PCIe_PET_N0 PCIe_PET_N1 PCIe_PET_N2 PCIe_PET_N3
PCIe_RXP[0..3] PCIe_PER_P0 PCIe_PER_P1 PCIe_PER_P2 PCIe_PER_P3
PCIe_RXN[0..3] PCIe_PER_N0 PCIe_PER_N1 PCIe_PER_N2 PCIe_PER_N3

AC Couple PER Lines with 100nF
AC Couple REFCLK Lines with 100nF

JM3

MGT_TX0_N MGT_TX0_P MGT_TX1_N MGT_TX1_P MGT_TX2_N MGT_TX2_P MGT_TX3_N MGT_TX3_P MGT_CLK1_N MGT_CLK1_P
MGT_RX0_N MGT_RX0_P MGT_RX1_N MGT_RX1_P MGT_RX2_N MGT_RX2_P MGT_RX3_N MGT_RX3_P

PERST# TP39

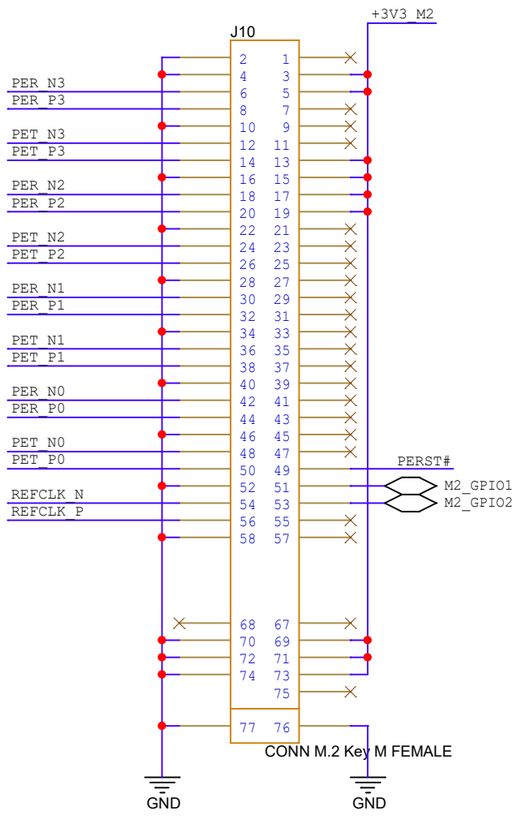
LSHM-130-02.5-L-DV-A-S-K-TR
GND GND

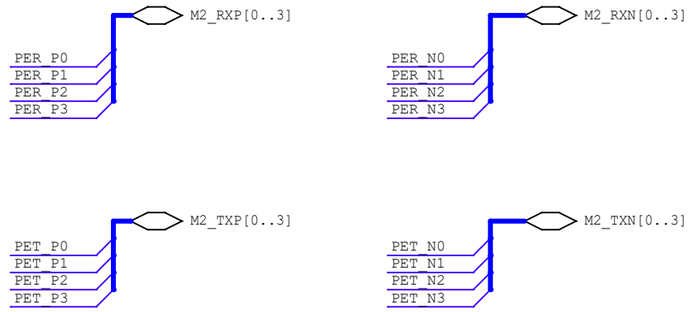
M2_TXP[0..3] M2_PET_P0 M2_PET_P1 M2_PET_P2 M2_PET_P3
M2_TXN[0..3] M2_PET_N0 M2_PET_N1 M2_PET_N2 M2_PET_N3
M2_RXP[0..3] M2_PER_P0 M2_PER_P1 M2_PER_P2 M2_PER_P3
M2_RXN[0..3] M2_PER_N0 M2_PER_N1 M2_PER_N2 M2_PER_N3

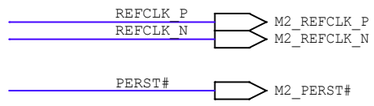
M2_REFCLK_N M2_REFCLK_P
PERST# R85 49.9 M2_PERST#

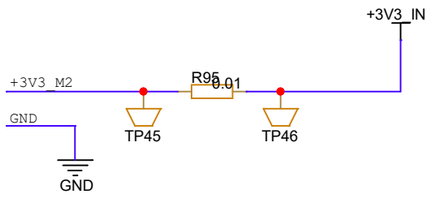
+3V3_IN TP14 R104 0.1 TP30
C105 1uF
C106 1uF
LVDS_25 VCCO
U16
IN EN GND OUT NC
IC LDO TPS7A2025_U16
TP31+2V5
GND GND GND

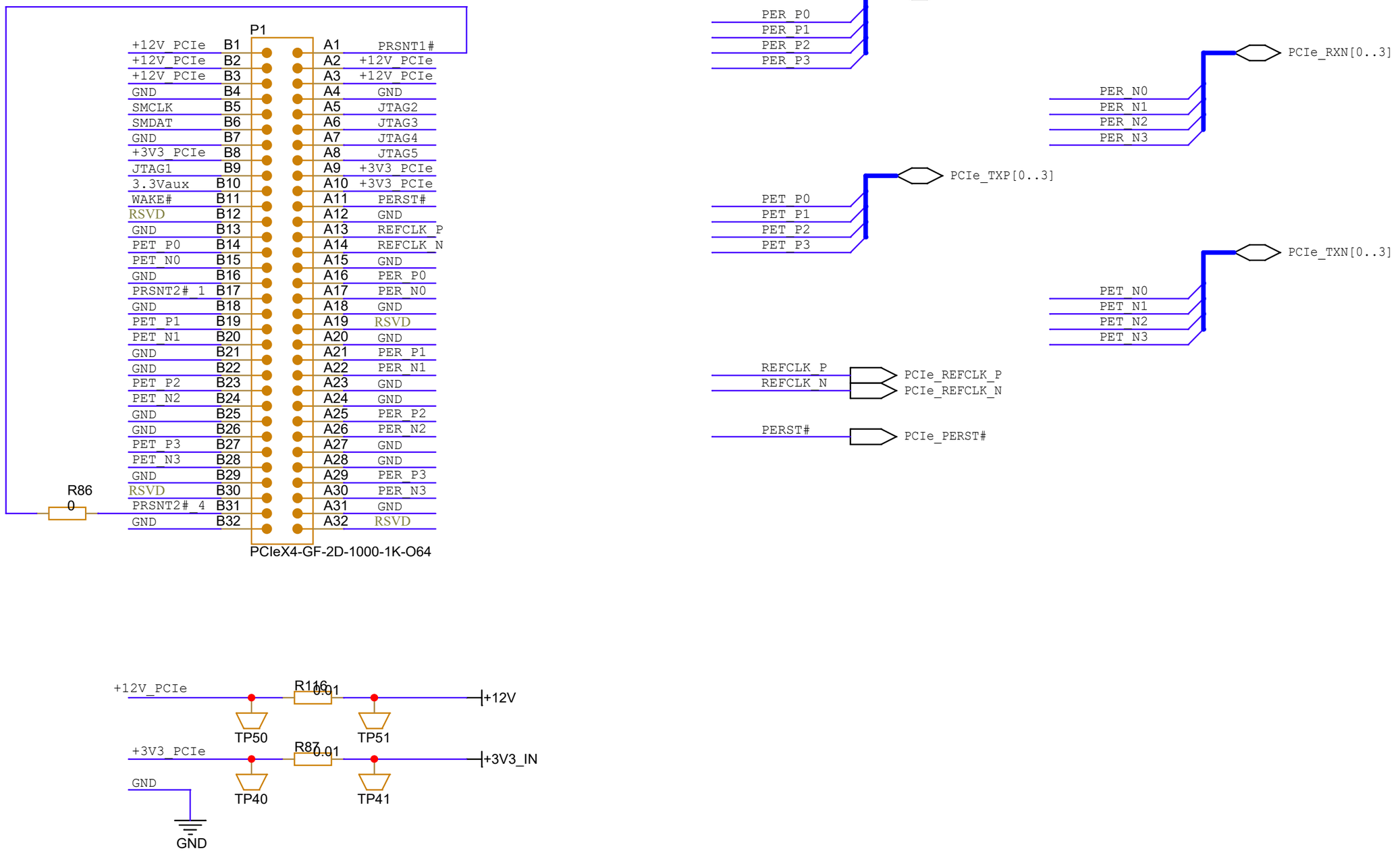
Main Board
Custom Pinout



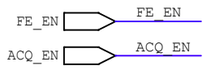


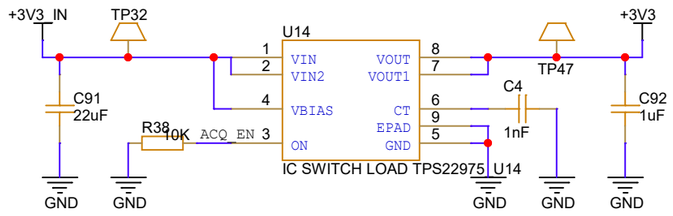




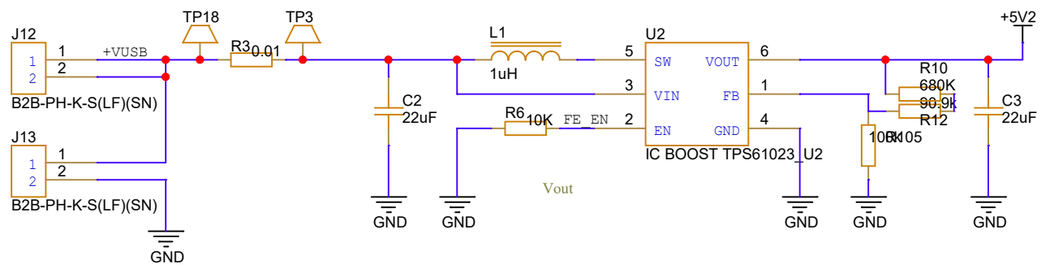

P1
+12V_PCIe B1
+12V_PCIe B2
+12V_PCIe B3
GND B4
SMCLK B5
SMDAT B6
GND B7
+3V3_PCIe B8
JTAG1 B9
3.3Vaux B10
WAKE# B11
RSVD B12
GND B13
PET_P0 B14
PET_N0 B15
GND B16
PRSNT2#_1 B17
GND B18
PET_P1 B19
PET_N1 B20
GND B21
GND B22
PET_P2 B23
PET_N2 B24
GND B25
GND B26
PET_P3 B27
PET_N3 B28
GND B29
RSVD B30
PRSNT2#_4 B31
GND B32
A1 PRSNT1#
A2 +12V_PCIe
A3 +12V_PCIe
A4 GND
A5 JTAG2
A6 JTAG3
A7 JTAG4
A8 JTAG5
A9 +3V3_PCIe
A10 +3V3_PCIe
A11 PERST#
A12 GND
A13 REFCLK_P
A14 REFCLK_N
A15 GND
A16 PER_P0
A17 PER_N0
A18 GND
A19 RSVD
A20 GND
A21 PER_P1
A22 PER_N1
A23 GND
A24 GND
A25 PER_P2
A26 PER_N2
A27 GND
A28 GND
A29 PER_P3
A30 PER_N3
A31 GND
A32 RSVD
R86
0
PCIeX4-GF-2D-1000-1K-O64
PCIe_RXP[0..3]
PER_P0
PER_P1
PER_P2
PER_P3
PCIe_RXN[0..3]
PER_N0
PER_N1
PER_N2
PER_N3
PCIe_TXP[0..3]
PET_P0
PET_P1
PET_P2
PET_P3
PCIe_TXN[0..3]
PET_N0
PET_N1
PET_N2
PET_N3
REFCLK_P
REFCLK_N
PCIe_REFCLK_P
PCIe_REFCLK_N
PERST#
PCIe_PERST#

+12V_PCIe
R116
0.01
+12V
TP50
TP51
+3V3_PCIe
R87
0.01
+3V3_IN
TP40
TP41
GND
GND





3V3: 0.703A (2.32W) for 4.5V relays
3V3: 0.927A (3.06W) for 3V relays



5V2: 1.05A pre-config, 0.807A post-config