

Storm 2

UMA Schematics Document

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Storm2

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Title		
Cover		
Size	Document Number	Rev
A4	Storm 2	-1
Date:	Wednesday, March 13, 2013	Sheet 1 of 102

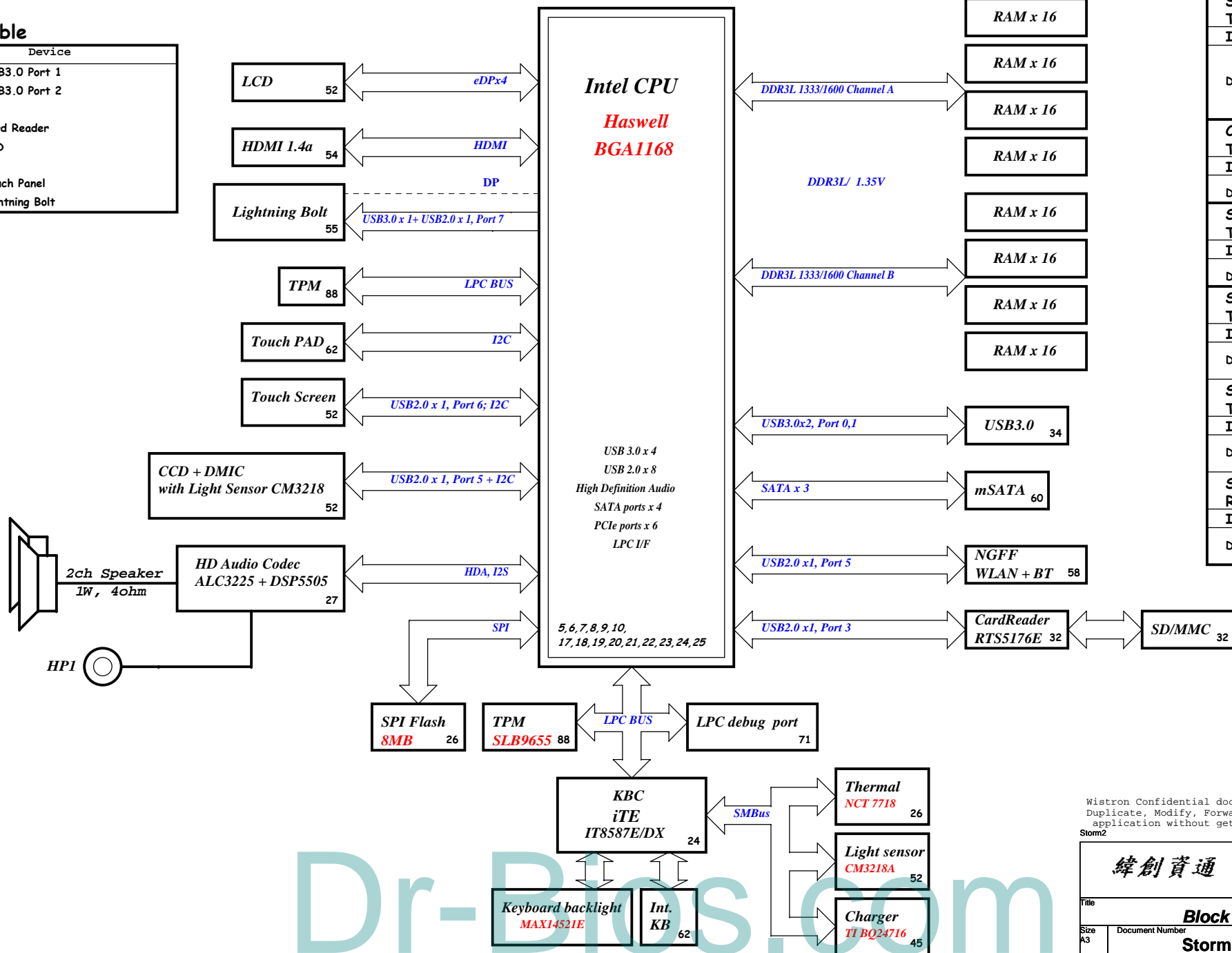
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Project code : 91.4LZ01.001
 PCB P/N : 12302-1
 Revision : 1

Storm 2 Block Diagram

USB Table

Pair	Device
0	USB3.0 Port 1
1	USB3.0 Port 2
2	NA
3	Card Reader
4	CCD
5	BT
6	Touch Panel
7	Lightning Bolt



CHARGER		
BQ24737		44
INPUTS	OUTPUTS	
DCBATOUT	BT+	
SYSTEM DC/DC		
TPS51285		45
INPUTS	OUTPUTS	
DCBATOUT	3D3V_DS _W 3D3V_WLAN_50 MSATA_VDD MSATA_VDD 5V_DS _W 5V_SS USB30_VCC	
CPU DC/DC		
TPS51622		46, 47
INPUTS	OUTPUTS	
DCBATOUT	VCC_CORE	
SYSTEM DC/DC		
TPS51367		48
INPUTS	OUTPUTS	
DCBATOUT	1D05V_VTT	
SYSTEM DC/DC		
TPS51367+TPS51206		49
INPUTS	OUTPUTS	
DCBATOUT	1D35V_53 VDDQ_VREF 0D675V_50	
SYSTEM DC/DC		
TLV62065		51
INPUTS	OUTPUTS	
DCBATOUT	1D5V_50	
SYSTEM DC/DC		
RT9013		58
INPUTS	OUTPUTS	
DCBATOUT	1D8V_50	

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Title		
Block Diagram		
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5
4 3 2 1
SSID = CPU

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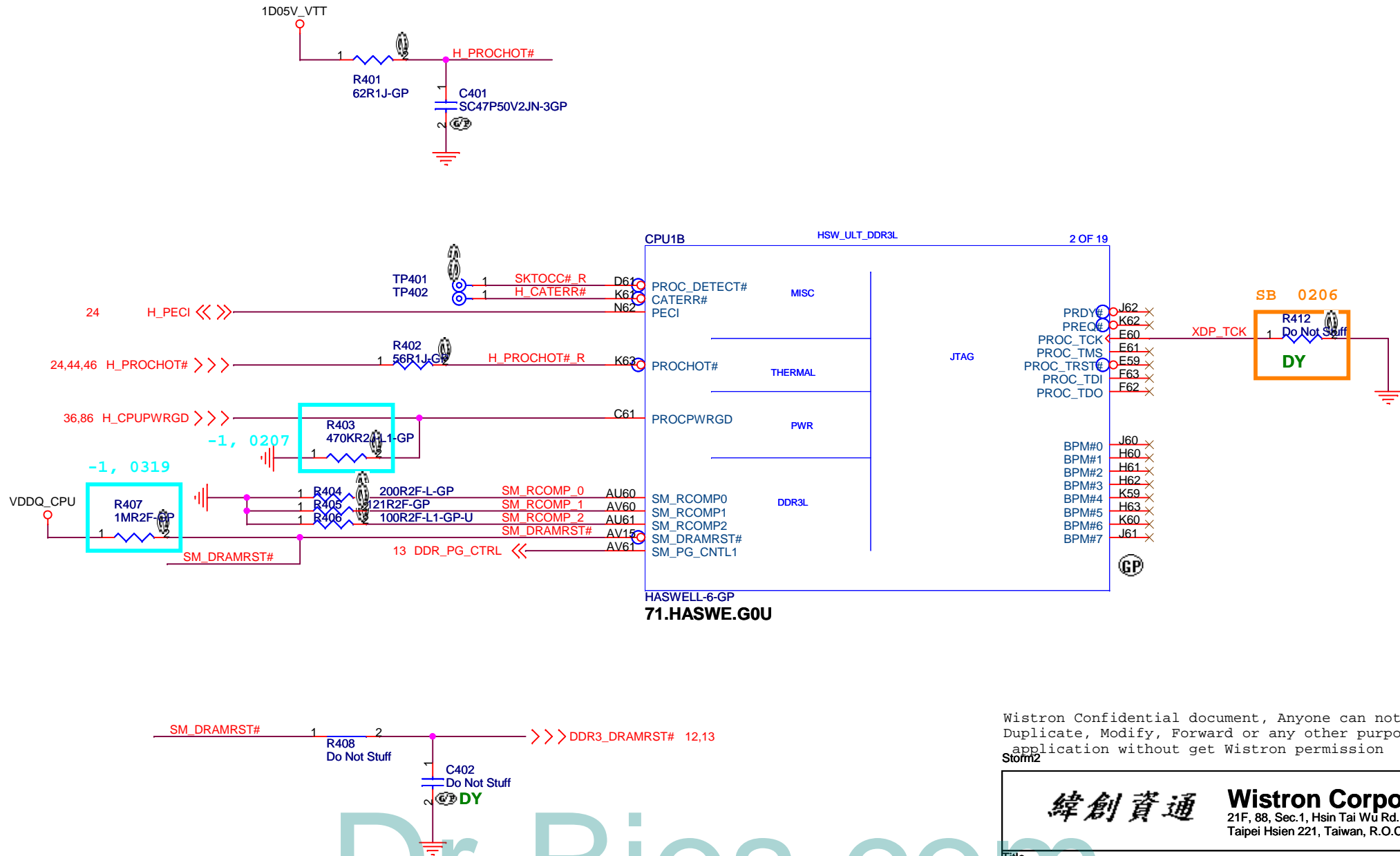
Storm2

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Title		
CPU (Reserved)		
Size	Document Number	Rev
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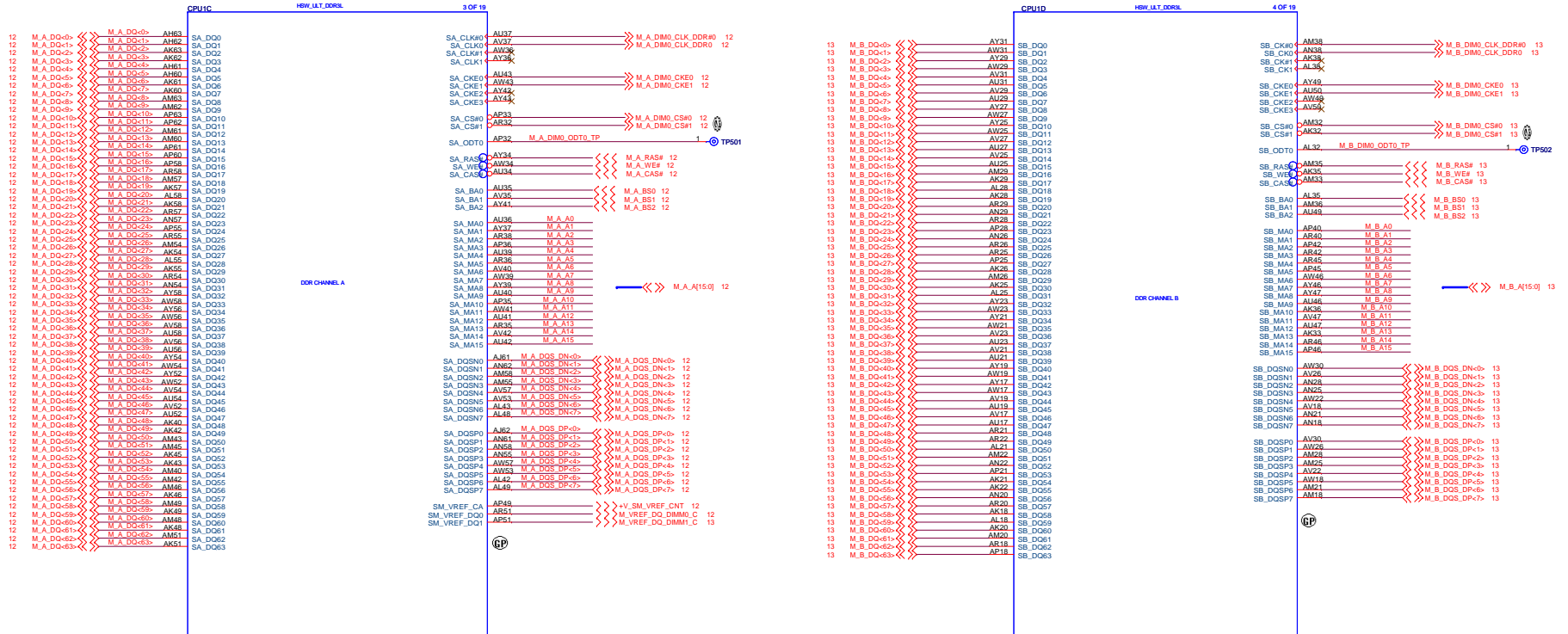
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Title CPU (THERMAL/CLOCK/PM)		
Size A4	Document Number Storm 2	Rev -1
Date: Tuesday, April 02, 2013	Sheet 4	of 102

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HASWELL-6-CP
71.HASWELL.G00

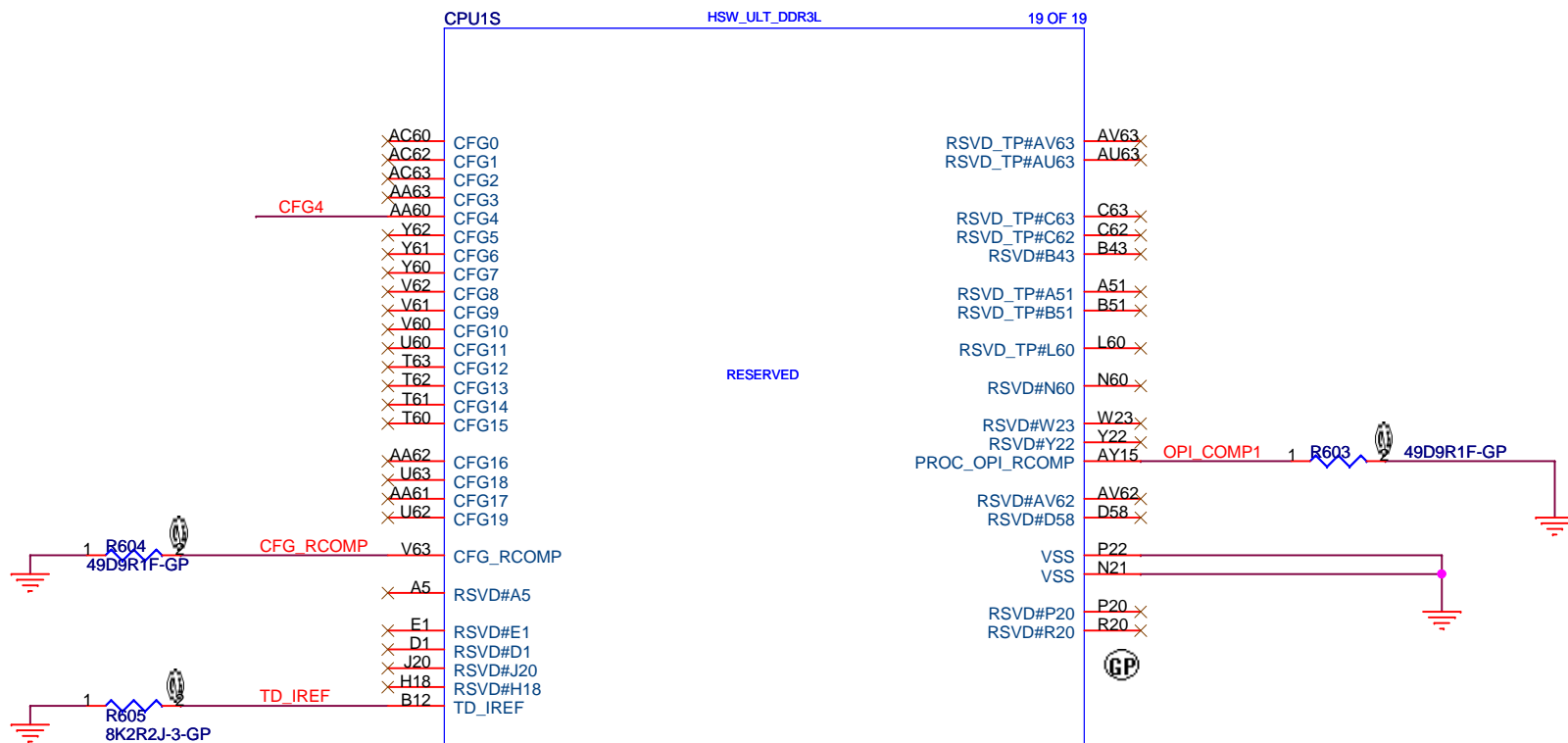
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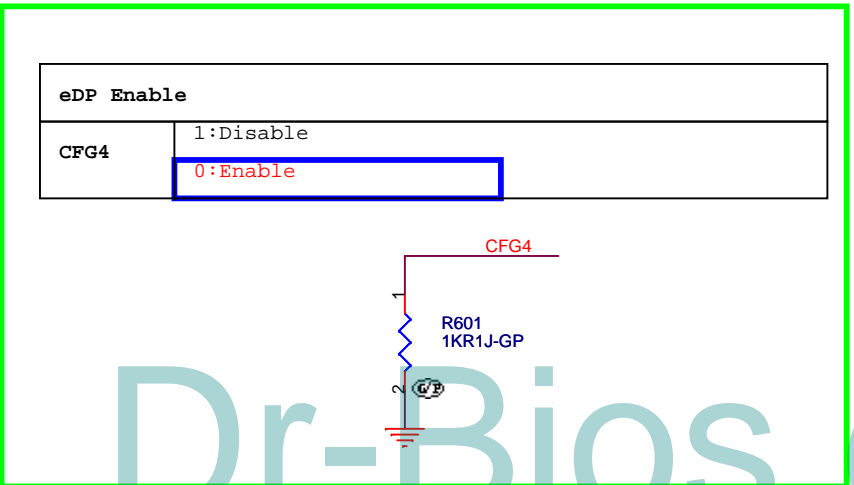
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Title CPU (DDR)
Size K2 Document Number Storm 2 Rev -1
Date: Tuesday, April 02, 2013 Sheet 6 of 102

SSID = CPU



71.HASWE.G0U



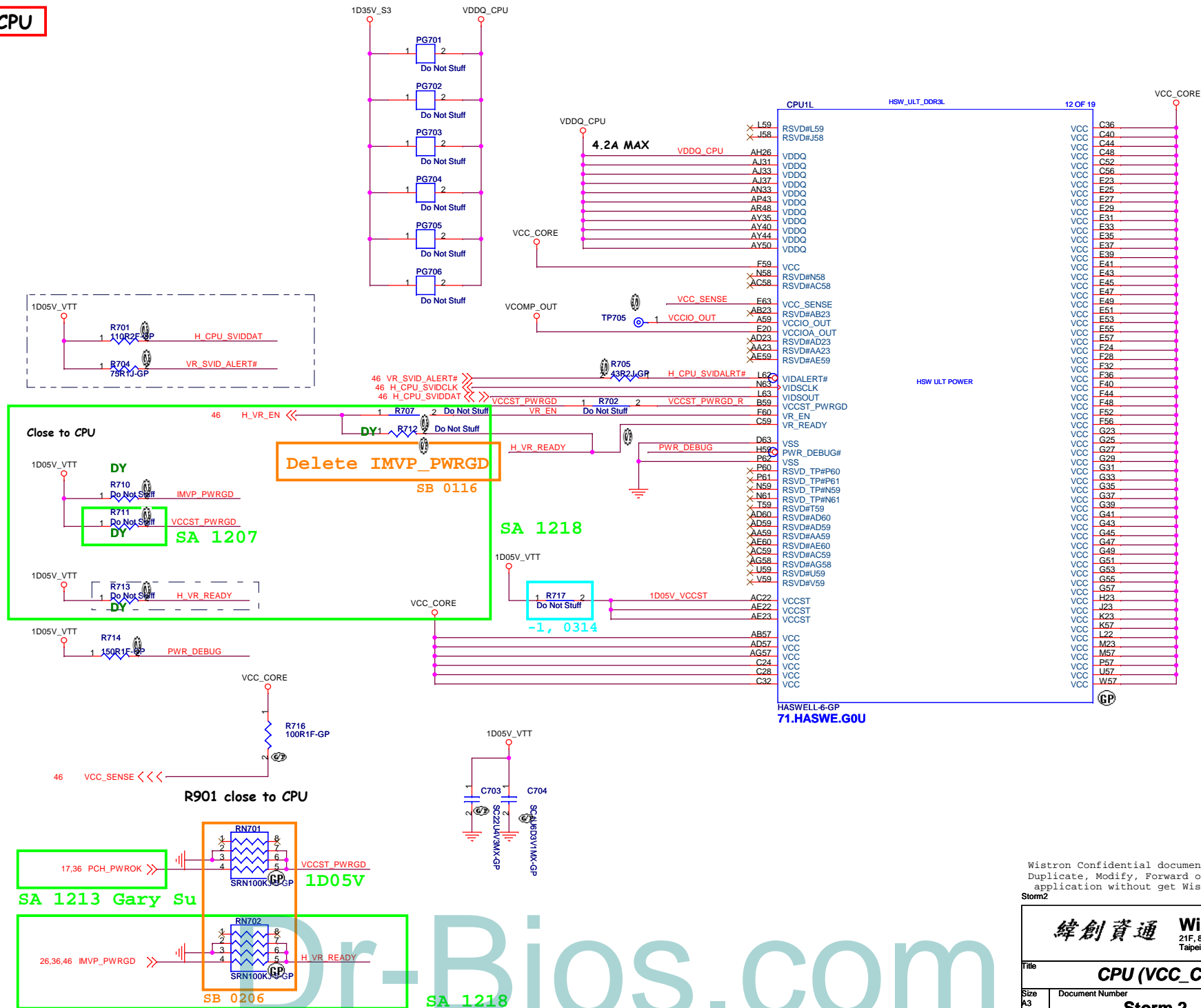
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CPU (CFG)		
Size A4	Document Number Storm 2	Rev -1
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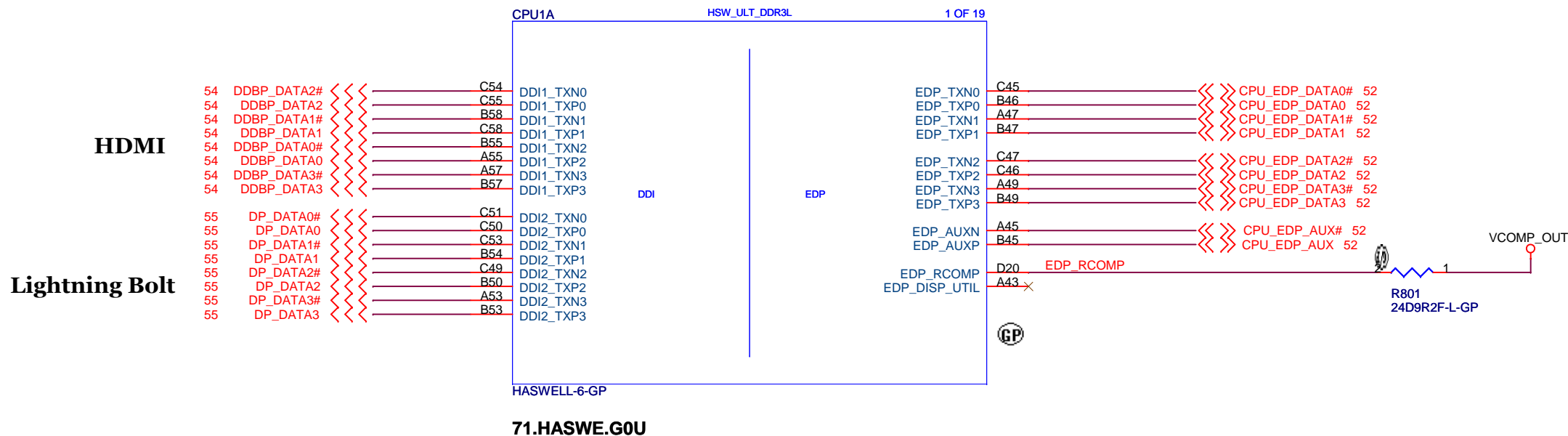


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Title	CPU (VCC_CORE)	
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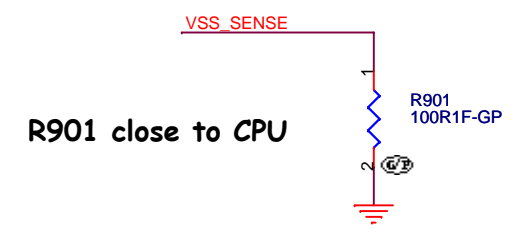
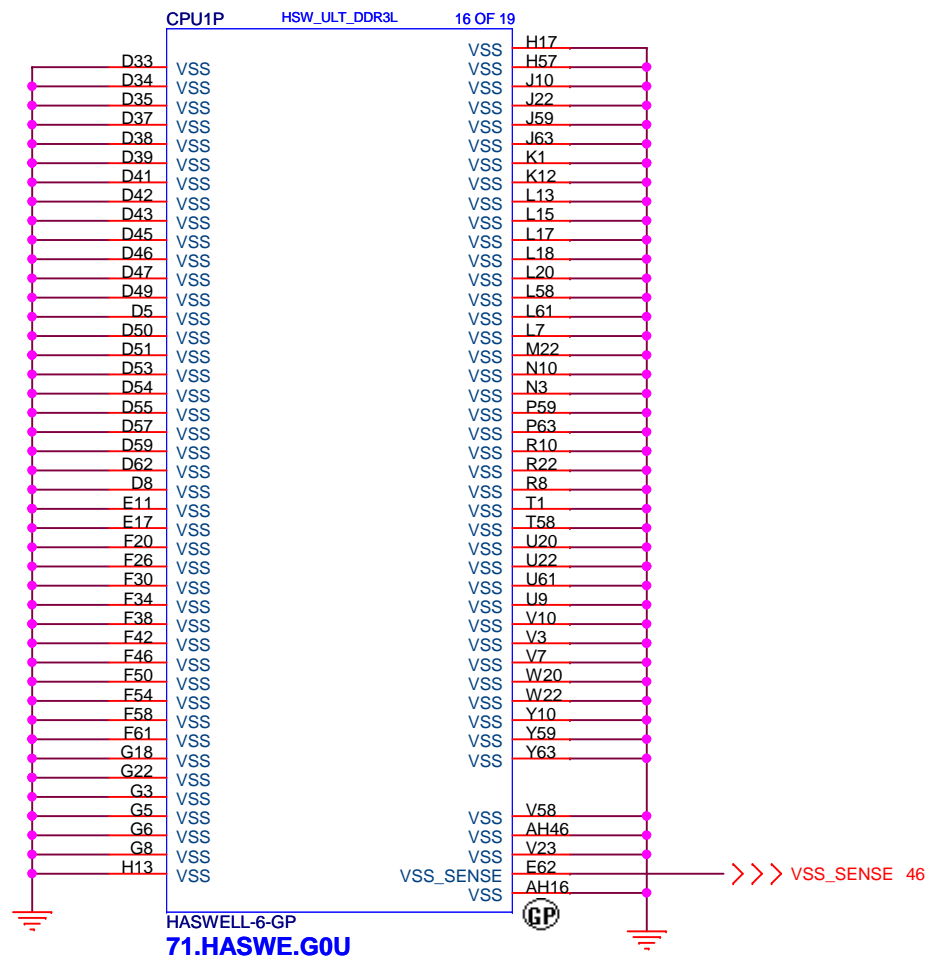
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Size A4 Document Number **Storm 2** Rev **-1**

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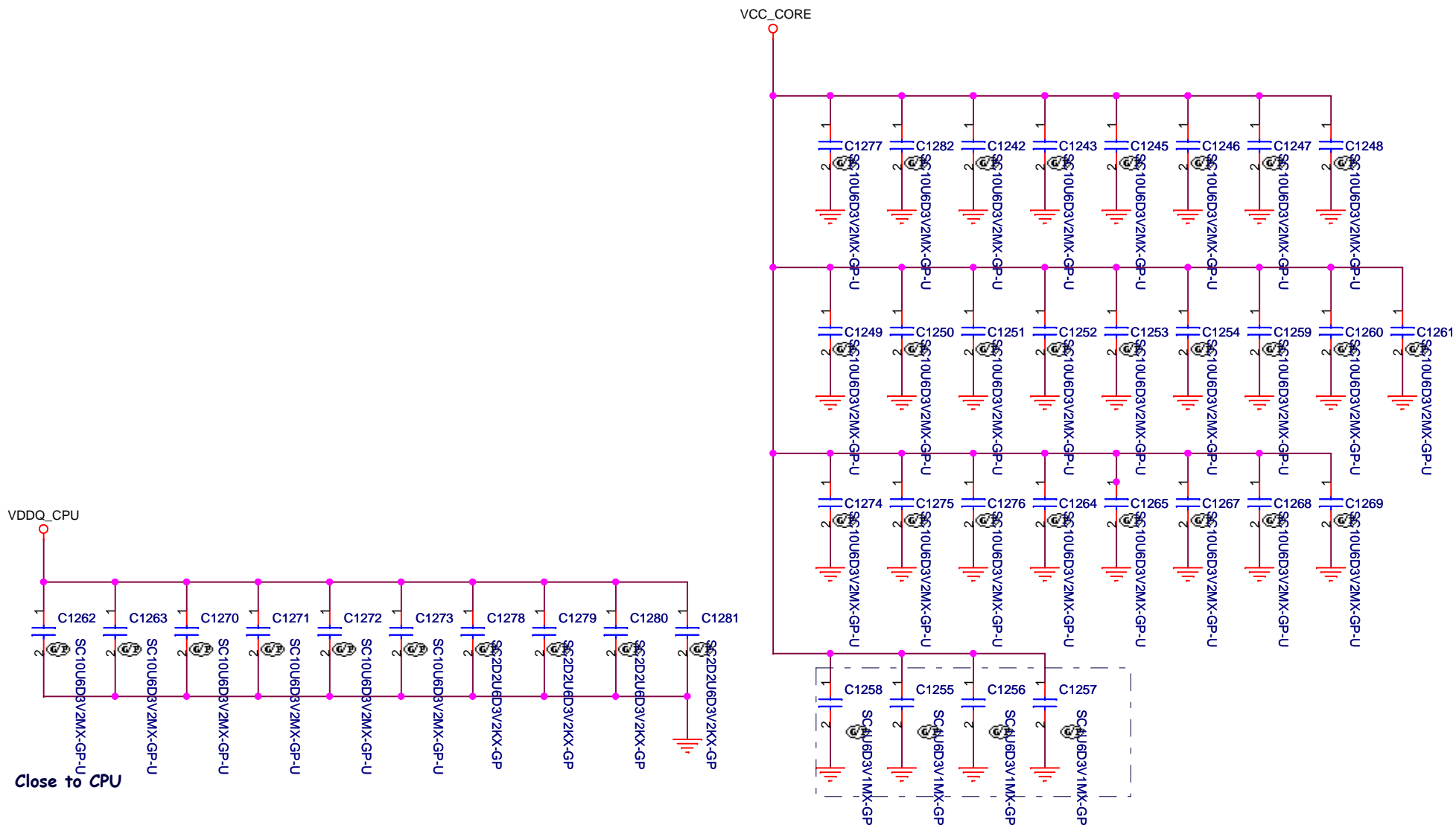
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Title CPU (VSS)			
Size A4	Document Number Storm 2		Rev -1
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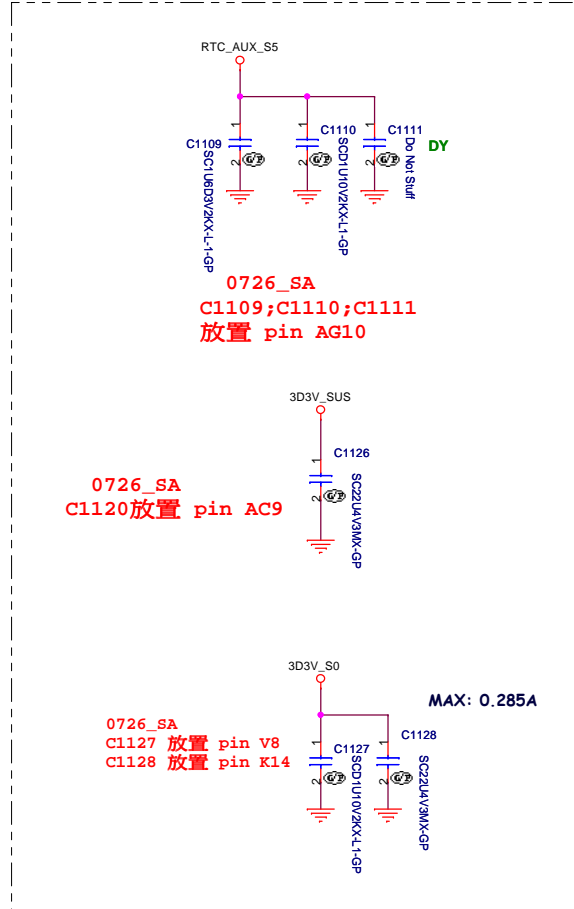
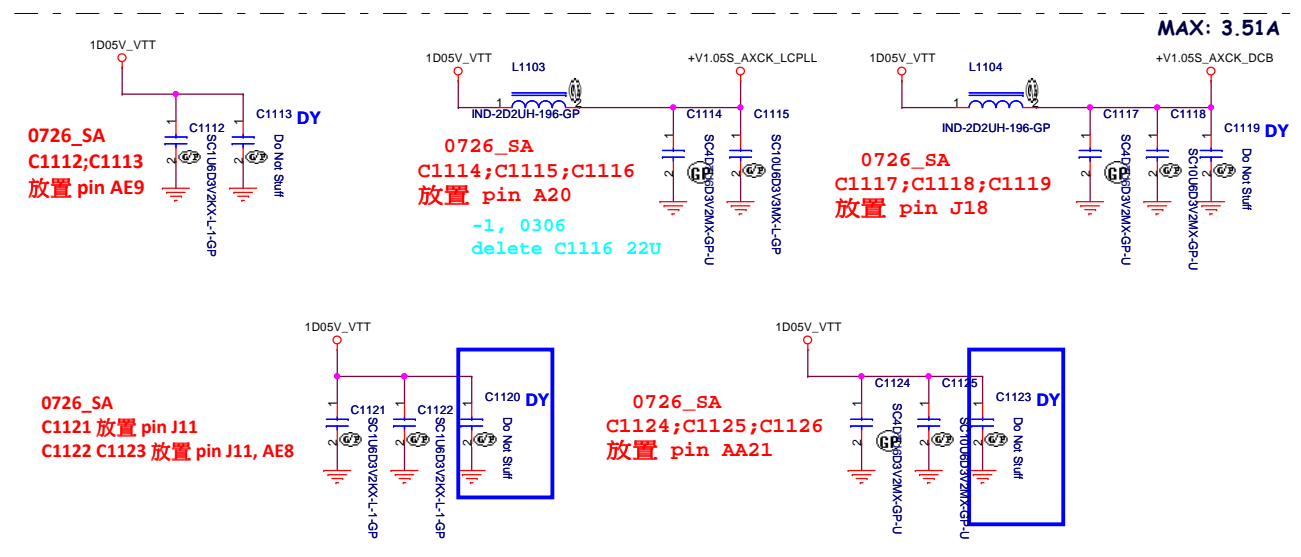
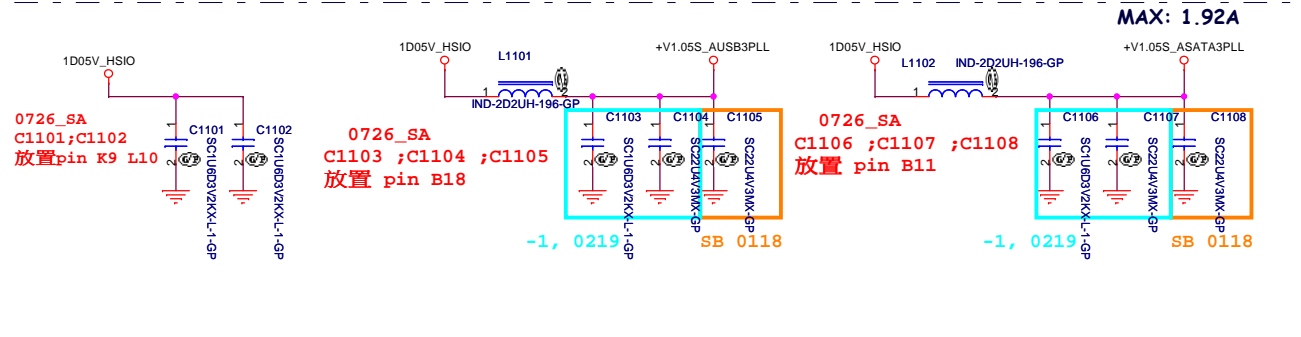
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Title		CPU (Power CAP1)	
Size	Document Number	Rev	
A4		-1	
Date:	Monday, February 04, 2013	Sheet	10 of 102

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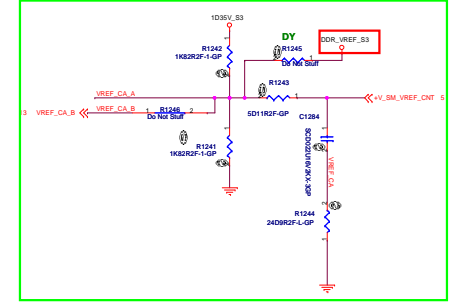
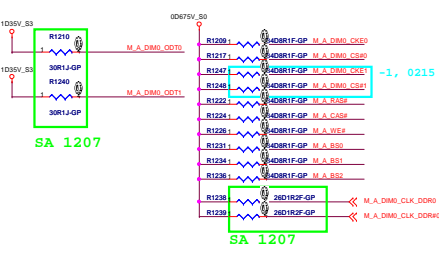
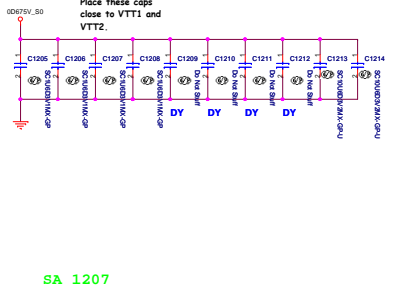
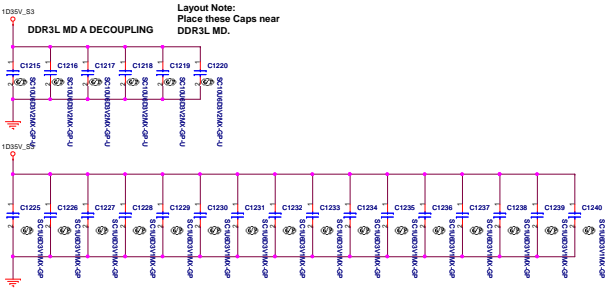
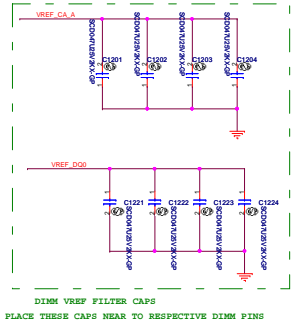
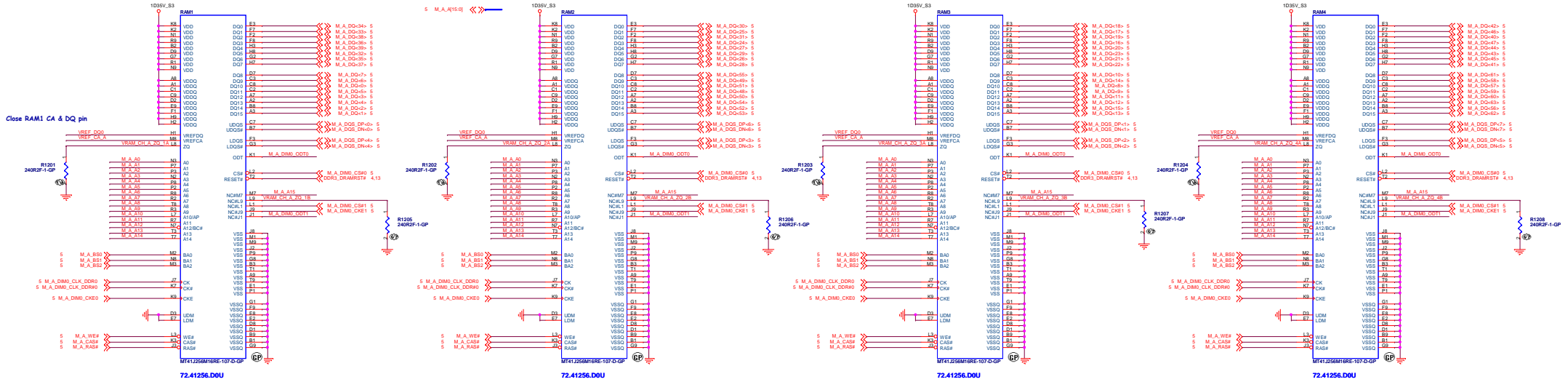
0726_SA 擺放電容的位置請參考Page 21
每個位置如下



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Title		PCH (Power CAP2)	
Size A3	Document Number	Storm 2	
Date: Wednesday, March 06, 2013	Sheet 11 of 102	Rev	-1

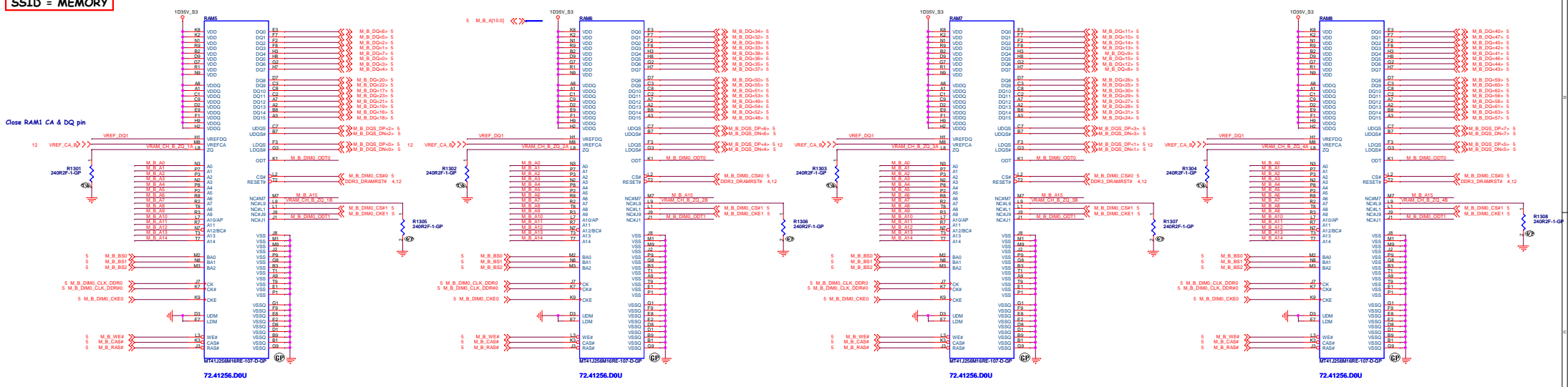
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For Intel Recommend Close to DIMM

For Intel Recommend Close to DIMM

Close RAM1 CA & DQ pin

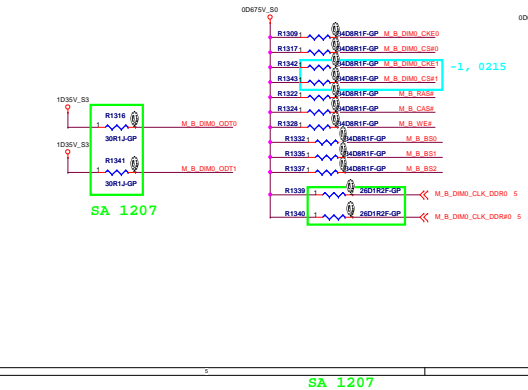
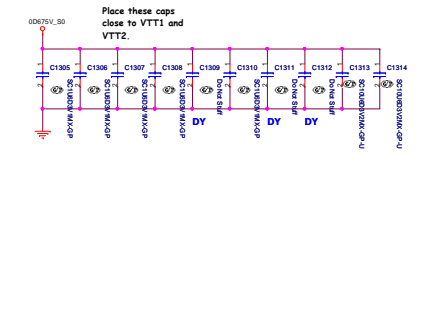
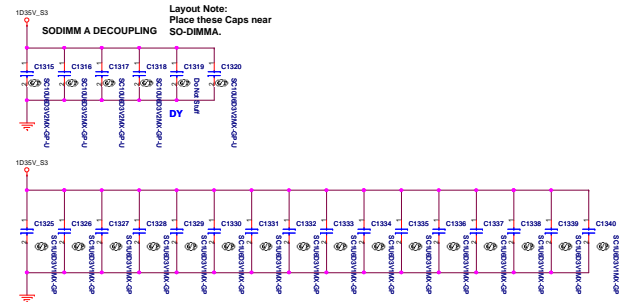
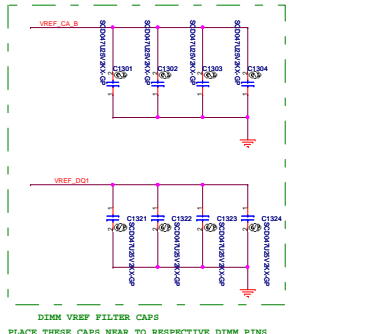


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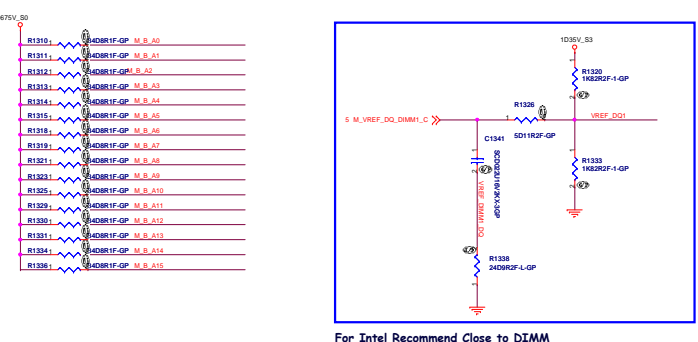
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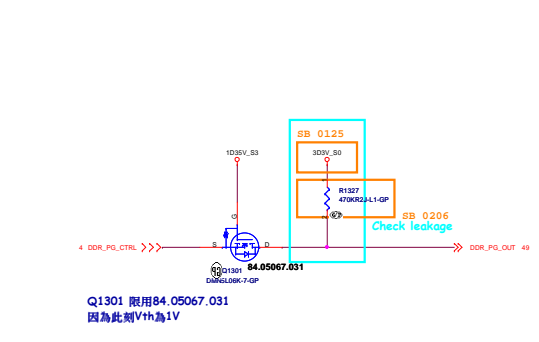
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SA 1207



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Q1301 應用84.05067.031 因為此類Vth為1V

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LPDDR3-RAM3 & 4

Storm 2

Rev -1

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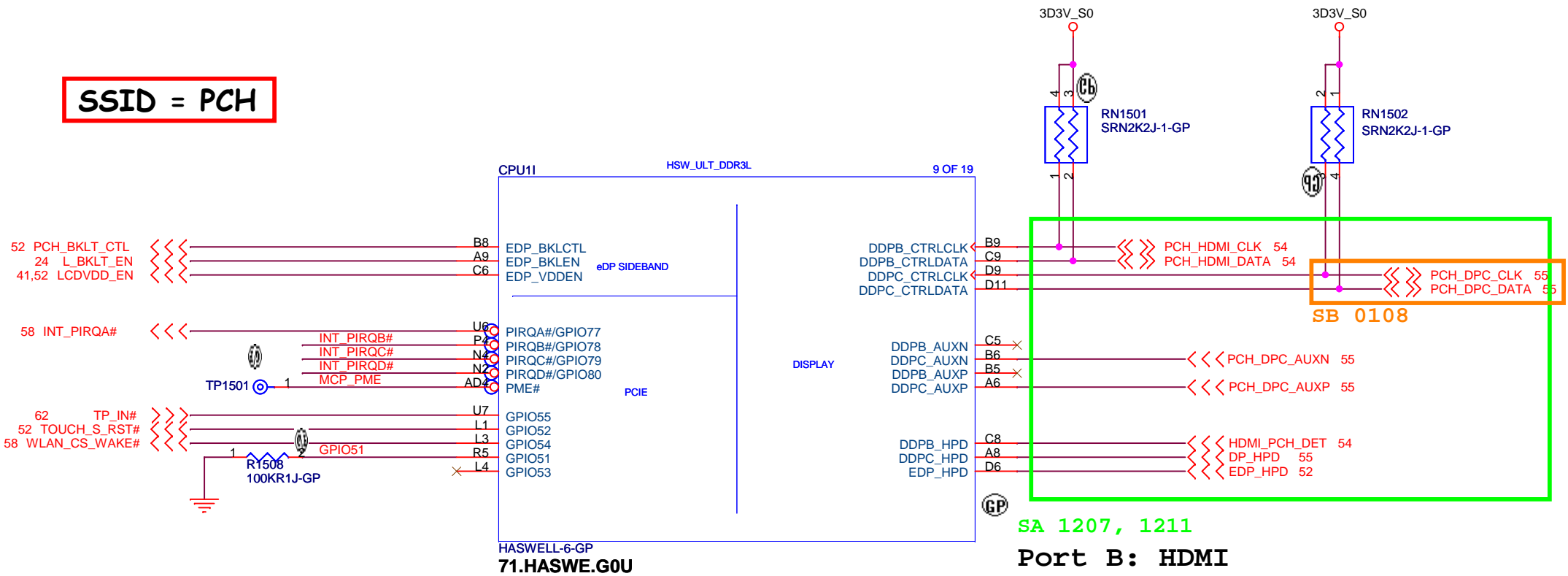
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Size A4	Document Number Storm 2	Rev -1
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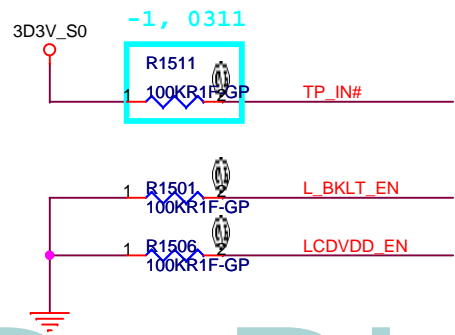
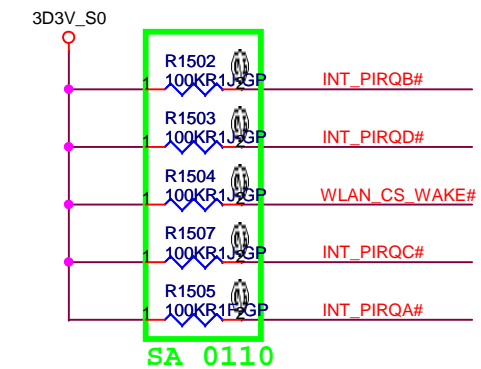
SSID = PCH



SA 1207, 1211

Port B: HDMI

Port C: Lightning bolt



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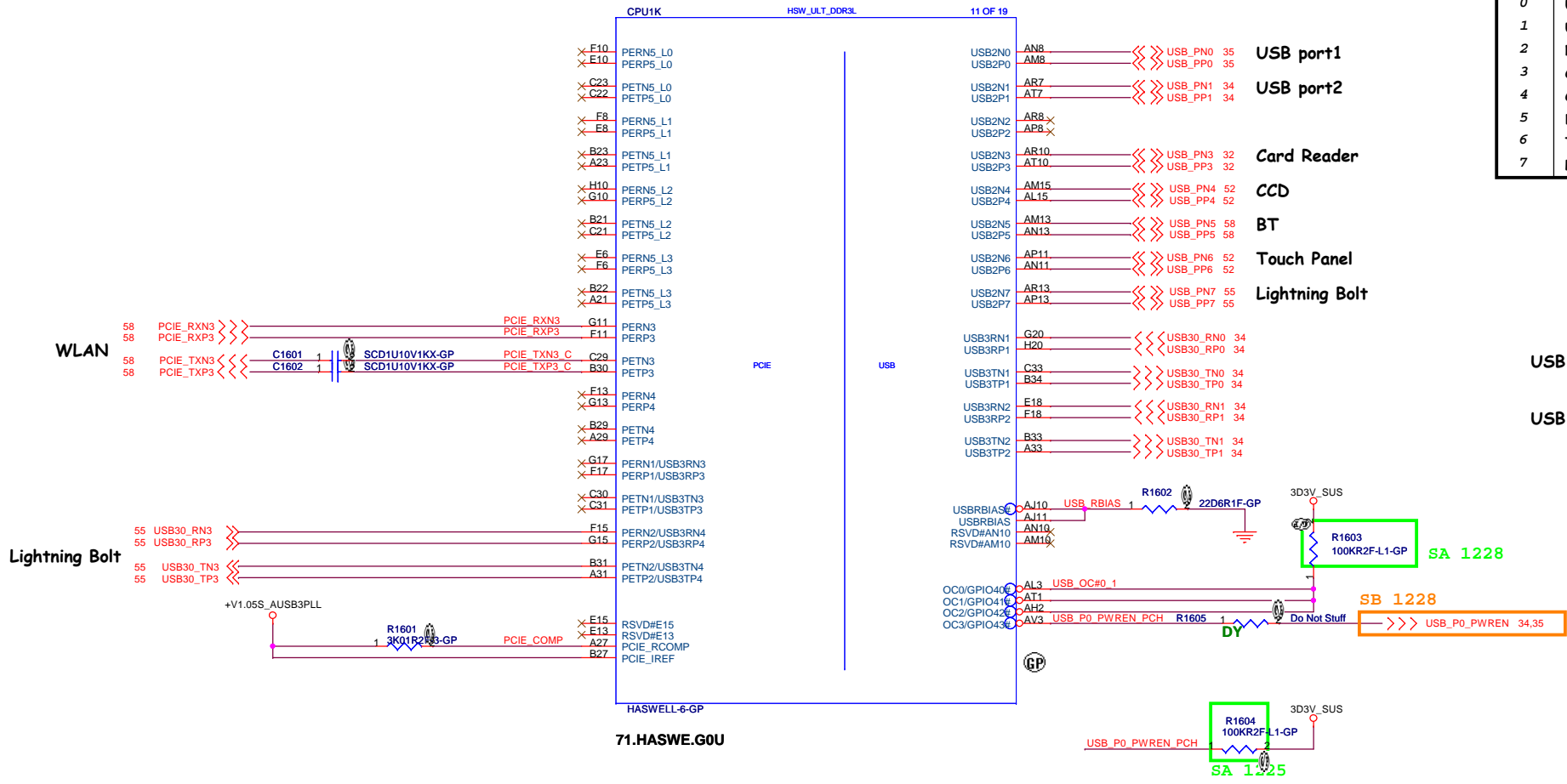
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Size	Document Number	Rev	
A4	Storm 2	-1	
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SSID = PCH

USB Table

Pair	Device
0	USB3.0 Port 1
1	USB3.0 Port 2
2	NA
3	Card Reader
4	CCD
5	BT
6	Touch Panel
7	Lightning Bolt



USB port1
USB port2

SA 1228
SB 1228

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Title CPU (PCI/USB)

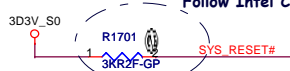
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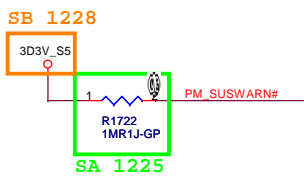
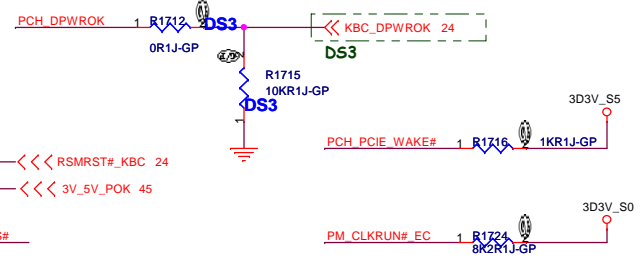
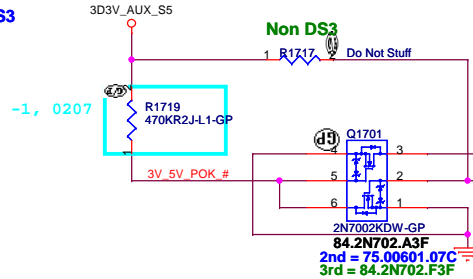
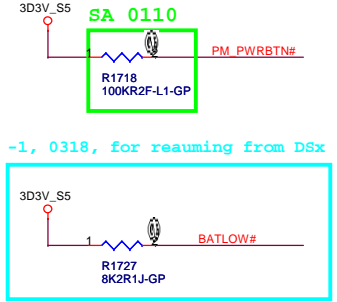
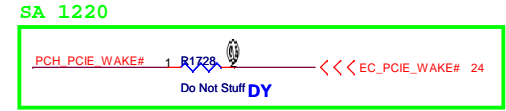
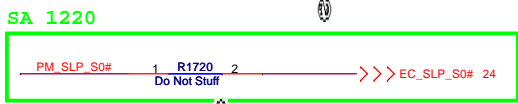
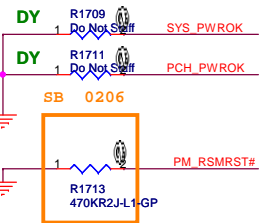
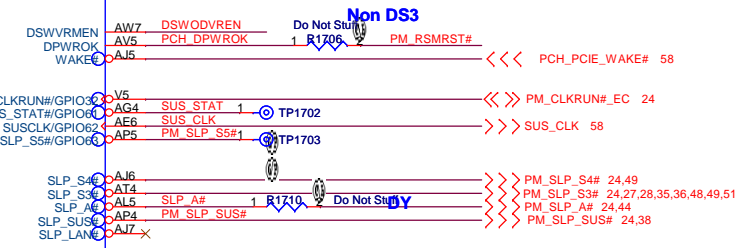
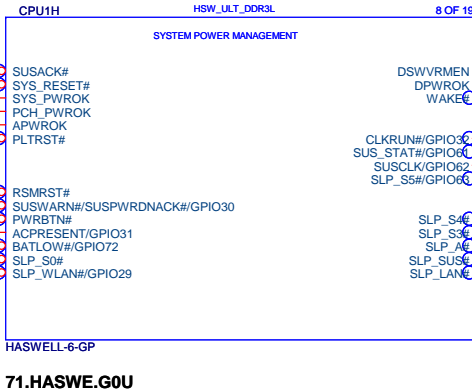
SSID = PCH

Follow Intel CRB



DSWODVREN - On Die DSW VR Enable	
HIGH	Enabled (DEFAULT)
LOW	Disabled

SA 1214 Delete IMVP_PWRGD



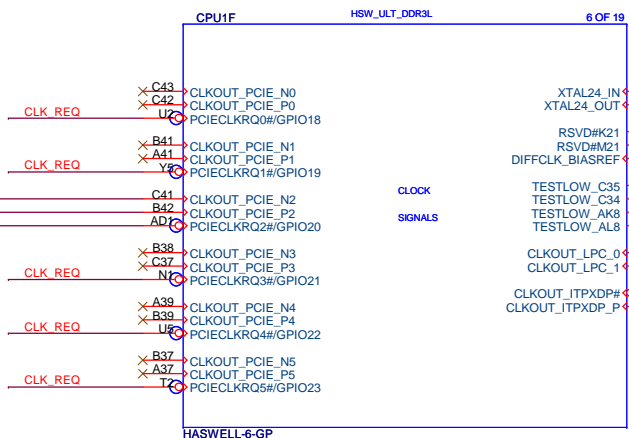
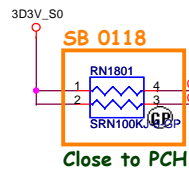
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Title	PCH (PM)
Size A3	Document Number
Date: Wednesday, April 03, 2013	Storm 2
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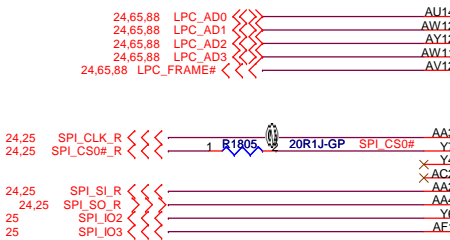
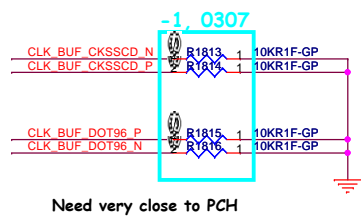
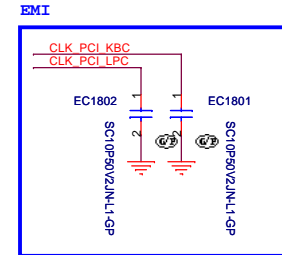
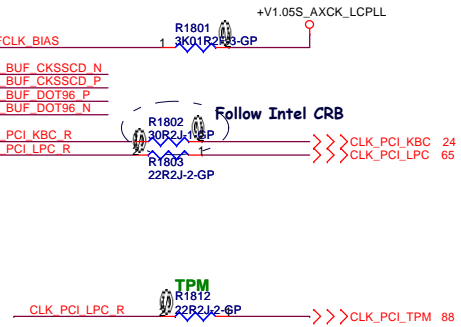
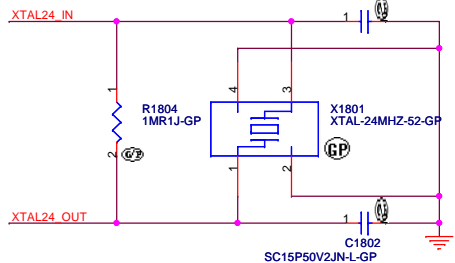
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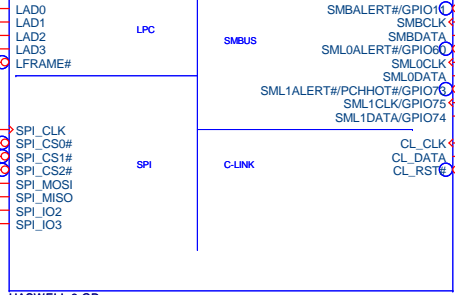
WLAN



71.HASWE.G0U



71.HASWE.G0U

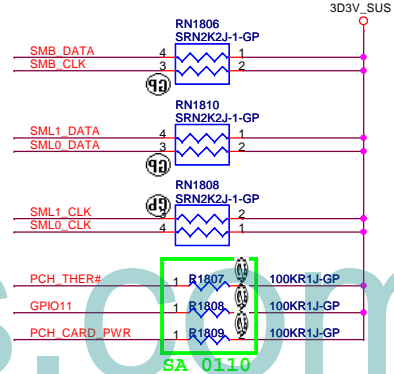
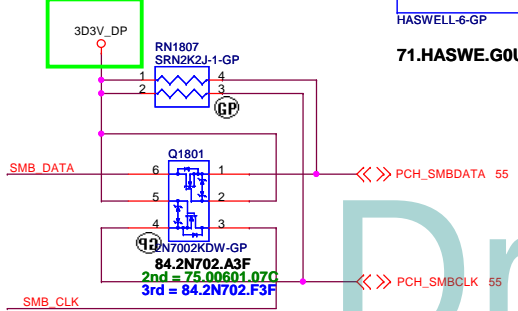


Lightning Bolt



EC/EL/LS/Thermal

SB 0126



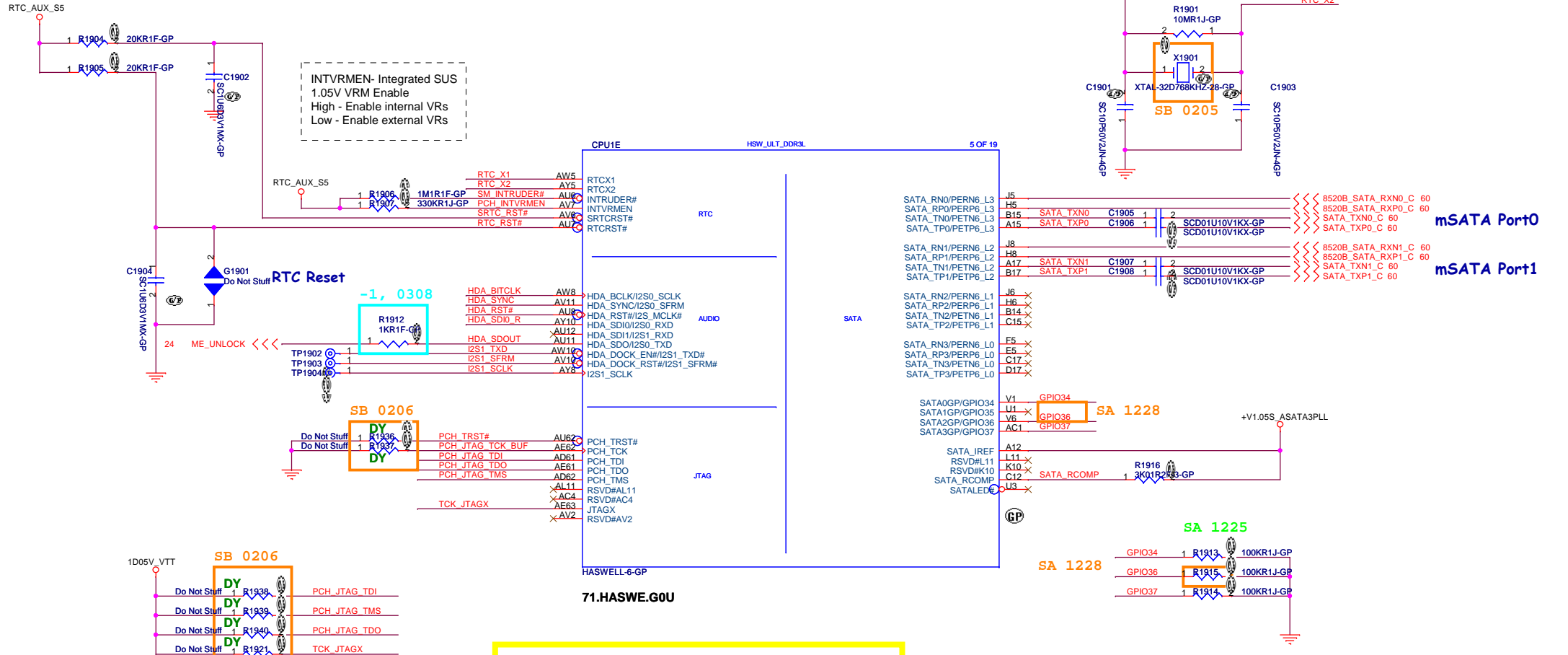
SA 0110

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Title PCH (PCI-E/SMBUS/CLOCK/CL)		
Size A3	Document Number Storm 2	Rev -1
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SSID = PCH



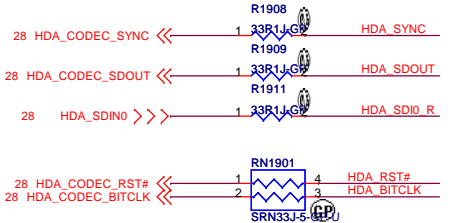
INTVRMEN- Integrated SUS
 1.05V VRM Enable
 High - Enable internal VRs
 Low - Enable external VRs

RTC Reset
 Do Not Stuff

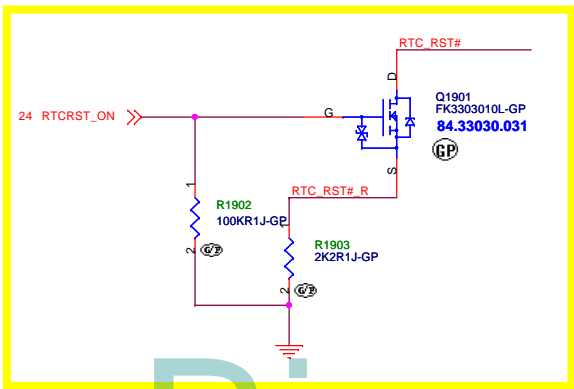
R1912
 1KR1F-GP

SB 0206
 Do Not Stuff
 Do Not Stuff

SB 0206
 Do Not Stuff
 Do Not Stuff
 Do Not Stuff
 Do Not Stuff



Flash Descriptor Security Override	
HDA_SDOOUT	Low = Default High = Enable



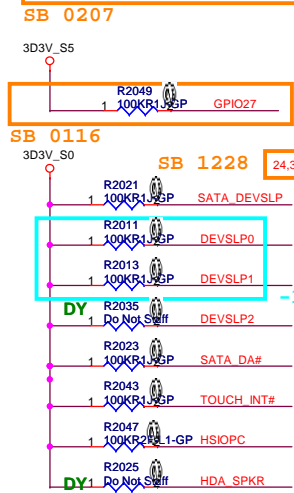
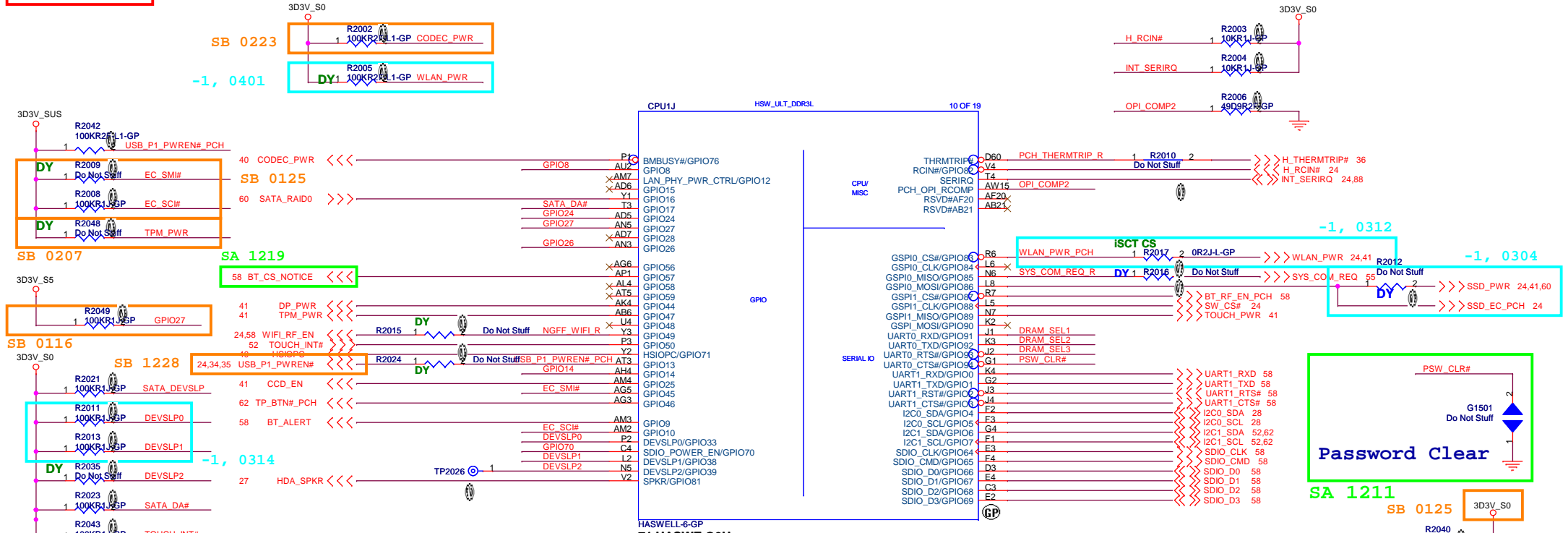
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 Storm2

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Title		CPU (RTC/LPC/SATA/HDA)	
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Date:	Tuesday, April 02, 2013	Sheet	19 of 102

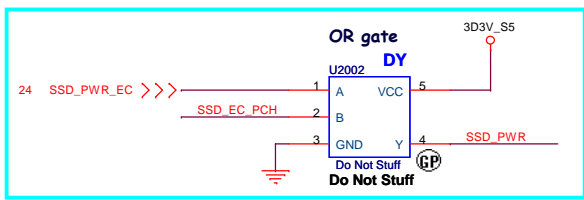
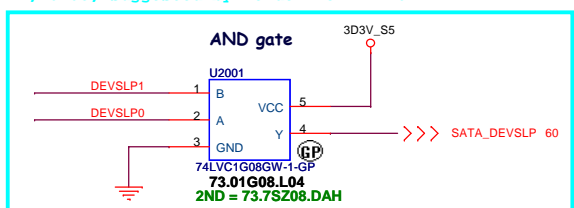
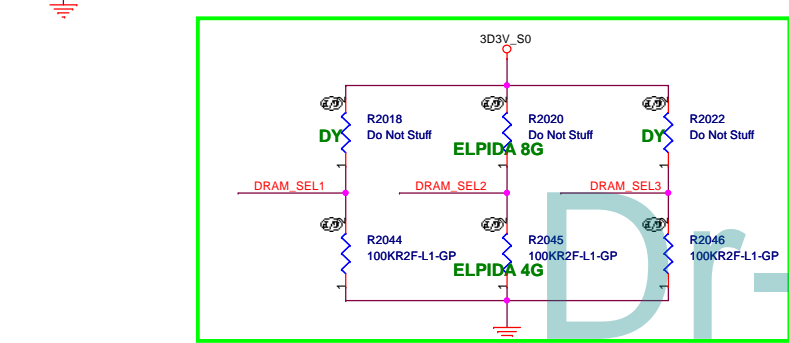
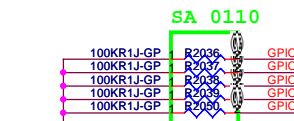
Dr-Bios.com

SSID = PCH



No Reboot Strap

HDA_SPKR	Low = Default
	High = No Reboot



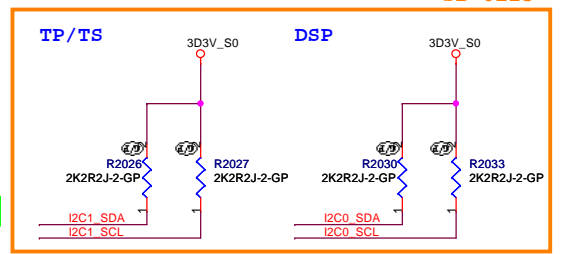
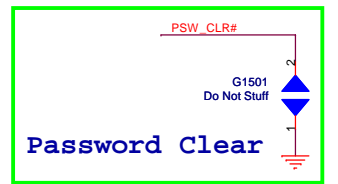
A16 SWAP OVERRIDE STRAP(SDIO_D0)

STP_A16OVR	LOW = A16 SWAP OVERRIDE
	HIGH = NO OVERRIDE

GSPI0_MOSI_BBS0_R(SSD_PWR)

PU	RESERVED
PD	SPI BUS

GPIO91 DRAM_SEL1 Dual/Single channel	GPIO92 DRAM_SEL2	GPIO93 DRAM_SEL3	Status
0	0	0	ELPIDA 4G (Dual)
0	0	1	Hynix 4G (Dual 1Rx16)
0	1	0	ELPIDA 8G (Dual)
0	1	1	Micron 8G (Dual)
1	0	0	
1	0	1	ELPIDA 4G (Single)
1	1	0	
1	1	1	



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PCH (GPIO)

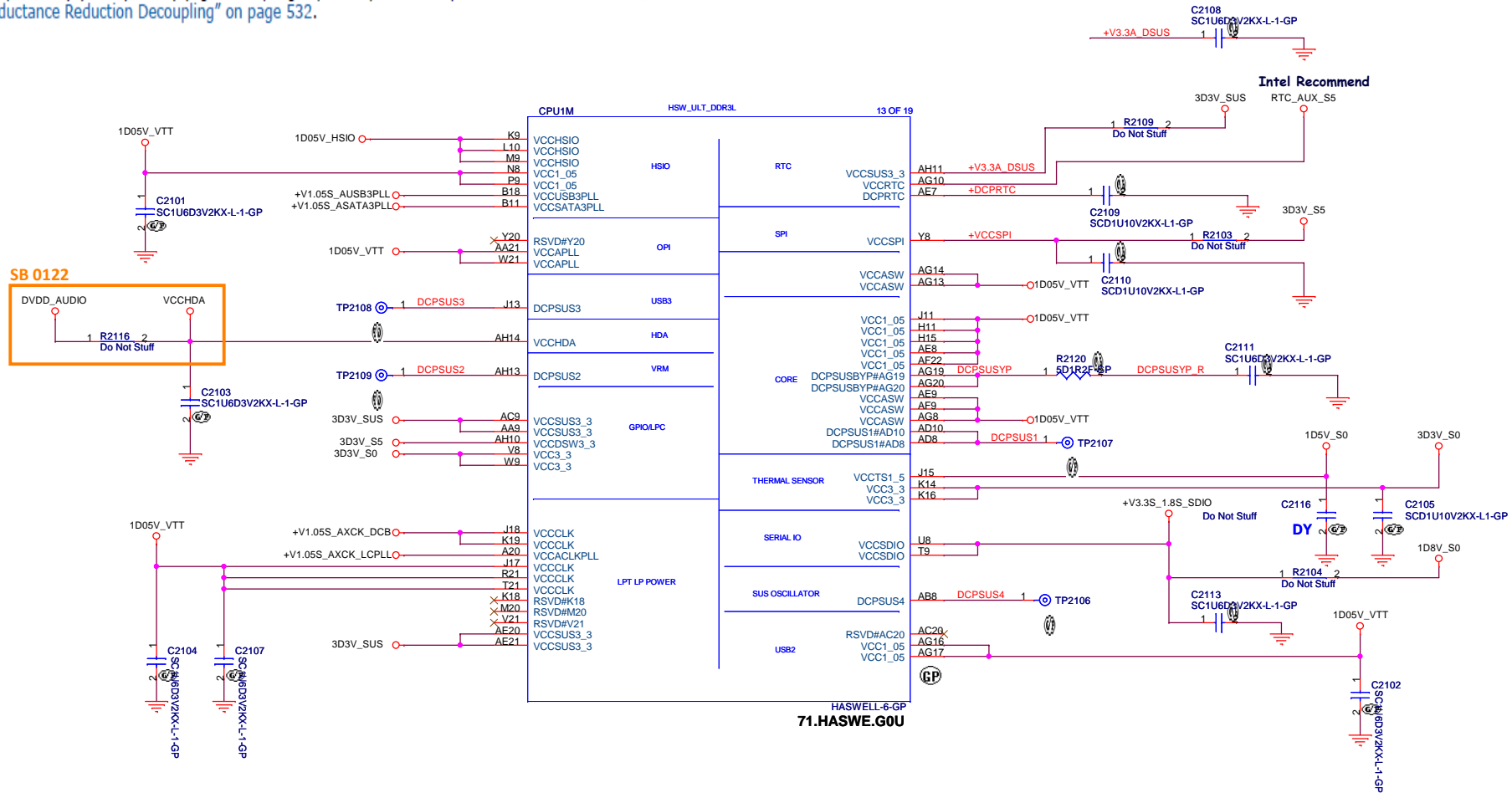
File: Storm 2

Size A3 Document Number: Storm 2 Rev: -1

Date: Tuesday, April 02, 2013 Sheet 20 of 102

Notes:

1. Required only on external SUS.
2. Placeholder only. Does not need to be stuffed.
3. The following pins are not to be connected and be left floating. Test point is optional on these pins: AC20, Y20, K18, M20, V21.
4. Note that some decoupling capacitors are shared between more than 1 rail. Follow the "Place capacitors near balls" instructions above to ensure this sharing is optimized.
5. Capacitors should be placed less than 100 mils (2.54 mm) from the edge of package.
6. For description of (R)unway, and (E)dge decoupling capacitor placement, please refer to Section 41.3, "Loop Inductance Reduction Decoupling" on page 532.

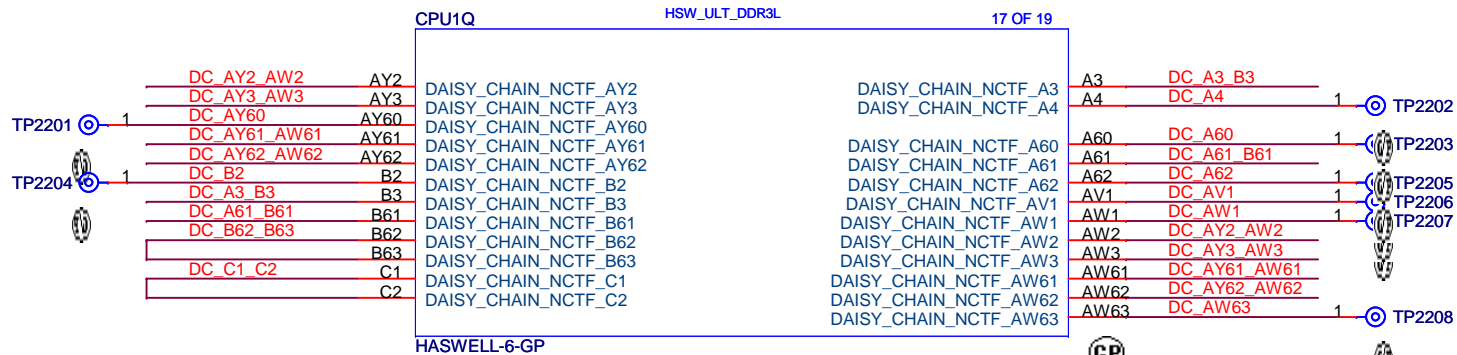


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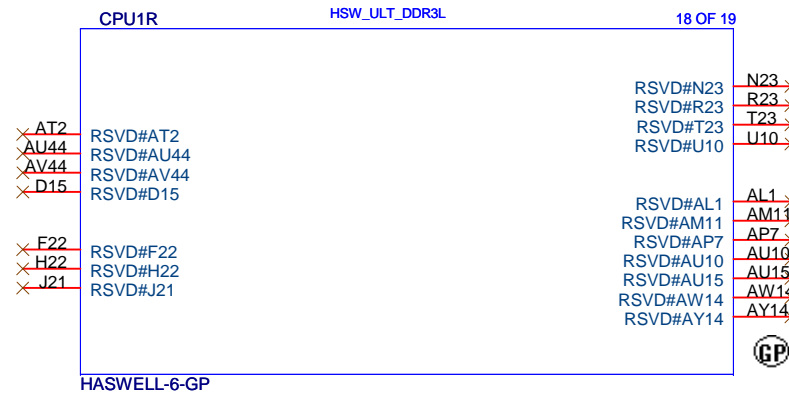
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Title		CPU (POWER)	
Size	Document Number	Rev	
A3	Storm 2	-1	
Date:	Monday, March 18, 2013	Sheet	21 of 102

SSID = CPU



71.HASWE.G0U



71.HASWE.G0U

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Storm2

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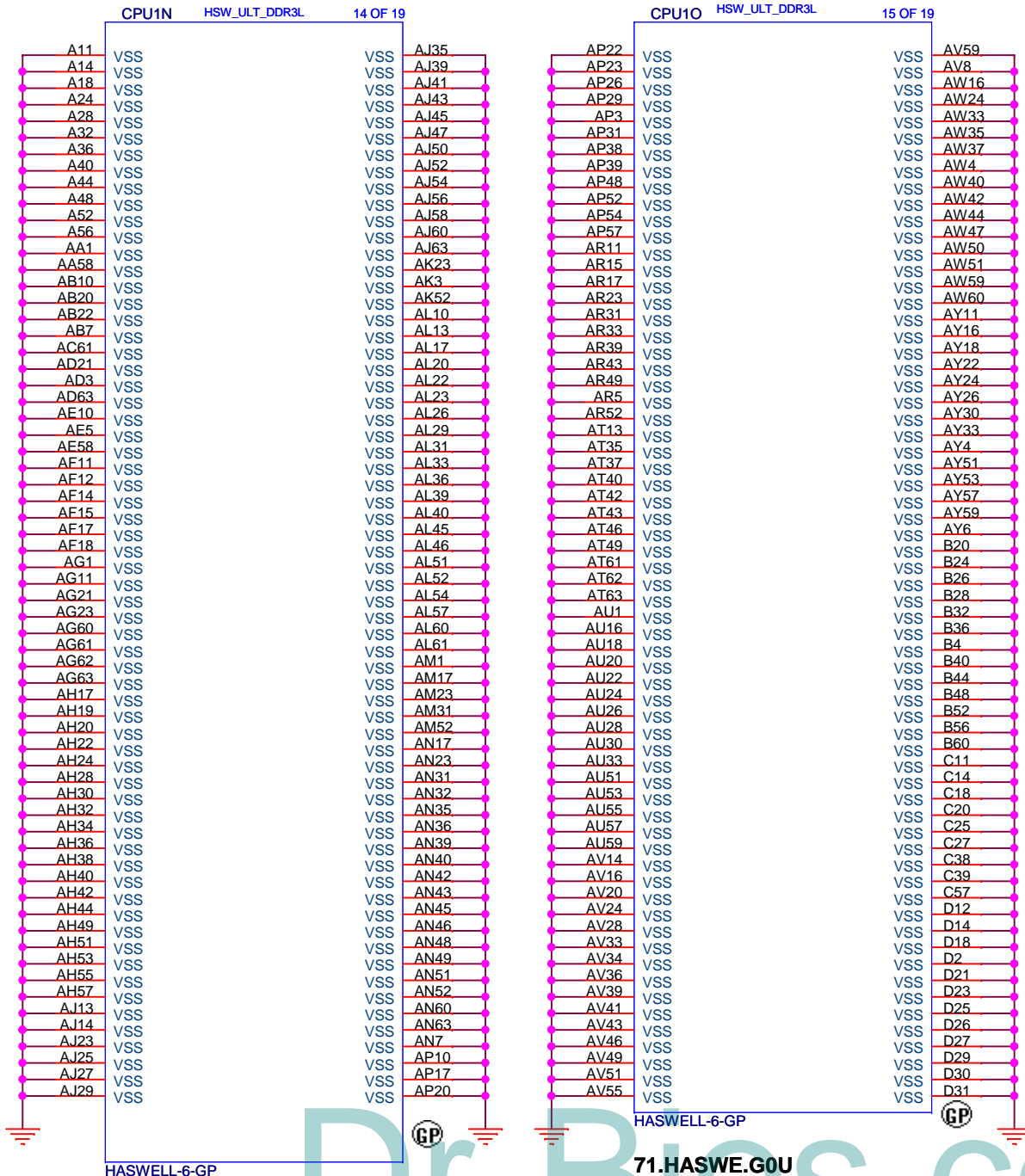
Title **CPU (RSVD)**

Size A4 Document Number **Storm 2** Rev **-1**

Date: Friday, February 01, 2013 Sheet 22 of 102

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SSID = PCH



HASWELL-6-GP

HASWELL-6-GP

71.HASWE.G0U

71.HASWE.G0U

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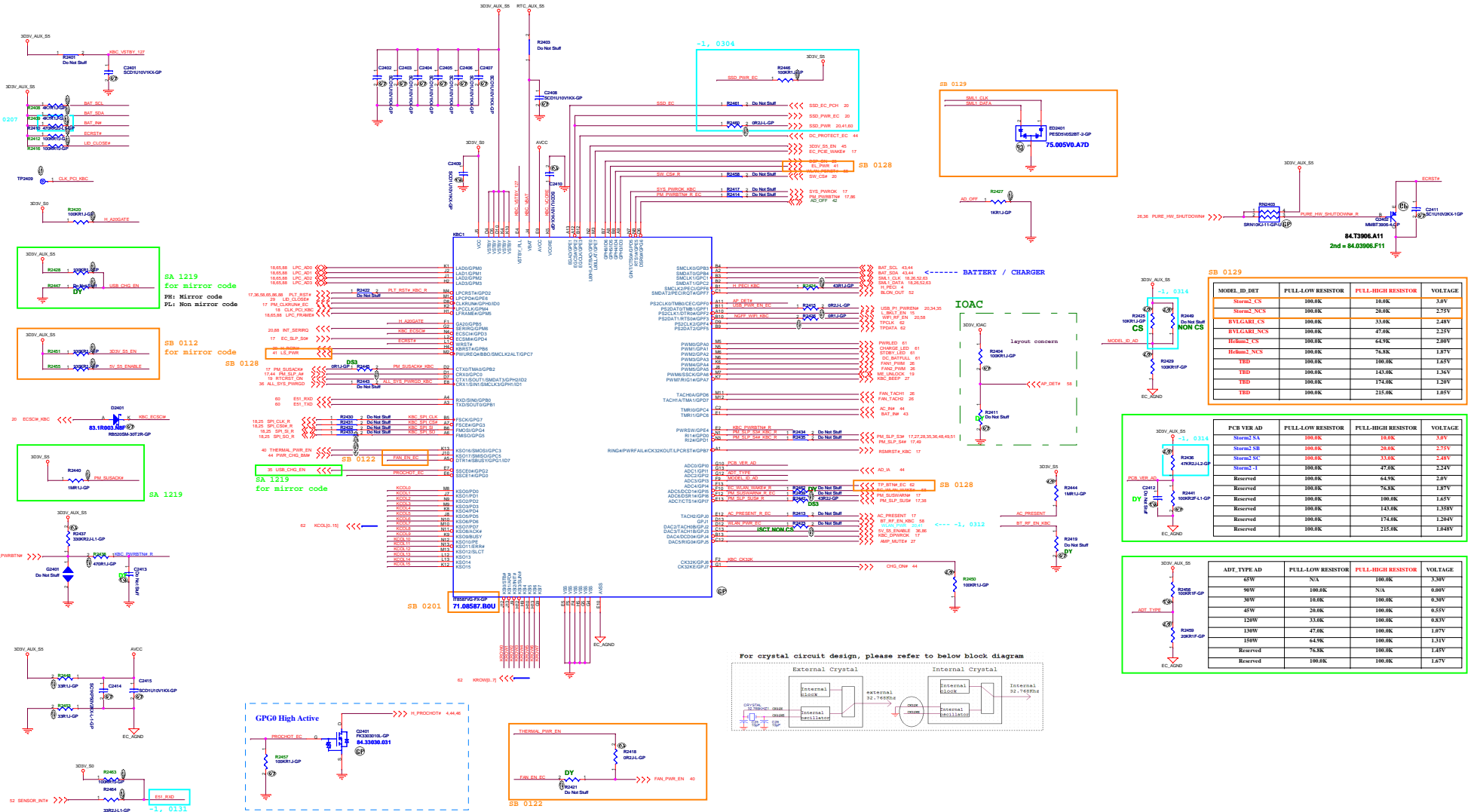
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Storm2

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Title		PCH (VSS)	
Size	Document Number	Rev	
A4		-1	
Date:	Friday, December 28, 2012	Sheet	23 of 102

SSID = KBC



SB 0129

MODEL_ID_DET	PULL-LOW RESISTOR	PULL-HIGH RESISTOR	VOLTAGE
Storm2_CS	100.0K	10.0K	3.0V
Storm2_NCS	100.0K	20.0K	2.75V
BVLGAREL_NCS	100.0K	33.0K	2.48V
BVLGAREL_CS	100.0K	47.0K	2.25V
Helium2_CS	100.0K	64.9K	2.08V
Helium2_NCS	100.0K	76.8K	1.87V
TBD	100.0K	100.0K	1.65V
TBD	100.0K	143.0K	1.36V
TBD	100.0K	174.0K	1.28V
TBD	100.0K	215.0K	1.05V

SB 0129

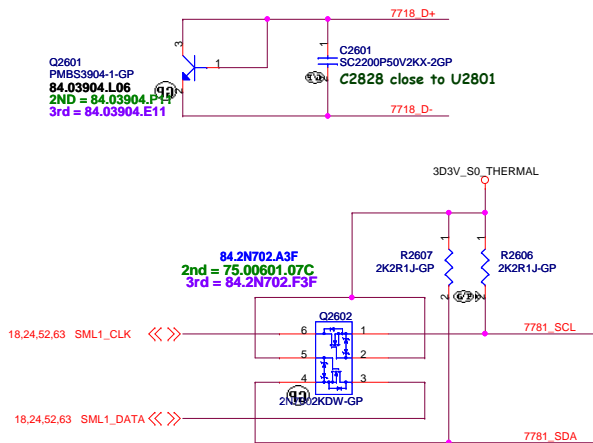
PCB_VER_AD	PULL-LOW RESISTOR	PULL-HIGH RESISTOR	VOLTAGE
Storm2 SA	100.0K	10.0K	3.0V
Storm2 SB	100.0K	20.0K	2.75V
Storm2 SC	100.0K	33.0K	2.48V
Storm2 TD	100.0K	47.0K	2.25V
Reserved	100.0K	64.9K	2.08V
Reserved	100.0K	76.8K	1.87V
Reserved	100.0K	100.0K	1.65V
Reserved	100.0K	143.0K	1.38V
Reserved	100.0K	174.0K	1.28V
Reserved	100.0K	215.0K	1.05V

SB 0129

ADT_TYPE AD	PULL-LOW RESISTOR	PULL-HIGH RESISTOR	VOLTAGE
65W	N/A	100.0K	3.30V
90W	100.0K	N/A	0.80V
30W	10.0K	100.0K	0.30V
45W	20.0K	100.0K	0.33V
120W	33.0K	100.0K	0.33V
130W	47.0K	100.0K	1.07V
150W	64.9K	100.0K	1.31V
Reserved	76.8K	100.0K	1.48V
Reserved	100.0K	100.0K	1.07V

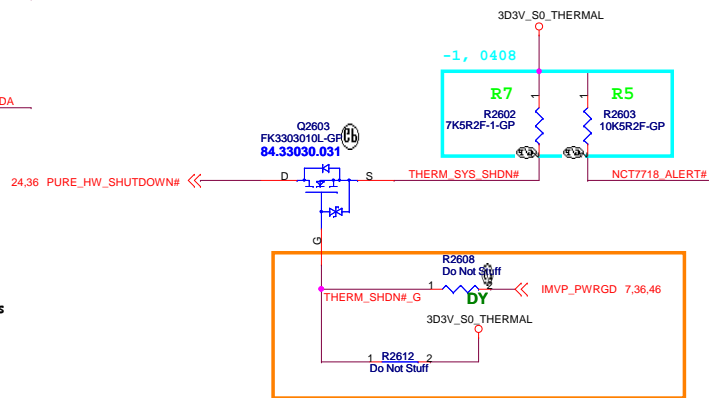
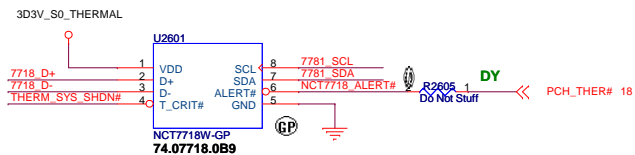
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SSID = Thermal



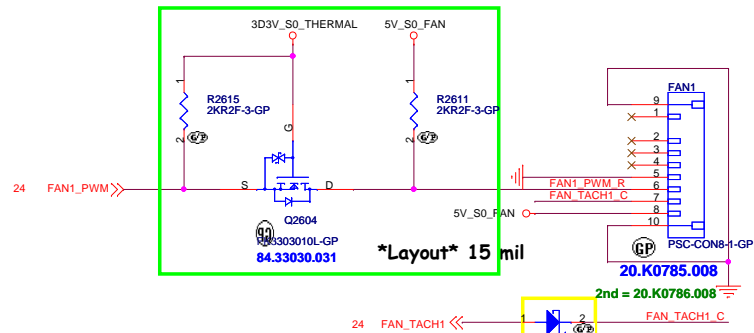
Layout notice :

- * Put the C1 2200pF to close the nct7718W
- * Add ground shielding for D+ and D- traces
- * D+/D- route has to be away from the high noise area
- * The recommended traces width and ground shielding spacing are 10mils

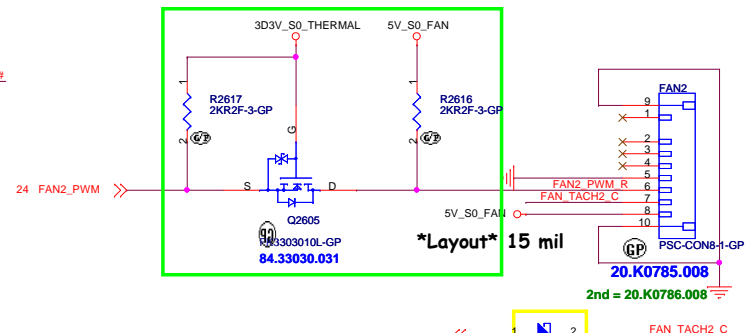


Check!!! SB 0128

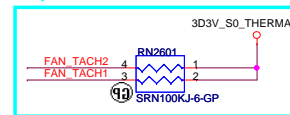
SA 1222



SA 1222



-1, 0206



Setting 91°C

R7

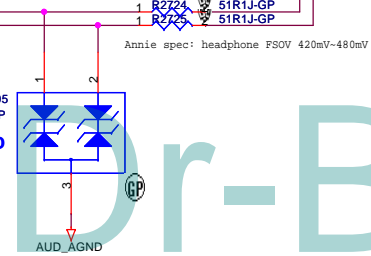
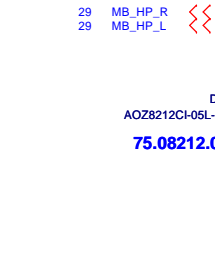
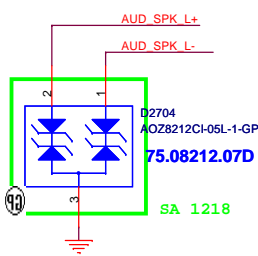
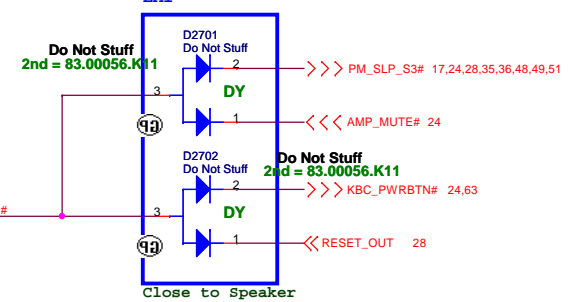
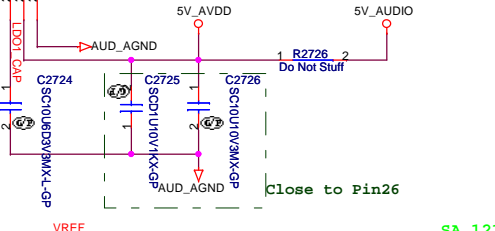
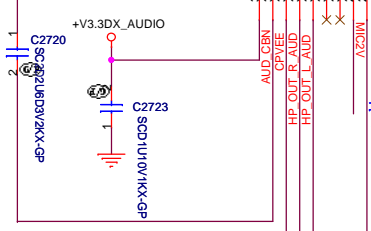
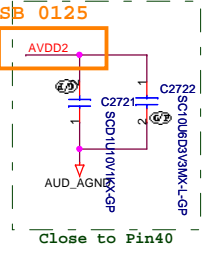
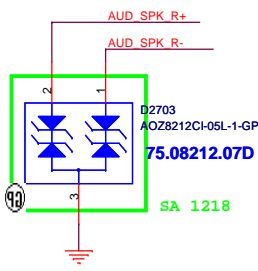
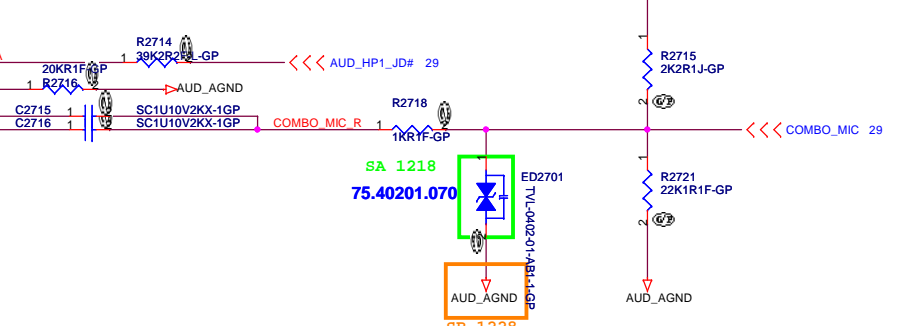
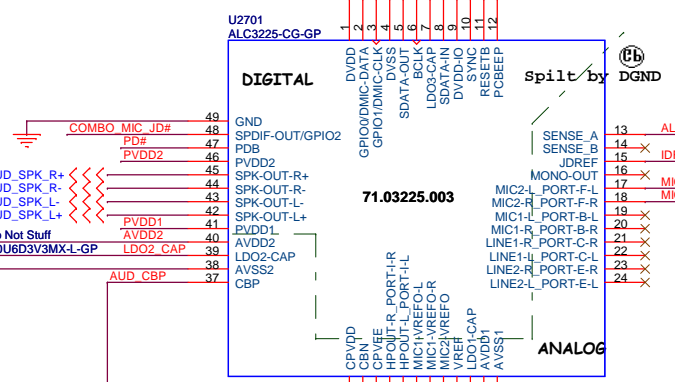
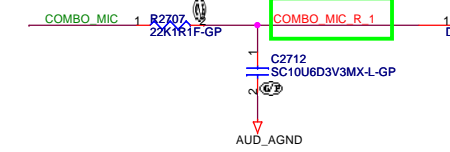
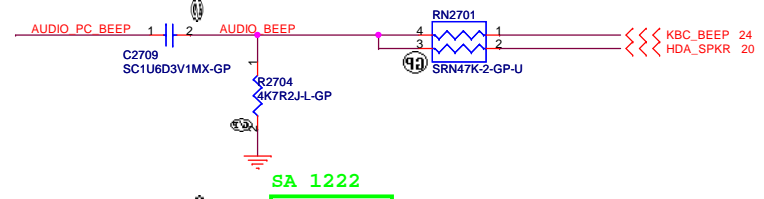
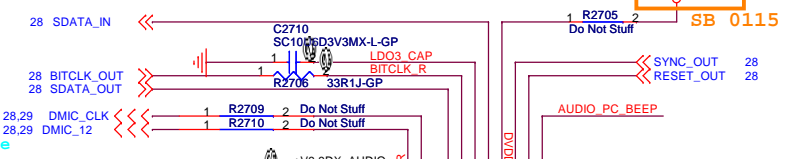
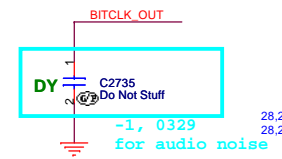
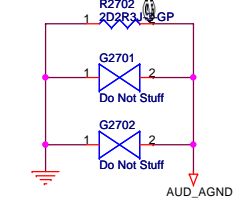
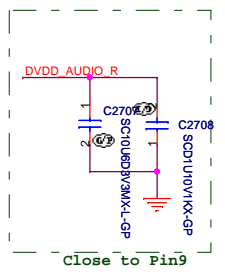
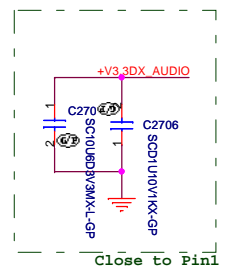
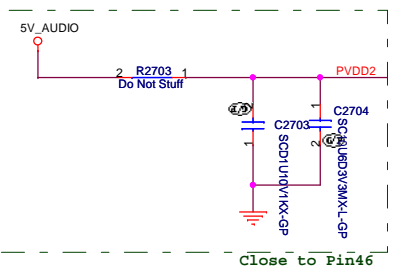
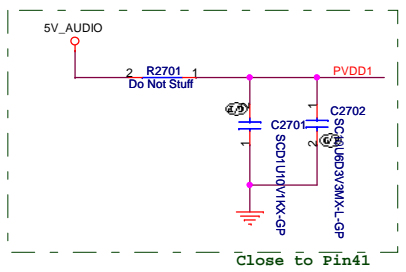
The default value is trapping after power up 100ms by different pull-up resistors of T_CRIT# and ALERT# pin:

TEMPERATURE (°C)	T_CRIT#					
	2KΩ	7.5KΩ	10.5KΩ	14KΩ	18.7KΩ	
ALERT#	2KΩ	77	87	97	107	117
	7.5KΩ	79	89	99	109	119
	10.5KΩ	81	91	101	111	121
	14KΩ	83	93	103	113	123
	18.7KΩ	85	95	105	115	125

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Title	NUVOTON_NCT7718W
Size	Document Number
Custom	Storm 2
Date	Monday, April 08, 2013
Sheet	26 of 102
Rev	-1

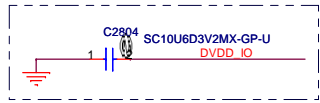
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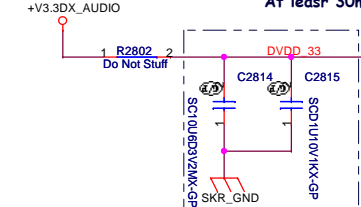
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File	Audio Codec (ALC3225)	
Size A3	Document Number	Rev -1
Storm 2		
Date: Tuesday, April 02, 2013	Sheet 27	of 102



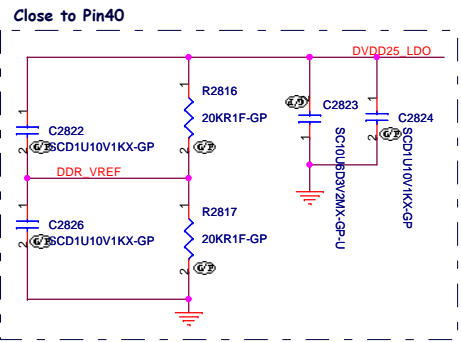
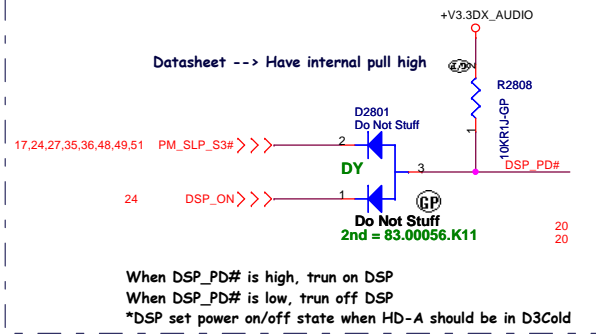
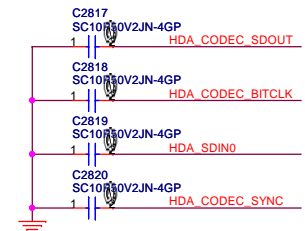


Close to Pin9

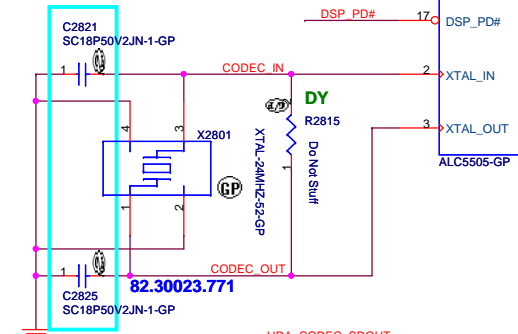
Close to Pin42
At least 30mil



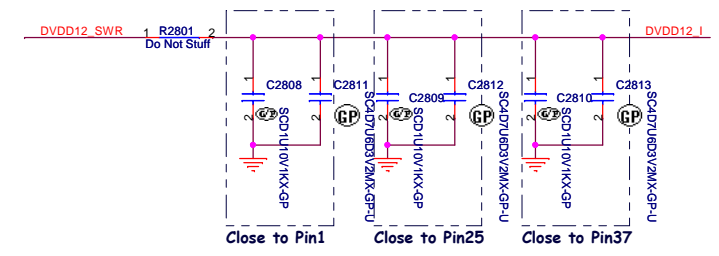
SB 0115



Close to Pin40



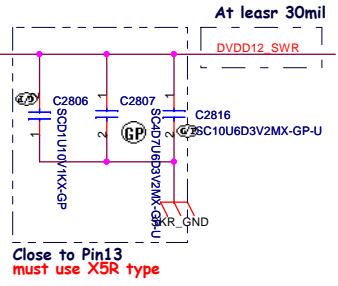
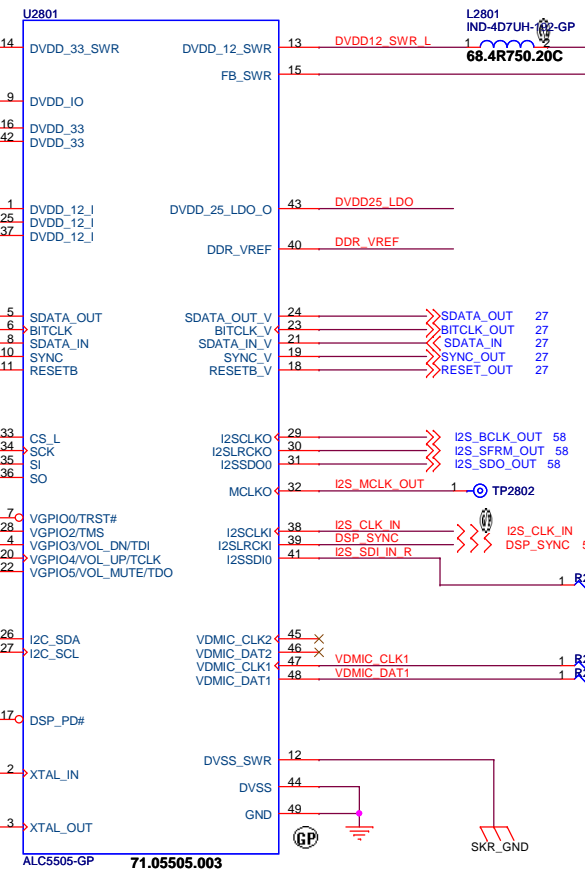
- HDA_CODEC_SDOOUT 2 R2818 1 Do Not Stuff DY SDATA_OUT
- HDA_CODEC_BITCLK 19 R2819 1 Do Not Stuff DY BITCLK_OUT
- HDA_SDINO 19 R2820 1 Do Not Stuff DY SDATA_IN
- HDA_CODEC_SYNC 19 R2821 1 Do Not Stuff DY SYNC_OUT
- HDA_CODEC_RST# 19 R2822 1 Do Not Stuff DY RESET_OUT



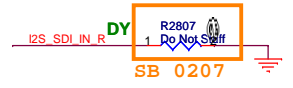
Close to Pin1

Close to Pin25

Close to Pin37



Close to Pin13
must use X5R type



SB 0207

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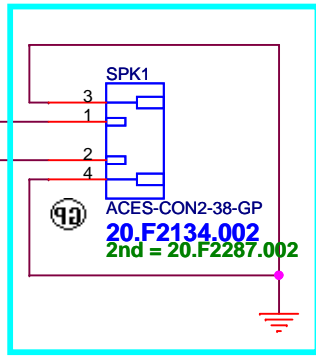
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Size	Document Number		Rev		
A3	Storm 2		-1		
Date:	Tuesday, April 02, 2013	Sheet	28	of	102

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SSID = AUDIO

Speaker

27 AUD_SPK_L- >>>
27 AUD_SPK_L+ >>>

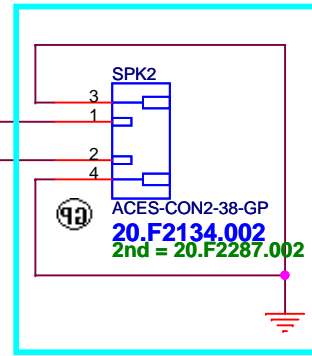


Layout Note:

Trace width=40mil

-1, 0305

27 AUD_SPK_R- >>>
27 AUD_SPK_R+ >>>



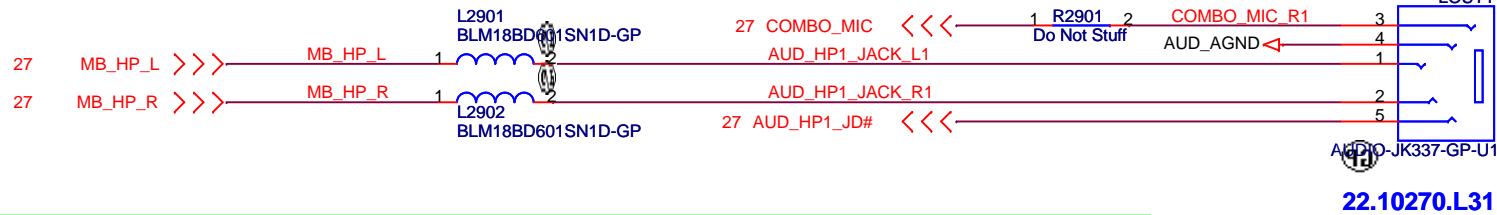
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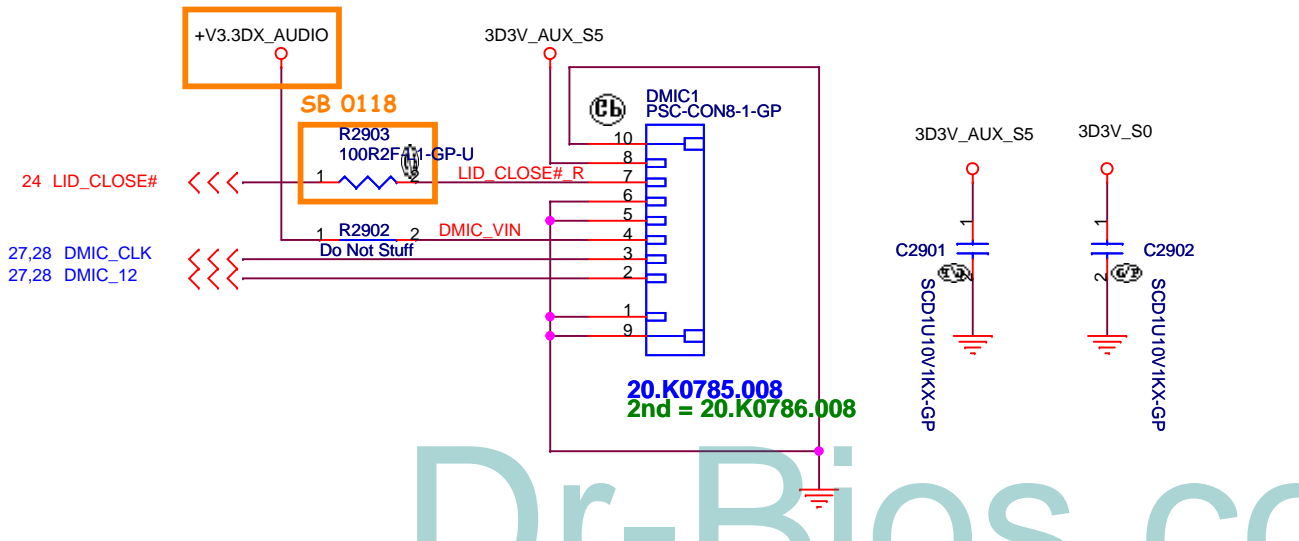
-1, 0305

Combo Jack

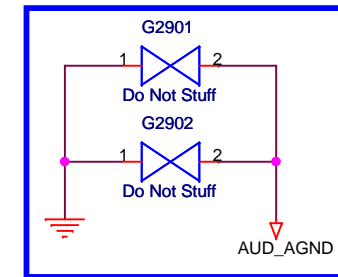
600ohm 100MHz
200mA 0.5ohm DC



DMIC & Hall Sensor



EMI



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Title **Audio Jack & Hall Sensor**

Size A4 Document Number Rev -1

Date: Tuesday, April 02, 2013 Sheet 29 of 102

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SSID = User.Interface

(Blanking)

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Storm2

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Title **LAN (Reserved)**

Size A4	Document Number Storm 2	Rev -1
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Date: Friday, December 28, 2012 Sheet 30 of 102

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Storm2

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Wistron Corporation

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Title

RJ45 + Transformer (Reserved)

Size

Document Number

Rev

A

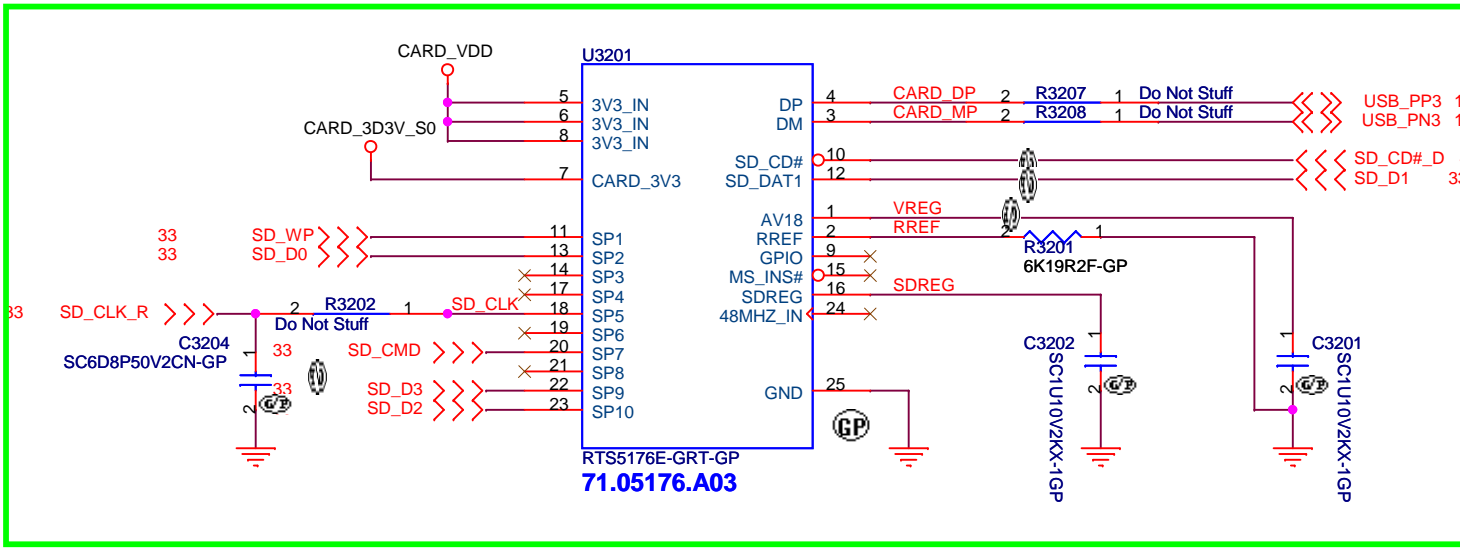
Storm 2

-1

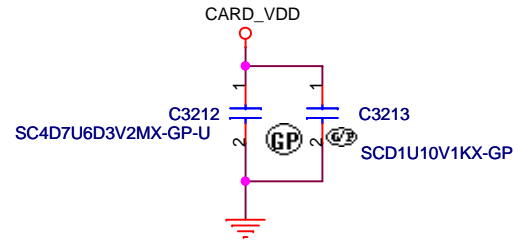
Date: Friday, December 28, 2012

Sheet 31 of 102

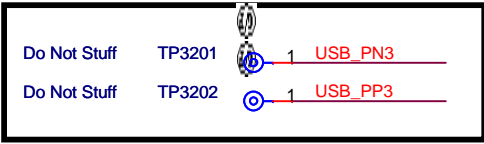
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SA 0104



FOR SIV, PLS near U3201



Pin#	Name	I/O Type	Description
1	AV18	O	Internal regulator for Analog blocks. An external capacitor should be connected
2	RREF	I	Connect external resistor (6.2K ± 1%) to reference ground
3	DM	I/O	USB2.0 D- signal
4	DP	I/O	USB2.0 D+ signal
5	3V3_IN	I	3.3V power input
6	3V3_IN	I	3.3V power input
7	CARD_3V3	O	3.3V power supplied for all media cards
8	3V3_IN	I	3.3V power input
9	GPIO	I/O	General purpose input/output. Now it's used for LED blinking
10	SD_CD#	I	SD Card Detect pin
11	SP1	I/O	SD Write Protect pin and MS Data 1
12	SD_DAT1	I/O	SD/MMC Data 1
13	SP2	I/O	SD/MMC Data 0 and MS Data 5
14	SP3	I/O	MMC Data 7 and MS Data 4
15	MS_INS#	I	MS Card Detect pin
16	SDREG	O	Internal regulator for SD card. An external capacitor should be connected
17	SP4	I/O	MMC Data 6 and MS Data 0
18	SP5	I/O	SD/MMC Clock pin and MS Data 2
19	SP6	I/O	MMC Data 5 and MS Data 6
20	SP7	I/O	SD/MMC Command pin and MS Data 3
21	SP8	I/O	MMC Data 4 and MS Data 7
22	SP9	I/O	SD/MMC Data 3 and MS Clock pin
23	SP10	I/O	SD/MMC Data 2 and MS BS pin
24	48MHz_In	I	48MHz clock input
	Exposed PAD		The Exposed PAD must be connected to the reference ground

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Storm2

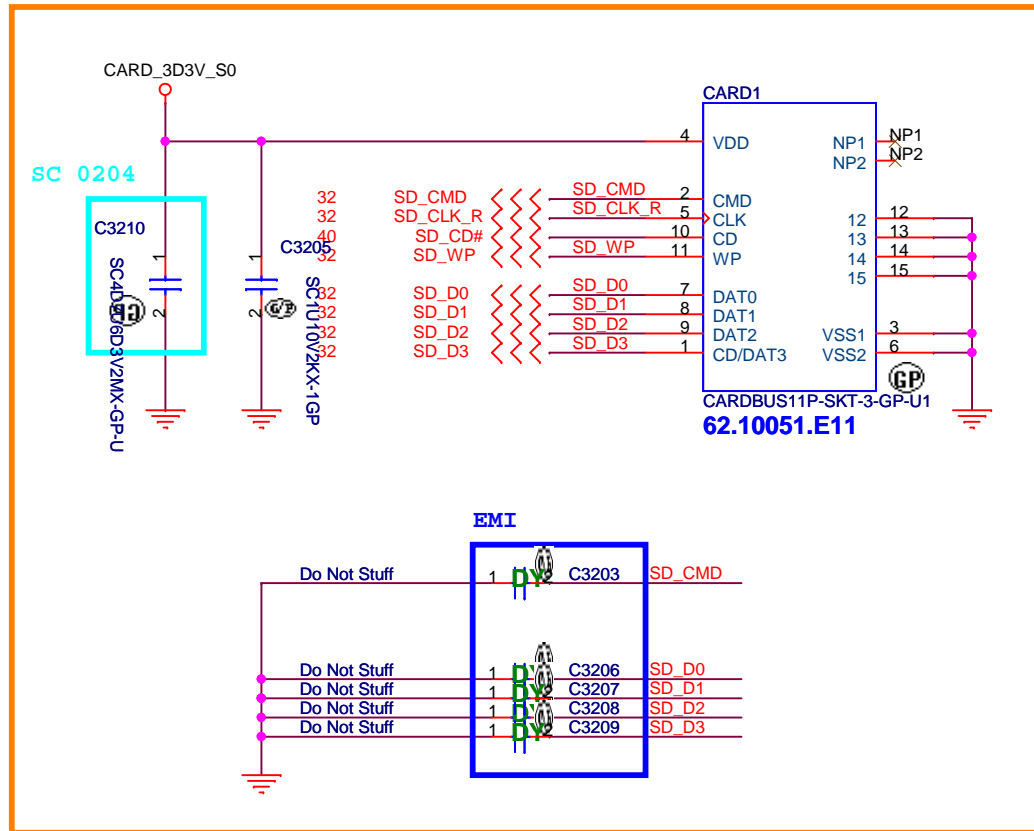
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Title CARD READER_RTS5176E		
Size A4	Document Number Storm 2	Rev -1
Date: Tuesday, April 02, 2013	Sheet 32	of 102

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SD Card Reader CONN.

SB 1228



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Storm2

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Title **CARD Reader CONN.**

Size A4	Document Number	Rev -1
Date: Tuesday, April 02, 2013	Storm 2	
Sheet 33	of	102

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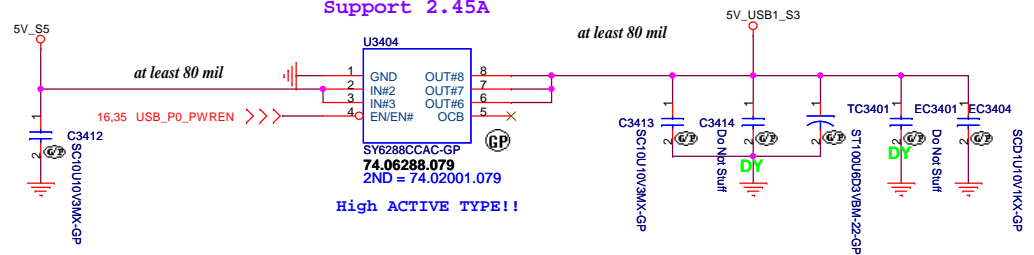
SSID = USB

JE40 modify

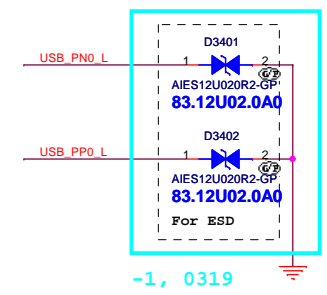
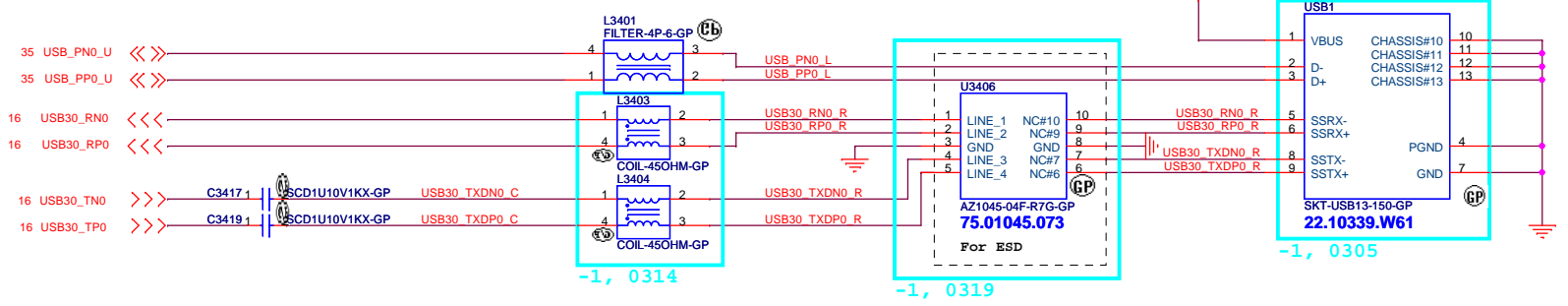
USB 3.0 Connector Pin definition

1	POWER
2	USB 2.0 D-
3	USB 2.0 D+
4	GND
5	StdA_SSRX-
6	StdA_SSRX+
7	GND
8	StdA_SSTX-
9	StdA_SSTX+

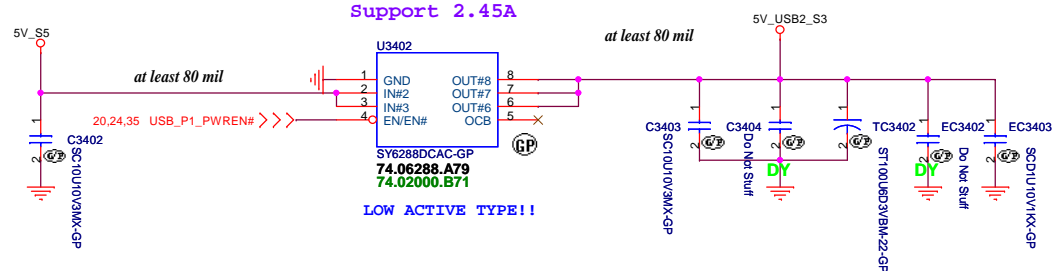
Change Main source Support 2.45A



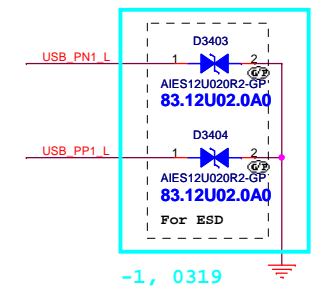
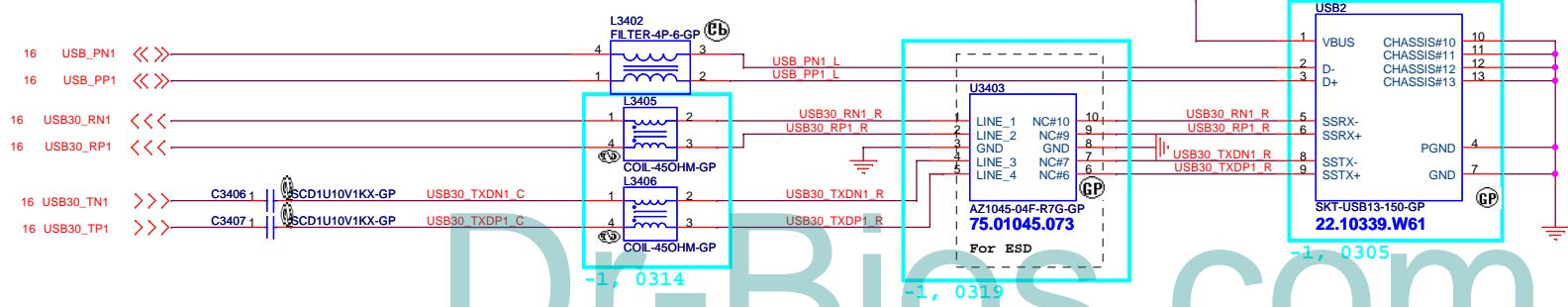
USB Charger Port USB3.0 Port1



Change Main source Support 2.45A

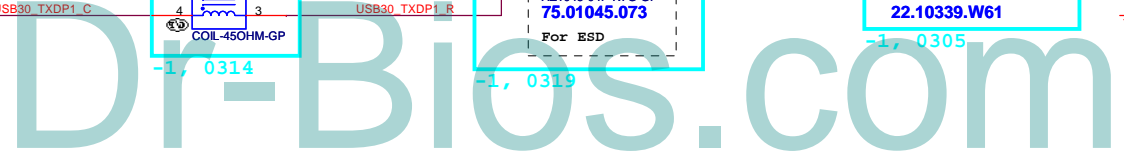


USB3.0 Port2

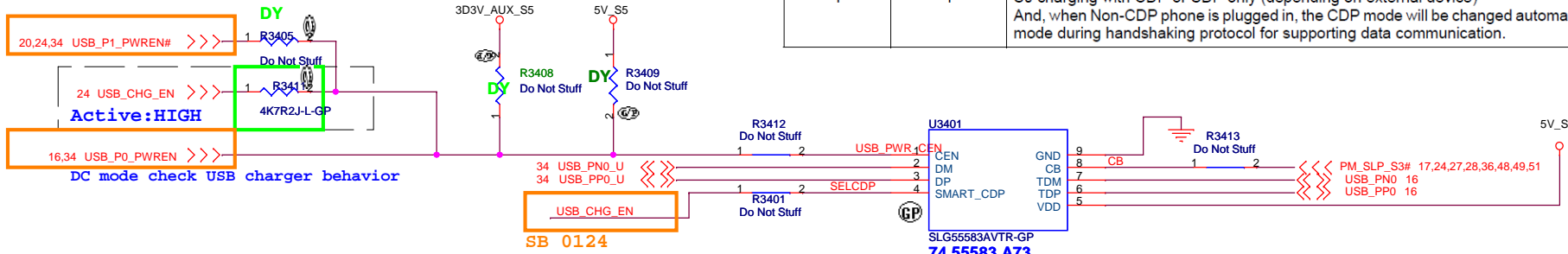
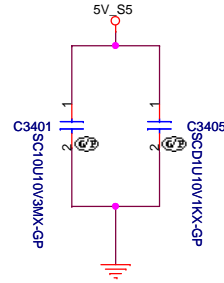


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USB Charger



Pin Description - SLG55583A

Pin #	Name	Type	Description
1	CEN	Output	N-FET Open Drain Output. Current Limit Switch (CLS) Control Output. CB changes from 0 to 1 or 1 to 0. CEN will be low for 2 seconds (typ)
2	DM	Input/Output	USB Connector D-
3	DP	Input/Output	USB Connector D+
4	SMART-CDP	Input	Input Control logic (see truth table)
5	VDD	PWR	Power Supply. Connect a 0.1µF capacitor between VDD and GND as close as possible to the device.
6	TDP	Input/Output	Host USB Transceiver D+ Connection
7	TDM	Input/Output	Host USB Transceiver D- Connection
8	CB	Input	Switch Control Bit 0 = autodetection charger identification active 1 = charging downstream port with active USB2.0 data communication mode with 1.5A support
9	Thermal Pad	GND	Ground

Truth Table

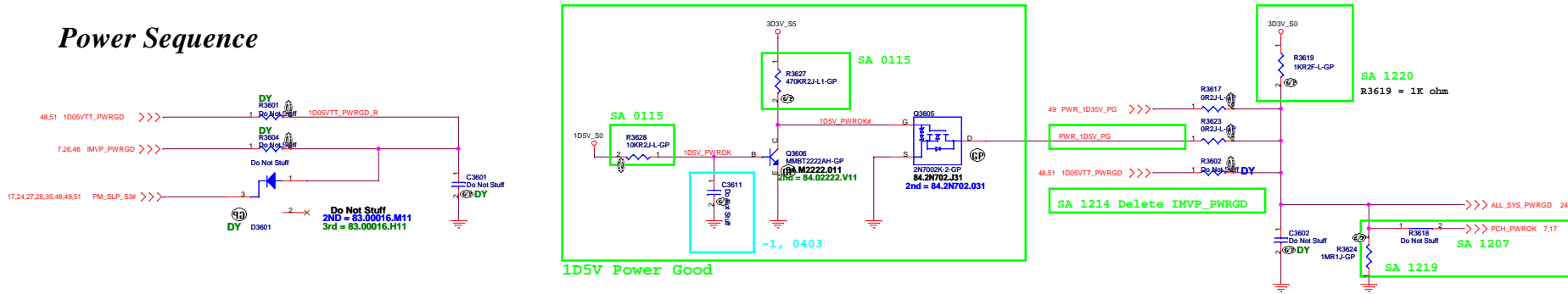
CB	SMART-CDP	Function
0	X	DCP autodetect with mouse/keyboard wakeup
1	0	S0 charging with SDP only
1	1	S0 charging with CDP or SDP only (depending on external device) And, when Non-CDP phone is plugged in, the CDP mode will be changed automatically to SDP mode during handshaking protocol for supporting data communication.

SB 1228

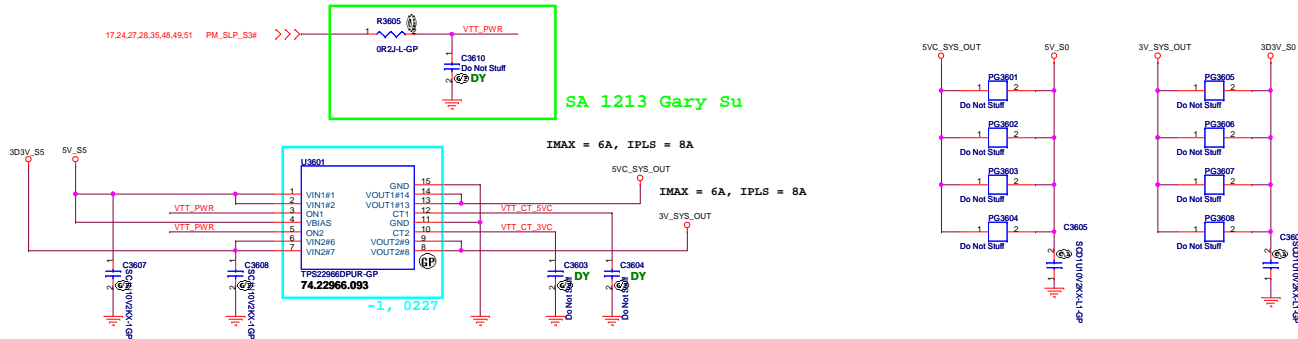
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USB Charger (reserved)	
Title Document Number Storm 2	Rev -1
Date: Tuesday, April 02, 2013	Sheet 35 of 102

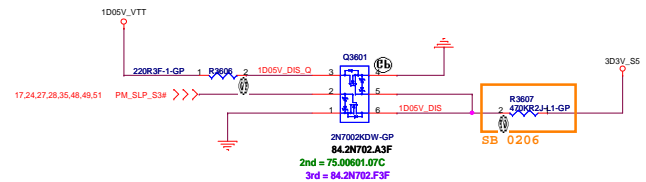
Power Sequence



ANNIE Run Power

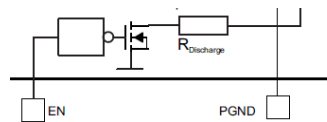


Discharge circuit



U5101: TLV62065 (1D5V) supports output discharge

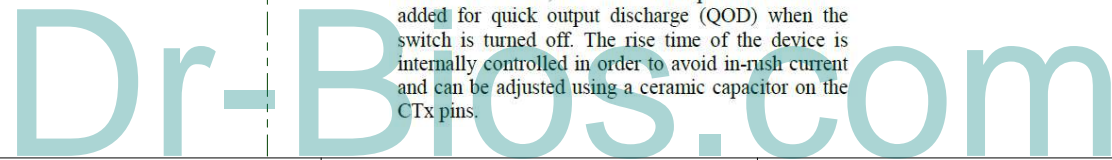
$R_{(Discharge)}$	Internal discharge resistor	Activated with EN = GND, $2.9V \leq V_{IN} \leq 5.5V$, $0.8 \leq V_{OUT} \leq 3.6V$
-------------------	-----------------------------	--------------------------------------------------------------------------------------



U3601: TPS22966 supports output discharge

In the TPS22966, a 220-Ω on-chip load resistor is added for quick output discharge (QOD) when the switch is turned off. The rise time of the device is internally controlled in order to avoid in-rush current and can be adjusted using a ceramic capacitor on the CTx pins.

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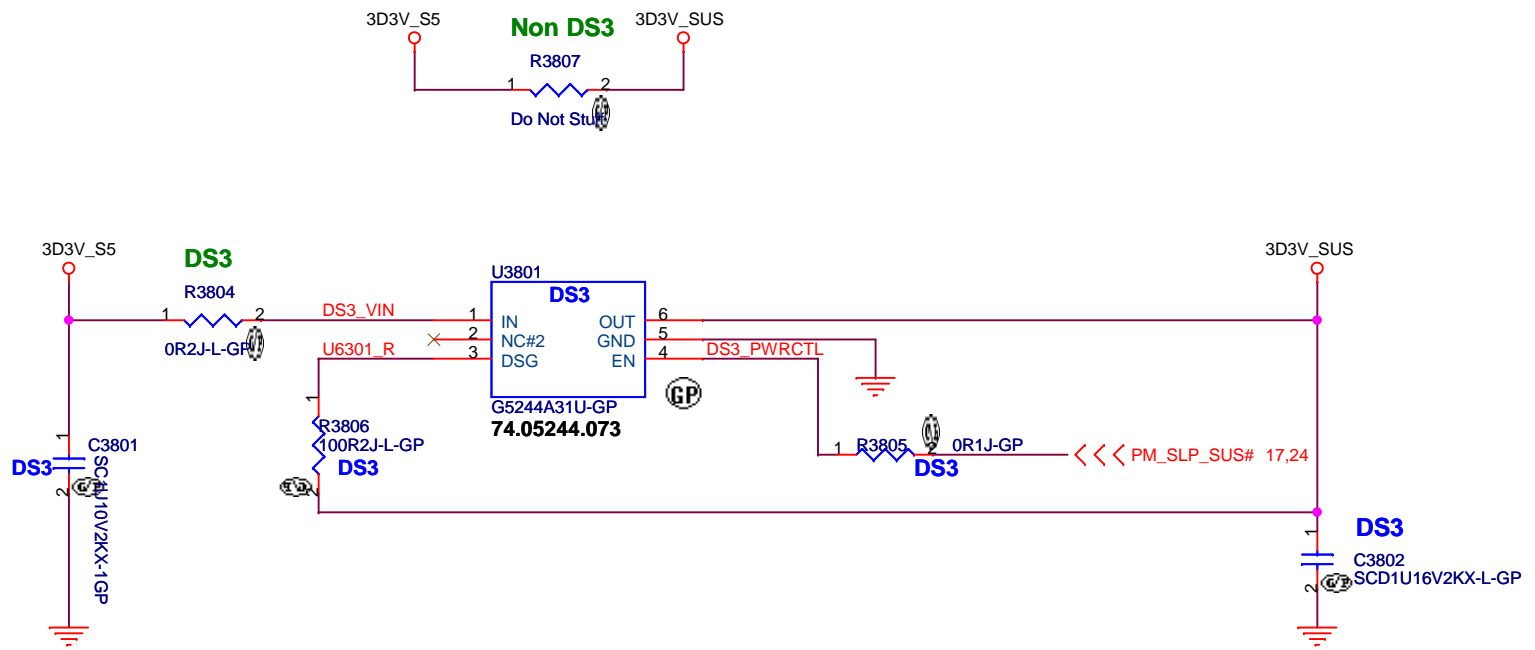
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Title **ADAPTER OCP / S3 reduction**

Size A4 Document Number **Storm 2** Rev **-1**

Date: Friday, December 28, 2012 Sheet 37 of 102

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Title			DS3
Size	Document Number	Rev	
A4	Storm 2	-1	
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Title

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Size

Document Number

Rev

A

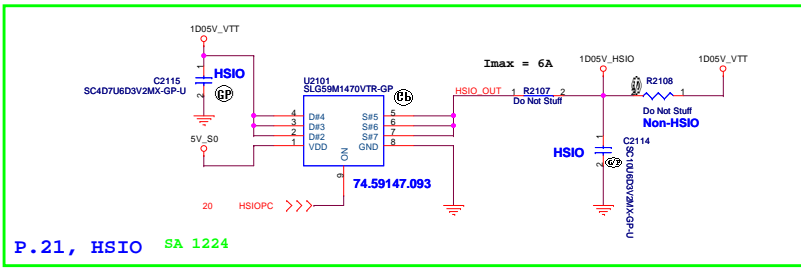
Storm 2

-1

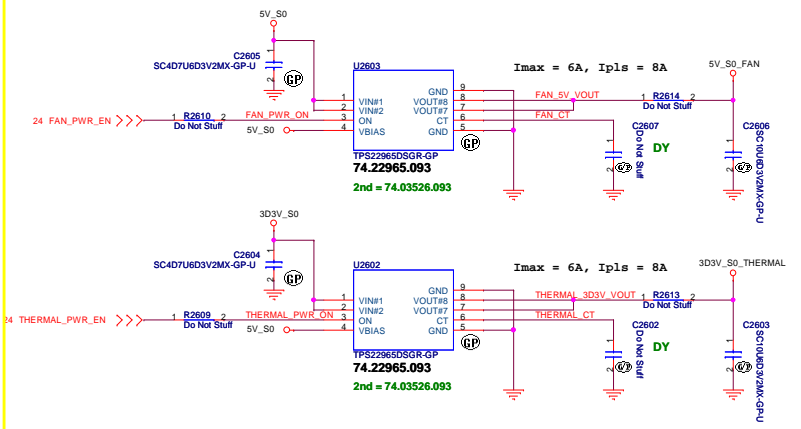
Date: Friday, December 28, 2012

Sheet 39 of 102

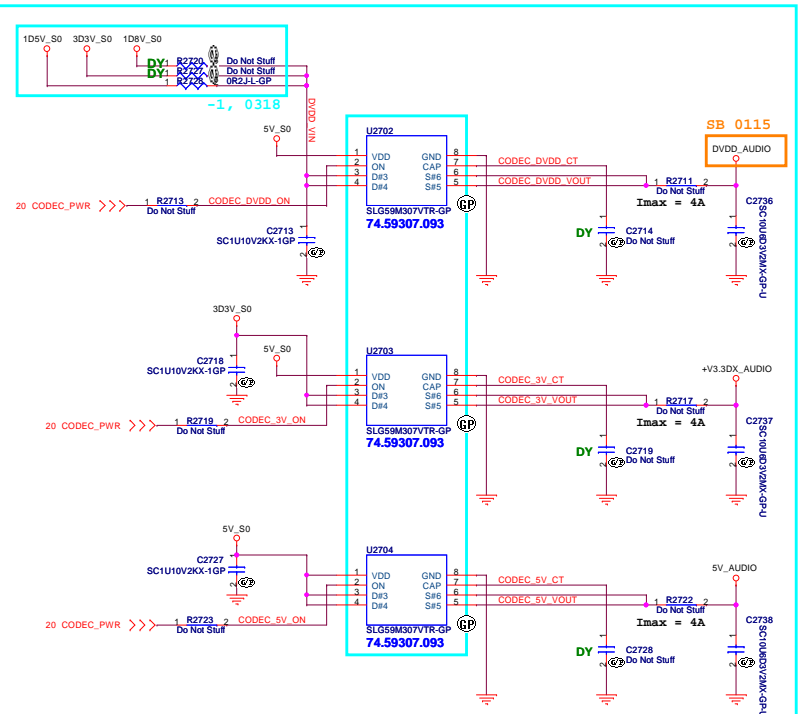
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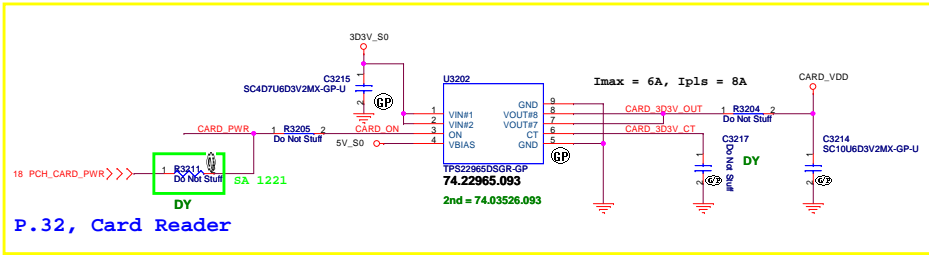
P.21, HSI0 SA 1224



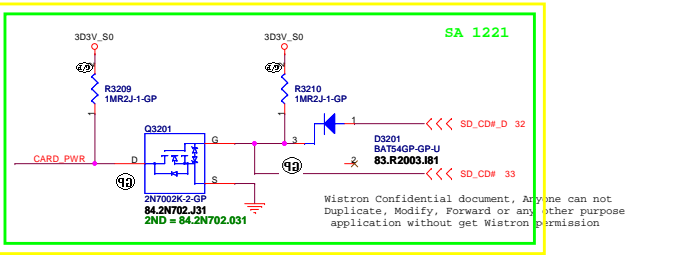
P.26, Thermal



P.27, CODEC -1, 0318

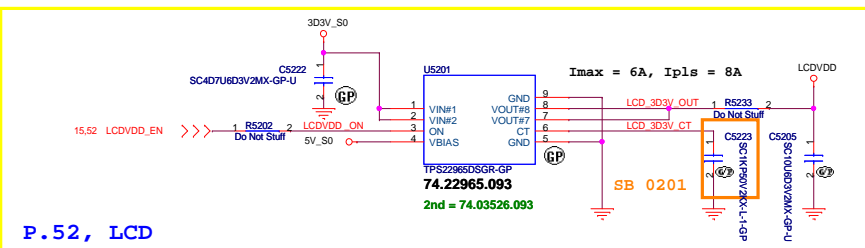


P.32, Card Reader

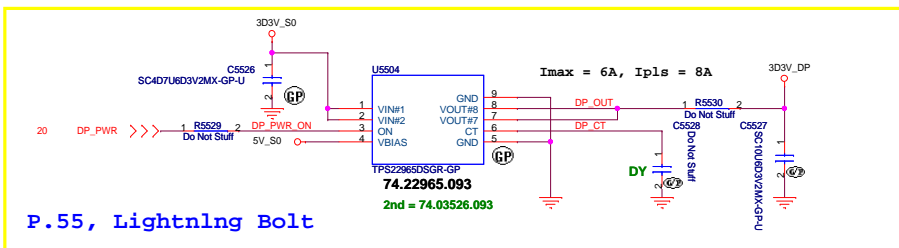


SA 1221

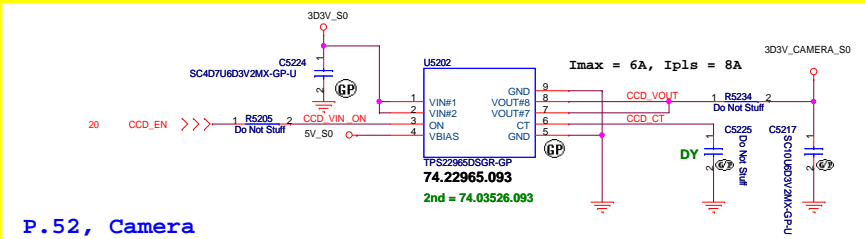
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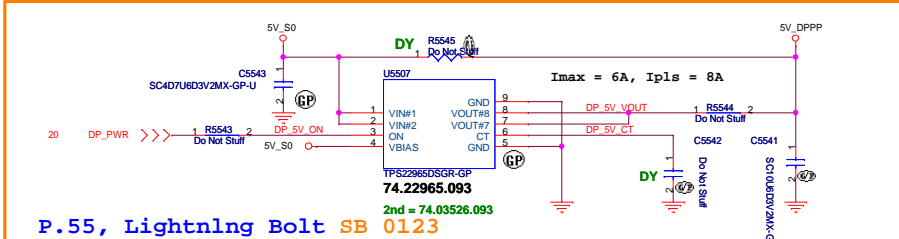
P.52, LCD



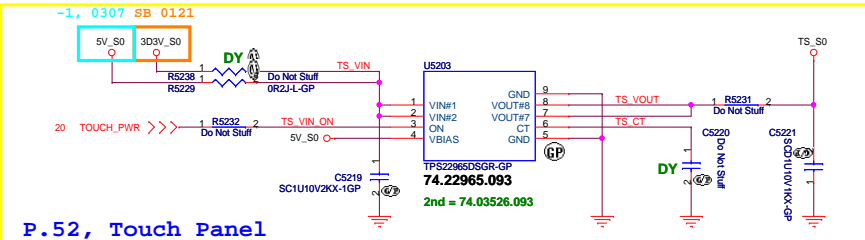
P.55, Lightning Bolt



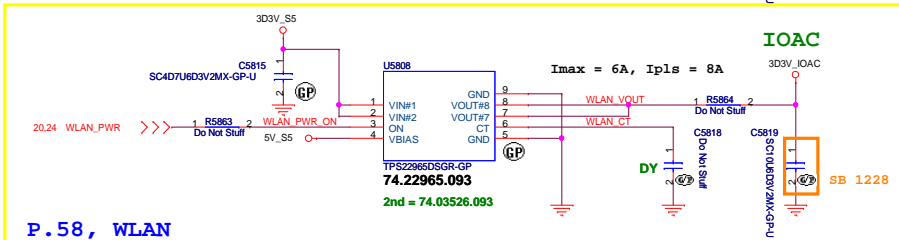
P.52, Camera



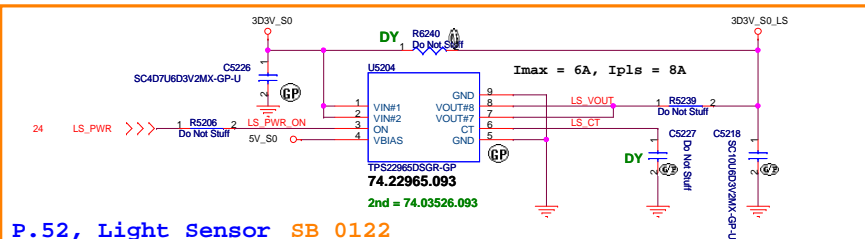
P.55, Lightning Bolt SB 0123



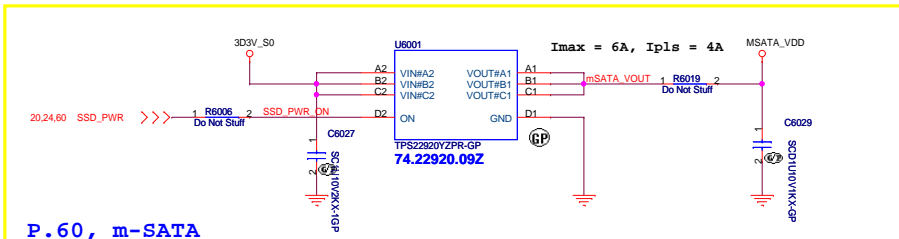
P.52, Touch Panel



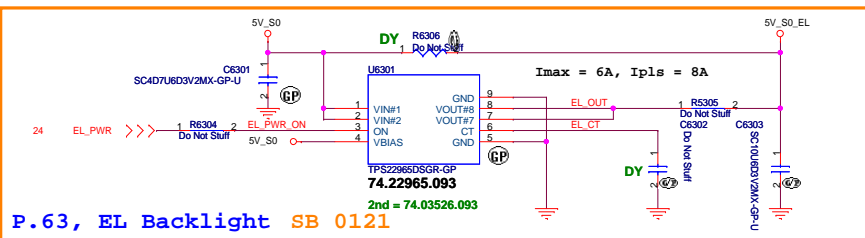
P.58, WLAN



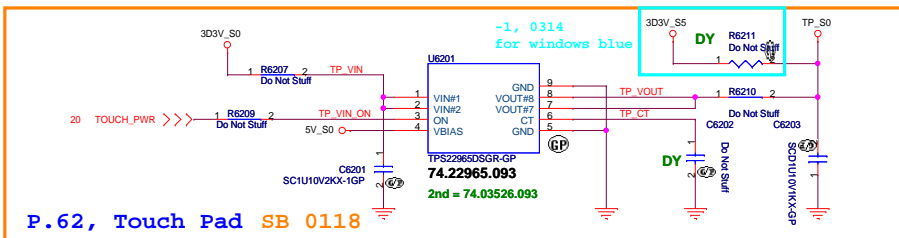
P.52, Light Sensor SB 0122



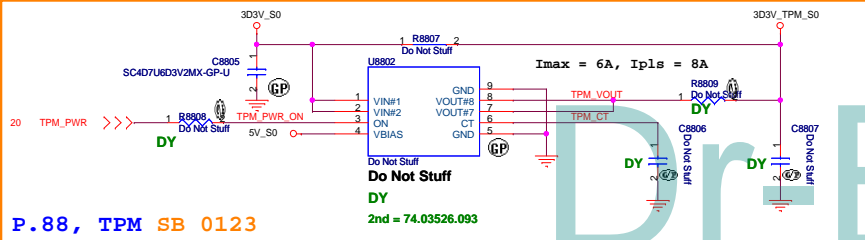
P.60, m-SATA



P.63, EL Backlight SB 0121



P.62, Touch Pad SB 0118

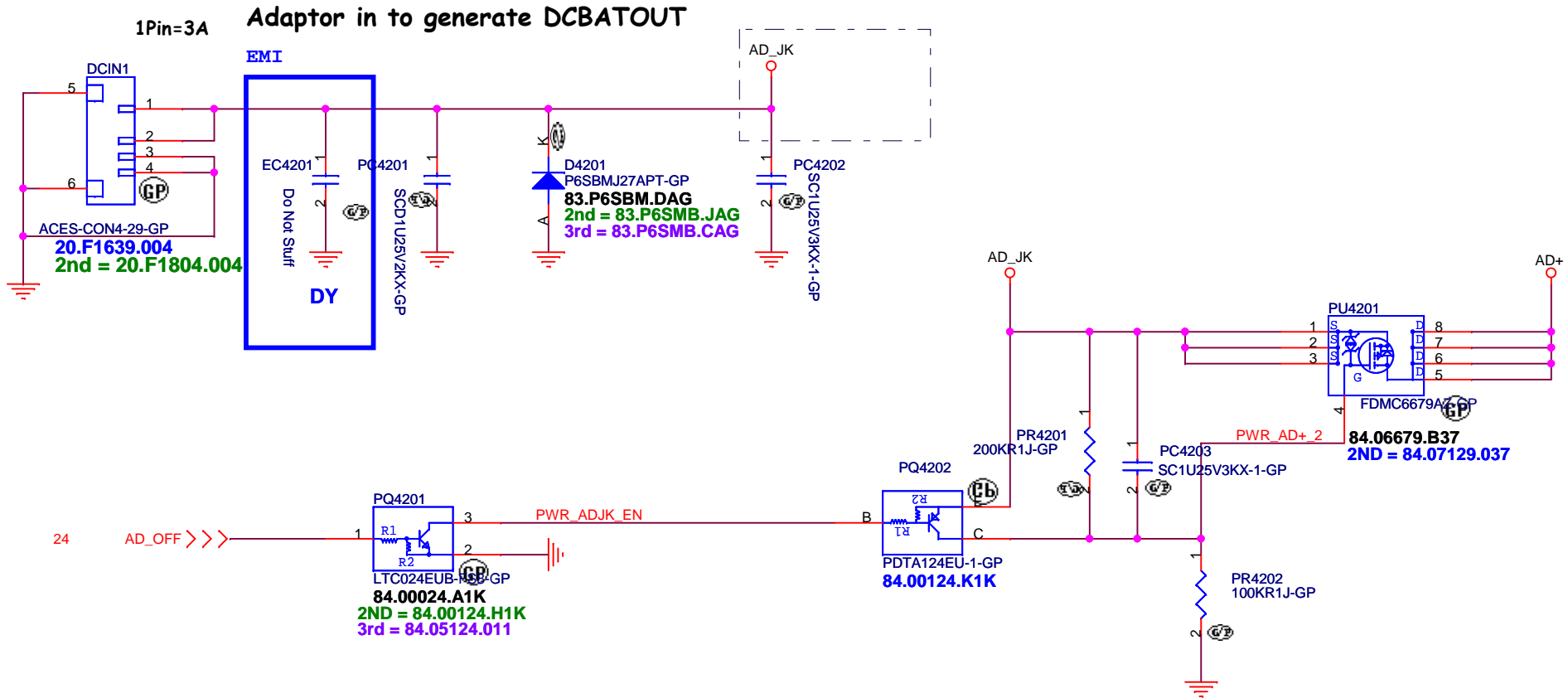


P.88, TPM SB 0123

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Connected Standby 2		Document Number	
Storm 2		Rev	
Date: 1/26/2013, April 02, 2013		-1	
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ANNIE solution



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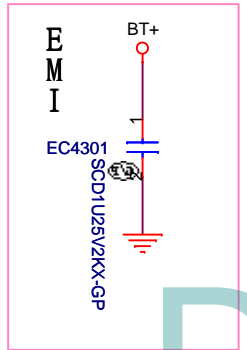
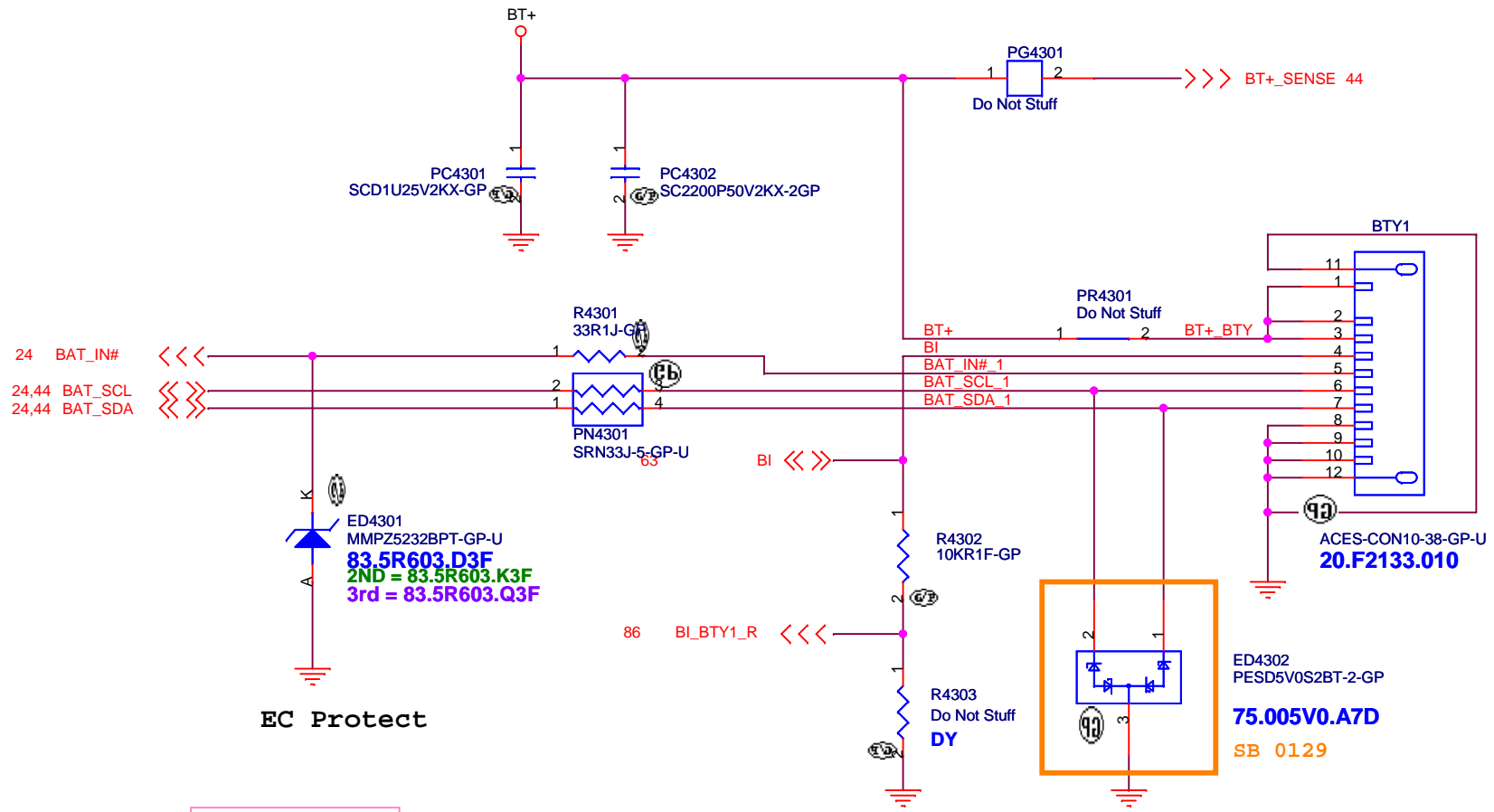
Storm2

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Title DCIN JACK		
Size A4	Document Number Storm 2	Rev -1
Date Tuesday, April 02, 2013	Sheet 42	of 102

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BATTERY CONNECTOR



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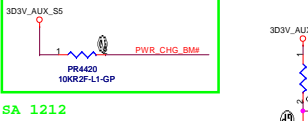
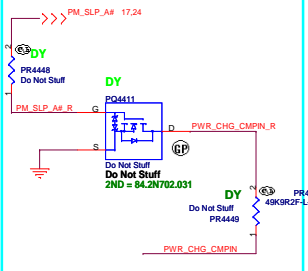
Title BATT CONN		
Size A4	Document Number Storm 2	Rev -1
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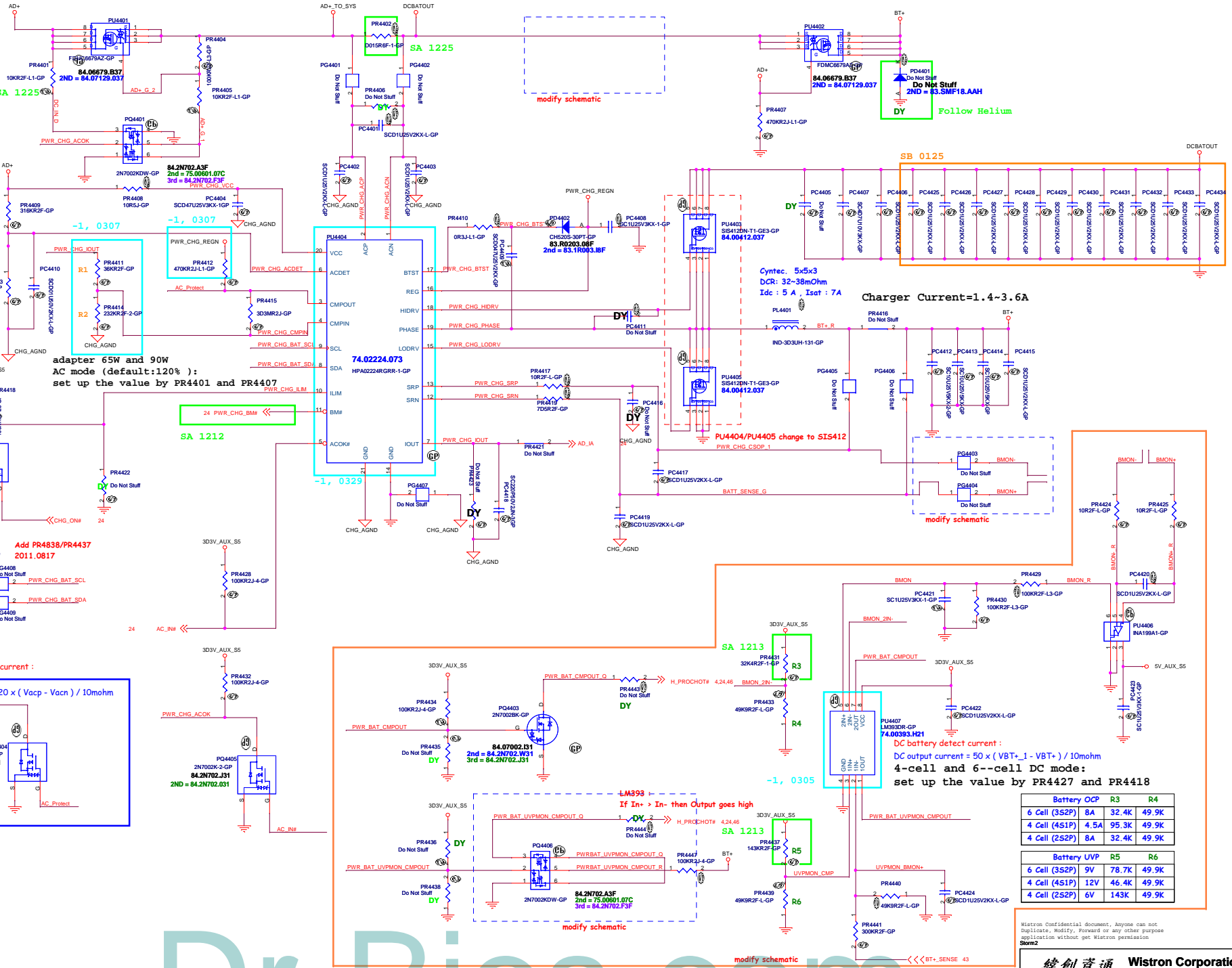
SSID = Charger

AD+ total power	R1	R2
45w	56K	100K
65w	1.06K	100K

-1, 0307



SA 1212



adapter 65W and 90W
AC mode (default:120%) :
set up the value by PR4401 and PR4407

AC adapter detect current :
Ac input current = 20 x (Vacp - Vacn) / 10mohm
check I1

Cyntec. 5x5x3
DCR: 32~38mOhm
Idc : 5 A , Isat : 7 A
Charger Current=1.4~3.6A

DC battery detect current :
DC output current = 50 x (VBT+1 - VBT-) / 10mohm
4-cell and 6--cell DC mode:
set up the value by PR4427 and PR4418

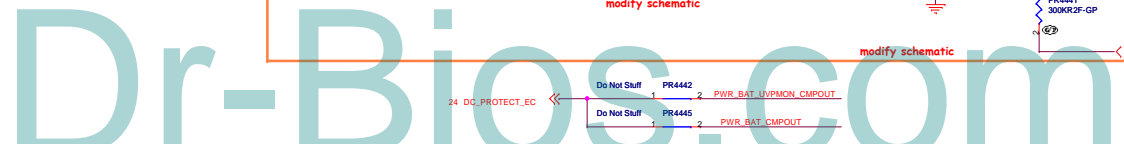
Battery OCP	R3	R4
6 Cell (3S2P)	8A	32.4K
4 Cell (4S1P)	4.5A	95.3K
4 Cell (2S2P)	8A	32.4K

Battery UVP	R5	R6
6 Cell (3S2P)	9V	78.7K
4 Cell (4S1P)	12V	46.4K
4 Cell (2S2P)	6V	143K

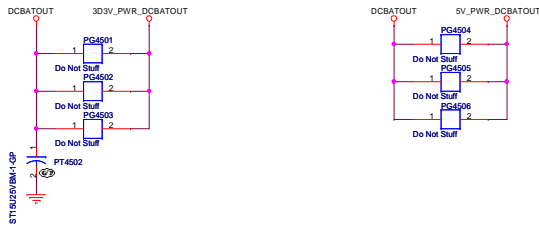
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CHARGER BQ24737		
File	Document Number	Rev
Storm 2		-1
Date: Tuesday, April 02, 2013	Sheet 44	of 102



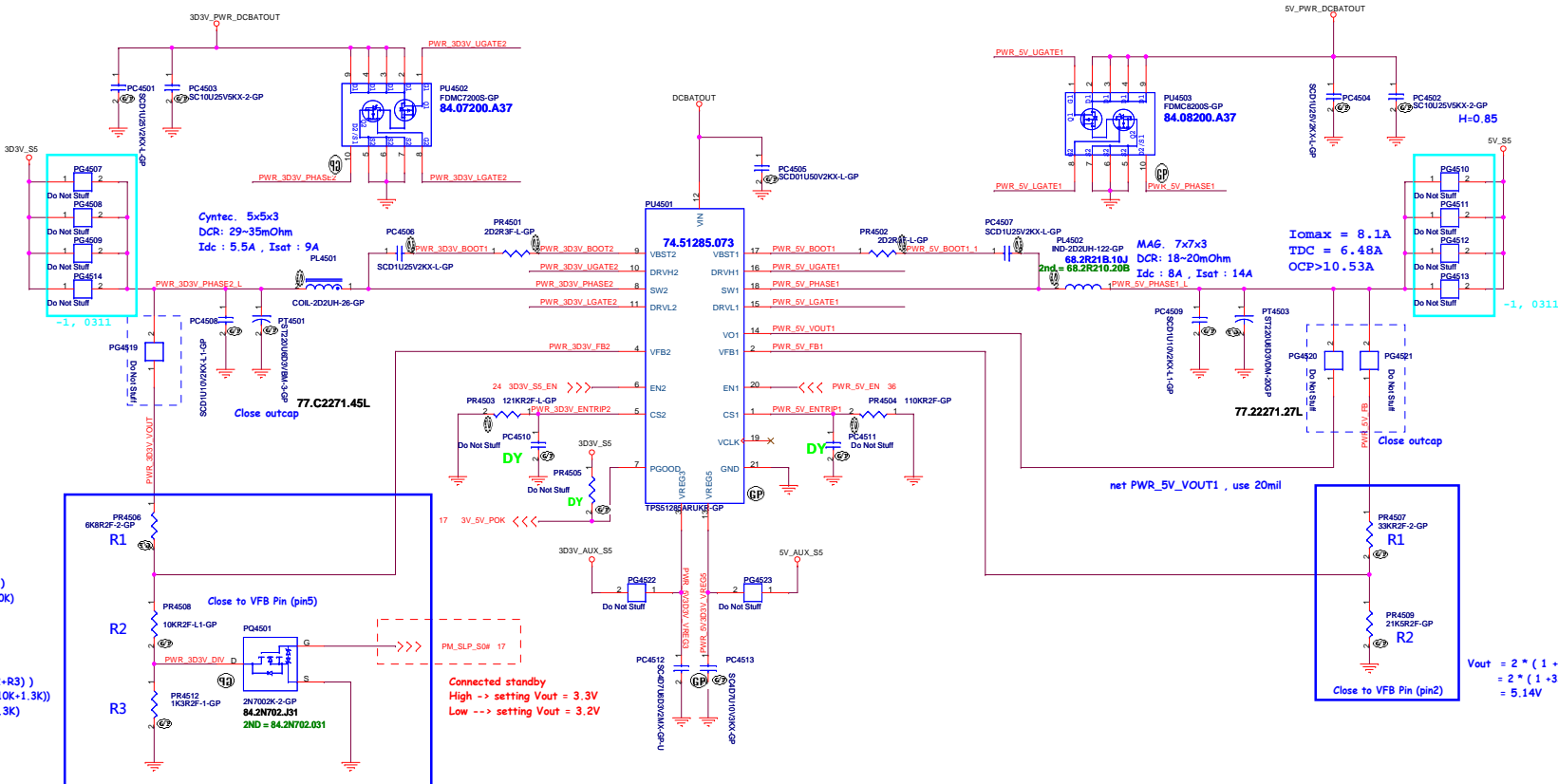
SSID = PWR.Plane.Regulator_3p3v5v



Iomax = 5.686A
TDC = 4.548A
OCP > 7.39A

Cyntec 5x5x3
DCR: 29~35mOhm
Idc : 5.5A , Isat : 9A

Iomax = 8.1A
TDC = 6.48A
OCP > 10.53A



PQ4501 Pin G , High
 $V_{out} = 2 * (1 + R1/R2)$
 $= 2 * (1 + 6.8K / 10K)$
 $= 3.36V$

PQ4501 Pin G , Low
 $V_{out} = 2 * (1 + R1/(R2+R3))$
 $= 2 * (1 + 6.8K / (10K+1.3K))$
 $= 2 * (1 + 6.8K/11.3K)$
 $= 3.203V$

Connected standby
High -> setting Vout = 3.3V
Low -> setting Vout = 3.2V

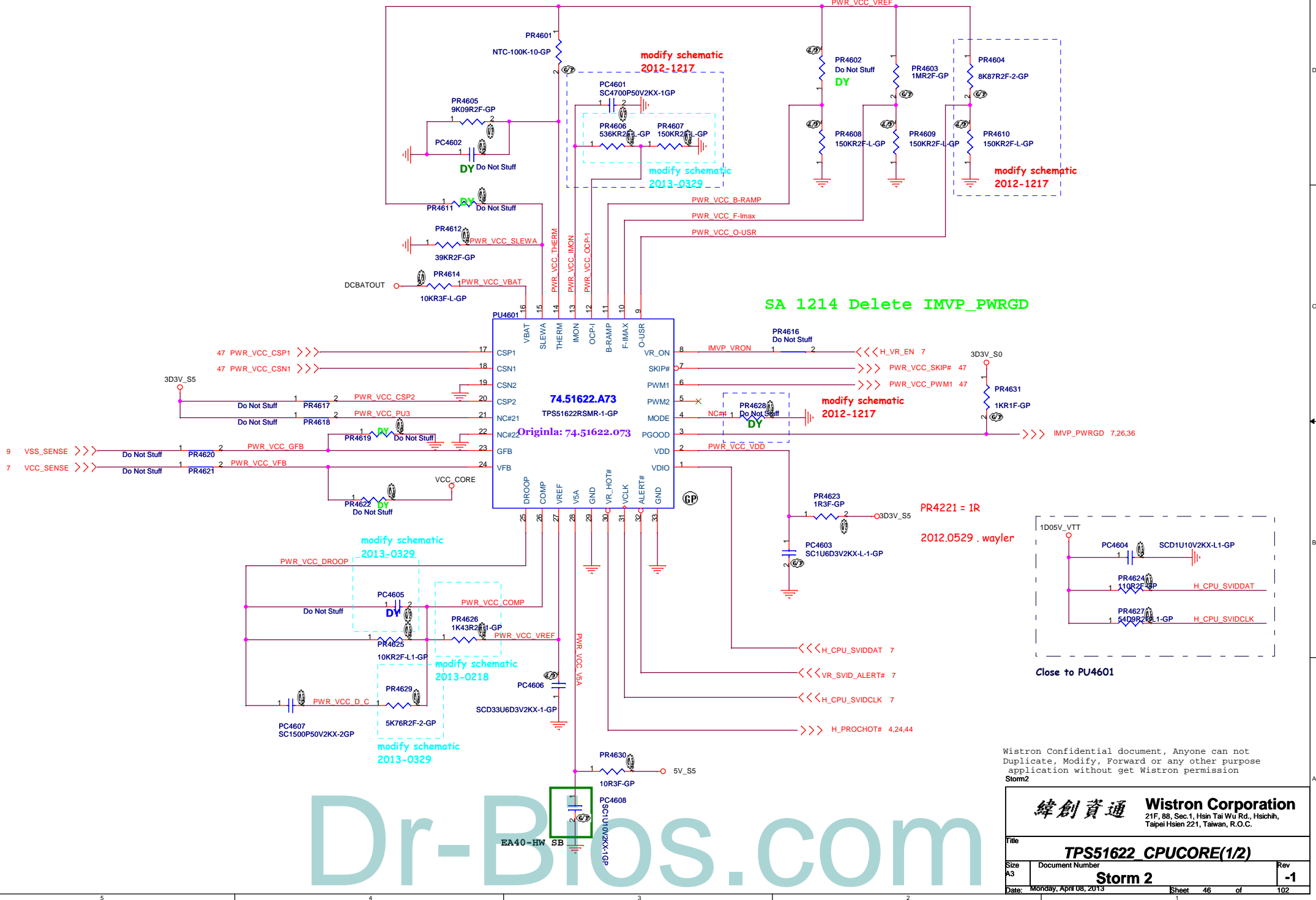
$V_{out} = 2 * (1 + R1/R2)$
 $= 2 * (1 + 33K / 21K)$
 $= 5.14V$

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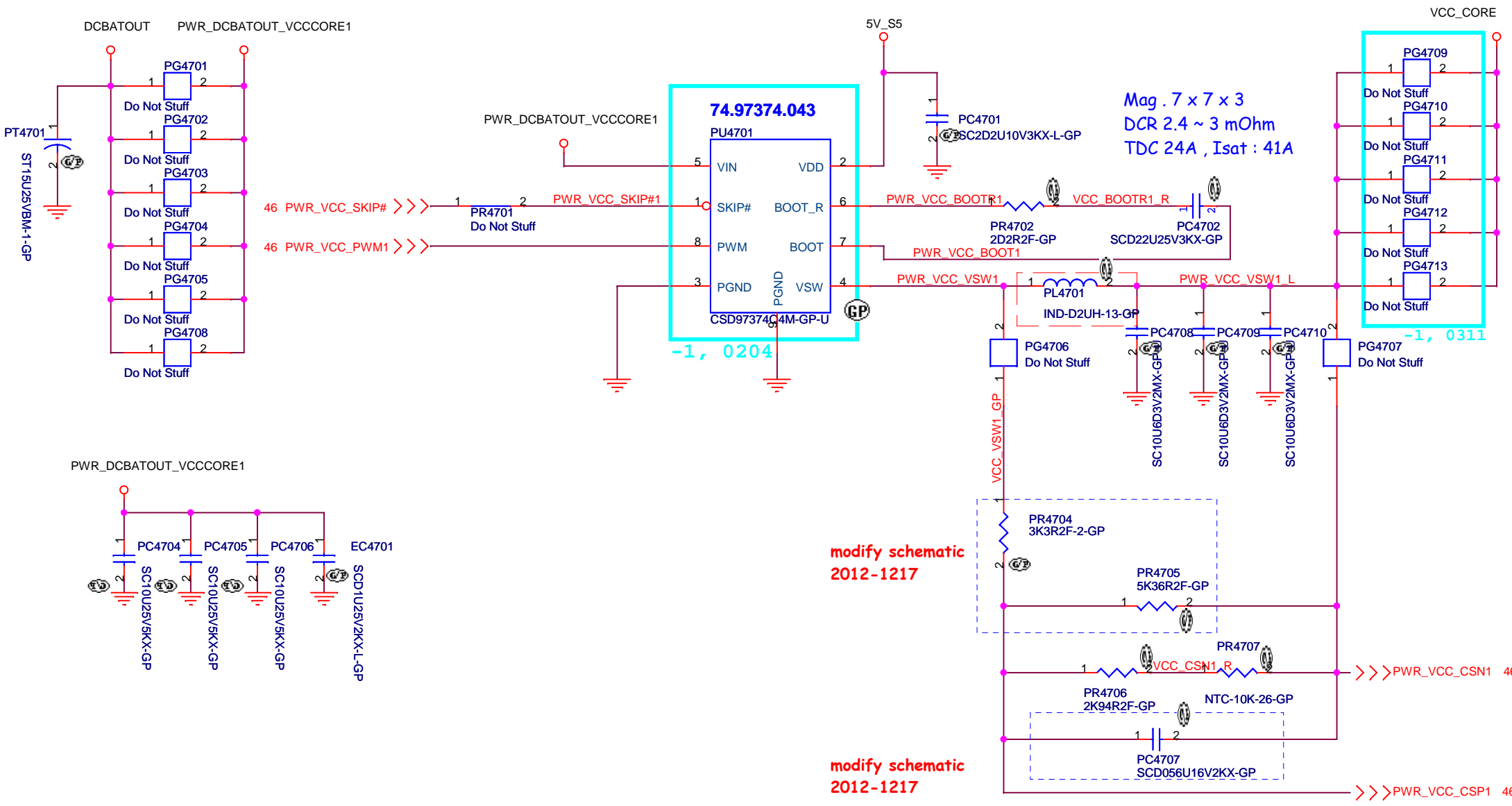
File		TPS51285 5V/3D3V	
Size	Document Number	Rev	
Custom		-1	
Date		Sheet	45 of 102
Date		Sheet	45 of 102

SSID = CPU.Regulator



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<p>Title: TPS51622 CPUCORE(1/2)</p>		
Size A3	Document Number	Rev
	Storm 2	-1
Date: Monday, April 08, 2013	Sheet 46 of 102	



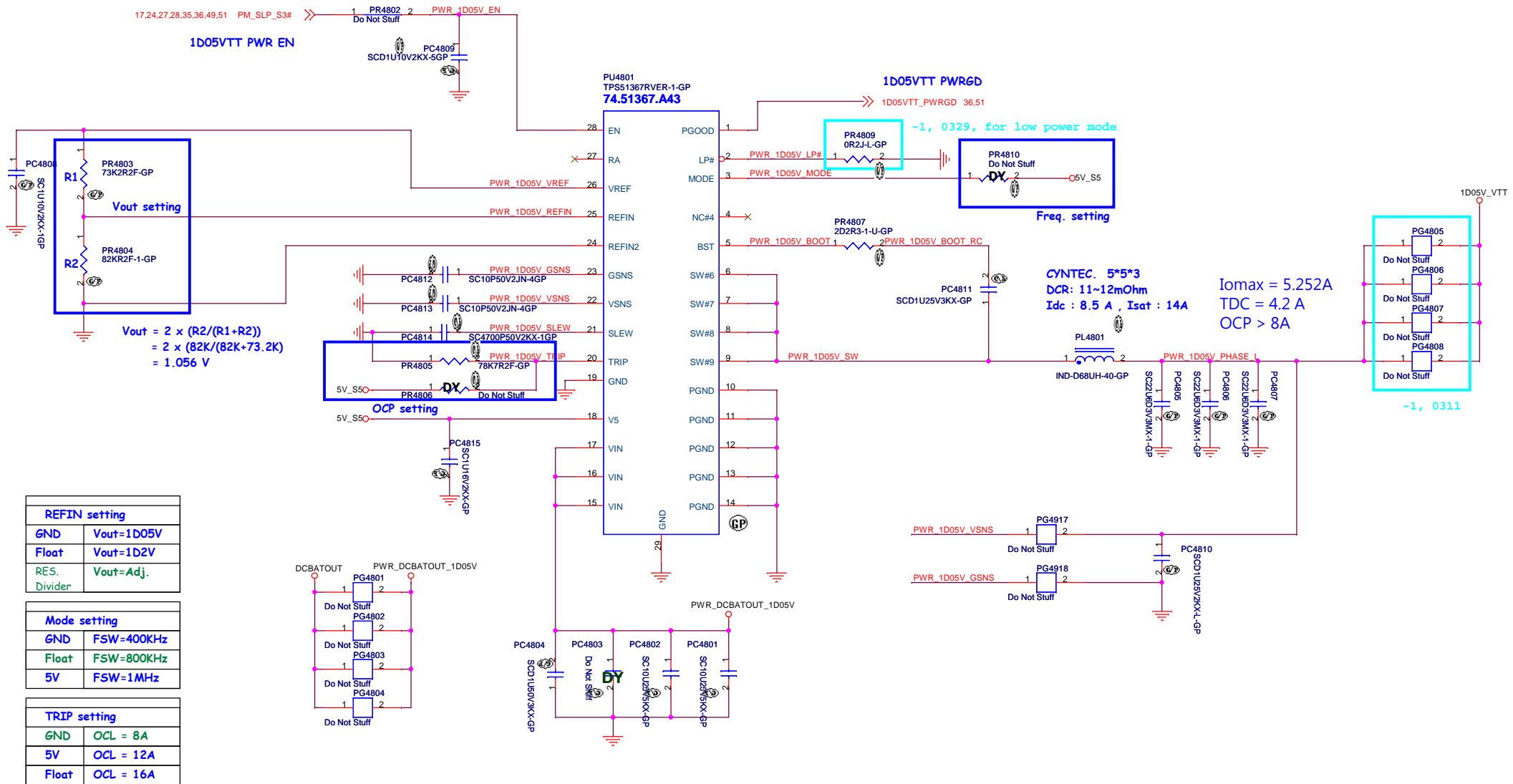
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Title TPS51622 CPU CORE(2/2)		
Size A4	Document Number Storm 2	Rev -1
Date Tuesday, April 02, 2013	Sheet 47	of 102

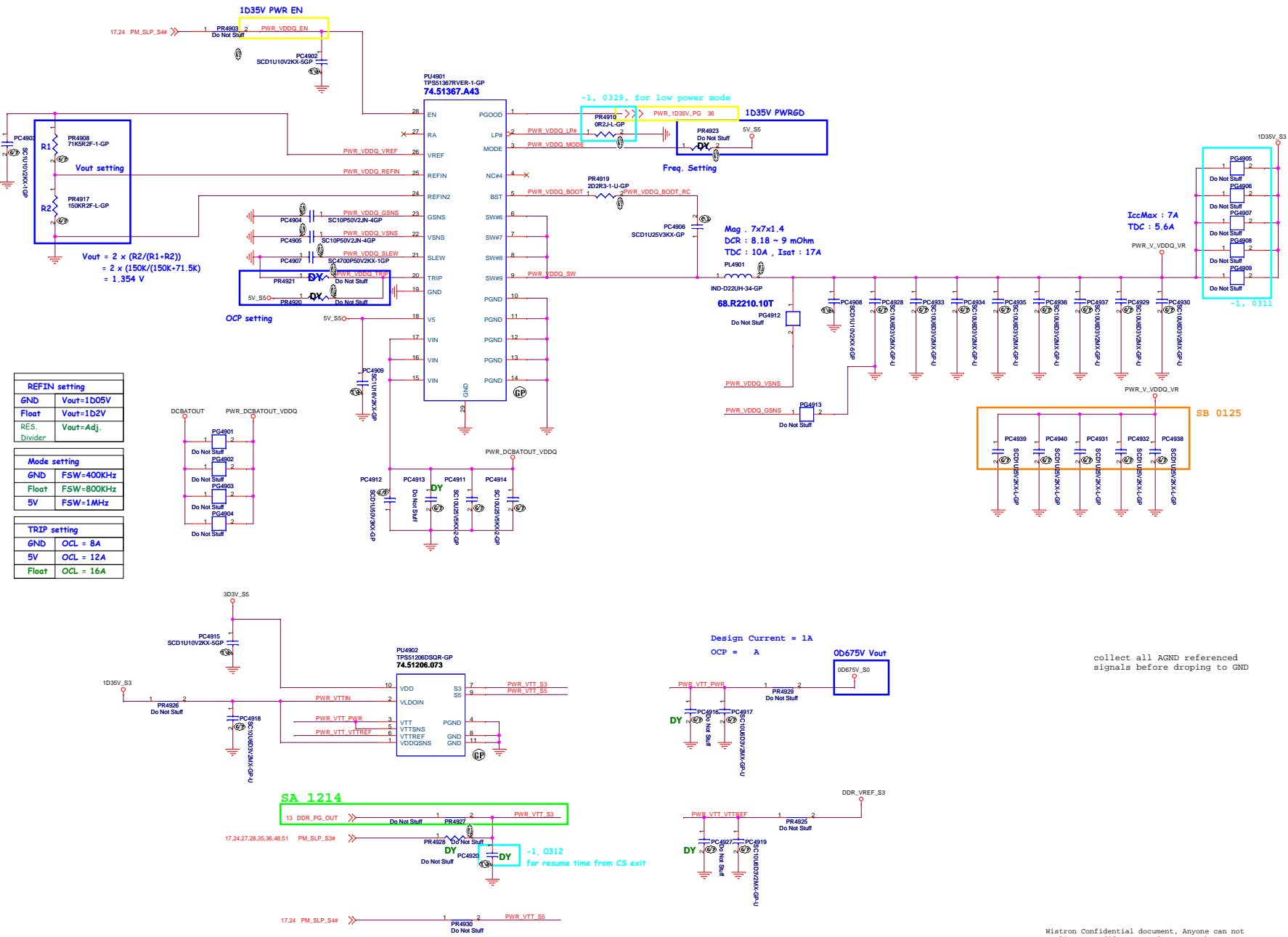
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DC to DC 1D05V(TPS51367)			
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REFIN setting	
GND	Vout=1D05V
Float	Vout=1D2V
RES. Divider	Vout=Adj.

Mode setting	
GND	FSW=400KHz
Float	FSW=800KHz
5V	FSW=1MHz

TRIP setting	
GND	OCL = 8A
5V	OCL = 12A
Float	OCL = 16A

SA 1214

13 DDR_PG_OUT >> Do Not Stuff
 17,24,27,28,35,36,48,51 PM_SLP_S3# >> Do Not Stuff
 17,24 PM_SLP_S4# >> Do Not Stuff

Design Current = 1A
 OCP = A

OD675V_Vout

collect all AGND referenced signals before dropping to GND

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Title: TPS51367 + TPS51206 (VDDQ_VTT)
 Size: Document Number
 Customer: Storm 2
 Date: Wednesday, April 03, 2013 Sheet 49 of 102

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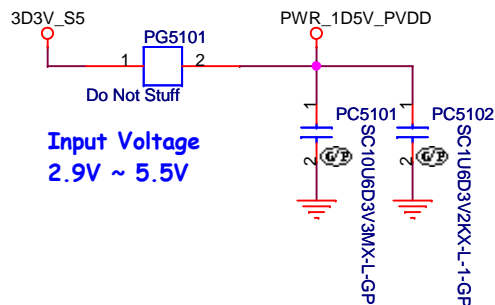
Date: Friday, December 28, 2012

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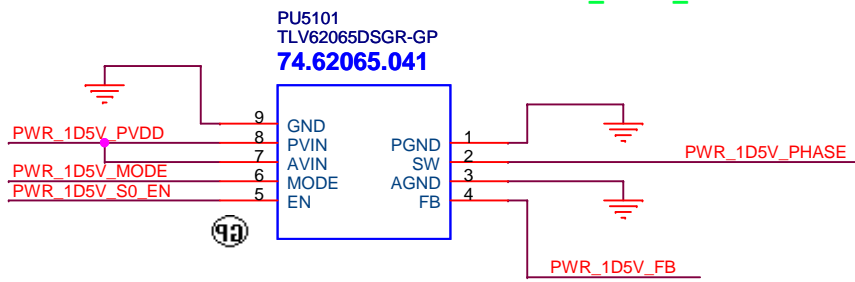
102

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TLV62065 for 1D5V_S0

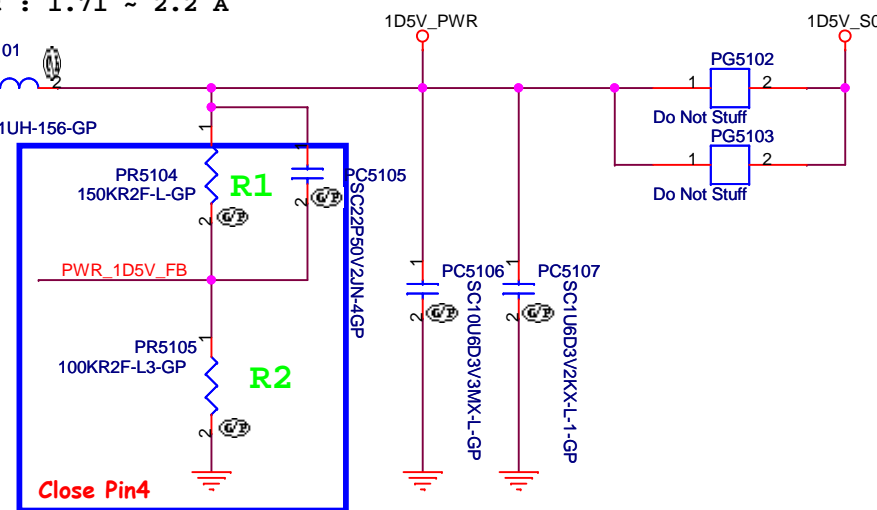


SA 1213
PWR_1D5V_PG in P.36

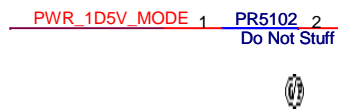
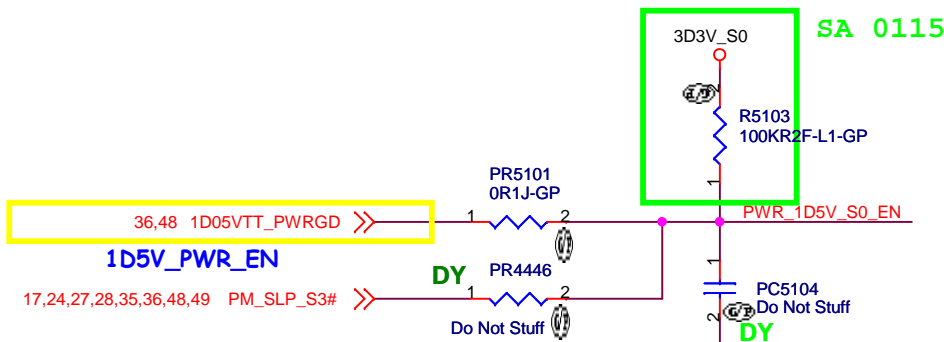


TAIYO. 1uH 3 x 3 x 1.2
DCR= 48 mohm
Isat : 1.71 ~ 2.2 A

I_omax=500mA
OCP>2300A



$$V_o = 0.6 \times (1 + R1/R2) = 0.6 \times (1 + 150/100) = 1.5$$



MODE pin	Function
High	Fixed Freq. PWM mode
Low	Power Save Mode with automatic transition from PFM mode to fixed freq. PWM mode

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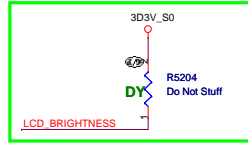
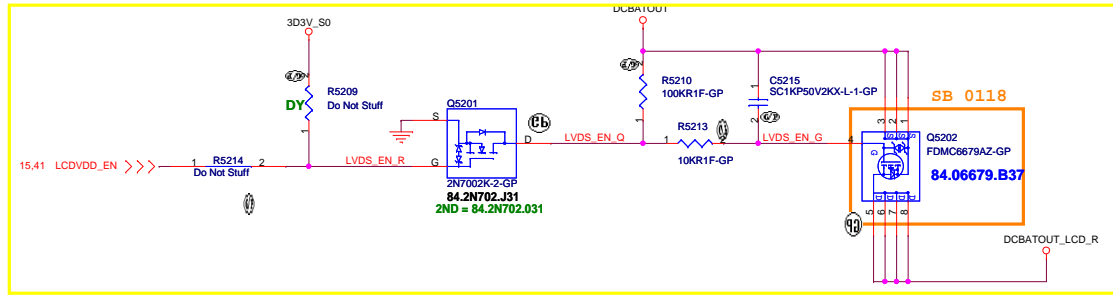
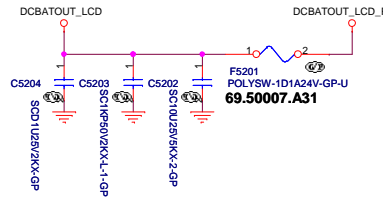
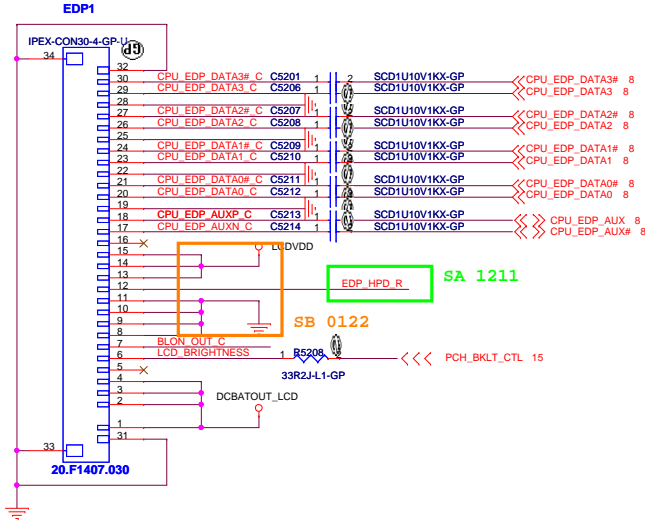
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Size A4	Document Number	Storm 2
Date: Tuesday, April 02, 2013	Sheet 51	of 102
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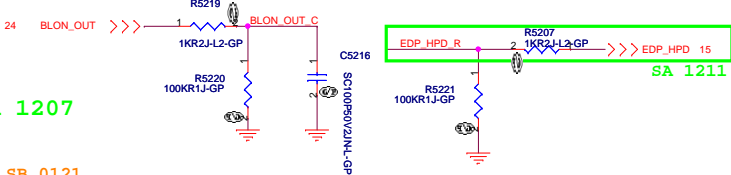
SSID = VIDEO

EDP CONNECTOR

output turn-on Rising Time:1.3ms~2.7ms
current limit:2~3.3A
Previous parts(74.05285.07F)rise time:1.5ms ~5ms
current limit:1.5ms~ 3.5ms

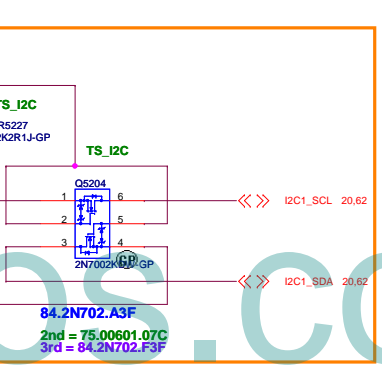
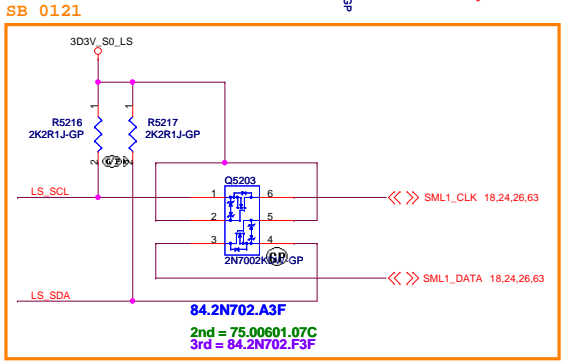
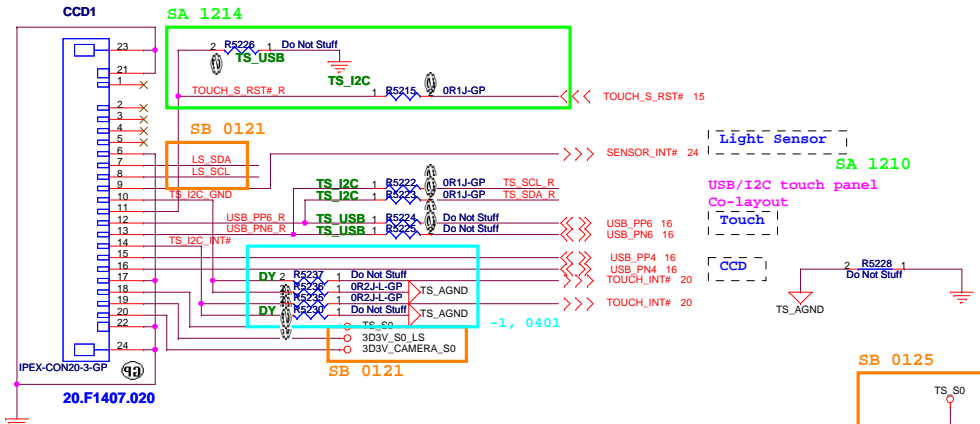


SA 1207



SA 1211

CCD/TS/LS CONNECTOR



Storm / Helium / MA50 / Petra / MA40 / Husk / MA52

USB interface pin define

Table with 2 columns: Pin Assignment, Define. Rows include VBus, USB_dm, USB_DP, GND, INT.



Storm2 / Helium2 / Angel

USB / I2C interface pin define

Table with 2 columns: USB pin define, I2C(compatible) Define. Rows include VUSB_5V, USB_DM, USB_DP, UA_PA4, GND, INT, SCL, SDA, INT, RESET, GND.

Need to rework component to switch USB and I2C I/F on PCBs

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Storm2

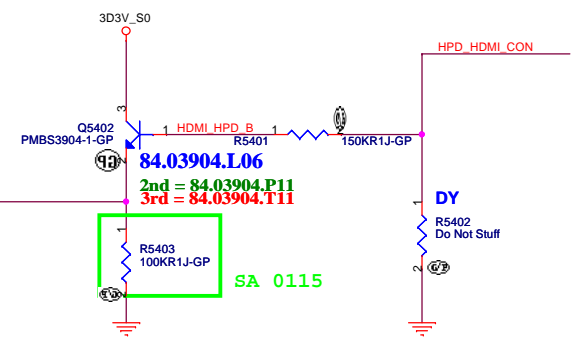
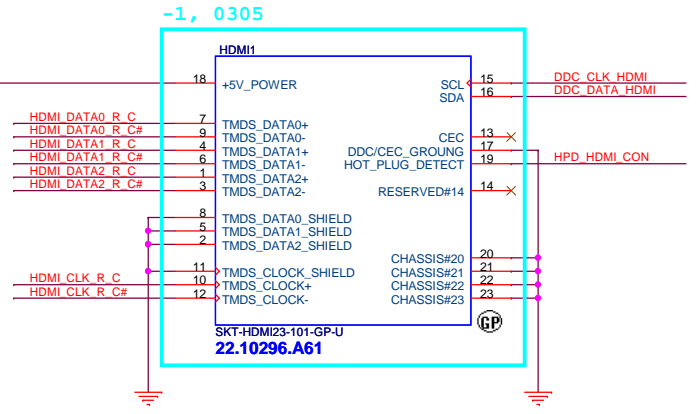
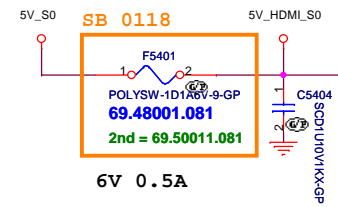
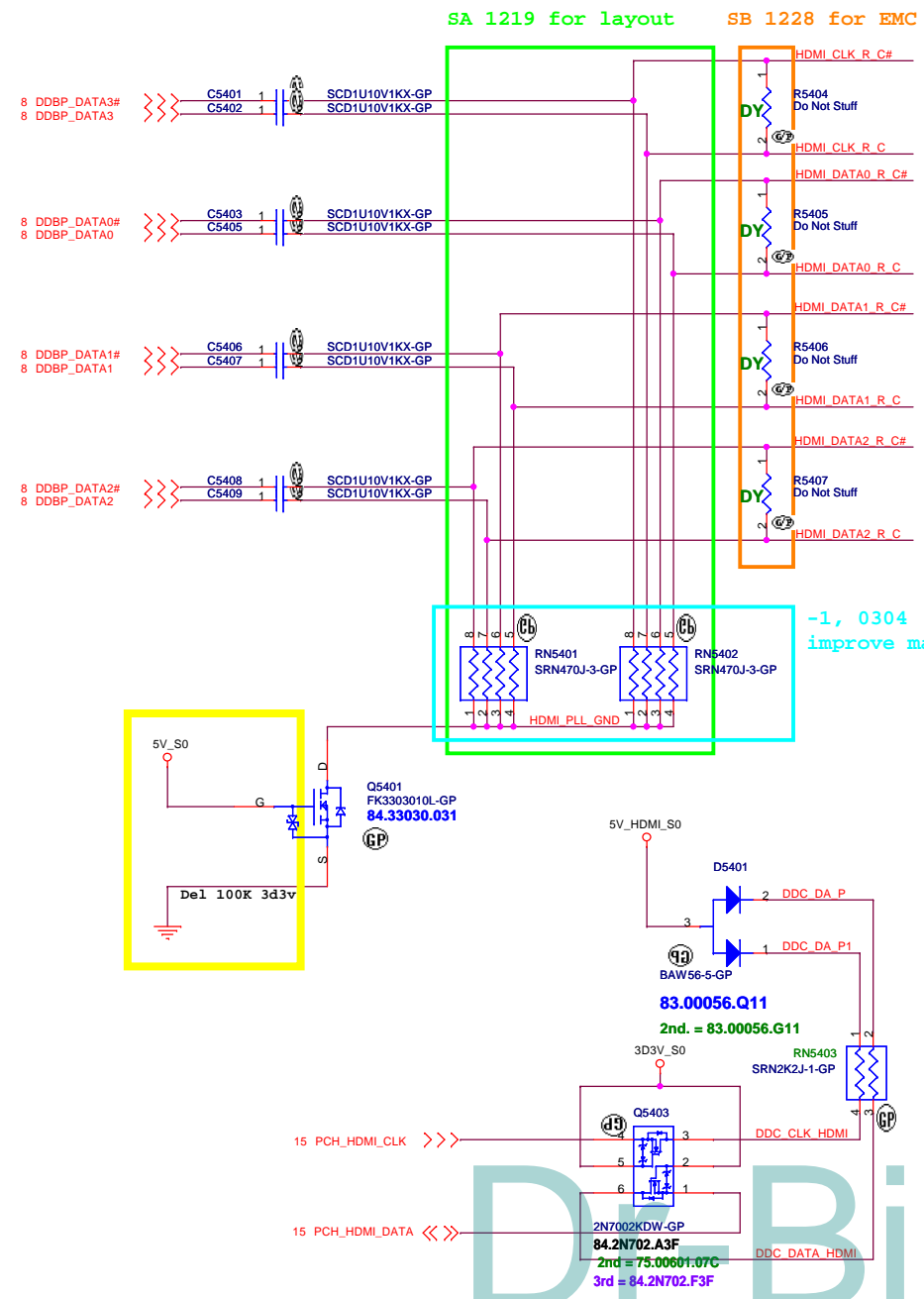
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Reserved		
Size	Document Number	Rev
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SSID = VIDEO

HDMI CONN.



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<p>Title: HDMI Level Shifter/Connector</p>	
Size A3	Document Number: Storm 2
Date: Tuesday, April 02, 2013	Rev: -1
Sheet 54	of 102

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Title **NGFF_SSD (Reserved)**

Size A4	Document Number Storm 2	Rev -1
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Date: Friday, December 28, 2012 Sheet 56 of 102

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Title **Reserved**

Size A4	Document Number Storm 2	Rev -1
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5 4 3 2 1
SSID = Wireless

NGFF Conn(WWAN) Reserved

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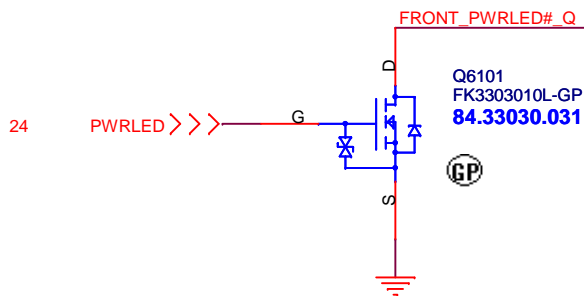
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Title		reserved	
Size	Document Number	Rev	
A4	Storm 2	-1	
Date: Friday, December 28, 2012		Sheet 59	of 102

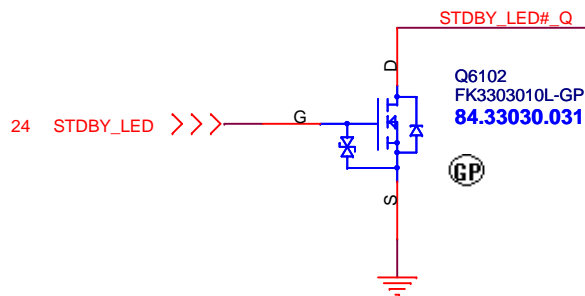
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SSID = User.Interface

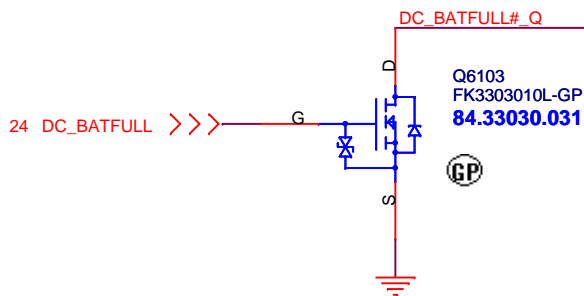
Power button LED



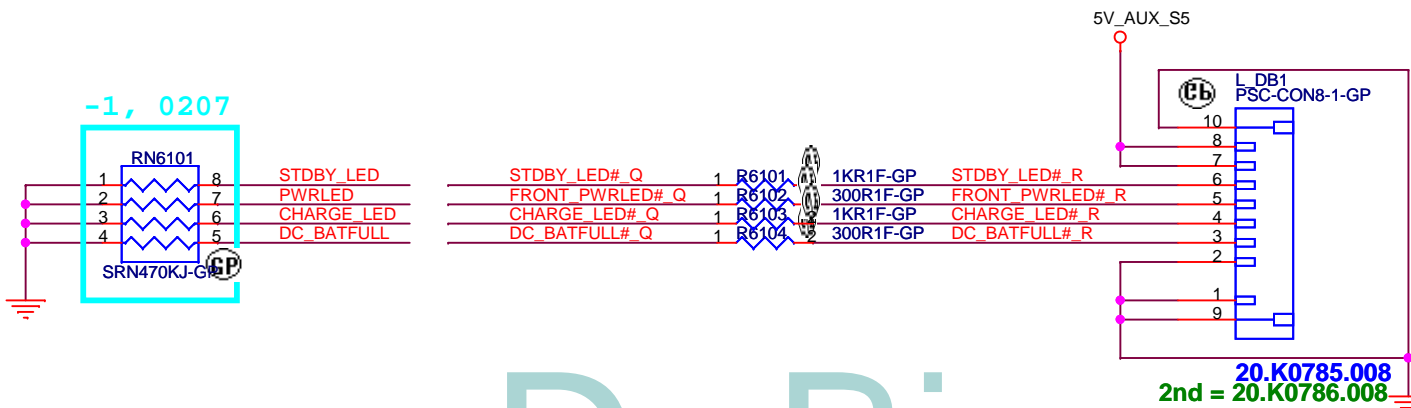
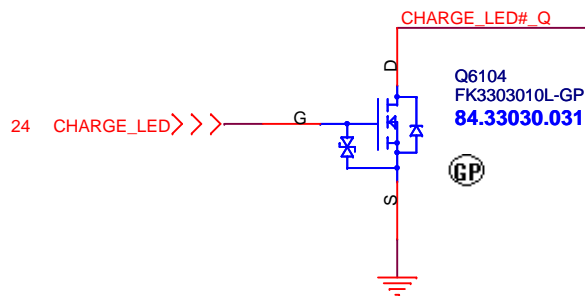
Power STDBY_LED



Battery LED2(DC_BATFULL)



Battery LED1(CHARGE)



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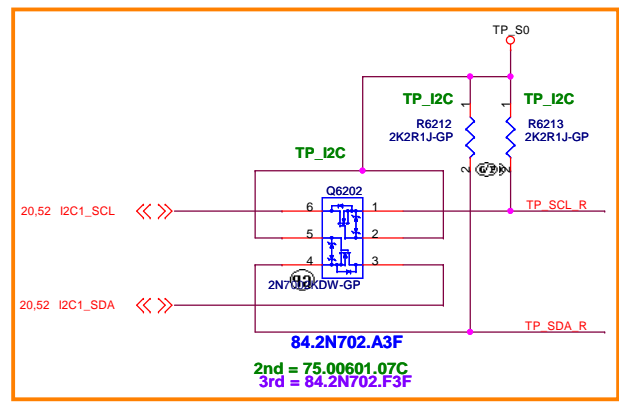
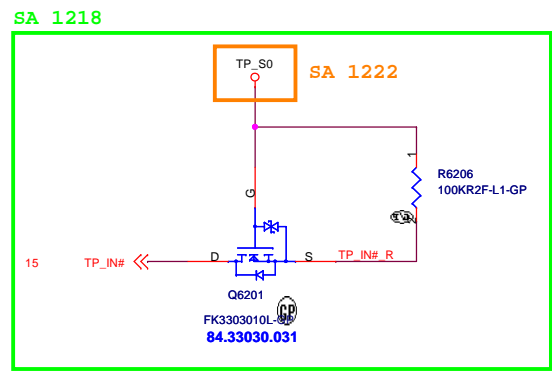
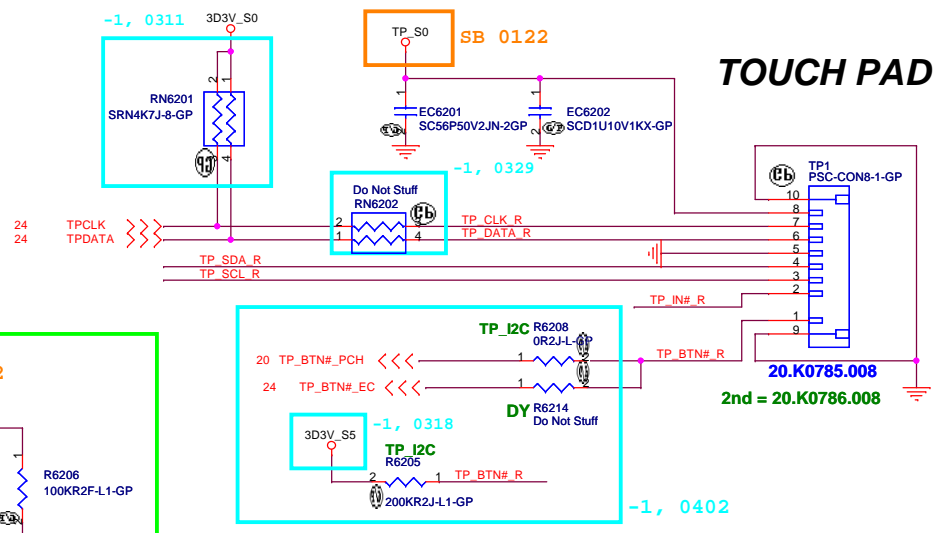
Title		LED Board/Power Button	
Size	Document Number	Rev	
A4	Storm 2	-1	
Date:	Tuesday, April 02, 2013	Sheet	61 of 102

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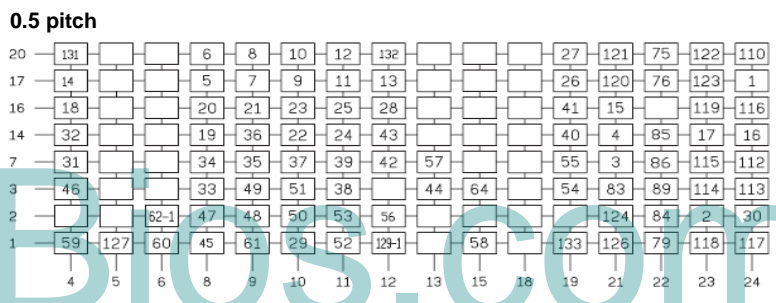
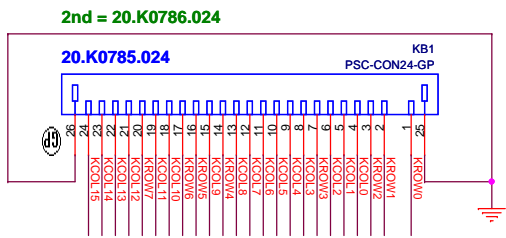
Pin Assignment and Description			
Pin#	Signal	I/O	Description
1	VCC	VCC	VCC, 3.3V +/-5%. Power ripple: 100 mVpp max. Power sequence: See section 4.6.
2	NC		Not connected
3	NC		Not connected
4	GND	GND	Ground
5	I ² C_SDA	I/O	I ² C data. I _{Drive} or I _{Sink} : 8 mA max.
6	I ² C_SCL	I/O	I ² C clock I _{Drive} or I _{Sink} : 8 mA max.
7	/INT	O	Reserved for SMBUS application. Indicates touchpad likes to send data to system (host). Low active.
8	/Button		Low active, pulled to VCC through a 200K Ω resistor inside touchpad when touchpad is powered. Suggest pulled to VCC through a suitable resistor in system side when touchpad is powered off. Low when button is pressed.

Pin number	Pin Define
1	VDD(3.3V)
2	PCClk
3	PCDt
4	DGND
5	NC*(SDA)
6	NC*(SCL)
7	NC*(/INT)
8	NC

Note: Reserve for SMBus



Internal Keyboard Connector



I2C Addr. = 0X20H (Synaptics)

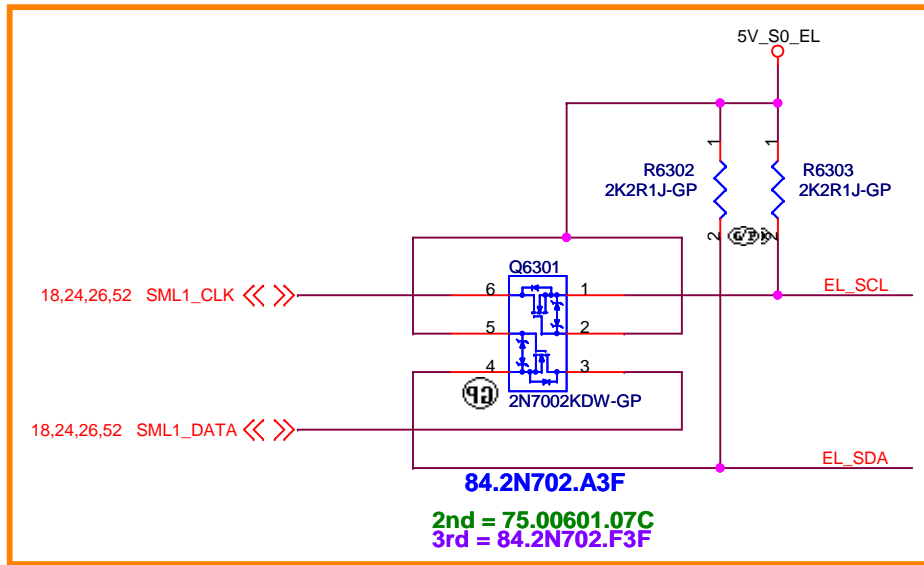
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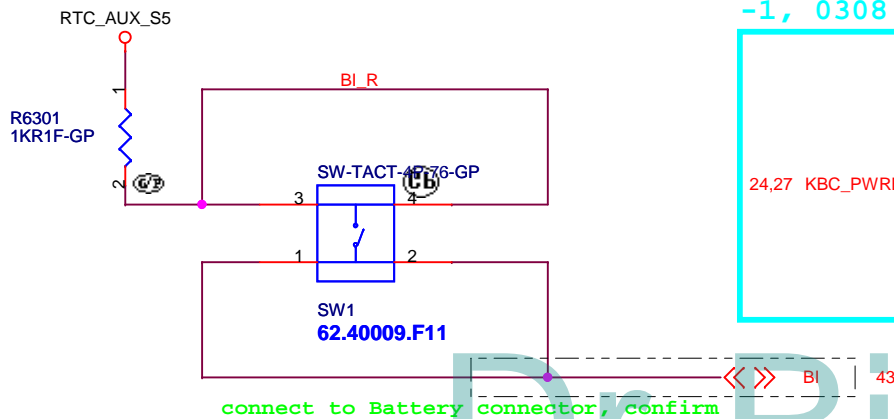
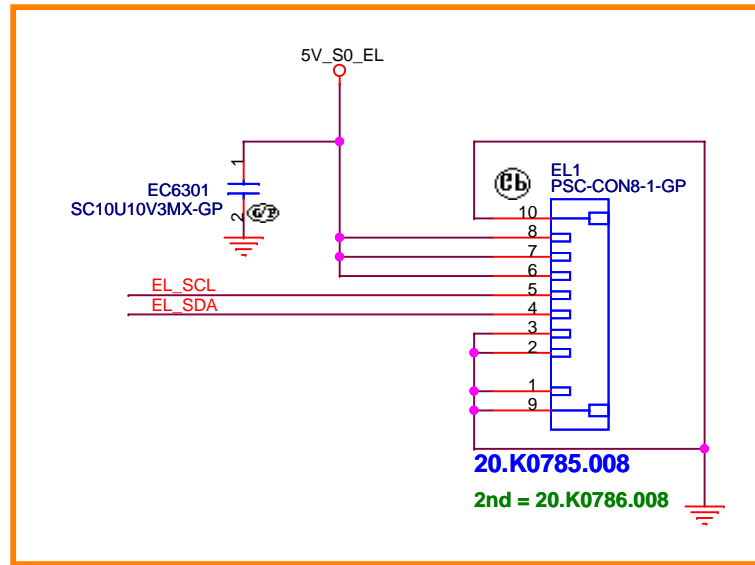
Title Key Board/Touch Pad		
Size A3	Document Number Storm 2	Rev -1
Date: Tuesday, April 02, 2013	Sheet 62 of 102	

EL Backlight

SB 0121



SB 1228



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Title IO Board Connector		
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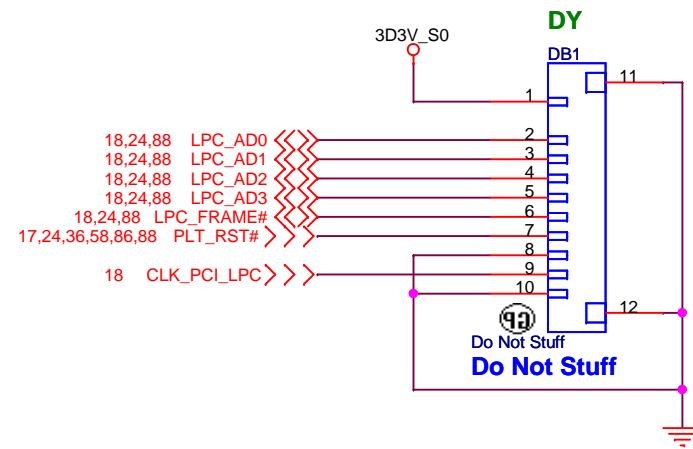
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Title **Hall Sensor (Reserved)**

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Title

Dubug connector

Size
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Title **Sensor Hub**

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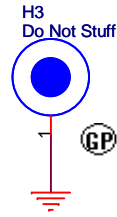
Date: Friday, December 28, 2012 Sheet 66 of 102

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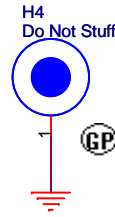
Do Not Stuff



Do Not Stuff



Do Not Stuff



-1, 0306

SB 0118

34.4QP10.001

34.4QP10.001

34.4QP10.001

34.4QP10.001

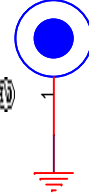
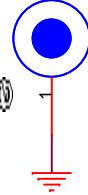
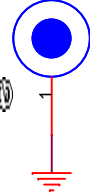
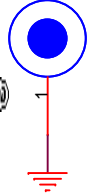
HS1

HS2

HS3

HS4

STF236R128H34-1-GP STF236R128H34-1-GP STF236R128H34-1-GP STF236R128H34-1-GP



34.4PT16.001 34.4PT16.001 34.4PT16.001

S1

SPRING-115-GP



S2

SPRING-115-GP



S3

SPRING-115-GP



34.4PT16.001 34.4PT16.001 34.4PT16.001

S4

SPRING-115-GP



S5

SPRING-115-GP



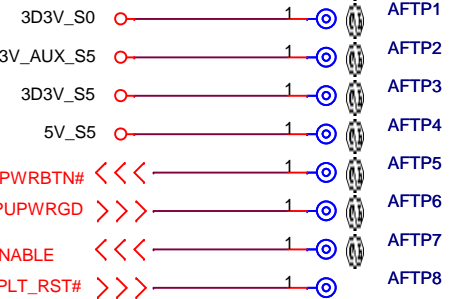
S6

SPRING-115-GP



SB 0123

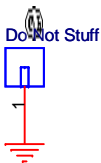
Check test point



Do Not Stuff

GNDPADS213X99-NP

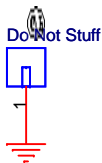
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H7



Do Not Stuff

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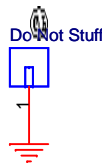
H8



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H9



Do Not Stuff

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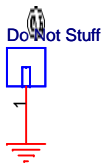
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Do Not Stuff

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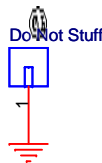
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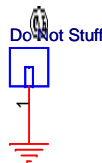
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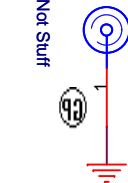
GNDPADS213X99-NP

H13



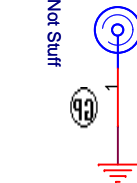
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H14



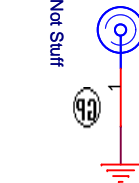
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H15



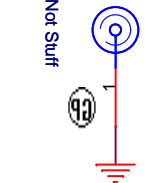
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H16



Do Not Stuff

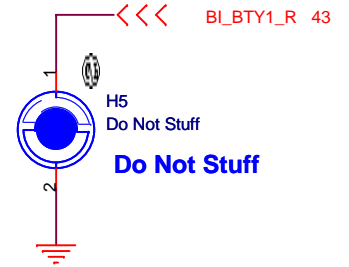
H17



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Title **UNUSED PARTS/EMI Capacitors**

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Title

NFC Connector

Size
A4

Document Number

Storm 2

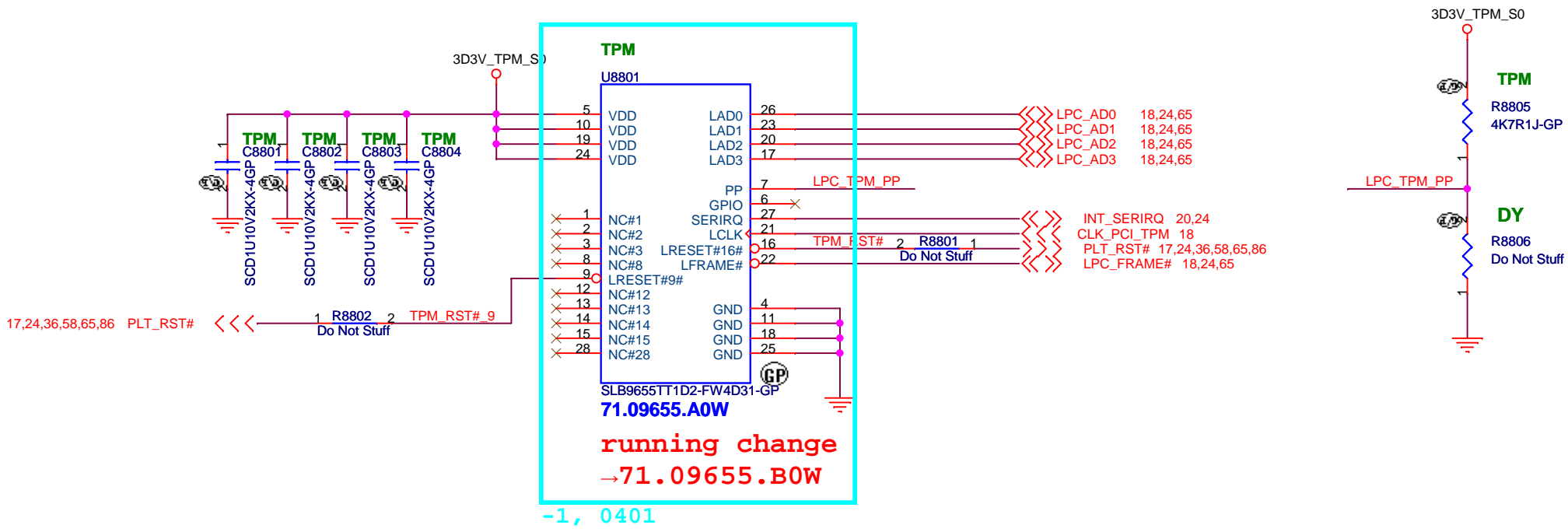
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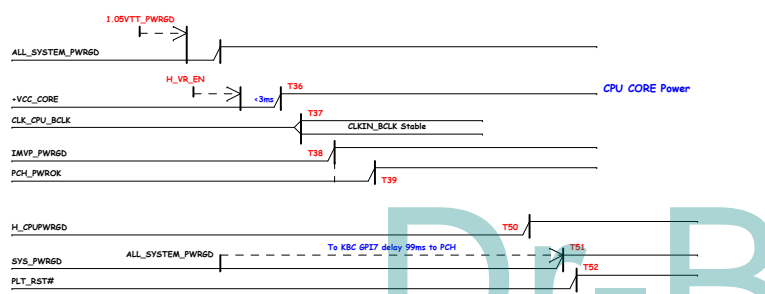
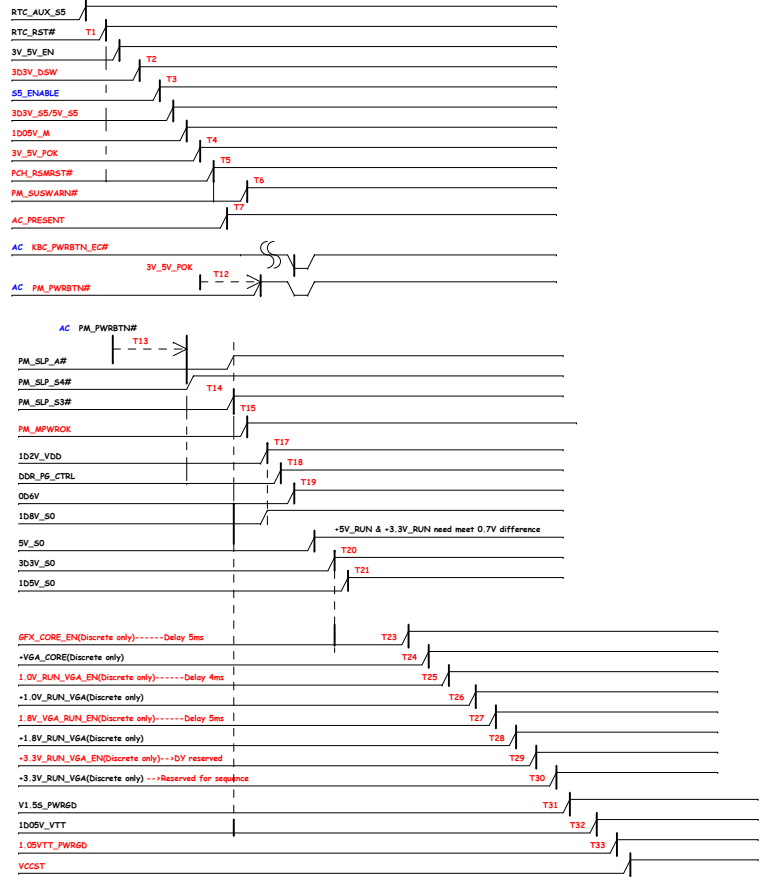
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Title		
Reserved		
Size	Document Number	Rev
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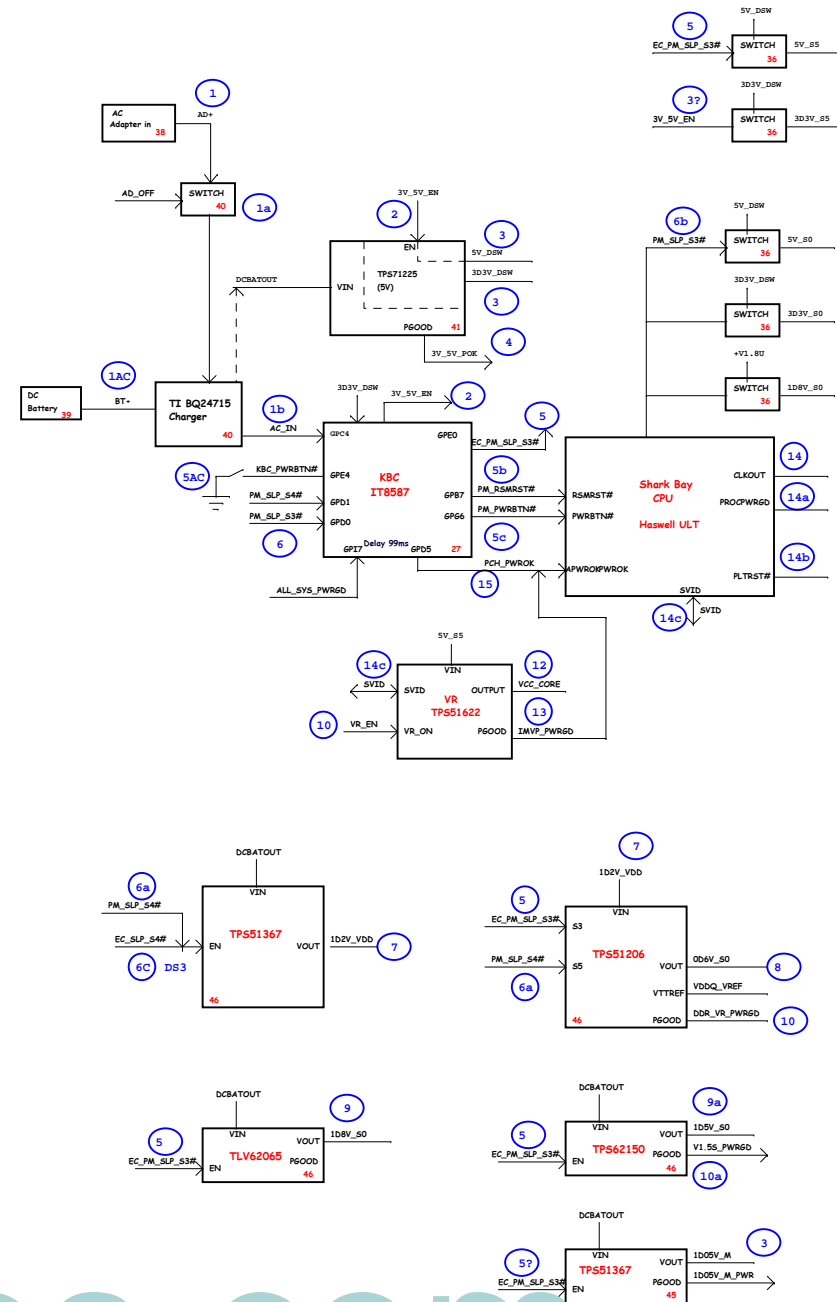
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Intel-Power Up Sequence

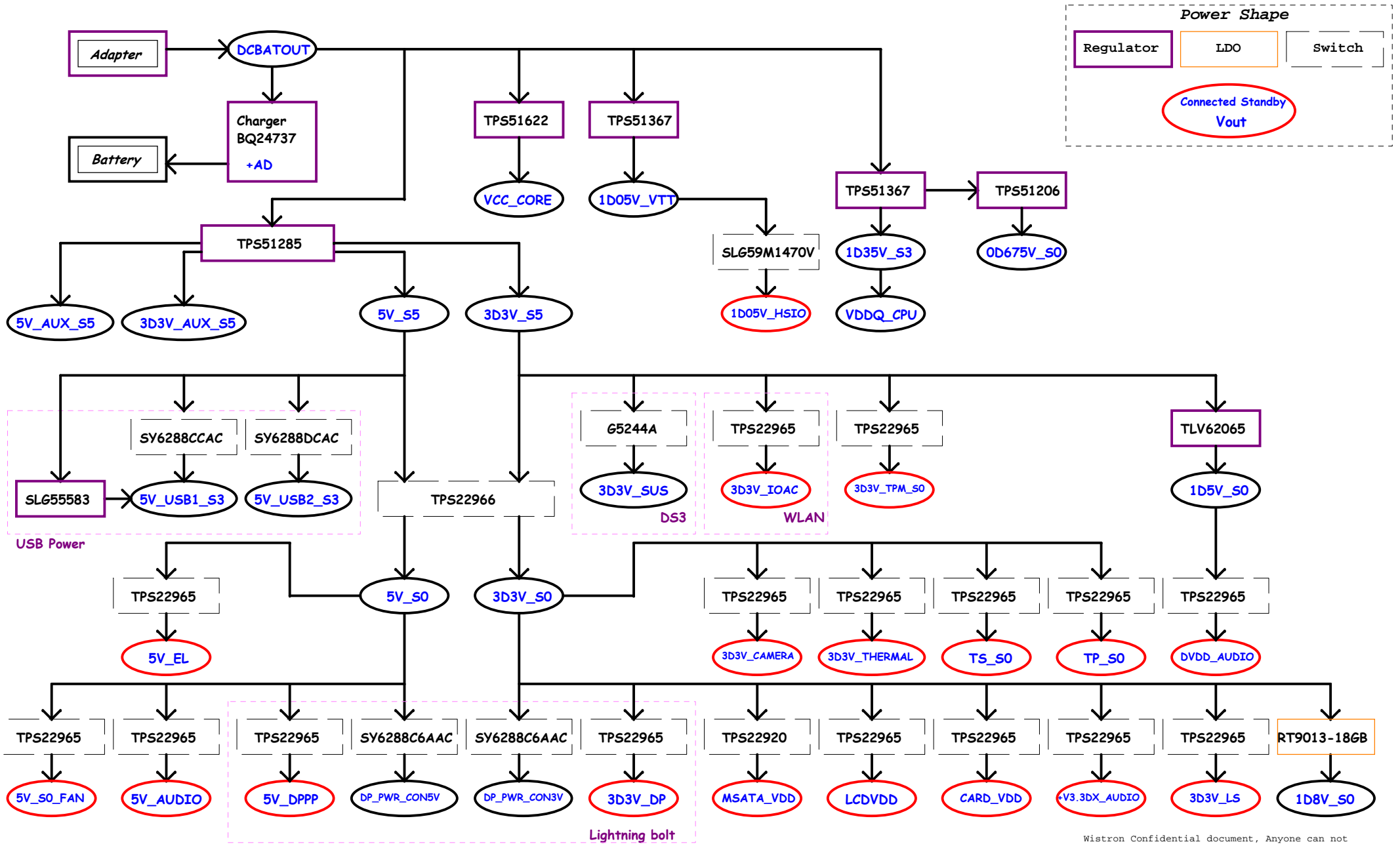
(AC mode)



SHARK BAY POWER UP SEQUENCE DIAGRAM



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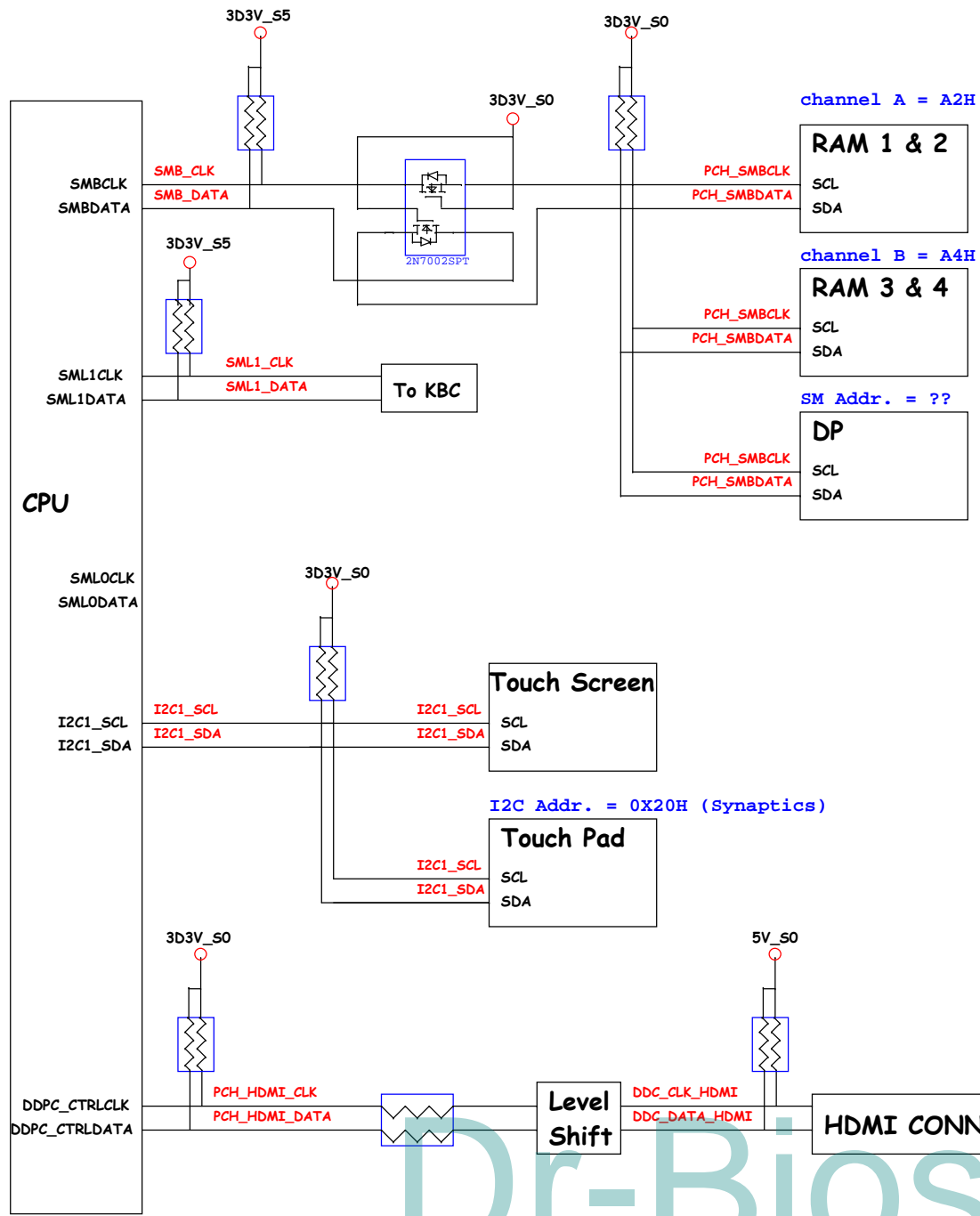


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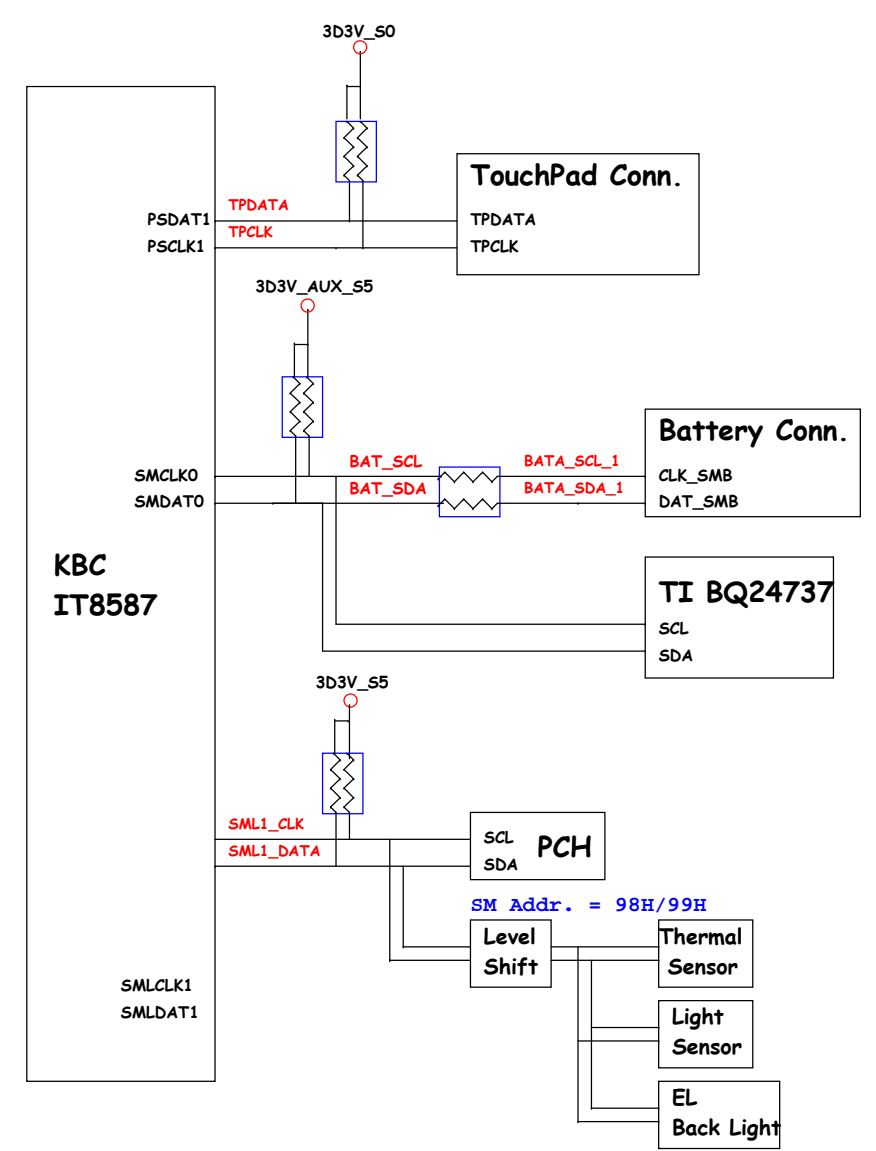
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CPU SMBus Block Diagram



KBC SMBus Block Diagram

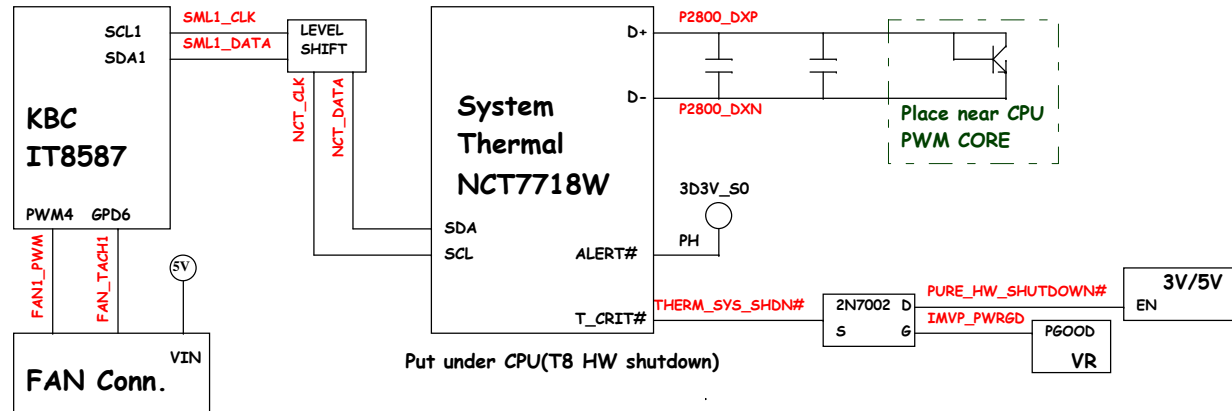


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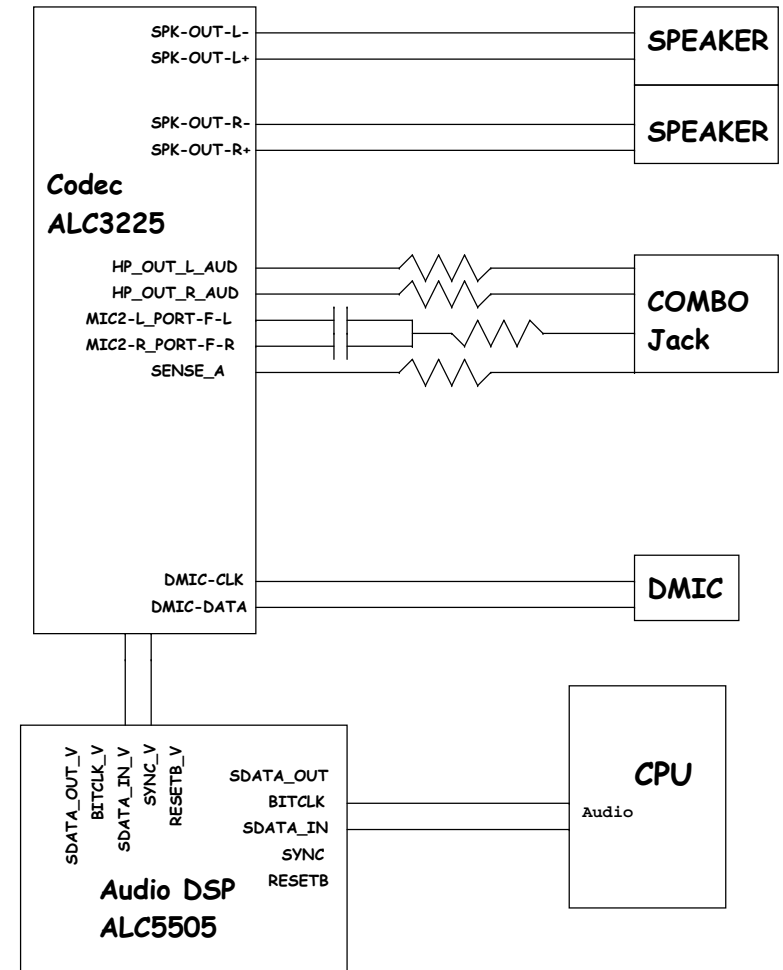
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Thermal Block Diagram



Audio Block Diagram



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Size Custom	Document Number Storm 2
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