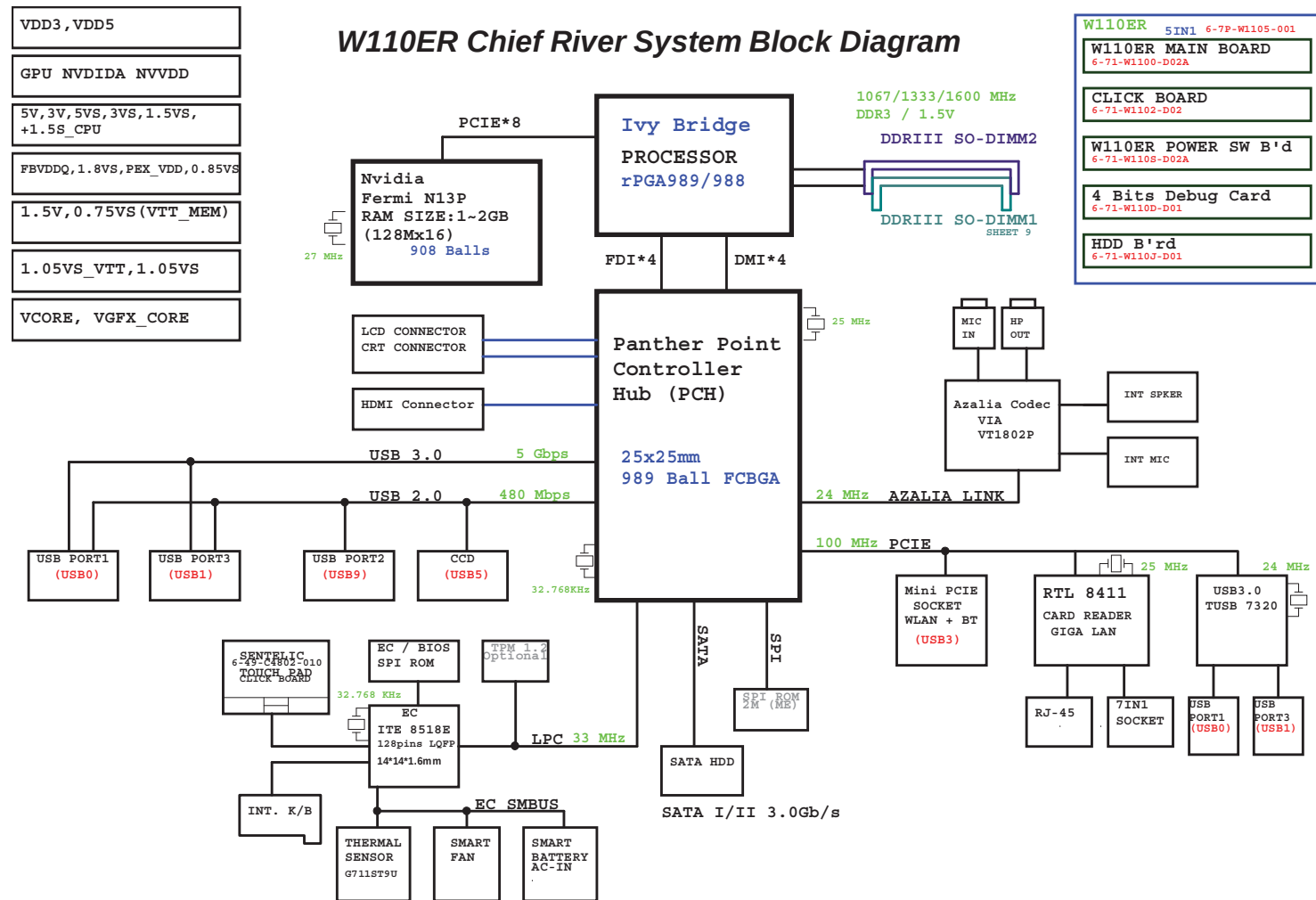


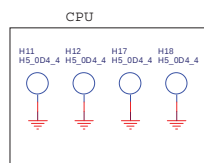
System Block Diagram



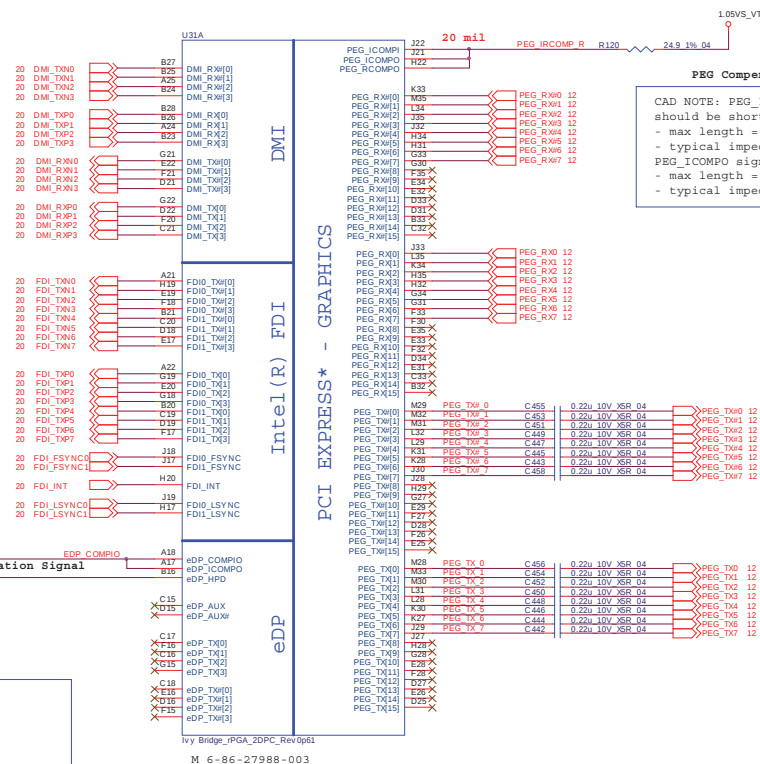
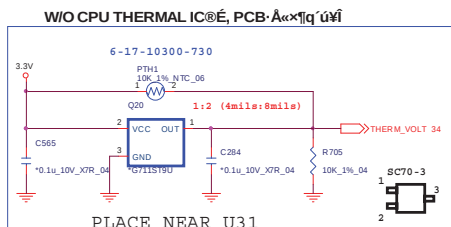
Sheet 1 of 48
System Block
Diagram

Processor 1/7 - DMI, FDI, PEG

Ivy Bridge Processor 1/7 (DMI,PEG,FDI)



CAD NOTE: DP_COMPIO and ICOMPO signals should be shorted near balls and routed with - typical impedance < 25 mohms



CAD NOTE: PEG_ICOMPI and RCOMPO signals should be shorted and routed with - max length = 500 mils - typical impedance = 43 mohms PEG_ICOMPO signals should be routed with - max length = 500 mils - typical impedance = 14.5 mohms

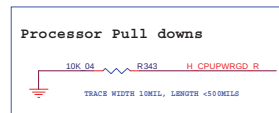
Sheet 2 of 48
Processor 1/7 -
DMI, FDI, PEG

B.Schematic Diagrams

Processor 2/7 - CLK, MISC

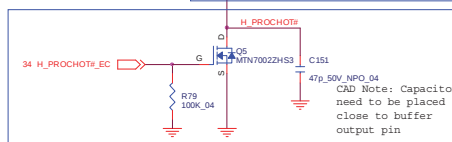
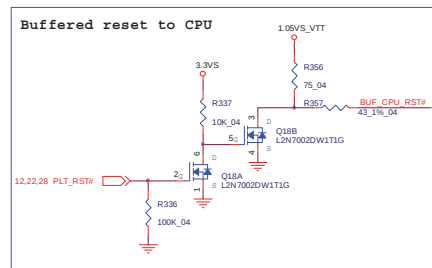
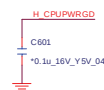
Sheet 3 of 48
Processor 2/7 -
CLK, MISC

Ivy Bridge Processor 2/7 (CLK,MISC,JTAG)

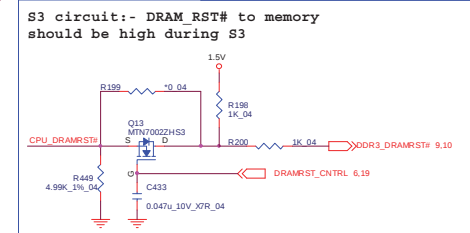
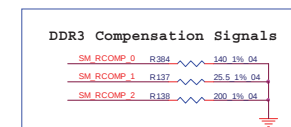
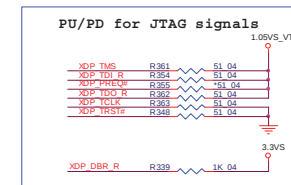


On CRB
H_SNB_IVB#_PWRCTRL = low, 1.0V
H_SNB_IVB#_PWRCTRL = high/NC, 1.05V

If PROCHOT# is not used,
then it must be terminated
with a 56- Ω $\pm$ 5% pull-up
resistor to 1.05V_{VTT}.



6.9,10,35,37,38 1.5V
6.35 1.05V CPU
2.5,23,24,25,27,28,29,30,35,37,38,39,40,42 1.05V_{VTT}
2.8,11,16,18,19,20,21,22,23,24,25,27,28,29,30,35,37,38,39,40,42 1.05V_{VTT}
9,10,11,12,18,19,20,21,22,23,24,25,27,28,30,31,32,33,34,35,40 3.3V_S



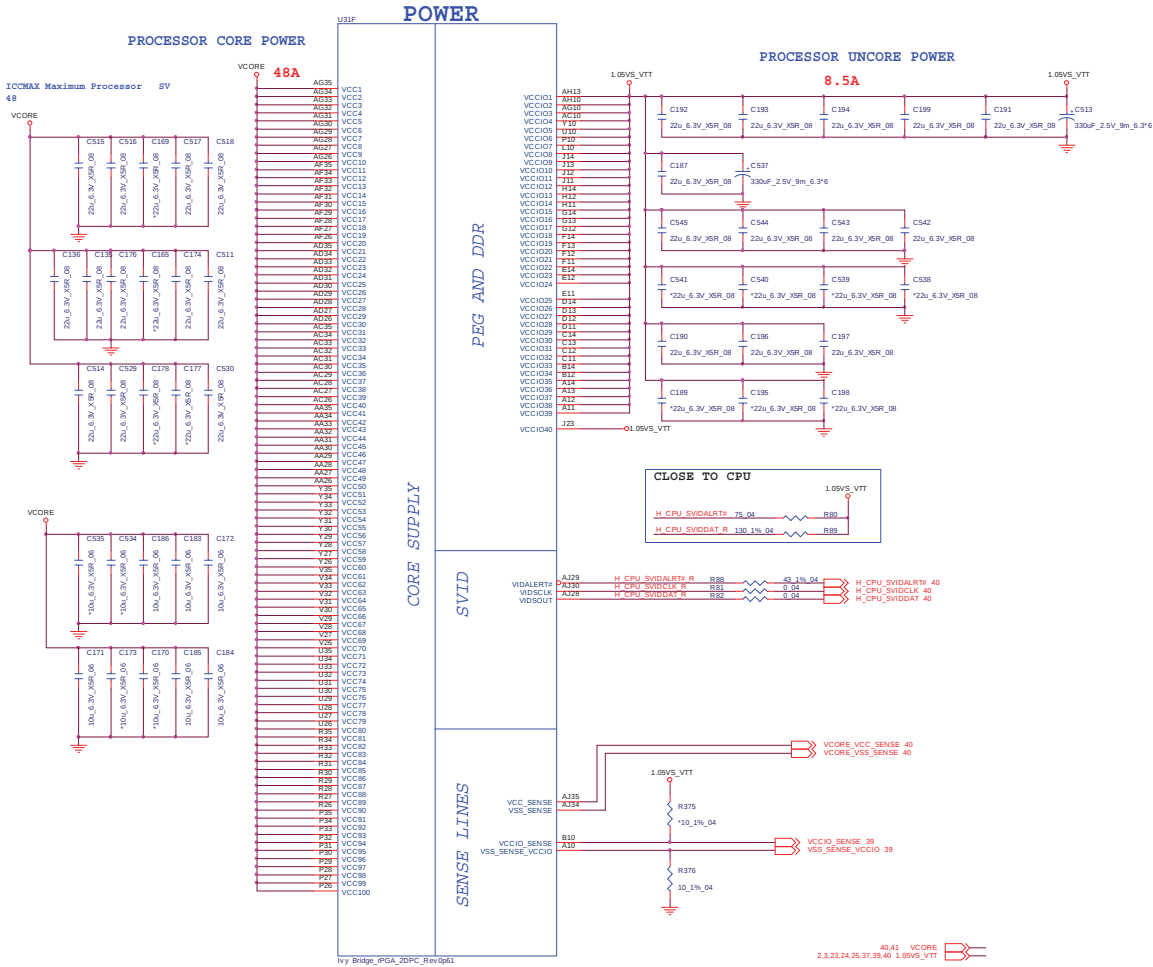
Ivy Bridge Processor 3/7 (DDR3)



Processor 4/7 - Power

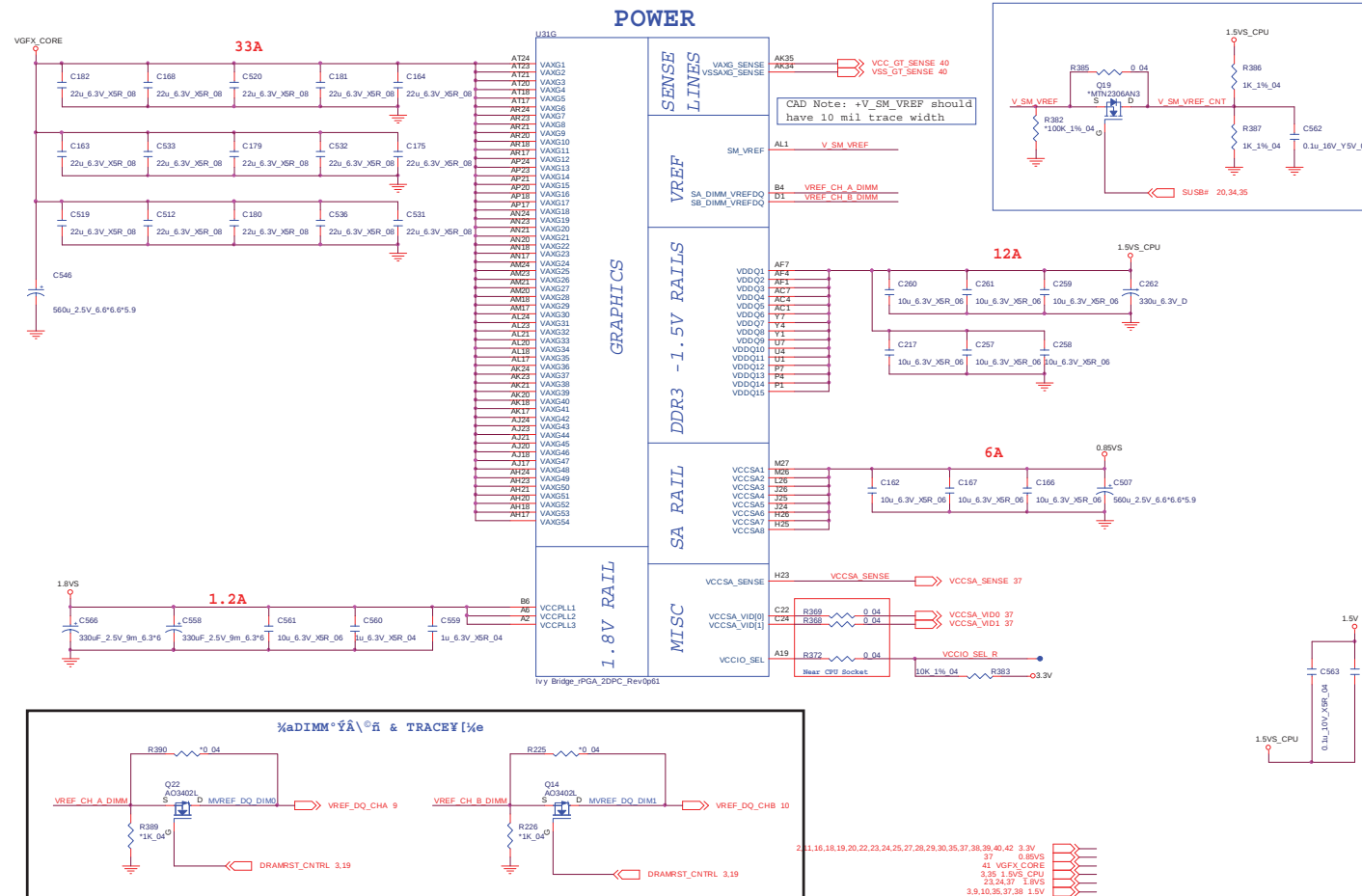
Sheet 5 of 48
Processor 4/7 -
Power

Ivy Bridge Processor 4/7 (POWER)



Processor 5/7 - GFX PWR

Ivy Bridge Processor 5/7 (GRAPHICS POWER)



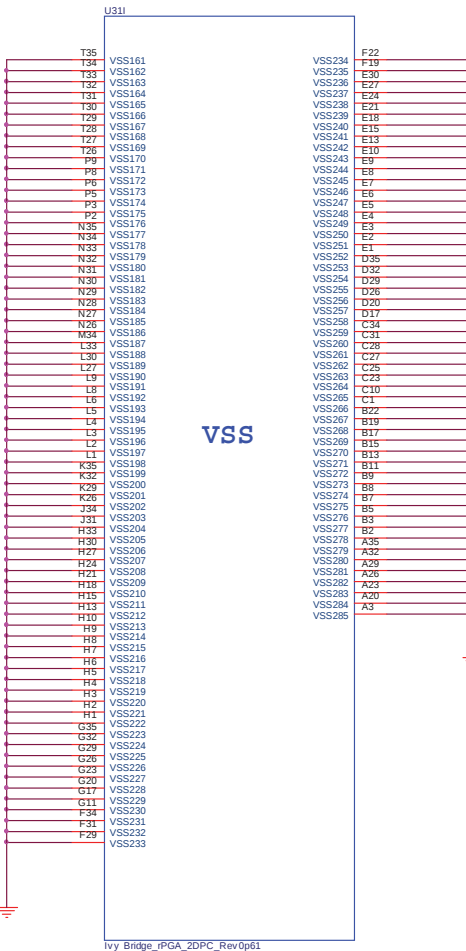
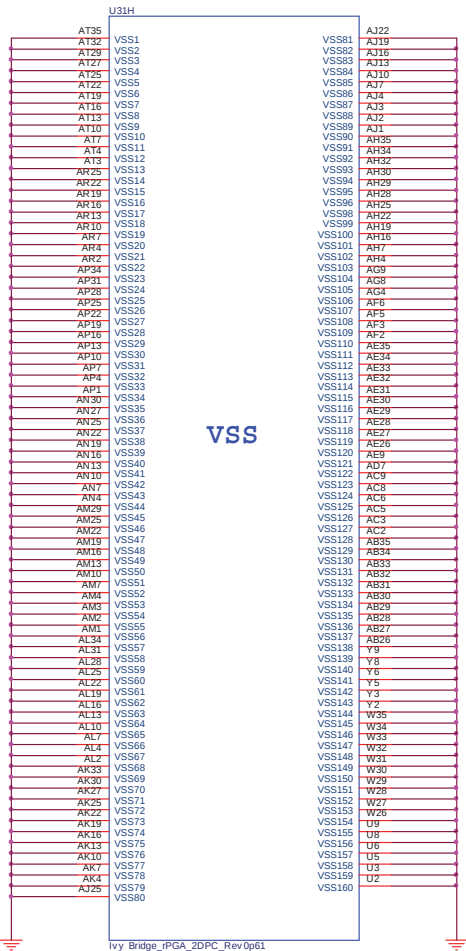
Sheet 6 of 48
Processor 5/7 -
GFX PWR

Processor 6/7 - GND

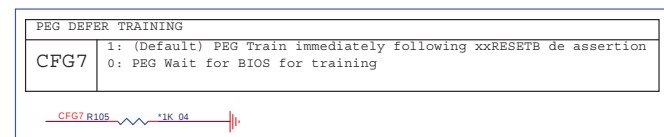
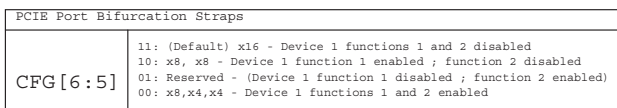
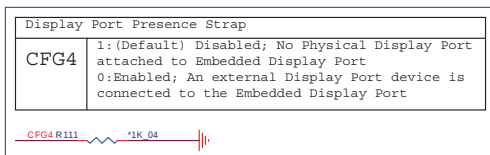
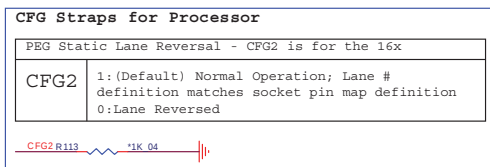
Ivy Bridge Processor 6/7 (GND)

Sheet 7 of 48
Processor 6/7 -
GND

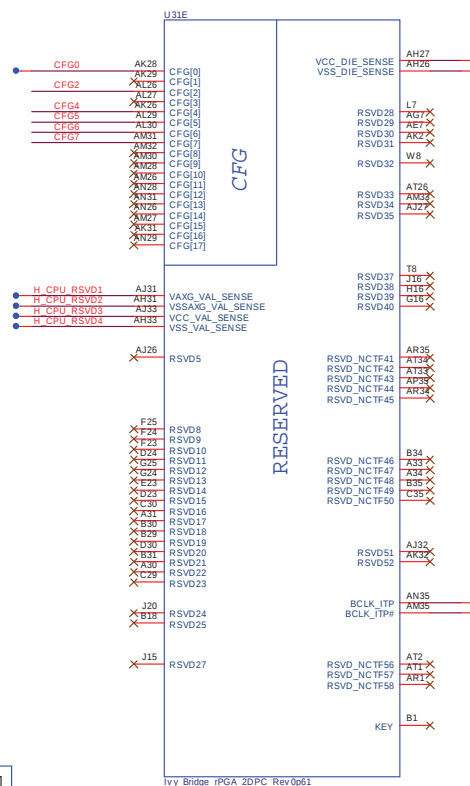
CAD Note: 0 ohm resistor
should be placed close
to CPU



Processor 7/7 - RSVD

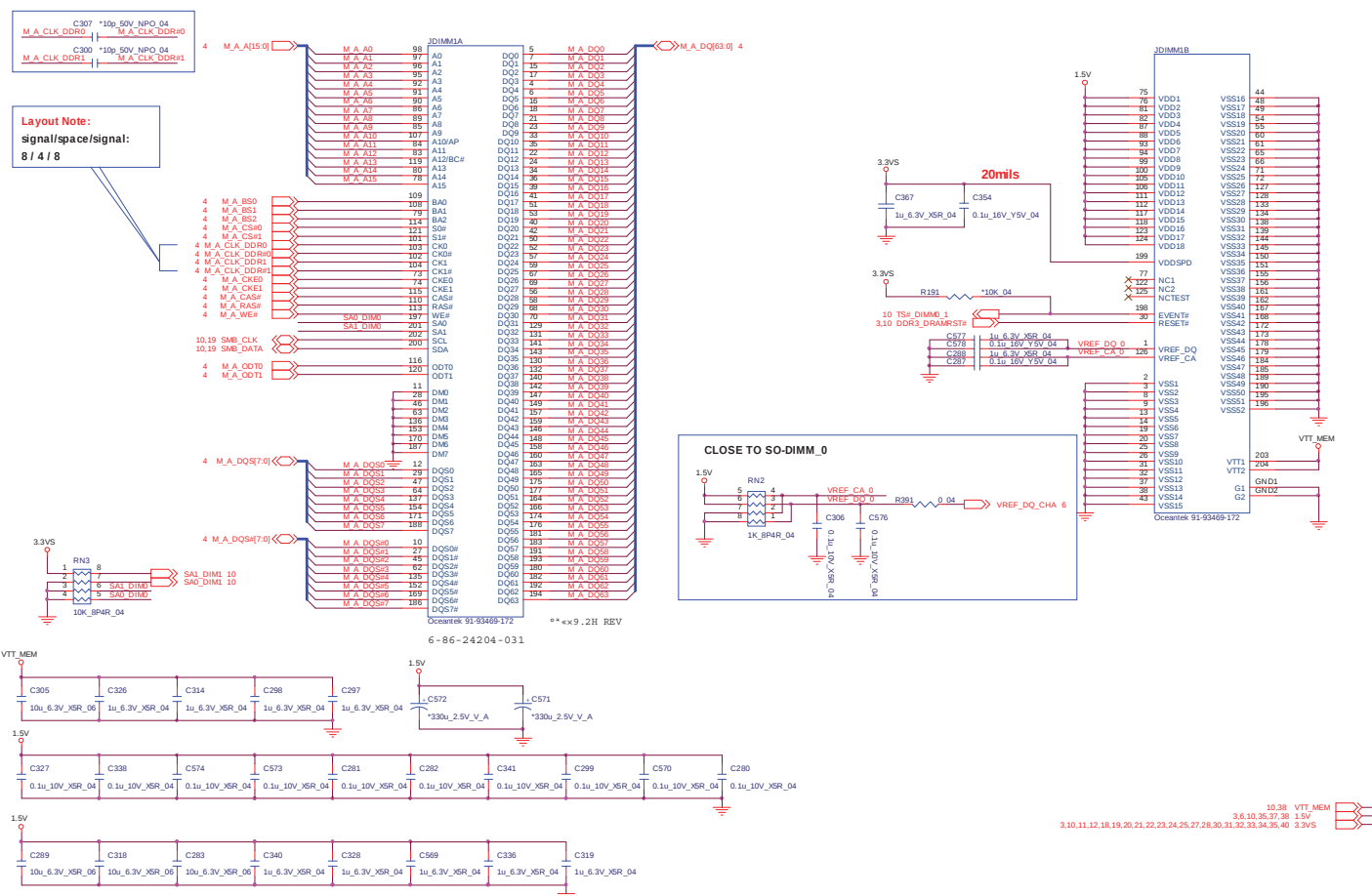


Ivy Bridge Processor 7/7 (RESERVED)



Sheet 8 of 48
Processor 7/7 -
RSVD

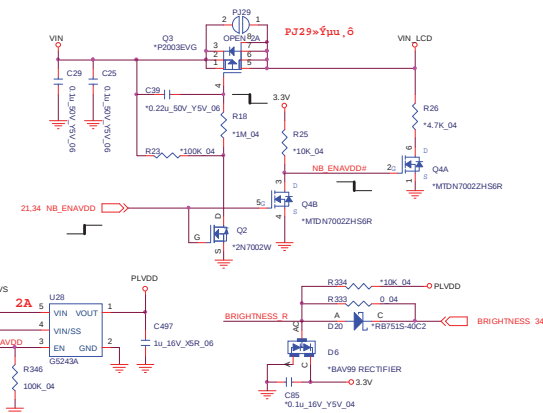
SO-DIMM A



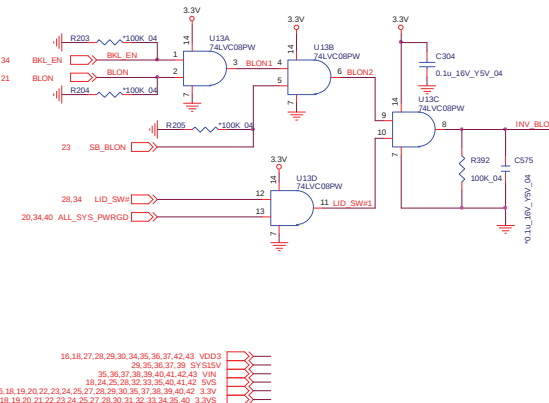
SO-DIMM B



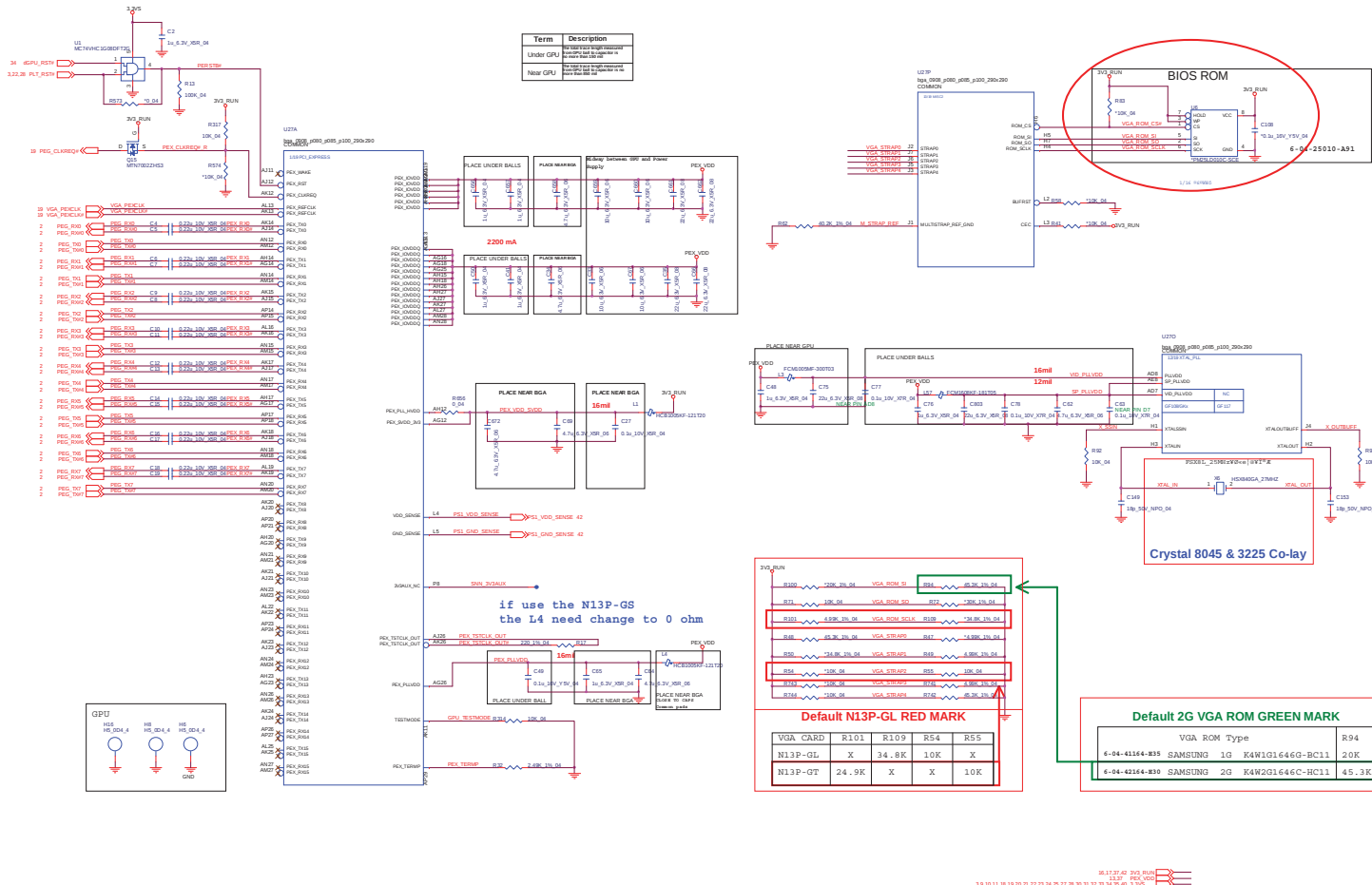
Sheet 11 of 48
PANEL, INVERTER,
CRT

[illegible]

	GPU Side(3.3VS)	Device Side(5VS)
AMD	10K	2K
nVidia	no Comment	no Comment
Intel	2.2K	2.2K

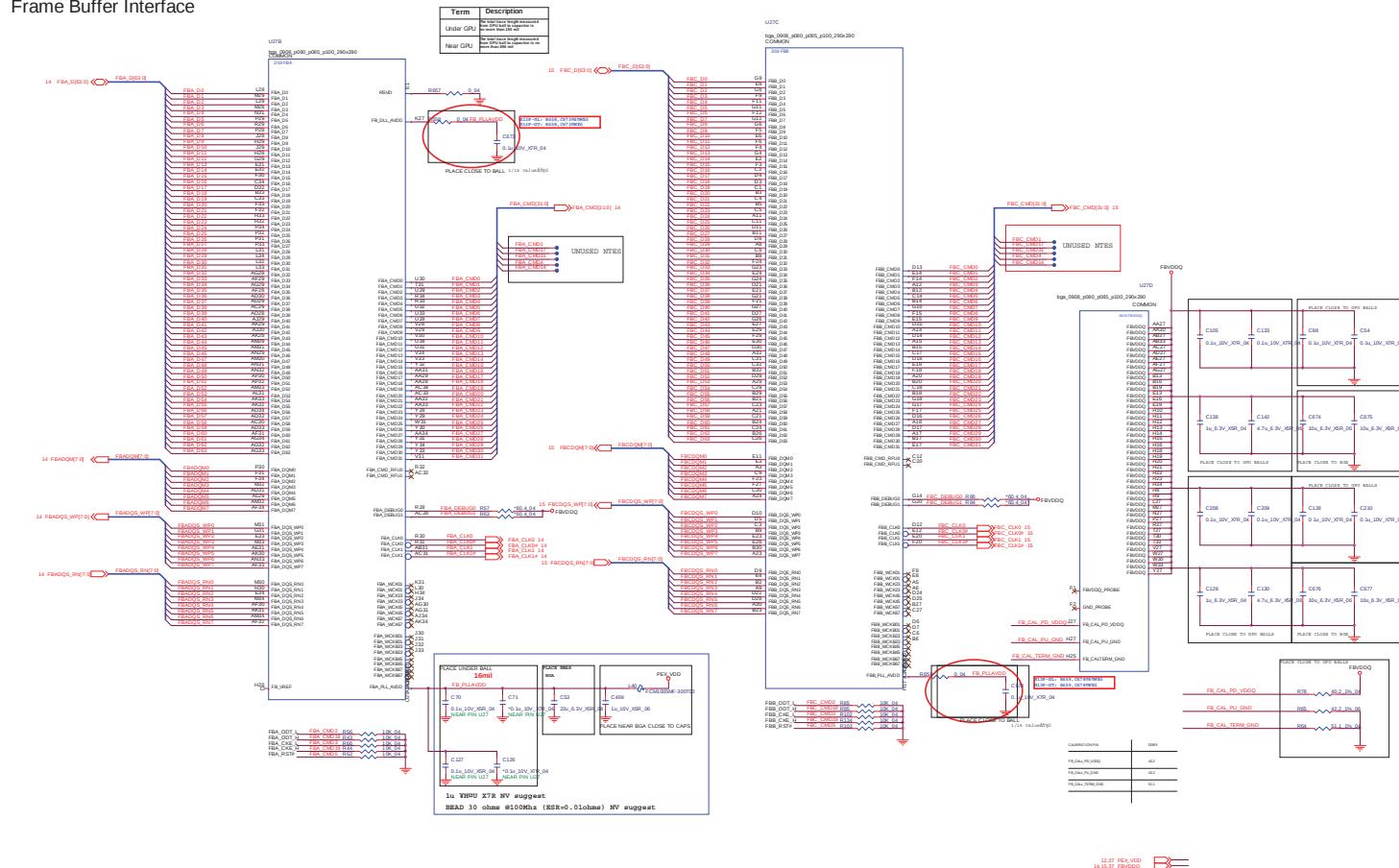


VGA PCI-E Interface



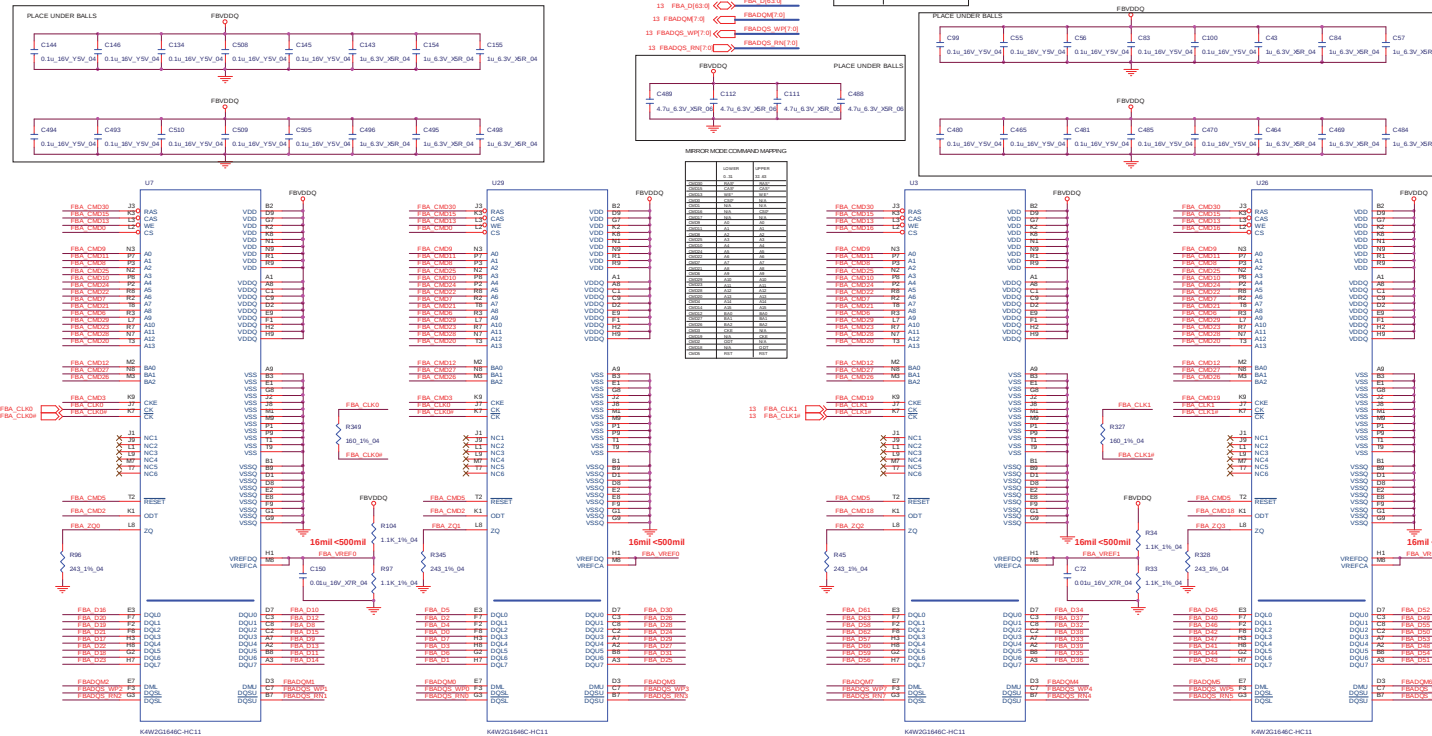
B.Schematic Diagrams

B - 14 VGA Frame Buffer Interface



VGA Frame Buffer A

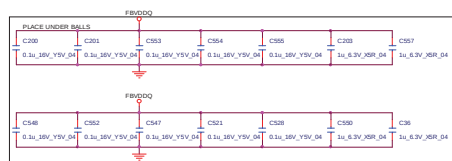
Frame Buffer Partition A



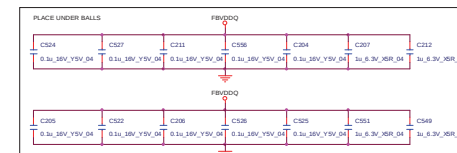
Sheet 14 of 48
VGA Frame Buffer
A

VGA Frame Buffer C

Frame Buffer Partition C

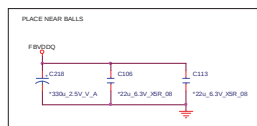
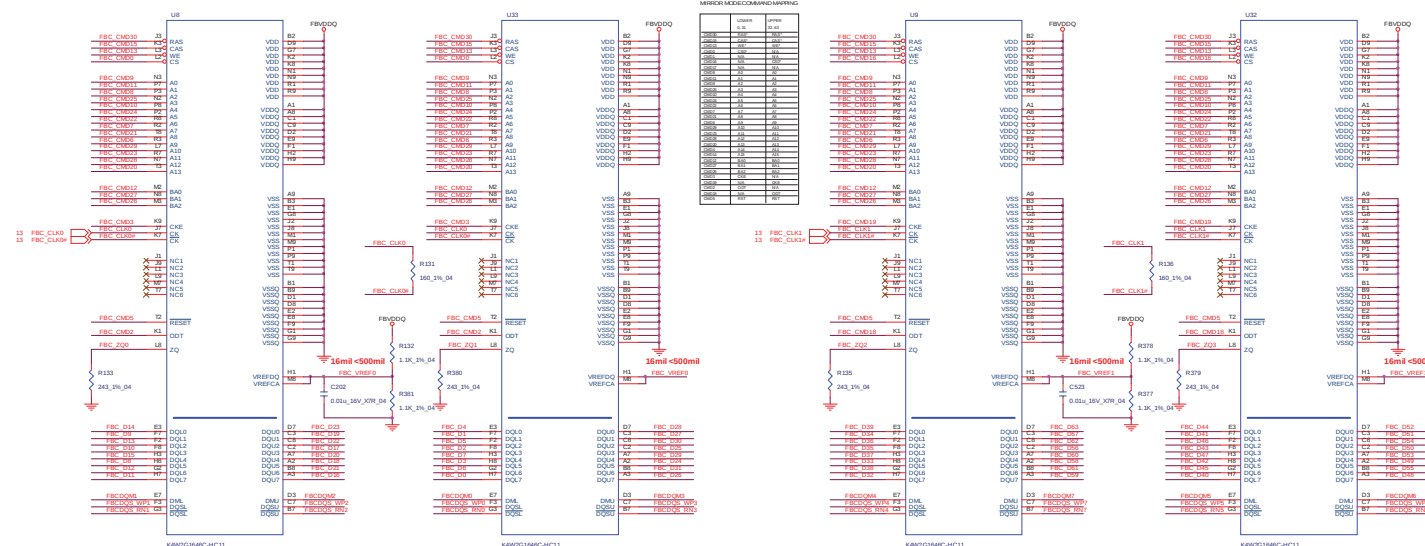


Term	Description
Under GPU	the total trace length measured from GPU ball to capacitor is no more than 250 mil
Near GPU	the total trace length measured from GPU ball to capacitor is no more than 450 mil



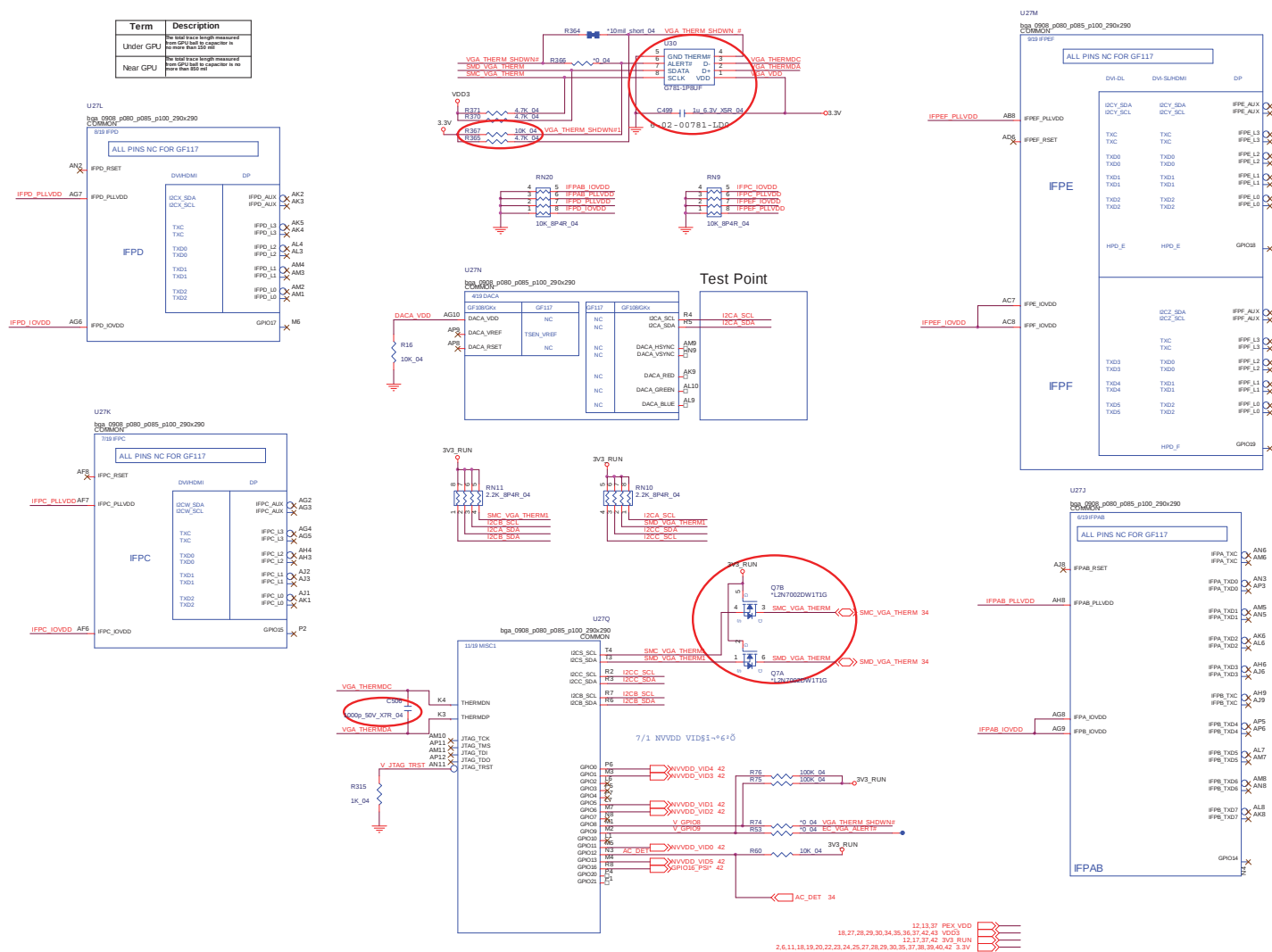
B.Schematic Diagrams

Sheet 15 of 48
VGA Frame Buffer
C

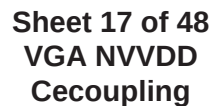
13.14.37 FINDO

B.Schematic Diagrams

Term	Description
Under GPU	the total trace length measured from GPU ball to capacitor is no more than 150 mil
Near GPU	the total trace length measured from GPU ball to capacitor is no more than 850 mil

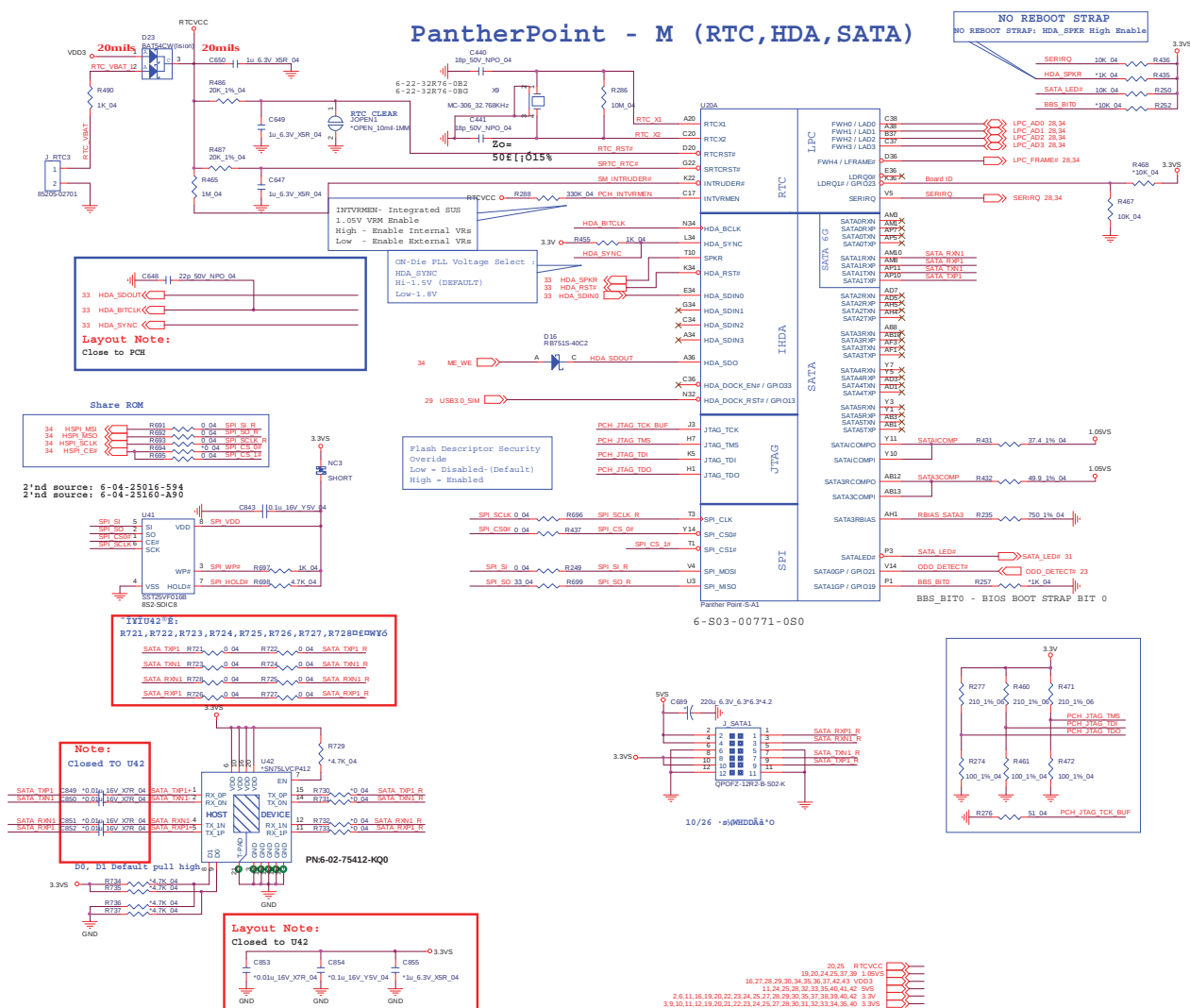


Sheet 16 of 48
VGA I/O



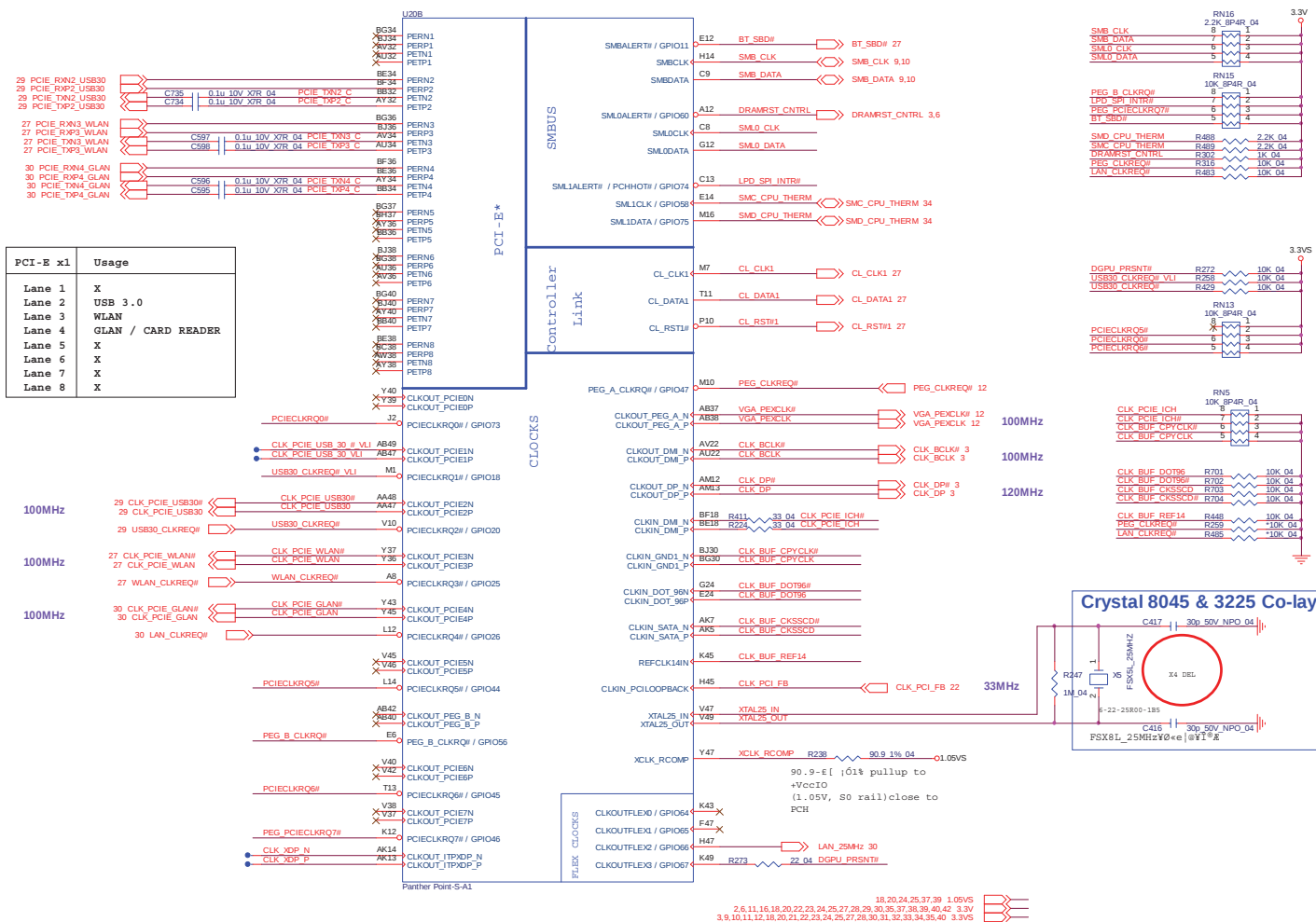
42 NVDD
12.16.37.42 3V3 RUN

PCH 1/9 - RTC, HDA, SATA

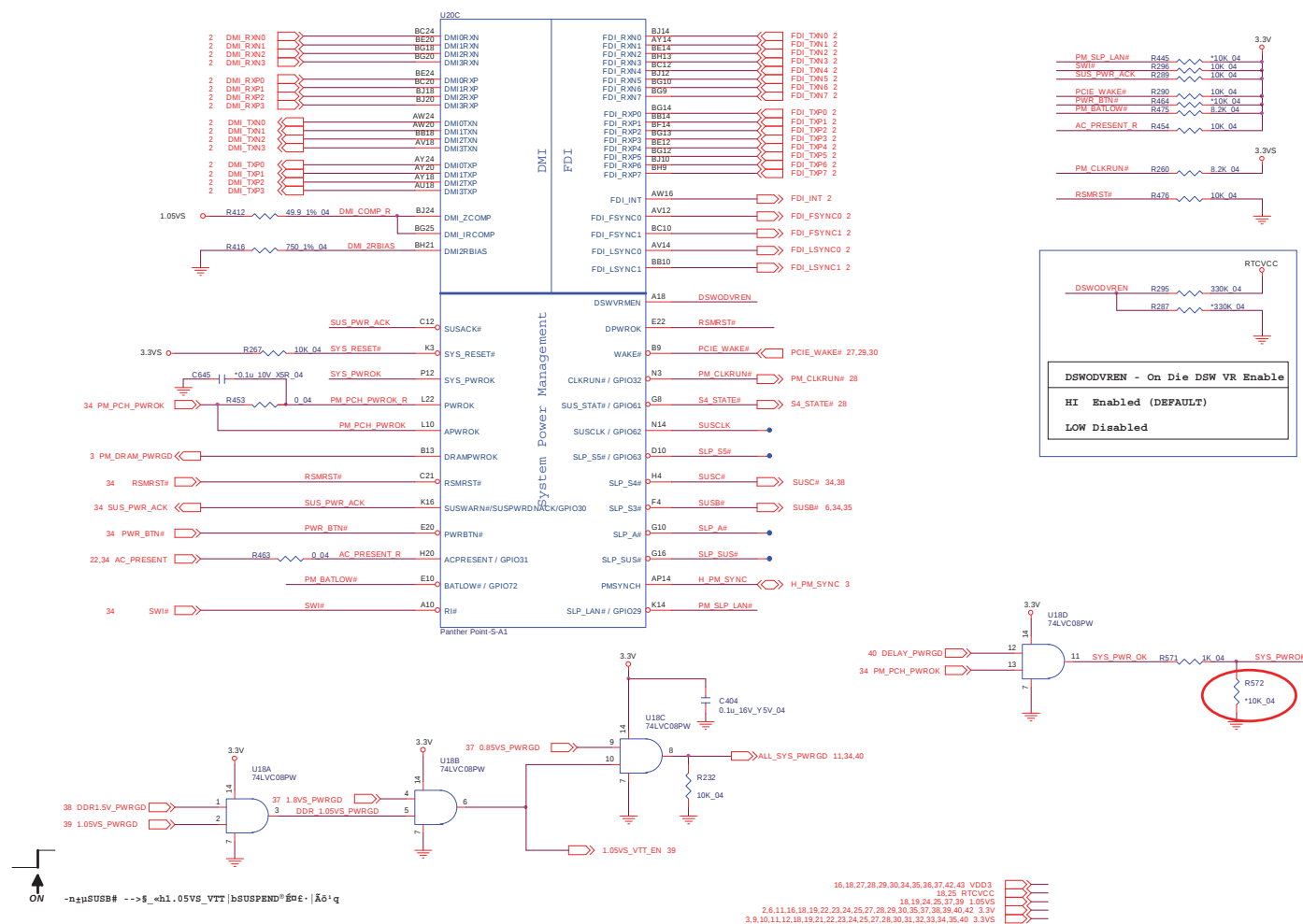


PCH 2/9 - PCIE, SMBUS, CLK

PantherPoint - M (PCI-E, SMBUS, CLK)



PantherPoint -M (DMI, FDI, GPIO)



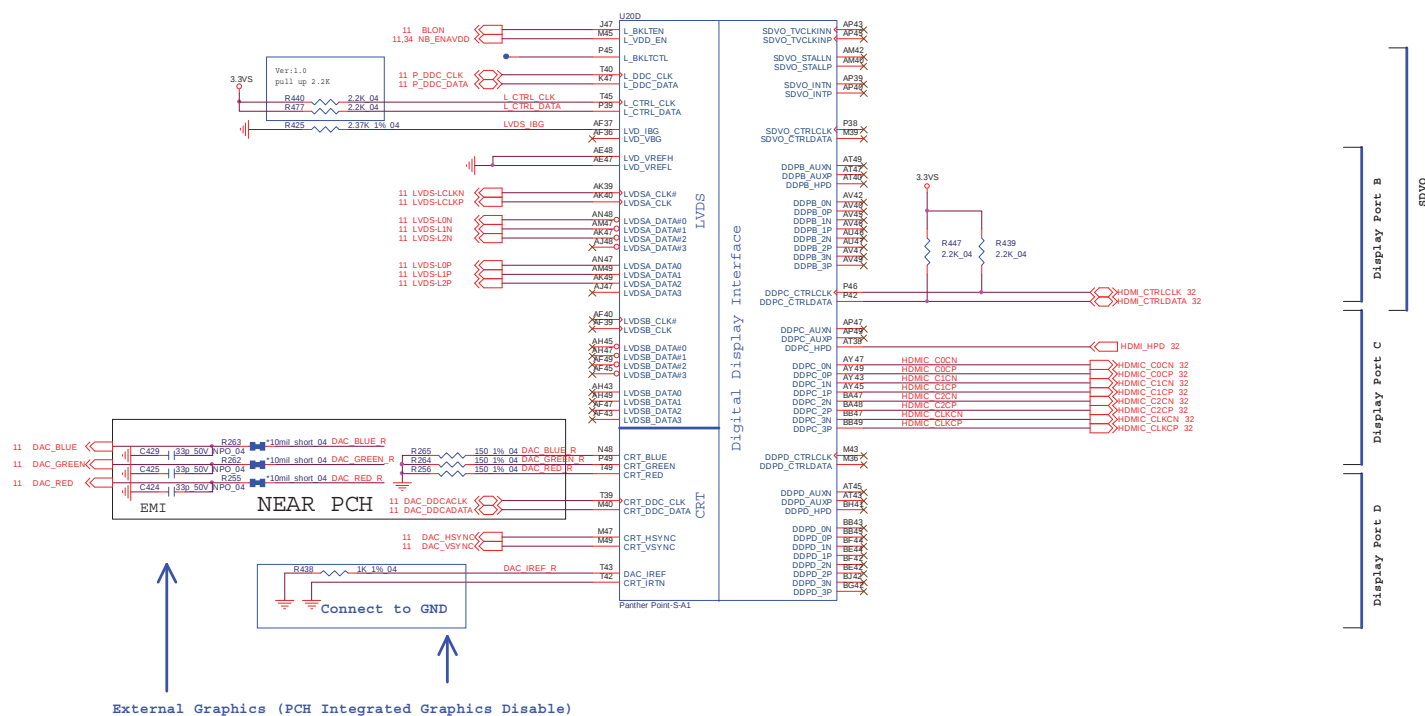
Sheet 20 of 48
PCH 3/9 - DMI, FDI,
PWRGD

B.Schematic Diagrams

PCH 4/9 - LVDS, DDI, CRT

PantherPoint -M (LVDS,DDI)

Sheet 21 of 48
PCH 4/9 - LVDS,
DDI, CRT



2,6,11,16,18,19,20,22,23,24,25,27,28,29,30,35,37,38,39,40,42 3.3V
3,9,10,11,12,18,19,20,22,23,24,25,27,28,30,31,32,33,34,35,40 3.3V

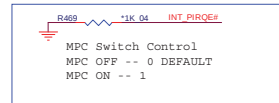
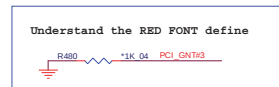
PCH 5/9 - PCI, USB, RSVD

PantherPoint -M (PCI,USB,RSVD)

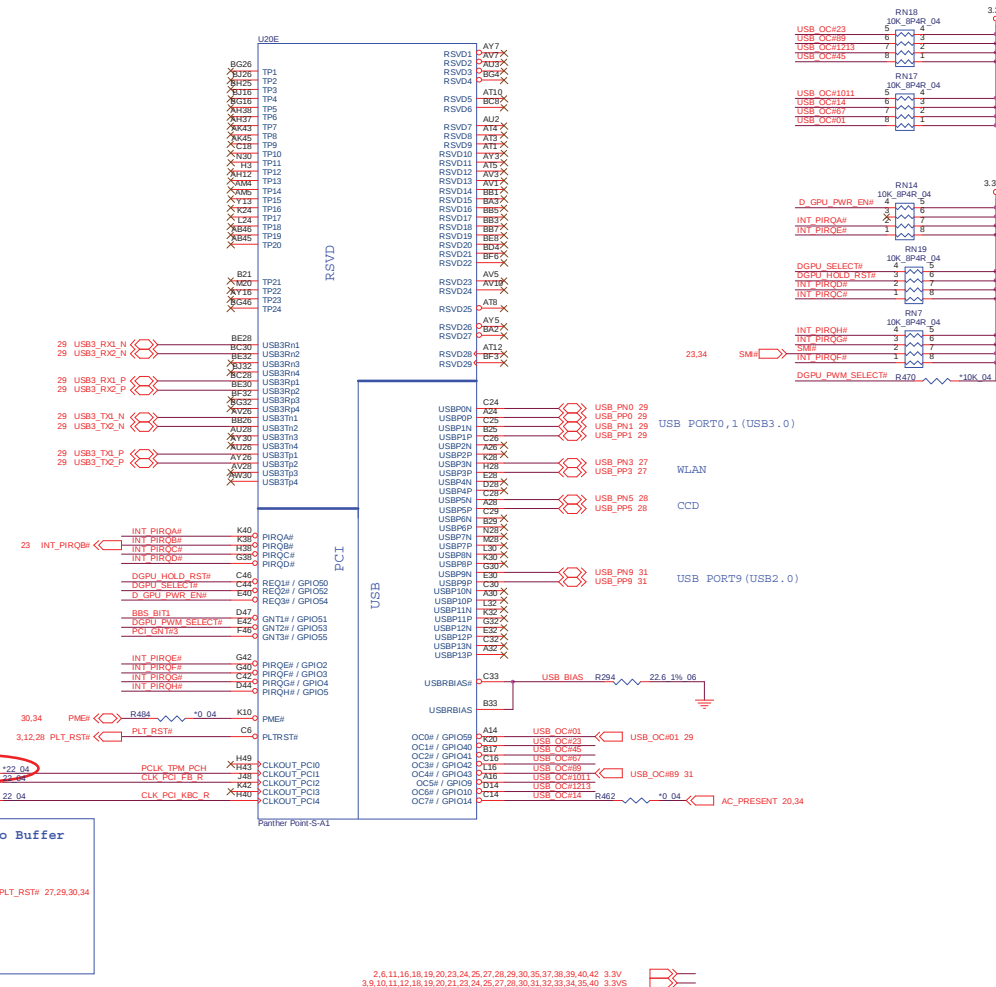
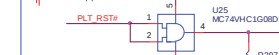
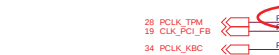
Boot BIOS Strap		
BBS_BIT1	BBS_BIT0	Boot BIOS Location
0	0	LPC
0	1	Reserved (NAND)
1	0	PCI
1	1	SPI



Flash Descriptor security override strap	
PCI_GNT#3	LOW = PCI_GNT#3 swap override HIGH = Default

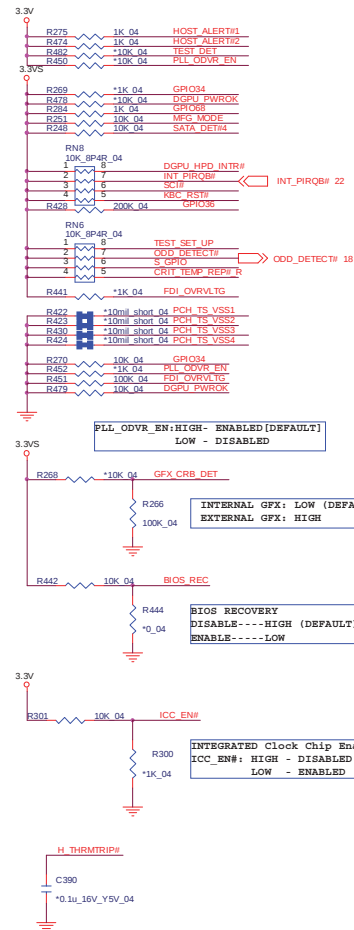


MPC Switch Control
MPC OFF -- 0 DEFAULT
MPC ON -- 1



Sheet 22 of 48
PCH 5/9 - PCI, USB,
RSVD

PCH 6/9 - GPIO, CPU

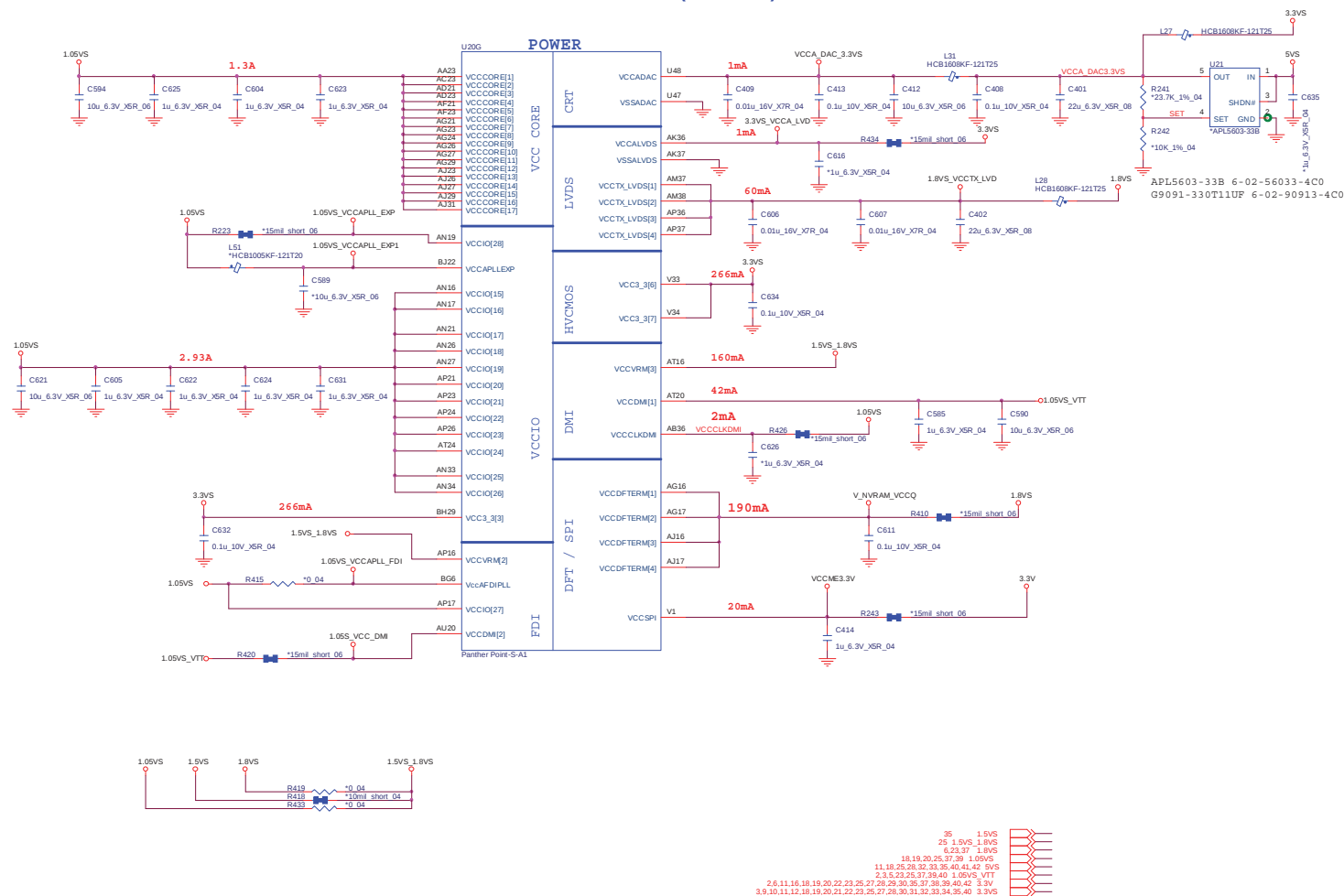


Sheet 23 of 48
PCH 6/9 - GPIO,
CPU

PantherPoint - M (GPIO,VSS_NCTF,RSVD)

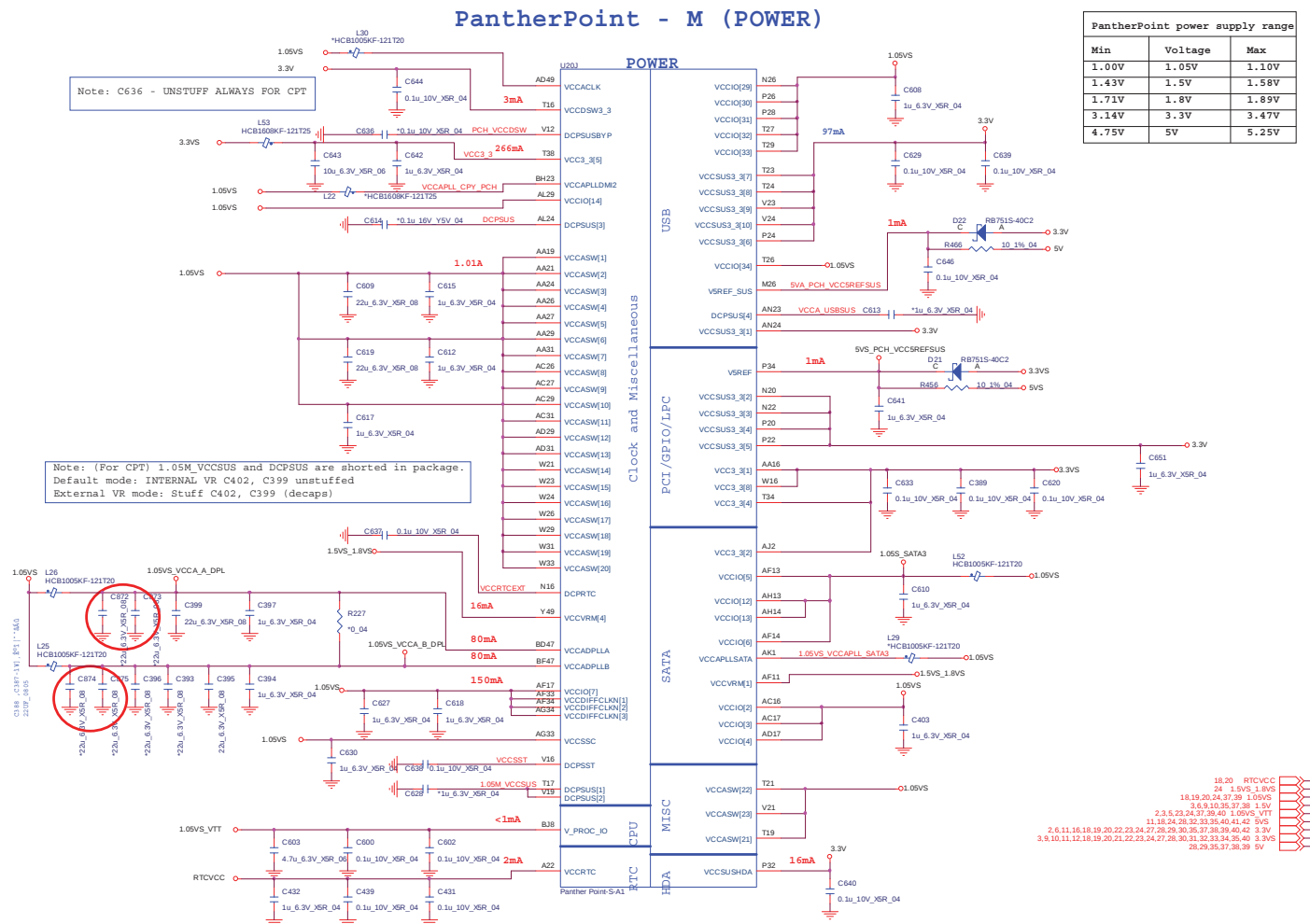


PantherPoint -M (POWER)



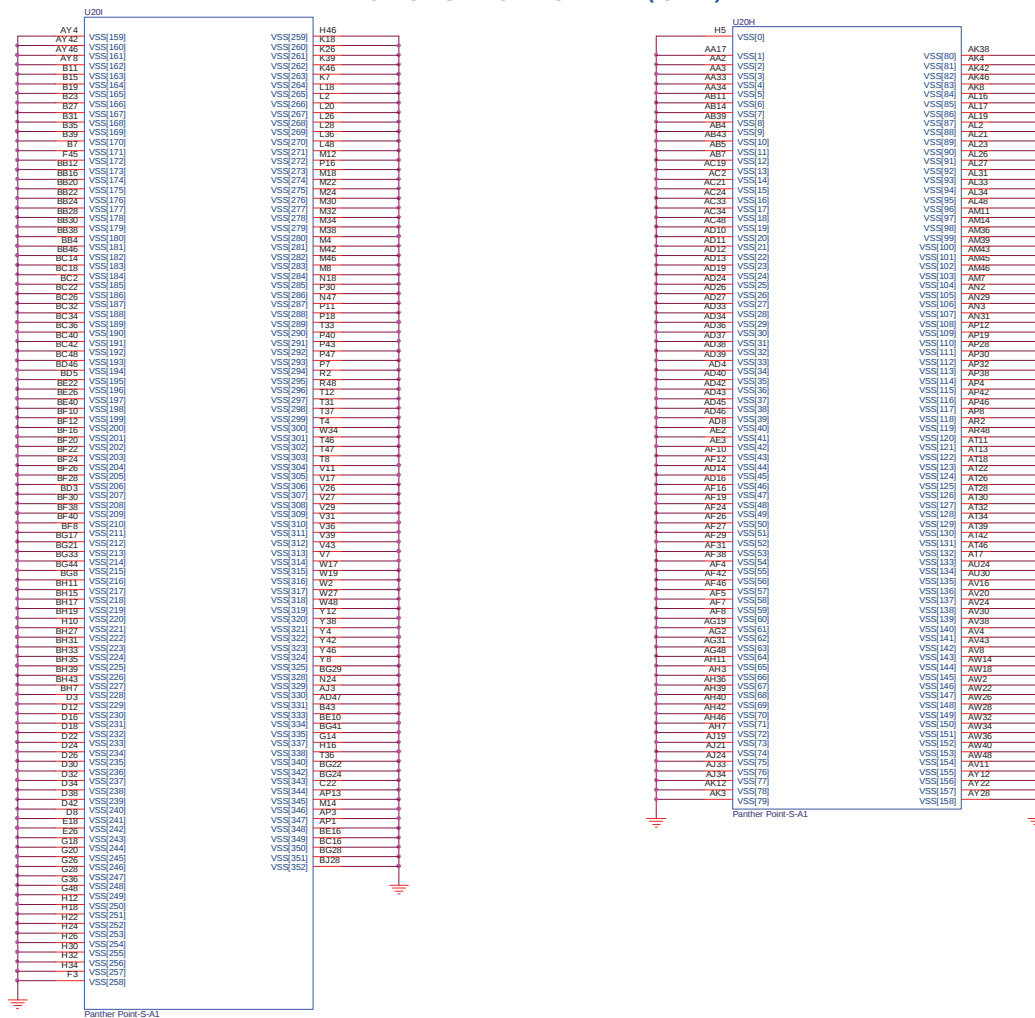
PCH 8/9 - POWER

Sheet 25 of 48
PCH 8/9 - POWER



PCH 9/9 - GND

PantherPoint -M (GND)

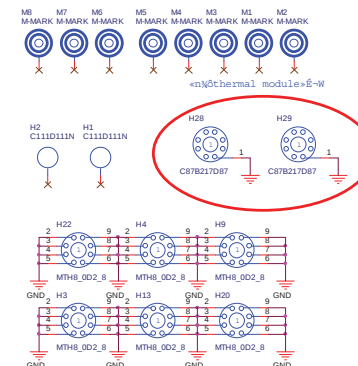
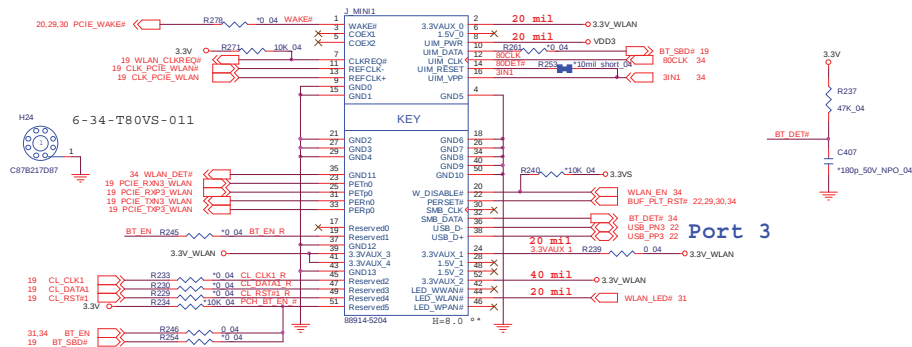


Voltage Rail	Voltage	80 Iccmax Current (A)
V_CPU_IO	1.05	1 (mA)
V5REF	5	1 (mA)
V5REF_Sus	5	1 (mA)
Vcc3_3	3.3	0.266
VccADAC3	1.05	1 (mA)
VccADPLLA	1.05	0.08
VccADPLL	1.05	0.08
VccCore	1.05	1.3
VccDMI	1.1	0.042
VccIO	1.05	2.925
VccASW	1.05	1.01
VccSPI	3.3	0.020
VccDSW3_3	3.3	2 (mA)
VccDPTerm	1.8	0.19
VccSus3_3	3.3	0.097
VccSusHDA	3.3	1 (mA)
VccVRM	1.5	0.16
VccCLKDMI	1.05	0.02
VccSSC	1.05	0.095
VccDPPCLKN	1.05	0.055
VccALVDS	3.3	1 (mA)
VccTX_LVDS	1.8	0.06

Sheet 26 of 48
PCH 9/9 - GND

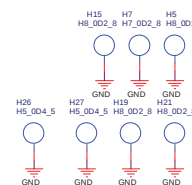
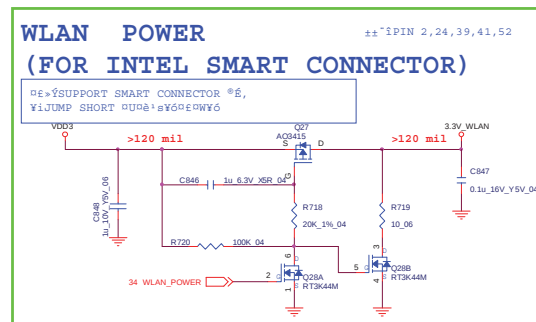
WLAN, 3G, MINI PCIE

WLAN MINI CARD

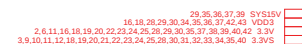
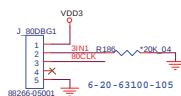


Sheet 27 of 48
WLAN, 3G, MINI
PCIE

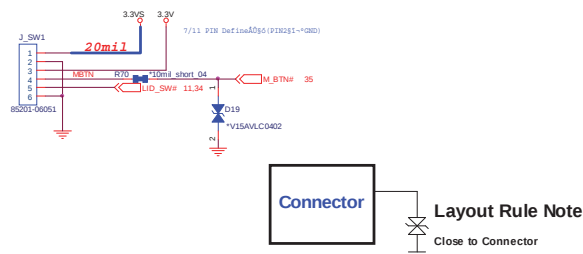
WLAN_PWR Signal default HI for WLAN
1.BIOS Setup HI for Intel PCIE WLAN
2.USB WLAN BIOS Setup LOW for Fn+F10



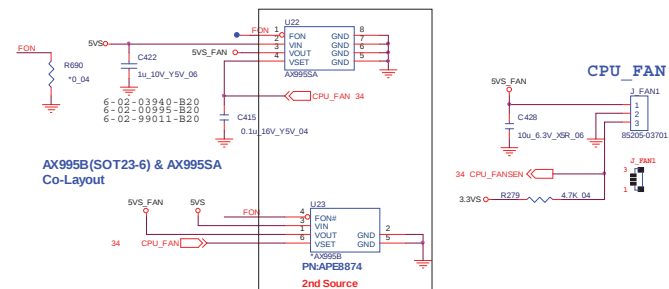
Debug Port



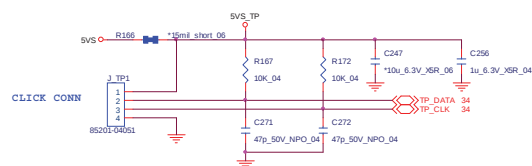
FOR POWER SW BOARD



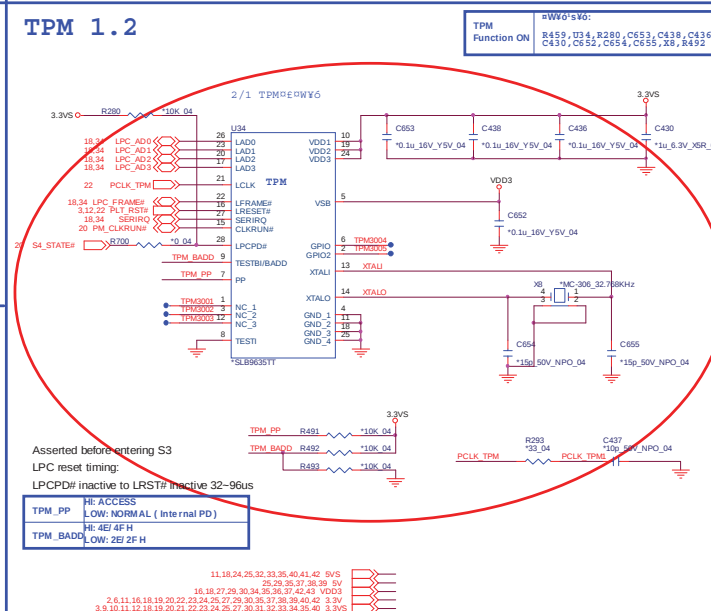
CPU FAN CONTROL



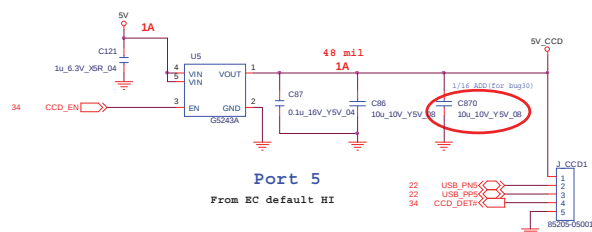
FOR CLICK BOARD



TPM 1.2



CCD



Sheet 28 of 48
CCD, TPM, MULTI
CON

B.Schematic Diagrams

The image shows a detailed PCB layout for a USB3.0 interface. The layout includes a USB3.0 connector, a USB3.0 controller (TUSB7320), and various support components like capacitors, resistors, and a crystal. Annotations include 'USB3.0 Max Trace length < 4"', 'USB3.0 Power Setting', 'USB3.0 Layout Guidelines', and 'H3.3 Modify'. The layout is color-coded with red and blue traces.

USB3.0 Max Trace length < 4"

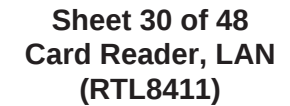
USB3.0 Power Setting

USB3.0 Layout Guidelines:

- USB3.0 Differential trace impedance: 90ohm
- Differential pairs The USB3.0 the total trace skew less than 5 mils.
- ic pad to USB Connector total length < 4"(Max)
- USB3.0 Capacitor 0.1u,10V_X7R_04 Close to Connector.
- PCIE differential impedance 85 ohm.
- PCIE For transmitter and receiver the total trace length: 1"(Min)--6"(Max).
- PCIE Number of vias 4via hole(Max).
- PCIE clock differential impedance 100 ohm.(by platform).
- PCIE differential pairs and pairs spacing 20mils, With other trace spacing 25mils.
- Power Trace width=2mils, Spacing=80 mils.

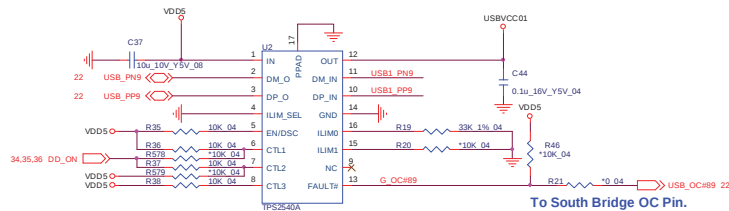
H3.3 Modify

B.Schematic Diagrams

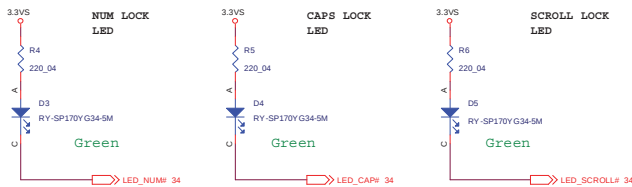


LED, USB CHARGE

USB Charge Port



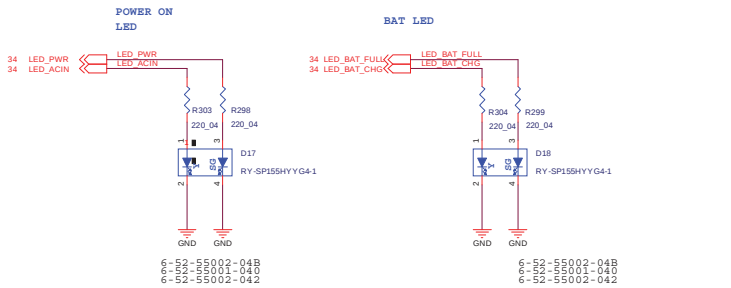
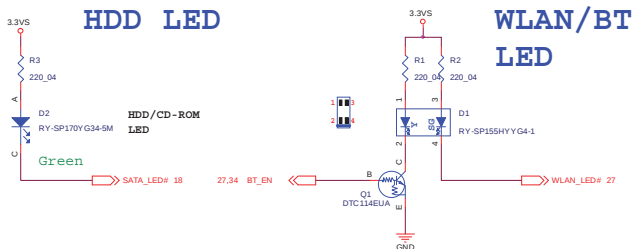
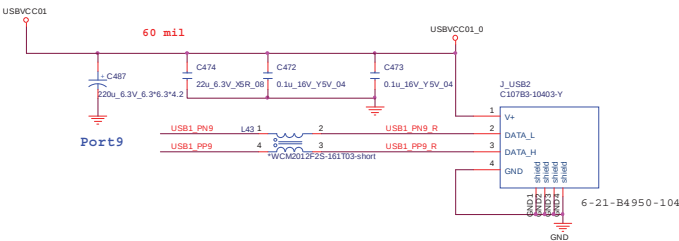
LED



Sheet 31 of 48
LED, USB CHARGE

		CTL1	CTL2	CTL3
Mode 1	Power off & Discharge	0	0	0
Mode 2	Power off & Charge	0	1	1
Mode 3	Power off & Charge	1	0	1
Mode 4	Power on & Charge	1	1	1

CTL1 CTL2 CTL3: 0 0 0----> Out discharge, power switch Off
 CTL1 CTL2 CTL3: 0 x 1----> Dedicated charging port, auto-detect
 CTL1 CTL2 CTL3: 1 0 1----> Dedicated charging port, Divider Mode only
 CTL1 CTL2 CTL3: 1 1 1----> Charging downstream port, BC1.2

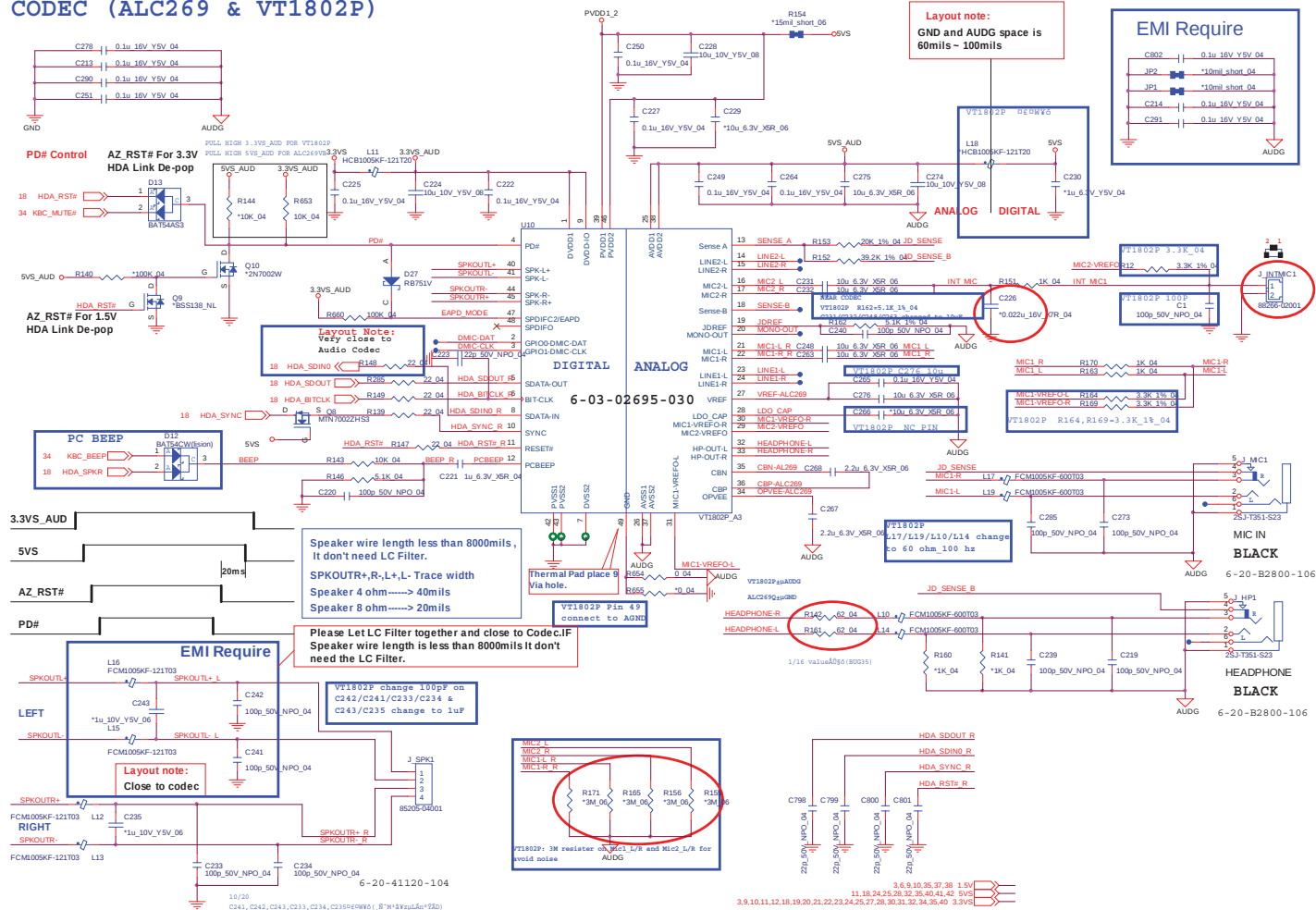


2,6,11,16,18,19,20,22,23,24,25,27,28,29,30,35,37,38,39,40,42 3.3V
 35,36 VDD5
 25,28,29,35,37,38,39 5V
 16,18,27,28,29,30,34,35,36,37,42,43 VDD3
 11,18,24,25,28,32,33,35,40,41,42 5VS
 3,9,10,11,12,18,19,20,21,22,23,24,25,27,28,30,32,33,34,36,40 3.3VS

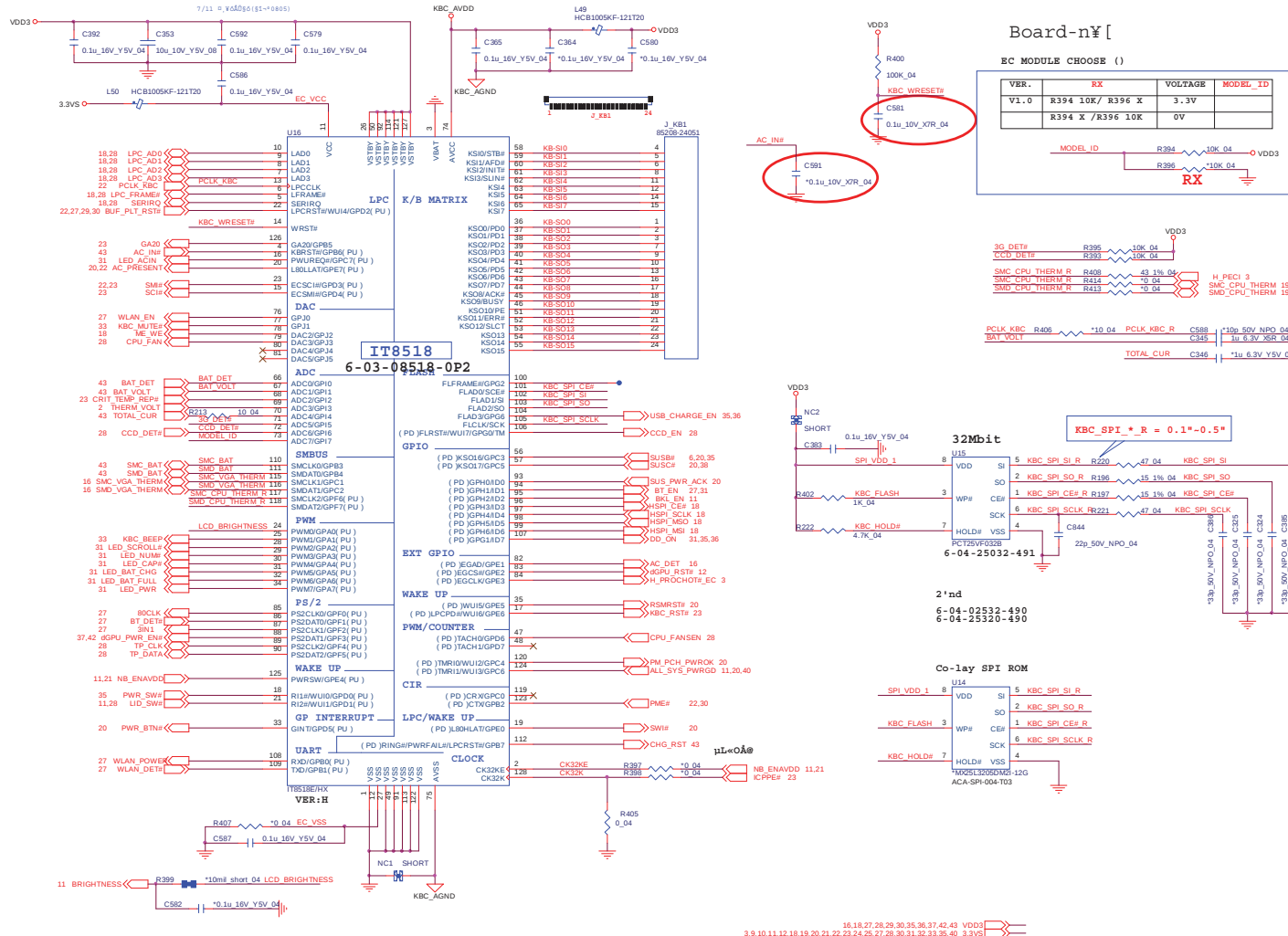
Sheet 32 of 48
HDMI, RJ45



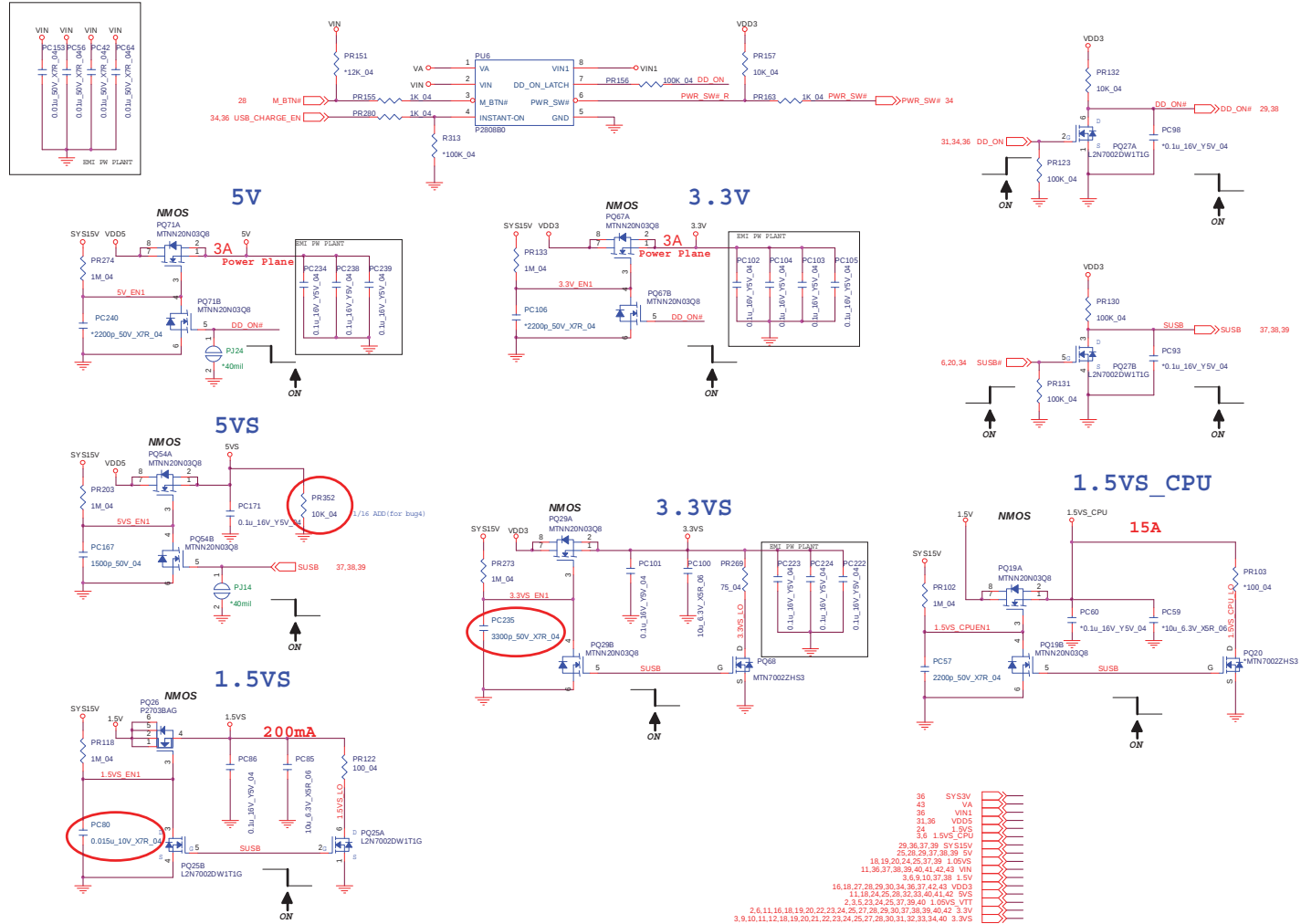
CODEC (ALC269 & VT1802P)



KBC-ITE IT8518E



5VS, 3VS, 3.3VM, 1.5VS CPU



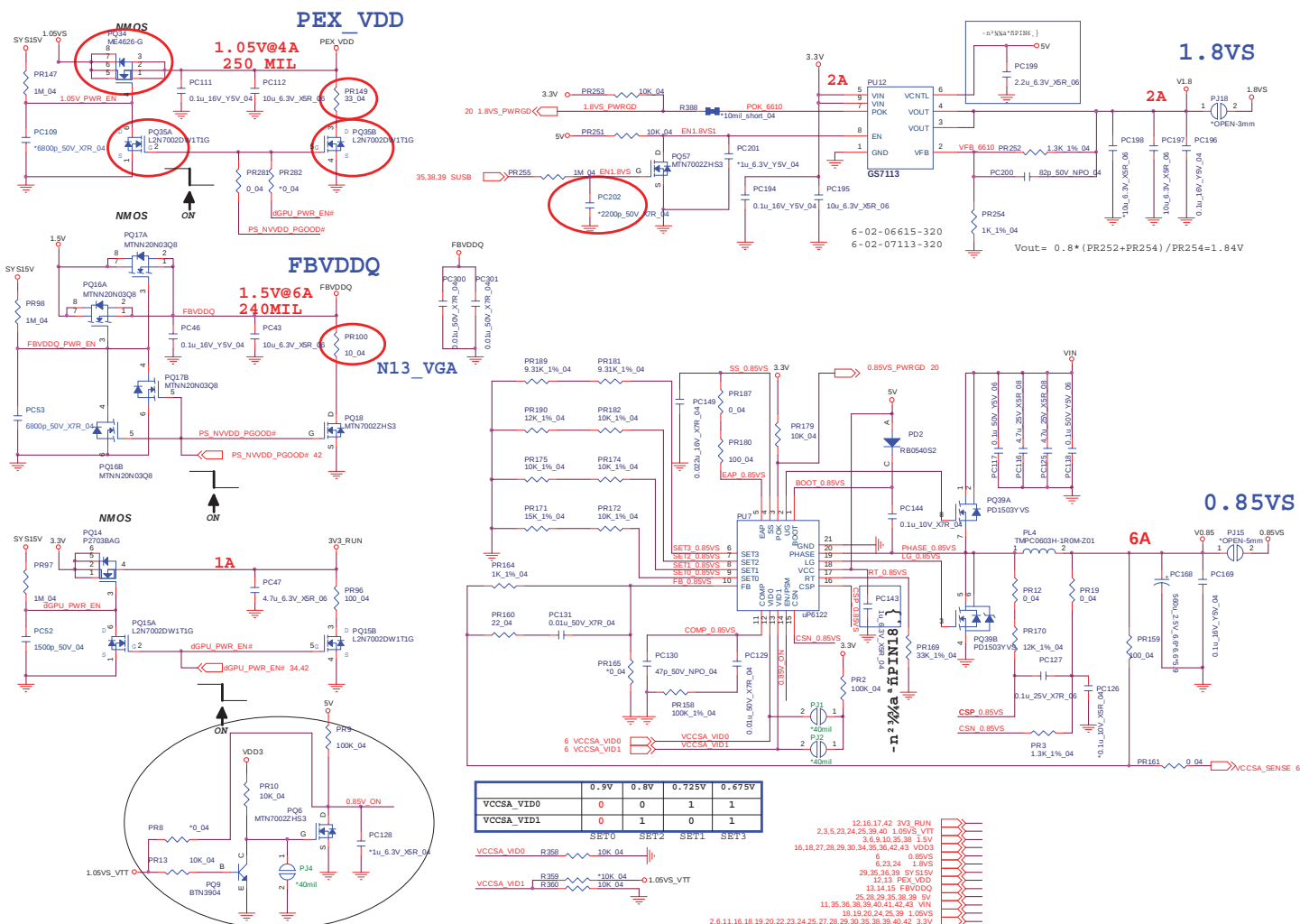
Sheet 35 of 48
5VS, 3VS, 3.3VM,
1.5VS CPU

B.Schematic Diagrams

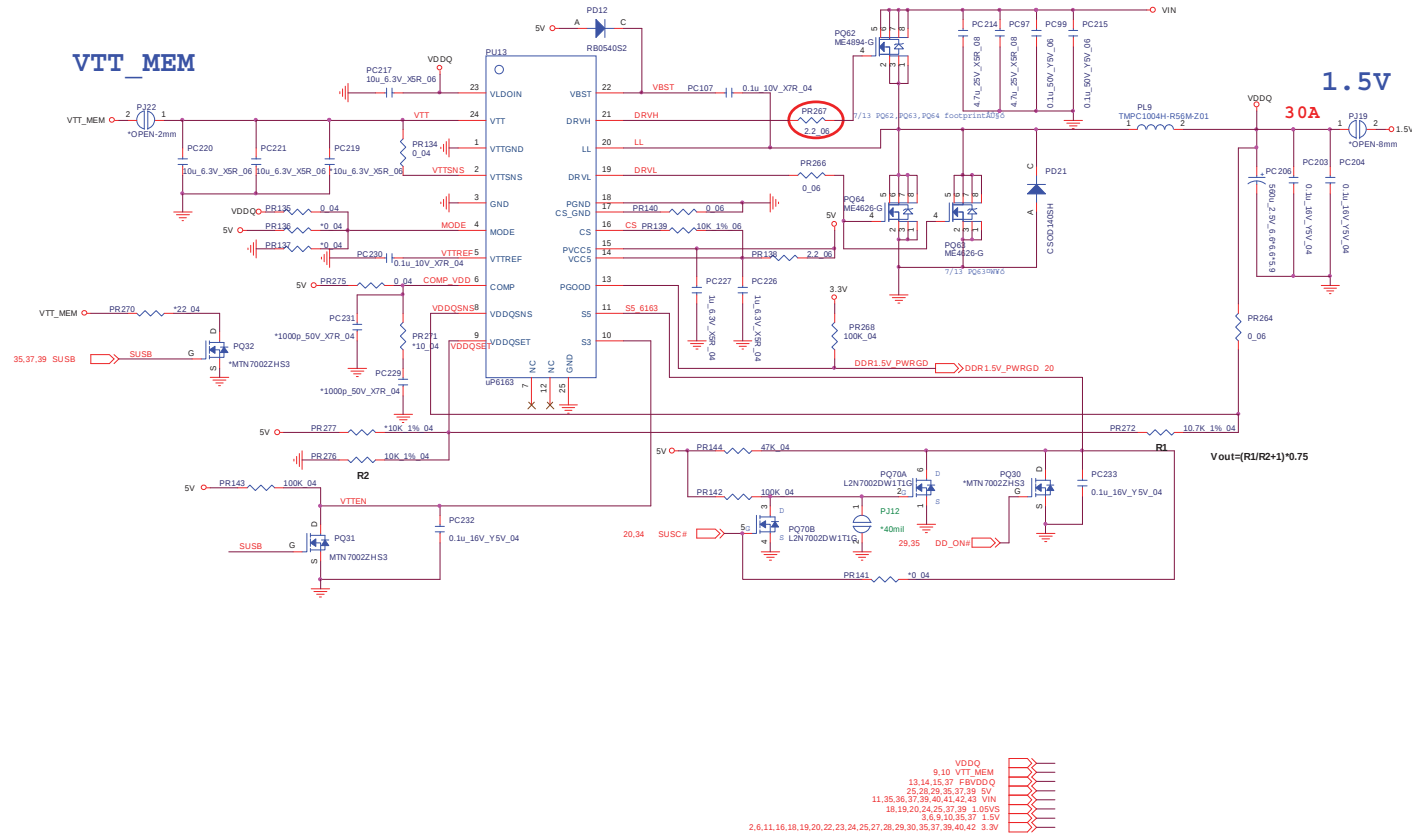
B.Schematic Diagrams



Sheet 37 of 48
Power 0.85VS,
1.8VS

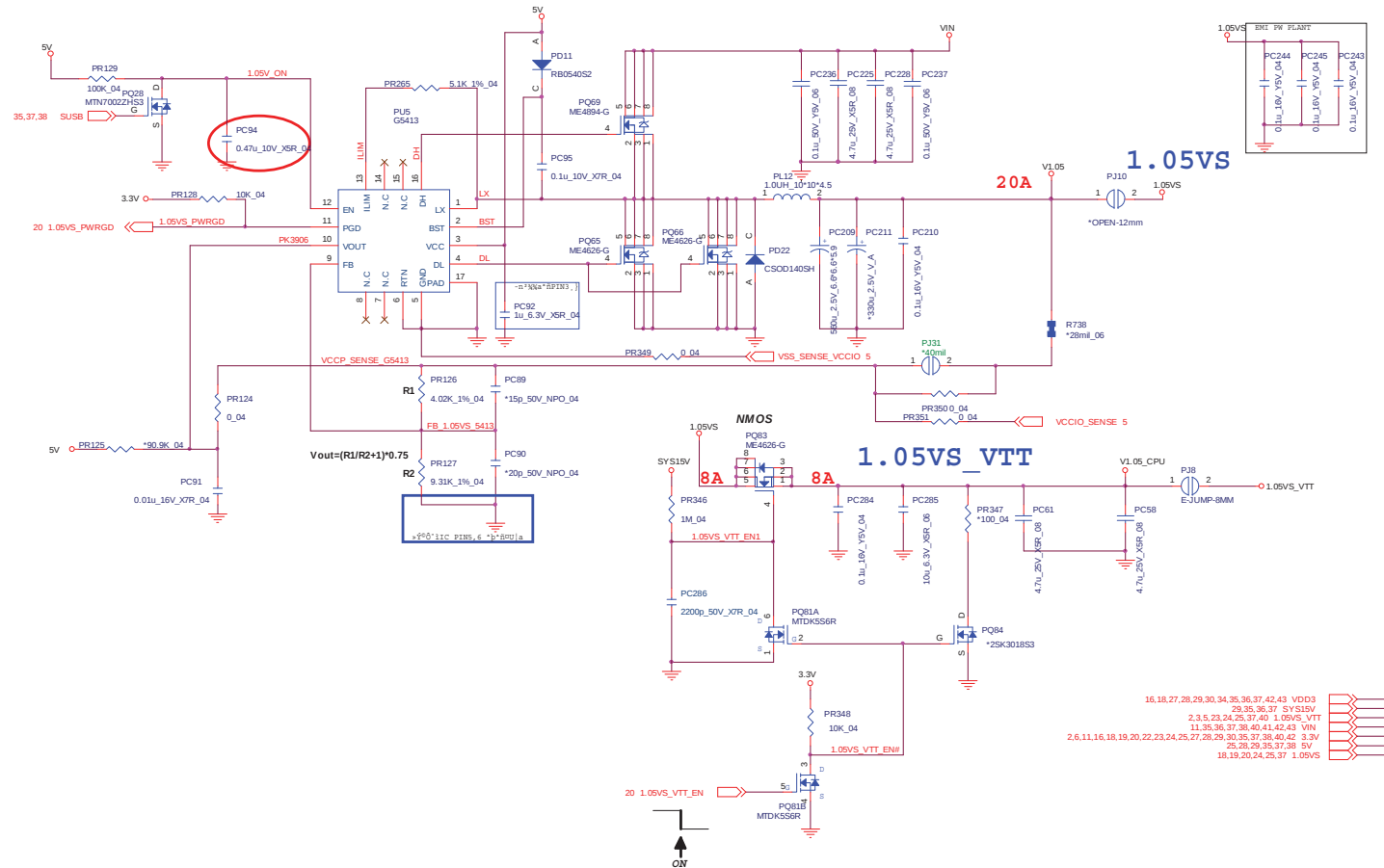


POWER 1.5V

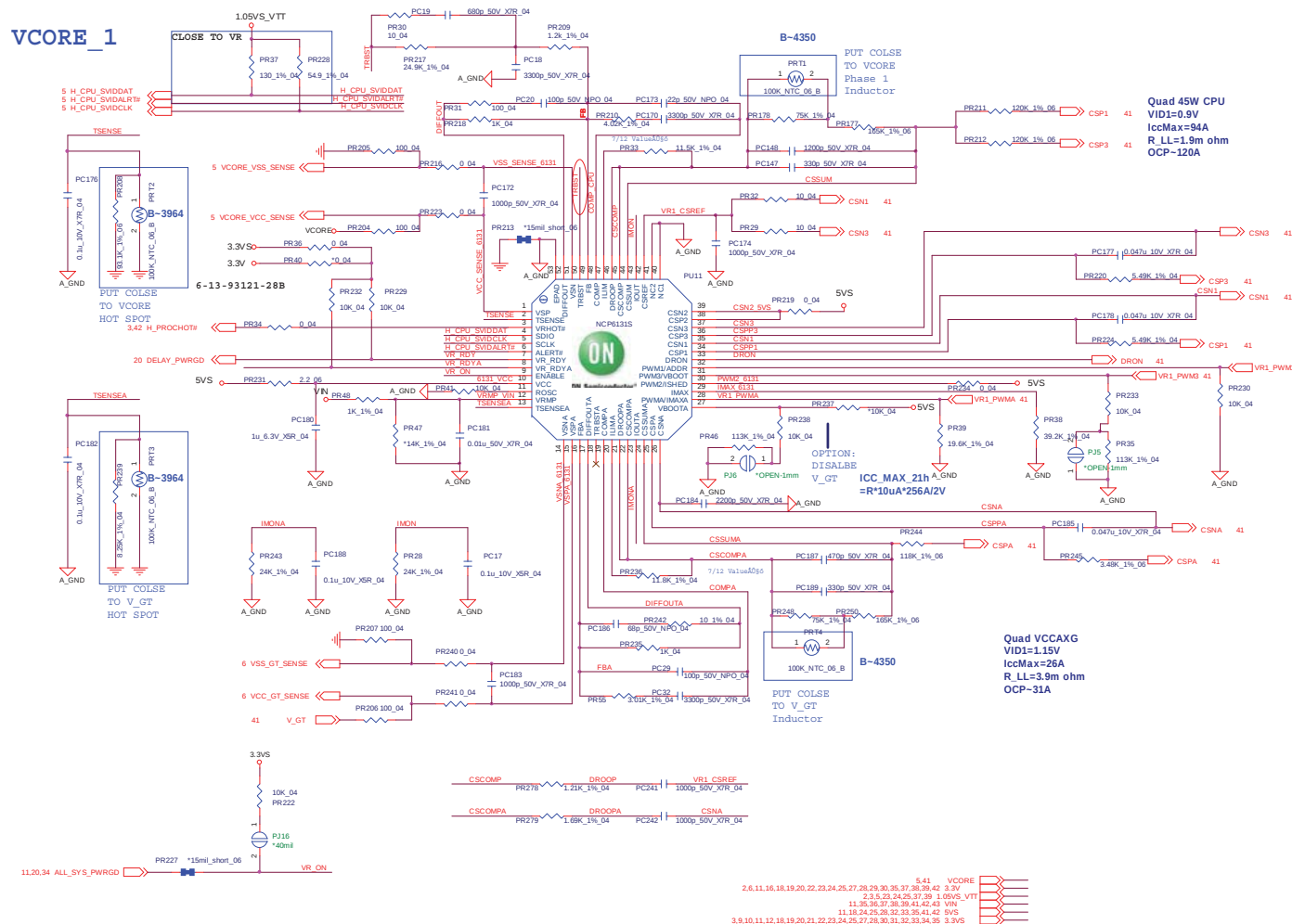


POWER 1.05VS/1.05VS VTT

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POWER 1.05VS/
1.05VS VTT

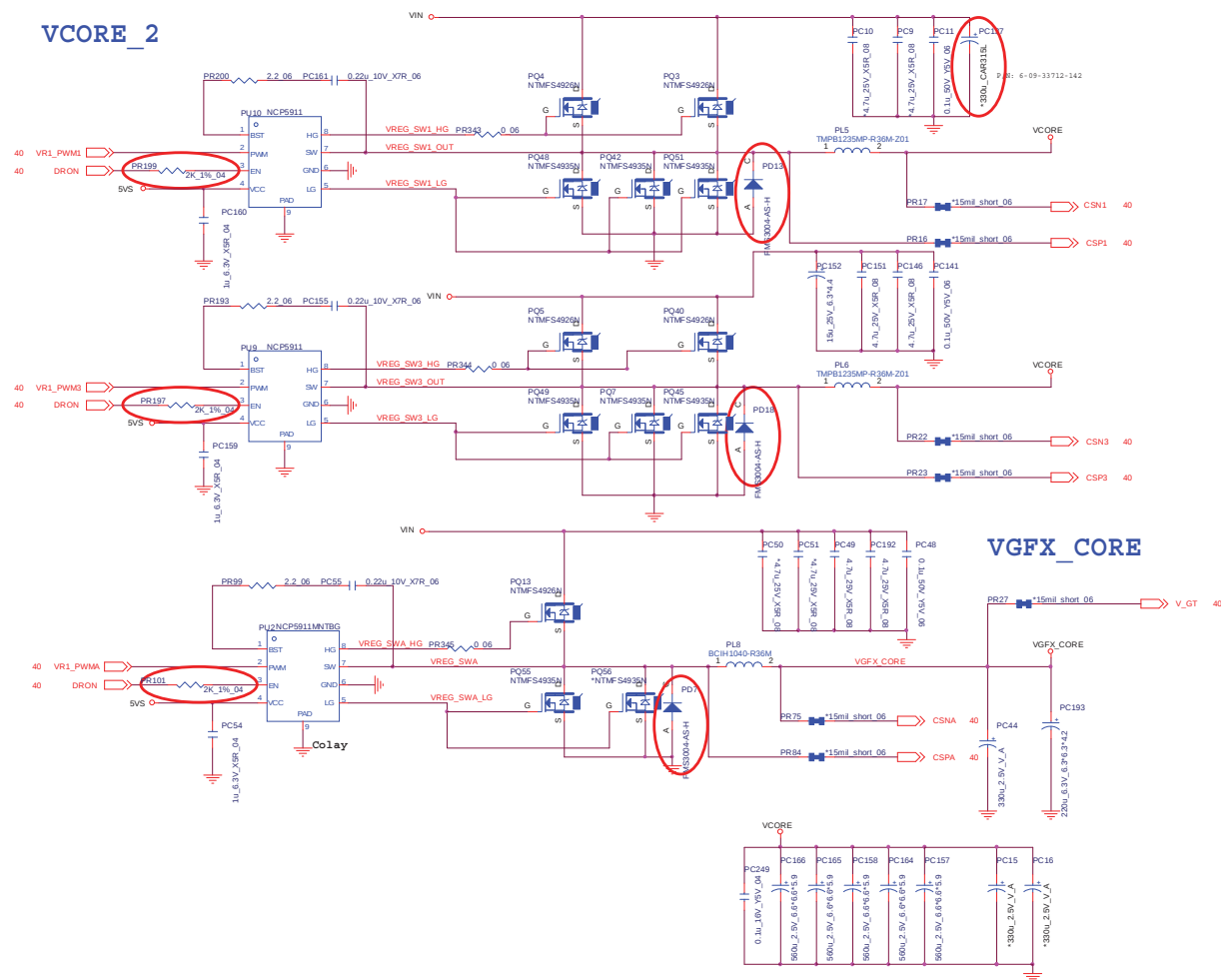


POWER VCORE1



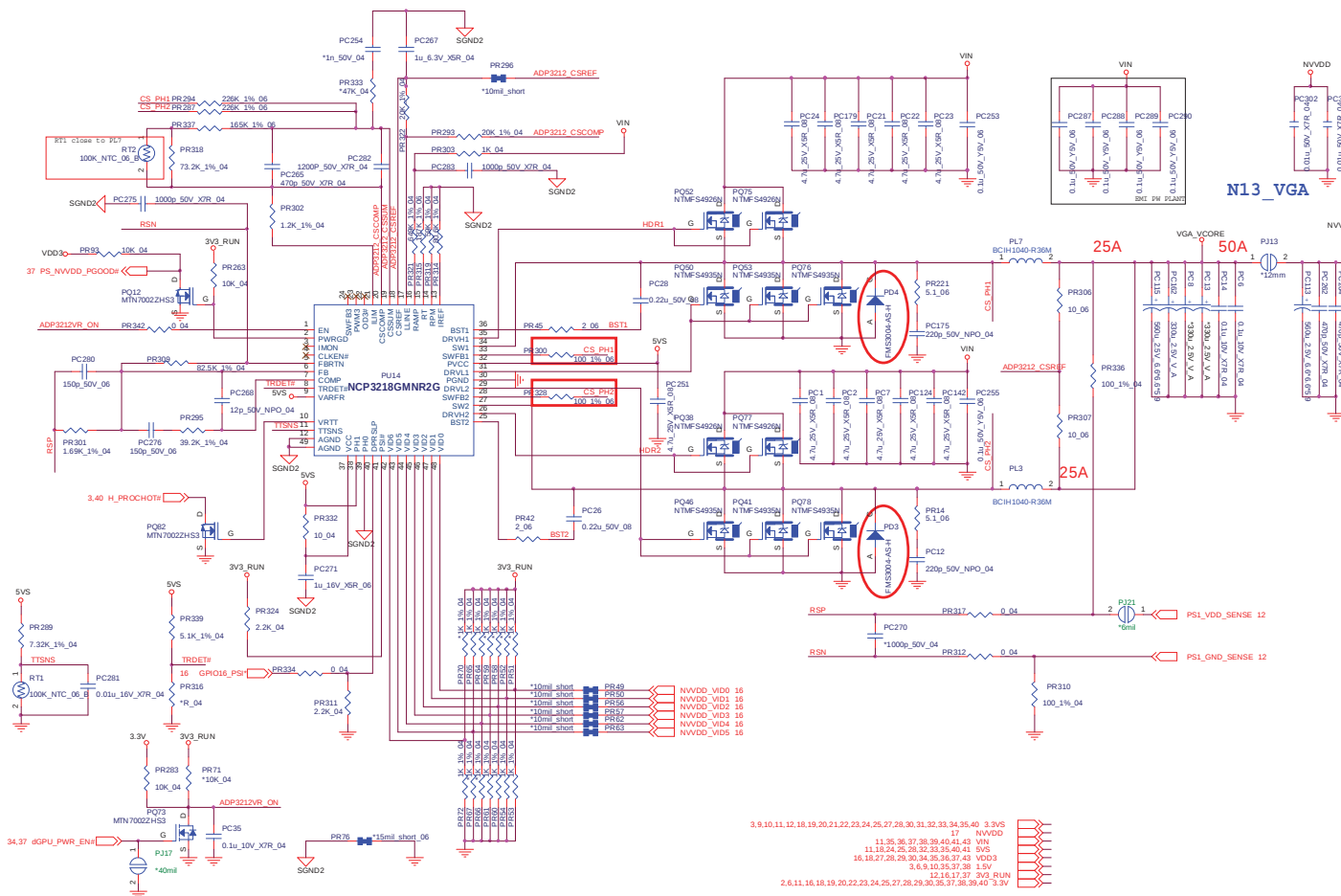
Sheet 40 of 48
POWER VCORE1

B.Schematic Diagrams



Power VGA NVVDD

VGA_NVVDD

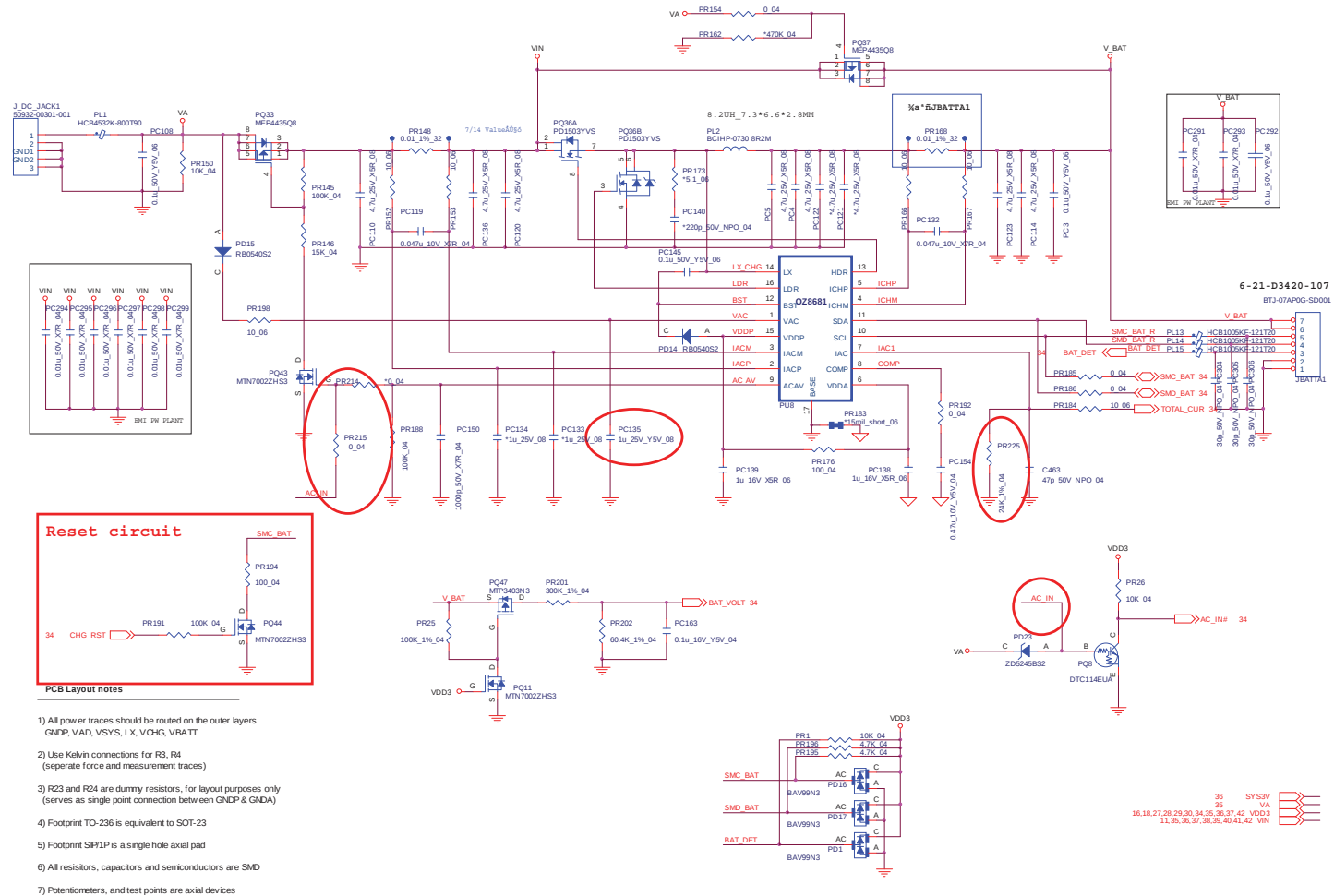


Sheet 42 of 48
Power VGA NVVDD

B.Schematic Diagrams

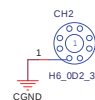
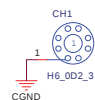
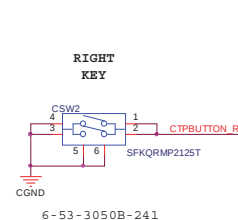
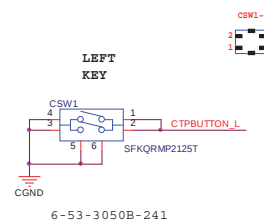
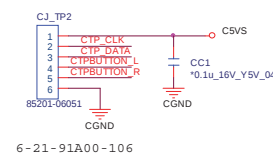
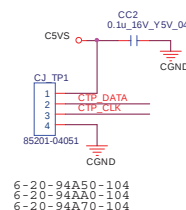
AC IN, CHARGER

Sheet 43 of 48
AC IN, CHARGER

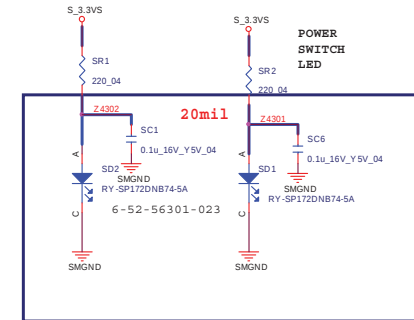
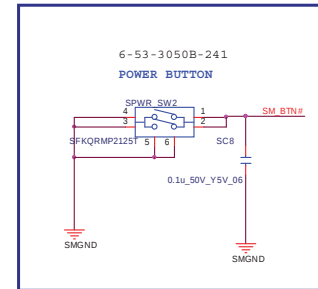


CLICK BOARD

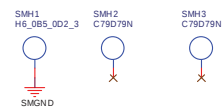
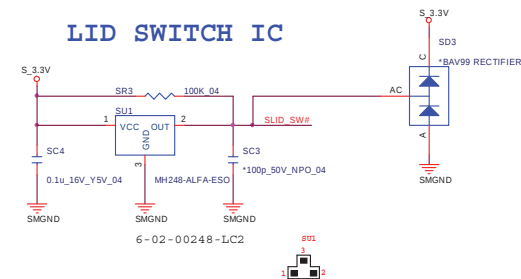
CLICK BOARD



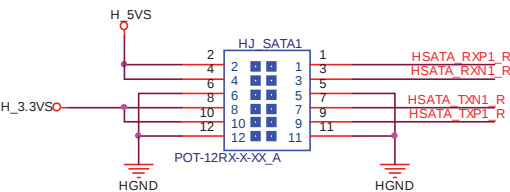
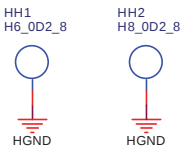
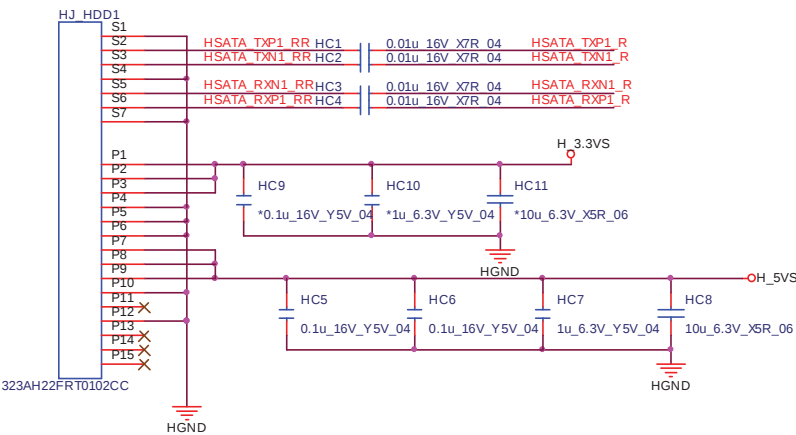
Sheet 44 of 48
CLICK BOARD



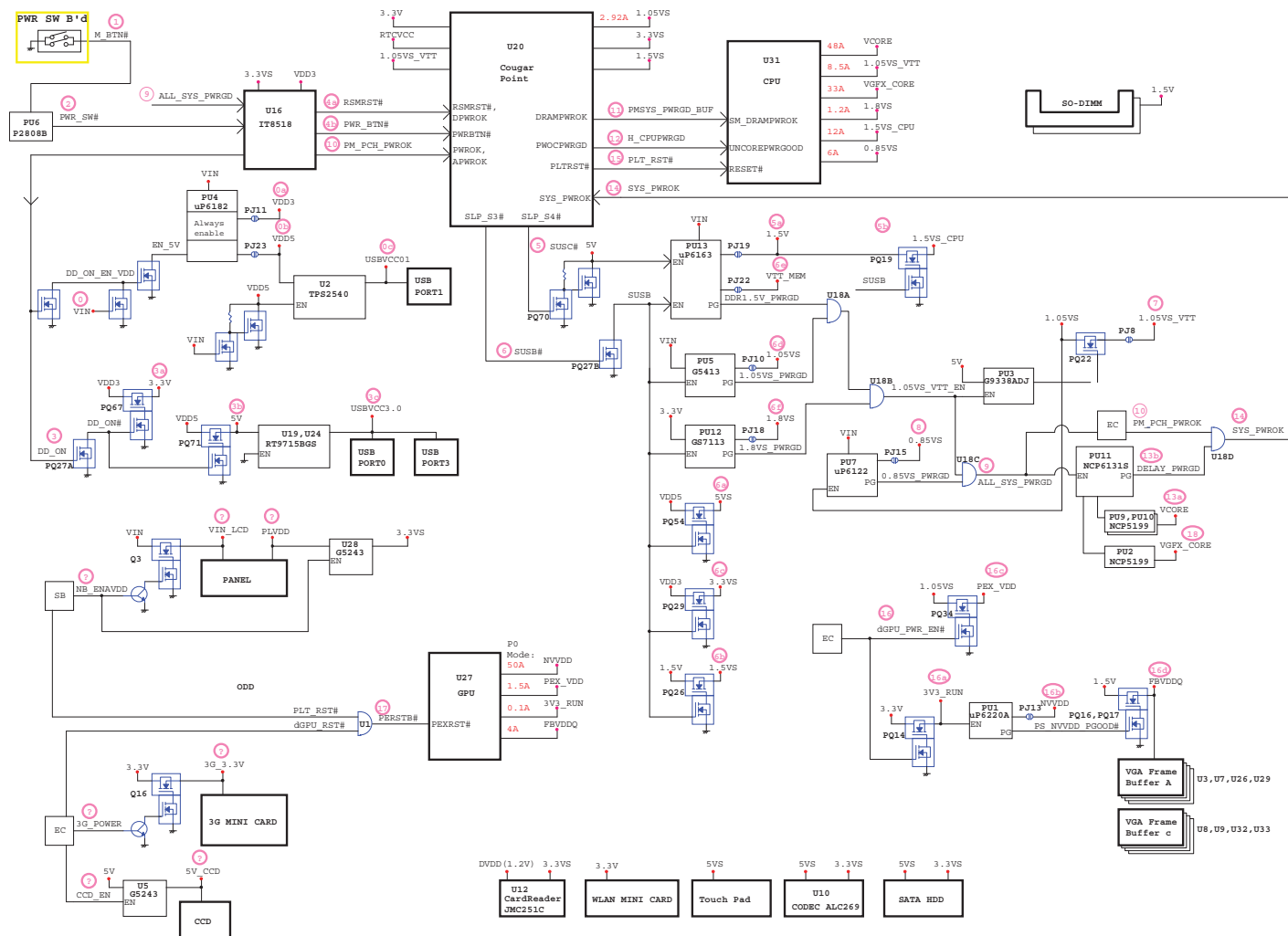
Sheet 45 of 48
POWER SW
BOARD



HDD BOARD

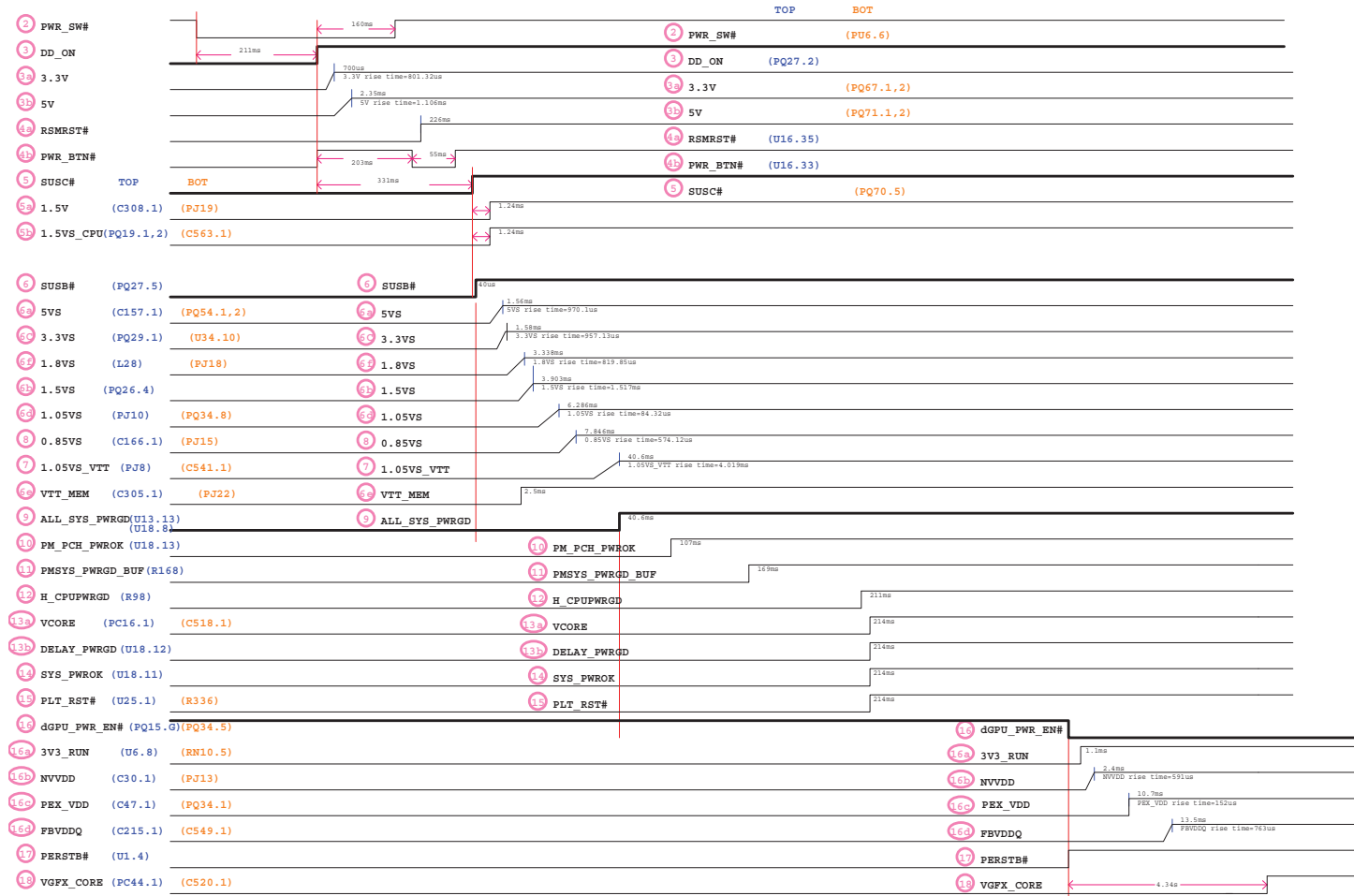


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HDD BOARD



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).

BIOS Update

<http://hobi-elektronika.net>

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.