Blu-ray Player

BDP2180/12/05/X78

Service
Service
Service

Service Manual

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CLASS 1
LASER PRODUCT

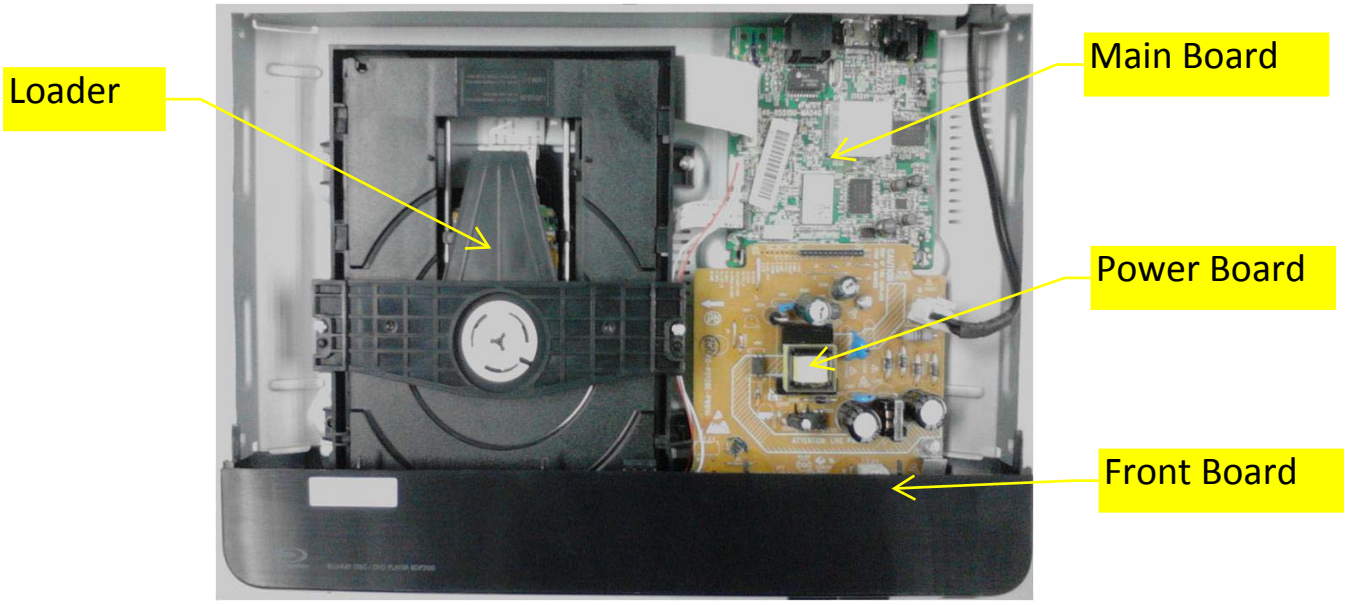
GB 3141 785 39131

Published by Arya & Sophie - 1305 Printed in The Netherlands Subject to modification

Version 1.1

PHILIPS

PCB BOARD LOCATIONS



VERSION VARIATIONS

Type / Versions / Board in used / Service Policy	BDP2180		
	/12	/05	/X78
MAIN BOARD	M	M	M
FRONT BOARD	M	M	M
LOADER	M	M	M
POWER BOARD	M	M	M
＊Tips：	C -- Component Lever Repair M -- Module Lever Repair X -- Used		

BDP2180/12/05:

Specifications

Note

- Specifications are subject to change without notice

Region code

This player can play discs with the following region codes.

DVD	Blu-ray	Countries
		Europe, United Kingdom

Playable media

- BD-Video, BD 3D
- DVD-Video, DVD+R/+RW, DVD-R/-RW, DVD+R/-R DL (Dual Layer)
- VCD/SVCD
- Audio CD, CD-R/CD-RW, MP3 media, WMA media, JPEG files
- DivX (Ultra)/DivX Plus HD media, MKV media
- USB storage device

File format

- Video: .avi, .divx, .mp4, .mkv
- Audio: .mp3, .wma, .wav
- Picture: .jpg, .gif, .png

Video

- Signal system: PAL / NTSC
- HDMI output: 480i/576i, 480p/576p, 720p, 1080i, 1080p, 1080p/24Hz

Audio

- Digital output: 0.5 Vp-p (75 ohm)
  - Coaxial
- HDMI output
- Sampling frequency:
  - MP3: 32 kHz, 44.1 kHz, 48 kHz
  - WMA: 44.1 kHz, 48 kHz
- Constant bit rate:
  - MP3: 112 kbps - 320 kpbs
  - WMA: 48 kpbs - 192 kpbs

USB

- Compatibility: Hi-Speed USB (2.0)
- Class support: USB Mass Storage Class
- File system: FAT16, FAT32
- USB port: 5V ⎓, 500mA
- Support HDD (a portable hard disc drive): an external power source may be needed.

Main unit

- Power supply rating: 220-240V~, 50Hz - 60Hz
- Power consumption: 10 W
- Power consumption in standby mode: < 0.5 W
- Dimensions (w x h x d): 310 x 39.5 x 217.7 (mm)
- Net Weight: 1.12 kg

Accessories supplied

- Remote control and batteries
- User manual

Optional accessory

- A wireless Philips USB adapter(named WUB1110, sold separately)
  - Multimedia connections: Wi-Fi 802.11b/g/n
  - Connectivity: Rear connection (USB)
  - Ambient temperature: 5 deg C to 40 deg C.
  - Dongle dimensions (W x H x D): 28.4 x 82 x 13.4 mm

Laser Specification

- Laser Type (Diode): AlGaInN (BD), AlGaInP (DVD/CD)
- Wave length: 398nm to 413nm (BD),645nm to 664nm (DVD), 770nm to 800nm(CD)
- Output power: 1.7mW (BD), 0.19mW(DVD), 0.25mW (CD)

Safety instruction, Warning & Notes

Safety instruction

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 the "on" position (keep the mains cord unplug).
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 1MΩ.
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.

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 : 650nm (DVD)

: 780nm (VCD/CD)

Output power : 7mW (DVD)

: 10mW (DVD /CD)

Beam divergence: 60 degree

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.

Warning

1.General

. All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handing 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:

1) Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671.
2) Wristband tester 4822 344 13999.

. Be careful during measurements in the live voltage section. The primary side of the power supply , including the heat sink, 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 “lighting 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. 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 handing 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.

Notes: Manufactured under licence from Dolby Laboratories. The double-D symbol is trademarks of Dolby Laboratories, Inc. All rights reserved.

Service Hints

CAUTION

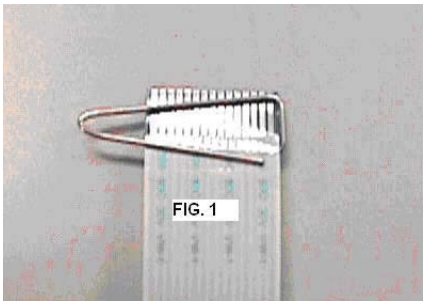
CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE DRIVE ELECTRONICS WHEN CONNECTING A NEW DRIVE.THAT'S WHY, BESIDES THE SAFETY MEASURES LIKE

- **SWITCH OFF POWER SUPPLY**
- **ESD PROTECTION**

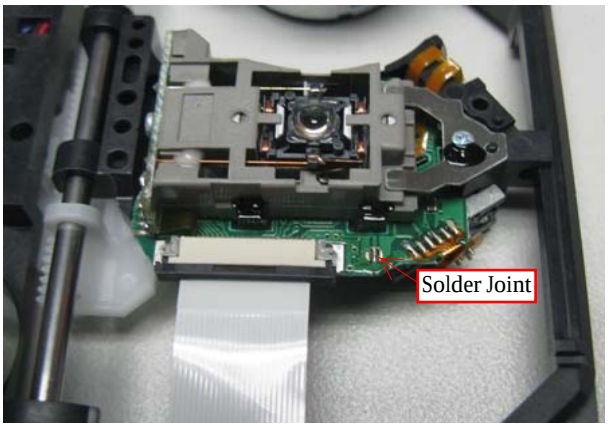
ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

The following steps have to be done when replacing the defective loader :

1. Dismantling of the loader to access the ESD protection point if necessary.
2. **Solder the ESD protection point*.**
3. Disconnect flexfoil cable from the defective loader.
4. Put a paper clip on the flexfoil to short-circuit the contacts (fig.1)
5. Replace the defective loader with a new loader.
6. Remove paperclip from the flexfoil and connect it to the new loader.
7. Remove solder joint on the ESD protection point.



ATTENTION: The laser diode of this loader is protected against ESD by a solder joint which shortcircuits the laserdiode to ground. For proper functionality of the loader this solder joint must be remove **after** connection loader to the set.



(ESD protection point is accessible from top of loader)

Only applicable for defective loader needed to be sent back to supplier for failure analysis and to support backcharging evidence.
This is also applicable for all partnership workshops.

Notes

Lead-Free requirement for service

INDENTIFICATION:

Regardless of special logo (not always indicated) 

One must treat all sets from 1.1.2005 onwards, according next rules.

Important note: In fact also products a little older can also 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-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, 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 highest 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. This will be communicated via AYS-website.
  Do not re-use BGAs at all.
- For sets produced before 1.1.2005, containing leaded soldering-tin 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

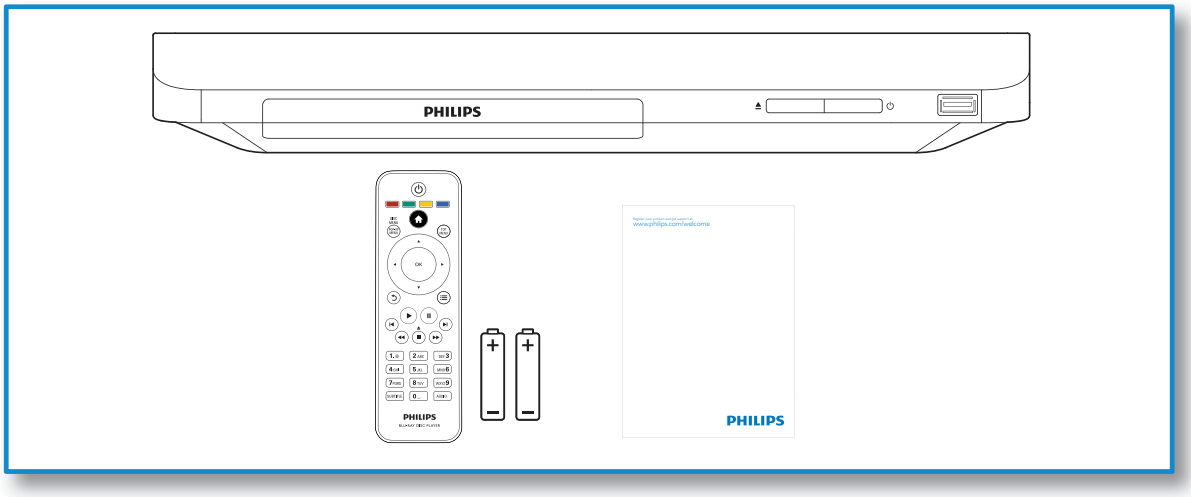
You find more information to:

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.

Before you connect this Blu-ray disc/ DVD player, read and understand all accompanying instructions.



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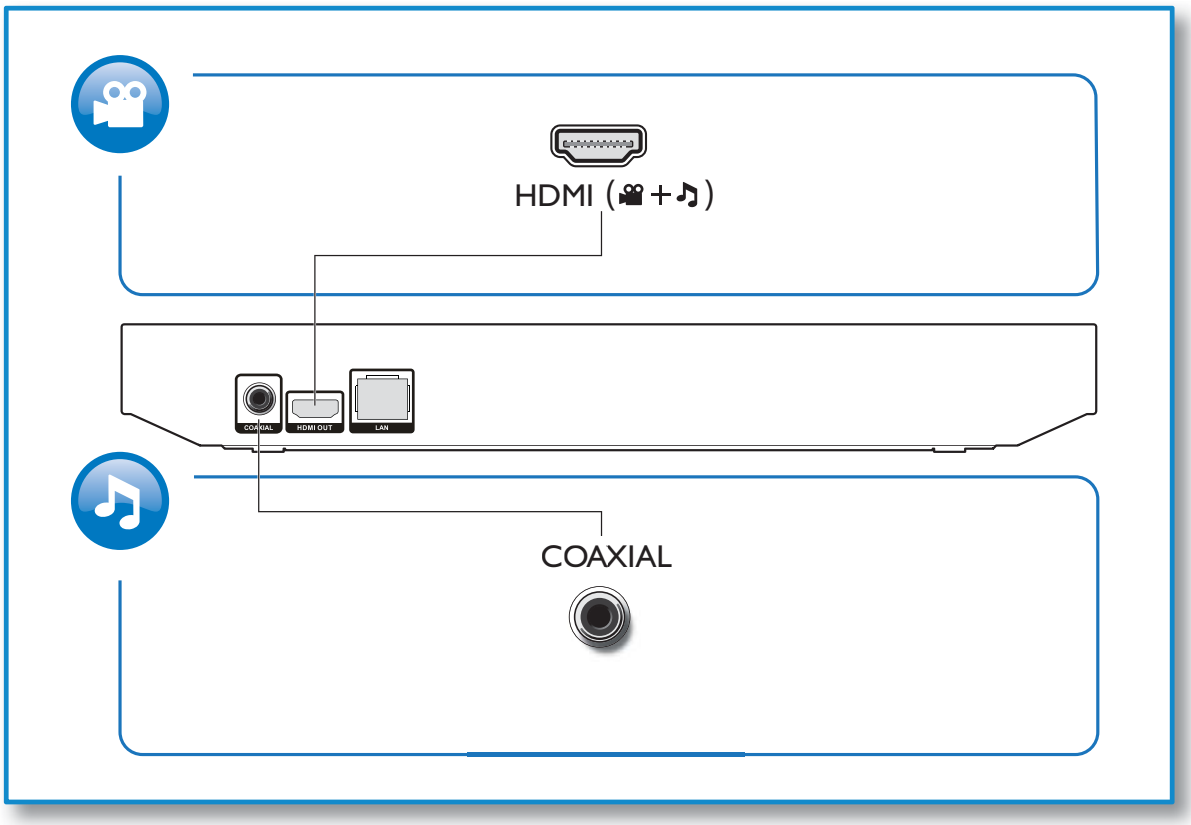
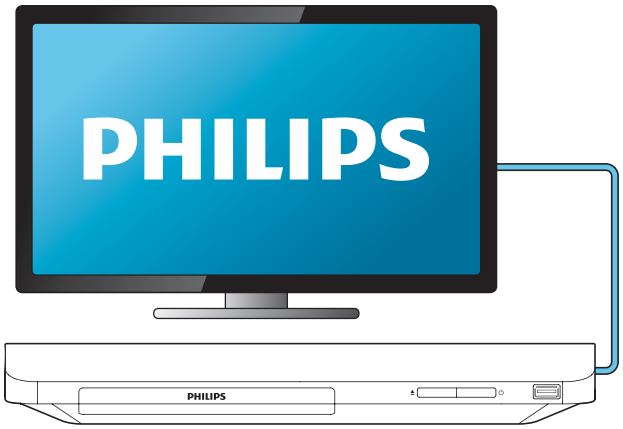
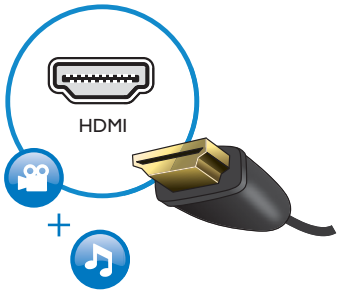


2

1 HDMI

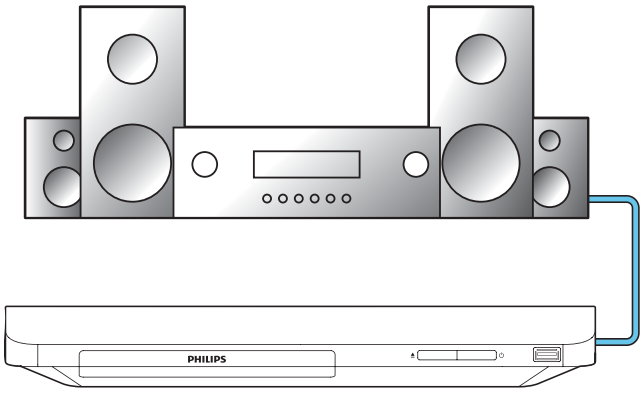
◉HDMI ○VIDEO ○COAXIAL ○AUDIO LINE OUT





2 COAXIAL

○HDMI ○VIDEO ◉COAXIAL ○AUDIO LINE OUT



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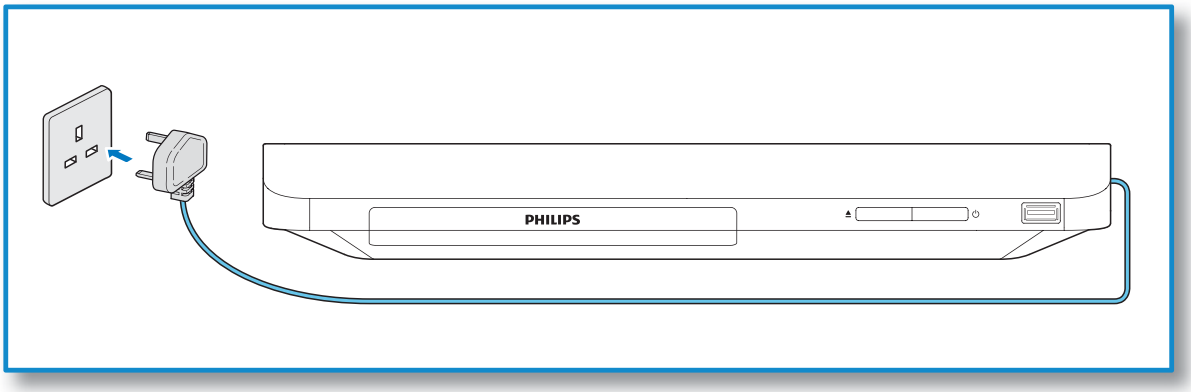

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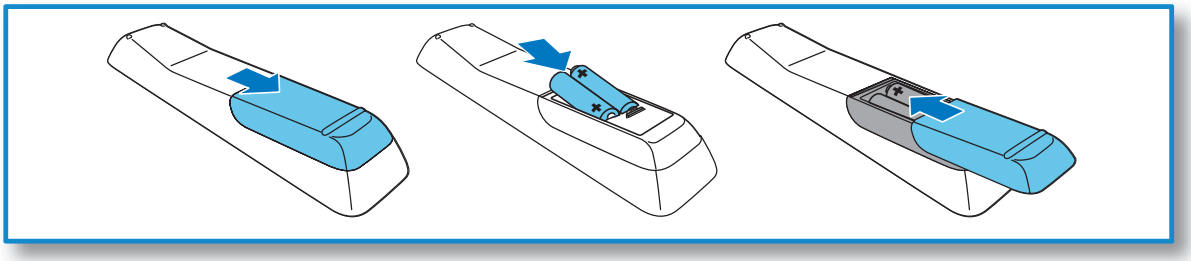

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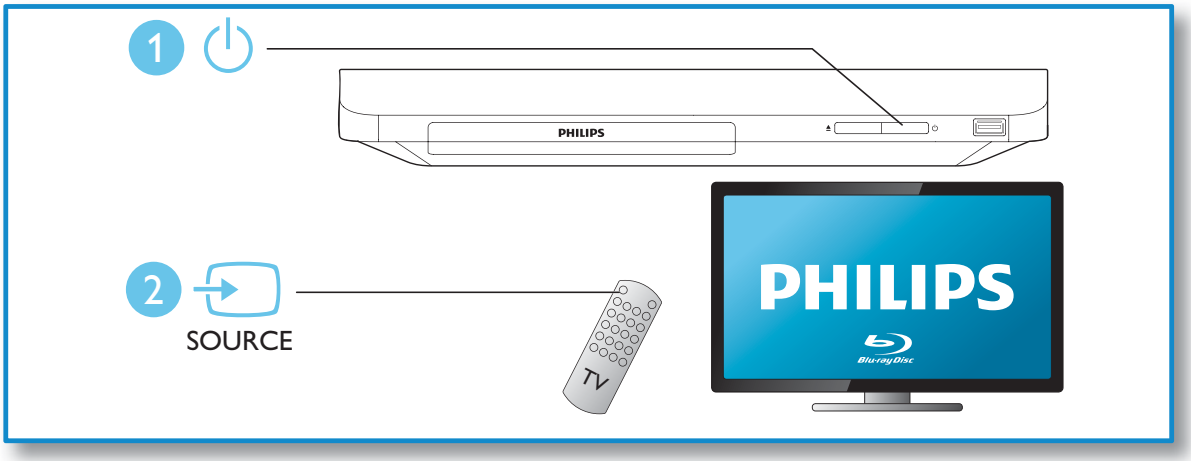

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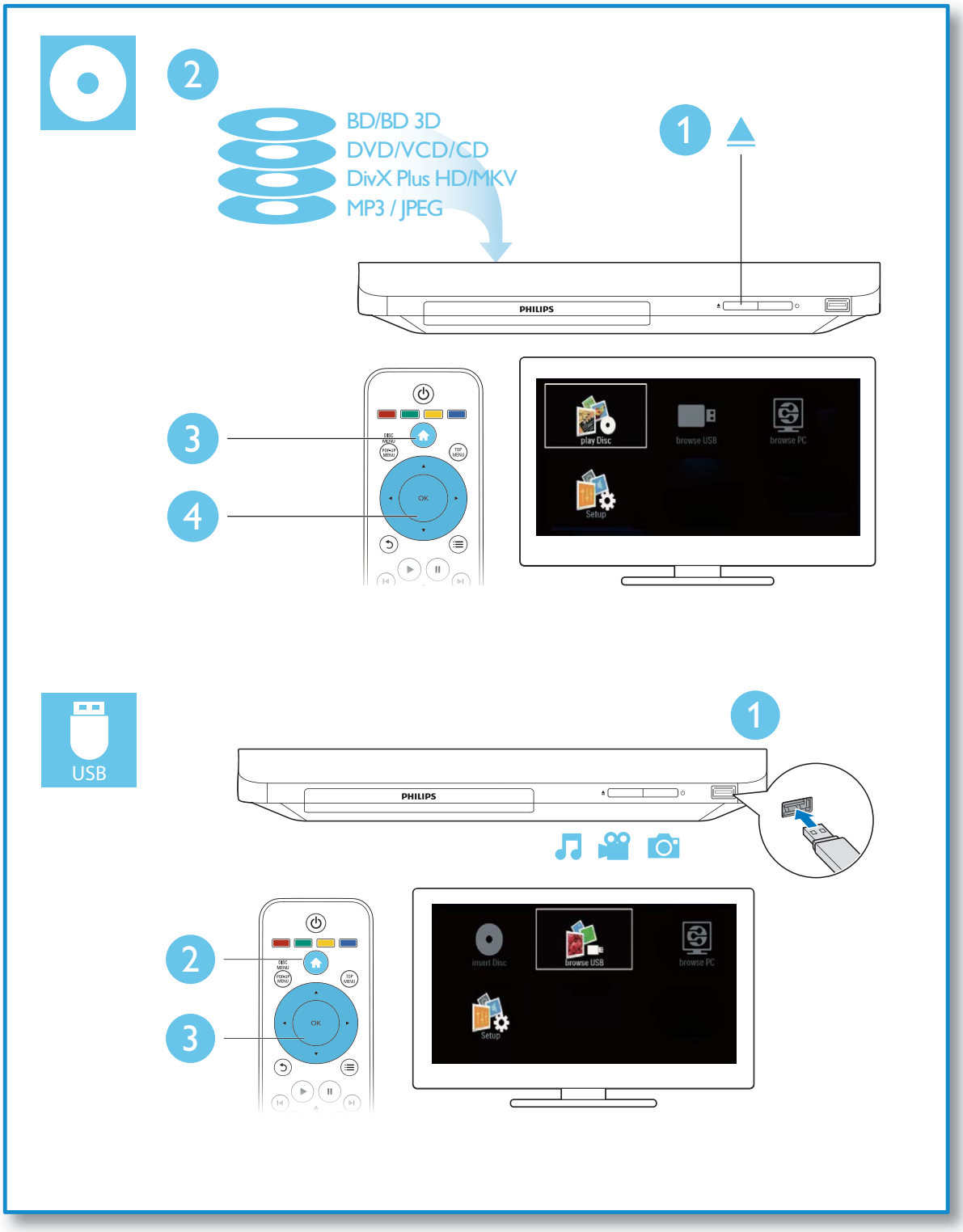
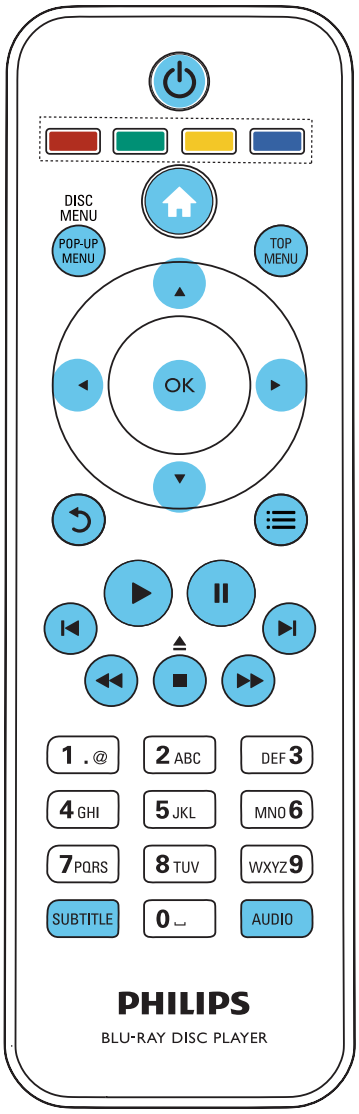

2
BD/BD 3D
DVD/VCD/CD
DivX Plus HD/MKV
MP3 / JPEG
1
PHILIPS
3
4
OK
play Disc
browse USB
browse PC
Setup
USB
1
PHILIPS
2
3
OK
insert Disc
browse USB
browse PC
Setup

2 Use your Blu-ray disc/ DVD player

Congratulations on your purchase, and welcome to Philips! To fully benefit from the support that Philips offers (e.g. product software upgrade), register your product at www.philips.com/welcome.

Basic play control



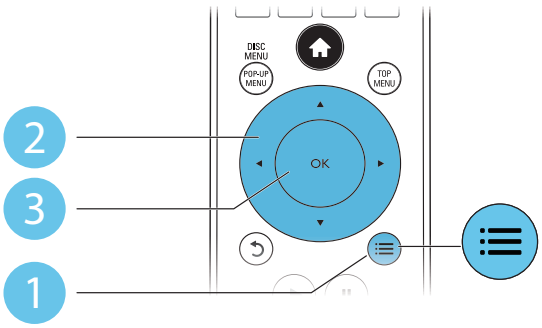
During play, press the following buttons to control.

Button	Action
⏻	Turn on the player, or switch to standby.
⌂	Access the home menu.
⏏ / ■	Stop play. Press and hold (more than 4 seconds) to open or close the disc compartment.
❚❚	Pause play. Press repeatedly to slow forward frame by frame.
▶	Start or resume play.
⏮ / ⏭	Skip to the previous or next track, chapter or file.
◀◀ / ▶▶	Fast backward or forward. Press repeatedly to change the search speed. Press ❚❚ once, and then press ▶▶ to slow forward.
AUDIO	Select an audio language or channel.
SUBTITLE	Select a subtitle language.
DISC MENU / POP-UP MENU	Access or exit the disc menu.
TOP MENU	Access the main menu of a video disc.
Color buttons	Select tasks or options for Blu-ray discs.
▲▼◀▶	Navigate the menus. Press ▲▼ to rotate a picture clockwise or counter-clockwise during slideshow.
OK	Confirm a selection or entry.
⮌	Return to a previous display menu.
☰	Access more options during play.
Alphanumeric buttons	Select an item to play. Enter values. Enter letters via SMS style entry.

Video, audio and picture options

More options are available for video or picture play from a disc or USB storage device.

Video options



Access more options during video play.

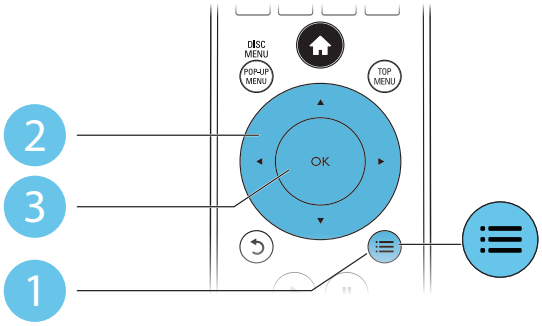
- **[Audio language]**: Select an audio language.
- **[Subtitle Language]**: Select a subtitle language.
- **[Subtitle shift]**: Change the subtitle position on the screen. Press ▲▼ to change the subtitle position.
- **[Info]**: Display play information.
- **[Character set]**: Select a character set that supports the DivX video subtitle (only for DivX videos).
- **[Time search]**: Skip to a specific time via the numeric buttons on the remote control.
- **[2nd audio language]**: Select the second audio language (only for Blu-ray discs that support BonusView).
- **[2nd Subtitle Language]**: Select the second subtitle language (only for Blu-ray discs that support BonusView).
- **[Titles]**: Select a title.
- **[Chapters]**: Select a chapter.
- **[Angle list]**: Select a camera angle.
- **[Menus]**: Display a disc menu.
- **[PIP selection]**: Display a picture-in-picture window (only for Blu-ray discs that support BonusView).

- **[Zoom]**: Zoom into a video picture. Press ◀▶ to select a zoom factor.
- **[Repeat]**: Repeat a chapter or title.
- **[Repeat A-B]**: Mark two points within a chapter for repeat play, or turn off repeat mode.
- **[Picture settings]**: Select a predefined color setting.

Note

- Available video options depend on the video source.

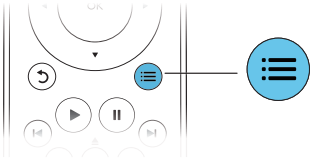
Picture options



Access more options during slideshow.

- **[Rotate +90]**: Rotate a picture 90 degrees clockwise.
- **[Rotate -90]**: Rotate a picture 90 degrees counter-clockwise.
- **[Zoom]**: Zoom into a picture. Press ◀▶ to select a zoom factor.
- **[Info]**: Display picture information.
- **[Duration per slide]**: Set a display interval for a slideshow.
- **[Slide Animation]**: Select a transition effect for a slideshow.
- **[Picture Settings]**: Select a predefined color setting.
- **[Repeat]**: Repeat a selected folder.

Audio options



Press ☰ repeatedly to cycle through the following options.

- Repeat the current track.
- Repeat all the tracks on the disc or folder.
- Play audio tracks in a random loop.
- Turn off a repeat mode.

DivX videos

You can play DivX videos from a disc or a USB storage device.

VOD code for DivX

- Before you purchase DivX videos and play them on this player, register this player on www.divx.com using the DivX VOD code.
- Display the DivX VOD code: press ⌂, and select **[Setup]** > **[Advanced]** > **[DivX® VOD Code]**.

DivX subtitles

- Press **SUBTITLE** to select a language.
- If the subtitle is not displayed correctly, change the character set that supports the DivX subtitle. Select a character set: press ☰, and select **[Character Set]**.

Character set	Languages
[Standard]	English, Albanian, Danish, Dutch, Finnish, French, Gaelic, German, Italian, Kurdish (Latin), Norwegian, Portuguese, Spanish, Swedish, and Turkish
[Central Europe]	Albanian, Croat, Czech, Dutch, English, German, Hungarian, Irish, Polish, Romanian, Slovak, Slovene, and Serbian
[Cyrillic]	Bulgarian, Belorussian, English, Macedonian, Moldavian, Russian, Serbian, and Ukrainian
[Greek]	Greek
[Baltic]	Northern Europe

Note

- To play DivX DRM protected files from a USB storage device, connect this player to a TV through HDMI.
- To use the subtitles, make sure that the subtitle file has the same name as the DivX video file name. For example, if the DivX video file is named "movie.avi", save the subtitle file as "movie.srt", or "movie.sub".
- This player can play subtitle files in the following formats: .srt, .sub, .txt, .ssa, and .smi.

Play a musical slideshow

Play music and pictures simultaneously to create a musical slideshow.

1. From a disc or connected USB storage device, play a music file.
2. Press ↩, and go to the picture folder.
3. Select a picture from the same disc or USB, and press **OK** to start slideshow.
4. Press ■ to stop slideshow.
5. Press ■ again to stop music play.

BonusView on Blu-ray

View special content (such as commentaries) in a small screen window.
This feature is only applicable to Blu-ray discs compatible with BonusView (also known as picture in picture).

1. During play, press ☰.
   ↳ The options menu is displayed.
2. Select **[PIP Selection]** > **[PIP]**, and press **OK**.
   ↳ PIP options [1]/[2] depend on the video contents.
   ↳ The secondary video window is displayed.
3. Select **[2nd Audio Language]** or **[2nd Subtitle Language]**, and press **OK**.

BD-Live on Blu-ray

Access exclusive online services, such as movie trailers, games, ringtones and other bonus contents.
This feature is only applicable to Blu-ray discs that are BD-Live enabled.

1. Prepare the Internet connection and set up a network (see "Set up a network").
2. Connect a USB storage device to this player.
   - A USB storage device is used to store the downloaded BD-Live content.
   - To delete the BD-Live previously downloaded on the USB storage device for memory release, press ⌂ and select **[Setup]** > **[Advanced]** > **[Clear memory]**.
3. Play a disc that is BD-Live enabled.
4. On the disc menu, select the BD-Live icon, and press **OK**.
   ↳ BD-Live starts to load. The loading time depends on the disc and the Internet connection.

5 On the BD-Live interface, select an item to access.

Note

- BD-Live services vary from discs and countries.
- When you use BD-Live, data on the disc and this player are accessed by the content provider
- Use a USB storage device with at least 1GB of free space to store the download.

Play a Blu-ray 3D video

What you need

- A 3D compliant TV
- This player is connected to the TV through HDMI
- 3D glasses compatible with the TV
- 3D Blu-ray disc

1 Make sure that 3D output is turned on: press ⌂, and select **[Setup]** > **[Video]** >**[Watch 3D video]** > **[Auto]**.

2 Play a Blu-ray 3D video.

3 Put on the 3D glasses for 3D effects.
- To play 3D video in 2D, turn off Blu-ray 3D output (press ⌂, and select **[Setup]** > **[Video]** > **[Watch 3D video]** > **[Off]**).

Set up a network

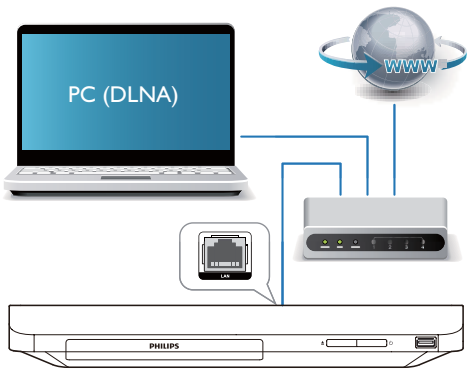
Connect this player to the Internet to access the services:

- **BD-Live:** access online bonus features (applicable to Blu-ray discs that are BD-Live enabled)
- **Update software:** update the software of this player via the Internet.
- **Browse PC (DLNA):** play photos, music, and video files streamed from your computer.

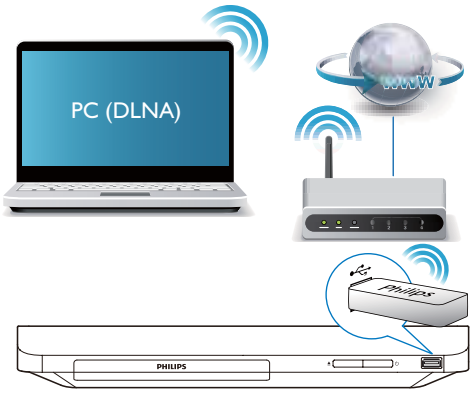
Note

- For wireless connection, you need to use an optional Philips Wi-Fi USB adapter (named WUB1110).
- Te Wi-Fi USB Adapter (WUB1110) is not included. To purchase this adapter, visit shop.philips.com. If the Philips online shop is not available in your country, please contact Philips customer service. For contact details, go to www.philips.com/support.

1 Connect this player to the Internet through wired (Ethernet) or wireless connection.
- For wired connection, connect a network cable (not supplied) to the **LAN** port on the back panel of this player.



- For Wi-Fi, connect a Philips Wi-Fi USB adapter (named WUB1110) to the ⇤ (**USB**) connector on the front panel of this player.



2 Perform the network installation.

1) Press ⌂.
2) Select **[Setup]**, and press **OK**.
3) Select **[Network]** > **[Network installation]**, and press **OK**.
4) Follow the instructions on the TV screen to complete the installation. If necessary, use the alphanumeric buttons on the remote control to enter a password.

Caution

- Before you connect to a network, familiarize yourself with the network router, and networking principles. If necessary, read documentation accompanying network components. Philips is not responsible for lost, damaged or corrupt data.

Smartphone control

Use a smartphone to browse, control and play media files from this player.

What you need

- An iPhone (iOS 3.1.3 and above) or Android based device (Android 2.1 and above)
- On your smartphone, download **Philips MyRemote** application
  - For iPhone, search for the application in **App Store**
  - For Android based device, search for the application in **Android Market**

Before you start

- Connect this player to a home network (see "Set up a network").
- Connect your smartphone to the same home network (see the user manual of the smartphone for details).
- Turn on this player

Control your player

Use a smartphone to browse, control and play media files from this player.

1 Insert a data disc or USB storage device into this player.

2 On your smartphone, tap the **MyRemote** icon from the home screen.
↳ The name of this player is displayed on the smartphone.

3 Select this player from the smartphone screen.
↳ The smartphone used as a virtual remote control is enabled.

4 On the smartphone, tap the **Media** (Media) tab, and then select the disc or USB source.
↳ The folders in the data disc or USB storage device are displayed.

5 Open a folder, and select a file to play.
- To access the remote control, return to the previous smartphone screen, and then tap the **Remote** (Remote) tab. Only the relevant control buttons are enabled.

6 Tap the control buttons on the smartphone to control play.
- To access more control buttons, swipe the screen to the left or right.
- To exit the application, press the home button on the smartphone.

Browse PC through DLNA

Through this player, you can stream and play video, music and photo from a computer on your TV.

Before you start

- On your PC, install a DLNA-compliant media server application (such as Windows Media Player 11 or higher)
- On your PC, enable media sharing and file sharing (see the "Help" document in the media server application)

1 Connect this player and your PC in the same home network (see "Set up a network").
   - For better video quality, use wired network connection whenever possible.

2 Press ⌂.
   ↳ The home menu is displayed on the TV screen.

3 Select **[browse PC]**, and press **OK**.
   ↳ A content browser is displayed.

4 Select a file, and press **OK** to play.
   - Use the remote control to control play.

Use Philips EasyLink

This player supports Philips EasyLink which uses the HDMI CEC (Consumer Electronics Control) protocol. You can use a single remote control to control EasyLink compliant devices that are connected through HDMI. Philips does not guarantee 100% interoperability with all HDMI CEC devices.

1 Connect the HDMI CEC compliant devices through HDMI, and turn on the HDMI CEC operations on the TV and other connected devices (see the user manual of the TV or other devices for details).

2 Press ⌂.

3 Select **[Setup]**> **[EasyLink]**.

4 Select **[On]** under the options: **[EasyLink]**, **[One Touch Play]** and **[One Touch Standby]**.
   ↳ EasyLink function is turned on.

One Touch Play

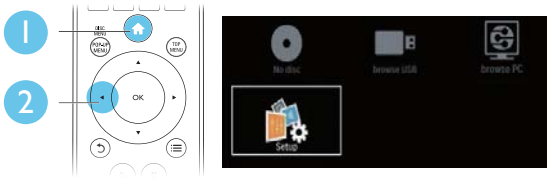
When a video disc is in the disc compartment, press ▶ to wake up the TV from standby, and then play a disc.

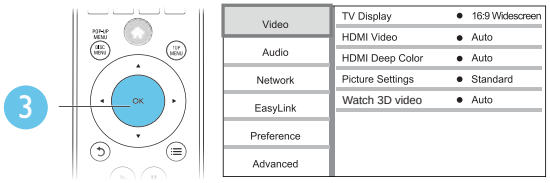
One Touch Standby

When a connected device (for example TV) is put to standby with its own remote control, this player is put to standby automatically.

3 Change settings

This section helps you to change the settings of this player.





Note

- You cannot change a menu option that is grayed out.
- To return to the previous menu, press ↩. To exit the menu, press ⌂.

Picture

1 Press ⌂.

2 Select **[Setup]** > **[Video]** to access the video setup options.

- **[TV display]**: Select a picture display format to fit the TV screen.
- **[HDMI video]**: Select an HDMI video resolution.
- **[HDMI Deep Color]**: Display colors with more shades and hues when the video content is recorded in Deep Color and the TV supports this feature.
- **[Picture settings]**: Select a predefined color setting.
- **[Watch 3D video]**: Set to 3D or 2D output when playing a Blu-ray 3D disc. The player must be connected to a 3D TV through HDMI.

Note

- If you change a setting, make sure that the TV supports the new setting.
- For settings related to HDMI, the TV must be connected through HDMI.
- For the composite connection (via the **VIDEO** connector), select a video resolution of 480i/576i or 480p/576p under **[HDMI video]** to enable video output.

Sound

1 Press ⌂.

2 Select **[Setup]** > **[Audio]** to access the audio setup options.

- **[Night Mode]**: Select quiet or full dynamic sound. Night mode decreases the volume of loud sound and increases the volume of soft sound (such as speech).
- **[HDMI Audio]**: Set an HDMI audio format when this player is connected through HDMI.
- **[Digital Audio]**: Select an audio format for the sound output when this player is connected through a digital connector (coaxial).
- **[PCM Downsampling]**: Set the sampling rate for PCM audio output when this player is connected through a digital connector (coaxial).

Note

- For settings related to HDMI, the TV must be connected through HDMI.
- Night mode is only available for Dolby encoded DVD and Blu-ray discs.

Network (installation, status...)

1 Press ⌂.

2 Select **[Setup]** > **[Network]** to access the network setup options.

- **[Network installation]**: Start a wired or wireless installation to make the network work.
- **[View network settings]**: Display the current network status.
- **[View wireless settings]**: Display the current Wi-Fi status.
- **[Name your Product:]**: Re-name this player for identification in a home network.

Preference (languages, parental control...)

1 Press ⌂.

2 Select **[Setup]** > **[Preference]** to access the preference setup options.

- **[Menu language]**: Select an onscreen display menu language.
- **[Audio]**: Select an audio language for video.
- **[Subtitle]**: Select a subtitle language for video.
- **[Disc Menu]**: Select a menu language for a video disc.
- **[Parental Control]**: Restrict access to discs that are encoded with ratings. Input "0000" to access the restriction options. To play all discs irrespective of the rating, select level "8".
- **[Screen Saver]**: Enable or disable screen saver mode. If enabled, the screen enters idle mode after 10 minutes of inactivity (for example, in pause or stop mode).
- **[Auto Subtitle Shift]**: Enable or disable subtitle shift. If enabled, the subtitle position is changed automatically to fit the TV screen (this feature works with some Philips TVs only).
- **[Change Password]**: Set or change a password to play a restricted disc. Input "0000" if you do not have a password or if you have forgotten your password.
- **[Auto Standby]**: Enable or disable auto standby. If enabled, the player switches to standby after 30 minutes of inactivity (for example, in pause or stop mode).
- **[VCD PBC]**: Display or skip the content menu for VCD and SVCD.

Note

- If your preferred language is not available for disc language, audio or subtitle, you can select **[Other]** from the menu options and input 4-digit language code which can be found at the back of this user manual.
- If you select a language which is not available on a disc, this player uses the default language of the disc.

Advanced options (clear memory...)

1 Press ⌂.

2 Select **[Setup]** > **[Advanced]** to access the advanced setup options.

- **[BD-Live security]**: Restrict or allow access to BD-Live (only for non-commercial, user-created BD-Live discs).
- **[Downmix mode]**: Control 2-channel stereo audio output.
- **[Software update]**: Select to update software from a network or from USB storage device.
- **[Clear memory]**: Delete the previous BD-Live download on the USB storage device. A "BUDA" folder is automatically created to store the BD-Live download.

- **[DivX® VOD Code]**: Display the DivX® registration code or the deregistration code for this player.
- **[Version information]**: Display the software version of this player.
- **[Restore default settings]**: Reset this player to the default settings made at the factory, except for password and parental control level.

Note

- You cannot restrict Internet access on commercial Blu-ray discs.
- Before you purchase DivX videos and play them on this player, register this player on www.divx.com with the DivX VOD code.

Mechanical and Dismantling Instructions

Dismantling Instruction

Detailed information please refer to the model set.

The following guidelines show how to dismantle the player.

Step1: Open the top cover. Remove 2 screws on the back panel,pull back the top cover and then open it. (Figure 1)

Figure 1

Step:2 Remove the front panel. Open the tray,dismantle the CD door,remove 1 screw on power board, disconnect connectors(XP3,USB401),dismantle 1 buckle under the panel and 2 buckles on both sides. then pull out the front panel.(Figure 2)

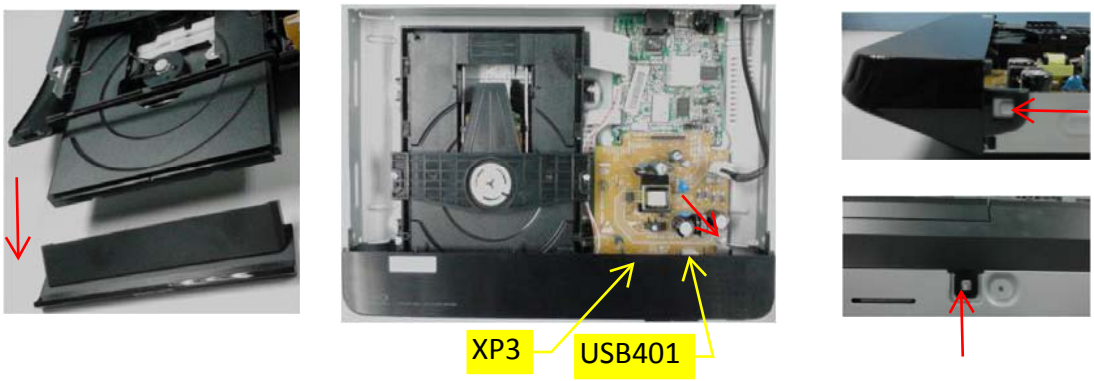


Figure 2

Mechanical and Dismantling Instructions

Dismantling Instruction

Detailed information please refer to the model set.

Step3: Dismantle the power board and main board.Disconnect connectors(XP7,XP5,XP10),remove 1 screw on power board and 2 screws on the back panel.(Figure 3)

Step4: Dismantle the loader.Remove 2 screws beside the loader,then pull up the loader.(FIgure 3)

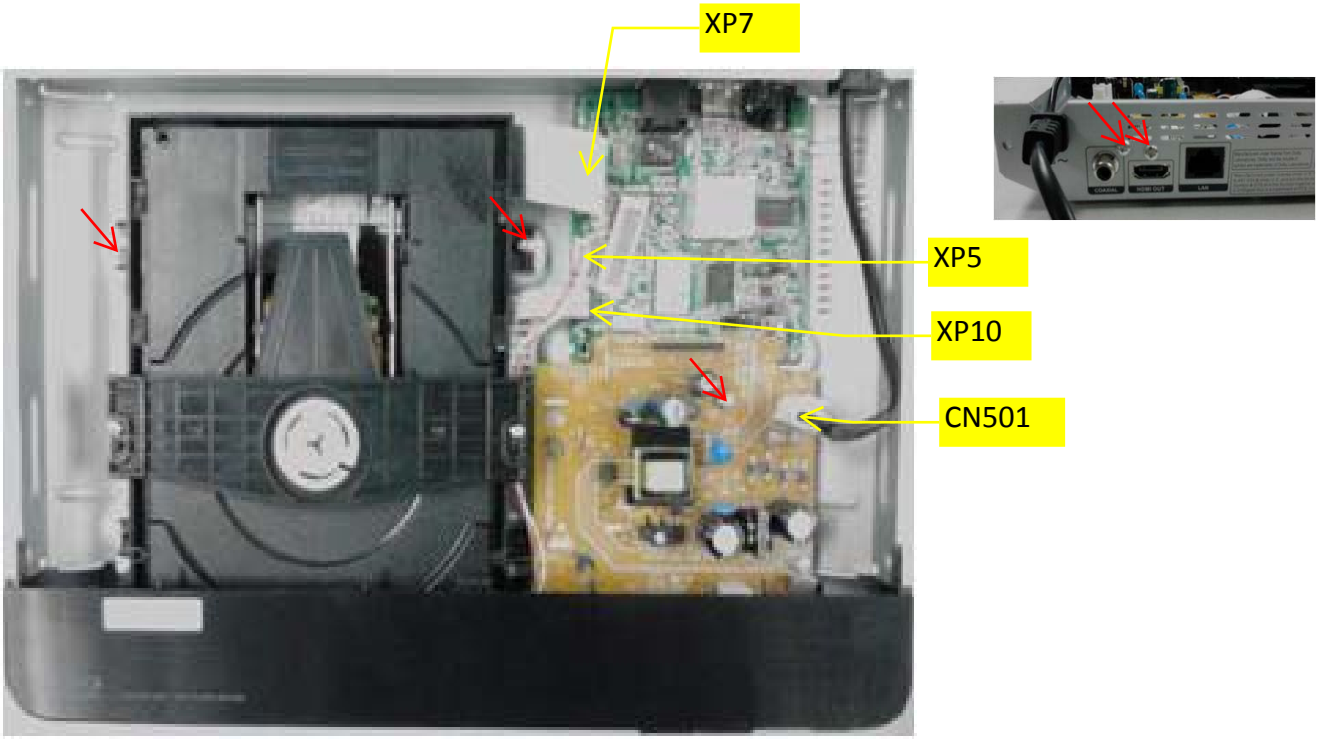


Figure 3

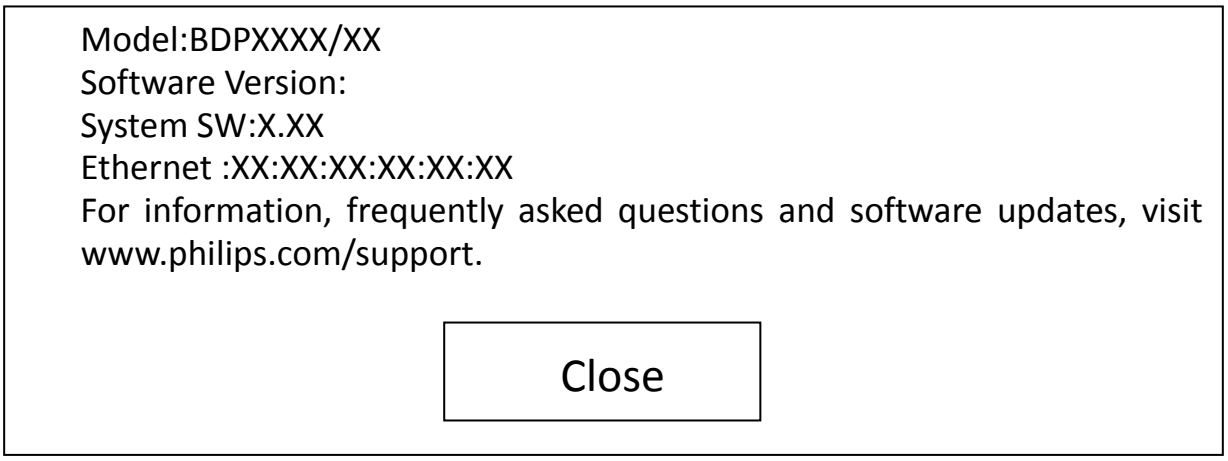
Software Upgrade

Preparation to Software Upgrade

1. Procedure for software upgrade
   a) Upgrade from USB:
      1) Go to www.philips.com/support to check if the latest software version is available for this player.
      2) Build UPG_ALL file in USB
      3) Copy the upgrade file to USB UPG_ALL folder.
      4) Then insert USB ,start up DUT enter into HOME screen ,select Setup >>Advance>> software update >>USB.
      5) When upgrade file detected, select "Yes" to upgrade, select "No" to cancel.
      6) Once you start upgrade, please don't power off the DUT, after upgrade DUT will restart up later a moment time.

   b) Upgrade software via network:
      1) 1) Setup the network connection.
      2) start up DUT enter into HOME screen ,select Setup >>Advance>> software update >>Network
         * You are prompted to start upgrading processes if upgrade media is detected.
      3) Follow the instructions on the TV screen to confirm update operation.
      4) When upgrade file download completed, select "Start" to upgrade.
      5) Once you start upgrade, please don't power off the DUT, after upgrade DUT will restart up later a moment time.

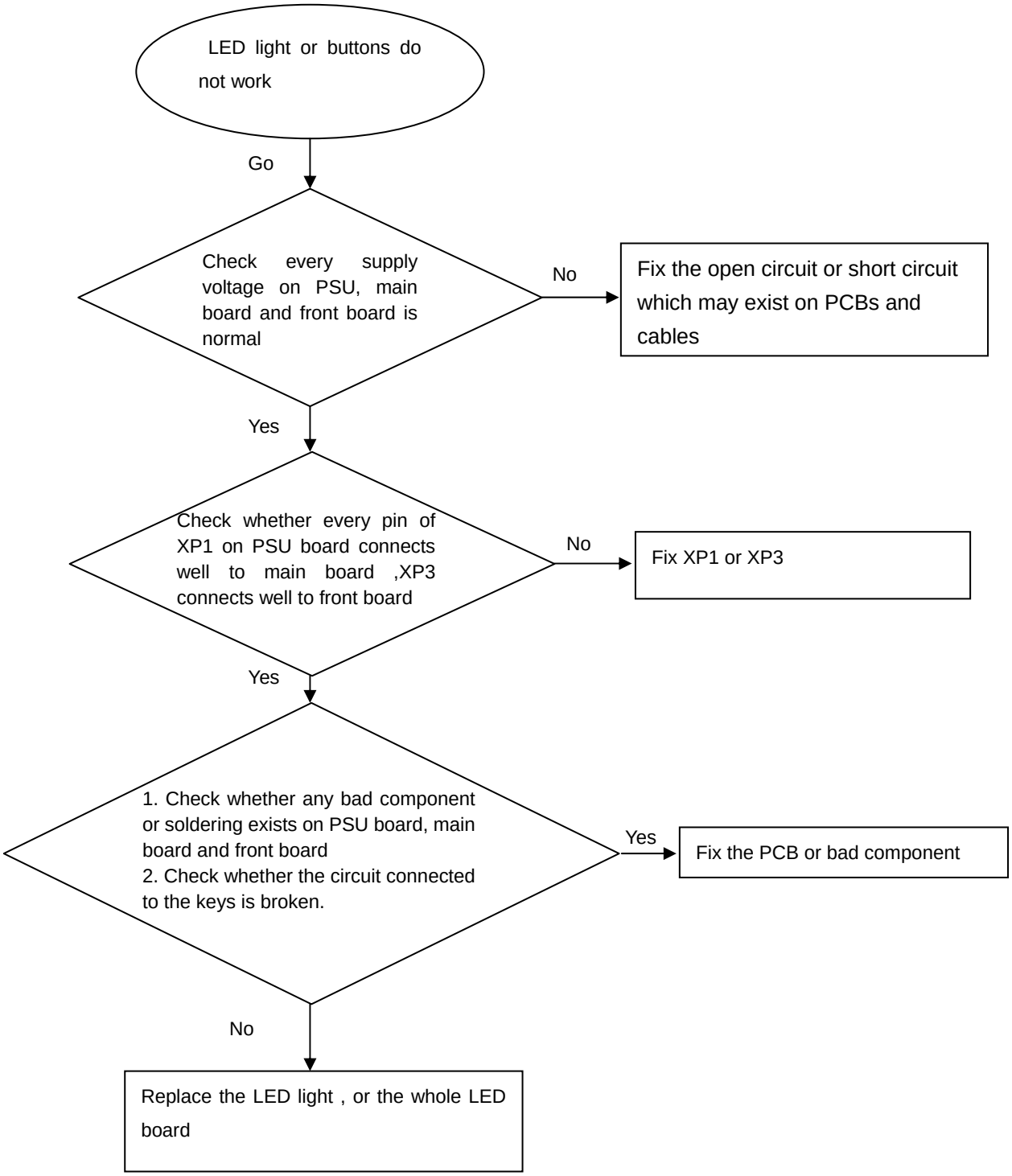
2. Check the version information after upgraded.
   Wake up DUT, select Setup >>Advance>>version information .
   You will see a interface as below:



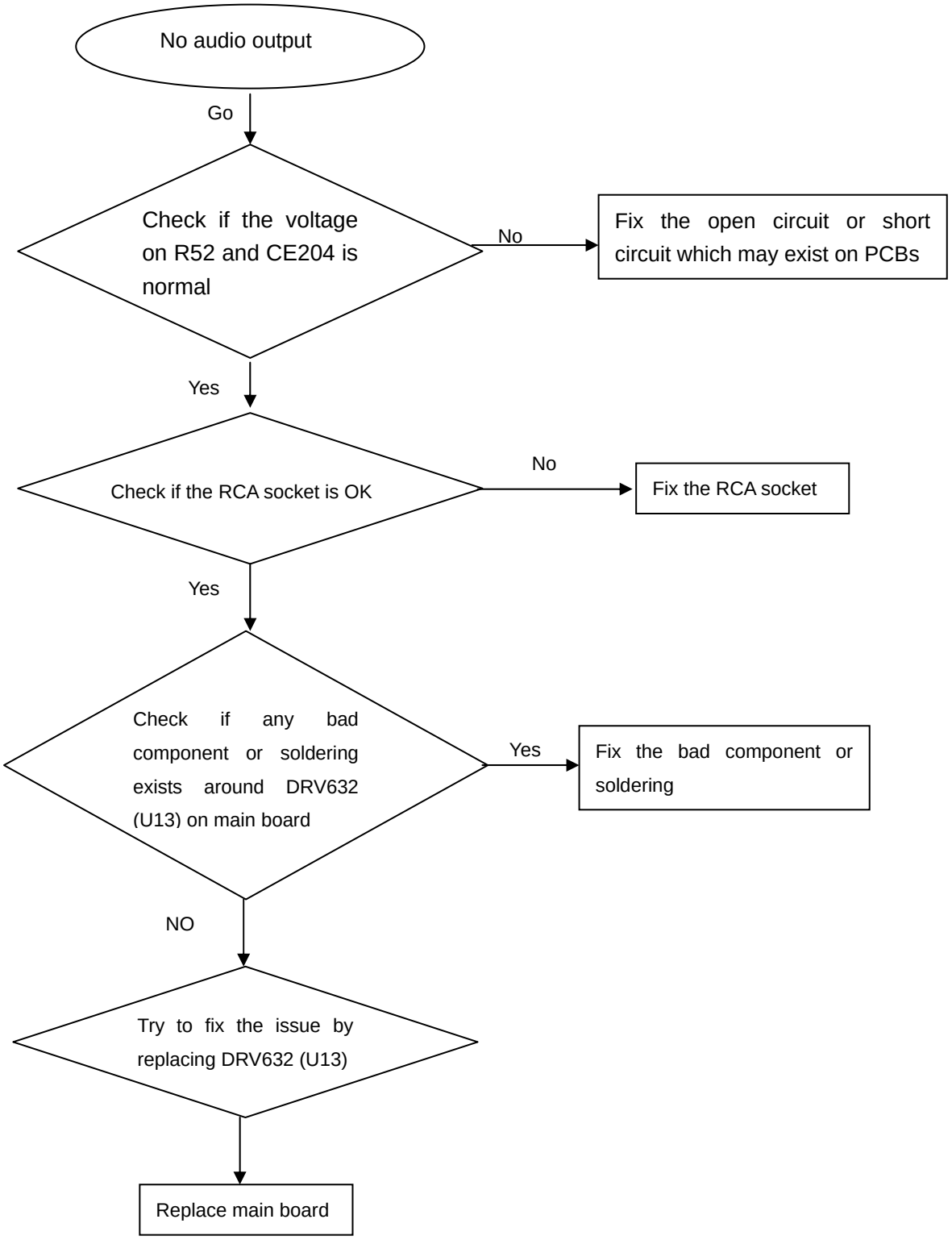
3. Factory Reset Steps

Press"Home" button on remote control--->Press"0""3""5""8"--->
Select Restore--->Press"OK" on remote control

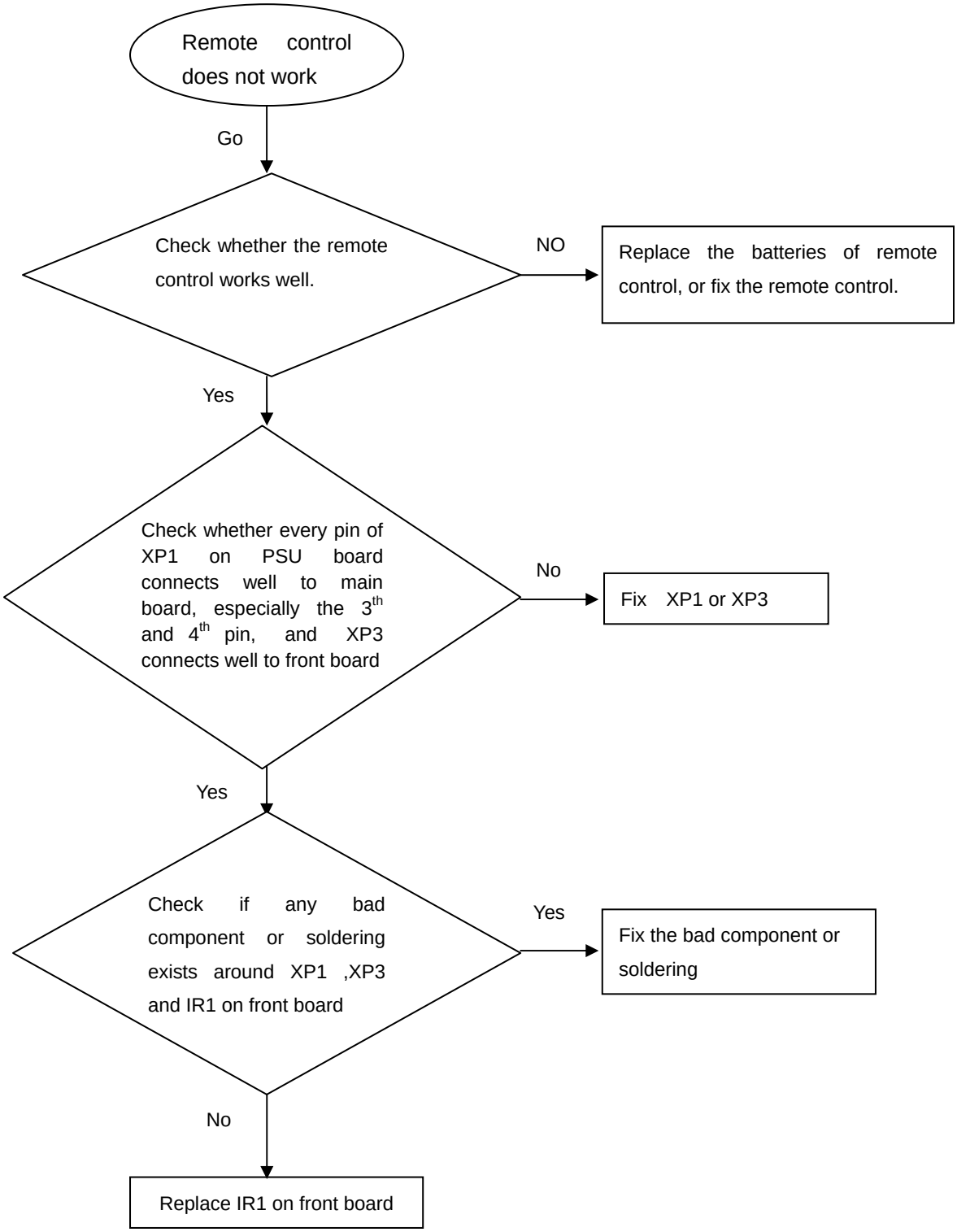
No display on LED, and buttons do not work



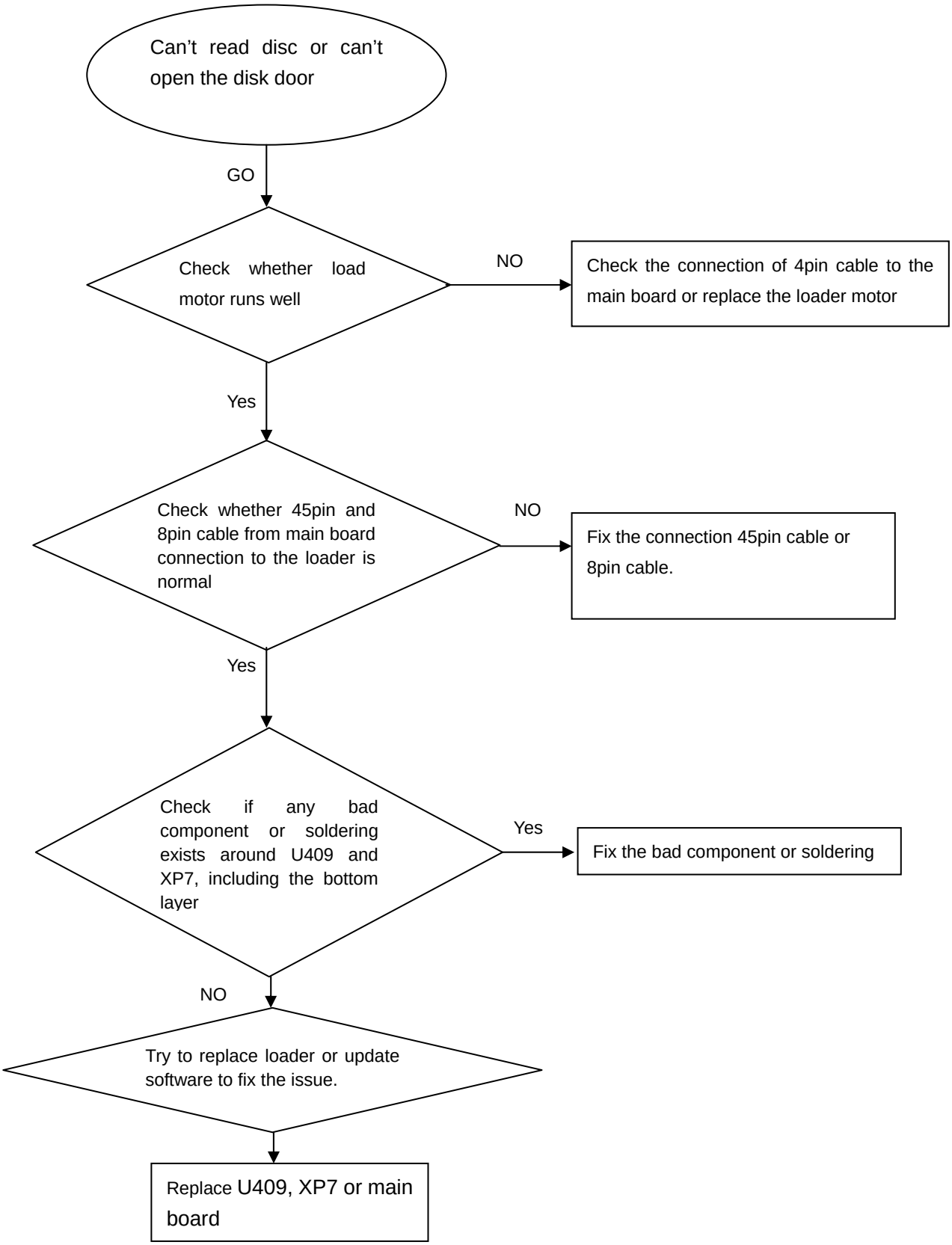
No audio output (only for BDP2130)



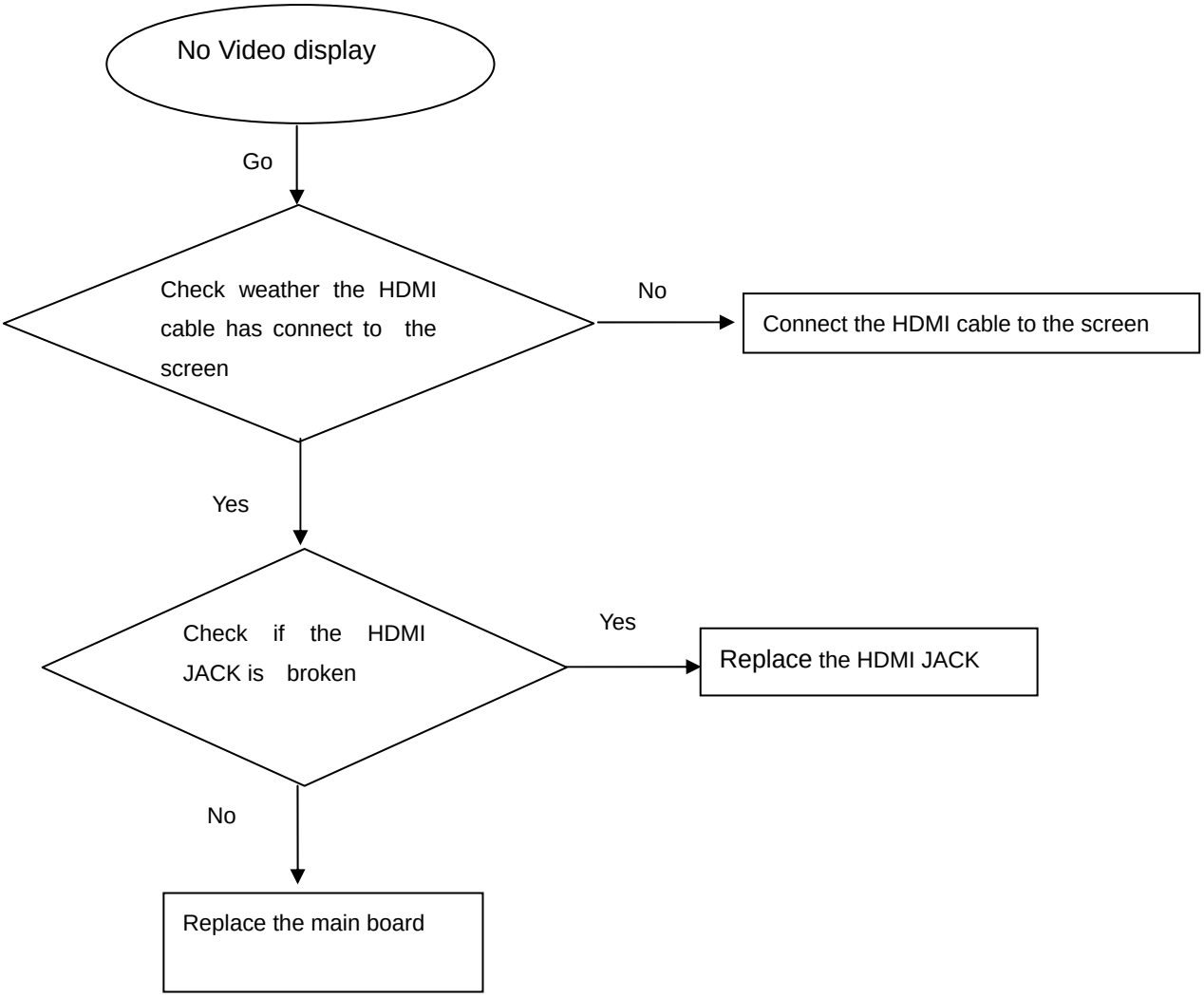
Can not control by remote control



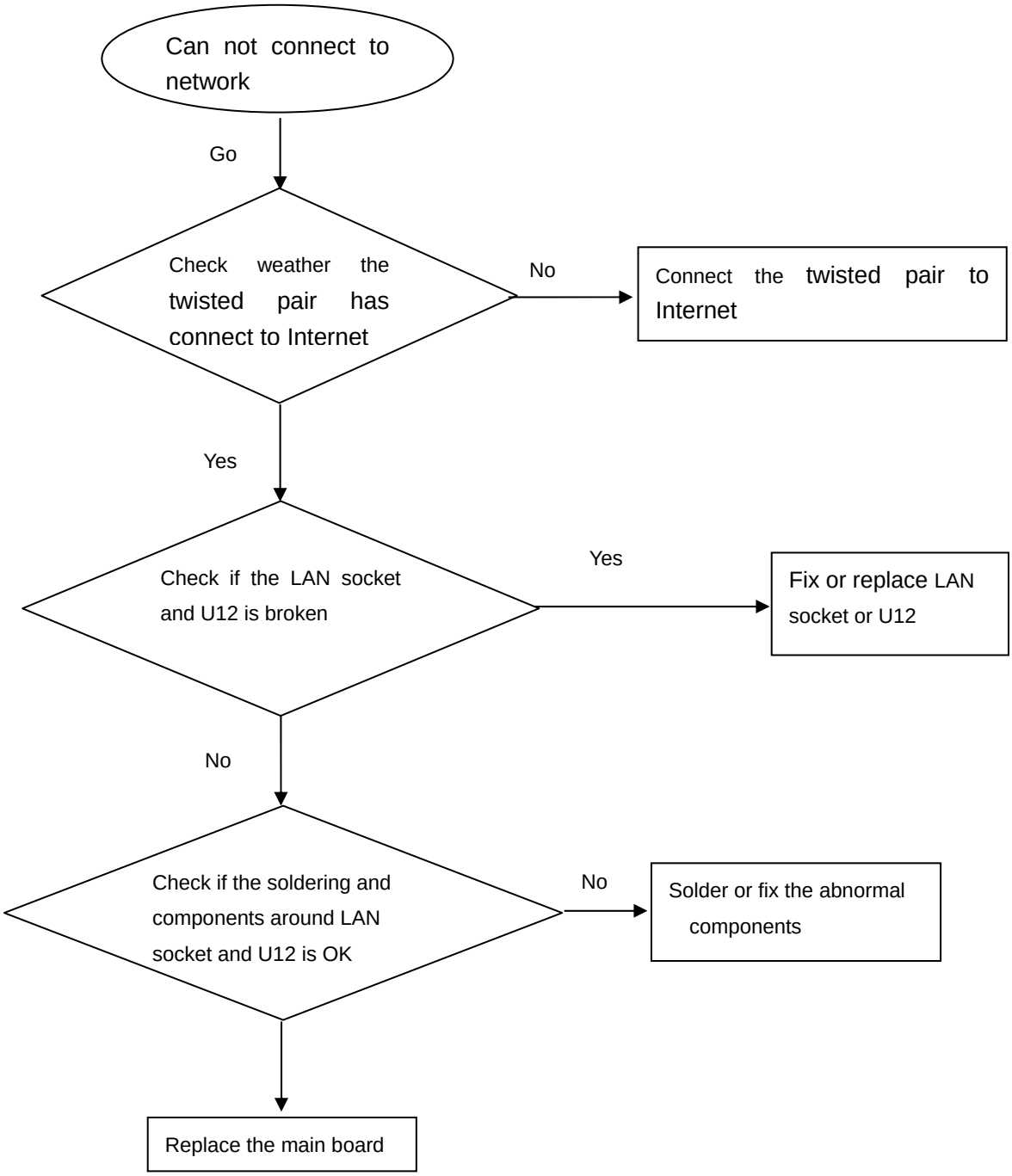
Can’t read disc or can’t open the disk door



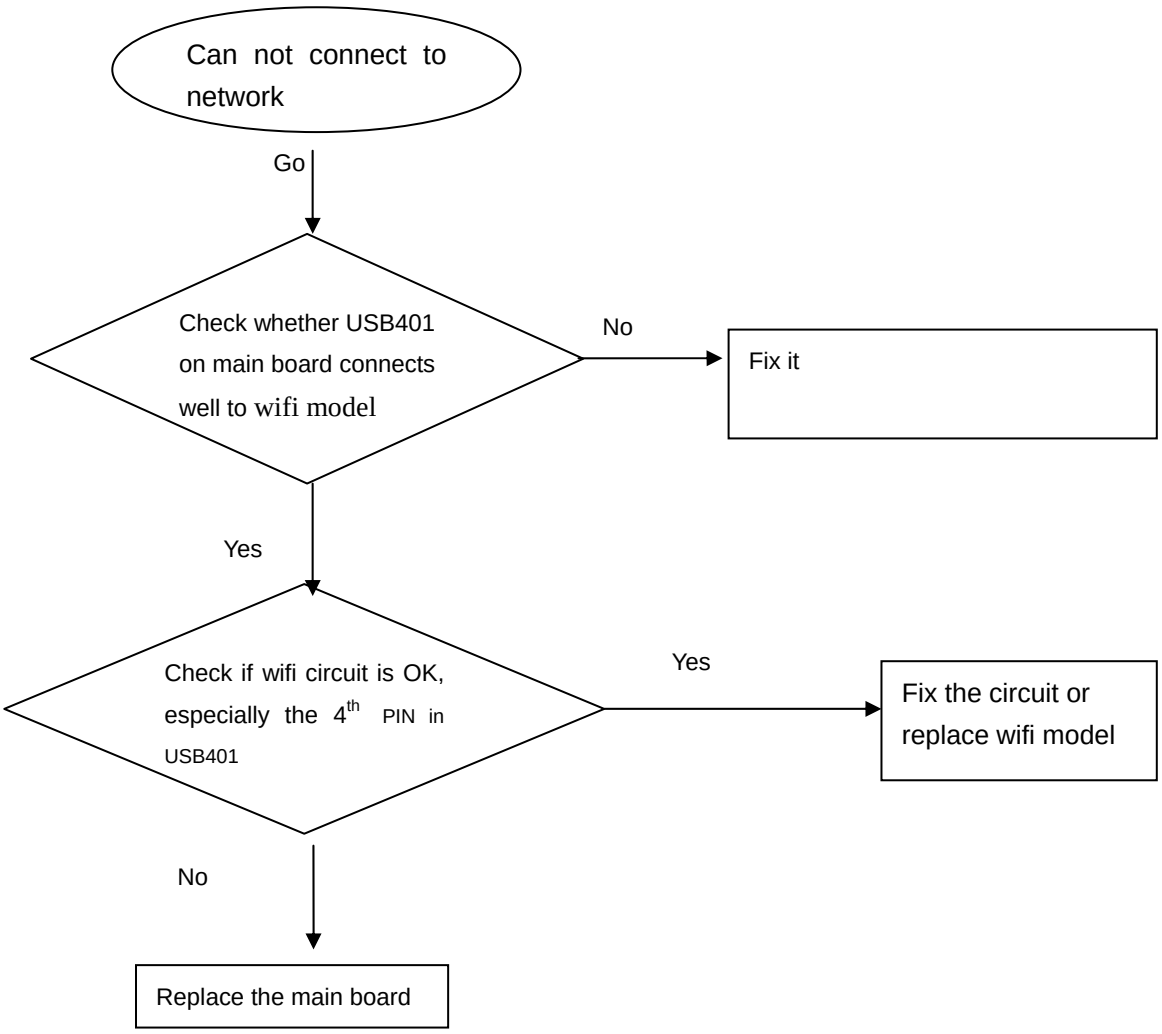
No video display



Can not connect to network by LAN socket



Can not connect to network by wifi

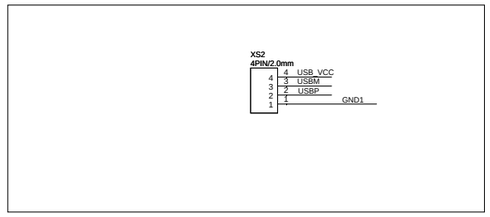


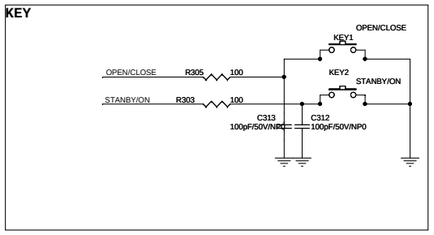
6-1

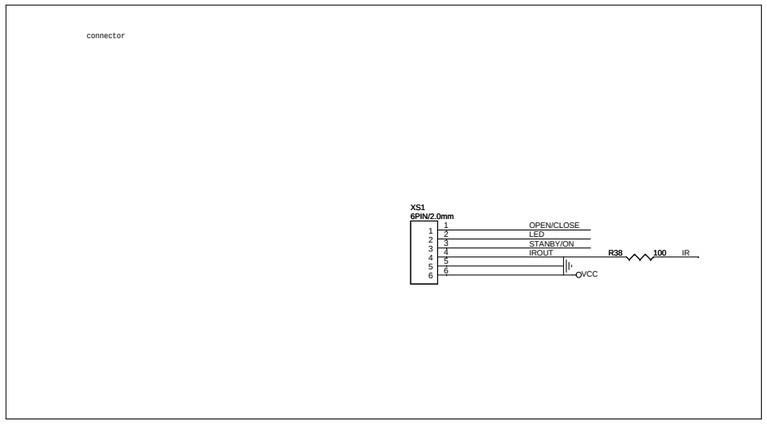
Wiring and Block Diagram for BDP2180:

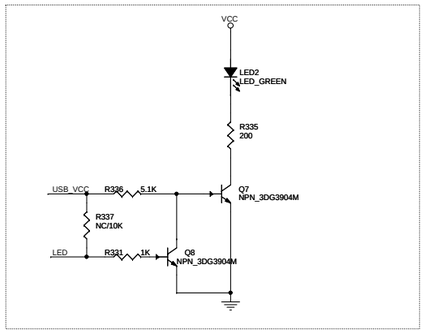
7-1

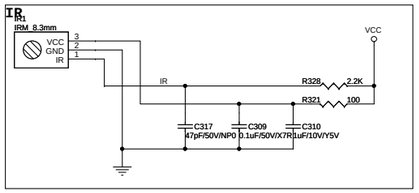
Front Board Circuit Diagram for BDP2180/12/05:

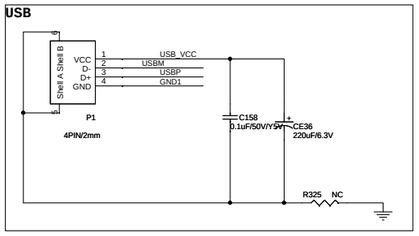






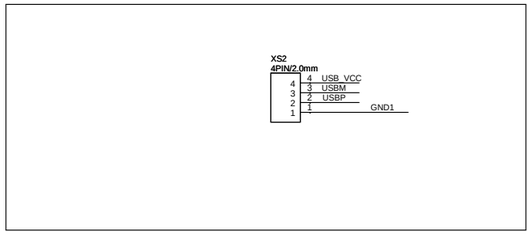


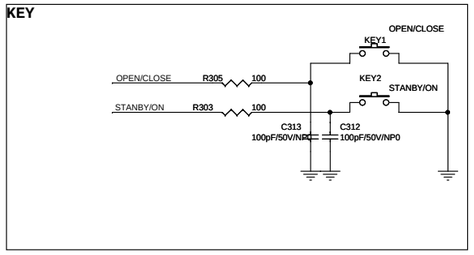


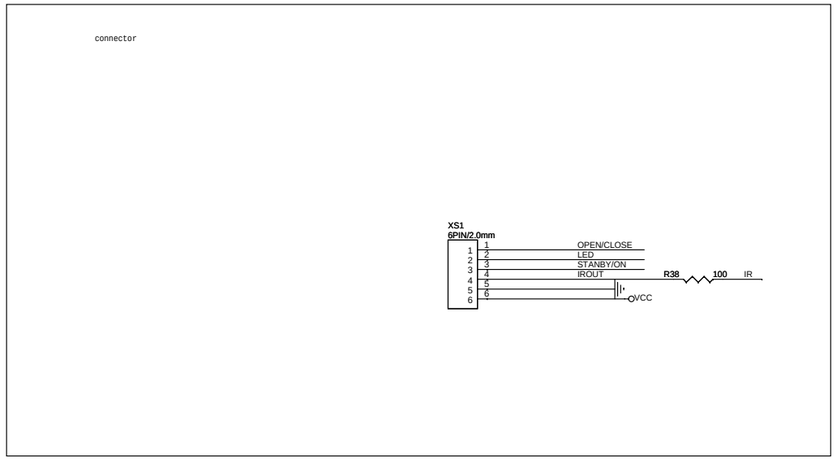


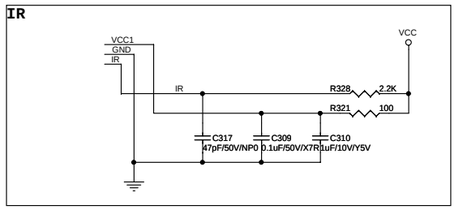
7-2

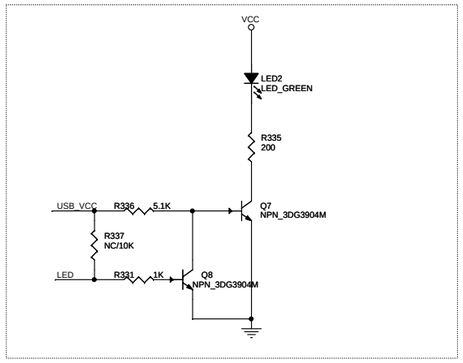
Front Board Circuit Diagram for BDP2180X/78:

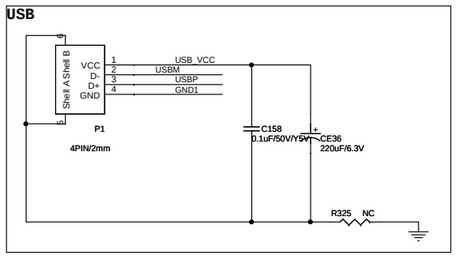






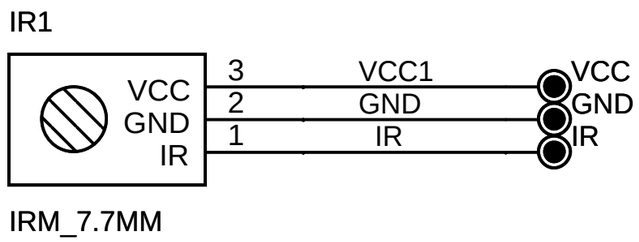






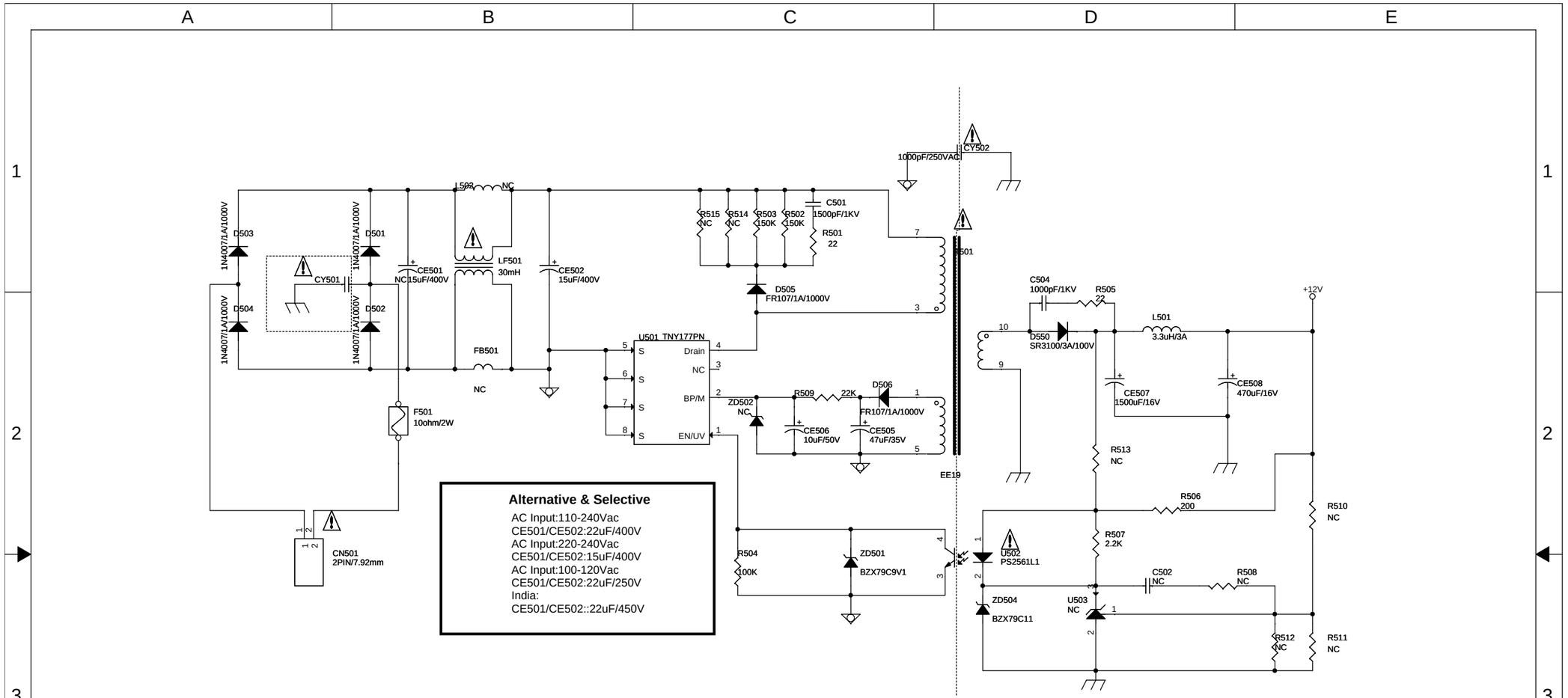
7-3

Front Board Circuit Diagram for BDP2100X/78:



7-4

Power Board Circuit Diagram:Connector for BDP2180/12/05/X78



NC:NO USE THE PLACE

*** CAUTION :**

THE PARTS MARKED WITH ⚠ ARE IMPORTANT PARTS ON THE SAFETY.

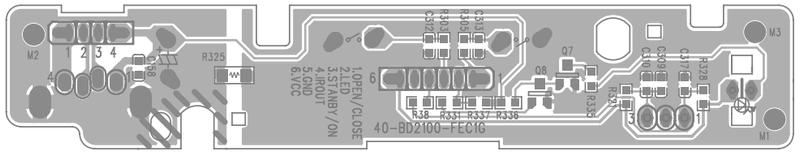
PLEASE USE THE PARTS HAVING THE DESIGNATED PARTS NUMBER WITHOUT FAIL.

7-5

Power Board Circuit Diagram:Power Supply for BP2180/12/05/X78

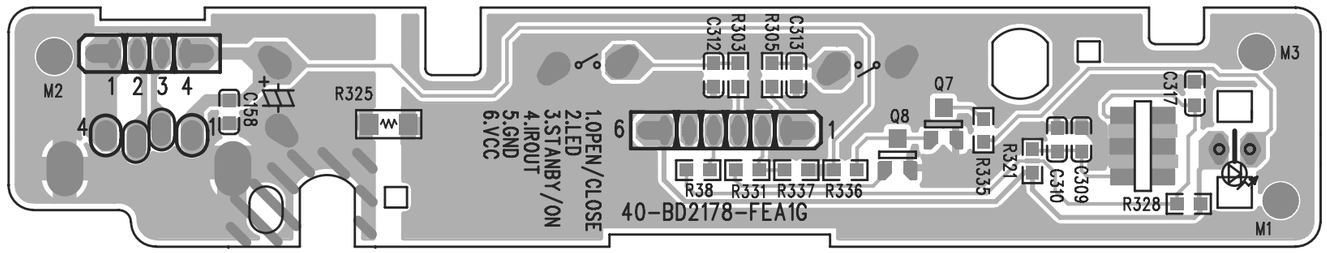
7-6

Front Board Print-layout(bottom side) for BDP2180/12/05:



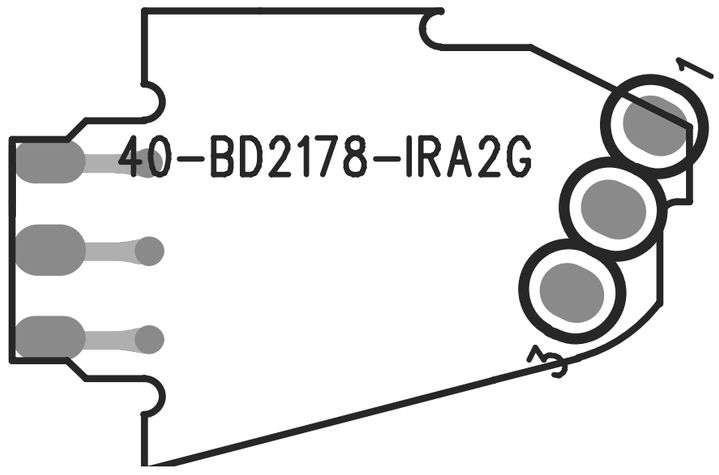
7-7

Front Board Print-layout(bottom side)for BDP2180X/78:



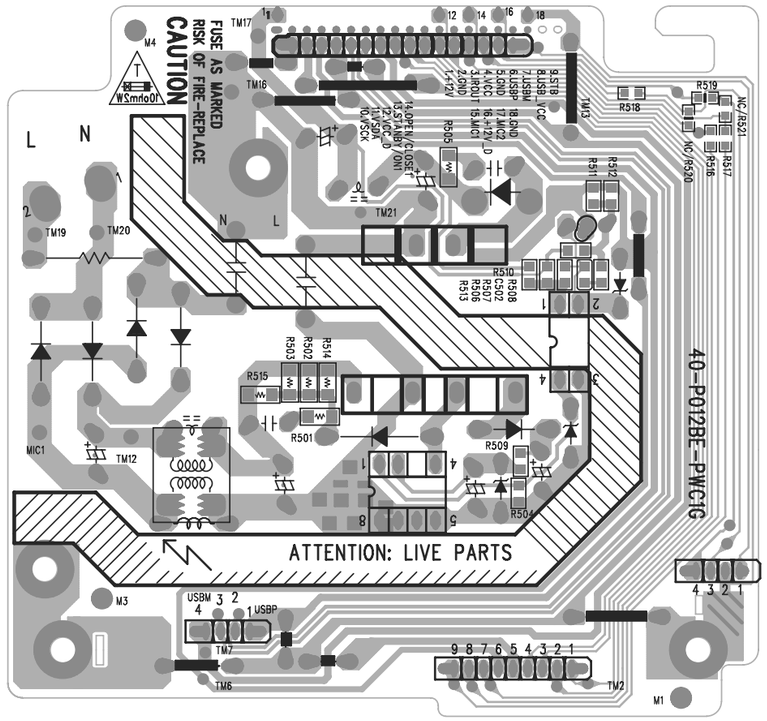
7-8

Front Board Print-layout(bottom side)for BDP2180X/78:



7-9

Power Board Print-layout(bottom side) for BDP2180/12/05/X78:



Voltages for per connection pin

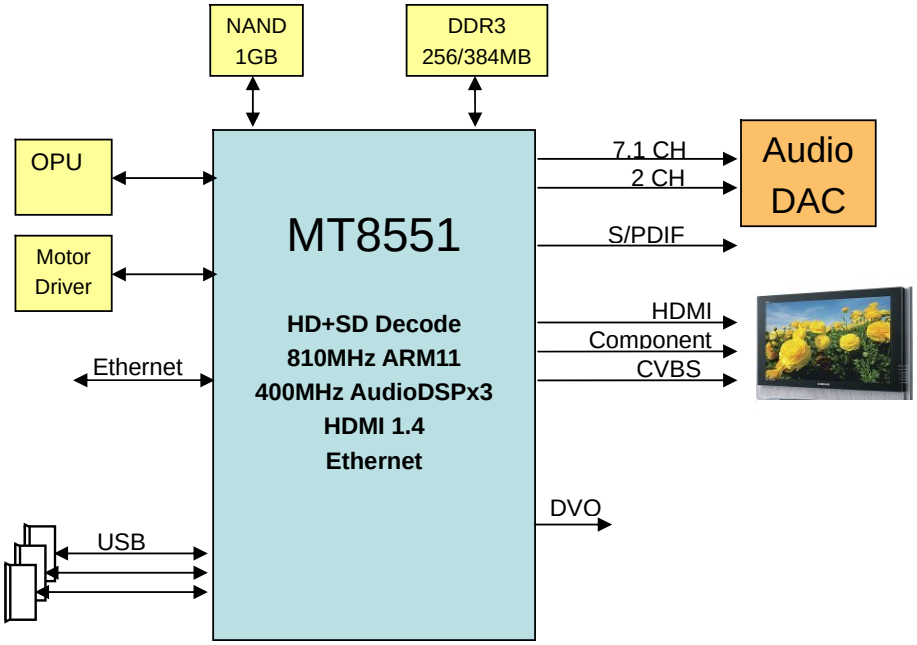
XP3---From Main Board Connect to Front Board

Pin No	Pin Assin	Remarks
1	12V	+12V
2	GND	
3	IR_IN	
4	VCC	+5V
5	GND	
6	USBP1	HIGH SPEED SIGNAL
7	USBM1	
8	USB_VCC1	+5V
9	VSTB1	
10	VCLK1	
11	VDATA1	
12	GND	
13	MICIN	
14	+12V_D	+12V

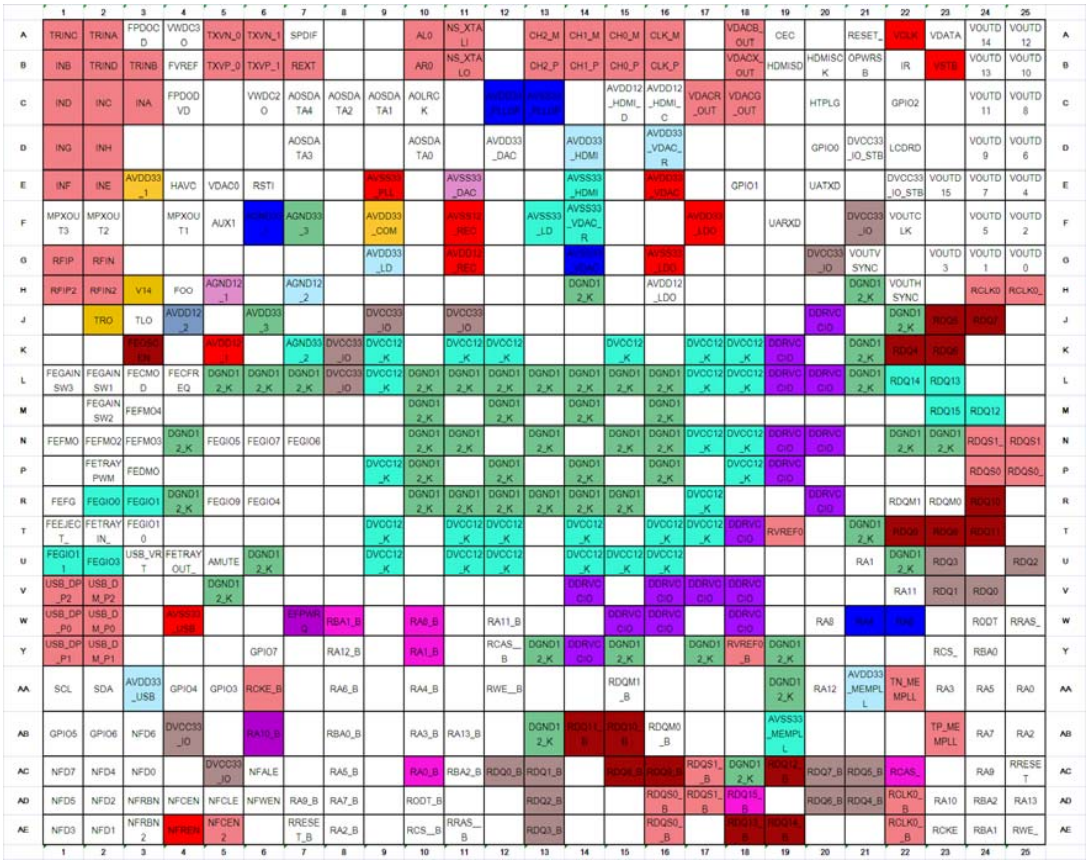
USB401---From Main Board Connect to Wifi Board（only for BDP2105/F7 and BDP2185/F7）

Pin No	Pin Assin	Remarks
1	GND	
2	USBP0	HIGH SPEED SIGNAL
3	USBM0	HIGH SPEED SIGNAL
4	WIFI_VCC	+3.3V

FUNCTIONAL BLOCK DIAGRAM FOR MANI IC MT8551



PIN ASSIGNMENT



PIN DESCRIPTION

Pin	Symbol	Type	Description
Digital power/ground			
K9 K11 K12 K15 K17 K18 L9 L17 L18 N17 N18 P9 P18 R17 T9 T11 T12 T14 T16 T17 U9 U11 U12 U14 U15 U16	DVCC12_K	Power	1.2 V digital power

Pin	Symbol	Type	Description
H14 H21 J22 K21 L5 L6 L7 L10 L11 L12 L13 L14 L15 L16 L21 M10 M12 M14 M16 N4 N10 N11 N13 N15 N16 N22 N23 P10 P12 P14 P16 R4 R10 R11 R12 R13 R14 R15 T21 U6 U22 V5 Y13 Y15 Y17 Y19 AA19 AB13 AC18	DGND12_K	Ground	Digital ground

Pin	Symbol	Type	Description
F21 G20 J9 J11 K8 L8 AB4 AC5	DVCC33_IO	Power	3.3 V digital IO power
D21 E22	DVCC33_IO_STB	Power	3.3 V digital IO power for Stand-By Module
J20 K19 L19 L20 N19 N20 P19 R20 T18 V14 V16 V17 V18 W15 W16 W18 Y14	DDRVCCIO	Power	1.5 V digital IO power
XTAL/PLL			
AA21	AVDD33_MEMPLL	Power	3.3 V Analog Power for MEMPLL
AB19	AVSS33_MEMPLL	Ground	Analog Ground for MEMPLL
AA22	TN_MEMPLL	Analog	Test Pin
AB23	TP_MEMPLL	Analog	Test Pin
H16	AVDD12_LDO	Power	1.2V standby power
F17	AVDD33_LDO	Power	3.3V power for standby
G16	AVSS33_LDO	Ground	Analog ground for standby
C12	AVDD33_PLLGP	Power	3.3V Analog Power for PLL Group
C13	AVSS33_PLLGP	Power	Analog Ground for PLL Group
A11	NS_XTALI	I	27MHz Crystal In
B11	NS_XTALO	O	27MHz Crystal Out

Pin	Symbol	Type	Description
Audio PWM DAC interface			
D12	AVDD33_DAC	Power	3.3V Analog Power
E11	AVSS33_DAC	Ground	Analog Ground
A10	AL0	I/O	Multiple function: (1) Audio output bit clock (2) Audio PWM output (3) GPIO
B10	AR0	I/O	Multiple function: (1) Audio output master clock (2) Audio PWM output (3) GPIO
Audio interface			
U5	AMUTE	I/O	Multiple function: (1) 1st Audio DAC mute (2) GPIO
C10	AOLRCK	I/O	Multiple function: (1) Audio output left-right clock (2) 2nd Audio DAC mute (3) Video out DE signal (4) 2nd RS232 TX (5) External Interrupt 4 (6) Slave I2C clock (7) PWM control signal output (8) Ethernet Activity LED (9) GPIO
D10	AOSDATA0	I/O	Multiple function: (1) Audio output serial data 0 (2) 2nd Audio DAC mute (3) Video out DE signal (4) 2nd RS232 RX (5) External Interrupt 2 (6) Slave I2C data (7) PWM control signal output (8) Ethernet Duplex LED (9) GPIO

Pin	Symbol	Type	Description
C9	AOSDATA1	I/O	Multiple function: (1) Audio output serial data 1 (2) Audio output master clock (3) Micophone input master clock (4) Video out DE signal (5) External Interrupt 1 (6) 3th RS232 TX (7) Slave I2C clock (8) PWM control signal output (9) Ethernet Activity LED (10) GPIO
C8	AOSDATA2	I/O	Multiple function: (1) Audio output serial data 2 (2) Audio output bit clock (3) Microphone input bit clock (4) Video out DE signal (5) External Interrupt 4 (6) 3th RS232 RX (7) Slave I2C data (8) PWM control signal output (9) Ethernet Duplex LED (10) 1st Audio DAC mute (11) GPIO
D7	AOSDATA3	I/O, 5V	Multiple function: (1) Audio output serial data 3 (2) Audio output left-right clock (3) Microphone input left-right clock (4) Video out DE signal (5) External Interrupt 2 (6) 2nd RS232 TX (7) Slave I2C clock (8) PWM control signal output (9) Ethernet Speed LED (10) GPIO
C7	AOSDATA4	I/O, 5V	Multiple function: (1) Audio output serial data 4 (2) Audio line input data (3) Microphone input data (4) Video out DE signal (5) External Interrupt 1 (6) 2nd RS232 RX (7) Slave I2C data (8) PWM control signal output (9) Ethernet Link LED (10) GPIO

Pin	Symbol	Type	Description
A7	SPDIF	I/O	Multiple function: (1) SPDIF digital audio output (2) GPIO
Analog Video Out Interface			
E16	AVDD33_VDAC	Power	3.3V Analog Power
D16	AVDD33_VDAC_R	Power	3.3V Analog Power
G14	AVSS33_VDAC	Ground	Analog Ground
F14	AVSS33_VDAC_R	Ground	Analog Ground
A18	VDACB_OUT	Analog	DAC output
C18	VDACG_OUT	Analog	DAC output
C17	VDACR_OUT	Analog	DAC output
B18	VDACX_OUT	Analog	DAC output
Digital Video Output Interface			
F22	VOUTCLK	I/O, 5V	Multiple function: (1) Video out mode: CLOCK (2) 2nd RS232 TX (3) Slave I2C clock (4) PWM control signal output (5) Ethernet Activity LED (6) NAND Flash Data input/output bit 5 (7) Secure Disk interface clock (8) GPIO
H22	VOUTHSYNC	I/O	Multiple function: (1) Video out mode: HSYNC (2) 2nd RS232 RX (3) Slave I2C data (4) External Interrupt 1 (5) Ethernet Duplex LED (6) NAND Flash Data input/output bit 7 (7) Secure Disk interface command (8) GPIO
G21	VOUTVSYNC	I/O	Multiple function: (1) Video out mode: VSYNC (2) 3th RS232 TX (3) External Interrupt 2 (4) Ethernet Speed LED (5) NAND Flash Data input/output bit 6 (6) Secure Disk interface data bit 0 (7) GPIO

Pin	Symbol	Type	Description
G25	VOUTD0	I/O	Multiple function: (1) Video out 16-bit 422 mode: C0 (2) External Interrupt 4 (3) 3th RS232 RX (4) Ethernet Link LED (5) NAND Flash Data input/output bit 4 (6) Secure Disk interface data bit 1 (7) GPIO
G24	VOUTD1	I/O	Multiple function: (1) Video out 16-bit 422 mode: C1 (2) Slave I2C clock (3) NAND Flash Data input/output bit 3 (4) Secure Disk interface data bit 2 (5) GPIO
F25	VOUTD2	I/O	Multiple function: (1) Video out 16-bit 422 mode: C2 (2) Slave I2C data (3) NAND Flash Data input/output bit 2 (4) Secure Disk interface data bit 3 (5) GPIO
G23	VOUTD3	I/O	Multiple function: (1) Video out 16-bit 422 mode: C3 (2) JTAG ICE data out (3) GPIO
E25	VOUTD4	I/O	Multiple function: (1) Video out 16-bit 422 mode: C4 (2) JTAG ICE clock (3) GPIO
F24	VOUTD5	I/O	Multiple function: (1) Video out 16-bit 422 mode: C5 (2) JTAG ICE mode select (3) GPIO
D25	VOUTD6	I/O	Multiple function: (1) Video out 16-bit 422 mode: C6 (2) JTAG ICE data in (3) GPIO
E24	VOUTD7	I/O	Multiple function: (1) Video out 16-bit 422 mode: C7 (2) Audio line input data (3) GPIO

Pin	Symbol	Type	Description
C25	VOUTD8	I/O	Multiple function: (1) Video out 16-bit 422 mode: Y0 (2) Microphone input master clcok (3) 2nd RS232 TX (4) Slave I2C clock (5) PWM control signal output (6) Ethernet Activity LED (7) NAND Flash Data input/output bit 1 (8) GPIO
D24	VOUTD9	I/O	Multiple function: (1) Video out 16-bit 422 mode: Y1 (2) Microphone input bit clcok (3) 2nd RS232 RX (4) Slave I2C data (5) External Interrupt 1 (6) Ethernet Duplex LED (7) NAND Flash Data input/output bit 0 (8) GPIO
B25	VOUTD10	I/O, 5V	Multiple function: (1) Video out 16-bit 422 mode: Y2 (2) Microphone input left-right clcok (3) 3th RS232 TX (4) Slave I2C clock (5) External Interrupt 2 (6) Ethernet Speed LED (7) NAND Flash ready/busy (8) GPIO
C24	VOUTD11	I/O, 5V	Multiple function: (1) Video out 16-bit 422 mode: Y3 (2) Microphone input data (3) 3th RS232 RX (4) Slave I2C data (5) External Interrupt 4 (6) Ethernet Link LED (7) NAND Flash read enable (8) GPIO
A25	VOUTD12	I/O, 5V	Multiple function: (1) Video out 16-bit 422 mode: Y4 (2) SPDIF input master clock (3) 2nd RS232 TX (4) Slave I2C clock (5) PWM control signal output (6) Ethernet Activity LED (7) NAND Flash chip enable (8) GPIO

Pin	Symbol	Type	Description
B24	VOUTD13	I/O, 5V	Multiple function: (1) Video out 16-bit 422 mode: Y5 (2) SPDIF input bit clock (3) 2nd RS232 RX (4) Slave I2C data (5) External Interrupt 1 (6) Ethernet Duplex LED (7) NAND Flash command latch enable (8) GPIO
A24	VOUTD14	I/O, 5V	Multiple function: (1) Video out 16-bit 422 mode: Y6 (2) SPDIF input left-right clock (3) 3th RS232 TX (4) Slave I2C clock (5) External Interrupt 2 (6) Ethernet Speed LED (7) NAND Flash address latch enable (8) GPIO
E23	VOUTD15	I/O	Multiple function: (1) Video out 16-bit 422 mode: Y7 (2) SPDIF input data (3) 3th RS232 RX (4) Slave I2C data (5) External Interrupt 4 (6) Ethernet Link LED (7) NAND Flash write enable (8) GPIO
HDMI TX			
C16	AVDD12_HDMI_C	Power	1.2V Analog Power
C15	AVDD12_HDMI_D	Power	1.2V Analog Power
D14	AVDD33_HDMI	Power	3.3V Analog Power
E14	AVSS33_HDMI	Ground	Analog Ground
A15	CH0_M	Analog	HDMI TX data 0 differential pair (M)
B15	CH0_P	Analog	HDMI TX data 0 differential pair (P)
A14	CH1_M	Analog	HDMI TX data 1 differential pair (M)
B14	CH1_P	Analog	HDMI TX data 1 differential pair (P)
A13	CH2_M	Analog	HDMI TX data 2 differential pair (M)
B13	CH2_P	Analog	HDMI TX data 2 differential pair (P)
A16	CLK_M	Analog	HDMI TX clock differential pair (M)

Pin	Symbol	Type	Description
B16	CLK_P	Analog	HDMI TX clock differential pair (P)
NAND Flash Interface			
AC6	NFALE	I/O	Multiple function (1) NAND Flash address latch enable (2) GPO
AD4	NFCEN	I/O	Multiple function (1) NAND Flash chip enable (2) GPO
AE5	NFCEN2	I/O	Multiple function (1) NAND Flash 2nd chip enable (2) 2nd RS232 TX (3) External Interrupt 2 (4) 3th RS232 TX (5) Slave I2C clock (6) PWM control signal output (7) GPO
AD5	NFCLE	I/O	Multiple function (1) NAND Flash command latch enable (2) GPO
AC3	NFD0	I/O	Multiple function (1) NAND Flash Data input/output bit0 (2) GPIO
AE2	NFD1	I/O	Multiple function (1) NAND Flash Data input/output bit1 (2) GPIO
AD2	NFD2	I/O	Multiple function (1) NAND Flash Data input/output bit2 (2) GPIO
AE1	NFD3	I/O	Multiple function (1) NAND Flash Data input/output bit3 (2) GPIO
AC2	NFD4	I/O	Multiple function (1) NAND Flash Data input/output bit4 (2) GPIO
AD1	NFD5	I/O	Multiple function (1) NAND Flash Data input/output bit5 (2) GPIO
AB3	NFD6	I/O	Multiple function (1) NAND Flash Data input/output bit6 (2) GPIO

Pin	Symbol	Type	Description
AC1	NFD7	I/O	Multiple function (1) NAND Flash Data input/output bit7 (2) GPIO
AD3	NFRBN	I/O	Multiple function (1) NAND Flash ready/busy (2) GPIO
AE3	NFRBN2	I/O	Multiple function (1) NAND Flash 2nd ready/busy (2) 2nd RS232 RX (3) External Interrupt 1 (4) 3th RS232 RX (5) Slave I2C data (6) PWM control signal output (7) GPO
AE4	NFREN	I/O	Multiple function (1) NAND Flash read enable (2) GPO
AD6	NFWEN	I/O	Multiple function (1) NAND Flash write enable (2) GPO
Dram Channel A			
AA25	RA0	O	Memory address bit 0
U21	RA1	O	Memory address bit 1
AB25	RA2	O	Memory address bit 2
AA23	RA3	O	Memory address bit 3
W21	RA4	O	Memory address bit 4
AA24	RA5	O	Memory address bit 5
W22	RA6	O	Memory address bit 6
AB24	RA7	O	Memory address bit 7
W20	RA8	O	Memory address bit 8
AC24	RA9	O	Memory address bit 9
AD23	RA10	O	Memory address bit 10
V22	RA11	O	Memory address bit 11
AA20	RA12	O	Memory address bit 12
AD25	RA13	O	Memory address bit 13
Y24	RBA0	O	Memory bank address bit 0

Pin	Symbol	Type	Description
AE24	RBA1	O	Memory bank address bit 1
AD24	RBA2	O	Memory bank address bit 2
AC22	RCAS_	O	Memory column address strobe
AE23	RCKE	O	Memory clock enable
H24	RCLK0	O	Memory clock 0 positive
H25	RCLK0_	O	Memory clock 0 negative
Y23	RCS_	O	Memory chip select
V24	RDQ0	I/O	Memory data bit 0
V23	RDQ1	I/O	Memory data bit 1
U25	RDQ2	I/O	Memory data bit 2
U23	RDQ3	I/O	Memory data bit 3
K22	RDQ4	I/O	Memory data bit 4
J23	RDQ5	I/O	Memory data bit 5
K23	RDQ6	I/O	Memory data bit 6
J24	RDQ7	I/O	Memory data bit 7
T23	RDQ8	I/O	Memory data bit 8
T22	RDQ9	I/O	Memory data bit 9
R24	RDQ10	I/O	Memory data bit 10
T24	RDQ11	I/O	Memory data bit 11
M24	RDQ12	I/O	Memory data bit 12
L23	RDQ13	I/O	Memory data bit 13
L22	RDQ14	I/O	Memory data bit 14
M23	RDQ15	I/O	Memory data bit 15
R23	RDQM0	O	Memory data mask bit 0
R22	RDQM1	O	Memory data mask bit 1
P24	RDQS0	I/O	Memory positive data strobe bit 0
P25	RDQS0_	I/O	Memory negative data strobe bit 0
N25	RDQS1	I/O	Memory positive data strobe bit 1
N24	RDQS1_	I/O	Memory negative data strobe bit 1
W24	RODT	O	Memory on die termination enable

Pin	Symbol	Type	Description
W25	RRAS_	O	Memory row address strobe
T19	RVREF0	I	Memory VREF
AE25	RWE_	O	Memory write enable
AC25	RRESET	O	Memory reset
DRAM Channel B			
AC10	RA0_B	O	Memory address bit 0
Y10	RA1_B	O	Memory address bit 1
AE8	RA2_B	O	Memory address bit 2
AB10	RA3_B	O	Memory address bit 3
AA10	RA4_B	O	Memory address bit 4
AC8	RA5_B	O	Memory address bit 5
AA8	RA6_B	O	Memory address bit 6
AD8	RA7_B	O	Memory address bit 7
W10	RA8_B	O	Memory address bit 8
AD7	RA9_B	O	Memory address bit 9
AB6	RA10_B	O	Memory address bit 10
W12	RA11_B	O	Memory address bit 11
Y8	RA12_B	O	Memory address bit 12
AB11	RA13_B	O	Memory address bit 13
AB8	RBA0_B	O	Memory bank address bit 0
W8	RBA1_B	O	Memory bank address bit 1
AC11	RBA2_B	O	Memory bank address bit 2
Y12	RCAS_B	O	Memory column address strobe
AA6	RCKE_B	O	Memory clock enable
AD22	RCLK0_B	O	Memory clock 0 positive
AE22	RCLK0__B	O	Memory clock 0 negative
AE10	RCS__B	O	Memory chip select
AC12	RDQ0_B	I/O	Memory data bit 0
AC13	RDQ1_B	I/O	Memory data bit 1
AD13	RDQ2_B	I/O	Memory data bit 2

Pin	Symbol	Type	Description
AE13	RDQ3_B	I/O	Memory data bit 3
AD21	RDQ4_B	I/O	Memory data bit 4
AC21	RDQ5_B	I/O	Memory data bit 5
AD20	RDQ6_B	I/O	Memory data bit 6
AC20	RDQ7_B	I/O	Memory data bit 7
AC15	RDQ8_B	I/O	Memory data bit 8
AC16	RDQ9_B	I/O	Memory data bit 9
AB15	RDQ10_B	I/O	Memory data bit 10
AB14	RDQ11_B	I/O	Memory data bit 11
AC19	RDQ12_B	I/O	Memory data bit 12
AE18	RDQ13_B	I/O	Memory data bit 13
AE19	RDQ14_B	I/O	Memory data bit 14
AD18	RDQ15_B	I/O	Memory data bit 15
AB16	RDQM0_B	O	Memory data mask bit 0
AA15	RDQM1_B	O	Memory data mask bit 1
AD16	RDQS0_B	I/O	Memory positive data strobe bit 0
AE16	RDQS0__B	I/O	Memory negative data strobe bit 0
AD17	RDQS1_B	I/O	Memory positive data strobe bit 1
AC17	RDQS1__B	I/O	Memory negative data strobe bit 1
AD10	RODT_B	O	Memory on die termination enable
AE11	RRAS__B	O	Memory row address strobe
Y18	RVREF0_B	I	Memory VREF
AA12	RWE__B	O	Memory write enable
AE7	RRESET_B	O	Memory reset
MISC			
A19	CEC	I/O, 5V	Multiple function (1) HDMI CEC (2) GPIO (3) JTAG ICE data in

Pin	Symbol	Type	Description
D20	GPIO0	I/O, 5V	Multiple function (1) Serial interface control line (2) Slave I2C clock (3) External Interrupt 3 (4) GPIO
E18	GPIO1	I/O, 5V	Multiple function (1) Serial interface data line (2) Slave I2C data (3) External Interrupt 3 (4) GPIO
C22	GPIO2	I/O, 5V	Multiple function (1) Video output DE signal (2) 2nd RS232 TX (3) External Interrupt 1 (4) Slvae I2C clock (5) PWM control signal output (6) Ethernet Speed LED (7) GPIO
AA5	GPIO3	I/O, 5V	Multiple function (1) Audio line input data (2) 2nd RS232 RX (3) External Interrupt 2 (4) Slvae I2C data (5) PWM control signal output (6) Ethernet Link LED (7) GPIO
AA4	GPIO4	I/O, 5V	Multiple function (1) Microphone input data (2) 2nd RS232 TX (3) External Interrupt 4 (4) Slvae I2C clock (5) PWM control signal output (6) Ethernet Activity LED (7) GPIO
AB1	GPIO5	I/O, 5V	Multiple function (1) Microphone input left-right clock (2) 2nd RS232 RX (3) External Interrupt 1 (4) Slvae I2C data (5) PWM control signal output (6) Ethernet Duplex LED (7) GPIO

Pin	Symbol	Type	Description
AB2	GPIO6	I/O, 5V	Multiple function (1) Microphone input bit clock (2) 3th RS232 TX (3) External Interrupt 2 (4) Slvae I2C clock (5) PWM control signal output (6) Ethernet Speed LED (7) GPIO
Y6	GPIO7	I/O, 5V	Multiple function (1) Microphone input master clock (2) 3th RS232 RX (3) External Interrupt 4 (4) Slvae I2C data (5) PWM control signal output (6) Ethernet Link LED (7) GPIO
B20	HDMISCK	I/O, 5V	Multiple function (1) HDMI I2C Clock (2) GPIO (3) JTAG ICE clock
B19	HDMISD	I/O, 5V	Multiple function (1) HDMI I2C Data (2) GPIO (3) JTAG ICE mode select
C20	HTPLG	I/O, 5V	Multiple function (1) HDMI Hot Plug (2) GPIO (3) JTAG ICE data out
B22	IR	I/O, 5V	Multiple function (1) Infrared input (2) GPIO
D22	LCDRD	I/O, 5V	Multiple function (1) LCD read strobe (2) GPIO
E6	RSTI	I	Front-End Power on reset
B21	OPWRSB	I/O, 5V	Power Control
A21	RESET_	I, 5V	Power on reset
F19	UARXD	I/O, 5V	Reserved for debug-only Uart pins. (1) 1st RS232 RX (2) T8032 RS232 RX

Pin	Symbol	Type	Description
E20	UATXD	I/O, 5V	Reserved for debug-only Uart pins (1) 1st RS232 TX (2) T8032 RS232 TX
A22	VCLK	I/O, 5V	Multiple function (1) VFD clock (2) GPIO (3) Slave I2C data (4) Serial interface data line
A23	VDATA	I/O, 5V	Multiple function (1) VFD data (2) GPIO (3) External Interrupt 3
B23	VSTB	I/O, 5V	Multiple function (1) VFD strobe (2) GPIO (3) Slave I2C clock (4) Serial interface control line
AA1	SCL	I/O, 5V	Multiple function (1) Serial interface control line (2) Slave I2C clock (3) GPIO
AA2	SDA	I/O, 5V	Multiple function (1) Serial interface data line (2) Slave I2C data (3) GPIO
USB			
AA3	AVDD33_USB	Power	3.3V Analog power for USB
W4	AVSS33_USB	Ground	Analog ground for USB
W2	USB_DM_P0	Analog	USB port0 differential serial data bus (minus)
W1	USB_DP_P0	Analog	USB port0 differential serial data bus (plus)
Y2	USB_DM_P1	Analog	USB port1 differential serial data bus (minus)
Y1	USB_DP_P1	Analog	USB port1 differential serial data bus (plus)
V2	USB_DM_P2	Analog	USB port2 differential serial data bus (minus)
V1	USB_DP_P2	Analog	USB port2 differential serial data bus (plus)
U3	USB_VRT	Analog	USB reference resistor
E-fuse			
W7	EFPWRQ	Power	2.5V power for E-fuse programming
Ethernet PHY			
G9	AVDD33_LD	Power	Line driver 3.3V analog power

Pin	Symbol	Type	Description
F9	AVDD33_COM	Power	PLL/BG 3.3V analog power
F13	AVSS33_LD	Ground	Line driver analog ground
E9	AVSS33_PLL	Ground	PLL/BG analog ground
G11	AVDD12_REC	Power	ADC analog power
F11	AVSS12_REC	Ground	ADC analog ground
B5	TXVP_0	Analog	Ethernet TD+
B6	TXVP_1	Analog	Ethernet RD+
A5	TXVN_0	Analog	Ethernet TD-
B7	REXT	Analog	External reference resistor
A6	TXVN_1	Analog	Ethernet RD-
SERVO			
F6	AGND33_1	Analog Ground	Analog Ground
K7	AGND33_2	Analog Ground	Analog Ground
F7	AGND33_3	Analog Ground	Analog Ground
H5	AGND12_1	Analog Ground	Analog Ground
H7	AGND12_2	Analog Ground	Analog Ground
F5	AUX1	Analog I/O	Auxiliary Input Alternative Function : Signal Monitoring
K5	AVDD12_1	Analog Power(1.2V)	Power Pin
J4	AVDD12_2	Analog Power(1.2V)	Power Pin
E3	AVDD33_1	Analog Power(3.3V)	Power Pin
J6	AVDD33_3	Analog Power(3.3V)	Power Pin
L4	FECFREQ	3.3V LVTTL I/O, 5V-tolerance, Slow slew, 2, 4, 6, 8mA PDR, 75K pull-up (3.3V)	Frequency selection signal output, or LDD serial interface data or I2C SDA. The pin is spike-free at power-on stage.

Pin	Symbol	Type	Description
L3	FECMOD	3.3V LVTTL I/O, 5V-tolerance, Slow slew, 2, 4, 6, 8mA PDR, 75K pull-down (0V)	High frequency modulation mode selection signal output, or LDD serial interface command enable. The pin is spike-free at power-on stage.
P3	FEDMO	Analog Output	Disk motor control output. DAC output.
T1	FEEJECT_	3.3V LVTTL I/O, 5V-tolerance, 6 mA PDR, 75K pull-up (3.3V)	Eject/stop key input, active low. The pin is spike-free at power-on stage. Alternate function : General IO.
R1	FEFG	3.3V LVTTL I/O, 5V-tolerance, 6 mA PDR, 75K pull-up (3.3V)	Motor Hall sensor input. The pin is spike-free at power-on stage.
N1	FEFMO	Analog Output	Feed motor 1 control. DAC output.
N2	FEFMO2	Analog Output	Feed motor 2 control. DAC output.
N3	FEFMO3	Analog I/O	Feed motor 3 control. DAC output. Alternative Function : Auxiliary servo input
M3	FEFMO4	Analog I/O	Feed motor 4 control. DAC output. Alternative Function : Auxiliary servo input
H4	FOO	Analog Output	Focus servo output. PDM output of focus servo compensator.
A3	FPDOCD	Analog Input	Laser Power Monitor Input for CD APC / Differential negative input
C4	FPDODVD	Analog Input	Laser Power Monitor Input for DVD APC / Differential positive input
L2	FEGAINSW1	Analog Output	Read gain switch. 1
M2	FEGAINSW2	Analog Output	Read gain switch 2.
L1	FEGAINSW3	Analog Output	Read gain switch 3.

Pin	Symbol	Type	Description
R2	FEGIO0	3.3V LVTTL I/O, 5V-tolerance, 2,4,6,8 mA PDR, 75K pull-down (0V)	LDD serial interface data. The pin is spike-free at power-on stage. The pin is not allowed to pull-up in circuit layout. Alternate function: 1. Internal monitored signal output 2. General IO
R3	FEGIO1	3.3V LVTTL I/O, 5V-tolerance, 2,4,6,8 mA PDR, 75K pull-down (0V)	LDD serial interface CLK. The pin is spike-free at power-on stage. The pin is not allowed to pull-up in circuit layout. Alternate function: 1. Internal monitored signal output 2. General IO
T3	FEGIO10	3.3V LVTTL I/O, 5V-tolerance, 2,4,6,8 mA PDR, 75K pull-up (3.3V)	PC RS232 serial receive data. The pin is spike-free at power-on stage Alternate function: 1. High speed serial output port. (CLOCK) 2. Internal monitored signal output 3. LED Control Output. Initial “0” Output 4. General IO.
U1	FEGIO11	3.3V LVTTL I/O, 5V-tolerance, 2,4,6,8 mA PDR, 75K pull-up (3.3V)	PC RS232 serial transmit data. The pin is spike-free at power-on stage. Alternate function: 1. High speed serial output port (Data) 2. Internal monitored signal output 3. General IO.
U2	FEGIO3	3.3V LVTTL I/O, 5V-tolerance, 2,4,6,8 mA PDR, 75K pull-down (0V)	LED Control Output. Initial 0 Output. The pin is spike-free at power-on stage. Alternate function : . 1. Internal monitored signal output 2. General IO
R6	FEGIO4	Analog Output	Read gain switch 4 Alternate function : 1. LCD serial interface command enable. 2. LCD_DRV: Square wave output for LCD control. 3. Internal monitored signal output 4. General IO.
N5	FEGIO5	Analog Output	Read gain switch 5 Alternate function : 1. SIDM 2. LCD serial interface command enable. 3. Internal monitored signal output 4. General IO.

Pin	Symbol	Type	Description
N7	FEGIO6	Analog Output	Read gain switch 6. The pin is not allowed to pull-up in circuit layout. Alternate function : 1. SIDM 2. LCD serial interface command enable. 3. Internal monitored signal output 4. General IO.
N6	FEGIO7	3.3V LVTTL I/O, 5V-tolerance, 2,4,6,8 mA PDR, 75K pull-down (0V)	General IO. The pin is spike-free at power-on stage. The pin is not allowed to pull-up in circuit layout.
R5	FEGIO9	3.3V LVTTL I/O, 5V-tolerance, 2,4,6,8 mA PDR, 75K pull-down (0V)	General IO. The pin is spike-free at power-on stage. Alternate function : 1. Internal monitored signal output 2. Spoke input. 3. Power on reset input, high active. 4. General IO.
E4	HAVC	Analog Output	Decoupling Pin for Reference Voltage of Main and Sub Beams
C3	INA	Analog Input	Input of Main Beam Signal (A)
B1	INB	Analog Input	Input of Main Beam Signal (B)
C2	INC	Analog Input	Input of Main Beam Signal (C)
C1	IND	Analog Input	Input of Main Beam Signal (D)
E2	INE	Analog Input	Input of Sub-Beam Signal (E)
E1	INF	Analog Input	Input of Sub-Beam Signal (F)
D1	ING	Analog Input	Input of Sub-Beam Signal (G)
D2	INH	Analog Input	Input of Sub-Beam Signal (H)
F4	MPXOUT1	Analog Output	Multiplexer Output 1 for Signal Monitoring. The pin is not allowed to pull-up in circuit layout. Alternate function: Internal monitored signal output / General output.
F2	MPXOUT2	Analog Output	Multiplexer Output 2 for Signal Monitoring. The pin is not allowed to pull-up in circuit layout. Alternate function: Internal monitored signal output / General output.
F1	MPXOUT3	Analog Output	Multiplexer Output 3 for Signal Monitoring. The pin is not allowed to pull-up in circuit layout. Alternate function : Internal monitored signal output / General output.

Pin	Symbol	Type	Description
K3	FEOSCEN	3.3V LVTTL I/O, 5V-tolerance, Slow slew, 2, 4, 6, 8mA PDR, 75K pull-up (3,3V)	High frequency modulation enable signal output, or LDD serial interface CLK or I2C SCL. The pin is spike-free at power-on stage.
G2	RFIN	Analog Input	Differential Input of AC Coupling RF SUM Signal (Negative)
H2	RFIN2	Analog Input	Differential Input of AC Coupling RF SUM Signal (Negative)
G1	RFIP	Analog Input	Differential Input of AC Coupling RF SUM Signal (Positive)
H1	RFIP2	Analog Input	Differential Input of AC Coupling RF SUM Signal (Positive)
J3	TLO	Analog Output	Tilt servo output
T2	FETRAYIN_	3.3V LVTTL I/O, 5V-tolerance, 6 mA, 75K pull-up (3.3V)	Tray_is_in Input, A Logical Low Indicates the Tray is IN. Feedback Flag is from Tray Connector. The pin is spike-free at power-on stage. Alternate function : General IO.
U4	FETRAYOUT_	3.3V LVTTL I/O, 5V-tolerance, 6 mA, 75K pull-up (3.3V)	Tray_is_out Input. A Logical Low Indicates the Tray is OUT. Feedback Flag is from Tray Connector. The pin is spike-free at power-on stage. Alternate function : General IO.
P2	FETRAYPWM	Analog Output	Tray DAC / PWM control output. Controlled by μP.
A2	TRINA	Analog Input	Input of Tracking Signal (A)
B3	TRINB	Analog Input	Input of Tracking Signal (B)
A1	TRINC	Analog Input	Input of Tracking Signal (C)
B2	TRIND	Analog Input	Input of Tracking Signal (D)
J2	TRO	Analog Output	Tracking servo output. PDM output of tracking servo compensator.
H3	V14	Analog Output	Output of Voltage Reference (1.4V)
E5	VDAC0	Analog Output	Output of General DAC
B4	FVREF	Analog Output	Output of Voltage Reference
C6	VWDC2O	Analog Output	Output Voltage 2 of Laser Diode Control in APC

Pin	Symbol	Type	Description
A4	VWDC3O	Analog Output	Output Voltage 3 of Laser Diode Control in APC

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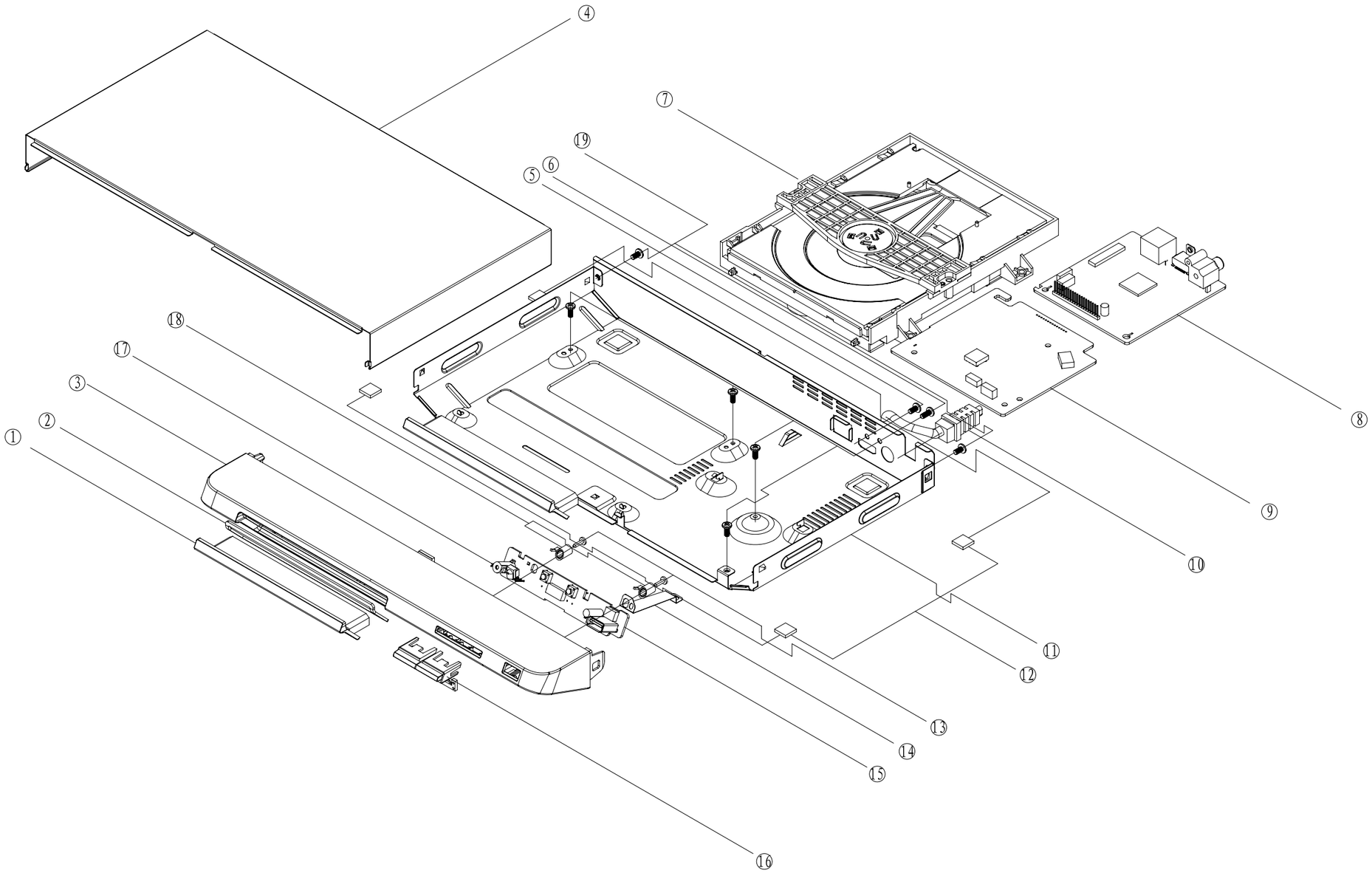
Exploded View for BDP2180/12/05:



Revision List

Version 1.0

* Initial Release for BDP2180/12/05.

Version 1.1

* Initial Release for BDP2180X/78.