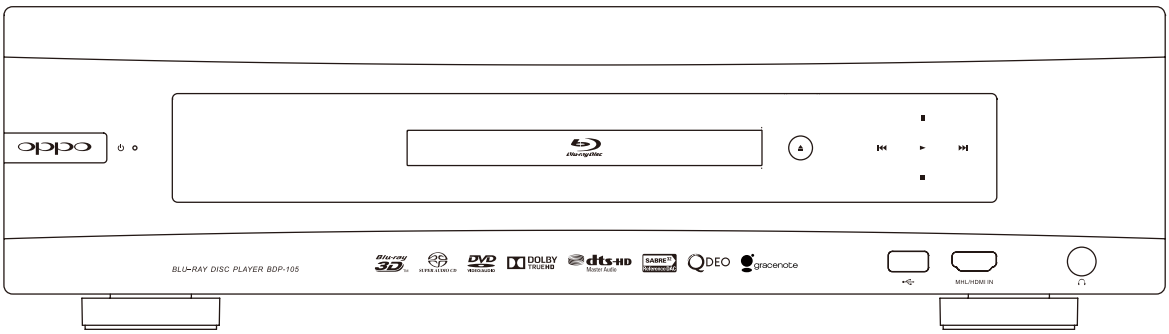
SERVICE MANUAL

Blu-ray Disc Player

BDP-105D AU



catalog

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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

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

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

1.2.2 About placement position

1.2.2.1 Never place player in positions with high temperature and humidity.

1.2.2.2 Avoid placing near high magnetic fields such as loudspeaker or magnet_

1.2.2.3 Positions for placement should best able and secure.

1.2.3 Electro static precautions

1.2.3.1 Maintenance facility and working table must be earthed.

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

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

1.2.4 Precautions for welding

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

1.2.4.2 Welding temperature must not above 350ć

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.

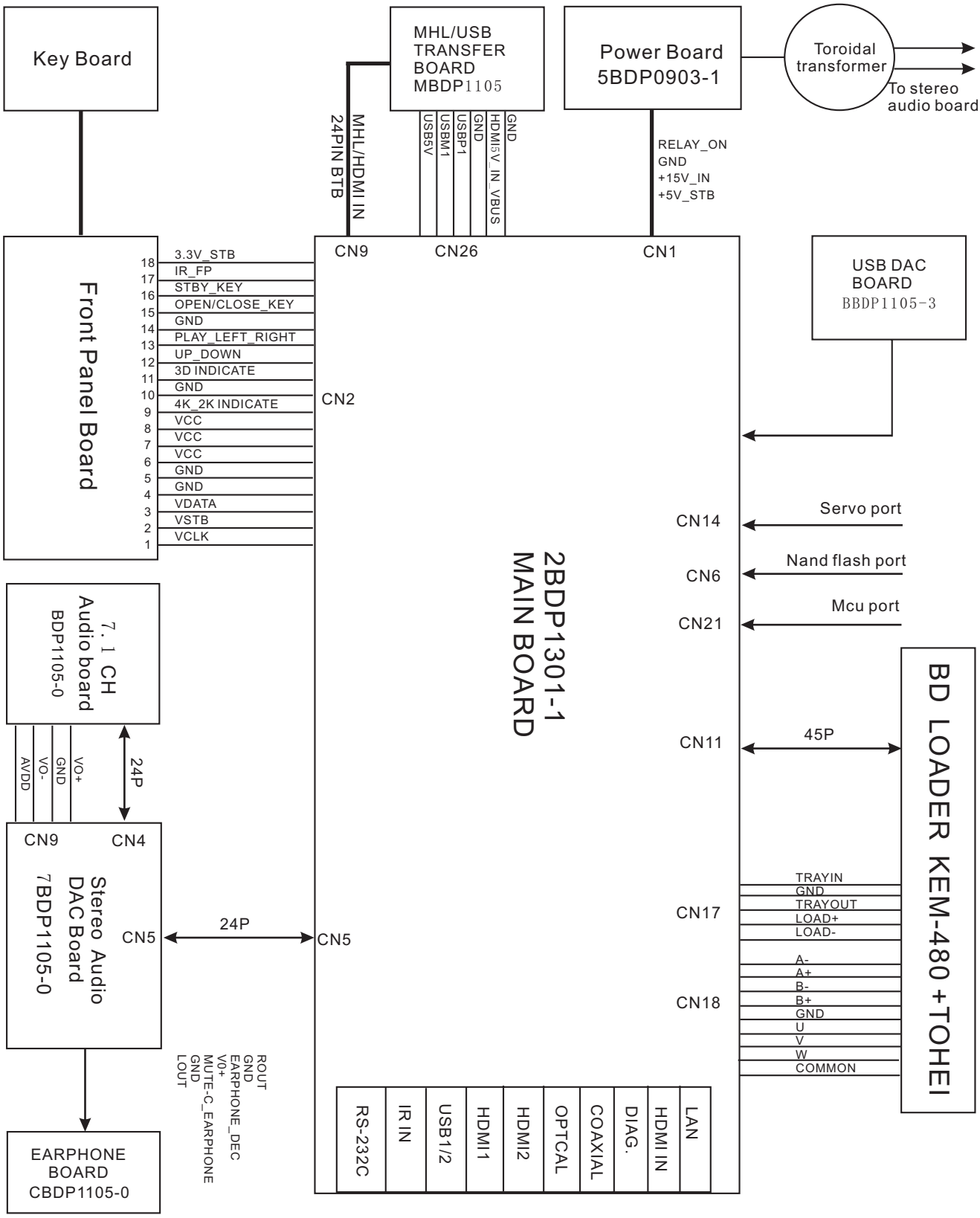
Chapter II Block diagram and version of player

2.1 Version of player BDP-105&BDP-105D

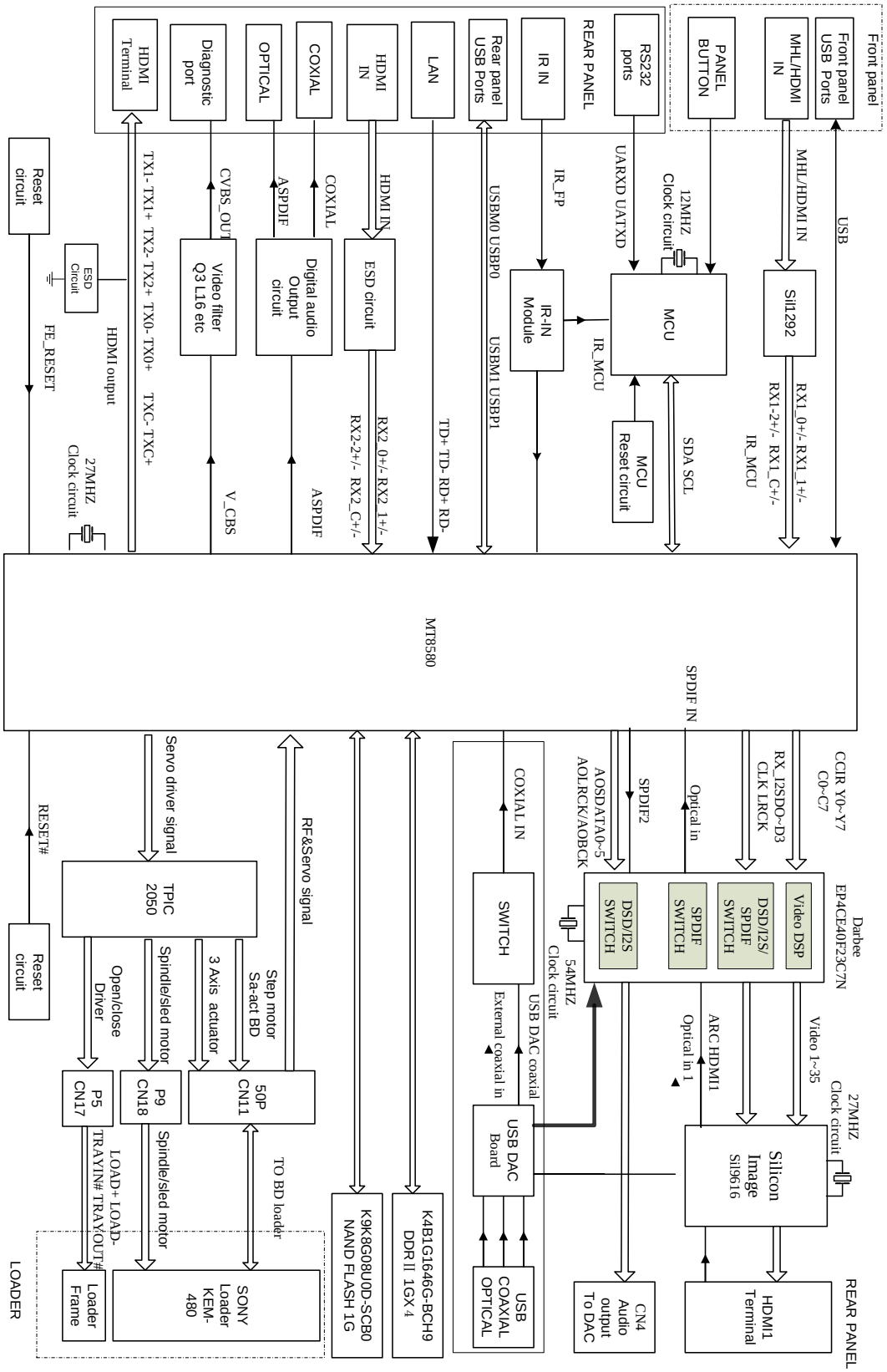
BDP-105 AU : KEM-480AAA+ TOHEI(TB-508A$)+MT8580+1GB SLC NandFlash +4*1Gb DDRIII +WT61P806 (MCU)+88DE2755 +ES9018										
Version	Main board	audio board stereo	audio board 7.1CH	power board	panel board	DAC board	Ear phone	Loader	Firmware Information	Remark	Date
E200 B7	2BDP1103A-1 V9.00	7BDP1105-1 V2.03	ABDP1105 A-0 V2.03	5BDP0903-5 V3.06	4BDP1 105-1 V2.02	BBDP1 105-2 V2.02	CBDP1 105-1	KEM-480AAA(SONY) +TOHEI(TB-508-N)	Main version : BDP10XAU-33-1018 Loader version : 7B0500 Sub version: MCU105-04-0916	First product	2012-11-12
B20 0A1	2BDP1103A-1 V9.00	7BDP1105-1 V2.03	ABDP1105 A-0 V2.03	5BDP0903-5 V3.06	4BDP1 105-1 V2.02	BBDP1 105-2 V2.02	CBDP1 105-1	KEM-480AAA(SONY) +TOHEI(TB-508-N)	Main version : BDP10XAU-38-1220 Loader version : 7B0800 Sub version: MCU105-04-1113	New version rules	2013-1-1
B21 0A1	2BDP1103A-1 V9.01	7BDP1105-1 V2.03	ABDP1105 A-0 V2.03	5BDP0903-5 V3.06	4BDP1 105-1 V2.02	BBDP1 105-2 V2.02	CBDP1 105-1	KEM-480AAA(SONY) +TOHEI(TB-508-N)	Main version : BDP10XAU-38-1220 Loader version : 7B1000 Sub version: MCU105-04-1113	New loader	2013-4-10
B22 0A1	2BDP1103A-1 V9.01/2	7BDP1105-1 V2.03	ABDP1105 A-0 V2.03	5BDP0903-5 V3.06	4BDP1 105-1 V2.02	BBDP1 105-2 V2.02	CBDP1 105-1	KEM-480AAA(SONY) +TOHEI(TB-508-N)	Main version : BDP10XAU-50-0422 Loader version : 7B1000 Sub version: MCU105-04-1113		2013-7-16
B23 0A1	2BDP1103A-2 V9.04	7BDP1105-1 V2.03	ABDP1105 A-0 V2.03	5BDP0903-5 V3.06	4BDP1 105-1 V2.02	BBDP1 105-2 V2.02	CBDP1 105-1	KEM-480AAA(SONY) +TOHEI(TB-508-N)	Main version : BDP10XAU-58-0719 Loader version : 7B1200 Sub version: MCU105-04-1113		2013-11-5

BDP-105D AU : KEM-480AAA+ TOHEI(TB-508A$)+MT8580+Darbee EP4CE40F23C7N +Sii9616+DAC ESS9018										
version	Main board	audio board stereo	audio board	power board	panel board	DAC board	Ear phone	Loader	Firmware Information	Remark	Date
B20 0A4	2BDP1301-3 A.01	7BDP1105-1 V2.05	ABDP1105 A-0 V2.05	5BDP0903-5 V3.08	4BDP1 301A-0 V3.00	BBDP1 105-3 V3.00	CBDP1 105-1 V2.01	KEM-480AAA(SONY) +TOHEI(TB-508-N)	Main version : BDP10XAU-67-1204 Loader version : 7B1300 Sub version: MCU105-04-1113	black	2013-12-26
B20 0A5	2BDP1301-3 A.01	7BDP1105-1 V2.05	ABDP1105 A-0 V2.05	5BDP0903-5 V3.08	4BDP1 301A-0 V3.00	BBDP1 105-3 V3.00	CBDP1 105-1 V2.01	KEM-480AAA(SONY) +TOHEI(TB-508-N)	Main version : BDP10XAU-67-1204 Loader version : 7B1300 Sub version: MCU105-04-1113	silver	2013-12-26

2.2.1 BDP-105D Frame schematic diagram



2.2.2 BDP-105D Overall block diagram



2.3.1 Product serial number rules　BDP-10X



Product serial number rules:

The initial 4 digits stand for complete unit version, e.g.

E2** ,　B2**

The 5th and 6th digits stand for sales region and model.

B7 stands for BDP105 AU (SONY 480+MT8580+88DE2755).

A1 stands for BDP105 AU (SONY 480+MT8580+88DE2755)

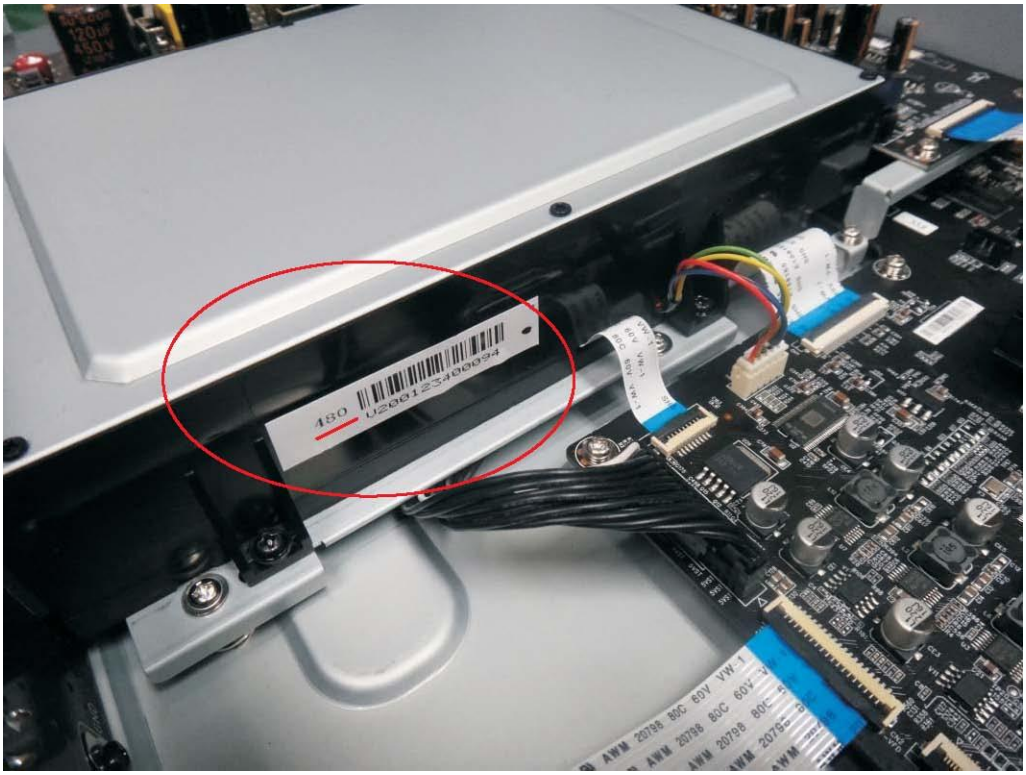
A4 stands for BDP105D AU(Black) (SONY 480+MT8580+Darbee EP4CE40F23C7N+Sil9616)

A5 stands for BDP105D AU(Silver) (SONY 480+MT8580+Darbee EP4CE40F23C7N+Sil9616)

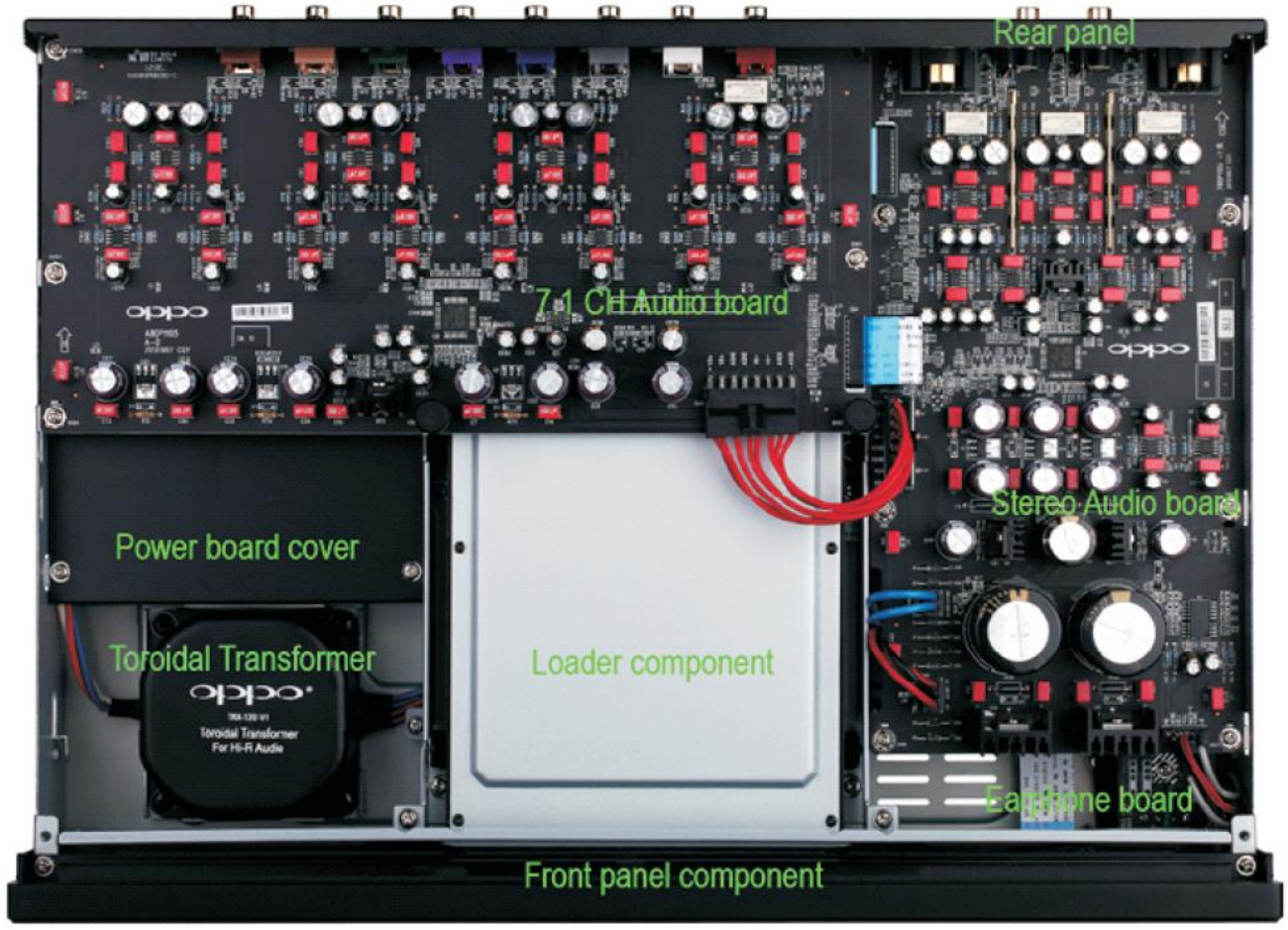
The 7th to 16th digits stand for production cycle and running number.

1240(cycle)　912345（Homework serial number）

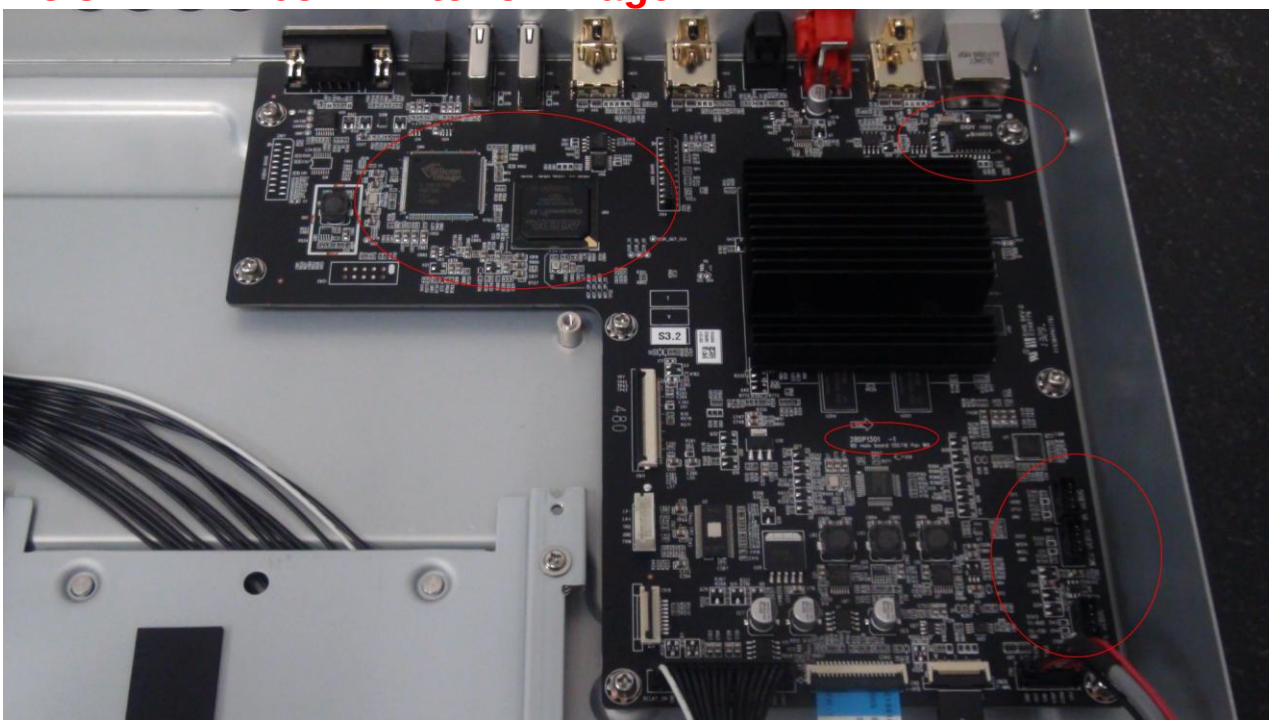
Loader label （SONY 480）



2.3.2 BDP-105 interior image(BDP-105&105D)



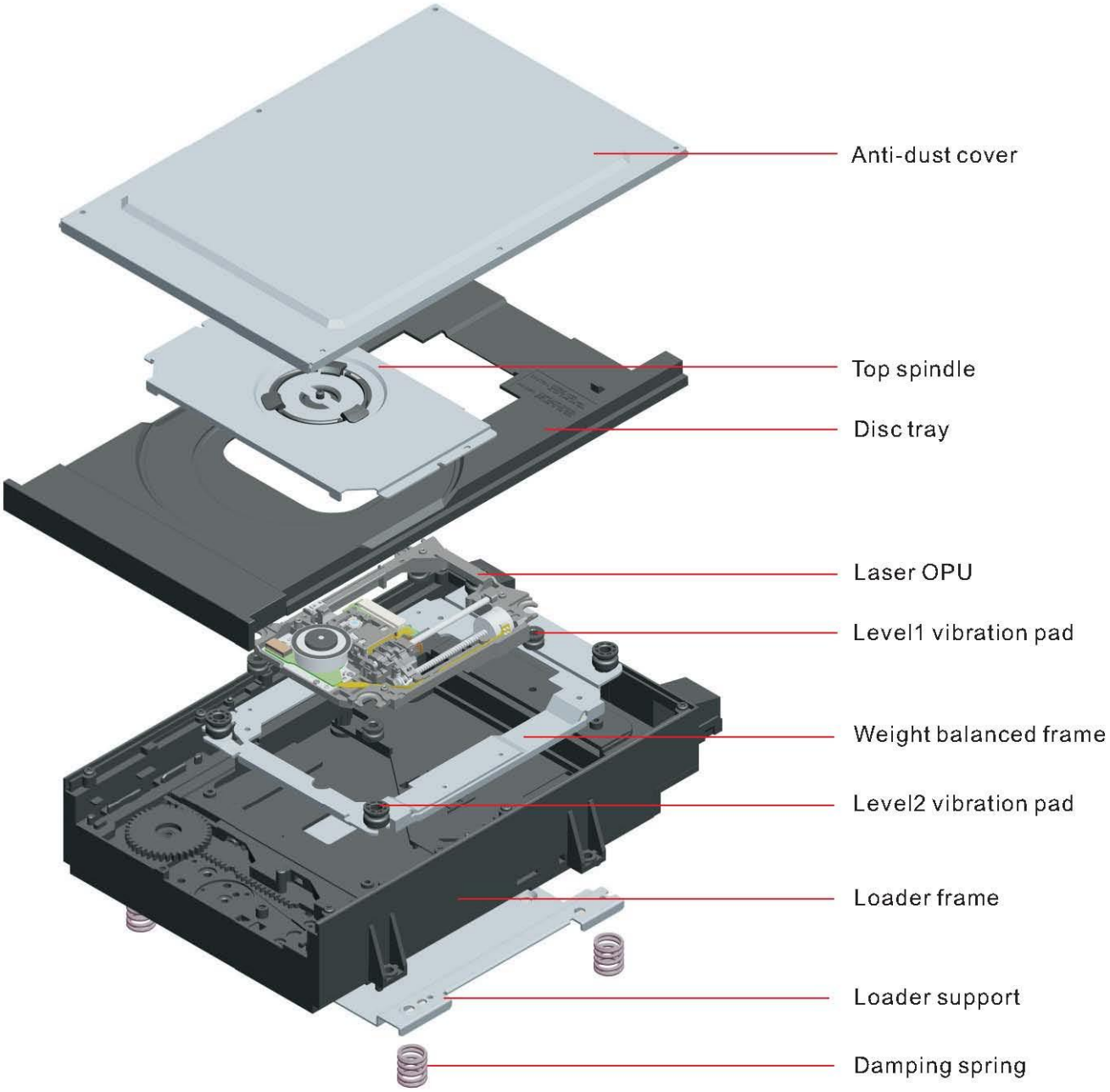
2.3.3 BDP-105D interior image



Chapter III Function module schematics

Section 1　Loader assembly introduction

3.1.1　Exploded view of the loader(480)



3.1.1 Exploded view of the loader(480)；

3.1.2 Servo circuit

3.1.2.1 Servo circuit overview:

BDP-105 player adopts SONY 480 loader while shares the same operating principle and servo scheme with BDP-103.

BDP105D player adopts SONY 480 loader while shares the same operating principle and servo scheme with BDP-105

Please refer to Figure 3.1.1.1 below:

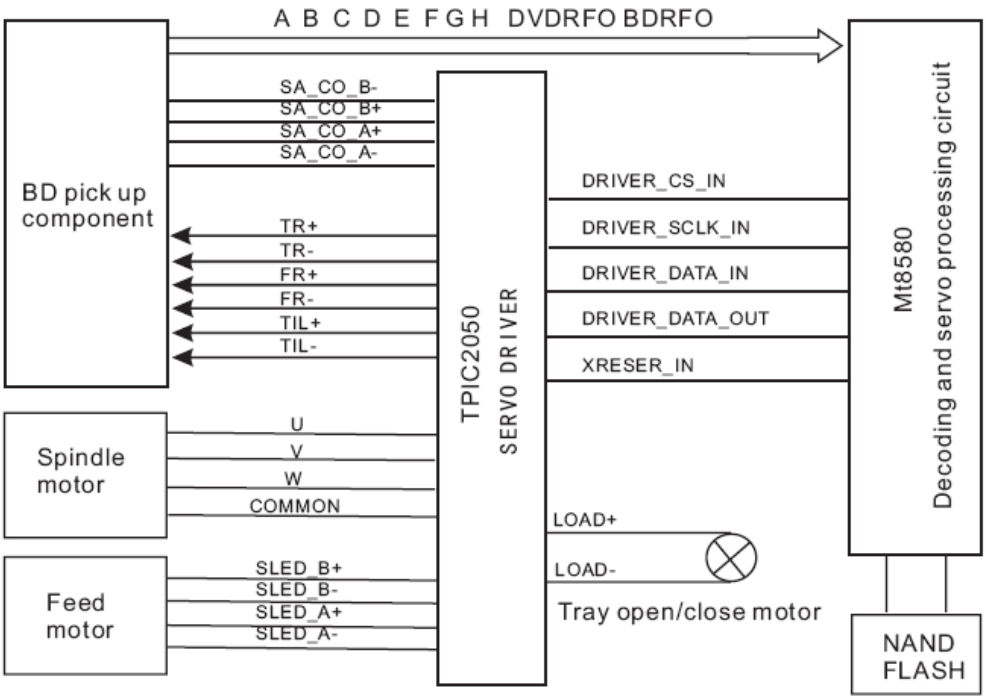


Figure 3.1.2.1 Block diagram of servo circuit

3.1.2.2 Operating principle of servo circuit: :

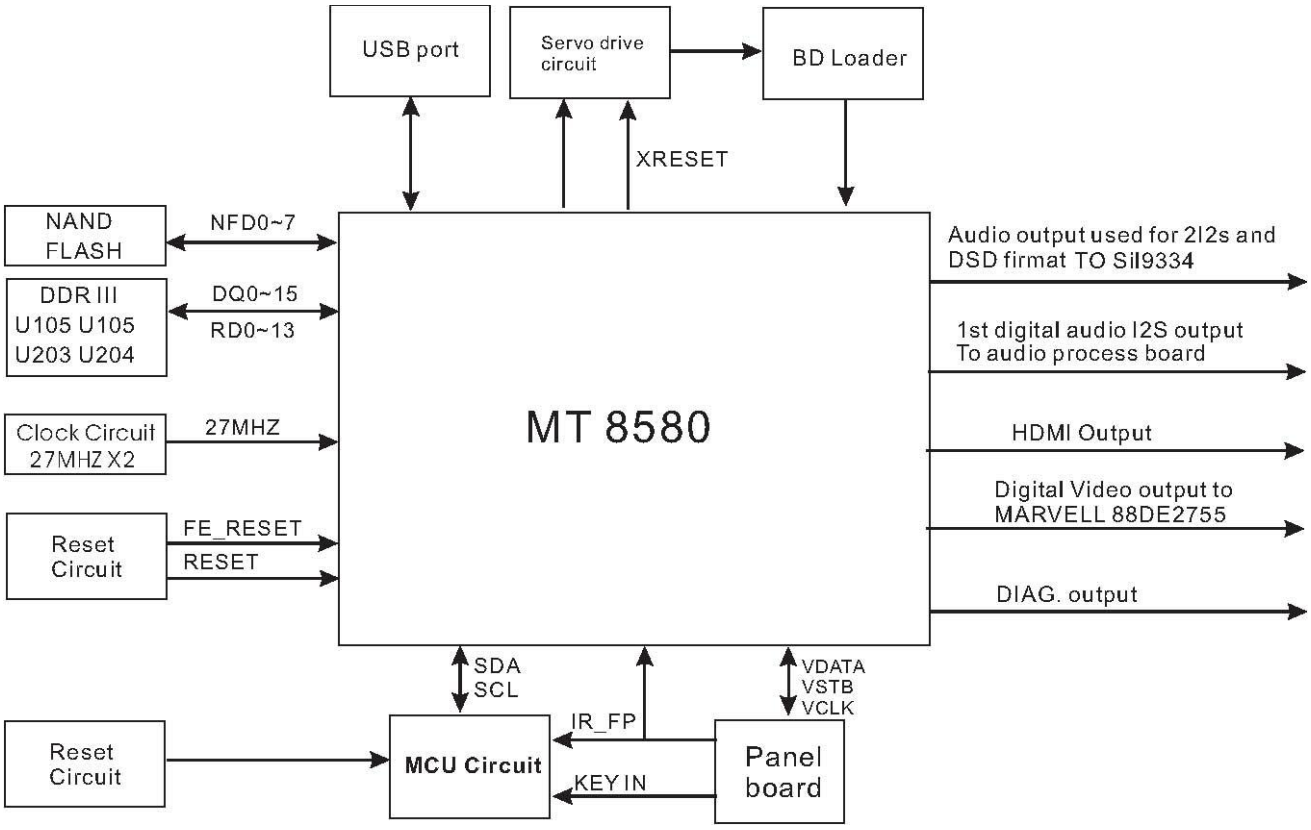
Servo circuit is mainly composed of pick up interface, servo drive, system control and signal processing circuits and servo software (built in NAND FLASH) and other modules.
Servo drive circuit: servo drive circuit has one drive group. This group is composed of U2(TPIC2050)and peripheral circuit which 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:

- Fail to open/close tray door.
- Fail to load discs for loader driver error.
- Keep displaying “loading”, “No disc” or “Unkown disc”.
- Fail to view servo software version in setup menu, loader malfunction.
- 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 linterface 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 Bonus View. 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 True HD and DTS-HD lossless audio.

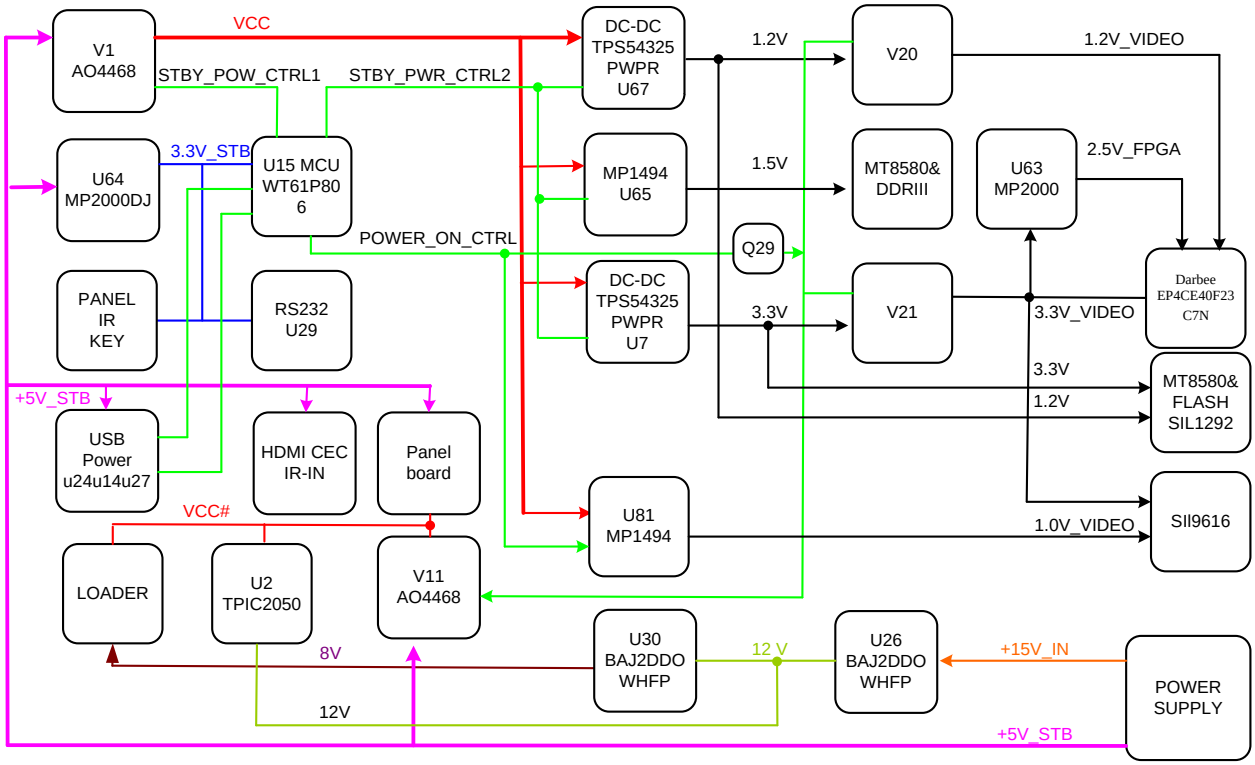
MT8580 is fabricated with advanced silicon process and offers higher CPU performance and more DRAM bandwidth. This SoC also includes a powerful graphics engine and a variety of peripherals, including USB 2.0 ports. To support popular network applications, MT8580 also implements 10/100 Ethernet interface 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
- Dual-channel multi-format audio decode
- Motion-adaptive, edge-preserving de-interlacing
- 4185 DMIPS Cortex-A9 CPU x 2
- Mali-400 MP
- HDMI 1.4 output
- 148MHz/12-bit, 4 CH TV Encoder
- HDMI 1.4 Receiver
- 3D video output
- Ethernet
- USB 2.0

3.2.2 Main board power supply circuit (BDP-105D)



3.2.3.2 Circuit introduction: BDP-105D

When device powered on, the power circuit outputs VCC 5V votage to supply power via CN1 for the main board. The ower supply circuit of the decoding board consists of switch control, DC-DC step-down regulator circuit, MCU and other sub-circuits.

True standby: When device in standby mode, the VCC 3.3V standby power (3.3V_STB) output via U64 regulator supplies power for MCU, front panel buttons, remote sensor circuit and other circuits that requries standby power. When Q9, and V1 circuits start running, the VCC power is input to each DC-DC circuit, and then transmitted through regulator circuit to provide power supply for subsequent circuits. The enable control of each DC-DC power is condcuted by MCU according to system demands.

3.2.2.3 MCU features The device employs WT61P8 with standby control, DC-DC control, button function, CEC and other features. The WT61P8 is a microcontroller for flat panel display control and power management with 1) Turbo 8052CPU, 2) 64K bytes flash memory, 3) 1K+256 bytes SRAM, 4) 8 8-bit PWMs, 5) DPMS detector(2 H/Vinputs, Support H+V input) , 6) 4 timers and 2 UART Ports, 7) 2 DDC/CI interface, 8) Slave I2C interface, 9)8 channel 8-bit A/D converter, 10) Real Time Clock, 11) Watch-dog timer, 12) Embedded ISP function, 13)Power down mode, 14) Embedded ICE mode. and 15) H/W CEC. Its peripheral circuit include power-on reset circuit and 12M clock circuit. The MCU supports firmware upgrade via USB and serial por

Section 3 Audio processing circuit

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

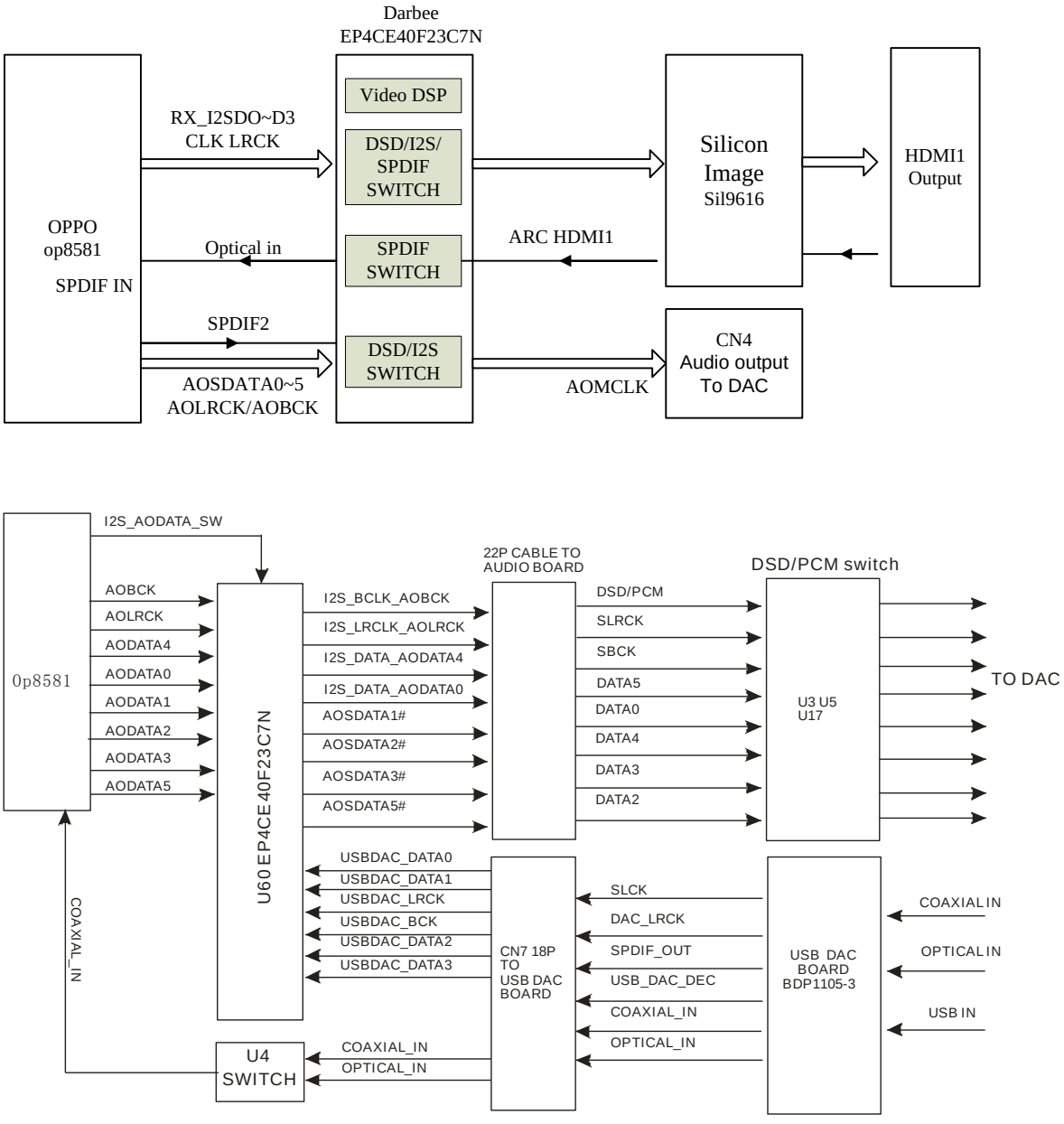
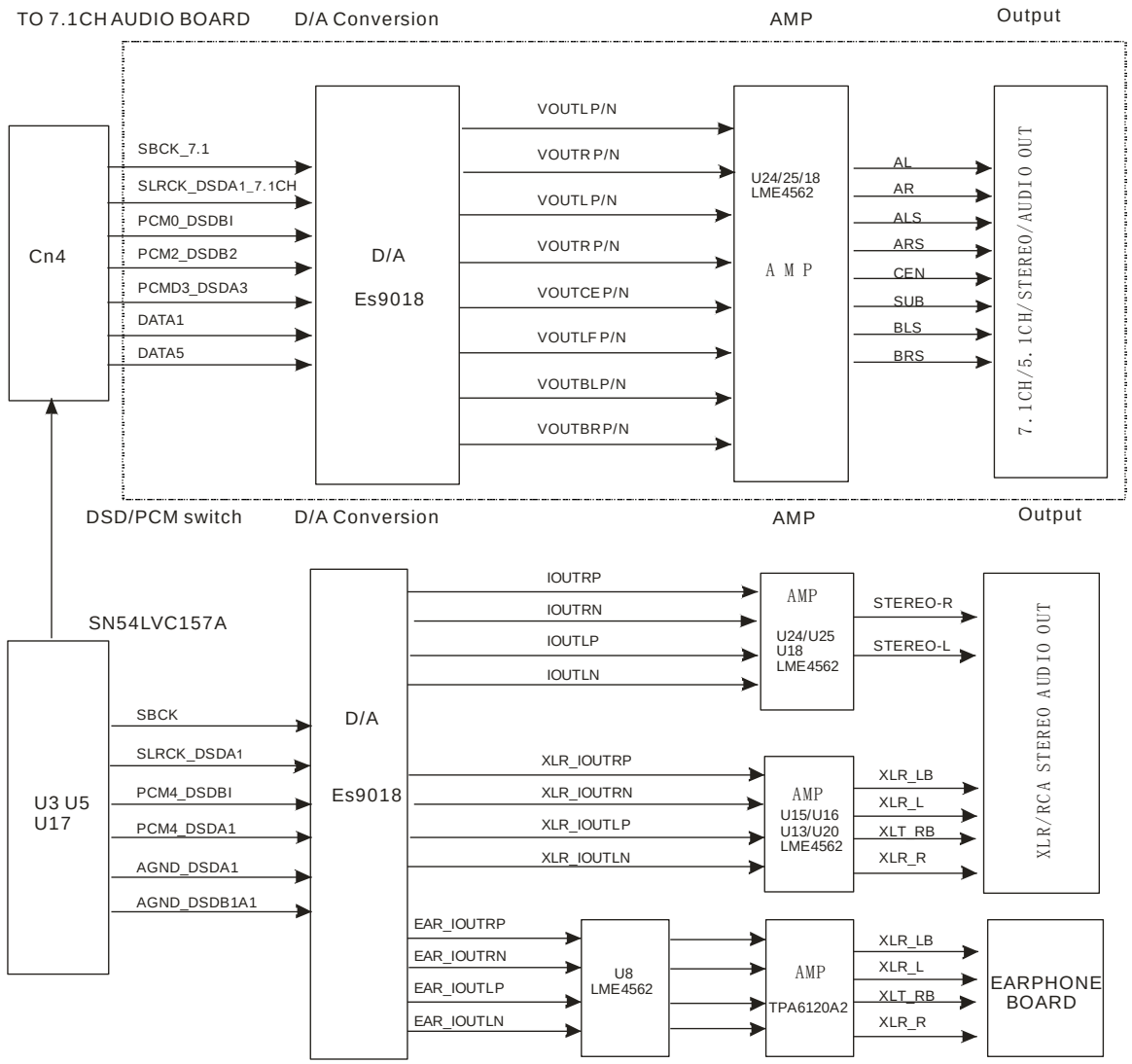


Figure 3.3.1.1 Block diagram of audio signal



Audio processing circuits

The player includes more than one audio processing circuit,such as analog audio ouput, HDMI audio output and optical/coaxial output.

Analog audio output circuit

Analog audio output employs dedicated audio board for isolated processing, capable of D/A conversion of DSD and PCM signal. Audio processing board mainly consists of buffer circuit, DSD/PCM selection switch and audo D/A conversion, amplification, filter, muting and power supply circuits.

Operating principle

The first group of digital audio (I2S)output signals output from MT8580 are transferred through socket CN4 to audio DAC board. The I2S-formatted audio signals from MT8580 are buffered and input to electronic switch U15. (when the device set to DSD output,) while outputting DSD signal, MT8580 also output a low level DSD/PCM switch signal for U15 to select DSD output channel. (When DSD_PCM is on high level, the PCM output channel is selected.) I2S audio signal is input to the audio DAC circuit for Cs4382 to perform D/A conversion and output analog audio signal, which is transmitted to the audio amplification and filter circuit consisting of 5532 and other components for amplification and filtering, and output to external device via RCA connectors.

Section 4 Video processing circuit

3.4.1 Block diagram of video circuit I (BDP-105D)

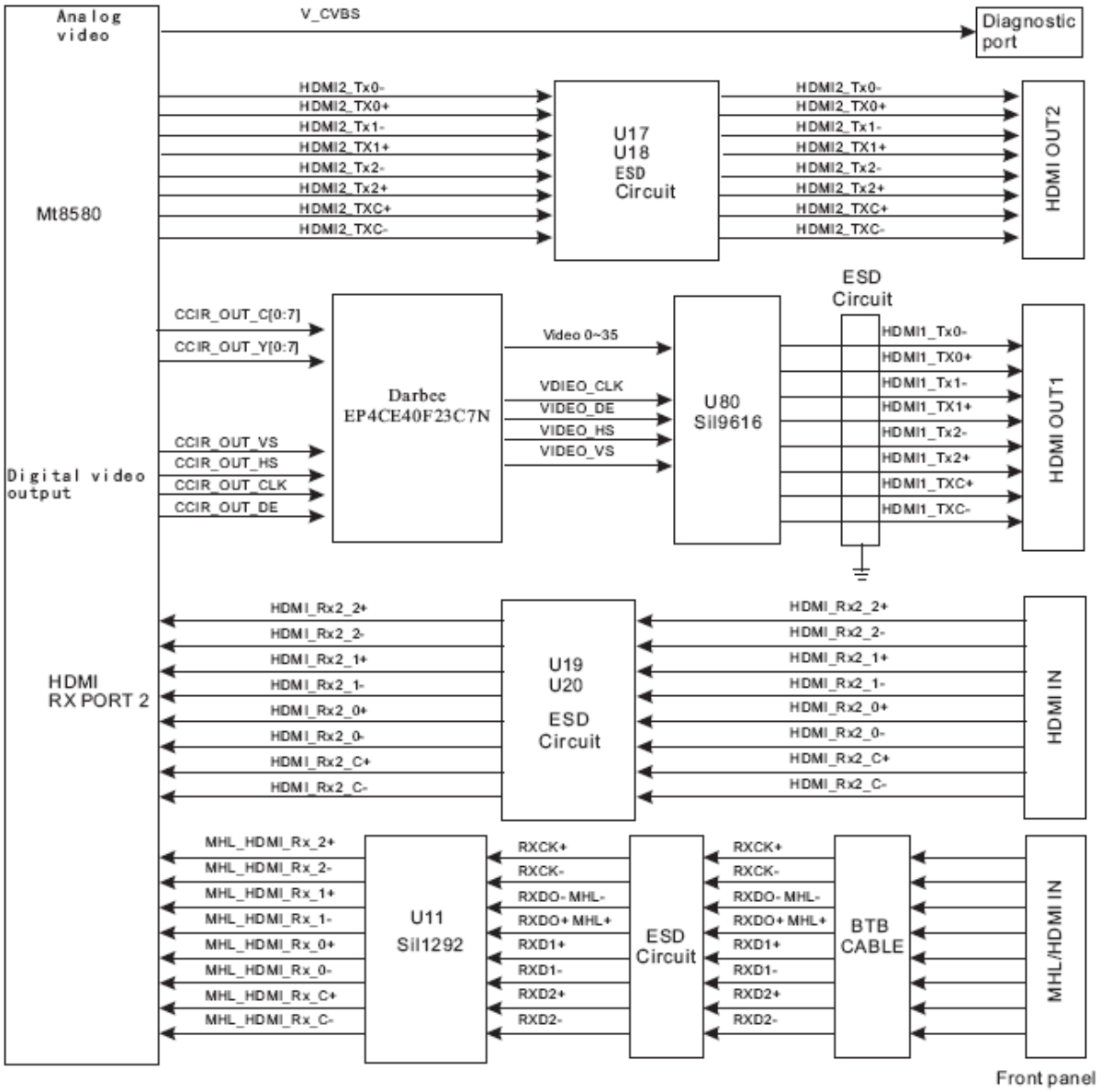


Figure 3.4.1.1 Block diagram of video circuit

3.4.1.2 Video output Circuit

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 Darbee EP4CE40F23C7N HD video processing chip for format conversion, in which the digital video signal is converted into 36 bit digital video signal. Silicon Image Sil9616 processing the parallel 36bit video signal is encoded into TMDS signal, and in the meantime digital audio signal output from Mt8530 is also encoded into TMDS. Sil9616 also has HDCP encrypted built in. The TMDS signal output from Sil9616 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.

2.4.1.3 HDMI / MHL input circuit

- 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

- 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.
- Audio Return Channel (ARC). BDP103 has implemented this feature.
- HDMI 3D. BDP103 has enabled this feature as well as 2D-to-3D conversion.
- 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 5 Other control circuits of main baord

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

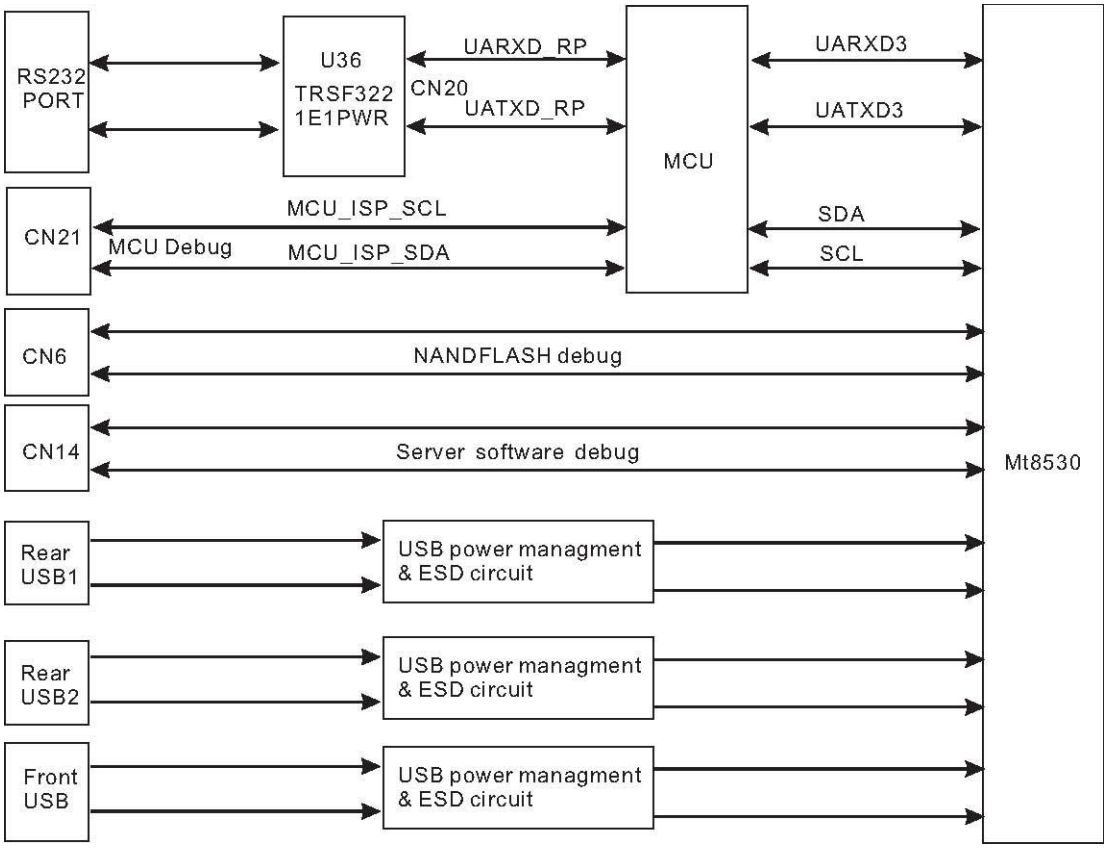


Figure 3.5.1.1 Block diagram of external input interface

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 6 Panel and button control circuits

3.6.1: Block diagram of panel circuit: （BDP-105D）

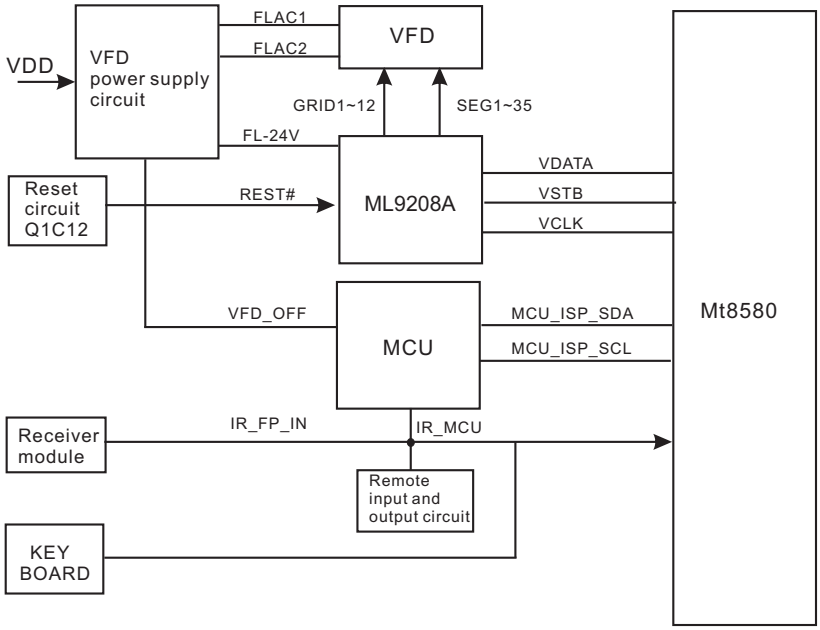


Figure 3.6.1.1 Block diagram of panel

Section 7　Power supply circuit

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

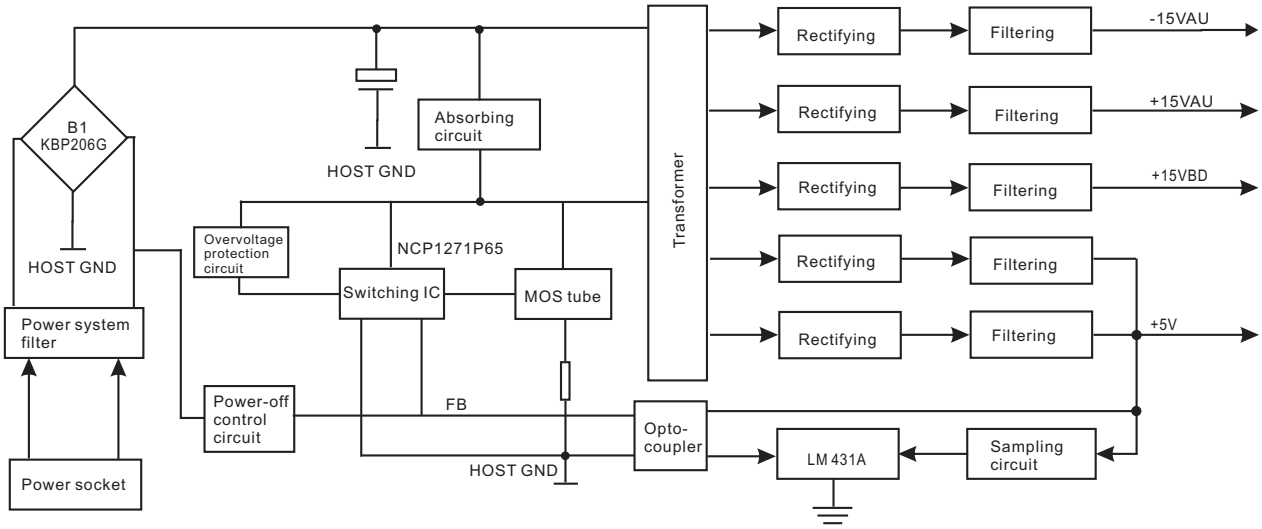
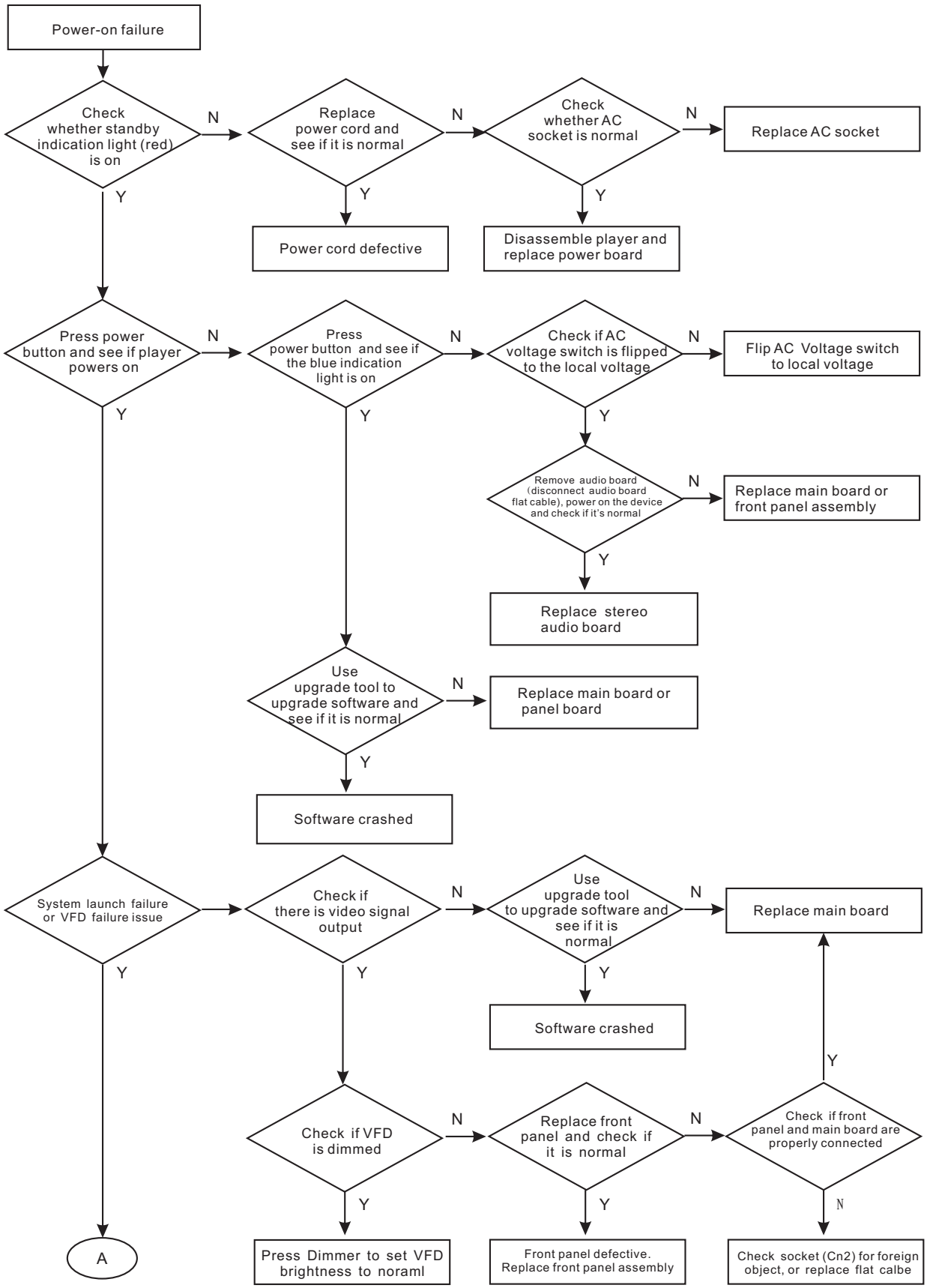


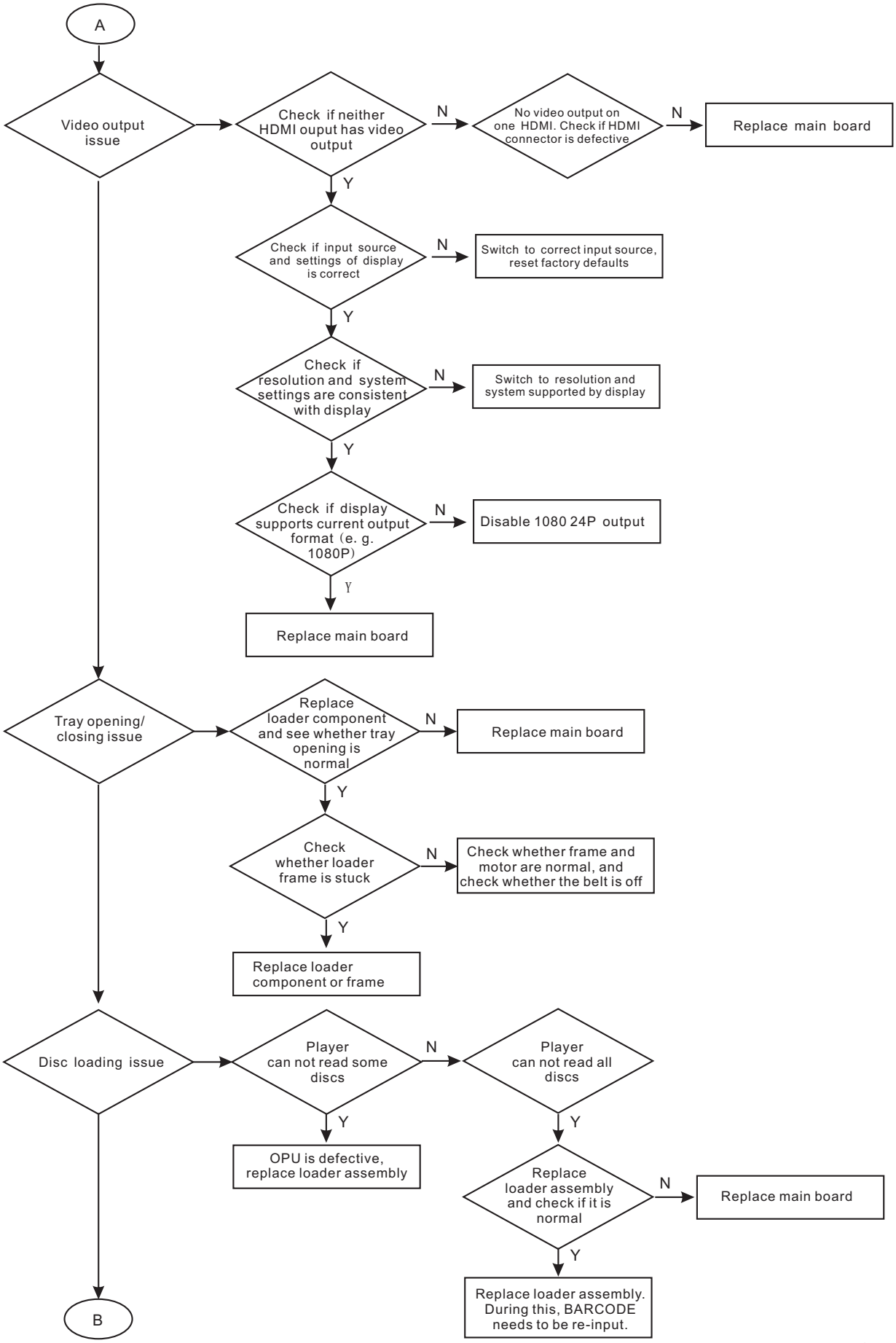
Figure 3.7.1.1 Block diagram of power circuit

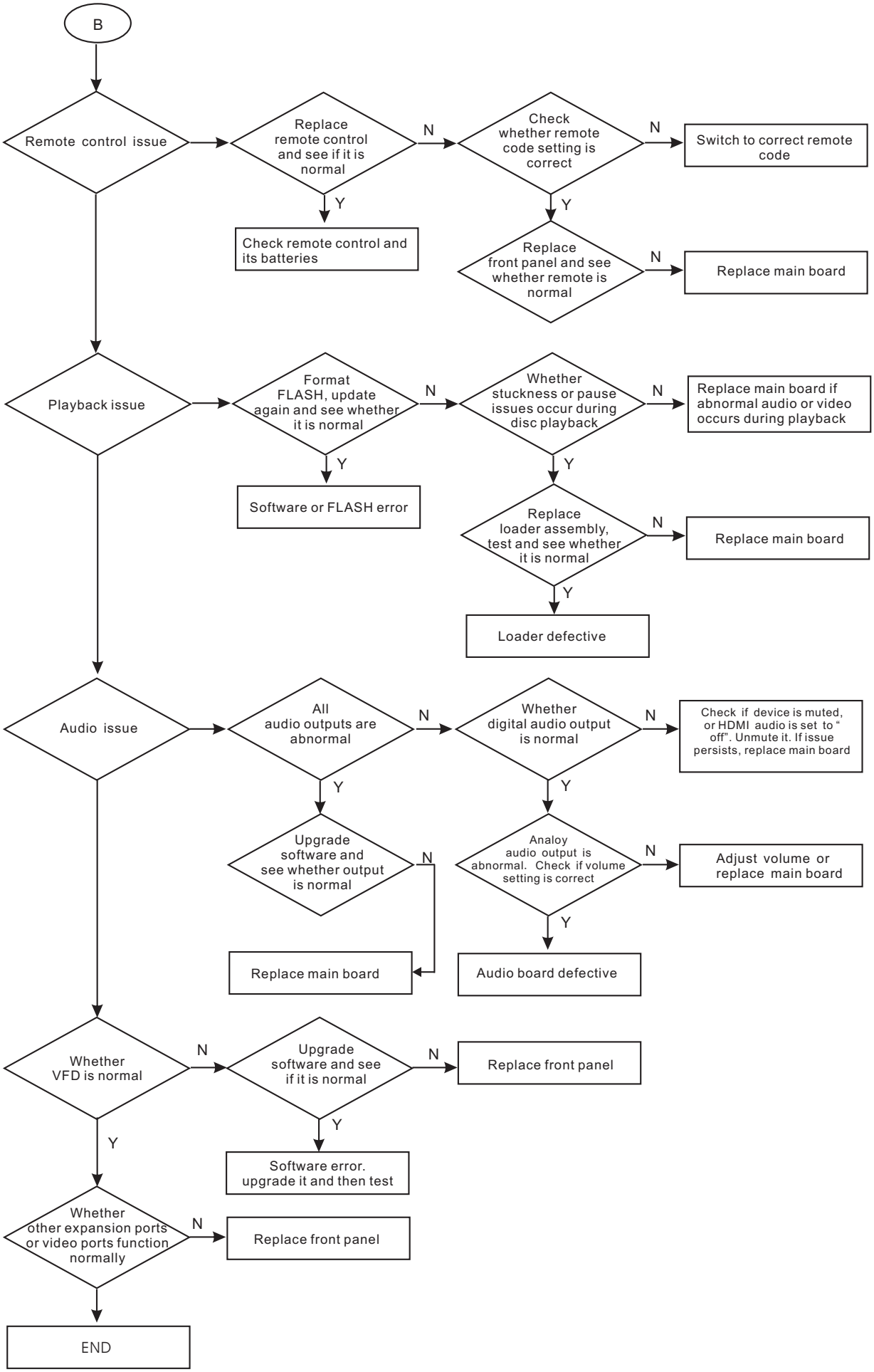
Chapter IV Troubleshooting flow chart

4.1 Troubleshooting flow charts



Troubleshooting flow for tray opening/closing, disc loading, playback and remote control issues




B
Remote control issue
Replace remote control and see if it is normal
N
Check whether remote code setting is correct
N
Switch to correct remote code
Y
Check remote control and its batteries
Y
Replace front panel and see whether remote is normal
N
Replace main board
Playback issue
Format FLASH, update again and see whether it is normal
N
Whether stuckness or pause issues occur during disc playback
N
Replace main board if abnormal audio or video occurs during playback
Y
Software or FLASH error
Y
Replace loader assembly, test and see whether it is normal
N
Replace main board
Y
Loader defective
Audio issue
All audio outputs are abnormal
N
Whether digital audio output is normal
N
Check if device is muted, or HDMI audio is set to " off". Unmute it. If issue persists, replace main board
Y
Upgrade software and see whether output is normal
N
Y
Analoy audio output is abnormal. Check if volume setting is correct
N
Adjust volume or replace main board
Replace main board
Y
Audio board defective
Whether VFD is normal
N
Upgrade software and see if it is normal
N
Replace front panel
Y
Y
Software error. upgrade it and then test
Whether other expansion ports or video ports function normally
N
Replace front panel
END

Chapter V Install firmware& Install barcode

Section 1 BDP-10X Nand Flash Format Guide

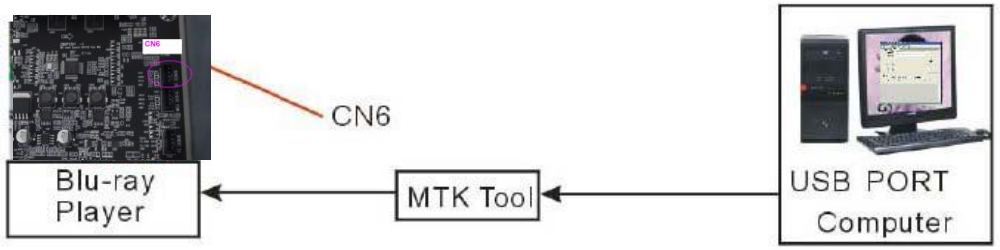
5.1 BDP-10X Nand Flash Format Guide

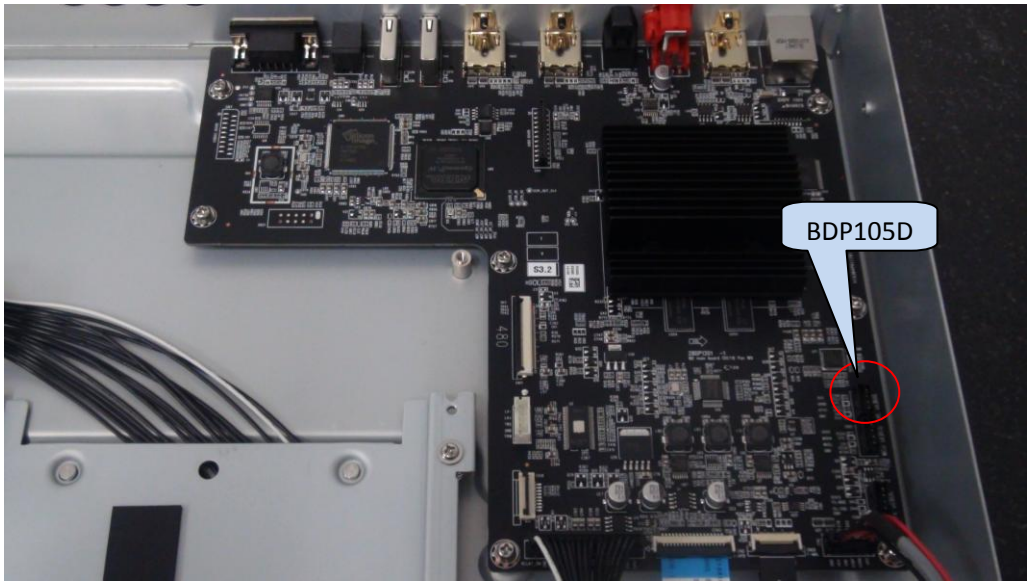
- formatting the nand flash and reinstalling the firmware. Follow the steps below to perform the operations:
- Format nand flash
- Install U-boot file
- Download main file into nand flash
- Install barcode
- Load MAC address

Tools for firmware upgrade

Tool list	Quantity	Remark
PC	1	Preload Windows XP operating system
RS232 Hardware driver tools	1	Same tool as barcode installation
mtktool_ver2.47.03.18_tocustomer	1	mtktool_ver2.47.03.18_tocustomer
U-BOOT file mt8580_bl_linux.bin	1	

Format nand flash Tool connection settings



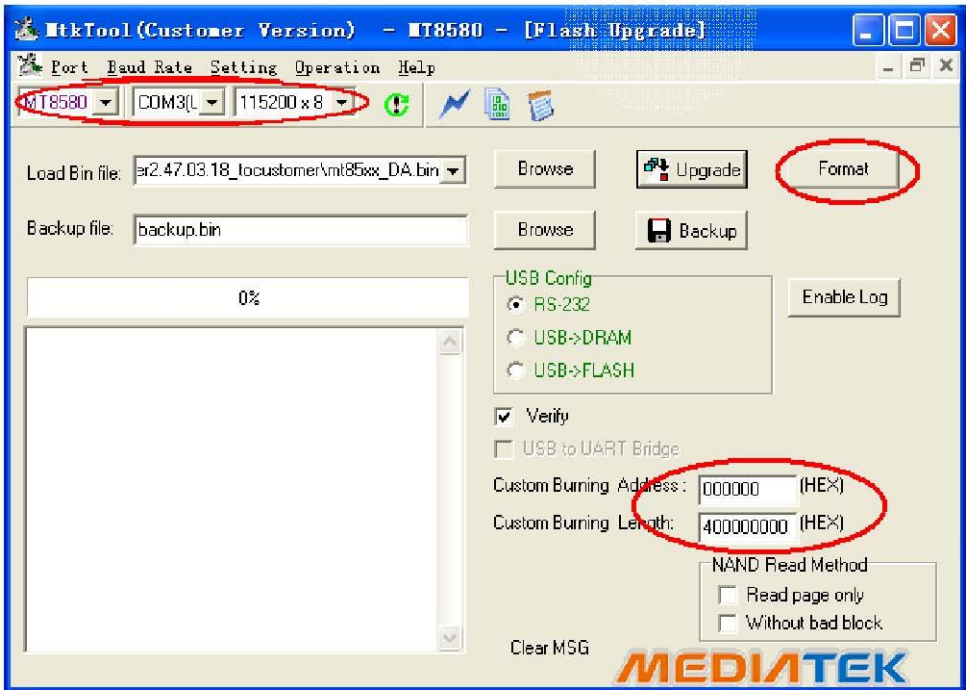


1. Start MTK Tool (mtktool_ver2.47.03.18_tocustomer

Select MT8580, COM (USB) ,115200x8 ------ Press Format

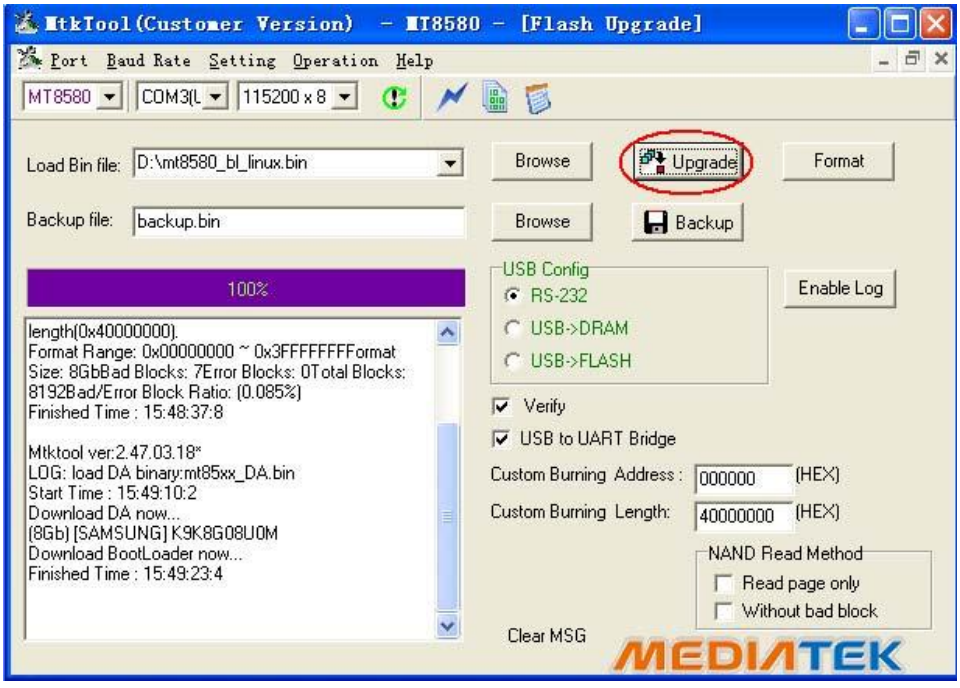
button------Press the player's Power button to power on ----- Automatically finish formatting

Remark：Set Custom Burning Address to 000000; Set Custom Burning Length to 40000000.



2. Install U-boot file

Restart the player after finishing the formatting, select U-boot program path, then click Browse to select U-boot file path------ Upgrade---Press the player's Power button to power on ----Power off after finishing U-boot installation.



3. Nand flash main file download (USB)

Tool list	Quantity	Remark
USB drive	1	Usb2.0 Above 64M capacity
BDP-10XAU.bin	1	Latest firmware
PC	1	Copy latest firmware to USB drive

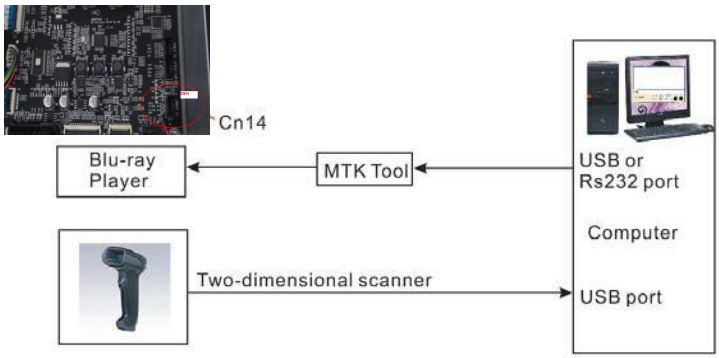
3.1 Copy the main firmware, to the UPG folder of USB drive.

3.2 Plug the USB drive in the USB port of BDP-10xAU. The player will automatically start upgrading after powering on. (This procedure may take about 2 minutes).

3.3 After finishing the firmware installation, the OPPO logo screen will display after powering on. After that, power the player off.

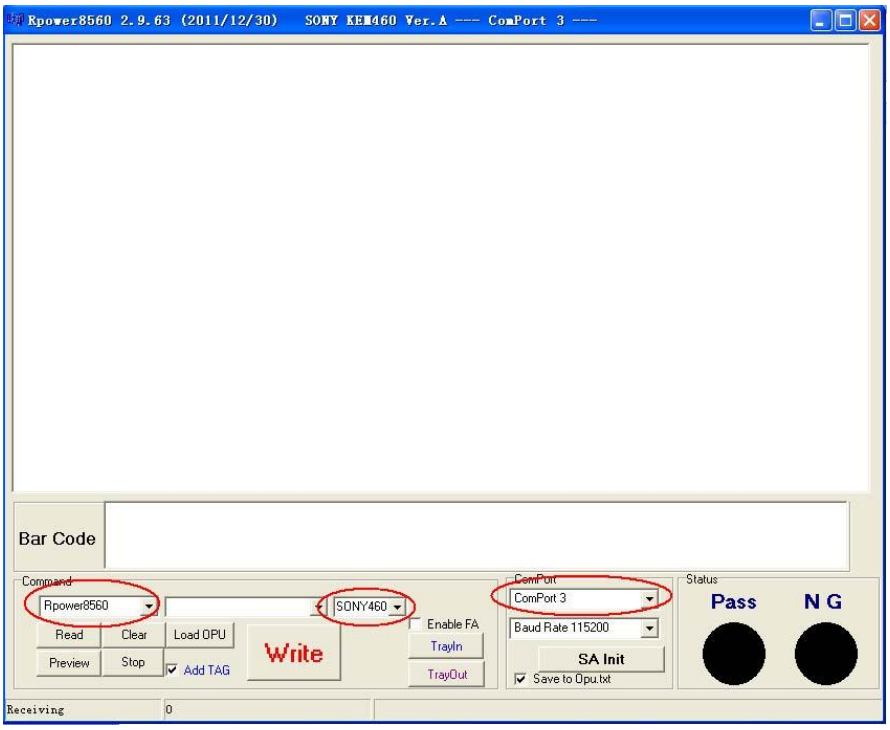
4. Install barcode

4.1 Tool connection settings+ PC_USB port-- RS232 hardware driver tools MAIN BOARD CN14



Block diagram of barcode entry device connection

4.2 After formatting the nand flash, you need to input the barcode value again. (Follow the instructions of barcode install method)



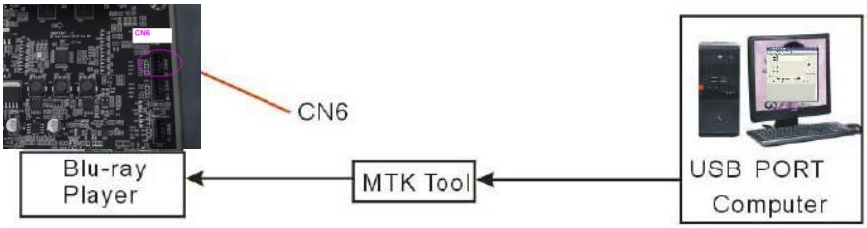
4.3 Reinstall the flat cable of the loader properly, power the device on and test it. Input the barcode again, If the FA test menu appears, you can skip this test by pressing the Stop key.

5. Instructions of loading the MAC address

5.1 To load MAC address, the same MTK tool and connecting method are used as those for NAND FLASH formatting.

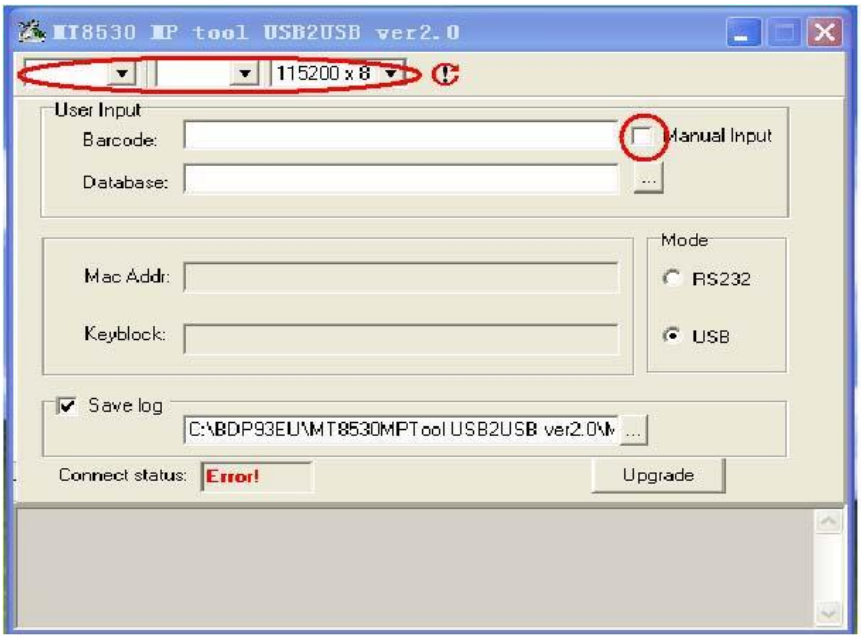
Tools for loading

Tool list	Quantity	Remark
PC	1	Preinstall Windows XP operating system
RS232 Hardware driver tools	1	Same hardware tool as that of BARCODE input
MT8530MPTool USB2USB ver2.0	1	MAC address Install software

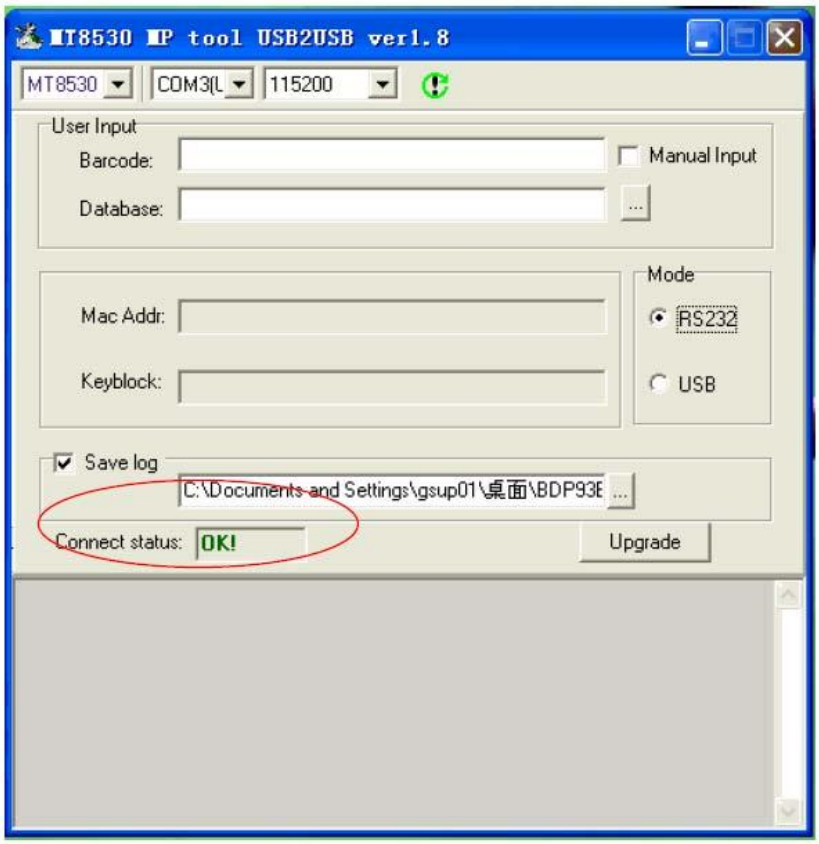


Block diagram of Mac_addr entry device connection

5.2 Click the “MT8530MPTool USB2USB ver1.8.exe” in the folder to start the update program, and select the right port for the MTK tool.



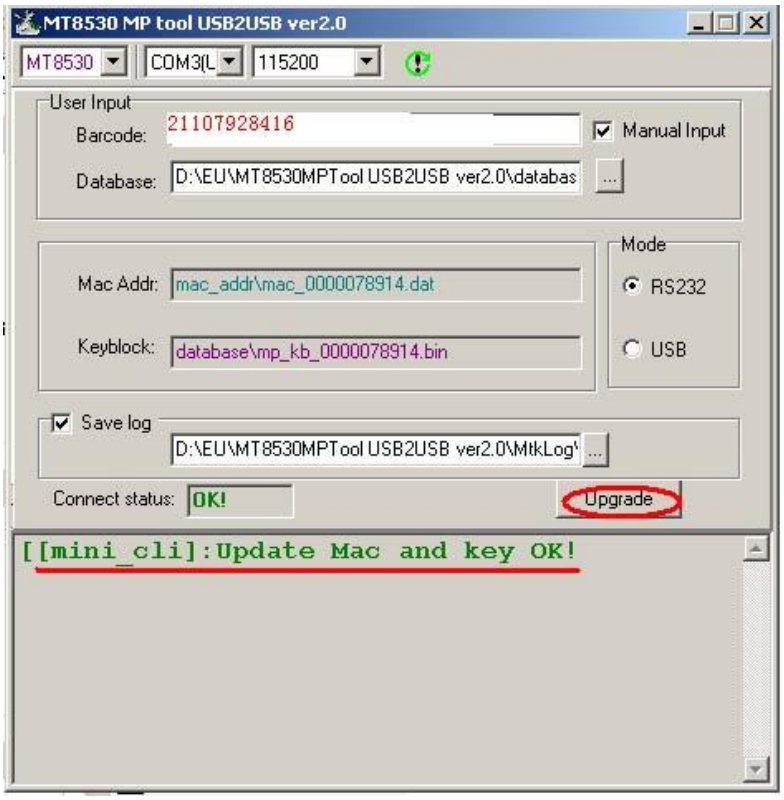
5.3 Power on BDP-103/105, start the software and select the right port. The Connect status will say “OK” as illustrated below:



5.4 Set up the program as follows: Enter the last 10 digits of the S/N (instead of the complete S/N) in the barcode form, check Manual Input, and set the Mode to RS232.

5.5 Select the ID file from the Database folder for the Database column. The ID file is ready in the folder

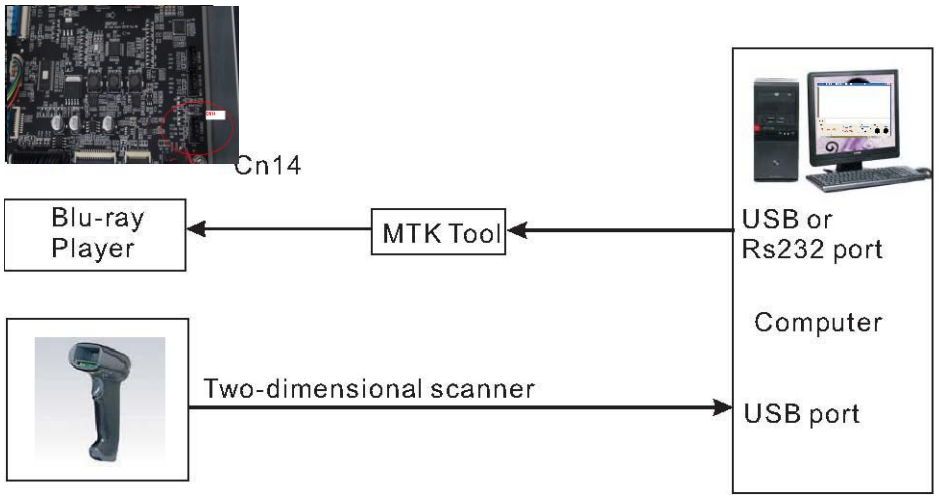
5.6 Click Upgrade. The MAC address loading process will display automatically as shown below.



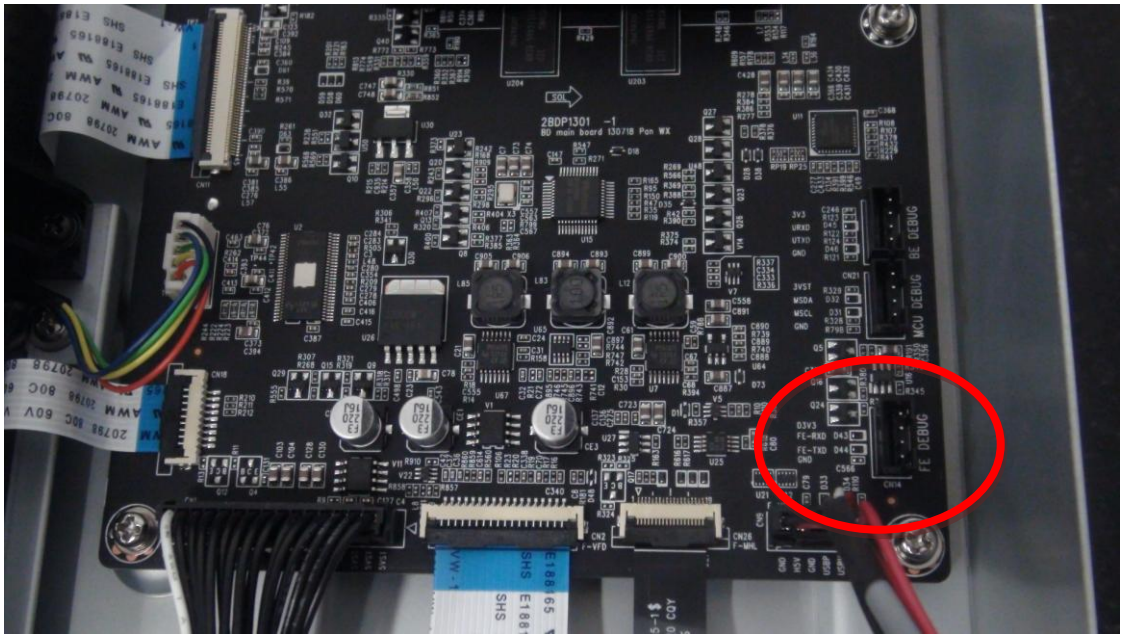
Section 2 Install barcode

5.2 Install barcode

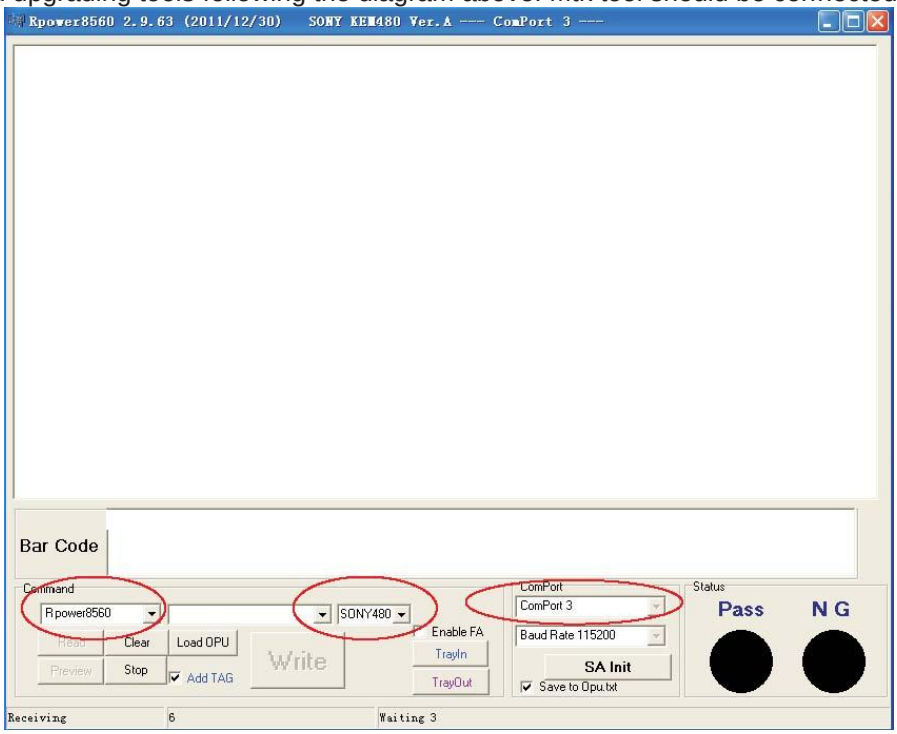
Device connection



Block diagram of barcode entry device connection



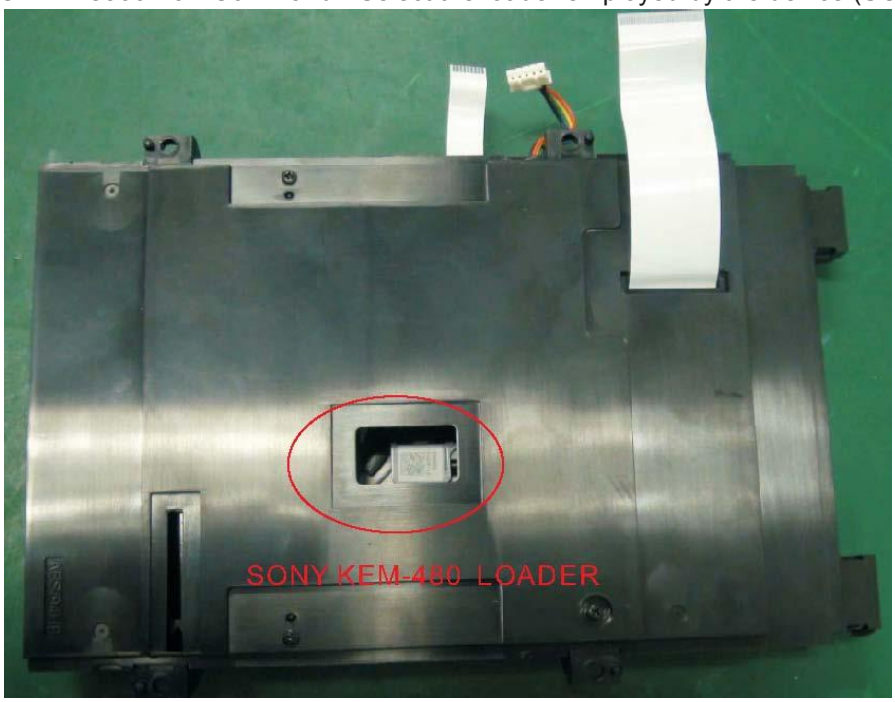
Step 1. After replacing main board or loader assembly, it is required to re-input barcode. Before the barcode is input, the main board and the loader should not be connected. Connect the player, PC, two-dimensional scanner and upgrading tools following the diagram above. Mtk tool should be connected to Cn14.



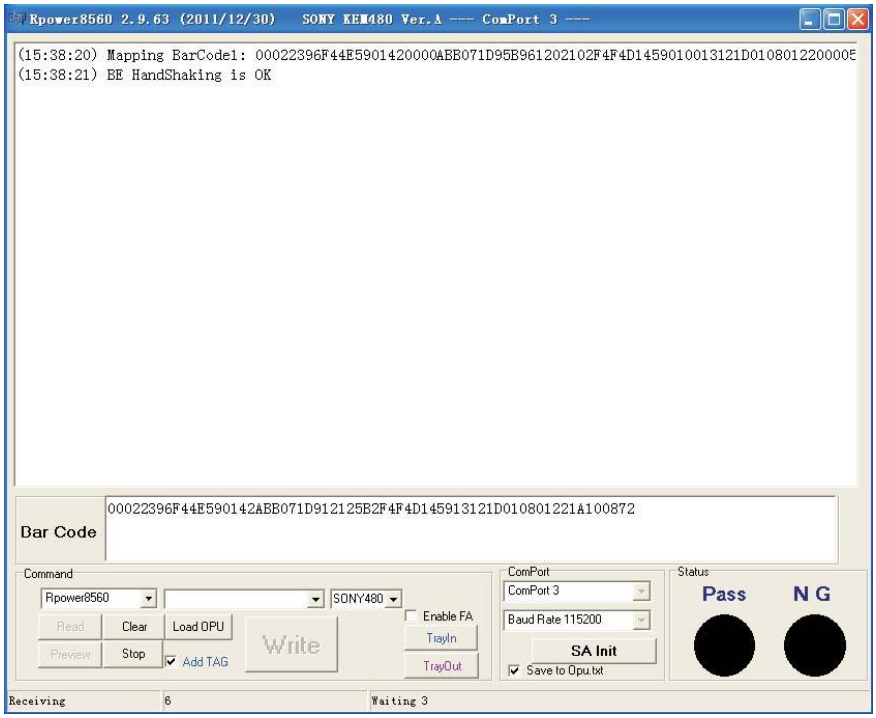
Step 2. Activate the predetermined Rpower_2.9.63(KEM480) software on PC. Set up the software according to device model.

1) Select the approriate 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).

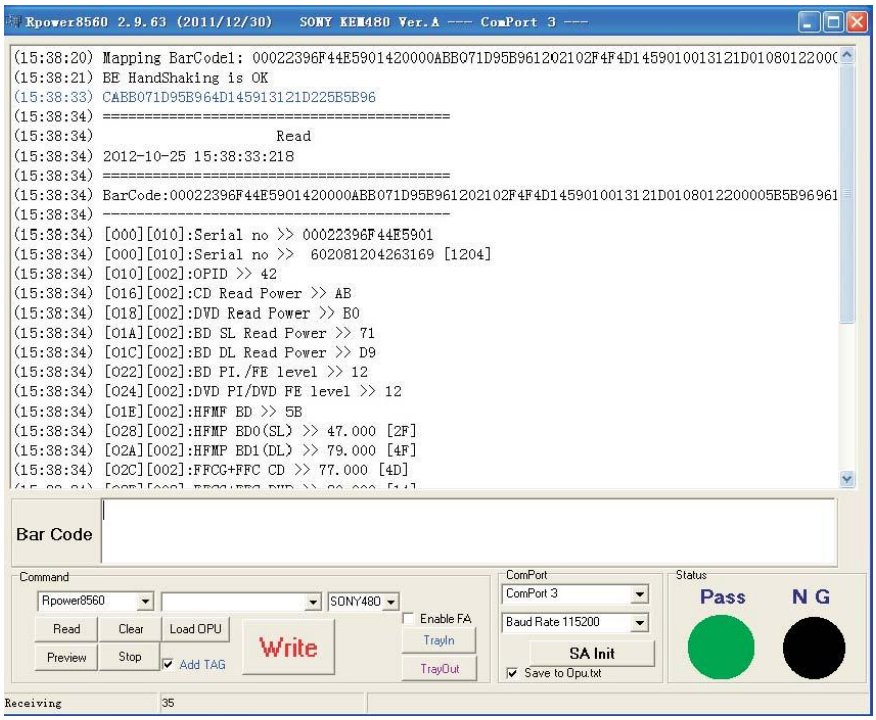


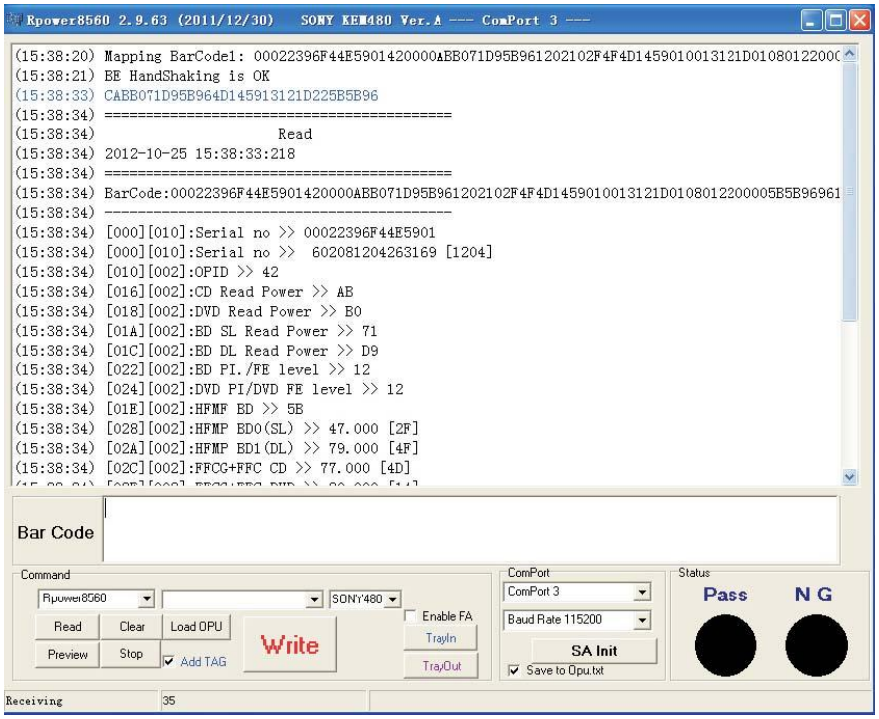
Step 3. Use the scanning gun to scan the two-dimensional barcode. (Find the reserved scanning window in the bottom of the loader) Note: If the barcode label cannot be seen from the window, connect the loader cable to the main board and power the device on, then the OPU will automatically reset to the initial position and reveal the barcode label.



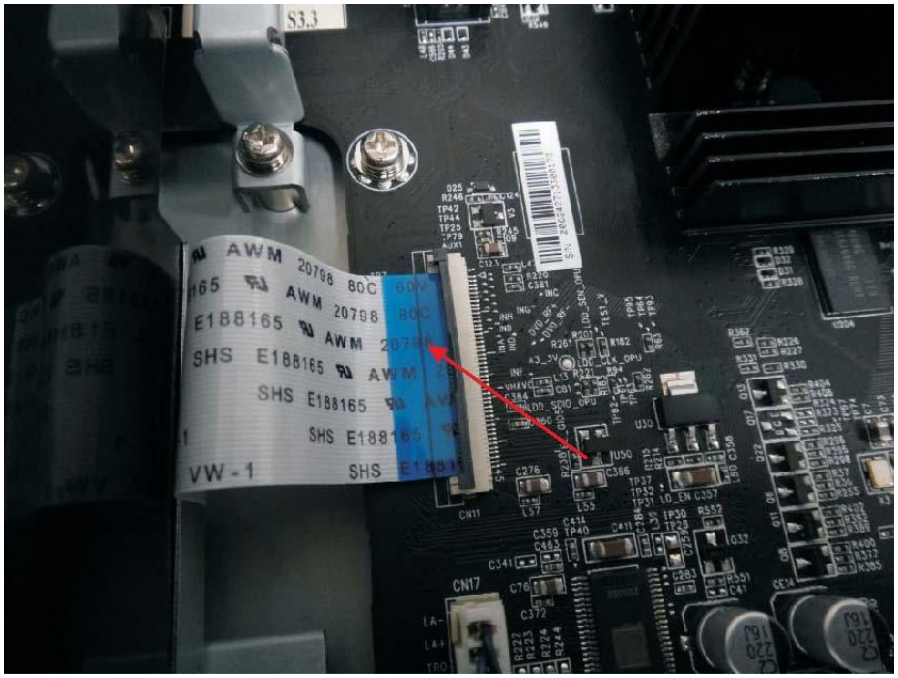
Step 4. The Barcode will be displayed on the PC software interface after successfully scanned.The barcode consists of 64 digits and alphabets.

Step 5. After the barcode input is successfully completed, the PASS light will turn green and last for a few seconds and logs will be displayed.





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



Step 7. Reinstall the flat cable of the loader properly, power the device on and test it. Input the barcode again, If the FA test menu appears, you can skip this test by pressing the Stop key.

Note:

- Please check the device connections if NG or FALL happens during upgrading.
- The device should remain on during upgrading, and powering off and standby should be avoided.
- Do not connect the loader or conduct reading test before barcode input is successfully done.
- FA test might be reminded after barcode input is finished. After-sales service staff can skip this test

Chapter VI Disassembling & Assembling the Unit and Precautions

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



Main tools required for disassembly

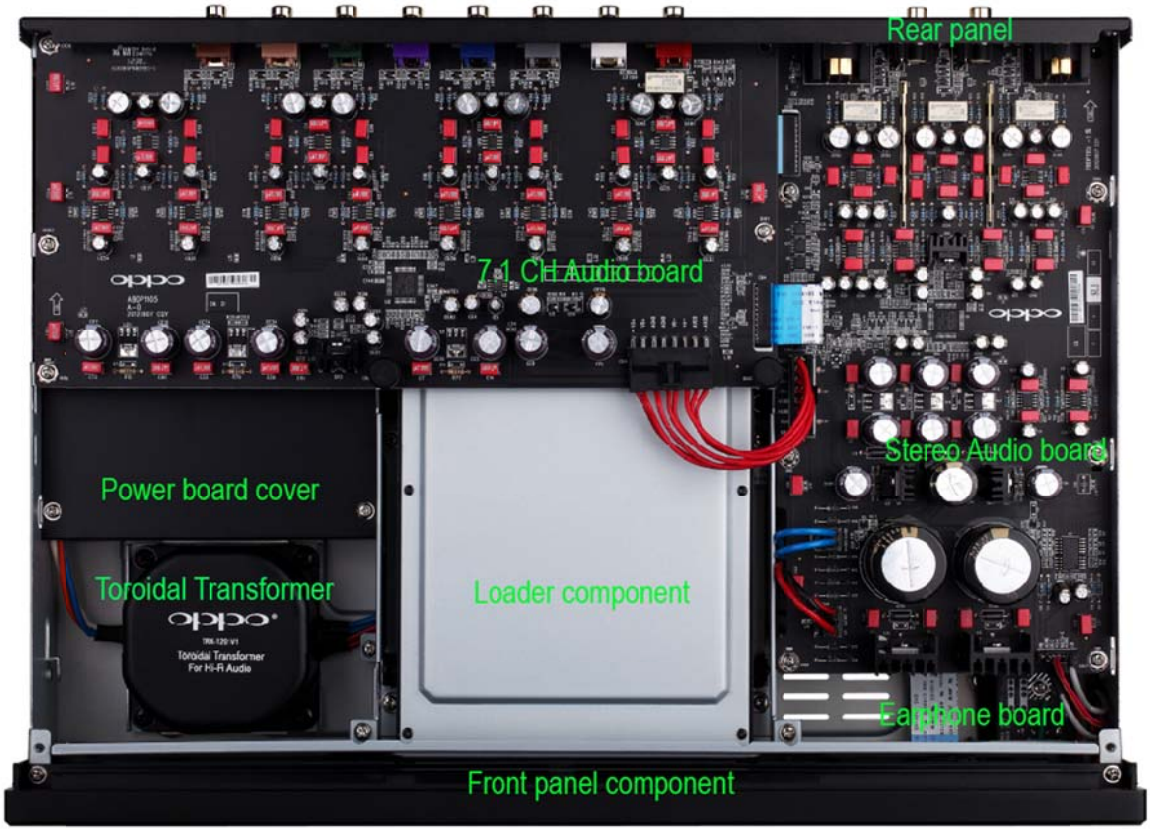


Back View

1. Remove the top cover

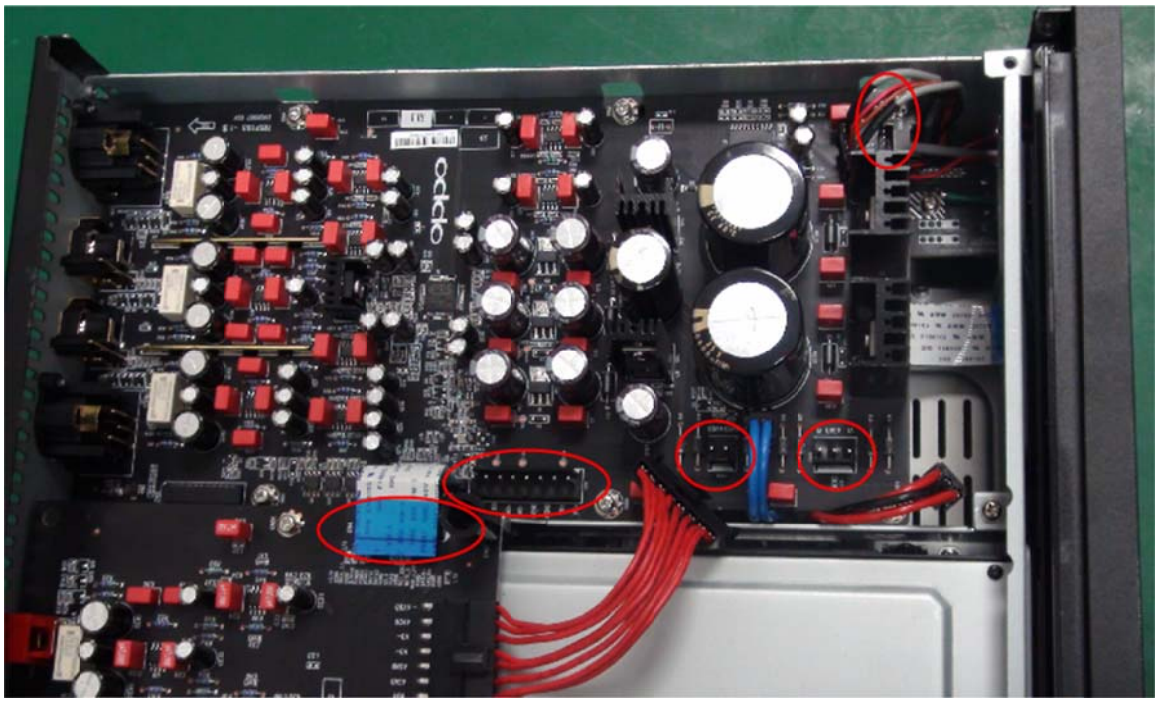
Place the device on the bench, .use a screwdriver to remove the 7 screws (PWT3*6*7) that hold the rear cover and the top cover and the 4 screws (PWM4*5*10) that hold the top cover and the bottom cover at the side of the top cover.

2. Inner structure of the unit

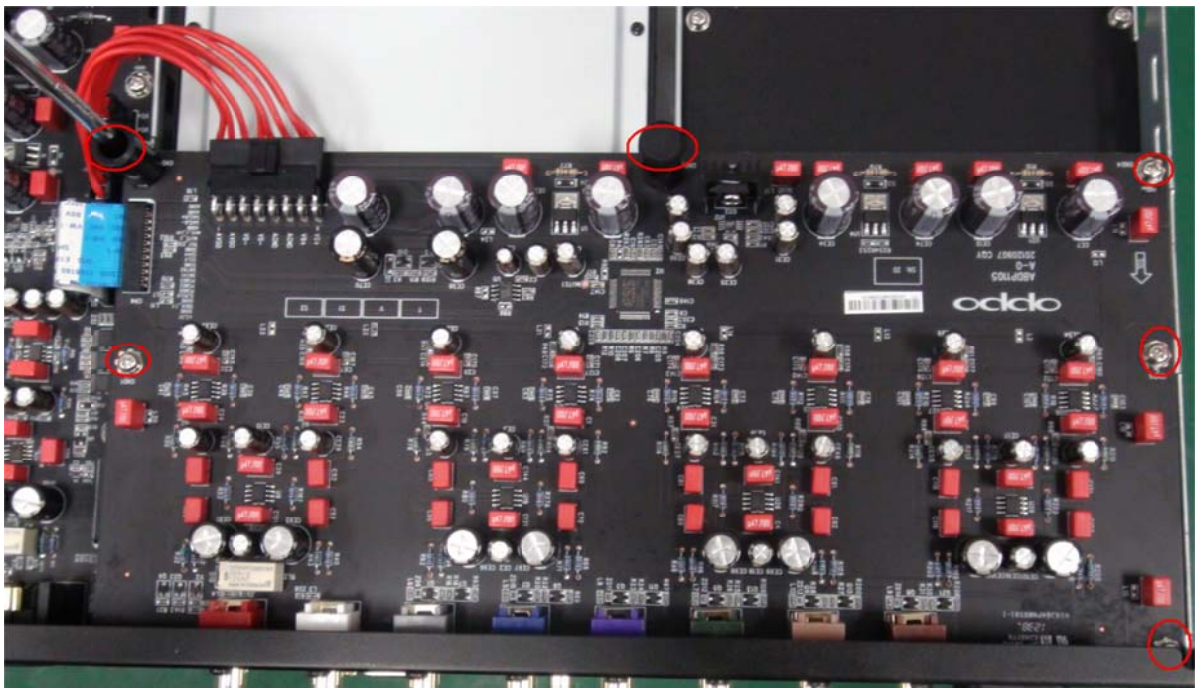


Top View

3. Remove the audio board



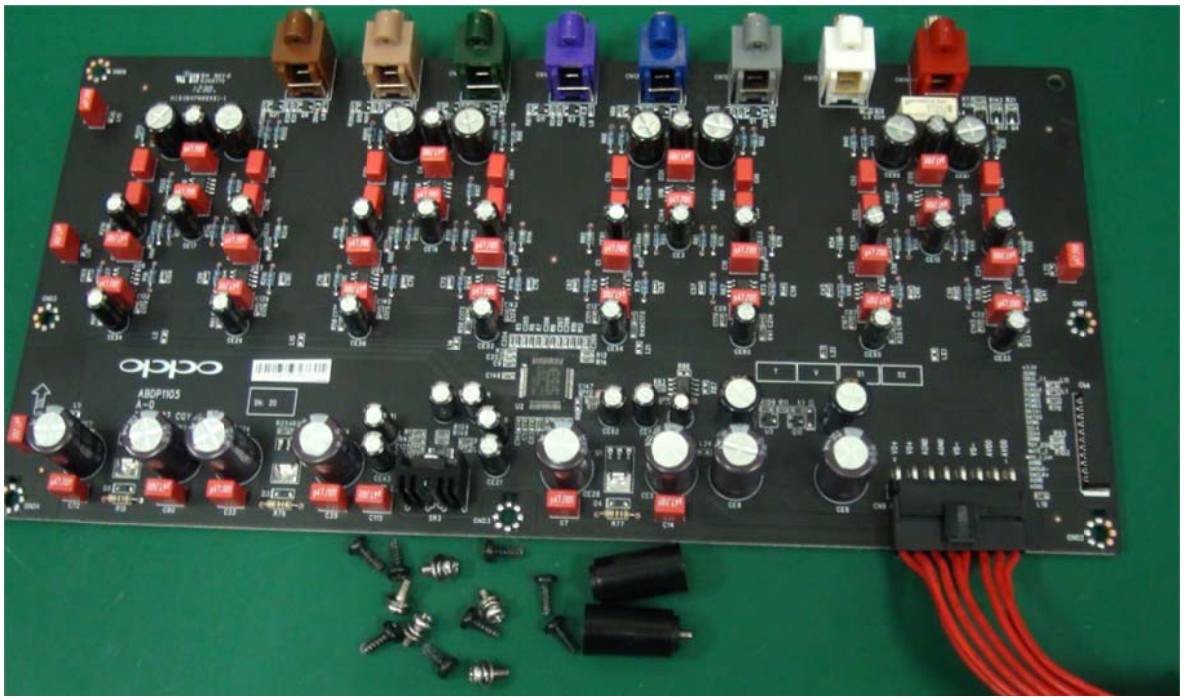
3.1 Take off the flat cable connected to the audio board.



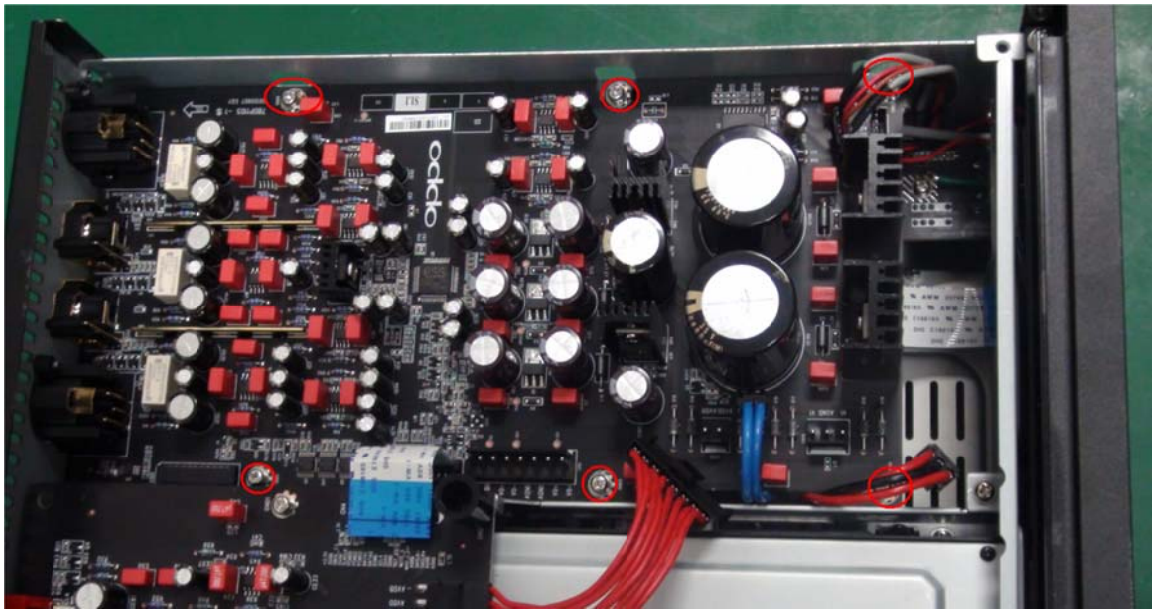
3.2 Use the electric screwdriver to remove the screws (6pcs PM 3×7H) holding the 7.1 ch audio board in position inside the device.



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



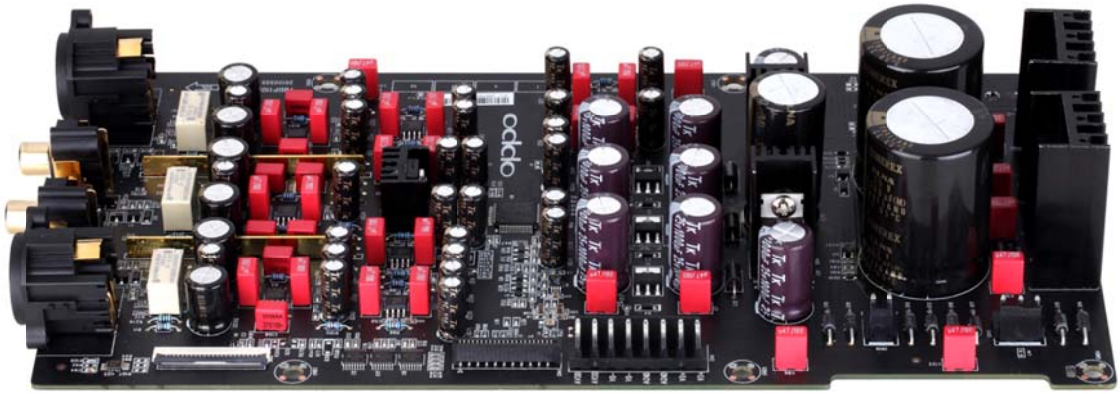
7.1 ch audio board removal completed



3.4 Remove the flat cables connected to the stereo audio board. Use the electric screwdriver to remove the screws (6pcs　PM 3×7H) holding the stereo audio board.



3.5 Use the electric screwdriver to remove the screws (6pcs BT3*8H) holding the stereo terminals and the XLR terminals



3.6 Take off the audio board. Before doing this, remember to check if the flat cable connecting the audio board to the main board is disconnected. Then take off the audio board if it is.

3.7 Precautions for audio board disassembly and reassembly

3.7.1 Do not make the torque too strong. Please use proper torque.

3.7.2 When connecting or disconnecting the flat cable, please ensure it is completely aligned to the terminals, or the flat cable might get damaged.

3.7.3 The two audio boards can be removed separately. When reassembling them, please ensure the screws holes on the PCB and its bracket must be matched before screwing them together.

4 Replace the loader assembly

Loader assembly replacing flow:

Remove the tray door——Remove the audio board——Disconnect the flact cable connecting the loader to the main board——Remove the audio board bracket (right)——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* toinput 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 audio board bracket——Install the audio board——Position the top cover

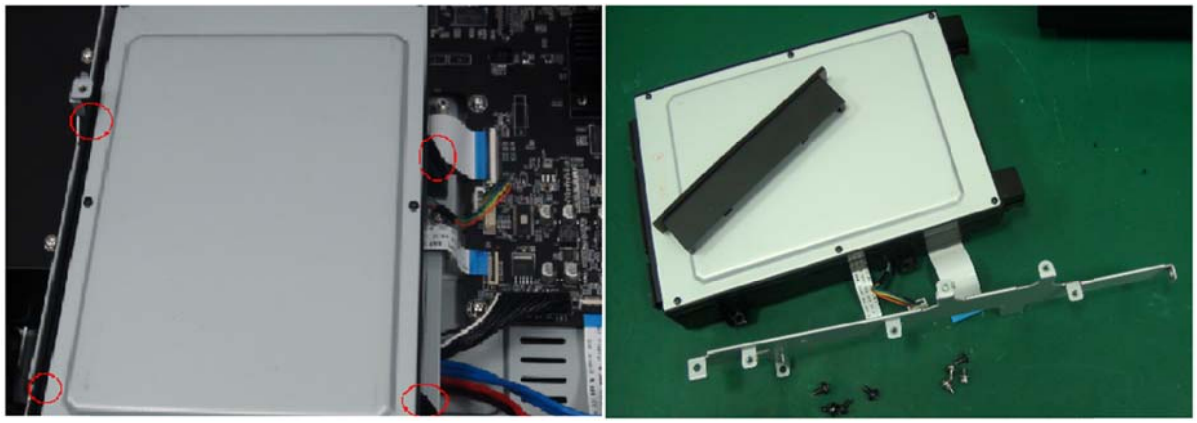


4.1 Power on the device and take off the tray door. If the device won't power on or open the tray, please open the tray manually using the manual tray opening window in the base of the device.

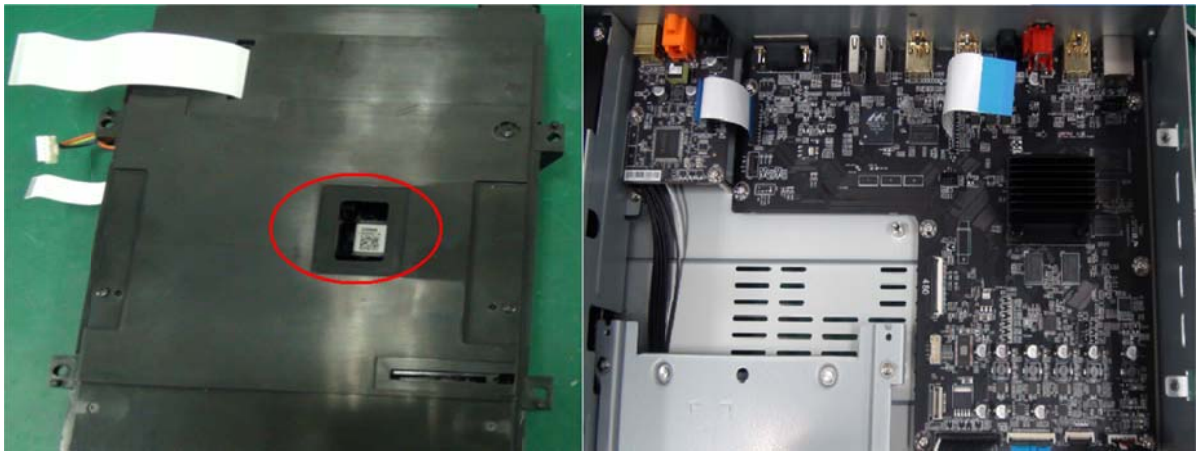
4.2 Remove the audio board



4.3 Use the electric screwdriver to take off the screws holding the audio board bracket (on the right), and take off the audio board (on the right). 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.



4.4 Use the electric screwdriver to remove the 4 screws holding the loader assembly. Takeoff the loader assembly tray door and the audio board bracket.



4.5 Bottom of the load. The spot indicated by a red circle is the barcode scanning window. The figure on the right shows the inner view of the device with the loader removed.

4.6 Loader removal is completed. Its reassembly is a reverse process of the disassembly.

4.7 Precautions for loader assembly:

4.7.1 After loader replacement, do remember to input the new loader's barcode following the *Barcode Installation Guide*.



4.7.2 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.



4.7.3 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.

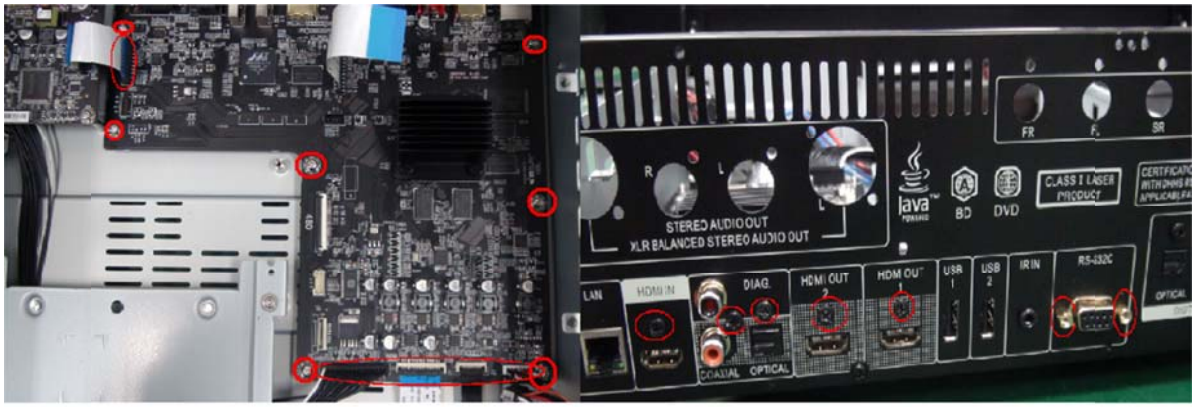
4.7.4 BDP-105 uses 480 loader, and cannot accept 460 loader instead, or damage can be caused to the main board and the loader.

5 Replace the main board

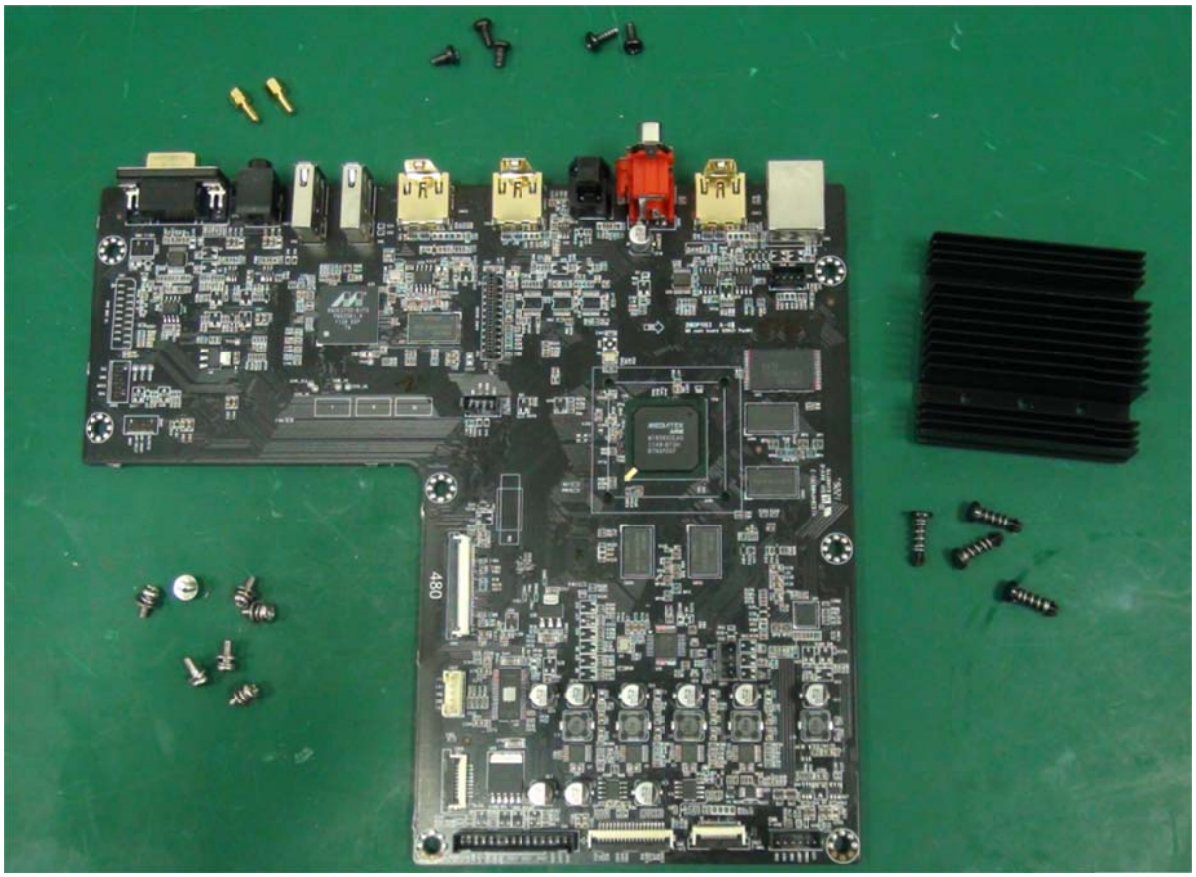
Main board replacement flow:

Remove the top cover——Remove the audio board——Remove the loader assembly——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

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



5.2 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.



5.3 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.

5.4 Precautions for main board replacement:

5.4.1 Re-input the loader barcode following the *Barcode Installation Guide* after replacing the main board.

5.4.2 Pug 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.

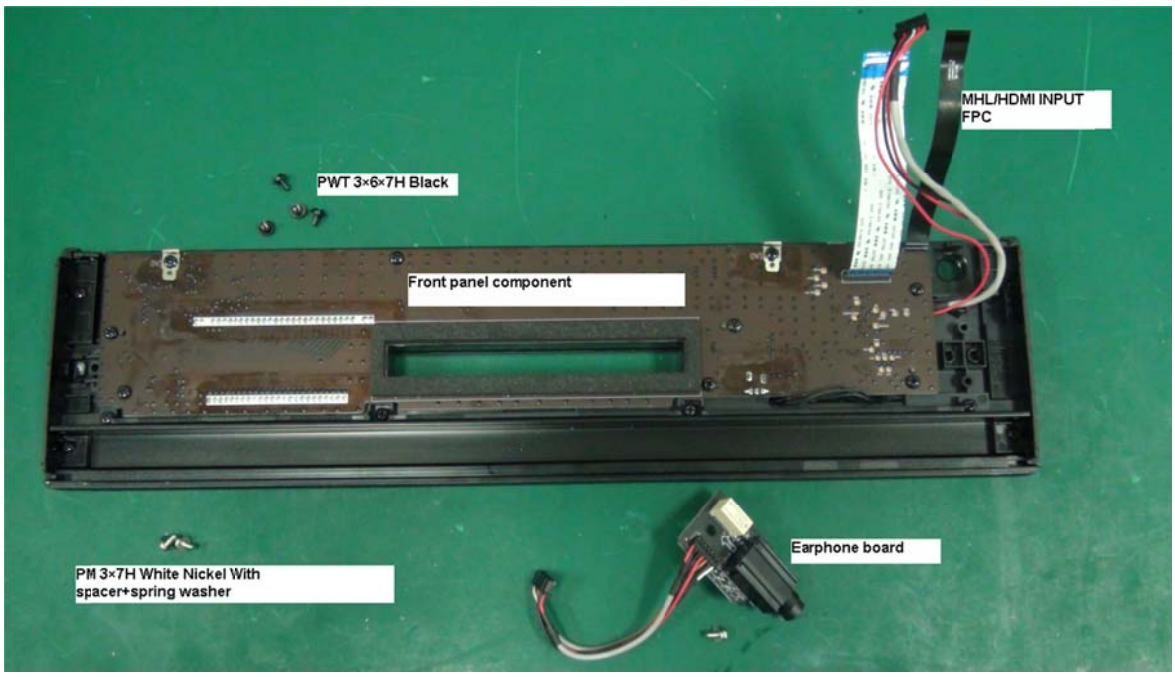
5.4.3 Before installing the main board, check if the heat sink support hooks are loose or damaged to make sure the heat sink won't come off during transportation.

6 Replace the front panel assembly

Front panel assembly replacement flow:

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





6.1 Detached front panel assembly

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

6.2 Precautions for front panel assembly installation

6.2.1 The glass can get scratched very easily. Please apply protective film onto it before disassembly or reassembly.

6.2.2 The tray door and the flat cable shall be removed first before removing the front panel screws.

6.2.3 After the reassembly is completed, test the device and re-adjust the tray door's position.

7 Replace the power board

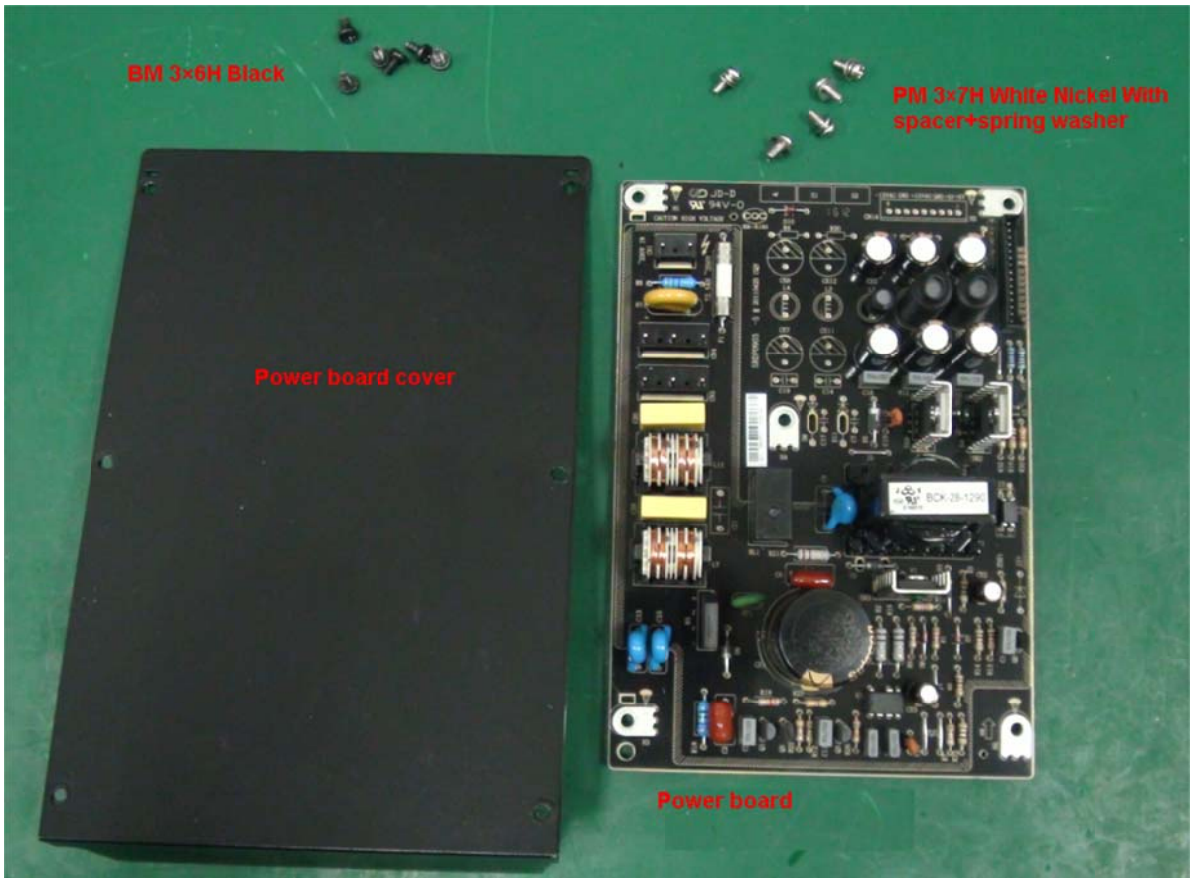
Power board replacement flow:

Remove the top cover——Remove the 7.1 ch audio board——Remove the power board

cover——Disconnect the flat cables connected to the power board——Remove the screws holding the power board——Replace the power board——Connect the flat cables and test——Install the 7.1 ch audio board——Install the top cover.



7.1 Remove the screws holding the power board and the power board cover, and take off the power board.



7.2 Precautions for power board removal and reinstallation.

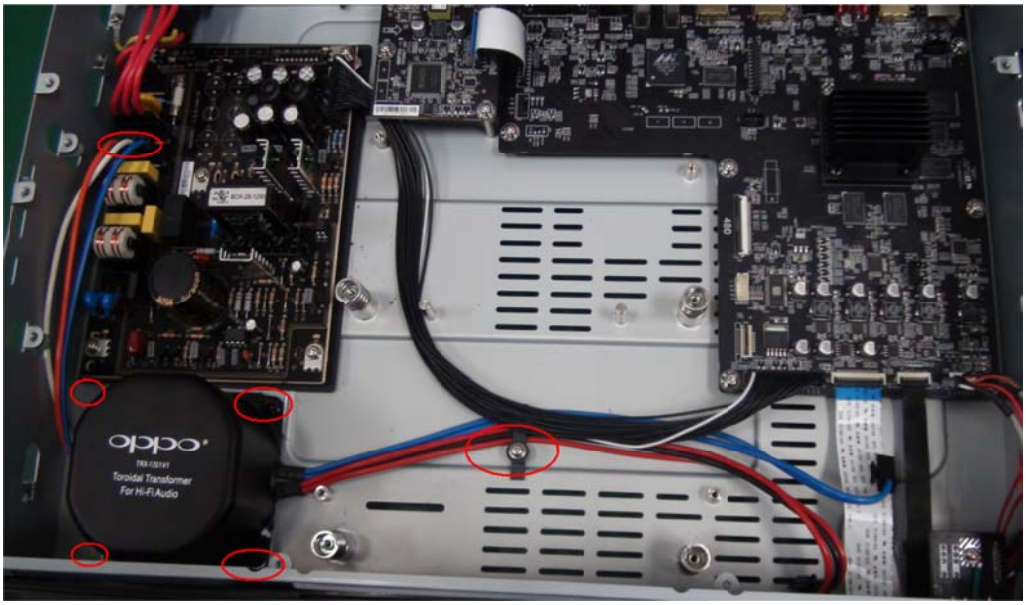
7.2.1 Make sure the power of the device has been cut off before removing the power board.

7.2.2 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 toroidal transformer

8.1 Precautions for toroidal transformer replacement:

Remove the top cover——Remove all the audio boards——remove the audio board bracket——Remove the loader——Remove the power board cover——Disconnect the cable connecting the transformer to the power board——Remove the loader bracket——Replace the transformer——Install the flat cables and test——Install the audio boards——Install the top cover.



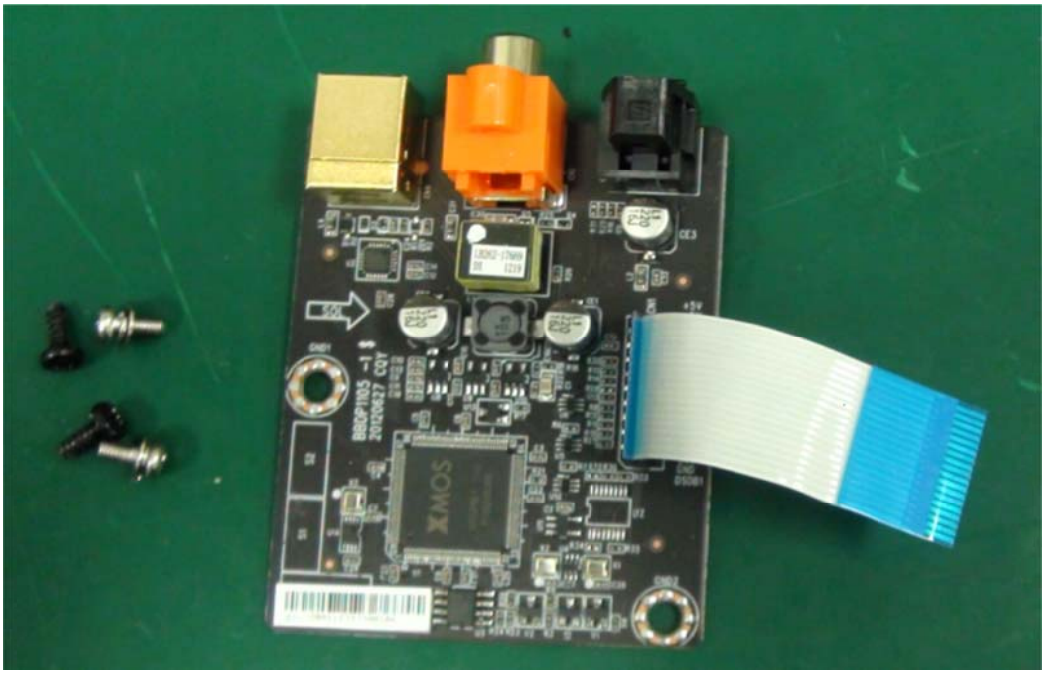
8.2 Precautions:

8.2.1 The toroidal cannot be replaced by BDP-95's transformer.

8.2.2 After replacing the transformer and before powering on the device, do check the power switch toggle on the back panel to ensure the right voltage is selected.

9 Replace the USB DAC board

9.1 The USB DAC board can be removed directly after the 7.1 ch audio board is removed, however, make sure the flat cables is held parallel with and completely aligned to the socket when disconnecting and connecting them, or the flat cables can get damaged.



The difference between BDP-105D and BDP-105

BDP-105D : serial number

1. BDP-105D US serial number: Starting from B2**A3.....
2. BDP-105 US serial number: Starting from E2**B6 or B2**A0

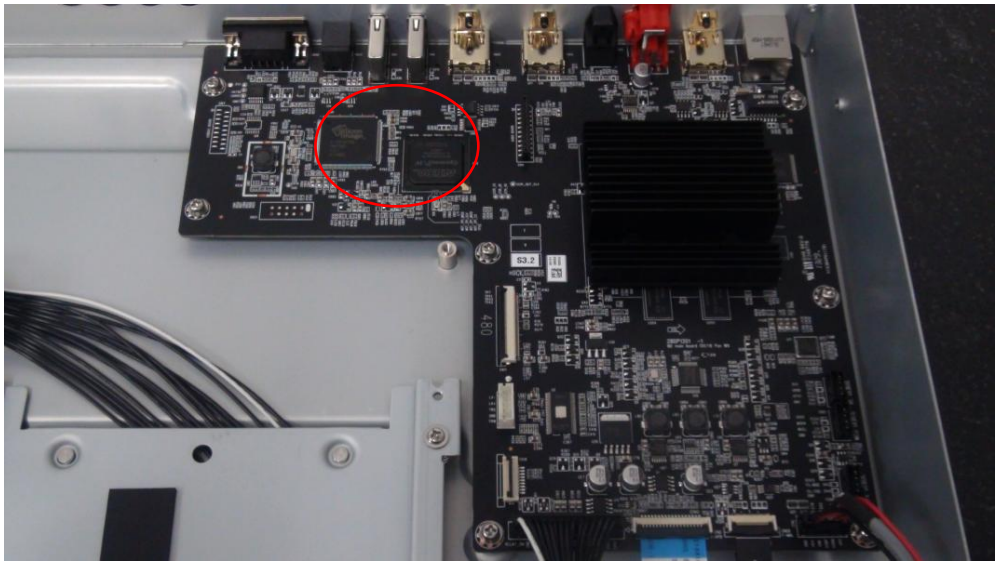
Difference between BDP-105D and BDP-105 parts

Main board、Front panel component、rear panel、carton box、remote control、User manual 、Colour card　All parts Can’ t replace each other

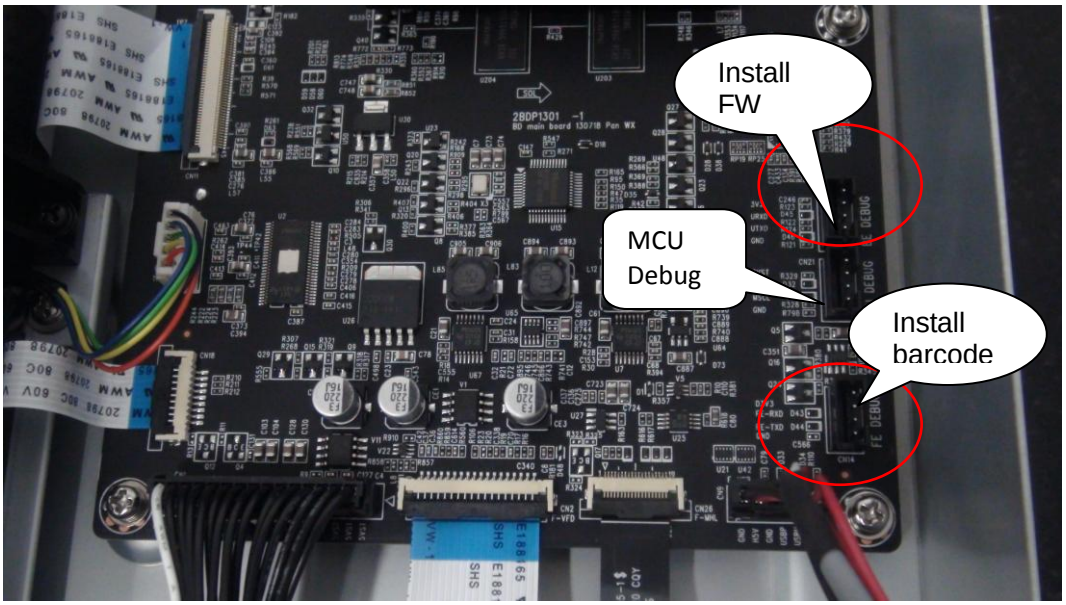
Assembly process with BDP-105 identical



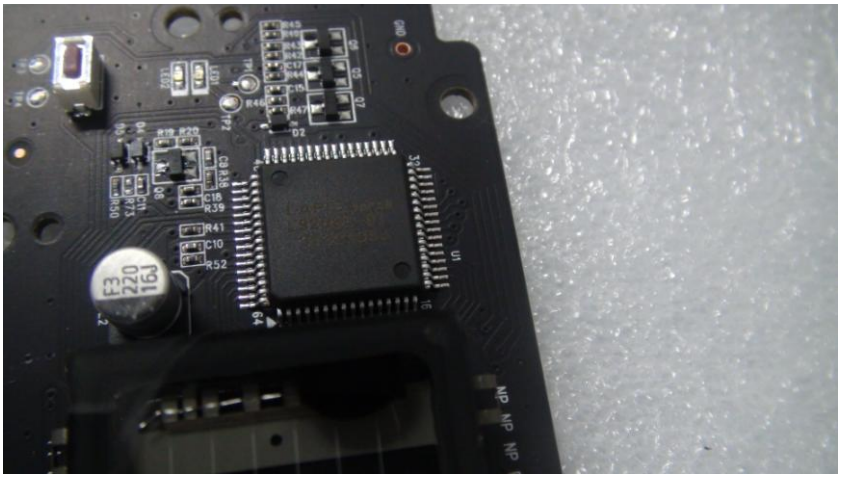
1、 Front Panel Silkscreen and rear panel Silkscreen，change to BDP-105D



2、 Video processing IC change to Darbee EP4CE40F23C7N +SiI9616



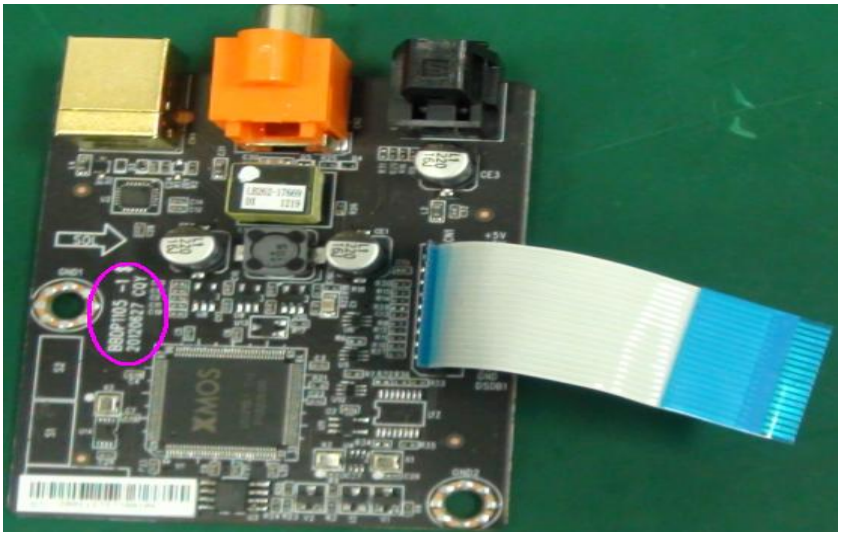
3 、Changing the main board debug port position



4、 Panel board: Display driver chip change to ML9208A-XXGA QFP$，Replace the VFD specifications

5、 USB DAC BOARD

BDP-105: BBDP1105-2 V2.02 **BDP-105D：BBDP1105-3 V3.00**



Chapter VII Disassembly &BOM

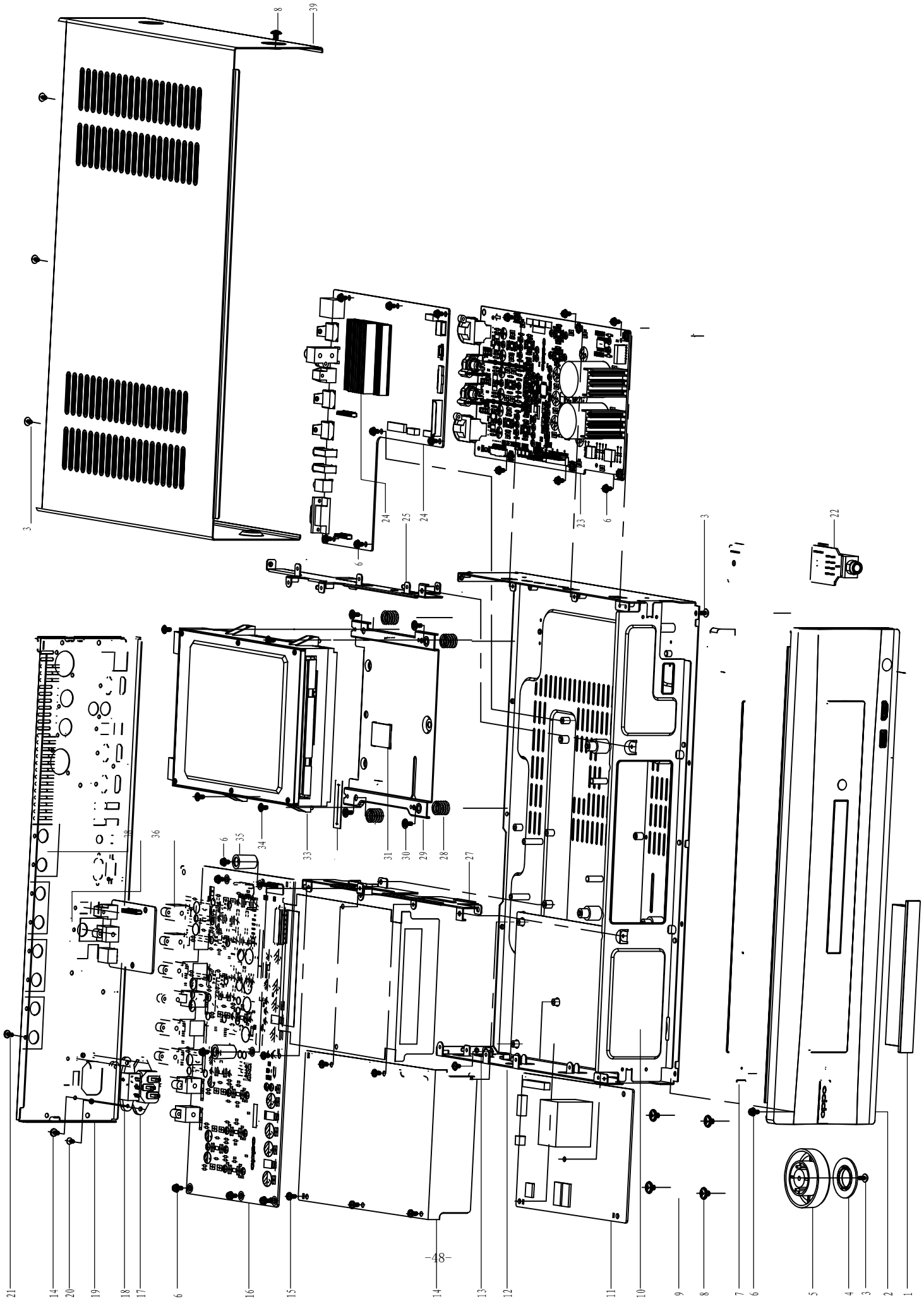
Section 1 Disassembly

Product model：BDP-105D AU

NO	Material Code	Material name	Specification	quantity	Remark
1	54650188	Tray door	BDP-1105 Black$	1	
2	54656038	Front panel component	BDP-105D(US) Black$	1	
3	40004388	Self-tapping screw	PWT 3×6×7H Black$	17	4 for unti feet/base panel, 2 for back panel/base panel, 4 for base panel/aluminum alloy front panel, 3 for top cover/back panel, 4 for top cover/back panel/base panel
4	52391558	Unit foot mat	BDP-83EX(US) Black Silicone$	4	Stick to unit feet
5	29231188	foot	BDP1105 Gilded $	4	
6	42104448	Machine screw	PM 3×7H White Nickel With spacer+spring washer$	34	2 for aluminium front panel/base panel, 7 for decoding board/base panel, 5 for power board/base panel, 1 for transformer flat cable bracket/base panel, 2 for USB-DAC board/base panel, 1 for headphone board/base panel, 2 for left iron bracket/base panel, 2 for right iron bracket/base panel, 3 for audio board/base panel, 3 for audio board/right iron panel, 3 for 7.1ch audio board/base panel, 1 for 7.1ch audio panel/left iron bracket, 7.1ch audio board/right iron panel
7	31034538	Bottom cover	BDP1105 Grey$	1	
8	42103568	Machine screw	PWM 4×5×10H Electrophoresis black $	10	2 for underside of base panel (iron brakcet hole for transformer), 4 for transformer/base panel, 4 for both sides of top cover/base panel
9	04607918	Toroidal transformer	BDP1099 20W W115℃$	1	
10	48608218	Insulation sheet for power board	@BDP1005 Exclusive on one side F072R$	1	
11	49448818	Power board	5BDP0903-1 BDP1105$	1	
12	40007448	Embossed screw	PWTB 3×5×7H White Nickel$	1	1 for grounding calbe/base panel
13	48608208	Insulation sheet for shield cover	@BDP1005 Exclusive on one side F072R$	1	
14	35409398	Power board cover	BDP1105 Black$	1	Above power board

15	42105288	Machine screw	BM 3×6H Black Zinc$	13	3 for HDMI port/back panel, 2 for voltage switch/back panel, 1 for left iron brakcet/back panel, 1 for right iron bracket/back panel, 3 for power board cover/base panel, 3 for power board cover/left iron bracket
16	49447898	7.1 CH Audio board	ABDP1105-0 BDP1105$	1	
17	54643338	AC socket	3-core Y-style SS-7BA cable 70/65 switch cord$	1	
18	54643268	Voltage switch assembly	3-core RF1002A 100mm switch cord$	1	
19	31034768	Rear panel	BDP-105D Black$	1	
20	40400808	Self-tapping screw	FB 3×6H Black Zinc$	2	2 for power socket/back panel
21	40004958	Self-tapping screw	BT 3×8H Black Zinc$	18	2 for decoding board terminal/back panel, 2 for USB-DAC board/back panel, 6 for audio board terminal/back panel, 8 for 7.1ch audio board terminal/back panel
22	49447918	Earphone board	CBDP1105-0 BDP1105$	1	
23	49447838	Stereo Audio board	7BDP1105-0 BDP1105$	1	
24	49455998	Main board	2BDP1301-1 BDP-105D(AU)$	1	
24	35803108	heatsink	61×61×20 BDP1105 black$	1	
25	29231298	Screw bracket	BDP1105 Black$	2	Center screw hole on 7.1 ch audio board
25	38755558	Rack(right)	BDP1105$	1	
27	38755548	Rack(left)	BDP1105$	1	Audio board and base cover
28	38101198	Damping spring	Φ11.5×12.5 Φ1.5$	4	Base cover and loader support
28	48643578	Back panel PC piece	BDP1105 Black Exclusive on one side$	4	Stick onto back panel (location of 7.1CH ports)
29	38755538	loader support	BDP1105$	1	
30	42105278	Machine screw	PWM 3×8×8H White Nickel$	4	4 for loader bracket/compressed spring/base panel
31	48641558	Loader iron bracket cushion	BDP1105 PORON Exclusive on one side$	1	Stick onto loader iron bracket (Location of bar-code scanning window）
32	48605258	Anti-dust flannel cushion	BDP0903 Black$	1	Stick onto bottom of loader frame
33	54650178	Loader component	KEM-480AAA(SONY)+TOHEI(TB-508-N)$	1	
34	40010558	Self-tapping screw	PWT 3×8×7H Black Zinc$	4	4 for loader frame/iron bracket of loader frame
36	49455788	USB DAC board	BBDP1105-3 BDP-105D(US)$	1	
39	54650218	Top cover	BDP1105 Black$	1	

DISASSEMBLY



Section 2 BOM list

Packing Bill of Materials

Product model：BDP-105D AU black(MT8580+SONY 480)

NO	Material Code	Material name	Specification	quantity	Remark
1	21800238	USB connector for WiFi Dongle	1.5m	1	
2	21803278	HDMI cord	1.8m gold plated HDMI1.4	1	
3	50162328	Accessory box	290×58×138$	1	For HDMIcord Remote controller power cord
4	50169758	Carton box	BDP-105D AU	1	
5	50313188	Colour card	520×440×0.3 BDP-105D US	1	
6	50418178	Foam bracket for left/right side	BDP1105$	1	
7	50418188	Foam board	BDP1105 black$	1	
8	50418198	Foam bracket for rear cover	BDP1105$	1	Foam bracket between rear cover and accessory box
9	50418208	Foam bracket for front panel	BDP1105$	1	
10	50706038	Self-styled plastic bags	230×335 PE$	1	Self-styled plastic bags for user manual
11	50720738	Self-styled plastic bags	115×310×0.05 PE$	1	Self-styled plastic bags for power cord
12	50801358	Cloth bag	440×420 black(OPPO) 2#$	1	Cloth bag for player
13	51979008	User manual	BDP-105D AU English$	1	
14	54728728	Remote Controller	RC1201D(AU)	1	
15	54727368	WiFi Dongle	A103$	1	

Assembly Bill of Materials

Product model：BDP-105D AU black(MT8580+SONY 480)

NO	Material Code	Material name	Specification	quantity	Remark
1	04607918	Toroidal transformer	BDP1099 20W W115℃$	1	
2	21231638	Cable	15P320 2.0 T2	1	Connecting power board and decoding board
3	21231668	Cable	8P90 3.96 T2	1	Connecting 7BDP1105 and ABDP1105
4	21405708	Power Cord	3P 1.5m 10A(1.5mm2) JW751$	1	
5	22504608	Flat cable	18P 60MM 1.0MM	1	Connecting decoding board and USB DAC board
6	22504928	Flat cable	22P 90mm 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	22505038	Flat cable	22P 50mm 1.0mm	1	Connecting 7BDP1105 and ABDP1105
9	29231188	foot	BDP1105 Gilded $	4	
10	29231298	Screw bracket	BDP1105 Black$	2	Center screw hole on 7.1 ch audio board
11	29231328	Toroidal transformer flat cable bracket	BDP1105 Black$	1	Center of bottom cover (bottom of iron bracket of loader)
12	31034538	Bottom cover	BDP1105 Grey$	1	
13	31034768	Rear panel	BDP-105D Black$	1	
14	35409398	Power board cover	BDP1105 Black$	1	Above power board
15	38101198	Damping spring	Φ11.5×12.5 Φ1.5$	4	Base cover and loader
16	38755538	loader support	BDP1105$	1	
17	38755548	Rack(left)	BDP1105$	1	Audio board and base cover
18	38755558	Rack(right)	BDP1105$	1	
19	40004388	Self-tapping screw	PWT 3×6×7H Black$	17	4 for unti feet/base panel, 2 for back panel/base panel, 4 for base panel/aluminum alloy front panel, 3 for top cover/back panel, 4 for top cover/back panel/base panel

20	40004958	Self-tapping screw	BT 3×8H Black Zinc$	18	2 for decoding board terminal/back panel, 2 for USB-DAC board/back panel, 6 for audio board terminal/back panel, 8 for 7.1ch audio board terminal/back panel
21	40007448	Embossed screw	PWTB 3×5×7H White Nickel $	1	1 for grounding calbe/base panel
22	40010558	Self-tapping screw	PWT 3×8×7H Black Zinc$	4	4 for loader frame/iron bracket of loader frame
23	40400808	Self-tapping screw	FB 3×6H Black Zinc$	2	2 for power socket/back panel
24	42103058	Machine screw	HM 3×12 Gold-plated M3-DRL$	2	2 for RS232/back panel
25	42103568	Machine screw	PWM 4×5×10H Electrophoresis black $	10	2 for underside of base panel (iron brakcet hole for transformer), 4 for transformer/base panel, 4 for both sides of top cover/base panel
26	42104448	Machine screw	PM 3×7H White Nickel With spacer+spring washer$	34	2 for aluminium front panel/base panel, 7 for decoding board/base panel, 5 for power board/base panel, 1 for transformer flat cable bracket/base panel, 2 for USB-DAC board/base panel, 1 for headphone board/base panel, 2 for left iron bracket/base panel, 2 for right iron bracket/base panel, 3 for audio board/base panel, 3 for audio board/right iron panel, 3 for 7.1ch audio board/base panel, 1 for 7.1ch audio panel/left iron bracket, 7.1ch audio board/right iron panel
27	42105278	Machine screw	PWM 3×8×8H White Nickel$	4	4 for loader bracket/compressed spring/base panel
28	42105288	Machine screw	BM 3×6H Black Zinc$	13	3 for HDMI port/back panel, 2 for voltage switch/back panel, 1 for left iron brakcet/back panel, 1 for right iron bracket/back panel, 3 for power board cover/base panel, 3 for power board cover/left iron bracket

29	48605258	Anti-dust flannel cushion	BDP0903 Black$	1	Stick onto bottom of loader frame
30	48608188	Protective film	BDP1005$	1	lens protection film
31	48608208	Insulation sheet for shield cover	@BDP1005 Exclusive on one side F072R$	1	
32	48608218	Insulation sheet for power board	@BDP1005 Exclusive on one side F072R$	1	
33	48641558	Loader iron bracket cushion	BDP1105 PORON Exclusive on one side$	1	Stick onto loader iron bracket (Location of bar-code scanning window）
34	48643578	Back panel PC piece	BDP1105 Black Exclusive on one side$	4	Stick onto back panel (location of 7.1CH ports)
37	49447838	Stereo Audio board	7BDP1105-0 BDP1105$	1	
38	49447898	7.1 CH Audio board	ABDP1105-0 BDP1105$	1	
39	49455788	USB DAC board	BBDP1105-3 BDP-105D(US)$	1	
40	49447918	Earphone board	CBDP1105-0 BDP1105$	1	
41	49448818	Power board	5BDP0903-1 BDP1105$	1	
42	49455998	Main board	2BDP1301-1 BDP-105D(AU)$	1	
45	52391558	Unit foot mat	BDP-83EX(US) Black Silicone$	4	Stick to unit feet
46	54643268	Voltage switch assembly	3-core RF1002A 100mm switch cord$	1	
47	54643338	AC socket	3-core Y-style SS-7BA cable 70/65 switch cord$	1	
48	54650178	Loader component	KEM-480AAA(SONY)+TOHEI(TB-508-N)$	1	
49	54650188	Tray door	BDP1105 Black$	1	
50	54650218	Top cover	BDP1105 Black$	1	
51	54656038	Front panel component	BDP-105D(US) Black$	1	