

TURBOT B

Rev : R200

TABLE OF CONTENTS

Page	Index	Page	Index
1	Cover Page	26	DC-DC VOLTAGE
2	Block Diagram	27	GPIO/HW Mapping
3	CPU-DDI/VGA	28	POWER DELIVERY
4	CPU-DDR3-CHA	29	Power Sequence
5	CPU-DDR3-CHB		
6	CPU-PE/HDA/SD/eMMC/Strap		
7	CPU-SPI/CLOCK/RTC/PMC/UART		
8	CPU-USB/LPC/SMB/I2C		
9	CPU-PWR1		
10	CPU-PWR2		
11	CPU-GND		
12	Memory_CHA-1		
13	Memory_CHA-2		
14	uSD CARD CAGE		
15	HDMI / VGA		
16	USB3+USB2		
17	EXPANSION I/O		
18	LAN Intel i210/i211		
19	NOT USED		
20	CSI/GPIO Header/UART_DBG		
21	PWR BTN / LED / HOLE		
22	DC-5VSB/3VSB / VCC / VCC3		
23	DC/DC VCORE REGULATOR		
24	DC/DC VGFX REGULATOR		
25	DC-DIMM/DDR_VTT		

REVISION HISTORY:

Rev	Date	Notes
X001	2016/03/29	Initial Design Review
X002	2016/03/31	BOM Release for Pre-ordering Components
X003	2016/04/01	Pre-Release Design Review
X100	2016/04/08	Prototype Release
R100	2016/09/08	Production Release
R200	2016/10/27	Post DfX Release Production Release

For all design files, including bill of materials and gerber files, please visit www.minnowboard.org

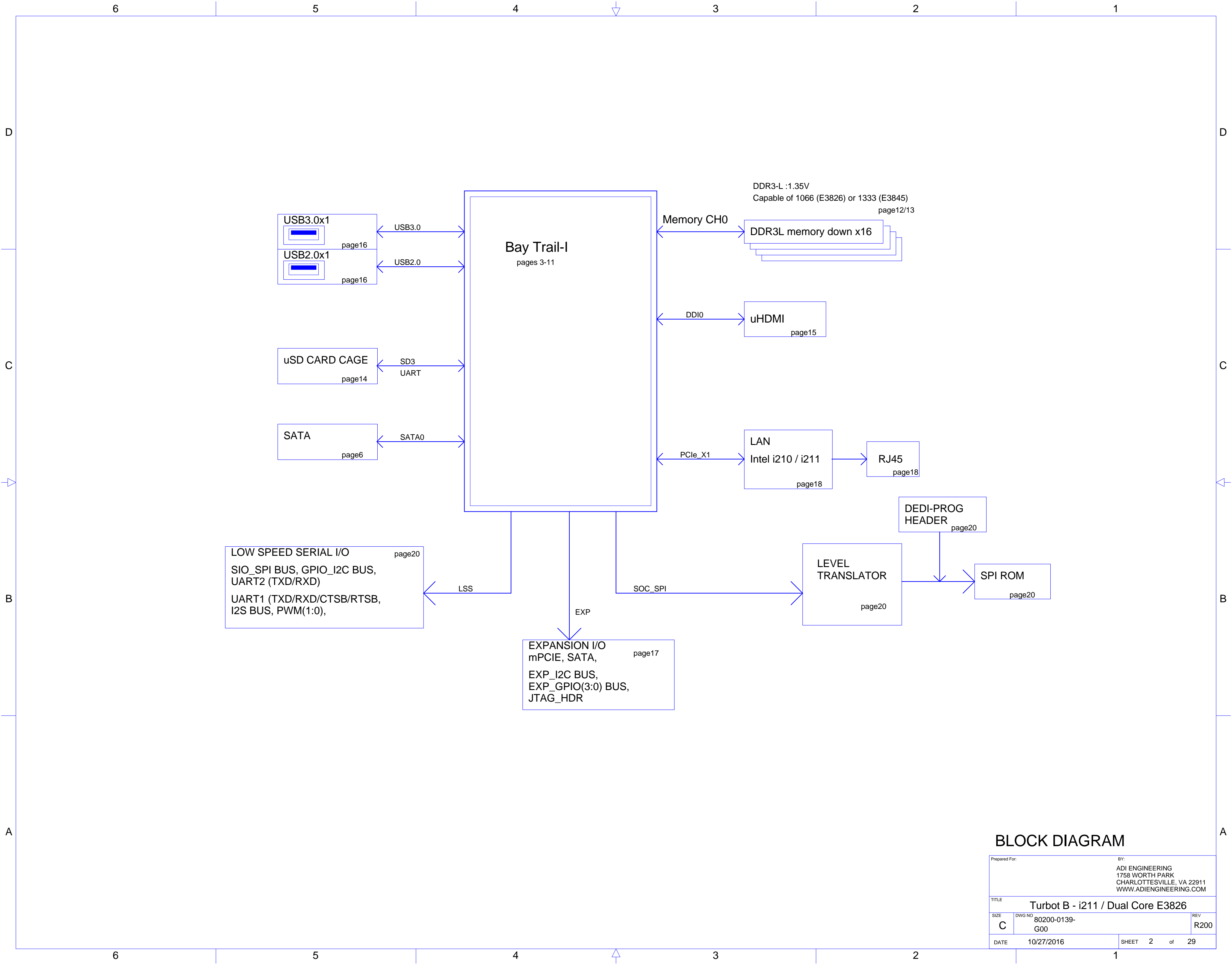
This work is licensed under the Creative Commons Attribution-Share Alike 3.0 Unported License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-sa/3.0/> or send a letter to Creative Commons, 171 Second Street, Suite 300, San Francisco, California, 94105, USA.

Minnowboard Turbot design derived from Minnowboard MAX as designed by CircuitCo LLC.

All derivative works are to be attributed to ADI Engineering and CircuitCo LLC .

For more information, see http://creativecommons.org/license/results-one?license_code=by-sa

Prepared For:		BY: ADI ENGINEERING 1758 WORTH PARK CHARLOTTESVILLE, VA 22911 WWW.ADIENGINEERING.COM	
TITLE Turbot B - i211 / Dual Core E3826			
SIZE C	DWG NO 80200-0139- G00	REV R200	
DATE 10/27/2016		SHEET 1	of 29



D

C

B

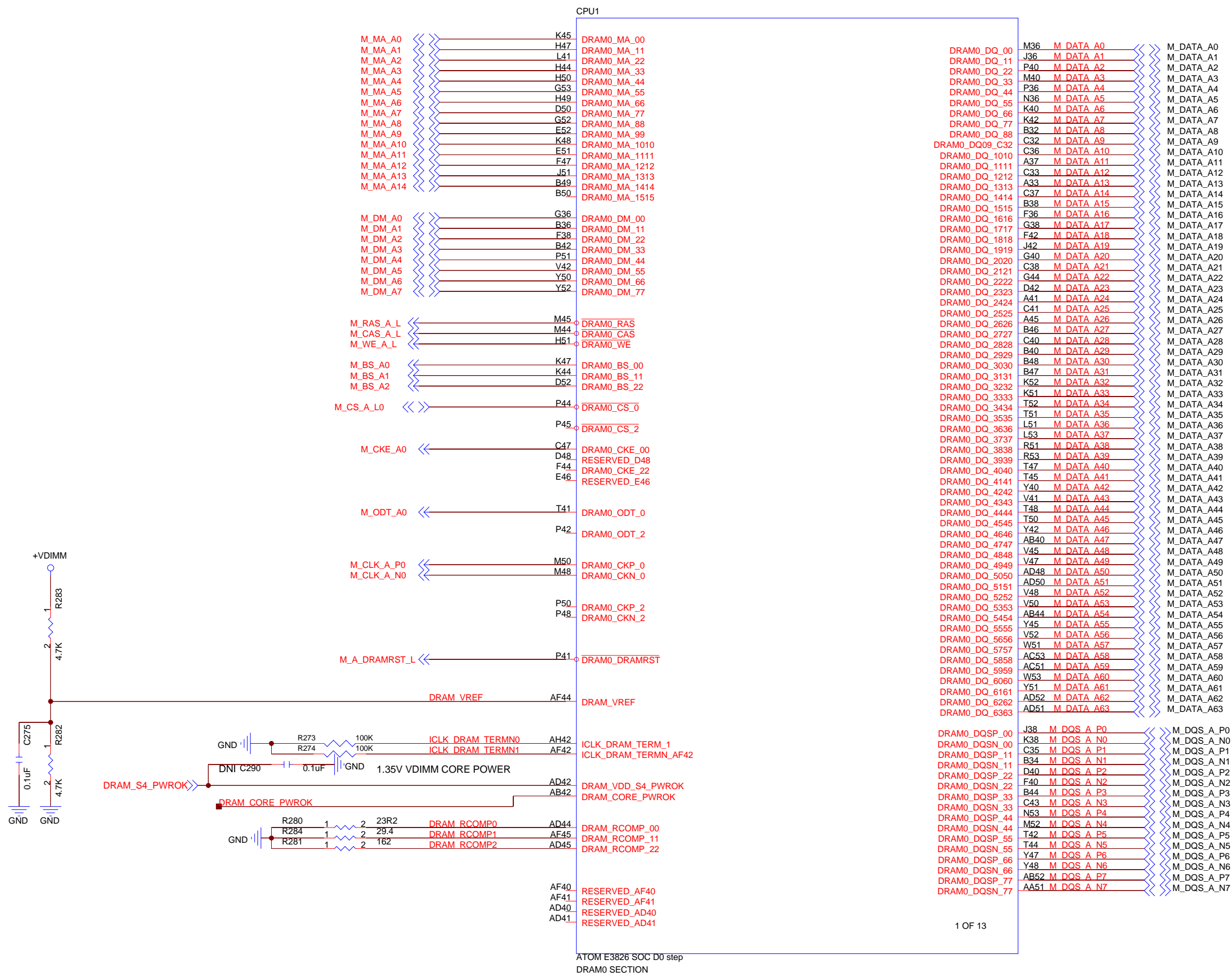
A

D

C

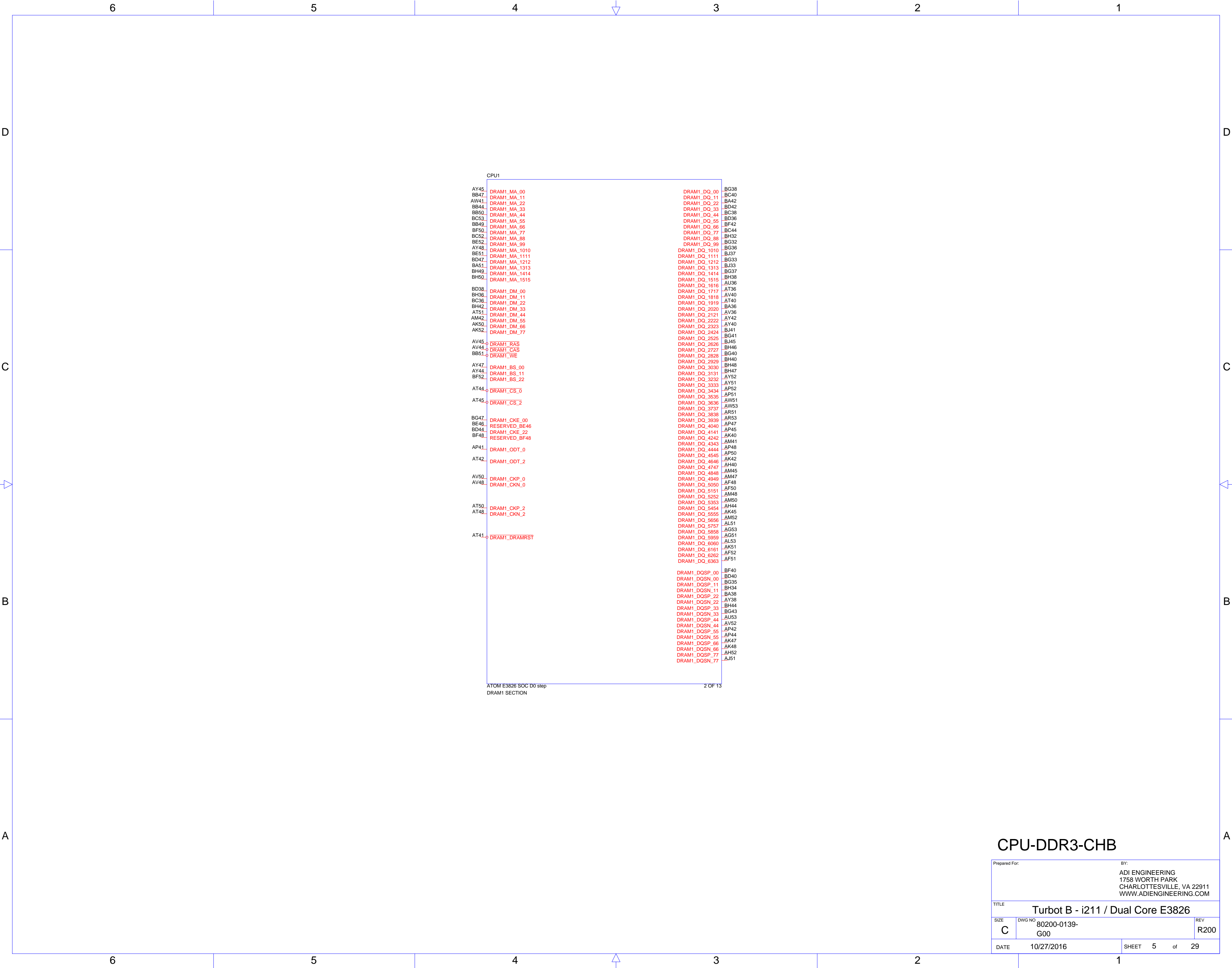
B

A



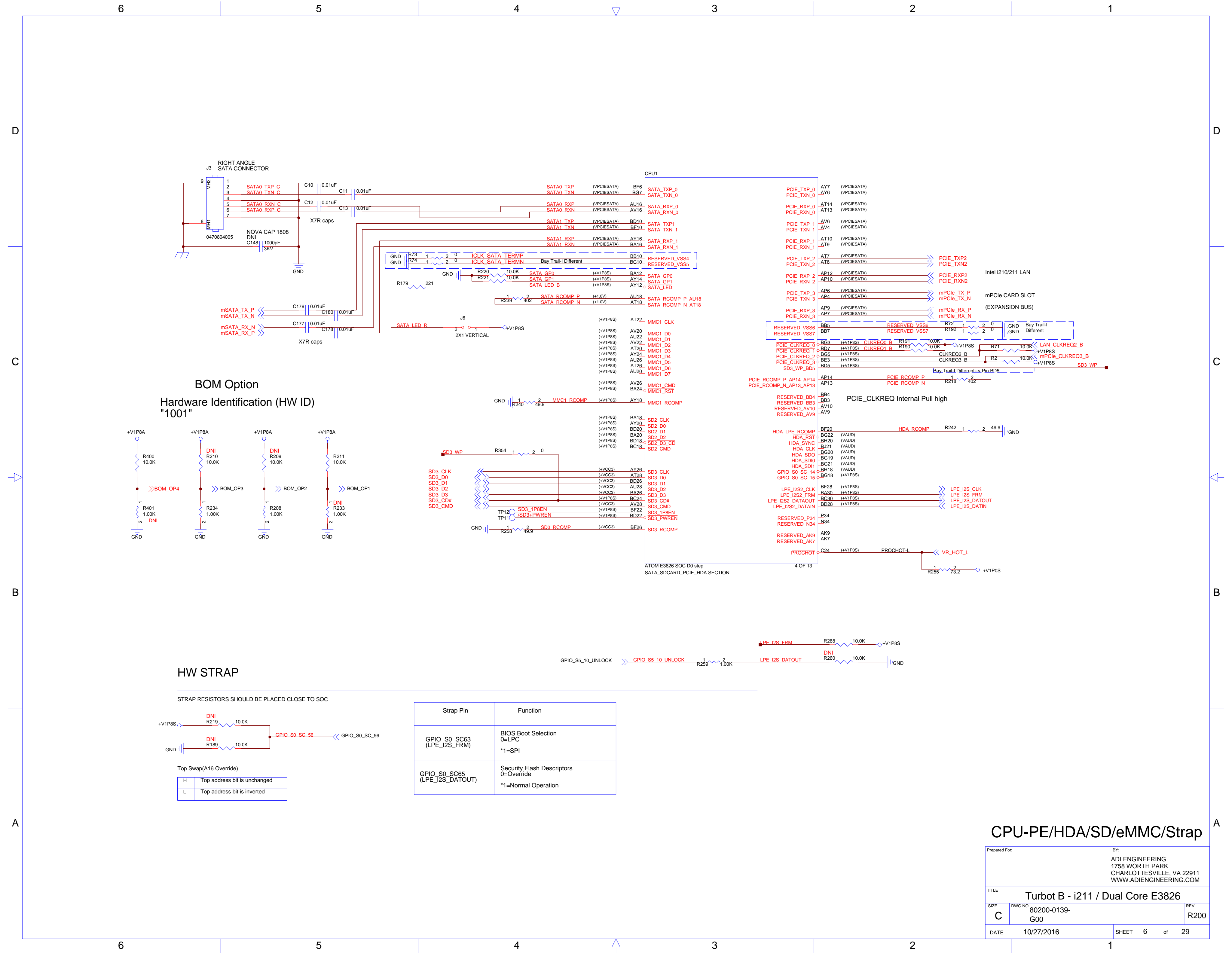
CPU-DDR3-CHA

Prepared For:		BY:	
		ADI ENGINEERING 1758 WORTH PARK CHARLOTTESVILLE, VA 22911 WWW.ADIENGINEERING.COM	
TITLE			
Turbot B - i211 / Dual Core E3826			
SIZE	DWG NO	REV	
C	80200-0139-G00	R200	
DATE	10/27/2016	SHEET	4 of 29



CPU-DDR3-CHB

Prepared For:		BY:	
		ADI ENGINEERING 1758 WORTH PARK CHARLOTTESVILLE, VA 22911 WWW.ADIENGINEERING.COM	
TITLE			
Turbot B - i211 / Dual Core E3826			
SIZE	DWG NO	REV	
C	80200-0139- G00	R200	
DATE	10/27/2016	SHEET	5 of 29



D

C

B

A

D

C

B

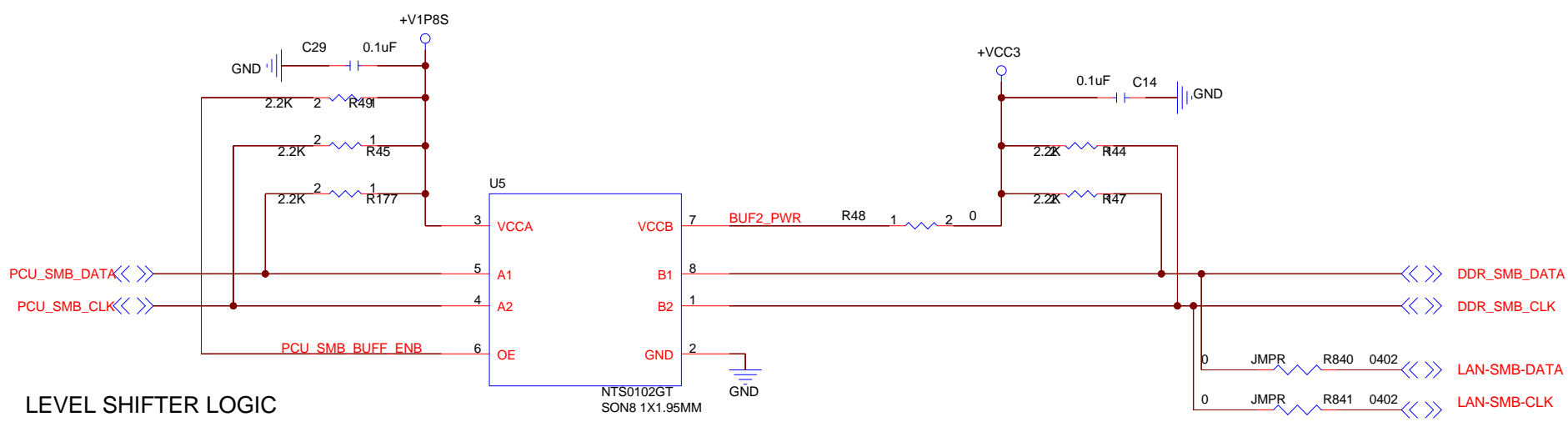
A

CPU-PE/HDA/SD/eMMC/Strap

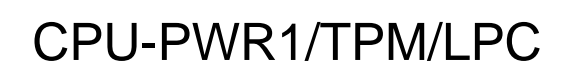
Prepared For:		BY:	
		ADI ENGINEERING 1758 WORTH PARK CHARLOTTESVILLE, VA 22911 WWW.ADIENGINEERING.COM	
TITLE			
Turbot B - i211 / Dual Core E3826			
SIZE	DWG NO	REV	
C	80200-0139- G00	R200	
DATE	10/27/2016	SHEET	6 of 29



TITLE
Turbot B - i211 / Dual Core E3826



DATE	10/27/2016	SHEET	8	of	29
------	------------	-------	---	----	----



Prepared For:		BY:	
		ADI ENGINEERING 1758 WORTH PARK CHARLOTTESVILLE, VA 22911 WWW.ADIENGINEERING.COM	
TITLE			
Turbot B - i211 / Dual Core E3826			
SIZE	DWG NO		REV
C	80200-0139- G00		R200
DATE	10/27/2016	SHEET	9 of 29

D

C

B

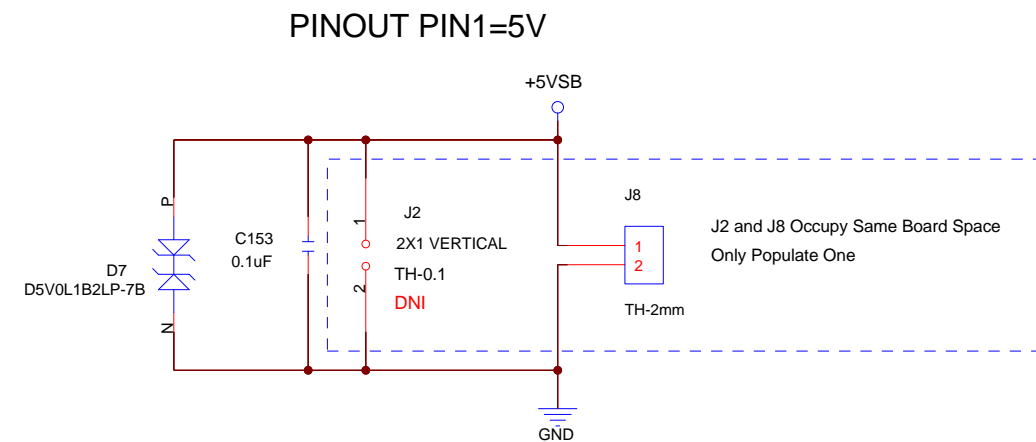
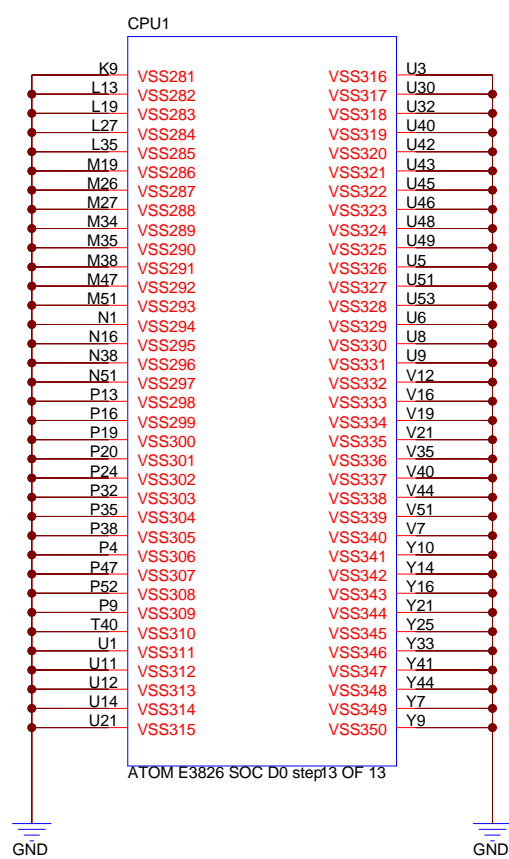
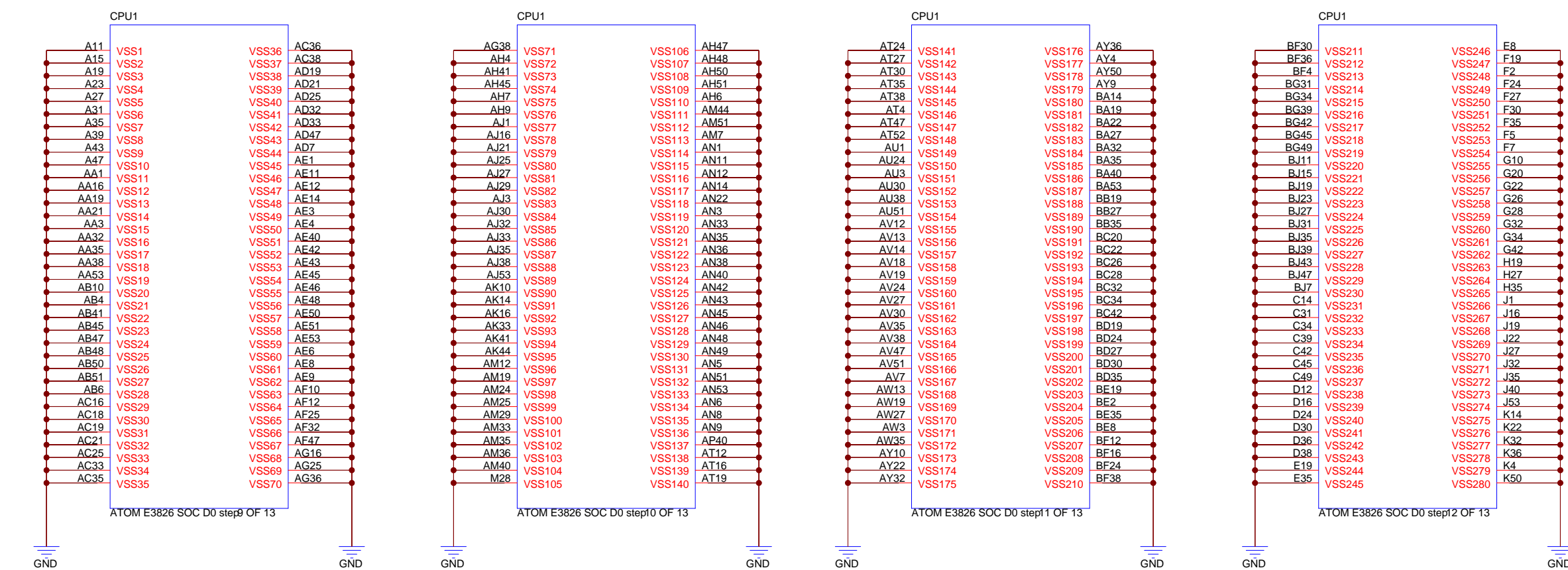
A

D

C

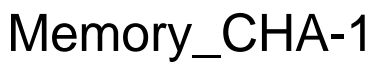
B

A

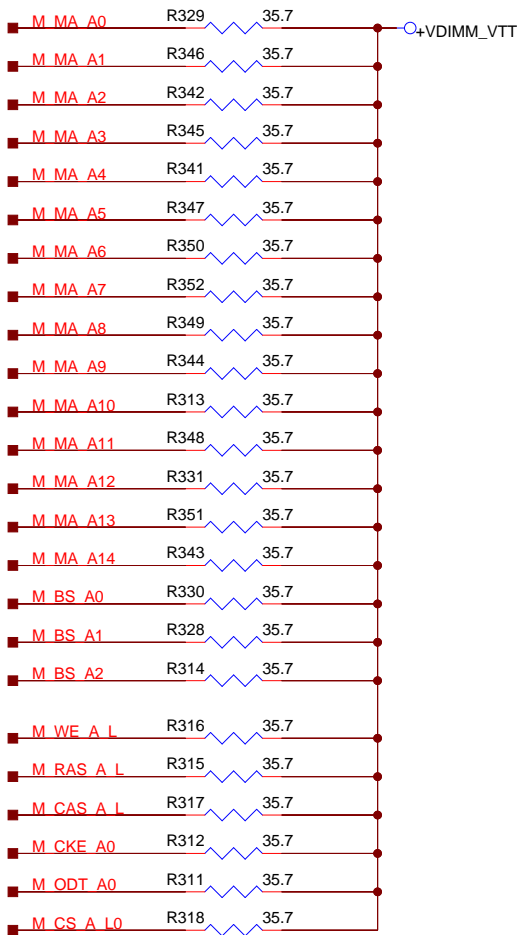


CPU-GND

Prepared For:		BY:	
		ADI ENGINEERING 1758 WORTH PARK CHARLOTTESVILLE, VA 22911 WWW.ADIENGINEERING.COM	
TITLE			
Turbot B - i211 / Dual Core E3826			
SIZE	DWG NO	REV	
C	80200-0139- G00	R200	
DATE	10/27/2016	SHEET	11 of 29



Prepared For:		BY:	
		ADI ENGINEERING 1758 WORTH PARK CHARLOTTESVILLE, VA 22911 WWW.ADIENGINEERING.COM	
TITLE			
Turbot B - i211 / Dual Core E3826			
SIZE	DWG NO	REV	
C	80200-0139- G00	R200	
DATE	10/27/2016	SHEET	12 of 29



Prepared For:		BY:	
		ADI ENGINEERING 1758 WORTH PARK CHARLOTTEVILLE, VA 22911 WWW.ADIENGINEERING.COM	
TITLE			
Turbot B - i211 / Dual Core E3826			
SIZE	DWG NO	REV	
C	80200-0139- G00	R200	
DATE	10/27/2016	SHEET	13 of 29

D

C

B

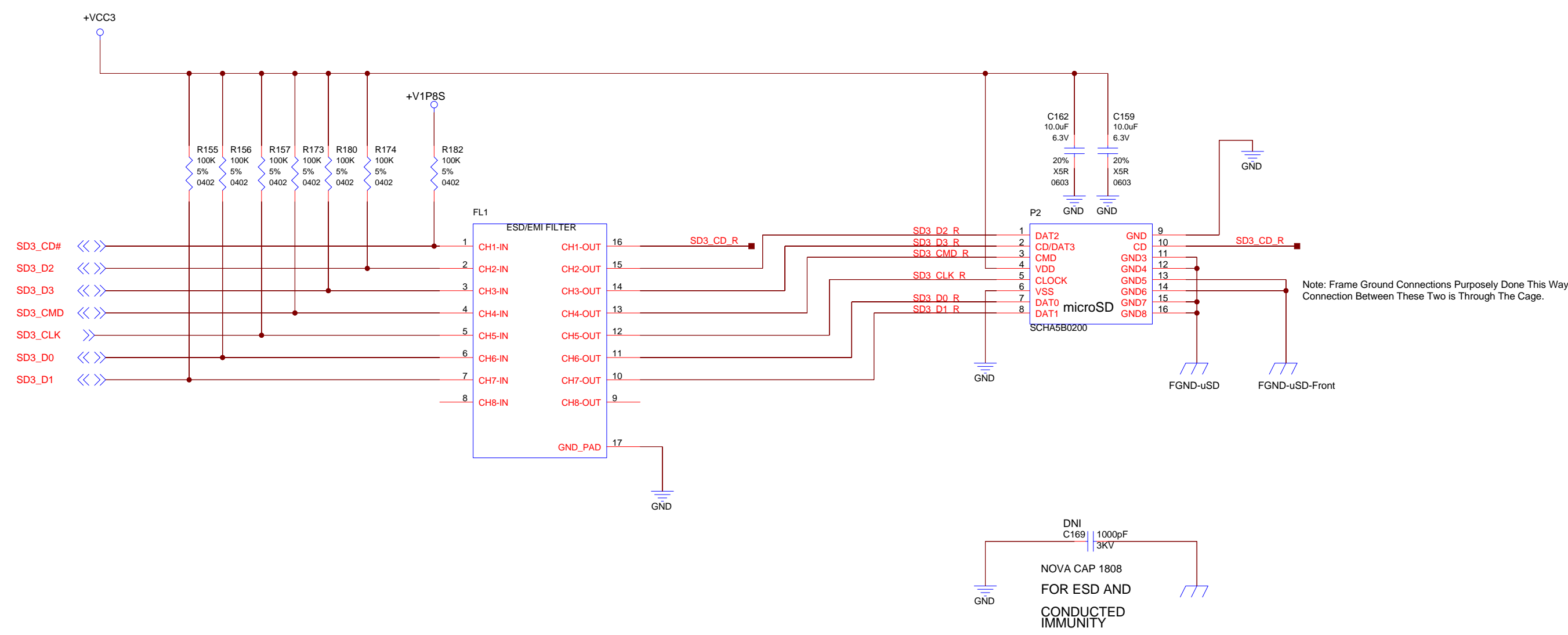
A

D

C

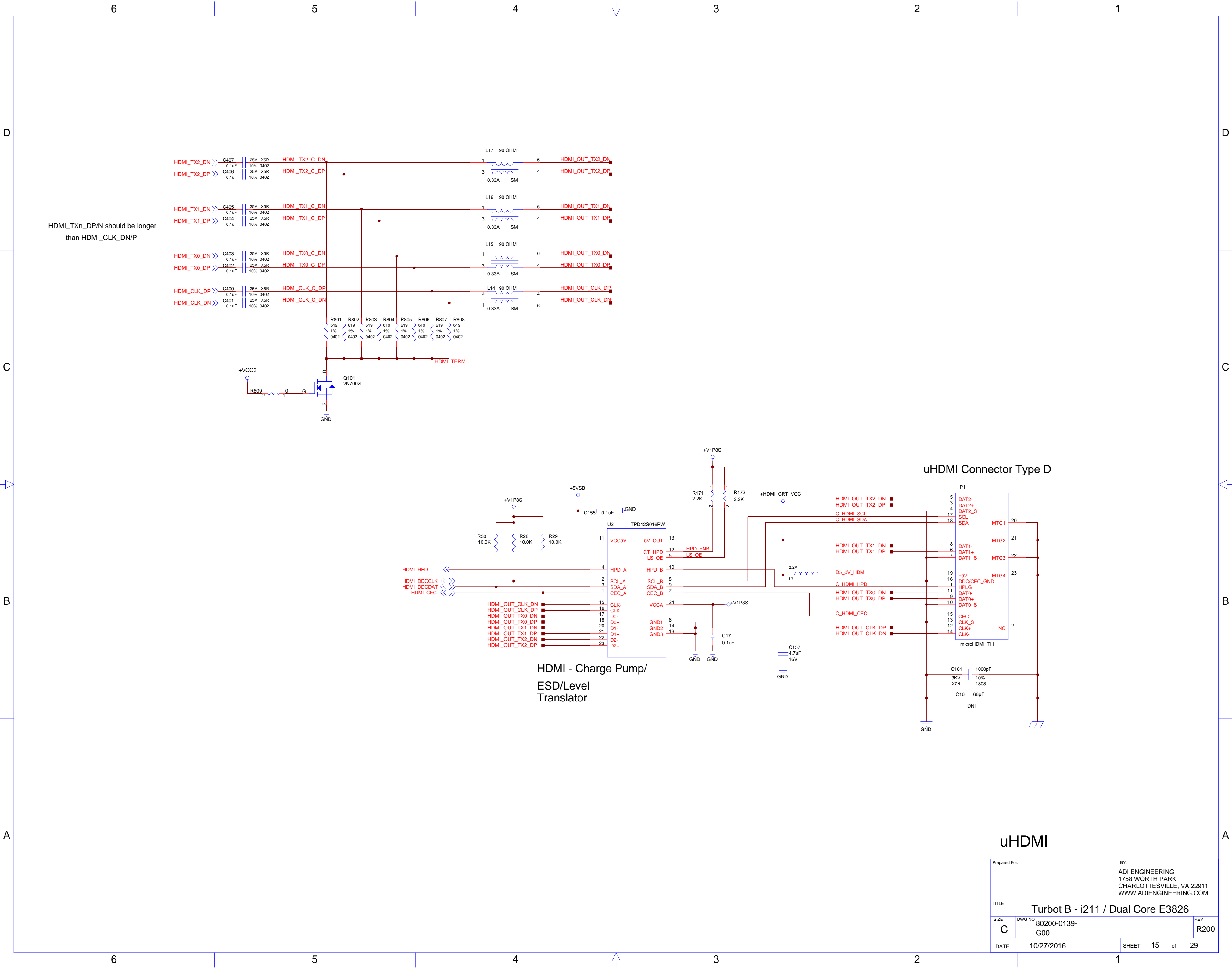
B

A



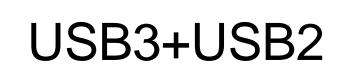
uSD CARD CAGE

Prepared For:		BY:	
		ADI ENGINEERING 1758 WORTH PARK CHARLOTTESVILLE, VA 22911 WWW.ADIENGINEERING.COM	
TITLE			
Turbot B - i211 / Dual Core E3826			
SIZE	DWG NO	REV	
C	80200-0139-G00	R200	
DATE	10/27/2016	SHEET	14 of 29



uHDMI

Prepared For:		BY:	
		ADI ENGINEERING 1758 WORTH PARK CHARLOTTESVILLE, VA 22911 WWW.ADIENGINEERING.COM	
TITLE			
Turbot B - i211 / Dual Core E3826			
SIZE	DWG NO	REV	
C	80200-0139- G00	R200	
DATE	10/27/2016	SHEET	15 of 29



Prepared For:		BY:	
		ADI ENGINEERING 1758 WORTH PARK CHARLOTTESVILLE, VA 22911 WWW.ADIENGINEERING.COM	
TITLE			
Turbot B - i211 / Dual Core E3826			
SIZE	DWG NO	REV	
C	80200-0139- G00	R200	
DATE	10/27/2016	SHEET	16 of 29

D

C

B

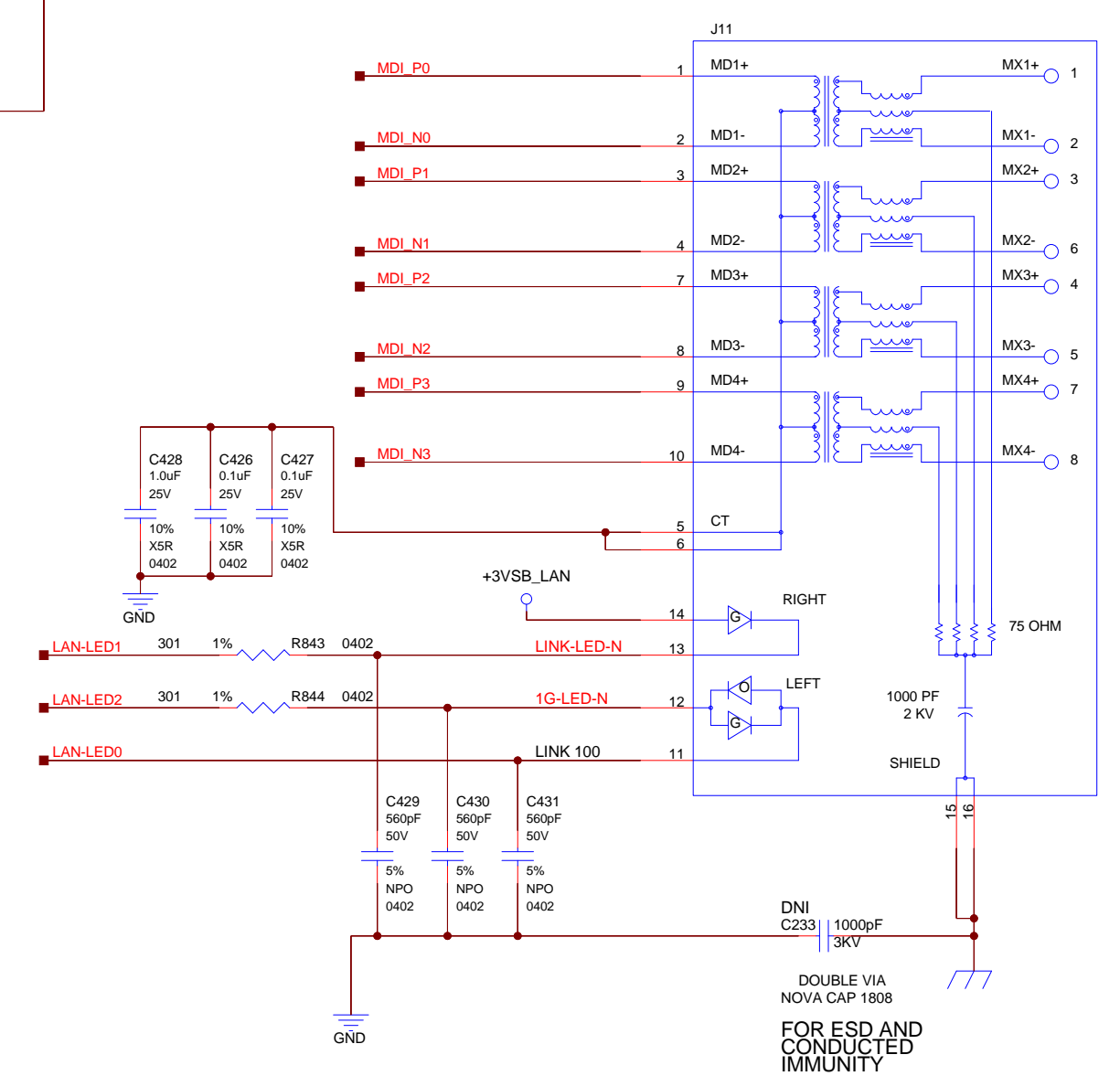
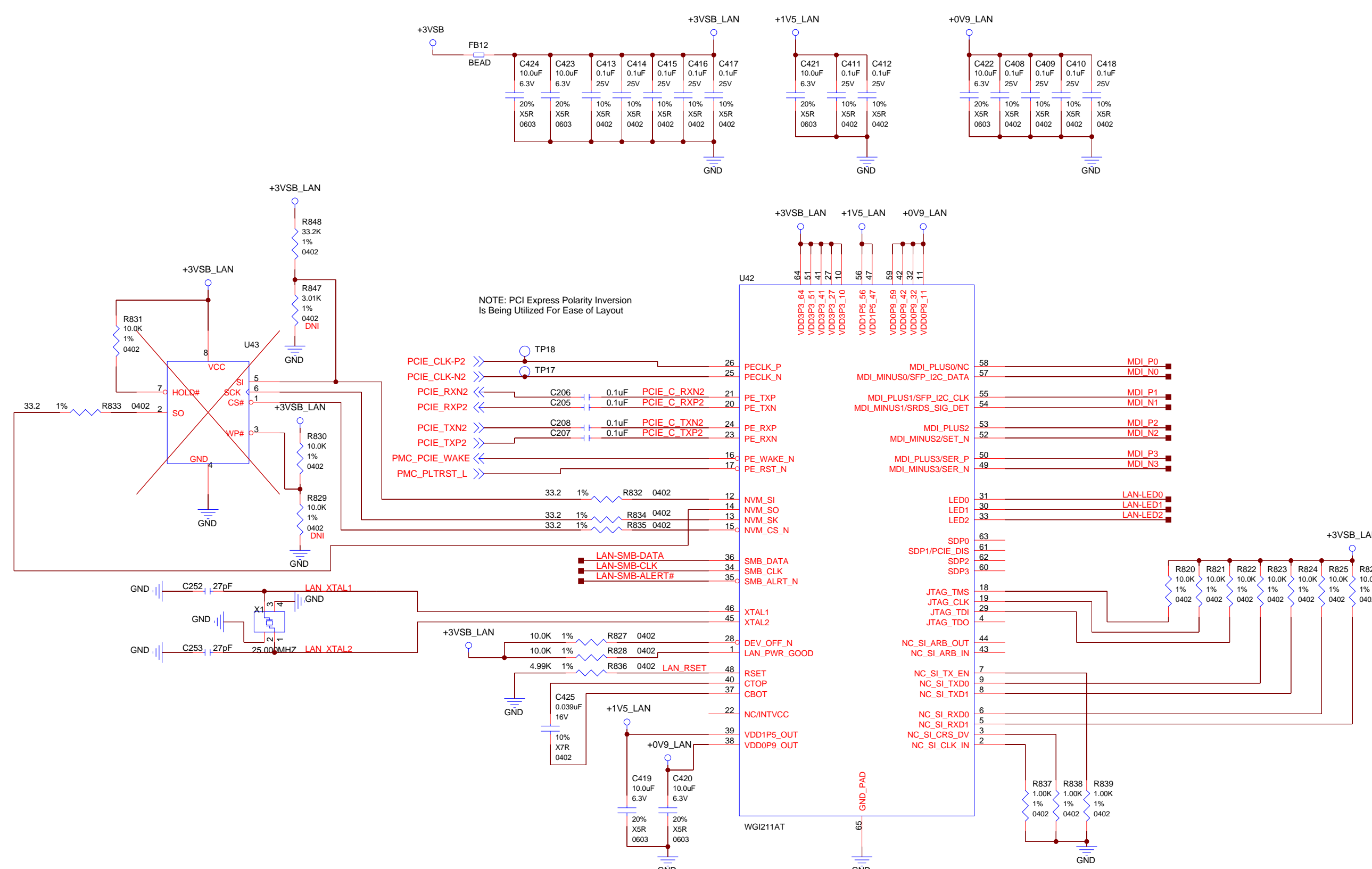
A

D

C

B

A



LAN i210/i211

Prepared For:		BY:	
		ADI ENGINEERING 1758 WORTH PARK CHARLOTTESVILLE, VA 22911 WWW.ADIENGINEERING.COM	
TITLE			
Turbot B - i211 / Dual Core E3826			
SIZE	DWG NO	REV	
C	80200-0139- G00	R200	
DATE	10/27/2016	SHEET	18 of 29

6

5

4

3

2

1

D

D

C

C

B

B

A

A

(BLANK)

Prepared For:		BY: ADI ENGINEERING 1758 WORTH PARK CHARLOTTESVILLE, VA 22911 WWW.ADIENGINEERING.COM	
TITLE Turbot B - i211 / Dual Core E3826			
SIZE C	DWG NO 80200-0139- G00	REV R200	
DATE 10/27/2016	SHEET 19 of 29		

6

5

4

3

2

1

6

5

4

3

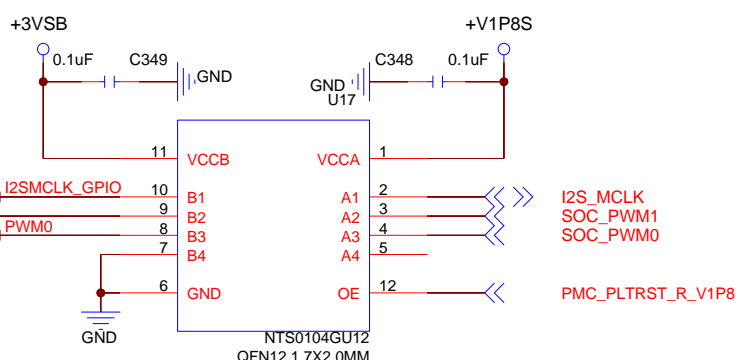
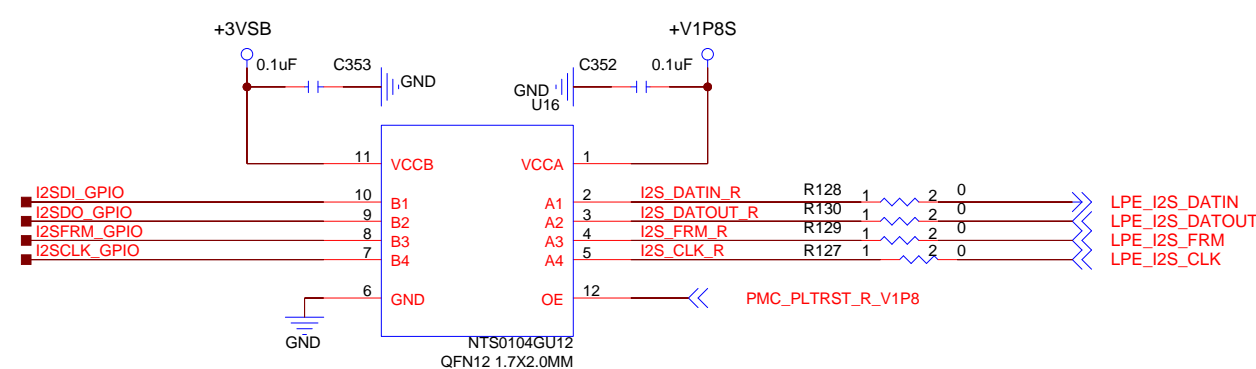
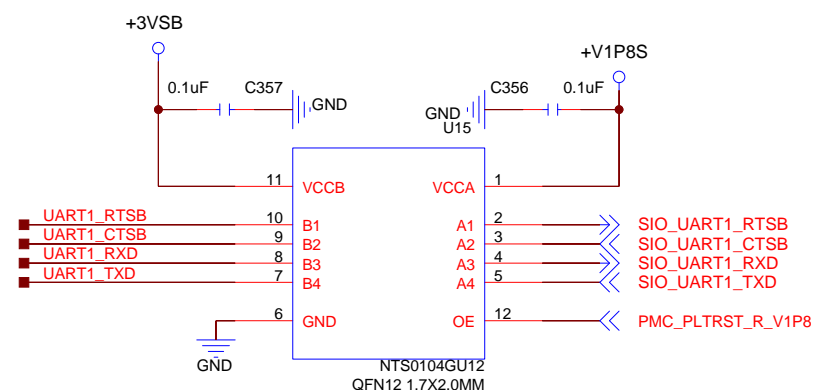
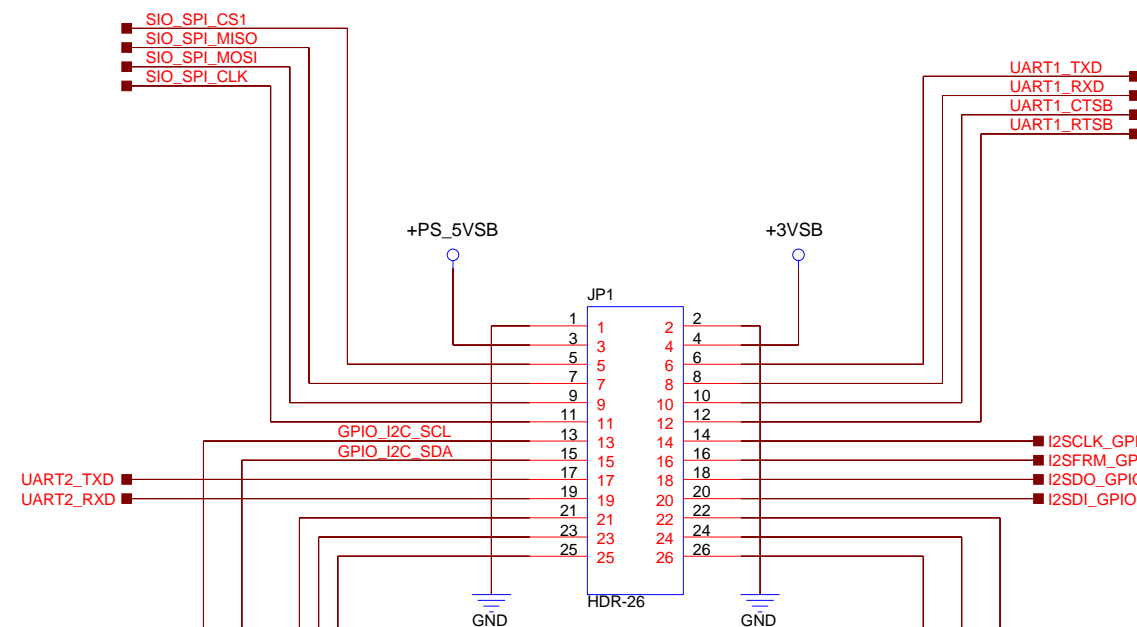
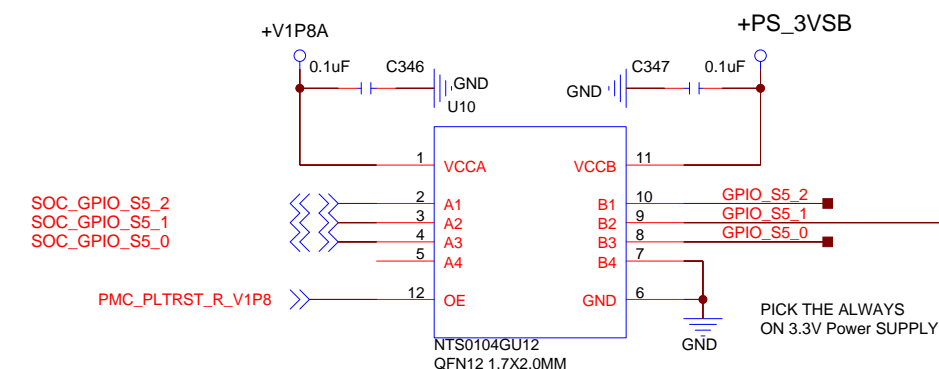
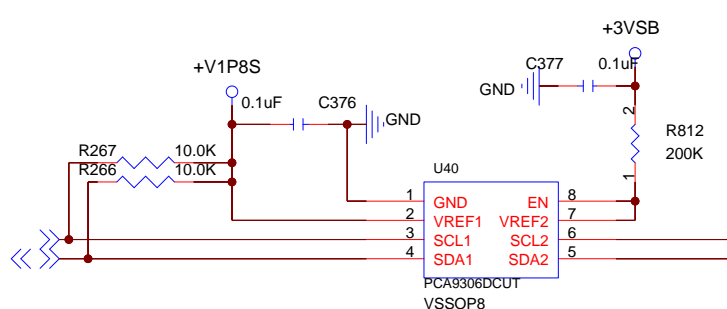
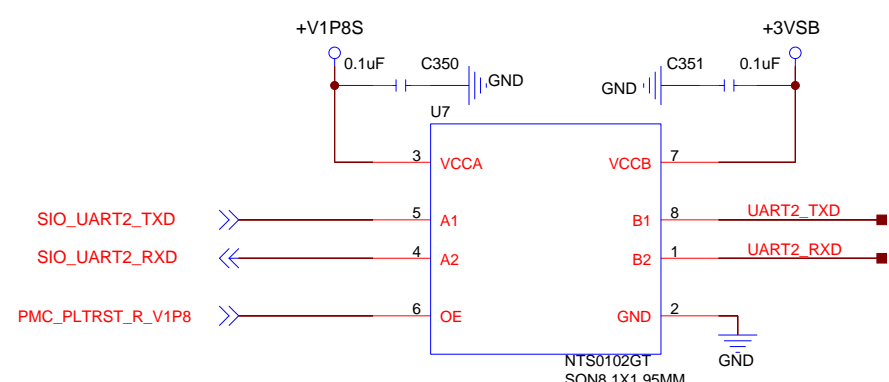
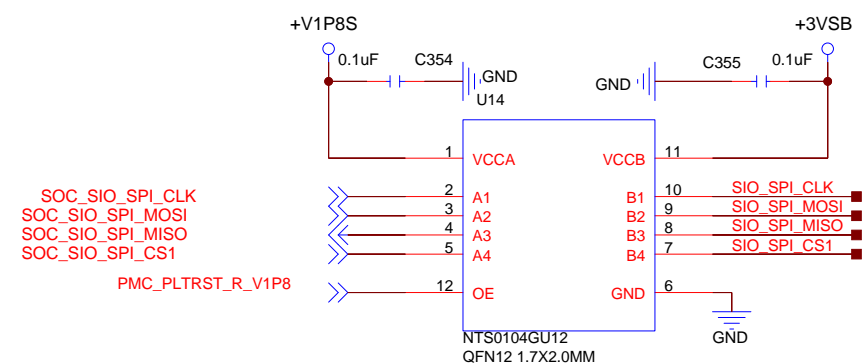
2

1

POPULATE ONLY ONE OF THESE TO
SELECT THE OPERATING VOLTAGE OF THE
SPI FLASH.

At least 0.1" on the pin 1-2 side
and the pin 7-8 side to allow
space for the DediProg connector

NOTE: COMPATIBLE U3 SPI ROM PARTS
ARE THE FOLLOWING:
3.3V: WINBOND W25Q64BVSSIG, MICRON N25Q064A13
1.8V: WINBOND W25Q64FWSSIG, MICRON N25Q064A11



SPI PROM/LSS HEADER

Prepared For:		BY:	
		ADI ENGINEERING 1758 WORTH PARK CHARLOTTESVILLE, VA 22911 WWW.ADIENGINEERING.COM	
TITLE			
Turbot B - i211 / Dual Core E3826			
SIZE	DWG NO	REV	
C	80200-0139-G00	R200	
DATE	10/27/2016	SHEET	20 of 29

6

5

4

3

2

1

D

D

C

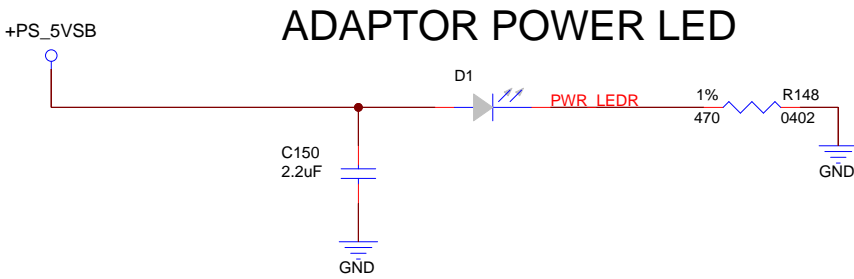
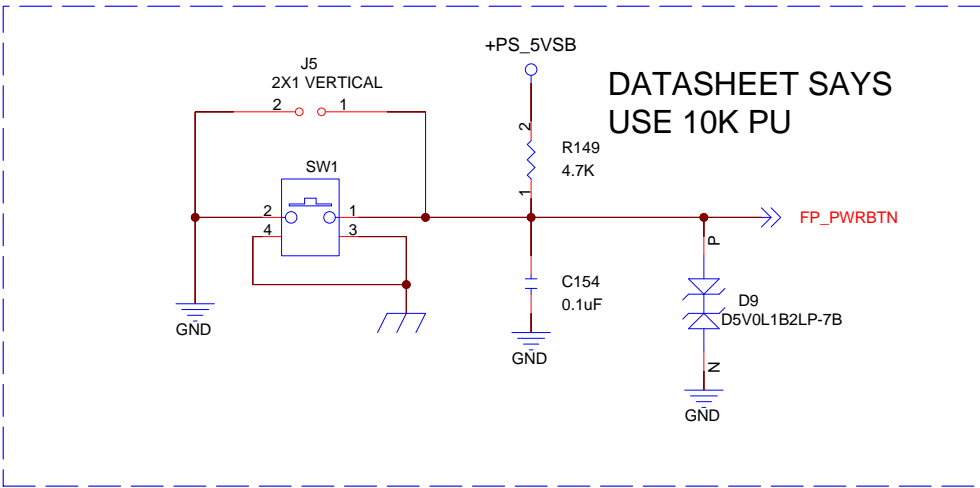
C

B

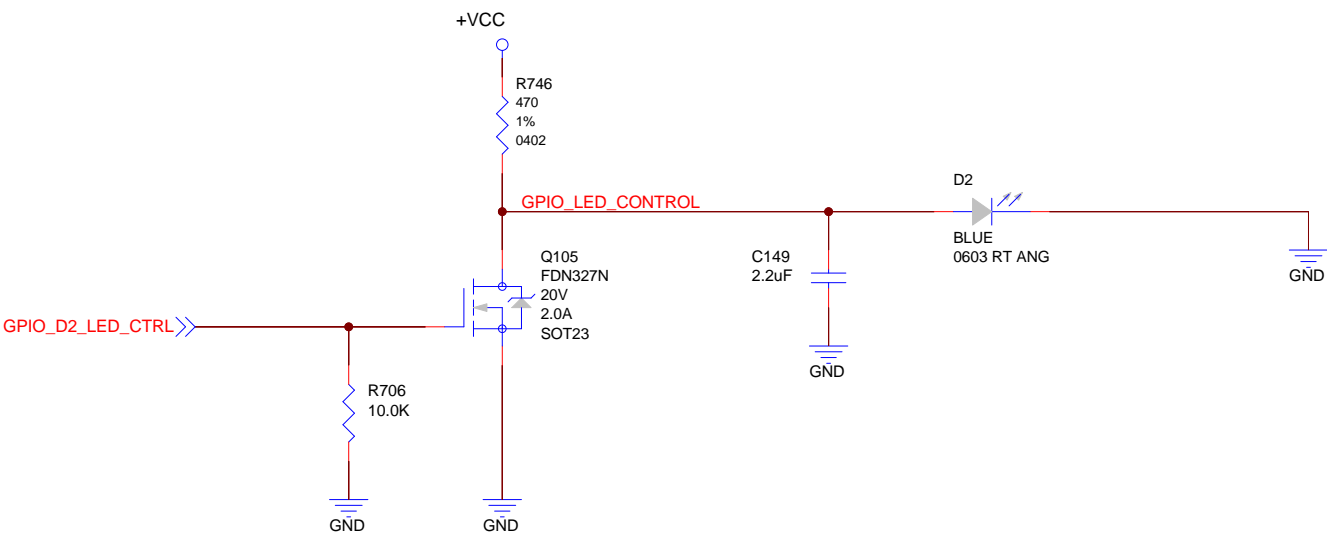
B

A

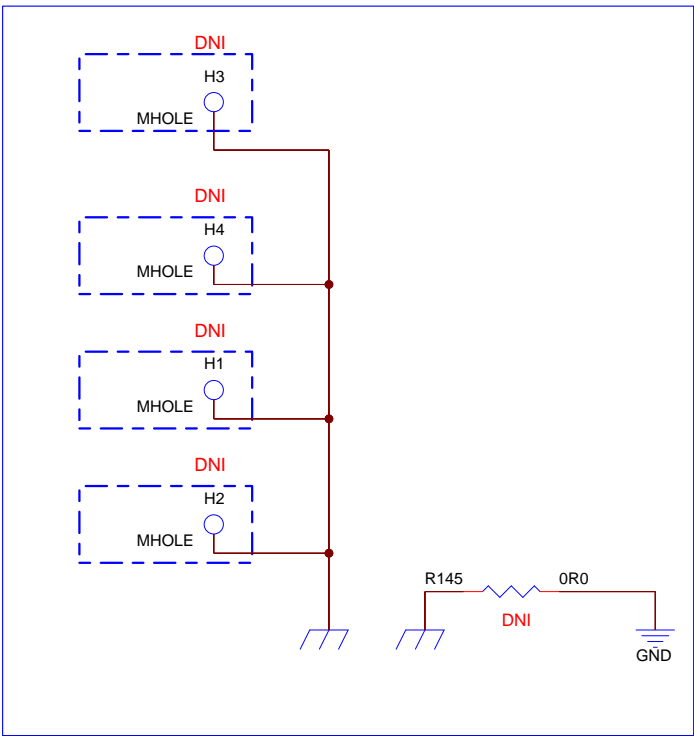
A



SYSTEM POWER LED - GPIO CONTROLLED



BOARD HOLES - 4 TOTAL - 1 in EACH CORNER



PWR BTN / LED / HOLES

Prepared For:		BY: ADI ENGINEERING 1758 WORTH PARK CHARLOTTESVILLE, VA 22911 WWW.ADIENGINEERING.COM	
TITLE Turbot B - i211 / Dual Core E3826			
SIZE C	DWG NO 80200-0139- G00	REV R200	
DATE 10/27/2016		SHEET 21	of 29

6

5

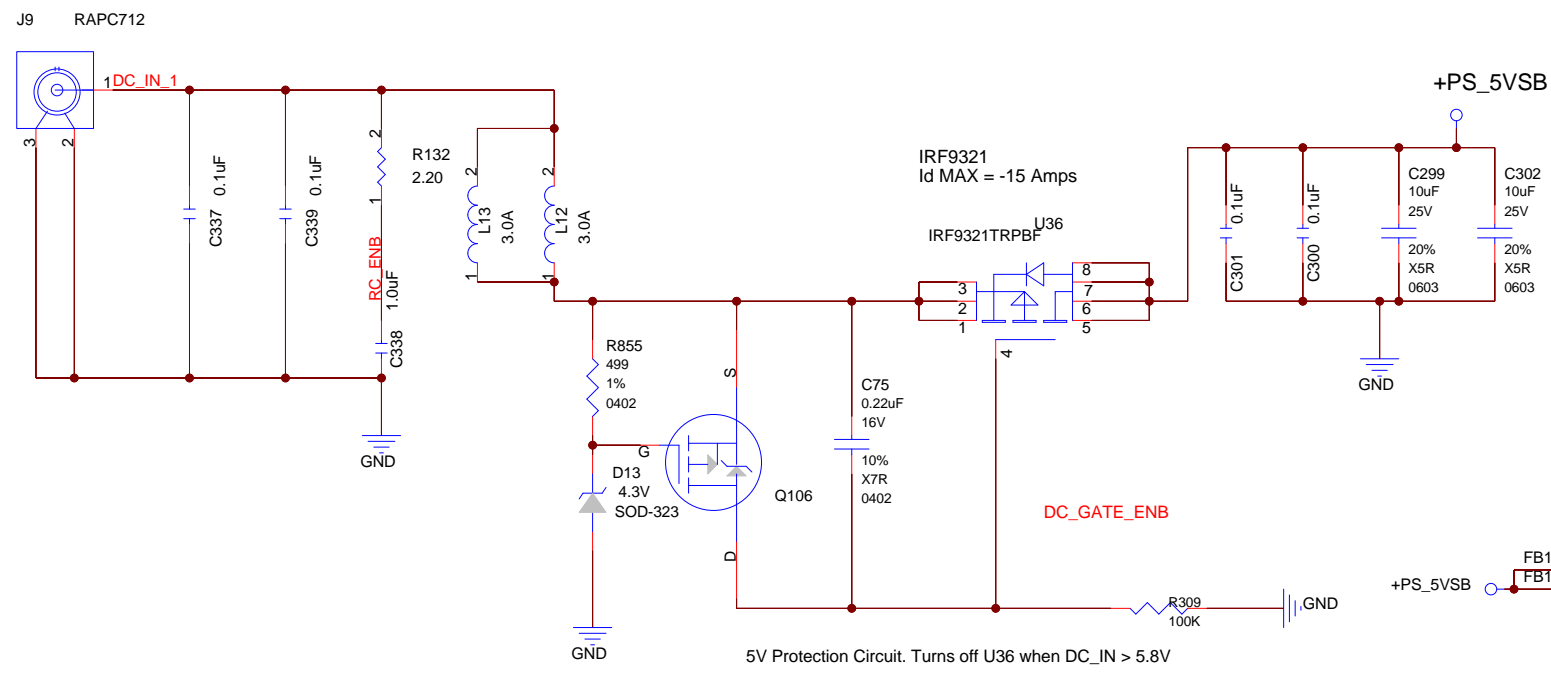
4

3

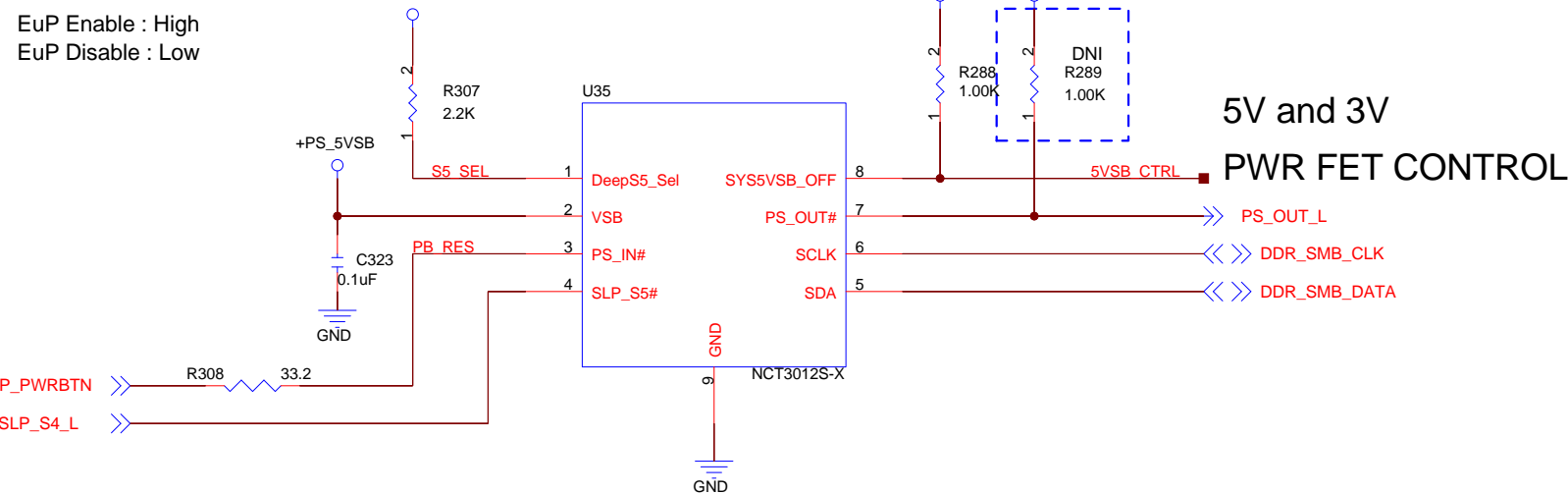
2

1

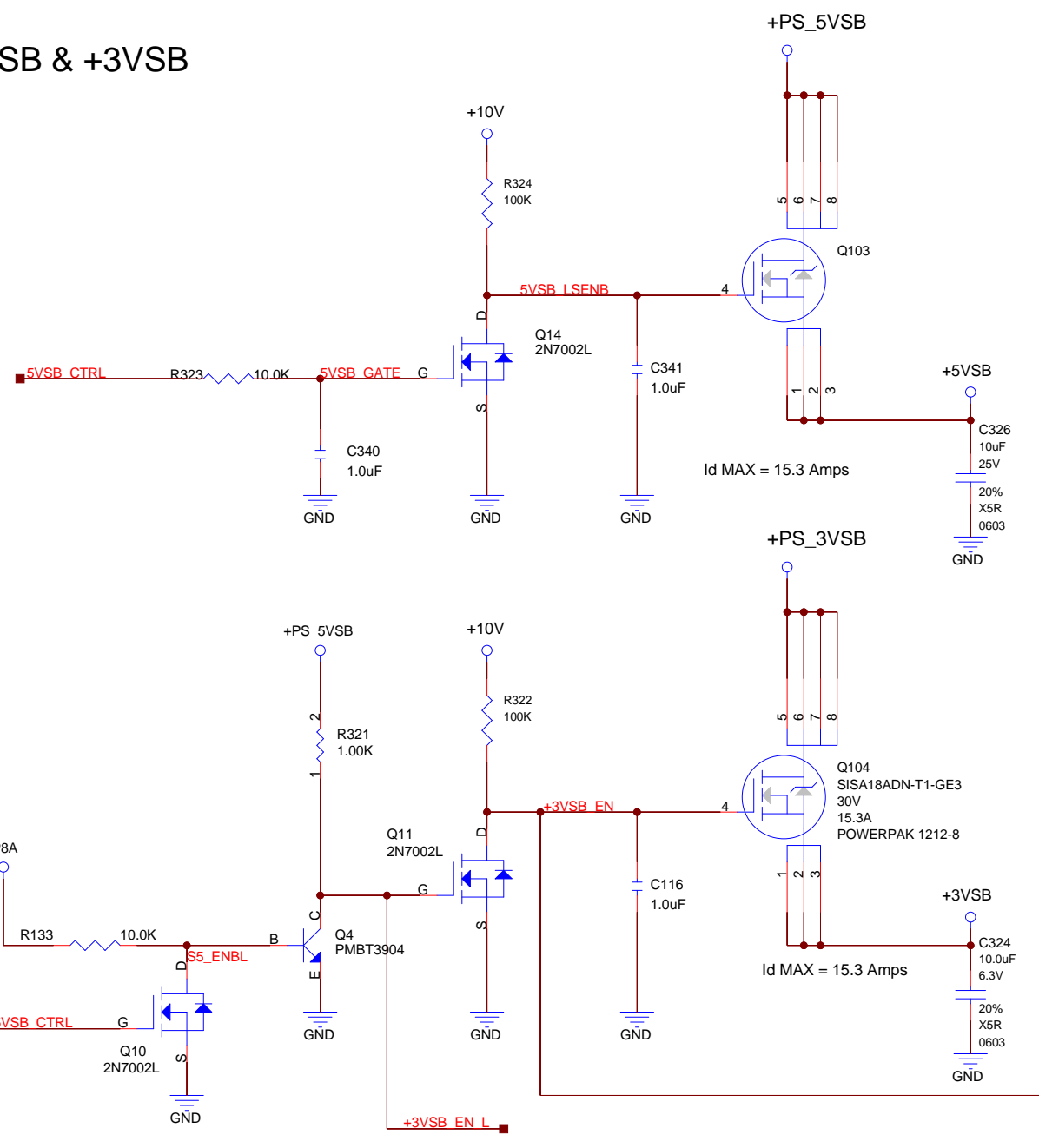
DC_IN 5V



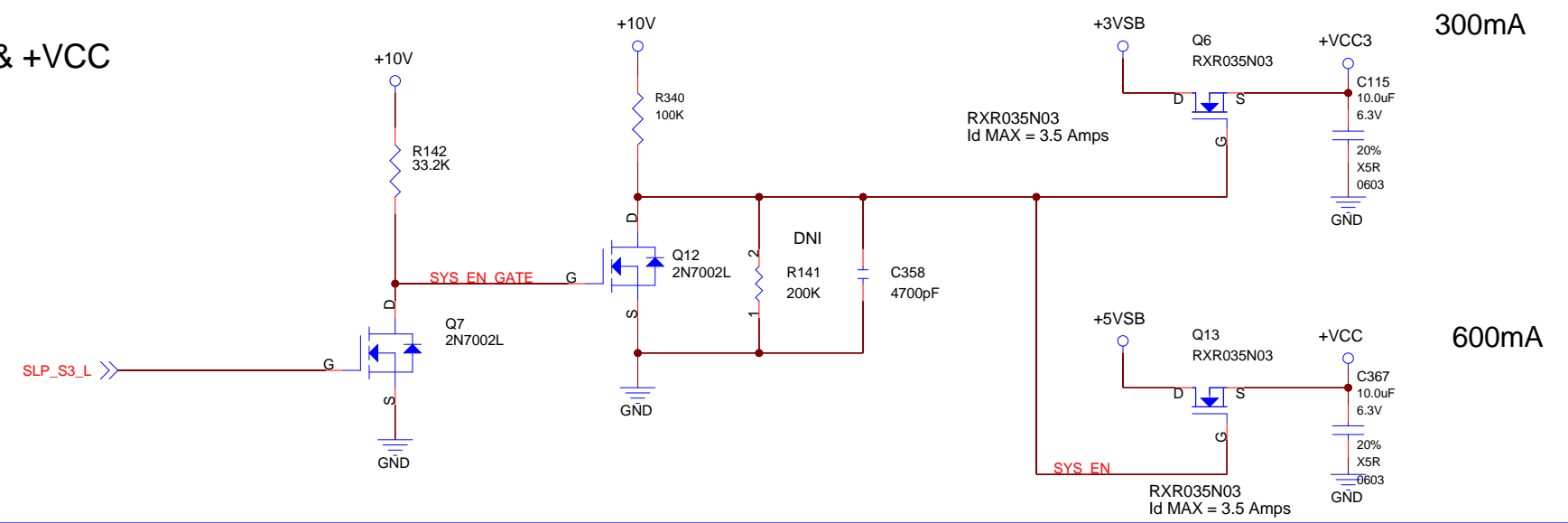
EuP Control



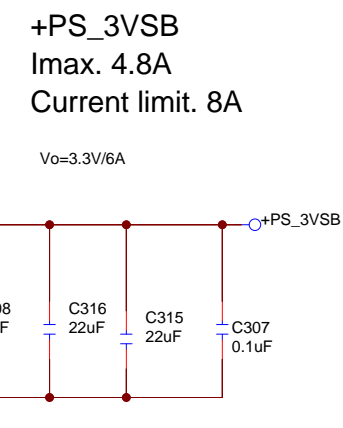
+5VSB & +3VSB



+VCC3 & +VCC



+3.3VSB / Boost +10V



PG High when +PS_3VSB OVER than 95%
PG Low when +PS_3VSB Under than 85%

DC-5VSB/3VSB / VCC / VCC3

Prepared For:		BY:	
		ADI ENGINEERING 1758 WORTH PARK CHARLOTTESVILLE, VA 22911 WWW.ADIENGINEERING.COM	
TITLE			
Turbot B - i211 / Dual Core E3826			
SIZE	DWG NO	REV	
C	80200-0139- G00	R200	
DATE	10/27/2016	SHEET	22 of 29

6

5

4

3

2

1

D

D

C

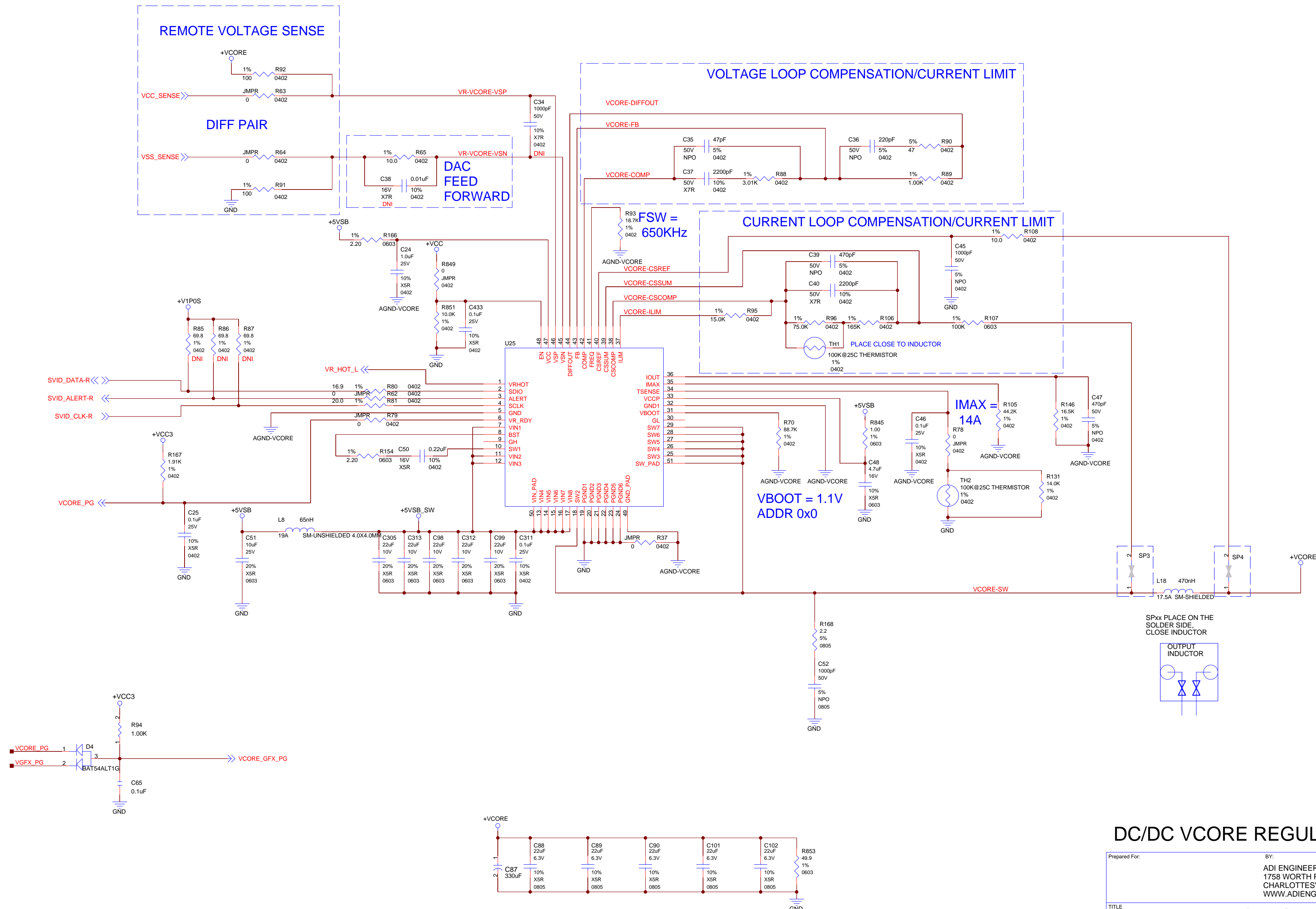
C

B

B

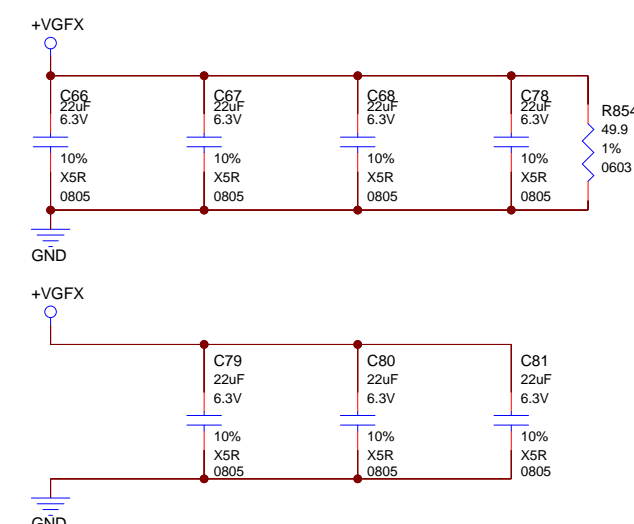
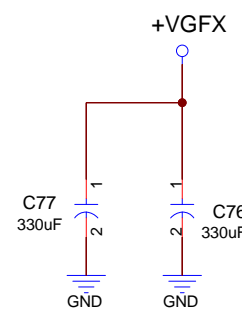
A

A

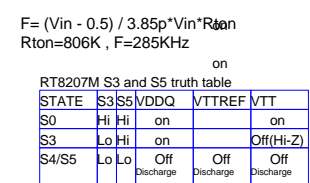


DC/DC Vcore REGULATOR

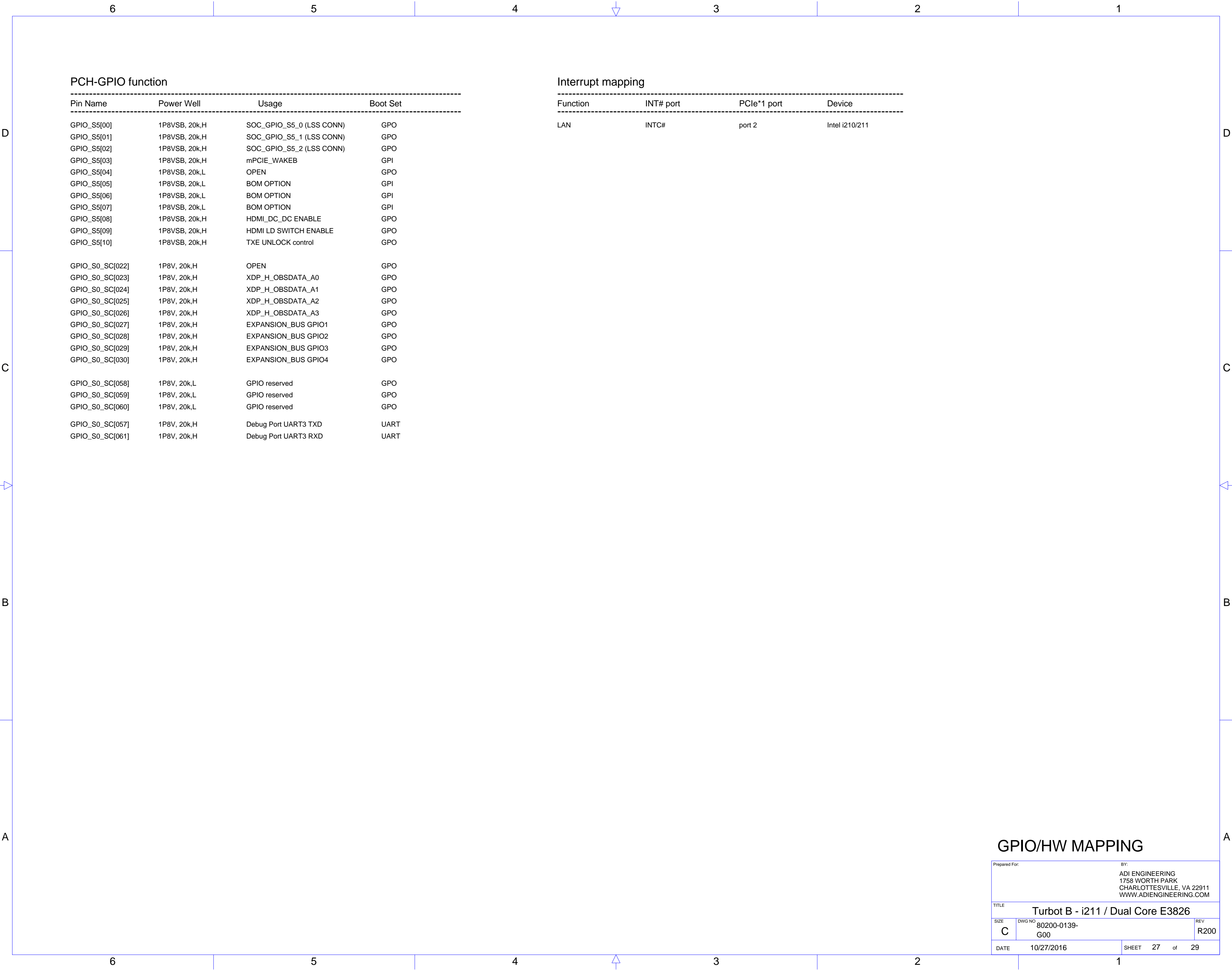
Prepared For:		BY:	
		ADI ENGINEERING 1758 WORTH PARK CHARLOTTESVILLE, VA 22911 WWW.ADIENGINEERING.COM	
TITLE			
Turbot B - i211 / Dual Core E3826			
SIZE	DWG NO	REV	
C	80200-0139-G00	R200	
DATE	10/27/2016	SHEET	23 of 29



Prepared For:		BY:	
		ADI ENGINEERING 1758 WORTH PARK CHARLOTTESVILLE, VA 22911 WWW.ADIENGINEERING.COM	
TITLE			
Turbot B - i211 / Dual Core E3826			
SIZE	DWG NO	REV	
C	80200-0139- G00	R200	
DATE	10/27/2016	SHEET	24 of 29

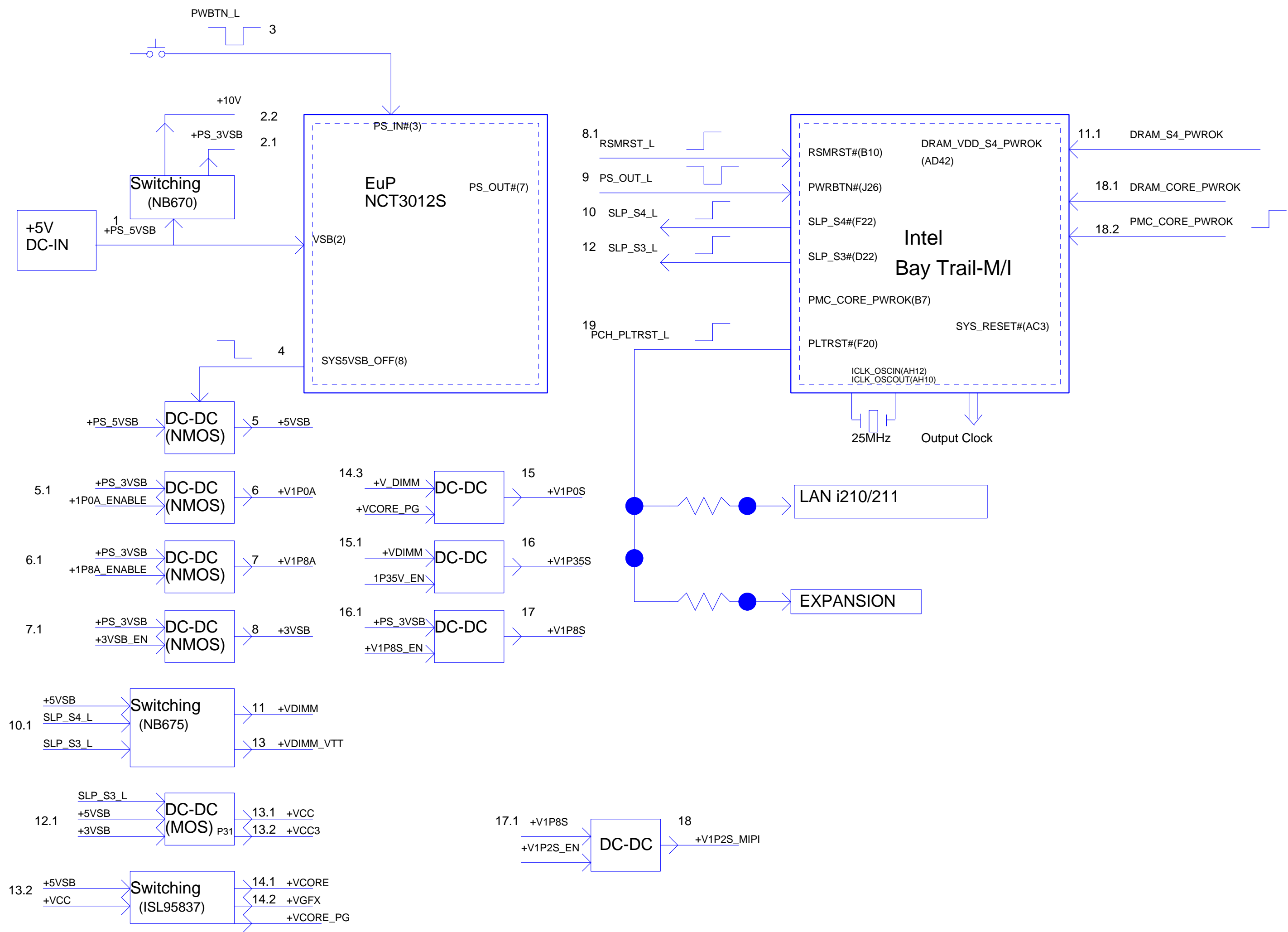


Prepared For:		BY:	
		ADI ENGINEERING 1758 WORTH PARK CHARLOTTESVILLE, VA 22911 WWW.ADIENGINEERING.COM	
TITLE			
Turbot B - i211 / Dual Core E3826			
SIZE	DWG NO	REV	
C	80200-0139- G00	R200	
DATE	10/27/2016	SHEET	25 of 29



POWER DELIVERY

PWR Sequence & RST Diagram



POWER SEQUENCE

Prepared For:		BY:	
		ADI ENGINEERING 1758 WORTH PARK CHARLOTTESVILLE, VA 22911 WWW.ADIENGINEERING.COM	
TITLE			
Turbot B - i211 / Dual Core E3826			
SIZE	DWG NO	REV	
C	80200-0139- G00	R200	
DATE	10/27/2016	SHEET	29 of 29