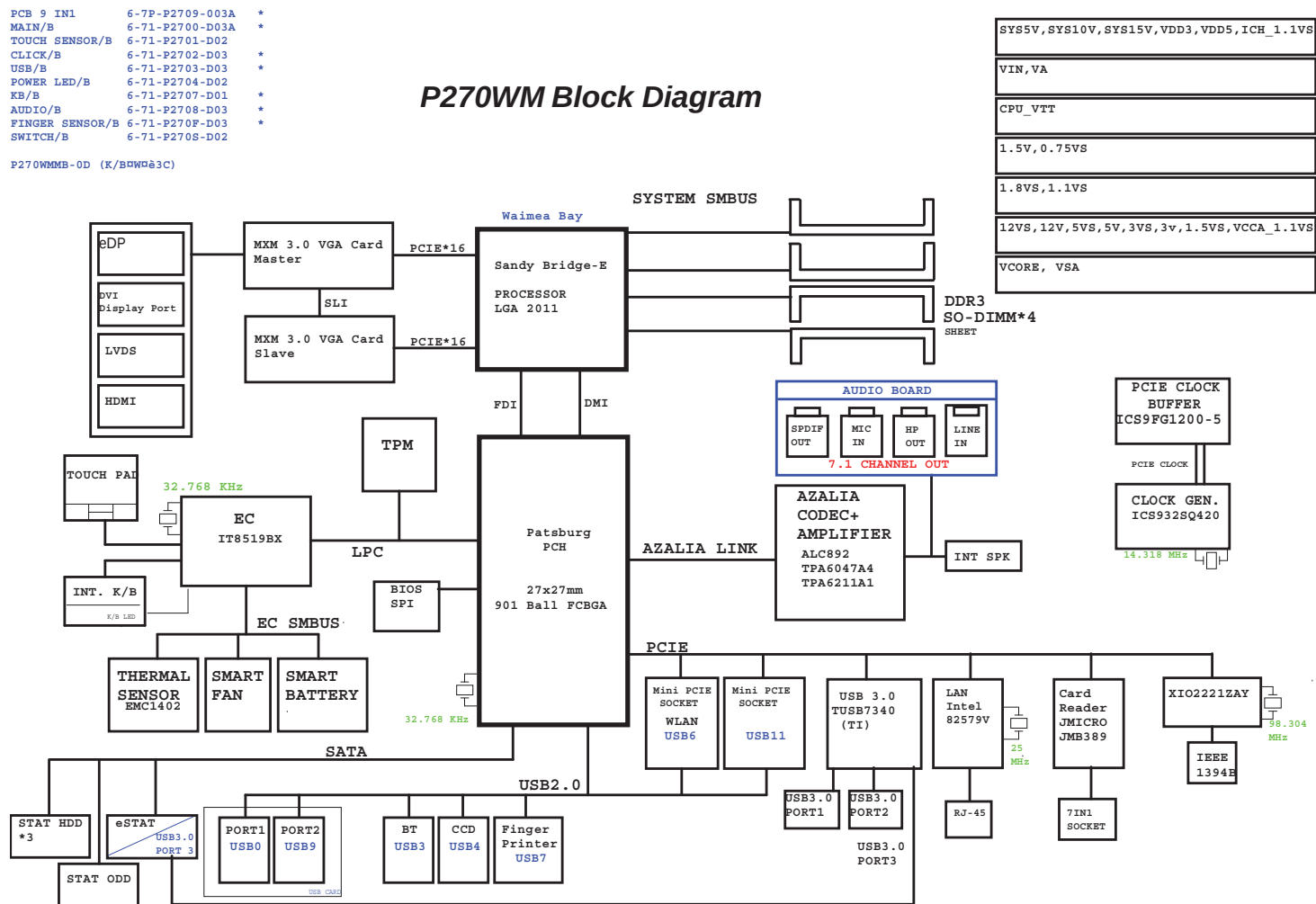


## System Block Diagram



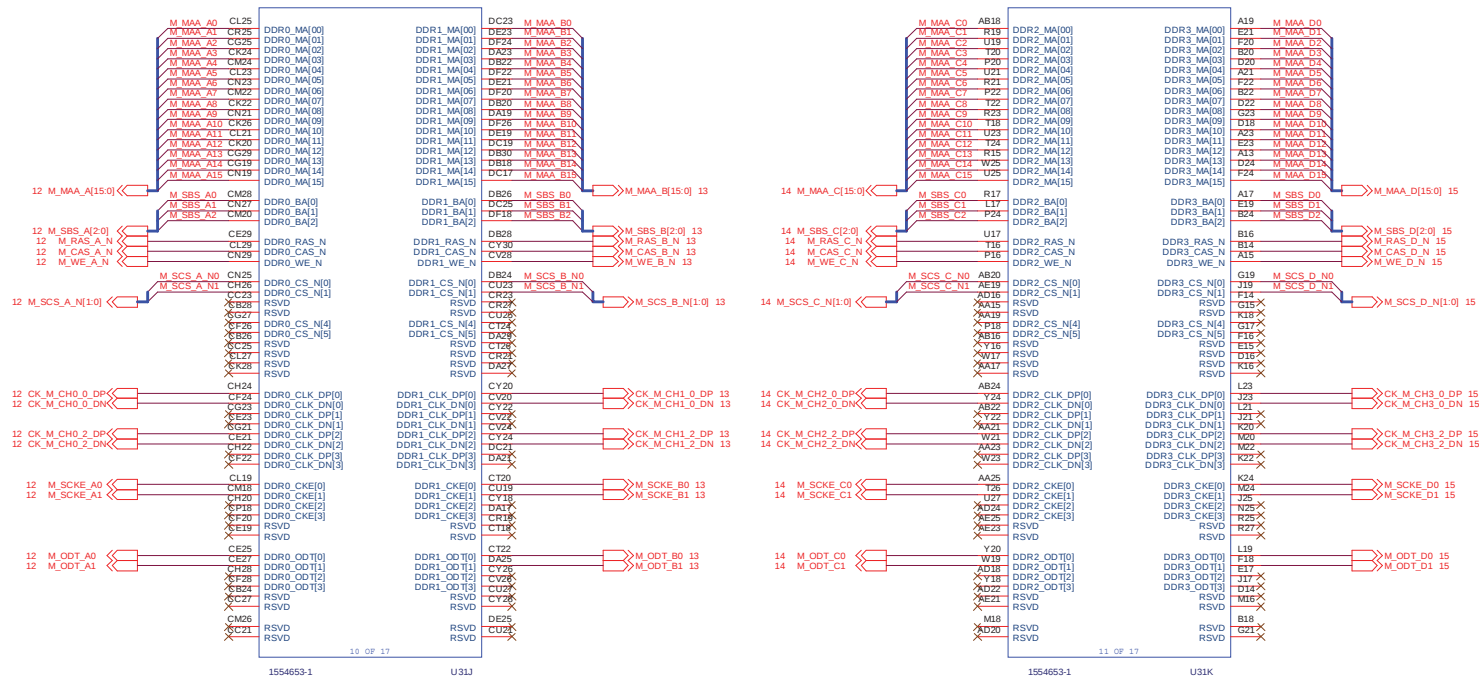
Sheet 2 of 63  
Sandy Bridge -  
DDR 0 & 1

## B.Schematic Diagrams

## B.Schematic Diagrams



# Sandy Bridge - DDR Control

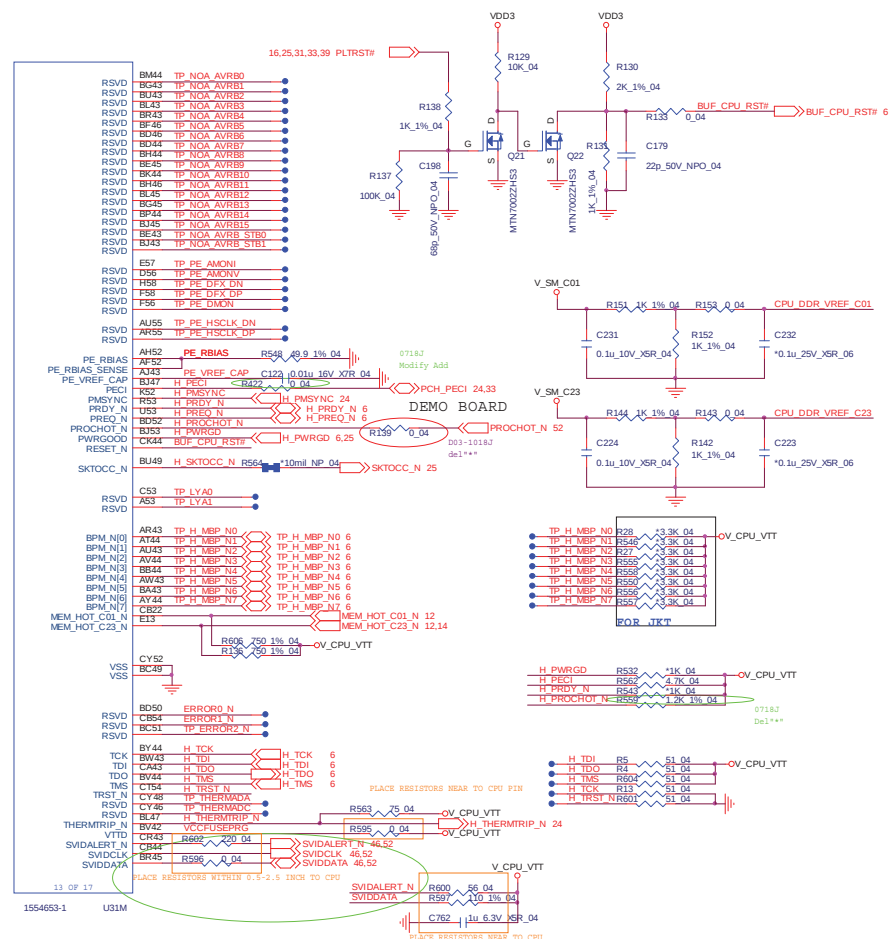
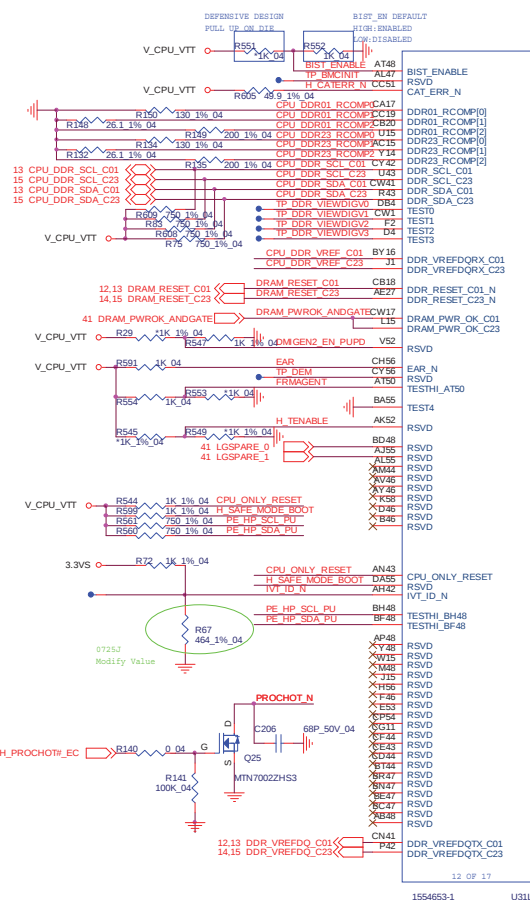


Sheet 4 of 63  
Sandy Bridge -  
DDR Control

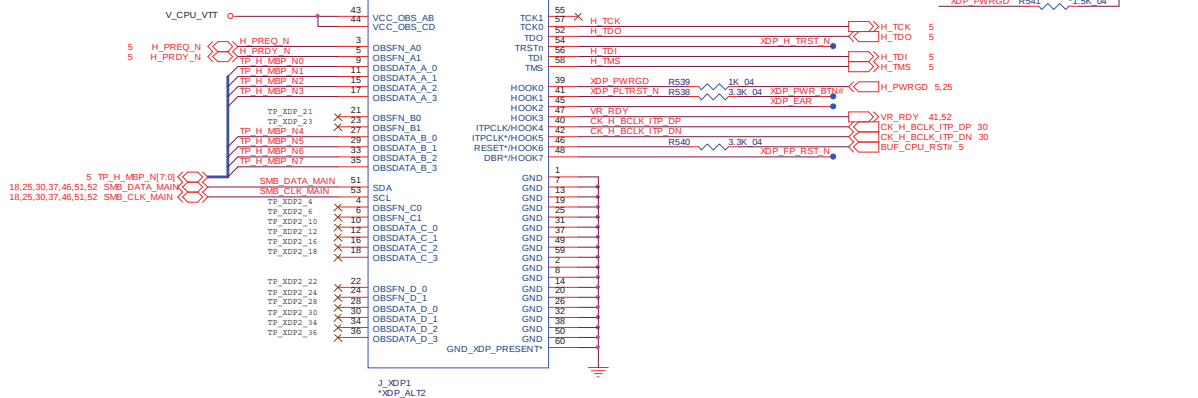
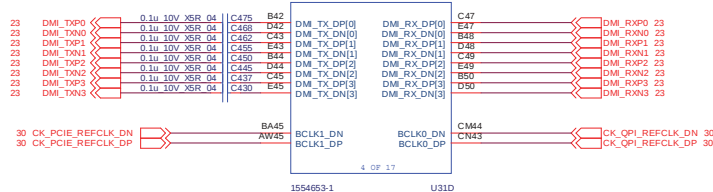
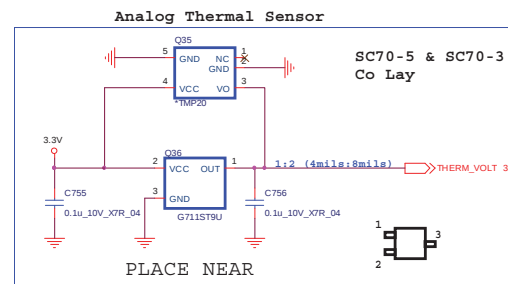
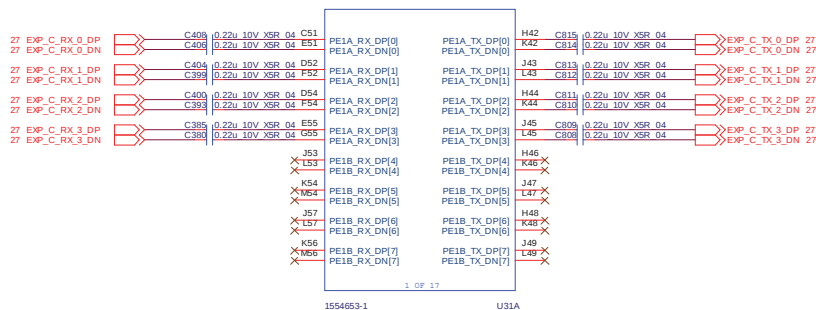
B.Schematic Diagrams

## Sandy Bridge - Control

Sheet 5 of 63  
Sandy Bridge -  
Control

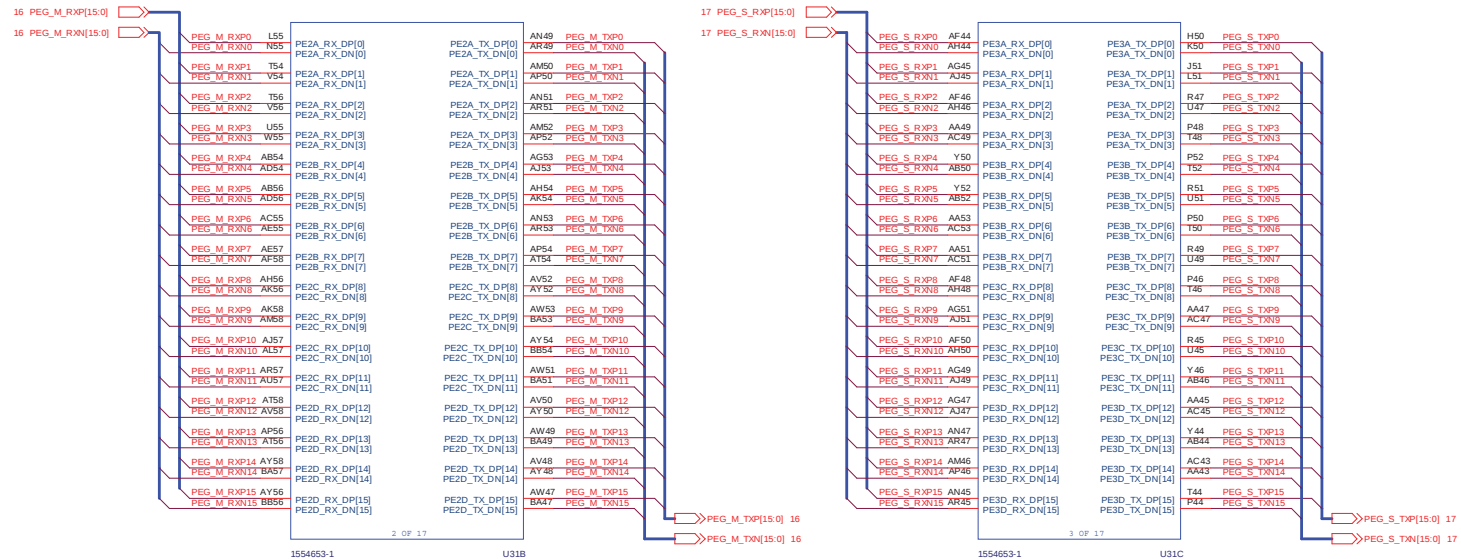


# Sandy Bridge - PEG & DMI



Sheet 6 of 63  
Sandy Bridge -  
PEG & DMI

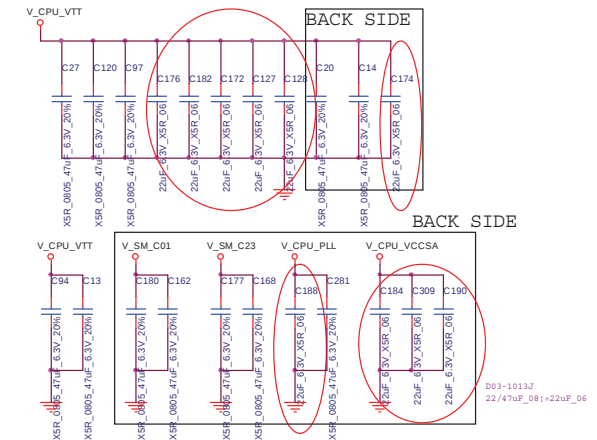
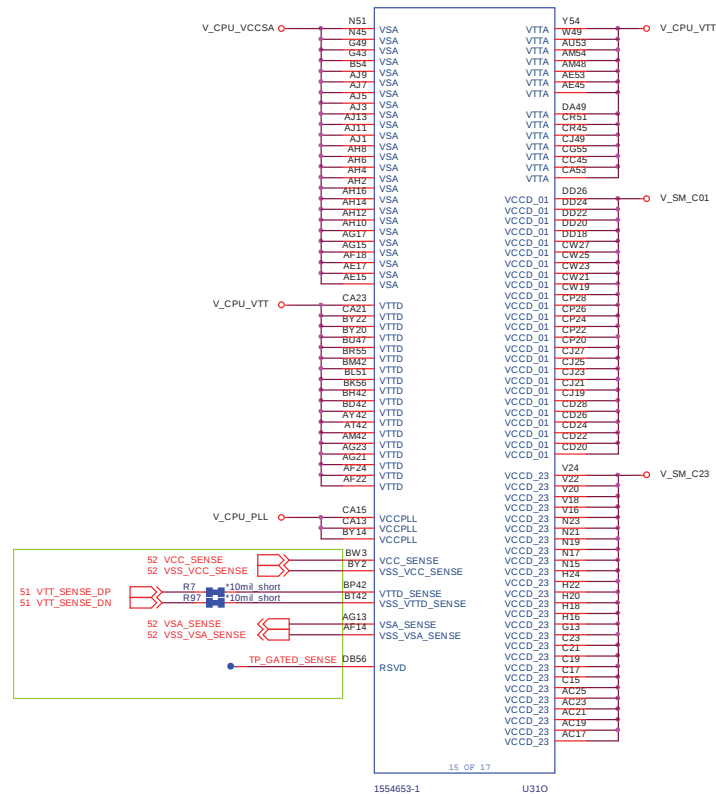
## Sandy Bridge - PEG

Sheet 7 of 63  
Sandy Bridge -  
PEG



## Sandy Bridge - O-Power

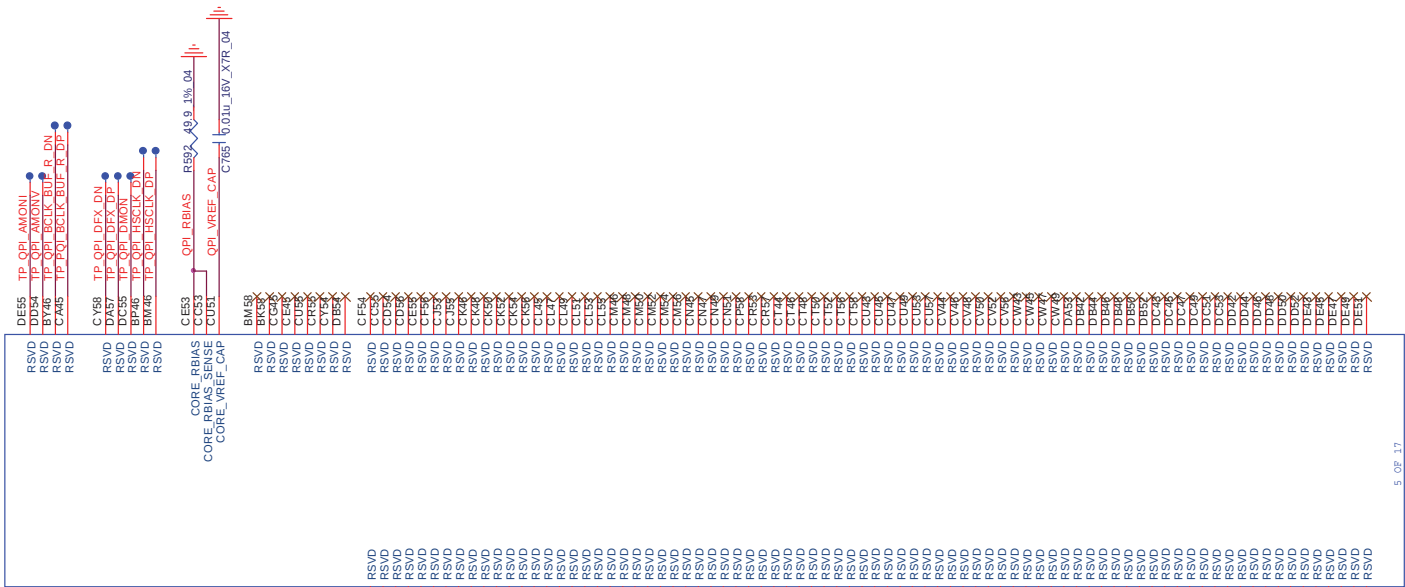
Sheet 9 of 63  
Sandy Bridge -  
O-Power





## Sandy Bridge - QPI

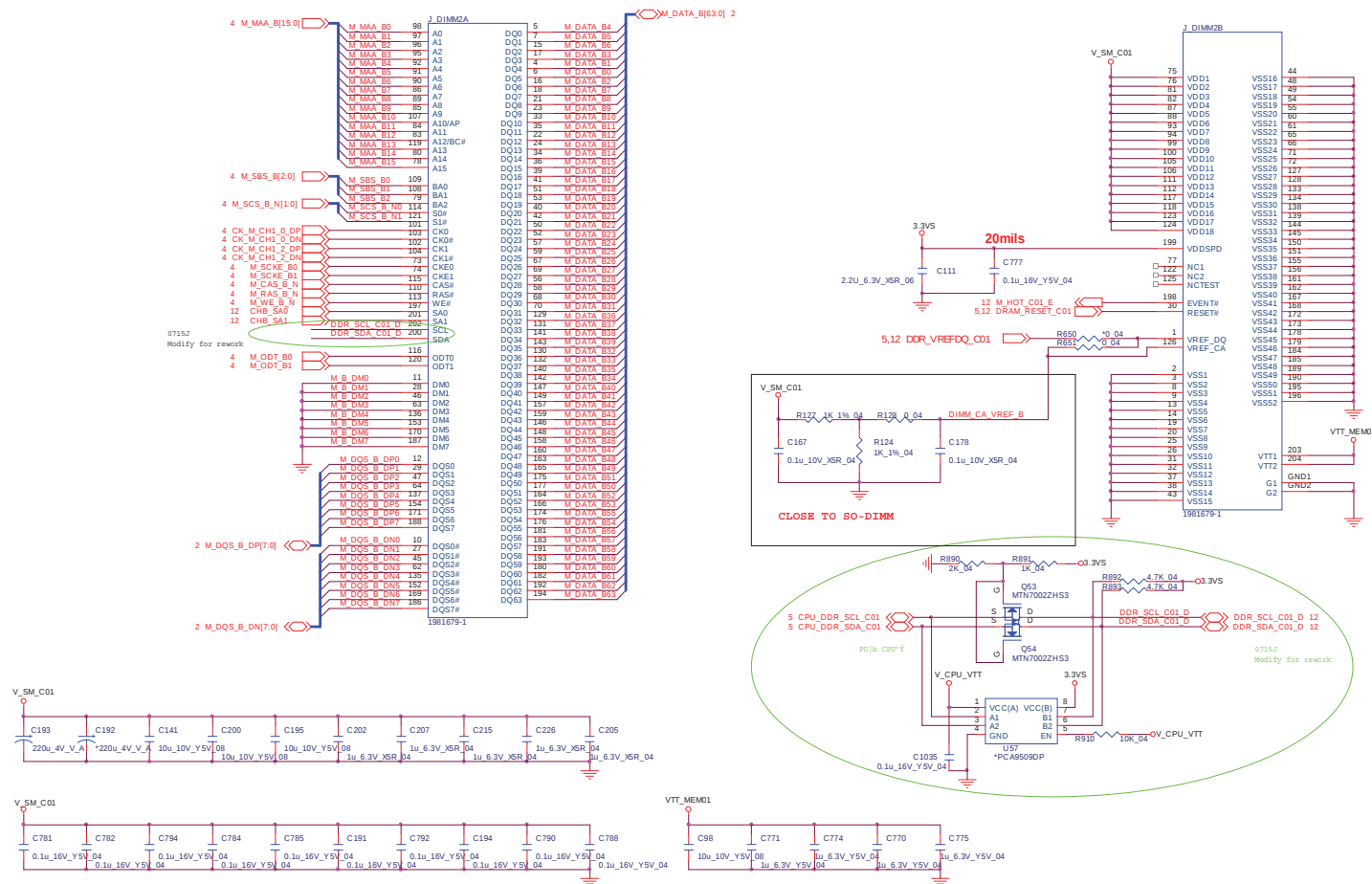
**Sheet 11 of 63**  
**Sandy Bridge -**  
**QPI**



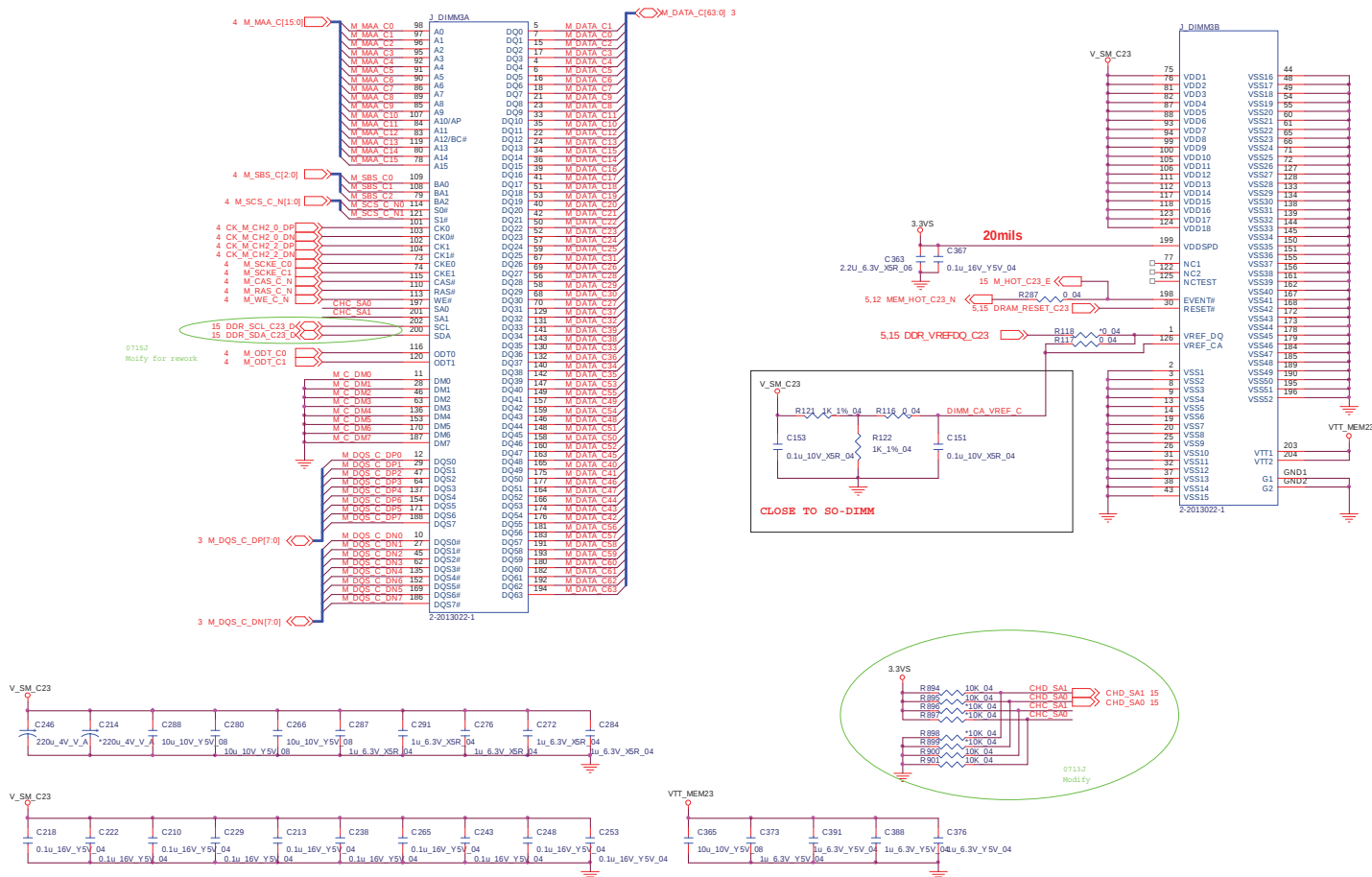


## Channel B SO-DIMM 1

Sheet 13 of 63  
DDR3 CHB  
SO-DIMM 1



## Channel C SO-DIMM 2



## Schematic Diagrams

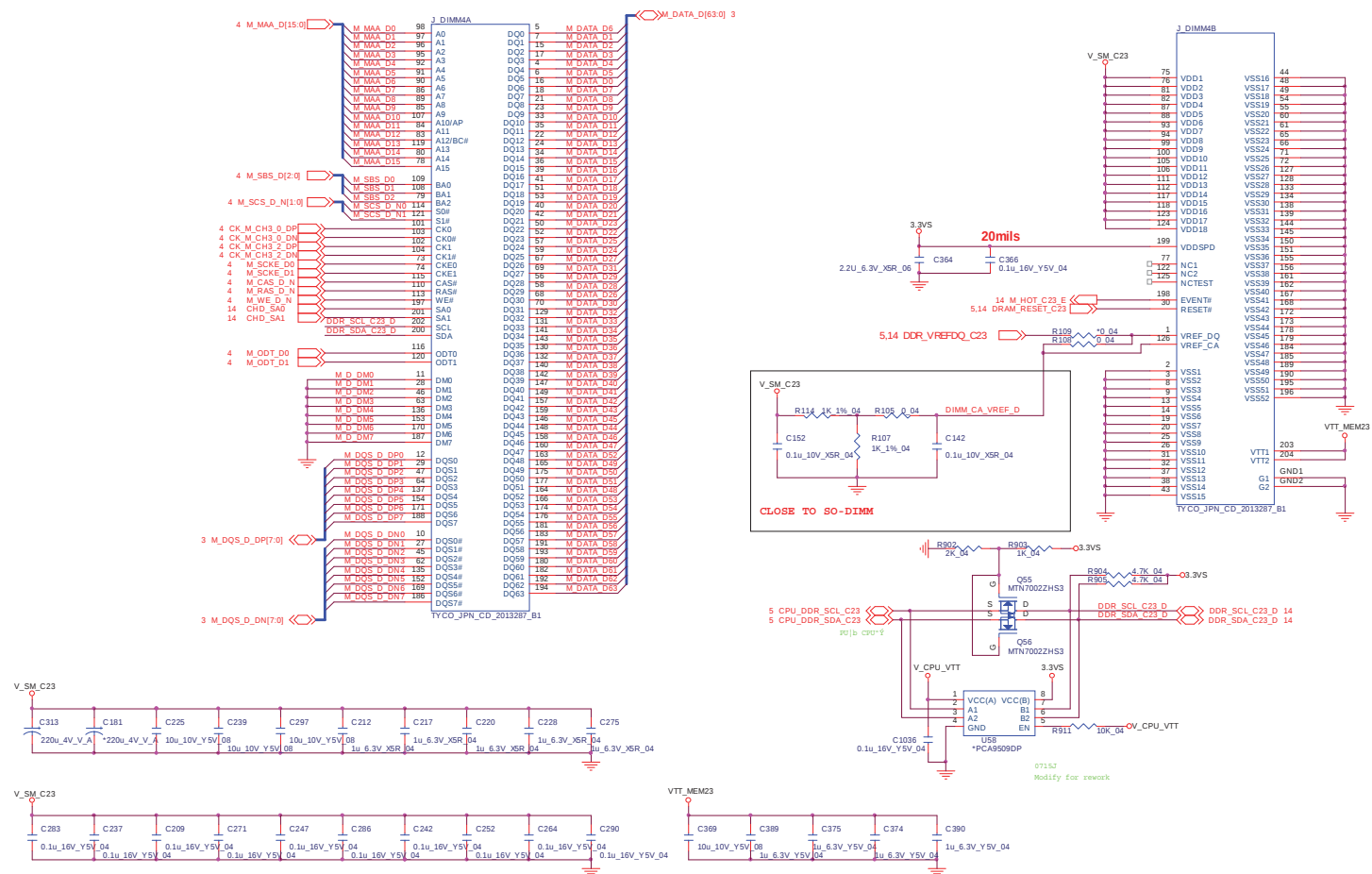
<http://hobi-elektronika.net>

## DDR3 CHD SO-DIMM 3

## Channel D SO-DIMM 3

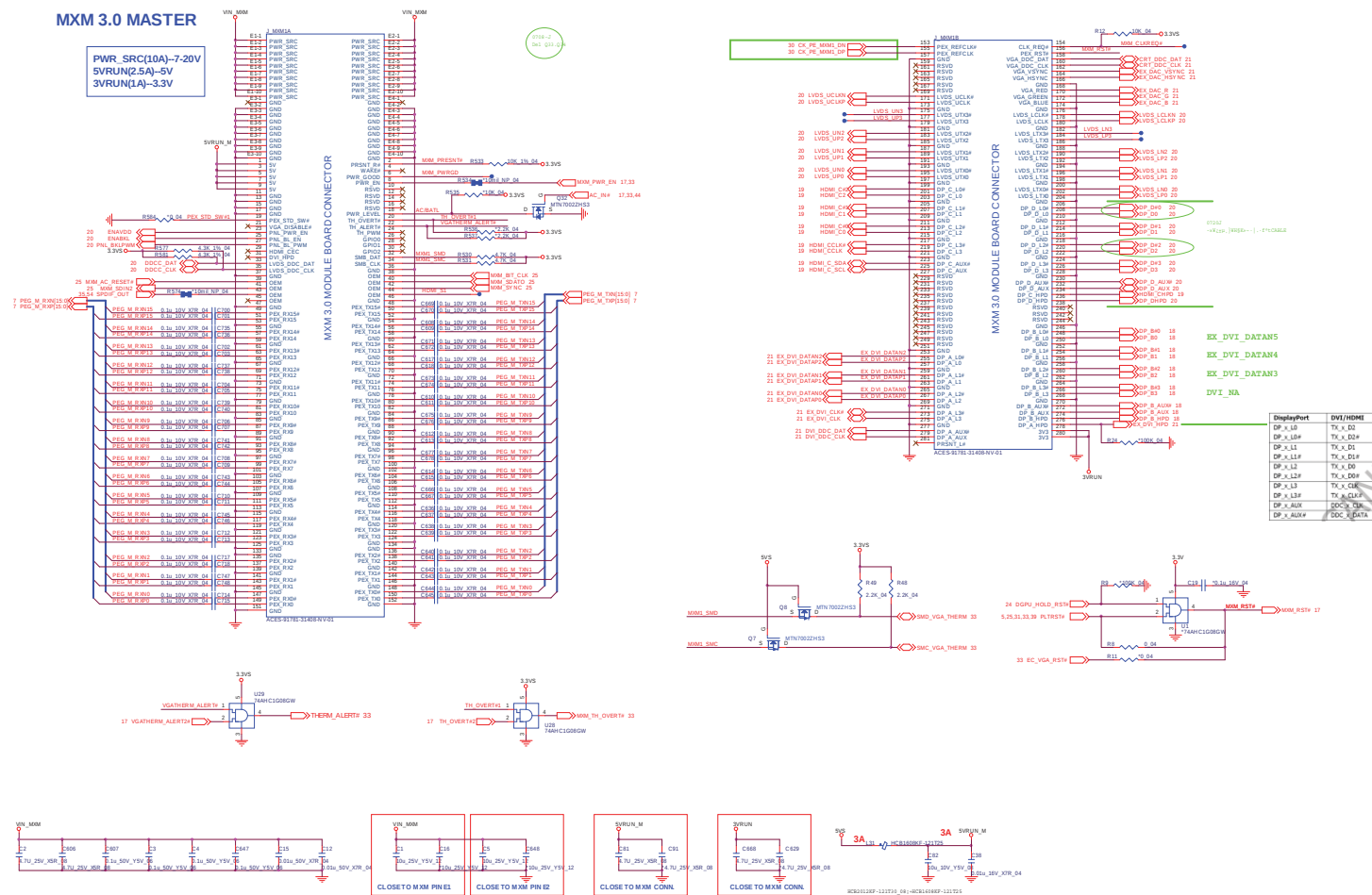
CHANGE TO STANDARD

Sheet 15 of 63  
PCH 1/8  
DDR3 CHD  
SO-DIMM 3



# MXM 3.0 PCI-E MASTER

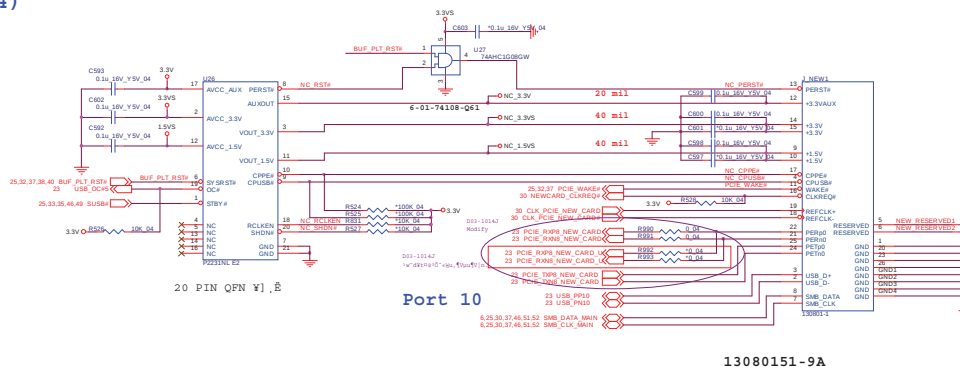
Sheet 16 of 63  
MXM 3.0 PCI-E  
MASTER





## Display Port, New Card

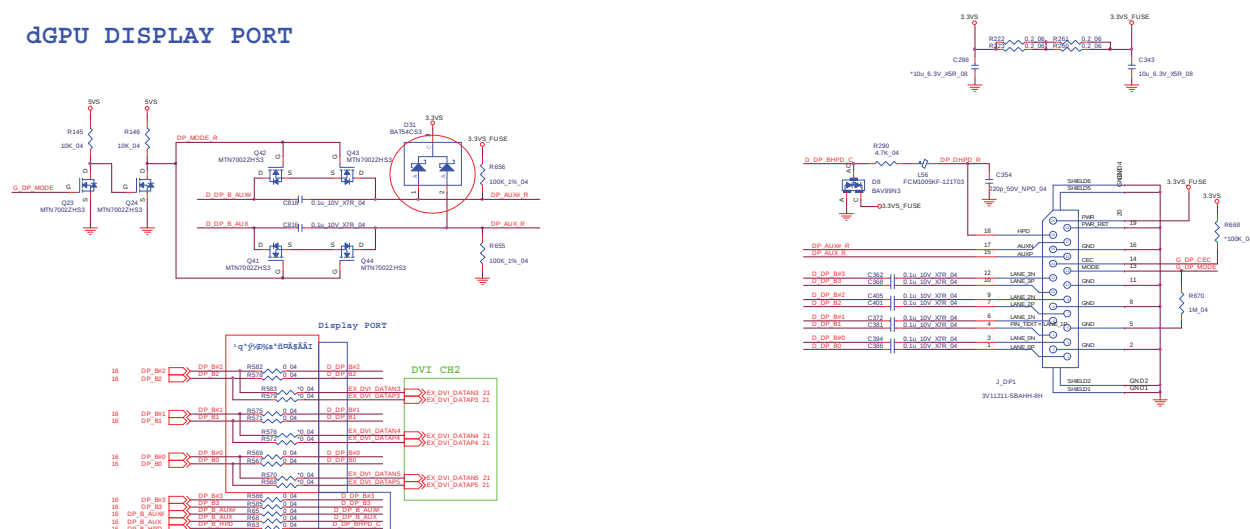
NEW CARD (54)



**Sheet 18 of 63**  
**Display Port,**  
**New Card**

## B.Schematic Diagrams

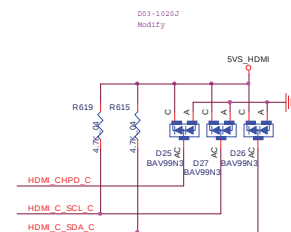
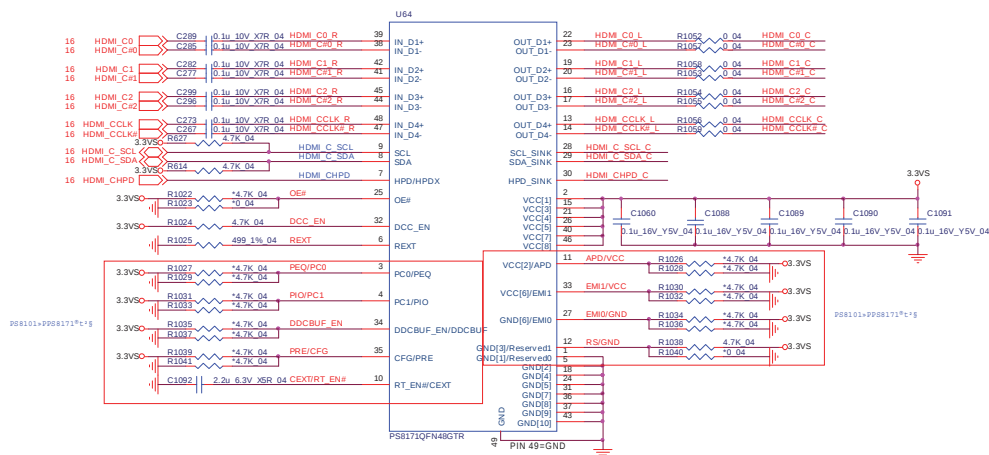
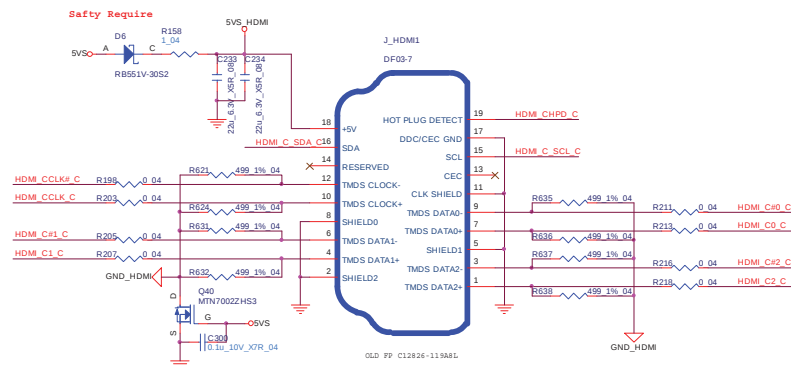
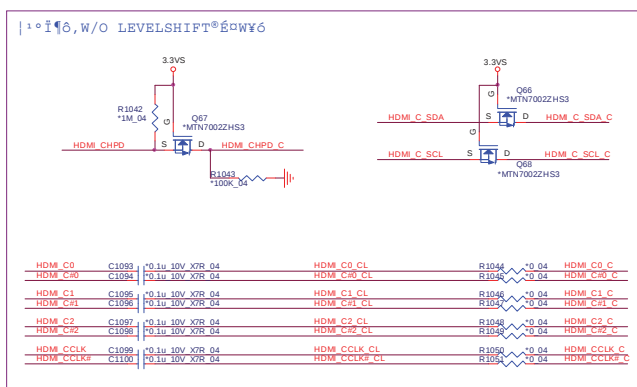
## dGPU DISPLAY PORT



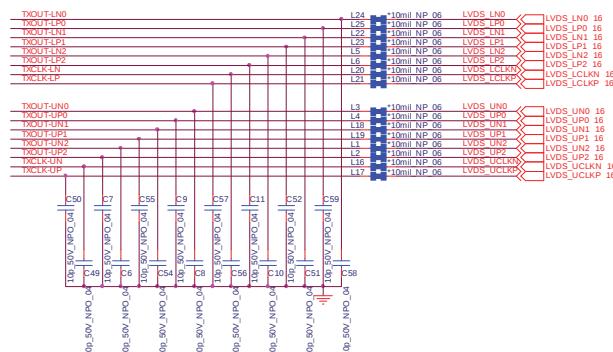
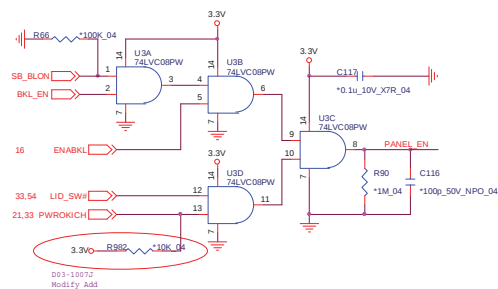
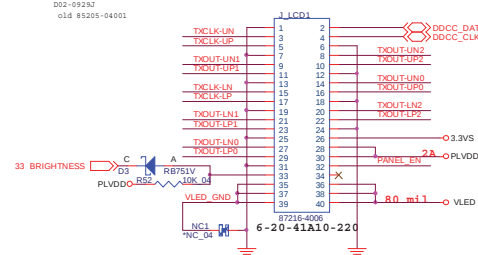
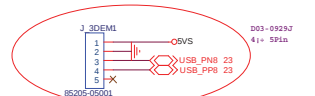
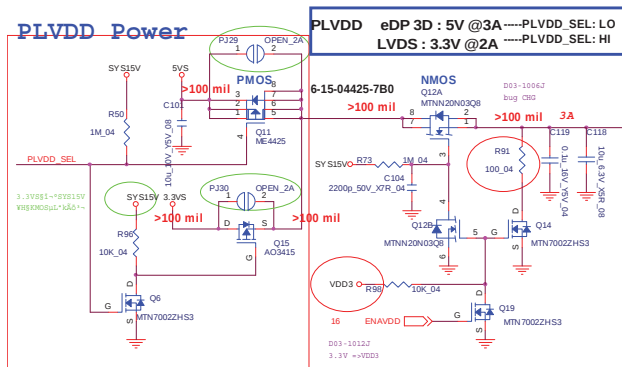
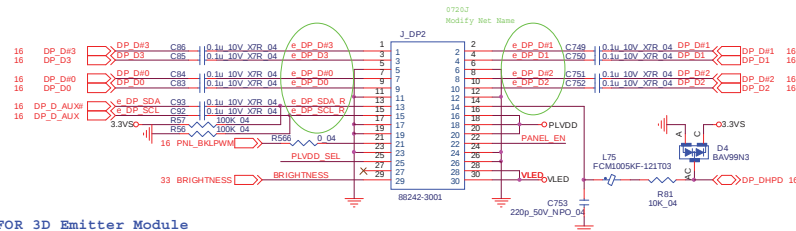
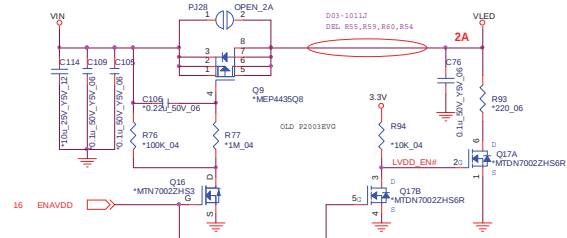
## HDMI

<http://hobi-elektronika.net>

## HDMI



## B.Schematic Diagrams



Sheet 20 of 63  
LCD, eDP,  
3D Emitter

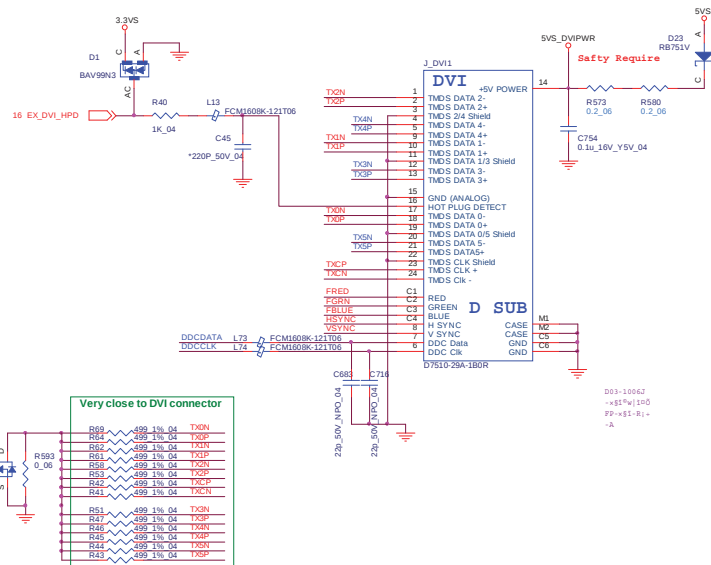
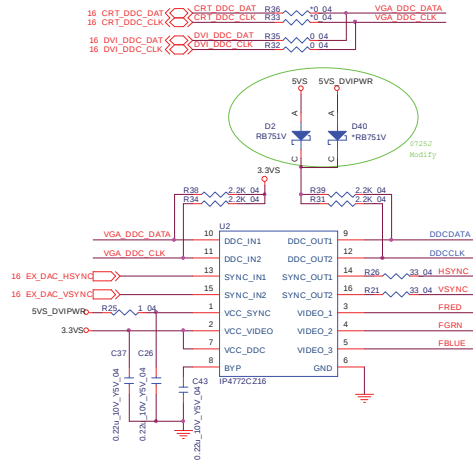
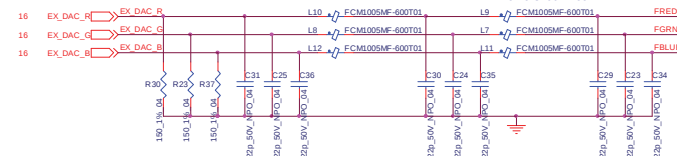
## DVI

## B.Schematic Diagrams

Figure 10 shows the pin connections for the WDC1201-25-16103-SHORT module. The module has 25 pins. The connections are as follows:

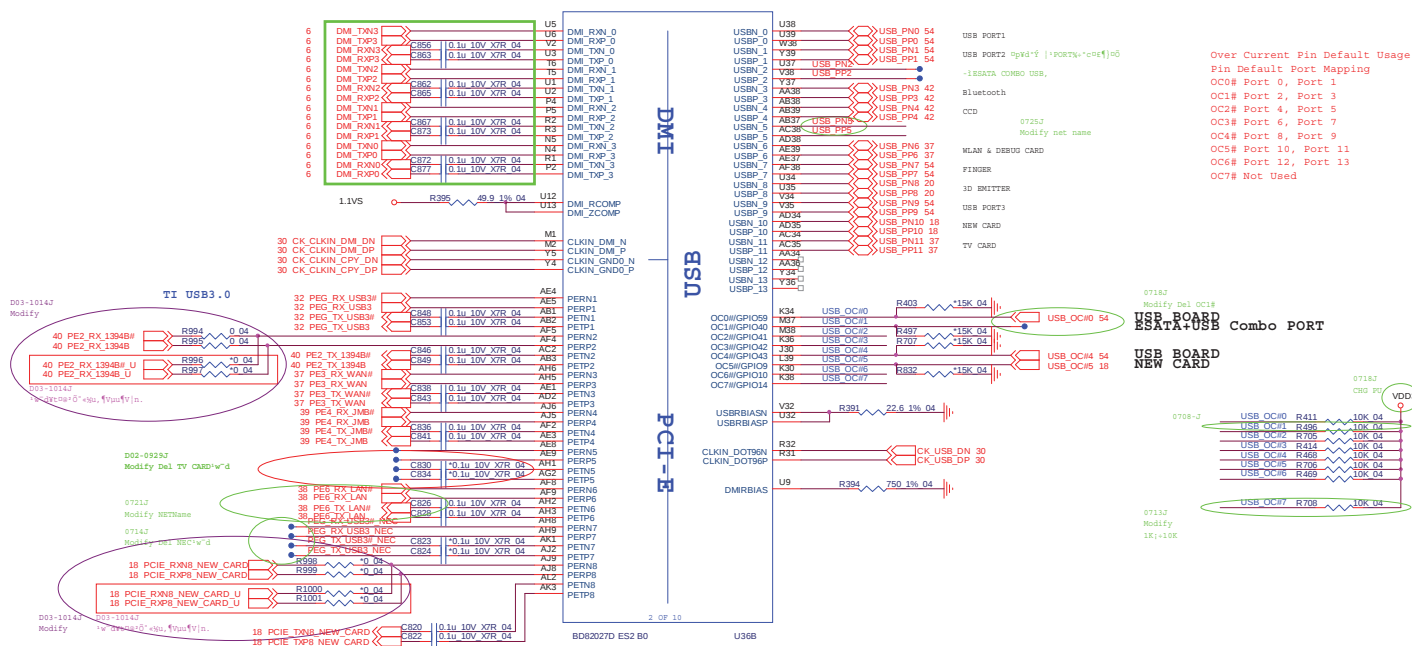
- EX\_DVI\_DATANO (pins 1, 2) to EX\_DVI\_DATAP0 (pins 1, 2)
- EX\_DVI\_DATANO (pins 3, 4) to EX\_DVI\_DATAP1 (pins 3, 4)
- EX\_DVI\_DATANO (pins 5, 6) to EX\_DVI\_DATAP2 (pins 5, 6)
- EX\_DVI\_DATANO (pins 7, 8) to EX\_DVI\_DATAP3 (pins 7, 8)
- EX\_DVI\_DATANO (pins 9, 10) to EX\_DVI\_DATAP4 (pins 9, 10)
- EX\_DVI\_DATANO (pins 11, 12) to EX\_DVI\_DATAP5 (pins 11, 12)
- EX\_DVI\_DATANO (pins 13, 14) to EX\_DVI\_DATAP6 (pins 13, 14)
- EX\_DVI\_DATANO (pins 15, 16) to EX\_DVI\_DATAP7 (pins 15, 16)
- EX\_DVI\_DATANO (pins 17, 18) to EX\_DVI\_DATAP8 (pins 17, 18)
- EX\_DVI\_DATANO (pins 19, 20) to EX\_DVI\_DATAP9 (pins 19, 20)
- EX\_DVI\_DATANO (pins 21, 22) to EX\_DVI\_DATAP10 (pins 21, 22)
- EX\_DVI\_DATANO (pins 23, 24) to EX\_DVI\_DATAP11 (pins 23, 24)
- EX\_DVI\_DATANO (pins 25, 26) to EX\_DVI\_DATAP12 (pins 25, 26)
- EX\_DVI\_CLK (pins 1, 2) to EX\_DVI\_CLK# (pins 1, 2)
- EX\_DVI\_CLK (pins 3, 4) to EX\_DVI\_CLK# (pins 3, 4)
- EX\_DVI\_CLK (pins 5, 6) to EX\_DVI\_CLK# (pins 5, 6)
- EX\_DVI\_CLK (pins 7, 8) to EX\_DVI\_CLK# (pins 7, 8)
- EX\_DVI\_CLK (pins 9, 10) to EX\_DVI\_CLK# (pins 9, 10)
- EX\_DVI\_CLK (pins 11, 12) to EX\_DVI\_CLK# (pins 11, 12)
- EX\_DVI\_CLK (pins 13, 14) to EX\_DVI\_CLK# (pins 13, 14)
- EX\_DVI\_CLK (pins 15, 16) to EX\_DVI\_CLK# (pins 15, 16)
- EX\_DVI\_CLK (pins 17, 18) to EX\_DVI\_CLK# (pins 17, 18)
- EX\_DVI\_CLK (pins 19, 20) to EX\_DVI\_CLK# (pins 19, 20)
- EX\_DVI\_CLK (pins 21, 22) to EX\_DVI\_CLK# (pins 21, 22)
- EX\_DVI\_CLK (pins 23, 24) to EX\_DVI\_CLK# (pins 23, 24)
- EX\_DVI\_CLK (pins 25, 26) to EX\_DVI\_CLK# (pins 25, 26)

6-19-31001-266



## B.Schematic Diagrams

Sheet 22 of 63  
PCH PCI

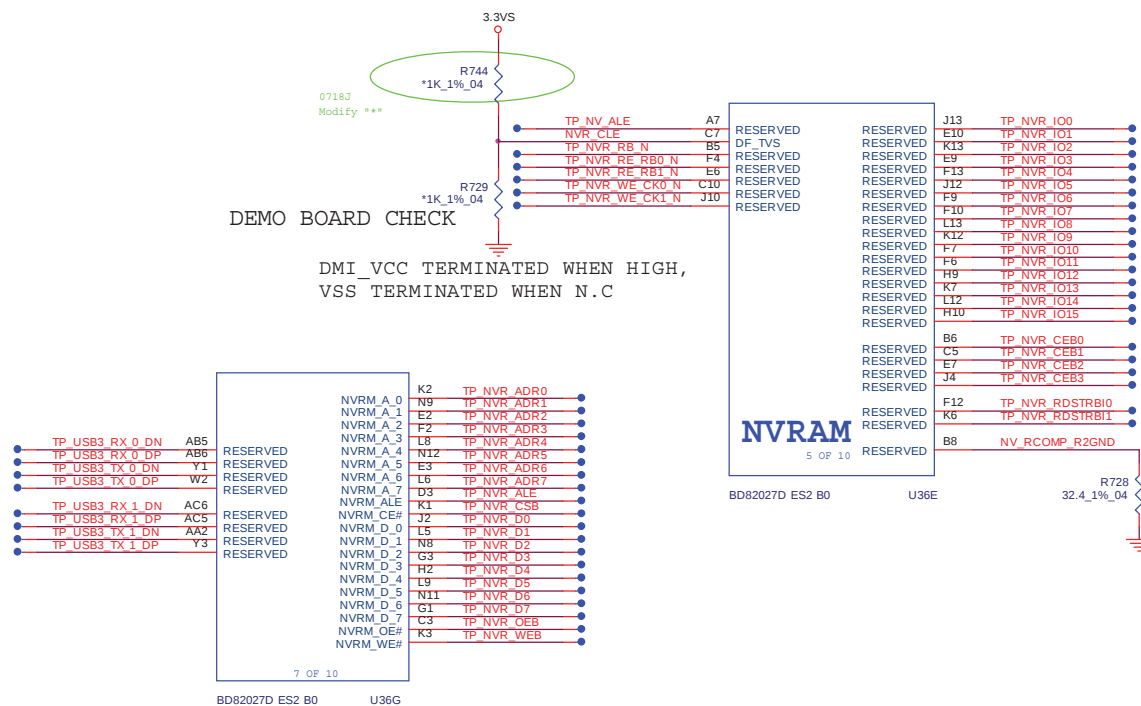


Sheet 24 of 63  
PCH SATA





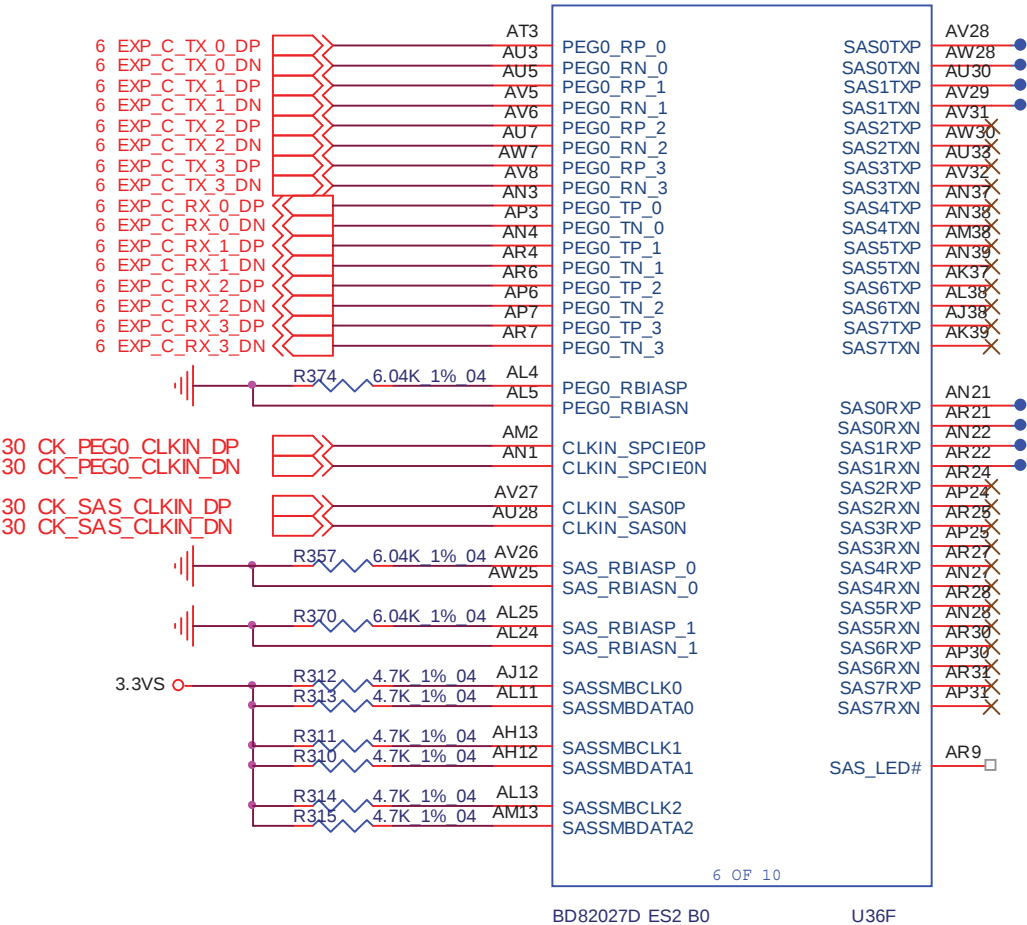
## PCH NVRAM



Sheet 26 of 63  
PCH NVRAM

PCH SAS

Sheet 27 of 63  
PCH SAS

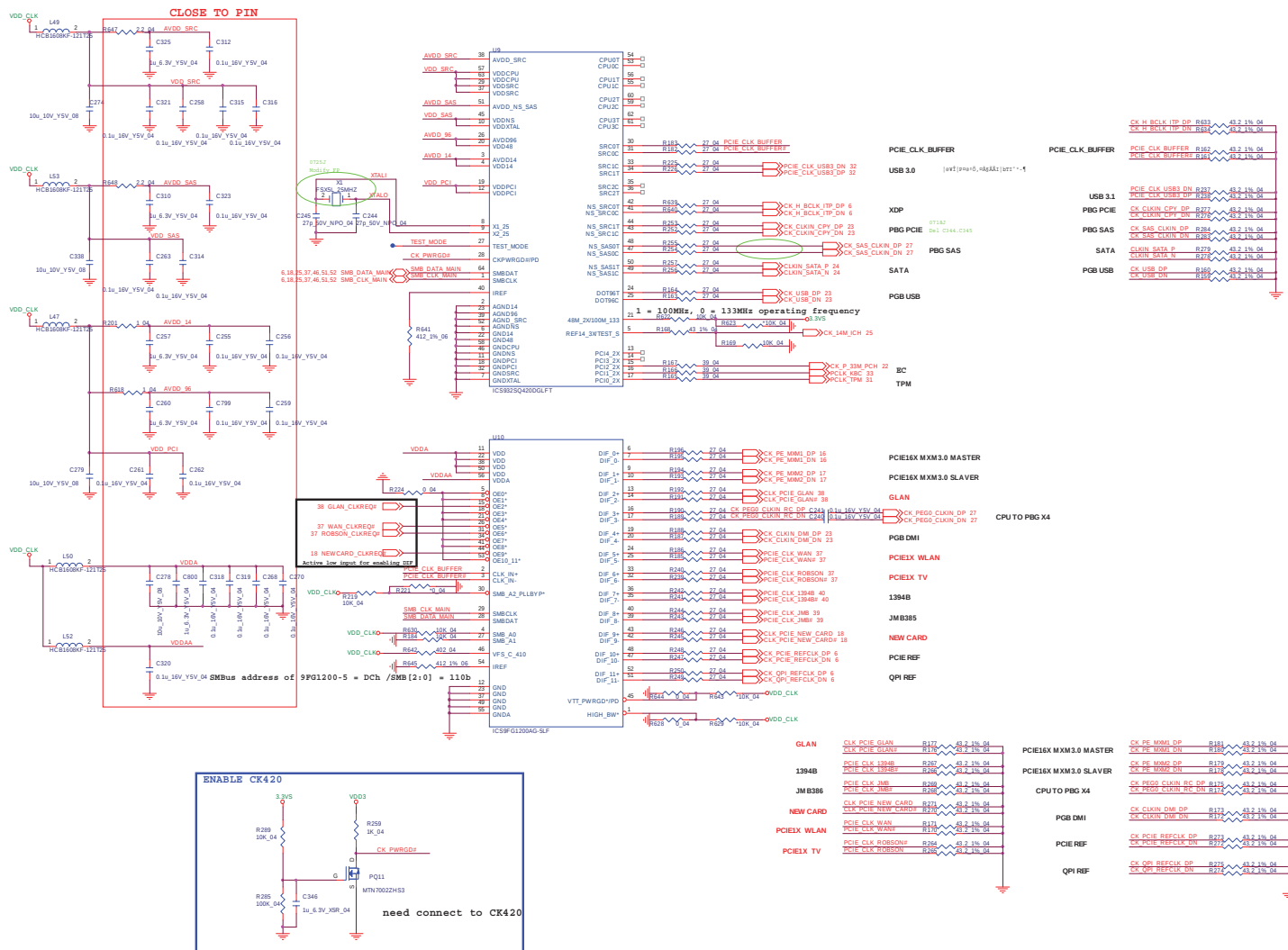


## B.Schematic Diagrams





# Clock Generator, Buffer



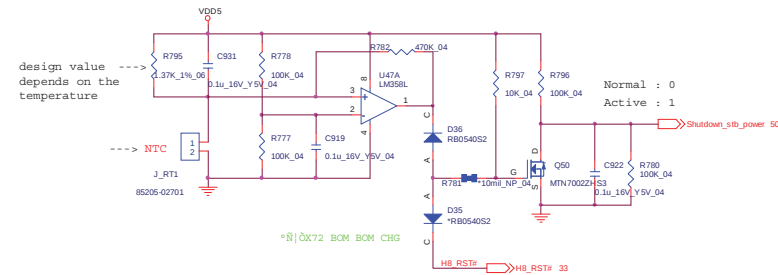
Sheet 30 of 63  
Clock Generator, Buffer

## Schematic Diagrams

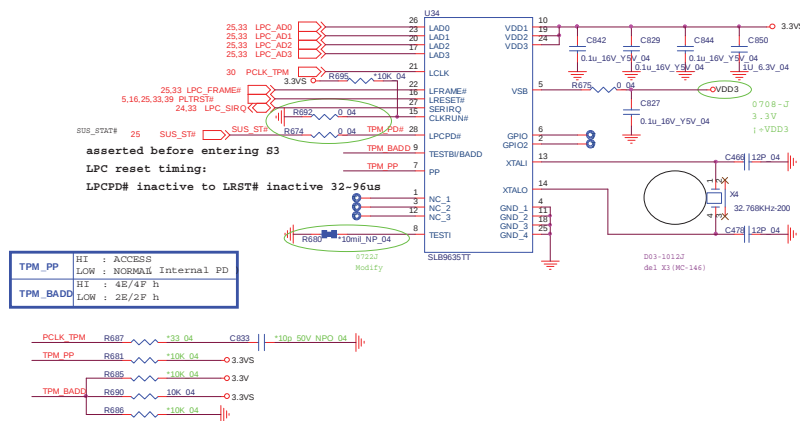
<http://hobi-elektronika.net>

## TPM 1.2

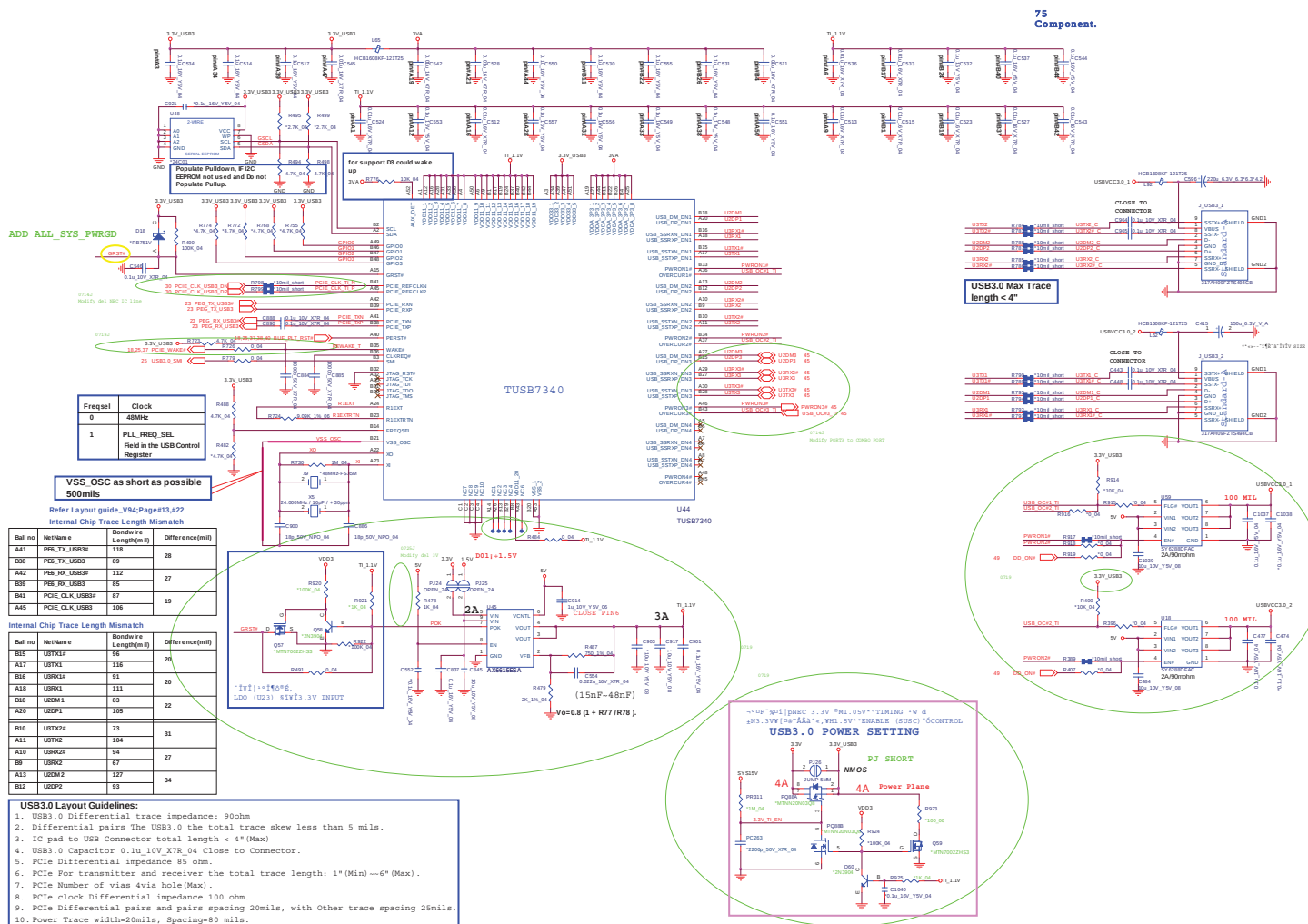
Sheet 31 of 63  
TPM 1.2



## TPM 1.2



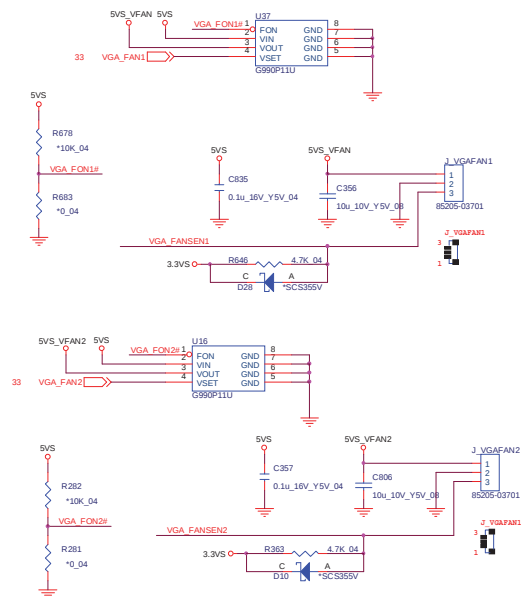
# USB 3.0



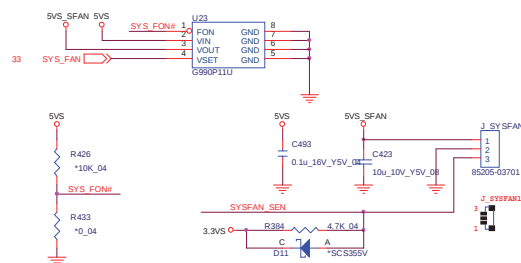


# Fan Control

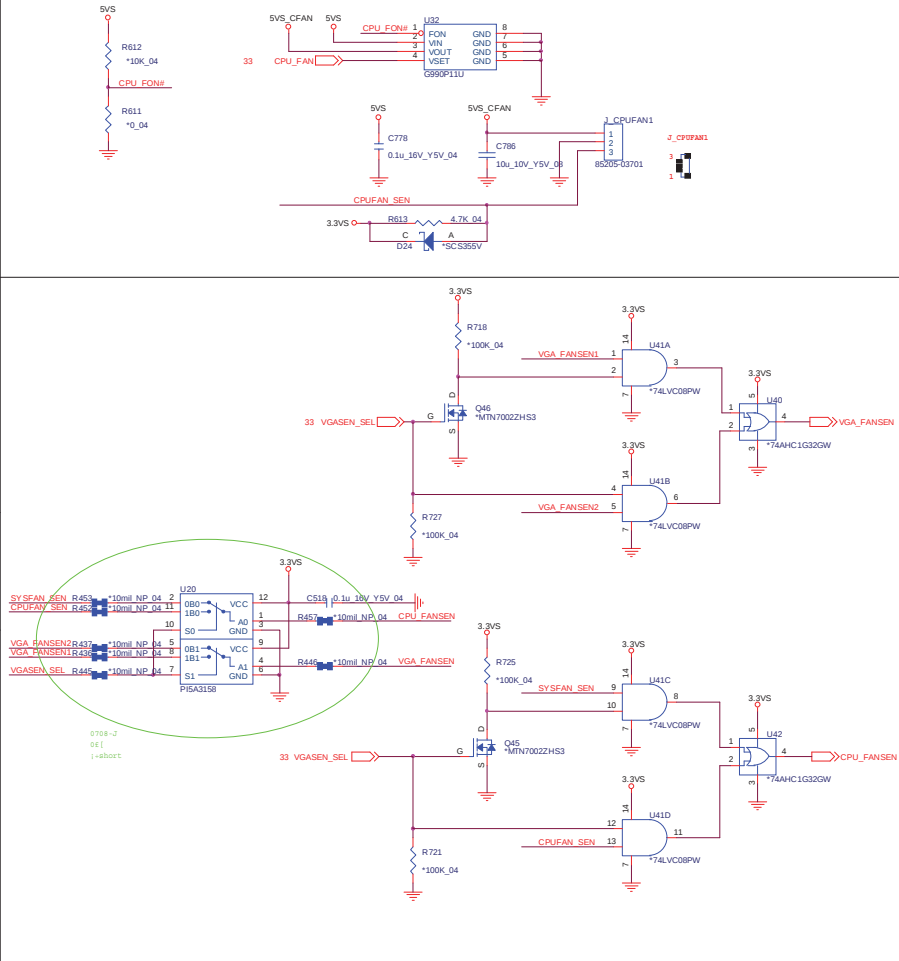
## VGA FAN CONTROL



## SYS FAN CONTROL



## CPU FAN CONTROL



Sheet 34 of 63  
Fan Control

Support 7.1 channel

BluRay content protection

**Layout note:**  
Headphone<sup>OT</sup>, 12u<sup>1/2</sup>e > 10mils  
1ZÄ+phone jack1V»  
1u01NY11V1e  
R/LY21Y1ÄDGNDB111Z-°3\*1u1e

**Layout Note:**  
Very close to CODEC

**Layout Note:**  
U43 pin 1 ~ pin 11 and pin 47  
are Digital signals.  
The others are Analog signals.

**Layout Note:**

(1) MIC1-L (U31.21)      (2) MIC1-R (U31.22)  
(3) LINE-L (U31.23)     (4) LINE-R (U31.24)

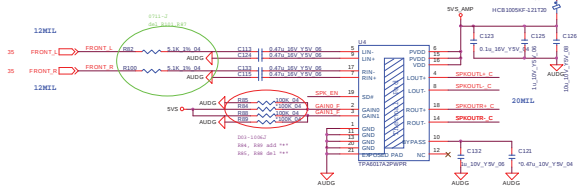
ⓈⓅⓂⓃⓄⓇ ⓁⓊⓉⓇ ⓁⓊⓉⓇ ⓁⓊⓉⓇ ⓁⓊⓉⓇ ⓁⓊⓉⓇ ⓁⓊⓉⓇ ⓁⓊⓉⓇ ⓁⓊⓉⓇ  
+SVS & +VIN plane.

**Layout note:**  
GND and AUDG space is  
60mils ~ 100mils

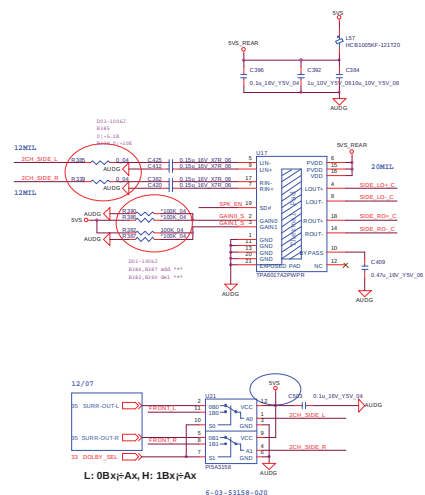
# Audio AMP

Sheet 36 of 63  
Audio AMP

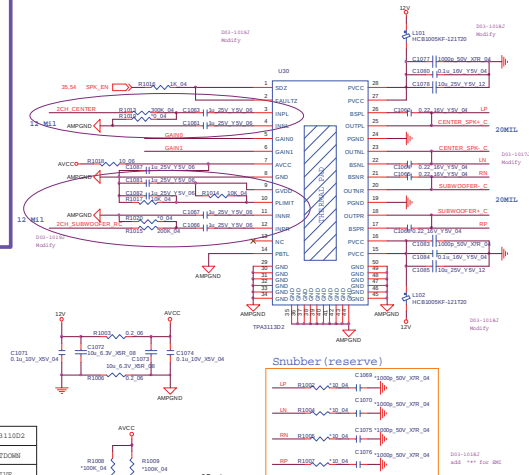
FRONT R/L 1.5W 8ohm



SURR R/L 1W 8ohm

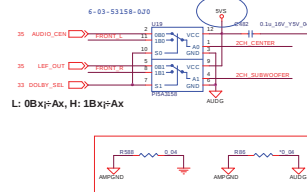
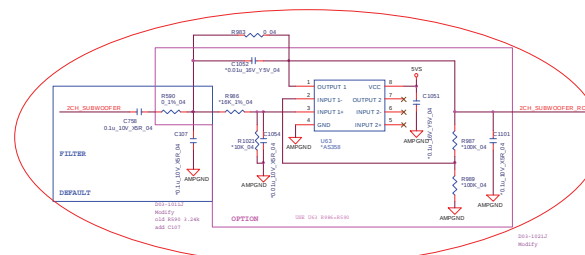
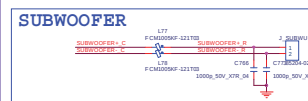
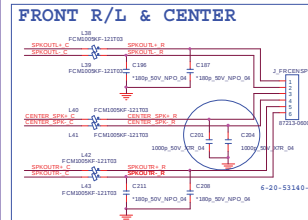


CENTER 1.5W 4ohm/ SUBWOOFER 2W 4ohm



| SHUTDOWN    | TPA31102 |
|-------------|----------|
| 1 (W-0.0V)  | SHUTDOWN |
| 2 (W-0.0V)  | SHUTDOWN |
| 3 (W-0.0V)  | SHUTDOWN |
| 4 (W-0.0V)  | SHUTDOWN |
| 5 (W-0.0V)  | SHUTDOWN |
| 6 (W-0.0V)  | SHUTDOWN |
| 7 (W-0.0V)  | SHUTDOWN |
| 8 (W-0.0V)  | SHUTDOWN |
| 9 (W-0.0V)  | SHUTDOWN |
| 10 (W-0.0V) | SHUTDOWN |
| 11 (W-0.0V) | SHUTDOWN |
| 12 (W-0.0V) | SHUTDOWN |
| 13 (W-0.0V) | SHUTDOWN |
| 14 (W-0.0V) | SHUTDOWN |
| 15 (W-0.0V) | SHUTDOWN |
| 16 (W-0.0V) | SHUTDOWN |
| 17 (W-0.0V) | SHUTDOWN |
| 18 (W-0.0V) | SHUTDOWN |
| 19 (W-0.0V) | SHUTDOWN |
| 20 (W-0.0V) | SHUTDOWN |
| 21 (W-0.0V) | SHUTDOWN |
| 22 (W-0.0V) | SHUTDOWN |
| 23 (W-0.0V) | SHUTDOWN |
| 24 (W-0.0V) | SHUTDOWN |
| 25 (W-0.0V) | SHUTDOWN |
| 26 (W-0.0V) | SHUTDOWN |
| 27 (W-0.0V) | SHUTDOWN |
| 28 (W-0.0V) | SHUTDOWN |
| 29 (W-0.0V) | SHUTDOWN |
| 30 (W-0.0V) | SHUTDOWN |
| 31 (W-0.0V) | SHUTDOWN |
| 32 (W-0.0V) | SHUTDOWN |
| 33 (W-0.0V) | SHUTDOWN |
| 34 (W-0.0V) | SHUTDOWN |
| 35 (W-0.0V) | SHUTDOWN |
| 36 (W-0.0V) | SHUTDOWN |

Note:  
when output under 6W stereo, please follow  
demo board layout carefully then one can  
use Ferrite Bead & Capacitor (bead-C) directly  
and can omit LC filter

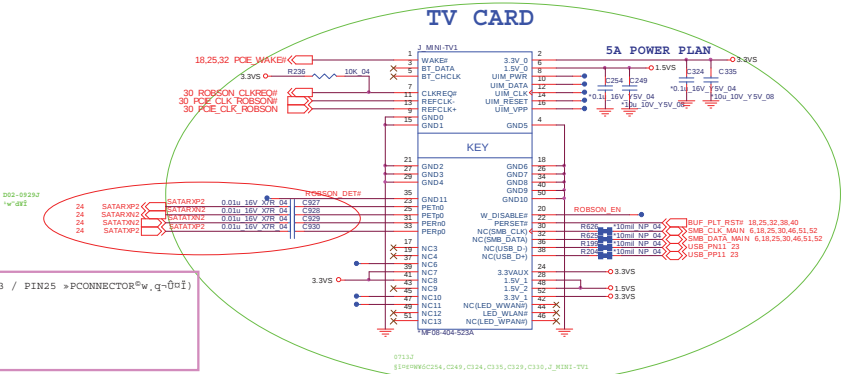
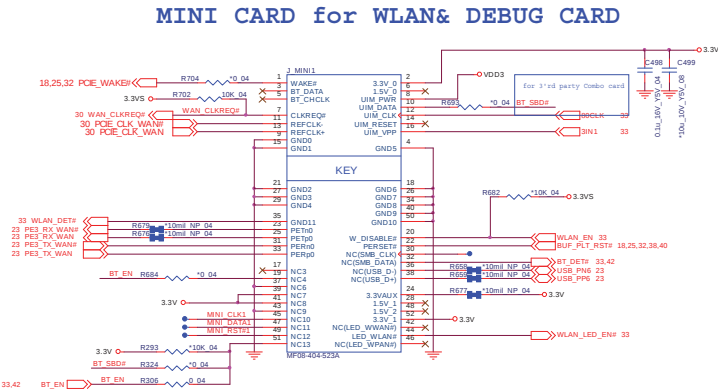


Schematic Diagrams

<http://hobi-elektronika.net>

WLAN, TV Card

Sheet 37 of 63  
WLAN, TV Card



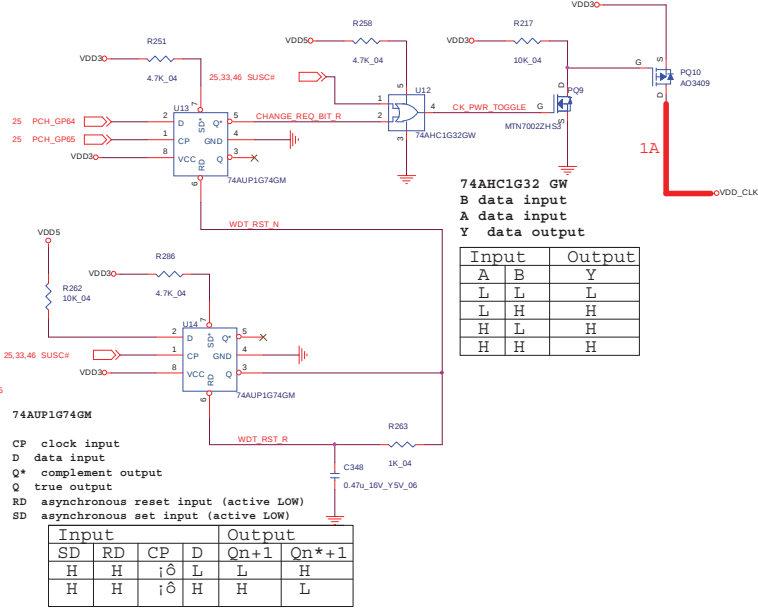
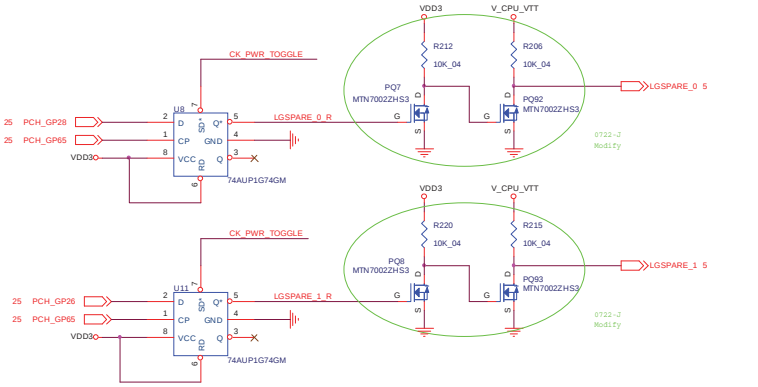
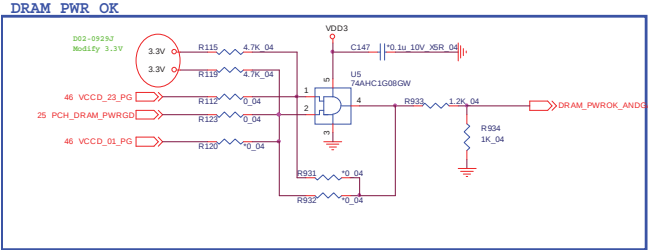
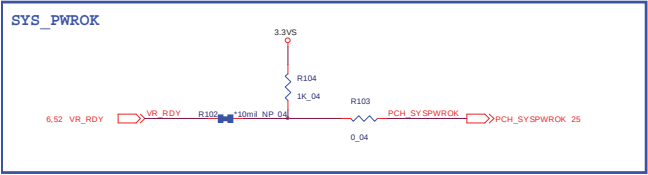
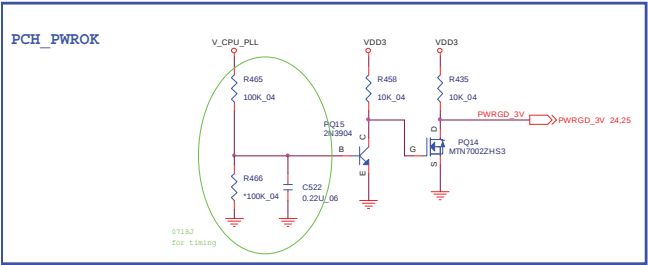




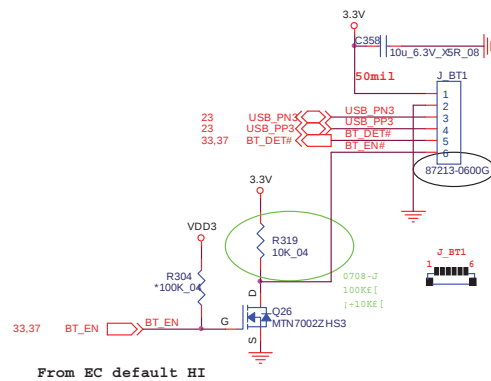


POWER SYSTEM

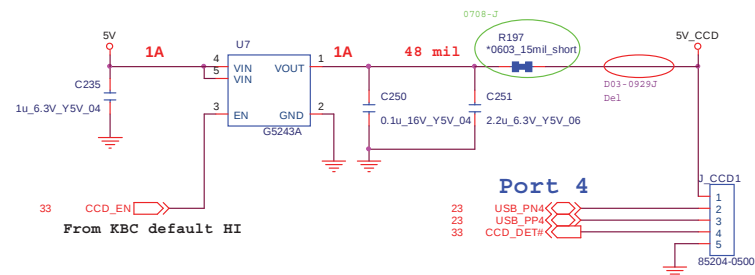
Sheet 41 of 63  
POWER SYSTEM



## Bluetooth



Sheet 42 of 63  
BT, CCD

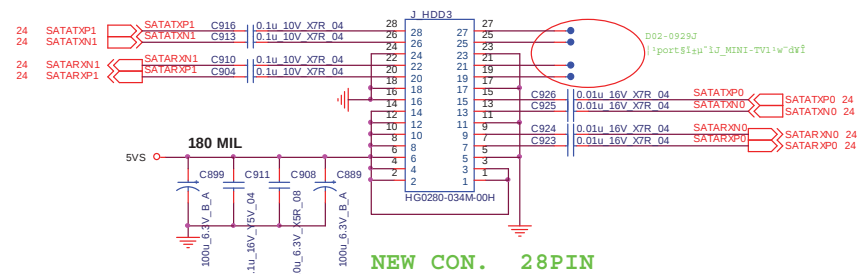


## Schematic Diagrams

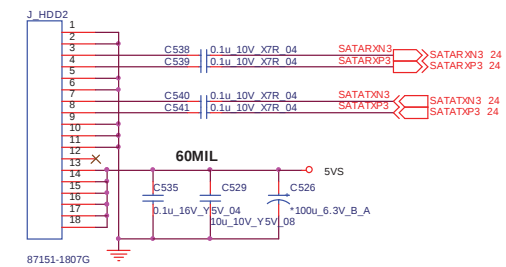
<http://hobi-elektronika.net>

## HDD, ODD

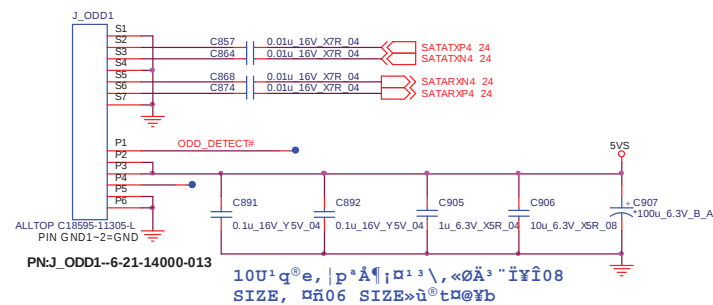
## SATA HDD 1~3



## SATA HDD 4



## SATA ODD



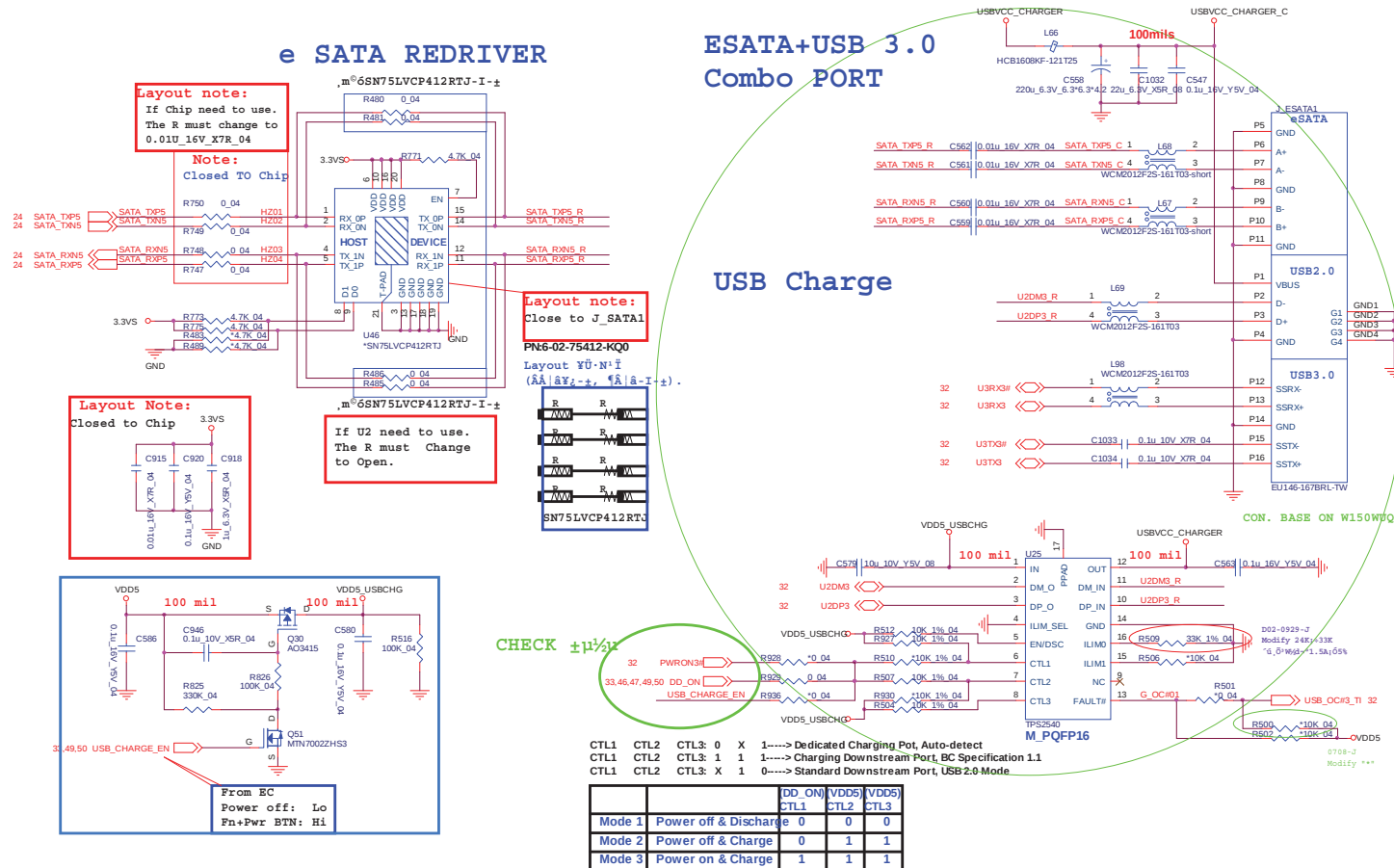
Sheet 43 of 63  
HDD, ODD



## Schematic Diagrams

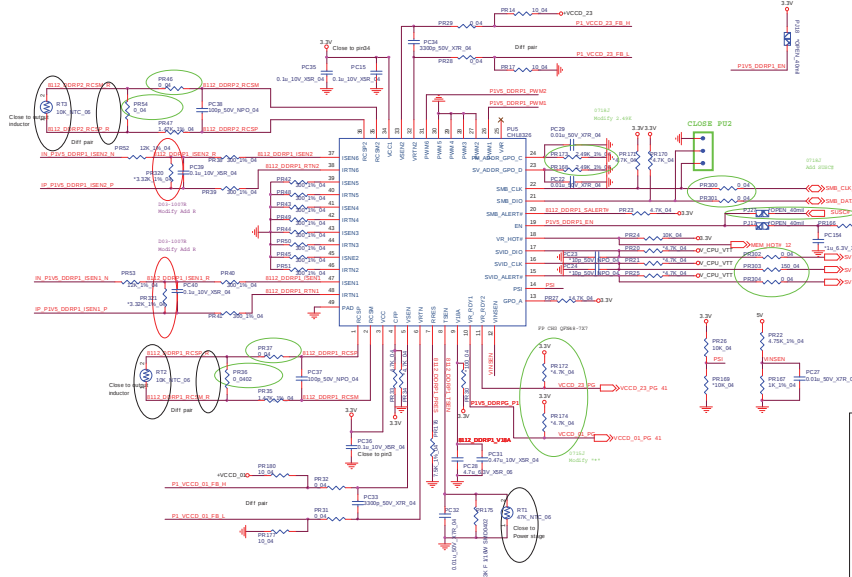
<http://hobi-elektronika.net>

## eSATA+USB, USB Charge

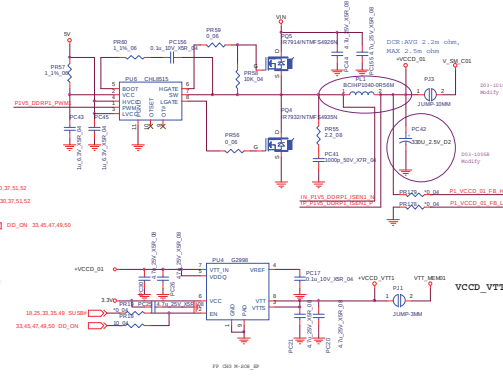
 Sheet 45 of 63  
 eSATA+USB,  
 USB Charge


# Power V\_SM, VTT MEM

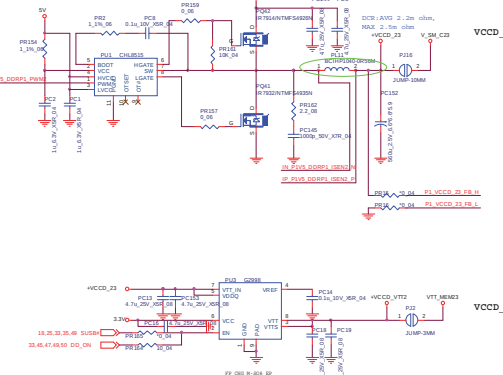
V\_SM\_C01/23, VTT\_MEM01/23



P1V5\_VCCD\_01\_Phase 1



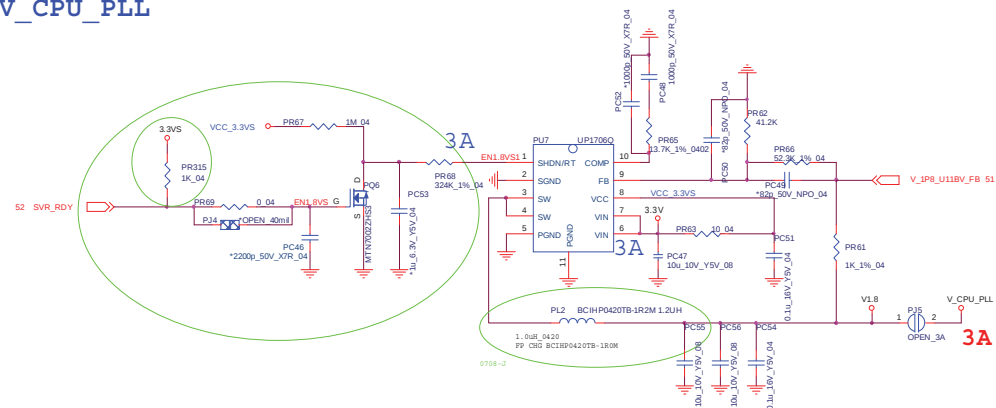
P1V5\_VCCD\_23\_Phase 2



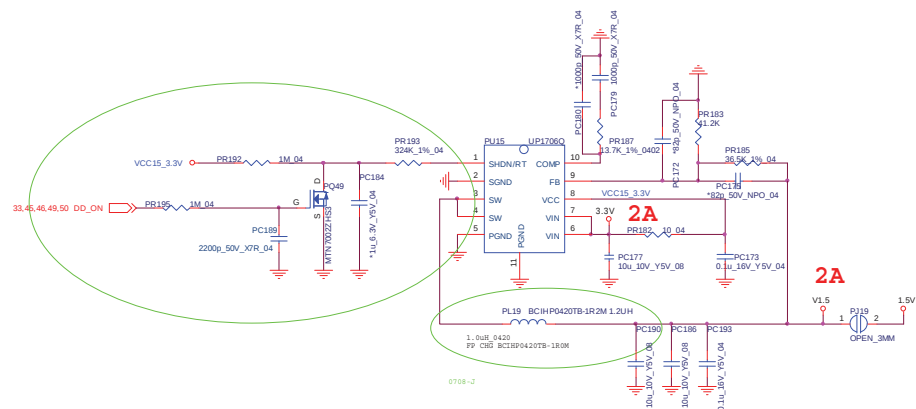
Sheet 46 of 63  
Power V\_SM, VTT  
MEM

## Power CPU\_PLL, 1.05V

V CPU PLL

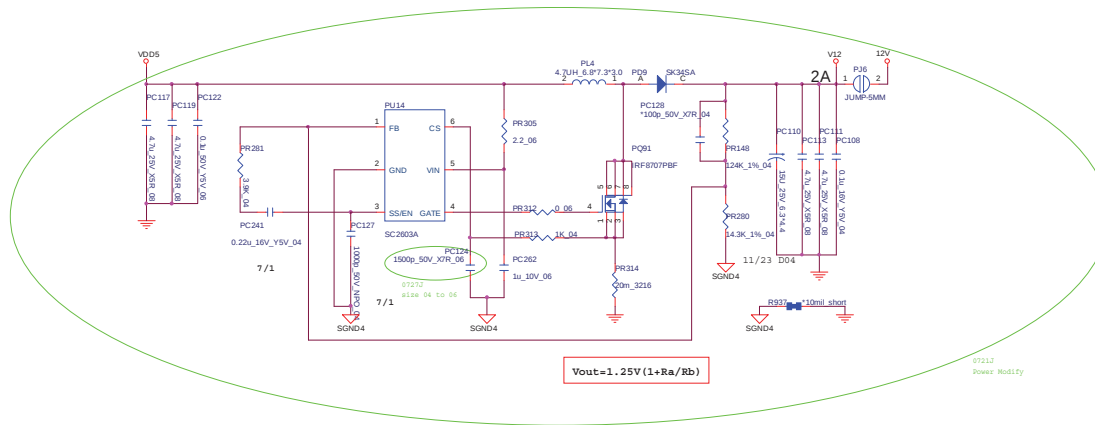


1.5V



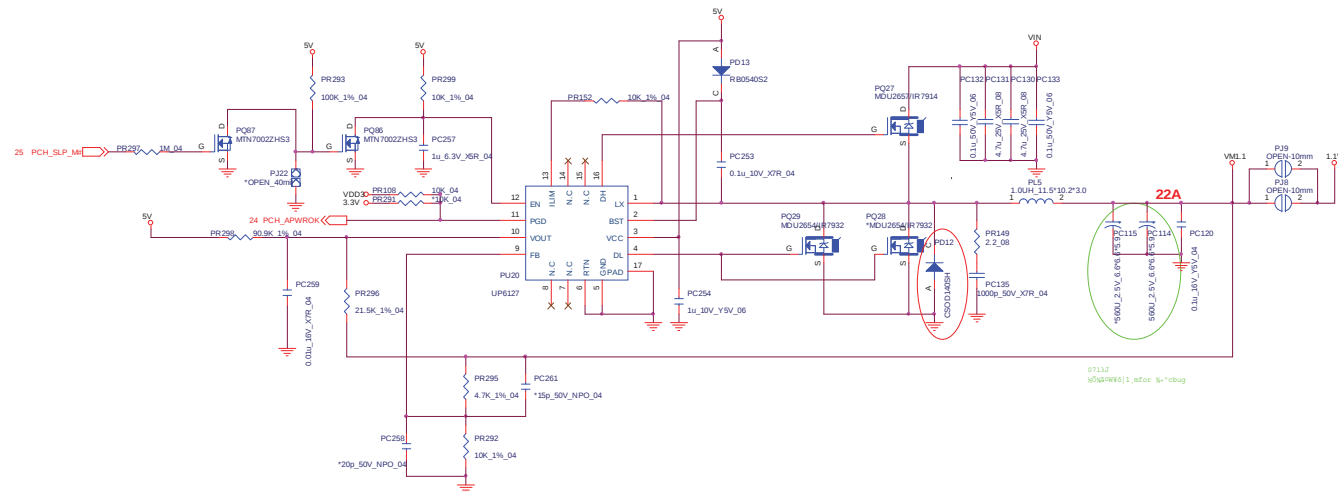
# Power 12V, 1.1VM

12V



Sheet 48 of 63  
Power 12V, 1.1VM

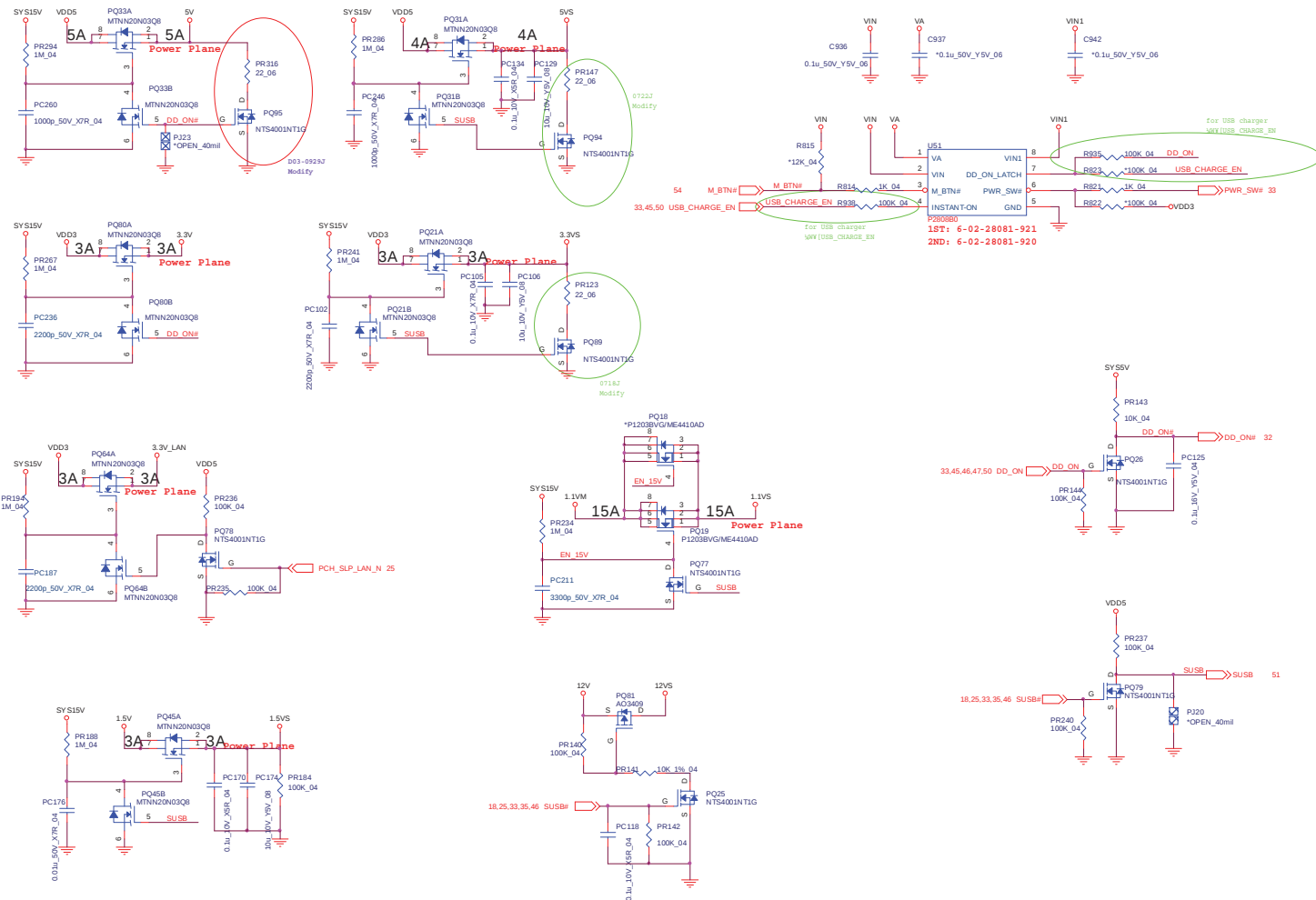
1.1VM



## Schematic Diagrams

<http://hobi-elektronika.net>

## Power Switch

 Sheet 49 of 63  
 Power Switch


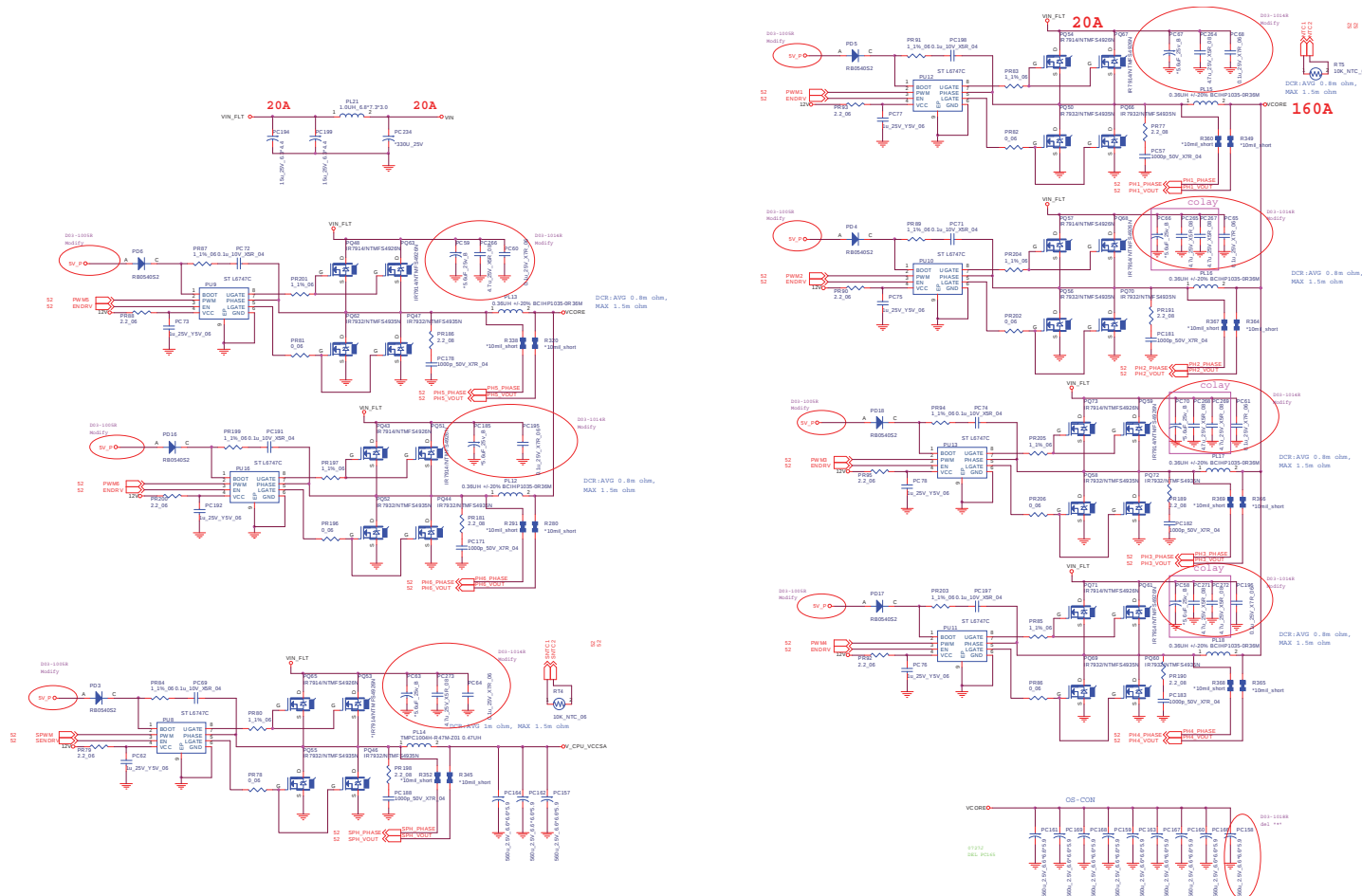


[illegible]



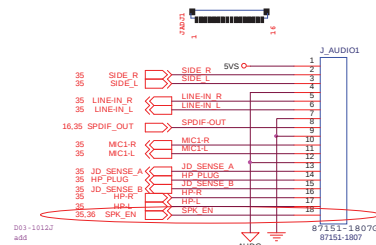
## CPU2 Power Stage

Sheet 53 of 63  
CPU2 Power Stage

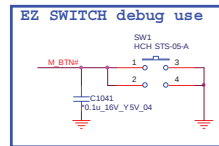
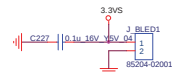


# DAUGHTER CON

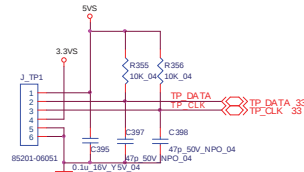
## PHONE JACK BOARD



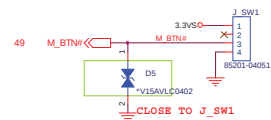
## BLACK LED CON



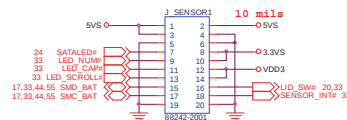
## CLICK BOARD



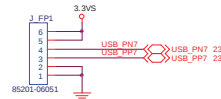
## SWITCH BOARD



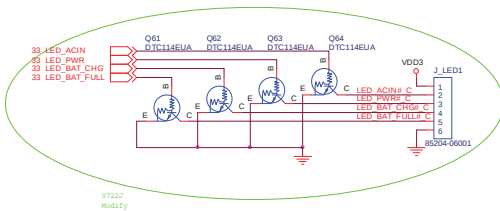
## TOUCH SENSOR



## FINGERPRINT



## POWER LED BOARD



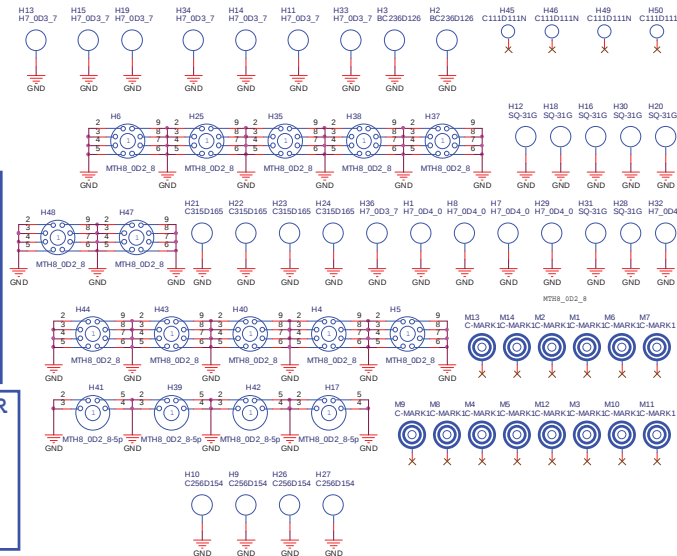
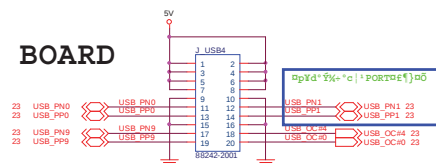
## TV TUNER

D03 Del

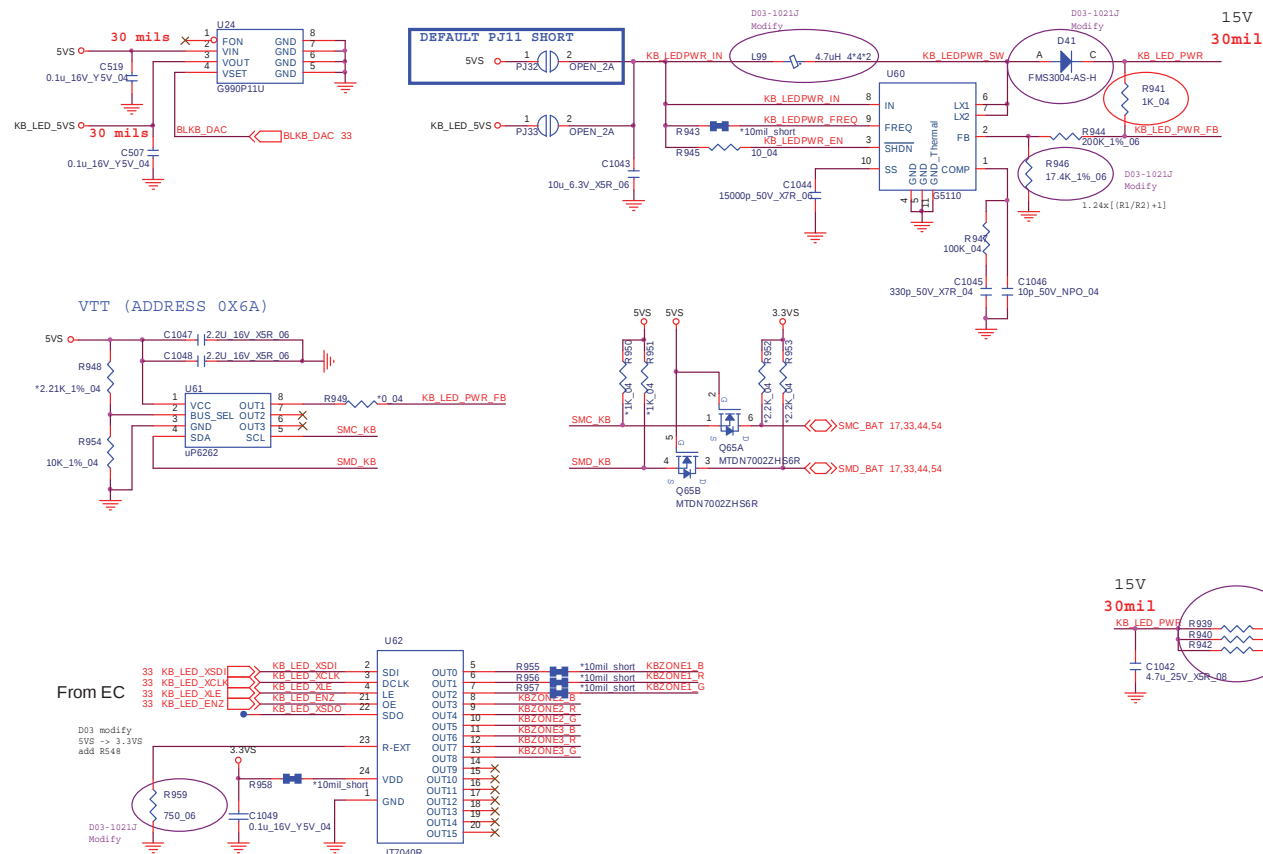
## CONSUMER IR

D03 Del J\_IR1

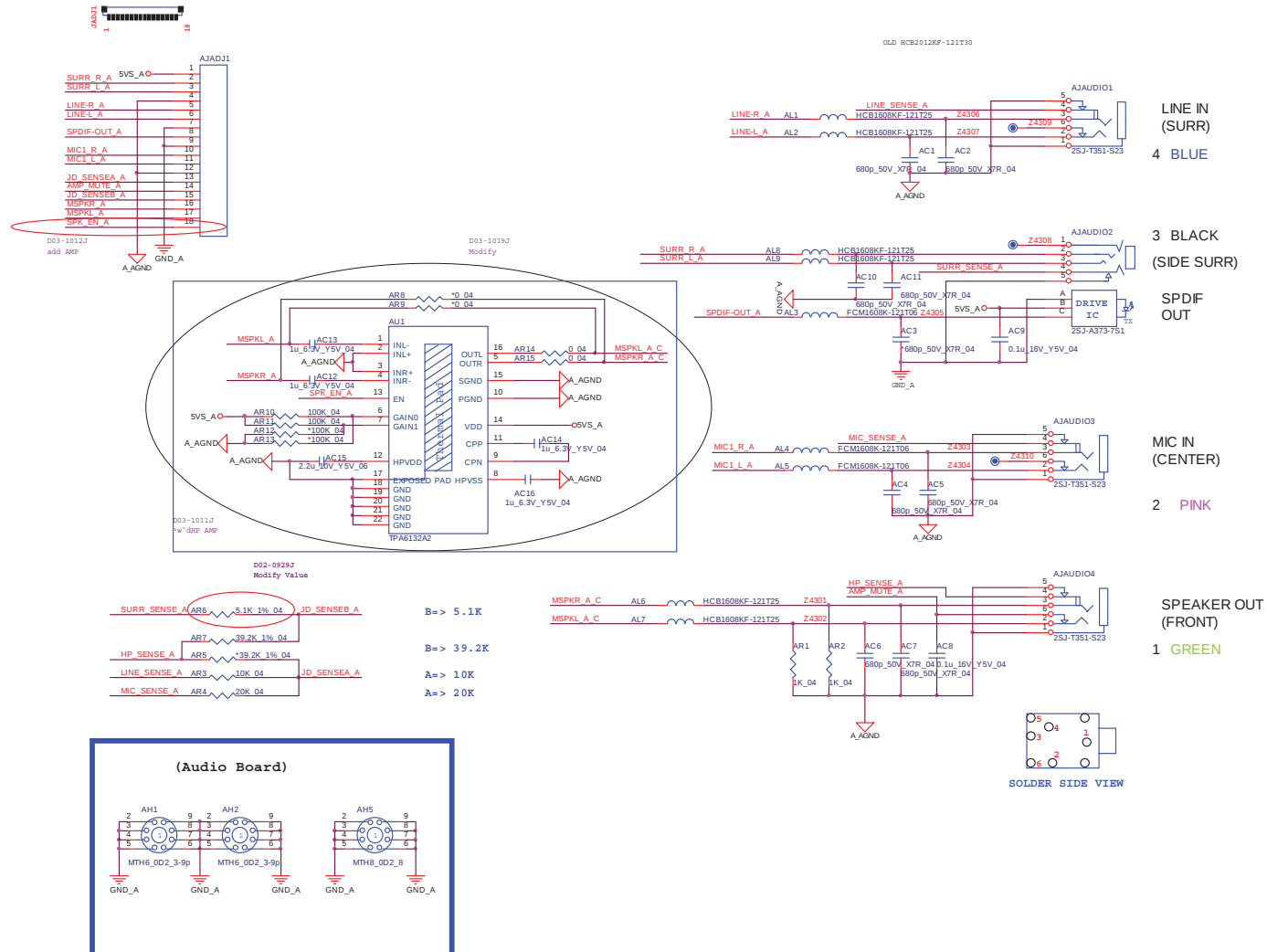
## USB BOARD



Sheet 54 of 63  
DAUGHTER CON



# AUDIO BOARD

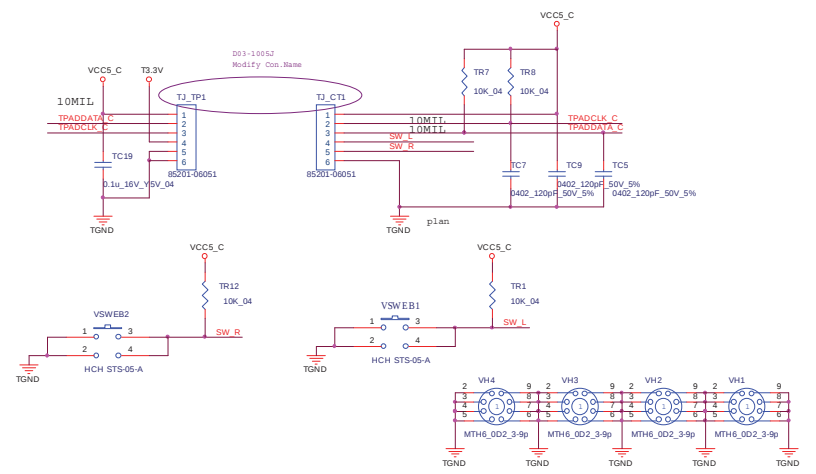


Sheet 56 of 63  
AUDIO BOARD

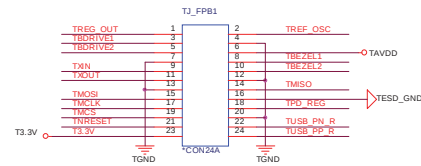
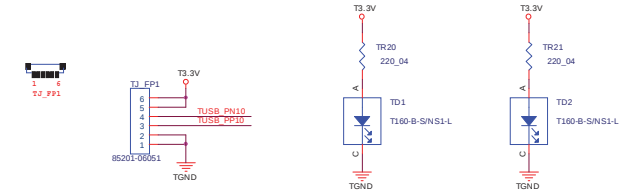
## Schematic Diagrams

<http://hobi-elektronika.net>

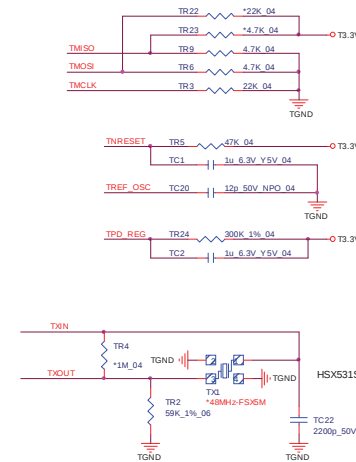
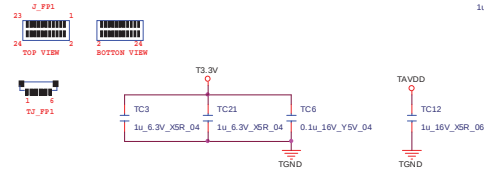
## CLICK BOARD

 Sheet 57 of 63  
CLICK BOARD


## FINGER BOARD

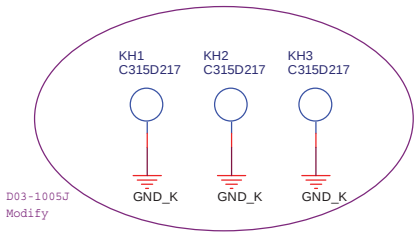
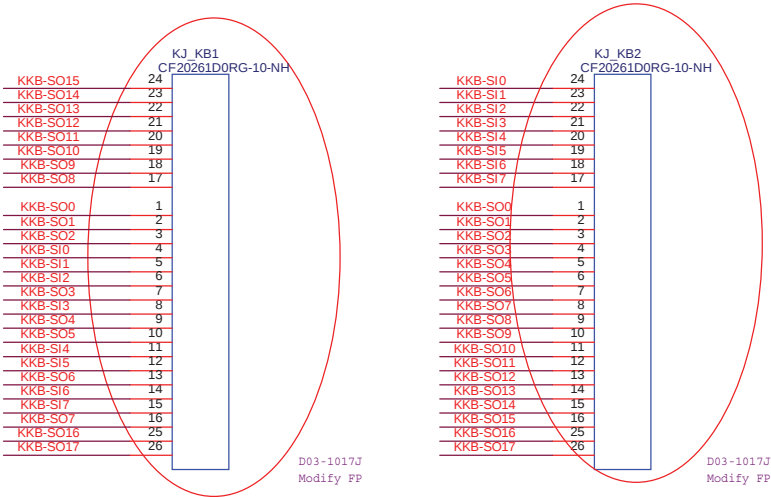


Place Bottom



FINGER PRINT "İYİ·s®E,¼u,6%ã-İSó·s

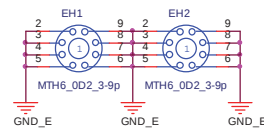
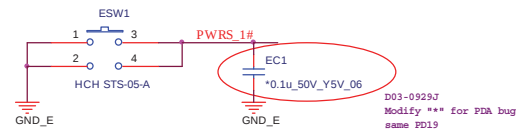
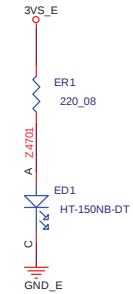
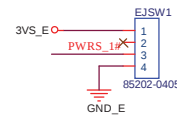
K/B CONVERTER BOARD



Sheet 58 of 63  
K/B CONVERTER  
BOARD

## SWITCH BOARD

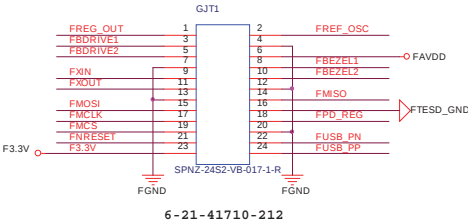
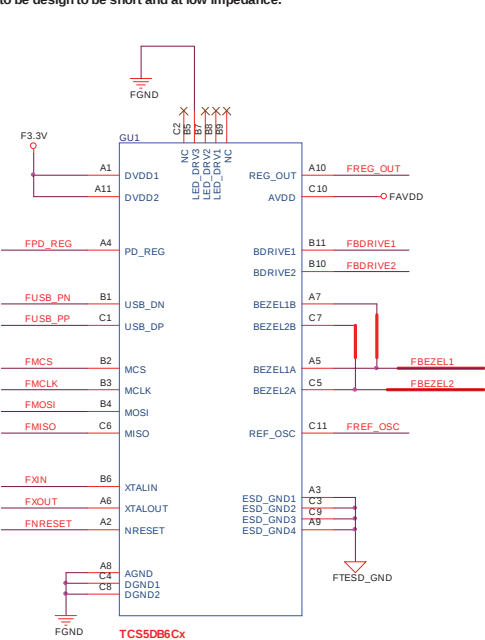
Sheet 59 of 63  
SWITCH BOARD





FINGER SENSOR BOARD

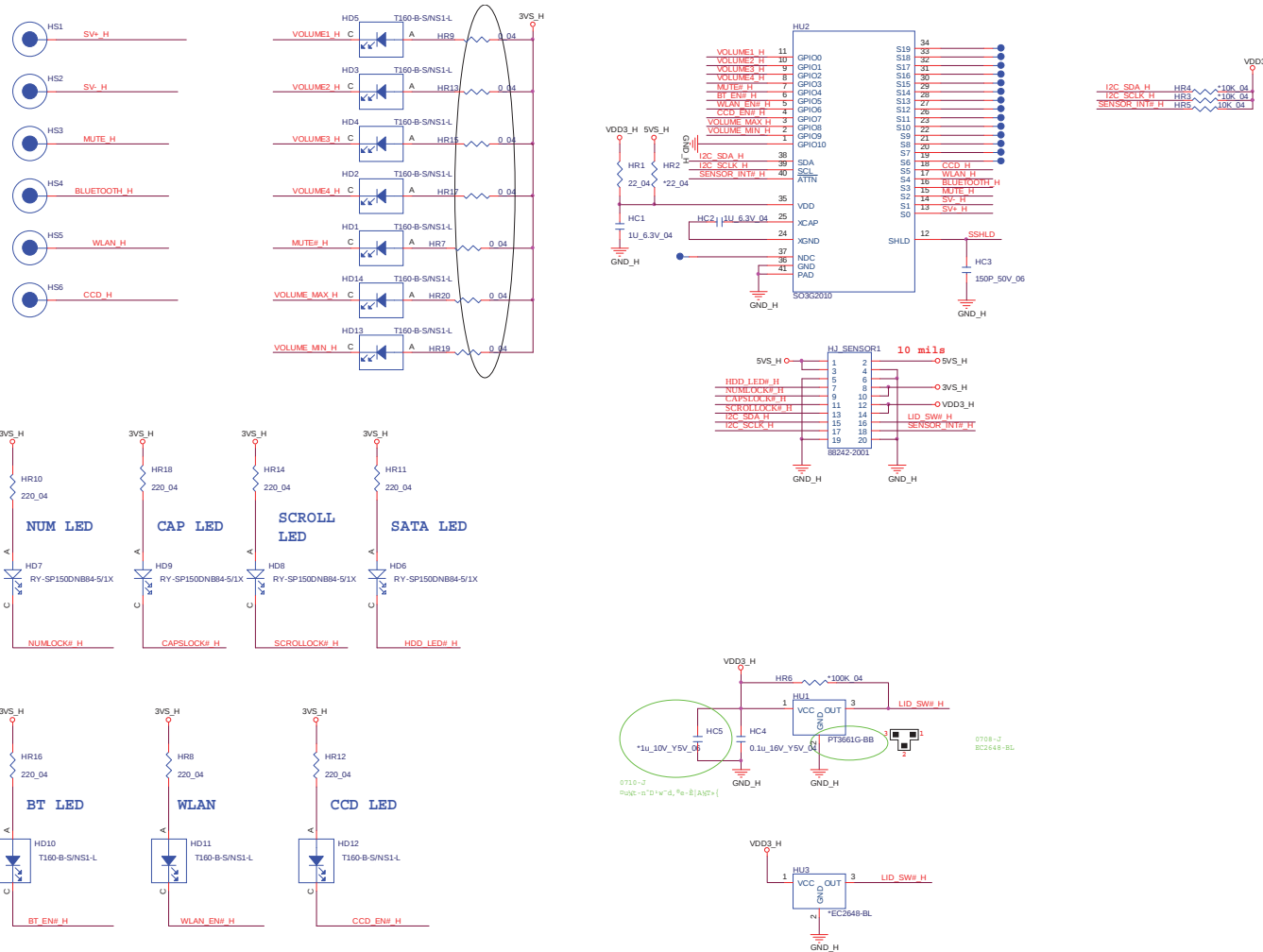
The TESD\_GND trace has to be wide (> 20mil)  
The path be marked in RED  
needs to be design to be short and at low impedance.



\*\*GU1®ÇÃäðFÿiÿ[´úÂI,ÿHŞKðWÿó«âµ,ó

SAMR W1508RQ FINGERPRINT BOARD  
6-71-W158P-D01

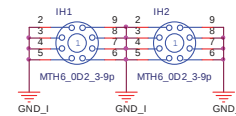
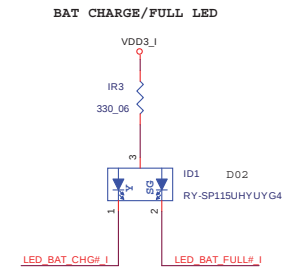
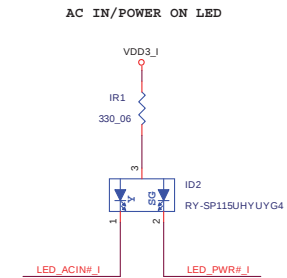
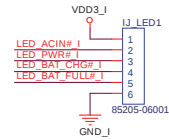
# TOUCH SENSOR BOARD



Sheet 62 of 63  
TOUCH SENSOR  
BOARD

## POWER LED BOARD

Sheet 63 of 63  
POWER LED  
BOARD



## 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](http://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.