

# MAESTROKITCHEN MK100

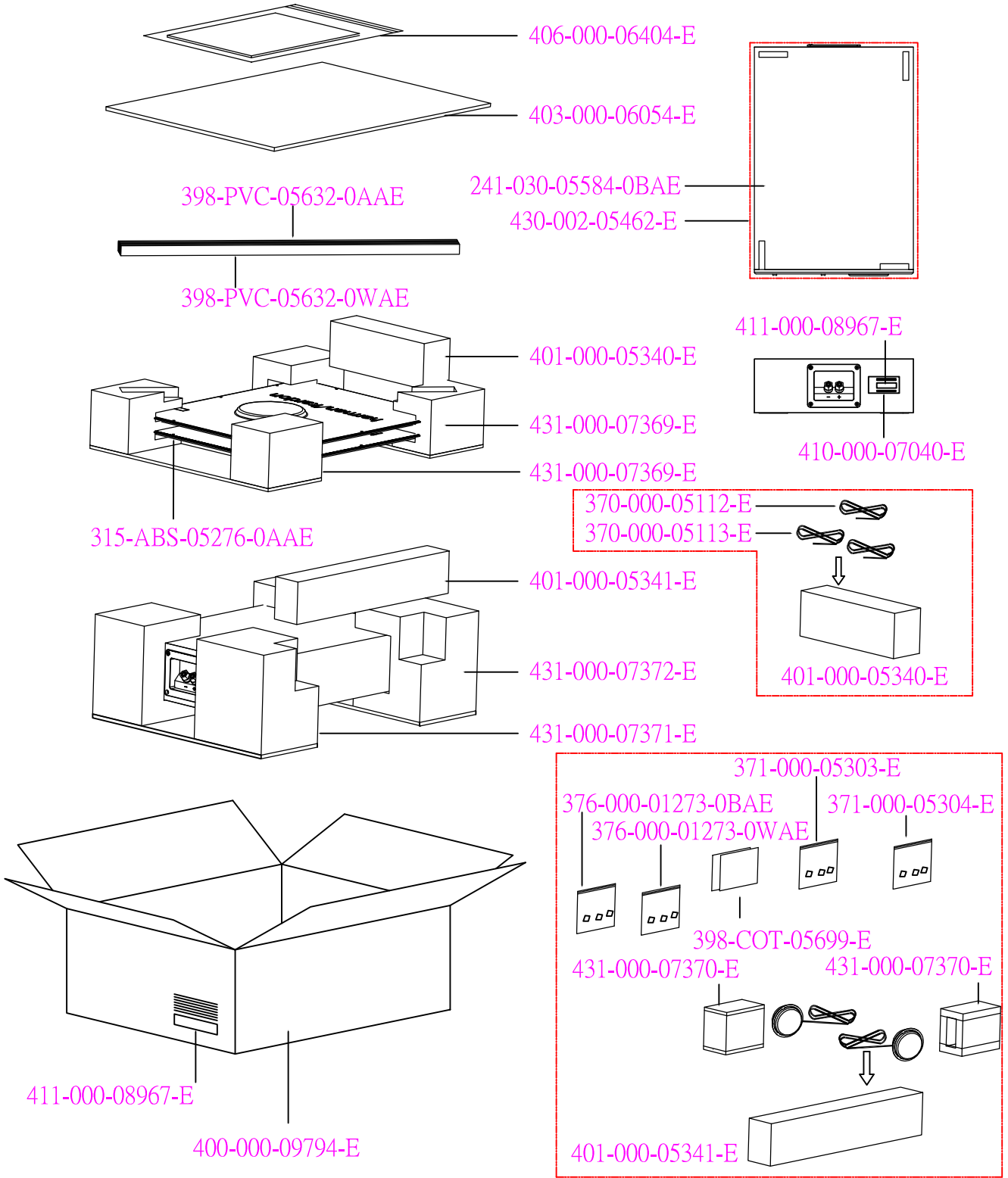
Sound system.



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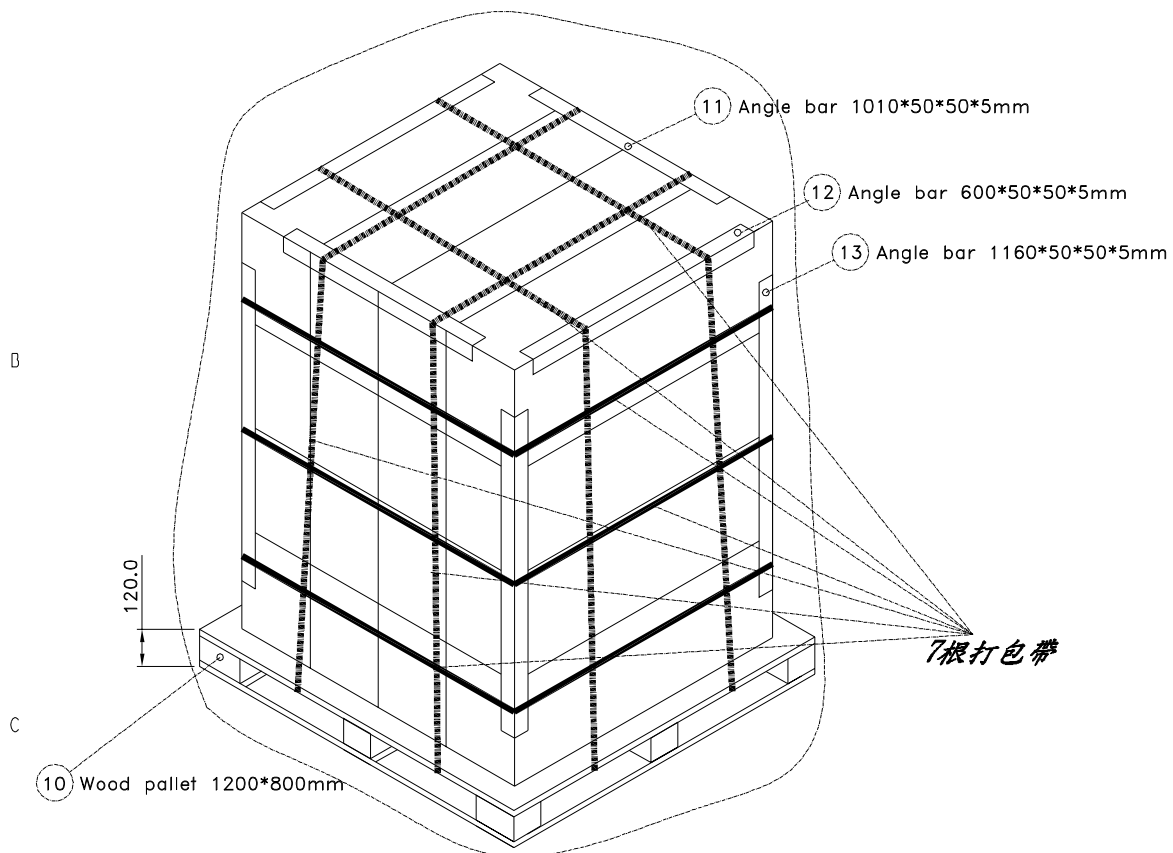
Harman  
MK 100SP/E





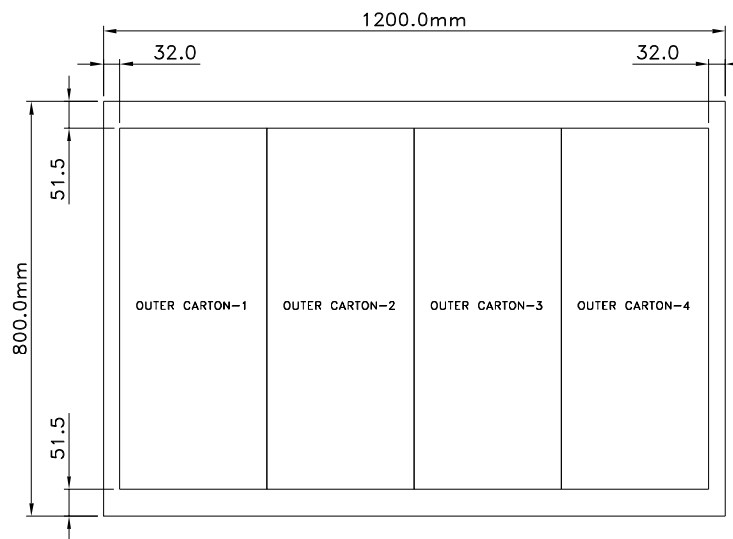
1 | 2 | 3 | 4 | 5 | 6 | 7 | 8

**PE TAPE**



**REFERENCE VIEW**

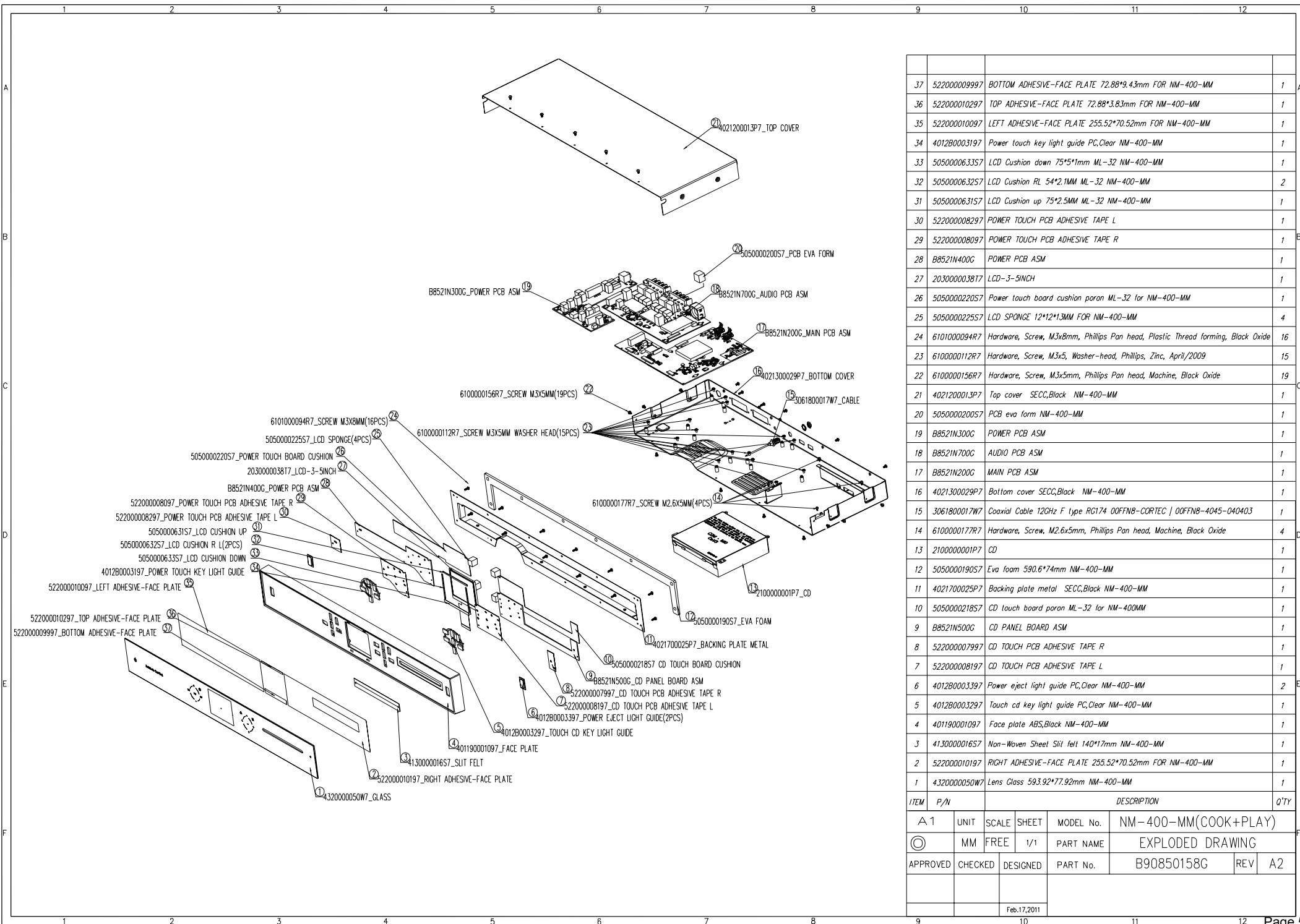
- NOTE :
- 1.) Shipment 4 LAYERS/High=1296.0mm(Max. H=1416.0mm)  
It is shipped by sea or air.
  - 2.) CARTON OUTSIDE DIM 697.0(L)X284.0(W)X324.0(H)mm
  - 3.) 2 SETS / CARTON
  - 4.) 4 CARTONS / LAYER
  - 5.) 32 SETS / PALLET



**TOP VIEW  
SCALE 1:1**

PALLET		5140000016D7		1200*800*120		1/32	
ANGLE_PAPER		5040000007A7		1160*50*50*5		4/32	
ANGLE_PAPER		5040000016A7		600*50*50*5		2/32	
ANGLE_PAPER		5040000009A7		1010*50*50*5		2/32	
PART NAME		PART NO.		D I M		Q'TY	
A 3	UNIT	SCALE	SHEET	MODEL No.	NM-400-MM(COOK+PLAY)		
	MM	FREE	1/1	PAP- NAME	DUMMY PACKING		
APPROVED	CHECKED	DESIGNED	PAP- No.	A60599376G		PEV	A3
			Feb.08,2011				

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8



37	52200009997	BOTTOM ADHESIVE-FACE PLATE 72.88*9.43mm FOR NM-400-MM	1
36	522000010297	TOP ADHESIVE-FACE PLATE 72.88*3.83mm FOR NM-400-MM	1
35	522000010097	LEFT ADHESIVE-FACE PLATE 255.52*70.52mm FOR NM-400-MM	1
34	4012B0003197	Power touch key light guide PC, Clear NM-400-MM	1
33	505000063357	LCD Cushion down 75*5*1mm ML-32 NM-400-MM	1
32	505000063257	LCD Cushion RL 54*2.1MM ML-32 NM-400-MM	2
31	505000063157	LCD Cushion up 75*2.5MM ML-32 NM-400-MM	1
30	522000008297	POWER TOUCH PCB ADHESIVE TAPE L	1
29	522000008097	POWER TOUCH PCB ADHESIVE TAPE R	1
28	B8521N400G	POWER PCB ASM	1
27	203000003817	LCD-3-5INCH	1
26	505000022057	Power touch board cushion paron ML-32 for NM-400-MM	1
25	505000022557	LCD SPONGE 12*12*1.3MM FOR NM-400-MM	4
24	6101000094R7	Hardware, Screw, M3x8mm, Phillips Pan head, Plastic Thread forming, Black Oxide	16
23	6100000112R7	Hardware, Screw, M3x5, Washer-head, Phillips, Zinc, April/2009	15
22	6100000156R7	Hardware, Screw, M3x5mm, Phillips Pan head, Machine, Black Oxide	19
21	4021200013P7	Top cover SECC, Black NM-400-MM	1
20	5050000220057	PCB eva form NM-400-MM	1
19	B8521N300G	POWER PCB ASM	1
18	B8521N700G	AUDIO PCB ASM	1
17	B8521N200G	MAIN PCB ASM	1
16	4021300029P7	Bottom cover SECC, Black NM-400-MM	1
15	3061800017W7	Coaxial Cable 120Hz F type RG174 00FFN8-CORTEC   00FFN8-4045-040403	1
14	6100000177R7	Hardware, Screw, M2.6x5mm, Phillips Pan head, Machine, Black Oxide	4
13	2100000001P7	CD	1
12	505000019057	Eva foam 590.6*74mm NM-400-MM	1
11	4021700025P7	Backing plate metal SECC, Black NM-400-MM	1
10	505000021857	CD touch board paron ML-32 for NM-400MM	1
9	B8521N500G	CD PANEL BOARD ASM	1
8	522000007997	CD TOUCH PCB ADHESIVE TAPE R	1
7	522000008197	CD TOUCH PCB ADHESIVE TAPE L	1
6	4012B0003397	Power eject light guide PC, Clear NM-400-MM	2
5	4012B0003297	Touch cd key light guide PC, Clear NM-400-MM	1
4	401190001097	Face plate ABS, Black NM-400-MM	1
3	4130000016S7	Non-Woven Sheet Slit felt 140*17mm NM-400-MM	1
2	522000010197	RIGHT ADHESIVE-FACE PLATE 255.52*70.52mm FOR NM-400-MM	1
1	4320000050W7	Lens Glass 593.92*77.92mm NM-400-MM	1

ITEM	P/N	DESCRIPTION			QTY
A 1	UNIT	SCALE	SHEET	MODEL No.	NM-400-MM(COOK+PLAY)
Ⓢ	MM	FREE	1/1	PART NAME	EXPLODED DRAWING
APPROVED	CHECKED	DESIGNED	PART No.	B90850158G	REV A2
Feb.17,2011					

MainBoard	Description
	Marvell Aspen L 400MHz
	DDR2 128MB for Aspen
	Flash MTFC2GGQDM-WT 2GB => 256MB
	MCU MSP430F4132IRGZ (TI)
	CPLD IC 3.3V LC4032V-75TN48C 7.5ns TQFP 48PIN SMD(LATTICE)
	CPLD IC LC4032ZE-7TN48C 7.5ns TQFP 48PIN SMD(LATTICE)
	POWER IC MAX8660ETL+ QFN 40PIN H=0.8 (MAXIM)
	DC-DC CONVERTER IC 1A SC194BMLTRT MLP 10P H=1 SMD(SEMTECH)
	DC/DC CONVERTER IC ZT7103S SOT23 5PIN H=1.4 SMD(ZILLTEK)
	IC RTC ISL12081B8Z SOP-8 H=1.75mm SMD(IINTERSIL)
	X`TAL SMD 32.768KHz 20ppm/12.5pF G53270001(亞陶ECERA)
	CHIP MONO 0805 22uF/6.3V +-10% X7R C2012X7R0J226KT SMD(TDK)*10
	CHIP MONO 0603 10uF/6.3V +-20% X5R C1608X5R0J106MT SMD(TDK)*12
	CHIP MONO 1210 100uF 6.3V +-20% X5R C3225X5R0J107MT SMD(TDK)*3
	CHIP TAN D 220uF/10V +-20% 0.5ohm 7.3*4.3*2.8MM T491D227M010AT SMD(KEMET)*8
	CHIP MONO 1206 100uF 6.3V +-20% X5R GRM31CR60J107ME39L SMD(MURATA)*2
	CHIP MONO 1210 47uF 16V +-20% X5R GRM32ER61C476ME15K SMD(MURATA) *12
	CHIP ELECT 100uF/16V +-20% 105°C φ8*6.2MM EEEFC1C101P SMD(PANASONIC)
	LOW CAPACITANCE TVS DIODE ARRAY VRWM:5V15KV/8KV SRV05-4.TCT SOT-23 6P H=1.45 SMD(SEMTECH)
	INDUCTOR 2.2uH +-30% 2.04A 4.7*4.7*3mm MSCDRI-4D28-2R2N SMD(MAG. LAYERS)*3
	INDUCTOR 3.3uH +-20% 1.3A 3*3*1.5mm MLPS-3015-3R3M SMD(MAG. LAYERS)*2
	REG IC 1.25V/0.9V RT9173PS 1.5A SO8 H=1.75 SMD(RICHTEK)*2
	LDO REGULATOR IC 1.8V 1.5A SOT-223 ADP3339AKCZ-1.8-RL 3P H=1.7 SMD (ADI)
	CON,BTB,DF12-60DS-0.5V ,0.5mm 60PIN 2*30P,SMD(HIROSE) *2
	Connectors
	Cables
	PCB ( 6 layers)
	Others - Resistors/Inductors/Capacitors ....
AudioBoard	Description
	AMP IC DIGITAL AUDIO PROCESSOR STA309A TQFP 64P H=1.6 SMD(ST)
	AMP IC QUAD HALF BRIDGE STA508 SMD(ST)
	AMP IC TJM4558CD Wide Bandwidth Dual Bipolar Operation Amplifiers SO8 (ST)
	MOSFET N 19A 30V SiS402DN-T1-GE3 PowerPAK SMD (VISHAY)
	IC SWITCHING MP8676DN STEP DOWN 42V 4.5A SOIC8
	ELECT CAP 1000uF/25V 105°Cφ12.5*20 P=5MM KY (NCC) *7
	220uF/50V 10*16 P=5mm KY (NCC) *8
	INDUCTOR 10uH +-20% 4.4A 10.3*10.5mm SCDS104R-100M-N SMD(CHILISIN) *8
	CHIP MONO 1210 22U/25V +-20% X5R C3225X5R1E226MT SMD(TDK)*6
	SURGE SUPPRESSOR 0603ESDA-MLP7 SMD(BUSSMANN)
	Others - Resistors/Inductors/Capacitors ....
	Heatsink
	4mm screw banana plug pair *1 female - Right Speaker
	4mm screw banana plug pair *1 female - Left Speaker
	4mm screw banana plug pair *1 female - Subwoofer
PowerBoard	Description
	FS510T POWER CORD (JP)PWR-001-002 (LONGWELL)
	Power Cable 8 Pin L=100mm GHT0220RA-007
	Power Cable 6 Pin L=130mm GHT0220RA-008
	20uF/50V 10*16 P=5mm KY (NCC)

	CHIP MONO 1210 10uF 35V +-10% X5R T=1.9GMK325BJ106KN-T SMD(TAIYO YUDEN)*6	
	CHIP MONO 1206 22uF/16V K/X5RGRM31CR61E226K(MURATA)*4	
	CHIP TAN X 100U/25V +-20% T491X107M025AH SMD(KEMET)	
	CAP TAN 220uF 16V +-20% SMD 7. 3*4.3 TAPING 0.5OHM (KEMET) *2	
	MOSFET N 19A 30V SiS402DN-T1-GE3 PowerPAK SMD (VISHAY)	
	STEP DOWN CONU IC 32V 3A MP2403DN-LF-Z SOIC8 H=1.73 SMD(MPS)	
	STEP DOWN CONU IC 30V 6A MP8670DN-LF-Z SOIC H=1.7 SMD(MPS)	
	Others - Resistors/Inductors/Capacitors ....	
<b>TouchPanelBoard</b>	<b>Description</b>	
	FFC Cable 68 Pin P=0.5mm L=120mm A68120C3344NB (E&T)	
	RF IC Remote nRF24L01+ QFN20	
	Azotek IQS221 touch/proximity IC 9 channel (Holystone)	
	FPC Connector 68 Pin P=0.5mm 91505-06801 SMD (Aces)	
	FPC Connector 50 Pin P=0.5mm Top 88706-5001 SMD (Aces)	
	SURGE SUPPRESSOR 0603ESDA-MLP7 SMD(BUSSMANN)	
	PCB*2 ( one is 4 layers , the other one is 2 layers )	
	Others - Resistors/Inductors/Capacitors ....	
<b>Remote Controller</b>	<b>Description</b>	
	<b>nRF24L01 (NORDIC)</b>	
	Crystal 16MHz	
	MCU ATMEGA48-24AI ( Atmel)	
	PCB ( 2 layers)	
	Other Components	
	Upper/Bottom/Battery Casing	
	Coin Type Lithium Battery	
<b>Manufacturer Part Number</b>	<b>Manufacturer Part Description</b>	<b>Qty</b>
241-030-05584-0BAE	SUBWOOFER CABINET	1
249-ABS-05263-0BAE	PORT TUBE	1
328-SPG-05890-0WAE	INSULATION 360*170*10MM 2000#	2
320-0024-001	SUBWOOFER LF DRIVER	1
166-5045A3GCD-E	SPEAKER CABLE BLK/RED 450MM UL2468#20AWG+T250/0.8T+T205/0.8T	1
352-AM04018C1507-E	SCREW T4*18	4
RM-ETN0053K32PR-4A14	NXT DRIVER	2
166-507598GA-E	CABLE	2
315-ABS-05276-0AAE	TRIM PANEL	2
333-EVA-06047-0BAE	EVA 38 DEGREE Φ102*1.0	2
333-EVA-06062-0BAE	EVA 4 STRIPS PER TRIM PANEL	2
333-EVA-06074-0BAE	EVA 6*1300*0.8 EVA BLACK 38 DEGREE	2
317-ABS-05209-0BAE	SUBWOOFER TERMINAL COVER	1
350-EM03520D082-E	SCREW T3.5*20	4
320-SR-05258-0BAE	RUBBER GROMMET SR 50*10*1.0H	4
371-000-05303-E	SCREW BAG ( M4*10 8 PCS PER BAG Black/Grey 4/4)	1
371-000-05304-E	SCREW BAG ( 350-AM03512D136-E*20 PCS + PE BAG )	1
376-000-01273-0BAE	CABLE CLIP [BLACK]	4
376-000-01273-0WAE	CABLE CLIP [WHITE]	4
370-000-05112-E	SPEAKER CABLE 5 M AWG# 18-30 RED INSULATED	1
370-000-05113-E	SPEAKER CABLE 5 M AWG# 18-30 RED INSULATED AND SPADE PLUG ONE END	2
431-000-07371-E	EPE	1
431-000-07372-E	EPE	1
431-000-07369-E	EPE	2
431-000-07370-E	EPE	2
430-002-05462-E	PEARL BAG	1
411-000-08967-E	SERIAL NUMBER LABEL	1
400-000-09794-E	BEAUTY CARTON	1
401-000-05340-E	INNER SLEAVE	1
401-000-05341-E	INNER SLEAVE	1
403-000-06054-E	CARD BOARD INSERT	1
410-000-07040-E	MODEL LABEL	1
376-000-01275-E	OM	1
376-000-01275-E	ACCESSORY BAG ( WIRE CHANNELS GREY x 2 + WHITE x 2 )	1
156-H030012-E	HEAT SHRINK TUBE φ3*12mm	4

# **MK-400 SO /230**

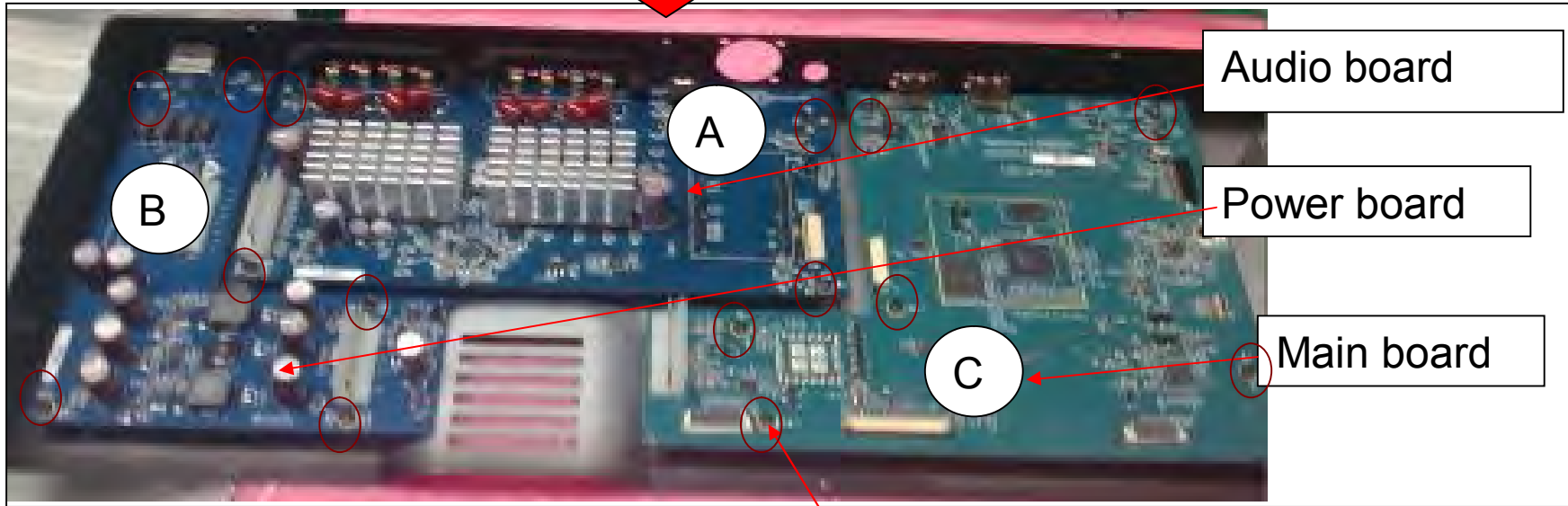
## **Unit assembly process**

**NABU**  
**02/25/2011**



## **Bottom cover assembly process**

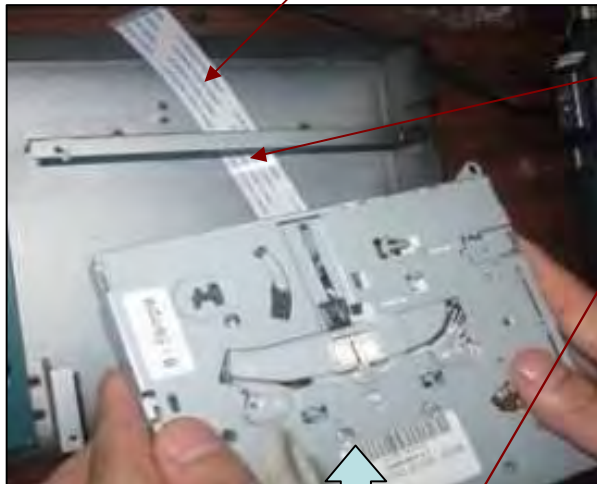
# Step 1 : PCB fixed on the bottom cover



Use MACHINE SCREW with washer M3.0\*L5.0mm x 15pcs

# Step 2: CD ROM fixed on the bottom cover

FFC CABLE 18PIN P=1mm L=200mm B18200C334FP25\*10\*5-R3  
EMI CORE 65R@100MHz FP 25\*10\*5-R3(SPORTO

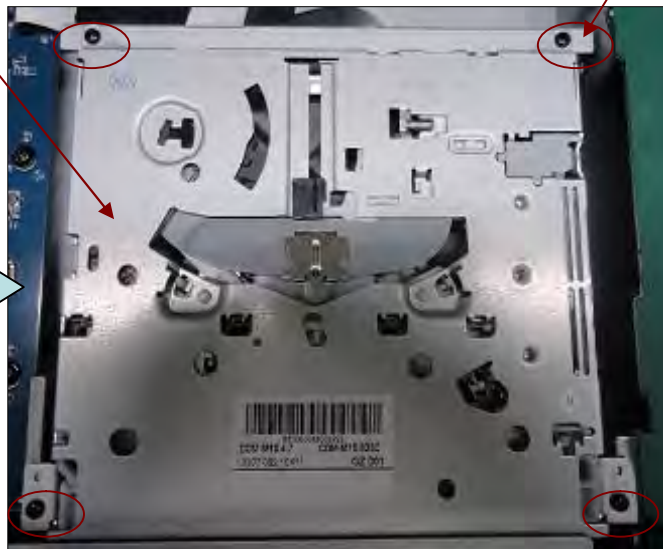
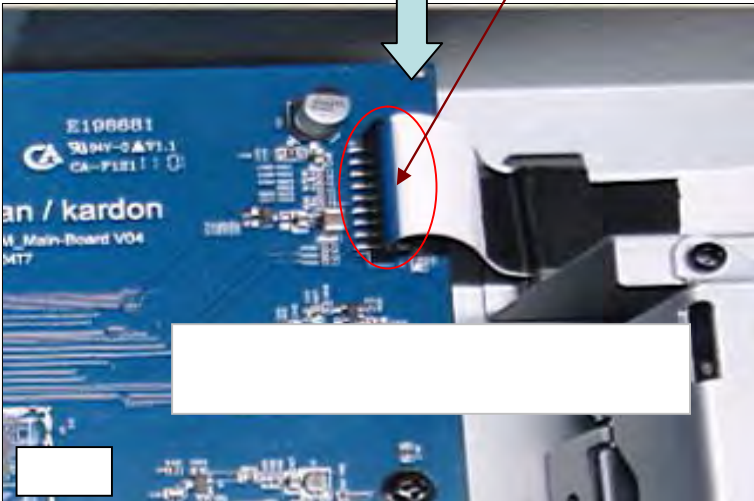


a. CD ROM FFC cable need through the frame hole

b. CD ROM FFC cable contact on the audio board

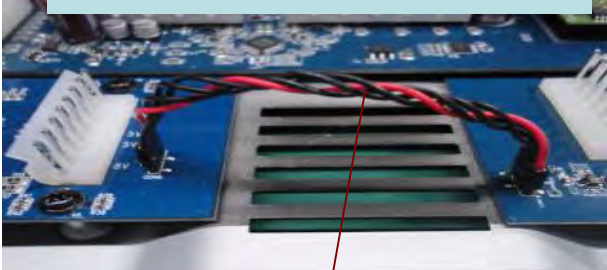
C. Use screw to fixed the CD ROM

Screw (Hardware,Screw,M2.6\*5mm,Philips Pan head, MACHINE,BLACK OXIDE) x4PCS

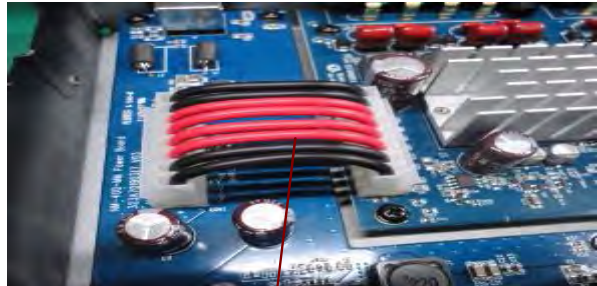


# Step 3: PCB cable contact

Power Control Cable 4Pin L=80



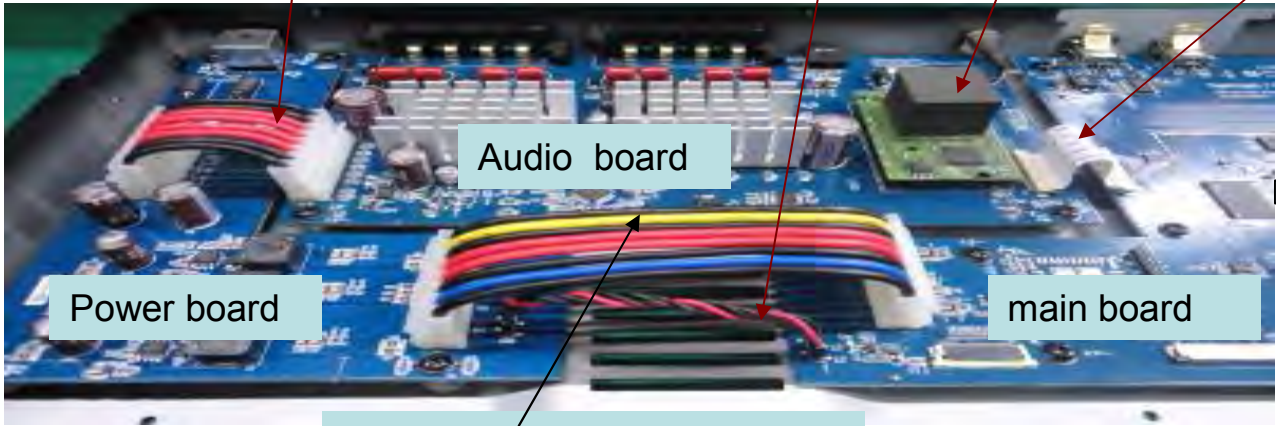
Power Control Cable 8Pin L=38



EVA form



PIN P=0.5mm L=50mm

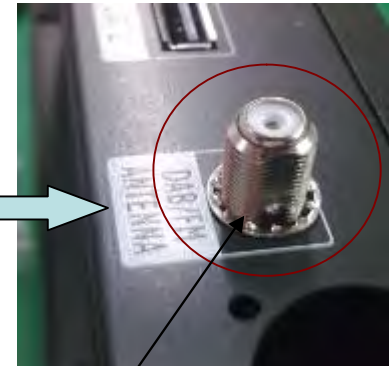


Audio board

Power board

main board

Power Control Cable 8P L=97



Use nut to fixed

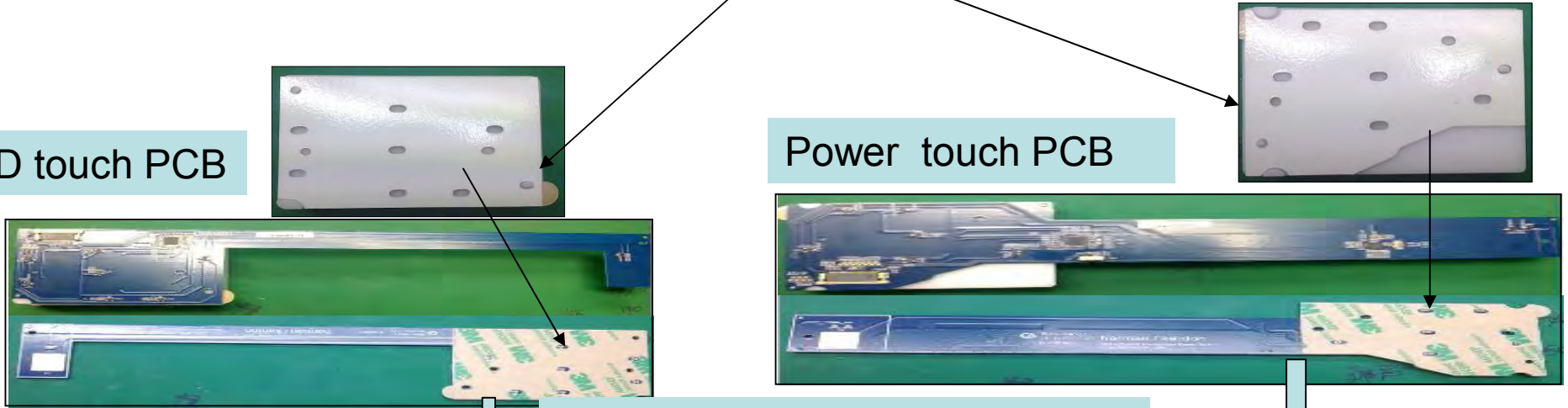
# Front cover assembly process

# Step 1 : PCB process and front cover assembly

a. Adhesive with reflection film tape on the PCB front side

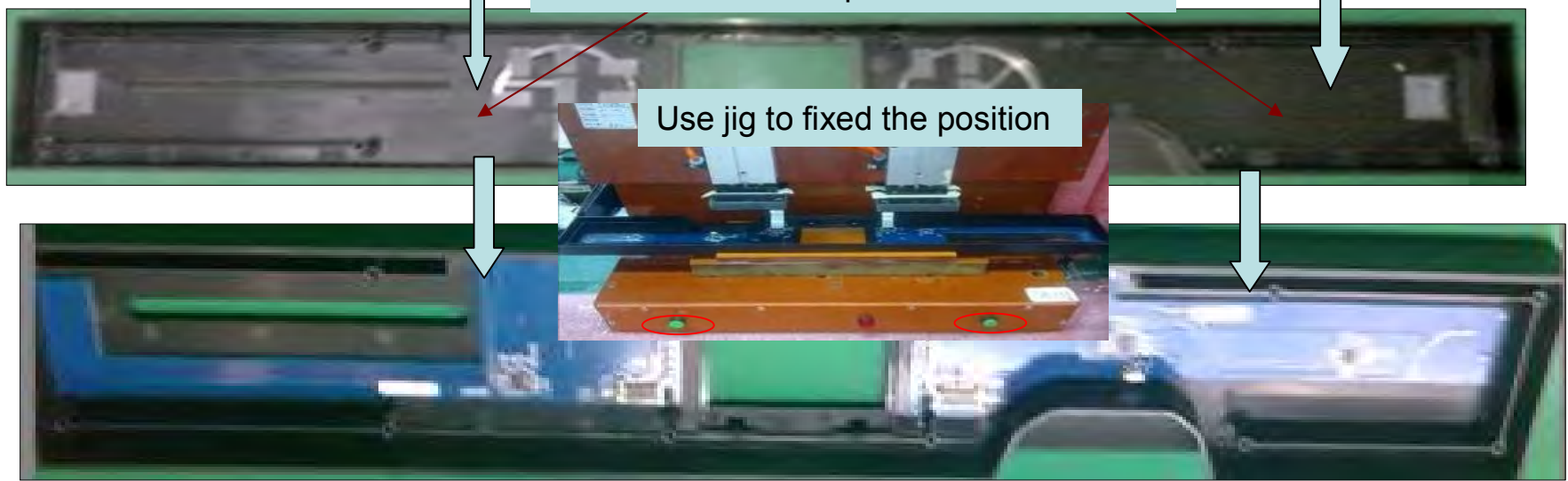
CD touch PCB

Power touch PCB



b. PCB front side tape on the front cover

Use jig to fixed the position

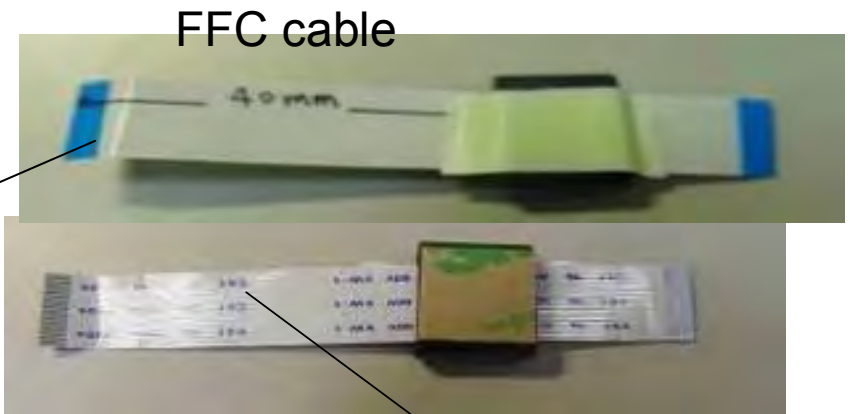


# Step 2 : front cover PCB cable process



图5

PCB Sticks on the front cover



FFC cable



图7

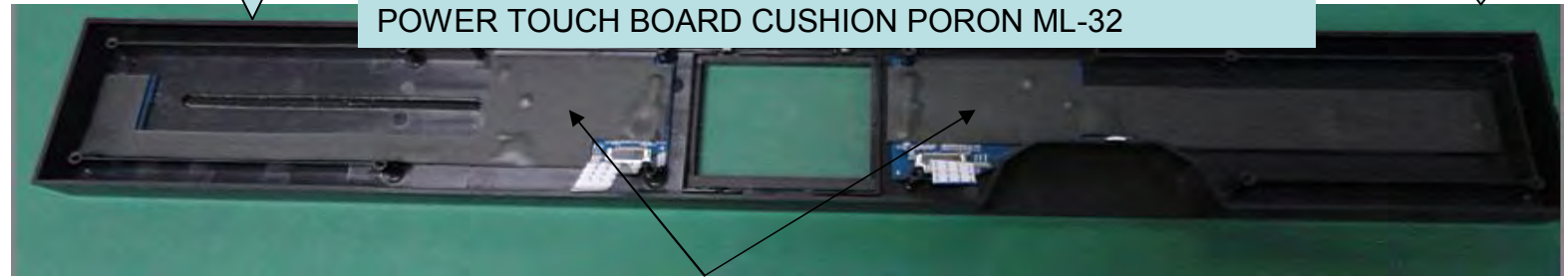
CD touch board



图6

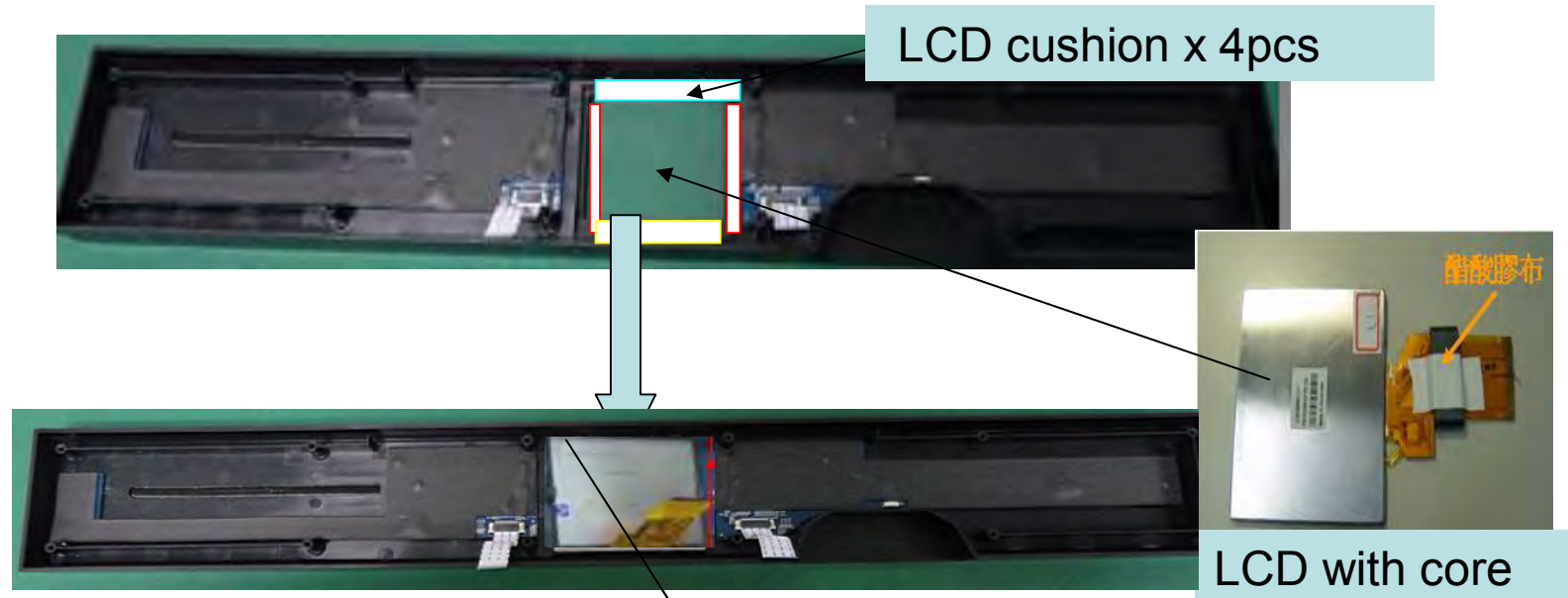
Navigation board

Tape the sponge on the board back side:  
 CD TOUCH BOARD CUSHION PORON ML-32  
 POWER TOUCH BOARD CUSHION PORON ML-32

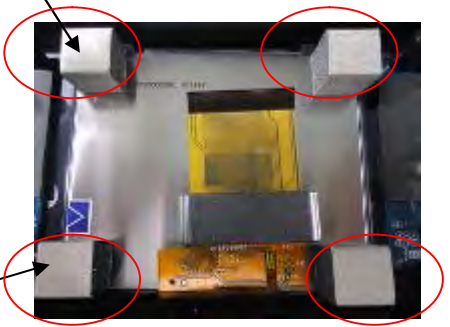


SPONGE

### Step 3 : front cover LCD process

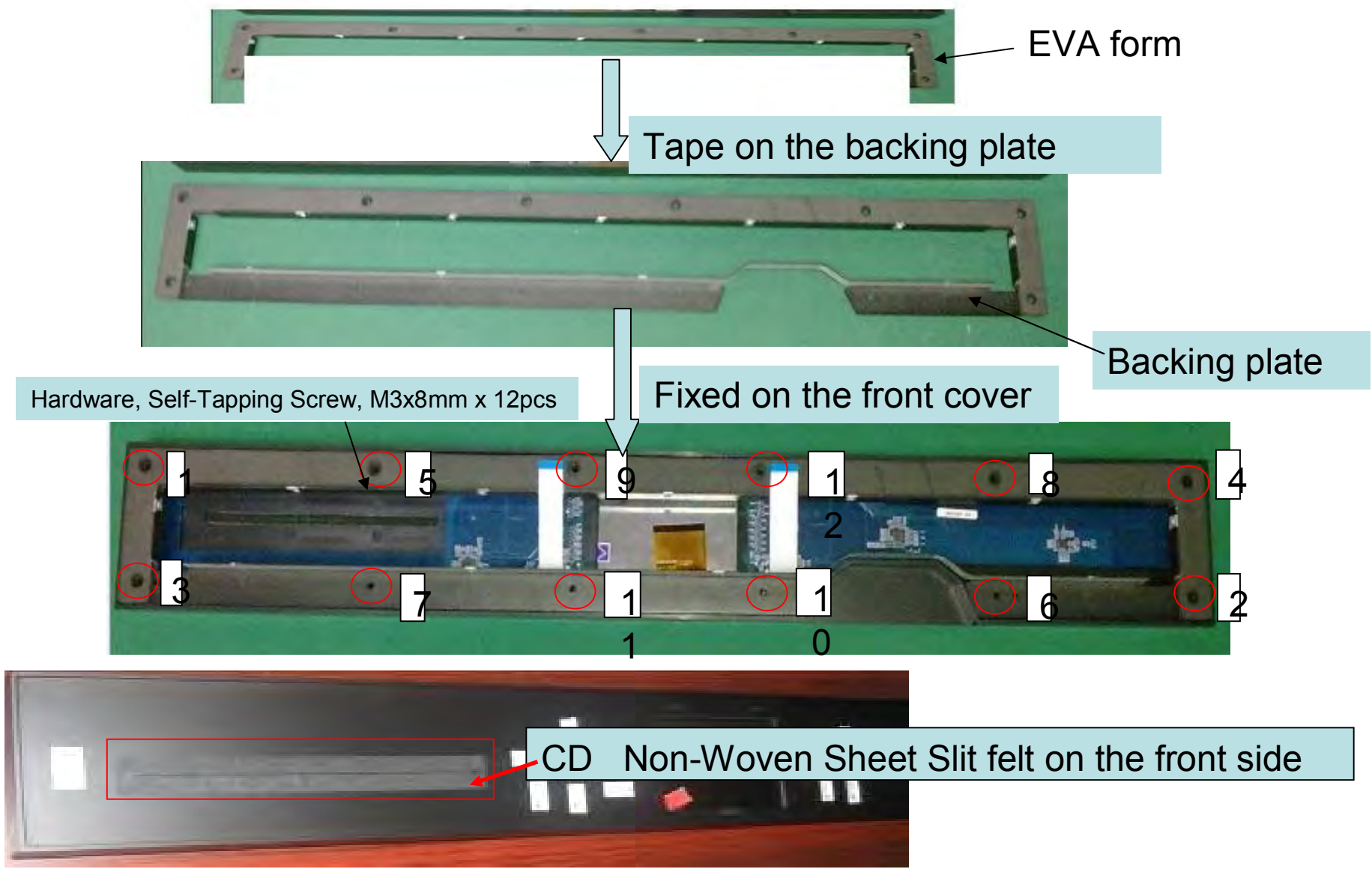


- a. LCD cushion on the front cover
- b. Put on LCD on the front cover
- c. Add the electric conductivity sponge on the LCD 4 corner





# Step 4 : front cover backing plate process

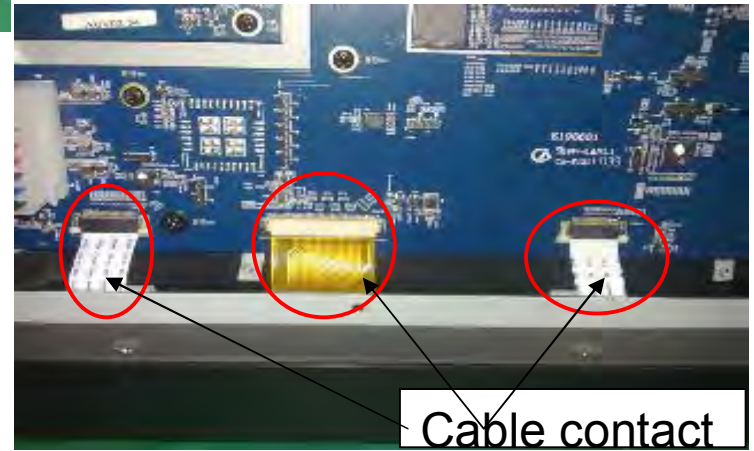
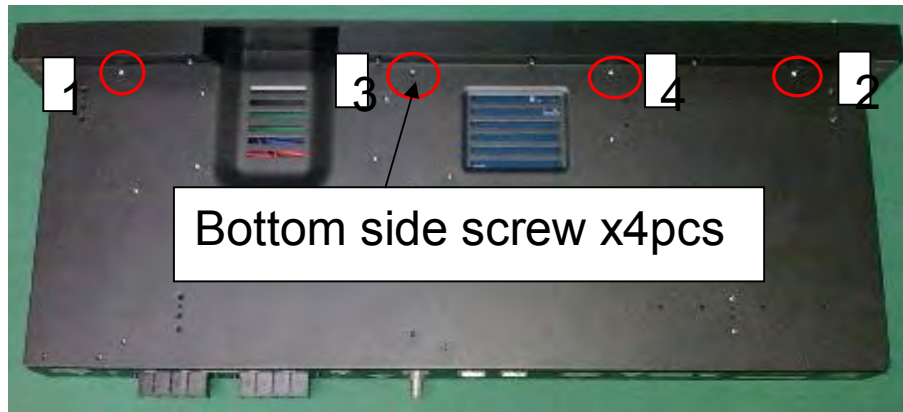
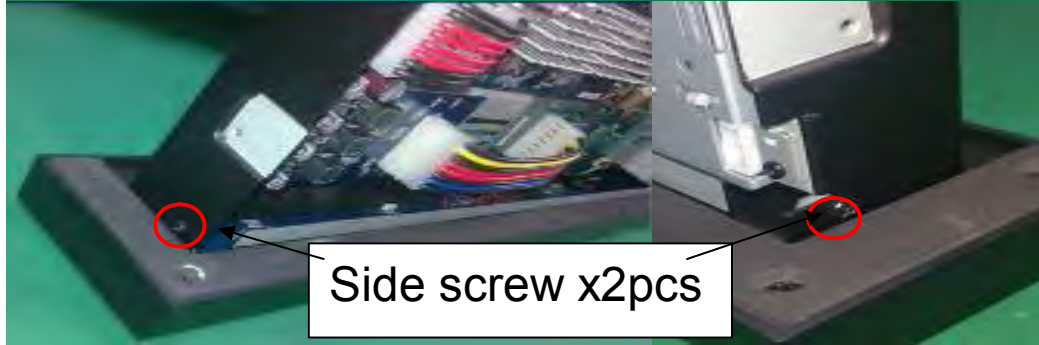


## **unit assembly process**

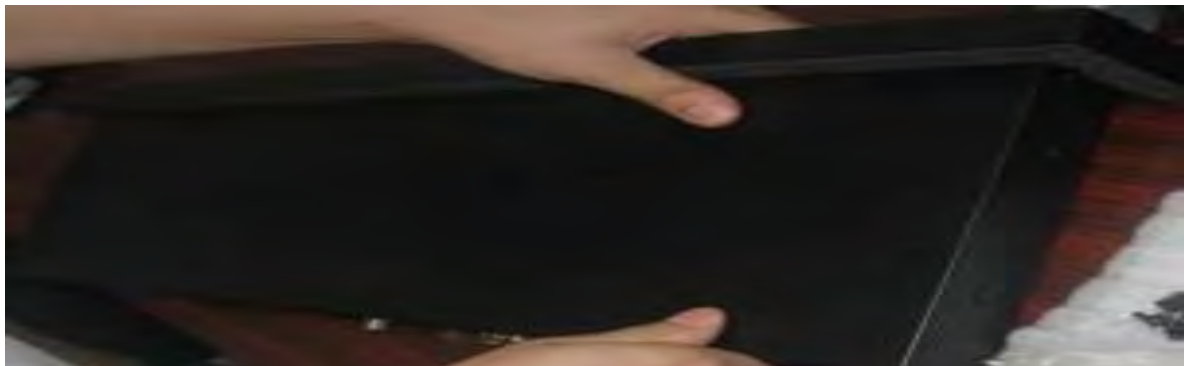
# Step 1 : front cover assembly and bottom cover assembly



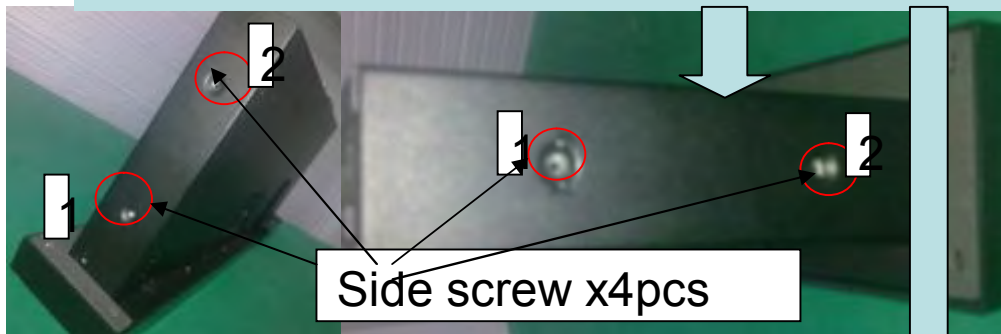
- a. Front cover and bottom cover assembly
- b. Use screw to fixed (6pcs)
- c. cable contact on the board



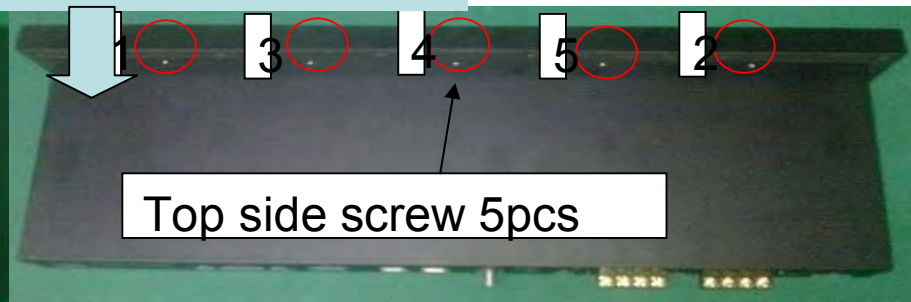
# Step 2 : Top cover slide into the assembly



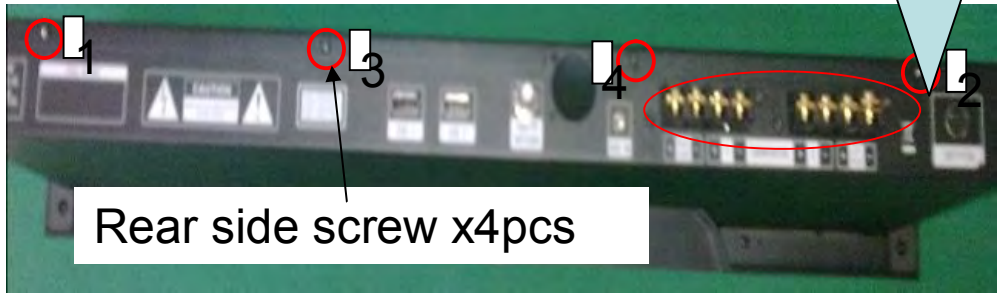
Hardware, Screw, M3x5mm, Phillips Pan head, MACHINE, BLACK OXIDE (13pcs)



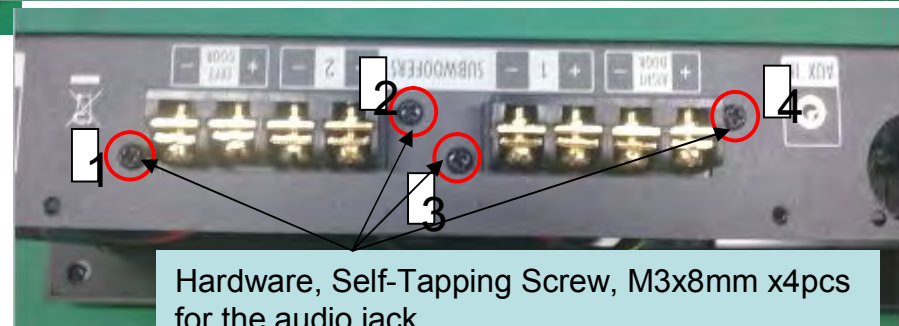
Side screw x4pcs



Top side screw 5pcs

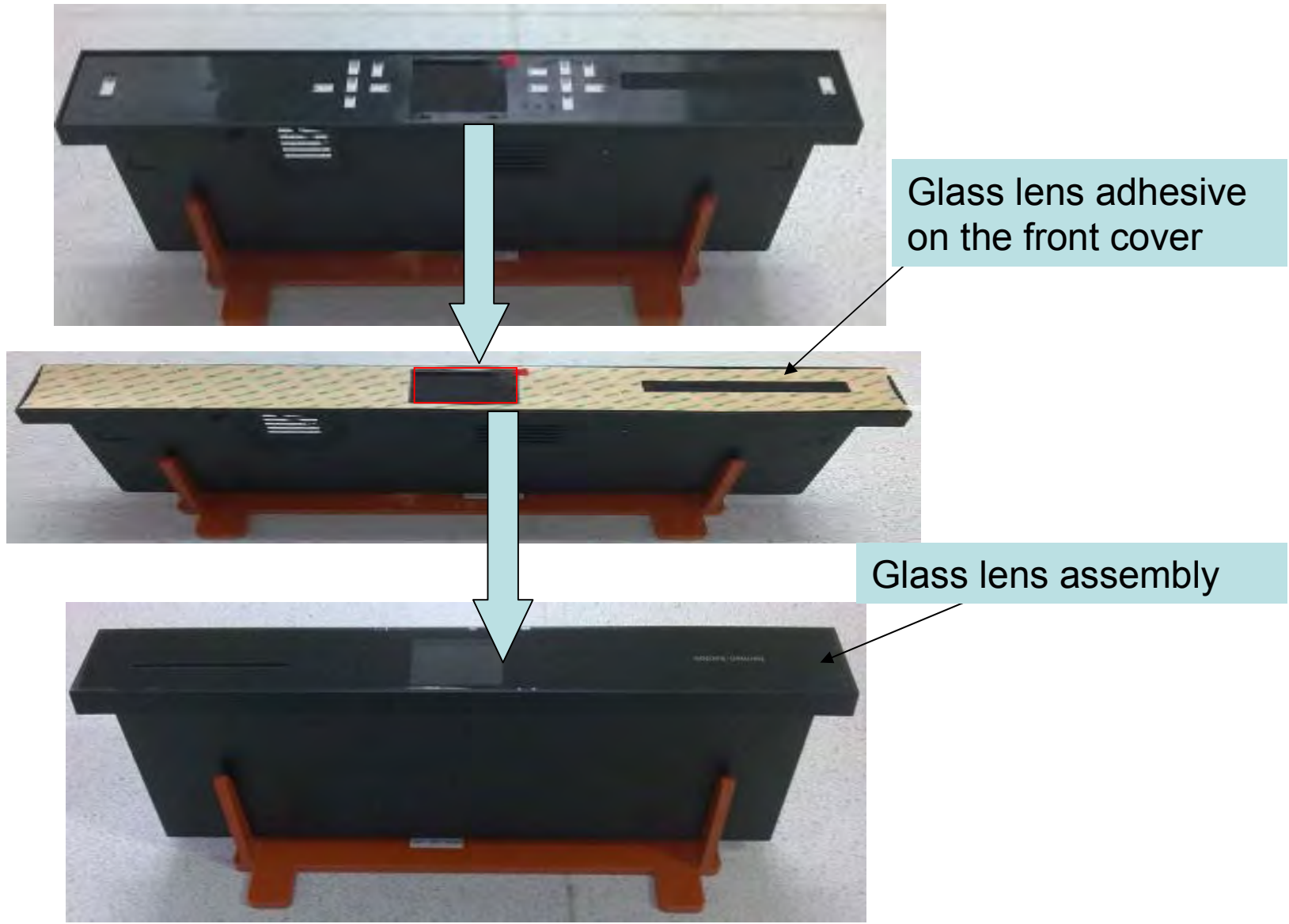


Rear side screw x4pcs



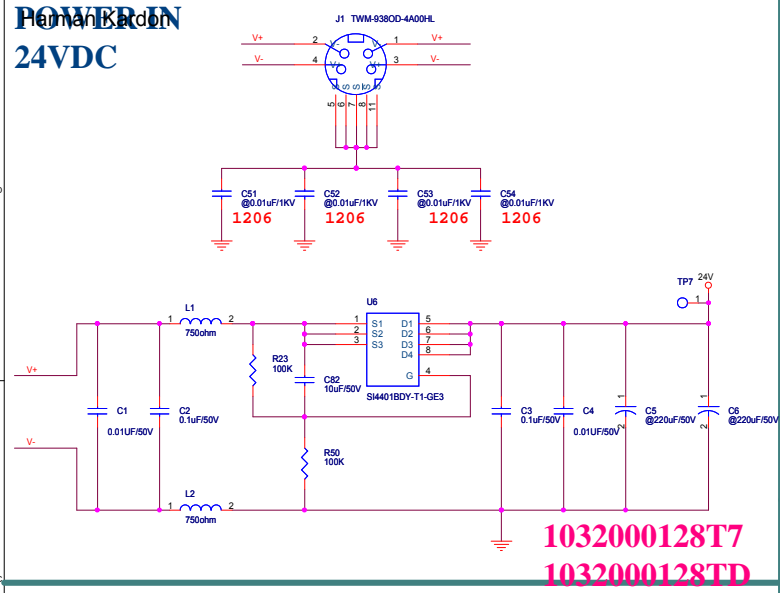
Hardware, Self-Tapping Screw, M3x8mm x4pcs for the audio jack

### Step 3 : Glass lens put into the assembly



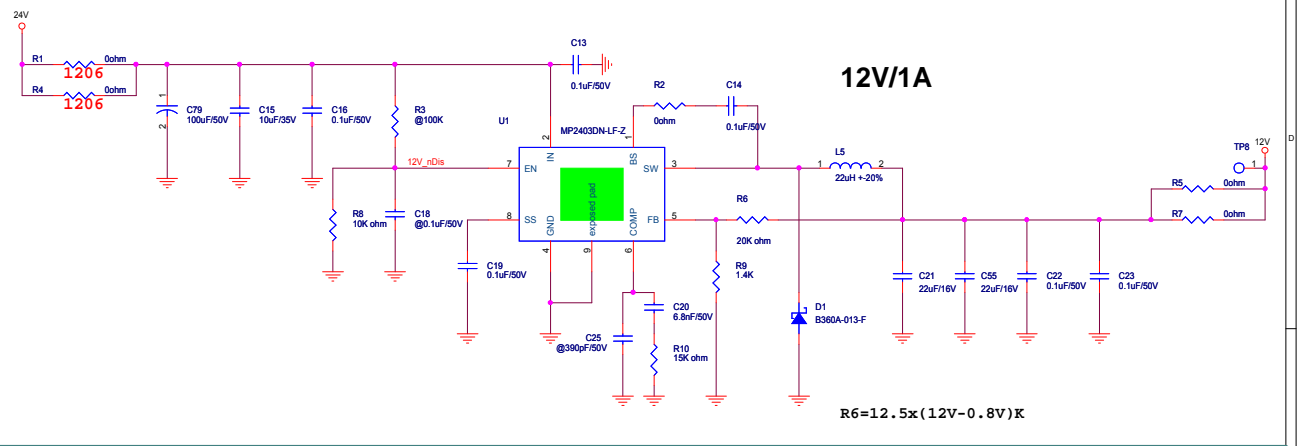
**POWER**

**24VDC**



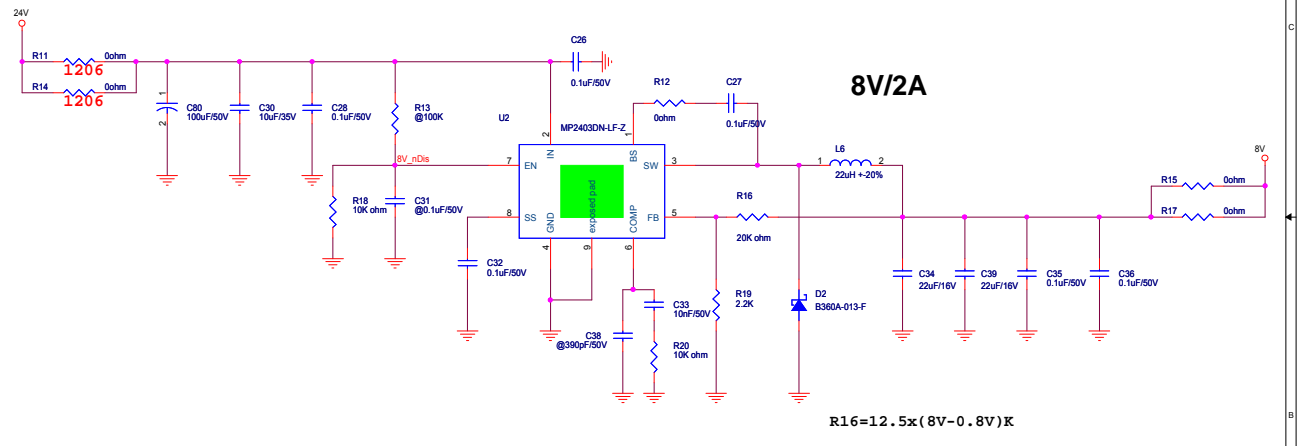
1032000128T7  
1032000128TD

**24V to 12V (MP2403)**



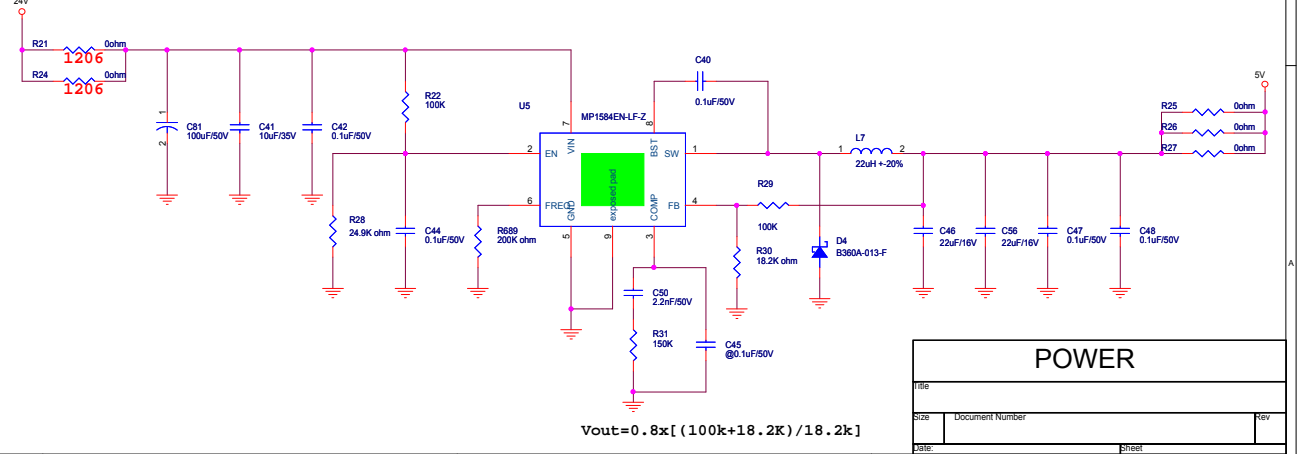
**12V/1A**  
 $R6 = 12.5 \times (12V - 0.8V) K$

**24V to 8V (MP2403)**



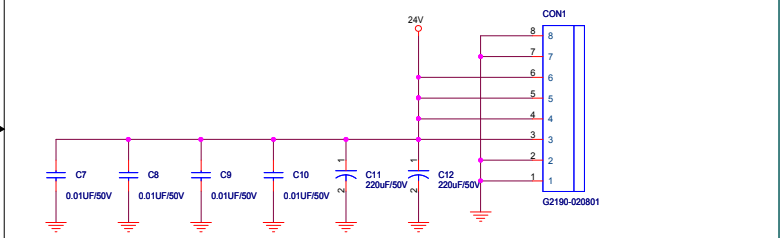
**8V/2A**  
 $R16 = 12.5 \times (8V - 0.8V) K$

**24V to 5V (MP1584)**

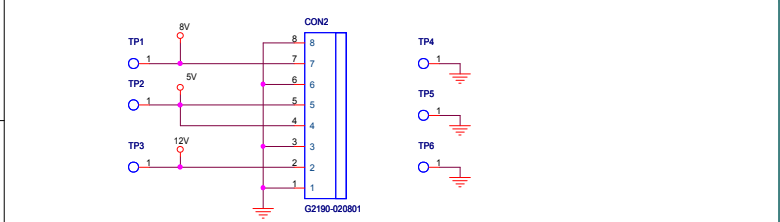


$V_{out} = 0.8 \times [(100k + 18.2k) / 18.2k]$

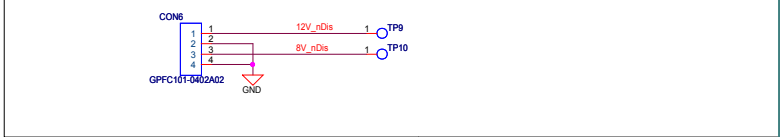
**POWER CONN. to Audio Board**



**POWER CONN. to Main Board**



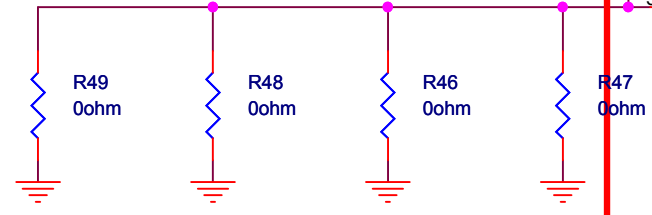
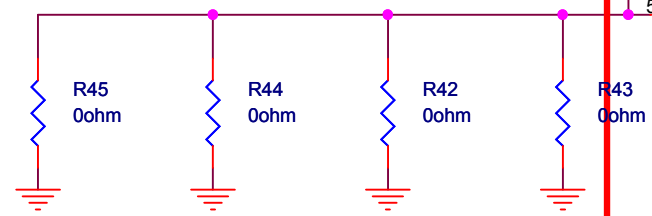
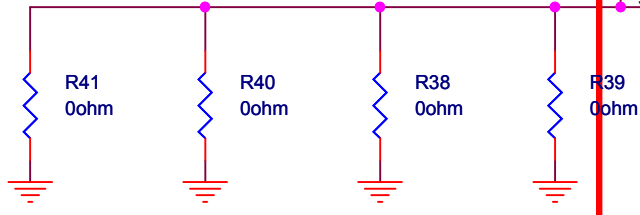
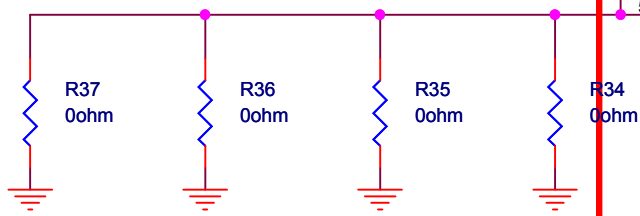
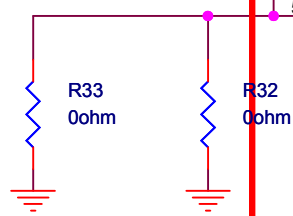
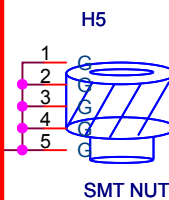
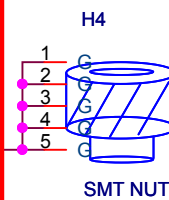
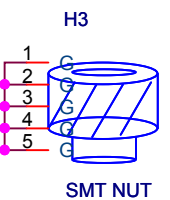
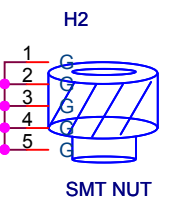
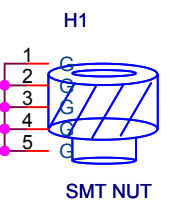
**Power Board Enable**



POWER		
File		
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Date	Sheet	

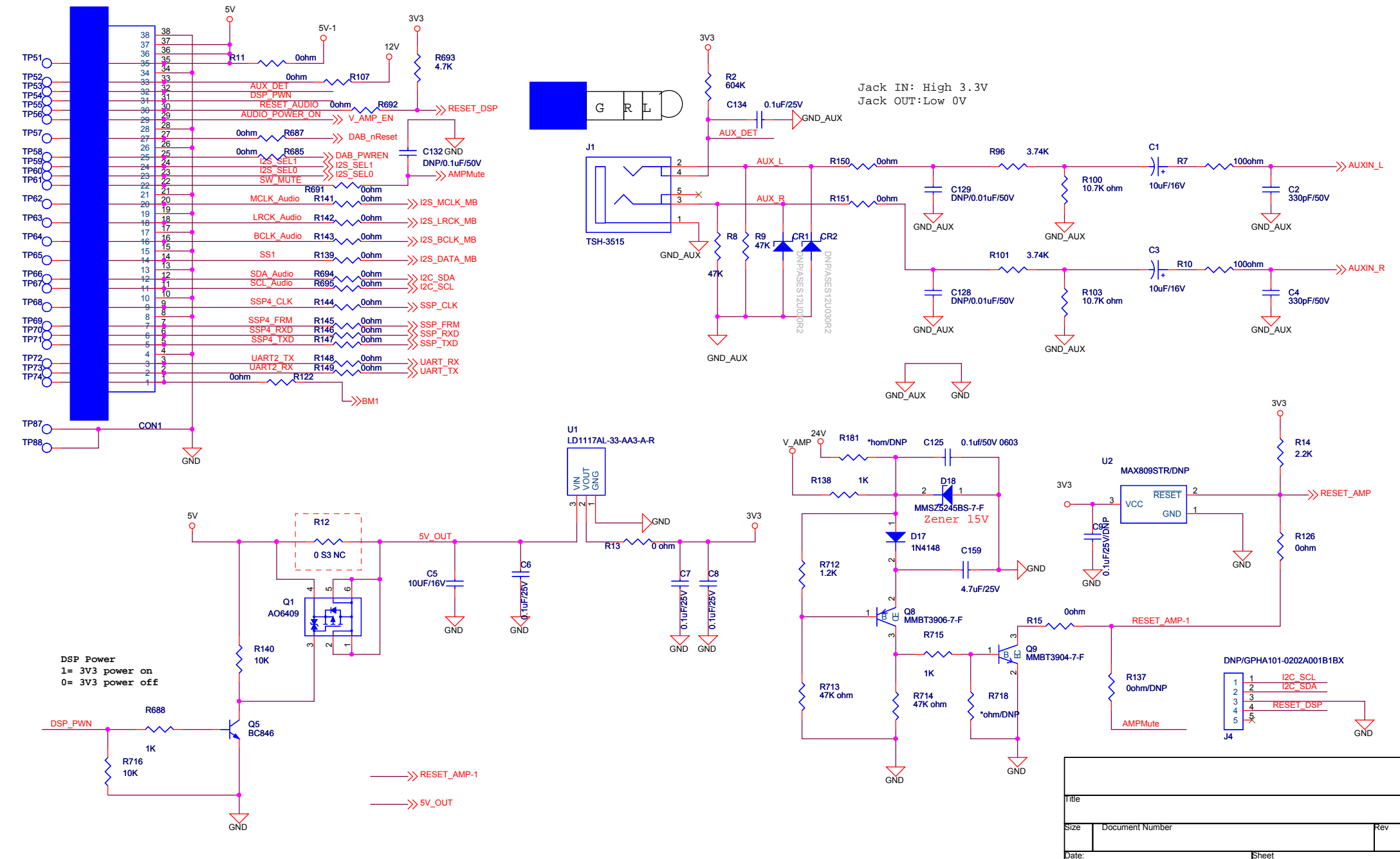
# Bottom Layer

# Bottom Layer



SCREW HOLES		
Title		
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Date:	Sheet	

88706-3801



DSP Power  
 1= 3V3 power on  
 0= 3V3 power off

Jack IN: High 3.3V  
 Jack OUT: Low 0V

DNP/GPHA101-0202A001B1BX

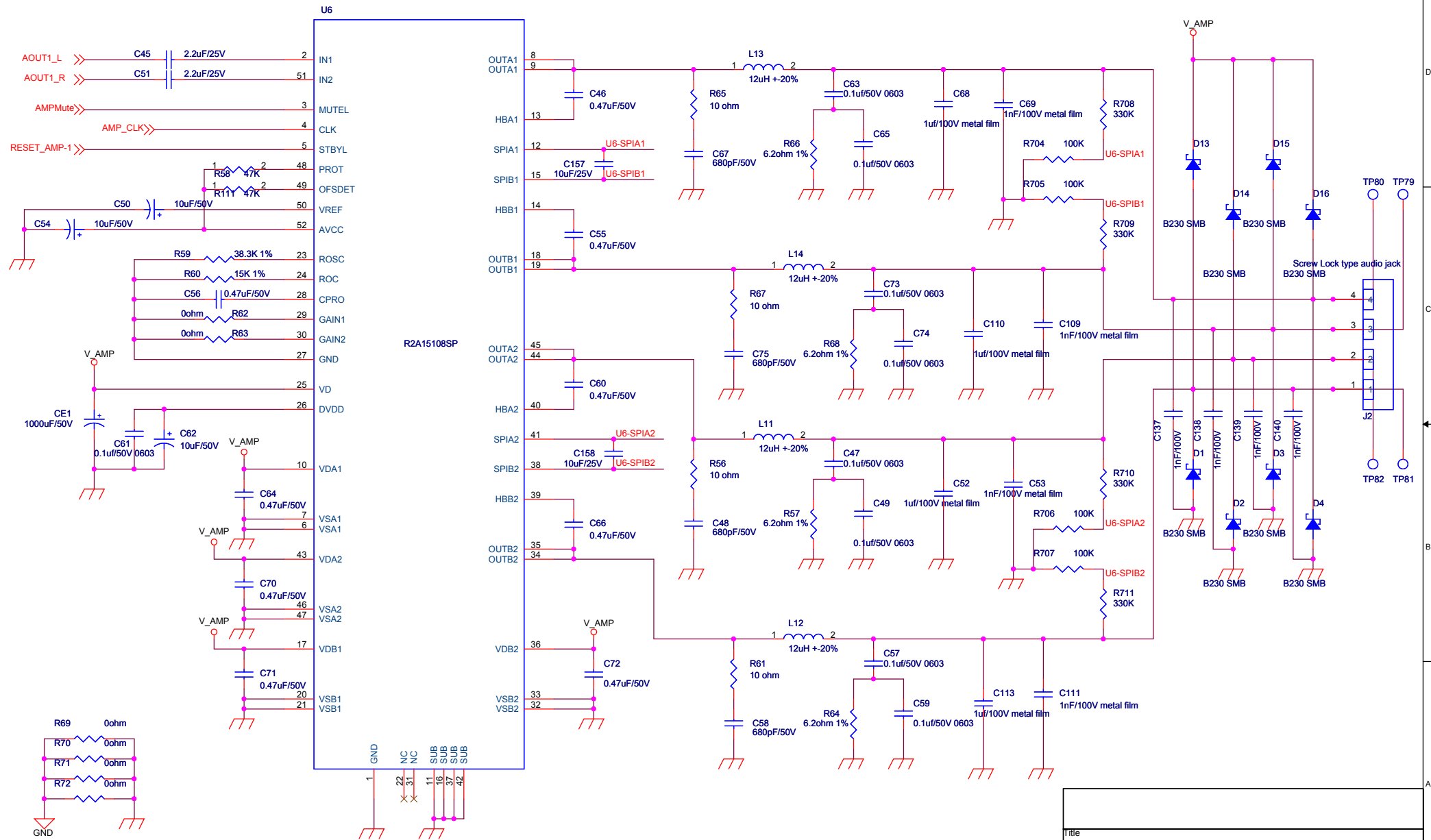
1	1	I2C_SCL
2	2	I2C_SDA
3	3	
4	4	RESET_DSP
5	5	

Title		
Size	Document Number	Rev
Date:	Sheet	

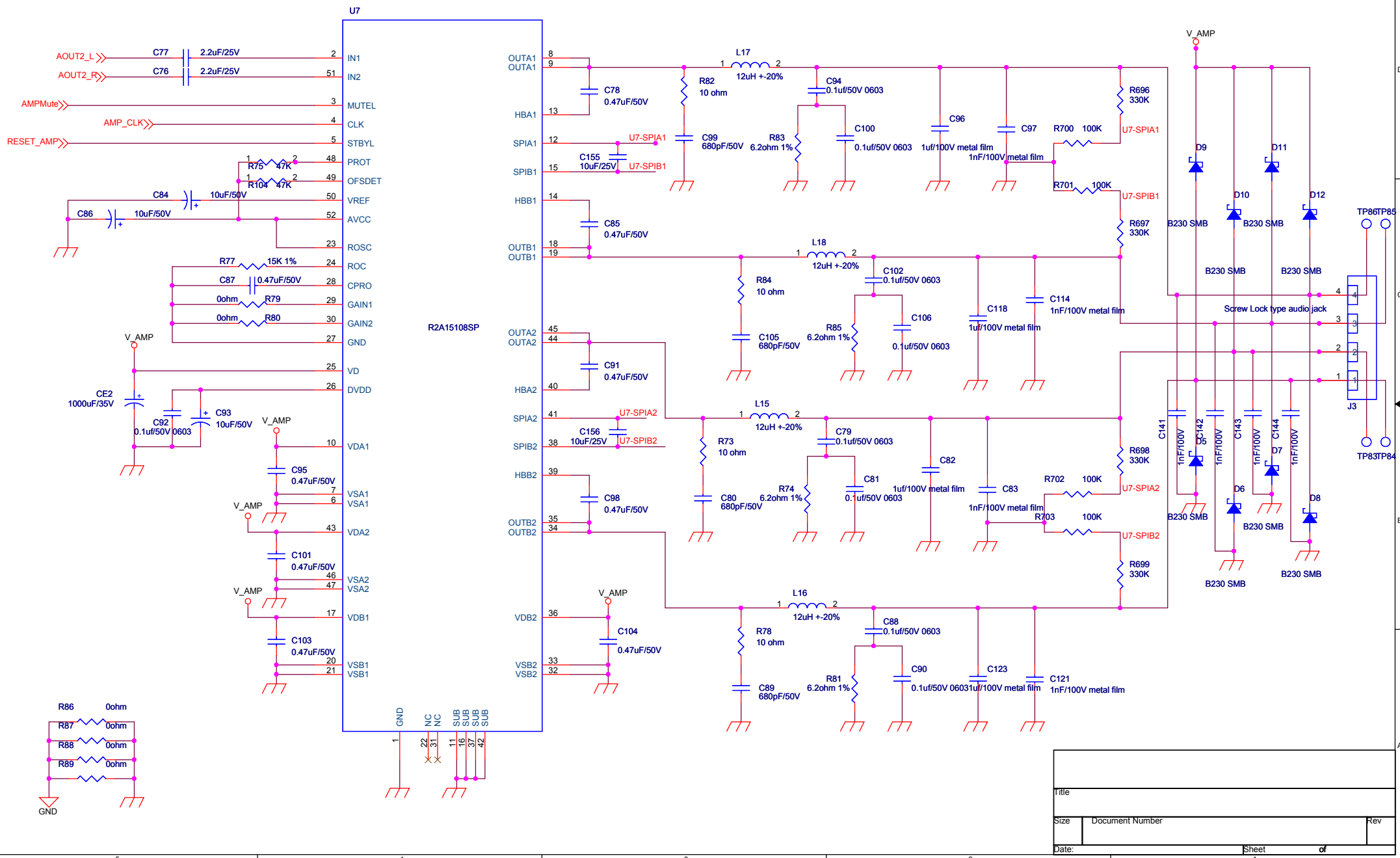




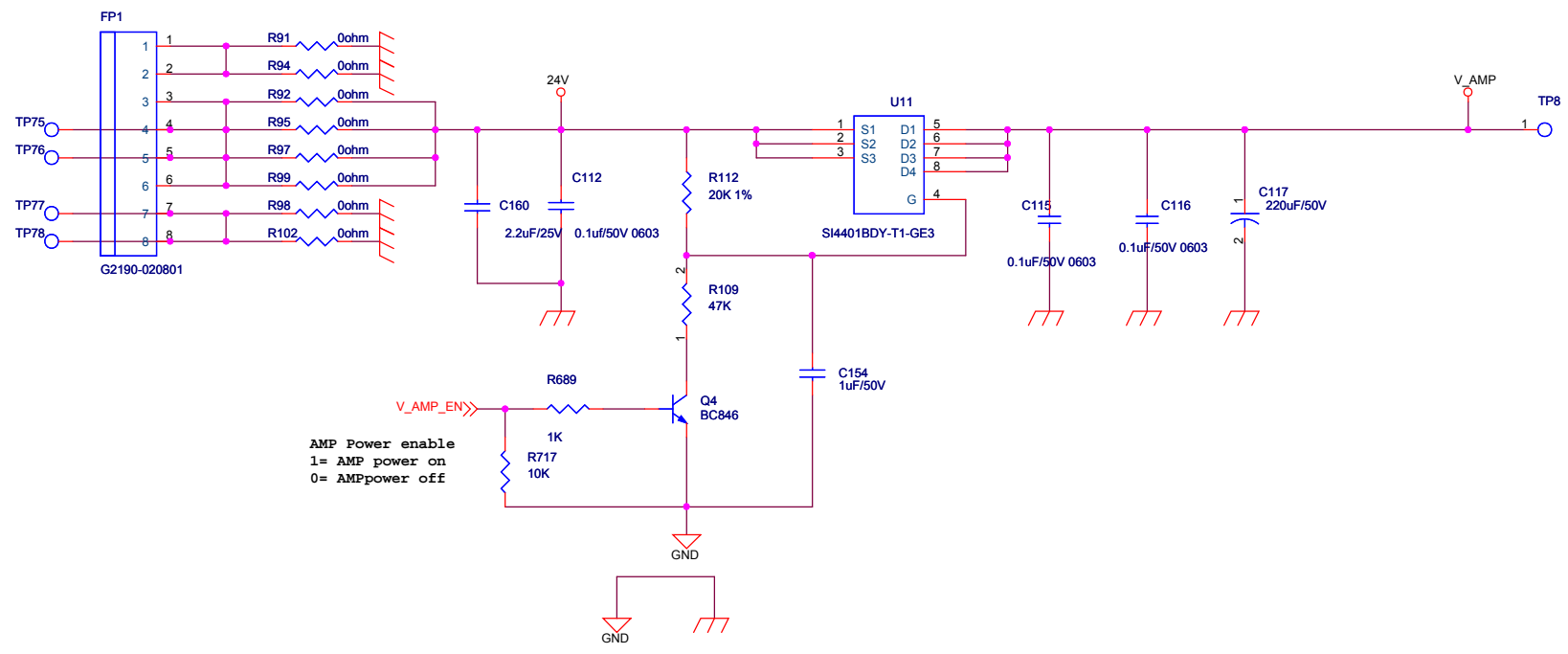
RESET\_AMP-1



Title		
Size	Document Number	Rev
Date:	Sheet	

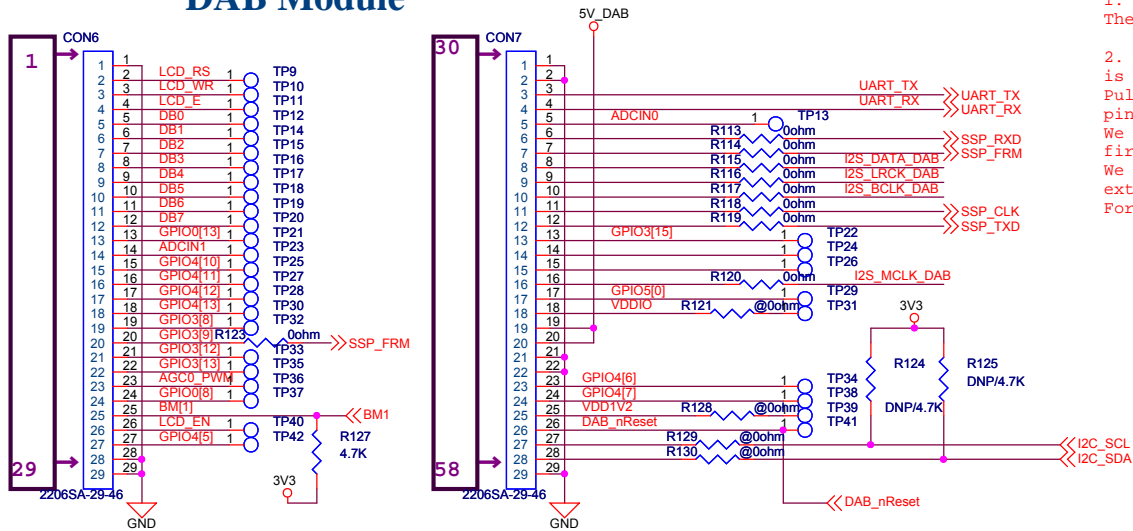


Title		
Size	Document Number	Rev
Date:	Sheet	of

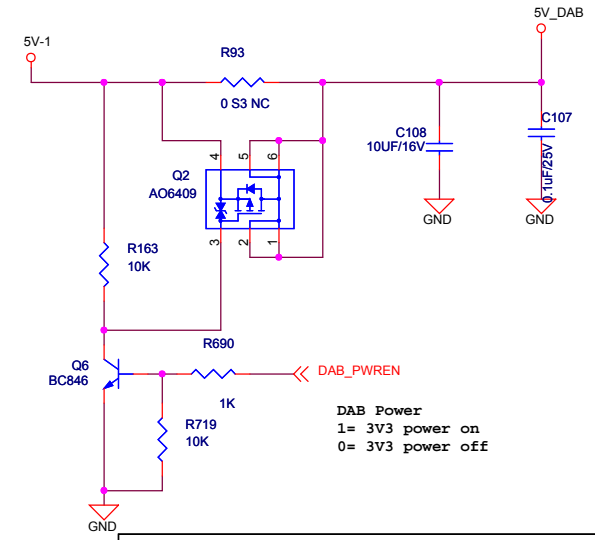
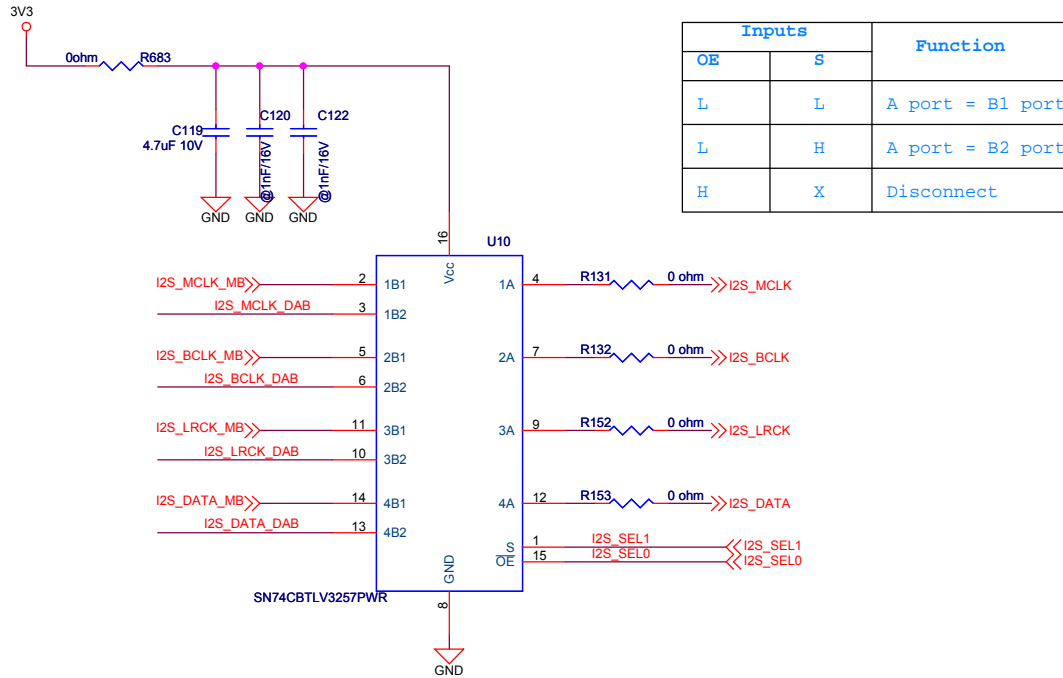
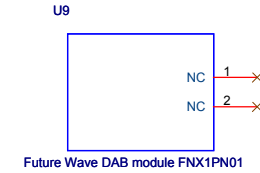


<b>NA-BU</b>		
Title		
Size	Document Number	Rev
B		V00
Date:	Thursday, September 16, 2010	Sheet 5 of 7

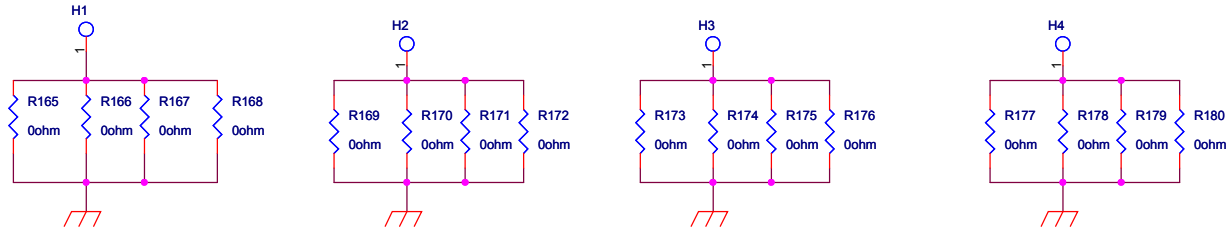
# DAB Module



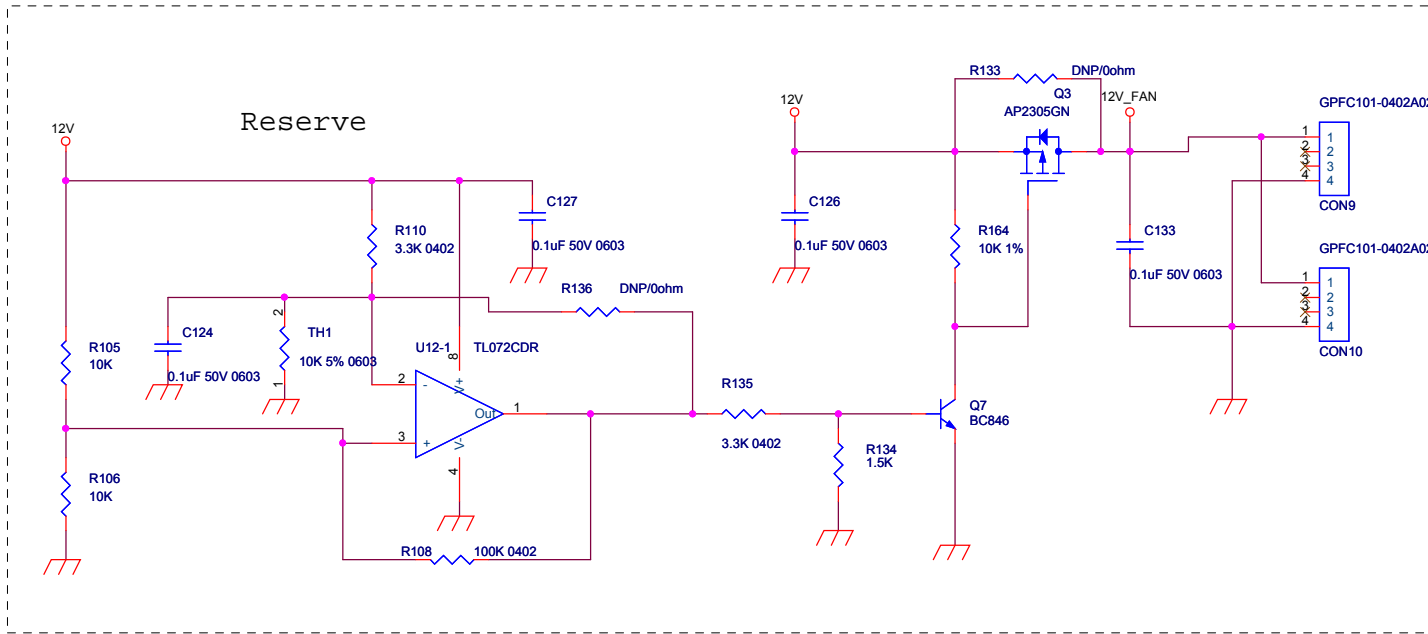
- Please use module pin #20 GPIO3[9] for SPIM\_nCS1 in slave mode. The pin #36 SPIM\_nCS0 has been used for the module Flash memory access.
- Pin# 25 BM[1] is reserved for module firmware download in case for any change is needed. Pull high the BM[1] pin and the module firmware can be downloaded via the UART pins at #32 and #33. We suggest you to reserve the hardware option in your main board for the module firmware download during the development stage. We will provide the PC based download tool thru UART\_TX/UART\_RX pins and an external RS232 transceiver (5V). For normal operation, BM[1] is pull low or NC.



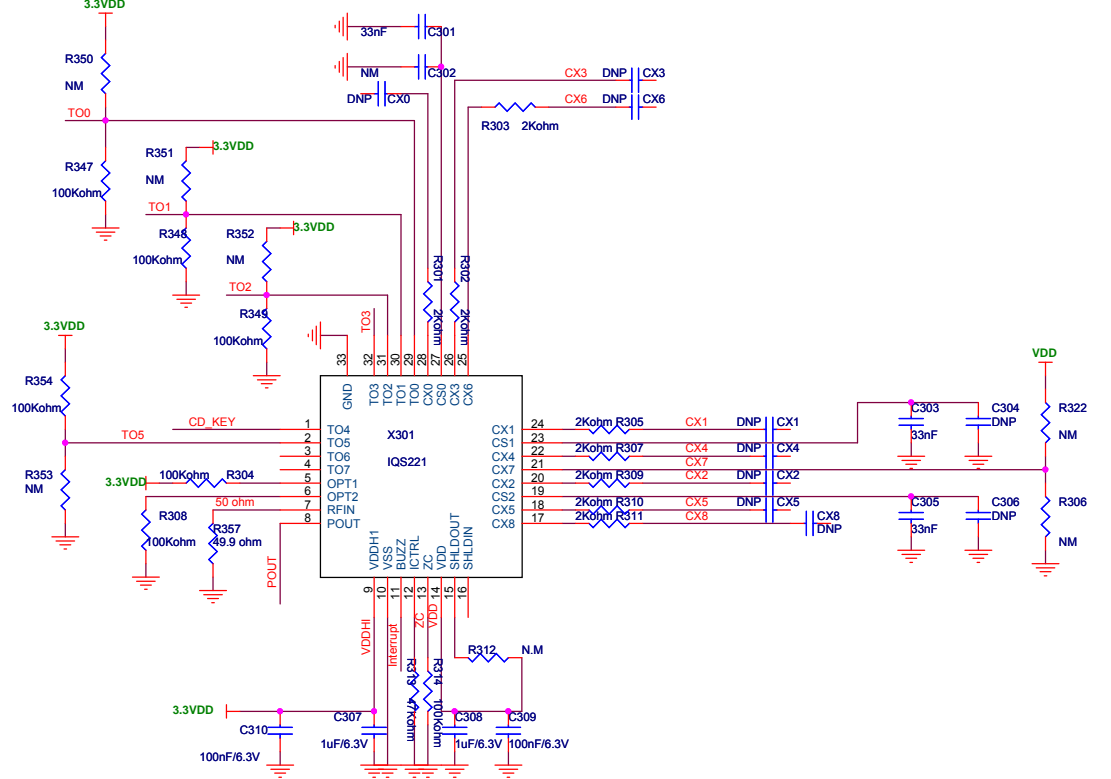
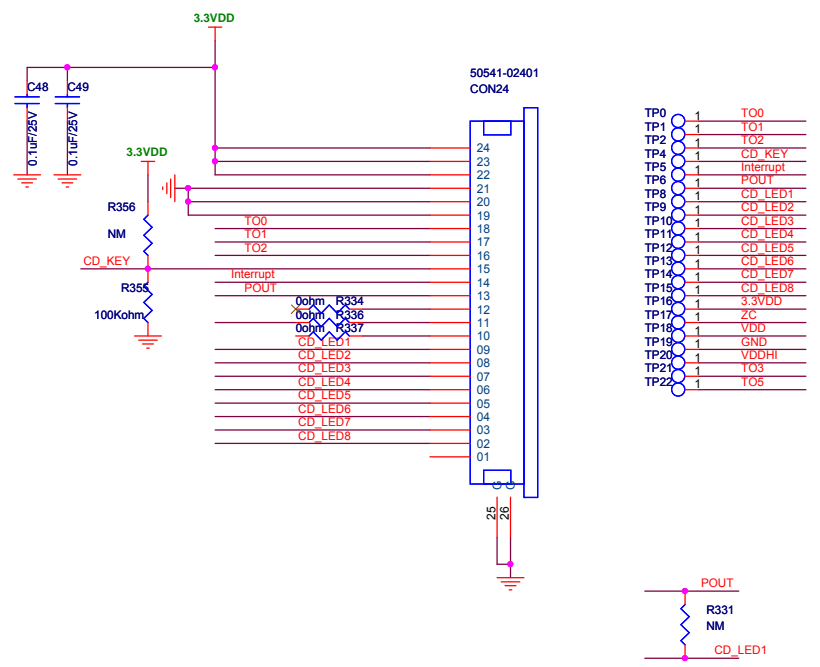
<b>NA-BU</b>		
Title		
Size	Document Number	Rev
B		V00
Date:	Wednesday, February 16, 2011	Sheet 6 of 7



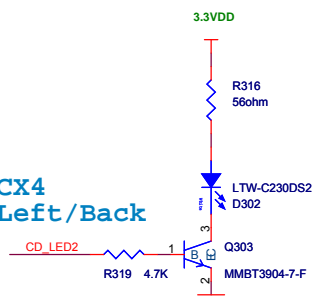
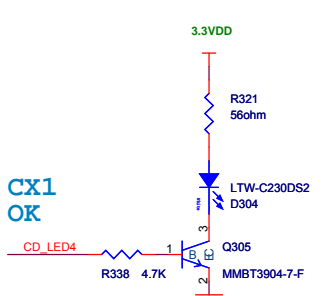
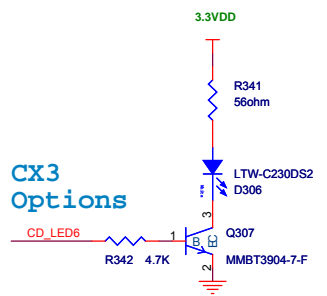
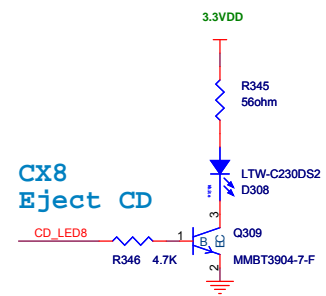
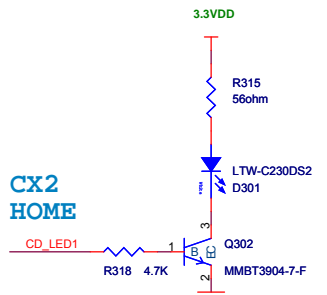
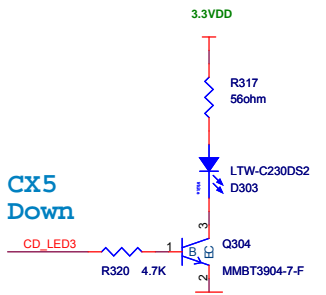
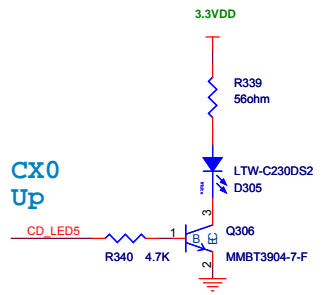
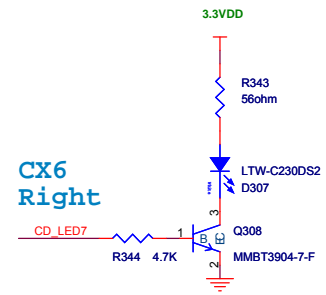
TH1 value  
 4k->40 degree Stop  
 3K->50 degree Start  
 2K->60 degree  
 1K->70 degree



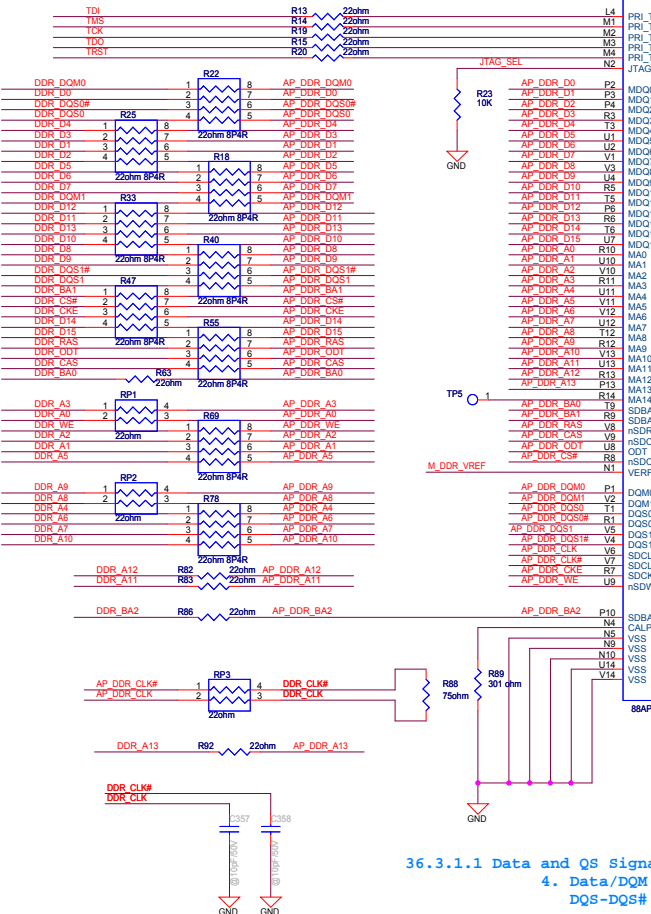
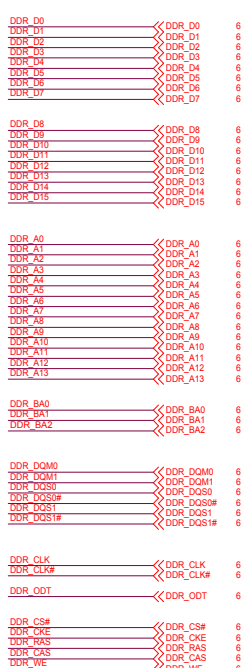
NA-BU		
Title		
Size	Document Number	Rev
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Date:	Monday, November 22, 2010	Sheet 7 of 7



LED

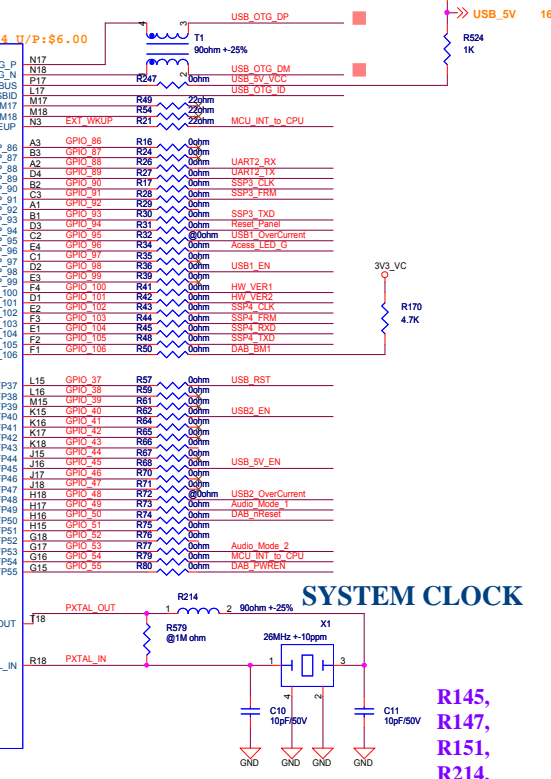


### DDR2 Off-Page



### 88AP162

### SYSTEM CLOCK



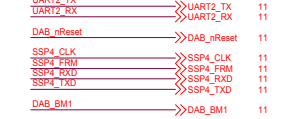
### LCD Panel Off-Page



### MCU Off-Page



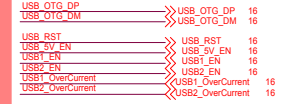
### DAB Module Off-Page



### Audio Off-Page



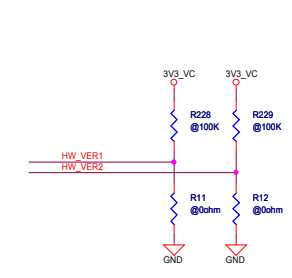
### USB Hub Off-Page



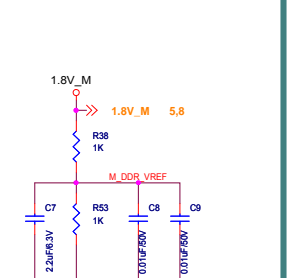
36.3.1.1 Data and QS Signals  
 4. Data/DQM traces to have impedance of 50 ohms.  
 DQS-DQS# to have differential 100 ohm traces.

R145,  
R147,  
R151,  
R214,  
R743  
==314000231E7

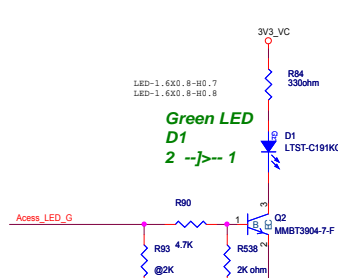
### Hardware Version



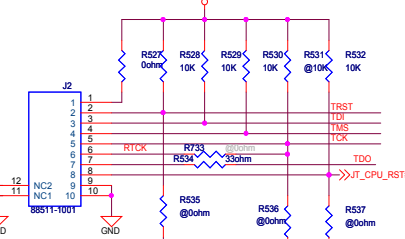
### VREF



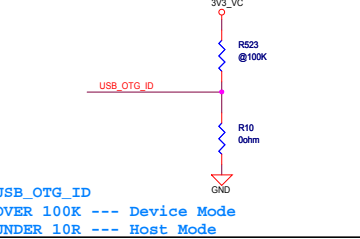
### Access LEDs



### JTAG ASPEN



### USB\_OTG\_ID

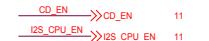
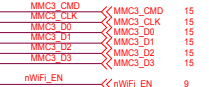


NA-BU





WiFi Off-Page



AUX-IN Off-Page



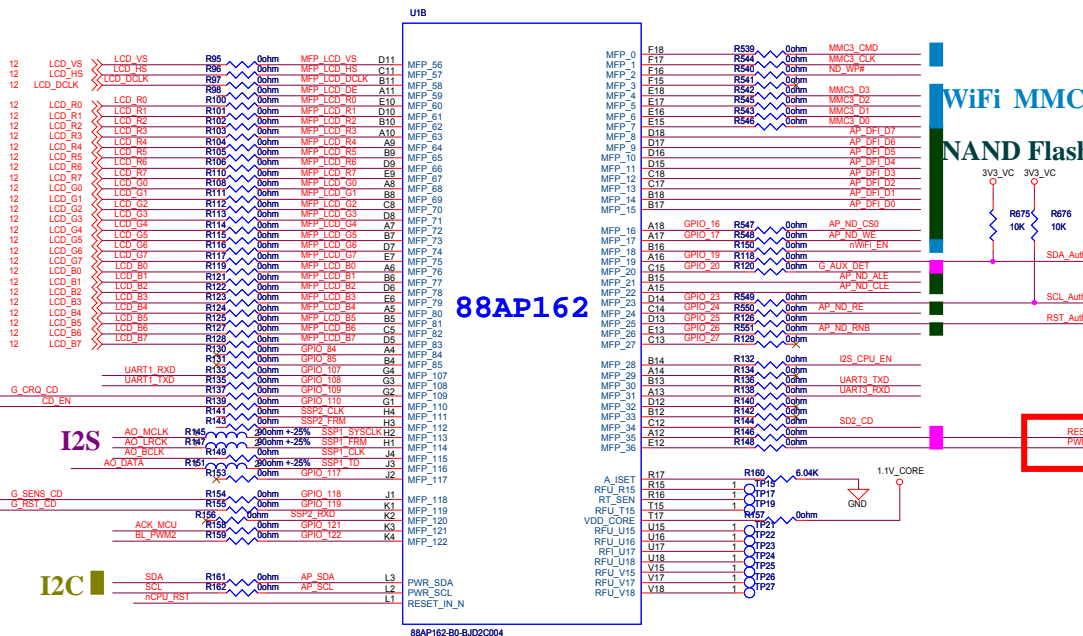
CD-ROM Off-Page



Audio Board Off-page



ASPEN-[B]-FLASH,UART,RESET,EMMC



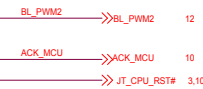
WiFi MMC3

NAND Flash

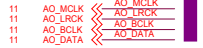
Power Off-Page



Off-Page



I2S Off-Page



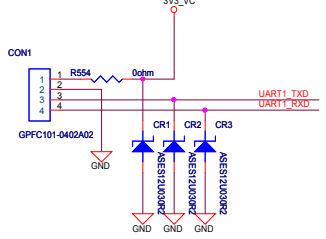
I2C Off-Page



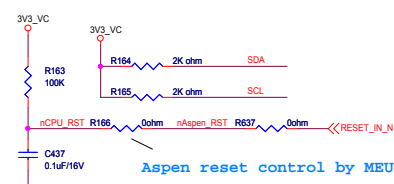
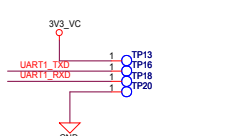
R145,  
R147,  
R151,  
R214,  
R743  
==3140000231E7



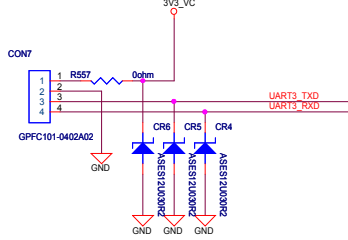
UART Connector



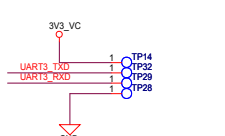
PAD FOR DEBUG



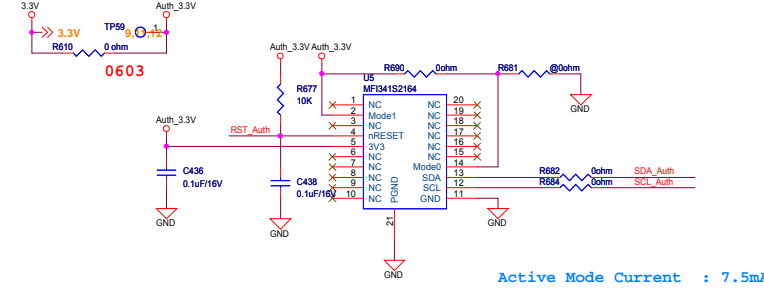
UART3 Connector



PAD FOR DEBUG

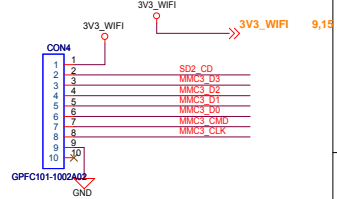


Apple Authentication

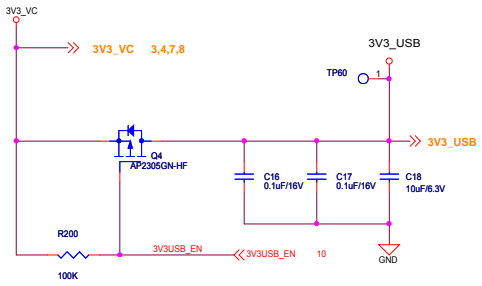


SD Function\_Pull Up

SD Card Update F/W

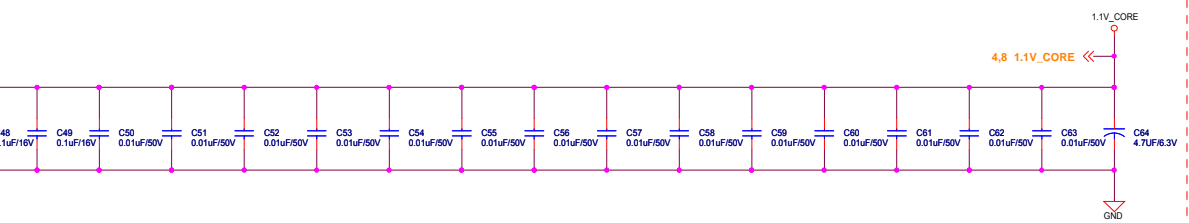
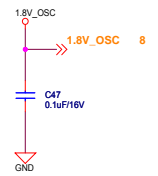
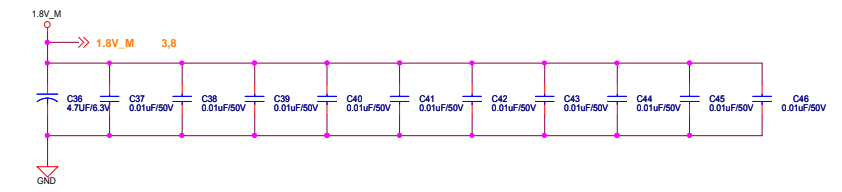
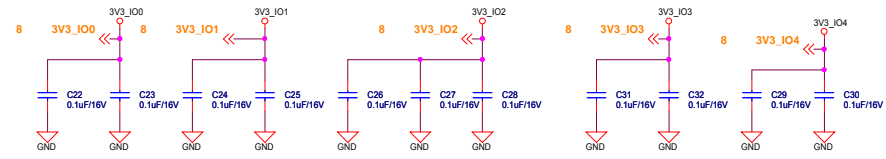


### Power Capacitor

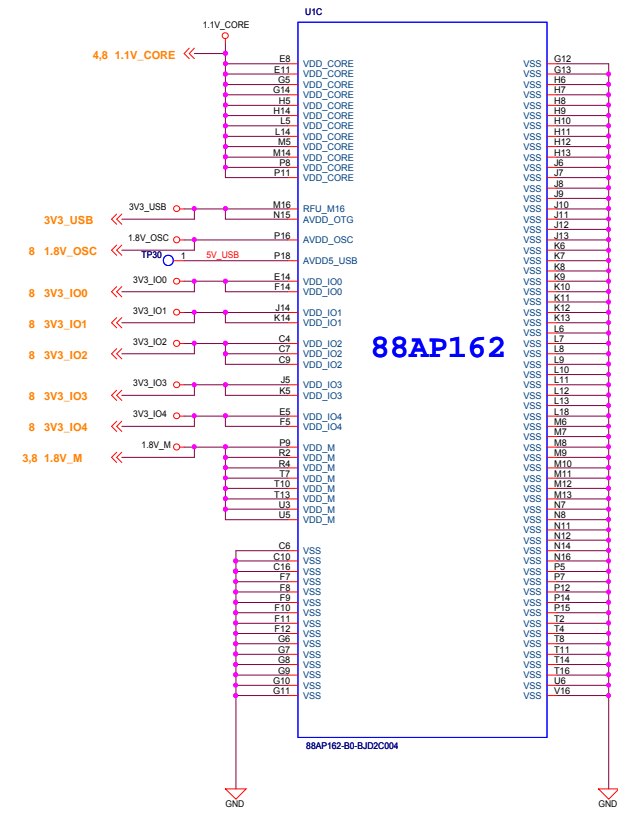


Term	Description
VDD_M	ASIC DRAM I/O power (1.8V nominal +/-10%)
VDD_CORE	core power (assume 1.1V nominal)
AVDD_USB	ASIC USB power includes AVDD_OTG and AVDD_UHC (3.3V nominal)
AVDD_USB	ASIC USB I/O power (3V nominal)
VDD_OSC	Quies 1.8V supply power for ASIC PLL/Crystal. Includes AVDD_3862 and AVDD_PLL
VDD_IO	3.3V I/O power includes VDD_IO0, VDD_IO1, VDD_IO2, VDD_IO3, VDD_IO4
RESET_IN_N	External Master Reset In pin

80% after previous power ramped up if care, used p mode with RC.  
JE\_0702



### ASPEN POWER,AUDIO



88AP162

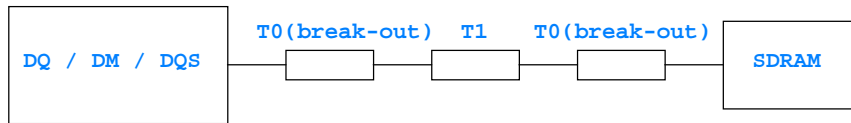
Title		Rev
Size	Document Number	Rev
Date	Sheet	1

### 36.3.3.1 DQ, DM and DQS Signals

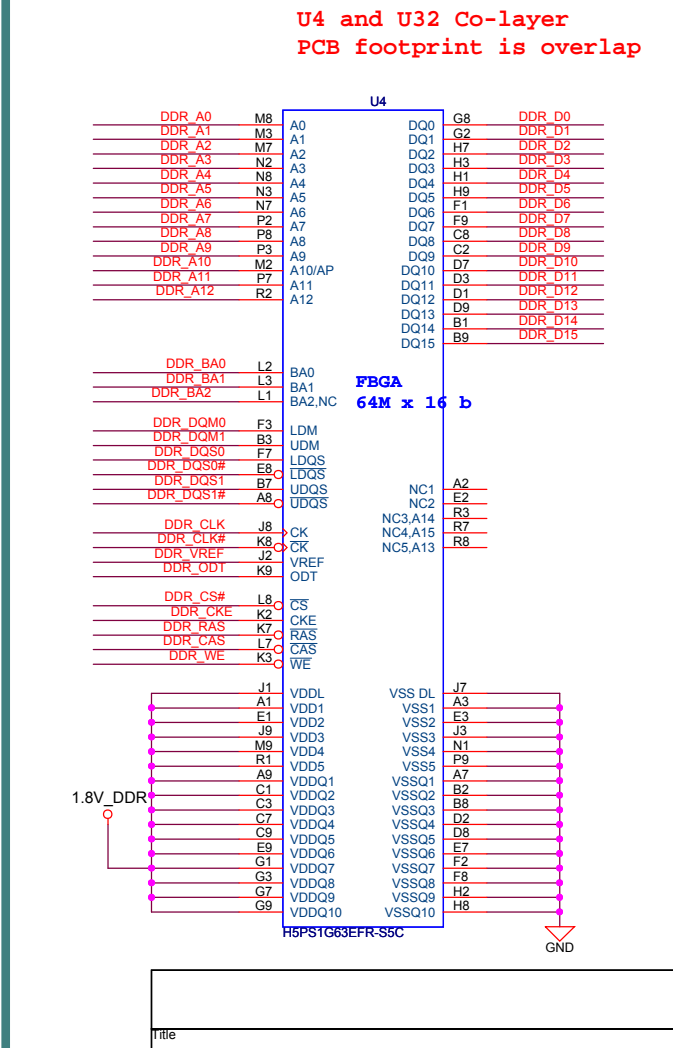
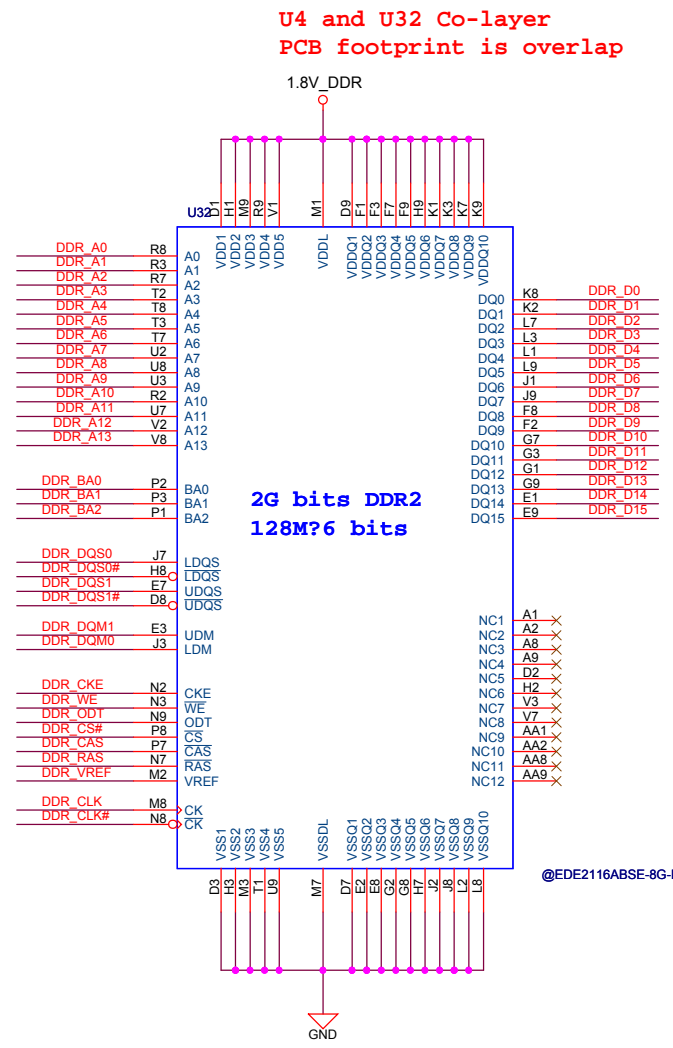
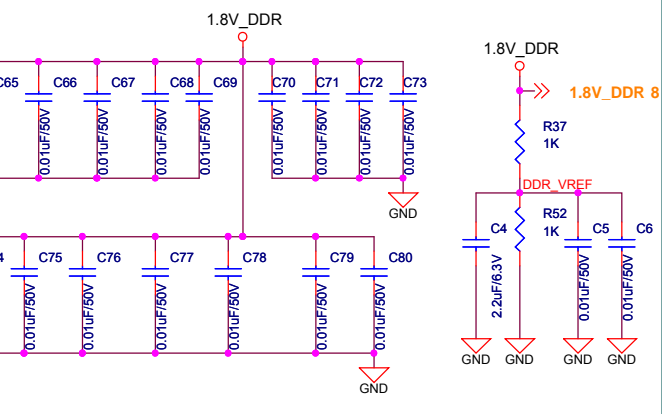
Refer to Figure 65 and Table 41 for length rules on the DQ, DM and DQS signals.

Table 41 : Absolute Length Rules for DQ, DM and DQS signals

MK-100 Service Manual



Signal Group	Trace	Max Length	Typical Trace Width	Min Trace Spacing
DQ, DM and DQS	T0	0.4"	5 mils	5 mils
DQ, DM and DQS	T1	7.0"	5 mils	10 mils



Title		
Size	Document Number	Rev
Date:	Sheet	of

# NAND Flash Off-Page NAND Flash 2-Gbit

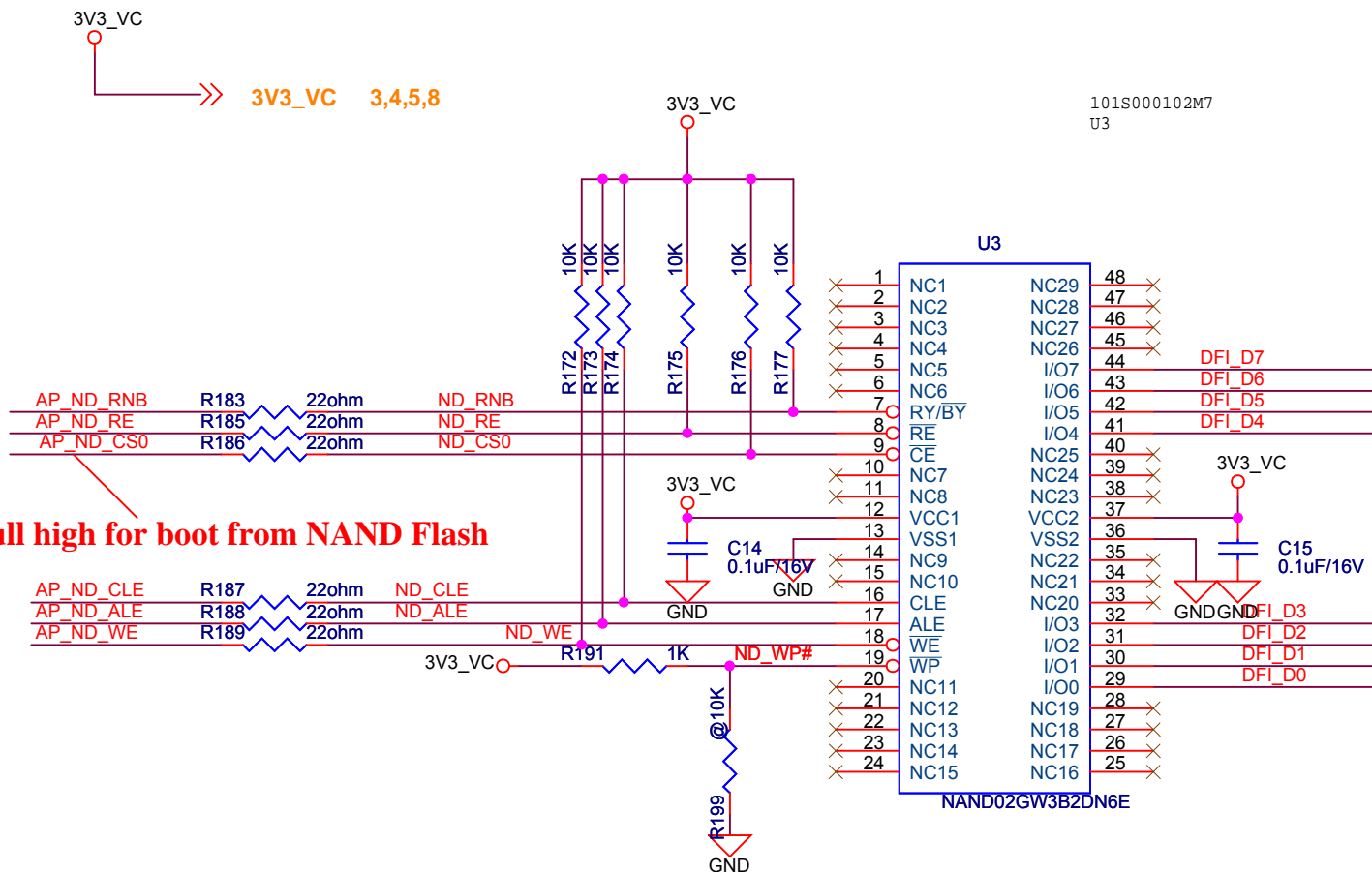
101S000102M7 NAND02GW3B2DN6E SLC

AP_DFI_D0	>>>	AP_DFI_D0	4
AP_DFI_D1	>>>	AP_DFI_D1	4
AP_DFI_D2	>>>	AP_DFI_D2	4
AP_DFI_D3	>>>	AP_DFI_D3	4
AP_DFI_D4	>>>	AP_DFI_D4	4
AP_DFI_D5	>>>	AP_DFI_D5	4
AP_DFI_D6	>>>	AP_DFI_D6	4
AP_DFI_D7	>>>	AP_DFI_D7	4

AP_ND_RNB	>>>	AP_ND_RNB	4
AP_ND_RE	>>>	AP_ND_RE	4
AP_ND_CS0	>>>	AP_ND_CS0	4

AP_ND_CLE	>>>	AP_ND_CLE	4
AP_ND_ALE	>>>	AP_ND_ALE	4
AP_ND_WE	>>>	AP_ND_WE	4

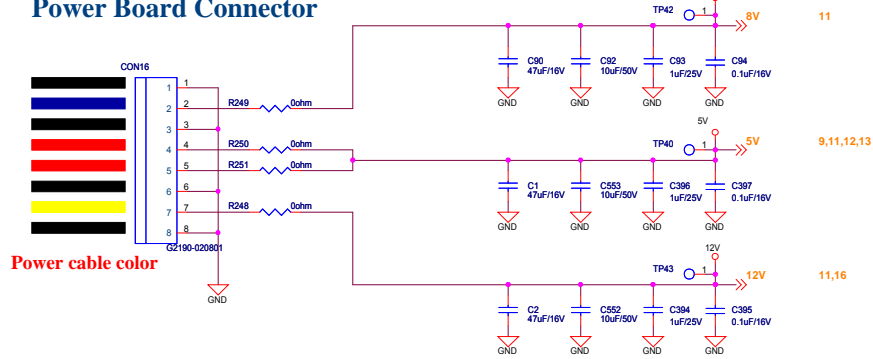
ND_WP#	>>>	ND_WP#	4
--------	-----	--------	---



DFI_D0	R168	22ohm	AP_DFI_D0
DFI_D1	R169	22ohm	AP_DFI_D1
DFI_D2	R178	22ohm	AP_DFI_D2
DFI_D3	R179	22ohm	AP_DFI_D3
DFI_D4	R180	22ohm	AP_DFI_D4
DFI_D5	R181	22ohm	AP_DFI_D5
DFI_D6	R182	22ohm	AP_DFI_D6
DFI_D7	R184	22ohm	AP_DFI_D7

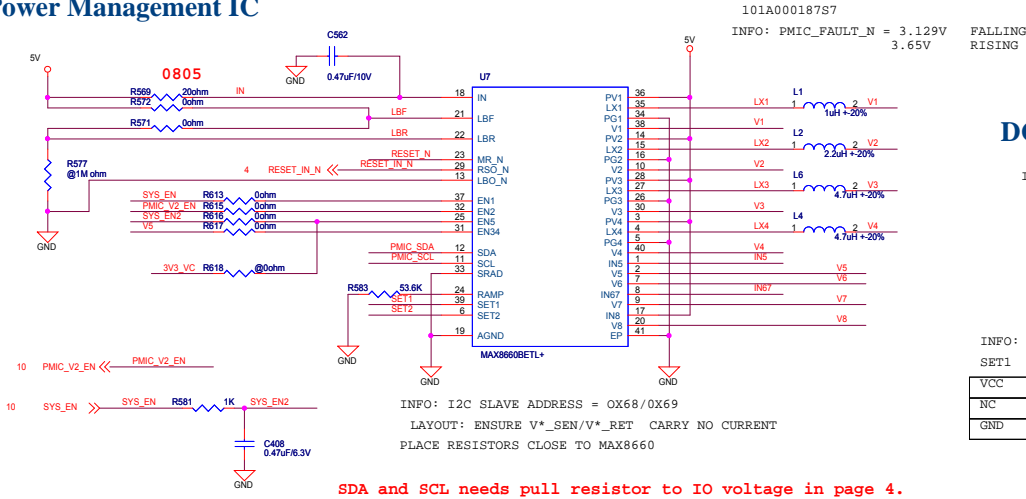
R190	@2.2K	DFI_D7
R192	@2.2K	DFI_D6
R193	@2.2K	DFI_D5
R194	@2.2K	DFI_D4
R195	@2.2K	DFI_D3
R196	@2.2K	DFI_D2
R197	@2.2K	DFI_D1
R198	@2.2K	DFI_D0

NA-BU



Power cable color

Power Management IC

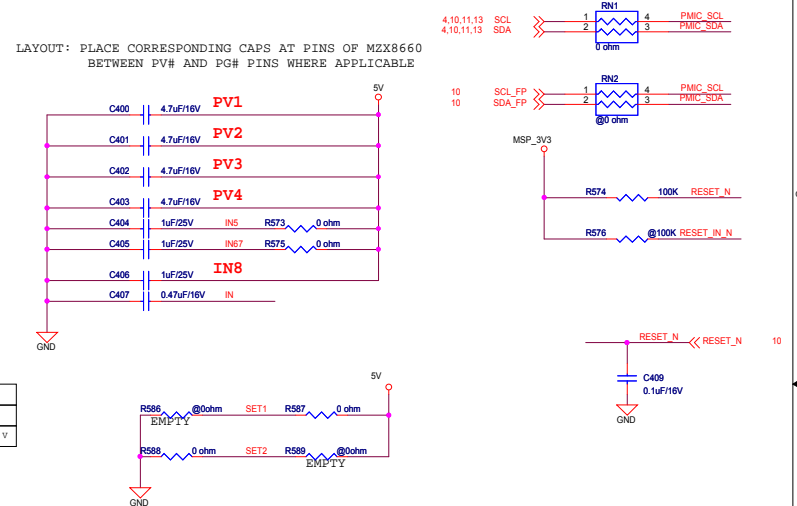


DC2DC FEEDBACK

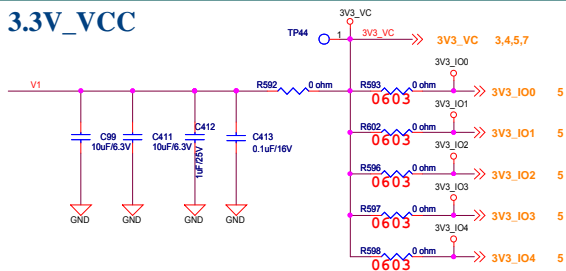
INFO: OPTION TO ALTERNATELY POWER V5 FROM V1

INFO:

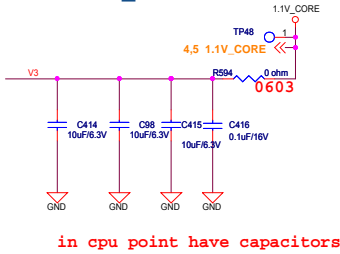
SET1	V1	SET2	V2
VCC	3.3V	VCC	3.3V
NC	3.0V	NC	2.5V
GND	2.85V	GND	1.8V



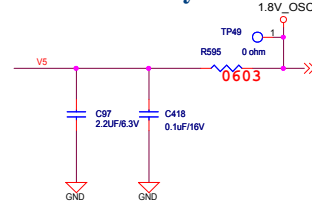
V1 3.3V\_VCC



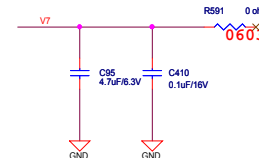
V3 1.1V\_CORE



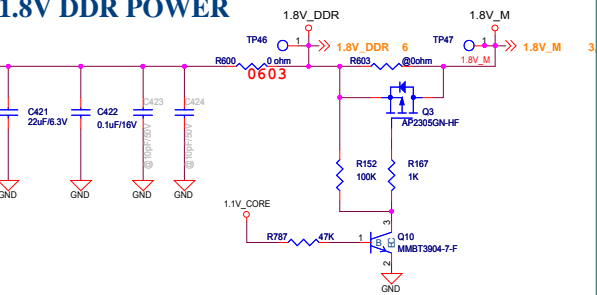
V5 1.8V Memory and OSC



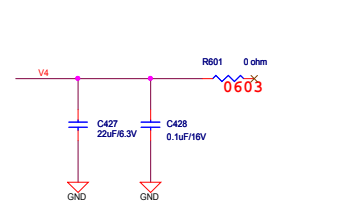
V7



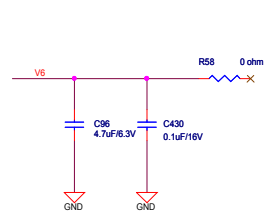
V2 1.8V DDR POWER



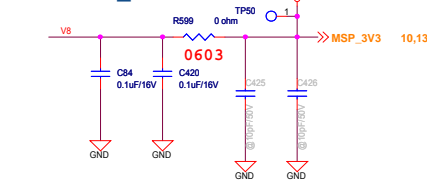
V4



V6

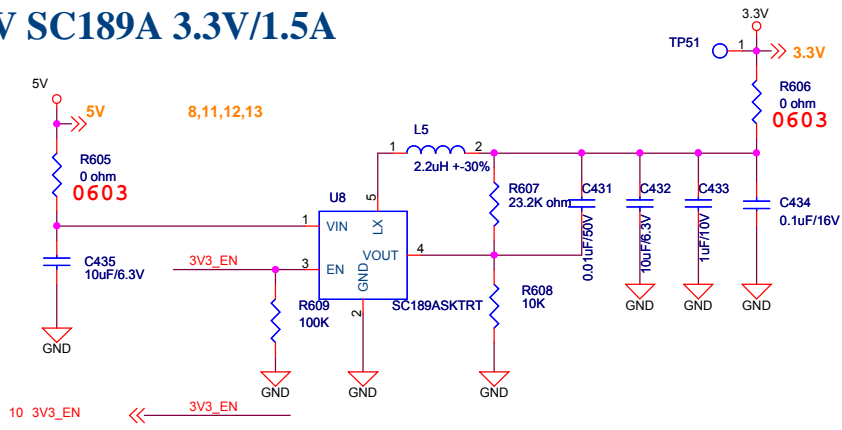


V8 MSP\_3V3



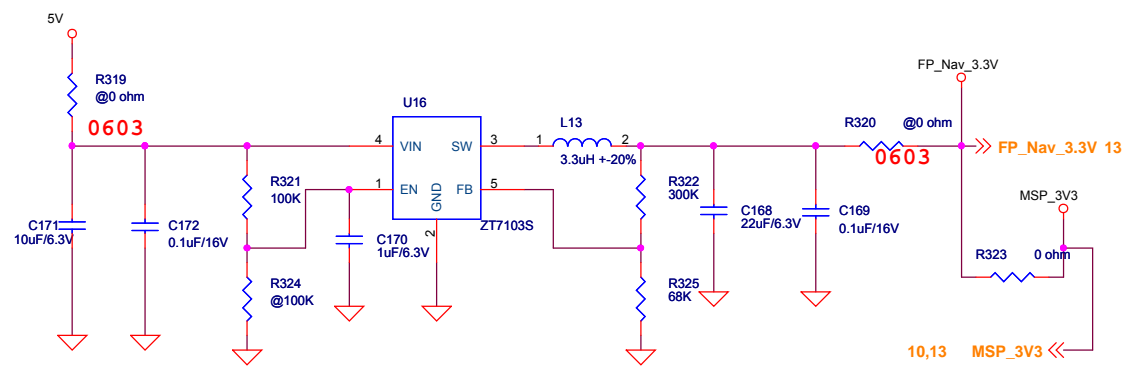
NA-BU		
Title		
Size	Document Number	Rev
P 08	POWER MAAGEMENT, POWER CON	DVT
Date:	Thursday, February 24, 2011	Sheet 8 of 18

### 3.3V SC189A 3.3V/1.5A

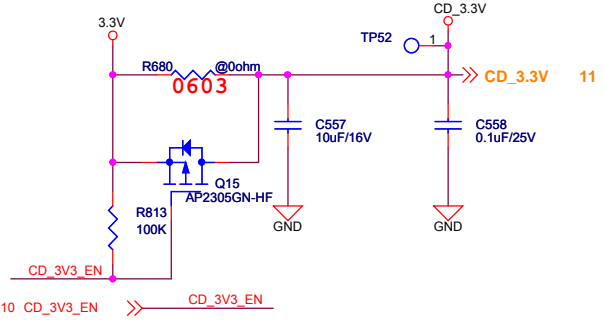


4,11,12

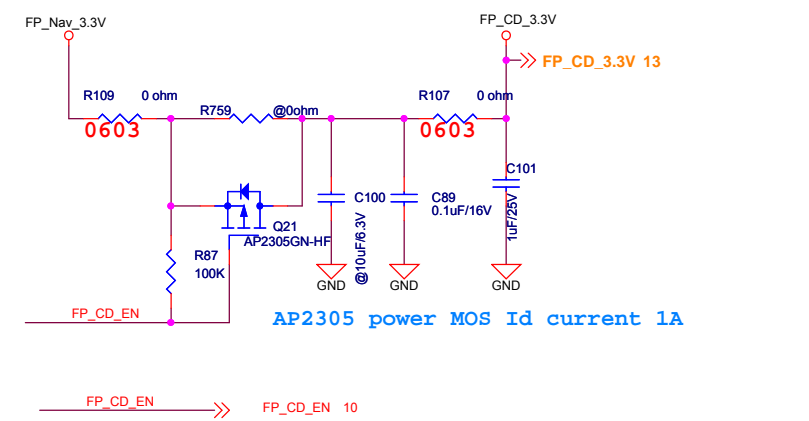
### 3.3V ZT7103S for Front Panel



### CD ROM 3.3V

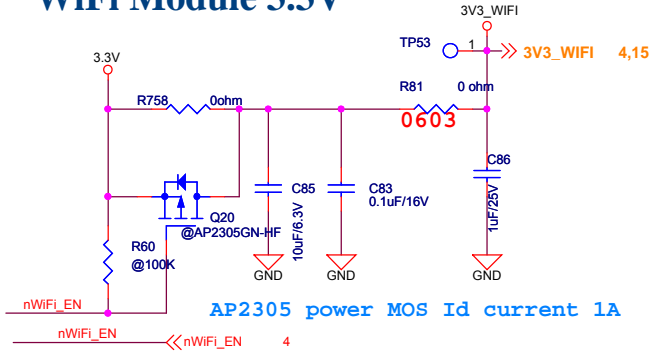


AP2305 power MOS Id current 1A



AP2305 power MOS Id current 1A

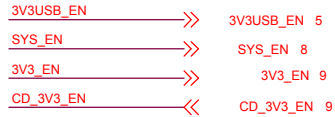
### WiFi Module 3.3V



AP2305 power MOS Id current 1A

NA-BU		
Title		
Size B	Document Number <b>09: POWER</b>	Rev DVT
Date: Wednesday, February 16, 2011	Sheet 9	of 18

## Power EN Off-Page



## I2C Off-Page



## FrontPanel Off-Page



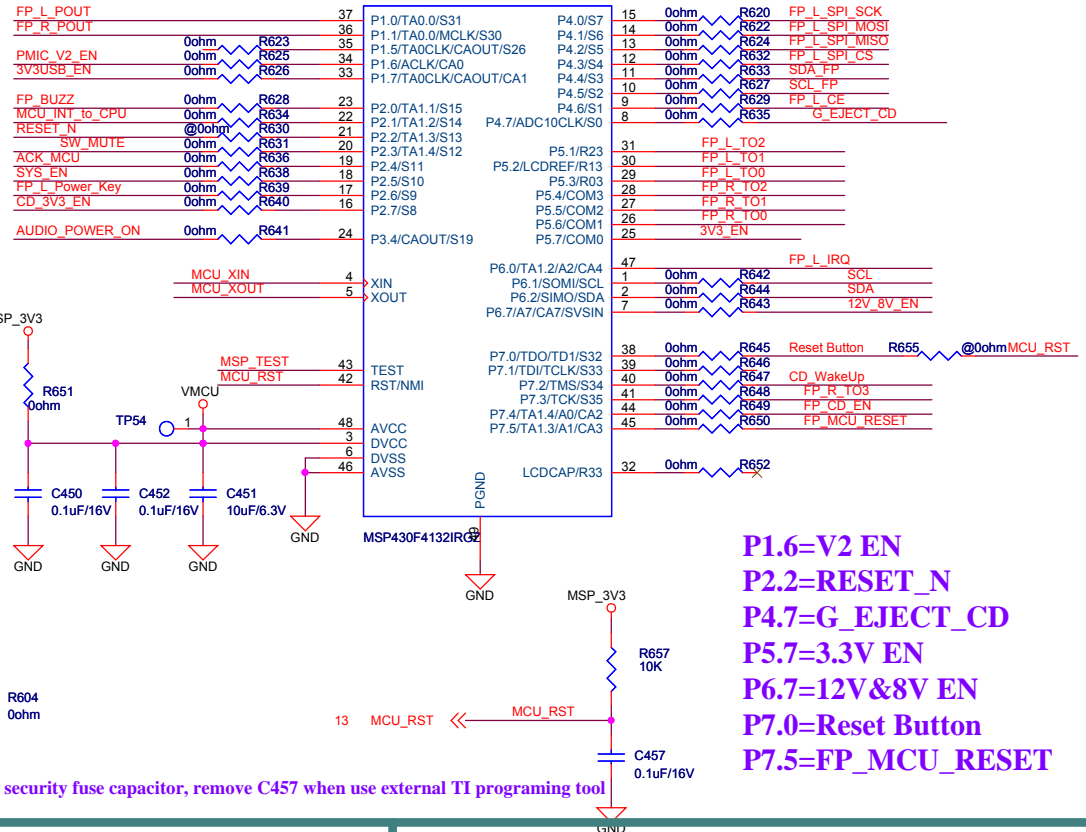
## Off-Page



## CD-ROM Off-Page

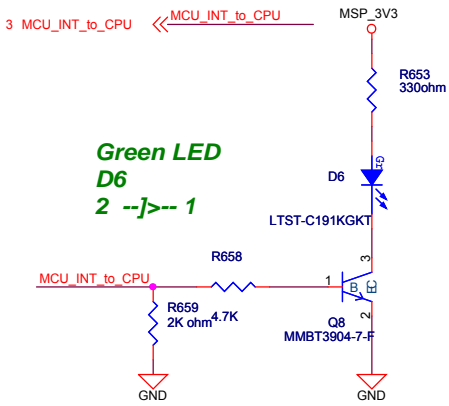


## MCU

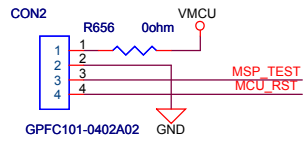


**P1.6=V2 EN**  
**P2.2=RESET\_N**  
**P4.7=G\_EJECT\_CD**  
**P5.7=3.3V EN**  
**P6.7=12V&8V EN**  
**P7.0=Reset Button**  
**P7.5=FP\_MCU\_RESET**

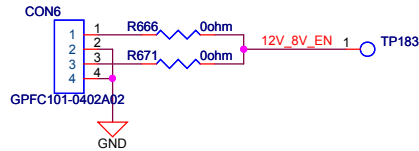
## MCU Access LEDs



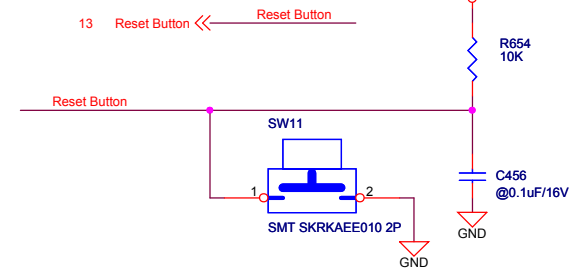
## MCU FW download



## Power Board Enable



## MCU Reset



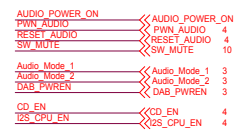
NA-BU		
Title		
Size	Document Number	Rev DVT
B	10: MCU, RTC Alive, FRONT PANEL	
Date:	Wednesday, February 16, 2011	Sheet 10 of 18

### Harman Kardon

#### CPU I2S Off-Page



#### Audio Off-Page



### DAB Off-Page

Power Input : 5V  
Consumption : FM band 360mW



### AUX-IN Off-Page

Jack IN: High 3.3V  
Jack OUT: Low 0V

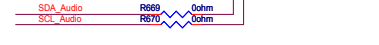


### I2C Connect

#### CD-ROM I2C



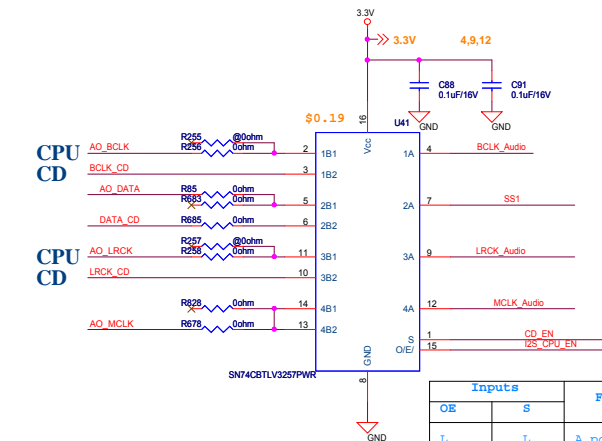
#### Audio Board I2C



#### I2C Off-Page



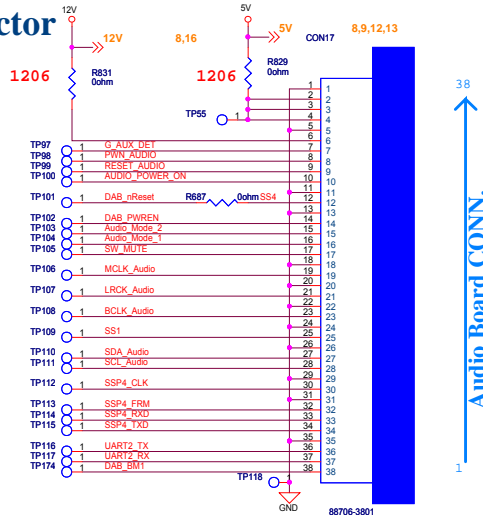
### Control I2S Mode



Inputs		Function
OE	S	
L	L	A port = B1 port
L	H	A port = B2 port
H	X	Disconnect

### Audio Board Connector

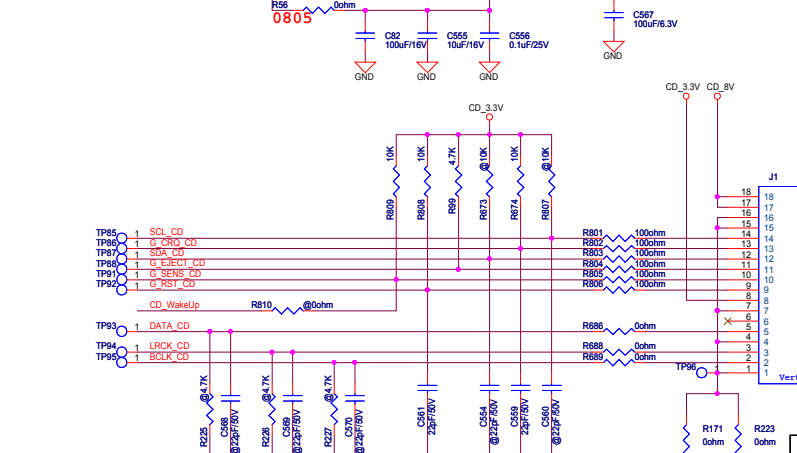
Net Alias	Function
PWN_AUDIO	DSP power enable
RESET_AUDIO	Reset DSP
AUDIO_POWER_ON	AMP power enable
SW_MUTE	AMP mute



### Audio Board Pin Assignment

Pin	Assignment	Pin	Assignment
1	GND	19	GND
2	GND	18	LRCK_Audio
3	+5V	17	GND
4	+5V	16	BCLK_Audio
5	GND	15	GND
6	SS1	14	SS1
7	GND	13	GND
8	AUX_DET	12	SDA_Audio
9	DSP_PWN	11	SCL_Audio
10	RESET_AUDIO	10	GND
11	GND	9	SSP4_CLK
12	GND	8	DAB_nReset
13	GND	7	SSP4_FRM
14	GND	6	SSP4_RXD
15	GND	5	SSP4_TXD
16	GND	4	GND
17	GND	3	UART2_TXD
18	GND	2	UART2_RXD
19	GND	1	GND

### CD-ROM M10



DATA\_CD  
Audio output data rate always at 44.1kHz  
BCLK\_CD  
SCLK fs (1X speed, 24bit mode) 2,1168 MHz

### CD-ROM Pin Assignment

Pin	Assignment
18	+8V
17	+8V
16	PGND
15	PGND
14	SCL
13	CRQ
12	SDA
11	HW-E-EJECT
10	SENS-1
9	RST
8	+3.3V
7	GND
6	S/P-DIF
5	I2S DATA
4	GND
3	I2S WCLK
2	I2S SCLK
1	GND

NA-BU

File: -

Size: P

Sheet: 11 of 18

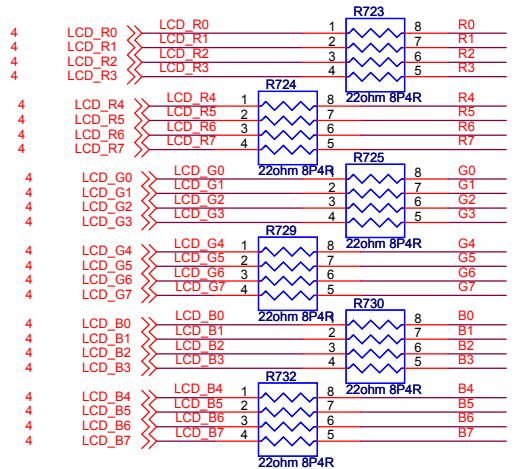
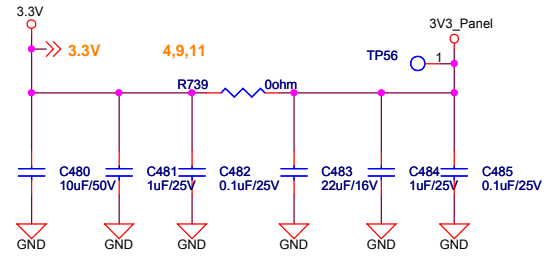
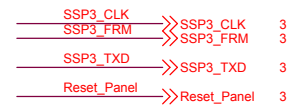
Document Number: 11: AUX/DAB/CD & Audio CON

Rev: DVT

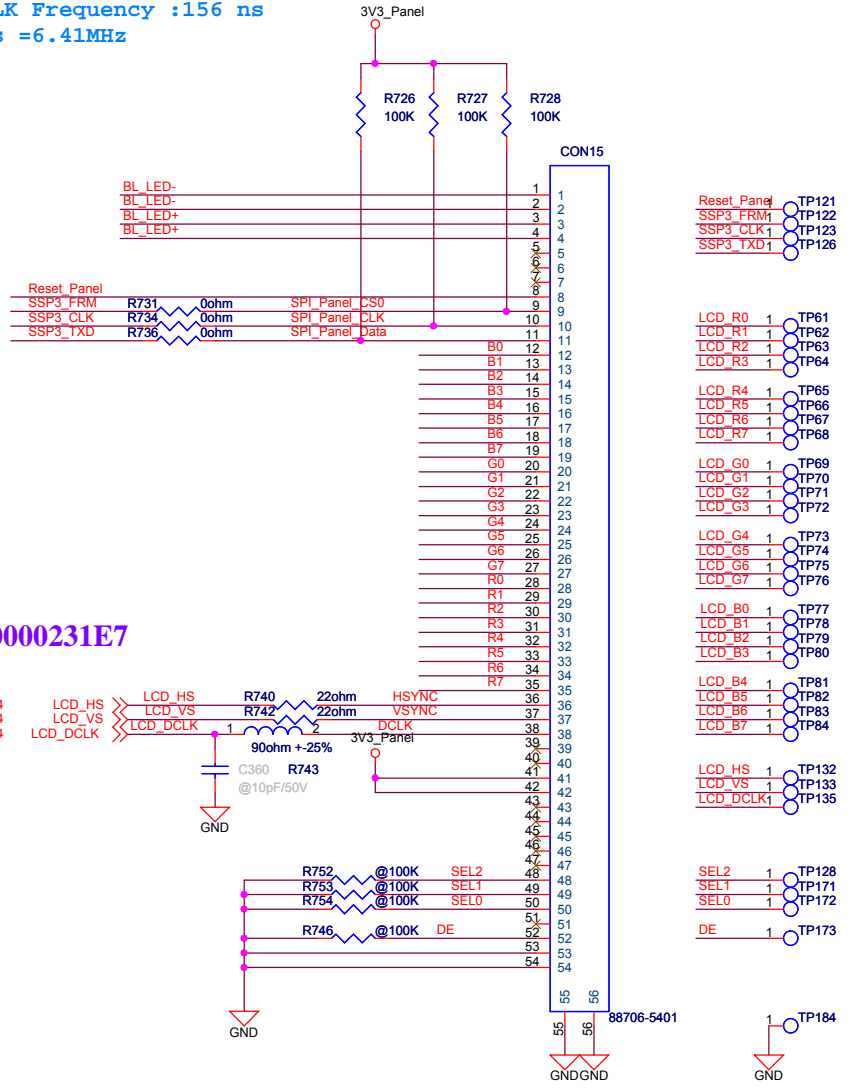
Date: Tuesday, December 21, 2010



Panel Off-Page

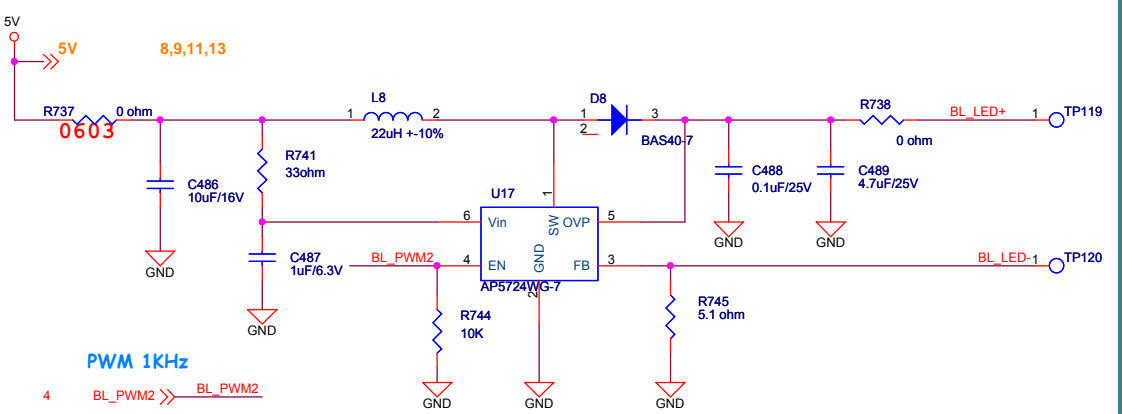


SSP3\_TXD  
MFP : SSP3\_TXD & SSP3\_RXD  
LCD\_DCLK Frequency :156 ns  
1/156ns =6.41MHz



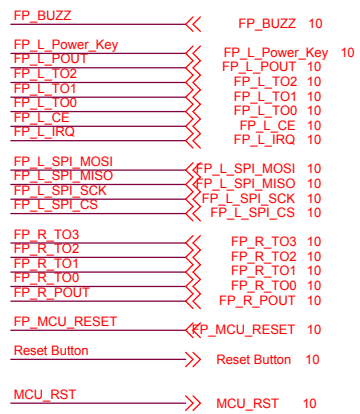
R145,  
R147,  
R151,  
R214,  
R743  
==3140000231E7

BL Driver IC AP5724

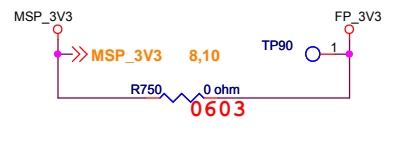
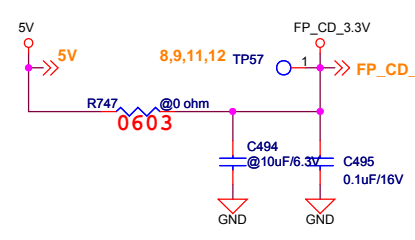
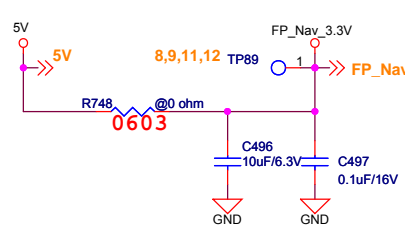


NA-BU		
Title		
Size	Document Number	Rev
B	12: TFT 3.45" Panel	DVT
Date:	Wednesday, February 16, 2011	Sheet 12 of 18

### Off-Page



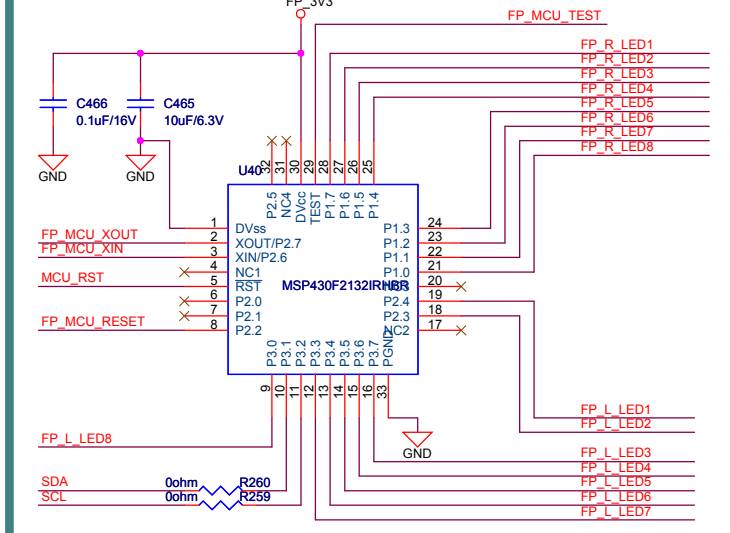
### Power



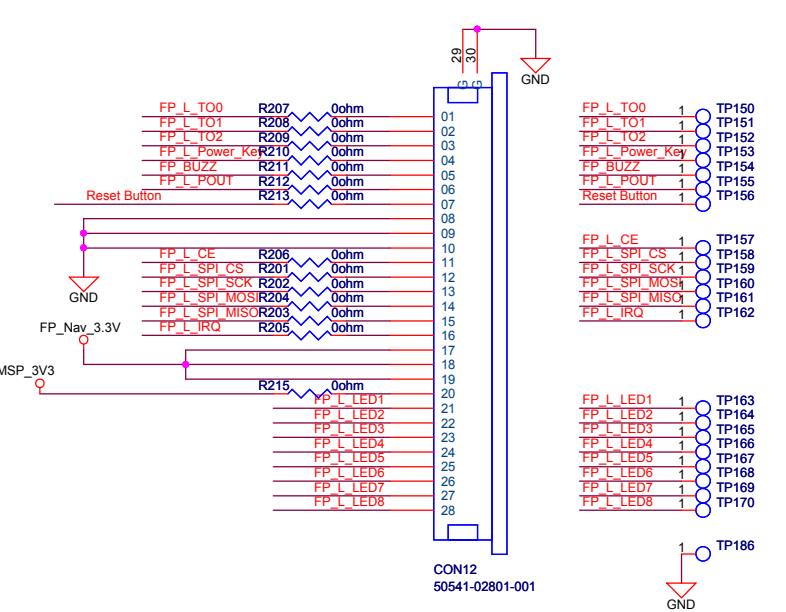
### I2C Off-Page



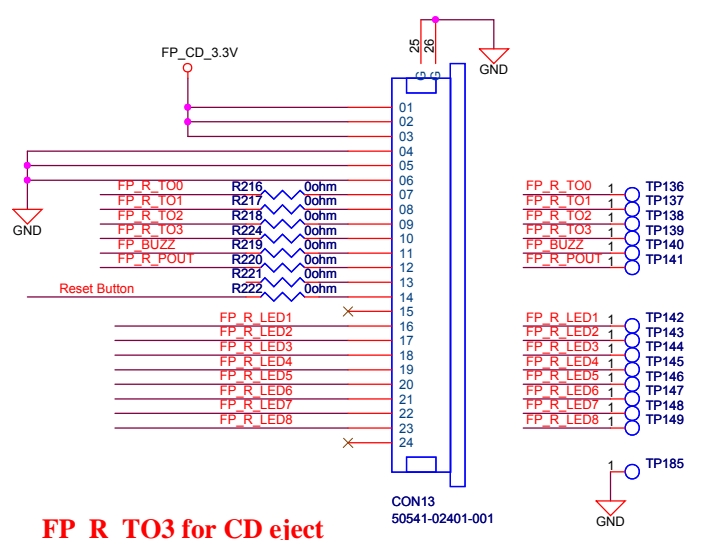
### FP\_MCU



### Front Panel (Navigation-Board)

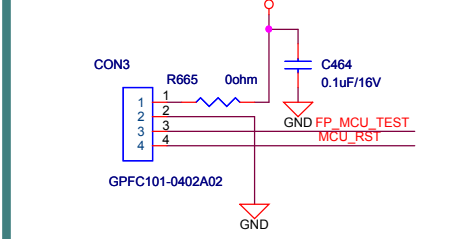


### Front Panel (CD Panel-Board)

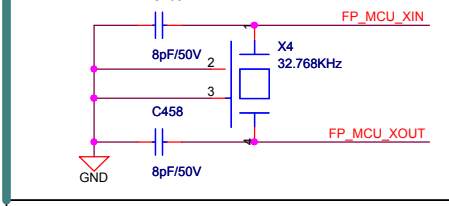


**FP\_R\_TO3 for CD eject**

### FP\_MCU FW download

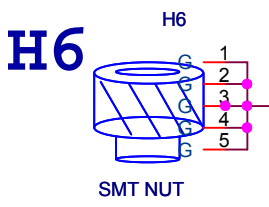
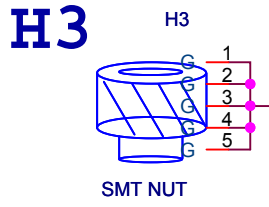
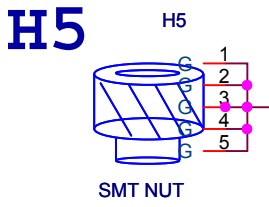
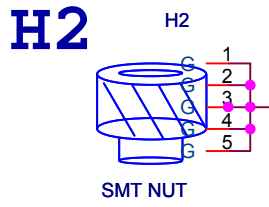
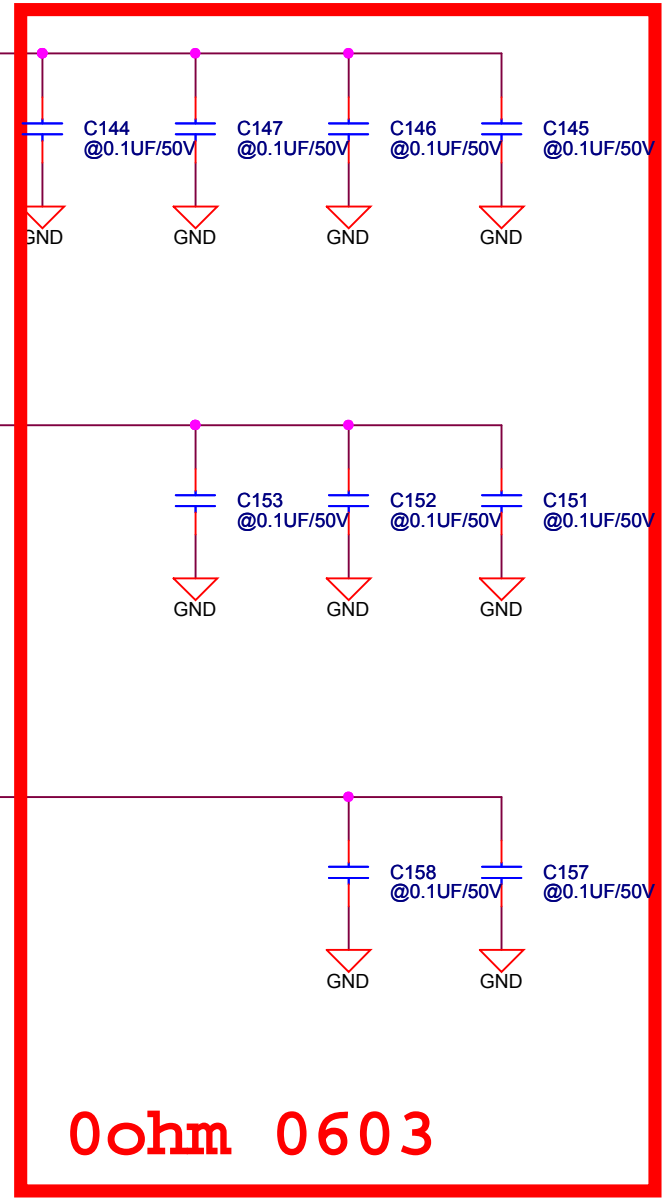
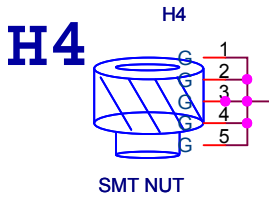
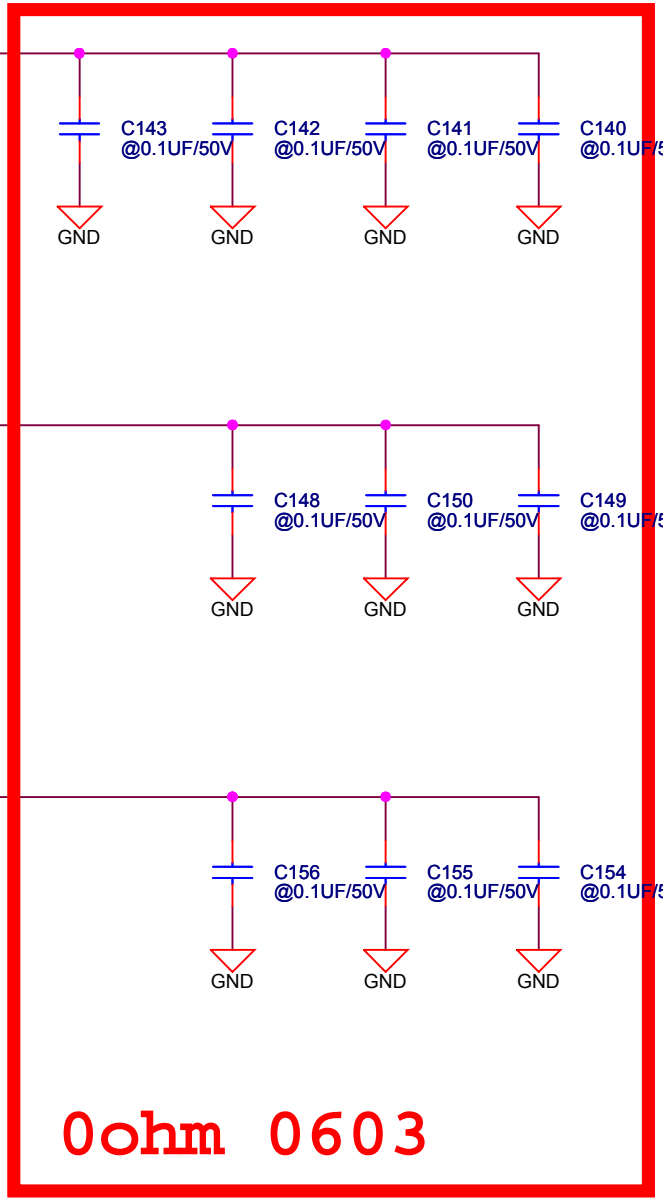
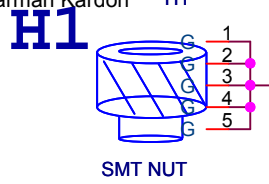


### FP\_MCU Crystal



NA-BU

Title		
Size	Document Number	Rev
B	13: FRONT PANEL	DVT
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NA-BU

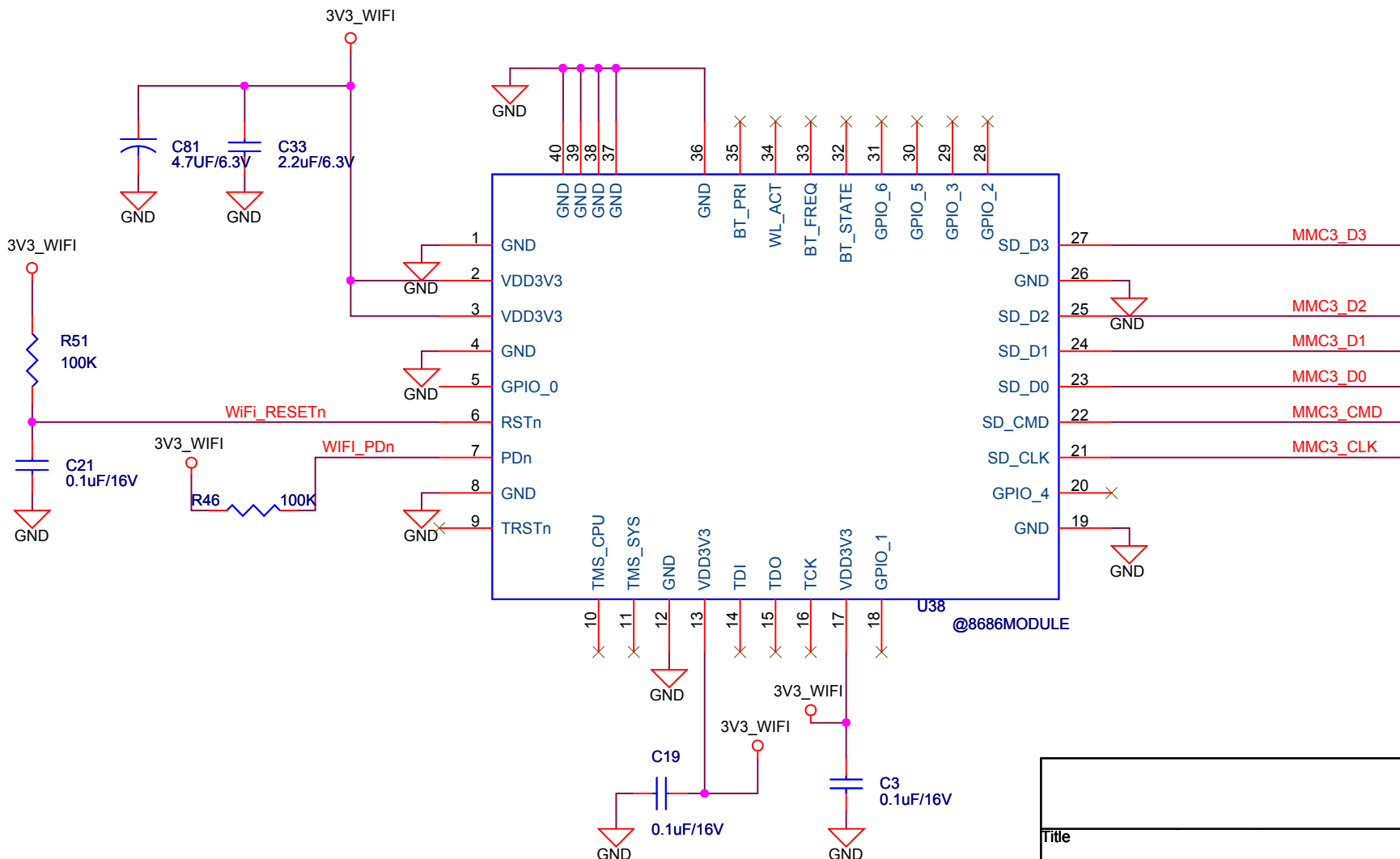
Title		
Page 43 of 47		
Size A	Document Number <b>14: Screw Hole</b>	Rev DVT
Date: Tuesday, December 21, 2010	Sheet 14	of 18

# WiFi Off-Page Reserve

# DNP



# Marvell WiFi MODULE Reserve

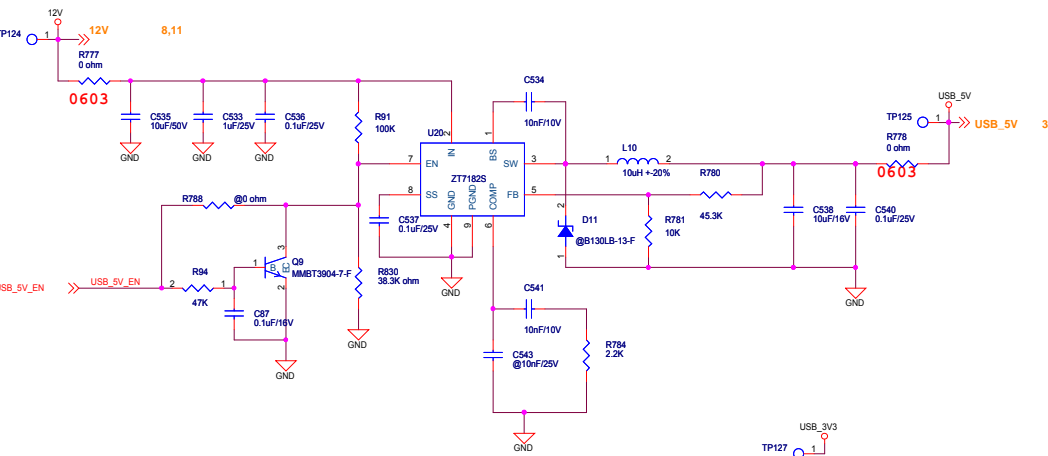


NA-BU		
Title		
Page 44 of 47		
Size A	Document Number <b>15: WiFi RTL8712</b>	Rev DVT
Date: Tuesday, December 21, 2010	Sheet 15 of 18	

# Harman Kardon USB Hub Off-Page

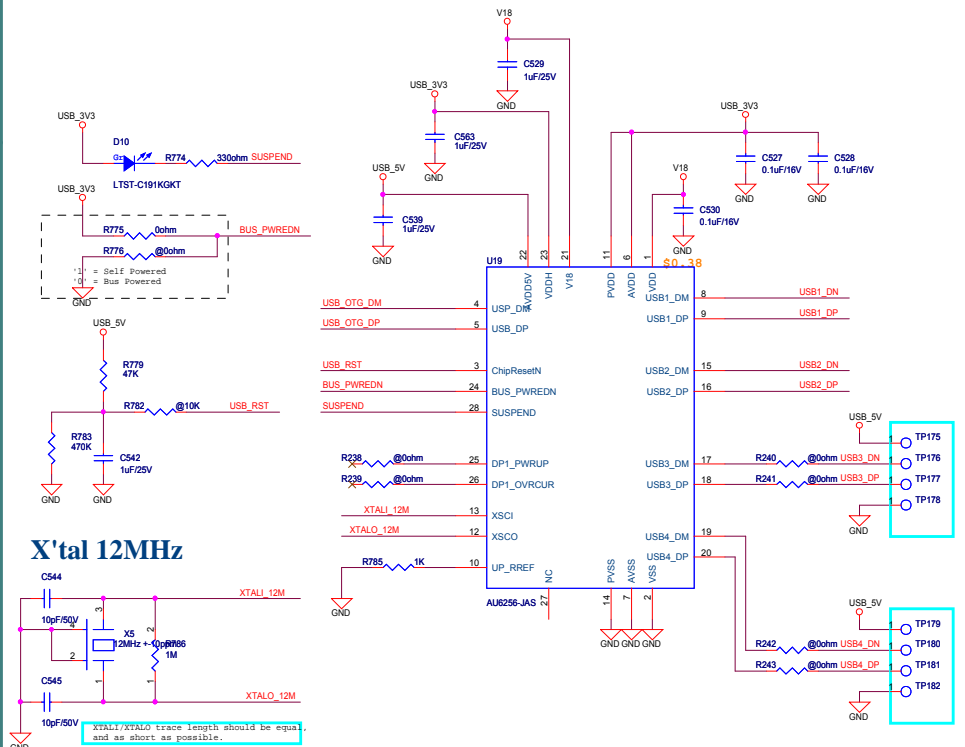


## Power

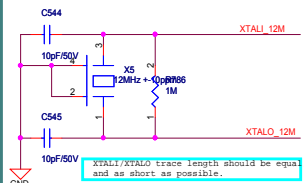


USB signal line trace:  
 1. Keep traces of USB bus D+ and D- the same length.  
 2. Achieve 90 ohm differential characteristic impedance.  
 3. Achieve 45 ohm common characteristic impedance.  
 4. Maintain parallelism between D+ and D-.  
 5. Do not route USB2.0 D+ and D- over the power plane split.  
 6. Do not route USB2.0 D+ and D- over the other high frequency signals.  
 7. It is preferred to route USB2.0 D+ and D- over ground layer.  
 8. It is preferred to route USB2.0 D+ and D- using single layer.  
 For more detail, see design guideline in design kit.

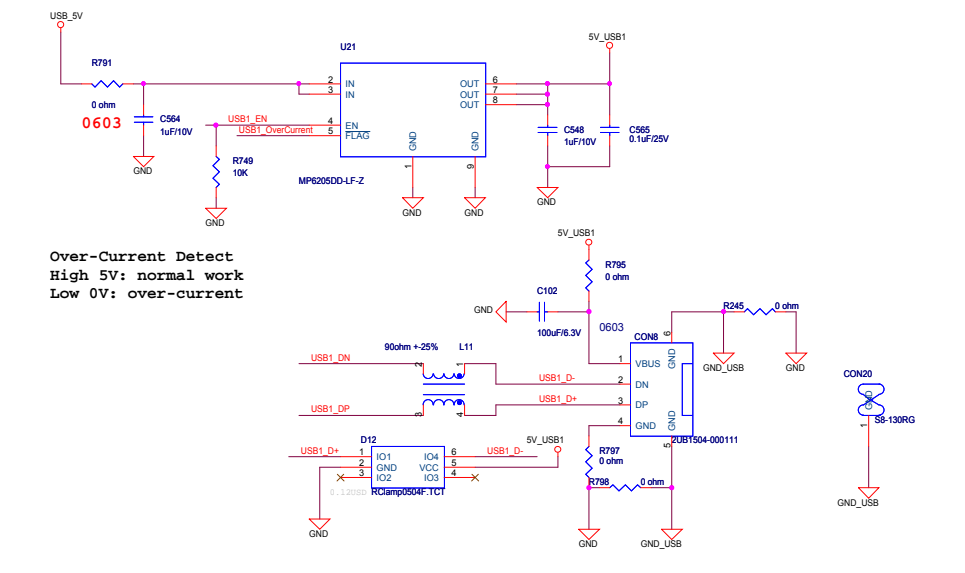
## USB Hub



## X'tal 12MHz

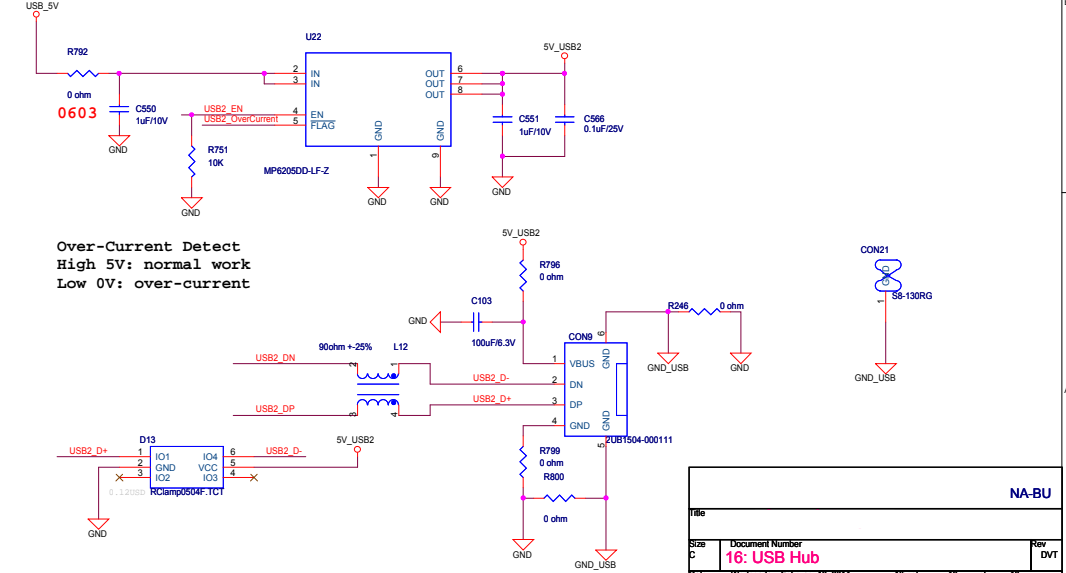


## USB 1 (A Type)



**Over-Current Detect**  
 High 5V: normal work  
 Low 0V: over-current

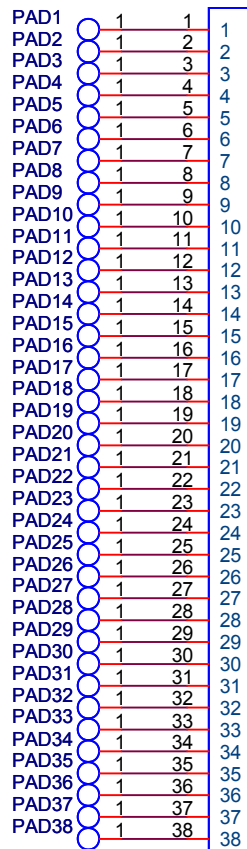
## USB 2 (A Type)



**Over-Current Detect**  
 High 5V: normal work  
 Low 0V: over-current

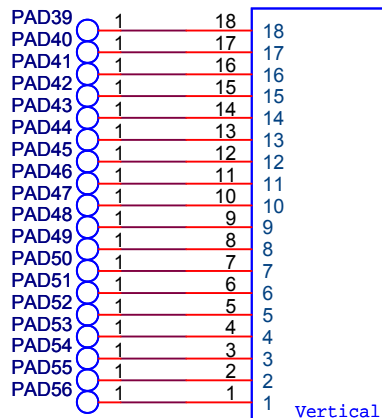
NA-BU		
Title		
Size	Document Number	Rev
P	16: USB Hub	DVT
Date:	Wednesday, February 16, 2011	Sheet 16 of 18

CON18



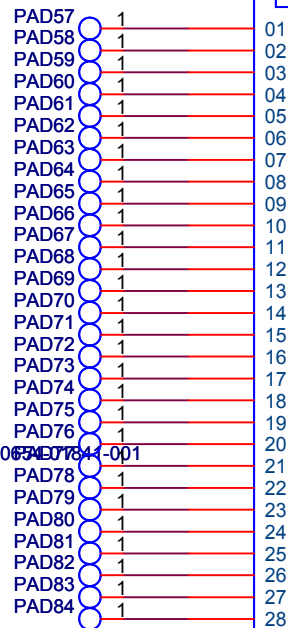
@88706-3801

J3

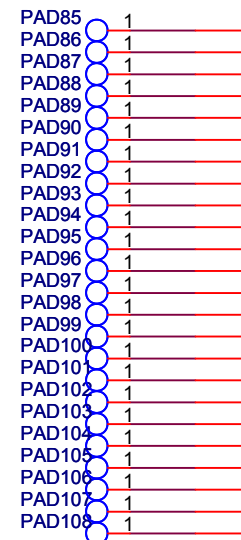


Vertical

@50541-0784-001



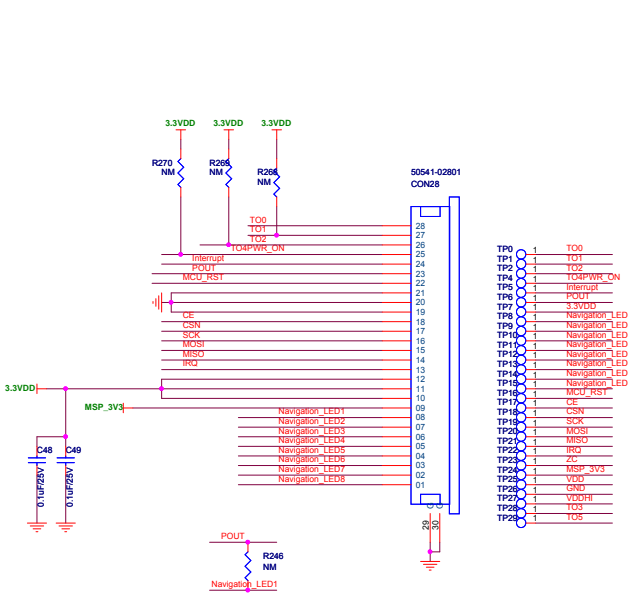
CON19  
@50541-02801-001



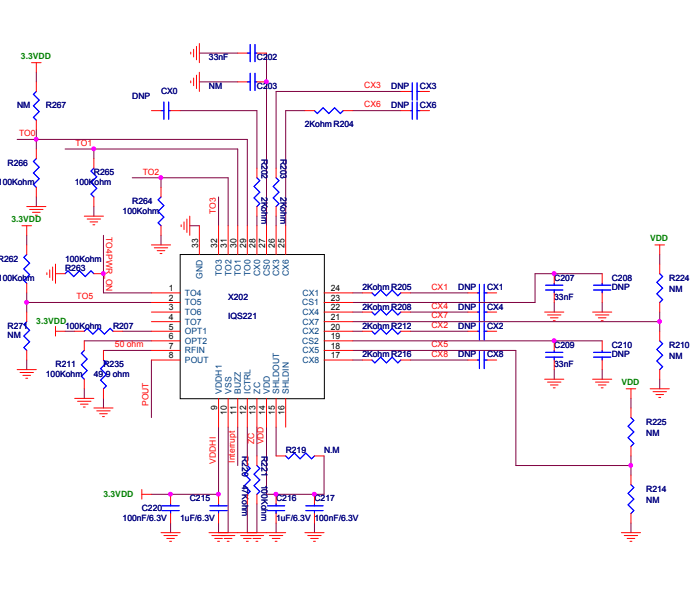
CON14  
@50541-02401-001

NA-BU

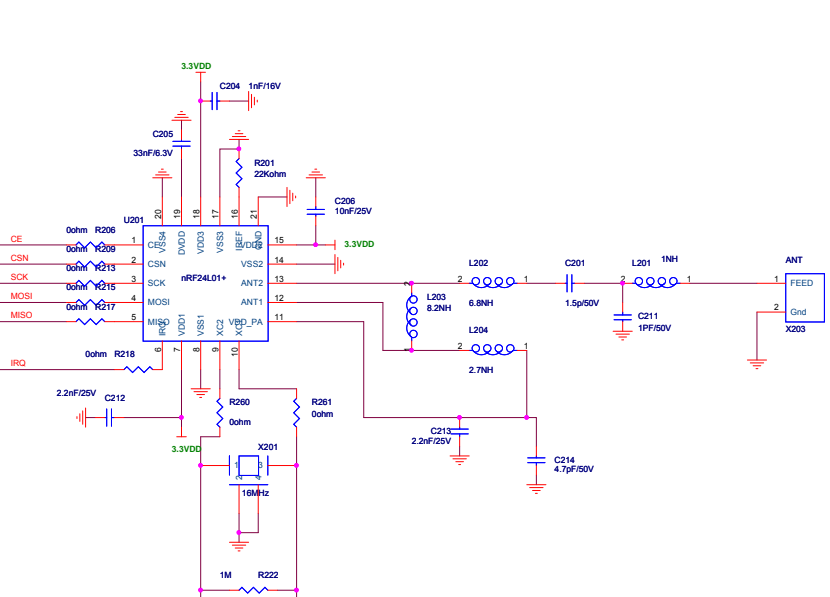
# Navigation Board Connector



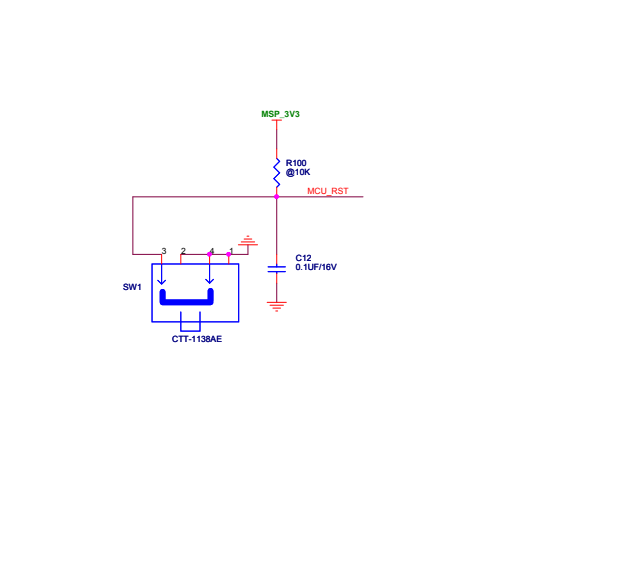
# Touch IC



# RF IC



# MCU Reset



# LED

