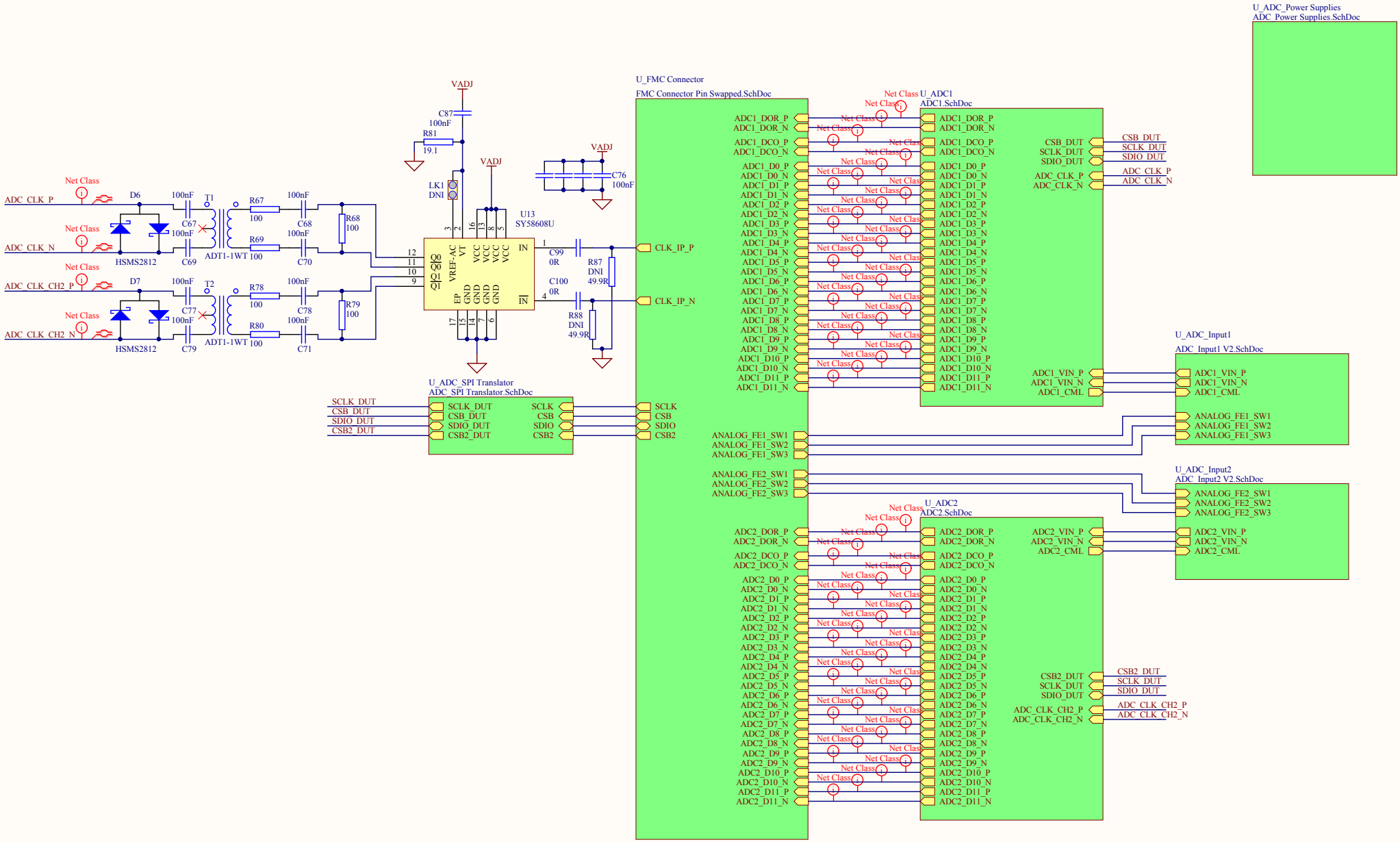
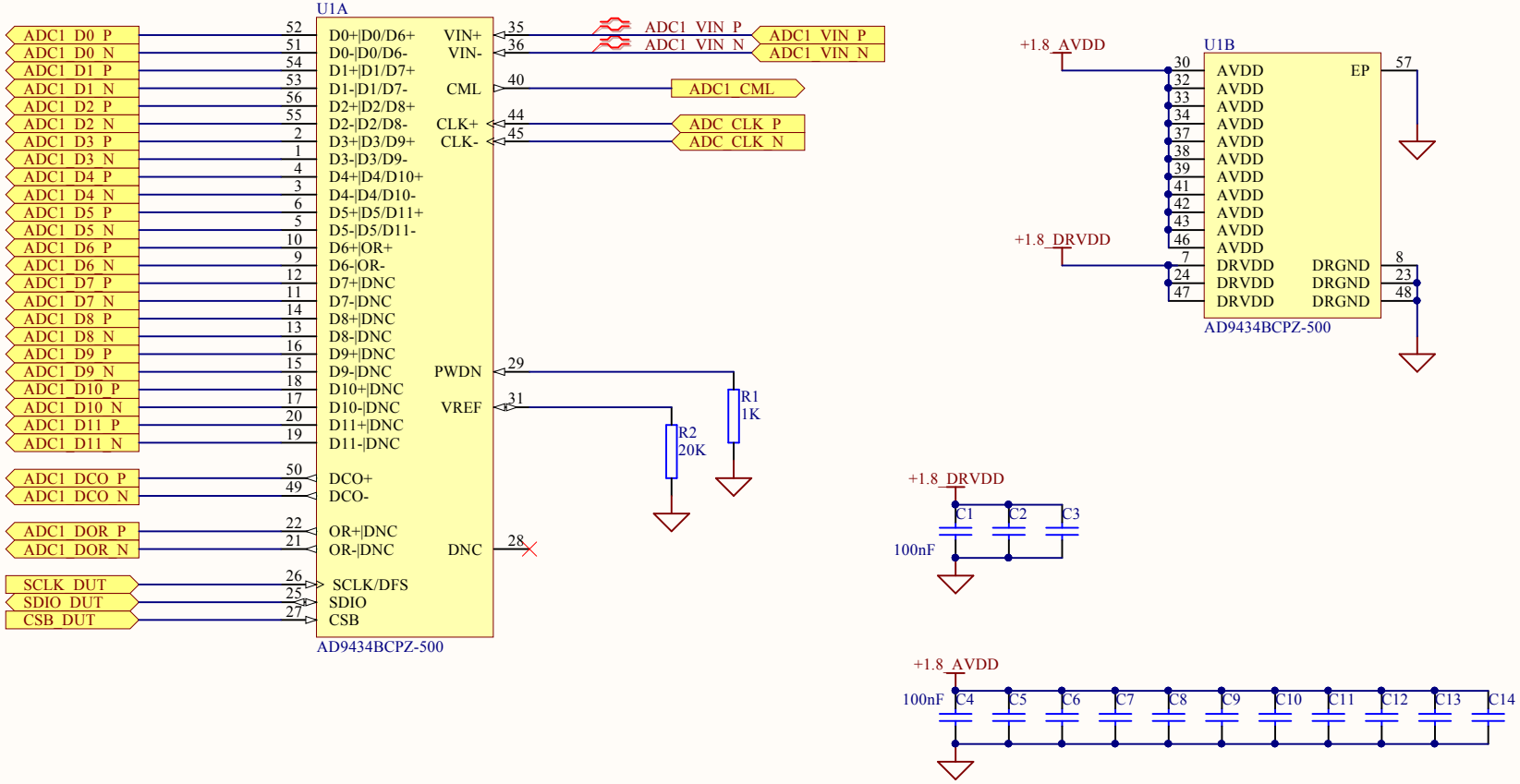

U_ADC_Power Supplies
ADC_Power Supplies.SchDoc
U_FMC Connector
FMC Connector Pin Swapped.SchDoc
Net Class U_ADC1
ADC1.SchDoc
U_ADC_Input1
ADC_Input1 V2.SchDoc
U_ADC_Input2
ADC_Input2 V2.SchDoc
U_ADC2
ADC2.SchDoc
U_ADC_SPI Translator
ADC_SPI Translator.SchDoc
U13
SY58608U
VADJ
C87
100nF
R81
19.1
LK1
DNI
C76
100nF
ADC_CLK_P
ADC_CLK_N
ADC_CLK_CH2_P
ADC_CLK_CH2_N
D6
D7
HSMS2812
T1
T2
ADT1-1WT
C67
C68
C69
C77
C78
C79
R67
R68
R69
R78
R79
R80
100
100nF
C70
C71
C99
0R
C100
R87
DNI
49.9R
R88
CLK_IP_P
CLK_IP_N
SCLK_DUT
CSB_DUT
SDIO_DUT
CSB2_DUT
SCLK
CSB
SDIO
CSB2
ANALOG_FE1_SW1
ANALOG_FE1_SW2
ANALOG_FE1_SW3
ANALOG_FE2_SW1
ANALOG_FE2_SW2
ANALOG_FE2_SW3
ADC1_VIN_P
ADC1_VIN_N
ADC1_CML
ADC2_VIN_P
ADC2_VIN_N
ADC2_CML
ADC1_DOR_P
ADC1_DOR_N
ADC1_DCO_P
ADC1_DCO_N
ADC1_D0_P
ADC1_D0_N
ADC1_D1_P
ADC1_D1_N
ADC1_D2_P
ADC1_D2_N
ADC1_D3_P
ADC1_D3_N
ADC1_D4_P
ADC1_D4_N
ADC1_D5_P
ADC1_D5_N
ADC1_D6_P
ADC1_D6_N
ADC1_D7_P
ADC1_D7_N
ADC1_D8_P
ADC1_D8_N
ADC1_D9_P
ADC1_D9_N
ADC1_D10_P
ADC1_D10_N
ADC1_D11_P
ADC1_D11_N
ADC2_DOR_P
ADC2_DOR_N
ADC2_DCO_P
ADC2_DCO_N
ADC2_D0_P
ADC2_D0_N
ADC2_D1_P
ADC2_D1_N
ADC2_D2_P
ADC2_D2_N
ADC2_D3_P
ADC2_D3_N
ADC2_D4_P
ADC2_D4_N
ADC2_D5_P
ADC2_D5_N
ADC2_D6_P
ADC2_D6_N
ADC2_D7_P
ADC2_D7_N
ADC2_D8_P
ADC2_D8_N
ADC2_D9_P
ADC2_D9_N
ADC2_D10_P
ADC2_D10_N
ADC2_D11_P
ADC2_D11_N
Net Class
PCBMARK2
ISS S/N
ISS-S/N-BOX
PCBMARK3
AUSTLOGO
FD1
FD2
FD3
REV
DATE
DESCRIPTION OF CHANGE
ZONE
APPR
APPR. DATE
Project:
MOKU_ADC_FMC_V1-1.PrjPcb
EARTH SCIENCES ELECTRONICS ANU
Title:
Top Sheet
Size:
A3
DocumentName:
ADC_Top Sheet V2.SchDoc
Revision:
0
Print Date: 8/07/2015
Print Time: 10:40:31 AM
Sheet 1 of 8
File: S:\JOBFILES\Outside\Tablet Oscilliscope\ADC Daughter Board\ADC_Top Sheet V2.SchDoc
Drawn by: T.Redman



REV	DATE	DESCRIPTION OF CHANGE	ZONE	APPR.	APPR. DATE

Project: **MOKU_ADC_FMC_V1-1.PrjPcb**

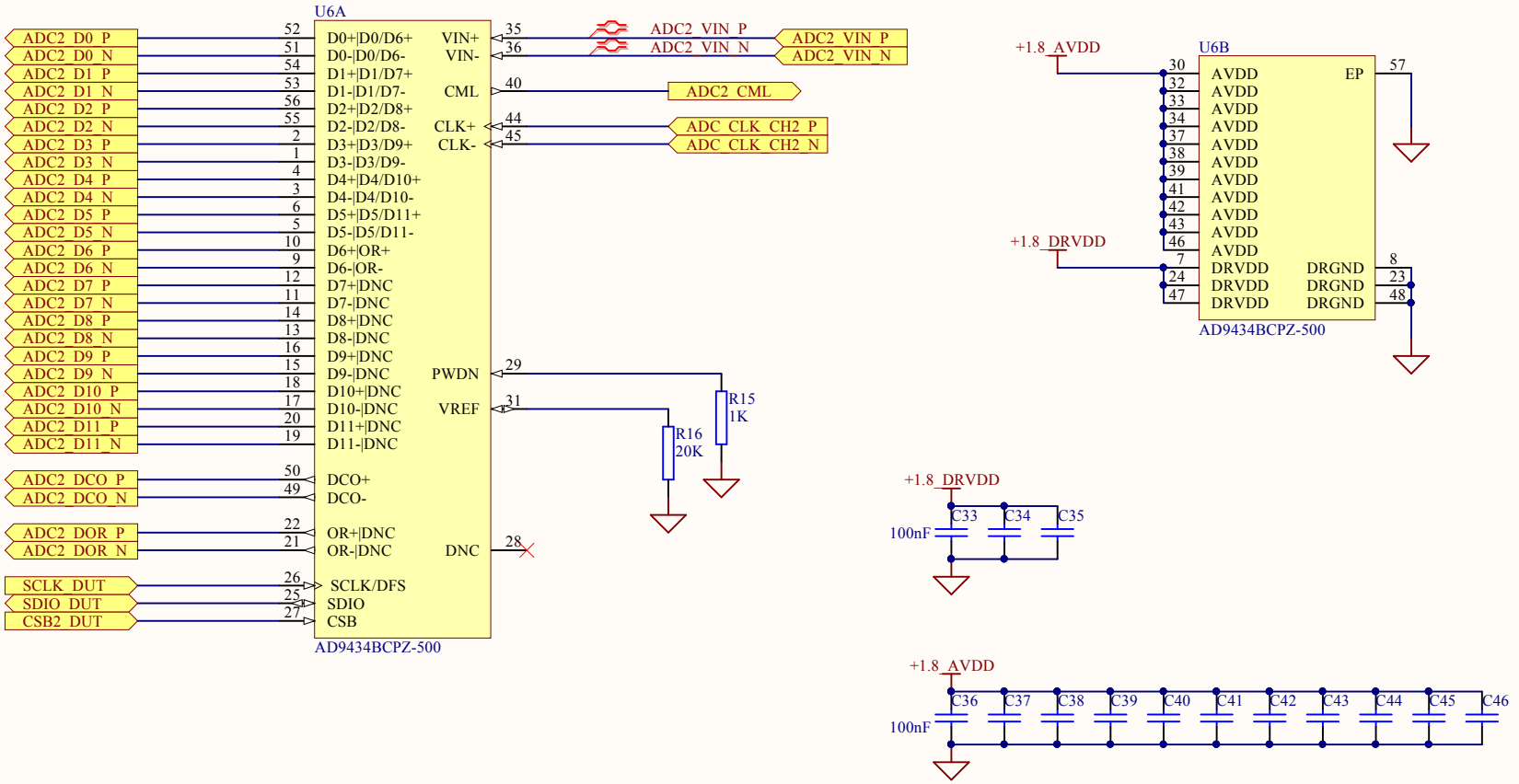
EARTH SCIENCES ELECTRONICS ANU

Title: ADC 1

Size:	DocumentName:	Revision:
A4	ADC1.SchDoc	*

Print Date: 8/07/2015 Print Time: 10:40:31 AM Sheet 2 of 8

File: S:\JOBFILES\Outside\Tablet Oscilliscope\ADC Daughter Board\ADC1.SchDoc Drawn by: T.Redman



REV	DATE	DESCRIPTION OF CHANGE	ZONE	APPR.	APPR. DATE

Project: **MOKU_ADC_FMC_V1-1.PrjPcb**

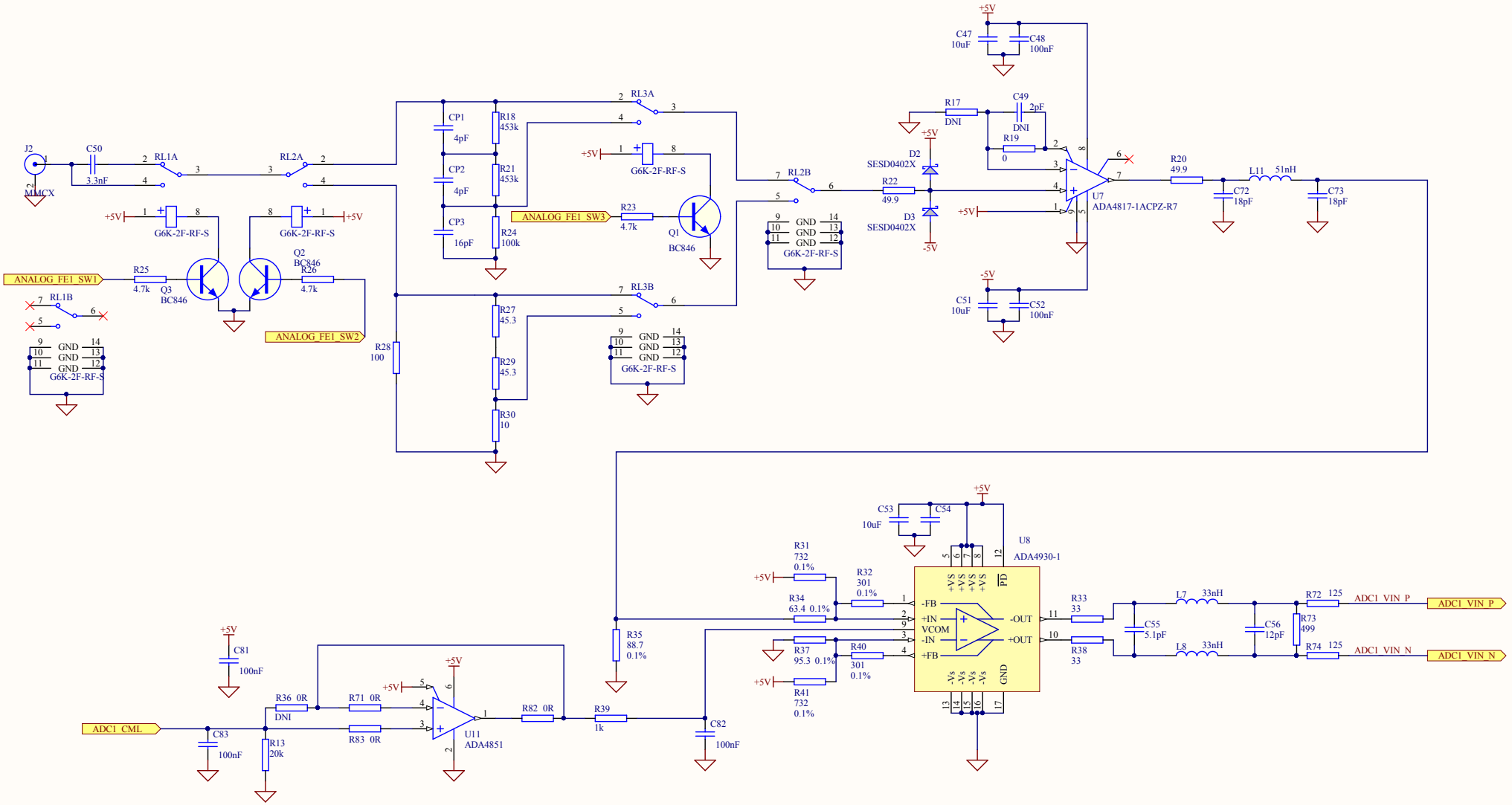
EARTH SCIENCES ELECTRONICS ANU

Title: ADC 2

Size:	DocumentName:	Revision:
A4	ADC2.SchDoc	0

Print Date: 8/07/2015 Print Time: 10:40:31 AM Sheet 3 of 8

File: S:\JOBFILES\Outside\Tablet Oscilliscope\ADC Daughter Board\ADC2.SchDoc Drawn by: T.Redman



REV	DATE	DESCRIPTION OF CHANGE	ZONE	APPR.	APPR. DATE
0	8/7/15	Caps CP1-3 added in parralel to resistors They are to be mounted on top of the resistors		TR	8/7/15

Project: **MOKU_ADC_FMC_V1-1.PrjPcb**

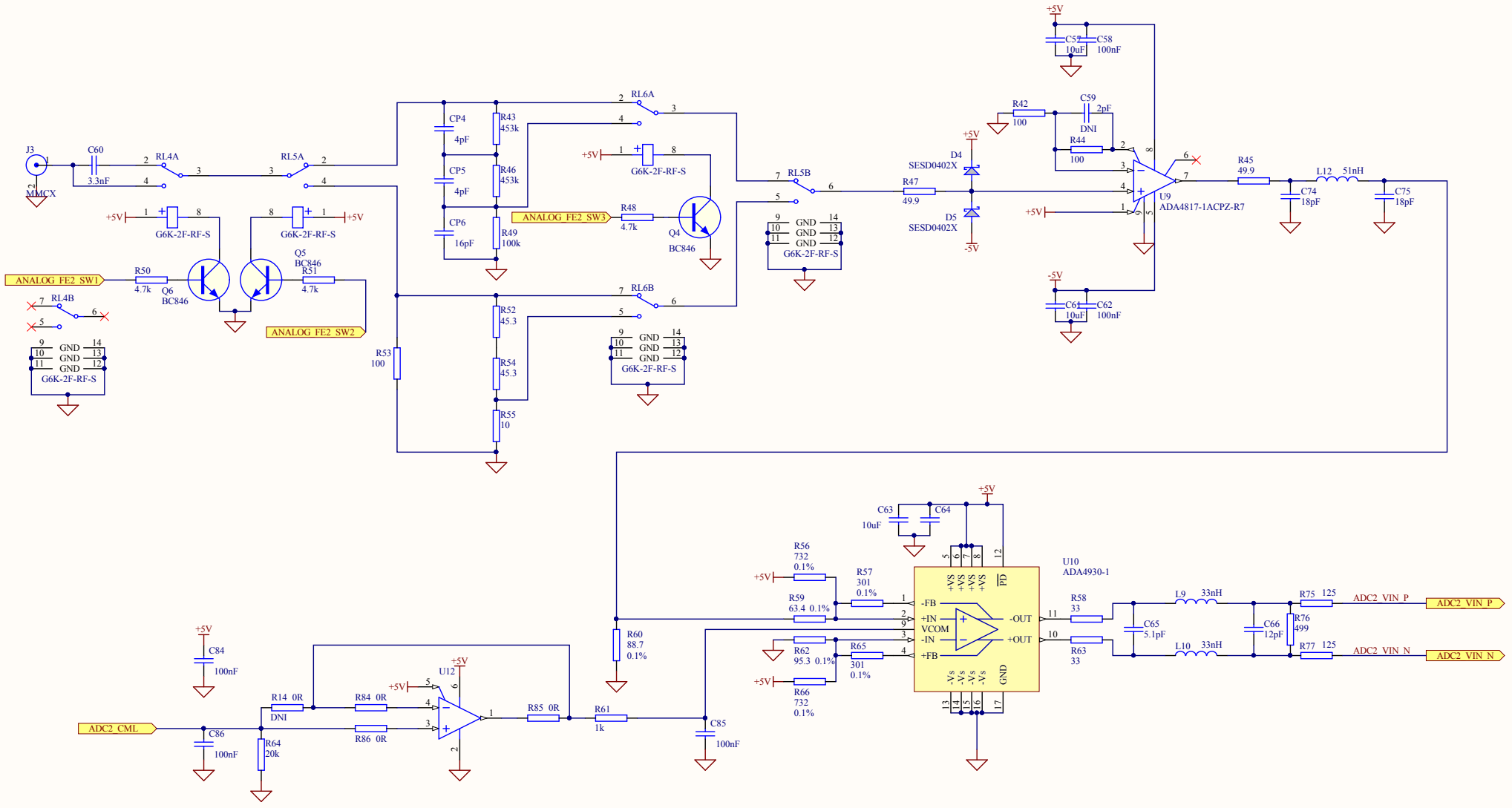
EARTH SCIENCES ELECTRONICS ANU

Title: ADC Input 1 Version 2

Size:	DocumentName:	Revision:
A3	ADC_Input1 V2.SchDoc	0

Print Date: 8/07/2015 Print Time: 10:40:31 AM Sheet 4 of 8

File: S:\JOBFILES\Outside\Tablet Oscilliscope\ADC Daughter Board\ADC_Input1 V2.SchDoc Drawn by: T.Redman



REV	DATE	DESCRIPTION OF CHANGE	ZONE	APPR.	APPR. DATE
0	8/7/15	Caps CP4-6 added in parralel to resistors They are to be mounted on top of the resistors		TR	8/7/15

Project: **MOKU_ADC_FMC_V1-1.PrjPcb**

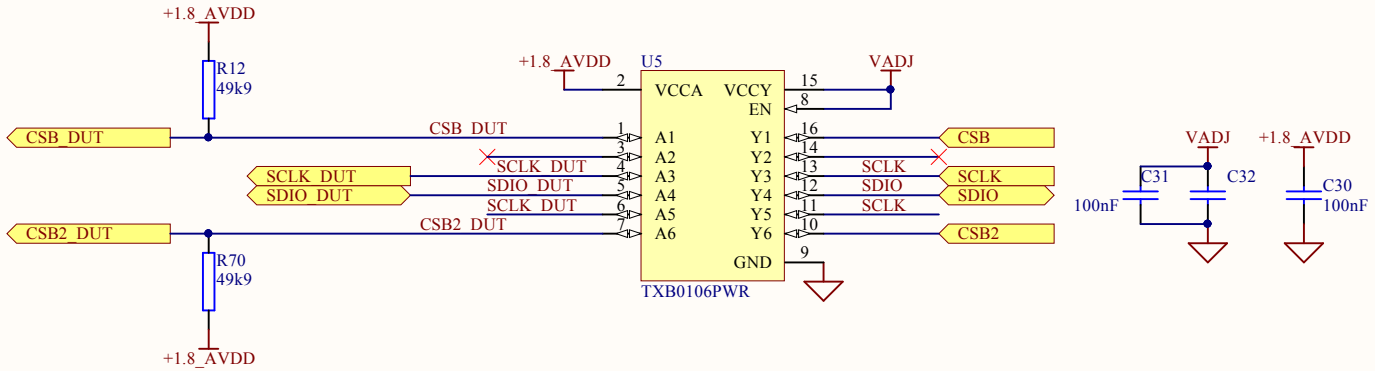
EARTH SCIENCES ELECTRONICS ANU

Title: ADC Input 1 Version 2

Size:	DocumentName:	Revision:
A3	ADC_Input2 V2.SchDoc	0

Print Date: 8/07/2015 Print Time: 10:40:31 AM Sheet 5 of 8

File: S:\JOBFILES\Outside\Tablet Oscilliscope\ADC Daughter Board\ADC_Input2 V2.SchDoc Drawn by: T.Redman



REV	DATE	DESCRIPTION OF CHANGE	ZONE	APPR.	APPR. DATE

Project: **MOKU_ADC_FMC_V1-1.PrjPcb**

EARTH SCIENCES ELECTRONICS ANU

Title: SPI Translator

Size: A4

DocumentName: ADC_SPI Translator.SchDoc

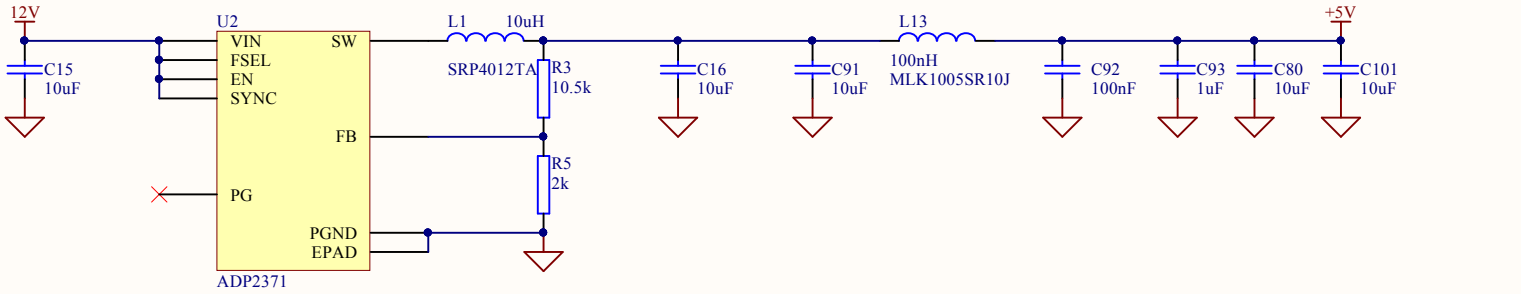
Revision: 0

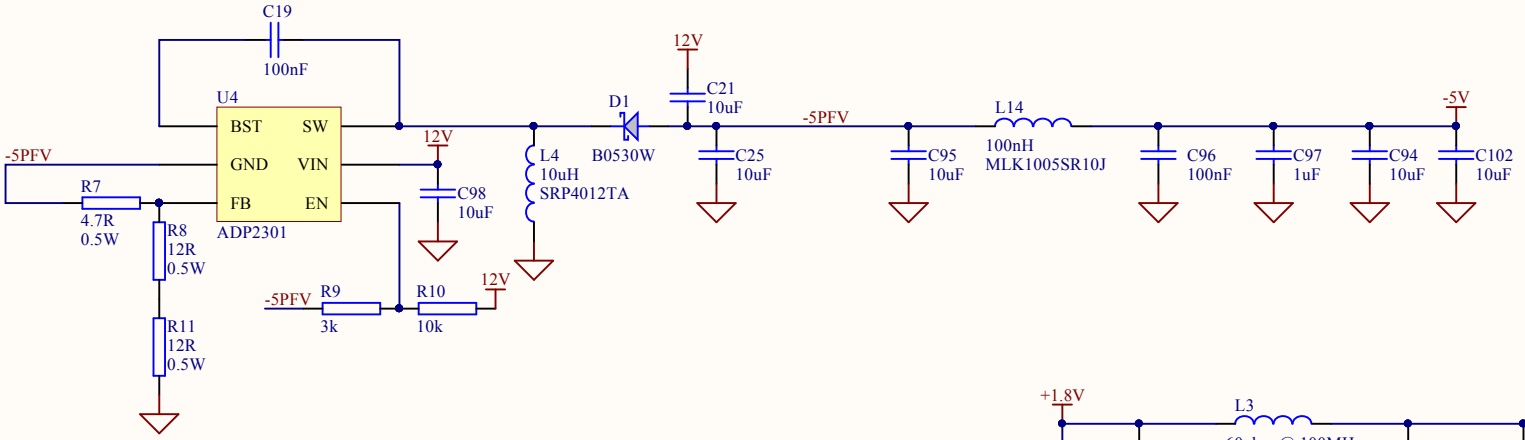
Print Date: 8/07/2015 Print Time: 10:40:32 AM

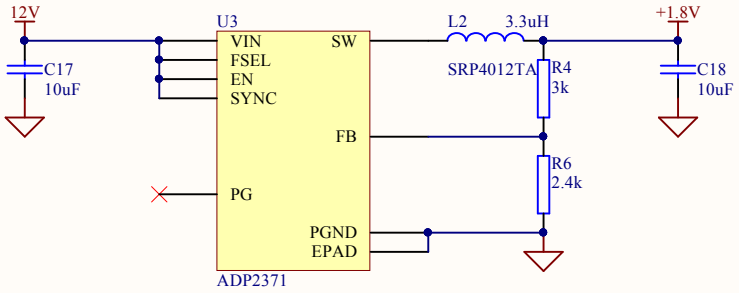
Sheet 6 of 8

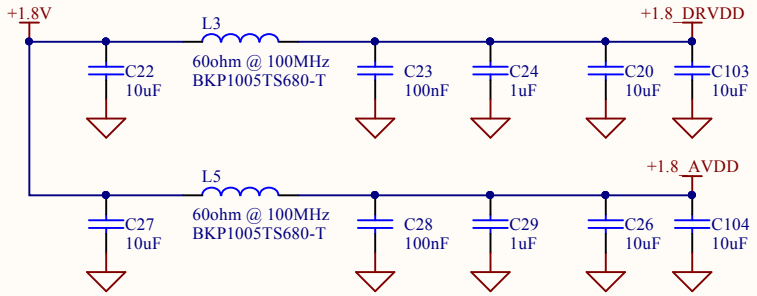
File: S:\JOBFILES\Outside\Tablet Oscilliscope\ADC Daughter Board\ADC_SPI Translator.SchDoc

Drawn by: T.Redman









REV	DATE	DESCRIPTION OF CHANGE	ZONE	APPR.	APPR. DATE

Project: **MOKU_ADC_FMC_V1-1.PrjPcb**

EARTH SCIENCES ELECTRONICS ANU

Title: Power Supplies

Size: A4

DocumentName: ADC_Power Supplies.SchDoc

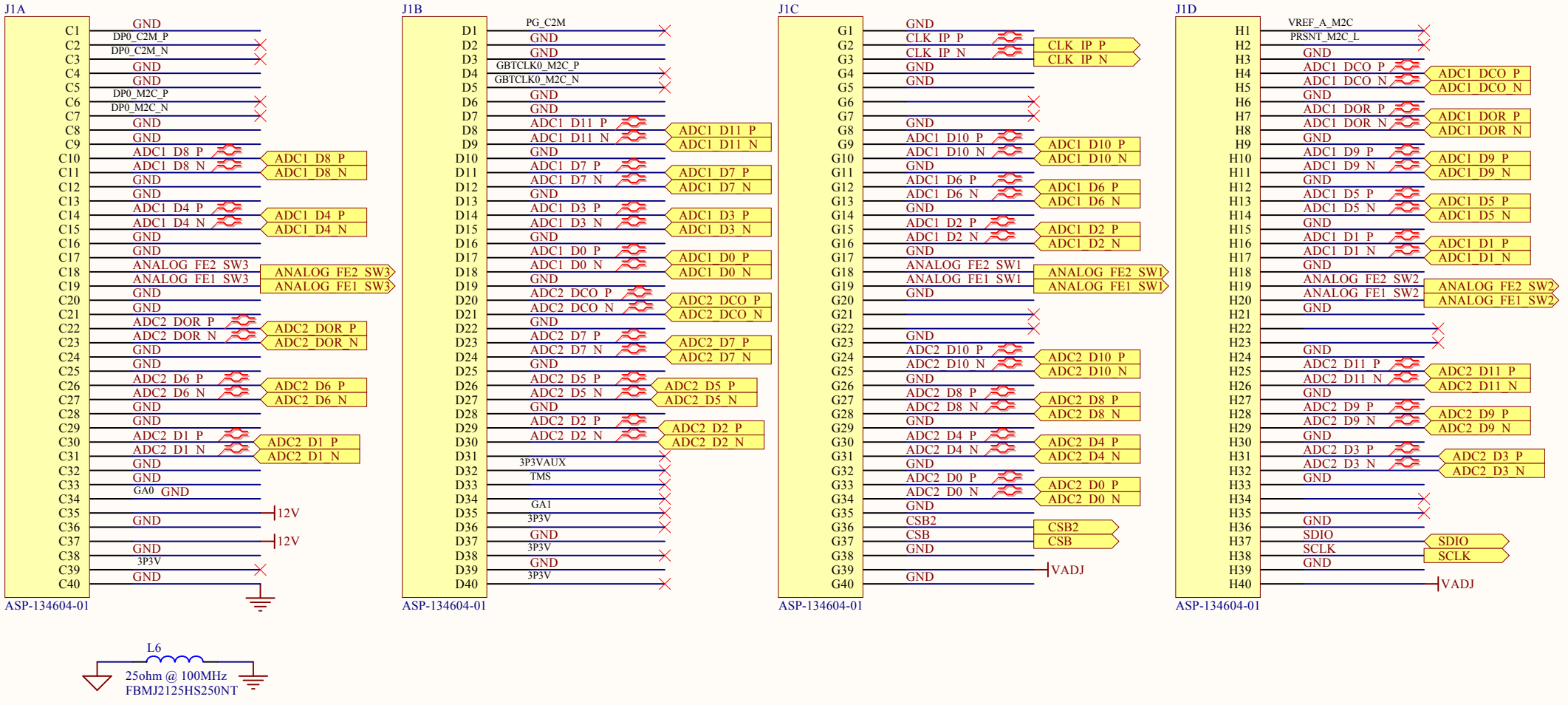
Revision: 0

Print Date: 8/07/2015 Print Time: 10:40:32 AM

Sheet 7 of 8

File: S:\JOBFILES\Outside\Tablet Oscilliscope\ADC Daughter Board\ADC_Power Supplies.SchDoc

Drawn by: T.Redman



REV	DATE	DESCRIPTION OF CHANGE	ZONE	APPR.	APPR. DATE

Project: **MOKU_ADC_FMC_V1-1.PrjPcb**

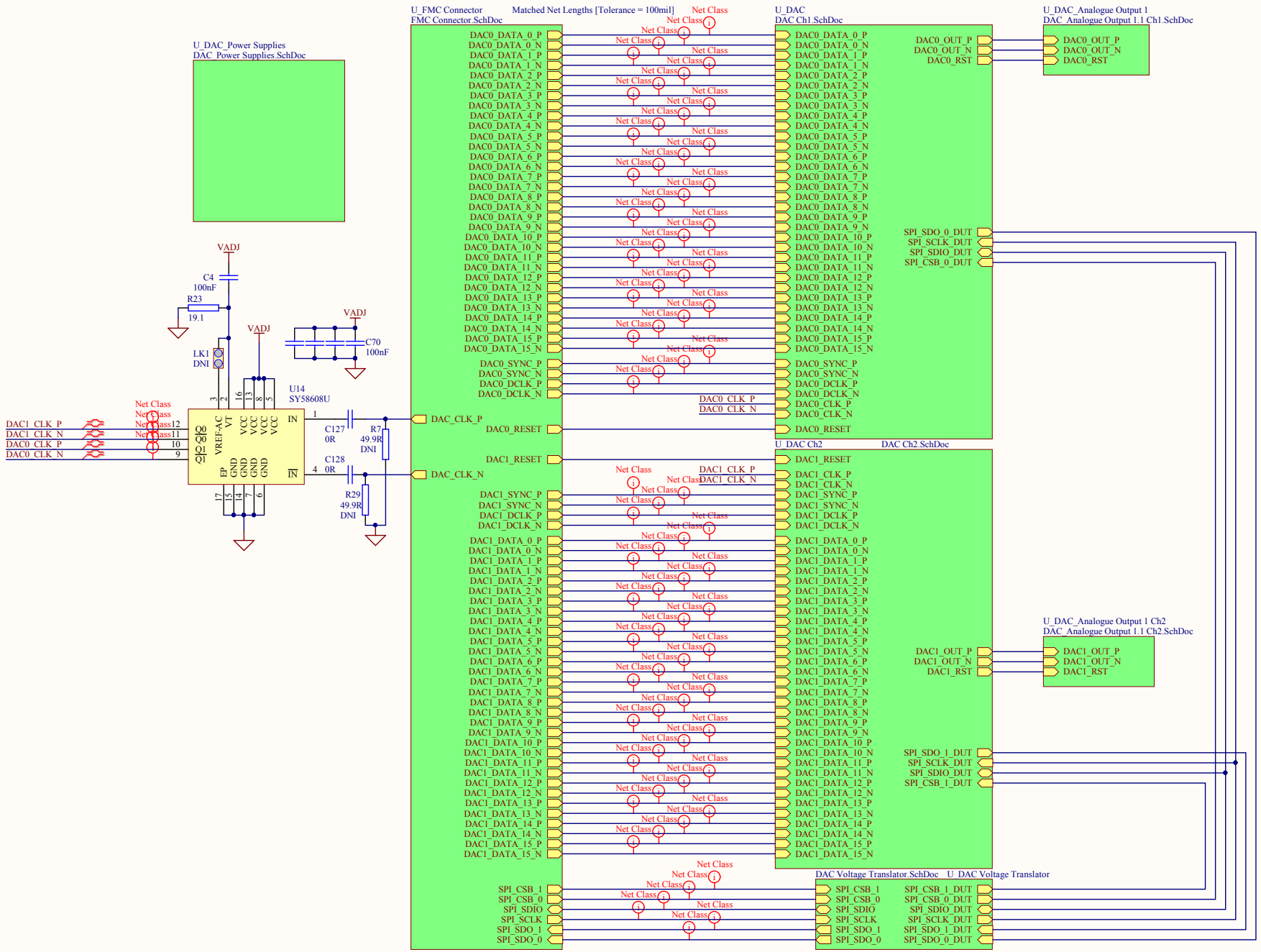
EARTH SCIENCES ELECTRONICS ANU

Title: FMC Connector

Size:	DocumentName:	Revision:
A4	FMC Connector Pin Swapped.SchDoc	0

Print Date: 8/07/2015 Print Time: 10:40:32 AM Sheet 8 of 8

File: S:\JOBFILES\Outside\Tablet Oscilliscope\ADC Daughter Board\FMC Connector Pin Swapped.SchDoc Drawn by: T.Redman



REV	DATE	DESCRIPTION OF CHANGE	ZONE	APPR.	APPR. DATE

Project: **MOKU_DAC_FMC_V1-1.PrjPcb**

EARTH SCIENCES ELECTRONICS ANU

Title: Top Sheet

Size: A3

DocumentName: DAC_Top Sheet.SchDoc

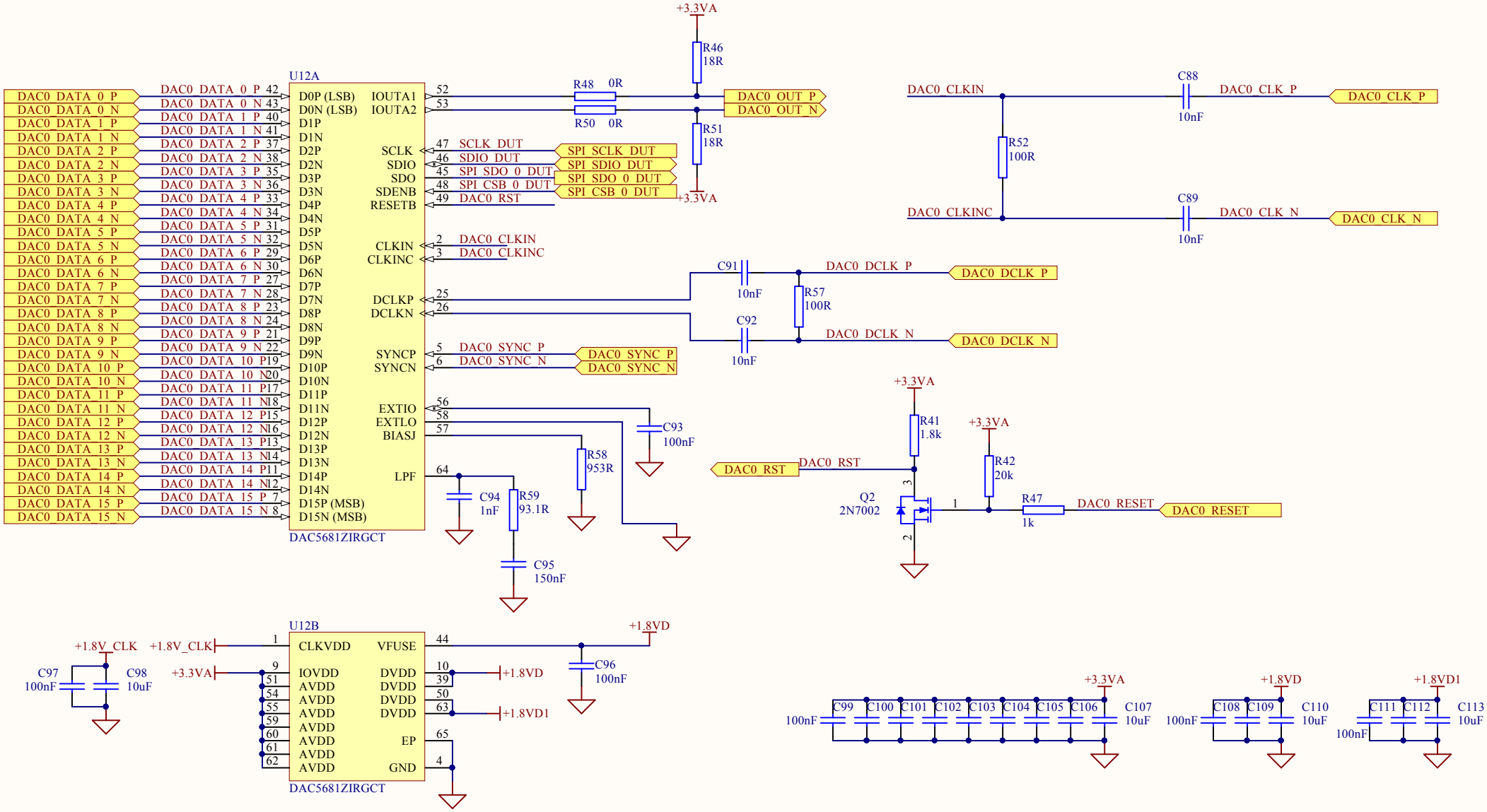
Revision: 0

Print Date: 8/07/2015 Print Time: 10:07:16 AM

Sheet 1 of 5

File: S:\JOBFILES\Outside\Tablet Oscilliscope\DAC Daughter Board V2.0\DAC_Top Sheet.SchDoc

Drawn by: T.Redman



REV	DATE	DESCRIPTION OF CHANGE	ZONE	APPR.	APPR. DATE
0	8/7/15	R42 removed from VADJ and changed to +3.3VA Must be done with sky wire		TR	8/7/15
0	8/7/15	Add sky wire between DAC0_RST and U9 Pin 1		TR	8/7/15

Project: **MOKU_DAC_FMC_V1-1.PrjPcb**

EARTH SCIENCES ELECTRONICS ANU

Title: DAC5681z

Size: A4

DocumentName: DAC Ch1.SchDoc

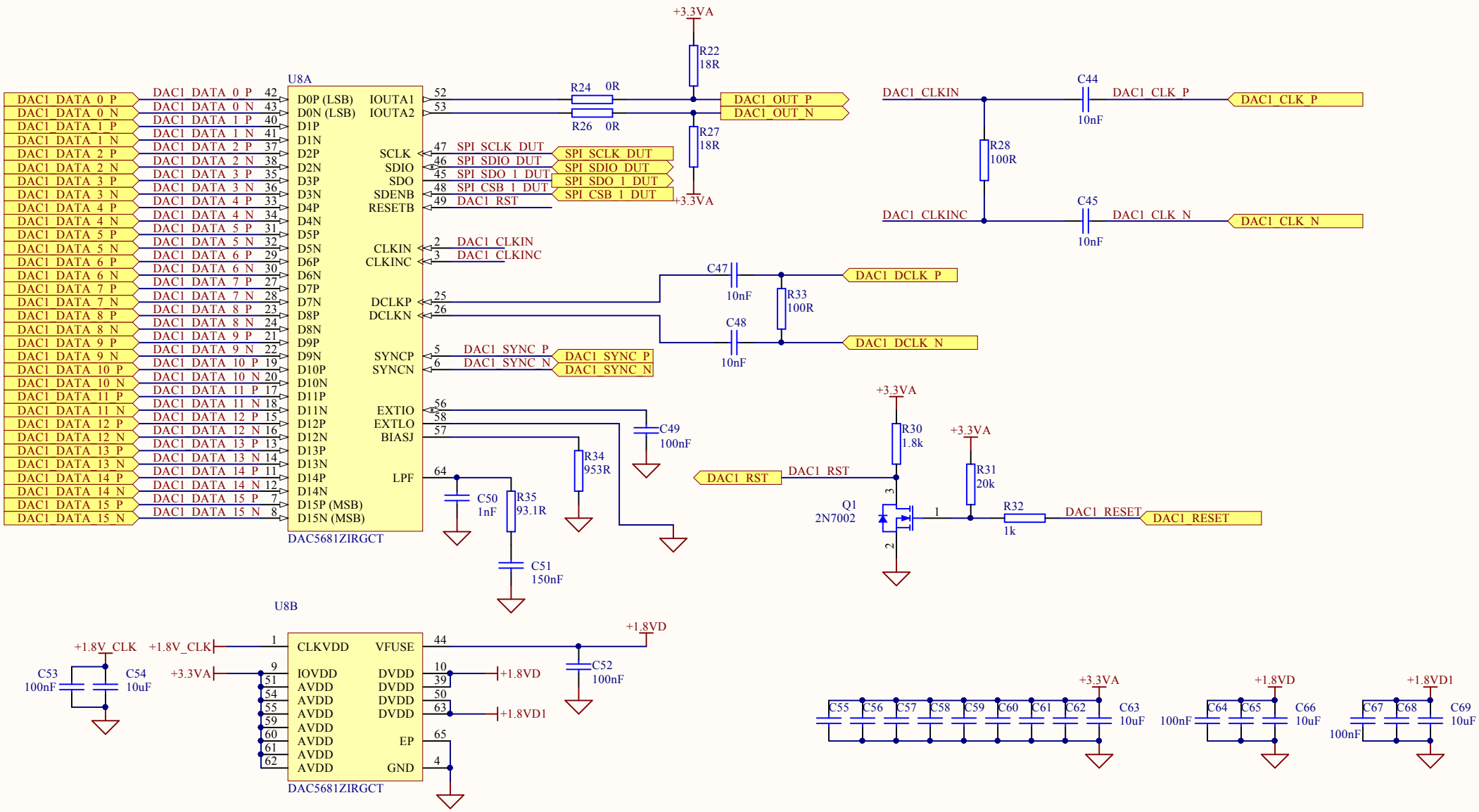
Revision: 0

Print Date: 8/07/2015 Print Time: 10:07:17 AM

Sheet 2 of 5

File: S:\JOBFILES\Outside\Tablet Oscilliscope\DAC Daughter Board V2.0\DAC Ch1.SchDoc

Drawn by: T.Redman



REV	DATE	DESCRIPTION OF CHANGE	ZONE	APPR.	APPR. DATE
0	8/7/15	R31 removed from VADJ and changed to +3.3VA Must be done with sky wire		TR	8/7/15
0	8/7/15	Add sky wire between DAC1_RST and U1 Pin 1		TR	8/7/15

Project: **MOKU_DAC_FMC_V1-1.PrjPcb**

EARTH SCIENCES ELECTRONICS ANU

Title: DAC5681z

Size: A4

DocumentName: DAC Ch2.SchDoc

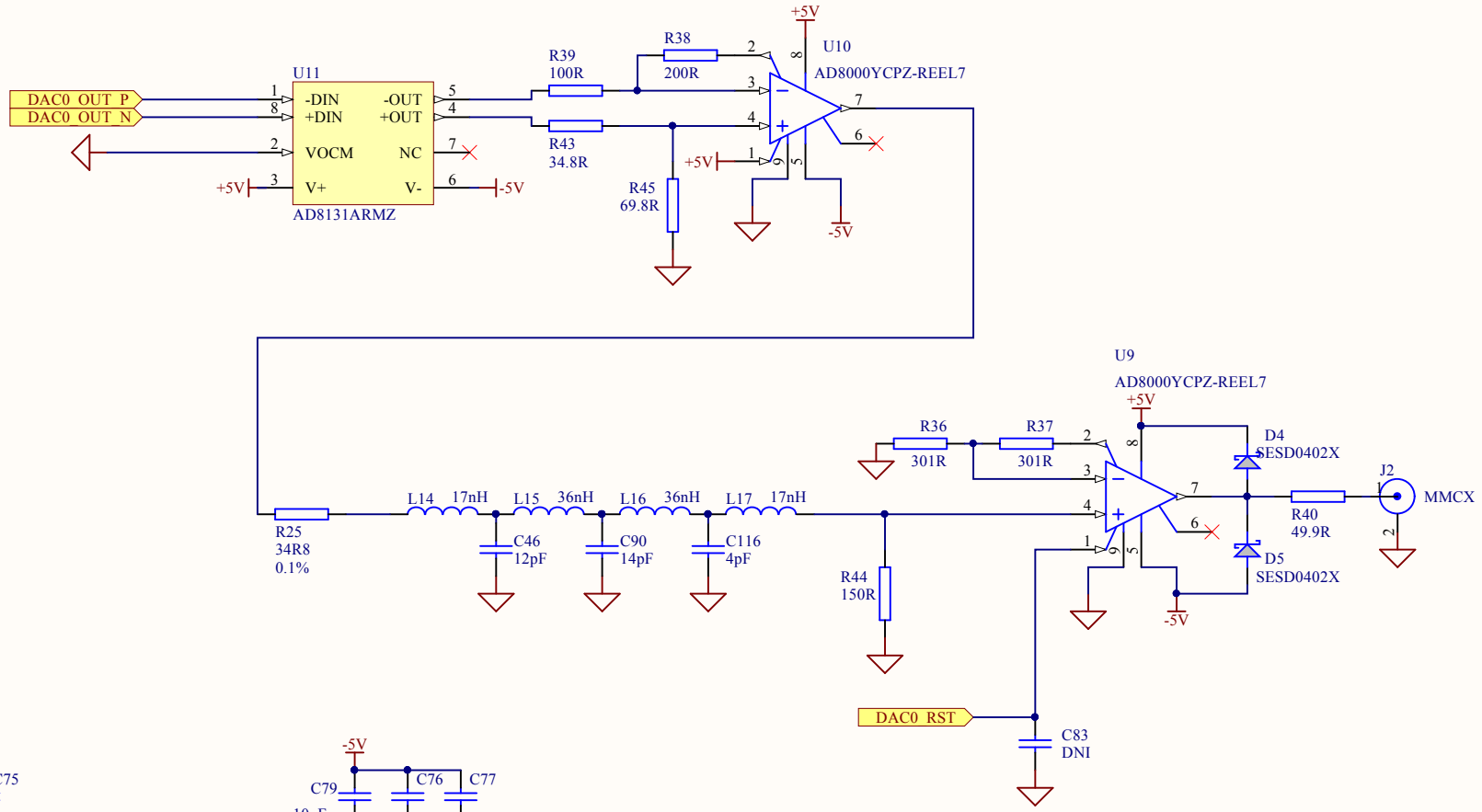
Revision: 0

Print Date: 8/07/2015 Print Time: 10:07:17 AM

Sheet 2 of 5

File: S:\JOBFILES\Outside\Tablet Oscilliscope\DAC Daughter Board V2.0\DAC Ch2.SchDoc

Drawn by: T.Redman



REV	DATE	DESCRIPTION OF CHANGE	ZONE	APPR.	APPR. DATE
0	8/7/15	C83 Removed and track to 5V cut Sky wire added between U9 pin 1 (C83) and DAC0_RST		TR	8/7/15

Project: **MOKU_DAC_FMC_V1-1.PrjPcb**

EARTH SCIENCES ELECTRONICS ANU

Title: Analog Output Circuit 1.1

Size: A4

DocumentName: DAC_Analogue Output 1.1 Ch1.SchDoc

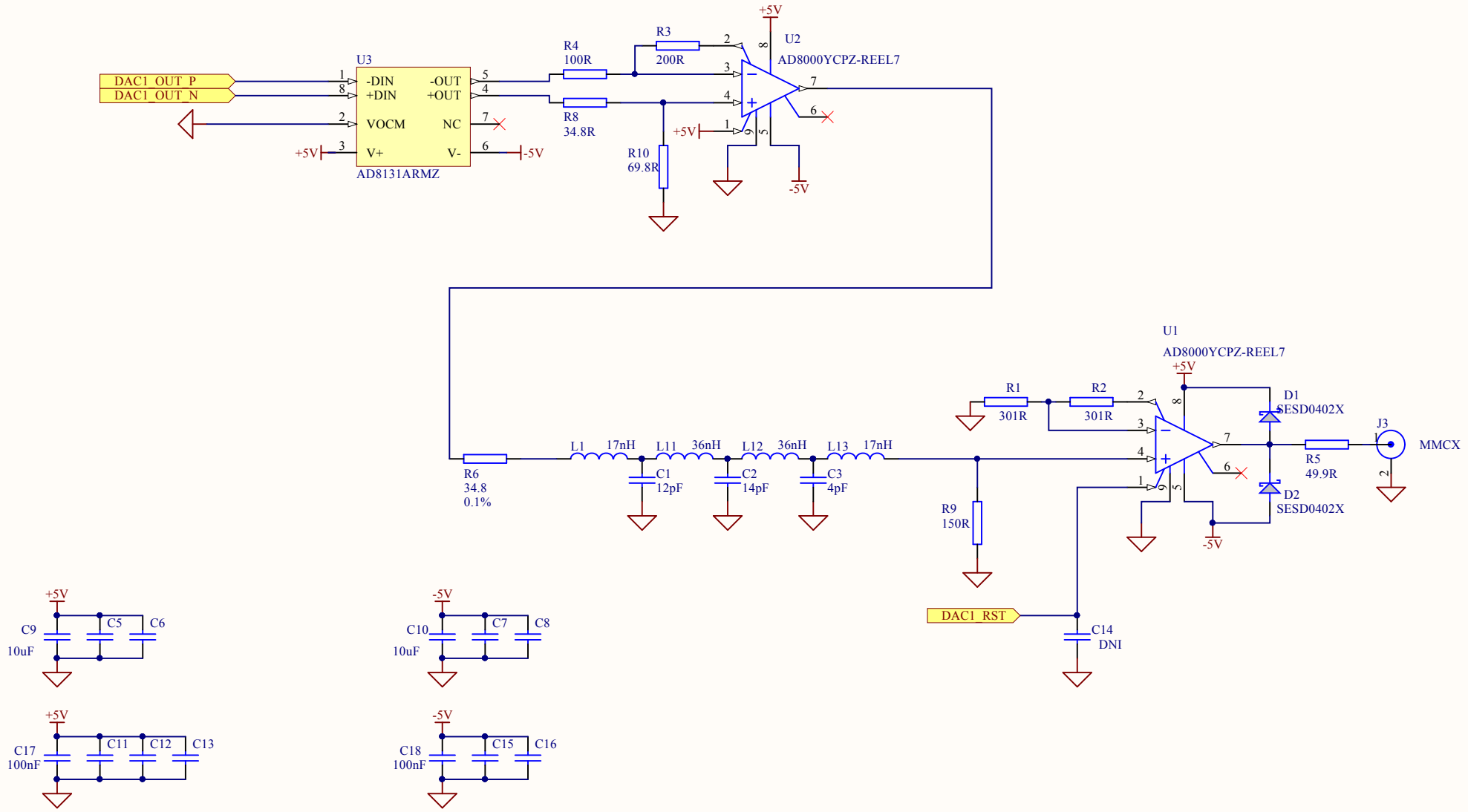
Revision: 0

Print Date: 8/07/2015 Print Time: 10:07:17 AM

Sheet 3 of 5

File: S:\JOBFILES\Outside\Tablet Oscilliscope\DAC Daughter Board V2.0\DAC_Analogue Output 1.1 Ch1.SchDoc

Drawn by: T.Redman



REV	DATE	DESCRIPTION OF CHANGE	ZONE	APPR.	APPR. DATE
0	8/7/15	C14 Removed and track to 5V cut Sky wire added between U1 pin 1 (C14) and DAC1_RST		TR	8/7/15

Project: **MOKU_DAC_FMC_V1-1.PrjPcb**

EARTH SCIENCES ELECTRONICS ANU

Title: Analog Output Circuit 1.1

Size: A4

DocumentName: DAC_Analogue Output 1.1 Ch2.SchDoc

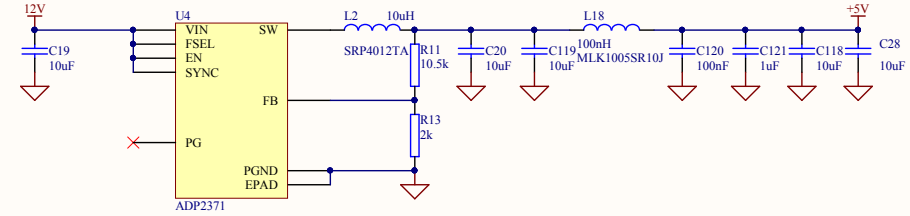
Revision: 0

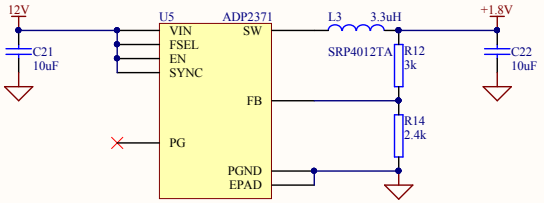
Print Date: 8/07/2015 Print Time: 10:07:17 AM

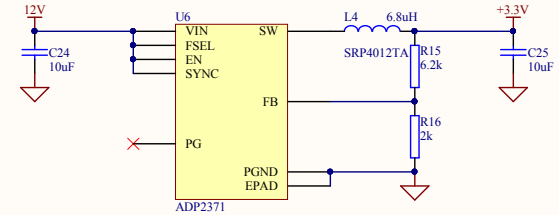
Sheet 3 of 5

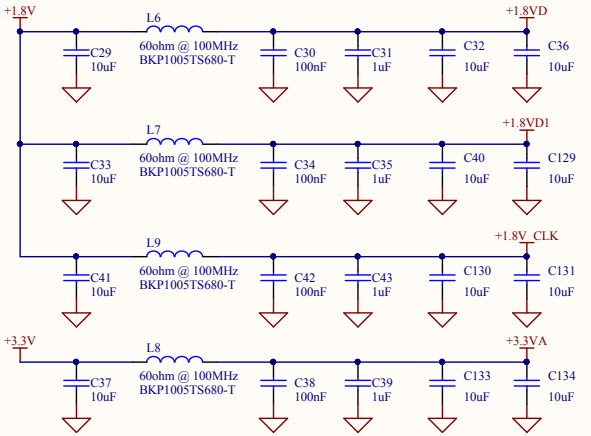
File: S:\JOBFILES\Outside\Tablet Oscilliscope\DAC Daughter Board V2.0\DAC_Analogue Output 1.1 Ch2.SchDoc

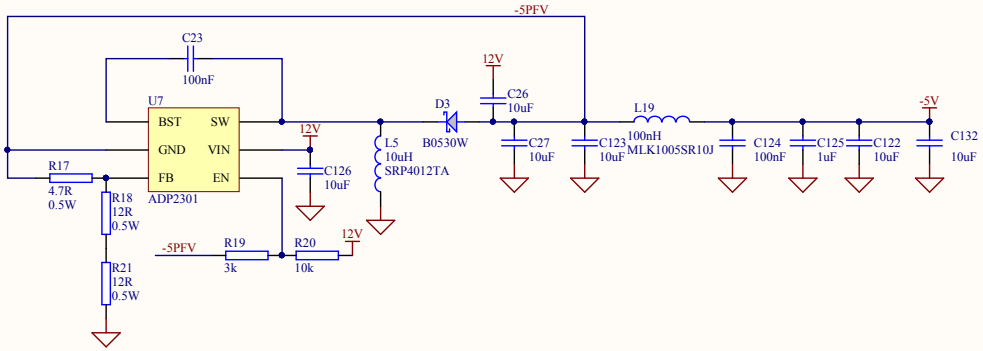
Drawn by: T.Redman





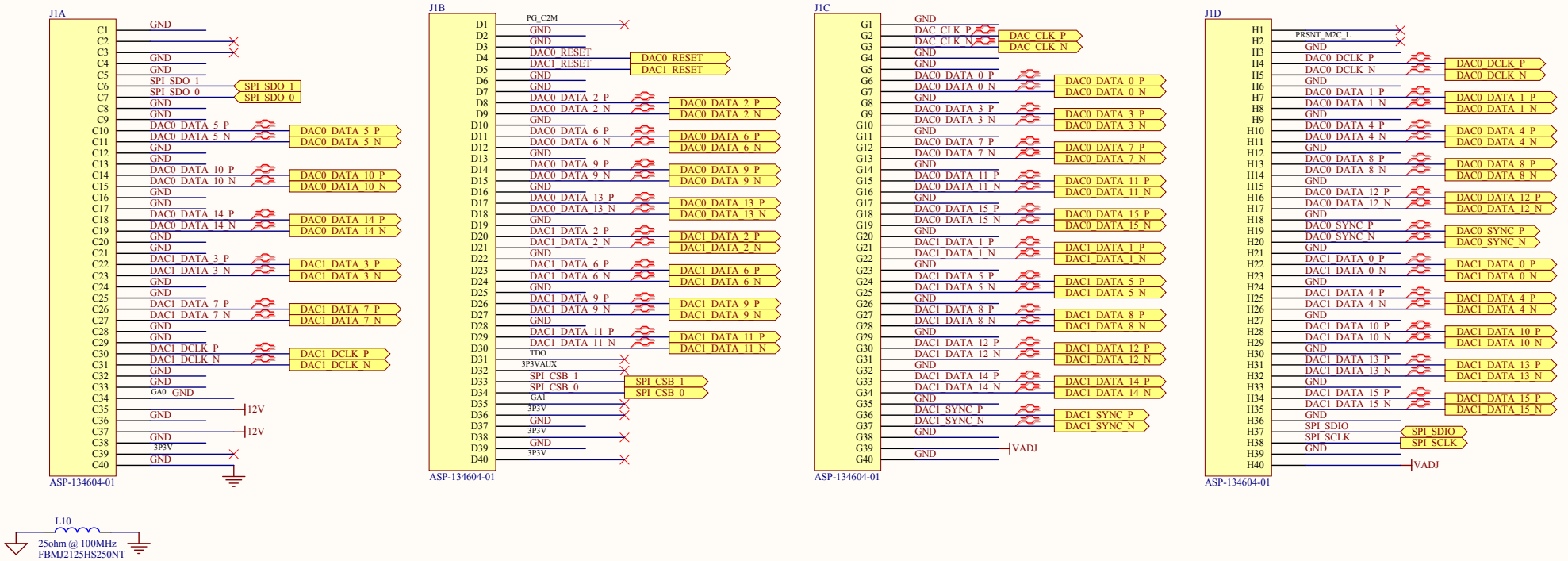






REV	DATE	DESCRIPTION OF CHANGE	ZONE	APPR	APPR. DATE

Project: MOKU_DAC_FMC_V1-1.PrjPcb		EARTH SCIENCES ELECTRONICS ANU
Title: Power Supplies		
Size: A3	DocumentName: DAC_Power Supplies.SchDoc	Revision: 0
Print Date: 8/07/2015	Print Time: 10:07:17 AM	Sheet 4 of 5
File: S:\JOBFILES\Outside\Tablet Oscilliscope\DAC Daughter Board V2.0\DAC_Power Supplies.SchDoc		Drawn by: T.Redman



REV	DATE	DESCRIPTION OF CHANGE	ZONE	APPR.	APPR. DATE

Project: **MOKU_DAC_FMC_V1-1.PrjPcb**

EARTH SCIENCES ELECTRONICS ANU

Title: FMC Connector

Size: A3

DocumentName: FMC Connector.SchDoc

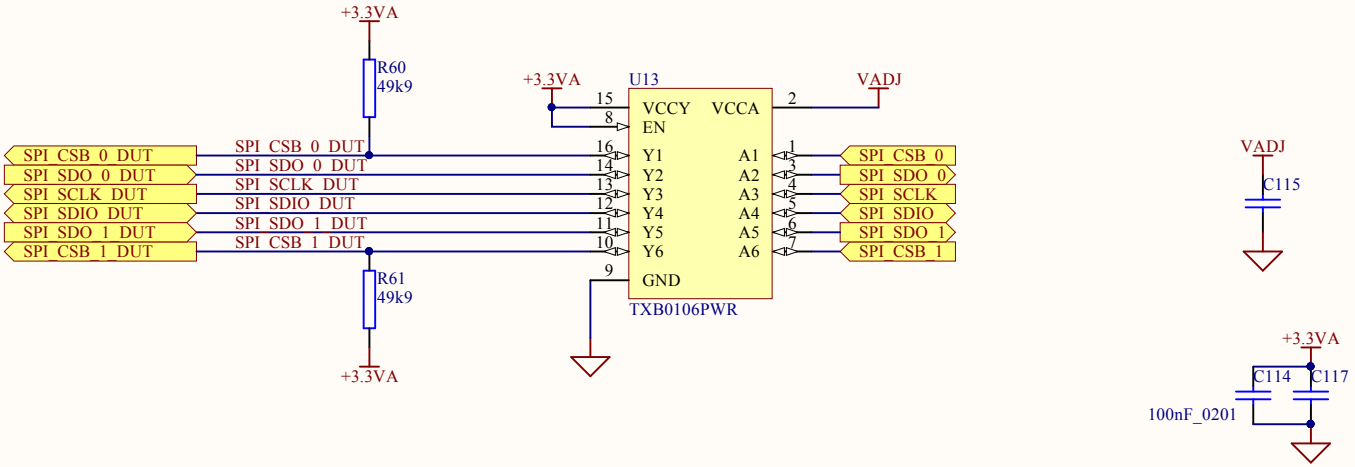
Revision: 0

Print Date: 8/07/2015 Print Time: 10:07:17 AM

Sheet 5 of 5

File: S:\JOBFILES\Outside\Tablet Oscilliscope\DAC Daughter Board V2.0\FMC Connector.SchDoc

Drawn by: T.Redman



REV	DATE	DESCRIPTION OF CHANGE	ZONE	APPR.	APPR. DATE

Project: **MOKU_DAC_FMC_V1-1.PrjPcb**

EARTH SCIENCES ELECTRONICS ANU

Title: *

Size: A4

DocumentName: DAC Voltage Translator.SchDoc

Revision: *

Print Date: 8/07/2015 Print Time: 10:07:17 AM

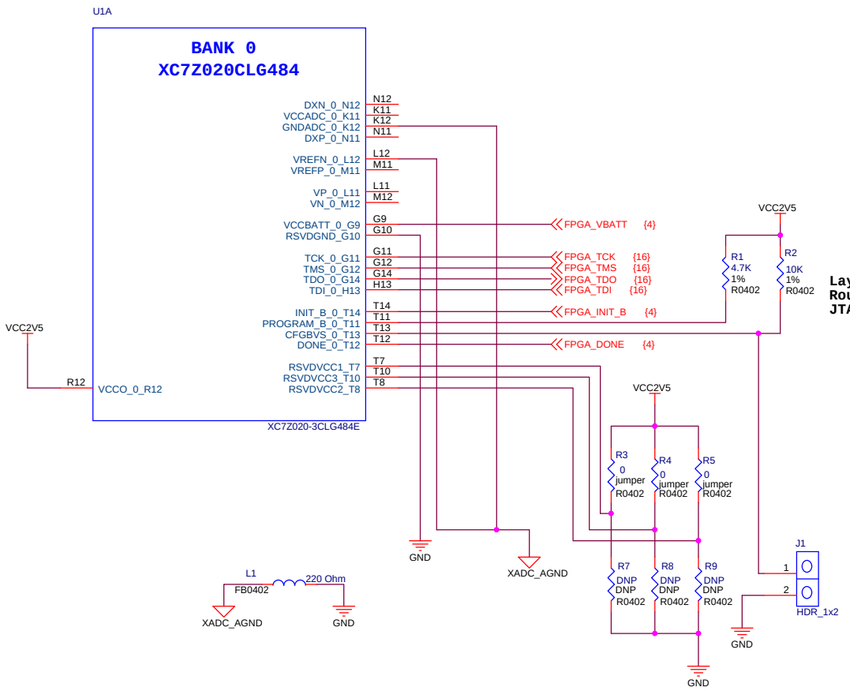
Sheet * of *

File: S:\JOBFILES\Outside\Tablet Oscilliscope\DAC Daughter Board V2.0\DAC Voltage Translator.SchDoc

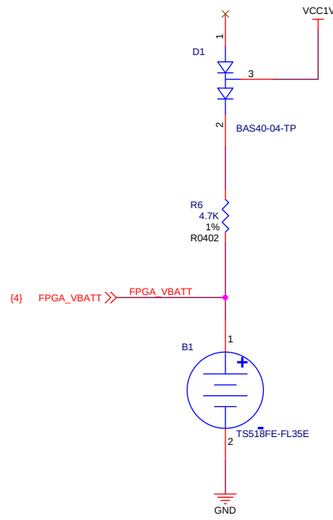
Drawn by: *

FPGA ZYNQ-7000 CONFIGURATION BANK 0

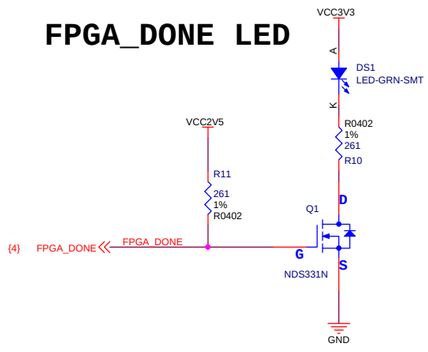
FPGA Maximum CPU clock frequency: 866 MHz
Maximum DDR3 interface performance: 1066 Mb/s



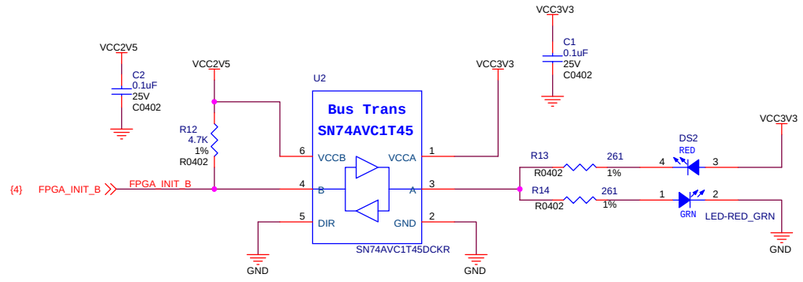
Layout Note
Route all JTAG signals AT 50 Ohms.
JTAG controller maximum frequency: 20 MHz



FPGA_DONE LED



FPGA_INIT Bicolour LED



Zynq Bank 0

Proprietary and Confidential

WHiZZ SYSTEMS	WHIZZ SYSTEMS INC. 3240 Scott Blvd , Santa Clara, CA 95054, USA Job # 7490	
Client:	Liquid Instruments PTY. LTD.	
Title: FPGA BANK 0		Sch: 7490_MokuV1.0
Size: C	Engineer: Farooq Bhatti	Rev: A
Date: Thursday, July 09, 2015		Sheet 4 of 38

FPGA BANK 13 (FPGA-FMC)

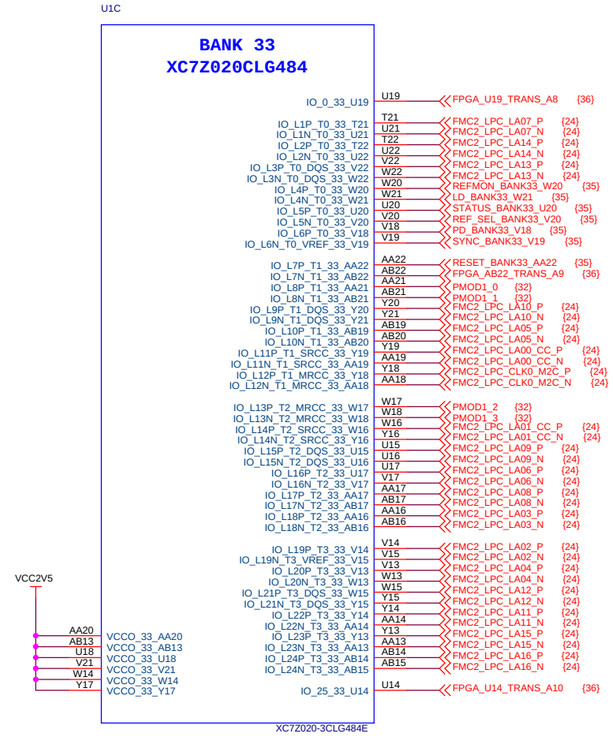
Layout Note
Route all FMC Diff Pairs Signals at 100 Ohms and Single Ended Signals at 50 Ohms

Zynq Bank 13

Proprietary and Confidential

WHiZZ SYSTEMS	WHIZZ SYSTEMS INC. 3240 Scott Blvd , Santa Clara, CA 95054, USA Job # 7490	
Client: Liquid Instruments PTY. LTD.		
Title: FPGA BANK 13		Sch: 7490_MokuV1.0
Size: C	Engineer: Farooq Bhatti	Rev: A
Date: Thursday, July 09, 2015		Sheet 5 of 38

FPGA BANK 33 (FPGA-FMC)



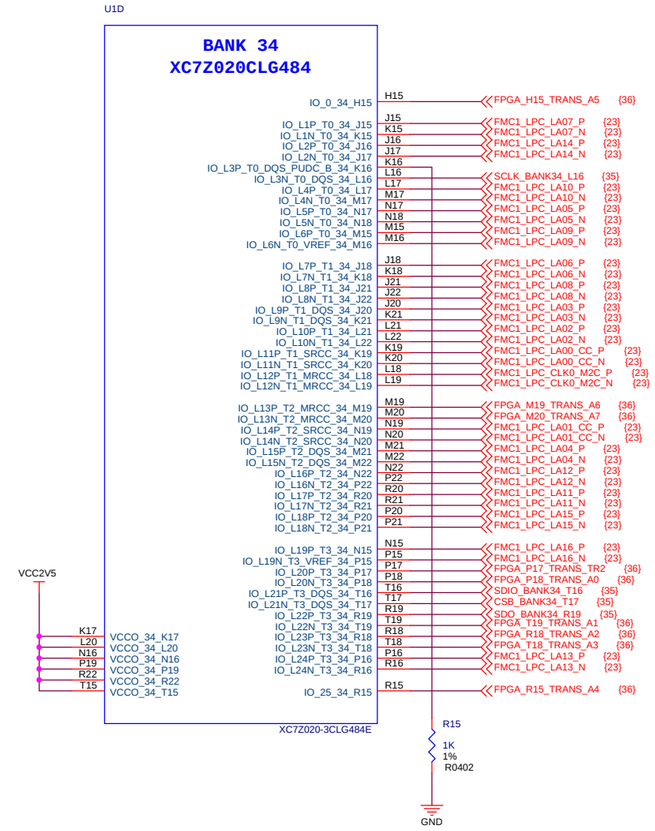
Layout Note
Route all FMC Diff Pairs Signals at 100 Ohms and Single Ended Signals at 50 Ohms

Zynq Bank 33

Proprietary and Confidential

WHiZZ SYSTEMS	**WHIZZ SYSTEMS INC.** 3240 Scott Blvd , Santa Clara, CA 95054, USA Job # **7490**
Client: Liquid Instruments PTY. LTD.	
Title **FPGA BANK 33**	Sch: **7490_MokuV1.0**
Size **C** / Engineer: Farooq Bhatti	Rev **A**
Date: Thursday, July 09, 2015	Sheet **6** of **38**

FPGA BANK 34 (FPGA-FMC)



Layout Note
Route all FMC Diff Pairs Signals at 100 Ohms and Single Ended Signals at 50 Ohms

Zynq Bank 34

Proprietary and Confidential

WHiZZ SYSTEMS	WHIZZ SYSTEMS INC. 3240 Scott Blvd , Santa Clara, CA 95054, USA Job # 7490	
Client: Liquid Instruments PTY. LTD.		
Title FPGA BANK 34		Sch: 7490_MokuV1.0
Size C	Engineer: Farooq Bhatti	Rev A
Date: Thursday, July 09, 2015		Sheet 7 of 38

FPGA BANK 35 (FPGA-FMC)

Layout Note
Route all FMC Diff Pairs Signals at 100 Ohms and Single Ended Signals at 50 Ohms

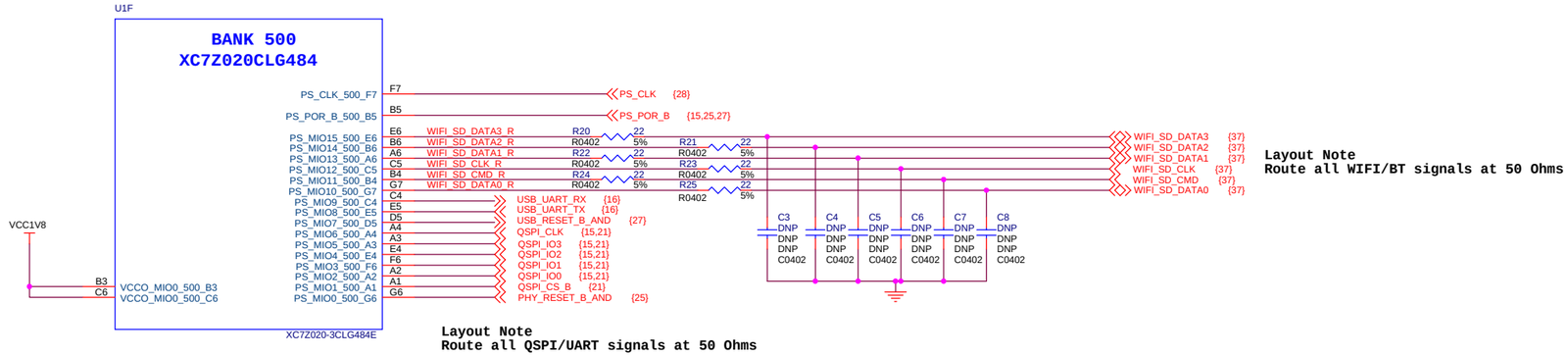
Zynq Bank 35

Proprietary and Confidential

WHIZZ SYSTEMS INC. 3240 Scott Blvd , Santa Clara, CA 95054, USA Job # 7490		
Client: Liquid Instruments PTY. LTD.		
Title: FPGA BANK 35		Sch: 7490_MokuV1.0
Size: C	Engineer: Farooq Bhatti	Rev: A
Date: Thursday, July 09, 2015		Sheet 8 of 38

EMIO gigabit Ethernet controller maximum frequency 125 MHz
EMIO SD controller maximum frequency 25 MHz
EMIO SPI controller maximum frequency 25 MHz
EMIO JTAG controller maximum frequency 20 MHz

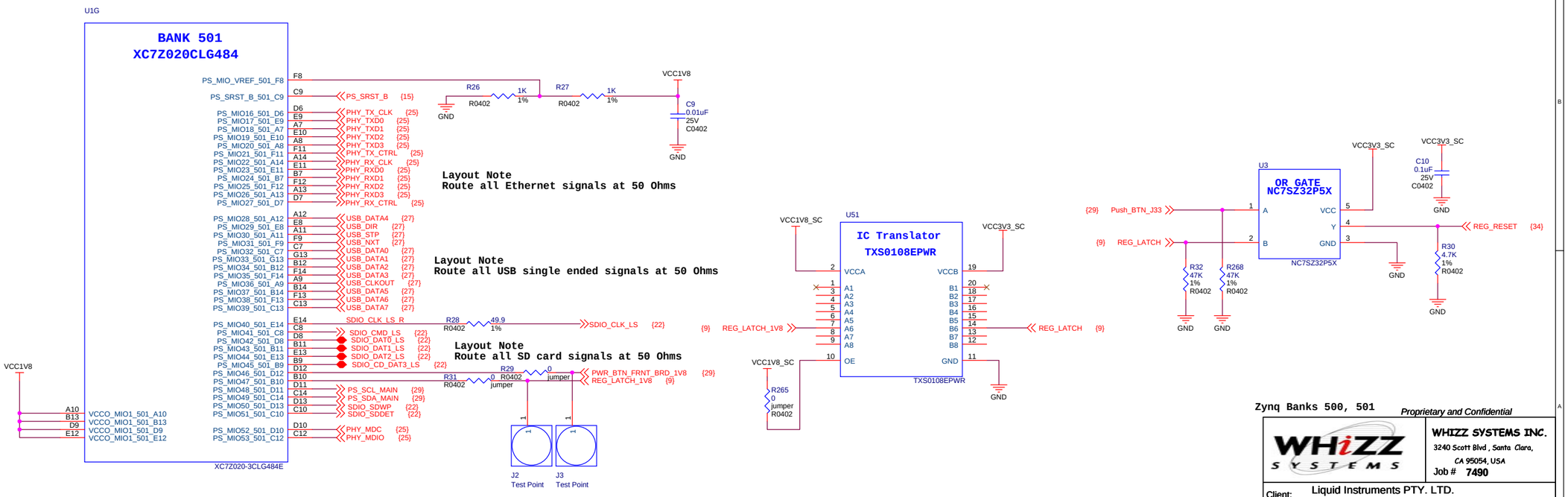
FPGA BANK 500 (FPGA- WIFI/UART/QSPI)



Layout Note
Route all QSPI/UART signals at 50 Ohms

Layout Note
Route all WIFI/BT signals at 50 Ohms

FPGA BANK 501 (FPGA- ETHERNET/USB/SD)



Layout Note
Route all Ethernet signals at 50 Ohms

Layout Note
Route all USB single ended signals at 50 Ohms

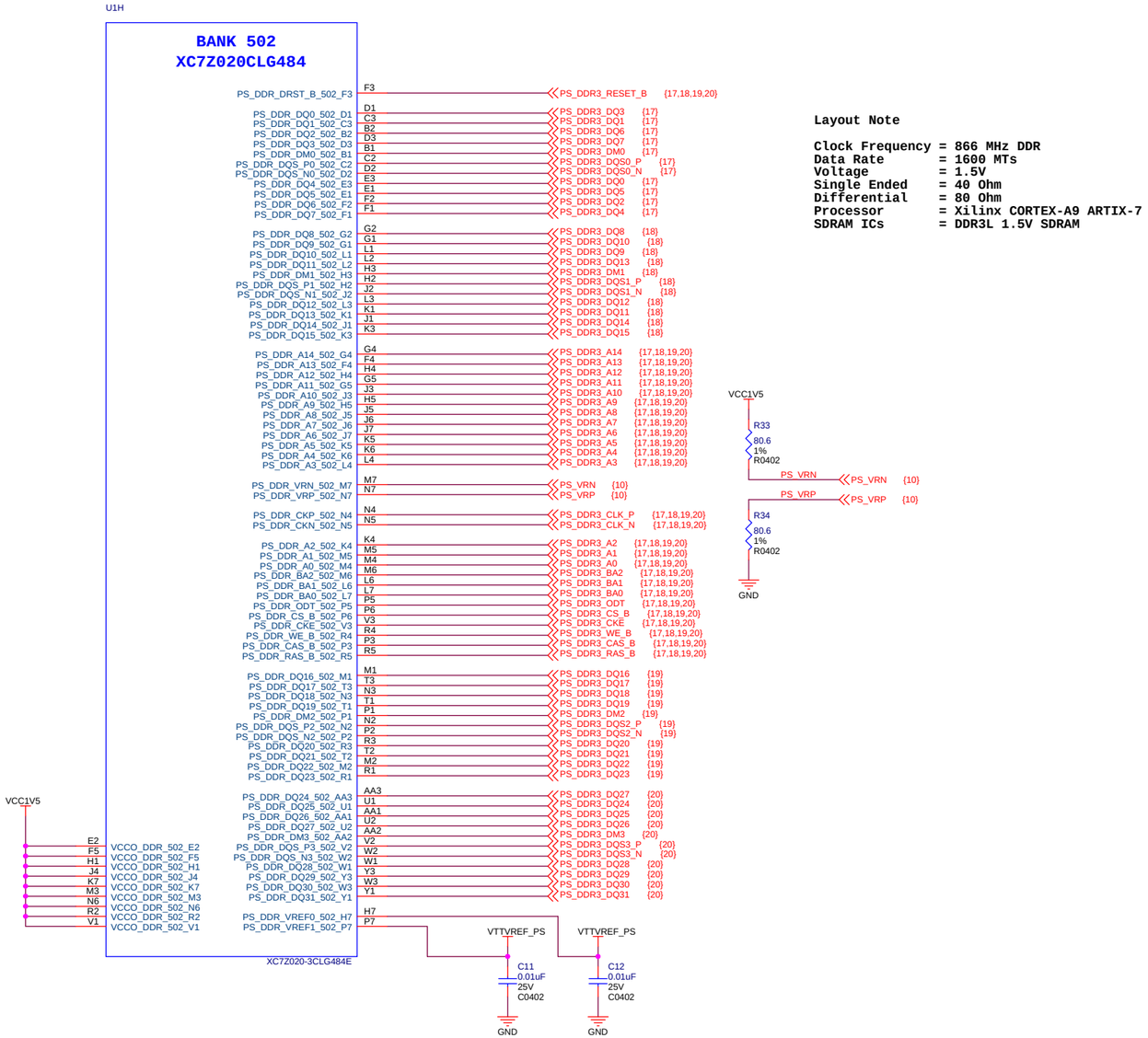
Layout Note
Route all SD card signals at 50 Ohms

Zynq Banks 500, 501

Proprietary and Confidential

WHIZZ SYSTEMS	WHIZZ SYSTEMS INC. 3240 Scott Blvd, Santa Clara, CA 95054, USA Job # 7490		
Client:	Liquid Instruments PTY. LTD.		
Title	FPGA BANKs 500-501	Sch:	7490_MokuV1.0
Size C	Engineer: Farooq Bhatti	Rev	A
Date:	Thursday, July 09, 2015	Sheet	9 of 38

FPGA BANK 502 (FPGA-DDR3)



Layout Note

```
Clock Frequency = 866 MHz DDR
Data Rate       = 1600 MTs
Voltage         = 1.5V
Single Ended    = 40 Ohm
Differential    = 80 Ohm
Processor       = Xilinx CORTEX-A9 ARTIX-7
SDRAM ICs       = DDR3L 1.5V SDRAM
```

Zynq Bank 502

Proprietary and Confidential

WHiZZ SYSTEMS

WHIZZ SYSTEMS INC.
3240 Scott Blvd , Santa Clara,
CA 95054, USA
Job # 7490

Client: Liquid Instruments PTY. LTD.

Title: FPGA BANK 502		Sch: 7490_MokuV1.0
Size: C	Engineer: Farooq Bhatti	Rev: A
Date: Thursday, July 09, 2015		Sheet 10 of 38

FPGA POWER BANKS

Layout Notes:

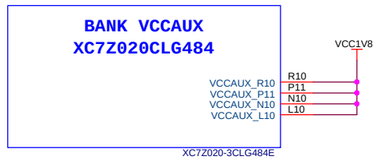
Increase width of VCCPLL route to
as wide as possible (target is > 20 mils)

Reduce the length of VCCPLL route as much as possible

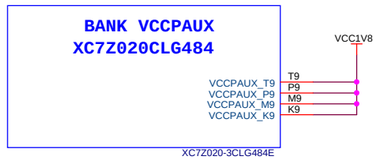
Place C538 inside the VIA field to provide
as short as possible connection to VCCPLL (H10) and GND

Place C148 inside the open space cross adjacent to H10
for the short possible connection to VCCPLL

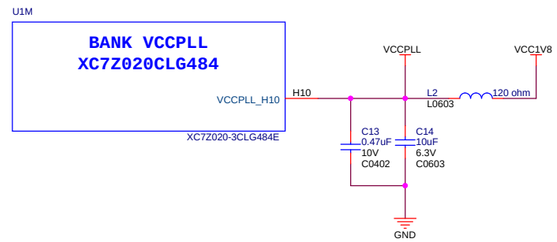
U1K



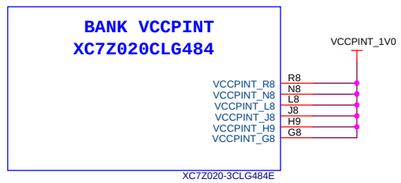
U1N



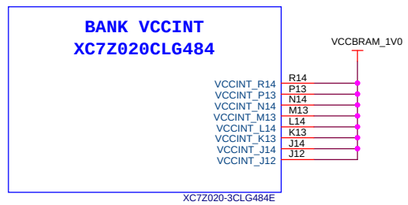
U1M



U1O



U1J



U1L

Zynq Power Pins

Proprietary and Confidential

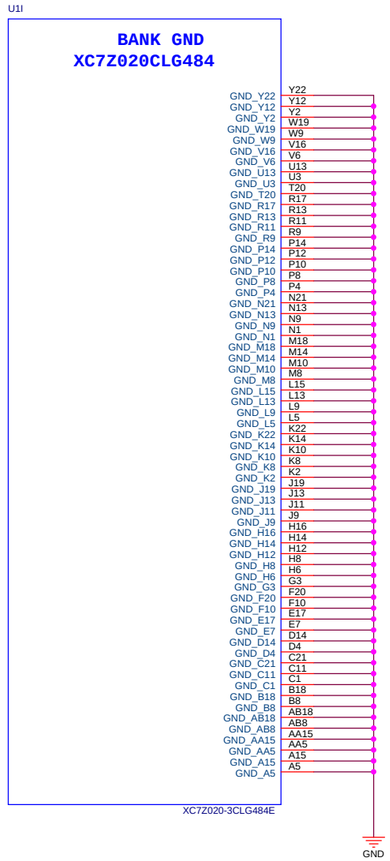
WHiZZ SYSTEMS

WHIZZ SYSTEMS INC.
3240 Scott Blvd , Santa Clara,
CA 95054, USA
Job # **7490**

Client: Liquid Instruments PTY. LTD.

Title	**FPGA POWER BANKs**	Sch:	**7490_MokuV1.0**
Size **C**	Engineer: Farooq Bhatti	Rev	**A**
Date:	Thursday, July 09, 2015	Sheet	**11** of **38**

FPGA GND BLOCK



Zynq GND

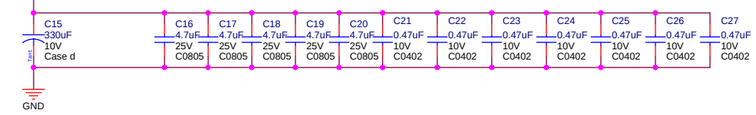
Proprietary and Confidential

WHiZZ SYSTEMS	**WHIZZ SYSTEMS INC.** 3240 Scott Blvd , Santa Clara, CA 95054, USA Job # **7490**
Client: Liquid Instruments PTY. LTD.	
Title **FPGA GND BANK**	Sch: **7490_MokuV1.0**
Size **C** Engineer: Farooq Bhatti	Rev **A**
Date: Thursday, July 09, 2015	Sheet **12** of **38**

FPGA BYPASS CAPACITORS

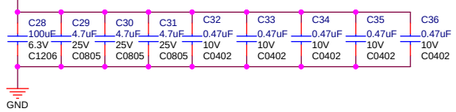
VCCBRAM_1V0

VCCINT 100uF (3), 4.7uF (5), 0.47uF (7)



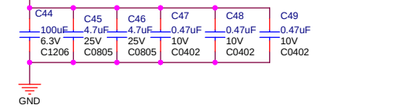
VCCPINT_1V0

VCCPINT 100uF (1), 4.7uF (3), 0.47uF (5)



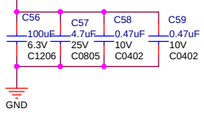
VCC1V8

VCCAUX 100uF (1), 4.7uF (2), 0.47uF (3)



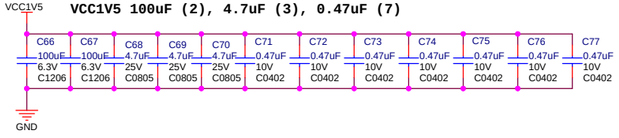
VCC1V8

VCCMIO 100uF (1), 4.7uF (1), 0.47uF (2)



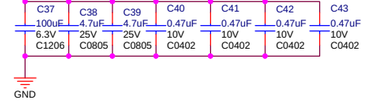
VCC1V5

VCC1V5 100uF (2), 4.7uF (3), 0.47uF (7)



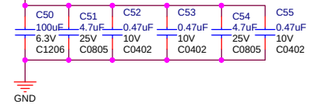
VCC1V8

VCCAUX 100uF (1), 4.7uF (2), 0.47uF (3)



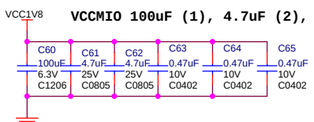
VCCBRAM_1V0

VCCBRAM 100uF (1), 4.7uF (1), 0.47uF (2)



VCC1V8

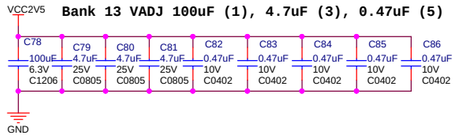
VCCMIO 100uF (1), 4.7uF (2), 0.47uF (3)

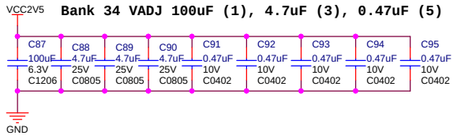


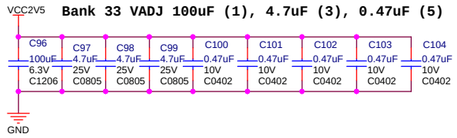
Zynq Bypass Capacitors

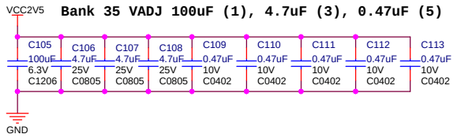
WHIZZ SYSTEMS	WHIZZ SYSTEMS INC. 3240 Scott Blvd , Santa Clara, CA 95054, USA Job # 7490
Client: Liquid Instruments PTY. LTD.	
Title: Zynq Bypass Capacitors	Sch: 7490_MokuV1.0
Size: C / Engineer: Farooq Bhatti	Rev: A
Date: Thursday, July 09, 2015	Sheet 13 of 38

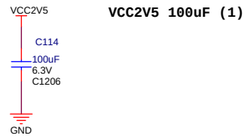
FPGA BYPASS CAPACITORS









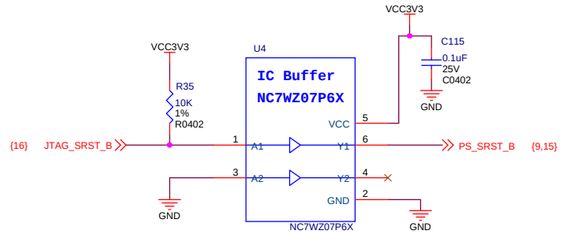


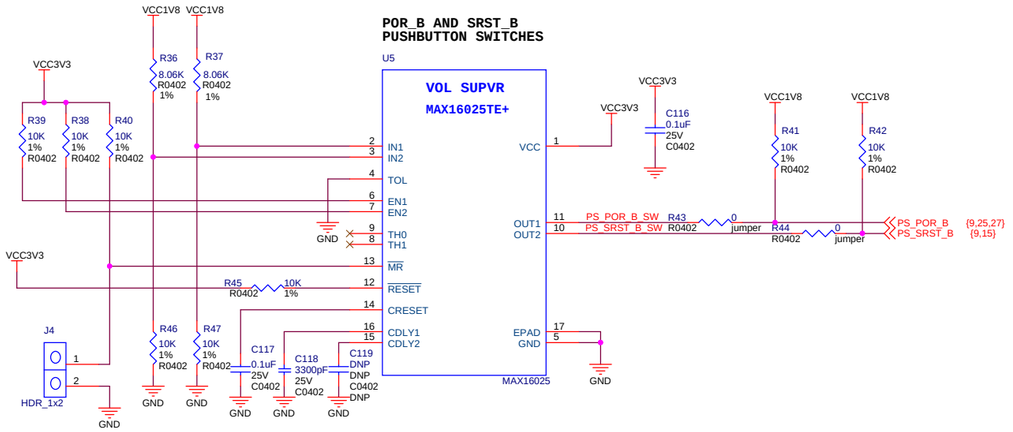
Zynq Bypass Capacitors

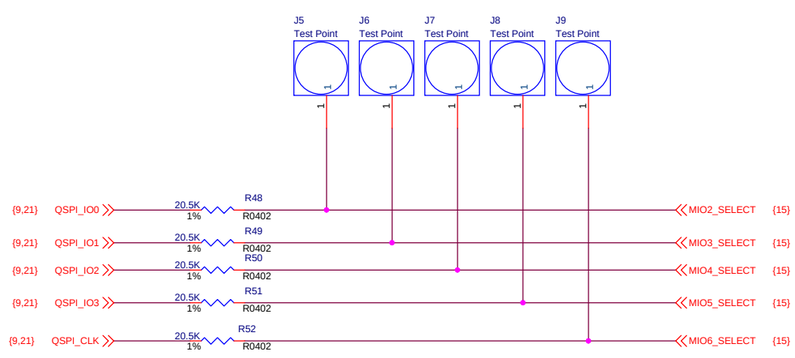
WHIZZ SYSTEMS INC.
3240 Scott Blvd , Santa Clara, CA 95054, USA
Job # 7490

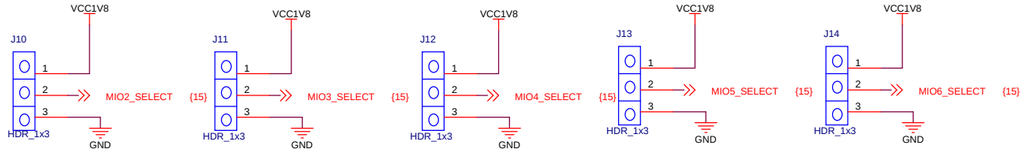
Client:	Liquid Instruments PTY. LTD.		
Title	Zynq Bypass Capacitors	Sch:	7490_MokuV1.0
Size	C	Engineer: Farooq Bhatti	Rev A
Date:	Thursday, July 09, 2015	Sheet	14 of 38

VOLTAGE SUPERVISOR & MIO Select Jumpers





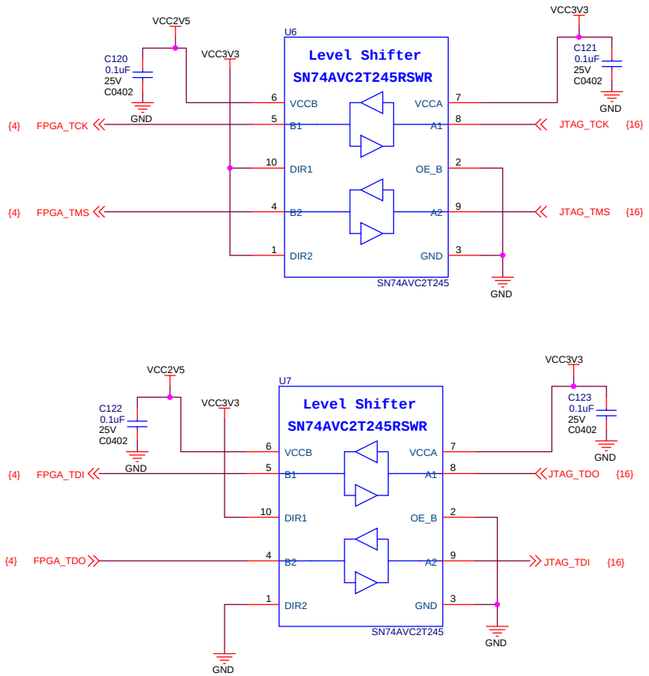


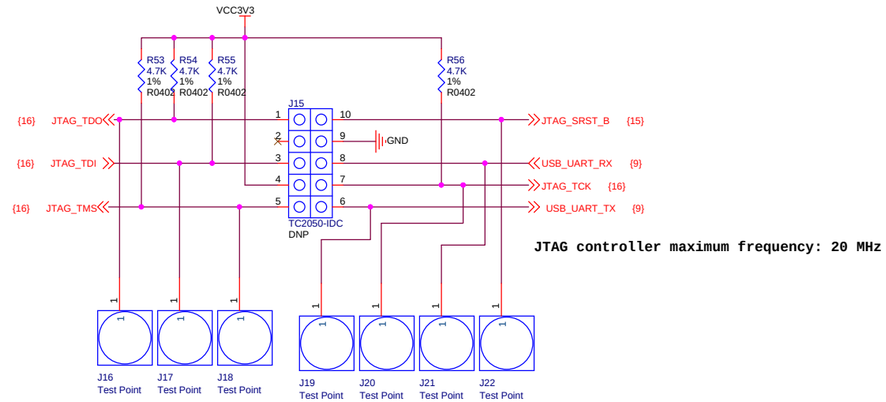


Pwr Supervisor, Zynq Config

WHiZZ SYSTEMS	WHIZZ SYSTEMS INC. 3240 Scott Blvd , Santa Clara, CA 95054, USA Job # 7490		
Client:	Liquid Instruments PTY. LTD.		
Title	Pwr Supervisor, Zynq Config	Sch:	7490_MokuV1.0
Size C	Engineer: Farooq Bhatti	Rev	A
Date:	Thursday, July 09, 2015	Sheet	15 of 38

JTAG CONNECTOR





JTAG controller maximum frequency: 20 MHz

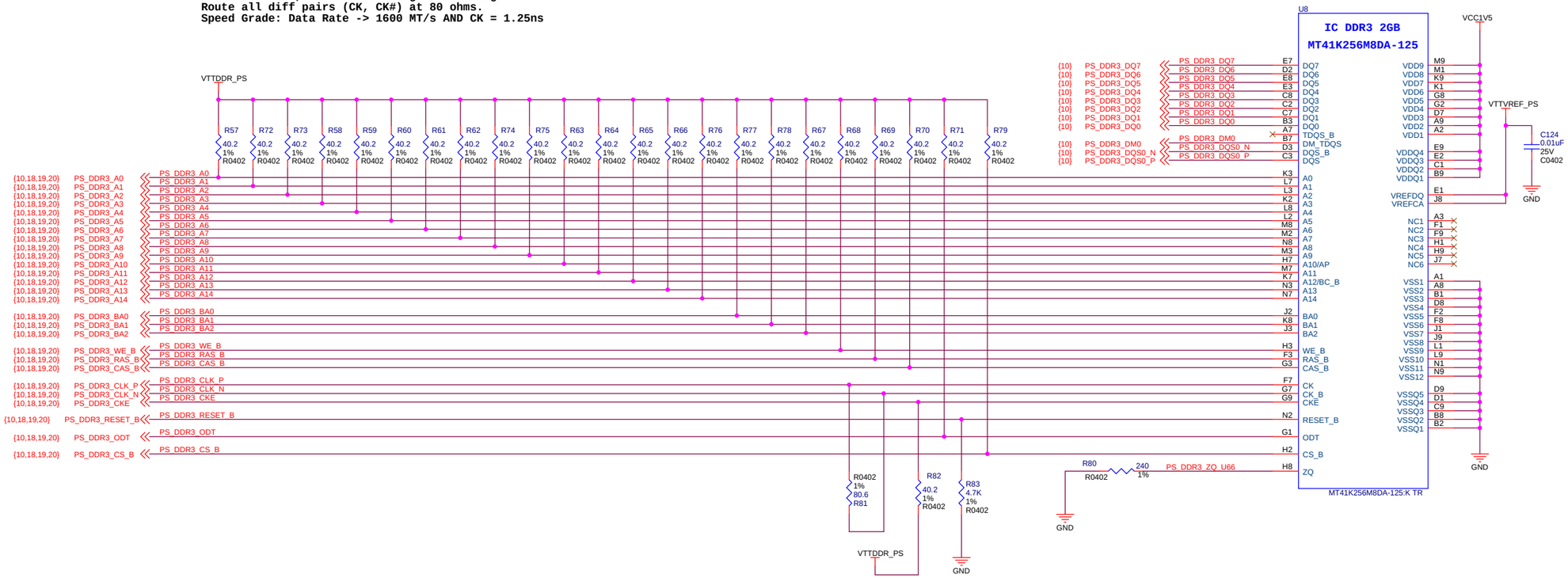
JTAG HDR

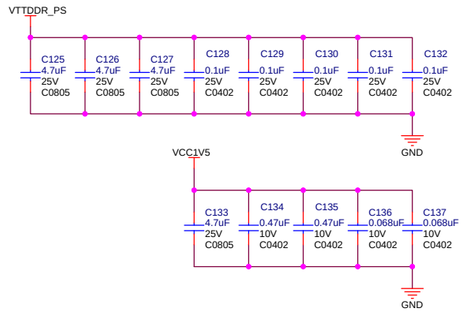
Proprietary and Confidential

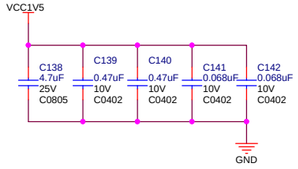
WHiZZ SYSTEMS	**WHIZZ SYSTEMS INC.** 3240 Scott Blvd , Santa Clara, CA 95054, USA Job # **7490**
Client:	Liquid Instruments PTY. LTD.
Title **JTAG HDR**	Sch: **7490_MokuV1.0**
Size **C** / Engineer: Farooq Bhatti	Rev **A**
Date: Thursday, July 09, 2015	Sheet **16** of **38**

DDR3 DEVICE 1

Layout Note
Route all Data, Address and single ended signals of DDR3 at 40 ohms.
Route all diff pairs (CK, CK#) at 80 ohms.
Speed Grade: Data Rate -> 1600 MT/s AND CK = 1.25ns







DDR3 PS Device 0

Proprietary and Confidential

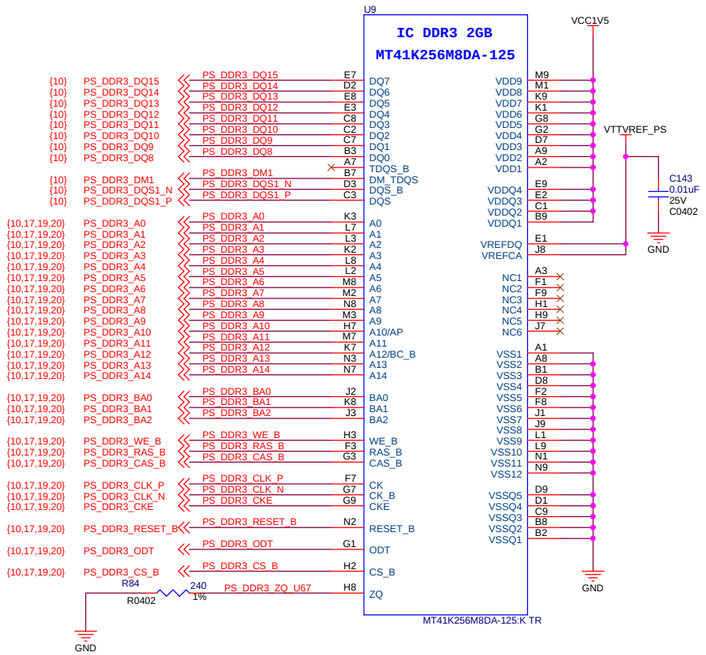
WHiZZ SYSTEMS

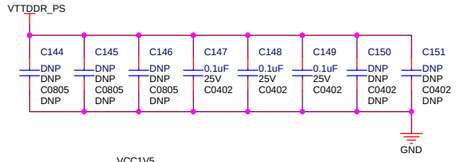
WHIZZ SYSTEMS INC.
3240 Scott Blvd , Santa Clara, CA 95054, USA
Job # **7490**

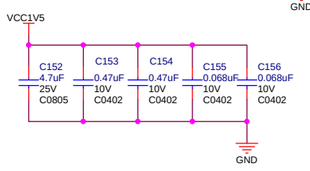
Client: Liquid Instruments PTY. LTD.

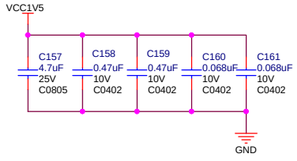
Title	**DDR3 PS Device 0**	Sch:	**7490_MokuV1.0**
Size **C**	Engineer: Farooq Bhatti	Rev	**A**
Date:	Thursday, July 09, 2015	Sheet	**17** of **38**

DDR3 DEVICE 2









DDR3 PS Device 1

Proprietary and Confidential

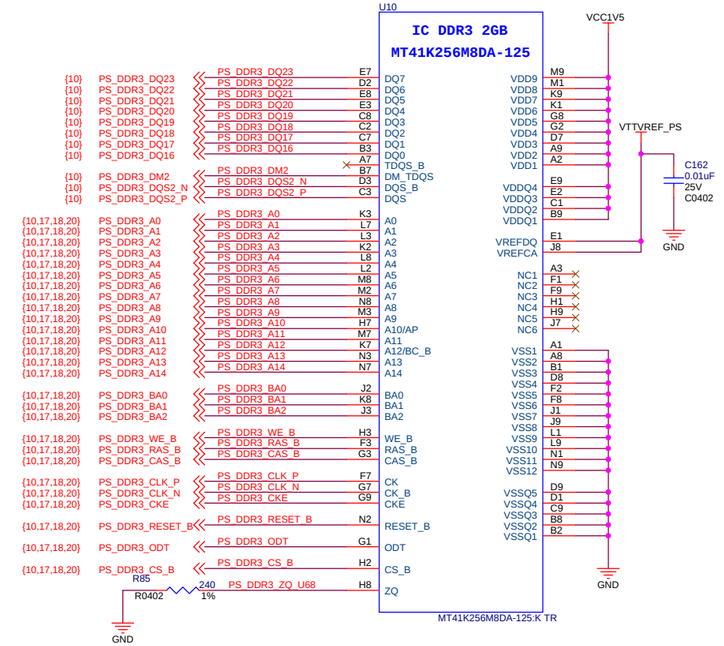
WHiZZ SYSTEMS

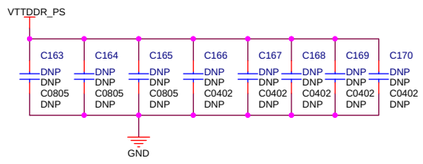
WHIZZ SYSTEMS INC.
3240 Scott Blvd , Santa Clara,
CA 95054, USA
Job # **7490**

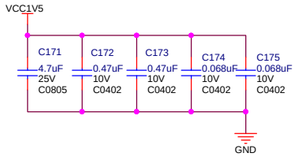
Client: Liquid Instruments PTY. LTD.

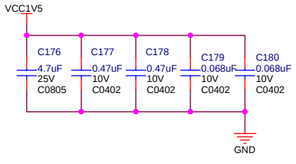
Title	**DDR3 PS Device 1**	Sch:	**7490_MokuV1.0**
Size	**C**	Engineer: Farooq Bhatti	Rev **A**
Date:	Thursday, July 09, 2015	Sheet	**18** of **38**

DDR3 DEVICE 3









DDR3 PS Device 2

Proprietary and Confidential

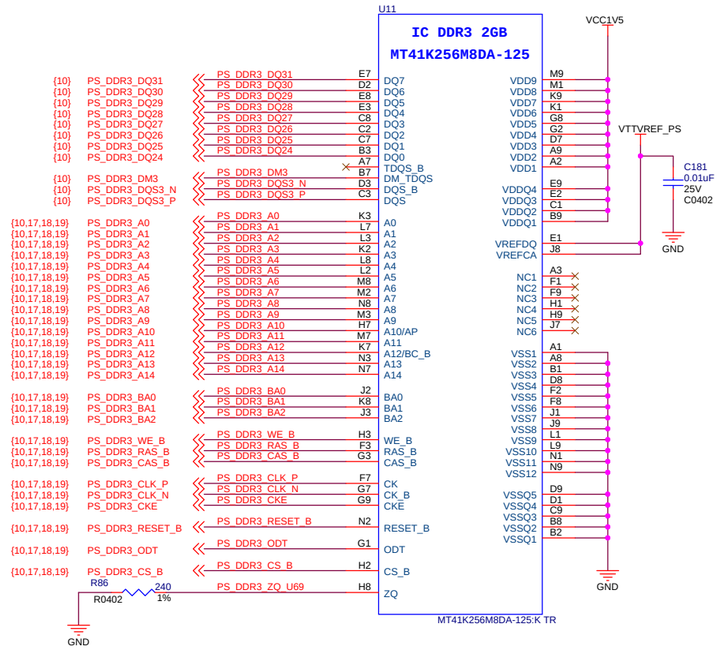
WHiZZ SYSTEMS

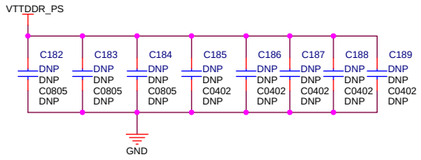
WHIZZ SYSTEMS INC.
3240 Scott Blvd , Santa Clara,
CA 95054, USA
Job # **7490**

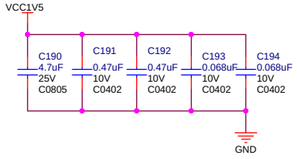
Client: Liquid Instruments PTY. LTD.

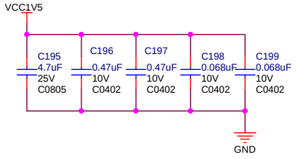
Title	DDR3 PS Device 2	Sch:	7490_MokuV1.0
Size	C	Engineer: Farooq Bhatti	Rev A
Date:	Thursday, July 09, 2015	Sheet	19 of 38

DDR3 DEVICE 4









DDR3 PS Device 3

Proprietary and Confidential

WHiZZ SYSTEMS	WHIZZ SYSTEMS INC. 3240 Scott Blvd , Santa Clara, CA 95054, USA Job # 7490	
Client:	Liquid Instruments PTY. LTD.	
Title: DDR3 PS Device 3		Sch: 7490_MokuV1.0
Size: C	Engineer: Farooq Bhatti	Rev: A
Date: Thursday, July 09, 2015		Sheet 20 of 38

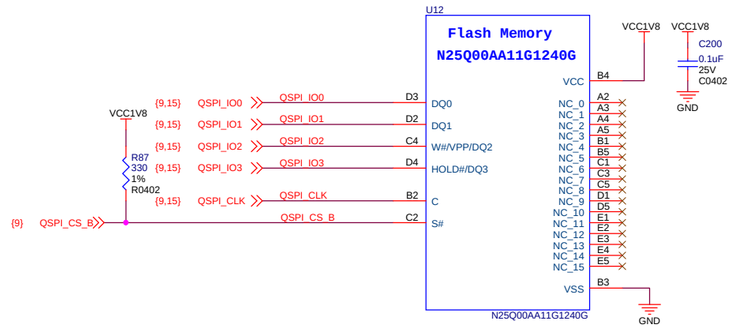
FLASH MEMORY

Layout Note

Route all QSPI signals at 50 Ohms.

Speed: Dual/quad I/O instruction provides increased throughput up to 54 MB/s

Frequency: 108 MHz (MAX) clock frequency supported for all protocols in single transfer rate (STR) mode. 54 MHz (MAX) clock frequency supported for all protocols in DTR mode

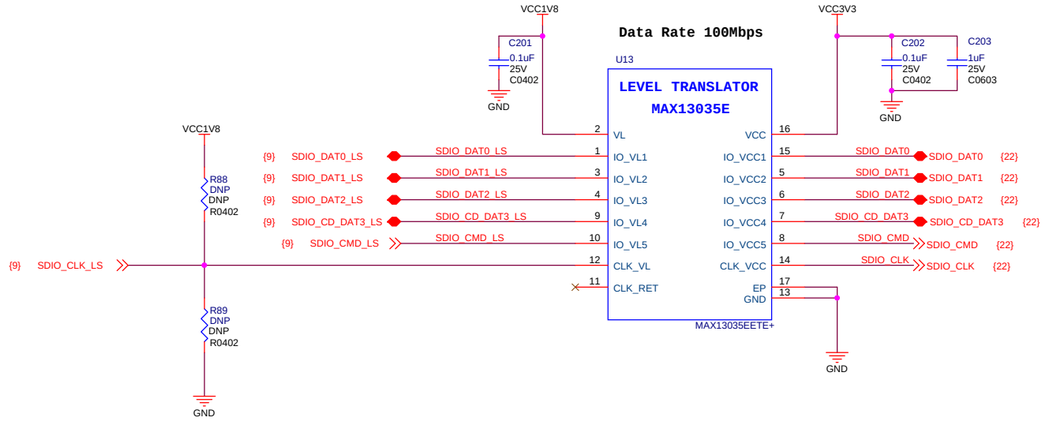


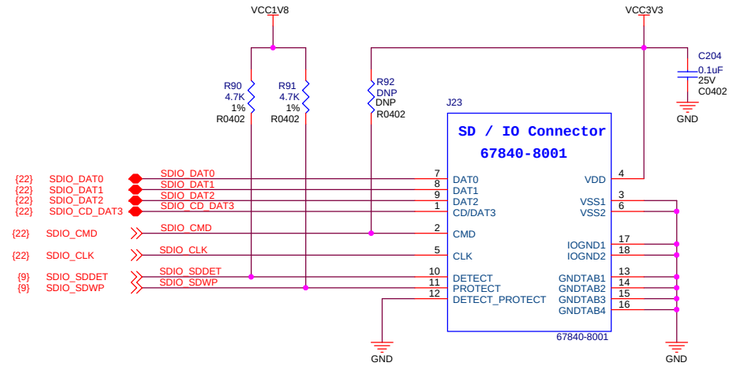
Quad SPI

Proprietary and Confidential

WHIZZ SYSTEMS INC. 3240 Scott Blvd , Santa Clara, CA 95054, USA Job # 7490		
Client: Liquid Instruments PTY. LTD.		
Title QUAD SPI		Sch: 7490_MokuV1.0
Size C	Engineer: Farooq Bhatti	Rev A
Date: Thursday, July 09, 2015		Sheet 21 of 38

SD CARD





SD Card Connector

Proprietary and Confidential

WHiZZ SYSTEMS	WHIZZ SYSTEMS INC. 3240 Scott Blvd , Santa Clara, CA 95054, USA Job # 7490
Client: Liquid Instruments PTY. LTD.	
Title: SD Card Connector	Sch: 7490_MokuV1.0
Size: C — Engineer: Farooq Bhatti	Rev: A
Date: Thursday, July 09, 2015	Sheet 22 of 38

FMC CONNECTOR 1

J24B

LPC CONNECTOR
ASP_134603_01

DP0_C2M_P	C2			
DP0_C2M_N	C3			
DP0_M2C_P	C6			
DP0_M2C_N	C7			
LA06_P	C10	FMC1_LPC_LA06_P	FMC1_LPC_LA06_P	{7}
LA06_N	C11	FMC1_LPC_LA06_N	FMC1_LPC_LA06_N	{7}
LA10_P	C14	FMC1_LPC_LA10_P	FMC1_LPC_LA10_P	{7}
LA10_N	C15	FMC1_LPC_LA10_N	FMC1_LPC_LA10_N	{7}
LA14_P	C18	FMC1_LPC_LA14_P	FMC1_LPC_LA14_P	{7}
LA14_N	C19	FMC1_LPC_LA14_N	FMC1_LPC_LA14_N	{7}
LA18_P_CC	C22	FMC1_LPC_LA18_CC_P	FMC1_LPC_LA18_CC_P	{8}
LA18_N_CC	C23	FMC1_LPC_LA18_CC_N	FMC1_LPC_LA18_CC_N	{8}
LA27_P	C26	FMC1_LPC_LA27_P	FMC1_LPC_LA27_P	{8}
LA27_N	C27	FMC1_LPC_LA27_N	FMC1_LPC_LA27_N	{8}
SCL	C30	IO_L3P_T0_DQS_AD1P_35_E15	IO_L3P_T0_DQS_AD1P_35_E15	{8}
SDA	C31	IO_L3N_T0_DQS_AD1N_35_D15	IO_L3N_T0_DQS_AD1N_35_D15	{8}
GA0	C34			
12P0V_1	C35			
12P0V_2	C37			
3P3V_1	C39			

VCC12_P
VCC3V3
GND

ASP-134603-01

J24C

LPC CONNECTOR
ASP_134603_01

VREF_A_M2C	H1			
PRSNT_M2C_L	H2			
CLK0_M2C_P	H4	FMC1_LPC_CLK0_M2C_P	FMC1_LPC_CLK0_M2C_P	{7}
CLK0_M2C_N	H5	FMC1_LPC_CLK0_M2C_N	FMC1_LPC_CLK0_M2C_N	{7}
LA02_P	H7	FMC1_LPC_LA02_P	FMC1_LPC_LA02_P	{7}
LA02_N	H8	FMC1_LPC_LA02_N	FMC1_LPC_LA02_N	{7}
LA04_P	H10	FMC1_LPC_LA04_P	FMC1_LPC_LA04_P	{7}
LA04_N	H11	FMC1_LPC_LA04_N	FMC1_LPC_LA04_N	{7}
LA07_P	H13	FMC1_LPC_LA07_P	FMC1_LPC_LA07_P	{7}
LA07_N	H14	FMC1_LPC_LA07_N	FMC1_LPC_LA07_N	{7}
LA11_P	H16	FMC1_LPC_LA11_P	FMC1_LPC_LA11_P	{7}
LA11_N	H17	FMC1_LPC_LA11_N	FMC1_LPC_LA11_N	{7}
LA15_P	H19	FMC1_LPC_LA15_P	FMC1_LPC_LA15_P	{7}
LA15_N	H20	FMC1_LPC_LA15_N	FMC1_LPC_LA15_N	{7}
LA19_P	H22	FMC1_LPC_LA19_P	FMC1_LPC_LA19_P	{8}
LA19_N	H23	FMC1_LPC_LA19_N	FMC1_LPC_LA19_N	{8}
LA21_P	H25	FMC1_LPC_LA21_P	FMC1_LPC_LA21_P	{8}
LA21_N	H26	FMC1_LPC_LA21_N	FMC1_LPC_LA21_N	{8}
LA24_P	H28	FMC1_LPC_LA24_P	FMC1_LPC_LA24_P	{8}
LA24_N	H29	FMC1_LPC_LA24_N	FMC1_LPC_LA24_N	{8}
LA28_P	H31	FMC1_LPC_LA28_P	FMC1_LPC_LA28_P	{8}
LA28_N	H32	FMC1_LPC_LA28_N	FMC1_LPC_LA28_N	{8}
LA30_P	H34	FMC1_LPC_LA30_P	FMC1_LPC_LA30_P	{8}
LA30_N	H35	FMC1_LPC_LA30_N	FMC1_LPC_LA30_N	{8}
LA32_P	H37	FMC1_LPC_LA32_P	FMC1_LPC_LA32_P	{8}
LA32_N	H38	FMC1_LPC_LA32_N	FMC1_LPC_LA32_N	{8}
VADJ_4	H40			

VCC2V5

ASP-134603-01

J24D

LPC CONNECTOR
ASP_134603_01

PG_C2M	D1	PWRCTL2_VCC4A_PG	PWRCTL2_VCC4A_PG	{24}
GBTCLK0_M2C_P	D4			
GBTCLK0_M2C_N	D5			
LA01_P_CC	D8	FMC1_LPC_LA01_CC_P	FMC1_LPC_LA01_CC_P	{7}
LA01_N_CC	D9	FMC1_LPC_LA01_CC_N	FMC1_LPC_LA01_CC_N	{7}
LA05_P	D11	FMC1_LPC_LA05_P	FMC1_LPC_LA05_P	{7}
LA05_N	D12	FMC1_LPC_LA05_N	FMC1_LPC_LA05_N	{7}
LA09_P	D14	FMC1_LPC_LA09_P	FMC1_LPC_LA09_P	{7}
LA09_N	D15	FMC1_LPC_LA09_N	FMC1_LPC_LA09_N	{7}
LA13_P	D17	FMC1_LPC_LA13_P	FMC1_LPC_LA13_P	{7}
LA13_N	D18	FMC1_LPC_LA13_N	FMC1_LPC_LA13_N	{7}
LA17_P_CC	D20	FMC1_LPC_LA17_CC_P	FMC1_LPC_LA17_CC_P	{8}
LA17_N_CC	D21	FMC1_LPC_LA17_CC_N	FMC1_LPC_LA17_CC_N	{8}
LA23_P	D23	FMC1_LPC_LA23_P	FMC1_LPC_LA23_P	{8}
LA23_N	D24	FMC1_LPC_LA23_N	FMC1_LPC_LA23_N	{8}
LA26_P	D26	FMC1_LPC_LA26_P	FMC1_LPC_LA26_P	{8}
LA26_N	D27	FMC1_LPC_LA26_N	FMC1_LPC_LA26_N	{8}
TCK	D29	IO_L20P_T3_AD6P_35_G19	IO_L20P_T3_AD6P_35_G19	{8}
TDI	D30	IO_L20N_T3_AD6N_35_F19	IO_L20N_T3_AD6N_35_F19	{8}
TDO	D31			
3P3VAUX	D32			
TMS	D33	IO_L24P_T3_AD15P_35_H22	IO_L24P_T3_AD15P_35_H22	{8}
TRST_L	D34	IO_L24N_T3_AD15N_35_G22	IO_L24N_T3_AD15N_35_G22	{8}
GA1	D35			
3P3V_2	D36			
3P3V_3	D38			
3P3V_4	D40			

VCC3V3
GND

ASP-134603-01

J24E

LPC CONNECTOR
ASP_134603_01

CLK1_M2C_P	G2	FMC1_LPC_CLK1_M2C_P	FMC1_LPC_CLK1_M2C_P	{35}
CLK1_M2C_N	G3	FMC1_LPC_CLK1_M2C_N	FMC1_LPC_CLK1_M2C_N	{35}
LA00_P_CC	G6	FMC1_LPC_LA00_CC_P	FMC1_LPC_LA00_CC_P	{7}
LA00_N_CC	G7	FMC1_LPC_LA00_CC_N	FMC1_LPC_LA00_CC_N	{7}
LA03_P	G9	FMC1_LPC_LA03_P	FMC1_LPC_LA03_P	{7}
LA03_N	G10	FMC1_LPC_LA03_N	FMC1_LPC_LA03_N	{7}
LA08_P	G12	FMC1_LPC_LA08_P	FMC1_LPC_LA08_P	{7}
LA08_N	G13	FMC1_LPC_LA08_N	FMC1_LPC_LA08_N	{7}
LA12_P	G15	FMC1_LPC_LA12_P	FMC1_LPC_LA12_P	{7}
LA12_N	G16	FMC1_LPC_LA12_N	FMC1_LPC_LA12_N	{7}
LA16_P	G18	FMC1_LPC_LA16_P	FMC1_LPC_LA16_P	{7}
LA16_N	G19	FMC1_LPC_LA16_N	FMC1_LPC_LA16_N	{7}
LA20_P	G21	FMC1_LPC_LA20_P	FMC1_LPC_LA20_P	{8}
LA20_N	G22	FMC1_LPC_LA20_N	FMC1_LPC_LA20_N	{8}
LA22_P	G24	FMC1_LPC_LA22_P	FMC1_LPC_LA22_P	{8}
LA22_N	G25	FMC1_LPC_LA22_N	FMC1_LPC_LA22_N	{8}
LA25_P	G27	FMC1_LPC_LA25_P	FMC1_LPC_LA25_P	{8}
LA25_N	G28	FMC1_LPC_LA25_N	FMC1_LPC_LA25_N	{8}
LA29_P	G30	FMC1_LPC_LA29_P	FMC1_LPC_LA29_P	{8}
LA29_N	G31	FMC1_LPC_LA29_N	FMC1_LPC_LA29_N	{8}
LA31_P	G33	FMC1_LPC_LA31_P	FMC1_LPC_LA31_P	{8}
LA31_N	G34	FMC1_LPC_LA31_N	FMC1_LPC_LA31_N	{8}
LA33_P	G36	FMC1_LPC_LA33_P	FMC1_LPC_LA33_P	{8}
LA33_N	G37	FMC1_LPC_LA33_N	FMC1_LPC_LA33_N	{8}
VADJ_3	G39			

VCC2V5

ASP-134603-01

J24A

LPC CONNECTOR
ASP_134603_01

D28	GND_71	GND_130	H39
D25	GND_70	GND_129	H36
D22	GND_69	GND_128	H33
D19	GND_68	GND_127	H30
D16	GND_67	GND_126	H27
D13	GND_66	GND_125	H24
D10	GND_65	GND_124	H21
D7	GND_64	GND_123	H18
D6	GND_63	GND_122	H15
D3	GND_62	GND_121	H12
D2	GND_61	GND_120	H9
C40	GND_60	GND_119	H6
C38	GND_59	GND_118	H3
C36	GND_58	GND_117	G40
C33	GND_57	GND_116	G38
C32	GND_56	GND_115	G35
C29	GND_55	GND_114	G32
C28	GND_54	GND_113	G29
C25	GND_53	GND_112	G26
C24	GND_52	GND_111	G23
C21	GND_51	GND_110	G20
C20	GND_50	GND_109	G17
C17	GND_49	GND_108	G14
C16	GND_48	GND_107	G11
C13	GND_47	GND_106	G8
C12	GND_46	GND_105	G5
C9	GND_45	GND_104	G4
C8	GND_44	GND_103	G1
C5	GND_43	GND_73	D39
C4	GND_42	GND_72	D37
C1	GND_41	GND_ST1	ST1
		GND_ST2	ST2

GND

ASP-134603-01

FMC1_LPC_ST1 {23}
FMC1_LPC_ST2 {23}

GND

VCC2V5 VCC3V3 VCC12_P

C205	C206	C207
1uF	1uF	1uF
25V	25V	25V
C0603	C0603	C0603

GND

FMC1_LPC_ST1 FMC1_LPC_ST1 {23}

C208	R93	
100pF	DNP	
500V	DNP	
C0805	R0402	

GND

FMC1_LPC_ST2 FMC1_LPC_ST2 {23}

C209	R94	
100pF	DNP	
500V	DNP	
C0805	R0402	

GND

FMC1 LPC Connector

Proprietary and Confidential

WHIZZ SYSTEMS INC.
3240 Scott Blvd , Santa Clara,
CA 95054, USA
Job # 7490

Client: Liquid Instruments PTY. LTD.

Title	FMC1 LPC Connector	Sch:	7490_MokuV1.0
Size	C	Engineer: Farooq Bhatti	Rev A
Date:	Thursday, July 09, 2015	Sheet	23 of 38

FMC CONNECTOR 2

J25B

LPC CONNECTOR
ASP_134603_01

DP0_C2M_P	C2			
DP0_C2M_N	C3			
DP0_M2C_P	C6	IO_L3P_T0_DQS_13_W11	IO_L3P_T0_DQS_13_W11	{5}
DP0_M2C_N	C7	IO_L2N_T0_13_W8	IO_L2N_T0_13_W8	{5}
LA06_P	C10	FMC2_LPC_LA06_P	FMC2_LPC_LA06_P	{6}
LA06_N	C11	FMC2_LPC_LA06_N	FMC2_LPC_LA06_N	{6}
LA10_P	C14	FMC2_LPC_LA10_P	FMC2_LPC_LA10_P	{6}
LA10_N	C15	FMC2_LPC_LA10_N	FMC2_LPC_LA10_N	{6}
LA14_P	C18	FMC2_LPC_LA14_P	FMC2_LPC_LA14_P	{6}
LA14_N	C19	FMC2_LPC_LA14_N	FMC2_LPC_LA14_N	{6}
LA18_P_CC	C22	FMC2_LPC_LA18_CC_P	FMC2_LPC_LA18_CC_P	{5}
LA18_N_CC	C23	FMC2_LPC_LA18_CC_N	FMC2_LPC_LA18_CC_N	{5}
LA27_P	C26	FMC2_LPC_LA27_P	FMC2_LPC_LA27_P	{5}
LA27_N	C27	FMC2_LPC_LA27_N	FMC2_LPC_LA27_N	{5}
SCL	C30	IO_L3P_T0_DQS_AD1P_35_Y6	IO_L3P_T0_DQS_AD1P_35_Y6	{5}
SDA	C31	IO_L3N_T0_DQS_AD1N_35_Y5	IO_L3N_T0_DQS_AD1N_35_Y5	{5}
GA0	C34			
12P0V_1	C35			
12P0V_2	C37			
3P3V_1	C39			

VCC12_P
VCC3V3
GND

ASP-134603-01

J25C

LPC CONNECTOR
ASP_134603_01

VREF_A_M2C	H1			
PRSNT_M2C_L	H2			
CLK0_M2C_P	H4	FMC2_LPC_CLK0_M2C_P	FMC2_LPC_CLK0_M2C_P	{6}
CLK0_M2C_N	H5	FMC2_LPC_CLK0_M2C_N	FMC2_LPC_CLK0_M2C_N	{6}
LA02_P	H7	FMC2_LPC_LA02_P	FMC2_LPC_LA02_P	{6}
LA02_N	H8	FMC2_LPC_LA02_N	FMC2_LPC_LA02_N	{6}
LA04_P	H10	FMC2_LPC_LA04_P	FMC2_LPC_LA04_P	{6}
LA04_N	H11	FMC2_LPC_LA04_N	FMC2_LPC_LA04_N	{6}
LA07_P	H13	FMC2_LPC_LA07_P	FMC2_LPC_LA07_P	{6}
LA07_N	H14	FMC2_LPC_LA07_N	FMC2_LPC_LA07_N	{6}
LA11_P	H16	FMC2_LPC_LA11_P	FMC2_LPC_LA11_P	{6}
LA11_N	H17	FMC2_LPC_LA11_N	FMC2_LPC_LA11_N	{6}
LA15_P	H19	FMC2_LPC_LA15_P	FMC2_LPC_LA15_P	{6}
LA15_N	H20	FMC2_LPC_LA15_N	FMC2_LPC_LA15_N	{6}
LA19_P	H22	FMC2_LPC_LA19_P	FMC2_LPC_LA19_P	{5}
LA19_N	H23	FMC2_LPC_LA19_N	FMC2_LPC_LA19_N	{5}
LA21_P	H25	FMC2_LPC_LA21_P	FMC2_LPC_LA21_P	{5}
LA21_N	H26	FMC2_LPC_LA21_N	FMC2_LPC_LA21_N	{5}
LA24_P	H28	FMC2_LPC_LA24_P	FMC2_LPC_LA24_P	{5}
LA24_N	H29	FMC2_LPC_LA24_N	FMC2_LPC_LA24_N	{5}
LA28_P	H31	FMC2_LPC_LA28_P	FMC2_LPC_LA28_P	{5}
LA28_N	H32	FMC2_LPC_LA28_N	FMC2_LPC_LA28_N	{5}
LA30_P	H34	FMC2_LPC_LA30_P	FMC2_LPC_LA30_P	{5}
LA30_N	H35	FMC2_LPC_LA30_N	FMC2_LPC_LA30_N	{5}
LA32_P	H37	FMC2_LPC_LA32_P	FMC2_LPC_LA32_P	{5}
LA32_N	H38	FMC2_LPC_LA32_N	FMC2_LPC_LA32_N	{5}
VADJ_4	H40			

VCC2V5

ASP-134603-01

J25D

LPC CONNECTOR
ASP_134603_01

PG_C2M	D1	PWRCTL2_VCC4A_PG	PWRCTL2_VCC4A_PG	{23}
GBTCLK0_M2C_P	D4	IO_L1P_T0_AD0P_35_F16	IO_L1P_T0_AD0P_35_F16	{8}
GBTCLK0_M2C_N	D5	IO_L1N_T0_AD0N_35_E16	IO_L1N_T0_AD0N_35_E16	{8}
LA01_P_CC	D8	FMC2_LPC_LA01_CC_P	FMC2_LPC_LA01_CC_P	{6}
LA01_N_CC	D9	FMC2_LPC_LA01_CC_N	FMC2_LPC_LA01_CC_N	{6}
LA05_P	D11	FMC2_LPC_LA05_P	FMC2_LPC_LA05_P	{6}
LA05_N	D12	FMC2_LPC_LA05_N	FMC2_LPC_LA05_N	{6}
LA09_P	D14	FMC2_LPC_LA09_P	FMC2_LPC_LA09_P	{6}
LA09_N	D15	FMC2_LPC_LA09_N	FMC2_LPC_LA09_N	{6}
LA13_P	D17	FMC2_LPC_LA13_P	FMC2_LPC_LA13_P	{6}
LA13_N	D18	FMC2_LPC_LA13_N	FMC2_LPC_LA13_N	{6}
LA17_P_CC	D20	FMC2_LPC_LA17_CC_P	FMC2_LPC_LA17_CC_P	{5}
LA17_N_CC	D21	FMC2_LPC_LA17_CC_N	FMC2_LPC_LA17_CC_N	{5}
LA23_P	D23	FMC2_LPC_LA23_P	FMC2_LPC_LA23_P	{5}
LA23_N	D24	FMC2_LPC_LA23_N	FMC2_LPC_LA23_N	{5}
LA26_P	D26	FMC2_LPC_LA26_P	FMC2_LPC_LA26_P	{5}
LA26_N	D27	FMC2_LPC_LA26_N	FMC2_LPC_LA26_N	{5}
TCK	D29	IO_L20P_T3_AD6P_35_V7	IO_L20P_T3_AD6P_35_V7	{5}
TDI	D30	IO_L20N_T3_AD6N_35_W7	IO_L20N_T3_AD6N_35_W7	{5}
TDO	D31			
3P3VAUX	D32			
TMS	D33	IO_L24P_T3_13_W6	IO_L24P_T3_13_W6	{5}
TRST_L	D34	IO_L24N_T3_13_W5	IO_L24N_T3_13_W5	{5}
GA1	D35			
3P3V_2	D36			
3P3V_3	D38			
3P3V_4	D40			

VCC3V3
GND

ASP-134603-01

J25E

LPC CONNECTOR
ASP_134603_01

CLK1_M2C_P	G2	FMC2_LPC_CLK1_M2C_P	FMC2_LPC_CLK1_M2C_P	{35}
CLK1_M2C_N	G3	FMC2_LPC_CLK1_M2C_N	FMC2_LPC_CLK1_M2C_N	{35}
LA00_P_CC	G6	FMC2_LPC_LA00_CC_P	FMC2_LPC_LA00_CC_P	{6}
LA00_N_CC	G7	FMC2_LPC_LA00_CC_N	FMC2_LPC_LA00_CC_N	{6}
LA03_P	G9	FMC2_LPC_LA03_P	FMC2_LPC_LA03_P	{6}
LA03_N	G10	FMC2_LPC_LA03_N	FMC2_LPC_LA03_N	{6}
LA08_P	G12	FMC2_LPC_LA08_P	FMC2_LPC_LA08_P	{6}
LA08_N	G13	FMC2_LPC_LA08_N	FMC2_LPC_LA08_N	{6}
LA12_P	G15	FMC2_LPC_LA12_P	FMC2_LPC_LA12_P	{6}
LA12_N	G16	FMC2_LPC_LA12_N	FMC2_LPC_LA12_N	{6}
LA16_P	G18	FMC2_LPC_LA16_P	FMC2_LPC_LA16_P	{6}
LA16_N	G19	FMC2_LPC_LA16_N	FMC2_LPC_LA16_N	{6}
LA20_P	G21	FMC2_LPC_LA20_P	FMC2_LPC_LA20_P	{5}
LA20_N	G22	FMC2_LPC_LA20_N	FMC2_LPC_LA20_N	{5}
LA22_P	G24	FMC2_LPC_LA22_P	FMC2_LPC_LA22_P	{5}
LA22_N	G25	FMC2_LPC_LA22_N	FMC2_LPC_LA22_N	{5}
LA25_P	G27	FMC2_LPC_LA25_P	FMC2_LPC_LA25_P	{5}
LA25_N	G28	FMC2_LPC_LA25_N	FMC2_LPC_LA25_N	{5}
LA29_P	G30	FMC2_LPC_LA29_P	FMC2_LPC_LA29_P	{5}
LA29_N	G31	FMC2_LPC_LA29_N	FMC2_LPC_LA29_N	{5}
LA31_P	G33	FMC2_LPC_LA31_P	FMC2_LPC_LA31_P	{5}
LA31_N	G34	FMC2_LPC_LA31_N	FMC2_LPC_LA31_N	{5}
LA33_P	G36	FMC2_LPC_LA33_P	FMC2_LPC_LA33_P	{5}
LA33_N	G37	FMC2_LPC_LA33_N	FMC2_LPC_LA33_N	{5}
VADJ_3	G39			

VCC2V5

ASP-134603-01

J25A

LPC CONNECTOR
ASP_134603_01

D28	GND_71	GND_130	H39				
D25	GND_70	GND_129	H36				
D22	GND_69	GND_128	H33				
D19	GND_68	GND_127	H30				
D16	GND_67	GND_126	H27				
D13	GND_66	GND_125	H24				
D10	GND_65	GND_124	H21				
D7	GND_64	GND_123	H18				
D6	GND_63	GND_122	H15				
D3	GND_62	GND_121	H12				
D2	GND_61	GND_120	H9				
C40	GND_60	GND_119	H6				
C38	GND_59	GND_118	H3				
C36	GND_58	GND_117	G40				
C33	GND_57	GND_116	G38				
C32	GND_56	GND_115	G35				
C29	GND_55	GND_114	G32				
C28	GND_54	GND_113	G29				
C25	GND_53	GND_112	G26				
C24	GND_52	GND_111	G23				
C21	GND_51	GND_110	G20				
C20	GND_50	GND_109	G17				
C17	GND_49	GND_108	G14				
C16	GND_48	GND_107	G11				
C13	GND_47	GND_106	G8				
C12	GND_46	GND_105	G5				
C9	GND_45	GND_104	G4				
C8	GND_44	GND_103	G1				
C5	GND_43	GND_73	D39				
C4	GND_42	GND_72	D37				
C1	GND_41	GND_ST1	ST1	FMC2_LPC_ST1	FMC2_LPC_ST1	{24}	
		GND_ST2	ST2	FMC2_LPC_ST2	FMC2_LPC_ST2	{24}	

GND
GND

ASP-134603-01

VCC2V5 VCC3V3 VCC12_P

C210	C211	C212
1uF 25V C0603	1uF 25V C0603	1uF 25V C0603

GND

FMC2_LPC_ST1 — FMC2_LPC_ST1 {24}

C213 — 100pF 500V C0805

R95 DNP DNP R0402

GND

FMC2_LPC_ST2 — FMC2_LPC_ST2 {24}

C214 — 100pF 500V C0805

R96 DNP DNP R0402

GND

FMC2 LPC Connector

Proprietary and Confidential

WHiZZ SYSTEMS

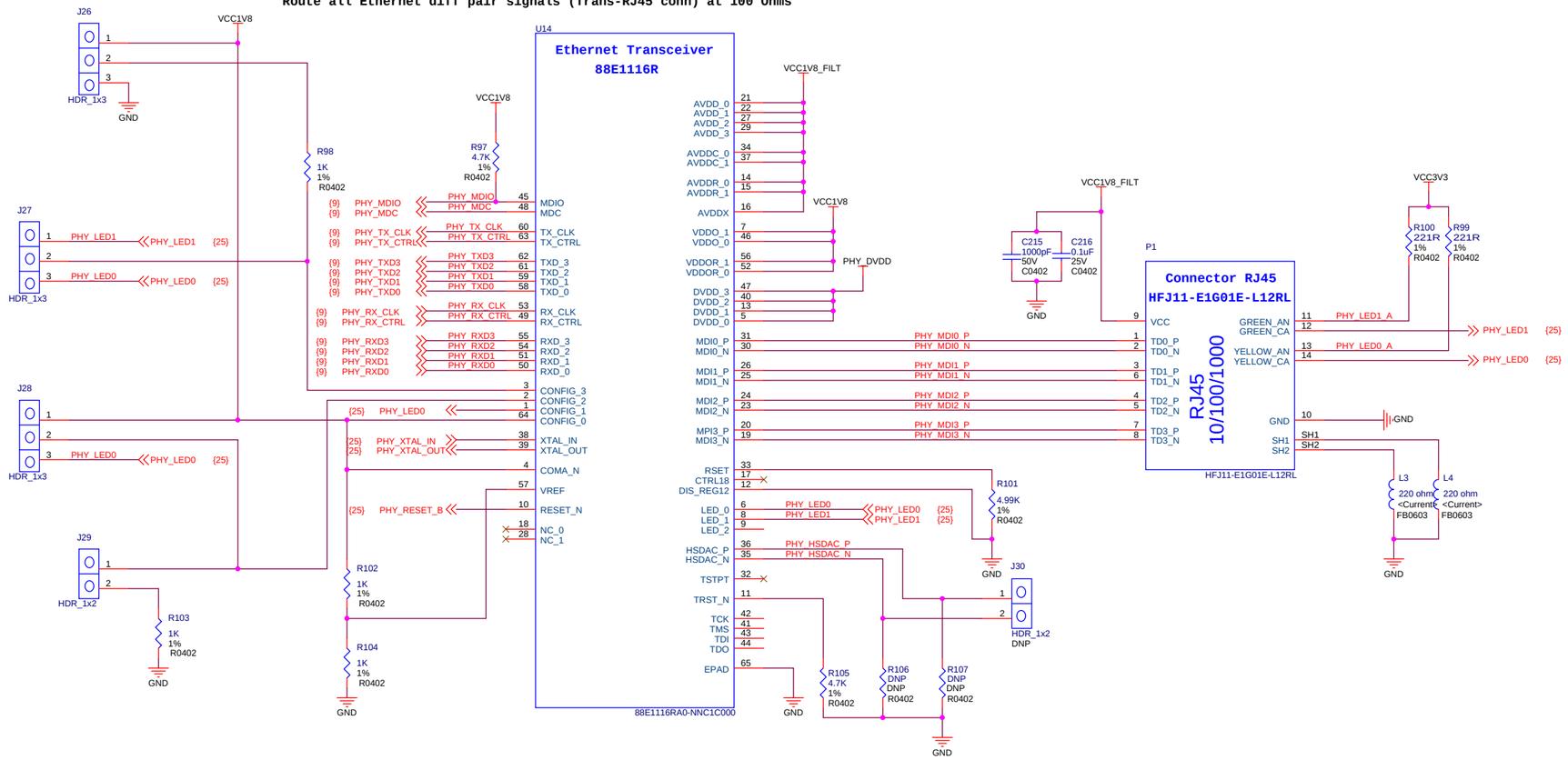
WHIZZ SYSTEMS INC.
3240 Scott Blvd , Santa Clara,
CA 95054, USA
Job # 7490

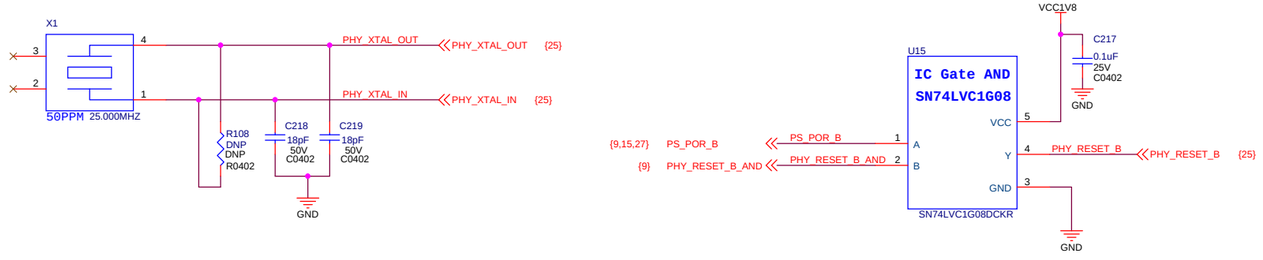
Client: Liquid Instruments PTY. LTD.

Title	FMC2 LPC Connector	Sch:	7490_MokuV1.0
Size	C	Engineer: Farooq Bhatti	Rev A
Date:	Thursday, July 09, 2015	Sheet	24 of 38

ETHERNET TRANSCEIVER & RJ45 CONN

Layout Note
Route all Ethernet single ended signals (FPGA-Trans) at 50 Ohms
Route all Ethernet diff pair signals (Trans-RJ45 conn) at 100 Ohms





GEM / MDIO

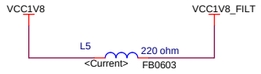
Proprietary and Confidential

WHIZZ SYSTEMS INC.
3240 Scott Blvd , Santa Clara, CA 95054, USA
Job # 7490

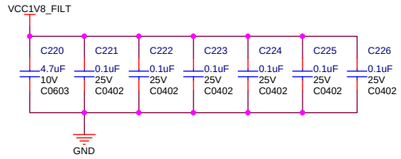
Client: Liquid Instruments PTY. LTD.

Title	GEM / MDIO	Sch:	7490_MokuV1.0
Size	C	Engineer: Farooq Bhatti	Rev A
Date:	Thursday, July 09, 2015	Sheet	25 of 38

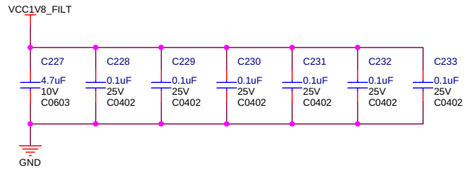
ETHERNET BYPASS CAPACITOR



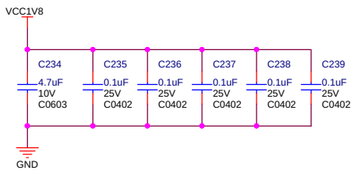
AVDDX, AVDDR, AVDDC



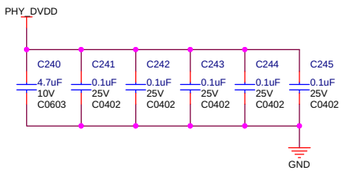
AVDD



VDDO, VDDOR



DVDD



GEM / MDIO

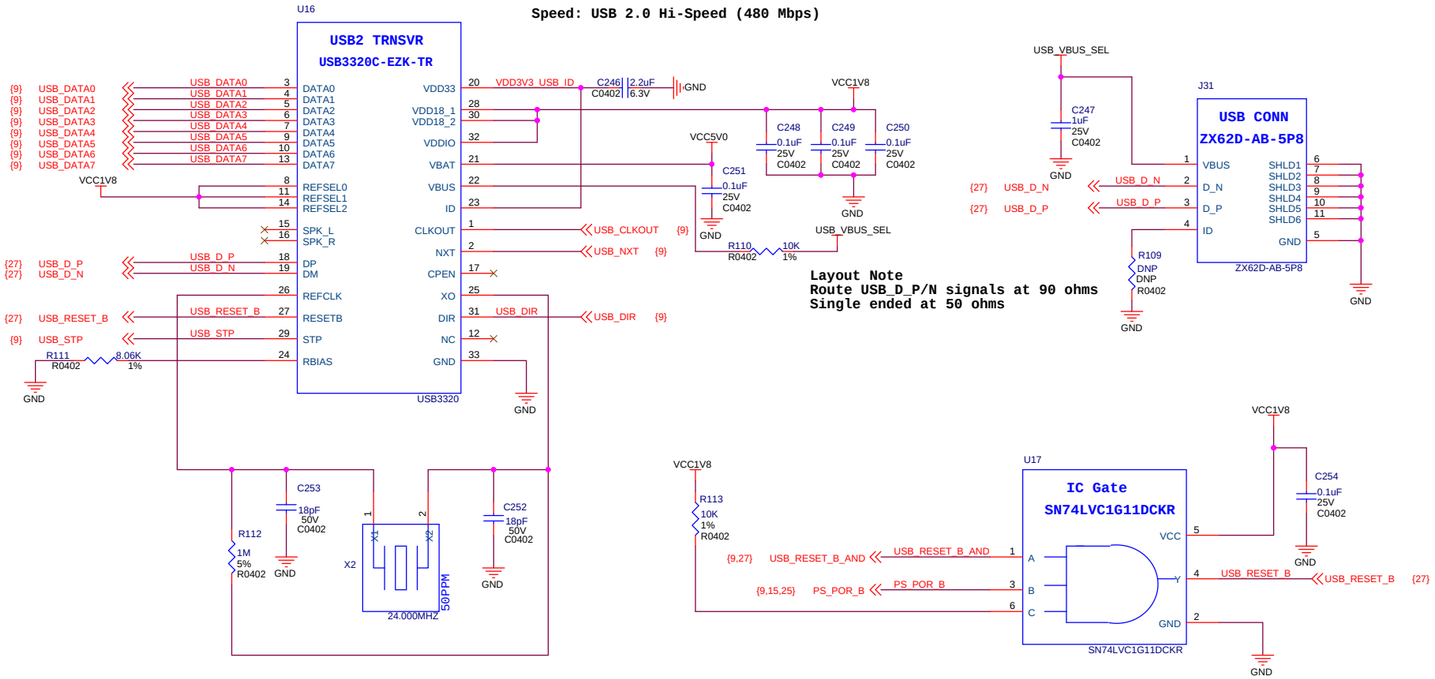
Proprietary and Confidential

WHIZZ SYSTEMS INC.
3240 Scott Blvd , Santa Clara,
CA 95054, USA
Job # 7490

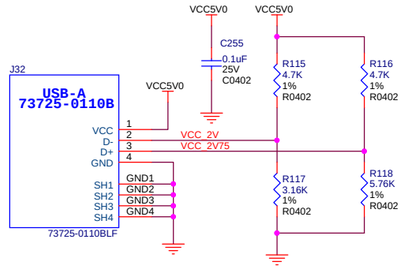
Client: Liquid Instruments PTY. LTD.

Title	GEM / MDIO		Sch: 7490_MokuV1.0
Size	C	Engineer: Farooq Bhatti	Rev A
Date:	Thursday, July 09, 2015		Sheet 26 of 38

USB 2.0 TRANSEIVER & USB micro AB CONNECTOR



USB-A for Charging at 2000 mA



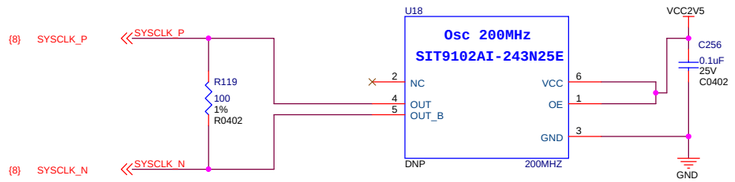
Layout Note:
D- : 2.0V
D+: 2.75V

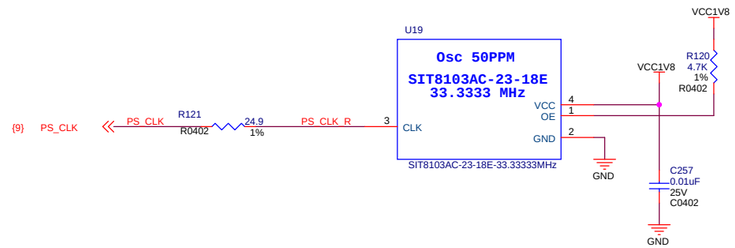
USB

Proprietary and Confidential

WHiZZ SYSTEMS	WHIZZ SYSTEMS INC. 3240 Scott Blvd , Santa Clara, CA 95054, USA Job # 7490
Client: Liquid Instruments PTY. LTD.	
Title: USB	Sch: 7490_MokuV1.0
Size: C / Engineer: Farooq Bhatti	Rev: A
Date: Thursday, July 09, 2015	Sheet 27 of 38

OSCILLATORS





Clocks

Proprietary and Confidential

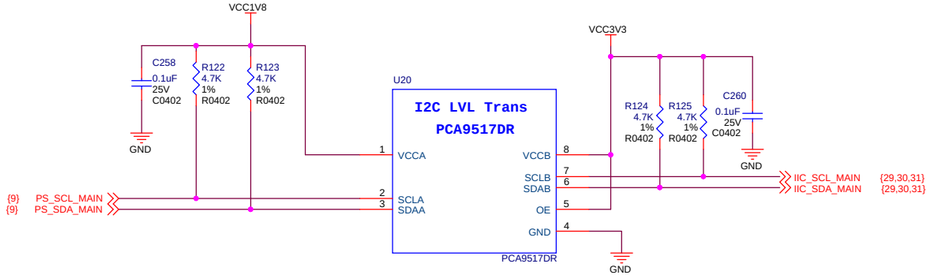
WHIZZ SYSTEMS INC.
3240 Scott Blvd , Santa Clara,
CA 95054, USA

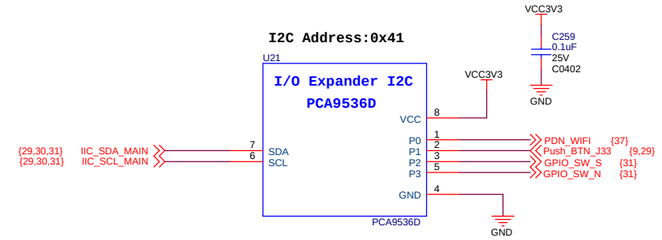
Job # 7490

Client: Liquid Instruments PTY. LTD.

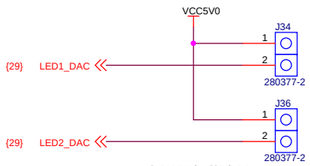
Title	CLOCKS	Sch:	7490_MokuV1.0
Size C	Engineer: Farooq Bhatti	Rev	A
Date:	Thursday, July 09, 2015	Sheet	28 of 38

I/O EXPANDER AND LED DRIVERS



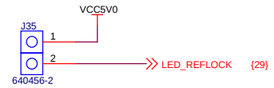


2-Pin LED DAC (FMC2) Output Headers

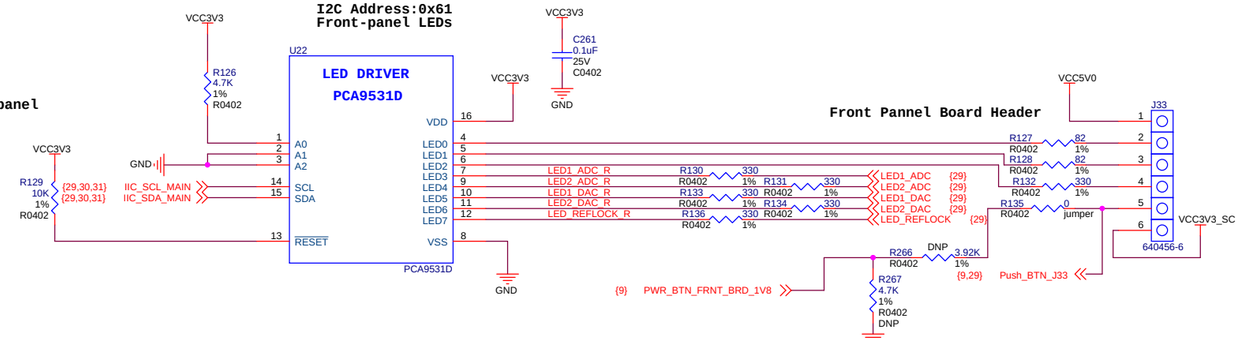


Layout Note:
MOUNT ON BOTTOM OF BOARD

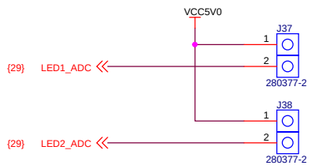
Layout Note:
Place 2-Pin REF Lock LED Header on back panel



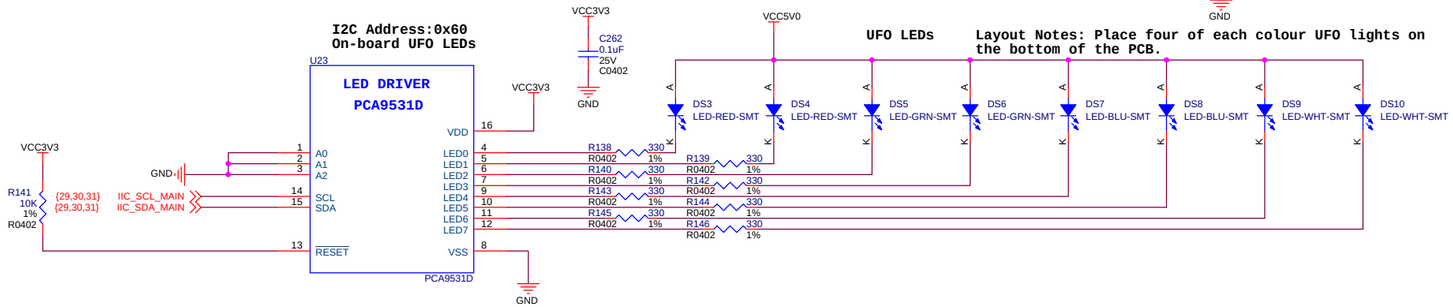
I2C Address:0x61
Front-panel LEDs



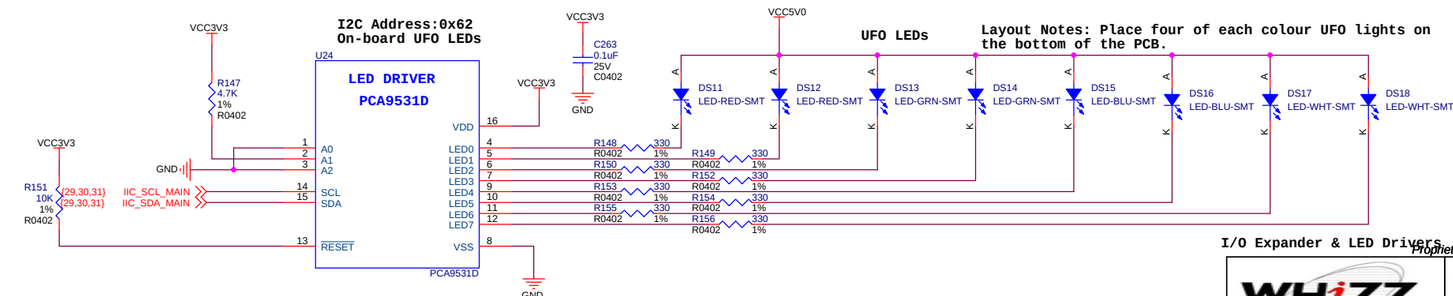
2-Pin LED ADC (FMC1) Input Headers



I2C Address:0x60
On-board UFO LEDs



I2C Address:0x62
On-board UFO LEDs

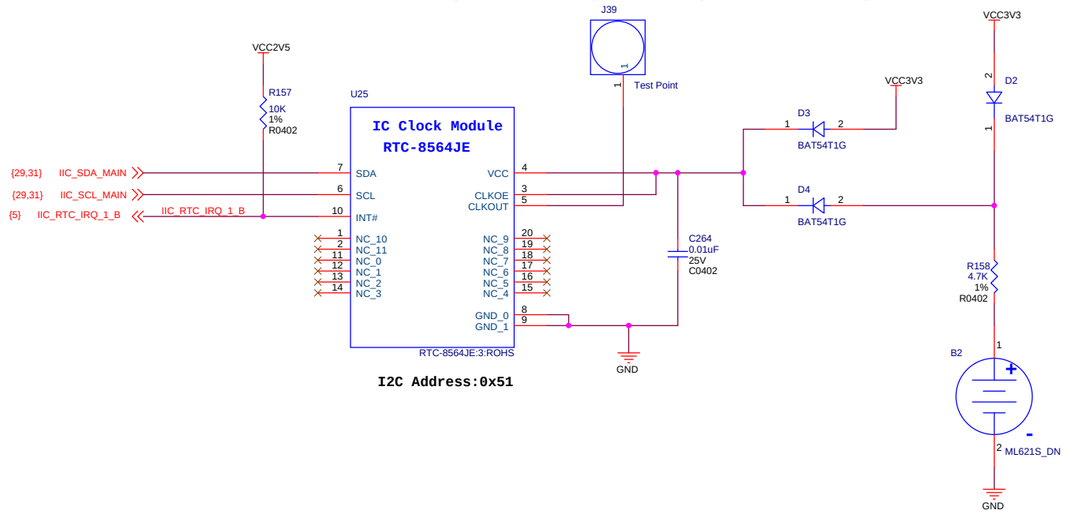


I/O Expander & LED Drivers

WHiZZ SYSTEMS	WHIZZ SYSTEMS INC. 3240 Scott Blvd , Santa Clara, CA 95054, USA Job # 7490	
Client:	Liquid Instruments PTY. LTD.	
Title: I/O Expander & LED Drivers		Sch: 7490_MokuV1.0
Size: C	Engineer: Farooq Bhatti	Rev: A
Date: Thursday, July 09, 2015		Sheet 29 of 38

RTC CLOCK MODULE

Exposed copper pad Test Point 2mm diameter,
placed on a 5mm grid with respect to the mounting holes.



I2C Address:0x51

IIC Real Time Clock, Port Expander

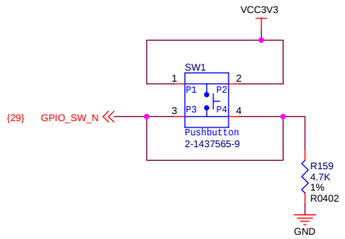
Proprietary and Confidential

WHiZZ SYSTEMS	WHIZZ SYSTEMS INC. 3240 Scott Blvd , Santa Clara, CA 95054, USA Job # 7490	
Client: Liquid Instruments PTY. LTD.		
Title: IIC Real Time Clock		Sch: 7490_MokuV1.0
Size: C	Engineer: Farooq Bhatti	Rev: A
Date: Thursday, July 09, 2015		Sheet 30 of 38

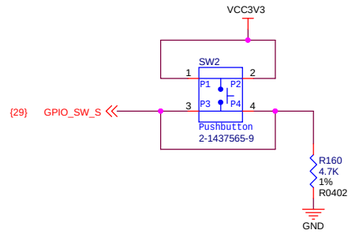
GPIO SWITCHES

Layout Note:
Place tactile switches on bottom of the board

Factory Reset Button

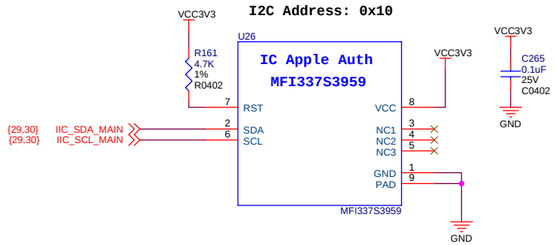


Wifi On/Off Button



Apple Auth Coprocessor

I2C Address: 0x10

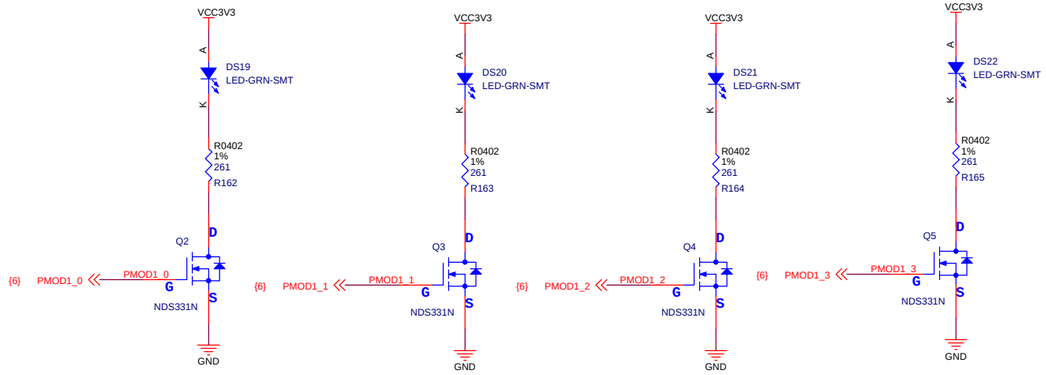


GPIO Switches and Apple Auth Coprocessor

Proprietary and Confidential

WHiZZ SYSTEMS	WHIZZ SYSTEMS INC. 3240 Scott Blvd , Santa Clara, CA 95054, USA Job # 7490	
Client: Liquid Instruments PTY. LTD.		
Title: GPIO Switch		Sch: 7490_MokuV1.0
Size: C	Engineer: Farooq Bhatti	Rev: A
Date: Thursday, July 09, 2015		Sheet 31 of 38

PMOD LEDS



PMOD LEDs

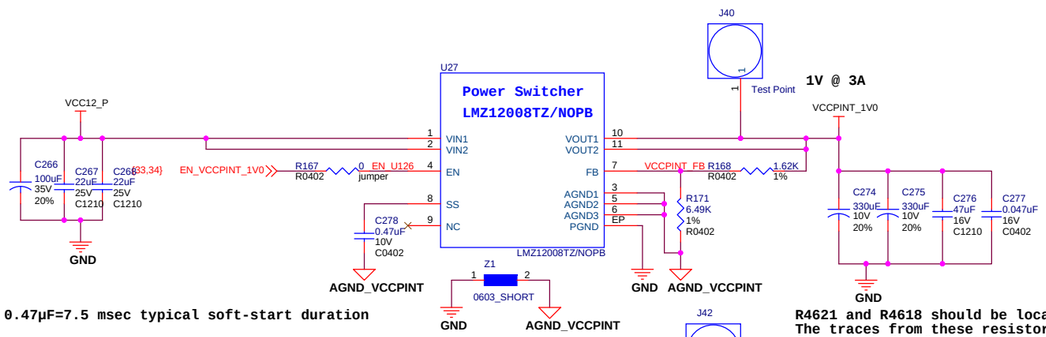
Proprietary and Confidential

WHiZZ SYSTEMS	WHIZZ SYSTEMS INC. 3240 Scott Blvd , Santa Clara, CA 95054, USA Job # 7490
Client: Liquid Instruments PTY. LTD.	
Title: PMOD LEDs	Sch: 7490_MokuV1.0
Size: C / Engineer: Farooq Bhatti	Rev: A
Date: Thursday, July 09, 2015	Sheet 32 of 38

Power Regulators

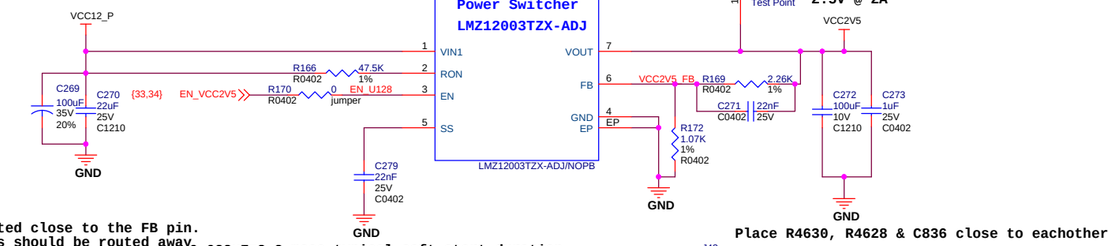
Layout Note

Have a single point ground.
Minimize trace length to the FB pin.
Make input and output bus connections as wide as possible.
Provide adequate device heat-sinking.



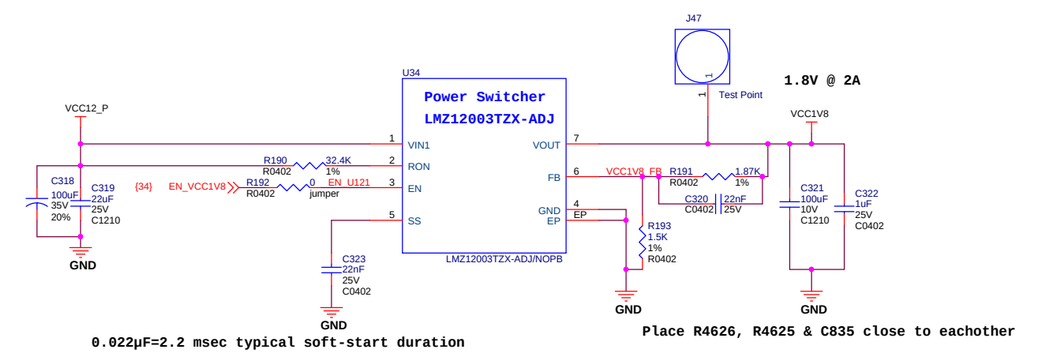
0.47µF=7.5 msec typical soft-start duration

R4621 and R4618 should be located close to the FB pin. The traces from these resistors should be routed away from the body of the LMZ12008 to minimize possible noise pickup.



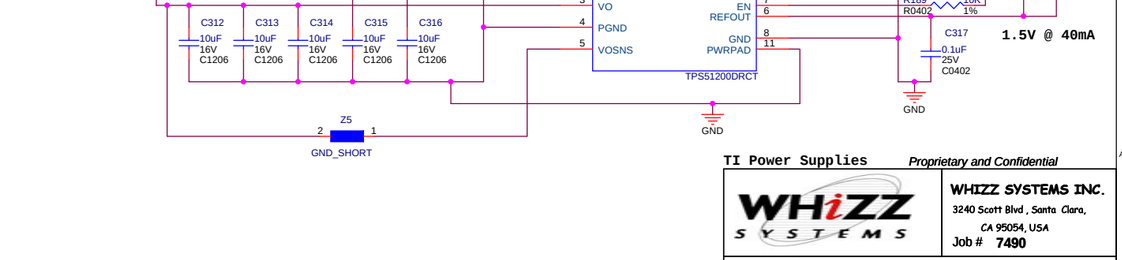
0.022µF=2.2 msec typical soft-start duration

Place R4630, R4628 & C836 close to eachother



0.47µF=7.5 msec typical soft-start duration

R4622 and R4619 should be located close to the FB pin. The traces from these resistors should be routed away from the body of the LMZ12008 to minimize possible noise pickup.

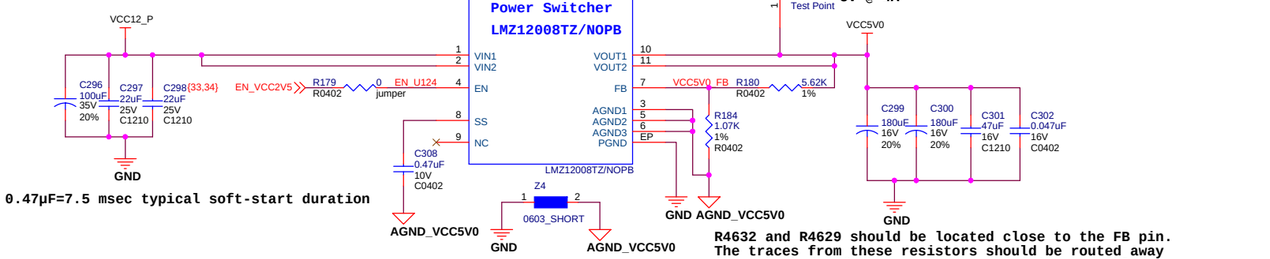


0.47µF=7.5 msec typical soft-start duration

R4758 and R4759 should be located close to the FB pin. The traces from these resistors should be routed away from the body of the LMZ12008 to minimize possible noise pickup.

0.022µF=2.2 msec typical soft-start duration

Place R4624, R4623 & C834 close to eachother



0.47µF=7.5 msec typical soft-start duration

R4632 and R4629 should be located close to the FB pin. The traces from these resistors should be routed away from the body of the LMZ12008 to minimize possible noise pickup.

0.022µF=2.2 msec typical soft-start duration

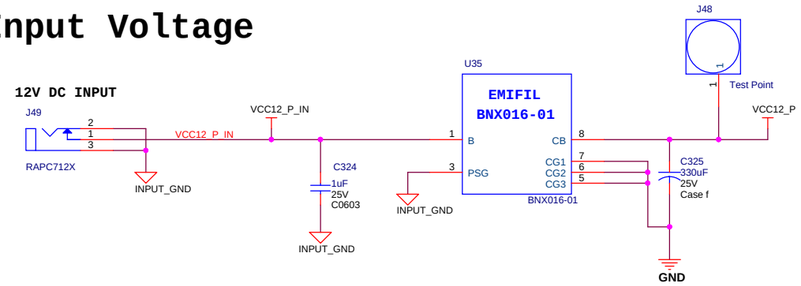
Place R4626, R4625 & C835 close to eachother

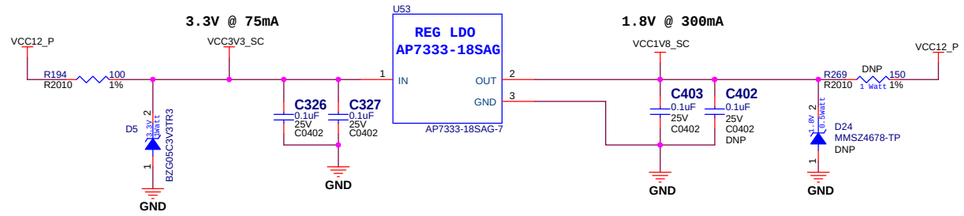
TI Power Supplies	WHiZZ SYSTEMS INC. 3240 Scott Blvd , Santa Clara, CA 95054, USA Job # 7490	
Client: Liquid Instruments PTY. LTD.		
Title: Power Supplies		Sch: 7490_MokuV1.0
Size: C	Engineer: Farooq Bhatti	Rev: A
Date: Thursday, July 09, 2015		Sheet 33 of 38

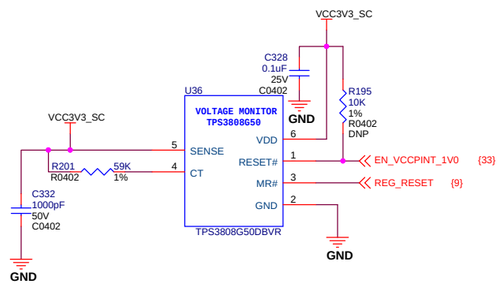
Power Management/Sequencing System

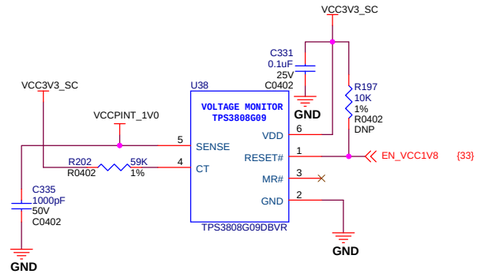
Input Voltage

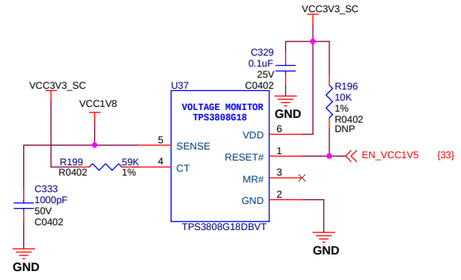
**Exposed copper pad Test Point 2mm diameter,
placed on a 5mm grid with respect to the mounting holes.**

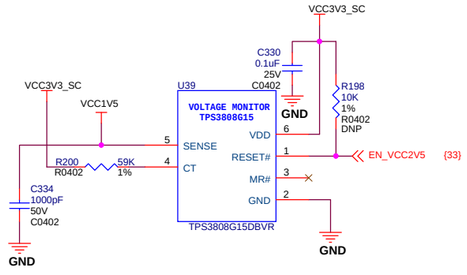












Power Sequencing

VCCPINT(VCCPINT_1V0),VCCINT/VCCBRAM(VCCBRAM_1V0)-> VCCAUX,VCCPAUX,VCCPLL(VCC1V8)-> VCCO(VCC1V5) -> VADJ(VCC2V5),VCC3V3,VCC5V0

Voltage New	Name in Design	Voltage Value	Maximum Current measured	New DC-DC design will support
VCCPINT	VCCPINT_1V0	1.0V	1.3	3
VCCO_DDR	VCC1V5	1.5V	0.6	2
VCCINT, VCCBRAM	VCCBRAM_1V0	1.0V	1.506	3
VCCMIO, VCCAUX, VCCPAUX	VCC1V8	1.8V	0.615	2
VCC3V3	VCC3V3	3.3V	0.5	2
VCC2V5, VADJ	VCC2V5	2.5V	0.35	2
VCC5V0	VCC5V0	5.0V	2.5	4

Power Connector and switch

WHIZZ SYSTEMS INC.
3240 Scott Blvd , Santa Clara, CA 95054, USA
Job # 7490

Client:	Liquid Instruments PTY. LTD.		
Title	Power Connector and switch	Sch:	7490_MokuV1.0
Size C	Engineer: Farooq Bhatti	Rev	A
Date:	Thursday, July 09, 2015	Sheet	34 of 38

CLOCK GENERATOR BUFFER CIRCUIT

10 MHz Input

Max Input Frequency 250 MHz

Max Input Frequency 2.4 GHz

Layout Note
Route all Diff Pairs Signals at 100 Ohms
and Single Ended Signals at 50 Ohms

LVPECL CLOCK OUTPUTS OUT0, OUT1, OUT2, OUT3
Output Frequency, Maximum 2950 MHz
Rise Time: 180 ps
Fall Time 180 ps

LVDS CLOCK OUTPUTS OUT4, OUT5, OUT6, OUT7
Output Frequency 800 MHz
Rise Time: 350 ps
Fall Time 350 ps

10 MHz Output

U52 OSC TCXO DV75C-010.0M
U40 IC CLOCK GEN AD9517-3ABCPZ
U41 OSC SO 1GHZ CCSO914X1000
U42 IC Translator SN74AVC8T245RHLR
U44 IC Translator SN74AVC8T245RHLR
U43 CLK BUFFER CDCLVC1102
J50 CON-BNC 5-1634513-1
J51 Test Point
J52 CON-BNC 5-1634513-1
D6 SP1008-01WTG
D7 SP1008-01WTG

Clock Generator

Proprietary and Confidential

WHIZZ SYSTEMS INC.
3240 Scott Blvd , Santa Clara, CA 95054, USA
Job # 7490

Client: Liquid Instruments PTY. LTD.

Title	Clock Gen	Sch:	7490_MokuV1.0
Size	C	Engineer: Farooq Bhatti	Rev A
Date:	Thursday, July 09, 2015	Sheet	35 of 38

LOGIC ANALYZER

Layout Note
Route all Logic Analyzer Signals at 50 Ohms

U45 — IC Transceiver MC74LCX16245DTRG

{8}	FPGA_H17_TRANS_OE1	48	OE1		
{8}	FPGA_H19_TRANS_OE2	25	OE2		
{8}	FPGA_H20_TRANS_TR1	1	T/R1		
{7}	FPGA_P17_TRANS_TR2	24	T/R2		
{7}	FPGA_P18_TRANS_A0	47	A0	B0	2 U109_B0_1_Fuse {36}
{7}	FPGA_T19_TRANS_A1	46	A1	B1	3 U109_B1_2_Fuse {36}
{7}	FPGA_R18_TRANS_A2	44	A2	B2	5 U109_B2_3_Fuse {36}
{7}	FPGA_T18_TRANS_A3	43	A3	B3	6 U109_B3_5_Fuse {36}
{7}	FPGA_R15_TRANS_A4	41	A4	B4	8 U109_B4_6_Fuse {36}
{7}	FPGA_H15_TRANS_A5	40	A5	B5	9 U109_B5_7_Fuse {36}
{7}	FPGA_M19_TRANS_A6	38	A6	B6	11 U109_B6_9_Fuse {36}
{7}	FPGA_M20_TRANS_A7	37	A7	B7	12 U109_B7_10_Fuse {36}
{6}	FPGA_U19_TRANS_A8	36	A8	B8	13 U109_B8_11_Fuse {36}
{6}	FPGA_AB22_TRANS_A9	35	A9	B9	14 U109_B9_13_Fuse {36}
{6}	FPGA_U14_TRANS_A10	33	A10	B10	16 U109_B10_14_Fuse {36}
{5}	FPGA_V10_TRANS_A11	32	A11	B11	17 U109_B11_15_Fuse {36}
{5}	FPGA_V9_TRANS_A12	30	A12	B12	19 U109_B12_17_Fuse {36}
{5}	FPGA_V8_TRANS_A13	29	A13	B13	20 U109_B13_18_Fuse {36}
{5}	FPGA_R7_TRANS_A14	27	A14	B14	22 U109_B14_19_Fuse {36}
{5}	FPGA_W10_TRANS_A15	26	A15	B15	23 U109_B15_20_Fuse {36}
		4	GND_0	GND_4	28
		10	GND_1	GND_5	34
		15	GND_2	GND_6	39
		21	GND_3	GND_7	45

MC74LCX16245DTRG

VCC2V5 — C377 0.1uF 25V C0402; C378 0.1uF 25V C0402; C379 0.1uF 25V C0402; C380 0.1uF 25V C0402 — GND

GND

U46 — TVS Diode ESD7008MUTAG (ESD7008MUTAG)

12	NC_0	GND_0	3
14	NC_1	GND_1	6
16	NC_2	GND_2	9
18	NC_3	GND_3	13
		GND_4	15
		GND_5	17
1	IO_0		
2	IO_1		
4	IO_2		
5	IO_3		
7	IO_4		
8	IO_5		
10	IO_6		
11	IO_7		

F1–F8: Fuse; R233–R240: 330 1% R0402

{36}	U109_B0_1_Fuse	F1	R233	J286_B0_R	{36}
{36}	U109_B2_3_Fuse	F3	R235	J286_B2_R	{36}
{36}	U109_B4_6_Fuse	F5	R237	J286_B4_R	{36}
{36}	U109_B6_9_Fuse	F7	R240	J286_B6_R	{36}
{36}	J286_B1_R	R234	F2	U109_B1_2_Fuse	{36}
{36}	J286_B3_R	R236	F4	U109_B3_5_Fuse	{36}
{36}	J286_B5_R	R238	F6	U109_B5_7_Fuse	{36}
{36}	J286_B7_R	R239	F8	U109_B7_10_Fuse	{36}

VCC5V0 — D8 BAR 66 E6327; D9 BAR 66 E6327; D10 BAR 66 E6327; D11 BAR 66 E6327 — GND

J53 — HDR_2x10

{36}	J286_B0_R	1	2
{36}	J286_B2_R	3	4
{36}	J286_B3_R	5	6
{36}	J286_B5_R	7	8
{36}	J286_B6_R	9	10
{36}	J286_B8_R	11	12
{36}	J286_B9_R	13	14
{36}	J286_B11_R	15	16
{36}	J286_B12_R	17	18
{36}	J286_B14_R	19	20
			J286_B1_R {36}
			J286_B4_R {36}
			J286_B7_R {36}
			J286_B10_R {36}
			J286_B13_R {36}
			J286_B15_R {36}

VCC5V0 — D12 BAR 66 E6327; D13 BAR 66 E6327; D14 BAR 66 E6327; D15 BAR 66 E6327 — GND

F9–F16: Fuse; R241–R248: 330 1% R0402

{36}	U109_B14_19_Fuse	F9	R241	J286_B14_R	{36}
{36}	U109_B12_17_Fuse	F11	R243	J286_B12_R	{36}
{36}	U109_B10_14_Fuse	F13	R245	J286_B10_R	{36}
{36}	U109_B8_11_Fuse	F15	R247	J286_B8_R	{36}
{36}	J286_B9_R	R242	F10	U109_B9_13_Fuse	{36}
{36}	J286_B11_R	R244	F12	U109_B11_15_Fuse	{36}
{36}	J286_B13_R	R246	F14	U109_B13_18_Fuse	{36}
{36}	J286_B15_R	R248	F16	U109_B15_20_Fuse	{36}

VCC5V0 — D16 BAR 66 E6327; D17 BAR 66 E6327; D18 BAR 66 E6327; D19 BAR 66 E6327 — GND

U47 — TVS Diode ESD7008MUTAG (ESD7008MUTAG)

12	NC_0	GND_0	3
14	NC_1	GND_1	6
16	NC_2	GND_2	9
18	NC_3	GND_3	13
		GND_4	15
		GND_5	17
1	IO_0		
2	IO_1		
4	IO_2		
5	IO_3		
7	IO_4		
8	IO_5		
10	IO_6		
11	IO_7		

VCC5V0 — D20 BAR 66 E6327; D21 BAR 66 E6327; D22 BAR 66 E6327; D23 BAR 66 E6327 — GND

Logic Analyzer

Proprietary and Confidential

WHiZZ SYSTEMS

WHIZZ SYSTEMS INC.
3240 Scott Blvd , Santa Clara, CA 95054, USA
Job # 7490

Client: Liquid Instruments PTY. LTD.

Title	Logic Analyzer	Sch:	7490_MokuV1.0
Size	C	Engineer: Farooq Bhatti	Rev A
Date:	Thursday, July 09, 2015	Sheet	36 of 38

WiFi/Bluetooth Module

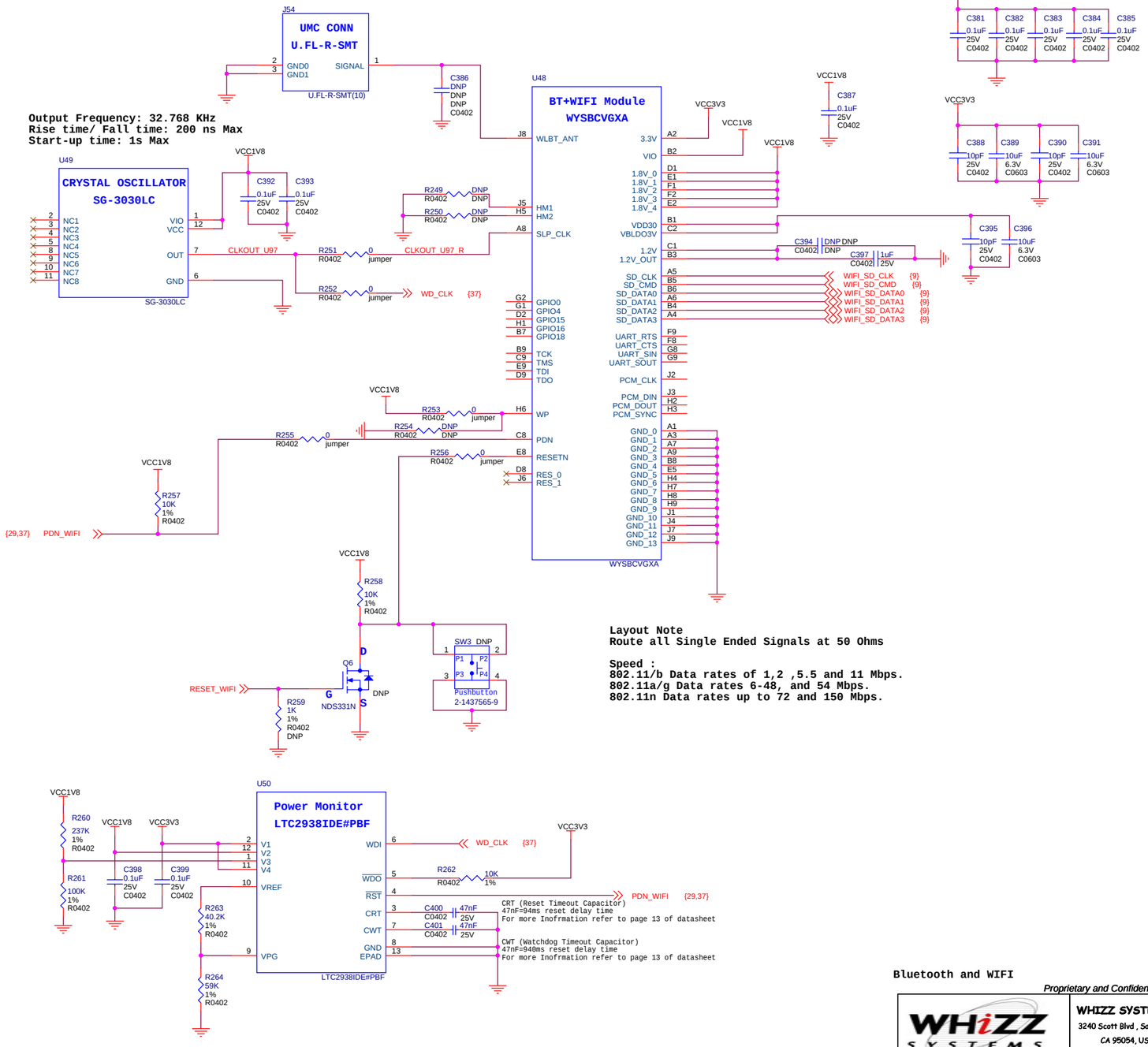


Table 1. Voltage Threshold Modes

MODE	V1 (V)	V2 (V)	V3 (V)	V4 (V)	R1 (kΩ)	R2 (kΩ)	V_{PG}/V_{REF}
0	5	3.3	ADJ	ADJ	Open	Short	0
1	5	3.3	ADJ	–ADJ	93.1	9.53	0.094
2	3.3	2.5	ADJ	ADJ	86.6	16.2	0.156
3	3.3	2.5	ADJ	–ADJ	78.7	22.1	0.219
4	3.3	1.8	1.5	ADJ	71.5	28	0.281
5	5	3.3	2.5	ADJ	66.5	34.8	0.344
6	5	3.3	2.5	1.8	59	40.2	0.406
7	3.3	1.8	1.5	1.2	53.6	47.5	0.469
8	3.3	1.8	1.2	ADJ	47.5	53.6	0.531
9	3.3	1.8	ADJ	ADJ	40.2	59	0.594
10	3.3	2.5	1.8	1.5	34.8	66.5	0.656
11	3.3	2.5	1.8	ADJ	28	71.5	0.719
12	3.3	1.8	ADJ	–ADJ	22.1	78.7	0.781
13	3.3	1.5	ADJ	ADJ	16.2	86.6	0.844
14	5	3.3	1.8	ADJ	9.53	93.1	0.906
15	3.3	1.2	ADJ	ADJ	Short	Open	1

Layout Note
Route all Single Ended Signals at 50 Ohms

Speed :
802.11/b Data rates of 1,2 ,5.5 and 11 Mbps.
802.11a/g Data rates 6-48, and 54 Mbps.
802.11n Data rates up to 72 and 150 Mbps.

Bluetooth and WIFI

Proprietary and Confidential

WHiZZ SYSTEMS

WHIZZ SYSTEMS INC.
3240 Scott Blvd , Santa Clara,
CA 95054, USA
Job # 7490

Client: Liquid Instruments PTY. LTD.

Title	Bluetooth and wifi	Sch:	7490_MokuV1.0
Size	C	Engineer: Farooq Bhatti	Rev A
Date:	Thursday, July 09, 2015	Sheet	37 of 38

MECHANICAL COMPONENTS

MJB1

JUMPER_BLOCK_2-PIN

MJB2

JUMPER_BLOCK_2-PIN

MJB3

JUMPER_BLOCK_2-PIN

MJB4

JUMPER_BLOCK_2-PIN

MJB5

JUMPER_BLOCK_2-PIN

MJB6

JUMPER_BLOCK_2-PIN

MJB7

JUMPER_BLOCK_2-PIN

MJB8

JUMPER_BLOCK_2-PIN

MSO1

STANDOFF_0P625

MSO2

STANDOFF_0P625

MSO3

STANDOFF_0P625

MSO4

STANDOFF_0P625

MRB1

RUBBER_BUMPER

MRB2

RUBBER_BUMPER

MRB3

RUBBER_BUMPER

MRB4

RUBBER_BUMPER

MN1

NUT_SS_4-40

MN2

NUT_SS_4-40

MN3

NUT_SS_4-40

MN4

NUT_SS_4-40

MS1

MACHINE_SCREW_4-40

MS3

MACHINE_SCREW_4-40

MS5

MACHINE_SCREW_4-40

MS7

MACHINE_SCREW_4-40

MS2

MACHINE_SCREW_4-40

MS4

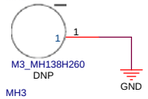
MACHINE_SCREW_4-40

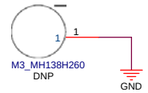
MS6

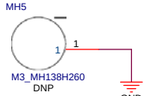
MACHINE_SCREW_4-40

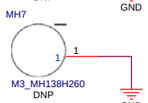
MS8

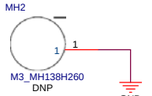
MACHINE_SCREW_4-40

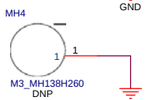
MH1


MH3


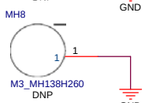
MH5


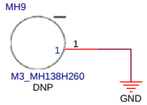
MH7


MH2


MH4


MH6


MH8


MH9


Mechanical

Proprietary and Confidential

WHIZZ SYSTEMS INC.
3240 Scott Blvd , Santa Clara,
CA 95054, USA
Job # 7490

Client:	Liquid Instruments PTY. LTD.		
Title	Mechanical		Sch: 7490_MokuV1.0
Size C	Engineer: Farooq Bhatti		Rev A
Date:	Thursday, July 09, 2015		Sheet 38 of 38