Blu-ray Disc Player

BDP 9100/12

Service
Service
Service

Service Manual

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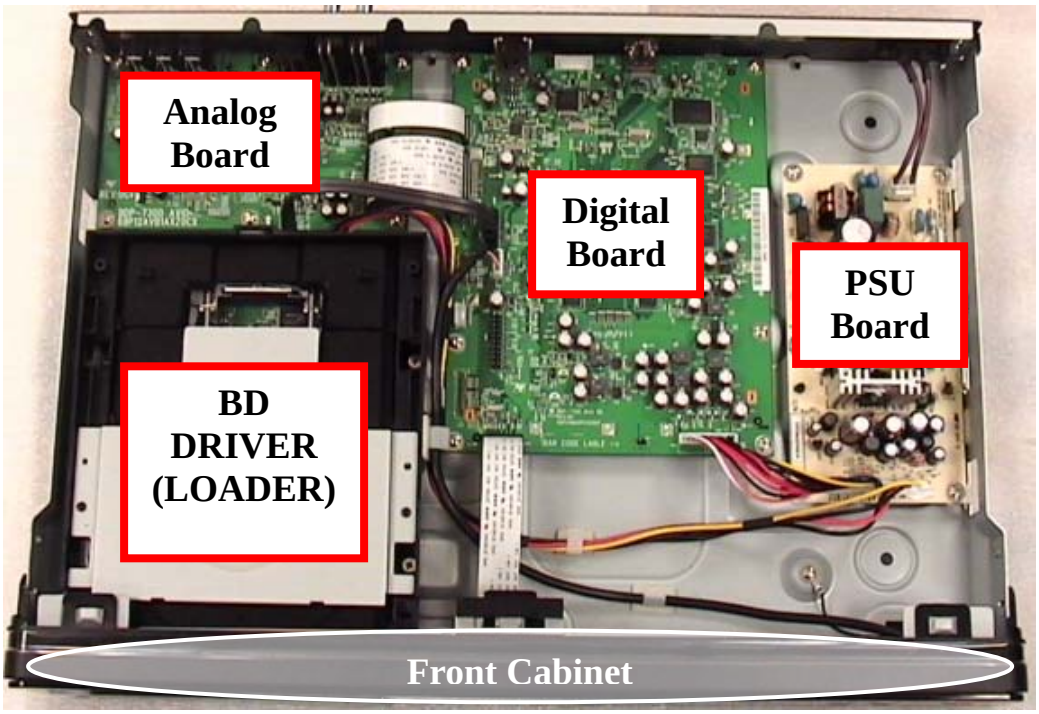
Version 1.1

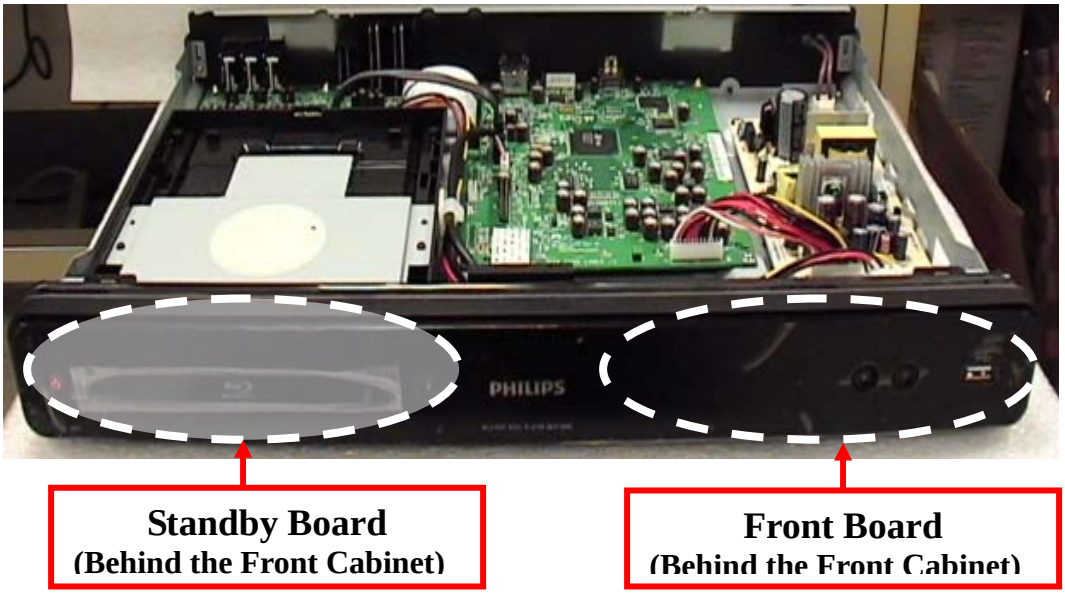
PHILIPS

CONTENT

1. Technical Specifications and Connection Facilities

1-1.PCB Locations





1-2 BDP 9100 Specifications

1-2-1 Playback Media

BD-Video,
DVD-Video,
DVD+/- R,
DVD +/- RW,
CD -R/CD-RW,
Audio CD, Video CD/SVCD,
Picture CD,
MP3 –CD,
MP3-DVD,
WMA-CD,
DivX (Ultra),
USB flash driver

1-2-2 Video

Signal system: PAL/NTSC
Composite video output: 1 Vp-p (75 ohm)
Component video output:

- Y: 1 Vp-p (75 ohm)
- Pb: 0.7 V-pp (75 ohm)
- Pr: 0.7 V-pp (75 ohm)

HDMI output:
480p/576p/720p/1080i/1080p

1-2-3 Audio

2 channel analogue output

- Audio Front L+R: 2Vrms (>1kohm)

5.1 channel analogue output

- Audio Front L+R: 2Vrms (>1kohm)
- Audio Surround L+R: 2Vrms (>1kohm)
- Audio Center: 2Vrms (>1kohm)
- Audio Subwoofer: 1.15 Vrms (>1kohm)

Digital output: 0.5 Vp-p (75 ohm)

- Optical / Coaxia

HDMI output:
Sampling Frequency:

- MP3 : 32 / 44.1 / 48 KHz
- WMA: 44.1 / 48 KHz

Constant bit rate:

- MP3 : 112 – 320 Kbps
- WMA: 48 – 192 Kbps

1-2-4 USB

Compatibility: Hi-Speed USB 2.0
Class Support:

- UMS (USB mass Storage Class)
- MTP (Media Transfer protocol)

1-2-5 Main Unit

Power supply rating: 110-240 V ~AC 50Hz
Power consumption: 30 W
Power consumption in standby mode:
0.2W

2. Safety Information & General Notice

2-1 Safety Instructions

2-1-1 General Safety

Safety regulations are strongly required during repair action:

- Using isolation transformer to connect unit and mains.
- Replace safety components which have symbol ⚠ on it only allowed to change the component as same type as original one. Any other substitution component may cause risk of fire or electrical short circuit issue.

Safety regulations are required after repair. You must return the unit back to original condition and pay attention at the following points:

- Route the wires/cables correctly, and fix them with the mounted cable clamps.
- Check the insulation of the mains lead for external damage.
- Check the electrical DC resistance between the mains plug and the secondary side:

1. Unplug the mains cord, and connect a wire between the two pins of the mains plug.
2. To set the mains switch to the 'on' position (keep the mains cord unplugged!).
3. Measure the resistance value between the mains plug and the front panel, controls, and chassis bottom.
4. Repair or correct unit when the resistance measurement is less than 1 MΩ.
5. Verify this, before you return the unit to the customer/user
6. Switch the unit 'off', and remove the wire between the two pins of the mains plug.

Laser Safety

The BD Driver is a laser device. Only allowed qualified service personnel to remove the cover and repair action, because it might cause eye damage.

Laser Device Unit

Type : Semiconductor laser GaAlAs

Wavelength : 775-805 nm (CD)
: 640-663 nm (DVD)
: 400-410 nm (Blu-ray)

Output Power : 7 mW (CD)
: 7 mW (DVD)
: 20mW (Blu-ray)

Beam divergence : 60 degree

Figure 2-1

2-1-2 Warnings

General

- All components which have been set on PCB board such as IC or Semiconductor are very sensitive to static discharges (ESD). Careless handling during repair can cause component damage. Therefore, profession service man are not only to keep them at the same potential as the mass of the set by a wristband with resistance but also have to keep components and tools at this same potential while assembling or disassembling parts.

- Be careful during measurements in the live voltage section. The primary side of the power supply, including the heats ink, carries live mains voltage when you connect the player to the mains (even when the player is 'off'!). It is possible to touch copper tracks and/or components in this unshielded primary area, when you service the player. Service personnel must take precautions to prevent touching this area or components in this area. A 'lightning stroke' and a stripe-marked printing on the printed wiring board, indicate the primary side of the power supply.

- Never replace modules or components, while the unit is set at 'on' position.

Laser

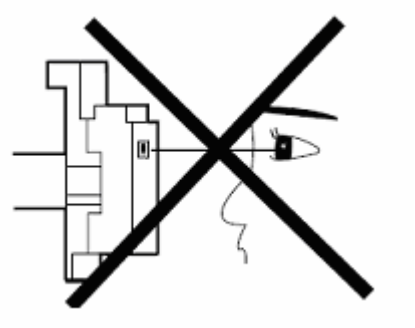
- The laser products which been used at BD Player driver will cause eyes damage.

- Only qualified service engineer can remove the cover of laser product and maintain this device.

- Repair handling should put a disc inside the player.

2-2 LASER BEAM SAFETY PRECAUTIONS

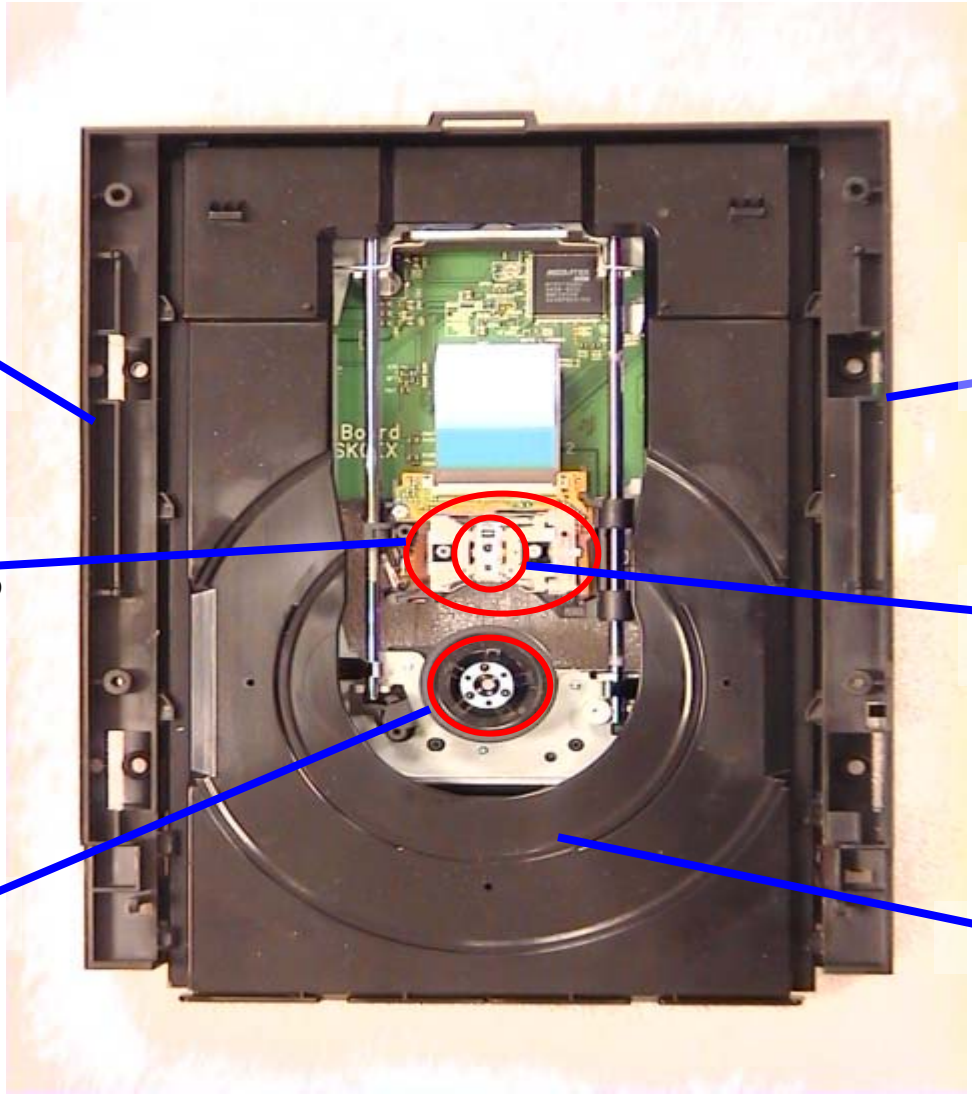
This BD player uses a pickup which will emits laser beam.

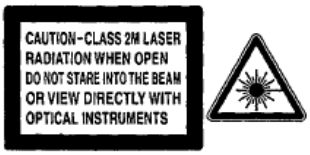


Do not look laser beam which comes from pickup directly

The laser beam will be emitted from pickup as shown above figure. Please be sure, there are more then 30 cm away between your eyes and pickup lens, while laser equipment is turned on. Do not look laser beam directly.

CAUTION: Use of controls and adjustments, or doing procedures other than those specified here in, may result in hazardous radiation exposure.





Mechanism of BD Driver

3. QUICK START GUIDE

3-1 Quick Start Guide

The following excerpt of the Quick Start Guide serves as an introduction to the set.
The complete Direction for Use can be downloaded in different languages from the internet site of Philips Consumer Care Center: www.p4c.philips.com

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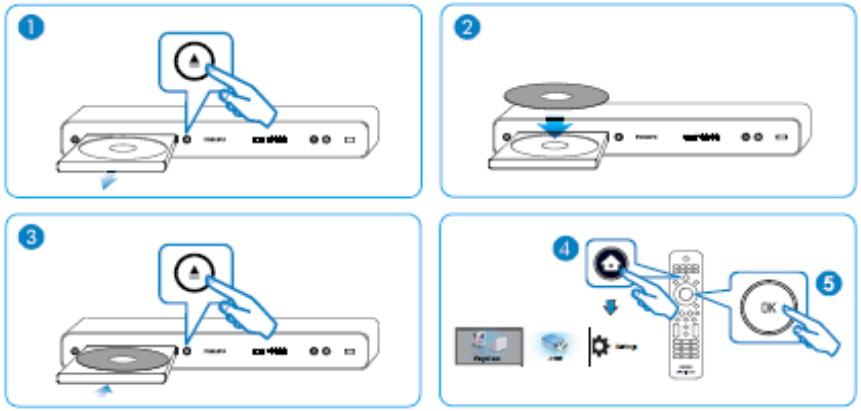
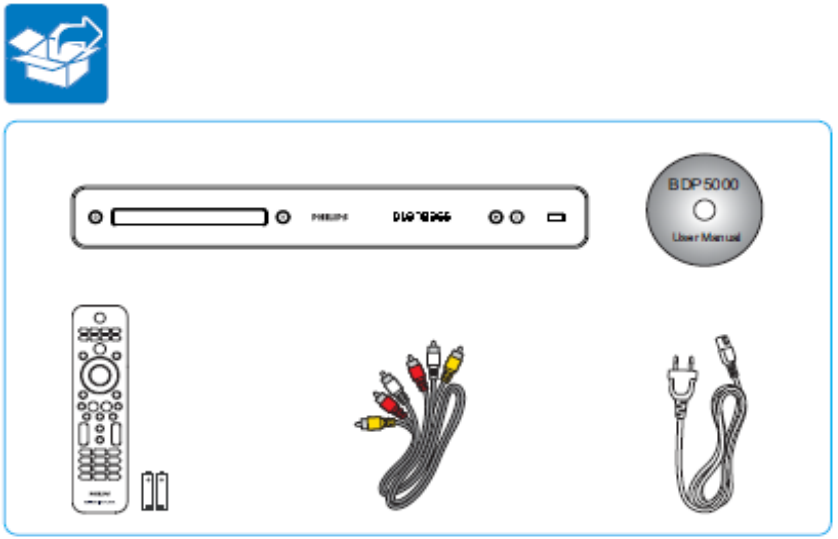


USB

Register your product and get support at
www.philips.com/welcome

BDP9100



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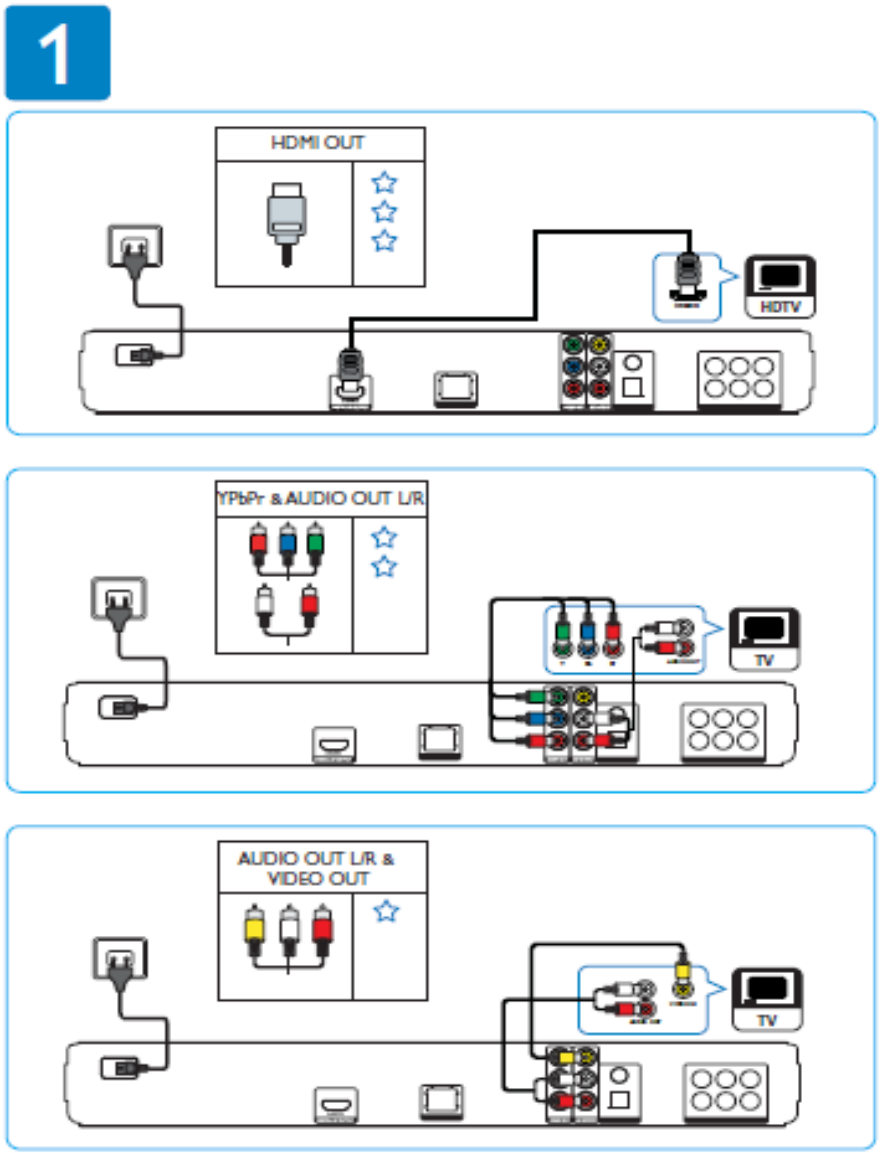
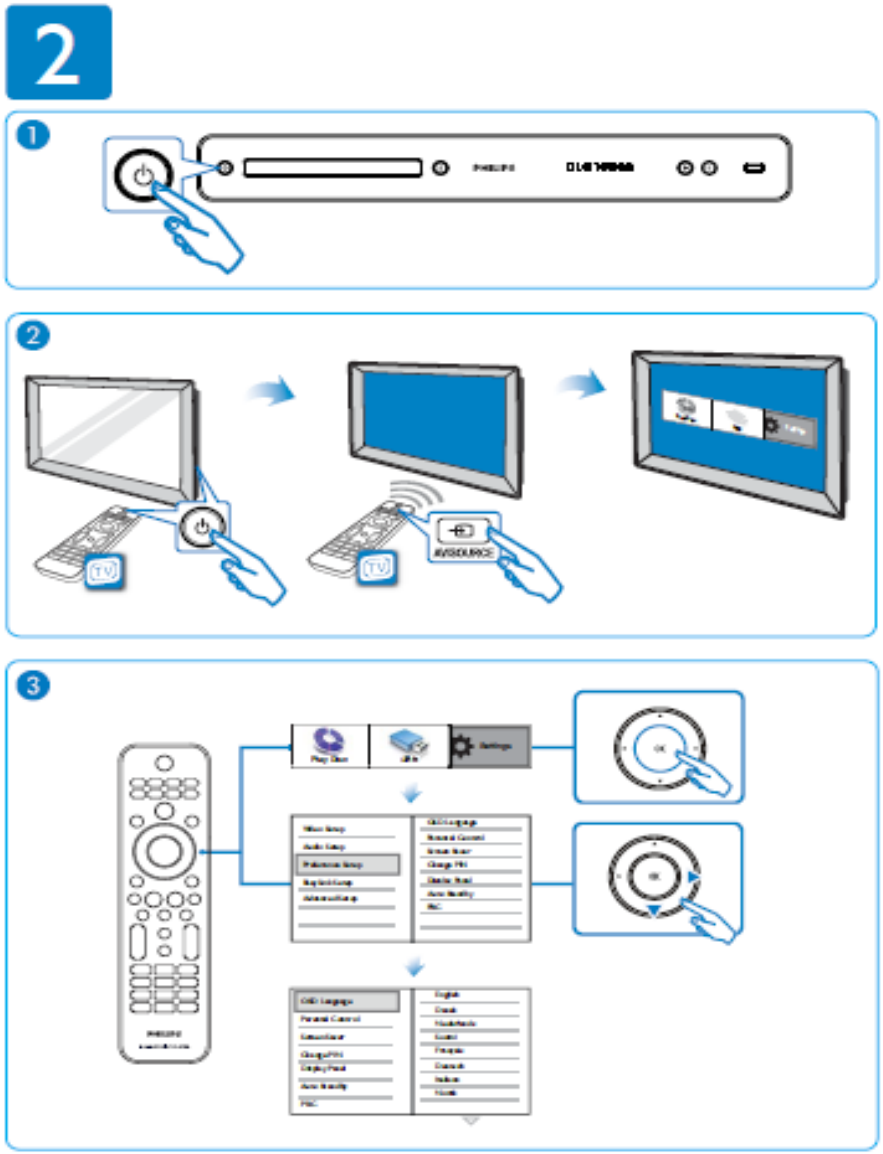

1
HDMI OUT
HDTV
YPbPr & AUDIO OUT L/R
TV
AUDIO OUT L/R &
VIDEO OUT
TV


2
1
2
3

4 .Mechanical Instructions

4-1 Dismantling Door of Driver Loader

1) Up-side-down BD Player

2) Insert a stick into the slot which has been created at the bottom and moving the stick to reverse direction to unlock loader's tray. See figure 4-1-1

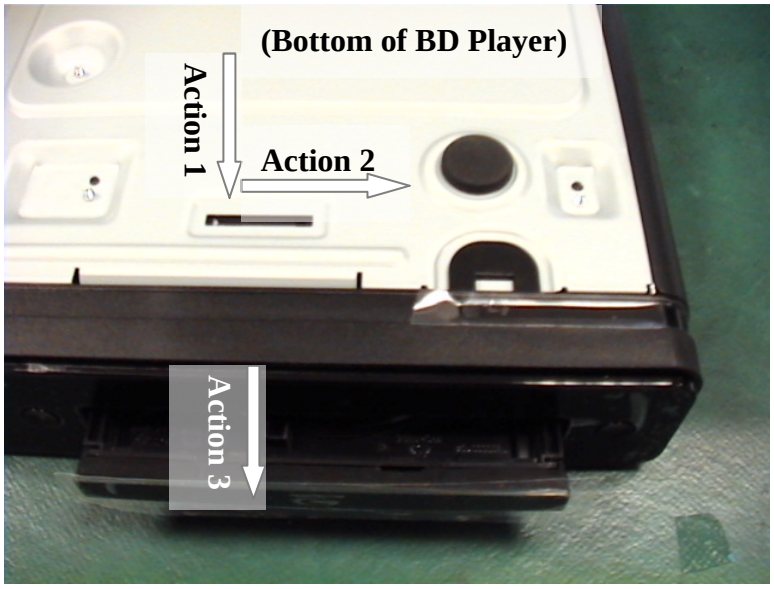


Figure 4-1-1: Unlock Tray of Loader

3) Pull out the tray of Loader and remove the door on the up direction. See figure 4-1-2

Figure 4-1-2: Removing Door

4-2 Dismantling Front panel

1) Firstly remove DVD door. (see Figure 4-1-1 &4-1-2)
2) Unlock 6 top cover screws and then remove Top cover
3) Finally, remove 7 hooks (See Figure 4-2-1 & Figure 4-2-2)

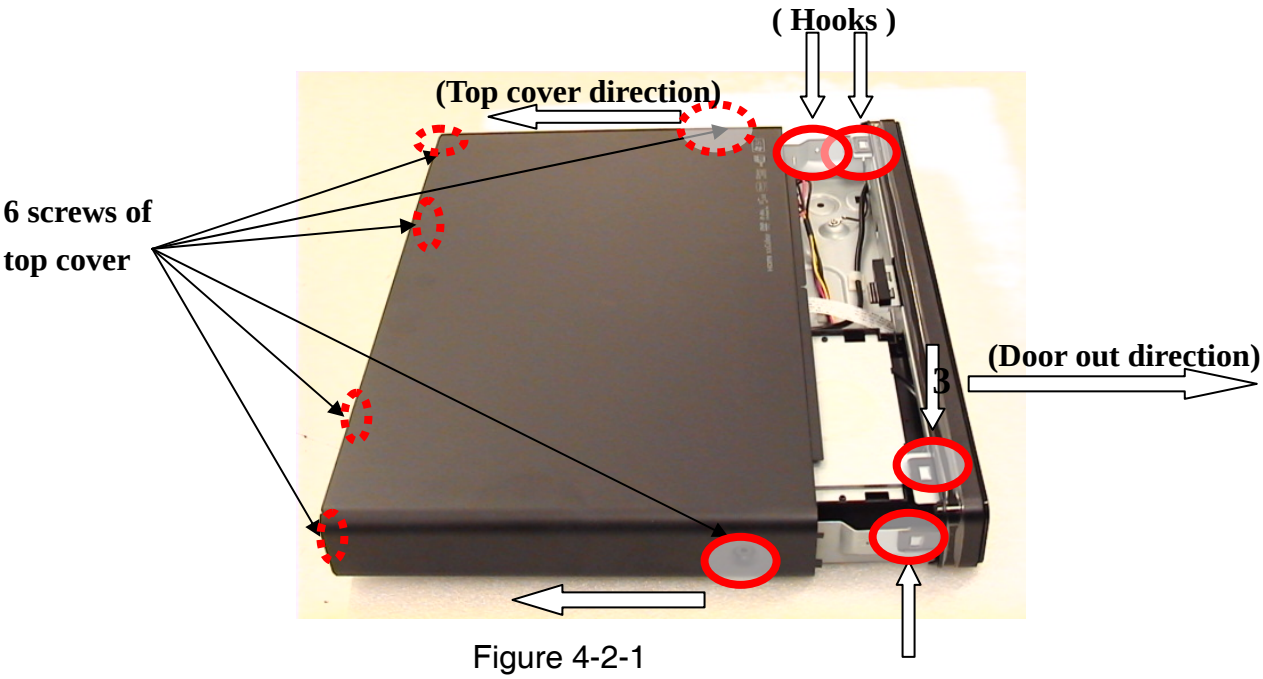


Figure 4-2-1

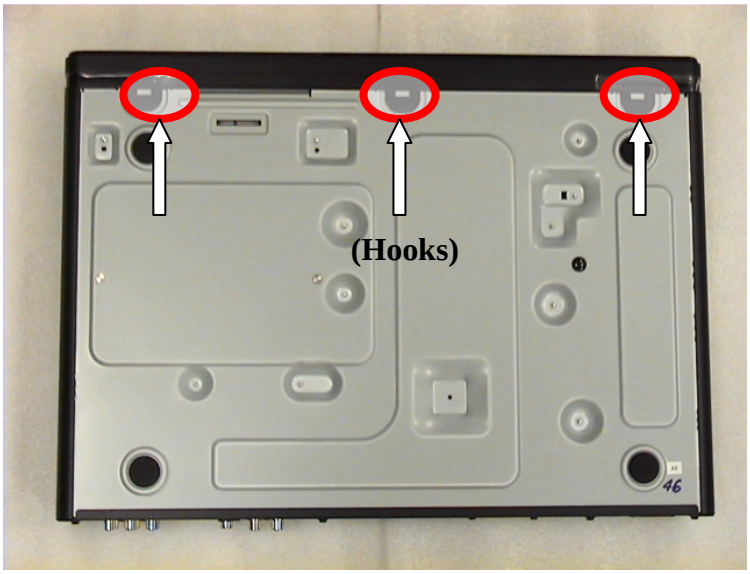


Figure 4-2-2

4-3 Dismantling Rear panel

1) **Remove top cover (see Figure 4-2-1)**
2) **For BDP7300, Remove 9 screws of rear panel. (Figure 4-3-1)**

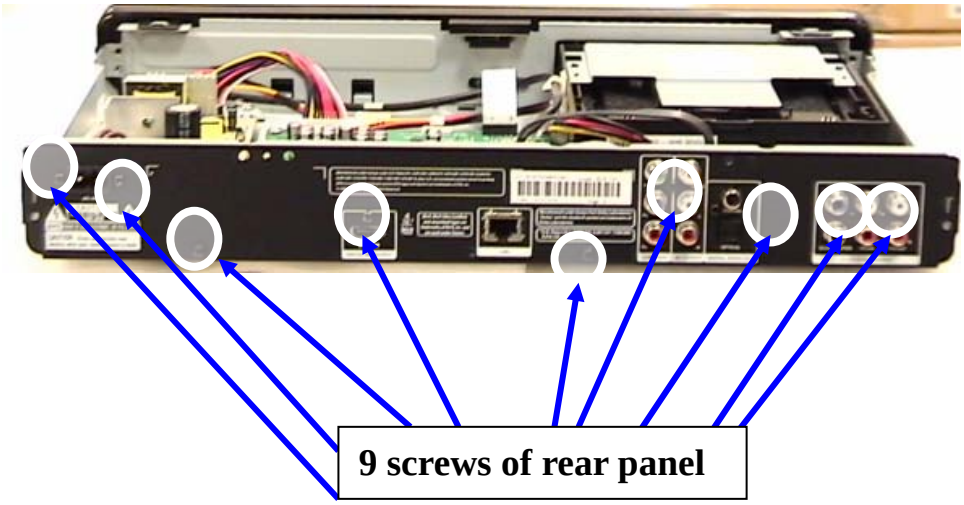


Figure 4-3-1 Rear panel of BDP 7300

3) **For BDP5000, Remove 7 screws of rear panel. (Figure 4-3-1)**

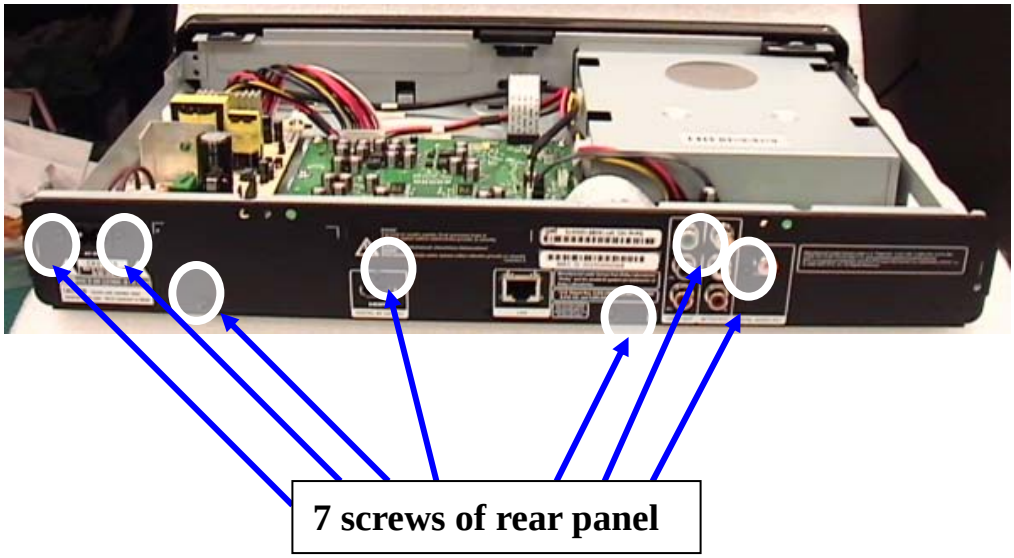


Figure 4-3-2 Rear panel of BDP 5000

4-4 Dismantling DRIVER (LOADER)

1) **Remove Door. (See Figure 4-1-1)**
2) **Remove Cover. (See Figure 4-2-1)**
3) **Unscrew 4 screws and 2 cables. (See Figure 4-4-1)**
4) **Remove Driver**

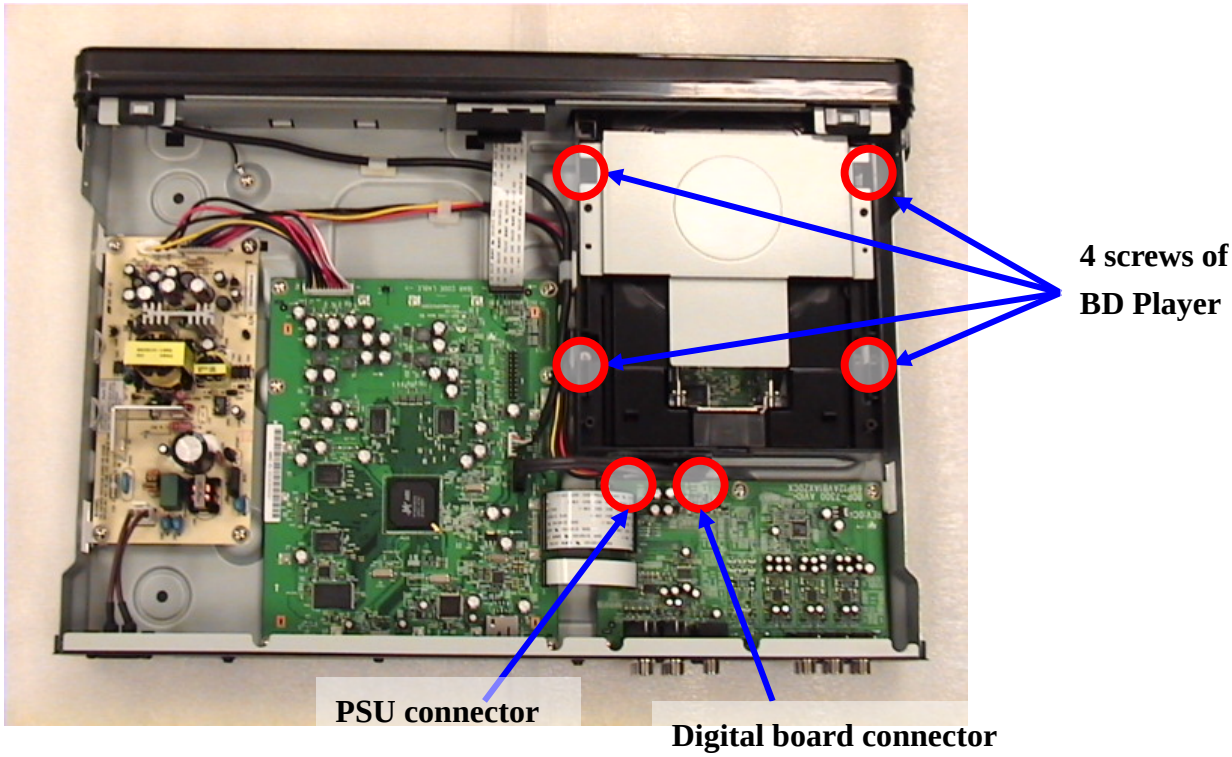


Figure 4-4-1 Remove Driver

4-5 Dismantling Digital board

1) Detach 3 FFC Cables and 3 connecters. (See Figure 4-5-1)
2) Unscrew 6 screws of Digital Board
3) Remove HDMI screw at Real panel. (See Figure 4-5-2)

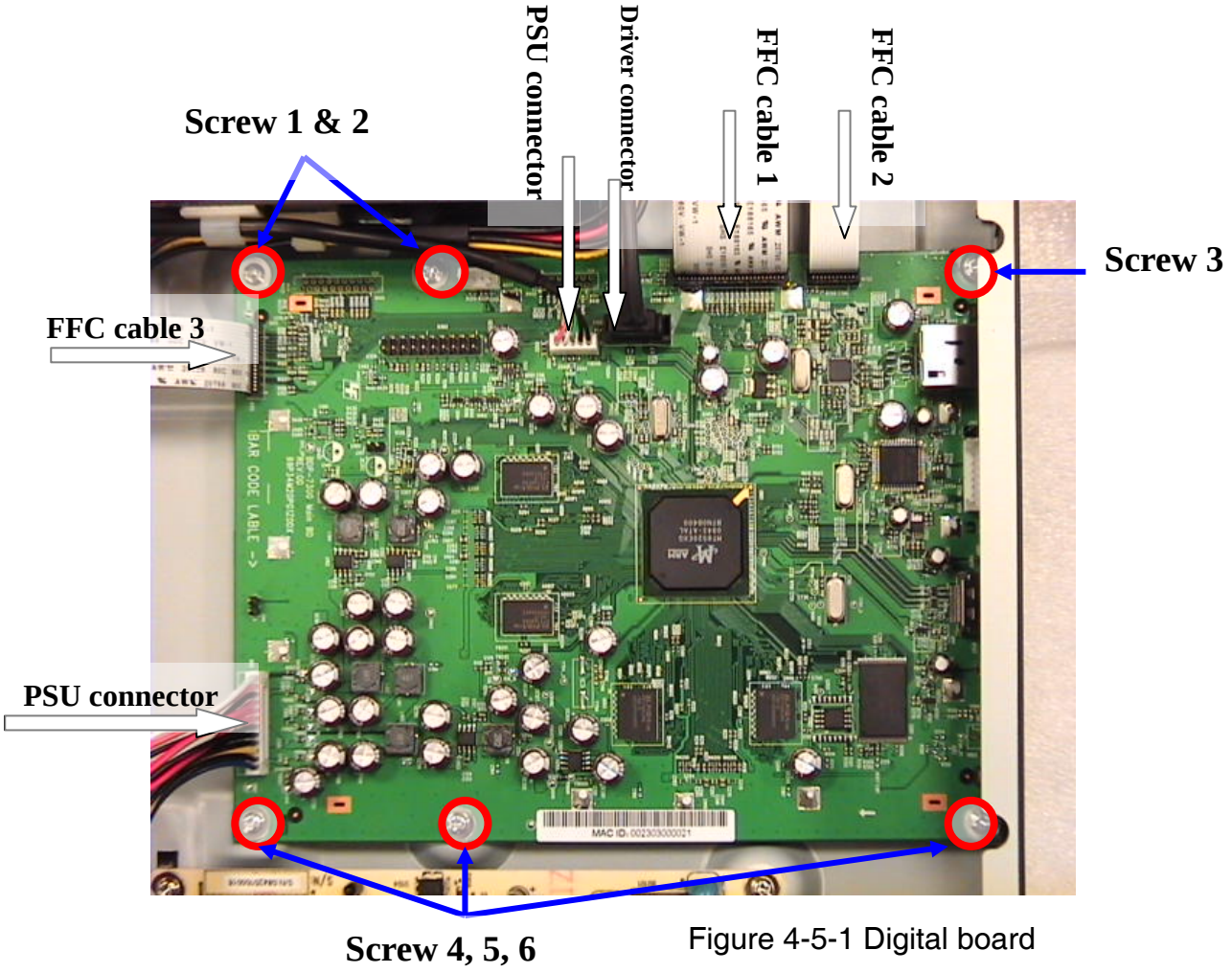


Figure 4-5-1 Digital board

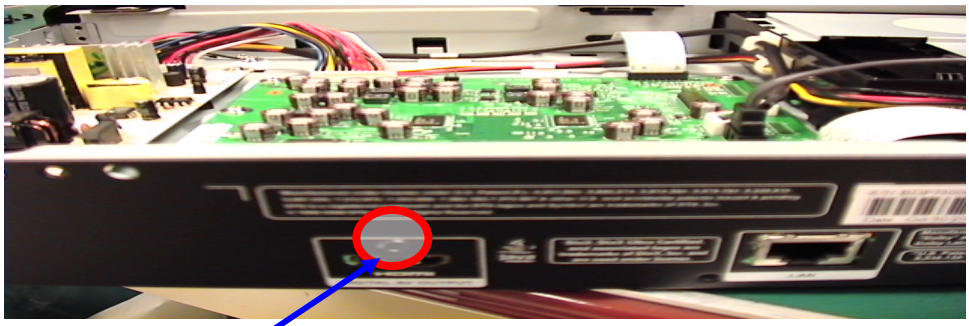


Figure 4-5-2

4-6 Dismantling Analog board

1) **Remove 2 FFC cables and unscrew 6 screws on Analog board. (See figure 4-6-1)**
2) **Remove Real panel :**
   2-1) For BDP-7300 (See Figure 4-3-1)
   2-2) For BDP-5000 (See Figure 4-3-2)

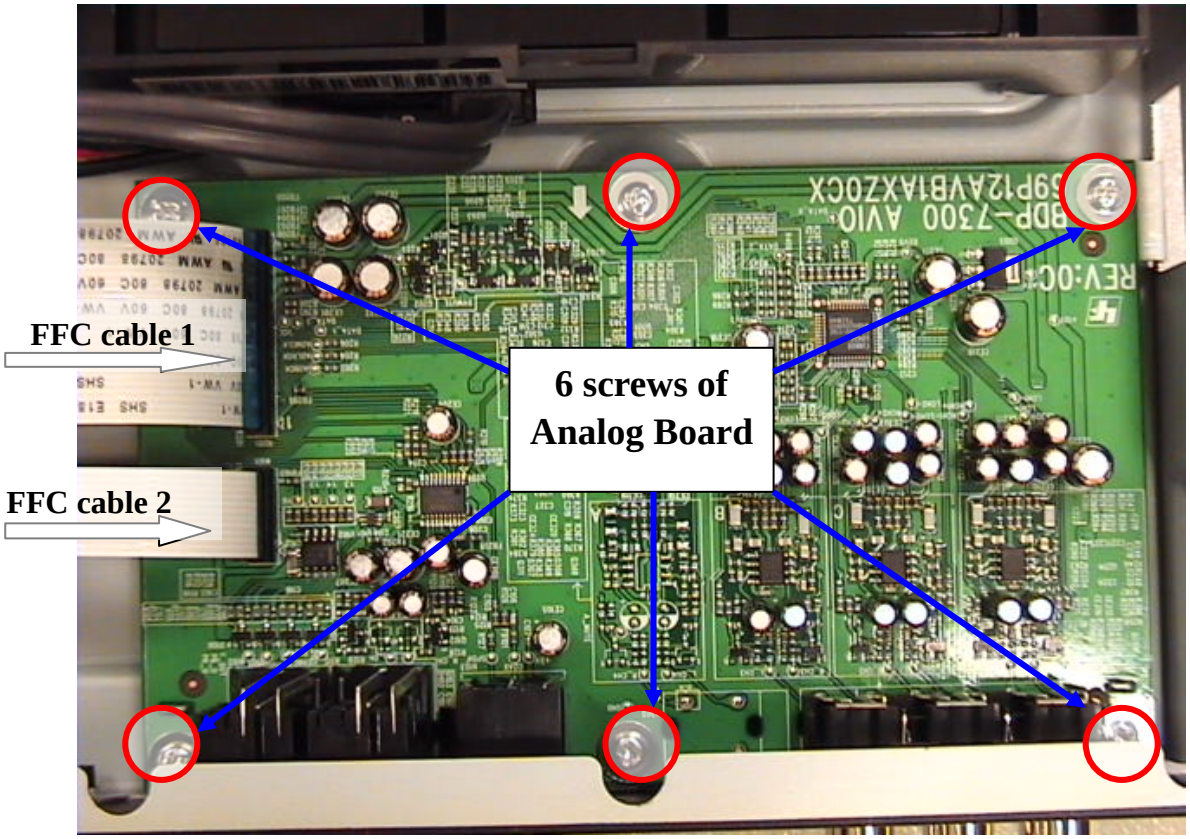


Figure 4-6-1 Analog board

4-7 Dismantling PSU board

1) Detach 3 connecters of PSU board.

2) Unscrew 4 screws and 1 hook on the PSU board.

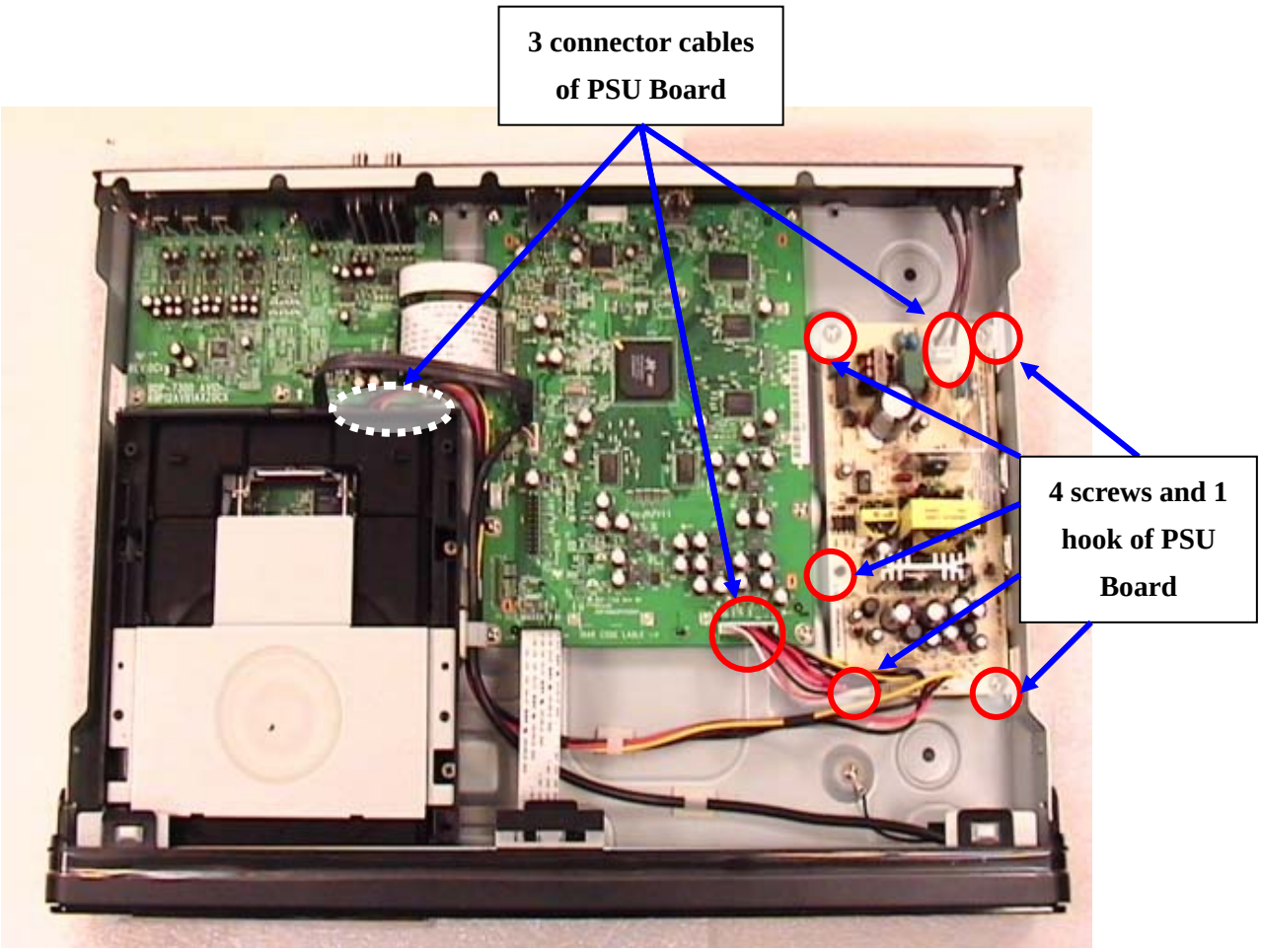


Figure 4-7-1

5. FIRMWARE UPGRADING PROCEDURE

5-1 Upgrade Firmware of System and Loader

- Hardware: BDP 9100
- Firmware: WK920.3 (HQ4197)

1. Create a folder named “UPG” under root directory on USB thumb drive.

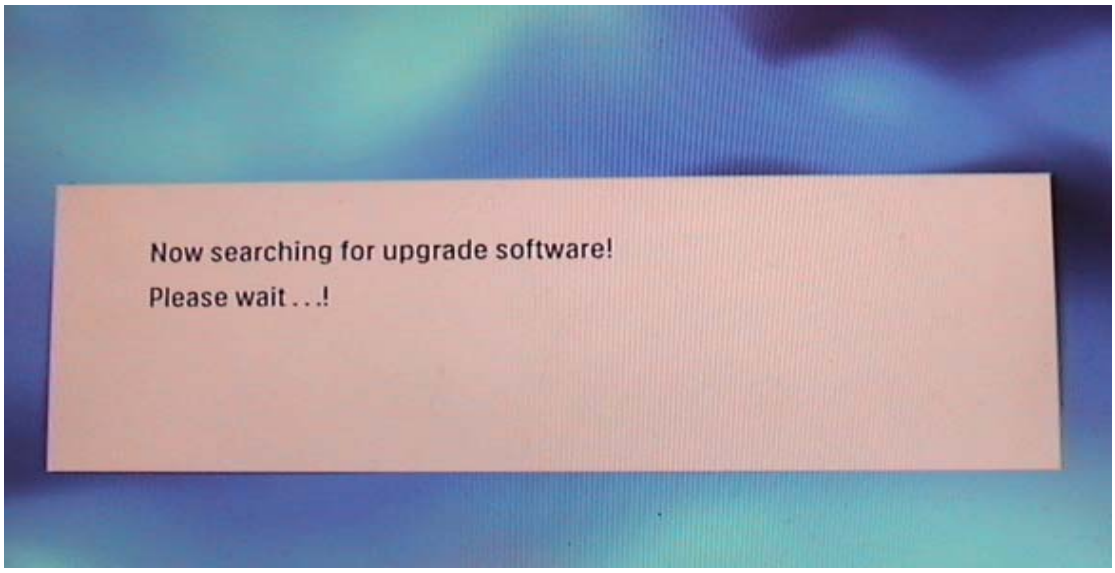
2. Put the upgrade-firmware file in this folder. Please refer to sample of the list about naming upgrade-firmware file

Model	Firmware Type	File Name
BD Player 9100	System	BDP910012-FUS-920300.bin
	Loader	BDP910012-FWF-918200.bin

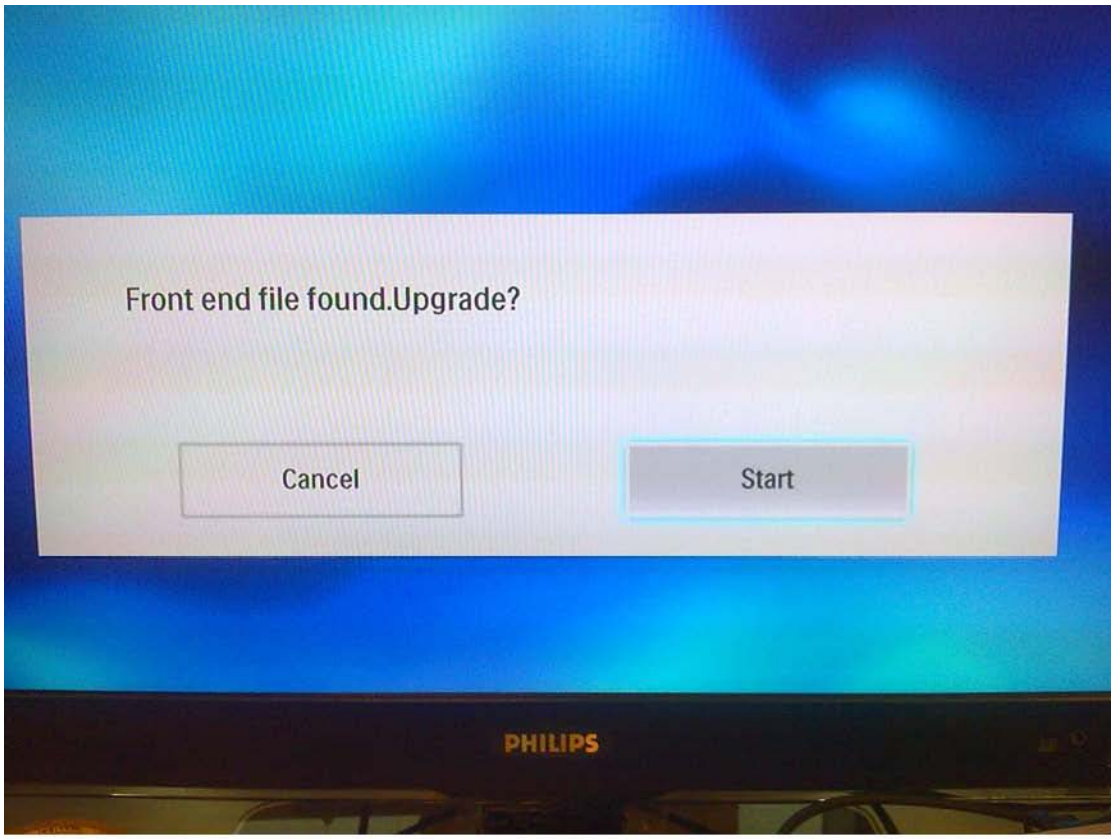
3. Power-on BD Player, waiting for Home Menu (there are 3 items [Play Disc/USB/Settings] for selection) displayed, and insert the USB thumb drive.

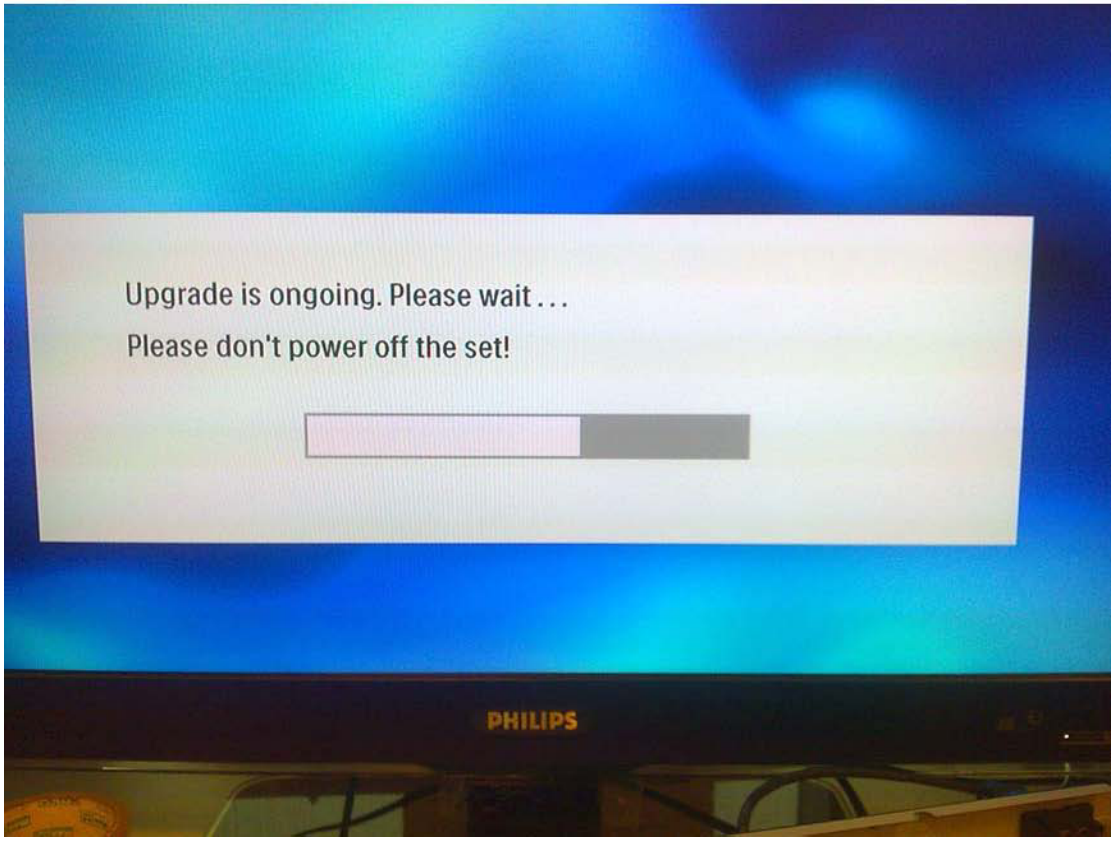
4. Using remote controller to select [Settings] in Home Menu➔ Advanced Setup ➔Software Download ➔ USB.

5. BD Player will search Loader Firmware.

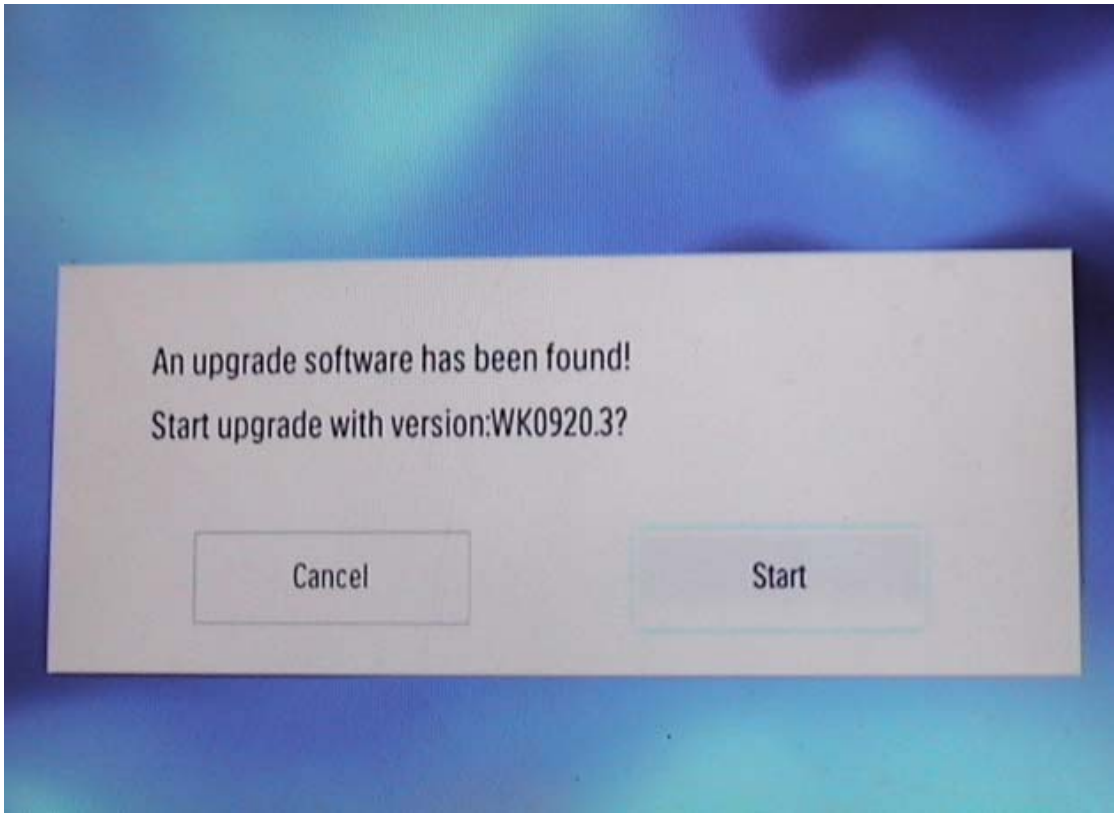


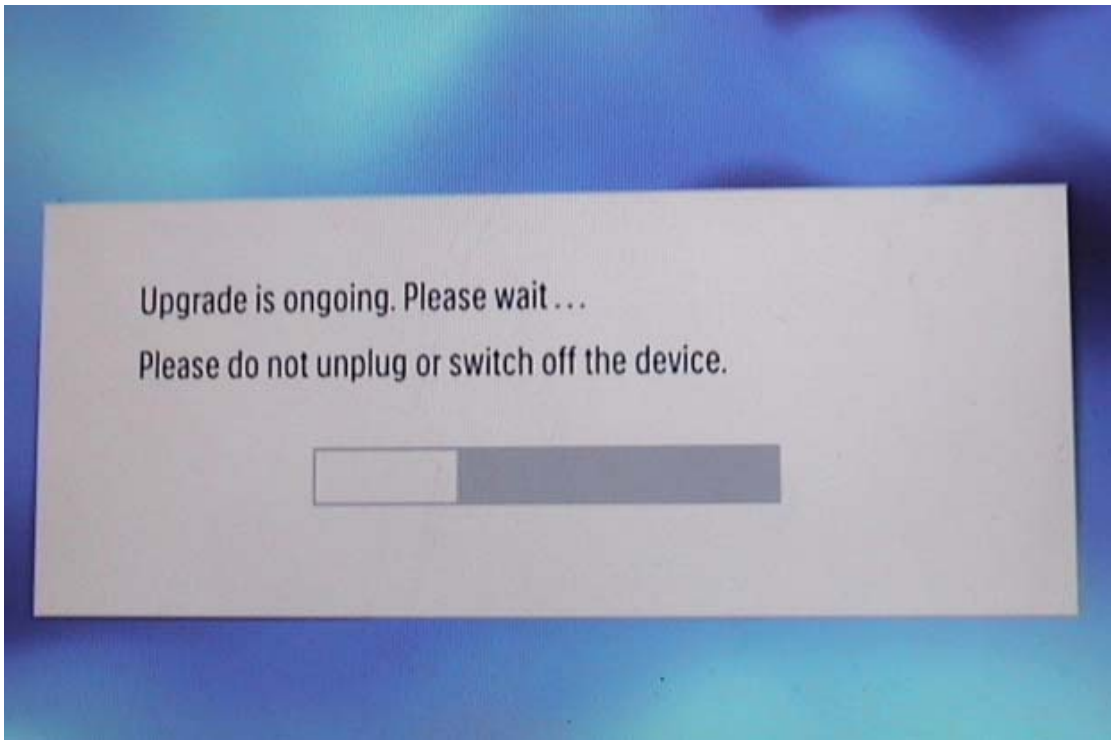
6. While BD Player found Loader Firmware, press OK.





7. After finish upgrade Loader, BD Player will search System Firmware.
While BD Player found System Firmware, press Ok.





8. After finish upgrade System Firmware, BD Player will power-off automatically.

9. After reboot BD Player , press digit keys **"8520"** at Home Menu , BD Player will show the information like below picture.

BDP 9100

Please make sure "Firmware : HQ00004334" and "Loader : BC3000" is showed. And it means firmware update of both System and Loader is successfully.

10. While upgrade failed, please recheck with following steps:

1. Make sure firmware file name is same as the list..
2. Make sure folder "UPG" is under root directory on USB Thumb Drive , and firmware file is in the folder .
3. Make sure USB Thumb Drive can be worked.

Notice : "Firmware : HQ00004334" and "Loader : BC3000" will be different while use different version to upgrade firmware ! In this doc we use HQ4257 (Wk912.4) to test.

5-2 Service Diagnostics Process

Auto-Test will be used for diagnostics process test. Once the Auto-Test is started and it will run whole process. If one of process test failed, Auto-Test will be stop and the **"Error code"** (Table 1) will be showed on VFD (pic1). If test passed, the **"ALL PASS"** will be showed for 10 seconds and then back to Standby mode.

Error Code	Test failure
ERR 01	**Optical Drive communication failure**
ERR 02	**Ethernet Phy. Chip failure**
ERR 03	**CEC MCU communication failure**
ERR 04	**6 ch DAC communication failure**
ERR 05	**No RC code received (after 10s)**

Table1. Auto test error code

5-2-1 How to start Auto-Test

When system is at Home mode, press number "120120" key by using Remote Control.

5-2-2 Front Panel test

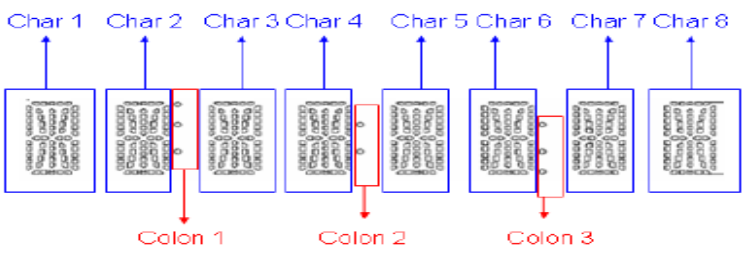
There are two steps included in this test.

Step1. Check VFD:

- Light up all VFD items, including Char1-8 and colon 1-3 (Picture 1) for 3 seconds.

Step2. Check IR:

- Turn off all VFD items, then show [INPUT IR] on VFD.
- Wait IR key with 10 seconds timeout:
  If receive IR key in 10 seconds, proceed to next text.
  If there is no IR key received, the IR test is FAIL and need show error code (**ERR 05**) on VFD.



Picture1. VFD items

5-2-3 Drive Test

- Read Drive ID through SATA Cable:
  If Drive ID test fail, the error code (**ERR 01**) will be showed on VFD.
  If test is passed, go on to next process test.

5-2-4 Ethernet phy Test

- Ping local host to make sure the chip is Ok:
  If Ping result ailed, the error code (**ERR 02**) will be showed on VFD.
  If test is passed, go on to next process test.

5-2-5 CEC MCU Test

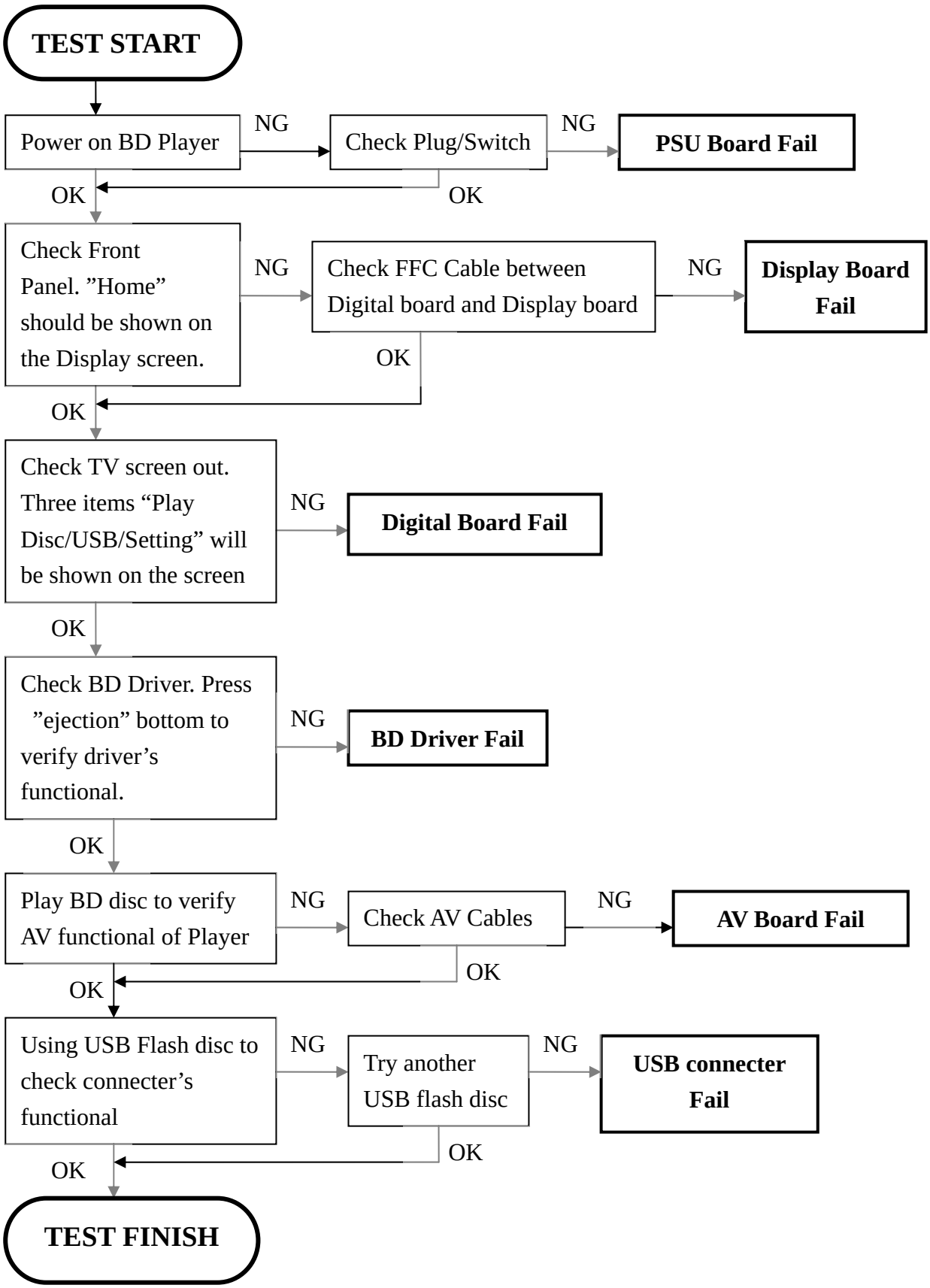
- Read CEC MCU version:
  If read version failed, the error code (**ERR 03**) will be showed on VFD.
  If test is passed, go on to next process test.

5-2-6 6 ch audio DAC Test

- Read version of audio DAC:
  If audio DAC test failed, the error code (**ERR 04**) will be showed on VFD.
  If test is passed, the VFD will show " ALL PASS" for 10 second and then back to Standby mode.

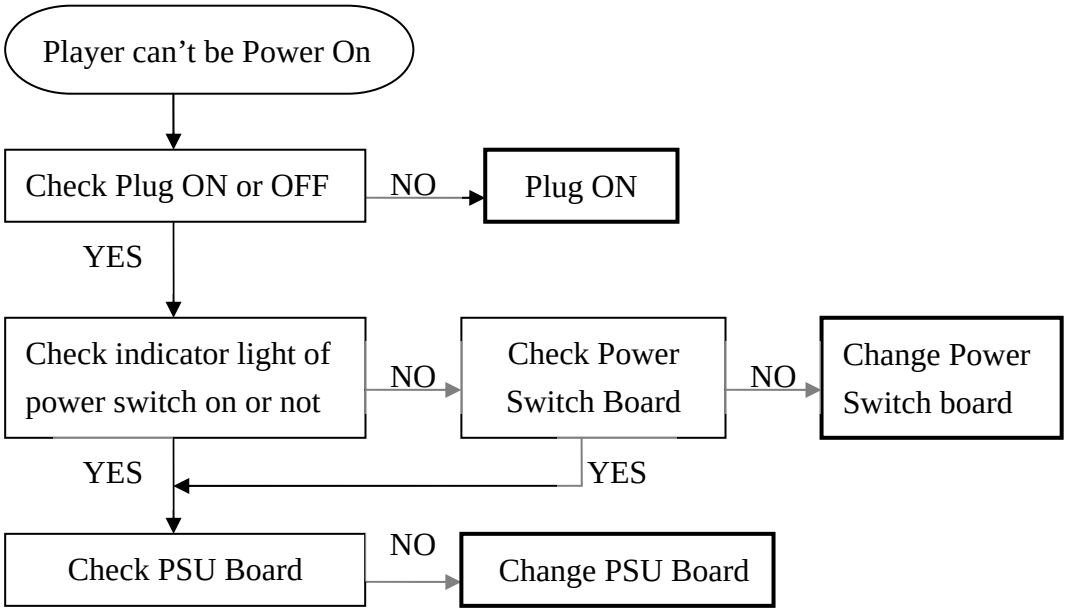
6. Functional Test &Trouble shooting Procedures

6-1 Flow chart on how to filter between working and defective set

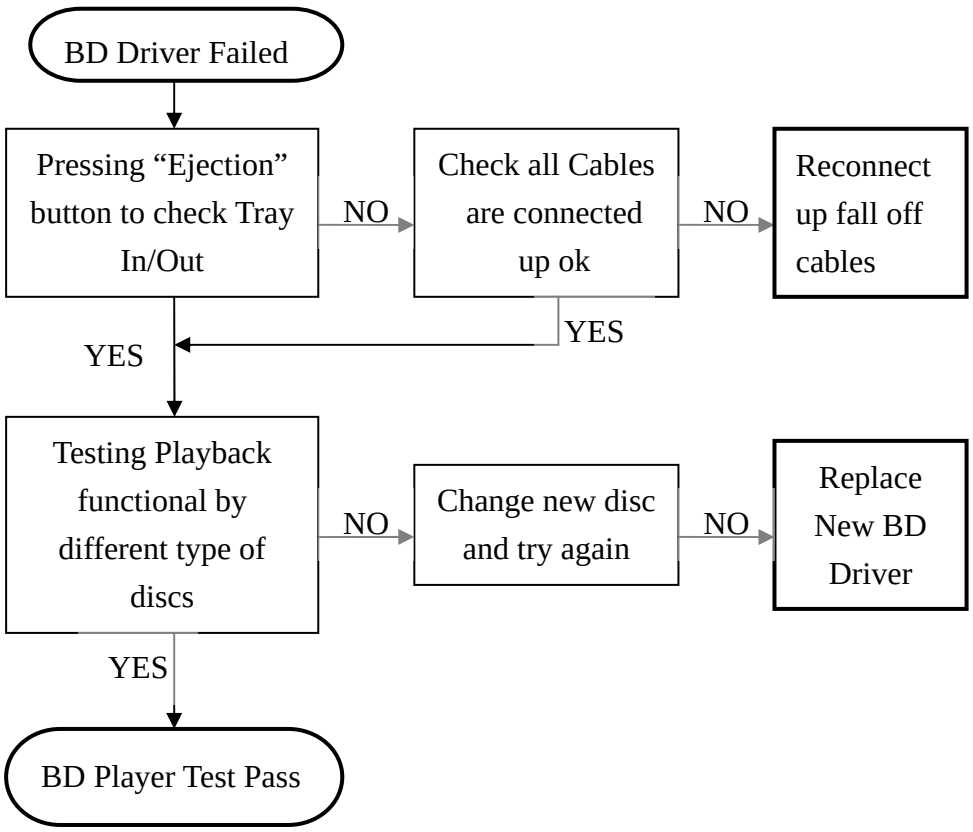


6-2 Trouble Shooting

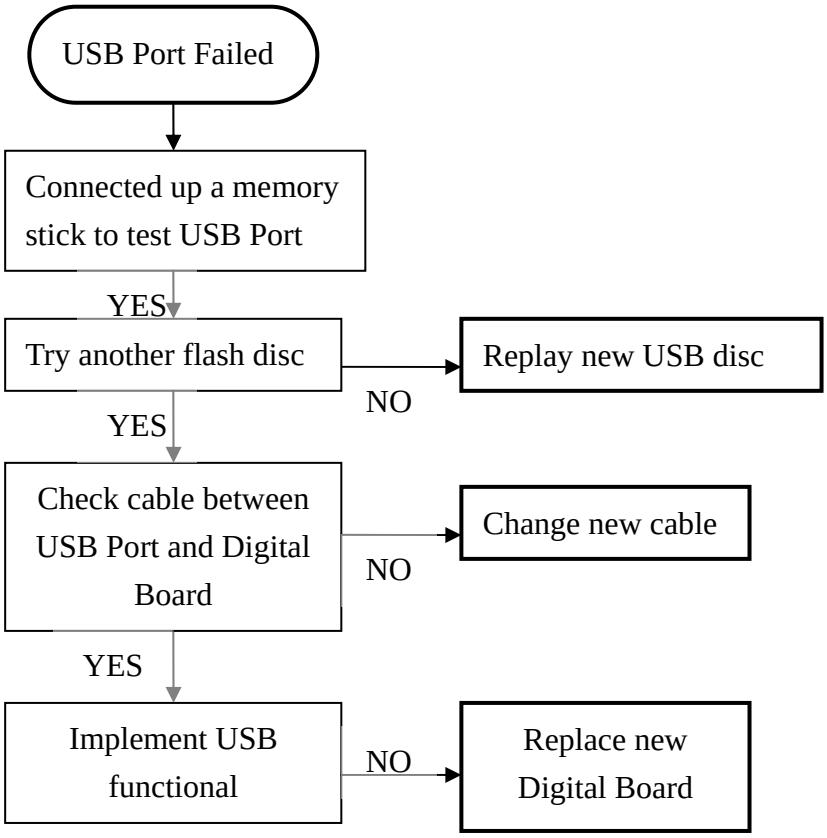
6-2-1 Player can not be power on



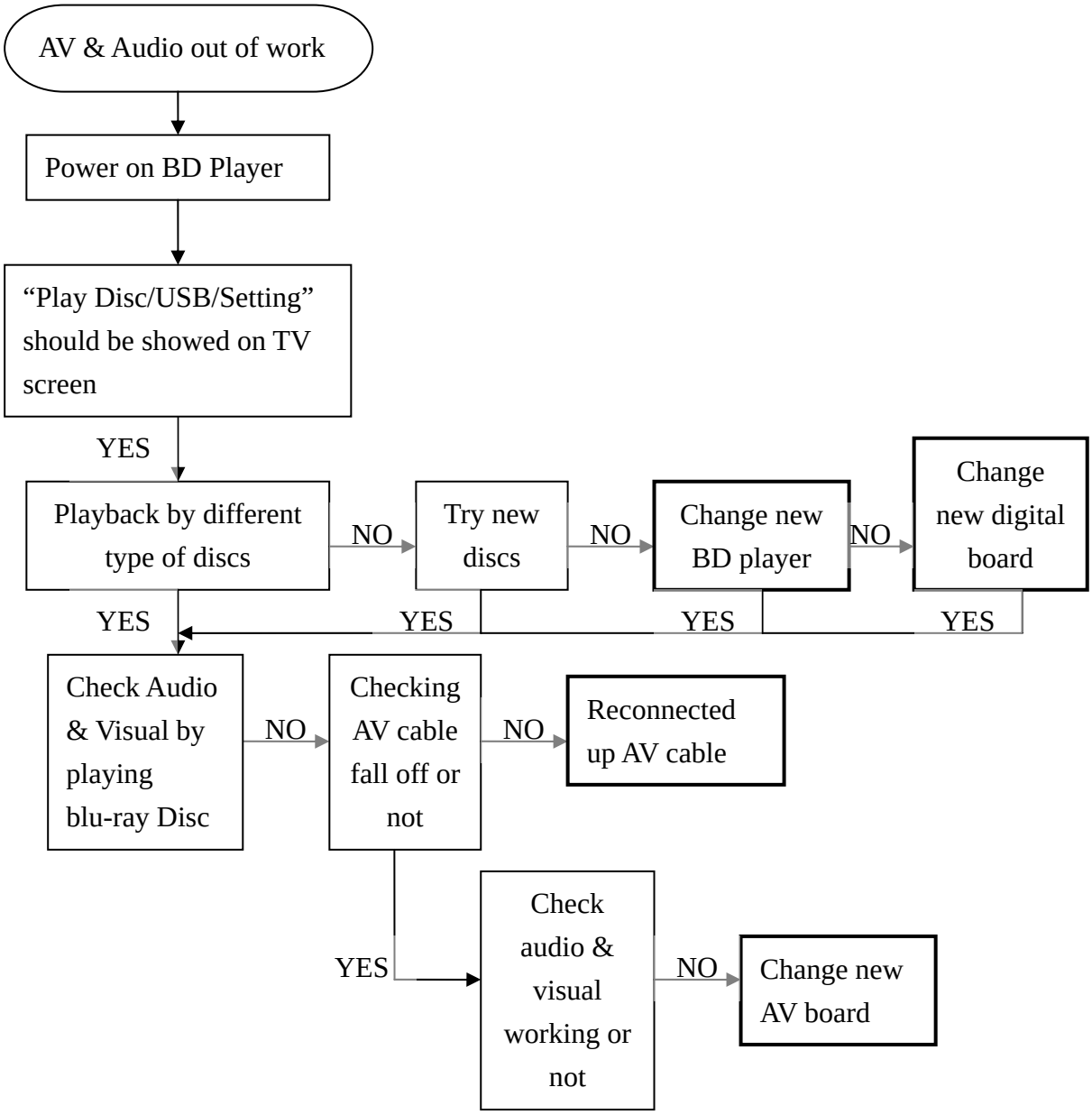
6-2-2 BD Driver (Loader) can not be functioned



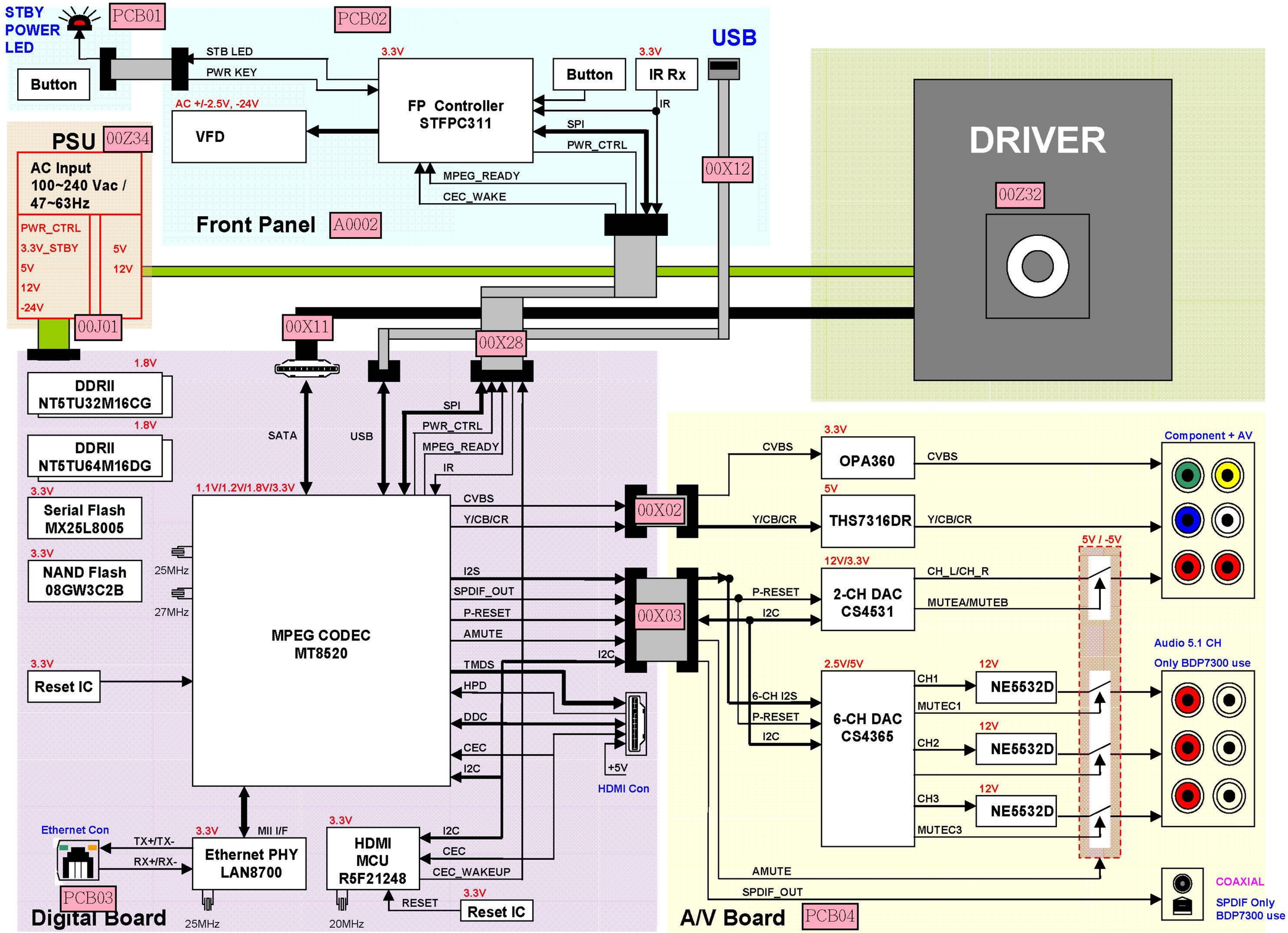
6-2-3 USB port can not be functioned



6-2-4 AV can not be implemented

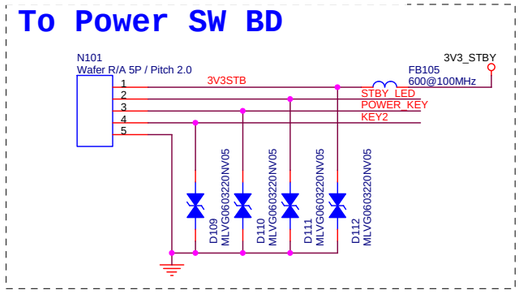


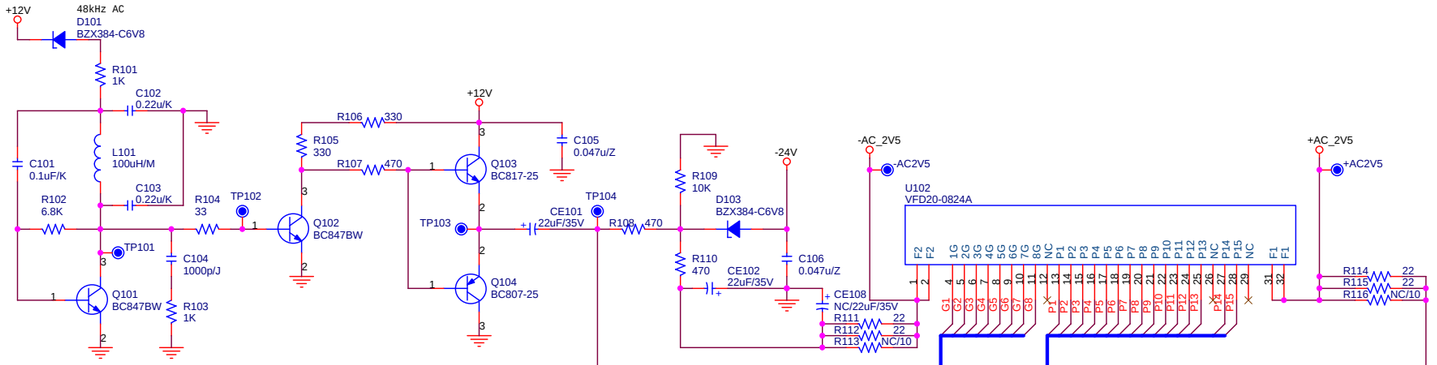
7-1 BDP 9100 Block Diagram

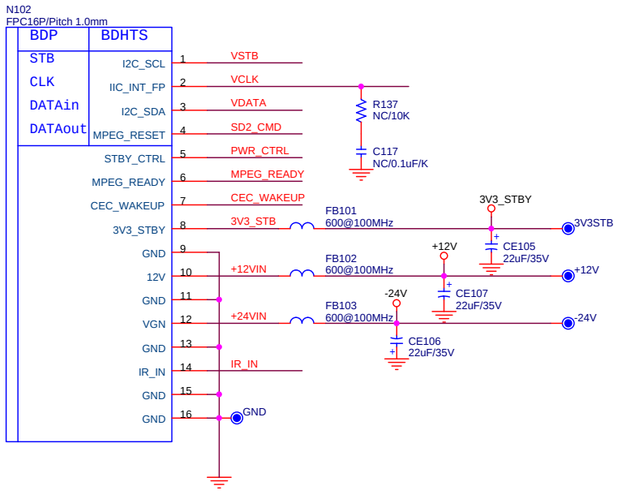


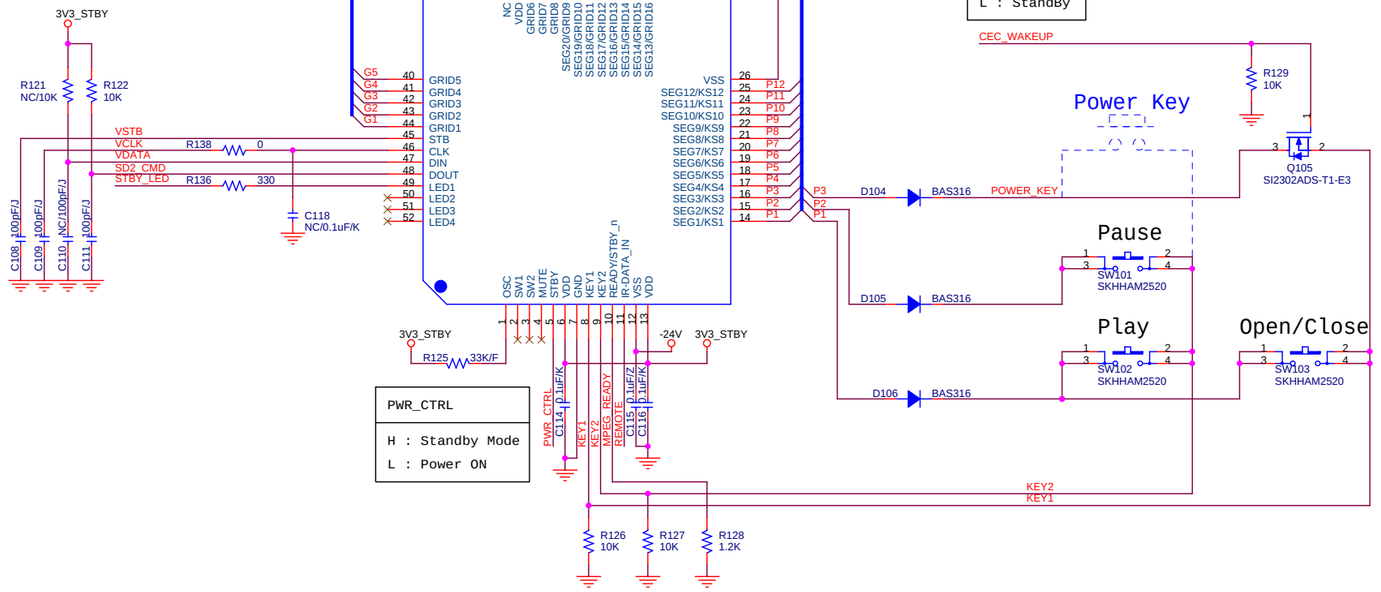
7-2 Front Board Diagrams

Front Board Circuit



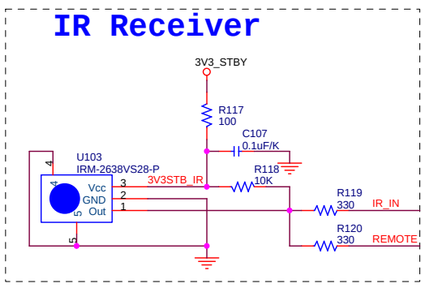






TF101 NC/TOUCH FINGER

TF102 NC/TOUCH FINGER



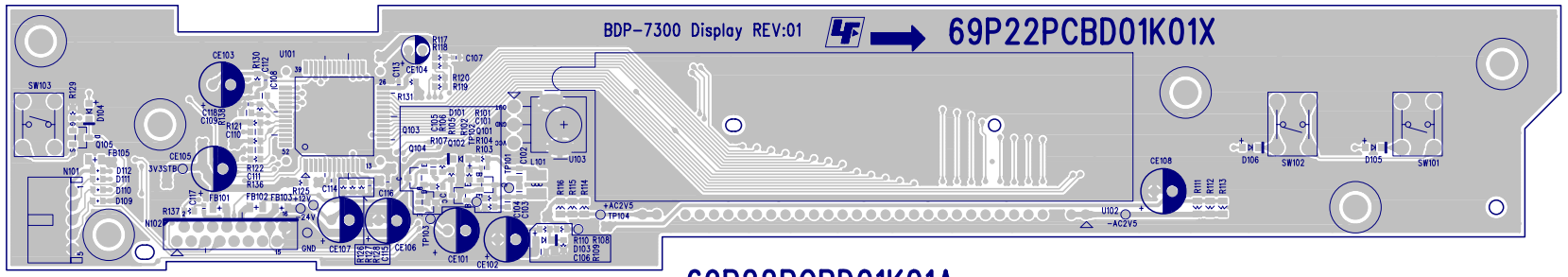
TEL:886-3-578-7722

Title: C01 - Display BD

Size: C | Document Number | Rev: A1X

Date: Friday, March 27, 2009 | Sheet 3 of 3

Front Board Layout

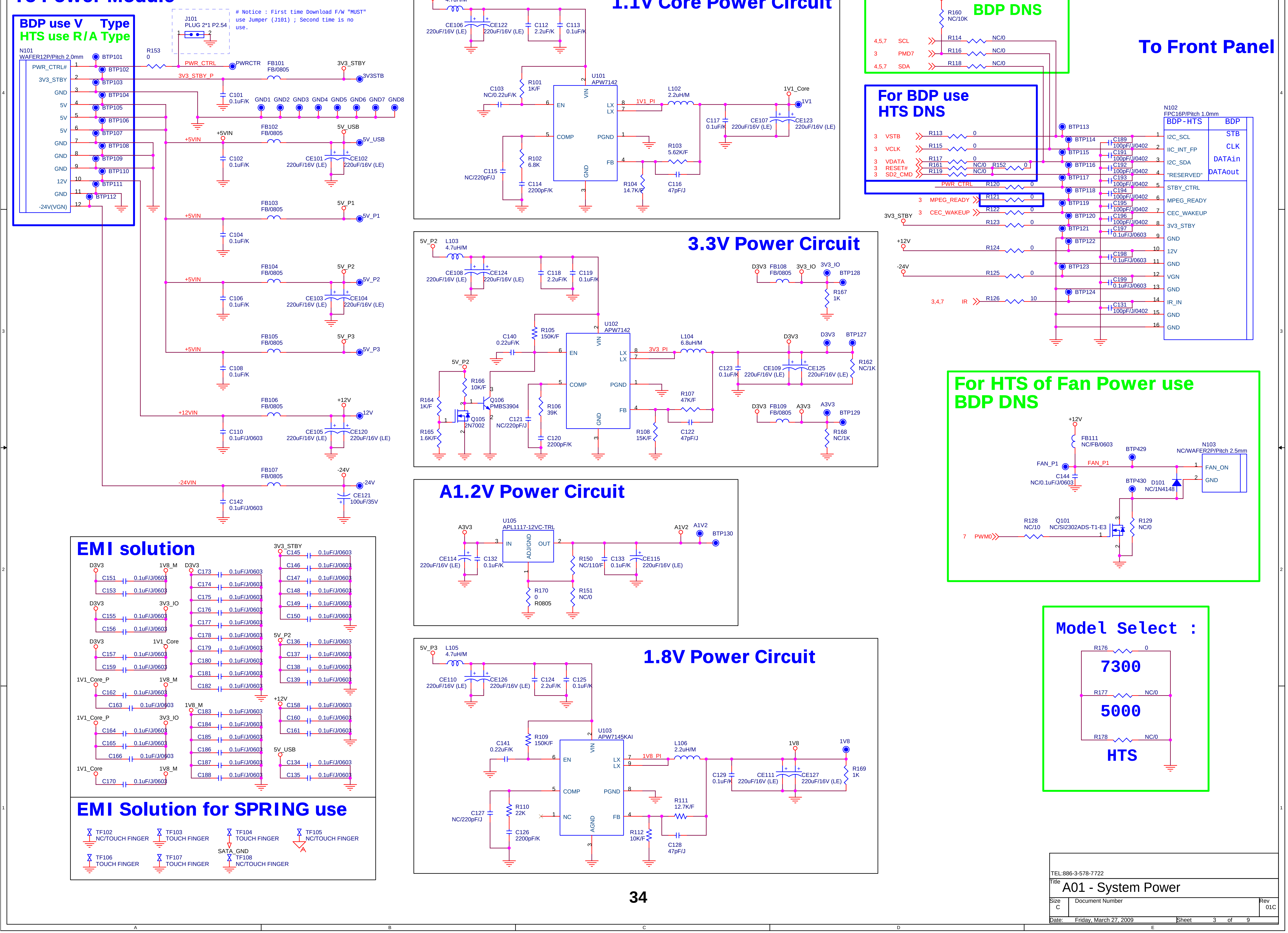


BOARD NAME: BDP-7300 Display		
FILM NAME: Silkscreen, Top Side		
FILE NAME:BDP-7300 Display_01A		SHEET: 1 OF 8
DRN: Nicole Chen	VERSION: 01A	DATE: 2009/01/08

PCB LAYER	2 LAYER
PCB THICKNESS	1.2+/-0.13 mm
LAYER 1	TOP SIDE
LAYER 2	BOTTOM SIDE
CLASS	UL 94-V0
HOLE POSITION TOLERANCE	+/-0.08 mm
IC,Connector(0.4mm) Pad Size	0.23+/-0.02 mm
IC,Connector(0.5mm) Pad Size	0.3+0.02/-0.04mm

7-3 Digital Board Diagrams

Digital Board Circuit - 1



Digital Board Circuit - 2

1V8 — FB201 FB/0805 — 1V8_M — BTP201 — FB202 FB/0805

U001A MT8520EXG-27x27

U001B MT8520EXG-27x27

U201 By-Pass Cap

C209 0.1uF/K C222 0.1uF/K C228 0.1uF/K C263 0.1uF/K C226 0.1uF/K
C249 0.1uF/K C265 0.1uF/K C241 0.1uF/K C267 0.1uF/K C244 0.1uF/K
C256 0.1uF/K C218 0.1uF/K C220 0.1uF/K

U202 By-Pass Cap

C270 0.1uF/K C236 0.1uF/K C268 0.1uF/K C237 0.1uF/K C229 0.1uF/K
C234 0.1uF/K C230 0.1uF/K C215 0.1uF/K C231 0.1uF/K C272 0.1uF/K
C232 0.1uF/K C213 0.1uF/K C235 0.1uF/K

U203 By-Pass Cap

C225 0.1uF/K C242 0.1uF/K C262 0.1uF/K C271 0.1uF/K C251 0.1uF/K
C250 0.1uF/K C233 0.1uF/K C227 0.1uF/K C266 0.1uF/K C224 0.1uF/K
C900 0.1uF/K C901 0.1uF/K C248 0.1uF/K

U204 By-Pass Cap

C217 0.1uF/K C219 0.1uF/K C212 0.1uF/K C221 0.1uF/K C223 0.1uF/K
C255 0.1uF/K C261 0.1uF/K C257 0.1uF/K C243 0.1uF/K C214 0.1uF/K
C902 0.1uF/K C216 0.1uF/K C210 0.1uF/K

U201 NT5TU64M16DG-AC (64Mb x16 DDR2/800 FBGA-84)

U202 NT5TU64M16DG-AC (64Mb x16 DDR2/800 FBGA-84)

U203 NT5TU32M16CG-25C (32Mb x16 DDR2/800 FBGA-84)

U204 NT5TU32M16CG-25C (32Mb x16 DDR2/800 FBGA-84)

U205 G2996F1UF

PDDDR — R201 4.7K — DDRVRE — DDR_VREF — BTP202 — D0V9 — 1V8

DDR_VREF — VDD_ARVREF — REXTUP R229 75/F — REXTDN R230 75/F

TEL:886-3-578-7722

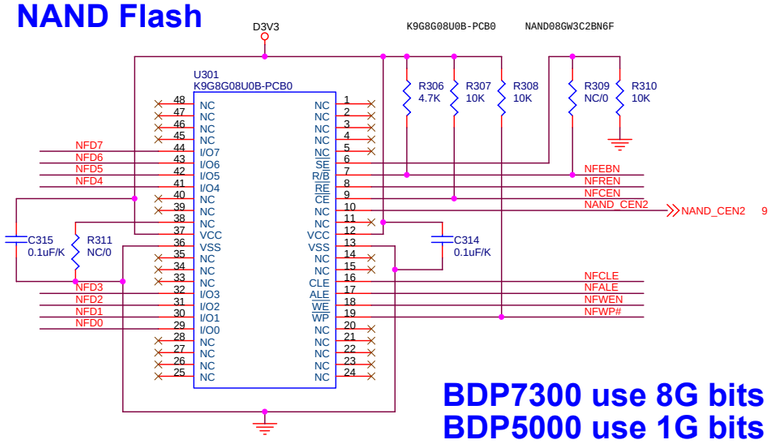
Title: A02 - MT8520 to DDR2-SDRAM

Size C | Document Number | Rev 01C

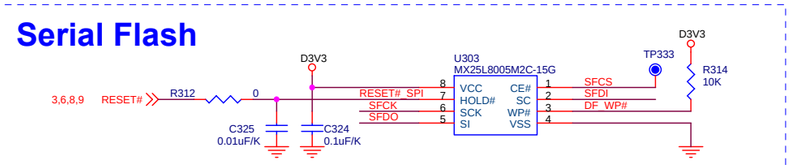
Date: Friday, March 27, 2009 | Sheet 4 of 9

Digital Board Circuit - 3

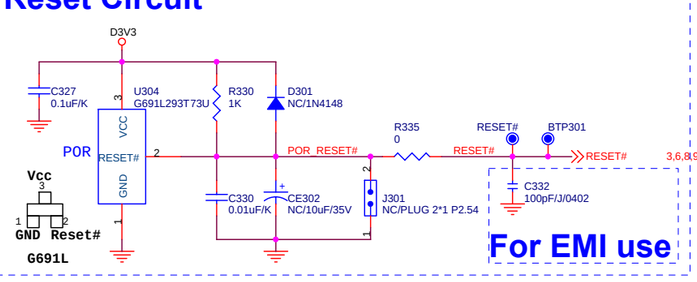
NAND Flash



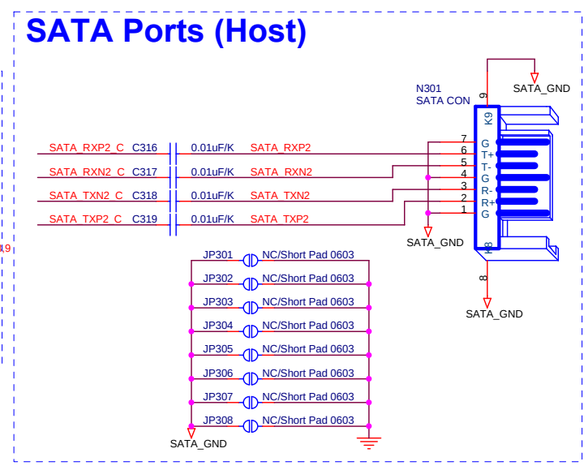
Serial Flash



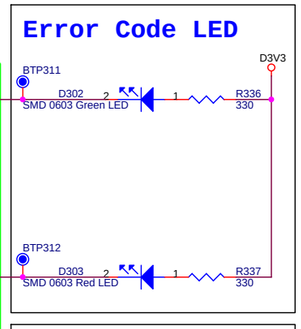
Reset Circuit



SATA Ports (Host)

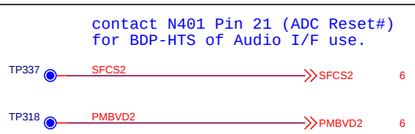


Error Code LED



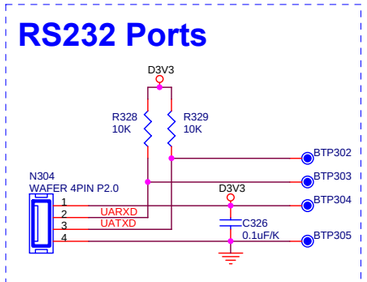
contact U503 Pin 4 (FAULT#) for Detect USB current limit IC (TPS2550) Over Current condition

contact N401 Pin 21 (ADC Reset#) for BDP-HTS of Audio I/F use.

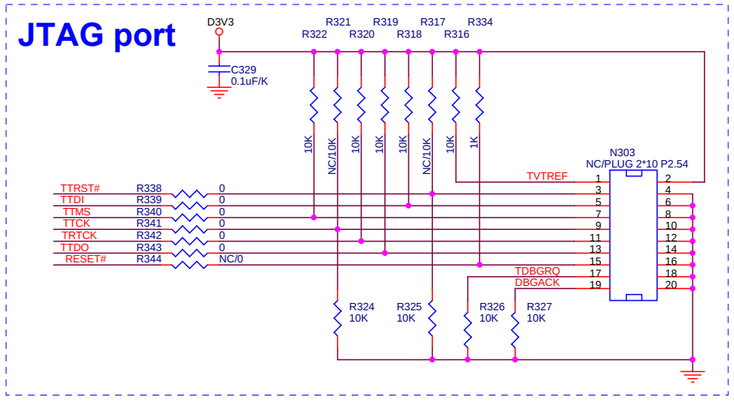


contact N401 Pin 22 (LINE Detect) for BDP-HTS of Audio I/F use.

RS232 Ports



JTAG port



TEL:886-3-578-7722

Title: A03 - MT8520 to Flash / SATA

Size	Document Number	Rev
C		01C

Date: Friday, March 27, 2009 Sheet 5 of 9

Digital Board Circuit - 4

For EMI solution cut trace use

7	GPIO0	R445	NC/0	GPIO0_HTS
7	GPIO1	R446	NC/0	GPIO1_HTS
7	GPIO10	R447	NC/0	GPIO10_HTS
7	GPIO11	R448	NC/0	GPIO11_HTS
9	SPDIF_OUT	R449	NC/47	SPDIF_OUT_HTS
7,9	AMUTE	R450	NC/0	AMUTE_HTS
5	SD2_CLK	R451	NC/0	SD2_CLK_HTS
7	GPIO2	R452	NC/0	GPIO2_HTS
7	GPIO3	R453	NC/0	GPIO3_HTS
7	GPIO14	R454	NC/0	GPIO14_HTS
5	SFCS2	R455	NC/0	SFCS2_HTS
5	PMBVD2	R456	NC/0	PMBVD2_HTS
9	AOSDATA4_R	R457	NC/0	AOSDATA4_R_HTS
9	AOBCK_R	R458	NC/0	AOBCK_R_HTS
9	AOMCLK_R	R459	NC/0	AOMCLK_R_HTS
9	AOLRCK_R	R460	NC/0	AOLRCK_R_HTS
5,9	PMCD1N	R461	NC/0	PMCD1N_HTS

For HTS of Audio IF use

C403 NC/0.1uF/K, D3V3
U403 NC/74LVC1G125GW (VCC, OE, A, Y, GND)
HTS & BDP DNS
GPIO0_HTS — R434 NC/47
R444 NC/0 Optional
U404 NC/74LVC1G125GW (OE, A, GND, VCC, Y)
C407 NC/0.1uF/K
SPDIF_OUT_HTS — R442 NC/0
R443 NC/47
C408 NC/22pF/J
R436 NC/10K
SD2_CLK_HTS
Q401 NC/PMBS3904
R435 NC/4.7K

HTS & BDP DNS

	R401	NC/0	SPDIF_MCK	BTP404
GPIO1_HTS	R402	NC/0	SPDIF_LRC	BTP405
GPIO10_HTS	R403	NC/0	SPDIF_BCK	BTP406
GPIO11_HTS	R404	NC/0	SPDIF_DATA	BTP407
3,7,9 SCL	SCL R405	NC/0	IIC_SCL	BTP408
D3V3 3,7,9 SDA	SDA R406	NC/0	IIC_SDA	BTP409
	R433	NC/0	D3V3_O	BTP410
	R407	NC/0	SPDIF_OUT_R	BTP411
	AMUTE_HTS R408	NC/1K@100MHz	AMUTE_R	BTP412
	R409	NC/0	iPOD_DET	BTP413
D3V3 R462	GPIO2_HTS R410	NC/0	iPOD_UART_TX	BTP414
R463	GPIO3_HTS R411	NC/0	iPOD_UART_RX	BTP415
R437	GPIO14_HTS R412	NC/1K@100MHz	iPOD_OC	BTP416
NC/10K	SFCS2_HTS R440	NC/0	iPod_EN#	BTP427
	PMBVD2_HTS R441	NC/0	CVBS_SEL	BTP428

BTP403 N401 NC/FPC22P/Pitch 1.0mm

1	GND
2	SPDIF_MCK
3	GND
4	SPDIF_LRCK
5	GND
6	SPDIF_BCK
7	GND
8	SPDIF_DATA
9	GND
10	IIC_SCL
11	GND
12	IIC_SDA
13	D3V3
14	SPDIF_OUT
15	GND
16	AMUTE
17	iPOD_DET
18	iPOD_UART_TX
19	iPOD_UART_RX
20	iPOD_OC
21	iPod_EN#
22	CVBS_SEL

For HTS of iPod_CP Circuit

D3V3 FB401 NC/FB/0603, 3V3_CP
C409 NC/10u/K C0805, C401 NC/0.1uF/K
3V3_CP BTP401
U401 NC/R5H30201NA04NQ07 QFN20/4/0.5
ADD_SEL
1 = 0x22 (R) 0x23 (W)
0 = 0x20 (R) 0x21 (W) ~ Default
R429 NC/4.7K HTS & BDP DNS
R430 NC/4.7K
R427 NC/5.6K, R428 NC/10K
U402 NC/NCP303LSN30T1G (CD, NC, OUT, INP, GND)
BTP402 RST#PH PH_RESET#
C402 NC/0.1uF/K
C406 NC/0.01uF/K, C404 NC/0.1uF/K, C405 NC/0.1uF/K
R431 NC/10 SDA
R432 NC/10 SCL
8 PH_RESET#
3,5,8,9 RESET# R439 NC/0

For HTS of Repeater IF use

	AOSDATA4_R_HTS R418	NC/0	A_DATA4	BTP417
	AOBCK_R_HTS R419	NC/0	A_BCLK	BTP418
	AOMCLK_R_HTS R420	NC/0	A_MCK	BTP419
	AOLRCK_R_HTS R421	NC/0	A_LR_CLK	BTP420
3,9 CEC_WAKEUP	CEC_WAKEUP R422	NC/0	CEC_WAKEUP_R	BTP421 BTP422
	PMCD1N_HTS R423	NC/0	IIC_INT_CEC_R	
D3V3	R438 NC/10K			
3,7,9 SCL	SCL R424	NC/0	IIC_SCL	BTP423 BTP424
3,7,9 SDA	SDA R425	NC/0	IIC_SDA	
3,5,9 IR	IR R426	NC/0	IR_R	BTP425 BTP426

N402 NC/FPC14P/Pitch 1.0mm

1	A_DATA4
2	GND
3	A_BCLK
4	GND
5	A_MCK
6	GND
7	A_LR_CLK
8	CEC_WAKEUP
9	IIC_INT_CEC
10	GND
11	IIC_SCL
12	IIC_SDA
13	GND
14	IR

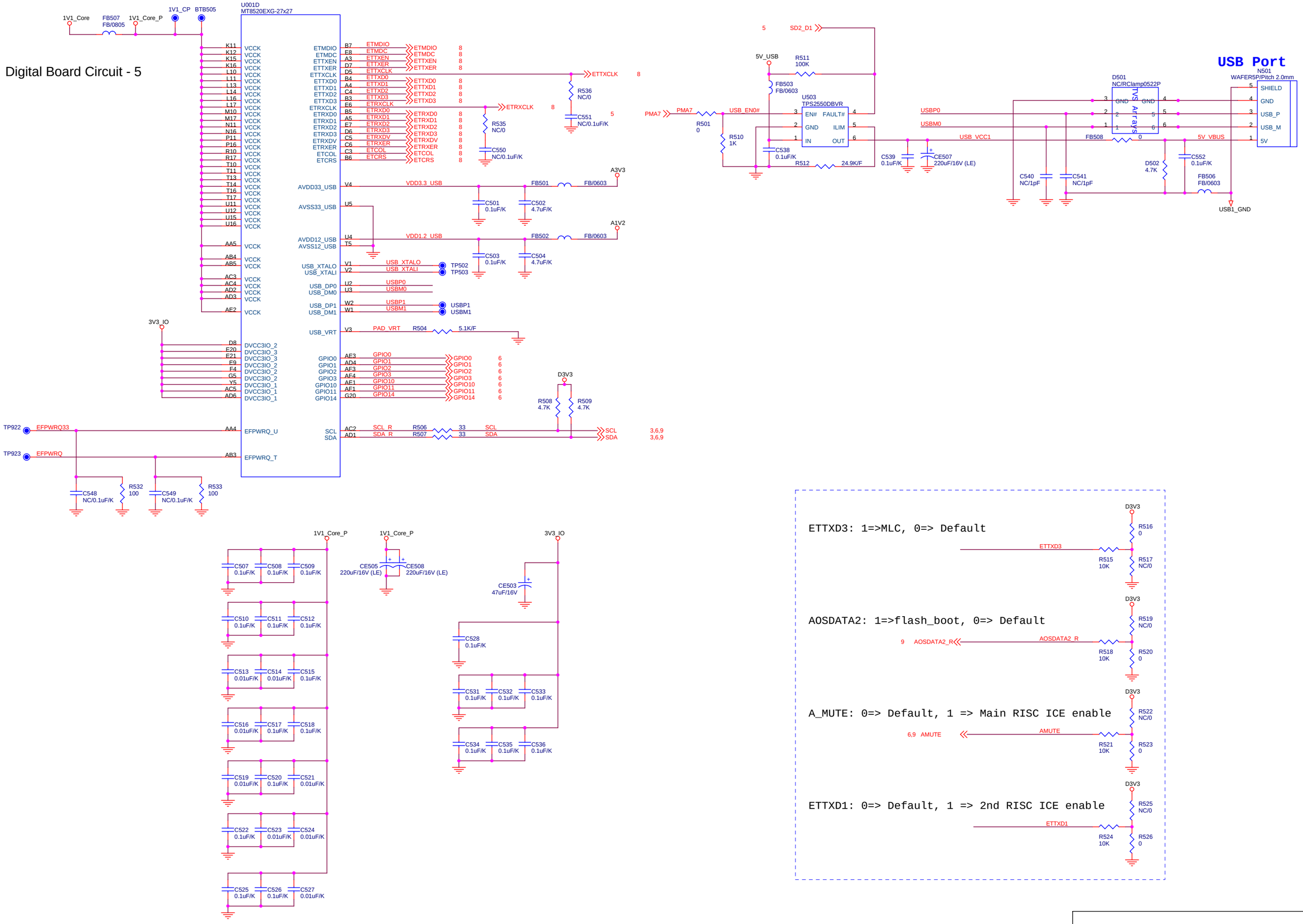
TEL:886-3-578-7722

Title: 04 - MT8520 to HTS IF & iPod CP

Size	Document Number	Rev
B		01C

Date: Friday, March 27, 2009 Sheet 6 of 9

Digital Board Circuit - 5



TEL:886-3-578-7722

Title: A05 - MT8520 to USB

Size	Document Number	Rev
C		01C

Date: Friday, March 27, 2009 Sheet 7 of 9

Digital Board Circuit - 6

BootStrap Options

R7 Digital communications mode
Depopulate (Default) MII mode
Populate RMII mode

R1 Pullup to 5v on MDIO Serial line. Normally pulled high in the system by the MAC.

R12 Internal Regulator Disable	
Depopulated (Default)	Enabled (ON) Internal 1.8v regulator
Populated	Disabled (OFF) Internal 1.8v regulator

BTP601 LAN3V3 LAN3V3 FB602 FB/0603 D3V3 FB601 FB/0603 L3V3IO L3V3IO

CE601 220uF/16V (LE) CE602 220uF/16V (LE) C601 0.1uF/K

LAN3V3 C602 0.1uF/K C603 0.1uF/K

L3V3IO C604 0.1uF/K C605 0.1uF/K C606 0.1uF/K

LAN3V3 R645 NC/10K/F R601 NC/10K/F R602 NC/10K/F R603 1.5K/F

25 VDDIO 7 VDD33 30 33 35 VDD33A1 VDD33A2 VDD33A3

7 ETMDIO ETMDIO 4 MDIO
7 ETMDC ETMDC 2 MDC

7 ETRXD3 ETRXD3 R605 100 15 RXD3/nINTSEL
7 ETRXD2 ETRXD2 R606 100 16 RXD2/MODE2
7 ETRXD1 ETRXD1 R607 100 17 RXD1/MODE1
7 ETRXD0 ETRXD0 R608 100 18 RXD0/MODE0
7 ETRXDV ETRXDV R609 100 19 RX_DV
7 ETRXCLK ETRXCLK R610 100 20 RX_CLK/REGOFF
7 ETRXER ETRXER R611 100 21 RX_ER/RXD4

7 ETTXCLK ETTXCLK R612 100 22 TX_CLK
7 ETTXEN ETTXEN 6 TX_EN
7 ETTXD0 ETTXD0 23 TXD0
7 ETTXD1 ETTXD1 24 TXD1
7 ETTXD2 ETTXD2 26 TXD2
7 ETTXD3 ETTXD3 27 TXD3
7 ETCOL ETCOL R613 100 36 COL/MII/CRS_DV
7 ETCRS ETCRS R614 100 3 CRS/PHYAD4
7 ETTXER ETTXER R637 100 nINT/TX_ER/TXD4 1 nINT/TX_ER/TXD4

R639 10K/F ETCOL
R638 10K/F ETRXCLK
C618 NC/0.1uF/K ETRXCLK
C619 NC/0.1uF/K ETTXCLK

CRS/PHYAD4 R630 NC/10K/F

mode2 R615 NC/10K/F mode1 R616 NC/10K/F mode0 R617 NC/10K/F R618 NC/10K/F C622 NC/0.01uF/K

3,5,6,9 RESET# RESET# R642 0 5 nRST
6 PH_RESET# PH_RESET# R643 NC/0

14 CLKIN/XTAL1
R619 1M
13 XTAL2
Y601 25MHz
Y601_G C607 33pF/J C608 33pF/J

33pF/J C633 33pF/J C634

U601

LAN8700(i)

L3V3IO R622 49.9/F 1/16W 1% R621 49.9/F 1/16W 1%

RXN 31 RXP 32 T601 DLW21SN121HQ2

C625 NC/10pF/G 50V C626 NC/10pF/G 50V

L3V3IO R623 49.9/F 1/16W 1% R624 49.9/F 1/16W 1%

TXN 28 TXP 29 T602 DLW21SN121HQ2

C623 NC/10pF/G 50V C624 NC/10pF/G 50V

SPEED100/PHYAD0 9 SPEED100LED
LINK/PHYAD1 10 LINKED
ACTIVITY/PHYAD2 11 ACTIVITYLED
FDUPLEX/PHYAD3 12 FULLDUPLEXLED

VDD_CORE 8 VDDCORE TP601

C612 4.7uF/K C613 0.1uF/K

EXRES1 34 R620 12.4K/F

VSS/FLAG 37

For BDP use HTS DNS

R644 NC/0 L3V3IO R625 10/F 1/8W 1%

N601 RJ8-45

8 GND GND 9
7 N/C GND 10
TPRX- 6 RD-
5 RCT
TPRX+ 4 RD+
TPTX- 3 TD-
2 TCT
TPTX+ 1 TD+

C611 0.022uF/K 50V 10%

C629 10pF/G 50V
C630 10pF/G 50V
C631 10pF/G 50V
C632 10pF/G 50V

For HTS use BDP DNS

N602 NC/FPC8P/Pitch 1.0mm/SMD-V

TPRX+ TPRX- TPTX+ TPTX-

L3V3IO FB603 FB/0603 C627 0.1uF/K C628 0.1uF/K

LAN3V3

SPEED100LED D601 SMD 0603 Green LED R633 330
LINKED D602 SMD 0603 Green LED R634 330
ACTIVITYLED D603 SMD 0603 Green LED R635 330
FULLDUPLEXLED D604 SMD 0603 Green LED R636 330

TEL:886-3-578-7722

Title A06 - SMSC LAN8700

Size	Document Number	Rev
B		01C

Date: Friday, March 27, 2009 Sheet 8 of 9

Digital Board Circuit - 7

To AV BD

For BDP use HTS DNS

N701 FPC 27P / Pitch 1.0mm

1	GND
2	AOBCK
3	GND
4	AOLRCK
5	GND
6	AOMCK
7	GND
8	AOSDATA4
9	AOSDATA0
10	AOSDATA1
11	AOSDATA2
12	AOSDATA3 / RESET#
13	GND
14	SCL
15	SDA
16	P_RESET#
17	AMUTE
18	SPDIF_OUT
19	GND
20	D3V3
21	D3V3
22	GND
23	+5V
24	+5V
25	GND
26	+12V
27	+12V

For BDP use / HTS DNS

For HTS use / BDP DNS

To AV BD

N702 FPC 11P / Pitch 1.0mm

1	GND
2	Y3 (CVBS)
3	GND
4	Y4 (Y)
5	GND
6	Y5 (Pb)
7	GND
8	Y6 (Pr)
9	GND
10	5V
11	GND

For EMI

For BDP use HTS DNS

HDMI Port

Differential Signal ! No Through Hole ! 100 ohm - Impedance

N703 HDMI-TYPE-A

1	F_TX2+
2	
3	F_TX2-
4	F_TX1+
5	
6	F_TX1-
7	F_TX0+
8	
9	F_TX0-
10	F_TXC+
11	
12	F_TXC-
13	HDMI-CEC
14	
15	HDMI_SCL
16	HDMI_SDA
17	
18	
19	
20	
21	
22	
23	

For HTS use BDP DNS

For testing

U001C MT8520EXG-27x27

U701 R5F21248SMFP_PLOP-52

U702 NCP303LSN30T1G

U703 PCA9507DP

N704 WAFER8P/Pitch 2.0mm

1	TXD
2	RXD
3	3V3_CEC
4	GND
5	RESET#
6	MODE
7	TXD0
8	RXD0

D701 BAT54

D702 RClamp0524P

D703 RClamp0524P

Q701 SI2302ADS-T1-E3

Q702 2N7002

Q703 SI2302ADS-T1-E3

Notice : First time Download F/W "MUST" use Jumper (J701) to pull-low ; Second time is no use.

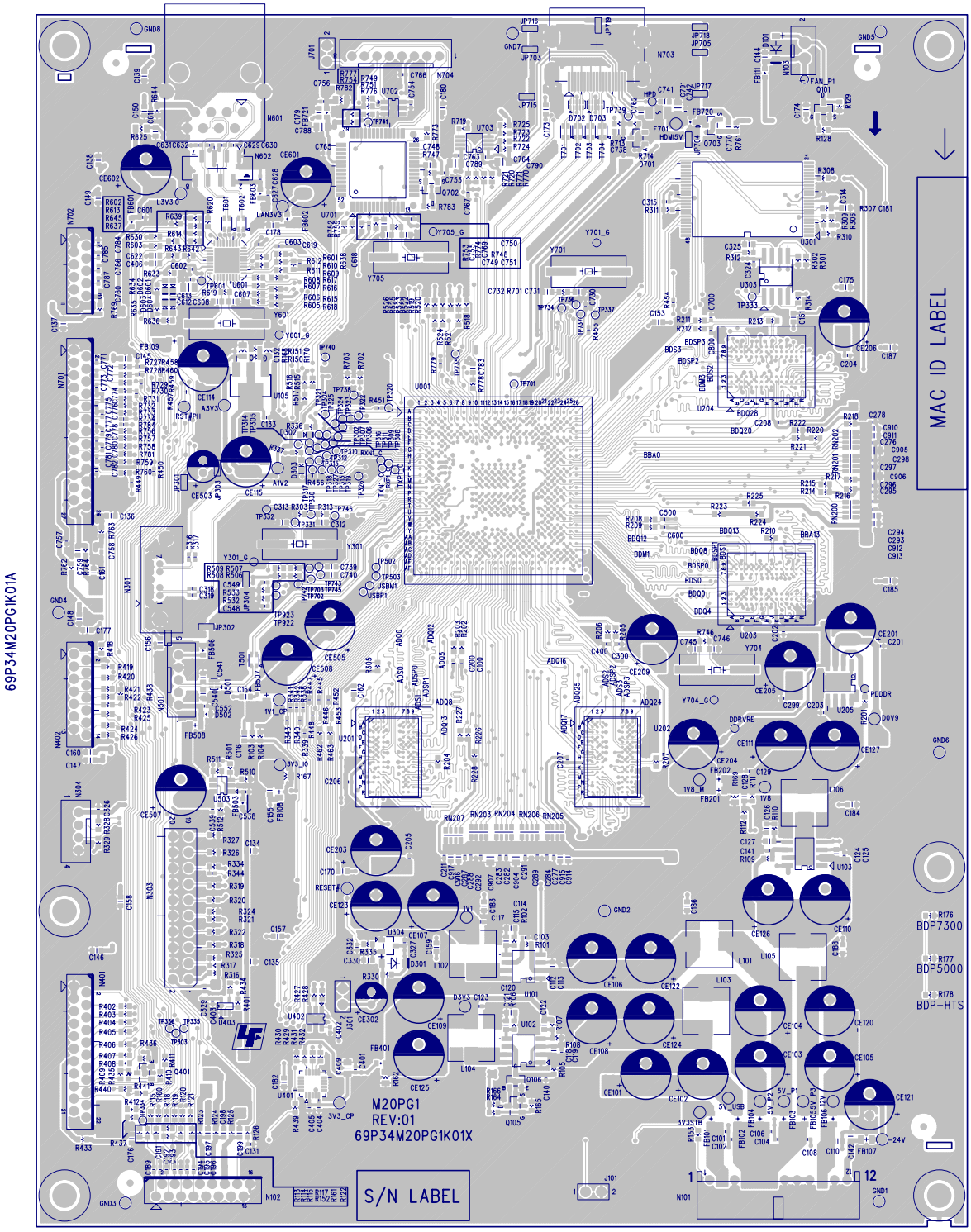
TEL:886-3-578-7722

Title: A07 - MT8520 to AV

Size: C | Document Number | Rev: 01C

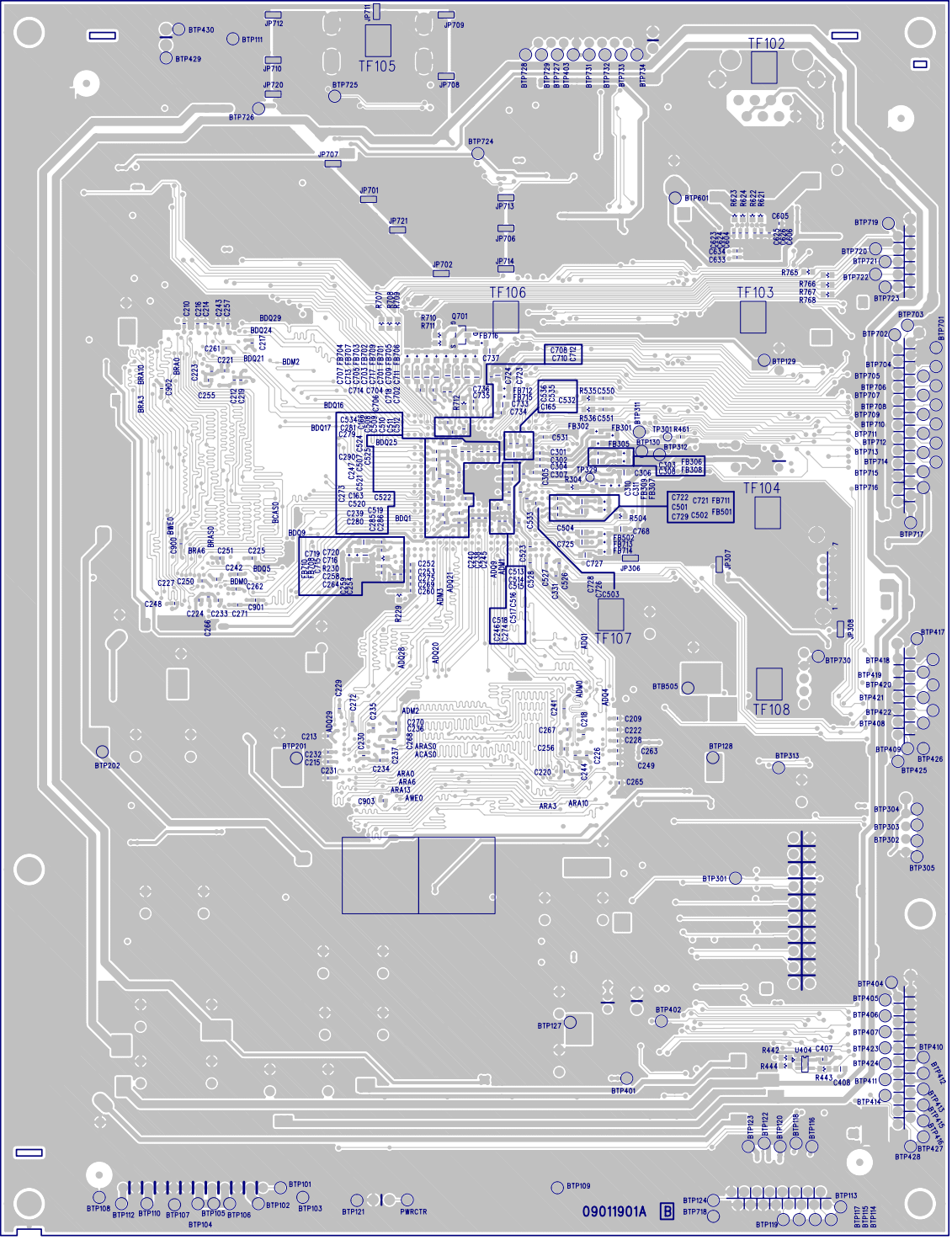
Date: Friday, March 27, 2009 | Sheet 9 of 9

Digital Board Layout - Top View



BOARD NAME: BDP-7300 MAIN Board		
FILM NAME: Silk screen, Top Side		
FILE NAME: BDP7300-01A	SHEET: 1 OF 10	
DRN: Winnie Lin	VERSION: 01A	DATE: 2009/01/19

PCB LAYER	4 LAYER
PCB THICKNESS	1.6+/-0.15 mm
LAYER 1	TOP SIDE
LAYER 2	GROUND PLANE
LAYER 3	VCC PLANE
LAYER 4	BOTTOM SIDE
CLASS	UL 94-V0
HOLE POSITION TOLERANCE	+/-0.08 mm
IC,Connector(0.4mm) Pad Size	0.23+/-0.02 mm
IC,Connector(0.5mm) Pad Size	0.3+0.02/-0.04mm



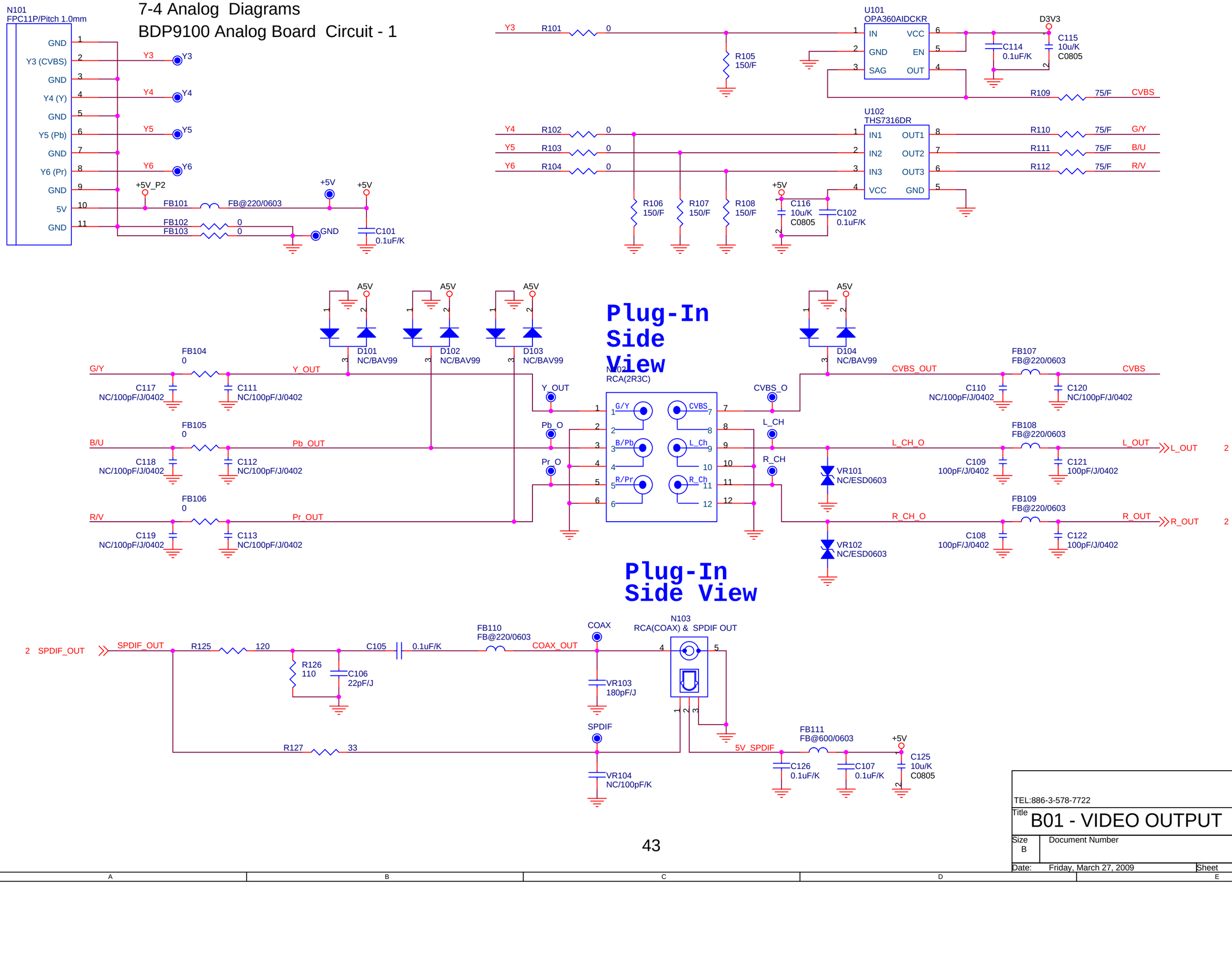
Digital Board Layout - Bottom View

PCB LAYER	4 LAYER
PCB THICKNESS	1.6+/-0.15 mm
LAYER 1	TOP SIDE
LAYER 2	GROUND PLANE
LAYER 3	VCC PLANE
LAYER 4	BOTTOM SIDE
CLASS	UL 94-V0
HOLE POSITION TOLERANCE	+/-0.08 mm
IC,Connector(0.4mm) Pad Size	0.23+/-0.02 mm
IC,Connector(0.3mm) Pad Size	0.3+0.02/-0.04mm

BOARD NAME: BDP-7300 MAIN Board		
FILM NAME: Silkscreen, Bottom Side		
FILE NAME: BDP7300-01A	SHEET: 8 OF 10	
DRN: Winnie Lin	VERSION: 01A	DATE: 2009/01/19

7-4 Analog Diagrams

BDP9100 Analog Board Circuit - 1

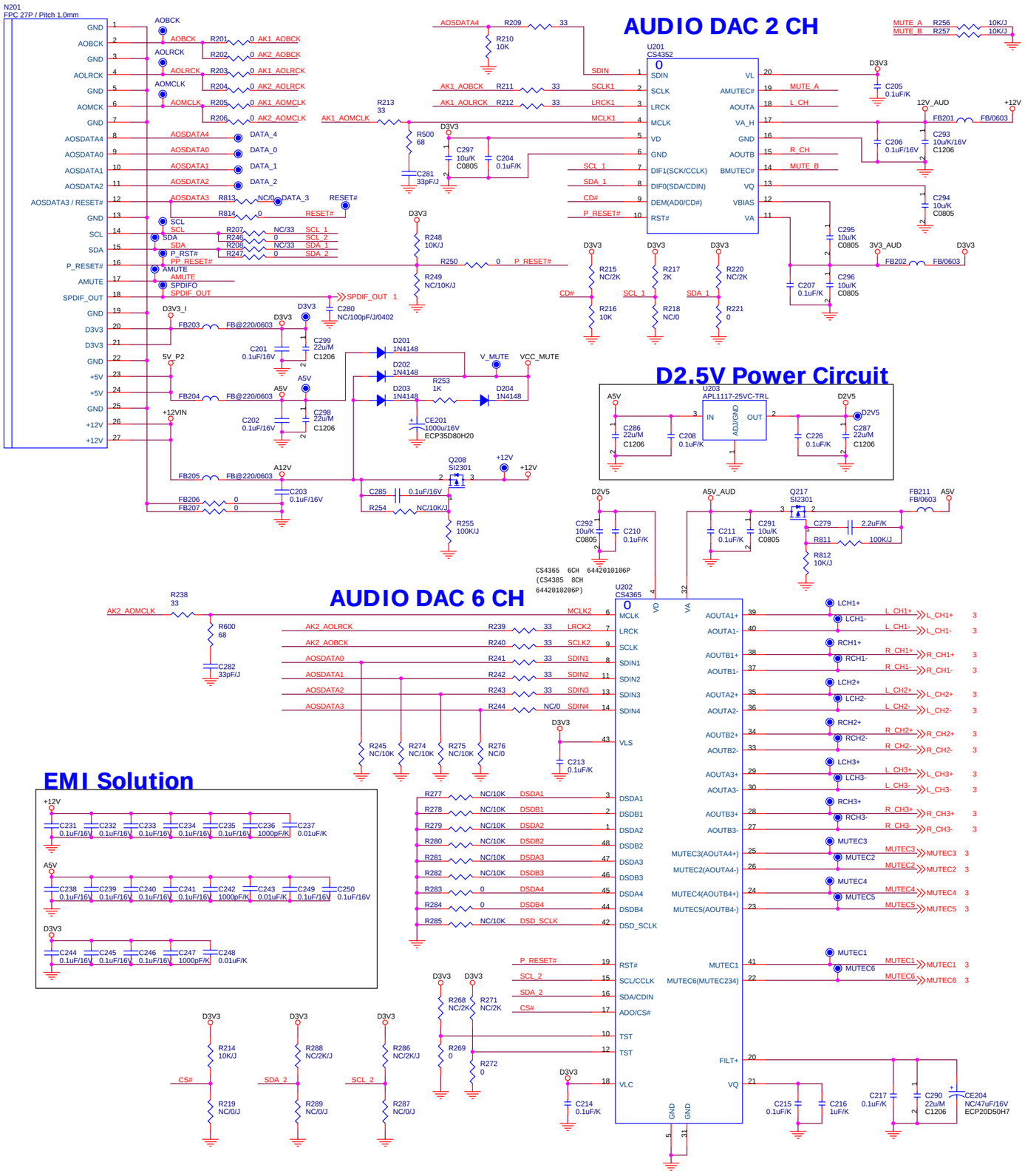


TEL:886-3-578-7722

Title	B01 - VIDEO OUTPUT	
Size B	Document Number	Rev 01A
Date: Friday, March 27, 2009	Sheet 3 of 6	

BDP9100 Analog Board Circuit - 2

AUDIO DAC 2 CH

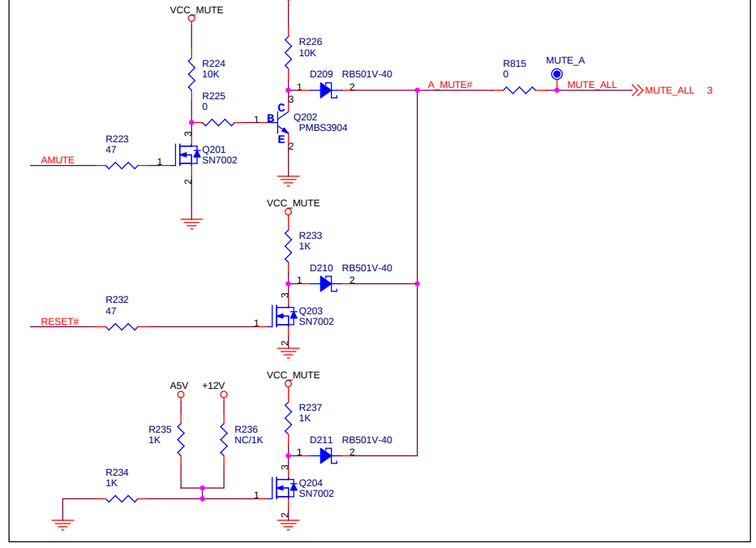


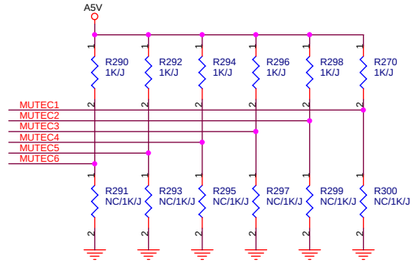
D2.5V Power Circuit

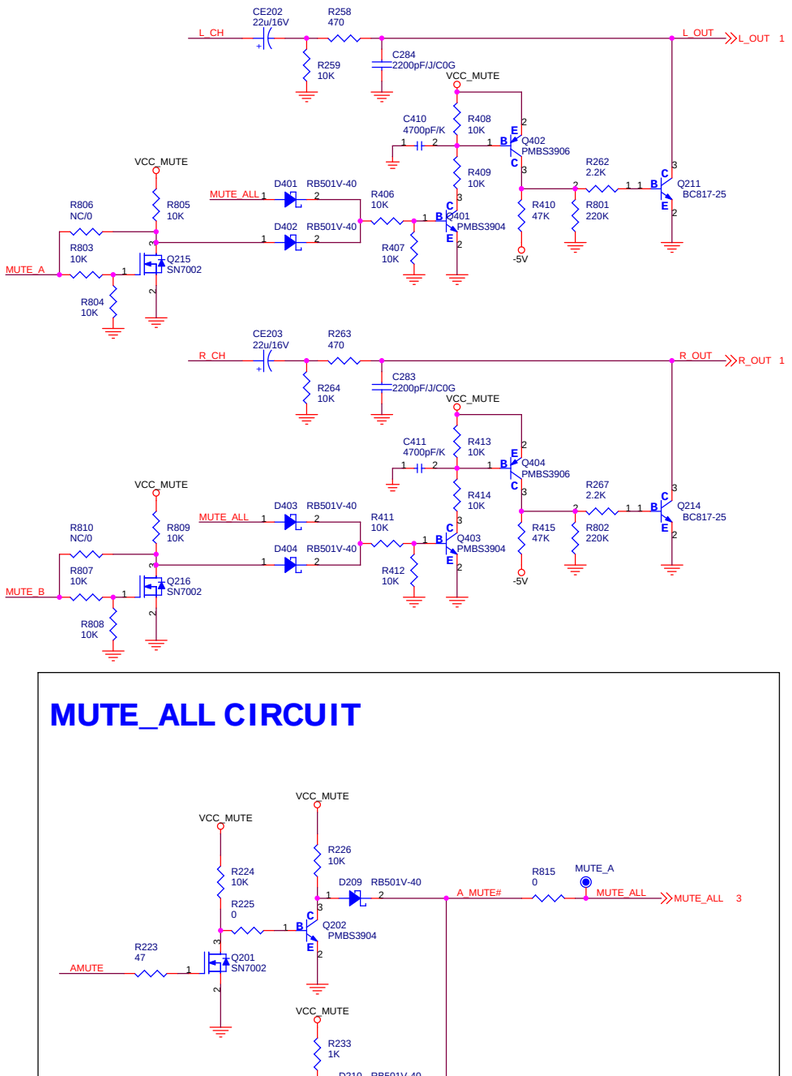
AUDIO DAC 6 CH

EMI Solution

MUTE_ALL CIRCUIT







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Title: B02 - AUDIO DAC

Size	Document Number	Rev
A2		01A

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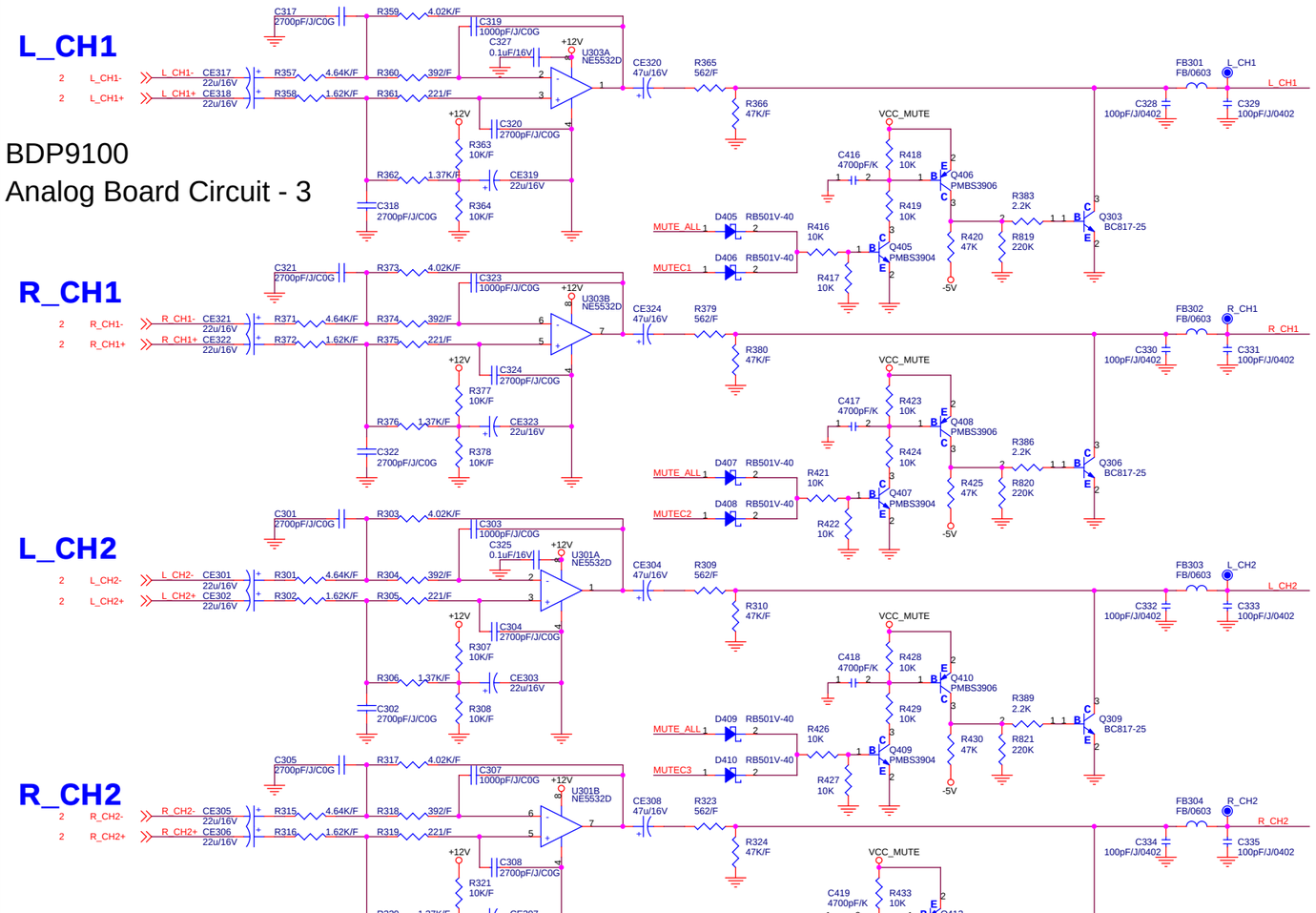
BDP9100
Analog Board Circuit - 3

L_CH1



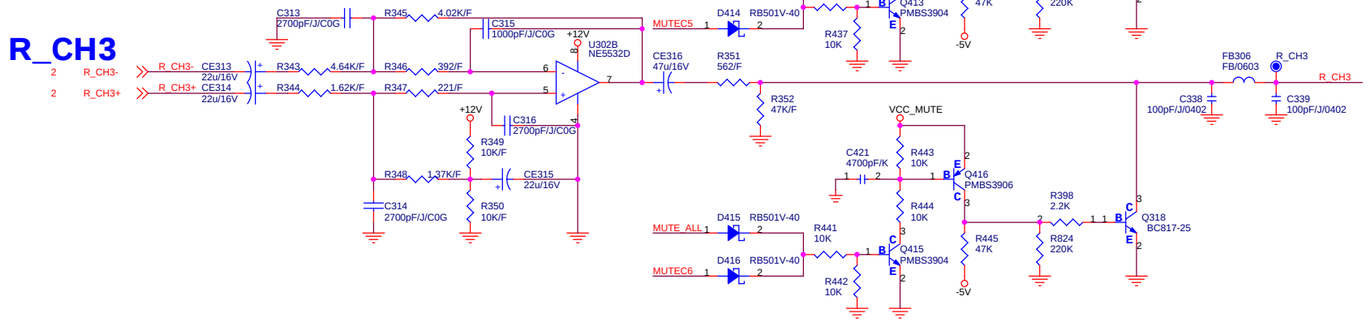
R_CH1

L_CH2

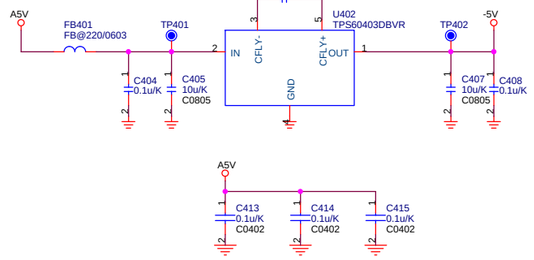
R_CH2

L_CH3

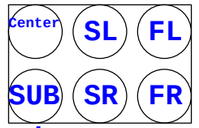
R_CH3



A5V to -5V Inverter

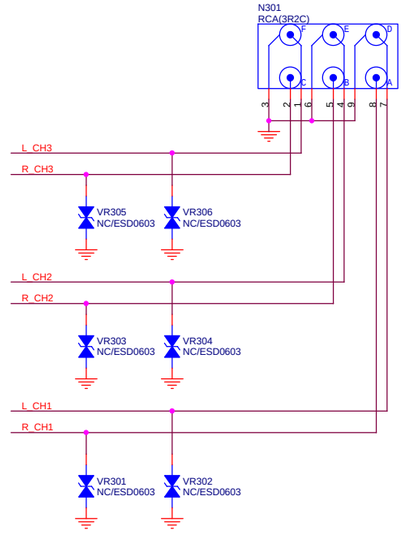


Blue Color White Color



Black Color Red Color

Audio 1-6CH



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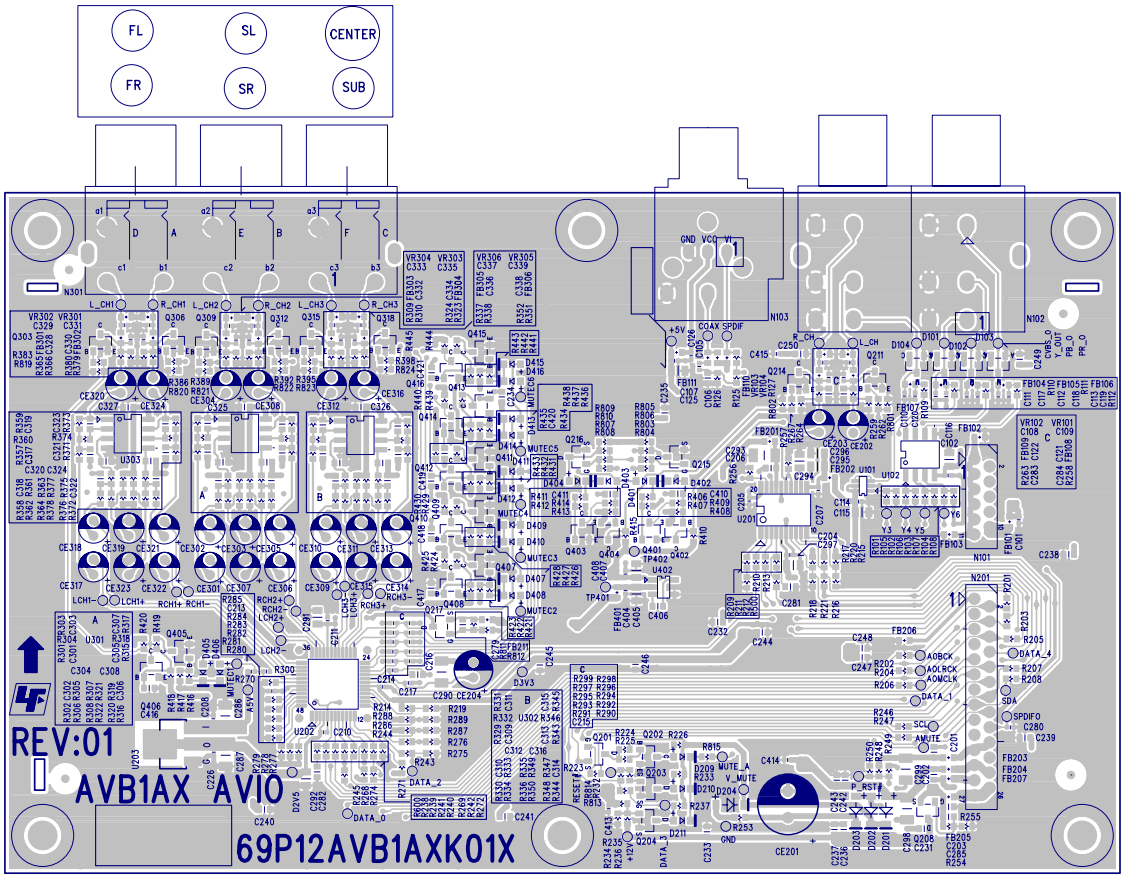
Title: B03 - AUDIO 8CH OUTPUT

Size	Document Number	Rev
A2		01A

Date: Friday, March 27, 2009 Sheet 5 of 6

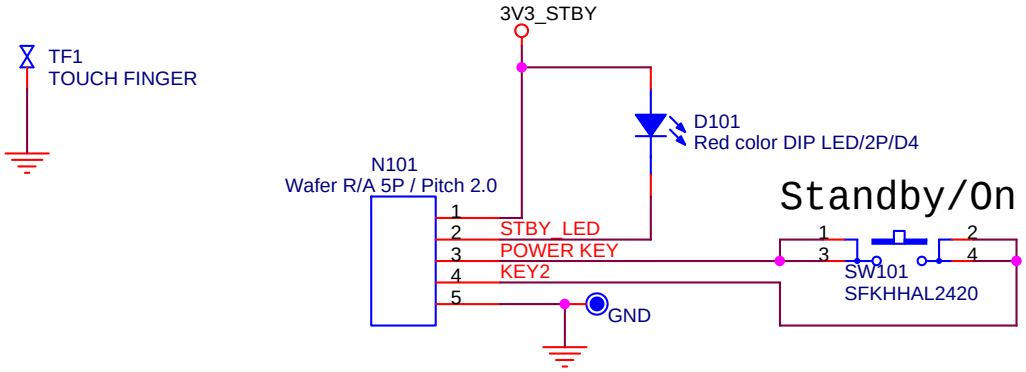
Analog Board Layout

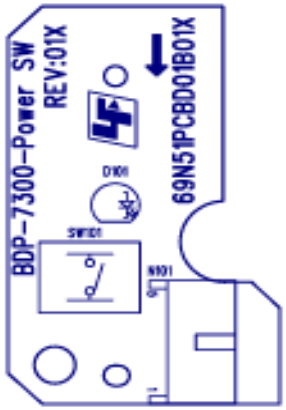


BOARD NAME: BDP-7300 AVIO		
FILM NAME: Silkscreen, Top Side		
FILE NAME: BDP-7300 AVIO_01	SHEET: 1 OF 8	
DRN: Nicole Chen	VERSION: 01	DATE: 2009/01/19

PCB LAYER	2 LAYER
PCB THICKNESS	1.2+/-0.13 mm
LAYER 1	TOP SIDE
LAYER 2	BOTTOM SIDE
CLASS	UL 94-V0
HOLE POSITION TOLERANCE	+/-0.08 mm
IC,Connector(0.4mm) Pad Size	0.23+/-0.02 mm
IC,Connector(0.5mm) Pad Size	0.3+0.02/-0.04mm

7-5 Standby Board Circuit & Layout





BOARD NAME: BDP-7300-Power switch		
LAYER NAME: Silk screen, Top Side		
FILE NAME:BDP-7300-Power switch_01A	SHEET: 1 OF 8	
DRN: Sandy Hsu	VERSION: 01A	DATE: 2009/02/12

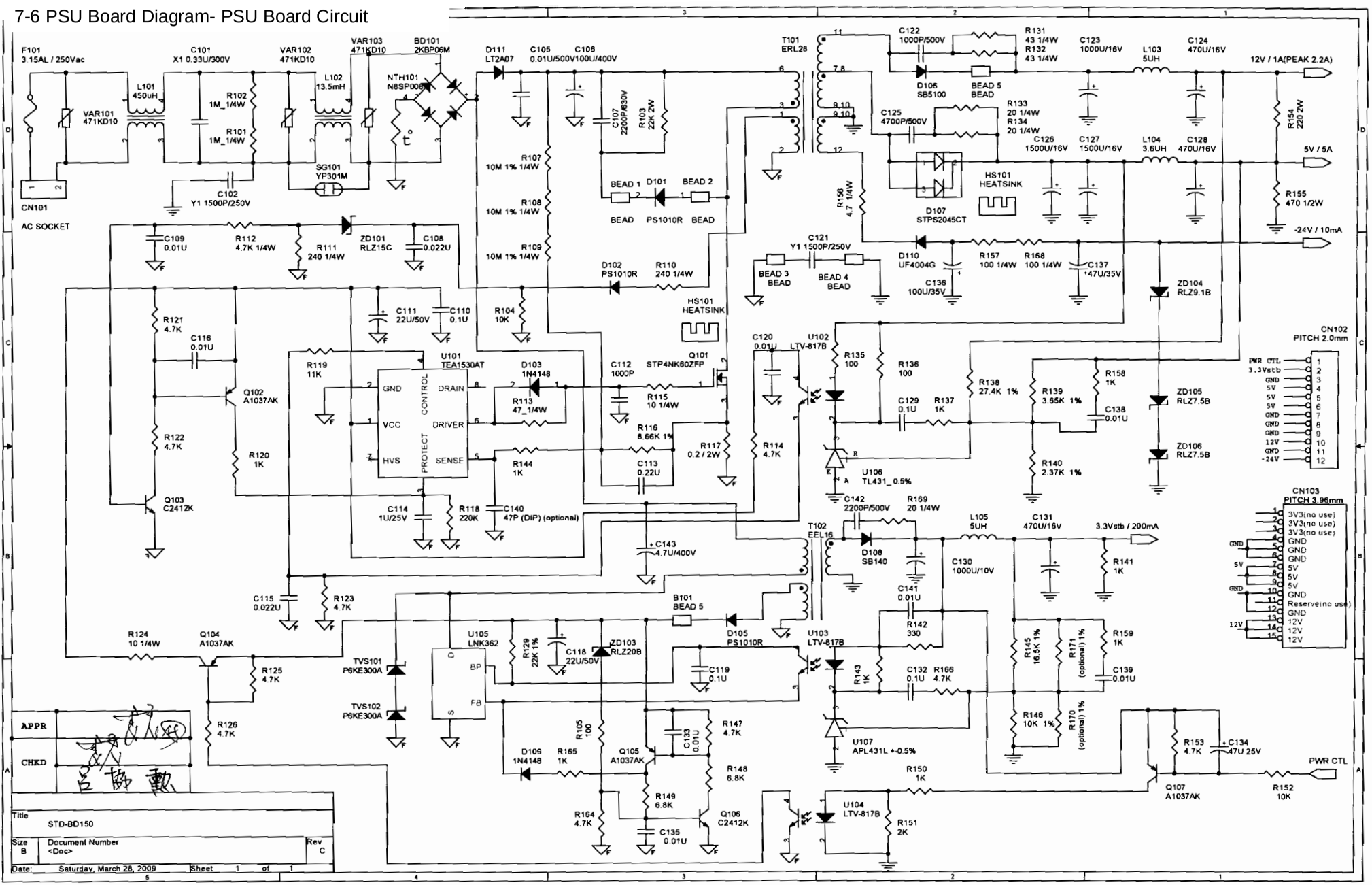
TEL:886-3-578-7722

Title: D01 : Power SW BD

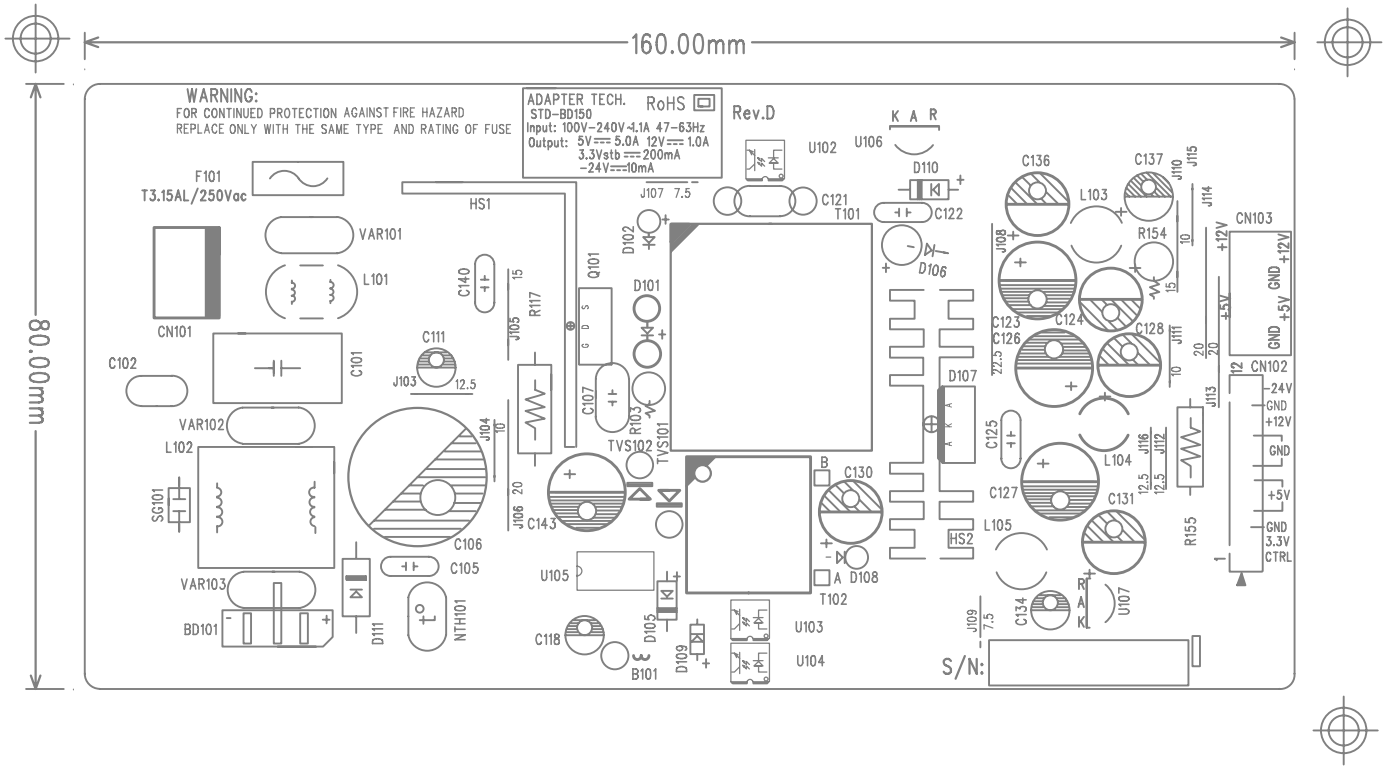
Size	Document Number	Rev
A		01A

Date: Friday, March 27, 2009 Sheet 3 of 3

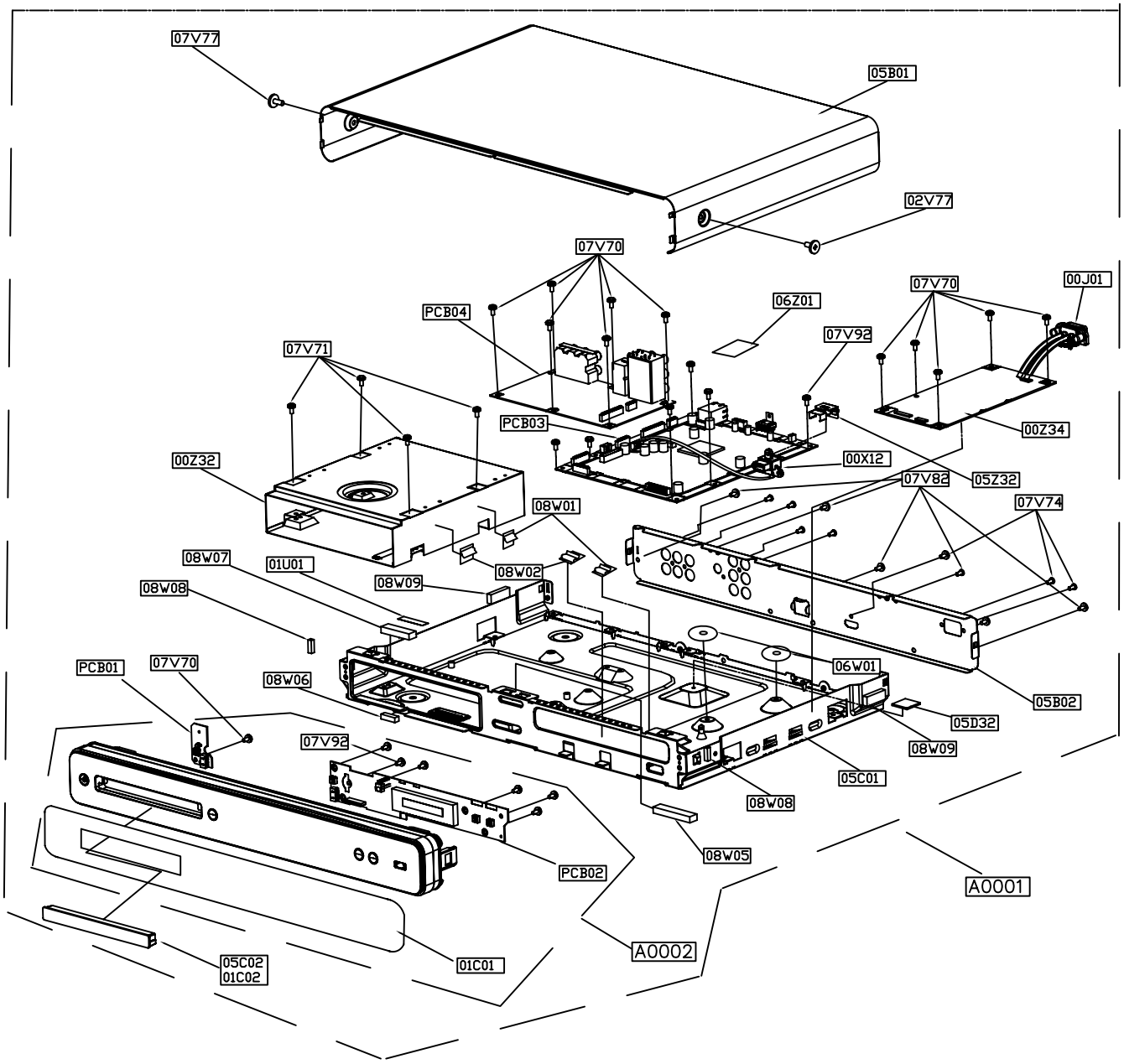
7-6 PSU Board Diagram- PSU Board Circuit



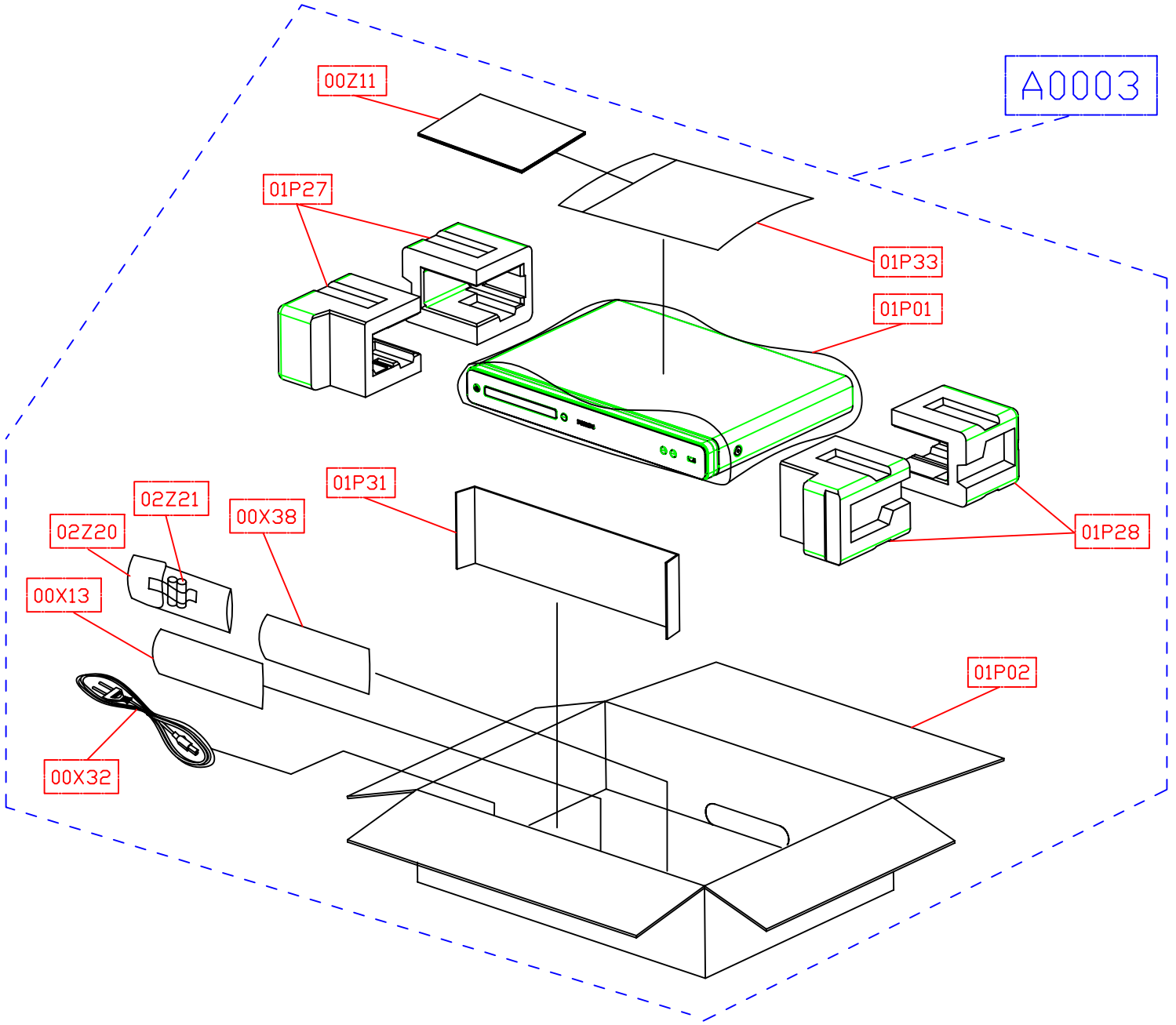
PSU Board Layout



8-1 Exploded View



8-2 Packing Exploded View



9. Service parts & screws list

9-1 Parts & Screws List of BDP-9100/12

Loc. No.	Safety	Philips 12NCs	Description	9100/12
A0001		--	ASSY CHASSIS BDP9100/12	1
A0002		996510026084	ASSY FRONT BDP9100	1
PCB01		996510025741	ASSEMBLY PCB/SWITCH	1
PCB02		996510025743	ASSEMBLY PCB/DISPLAY	1
00X28		996510024091	FFC 16P L=150mm P=1.0mm	1
00X12		996510024088	CABLE HRNS 5P 380mm	1
00X29		996510024087	CABLE HRNS 5P 165mm	1
05Z32		996510024107	CU FOIL USB70.5X35.5X0.08 MM	1
PCB03		996510026085	ASSY-PCB/MAIN-BDP9100	1
PCB04		996510025748	ASSEY-PCB/AV-BDP9100	1
00J01	YES	996510024114	AC CONN INLET ASSY	1
00X02		996510024101	FFC 27P L=75mm P=1.0mm	1
00X03		996510024105	FFC 11P L=75mm P=1.0mm	1
00X11		996510024123	CABLE SATA 7P 120mm	1
00Z32		996510025742	BLU-RAY DC-DRIVE ASSEMBLY	1
00Z34	YES	996510026089	SWITCHING ADAPTER (PSU)	1
01U01		--	TAPE NON-WOVEN FIX 30L	1
01C01		--	PROTECTION FILM 430.9*49.9	1
01C02		--	PROTECTION FILM 675*10	1
05B01		996510026083	COVER TOP BDP9100	1
05B02		996510026087	COVER REAR BDP9100	1
05C01		996510024108	COVER BOTTOM ASSY	1
05C02		996510026088	COVER TRAY	1
05D32		996510024095	THERMAL PAD 18X18X1.5MM MTK-IC	1
06W01		996510024174	INSULATOR MYLAR	1
06Z01		996510024116	CONDUCTIVE TAPE 40X15X0.15MM	1
07V71		996510024112	SCREW M3X10.5mm	4
07V77		996510024104	SCREW M3.0X7mm	2

Service Parts & screw lists

Loc. No.	Safety	Philips 12NCs	Description	9100/12
08W01		996510024122	WIRE TRAP 19X12MM	2
08W02		996510024109	WIRE TRAP 16X11.4MM	3
08W05		996510024086	RUBBER SPACER 45X8X5.9MM	1
08W06		996510024099	RUBBER NTI-DROP 17X5.5X4.8MM	1
08W07		996510024097	RUBBER NTI-DROP 45X9X8.5MM	1
08W08		996510024118	RUBBER NTI-DROP 12.5X4X4MM	2
08W09		996510024117	RUBBER NTI-DROP 25.5X5X9MM	2
A0004		--	ASSEMBLYACCESSORY	1
00X13		996510024119	CABLE HDMI 1500mm	1
00X32	YES	996510024102	PWR CORD-183+-5CM--2PIN	1
00X38		996510024113	CABLE AV 1500mm	1
01P21		--	BAG PE BAG 250*105*0.04	1
02Z20		996510024098	REMOTE CONTROL	1
02Z21		--	BATTERY 1.5V 450MAH AAA	2

10. REVISION LIST

Version 1.0

* Initial Release

Version 1.1

* Updating of code for PCB04