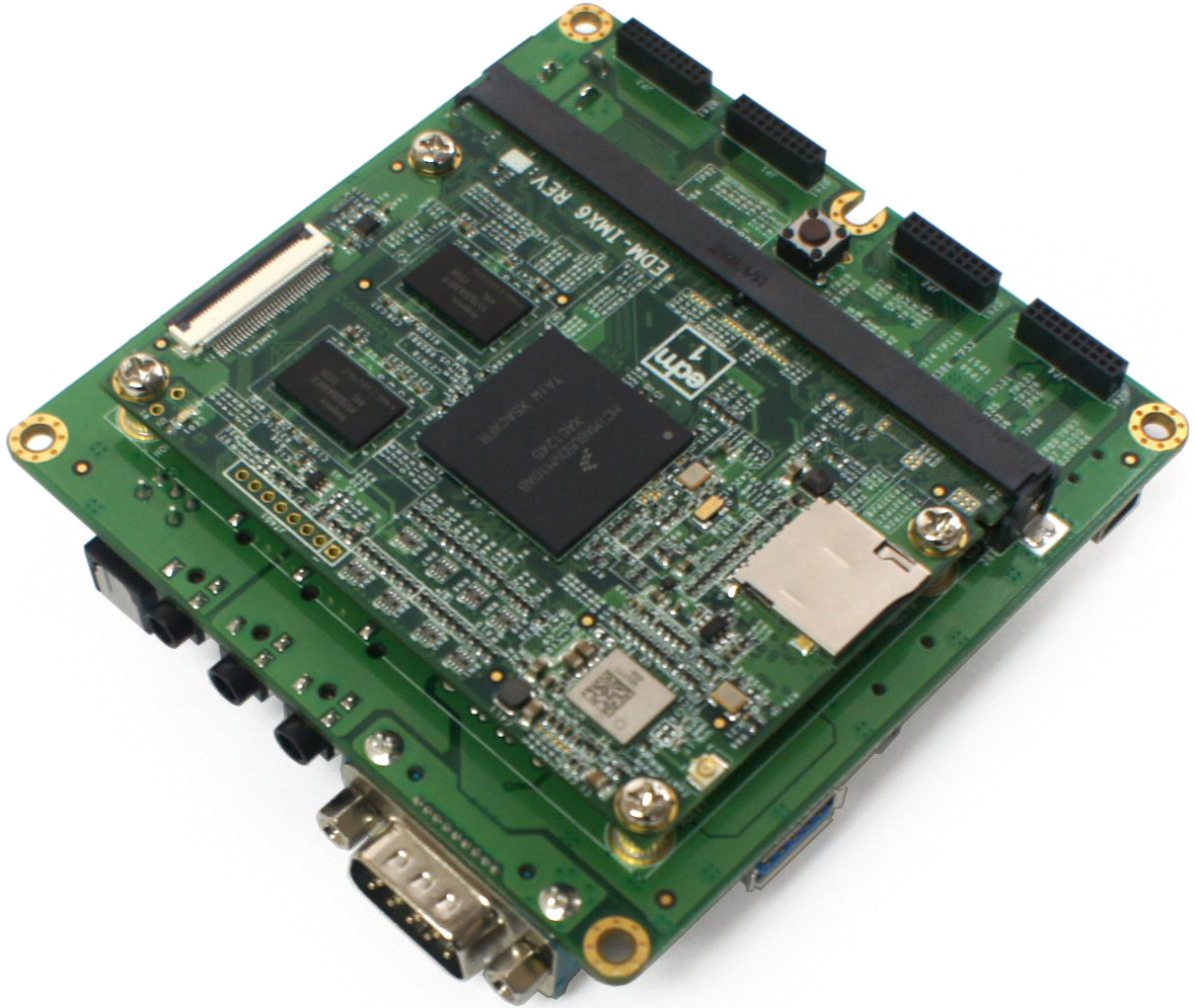




WANDBOARD.ORG



WANDBOARD USER GUIDE

(20130208)



WANDBOARD DESIGN AND DISCLAIMER

These design materials referred to in this document are ***NOT SUPPORTED*** and **DO NOT** constitute a reference design. Only "community" support is allowed via resources at [Wandboard.org](https://wandboard.org) forums.

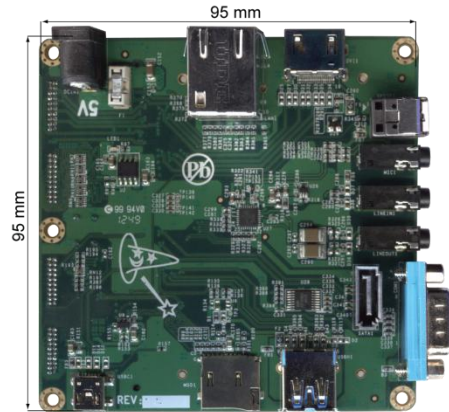
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This board was designed as an evaluation and development tool. It was not designed with any other application in mind. As such, these design materials may or may not be suitable for any other purposes. If used, the design material becomes your responsibility as to whether or not it meets your specific needs or your specific applications and may require changes to meet your requirements.



Freescale i.MX6 Cortex-A9
Low cost open source community
Development Board

Dimensional drawing

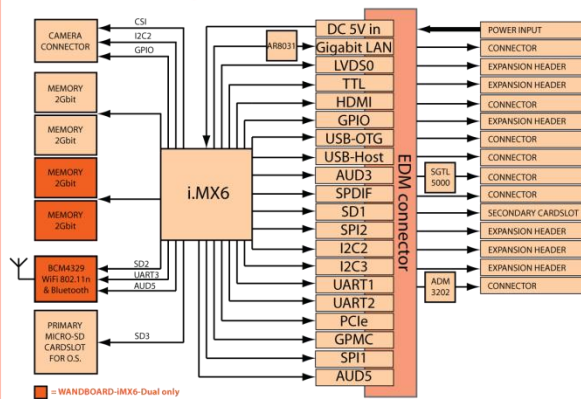


Specifications

	Wandboard Solo	Wandboard Dual
Processor	i.MX6 Solo	i.MX6 DualLite
Cores	ARM Cortex-A9 Single core @ 1GHz	ARM Cortex-A9 Dual core @ 1GHz
Memory	512 MB DDR3	1 GB DDR3
Audio	✓	✓
Optical S/PDIF	✓	✓
HDMI	✓	✓
Camera interface	✓	✓
micro SD cardslot	2	2
Serial port	✓	✓
Expansion Header	✓	✓
USB	✓	✓
USB OTG	✓	✓
SATA connector	Not populated	Not populated
Gigabit LAN	✓	✓
WIFI (802.11n)	X	✓
Bluetooth	X	✓

Complete Schematics, Source Code and Documentation can be found on www.wandboard.org

Block diagram



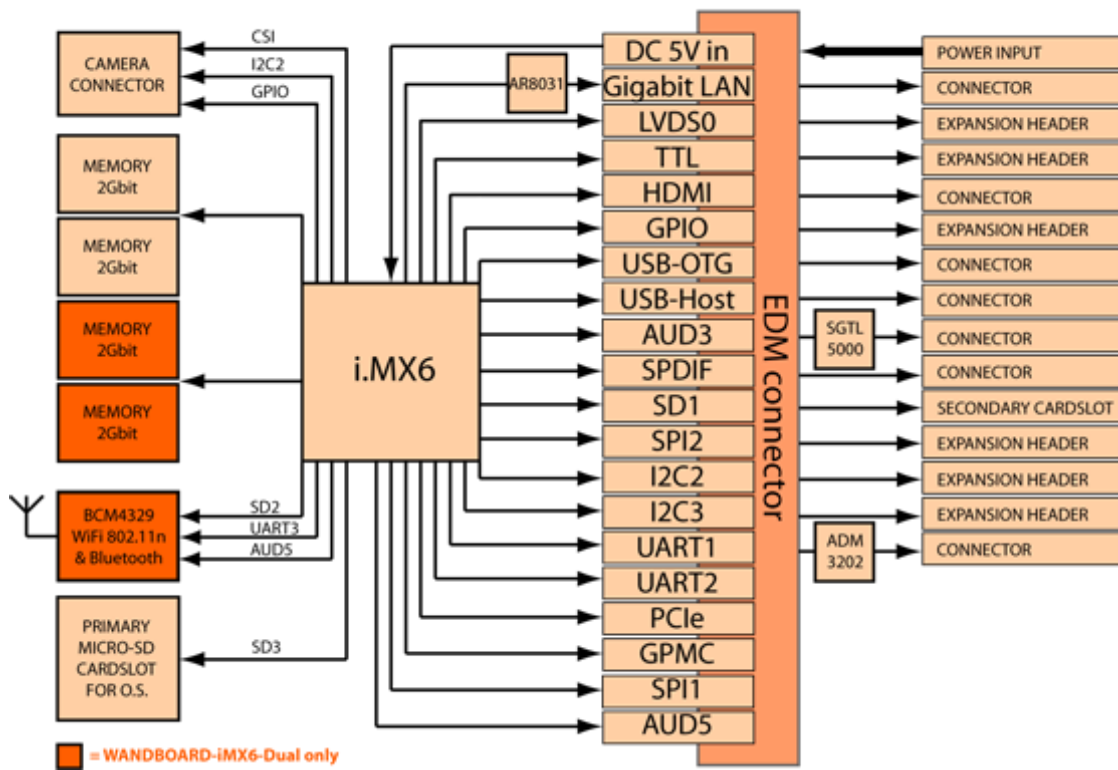
Order information

Wandboard Solo i.MX6 Solo
Wandboard Dual i.MX6 DualLite
Accessory Enclosure

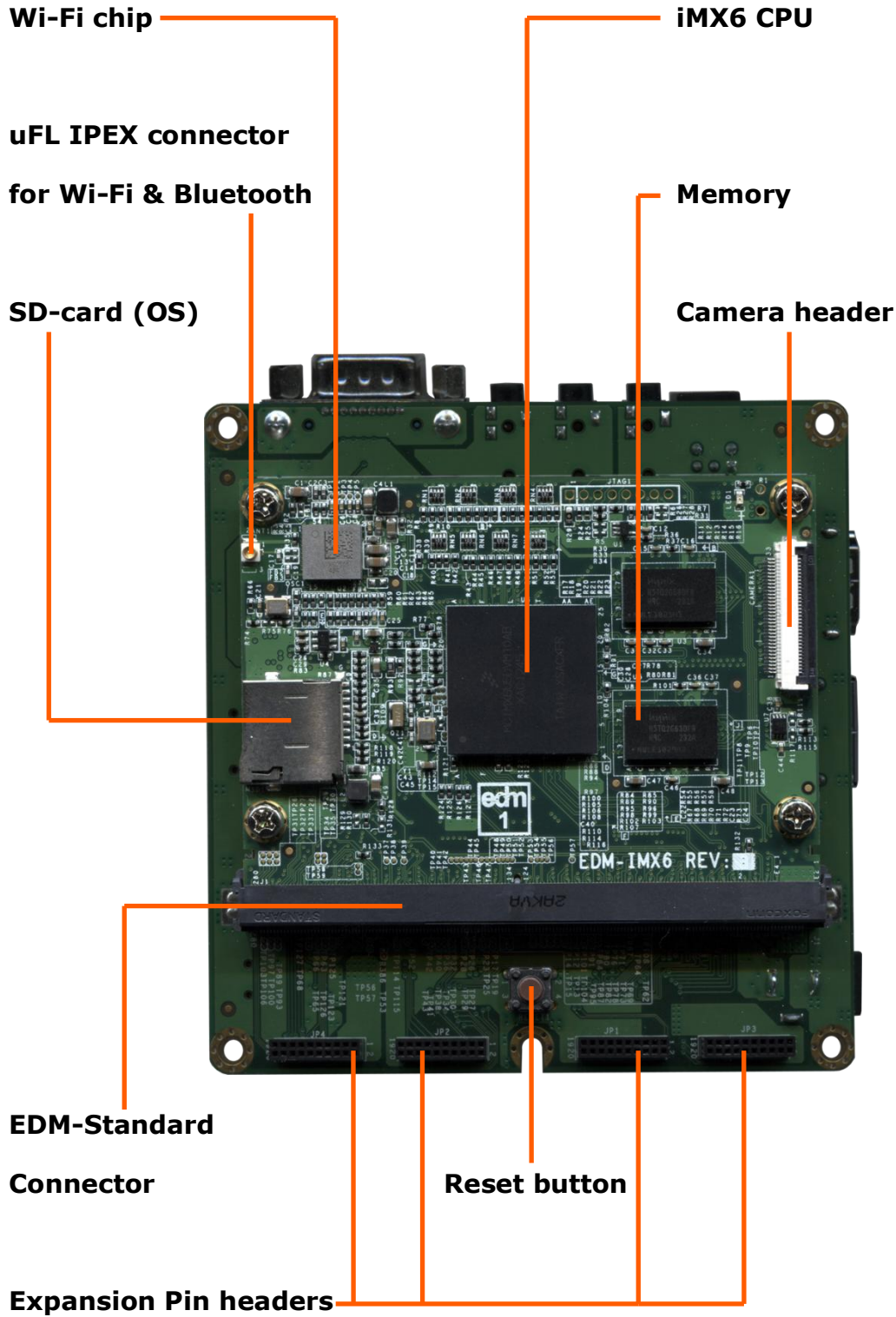


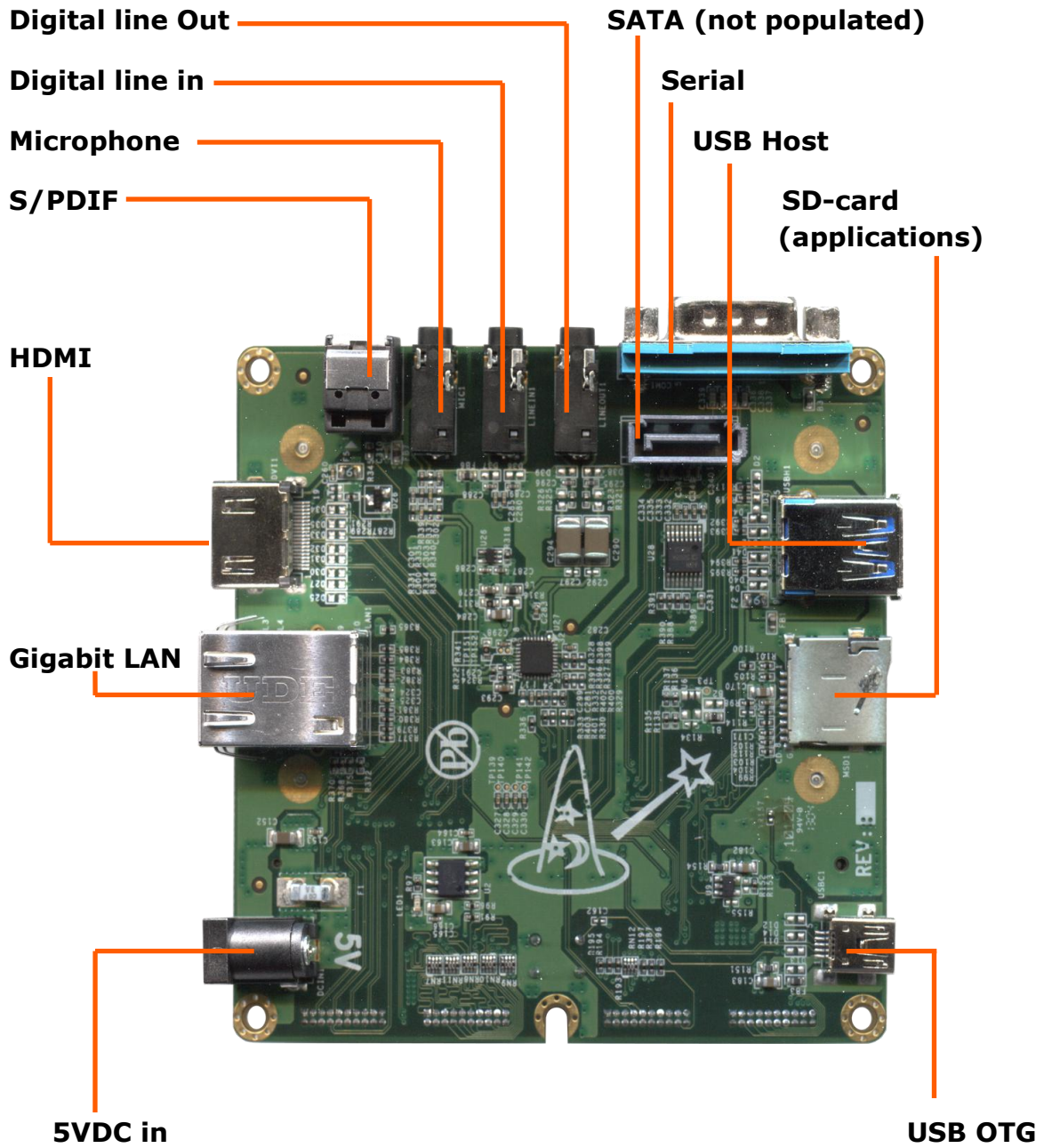
Block Diagram

WANDBOARD BLOCK DIAGRAM



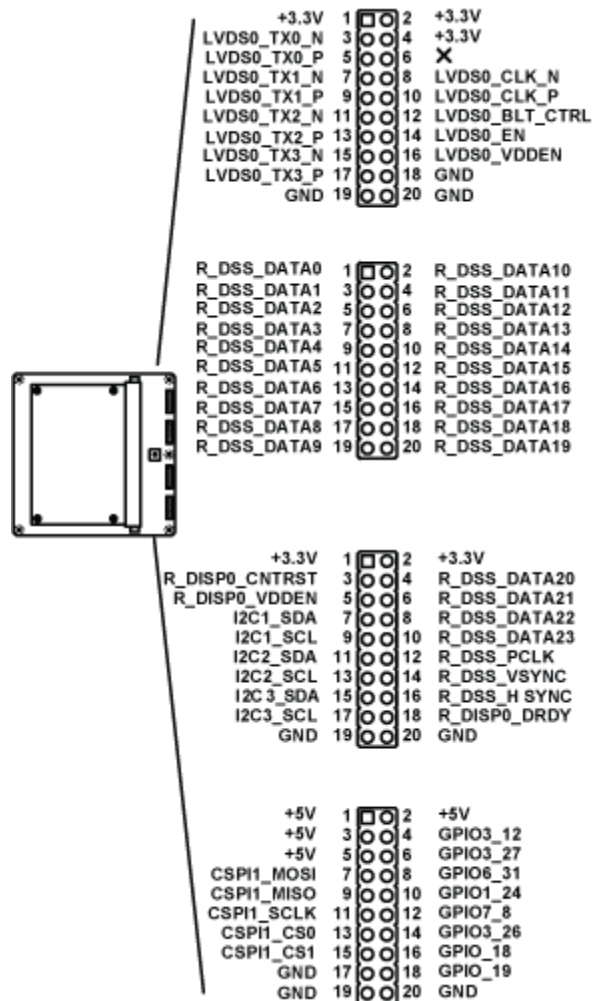
Overview



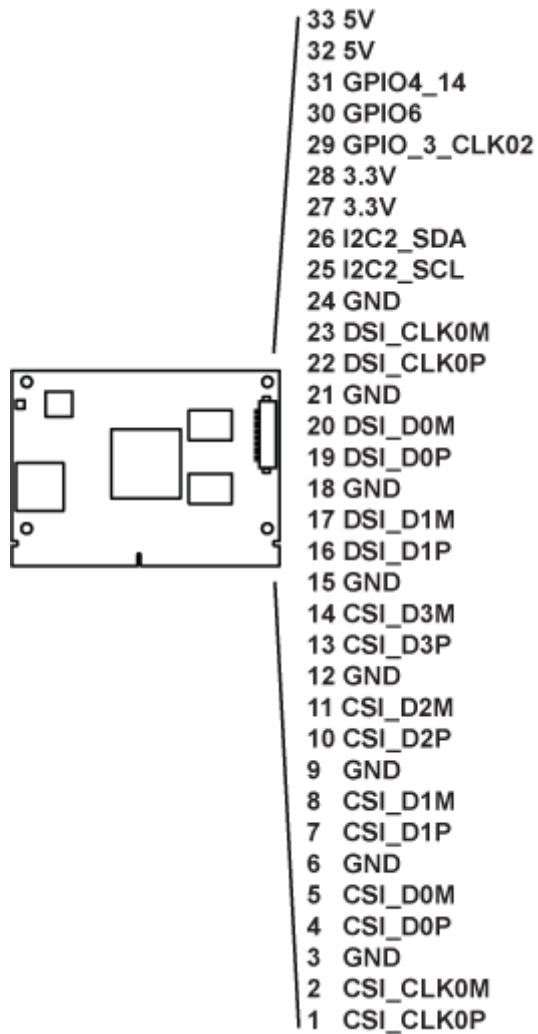




Expansion pin headers

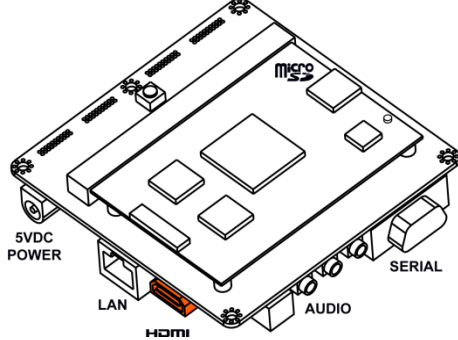


Camera header

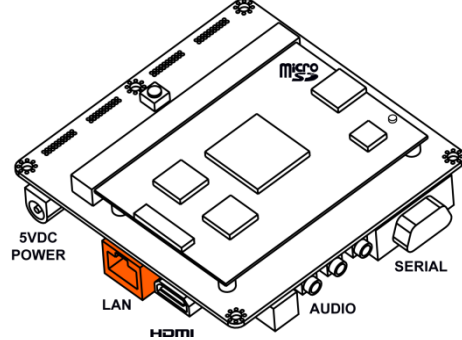


Quick Start Guide

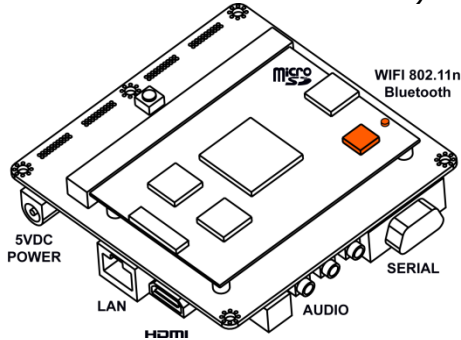
a) Connect display: use a quality HDMI cable to connect to your HDMI TV or Monitor.



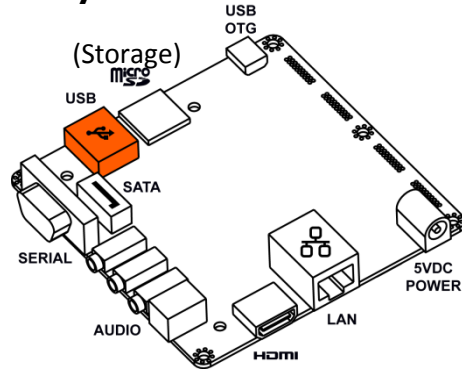
b) Connect network: use a standard RJ45 LAN cable to connect your wired network (optional)



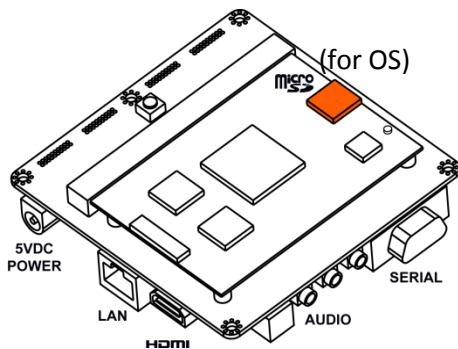
c) Connect wireless antenna (sold separately). This option is only available on Wandboard dual)



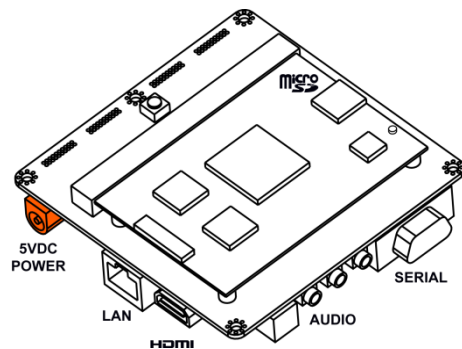
d) Connect a standard USB mouse or keyboard



e) Insert the microSD (orange microSD card slot)



f) Power up: Plug in a power supply (5 VDC at 2A is recommended)



Read the last 2 pages of this document to create a microSD card containing the Operating System.



Preparing the bootable microSD card for your Wandboard

The microSD card that is created below will contain the Wandboard operating system. A large number of demo runtime images are available.

1. Procedures to get you started

- a) Download your preferred Wandboard runtime image
<http://www.wandboard.org/index.php/downloads>
- b) Extract the file that you just downloaded
 - Right click on the file and choose "Extract all".
 - The extracted files will contain a file ending in *.img*

2. Instructions for Linux users

This paragraph explains how to create a SD card using Linux desktop or notebook. The SD card can be made using a standard terminal.

```
# dd if=*.img of=/dev/sdd bs=1M
```

replace **.img* with the full name of the SD card image and replace */dev/sdd* with your SD card device".

3. Instructions for Windows users

This paragraph explains how to create a SD card using Windows desktop or notebook.

Note: the *.img* file can only be written to your microSD card by special disk imaging software. This disk imaging software is included in the downloads at wandboard.org or can be downloaded according the instructions in paragraph 3.1.

3.1 Download the Win32DiskImager software

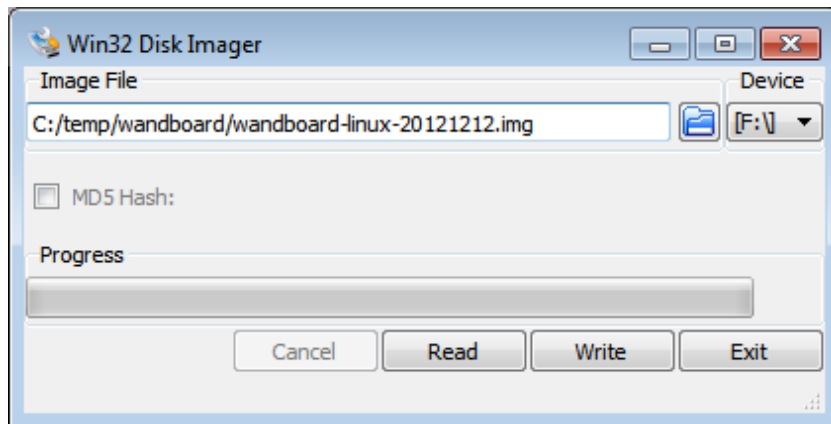
- a) Download *win32diskimager-binary.zip* from:
<http://sourceforge.net/projects/win32diskimager/>
- b) Right click on the file and choose "Extract all".
- c) This will create a new folder called *win32diskimager-binary*



You are now ready to write the Wandboard runtime image to your microSD card.

3.2 Writing the image to the microSD card

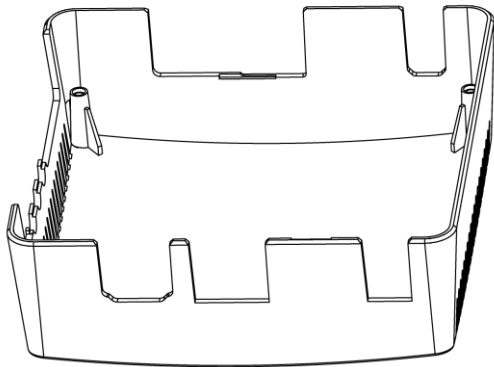
- a) Insert your microSD card into your PC (Check which drive is assigned to your device).
- b) In the folder you made in step 3.1(c), run the file named *Win32DiskImager.exe* (in Windows Vista, 7 and 8 we recommend that you right-click this file and choose "Run as administrator").
- c) If the SD card (*Device*) you are using isn't found automatically. Click on the drop down box and select it
- d) In the *Image File* box, choose the *.img* file that you download previously



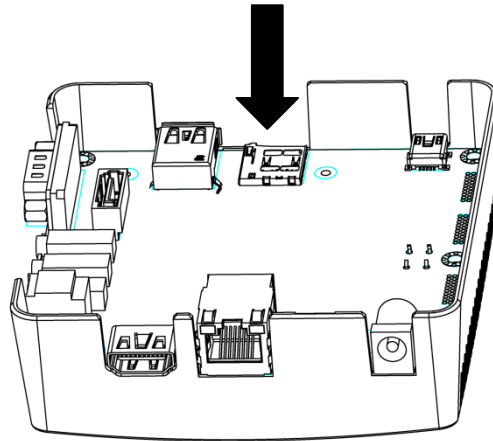
Warning: Make sure you write to the correct device. (check step 3.2a)

- e) Click *Write*
- f) After a few minutes you receive a notification that your microSD has been created successfully.

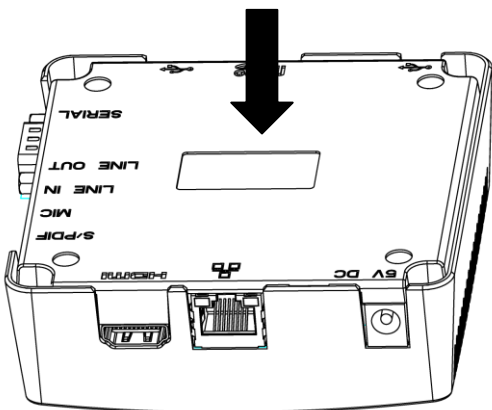
Assembly of the Wandboard Enclosure



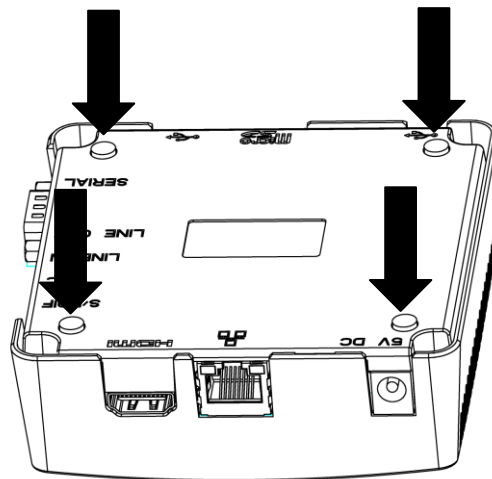
Step1 - Place the top-case on a soft surface



Step2 - Insert your Wandboard



Step3 - Insert bottom part



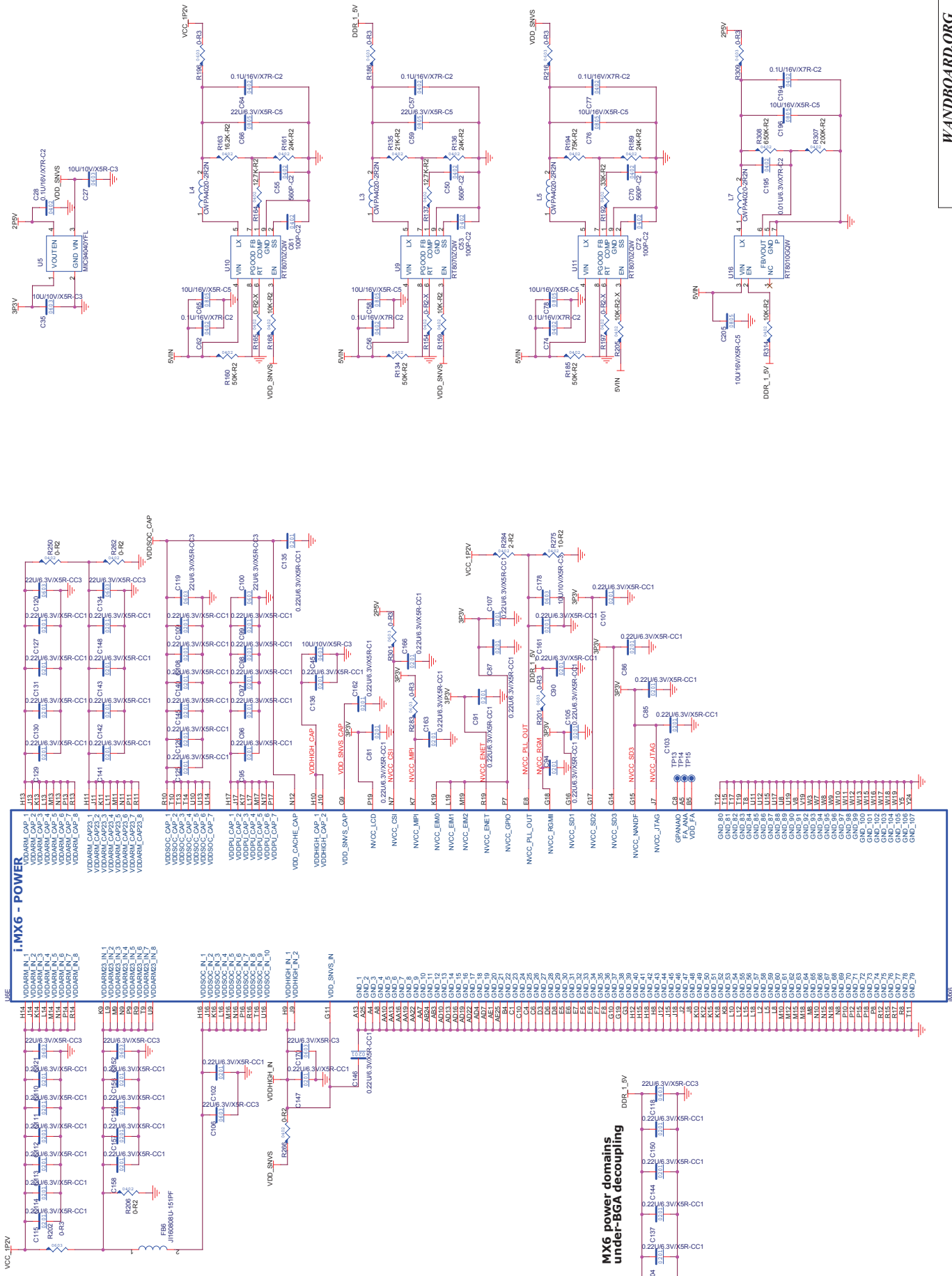
Step4 - Fasten the screws and
the rubber feet



Schematics

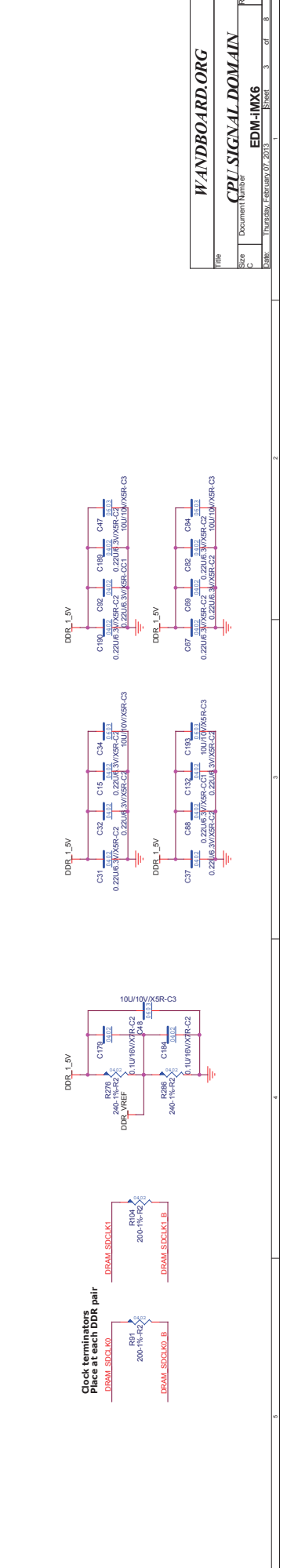
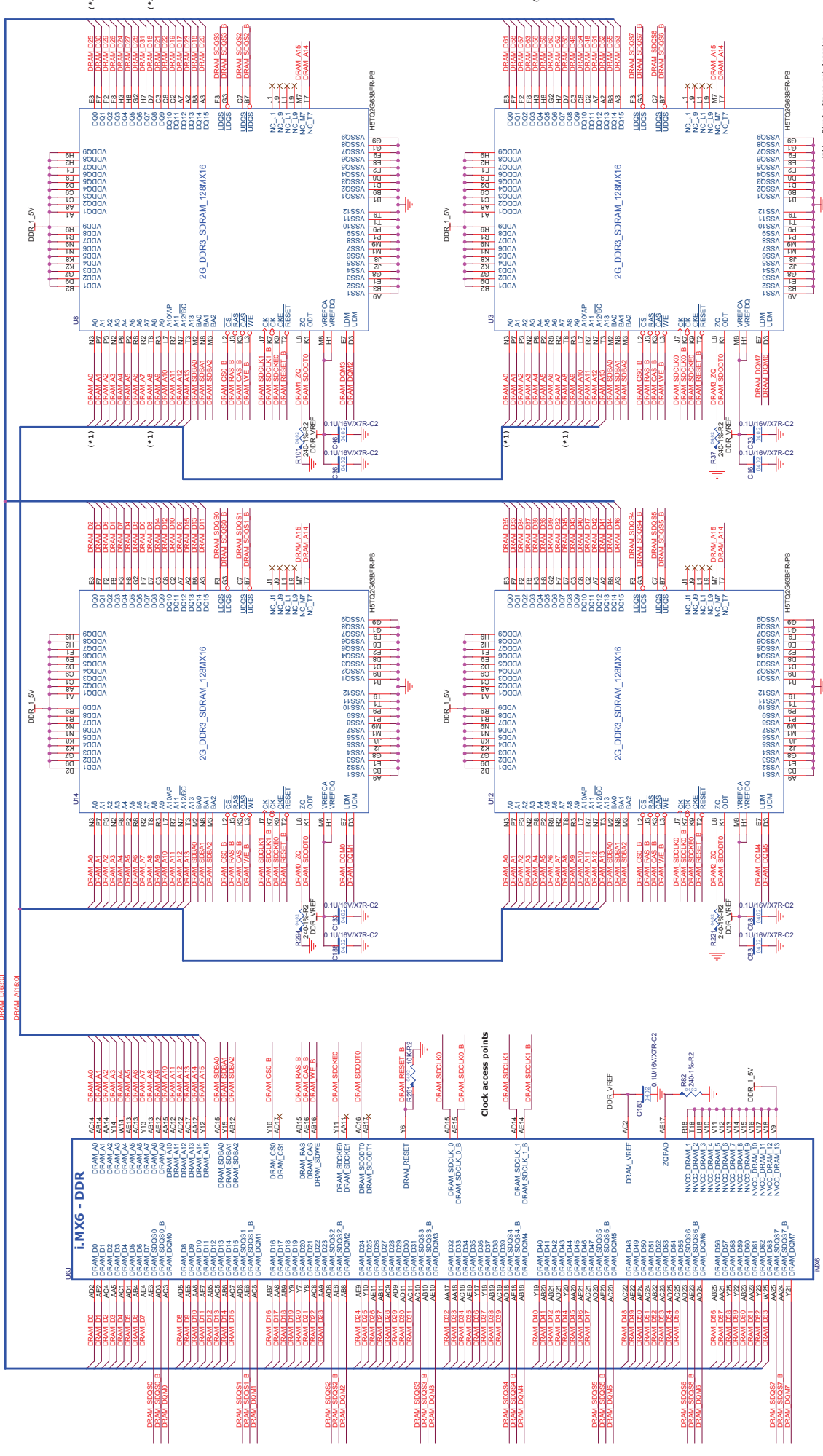
On the following pages you will find the schematics of the Freescale iMX6 module and the Wandboard Interface Board.

Components marked with -x are not populated.

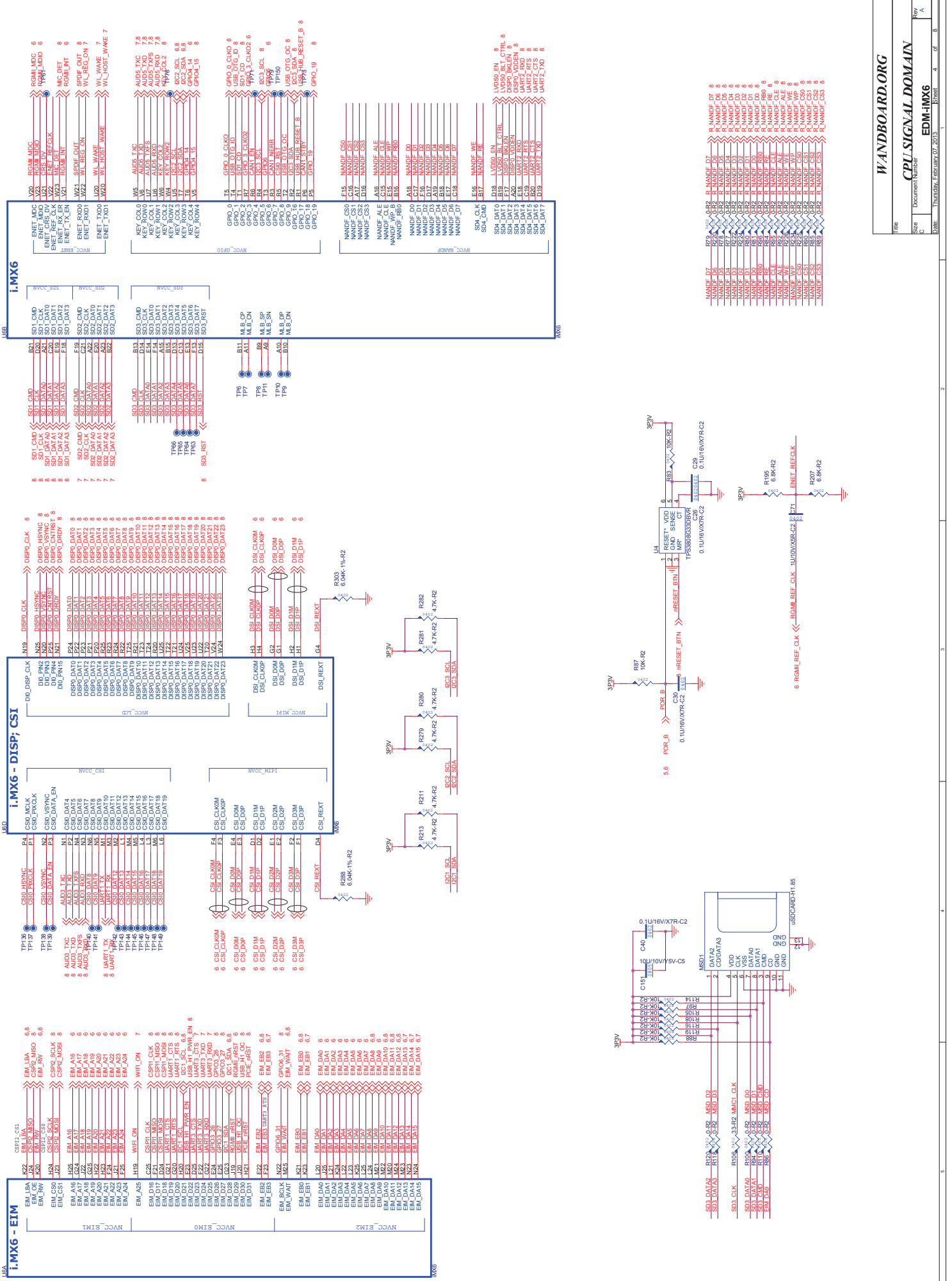


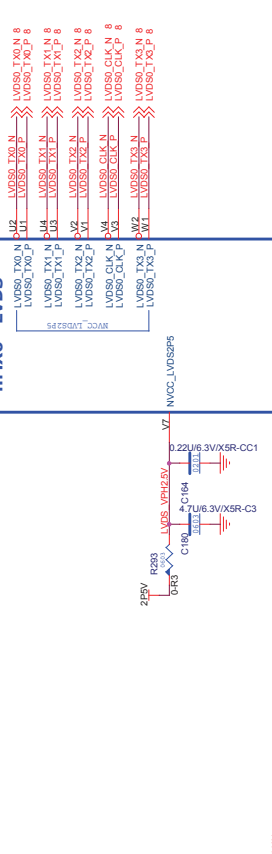
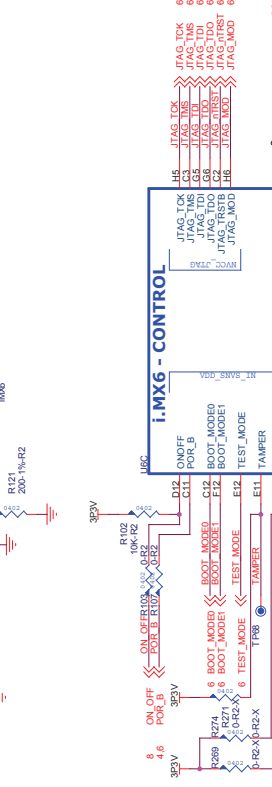
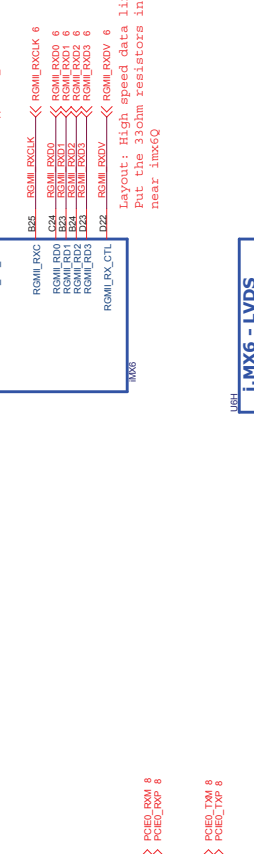
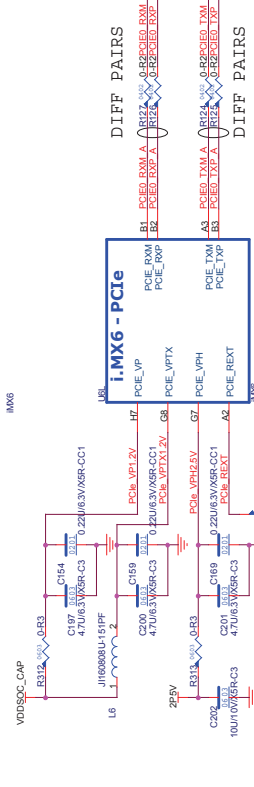
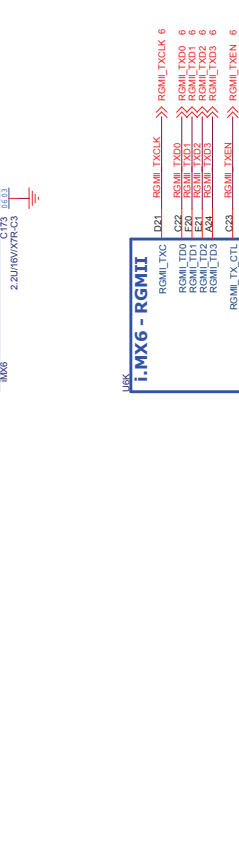
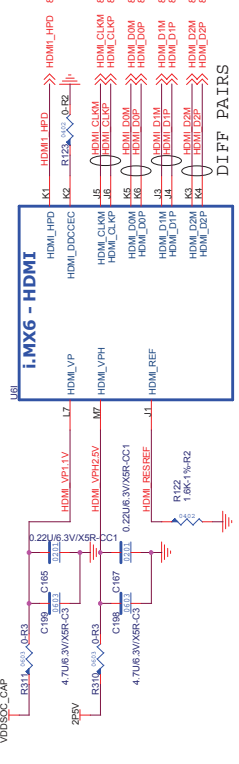
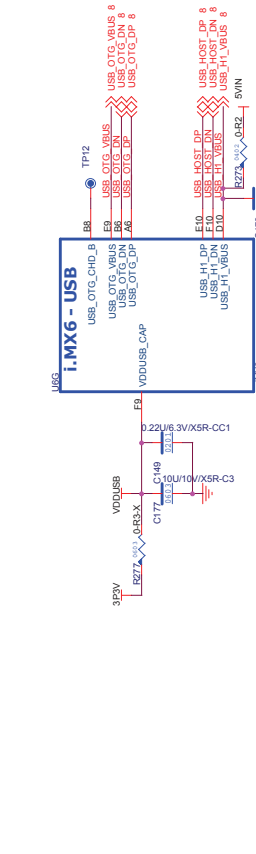
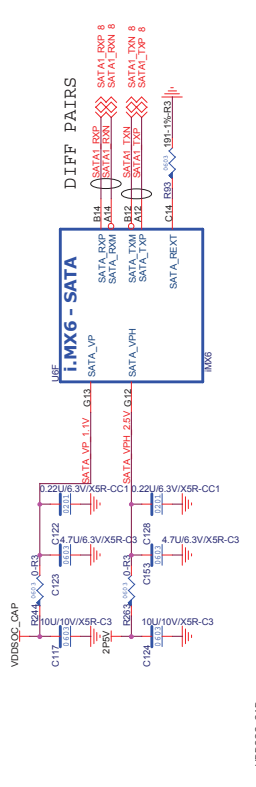
MX6 power domains under-BGA decoupling

DDR3 2GB



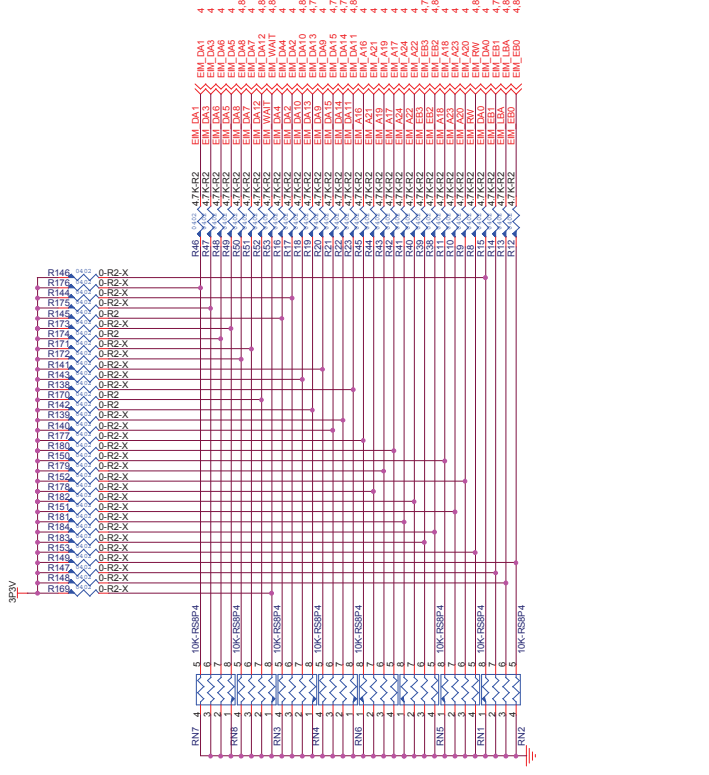
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Date	Thursday, February 07, 2013
Sheet	3 of 8



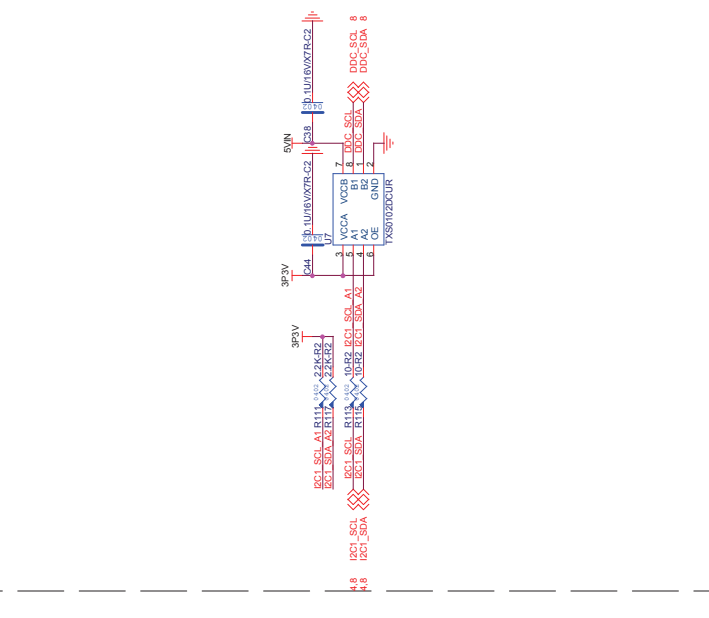


Layout: High speed data lines : 50 ohms
 Put the 330ohm resistors in this page
 near imx6Q

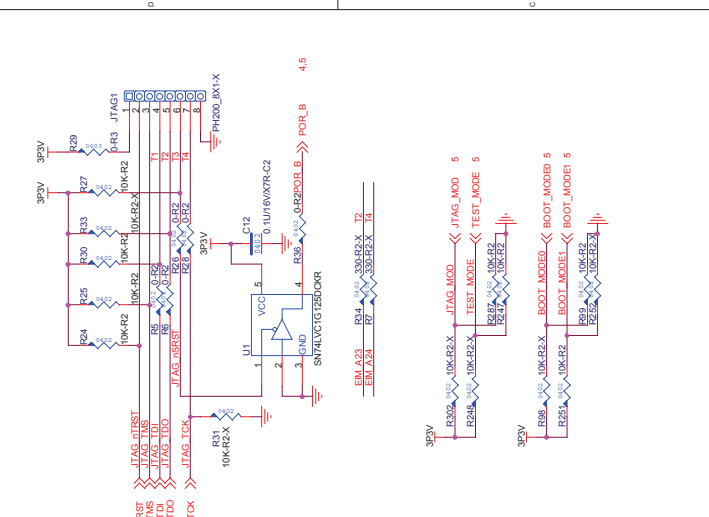
Boot Config Select



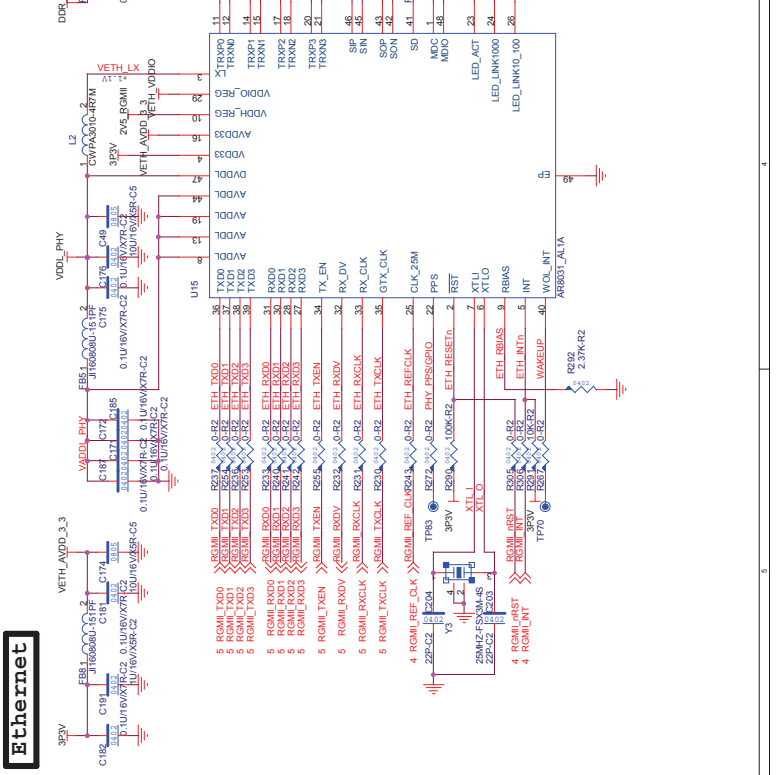
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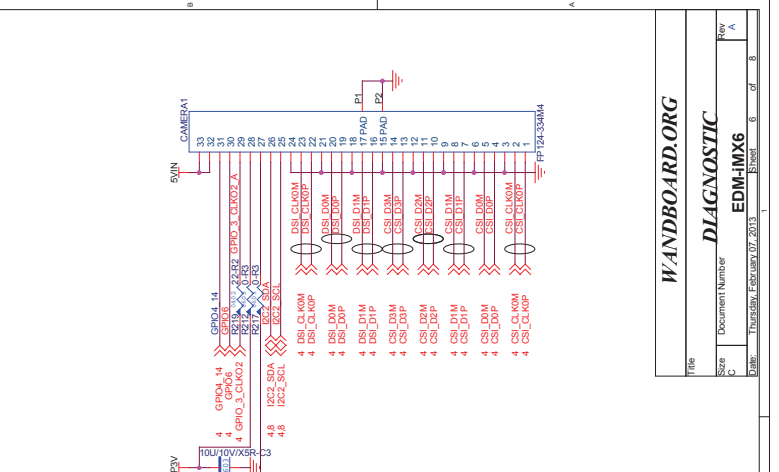
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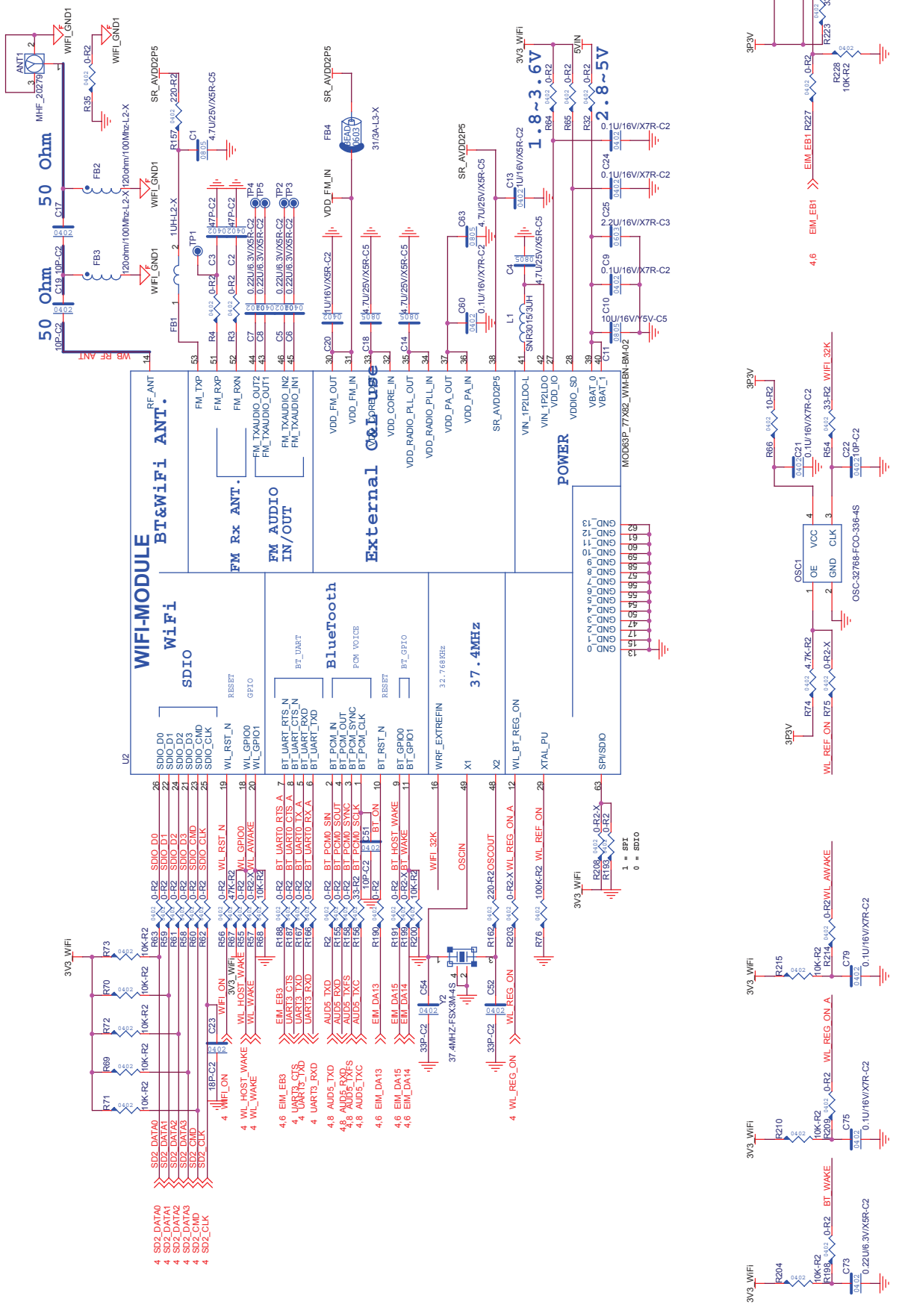


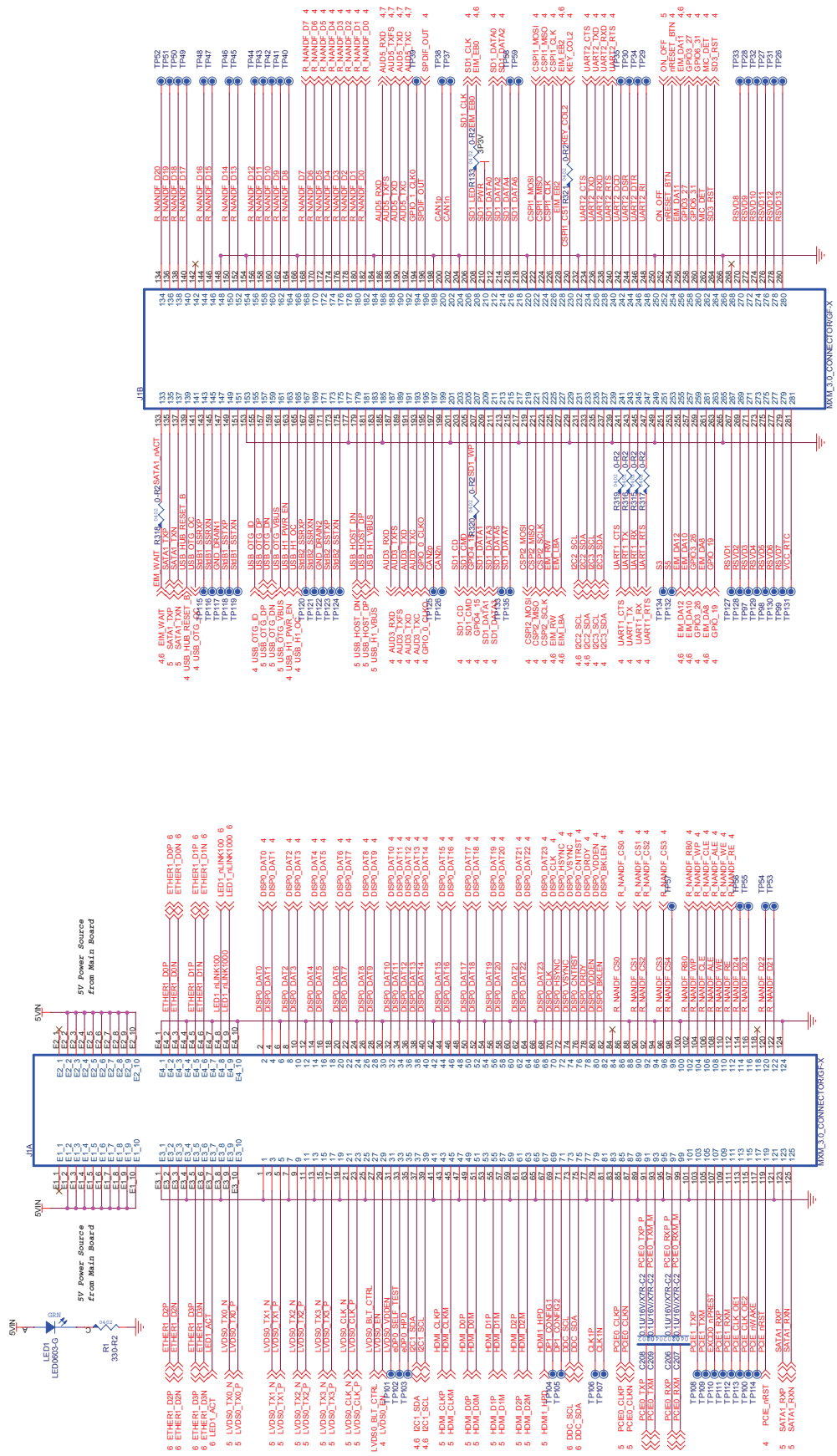
Ethernet



CAMERA







WAND REV:A

PAGE TITLE

P01 Index

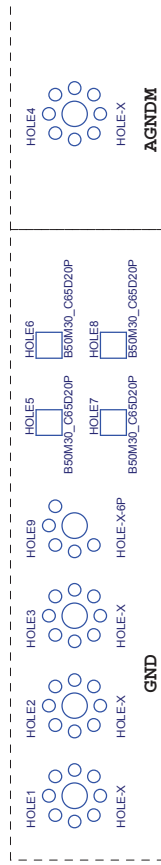
P02 Expansion CONN.

P03 DC-DC & M-SD

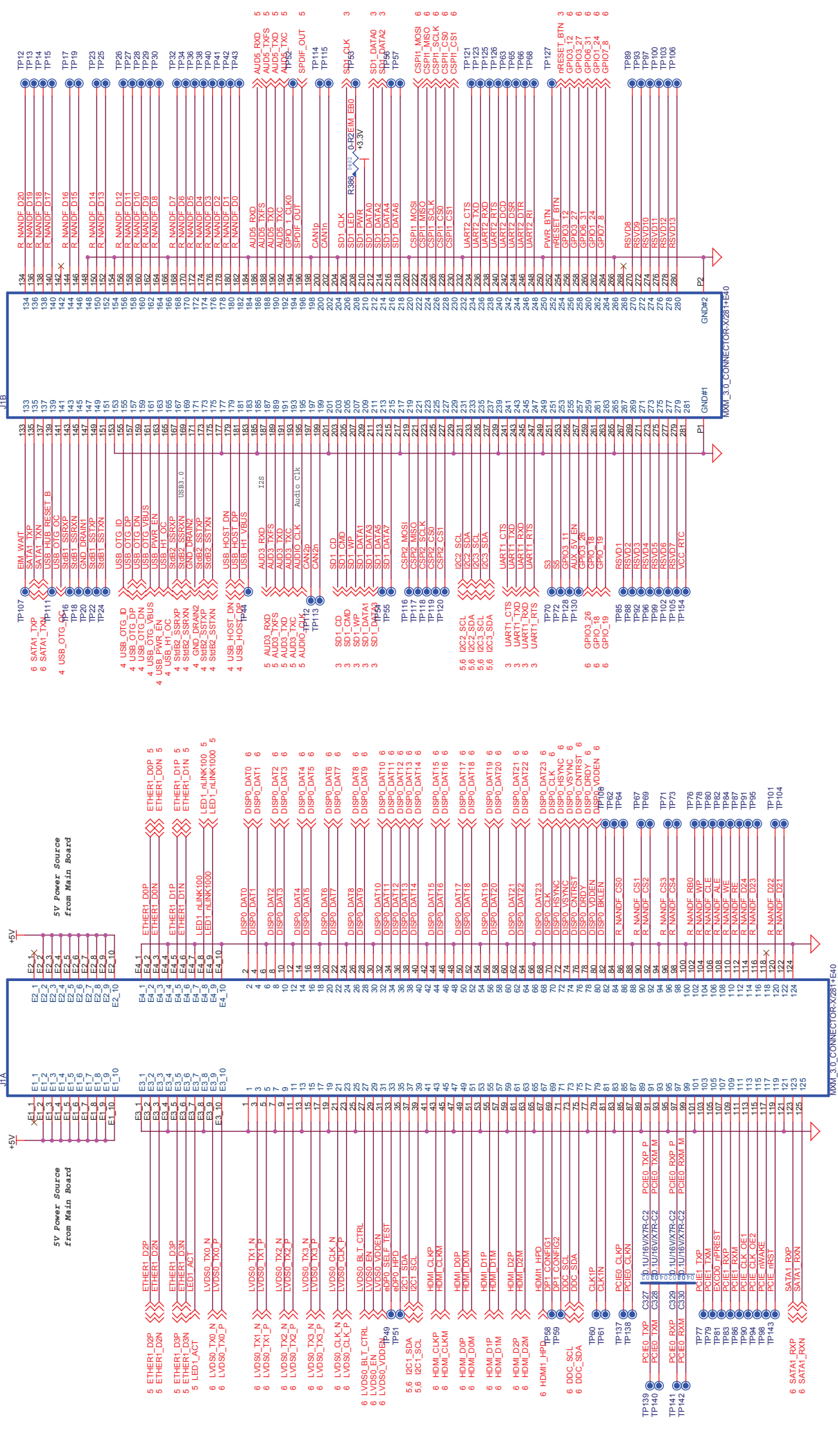
P04 HOST & Client

P05 Audio & RJ45

P06 LVDS & HDMI & SATA

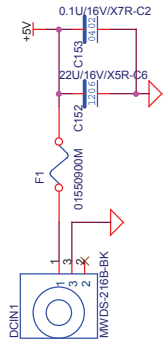


FM1	FM2	FM3	FM4	FM5	FM6	FM7	FM8
FRMUS-X	FRMUS-X	FRMUS-X	FRMUS-X	FRMUS-X	FRMUS-X	FRMUS-X	FRMUS-X

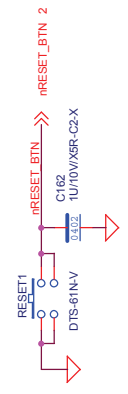


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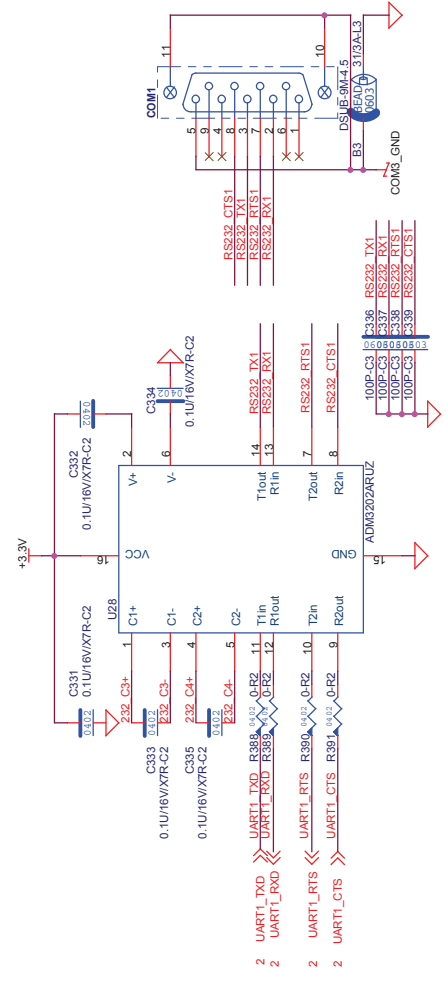
DC JACK



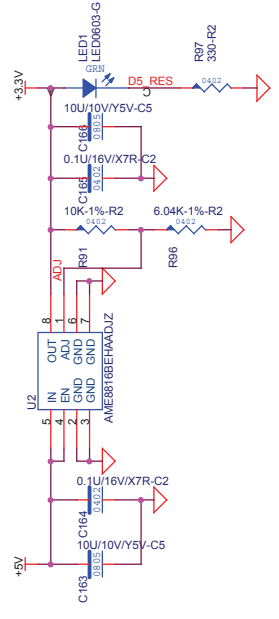
Button



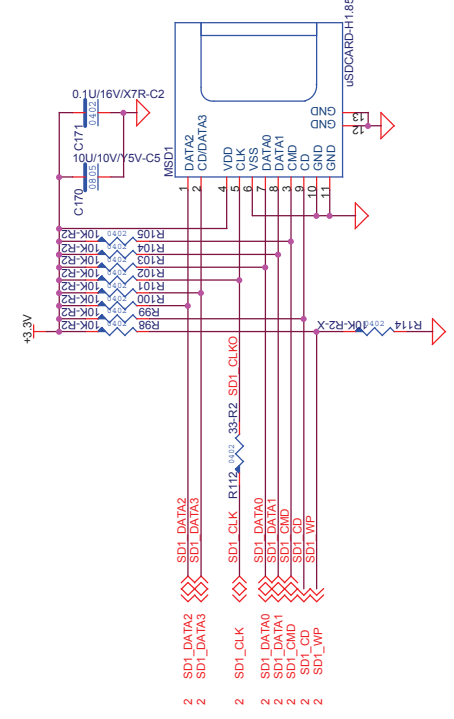
UART



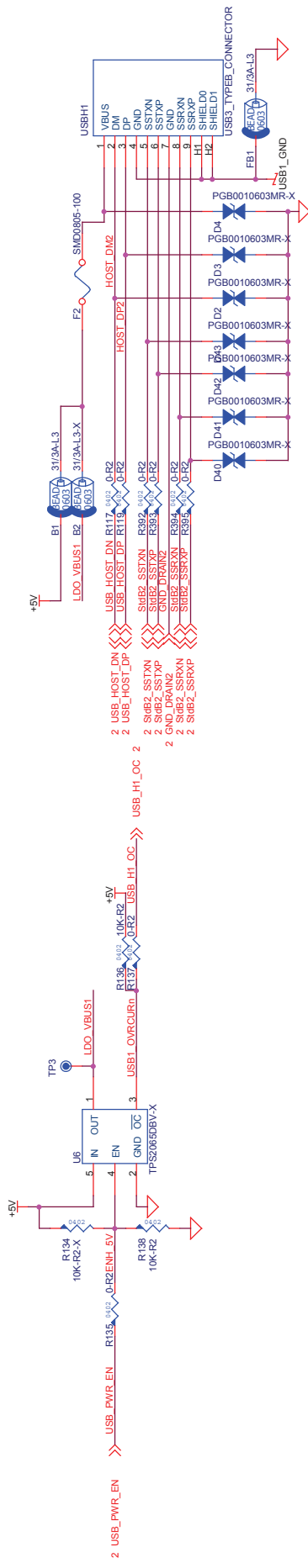
DC-DC



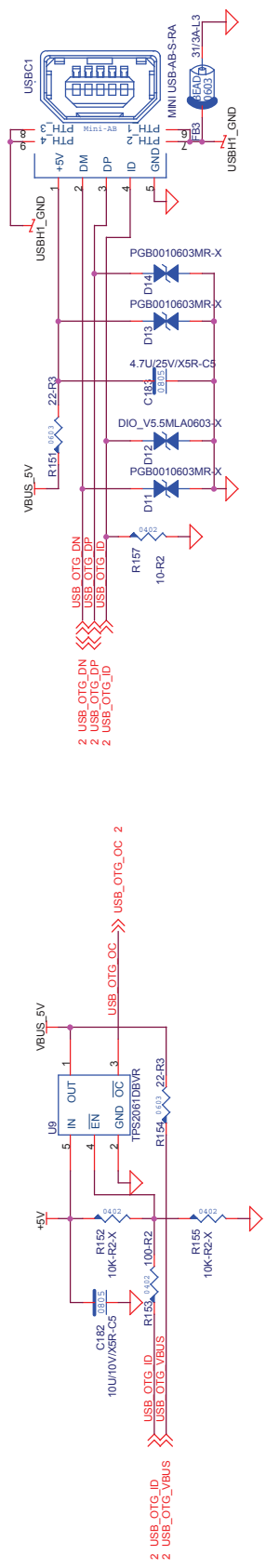
Micro-SD

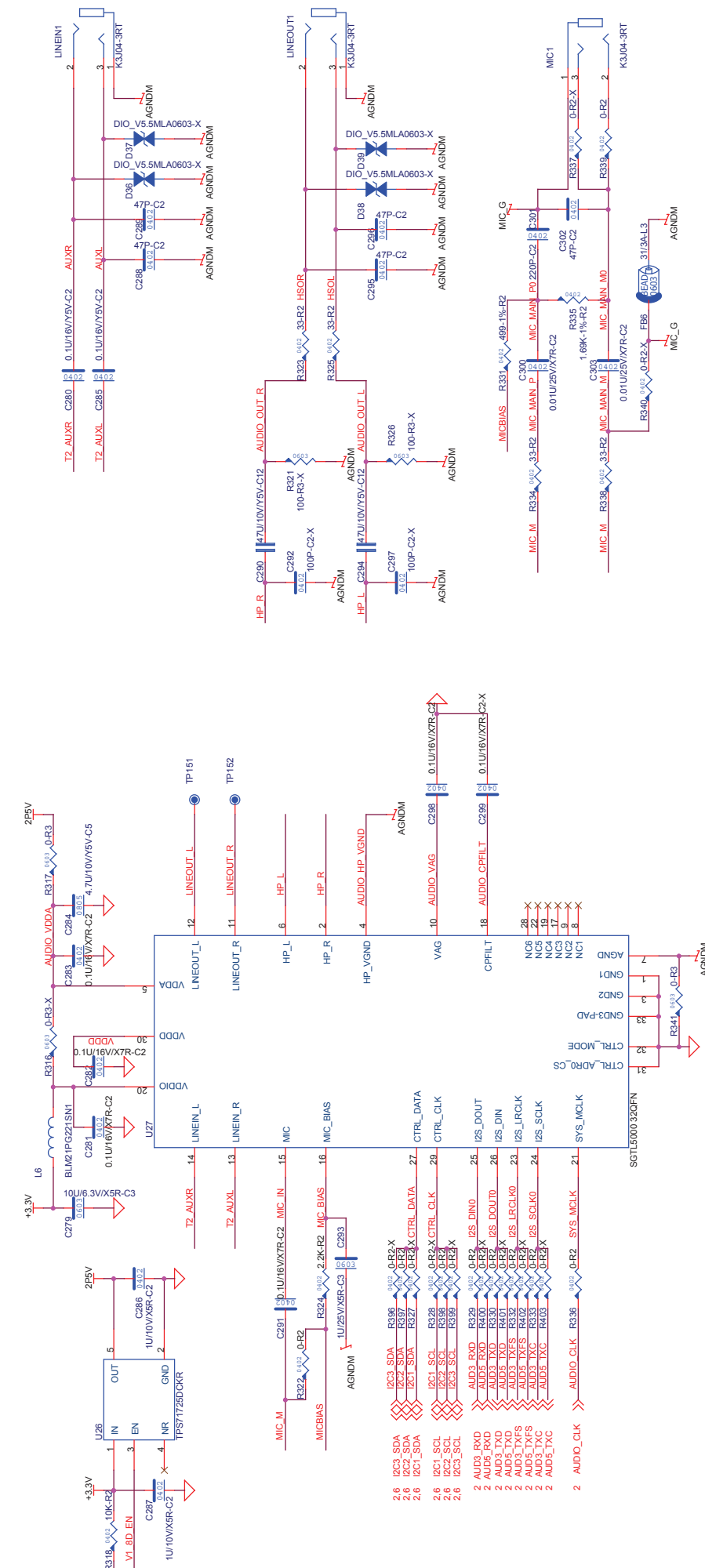


HOST USB

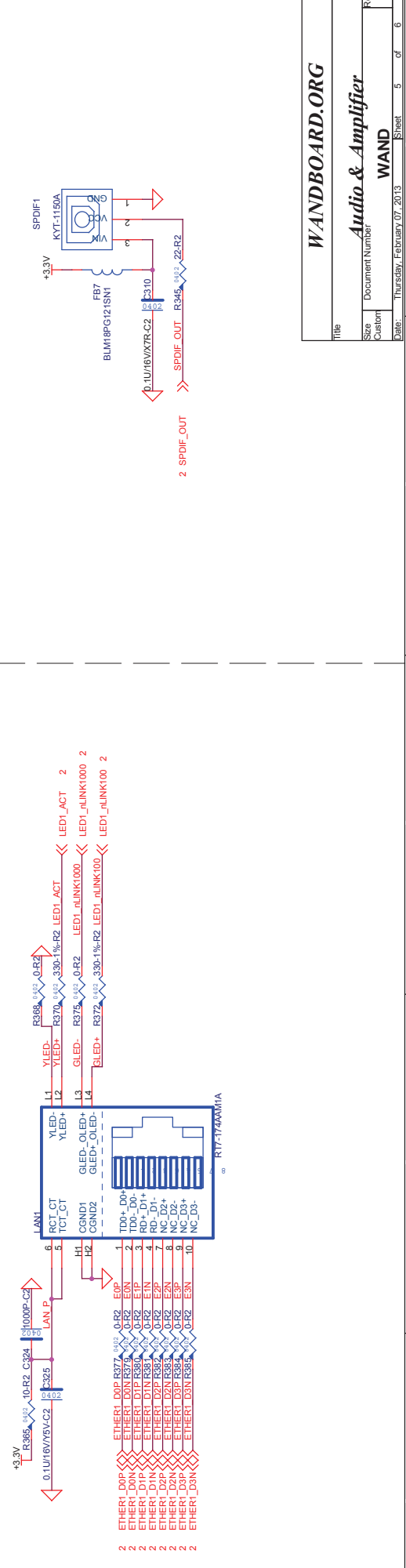


OTG USB

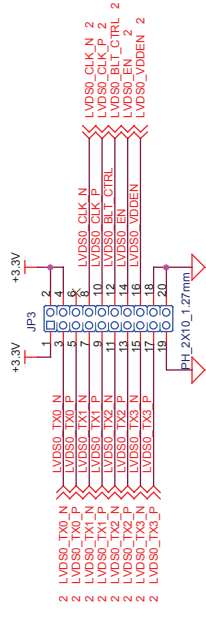




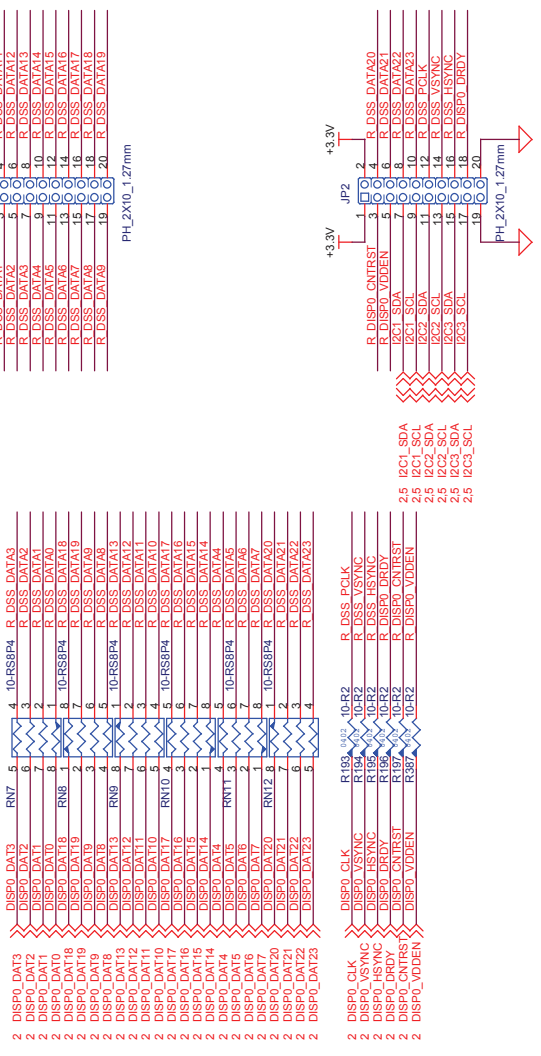
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- 2,6 I2C3_SDA
- 2,6 I2C1_SDA
- 2,6 I2C1_SCL
- 2,6 I2C2_SCL
- 2,6 I2C3_SCL
- 2 AUD3_RXD
- 2 AUD3_RXD
- 2 AUD3_TXD
- 2 AUD3_TXD
- 2 AUD3_TXFS
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- 2 AUD3_TXC
- 2 AUD3_TXC
- 2 AUD3_CLK
- 2 AUDIO_CLK



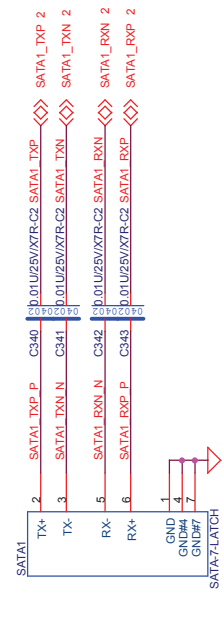
LVDS



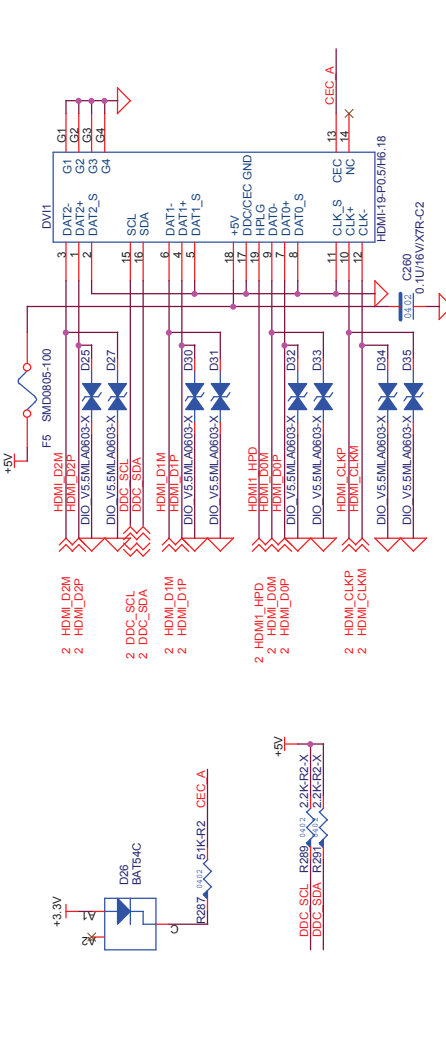
TTL



SATA



HDMI



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LVDS & HDMI & SATA

WAND
Document Number:
Date: Thursday, February 07, 2013