

Cambridge Audio

Service Manual

Azur 752BD Universal Upsampling Blu-ray, DVD & CD player



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Chapter One About Maintenance

1.1 Safety precautions

1.1.1 Power supply When maintenance personnel are repairing players ,he should pay special attention to the power board with ~100V-240V and DC154V-300V which will cause hurt and damage to persons!

1.1.2 When replacing accessories, please remove the power plug from socket to avoid any injures to human body.

1.2 Precautions

1.2.1 Precautions for laser head

1、 Do not stare at laser head directly for laser emission will occur when laser head is working which will hurt your eyes!

2、 Do not use wiping water or alcohol to clean laser head ,and you may use cotton swab.

1.2.2 About placement position

1、 Never place player in positions with high temperature and humidity.

2、 Avoid placing near high magnetic fields , such as loudspeaker or magnet .

3、 Positions for placement should best able and secure.

1.2.3 Electro static precautions

1、 Maintenance facility and working table must be earthed.

2、 Maintenance man must wear electrostatic ring, and he can use antistatic gloves instead when electrostatic ring is unavailable or inconvenient to use.

3、 When repairing accessories, antistatic bag is required to pack the accessory.

1.2.4 Precautions for welding

1、 The soldering tin wire must satisfy the local environmental protection requirement.

2、 Welding temperature must not above 350℃

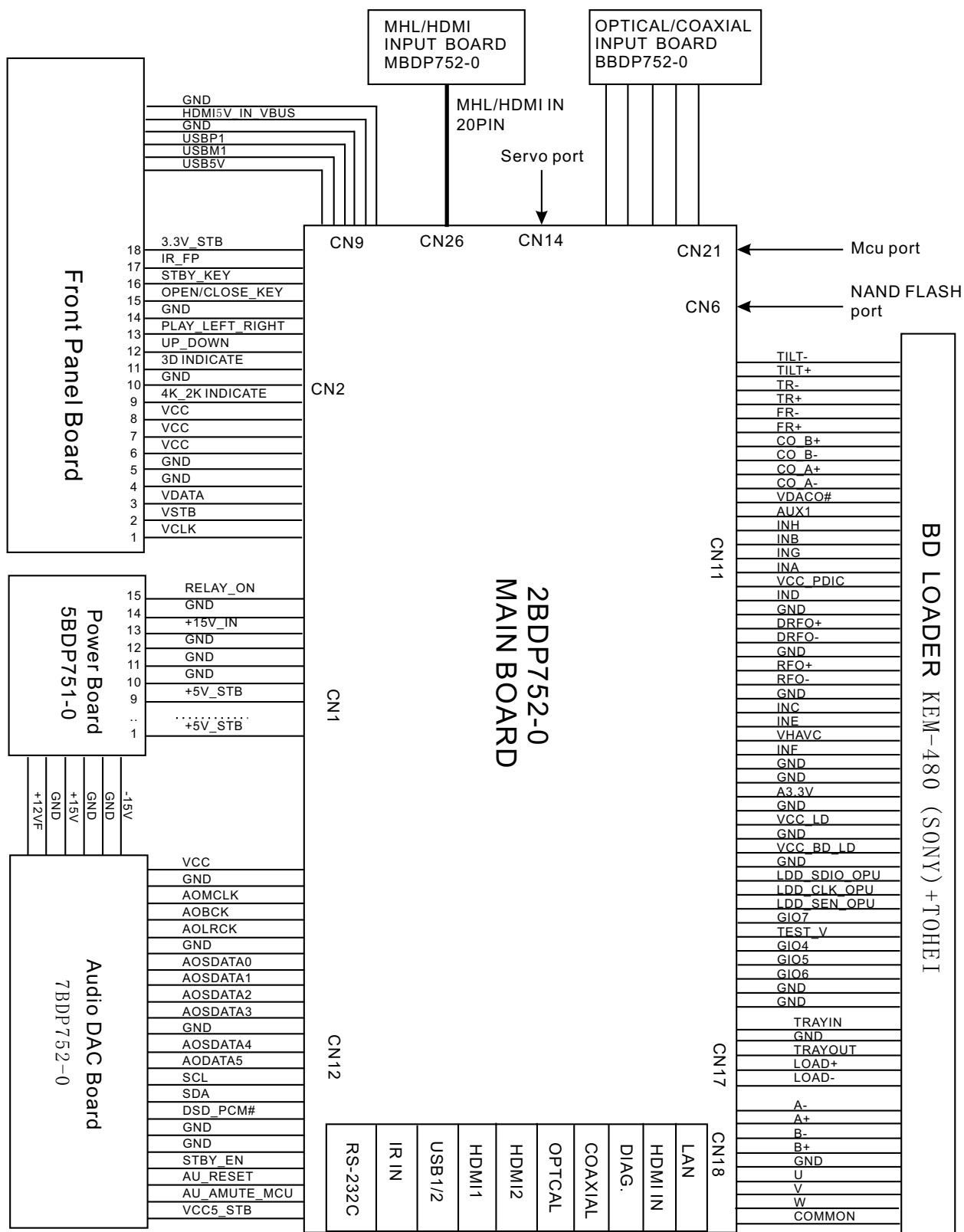
1.3 Required device for maintenance

Digital oscillograph (≥100MHZ) 、 TV set(1080p), receiver (support HDMI) 、 SMD rework station
Multimeter 、 Soldering iron 、 Pointed-pinchers 、 Cutting nippers 、 Forceps 、 Electric screw driver
Terminals connecting cord 、 Test disc etc.

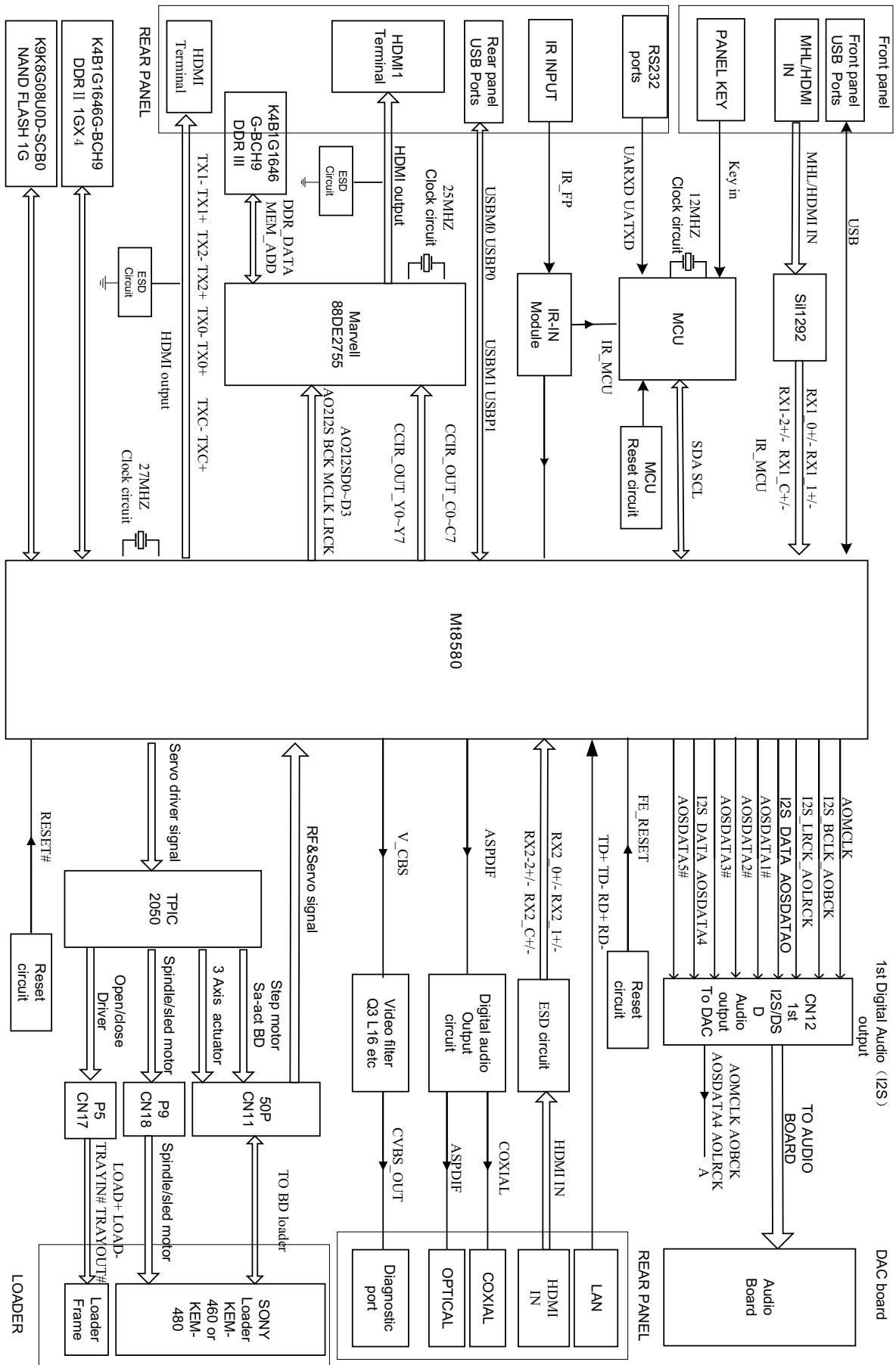
**Note: After replacing loader or main board,
please input BARCODE of the loader to main board again.
For input method, please refer to BARCODE input method on page 20.**

Chapter Two Block diagram and version of player

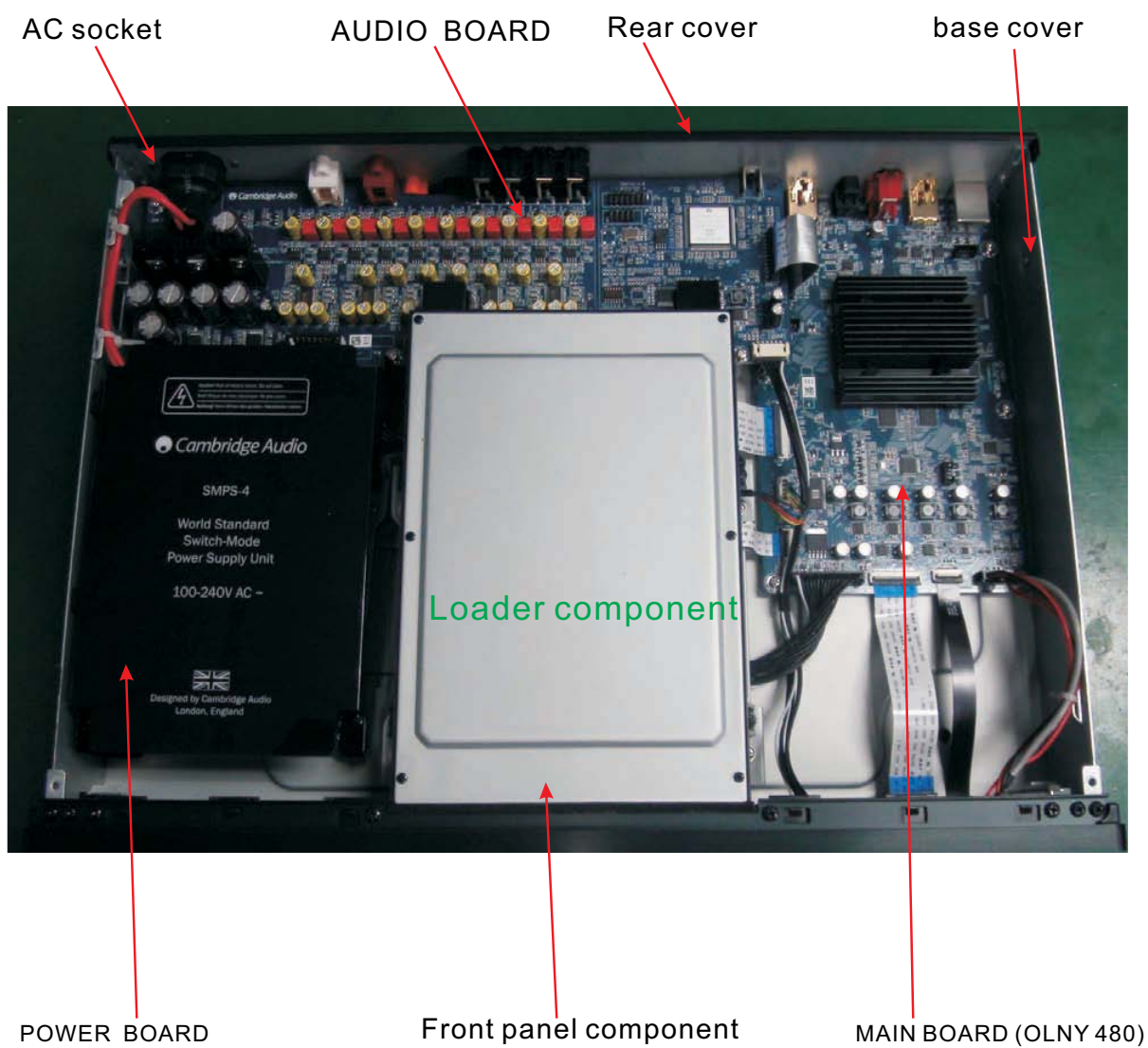
2.1.1 752BD FRAME SCHEMATIC DIAGRAM



2. 2. 1 752BD OVERALL BLOCK DIAGRAM

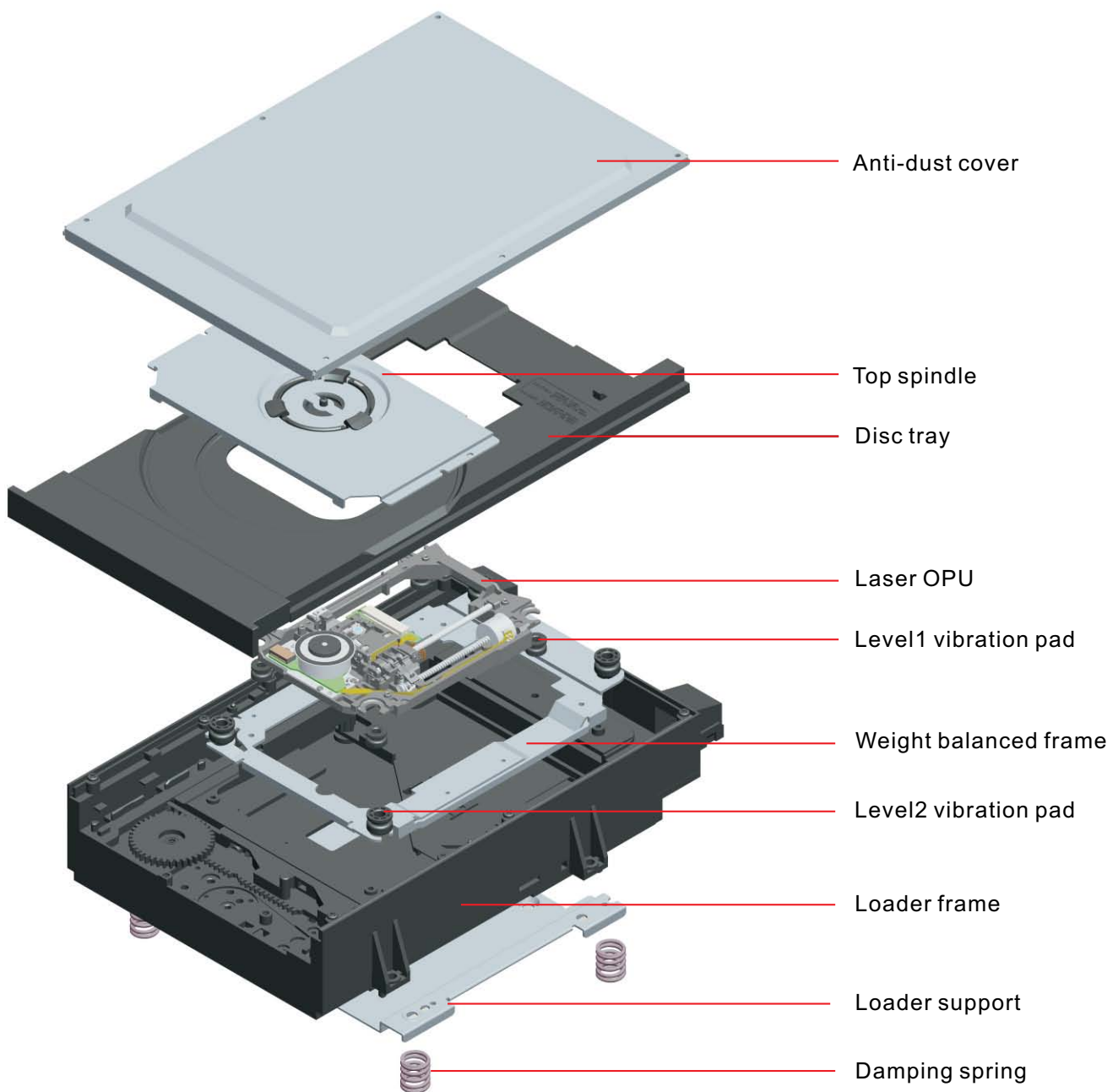


2.3.2 752BD interior image



Chapter III Function module schematics

Section 1 Loader assembly introduction



3.1.1 Servo circuit

3.1.1.1 Servo circuit overview:

752BD player adopts SONY 480 loader and MT8580 decoding scheme. And its servo circuit is mainly composed of decoding chip Mt8580, driver IC tpic2050 and other components.

Please refer to Figure 3.1.1.1 below:

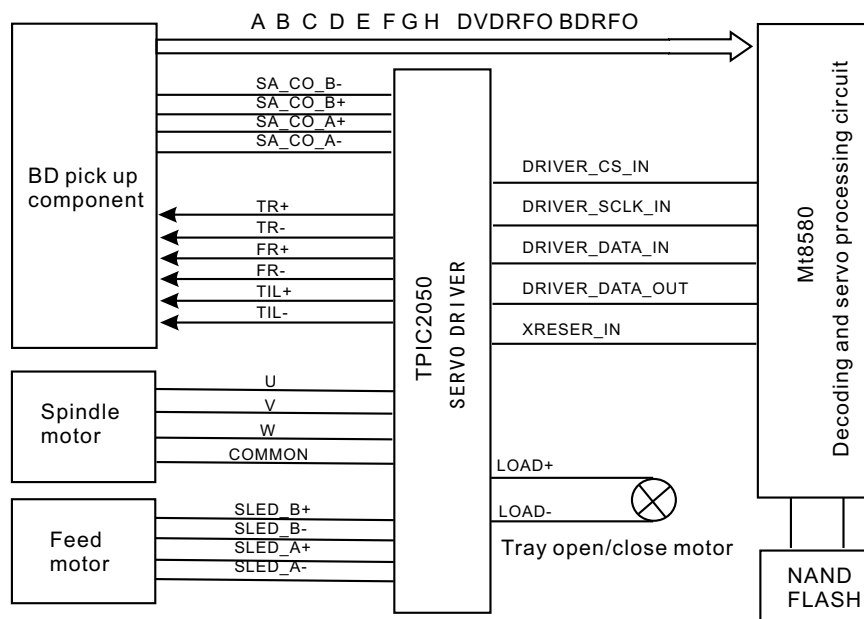


Figure 3.1.1.1 Block diagram of servo circuit

3.1.1.2 Operating principle of servo circuit:

Servo circuit is mainly composed of pick up interface, servo drive, system control and signal processing circuits and servo software (built in NAND FLASH) and other modules.

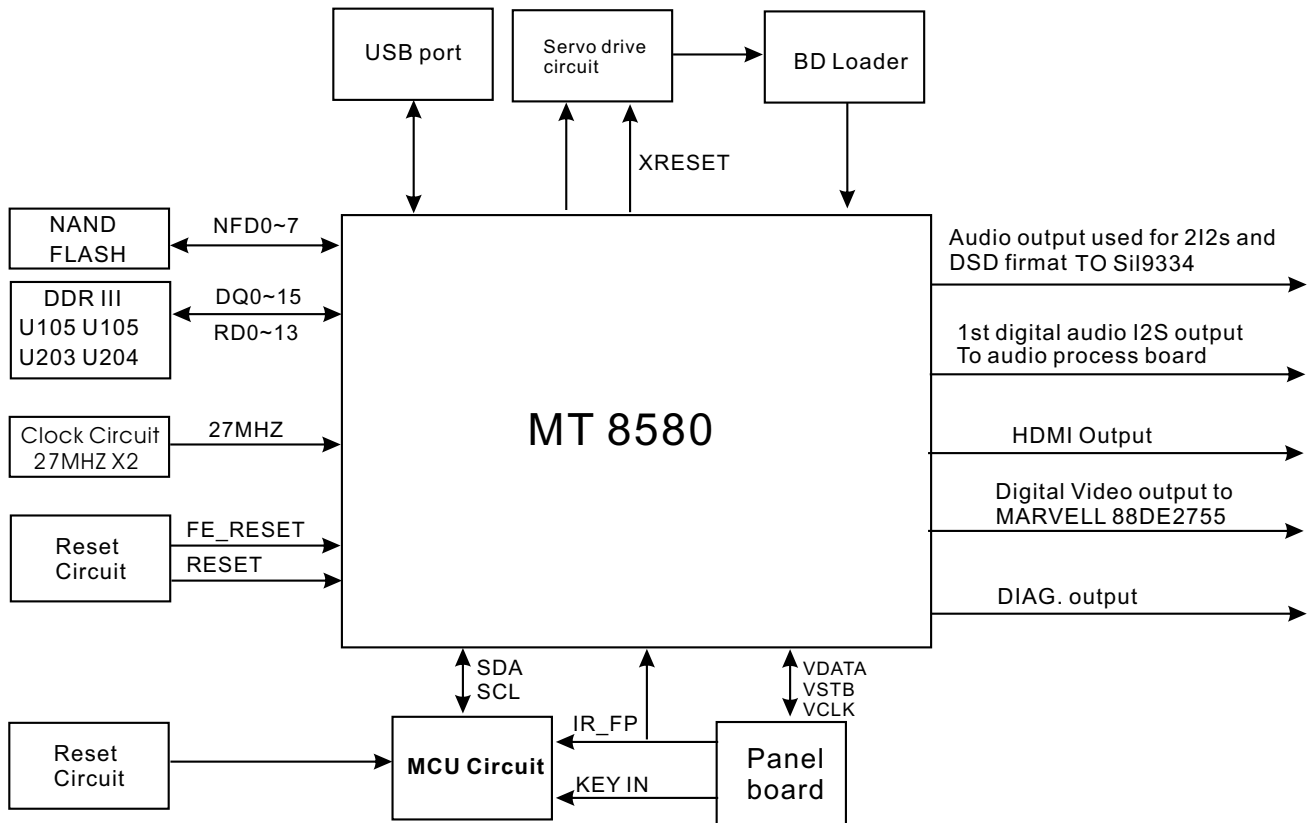
Servo drive circuit: servo drive circuit has one drive group. This group is composed of U2 (TPIC2050) and peripheral circuit which are used to drive spindle motor, focus coil, tracking coi and feed motor. TPIC2050 has servo control circuit and drive circuit built in.

Common servo circuit troubles:

1. Fail to open/close tray door.
2. Fail to load discs for loader driver error.
3. Keep displaying “loading”, “No disc” or “Unkown disc”.
4. Fail to view servo software version in setup menu, loader malfunction.
5. Fail to load disc for poor contact of flat cable that connects the loader.

Section 2 Partial introduction to Main board system

3.2.1. Block diagram of decoding circuit;



3.2.1.1 Block diagram of decode and peripheral circuit

Decoding chip: This player adopts MT8580 as main chip, which includes video decoding, audio processing, memory controller, HDMI transmitter, servo processing, external interface and other modules. It supports 2 channel HD MPEG-2/AVC/VC-1 video decoding, 2 channel multi-format audio decoding, motion-adaptive and edge-preserving de-interlacing, 2D to 3D conversion, 4K up-scaling, dual HDMI outputs, dual HDMI inputs and three USB 2.0 high speed ports, Supported disc formats include BDMV, BDLIVE, SACD, DVD-AUDIO, CD, etc. For detailed features, please refer to IC specifications.

Decoding chip:

Mt8580 mainly includes Video Decode, Audio Processing, Memory Controller, HDMI transmitter, servo Processing, External Interface, HDMI Receiver modules.

Mt8580 can support BD, DVD, and CD playback, including the latest BD-ROM formats, such as BD-Live and BonusView. It features AVC, VC1, and MPEG-2 video decoders that can decompress full high-definition video streams. And for audio decoding, its multi-format decoder is capable of decoding Dolby TrueHD and DTS-HD lossless audio.

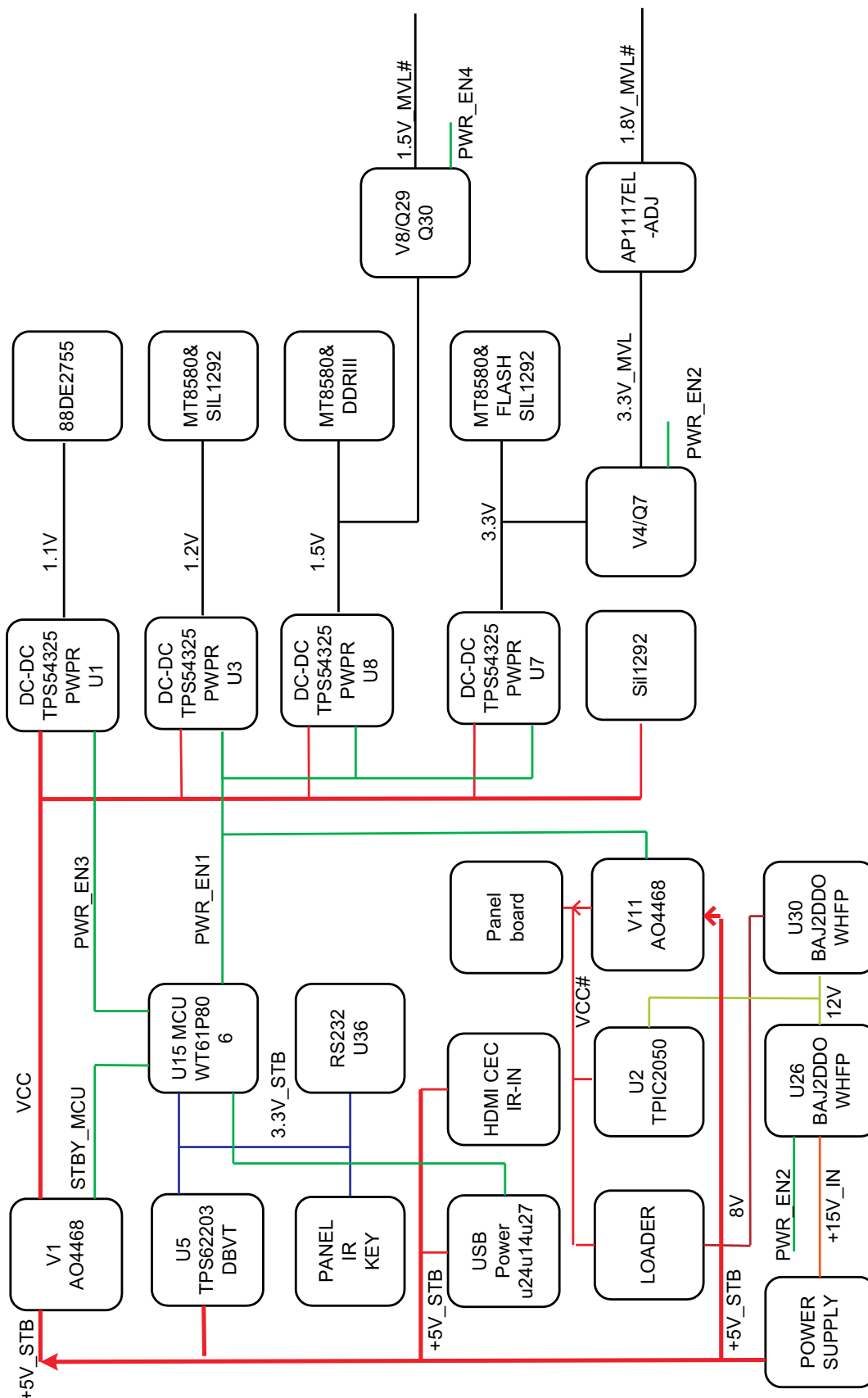
MT8580 is fabricated with advanced silicon process and offers higher CPU performance and more DRAM bandwidth. This SoC also includes a powerful graphics engine and a variety of peripherals, including USB 2.0 ports. To support popular network applications, MT8580 also implements 10/100 Ethernet interface and support WLAN connection thru its USB port.

Besides the connectivity features, audio and video output quality and flexibility is another focus of state-of-the-art Blu-ray devices. MT8580 embeds 4 channels of 148MHz/12-bit video DAC and also an HDMI 1.4 compliant transmitter for 2D/3D video output. And MT8580 also embeds an HDMI 1.4 Receiver for video input. Its audio output via I2S, SPDIF and HDMI can be configured independently. Moreover, MT8580 also supports audio bit stream input from HDMI and SPDIF, which is a key function in the growing Blu-ray HTiB segment

Key Features:

- | | |
|--|--------------------------------|
| ☐ HD H.264/MPEG-2/AVC/VC-1 video decode | HDMI 1.4 output |
| ☐ Dual-channel multi-format audio decode | 148MHz/12-bit, 4 CH TV Encoder |
| ☐ Motion-adaptive, edge-preserving de-interlacing | HDMI 1.4 Receiver |
| ☐ 4185 DMIPS Cortex-A9 CPU x 2 | 3D video output |
| ☐ Mali-400 MP | Ethernet |
| | USB 2.0 |

3.2.4.1 Block diagram of voltage stabilizing circuit, shown in figure 3.2.2.1:



3.2.4 .1 Block diagram of power supply system of main board

Section Three Audio processing circuit

3.3.1 Block diagram of audio signal is shown in figure 3.3.1.1:

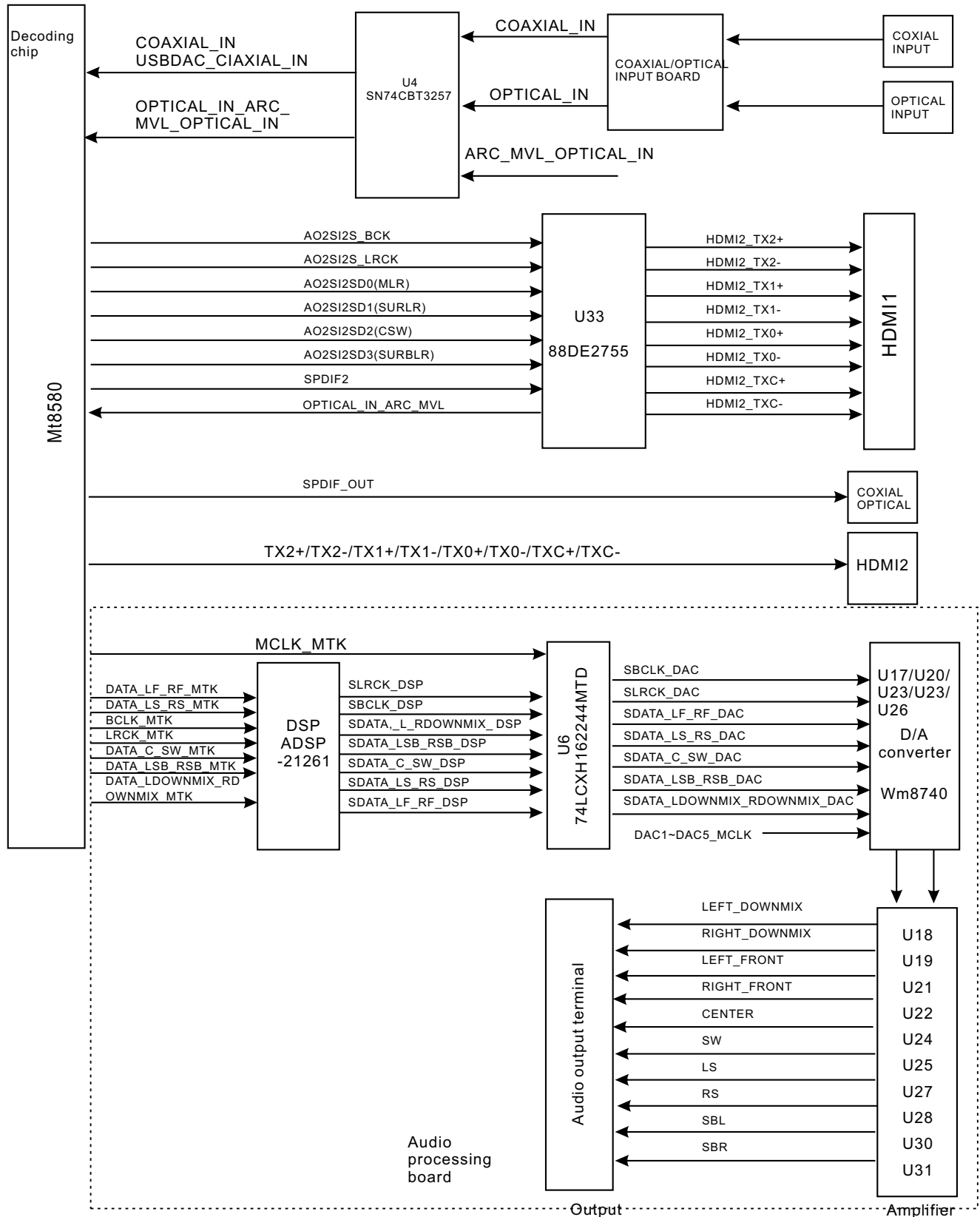


Figure 3.3.1.1 Block diagram of audio signal

Section IV Video processing circuit

3.4.1 Block diagram of video circuit is shown in figure 3.4.1.1:

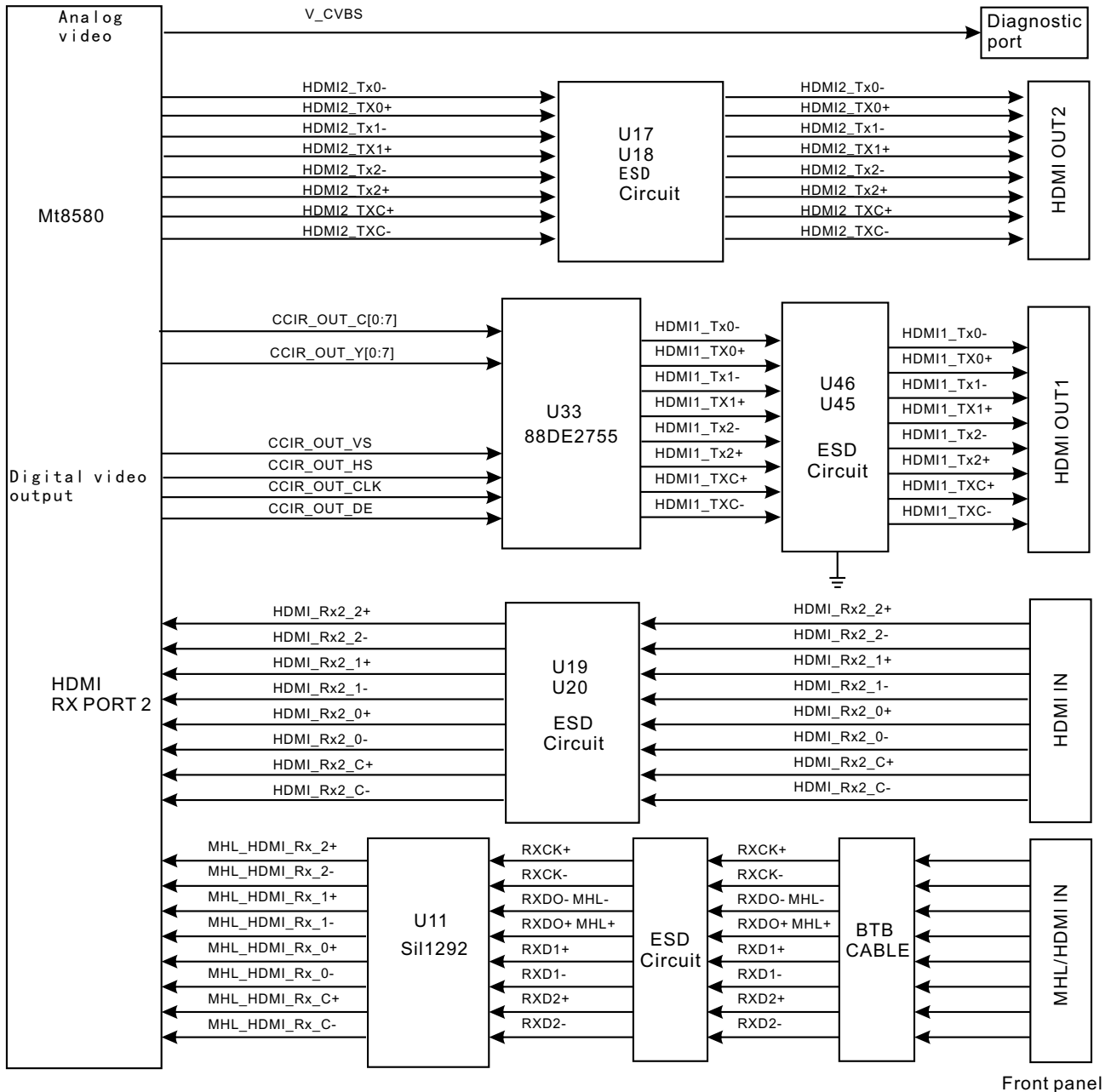


Figure 3. 4. 1. 1 Block diagram of video circuit

Video output

Video output signals are classified into 3 types:

Analog output: Video signal is converted into analog video signal (CVBS) by the DAC built in Mt8580, then processed by video amplification and filter circuits, output through the diagnostic port to a display with composite video input port for troubleshooting.

HDMI output: The digital video interface of MT8580 transmits digital video signal to MARVELL88DE2755 HD video processing chip for format conversion, in which the digital video signal is converted into 36 bit digital video signal. Then the parallel 36bit video signal is encoded into TMDS signal, and in the mean time digital audio signal output from Mt8530 is also encoded into TMDS. 88DE2755 also has HDCP encryptor built in. The TMDS signal output from 88DE2755 is transmitted to HDMI 1 for output. For protection of HDMI 1 port, the circuit also has anti-ESD IC included. For HDMI 2, video signal is processed into HDMI signal by the MTDS circuit built in Mt8580 and output via HDMI 2 output port.

Video output circuit issues mainly include no video output and output video signal distortion.

HDMI/MHL input

Mt8580 incorporates two sets of HDMI input; one HDMI input port locates on the rear panel and goes directly into MT8580's HDMI input port. For compatibility with MHL port of mobile device, a MHL/HDMI conversion IC (sil1292) is added to the other HDMI input port (on the front panel).

Mobile High-Definition Link (MHL) is a proposed industry standard for a mobile audio/video interface for directly connecting mobile phones and other portable consumer electronics (CE) devices to high-definition televisions (HDTVs) and displays. The MHL standard features a single cable with a low pin-count interface able to support up to 1080p high-definition (HD) video and digital audio while simultaneously charging the connected device

New features of HDMI 1.4

1. HDMI Ethernet Channel (HEC). It allows a 100 Mbit/s Ethernet connection between two HDMI connected devices so they can share an Internet connection. This feature hasn't been implemented on BDP103.

2. Audio Return Channel (ARC). BDP103 has implemented this feature.

3. HDMI 3D. BDP103 has enabled this feature as well as 2D-to-3D conversion.

4. Higher resolution support. HDMI 1.4 increases maximum resolution support to 4K × 2K, i.e. 3840 × 2160p (Quad HD) at 24 Hz/25 Hz/30 Hz or 4096 × 2160p at 24 Hz

Chapter V Other circuits of main board

3.5.1 Block diagram of external input interface as shown in 3.5.1.1:

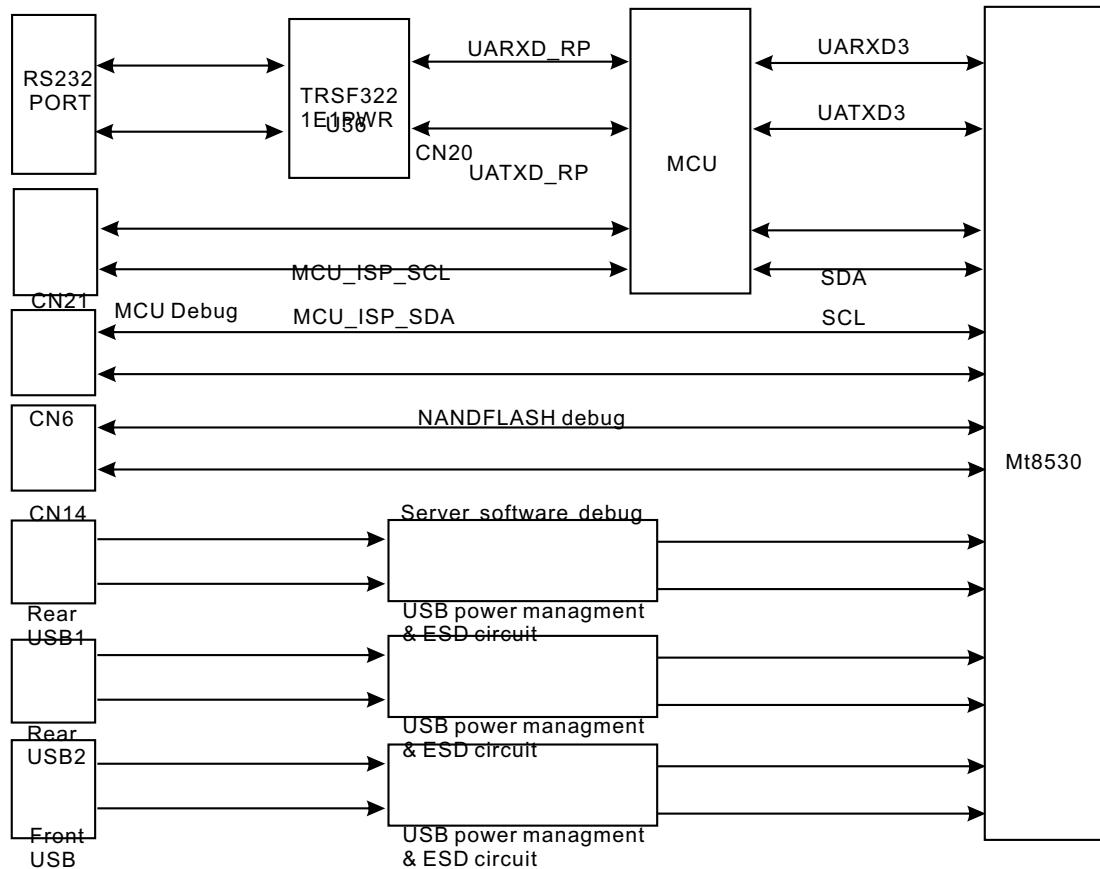


Figure 3.5.1.1 Block diagram of external input interface

RS232: On the player, RS232 is mainly used for remote control circuit, allowing external control system to control the player via RS232 port.

Cn21: MCU Debug port

Cn6: NANDFLASH Debug port

Cn14: Servo software Debug port, barcode input port

USB: 3 sets of USB interfaces for external USB devices (WIFI adapter is connected via USB)

Section VI Panel and button control circuits

3.6.1: Block diagram of panel circuit:

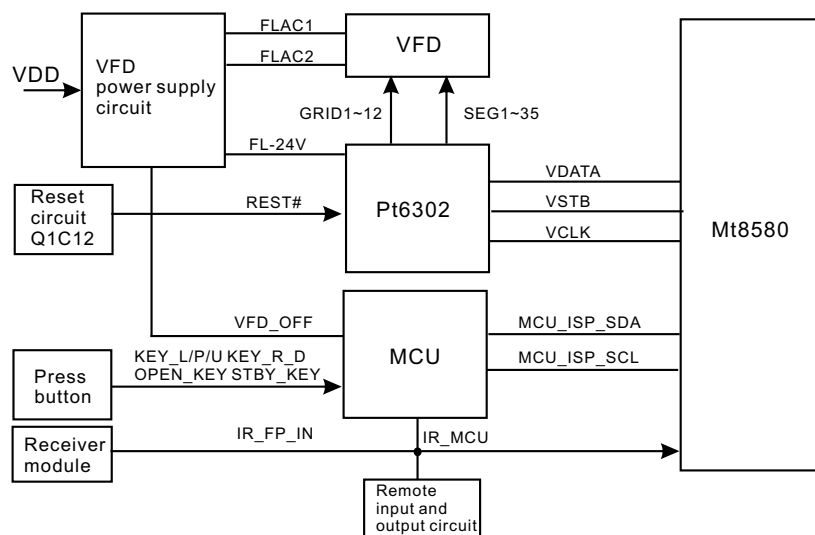


Figure 3.6.1.1 Block diagram of panel

Section 7 Power supply circuit

3.7.1 Block diagram of power supply circuit is shown in figure 3.7.1.1:

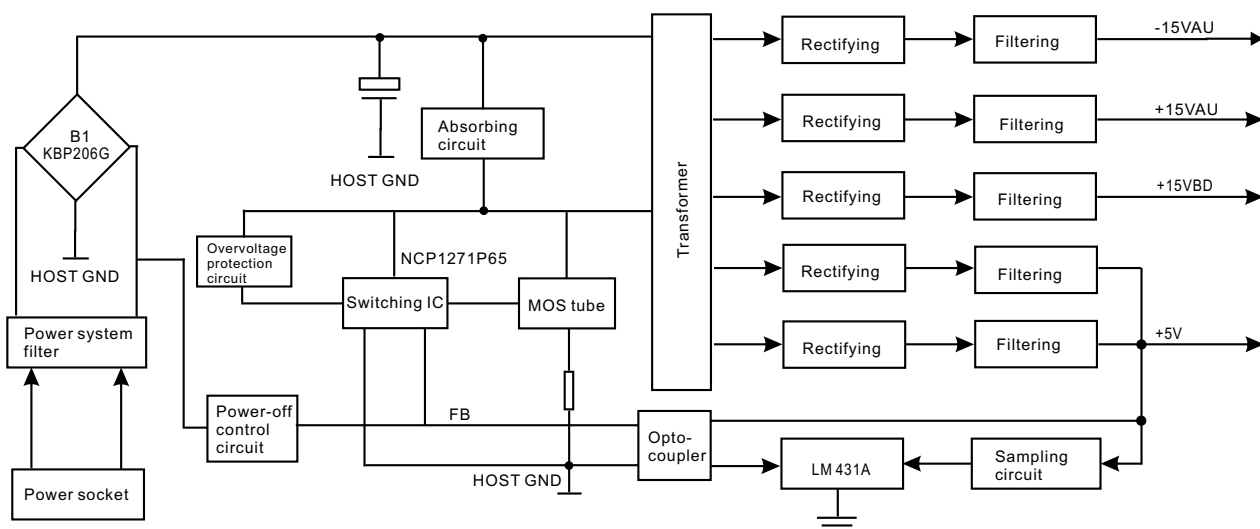
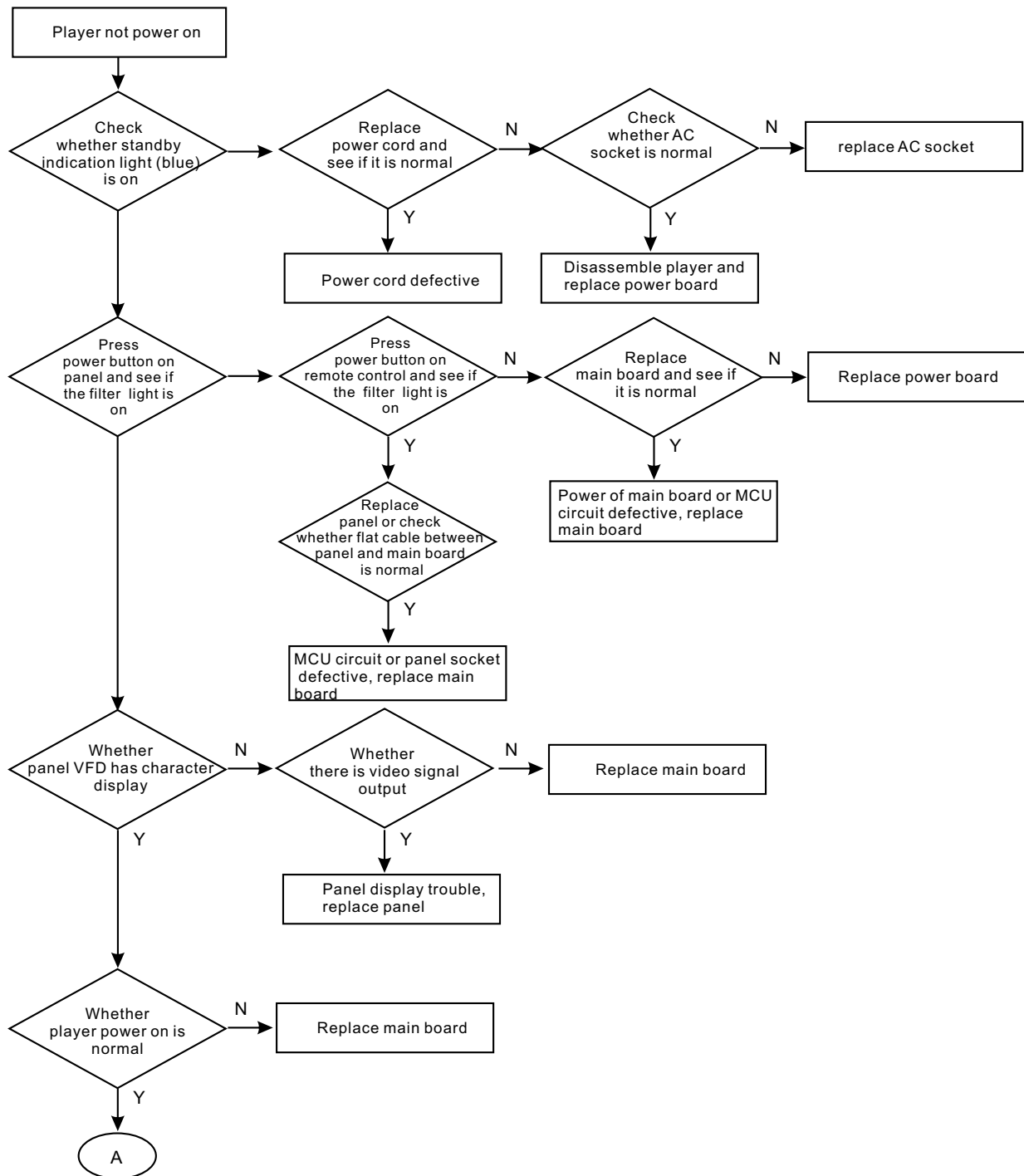


Figure 3.7.1.1 Block diagram of power circuit

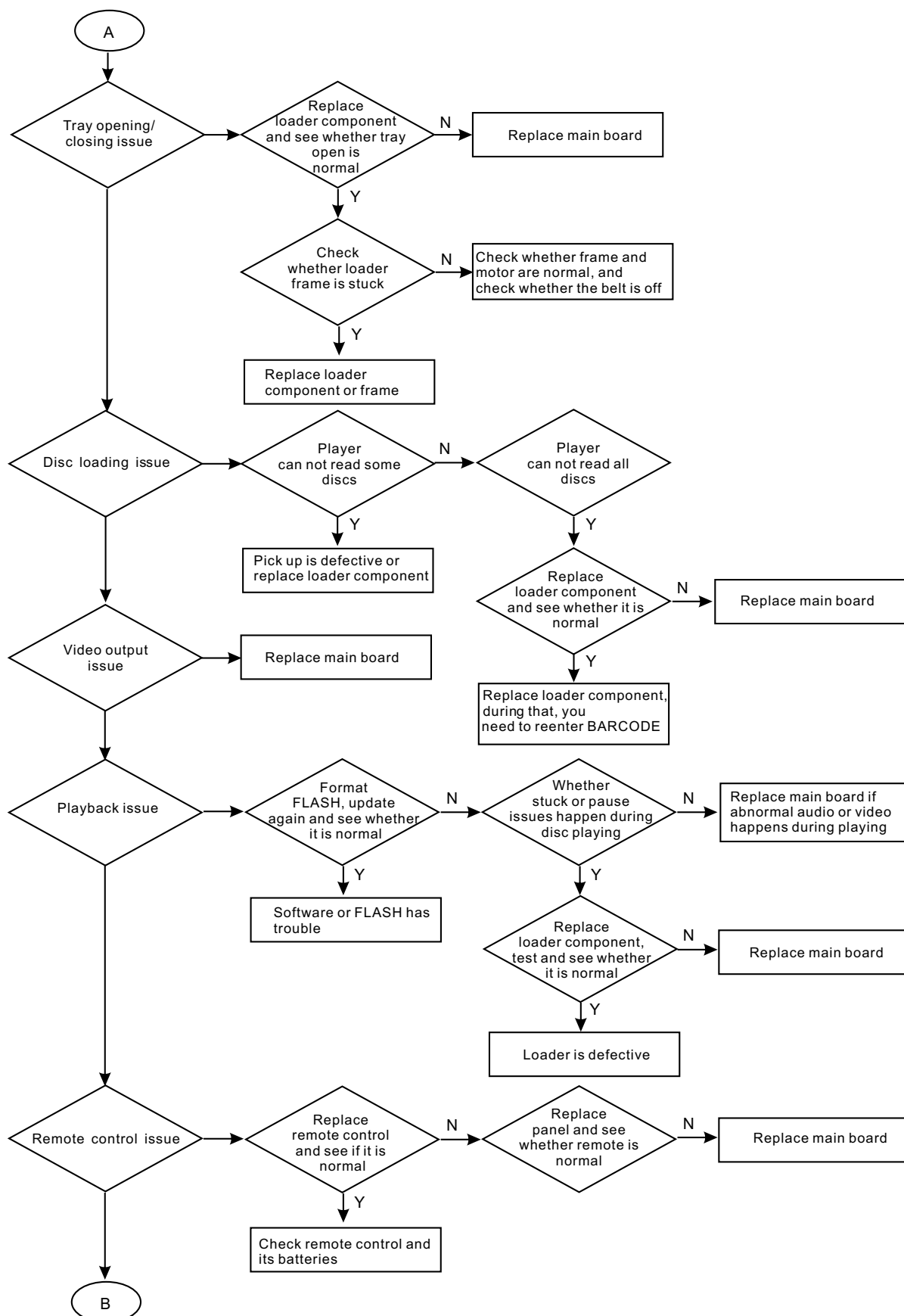
Chapter Four Troubleshooting flow chart and cases

Section One Troubleshooting flow chart

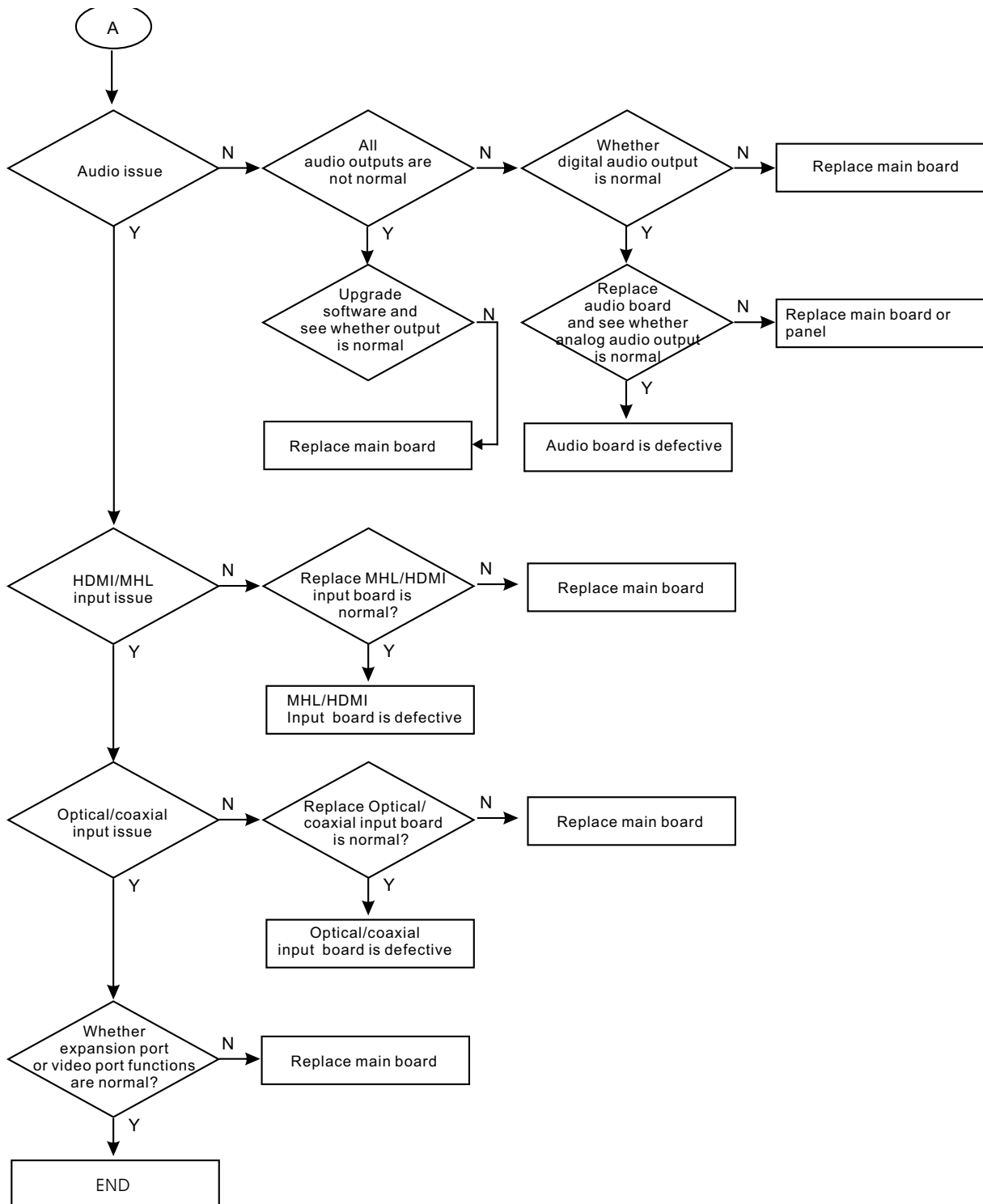
Troubleshooting flow chart of Power Not On



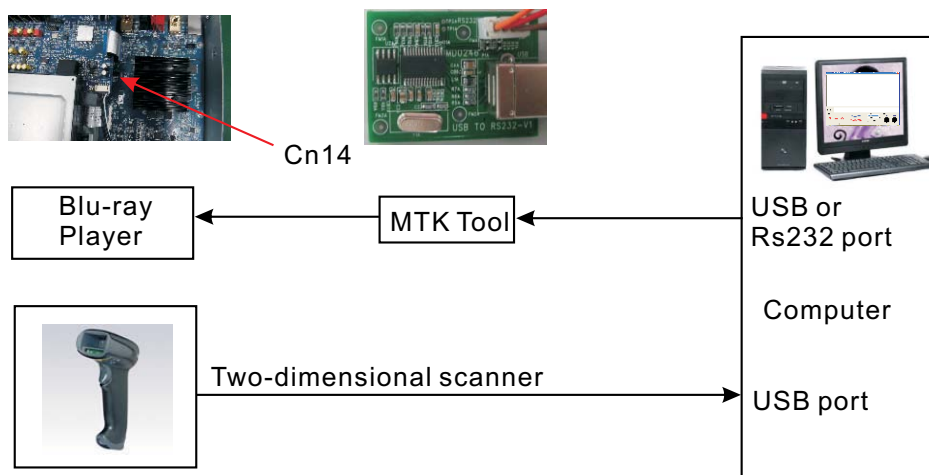
Troubleshooting flow chart of “tray open/close, disc reading, play, remote control”



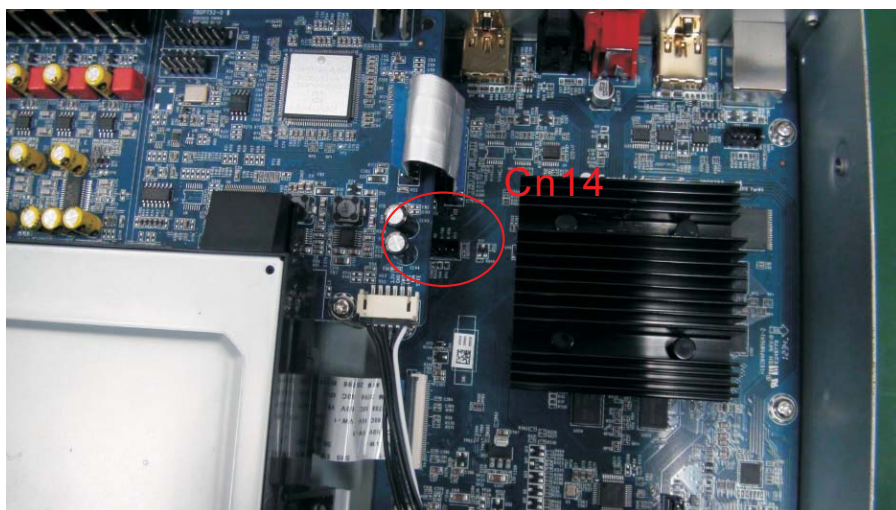
Troubleshooting flow chart of “audio and panel display troubles”



Install Barcode

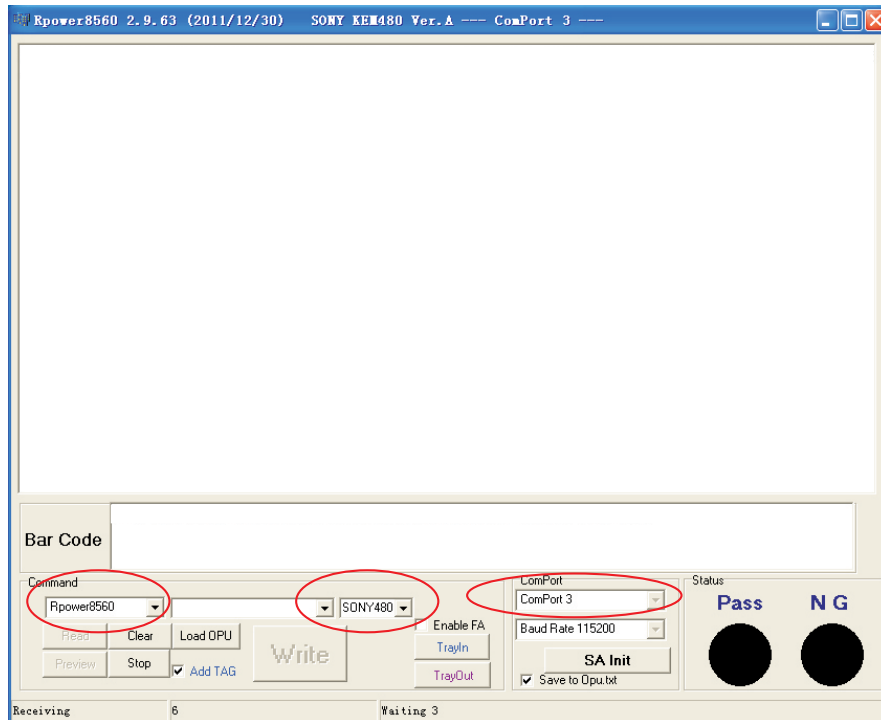


Block diagram of barcode entry device connection



1. After replacing main board or loader assembly, it is required to reinstall barcode.

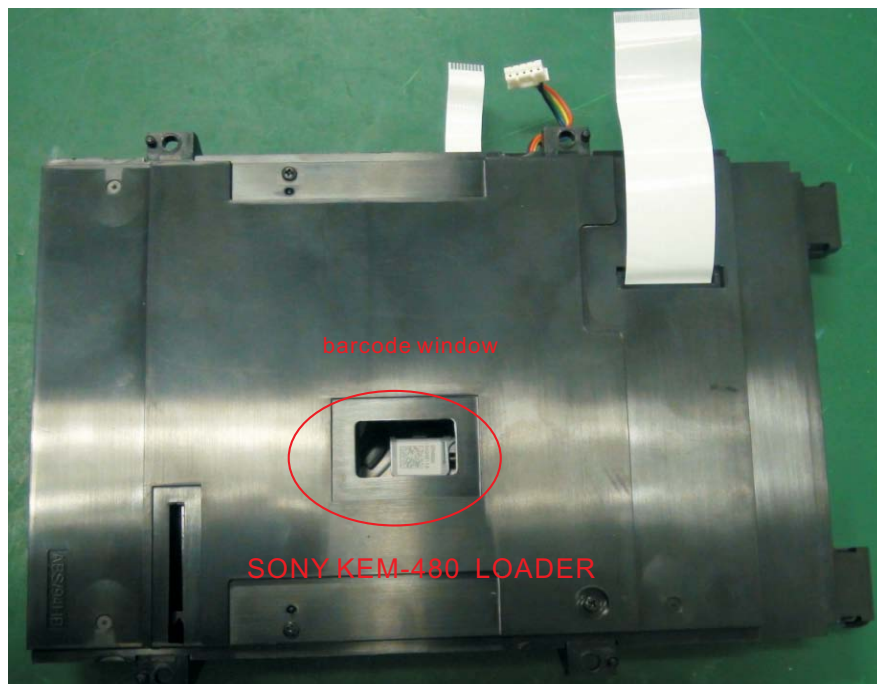
Before the barcode is install, the main board and the loader should not be connected. Connect the player, PC, two-dimensional scanner and upgrading tools following the diagram above. Mtk tool should be connected to Cn14.



2. Activate the predetermined Rpower_2.9.63(KEM480) software on PC.

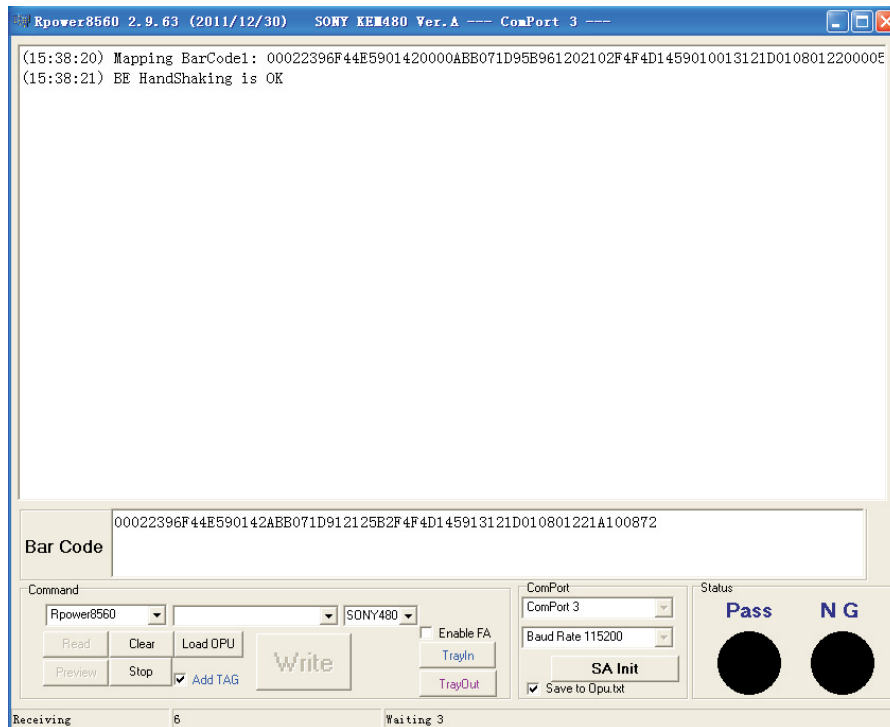
Set up the software according to device model.

- 1) Select the appropriate COM port according to the connecting port of the MTK tool.
- 2) Select "RPOWER 8560" for "Command". Select the loader employed by the device (SONY 480).

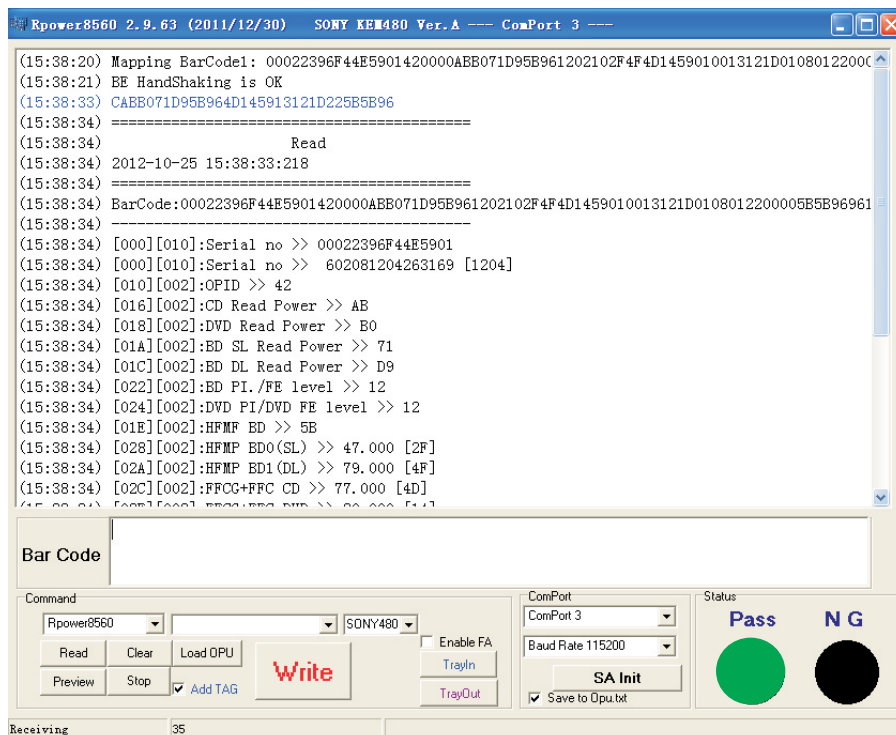


3. Use the scanning gun to scan the two-dimensional barcode. (Find the reserved scanning window in the bottom of the loader)

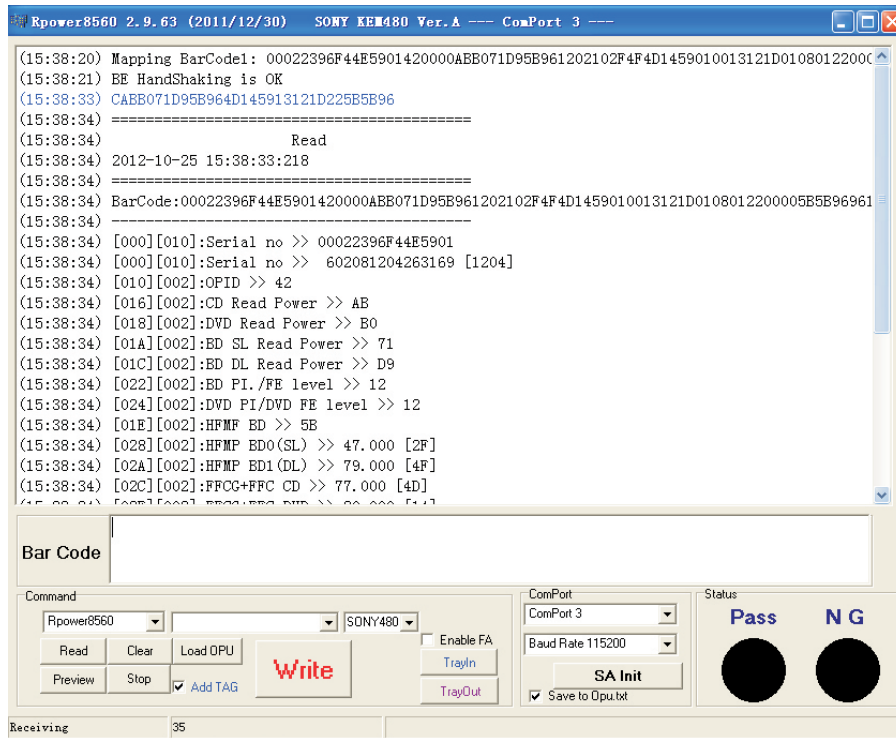
Note: If the barcode label cannot be seen from the window, connect the loader cable to the main board and power the device on, then the OPU will automatically reset to the initial position and reveal the barcode label.



4. The Barcode will be displayed on the PC software interface after successfully scanned. The barcode consists of 64 digits and alphabets.



5. Select 'WRITE', and after the barcode input is successfully completed, the PASS light will turn green and last for a few seconds and logs will be displayed.



6. The PASS light will go black again after the few seconds, indicating the process is completed.



7. Reinstall the flat cable of the loader properly, power the device on and test it. Input the barcode again, the tray open/close automatically, and a self-detection will be conducted. If the FA test menu appears, you can skip this test by pressing the Stop key.

Note:

- 1) Please check the device connections if NG or FALL happens during upgrading.
- 2) The device should remain on during upgrading, and powering off and standby should be avoided.
- 3) Do not connect the loader or conduct reading test before barcode input is successfully done.

Precautions for Player Disassembly and Reassembly

Some components cannot be directly disassembled or reassembled due to the structural design. Please follow appropriate procedures.



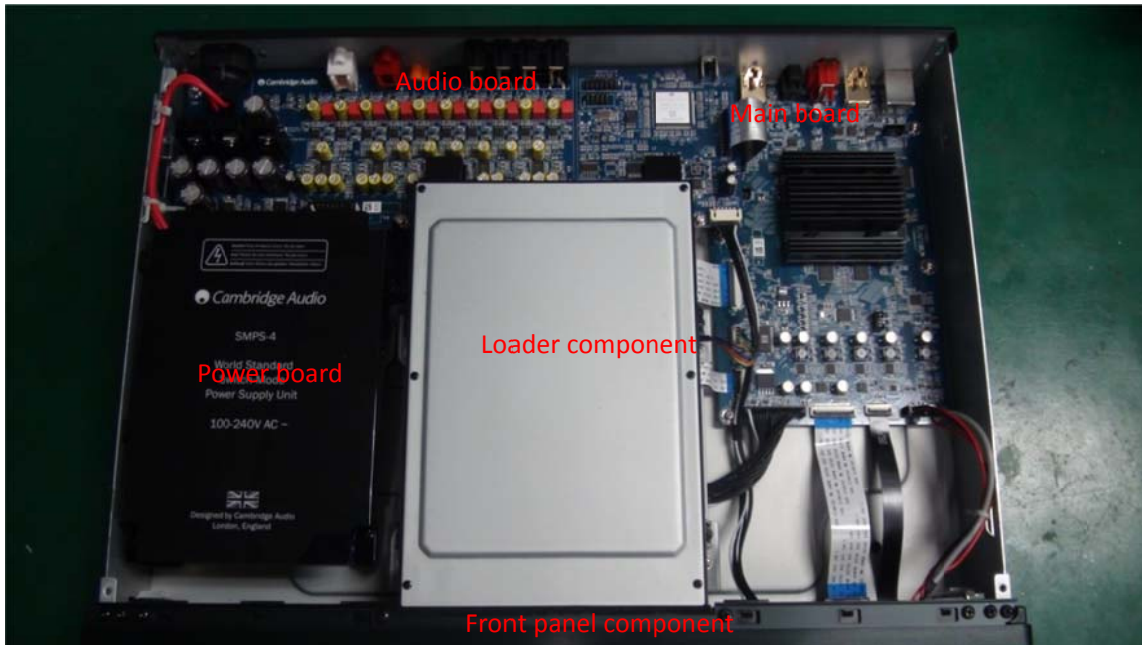
Main tools required for disassembly

1. Remove the top cover

Place the product on the work table. use a screwdriver to remove the 4pcs screws (PWT3*6*7) that fix the rear cover and the top cover and the 4pcs screws (PWM4*5*10) that fix the top cover and the bottom cover at the side of the top cover.



2. Internal structure of the unit

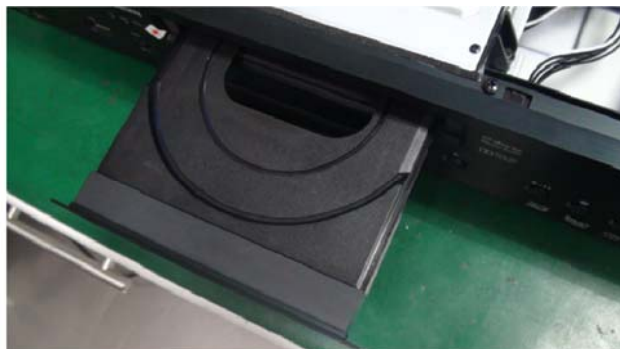


Top View

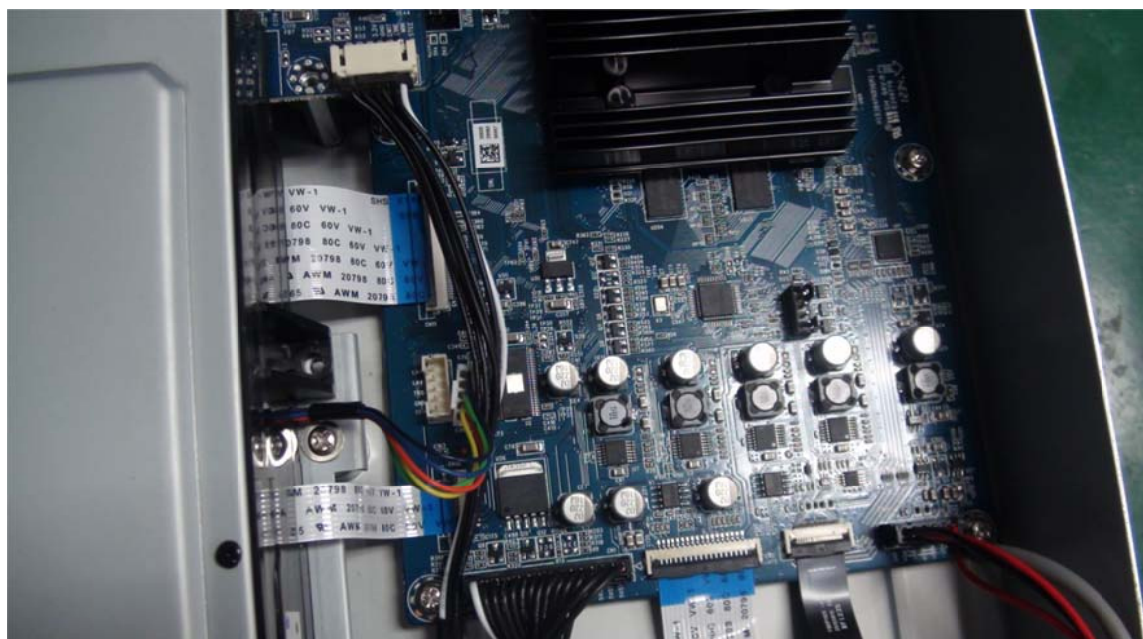
3. Replace the loader assembly

3.1 Loader assembly replacing flow:

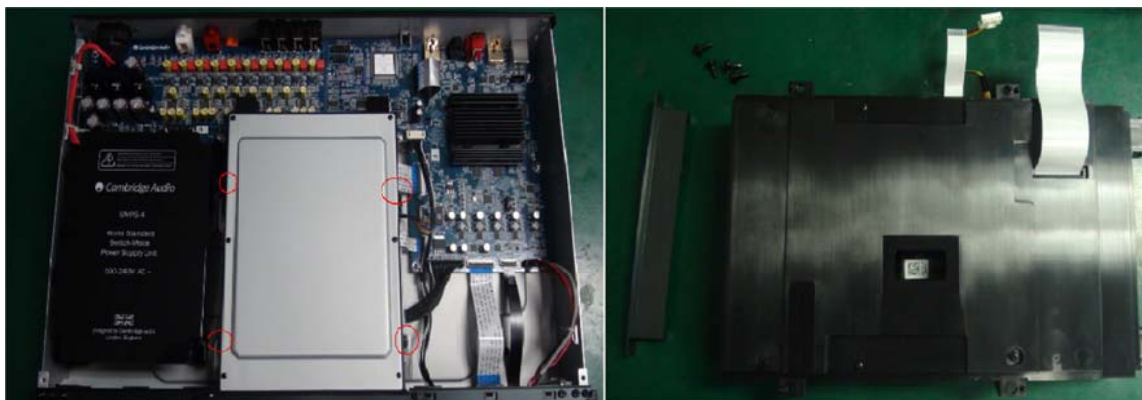
Remove the tray door——Disconnect the flat cable connecting the loader to the main board——Remove the 4 screws holding the loader assembly——Take off the loader assembly——Install a new loader assembly, ——before which please follow the *Barcode Installation Guide* to input the new loader's barcode into the main board——Connect the flat cable of the loader——Power the device on and test its function——Reinstall the tray door——Adjust the tray door and screw the loader screws back in——Install the top cover——Position the top cover.



3.2 Power on the device and take off the tray door. If the device won't power on or open the tray, please open the tray manually using the manual tray opening window in the base of the device.



- 3.3 Then disconnect the three flat cables connecting the main board to the loader assembly. Do not pull off the flat cable directly. Open the cover of the socket and flip it up by 90 degrees, and then the cable can be disconnected.



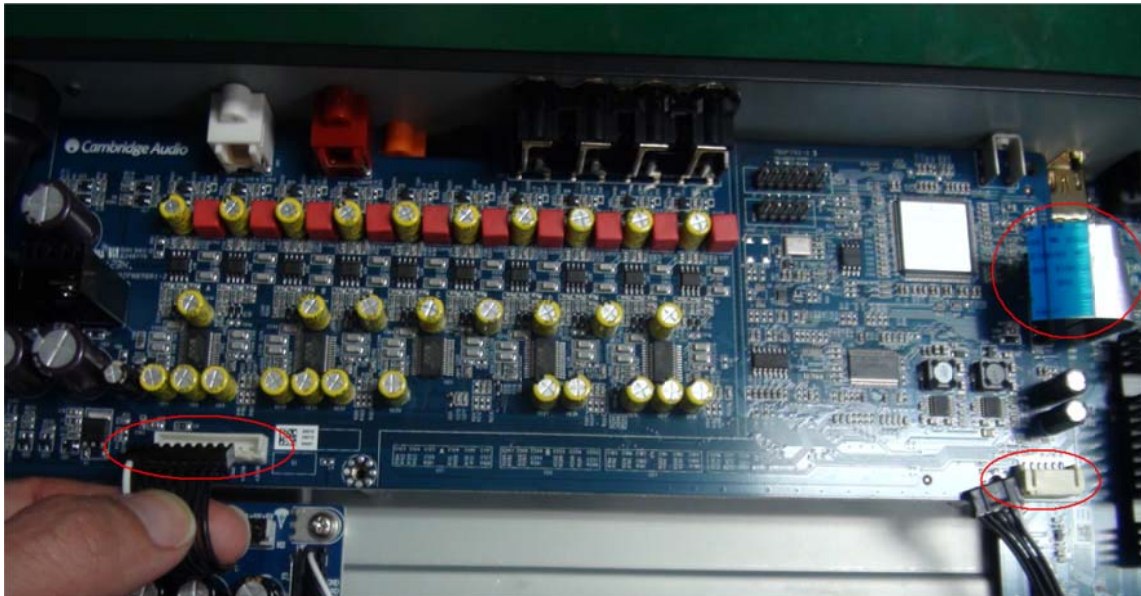
- 3.3 Use the electric screwdriver to remove the 4 screws holding the loader assembly, Takeoff the loader assembly

3.4 Precautions for loader assembly:

- 3.4.1 After loader replacement, do remember to input the new loader's barcode following the Barcode Installation Guide.
- 3.4.2 When connecting the 50P flat cable, please flip the socket cover up by about 90 degrees, and keep the cable parallel with the socket while plugging it in. Avoid skew, and ensure it's in position. A black mark line on the cable can be taken for reference. Please refer to the left figure.
- 3.4.3 After loader and tray door installation, check if the tray door is placed at the center. If the tray door is inclined, protruding or depressed, please use the Philips head screwdriver to re-fix the loader and adjust the tray door to the center position. If the tray door is higher or lower than demanded, adjust it via the loader bracket screws.

4 Remove the audio board

Hindered by the loader and the rear panel, the audio board cannot be removed directly. Remove the loader or the rear panel before taking off the audio board.



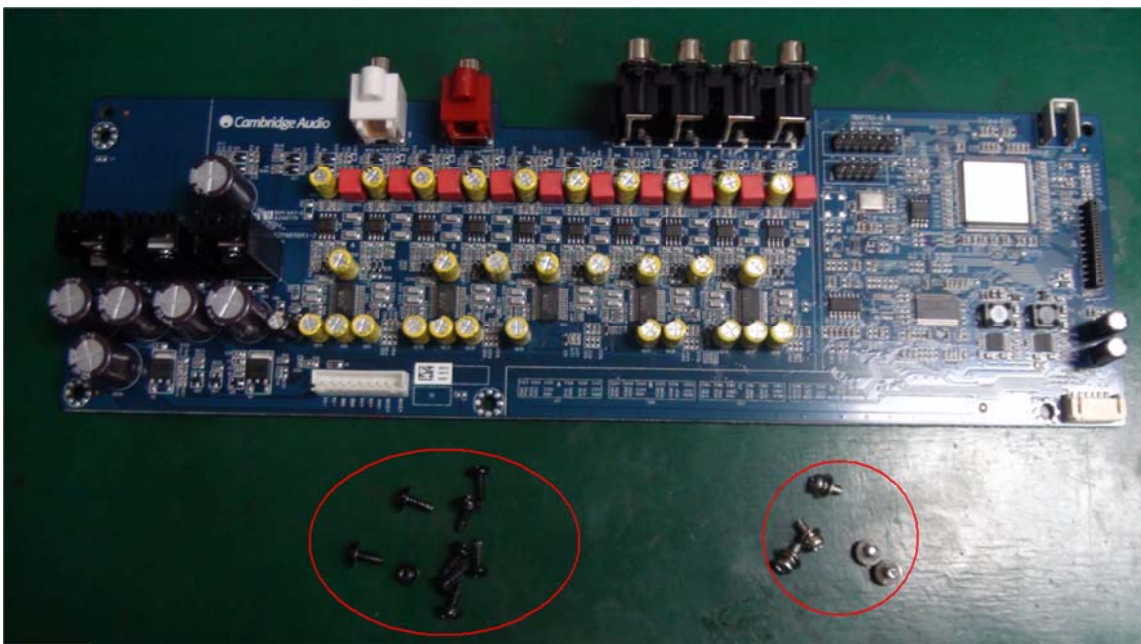
4.1 Remove the screws holding the PC sheet of the power board, flip up the PC sheet, and take off the cable connected to the audio board.



4.2 Use the electric screwdriver to remove the screws (8pcs BT3*8H) holding the 7.1ch terminals in position.



4.3 Use the electric screwdriver to remove the screws (6pcs PM 3×7H) holding the 7.1ch audio board in position inside the device.



audio board removal completed

4.4 Precautions for audio board disassembly and reassembly

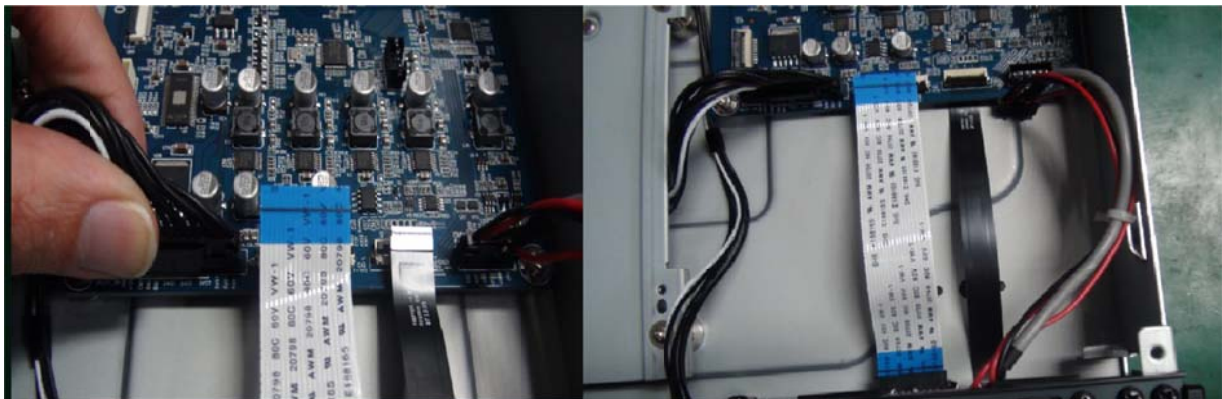
- 4.4.1 Do not make the torque too strong. Please use proper torque.
- 4.4.2 When connecting or disconnecting the flat cable, please ensure it is completely aligned to the terminals, or the flat cable might get damaged.
- 4.4.3 When disconnecting the flat cable that connects the audio board to the power board, note that the PC sheet of the power board will hinder. Remove a screw holding the PC sheet, flip up the PC sheet, and then disconnect the flat cable.

5. Replace the main board

5.1 Main board replacement flow:

Remove the top cover——Remove the loader assembly——Remove the audio board——Disconnect all the flat cables connected to the main board——Remove the screws holding the main board——Replace the main board——Re-input the loader barcode——Install the cables and test——Install the loader——Install the audio board——Install the top cover

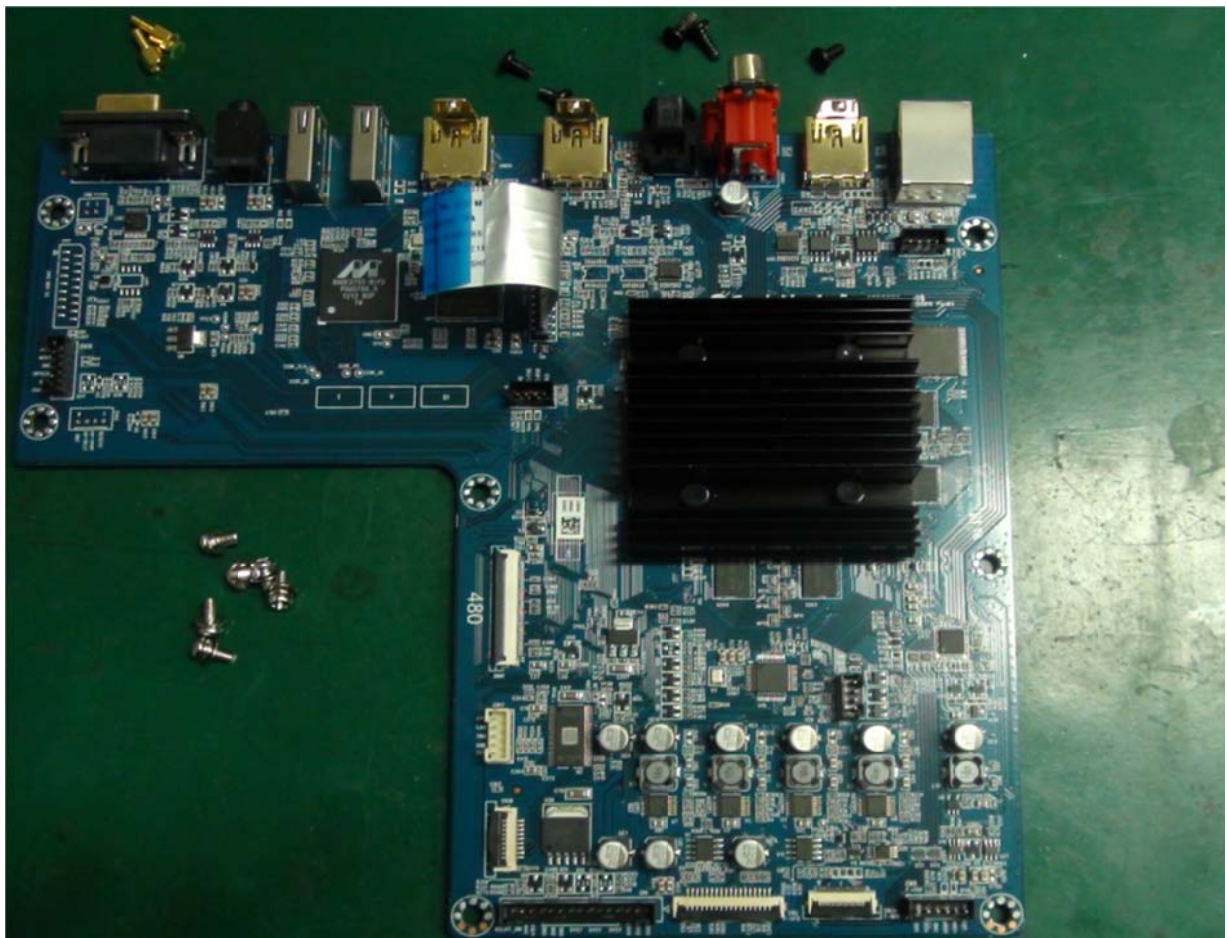
5.2 The audio board, top cover and loader assembly removal flow won't be covered here. The focus is the differences.



5.3 Disconnect all the cables connected to the main board. Note that the flat cable or MHL cable can only be pulled off after the socket cover is flipped up by 90 degrees. Do not pull them directly. To unplug the flat cable connecting the power board and the main board, press and hold the hook before pulling.

5.4 Remove the screws holding the main board





5.5 Use the electric screwdriver to remove all the screws holding the main board and the output terminals on the main board. 4 different types of screws used to hold the main board, take care not to confuse them.

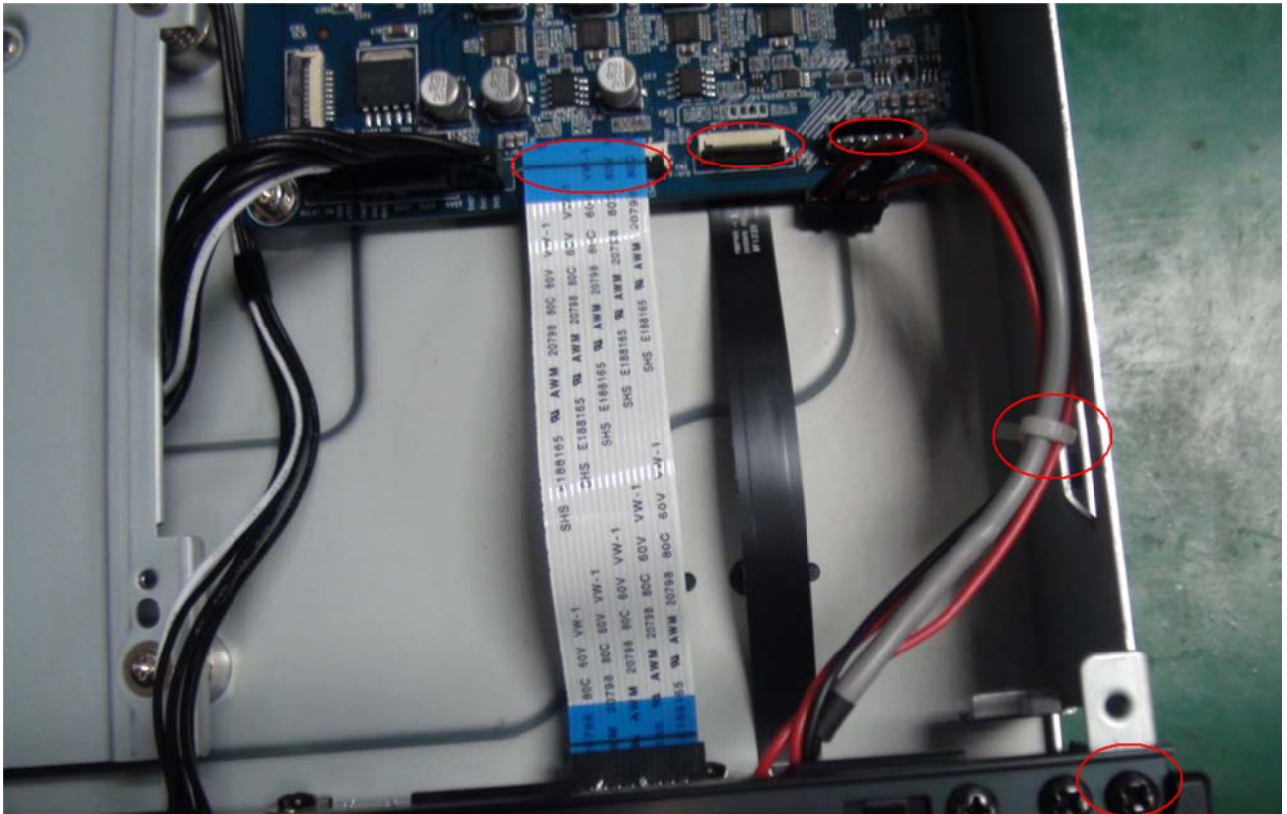
5.6 Precautions for main board replacement:

- 5.6.1 Re-input the loader barcode following the *Barcode Installation Guide* after replacing the main board.
- 5.6.2 Plug in the flat cables to be connected to the main board horizontally or vertically, before which check if there are any foreign objects in the sockets, and if the flat cables are damaged.
- 5.6.3 Before installing the main board, check if the heat sink support hooks are loose or damaged to make sure the heat sink won't come off during transportation.

6. Replace the front panel assembly

6.1 Front panel assembly replacement flow:

Remove the top cover——Take off the tray door——Disconnect all the flat cables connecting the main board to the front panel——Remove the screws holding the front panel assembly——Replace the front panel assembly——Connect the flat cables and test——Install the top cover



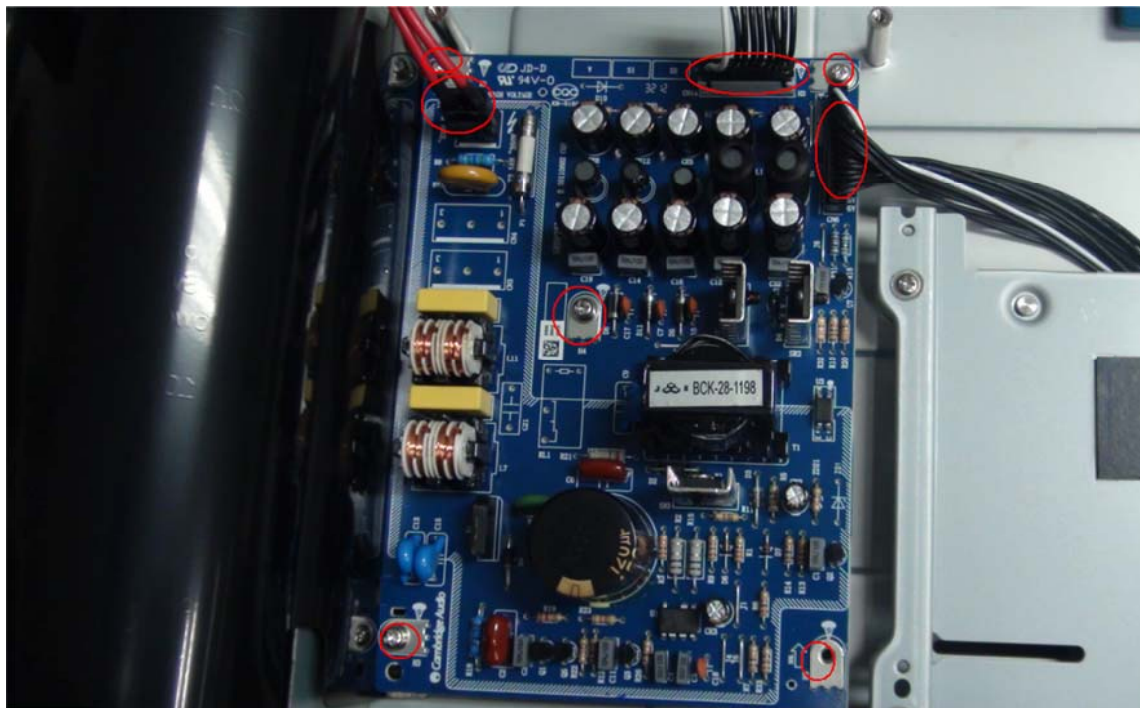
Detached front panel assembly

6.2 6pcs screws are used to hold the front panel assembly, 2 on the top and 4 on the bottom.

7. Replace the power board

7.1 Power board replacement flow:

Remove the top cover——Remove the screws holding the power board—— Disconnect the cables connected to the power board。



7.2 Remove the screws holding the power board and its shield cover to take off the power board.

7.3 Precautions for power board removal and reinstallation.

7.3.1 Make sure the power of the device has been cut off before removing the power board.

7.3.2 The flat cables of the power board have hooks. Press and hold the hooks before pulling the cables, or they may get damaged.

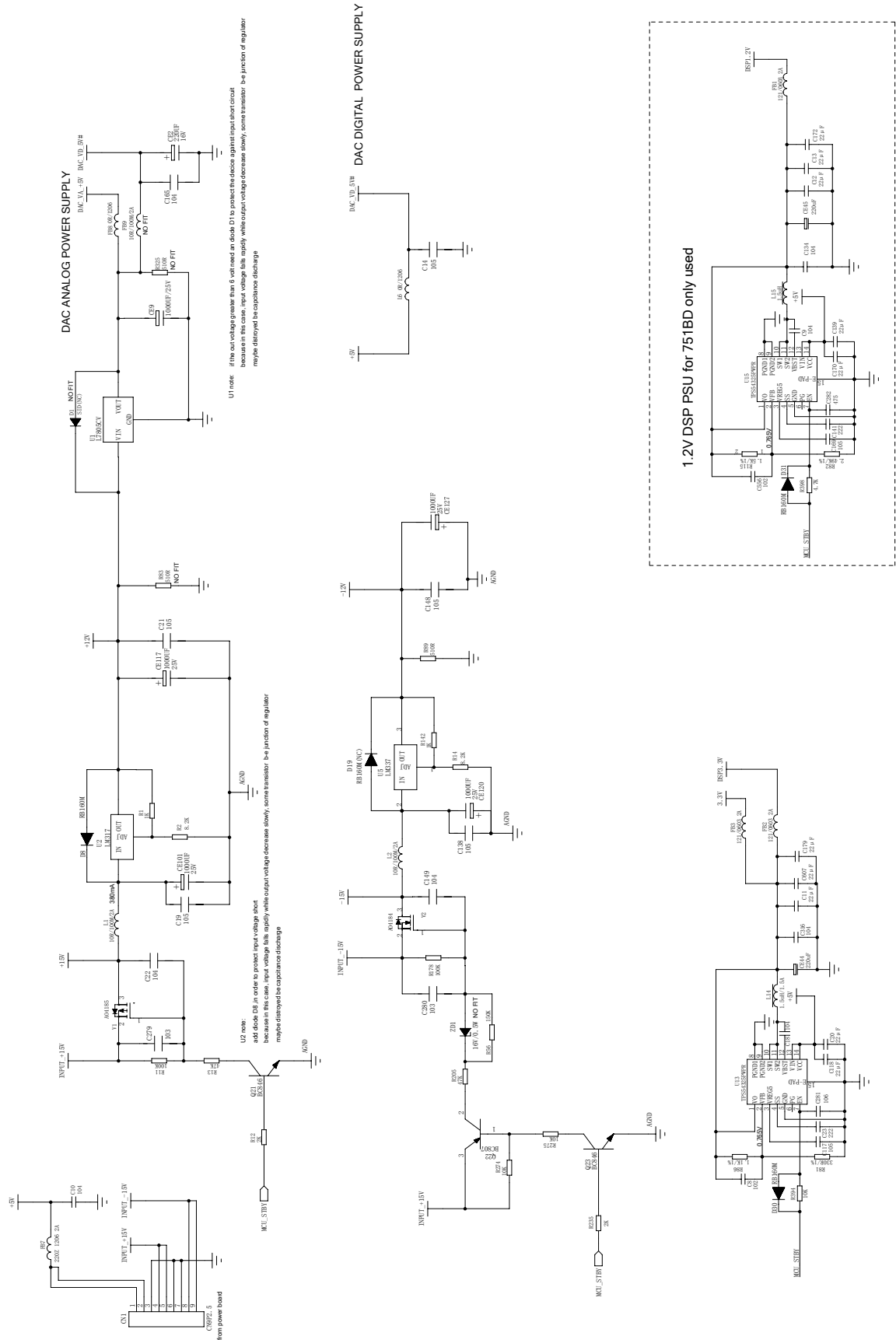
8. Replace the Optical/Coaxial Input board

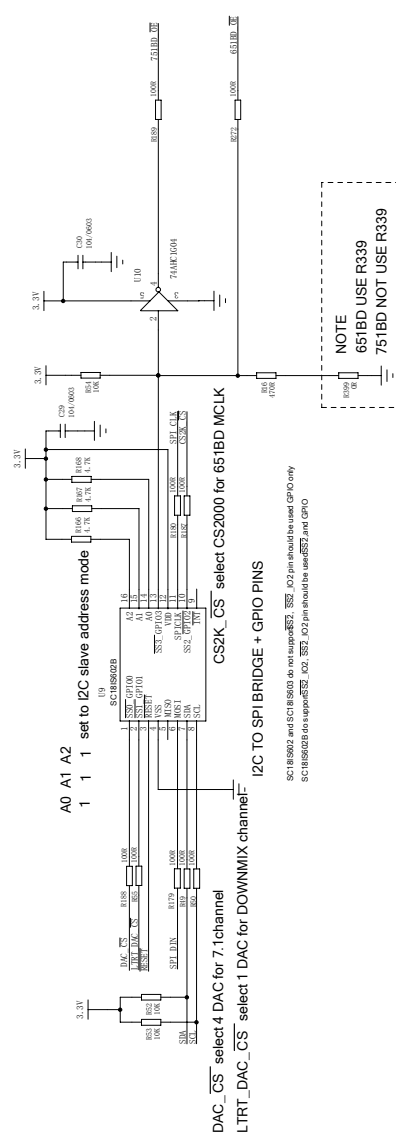
8.1 The Optical/Coaxial Input board can be removed directly after the audio board is removed



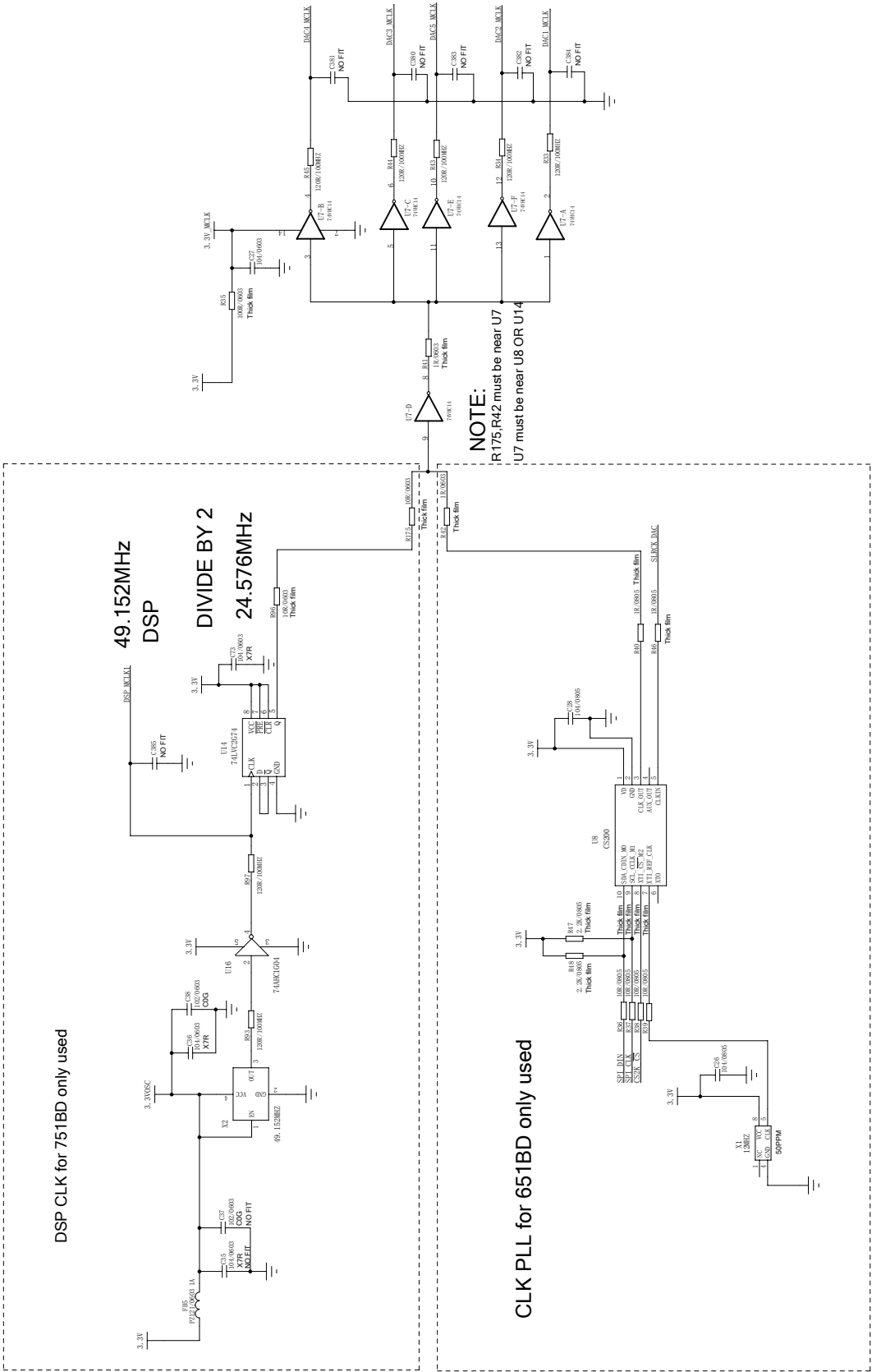
circuit diagram

AUDIO BOARD

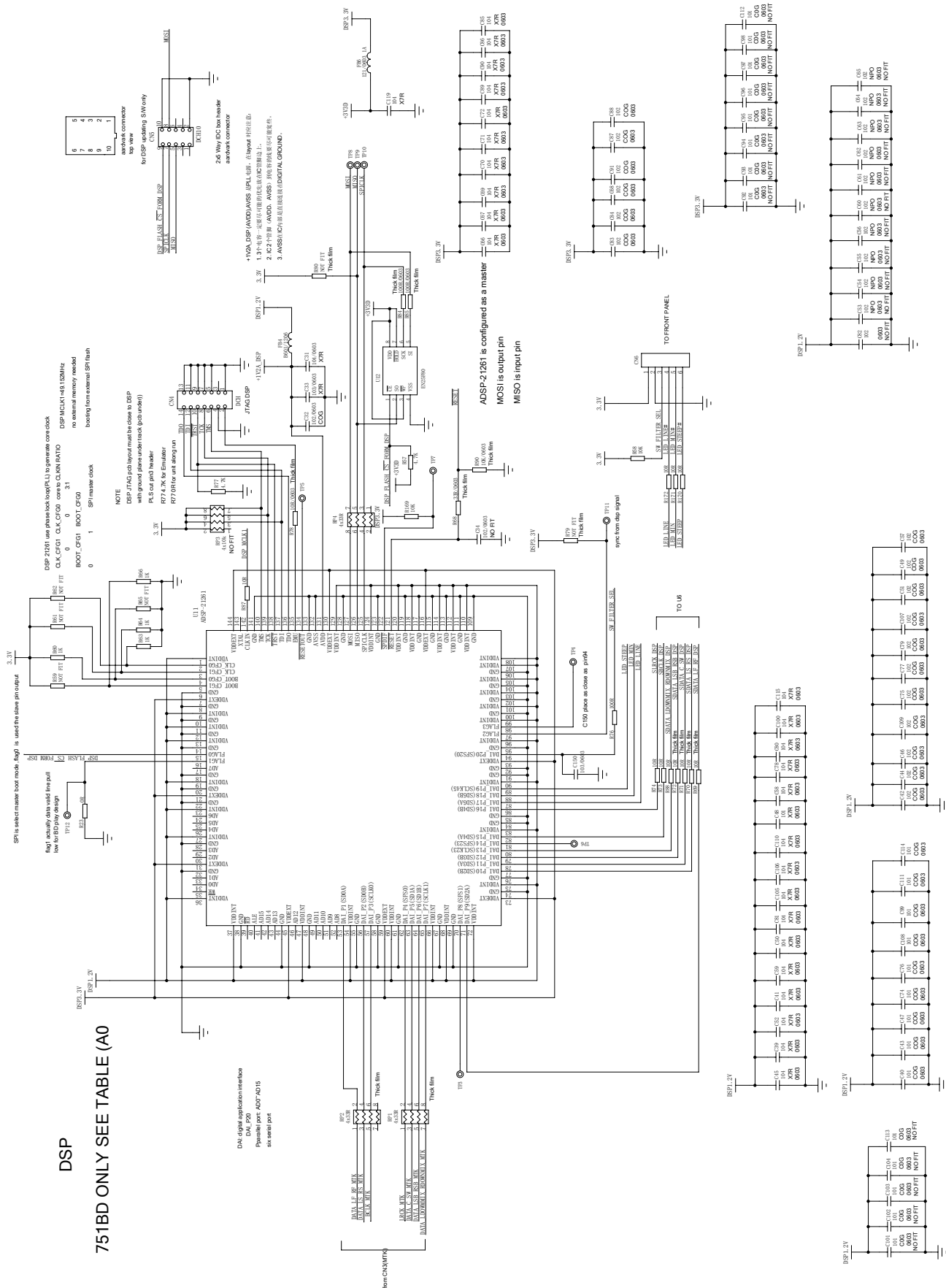




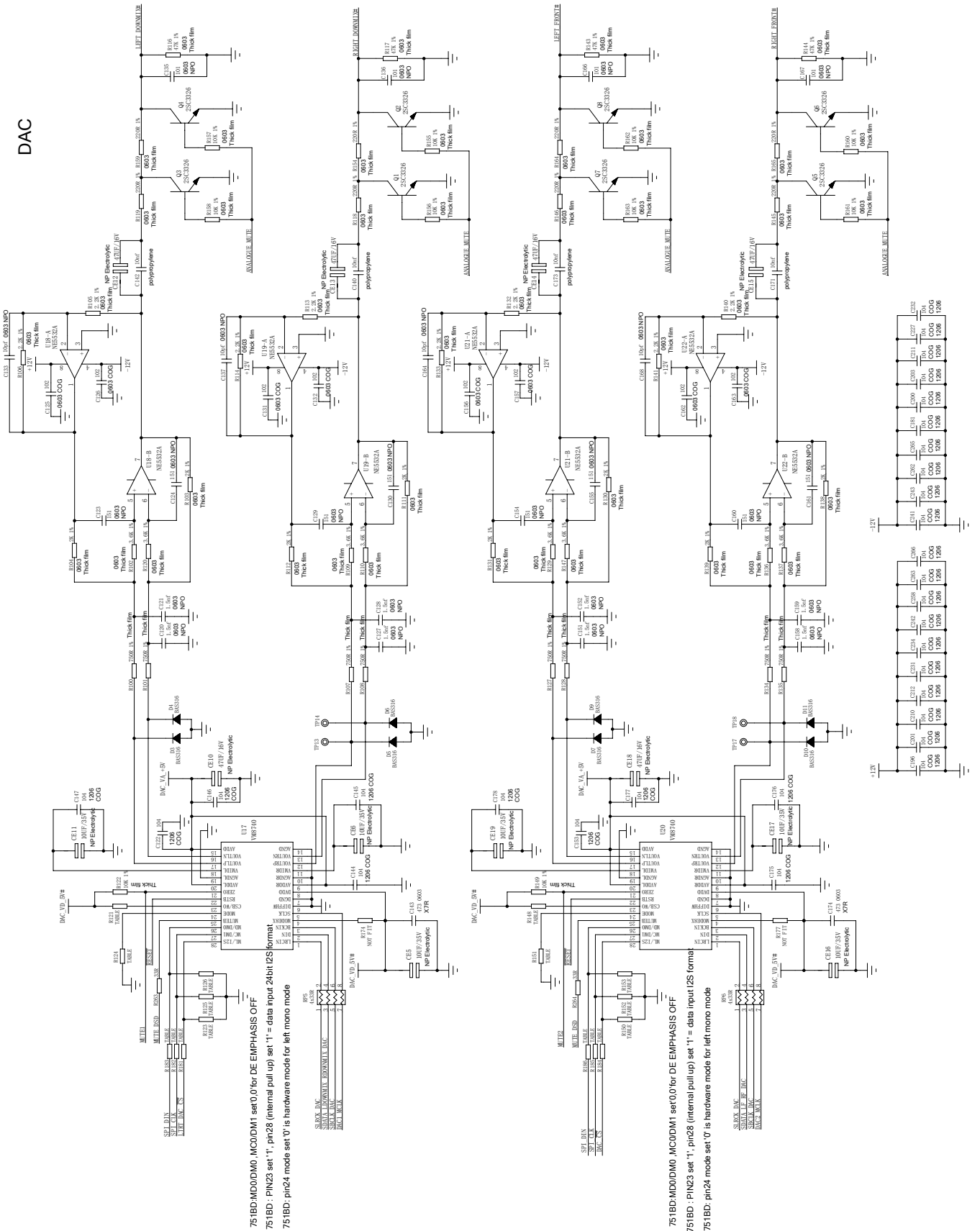
MASTER CLOCK CIRCUITRY

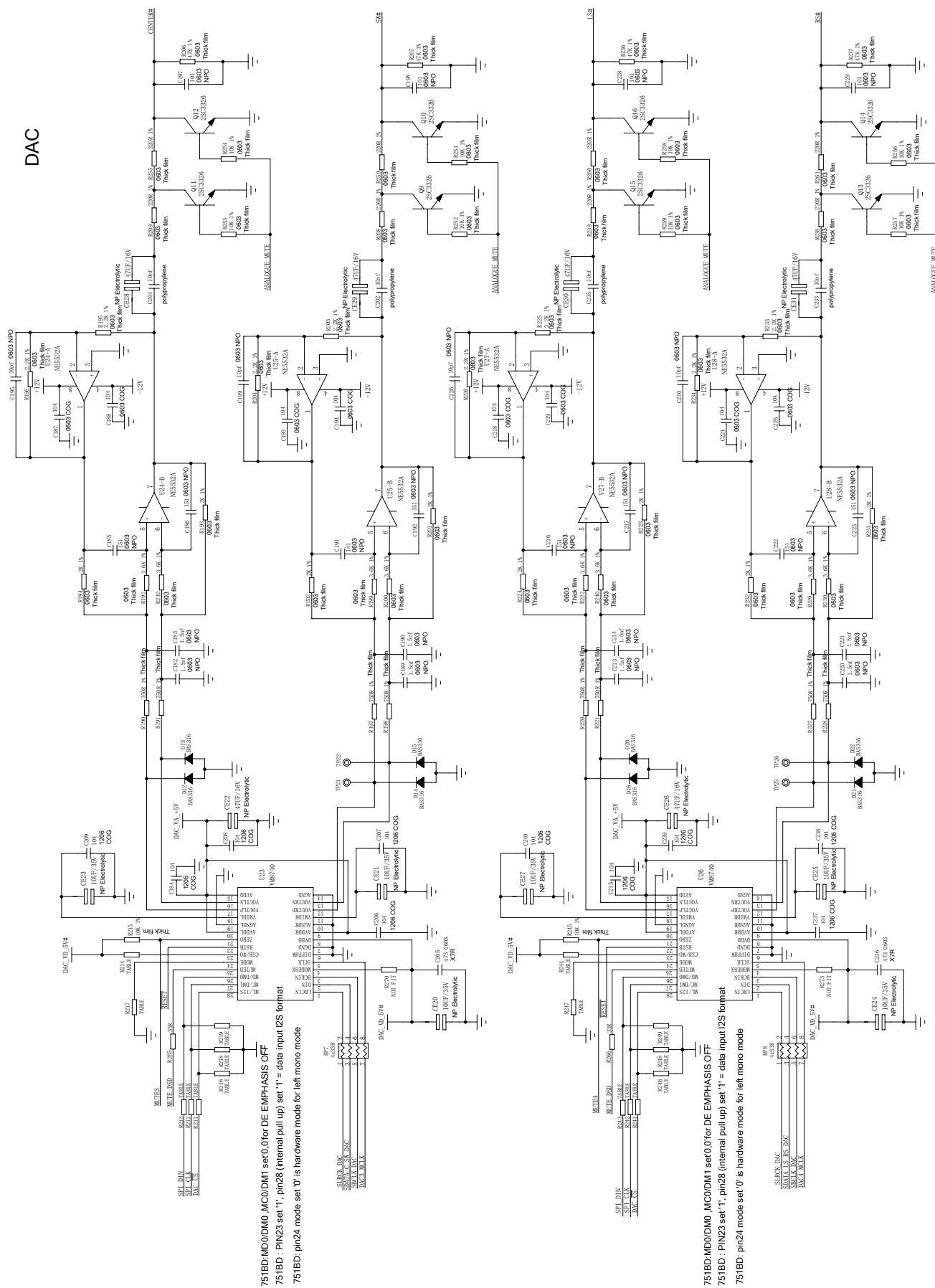


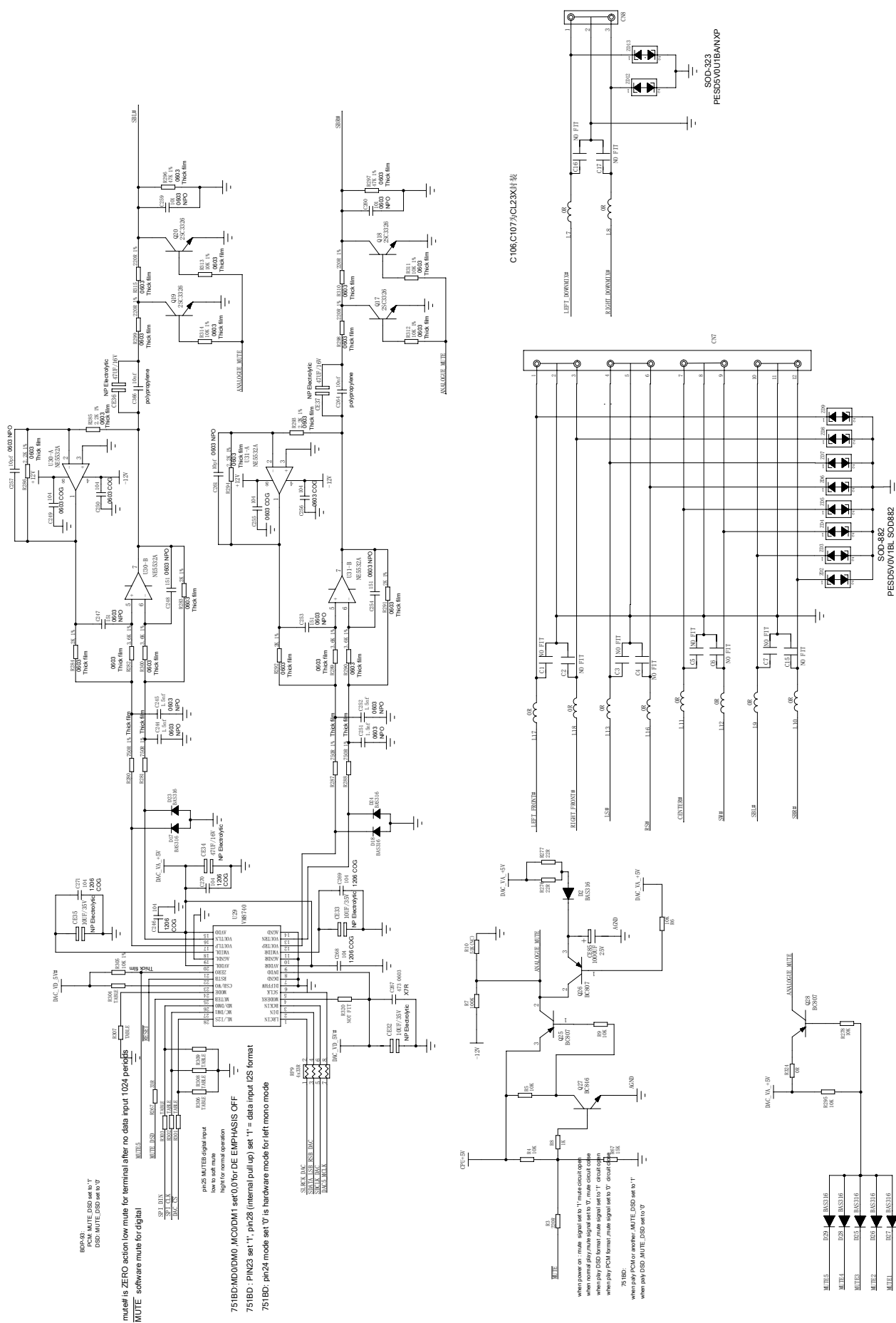
751BD ONLY SEE TABLE (A0



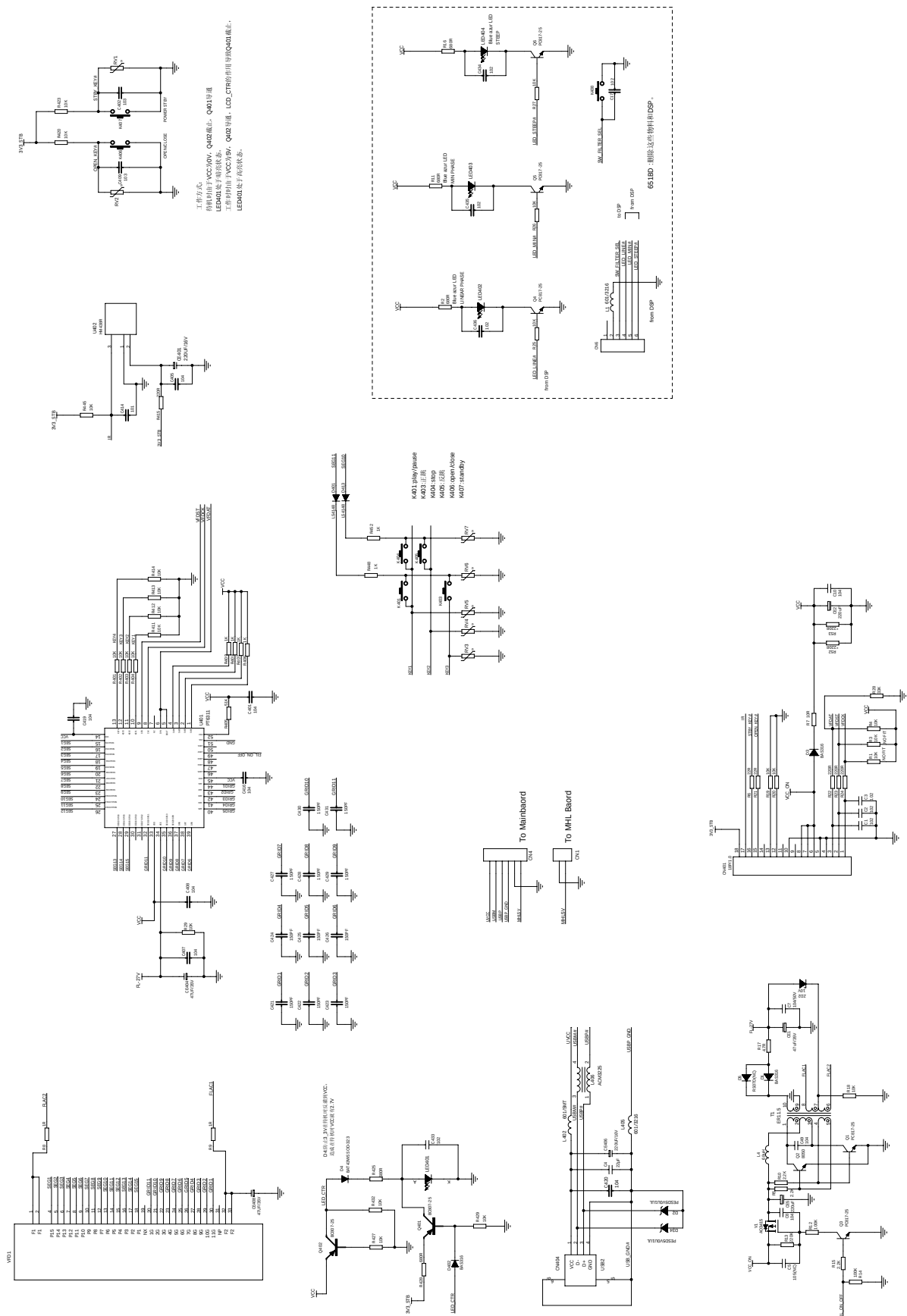
if ont possible only 104 caps
if possible place 3 caps on each power supply(101,102,104))



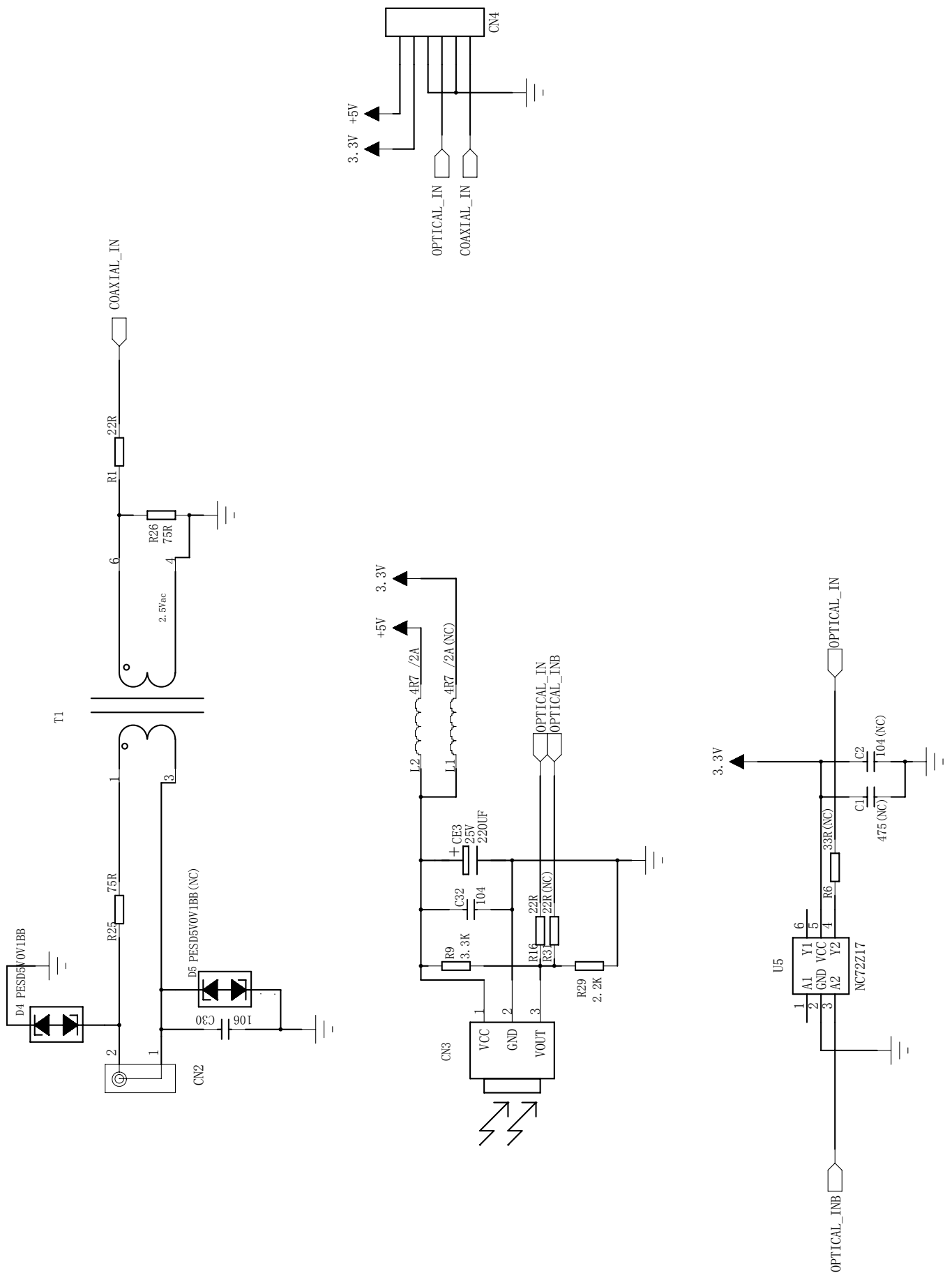




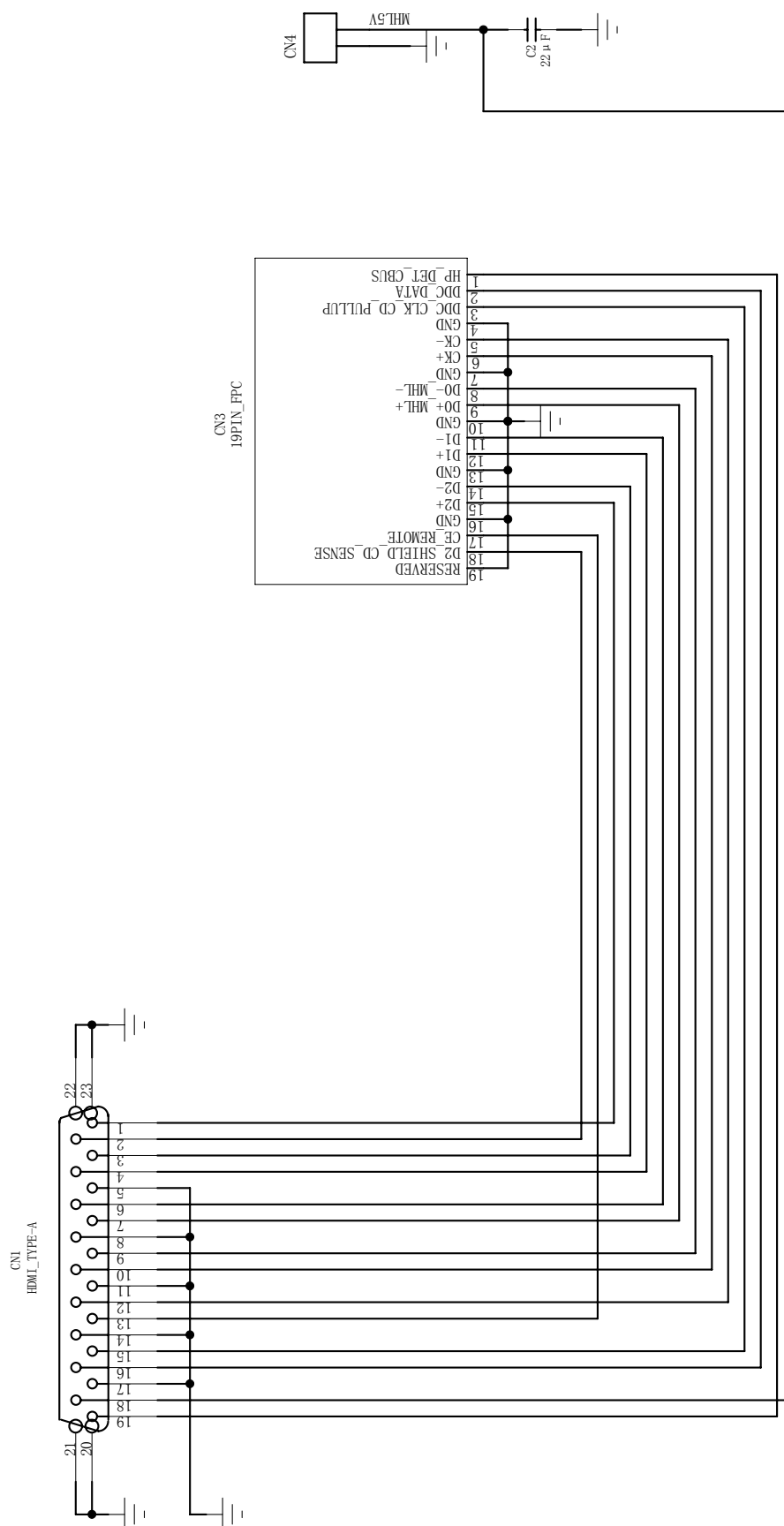
PANEL BOARD



OPTICAL/COAXIAL INPUT BOARD



MHL/HDMI INPUT BOARD



Parts Table

Service part number	Factory ref	Description
PB133	49440858	752BD Power Board
PB134	49450388	752BD DAC Board
PB135	49450398	752BD Decode Board (Region A)
PB136	49450398	752BD Decode Board (Region B)
PB137	49450428	752BD Audio Input Board
PB138	54638998	752BD Top Panel Black
PB139	54650178	752BD Mech. KEM-480AAA(SONY)+TOHEI(TB-508-N)
PB140	54651908	752BD Front Panel Black
PB141	54651918	752BD Draw Front Black
PB142	50167928	752BD Carton Box
PB143	51977508	Owner Manual (A) for CU
PB144	51977518	Owner Manual (B) for EU
PB112	50417408	651/751BD Polyfoam (L & R)
PB113	50417418	751BD Pearl Foam Nip
PB110		MTK Service tool
PZ690		Honeywell 1900 GSR (USB) 2 D barcode scanner

Packing Bill of Materials

Product model: 752BD black(MT8580+SONY 480)

NO	Material Code	Material name	Specification	Quantity	Remark
1	14400468	Battery	7# AAA (Three in a pack)\$	3	
2	21800238	USB connector for WiFi Dongle	1.5m	1	
3	29230508	HDMI rubber plug	BDP1103 BLACK\$	1	
4	30788078	USB rubber plug	BDP-650(EU) BLACK\$	1	
5	50163978	Accessory box	240×50×22\$	1	For remote controller
6	50167928	Carton box	BDP752\$	1	
7	50168218	Accessory box	305×63×135\$	1	
8	50417408	Foam bracket for left/right side	BDP751\$	1	
9	50417418	Foam bracket for front panel	BDP751\$	1	
10	50700468	Carton handle	AB001\$	1	
11	50700488	Backing for carton handle	AB001\$	1	
12	50706038	Self-styled plastic bags	230×335 PE\$	1	Self-styled plastic bags for user manual
13	50801198	Cloth bag	530×485 BLUE CAMBRIDGE AUDIO\$	1	
14	51977508	User manual	BDP752 ENGLISH\$	1	For 752BD(CU)&752BD(EU)
15	51977518	User manual	German/Russian/Dutch danish		Only for 752BD(EU)
16	51978118	Quick Start Guide	BDP752\$	1	
17	52399328	Protective film	BDP-650(EU)\$	1	Protective film for front panel glass
18	54727738	WiFi Dongle	A103(Cambridge Audio)\$	1	
19	54728118	Remote Controller	BDP752 BLACK	1	

Assembly Bill of Materials

Product model: 752BD black(MT8580+SONY 480)

NO	Material Code	Material name	Specification	quantity	Remark
1	18701198	AC socket	2-core Y-style SS-7BA cable 160 switch cord\$	1	
2	21231548	Cable	15P290 2.0 T2(BLACK)24#	1	Connecting power board and decoding board
3	21231728	Cable	9P50 2.5 T2(BLACK) 22#	1	Connecting power board and Audio board
4	21405638	Euro power cord	2P 1.8m 10A JW868R\$		Only for 752BD(EU)
5	21404218	Power Cord UL	2P 1.5M 10A UL\$	1	Only for 752BD(CU)
6	22504448	Flat cable	22P 75MM 1.0MM	1	Connecting decoding board and audio board
7	22504958	Flat cable	18P 105mm 1.0mm	1	Connecting decoding board and front panel
8	30788128	foot	BDP-650(EU) black\$	4	
9	31034618	Base cover	BDP752 Grey\$	1	
10	31034658	Rear cover	752BD(CU) black\$	1	Only for 752BD(CU)
11	31034628	Rear cover	752BD(EU) black\$	1	Only for 752BD(EU)
12	38101198	Damping spring	Φ11.5×12.5 Φ1.5\$	4	Base cover and loader support
13	38755538	loader support	BDP1105\$	1	
14	38757528	Hexagon steel bar	M3×23.5\$	1	
15	40004388	Self-tapping screw	PWT 3×6×7H black\$	10	2 for rear cover/base cover, 4 for base cover/aluminum alloy front panel, 2 for top cover/rear cover, 2 for top cover/rear cover/base cover
16	40004398	Self-tapping screw	BT 3×10H Black\$	4	foot/base cover
17	40004958	Self-tapping screw	BT 3×8H black\$	8	2 for main board terminals/rear cover, 4 for audio terminals/rear cover, 2 for optical/coaxial input ports/rear cover
18	40010558	Self-tapping screw	PWT 3×8×7H black\$	4	4 for loader frame/iron bracket of loader frame
19	40400808	Self-tapping screw	FB 3×6H black\$	2	2 for power socket/rear cover

Product model: 752BD black(MT8580+SONY 480)

NO	Material Code	Material name	Specification	quantity	Remark
20	42103058	Machine screw	HM 3×12 Gold-plated M3-DRL\$	2	2 for RS232/back panel
21	42103568	Machine screw	PWM 4×5×10H black\$	4	4 for top cover/base cover
22	42104448	Machine screw	PM 3×7H White Nickel With spacer+spring washer\$	17	7 for main board/base cover,4 for audio board/base cover,5 for power board,1 for optical/coaxial input board
23	42105278	Machine screw	PWM 3×8×8H White Nickel\$	4	4 for loader bracket/compressed spring/base cover
24	42105288	Machine screw	BM 3×6H Black Zinc\$	6	3 for HDMI port/back panel, 1 for iron brakcet/back panel,2 for front panel/base cover
25	48605258	Anti-dust flannel cushion	BDP0903 black\$	1	Stick onto bottom of loader frame
26	48612328	PC sheet for power board	BDP751 black E196R\$	1	Used on power board
27	48616628	Sponge cushion	51×10×5 Adhesive on both sides Rigid \$	2	Used on left side of base panel to hold PC sheet of power board
28	48641558	Soft cushion for iron bracket of loader	BDP1105 PORON Adhesive on one side \$	1	Sticked to iron bracket of loader
29	48652228	PC sheet of loader	BDP752 Black Exclusive on one side \$	1	Sticked to cover panel of loader
30	49440858	Power board	5BDP751-0 BDP751\$	1	
31	49450388	audio board	7BDP752-0 BDP752\$	1	
32	49450428	Optical/coaxial input board	BBDP752-0 BDP752\$	1	
33	49451388	Main board	2BDP752-0 752BD(CU)\$	1	Only for 752BD(CU)
34	49450398	Main board	2BDP752-0 752BD(EU)\$	1	Only for 752BD(EU)
35	54638998	Top cover	BDP-650(EU) black\$	1	
36	54650178	Loader component	480AAA(SONY)+TOHEI(TB-500-NA\$	1	
37	54651908	Front panel component	BDP752 black\$	1	
38	54651918	Tray door	BDP752 black\$	1	