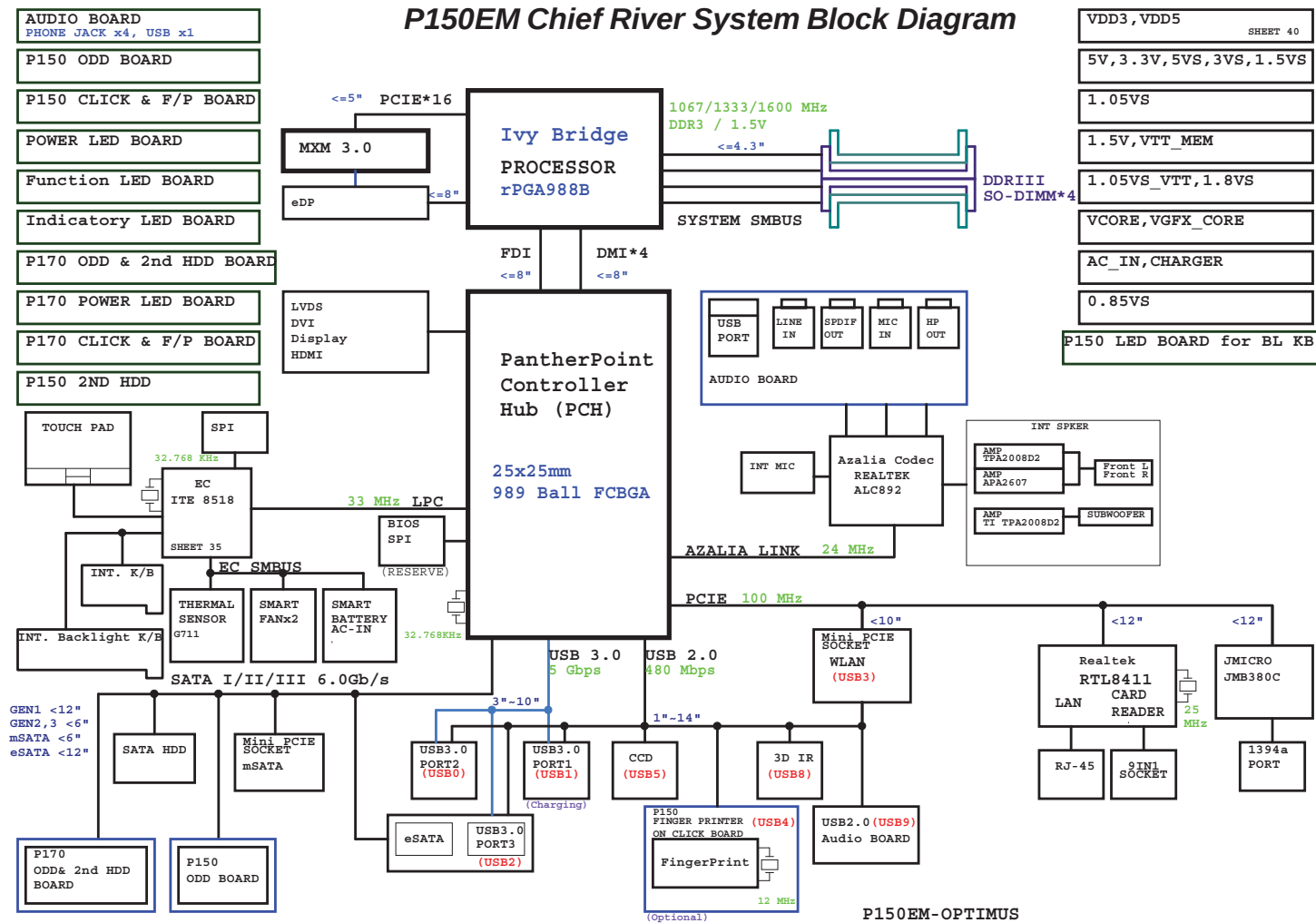


System Block Diagram

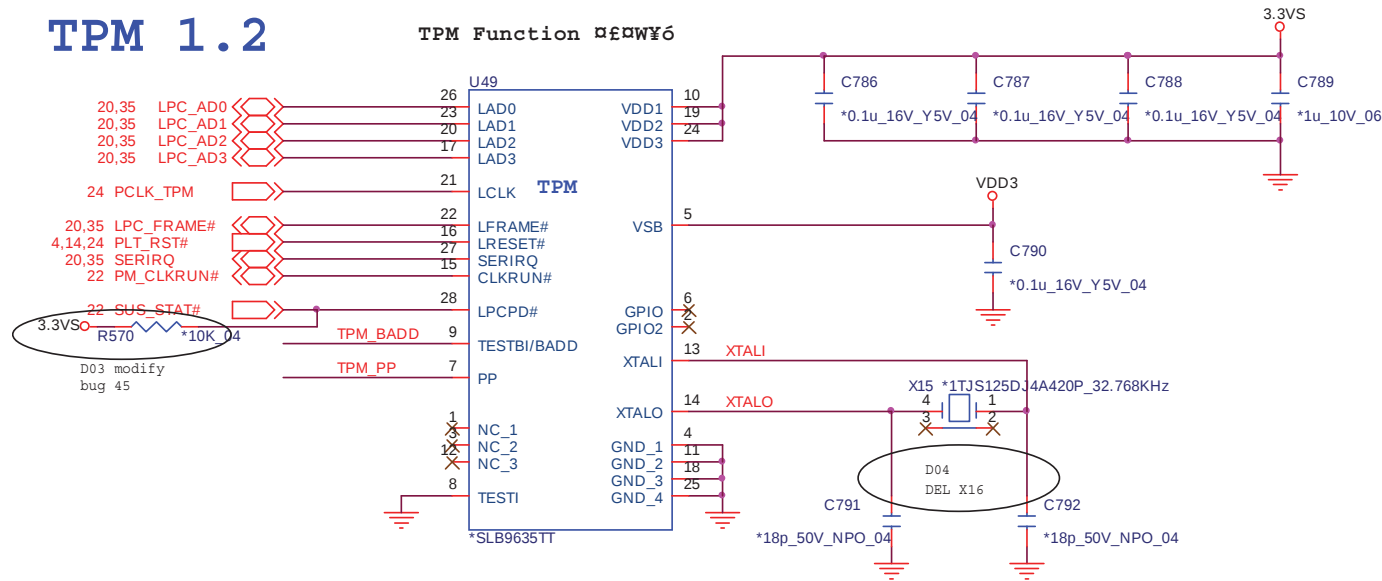
Sheet 1 of 61
System Block
Diagram



TPM

TPM 1.2

TPM Function 4x4x4x4

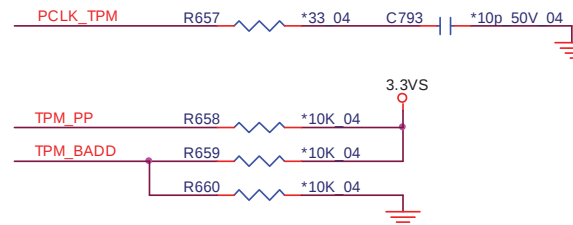


Asserted before entering S3

LPC reset timing:

LPCPD# inactive to LRST# inactive 32~96us

TPM_PP	Hi: ACCESS LOW: NORMAL (Internal PD)
TPM_BADD	Hi: 4E/ 4F H LOW: 2E/ 2F H



20,30,35,37,38,40,41,47 VDD3 3.3VS
4,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,29,30,31,33,34,35,36,37,38,41,45,48

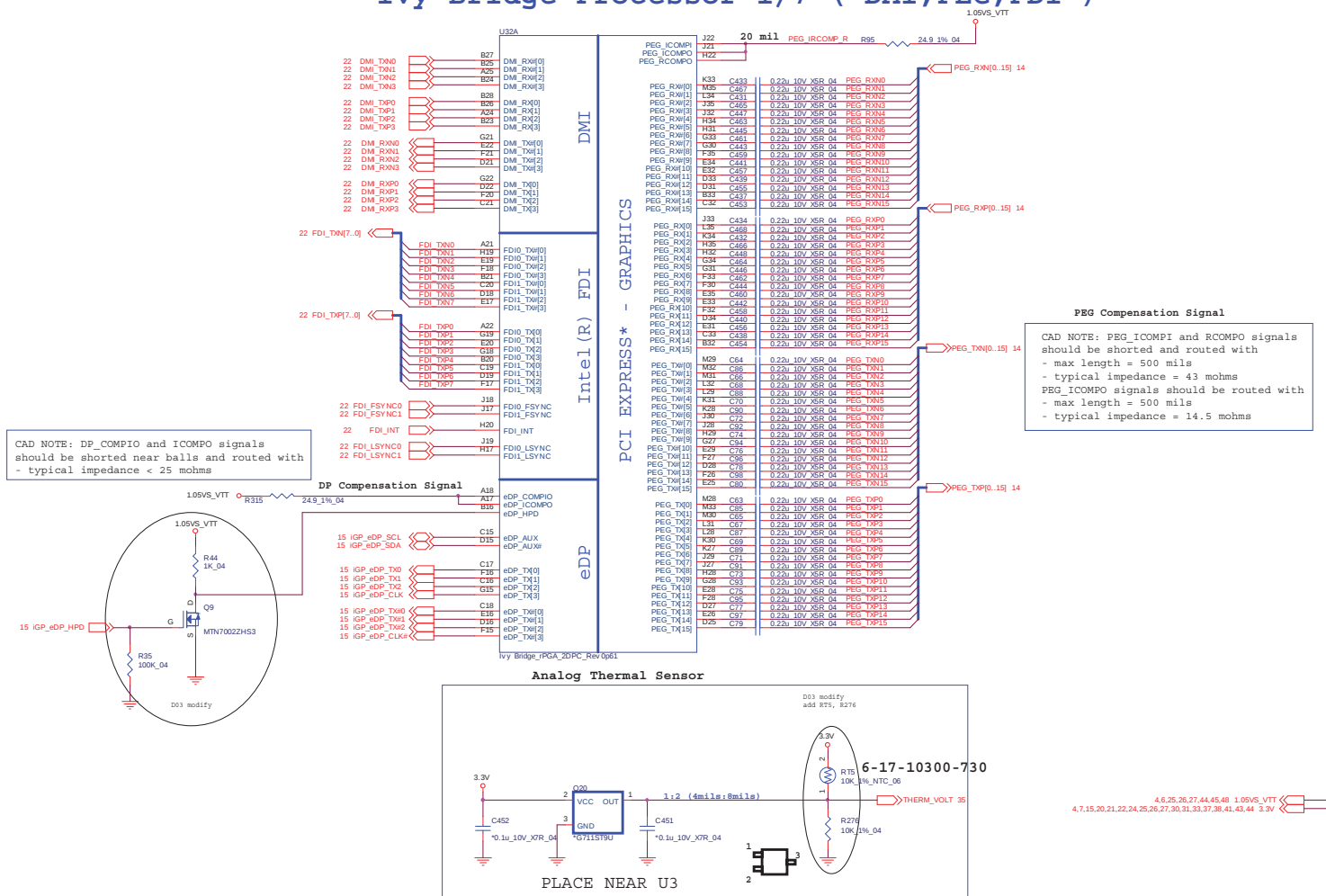
Sheet 2 of 61
TPM

Schematic Diagrams

<http://hobi-elektronika.net>

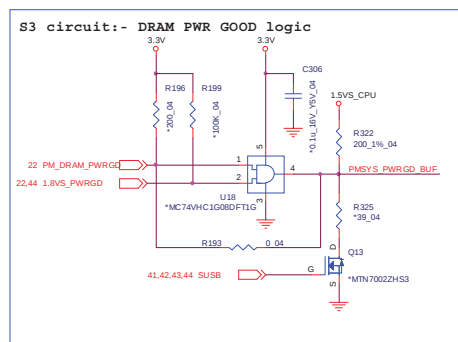
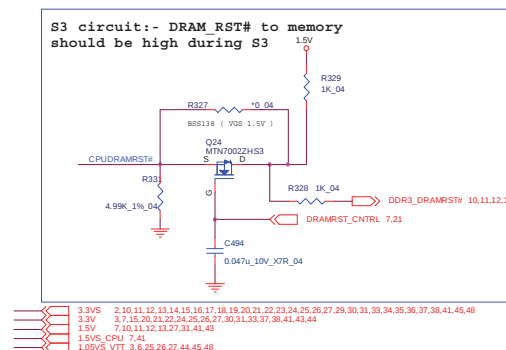
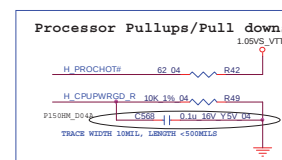
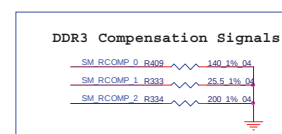
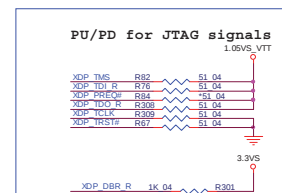
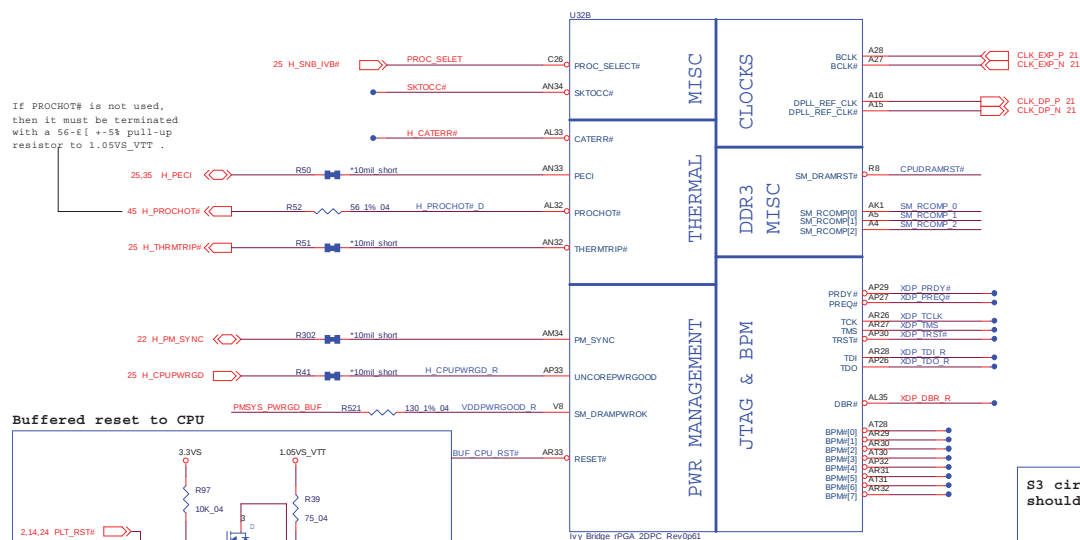
Processor 1/7

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

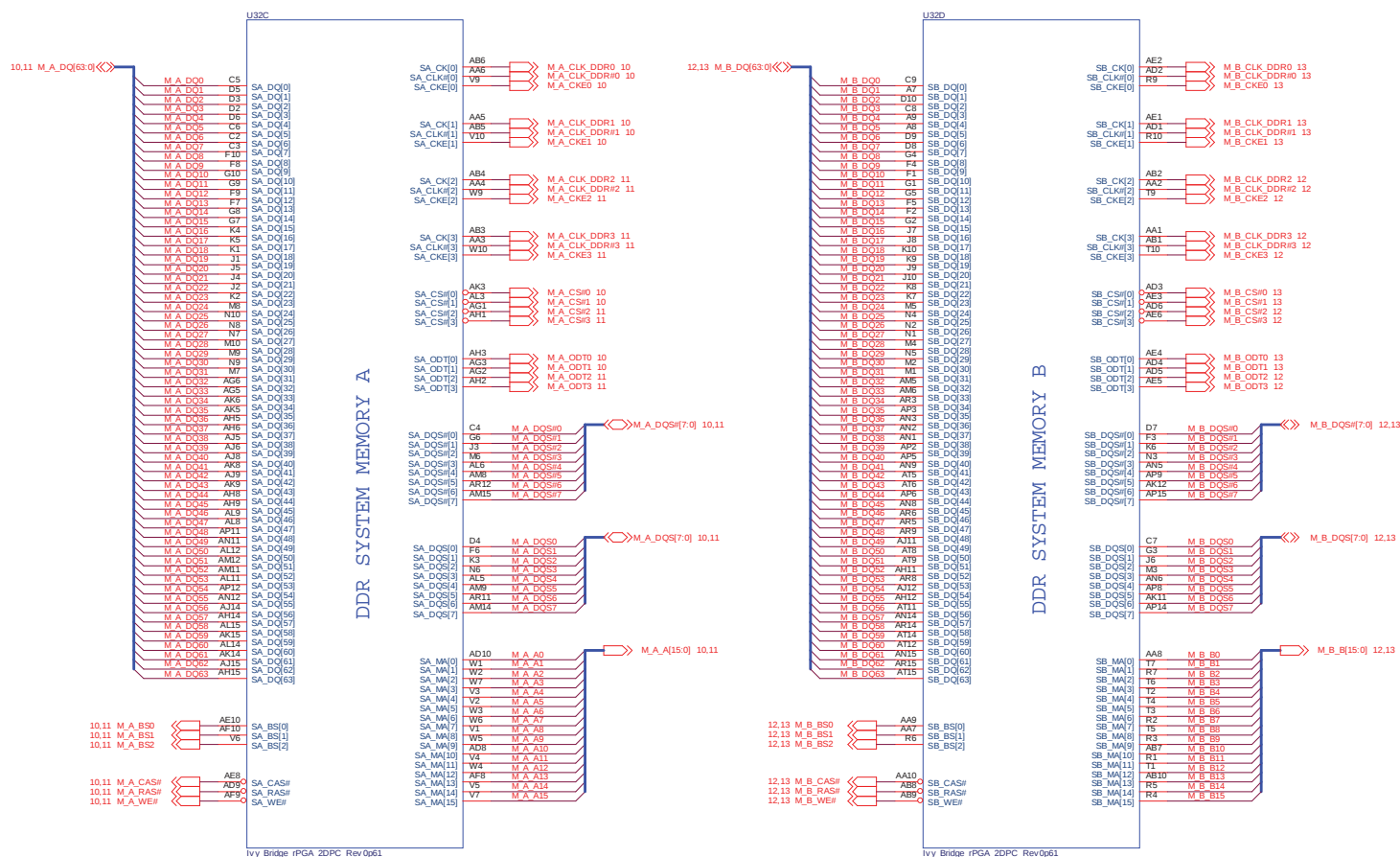
 Sheet 3 of 61
 Processor 1/7


Processor 2/7

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

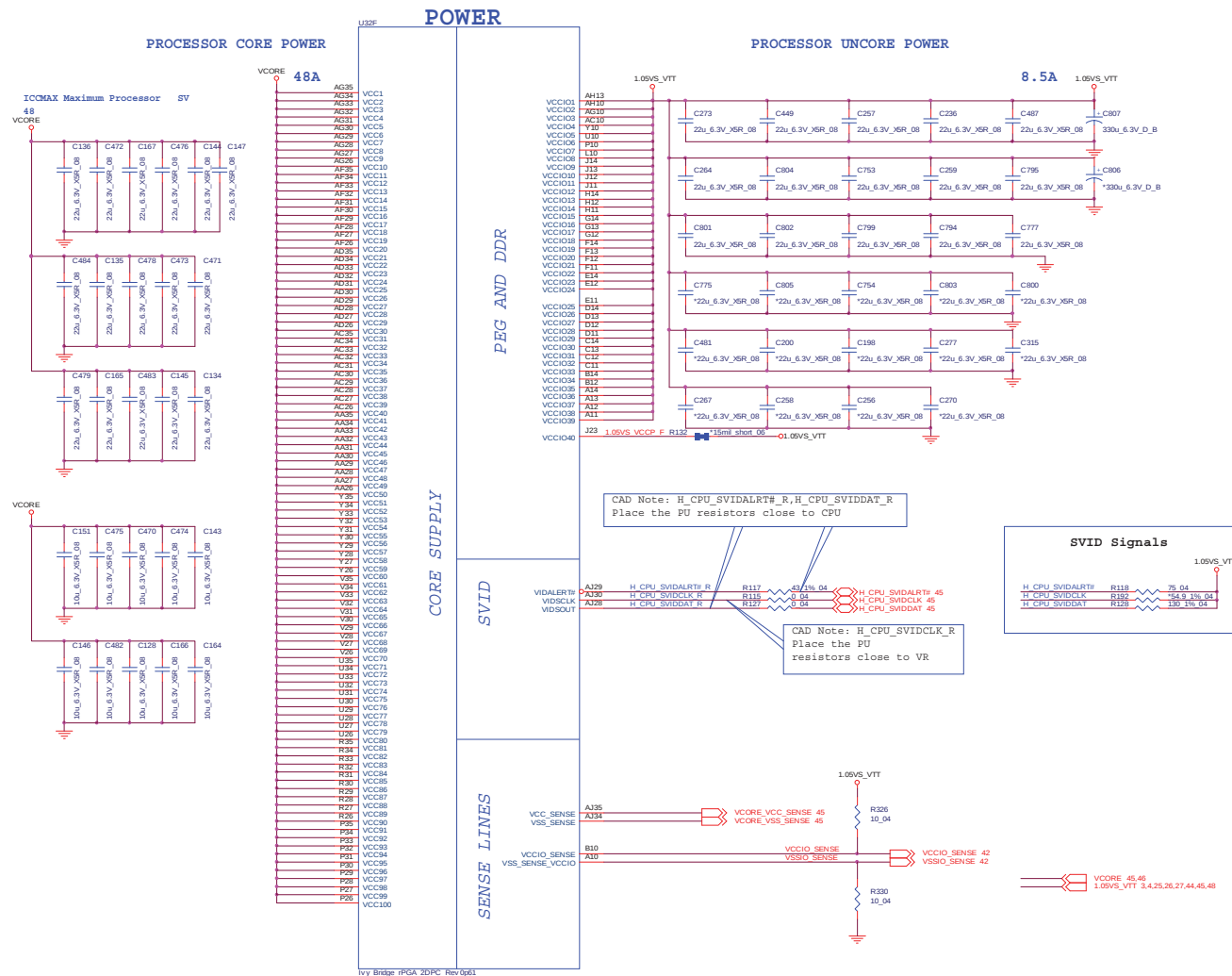


Ivy Bridge Processor 3/7 (DDR3)



Processor 4/7

Ivy Bridge Processor 4/7 (POWER)



Sheet 6 of 61
Processor 4/7

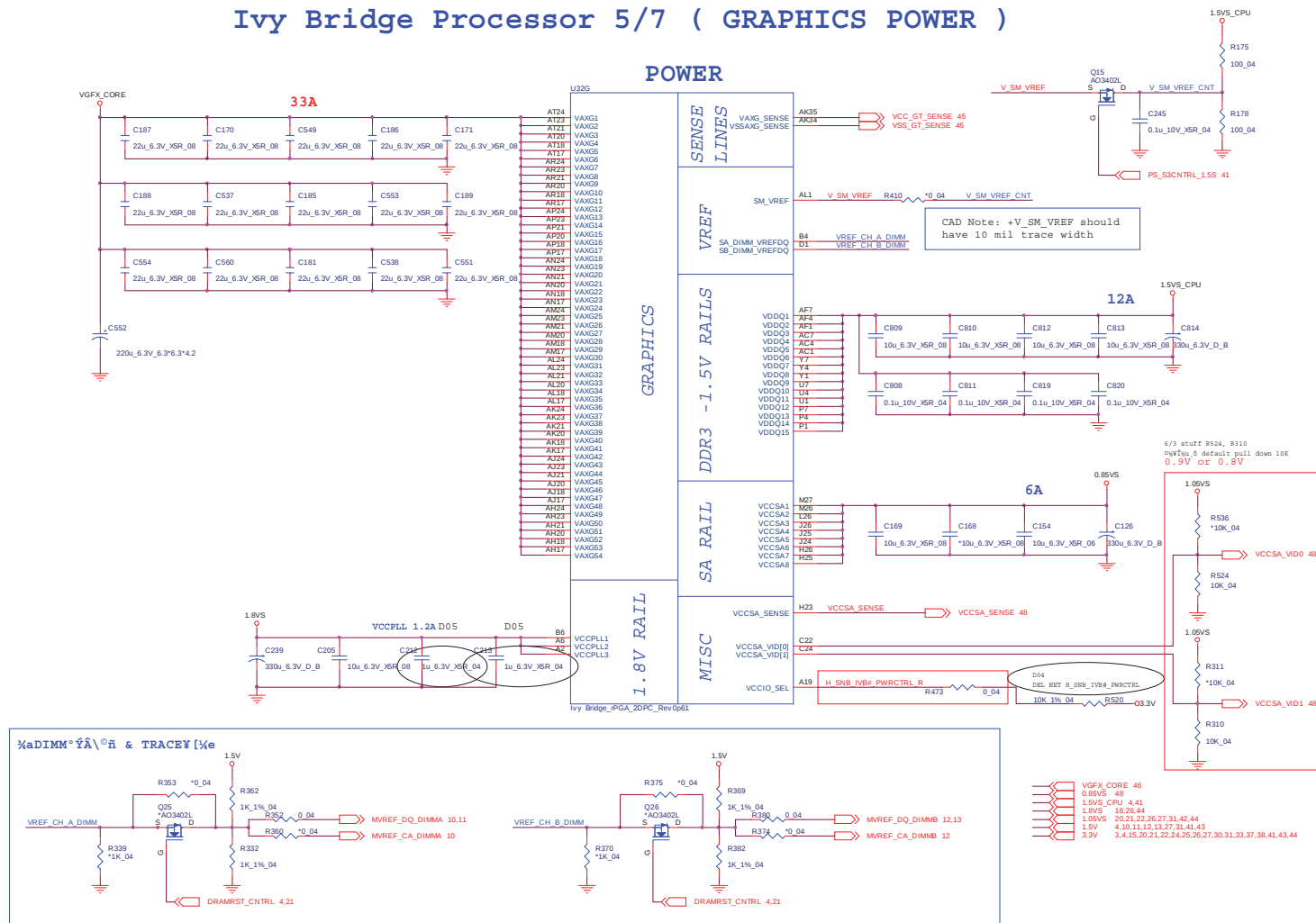
B.Schematic Diagrams

Schematic Diagrams

<http://hobi-elektronika.net>

Processor 5/7

Ivy Bridge Processor 5/7 (GRAPHICS POWER)

 Sheet 7 of 61
 Processor 5/7


Ivy Bridge Processor 6/7 (GND)

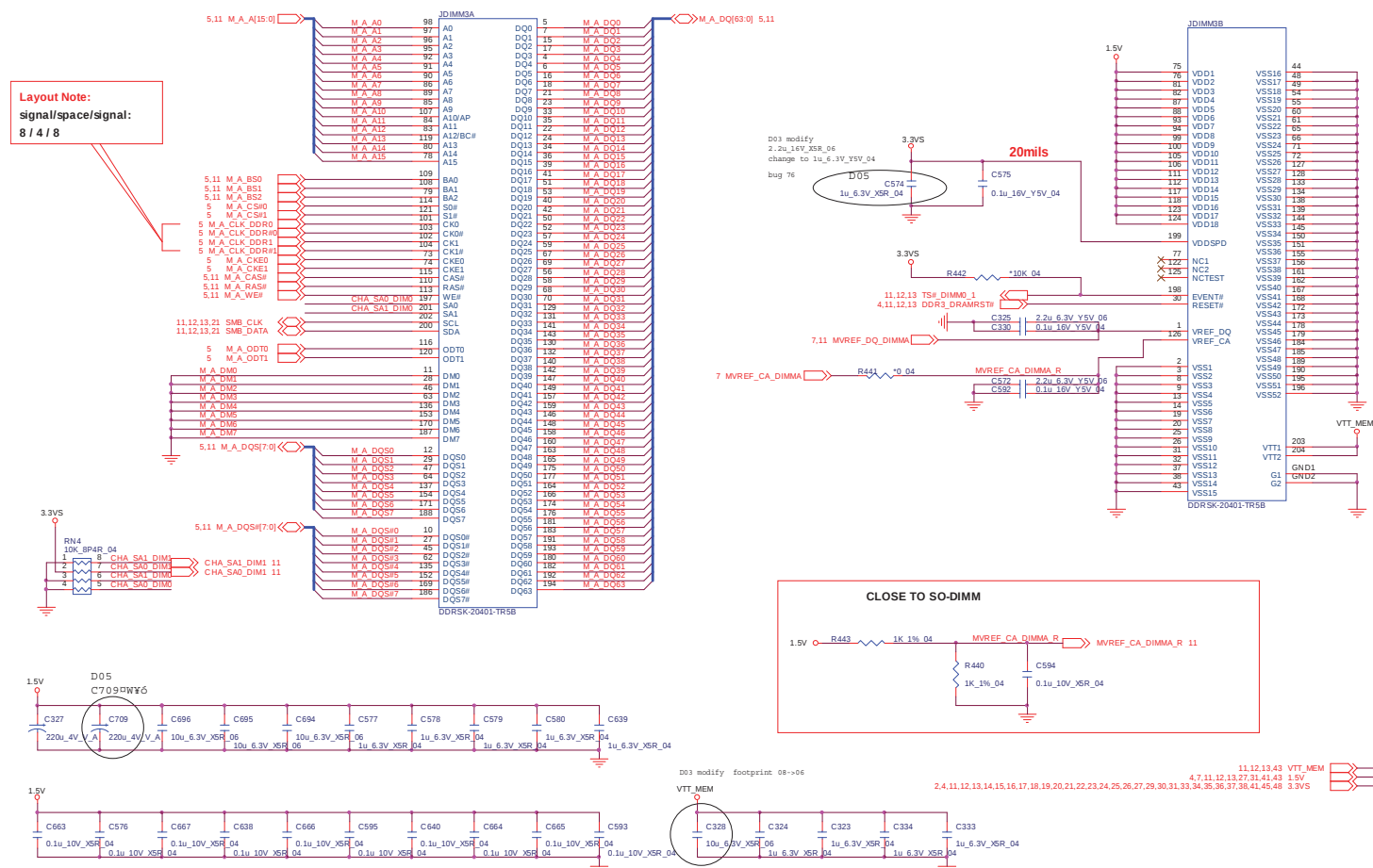


B.Schematic Diagrams

DDRIII CHA SO-DIMM_0

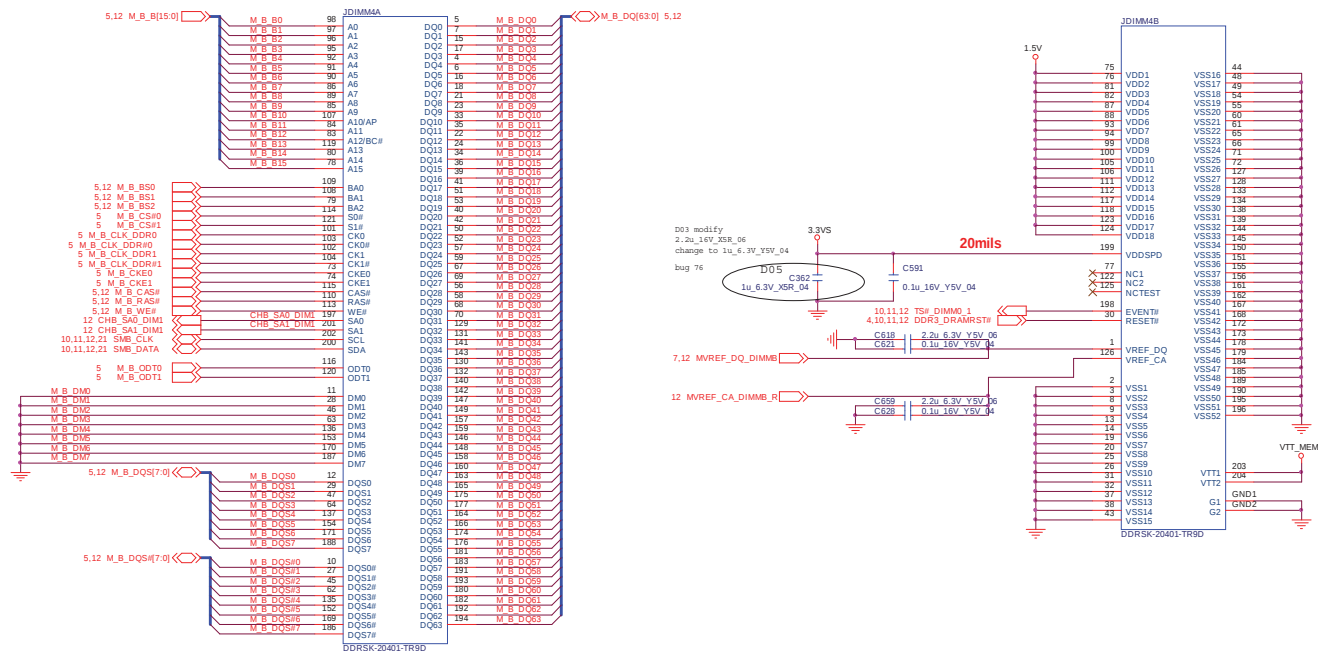
Channel A SO-DIMM 0

CHANGE TO STANDARD

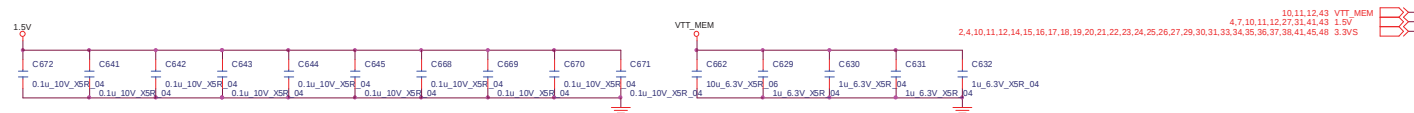


Channel B SO-DIMM 1

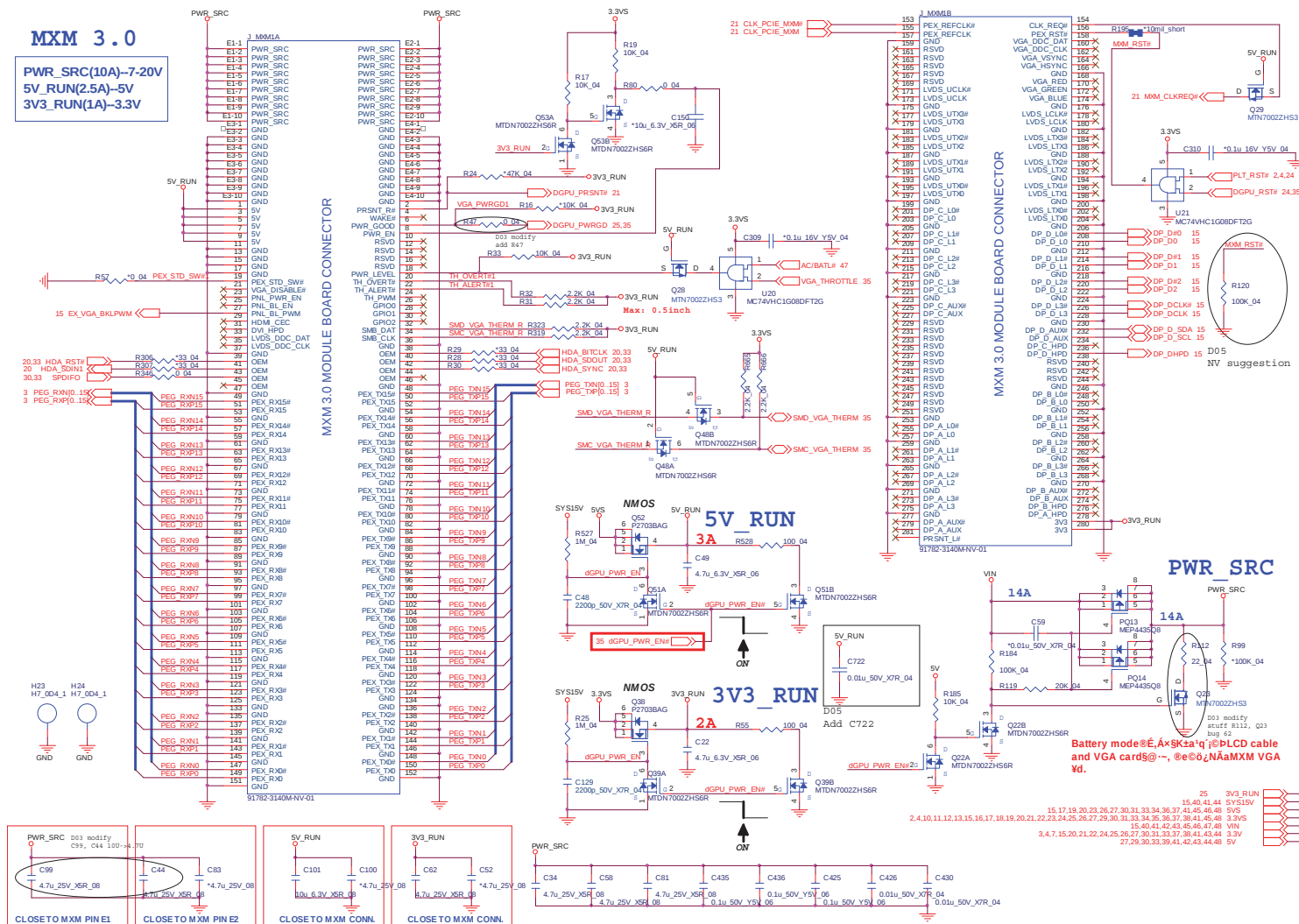
Sheet 13 of 61
DDRIII CHB SO-
DIMM 1



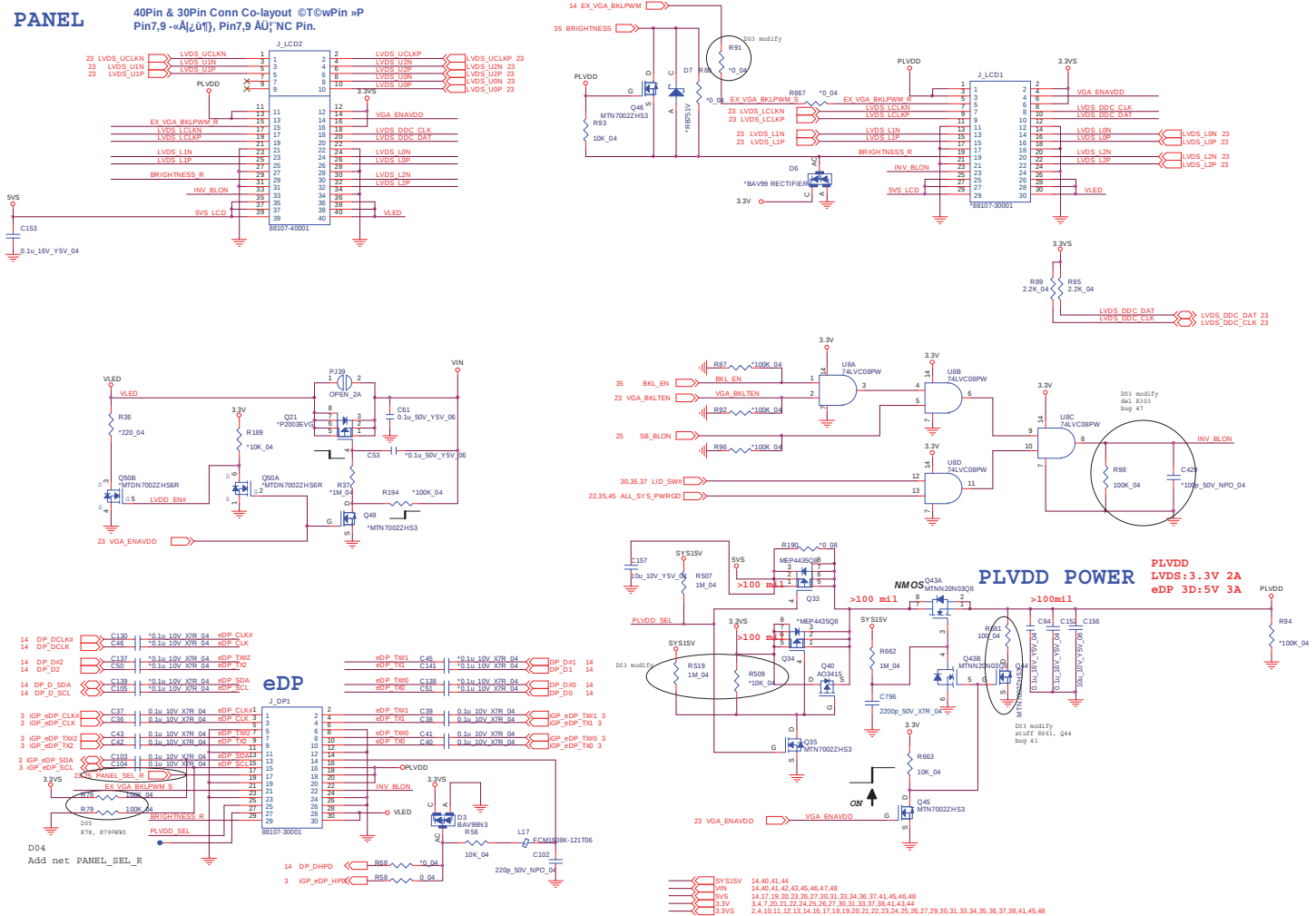
SO-DIMM_1 is placed farther from the GMCH than SO-DIMM_0



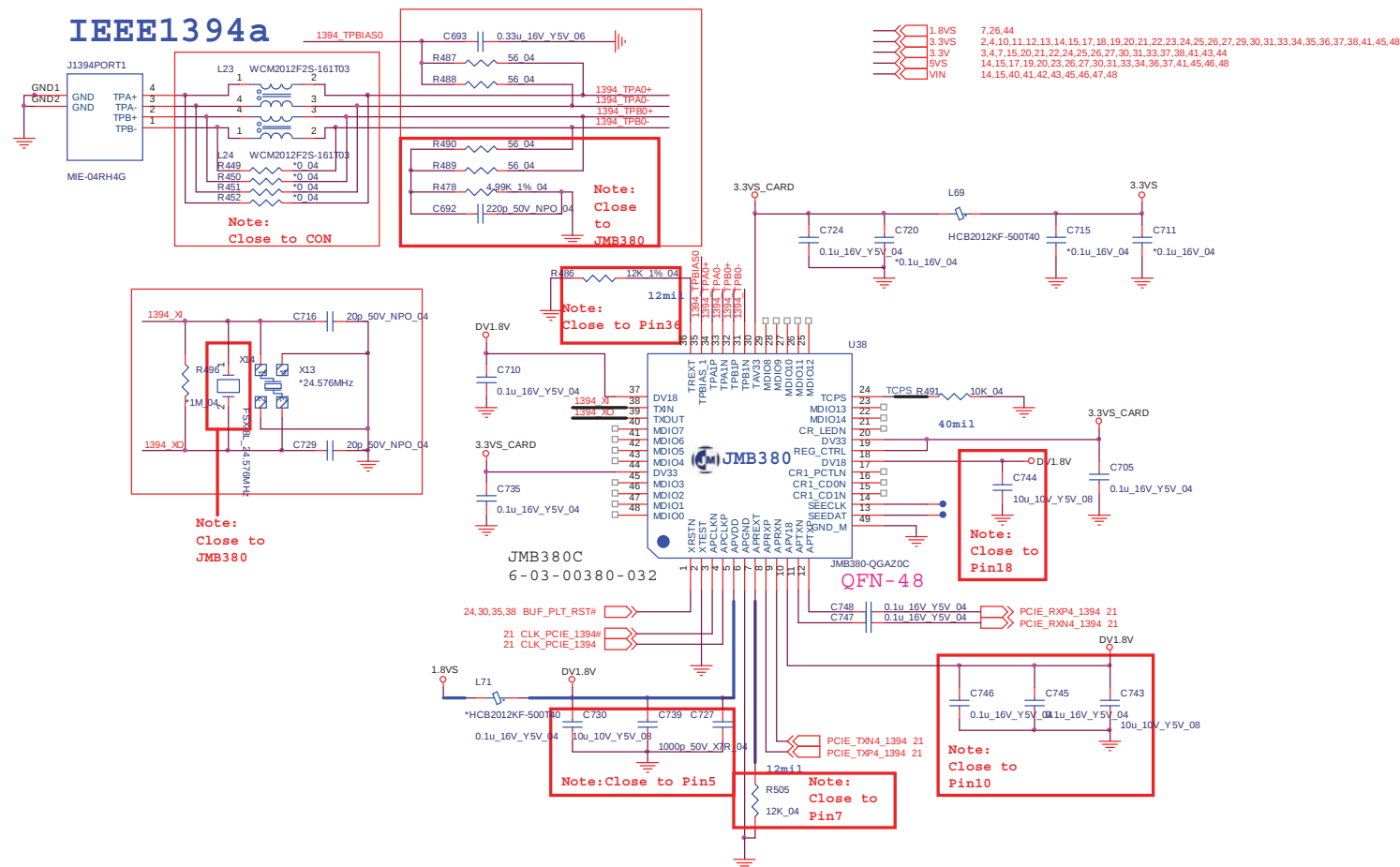
MXM PCI-E



Panel, Inverter, CRT

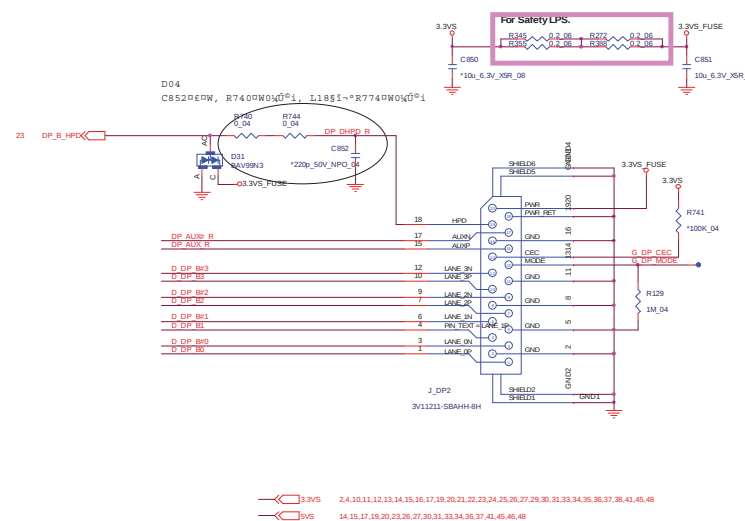
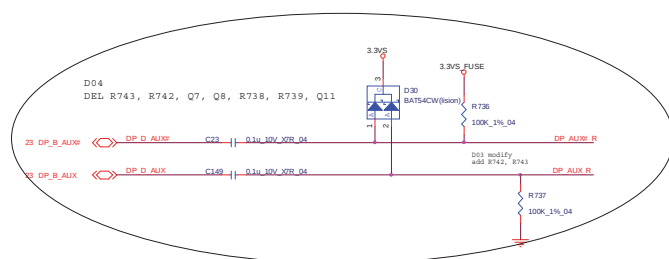
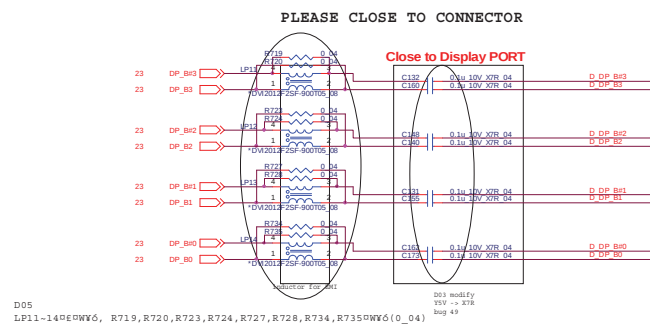


1394_JMB380C



Sheet 16 of 61
1394_JMB380C

dGPU DISPLAY PORT



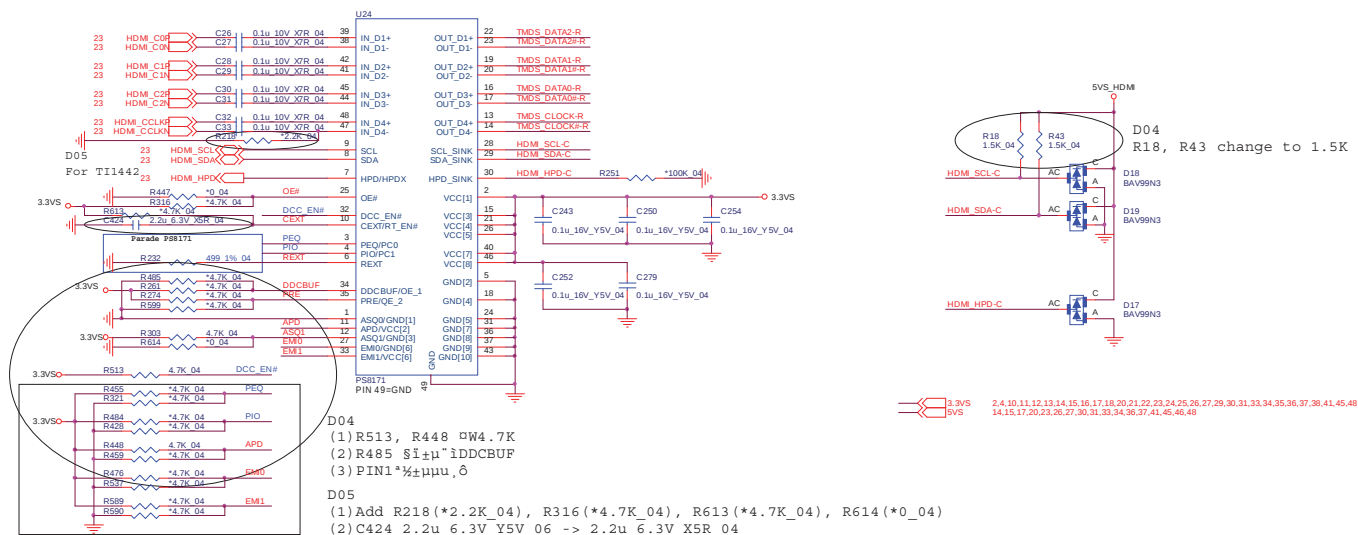
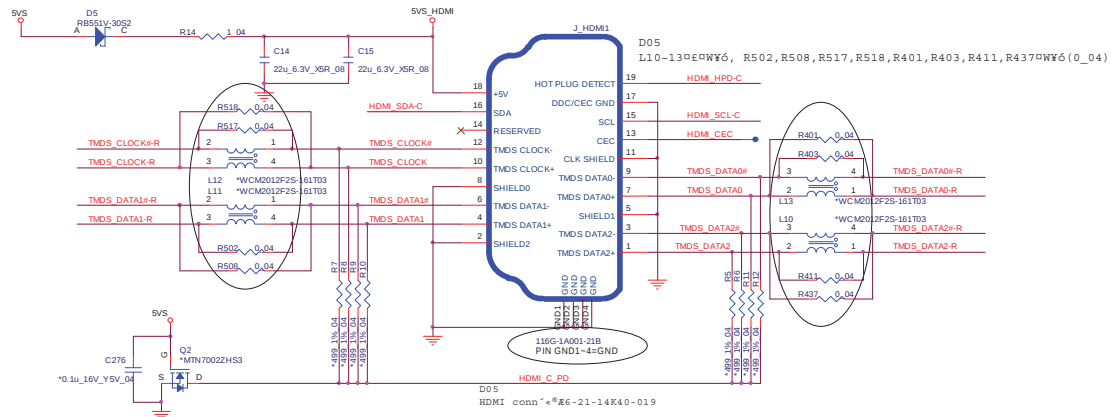
Sheet 18 of 61
Display Port

Schematic Diagrams

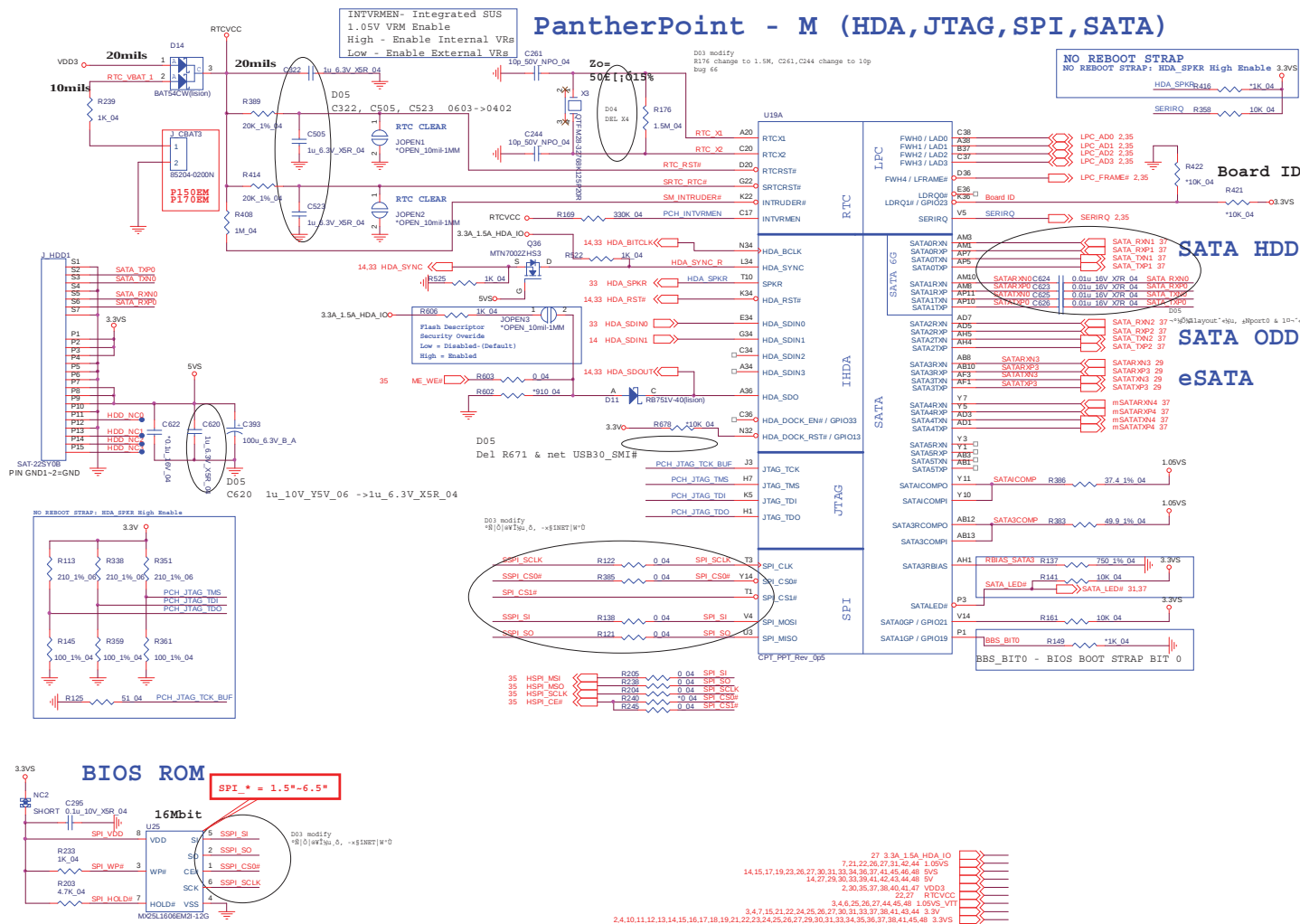
<http://hobi-elektronika.net>

HDMI

HDMI CONNECTOR

 Sheet 19 of 61
HDMI


PCH 1/9 - RTC, HDA, SATA

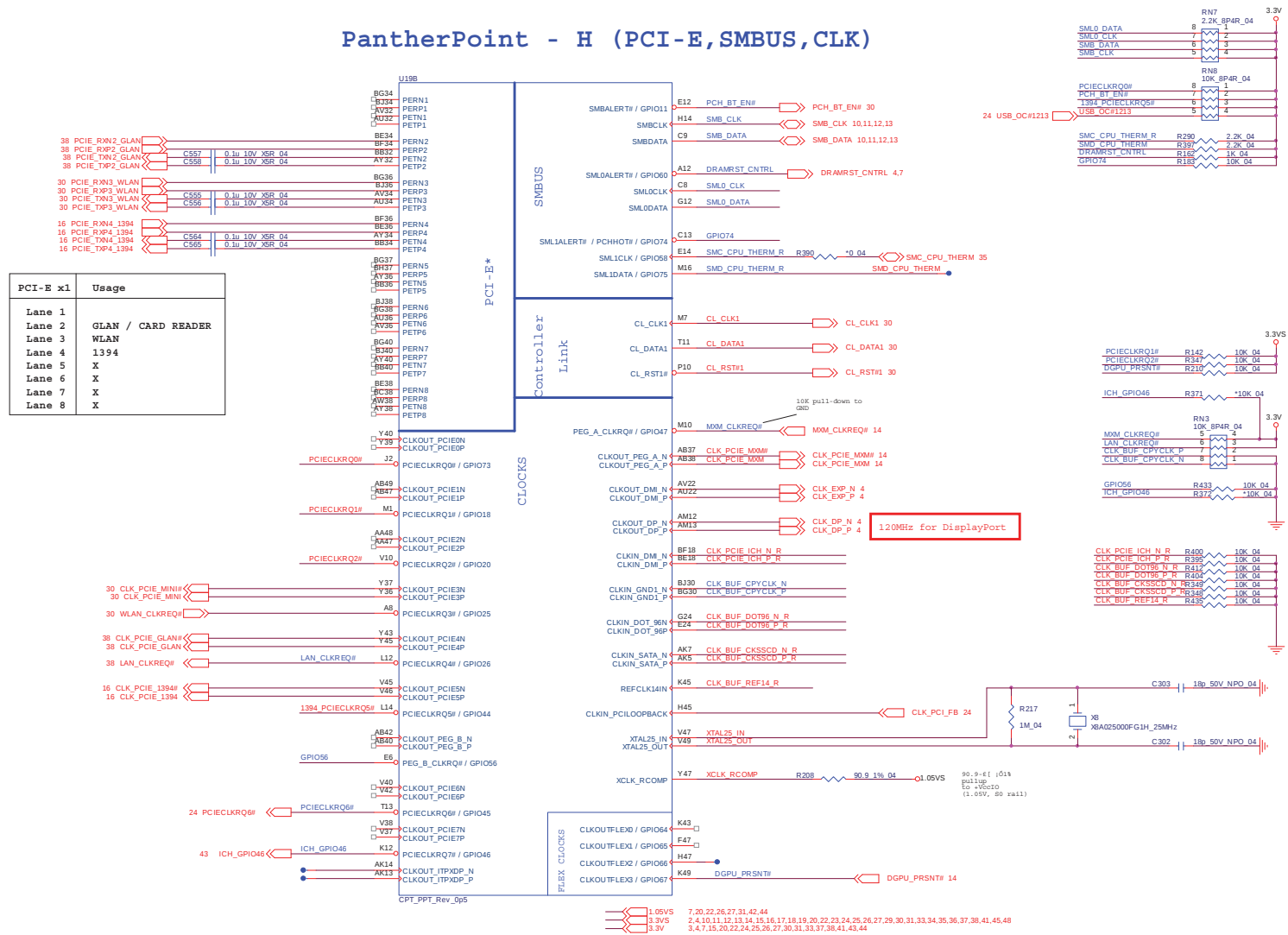


Schematic Diagrams

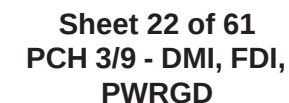
<http://hobi-elektronika.net>

PCH 2/9 - PCIE, SMBUS, CLK

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



PantherPoint - H (DMI, FDI, GPIO)



B.Schematic Diagrams



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

USB3.0 SUPPORT

29 USB3_R0N1 BE28 USB3Rn1
 29 USB3_R0N2 BE30 USB3Rn2
 29 USB3_R0N3 BE32 USB3Rn3
 29 USB3_R0N4 BE34 USB3Rn4
 29 USB3_R0P1 BE30 USB3Rp1
 29 USB3_R0P2 BE32 USB3Rp2
 29 USB3_R0P3 BE34 USB3Rp3
 29 USB3_T0N1 BB26 USB3Tn1
 29 USB3_T0N2 AU28 USB3Tn2
 29 USB3_T0N3 AY20 USB3Tn3
 29 USB3_T0P1 AV28 USB3Tp1
 29 USB3_T0P2 AV28 USB3Tp2
 29 USB3_T0P3 AW30 USB3Tp3

USB

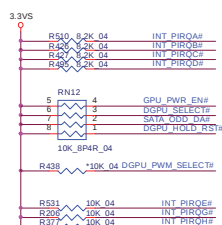
INT_PIRQA# K40
 INT_PIRQB# H38
 INT_PIRQC# H38
 INT_PIRQD# G36
 D0P0_SELECT# C46
 PWR_PWR_EN# C46
 BBS_BTI1 D47
 D0P0_PWM_SELECT# F46
 PCI_OUT#3 F46
 INT_PIRQE# G42
 INT_PIRQF# G42
 INT_PIRQG# C46
 INT_PIRQH# D44
 R482 "0.04" K10
 PLT_RST# K10
 H49
 PCLK_TPM_R K42
 CLK_P1_TPM_R K42
 CLK_P1_R8C_R "H49" K42
 CLKOUT_PC10
 CLKOUT_PC11
 CLKOUT_PC12
 CLKOUT_PC13
 CLKOUT_PC14

PCI

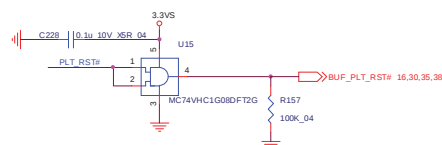
REQ1# / GPIO50
 REQ2# / GPIO52
 REQ3# / GPIO54
 GNT1# / GPIO51
 GNT2# / GPIO53
 GNT3# / GPIO55

RSVD

B21
 Y0N5
 Y0P5
 Y0N6
 Y0P6
 Y0N7
 Y0P7
 Y0N8
 Y0P8
 Y0N9
 Y0P9
 Y0N10
 Y0P10
 Y0N11
 Y0P11
 Y0N12
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 Y0N17



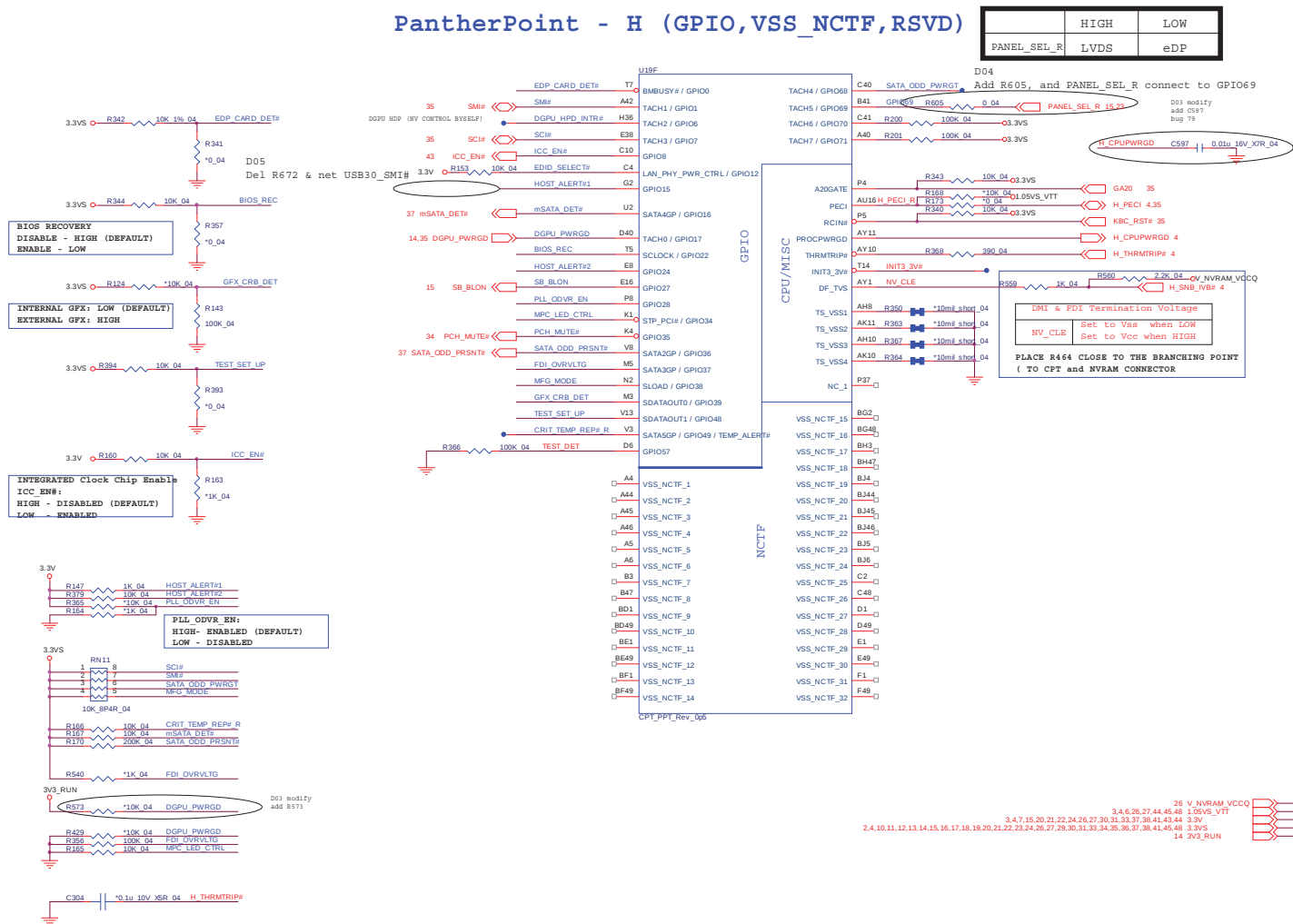
PIN PLT RST# to Buffer



2,4,10,11,12,13,14,15,16,17,18,19,20,21,22,23,25,26,27,29,30,31,33,34,35,36,37,38,41,45,48 3.3VS
3,4,7,15,20,21,22,25,26,27,30,31,33,37,38,41,43,44 3.3V

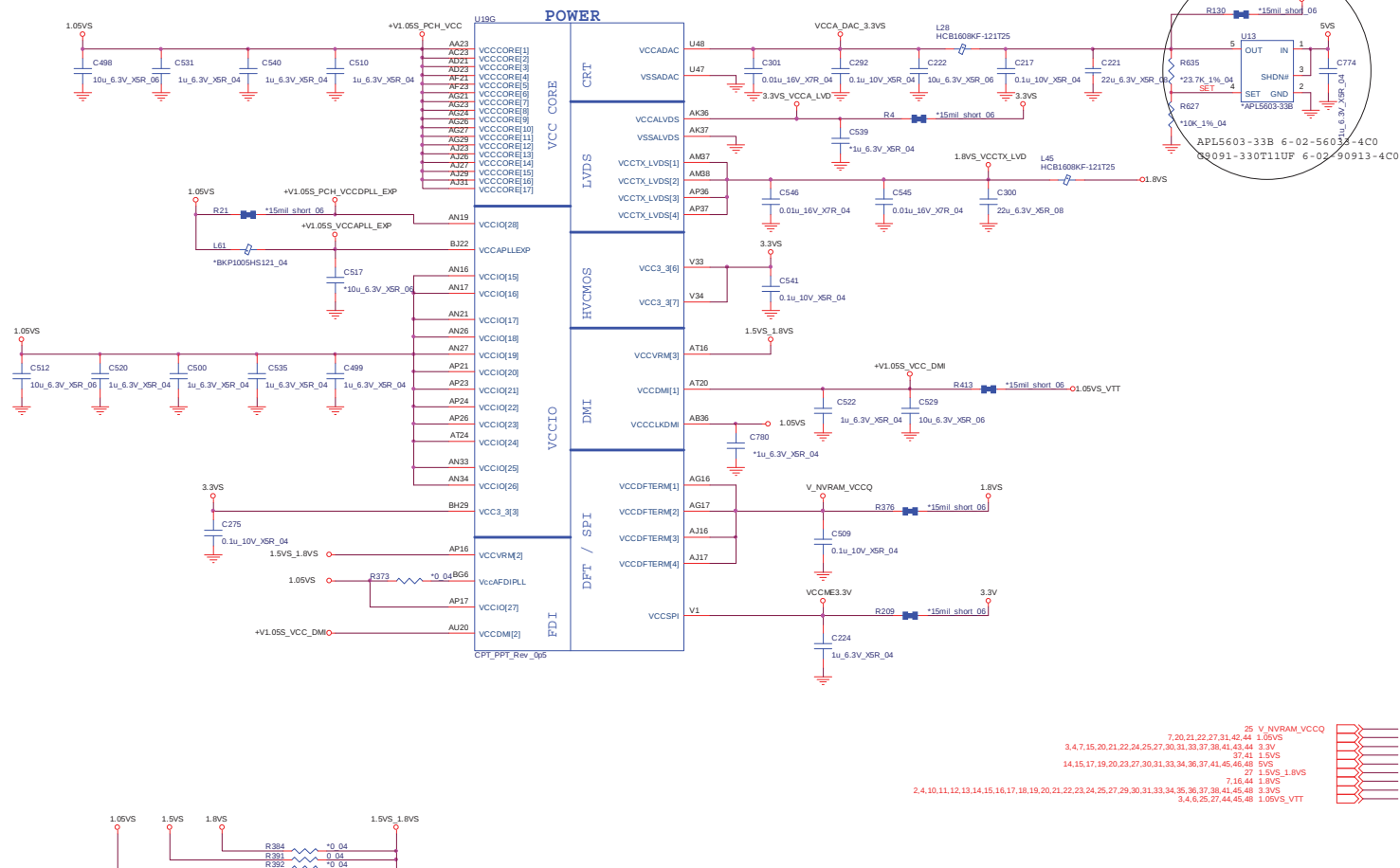
Sheet 24 of 61
PCH 5/9 - PCI, USB,
RSVD

Sheet 25 of 61
PCH 6/9 - GPIO,
CPU



PCH 7/9 - Power

PantherPoint - H (POWER)

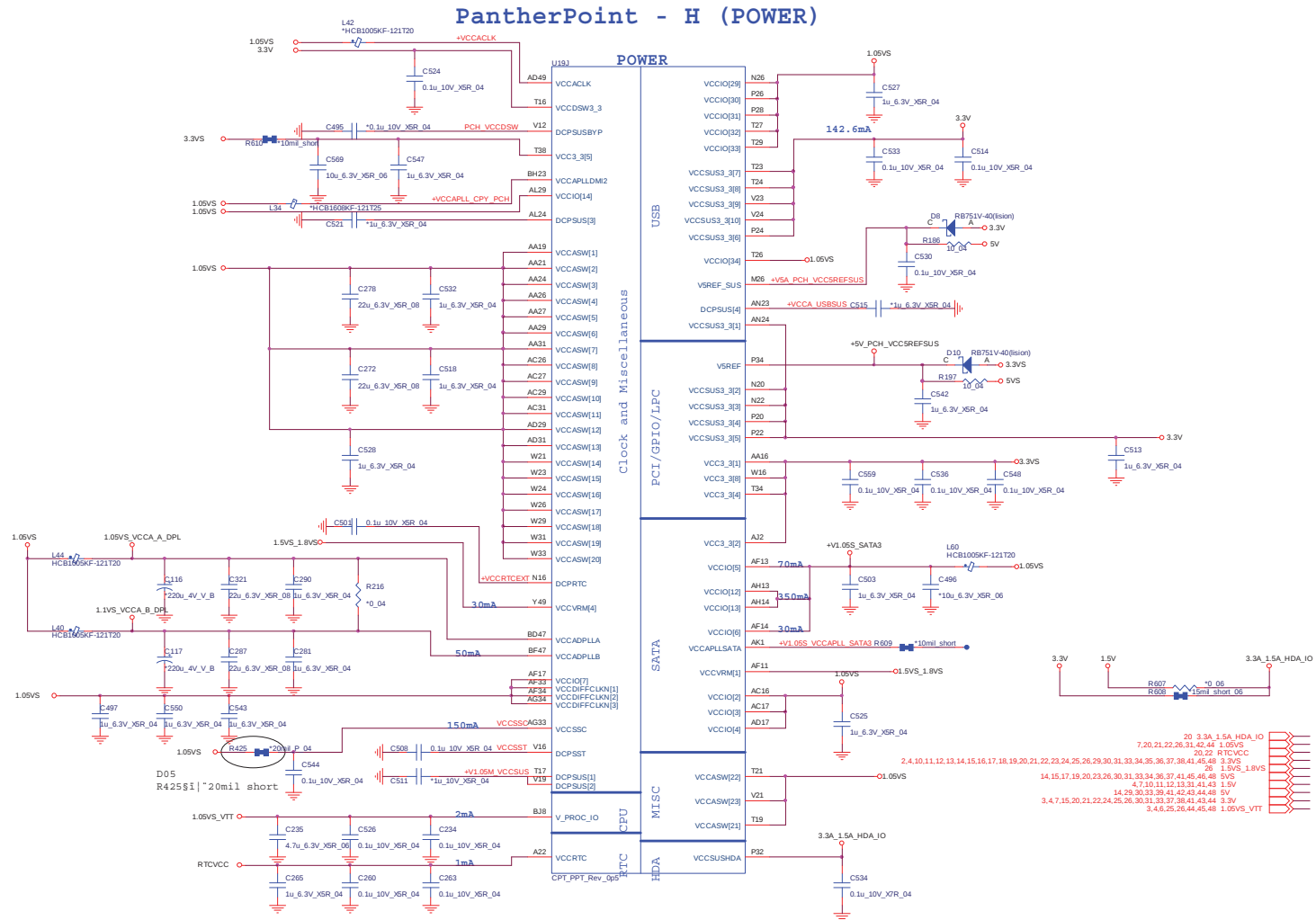


Sheet 26 of 61
PCH 7/9 - Power

Schematic Diagrams

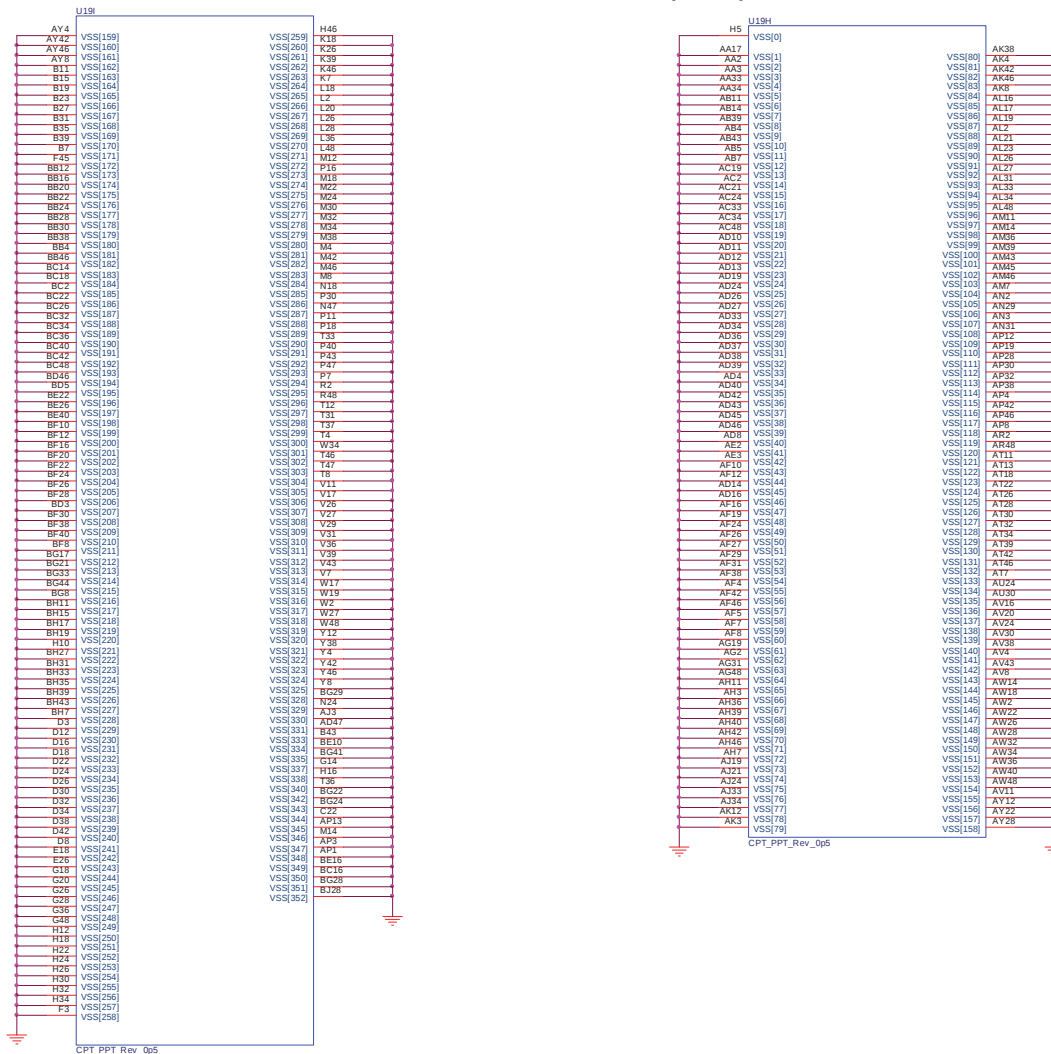
<http://hobi-elektronika.net>

PCH 8/9 - Power

 Sheet 27 of 61
 PCH 8/9 - Power


PCH 9/9 - GND

PantherPoint - H (GND)



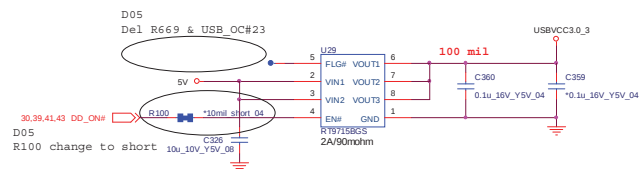
Sheet 28 of 61
PCH 9/9 - GND

Schematic Diagrams

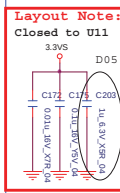
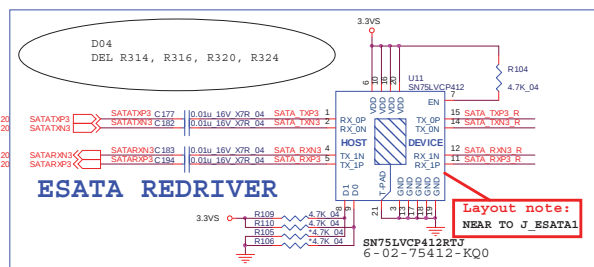
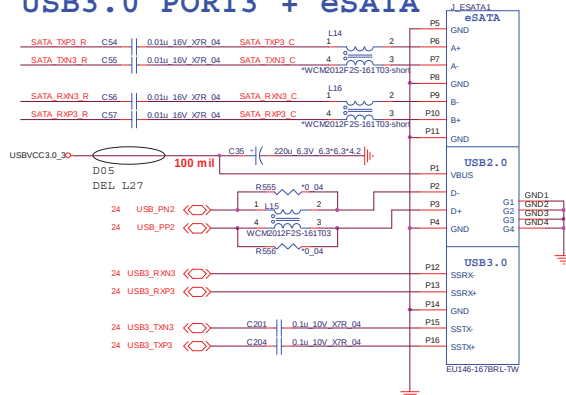
<http://hobi-elektronika.net>

USB+eSATA, USB Charging

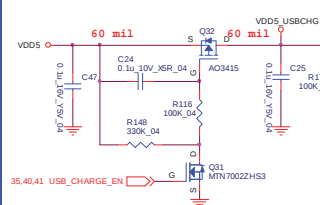
Sheet 29 of 61
USB+eSATA, USB
Charging



USB3.0 PORT3 + eSATA

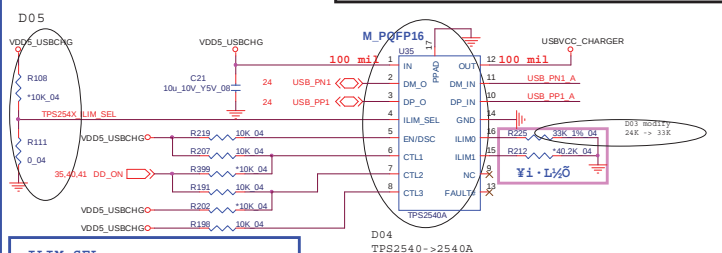


TPS2540 USB Charging PORT



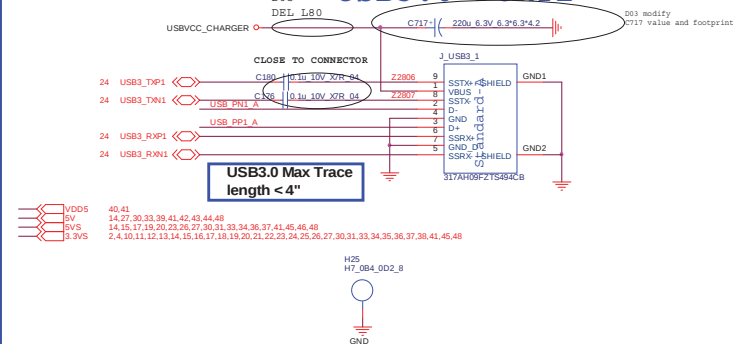
		(DD_ON)	(VDD5)	(VDD5)
		CTL1	CTL2	CTL3
Mode 1	Power off & Discharge	0	0	0
Mode 2	Power off & Charge	0	1	1
Mode 3	Power off & Charge	1	0	1
Mode 4	Power on & Charge	1	1	1

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, BCL2.



ILIM SEL
 (FOR TPS2543/TPS2540)
 ILIM SEL=HI , FOR TPS2543
 ILIM SEL=LOW, FOR TPS2540A

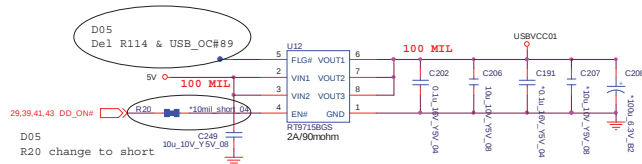
USB3.0 PORT1



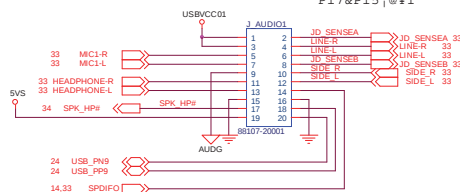
USB3.0 Max Trace
 length < 4"

USB 2.0, CCD, Mini PCIE, LID

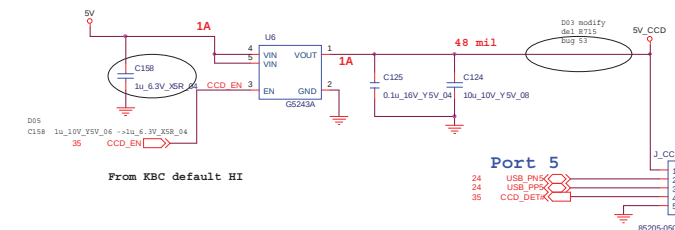
USB2.0 PORT



FOR Audio JACK BOARD
P17&P15 @Yf



CCD



From KBC default HI

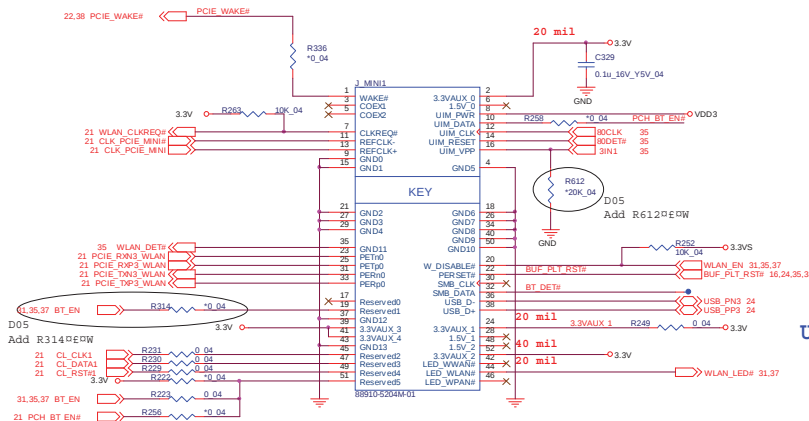
Port 5



Sheet 30 of 61
USB 2.0, CCD,
Mini PCIE, LED

B.Schematic Diagrams

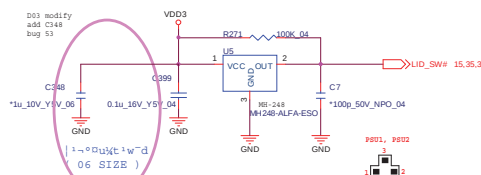
MINI CARD



USB_P3



LID SWITCH IC

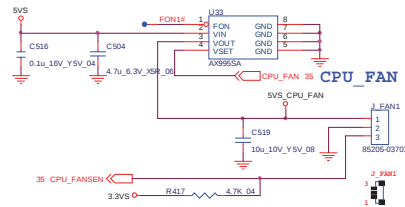


Schematic Diagrams

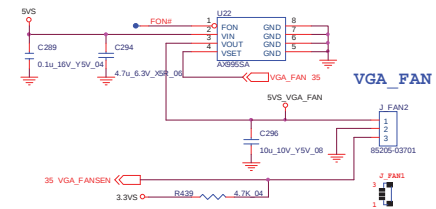
<http://hobi-elektronika.net>

LED, Hotkey, LID SW, Fan

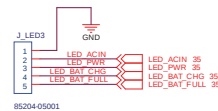
CPU FAN CONTROL



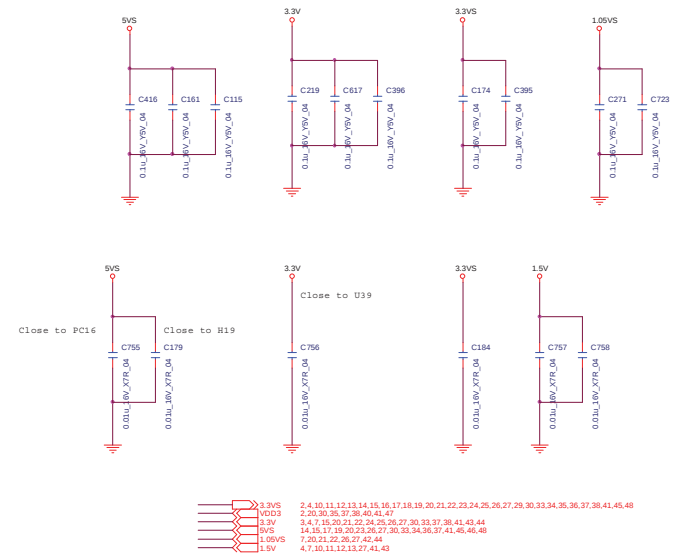
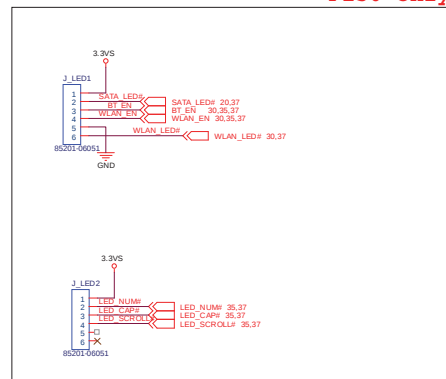
VGA FAN CONTROL



Sheet 31 of 61
LED, Hotkey, LID
SW, Fan

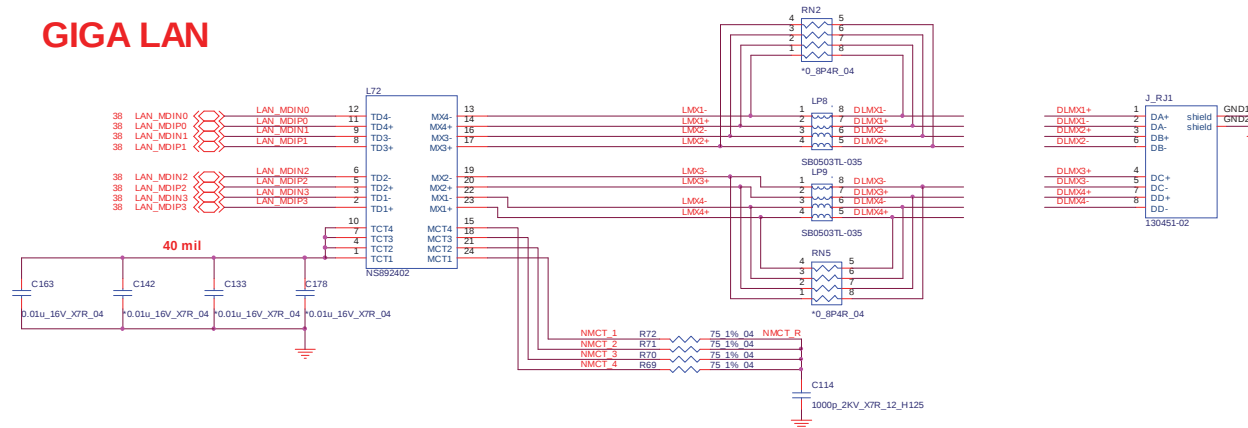


P150 only

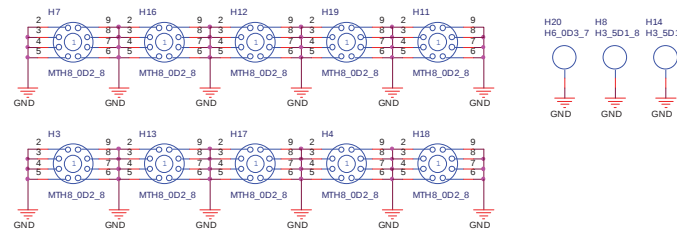
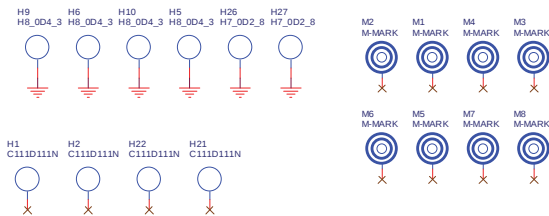


RJ 45

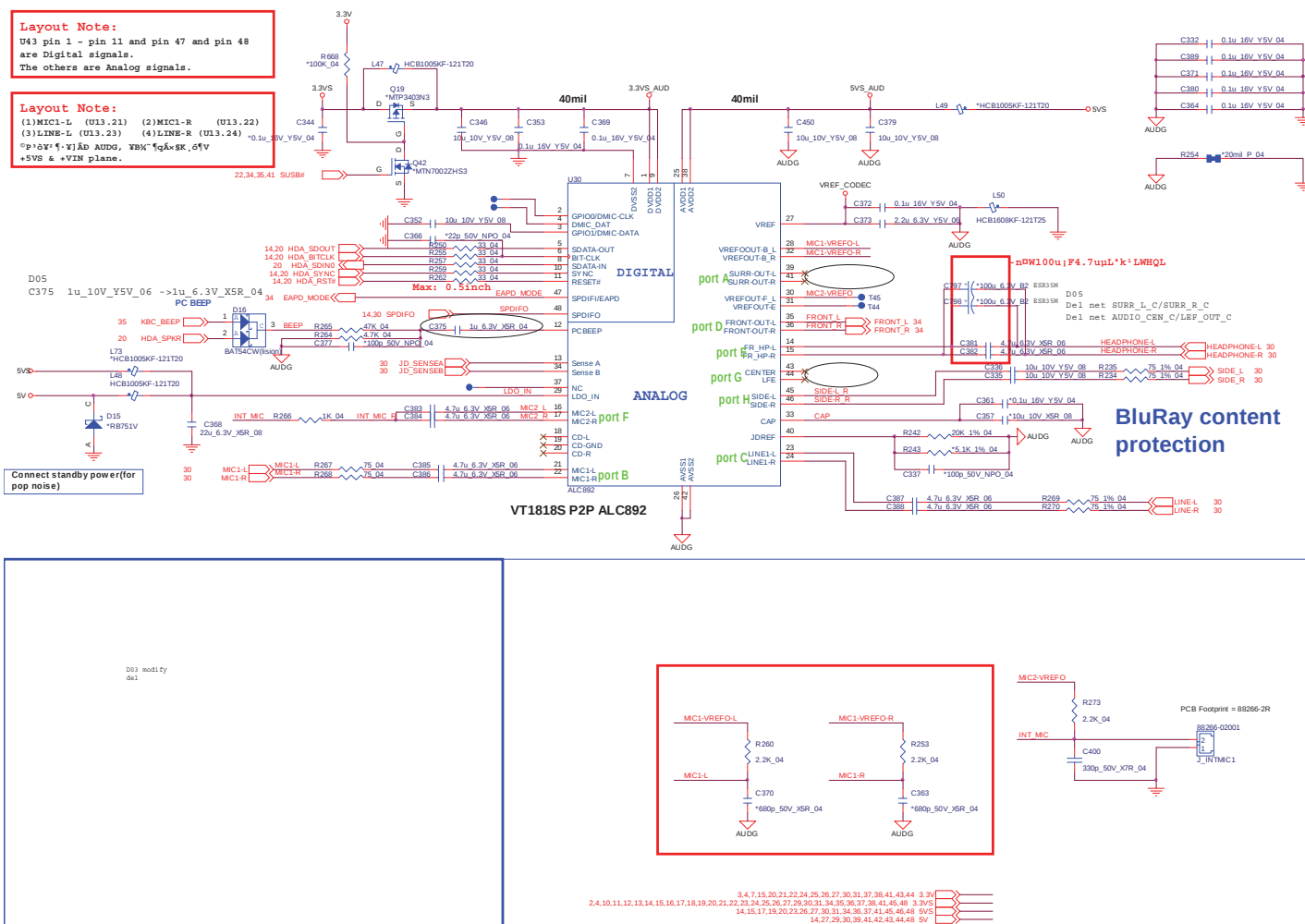
GIGA LAN



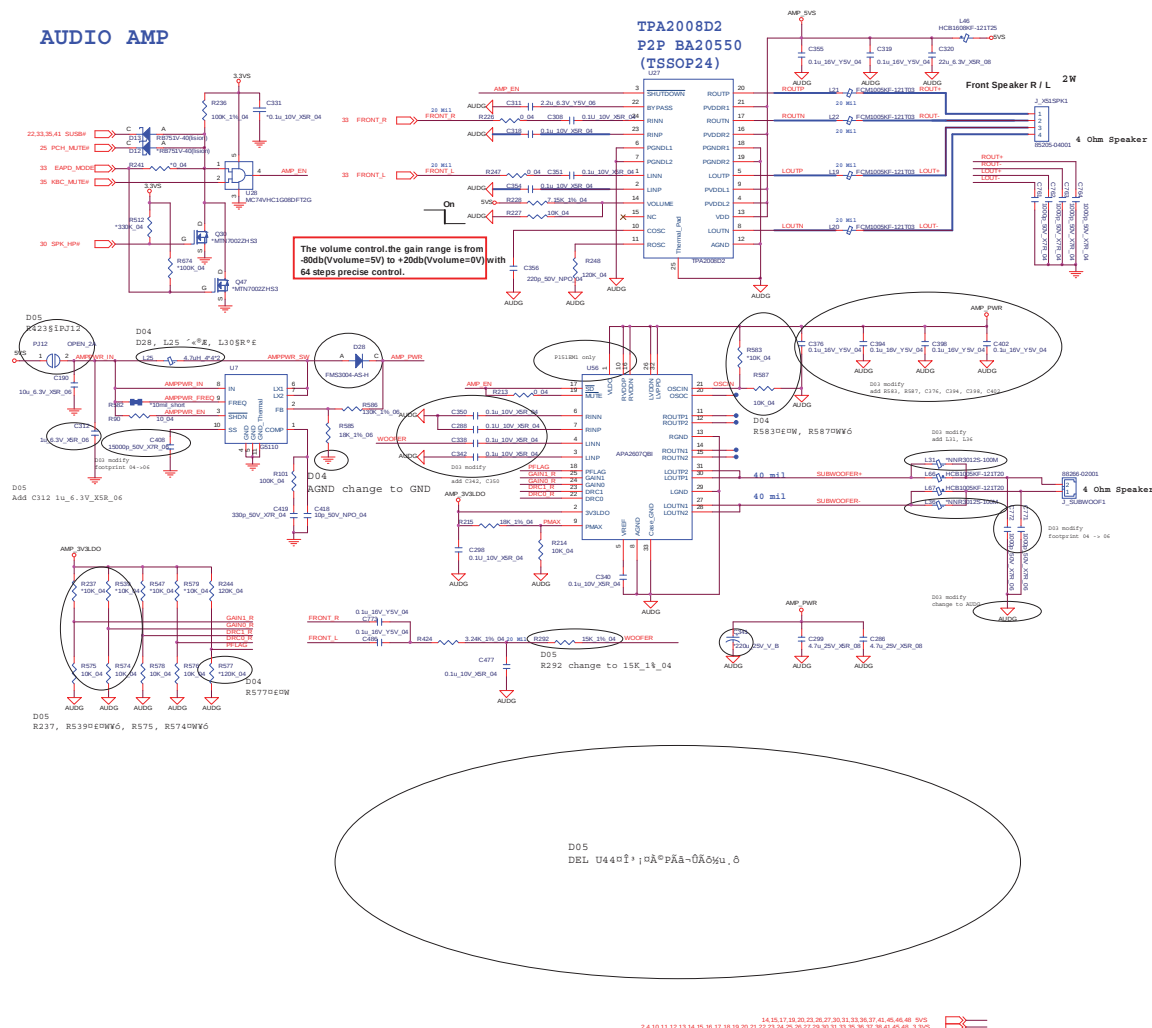
Sheet 32 of 61
RJ 45



3.3V 3, 4, 7, 15, 20, 21, 22, 24, 25, 26, 27, 30, 31, 33, 37, 38, 41, 43, 44



APA2607-TPA2008D2

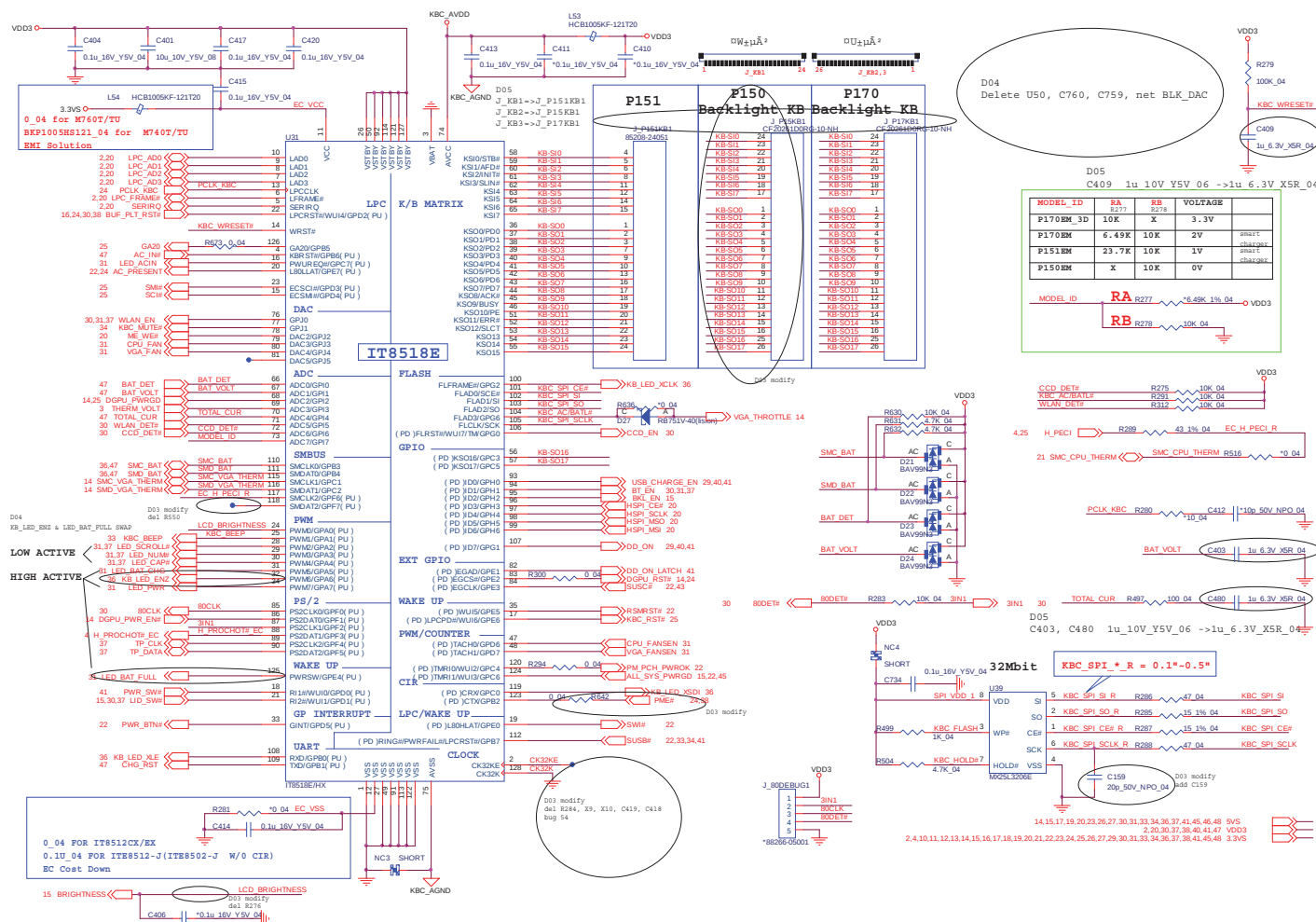


Sheet 34 of 61
APA2607-
TPA2008D2

Schematic Diagrams

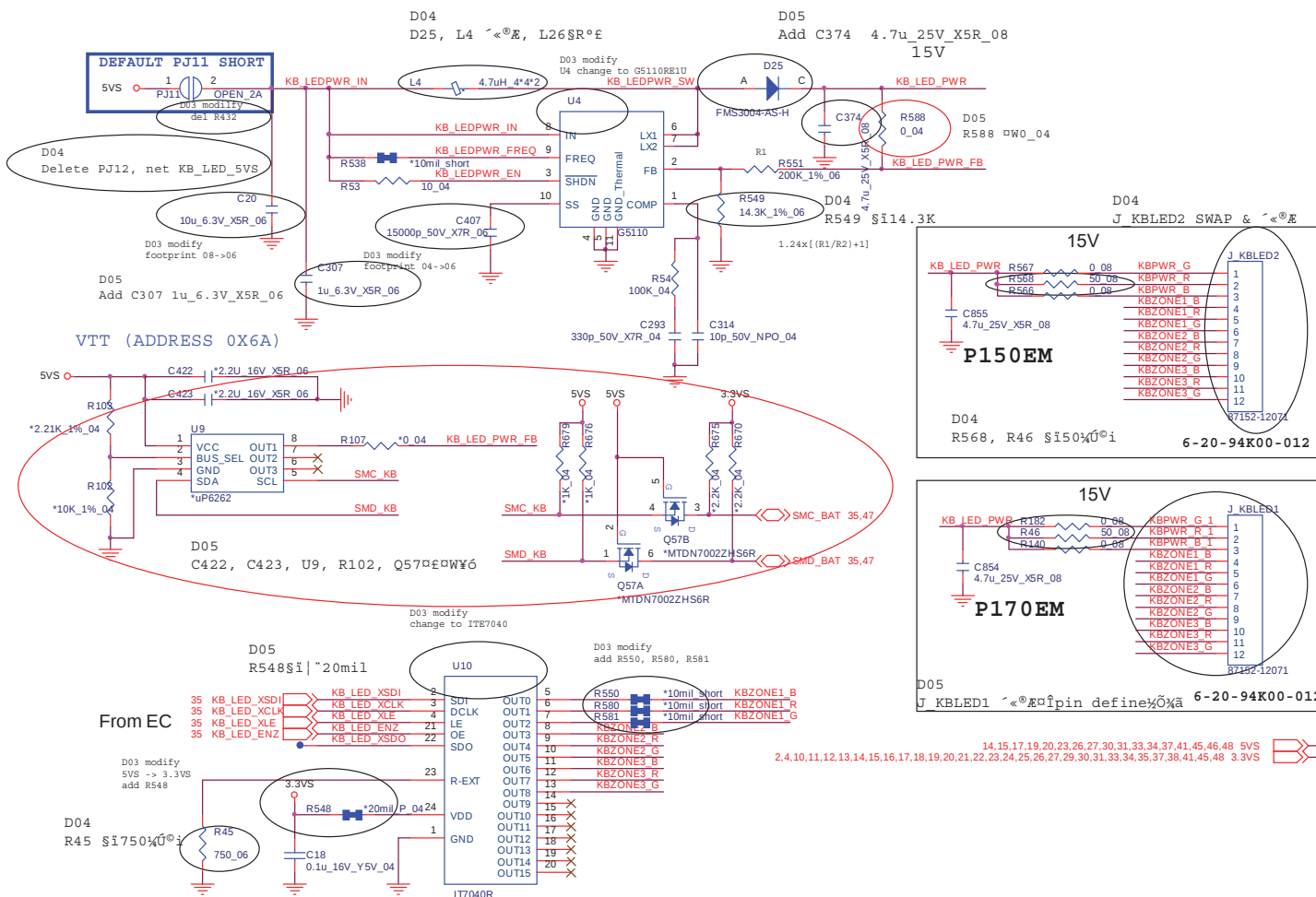
<http://hobi-elektronika.net>

KBC-ITE IT8518E

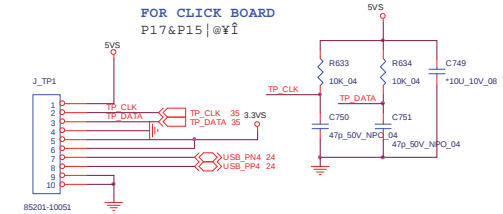
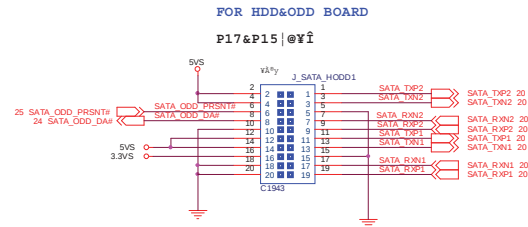
 Sheet 35 of 61
 KBC-ITE IT8518E


Backlight Keyboard

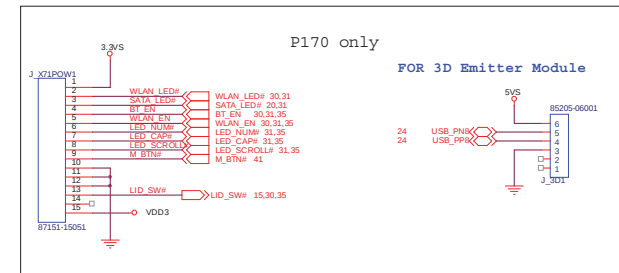
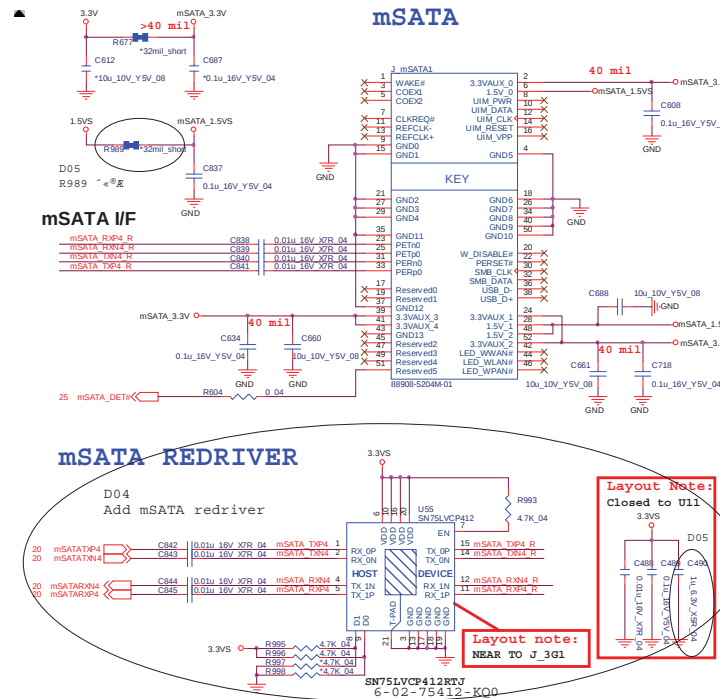
Sheet 36 of 61
Backlight
Keyboard



mSATA, FAN, TP, FP, MULTI-CON



Sheet 37 of 61
mSATA, FAN, TP,
FP, MULTI-CON

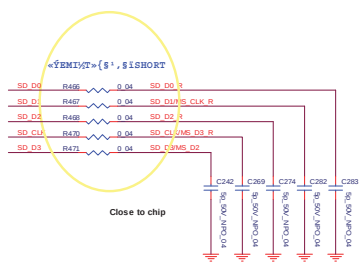
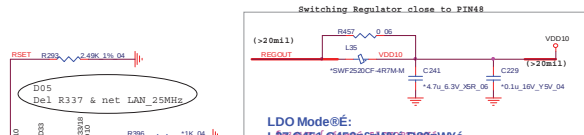
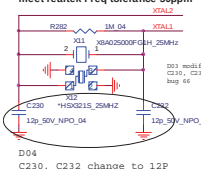


VDD3	2,20,30,35,38,40,41,47
3.3V	2,4,10,11,12,23,14,15,16,17,18,19,20,21,22,23,24,25,26,27,29,30,31,33,34,35,36,38,41,45,48
3.3V	3,4,7,15,20,21,22,24,25,26,27,30,31,33,38,41,43,44
5V	14,15,17,19,20,23,26,27,30,31,33,34,36,41,45,46,48
5V	26,41

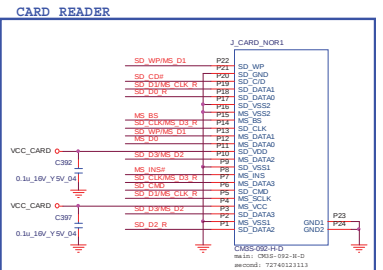
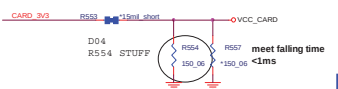
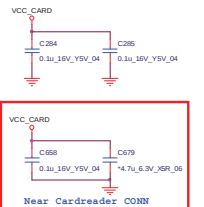
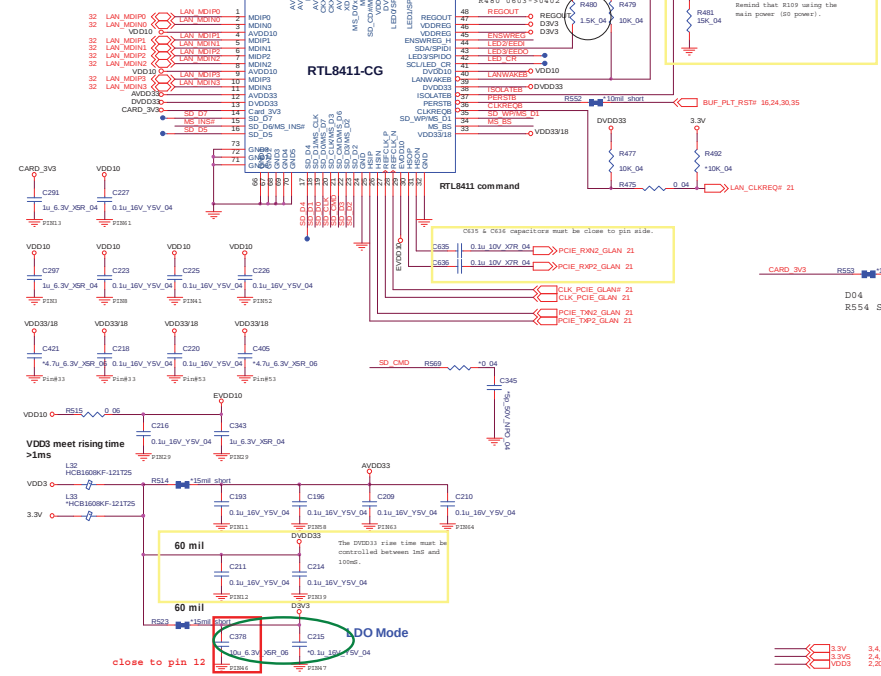
Card Reader RTL8411

LAN (RTL8411)

Crystal 8045 & 3225 Co-4ay
meet realtek Freq tolerance 50ppm



Sheet 38 of 61
Card Reader
RTL8411



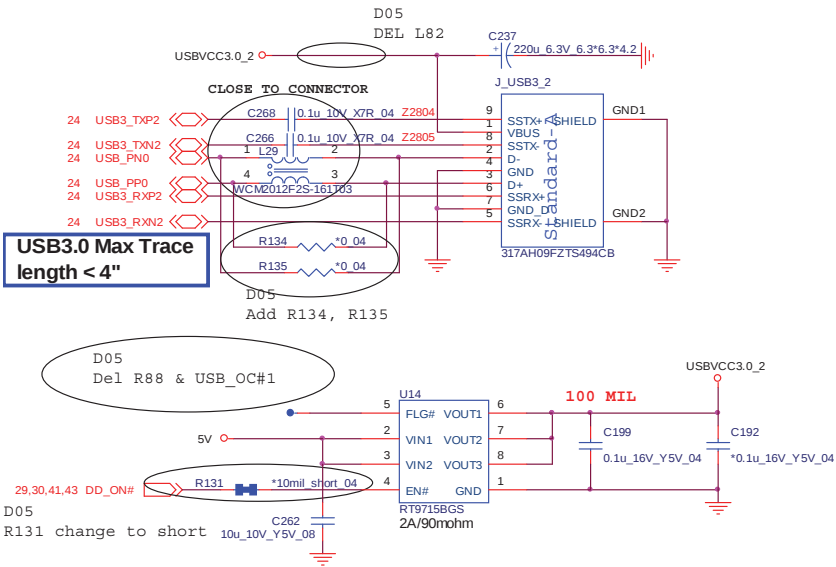
3.3V
3.3V5
VDD3

3,4,7,15,20,21,22,24,25,26,27,30,31,33,37,41,43,44
2,4,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,29,30,31,33,34,36,36,37,41,45,48
2,30,30,30,37,40,41,47

USB 3.0

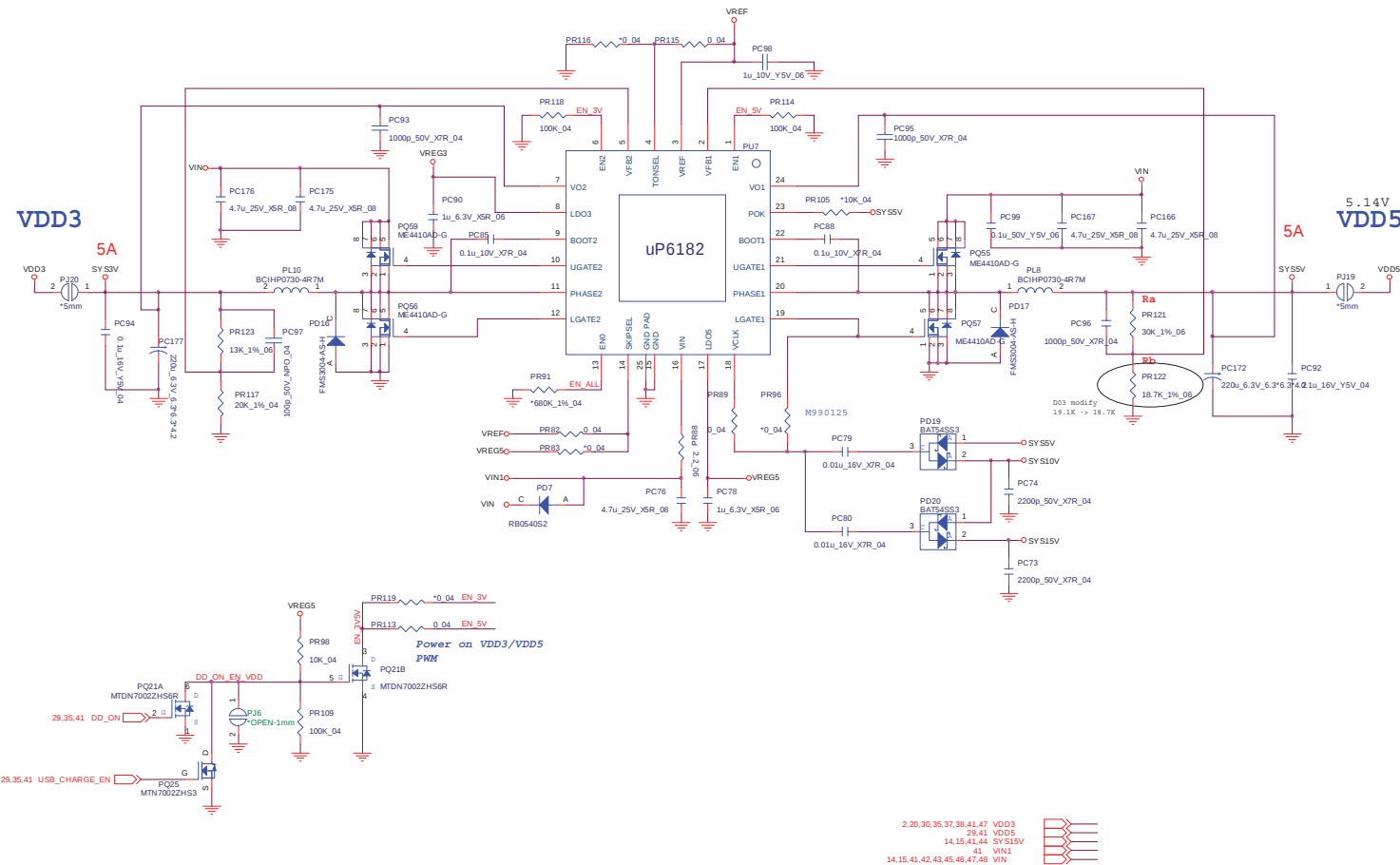
Sheet 39 of 61
USB 3.0

USB3.0 PORT2



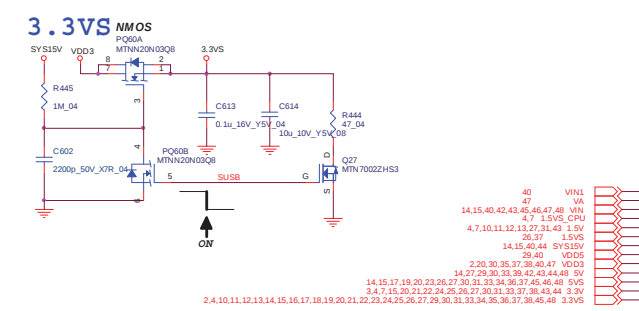
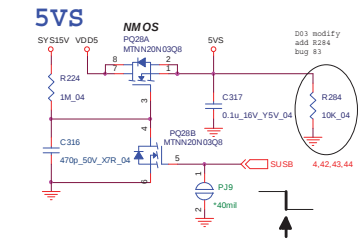
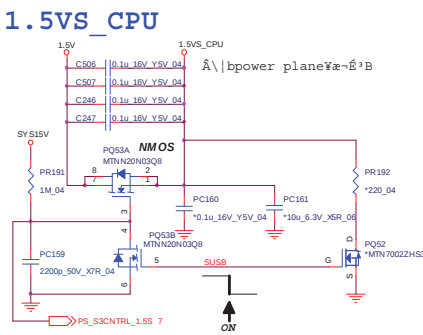
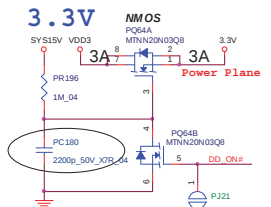
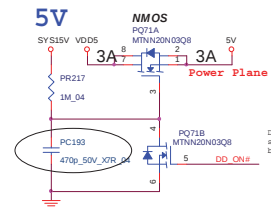
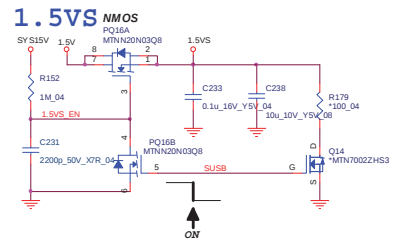
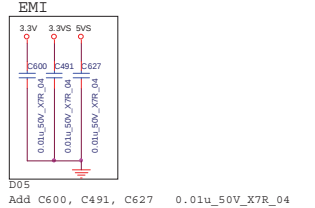
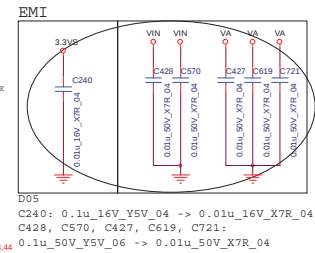
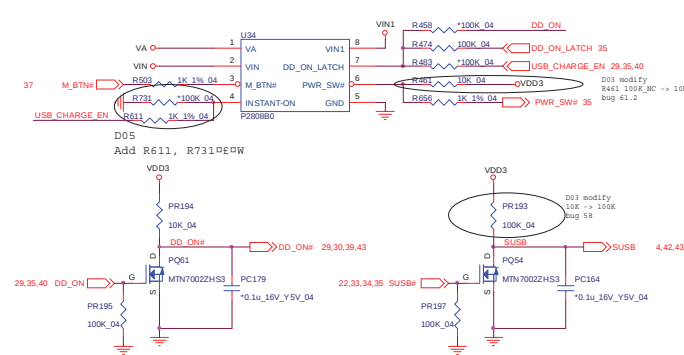
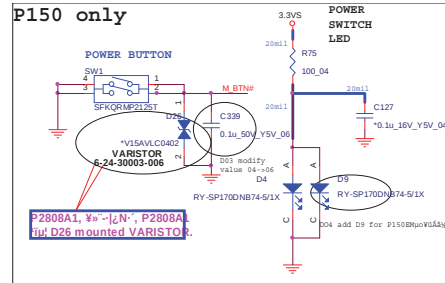
14,27,29,30,33,41,42,43,44,48 5V

VDD3, VDD5



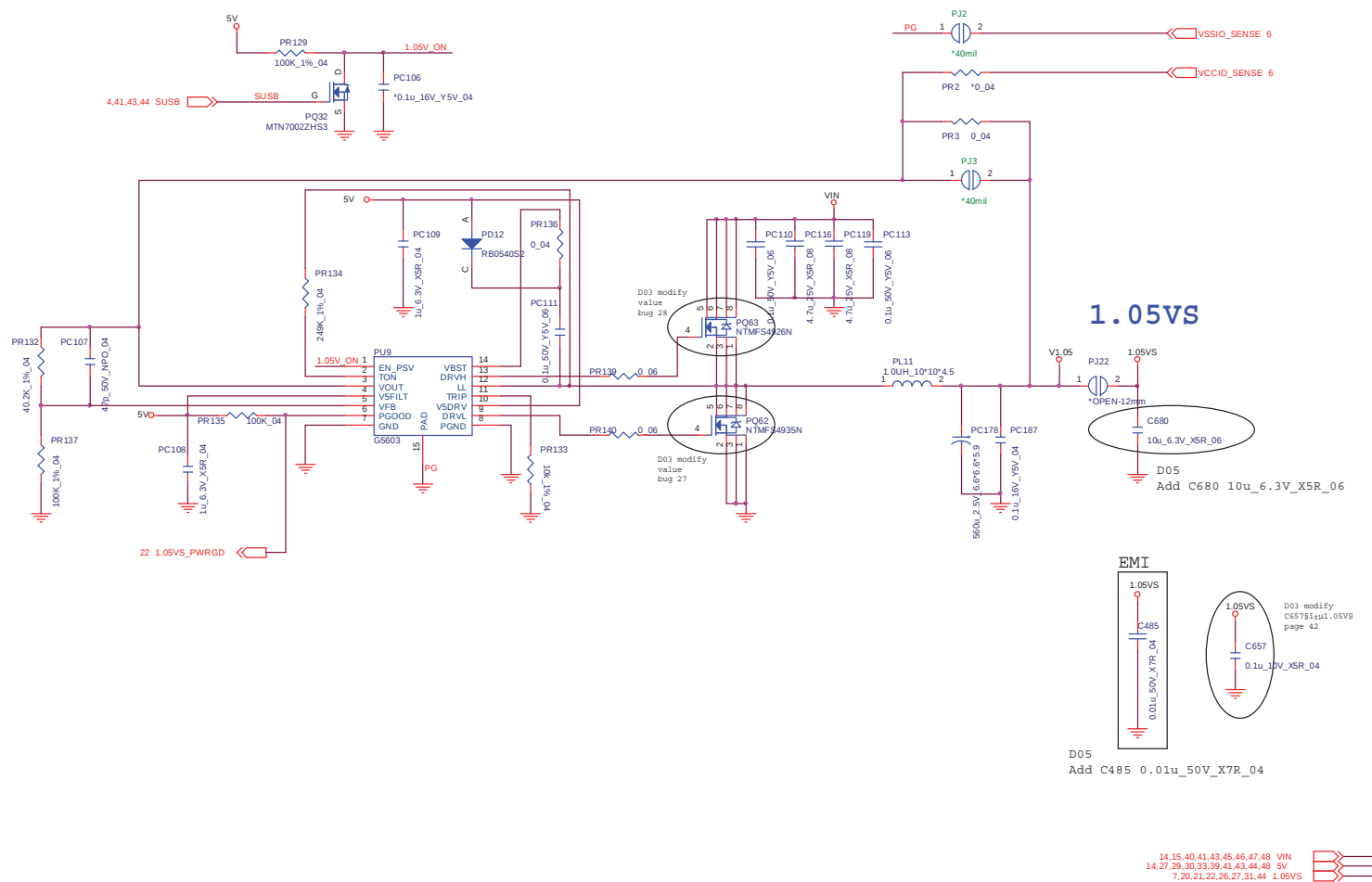
Sheet 40 of 61
VDD3, VDD5

5VS, 3.3VS, 1.5VS



Sheet 42 of 61
Power 1.05VS

B.Schematic Diagrams

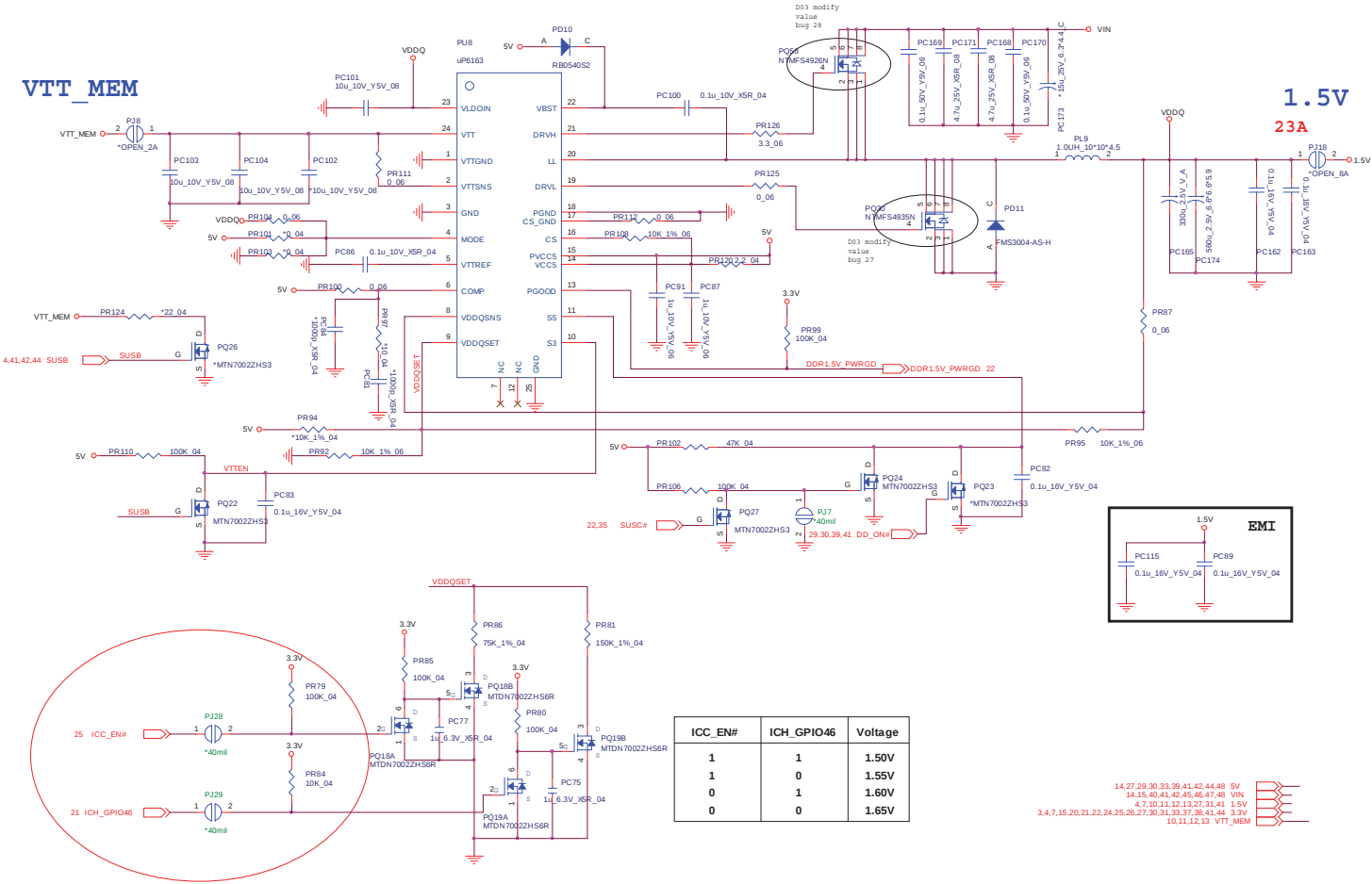


Schematic Diagrams

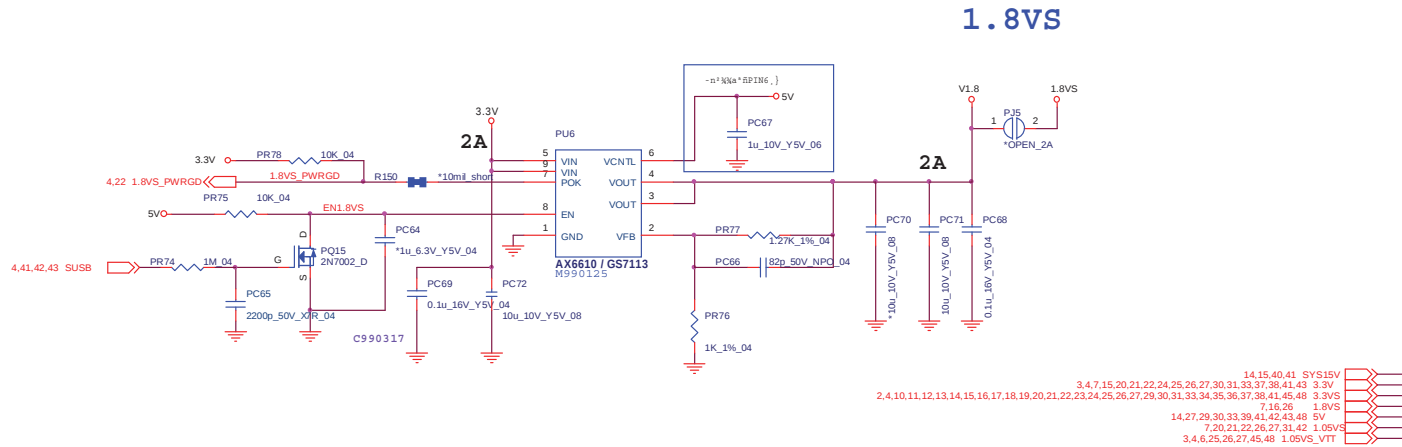
<http://hobi-elektronika.net>

Power 1.5V/VTT_MEM

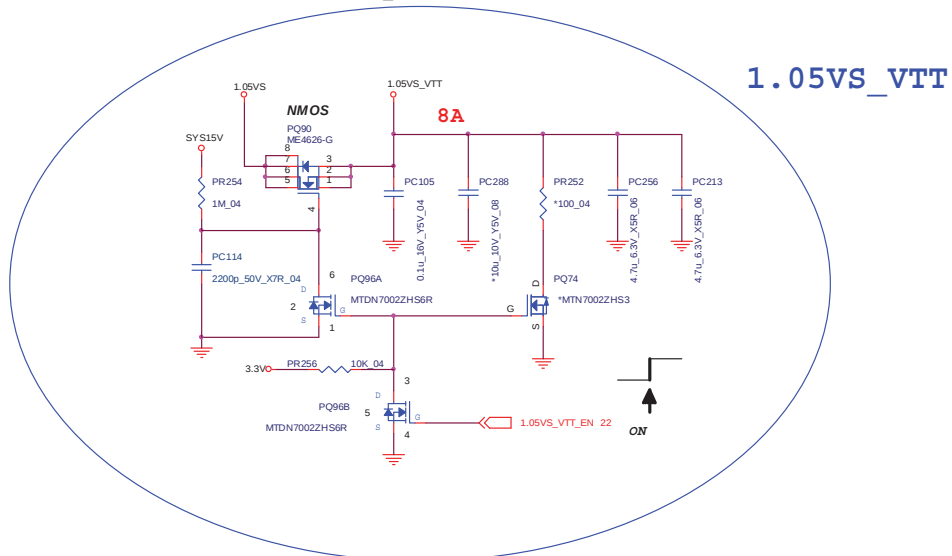
Sheet 43 of 61
Power 1.5V/
VTT_MEM



Power 1V, 1.8VS

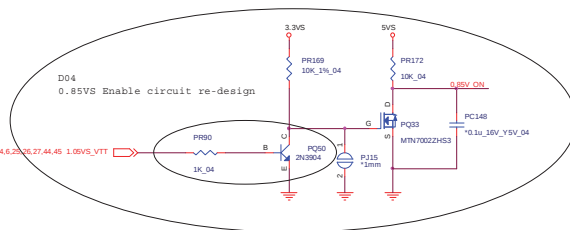
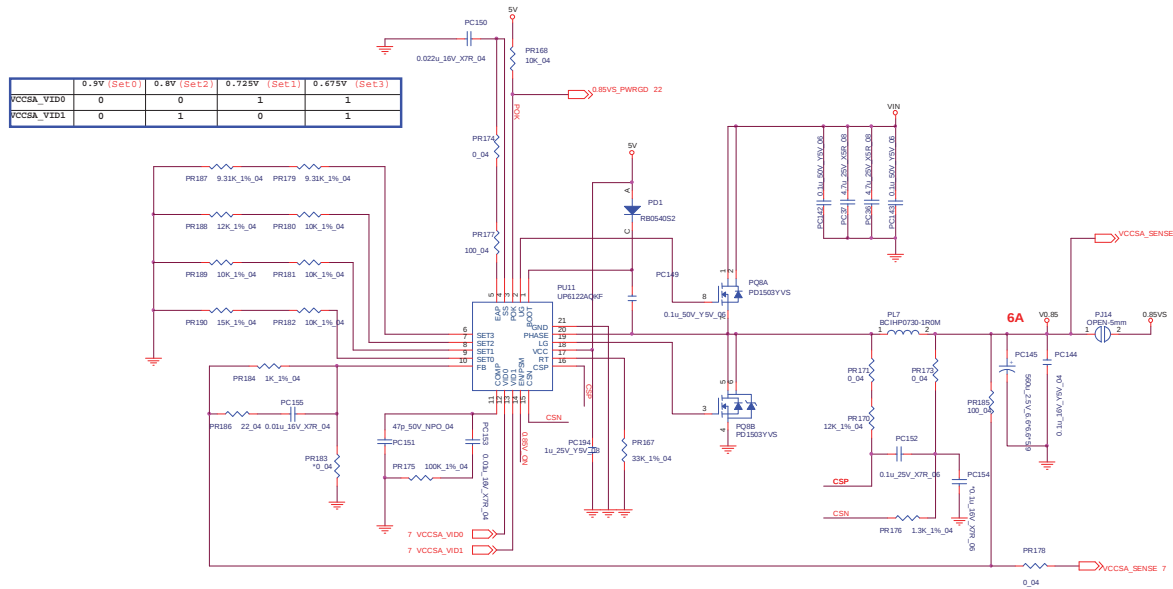


D04
1.05VS_VTT re-design





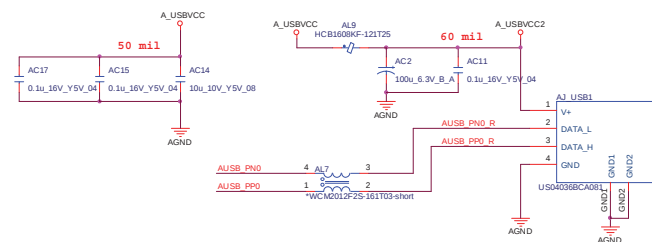
Power 0.85VS



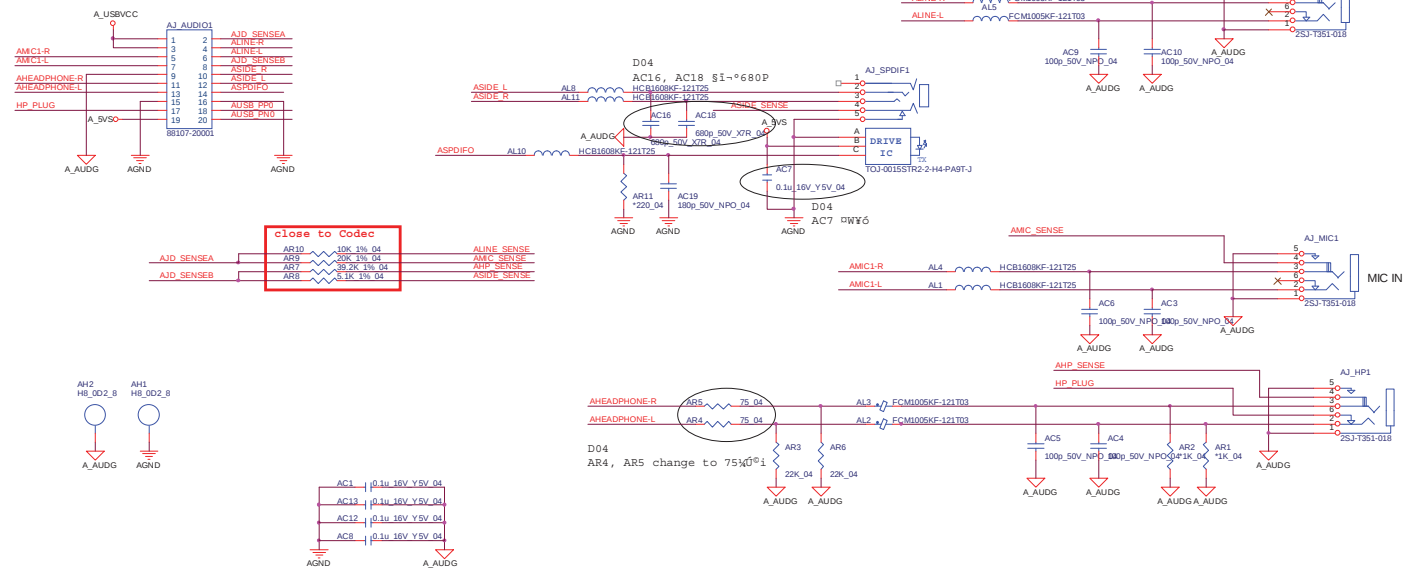
5VS 14,15,17,19,20,23,26,27,30,31,33,34,36,37,41,46,48
3.3VS 2,4,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,29,30,31,33,34,35,36,37,38,41,46
5V 14,27,29,30,33,38,41,42,43,44
0.85VS 7
VIN 14,15,40,41,42,43,45,46,47

Sheet 48 of 61
Power 0.85VS

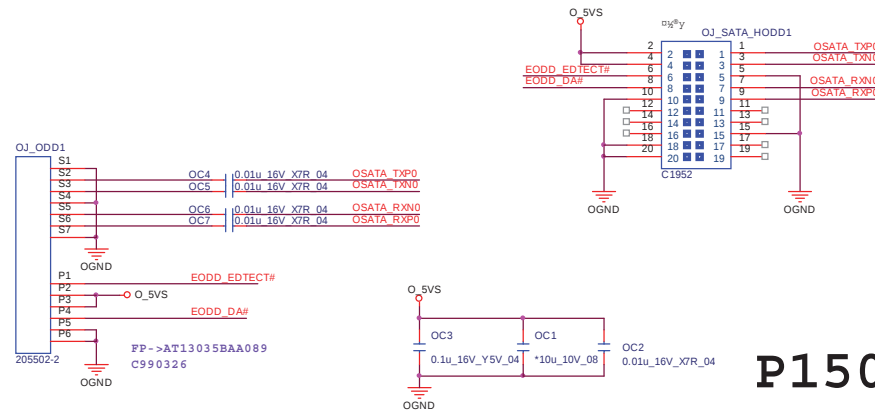
USB PORT



AUDIO JACK



P150 ODD Board

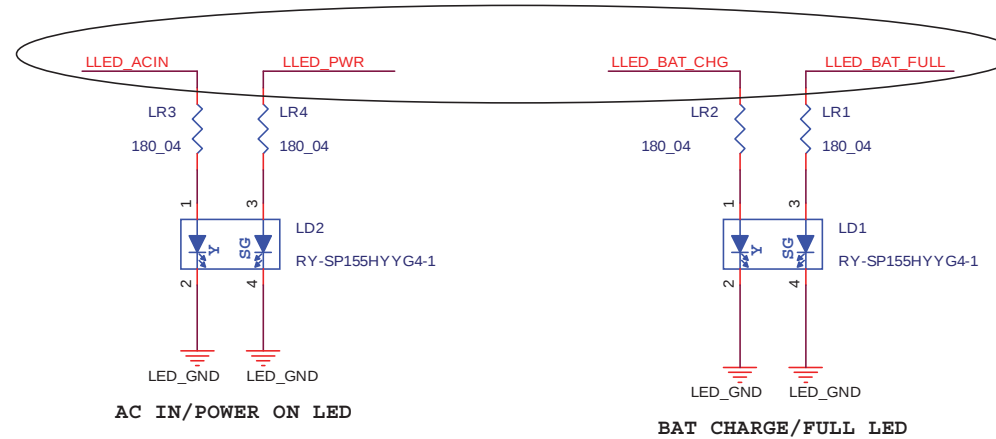
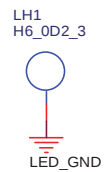
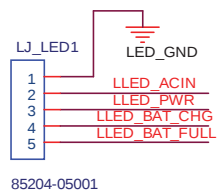


P150 ONLY

Sheet 50 of 61
P150 ODD Board

P150 LED 1 Board

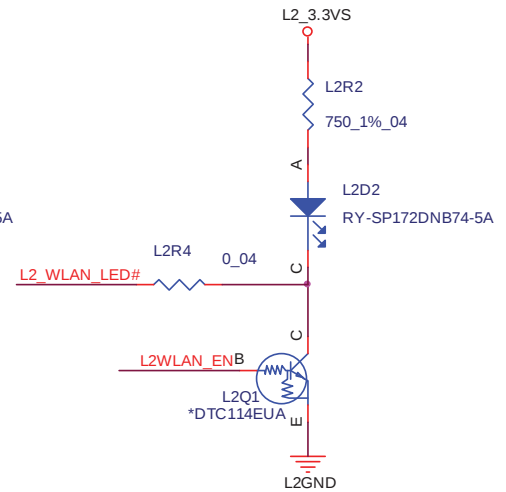
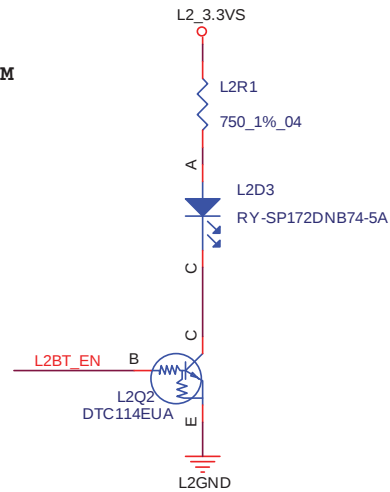
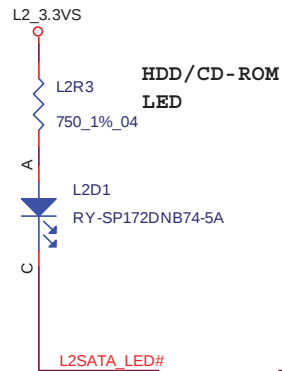
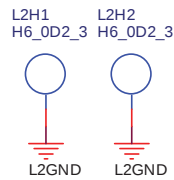
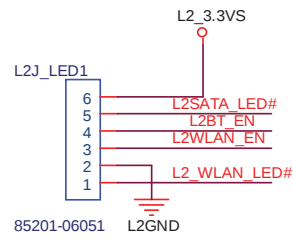
P17&P15



Sheet 52 of 61
P150 LED 1 Board

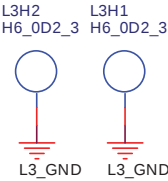
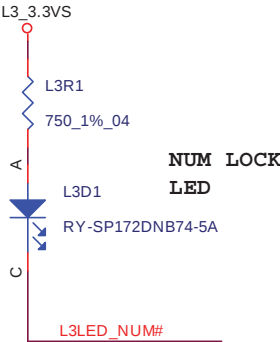
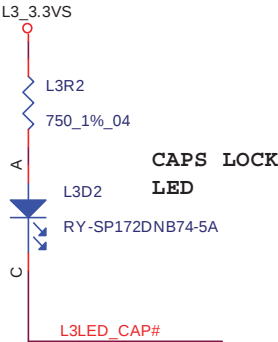
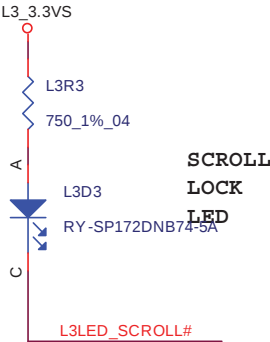
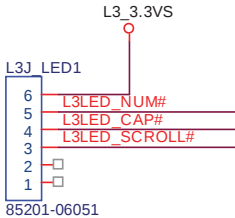
P150 LED 2 Board

Sheet 53 of 61
P150 LED 2 Board



LED

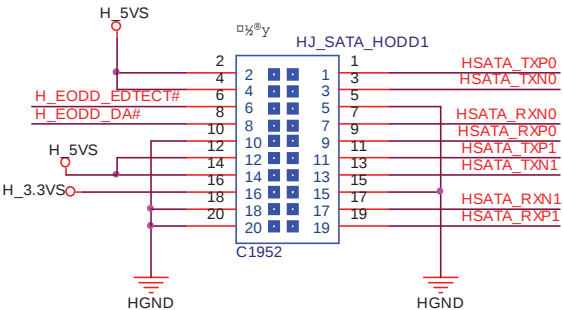
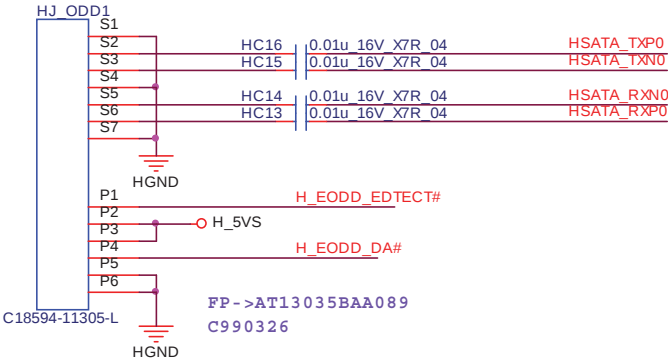
P150 LED 3 Board



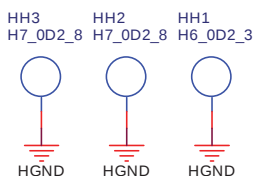
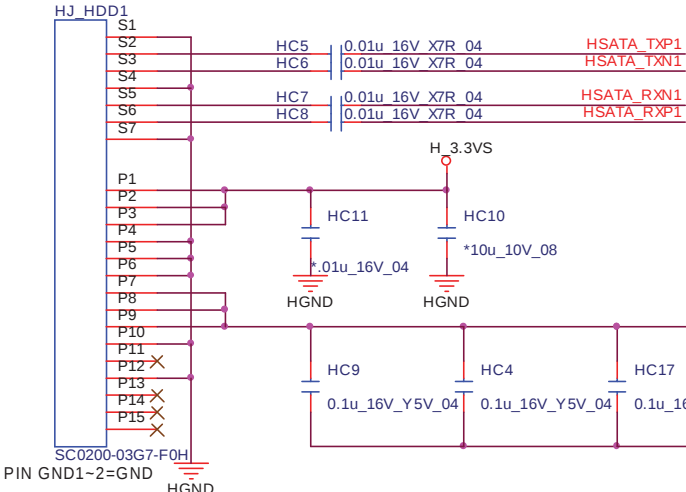
Sheet 54 of 61
P150 LED 3 Board

P170 HDD & ODD Board

Sheet 55 of 61
P170 HDD& ODD
Board

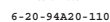


P170 ONLY

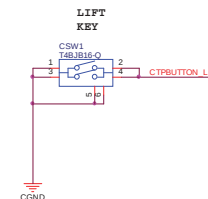


B.Schematic Diagrams

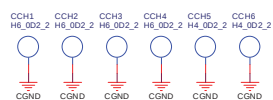
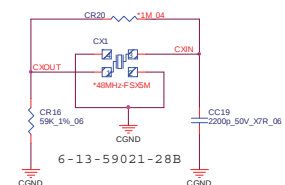
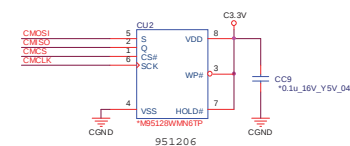




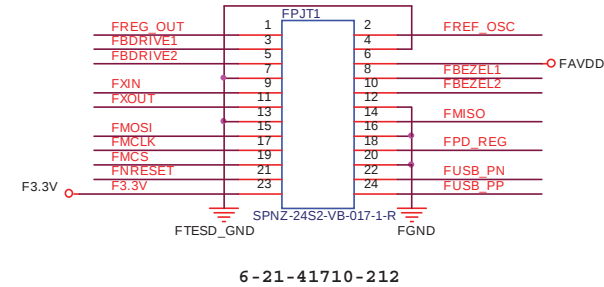
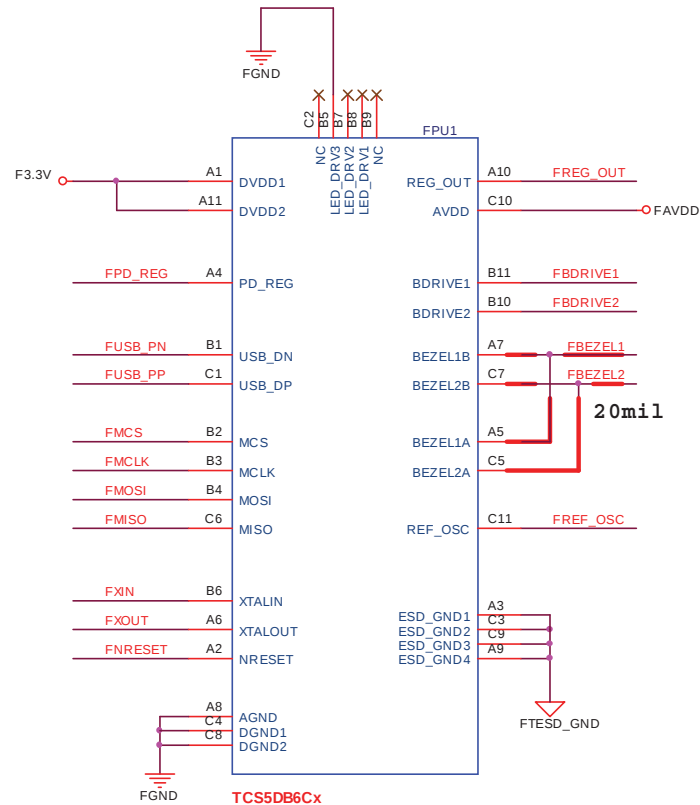
It is strongly recommended that the **TESD_GND** has a dedicated connection to the system chassis or cable shield.



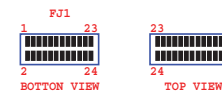
Sheet 57 of 61
P170 Click Board



P170 Fingerprint Board



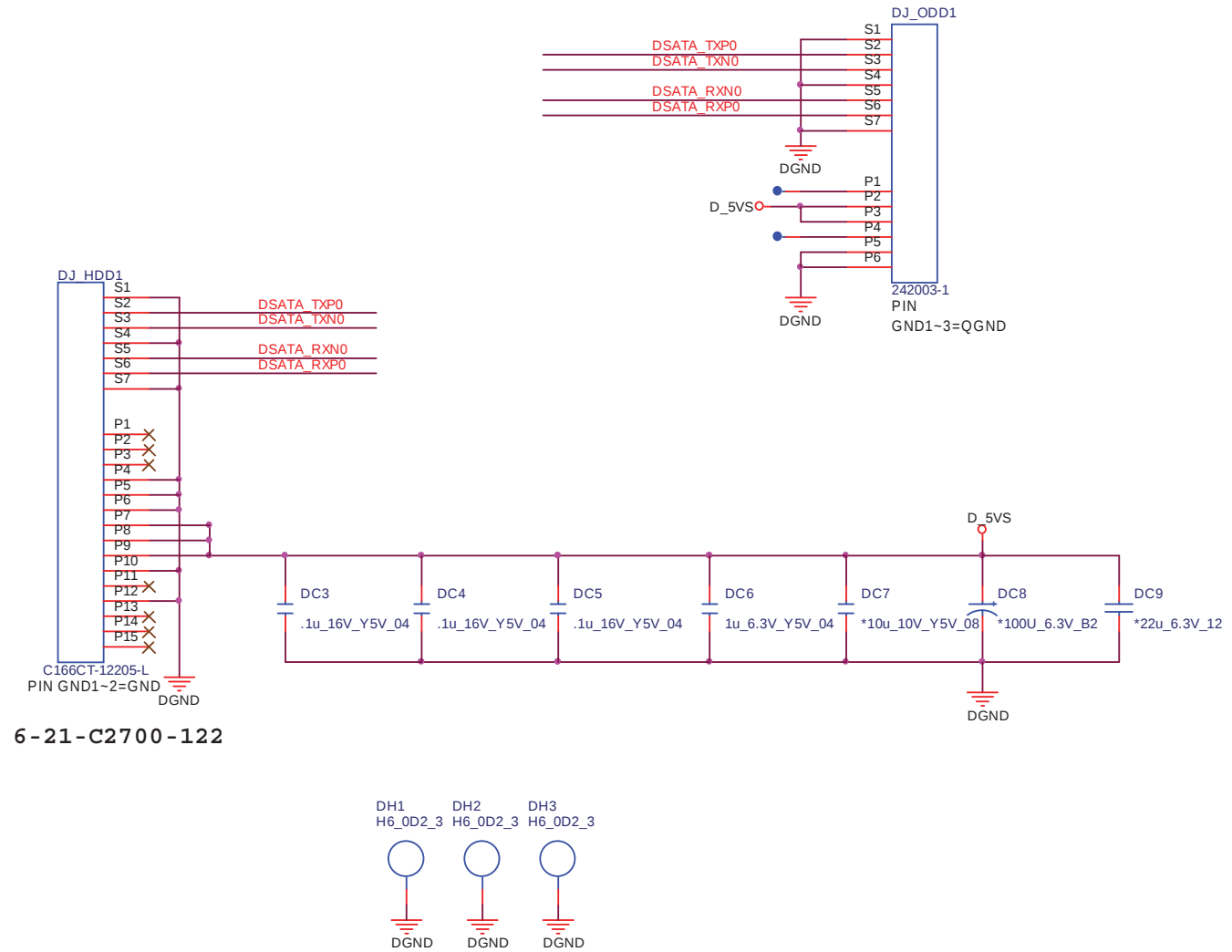
P170 ONLY



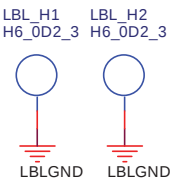
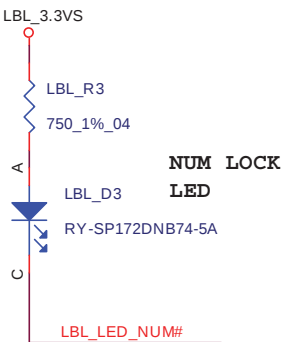
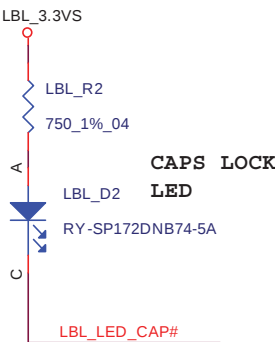
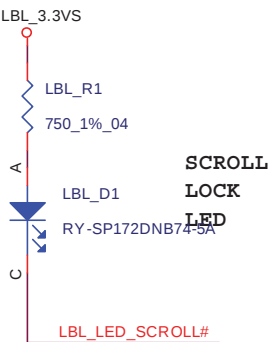
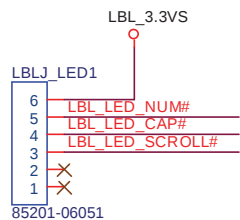
Sheet 58 of 61
P170 Fingerprint
Board

P150 HDD Board

Sheet 59 of 61
P150 HDD Board



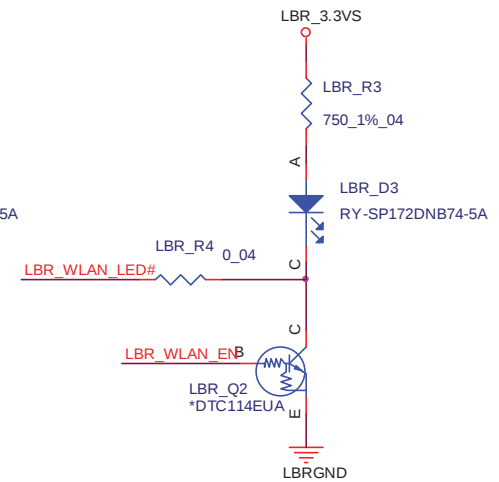
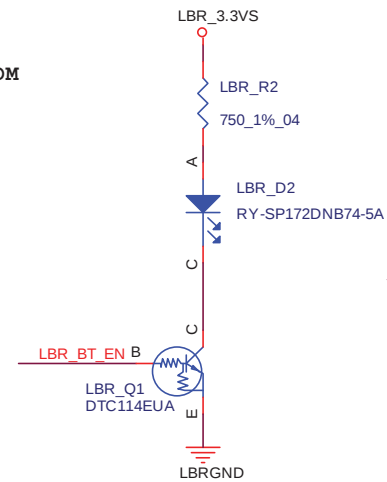
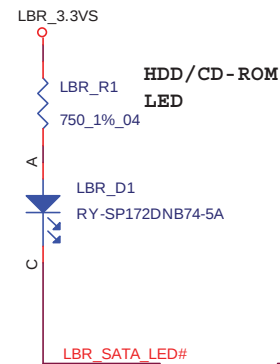
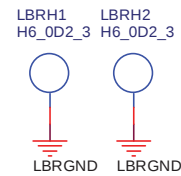
P150 LED Board_L



Sheet 60 of 61
P150 LED Board_L

Diagram showing the connection of pins 1 through 6 of the 85201-06051 component:

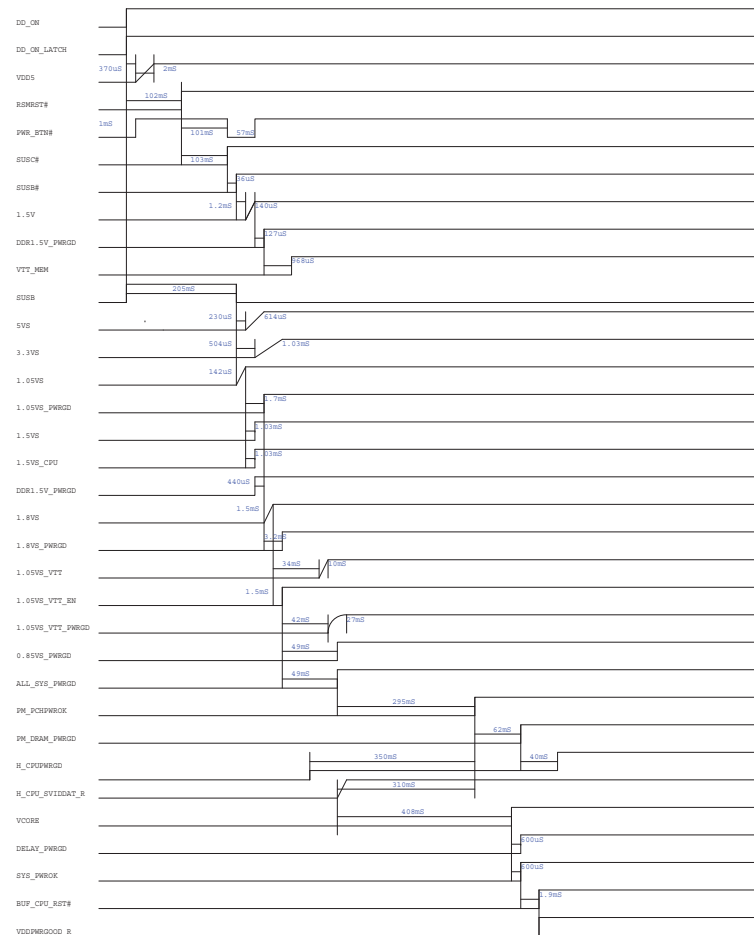
- Pin 6: LBR_LED1
- Pin 5: LBR_SATA_LED#
- Pin 4: LBR_BT_EN
- Pin 3: LBR_WLAN_EN
- Pin 2: LBR_WLAN_LED#
- Pin 1: LBRGND



LED

Power on Sequence

P150EM_D02 POWER on SEQUENCE



Sheet 62 of 61
Power on
Sequence

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.