

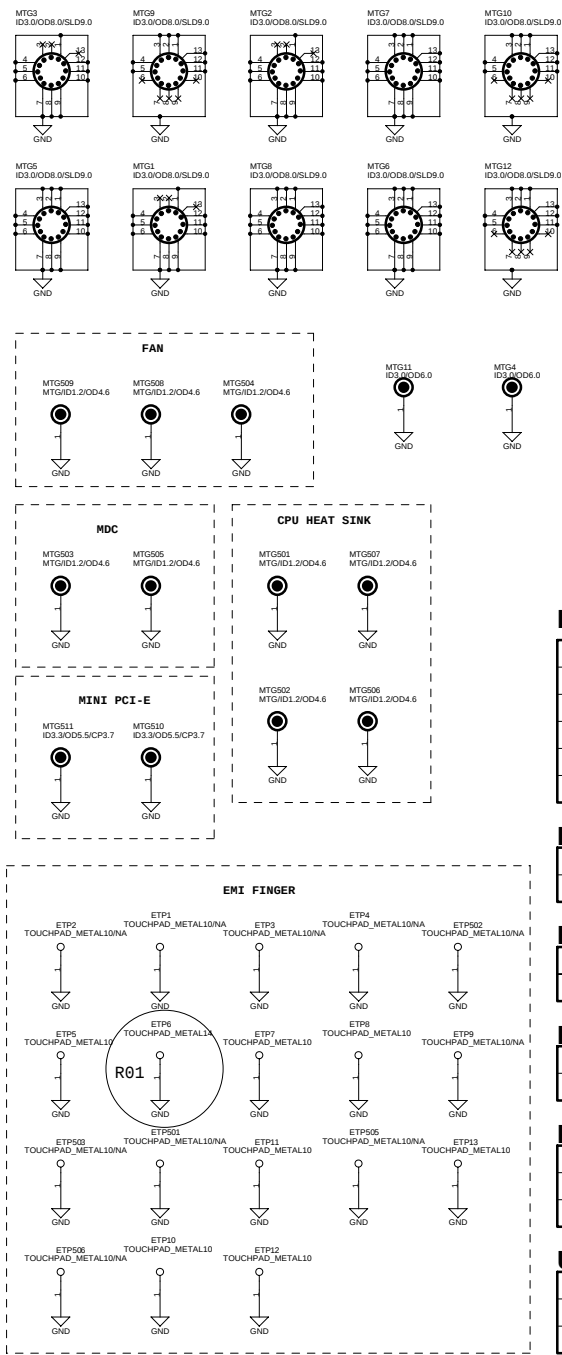
MODEL : 8515 Revision R0A

Project Code : G383
Product Code :8171
PCB : 316817100002
PCBA : 411817100001

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DRAW	DESIGN	CHECK	ISSUED

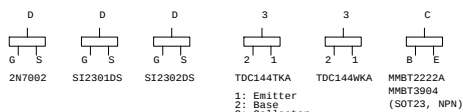


POWER STATES

STATE SIGNAL	VOTAGE	POWER ON	STR (S3)	STD (S4)	MEC-OFF (S5)	REMARK
SUSB#	-	HIGH	LOW	LOW	LOW	
SUSC#	-	HIGH	HIGH	LOW	LOW	
ADP	+19V	0	0	0	0	
BATTERY	+12V	0	0	0	0	
+VDD3_ALW	+3.3V	0	0	0	0	
+VDD3_AVREF	+3.3V	0	0	0	0 / X	SS : X in Battery mode
VDD3S	+3.3V	0	0	0	0 / X	SS : X in Battery mode
VDD2_5S	+2.5V	0	0	0	0 / X	SS : X in Battery mode
+5V	+5V	0	0	X	X	
+3V	+3.3V	0	0	X	X	
+2.5V	+2.5V	0	0	X	X	
+1.8V	+1.8V	0	0	X	X	
+1.5V	+1.5V	0	0	X	X	
+5VS	+5V	0	X	X	X	
+3VS	+3.3V	0	X	X	X	
+2.5VS	+2.5V	0	X	X	X	
+1.8VS	+1.8V	0	X	X	X	
+1.5VS	+1.5V	0	X	X	X	
+1.05V_VCCP	+1.05V	0	X	X	X	
+0.9VS	+0.9V	0	X	X	X	
+CPU_CORE		0	X	X	X	

I2C / SMB Address

DEVICE	WRITE	READ
ICS953009	D2	D3
ICS9P956	DC	DD
DIMM0	A0	A1
DIMM1	A2	A3
AD1032	98	99



IDSEL

IDSEL	CHIP
	N/A

BUS MASTER

REQ/GNT	CHIP
	N/A

PCIINT

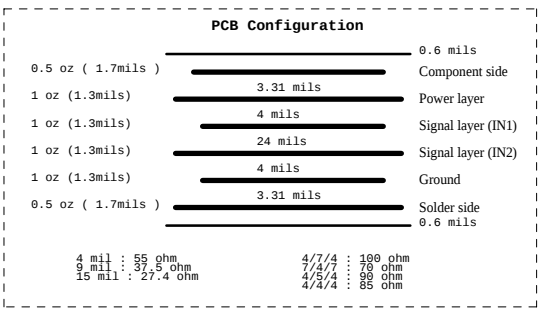
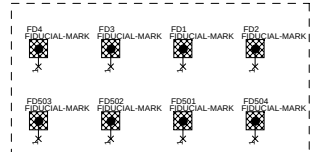
PCIINT	CHIP
	N/A

PCIE LANE

LANE	DEVICE
1	Mini Card
2	Express Card

USB

PORT	DEVICE
4	Mini Card
5	Express Card

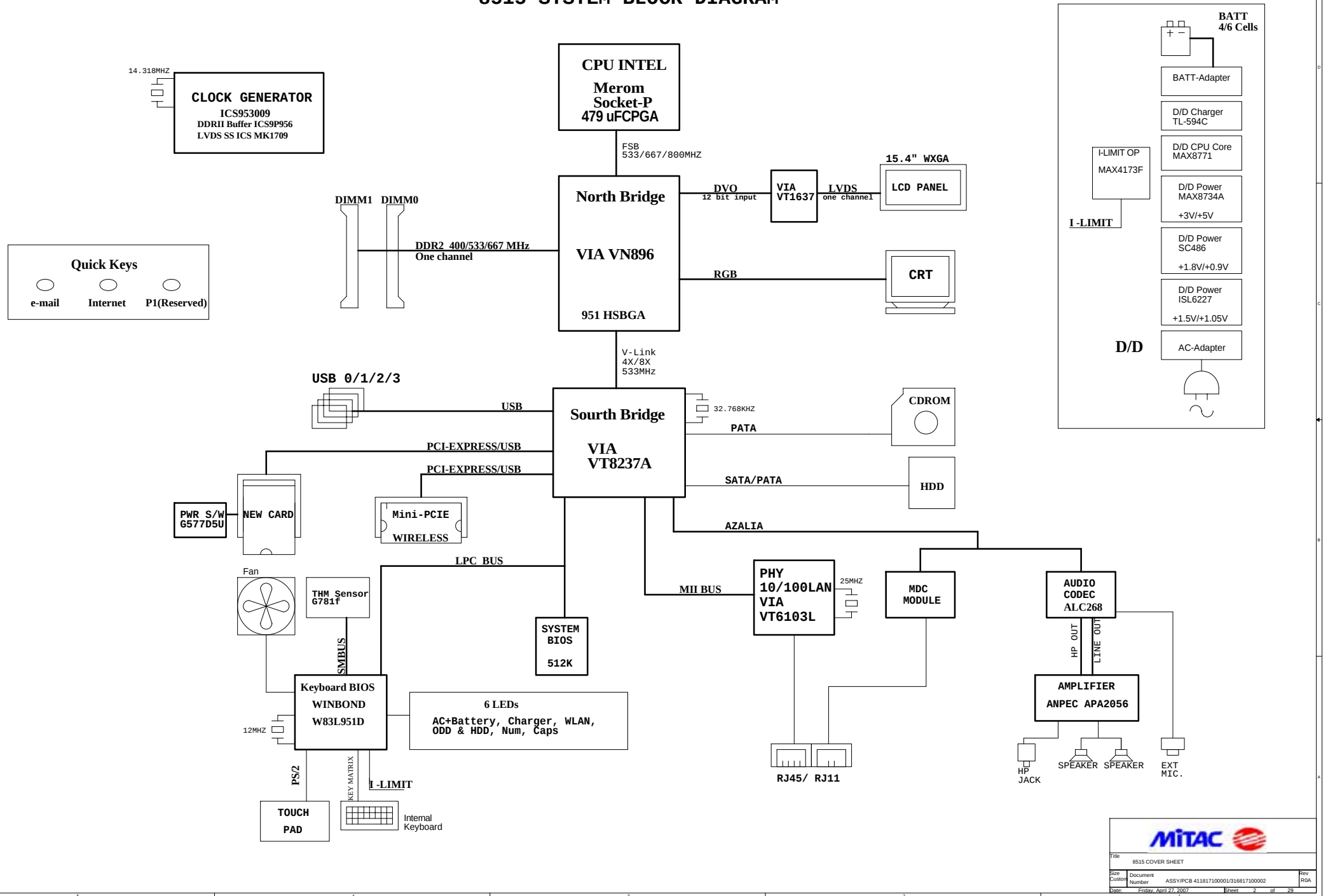


Title: 8515 COVER SHEET

Size: Custom
Document Number: ASSY/PCB 411817100001/316817100002
Date: Friday, April 27, 2007

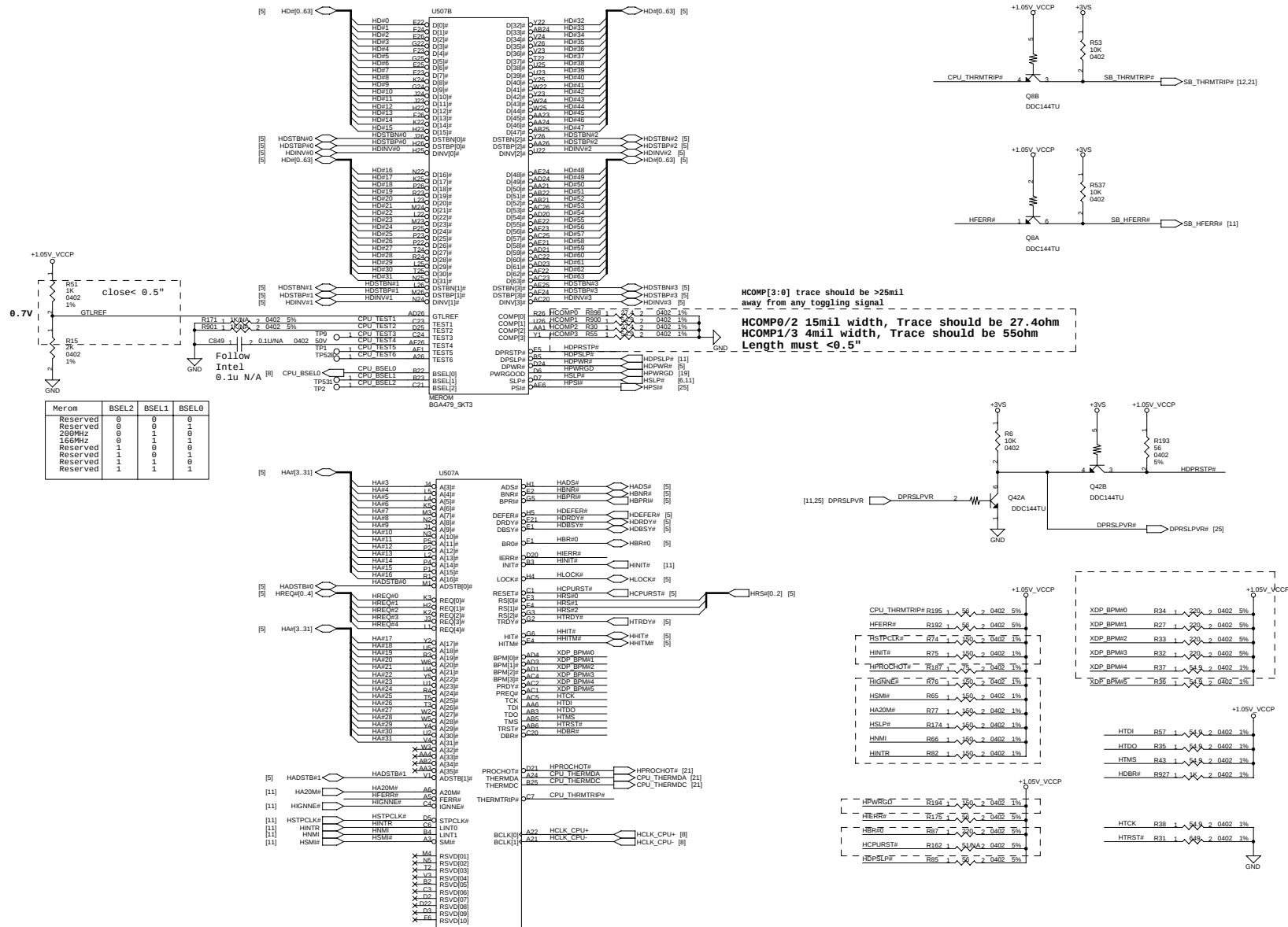
Rev: R0A
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8515 SYSTEM BLOCK DIAGRAM



Title 8515 COVER SHEET			
Size Custom	Document Number	ASSY/PCB 411817100001/316817100002	Rev RGA
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CPU -Merom socket-p(1/2)



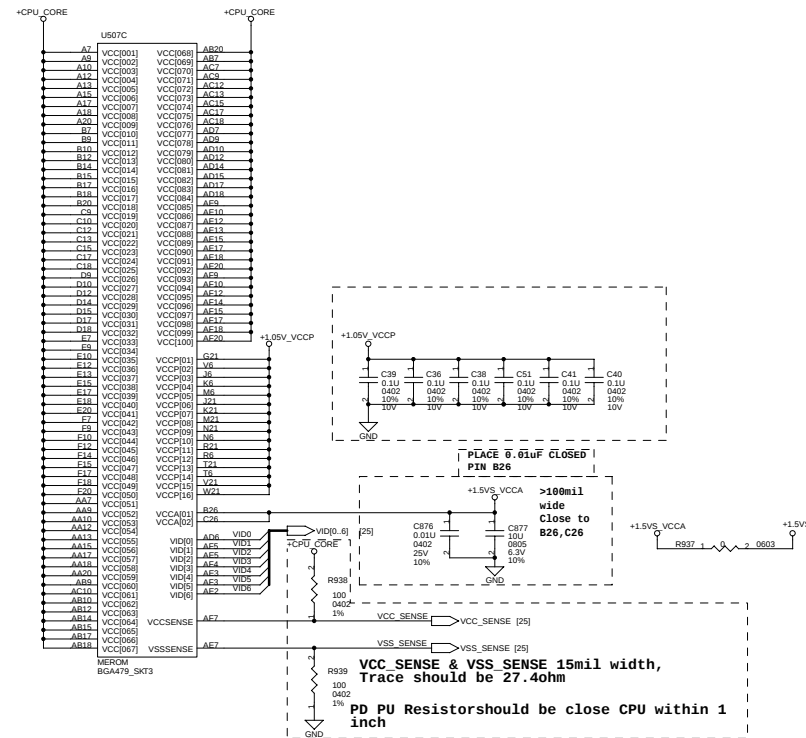
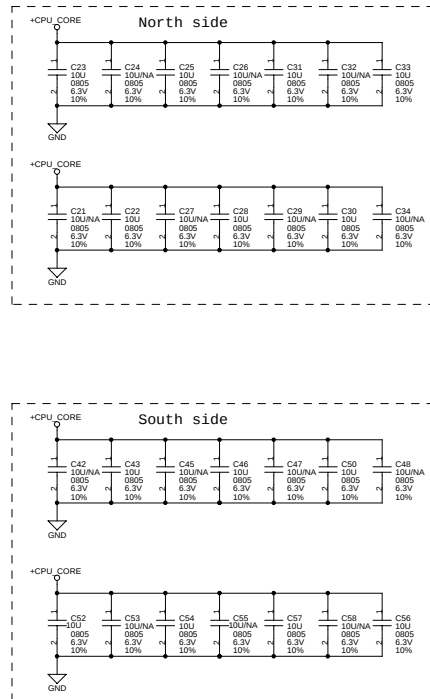
Title			
8515 CPU Merom(1/2)			
Size	Document	ASSY(PCB 411817100001/316817100002	Rev
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CPU - Merom socket-p (2/2)

In Matanzas 1.5 demo board

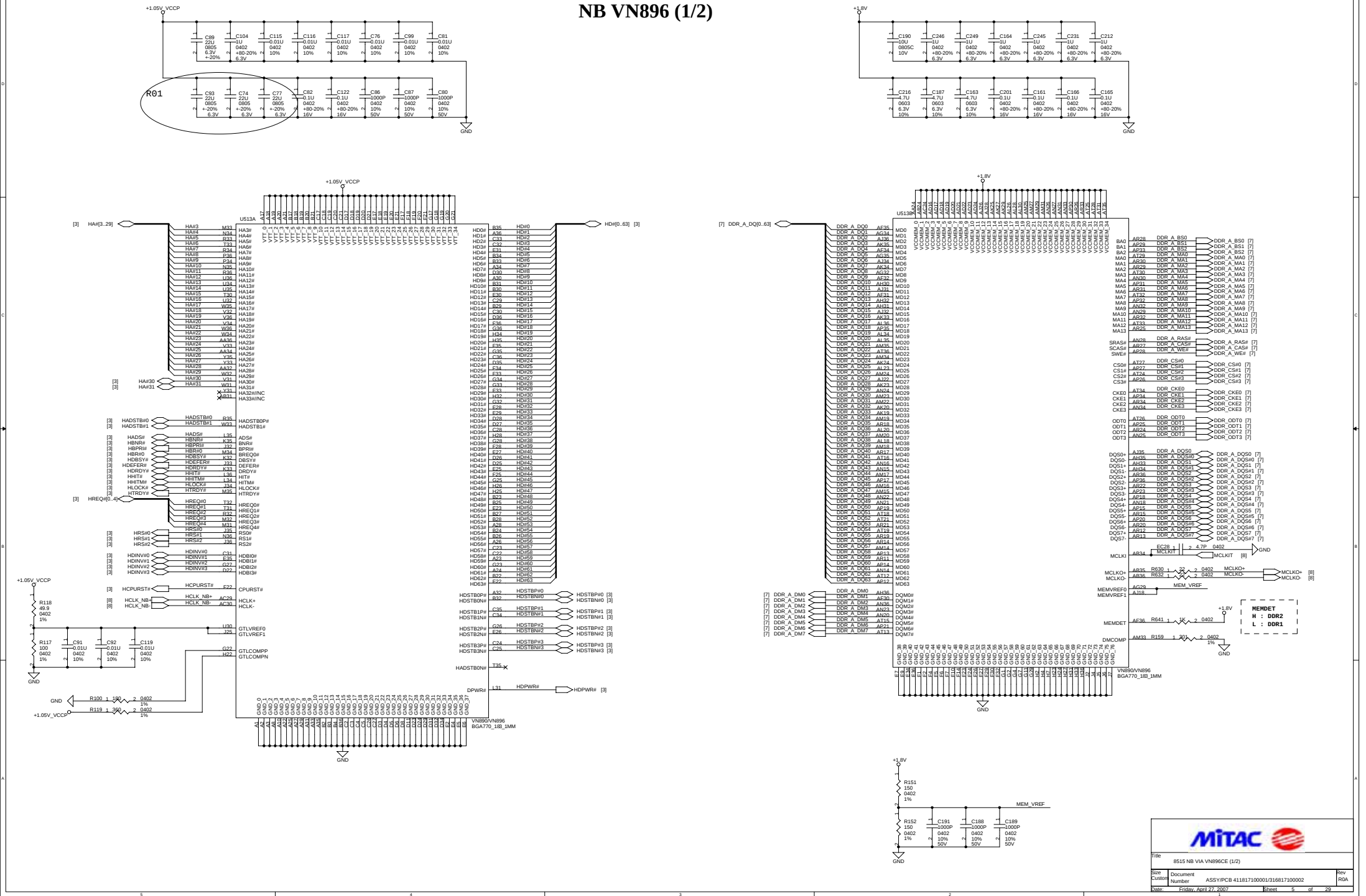
330uF x 4
10uF x 32

CPU Mid-Freq Decoupling

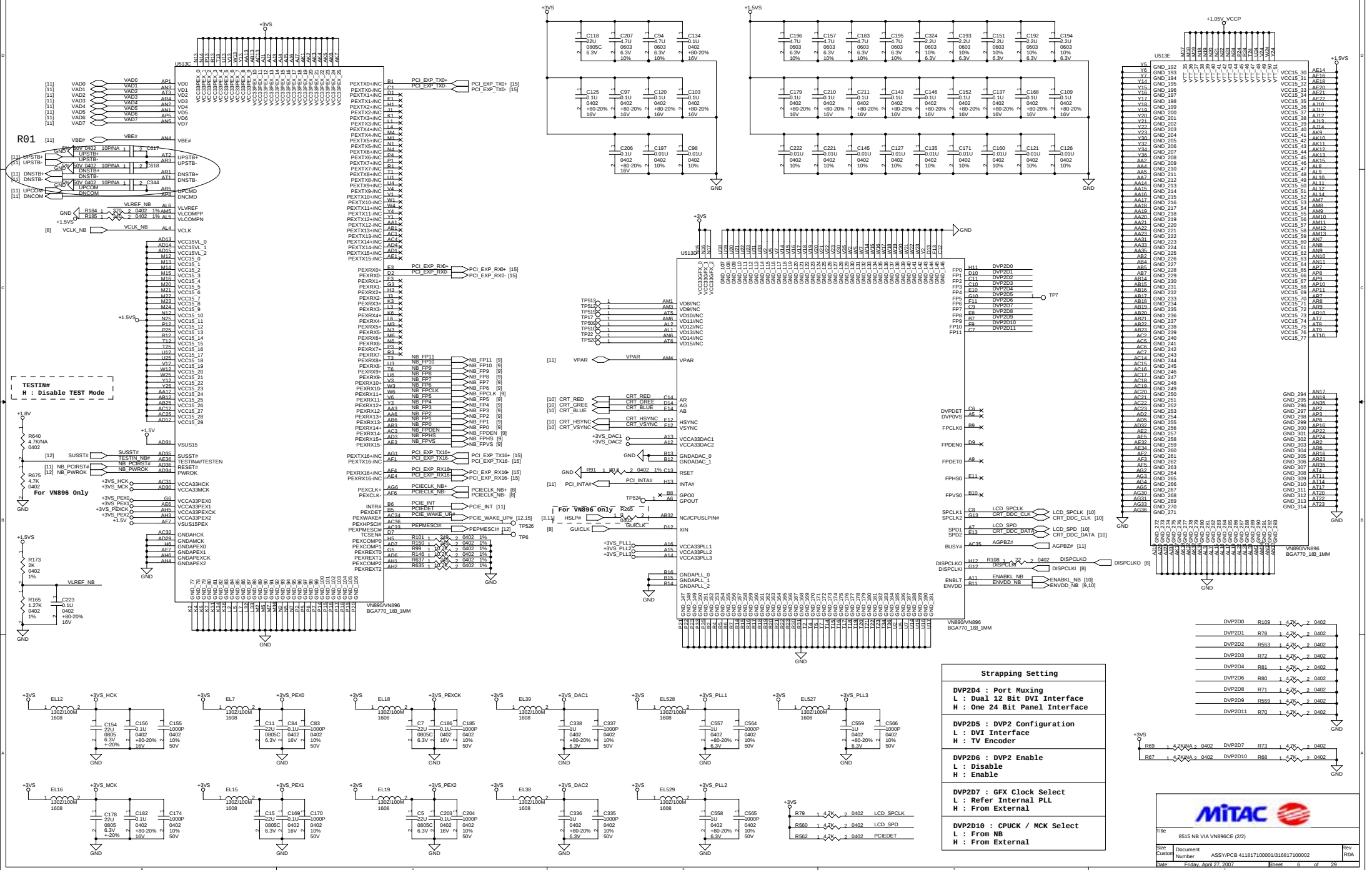


US070		
A4	V5S0002	B6
A8	V5S0003	B7
A11	V5S0004	P24
A13	V5S0005	V5S0006
A15	V5S0006	V5S0005
A16	V5S0007	V5S0007
A27	V5S0007	V5S0008
A27	V5S0008	V5S0009
A31	V5S0009	V5S0010
B8	V5S0010	V5S0011
B11	V5S0011	V5S0012
B12	V5S0012	V5S0013
B14	V5S0013	V5S0014
B15	V5S0014	V5S0015
B16	V5S0015	V5S0016
C1	V5S0016	V5S0017
C1	V5S0017	V5S0018
C11	V5S0018	V5S0019
C13	V5S0019	V5S0020
C16	V5S0020	V5S0021
C2	V5S0021	V5S0022
C2	V5S0022	V5S0023
C26	V5S0023	V5S0024
C26	V5S0024	V5S0025
C26	V5S0025	V5S0026
C26	V5S0026	V5S0027
D8	V5S0027	V5S0028
D11	V5S0028	V5S0029
D13	V5S0029	V5S0030
D16	V5S0030	V5S0031
D16	V5S0031	V5S0032
D16	V5S0032	V5S0033
D16	V5S0033	V5S0034
D16	V5S0034	V5S0035
E8	V5S0035	V5S0036
E8	V5S0036	V5S0037
E8	V5S0037	V5S0038
E16	V5S0038	V5S0039
E16	V5S0039	V5S0040
E16	V5S0040	V5S0041
E24	V5S0041	V5S0042
E24	V5S0042	V5S0043
E24	V5S0043	V5S0044
E24	V5S0044	V5S0045
F11	V5S0045	V5S0046
F11	V5S0046	V5S0047
F11	V5S0047	V5S0048
F22	V5S0048	V5S0049
F22	V5S0049	V5S0050
F22	V5S0050	V5S0051
F22	V5S0051	V5S0052
F22	V5S0052	V5S0053
G1	V5S0053	V5S0054
G1	V5S0054	V5S0055
G1	V5S0055	V5S0056
G1	V5S0056	V5S0057
G1	V5S0057	V5S0058
H21	V5S0058	V5S0059
H21	V5S0059	V5S0060
H21	V5S0060	V5S0061
I22	V5S0061	V5S0062
I22	V5S0062	V5S0063
I22	V5S0063	V5S0064
K4	V5S0064	V5S0065
K4	V5S0065	V5S0066
K4	V5S0066	V5S0067
L3	V5S0067	V5S0068
L3	V5S0068	V5S0069
L3	V5S0069	V5S0070
L3	V5S0070	V5S0071
L3	V5S0071	V5S0072
L3	V5S0072	V5S0073
M2	V5S0073	V5S0074
M2	V5S0074	V5S0075
M2	V5S0075	V5S0076
N1	V5S0076	V5S0077
N1	V5S0077	V5S0078
N23	V5S0078	V5S0079
N23	V5S0079	V5S0080
P3	V5S0080	V5S0081
P3	V5S0081	V5S0082
P3	V5S0082	V5S0083
P3	V5S0083	V5S0084
P3	V5S0084	V5S0085
P3	V5S0085	V5S0086
P3	V5S0086	V5S0087
P3	V5S0087	V5S0088
P3	V5S0088	V5S0089
P3	V5S0089	V5S0090
P3	V5S0090	V5S0091
P3	V5S0091	V5S0092
P3	V5S0092	V5S0093
P3	V5S0093	V5S0094
P3	V5S0094	V5S0095
P3	V5S0095	V5S0096
P3	V5S0096	V5S0097
P3	V5S0097	V5S0098
P3	V5S0098	V5S0099
P3	V5S0099	V5S0100
P3	V5S0100	V5S0101
P3	V5S0101	V5S0102
P3	V5S0102	V5S0103
P3	V5S0103	V5S0104
P3	V5S0104	V5S0105
P3	V5S0105	V5S0106
P3	V5S0106	V5S0107
P3	V5S0107	V5S0108
P3	V5S0108	V5S0109
P3	V5S0109	V5S0110
P3	V5S0110	V5S0111
P3	V5S0111	V5S0112
P3	V5S0112	V5S0113
P3	V5S0113	V5S0114
P3	V5S0114	V5S0115
P3	V5S0115	V5S0116
P3	V5S0116	V5S0117
P3	V5S0117	V5S0118
P3	V5S0118	V5S0119
P3	V5S0119	V5S0120
P3	V5S0120	V5S0121
P3	V5S0121	V5S0122
P3	V5S0122	V5S0123

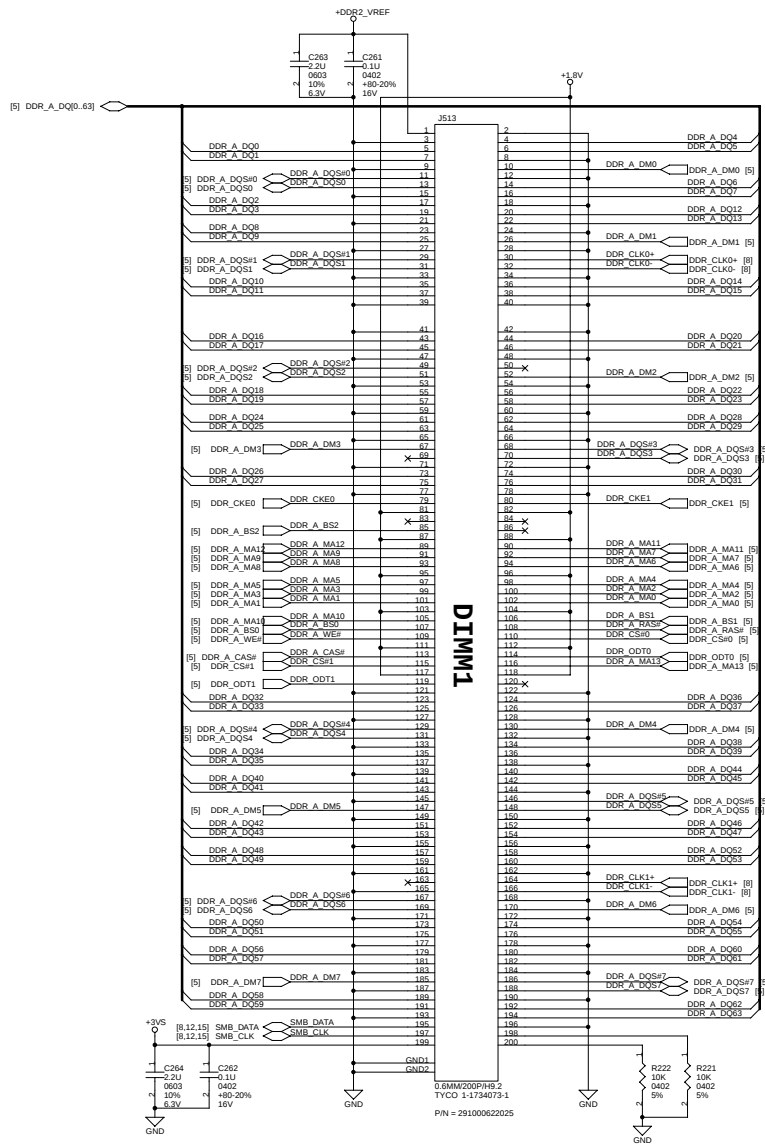
NB VN896 (1/2)



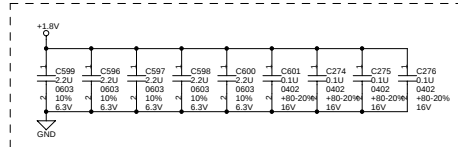
NB VN896 (2/2)



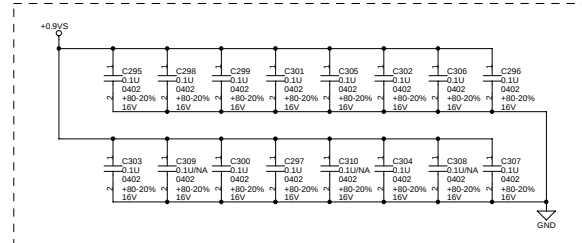
DDR2 SODIMM



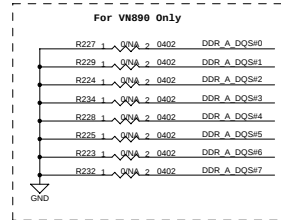
Place these Caps near So-Dimm 0



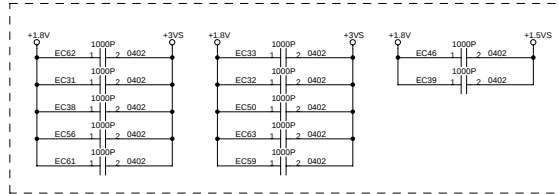
Place one cap close to every 2 pullup resistors terminated to +0.9VS



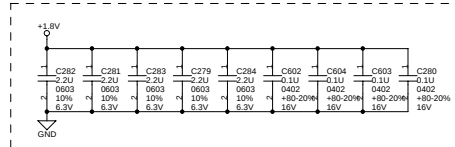
Close to SO-DIMM



FOR EMI REQUEST

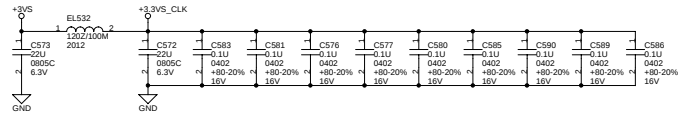


Place these Caps near So-Dimm 1



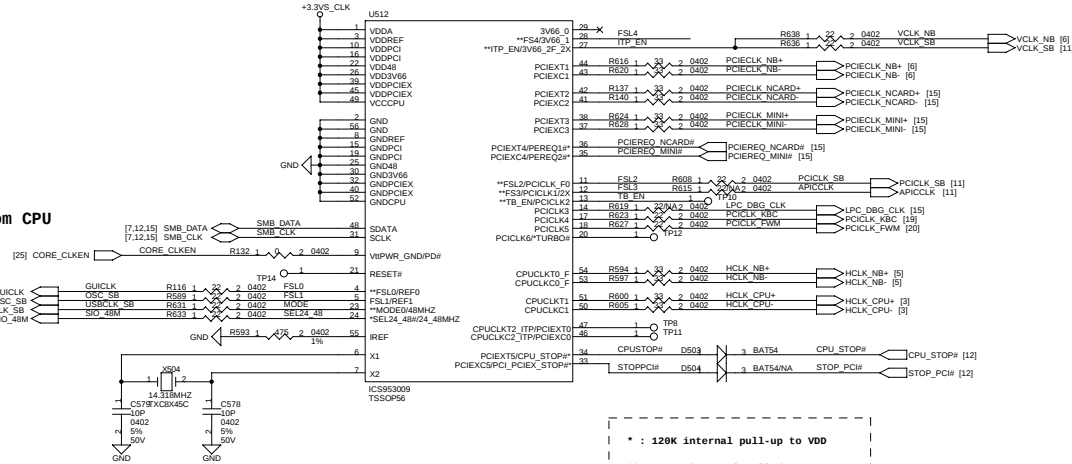
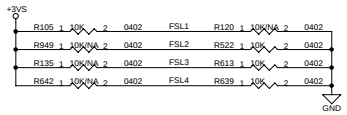
Title			
8515 DDR2 SODIMM			
Size	Document		Rev
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CLOCK GENERATOR



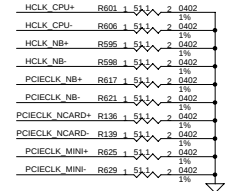
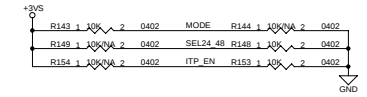
Frequency Setting					
FSL4	FSL3	FSL2	FSL1	FSL0	CPU
0	0	1	0	1	100 MHz
0	0	0	0	1	133 MHz
0	0	0	1	1	166 MHz
0	0	0	1	0	200 MHz

For Merom CPU

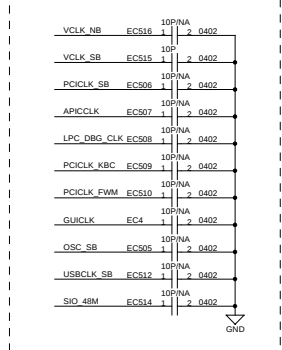


* : 120K internal pull-up to VDD
** : 120K internal pull-down to GND

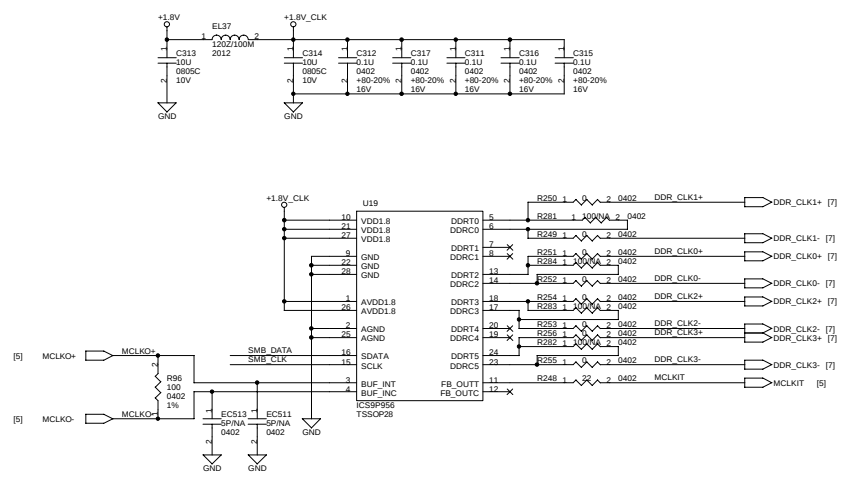
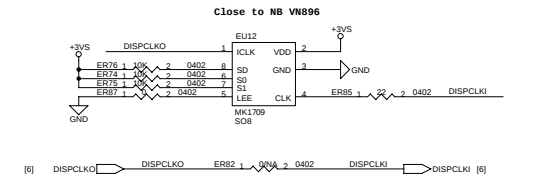
MODE		SEL24_48		ITP_EN	
0	Desktop	0	48 MHz	0	Disable
1	Mobile	1	24 MHz	1	Enable



FOR EMI REQUEST

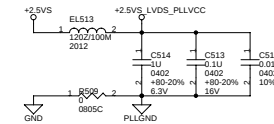
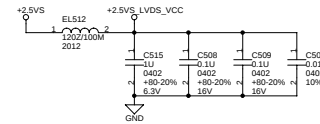
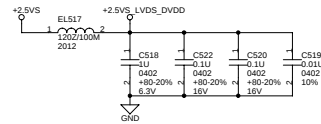


FOR EMI REQUEST

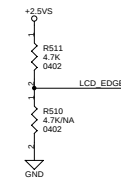
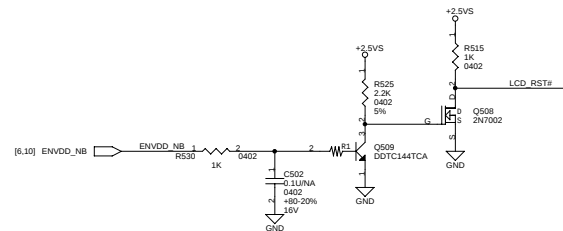
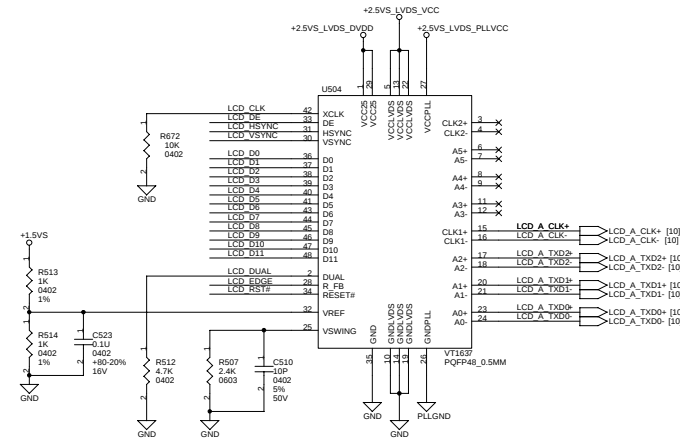
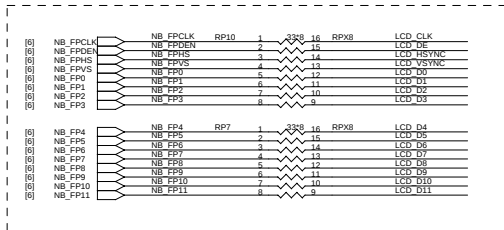


Title			8515 CLK GEN ICS953009 & ICS9P956
Size	Document	Rev	Rev
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LVDS TRANSMITTER (VT1637)



Close to NB V896

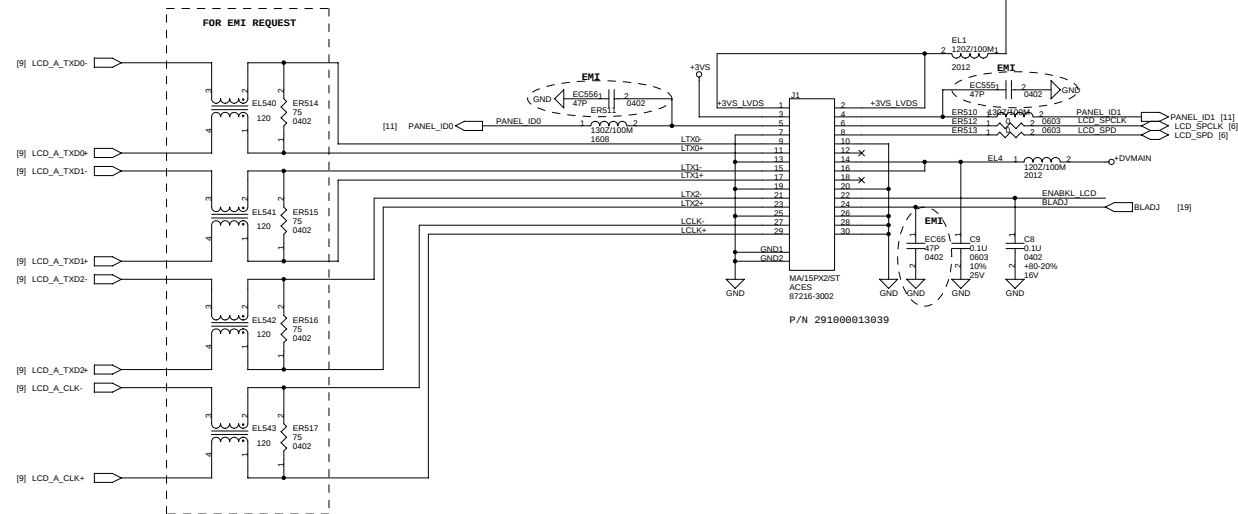
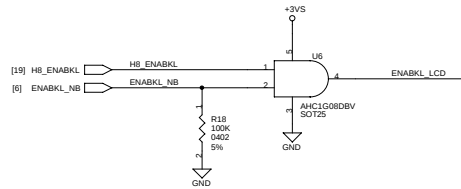


LCD_EDGE	
0	Falling
1	Rising

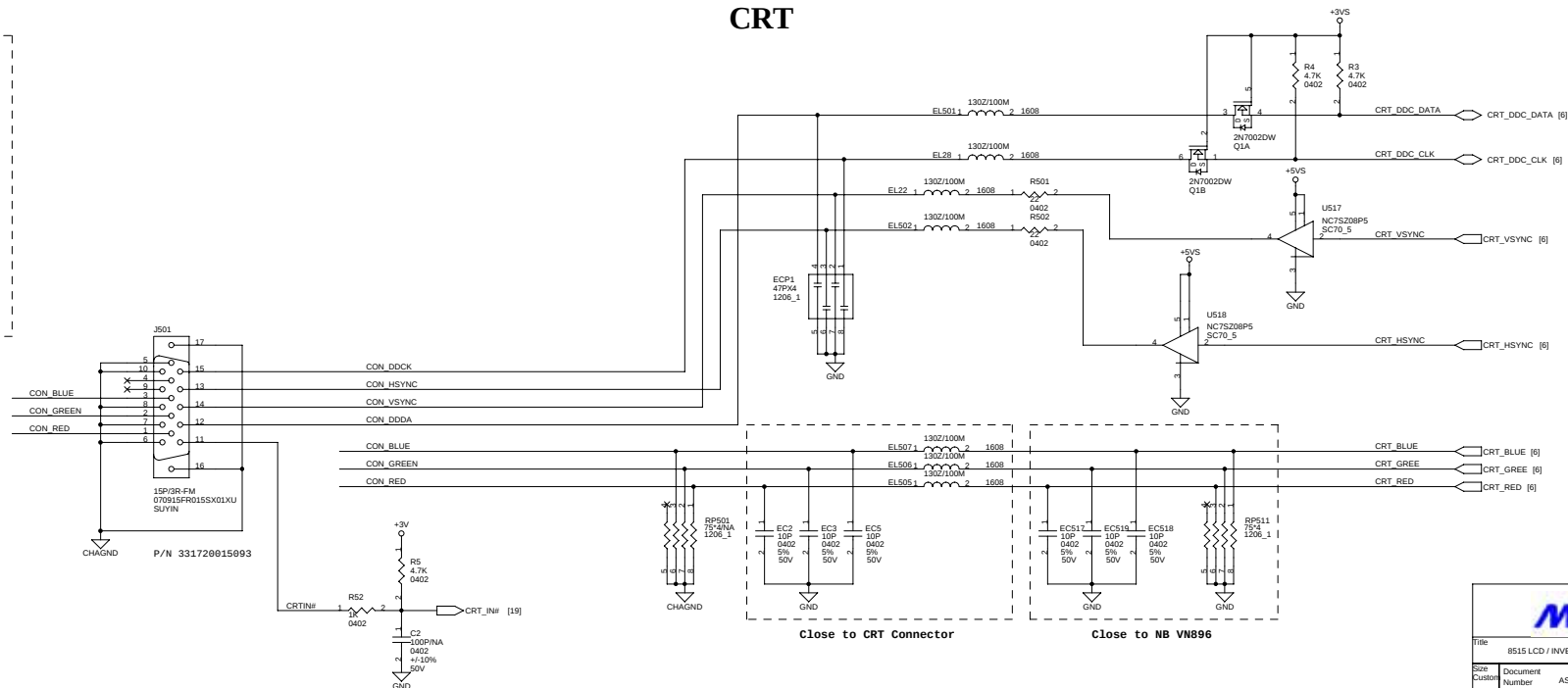
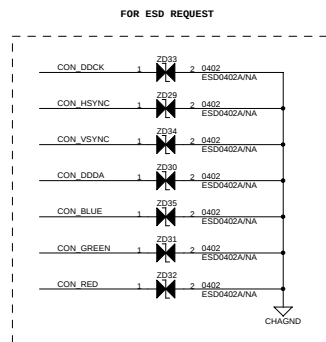


Title	8515 LVDS TRANSMITTER VIA VT1637	Rev	Rev
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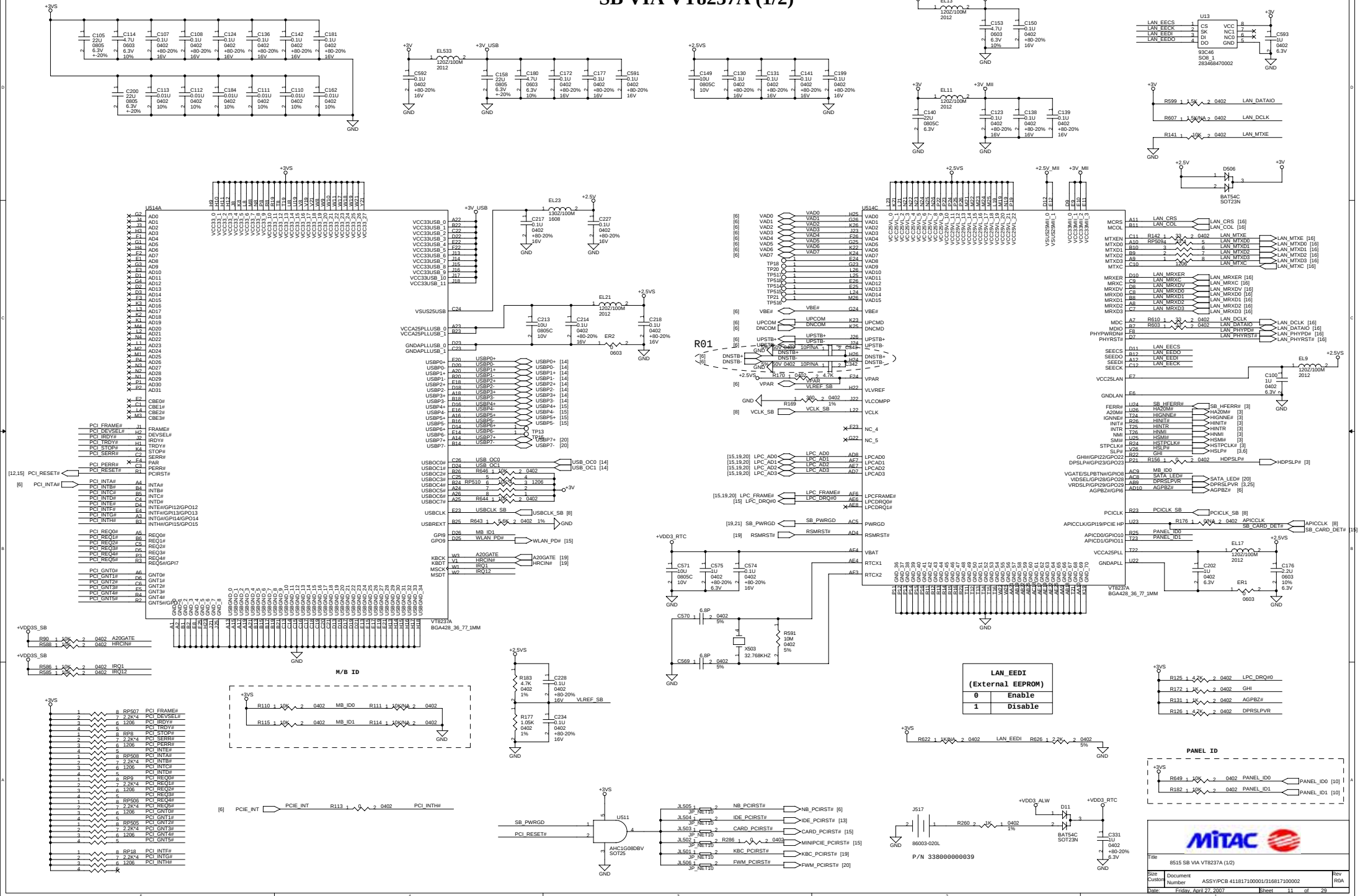
LCD / INVERTER



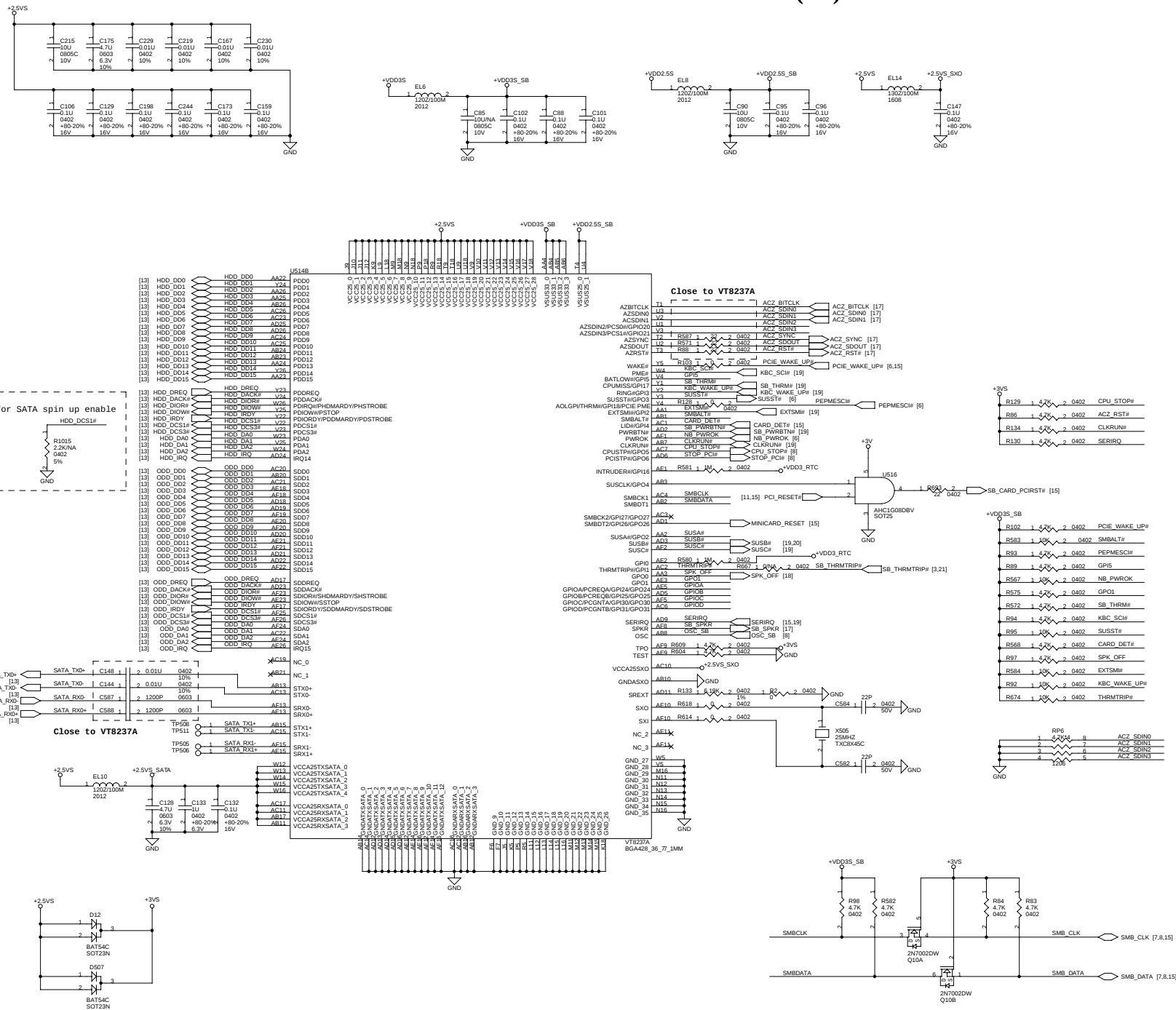
Pannel ID		
LCD_ID1	LCD_ID0	PANEL TYPE
0	0	
0	1	
1	0	
1	1	



SB VIA VT8237A (1/2)



SB VIA VT8237A (2/2)

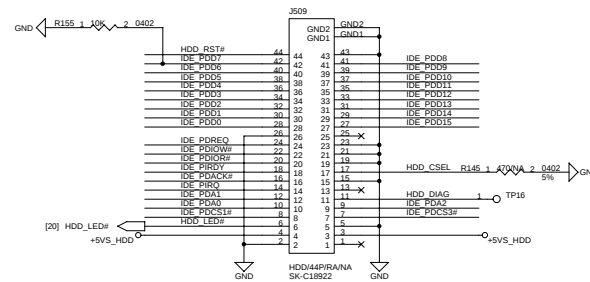
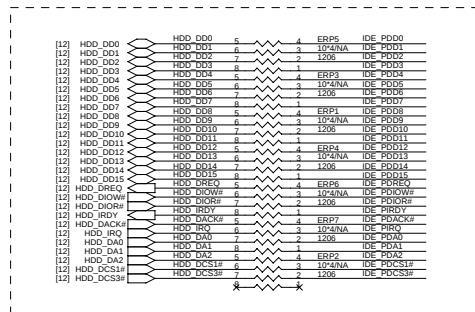


Strapping Setting		
SUSAF# : LAN PHY Reset L : Mobile H : Desktop		
SB_SPKR : CPU Frequency Strapping L : Enable H : Disable		
ACZ_SDOUT : Auto Reboot L : Enable H : Disable		
ACZ_SYNC : LPC FWM Command L : Enable H : Disable		
PCI_STOP# : Reserver		
HDD_DCS3# : (NB VD7) Vlink Reference Voltage L : 0.75V H : 0.9V		
HDD_DA2 : (NB VD6) V4 Support L : Disable H : V4 Capability		
HDD_DA1 : (NB VD5) V4-Lite Support L : Disable H : V4-Lite Capability		
HDD_DA0 : (NB VD4) Vlink Comensation L : Auto Mode H : Manual		
GPIOD : (NB VD3) AGTL+ Pullup L : Enable H : Disable		
GPIOB : (NB VD2) IOQ Depth L : 8 Level H : 1 Level		
GPIOA	GPIOC	Host Clock Frequency
0	0	100 MHz
0	1	133 MHz
1	0	200 MHz
1	1	Auto Mode

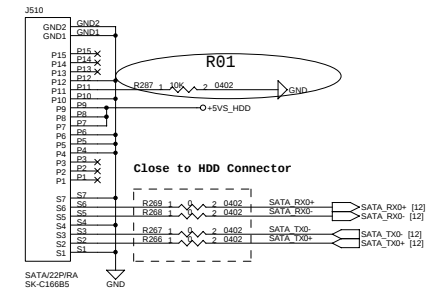
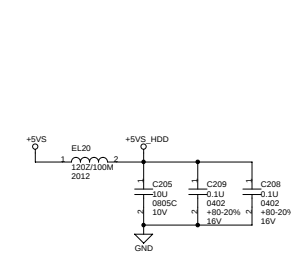
GPIOA	GPIOC	Host Clock Frequency
0	0	100 MHz
0	1	133 MHz
1	0	200 MHz
1	1	Auto Mode

HDD SATA CONNECTOR

FOR EMI REQUEST
Close to Connector



P/N 291000014431



P/N 331000022012

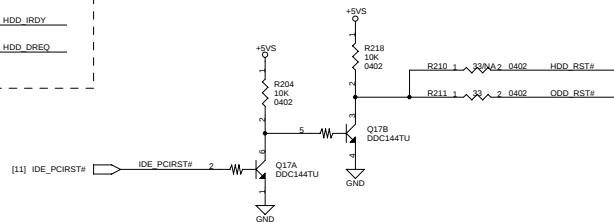
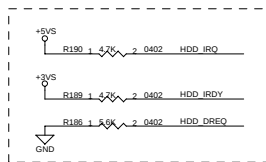
SATA PCBA : 411813900004

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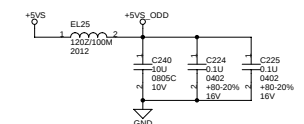
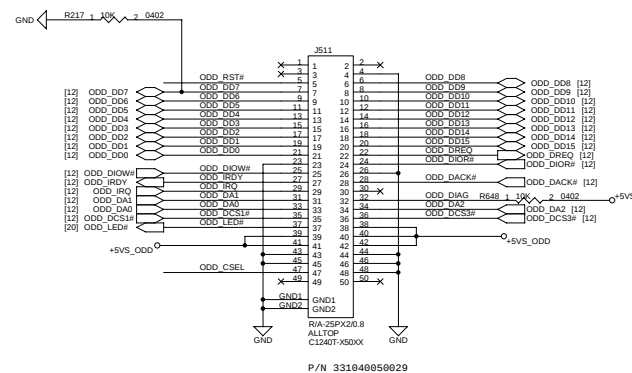
(a) Add C144, C148, C587, C588 ---> Page 12
(b) Add R266, R267, R268, R269 ---> Page 13
(c) Add J510 ---> Page 13
(d) Del ERP1, ERP2, ERP3, ERP4, ERP5, ERP6, ERP7 ---> Page 13
(e) Del J509 ---> Page 13
(f) Del R145 ---> Page 13
(g) Del R210 ---> Page 13
(h) Del R7 ---> Page 20
 Add R11 ---> Page 20

```

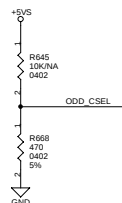
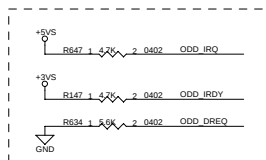
Close to SB VT8237A



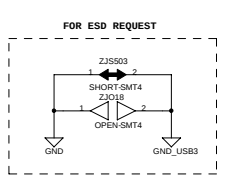
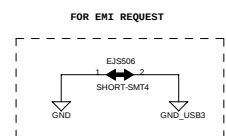
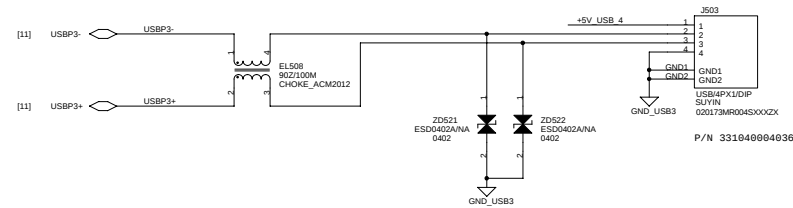
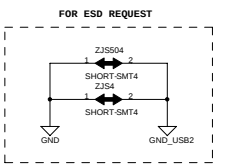
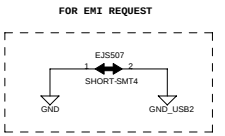
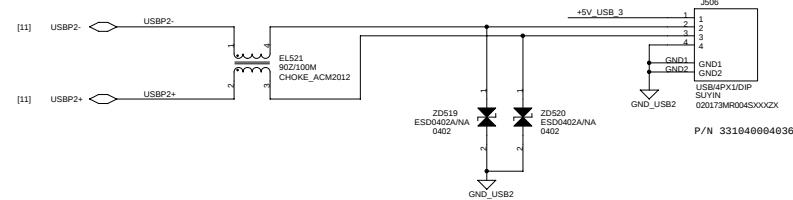
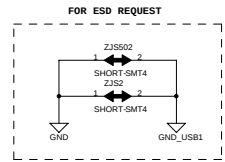
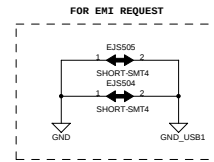
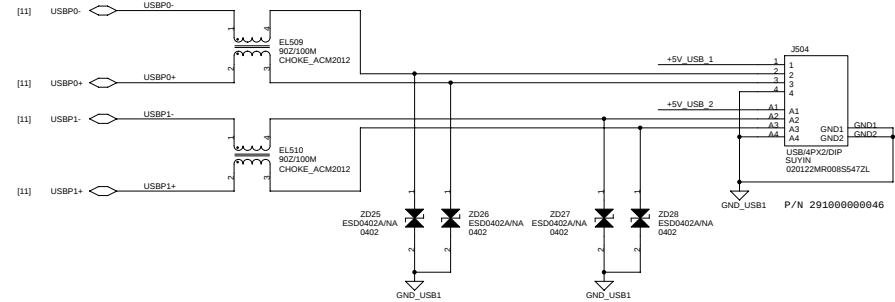
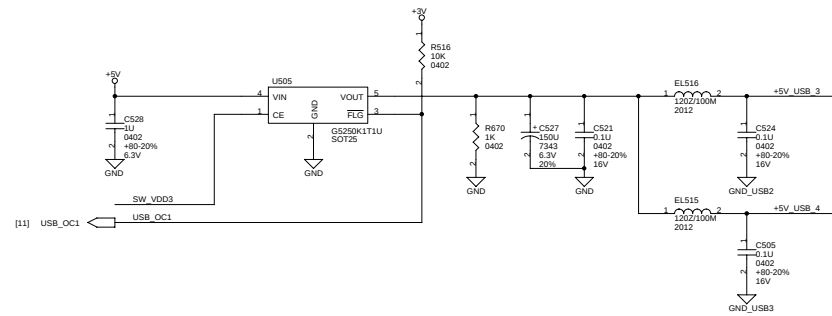
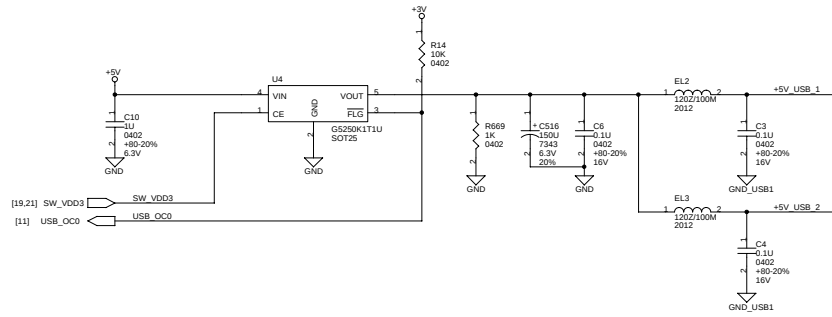
## ODD SECONDARY IDE CONNECTOR



Close to SB VT8237A



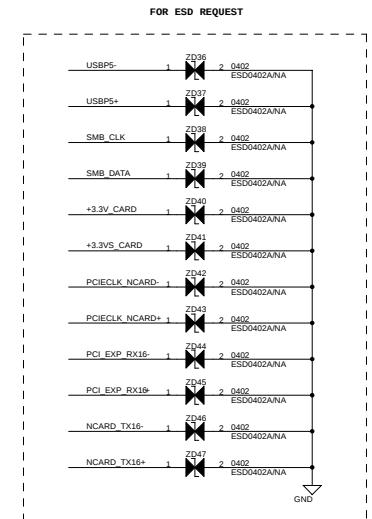
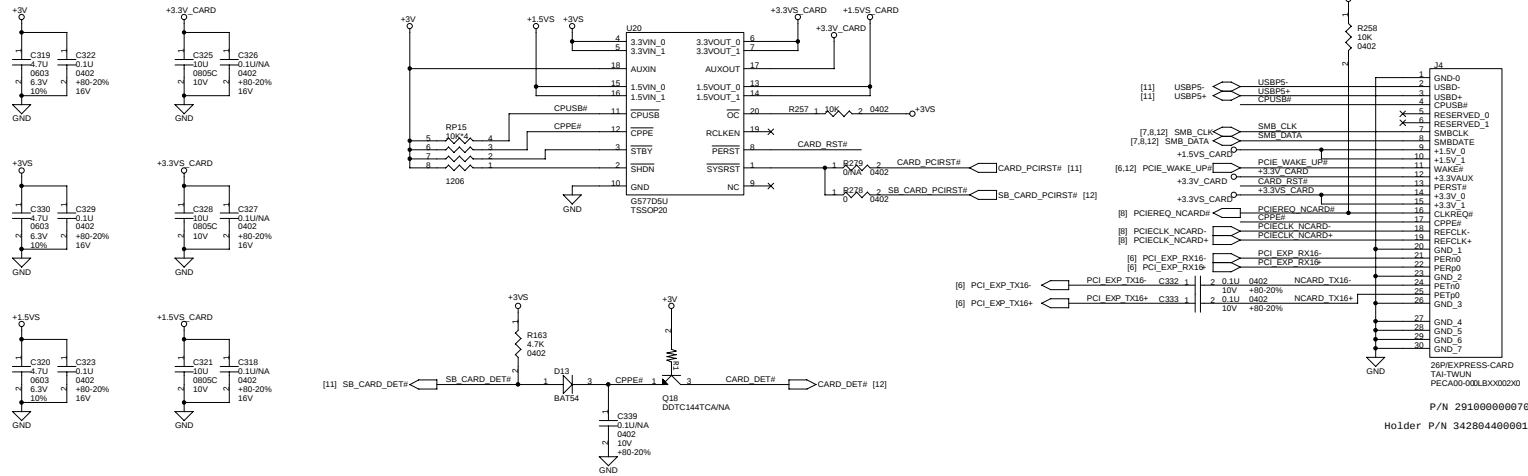
# USB



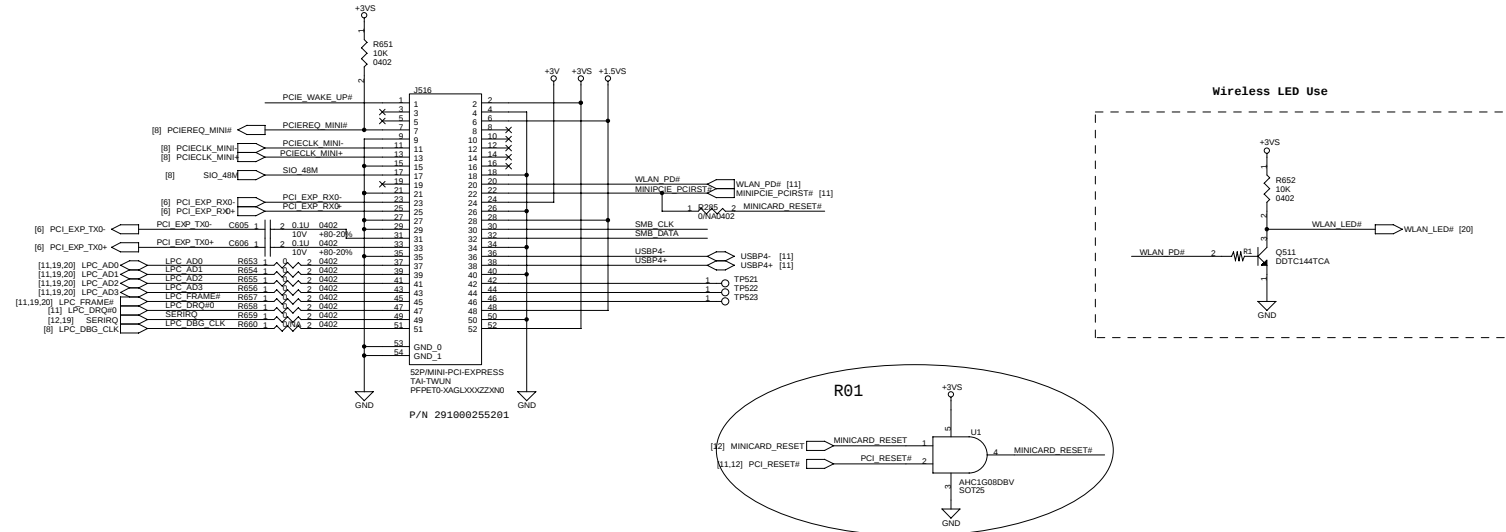
|                    |                        |                                    |          |
|--------------------|------------------------|------------------------------------|----------|
| Title              |                        |                                    |          |
| 8515 USB CONNECTOR |                        |                                    |          |
| Size               | Document               | Rev                                | Rev      |
| Custom             | Number                 | ASSY/PCB 411817100001/316617100002 | RGA      |
| Date               | Friday, April 27, 2007 | Sheet                              | 14 of 29 |



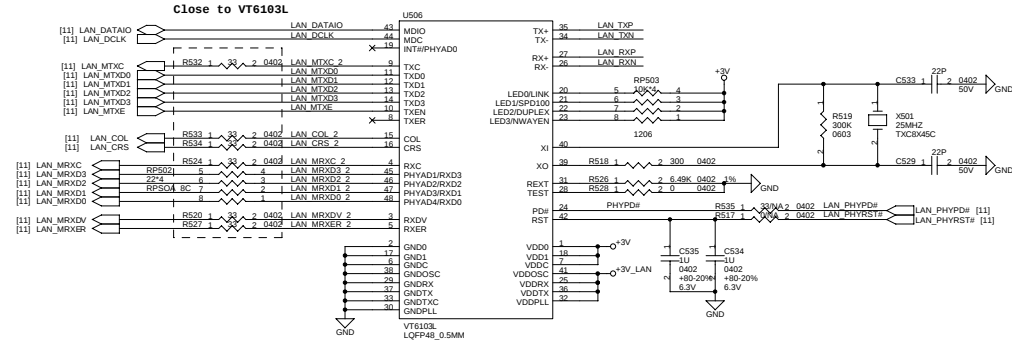
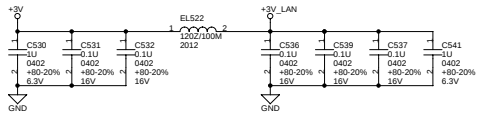
**NEW CARD**



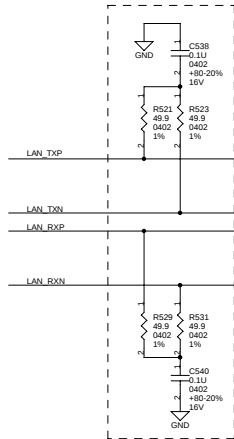
## WIRELESS LAN CARD



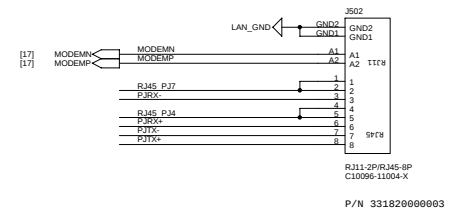
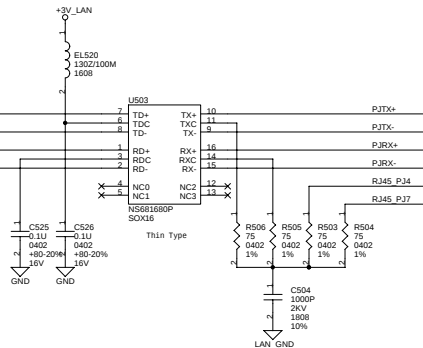
# LAN PHY (VT6103L)



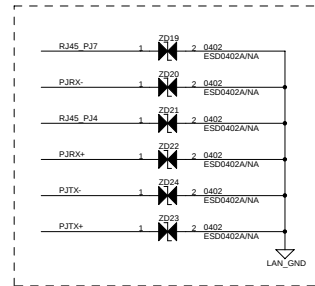
Close to VT6103L PHY



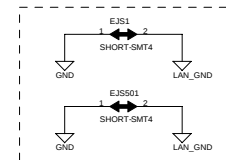
Close to Connector



FOR ESD REQUEST

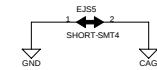
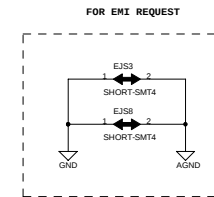
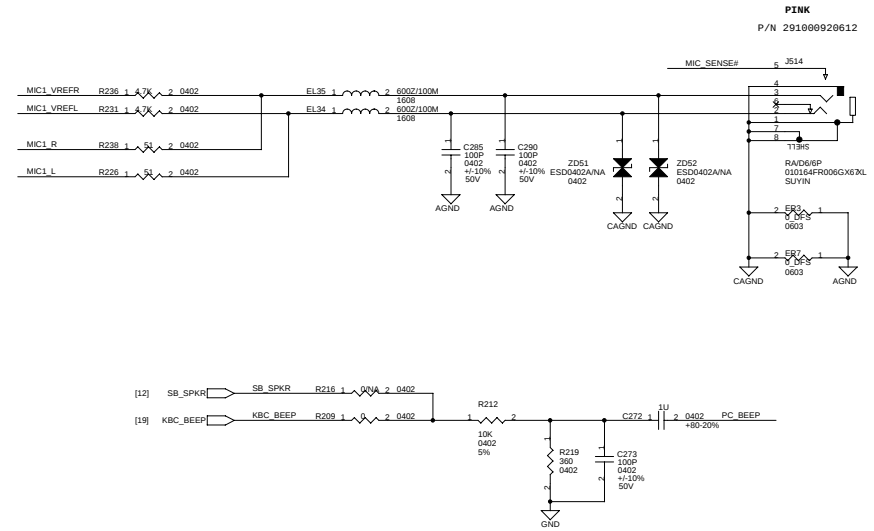
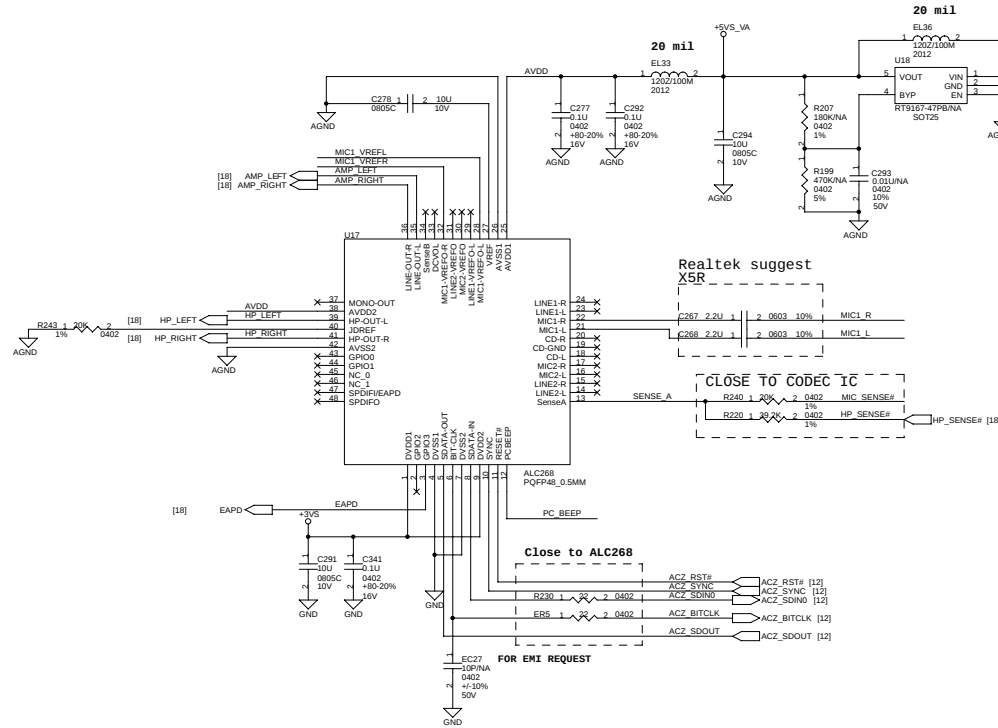


FOR EMI REQUEST

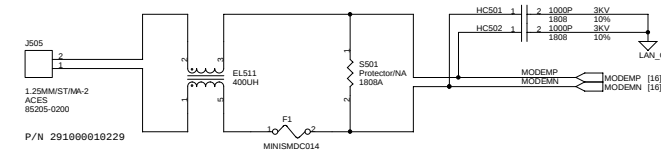
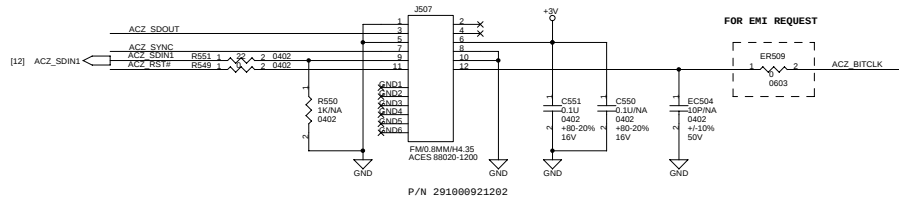


|        |                                    |          |                                    |
|--------|------------------------------------|----------|------------------------------------|
| Title  |                                    |          | 8515 LAN PHY VIA VT6103L           |
| Size   | Custom                             | Document | ASSY/PCB 411817100001/316617100002 |
| Number | ASSY/PCB 411817100001/316617100002 | Rev      | RGA                                |
| Date   | Friday, April 27, 2007             | Sheet    | 16 of 29                           |

# AZALIA CODEC (ALC268)

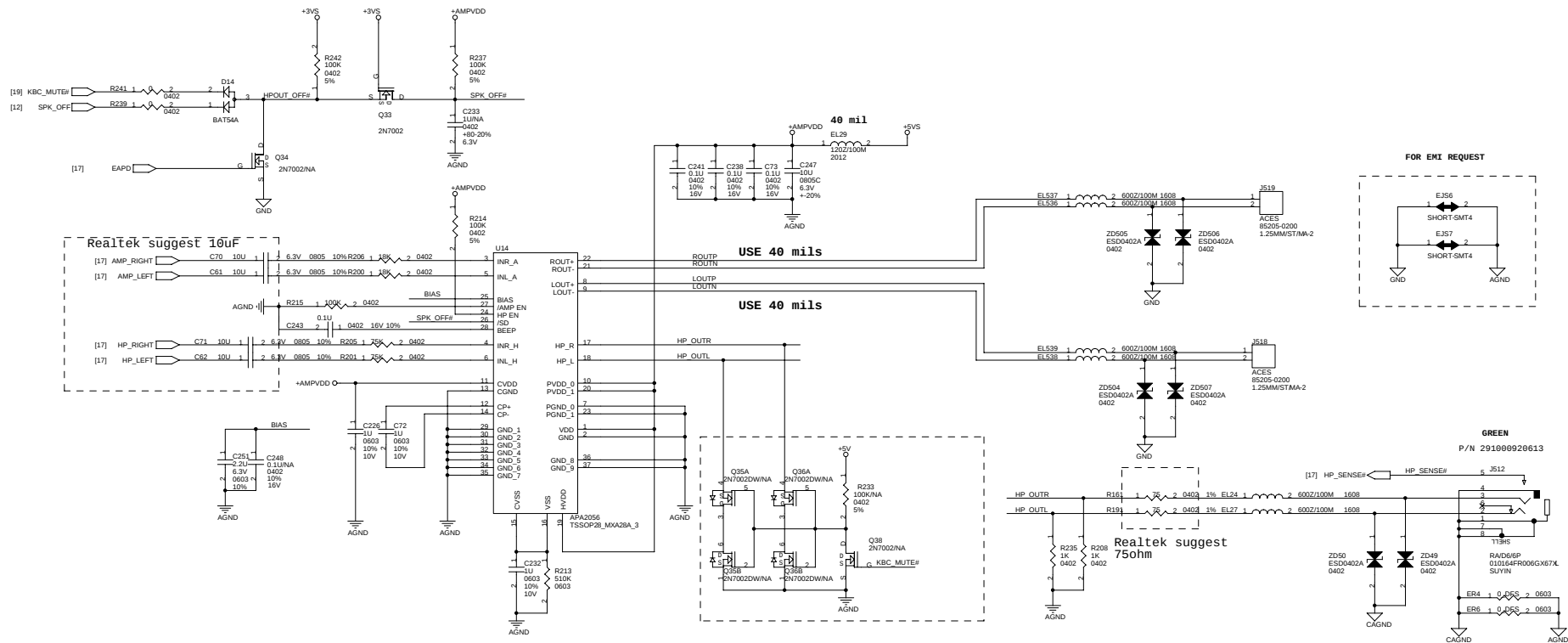


## MDC



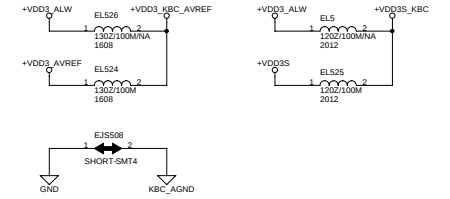
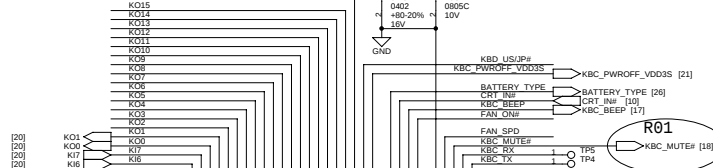
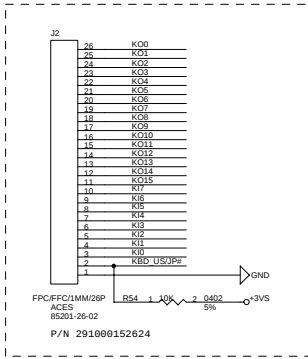
|          |                                    |                |
|----------|------------------------------------|----------------|
|          |                                    |                |
| Title    | 8515 AZALIA CODEC ALC268 & MDC     |                |
| Size     | Custom                             | Rev            |
| Document | ASSY/PCB 411817100001/316617100002 | RG4            |
| Number   |                                    |                |
| Date     | Friday, April 27, 2007             | Sheet 17 of 29 |

## AUDIO AMPLIFIER

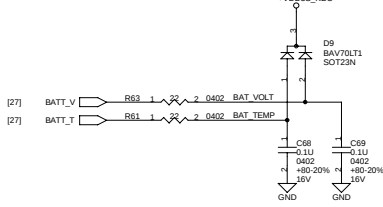
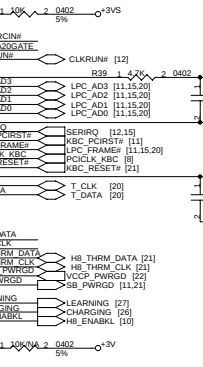
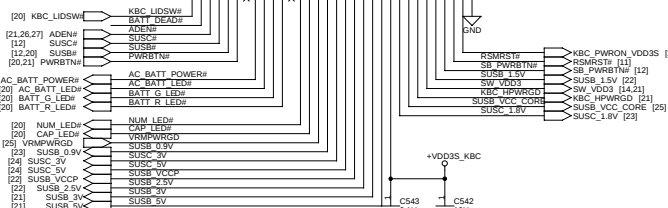
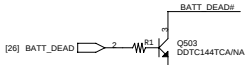
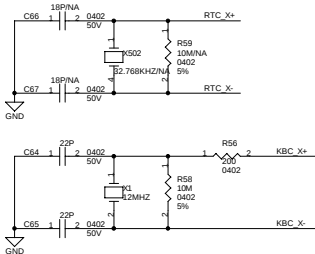
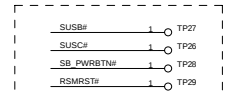


# KBC (W83L951D)

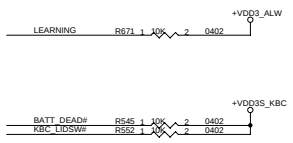
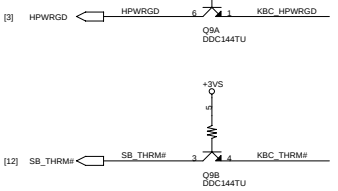
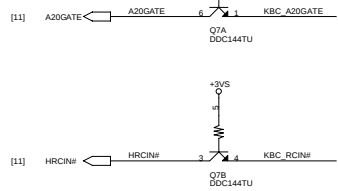
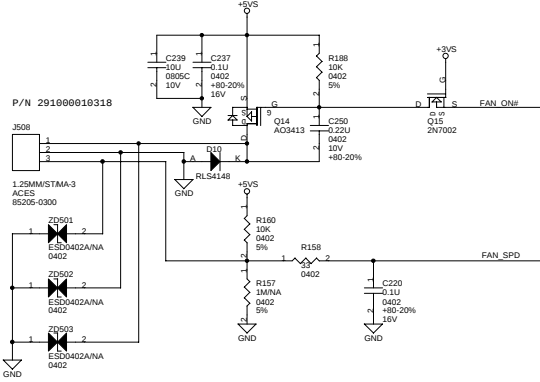
Use 8050 Keyboard



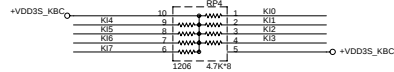
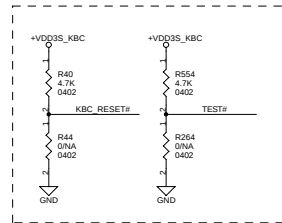
Test Point for Power Sequence measurement



## FAN CONTROLLER

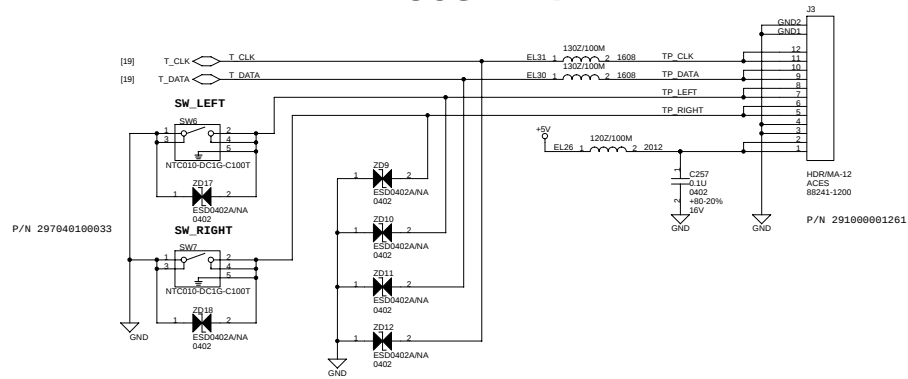


Short to GND when KBC on board flash!

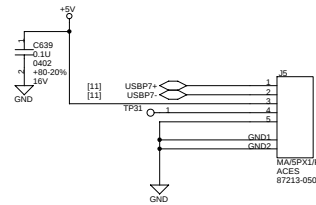


|        |                        |                     |                                  |
|--------|------------------------|---------------------|----------------------------------|
| Title  |                        | 8515 KBC (W83L951D) |                                  |
| Size   | Document               | Number              | ASSY/PCB 41181710001/31661710002 |
| Custom |                        |                     |                                  |
| Date   | Friday, April 27, 2007 | Sheet               | 18 of 29                         |

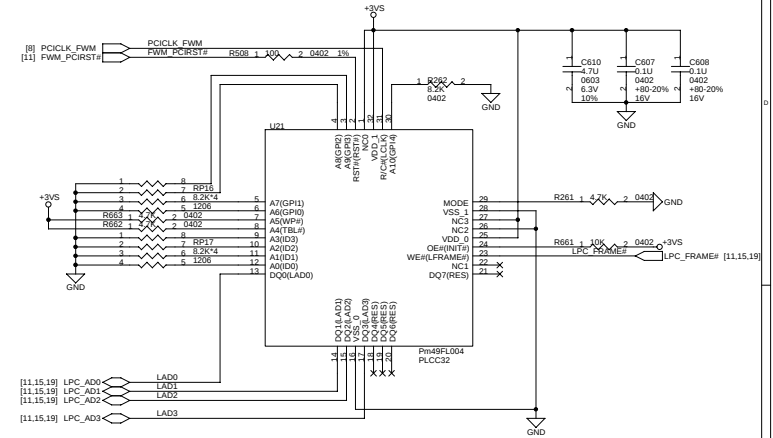
## TOUCH PAD



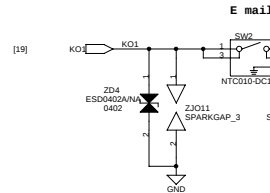
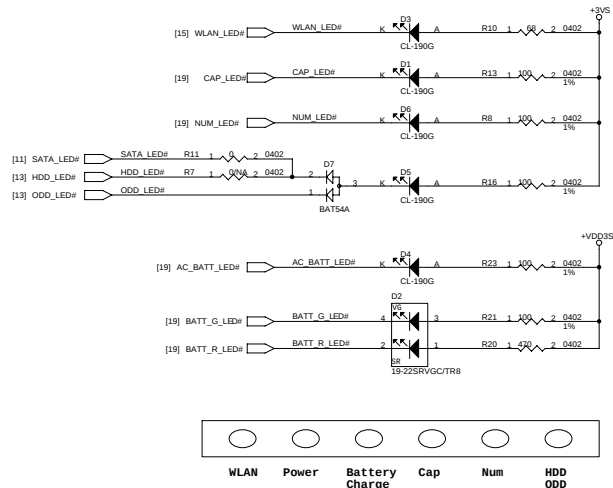
## Webcam



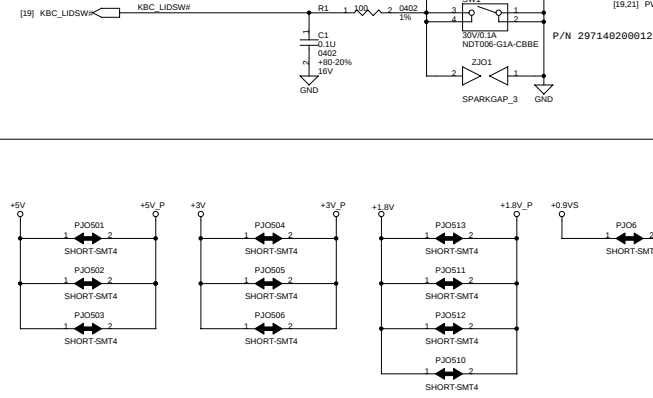
## SYSTEM BIOS



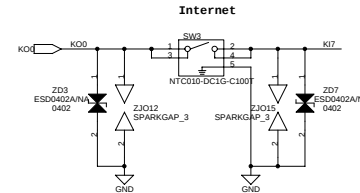
## LED



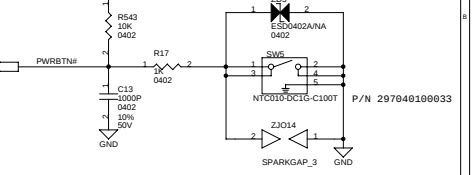
## Cover Switch



## QUICK BUTTON

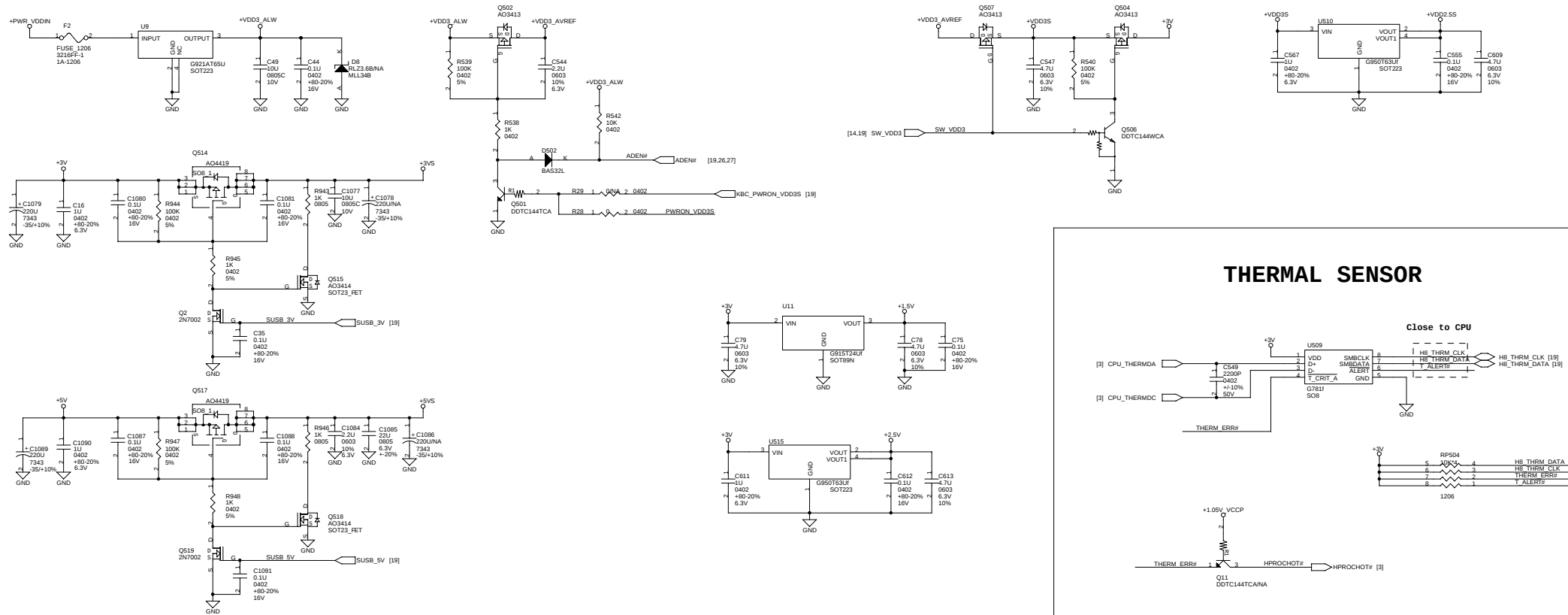


## Power Button

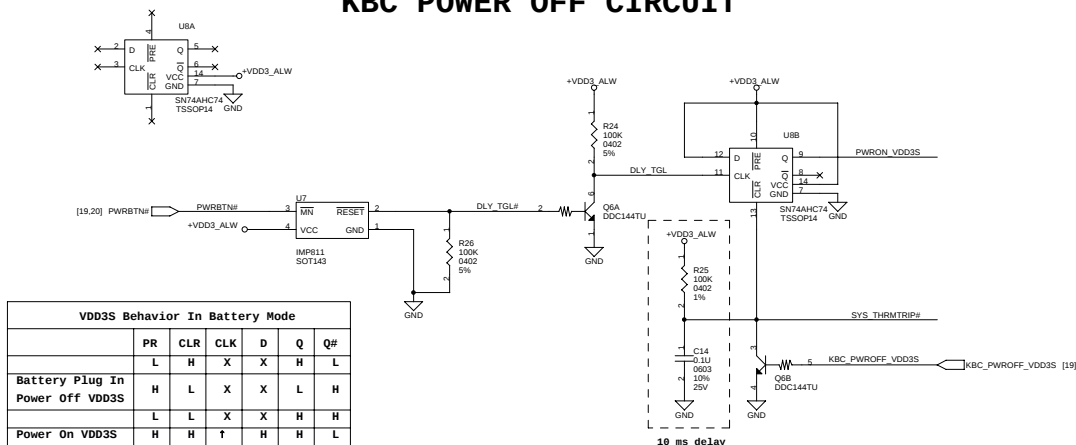


|          |                                      |
|----------|--------------------------------------|
| Title    | 8515 TOUCH PAD & BIOS & LED & BUTTON |
| Size     | Custom                               |
| Document | ASSY/PCB 411817100001/316817100002   |
| Number   |                                      |
| Date     | Friday, April 27, 2007               |
| Sheet    | 20 of 29                             |
| Rev      | RGA                                  |

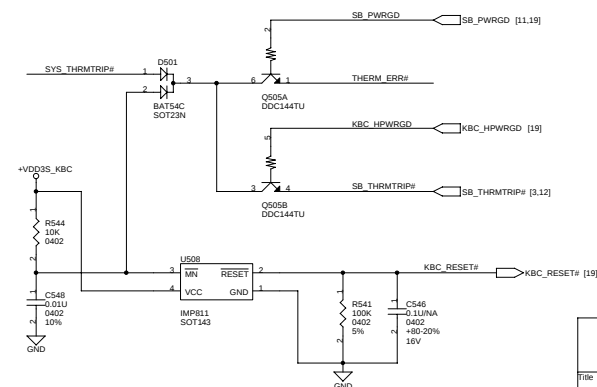
## POWER ON PERIPHERIAL CIRCUIT



## KBC POWER OFF CIRCUIT

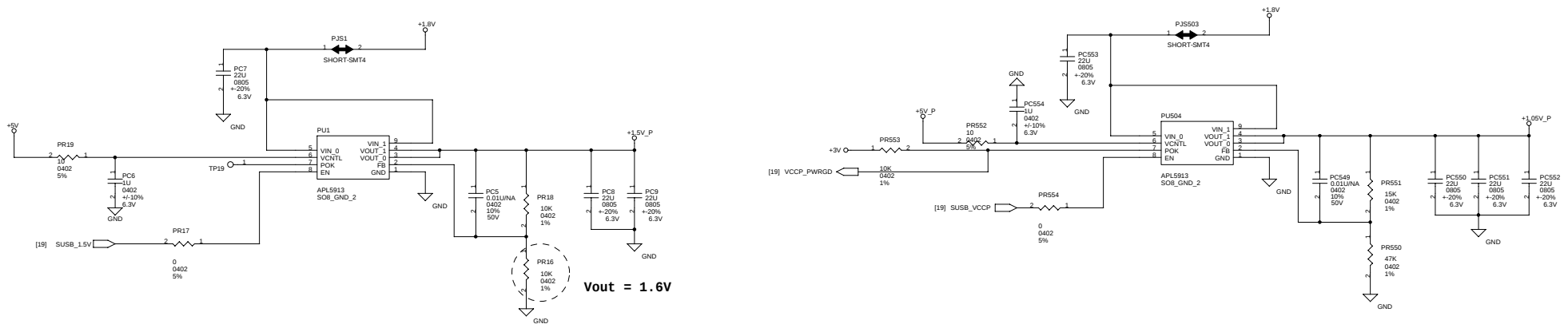


**H8 RESET# / RSMRST#**

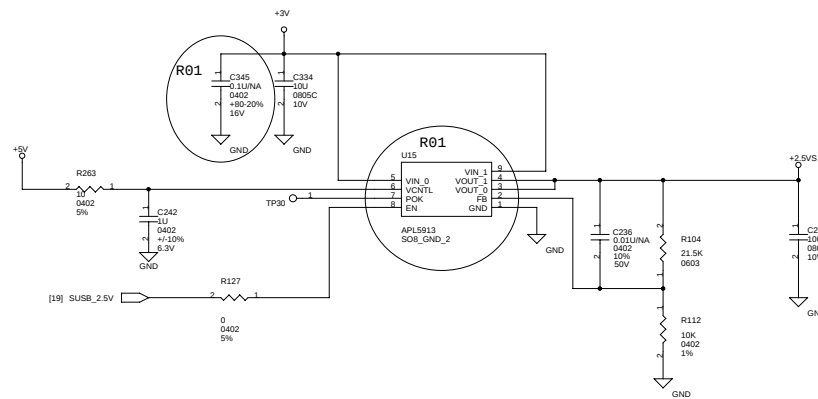


| VDD3S Behavior In Battery Mode |    |     |     |   |    |     |
|--------------------------------|----|-----|-----|---|----|-----|
|                                | PR | CLR | CLK | D | Q  | Q#  |
|                                | L  | H   | X   | X | H  | L   |
| Battery Plug In                | H  | L   | X   | X | L  | H   |
| Power Off VDD3S                | L  | L   | X   | X | H  | H   |
| Power On VDD3S                 | H  | H   | ↑   | H | H  | L   |
|                                | H  | H   | ↑   | L | L  | H   |
|                                | H  | H   | L   | X | Q0 | Q0# |

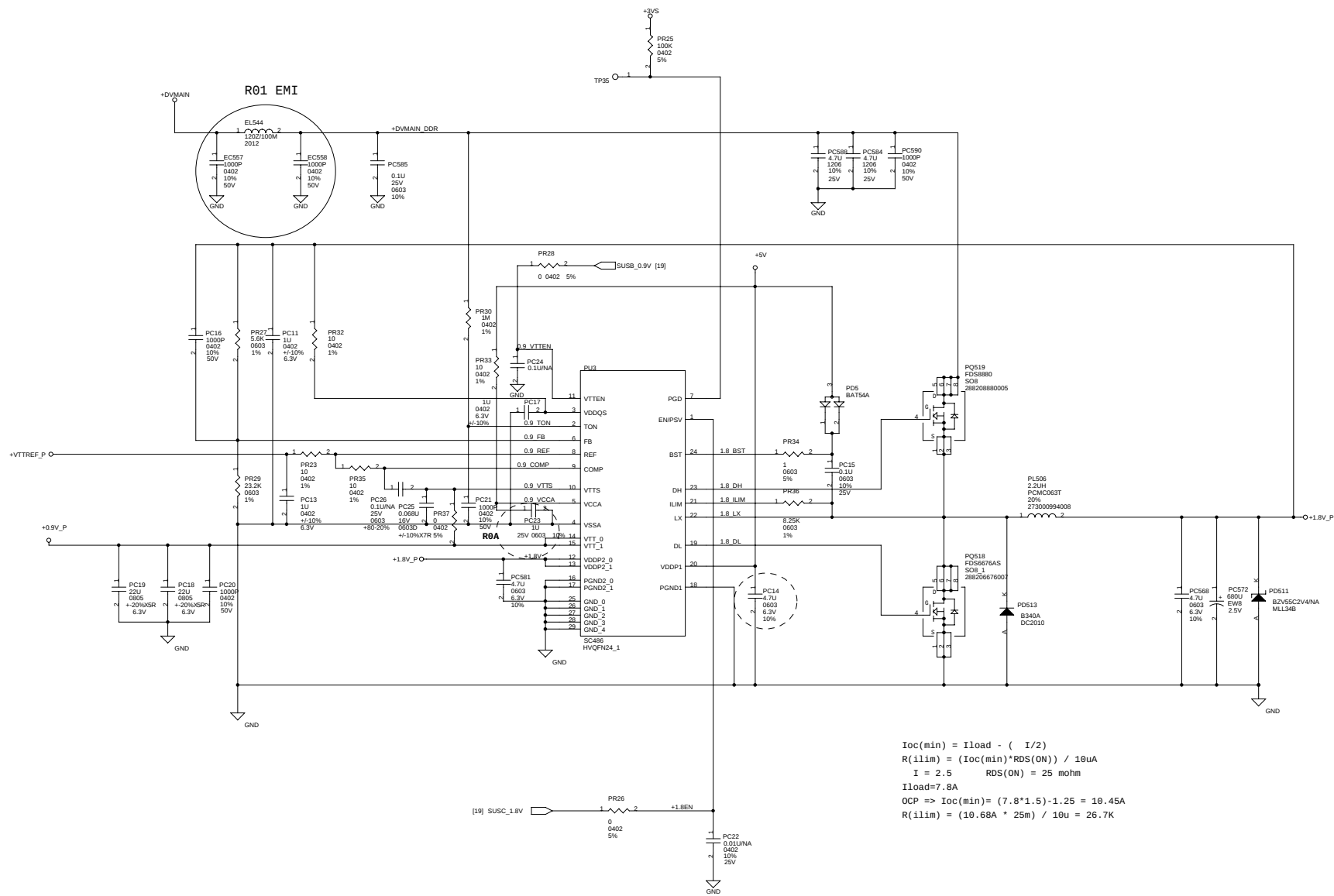
## +1.5V\_P & +1.05V\_P



## + 2.5 VS



|        |                        |                                    |                                   |
|--------|------------------------|------------------------------------|-----------------------------------|
| Title  |                        |                                    | 8515 +1.5V_P & +1.05V_P (APL5913) |
| Size   | Document               | Rev                                |                                   |
| Custom | Number                 | ASSY/PCB 411817100001/316617100002 | RGA                               |
| Date:  | Friday, April 27, 2007 | Sheet                              | 22 of 29                          |



$$I_{oc(min)} = I_{load} - (I/2)$$

$$R_{(lim)} = (I_{oc(min)} \cdot R_{DS(ON)}) / 180\mu A$$

$$I = 2.5 \quad R_{DS(ON)} = 25 \text{ mohm}$$

$$I_{load} = 7.8A$$

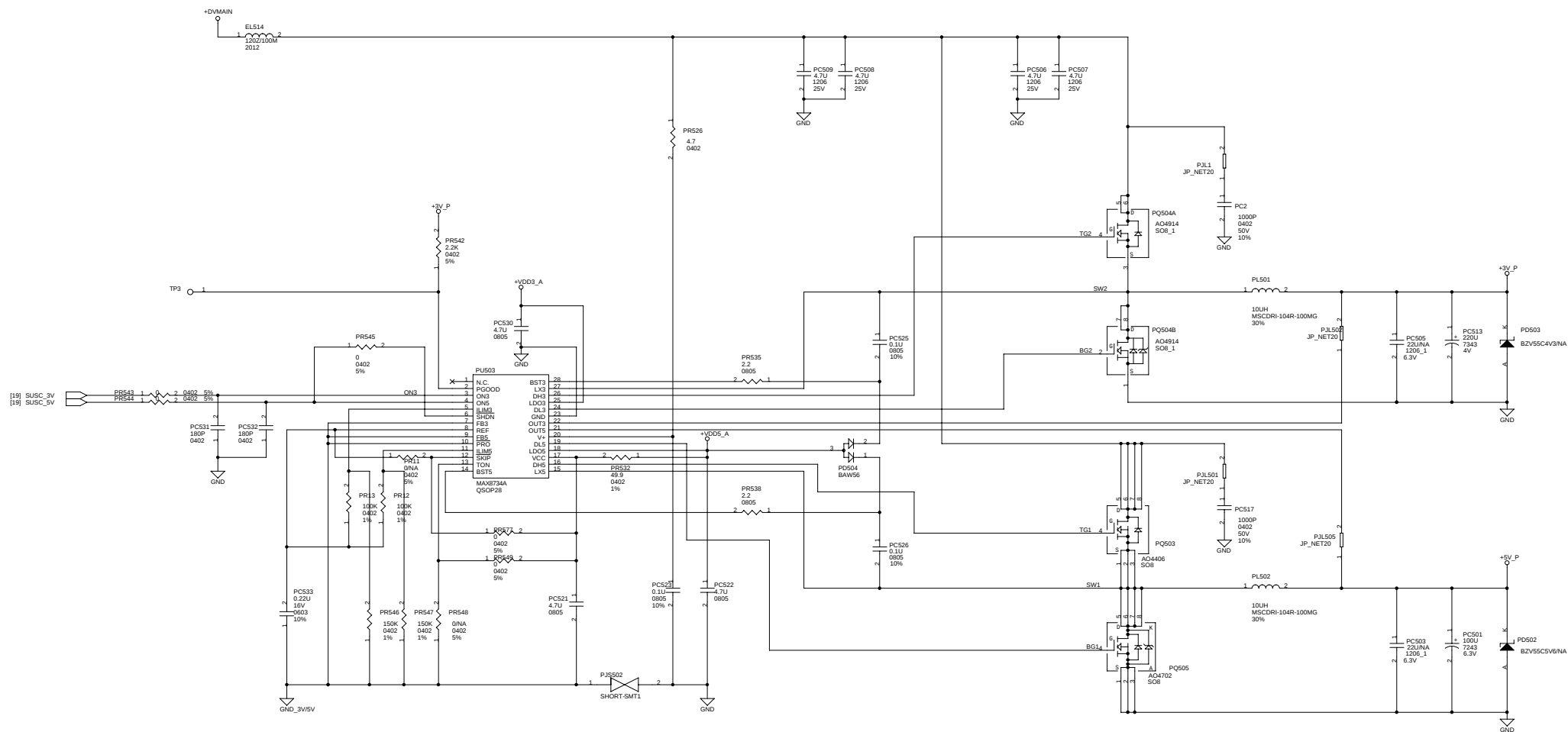
$$OCP \Rightarrow I_{oc(min)} = (7.8 \cdot 1.5) - 1.25 = 10.45A$$

$$R_{(lim)} = (10.68A \cdot 25m) / 180\mu = 26.7K$$

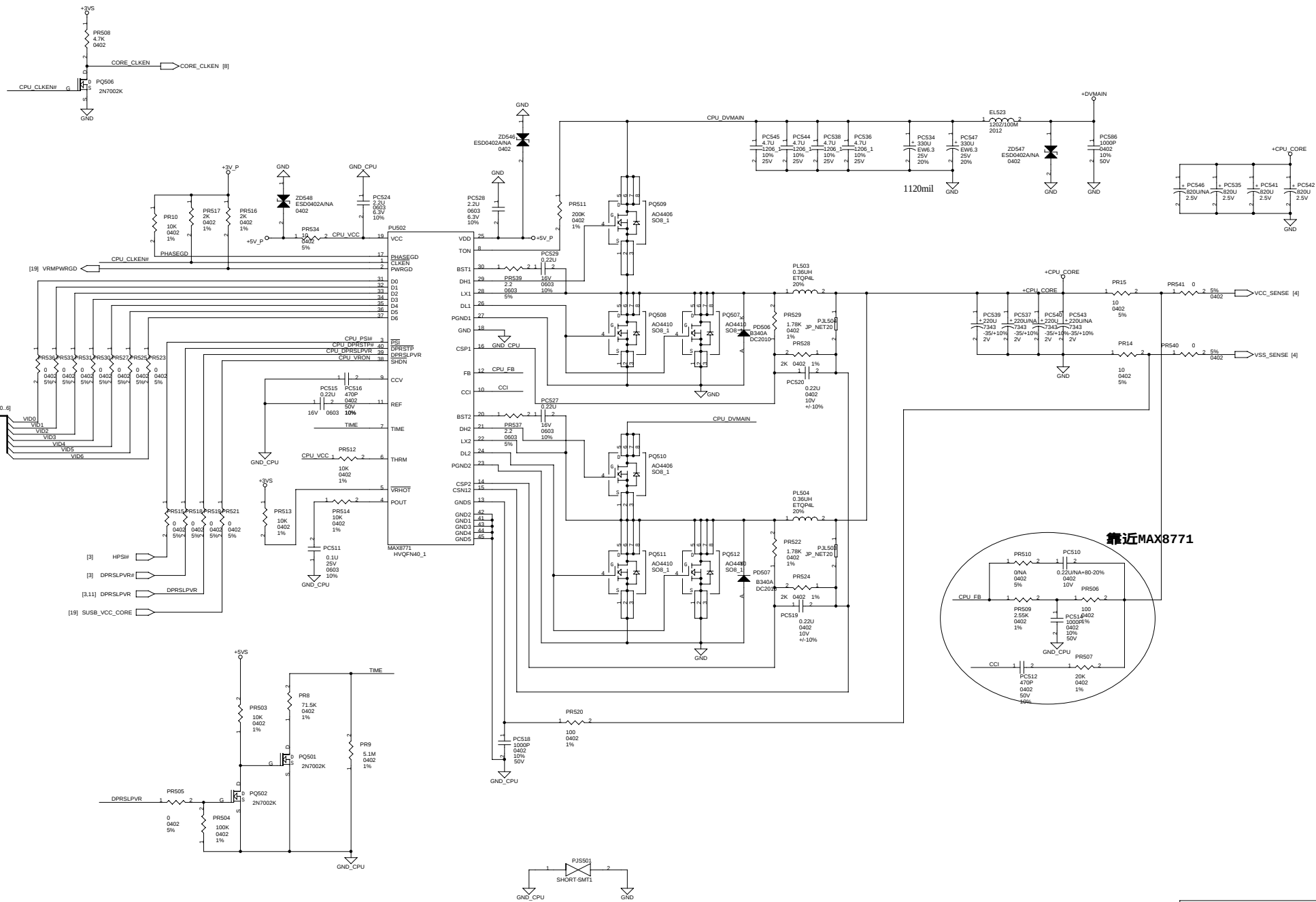


|        |                        |          |                                    |
|--------|------------------------|----------|------------------------------------|
| Title  |                        |          | 8515 +1.8V_P/+0.9V (SC486)         |
| Size   | Custom                 | Document | ASSY/PCB 411817100001/316617100002 |
| Number |                        |          |                                    |
| Date   | Friday, April 27, 2007 | Sheet    | 24 of 29                           |

**+3.3V\_P / +5V\_P\_MAX8734A**

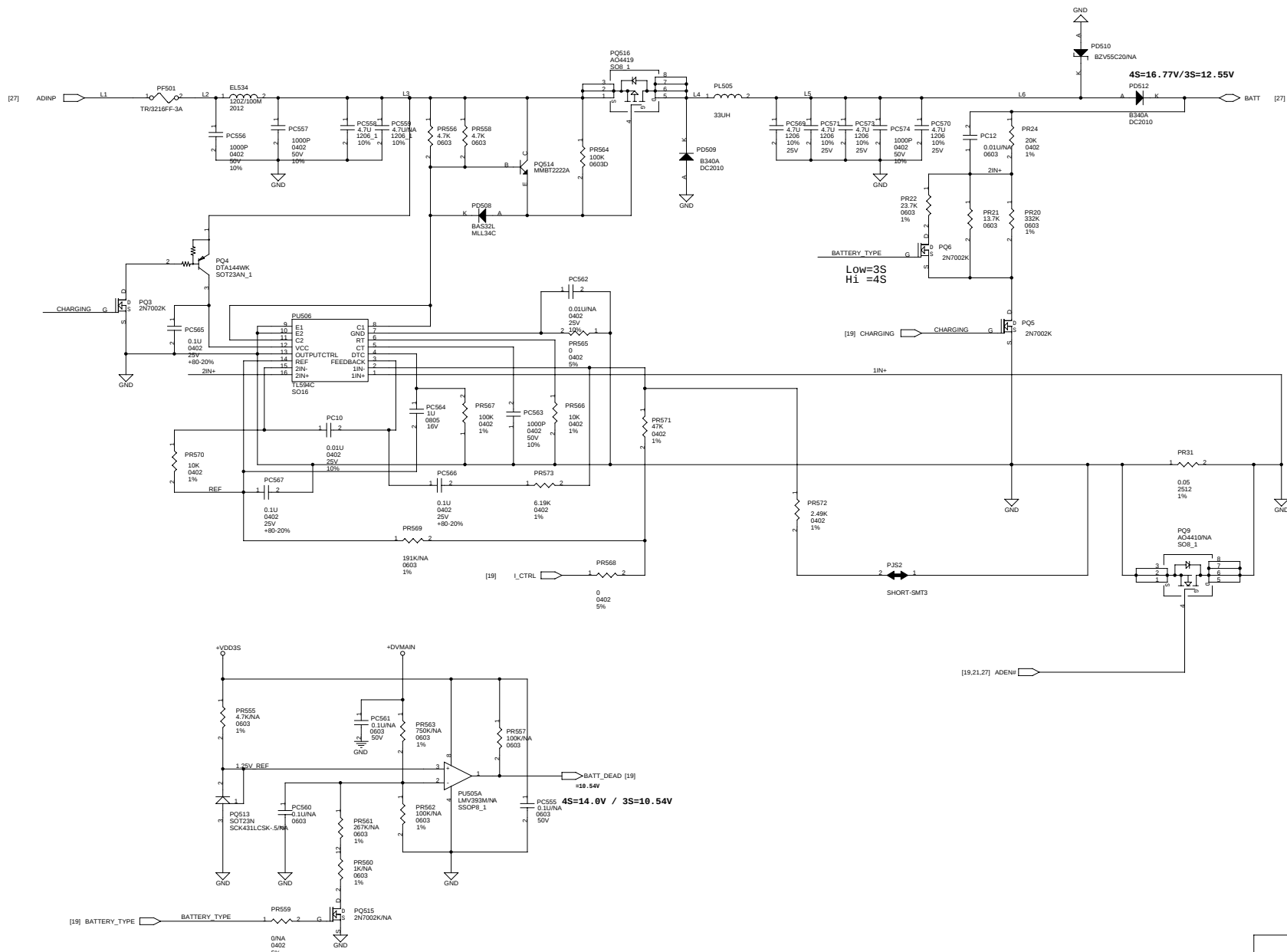


|         |                        |                                    |          |
|---------|------------------------|------------------------------------|----------|
| Title   |                        | 8515 +3VS/+5VS (MAX8734A)          |          |
| Size    | Document               |                                    | Rev      |
| Customr | Number                 | ASSY/PCB 411817100001/316817100002 | RO       |
| Date:   | Friday, April 27, 2007 | Sheet                              | 24 of 29 |



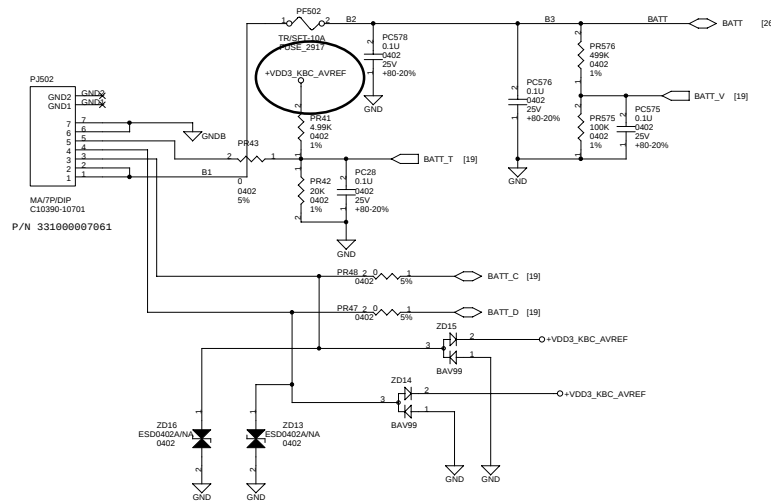
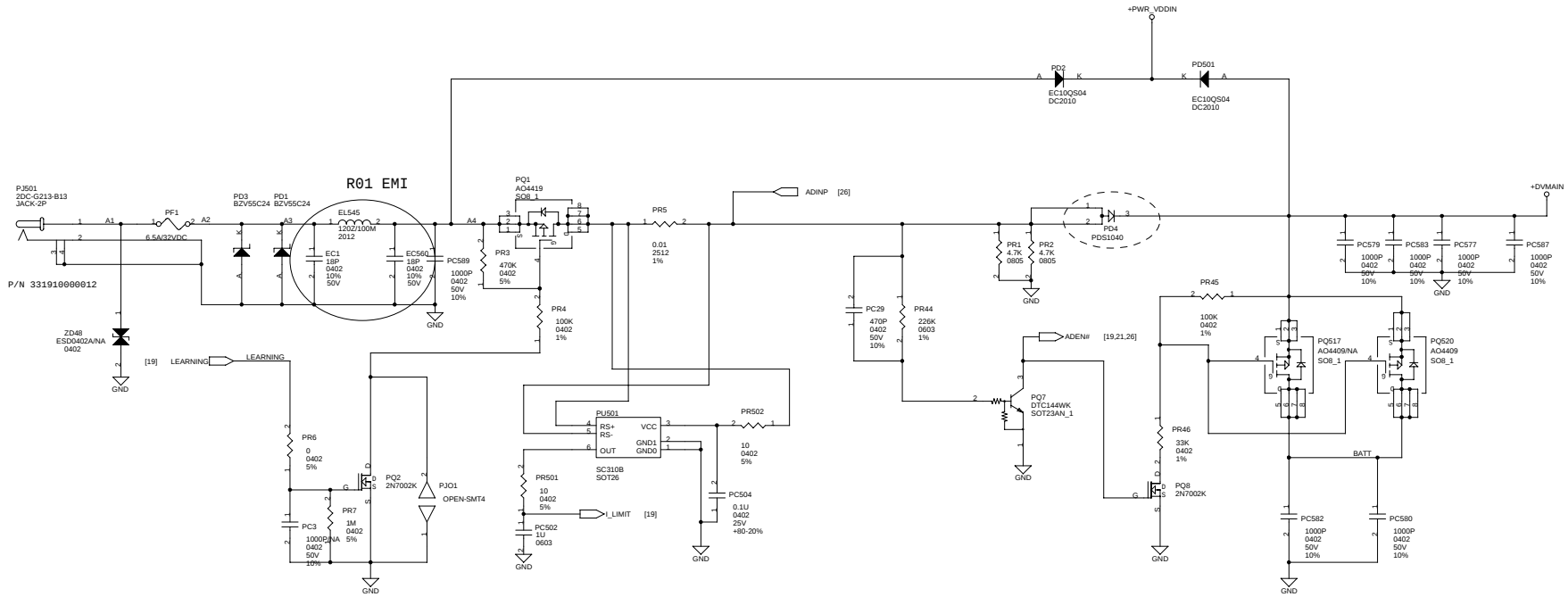
|                          |                                    |        |          |
|--------------------------|------------------------------------|--------|----------|
| Title                    |                                    |        |          |
| 8515 +CPU_CORE (MAX8771) |                                    |        |          |
| Size                     | Document                           | Number | Rev      |
| Custom                   | ASSY/PCB 411817100001/316817100002 |        | RGA      |
| Date:                    | Friday, April 27, 2007             | Sheet  | 25 of 29 |

# CHARGING

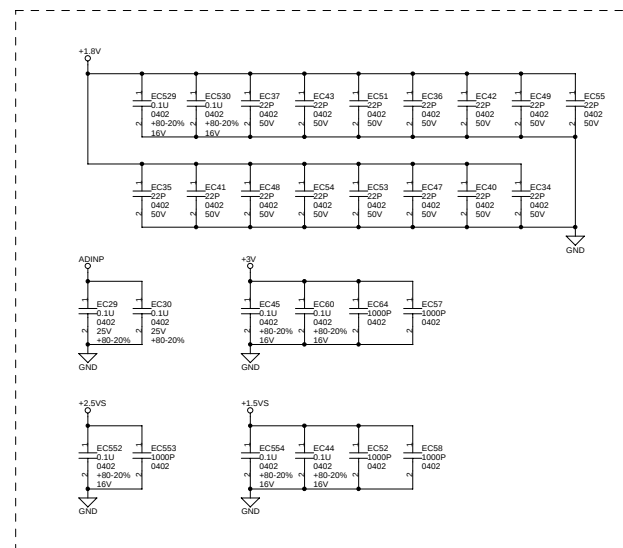


|        |                        |          |                                    |
|--------|------------------------|----------|------------------------------------|
| Title  |                        |          | 8515 CHARGING (TL594C)             |
| Size   | Custom                 | Document | ASSY/PCB 411817100001/316617100002 |
| Number |                        |          |                                    |
| Date   | Friday, April 27, 2007 | Sheet    | 26 of 29                           |

# ADPIN & Discharge



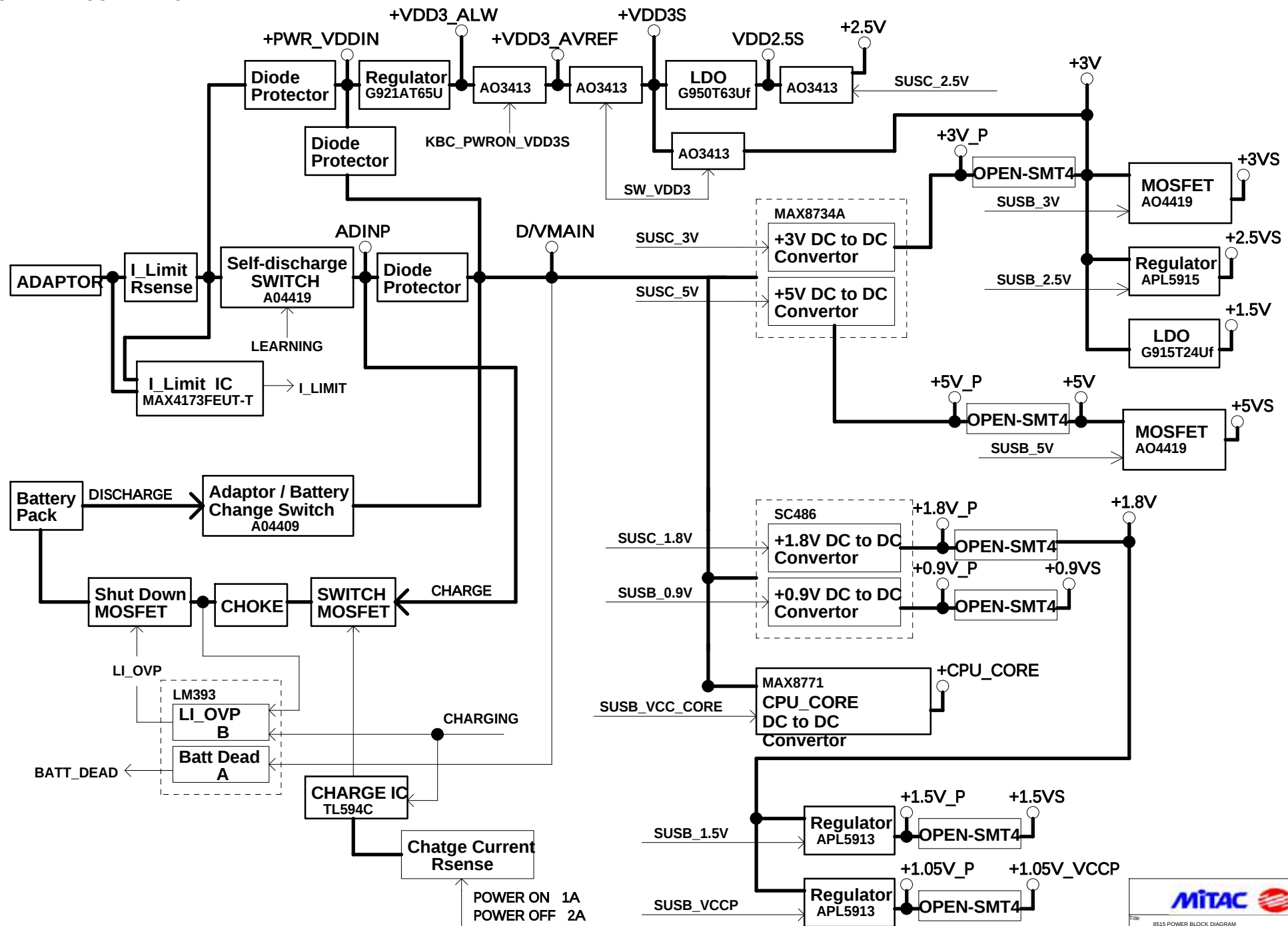
FOR EMI REQUEST



|        |                        |          |                                    |
|--------|------------------------|----------|------------------------------------|
| Title  |                        |          | 8515 ADPIN & DISCHARGE             |
| Size   | Custom                 | Document | ASSY/PCB 411817100001/316617100002 |
| Number |                        |          |                                    |
| Date   | Friday, April 27, 2007 | Sheet    | 27 of 29                           |



8515 POWER BLOCK DIAGRAM



HISTORY

| HISTORY |                                     |
|---------|-------------------------------------|
| R0A     | Initial Release (4/26 DVT tape-out) |



|        |          |                        |                |
|--------|----------|------------------------|----------------|
| Title  |          |                        | 8515 HISTORY   |
| Size   | Document | Rev                    |                |
| Custom | Number   | R0A                    |                |
| Date   |          | Friday, April 27, 2007 | Sheet 28 of 28 |