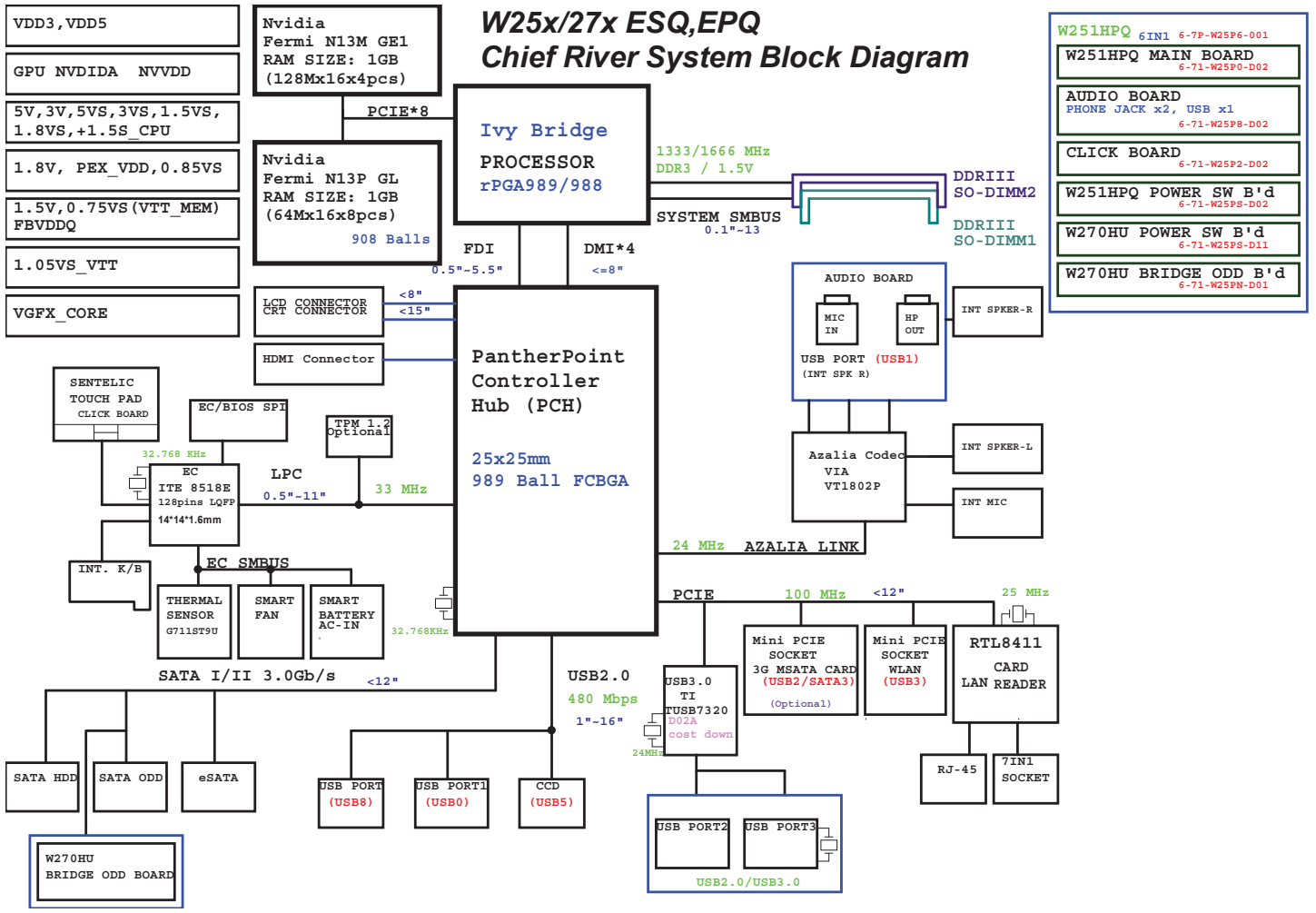
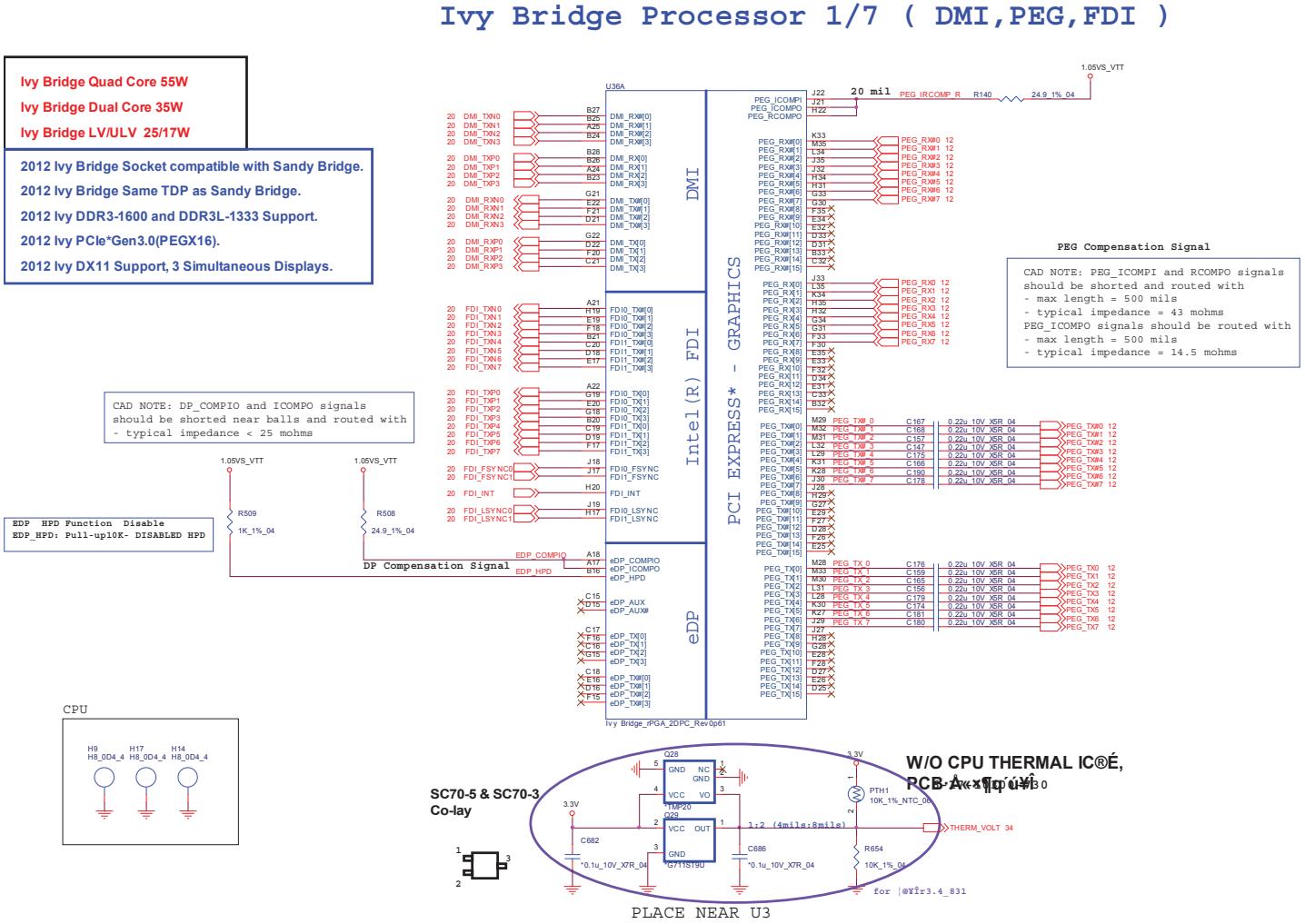
System Block Diagram

Sheet 1 of 50
System Block Diagram



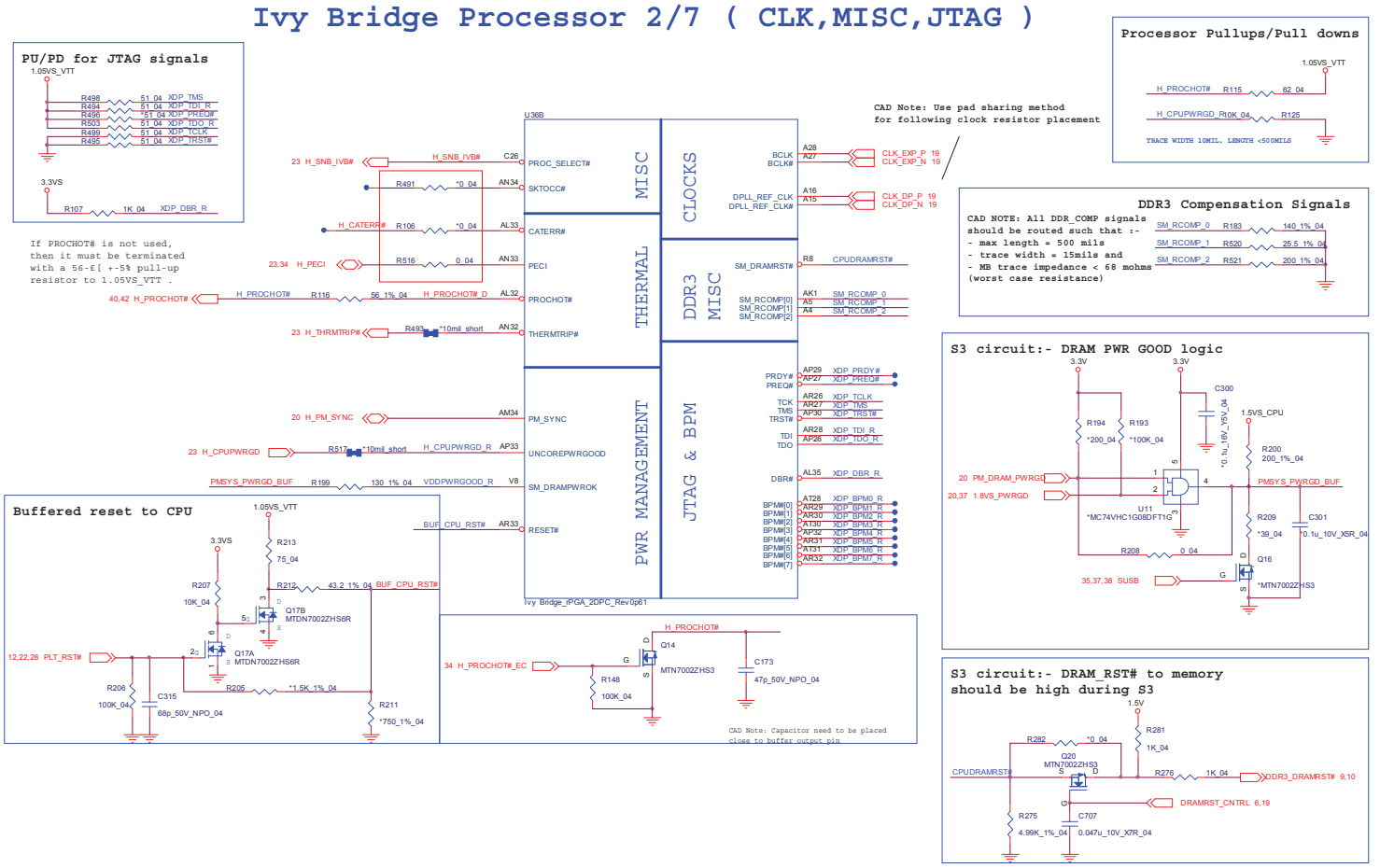
Processor 1/7-DMI, FDI, PEG



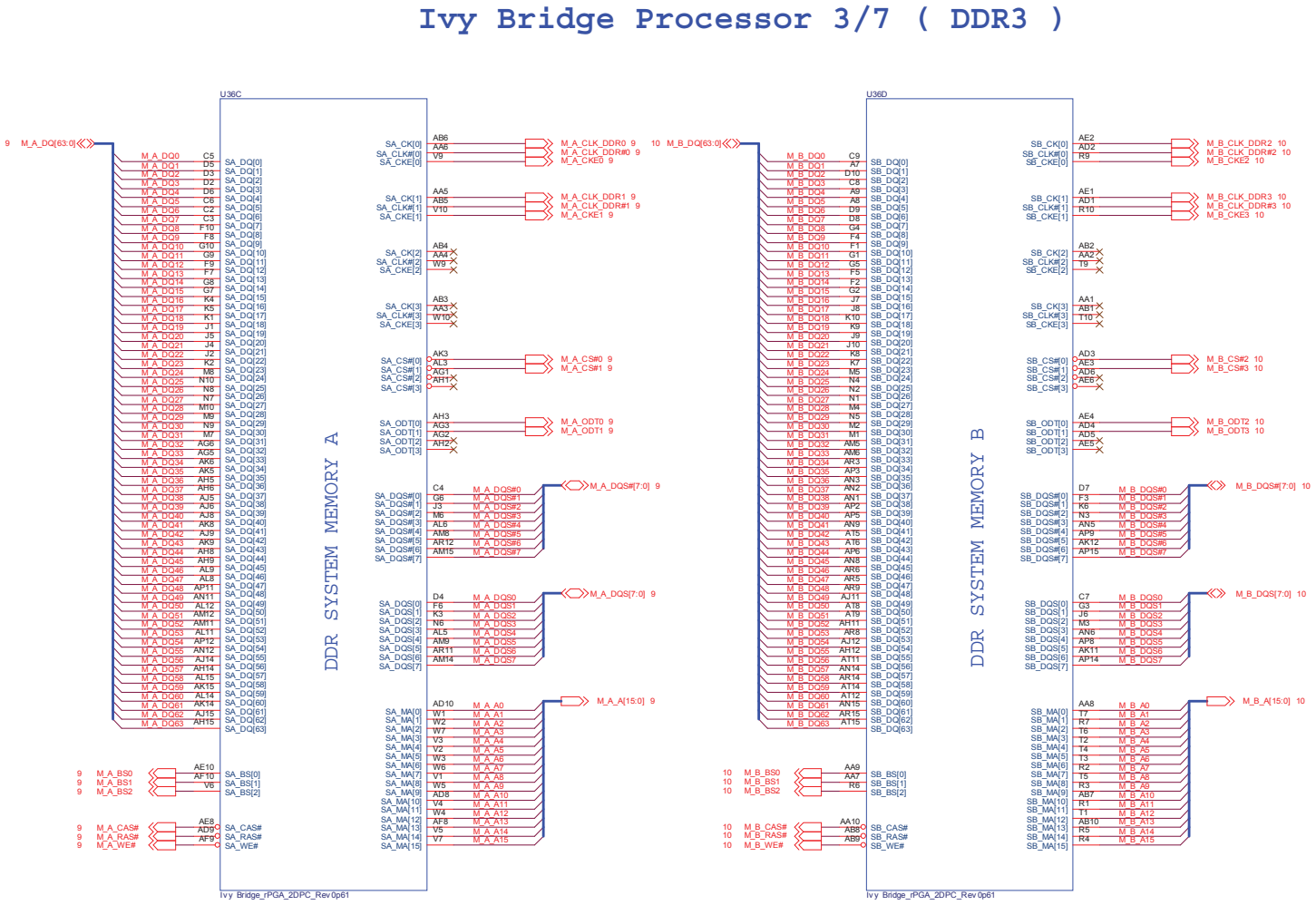
Sheet 2 of 50
Processor 1/7-DMI, FDI, PEG

Processor 2/7- CLK, MISC

Sheet 3 of 50
Processor 2/7-CLK, MISC



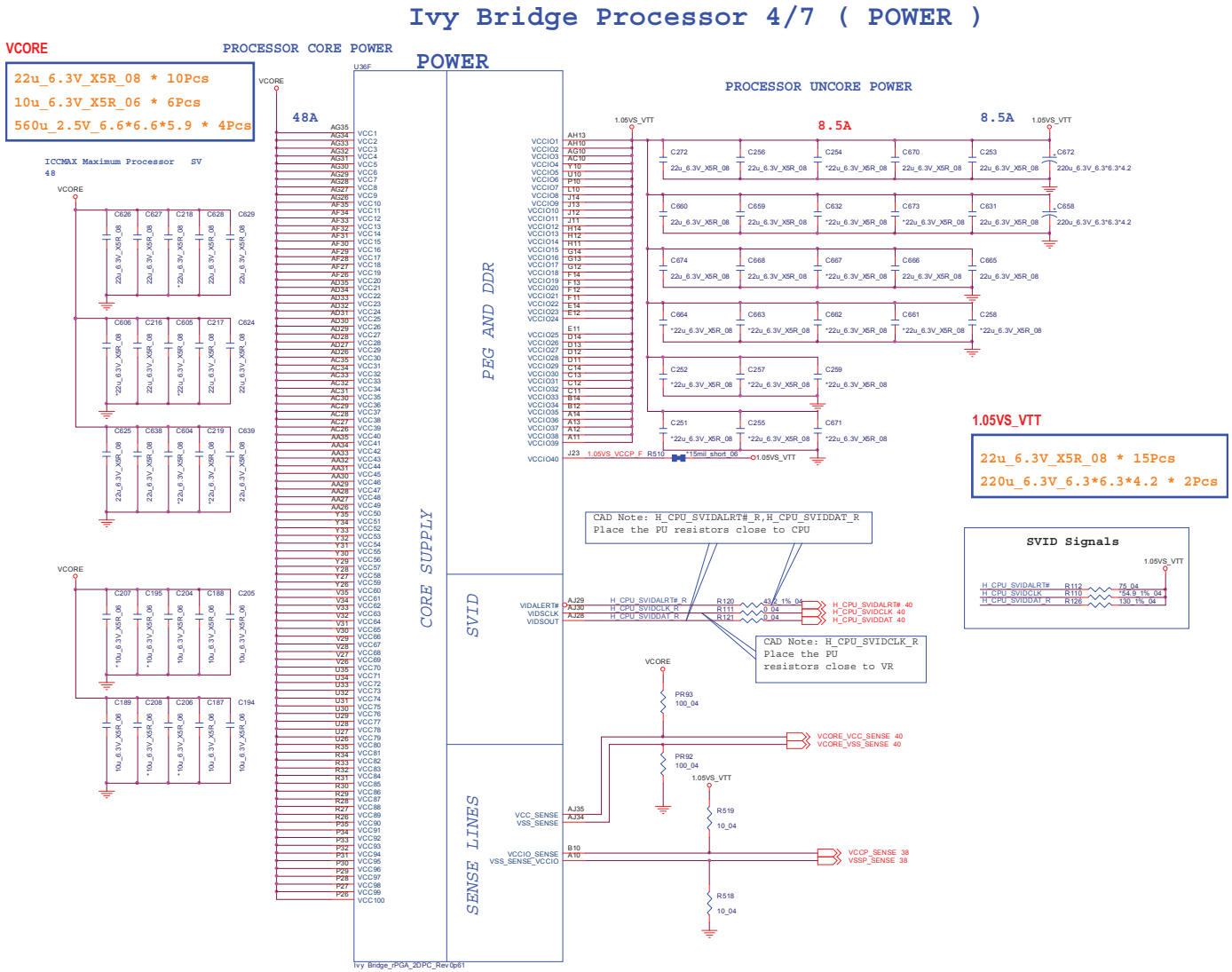
Processor 3/7- (DDR3)



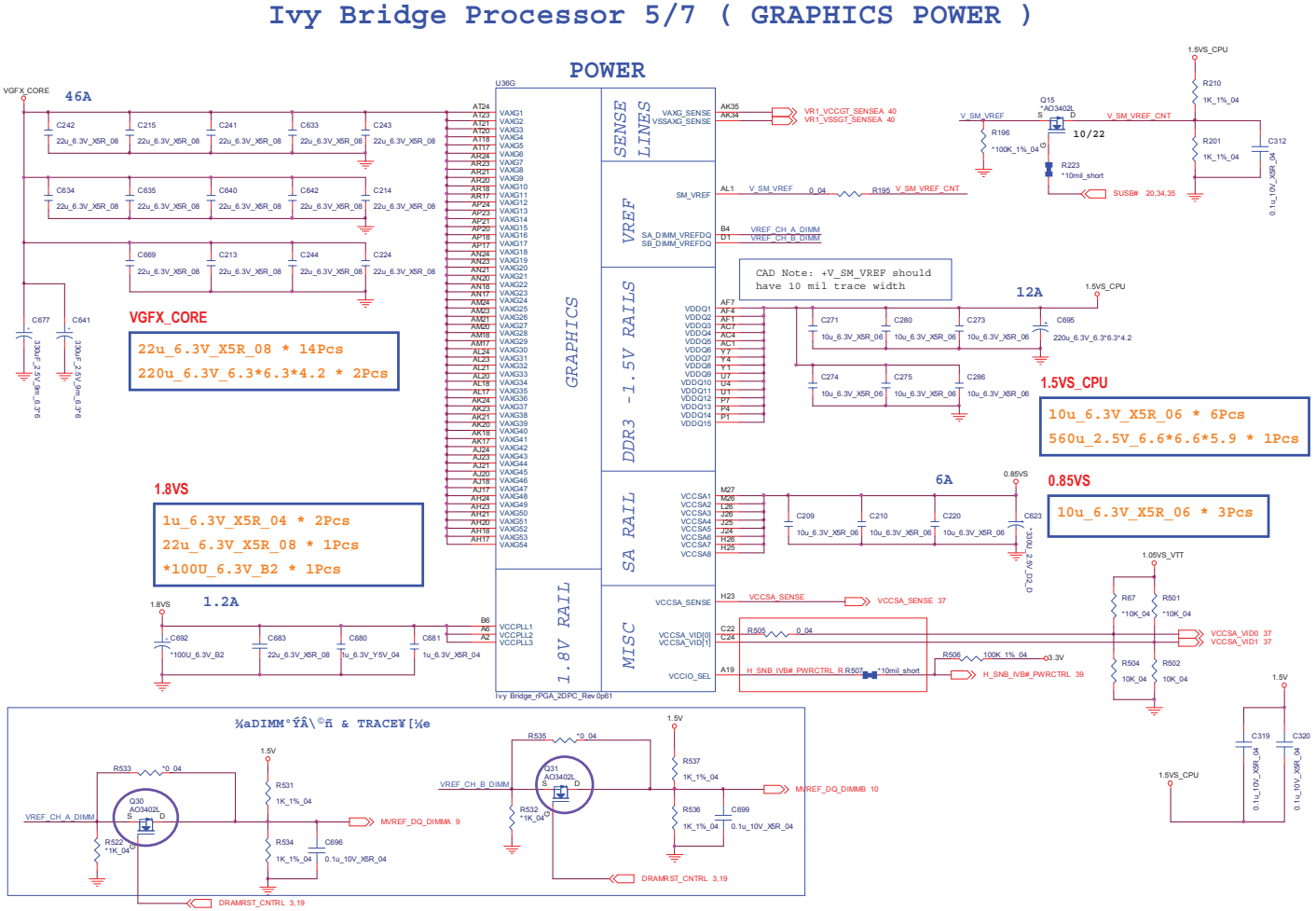
Sheet 4 of 50
Processor 3/7- (DDR3)

Processor 4/7- Power

Sheet 5 of 50
Processor 4/7-
Power



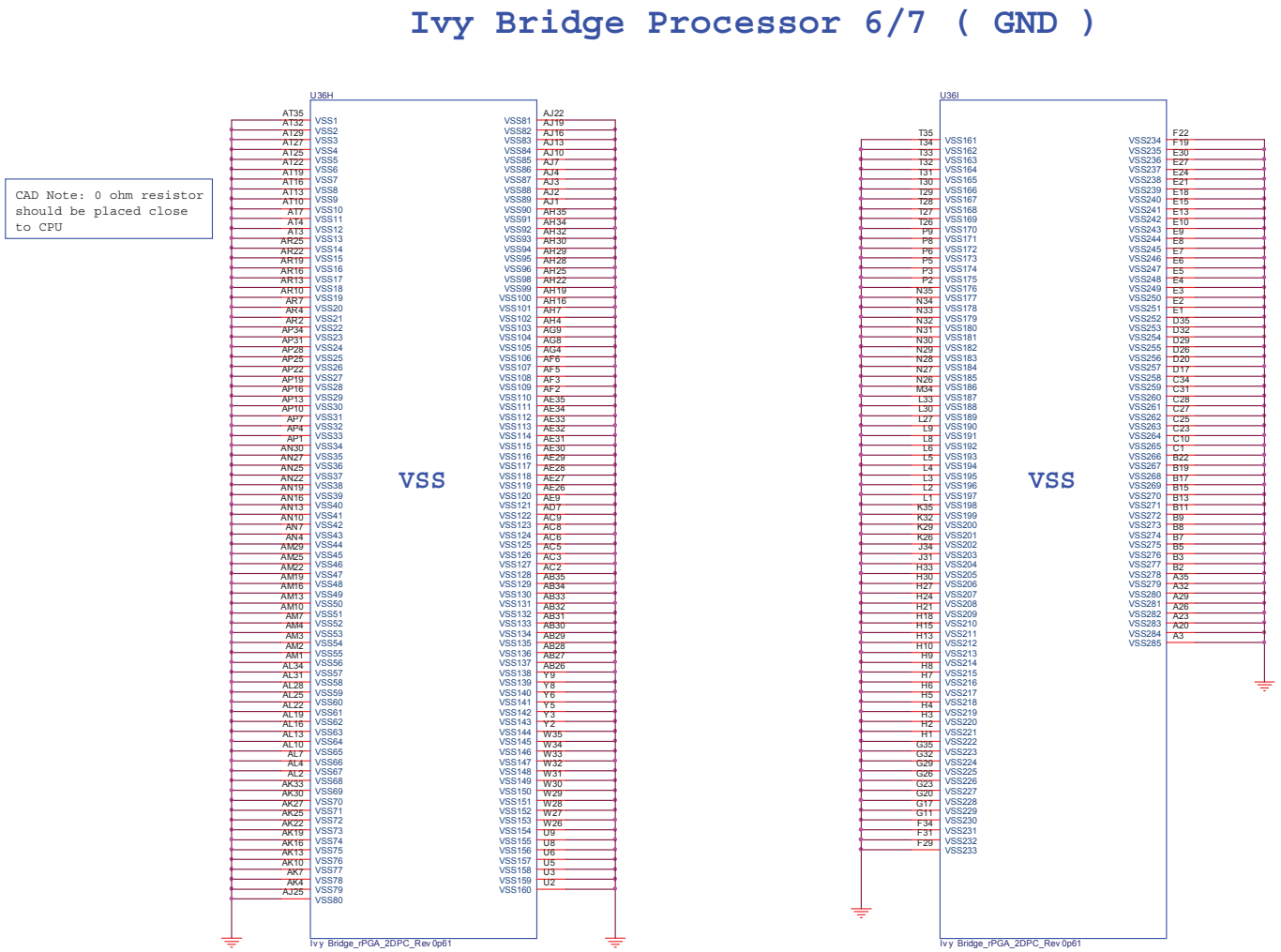
Processor 5/7- GFX PWR



Sheet 6 of 50
Processor 5/7- GFX PWR

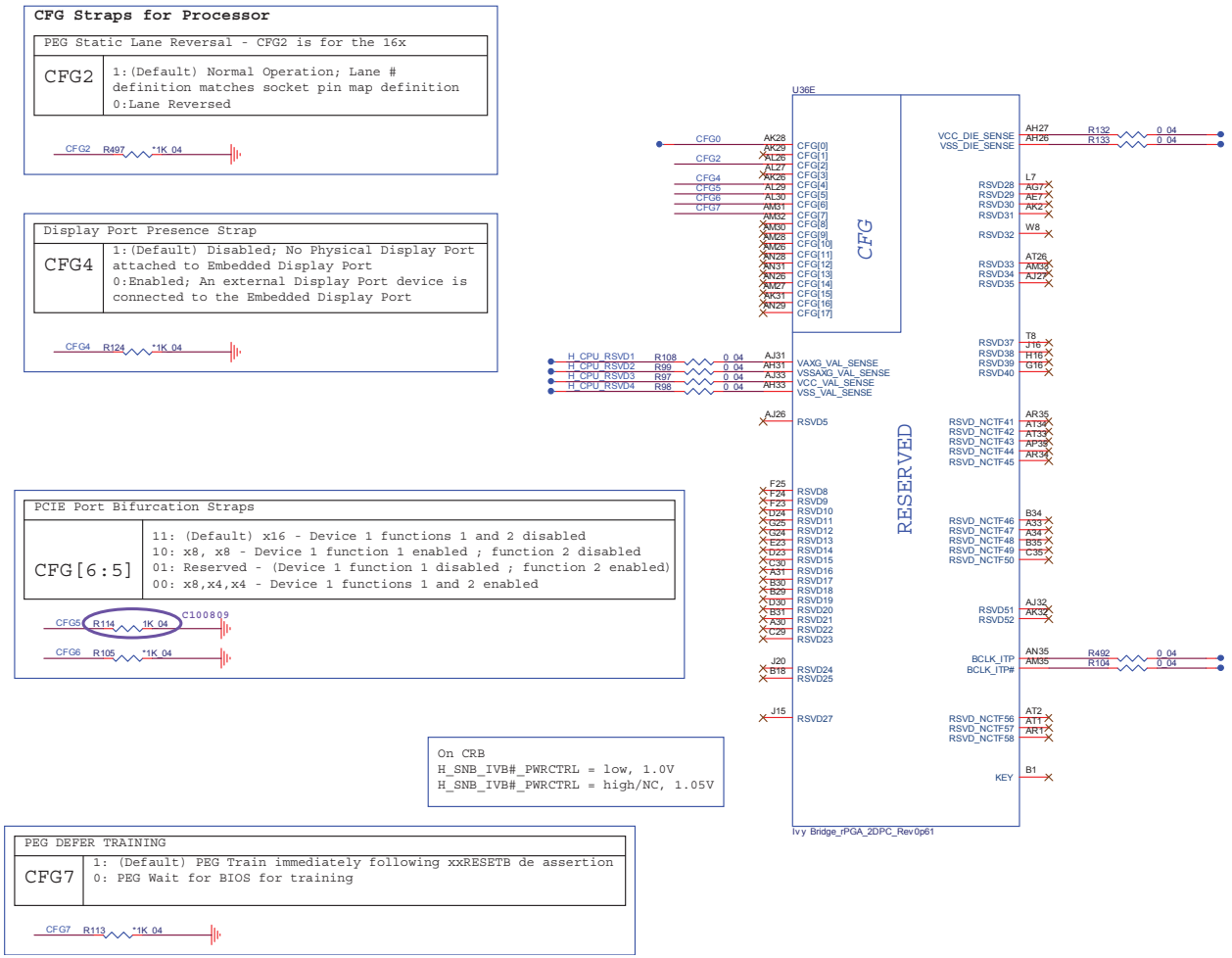
Processor 6/7- GND

Sheet 7 of 50
Processor 6/7- GND



Processor 7/7- RSVD

Ivy Bridge Processor 7/7 (RESERVED)



Sheet 8 of 50
Processor 7/7- RSVD

DDR3 SO-DIMM_0

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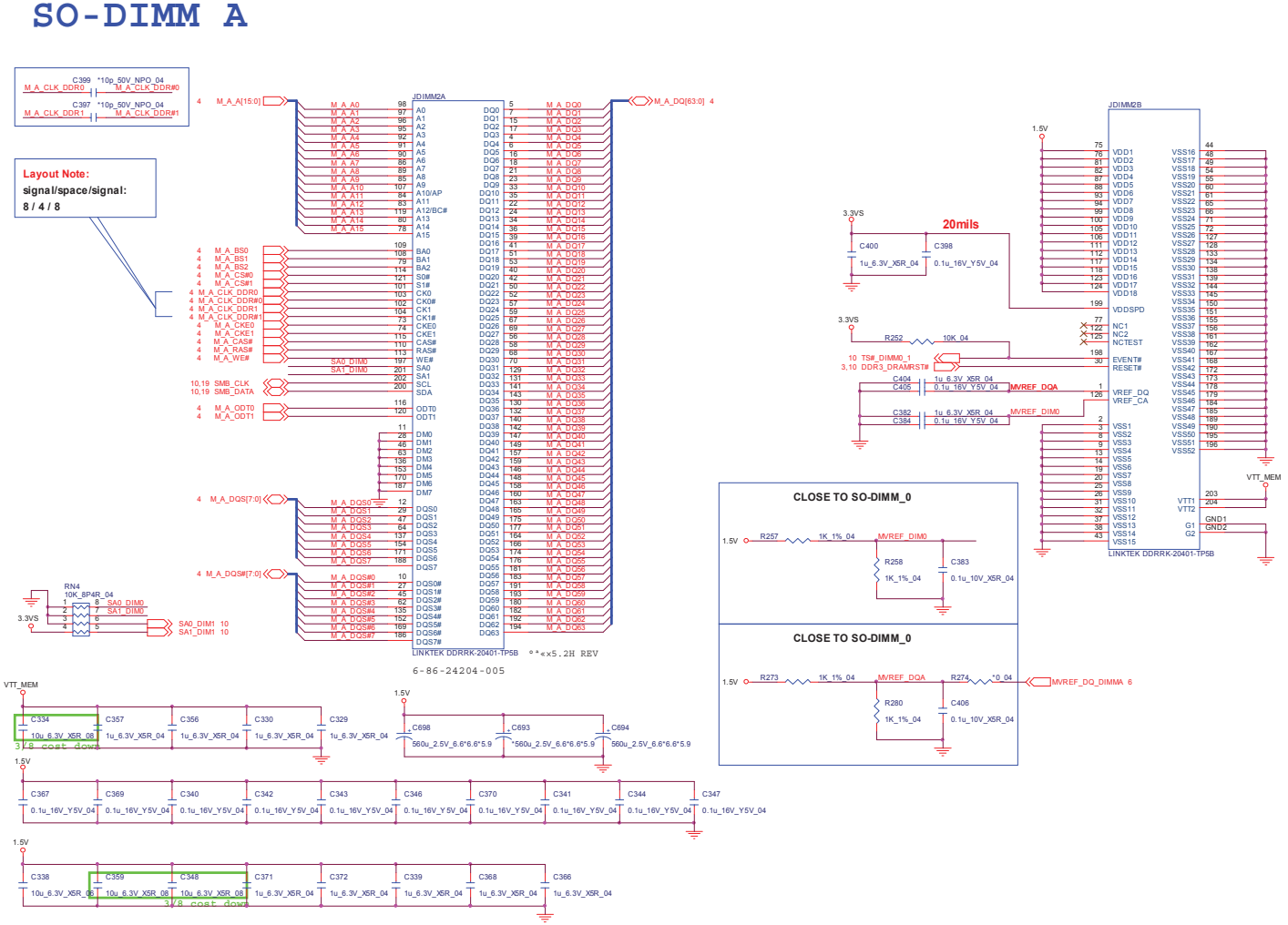
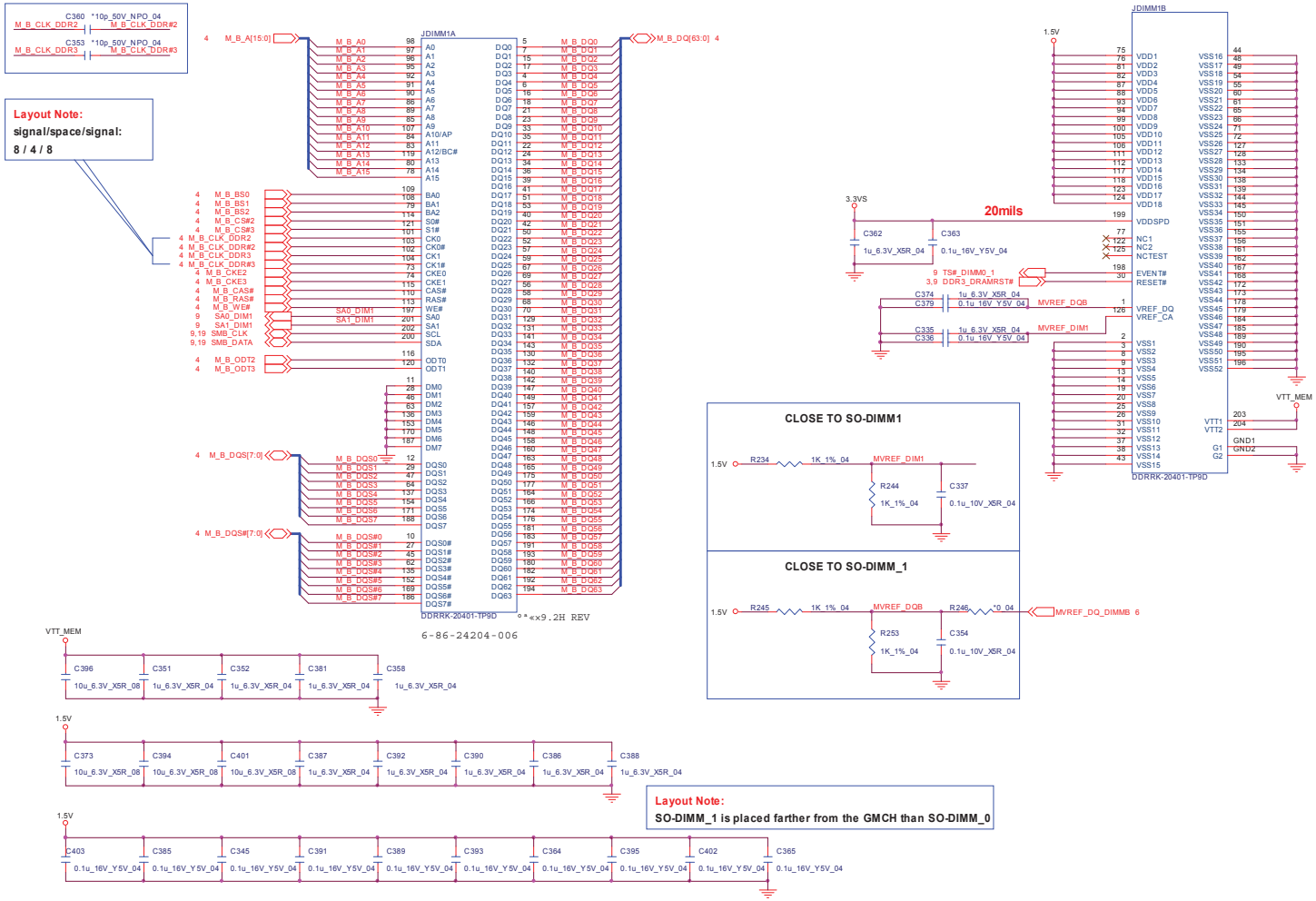
DDR3 SO-DIMM_0



DDR3 SO-DIMM_1

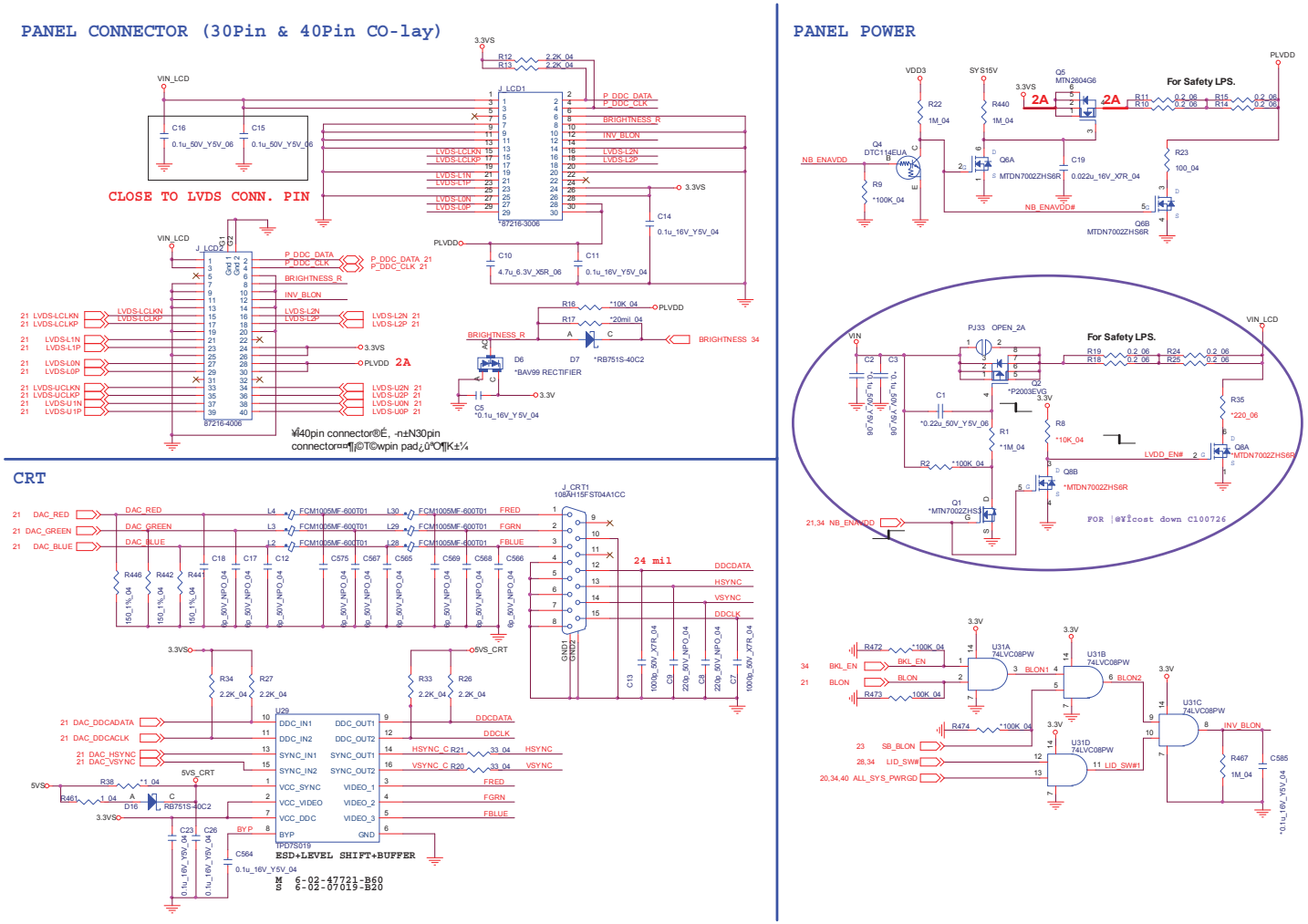
SO-DIMM B



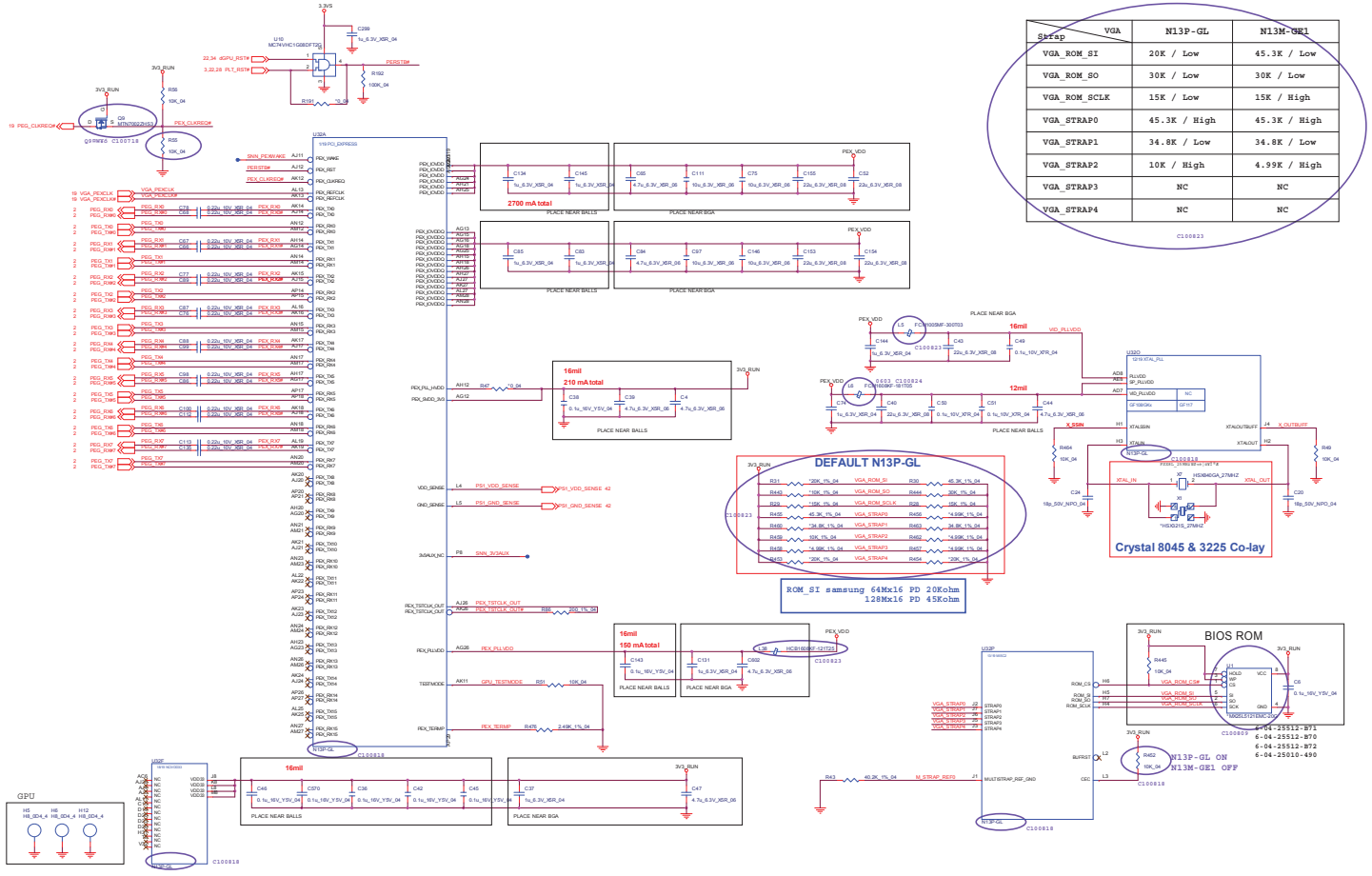
Sheet 10 of 50
DDR3 SO-DIMM_1

PANEL, INVERTER, CRT

Sheet 11 of 50
PANEL, INVERTER, CRT



VGA PCI-E Interface



Strap / VGA	N13P-GL	N13M-GE1
VGA_ROM_SI	20K / Low	45.3K / Low
VGA_ROM_SO	30K / Low	30K / Low
VGA_ROM_SCLK	15K / Low	15K / High
VGA_STRAP0	45.3K / High	45.3K / High
VGA_STRAP1	34.8K / Low	34.8K / Low
VGA_STRAP2	10K / High	4.99K / High
VGA_STRAP3	NC	NC
VGA_STRAP4	NC	NC

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VGA PCI-E
Interface

VGA Frame Buffer Interface

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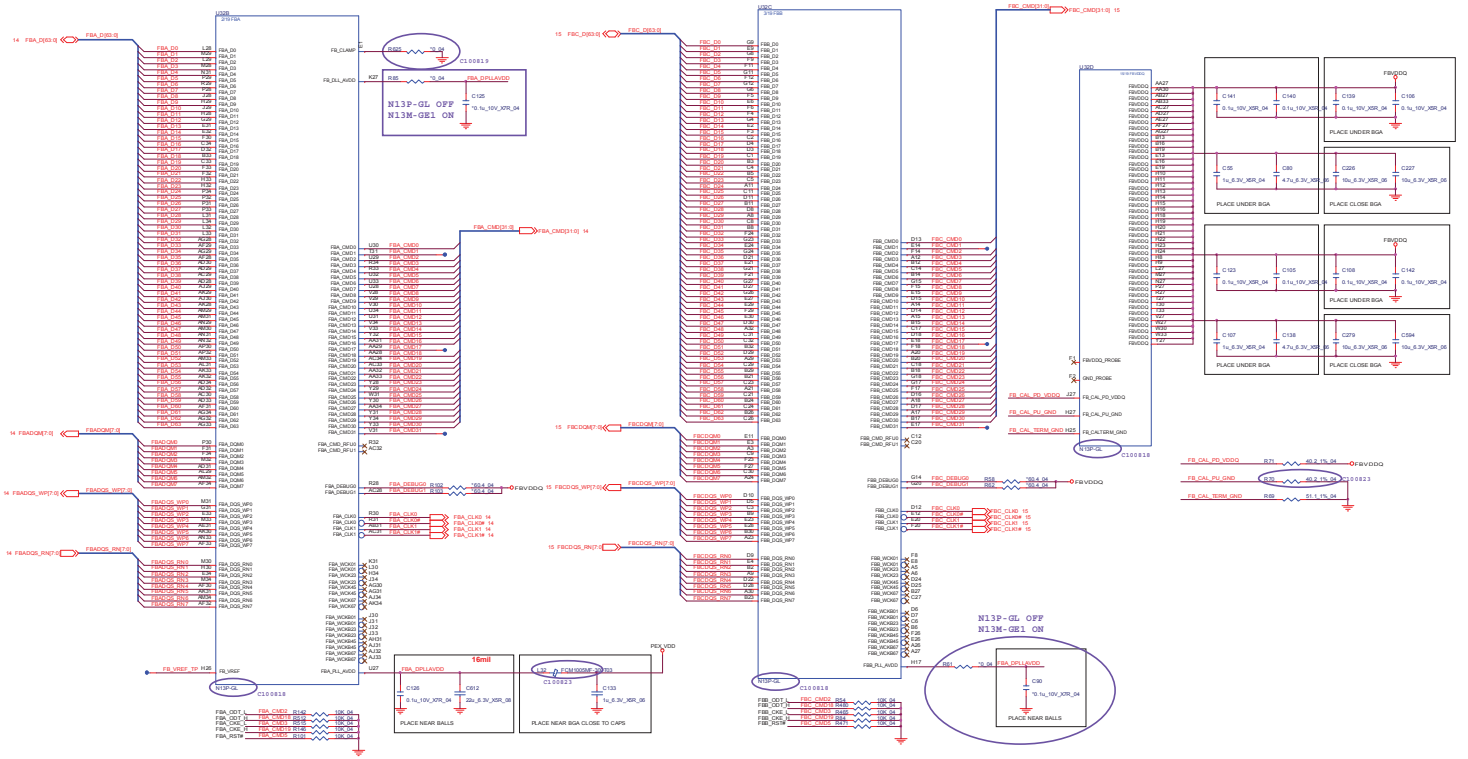
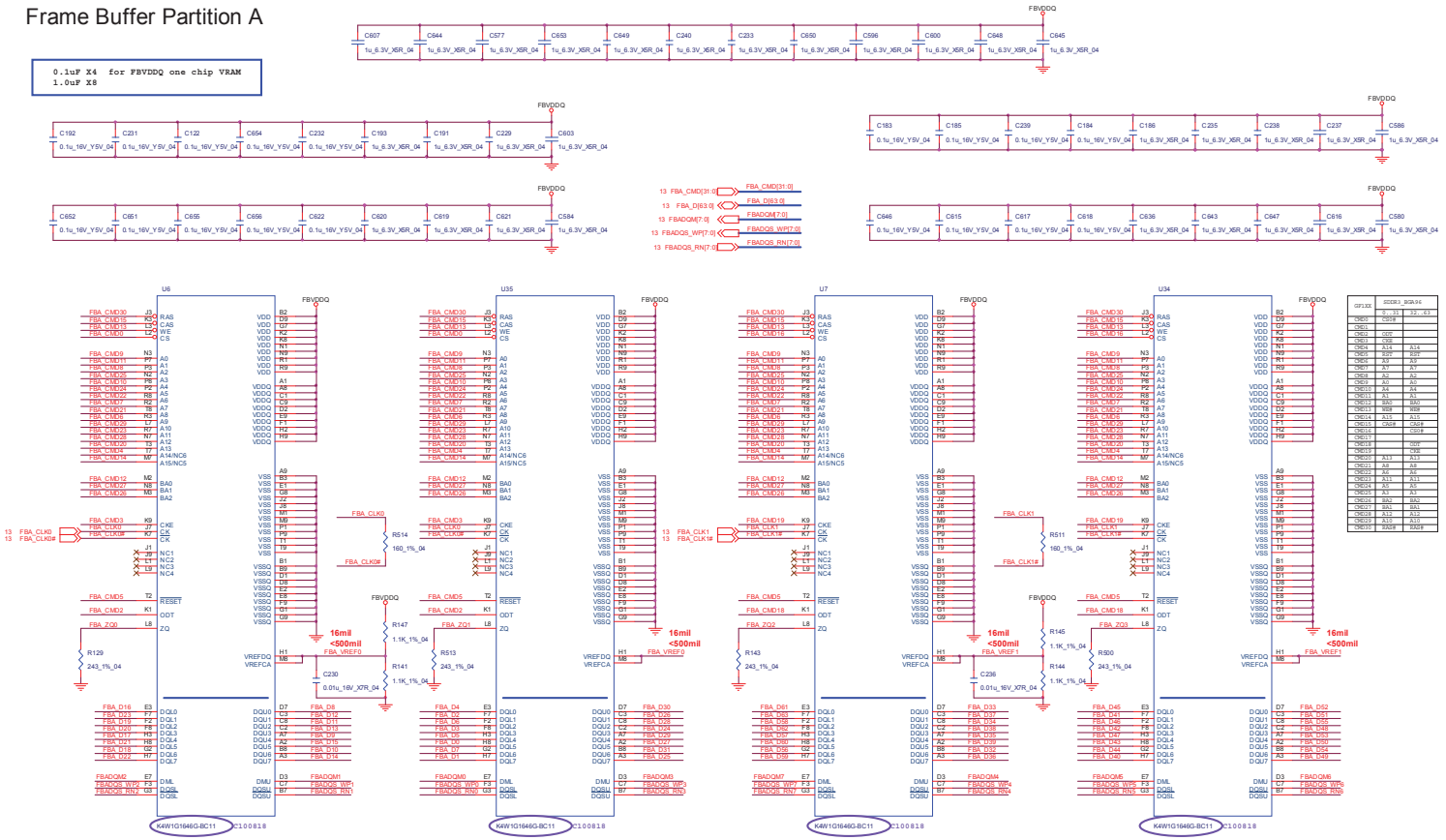
VGA Frame Buffer Interface

Frame Buffer Interface



VGA Frame Buffer A

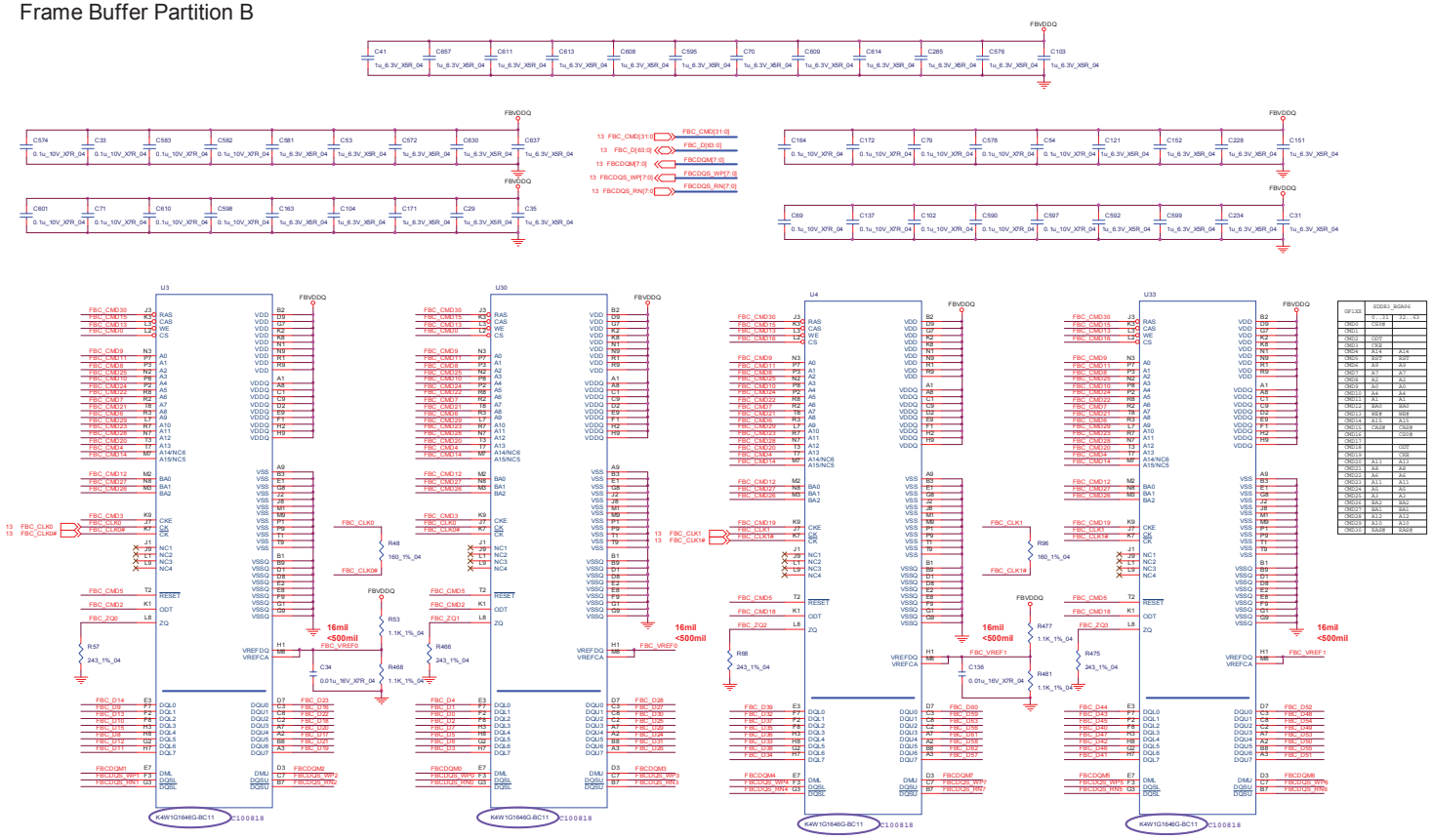


Sheet 14 of 50
VGA Frame Buffer
A

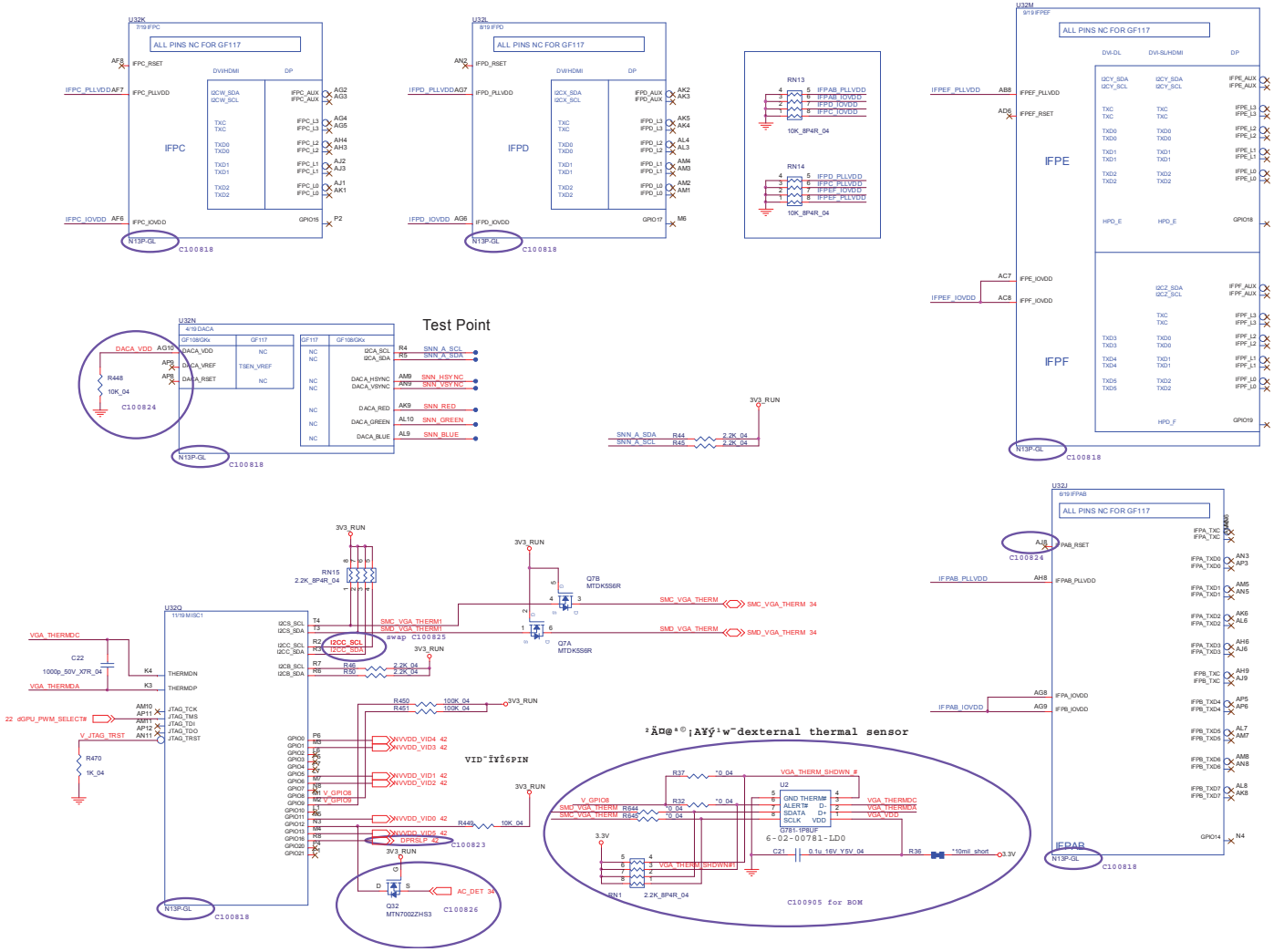
VGA Frame Buffer C

Sheet 15 of 50
VGA Frame Buffer C

Frame Buffer Partition B



VGA I/O



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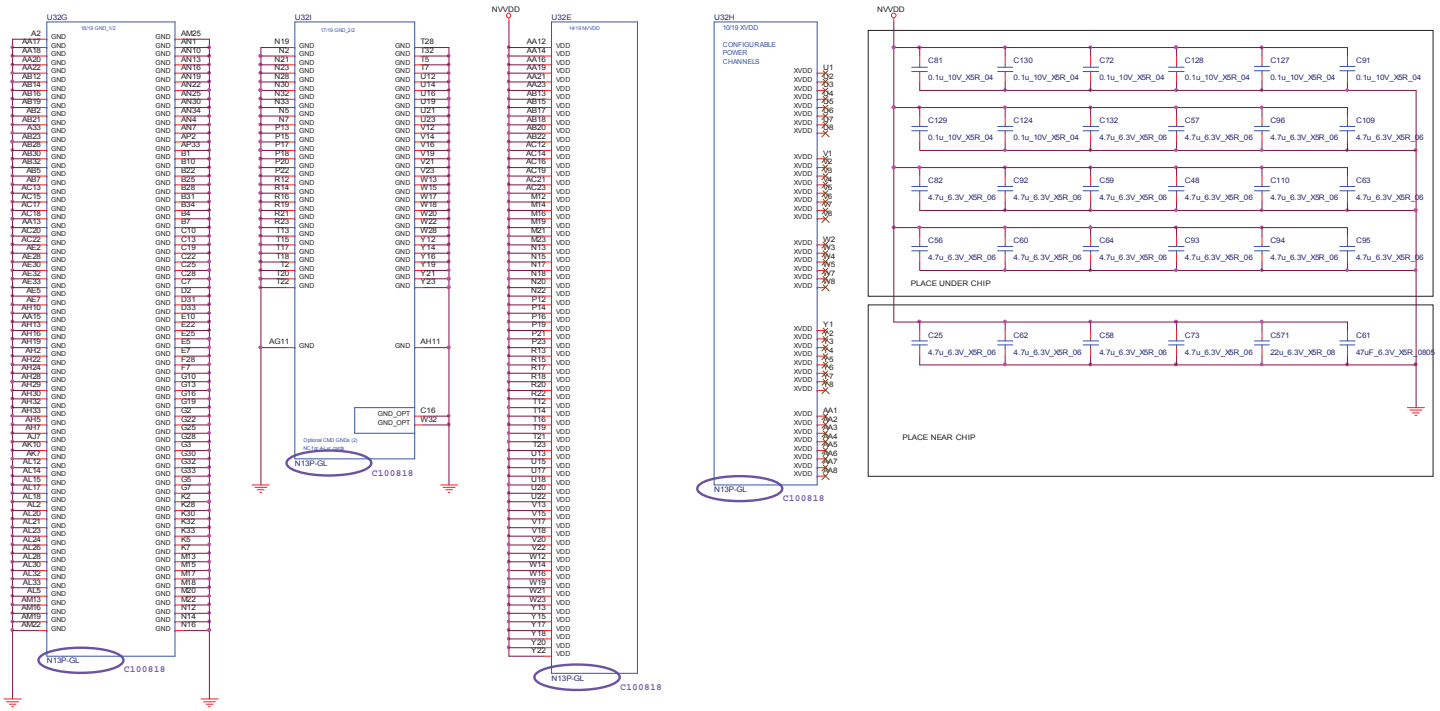
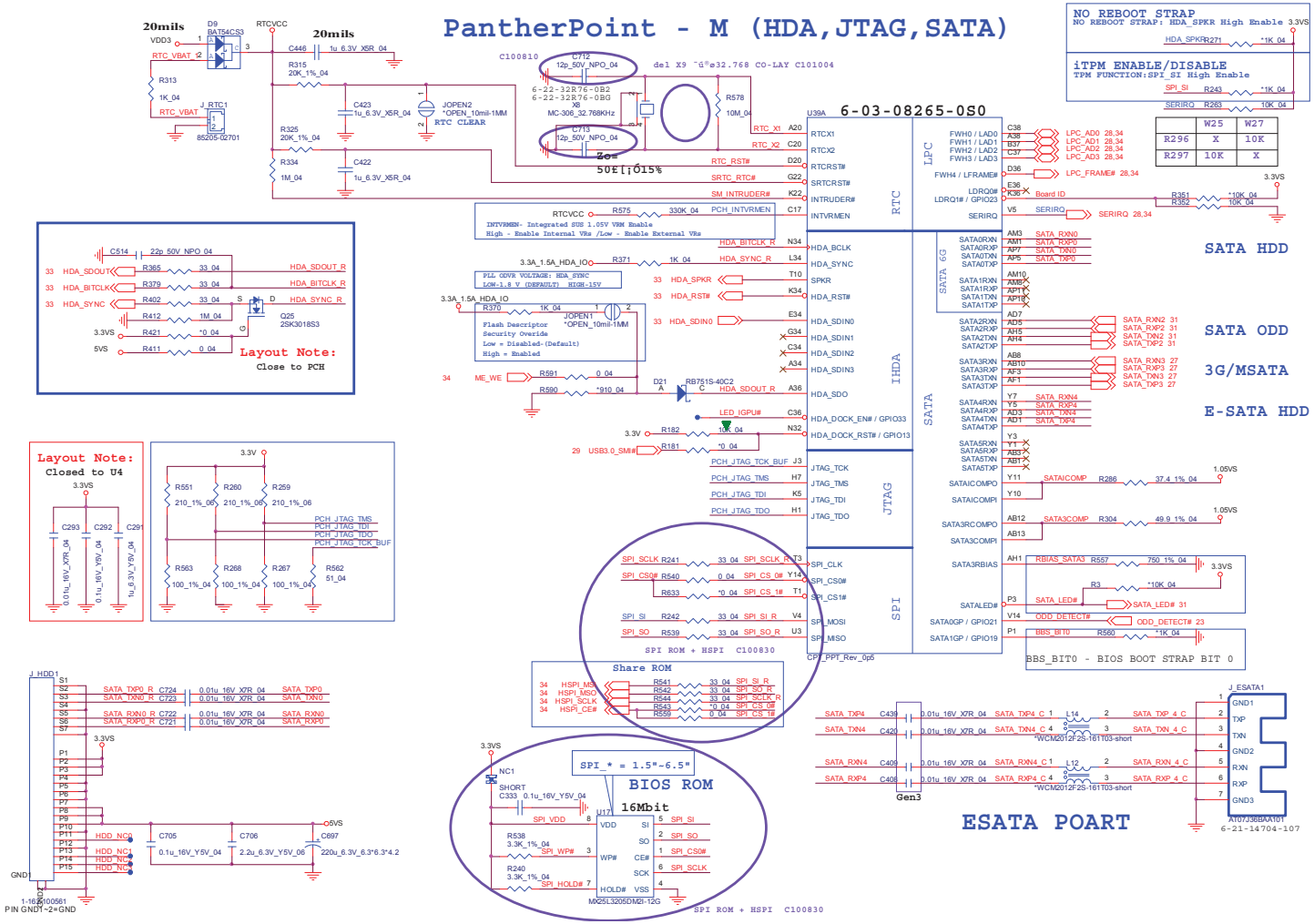
VGA I/O

VGA NVVDD Cecoupling

Sheet 17 of 50
VGA NVVDD Cecoupling



PCH 1/9- RTC, HDA, SATA



Sheet 18 of 50
PCH 1/9- RTC, HDA, SATA

PCH 2/9- PCIE, SMBUS, CLK

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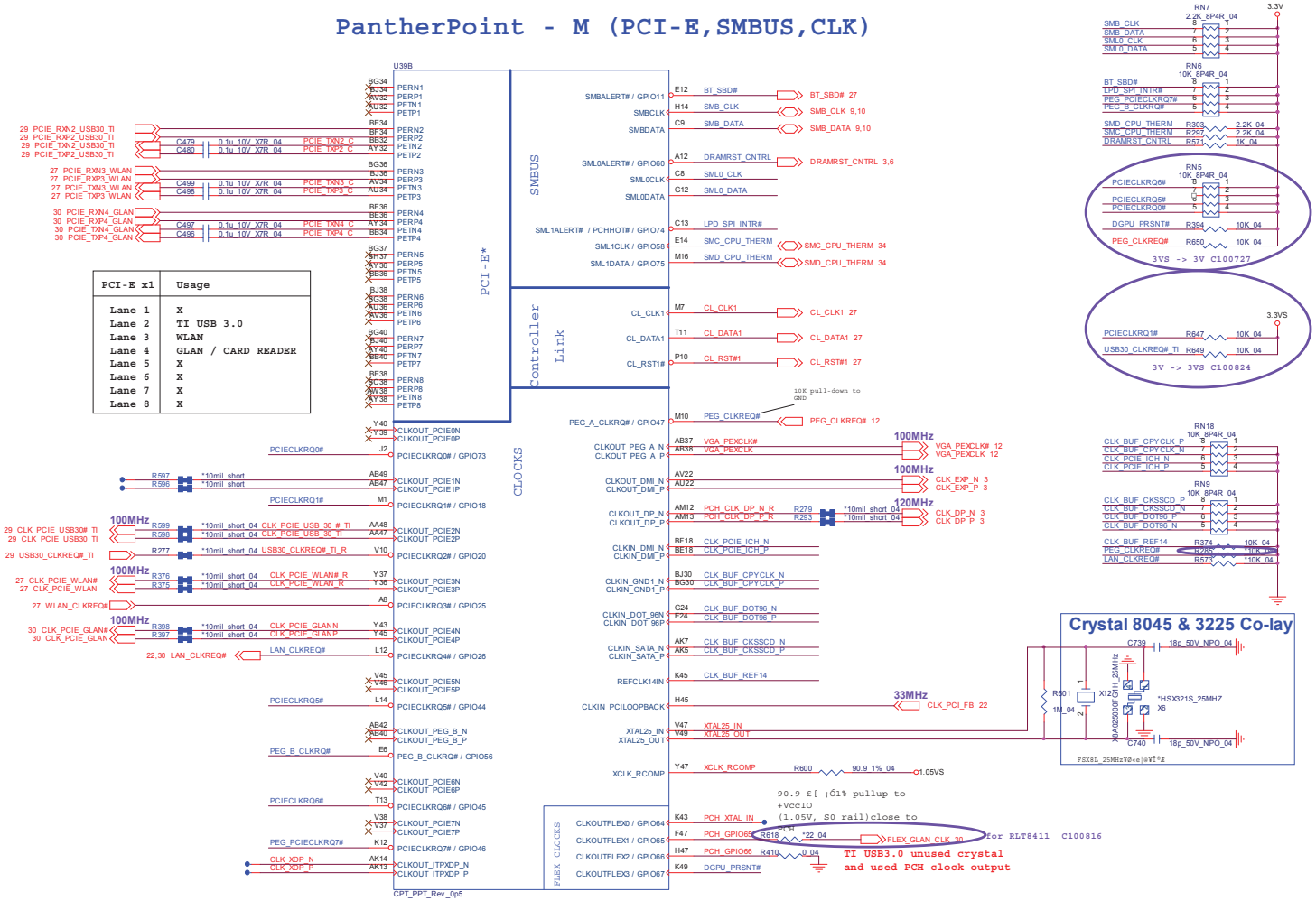
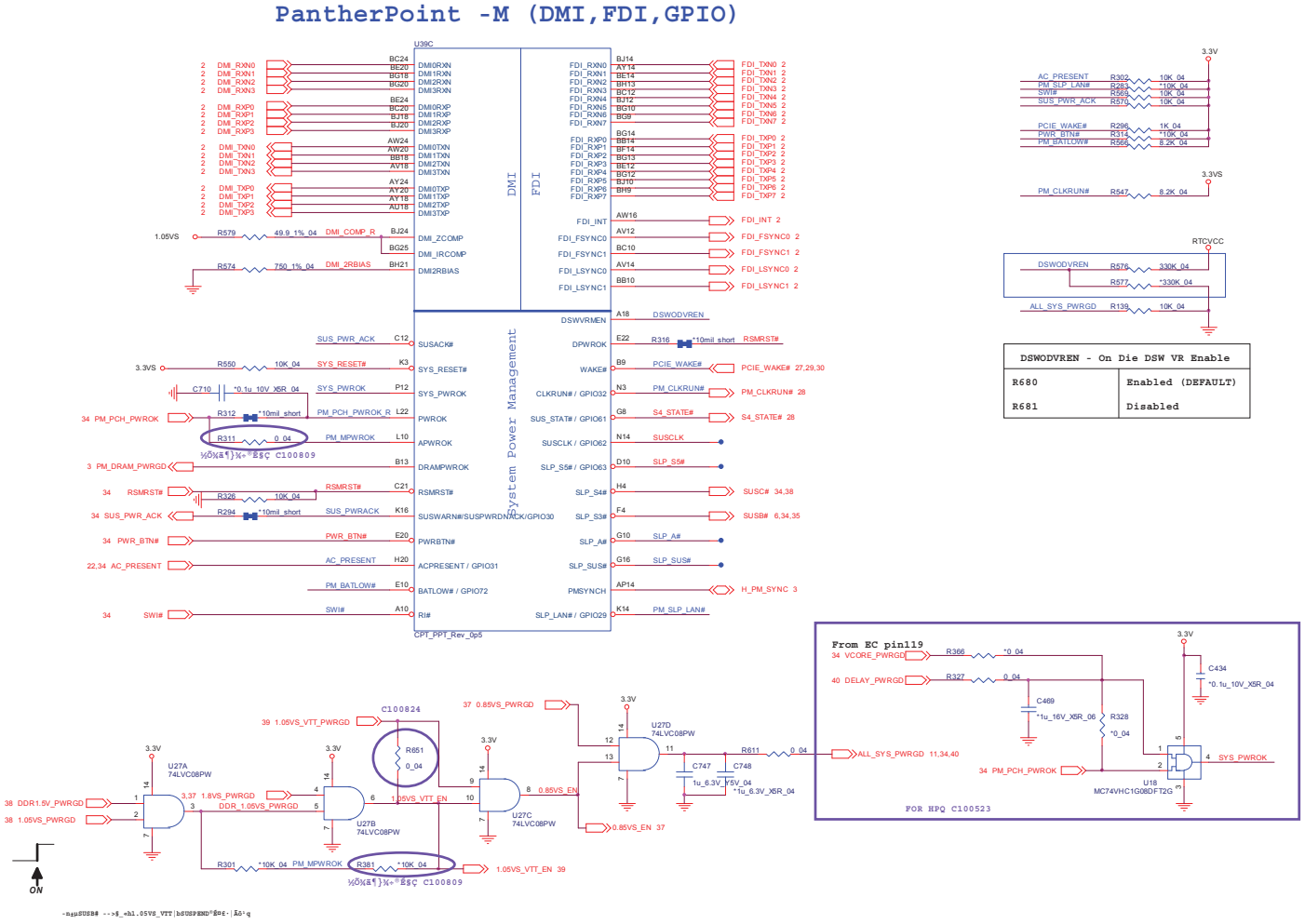
PCH 2/9- PCIE, SMBUS, CLK



PCH 3/9- DMI, FDI, PWRGD



Sheet 20 of 50
PCH 3/9- DMI, FDI, PWRGD

PCH 4/9- LVDS, DDI, CRT

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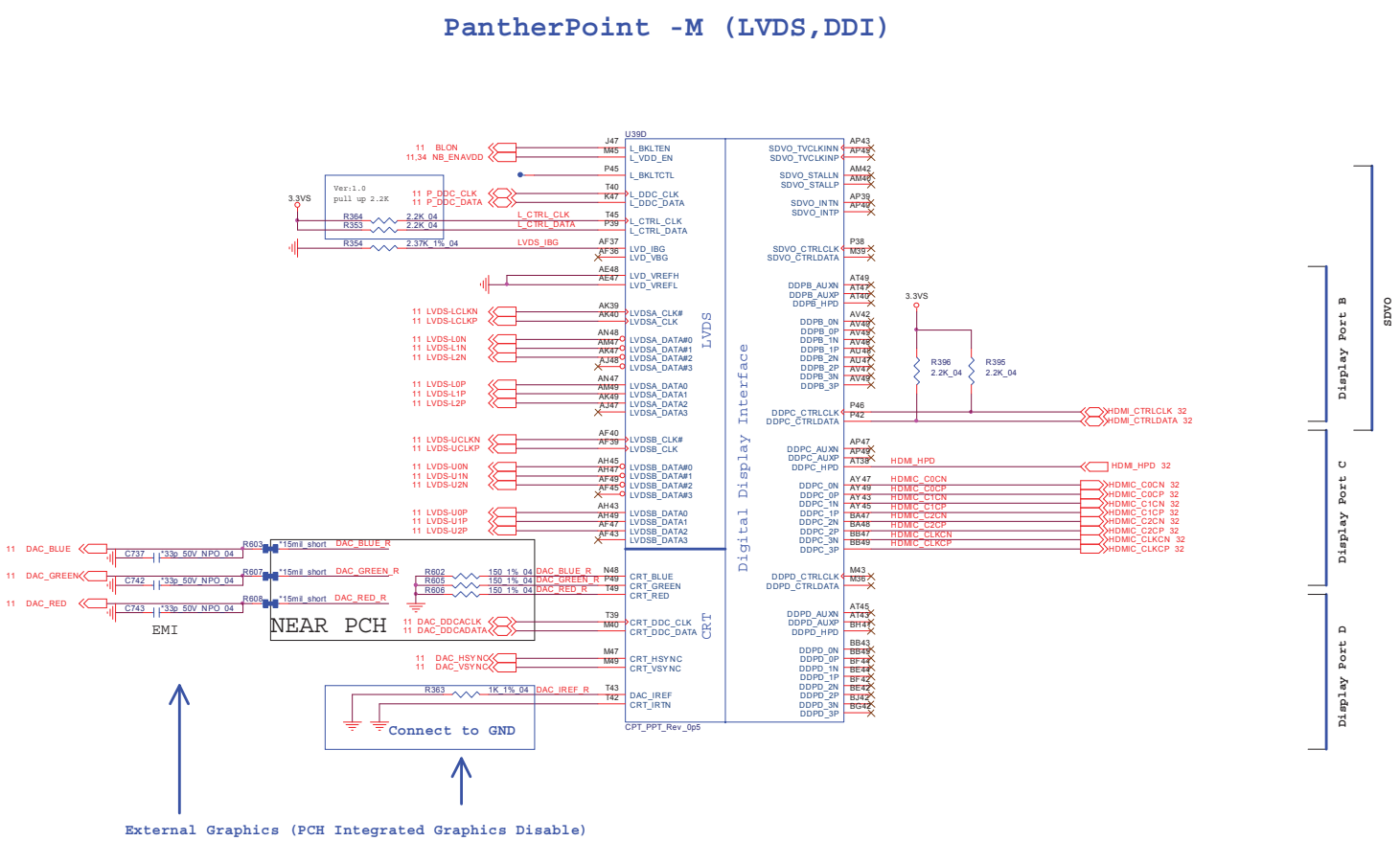
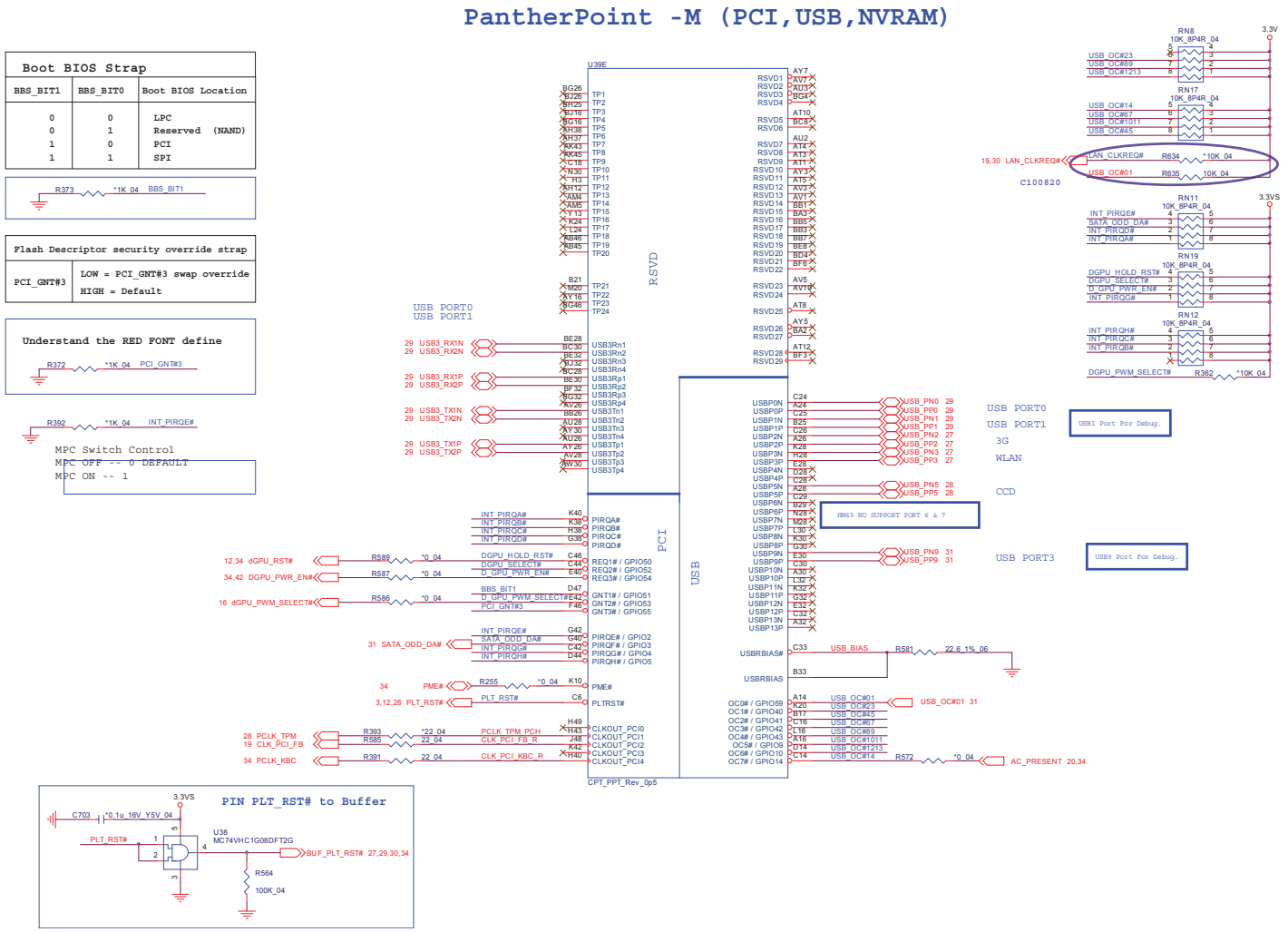
PCH 4/9- LVDS, DDI, CRT



PCH 4/9- PCI, USB, RSVD



Sheet 22 of 50
PCH 4/9- PCI, USB, RSVD

PCH 6/9- GPIO, CPU

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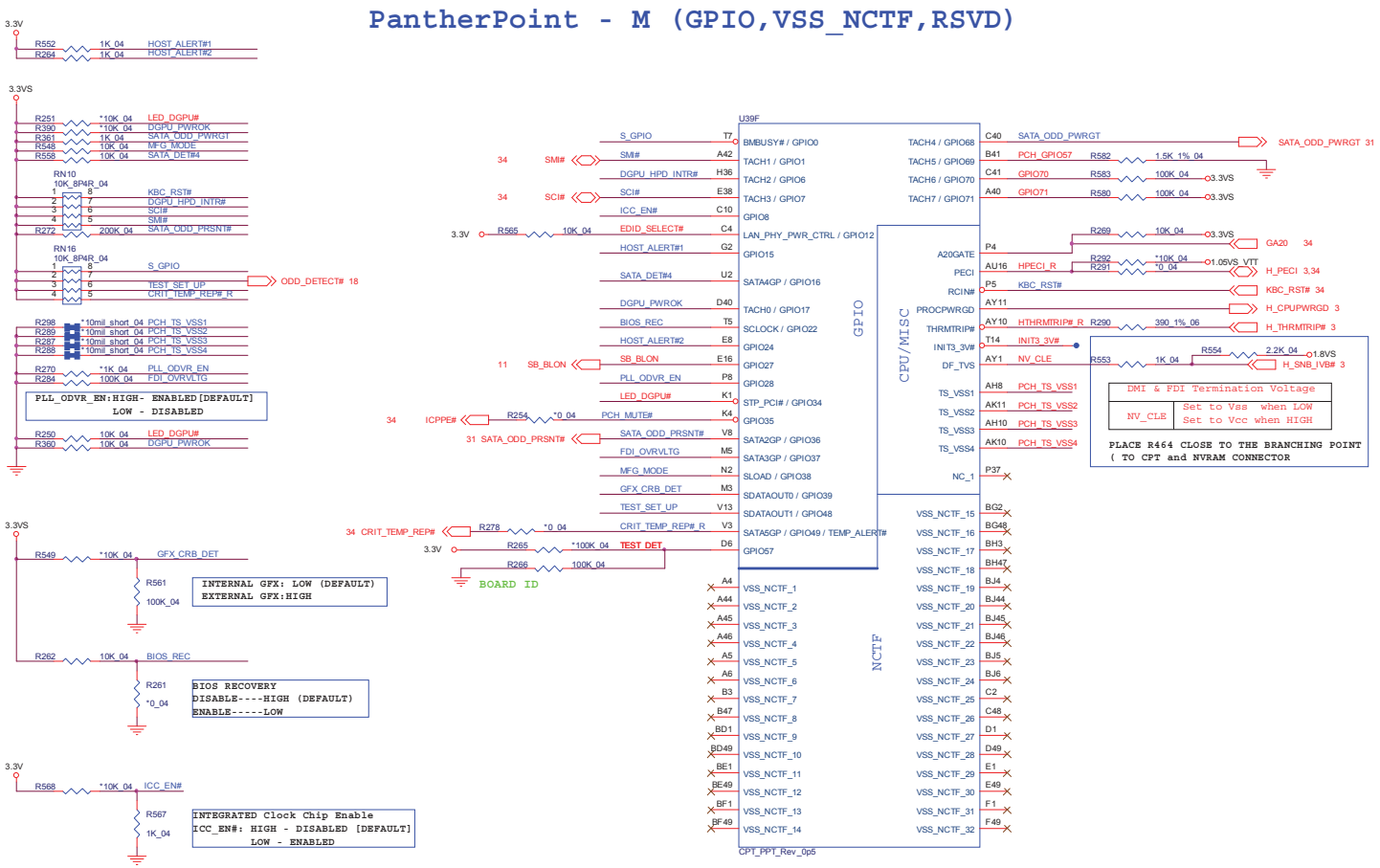
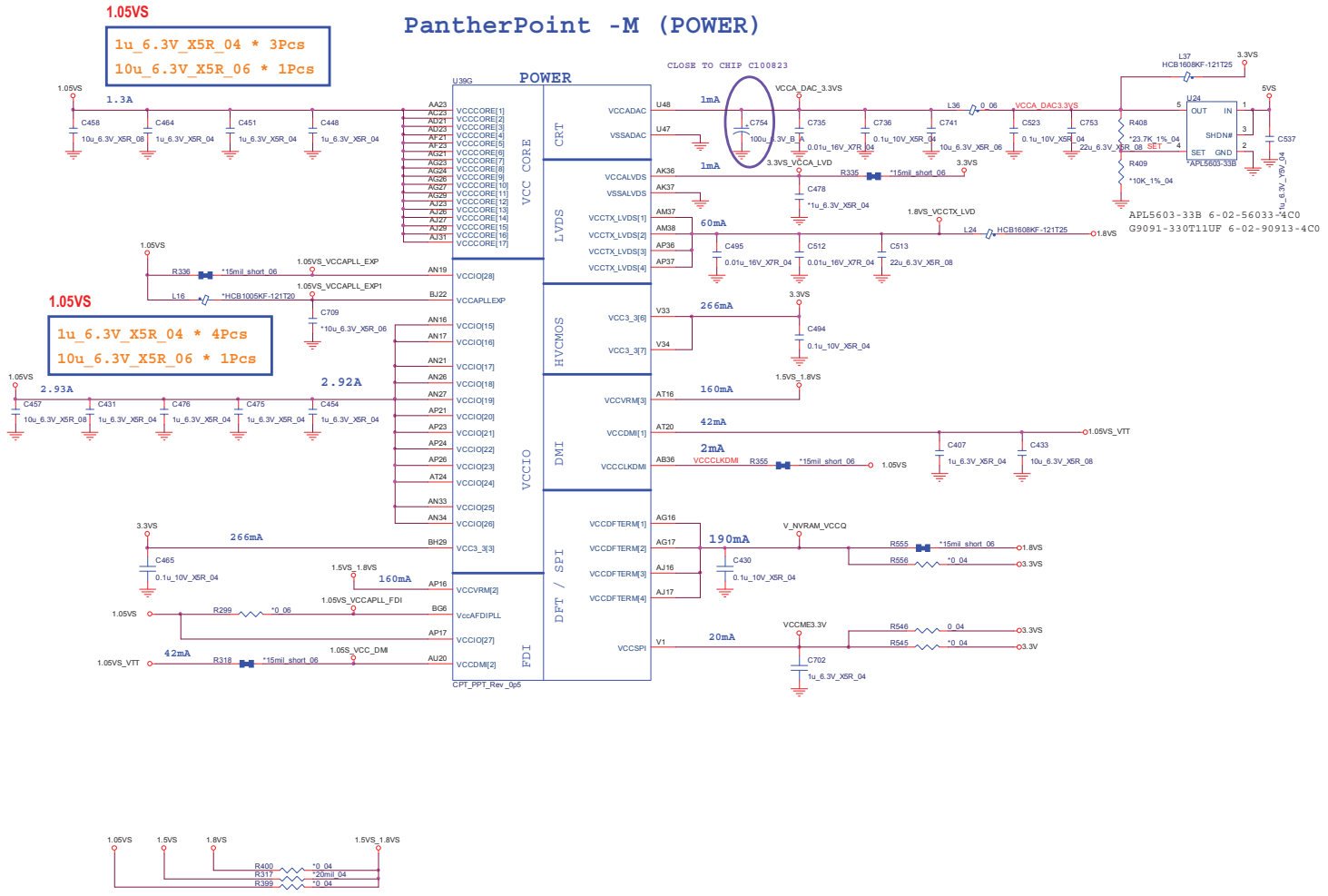
PCH 6/9- GPIO, CPU



PCH 7/9- PWR



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PCH 7/9- PWR

PCH 8/9 POWER

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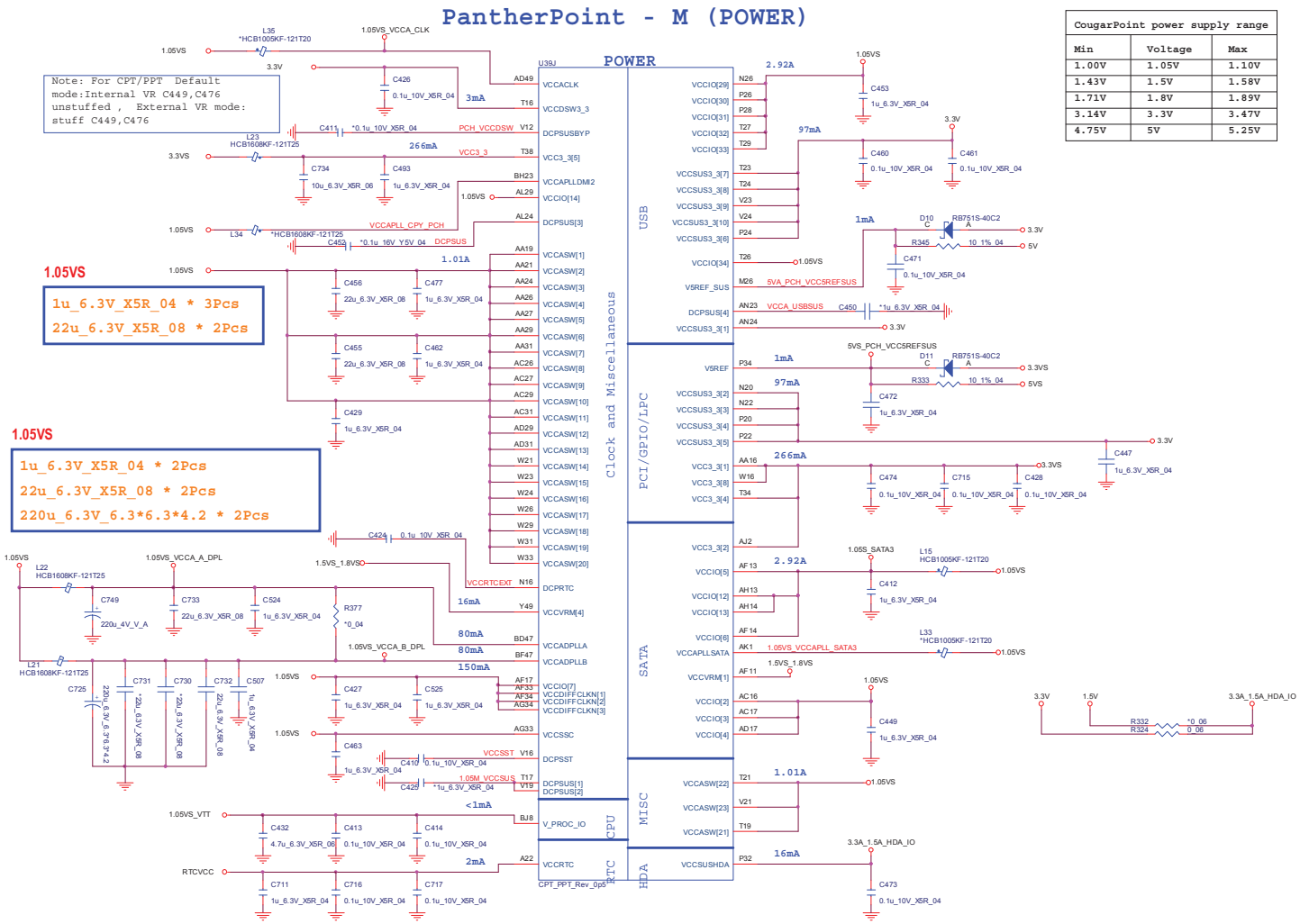
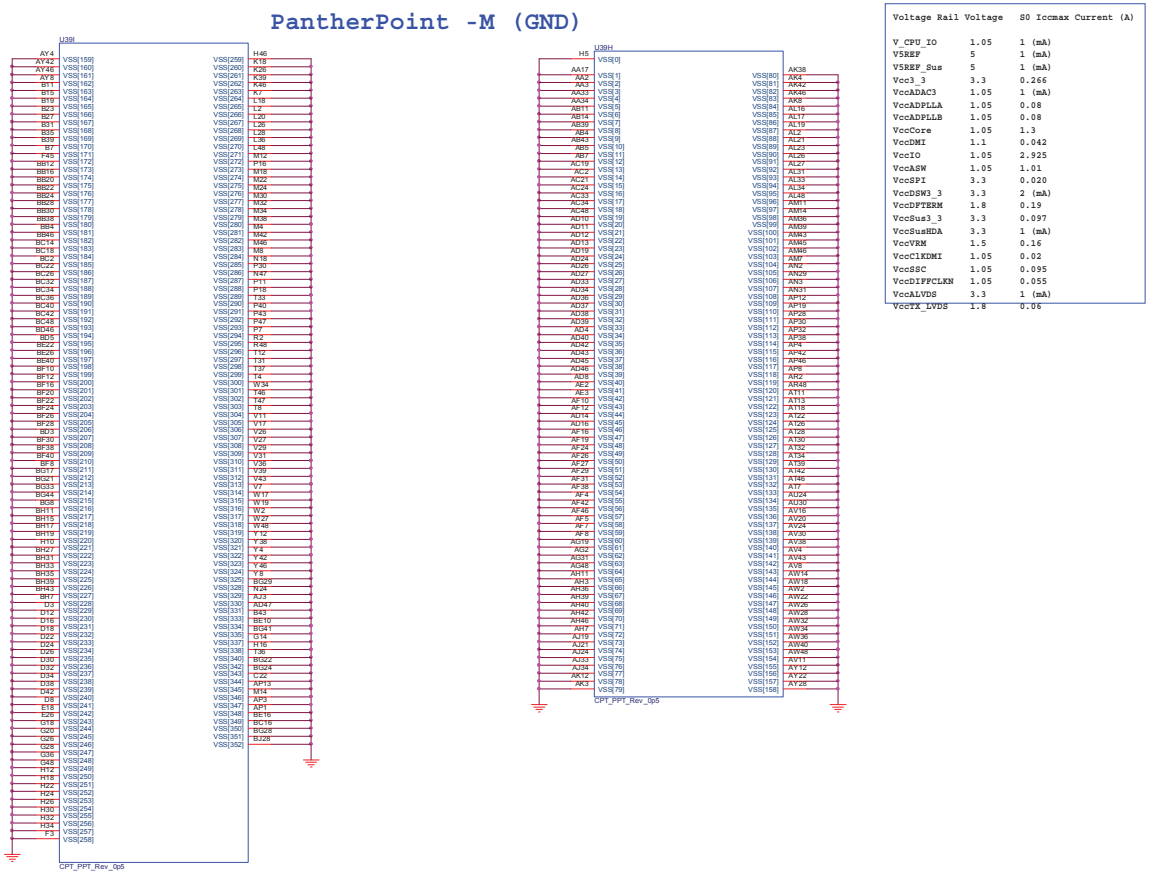
PCH 8/9 POWER



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	3.47V
4.75V	5V	5.25V

PCH 9/9- GND



Voltage Rail	Voltage	S0 Iccmax Current (A)
V_CPU_IO	1.05	1 (mA)
V5REF	5	1 (mA)
V5REF_Sus	5	1 (mA)
Vcc3_3	3.3	0.266
VccADAC3	1.05	1 (mA)
VccADPLLA	1.05	0.08
VccADPLLB	1.05	0.08
VccCore	1.05	1.3
VccDMI	1.1	0.042
VccIO	1.05	2.925
VccASW	1.05	1.01
VccSPI	3.3	0.020
VccDSW3_3	3.3	2 (mA)
VccDFTERM	1.8	0.19
VccSus3_3	3.3	0.097
VccSusHDA	3.3	1 (mA)
VccVRM	1.5	0.16
VccClKDMI	1.05	0.02
VccSSC	1.05	0.095
VccDIFFCLKN	1.05	0.055
VccALVDS	3.3	1 (mA)
VccTX_LVDS	1.8	0.06

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PCH 9/9- GND

WLAN, 3G, MINI PCIE

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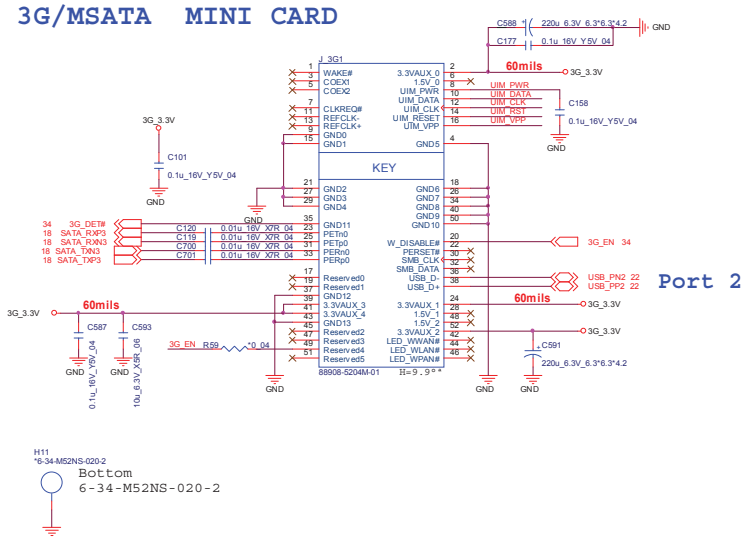
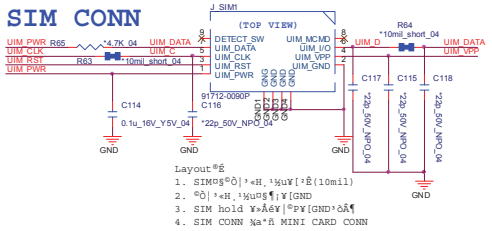
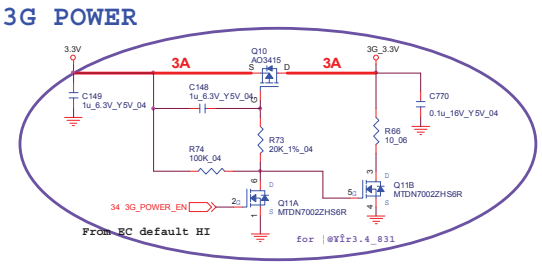
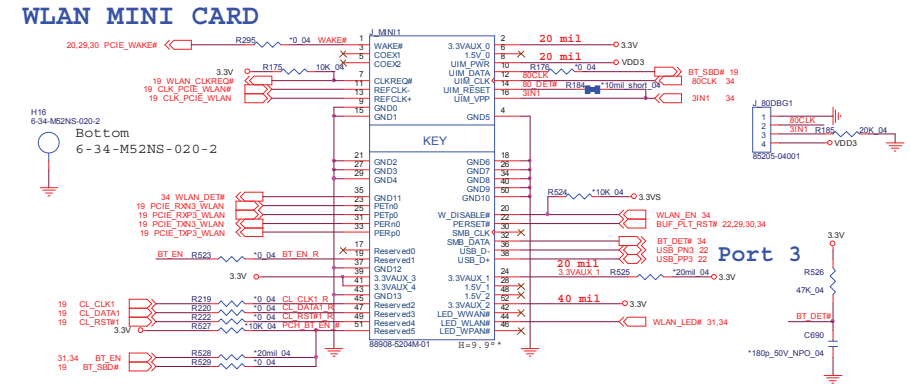
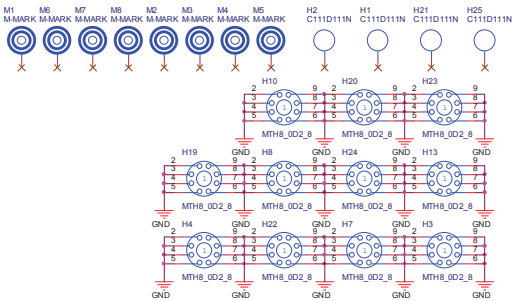
WLAN, 3G, MINI PCIE



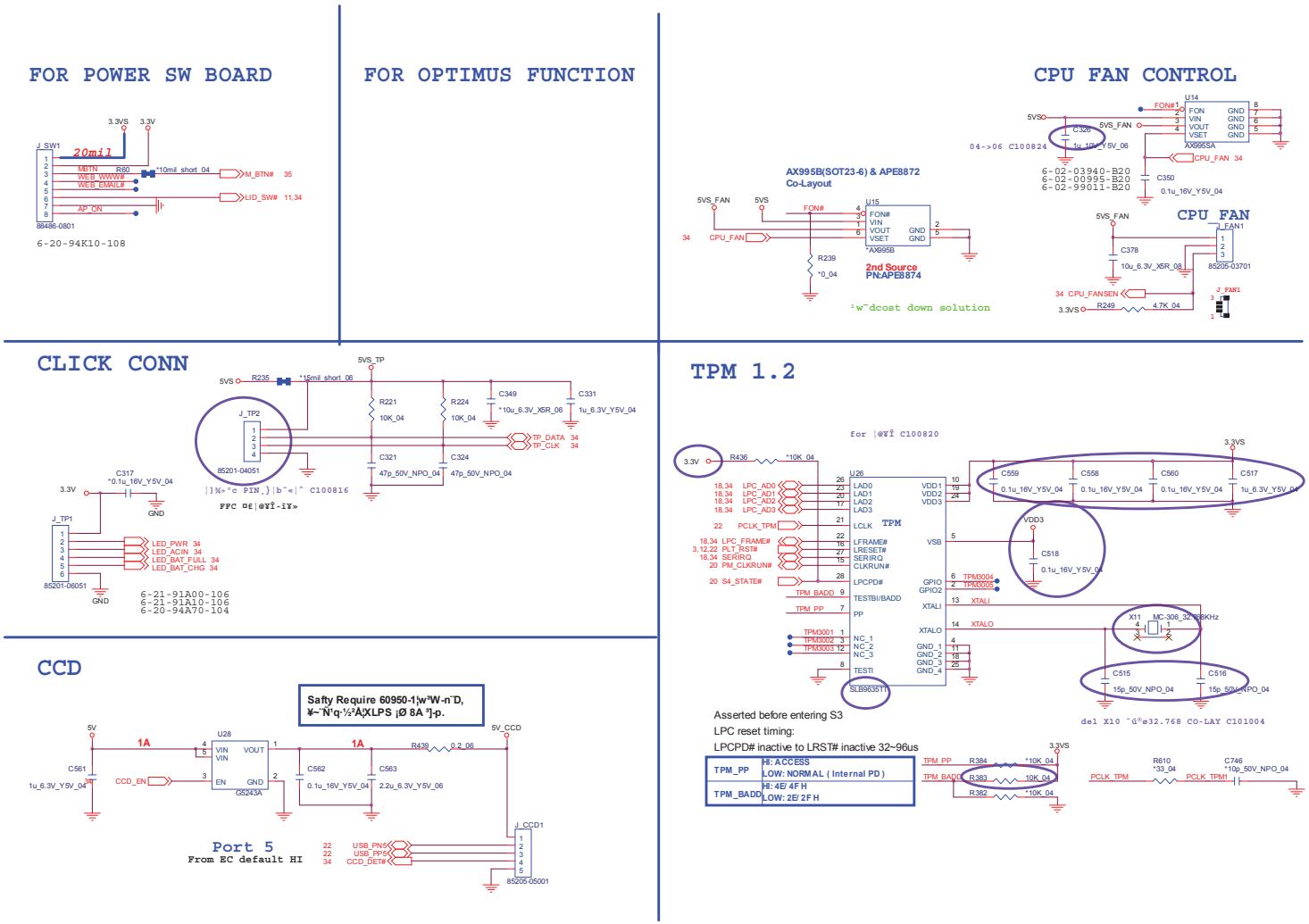








CCD, TPM, MULTI CON



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CCD, TPM, MULTI CON

USB3.0

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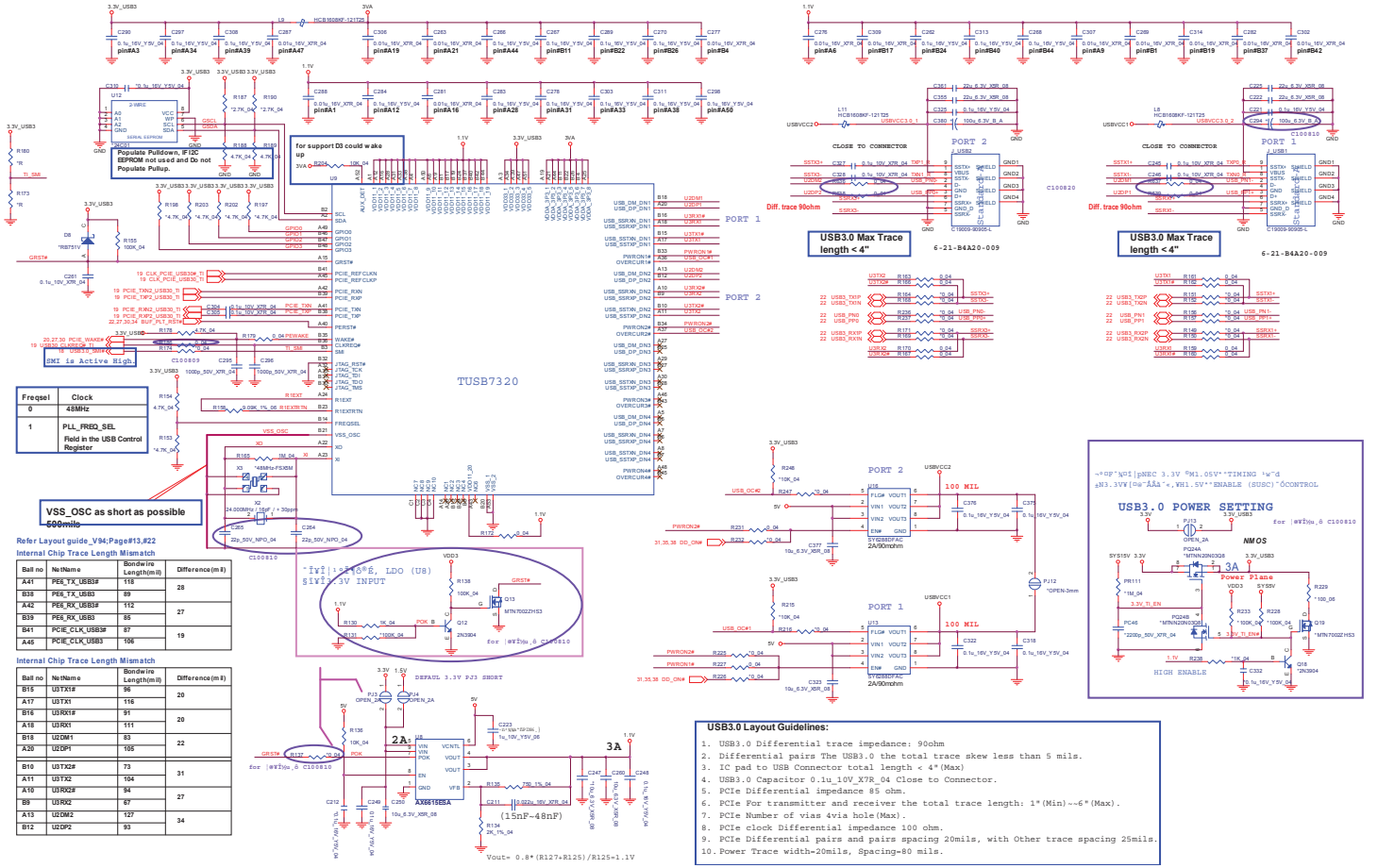
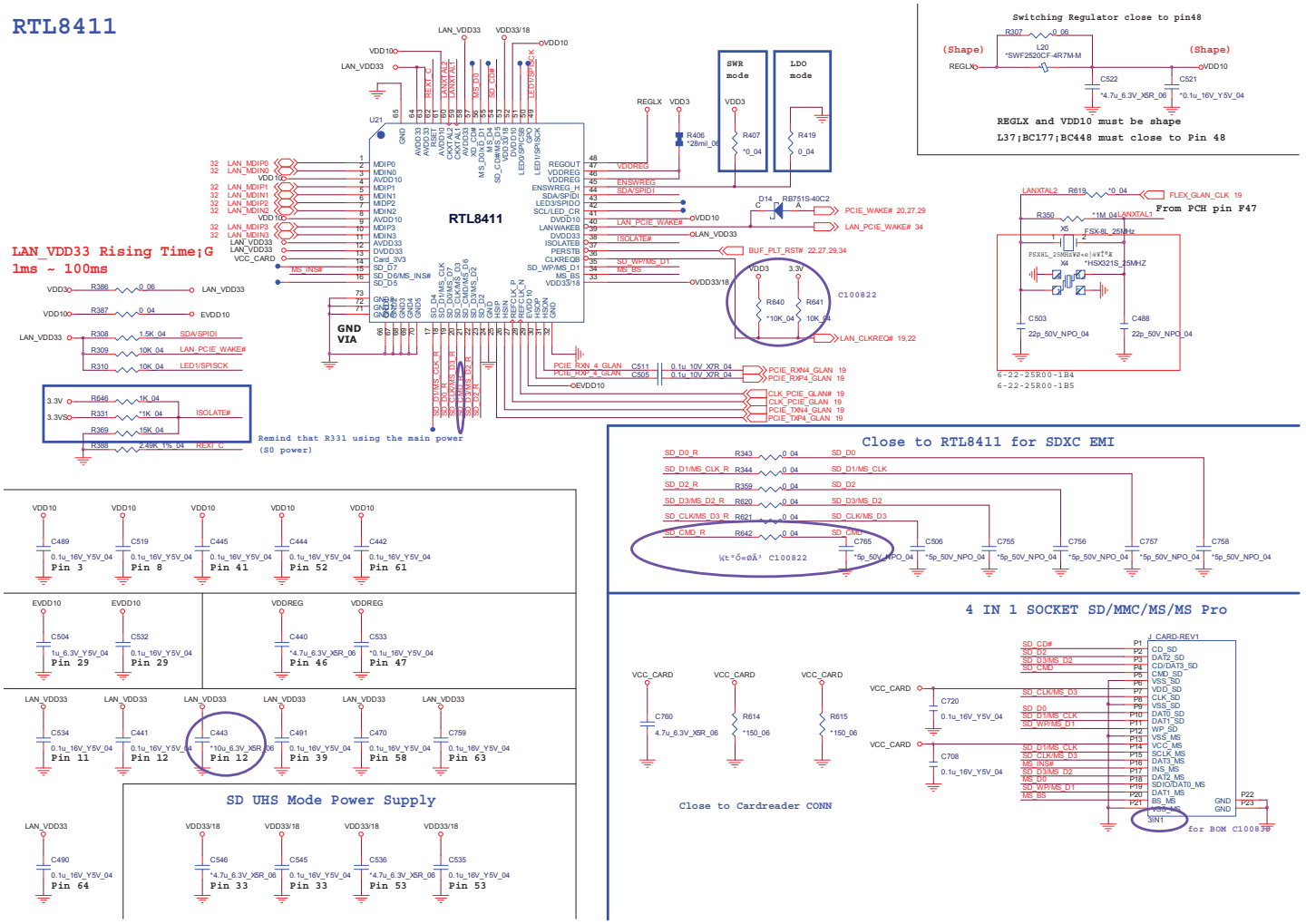
USB3.0



Card Reader (RTL8411)



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Card Reader (RTL8411)

SATA ODD, LED, USB CHARGE

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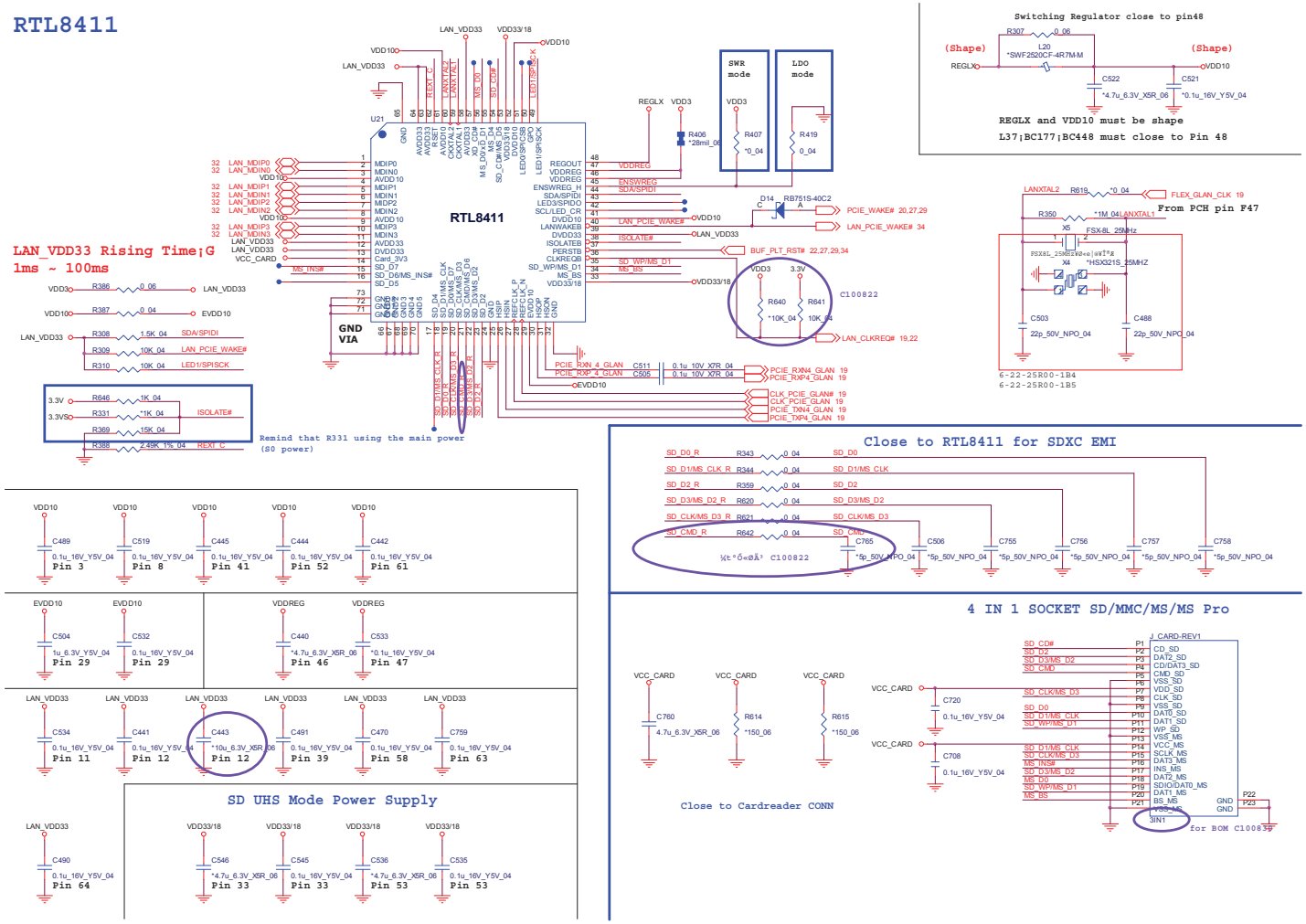
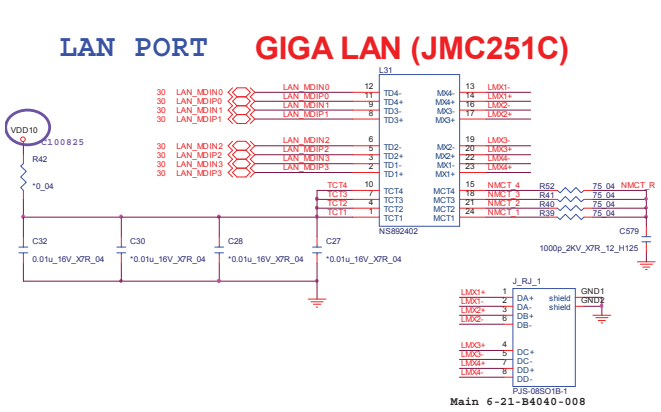
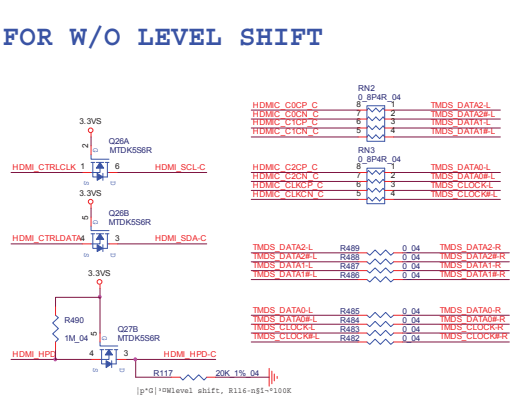
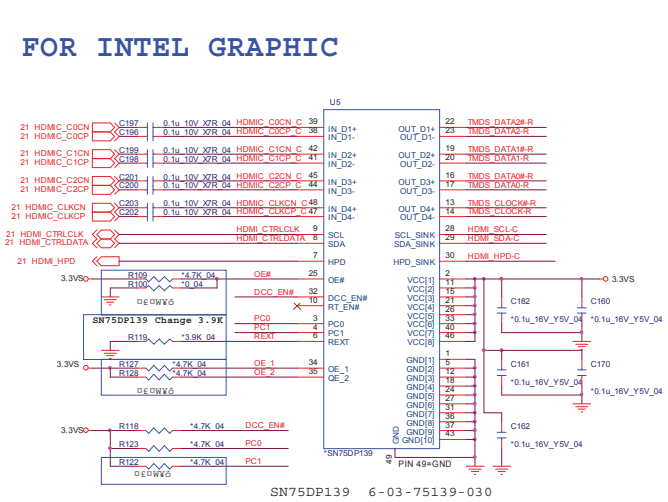
SATA ODD, LED, USB CHARGE

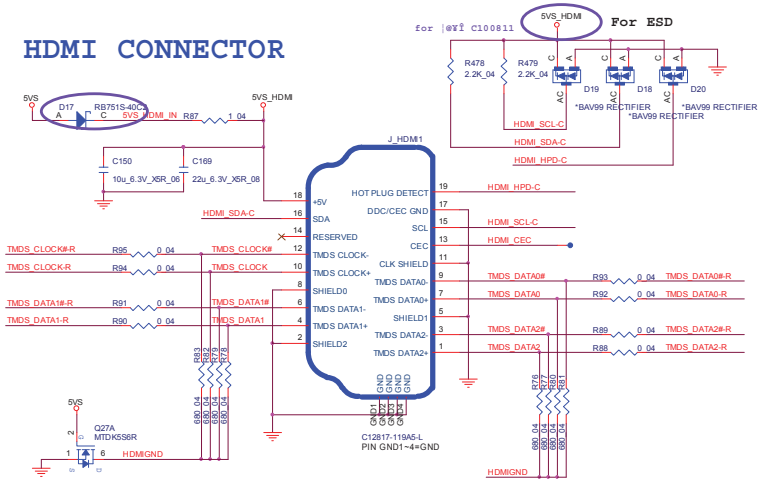


HDMI, RJ45









Sheet 32 of 50
HDMI, RJ45

AUDIO CODEC VT1802P

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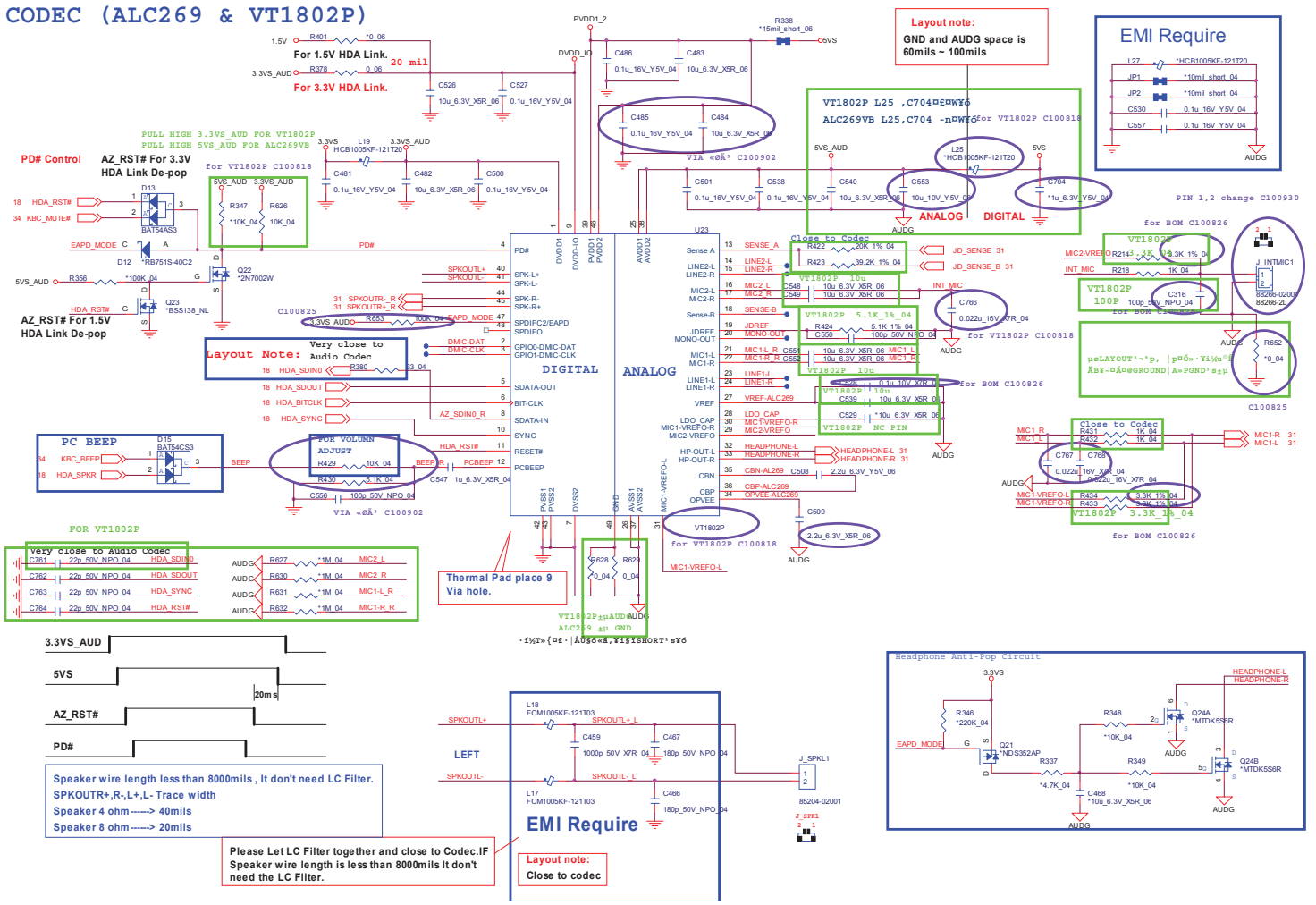
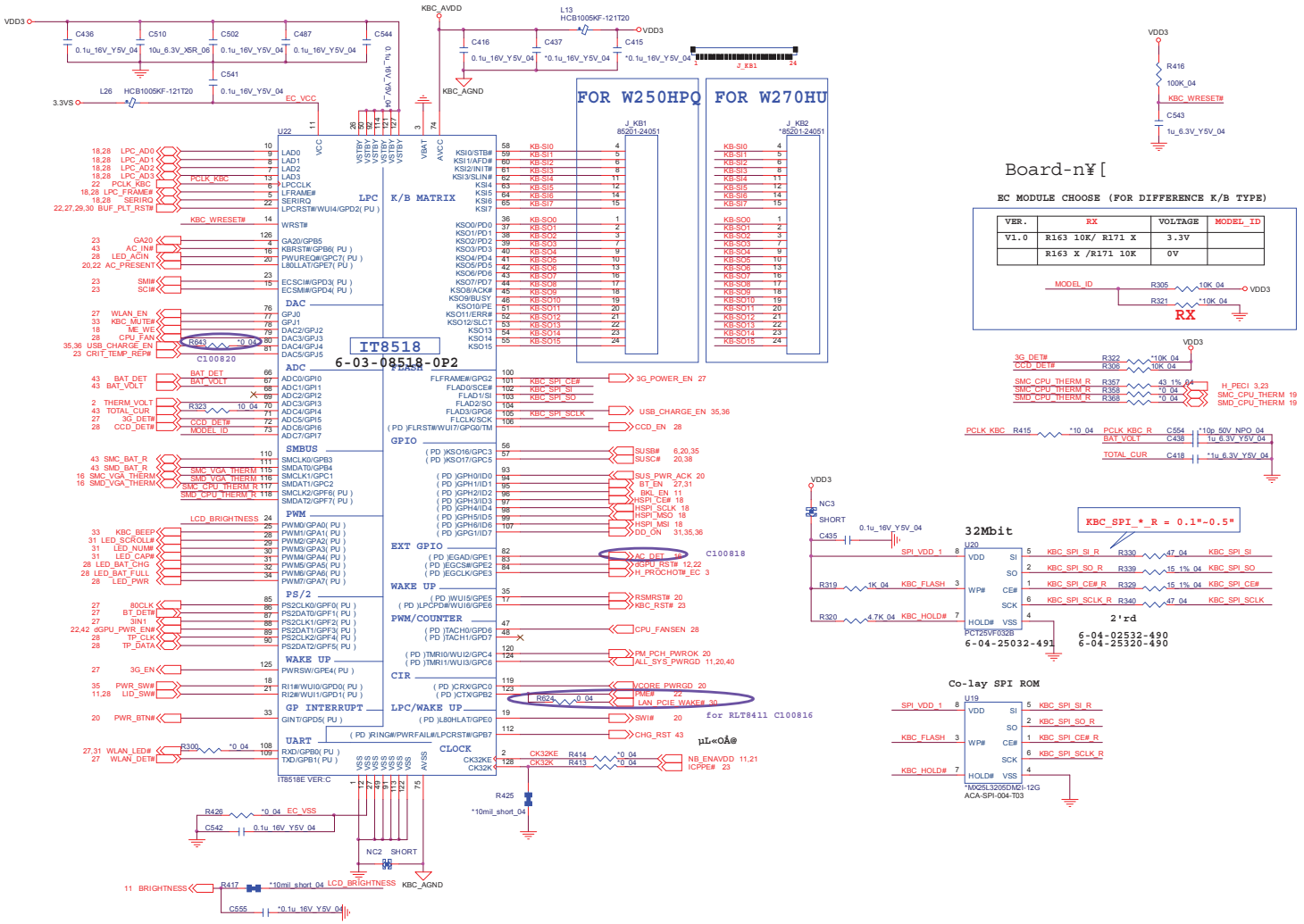
AUDIO CODEC
VT1802P



KBC-ITE IT8518E



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KBC-ITE IT8518E

5VS, 3VS, 1.5VS CPU

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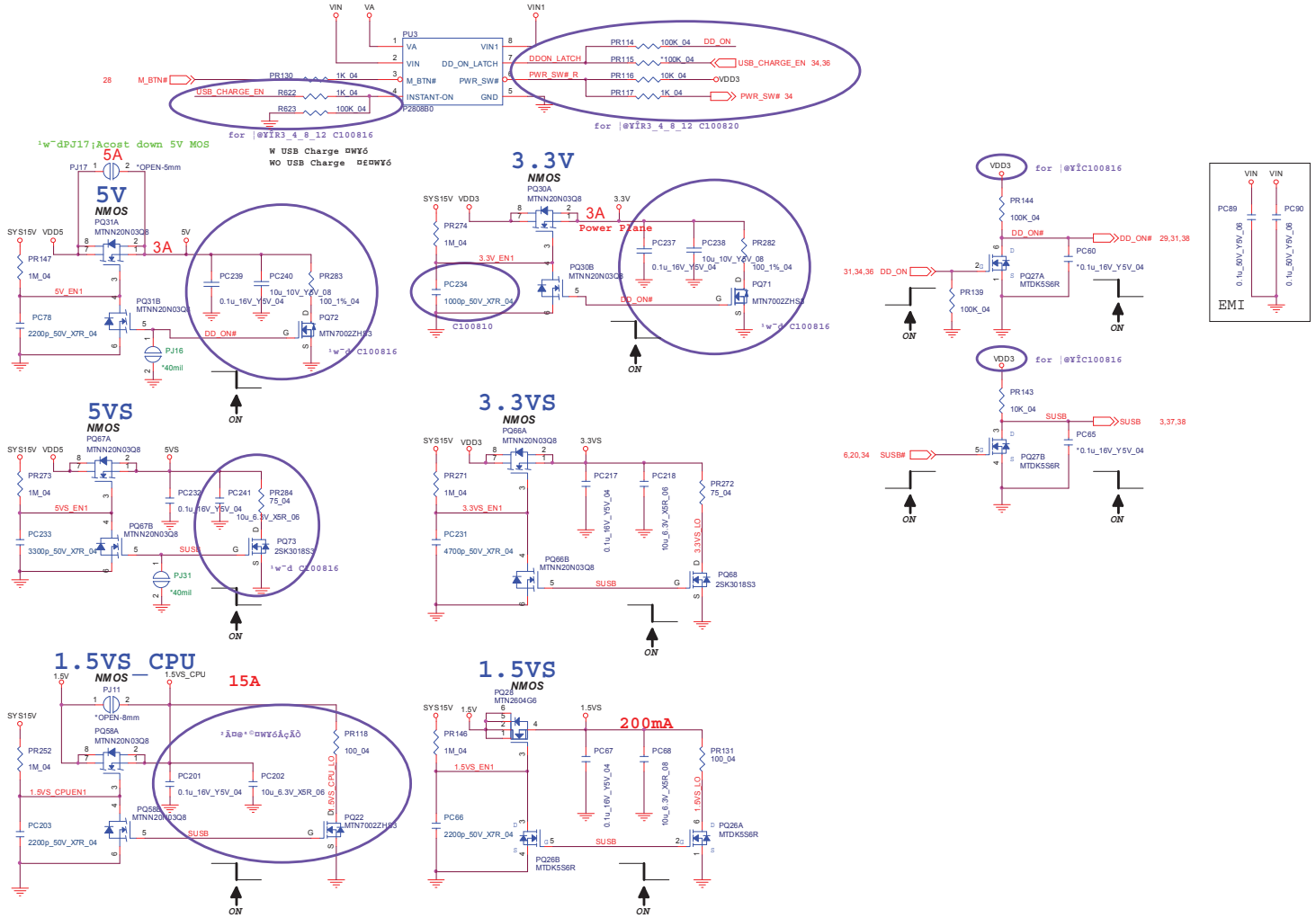
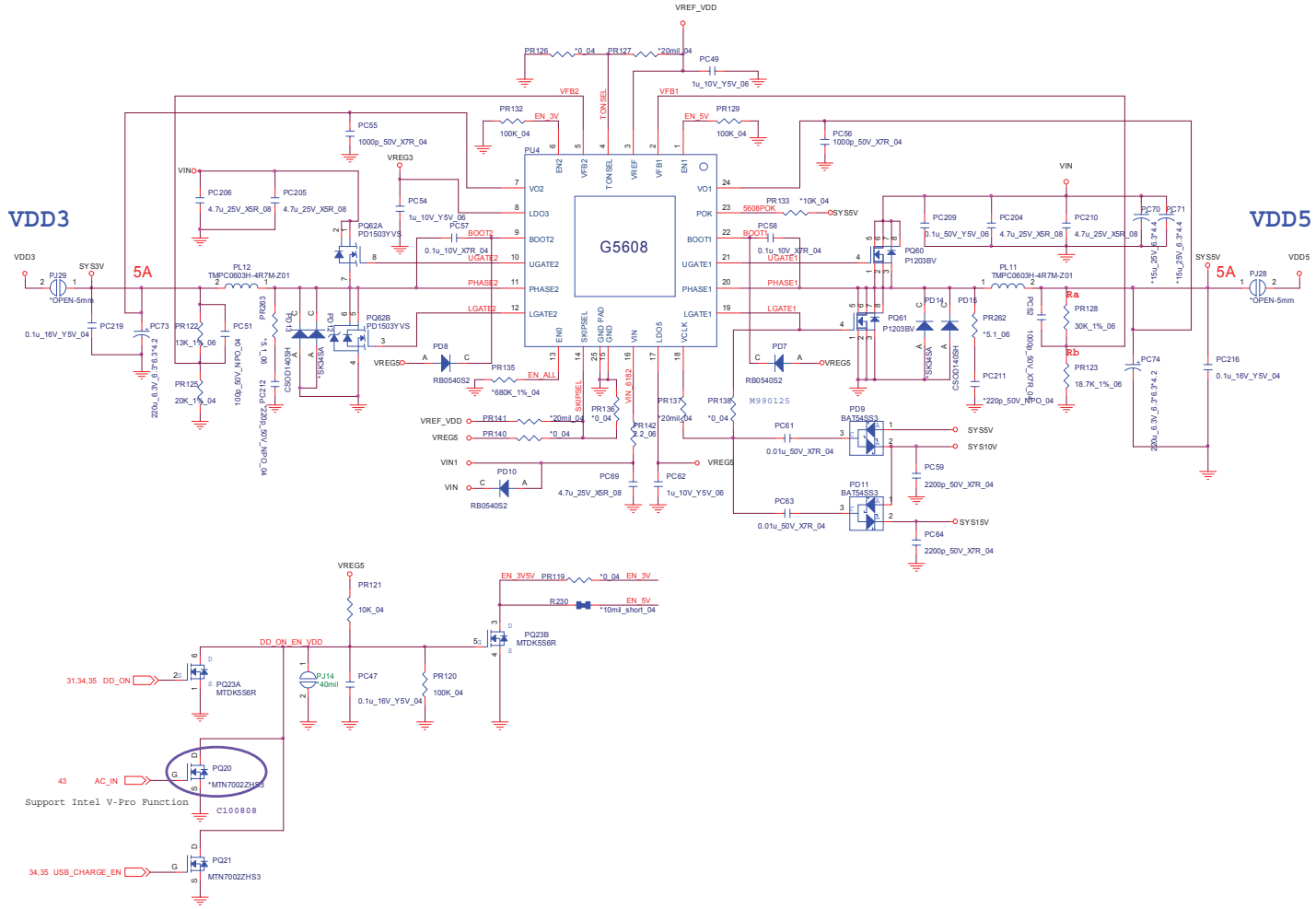
5VS, 3VS, 1.5VS CPU



VDD3, VDD5



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VDD3, VDD5

Power 0.85VS, 1.8VS

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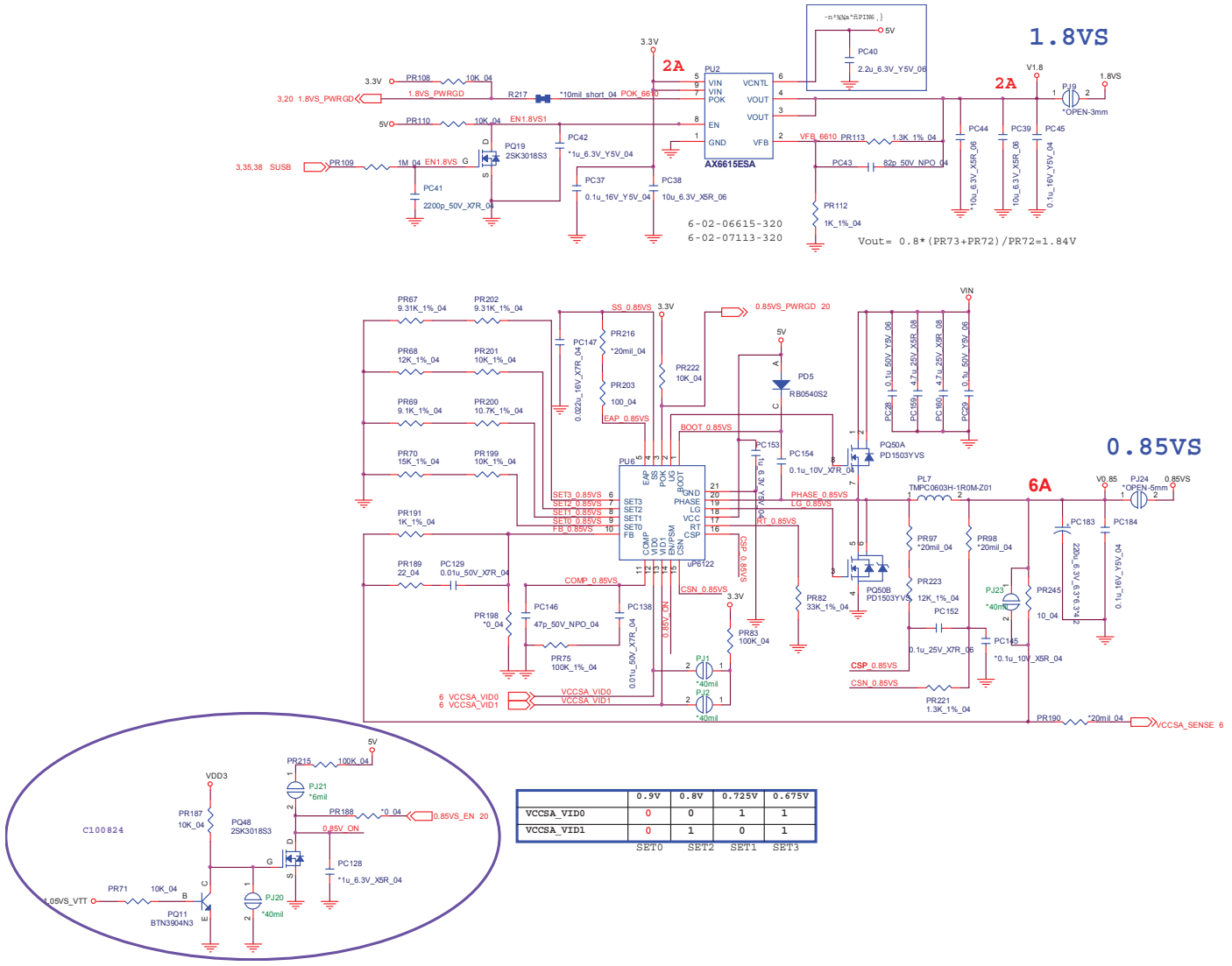
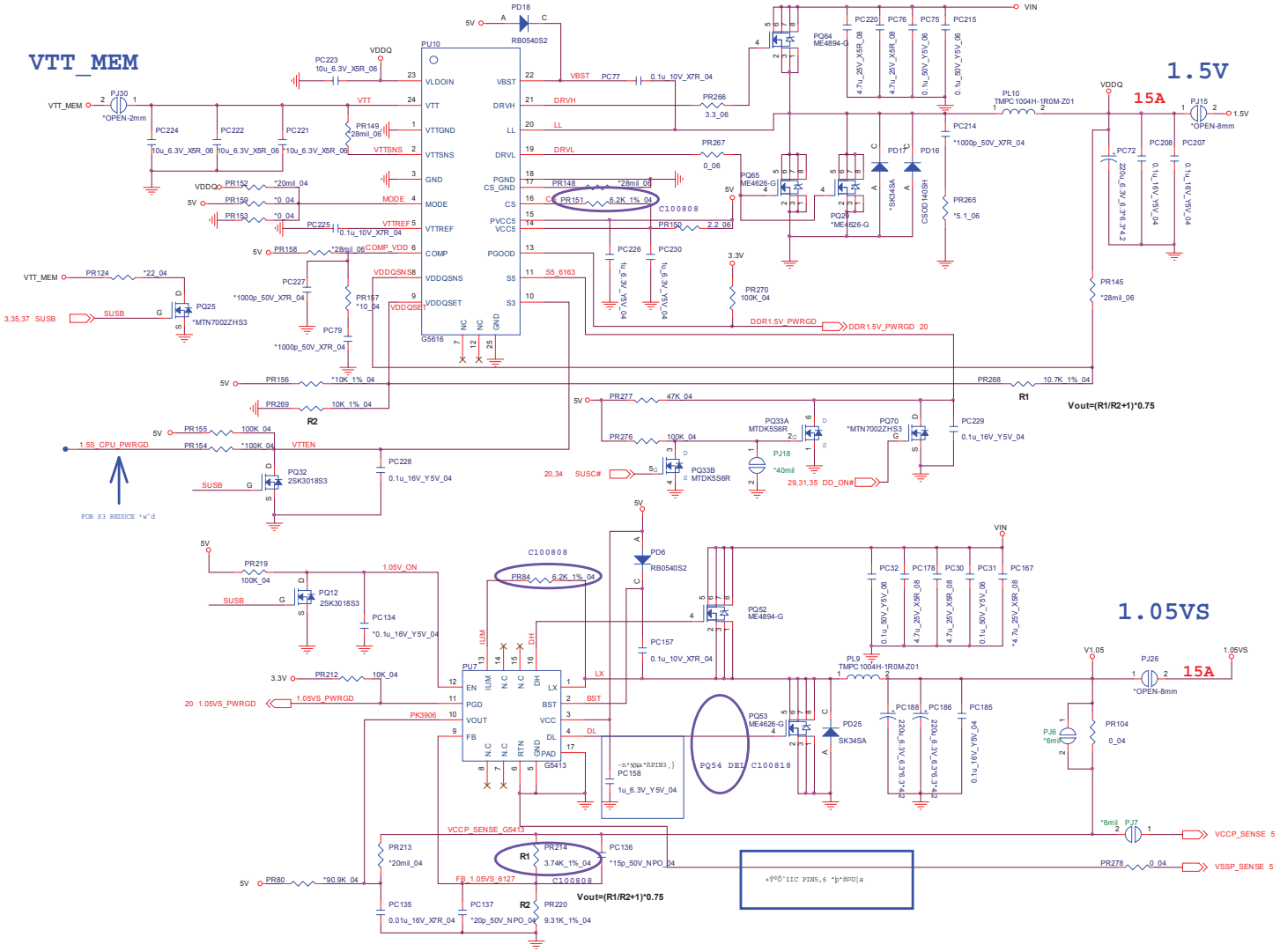
Power 0.85VS, 1.8VS



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

POWER 1.5V/1.05VS



Sheet 38 of 50
POWER 1.5V/
1.05VS

POWER 1.05V/1.05VS VTT

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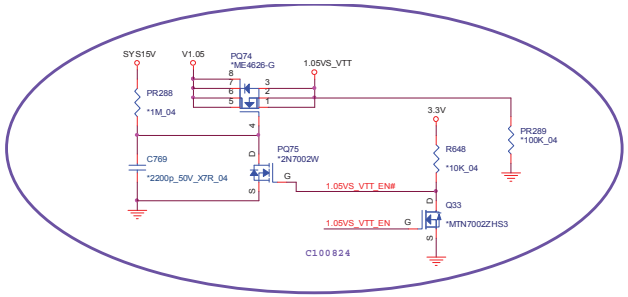
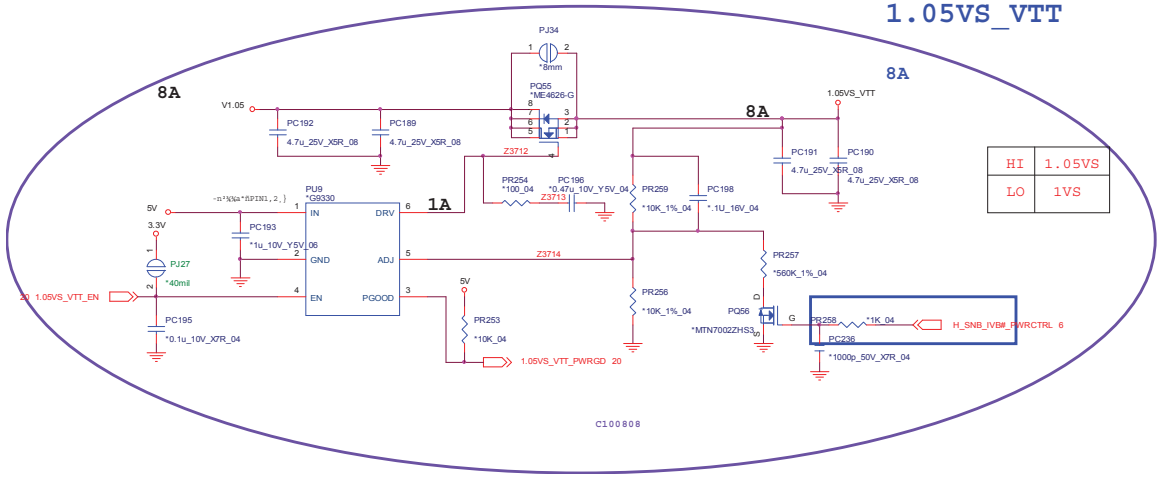
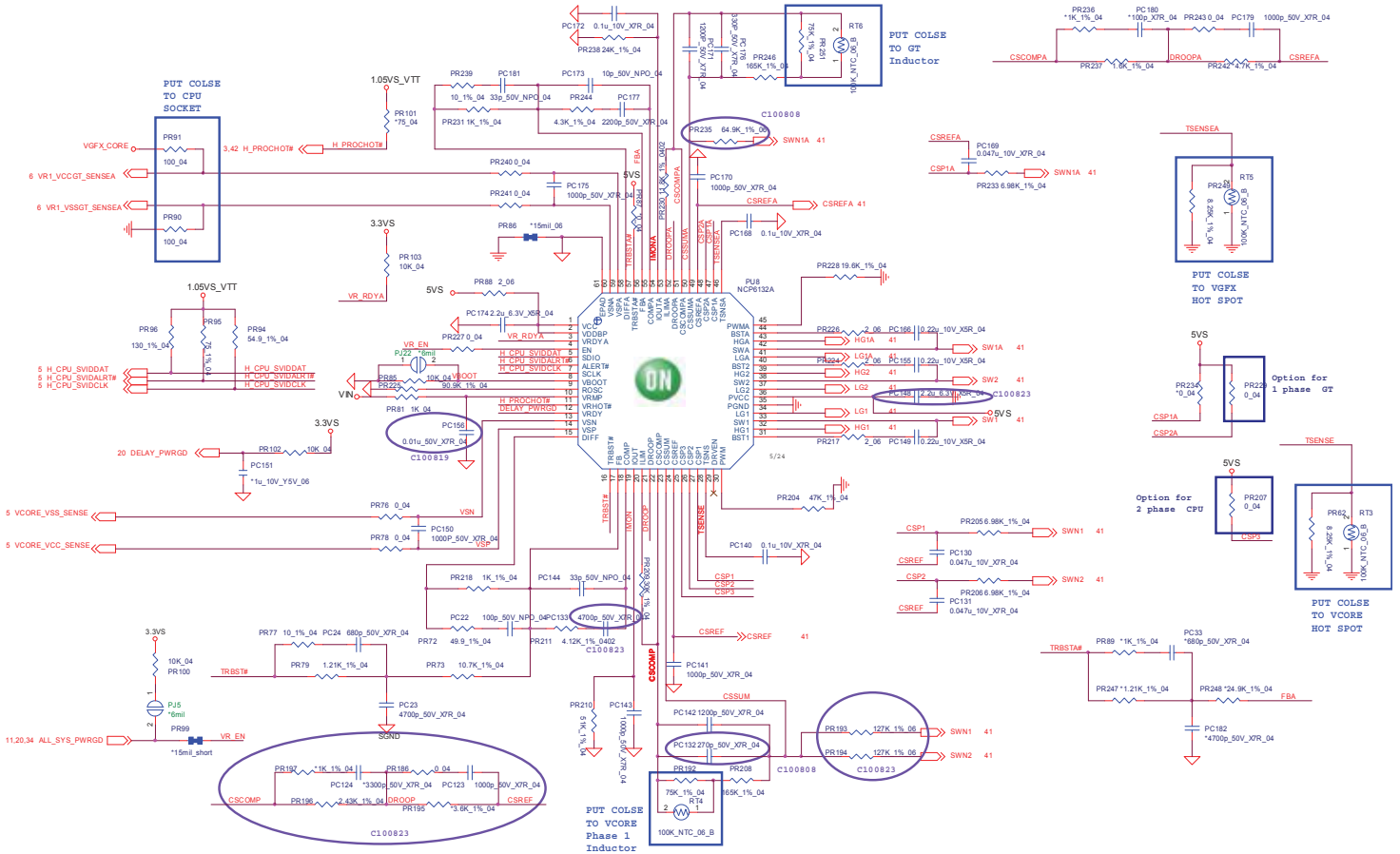
POWER 1.05VS/
1.05VS VTT





POWER VCORE1



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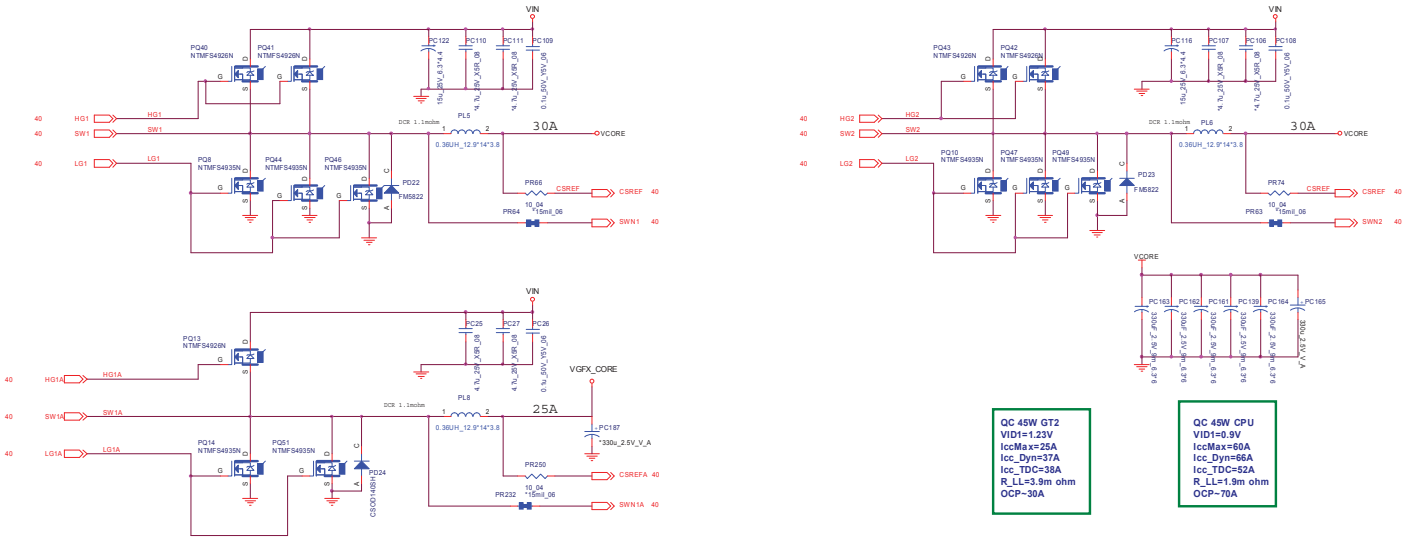
POWER VCORE1

POWER VCORE2

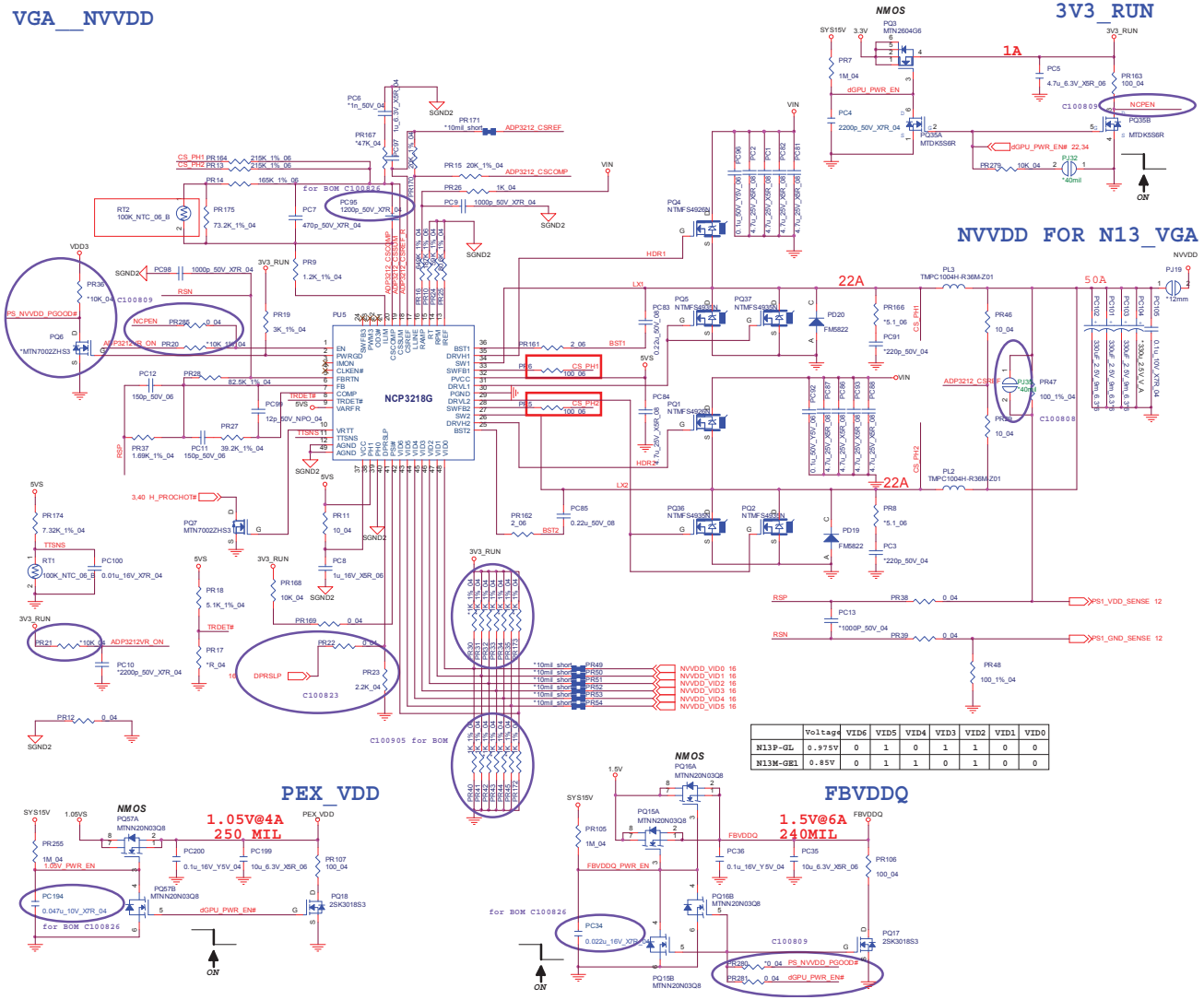
Sheet 41 of 50
POWER VCORE2



QC 45W GT2
VID1=1.23V
IccMax=25A
Icc_Dyn=37A
Icc_TDC=38A
R_LL=3.9m ohm
OCP~30A

QC 45W CPU
VID1=0.9V
IccMax=60A
Icc_Dyn=66A
Icc_TDC=52A
R_LL=1.9m ohm
OCP~70A

Power VGA NVVDD/PEX_VDD



Sheet 42 of 50
Power VGA
NVVDD/PEX_VDD

AC IN, CHARGER

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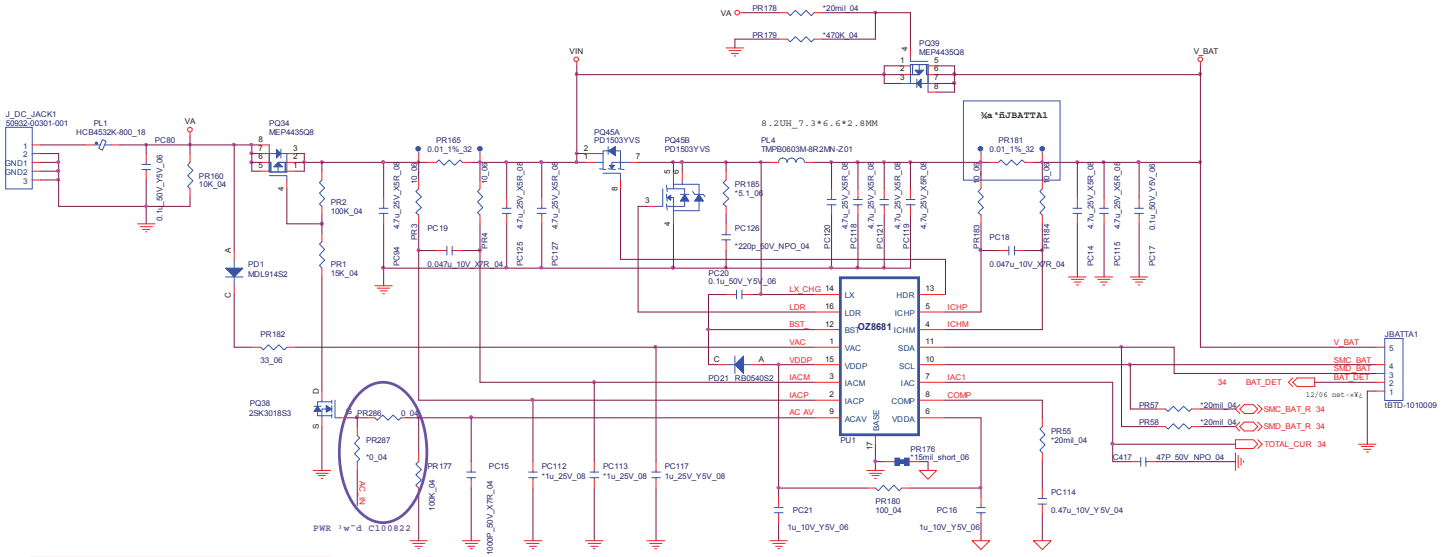
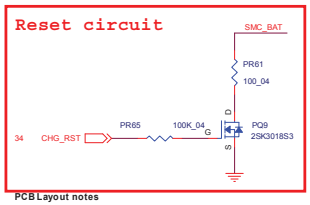
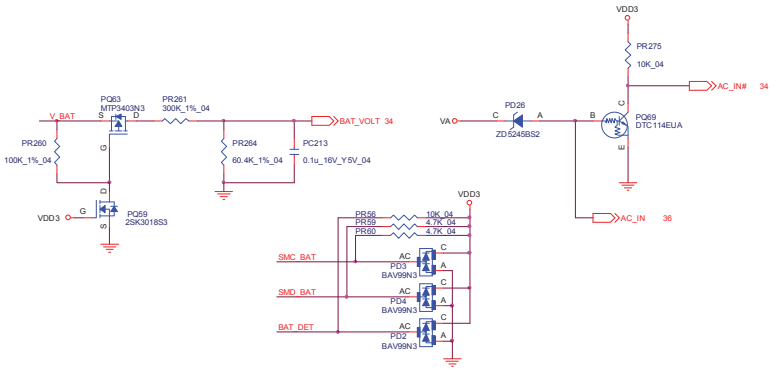
AC IN, CHARGER







PCB Layout notes

1) All power traces should be routed on the outer layers GNDP, VADJ, VSYS, LX, VCHG, VBATT

2) Use Kelvin connections for R3, R4 (seperate force and measurement traces)

3) R23 and R24 are dummy resistors, for layout purposes only (serves as single point connection between GNDP & GNDA)

4) Footprint TO-236 is equivalent to SOT-23

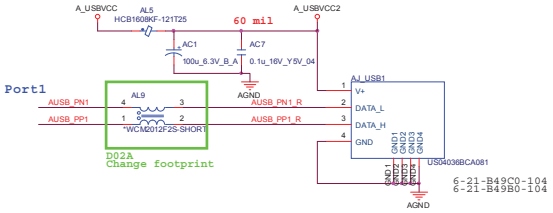
5) Footprint SIP1P is a single hole axial pad

6) All resisitors, capacitors and semiconductors are SMD

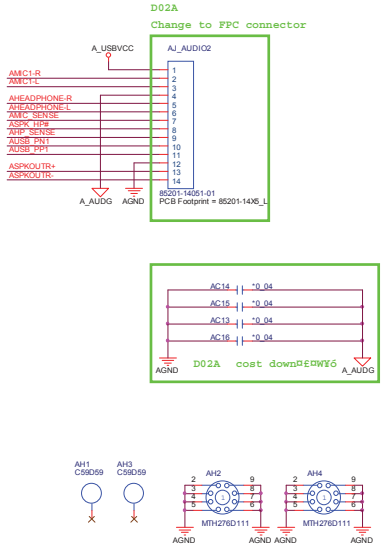
7) Potentiometers, and test points are axial devices

AUDIO BOARD

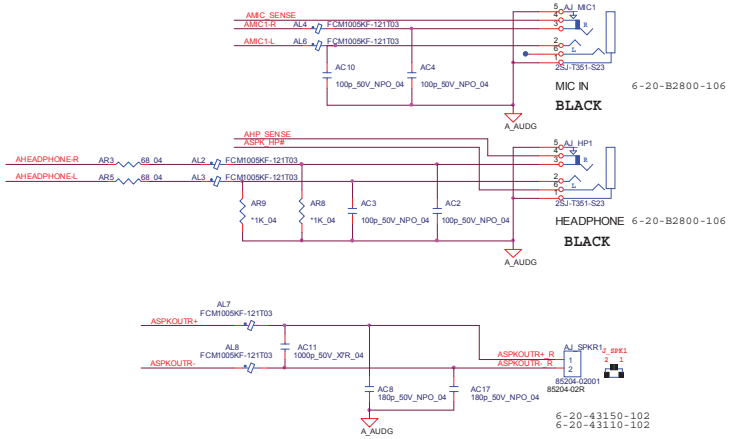
USB PORT



TO M/B



AUDIO JACK



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AUDIO BOARD

CLICK BOARD

CLICK BOARD

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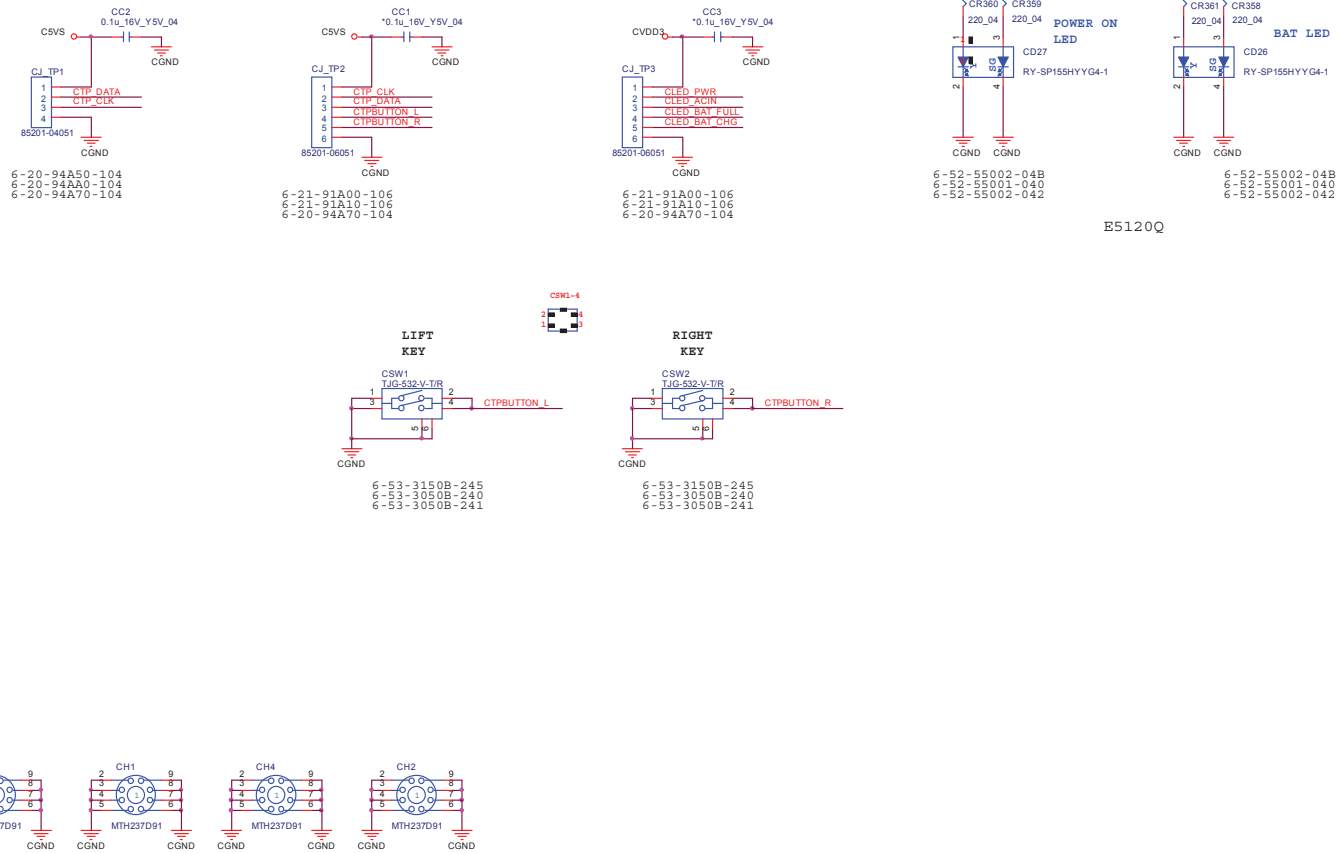
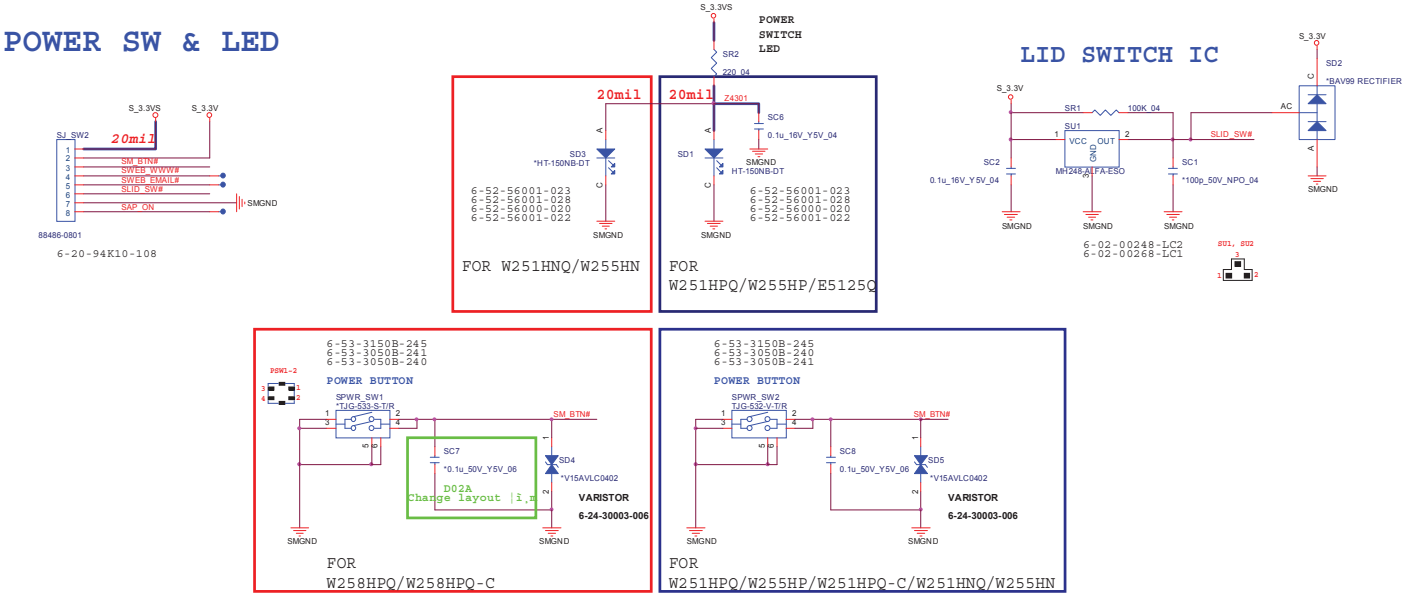
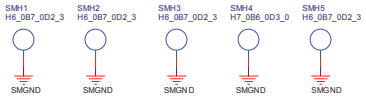
CLICK BOARD



W251HPQ POWER SW BOARD





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W251HPQ POWER
SW BOARD

W270HU BRIDGE ODD BOARD

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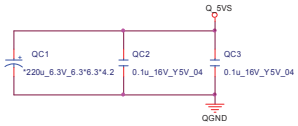
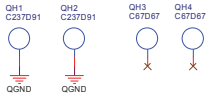
W270HU BRIDGE
ODD BOARD

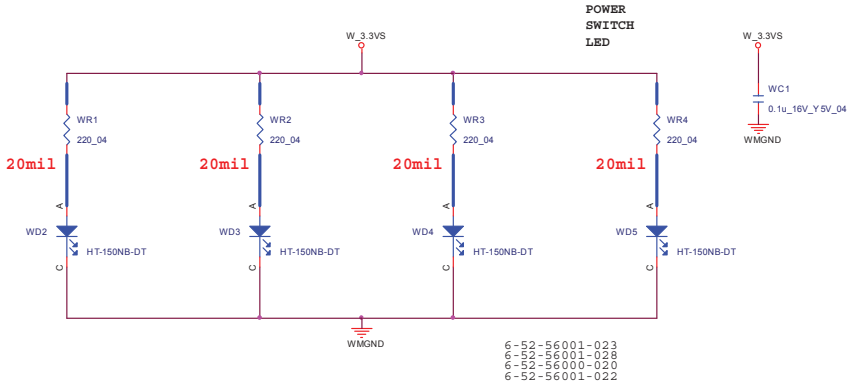
ODD BOARD FOR W270HU

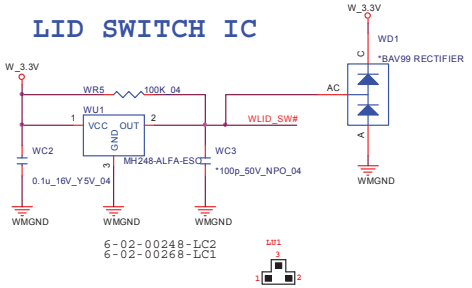


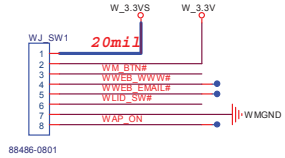


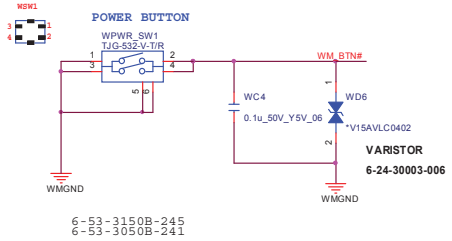
W270HU POWER SW BOARD

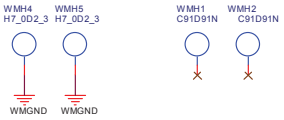
POWER SW & LED











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W270HU POWER SW BOARD

Power Diagram

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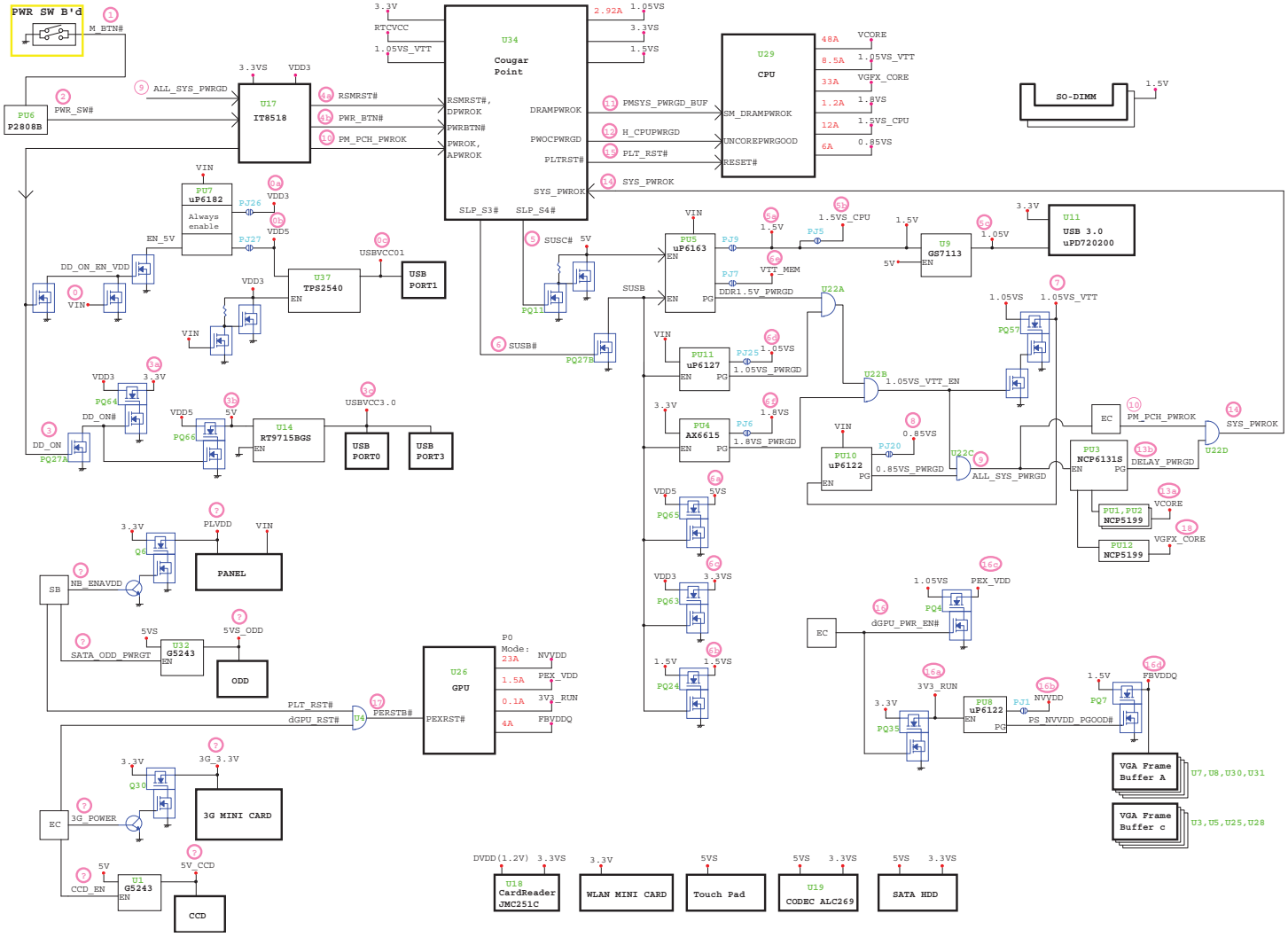
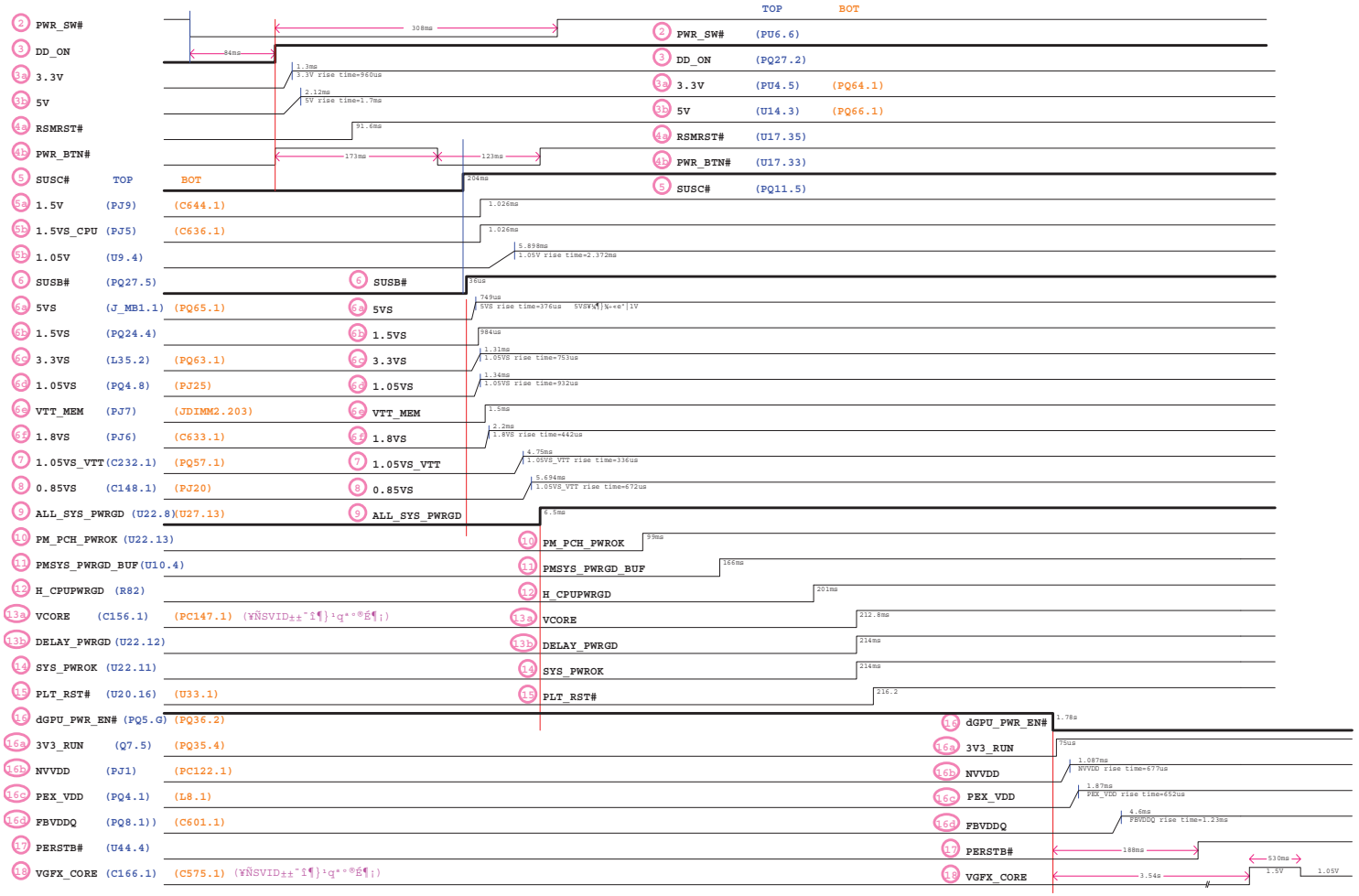
Power Diagram



Power On SEQ



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Power On SEQ

Appendix C:Updating the FLASH ROM BIOS

To update the FLASH ROM BIOS, you must:

- Download the BIOS update from the web site.
- Unzip the files onto a bootable CD/DVD/USB Flash Drive.
- Reboot your computer from an external CD/DVD/USB Flash Drive.
- Use the flash tools to update the flash BIOS using the commands indicated below.
- Restart the computer booting from the HDD and press **F2** at startup enter the BIOS.
- Load setup defaults from the BIOS and save the default settings and exit the BIOS to restart the computer.
- After rebooting the computer you may restart the computer again and make any required changes to the default BIOS settings.

Download the BIOS

1. Go to **www.clevo.com.tw** and point to **E-Services** and click **E-Channel**.
2. Use your user ID and password to access the appropriate download area (BIOS), and download the latest BIOS files (the BIOS file will be contained in a batch file that may be run directly once unzipped) for your computer model (**see sidebar for important information on BIOS versions**).

Unzip the downloaded files to a bootable CD/DVD/ or USB Flash drive

1. Insert a bootable CD/DVD/USB flash drive into the CD/DVD drive/USB port of the computer containing the downloaded files.
2. Use a tool such as Winzip or Winrar to unzip all the BIOS files and refresh tools to your bootable CD/DVD/USB flash drive (you may need to create a bootable CD/DVD with the files using a 3rd party software).

Set the computer to boot from the external drive

1. With the bootable CD/DVD/USB flash drive containing the BIOS files in your CD/DVD drive/USB port, restart the computer and press **F2** (in most cases) to enter the BIOS.
2. Use the arrow keys to highlight the **Boot** menu.
3. Use the "+" and "-" keys to move boot devices up and down the priority order.
4. Make sure that the CD/DVD drive/USB flash drive is set first in the boot priority of the BIOS.
5. Press **F4** to save any changes you have made and exit the BIOS to restart the computer.

BIOS Version

Make sure you download the latest correct version of the BIOS appropriate for the computer model you are working on.

You should only download BIOS versions that are V1.01.XX or higher as appropriate for your computer model.

Note that BIOS versions are not backward compatible and therefore **you may not downgrade your BIOS to an older version** after upgrading to a later version (e.g if you upgrade a BIOS to ver 1.01.05, you **MAY NOT** then go back and flash the BIOS to ver 1.01.04).

Use the flash tools to update the BIOS

1. Make sure you are not loading any memory management programs such as HIMEM by holding the **F8** key as you see the message "**Starting MS-DOS**". You will then be prompted to give "**Y**" or "**N**" responses to the programs being loaded by DOS. Choose "N" for any memory management programs.
2. You should now be at the DOS prompt e.g: DISK **C**:\> (C is the designated drive letter for the CD/DVD drive/USB flash drive).
3. **Type the following command** at the DOS prompt:

   C:\> Flash.bat

4. The utility will then proceed to flash the BIOS.
5. You should then be prompted to press any key to restart the system or turn the power off, and then on again but make sure you remove the CD/DVD/USB flash drive from the CD/DVD drive/USB port before the computer restarts.

Restart the computer (booting from the HDD)

1. With the CD/DVD/USB flash drive removed from the CD/DVD drive/USB port the computer should restart from the HDD.
2. Press **F2** as the computer restarts to enter the BIOS.
3. Use the arrow keys to highlight the **Exit** menu.
4. Select **Load Setup Defaults** (or press **F3**) and select "**Yes**" to confirm the selection.
5. Press **F4** to save any changes you have made and exit the BIOS to restart the computer.

Your computer is now running normally with the updated BIOS

You may now enter the BIOS and make any changes you require to the default settings.