

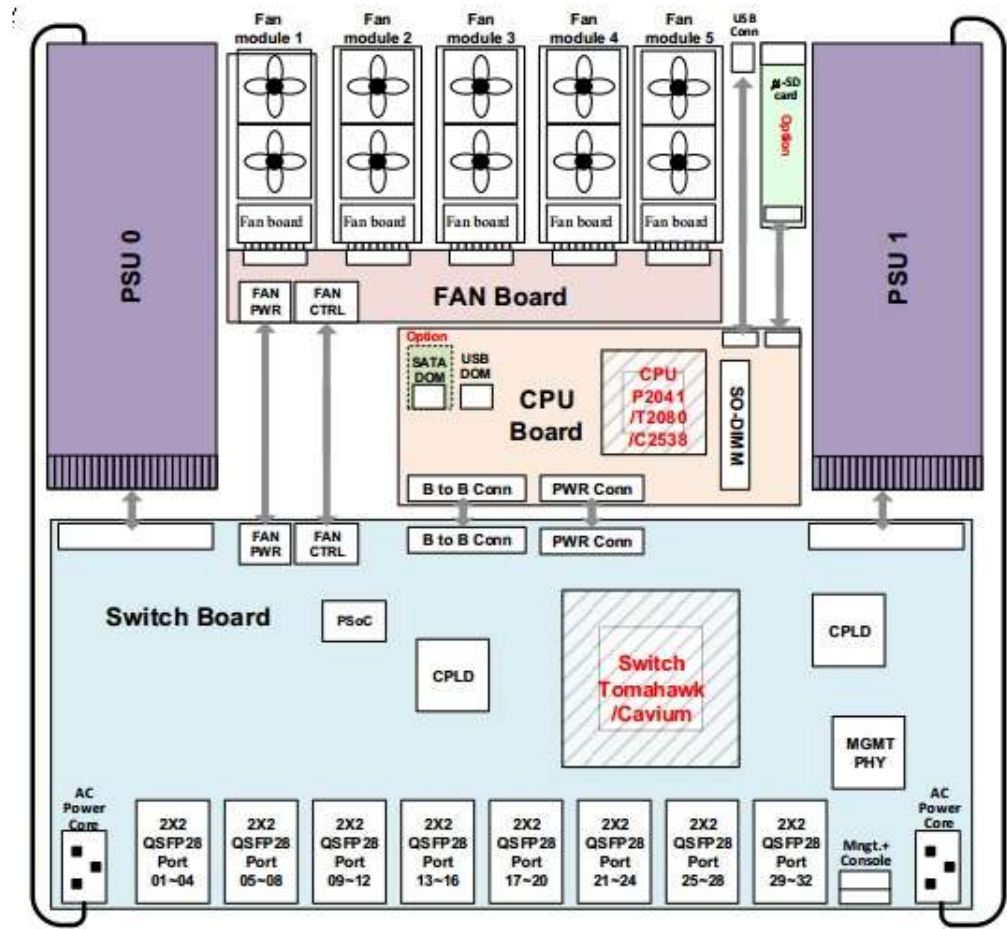
NETWORK INFRASTRUCTURE
DESIGN CENTER
REDWOOD CPU BOARD

PCA NO. 1395A2736901 (X01)
PCB NO. 6050A2736901 (A01)
REV 1.00
DATE 2015/02/04

I N V E N T E C				DRN. XXX	DATE 3-DEC-2014	TITLE: SCHEMATIC, NIDC, Redwood	
ENG. Tim Chang				DATE 3-DEC-2014	CHK.D. XXX	DATE 3-DEC-2014	
SHEET 1 OF 47				PCB NUMBER 6050A2736901		REV 0.1	SIZE B
INVENTEC CONFIDENTIAL DO NOT COPY				Wed Feb 04 11:34:01		DOCUMENT NUMBER K-CS-1395A2736901	
						REV X01	

8		7		6		5		4		3		2		1																	
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28. USB DON																															
29. USB CONNECTOR																															
30. USB POWER																															
MODULE=P2041																															
FUNCTION=INDEX 01																															

SYSTEM BLOCK DIAGRAM

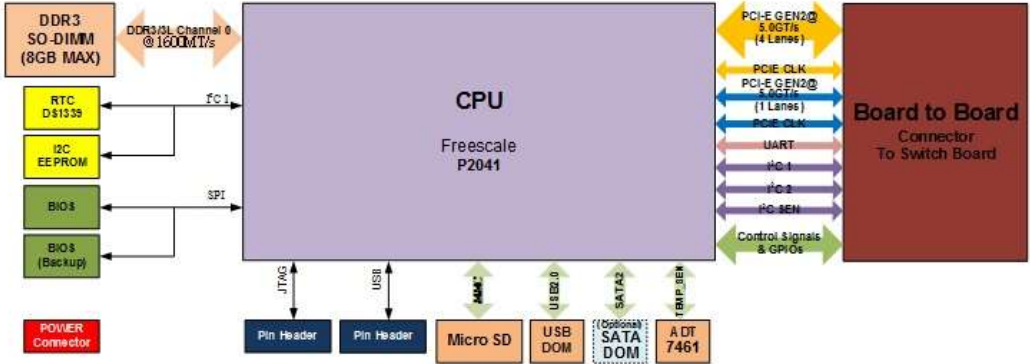


MODULE=P2041
FUNCTION=SYSTEM BLOCK DIAGRAM

ENG. Tim Chang	DATE 3-DEC-2014	TITLE: SCHEMATIC, NIDC, Redwood		
SHEET 3 OF 47	Wed Feb 04 11:34:01 2015			
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HARDWARE BLOCK DIAGRAM



MODULE=P2041
FUNCTION=HARDEARE BLOCK DIAGRAM

ENG. Tim Chang	DATE 3-DEC-2014	TITLE: SCHEMATIC, NIDC, Redwood		
SHEET 4 OF 47	Wed Feb 04 11:34:01 2015			
PCB NUMBER 6050A2736901	REV 0.1	SIZE B	DOCUMENT NUMBER K-CS-1395A2736901-0-0	REV X01

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ENG. Tim Chang	DATE 3-DEC-2014	TITLE: SCHEMATIC, NIDC, Redwood		
SHEET 5 OF 47				
Wed Feb 04 11:34:01 2015				
PCB NUMBER 6050A2736901	REV 0.1	SIZE B	DOCUMENT NUMBER K-CS-1395A2736901-0-0	REV X01

POWER DISTRIBUTION DIAGRAM (2/2)

Create by: Chris Wu
Revision : AX 0.1
Date : 11/24/2014

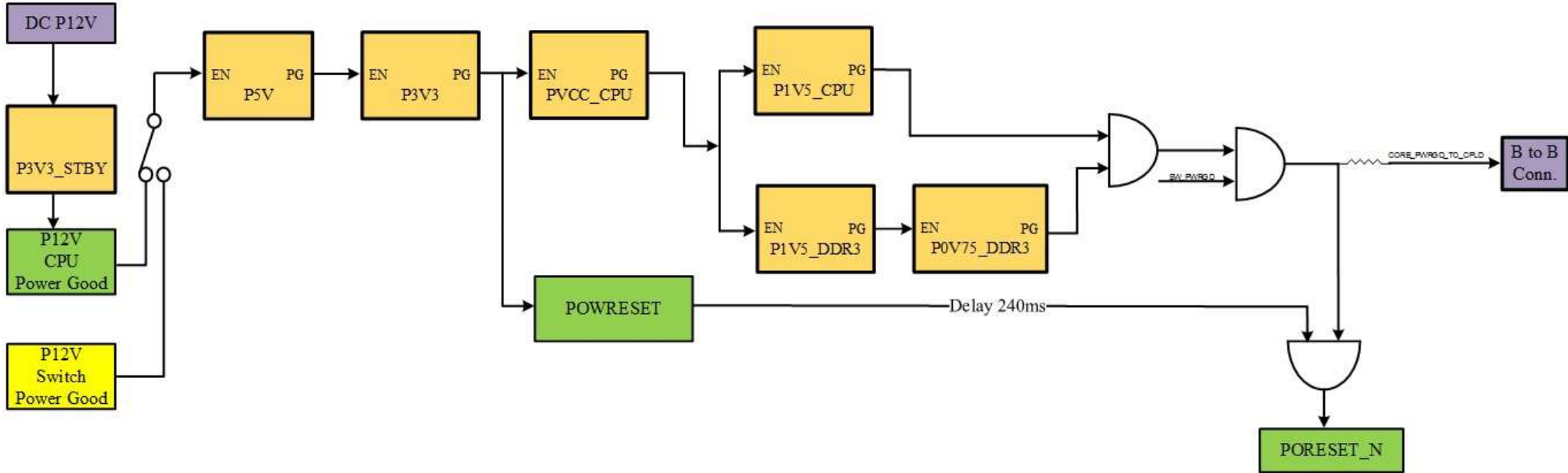
	Power Rail	VRD solution	Power up Sequence	Level	VRD type	Estimated Eff (%)	Input Voltage (V)	Estimated Input current (A)	Estimated Input power (W)	Output (V)	Output current (A)	Output Power (W)	VRD power loss (W)	Schematic Page
CPU Board (P2041)														
1	P1V5_DDR3_P	PXB143H+PX3517+BSG0812ND		0	SW	91.0%	12.0	0.45	5.42	1.50	3.29	4.94	0.49	37-38
2	P0V75_DDR3_P	TPS51200/2A		1	LDO	—	1.5	0.50	0.75	0.75	0.50	0.38	0.38	43
3	PVCC_CPU_P	PX8240H+PX3517+BSG0812ND/24A		0	SW	91.0%	12.0	1.48	17.80	1.00	16.20	16.20	1.60	39-41
4	P3V3_P	TPS53511/1.5A		0	SW	92.0%	12.0	0.08	1.02	3.30	0.28	0.93	0.08	45
5	P5V	IR3823/3A		0	SW	95.0%	12.0	1.14	13.68	5.00	2.60	13.00	0.68	44
6	P1V5_CPU_P	IR3823/3A		0	SW	95.0%	12.0	0.95	11.40	1.00	1.58	1.58	9.82	42
CPU Board (C2538)														
		0.207894737												
7	PVDDR4	PXB143H+PX3517+BSG0812ND		0	SW	91.0%	12.0	1.00	12.02	1.50	7.29	10.94	1.08	31-32
8	P0V75_DDR3	TPS51200/2A		1	LDO	—	1.5	0.50	0.75	0.75	0.50	0.38	0.38	40
9	PVCC_CPU	PX8240H+PX3517+BSG0812ND/24A		0	SW	89.0%	12.0	1.12	13.48	1.00	12.00	12.00	1.48	33-35
10	PVNN_CPU	PX8240H+PX3517+BSG0812ND/24A		0	SW	89.0%	12.0	0.28	3.37	1.00	3.00	3.00	0.37	33-35
11	P1V_CPU	IR3859/9A		0	SW	86.0%	12.0	0.78	9.30	1.00	8.00	8.00	1.30	44
12	P3V3	TPS53511/1.5A		0	SW	92.0%	12.0	0.12	1.47	3.30	0.41	1.35	0.12	43
13	P1V35_CPU	Shunt Regulator		1	LDO	—	3.3	0.20	0.66	1.35	0.20	0.27	0.39	38
14	P1V5_CLK	Shunt Regulator		1	LDO	—	3.3	0.07	0.21	1.50	0.07	0.10	0.12	37
15	P5V	IR3823/3A		0	SW	95%	12.0	1.30	15.57	5.00	2.96	14.79	0.78	42
16	P1V07_CPU_C	IR3823/3A		1	SW	92%	5.0	0.42	2.09	1.07	1.80	1.93	0.17	41
17	P3V3_CPU_C	Shunt Regulator		1	LDO	—	5.0	0.41	2.05	3.30	0.41	1.35	0.70	38
18	P1V8_CPU_C	Shunt Regulator		1	LDO	—	5.0	0.30	1.50	1.80	0.30	0.54	0.96	39

MODULE=P2041
FUNCTION=POWER DISTRIBUTION DIAGRAM

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ENG. Tim Chang	DATE 3-DEC-2014	TITLE: SCHEMATIC, NIDC, Redwood	
SHEET 6 OF 47	Wed Feb 04 11:34:02 2015		
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SIZE B	DOCUMENT NUMBER K-CS-1395A2736901-0-0	REV X01	

POWER SEQUENCE



MODULE=P2041
FUNCTION=POWER SEQUENCE

ENG. Tim Chang	DATE 3-DEC-2014	TITLE: SCHEMATIC, NIDC, Redwood		
SHEET 7 OF 47	Wed Feb 04 11:34:02 2015			
PCB NUMBER 6050A2736901	REV 0.1	SIZE B	DOCUMENT NUMBER K-CS-1395A2736901-0-0	REV X01

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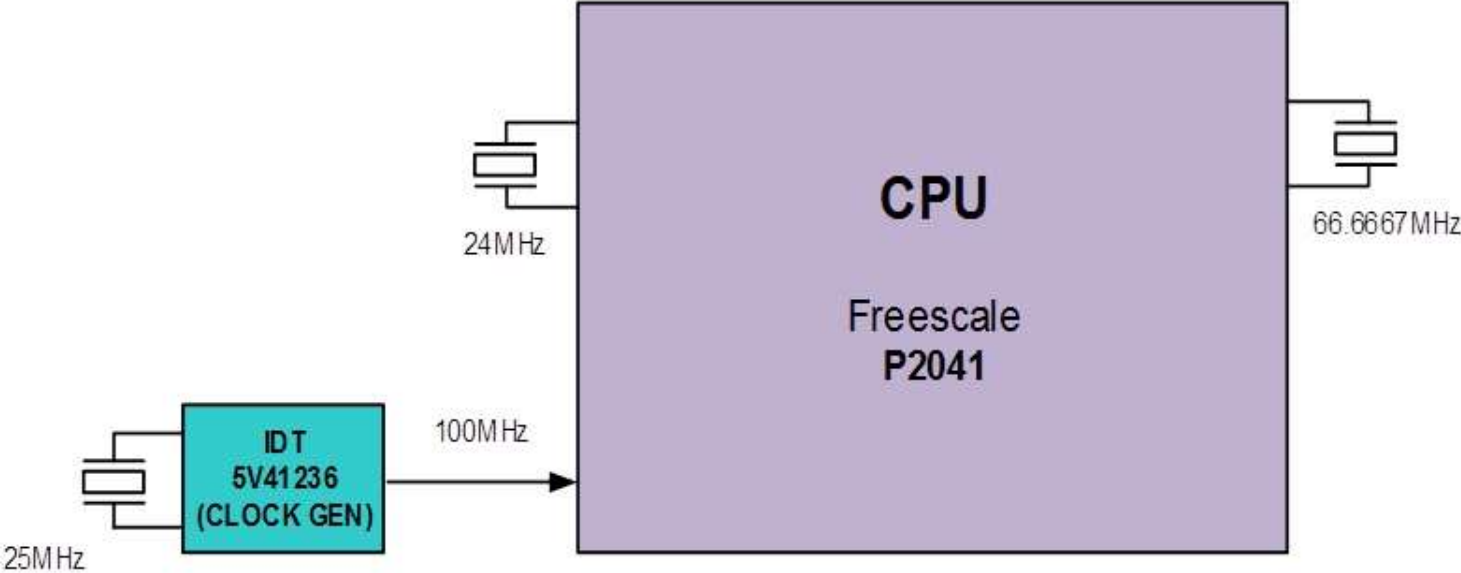
RESET/POWER TOPOLOGY

MODULE=P2041
FUNCTION=RESET/POWER TOPOLOGY

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ENG. Tim Chang		DATE 3-DEC-2014		TITLE: SCHEMATIC, NIDC, Redwood		
SHEET 8		OF 47				
Wed Feb 04 11:34:02 2015						
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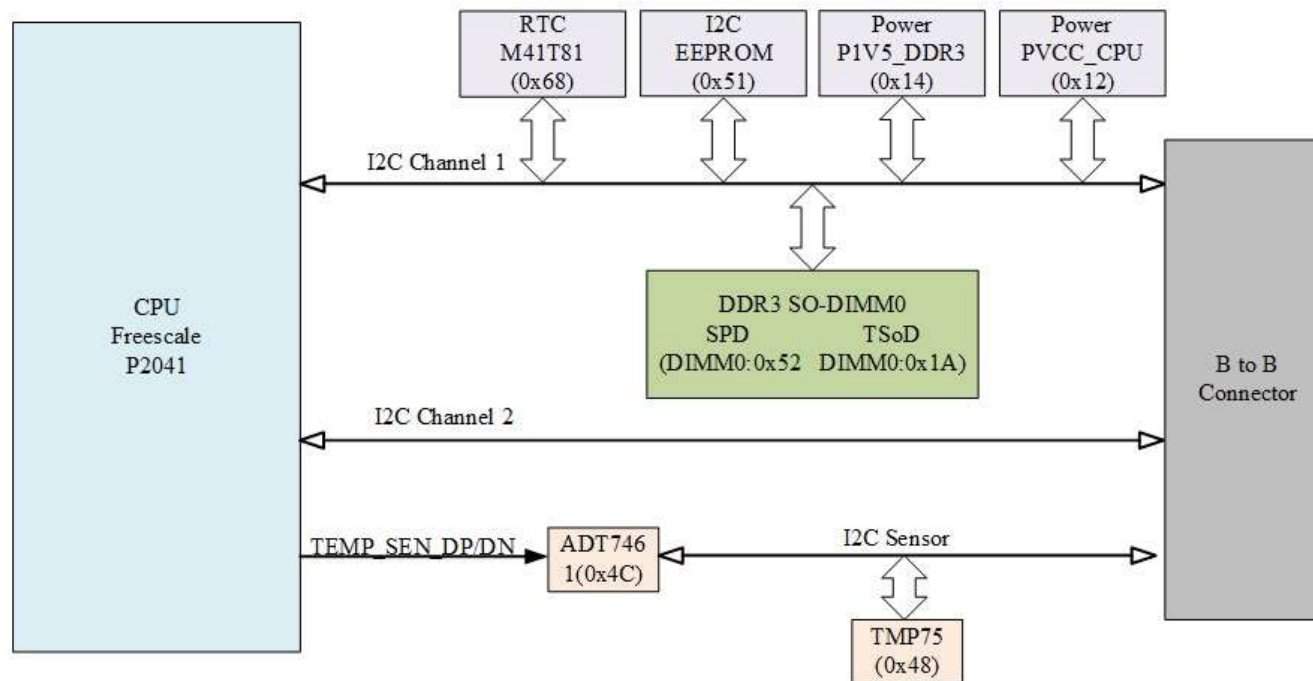
CLOCK TOPOLOGY



MODULE=P2041
FUNCTION=CLOCK TOPOLOGY

			ENG.	Tim Chang	DATE	3-DEC-2014			TITLE: SCHEMATIC, NIDC, Redwood		
			SHEET	9	OF	47					
			Wed Feb 04 11:34:02 2015								
INVENTEC CONFIDENTIAL DO NOT COPY			PCB NUMBER			REV	SIZE	DOCUMENT NUMBER		REV	
			6050A2736901			0.1	B	K-CS-1395A2736901-0-0		X01	

I2C TOPOLOGY



MODULE=P2041
FUNCTION=I2C TOPOLOGY

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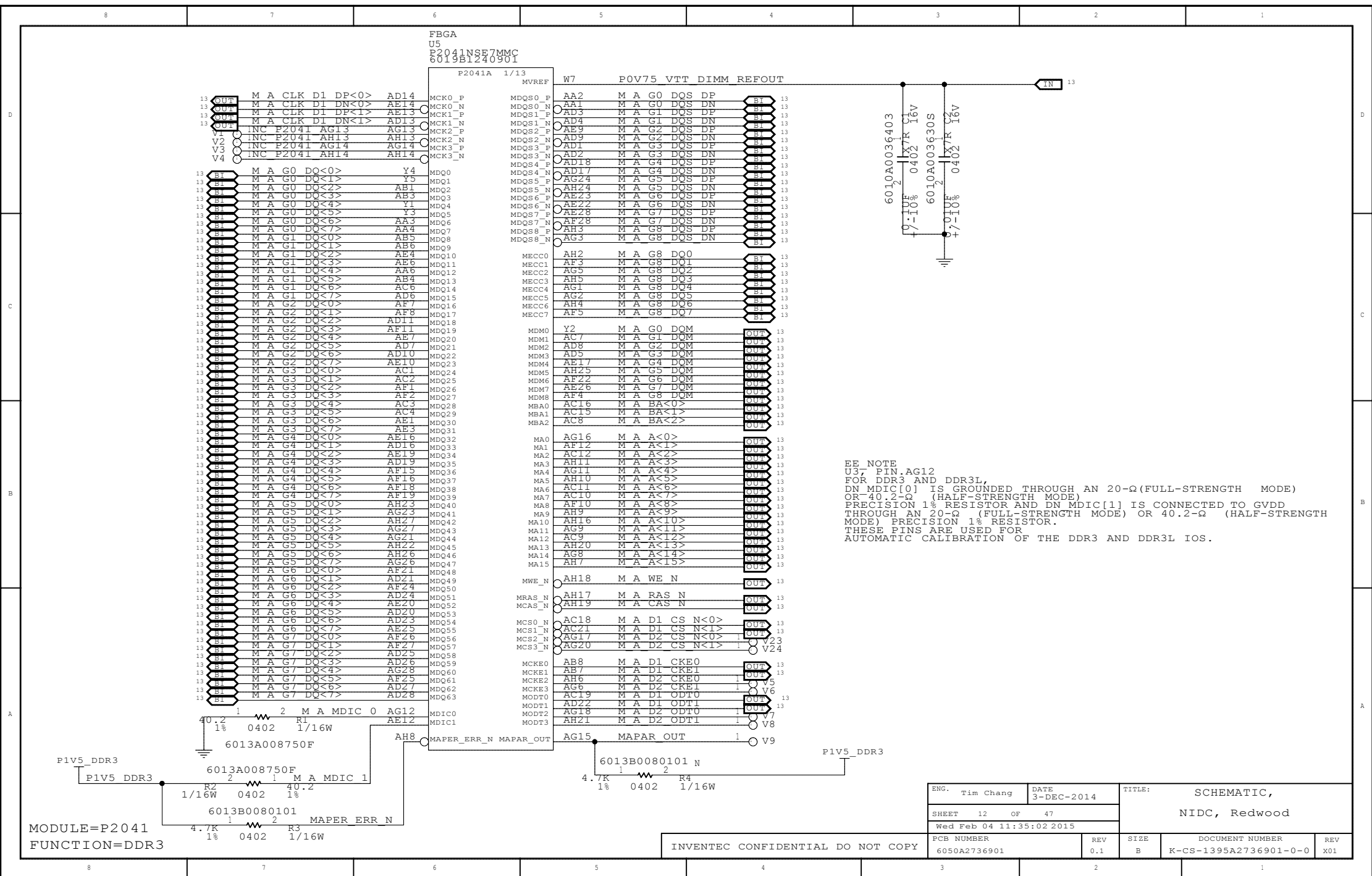
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SHEET 10	OF 47			
Wed Feb 04 11:34:02 2015				
PCB NUMBER 6050A2736901	REV 0.1	SIZE B	DOCUMENT NUMBER K-CS-1395A2736901-0-0	REV X01

WARPCORE PORT MAPPING

```
MODULE=P2041
FUNCTION=WARPCORE PORT MAPPING
```

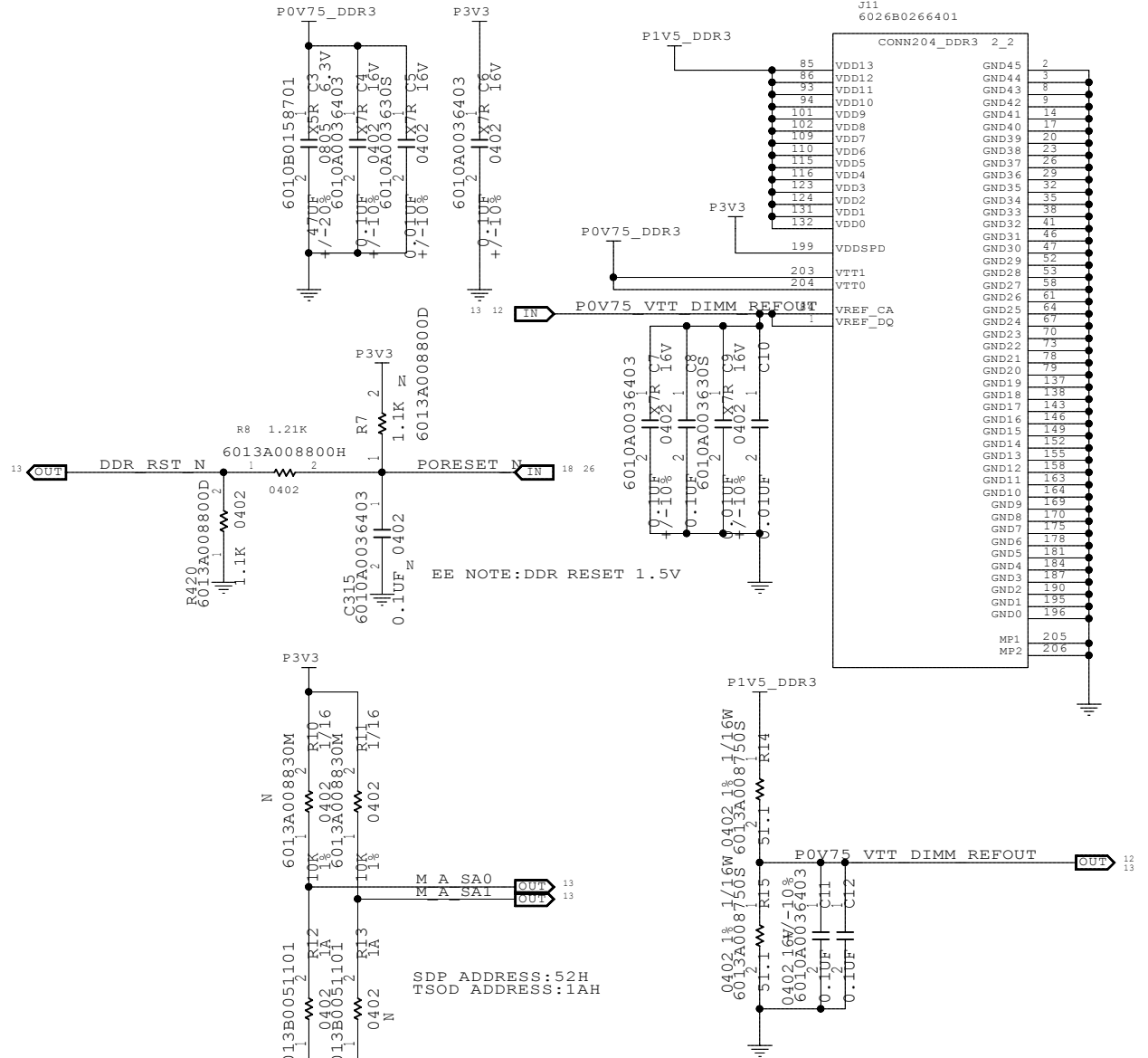
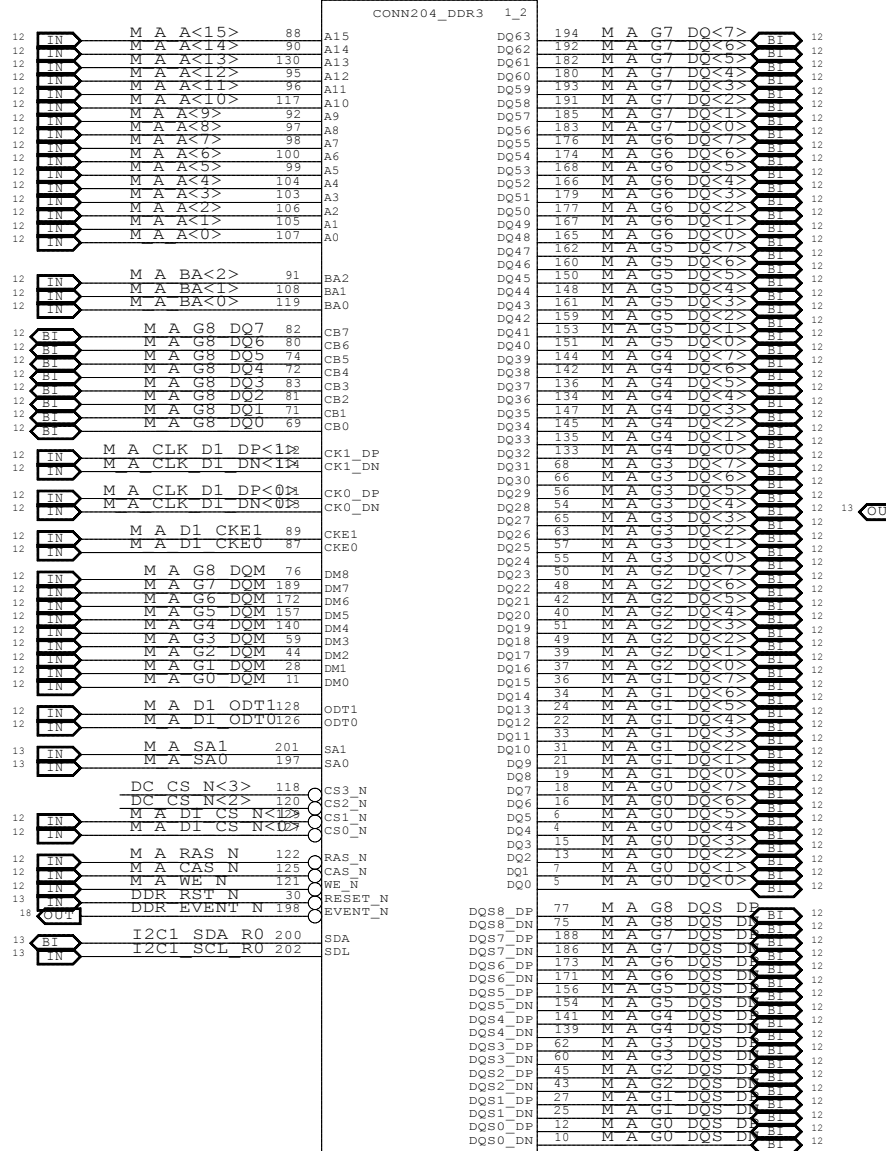
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ENG.	Tim Chang	DATE 3-DEC-2014	TITLE: SCHEMATIC,		
SHEET 11 OF 47			NIDC, Redwood		
Wed Feb 04 11:34:02 2015					
PCB NUMBER		REV	SIZE	DOCUMENT NUMBER	REV
6050A2736901		0.1	B	K-CS-1395A2736901-0-0	X01



DIMM204
J11
6026B0266401

DIMM204
J11
6026B0266401



MODULE=P2041
FUNCTION=DDR3 SO-DIMM

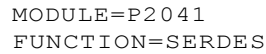
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ENG. Tim Chang	DATE 3-DEC-2014	TITLE: SCHEMATIC,
SHEET 13	OF 47	NIDC, Redwood
Wed Feb 04 11:35:02 2015		
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		REV X01

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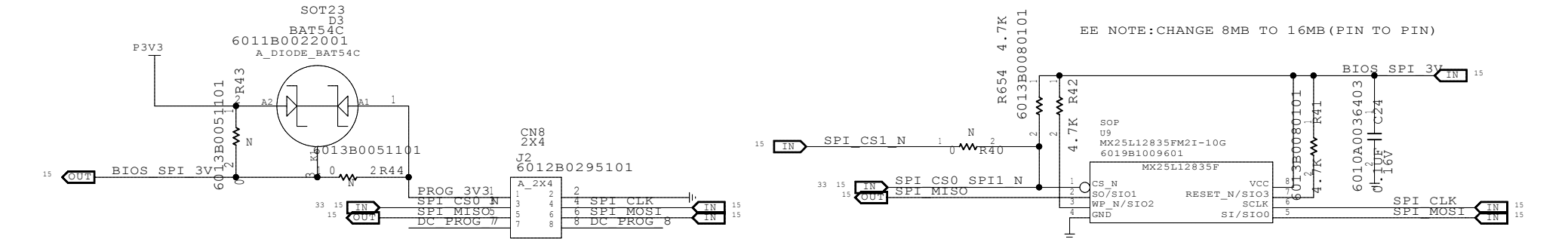
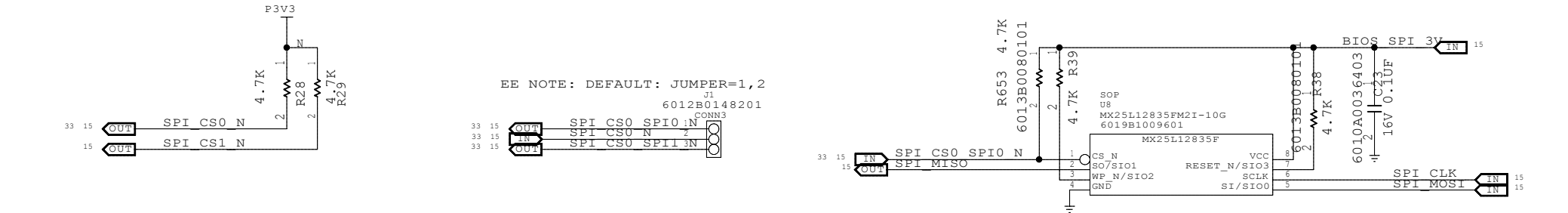
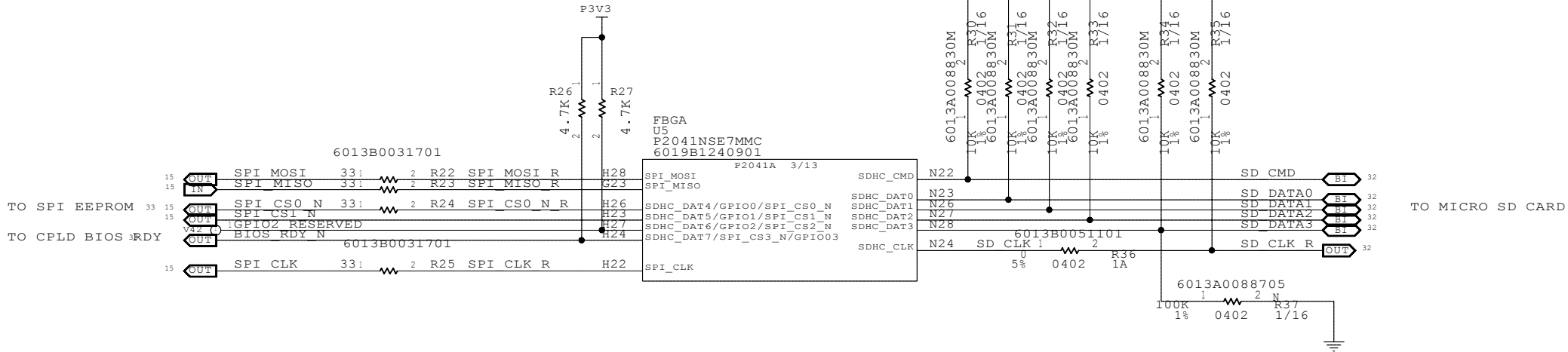
TO I210 X1 33 IN PCIEX1 PHY RX C DP<
            33 IN PCIEX1 PHY RX C DN<

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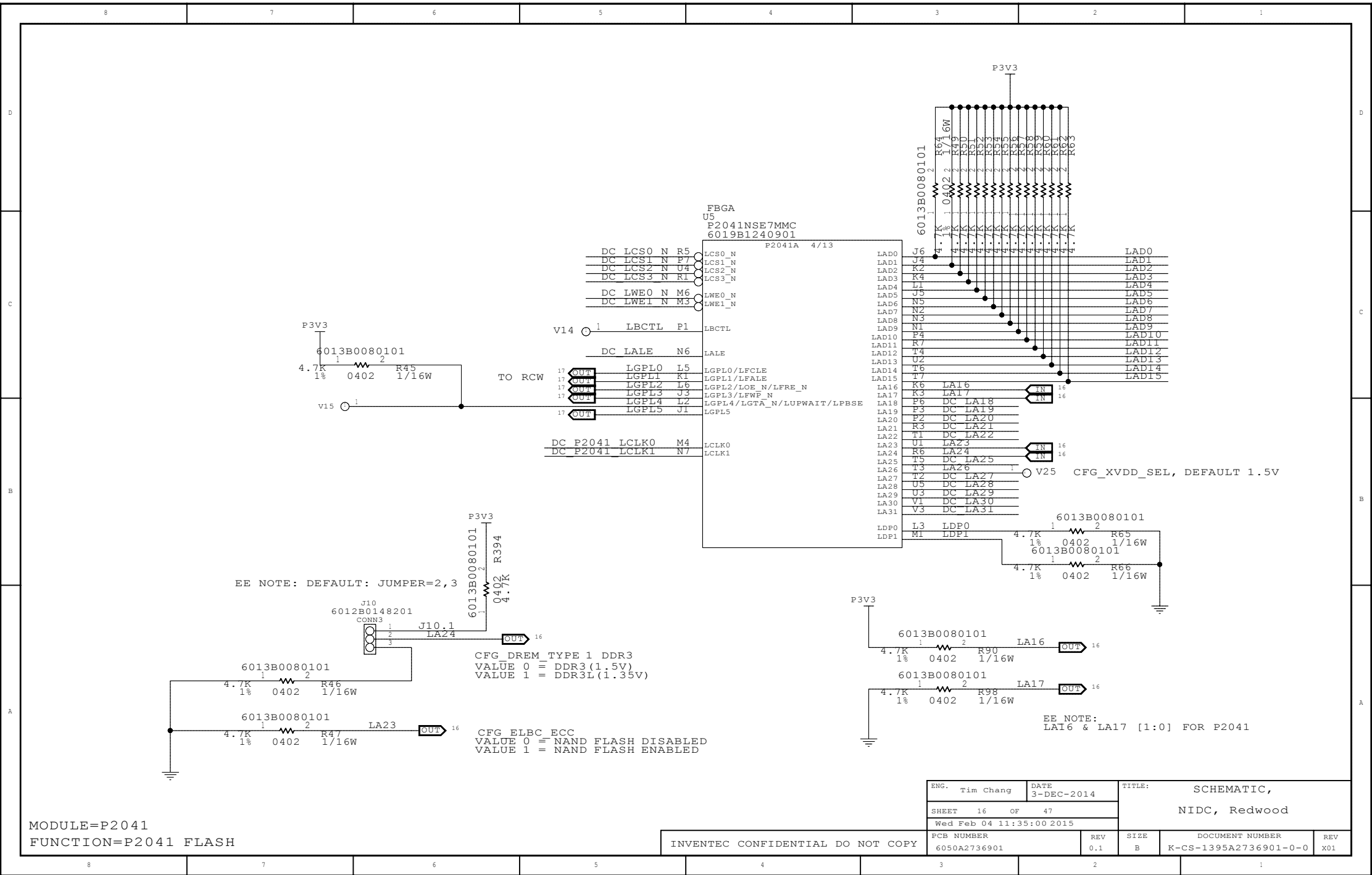
TO SPI EEPROM
TO CPLD BIOS RDY

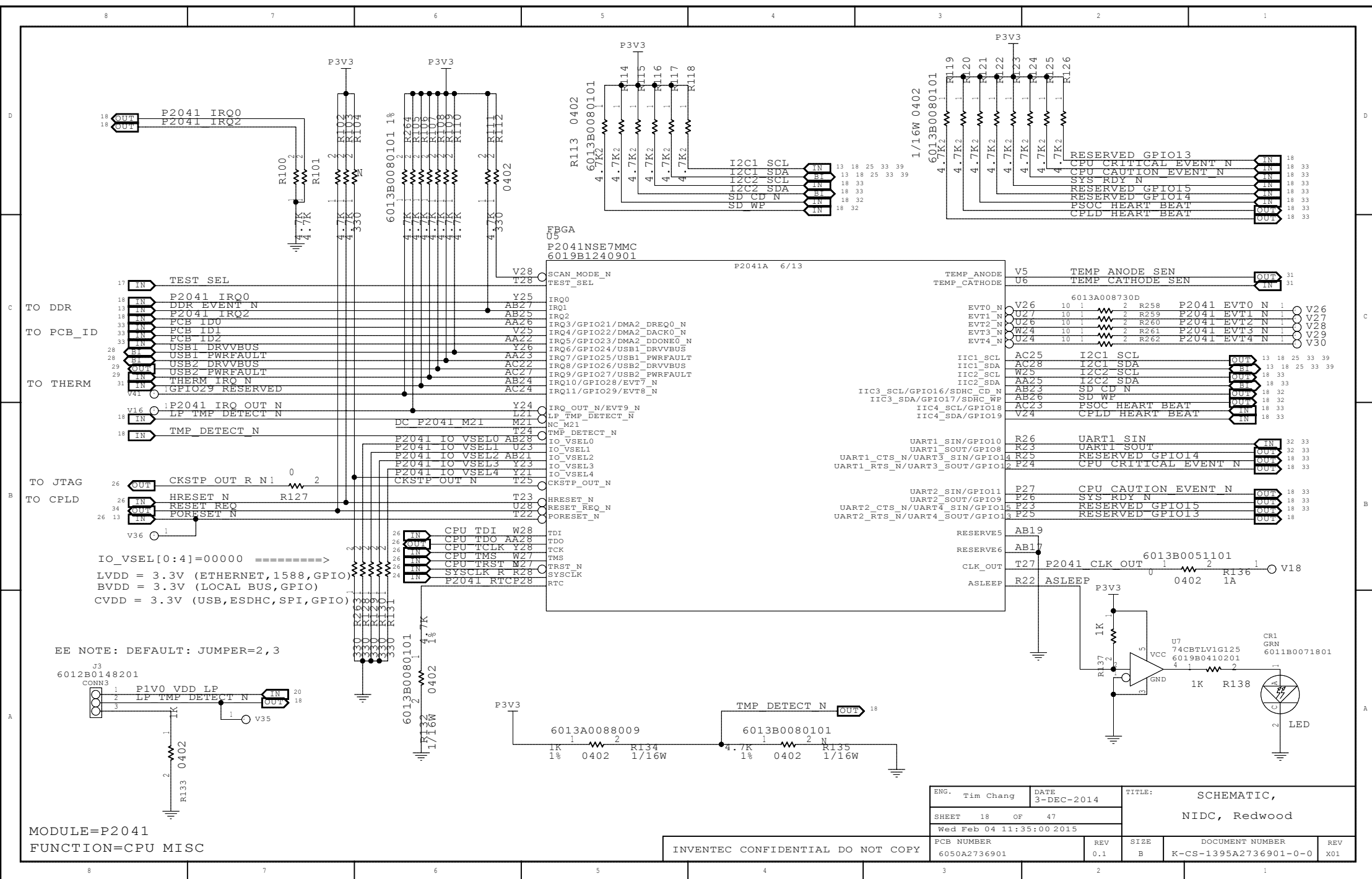


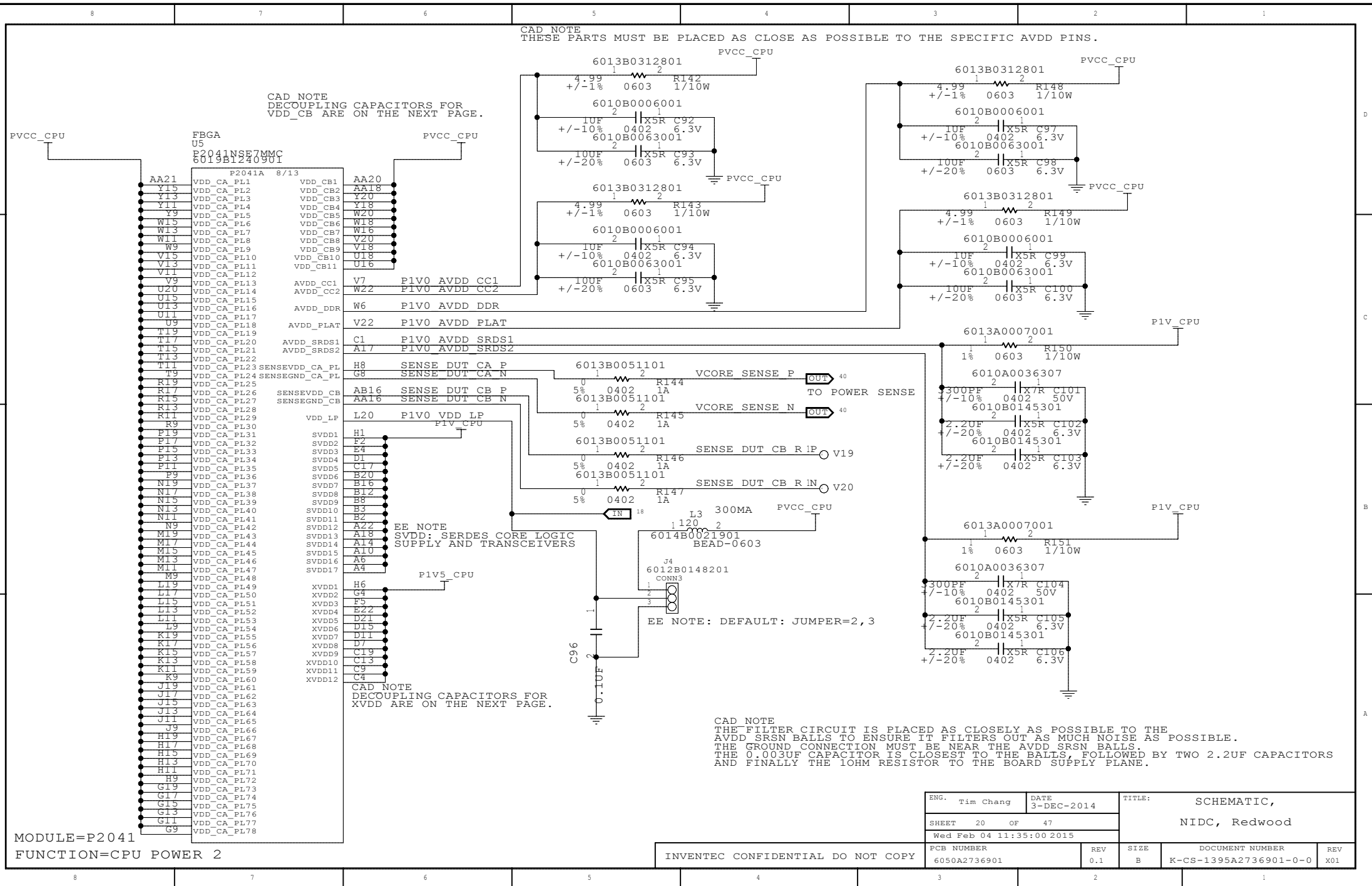
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FUNCTION=SPI EEPROM

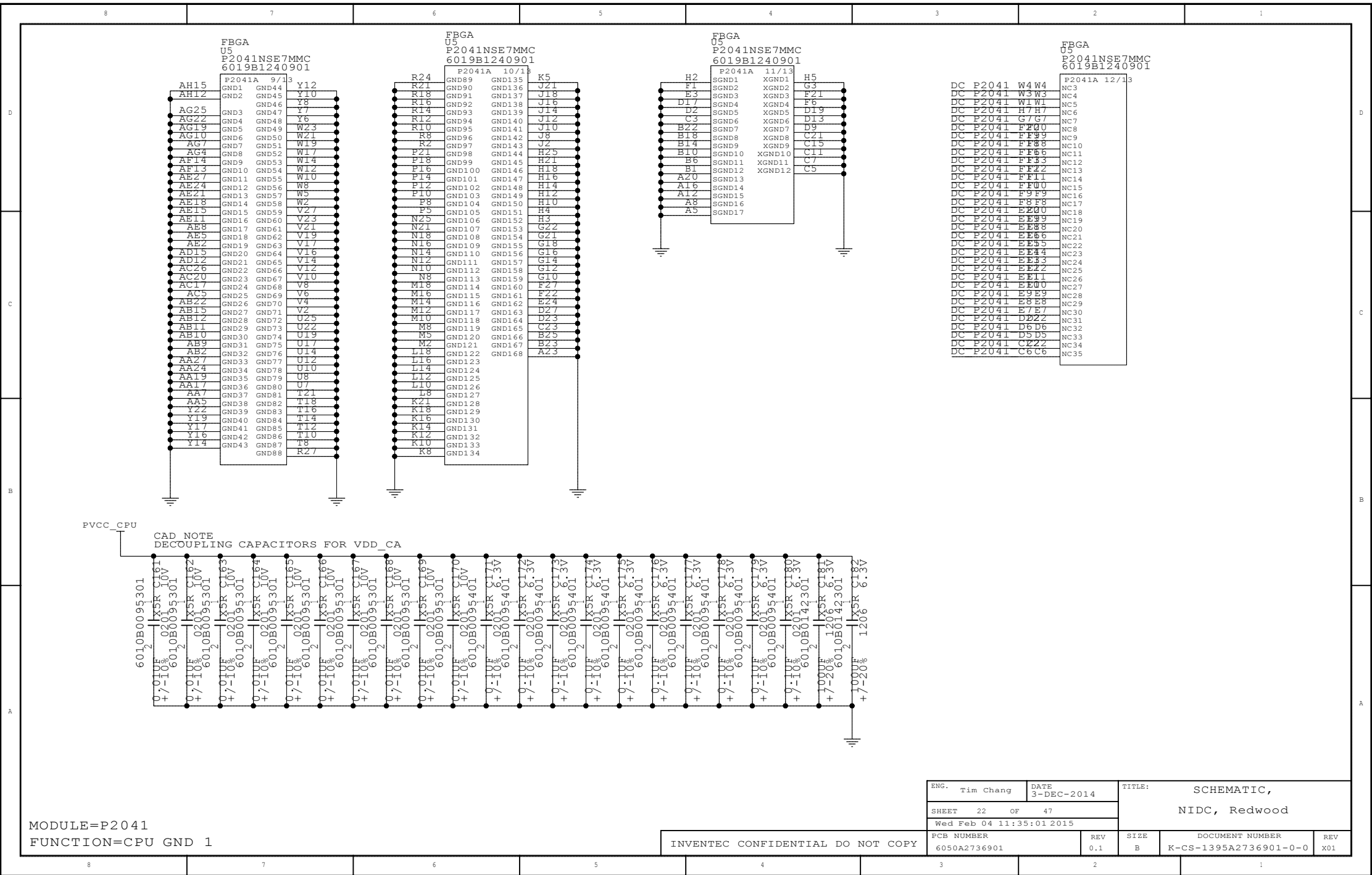
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ENG. Tim Chang	DATE 3-DEC-2014	TITLE: SCHEMATIC,
SHEET 15 OF 47	Wed Feb 04 11:35:00 2015	NIDC, Redwood
PCB NUMBER 6050A2736901	REV 0.1	SIZE B
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		REV X01







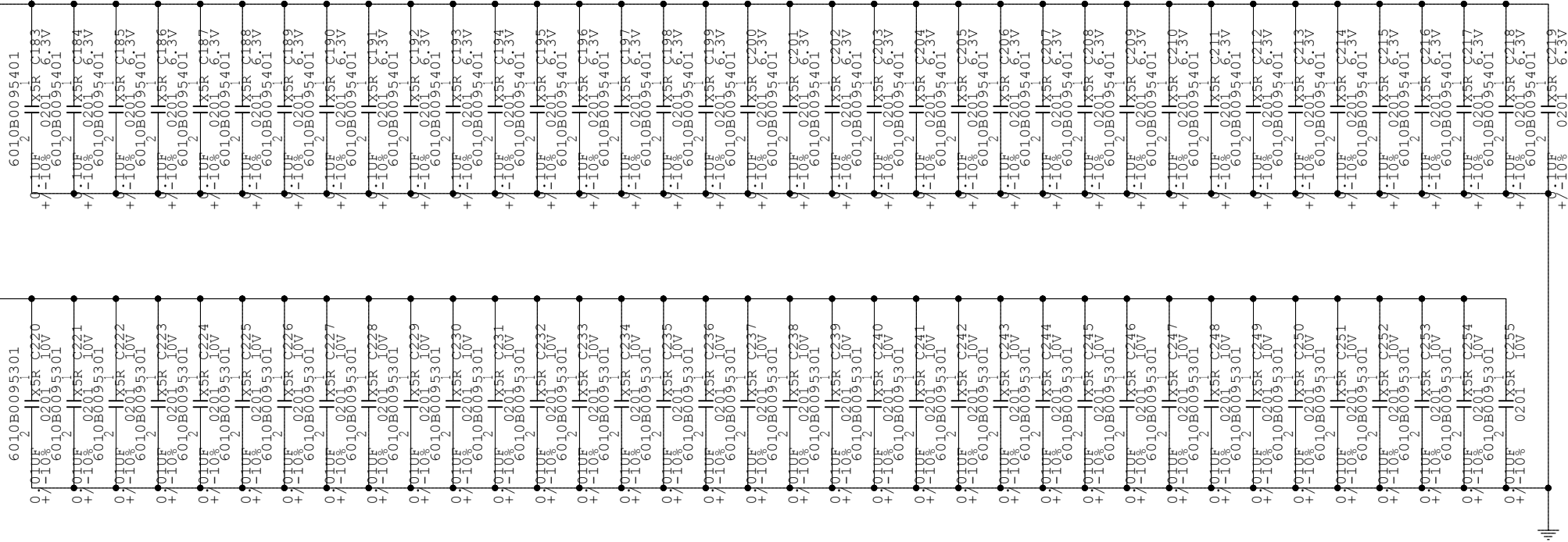


MODULE=P2041
FUNCTION=CPU GND 2

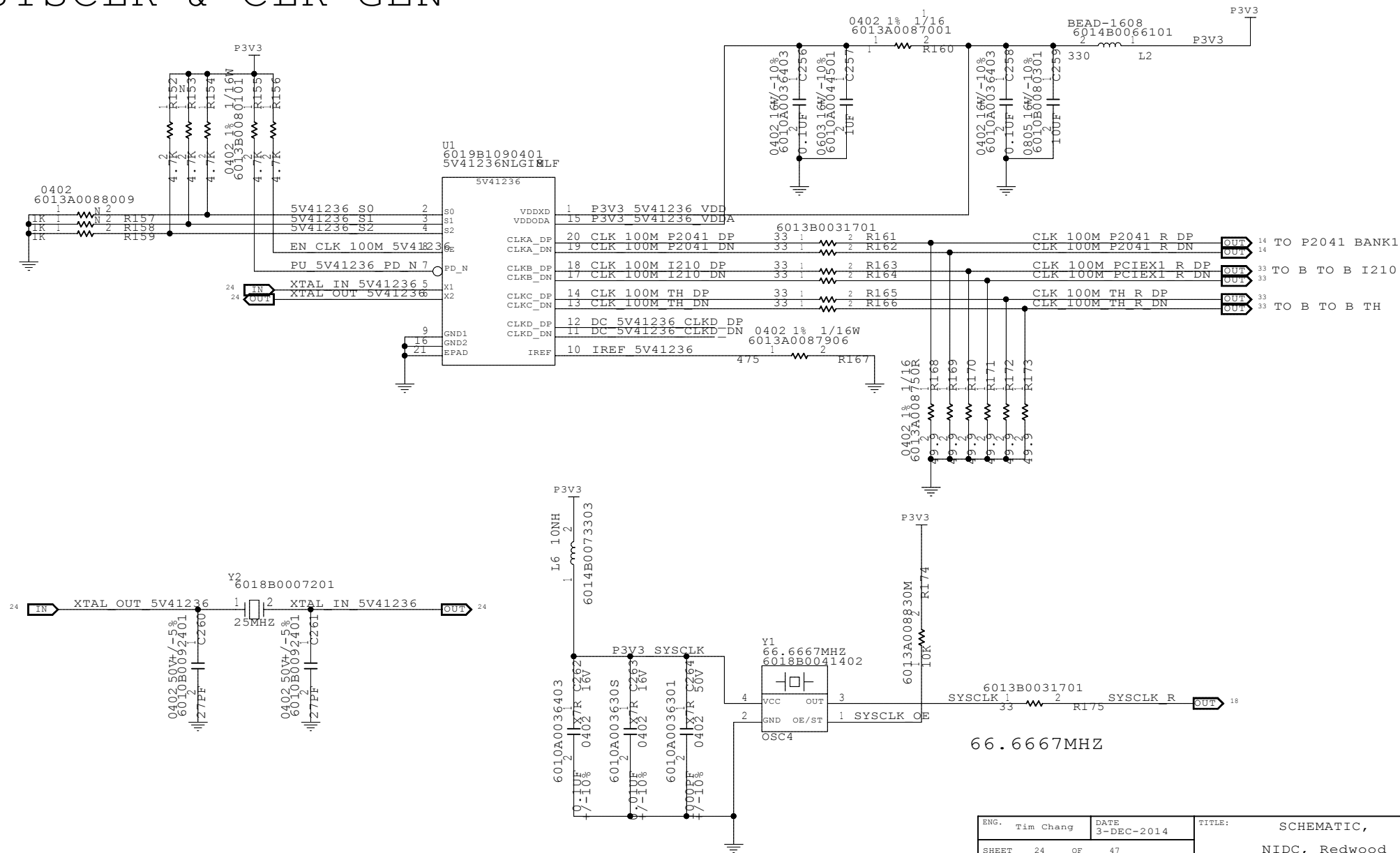
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ENG. Tim Chang		DATE 3-DEC-2014	TITLE: SCHEMATIC, NIDC, Redwood		
SHEET 23 OF 47					
Wed Feb 04 11:35:01 2015					
PCB NUMBER 6050A2736901		REV 0.1	SIZE B	DOCUMENT NUMBER K-CS-1395A2736901-0-0	REV X01

PVCC_CPU
CAD NOTE
DECOUPLING CAPACITORS FOR VDD_CA



SYSCLK & CLK GEN

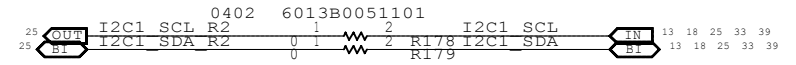
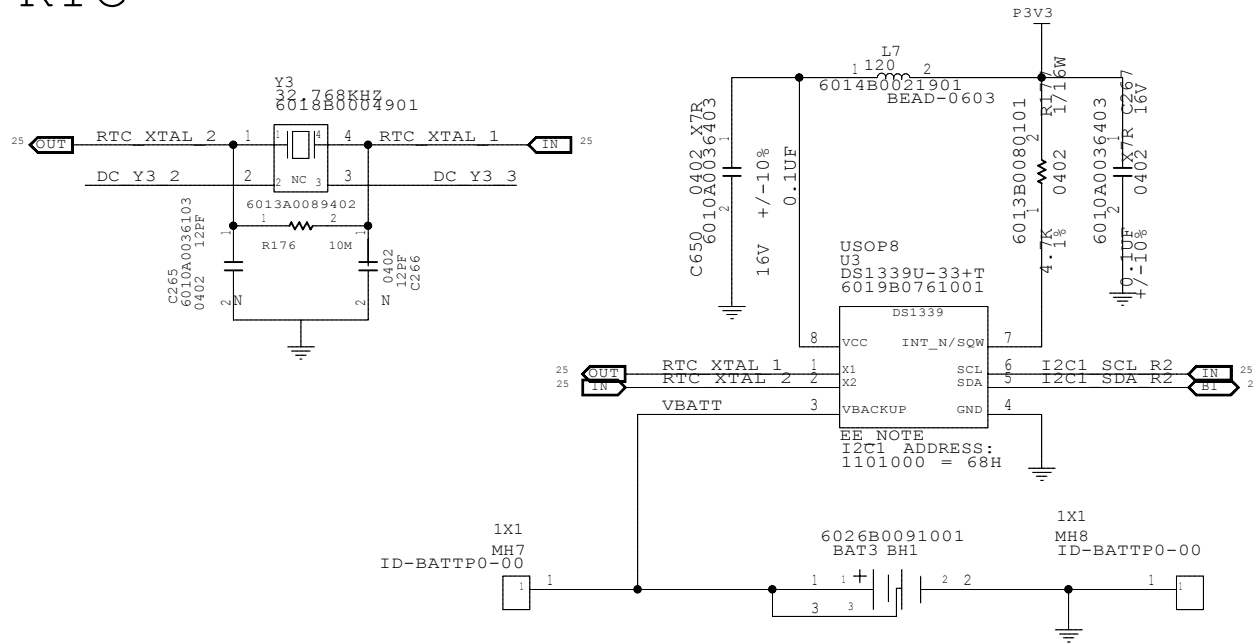


MODULE=P2041
FUNCTION=CLK GEN & SYSTEM CLK

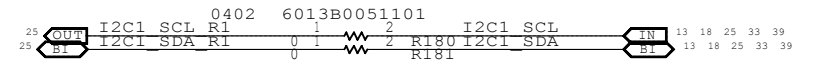
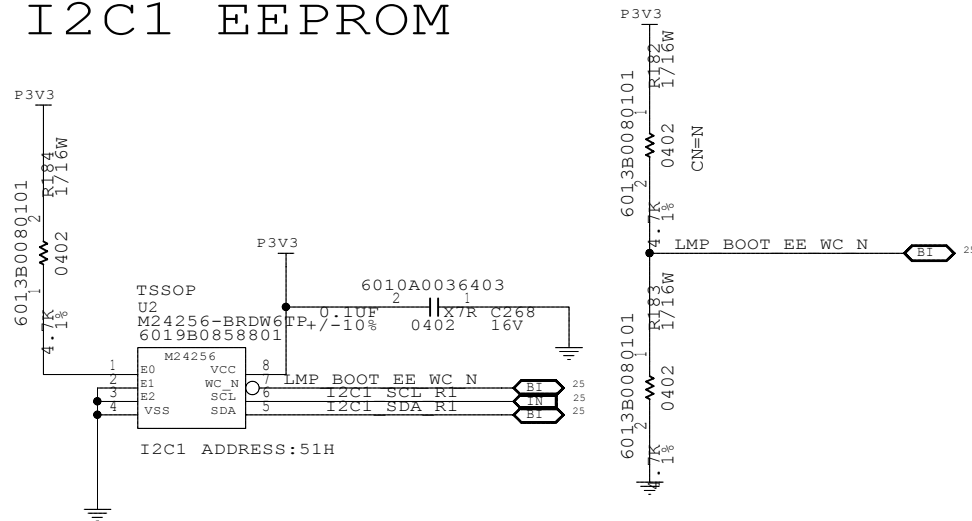
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ENG. Tim Chang	DATE 3-DEC-2014	TITLE: SCHEMATIC, NIDC, Redwood		
SHEET 24 OF 47				
Wed Feb 04 11:35:01 2015				
PCB NUMBER 6050A2736901	REV 0.1	SIZE B	DOCUMENT NUMBER K-CS-1395A2736901-0-0	REV X01

RTC



BOOT I2C1 EEPROM

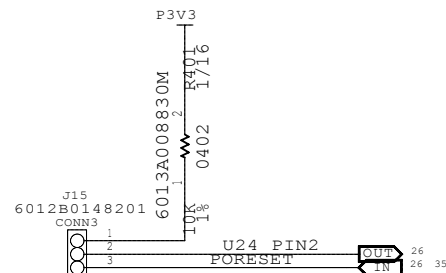
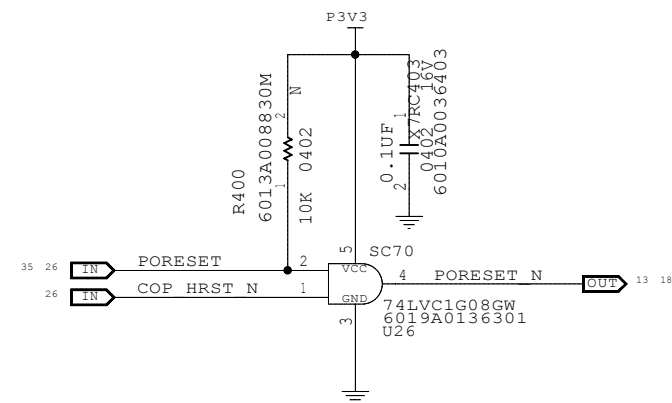
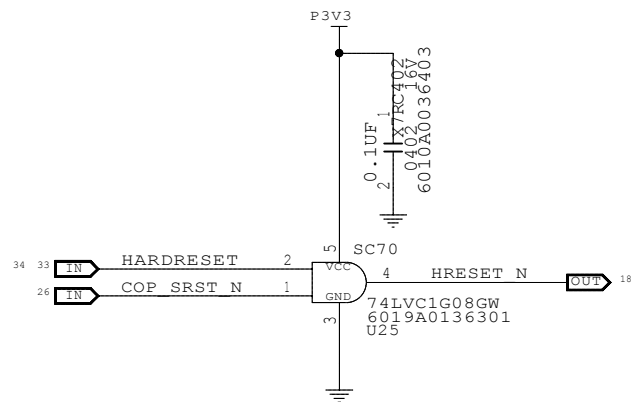
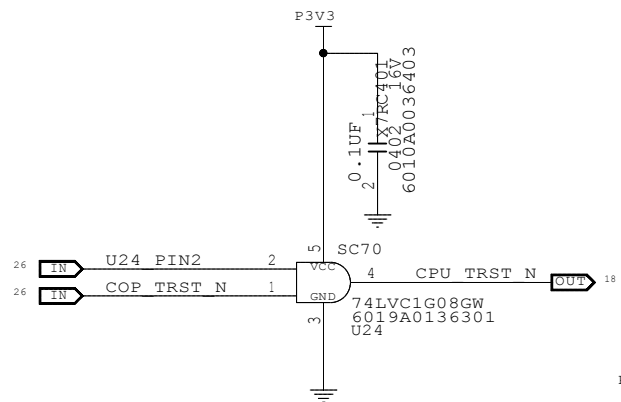
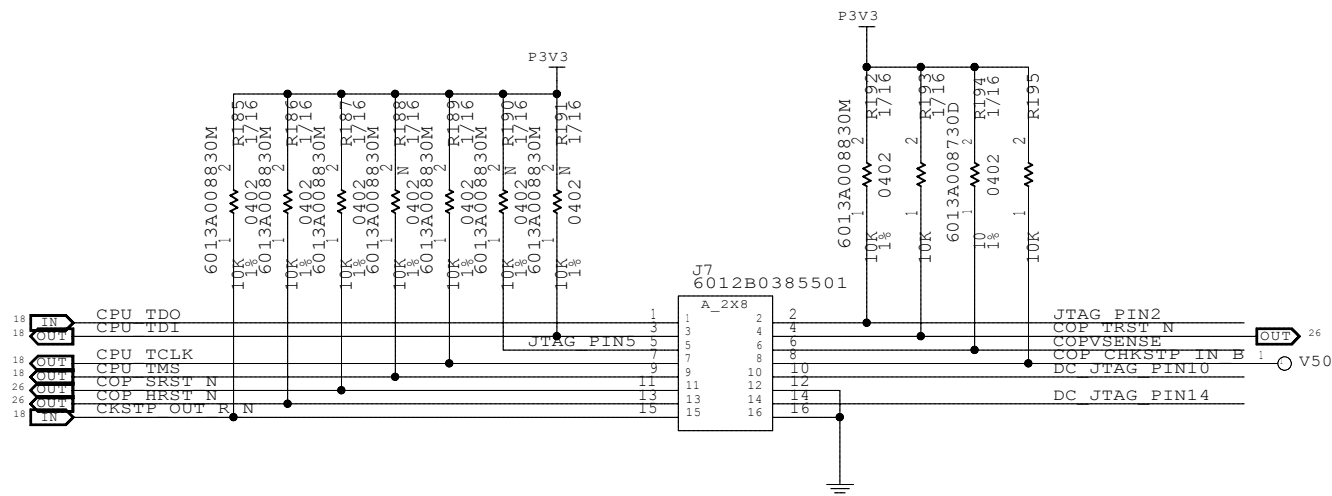


MODULE=P2041
FUNCTION=I2C1 EEPROM & RTC

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ENG. Tim Chang		DATE 3-DEC-2014		TITLE: SCHEMATIC, NIDC, Redwood		
SHEET 25		OF 47				
Wed Feb 04 11:35:00 2015						
PCB NUMBER 6050A2736901		REV 0.1	SIZE B	DOCUMENT NUMBER K-CS-1395A2736901-0-0		REV X01

JTAG



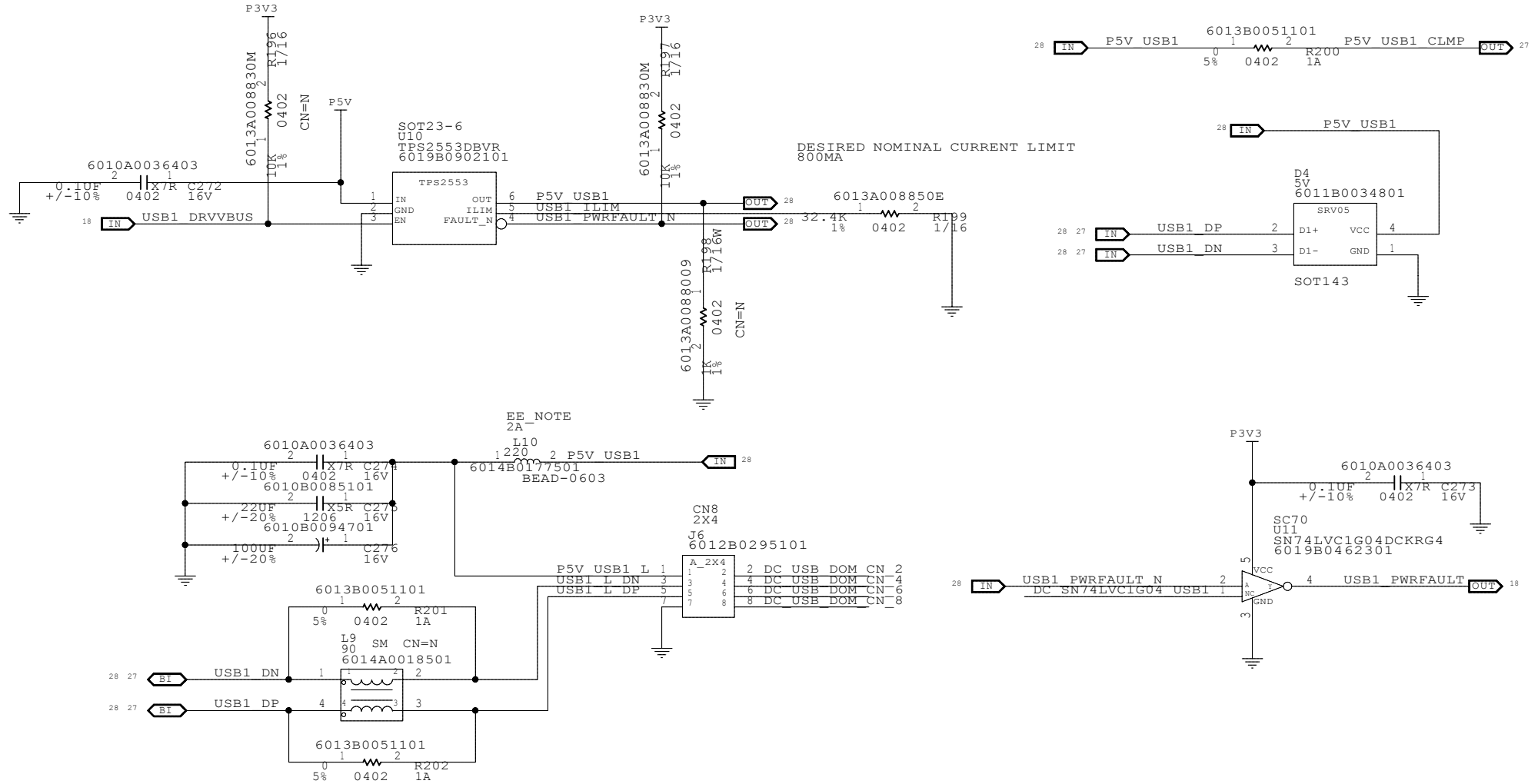
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MODULE=P2041
FUNCTION=JTAG
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EE NOTE: DEFAULT: JUMPER=2,3

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ENG. Tim Chang		DATE	3-DEC-2014			TITLE: SCHEMATIC, NIDC, Redwood		
SHEET 26		OF	47					
Wed Feb 04 11:35:00 2015								
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USB DOM

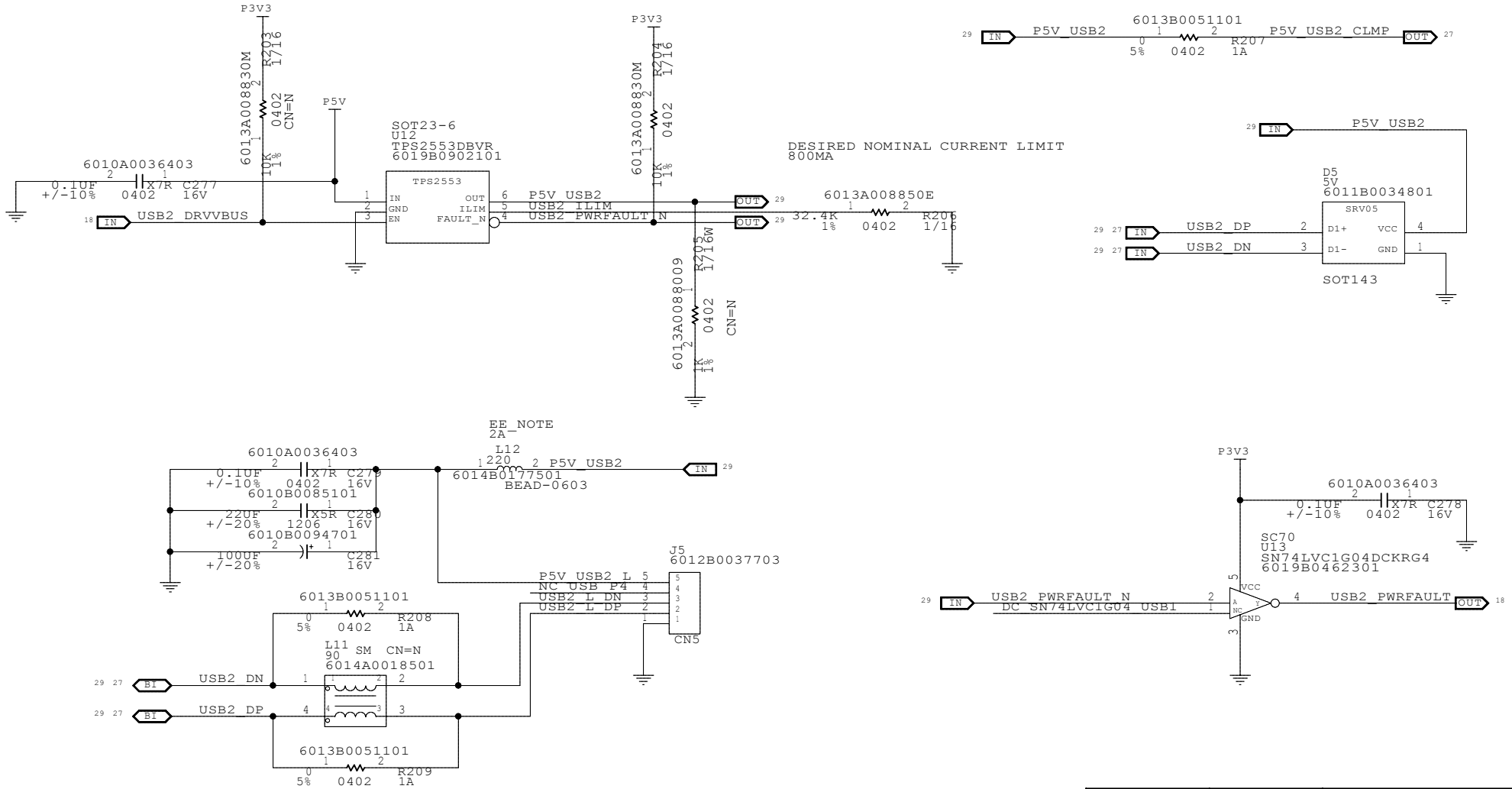


MODULE=P2041
FUNCTION=USB DOM

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ENG. Tim Chang	DATE 3-DEC-2014	TITLE: SCHEMATIC,		
SHEET 28	OF 47	NIDC, Redwood		
Wed Feb 04 11:35:01 2015				
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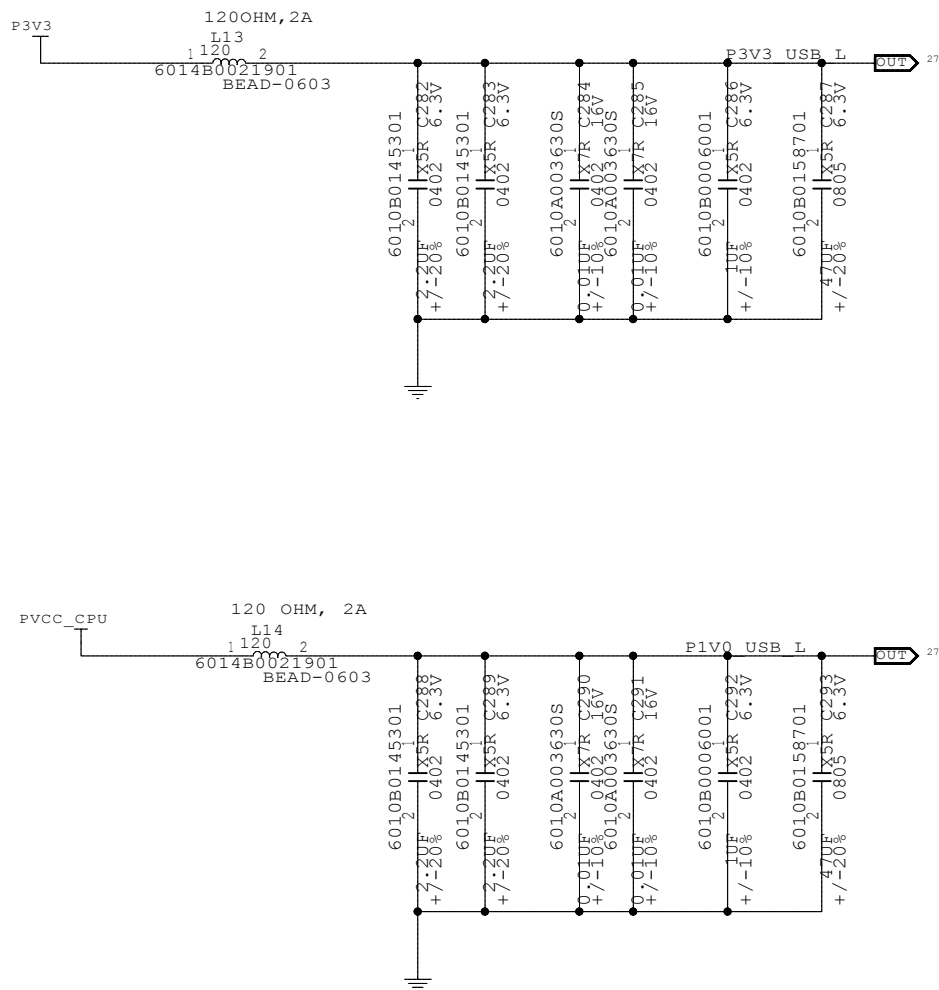
USB CONNECTOR



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MODULE=P2041
FUNCTION=USB_CONNECTOR
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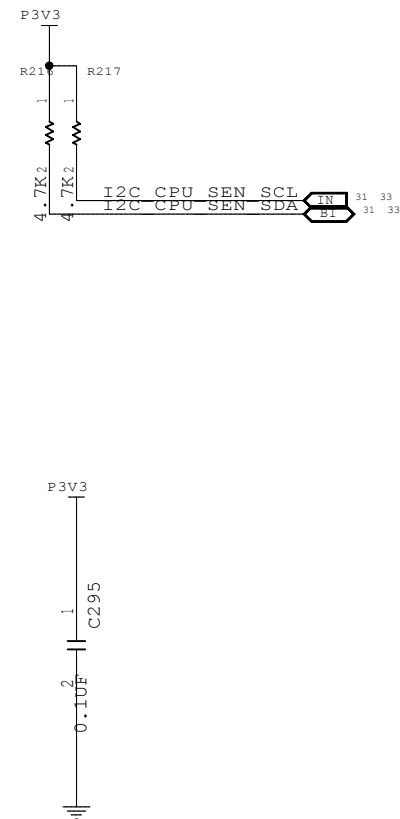
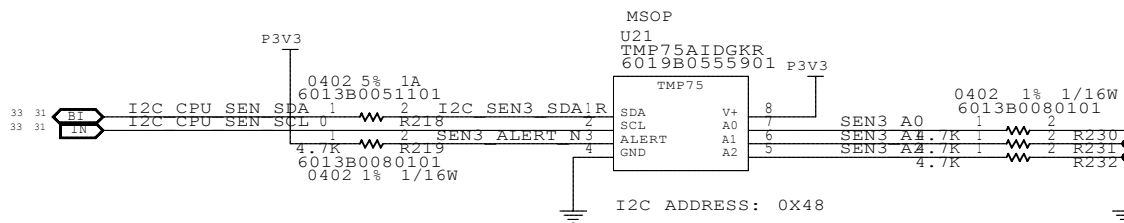
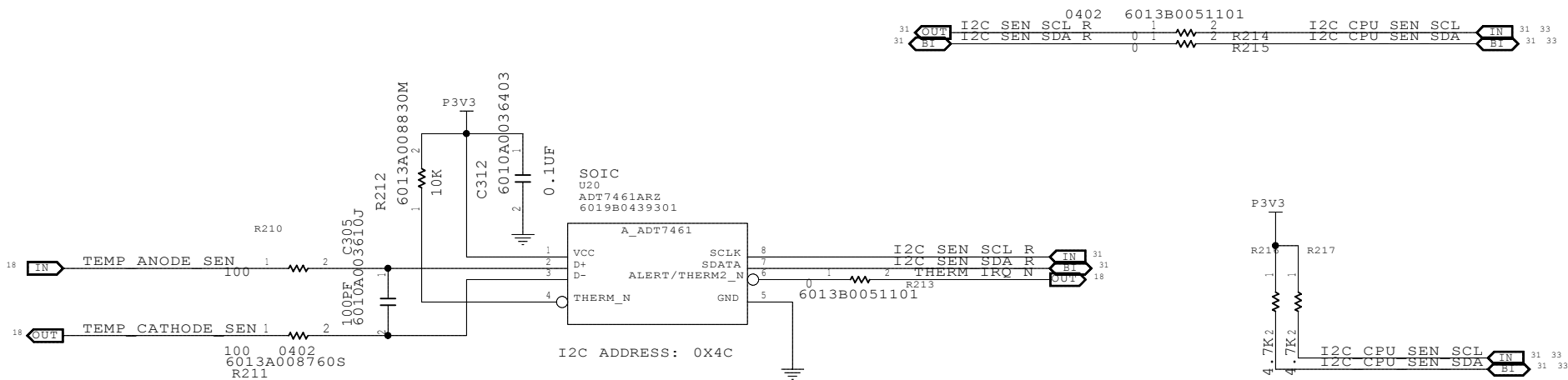
ENG. Tim Chang		DATE 3-DEC-2014		TITLE: SCHEMATIC, NIDC, Redwood			
SHEET 29 OF 47							
Wed Feb 04 11:35:01 2015							
PCB NUMBER 6050A2736901		REV 0.1	SIZE B	DOCUMENT NUMBER K-CS-1395A2736901-0-0		REV X01	



```
MODULE=P2041
FUNCTION=USB_POWER
```

ENG. Tim Chang		DATE 3-DEC-2014		TITLE: SCHEMATIC, NIDC, Redwood			
SHEET 30 OF 47		Wed Feb 04 11:35:01 2015					
PCB NUMBER 6050A2736901		REV 0.1		SIZE B	DOCUMENT NUMBER K-CS-1395A2736901-0-0		REV X01

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MODULE=P2041
FUNCTION=TEMPERATURE SENSOR

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ENG. Tim Chang	DATE 3-DEC-2014	TITLE: SCHEMATIC,		
SHEET 31 OF 47	Wed Feb 04 11:35:00 2015	NIDC, Redwood		
PCB NUMBER 6050A2736901	REV 0.1	SIZE B	DOCUMENT NUMBER K-CS-1395A2736901-0-0	REV X01

A



A

A

A

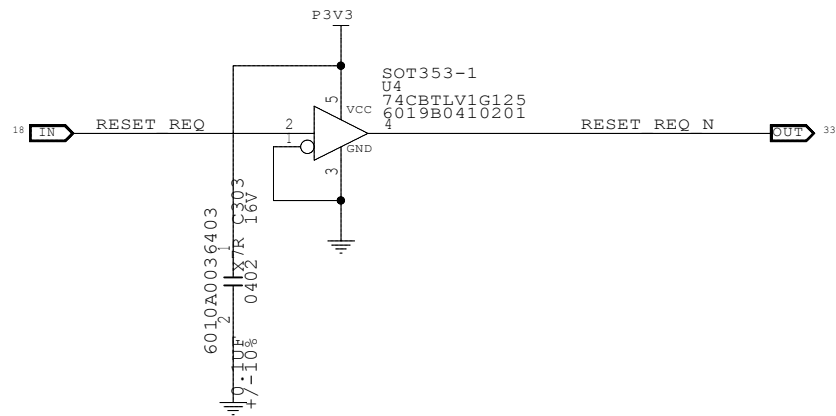
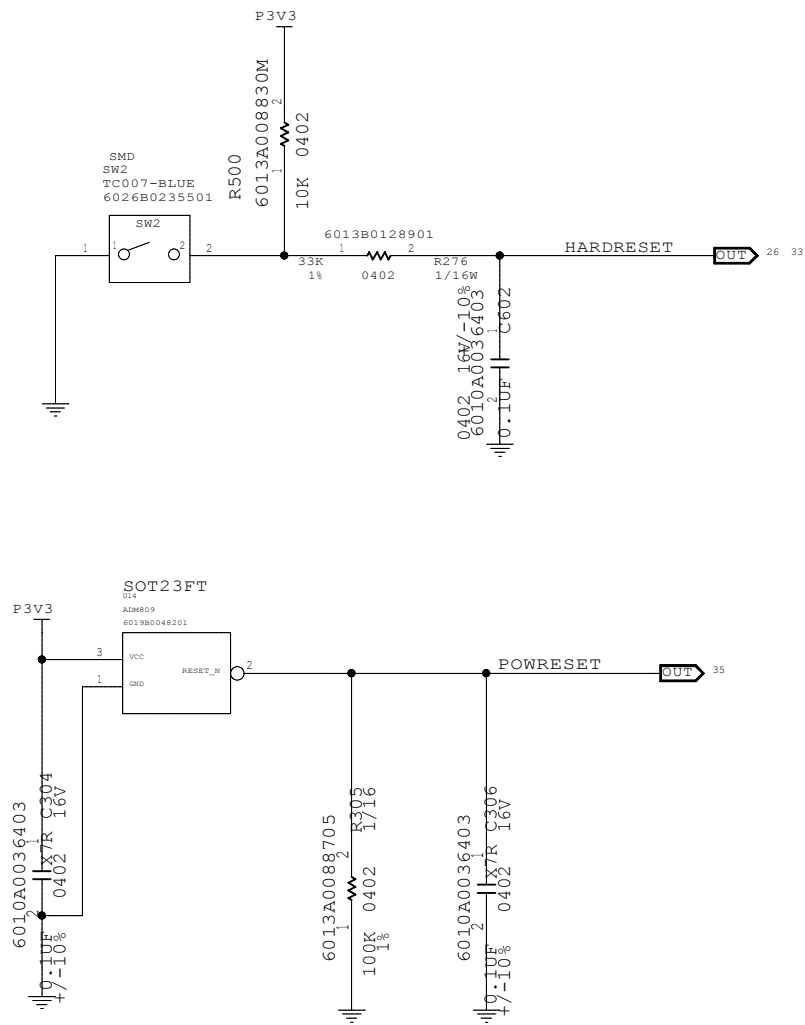
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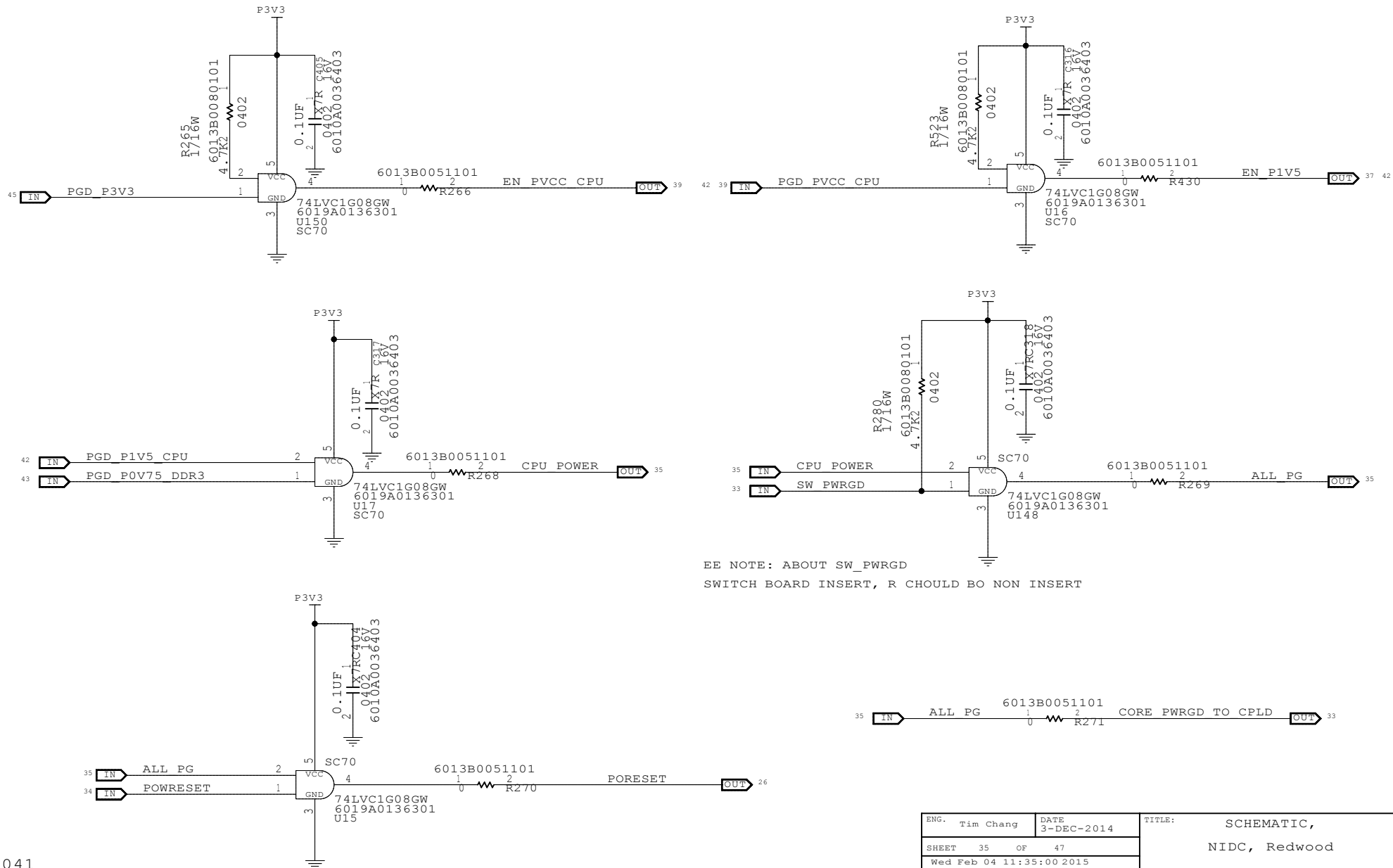
ENG. Tim Chang	DATE 3-DEC-2014	TITLE: SCHEMATIC, NIDC, Redwood		
SHEET 33	OF 47			
Wed Feb 04 11:35:00 2015				
PCB NUMBER 6050A2736901	REV 0.1	SIZE B	DOCUMENT NUMBER K-CS-1395A2736901-0-0	REV X01

EE NOTE:
SIGNAL BOARD:J16=2,3
WHOLE SYSTEM:J16=1,2
MP:J16=NI, R320=INSERT



ENG. Tim Chang		DATE 3-DEC-2014	TITLE: SCHEMATIC, NIDC, Redwood		
SHEET 34		OF 47			
Wed Feb 04 11:35:00 2015					
PCB NUMBER 6050A2736901		REV 0.1	SIZE B	DOCUMENT NUMBER K-CS-1395A2736901-0-0	REV X01

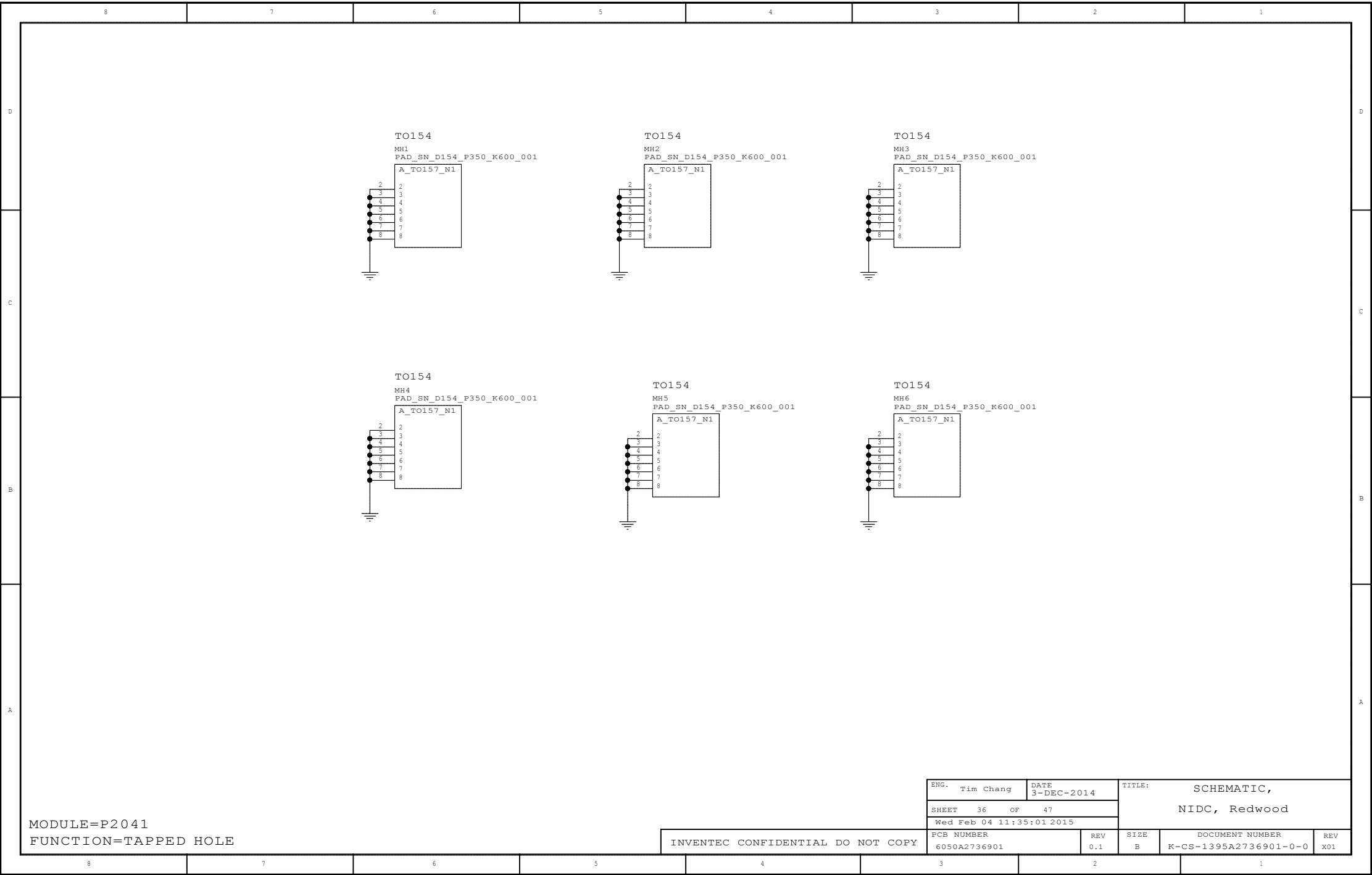
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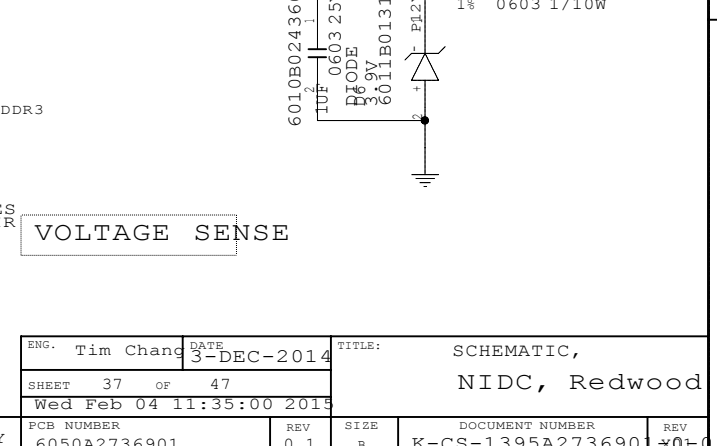
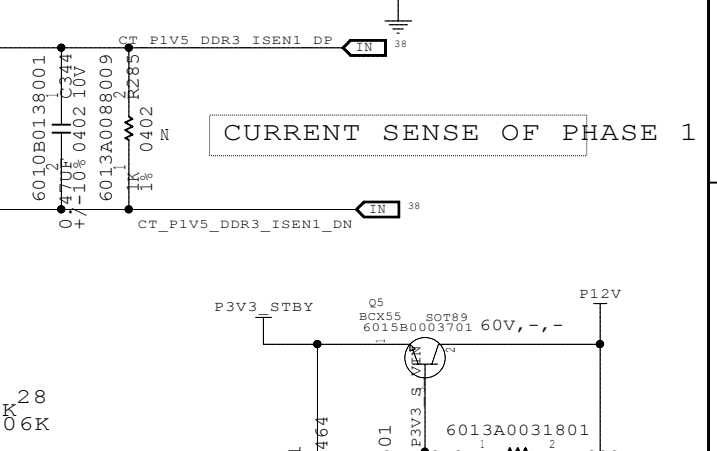
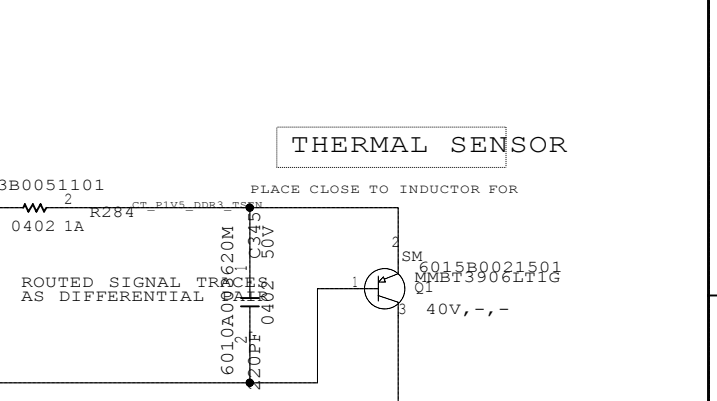
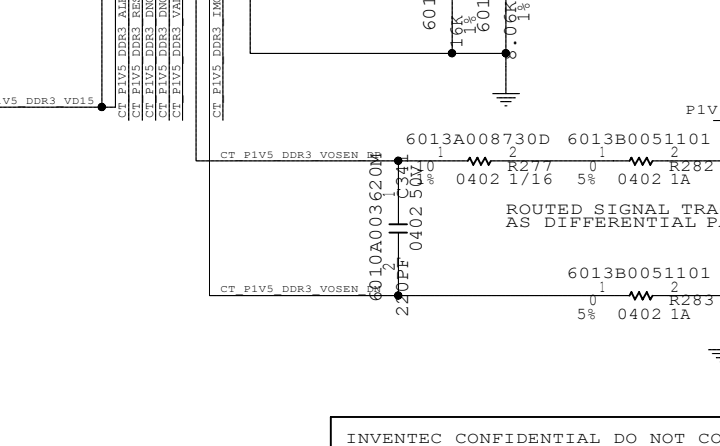
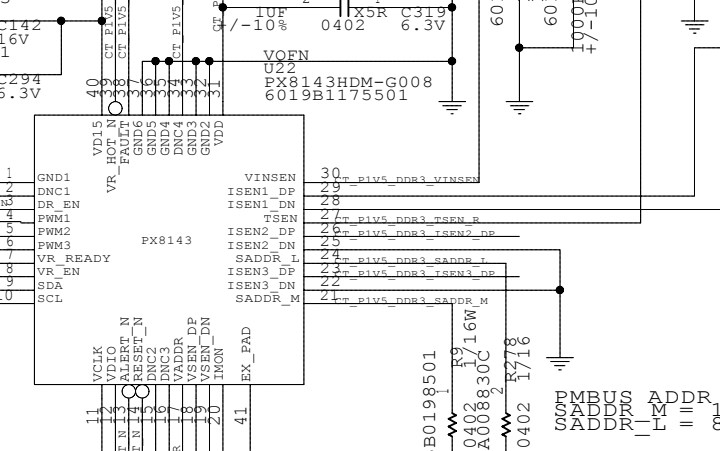
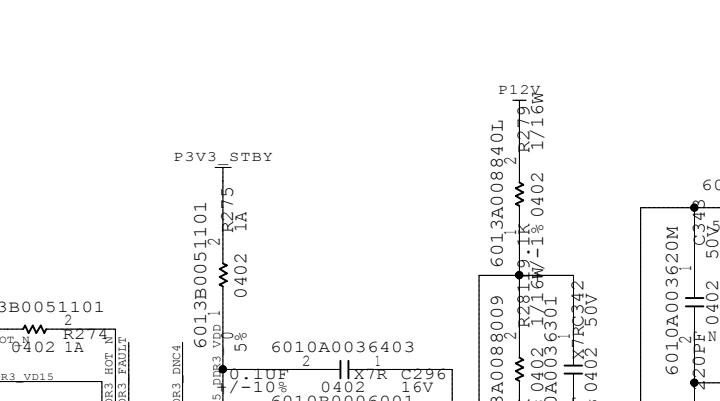
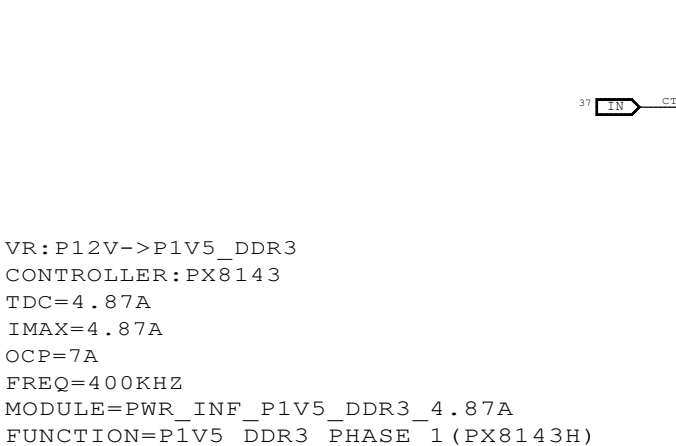
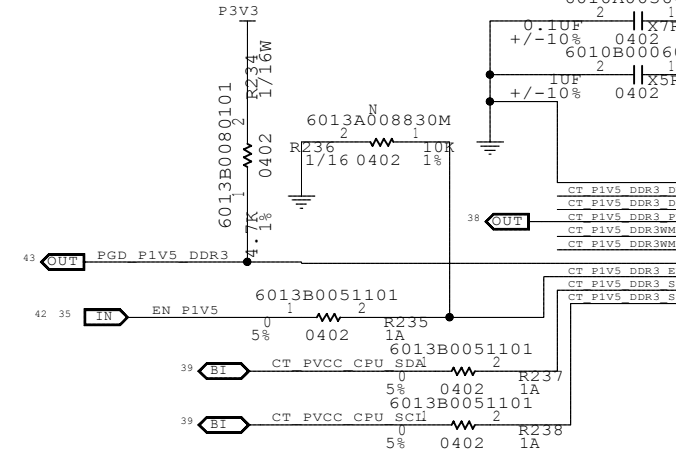
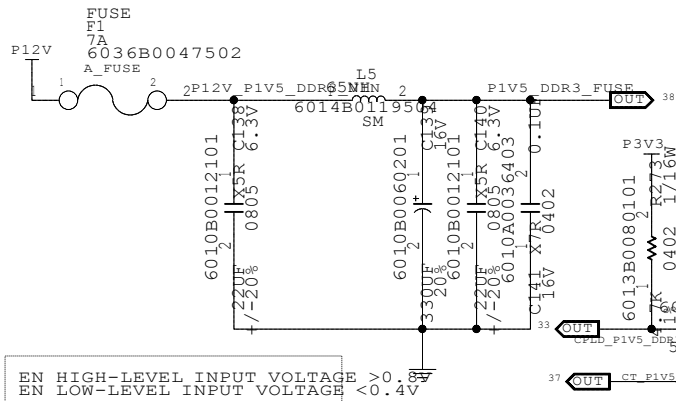


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FUNCTION=POWER ON SEQUENCE

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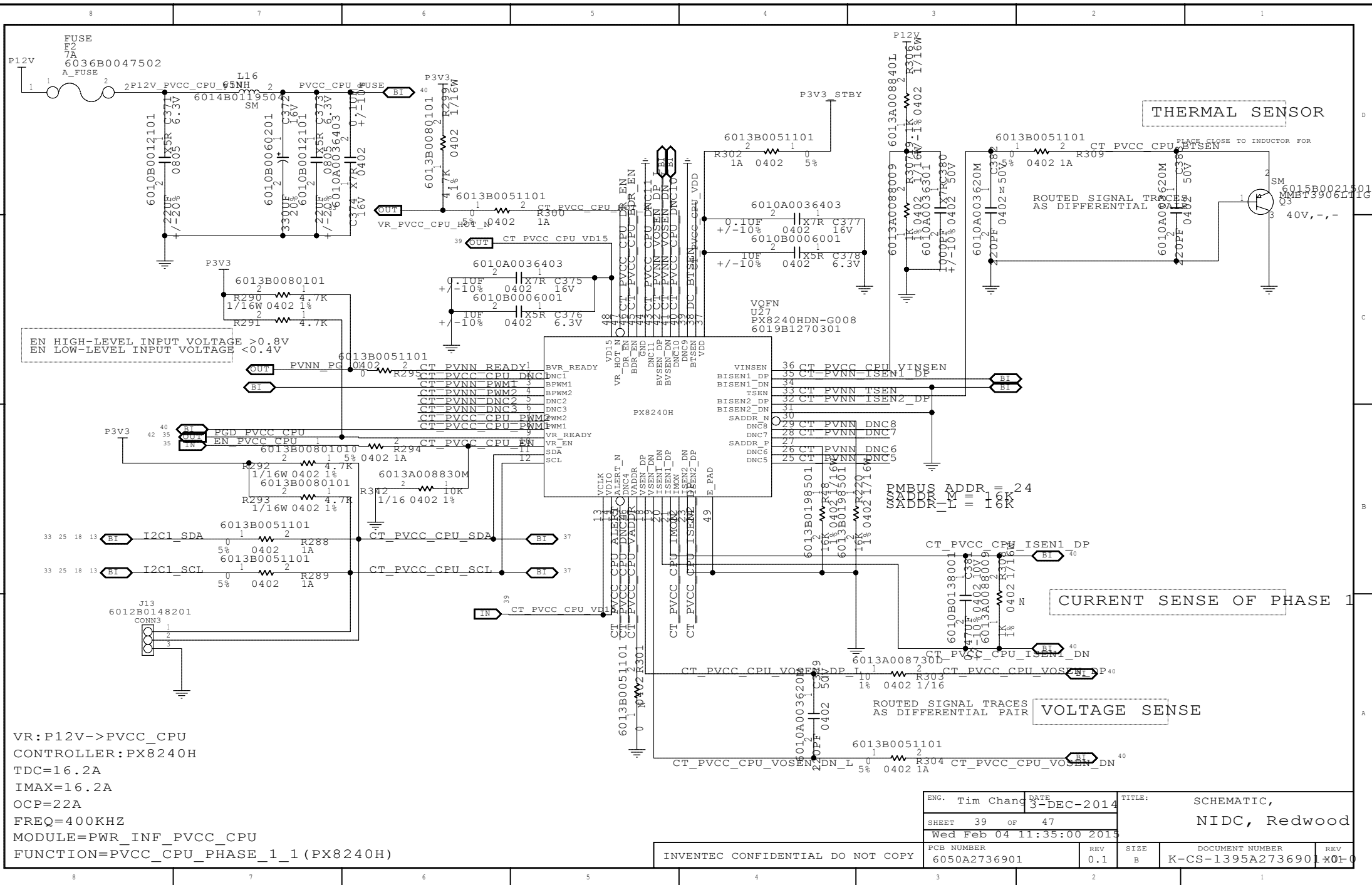
ENG. Tim Chang	DATE 3-DEC-2014	TITLE: SCHEMATIC, NIDC, Redwood		
SHEET 35 OF 47	Wed Feb 04 11:35:00 2015			
PCB NUMBER 6050A2736901	REV 0.1	SIZE B	DOCUMENT NUMBER K-CS-1395A2736901-0-0	REV X01



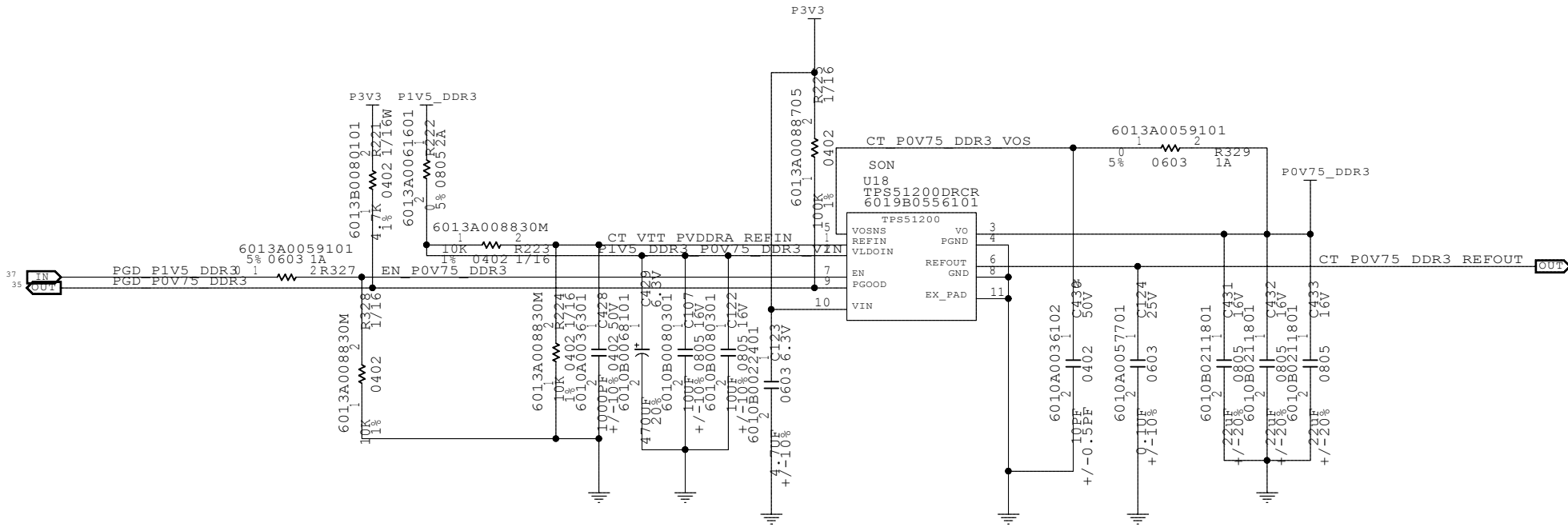


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CONTROLLER:PX8143
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IMAX=4.87A
OCP=7A
FREQ=400KHZ
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FUNCTION=P1V5_DDR3_PHASE_1(PX8143H)

ENG. Tim Chang	DATE 3-DEC-2014	TITLE: SCHEMATIC,
SHEET 37 OF 47	Wed Feb 04 11:35:00 2015	NIDC, Redwood
PCB NUMBER 6050A2736901	REV 0.1	SIZE B
DOCUMENT NUMBER K-CS-1395A2736901	REV 0.1	



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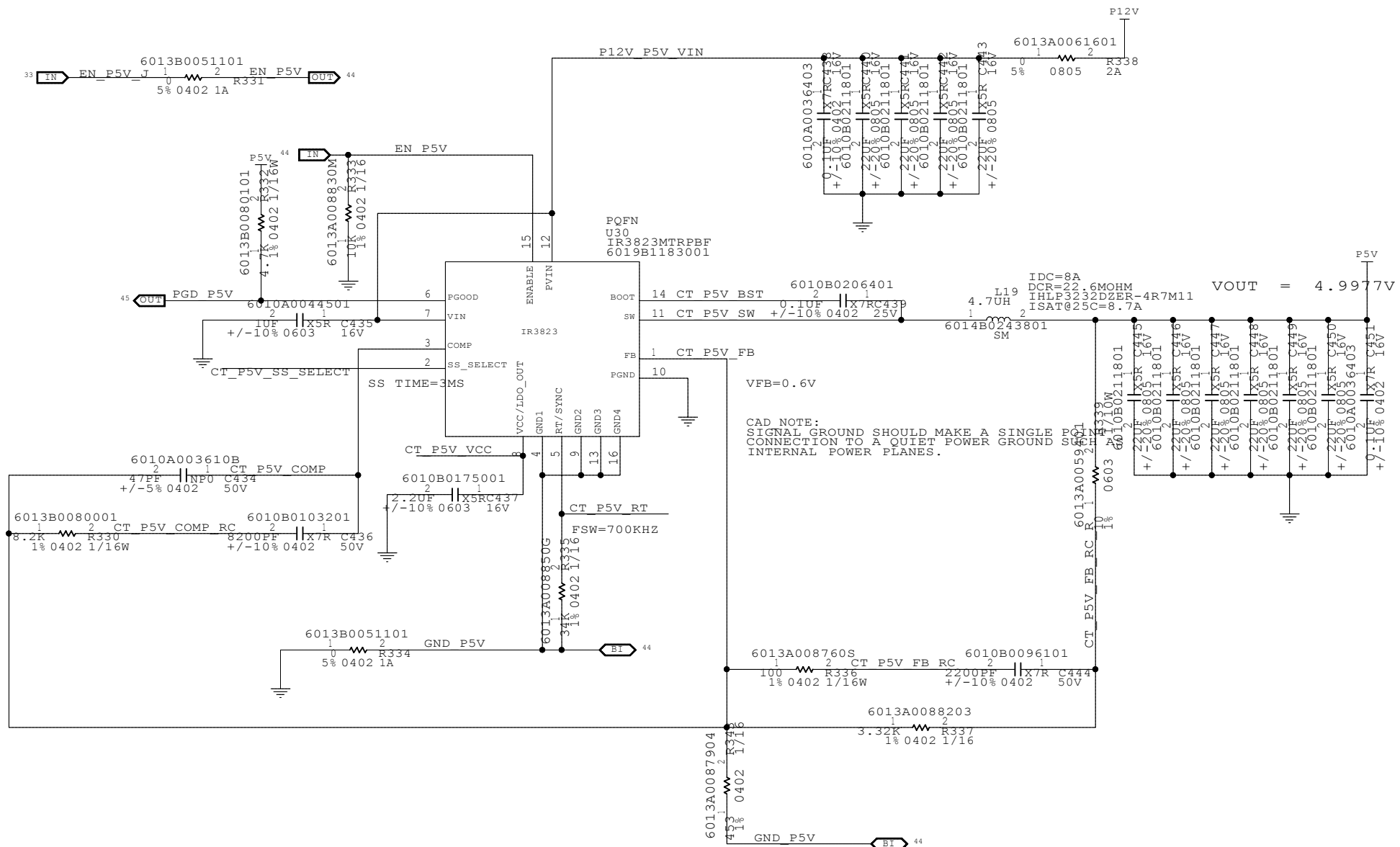


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FUNCTION=P0V75_DDR3_0.5A

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ENG. Tim Chang	DATE 3-DEC-2014	TITLE: SCHEMATIC, NIDC, Redwood		
SHEET 43 OF 47	Wed Feb 04 11:35:02 2015			
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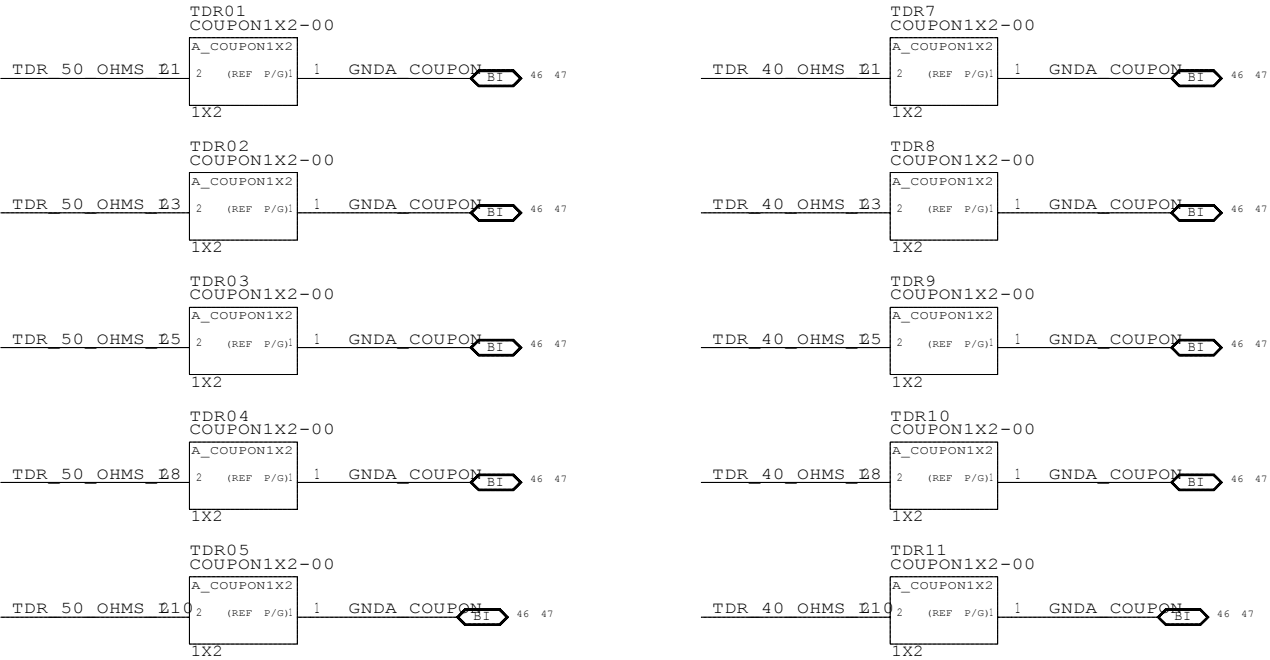


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FUNCTION=P5V_1.2A

ENG. Tim Chang		DATE 3-DEC-2014	TITLE: SCHEMATIC,	
SHEET 44		OF 47	NIDC, Redwood	
Wed Feb 04 11:35:02 2015				
PCB NUMBER	REV	SIZE	DOCUMENT NUMBER	REV
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INVENTEC CONFIDENTIAL DO NOT COPY

GOUPON

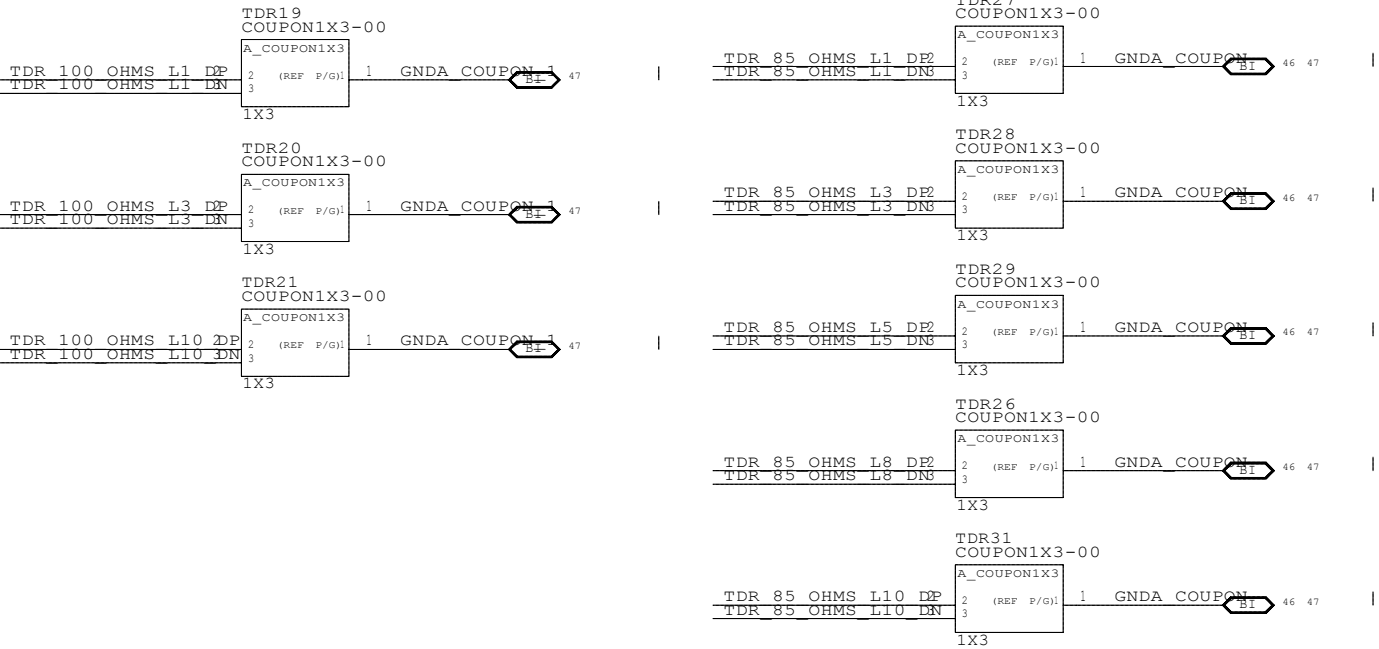


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FUNCTION=GOUPON

INVENTEC CONFIDENTIAL DO NOT COPY

ENG. Tim Chang		DATE 3-DEC-2014		TITLE: SCHEMATIC, NIDC, Redwood		
SHEET 46 OF 47						
Wed Feb 04 11:35:02 2015						
PCB NUMBER 6050A2736901		REV 0.1	SIZE B	DOCUMENT NUMBER K-CS-1395A2736901-0-0		REV X01

GOUPON & MOUNTING HOLES



MODULE=P2041
FUNCTION=GOUPON & MOUNTING HOLES

INVENTEC CONFIDENTIAL DO NOT COPY

ENG. Tim Chang	DATE 3-DEC-2014	TITLE: SCHEMATIC, NIDC, Redwood			
SHEET 47	OF 47				
Wed Feb 04 11:35:02 2015					
PCB NUMBER 6050A2736901	REV 0.1	SIZE B	DOCUMENT NUMBER K-CS-1395A2736901-0-0	REV X01	