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WANDBOARD USER GUIDE
Revision B1

(20130620)

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

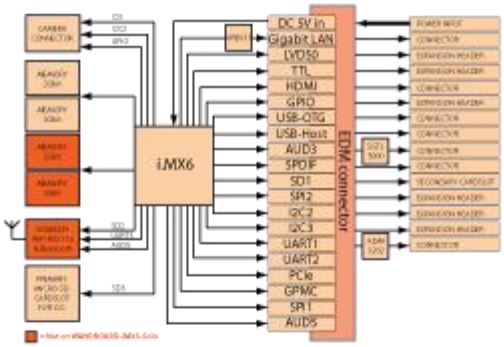
Dimensional drawing

Specifications

	Wandboard Solo	Wandboard Dual	Wandboard Quad
Processor	i.MX6 Solo	i.MX6 DualLite	i.MX6 Quad
Cores	ARM Cortex-A9	ARM Cortex-A9	ARM Cortex-A9
	Single core @ 1GHz	Dual core @ 1GHz	Quad core @ 1GHz
Memory	512 MB DDR3	1 GB DDR3	2 GB DDR3
Audio	✓	✓	✓
Optical S/PDIF	✓	✓	✓
HDMI	✓	✓	✓
Camera interface	✓	✓	✓
micro SD cardslot	2	2	2
Serial port	✓	✓	✓
Expansion Header	✓	✓	✓
USB	✓	✓	✓
USB OTG	✓	✓	✓
SATA connector	X	X	✓
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

wbsolo	Wandboard i.MX6 Solo
wbdual	Wandboard i.MX6 DualLite
wbquad	Wandboard i.MX6 Quad
wbenclosure	Wandboard enclosure
wbantennakit	Wandboard antenna kit

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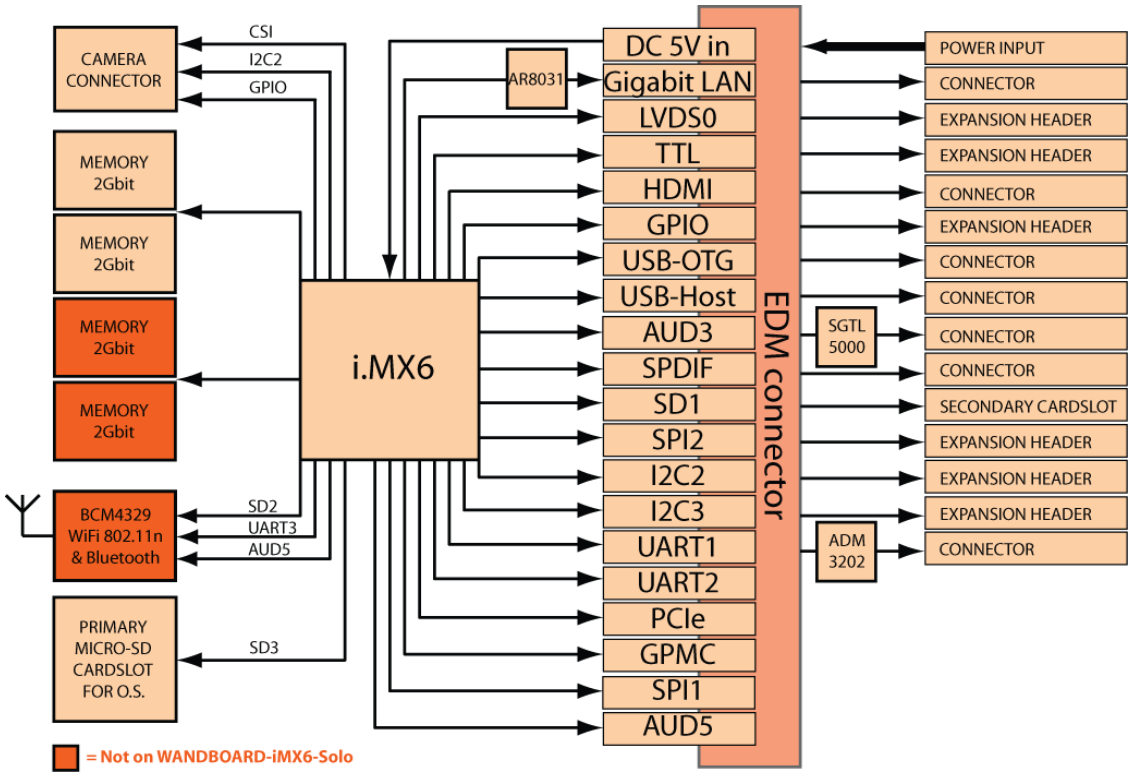
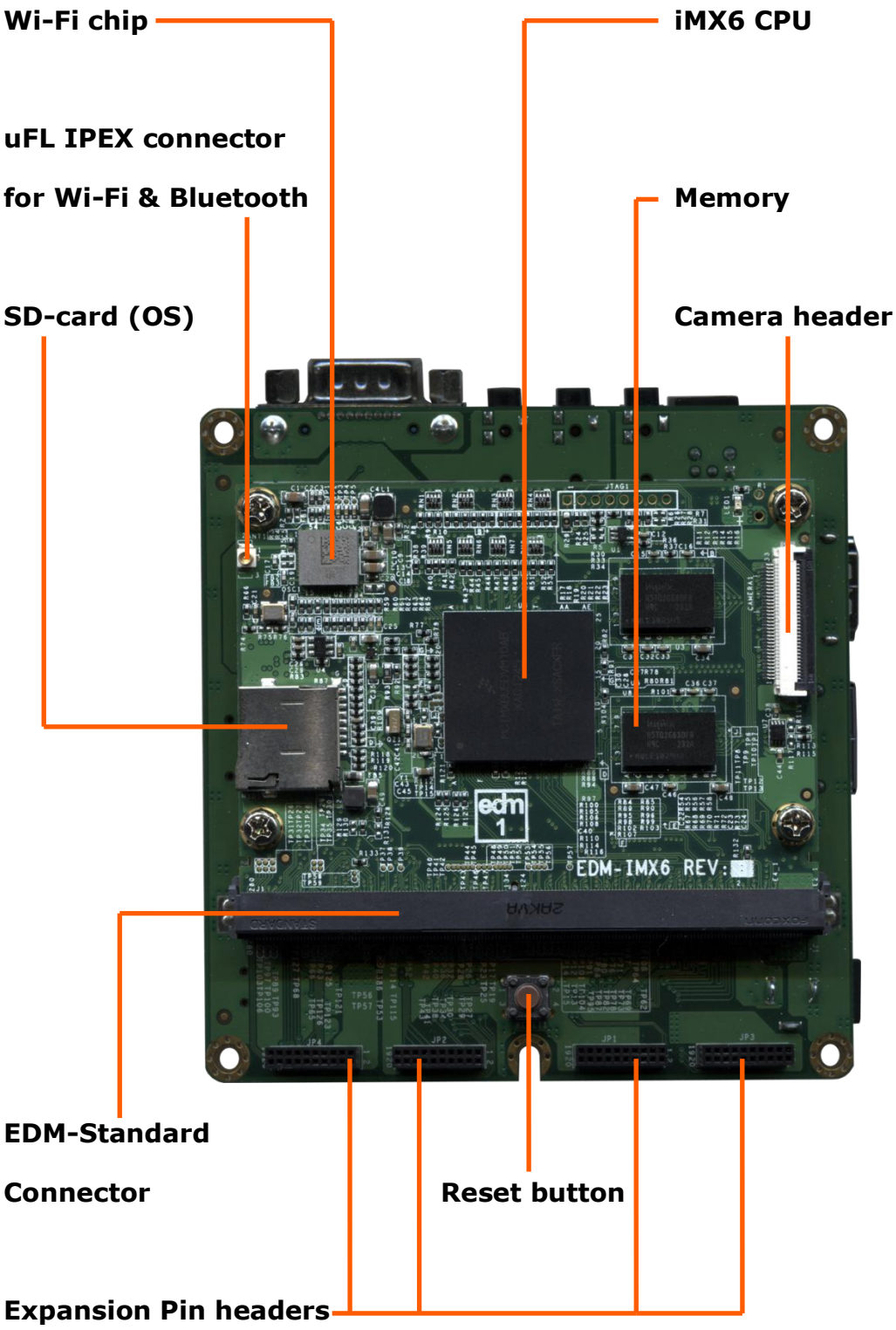
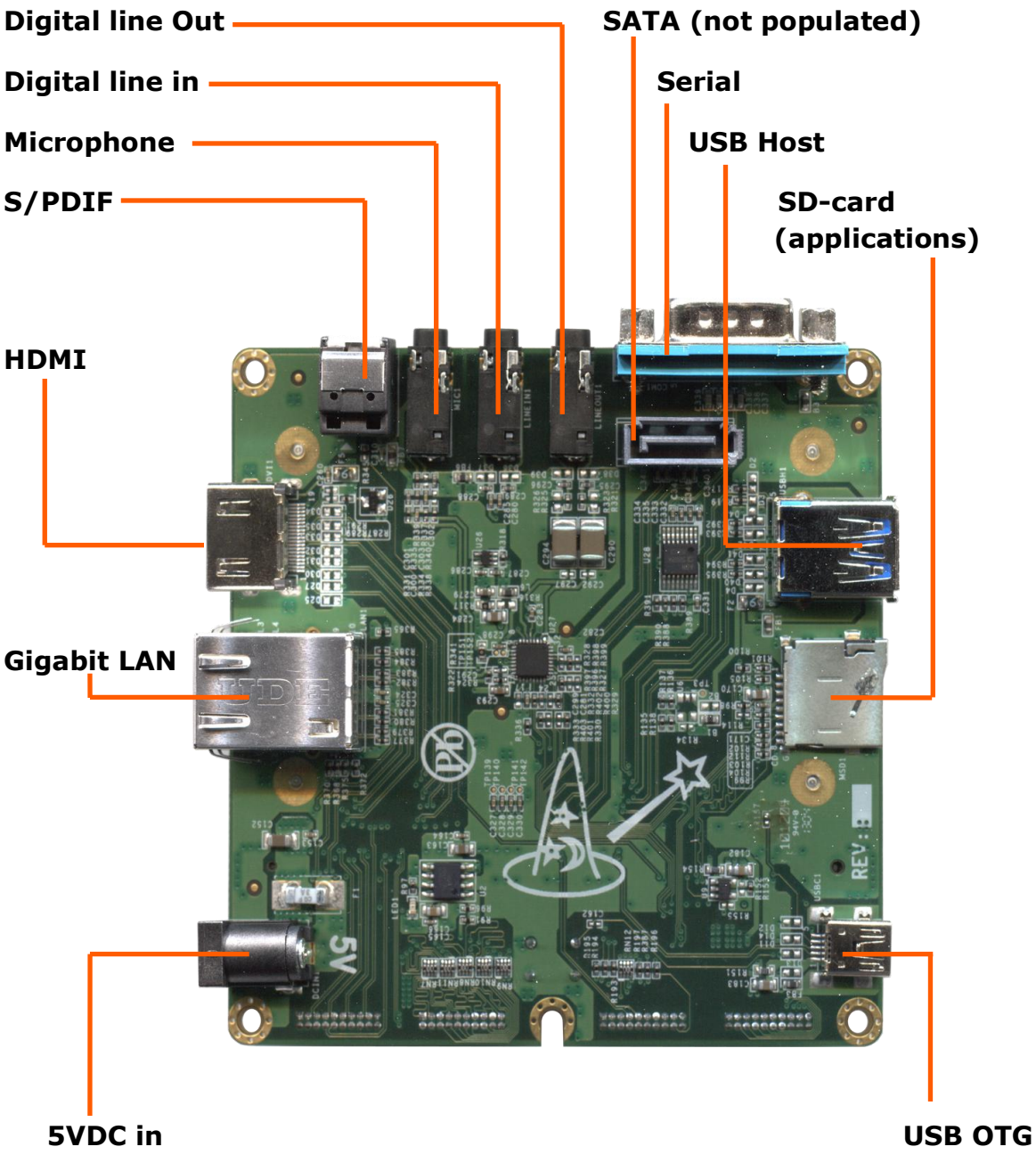
Block Diagram

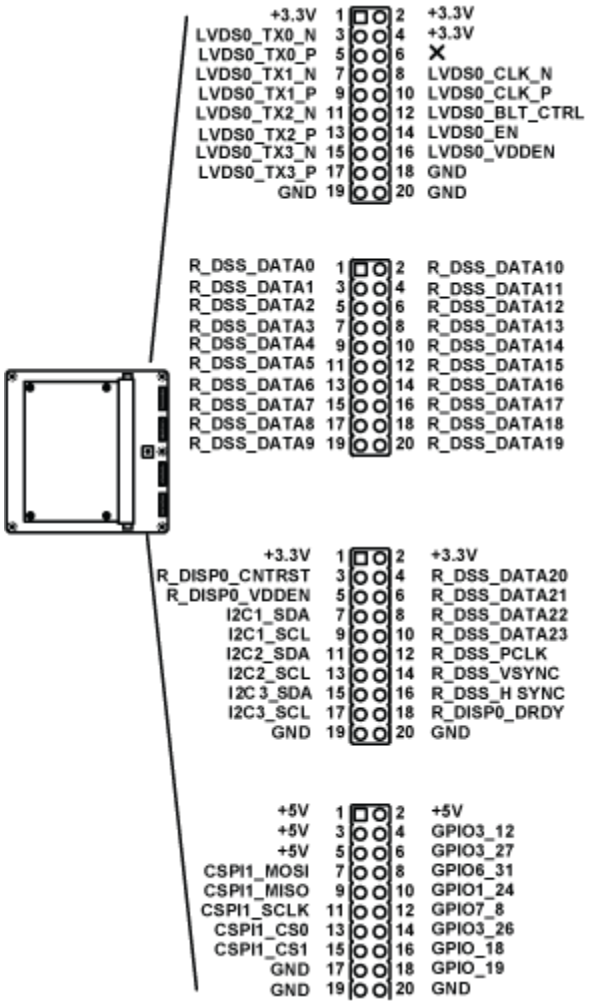


Overview

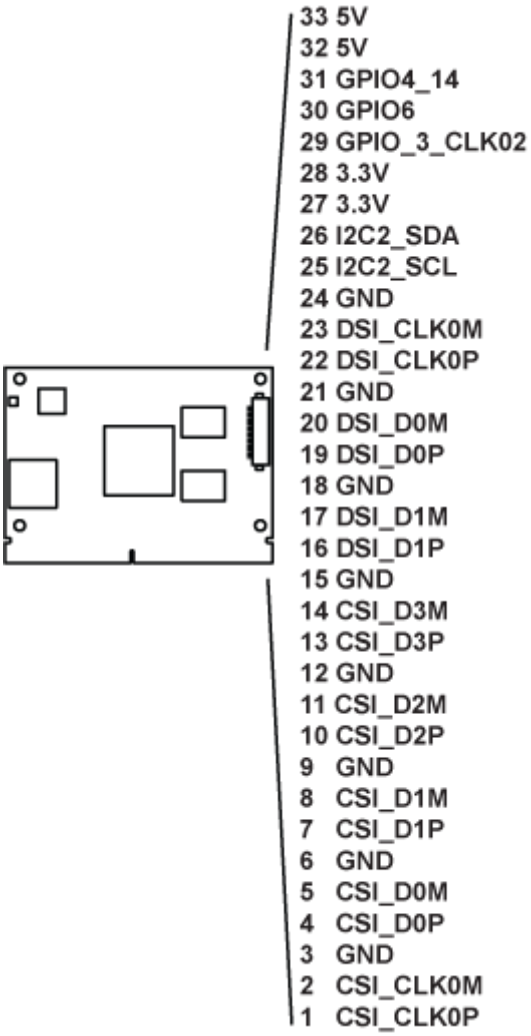

Wi-Fi chip
iMX6 CPU
uFL IPEX connector
for Wi-Fi & Bluetooth
Memory
SD-card (OS)
Camera header
EDM-Standard
Connector
Reset button
Expansion Pin headers
EDM-IMX6 REV:


Digital line Out
Digital line in
Microphone
S/PDIF
HDMI
Gigabit LAN
5VDC in
SATA (not populated)
Serial
USB Host
SD-card
(applications)
USB OTG

Expansion pin headers



Camera header



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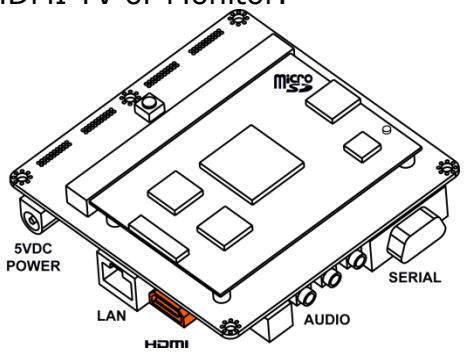
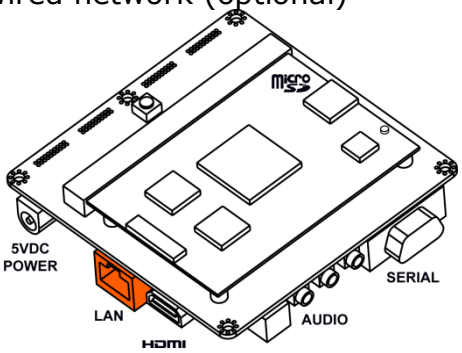
Quick Start Guide

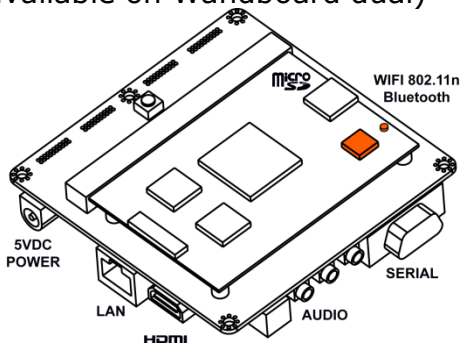
a) Connect display: use a quality HDMI cable to connect to your HDMI TV or Monitor.



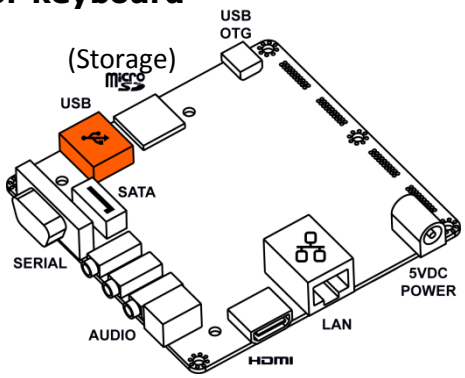
b) Connect network: use a standard RJ45 LAN cable to connect your wired network (optional)



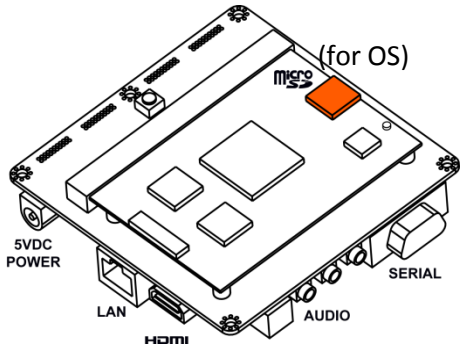
c) Connect wireless antenna (sold separately). This option is only available on Wandboard dual)



d) Connect a standard USB mouse or keyboard

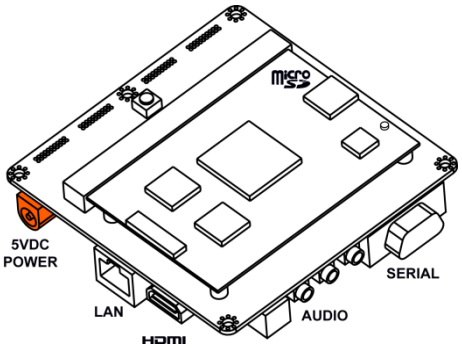


e) Insert the microSD (orange microSD card slot)



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

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



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.

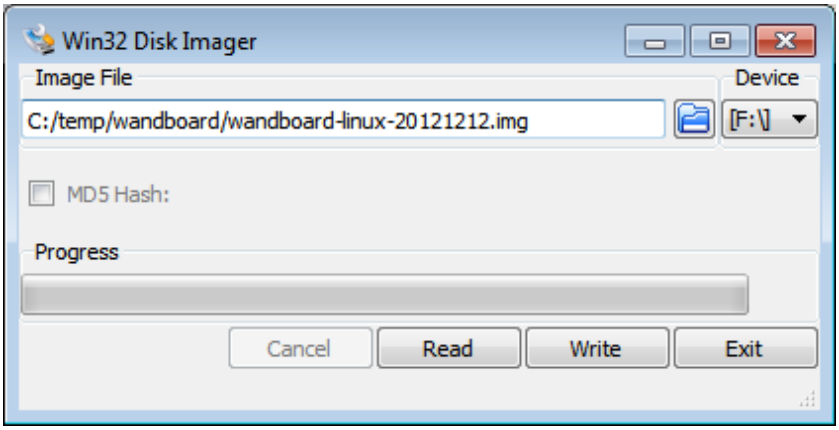
3.1 Download the Win32DiskImager software

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.

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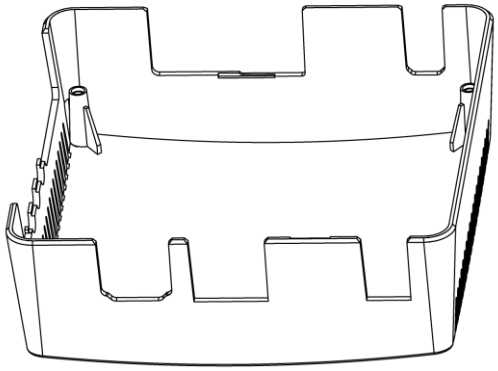
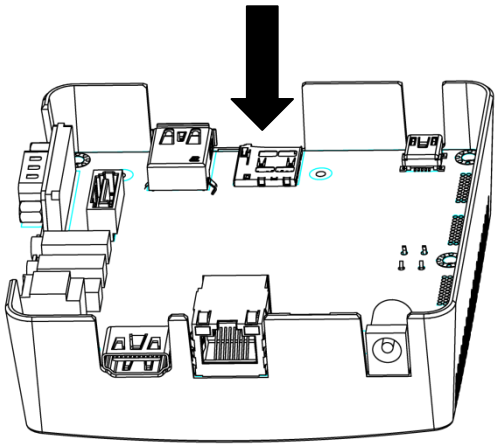
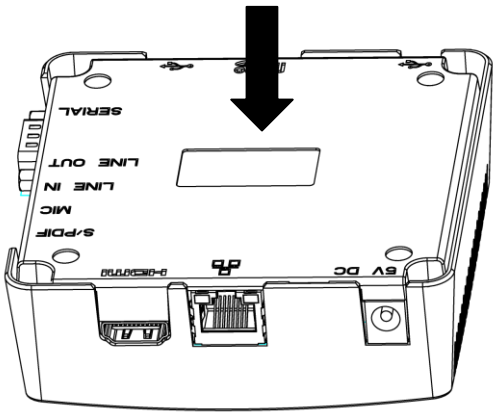
Assembly of the Wandboard Enclosure



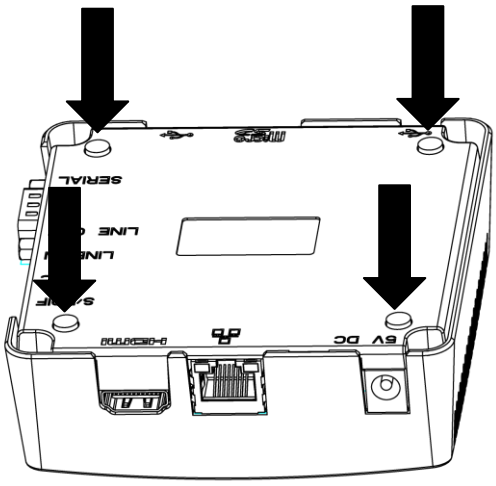
Step1 - Place the top-case on a soft surface



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 i.MX6 module and the Wandboard Interface Board.

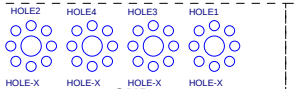
Components marked with -x are not populated.

EDM-iMX6 REV:B1

PCB SN:101200480811

L=8, 82 x 60mm

PAGE TITLE



GND

PCB

RoHS compliant

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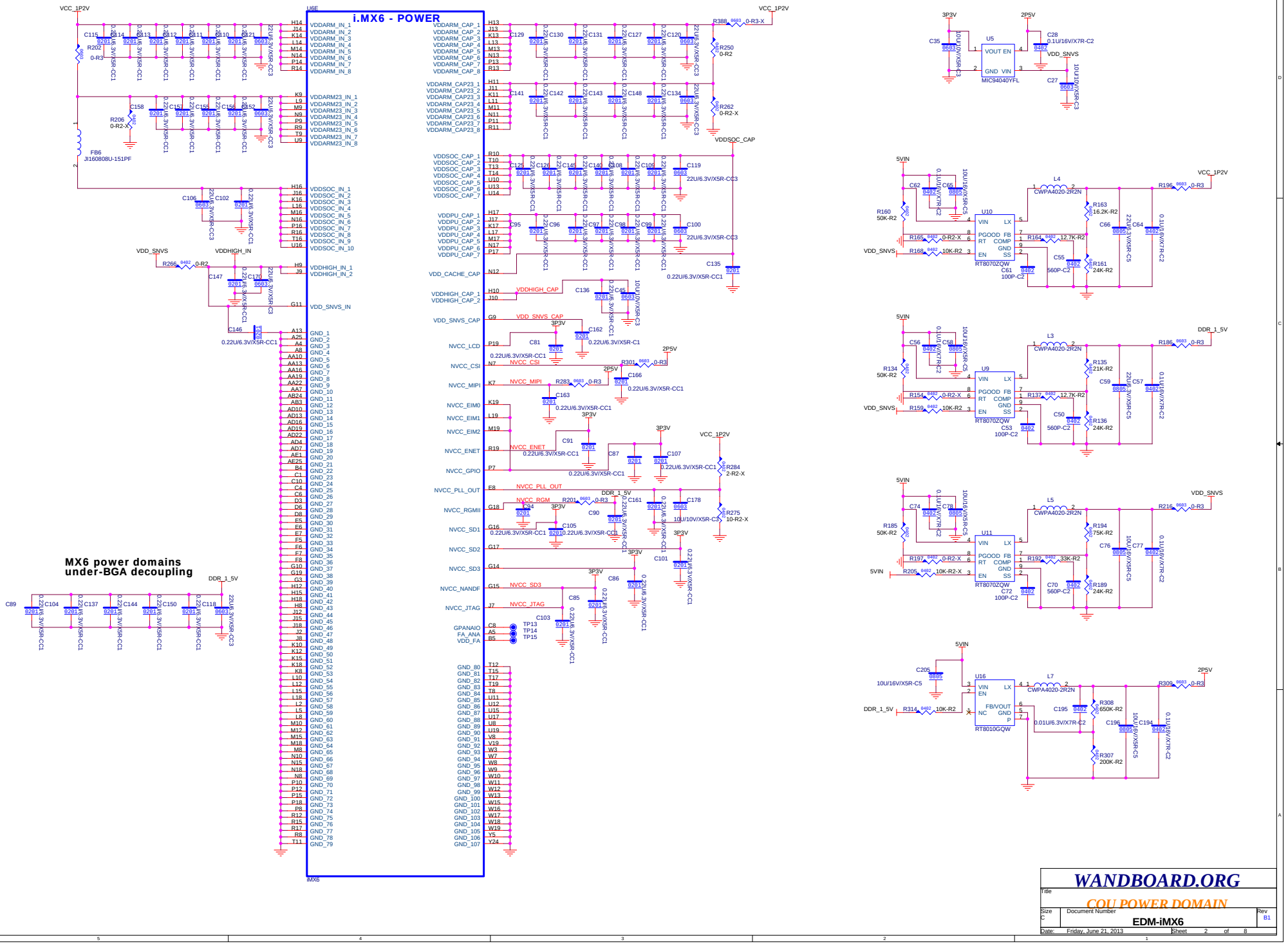
Title: BLOCK DIAGRAM

Size	Document Number	Rev
C	EDM-iMX6	B1

Date: Friday, June 21, 2013 Sheet 1 of 8


i.MX6 - POWER
U6E
iMX6
VCC_1P2V
VDDARM_IN_1
VDDARM_IN_2
VDDARM_IN_3
VDDARM_IN_4
VDDARM_IN_5
VDDARM_IN_6
VDDARM_IN_7
VDDARM_IN_8
VDDARM23_IN_1
VDDARM23_IN_2
VDDARM23_IN_3
VDDARM23_IN_4
VDDARM23_IN_5
VDDARM23_IN_6
VDDARM23_IN_7
VDDARM23_IN_8
VDDSOC_IN_1
VDDSOC_IN_2
VDDSOC_IN_3
VDDSOC_IN_4
VDDSOC_IN_5
VDDSOC_IN_6
VDDSOC_IN_7
VDDSOC_IN_8
VDDSOC_IN_9
VDDSOC_IN_10
VDDHIGH_IN_1
VDDHIGH_IN_2
VDD_SNVS_IN
GND_1
GND_2
GND_3
GND_4
GND_5
GND_6
GND_7
GND_8
GND_9
GND_10
GND_11
GND_12
GND_13
GND_14
GND_15
GND_16
GND_17
GND_18
GND_19
GND_20
GND_21
GND_22
GND_23
GND_24
GND_25
GND_26
GND_27
GND_28
GND_29
GND_30
GND_31
GND_32
GND_33
GND_34
GND_35
GND_36
GND_37
GND_38
GND_39
GND_40
GND_41
GND_42
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GND_61
GND_62
GND_63
GND_64
GND_65
GND_66
GND_67
GND_68
GND_69
GND_70
GND_71
GND_72
GND_73
GND_74
GND_75
GND_76
GND_77
GND_78
GND_79
VDDARM_CAP_1
VDDARM_CAP_2
VDDARM_CAP_3
VDDARM_CAP_4
VDDARM_CAP_5
VDDARM_CAP_6
VDDARM_CAP_7
VDDARM_CAP_8
VDDARM_CAP23_1
VDDARM_CAP23_2
VDDARM_CAP23_3
VDDARM_CAP23_4
VDDARM_CAP23_5
VDDARM_CAP23_6
VDDARM_CAP23_7
VDDARM_CAP23_8
VDDSOC_CAP
VDDSOC_CAP_1
VDDSOC_CAP_2
VDDSOC_CAP_3
VDDSOC_CAP_4
VDDSOC_CAP_5
VDDSOC_CAP_6
VDDSOC_CAP_7
VDDPU_CAP_1
VDDPU_CAP_2
VDDPU_CAP_3
VDDPU_CAP_4
VDDPU_CAP_5
VDDPU_CAP_6
VDDPU_CAP_7
VDD_CACHE_CAP
VDDHIGH_CAP_1
VDDHIGH_CAP_2
VDD_SNVS_CAP
NVCC_LCD
NVCC_CSI
NVCC_MIPI
NVCC_EIM0
NVCC_EIM1
NVCC_EIM2
NVCC_ENET
NVCC_GPIO
NVCC_PLL_OUT
NVCC_RGMII
NVCC_SD1
NVCC_SD2
NVCC_SD3
NVCC_NANDF
NVCC_JTAG
GPANAIO
FA_ANA
VDD_FA
VDDHIGH_CAP
VDD_SNVS_CAP
NVCC_CSI
NVCC_MIPI
NVCC_ENET
NVCC_PLL_OUT
NVCC_RGM
NVCC_SD3
NVCC_JTAG
TP13
TP14
TP15
MX6 power domains
under-BGA decoupling
DDR_1_5V
VDD_SNVS
VDDHIGH_IN
5VIN
3P3V
2P5V
U5
MIC94040YFL
U10
U9
U11
U16
RT8070ZQW
RT8010GQW
L3
L4
L5
L7
CWPA4020-2R2N
DDR_1_5V
VDD_SNVS
WANDBOARD.ORG
COU POWER DOMAIN
EDM-iMX6
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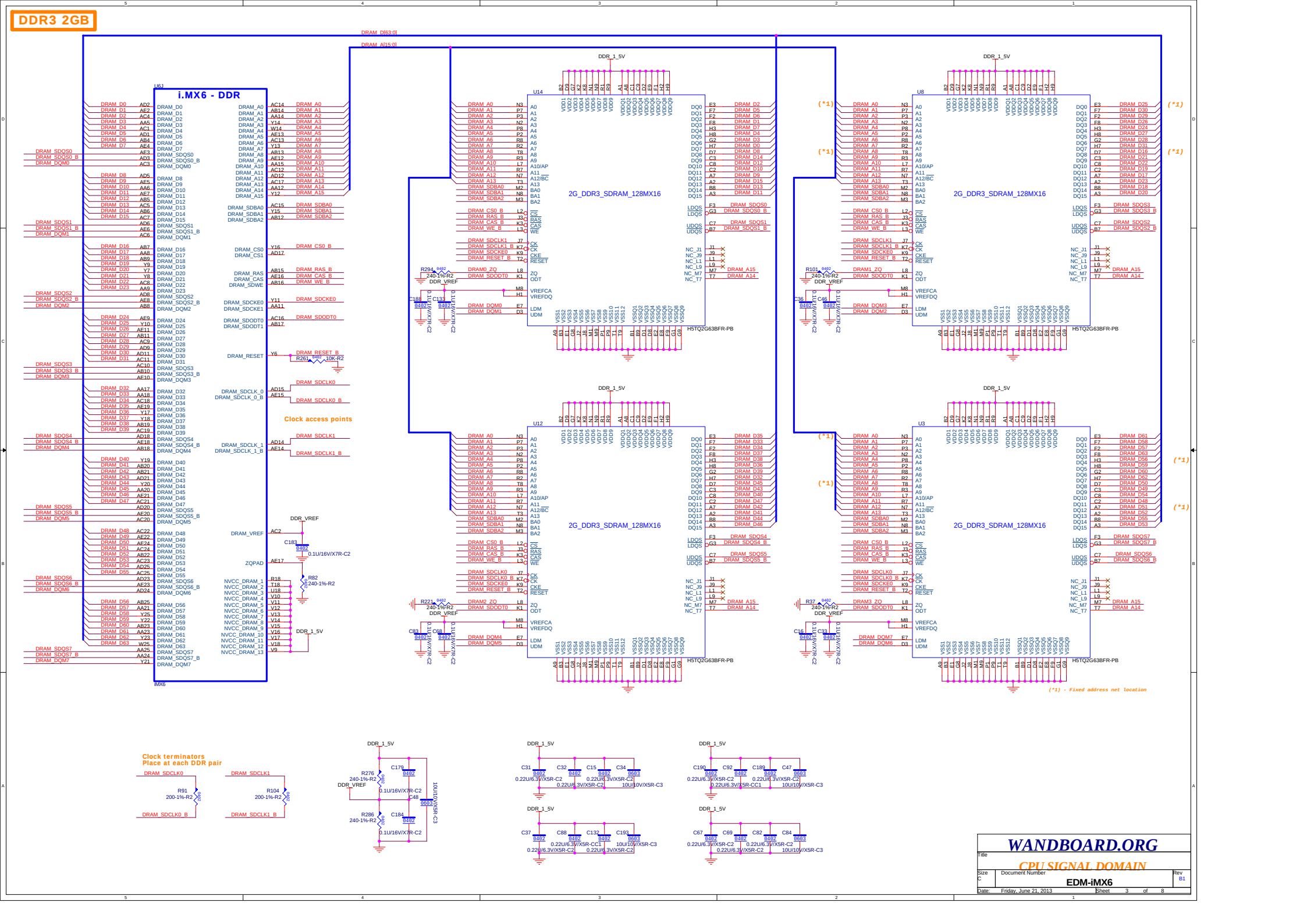
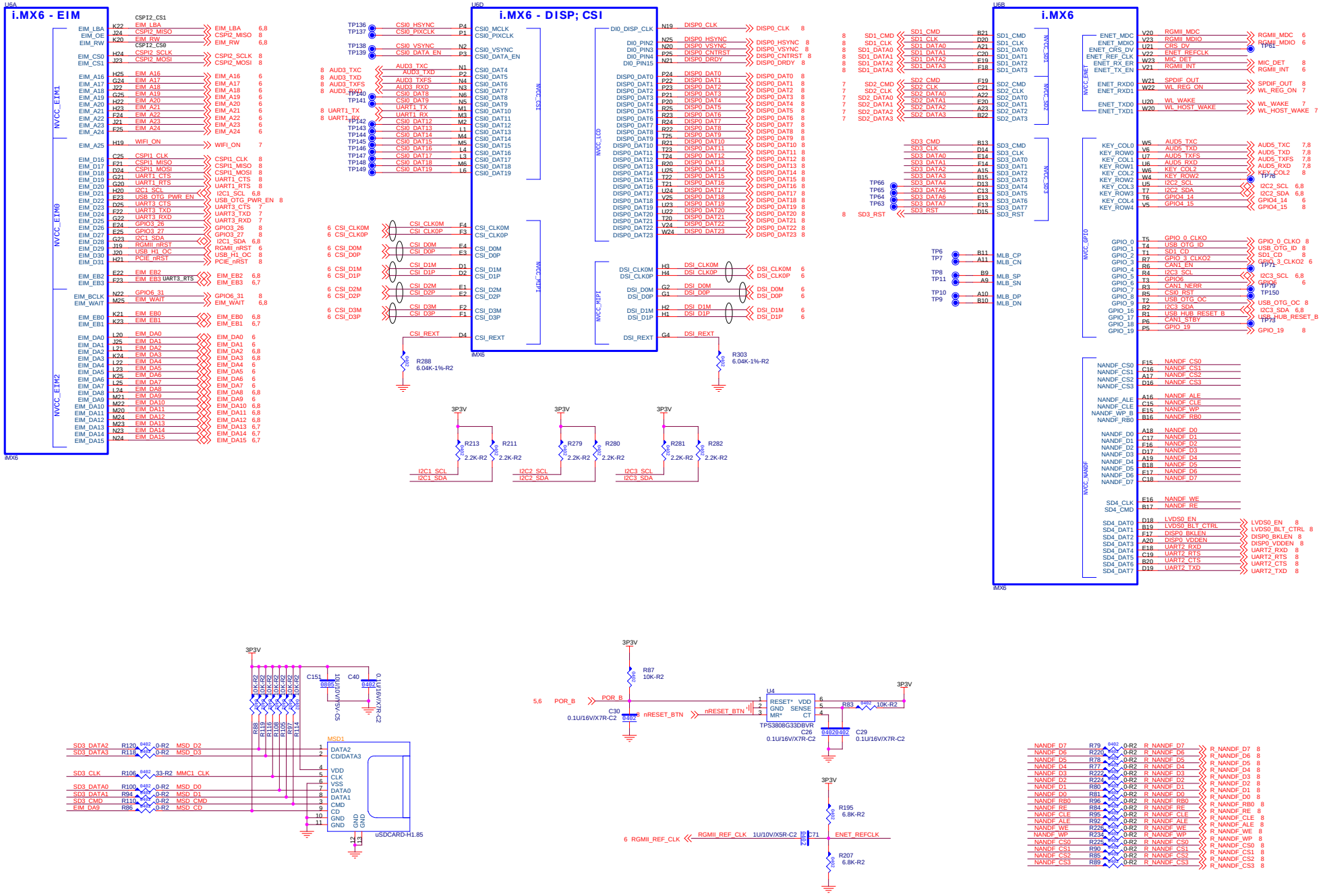
Size
C
Document Number
Rev
B1
Date:
Friday, June 21, 2013
Sheet
2
of
8


DDR3 2GB
i.MX6 - DDR
2G_DDR3_SDRAM_128MX16
H5TQ2G63BFR-PB
Clock access points
Clock terminators
Place at each DDR pair
(*1) - Fixed address net location
WANDBOARD.ORG
CPU SIGNAL DOMAIN
EDM-iMX6
Date: Friday, June 21, 2013
Sheet 3 of 8



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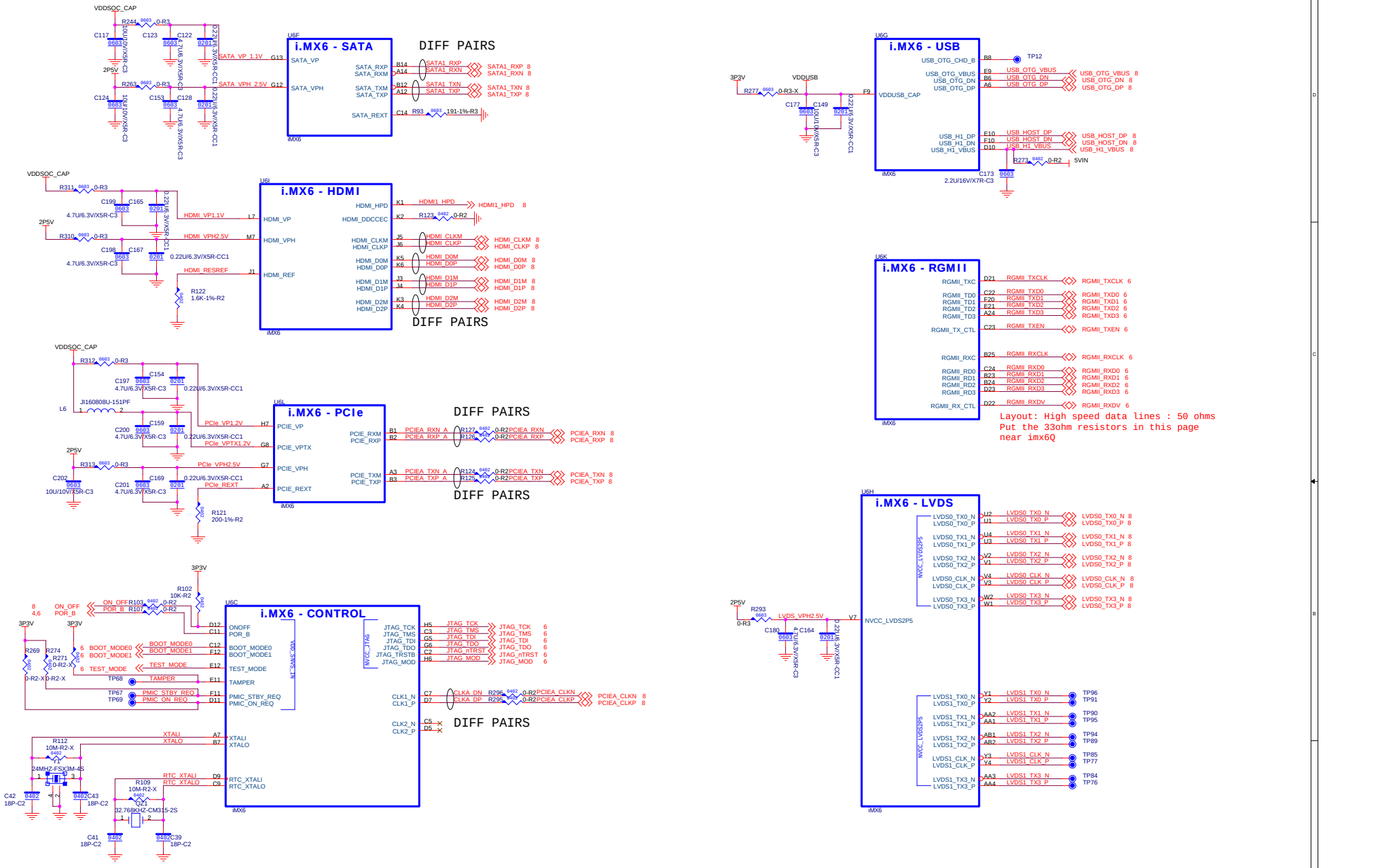
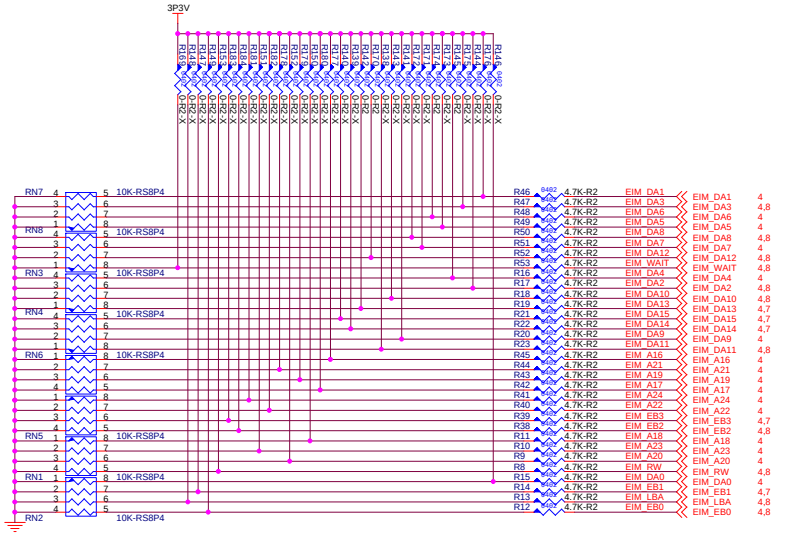
CPU SIGNAL DOMAIN

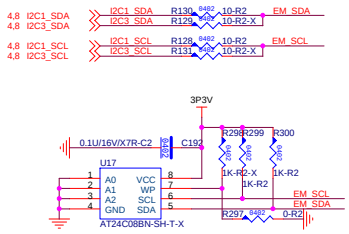
Title			
Size: C	Document Number: EDM-iMX6		Rev: B1
Date: Friday, June 21, 2013	Sheet 4 of 8		


i.MX6 - SATA
DIFF PAIRS
SATA_VP
SATA_VPH
SATA_RXP
SATA_RXM
SATA_TXM
SATA_TXP
SATA_REXT
SATA_VP_1.1V
SATA_VPH_2.5V
SATA1_RXP
SATA1_RXN
SATA1_TXN
SATA1_TXP
i.MX6 - HDMI
HDMI_VP
HDMI_VPH
HDMI_REF
HDMI_HPD
HDMI_DDCCEC
HDMI_CLKM
HDMI_CLKP
HDMI_D0M
HDMI_D0P
HDMI_D1M
HDMI_D1P
HDMI_D2M
HDMI_D2P
HDMI_VP1.1V
HDMI_VPH2.5V
HDMI_RESREF
HDMI1_HPD
i.MX6 - PCIe
PCIE_VP
PCIE_VPTX
PCIE_VPH
PCIE_REXT
PCIE_RXM
PCIE_RXP
PCIE_TXM
PCIE_TXP
PCIe_VP1.2V
PCIe_VPTX1.2V
PCIe_VPH2.5V
PCIe_REXT
i.MX6 - CONTROL
ONOFF
POR_B
BOOT_MODE0
BOOT_MODE1
TEST_MODE
TAMPER
PMIC_STBY_REQ
PMIC_ON_REQ
XTALI
XTALO
RTC_XTALI
RTC_XTALO
JTAG_TCK
JTAG_TMS
JTAG_TDI
JTAG_TDO
JTAG_TRSTB
JTAG_MOD
CLKA_DN
CLKA_DP
CLK1_N
CLK1_P
CLK2_N
CLK2_P
i.MX6 - USB
USB_OTG_CHD_B
USB_OTG_VBUS
USB_OTG_DN
USB_OTG_DP
VDDUSB_CAP
USB_H1_DP
USB_H1_DN
USB_H1_VBUS
i.MX6 - RGMII
RGMII_TXC
RGMII_TD0
RGMII_TD1
RGMII_TD2
RGMII_TD3
RGMII_TX_CTL
RGMII_RXC
RGMII_RD0
RGMII_RD1
RGMII_RD2
RGMII_RD3
RGMII_RX_CTL
i.MX6 - LVDS
LVDS0_TX0_N
LVDS0_TX0_P
LVDS0_TX1_N
LVDS0_TX1_P
LVDS0_TX2_N
LVDS0_TX2_P
LVDS0_CLK_N
LVDS0_CLK_P
LVDS0_TX3_N
LVDS0_TX3_P
LVDS1_TX0_N
LVDS1_TX0_P
LVDS1_TX1_N
LVDS1_TX1_P
LVDS1_TX2_N
LVDS1_TX2_P
LVDS1_CLK_N
LVDS1_CLK_P
LVDS1_TX3_N
LVDS1_TX3_P
NVCC_LVDS2P5
Layout: High speed data lines : 50 ohms
Put the 33ohm resistors in this page
near imx6Q
WANDBOARD.ORG
IMX6Q_LVDS/USB
EDM-iMX6
Friday, June 21, 2013
Sheet 5 of 8

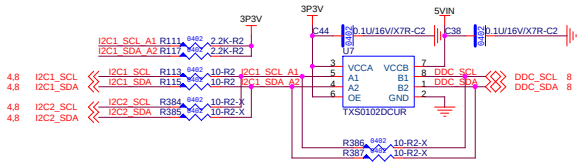
Boot Config Select



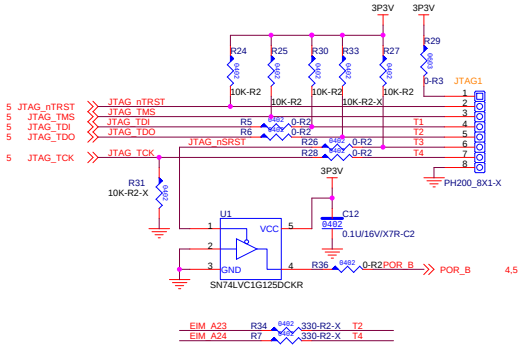
EEPROM



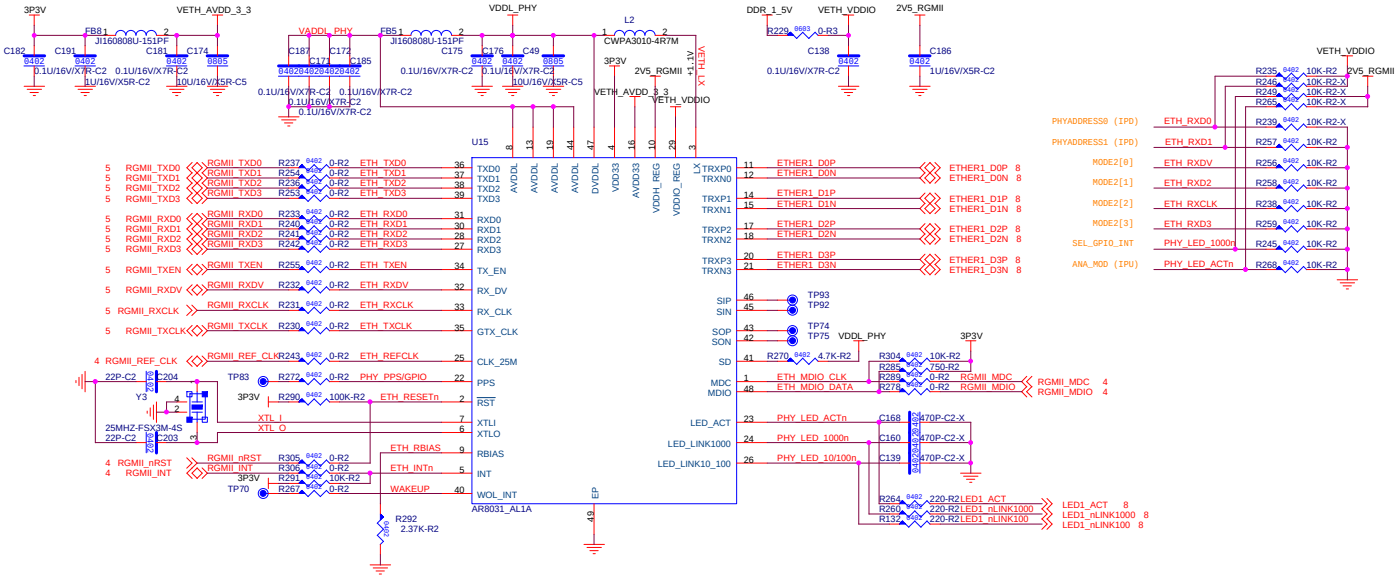
DDC



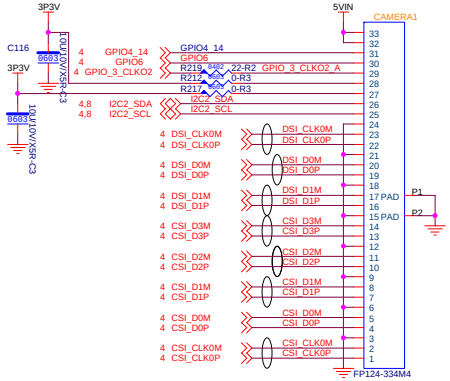
JTAG



Ethernet



CAMERA



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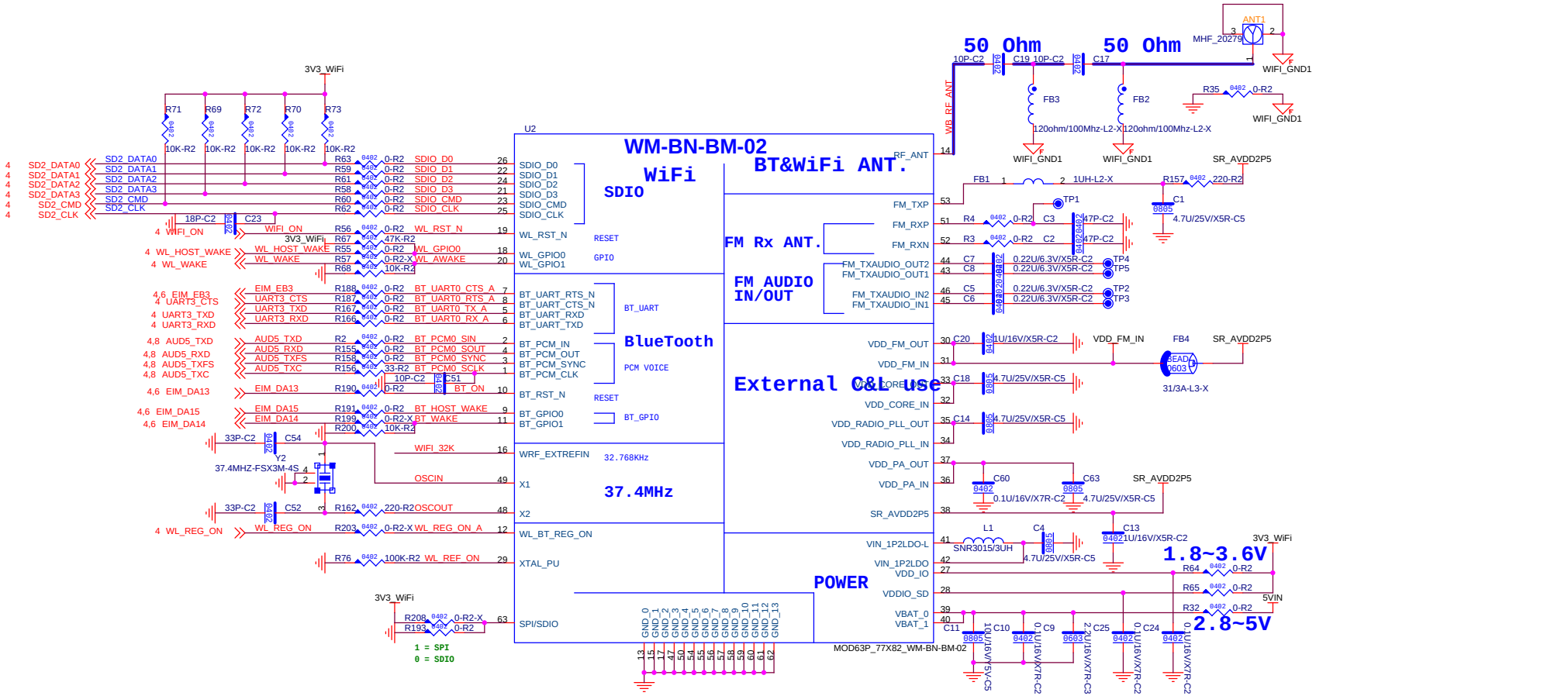
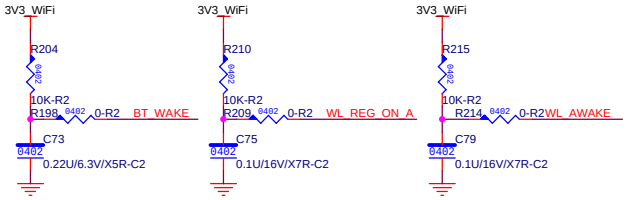
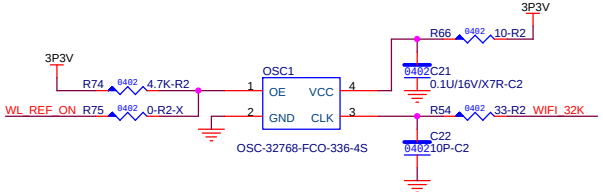
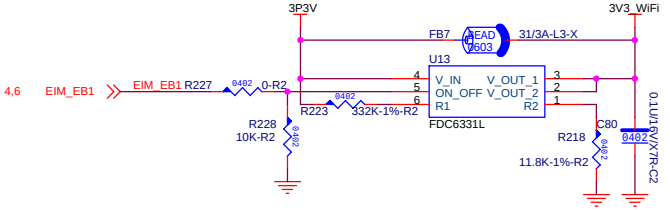
Size C	Document Number EDM-iMX6		Rev B1
Date: Friday, June 21, 2013		Sheet 6 of 8	

WIFI+BT









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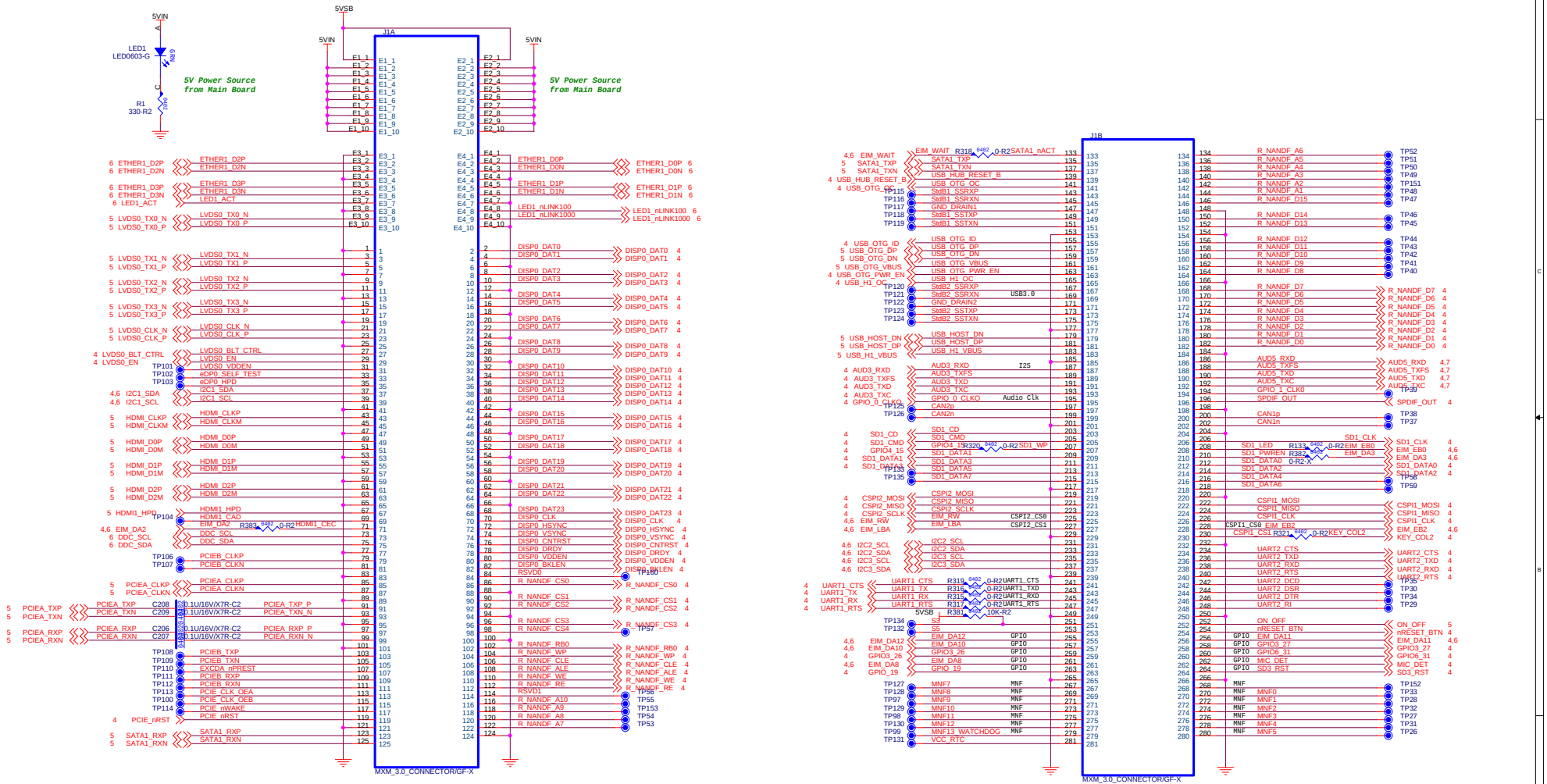
Size: Custom	Document Number: EDM-iMX6	Rev: B1
Date: Friday, June 21, 2013	Sheet 7 of 8	

Board to Board



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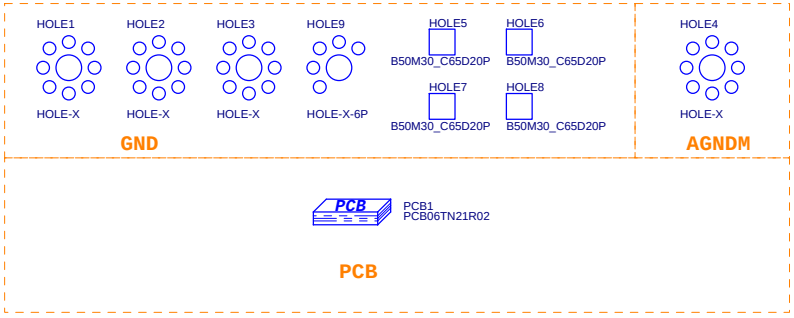
Title: BLOCK DIAGRAM			
Size: C	Document Number: EDM-iMX6		Rev: B1
Date: Friday, June 21, 2013	Sheet 8 of 8		

WAND REV:B1

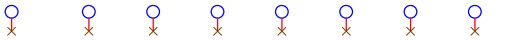
PCB SN:100300490411

L=4, 95 x 95 mm

PAGE TITLE



RoHS compliant



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 forums.

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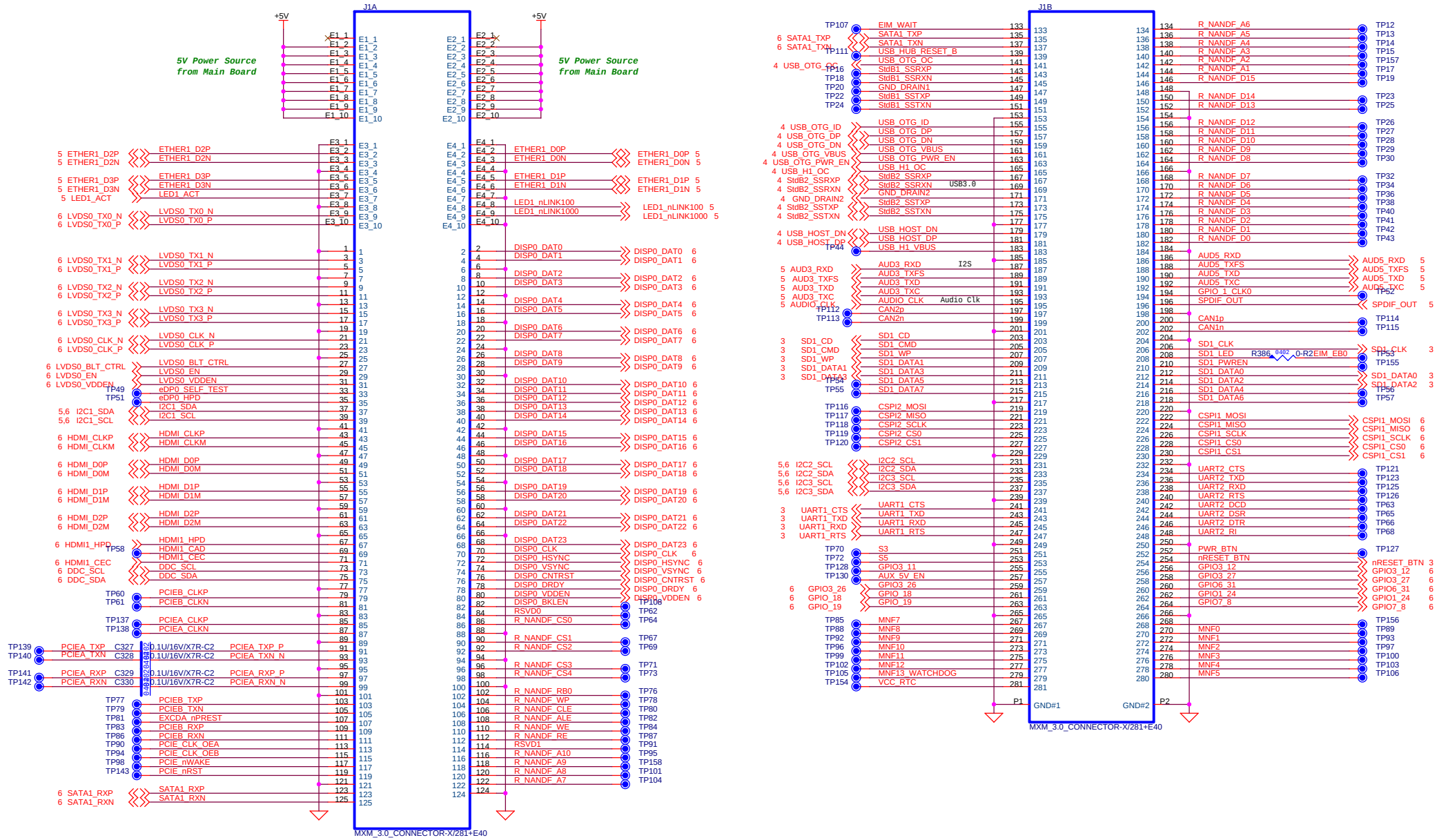
This board was designed as an evaluation and development tool. It was not designed with any other application in mind. As such, these design materials may or may not be suitable for any other purposes. If used, the design material becomes your responsibility as to whether or not it meets your specific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

WANDBOARD.ORG		
Title: INDEX		
Size: Custom	Document Number: WAND	Rev: B1
Date: Friday, June 21, 2013	Sheet 1 of 6	

Board to Board



WANDBOARD.ORG		
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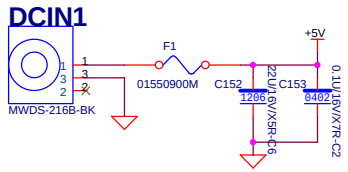
Size: Custom	Document Number: WAND	Rev: B1
Date: Friday, June 21, 2013	Sheet 2 of 6	

DC JACK



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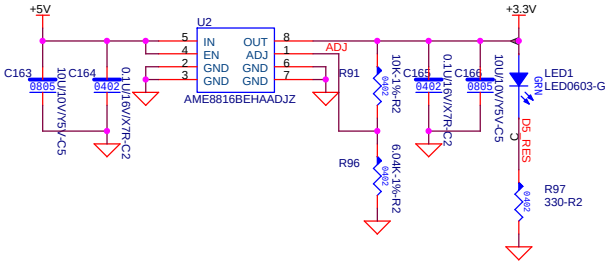

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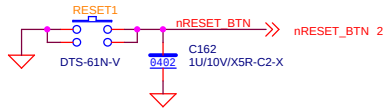
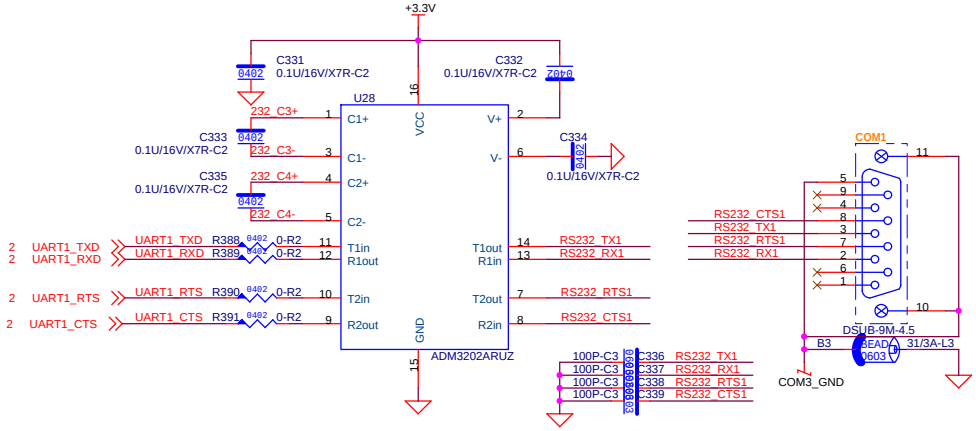
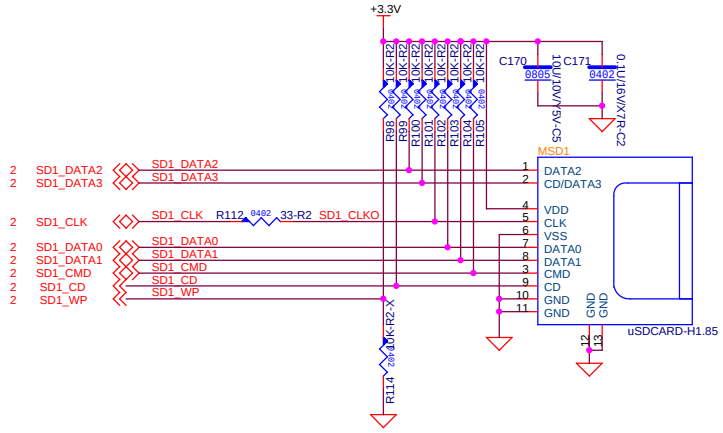


UART



Micro-SD



WANDBOARD.ORG		
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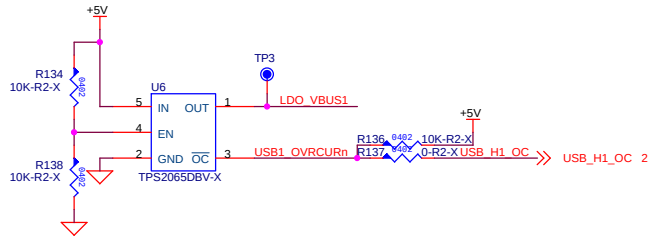
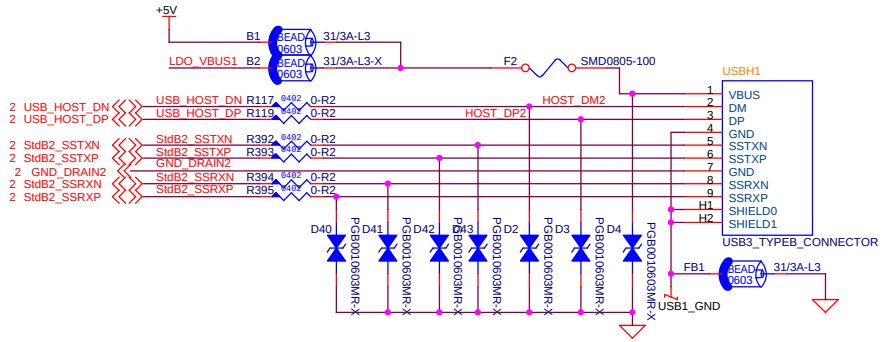
Size: Custom	Document Number: WAND	Rev: B1
Date: Friday, June 21, 2013	Sheet 3 of 6	

HOST USB





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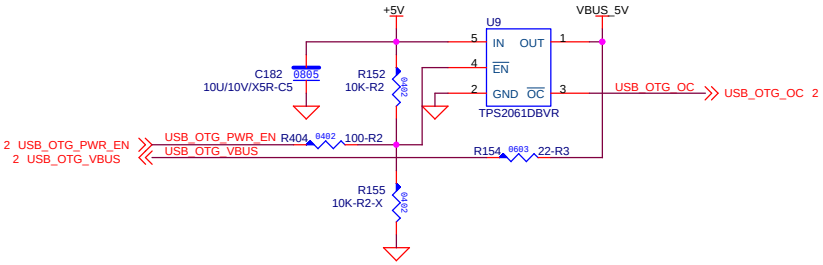
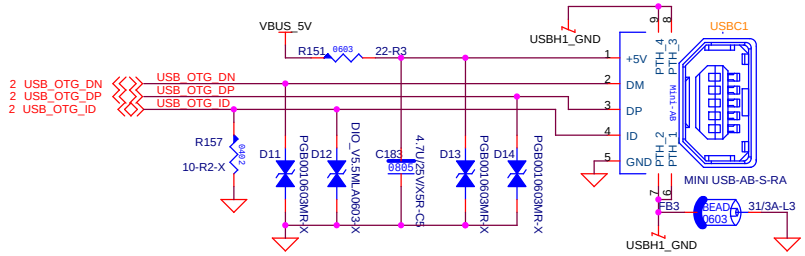
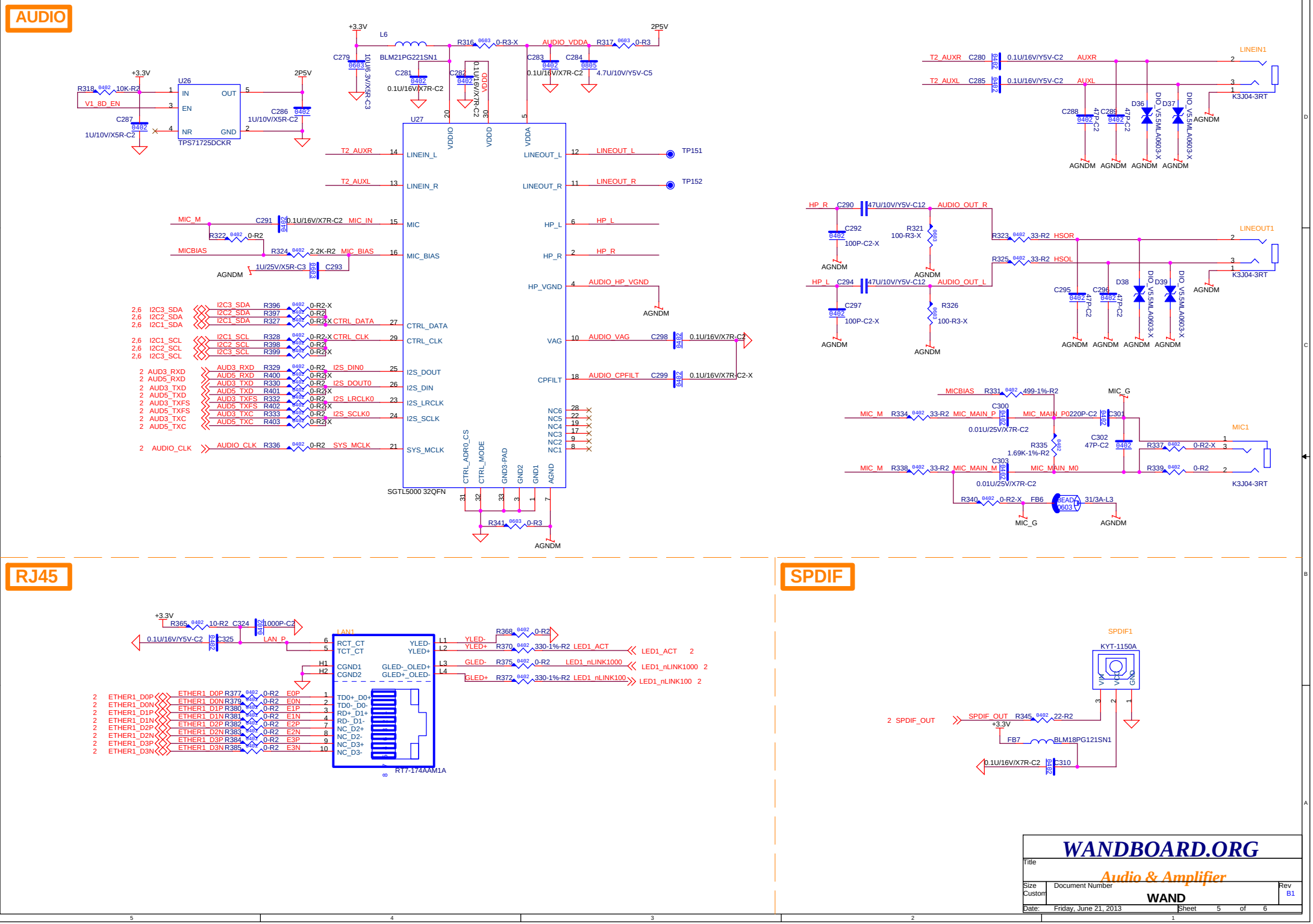




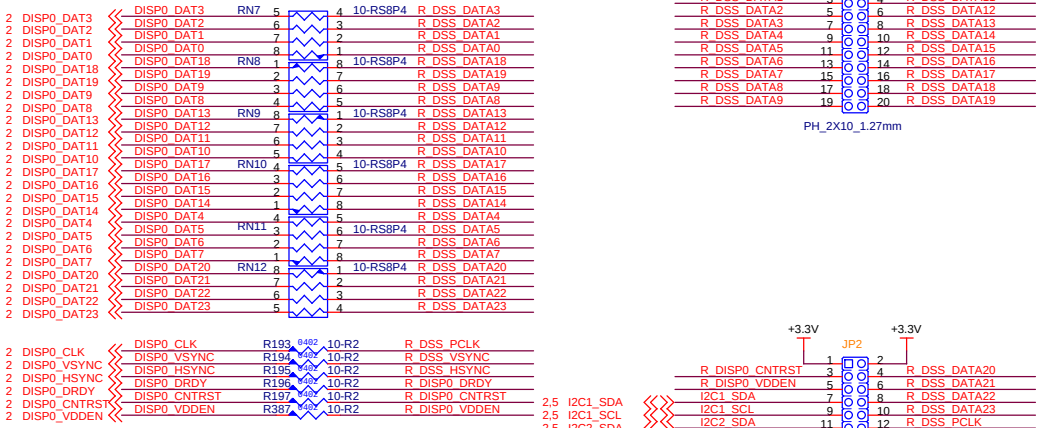
WANDBOARD.ORG

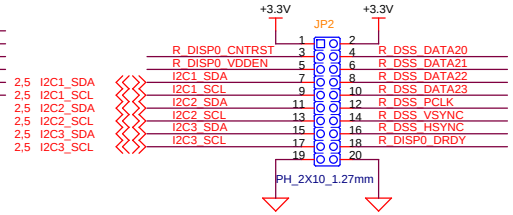
Title: Host & Client USB

Size	Document Number	Rev
Custom	WAND	B1
Date: Friday, June 21, 2013	Sheet 4 of 6	


AUDIO
RJ45
SPDIF
U26
TPS71725DCKR
U27
SGTL5000 32QFN
LINEIN1
LINEOUT1
MIC1
K3J04-3RT
LAN1
RT7-174AAM1A
SPDIF1
KYT-1150A
WANDBOARD.ORG
Audio & Amplifier
WAND
Friday, June 21, 2013

TTL





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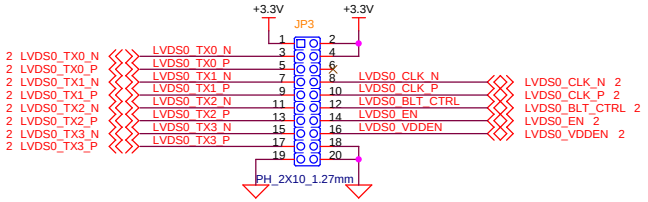

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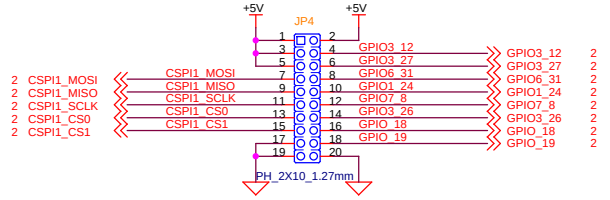
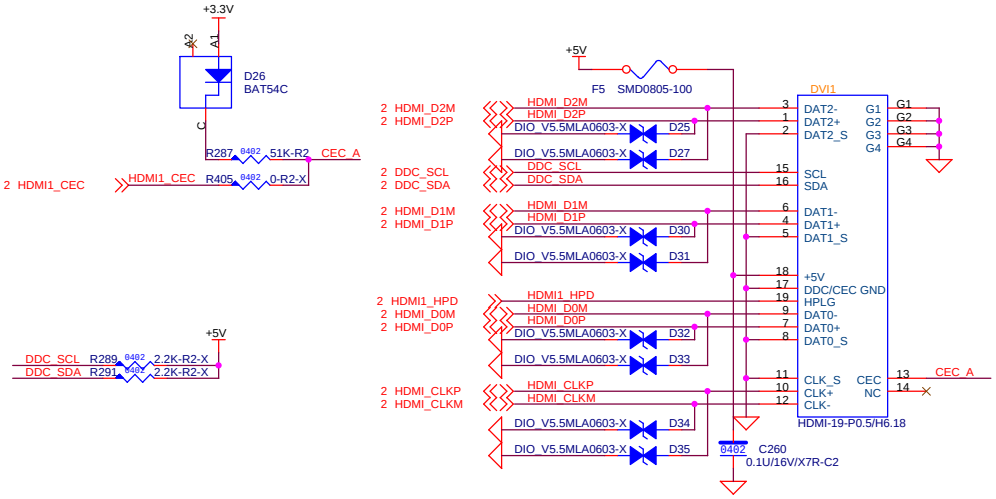
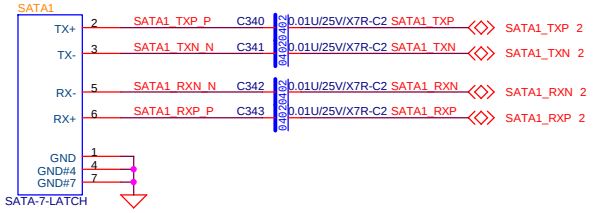


HDMI



SATA



WANDBOARD.ORG

Title: LVDS & HDMI & SATA

Size	Document Number	Rev
Custom	WAND	B1

Date: Friday, June 21, 2013 Sheet 6 of 6

Bill of Materials WandBoard-iMX6QUAD REV:B1：Freescale System Module,6Q5EYM10AC

Item	*Q'TY*	*Location*	*Assortment*	*Description*
1	1	PCB1	PCB,WandBoard-iMX6,RevB1	8Layers,60x82mm,1.2mm
2	102	R2,R3,R4,R5,R6,R26,R28,R32,R35,R36,R55,R56,R58,R59,R60,R61,R62,R63,R64,R65,R77,R78,R79,R80,R81,R84,R85,R86,R89,R90,R92,R94,R95,R96,R100,R103,R107,R110,R118,R120,R123,R124,R125,R126,R127,R133,R142,R145,R155,R158,R166,R167,R170,R174,R187,R188,R190,R191,R193,R198,R209,R214,R220,R222,R224,R225,R226,R227,R230,R231,R232,R233,R234,R236,R237,R240,R241,R242,R243,R250,R253,R254,R255,R266,R267,R272,R273,R278,R289,R295,R296,R297,R305,R306,R315,R316,R317,R318,R319,R320,R321,R383	CHIP RESISTOR	0Ω,±5%,0402
3	5	R66,R113,R115,R128,R130	CHIP RESISTOR	10Ω,±5%,0402
4	2	R300,R299	CHIP RESISTOR	1KΩ,±5%,0402
5	44	R24,R25,R27,R30,R68,R69,R70,R71,R72,R73,R83,R87,R88,R97,R99,R102,R105,R108,R114,R116,R119,R159,R168,R200,R204,R210,R215,R228,R235,R238,R245,R247,R251,R256,R257,R258,R259,R261,R268,R287,R291,R304,R314,R381	CHIP RESISTOR	10KΩ,±5%,0402
6	2	R76,R290	CHIP RESISTOR	100KΩ,±5%,0402
7	1	R122	CHIP RESISTOR	1.6KΩ,±1%,0402
8	3	R91,R104,R121	CHIP RESISTOR	200Ω,±1%,0402
9	1	R307	CHIP RESISTOR	200KΩ,±5%,0402
10	1	R135	CHIP RESISTOR	21KΩ,±5%,0402
11	1	R219	CHIP RESISTOR	22Ω,±5%,0402
12	5	R132,R157,R162,R260,R264	CHIP RESISTOR	220Ω,±5%,0402
13	8	R117,R111,R211,R213,R279,R280,R281,R282	CHIP RESISTOR	2.2KΩ,±5%,0402
14	7	R37,R82,R101,R221,R276,R286,R294	CHIP RESISTOR	240Ω,±1%,0402
15	3	R136,R161,R189	CHIP RESISTOR	24KΩ,±5%,0402
16	3	R54,R106,R156	CHIP RESISTOR	33Ω,±5%,0402
17	1	R1	CHIP RESISTOR	330Ω,±5%,0402
18	1	R192	CHIP RESISTOR	33KΩ,±5%,0402
19	34	R8,R9,R10,R11,R12,R13,R14,R15,R16,R17,R18,R19,R20,R21,R22,R23,R38,R39,R40,R41,R42,R43,R44,R45,R46,R47,R48,R49,R50,R51,R52,R53,R74,R270	CHIP RESISTOR	4.7KΩ,±5%,0402
20	1	R67	CHIP RESISTOR	47KΩ,5%,0402
21	2	R195,R207	CHIP RESISTOR	6.8KΩ,±5%,0402
22	1	R285	CHIP RESISTOR	750Ω,±5%,0402
23	1	R194	CHIP RESISTOR	75KΩ,±5%,0402
24	1	R218	CHIP RESISTOR	11.8KΩ,±1%,0402
25	2	R137,R164	CHIP RESISTOR	12.7KΩ,±1%,0402
26	1	R163	CHIP RESISTOR	16.2KΩ,±1%,0402
27	1	R292	CHIP RESISTOR	2.37KΩ,±1%,0402
28	1	R223	CHIP RESISTOR	332KΩ,±1%,0402
29	3	R134,R160,R185	CHIP RESISTOR	49.9KΩ,±1%,0402
30	2	R288,R303	CHIP RESISTOR	6.04KΩ,±1%,0402
31	1	R308	CHIP RESISTOR	649KΩ,±1%,0402
32	19	R29,R186,R196,R201,R202,R212,R216,R217,R229,R244,R263,R283,R293,R301,R309,R310,R311,R312,R313	CHIP RESISTOR	0Ω,±5%,0603
33	1	R93	CHIP RESISTOR	191Ω,±1%,0603
34	8	RN1,RN2,RN3,RN4,RN5,RN6,RN7,RN8	CHIP RESISTOR ARRAY	10KΩ,±5%,0402,1/16W,8P4R
35	65	C81,C85,C86,C87,C88,C89,C90,C91,C92,C94,C95,C96,C97,C98,C99,C101,C102,C103,C104,C105,C107,C108,C109,C110,C111,C112,C113,C114,C115,C122,C125,C126,C127,C1	MULTI LAYER CERAMIC CAPACITOR	0.22uF,±10%,6.3V,X5R,0201

		28,C129,C130,C131,C135,C136,C137,C140,C141,C142,C143,C144,C145,C146,C147,C148,C149,C150,C154,C155,C156,C157,C158,C159,C161,C162,C163,C164,C165,C166,C167,C169		
36	4	C17,C19,C22,C51	MULTI LAYER CERAMIC CAPACITOR	10pF,±5%,50V,NPO,0402
37	3	C53,C61,C72	MULTI LAYER CERAMIC CAPACITOR	100pF,±5%,50V,NPO,0402
38	1	C195	MULTI LAYER CERAMIC CAPACITOR	0.01uF,±10%,25V,X7R,0402
39	48	C10,C12,C16,C21,C24,C25,C26,C28,C29,C30,C33,C36,C38,C40,C44,C46,C56,C57,C60,C62,C64,C68,C74,C75,C77,C79,C80,C83,C133,C138,C171,C172,C175,C176,C179,C181,C182,C183,C184,C185,C187,C188,C192,C194,C206,C207,C208,C209	MULTI LAYER CERAMIC CAPACITOR	0.1uF,±10%,16V,X7R,0402
40	1	C71	MULTI LAYER CERAMIC CAPACITOR	1uF,10V,±10%,X5R,0402
41	4	C13,C20,C186,C191	MULTI LAYER CERAMIC CAPACITOR	1uF,±10%,16V,X5R,0402
42	5	C23,C39,C41,C42,C43	MULTI LAYER CERAMIC CAPACITOR	18pF,±5%,50V,NPO,0402
43	2	C204,C203	MULTI LAYER CERAMIC CAPACITOR	22pF,±5%,50V,NPO,0402
44	15	C5,C6,C7,C8,C15,C31,C32,C37,C67,C69,C73,C82,C132,C189,C190	MULTI LAYER CERAMIC CAPACITOR	0.22uF,±10%,10V,X5R,0402
45	2	C54,C52	MULTI LAYER CERAMIC CAPACITOR	33pF,±5%,50V,NPO,0402
46	2	C2,C3	MULTI LAYER CERAMIC CAPACITOR	47pF,±5%,50V,NPO,0402
47	3	C50,C55,C70	MULTI LAYER CERAMIC CAPACITOR	560pF,±10%,50V,X7R,0402
48	15	C27,C34,C35,C45,C47,C48,C84,C93,C116,C117,C124,C177,C178,C193,C202	MULTI LAYER CERAMIC CAPACITOR	10uF,±20%,10V,X5R,0603
49	2	C9,C173	MULTI LAYER CERAMIC CAPACITOR	2.2uF,16V,X5R,±10%,0603
50	9	C100,C106,C118,C119,C120,C121,C134,C152,C170	MULTI LAYER CERAMIC CAPACITOR	22uF,±20%,6.3V,X5R,0603
51	8	C123,C153,C180,C197,C198,C199,C200,C201	MULTI LAYER CERAMIC CAPACITOR	4.7uF,6.3V,X5R,±10%,0603
52	10	C11,C49,C58,C65,C76,C78,C151,C174,C196,C205	MULTI LAYER CERAMIC CAPACITOR	10uF,±10%,16V,X5R,0805
53	2	C59,C66	MULTI LAYER CERAMIC	22uF,±20%,6.3V,X5R,0805

			CAPACITOR	
54	5	C1,C4,C14,C18,C63	MULTI LAYER CERAMIC CAPACITOR	4.7uF,25V,±10%,X5R,0805
56	4	L3,L4,L5,L7	PW CHOKE,FDSD0420-H-2R2M	TOKO,2.2uH,±20%,4.1A,47mR,4.2X4.2mm
56	1	L1	PW CHOKE,SNR3015F-3R3M-T-PF	SUNLEI,3.3uH,±20%,1.15A,88mR,3X3
57	1	L2	PW IND,CWPA3010-4R7N	CCS,4.7uH,±30%,Iset0.75A,225mR,3.0X3.0
58	4	FB5,L6,FB6,FB8	Multilayer Chip Bead	SUNLEI,JI160808U-151-PF,150Ω,2A,0603
59	1	U7	IC,Voltage-Level Translator	TI,TXS0102DCUR,VSSOP8
60	1	U4	IC,Supervisor and Reset	TI,TPS3808G33DBVR,SOT23-6
61	1	U16	IC,Step-Down DC/DC Converter	RICHTEK,RT8010GQW,WDFN-6L
62	1	U15	IC,10/100/1000 Ethernet Transceiver	ATHEROS,AR8031-AL1A,QFN48
63	3	U9,U10,U11	IC,Synchronous Step-Down Converter	RICHTEK,RT8070ZQW,WDFN-8L
64	1	U5	IC,Single High Side Power Switch	MICREL,MIC94040YFL,MLF1.2X1.2mm
65	1	U1	BUFFER GATE	TI,SN74LVC1G125DCKR,SC-70
66	4	U3,U8,U12,U14	DDR3 SDRAM,H5TQ4G63MFR-PBC	Hynix,256MX16,4Gb,1.5V,FBGA96
67	1	Y1	X'TAL,FSX3M,24M12FAG,30PPM,12PF_W	FUJICOM,24MHz,SMD-4P,3.2X2.5mm
68	1	Y3	X'TAL,25.000MHz,30PPM,12PF	FUJICOM,FSX3M,25M12FAQ,SMD-4P,3.2X2.5mm
69	1	QZ1	X'TAL,32.768KHz,20PPM,12.5PF	CITIZEN,CM315,32.768KDZFTR,SMD-2P,3.2X1.5mm
70	1	Y2	X'TAL,37.4MHz,30PPM,20PF	FUJICOM,FSX3M,37.4M20FAQ,SMD-4P,3.2X2.5mm
71	1	OSC1	OSC,32.768KHz,50PPM,15PF,3.3V	FUJICOM,FCO336B,32.768KBA,SMD-4P,3.2*2.5mm
72	1	LED1	LED,EVERLIGHT,19-213SYGC-S313-TR8	SMD,0603,GREEN,570nm,57mcd
73	1	U13	Integrated Load Switch	Fairchild,FDC6331L,8V,2.8A,SSOT6
74	1	U6	CPU,ARM,Cortex-A9,Quad,no lidded	MCIMX6Q5EYM10AC,FCBGA624

75	1	MSD1	Micro SD CARD READER	Most Well,MWCSD03S012R,H:1.85mm,SMD
76	1	ANT1	COAXIAL CONN.	I-PEX,MHF,20279-001E-01,3Pads,H=1.25 mm
77	1	CAMERA1	CONN,FPC,JSF53-233-9112-A,DOWN	JOIN TEK,33PIN,P=0.5,H=1.96,90,SMD
78	1	U2	Module,Wireless LAN+BT+FM	WM-BN-BM-02,BCM4329
1	1	PCB1	PCB,WandBoard-iMX6,RevB1	8Layers,60x82mm,1.2mm

Bill of Materials WAND,RevB1 ：Carrier Board for Wandboard

Item	*Q'TY*	*Location*	*Assortment*	*Description*
1	1	PCB1	PCB,WAND, Carrier Board,RevB1	4Layers,95x95mm,1.6mm
2	30	R117,R119,R322,R329,R330,R332,R333,R336, R339,R368,R375,R377,R379,R380,R381,R382, R383,R384,R385,R386,R388,R389,R390,R391, R392,R393,R394,R395,R397,R398	CHIP RESISTOR	0Ω,±5%,0402
3	7	R193,R194,R195,R196,R197,R365,R387	CHIP RESISTOR	10Ω,±5%,0402
4	1	R91	CHIP RESISTOR	10KΩ,±1%,0402
5	10	R98,R99,R100,R101,R102,R103,R104,R105,R152,R318	CHIP RESISTOR	10KΩ,±5%,0402
6	1	R345	CHIP RESISTOR	22Ω,±5%,0402
7	1	R324	CHIP RESISTOR	2.2KΩ,±5%,0402
8	5	R112,R323,R325,R334,R338	CHIP RESISTOR	33Ω,±5%,0402
9	1	R97	CHIP RESISTOR	330Ω,±5%,0402
10	1	R287	CHIP RESISTOR	51KΩ,±5%,0402
11	1	R404	CHIP RESISTOR	100Ω,±5%,0402
12	1	R335	CHIP RESISTOR	1.69KΩ,±1%,0402
13	2	R372,R370	CHIP RESISTOR	330Ω,±1%,0402
14	1	R331	CHIP RESISTOR	499Ω,±1%,0402
15	1	R96	CHIP RESISTOR	6.04KΩ,±1%,0402
16	2	R341,R317	CHIP RESISTOR	0Ω,±5%,0603
17	2	R154,R151	CHIP RESISTOR	22Ω,±5%,0603
18	6	RN7,RN8,RN9,RN10,RN11,RN12	CHIP RESISTOR ARRAY	10Ω,±5%,0402,1/16W,8P4R
19	2	C294,C290	MULTI LAYER CERAMIC CAPACITOR	47uF,10V,±20%,X5R,1812
20	1	C324	MULTI LAYER CERAMIC CAPACITOR	1000pF,±10%,X7R,50V,0402
21	6	C300,C303,C340,C341,C342,C343	MULTI LAYER CERAMIC CAPACITOR	0.01uF,±10%,25V,X7R,0402
22	23	C153,C164,C165,C171,C260,C280,C281,C282, C283,C285,C291,C298,C310,C325,C327,C328, C329,C330,C331,C332,C333,C334,C335	MULTI LAYER CERAMIC CAPACITOR	0.1uF,±10%,16V,X7R,0402
23	2	C287,C286	MULTI LAYER CERAMIC CAPACITOR	1uF,10V,±10%,X5R,0402
24	1	C301	MULTI LAYER CERAMIC CAPACITOR	220pF,±5%,50V,NPO,0402
25	5	C288,C289,C295,C296,C302	MULTI LAYER CERAMIC CAPACITOR	47pF,±5%,50V,NPO,0402
26	4	C336,C337,C338,C339	MULTI LAYER CERAMIC CAPACITOR	100pF,50V,±5%,NPO,0603
27	1	C293	MULTI LAYER CERAMIC CAPACITOR	1uF,25V,X5R,10%,0603
28	1	C279	MULTI LAYER CERAMIC CAPACITOR	10uF,6.3V,X5R,±10%,0603
29	4	C163,C166,C170,C182	MULTI LAYER CERAMIC	10uF,10V,±10%,X5R,0805

			CAPACITOR	
30	2	C183,C284	MULTI LAYER CERAMIC CAPACITOR	4.7uF,25V,±10%,X5R,0805
31	1	C152	MULTI LAYER CERAMIC CAPACITOR	22uF,16V,X5R,10%,1206
32	1	FB7	Multilayer Chip Bead	SUNLEI,JI160808U-121-PHF,120Ω,3A,0603
33	1	L6	Multilayer Chip Bead	SUNLEI,JI160808U-221-PHF,220Ω,2A,0603
34	5	FB1,B1,FB3,B3,FB6	Multilayer Chip Bead	SUNLEI,JI160808U-310-PHF,31Ω,3A,0603
35	1	U9	IC,Power-Distribution Single Switch	TI,TPS2061DBV,1A,Active Low,SOT23-5PIN
36	1	U28	IC,RS232 D/R	ADI,ADM3202ARUZ,3.3V,TSSOP16
37	1	U27	IC,Stereo Audio CODEC_W	Freescale,SGTL5000XNAA3/R2,QFN32
38	1	U26	Regulator,LDO	TI,TPS71725DCKR,150mA,2.5V,SC70
39	1	D26	Schottky Barrier Diodes	BAT54C,30V,SOT-23
40	1	LED1	LED,EVERLIGHT,19-213SYGC-S313-TR8	SMD,0603,GREEN,570nm,57mcd
41	1	U2	Regulator,LDO,AME8816BEHAADJZ	AME,1.5A,ADJ,SO8
42	2	F5,F2	FUSE,POLY SWITCH,1.1A/6V	Sea&Land,SMD0805-100,0805
43	1	F1-1	Square Ceramic Fuse	CONQUER,SEF003,125V,3A,6.1X2.6
44	1	RESET1	TACT SWITCH,DTS-61N-V	DIPTRONICS,H=4.3,160g,DIP
45	1	J1	CONN,MXM3.0,314P,P=0.5,H=7.8	FOXCONN,AS0B821-S78B-7H,BLACK
46	1	MSD1	Micro SD CARD READER	Most Well,MWCSD03S012R,H:1.85mm,SMD
47	4	JP1,JP2,JP3,JP4	FEMALE HEADER	2X10PIN,1.27mm,H=4.3,180,DIP
48	1	F1	CONN,FUSE HOLDER	Little Fuse,01550900M,H=3.81,SMD
49	1	COM1	9Pin D-SUB Slim Type (4.5mm)	Qi-Speed,Male,Green,w/Screw,A02+0912-2522AS
50	1	USBC1	Mini USB AB Type	Qi-speed,HCO0556005-AB-001P-R,1 port,90D,SMD
51	1	USBH1	USBX1,A TYPE,3.0	Qi-Speed,KUSB-512-3.0,DIP
52	1	SATA1	CONN,SATA-7P,BLACK	Most Well,S6-09F107097S1B04,DIP
53	1	LAN1	RJ45X1 CONN.	UDE,RT7-174AAM1A,W/LED&TRANSFORMER,GIGA
54	3	MIC1,LINEOUT1,LINEIN1	AUDIO JACK,EPJ-	Most

			035-43A	Well,5PIN,3.5mm,H=5,DIP
55	1	DCIN1	DC POWER JACK,MWDS-216B-BK	Most Well,2.0mm,DIP
56	1	SPDIF1	OPTO JACK,KYT-1150A	KYOYAKU,5PIN,H=12,DIP
57	1	DVI1	CONN,HDMI,19PIN ,SHELL DIP TYPE	Most Well,HDMIFRM-80152-00,SMD
58	4	HOLE5,HOLE6,HOLE7,HOLE8	B50M30-501419D4BM	EMI,M3x5.0mm,DIP