

# Service Service Service



# Service Manual



Contents	Page
1 Technical Specification and Connection Facilities and Version variation.....	1-1 to 1-3
2 Laser Beam Safety Precautions.....	2-1
3 Important Safety Precautions .....	3-1 to 3-2
4 Safety Check After Servicing .....	4-1
5 Safety Information General Notes & Lead Free Requirement .....	5-1 to 5-2
6 Standard Notes For Servicing .....	.6-1
7 Special Information BGA IC & Flat Pack-IC .....	7-1 to 7-3
8 Direction of Use .....	8-1 to 8-5
9 Cabinet Disassembly Instructions .....	9-1 to 9-2
10 Troubleshooting .....	10-1 to 10-2
11 Software Upgrading Procedure .....	11-1
12 Software Version Check .....	12-1
13 Block Diagram .....	13-1
14 Wiring Diagram .....	14-1
15 Main Unit--MCD Board	
Circuit Diagram .....	15-1
Layout Diagram .....	15-2

Contents	Page
16 Main Unit--VFD Display Board	
Circuit Diagram .....	16-1
Layout Diagram .....	16-2
17 Main Unit-- Touch Board	
Circuit Diagram .....	17-1
Layout Diagram .....	17-1
18 Main Unit--Decoder Board	
Circuit Diagram .....	18-1 to 18-12
Layout Diagram .....	18-13
19 Main Unit--Power Board	
Circuit Diagram .....	19-1
Layout Diagram .....	19-2
20 Main Unit--Output Board	
Circuit Diagram .....	20-1
Layout Diagram .....	20-2
21 Main Unit Exploded View .....	21-1
22 Packing Exploded View .....	22-1
23 OPU setting alignment procedure .....	23-1
24 Revision List .....	24-1

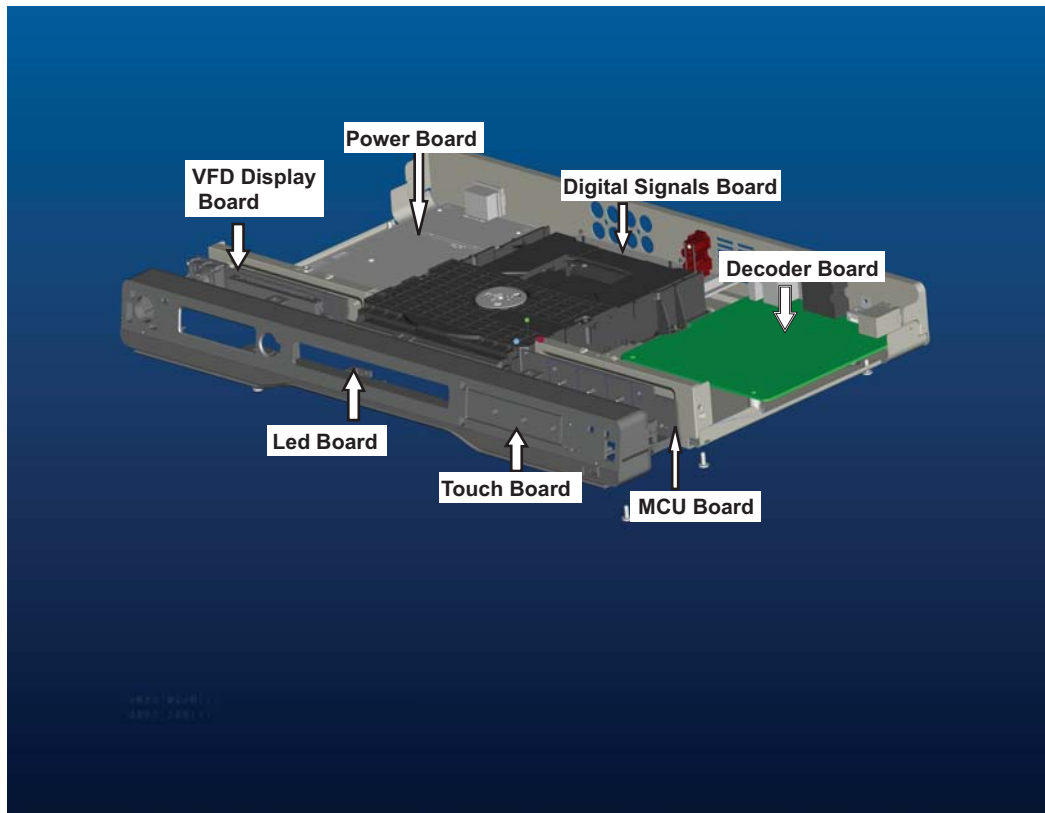
©Copyright 2010 Philips Consumer Electronics B.V. Eindhoven, The Netherlands.  
All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise without the prior permission of Philips.



# Technical Specification and Connection Facilities

## 1. Technical Specification and Connection Facilities

### 1.1 PCB Locations



#### Picture/Display

- Picture enhancement: High Def (720p, 1080i, 1080p), Progressive scan, Video upscaling
- Aspect ratio: 21:9, 16:9, 4:3
- D/A converter: 12 bit / 150MHz
- Blu-ray 3D: Full HD 1080p

#### Video Playback

- Playback Media: BD Video, BD-R/RE 2.0, DVD, DVD-Video, DVD+R/+RW, DVD-R/-RW, CD, CD-R/CD-RW, USB flash drive, DivX, BD-ROM, Video CD/SVCD
- Compression formats: H.264, VC-1, MPEG2, XviD, DivX Plus™ HD, MKV, AVCHD, WMV
- Disc Playback Modes: Standard Play, Pause, Search forward/reverse, Slow Forward, Resume Playback from Stop, Skip, Disc Menu, Repeat, A-B Repeat, Zoom, Angle
- Video Enhancement: Deep Color, x.v. Color, Video Upscaling, Progressive Scan
- BD Region Code: B
- DVD Region Code: 2

#### Sound

- Sound System: DTS-HD Master Audio, Dolby True HD, Dolby Digital Plus, DTS, Dolby Digital
- Signal to noise ratio: 105 dB
- Dynamic Range (1kHz): 100 dB
- Frequency response: 100 Hz
- D/A converter: 24 bit, 192 kHz

#### Audio Playback

- Playback Media: CD, CD-R/RW, MP3-CD, MP3-DVD, USB flash drive
- Compression format: DTS, Dolby Digital, AAC, MP3, PCM, WMA

#### Digital Photo Playback

- Playback Media: USB flash drive, DVD+R/+RW, DVD-R/-RW, CD-R/RW
- Picture Compression Format: JPEG
- Picture Enhancement: High Definition Resolution, Slideshow, Slideshow with MP3 playback, Rotate, Zoom

#### Power

- Power supply: 220-240V, 50/60 Hz
- Power consumption: 22 W
- Standby power consumption: 0.25W

# Technical Specifications and Connection Facilities

## 1.6 Analog Video Performance

### 1.6.1 CVBS Output Component

Amplitude Output	: 1000mVpp ± 10%
White Bar	: 714mVpp ± 10%
Sync. Amplitude	: 286mVpp ± 10%
S/N Luminance	: ≥ 60dB
Chroma / Luminance Delay(2T pulse)	: ≤ 20ns
DC Level	: ≤ 1V

### 1.6.2 Video Output Component

Amplitude Output	: 1000mVpp ± 10%
White Bar	: 714mVpp ± 10%
Sync. Amplitude	: 286mVpp ± 10%
S/N Luminance	: ≥ 60dB
Chroma / Luminance Delay(2T pulse)	: ≤ 20ns
DC Level	: ≤ 1V

COMPONENT VIDEO OUT – Cinch (Y/Pb/Pr):  
According to EIA-770-1-A, EIA-770-2-A

## 1.7 Digital Inputs

### 1.7.1 (AUDIO OUT) COAXIAL DIGITAL OUT – Cinch

LPCM	: according IEC 60958-3
MPEG 1, MPEG 2, AC3	: according IEC 61937
DTS	: according IEC 61937 + addendum

### 1.7.2 USB

Compatibility	: USB 2.0
Type of connector	: Series A Connector

### 1.7.3 HDMI Output

Compatibility	: HDMI version 1.3
Type of connector	: Type A connector (19 pins)

## 1.8 Video Performance

### 1.8.1 SNR

PAL

RGB	CVBS	Y/C
≥ 55 dB	Luminance: ≥ 55 dB Chroma: ≥ 55 dB (AM) ≥ 52 dB (PM)	Y: ≥ 57 dB C: ≥ 57 dB (AM) ≥ 54 dB (PM)

NTSC

Y Pb Pr	CVBS	Y/C
≥ 55 dB	Luminance: ≥ 55 dB Chroma: ≥ 54 dB (AM) ≥ 54 dB (PM)	Y: ≥ 55 dB C: ≥ 54 dB (AM) ≥ 54 dB (PM)

### 1.8.2 Bandwidth

PAL

RGB	CVBS	Y/C
0.5 to 4 MHz: +1dB/-2dB	0.5 to 4 MHz: +1dB/-2dB	Y: 4.8MHz-3dB
4.8 MHz: -3dB	4.8 MHz: -3dB	C: 700 kHz
5.8 MHz: -6dB	5.8 MHz: -6dB	

NTSC

YPbPr	CVBS	Y/C
4.2 MHz: -3dB	4.2 MHz: -3dB	Y: 4.2MHz-3dB
5.8 MHz: -6dB	5.8 MHz: -6dB	C: ≥ 700 kHz
With Pscan: 8.4MHz -3dB		

# Technical Specifications and Connection Facilities

## 1.9 Dimension and Weight

Set Dimension W x H x D	: 790.6 x 145 x 57.4 mm
Net Weight	: 2.23 kg
Subwoofer Dimension W x H x D	: 182 x 365 x 306 mm
Net Weight	: 6 kg

## 2.0 Laser Output Power & Wavelength

### 2.0.1 DVD

Output power during reading	: 7mW
Output power during writing	: 6mW
Wavelength	: 80nm (at 25 °C)

### 2.0.2 CD

Output power	: 6mW
Wavelength	: 60nm (at 25 °C)

## 2.1 Playability

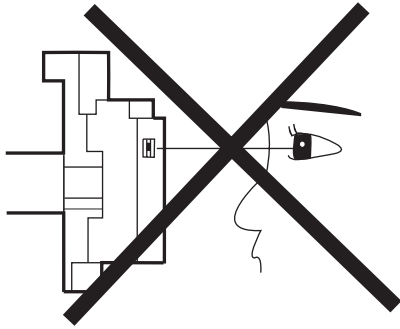
Video Playback		
1.	Playback Media: CD-R/CD-RW, DVD+R/+RW, DVD-R/-RW, DVD-Video, Video CD/SVCD, DVD+R DL, DVD-R DL, USB flash drive	x
2.	Compression Formats: MPEG2, MPEG1, DivX 3.11, DivX 4.x, DivX 5.x, DivX 6.0, MPEG4	x
Audio Playback		
1.	Playback Media: Audio CD, CD-R/RW, DVD+R DL, DVD+R/+RW, DVD-R/-RW, MP3- CD, MP3-DVD, USB flash drive, WMA-CD	x
2.	Compression Format: Dolby Digital, MP3, MPEG2 Multichannel, PCM, WMA	x
3.	MPEG1 bit rates: 64-384 kbps and VBR	x
Still Picture Playback		
1.	Playback Media: CD-R/RW, DVD+R DL, DVD+R/+RW, DVD- R/-RW, Picture CD, USB Digital Camera (PTP), USB flash drive	x
2.	Picture Compression Format: JPEG, JPEG digital camera photos	x
3.	Picture enhancement: Slideshow with MP3 playback, Create albums, Rotate, Slideshow with music playback, Zoom	x

## VERSION VARIATION

Type /Versions:		BDP7500S2							
Board in used:	Service policy	/12	/05	/51		/93	/98		/55
MCU BOARD	C		C			C/M	C/M		
VFD DISPLAY BOARD	C		C			C/M	C/M		
TOUCH BOARD	C		C			C	C		
LED BOARD	C		C			C	C		
POWER BOARD	M		M			M	M		
DECODER BOARD	M		M			M	M		
DIGITAL SIGNALS BOARD	M		M			M	M		
Type /Versions:		BDP7500S2							
Features	Feature difference	/12	/05	/51		/93	/98		/55
RDS									
VOLTAGE SELECTOR									
ECO STANDBY		√	√	√		√	√		√
DTS		√	√	√		√	√		√
* TIPS : C -- Component Lever Repair. M -- Module Lever Repair √ -- Used									

## Laser Beam Safety Precautions

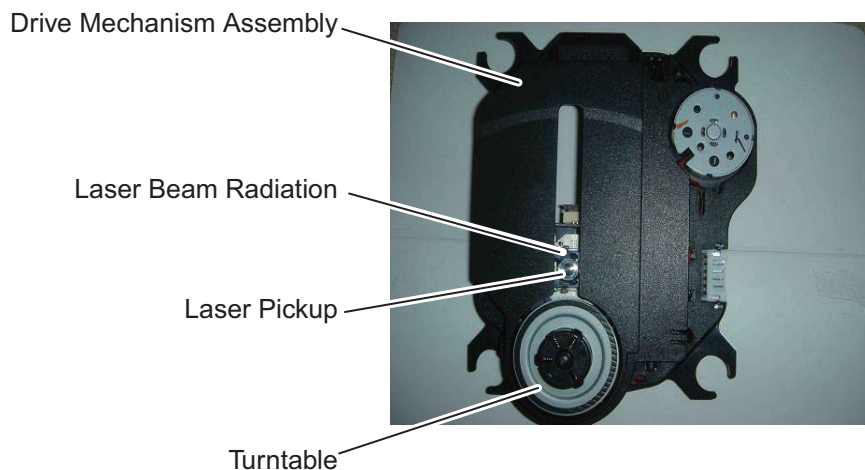
This Blu-Ray player uses a pickup that emits a laser beam.



Do not look directly at the laser beam coming from the pickup or allow it to strike against your skin.

The laser beam is emitted from the location shown in the figure. When checking the laser diode, be sure to keep your eyes at least 30 cm away from the pickup lens when the diode is turned on. Do not look directly at the laser beam.

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



CAUTION-CLASS 2M LASER  
RADIATION WHEN OPEN  
DO NOT STARE INTO THE BEAM  
OR VIEW DIRECTLY WITH  
OPTICAL INSTRUMENTS



Location: Inside Top of Blu-Ray mechanism.

# Important Safety Precautions

## Important

Read and understand all instructions before you use your home theater. If damage is caused by failure to follow instructions, the warranty does not apply.

---

## Safety

### Risk of electric shock or fire!

- Never expose the product and accessories to rain or water. Never place liquid containers, such as vases, near the product. If liquids are spilled on or into the product, disconnect it from the power outlet immediately. Contact Philips Consumer Care to have the product checked before use.
- Never place the product and accessories near naked flames or other heat sources, including direct sunlight.
- Never insert objects into the ventilation slots or other openings on the product.
- Where the mains plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.
- Disconnect the product from the power outlet before lightning storms.
- When you disconnect the power cord, always pull the plug, never the cable.

### Risk of short circuit or fire!

- Before you connect the product to the power outlet, ensure that the power voltage matches the value printed on the back or bottom of the product. Never connect the product to the power outlet if the voltage is different.

### Risk of injury or damage to the home theater!

- For wall-mountable products, use only the supplied wall mount bracket. Secure the wall mount to a wall that can support the combined weight of the product and the wall mount. Koninklijke Philips Electronics N.V. bears no responsibility for improper wall mounting that results in accident, injury or damage.

- For speakers with stands, use only the supplied stands. Secure the stands to the speakers tightly. Place the assembled stands on flat, level surfaces that can support the combined weight of the speaker and stand.
- Never place the product or any objects on power cords or on other electrical equipment.
- If the product is transported in temperatures below 5°C, unpack the product and wait until its temperature matches room temperature before connecting it to the power outlet.
- Visible and invisible laser radiation when open. Avoid exposure to beam.
- Do not touch the disc optical lens inside the disc compartment.

### Risk of overheating!

- Never install this product in a confined space. Always leave a space of at least four inches around the product for ventilation. Ensure curtains or other objects never cover the ventilation slots on the product.

### Risk of contamination!

- Do not mix batteries (old and new or carbon and alkaline, etc.).
- Remove batteries if they are exhausted or if the remote control is not to be used for a long time.
- Batteries contain chemical substances, they should be disposed of properly.

---

## Product care

- Do not insert any objects other than discs into the disc compartment.
- Do not insert warped or cracked discs into the disc compartment.
- Remove discs from the disc compartment if you are not using the product for an extended period of time.
- Only use microfiber cloth to clean the product.

# Important Safety Precautions

## Disposal of your old product and batteries



Your product is designed and manufactured with high quality materials and components, which can be recycled and reused.



When this crossed-out wheeled bin symbol is attached to a product it means that the product is covered by the European Directive 2002/96/EC. Please inform yourself about the local separate collection system for electrical and electronic products.

Please act according to your local rules and do not dispose of your old products with your normal household waste.

Correct disposal of your old product helps to prevent potential negative consequences for the environment and human health.



Your product contains batteries covered by the European Directive 2006/66/EC, which cannot be disposed with normal household waste.

Please inform yourself about the local rules on separate collection of batteries because correct disposal helps to prevent negative consequences for the environmental and human health.

## User manual CD

To read the complete user manual, which includes information on advanced features, use the CD supplied with your home theater. For a printed copy of the complete user manual, contact Philips Consumer Care in your country.

### To access the user manual



#### Caution

- The user manual CD is for PC or Mac only. Do not insert the user manual CD into the disc compartment of the home theater.

#### Requirements:

- A PC (Microsoft Windows compatible) or Mac (OS X) with CD-ROM
- Adobe Reader

- 1 Insert the user manual CD into the CD-ROM tray of the PC or Mac.
- 2 Close the CD-ROM tray.
  - » The user manual screen appears. If the user manual screen does not appear, skip Step 3 and navigate to the 'pdf' folder in the CD-ROM, double-clicking the PDF of your choice.
- 3 Click a user manual language.
  - » Acrobat Reader launches, displaying the complete user manual in the language of your choice.

## Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts, and wires have been returned to their original positions. Afterwards, do the following tests and confirm the specified values to verify compliance with safety standards.

### 1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

Table 1: Ratings for selected area

AC Line Voltage	Clearance Distance (d), (d')
110V~220V	$\geq 3.2 \text{ mm}$ (0.126 inches)

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

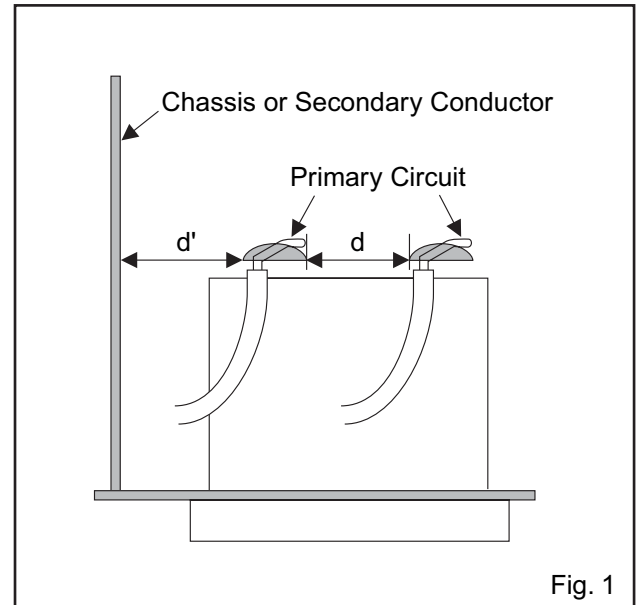


Fig. 1

### 2. Leakage Current Test

Confirm the specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.) is lower than or equal to the specified value in the table below.

Measuring Method (Power ON):

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across the terminals of load Z. See Fig. 2 and the following table.

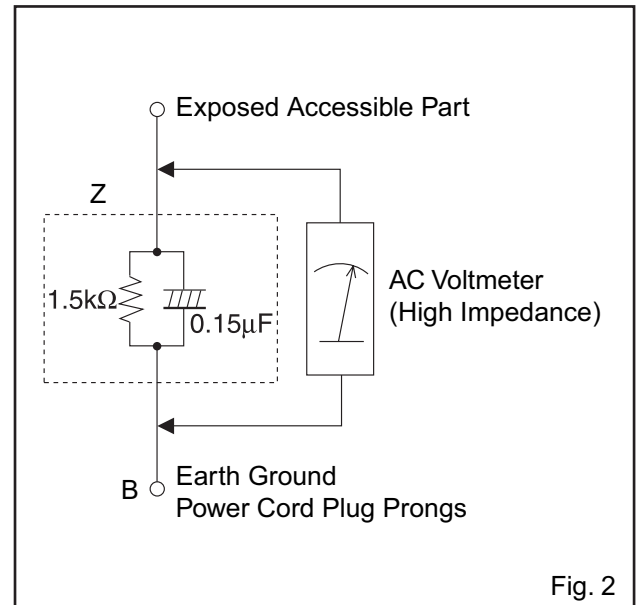


Fig. 2

Table 2: Leakage current ratings for selected areas

AC Line Voltage	Load Z	Leakage Current (i)	Earth Ground (B) to:
110V~220V	0.15 $\mu\text{F}$ CAP. & 1.5 k $\Omega$ RES. Connected in parallel	$i \leq 0.5 \text{ mA Peak}$	Exposed accessible parts

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.



# Safety Information, General Notes & Lead Free Requirements

## 1 Safety Instructions

### 1.1 General Safety

Safety regulations require that during a repair:

- Connect the unit to the mains via an isolation transformer.
- Replace safety components, indicated by the symbol ▲, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.

Safety regulations require that after a repair, you must return the unit in its original condition. Pay, in particular, attention to 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. 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 (ref. UL-standard no. 1492).
  6. Switch the unit 'off', and remove the wire between the two pins of the mains plug.

### 1.2 Laser Safety

This unit employs a laser. Only qualified service personnel may remove the cover, or attempt to service this device (due to possible eye injury).

#### Laser Device Unit

Type	: Semiconductor laser GaAlAs
Wavelength	: 650 nm (DVD) : 780 nm (VCD/CD)
Output Power	: 20 mW (DVD+RW writing) : 0.8 mW (DVD reading) : 0.3 mW (VCD/CD reading)
Beam divergence	: 60 degree

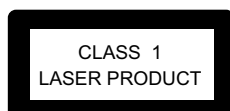


Figure 2-1

Note: Use of controls or adjustments or performance of procedure other than those specified herein, may result in hazardous radiation exposure. Avoid direct exposure to beam.

## 2 Warnings

### 2.1 General

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD, ▲). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are at the same potential as the mass of the set by a wristband with resistance. Keep components and tools at this same potential.

Available ESD protection equipment:

- Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671.
- Wristband tester 4822 344 13999.
- Be careful during measurements in the live voltage section. The primary side of the power supply, including the heatsink, 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 'on'.

### 2.2 Laser

- The use of optical instruments with this product, will increase eye hazard.
- Only qualified service personnel may remove the cover or attempt to service this device, due to possible eye injury.
- Repair handling should take place as much as possible with a disc loaded inside the player.
- Text below is placed inside the unit, on the laser cover shield:

CAUTION: VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.  
ADVARSEL: SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSÆTTELSE FOR STRÅLING.  
ADVARSEL: SYNLIG OG USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNEES. UNNGÅ EKSPONERING FOR STRÅLEN.  
VARNING: SYNLIG OCH OSYNLIG LASERSTRÅLNING NÅR DENNA DEL ÄR ÖPPNAD. BETRÄKTA EJ STRÅLEN.  
VARO! AVATTAESSA OLET ALTTIINÄKÄYVÄLLE JA NÄKYMÄTTÖMÄLLE LASER SÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.  
VORSICHT: SICHTBARE UND UNSICHTBARE LASERSTRÄHLUNG WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.  
DANGER: VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.  
ATTENTION: RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.

Figure 2-2

### 3 Lead Free Requirement

Information about Lead-free produced sets

Philips CE is starting production of lead-free sets from 1.1.2005 onwards.

IDENTIFICATION:

Regardless of special logo (not always indicated)

One must treat all sets from 1 Jan 2005 onwards, according next rules.

Example S/N:

Bottom line of typeplate gives a 14-digit S/N. Digit 5&6 is the year, digit 7&8 is the week number, so in this case 1991 wk 18

So from 0501 onwards = from 1 Jan 2005 onwards

Important note: In fact also products of year 2004 must be treated in this way as long as you avoid mixing solder-alloys (leaded/ lead-free). So best to always use SAC305 and the higher temperatures belong to this.

Due to lead-free technology some rules have to be respected by the workshop during a repair:

- Use only lead-free solder alloy Philips SAC305 with order code 0622 149 00106. If lead-free solder-pate is required, please contact the manufacturer of your solder-equipment. In general use of solder-paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free solder alloy. The solder tool must be able
  - To reach at least a solder-temperature of 400°C,
  - To stabilize the adjusted temperature at the solder-tip
  - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature around 360°C – 380°C is reached and stabilized at the solder joint. Heating-time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C otherwise wear-out of tips will rise drastically and flux-fluid will be destroyed. To avoid wear-out of tips switch off un-used equipment, or reduce heat.
- Mix of lead-free solder alloy / parts with leaded solder alloy / parts is possible but PHILIPS recommends strongly to avoid mixed solder alloy types (leaded and lead-free). If one cannot avoid or does not know whether product is lead-free, clean carefully the solder-joint from old solder alloy and re-solder with new solder alloy (SAC305).
- Use only original spare-parts listed in the Service-Manuals. Not listed standard-material (commodities) has

to be purchased at external companies.

● Special information for BGA-ICs:

- always use the 12nc-recognizable soldering temperature profile of the specific BGA (for de-soldering always use the lead-free temperature profile, in case of doubt)
- lead free BGA-ICs will be delivered in so-called 'dry-packaging' (sealed pack including a silica gel pack) to protect the IC against moisture. After opening, dependent of MSL-level seen on indicator-label in the bag, the BGA-IC possibly still has to be baked dry. (MSL=Moisture Sensitivity Level). This will be communicated via AYS-website.

Do not re-use BGAs at all.

● For sets produced before 1.1.2005 (except products of 2004), containing leaded solder-alloy and components, all needed spare-parts will be available till the end of the service-period. For repair of such sets nothing changes.

● On our website [www.atyourservice.ce.Philips.com](http://www.atyourservice.ce.Philips.com) you find more information to:

- BGA-de-/soldering (+ baking instructions)
- Heating-profiles of BGAs and other ICs used in Philips-sets

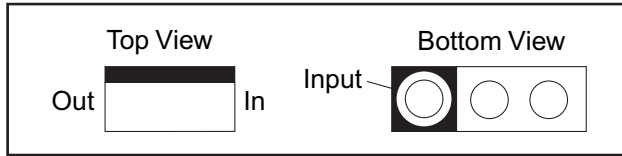
You will find this and more technical information within the "magazine", chapter "workshop news".

For additional questions please contact your local repair-helpdesk.

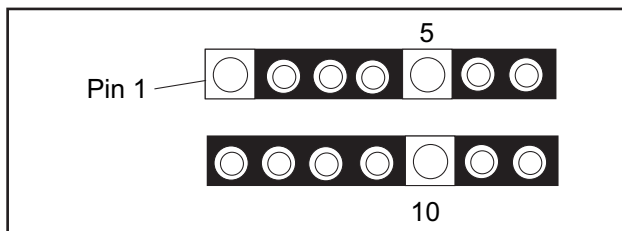
## Standard Notes for Servicing

### Circuit Board Indications

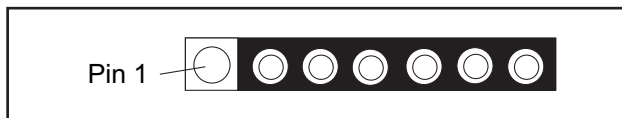
1. The output pin of the 3 pin Regulator ICs is indicated as shown.



2. For other ICs, pin 1 and every fifth pin are indicated as shown.

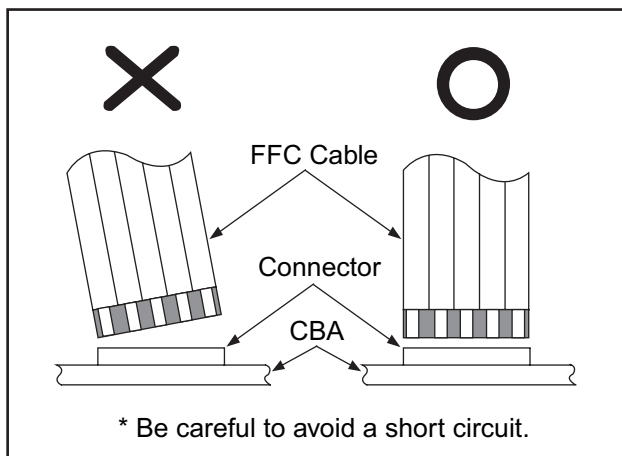


3. The 1st pin of every male connector is indicated as shown.



### Instructions for Connectors

1. When you connect or disconnect the FFC (Flexible Foil Connector) cable, be sure to first disconnect the AC cord.
2. FFC (Flexible Foil Connector) cable should be inserted parallel into the connector, not at an angle.



### Pb (Lead) Free Solder

When soldering, be sure to use the Pb free solder.

Information about lead-free soldering

Philips CE is producing lead-free sets from 1.1.2005 onwards.

#### IDENTIFICATION

Regardless of special logo (not always indicated)



One must treat all sets from 1 Jan 2005 onwards, according to the next rule:

Serial Number gives a 14-digit. Digit 5&6 shows the YEAR, and digit 7&8 shows the WEEK.

So from 0501 onwards=from 1 Jan 2005 onwards

*Important note:* In fact also products of year 2004 must be treated in this way as long as you avoid mixing solder-alloys (lead/ lead-free). So best to always use SAC305 and the higher temperatures belong to this.

Due to lead-free technology some rules have to be respected by the workshop during a repair:

- Use only lead-free solder alloy Philips SAC305 with order code 0622 149 00106. If lead-free solder-paste is required, please contact the manufacturer of your solder-equipment. In general use of solder-paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free solder alloy. The solder tool must be able
  - To reach at least a solder-temperature of 400°C,
  - To stabilize the adjusted temperature at the solder-tip
  - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature around 360°C - 380°C is reached and stabilized at the solder joint. Heating-time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C otherwise wear-out of tips will rise drastically and flux-fluid will be destroyed. To avoid wear-out of tips switch off un-used equipment, or reduce heat.
- Mix of lead-free solder alloy / parts with leaded solder alloy / parts is possible but PHILIPS recommends strongly to avoid mixed solder alloy types (leaded and lead-free).  
If one cannot avoid or does not know whether product is lead-free, clean carefully the solder-joint from old solder alloy and re-solder with new solder alloy (SAC305).
- Use only original spare-parts listed in the Service-Manuals. Not listed standard-material (commodities) has to be purchased at external companies.

## Special Information of BGA IC & Flat Pack-IC

- Special information for BGA-ICs:

- always use the 12nc-recognizable soldering temperature profile of the specific BGA (for de-soldering always use the lead-free temperature profile, in case of doubt)
- lead free BGA-ICs will be delivered in so-called 'dry-packaging' (sealed pack including a silica gel pack) to protect the IC against moisture. After opening, dependent of MSL-level seen on indicator-label in the bag, the BGA-IC possibly still has to be baked dry. (MSL=Moisture Sensitivity Level). This will be communicated via AYS-website. Do not re-use BGAs at all.

- For sets produced before 1.1.2005 (except products of 2004), containing leaded solder-alloy and components, all needed spare-parts will be available till the end of the service-period. For repair of such sets nothing changes.

- On our website [www.atyourservice.ce.Philips.com](http://www.atyourservice.ce.Philips.com) you find more information to:

- BGA-de-/soldering (+ baking instructions)
- Heating-profiles of BGAs and other ICs used in Philips-sets

You will find this and more technical information within the "magazine", chapter "workshop news".

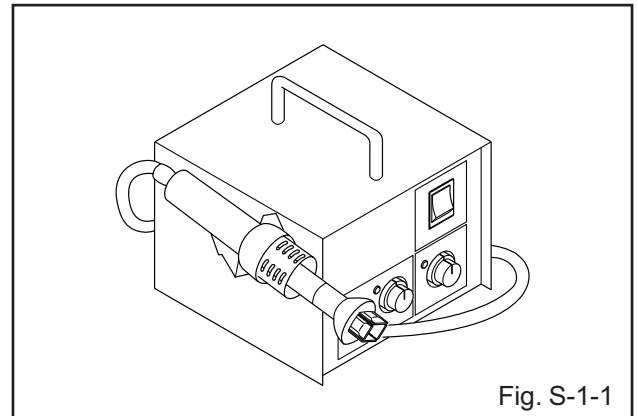
For additional questions please contact your local repair-helpdesk.

## How to Remove / Install Flat Pack-IC

### 1. Removal

With Hot-Air Flat Pack-IC Desoldering Machine:

1. Prepare the hot-air flat pack-IC desoldering machine, then apply hot air to the Flat Pack-IC (about 5 to 6 seconds). (Fig. S-1-1)

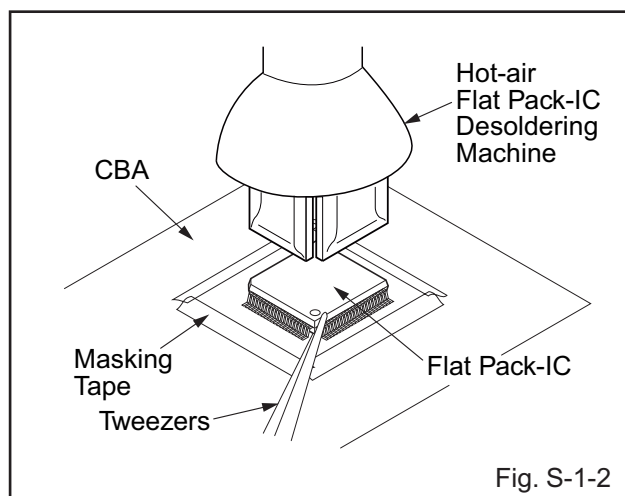


2. Remove the flat pack-IC with tweezers while applying the hot air.
3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

### CAUTION:

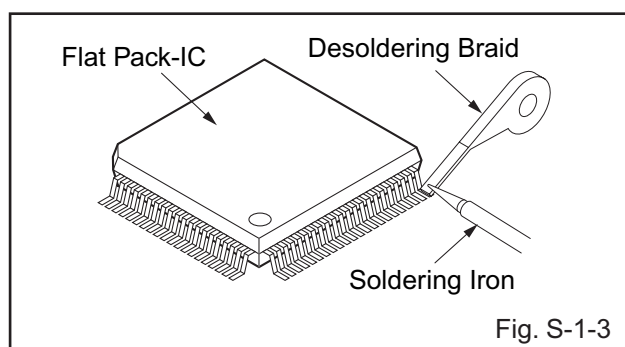
1. The Flat Pack-IC shape may differ by models. Use an appropriate hot-air flat pack-IC desoldering machine, whose shape matches that of the Flat Pack-IC.
2. Do not supply hot air to the chip parts around the flat pack-IC for over 6 seconds because damage to the chip parts may occur. Put masking tape around the flat pack-IC to protect other parts from damage. (Fig. S-1-2)

3. The flat pack-IC on the CBA is affixed with glue, so be careful not to break or damage the foil of each pin or the solder lands under the IC when removing it.

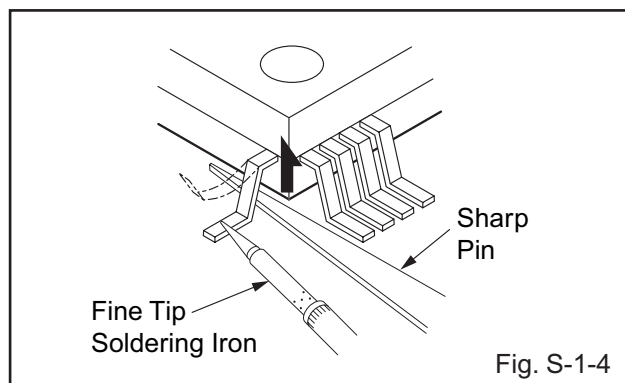


#### With Soldering Iron:

1. Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)



2. Lift each lead of the flat pack-IC upward one by one, using a sharp pin or wire to which solder will not adhere (iron wire). When heating the pins, use a fine tip soldering iron or a hot air desoldering machine. (Fig. S-1-4)

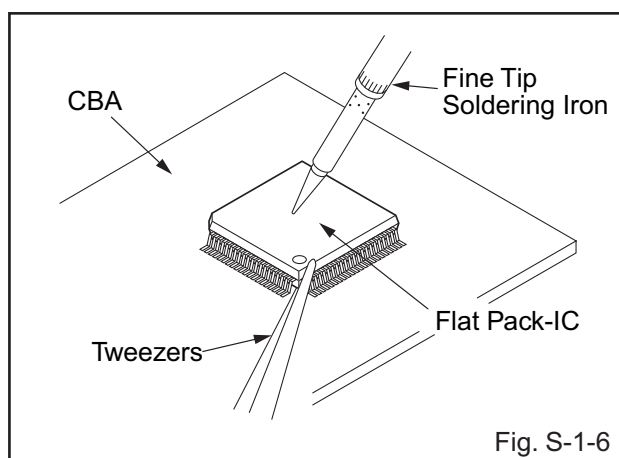
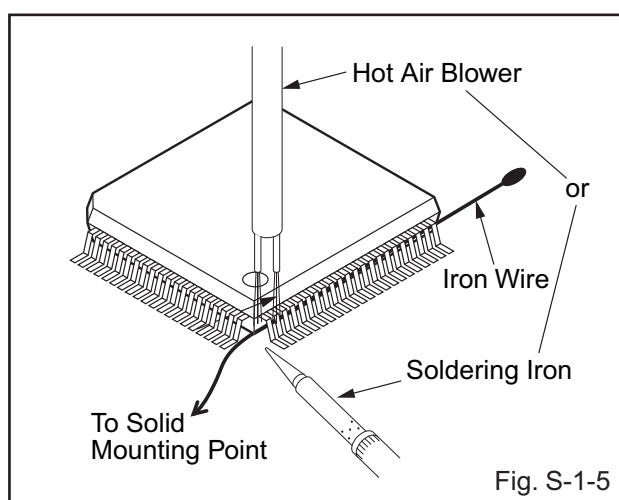


3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

#### With Iron Wire:

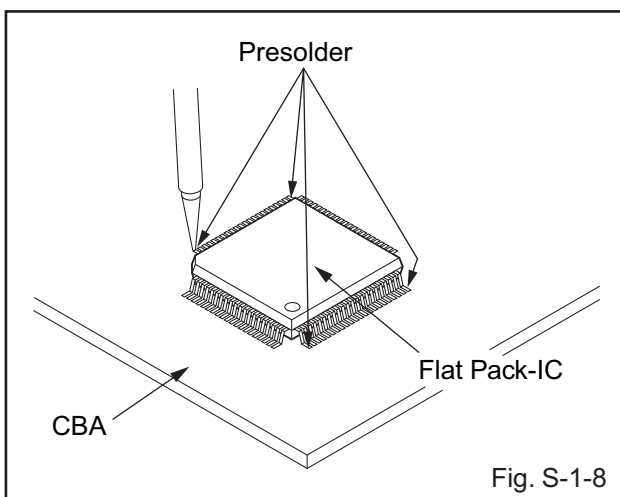
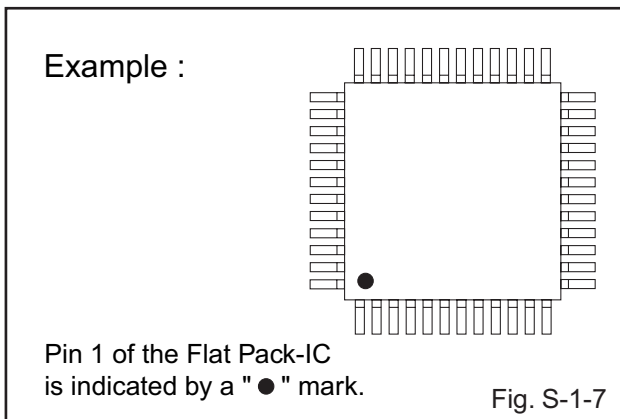
1. Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)
2. Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.
3. While heating the pins using a fine tip soldering iron or hot air blower, pull up the wire as the solder melts so as to lift the IC leads from the CBA contact pads as shown in Fig. S-1-5.
4. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
5. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Note: When using a soldering iron, care must be taken to ensure that the flat pack-IC is not being held by glue. When the flat pack-IC is removed from the CBA, handle it gently because it may be damaged if force is applied.



## 2. Installation

1. Using desoldering braid, remove the solder from the foil of each pin of the flat pack-IC on the CBA so you can install a replacement flat pack-IC more easily.
2. The "●" mark on the flat pack-IC indicates pin 1. (See Fig. S-1-7.) Be sure this mark matches the 1 on the PCB when positioning for installation. Then presolder the four corners of the flat pack-IC. (See Fig. S-1-8.)
3. Solder all pins of the flat pack-IC. Be sure that none of the pins have solder bridges.



## Instructions for Handling Semi-conductors

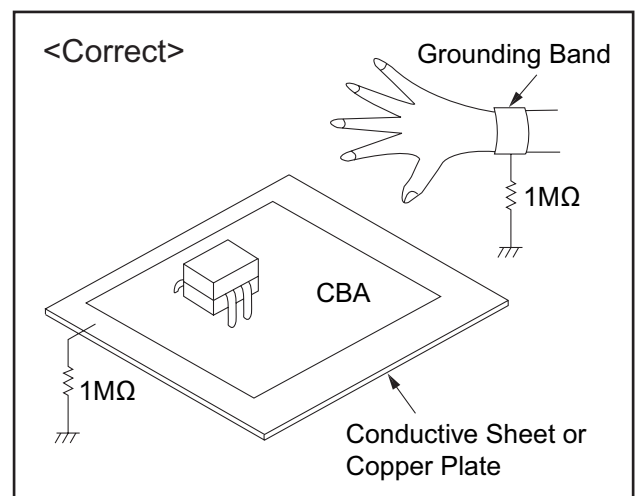
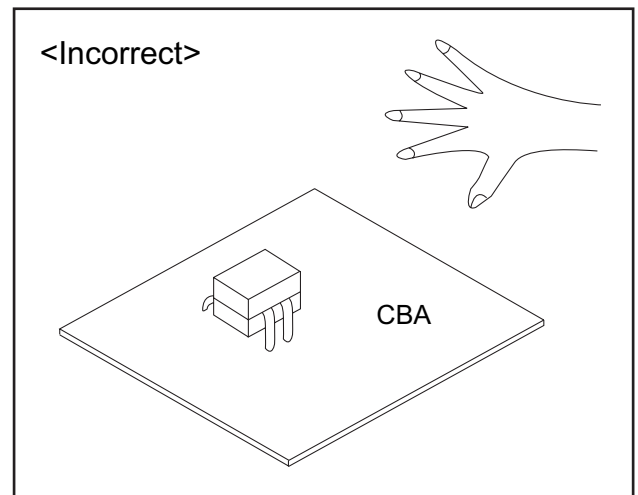
Electrostatic breakdown of the semi-conductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

### 1. Ground for Human Body

Be sure to wear a grounding band (1 MΩ) that is properly grounded to remove any static electricity that may be charged on the body.

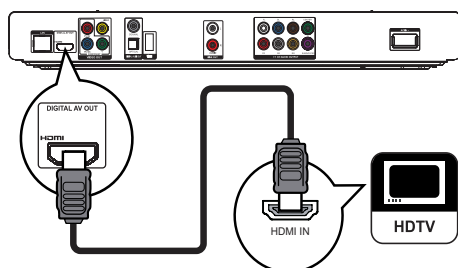
### 2. Ground for Workbench

Be sure to place a conductive sheet or copper plate with proper grounding (1 MΩ) on the workbench or other surface, where the semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semi-conductors with your clothing.



## Direction of Use

### Option 1: Connect to the HDMI jack

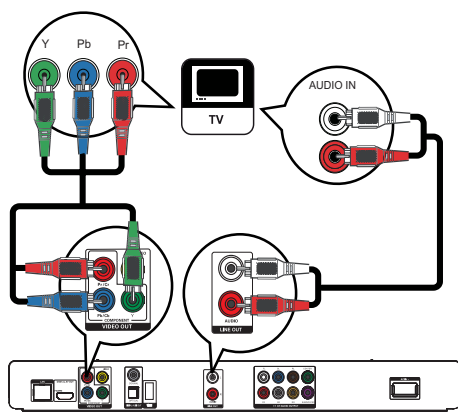


- 1 Connect an HDMI cable (not supplied) to:
  - the HDMI jack on this product.
  - the HDMI input jack on the TV.

#### Tip

- If the TV has a DVI connector only, connect via an HDMI/DVI adaptor. Connect an audio cable for sound output.
- You can optimize the video output. Press the HDMI button repeatedly to select the best resolution the TV can support.
- If this product connects to a TV compatible with 1080p or 1080p/24Hz, Philips recommends HDMI category 2 cable, also known as High Speed HDMI cable, for optimal video and audio output.
- To play the digital video images of a BD-video or DVD-video via an HDMI connection, it is necessary that both this product and the display device (or an AV receiver/amplifier) support a copyright protection system called HDCP (high-bandwidth digital content protection system).
- This type of connection provides best picture quality.

### Option 2: Connect to the component video jack



- 1 Connect the component video cables (not supplied) to:

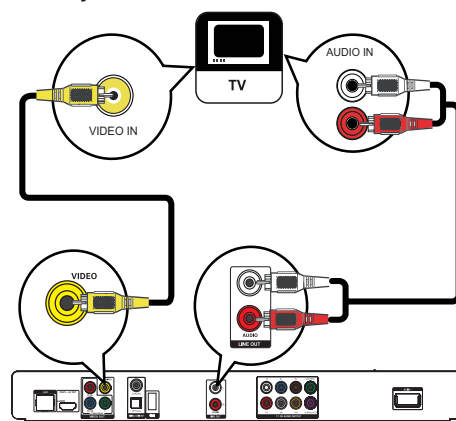
- the Y Pb/Cb Pr/Crjacks on this product.
- the COMPONENT VIDEO input jacks on the TV.

- 2 Connect the audio cables to:
  - the LINE OUT/AUDIO -L/Rjacks on this product.
  - the AUDIO input jacks on the TV.

#### Tip

- The component video input jack on the TV might be labeled as Y Pb Pr or YUV.

### Option 3: Connect to the composite video jack



- 1 Connect a composite video cable to:
  - the VIDEOjack on this product.
  - the VIDEO input jack on the TV.
- 2 Connect the audio cables to:
  - the LINE OUT/AUDIO -L/Rjacks on this product.
  - the AUDIO input jacks on the TV.

#### Tip

- The video input jack on the TV might be labeled as A/V IN, VIDEO IN, COMPOSITE or BASEBAND.

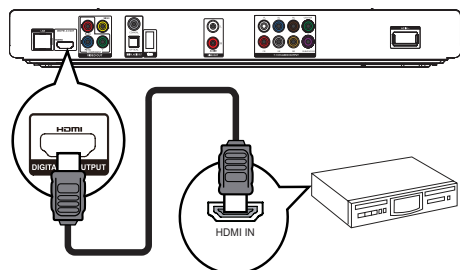
## Route audio to other devices

You can route the audio from this product to other devices.



## Direction of Use

### Connect to HDMI-compliant AV receiver/ amplifier



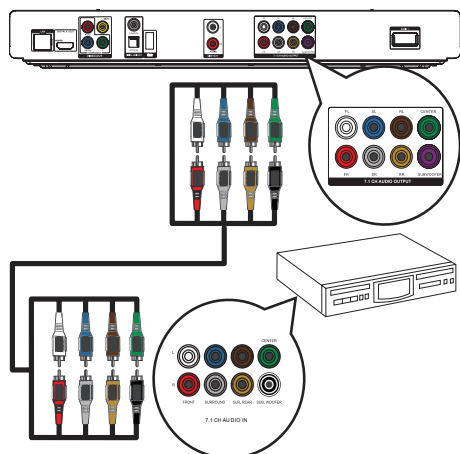
- 1 Connect an HDMI cable (not supplied) to:
  - the HDMI jack on this product.
  - the HDMI jack input jack on the device.



Tip

- The HDMI connection provides best audio quality.

### Connect to multi-channel AV receiver/ amplifier



- 1 Connect the 7.1-channel audio cables (not supplied) to:
  - the 7.1 CH AUDIO OUTPUT jacks on this product.
  - the corresponding AUDIO input jacks on the device.

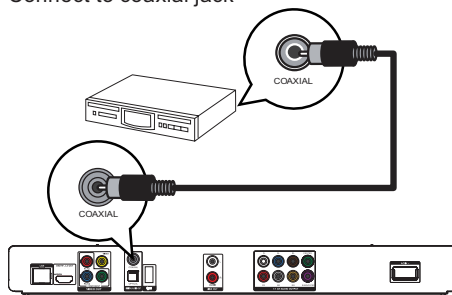


Tip

- To connect 5.1-channel AV receiver/amplifier, connect the 7.1-channel audio jacks except the SL/SR jacks.
- You can optimize the speaker output (see "Adjust settings" > [Audio Setup] > [Speaker Setup]).

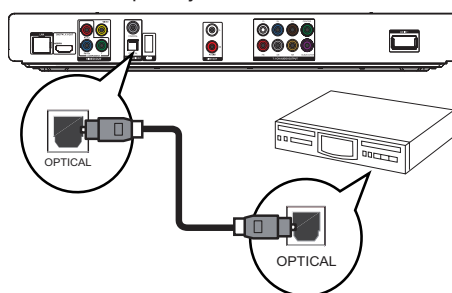
### Connect to digital AV amplifier/receiver

#### Connect to coaxial jack



- 1 Connect a coaxial cable (not supplied) to:
  - the COAXIAL jack on this product.
  - the COAXIAL/DIGITAL input jack on the device.

#### Connect to optical jack



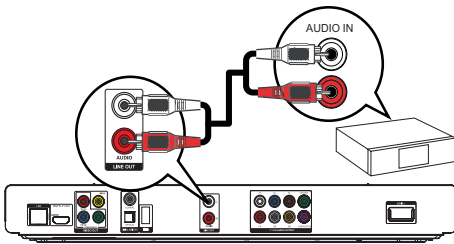
- 1 Connect an optical cable (not supplied) to:
  - the OPTICAL jack on this product.
  - the OPTICAL/DIGITAL input jack on the device.



## Direction of Use

---


### Connect analogue stereo system



- 1 Connect the audio cables to:
  - the LINE OUT/AUDIO-L/R jacks on this product.
  - the AUDIO input jacks on the device.



---

### Connect a USB device

- 1 Connect a USB device to the  (USB) jack on the front panel of this product.



#### Note

- Press , and select [Browse USB] in the menu to access the content and play the files.
- Connect a USB device only to the  jack on the front panel of this product.
- Philips does not guarantee compatibility with all USB devices.

---

### Connect a network

With a wired or wireless connection (see “Get started” > “Set up a network”), you can connect this product to:

- the Internet (for software update/BD Live/Net TV service).
- or a home network (to access media files from a DLNA media server, e.g. PC).



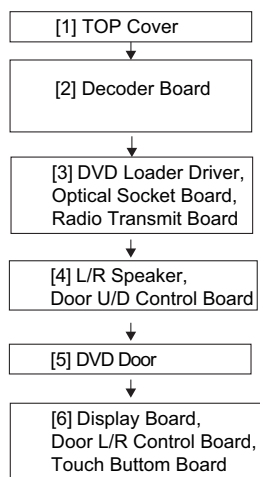
#### Note

- Internet access to Philips website for software update may not be allowed, depending on the router you use or the Internet Service Provider's policy. Contact your Internet Service Provider for more information.

# Cabinet Disassembly Instructions

## 1. Disassembly Flowchart

This flowchart indicates the disassembly steps to gain access to item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route, and dress the cables as they were originally.



Note:

- (1) Identification (location) No. of parts in the figures
- (2) Name of the part
- (3) Figure Number for reference
- (4) Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.

Axx = Screw, CNxx/Jxx/CONxx = Connector  
D3.5X12BA is specification of screw.

\* = Unhook, Unlock, Release, Unplug, or Desolder  
e.g. 7(A01) = seven Screws

## 2. Disassembly Method

ID/ Loc. No.	Part	Removal		
		Fig. No.	Remove/*Unhook/ Unlock/Release/ Unplug/Desolder	Note
[1]	TOP Cover	D1	4(A01) D3x6KMTT,	
[2]	Decoder Board	D2	4(A02) D3x6BM, 2(A03) D3x10PA	
[3]	DVD Loader Driver, Optical Socket Board, Radio Transmit Board	D3	2(A04) D3x10FA, 2(A06) D2.6x6BB, 4(A10) D2.6x10PWT	
[4]	L/R Speaker, Door U/D Control Board	D4	12(A03) D3x10BA, 1(A06) D2.6x6BB	
[5]	DVD Door	D5 D6	1(A08) D2x3FB	
[6]	Display Board, Door L/R Control Board, Touch Button Board	D7	5(A02) D2x3FB, 2(A05) D3x8PA, 2(A05) D2.6x6BB	

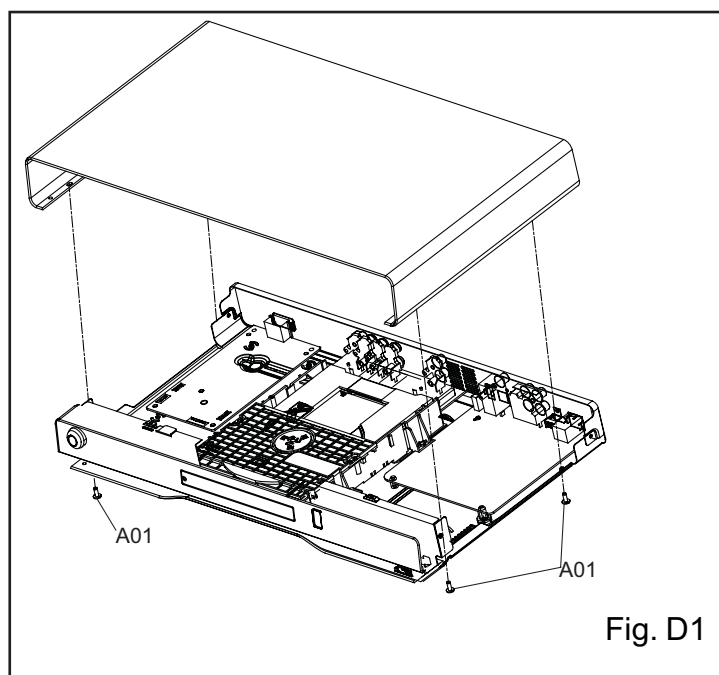


Fig. D1

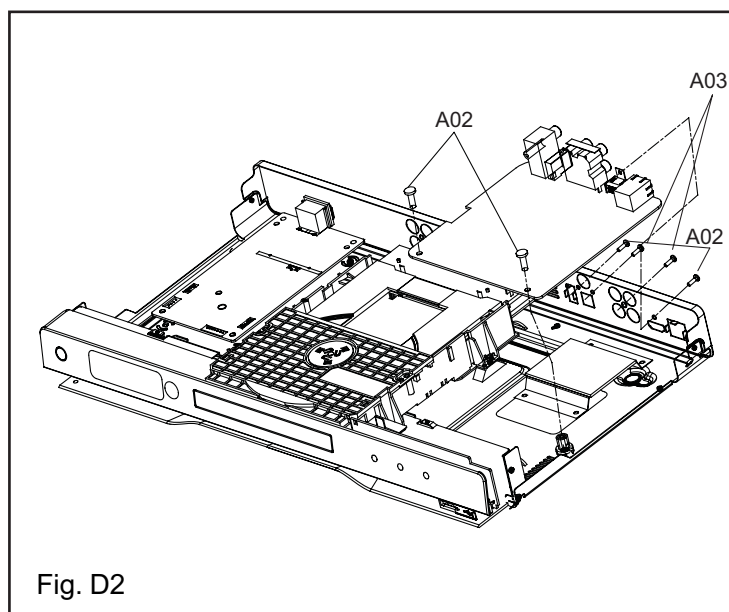
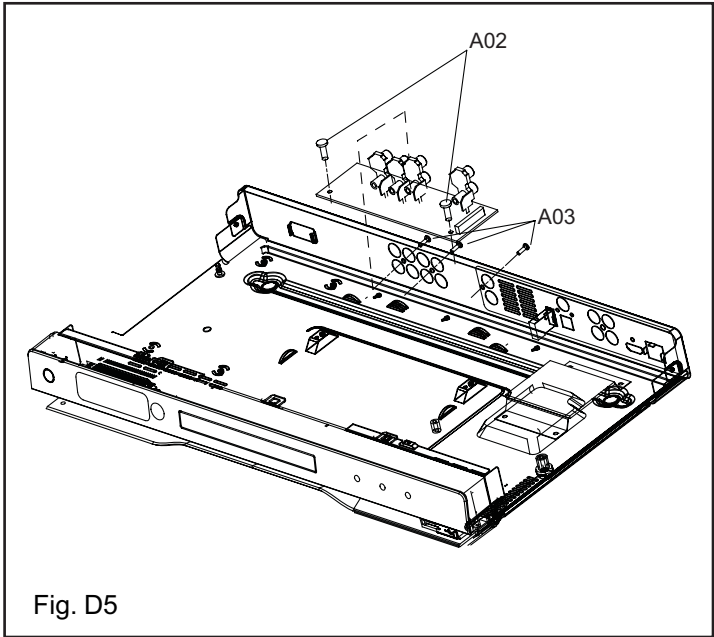
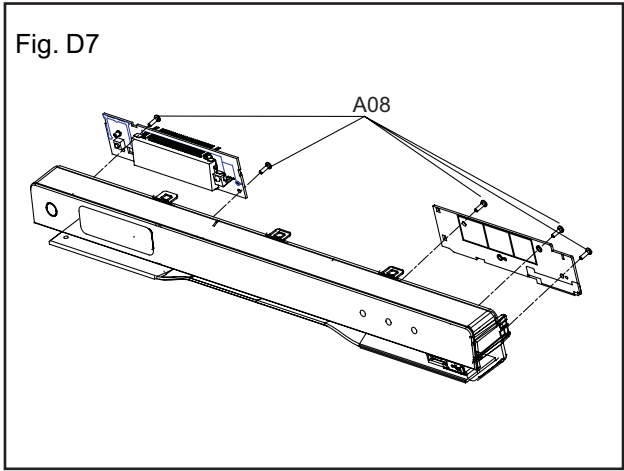
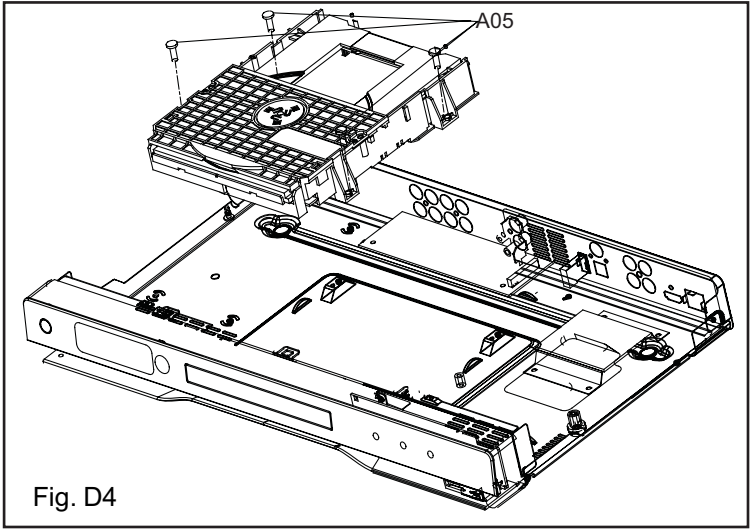
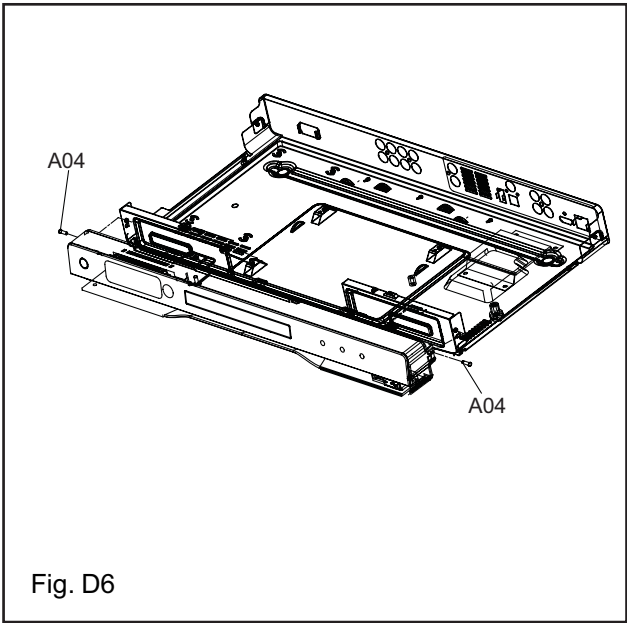
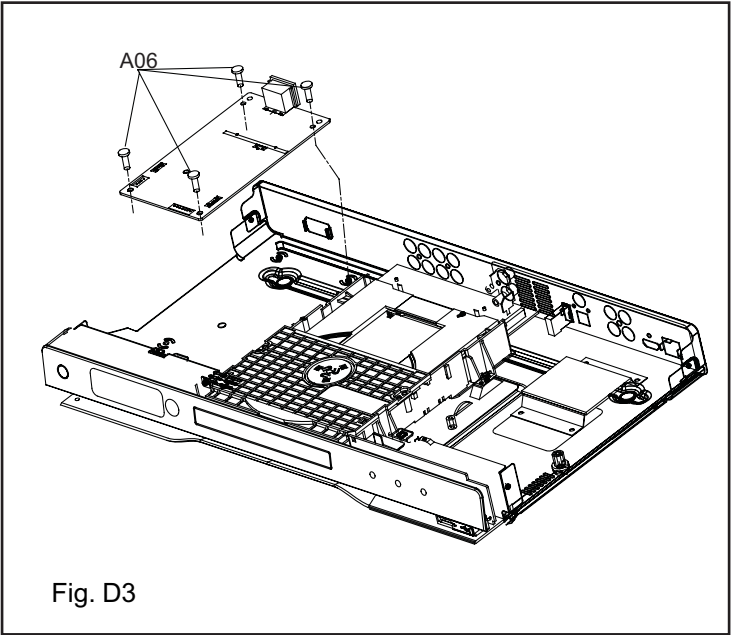


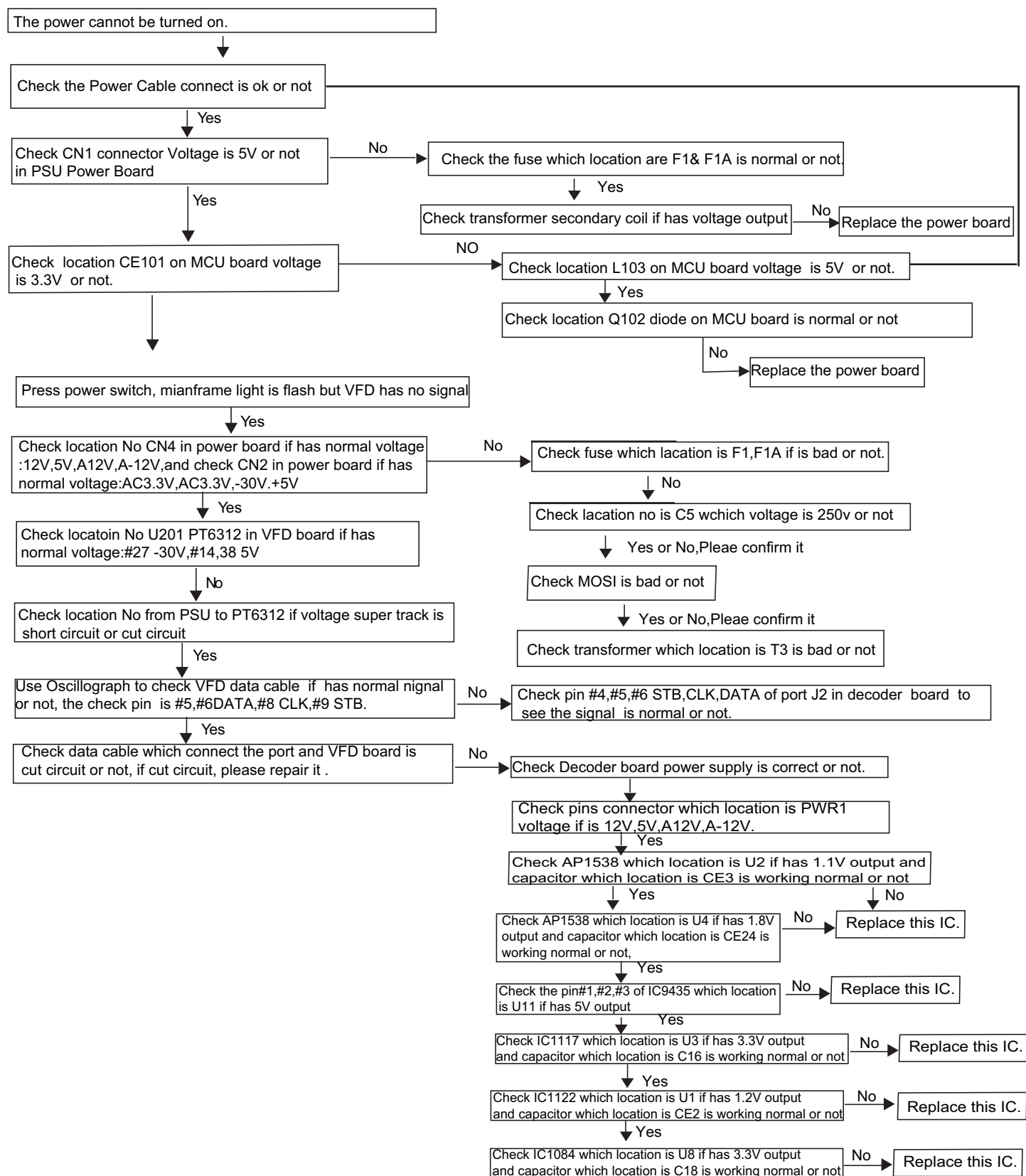
Fig. D2

Cabinet Disassembly Instructions



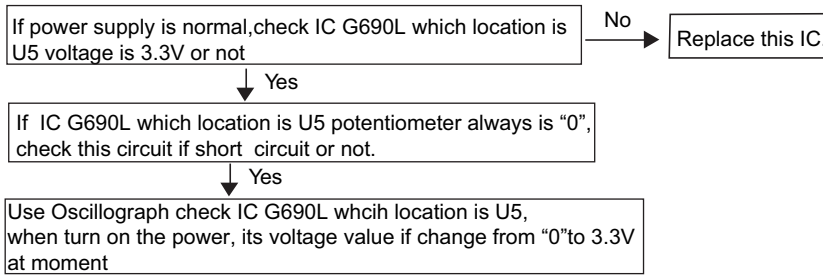
# Troubleshooting

FLOW CHART NO.1



## Troubleshooting

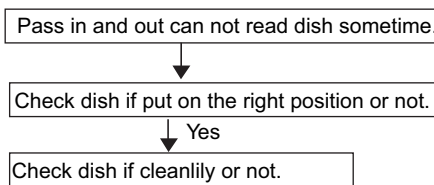
Fourthly Step:



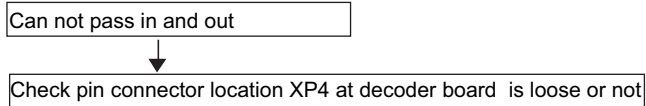
Fifthly Step:

If the power still can not be turn on base on above fourth step, please upgrade the software

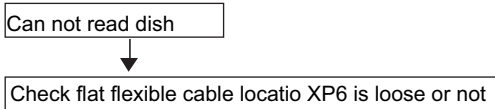
FLOW CHART NO.2



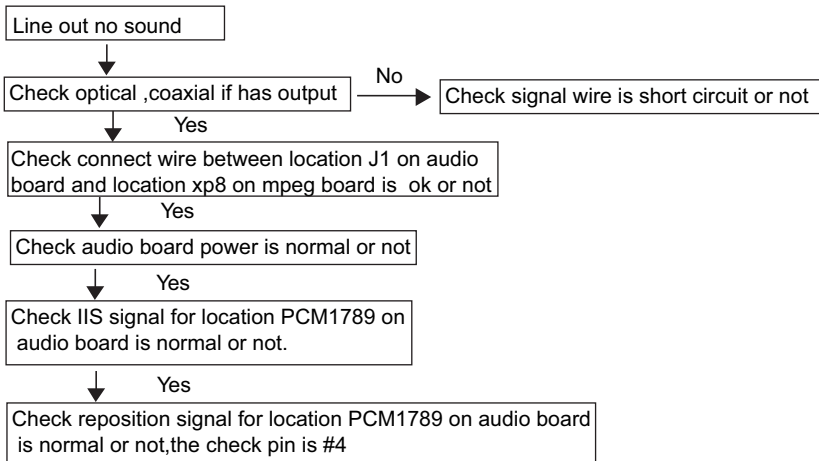
FLOW CHART NO.3



FLOW CHART NO.4



FLOW CHART NO.5



## Software Upgrading Procedure

1, Download the Software from Philips support Website:

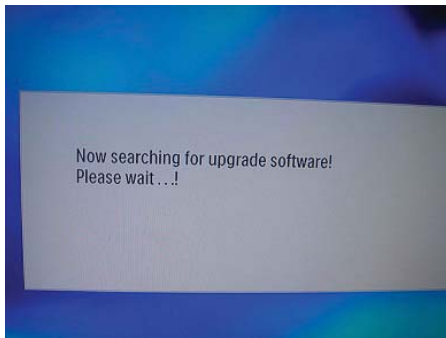
<http://www.philips.com/support>

2, Copy the Software upgrade file into USB device.

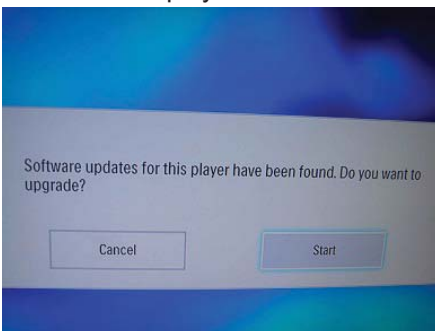
A, Connect to TV and Turn on Main Unit,  
Select Upgrad from USB,TV Screen Display:



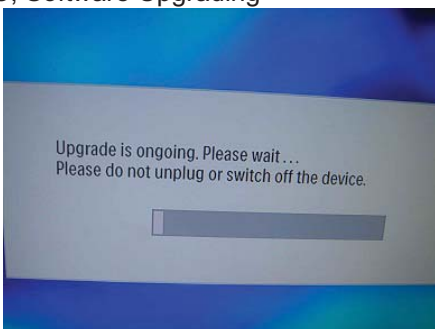
Press OK on Remote Control,  
TV Screen Display:



B, Press OK on Remote Control,  
TV Screen Display:



C, Software Upgrading



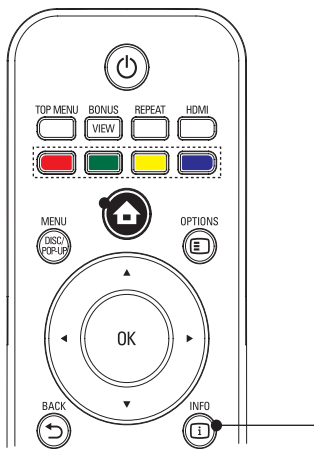
D, When Software Upgrading finish,TV screen display



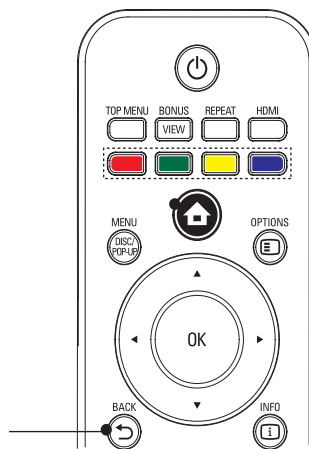
Software Upgrade finish.

## Software Version Check

1, Select the "IFO", like below show:



4, Press BACK on Remote Control:



2, TV Screen Display, select Version Info.



TV Screen display:



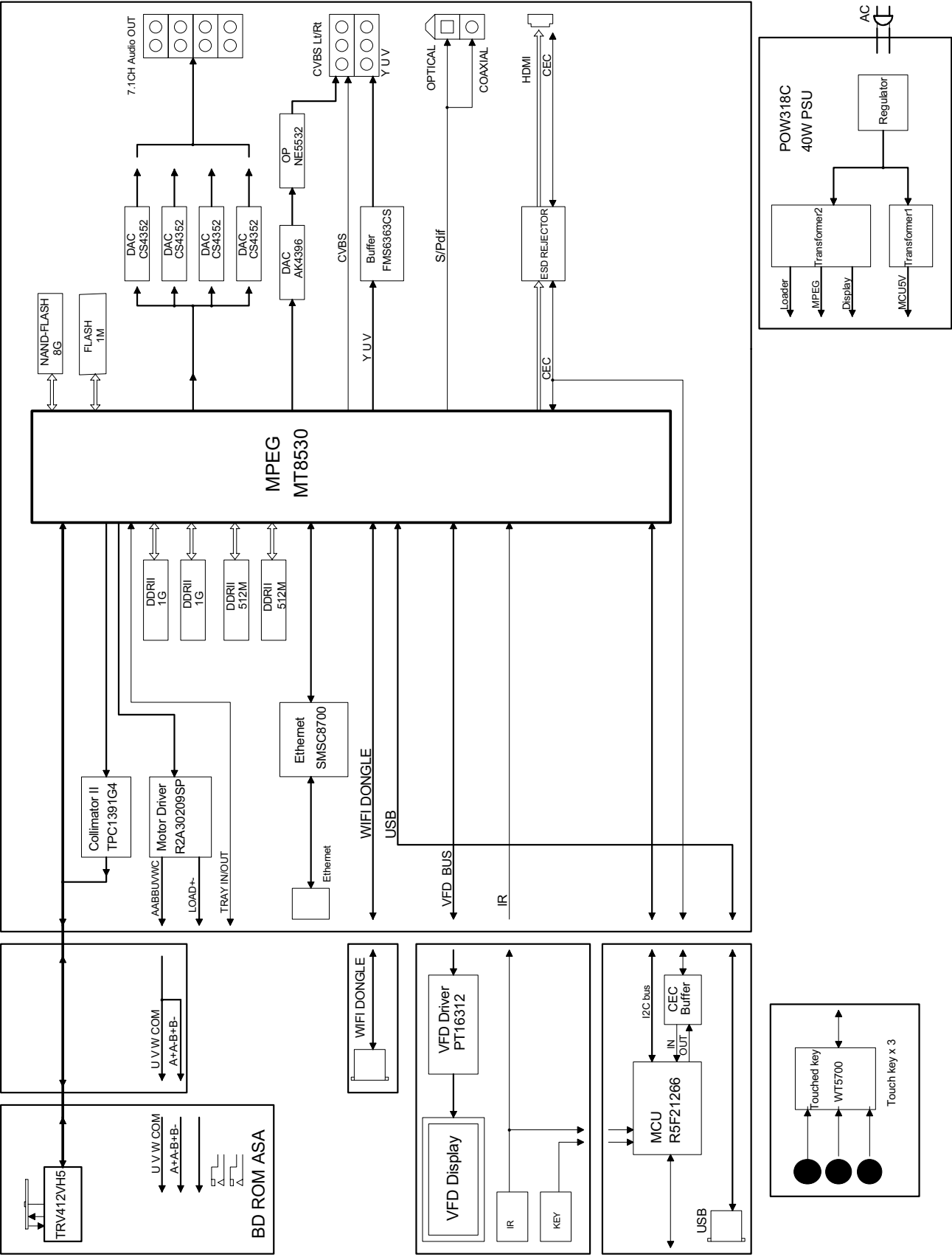
3, Select OK to get the Version information :



5, Press 8-5-2-0 on Remote Control, can find Software Version:



Block Diagram



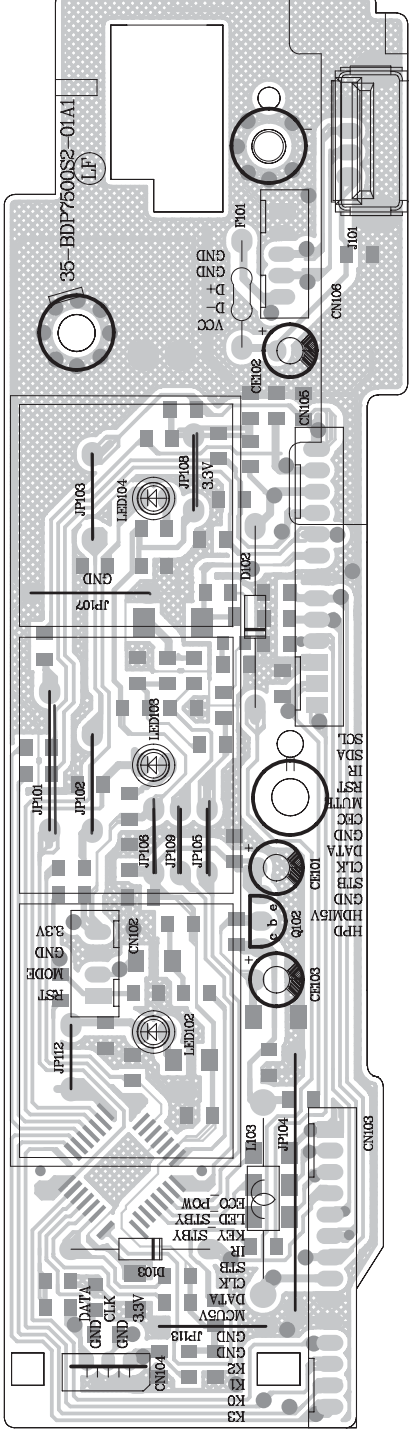


[illegible]

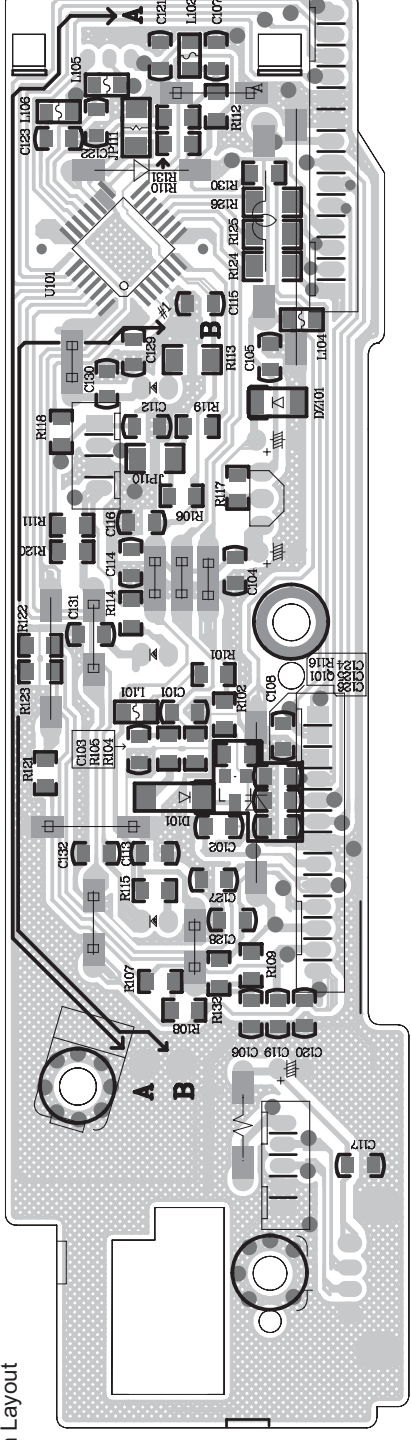


## Main Unit--MCU Board Layout Diagram

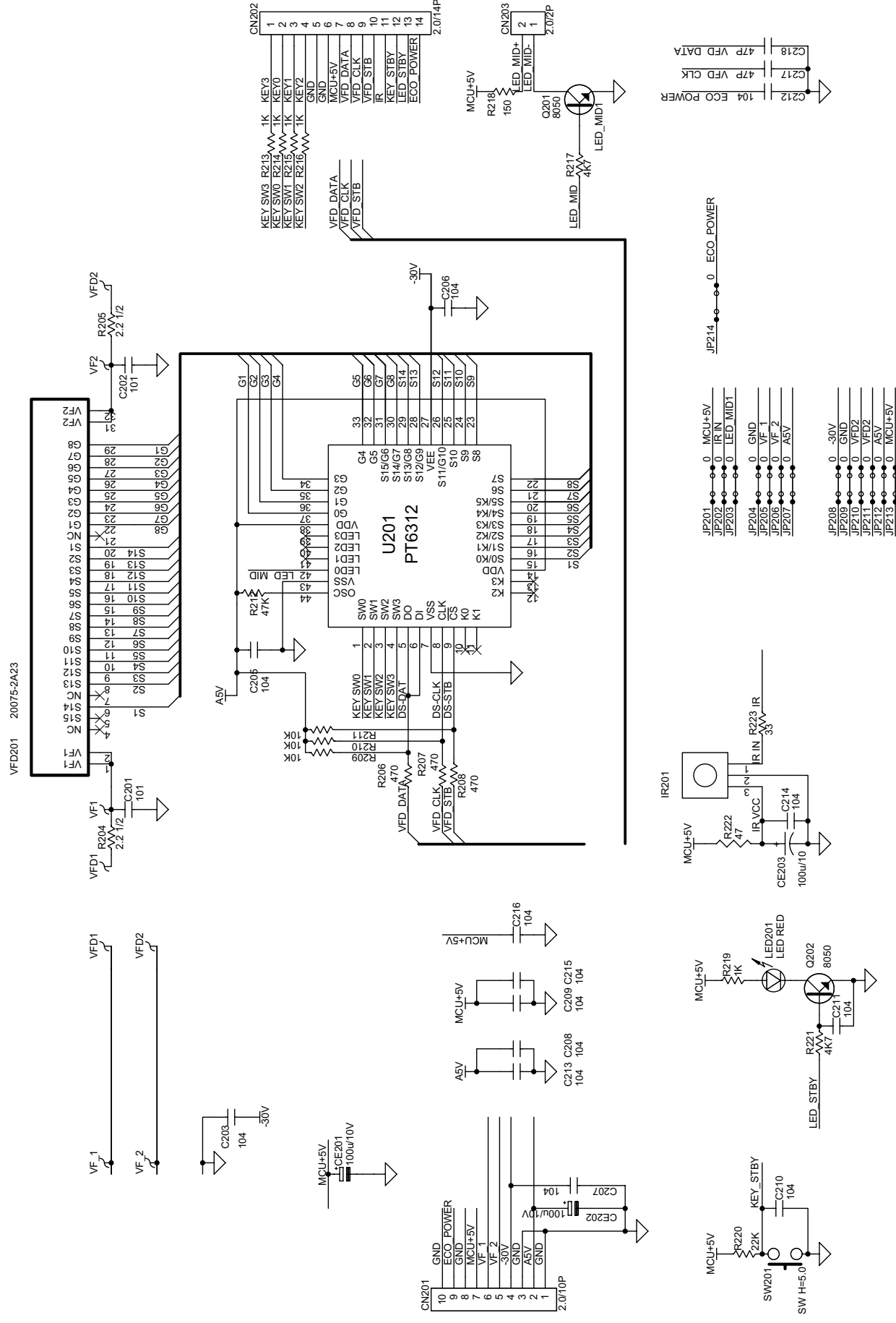
## TOP Layout



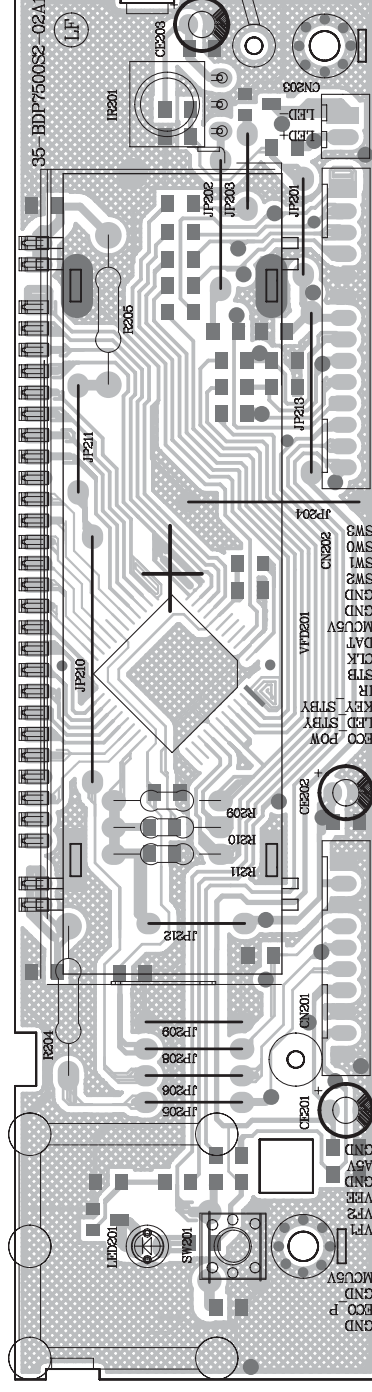
## Bottom Layout



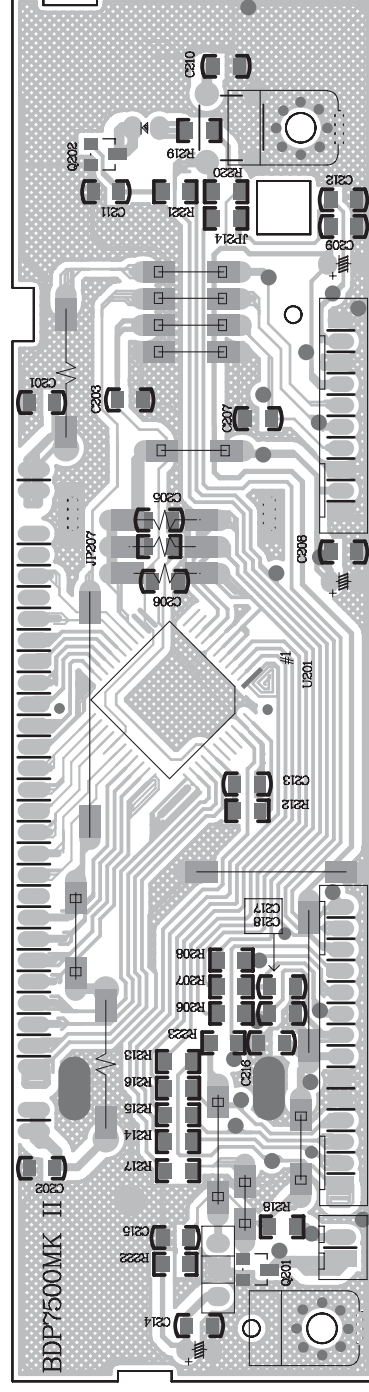
## Main Unit --VFD Display Board Circuit Diagram



## TOP Layout Diagram

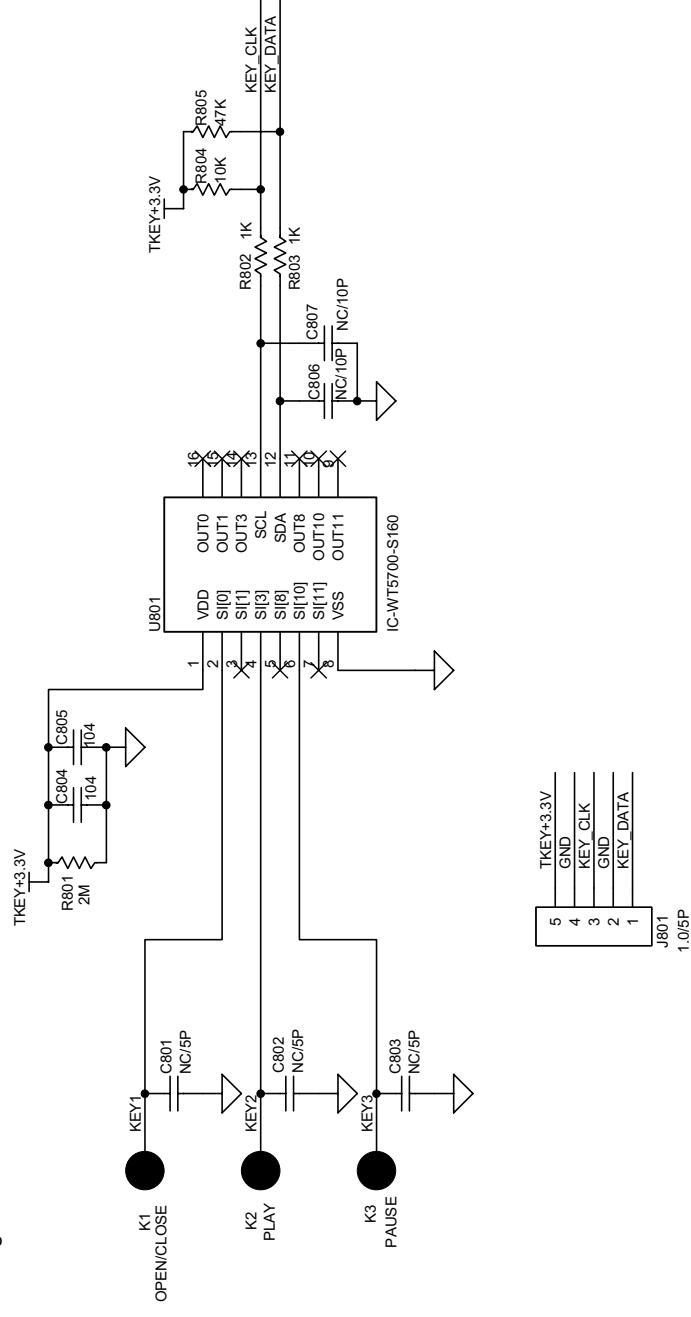


## Bottom Layout Diagram

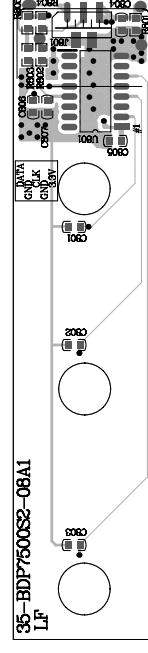


## Main Unit--Touch Board Circuit & Layout Diagram

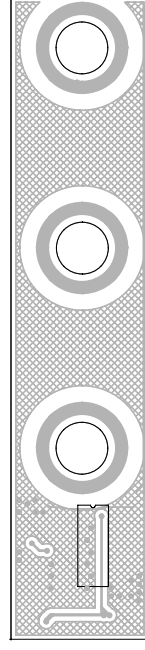
### Circuit Diagram



## Top Layout Diagram

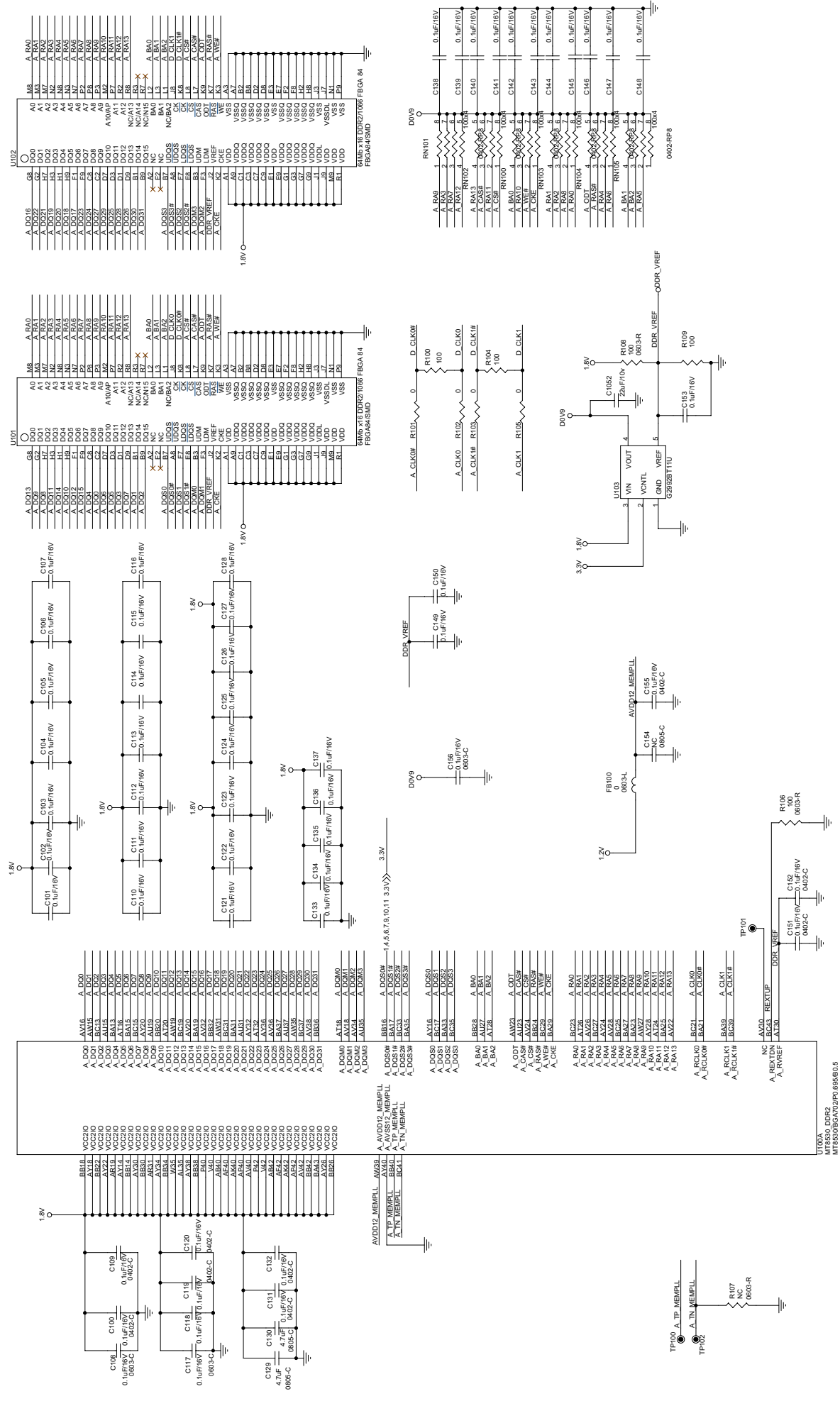


### Bottom Layout Diagram



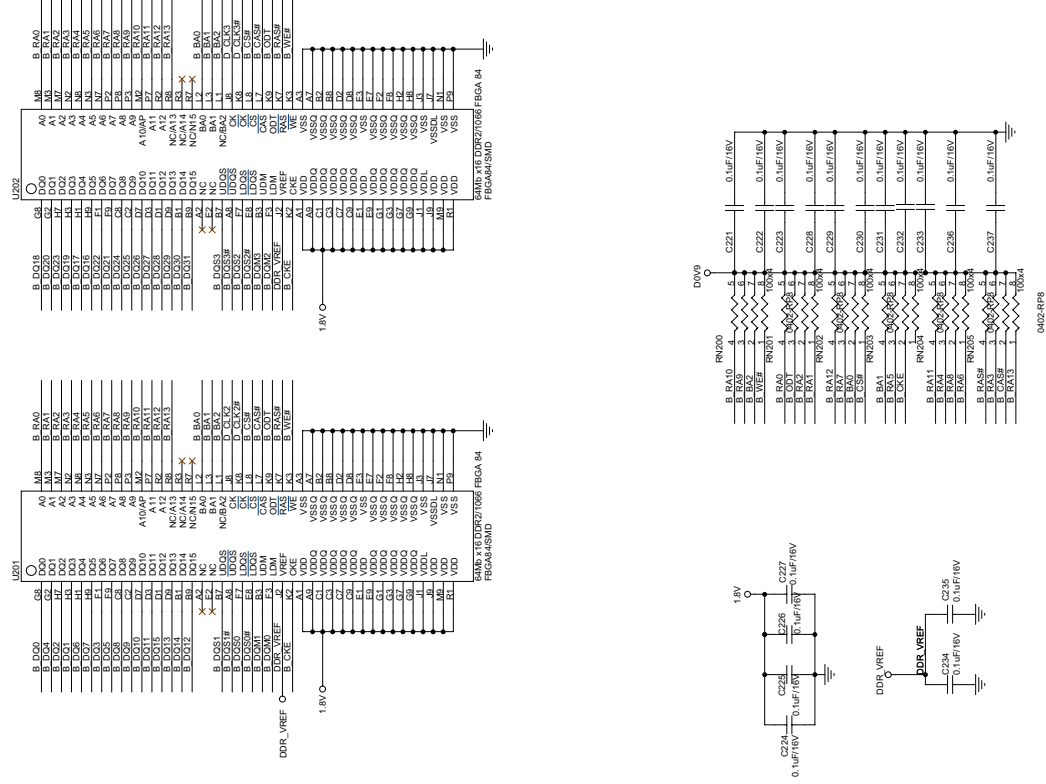
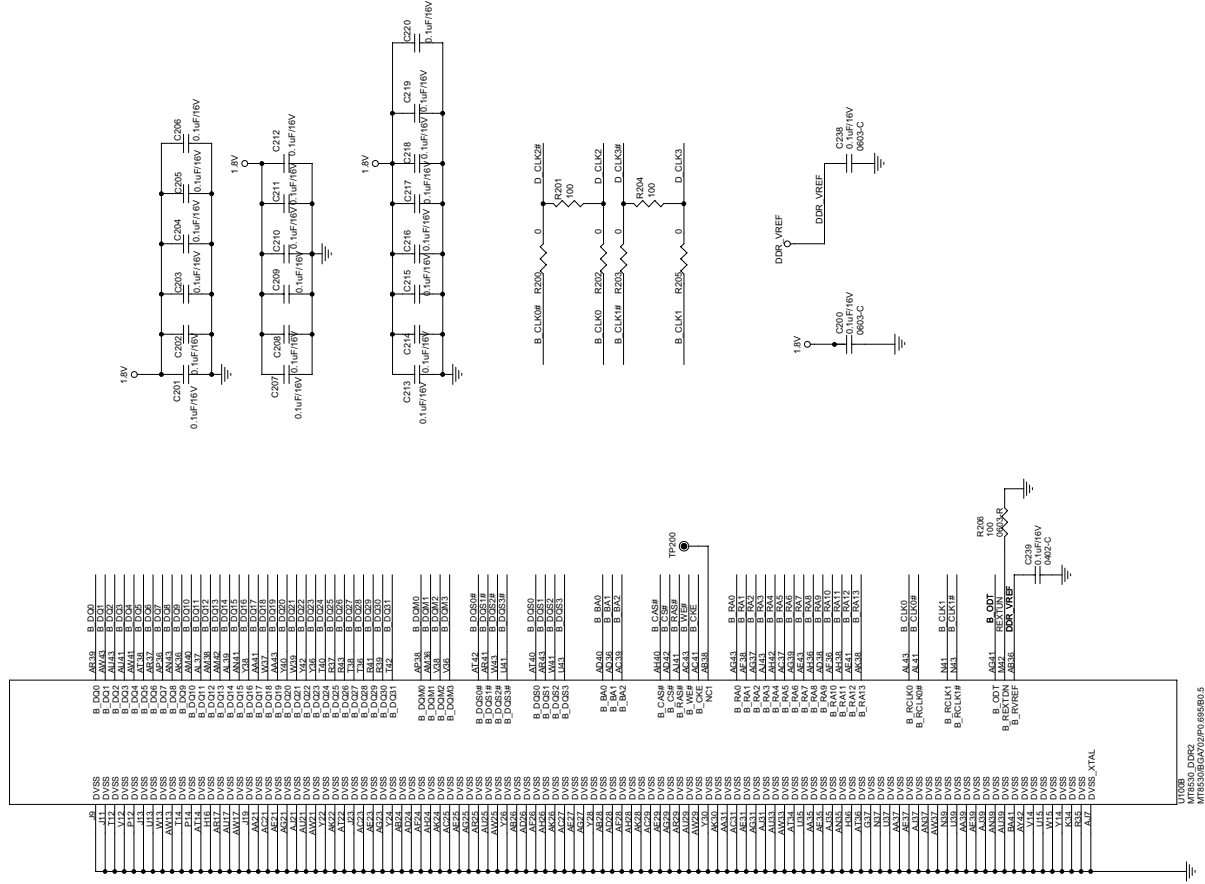


## Main Unit--Decoder Board Circuit Diagram

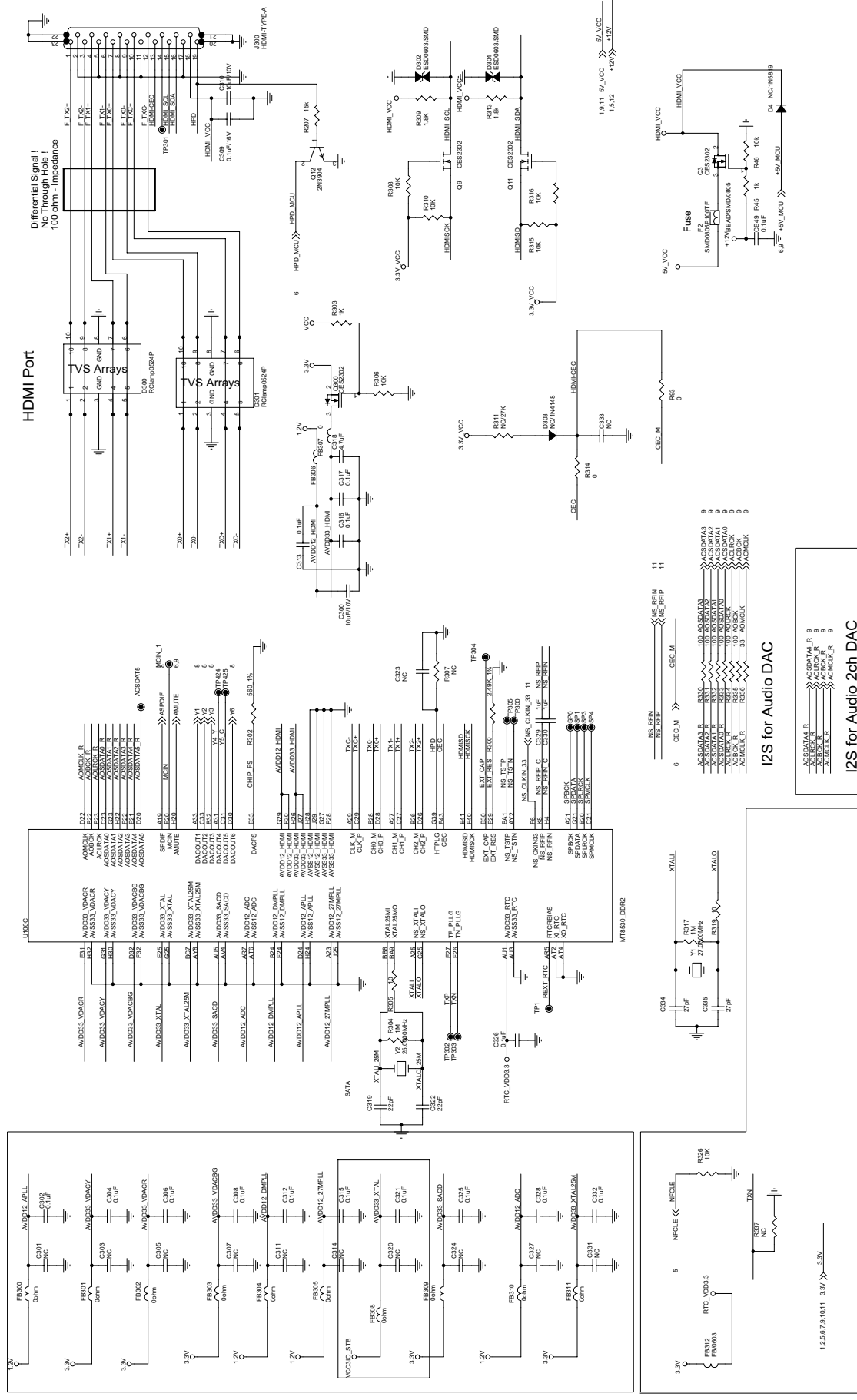




## Main Unit--Decoder Board Circuit Diagram

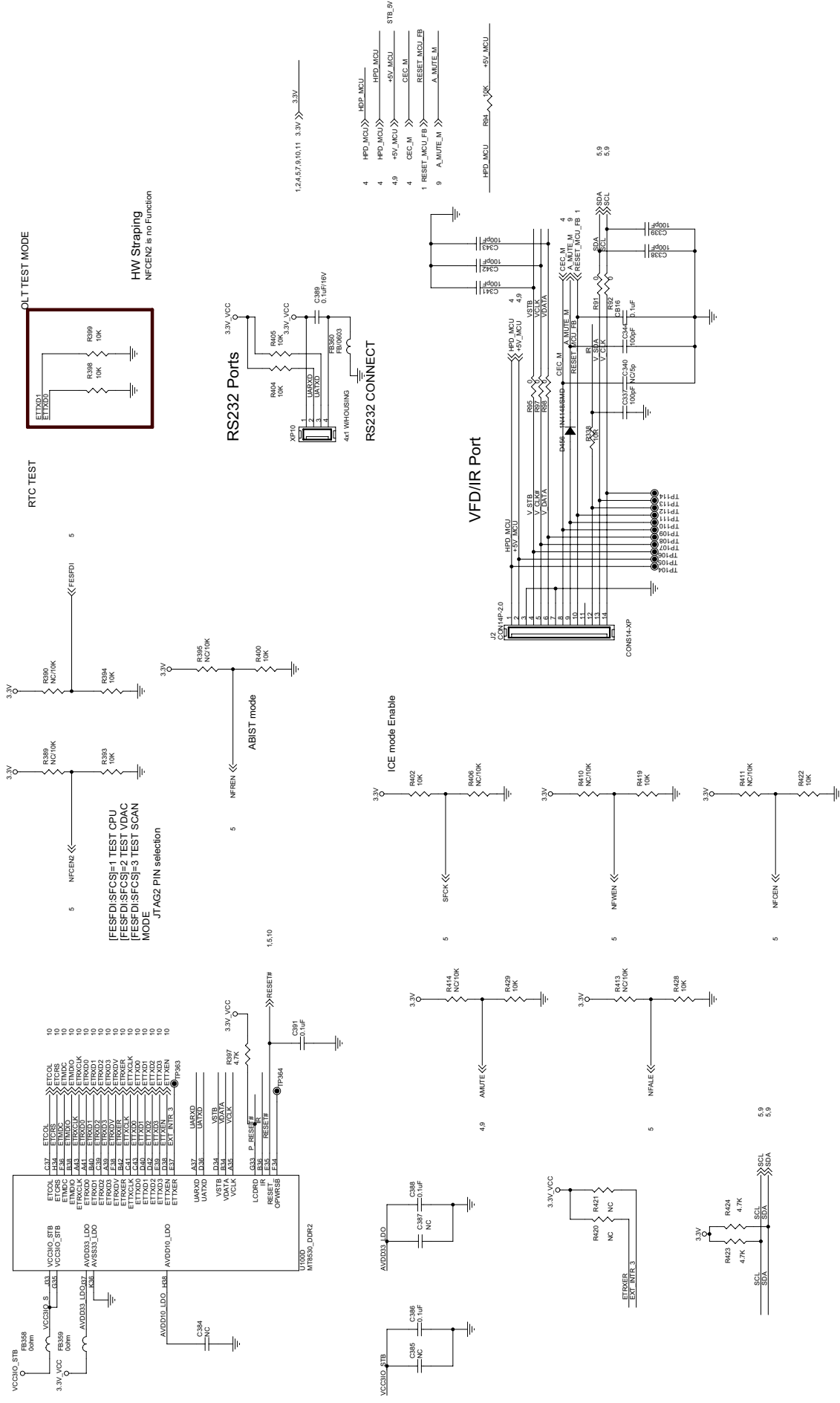


## Main Unit--Decoder Board Circuit Diagram

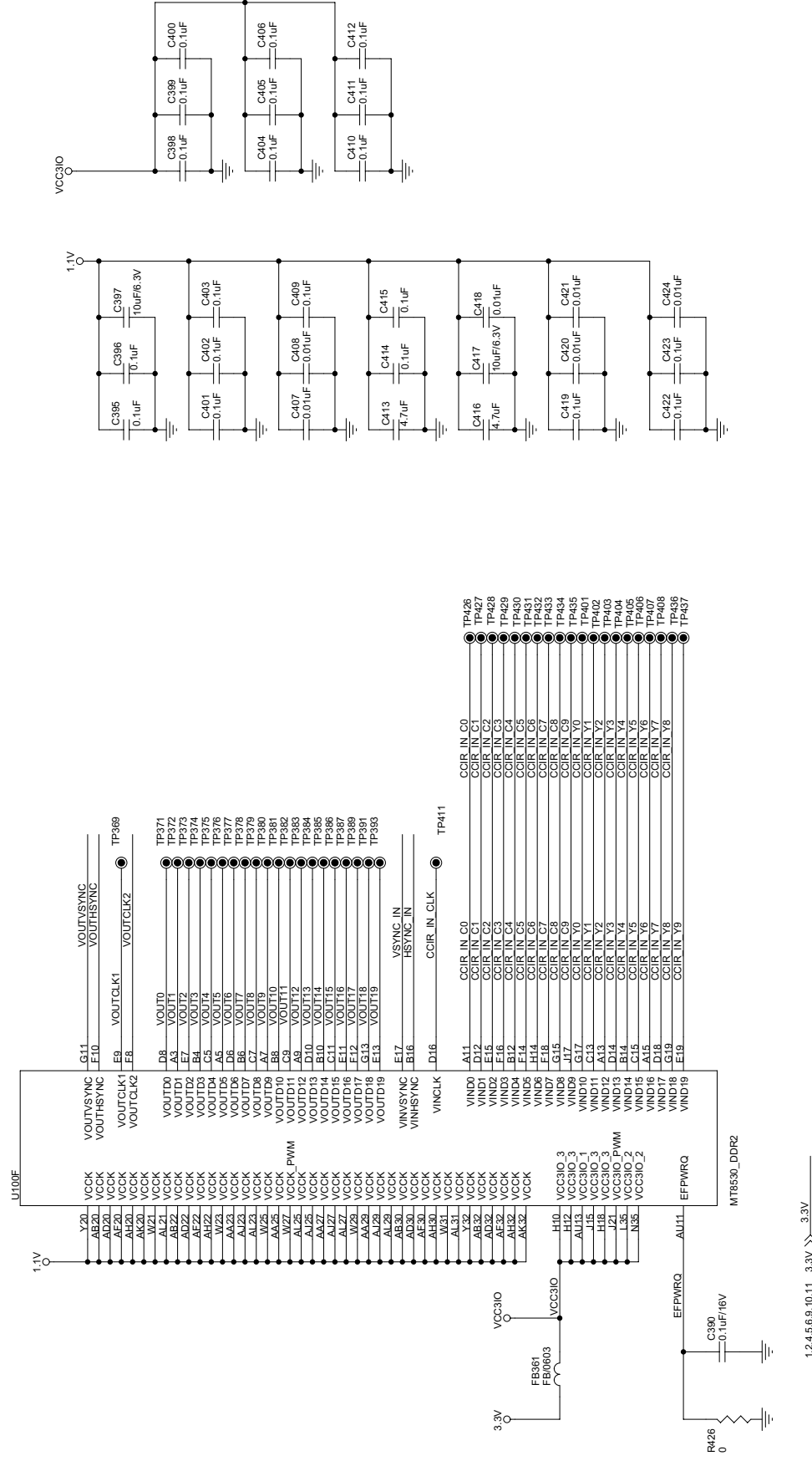




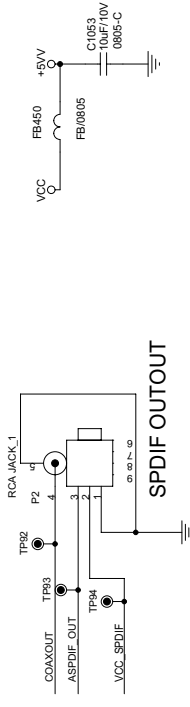
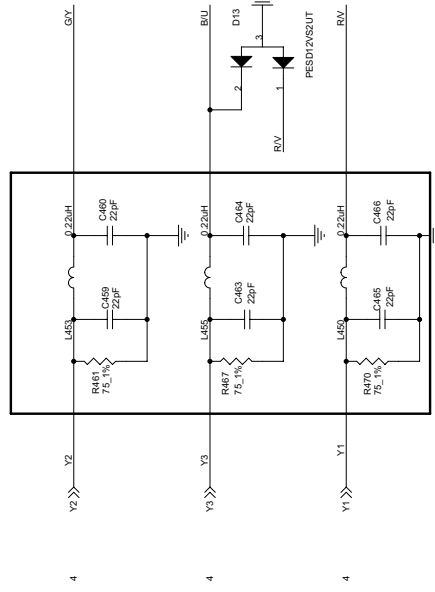
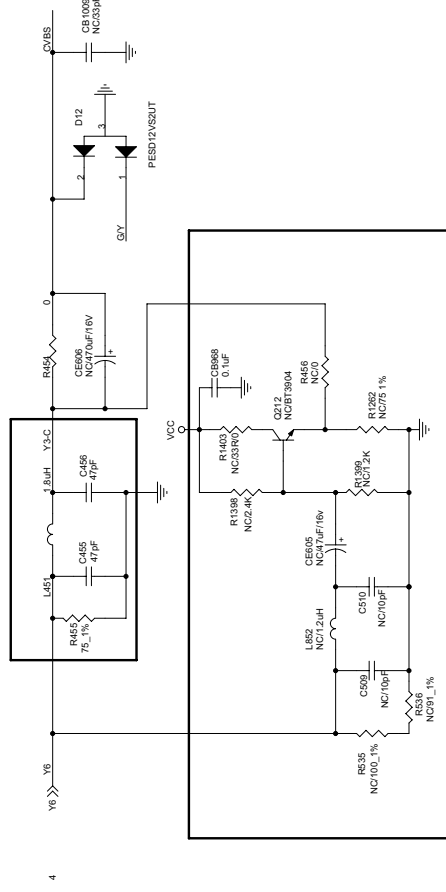
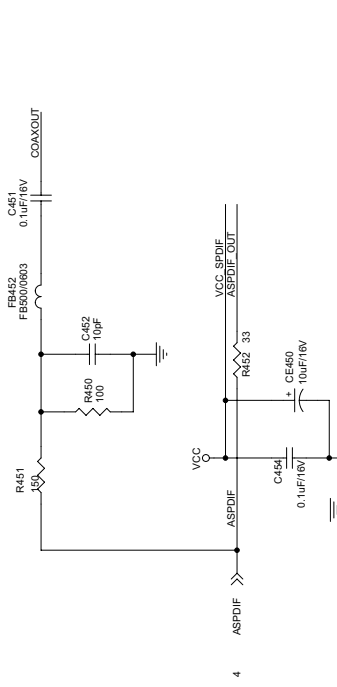
## Main Unit--Decoder Board Circuit Diagram



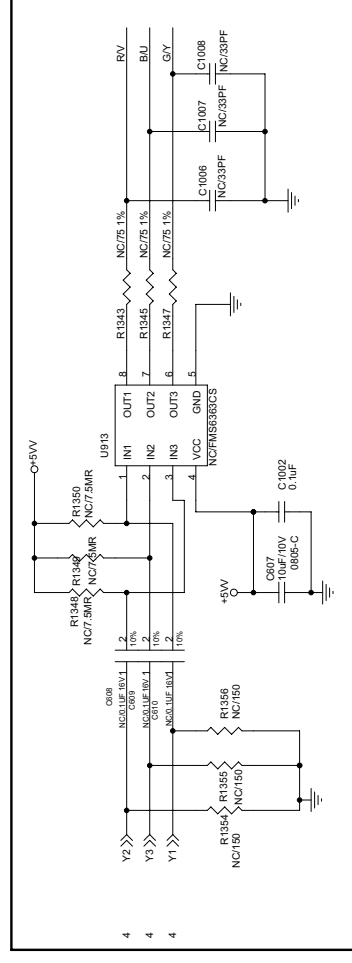
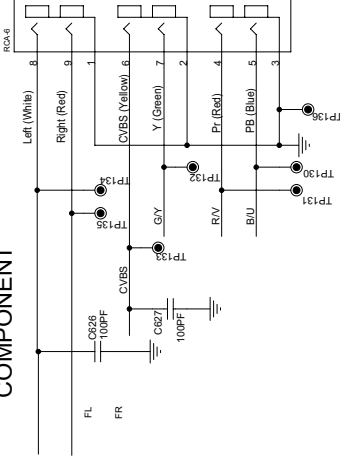
## Main Unit--Decoder Board Circuit Diagram



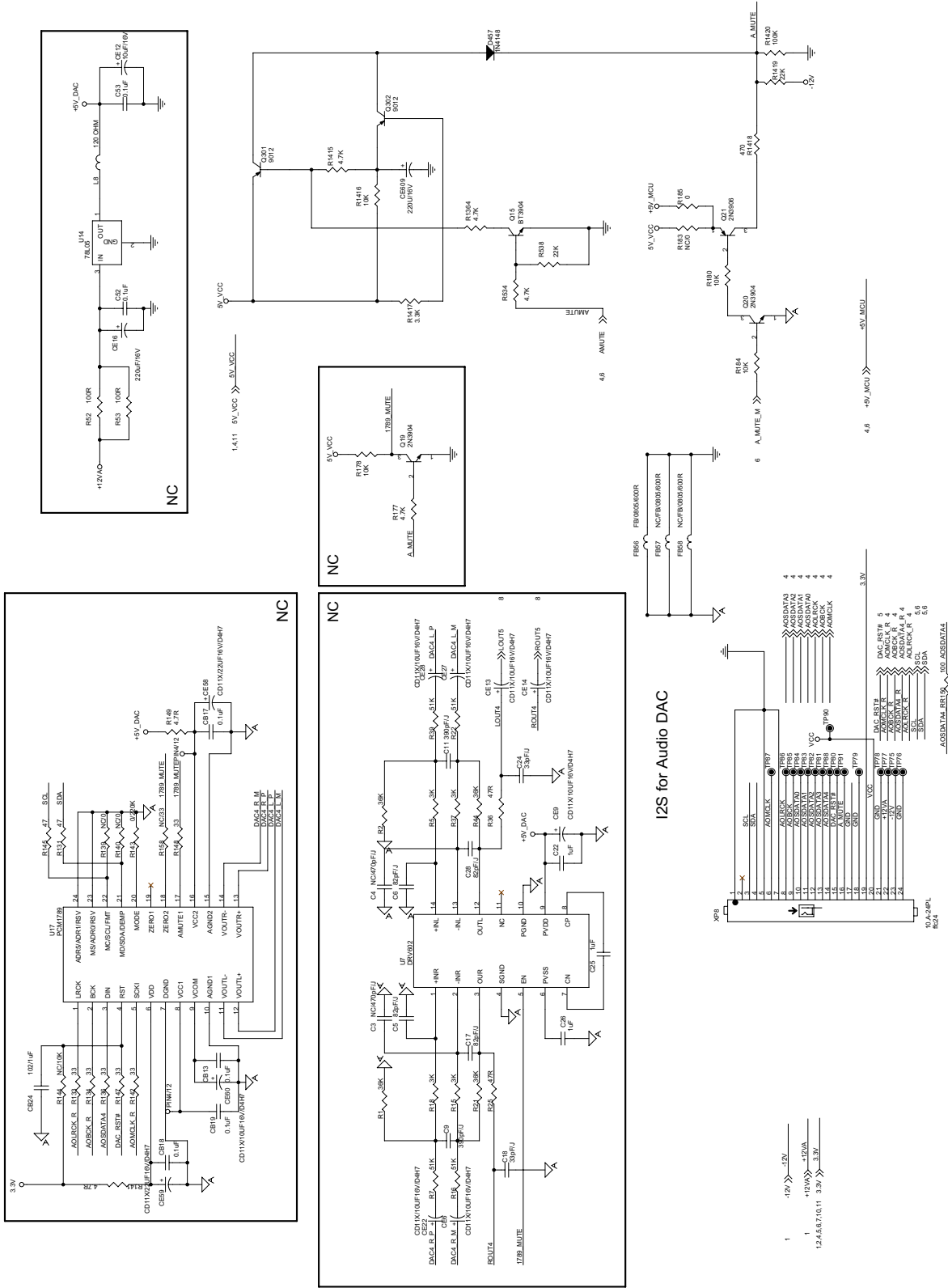
## Main Unit--Decoder Board Circuit Diagram



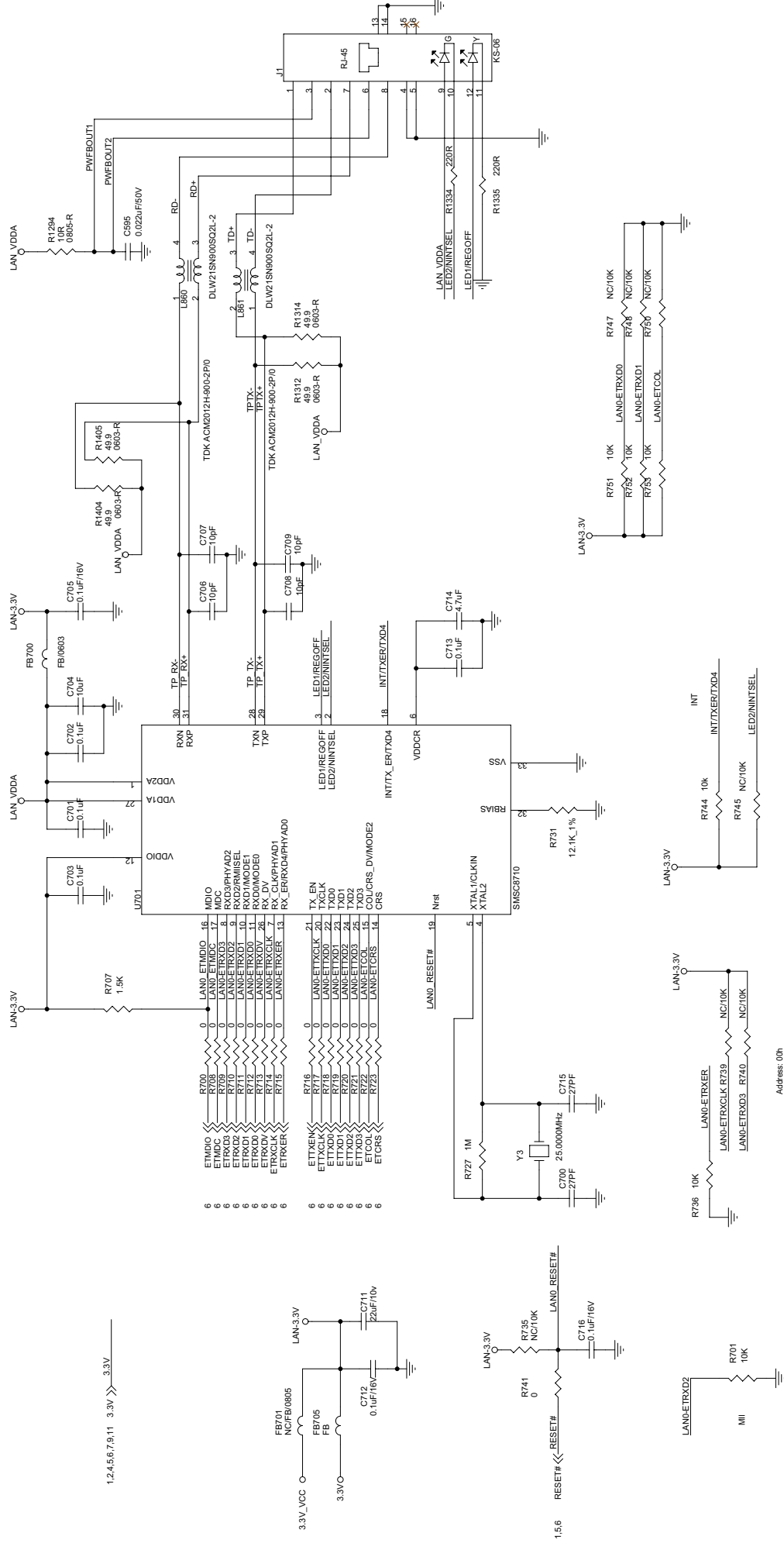
## COMPONENT



# Main Unit-Decoder Board Circuit Diagram

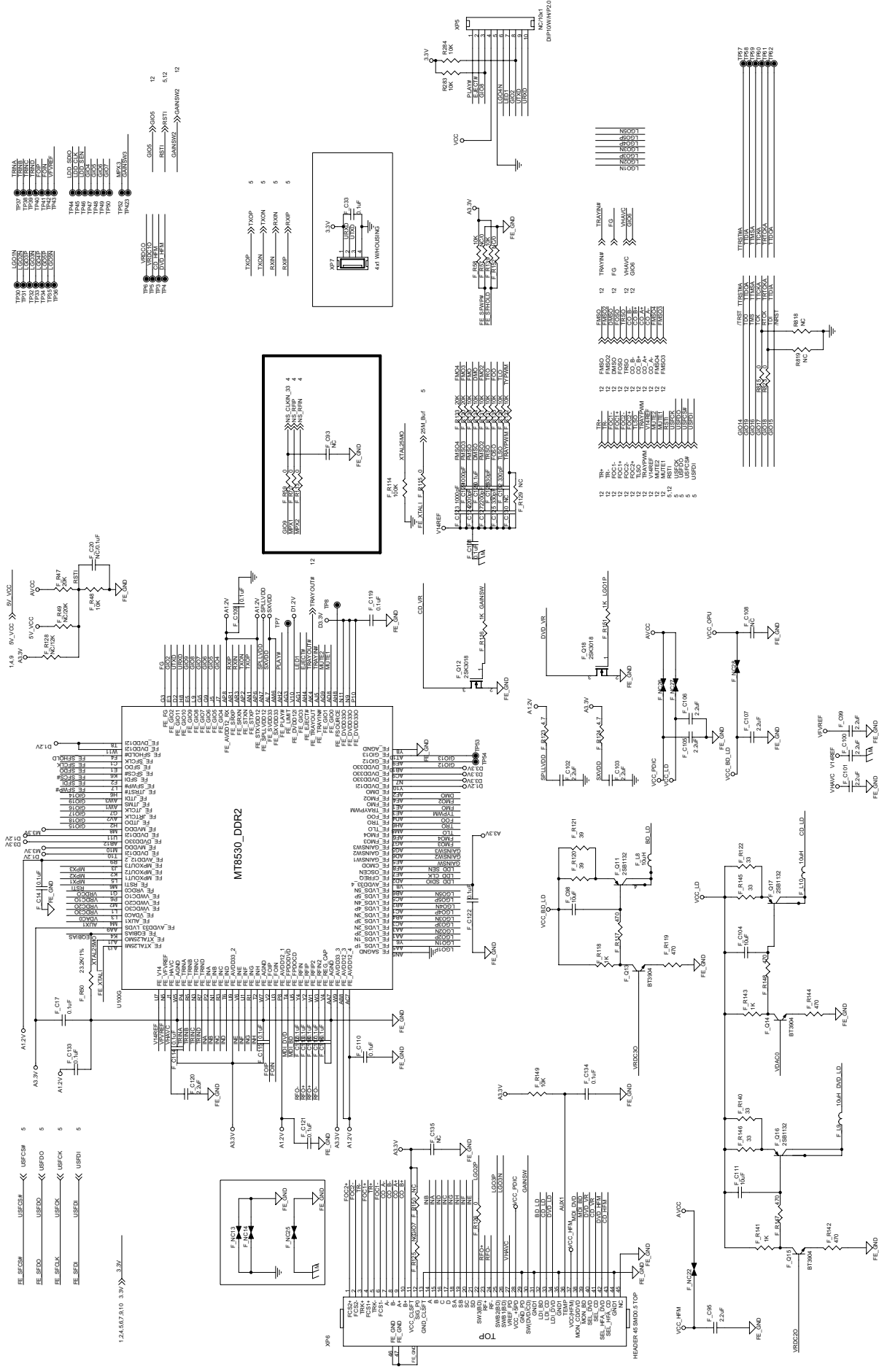


## Main Unit--Decoder Board Circuit Diagram

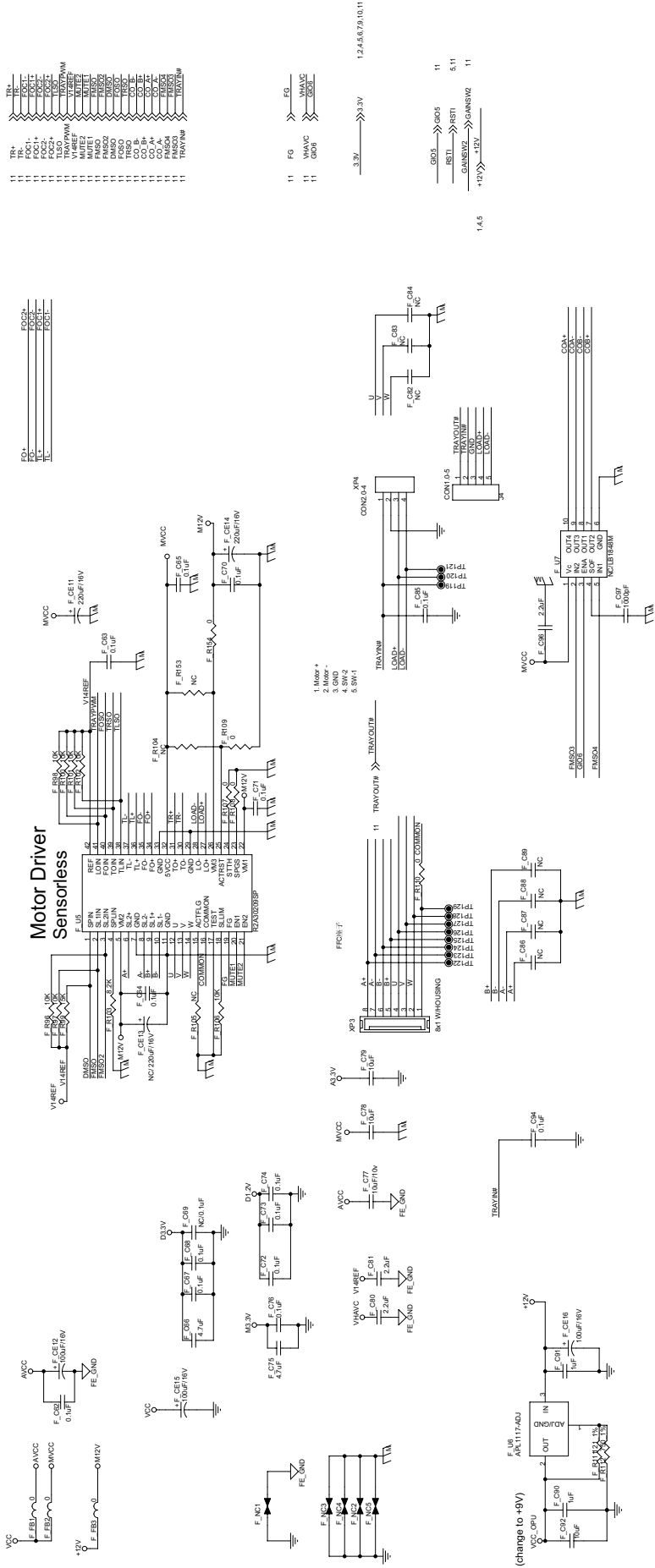




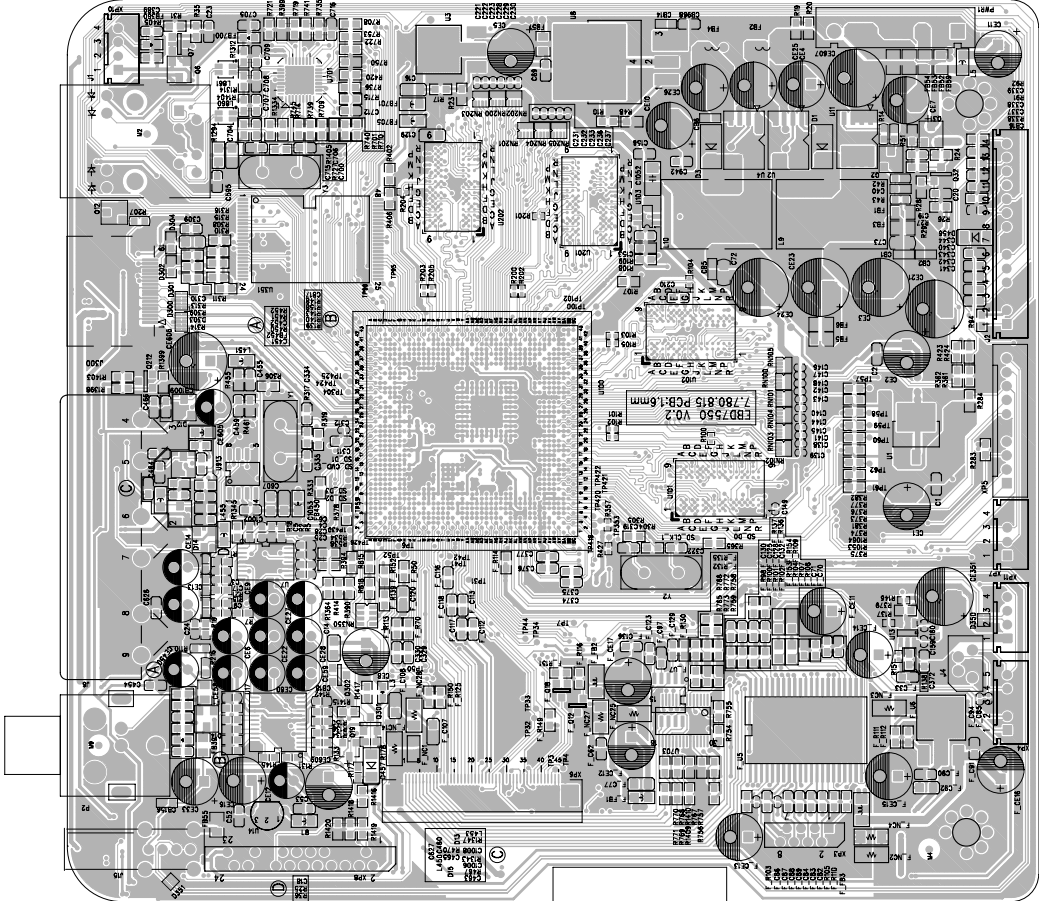
## Main Unit--Decoder Board Circuit Diagram



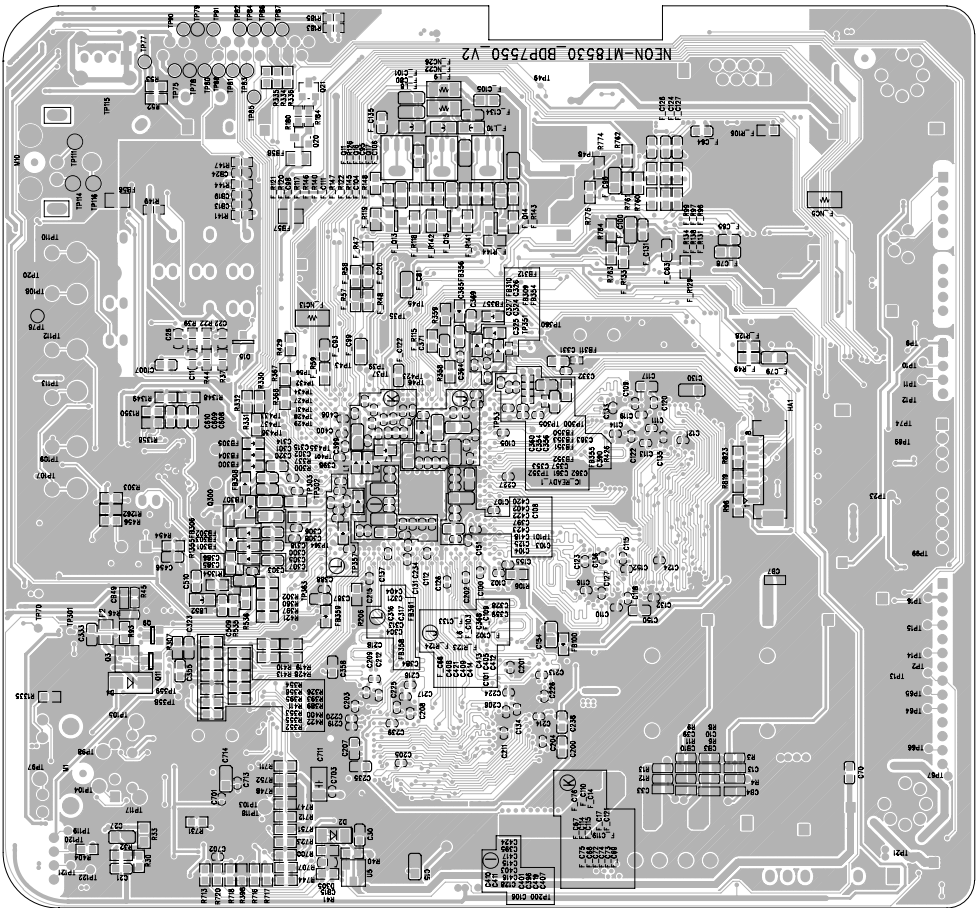
Main Unit--Decoder Board Circuit Diagram



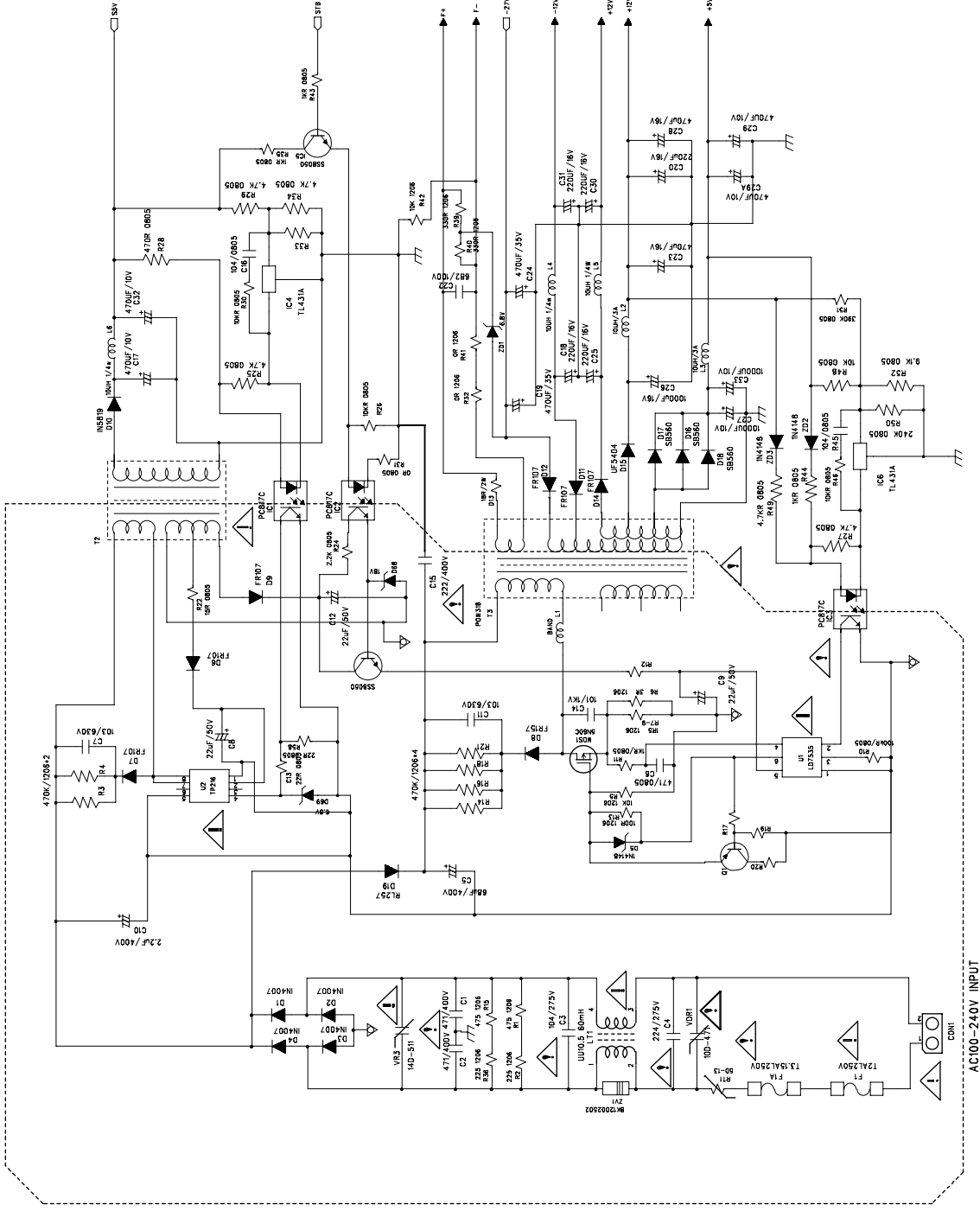
Top Layout Diagram



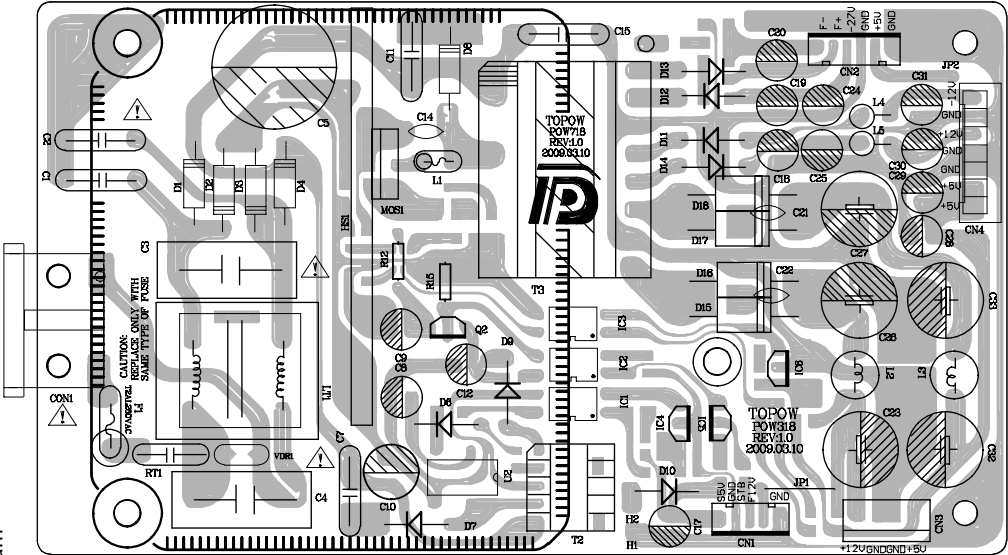
Bottom Layout Diagram



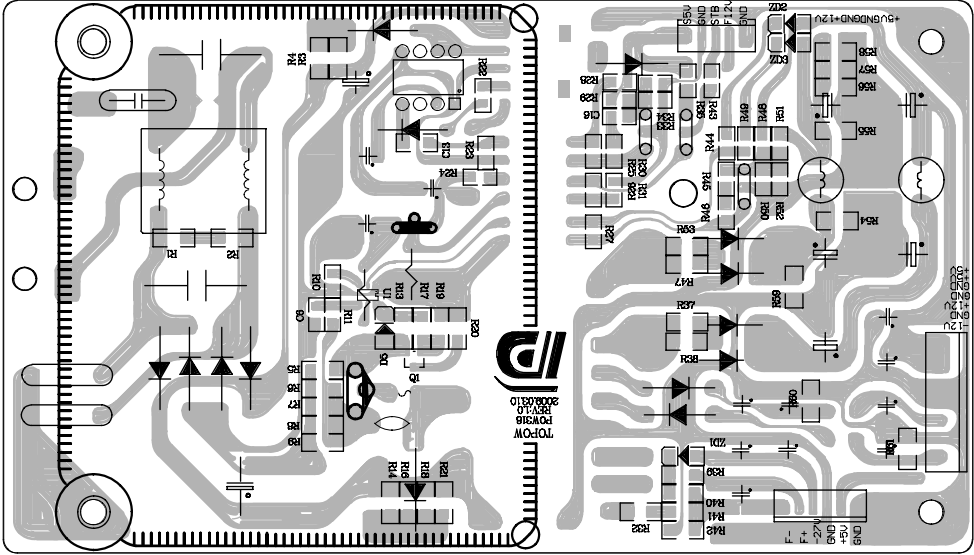
## Main Unit--Power Board Circuit Diagram



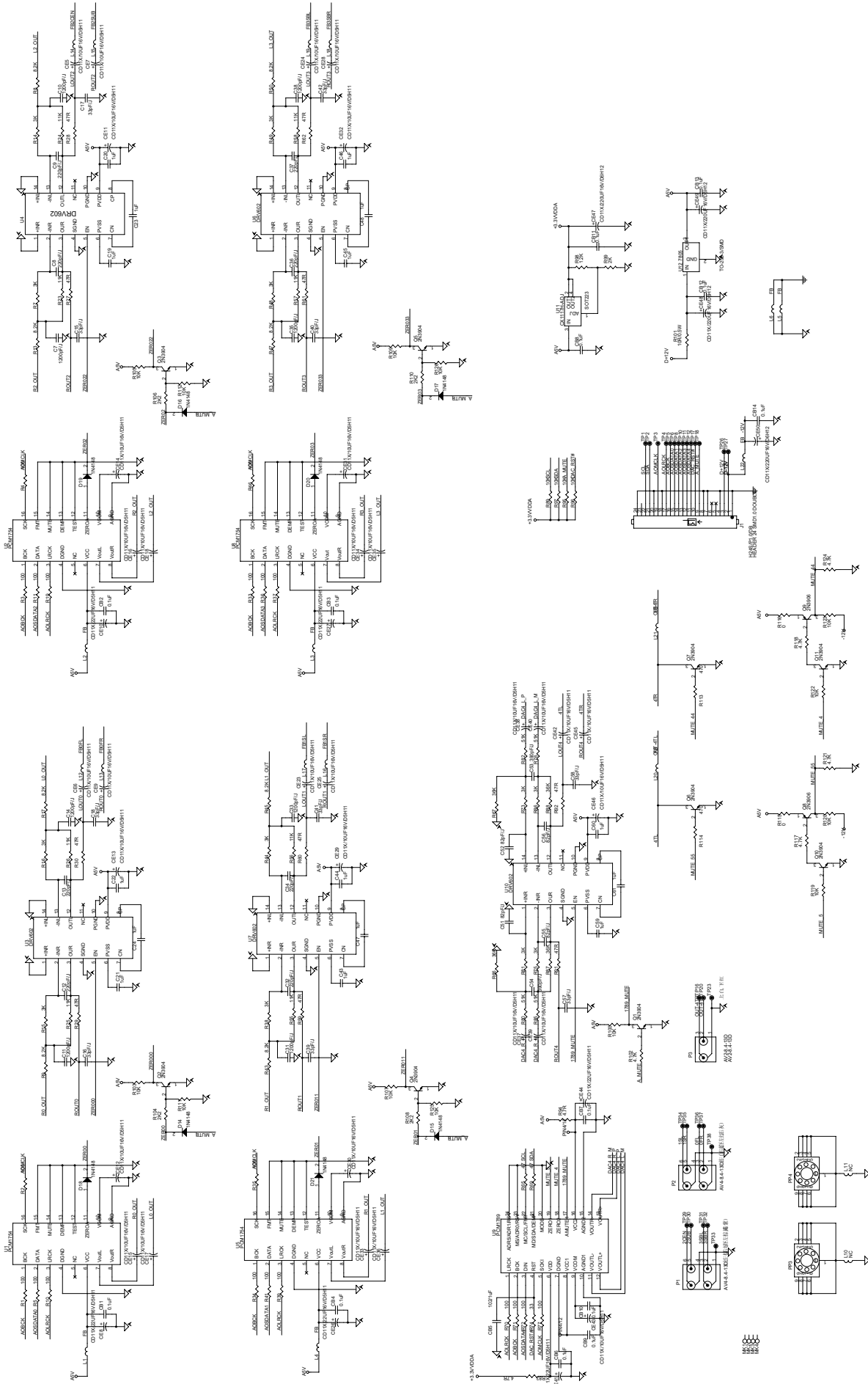
Top Layout Diagram



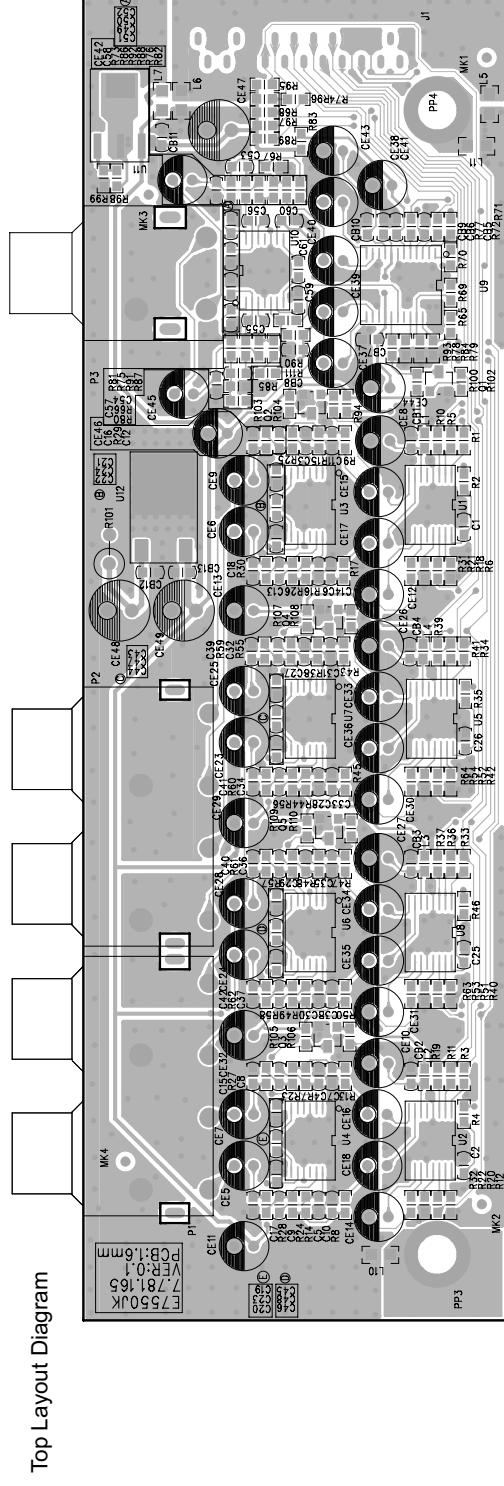
Bottom Layout Diagram



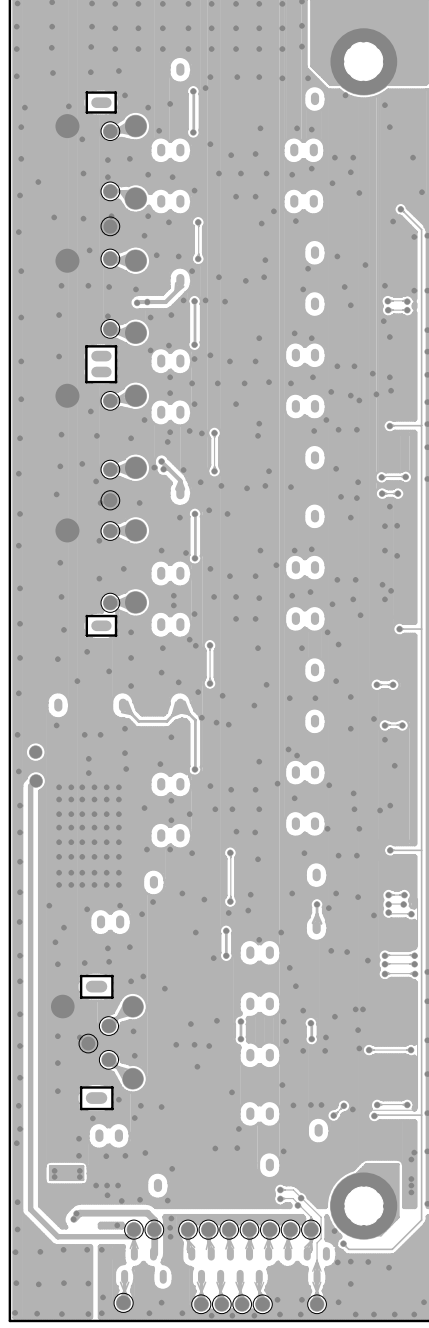
# Main Unit -- Output Board Circuit Diagram

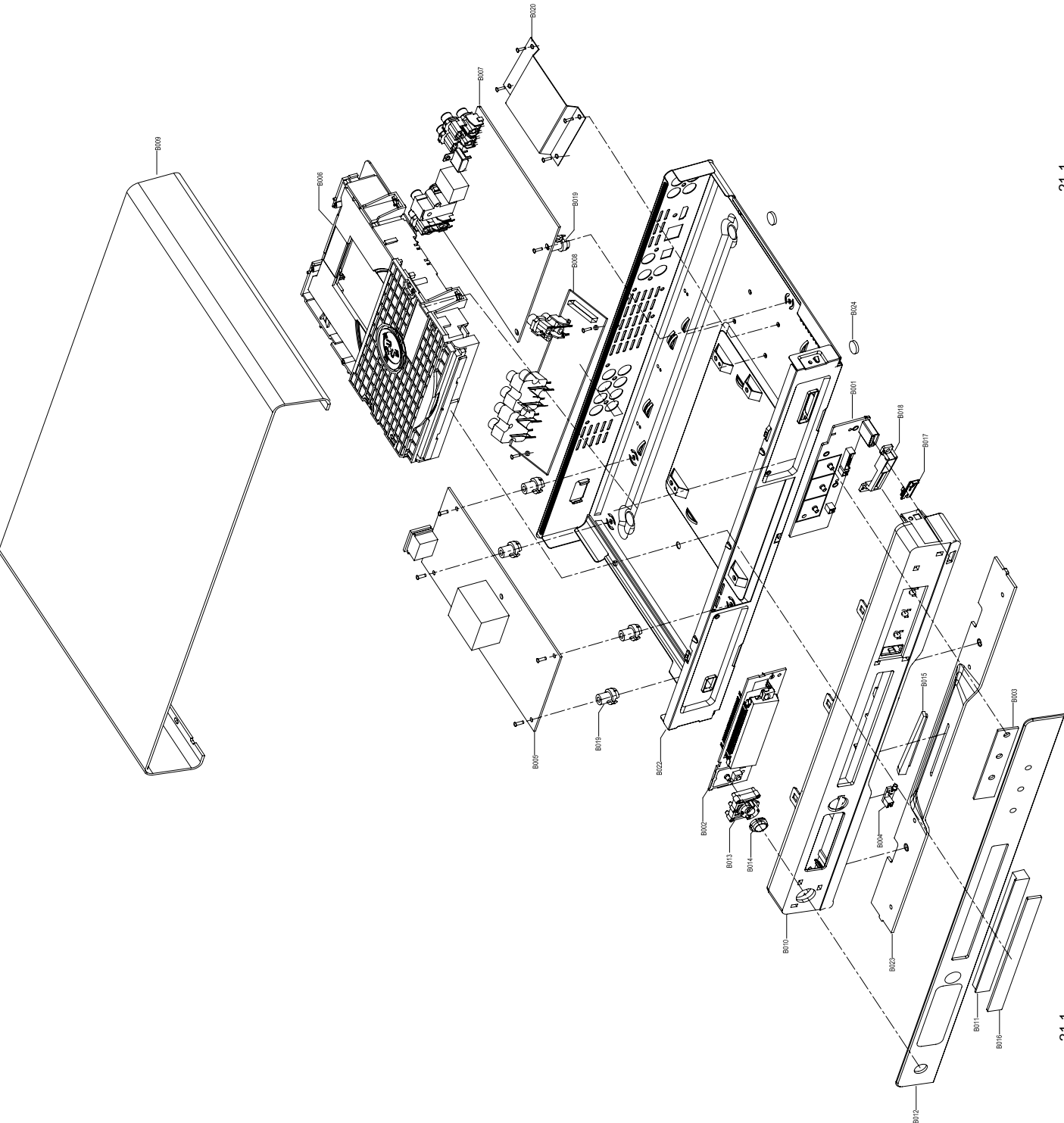


## Main Unit -- Output Board Layout Diagram



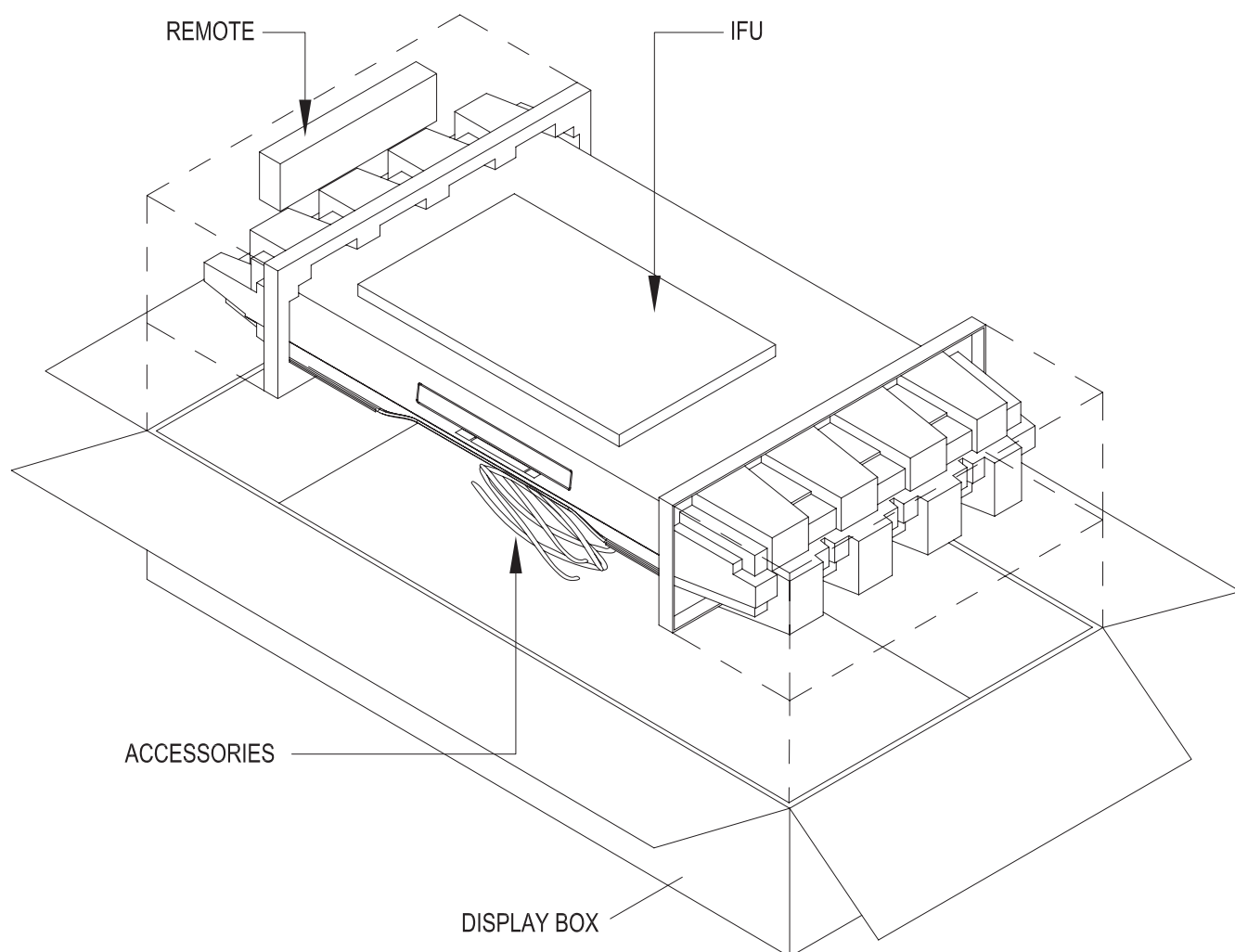
### Bottom Layout Diagram



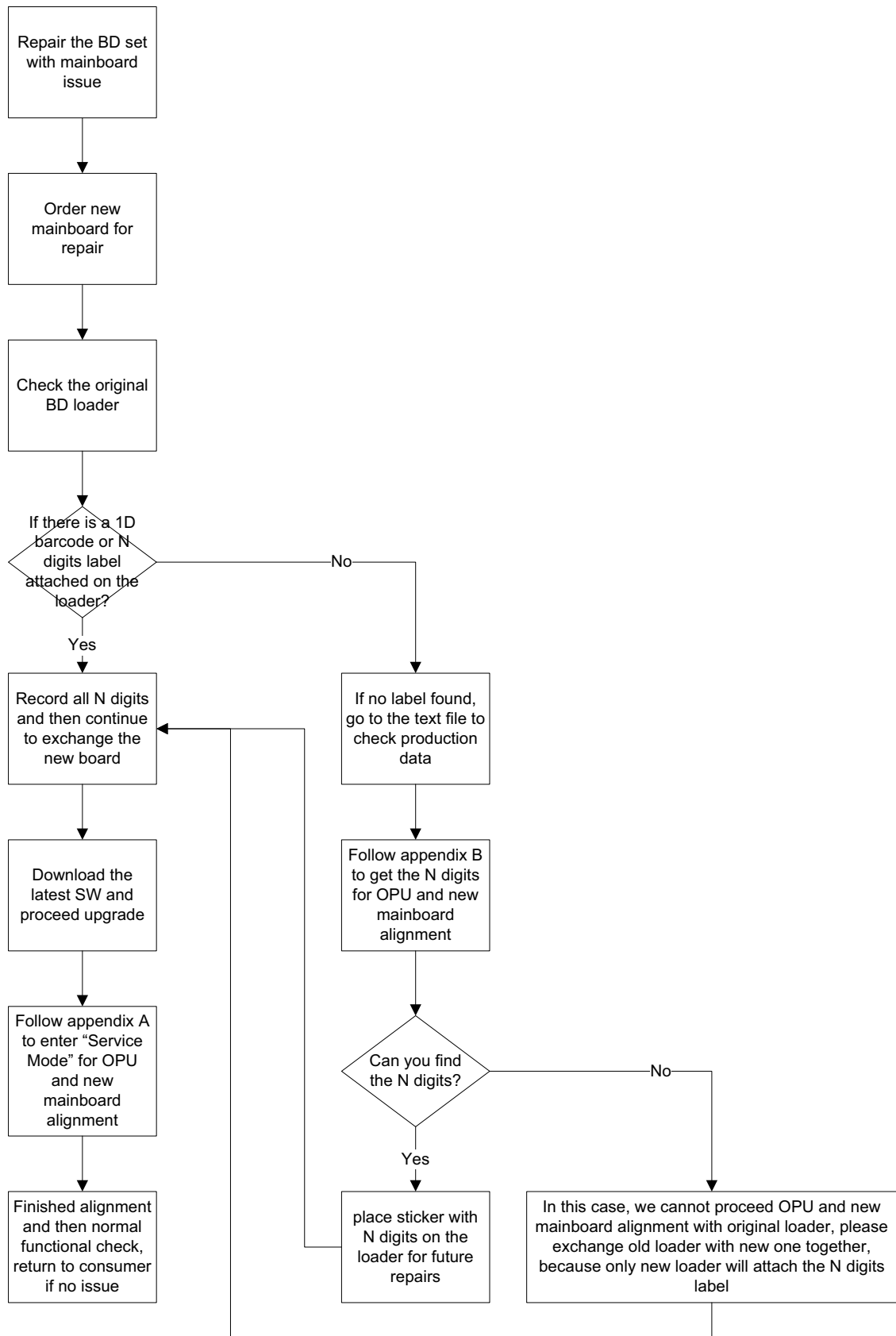




## Packing Exploded View



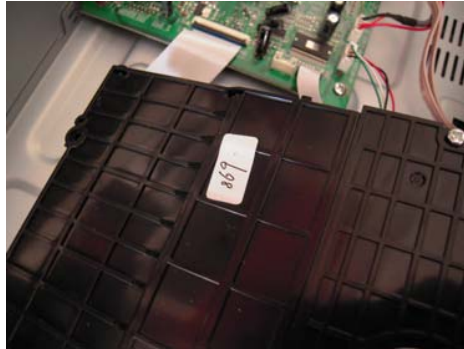
## PACKAGING INSTRUCTION BDP7500S2/B2



**Note:** *N digits can be N=3,6,...*

### **Appendix A – how to proceed OPU and mainboard alignment?**

1. Record the 1D barcode with barcode reader or all the N digits of label attached on the original loader or new loader spare part, for example:



Note: Some sets do not have this label, please follow appendix B to get the N digits from text file and program. After that, place a sticker with “N digits” on the loader for future repairs.

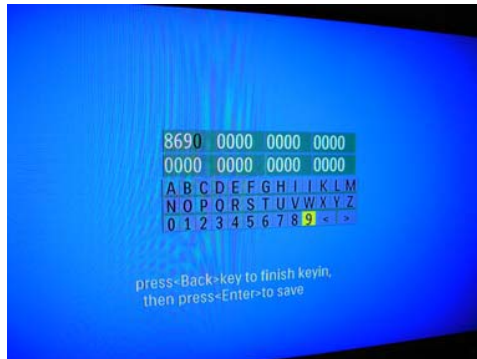
2. Power on the set and connect with TV, press “5” “1” “7” “7” by remote control when in the HOME menu, it will enter a special menu with 6 options. Use “Up” and “Down” button by remote control to select option “[5] Service”



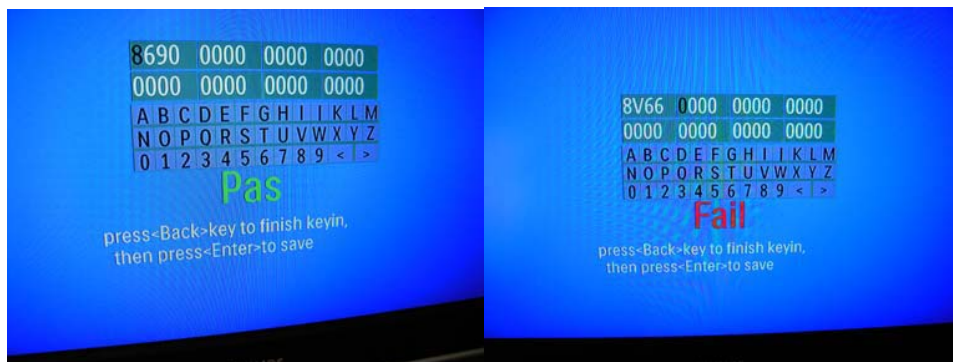
3. When you see this screen, please plug a USB drive. After that press “Enter” to install barcode.



4. Input all N digits by remote control, then press “Back” and then press “Enter” to save the setting.



5. If setting is saved successfully, it will display “Pas” on screen. Otherwise, it will display “Fail” on screen. If “fail”, confirm the N digits information again. (this is like a password, it failed if we input the wrong password)



6. Press “Stop” key on remote control to go back the HOME menu again, and then press “5” “1” “7” “7” by remote control to enter a special menu with 6 options again. Use “Up” and “Down” button by remote control to select option “[6] Laser Check”



7. If the cable is well connected and welded protection point is ok, it will display “Passe” on screen.



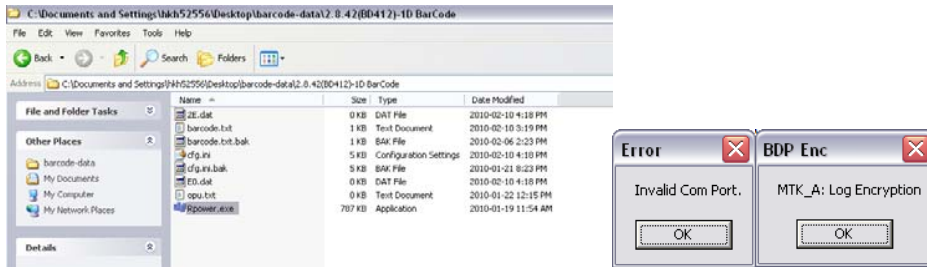
8. Restart the player, test with CD, DVD, BD disc. If ok, the repair procedure is finished!

## Appendix B – how to get the 3 digits from text file?

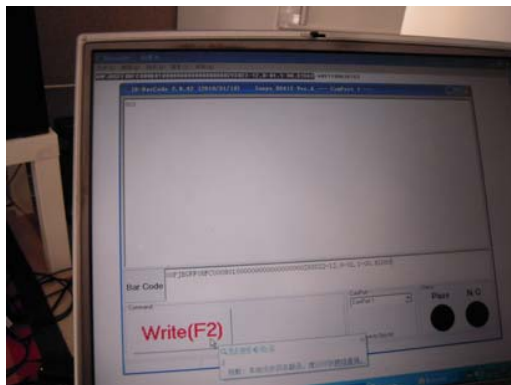
1. Open the text file, search the original mainboard number in order to get the corresponding 2D barcode & digit. E.g. Find board number 4091100636763, then you will get “00PJBGFF08FC0008010000000000000000293022-12.0-01.1-00.81D69-4091100636763”, then the corresponding 2D barcode & digit is “00PJBGFF08FC0008010000000000000000293022-12.0-01.1-00.81D69”



2. Run barcode converter software (Rpower.exe file) on your PC, just press "OK" if you see this pop up message!



- Copy and paste "00PJBGFF08FC0008010000000000000000293022-12.0-01.1-00.81D69" on Bar Code column, Press "Write" button, you will get "N digits" on your PC screen.



4. Place a sticker with “N digits” on the loader for future repairs.

## Revision List

### Revision List

Version 1.0

\* Initial Release

Version 1.1

\* OPU setting alignment procedure added in page 24.