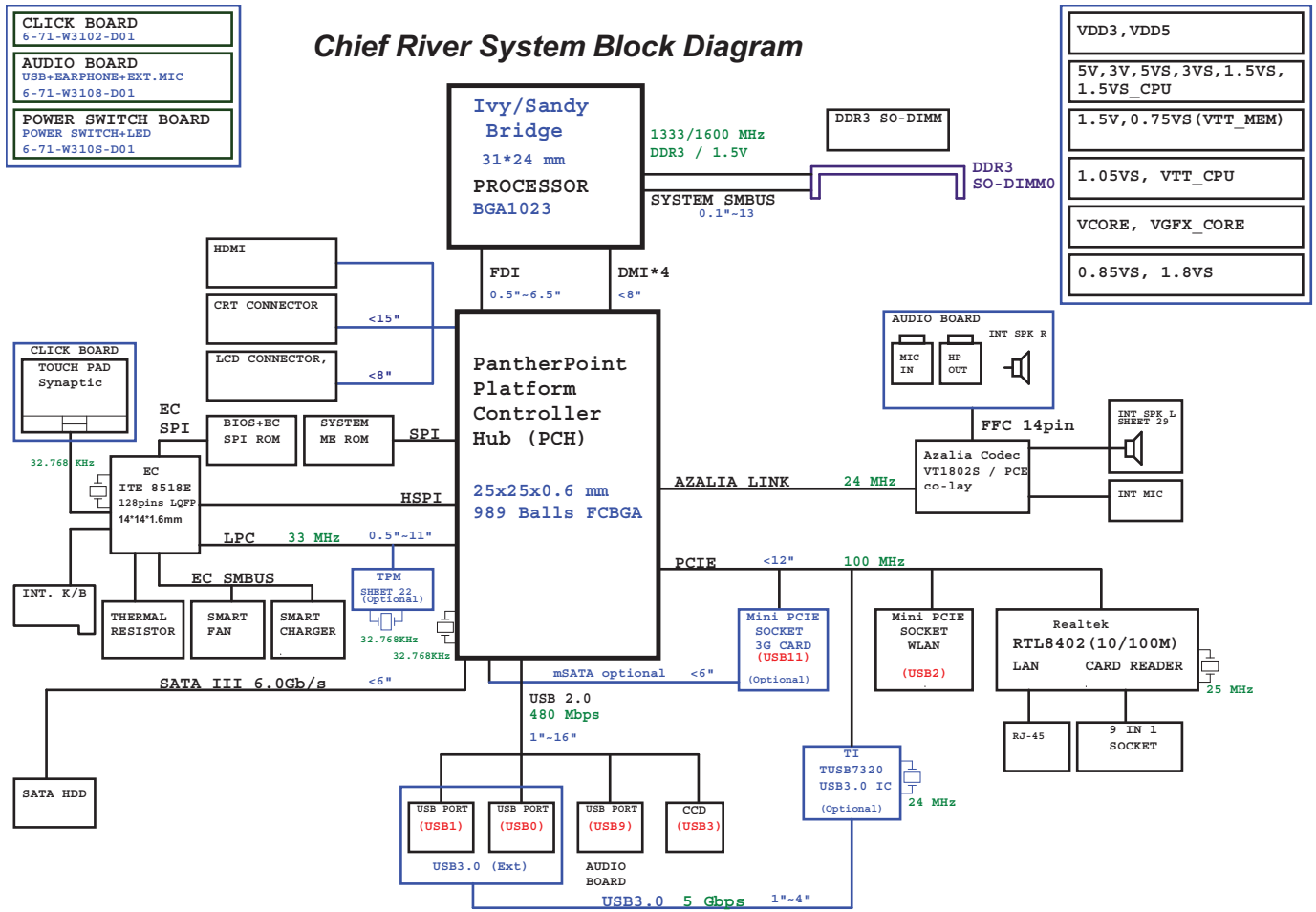
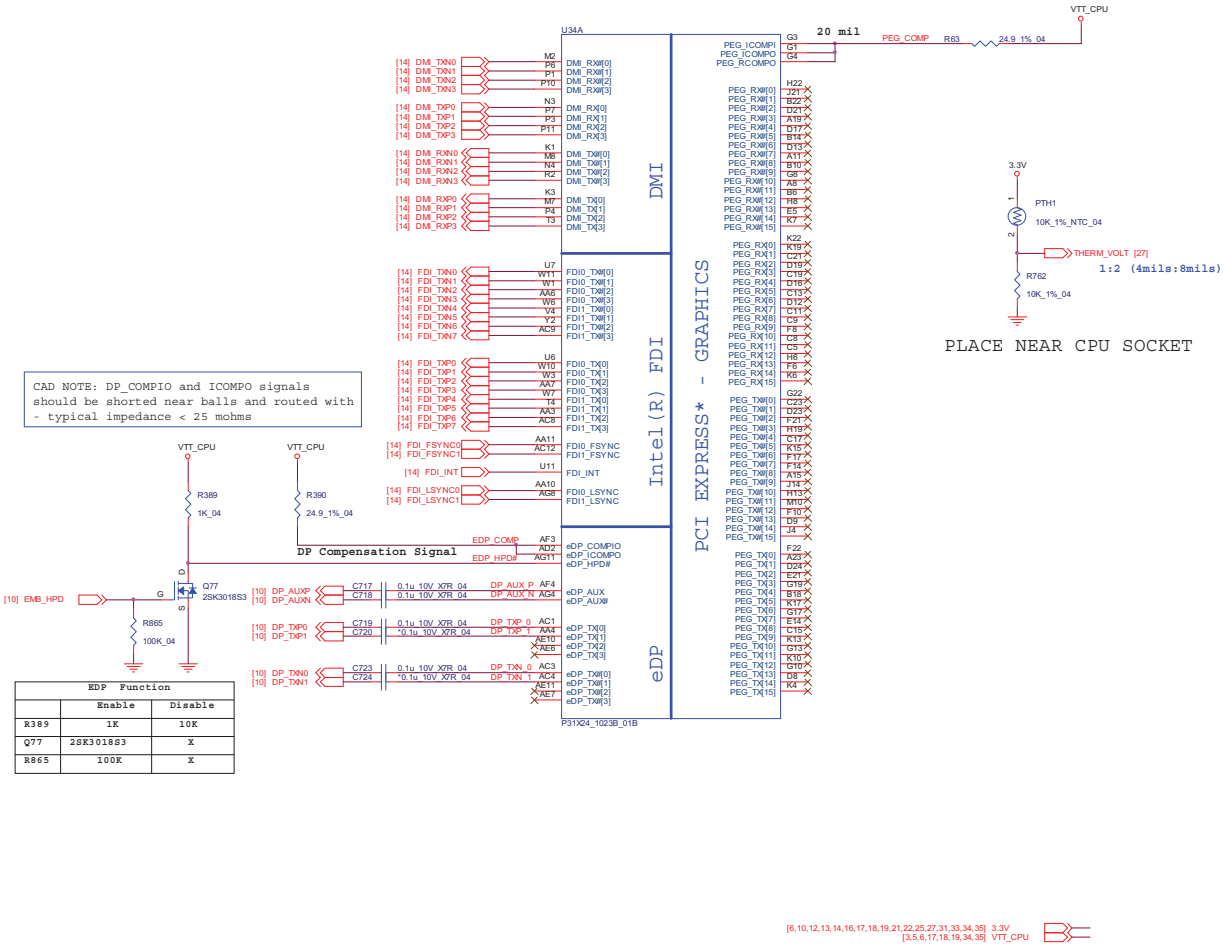
System Block Diagram

Sheet 1 of 42
System Block Diagram



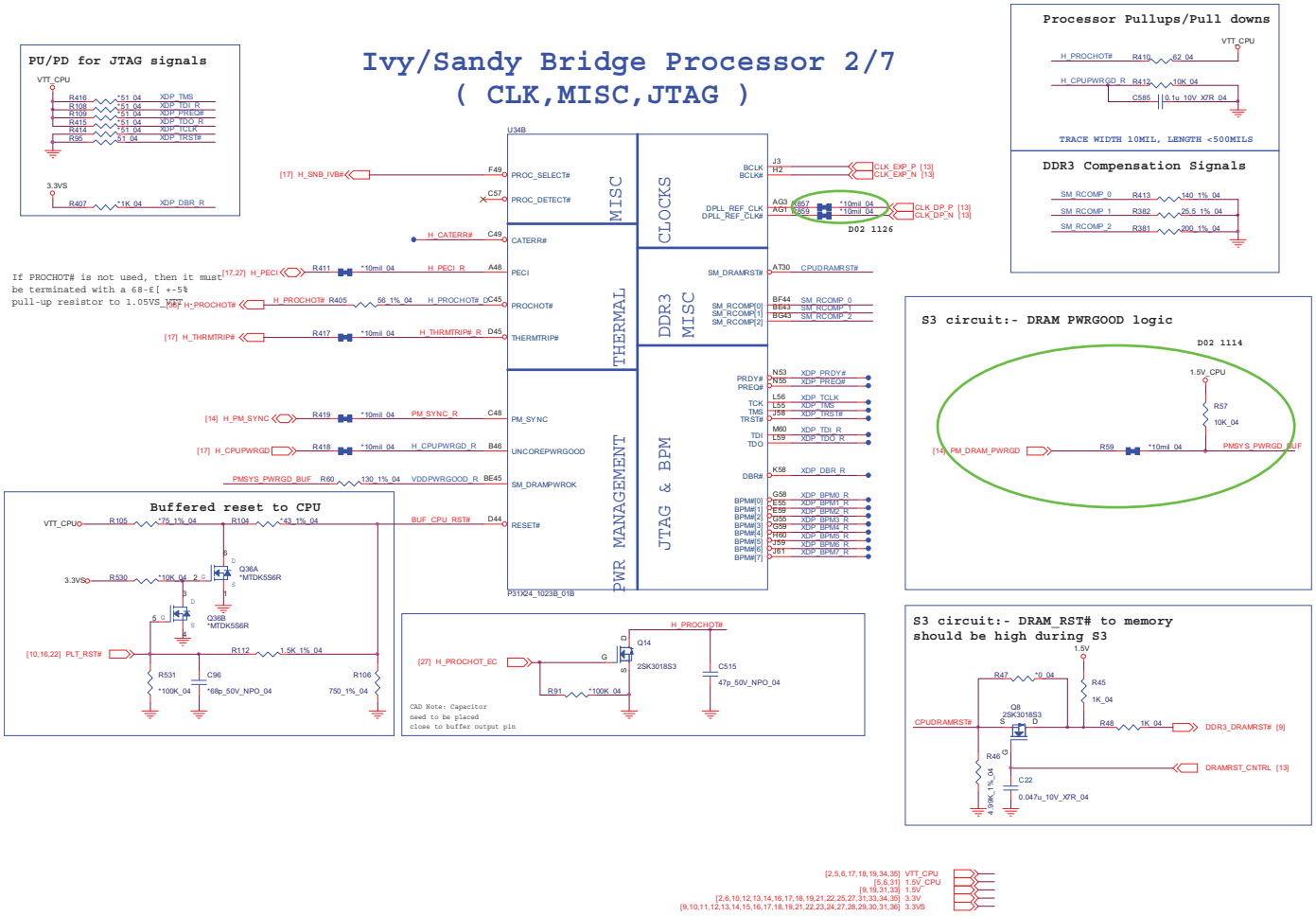
Processor 1/7 - DMI, FDI, PEG



Sheet 2 of 42
Processor 1/7 - DMI, FDI, PEG

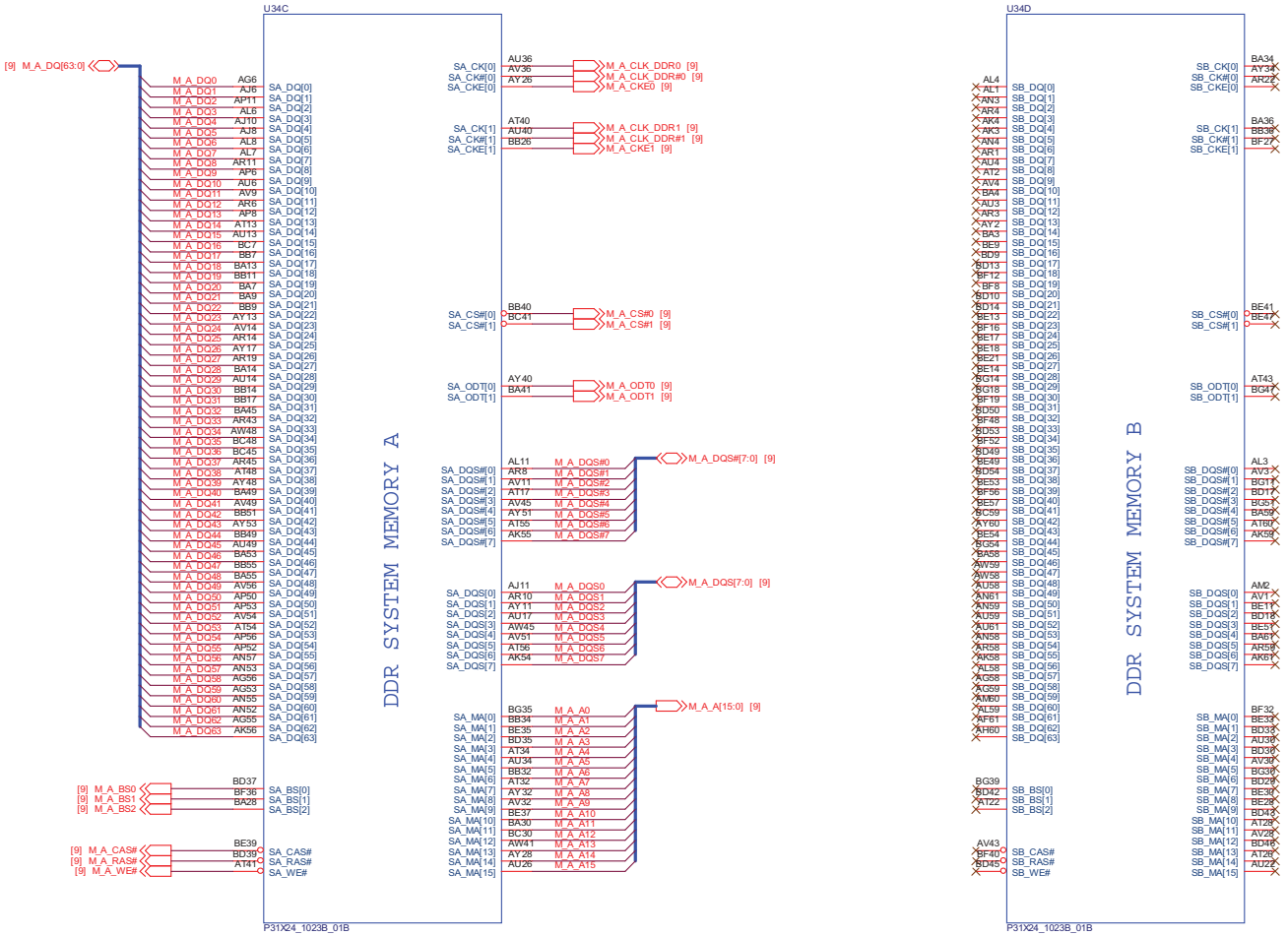
Processor 2/7 - CLK, MISC

Sheet 3 of 42
Processor 2/7 - CLK, MISC



Processor 3/7 - DDR3

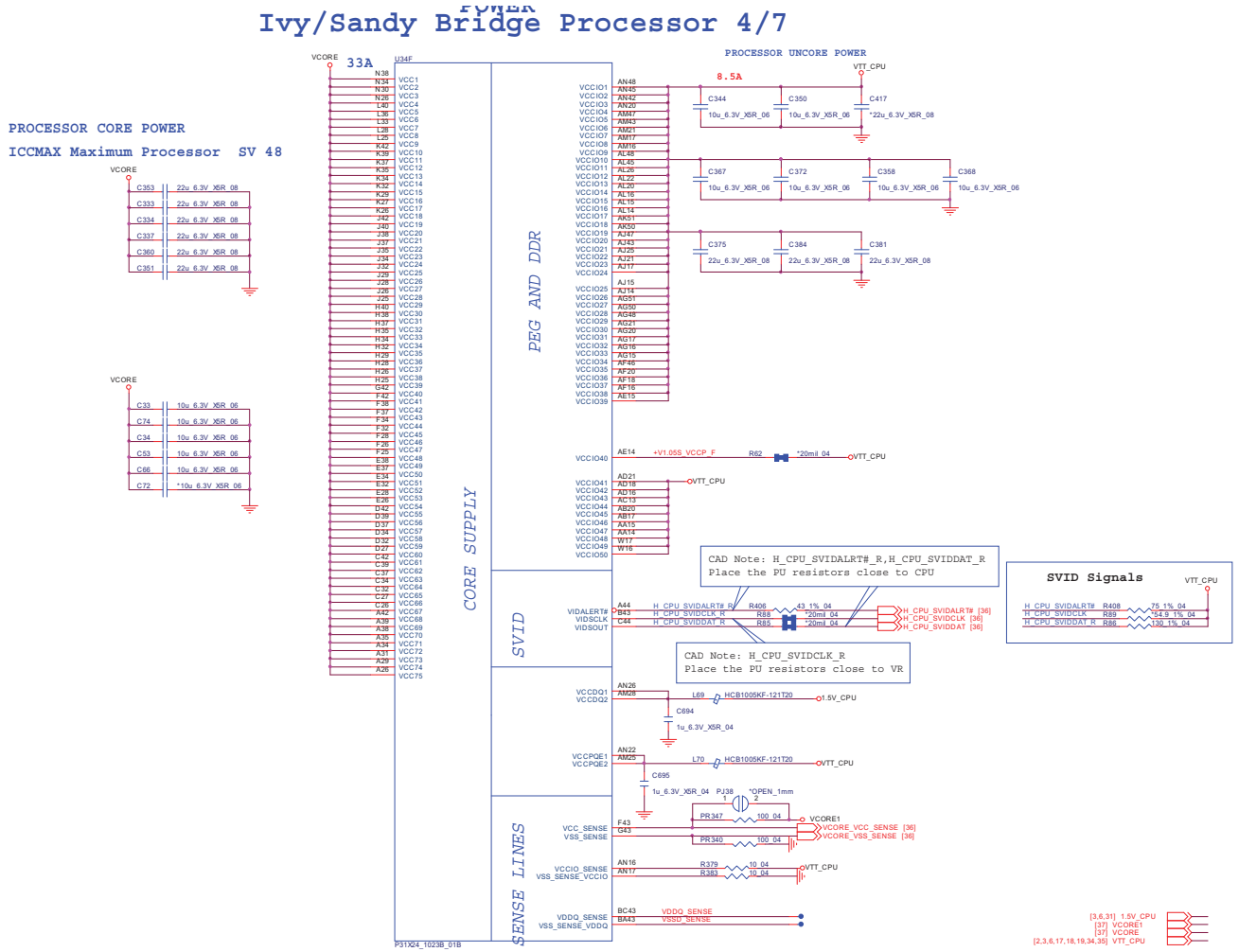
Ivy/Sandy Bridge Processor 3/7 (DDR3)



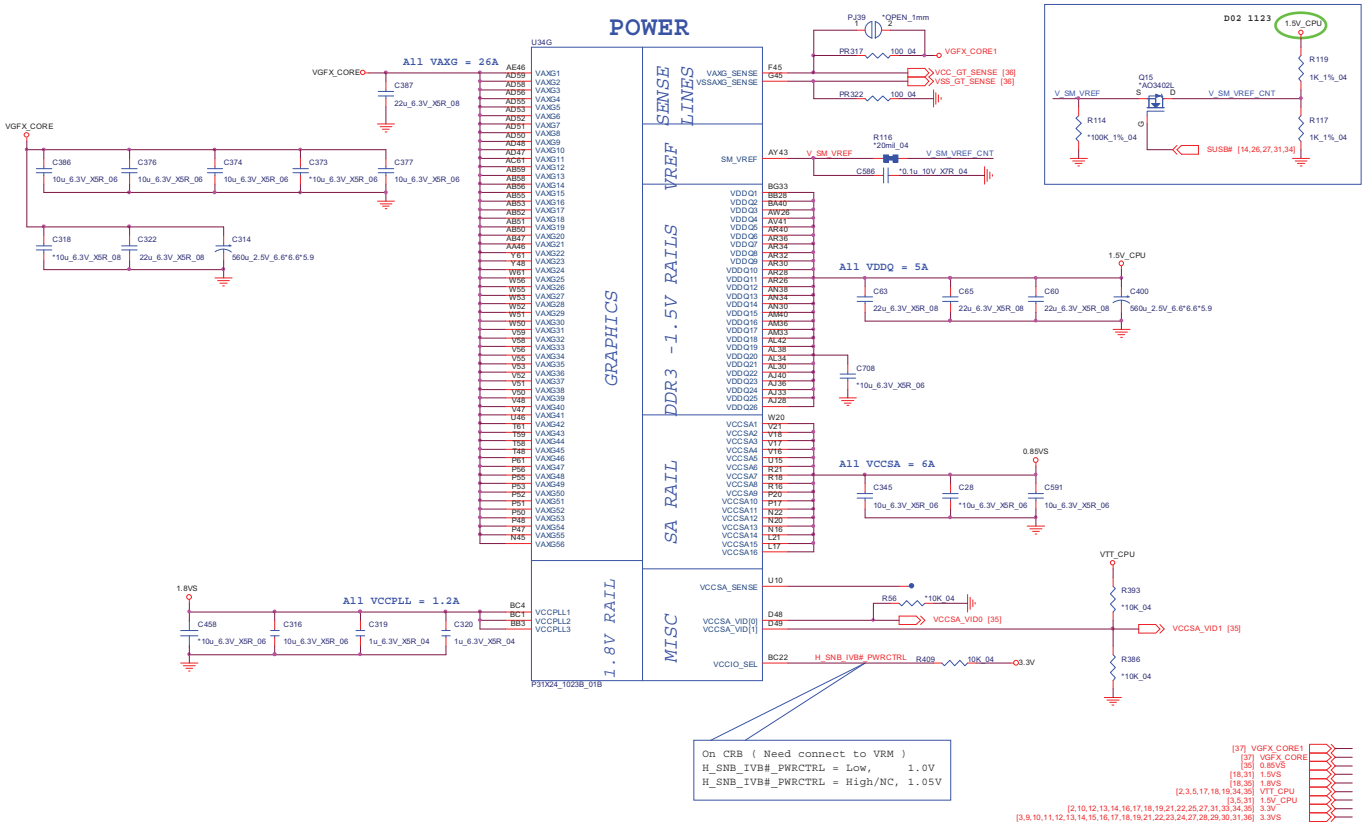
Sheet 4 of 42
Processor 3/7 - DDR3

Processor 4/7 - Power

Sheet 5 of 42
Processor 4/7 - Power



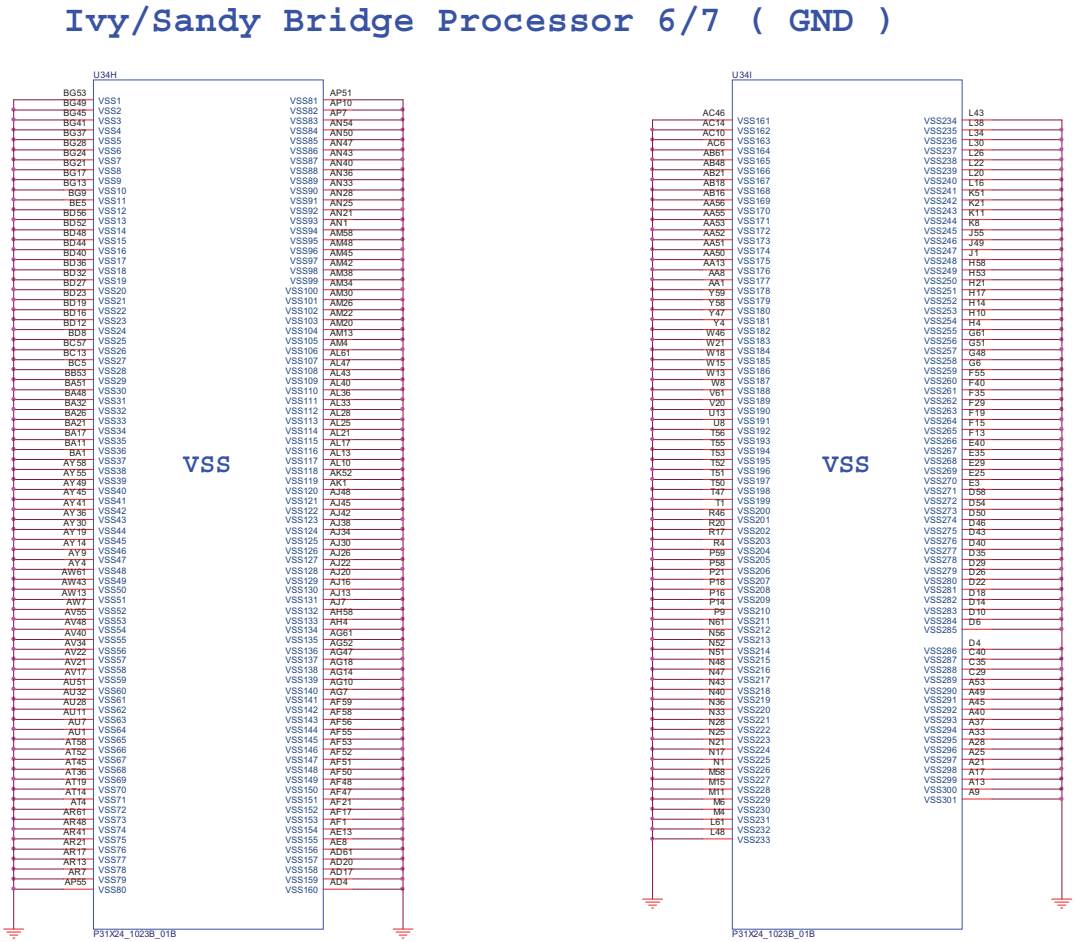
Processor 5/7 - GFX PWR



Sheet 6 of 42
Processor 5/7 - GFX PWR

Processor 6/7 - GND

Sheet 7 of 42
Processor 6/7 - GND



Processor 7/7 - RSVD

CFG Straps for Processor

PEG Static Lane Reversal - CFG2 is for the 16x	
CFG2	1:(Default) Normal Operation; Lane # definition matches socket pin map definition 0:Lane Reversed

CFG2 R111 *1K_04

Display Port Presence Strap	
CFG4	1:(Default) Disabled; No Physical Display Port attached to Embedded Display Port 0:Enabled; An external Display Port device is connected to the Embedded Display Port

CFG4 R110 1K_04 D02 1126

PCIE Port Bifurcation Straps	
CFG[6:5]	11: (Default) x16 - Device 1 functions 1 and 2 disabled 10: x8, x8 - Device 1 function 1 enabled ; function 2 disabled 01: Reserved - (Device 1 function 1 disabled ; function 2 enabled) 00: x8,x4,x4 - Device 1 functions 1 and 2 enabled

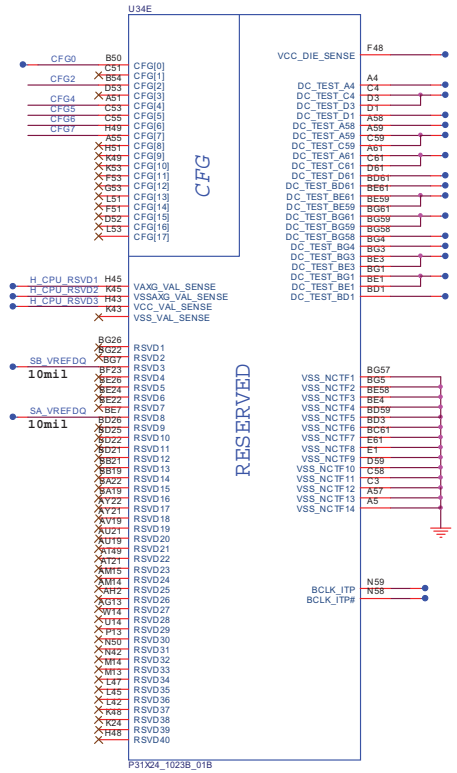
CFG5 R99 *1K_04

CFG6 R92 *1K_04

PEG DEFER TRAINING	
CFG7	1: (Default) PEG Train immediately following xxRESETB de assertion 0: PEG Wait for BIOS for training

CFG7 R93 *1K_04

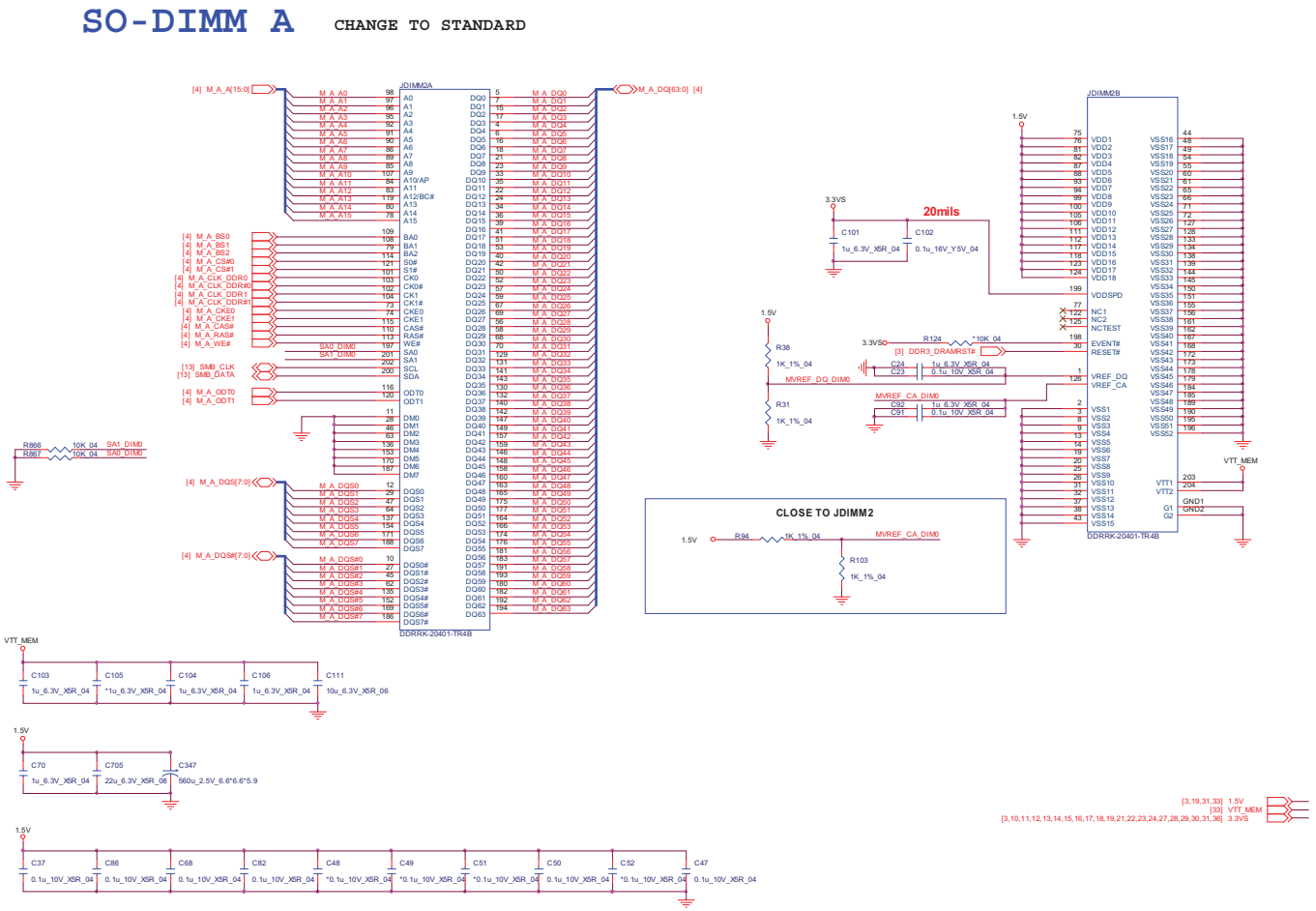
Ivy/Sandy Bridge Processor 7/7 (RESERVED)



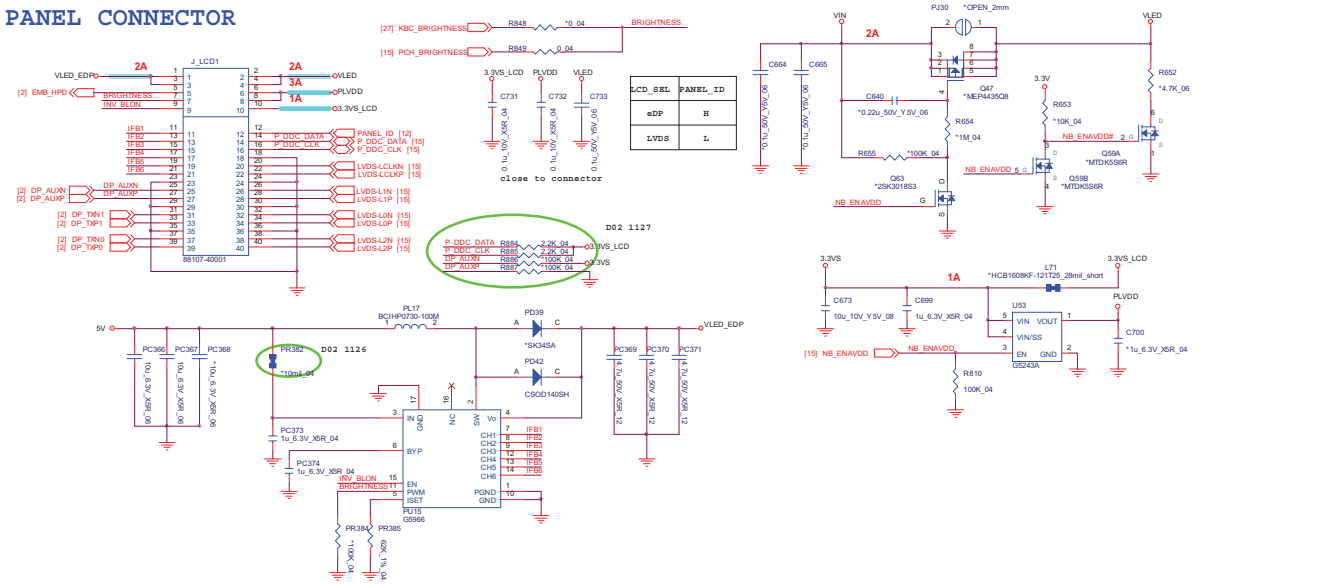
Sheet 8 of 42
Processor 7/7 - RSVD

DDR3 SO-DIMM_0

Sheet 9 of 42
DDR3 SO-DIMM_0



LVDS, INVERTER

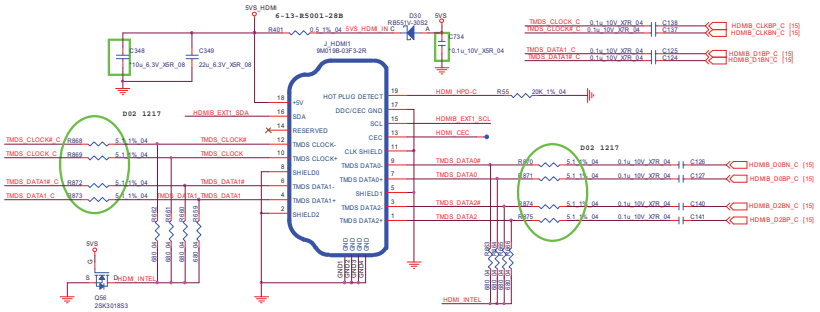


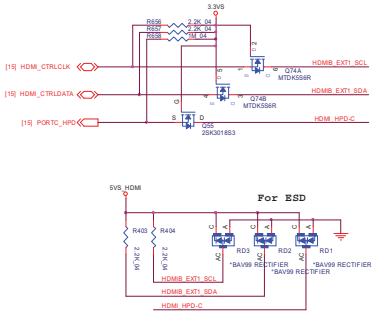
Sheet 10 of 42
LVDS, INVERTER

HDMI, CRT

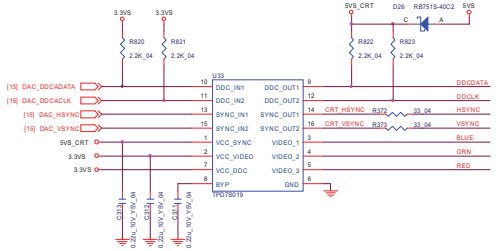
Sheet 11 of 42
HDMI, CRT

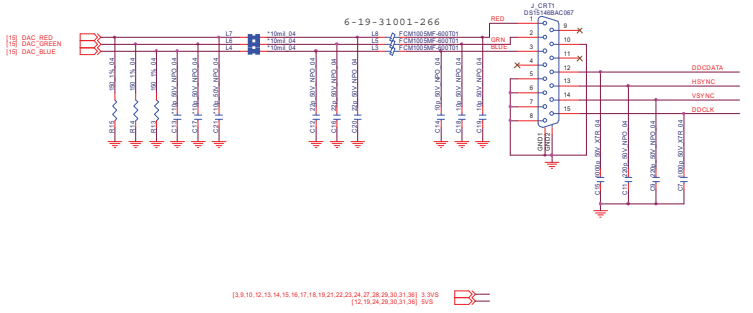
HDMI PORT



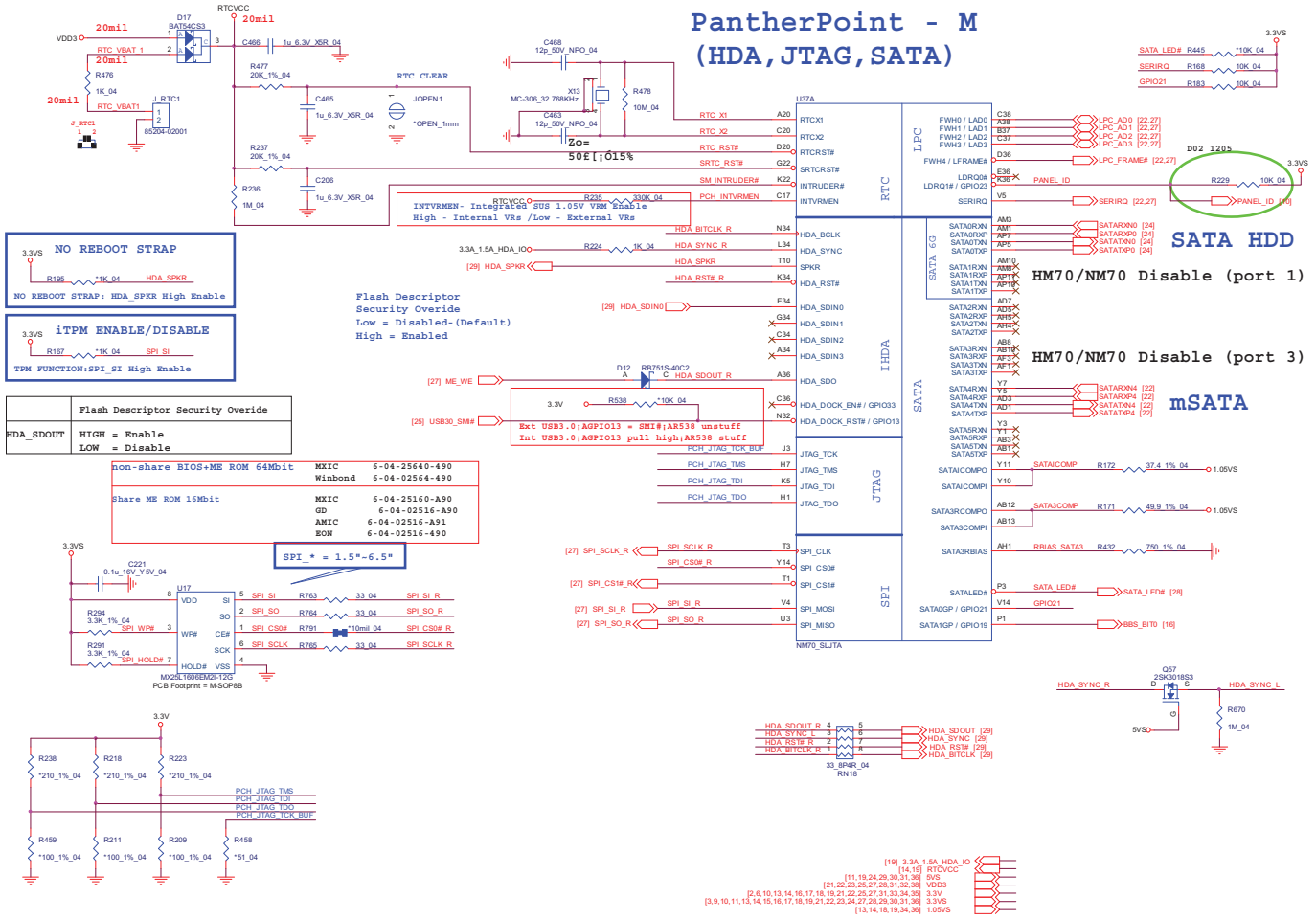


CRT PORT





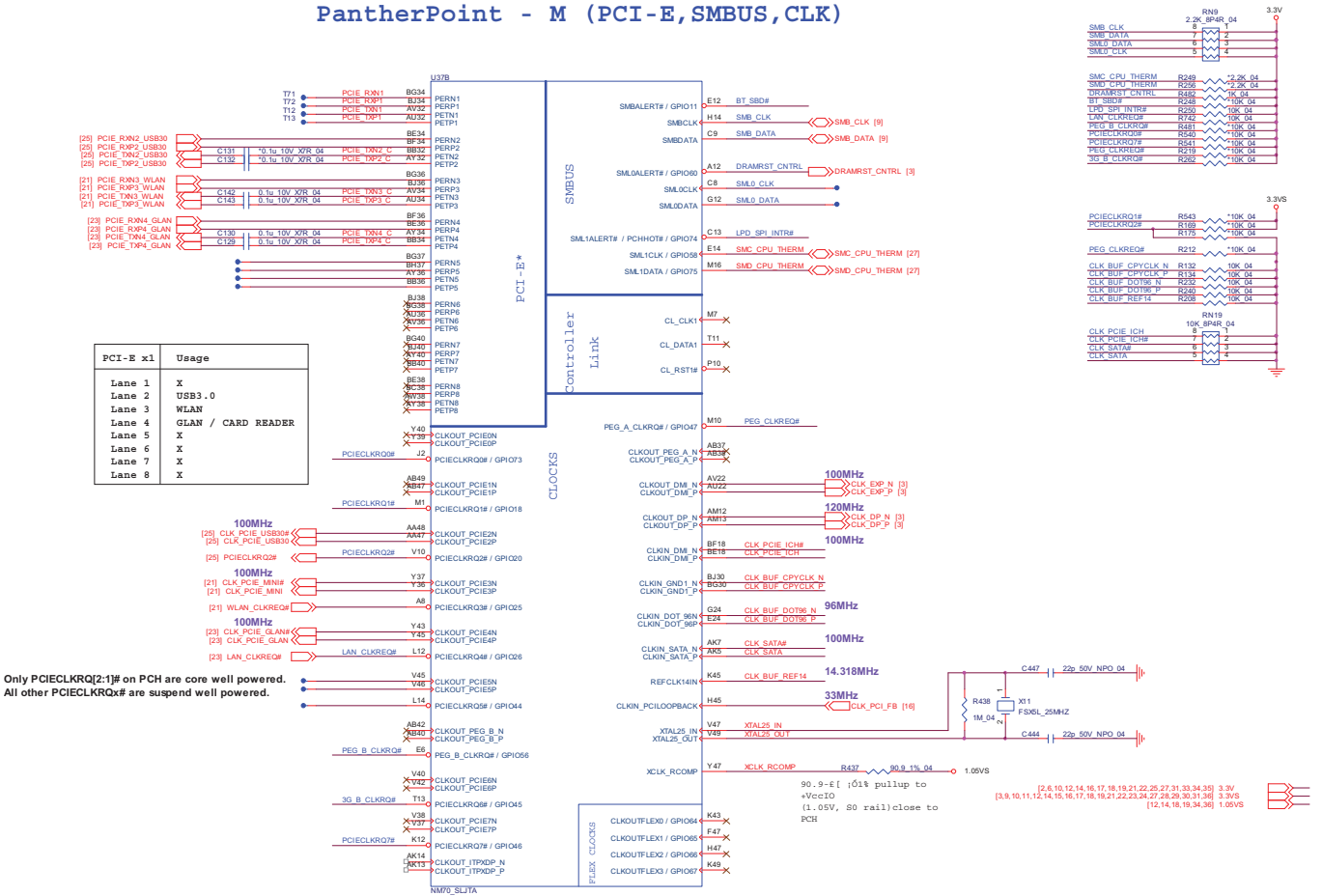
PCH 1/9 - HDA, SATA



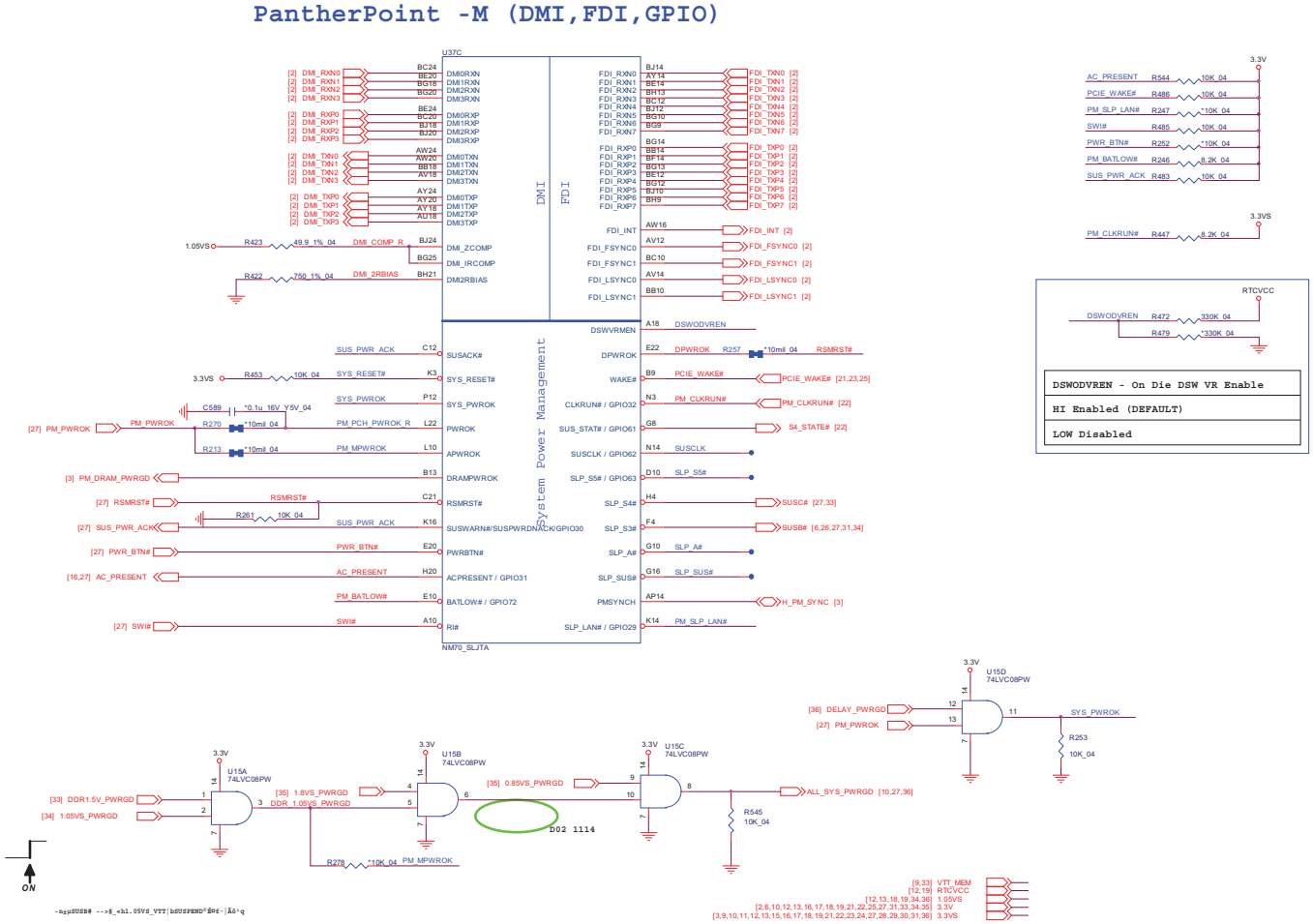
Sheet 12 of 42
PCH 1/9 - HDA, SATA

PCH 2/9 - PCIE, SMBUS, CLK

Sheet 13 of 42
PCH 2/9 - PCIE, SMBUS, CLK



PCH 3/9 - DMI, FDI, GPIO



Sheet 14 of 42
PCH 3/9 - DMI, FDI, GPIO

B.Schematic Diagrams

PCH 4/9 - LVDS, DDI, CRT

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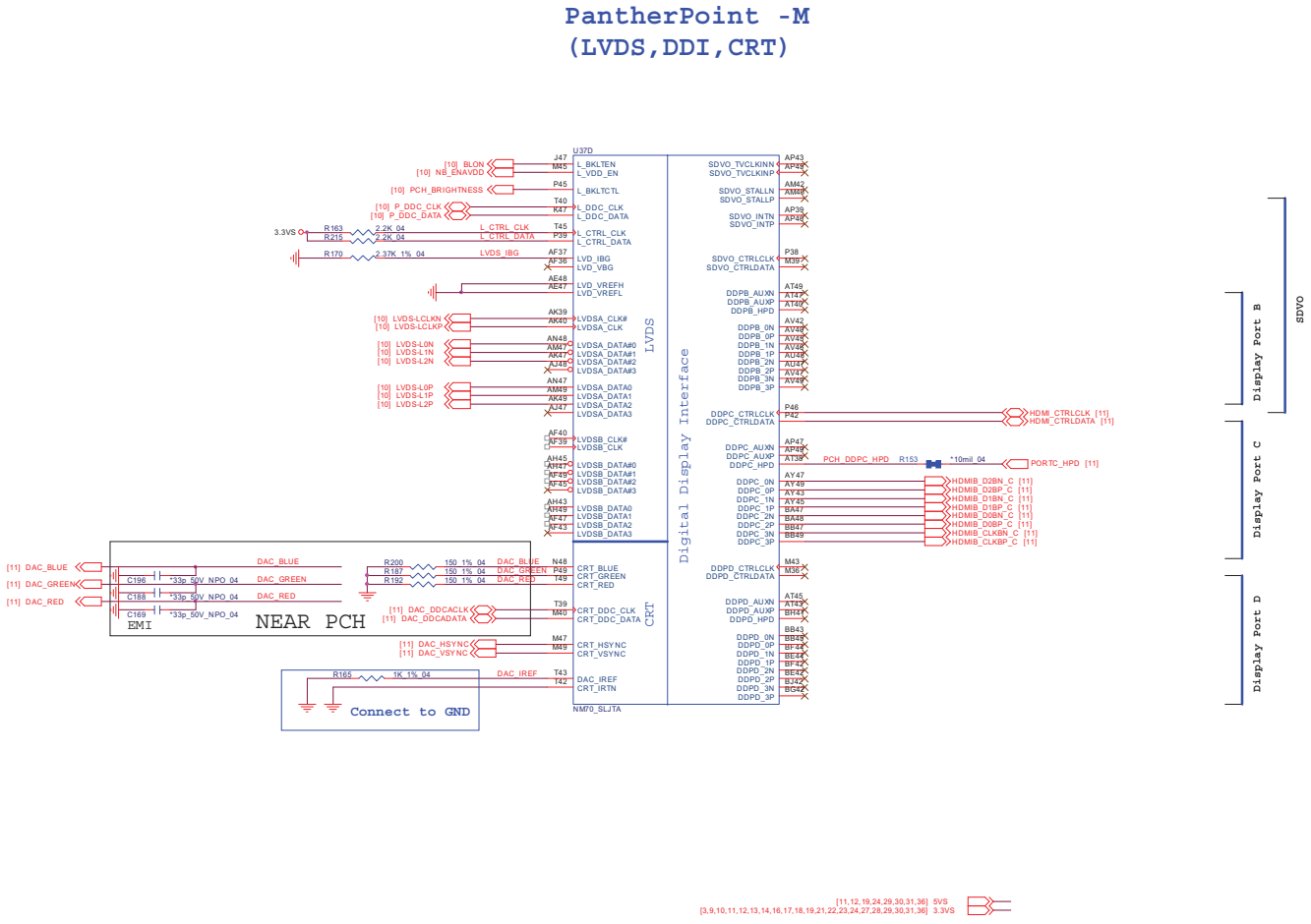
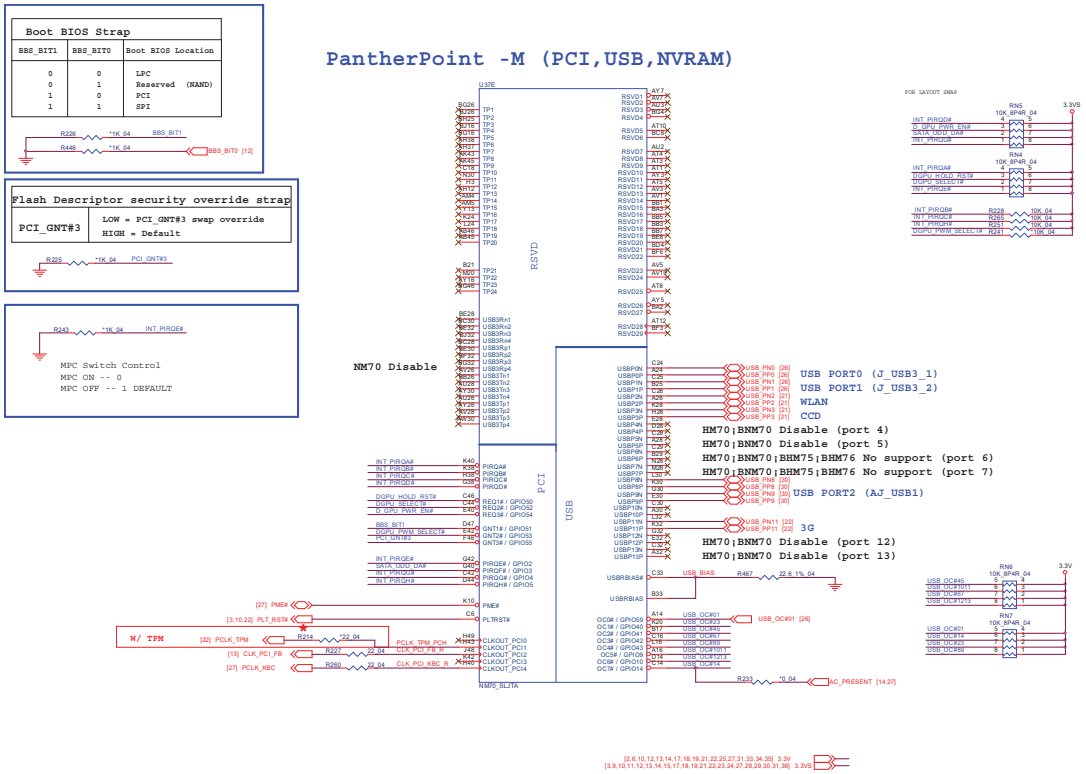
PCH 4/9 - LVDS, DDI, CRT



PCH 5/9 - PCI, USB, NVRAM



Sheet 16 of 42
PCH 5/9 - PCI, USB, NVRAM

B.Schematic Diagrams

PCH 6/9 - GPIO, VSS_NCTF, RSVD

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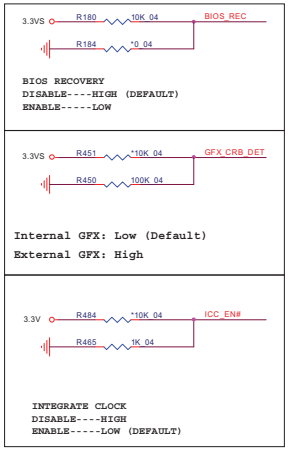
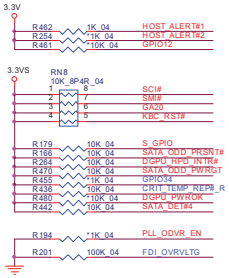
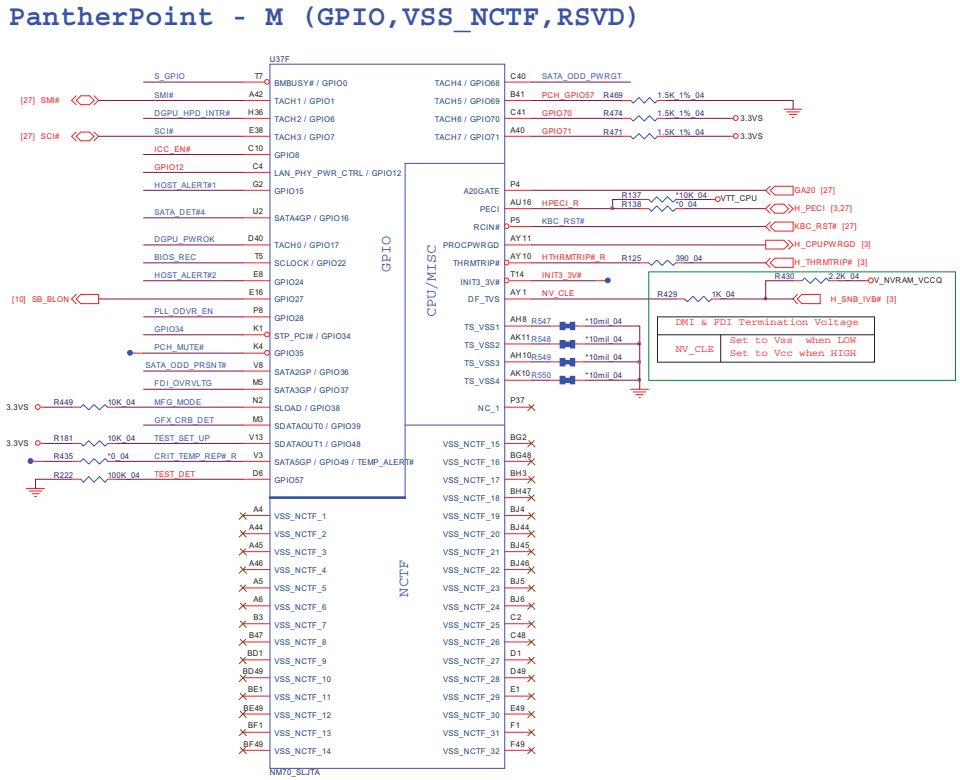
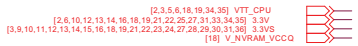
PCH 6/9 - GPIO, VSS_NCTF, RSVD

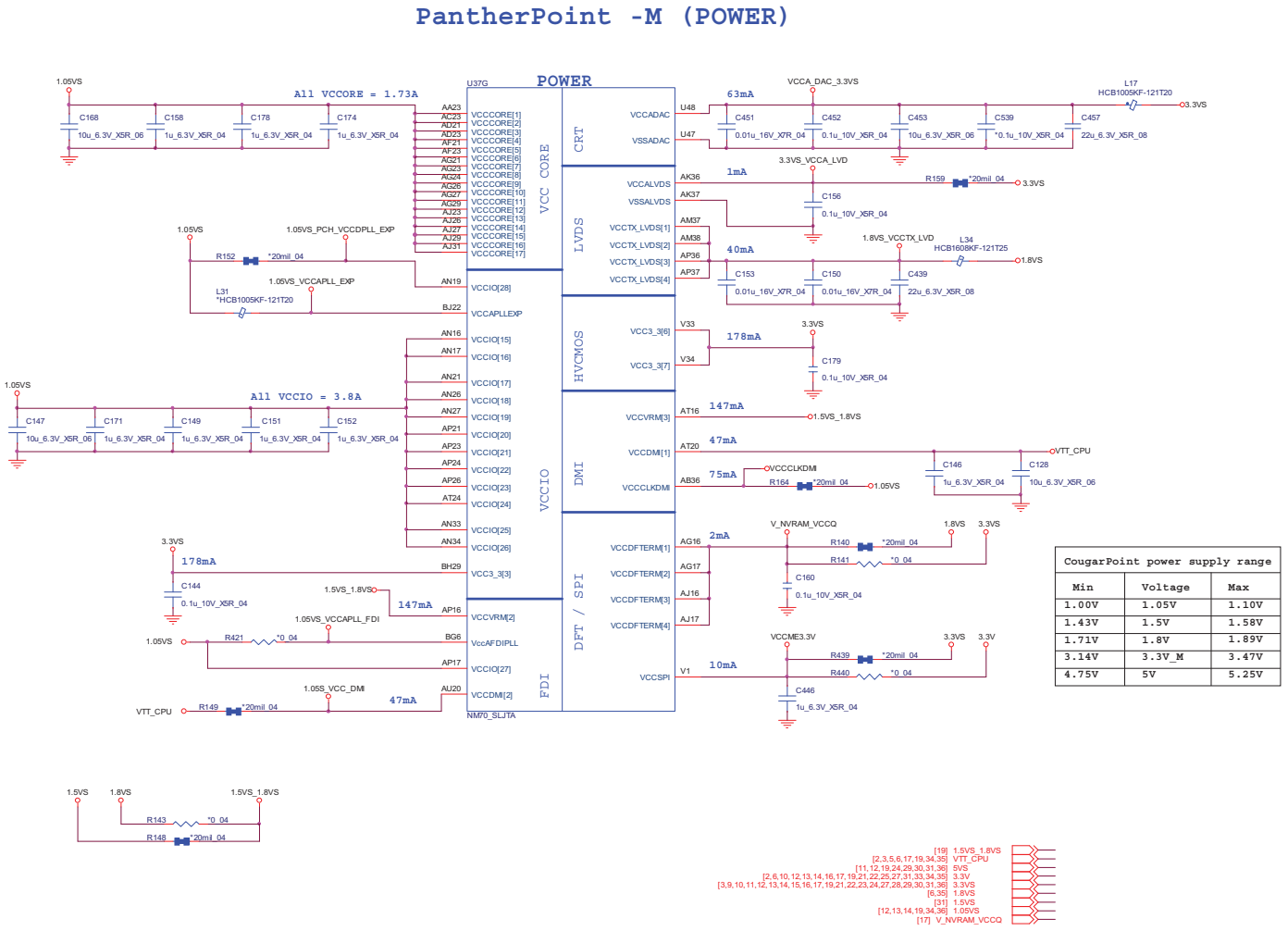








PCH 7/9 - PWR



CougarPoint power supply range		
Min	Voltage	Max
1.00V	1.05V	1.10V
1.43V	1.5V	1.58V
1.71V	1.8V	1.89V
3.14V	3.3V_M	3.47V
4.75V	5V	5.25V

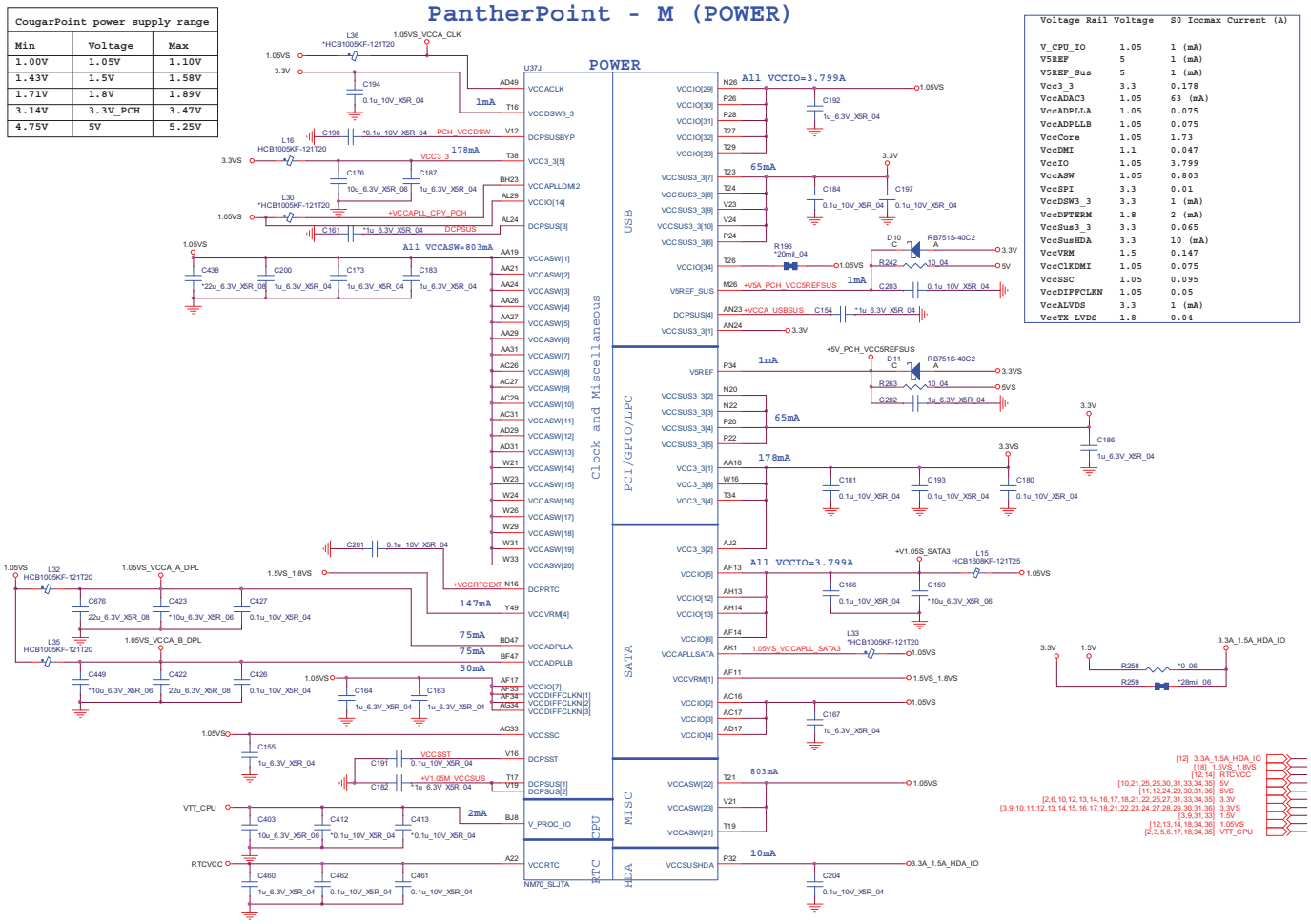
Sheet 18 of 42
PCH 7/9 - PWR

B.Schematic Diagrams

PCH 8/9 - POWER

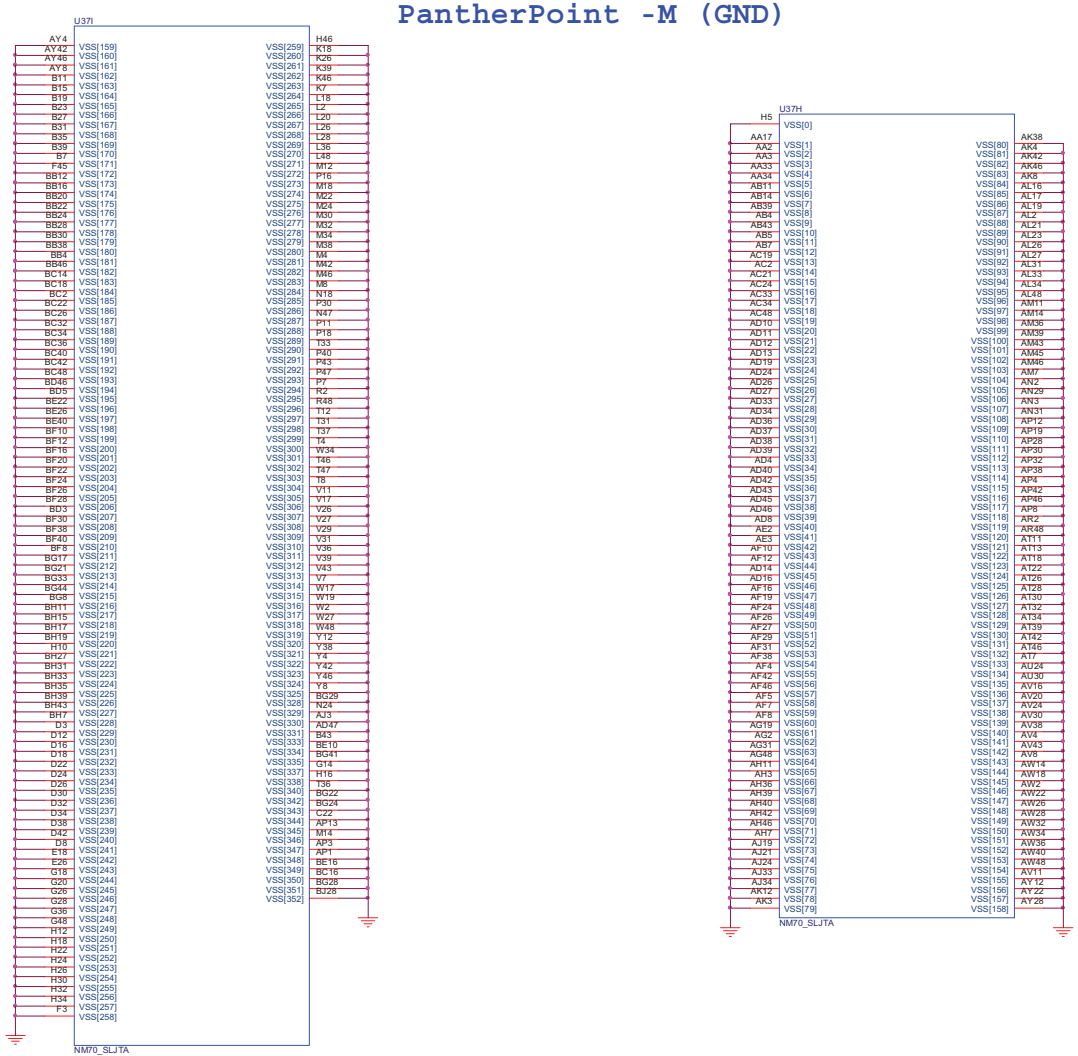
Sheet 19 of 42
PCH 8/9 - POWER

CougarPoint power supply range		
Min	Voltage	Max
1.00V	1.05V	1.10V
1.43V	1.5V	1.58V
1.71V	1.8V	1.89V
3.14V	3.3V_PCH	3.47V
4.75V	5V	5.25V



PCH 9/9 - GND

PantherPoint -M (GND)



Sheet 20 of 42
PCH 9/9 - GND

WLAN, CCD

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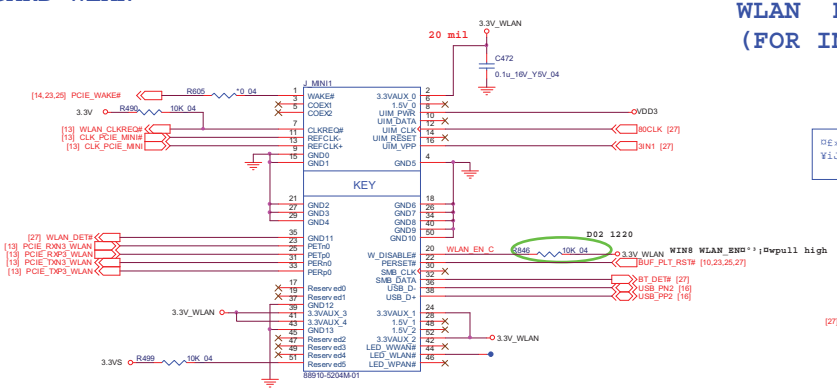
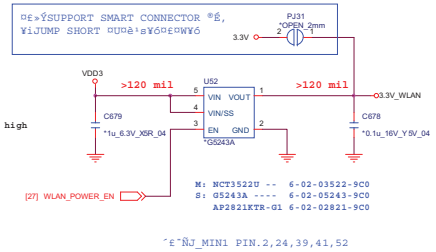
WLAN, CCD

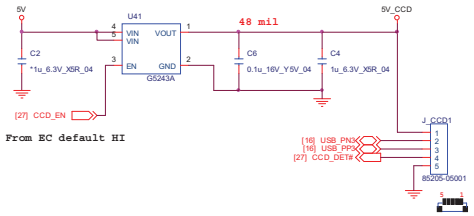
MINI CARD WLAN



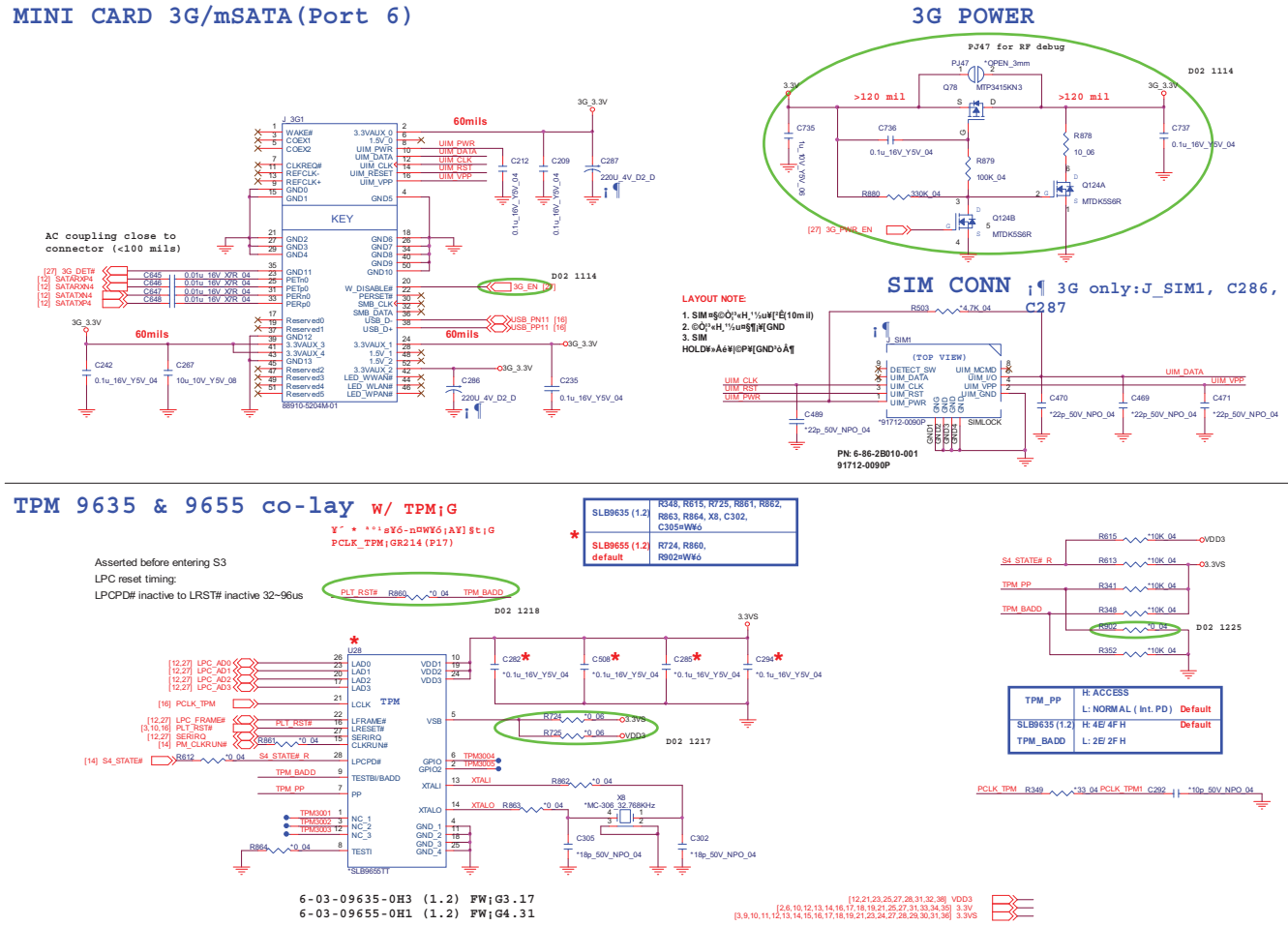
WLAN POWER (FOR INTEL SMART CONNECTOR)



CCD

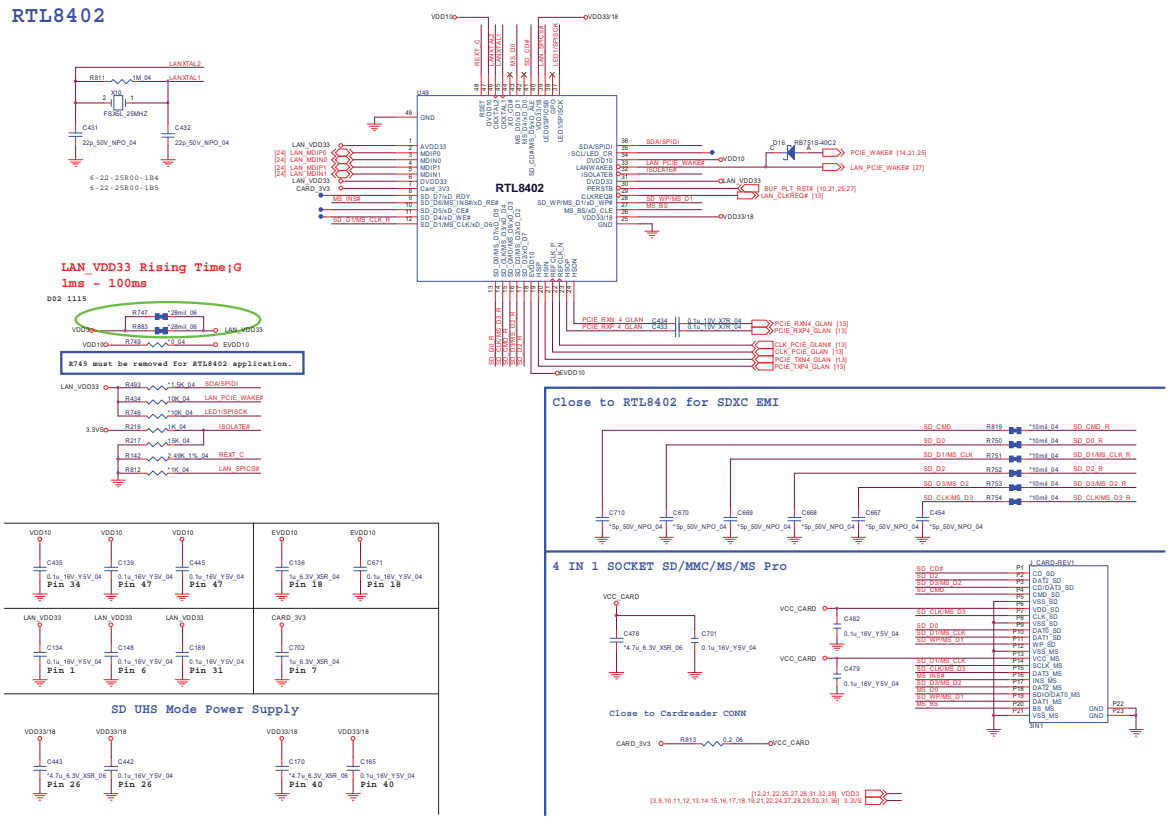


3G/mSATA, TPM



Sheet 22 of 42
3G/mSATA, TPM

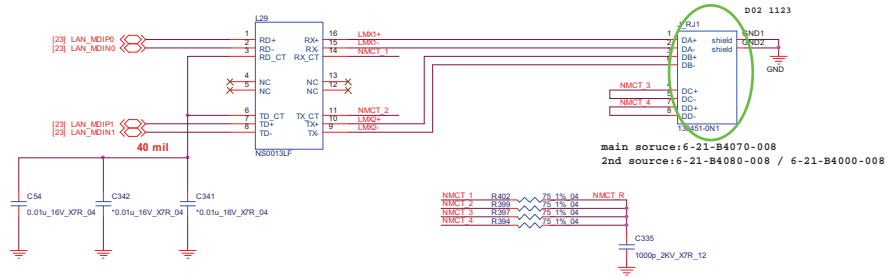
LAN RTL8402, Card Reader



Sheet 23 of 42
LAN RTL8402,
Card Reader

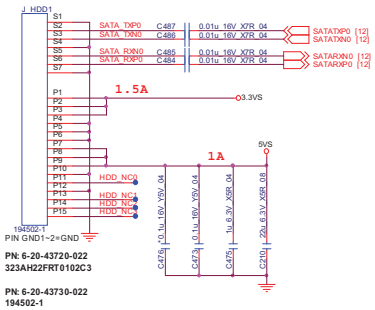
Transformer, SATA HDD

10/100 LAN Transformer



Sheet 24 of 42
Transformer,
SATA HDD

SATA HDD



[3,9,10,11,12,13,14,15,16,17,18,19,21,22,23,27,28,29,30,31,36] 3.3VS
[11,12,19,29,30,31,36] 5VS

USB 3.0 TI TUSB7320

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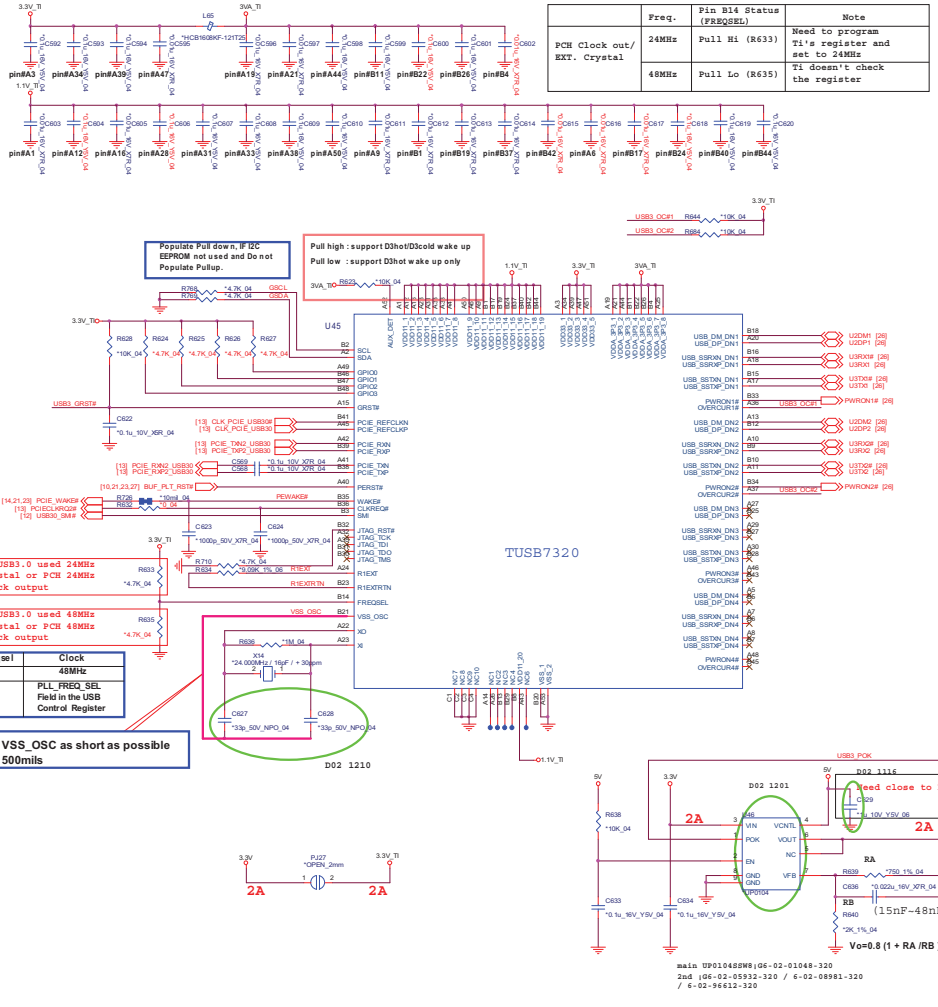
USB 3.0 TI
TUSB7320



	Freq.	Pin B14 Status (FREQSEL)	Note
PCH Clock out/ EXT. Crystal	24MHz	Pull Hi (R633)	Need to program Ti's register and set to 24MHz
	48MHz	Pull Lo (R635)	Ti doesn't check the register

Internal Chip Trace Length Mismatch

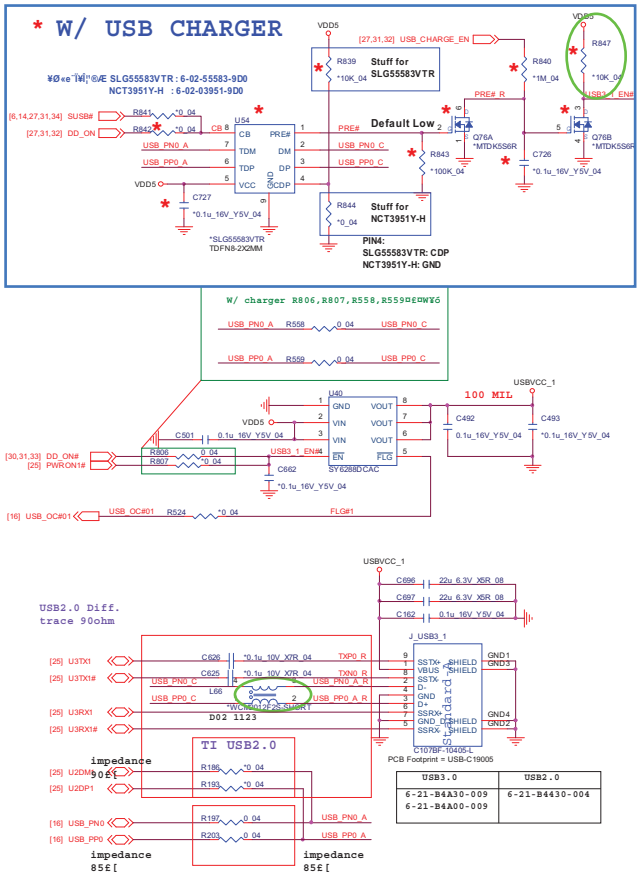
Ball no	NetName	Bondwire Length(mil)	Difference (mil)
A41	PCIE_RXN2_USB30	118	28
B38	PCIE_RXP2_USB30	89	
A42	PCIE_TXN2_USB30	112	27
B39	PCIE_TXP2_USB30	85	
B41	CLK_PCIE_USB30#	87	19
A45	CLK_PCIE_USB30	106	

Internal Chip Trace Length Mismatch

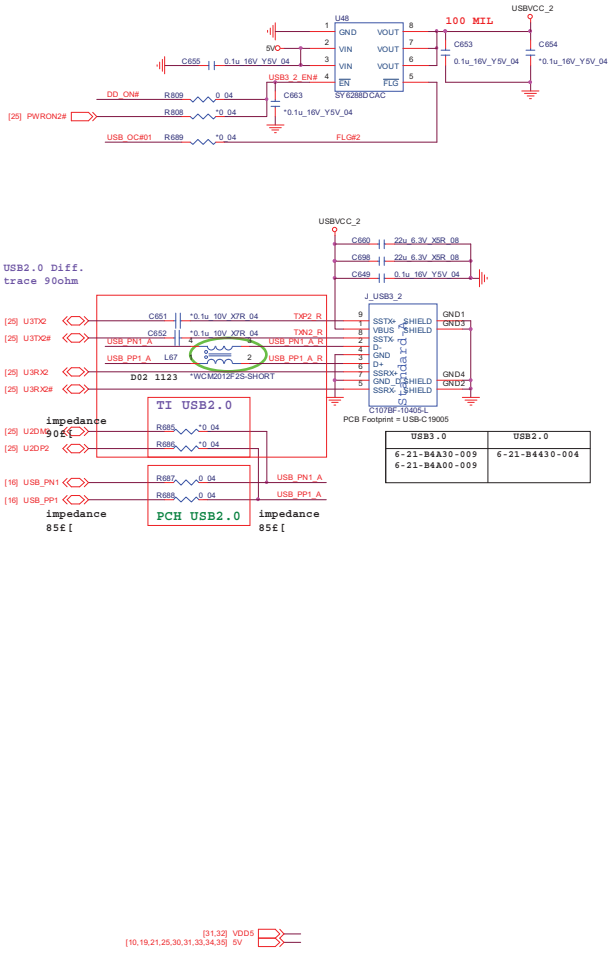
Ball no	NetName	Bondwire Length(mil)	Difference (mil)
B15	U3TX1#	96	20
A17	U3TX1	116	
B16	U3RX1#	91	20
A18	U3RX1	111	
B18	U2DM1	83	22
A20	U2DP1	105	
B10	U3TX2#	73	31
A11	U3TX2	104	
A10	U3RX2#	94	27
B9	U3RX2	67	
A13	U2DM2	127	34
B12	U2DP2	93	

USB Port, USB Charger

USB 3.0/USB2.0



USB3.0	USB2.0
6-21-B4A30-009 6-21-B4A00-009	6-21-B4430-004



USB3.0	USB2.0
6-21-B4A30-009 6-21-B4A00-009	6-21-B4430-004

Sheet 26 of 42
USB Port, USB Charger

KBC-ITE IT8518

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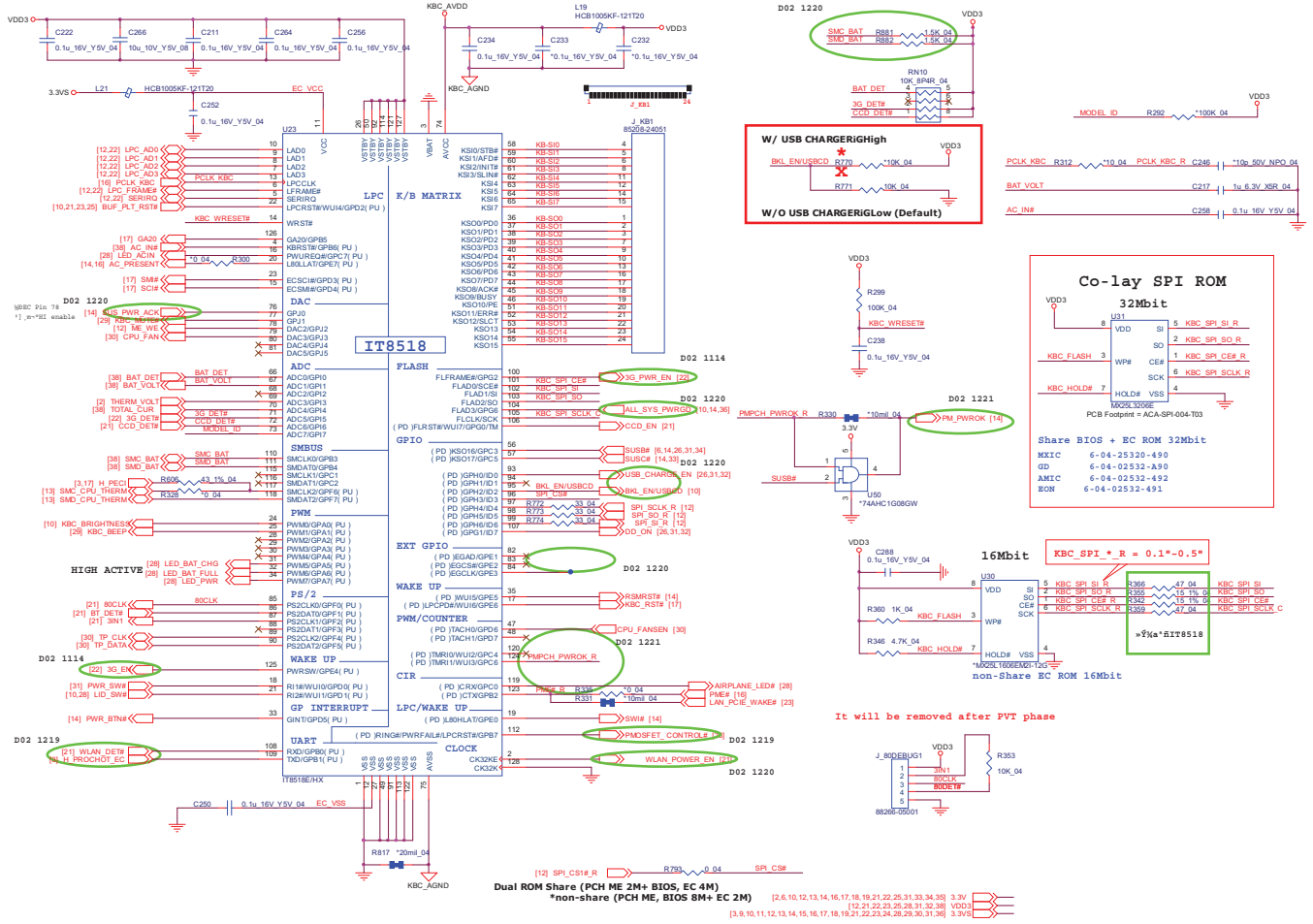
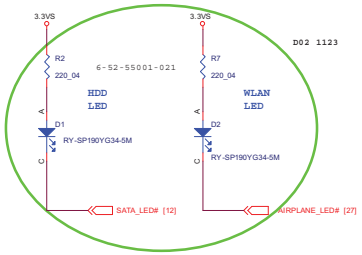
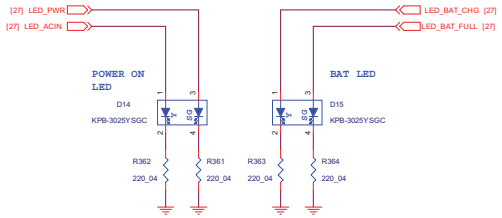
KBC-ITE IT8518



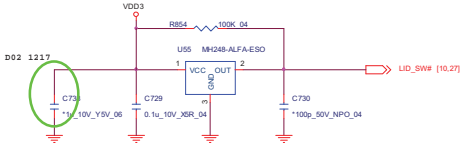
LED / LID Switch

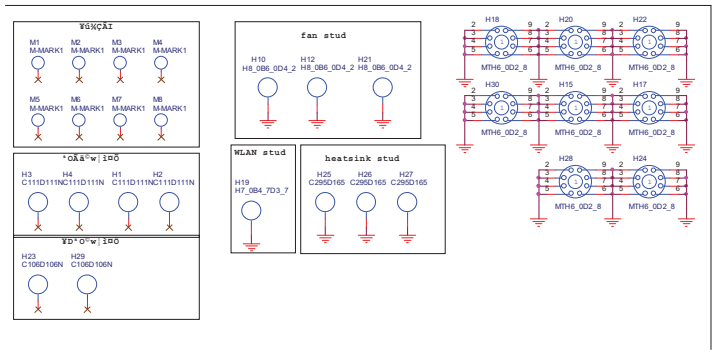
LED





LID SWITCH IC





Sheet 28 of 42
LED / LID Switch

Schematic Diagrams

AUDIO CODEC VT1802S

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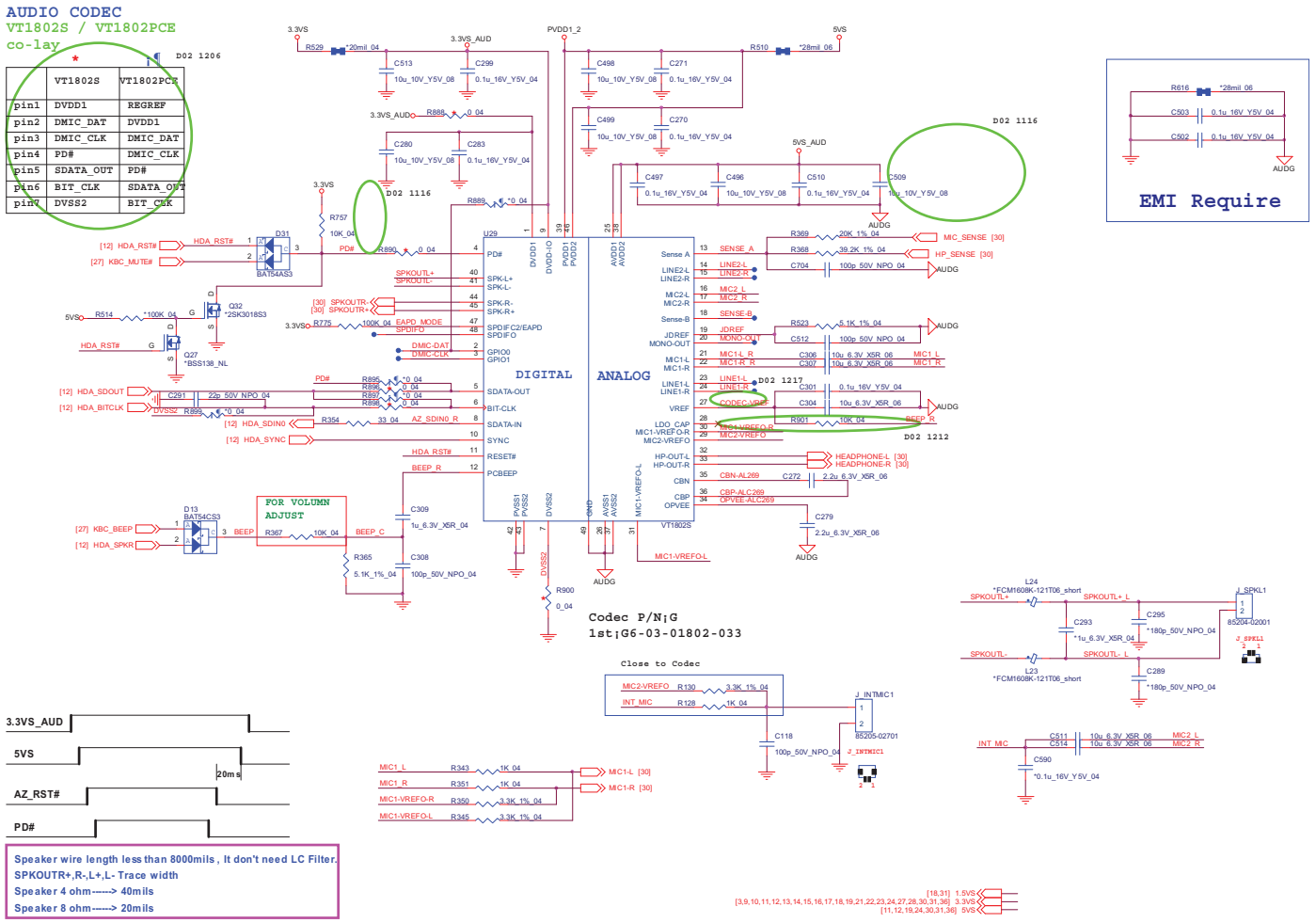
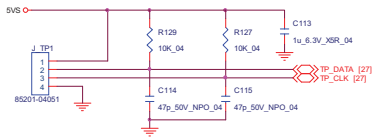
AUDIO CODEC
VT1802S

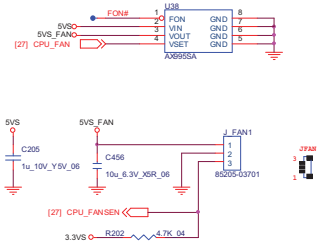


Fan, TP, Connector

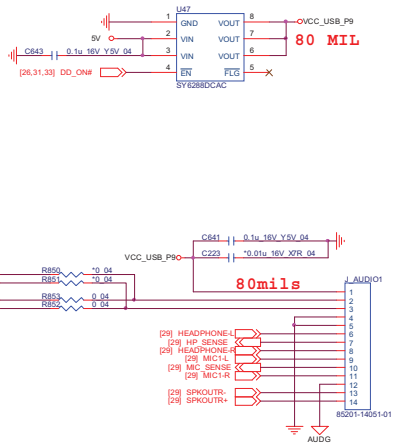
CLICK B'd CONN



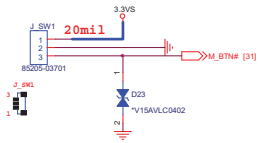
FAN CONTROL



Audio B'd CONN



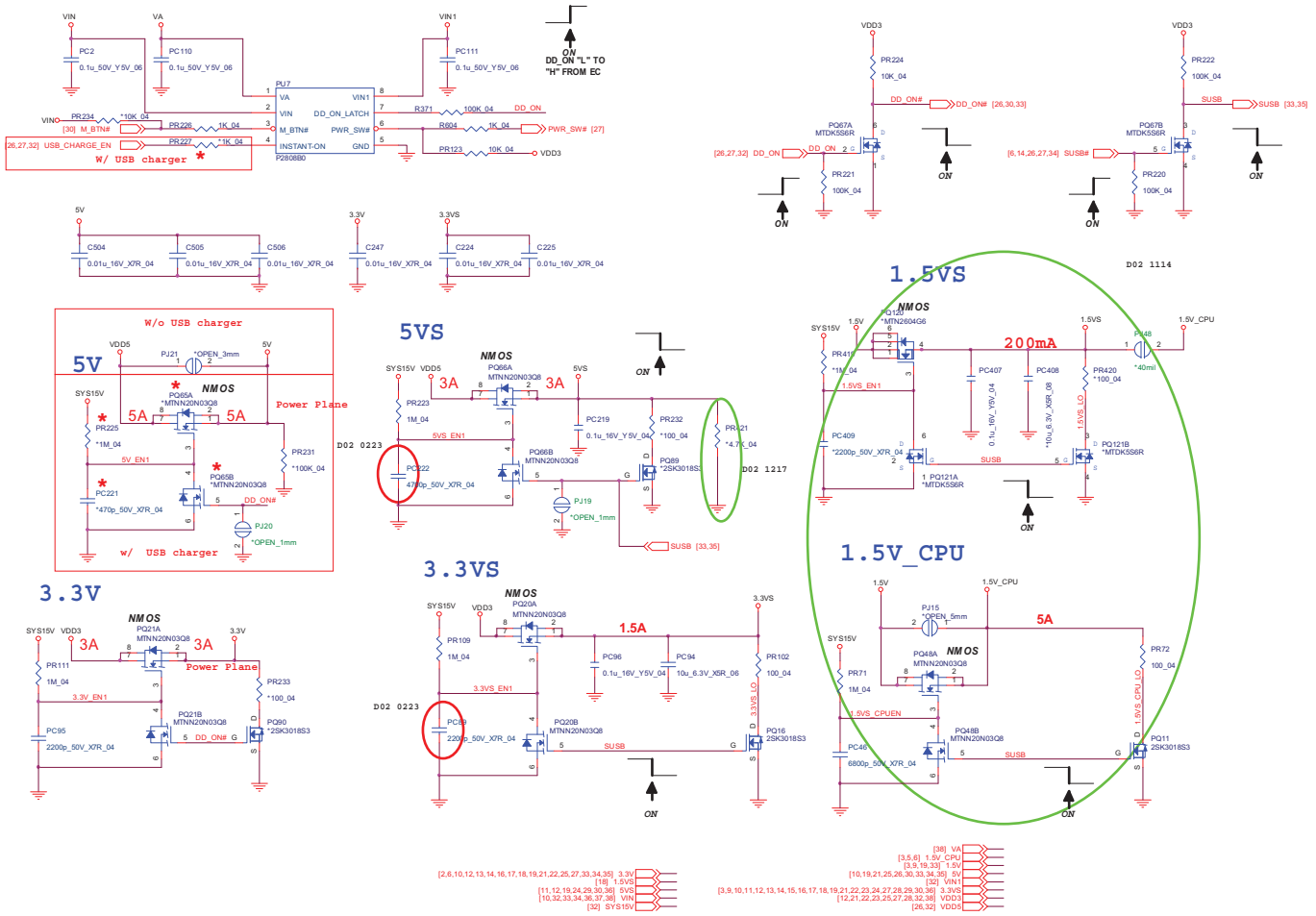
POWER SWITCH B'd CONN



Sheet 30 of 42
Fan, TP, Connector

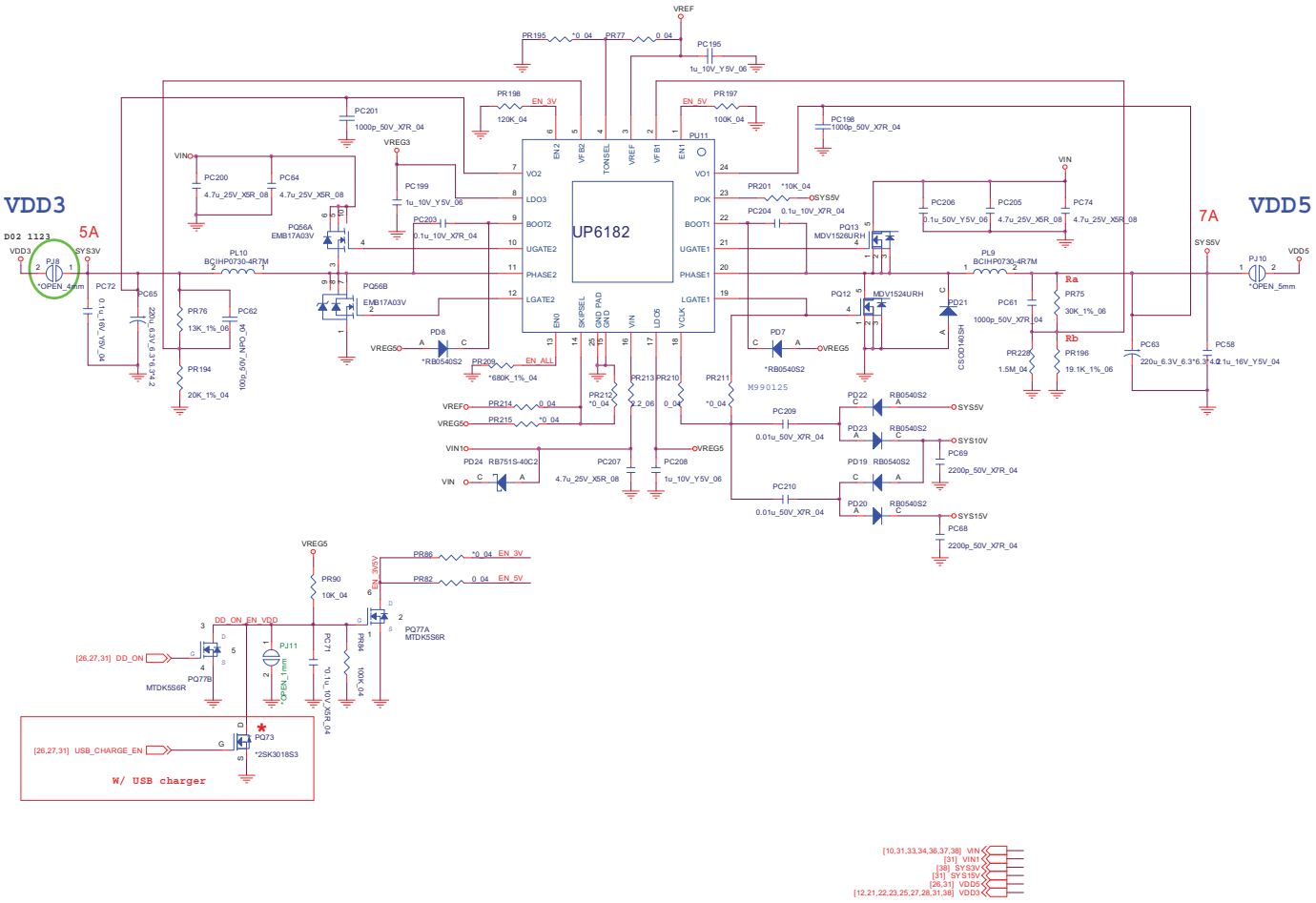
Power System

Sheet 31 of 42
Power System



VDD3, VDD5

VDD3/VDD5



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VDD3, VDD5

POWER 1.5V/0.75V

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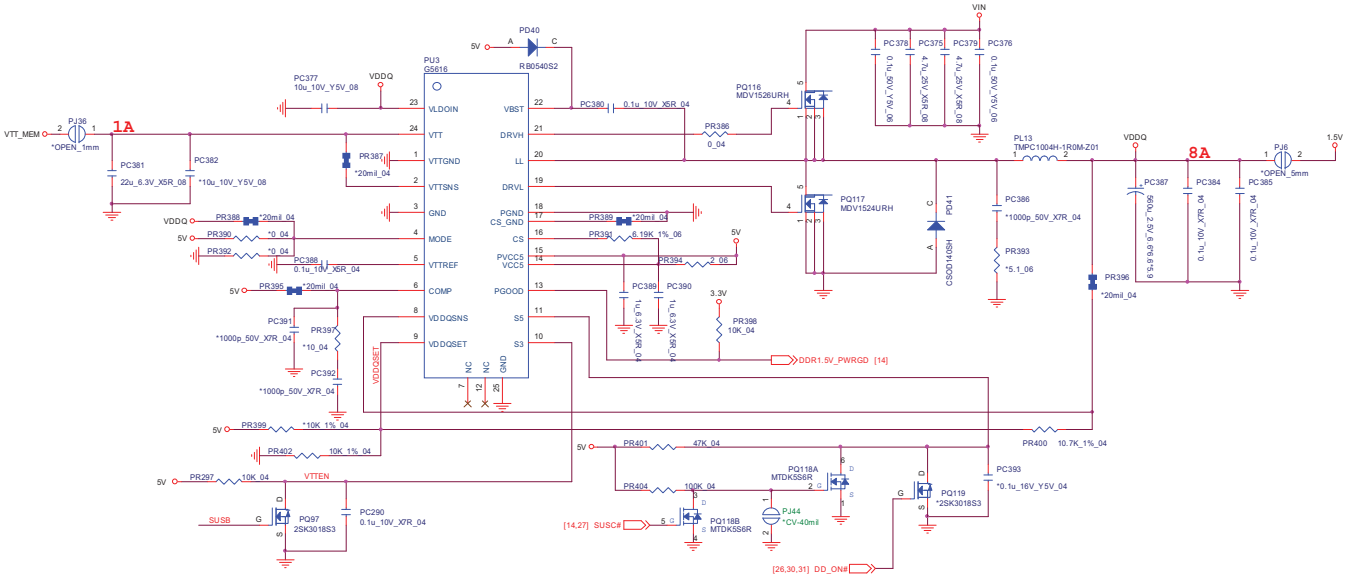
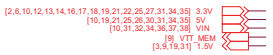
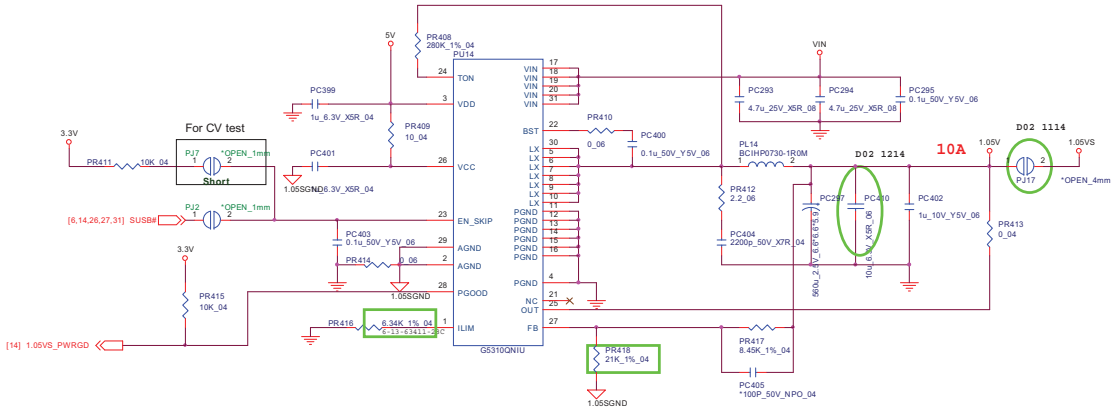
POWER 1.5V/0.75V



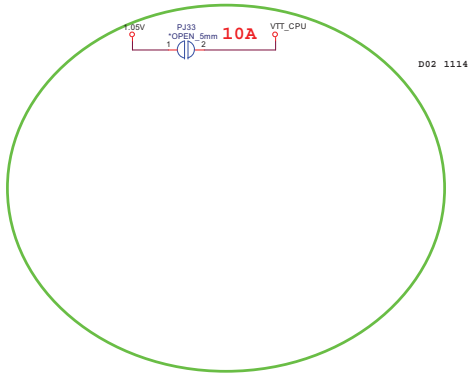


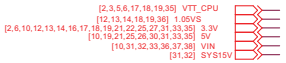
POWER 1.05VS, VTT_CPU

1.05VS



VTT_CPU





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POWER 1.05VS, VTT_CPU

Power 0.85VS, 1.8VS

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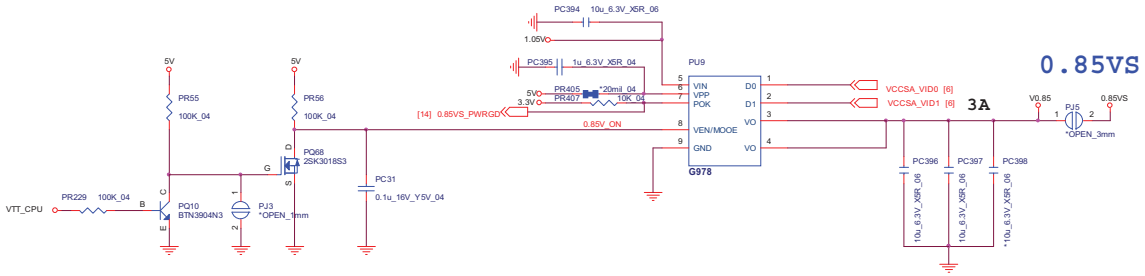
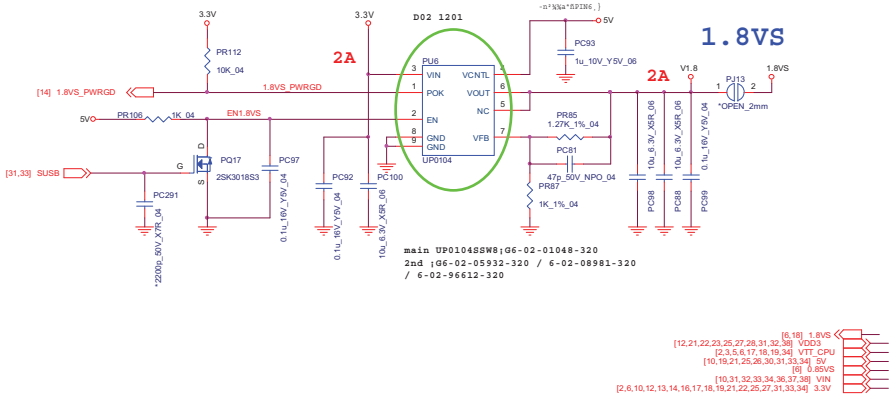
Power 0.85VS, 1.8VS

0.85VS

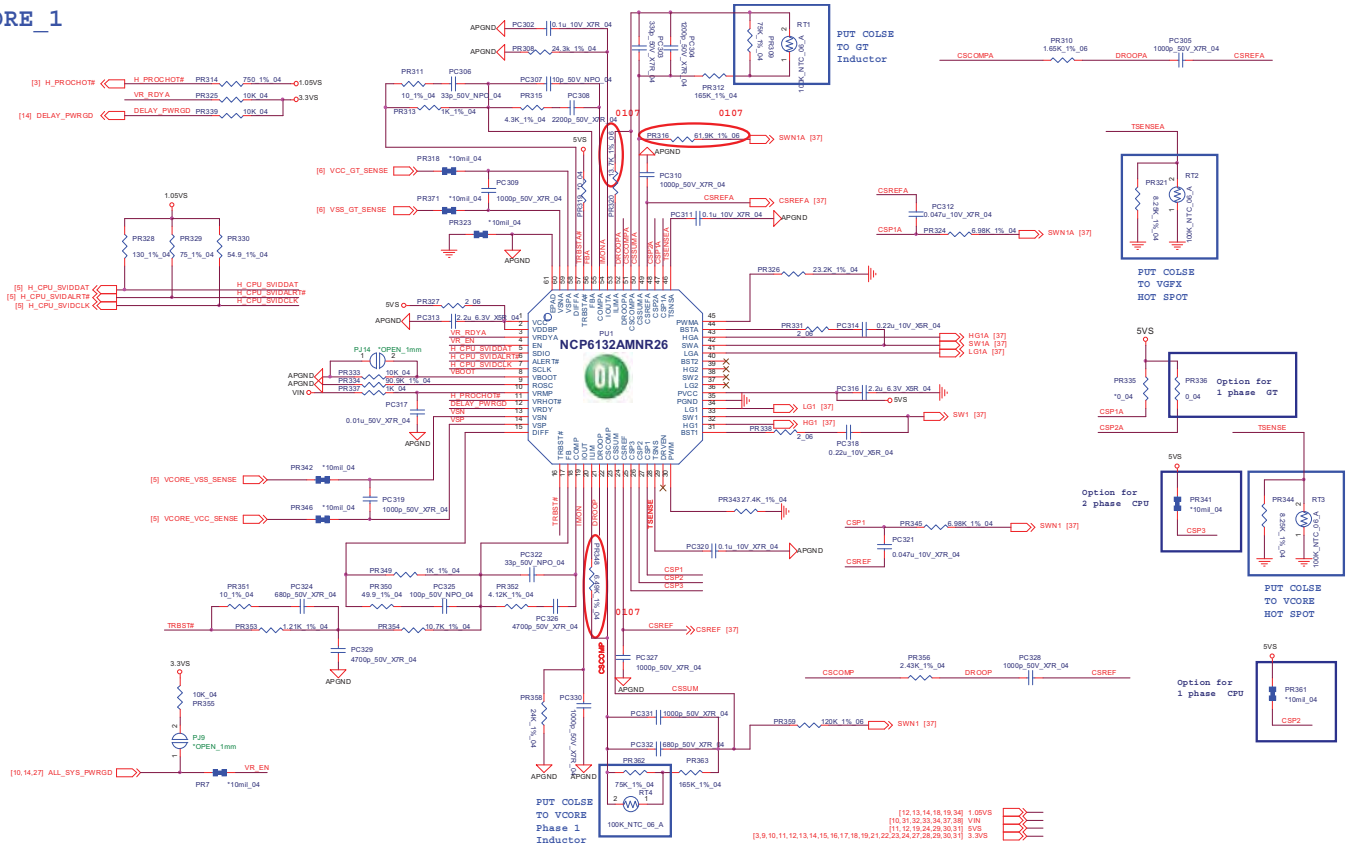
	0.9V	0.8V	0.725V	0.675V
VCCSA_VID0	0	0	1	1
VCCSA_VID1	0	1	0	1
	SET0	SET2	SET1	SET3



1.8VS



POWER VCORE1



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POWER VCORE1

B.Schematic Diagrams

POWER VCORE2

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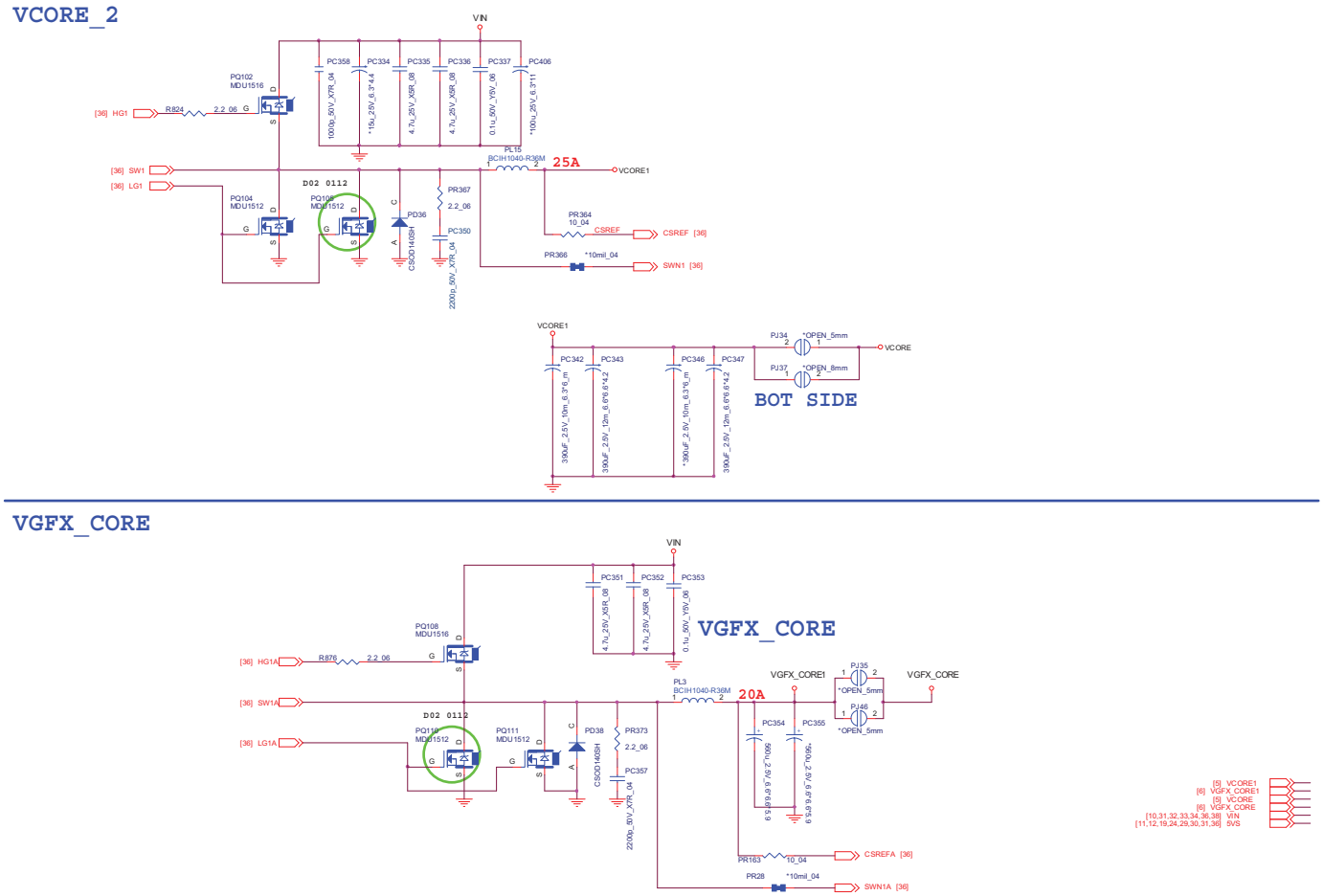
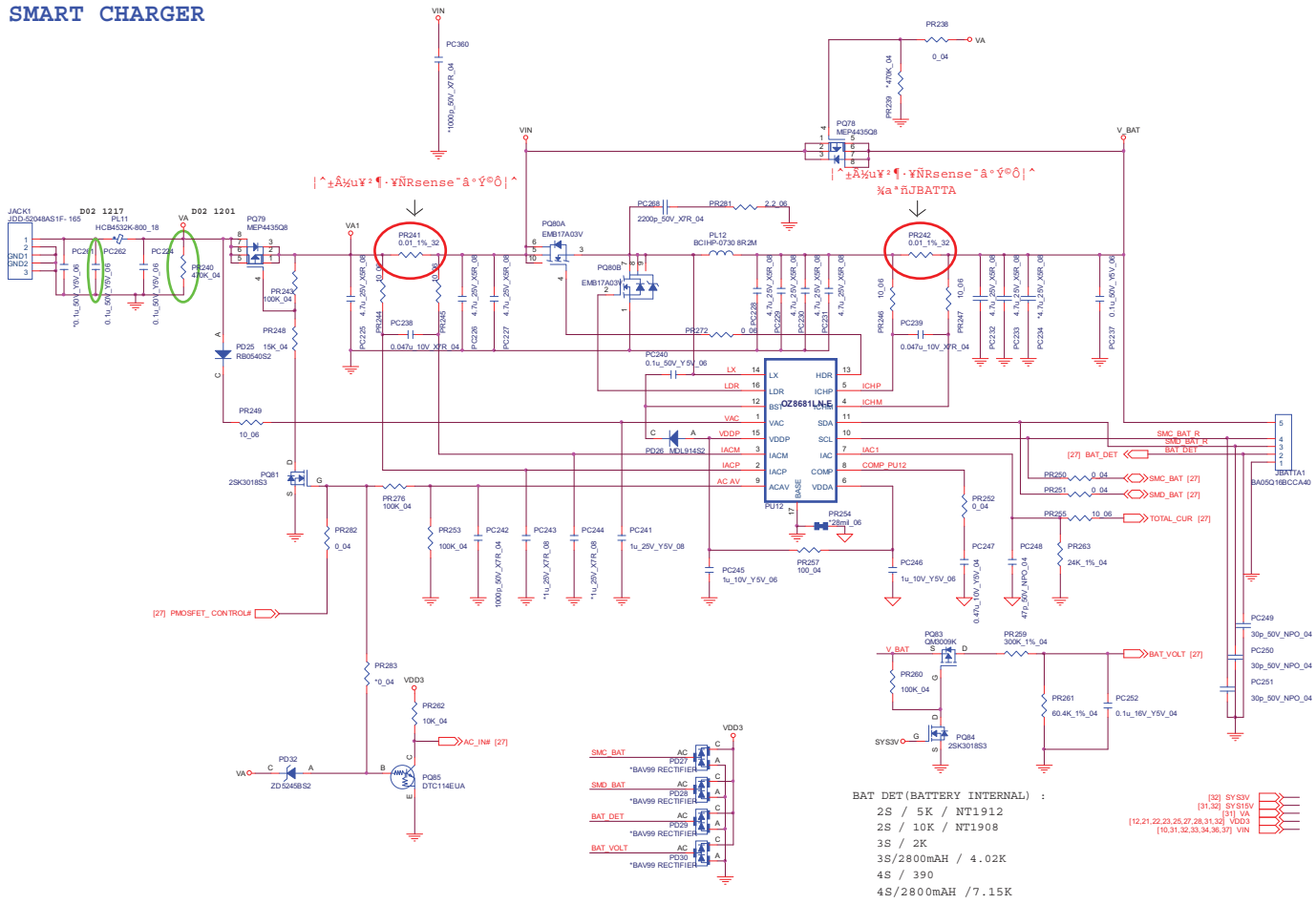
POWER VCORE2



Power AC In, Smart Charger



BAT DET(BATTERY INTERNAL) :
2S / 5K / NT1912
2S / 10K / NT1908
3S / 2K
3S/2800mAH / 4.02K
4S / 390
4S/2800mAH /7.15K

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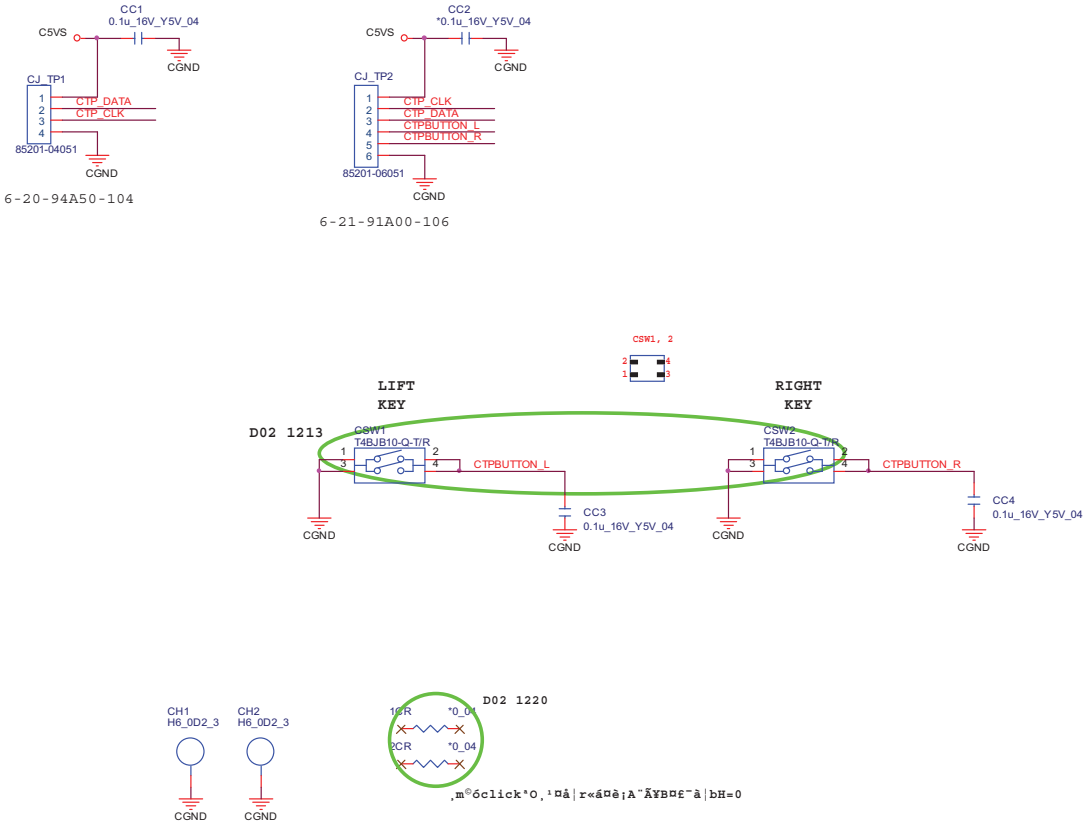
Power AC In,
SmArt Charger

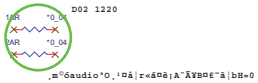
Click Board

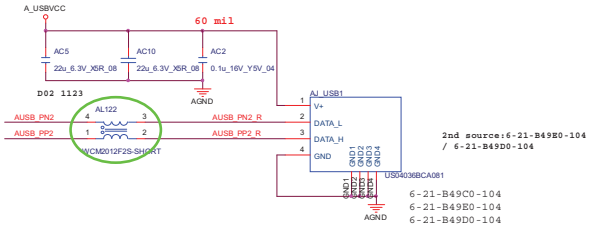
Sheet 39 of 42
Click Board



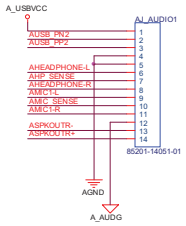
Audio Board

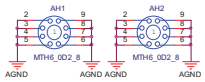
USB PORT



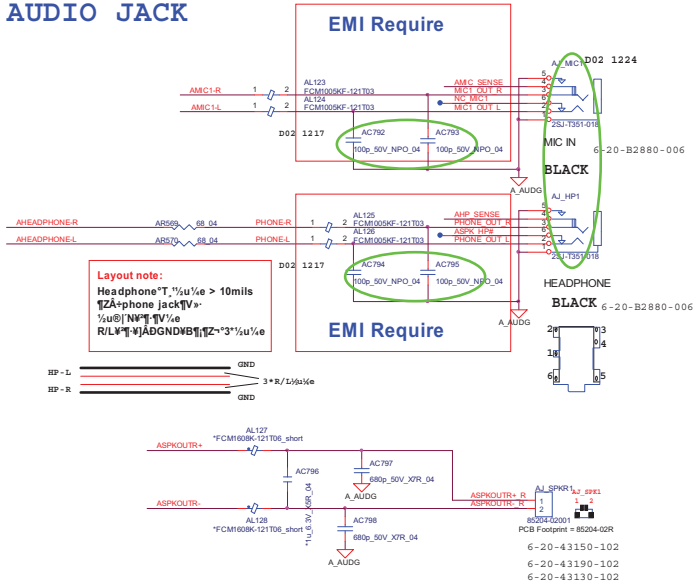


TO M/B





AUDIO JACK

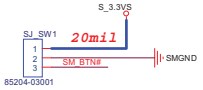


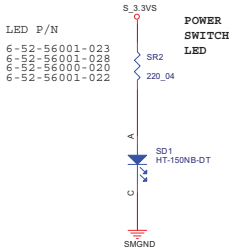
Sheet 40 of 42
Audio Board

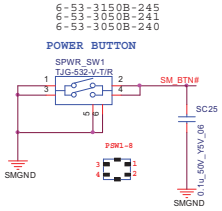
B.Schematic Diagrams

Power Switch & LED Board

POWER SW & LED







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Power Switch & LED Board