

**AV Surround Receiver  
SR5014*****Click here!*****On-line service parts list**<http://dmedia.soundunited.com/documents/details/25939>

ONLINE PARTS LIST (P5)

**WEB owner's manual**NA: <http://manuals.marantz.com/SR5014/NA/EN/index.php>EU: <http://manuals.marantz.com/SR5014/EU/EN/index.php>AP: <http://manuals.marantz.com/SR5014/AP/ZH/index.php>

Upload is planned for the time of a future press release.

**BEFORE SERVICING THIS UNIT****ELECTRICAL****MECHANICAL****REPAIR INFORMATION****UPDATING**

- For purposes of improvement, specifications and design are subject to change without notice.
- Please use this service manual when referring to the operating instructions without fail.
- Some illustrations used in this service manual are slightly different from the actual product.

**Please refer to the MODIFICATION NOTICE.****Confidential**

# BEFORE SERVICING THIS UNIT

## SAFETY PRECAUTIONS

## NOTE FOR SCHEMATIC DIAGRAM

## HANDLING THE SEMICONDUCTOR AND OPTICS

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# SAFETY PRECAUTIONS

The following items should be checked for continued protection of the customer and the service technician.

## Leakage current check

Before returning the set to the customer, be sure to carry out either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 millamps, or if the resistance from chassis to either side of the power cord is less than 460 kohms, the set is defective.

Be sure to test for leakage current with the AC plug in both polarities, in addition, when the set's power is in each state (on, off and standby mode), if applicable.

### CAUTION

## Please heed the following cautions and instructions during servicing and inspection.

### ◎ Heed the cautions!

Cautions which are delicate in particular for servicing are labeled on the cabinets, the parts and the chassis, etc. Be sure to heed these cautions and the cautions described in the handling instructions.

### ◎ Cautions concerning electric shock!

(1) An AC voltage is impressed on this set, so if you touch internal metal parts when the set is energized, you may get an electric shock. Avoid getting an electric shock, by using an isolating transformer and wearing gloves when servicing while the set is energized, or by unplugging the power cord when replacing parts, for example.

(2) There are high voltage parts inside. Handle with extra care when the set is energized.

### ◎ Caution concerning disassembly and assembly!

Through great care is taken when parts were manufactured from sheet metal, there may be burrs on the edges of parts. The burrs could cause injury if fingers are moved across them in some rare cases. Wear gloves to protect your hands.

### ◎ Use only designated parts!

The set's parts have specific safety properties (fire resistance, voltage resistance, etc.). Be sure to use parts which have the same properties for replacement. The burrs have the same properties. In particular, for the important safety parts that are indicated by the  $\triangle$  mark on schematic diagrams and parts lists, be sure to use the designated parts.

### ◎ Be sure to mount parts and arrange the wires as they were originally placed!

For safety seasons, some parts use tapes, tubes or other insulating materials, and some parts are mounted away from the surface of printed circuit boards. Care should also be taken with the positions of the wires by arranging them and using clamps to keep them away from heating and high voltage parts, so be sure to set everything back as it was originally placed.

### ◎ Make a safety check after servicing!

Check that all screws, parts and wires removed or disconnected when servicing have been put back in their original positions, check that no serviced parts have deteriorated the area around. Then make an insulation check on the external metal connectors and between the blades of the power plug. And otherwise check that safety is ensured.  
(Insulation check procedure)

Unplug the power cord from the power outlet, disconnect the antenna, plugs, etc., and on the power. Using a 500V insulation resistance tester, check that the insulation resistance value between the inplug and the externally exposed metal parts (antenna terminal, headphones terminal, input terminal, etc.) is  $1M\ \Omega$  or greater. If it is less, the set must be inspected and repaired.

### CAUTION

## Concerning important safety parts

Many of the electric and the structural parts used in the set have special safety properties. In most cases these properties are difficult to distinguish by sight, and the use of replacement parts with higher ratings (rated power and withstand voltage) does not necessarily guarantee that safety performance will be preserved. Parts with safety properties are indicated as shown below on the wiring diagrams and the parts list in this service manual. Be sure to replace them with the parts which have the designated part number.

(1) Schematic diagrams Indicated by the  $\triangle$  mark.

(2) Parts lists Indicated by the  $\triangle$  mark.

The use of parts other than the designated parts could cause electric shocks, fires or other dangerous situations.

## NOTE FOR SCHEMATIC DIAGRAM

### WARNING:

Parts indicated by the  $\triangle$  mark have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

### CAUTION:

Before returning the set to the customer, be sure to carry out either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 millamps, or if the resistance from chassis to either side of the power cord is less than 460 kohms, the set is defective.

### WARNING:

DO NOT return the set to the customer unless the problem is identified and remedied.

### NOTICE:

- (1) ALL RESISTANCE VALUES IN OHM. K=1,000 OHM / M=1,000,000 OHM
- (2) ALL CAPACITANCE VALUES ARE EXPRESSED IN MICRO FARAD, UNLESS OTHERWISE INDICATED. P INDICATES MICRO-MICRO FARAD. N INDICATES NANO FARAD.
- (3) EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
- (4) CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

## HANDLING THE SEMICONDUCTOR AND OPTICS

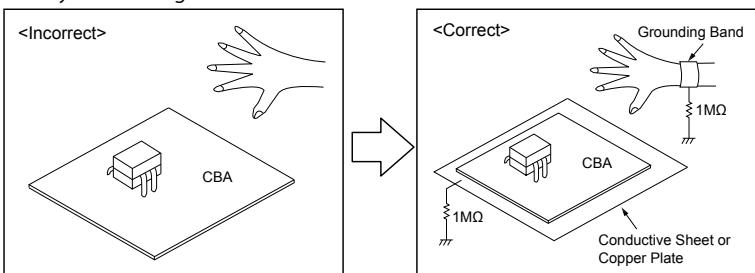
Electrostatic breakdown of the semi-conductors or optical pickup may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

### 1. Ground for Human Body

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

### 2. Ground for Workbench

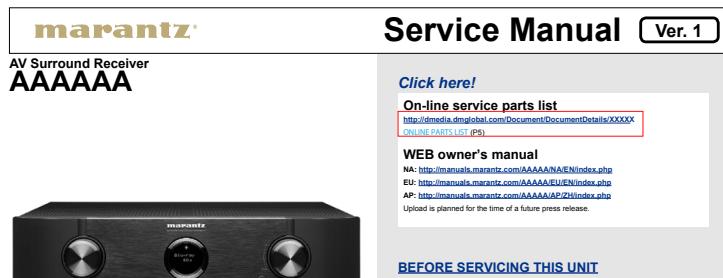
Be sure to place a conductive sheet or copper plate with proper grounding (1 M ohm) on the workbench or other surface, where the semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semi-conductors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



# ONLINE PARTS LIST

## Accessing the Parts List

- (1) Access from the Service Manual  
 • Click the URL link on the cover of the service manual.  
 Examples of display



**NOTE:** If the web browser does not open automatically, copy the URL and paste it into the address bar of the web browser and then press Enter.



- (2) Accessing the Part List from the Model Asset Screen.

- Display Model Asset from New SDI.
- Click the section displayed as ▼ Link to Part Lists under the Additional Classification.

Additional Classification				Version History		
Brand	Marantz	Version No.	Type	Created On		
Region	AP - JAPAN, NA, EU, A - CHINA	2.6	Major	23-May-2019	<a href="#">View</a>	
Asset Type	SDI	2.4	Major	21-May-2019	<a href="#">View</a>	
Category	Receiver	2.3	Major	09-May-2019	<a href="#">View</a>	
Description	<a href="#">▼ Link to Part List</a>	2.2	Major	18-Apr-2019	<a href="#">View</a>	
Search Keyword	SR9014,6014,SR9014's	2.1	Major	29-Mar-2019	<a href="#">View</a>	
		2.0	Major	11-Oct-2018	<a href="#">View</a>	

**NOTE:** If the ▼ Link to Parts List section is not displayed, download the parts table from the Asset list.

## Searching Part Numbers or Ref. Numbers

You can search a Parts List for part numbers or Ref. numbers.

- Enter the part number or Ref. number in the search window of the Parts List, and press the search button.
- The search results are displayed.  
 The name of the sheet in which the search part is used and the part's line are displayed.

S.No.	Sheet	REF. No.	Part No.	Part Name	Remarks	Qty	New	Ver
1	MAIN	D4007	0002780401905	15S133-0034-AVIAL_LRC	K0000133000405	1		
2	MAIN	D4016	0002780401905	15S133-0034-AVIAL_LRC	K000013300405	1		
3	MAIN	D4019	0002780401905	15S133-0034-AVIAL_LRC	K000013300405	1		
4	MAIN	D4031_4032	0002780401905	15S133-0034-AVIAL_LRC	K000013300405	2		
5	MAIN	D4037	0002780401905	15S133-0034-AVIAL_LRC	K000013300405	1		
6	INPUT	D4210-4212	0002780401905	15S133-0034-AVIAL_LRC	K000013300405	3		
7	SPHS	D4130	0002780401905	15S133-0034-AVIAL_LRC	K000013300405	1		

- Next, click the "Sheet" section of the search results.

S.No.	Sheet	REF. No.	Part No.	Part Name	Remarks	Qty	New	Ver
1	MAIN	D4007	0002780401905	15S133-0034-AVIAL_LRC	K0000133000405	1		
2	MAIN	D4016	0002780401905	15S133-0034-AVIAL_LRC	K000013300405	1		
3	MAIN	D4019	0002780401905	15S133-0034-AVIAL_LRC	K000013300405	1		

## NOTE FOR PARTS LIST

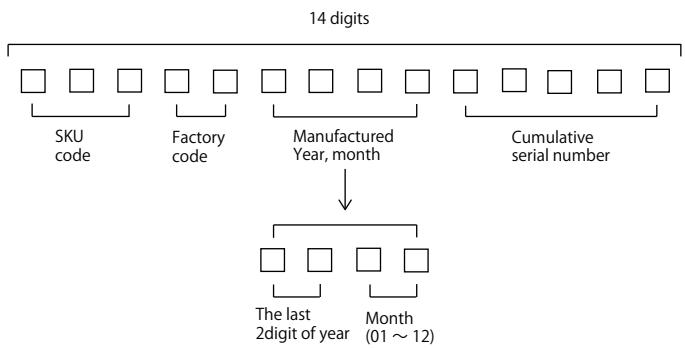
- Parts indicated by "**nsp**" on this table cannot be supplied.
- When ordering a part, make a clear distinction between "1" and "l" (i) to avoid mis-supplying.
- A part ordered without specifying its part number can not be supplied.
- Part indicated by "@" mark is not illustrated in the exploded and packaging view.

**WARNING:** Parts indicated by the mark have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

# SERIAL NUMBER

## Serial Number Organization

The 14-digit serial number that contains the code of the manufacturing plant and the manufacturing date.



## SKU Code of this Unit

Product SKU	SKU Code
SR5014/U1B	BHK
SR5014/N1B	BHL
SR5014/N1SG	BHM
SR5014/K1B	BHN

# POST-SERVICE PRECAUTIONS

## Initializing this Unit

Make sure to initialize this unit after replacing the microcomputer or any peripheral equipment, or the digital PCB.

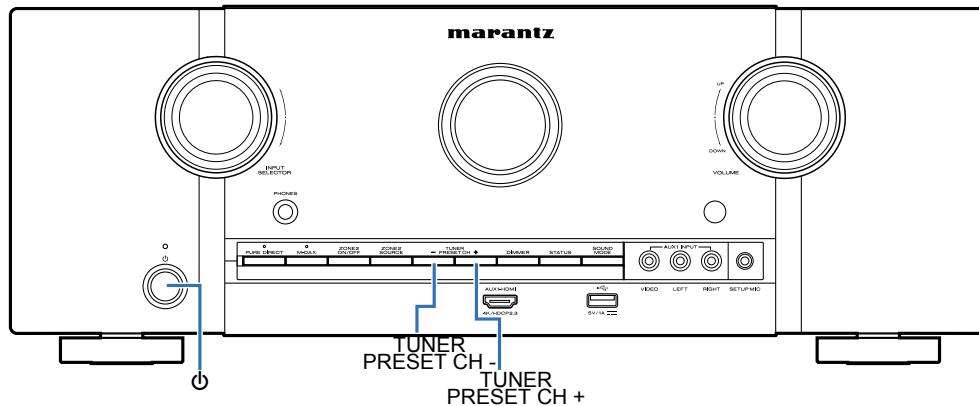
1. Press the power button to turn off the power.
2. While holding down buttons "TUNER PRESET CH -" and "TUNER PRESET CH +" simultaneously, press the power button to turn on the power.
3. Release the buttons after confirming that the display flashes at 1-second intervals.

\* The unit is initialized.

Use network initialization mode to initialize the network related settings.

**NOTE :**

- If the unit fails to enter the service mode in step 3, repeat the procedure from step 1.
- Initializing the device restores the customized settings to the factory settings. Write down your settings in advance and reconfigure the settings after initialization.



## JIG FOR SERVICING

Use the following jigs (extension cable kit) when repairing the PCBs.

Order with your dealer for the jigs your dealer if necessary.

8U-1100845 : EXTENSION UNIT KIT : 1 Set  
8U-1101365 : EXTENSION UNIT KIT : 1 Set  
(See [ONLINE PARTS LIST](#))

# ELECTRICAL

## SCHEMATIC DIAGRAMS

[SCH01 HDMI SW TMDS261B](#)  
[SCH02 HDMI SW1](#)  
[SCH03 HDMI SW2](#)  
[SCH04-1 ADV8003 OLD](#)  
[SCH04-2 ADV8003 NEW](#)  
[SCH05 ADV8003 DDR](#)  
[SCH06 HDMI TX](#)  
[SCH07 NET PHY](#)  
[SCH08 CPU](#)  
[SCH09 CPU LEVEL CHG](#)  
[SCH10 DSP](#)  
[SCH11 DIR A.PLD](#)  
[SCH12 MAIN DAC](#)  
[SCH13 D.SUPPLY](#)  
[SCH14 DIGITAL CNT](#)  
[SCH15 VIDEO PLD](#)  
[SCH16-1 ADV7180 OLD](#)  
[SCH16-2 ADV7180 NEW](#)  
[SCH17 INPUT1](#)  
[SCH18 INPUT2](#)  
[SCH19 VIDEO](#)  
[SCH20 FRONT CNT](#)  
[SCH21 RC5 RS232C](#)  
[SCH22 AMP1](#)  
[SCH23 AMP2](#)  
[SCH24 SPK](#)  
[SCH25 TUNER REG](#)  
[SCH26 RS CNT](#)  
[SCH27 FRONT](#)  
[SCH28 SMPS](#)  
[SCH29 HDAM](#)  
[SCH30 PREOUT](#)  
[SCH31 F-HDMI](#)

## PRINTED CIRCUIT BOARDS

[DIGITAL for OLD, F HDMI](#)  
[DIGITAL for NEW](#)  
[INPUT, VIDEO, FRONT CNT](#)  
[AMP](#)  
[MAIN, AUDIO IN, RS CNT, GUIDE L, GUIDE](#)  
[FRONT, RS232](#)  
[PREOU, USB, HP, SMPS, HDAM](#)

## LEVEL DIAGRAM

[FRONT ch](#)  
[CENTER, SURROUND, SURR.BCK ch](#)  
[SUBWOOFER ch](#)  
[ZONE2 ch \(w/ Source\)](#)  
[ZONE2 ch \(w/o Source\)](#)

## BLOCK DIAGRAM

[ANALOG AUDIO DIAGRAM](#)  
[DIGITAL AUDIO DIAGRAM](#)  
[VIDEO DIAGRAM](#)

## POWER DIAGRAM

## WIRING DIAGRAM

## SEMICONDUCTORS

[1. IC's](#)  
[2. FL DISPLAY](#)  
[3. Remote Code Table](#)

# SCHEMATIC DIAGRAMS

## SCH01 HDMI SW TMDS261B

Before Servicing  
This Unit

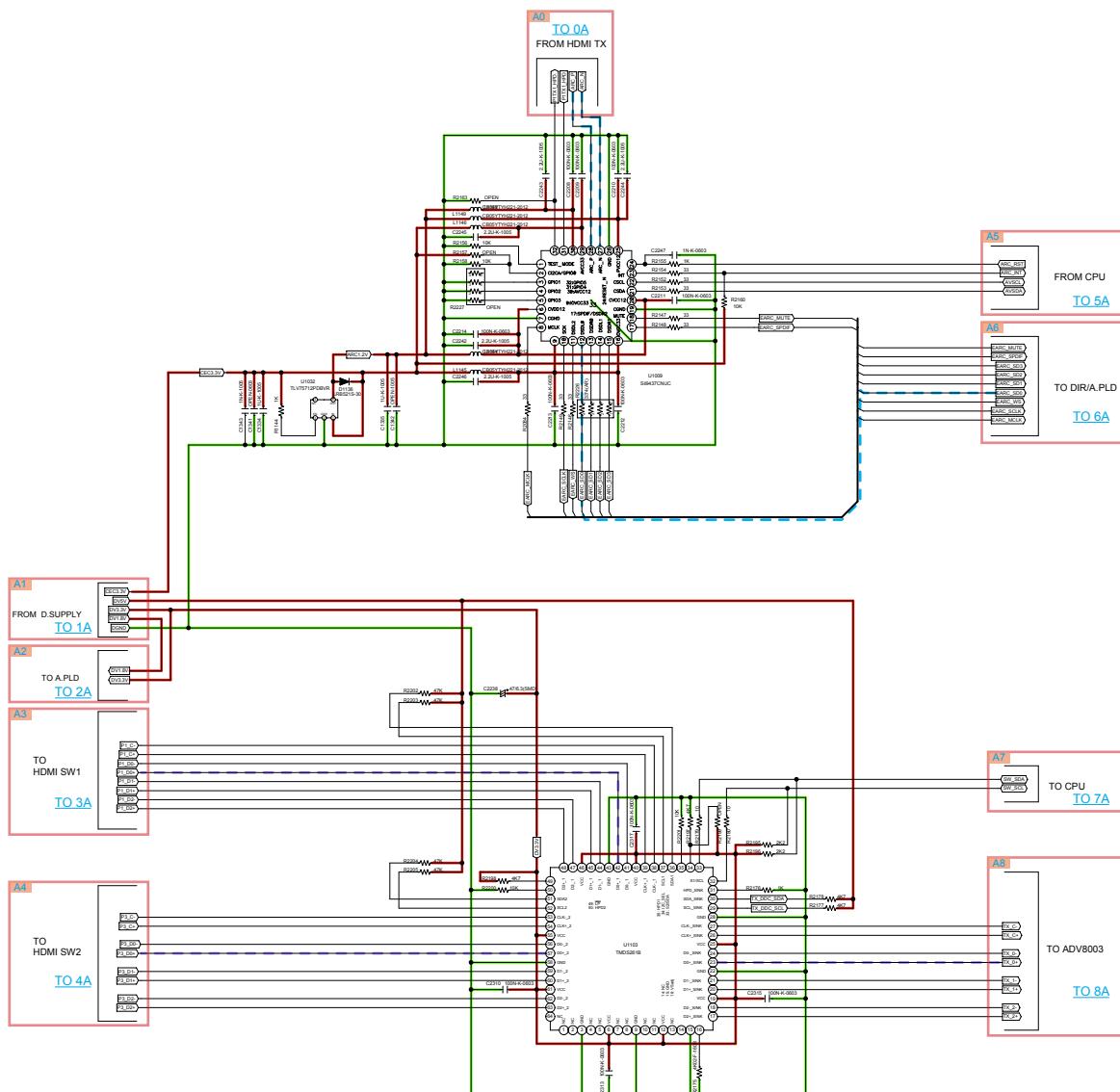
Electrical

Mechanical

Repair Information

Updating

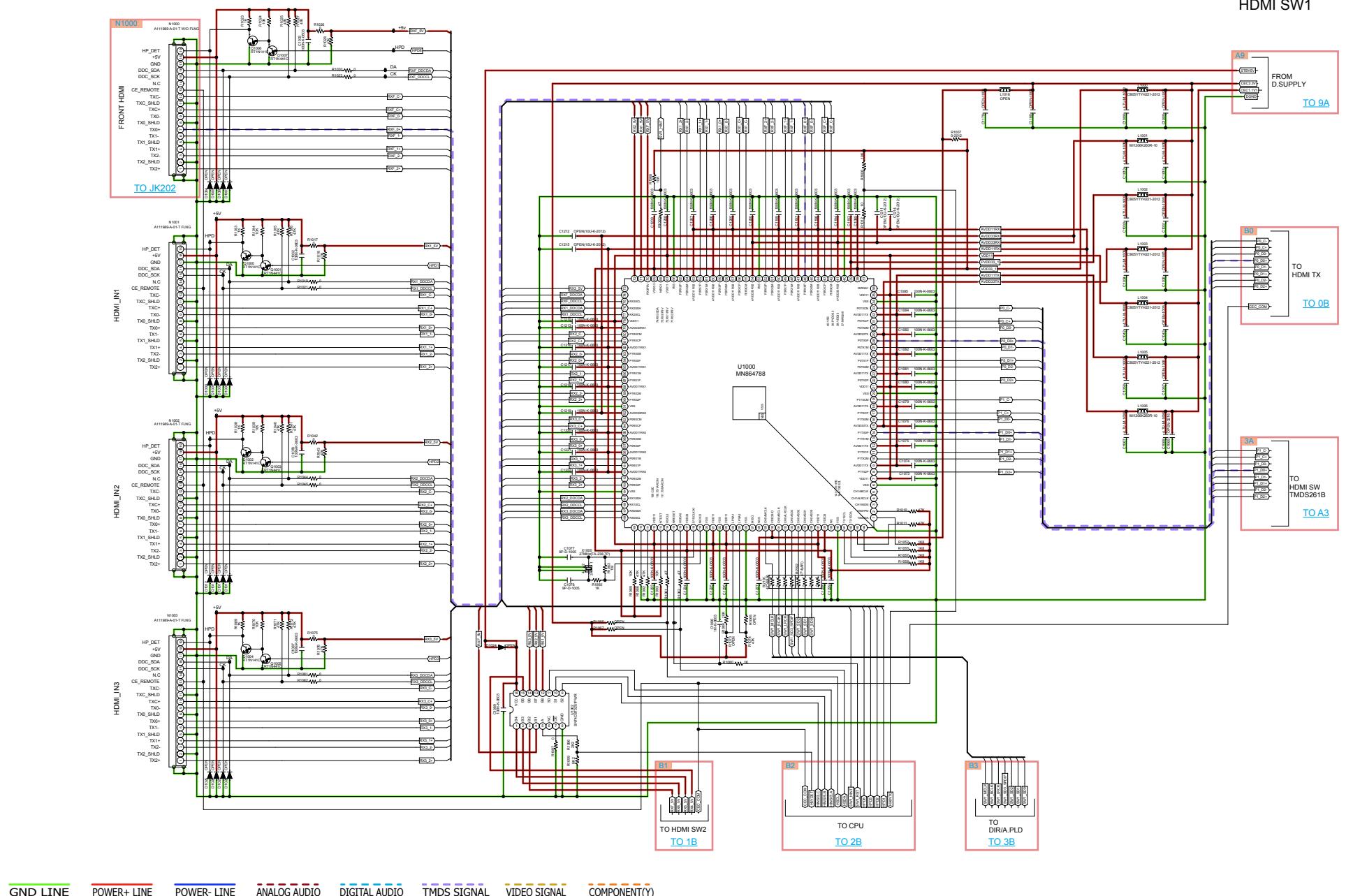
HDMI SW  
TMDS261B

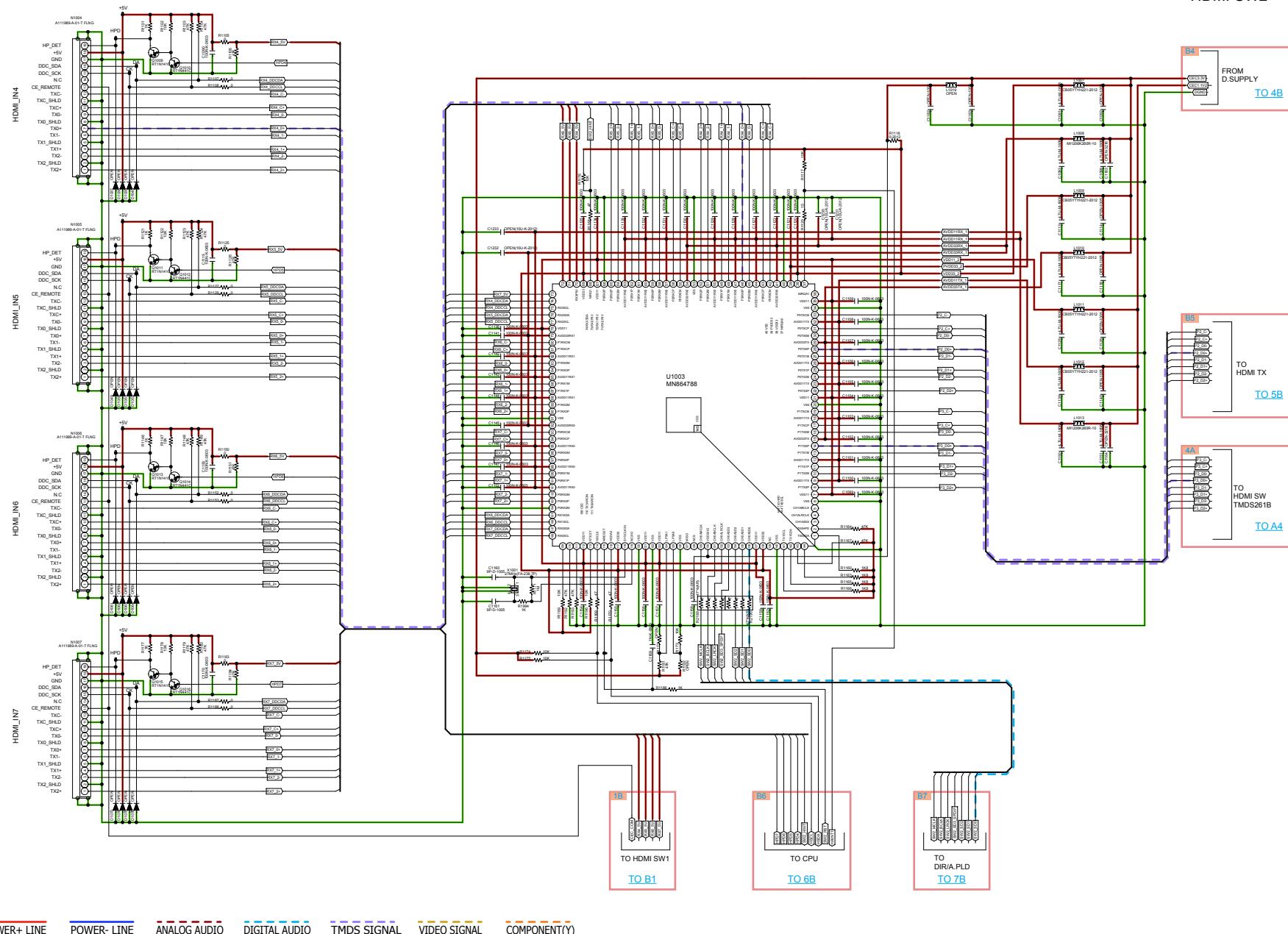


GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL VIDEO SIGNAL COMPONENT(Y)

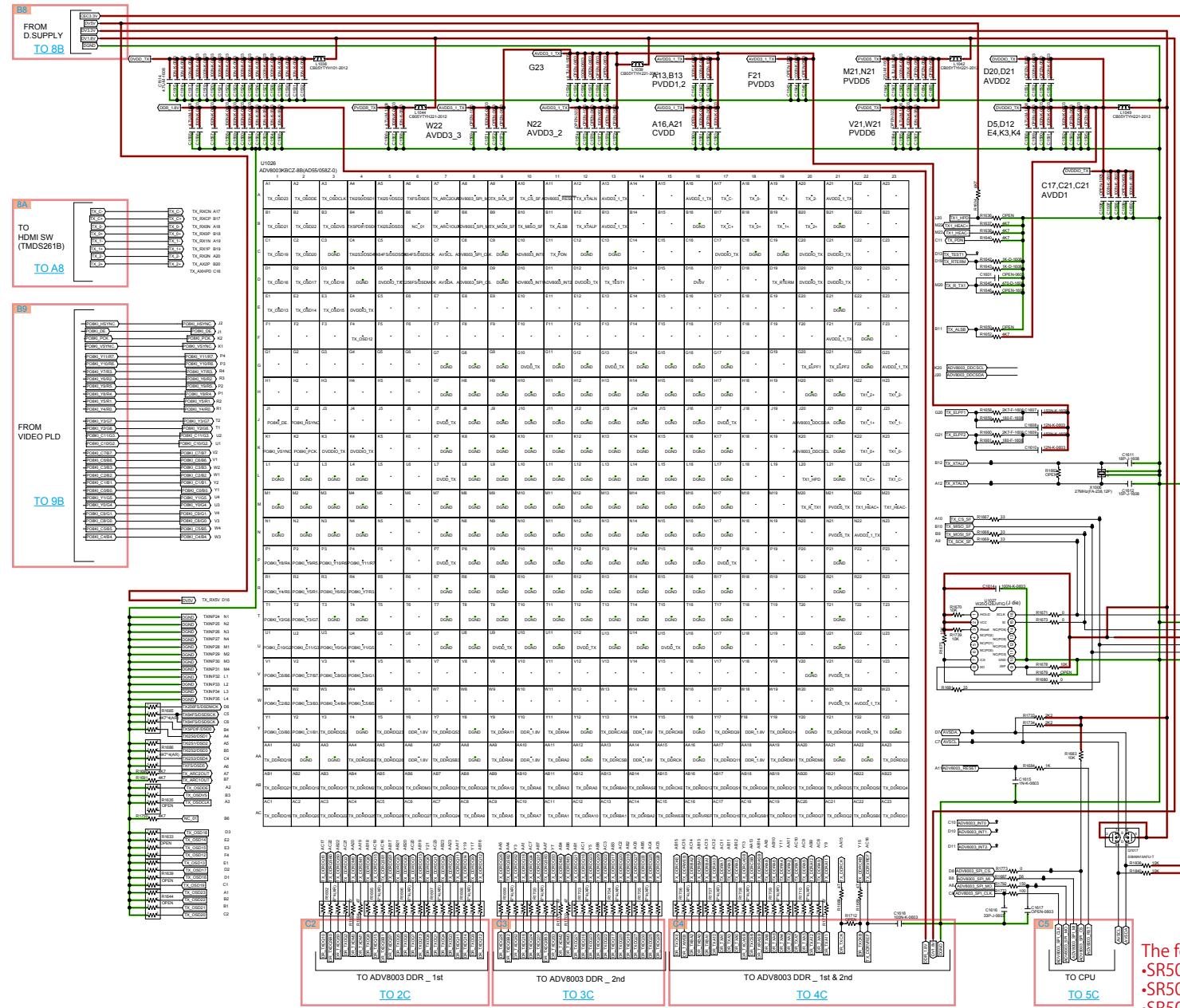
## HDMI SW1

## SCH02 HDMI SW1





 SCH04-1 ADV8003 OLD

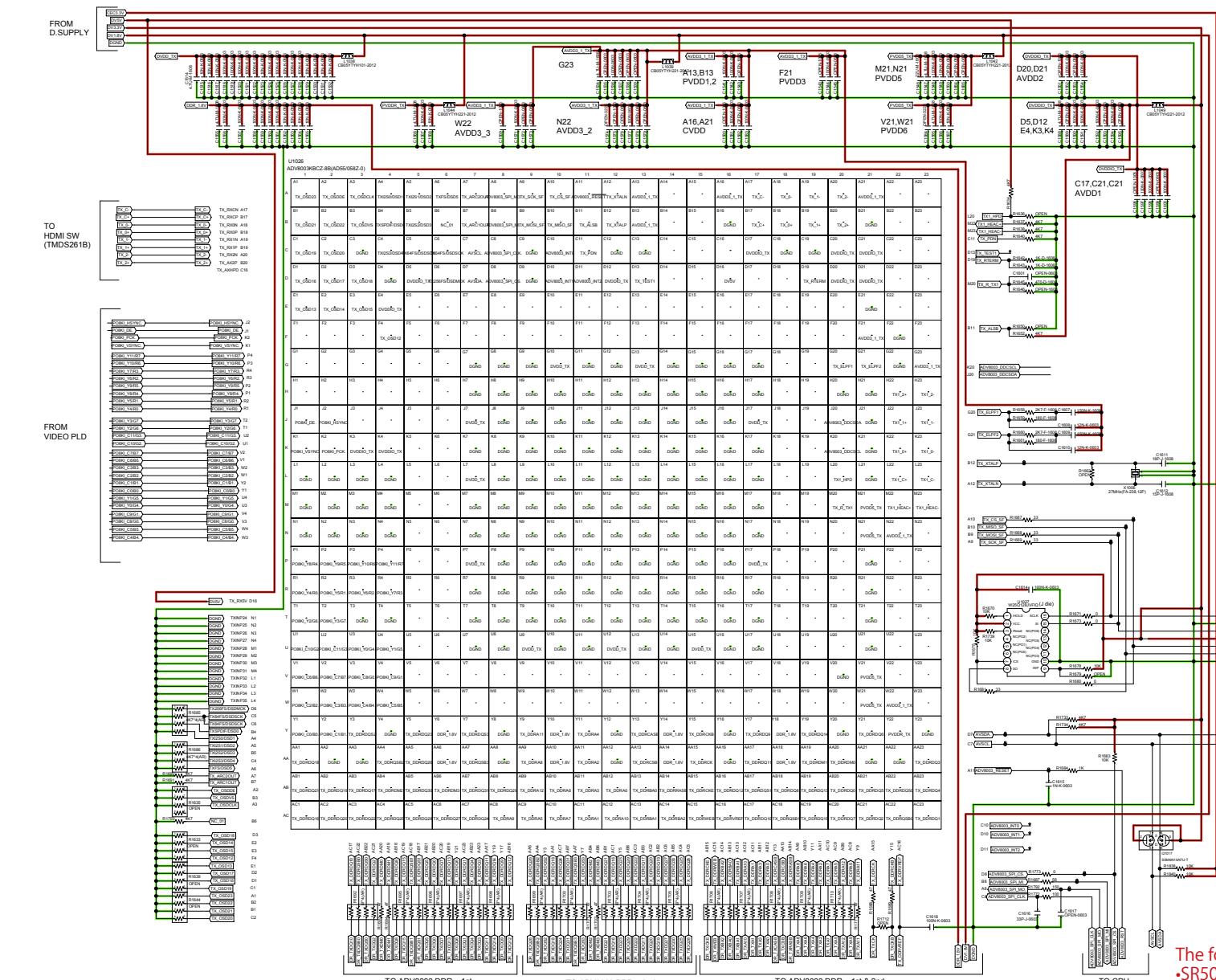


The following Serial number is using the OLD PCB.

- SR5014/U1B-----until BHK3619110140
- SR5014/N1B-----until BHL36191104239
- SR5014/N1SG----until BHM36200101000
- SR5014/K1B-----until BHN36191101000

Refer to Service Bulletin MZ20-041.

# SCH04-2 ADV8003 NEW



The following Serial number is using the NEW PCB.  
 •SR5014/U1B-----from BHK36191110141  
 •SR5014/N1B-----from BHL36191104240  
 •SR5014/N1SG----from BHM36200101001  
 •SR5014/K1B-----from BHN36191101001

ADV8003

TO HDMI TX

Before Servicing  
This Unit

Electrical

Mechanical

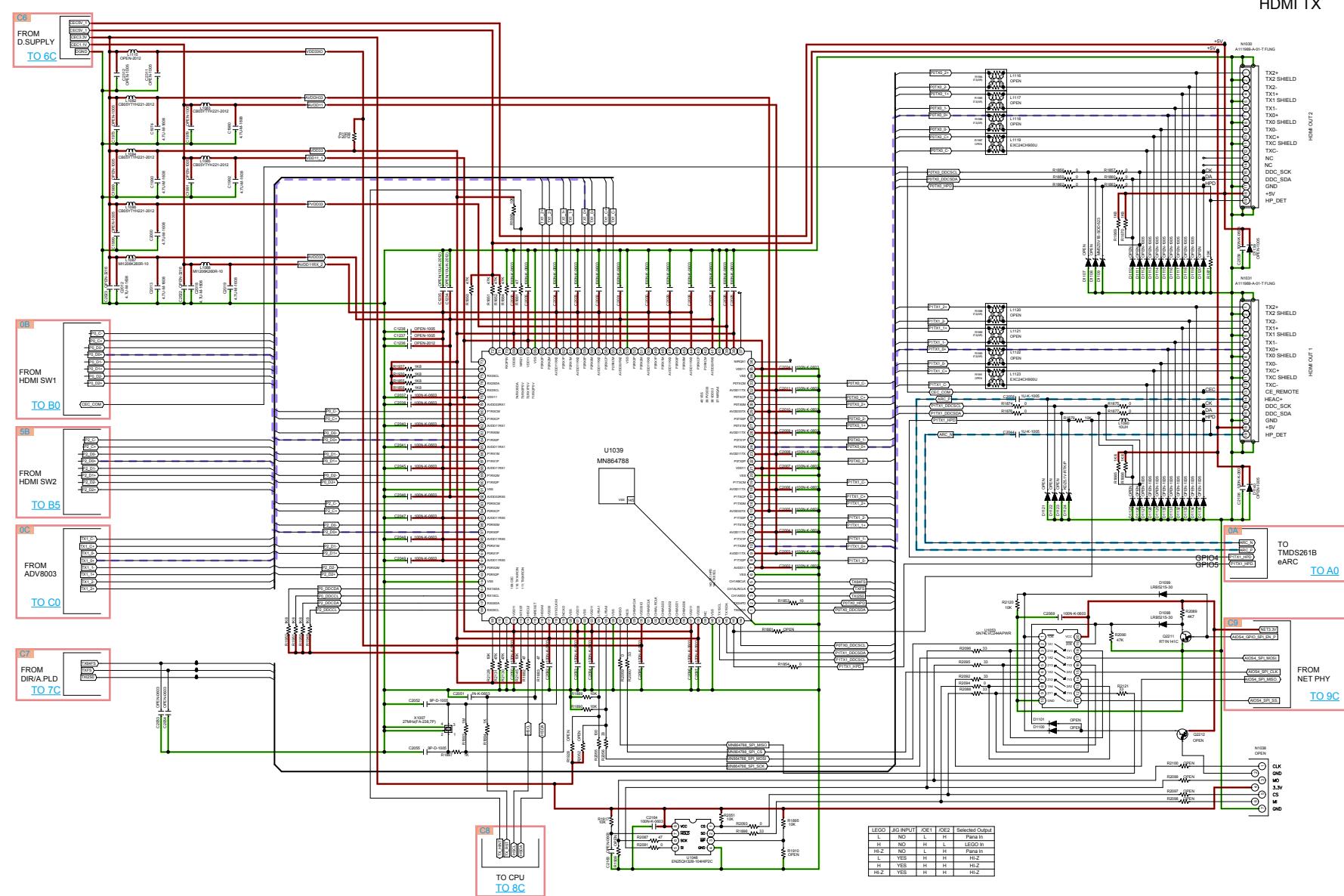
Repair Information

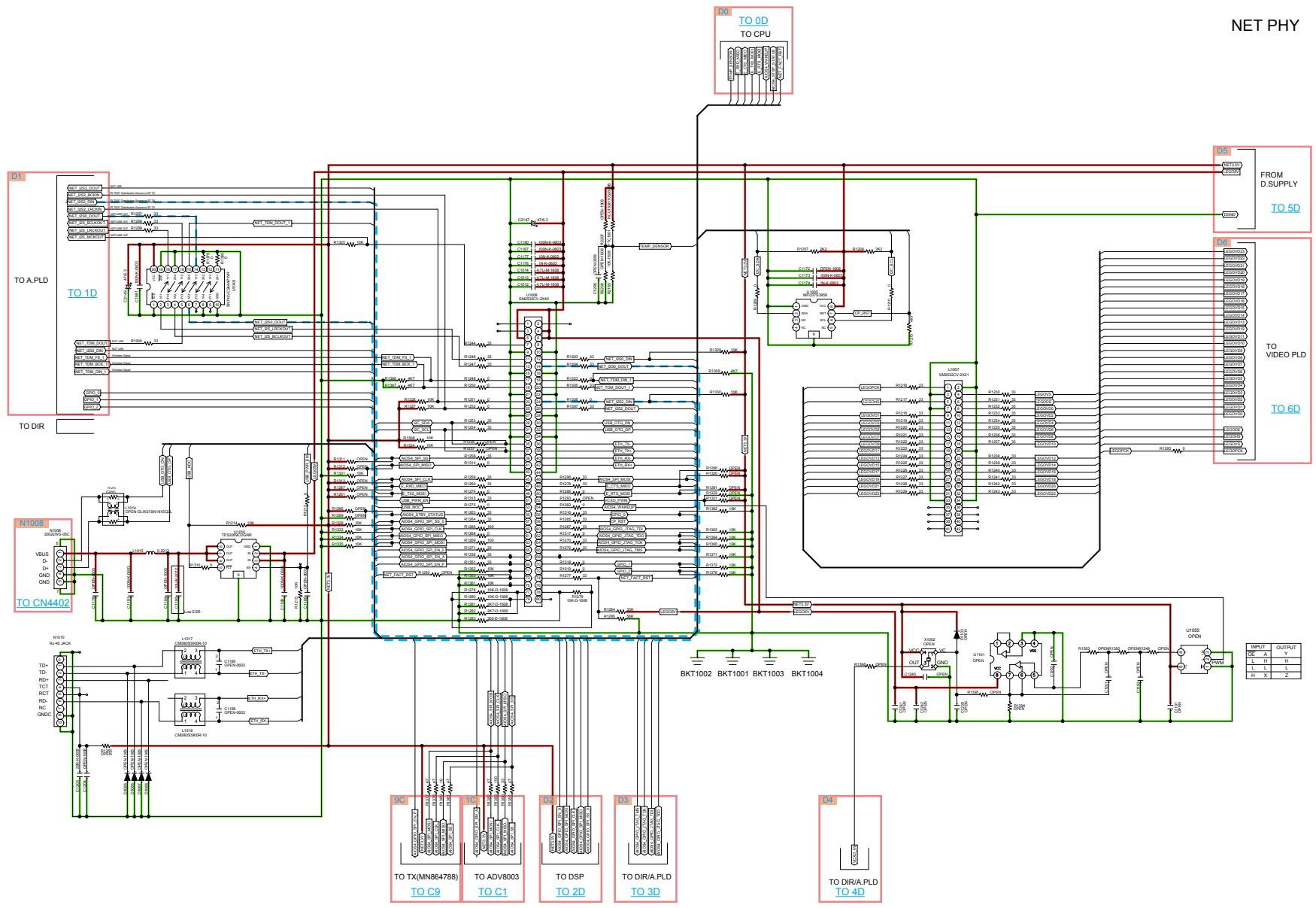
Updating



**GND LINE**      **POWER+ LINE**      **POWER- LINE**      **ANALOG AUDIO**      **DIGITAL AUDIO**      **TMDS SIGNAL**      **VIDEO SIGNAL**      **COMPONENT(Y)**

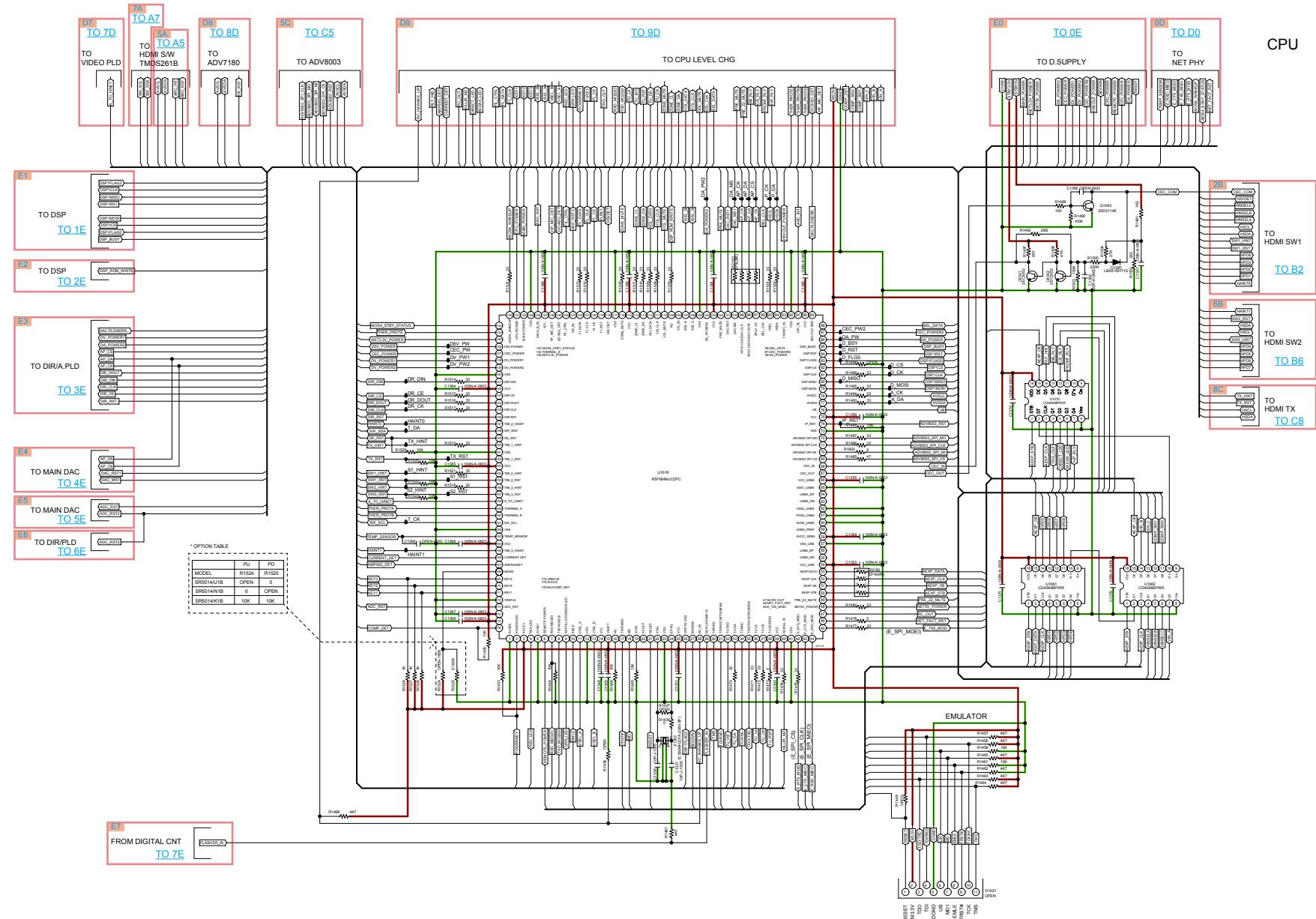
# SCH06 HDMI TX





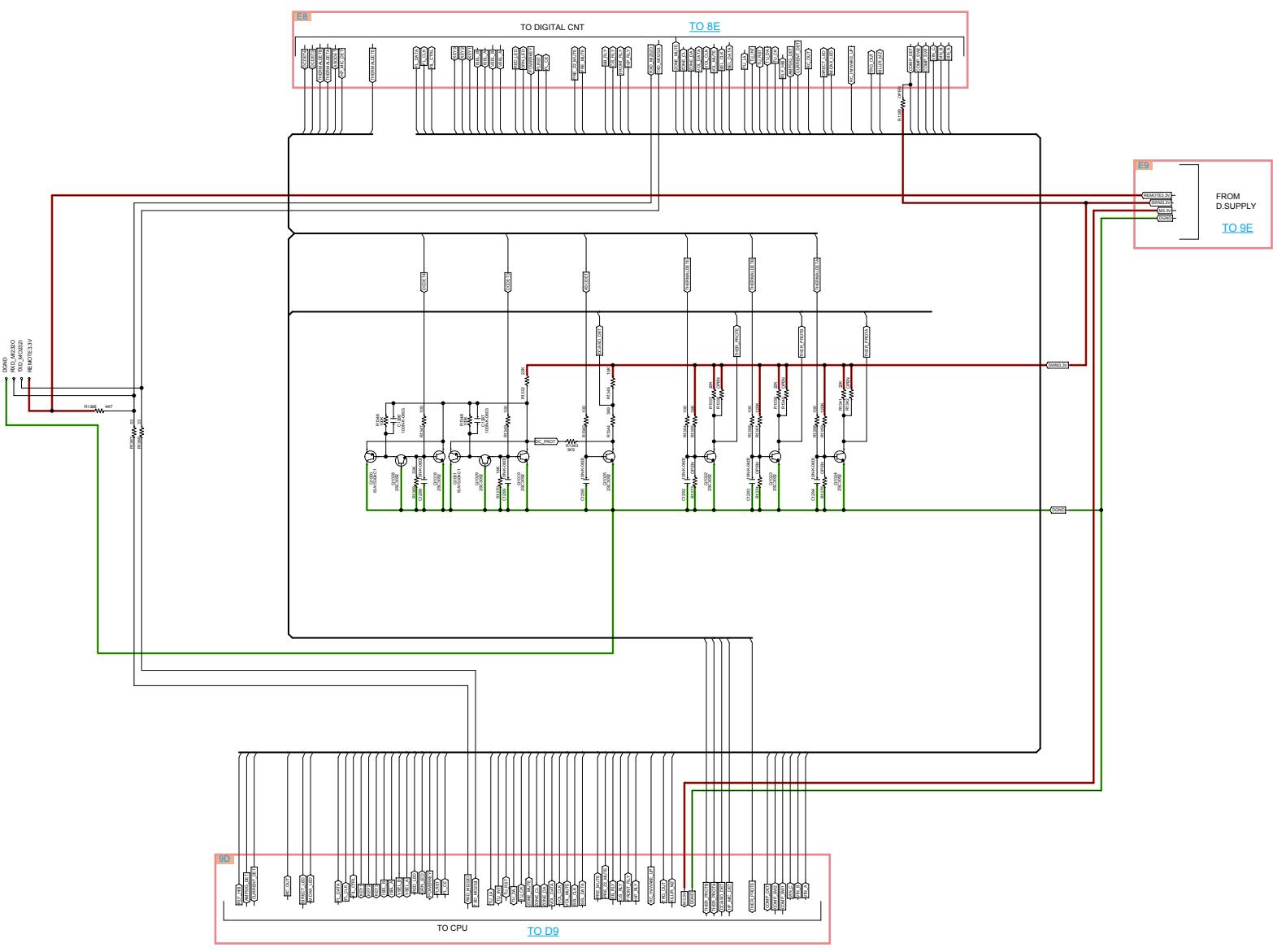
**GND** **LINe**      **POWER+ LINe**      **POWER- LINe**      **ANALOG AUDIO**      **DIGITAL AUDIO**      **TMDS SIGNAL**      **VIDEO SIGNAL**      **COMPONENT(Y)**

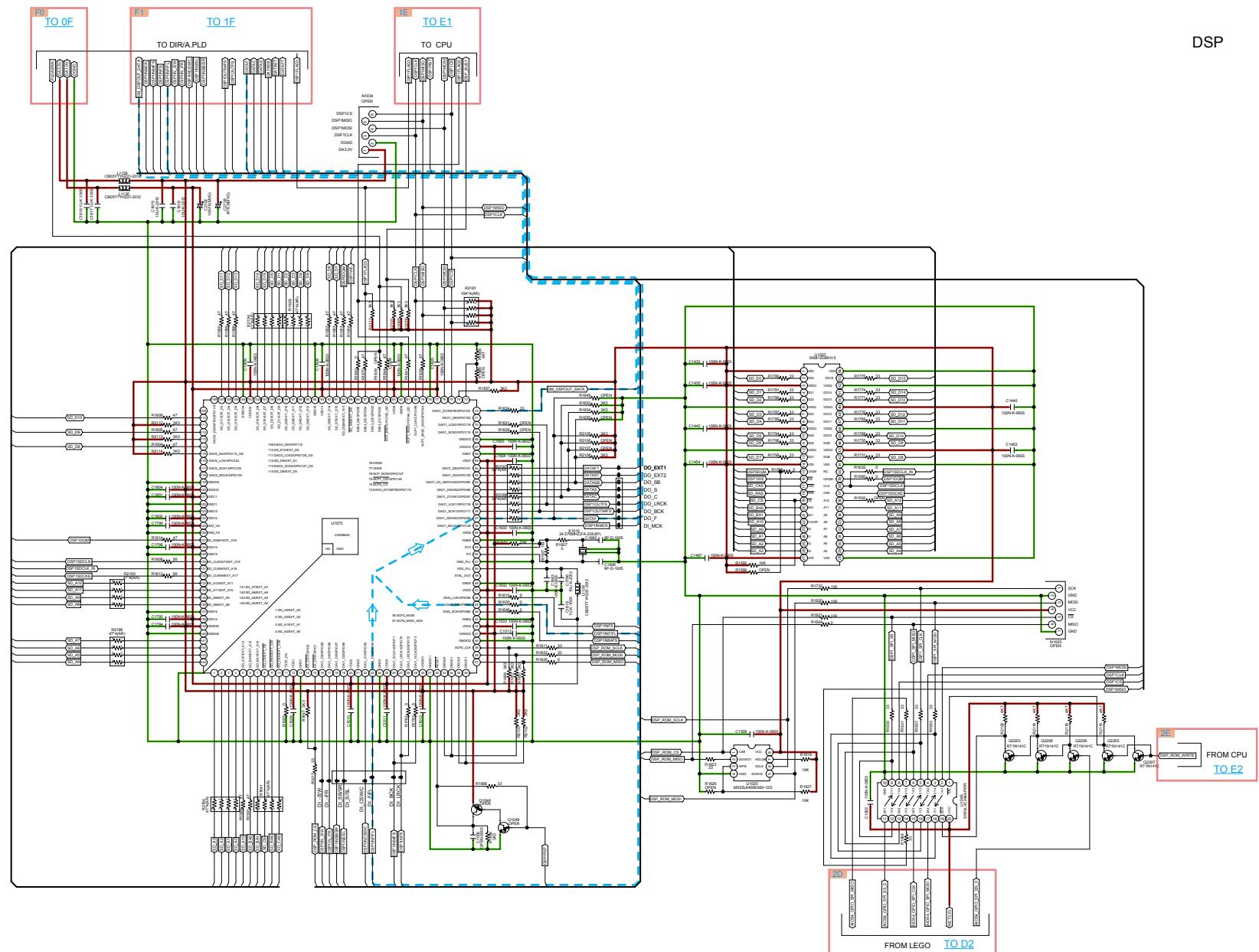
## SCH08 CPU



GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL VIDEO SIGNAL COMPONENT(Y)

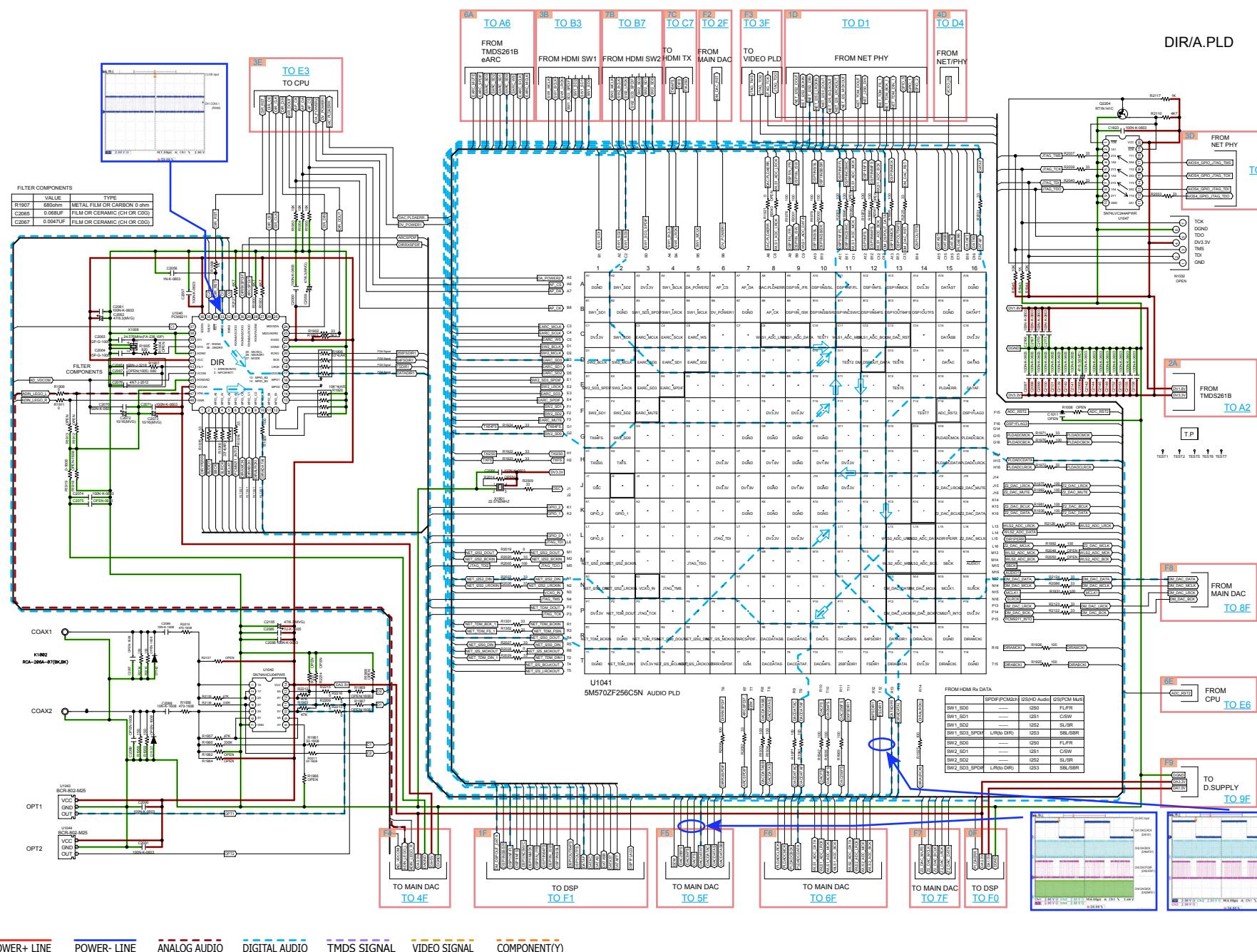
## CPU LEVEL CHG

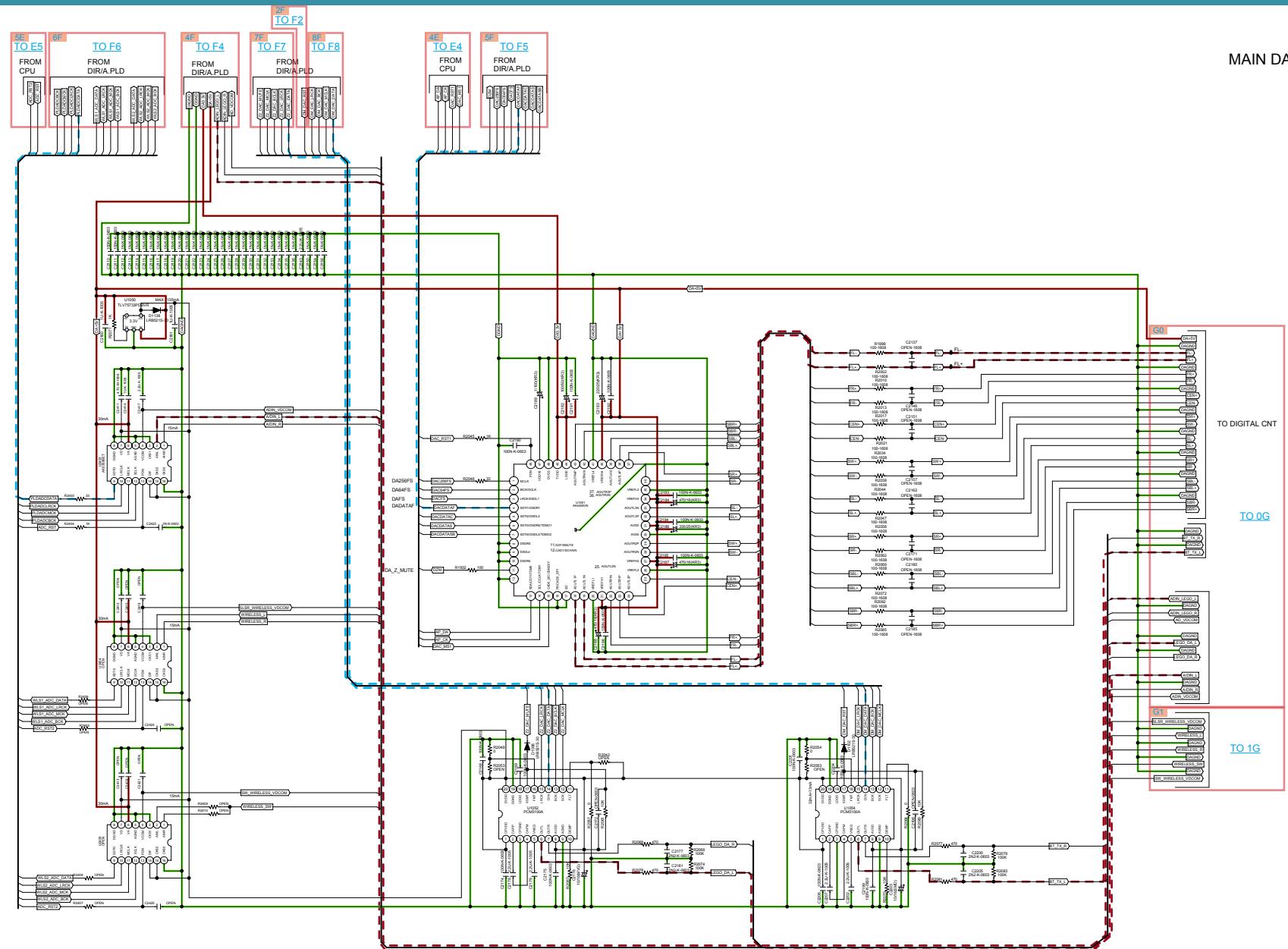




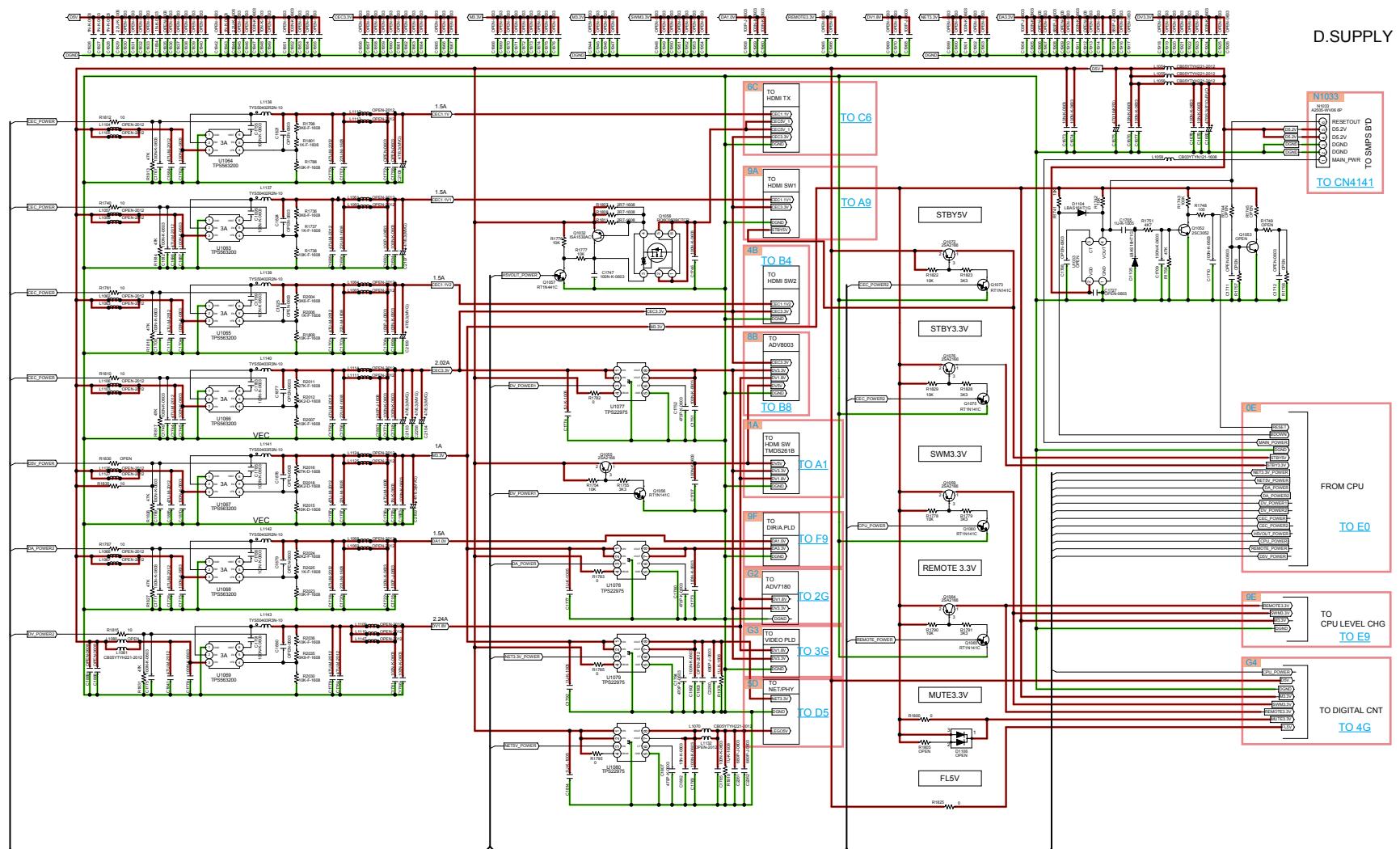
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL VIDEO SIGNAL COMPONENT(Y)

## DIR/A.PLD



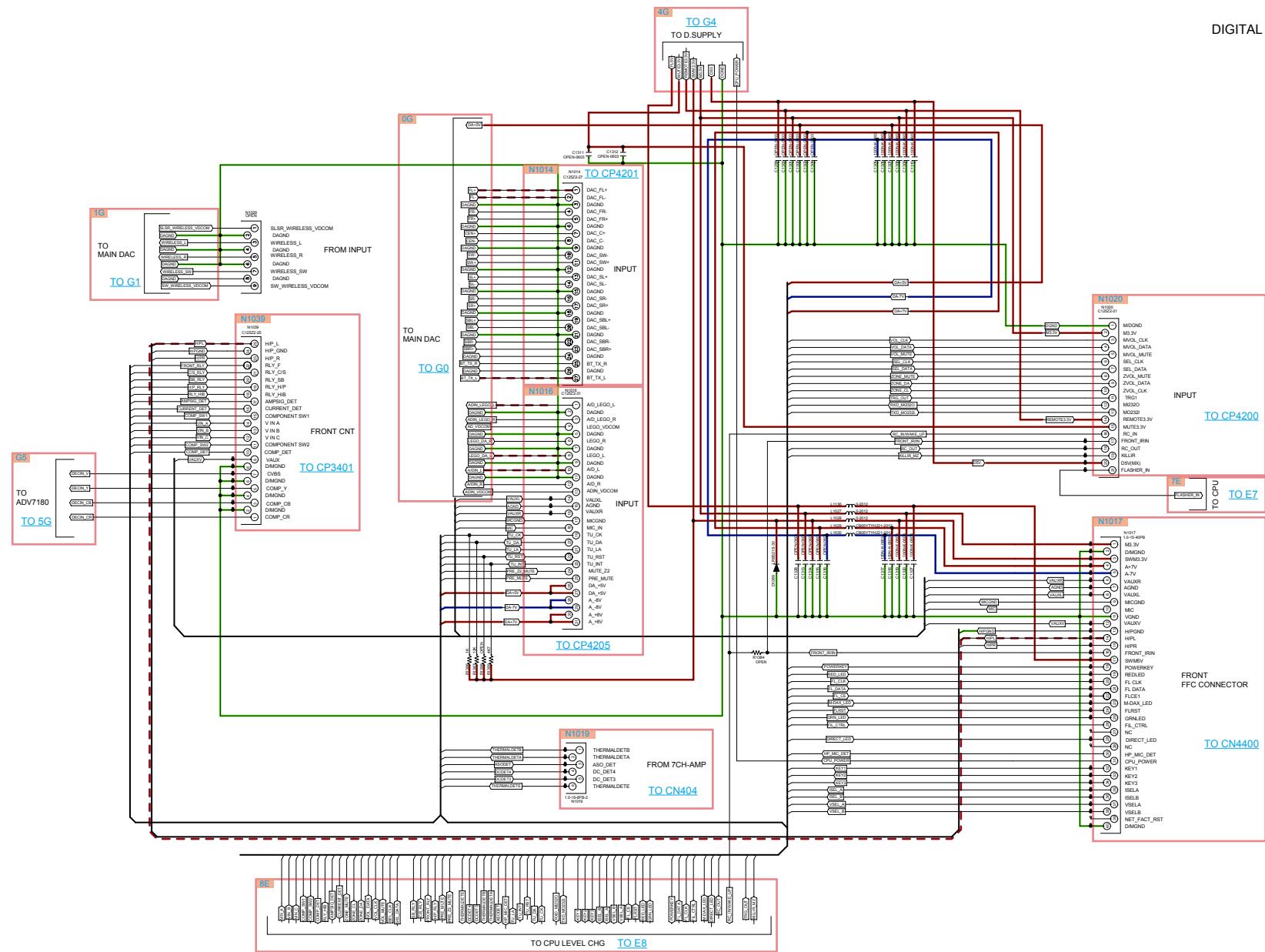


**GND LINE**      **POWER+ LINE**      **POWER- LINE**      **ANALOG AUDIO**      **DIGITAL AUDIO**      **TMDS SIGNAL**      **VIDEO SIGNAL**      **COMPONENT(Y)**

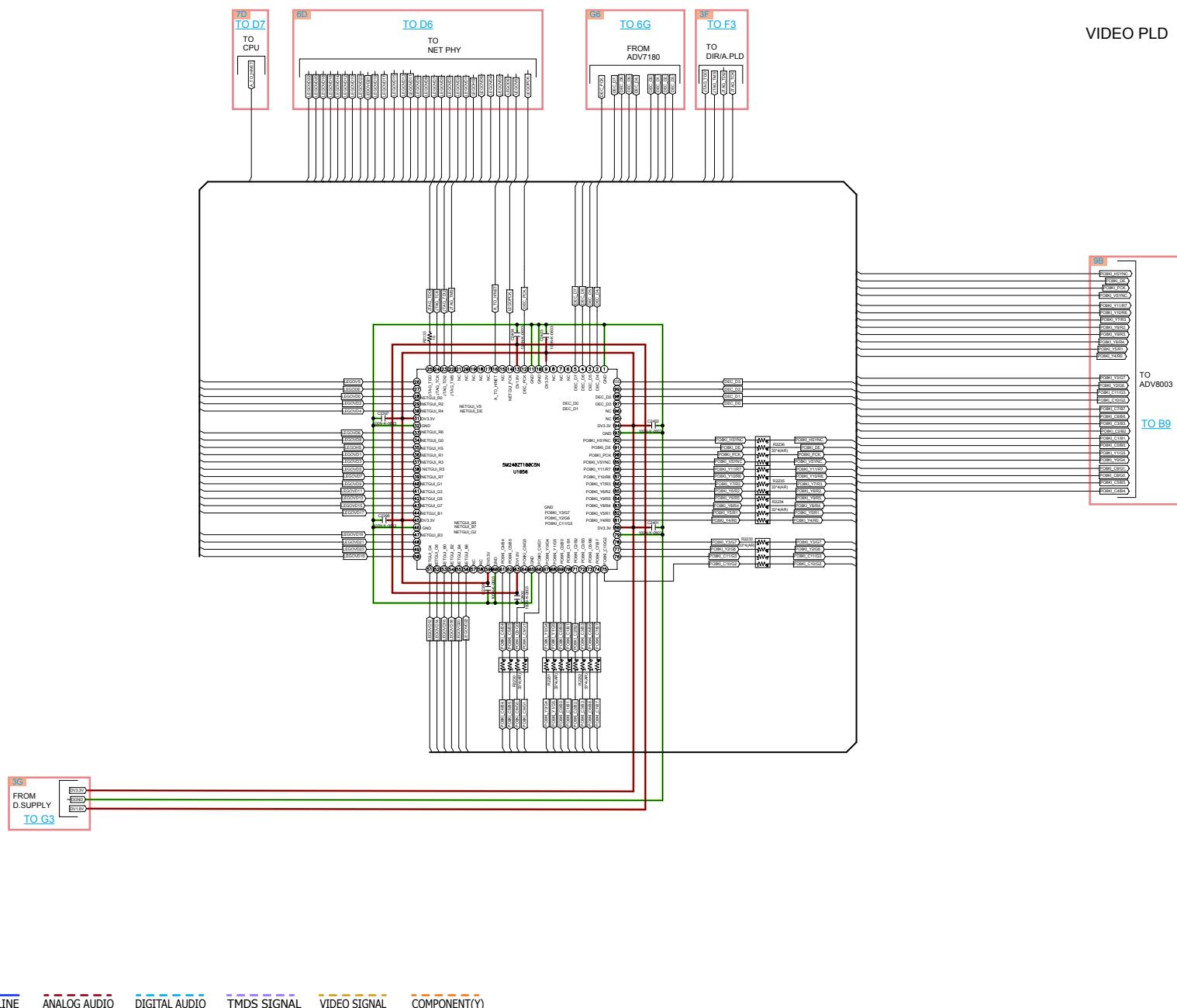


**GND LINE**      **POWER+ LINE**      **POWER- LINE**      **ANALOG AUDIO**      **DIGITAL AUDIO**      **TMDS SIGNAL**      **VIDEO SIGNAL**      **COMPONENT(Y)**

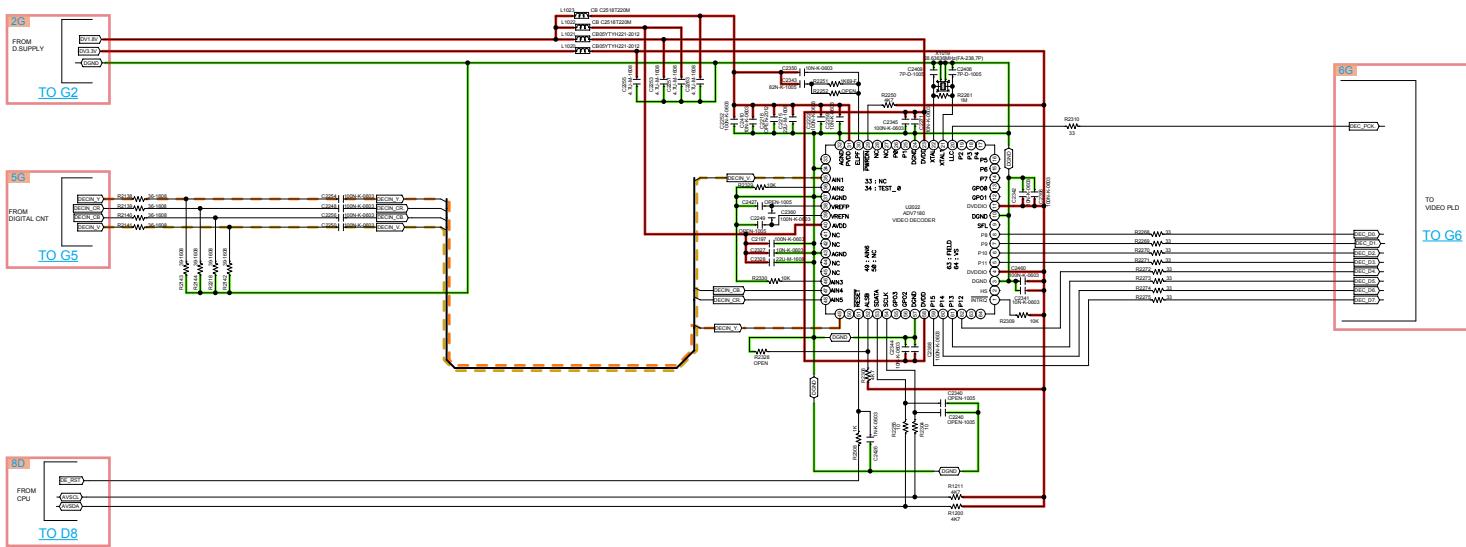
DIGITAL CNT



## VIDEO PLD



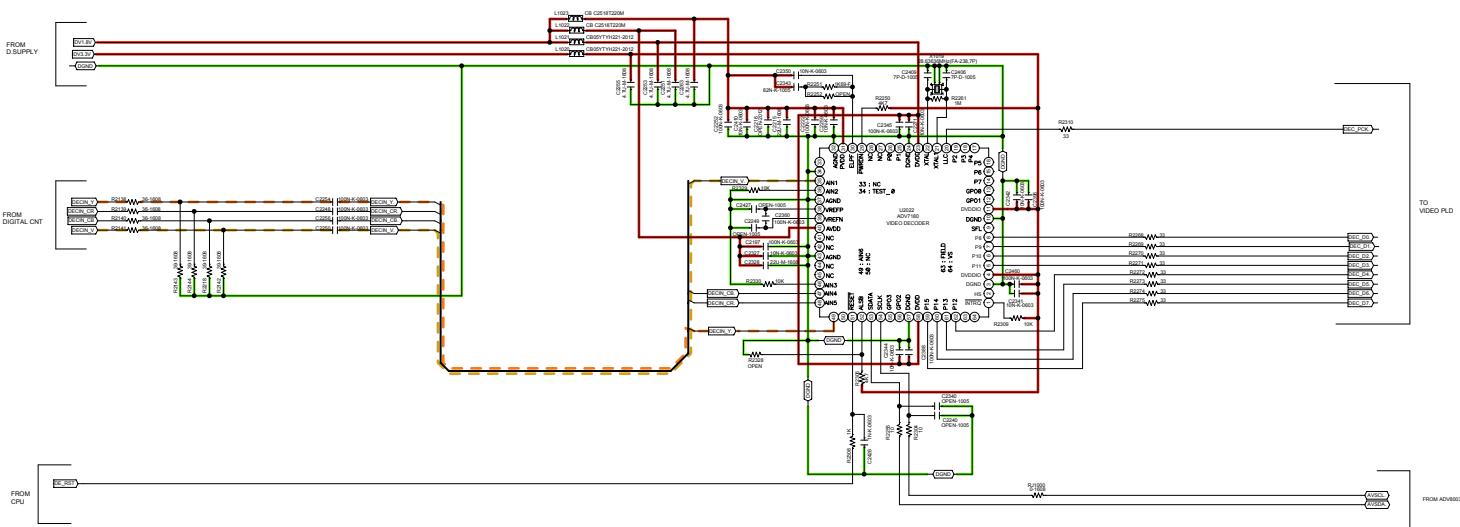
ADV7180



GND LINE    POWER+ LINE    POWER- LINE    ANALOG AUDIO    DIGITAL AUDIO    TMDS SIGNAL    VIDEO SIGNAL    COMPONENT(Y)

The following Serial number is using the OLD PCB.  
 •SR5014/U1B-----until BHK36191110140  
 •SR5014/N1B-----until BHL36191104239  
 •SR5014/N1SG-----until BHM36200101000  
 •SR5014/K1B-----until BHN36191101000  
 Refer to Service Bulletin MZ20-041.

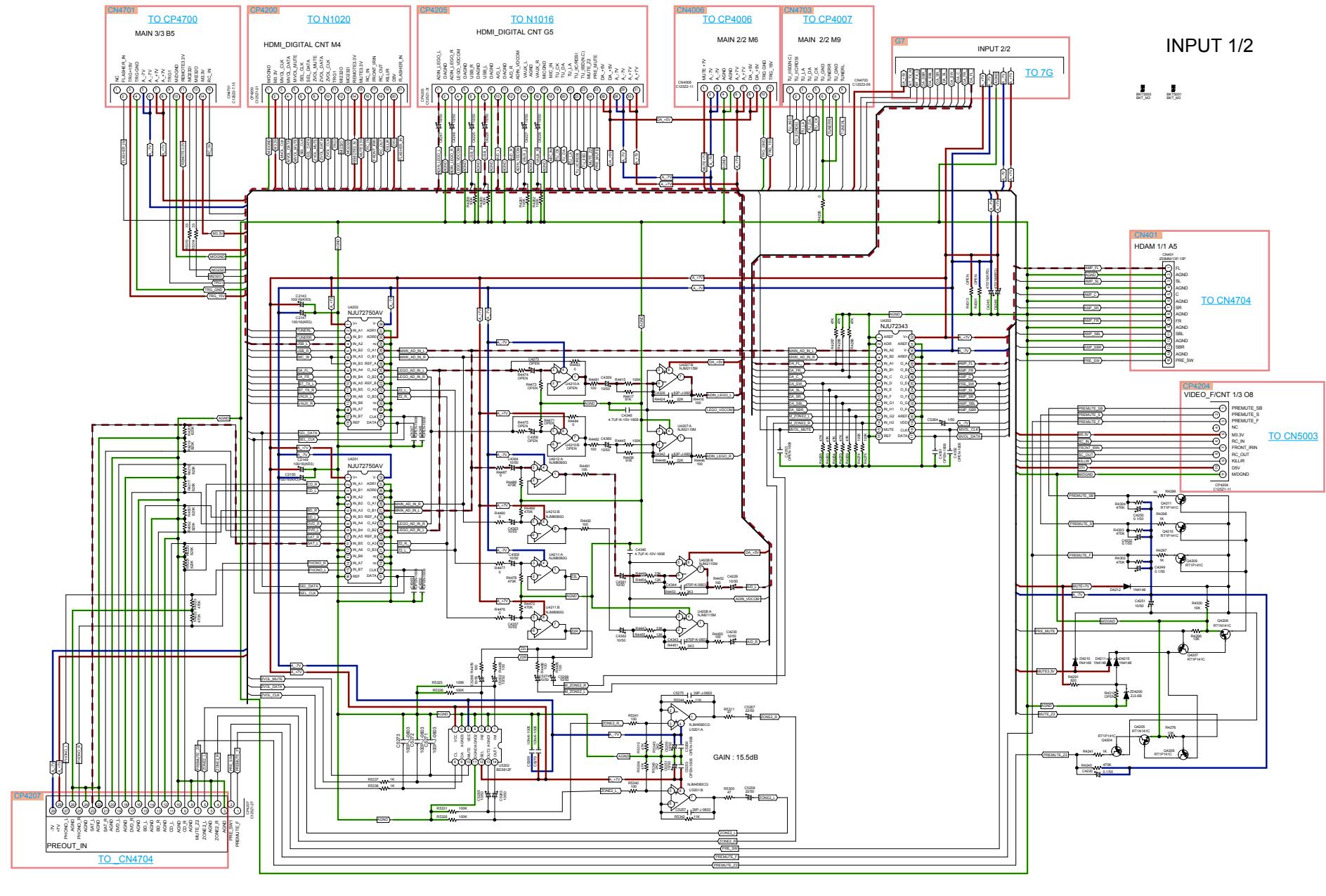
ADV7180



**GND LINE**      **POWER+ LINE**      **POWER- LINE**      **ANALOG AUDIO**      **DIGITAL AUDIO**      **TMDS SIGNAL**      **VIDEO SIGNAL**      **COMPONENT(Y)**

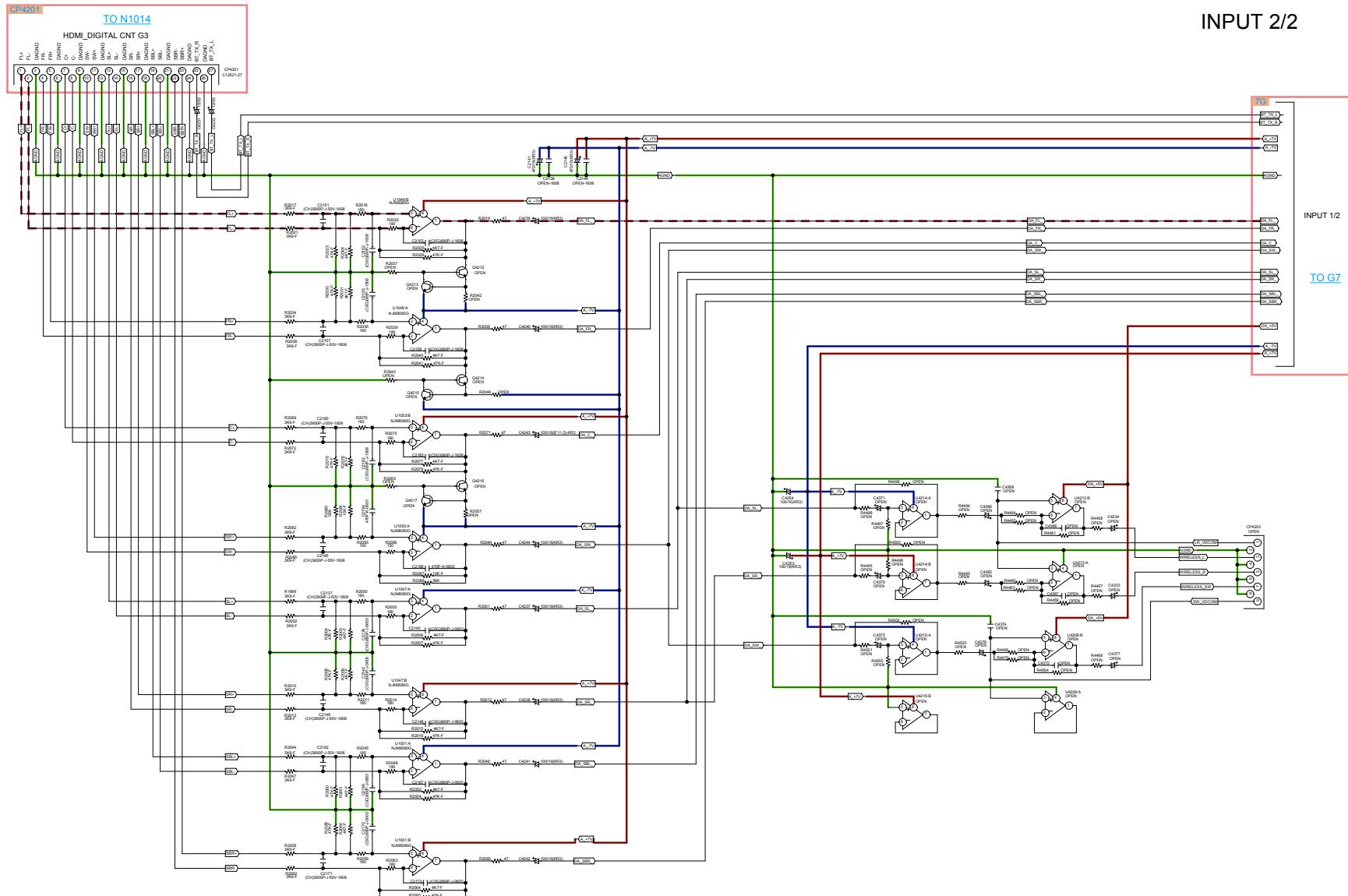
The following Serial number is using the NEW PCB.

- SR5014/U1B-----from BHK36191110141
- SR5014/N1B-----from BHL36191104240
- SR5014/N1SG----from BHM36200101001
- SR5014/K1B-----from BHN36191101001

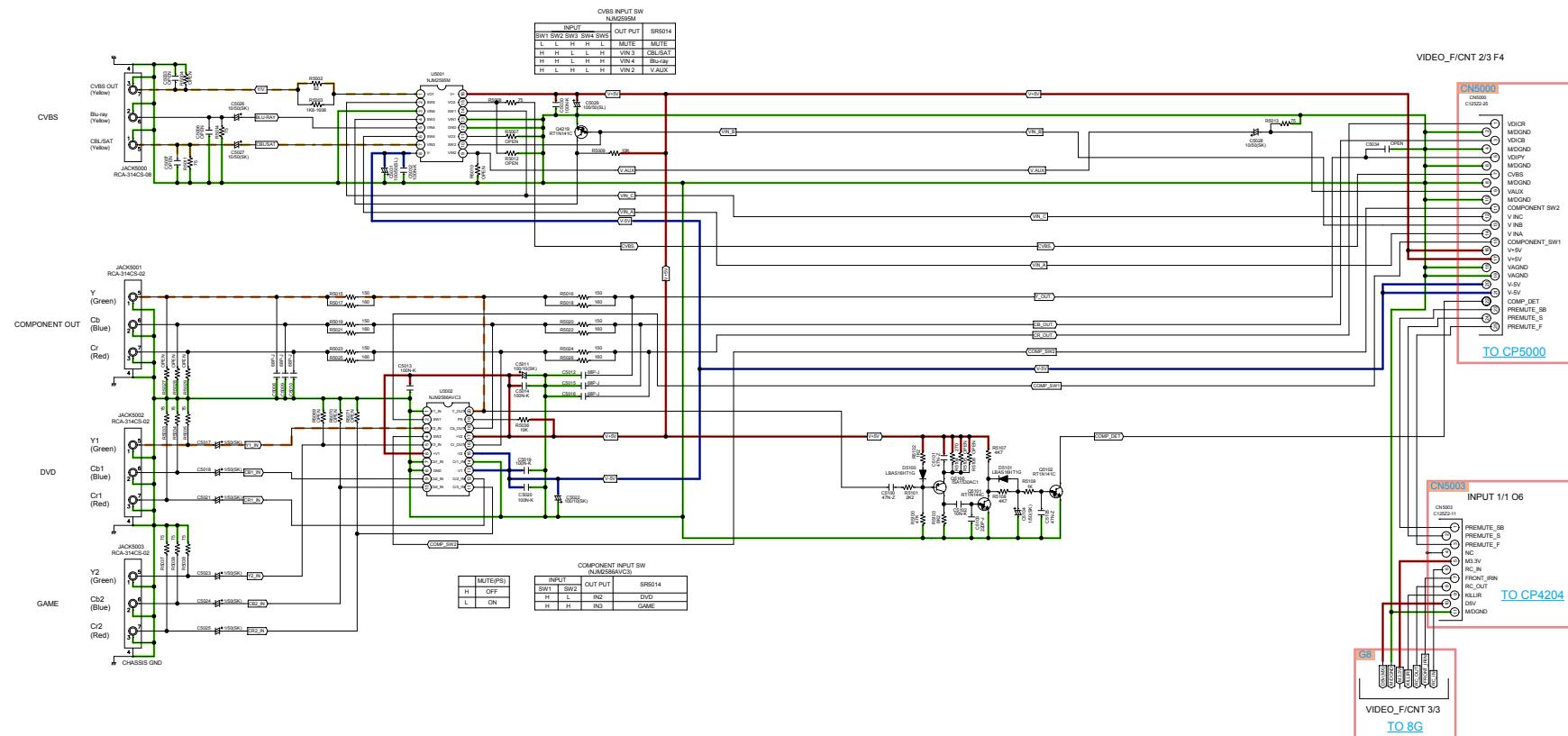


## INPUT 1/2

**GND LINE**      **POWER+ LINE**      **POWER- LINE**      **ANALOG AUDIO**      **DIGITAL AUDIO**      **TMDS SIGNAL**      **VIDEO SIGNAL**      **COMPONENT(Y)**



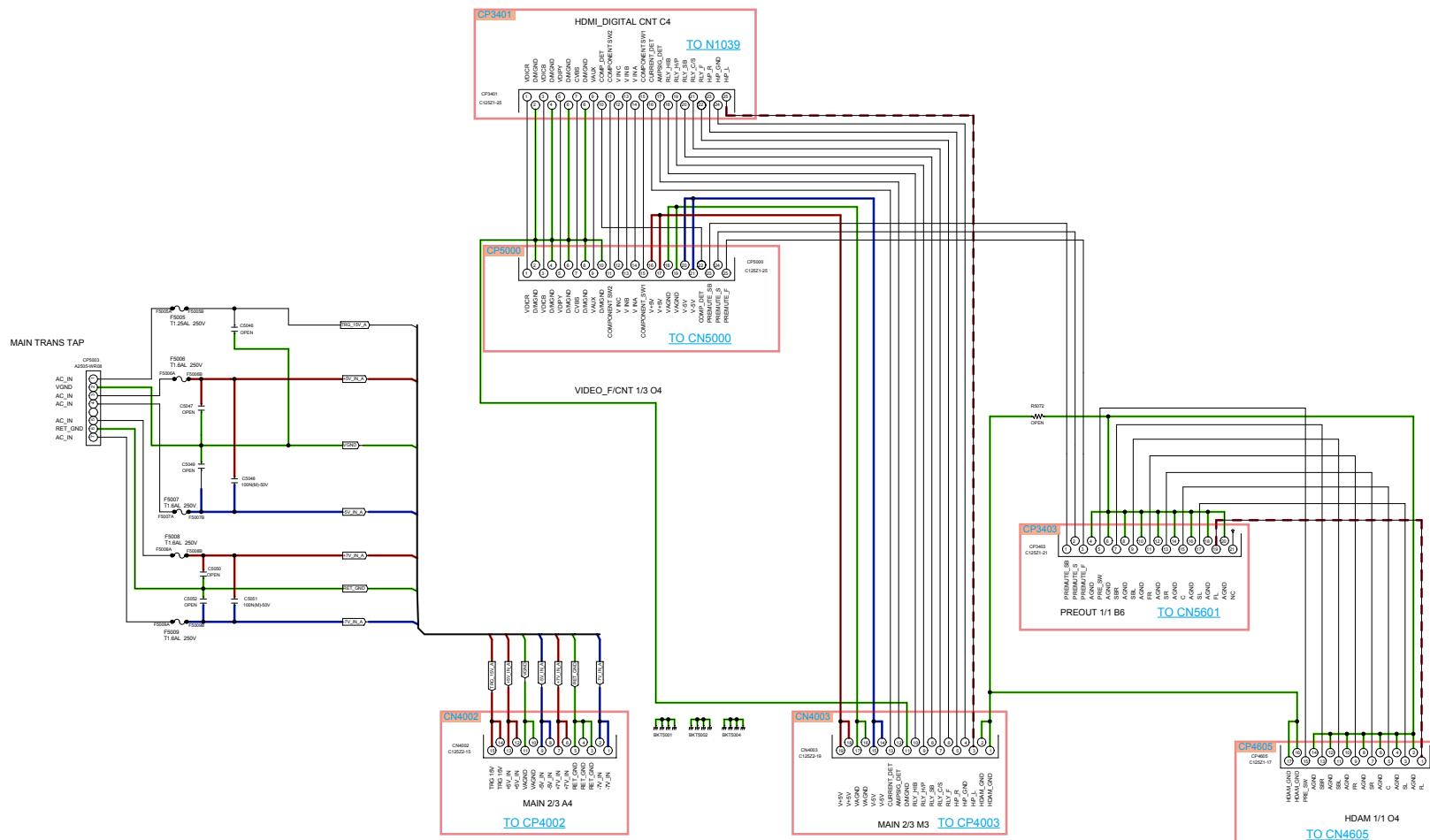
**GND LINE**      **POWER+ LINE**      **POWER- LINE**      **ANALOG AUDIO**      **DIGITAL AUDIO**      **TMDS SIGNAL**      **VIDEO SIGNAL**      **COMPONENT(Y)**



**GND LINE**    **POWER+ LINE**    **POWER- LINE**    **ANALOG AUDIO**    **DIGITAL AUDIO**    **TMDS SIGNAL**    **VIDEO SIGNAL**    **COMPONENT(Y)**

VIDEO\_F/CNT 2/3

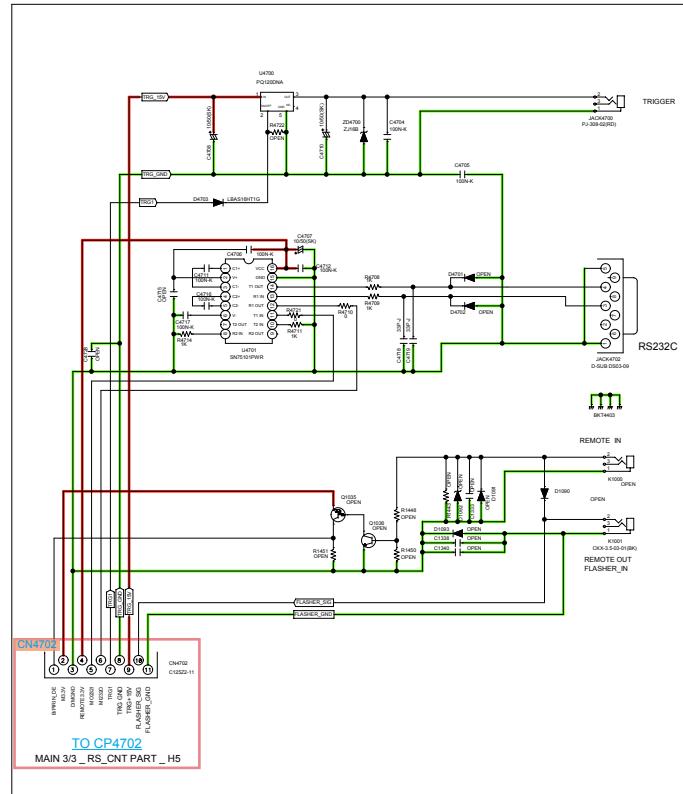
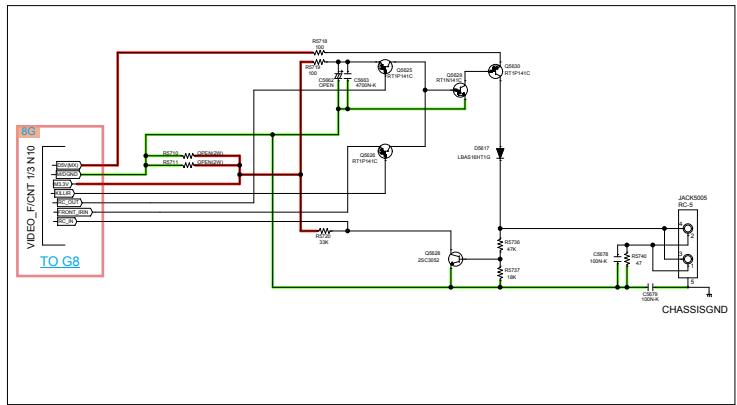
## FRONT\_CNT PART



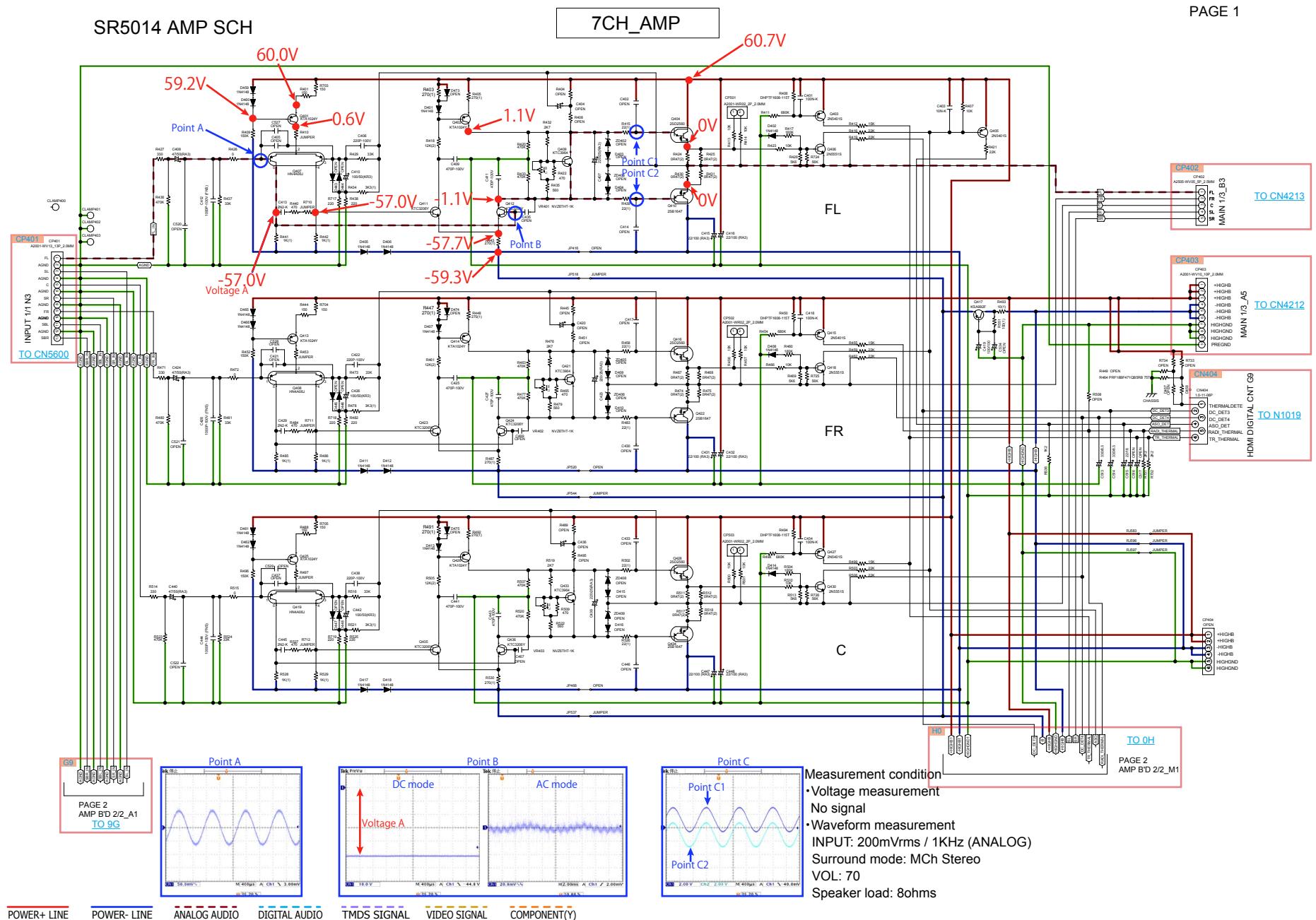
VIDEO\_F/CNT 3/3

RS232 PART

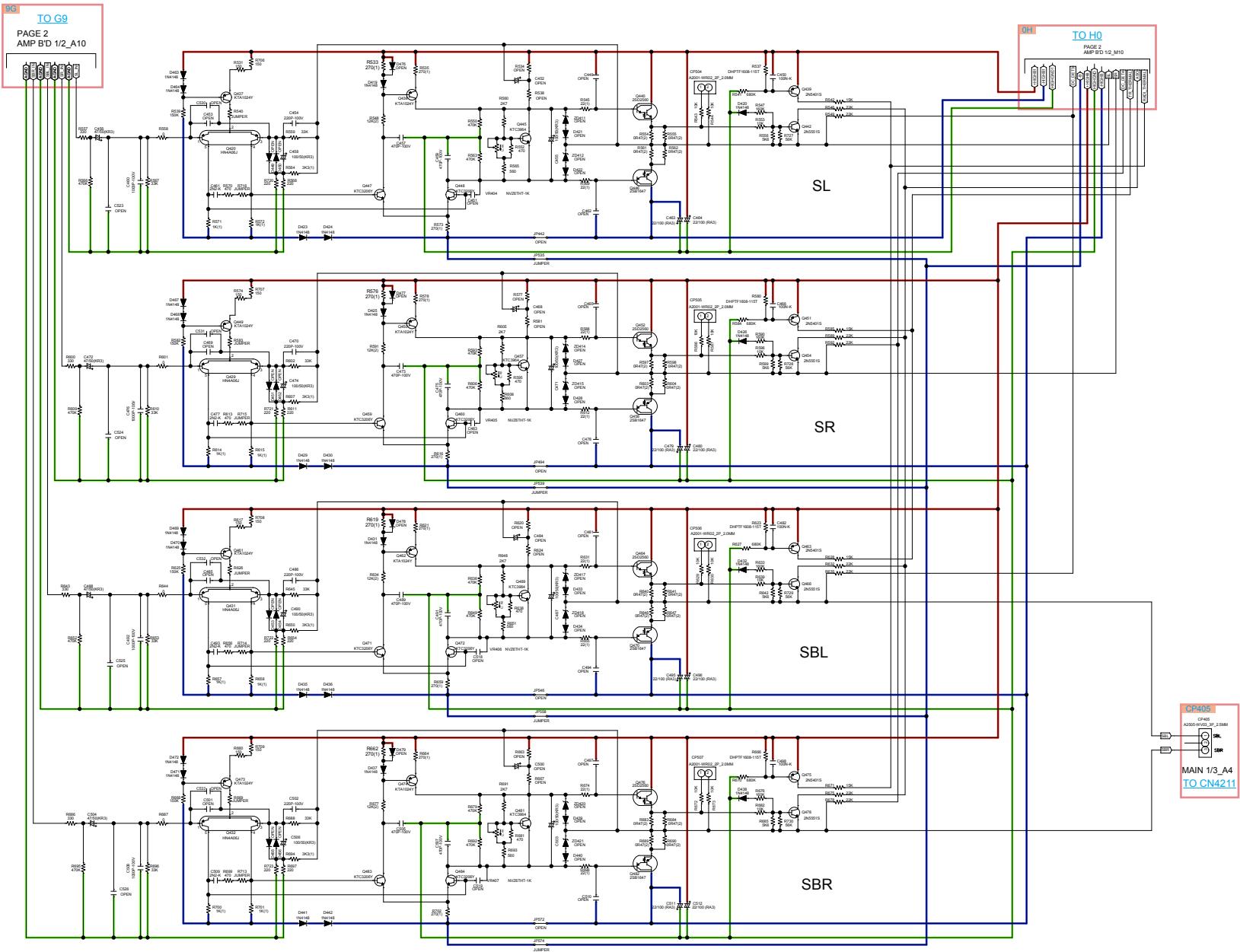
RC-5 PART



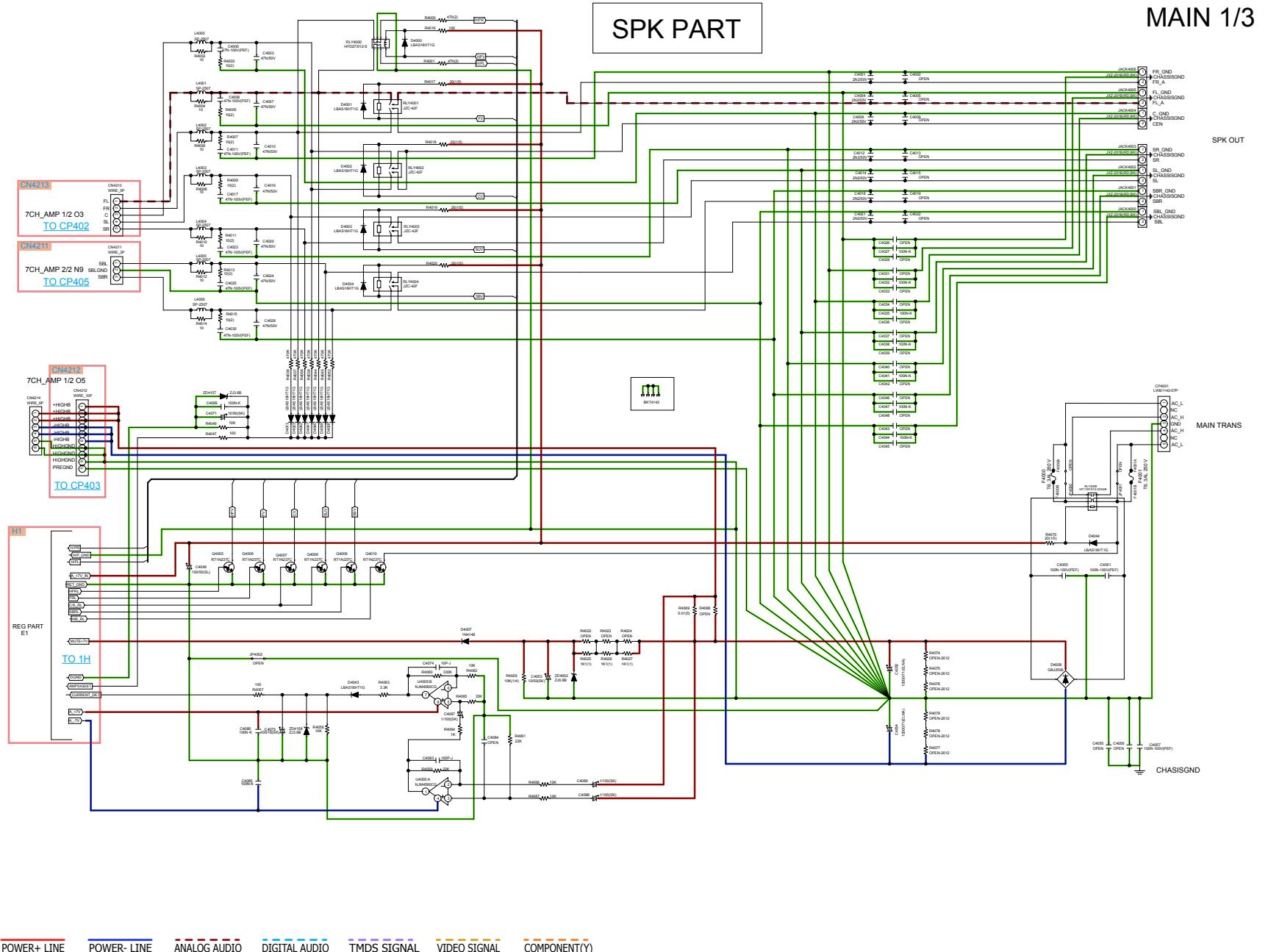
**GND LINE**      **POWER+ LINE**      **POWER- LINE**      **ANALOG AUDIO**      **DIGITAL AUDIO**      **TMDS SIGNAL**      **VIDEO SIGNAL**      **COMPONENT(Y)**

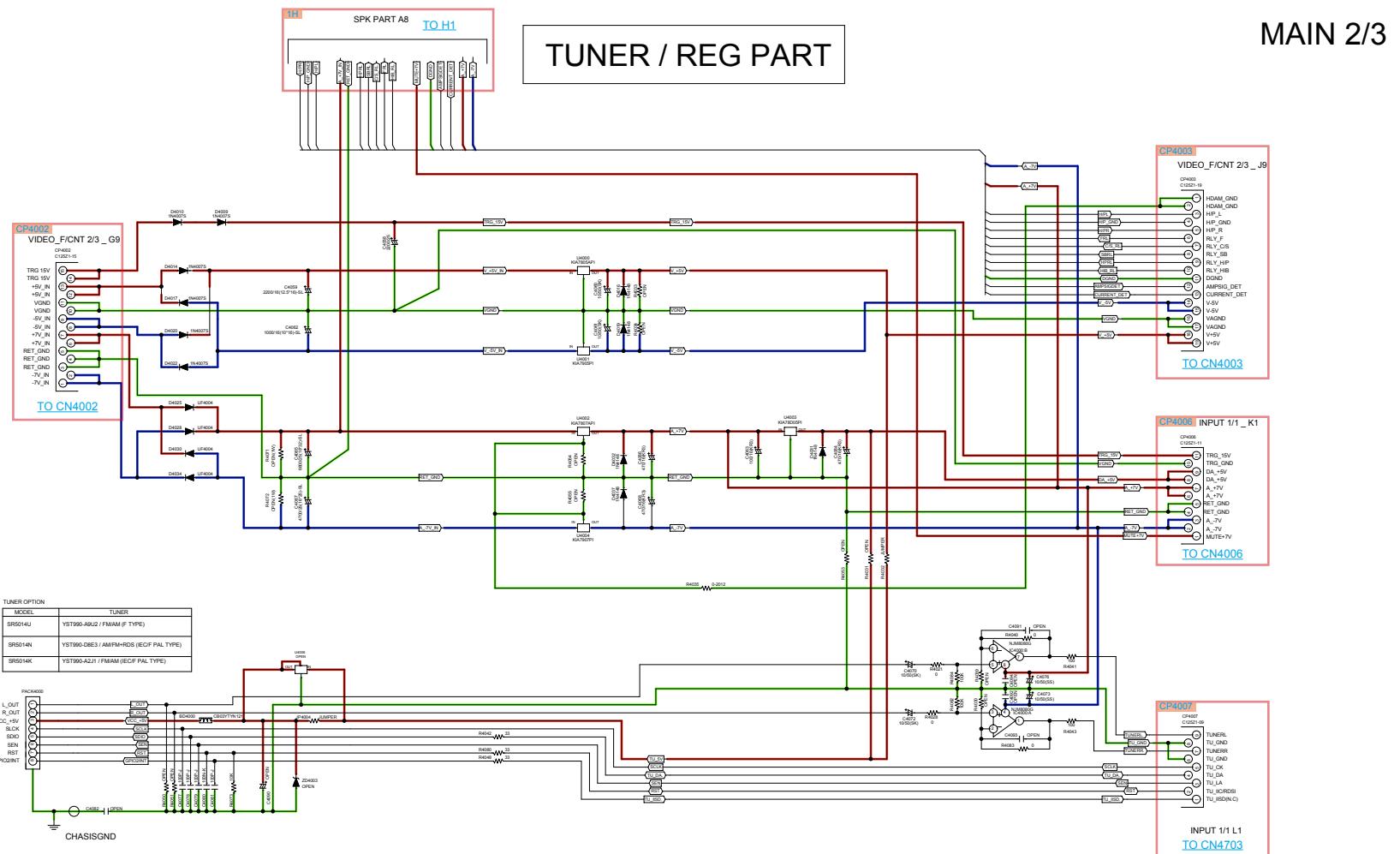


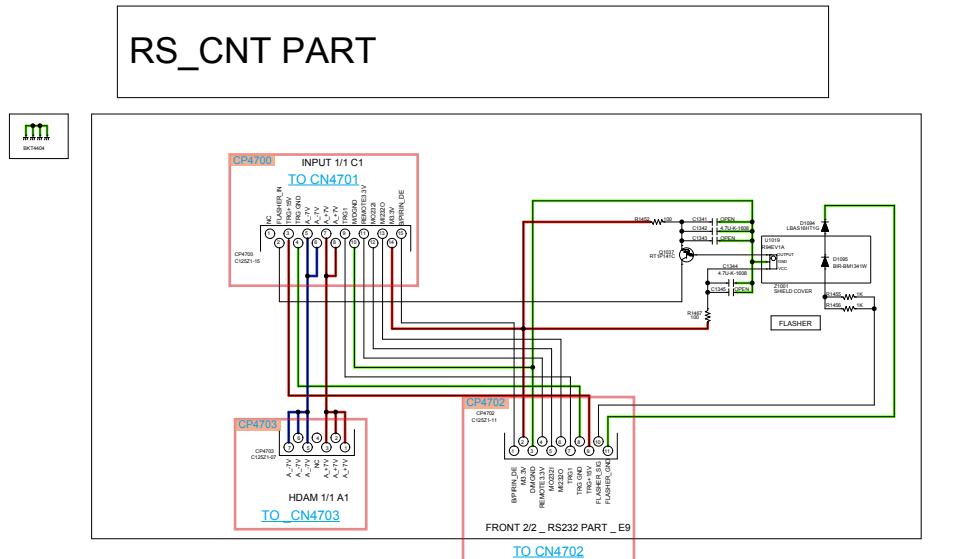
PAGE 2



GND LINE    POWER+ LINE    POWER- LINE    ANALOG AUDIO    DIGITAL AUDIO    TMDS SIGNAL    VIDEO SIGNAL    COMPONENT(Y)

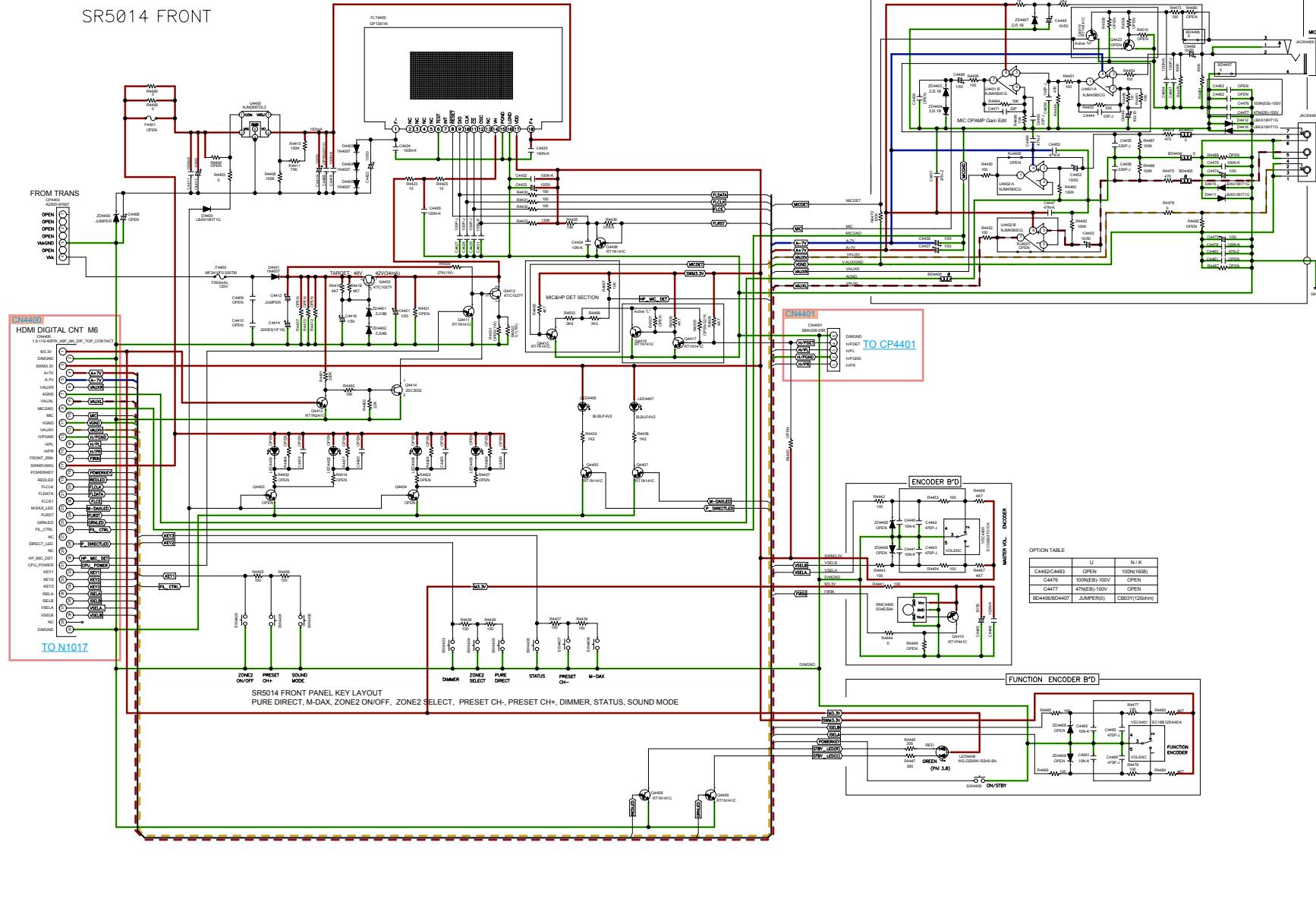


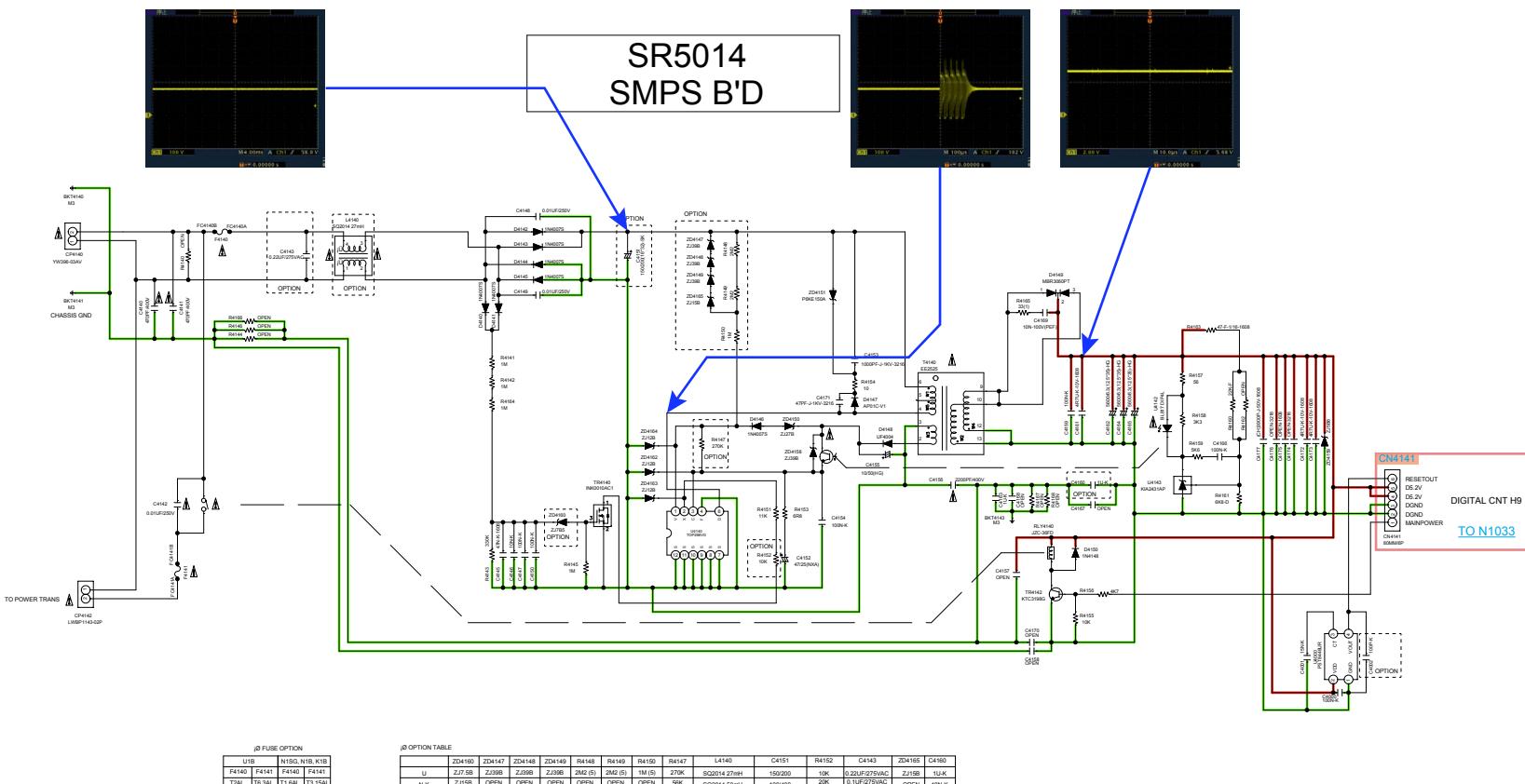




**GND LINE**      **POWER+ LINE**      **POWER- LINE**      **ANALOG AUDIO**      **DIGITAL AUDIO**      **TMDS SIGNAL**      **VIDEO SIGNAL**      **COMPONENT(Y)**

## SCH27 FRONT





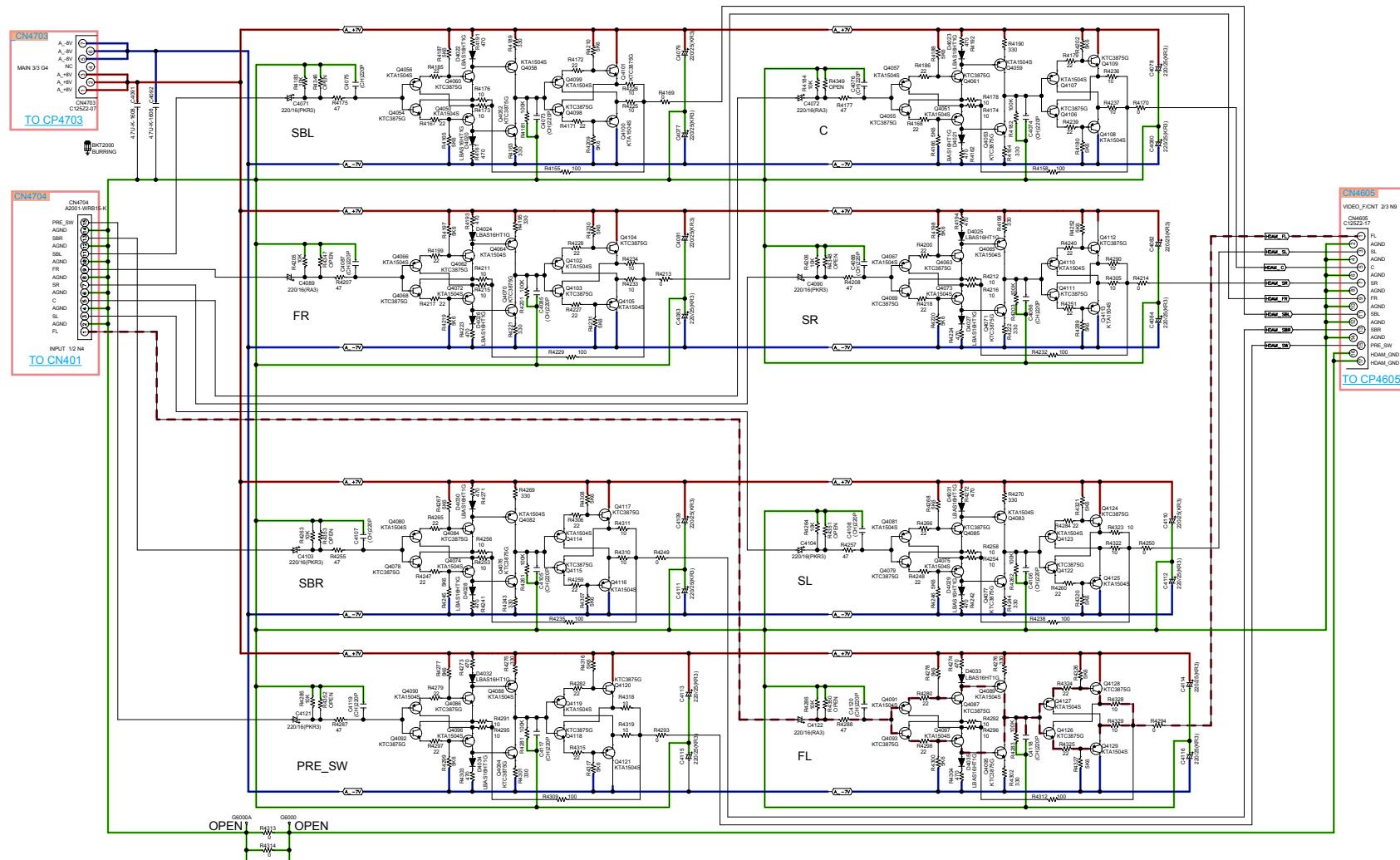
△ INDICATES SAFETY CRITICAL COMPONENTS.  
TO REDUCE THE RISK OF ELECTRIC SHOCK, LEAKAGE CURRENT OR RESISTANCE MEASUREMENTS SHALL BE CARRIED OUT ( EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT ) BEFORE THE APPLIANCE RETURNED TO THE CUSTOMER.

GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL VIDEO SIGNAL COMPONENT(Y)

## SCH29 HDAM

HDAM 1/1

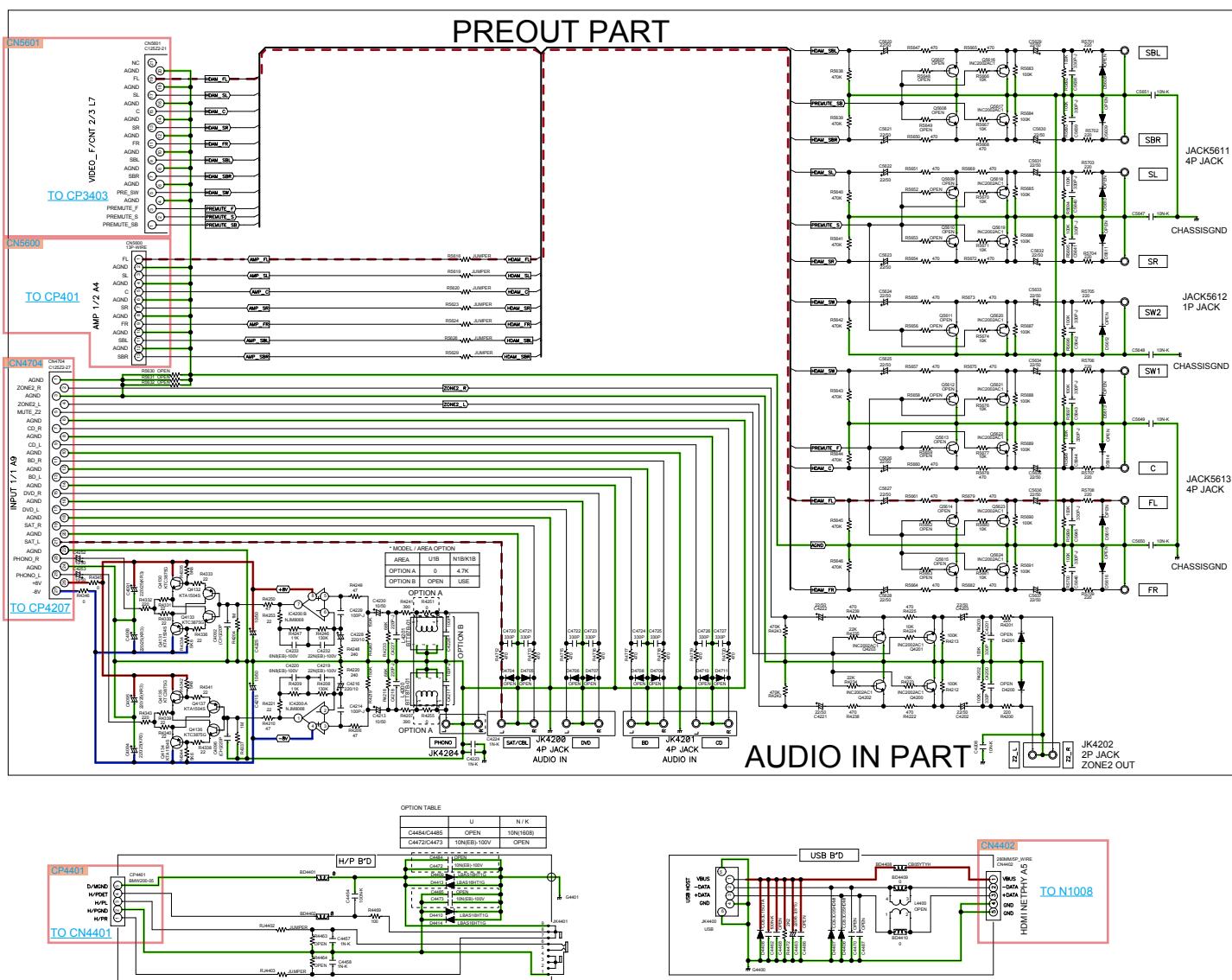
CURRENT\_FB PART



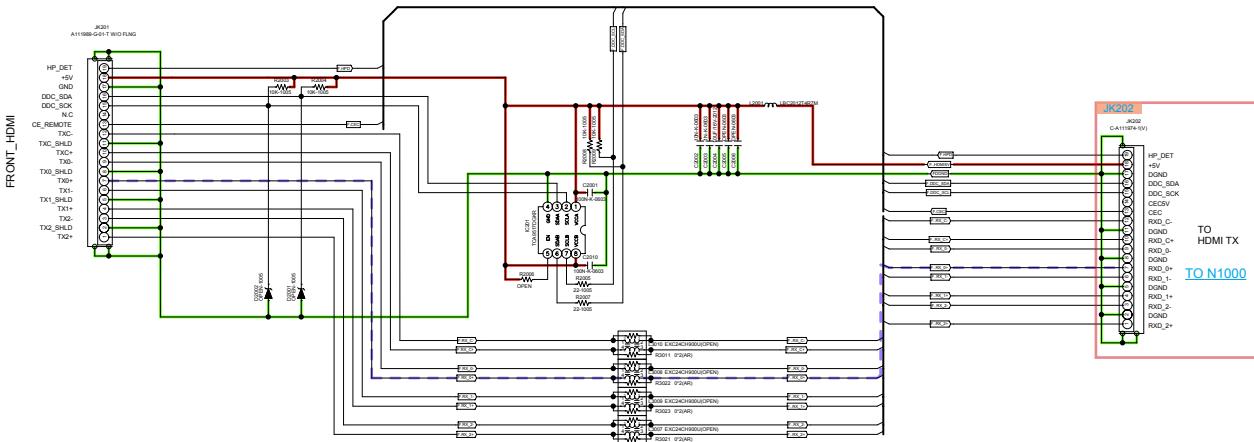
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL VIDEO SIGNAL COMPONENT(Y)

## SCH30 PREOUT

## PREOUT



GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL VIDEO SIGNAL COMPONENT(Y)



**GND LINE**      **POWER+ LINE**      **POWER- LINE**      **ANALOG AUDIO**      **DIGITAL AUDIO**      **TMDS SIGNAL**      **VIDEO SIGNAL**      **COMPONENT(Y)**

# PRINTED CIRCUIT BOARDS

Lead-free Solder

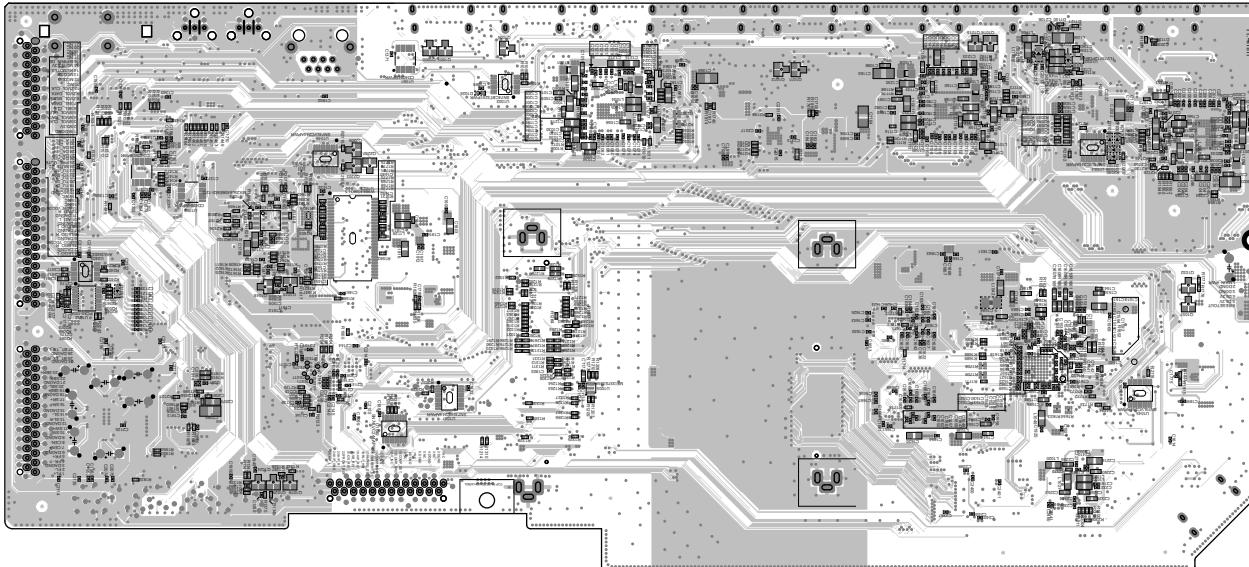
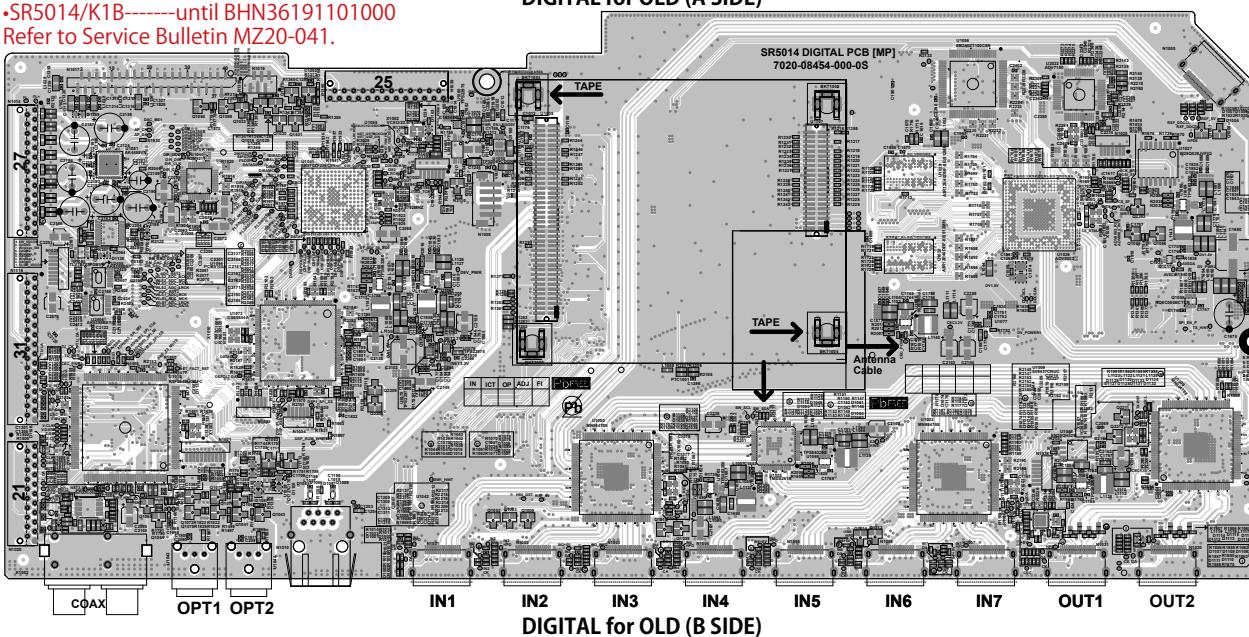
When soldering, use the Lead-free Solder (Sn-Ag-Cu).

## DIGITAL for OLD, F HDMI

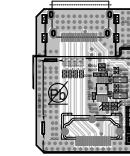
The following Serial number is using the OLD DIGITAL PCB.

- SR5014/U1B-----until BHK36191110140
- SR5014/N1B-----until BHL36191104239
- SR5014/N1SG-----until BHM36200101000
- SR5014/K1B-----until BHN36191101000

Refer to Service Bulletin MZ20-041.



F HDMI (A SIDE)



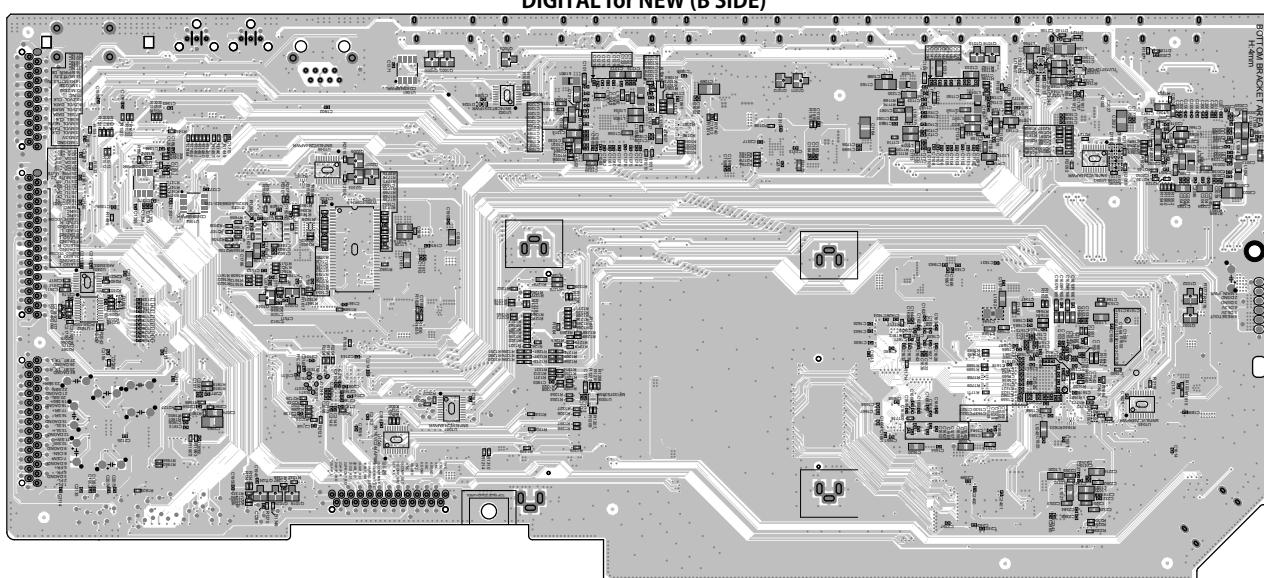
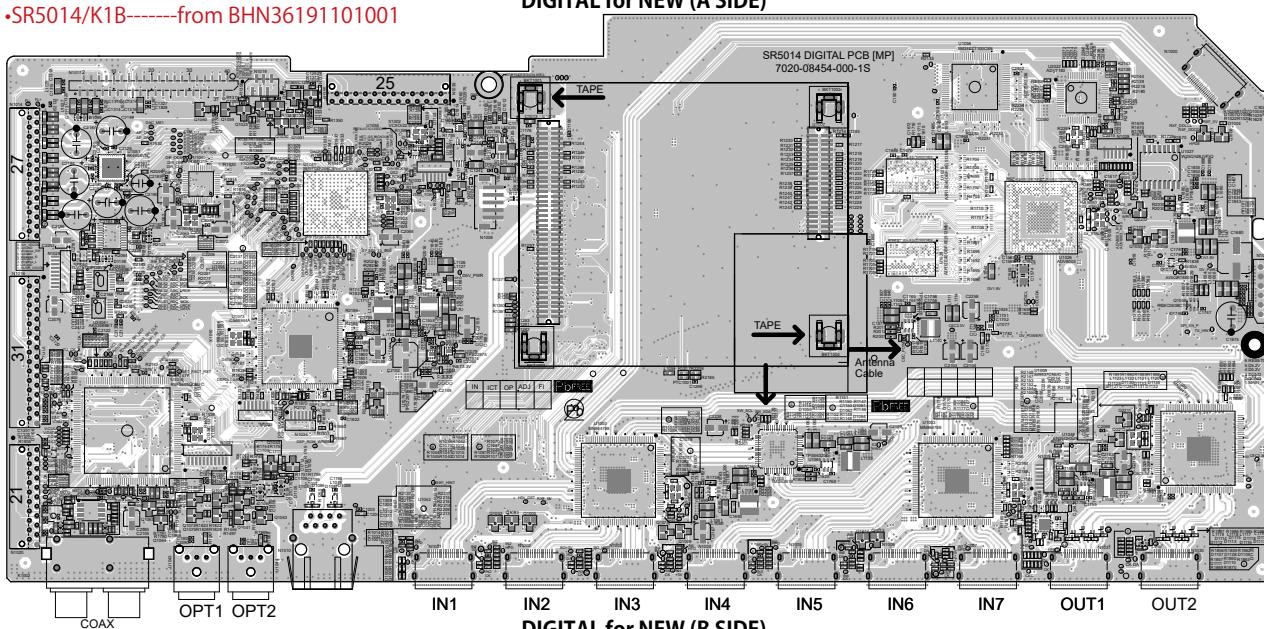
F HDMI (A SIDE)



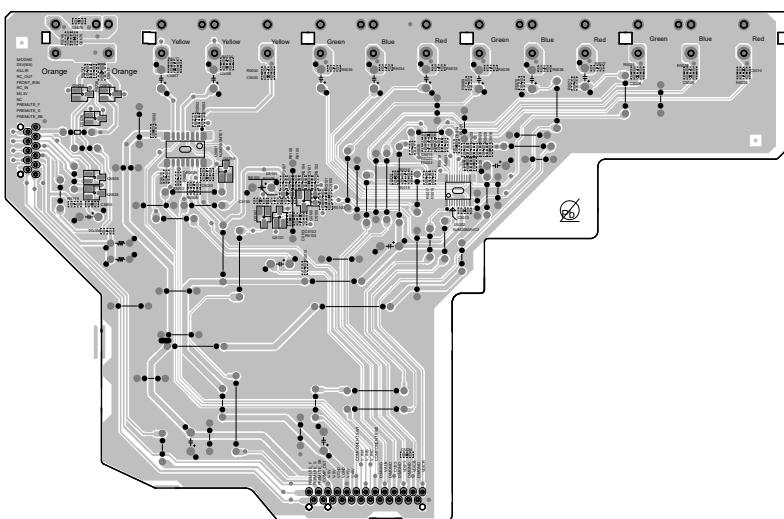
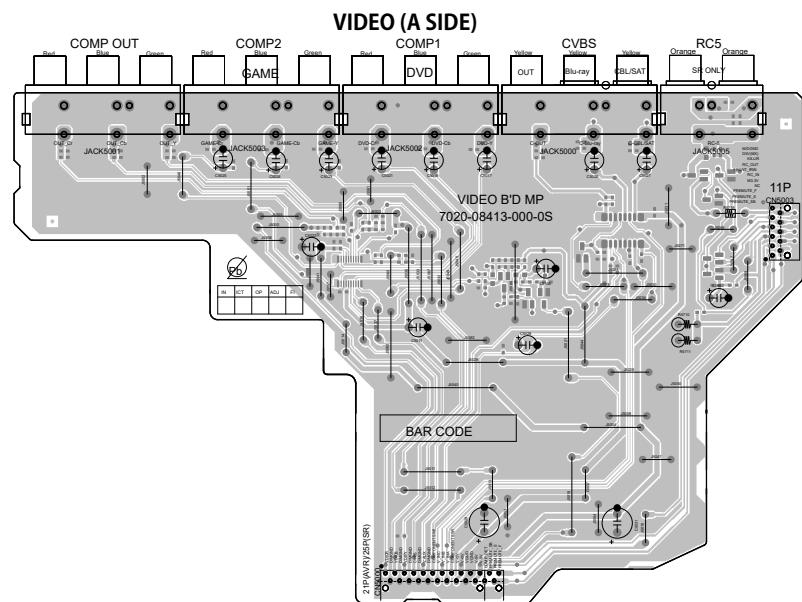
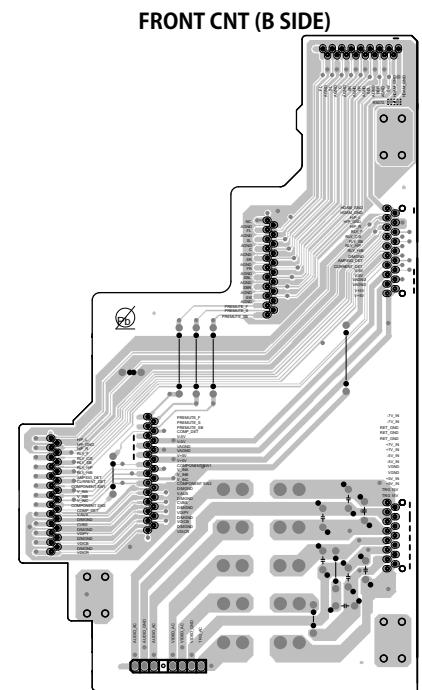
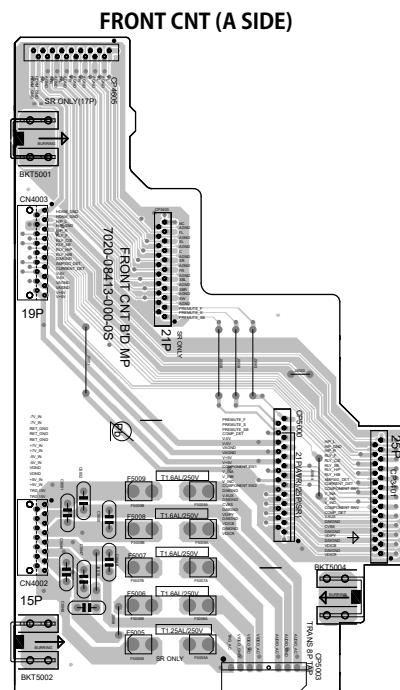
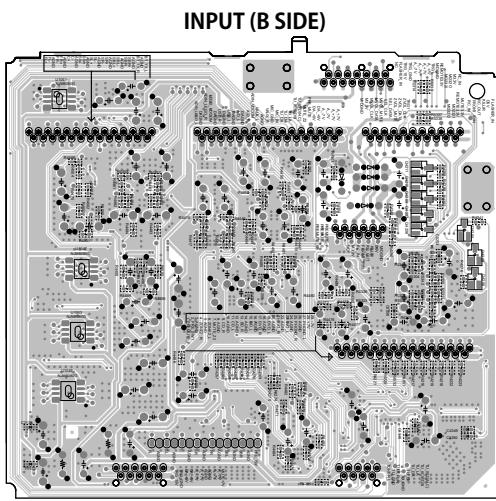
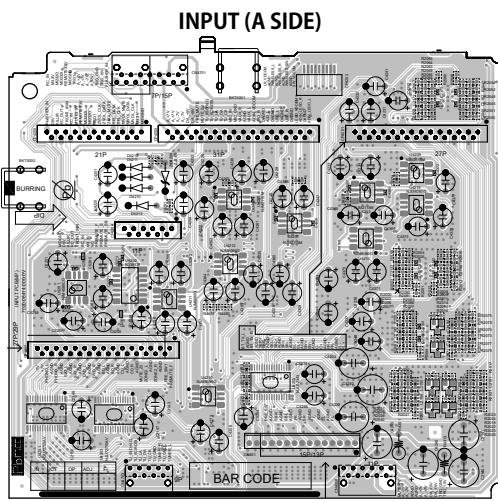
## DIGITAL for NEW

The following Serial number is using the NEW DIGITAL PCB.

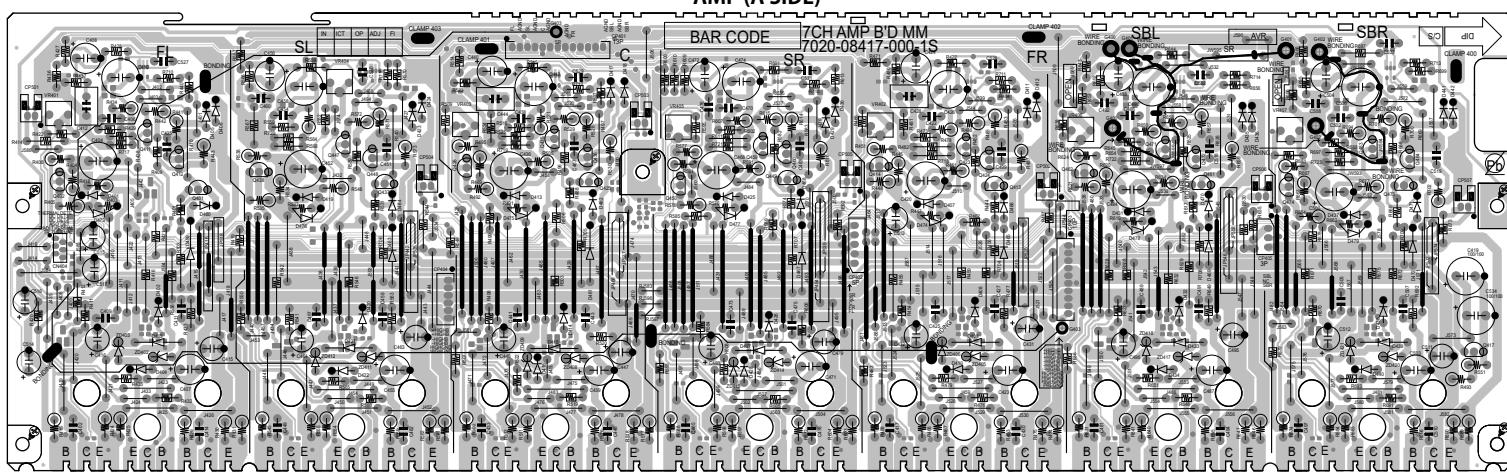
- SR5014/U1B-----from BHK36191110141
- SR5014/N1B-----from BHL36191104240
- SR5014/N1SG----from BHM36200101001
- SR5014/K1B-----from BHN36191101001



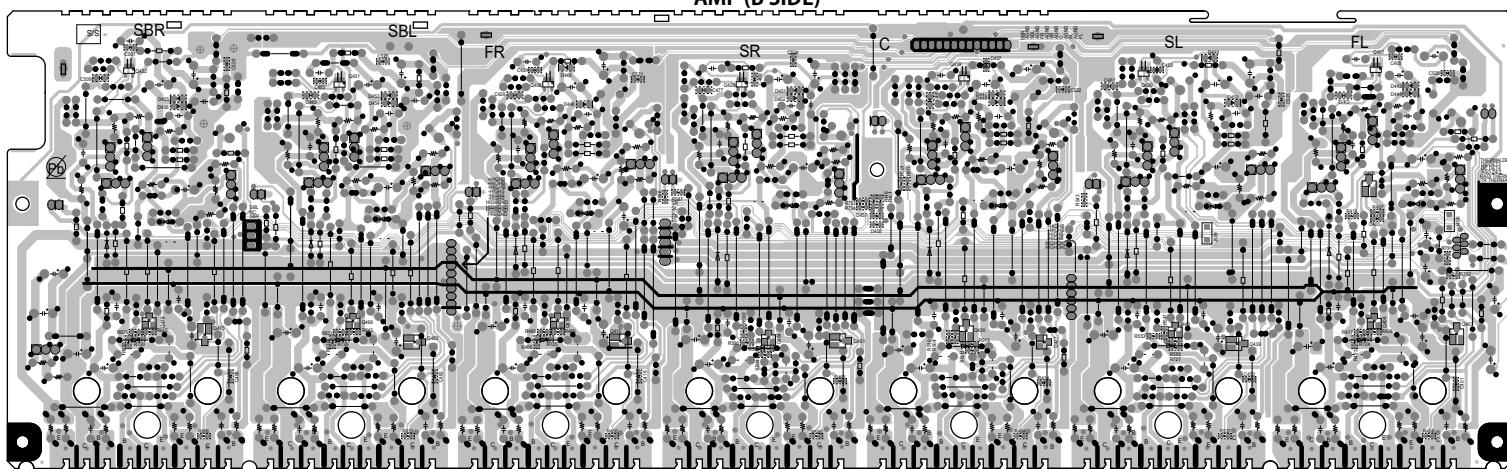
## INPUT, VIDEO, FRONT CNT

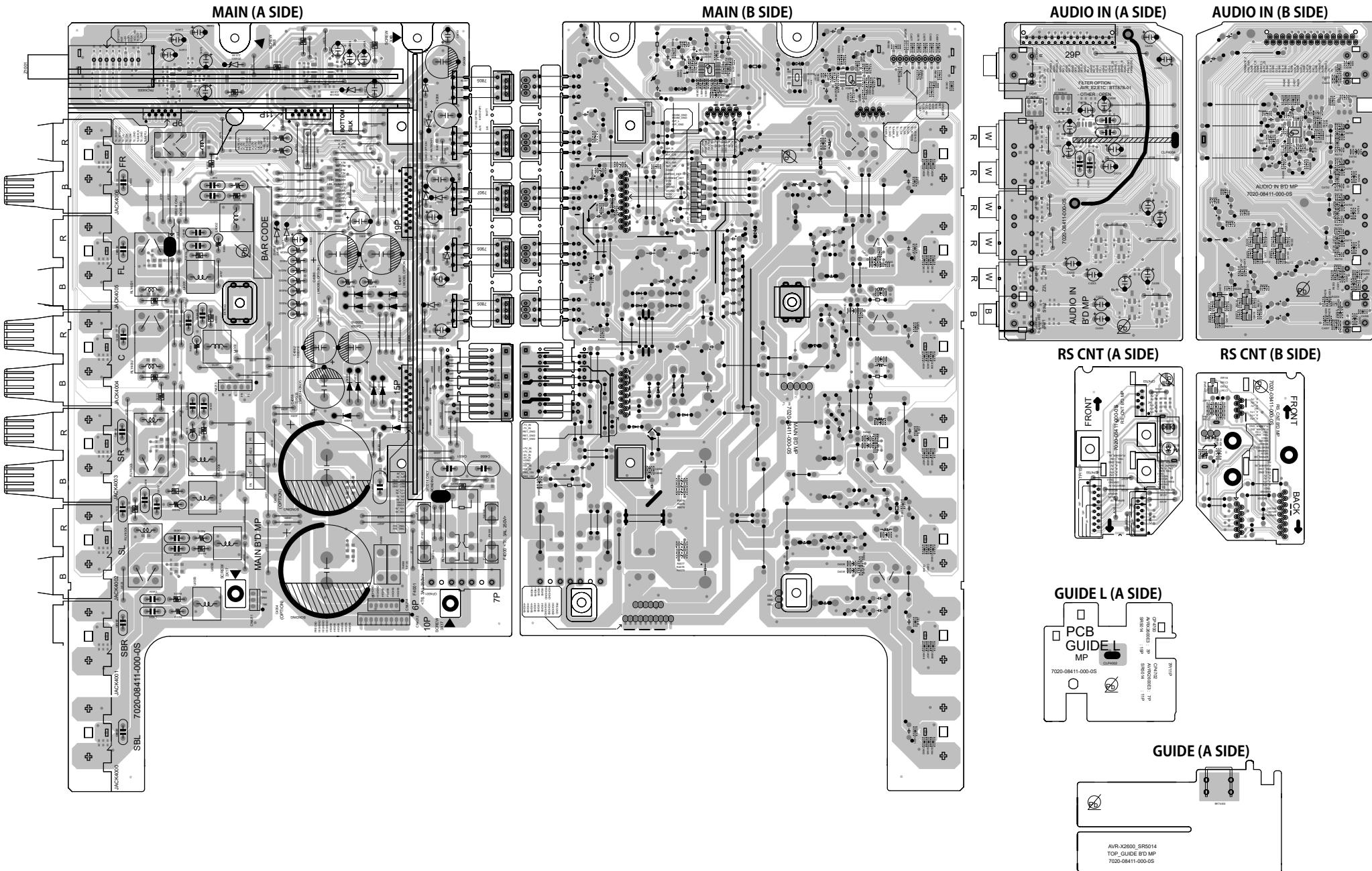


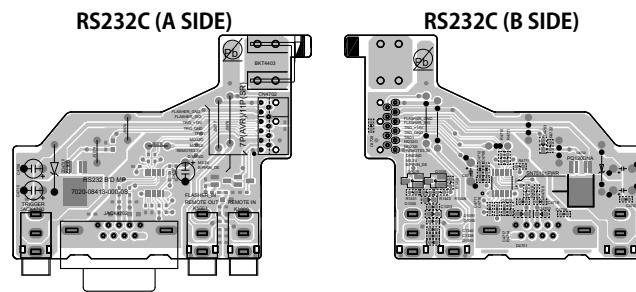
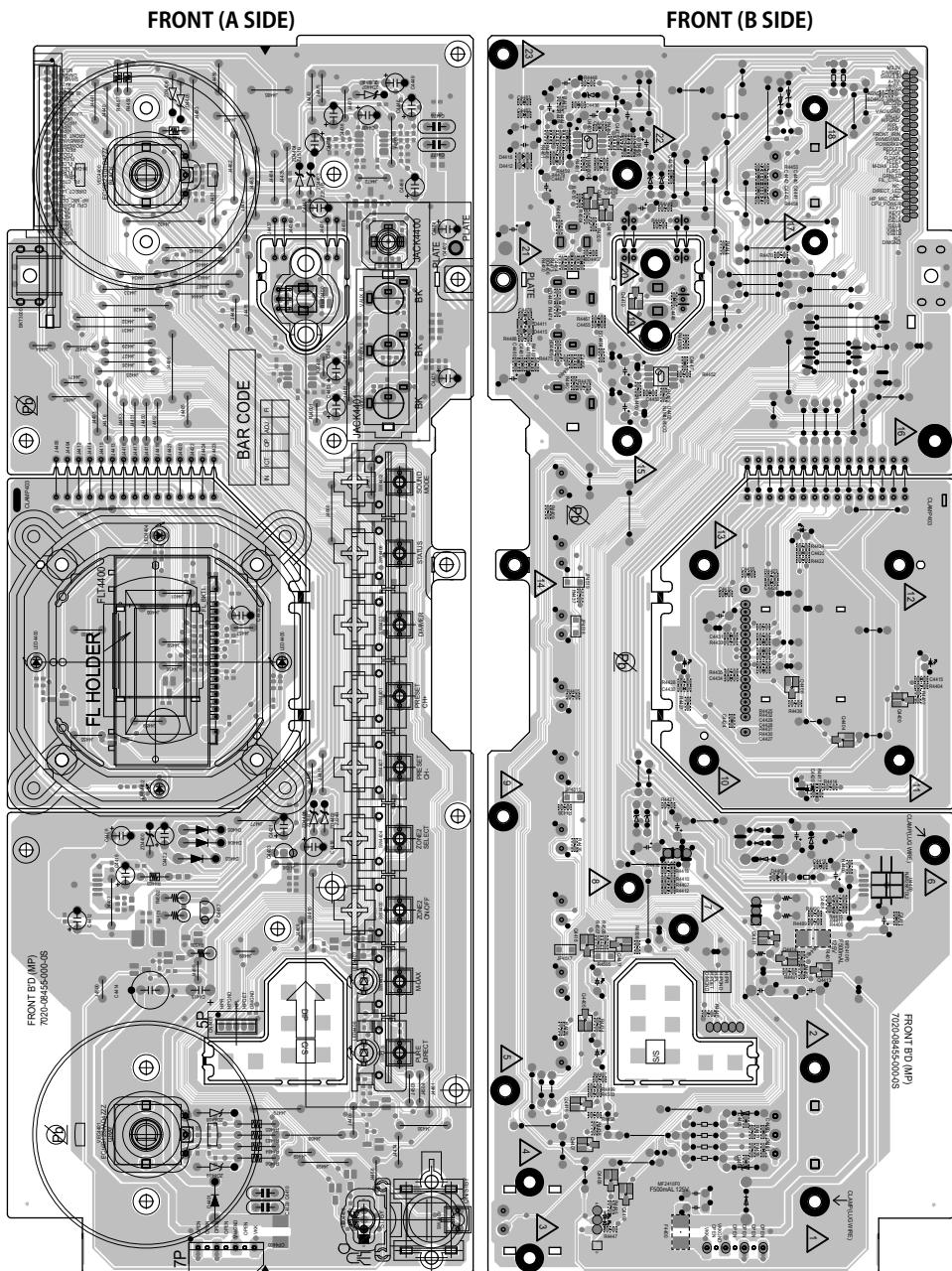
AMP (A SIDE)



AMP (B SIDE)

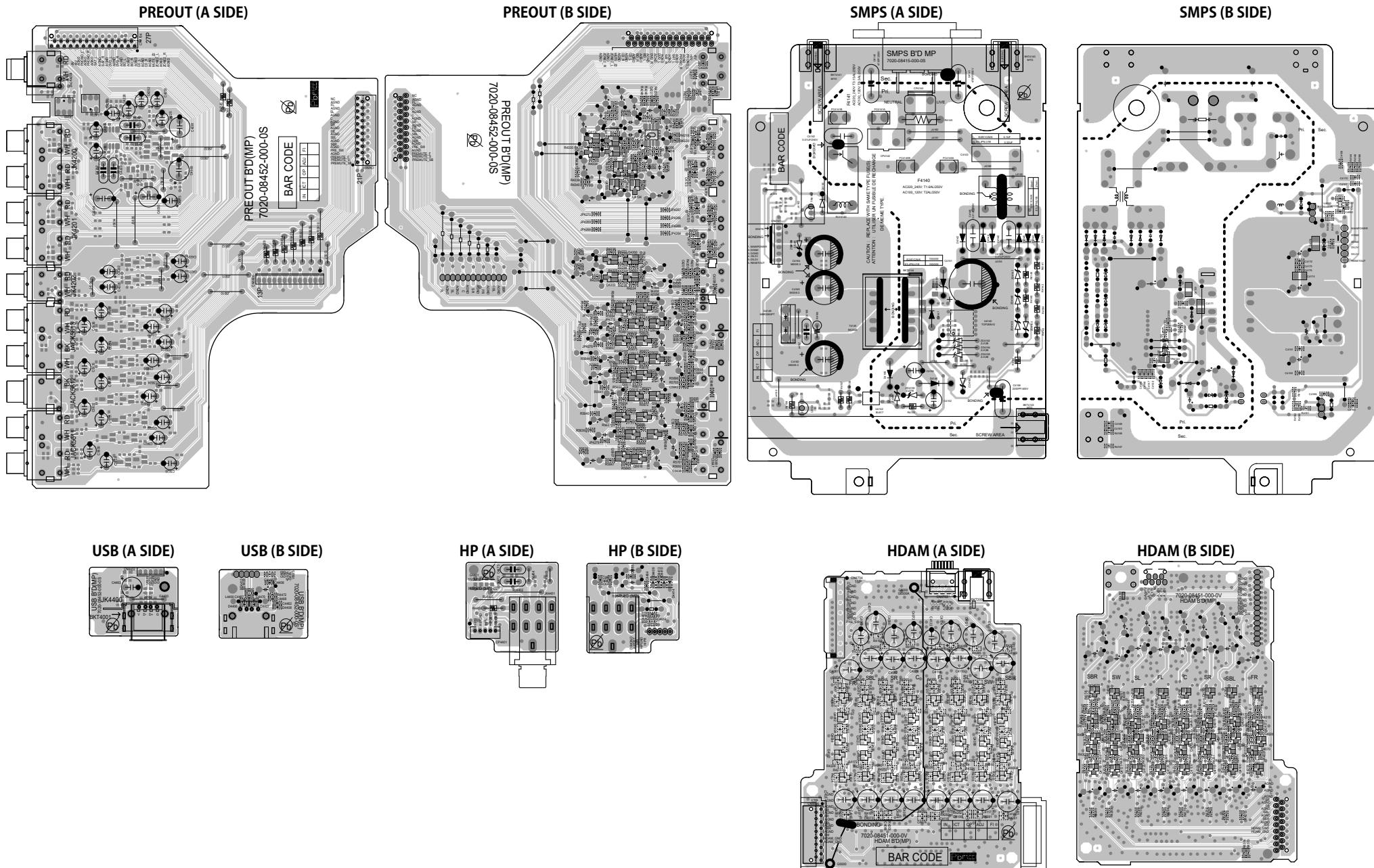






## PREOU, USB, HP, SMPS, HDAM

Before Servicing  
This Unit



Electrical

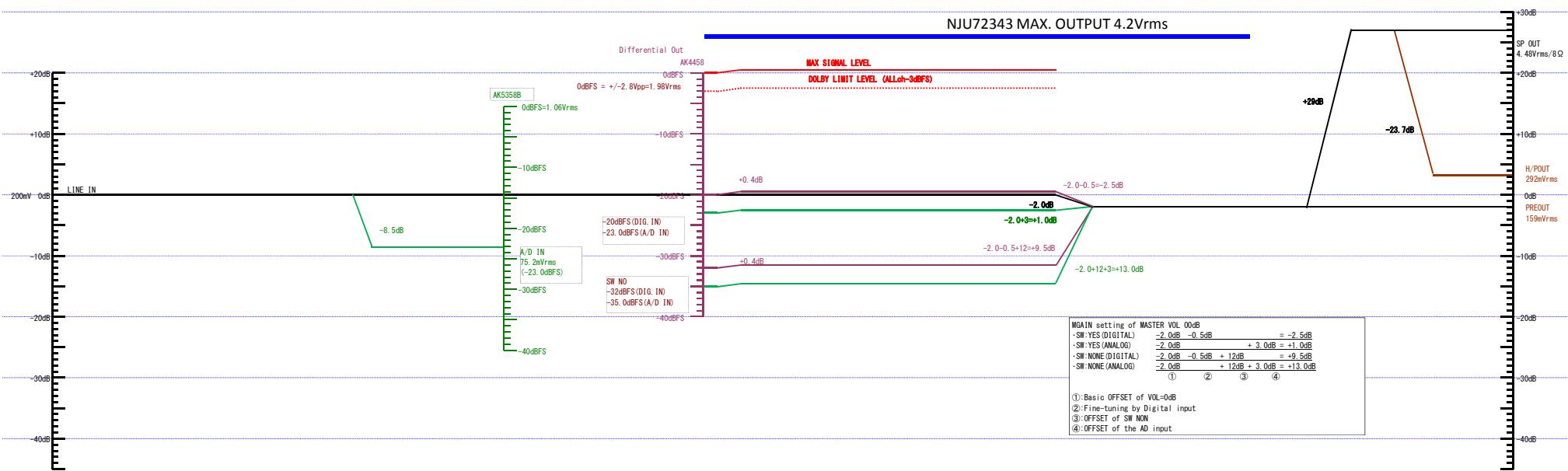
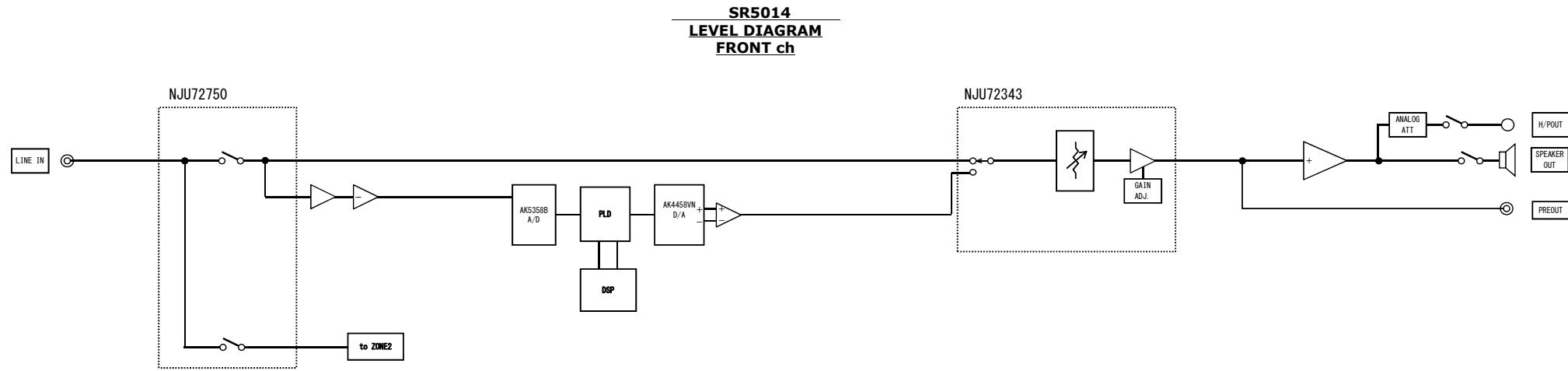
Mechanical

Repair Information

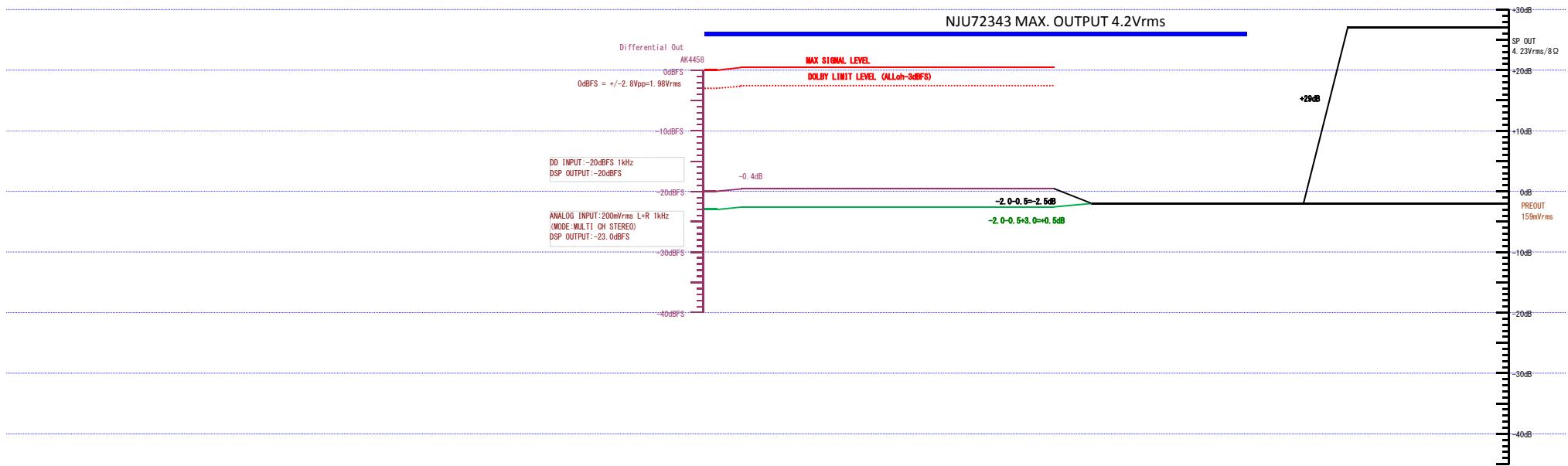
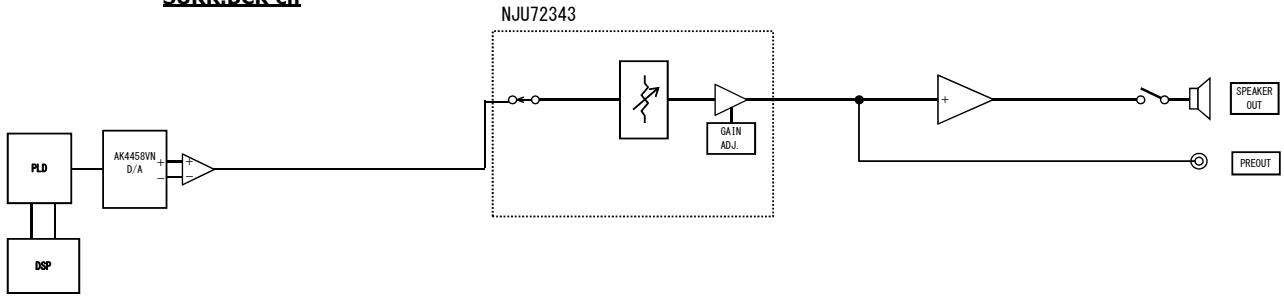
Updating

# LEVEL DIAGRAM

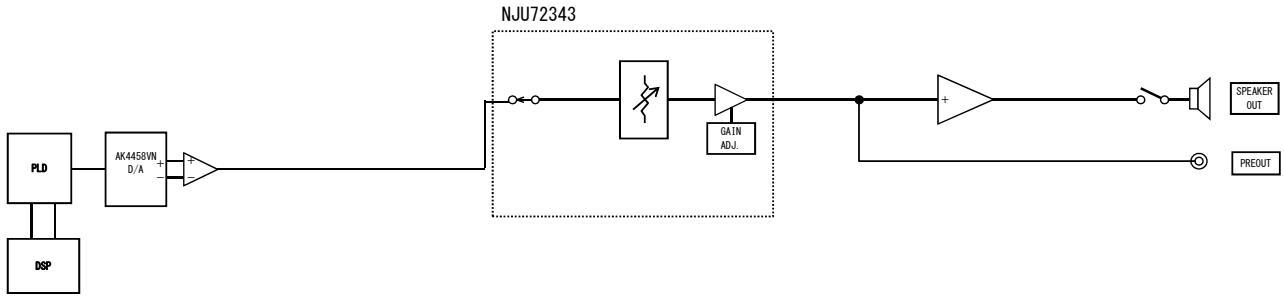
FRONT ch



**SR5014**  
**LEVEL DIAGRAM**  
**CENTER ch**  
**SURROUND ch**  
**SURR.BCK ch**



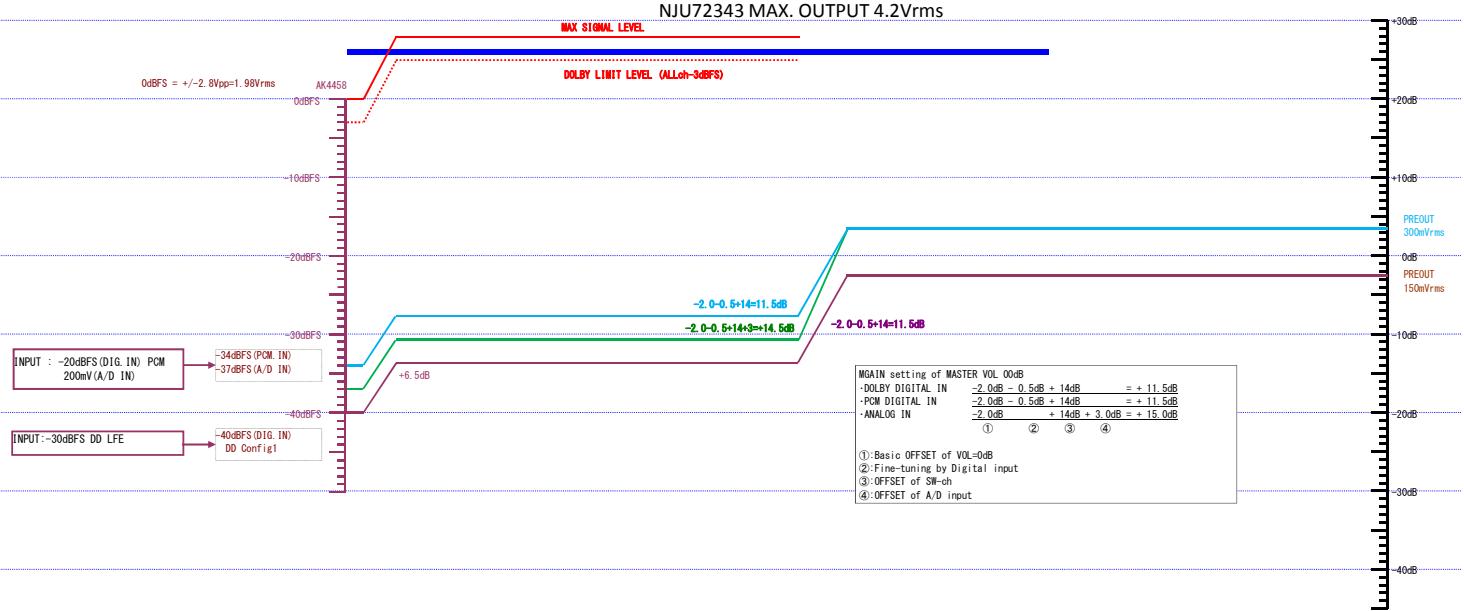
**SR5014**  
**LEVEL DIAGRAM**  
**SUBWOOFER ch**



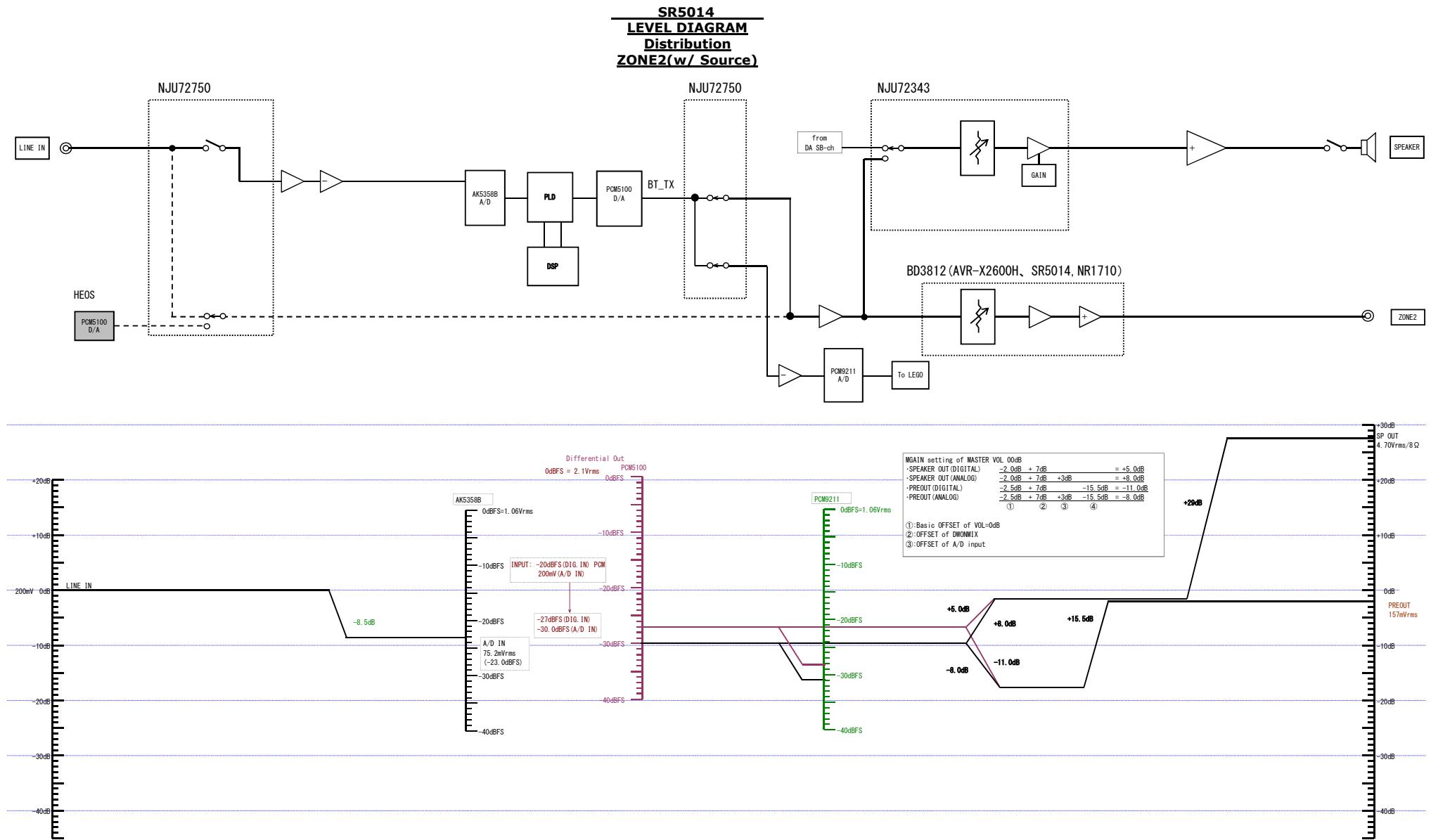
NJU72343 MAX. OUTPUT 4.2Vrms  
MAX SIGNAL LEVEL

0dBFS = +/- 2.8Vpp=1.98Vrms

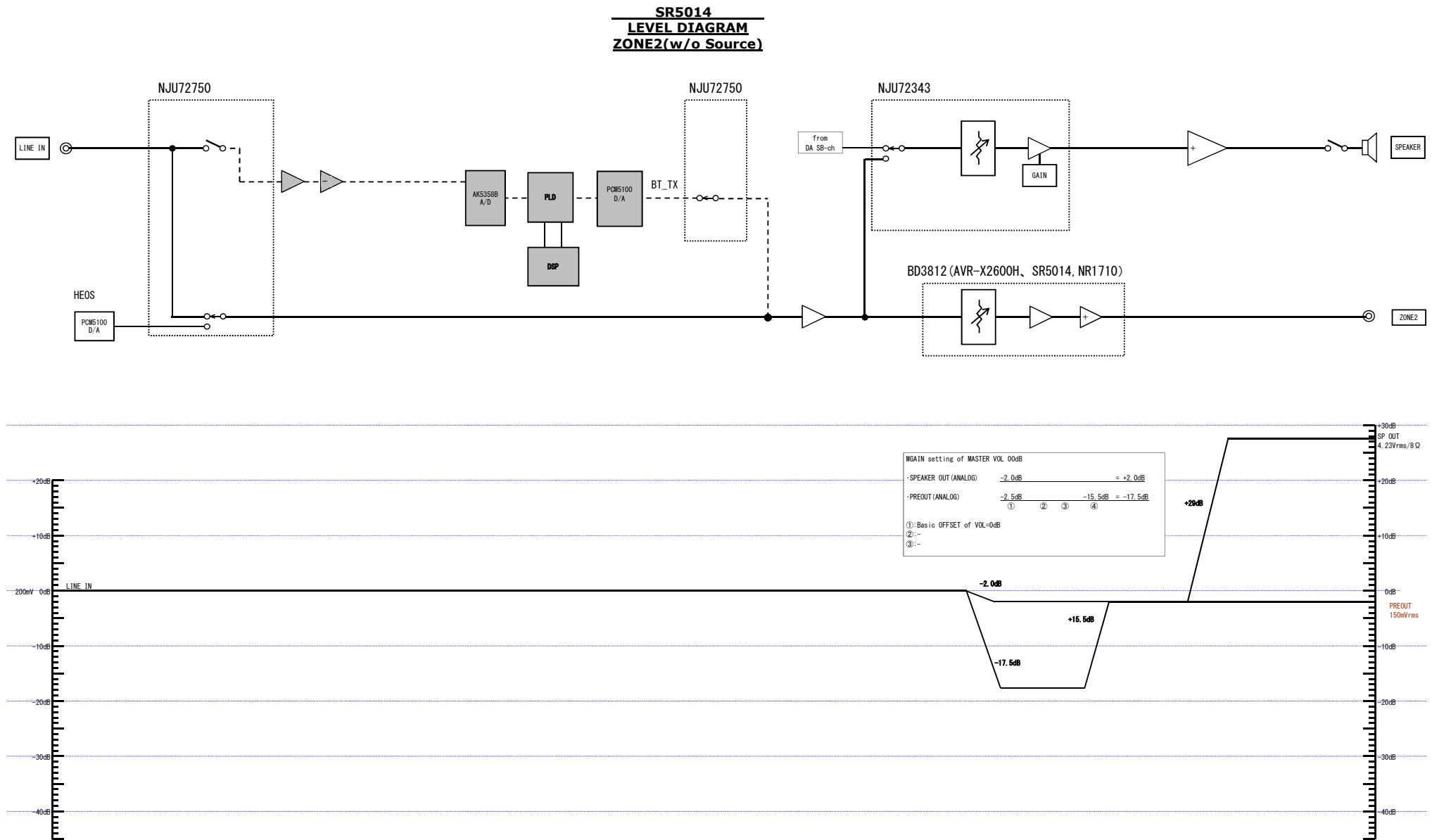
DOLBY LIMIT LEVEL (Allch-3dBFS)



## ZONE2 ch (w/ Source)



## ZONE2 ch (w/o Source)



# BLOCK DIAGRAM

## ANALOG AUDIO DIAGRAM

Before Servicing  
This Unit

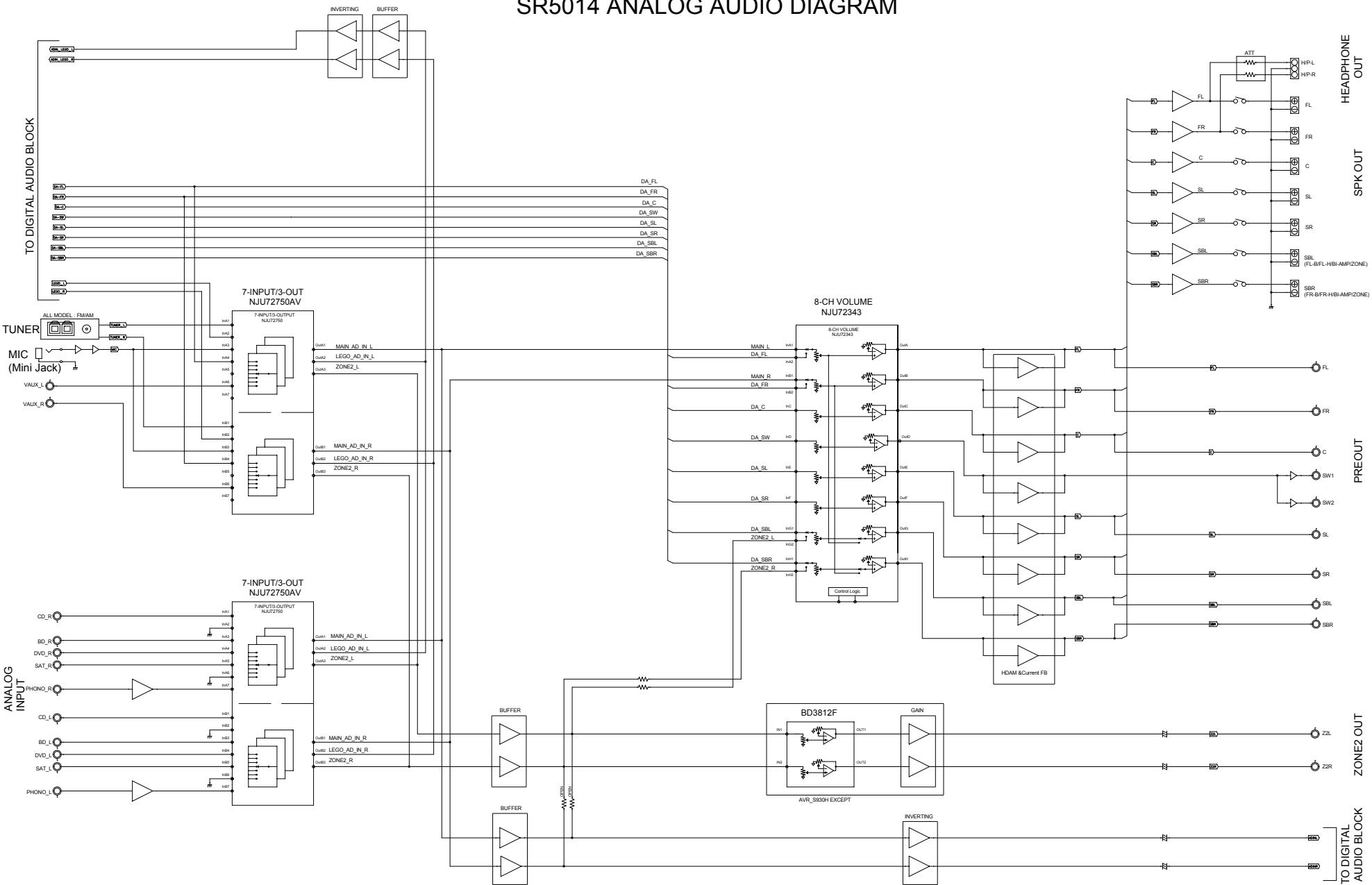
Electrical

Mechanical

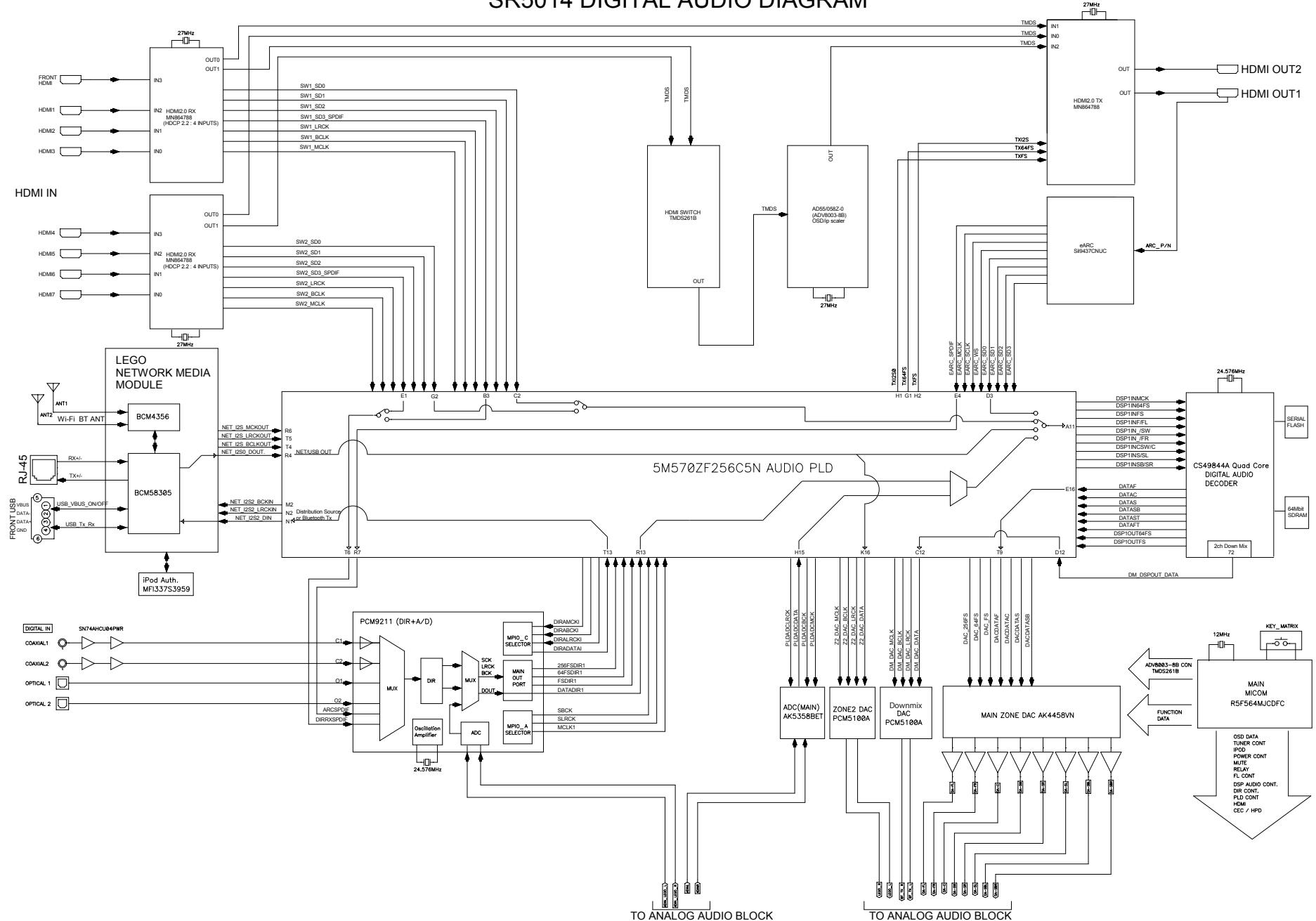
Repair Information

Updating

SR5014 ANALOG AUDIO DIAGRAM



## SR5014 DIGITAL AUDIO DIAGRAM



## VIDEO DIAGRAM

Before Servicing  
This Unit

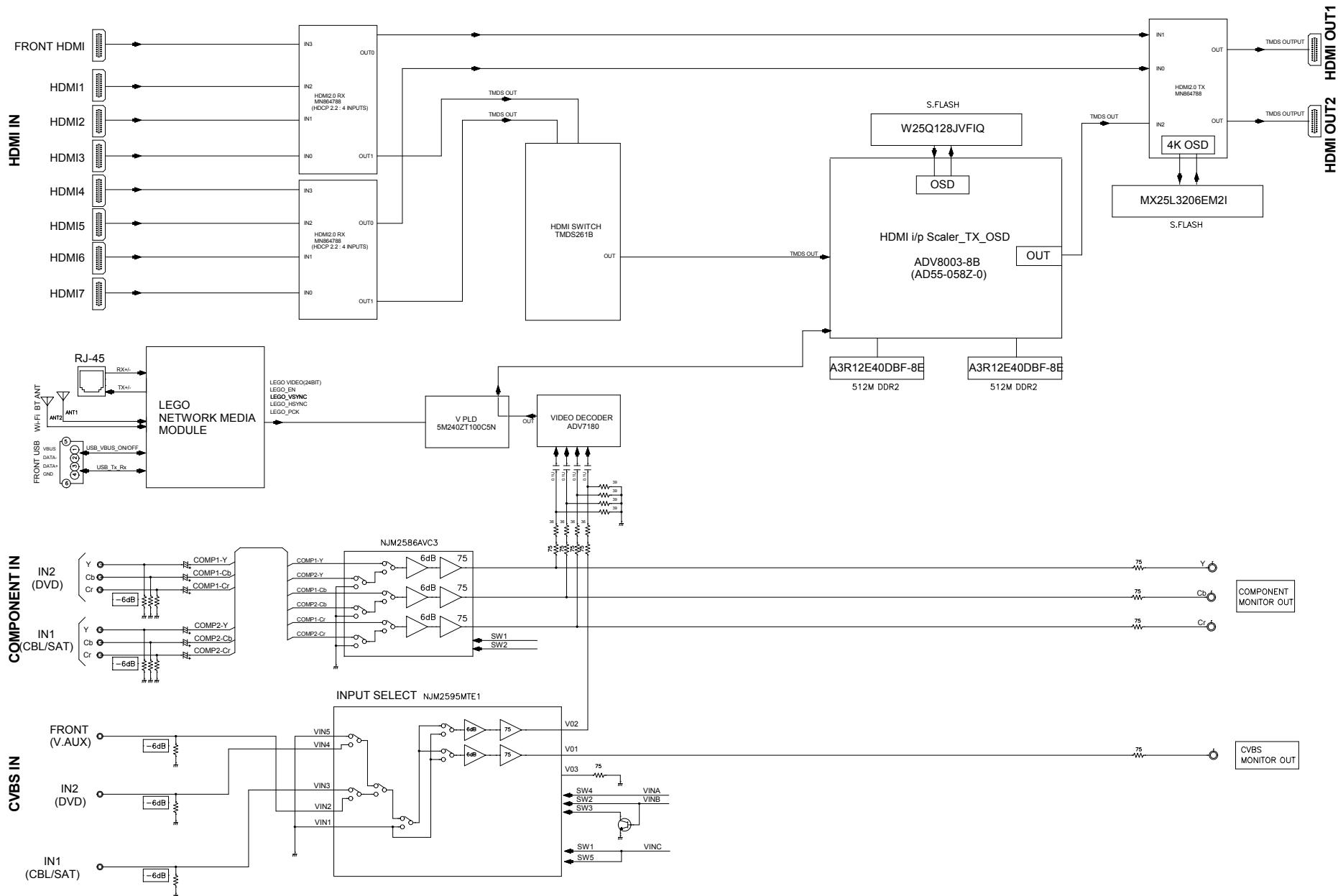
Electrical

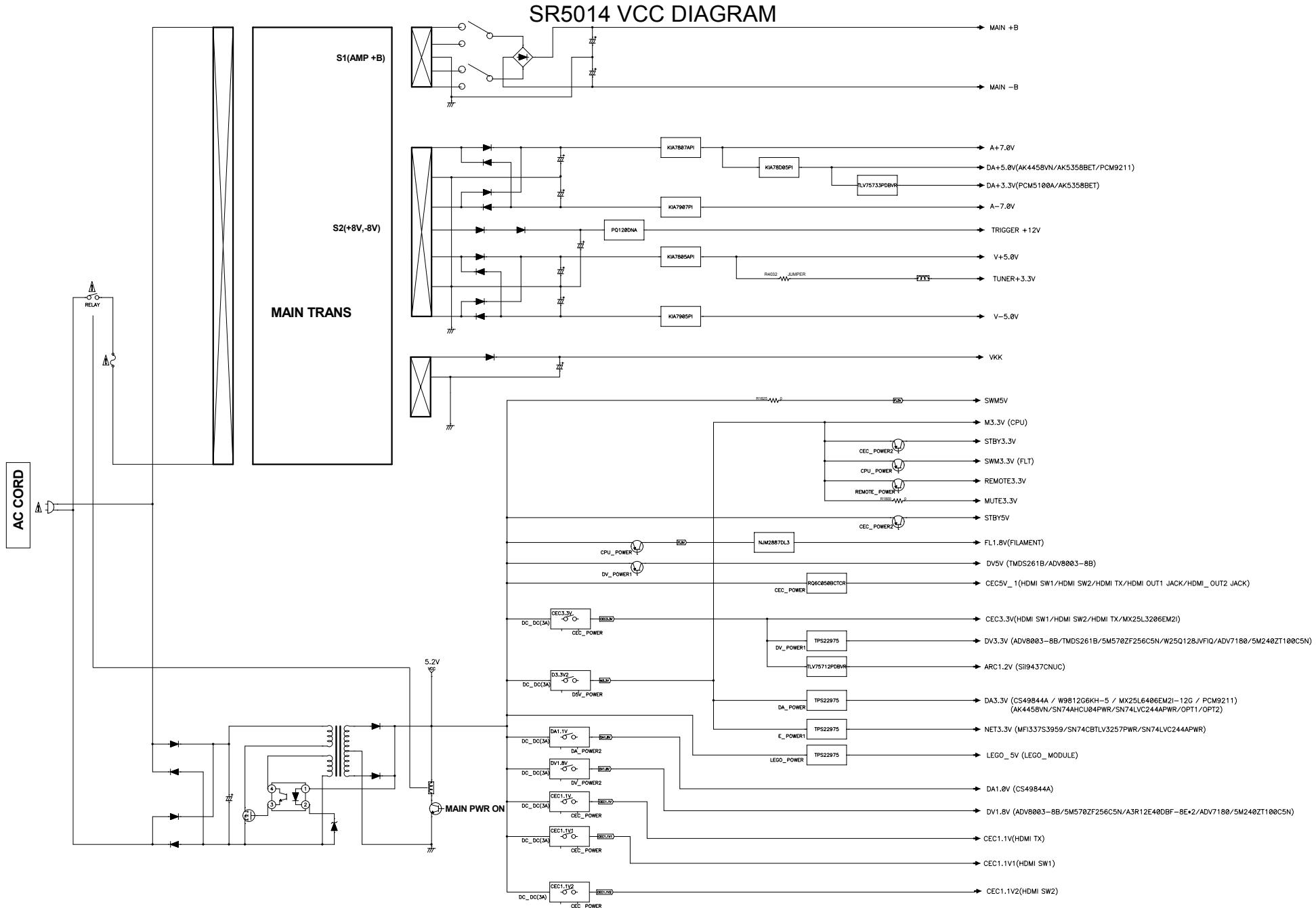
Mechanical

Repair Information

Updating

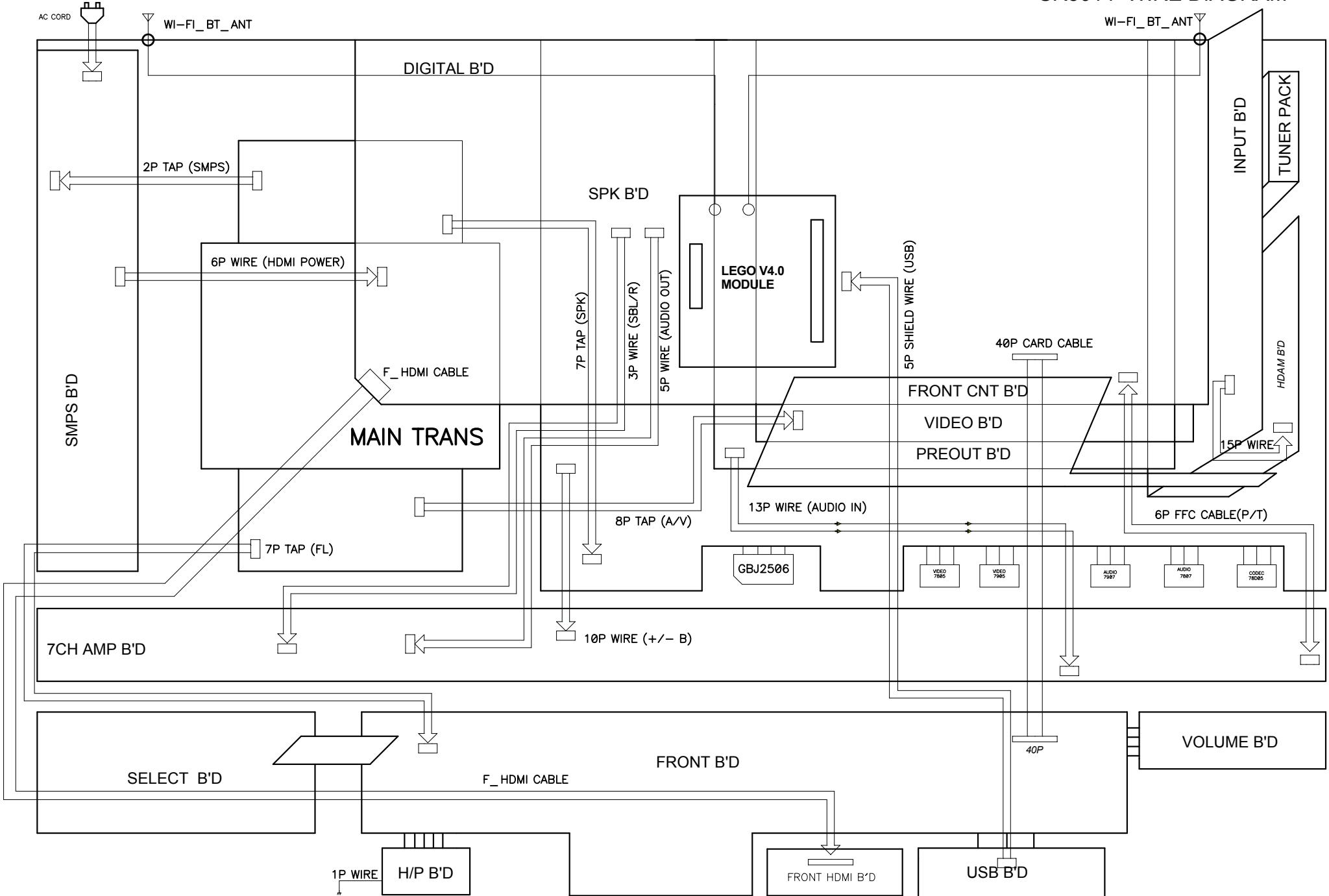
## SR5014 VIDEO DIAGRAM





# WIRING DIAGRAM

## SR5014 WIRE DIAGRAM



Before Servicing  
This Unit

Electrical

Mechanical

Repair Information

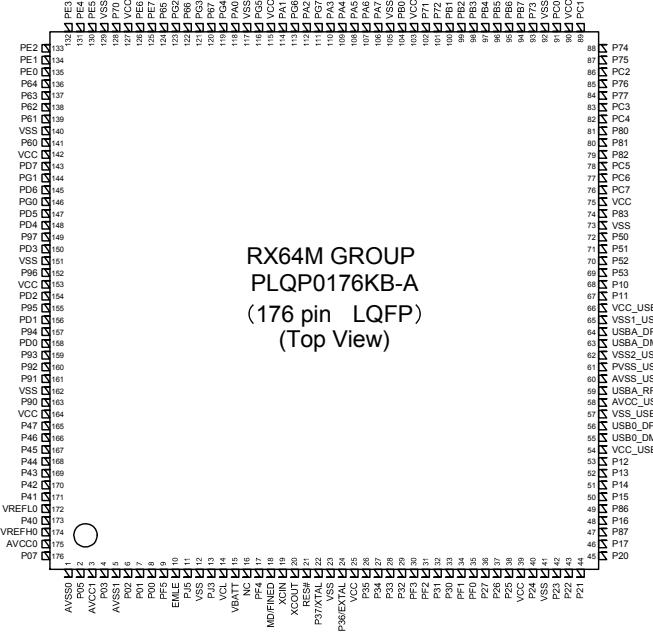
Updating

# SEMICONDUCTORS

Only major semiconductors are shown, general semiconductors etc. are omitted to list.  
The semiconductor which described a detailed drawing in a schematic diagram are omitted to list.

## 1. IC's

### R5F564MJCDFC (DIGITAL : U1018)



## Terminal Functions

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CFC STBY	Function
1	AVSS0	AVSS0	-	-	-	-	-	Ground pin
2	P05/IRQ13	POWER_KEY	I	M3VPu	I	I	I	Detect Power switch (Release from Wait Mode, Set to interrupt)
3	AVCC1	AVCC1	-	-	-	-	-	Power supply pin
4	P03/IRQ11	RED_LED	O	-	L/H	L	H	POWER/STANDBY LED control pin
5	AVSS1	AVSS1	-	-	-	-	-	Ground pin
6	P02/SCK6/IRQ10/AN120	REMOTE_POWER	O	-	L	L	L	232C power supply (REMOTE 3.3V) control pin
7	P01/TXD6/IRQ9/AN119	RXD_MI2320	I	Pd	I	I	I	External data input port (for AMX/FW update via 232C) :Connector is FFC
8	P00/TXD6/IRQ8/AN118	TXD_MO232I	O	-	L	L	L	External data output port (for AMX/FW update via 232C) :Connector is FFC
9	PF5/IRQ4	WHITE_LED GREEN_LED JP/5950H/SR5014/ NR1710	O	-	L	L	L	POWER LED control pin
10	EMLE	EMLE	I	Pd	-	-	-	E20 Emulator control pin (On chip Emulator is used, this pin should be High. Not used, it should be Low)
11	PJ5	VSEL_A	I	SW3VPu	I	I	I	Master Volume (Rotary encoder) signal input pin
12	VSS	VSS	-	-	-	-	-	Ground pin
13	PJ3	VSEL_B	I	SW3VPu	I	I	I	Master volume (Rotary encoder) signal input pin
14	VCL	VCL	I	-	-	-	-	Smoothing capacitor connection pin
15	VBATT	VBATT	-	-	-	-	-	Power supply pin
16	NC	NC	I	Pd	-	-	-	NC(Pull down)
17	TRST#/PF4	TRST#/NC (NORMRAL)	I/I	Pd	I/I	I/I	I/I	E20 Emulator control pin/When normal operating mode, set to input.

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CFC STBY	Function
18	MD/FINED	MD	I	M3VPu	I	I	I	Pins for setting the operating mode(select the Boot Mode or User Boot Mode,Single Chip Mode)
19	XCIN	XCIN	I	Pd	-	-	-	NC(Pull down)
20	XCOUNT	XCOUNT	I	-	-	-	-	NC(open)
21	RES#	RESET	I	M3VPu	-	-	-	Reset signal input pin
22	XTAL/P37	XTAL	I	-	-	-	-	Pins for a crystal resonator (Xin=12MHz × 10)
23	VSS	VSS	-	-	-	-	-	Ground pin
24	EXTAL/P36	EXTAL	-	-	-	-	-	Pins for a crystal resonator (Xin=12MHz × 10)
25	VCC	VCC	-	-	-	-	-	Power supply pin
26	UPSEL/P35(IN)/NMI	DSP_FLAG3	I	DA3VPu	I	I	I	DSP(CS49844A) interrupt signal input pin
27	P34/SCK6/SCK0/IRQ4	BDOWN	I	M3VPu	I	I	I	Detect power down
28	P33/TIOCD0/RXD6/ RXD0/IRQ3-DS	RC_IN	I	Pd5950H/ X2600H/ M3VPu (SR5014/ NR1710)*	I	I	I	Remote input
29	P32/TIOCC0/TXD6/ TXD0/IRQ2-DS		O/I	-/Pd	L/I	L/I	L/I	Flasher (Remote) input pin (When standby mode, set to interrupt)
30	TMS/PF3	TMS/NC (NORMAL)	I/I	M3VPu	-/I	-/I	I	E20 Emulator control pin/When normal operating mode, set to input.
31	TDI/PF2/RXD1	TDI/RXD_MIT- SUBISHI	I/O/I	M3VPu	-/-I	-/-I	I	E20 Emulator control pin/Mitsubishi writer control pin/When normal operating mode, set to input.
32	P31/IRQ1-DS	TU_INT (except AVR-X2600HDAB) / NC (AVR-X2600HD- AB)	I	SW3VPu	L	L	L	TUNER control
33	P30/RXD1	TU_DA (except AVR- X2600HDAB) / DAB Rx (AVR-X2600HDAB)	I_O	SW3VPu	L	L	L	TUNER control
34	TCK/FINEC/PF1/SCK1	TCK/ NC(NORMAL)	I/I/I	M3VPu	-/-I	-/-I	I	E20 Emulator control pin//When normal operating mode, set to input.
35	TD0/TXD1/PF0	TDO/TXD_MIT- SUBISHI	O/O/I	M3VPu	-/-I	-/-I	I	E20 Emulator control pin/Mitsubishi writer control pin/When normal operating mode, set to input.
36	P27/SCK1	TU_LA (except AVR- X2600HDAB) / NC (AVR-X2600HDAB)	O	-	L	L	L	TUNER control
37	P26/TXD1	TU_CK (except AVR- X2600HDAB) / DAB Tx (AVR-X2600HDAB)	O	SW3VPu	L	L	L	TUNER control
38	P25/RXD3	TU_RST (except AVR- X2600HDAB) / DAB Tx (AVR-X2600HDAB)	O	-	L	L	L	TUNER control
39	VCC	VCC	-	-	-	-	-	Power supply pin
40	P24/SCK3	NC (5950H/X2600H/ KILL L NR1710/ SR5014)	O	-	L	L	L	Front IR disable control pin
41	VSS	VSS	-	-	-	-	-	Ground pin
42	P23/TXD3	E_RTS_MOE1	O	Pd (BCMS5305 Internal Pd)	L	L	L	Ethernet(Network Module) control pin
43	P22/SCK0	E_CTS_MIEO	I	Pd (onload +BCMS5305 Internal Pd)	I	I	I	Ethernet(Network Module) control pin
44	P21/RXD0/IRQ9	E_RXD_MIEO	I	Pd (onload +BCMS5305 Internal Pd)	I	L	I	Ethernet(Network Module) control pin
45	P20/TXD0/IRQ8	E_TXD_MOE1	O	Pd (BCMS5305 Internal Pd)	L	L	L	Ethernet(Network Module) control pin
46	P17/SCK1/TXD3/IRQ7	NET_FACT_RST	O(ODR)	Pu (BCMS5305 Internal Pd)	Z	Z	Z	Ethernet(Network Module) control pin
47	P87/TXD10/TIOCA2	NC (5950H/X2600H/ RC_OUT L NR1710/ SR5014)	O	-	L/H	L/L	L/H	Remote code (RC-5) output pin
48	P16/TXD1/RXD3/IRQ6	NET5V_POWER	O	-	L	L	L	Ethernet power supply (Net5V) control pin
49	P86/RXD10	PRE_Z2_MUTE (X2600H/NR1710/ SR5014)/NC (5950H)	O	Pd	L	L	L	MUTE for ZONE2 preout control pin
50	P15/RXD1/SCK3/IRQ5	AEXP_STB	O	-	L	L	L	Expander (MC14094) control pin
51	P14/IRQ4	AEXP_OE	O	-	L	L	L	Expander (MC14094) control pin
52	P13/TXD2/IRQ3	AEXP_CLK	O	-	L	L	L	Expander (MC14094) control pin

## Before Servicing This Unit

## Electrical

## Mechanical

## Repair Information

## Updating

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
53	P12/RXD2/IRQ2	AEXP_DATA	O		L	L	L	Expander (MC14094) control pin
54	VCC_USB	VCC_USB	-		-	-	-	Power supply pin
55	USB0_DM	USB0_DM	-		-	-	-	NC(open)
56	USB0_DP	USB0_DP	-		-	-	-	NC(open)
57	VSS_USB	VSS_USB	-		-	-	-	Ground pin
58	AVCC_USBA	AVCC_USBA	-		-	-	-	Power supply pin
59	USBA_PREF	USBA_PREF	-		-	-	-	NC(open)
60	AVSS_USBA	AVSS_USBA	-		-	-	-	Ground pin
61	PVSS_USB	PVSS_USB	-		-	-	-	Ground pin
62	VSS2_USB	VSS2_USB	-		-	-	-	Ground pin
63	USBA_DM	USBA_DM	-		-	-	-	NC(open)
64	USBA_DP	USBA_DP	-		-	-	-	NC(open)
65	VSS1_USB	VSS1_USB	-		-	-	-	Ground pin
66	VCC_USB	VCC_USB	-		-	-	-	Power supply pin
67	P11/SCK2/IRQ1	CEC_OUT	O		L	L	L	CEC-D control pin
68	P10/IRQ0	CEC_IN	I	STB3VPu	I	I	I	CEC-D control pin
69	P53	ADV8003_SPI_CS	O	DV3VPu	L	L	L	GUI control pin(ADV8003)
70	P52/RXD2	ADV8003_SPI_MI	I		L	L	L	GUI control pin(ADV8003)
71	P51/SCK2	ADV8003_SPI_CLK	O		L	L	L	GUI control pin(ADV8003)
72	P50/TXD2	ADV8003_SPI_MO	O		L	L	L	GUI control pin(ADV8003)
73	VSS	VSS	-		-	-	-	Ground pin
74	P83/SCK10	IP_RST	O	Pd	I	I	L	Scaler w/ GUI (ADV8003) Reset control pin
75	VCC	VCC	-		-	-	-	Power supply pin
76	UB/PC7/TXD8/IRQ14	UB	I	Pd	-	-	-	Pins for setting the boot mode(select the Boot Mode or User Boot Mode)
77	PC6/RXD8/IRQ13	AVSDA	I_O	DV3VPu	O/L	O/L	L	VIDEO I2C control pin for ADV8003/ ADV7180(except X2600H/S950/NR1710)/ARC IC
78	PCS/SCK8	AVSCL	I_O	DV3VPu	O/L	O/L	L	VIDEO I2C control pin for ADV8003/ ADV7180(except X2600H/S950/NR1710)/ARC IC
79	P82/TXD10	DSP_MOSI	O	DA3VPu	L	L	L	DSP(CS49844A) control pin
80	P81/RXD10	DSP_MISO	I	DA3VPu	L	L	L	DSP(CS49844A) control pin
81	P80/SCK10	DSP_CLK	O	DA3VPu	L	L	L	DSP(CS49844A) control pin
82	PC4/SCK5	DSP_CS	O	DA3VPu	L	L	L	DSP(CS49844A) control pin
83	PC3/TXD5	DSP_FLAG0	I	DA3VPu	L	L	L	DSP(CS49844A) interrupt signal input pin
84	P77/TXD11	DSP_RST	O	Pd	L	L	L	DSP(CS49844A) reset control pin
85	P76/RXD11	DSP_BUSY	I	DA3VPu	L	L	L	DSP_BUSY signal input
86	PC2/RXD5	DA_POWER	O		L	L	L	Digital audio power supply (DA3.3V,DA1.2V) control pin
87	P75/SCK11	CEC_POWER2	O		L	L	H	CEC standby power control (for CEC Standby Mode 3)
88	P74	SEL_DATA	O		L	L	L	Audio selector control pin for NJU72750
89	PC1/SCK5/IRQ12	DAC_PLD_ERR	I		L	L	L	Detect PLD error (from Audio PLD)
90	VCC	VCC	-		-	-	-	Power supply pin
91	PC0/IRQ14	ARC_INT	I	IOVC-C3VPu	L	L	L	ARC IC interrupt signal input pin
92	VSS	VSS	-		-	-	-	Ground pin
93	P73	H5VOUT_POWER	O		L	L	L	HDMI 5V power supply control pin
94	PB7/TXD9	HSDA	I/O	CEC3VPu	L	L	L	HDMI I2C control pin for MN864788
95	PB6/RXD9	HSCL	I/O	CEC3VPu	L	L	L	HDMI I2C control pin for MN864788
96	PB5/SCK9	SEL_CLK	O		L	L	L	Audio selector control pin for NJU72750
97	PB4	APLD_CS	O	Pd	L	L	L	Audio PLD (SM570ZF256CSN) control pin
98	PB3/SCK4/SCK6	APLD_DATA/DAC_DATA	O	Pd	L	L	L	Audio PLD (SM570ZF256CSN) control pin/DAC (AK4458VN) control pin
99	PB2	APLD_CLK/DAC_CLK	O	Pd	L	L	L	Audio PLD (SM570ZF256CSN) control pin/DAC (AK4458VN) control pin
100	PB1/TXD4/TXD6/IRQ4-DS	DAC_MS	O		L	L	L	DAC (AK4458VN) control pin
101	P72	DAC_RST	O		L	L	L	DAC (AK4458VN) control pin
102	P71	PRE_MUTE	O	Pd	L	L	L	MUTE for preout control pin
103	VCC	VCC	-		-	-	-	Power supply pin
104	PB0/RXD4/RXD6/IRQ12	DA_POWER2	O		L	L	L	Digital audio power supply (DA1.0V) control pin
105	VSS	VSS	-		-	-	-	Ground pin
106	PA7	ISEL_A	I	SW3VPu	I	I	I	Input selector (Rotary encoder) signal input pin
107	PA6	ISEL_B	I	SW3VPu	I	I	I	Input selector (Rotary encoder) signal input pin
108	PA5	NC	O		L	L	L	NC
109	PA4/TXD5/SSDA5/IRQ5-DS	DSP_ROM_WRITE	O		L	L	L	DSP ROM writing control(When writing, set to High)
110	PA3/RXD5/SSCL5	MVOL_MUTE	O		L	L	L	Volume control pin (NUJ72343)

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
111	TRDATA3/PG7	MVOL_CLK	O		L	L	L	Volume control pin (NUJ72343)
112	PA2/RXD5	MVOL_DATA	O		L	L	L	Volume control pin (NUJ72343)
113	TRDATA2/PG6	ZVOL_DATA (X2600H/NR1710/SR5014)/NC (S950H)	O		L	L	L	ZONE2 volume control pin (BD3812F)
114	PA1/SCK5/IRQ11	ZVOL_CLK (X2600H/NR1710/SR5014)/NC (S950H)	O		L	L	L	ZONE2 volume control pin (BD3812F)
115	VCC	-	-	-	-	-	-	Power supply pin
116	TRCLK/PG5	ZVOL_MUTE (X2600H/NR1710/SR5014)/NC (S950H)	O		L	L	L	ZONE2 volume control pin (BD3812F)
117	VSS	-	-	-	-	-	-	Ground pin
118	PA0	H5V_DET	I	-	I	I	I	HDMI IN 5V detect signal pin
119	TRSYNC/PG4	FL_RST	O		L	L	L	FL display control pin
120	P67/IRQ15	FL_CE	O		L	L	L	FL display control pin
121	TRDATA1/PG3	FL_CLK	O		L	L	L	FL display control pin
122	P66	FL_DATA	O		L	L	L	FL display control pin
123	TRDATA0/PG2	ADC_RST2	O		I	L	I	A/D convertor(AK5358) for WS reset control pin
124	P65	CPU_POWER_2 (S950H/X2600H/NR1710)/FIL_CTRL (SR5014)	O		L	L	L	CPU power supply control pin(same as 131pin) / Filament Power control pin (for Portal FLD)
125	PE7/IRQ7/AN105	ASO/DC_DET	I	SW3VPu	I	L	I	Protection detect signal input pin (for ASO and DC) (A/D converter)
126	PE6/IRQ6/AN104	MIC_DET/H_P_DET	I	SW3VPu	I	L	I	Headphone insert detect pin/Microphone insert detect pin (A/D converter)
127	VCC	-	-	-	-	-	-	Power supply pin
128	P70	ARC_RST	O		L	L	L	Reset control pin for ARC IC
129	VSS	-	-	-	-	-	-	Ground pin
130	PE5/IRQ5/AN103	MAIN_POWER	O	Pd	L	L	L	Power supply control pin
131	PE4/AN102	CPU_POWER	O		L	L	L	CPU power supply control pin
132	PE3/AN101	AIOS4_WAKEUP	O		L	L	L	same as NETSV_POWER,NET3.3V_POWER (This port use to control for Network Module standby mode in the future(Low : Deep Standby, High : normal))
133	PE2/RXD12/IRQ7-DS/AN100	AIOS4_STBY_STATUS	I	-	I	I	I	Not used (This port use to detect for Network Module standby status in the future (Low : normal, High : Deep Standby))
134	PE1/TXD12	THERMAL_E	I	SW3VPu	I	L	I	Protection detect signal input pin (for Heat sink)
135	PE0/SCK12	NET3.3V_POWER	O		L	L	L	Ethernet power supply control(Net3.3V)
136	P64	D5V_POWER	O		L	L	H	Digital 5V power supply control pin(3.3V and 1.8V generate from 5V) (When CEC standby mode3,set to Low)
137	P63	CEC_POWER	O		L	L	H	CEC standby power supply control(CEC5V,CEC3.3V,CEC1.8V)(When CEC standby mode3, set to Low)
138	P62	DV_POWER1	O		L	L	L	Digital video power supply (DV5V,DV3.3V) control pin
139	P61	DV_POWER2	O		L	L	L	Digital video power supply (DV1.8V) control pin
140	VSS	VSS	-		-	-	-	Ground pin
141	P60	DIR_DIN	O		L	L	L	DIR (PCM9211) control pin
142	VCC	-	-	-	-	-	-	Power supply pin
143	PD7/IRQ7/AN107	DIR_CE	O		L	L	L	DIR (PCM9211) control pin
144	PG1	DIR_DOUT	I	DA3.3Pu	I	I	I	DIR (PCM9211) control pin
145	PD6/IRQ6/AN106	DIR_CLK	O		L	L	L	DIR (PCM9211) control pin
146	P60	DIR_RST	O		L	L	L	DIR (PCM9211) control pin
147	PD5/IRQ5/AN113	788_2_HAINT	I	CEC3VPu	Z	-	-	HDMI Rx (MN864788) audio interrupt signal det
148	PD4/IRQ4/AN112	SW_SDA	I_O	DV3VPu	O/L	O/L	L	HDMI TMDS switch I2C control pin for TMDS261B
149	P97	DE_RST (SR5014/NC (S950H)/X2600H/NR1710)	O	Pd	Z	-	L	Video decoder (ADV7180) reset control pin
150	PD3/IRQ3/AN111	788_1_HINT	I	CEC3VPu	Z	-	-	HDMI Tx (MN864788) interrupt signal input pin
151	VSS	-	-	-	-	-	-	Ground pin
152	P96	788_1_RST	O	Pd	Z	-	H	HDMI Tx (MN864788) reset control pin (When CEC standby mode3, set to reset)
153	VCC	-	-	-	-	-	-	Power supply pin
154	PD2/IRQ2/AN110	788_2_HINT	I	CEC3VPu	Z	-	-	HDMI Rx (MN864788) interrupt signal input pin
155	P95	788_2_RST	O	Pd	Z	-	H	HDMI Rx (MN864788) reset control pin (When CEC standby mode3, set to reset)
156	PD1/IRQ1/AN109	788_3_HINT	I	CEC3VPu	Z	-	-	HDMI Rx (MN864788) interrupt signal input pin
157	P94	788_3_RST	O	Pd	Z	-	H	HDMI Rx (MN864788) reset control pin (When CEC standby mode3, set to reset)
158	PD0/IRQ0/AN108	A_TO_H/NET (SR5014/NC (S950H)/X2600H/NR1710)	O		L	L	L	Video PLD control pin (Net GUI:High,A to H:Low)
159	P93/AN117	TERMAL_A	I	SW3VPu	I	L	I	Protection detect signal input pin (for power TR)
160	P92/RXD7/AN116	TERMAL_B	I	SW3VPu	I	L	I	Protection detect signal input pin (for power TR)
161	P91/AN115	SW_SCL	I_O	DV3VPu	O/L	O/L	L	HDMI TMDS switch I2C control pin for TMDS261B

## Before Servicing This Unit

## Electrical

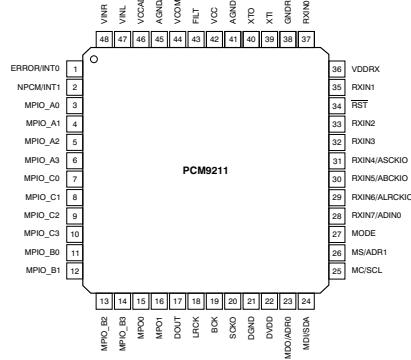
## Mechanical

## Repair Information

## Updating

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
162	VSS	VSS	-		-	-	-	Ground pin
163	P90/TXD7/AN114	TEMP_SENSOR	I	NET3.3VPu	I	L	I	Temperature sensor input pin (for SRM)
164	VCC	VCC	-		-	-	-	Power supply pin
165	P47/IRQ15-DS/AN007	788_3_HAINT	I	CEC3VPu	Z		-	HDMI Rx (MN864788) audio interrupt signal det
166	P46/IRQ14-DS/AN006	CURRENT_DET	I	Pd	I	L	I	Current level monitor pin (A/D converter)
167	P45/IRQ13-DS/AN005	AMPSIGDET	I	Pd	I	L	I	Signal level monitor pin (AD converter)
168	P44/IRQ12-DS/AN004	MODE	I		I	I	I	Region setting pin
169	P43/IRQ11-DS/AN003	KEY3	I	M3VPu	I	I	I	Key control signalinput pin (When standby mode, set to interrupt)
170	P42/IRQ10-DS/AN002	KEY2	I	M3VPu	I	I	I	Key control signalinput pin (When standby mode, set to interrupt)
171	P41/IRQ9-DS/AN001	KEY1	I	M3VPu	I	I	I	Key control signalinput pin (When standby mode, set to interrupt)
172	VREFL0	VREFL0	-		-	-	-	Ground pin
173	P40	ADC_RST	O		I	L	I	A/D convertor(AK5358) reset control pin
174	VREFH0	VREFH0	-		-	-	-	Power supply pin
175	AVCC0	AVCC0	-		-	-	-	Power supply pin
176	P07/IRQ15	COMP_DET (S950147/NC (S950H/ X260H/NR1710)	I	M3VPu	I	I	I	Component video signal detect pin

## PCM9211 (DIGITAL : U1040)



## PIN Functions

PIN				DESCRIPTION
NO.	NAME	I/O	5-V TOLERANT	
1	ERROR/INT0	O	No	DIR Error detection output / Interrupt0 output
2	NPCM/INT1	O	No	DIR Non-PCM detection output / Interrupt1 output
3	MPIO_A0	I/O	Yes	Multipurpose I/O, Group A(1)
4	MPIO_A1	I/O	Yes	Multipurpose I/O, Group A(1)
5	MPIO_A2	I/O	Yes	Multipurpose I/O, Group A(1)
6	MPIO_A3	I/O	Yes	Multipurpose I/O, Group A(1)
7	MPIO_C0	I/O	Yes	Multipurpose I/O, Group C(1)
8	MPIO_C1	I/O	Yes	Multipurpose I/O, Group C(1)
9	MPIO_C2	I/O	Yes	Multipurpose I/O, Group C(1)
10	MPIO_C3	I/O	Yes	Multipurpose I/O, Group C(1)
11	MPIO_B0	I/O	Yes	Multipurpose I/O, Group B(1)
12	MPIO_B1	I/O	Yes	Multipurpose I/O, Group B(1)
13	MPIO_B2	I/O	Yes	Multipurpose I/O, Group B(1)
14	MPIO_B3	I/O	Yes	Multipurpose I/O, Group B(1)
15	MPO0	O	No	Multipurpose output 0
16	MPO1	O	No	Multipurpose output 1
17	DOUT	O	No	Main output port, serial digital audio data output
18	LRCK	O	No	Main output port, LR clock output
19	BCK	O	No	Main output port, Bit clock output
20	SCKO	O	No	Main output port, System clock output
21	DGND	-	-	Ground, for digital
22	DVDD	-	-	Power supply, 3.3 V (typ.), for digital
23	MDO/ADR0	I/O	Yes	Software control I/F, SPI data output / I2C slave address setting0(2)
24	MDI/SDA	I/O	Yes	Software control I/F, SPI data input / I2C data input/output(2)(3)
25	MC/SCL	I	Yes	Software control I/F, SPI clock input / I2C clock input(2)

NO.	NAME	I/O	PIN	DESCRIPTION
			5-V TOLERANT	
26	MS/ADR1	I	Yes	Software control I/F, SPI chip select / I2C slave address setting1(2)
27	MODE	I	No	Control mode setting, (see the Serial Control Mode section, Control Mode Pin Setting)
28	RXIN7/ADINO	I	Yes	Biphase signal, input 7 / AUXIN0, serial audio data input(2)
29	RXIN6/ALRCKIO	I	Yes	Biphase signal, input 6 / AUXIN0, LR clock input(2)
30	RXIN5/ABCKIO	I	Yes	Biphase signal, input 5 / AUXIN0, bit clock input(2)
31	RXIN4/ASCKIO	I	Yes	Biphase signal, input 4 / AUXIN0, system clock input(2)
32	RXIN3	I	Yes	Biphase signal, input 3(2)
33	RXIN2	I	Yes	Biphase signal, input 2(2)
34	RST	I	Yes	Reset Input, active low(2) (4)
35	RXIN1	I	Yes	Biphase signal, input 1, built-in coaxial amplifier
36	VDDRX	-	-	Power supply, 3.3 V (typ.), for RXIN0 and RXIN1.
37	RXIN0	I	Yes	Biphase signal, input 0, built-in coaxial amplifier
38	GNDRX	-	-	Ground, for RXIN
39	XTI	I	No	Oscillation circuit input for crystal resonator or external XTI clock source input(5)
40	XTO	O	No	Oscillation circuit output for crystal resonator
41	AGND	-	-	Ground, for PLL analog
42	VCC	-	-	Power supply, 3.3 V (typ.), for PLL analog
43	FILT	O	No	External PLL loop filter connection terminal; must connect recommended filter
44	VCOM	O	No	ADC common voltage output; must connect external decoupling capacitor
45	AGNDAD	-	-	Ground, for ADC analog
46	VCCAD	-	-	Power supply, 5.0 V (typ.), for ADC analog
47	VINL	I	No	ADC analog voltage input, left channel
48	VINR	I	No	ADC analog voltage input, right channel

(1) Schmitt trigger input

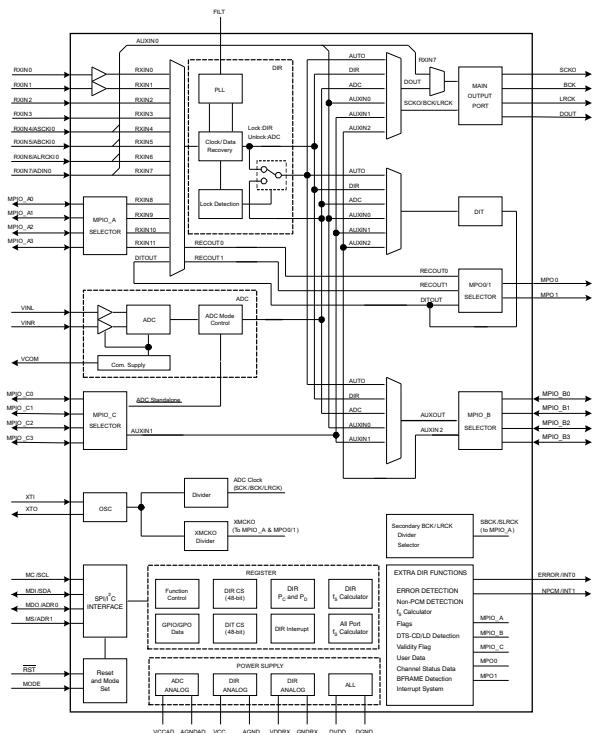
(2) Schmitt trigger input

(3) Open-drain configuration in I2C mode

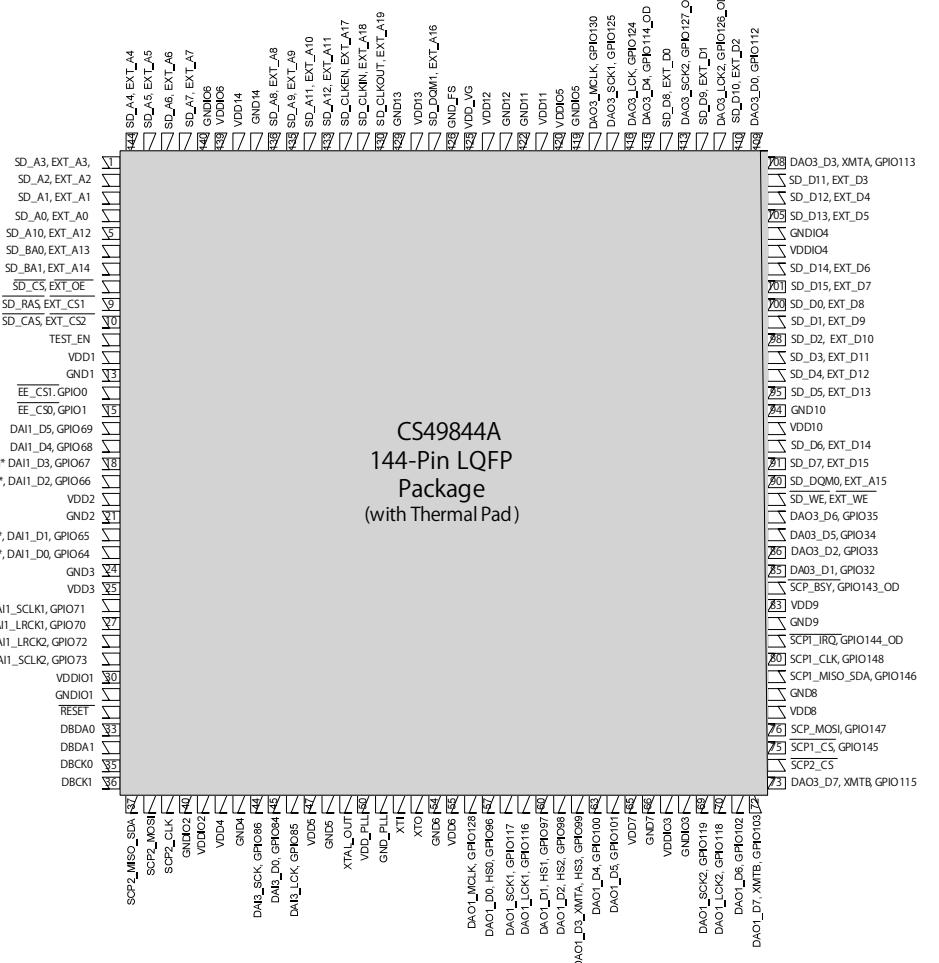
(4) Onboard pull-down resistor (50 k Ω , typical)

(5) CMOS Schmitt trigger input

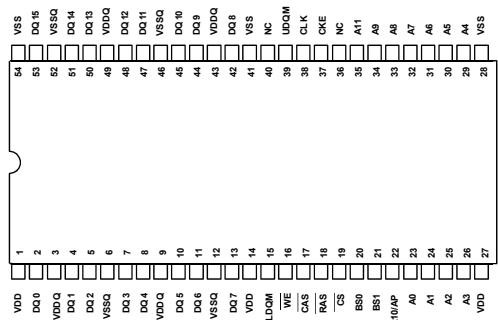
## BLOCK DIAGRAM



## CS49844A (DIGITAL : U1073)



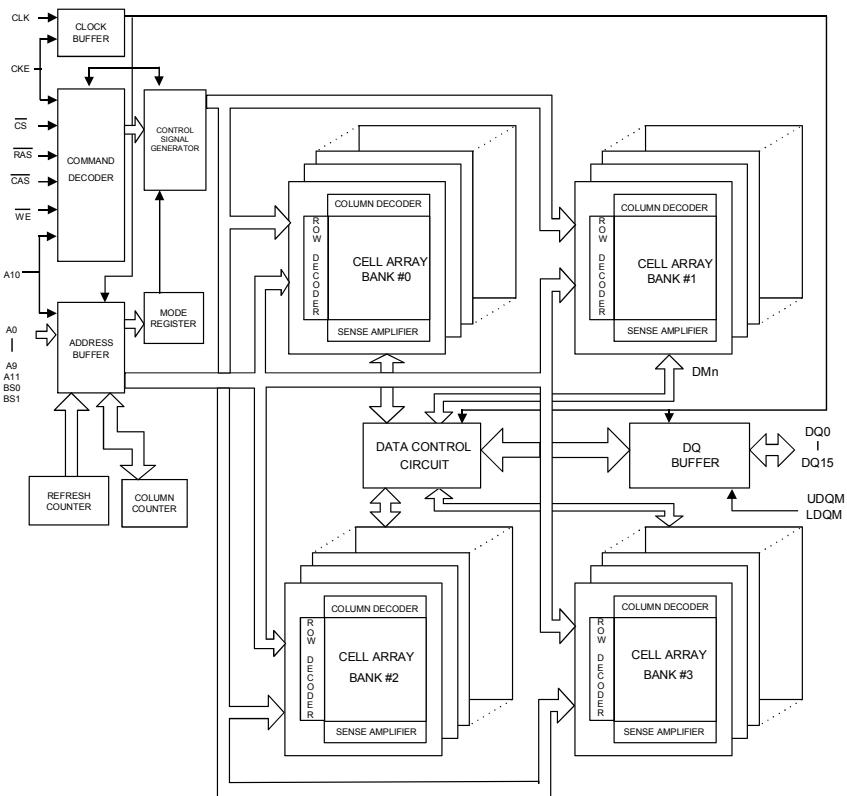
**W9812G6KH-5 (DIGITAL : U1023)**



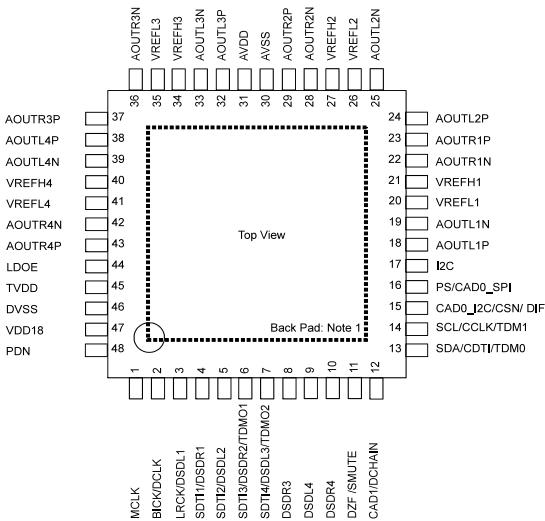
## Pin description

Pin Number	Pin Name	Function	Description
23–26, 22, 29–35	A0 – A11	Address	Multiplexed pins for row and column address. Row address: A0 – A11. Column address: A0 – A8.
20, 21	BS0, BS1	Bank Select	Select bank to activate during row address latch time, or bank to read/write during address latch time.
2, 4, 5, 7, 8, 10, 11, 13, 42, 44, 45, 47, 48, 50, 51, 53	DQ0 – DQ15	Data Input/ Output	Multiplexed pins for data output and input.
19	CS	Chip Select	Disable or enable the command decoder. When command decoder is disabled, new command is ignored and previous operation continues.
18	$\overline{\text{RAS}}$	Row Address Strobe	Command input. When sampled at the rising edge of the clock, $\overline{\text{RAS}}$ , $\overline{\text{CAS}}$ and $\overline{\text{WE}}$ define the operation to be executed.
17	$\overline{\text{CAS}}$	Column Address Strobe	Referred to $\overline{\text{RAS}}$
16	$\overline{\text{WE}}$	Write Enable	Referred to $\overline{\text{RAS}}$
39, 15	LDQM, UDQM	Input/Output Mask	The output buffer is placed at Hi-Z (with latency of 2) when DQM is sampled high in read cycle. In write cycle, sampling DQM high will block the write operation with zero latency.
38	CLK	Clock Inputs	System clock used to sample inputs on the rising edge of clock.
37	CKE	Clock Enable	CKE controls the clock activation and deactivation. When CKE is low, Power Down mode, Suspend mode or Self Refresh mode is entered.
1, 14, 27	VDD	Power (+3.3V)	Power for input buffers and logic circuit inside DRAM.
28, 41, 54	VSS	Ground	Ground for input buffers and logic circuit inside DRAM.
3, 9, 43, 49	VDDQ	Power (+3.3V) for I/O Buffer	Separated power from VDD, used for output buffers to improve noise.
6, 12, 46, 52	VSSQ	Ground for I/O Buffer	Separated ground from Vss, used for output buffers to improve noise.
36, 40	NC	No Connection	No connection.

## Block diagram



AK4458VN (DIGITAL : U1051)



## Pin Function

No.	Pin Name	I/O	Function	PD State
1	MCLK	I	External Master Clock Input Pin	Hi-Z
2	BICK	I	Audio Serial Data Clock Pin in PCM mode	Hi-z
	DCLK	I	DSD Clock Pin in DSD mode	
3	LRCK	I	Input Channel Clock Pin in PCM mode	
	DSDL1	I	Audio Serial Data Input in DSD mode	Hi-Z
4	SDTI1	I	Audio Serial Data Input in PCM mode	
	DSDR1	I	Audio Serial Data Input in DSD mode	Hi-Z
5	SDTI2	I	Audio Serial Data Input in PCM mode	
	DSDL2	I	Audio Serial Data Input in DSD mode	Hi-Z
6	SDTI3	I	Audio Serial Data Input in PCM mode	
	DSDR2	I	Audio Serial Data Input in DSD mode	
	TDM01	O	Audio Serial Data Output in Daisy Chain mode	100k Ω Pull down
7	SDTI4	I	Audio Serial Data Input in PCM mode	
	DSDL3	I	Audio Serial Data Input in DSD mode	
	TDM02	O	Audio Serial Data Output in Daisy Chain mode	100k Ω Pull down
8	DSDR3	I	Audio Serial Data Input in DSD mode	Hi-Z
9	DSDL4	I	Audio Serial Data Input in DSD mode	Hi-Z
10	DSDR4	I	Audio Serial Data Input in DSD mode	Hi-Z
11	DZF	O	Zero Input Detect in I2C Bus or 3-wire serial control mode	
	SMUTE	I	Soft Mute Pin in Parallel control mode. When this pin is changed to "H", soft mute cycle is initiated. When it is returning to "L", the output mute is released.	100k Ω Pull down
12	CAD1	I	Chip Address 0 Pin in I C Bus or 3-wire serial control mode	
	DCHAIN	I	Daisy Chain Mode select pin in Parallel control mode.	Hi-Z
13	SDA	I/O	Control Data Pin in I2C Bus serial control mode	
	CDTI	I	Control Data Input Pin in 3-wire serial control mode	Hi-Z
	TDM0	I	TDM Mode select pin in Parallel control mode.	
14	SCL	I	Control Data Clock Pin in I2C Bus serial control mode	
	CCLK	I	Control Data Clock Pin in 3-wire serial control mode	
	TDM1	I	TDM Mode select pin in Parallel control mode.	Hi-Z

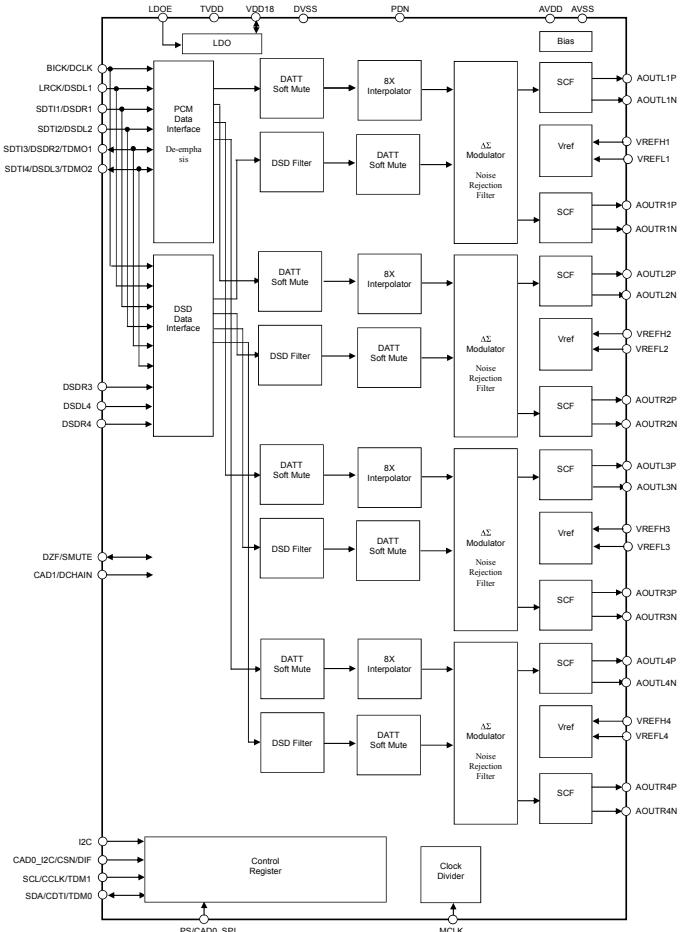
No.	Pin Name	I/O	Function	PD State
15	CADO_I2C	I	Chip Address 0 Pin in I2C Bus serial control mode	Hi-Z
	CSN	I	Chip Select Pin in 3-wire serial control mode	
	DIF	I	Audio Data Format Select in Parallel control mode. "L": 32-bit MSB, "H": 32-bit I2S	
16	PS	I	(I2C pin = "H") Control Mode Select Pin "L": I2C Bus serial control mode, "H": Parallel control mode.	Hi-Z
	CADO_SPI	I	(I2C pin = "L") Chip Address 0 Pin in 3-wire serial control mode	
17	I2C	I	Control Mode Select Pin "L": 3-wire serial control mode "H": I2C Bus serial control mode or Parallel control mode.	Hi-Z
18	AOUTL1P	O	Lch Positive Analog Output 1 Pin	Hi-Z
19	AOUTL1N	O	Lch Negative Analog Output 1 Pin	Hi-Z
20	VREFL1	I	Negative Voltage Reference Input Pin, AVSS	Hi-Z
21	VREFH1	I	Positive Voltage Reference Input Pin, AVDD	Hi-Z
22	AOUTR1N	O	Rch Negative Analog Output 1 Pin	Hi-Z
23	AOUTR1P	O	Rch Positive Analog Output 1 Pin	Hi-Z
24	AOUTL2P	O	Lch Positive Analog Output 2 Pin	Hi-Z
25	AOUTL2N	O	Lch Negative Analog Output 2 Pin	Hi-Z
26	VREFL2	I	Negative Voltage Reference Input Pin, AVSS	Hi-Z
27	VREFH2	I	Positive Voltage Reference Input Pin, AVDD	Hi-Z
28	AOUTR2N	O	Rch Negative Analog Output 2 Pin	Hi-Z
29	AOUTR2P	O	Rch Positive Analog Output 2 Pin	Hi-Z
30	AVSS	-	Analog Ground Pin	—
31	AVDD	-	Analog Power Supply Pin, 3.0V-5.5V	—
32	AOUTL3P	O	Lch Positive Analog Output 3 Pin	Hi-Z
33	AOUTL3N	O	Lch Negative Analog Output 3 Pin	Hi-Z
34	VREFH3	I	Positive Voltage Reference Input Pin, AVDD	Hi-Z
35	VREFL3	I	Negative Voltage Reference Input Pin, AVSS	Hi-Z
36	AOUTR3N	O	Rch Negative Analog Output 3 Pin	Hi-Z
37	AOUTR3P	O	Rch Positive Analog Output 3Pin	Hi-Z
38	AOUTL4P	O	Lch Positive Analog Output 4 Pin	Hi-Z
39	AOUTL4N	O	Lch Negative Analog Output 4 Pin	Hi-Z
40	VREFH4	I	Positive Voltage Reference Input Pin, AVDD	Hi-Z
41	VREFL4	I	Negative Voltage Reference Input Pin, AVSS	Hi-Z
42	AOUTR4N	O	Rch Negative Analog Output 4 Pin	Hi-Z
43	AOUTR4P	O	Rch Positive Analog Output 4 Pin	Hi-Z
44	LDOE	I	Internal LDO Enable Pin. "L": Disable, "H": Enable	Hi-Z
45	TVDD	-	Digital Power Supply Pin, 3.0V-3.6V	—
46	DVSS	-	Digital Ground Pin	—
47	VDD18	O	LDO Output Pin (LDOE pin = "H") This pin should be connected to DVSS with 1.0μF.	(Note 4)
		I	1.8V Power Input Pin (LDOE pin = "L")	
48	PDN	I	Power-Down & Reset Pin When this pin is "L", the AK4458 is powered-down and the control registers are reset to default state	Hi-Z

Note 2. All input pins except internal pull-up/down pins should not be left floating.

Note 3. PCM mode and DSD mode are controlled by registers. Daisy Chain mode is controlled by both registers and pins.

Note 4. This pin outputs DVSS when the LDOE pin = "H" and Hi-z when the LDOE pin = "L".

## FUNCTIONAL BLOCK DIAGRAM



## PCM5100A (DIGITAL : U1052, U1054)

## PCM510X (top view)

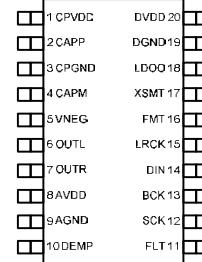


Table 2. TERMINAL FUNCTIONS, PCM510x

TERMINAL NO.	I/O	DESCRIPTION
CPVDD	1	- Charge pump power supply, 3.3V
CAPP	2	O Charge pump flying capacitor terminal for positive rail
CPGND	3	- Charge pump ground
CAPM	4	O Charge pump flying capacitor terminal for negative rail
VNEG	5	O Negative charge pump rail terminal for decoupling, -3.3V
OUTL	6	O Analog output from DAC left channel
OUTR	7	O Analog output from DAC right channel
AVDD	8	- Analog power supply, 3.3V
AGND	9	- Analog ground
DEMP	10	I De-emphasis control for 44.1kHz sampling rate <sup>(1)</sup> : Off (Low) / On (High)
FLT	11	I Filter select : Normal latency (Low) / Low latency (High)
SCK	12	I System clock input
BCK	13	I Audio data bit clock input
DIN	14	I Audio data input
LRCK	15	I Audio data word clock input
FMT	16	I Audio format selection : I <sup>2</sup> S (Low) / Left justified (High)
XSMT	17	I Soft mute control : Soft mute (Low) / soft un-mute (High)
LDOO	18	- Internal logic supply rail terminal for decoupling
DGND	19	- Digital ground
DVDD	20	- Digital power supply, 3.3V

## Block Diagram

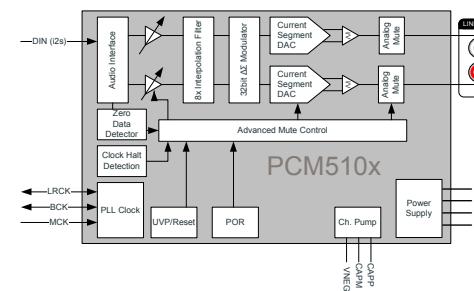
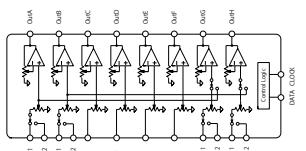
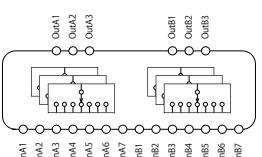


Figure 1. PCM510x Functional Block Diagram

**NJU72343 (INPUT : U4202)**

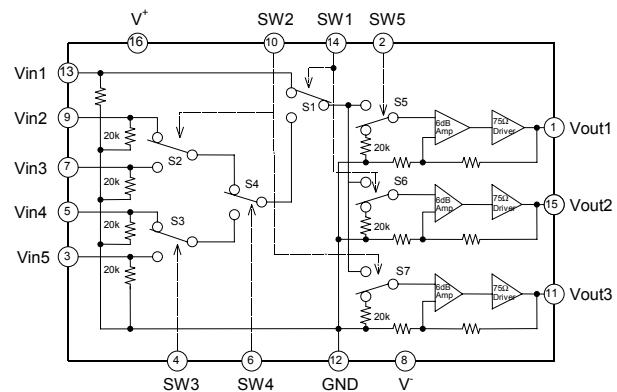
## Pin Function

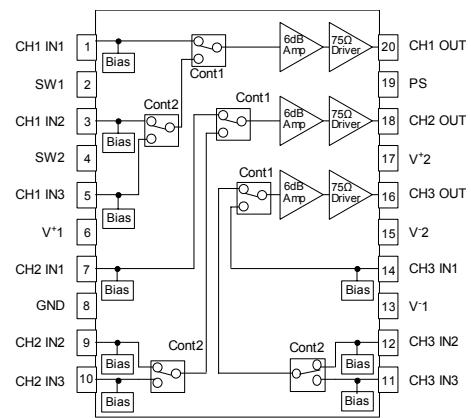
No.	Symbol	Function
1	AREF	Analog reference potential terminal
2	ADR	Address selection terminal
3	InA2	Ach input2
4	InB2	Bch input2
5	InA1	Ach input1
6	InB1	Bch input1
7	InC	Cch input
8	InD	Dch input
9	InE	Ech input
10	InF	Fch input
11	InG1	Gch input1
12	InH1	Hch input1
13	InG2	Cch input2
14	InH2	Dch input2
15	MUTE	External mute control terminal
16	REF	Digital reference potential terminal

**NJU72750A (INPUT : U4201,U4203)**

## Pin Function

No.	Symbol	Function
1	V+	positive power supply terminal
2	InA1	Ach input1
3	InB1	Bch input1
4	InA2	Ach input2
5	InB2	Bch input2
6	InA3	Ach input3
7	InB3	Bch input3
8	InA4	Ach input4
9	InB4	Bch input4
10	InA5	Ach input5
11	InB5	Bch input5
12	InA6	Ach input6
13	InB6	Bch input6
14	InA7	Ach input7
15	InB7	Bch input7
16	REF	Reference potential terminal for BIAS

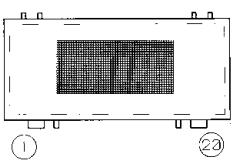
**NJM2595MTE1 (VIDEO : U5001)**

**NJM2586AVC3(VIDEO : U5002)**

SSOP20-C3

## 2. FL DISPLAY

**FLD (GP1261AI) (FRONT : FLT4400)**



#### PIN CONNECTION

CONNECTION	PIN NO.
F-	1
NP	2
NC	3
NC	4
NC	5
NC	6
TEST	7
INT	8
RESET	9
DIO	10
CLK	11
CS	12
OSC	13
NC	14
VH	15
PGND	16
LGND	17
VDD	18
NP	19
F+	20

## NOTE

- 1) F-, F+ ----Filament
  - 2) NP -----No pin
  - 3) DL -----Datum Line
  - 4) VDD -----Logic Voltage Supply pin
  - 5) LGND ---Logic GND pin
  - 6) PGND ---Power GND pin
  - 7) VH -----High Voltage Supply pin
  - 8) OSC ---Pin for self-oscillation
  - 9) CS -----Chip Select Input pin
  - 10) CLK ---Shift Register Clock
  - 11) DA -----Serial Data Input
  - 12) RESET --Reset Input
  - 13) INT -----Int pin
  - 14) TSA, B --Test pin
  - 15) Solder composition is Sn-3Ag-0.5Cu.
  - 16) NC -----No connection

(NC pin should be electrically open on the PC board)

## PATTERN DETAIL

T1	T2	T3
1-1	2-1	3-1    4-1    5-1    6-1    7-1    8-1
1-2	2-2	3-2    4-2    5-2    6-2    7-2    8-2
1-3	2-3	3-3    4-3    5-3    6-3    7-3    8-3
1-4	2-4	3-4    4-4    5-4    6-4    7-4    8-4
1-5	2-5	3-5    4-5    5-5    6-5    7-5    8-5
1-6	2-6	3-6    4-6    5-6    6-6    7-6    8-6
1-7	2-7	3-7    4-7    5-7    6-7    7-7    8-7
1-8	2-8	3-8    4-8    5-8    6-8    7-8    8-8
1-9	2-9	3-9    4-9    5-9    6-9    7-9    8-9
1-10	2-10	3-10    4-10    5-10    6-10    7-10    8-10
1-11	2-11	3-11    4-11    5-11    6-11    7-11    8-11
1-12	2-12	3-12    4-12    5-12    6-12    7-12    8-12
1-13	2-13	3-13    4-13    5-13    6-13    7-13    8-13
1-14	2-14	3-14    4-14    5-14    6-14    7-14    8-14
1-15	2-15	3-15    4-15    5-15    6-15    7-15    8-15
1-16	2-16	3-16    4-16    5-16    6-16    7-16    8-16
1-17	2-17	3-17    4-17    5-17    6-17    7-17    8-17
1-18	2-18	3-18    4-18    5-18    6-18    7-18    8-18
1-19	2-19	3-19    4-19    5-19    6-19    7-19    8-19
1-20	2-20	3-20    4-20    5-20    6-20    7-20    8-20
1-21	2-21	3-21    4-21    5-21    6-21    7-21    8-21
1-22	2-22	3-22    4-22    5-22    6-22    7-22    8-22
1-23	2-23	3-23    4-23    5-23    6-23    7-23    8-23
T1	T2	T3

#### ANODE CONNECTION

## ANODE CONNECTION

### 3. Remote Code Table

Marantz Remote Command Chart

16-May-19

This pink color's cell = New assigned code

### Hex Code (Basic Commands Only)

PROLOGIC	16	37	00	16:37:00	RCSR05003200	—	—	—	—	Solo Pro Logic	
PL IIxZ Movie / PL II Movie	16	64	00	16:64:00	RCSR05006400	—	—	—	—	Solo Pro Logic IIx movie mode	
PL IIxZ Music / PL II Music	16	64	01	16:64:01	RCSR05006401	—	—	—	—	Solo Pro Logic IIx music mode	
PL II Game	16	64	12	16:64:12	RCSR05006412	—	—	—	—	Solo Pro Logic IIx game mode	
PL II	16	64	17	16:64:17	RCSR05006417	—	—	—	—	Solo Pro Logic IIx	
DOLBY HEADPHONE	16	37	60	16:37:60	RCSR05003760	—	—	—	—	Solo Dolby Headphone On/Off	
EVES	16	37	61	16:37:61	RCSR05003761	—	—	—	—	Solo EVES On/Off	
Dolby Atmos On/Off	16	64	25	16:64:25	RCSR05006425	X	X	X	X	Dolby Atmos On/Off	
DTS Mode	16	64	00	16:64:00	RCSR05006400	—	—	—	—	Solo DTS mode/DTS/Neuro/crema/Hd mode	
DTS	16	37	46	16:37:46	RCSR05003746	X	X	X	X	Solo DTS	
DTS ES	16	64	03	16:64:03	RCSR05006403	—	—	—	—	Solo DTS-ES	
DTS Neo Cinema	16	64	05	16:64:05	RCSR05006405	—	—	—	—	Solo Neo Cinema	
DTS Neo Music	16	64	06	16:64:06	RCSR05006406	—	—	—	—	Solo Neo Music	
DTS NEO X On/Off	16	64	22	16:64:22	RCSR05006422	—	—	—	—	Solo Neo X On/Off	
VIRTUAL	16	37	51	16:37:51	RCSR05003751	X	X	X	X	Solo VIRTUAL On	
Decoder Mode	16	01	20	16:01:20	RCSR05000120	—	—	—	—	Solo a decoder mode (Auto-PDM)	
DSD	16	01	63	16:01:63	RCSR05000163	—	—	—	—	Solo a DSD mode mode Select Pure Direct mode	
Source/Pure DIRECT (Toggle)	16	34	24	16:34:24	RCSR05003424	X	X	X	X	Pure Direct mode On/Off	
PURE DIRECT	16	34	01	16:34:01	RCSR05003401	—	—	—	—	Pure Direct mode On/Off	
Direct Mode	16	34	02	16:34:02	RCSR05003402	X	X	X	X	Solo Direct mode	
All Zone Stereo	16	03	16:03:00	RCSR05000300	—	—	—	—	Solo Pure Direct mode		
All Zone Stereo OFF	16	100	00	16:100:00	RCSR05100000	—	—	—	—	Solo Pure Direct mode	
All Zone Stereo ON	16	100	01	16:100:01	RCSR05100001	—	—	—	—	All Zone Stereo On	
All Zone Stereo OFF	16	100	02	16:100:02	RCSR05100002	—	—	—	—	All Zone Stereo Off	
Sound Effect	Cinema EQ (HT-EQ)(Toggle)	16	64	11	16:64:11	RCSR05006411	X	Cinema EQ)	Cinema EQ)	Cinema EQ)	Cinema EQ)(Toggle)
	Lowpass Management On/Off(Toggle)	16	64	19	16:64:19	RCSR05006419	X	X	X	X	Lowpass Management On/Off
M-DAX	16	22	06	16:22:06	RCSR05002206	—	—	—	—	M-DAX	
M-DAX OFF	16	22	06	16:22:06	RCSR05002206	X	X	X	X	M-DAX Mode	
M-DAX HIGH	16	22	07	16:22:07	RCSR05002207	X	X	X	X	M-DAX Mode: High	
M-DAX LOW	16	22	08	16:22:08	RCSR05002208	X	X	X	X	M-DAX Mode: Low	
M-DAX MED	16	22	09	16:22:09	RCSR05002209	X	X	X	X	M-DAX Mode: Med	
Bass Sync Up	16	22	12	16:22:12	RCSR05002212	—	—	—	—	Bass Sync Up	
Bass Sync Down	16	22	22	16:22:22	RCSR05002222	—	—	—	—	Bass Sync Down	
Tone/T Balance/Tilt	TONE CONTROL ON/Off (Toggle)	16	22	01	16:22:01	RCSR05002201	X	X	X	X	Tone On/Off Toggle
	TONE CONTROL OFF	16	22	10	16:22:10	RCSR05002210	—	—	—	—	Tone Control Off
TONE CONTROL ON	16	22	11	16:22:11	RCSR05002211	—	—	—	—	Tone Control On	
BASS -	16	22	—	16:22:	RCSR050022—	X	X	X	X	Tone Control Bass Up	
BASS +	16	23	—	16:23:	RCSR050023—	X	X	X	X	Tone Control Bass Down	
TREBLE +	16	24	—	16:24:	RCSR050024—	X	X	X	X	Tone Control Treble Up	
TREBLE -	16	25	—	16:25:	RCSR050025—	X	X	X	X	Tone Control Treble Down	
TEST TONE	16	37	21	16:37:21	RCSR05003721	X	X	X	X	Jump to Test tone menu	
Volume Reset	16	37	31	16:37:31	RCSR05003731	—	—	—	—	Reset the main volume by holding this button over 3sec	
CH SELECT	16	37	33	16:37:33	RCSR05003733	X	X	X	X	Channel select (Subwoofer Option)	
Subwoofer: Subwoofer (Subwoofer Option)	16	37	33	16:37:33	RCSR05003733	X	X	X	X	Subwoofer select (Subwoofer Option)	
CH. LEVEL +	16	37	34	16:37:34	RCSR05003734	—	—	—	—	Channel Level control up	
CH. LEVEL -	16	37	35	16:37:35	RCSR05003735	—	—	—	—	Channel Level control down	
BASS LEFT	16	25	—	16:25:	RCSR050025—	X	X	X	X	Bass Control (Right Up)	
BASS LEFT	16	26	—	16:26:	RCSR050026—	X	X	X	X	Bass Control (Right Down)	
BALANCE LEFT	16	27	—	16:27:	RCSR050027—	X	X	X	X	Balance Control (Left Up)	
BALANCE LEFT	16	28	—	16:28:	RCSR050028—	X	X	X	X	Balance Control (Left Down)	
Front L (A-TRIM) + (Up)	16	26	01	16:26:01	RCSR05002601	X	X	X	X	Front L (A-TRIM) volume up	
Front L (A-TRIM) - (Down)	16	26	02	16:26:02	RCSR05002602	X	X	X	X	Front L (A-TRIM) volume down	
Front R (A-TRIM) + (Up)	16	26	03	16:26:03	RCSR05002603	X	X	X	X	Front R (A-TRIM) volume up	
Front R (A-TRIM) - (Down)	16	26	04	16:26:04	RCSR05002604	X	X	X	X	Front R (A-TRIM) volume down	
Surround L + (Up)	16	26	05	16:26:05	RCSR05002605	X	X	X	X	Surround L channel volume up	
Surround L - (Down)	16	26	06	16:26:06	RCSR05002606	X	X	X	X	Surround L channel volume down	
Surround R + (Up)	16	26	07	16:26:07	RCSR05002607	X	X	X	X	Surround R channel volume up	
Surround R - (Down)	16	26	08	16:26:08	RCSR05002608	X	X	X	X	Surround R channel volume down	
Surround Back L + (Up)	16	26	09	16:26:09	RCSR05002609	X	X	X	X	Surround Back L channel volume up	
Surround Back L - (Down)	16	26	10	16:26:10	RCSR05002610	X	X	X	X	Surround Back L channel volume down	
Surround Back R + (Up)	16	26	11	16:26:11	RCSR05002611	X	X	X	X	Surround Back R channel volume up	
Surround Back R - (Down)	16	26	12	16:26:12	RCSR05002612	X	X	X	X	Surround Back R channel volume down	
Front Wide L (A-TRIM) + (Up)	16	26	13	16:26:13	RCSR05002613	—	—	—	—	Front Wide L channel volume up	
Front Wide L (A-TRIM) - (Down)	16	26	14	16:26:14	RCSR05002614	—	—	—	—	Front Wide L channel volume down	
Front Wide R (A-TRIM) + (Up)	16	26	15	16:26:15	RCSR05002615	—	—	—	—	Front Wide R channel volume up	
Front Wide R (A-TRIM) - (Down)	16	26	16	16:26:16	RCSR05002616	—	—	—	—	Front Wide R channel volume down	
Front Height L + (Up)	16	26	17	16:26:17	RCSR05002617	X	X	X	X	Front Height L channel volume up	
Front Height L - (Down)	16	26	18	16:26:18	RCSR05002618	X	X	X	X	Front Height L channel volume down	
Front Height R + (Up)	16	25	19	16:25:19	RCSR05002519	X	X	X	X	Front Height R channel volume up	
Front Height R - (Down)	16	26	20	16:26:20	RCSR05002620	X	X	X	X	Front Height R channel volume down	
Center + (Up)	16	37	11	16:37:11	RCSR05003711	X	X	X	X	Center Channel volume up	
Center - (Down)	16	37	12	16:37:12	RCSR05003712	X	X	X	X	Center Channel volume down	
Surround + (Up)	16	37	13	16:37:13	RCSR05003713	X	X	X	X	Surround Channel volume up	
Surround - (Down)	16	37	14	16:37:14	RCSR05003714	X	X	X	X	Surround Channel volume down	
Subwoofer - (Down)	16	37	50	16:37:50	RCSR05003750	X	X	X	X	Subwoofer Channel volume down	
Subwoofer 2 + (Up)	16	64	23	16:64:23	RCSR05006423	—	—	—	—	Subwoofer 2 channel volume up	
Subwoofer 2 - (Down)	16	64	24	16:64:24	RCSR05006424	—	—	—	—	Subwoofer 2 channel volume down	
Top Front L + (Up)	16	26	21	16:26:21	RCSR05002621	X	X	X	X	Top Front L channel volume up	
Top Front L - (Down)	16	26	22	16:26:22	RCSR05002622	X	X	X	X	Top Front L channel volume down	
Top Front R + (Up)	16	26	23	16:26:23	RCSR05002623	X	X	X	X	Top Front R channel volume up	
Top Front R - (Down)	16	26	24	16:26:24	RCSR05002624	X	X	X	X	Top Front R channel volume down	
Top Middle L + (Up)	16	26	25	16:26:25	RCSR05002625	X	X	X	X	Top Middle L channel volume up	
Top Middle L - (Down)	16	26	26	16:26:26	RCSR05002626	X	X	X	X	Top Middle L channel volume down	
Top Middle R + (Up)	16	26	27	16:26:27	RCSR05002627	X	X	X	X	Top Middle R channel volume up	
Top Middle R - (Down)	16	26	28	16:26:28	RCSR05002628	X	X	X	X	Top Middle R channel volume down	
Top Rear L + (Up)	16	26	29	16:26:29	RCSR05002629	X	X	X	X	Top Rear L channel volume up	
Top Rear L - (Down)	16	26	30	16:26:30	RCSR05002630	X	X	X	X	Top Rear L channel volume down	
Top Rear R + (Up)	16	26	31	16:26:31	RCSR05002631	X	X	X	X	Top Rear R channel volume up	
Top Rear R - (Down)	16	26	32	16:26:32	RCSR05002632	X	X	X	X	Top Rear R channel volume down	
Rear Height L + (Up)	16	26	33	16:26:33	RCSR05002633	X	X	X	X	Rear Height L channel volume up	
Rear Height L - (Down)	16	26	34	16:26:34	RCSR05002634	X	X	X	X	Rear Height L channel volume down	
Rear Height R + (Up)	16	26	35	16:26:35	RCSR05002635	X	X	X	X	Rear Height R channel volume up	
Rear Height R - (Down)	16	26	36	16:26:36	RCSR05002636	X	X	X	X	Rear Height R channel volume down	
Front Dolly L + (Up)	16	26	37	16:26:37	RCSR05002637	X	X	X	X	Front Dolly L channel volume up	
Front Dolly L - (Down)	16	26	38	16:26:38	RCSR05002638	X	X	X	X	Front Dolly L channel volume down	
Front Dolly R + (Up)	16	26	39	16:26:39	RCSR05002639	X	X	X	X	Front Dolly R channel volume up	
Front Dolly R - (Down)	16	26	40	16:26:40	RCSR05002640	X	X	X	X	Front Dolly R channel volume down	
Surround Dolly L + (Up)	16	26	41	16:26:41	RCSR05002641	X	X	X	X	Surround Dolly L channel volume up	
Surround Dolly L - (Down)	16	26	42	16:26:42	RCSR05002642	X	X	X	X	Surround Dolly L channel volume down	
Surround Dolly R + (Up)	16	26	43	16:26:43	RCSR05002643	X	X	X	X	Surround Dolly R channel volume up	
Surround Dolly R - (Down)	16	26	44	16:26:44	RCSR05002644	X	X	X	X	Surround Dolly R channel volume down	
Back Dolly L + (Up)	16	26	45	16:26:45	RCSR05002645	X	X	X	X	Back Dolly L channel volume up	
Back Dolly L - (Down)	16	26	46	16:26:46	RCSR05002646	X	X	X	X	Back Dolly L channel volume down	
Back Dolly R + (Up)	16	26	47	16:26:47	RCSR05002647	X	X	X	X	Back Dolly R channel volume up	
Back Dolly R - (Down)	16	26	48	16:26:48	RCSR05002648	X	X	X	X	Back Dolly R channel volume down	
Surround Height L + (Up)	16	26	49	16:26:49	RCSR05002649	—	—	—	—	Surround Height L channel volume up	
Surround Height R - (Down)	16	26	50	16:26:50	RCSR05002650	—	—	—	—	Surround Height L channel volume down	
Surround Height R + (Up)	16	26	51	16:26:51	RCSR05002651	—	—	—	—	Surround Height R channel volume up	
Surround Height R - (Down)	16	26	52	16:26:52	RCSR05002652	—	—	—	—	Surround Height R channel volume down	
Top Surround + (Up)	16	26	53	16:26:53	RCSR05002653	—	—	—	—	Top Surround channel volume up	
Top Surround - (Down)	16	26	54	16:26:54	RCSR05002654	—	—	—	—	Top Surround channel volume down	
Center Height + (Up)	16	26	55	16:26:55	RCSR05002655	—	—	—	—	Center Height channel volume up	
Center Height - (Down)	16	26	56	16:26:56	RCSR05002656	—	—	—	—	Center Height channel volume down	
Audyssey MuIEC OFF	16	28	00	16:28:00	RCSR05002800	—	—	—	—	Select Audyssey MuIEC mode Off	
Audyssey MuIEC MultiD (Toggle)	16	28	02	16:28:02	RCSR05002802	X	X	X	X	Select Audyssey MuIEC mode toggle or EQ On/Off	
Audyssey Dynamic EQ Volume	16	28	40	16:28:40	RCSR05002840	X	X	X	X	Select Audyssey Dynamic EQ or Volume mode	
Audyssey Dynamic EQ Mode	16	28	41	16:28:41	RCSR05002841	X	X	X	X	Select Audyssey Dynamic EQ or Mode	
Audyssey Dynamic Mode Off	16	28	42	16:28:42	RCSR05002842	X	X	X	X	Select Audyssey Dynamic EQ turn off	
Audyssey Dynamic EQ On	16	28	43	16:28:43	RCSR05002843	X	X	X	X	Select Audyssey Dynamic EQ turn on	
Audyssey Dynamic Volume Modes	16	28	30	16:28:30	RCSR05002830	X	X	X	X	Select Audyssey Dynamic Volume mode	
Audyssey Dynamic Volume Mode L	16	28	31	16:28:31	RCSR05002831	X	X	X	X	Select Audyssey Dynamic Volume mode Off	
Audyssey Dynamic Volume Mode M	16	28	32	16:28:32	RCSR05002832	X	X	X	X	Select Audyssey Dynamic Volume mode Medium	
Audyssey Dynamic Volume Mode S	16	28	33	16:28:33	RCSR05002833	X	X	X	X	Select Audyssey Dynamic Volume mode Soft	

## Before Servicing This Unit

## Electrical

## Mechanical

## Repair Information

## Updating

Audyssey Dynamic Volume Mode H	16	28	34	16 28 34	RCRCS1602834	X	X	X	X	X	—	Select Audyssey Dynamic Volume mode: Heavy
Audyssey Dynamic EQ Offset 0dB	16	28	51	16 28 51	RCRCS1602851	X	X	X	X	X	—	Turn Off Audyssey Dynamic EQ Offset: 0dB
Audyssey Dynamic EQ Offset +5dB	16	28	51	16 28 51	RCRCS1602852	X	X	X	X	X	—	Turn On Audyssey Dynamic EQ Offset: +5dB
Audyssey Dynamic EQ Offset -10dB	16	28	51	16 28 51	RCRCS1602853	X	X	X	X	X	—	Select Audyssey Dynamic EQ Offset mode: -10dB
Audyssey Dynamic EQ Offset -15dB	16	28	54	16 28 54	RCRCS1602854	X	X	X	X	X	—	Select Audyssey Dynamic EQ Offset mode: -15dB
Audyssey LFC ON/OFF	16	64	64	16 64 64	RCRCS160440	X	—	—	—	—	—	Audyssey LFC: Turn off
Audyssey LFC ON	16	64	64	16 64 64	RCRCS160441	X	—	—	—	—	—	Audyssey LFC: Turn on
Audyssey LFC OFF	16	64	64	16 64 64	RCRCS160442	X	—	—	—	—	—	Audyssey LFC: Turn off
Audyssey DSX ON/OFF	16	64	64	16 64 64	RCRCS160450	—	—	—	—	—	—	Select Audyssey DSX (Toggle)
Audyssey DSX OFF	16	64	64	16 64 64	RCRCS160451	—	—	—	—	—	—	Select Audyssey DSX off
Audyssey DSX On/Height	16	64	64	16 64 64	RCRCS160452	—	—	—	—	—	—	Select Audyssey DSX On/Height
Audyssey DSX On/Width	16	64	64	16 64 64	RCRCS160453	—	—	—	—	—	—	Select Audyssey DSX On/Width
Audyssey DSX On/Depth	16	64	64	16 64 64	RCRCS160454	—	—	—	—	—	—	Select Audyssey DSX On/Depth
Graphic EQ On/Off	16	28	18	16 28 18	RCRCS1602810	X	X	X	X	X	—	Graphic EQ turn DevOff
Graphic EQ On	16	28	12	16 28 12	RCRCS1602812	X	X	X	X	X	—	Graphic EQ turn On
Graphic EQ Off	16	28	12	16 28 12	RCRCS1602811	X	X	X	X	X	—	Graphic EQ turn Off
ECO	16	28	12	16 28 12	RCRCS1602821	X	X	X	X	X	—	Eco-Mode turn On
ECO Mode On	16	58	58	16 58 58	RCRCS160512	X	X	X	X	X	—	Eco Mode set: On
ECO Mode Off	16	58	58	16 58 58	RCRCS160512	X	X	X	X	X	—	Eco Mode set: Off
ECO Mode AUTO	16	58	58	16 58 58	RCRCS160513	X	X	X	X	X	—	Eco Mode set: Auto
Sleep	16	38	38	16 38 38	RCRCS1602800	X	X	X	X	X	—	Sleep Timer turn On
SLEEP OFF	16	38	38	16 38 38	RCRCS1602800	X	X	X	X	X	—	Sleep Timer turn Off
Trigger DCT Trigger-1 ON	16	125	01	16 125 01	RCRCS1612501	X	X	X	X	X	—	DCT Trigger-1 remote output On
DCT Trigger-1 OFF	16	125	02	16 125 02	RCRCS1612502	X	X	X	X	X	—	DCT Trigger-1 remote output Off
DCT Trigger-2 ON	16	125	03	16 125 03	RCRCS1612503	—	—	—	—	—	—	DCT Trigger-2 remote output On
DCT Trigger-2 OFF	16	125	04	16 125 04	RCRCS1612504	—	—	—	—	—	—	DCT Trigger-2 remote output Off
DCT Trigger-3 ON	16	125	05	16 125 05	RCRCS1612505	—	—	—	—	—	—	DCT Trigger-3 remote output On
DCT Trigger-3 OFF	16	125	06	16 125 06	RCRCS1612506	—	—	—	—	—	—	DCT Trigger-3 remote output Off
DCT Trigger-4 ON	16	125	07	16 125 07	RCRCS1612507	—	—	—	—	—	—	DCT Trigger-4 remote output On
DCT Trigger-4 OFF	16	125	08	16 125 08	RCRCS1612508	—	—	—	—	—	—	DCT Trigger-4 remote output Off
Tuner FM	17	47	01	17 47 01	RCRCS1704701	X	X	X	X	X	—	Select FM and DAB (Toggle FM and DAB (Toggle))
FM	17	45	—	17 45	RCRCS17045	X	X	X	X	X	—	Select FM for Tuner-1
AM	17	46	—	17 46	RCRCS17046	X	X	X	X	X	—	Select AM for Tuner-1
DAB	17	44	01	17 44 01	RCRCS1744701	—	—	—	—	—	—	Select DAB
V.AM/AM	17	47	02	17 47 02	RCRCS1747002	X	X	X	X	X	—	Select V.AM or AM for Tuner-1
MEMO (MEMORY)	17	41	41	17 41	RCRCS17041	X	X	X	X	X	—	Memory for Tuner-1 (D-Radio/Tuner)
MEMORY	24	41	58	24 41 58	RCRCS2404150	X	X	X	X	X	—	Preset memory mode/Store
FREQ/Up	17	30	30	17 30	RCRCS17030	X	X	X	X	X	—	Frequency/Scan Up for Tuner-1
FREQ/Down	17	31	31	17 31	RCRCS17031	X	X	X	X	X	—	Frequency/Scan Down for Tuner-1
PRESET Up	17	32	32	17 32	RCRCS17032	X	X	X	X	X	—	Preset/Scan Up for Tuner-1
PRESET Down	17	33	33	17 33	RCRCS17033	X	X	X	X	X	—	Preset/Scan Down for Tuner-1
0(PRESET 0)	17	00	—	17 00	RCRCS17000	X	X	X	X	X	—	Set Key 0 / Preset No. or Frequency for Tuner-1
1(PRESET 1)	17	01	—	17 01	RCRCS17001	X	X	X	X	X	—	Set Key 1 / Preset No. or Frequency for Tuner-1
2(PRESET 2)	17	02	—	17 02	RCRCS17002	X	X	X	X	X	—	Set Key 2 / Preset No. or Frequency for Tuner-1
3(PRESET 3)	17	03	—	17 03	RCRCS17003	X	X	X	X	X	—	Set Key 3 / Preset No. or Frequency for Tuner-1
4(PRESET 4)	17	04	—	17 04	RCRCS17004	X	X	X	X	X	—	Set Key 4 / Preset No. or Frequency for Tuner-1
5(PRESET 5)	17	05	—	17 05	RCRCS17005	X	X	X	X	X	—	Set Key 5 / Preset No. or Frequency for Tuner-1
6(PRESET 6)	17	06	—	17 06	RCRCS17006	X	X	X	X	X	—	Set Key 6 / Preset No. or Frequency for Tuner-1
7(PRESET 7)	17	07	—	17 07	RCRCS17007	X	X	X	X	X	—	Set Key 7 / Preset No. or Frequency for Tuner-1
8(PRESET 8)	17	08	—	17 08	RCRCS17008	X	X	X	X	X	—	Set Key 8 / Preset No. or Frequency for Tuner-1
9(PRESET 9)	17	09	—	17 09	RCRCS17009	X	X	X	X	X	—	Set Key 9 / Preset No. or Frequency for Tuner-1
Cursor Up	17	89	89	17 89	RCRCS17089	X	X	X	X	X	—	Cursor up
Cursor Down	17	91	91	17 91	RCRCS17091	X	X	X	X	X	—	Cursor down
Cursor Left	17	85	85	17 85	RCRCS17085	X	X	X	X	X	—	Cursor left
Cursor Right	17	86	86	17 86	RCRCS17086	X	X	X	X	X	—	Cursor right
Cursor Enter	17	87	87	17 87	RCRCS17087	X	X	X	X	X	—	Cursor function
Page Previous	24	33	33	24 33	RCRCS2403320	X	X	X	X	X	—	Back to previous page
Page Next	24	33	33	24 33	RCRCS2403320	X	X	X	X	X	—	Back to next page
Play/Pause	24	53	53	24 53	RCRCS2405300	X	X	X	X	X	—	Play/Pause/Toggle
Play	24	53	53	24 53	RCRCS2405301	X	X	X	X	X	—	Start the playback
Pause	24	54	54	24 54	RCRCS2405401	X	X	X	X	X	—	Pause the playback
Stop	24	54	54	24 54	RCRCS2405401	X	X	X	X	X	—	Stop the playback
Next	24	32	32	24 32	RCRCS2403201	X	X	X	X	X	—	Go to next song
Previous	24	33	33	24 33	RCRCS2403301	X	X	X	X	X	—	Back to previous song
REW(Toggle)	24	50	51	24 50 51	RCRCS2405001	—	—	—	—	—	—	Change REW mode (Toggle)
F(Toggle)	24	50	51	24 50 51	RCRCS2405001	—	—	—	—	—	—	Change F mode (Toggle)
Random(Toggle)	24	28	28	24 28	RCRCS2402801	—	—	—	—	—	—	Change Random mode (Song->Album->Off)
Random Off	24	28	28	24 28	RCRCS2402802	—	—	—	—	—	—	Random mode off
Random On/Songs	24	28	28	24 28	RCRCS2402803	—	—	—	—	—	—	Song Random mode on
Repeat All	24	29	29	24 29	RCRCS2402901	—	—	—	—	—	—	Change Repeat mode
Repeat Off	24	29	29	24 29	RCRCS2402902	—	—	—	—	—	—	Change Repeat off
Repeat One	24	29	29	24 29	RCRCS2402903	—	—	—	—	—	—	One track repeat mode on
Repeat All	24	29	29	24 29	RCRCS2402904	—	—	—	—	—	—	All repeat mode on
Network	27	28	28	27 28	RCRCS2702801	—	—	—	—	—	—	Network/DMP: Random (toggle)
Network/DMP: Cursor Up	27	28	28	27 28	RCRCS2702801	—	—	—	—	—	—	Cursor Up in USB mode
Network/DMP: Cursor Down	27	28	28	27 28	RCRCS2702801	—	—	—	—	—	—	Cursor Down in USB mode
Network/DMP: Cursor Left	27	28	28	27 28	RCRCS2702801	—	—	—	—	—	—	Cursor Left in USB mode
Network/DMP: Cursor Right	27	28	28	27 28	RCRCS2702801	—	—	—	—	—	—	Cursor Right in USB mode
Network/DMP: Repeat	27	29	29	27 29	RCRCS2702901	—	—	—	—	—	—	Cursor Right in USB mode
Network/DMP: Repeat Off	27	29	29	27 29	RCRCS2702902	—	—	—	—	—	—	Cursor Right in USB mode
Network/DMP: Stop	27	29	29	27 29	RCRCS2702903	—	—	—	—	—	—	Cursor Right in USB mode
Network/DMP: Stop All	27	29	29	27 29	RCRCS2702904	—	—	—	—	—	—	Cursor Right in USB mode
Network/DMP: Next	27	32	32	27 32	RCRCS2703201	X	X	X	X	X	—	Cursor Right in USB mode
Network/DMP: Previous	27	33	33	27 33	RCRCS2703301	X	X	X	X	X	—	Cursor Right in USB mode
Network/DMP: Pause	27	48	48	27 48	RCRCS2704801	X	X	X	X	X	—	Cursor Right in USB mode
Network/DMP: Stop	27	49	49	27 49	RCRCS2704901	X	X	X	X	X	—	Cursor Right in USB mode
Network/DMP: Cursor Up	27	80	80	27 80	RCRCS2708004	X	X	X	X	X	—	Cursor Up in USB mode
Network/DMP: Cursor Down	27	81	81	27 81	RCRCS2708104	X	X	X	X	X	—	Cursor Down in USB mode
Network/DMP: Cursor Left	27	82	82	27 82	RCRCS2708201	X	X	X	X	X	—	Cursor Left in USB mode
Network/DMP: Cursor Right	27	87	87	27 87	RCRCS2708701	X	X	X	X	X	—	Cursor Right in USB mode
Network/DMP: Enter	27	88	88	27 88	RCRCS2708801	X	X	X	X	X	—	Cursor Right in USB mode
Network/DMP: Page Next	27	89	89	27 89	RCRCS2708901	X	X	X	X	X	—	Cursor Right in USB mode
Network/DMP: Page Previous	27	91	91	27 91	RCRCS2709104	X	X	X	X	X	—	Cursor Right in USB mode
Network/DMP: Stop	27	92	92	27 92	RCRCS2709201	X	X	X	X	X	—	Cursor Right in USB mode
Power	16	29	09	16 29 09	RCRCS1602909	X	X	X	X	X	—	Power On/Off (Toggle)
POWER ON	16	29	03	16 29 03	RCRCS1602903	X	X	X	X	X	—	Power On
POWER OFF	16	29	04	16 29 04	RCRCS1602904	X	X	X	X	X	—	Power Off
Volume Control	16	29	01	16 29 01	RCRCS1602901	X	X	X	X	X	—	Volume Up
VOL +	16	29	02	16 29 02	RCRCS1602902	X	X	X	X	X	—	Volume Up
Direct VOLUME	16	112	06-63	16 112 [06-63]	RCRCS1611206-63	X	X	X	X	X	—	Discrete Multi-room A Volume level select
MUTE (Toggle)	16	29	08	16 29 08	RCRCS1602908	X	X	X	X	X	—	Mute/Unmute Toggle
INPUT NEXT	16	30	04	16 30 04	RCRCS160300							

TV/AUDIO(TV)	16	93	15	16 93 15	RCRCS16090315	—	—	—	—	—	Turn On and select TV
DVD	16	93	16	16 93 16	RCRCS16090316	—	—	—	—	—	Turn On and select DVD
MULTIPLAYER(VCR)	16	93	17	16 93 17	RCRCS16090317	—	—	—	—	—	Turn On and select VCR/V
VCR2	16	93	18	16 93 18	RCRCS16090318	—	—	—	—	—	Turn On and select VCR2
CBLSAT(SAT)	16	93	19	16 93 19	RCRCS16090319	—	—	—	—	—	Turn On and select DISH(SAT)
AUX1(AUX)	16	93	20	16 93 20	RCRCS16090320	—	—	—	—	—	Turn On and select Front Aux1 input
AUX2(AUX)	16	93	21	16 93 21	RCRCS16090321	—	—	—	—	—	Turn On and select Rear channel of multi channel direct input
AUX3(Auxiliary Source)	16	93	22	16 93 22	RCRCS16090322	—	—	—	—	—	Turn On and select AUX3
AUX4(Auxiliary Source)	16	93	23	16 93 23	RCRCS16090323	—	—	—	—	—	Turn On and select AUX4
AUX5(Auxiliary Source)	16	93	24	16 93 24	RCRCS16090324	—	—	—	—	—	Turn On and select AUX5
AUX6(Auxiliary Source)	16	93	25	16 93 25	RCRCS16090325	—	—	—	—	—	Turn On and select AUX6
AUX7(Auxiliary Source)	16	93	26	16 93 26	RCRCS16090326	—	—	—	—	—	Turn On and select AUX7
AUX8(Auxiliary Source)	16	93	27	16 93 27	RCRCS16090327	—	—	—	—	—	Turn On and select AUX8
AUX9(Auxiliary Source)	16	93	28	16 93 28	RCRCS16090328	—	—	—	—	—	Turn On and select AUX9
HEAD/Music(NETWORK)	16	93	29	16 93 29	RCRCS16090329	—	—	—	—	—	Turn On and select Digital Media Player
TUNER/TUNER1(FM)	16	93	30	16 93 30	RCRCS16090330	—	—	—	—	—	Turn On and select Tuner1 or Change BAND (> FM > AM < AM)
TUNER2	16	93	31	16 93 31	RCRCS16090331	—	—	—	—	—	Turn On and select Tuner1 or Change BAND (> FM > AM < AM)
Internal Radio	27	95	20	27 95 20	RCRCS27090520	—	—	—	—	—	Turn On and select Internal Radio
Media Server	27	95	21	27 95 21	RCRCS27090521	—	—	—	—	—	Turn On and select Media Server
SiriusXM(+)/-	27	95	22	27 95 22	RCRCS27090522	—	—	—	—	—	Turn On and select Pandora
Smart Select1	16	92	21	16 92 21	RCRCS16090221	—	—	—	—	—	Zone 3 Smart Select 1
Smart Select2	16	92	22	16 92 22	RCRCS16090222	—	—	—	—	—	Zone 3 Smart Select 2
Smart Select3	16	92	23	16 92 23	RCRCS16090223	—	—	—	—	—	Zone 3 Smart Select 3
Smart Select4	16	92	24	16 92 24	RCRCS16090224	—	—	—	—	—	Zone 3 Smart Select 4
Smart Select5	16	92	25	16 92 25	RCRCS16090225	—	—	—	—	—	Zone 3 Smart Select 5
Control											
Cursor Up	16	91	10	16 91 10	RCRCS16090110	—	—	—	—	—	Zone 3 Cursor Up
Cursor Down	16	91	11	16 91 11	RCRCS16090111	—	—	—	—	—	Zone 3 Cursor Down
Cursor Left	16	91	12	16 91 12	RCRCS16090112	—	—	—	—	—	Zone 3 Cursor Left
Cursor Right	16	91	13	16 91 13	RCRCS16090113	—	—	—	—	—	Zone 3 Cursor Right
Enter	16	91	14	16 91 14	RCRCS16090114	—	—	—	—	—	Zone 3 Enter
Return	16	91	15	16 91 15	RCRCS16090115	—	—	—	—	—	Zone 3 Return
Memory	16	91	16	16 91 16	RCRCS16090116	—	—	—	—	—	Zone 3 Memory
Sleep	16	93	10	16 93 10	RCRCS16090310	—	—	—	—	—	Sleep Timer set
SLEEP OFF	16	93	20	16 93 20	RCRCS16090320	—	—	—	—	—	Sleep Timer set Off
Tuner											
Tuner1	17	93	00	17 93 00	RCRCS17090500	—	—	—	—	—	Turn Key 1 (Pre and No. or Frequency) for Tuner-1
Tuner1	17	93	01	17 93 01	RCRCS17090501	—	—	—	—	—	Turn Key 1 (Pre and No. or Frequency) for Tuner-1
Tuner1	17	93	02	17 93 02	RCRCS17090502	—	—	—	—	—	Turn Key 2 (Pre and No. or Frequency) for Tuner-1
Tuner1	17	93	03	17 93 03	RCRCS17090503	—	—	—	—	—	Turn Key 3 (Pre and No. or Frequency) for Tuner-1
Tuner1	17	93	04	17 93 04	RCRCS17090504	—	—	—	—	—	Turn Key 4 (Pre and No. or Frequency) for Tuner-1
Tuner1	17	93	05	17 93 05	RCRCS17090505	—	—	—	—	—	Turn Key 5 (Pre and No. or Frequency) for Tuner-1
Tuner1	17	93	06	17 93 06	RCRCS17090506	—	—	—	—	—	Turn Key 6 (Pre and No. or Frequency) for Tuner-1
Tuner1	17	93	07	17 93 07	RCRCS17090507	—	—	—	—	—	Turn Key 7 (Pre and No. or Frequency) for Tuner-1
Tuner1	17	93	08	17 93 08	RCRCS17090508	—	—	—	—	—	Turn Key 8 (Pre and No. or Frequency) for Tuner-1
Tuner1	17	93	09	17 93 09	RCRCS17090509	—	—	—	—	—	Turn Key 9 (Pre and No. or Frequency) for Tuner-1
Tuner1	17	93	10	17 93 10	RCRCS17090510	—	—	—	—	—	Turn Key 10 (Pre and No. or Frequency) for Tuner-1
Tuner1	17	93	11	17 93 11	RCRCS17090511	—	—	—	—	—	Turn On and select AM for Tuner-1
Tuner1	17	93	13	17 93 13	RCRCS17090513	—	—	—	—	—	Preset (Skip Up) for Tuner-1
Tuner1	17	93	14	17 93 14	RCRCS17090514	—	—	—	—	—	Preset (Skip Down) for Tuner-1
Tuner1	17	93	15	17 93 15	RCRCS17090515	—	—	—	—	—	Preset (Up) for Tuner-1
Tuner1	17	93	16	17 93 16	RCRCS17090516	—	—	—	—	—	Preset (Down) for Tuner-1
Tuner1	17	93	17	17 93 17	RCRCS17090517	—	—	—	—	—	Switch FM MODE (Auto Stereo / Mono) for Tuner-1
BAND (FM/AM)	17	93	00	17 93 00	RCRCS17090500	—	—	—	—	—	Select FM and AM (Togglle)
Zone 3											
Zone 3: USB: Next	24	93	02	24 93 02	RCRCS24090502	—	—	—	—	—	Zone 3 and select Next for Zone 3
Zone 3: USB: Previous	24	93	03	24 93 03	RCRCS24090503	—	—	—	—	—	Zone 3 and select Previous for Zone 3
Zone 3: USB: Random Mode	24	94	01	24 94 01	RCRCS24090401	—	—	—	—	—	Zone 3 and select Random Mode for Zone 3
Zone 3: USB: Repeat Off	24	94	02	24 94 02	RCRCS24090402	—	—	—	—	—	Zone 3 and select Repeat Off for Zone 3
Zone 3: USB: Random On	24	94	03	24 94 03	RCRCS24090403	—	—	—	—	—	Zone 3 and select Random On for Zone 3
Zone 3: USB: Repeat Mode	24	95	01	24 95 01	RCRCS24090401	—	—	—	—	—	Zone 3 and select Repeat Mode for Zone 3
Zone 3: USB: Repeat Off	24	95	02	24 95 02	RCRCS24090402	—	—	—	—	—	Zone 3 and select Repeat Off for Zone 3
Zone 3: USB: Repeat One	24	95	03	24 95 03	RCRCS24090403	—	—	—	—	—	Zone 3 and select Repeat One for Zone 3
Network											
Network(DMP): Next Trackfile	27	32	03	27 32 03	RCRCS27090503	—	—	—	—	—	Network(DMP): Previous Trackfile
Network(DMP): Previous Trackfile	27	33	03	27 33 03	RCRCS27090503	—	—	—	—	—	Network(DMP): Next Trackfile
Network(DMP): Skip +	27	32	04	27 32 04	RCRCS27090504	—	—	—	—	—	Network(DMP): Skip -
Network(DMP): Jingle	27	33	04	27 33 04	RCRCS27090504	—	—	—	—	—	Network(DMP): Skip +
Network(DMP): Repeat (oggle)	27	45	01	27 45 01	RCRCS27090401	—	—	—	—	—	Network(DMP): Repeat Off
Network(DMP): Repeat Off	27	45	02	27 45 02	RCRCS27090402	—	—	—	—	—	Network(DMP): Repeat
Network(DMP): Repeat 1	27	45	03	27 45 03	RCRCS27090403	—	—	—	—	—	Network(DMP): Repeat 1
Network(DMP): Repeat All	27	45	04	27 45 04	RCRCS27090404	—	—	—	—	—	Network(DMP): Repeat All
Network(DMP): Pause	27	48	03	27 48 03	RCRCS27090403	—	—	—	—	—	Network(DMP): Pause
Network(DMP): REW	27	50	03	27 50 03	RCRCS27090403	—	—	—	—	—	Network(DMP): REW
Network(DMP): FF	27	52	03	27 52 03	RCRCS27090403	—	—	—	—	—	Network(DMP): FF
Network(DMP): Play/Pause	27	53	03	27 53 03	RCRCS27090403	—	—	—	—	—	Network(DMP): Play/Pause
Network(DMP): Stop	27	53	04	27 53 04	RCRCS27090404	—	—	—	—	—	Network(DMP): Stop
Network(DMP): Direct Play	27	53	05	27 53 05	RCRCS27090405	—	—	—	—	—	Network(DMP): Direct Play
Network(DMP): Stop	27	54	03	27 54 03	RCRCS27090403	—	—	—	—	—	Network(DMP): Stop
Network(DMP): Cursor Up	27	81	03	27 81 03	RCRCS27090403	—	—	—	—	—	Network(DMP): Cursor Up
Network(DMP): Cursor Down	27	81	04	27 81 04	RCRCS27090404	—	—	—	—	—	Network(DMP): Cursor Down
Network(DMP): Cursor Left	27	85	03	27 85 03	RCRCS27090403	—	—	—	—	—	Network(DMP): Cursor Left
Network(DMP): Cursor Right	27	86	03	27 86 03	RCRCS27090403	—	—	—	—	—	Network(DMP): Cursor Right
Network(DMP): Home	27	87	03	27 87 03	RCRCS27090403	—	—	—	—	—	Network(DMP): Home
Network(DMP): Back(Return)	27	83	03	27 83 03	RCRCS27090403	—	—	—	—	—	Network(DMP): Back(Return)
Network(DMP): HOME	27	88	02	27 88 02	RCRCS27090402	—	—	—	—	—	Network(DMP): HOME
Page Previous	27	93	13	27 93 13	RCRCS27090513	—	—	—	—	—	Page Previous
Page Next	27	93	14	27 93 14	RCRCS27090514	—	—	—	—	—	Page Next

**Notes:** Specifications and functions are subject to change without prior notice.  
**X** The command is available for the model.  
**—** The command is NOT available for the model.  
**\*1** Main room commands work as Multi room commands when the Multi room RC-IN input was used.  
These commands are recognized as Main room(zone) commands when they are received via Front IR receiver or Rear Remote Control In.  
These commands are recognized as Multi room(zone) commands when they are received via Rear Multi room Remote In.  
**\*2** Remote control selects the menu in advance the use  
**\*3** EU version (for North America) model only  
**\*4** EU version (for Europe), N1x version (for Europe) model only  
**\*5** EU version (for North America), N1x version (for Europe) model only  
**\*6** EU version (for North America), N1x version (for Europe) model only  
**\*7** The RC code can be used using RS-232C/IP Serial protocol commands

## DISASSEMBLY

Flowchart

- 1. FRONT ASSY
- 2. RADIATOR ASSY
- 3. DIGITAL PCB
- 4. VIDEO PCB
- 5. PREOUT PCB
- 6. MAIN PCB
- 7. SMPS PCB
- 8. TRANS

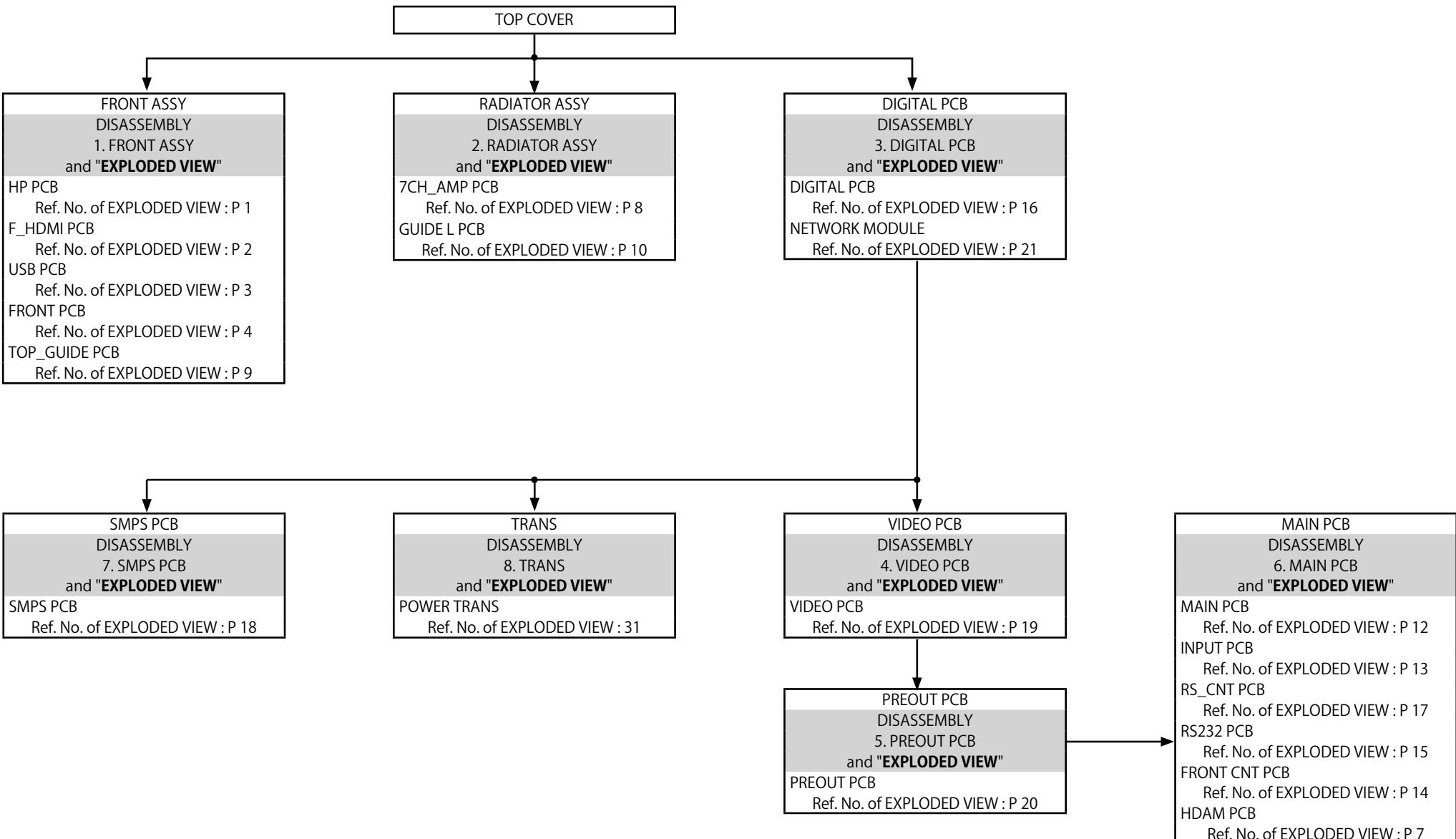
## EXPLODED VIEW

## PACKAGING VIEW

# DISASSEMBLY

## Flowchart

- Remove each part following the flow below.
- Reassemble the removed parts in the reverse order.
- Read "[SAFETY PRECAUTIONS](#)" before reassembling the removed parts.
- If wire bundles are removed or moved during adjustment or part replacement, reshape the wires after completing the work. Failure to shape the wires correctly may cause problems such as noise.
- See "[EXPLODED VIEW](#)"

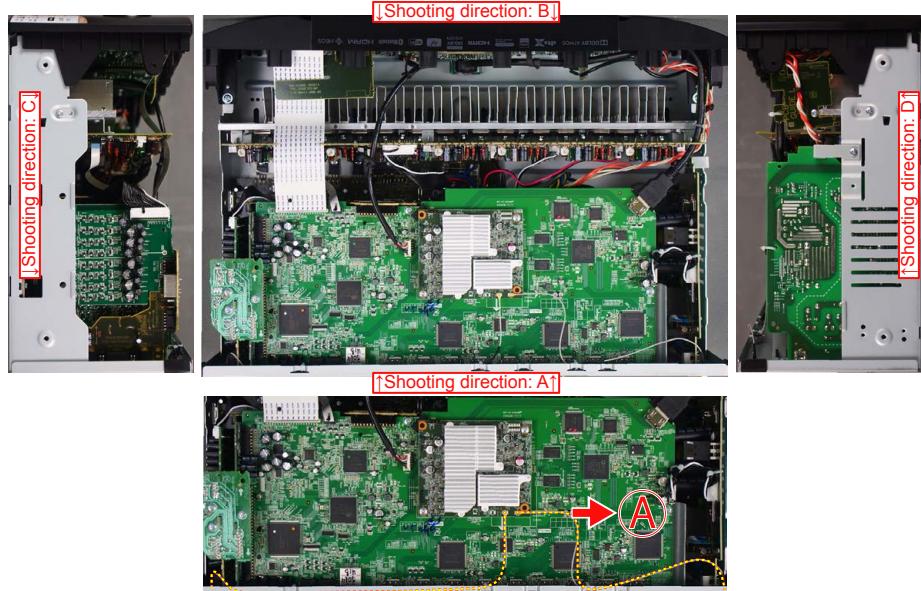


**Explanatory Photos for DISASSEMBLY**

- For the shooting direction of each photos used in this manual, see the photo below.
- A, B, C and D** in the photo below indicate the shooting directions of photos.
- The photographs with no shooting direction indicated were taken from the top of the unit.
- Photos of SR5014 U are used in this manual.

**The viewpoint of each photograph**

(Shooting direction : X) [View from the top]

**Attention :**

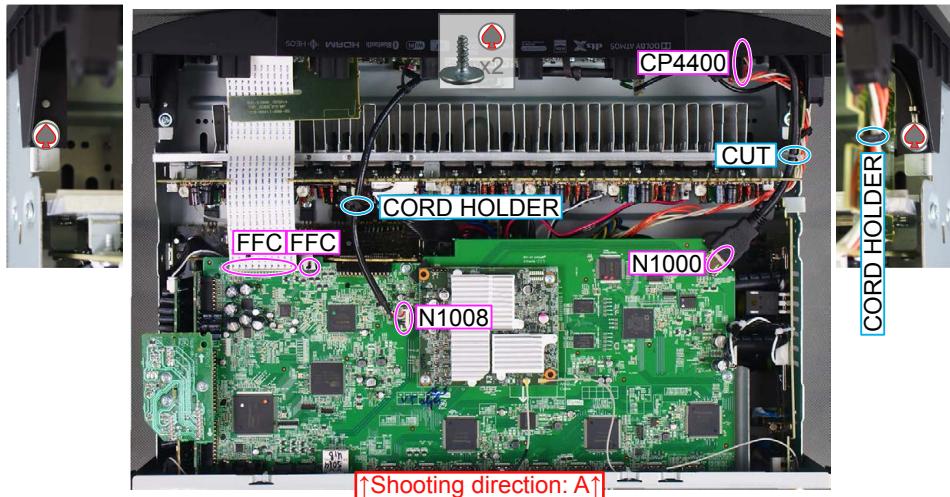
When reinserting the Antenna Cable after it has been disconnected, make sure it is facing the direction shown in ④ above.

**1. FRONT ASSY**Proceeding : **TOP COVER** → **FRONT ASSY**

- Remove the screws.



- Remove the screws. Cut the wire clamp, then remove the CORD HOLDER and connector. Remove the FFC.



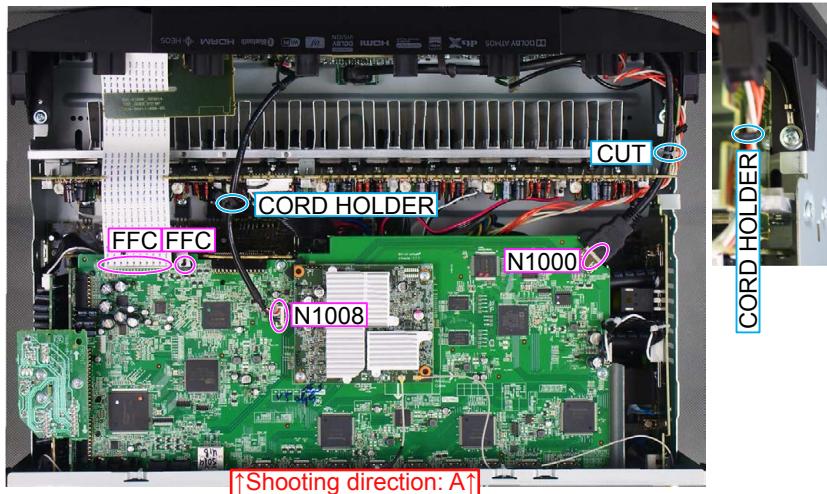
## 2. RADIATOR ASSY

Proceeding : **TOP COVER** → **RADIATOR ASSY**

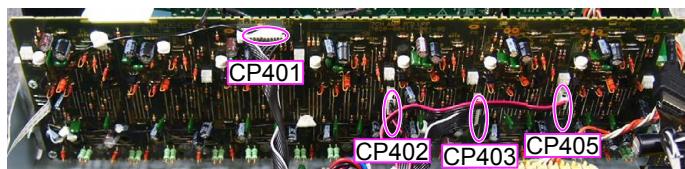
- (1) Remove the screws.



- (2) Cut the wire clamps, then remove the CORD HOLDERs and connectors. Remove the FFC.



- (3) Remove the connector.



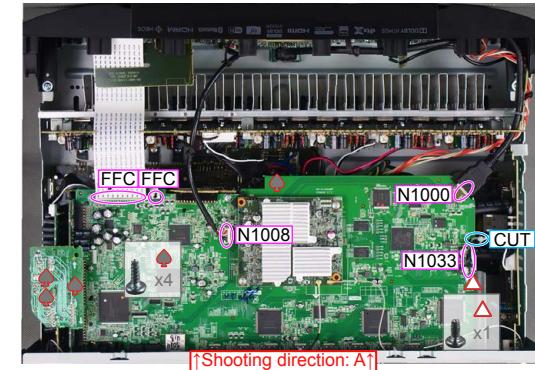
## 3. DIGITAL PCB

Proceeding : **TOP COVER** → **DIGITAL PCB**

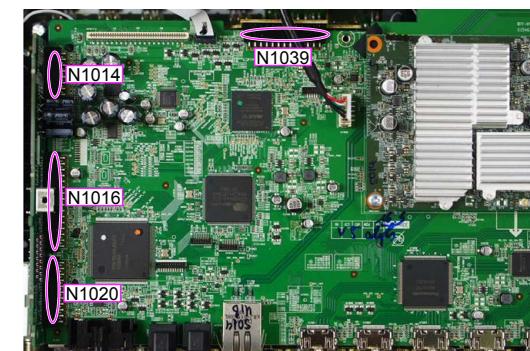
- (1) Remove the screws.



- (2) Remove the screws. Cut the wire clamp, then remove the CORD HOLDER and connector. Remove the FFC.



- (3) Remove the connector.



## 4. VIDEO PCB

Proceeding : **TOP COVER** → **DIGITAL PCB** → **VIDEO PCB**

- (1) Remove the connector.



## 5. PREOUT PCB

Proceeding : **TOP COVER** → **DIGITAL PCB** → **VIDEO PCB** → **PREOUT PCB**

- (1) Remove the connector.



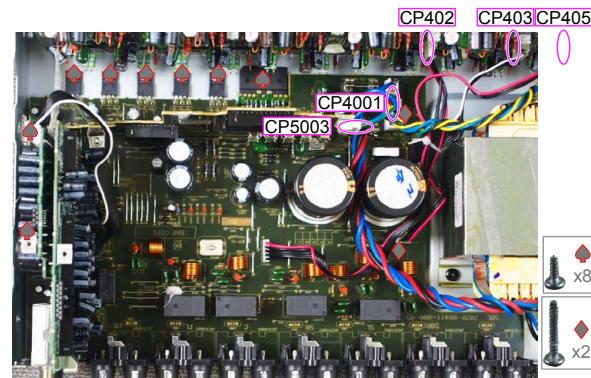
## 6. MAIN PCB

Proceeding : **TOP COVER** → **DIGITAL PCB** → **VIDEO PCB** → **PREOUT PCB**  
→ **MAIN PCB**

- (1) Remove the screws.



- (2) Remove the screws. Remove the connector.



## 7. SMPS PCB

Proceeding : **TOP COVER** → **SMPS PCB**

See "[EXPLoded View](#)" for instructions on removing the SMPS PCB.

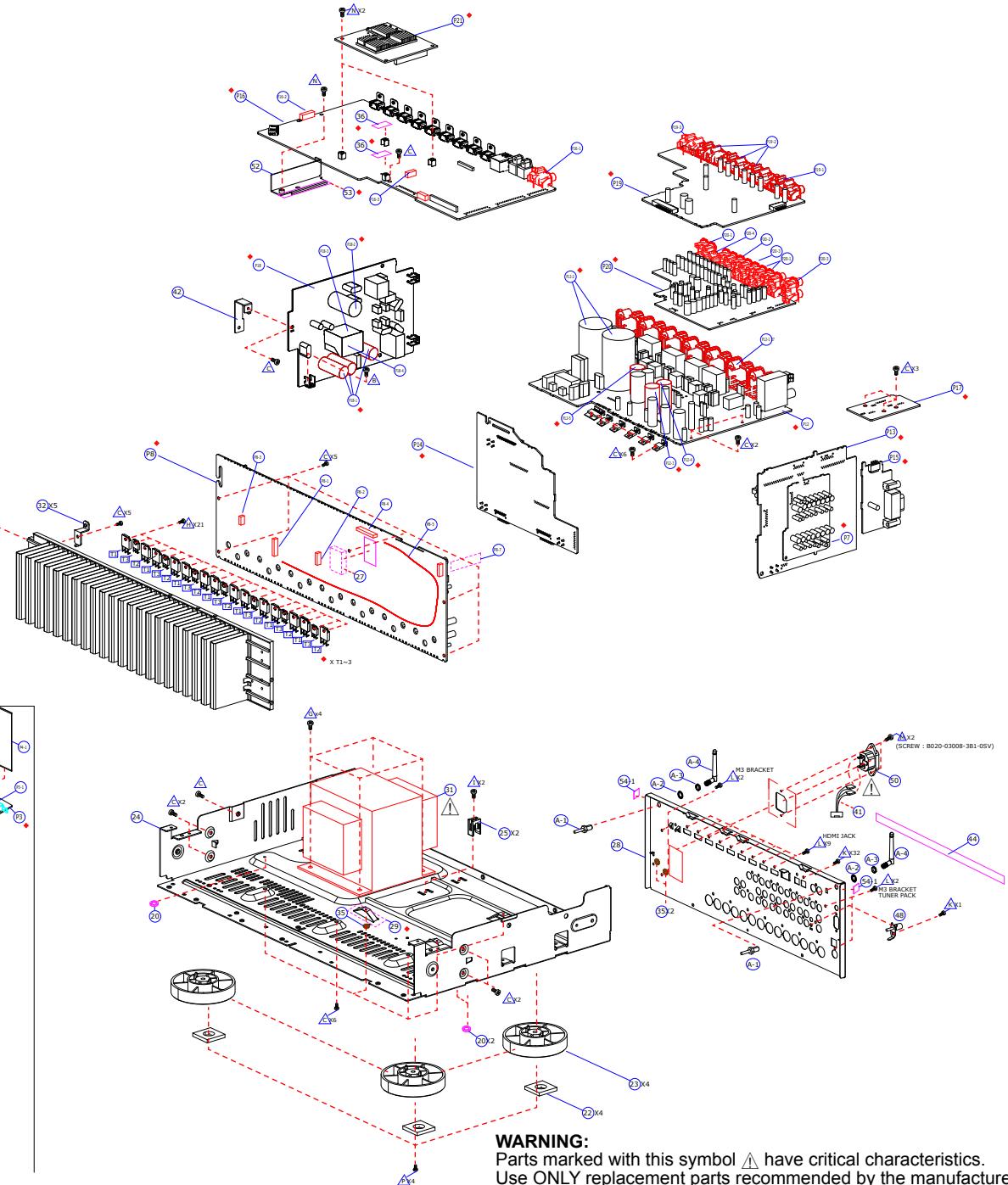
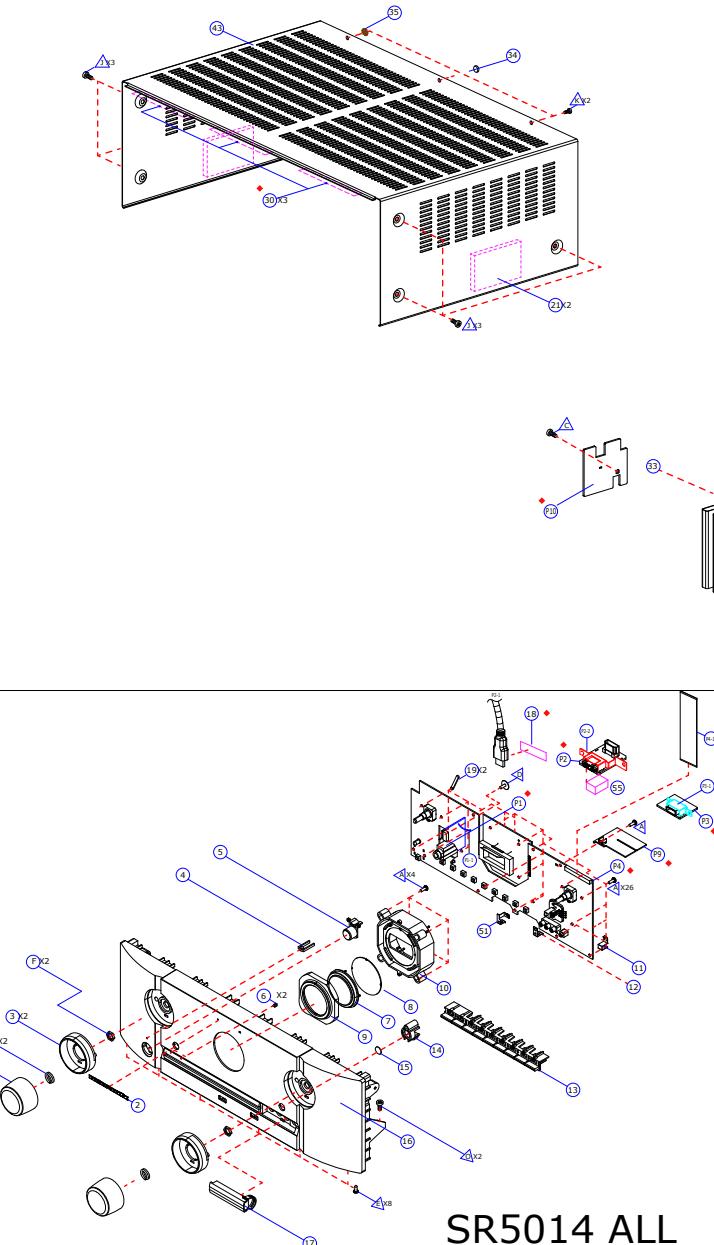
## 8. TRANS

Proceeding : **TOP COVER** → **DIGITAL PCB** → **TRANS**

See "[EXPLoded View](#)" for instructions on removing the transformer (TRANS).

# EXPLODED VIEW

Parts List : <http://dmedia.soundunited.com/documents/details/25939>



Before Servicing  
This Unit

Electrical

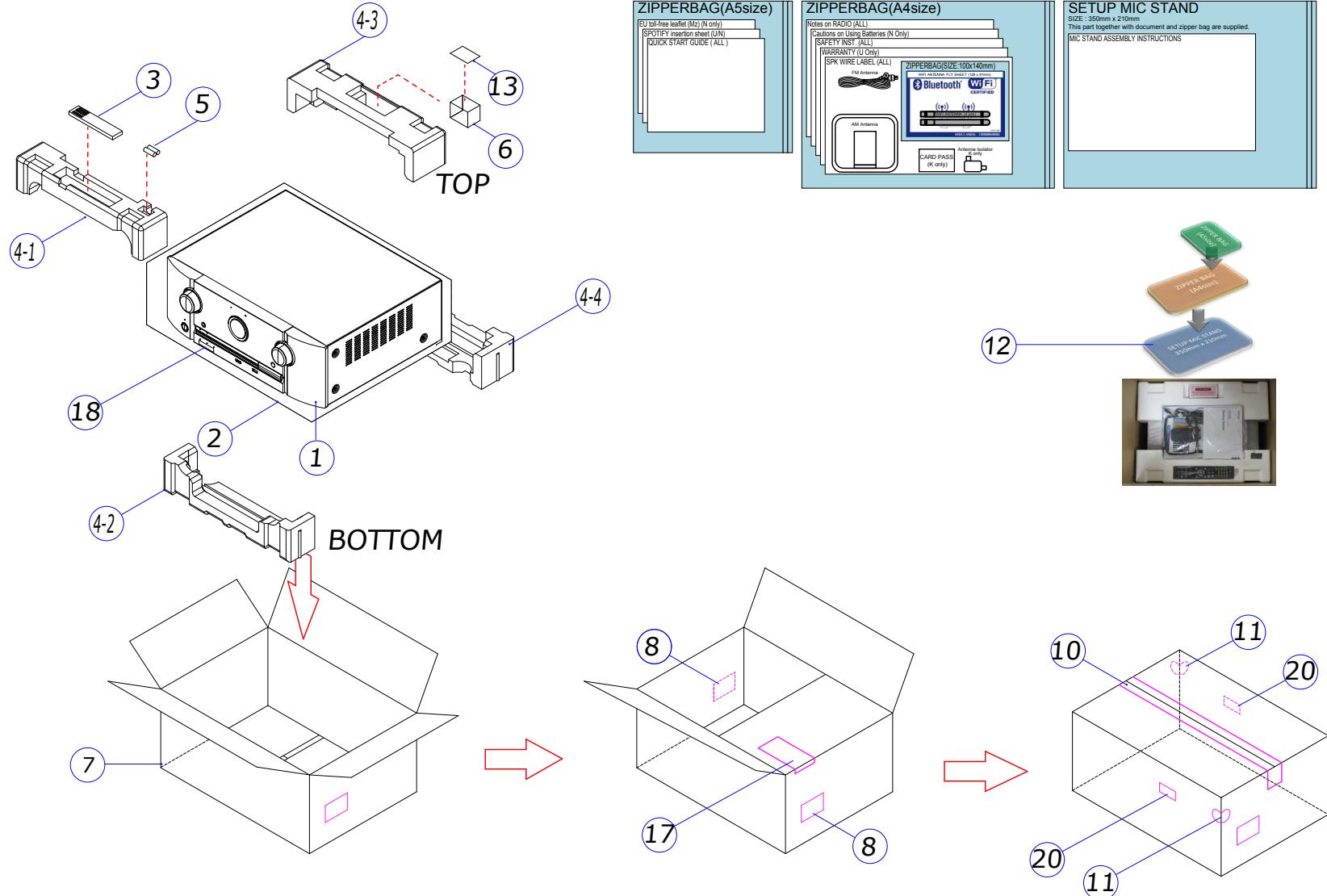
Mechanical

Repair Information

Updating

# PACKAGING VIEW

Parts List : <http://dmedia.soundunited.com/documents/details/25939>



* POLY BAG PACKING STYLE	SPEAKER TERMINAL BUSHING	* BOX BOTTOM TAPING
<p>TAPE (CLEAR) SET ONLY UK PLUG(at store)</p>	<p>CORD AC UIB/NIB/NISG/K1B</p>	<p>10</p>

Before Servicing  
This Unit

Electrical

Mechanical

Repair Information

Updating

# REPAIR INFORMATION

## TROUBLE SHOOTING

- [1. POWER](#)
- [2. Analog video](#)
- [3. HDMI/DVI](#)
- [4. AUDIO](#)
- [5. Network / Bluetooth / USB](#)
- [6. SMPS](#)

## AUDIO CHECK PATH

### HDMI "Rx/Tx" Failure Detection

- [1. Prior checking](#)
- [2. Preparations for checking HDMI Switcher reception/transmission register](#)
- [3. Starting detecting the point of failure](#)
- [4. Device implementation location](#)

## CLOCK FLOW & WAVE FORM IN DIGITAL BLOCK

## SPECIAL MODE

- [Special mode setting button](#)
- [1. Version Display Mode](#)
- [2. PANEL / REMOTE LOCK Selection Mode](#)
- [3-1. Selecting the Mode for Service-related](#)
- [3-2. Protection History Display Mode](#)
- [3-3. 232C Standby Clear Mode](#)
- [3-4. Operation Info Mode](#)
- [3-5. TUNER STEP mode \(U / N only\)](#)
- [4. Protection Pass Mode](#)
- [5. Network Initialization Mode](#)
- [6. Clearing of Operation Info](#)
- [7. Log Capture feature](#)

## DIAGNOSTIC MODE

- [Service Path Check Mode](#)
- [DIAGNOSTIC PATH DIAGRAM](#)

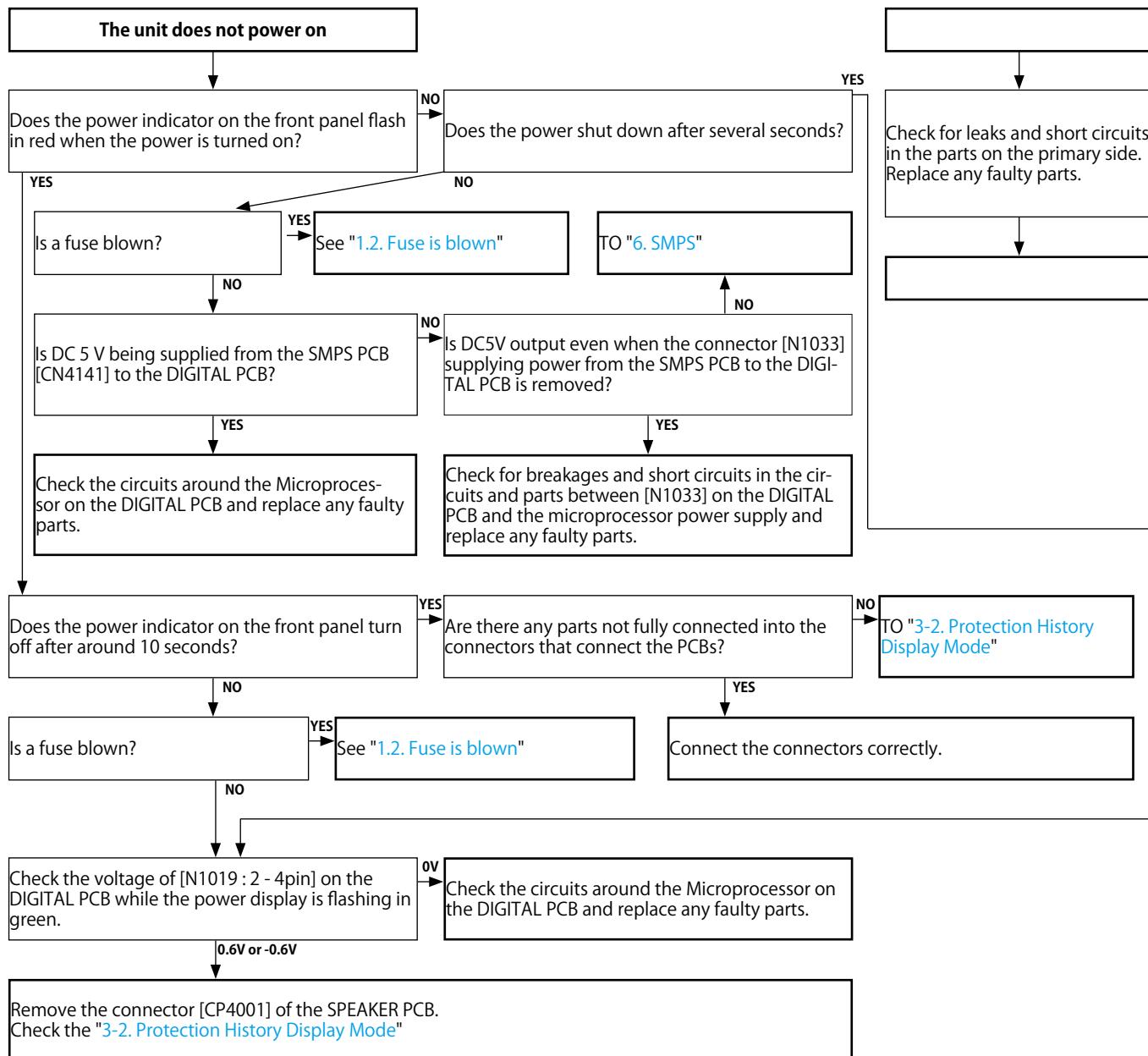
## JIG FOR SERVICING

## ADJUSTMENT

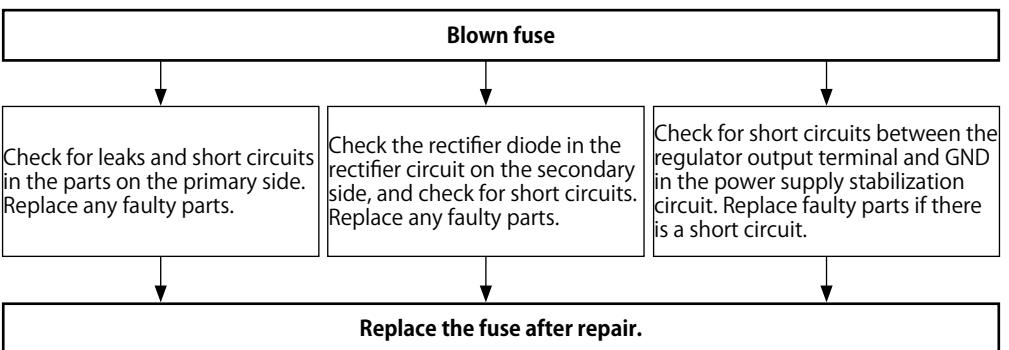
# TROUBLE SHOOTING

## 1. POWER

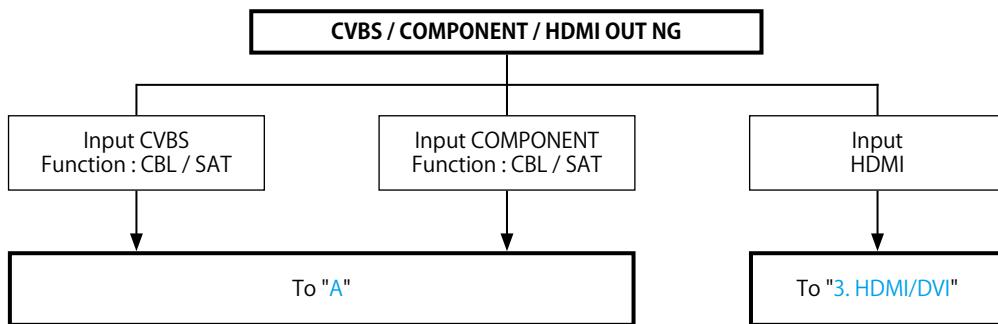
### 1.1. The unit does not power on



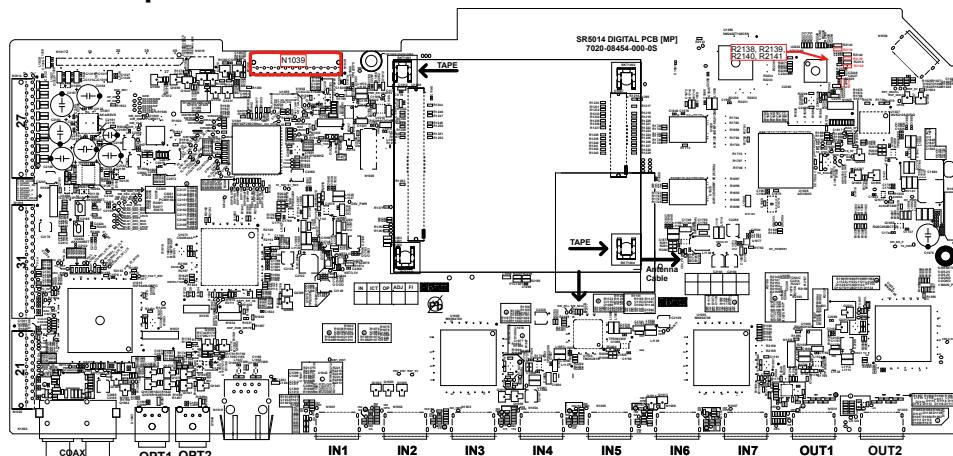
### 1.2. Fuse is blown



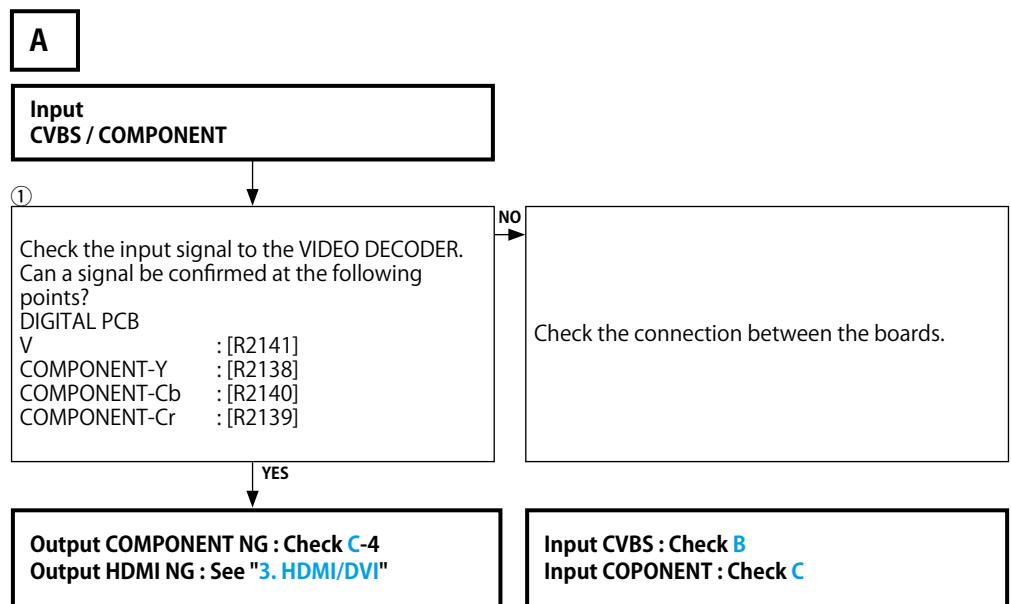
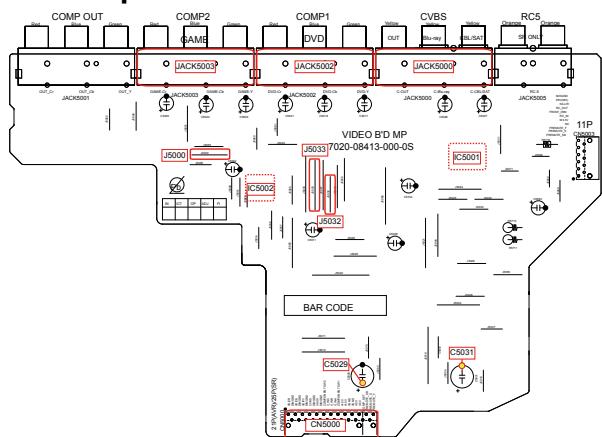
## 2. Analog video

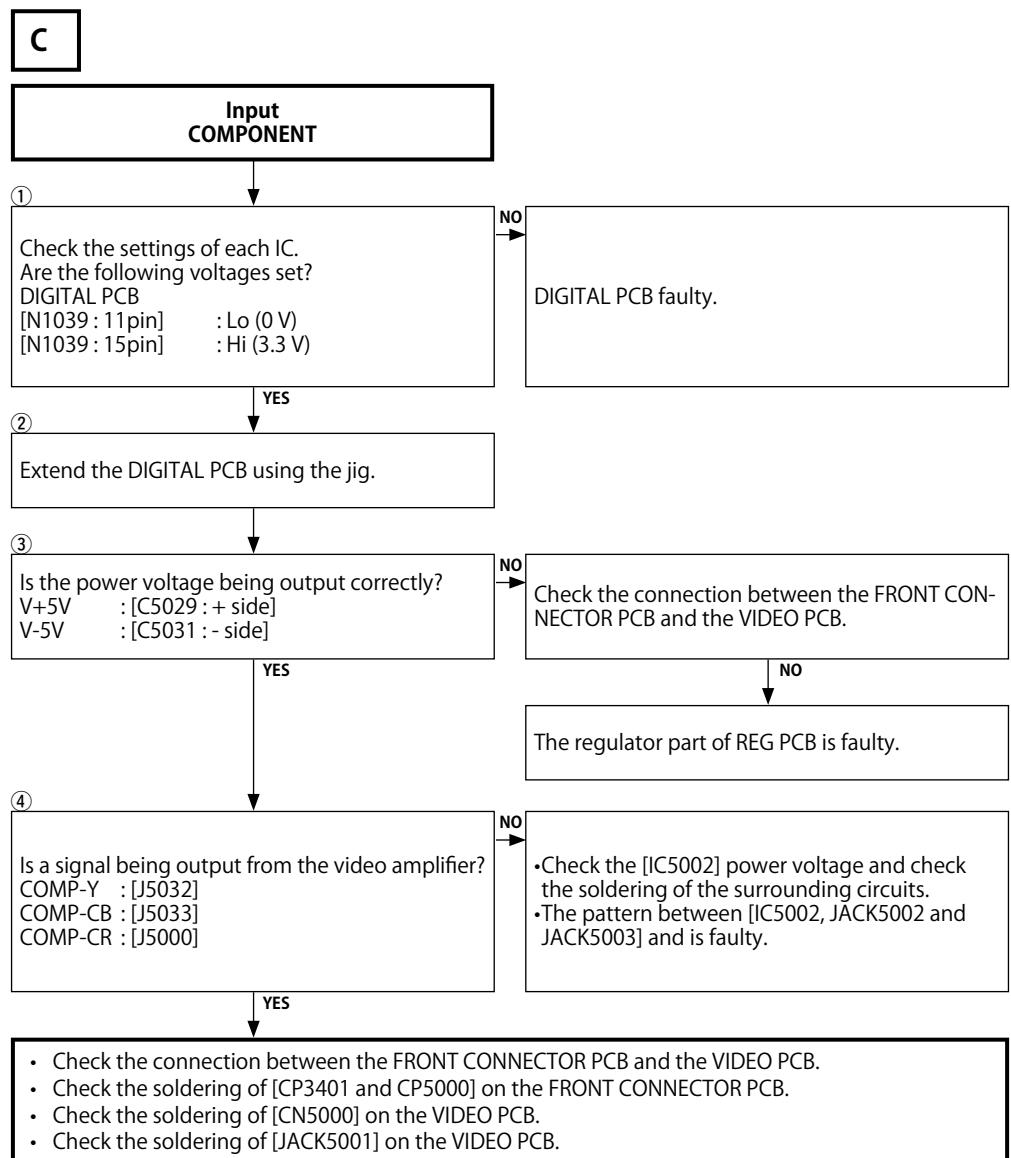
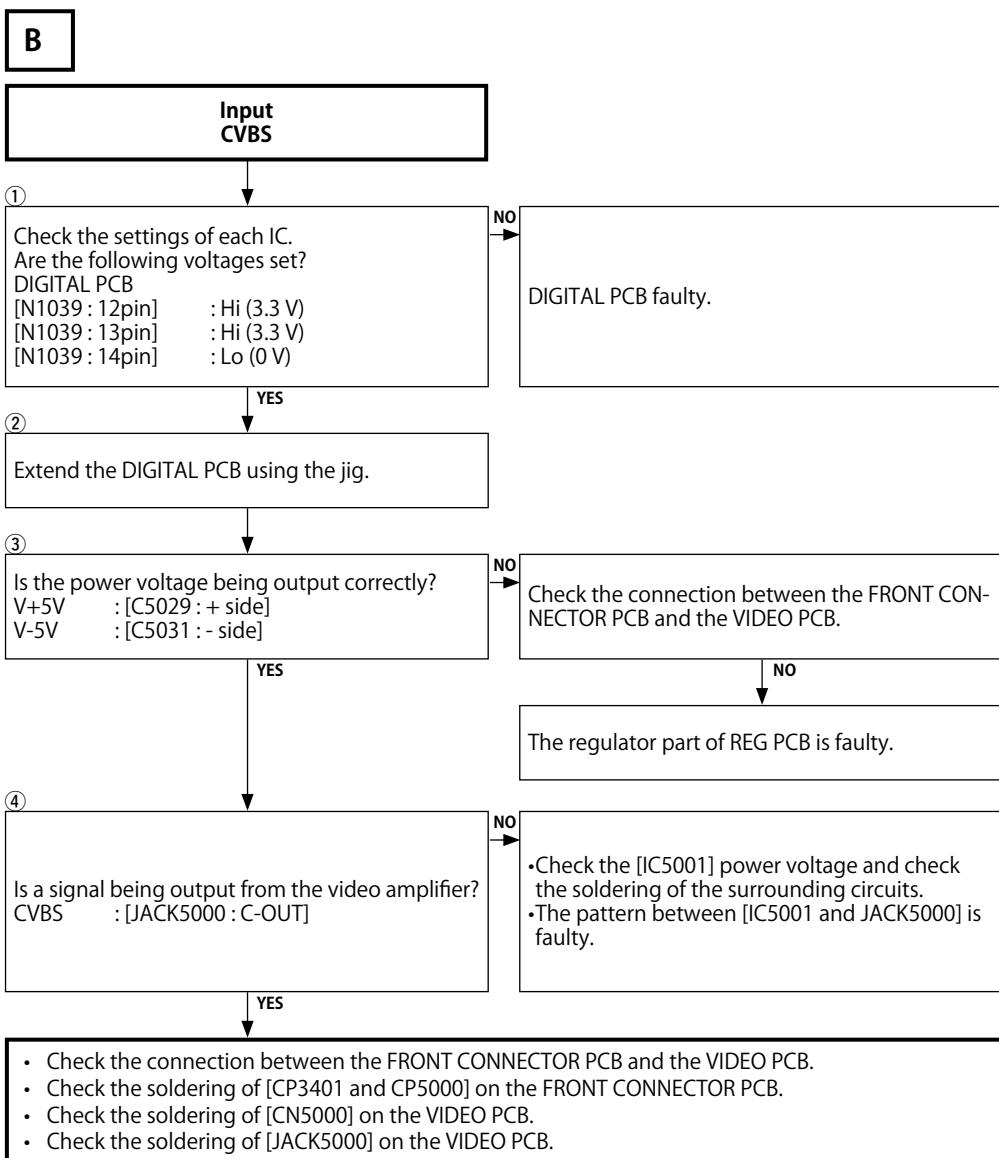


## DIGITAL test point



## VIDEO test point



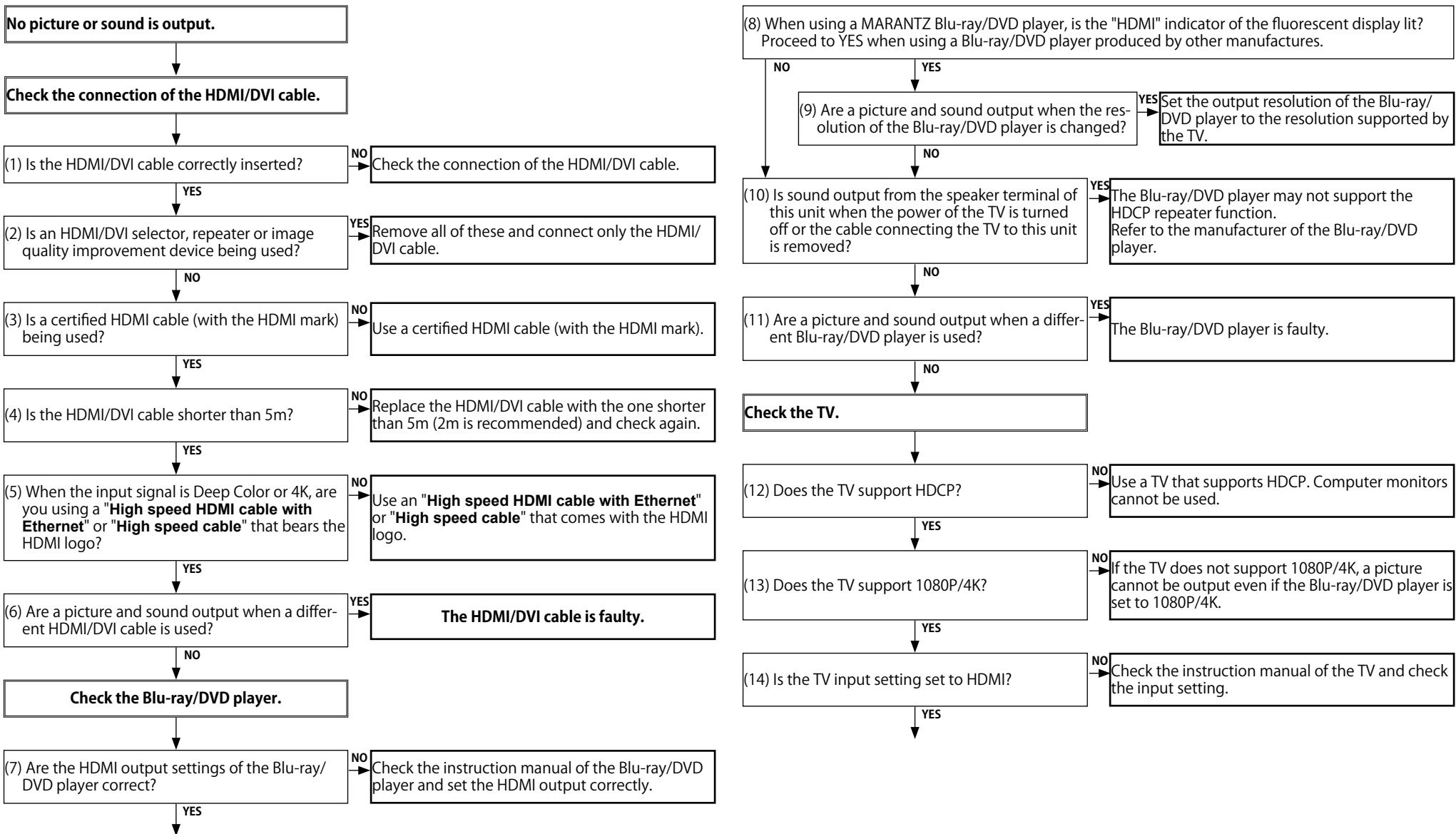


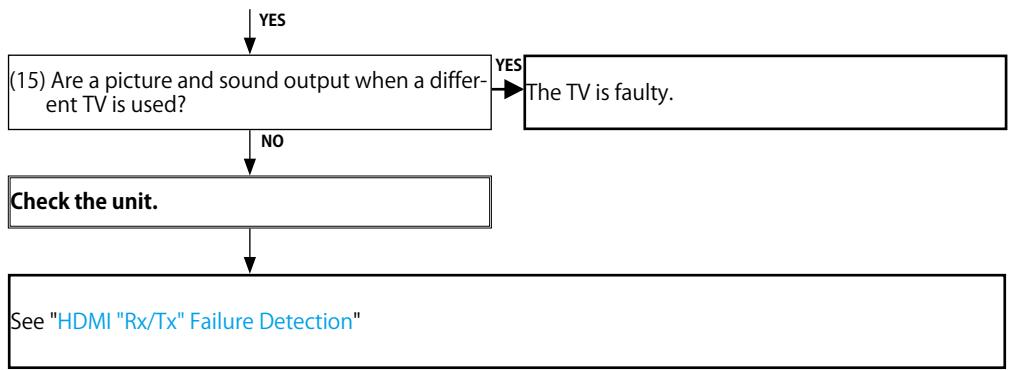
※ These instructions refer to the VIDEO PCB unless otherwise specified.

※ These instructions refer to the VIDEO PCB unless otherwise specified.

### 3. HDMI/DVI

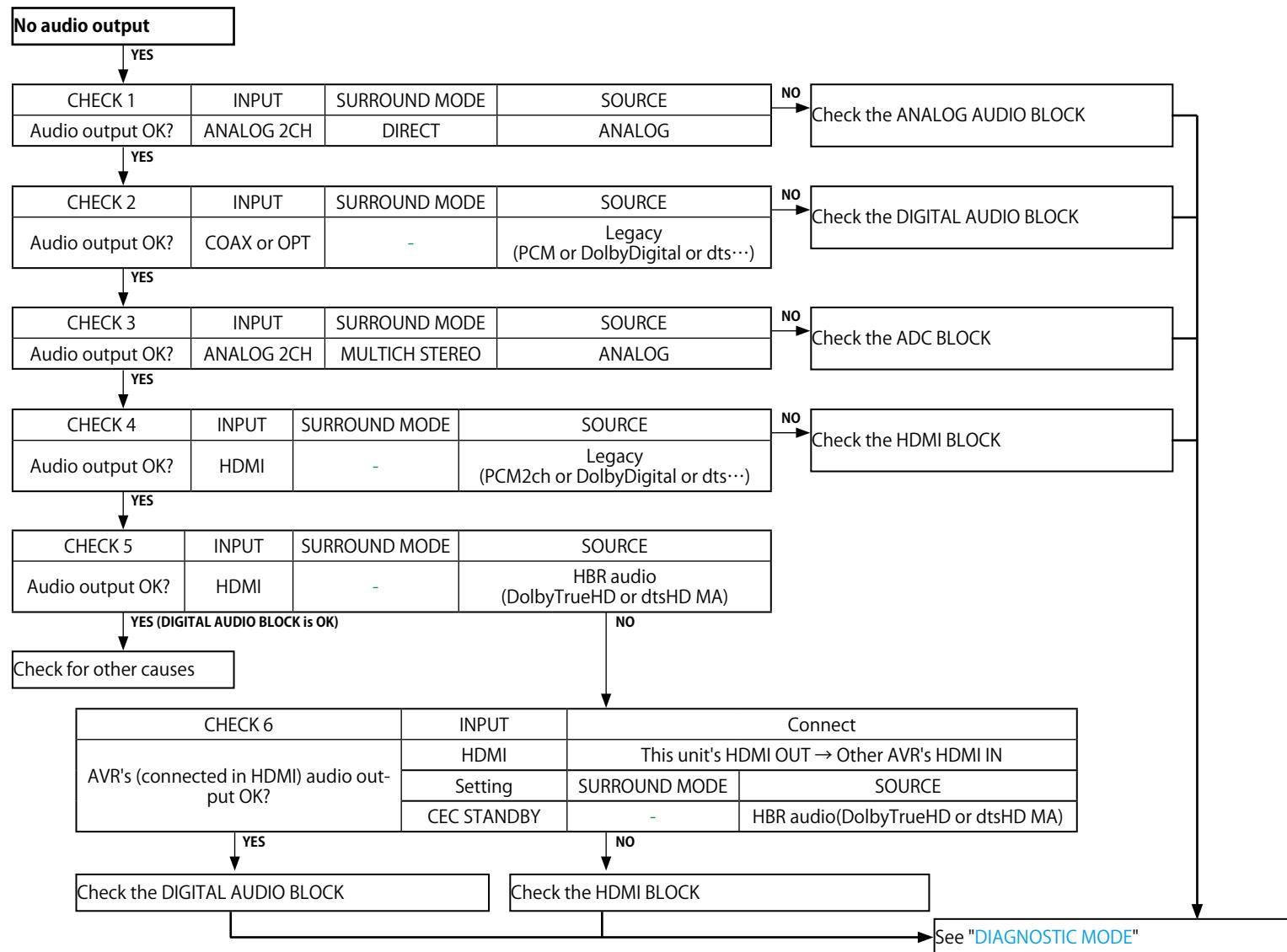
#### 3.1. No picture or sound is output (HDMI to HDMI)





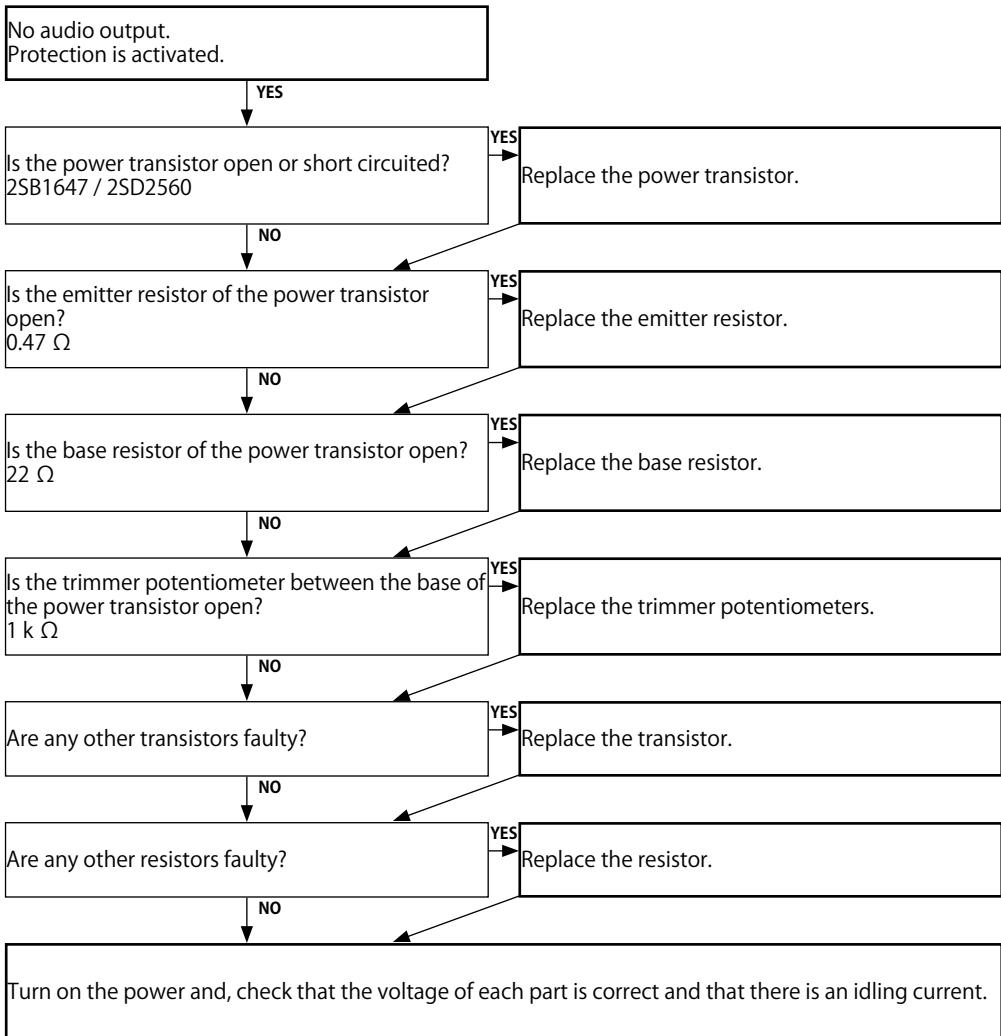
## 4. AUDIO

### 4.1. AUDIO CHECK

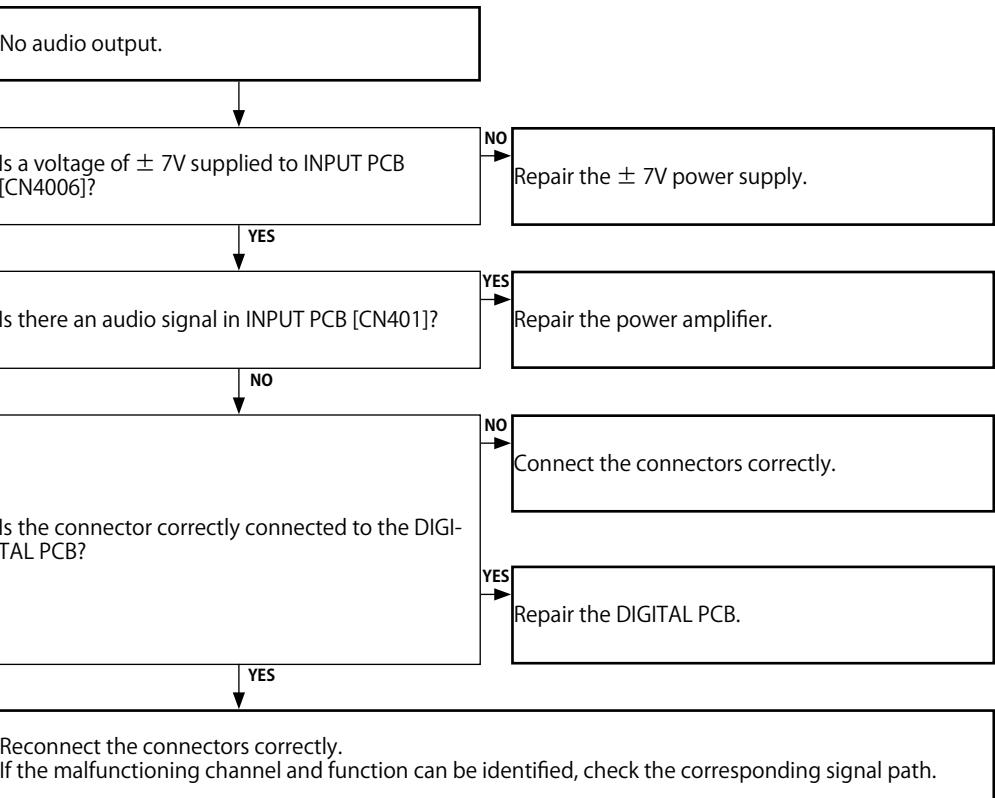


## 4.2. Power AMP (AMP PCB)

When using the protection pass mode, do not connect speakers to the speaker terminals.

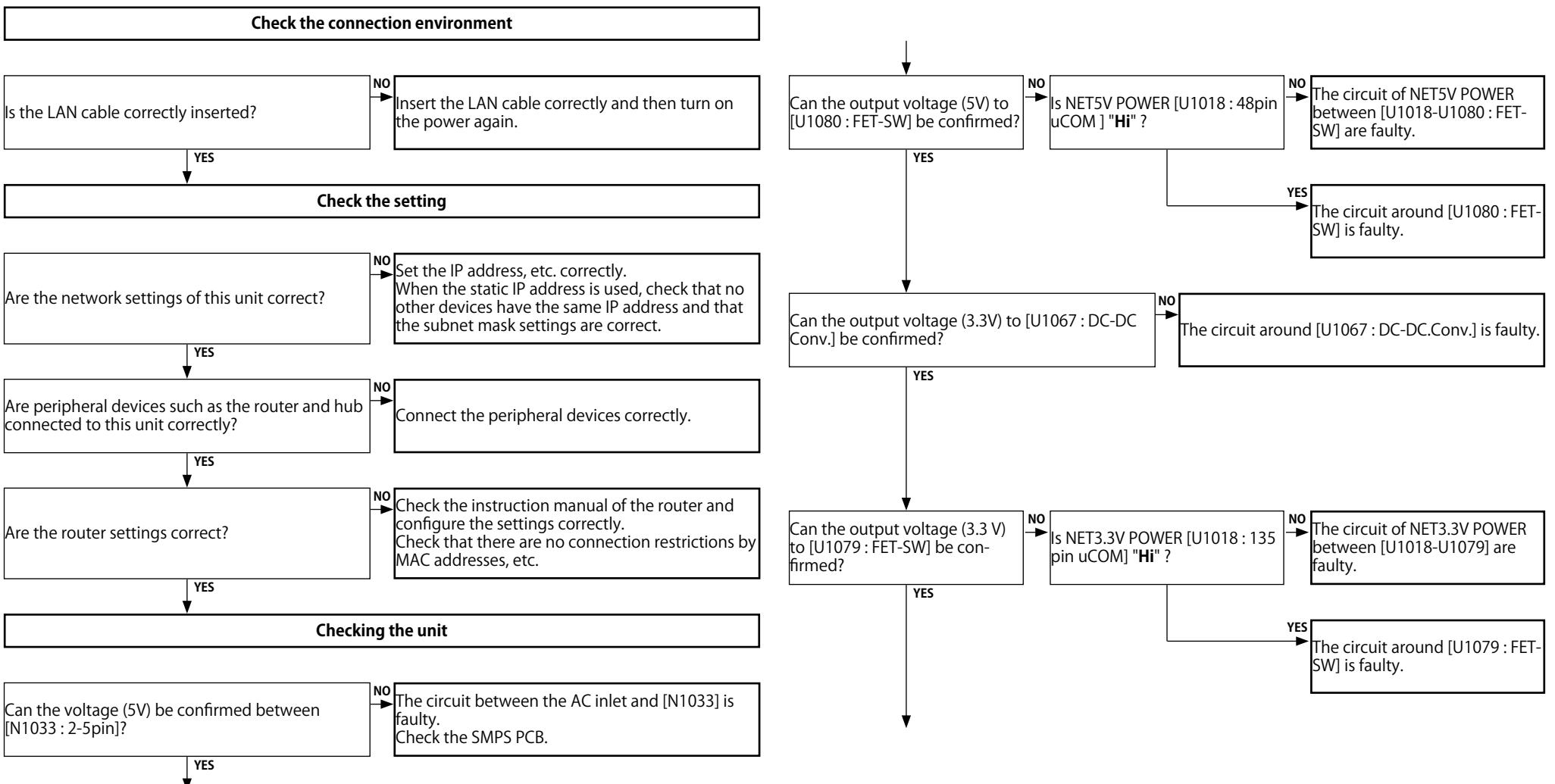


## 4.3. Analog audio



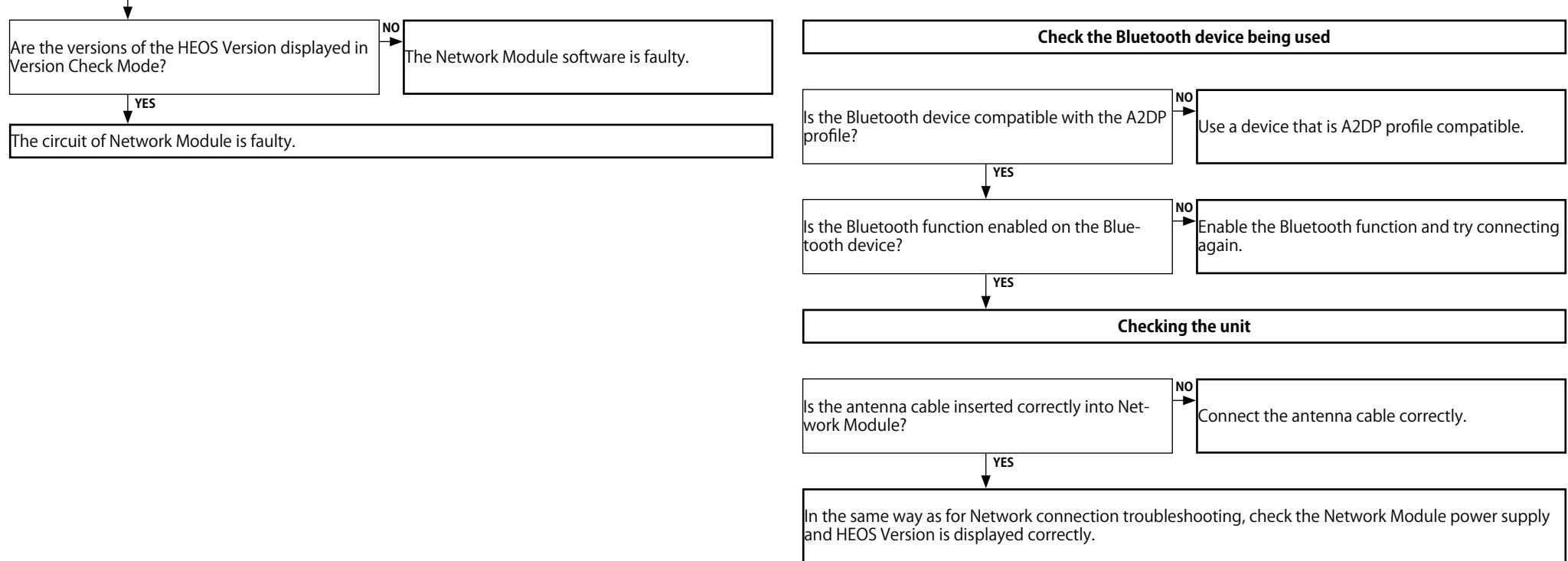
## 5. Network / Bluetooth / USB

### 5.1. Cannot connect to the network

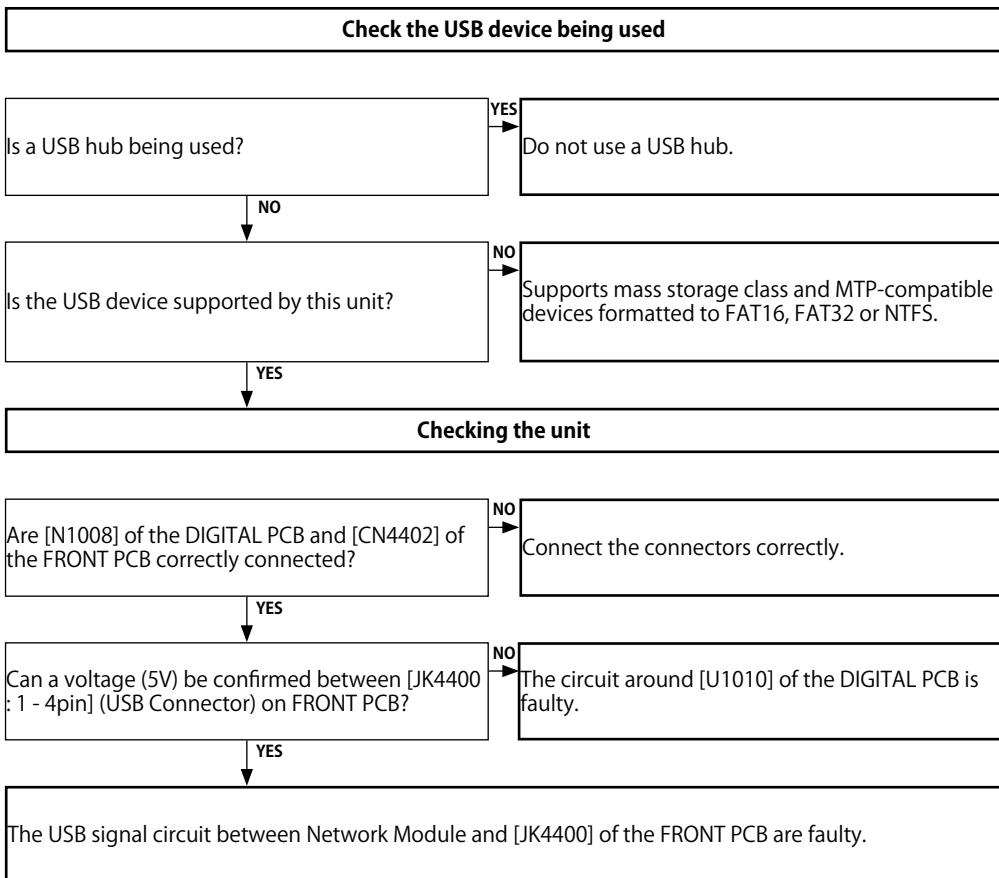


Go to next page.

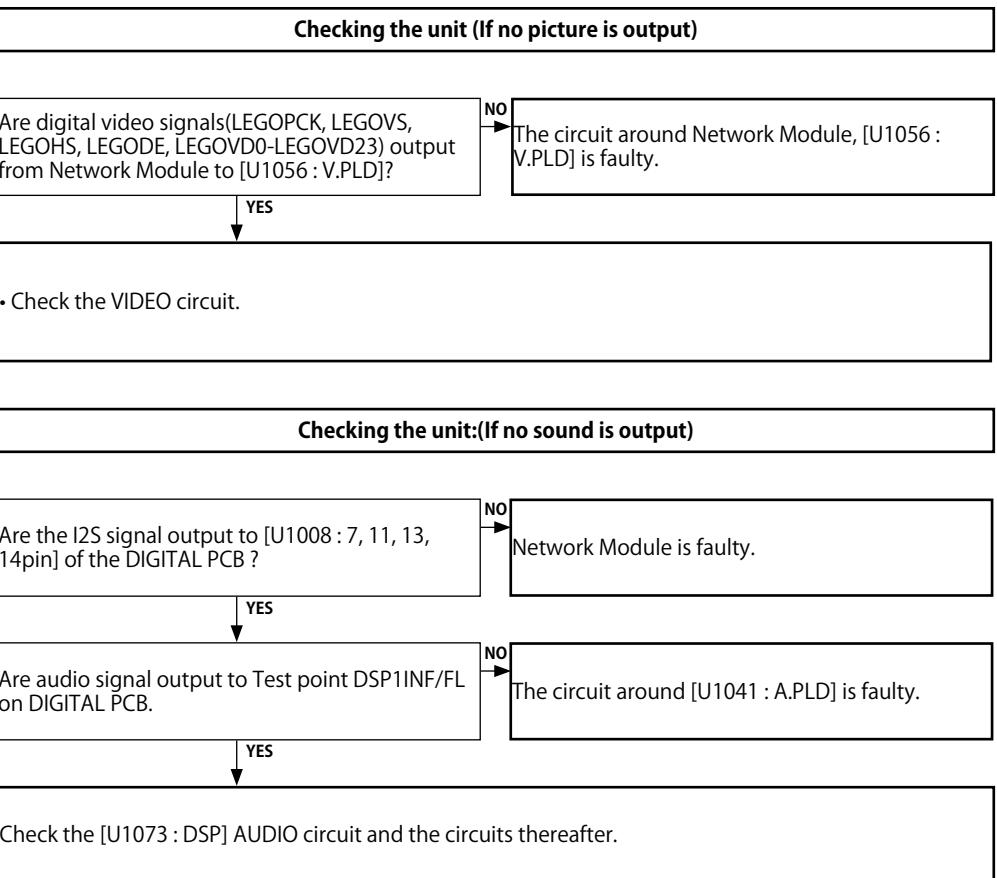
## 5.2. Cannot establish a Bluetooth connection



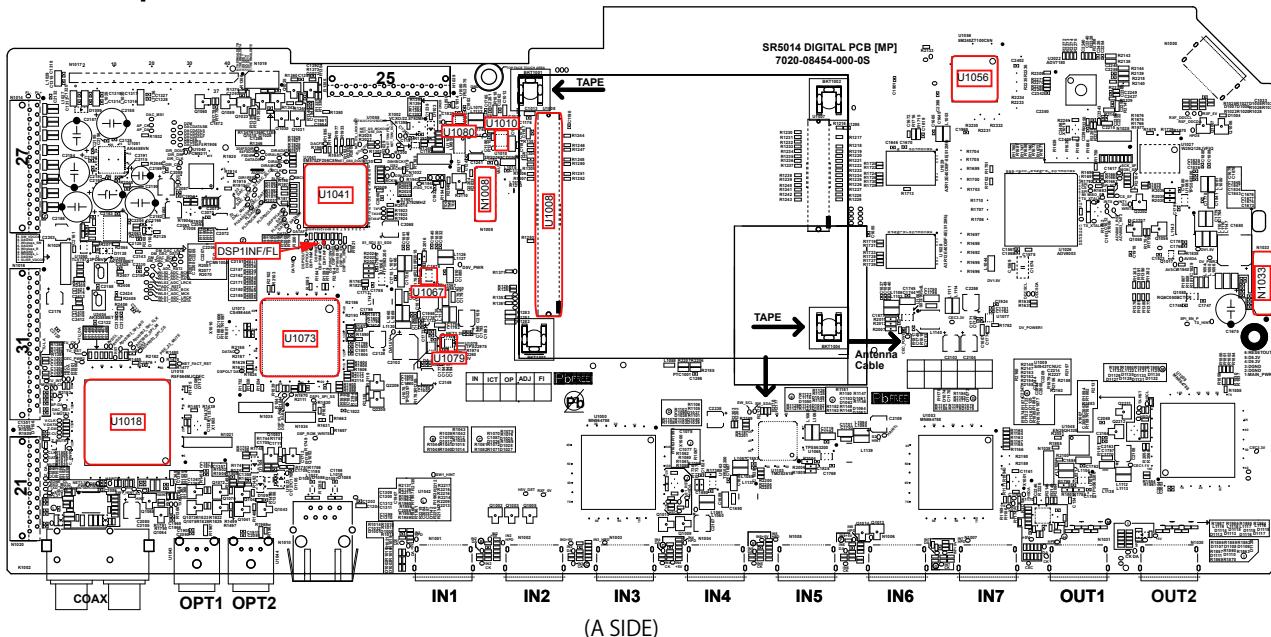
### 5.3. Cannot recognize the connected USB device



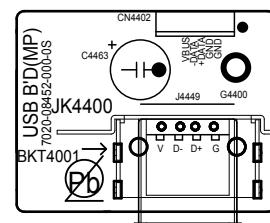
### 5.4. No picture or sound is output



## DIGITAL test point

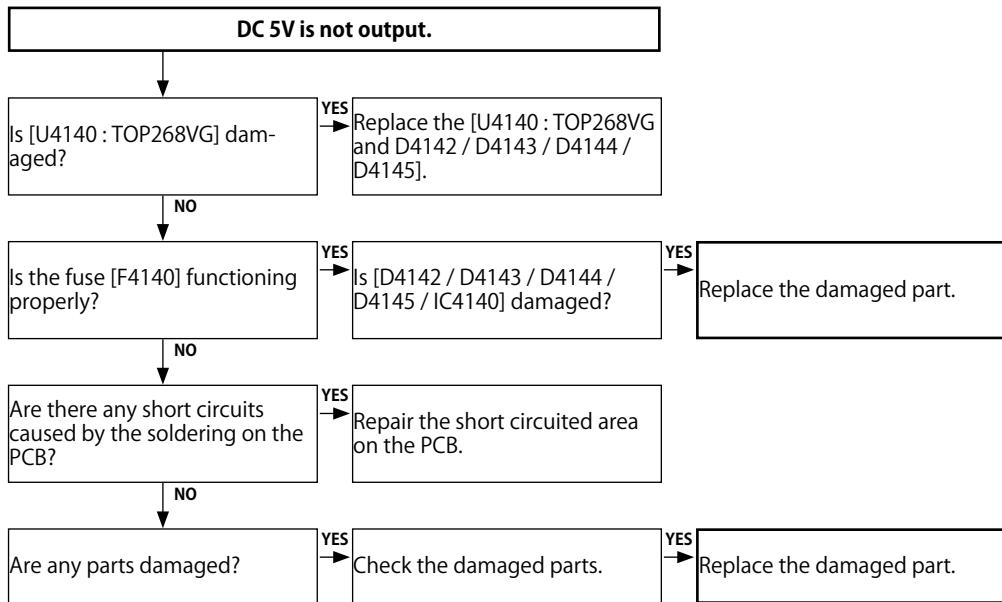


USB test point

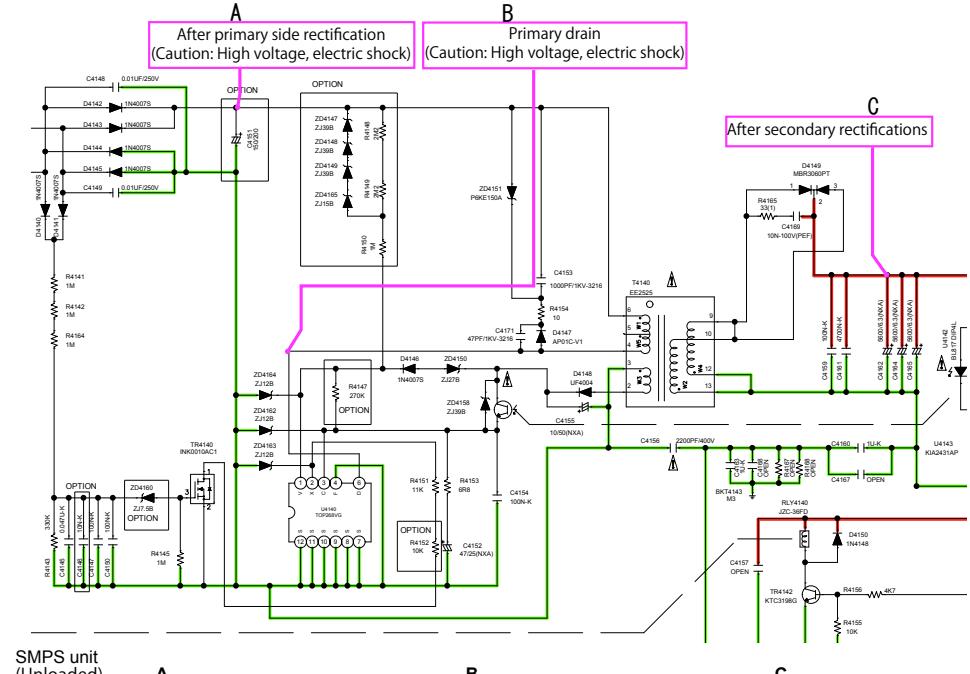
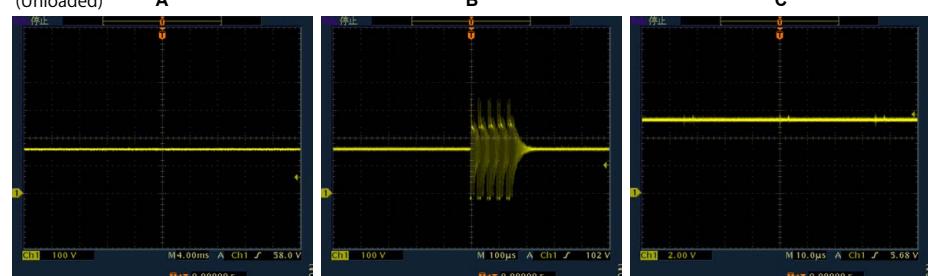


(A SIDE)

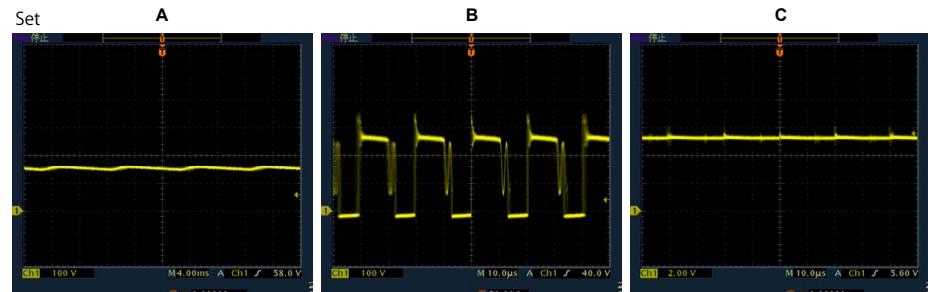
## 6. SMPS



## Operation waveform for each part

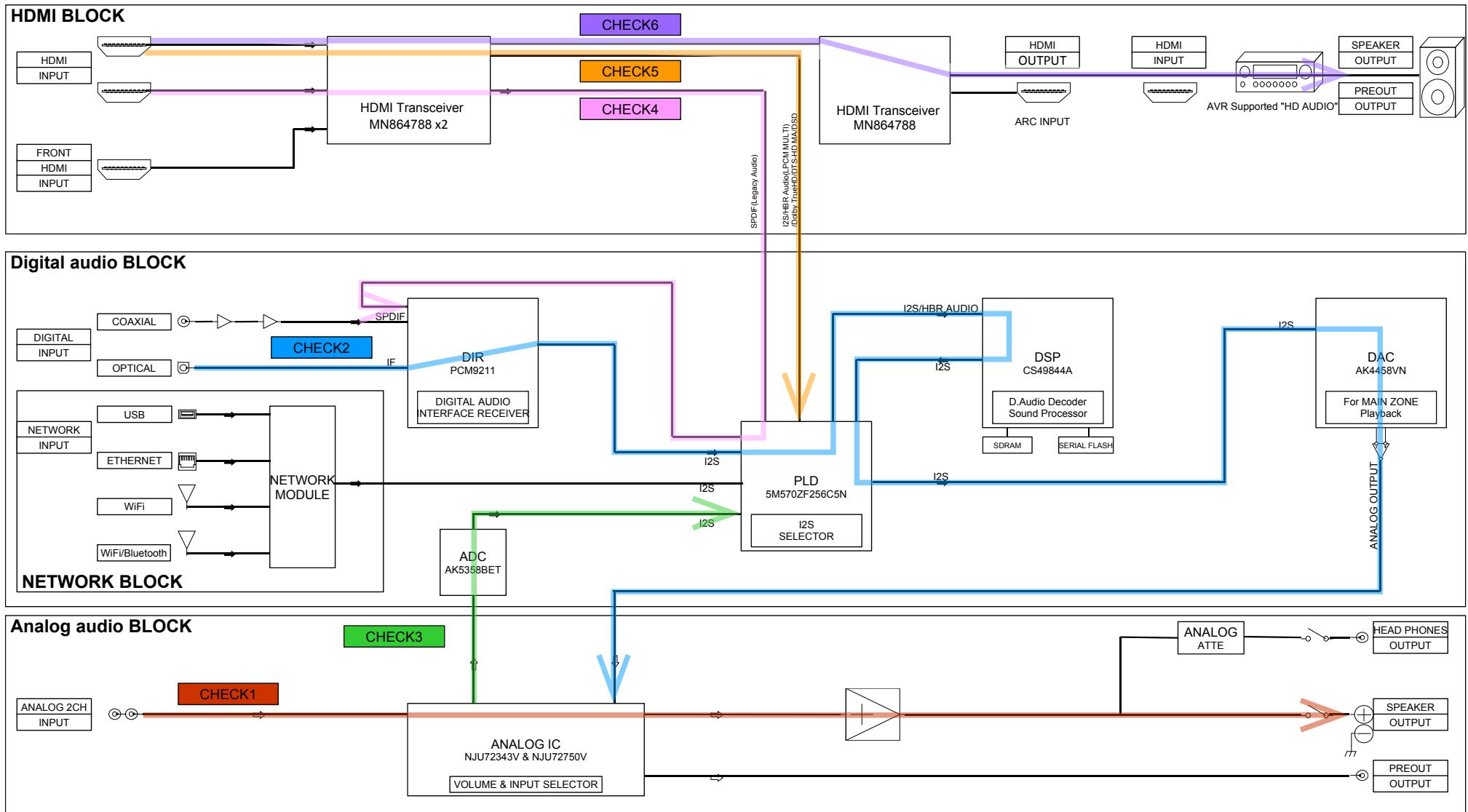
SMPS unit  
(Unloaded)

Set



# AUDIO CHECK PATH

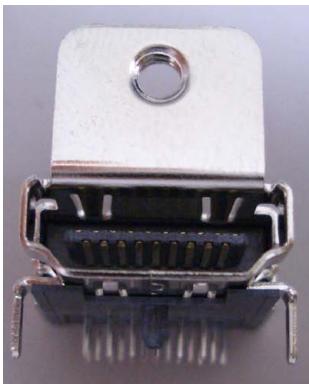
→: Digital Signal  
↔: Analog Signal



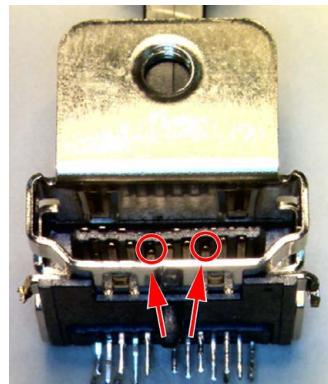
# HDMI "Rx/Tx" Failure Detection

## 1. Prior checking

Check item(1.) : Checking the HDMI connector  
Checking the condition of the HDMI pin (rear/front).



OK



NG

Check for deformed pins.

There are deformed pins.

Replace the HDMI connector.

None of the pins are deformed.

Check by following the flow chart for "[3. Starting detecting the point of failure](#)".

NOTE :

After checking troubleshooting "[3. HDMI/DVI](#)", check "[3. Starting detecting the point of failure](#)".

## 2. Preparations for checking HDMI Switcher reception/transmission register

### 2-1. Necessary devices

- 1) Check the product settings.
- 2-a) Player with an HDMI terminal
- 2-b) TV with an HDMI terminal (\* NOTE : Do not use a computer monitor.)
- 3) Windows PC
- 4) Serial communication software "Termite.exe"  
(Download the software from [http://www.compuphase.com/software\\_termite.htm](http://www.compuphase.com/software_termite.htm) and install it.)
- 5) HDMI cable
- 6) RS-232C Straight cable
- 7) oscilloscope

### 2-2. Device Connection Method

Connect the TV and the AVR to the player using an HDMI cable and connect the AVR to the PC through an RS-232C cable as shown in Figure 1.

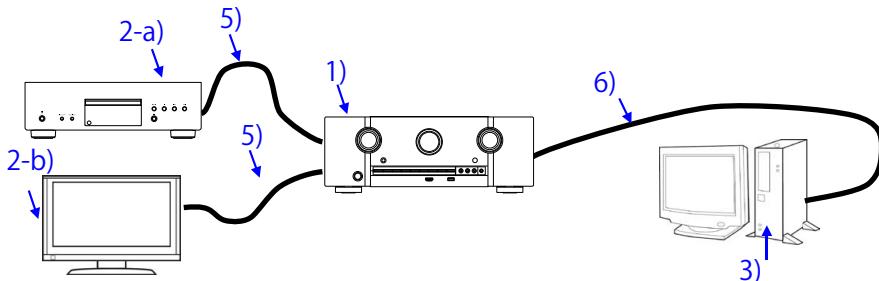


Figure 1. Device Connection Method

### 2-3. Device configuration method

PC settings : Execute the serial communication program, Termite.exe.

After executing Termite.exe, click [Settings].

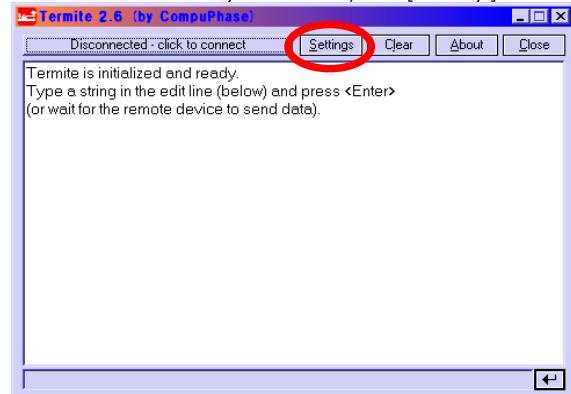


Figure 2. Screen After Executing Termite.exe

The serial port setup screen will be displayed.

Configure the settings as shown in Figure 3 and click the "OK" button.

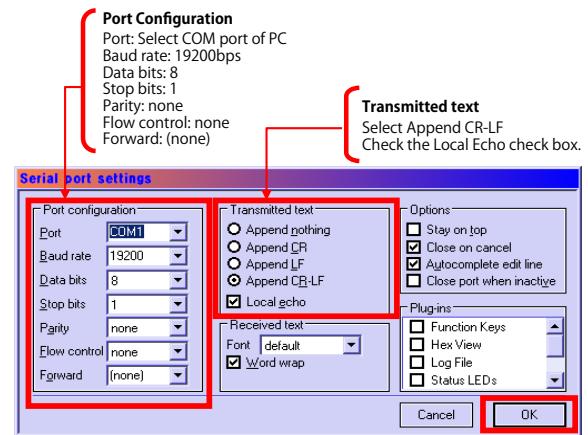


Figure 3. Serial Port Setup Screen

Click the [click to connect] button to start communication.

After a connection is established successfully, the display of the button name will change as shown in Figure 4.

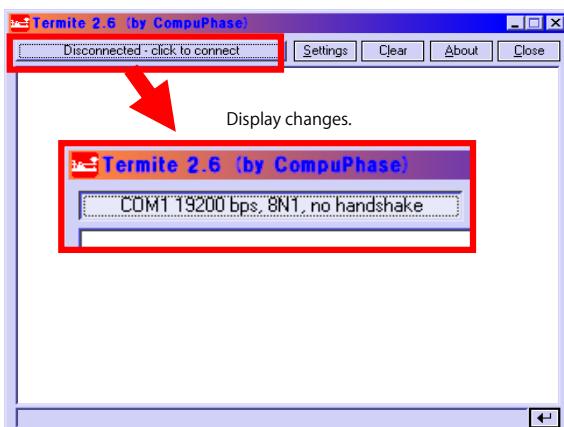


Figure 4. Change of the Display of the Communication Start Button Name

TV settings : Switch to the HDMI input in the AVR connection.

Player settings : Turn the unit power on and configure it to play disks.

AVR settings : While the power is On, hold down buttons "DIMMER" and "STATUS" for at least 3 seconds.

(Press and hold until the two indicator lights at the bottom right of the FLD blink.)

※ When the power is turned on after initialization, "Setup Assistant" will be displayed.

After exiting "Setup Assistant" execute the above.

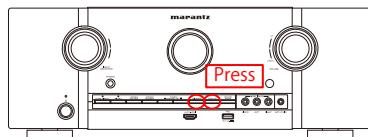


Figure 6. AVR settings

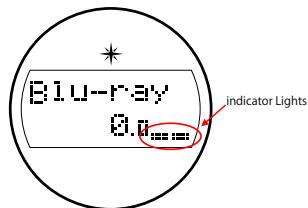


Figure 6. FLD Display When Set

When the settings are correct, the following message will be displayed in the window of Termite.

[00]Start Sub CPU Log Mode

\*\*\*\*

(\*\*\*\* is a version of Sub CPU.)

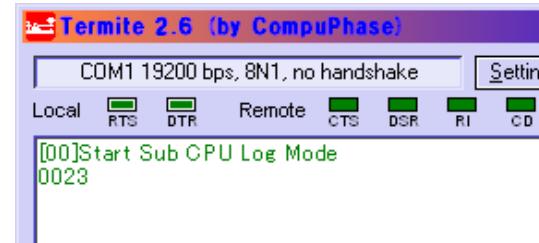


Figure 7. Display of Termite When AVR is Set

The setup is now complete.

Method for sending commands

Enter the command in the transmission command entry section, click the [Send] button and send the command.

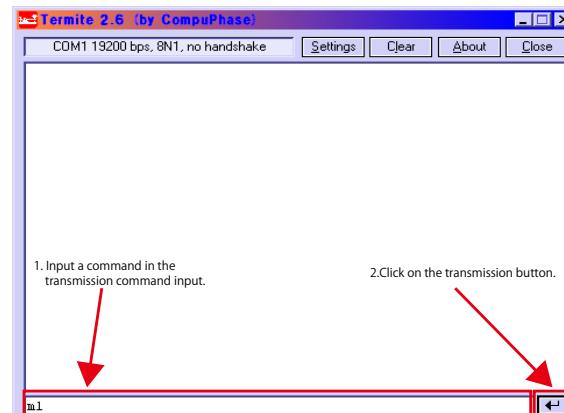


Figure 8. Method for Sending Termite Commands

### 3. Starting detecting the point of failure

#### Check item(3.1.).

Check the power supply status and communication status with the CPU of each device.  
Start in HDMI Diagnostics mode and follow the procedures below.

#### Start in HDMI Diagnostics mode

While the power is on, hold down buttons "DIMMER" and "SOUND MODE" for at least 3 seconds.

L1	HDMI
L2	DIAG

↓ "HDMI DIAGNOSTICS" is displayed.

When the mode has switched, start Hardware Check.

L1	Hardware
L2	Check...

↓

#### Display when an Error is detected.

L1	ErrH1-XX
L2	Contact support

L2 : Content of the display is scrolled.

Check the Error Code table items.

#### Error Code table

Error Code	Check item No.	Description	
H1-01	<a href="#">Check item (3-1.1.)</a>	Communication Error with HDMI Tx	[U1039 : MN864788]
H1-02	<a href="#">Check item (3-2.1.)</a>	Communication Error with HDMI SW1	[U1000 : MN864788]
H1-03	<a href="#">Check item (3-3.1.)</a>	Communication Error with HDMI SW2	[U1003 : MN864788]
H1-04	<a href="#">Check item (3-7.1.)</a>	Communication Error with TMDS SW	[U1103 : TMDS261B]
H1-05	<a href="#">Check item (3-8.1.)</a>	Communication Error with VIDEO DECODER	[U2022 : ADV7180]
H1-06	<a href="#">Check item (3-4.1.)</a>	Communication Error with GUI IC	[U1026 : ADV8003]
H1-08	<a href="#">Check item (3-9.1.)</a>	Communication Error with DSP	[U1073 : CS49844A]
H1-12	<a href="#">Check item (3-10.1.)</a>	Communication Error with DIR	[U1040 : PCM9211]
H1-14	<a href="#">Check item (3-5.1.)</a>	DDR check Error	[U1028, U1029 : A3R12E40DBF-8E]
H1-15	<a href="#">Check item (3-6.1.)</a>	Communication Error with GUI ROM	[U1027 : W25Q128JVFIQ]
H1-16	<a href="#">Check item (3-6.1.)</a>	Communication Error with ARC IC	[U1009 : SiL9437]

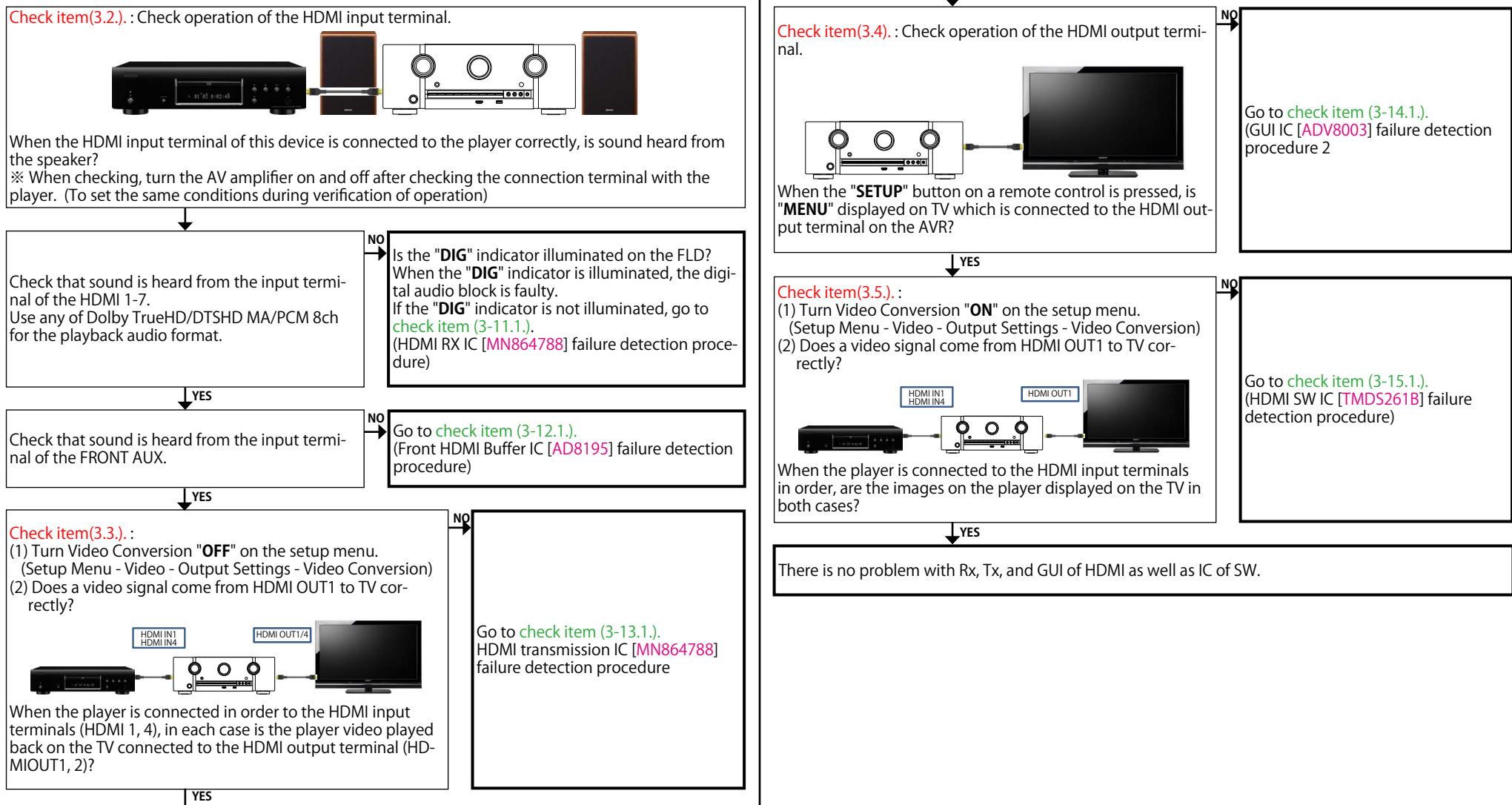
#### Display when an Error is not detected.

L1	1 Auto
L2	Test

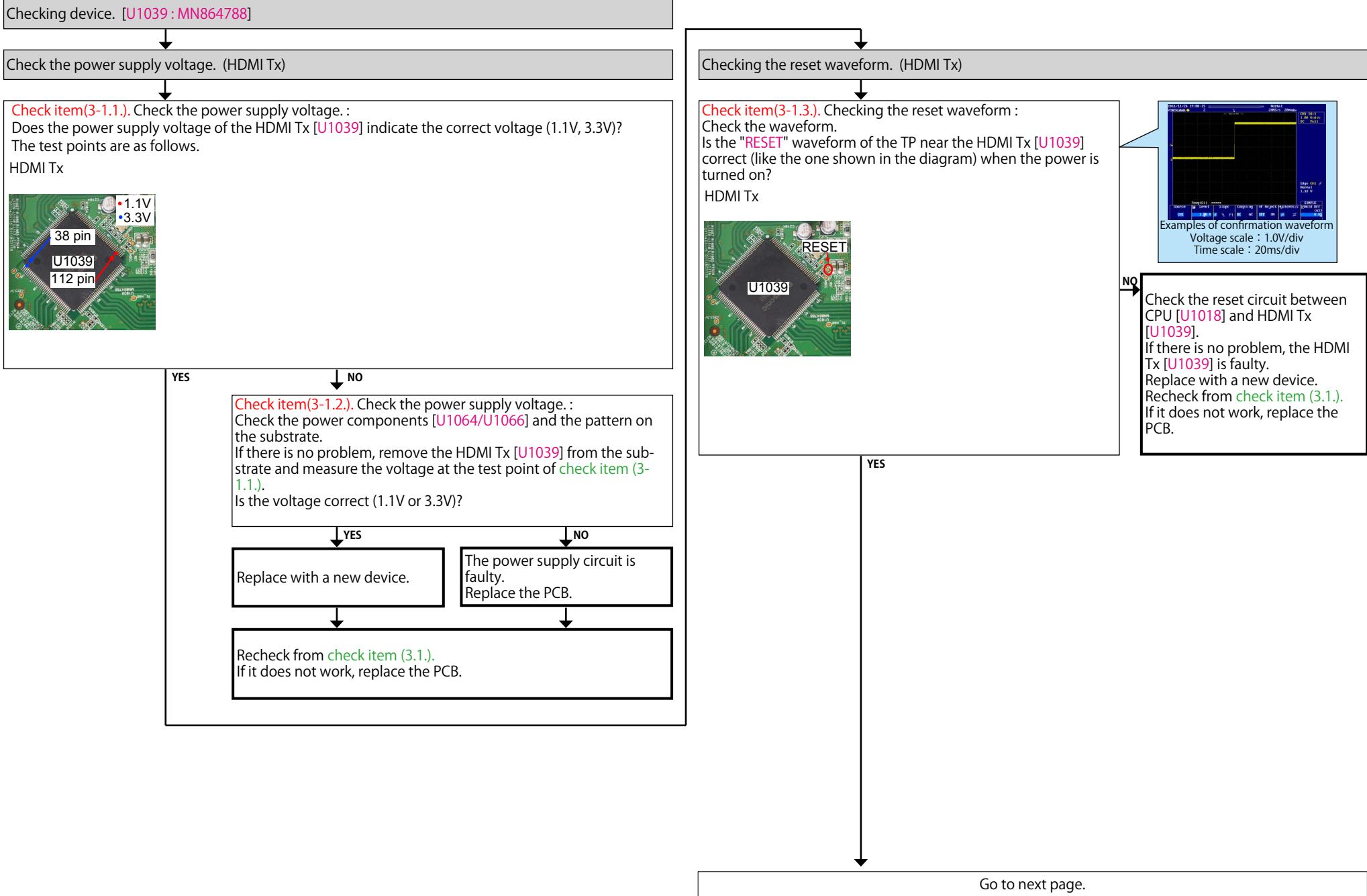
Cancel the mode, and proceed to [check item \(3.2.\)](#).

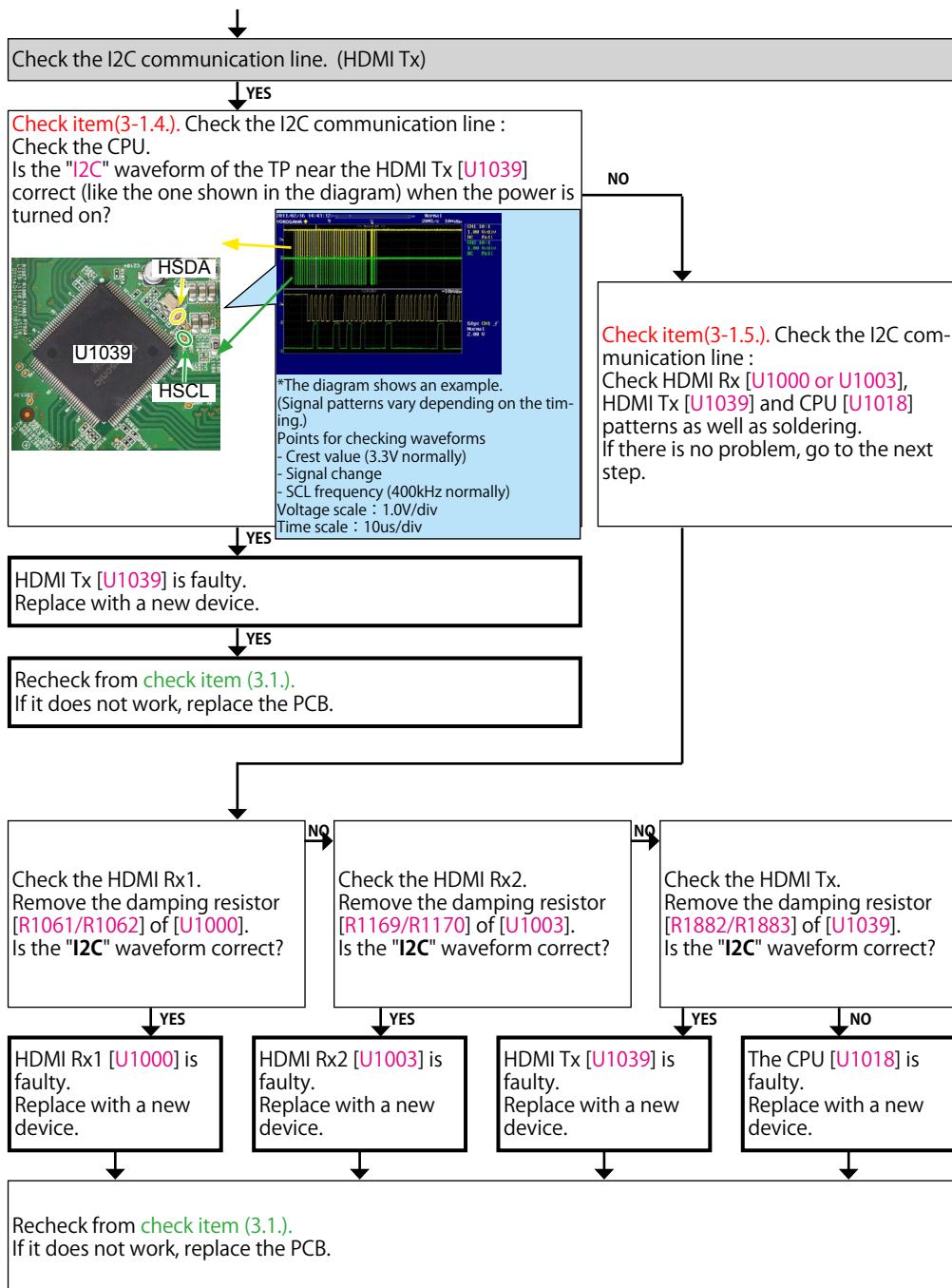
Canceling the selected mode

Press the power button to exit off the power.

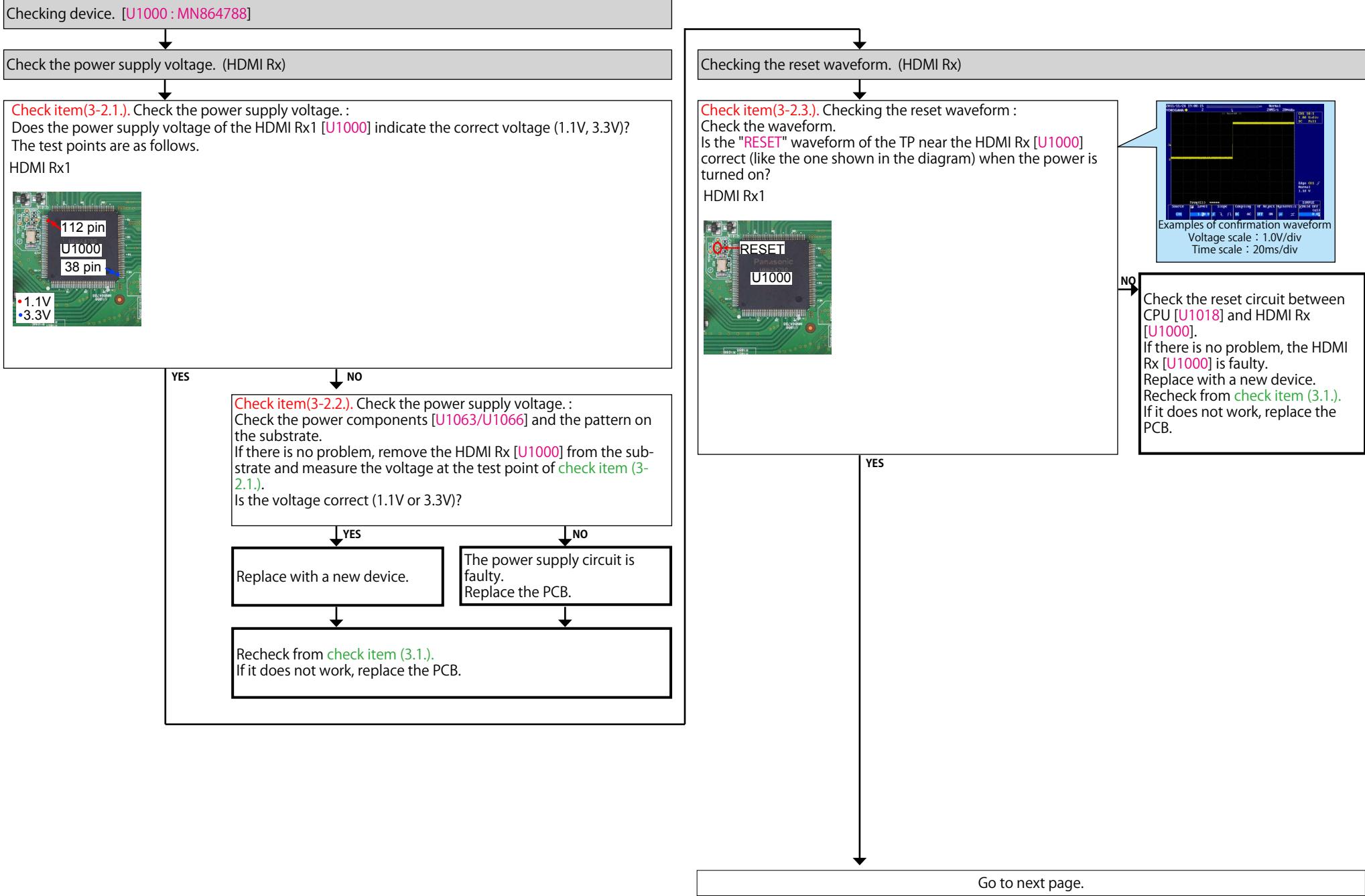


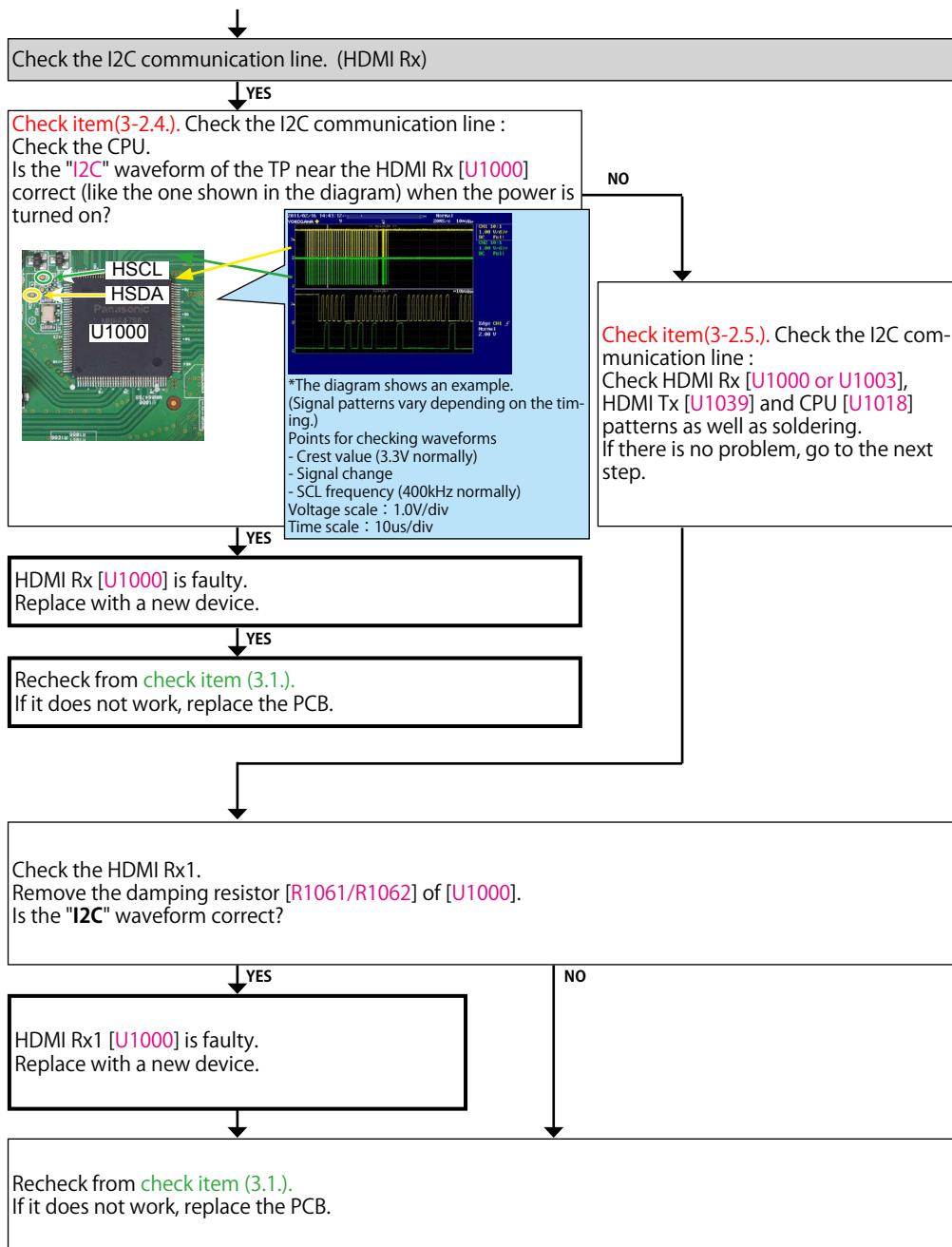
### 3-1. Error Code H1-01 failure detection procedure



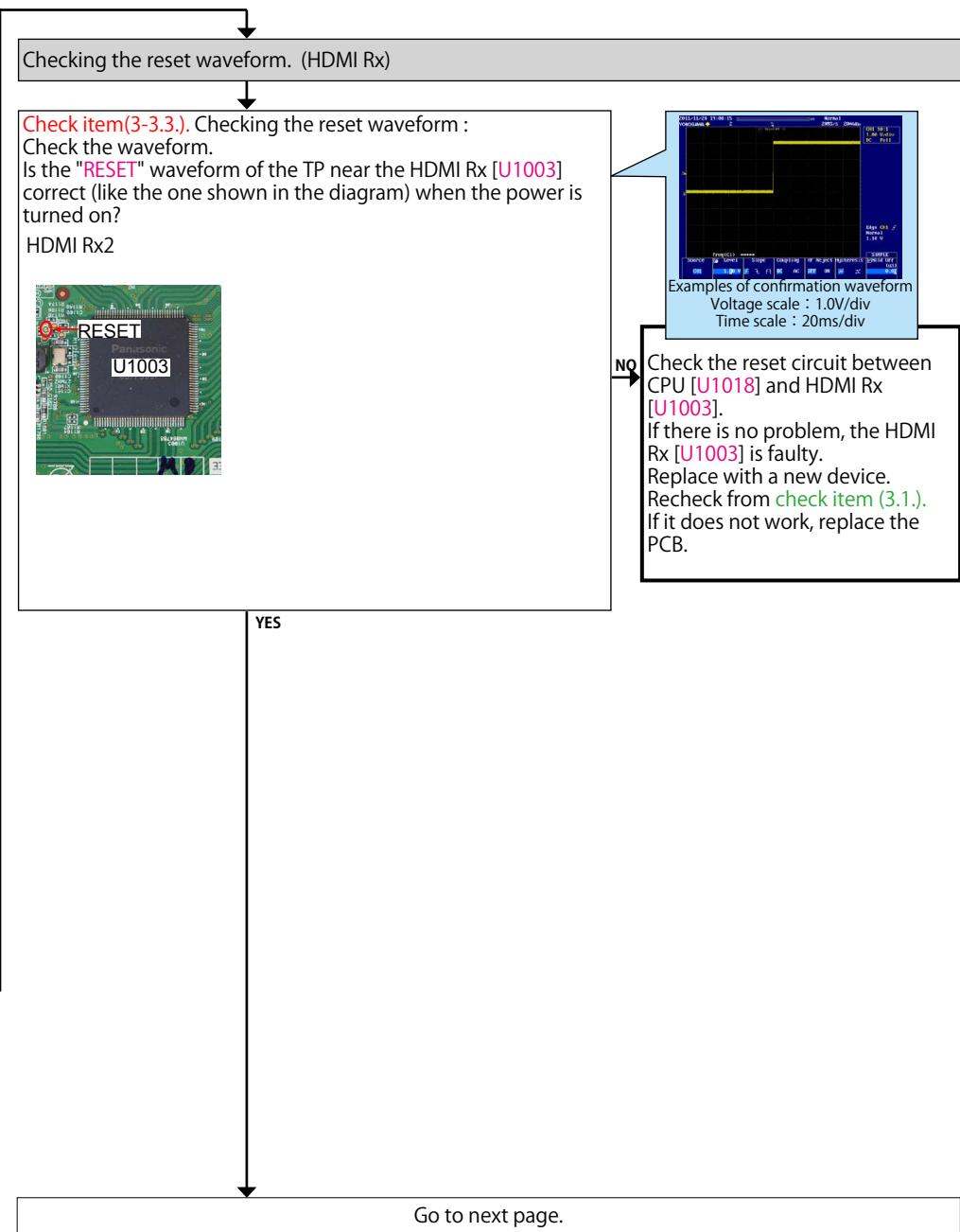
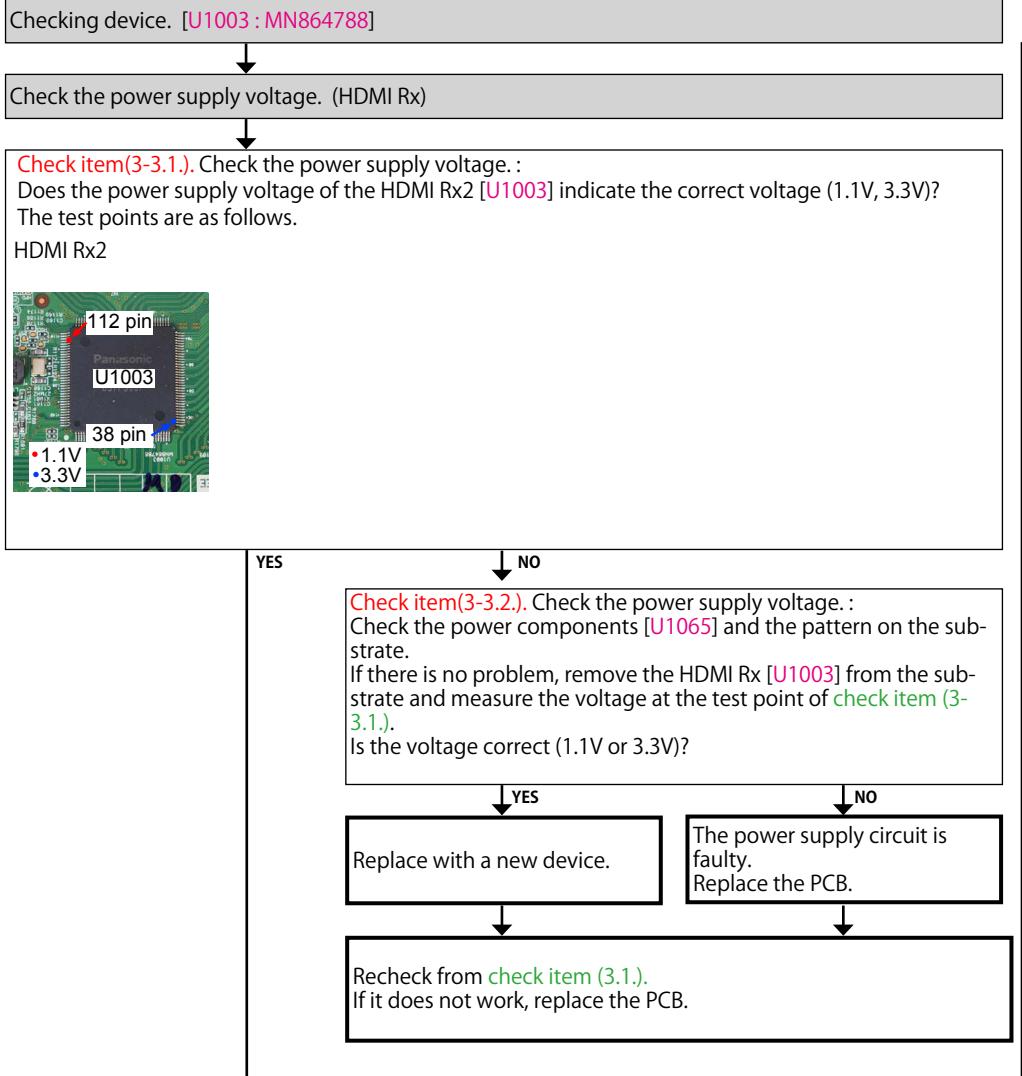


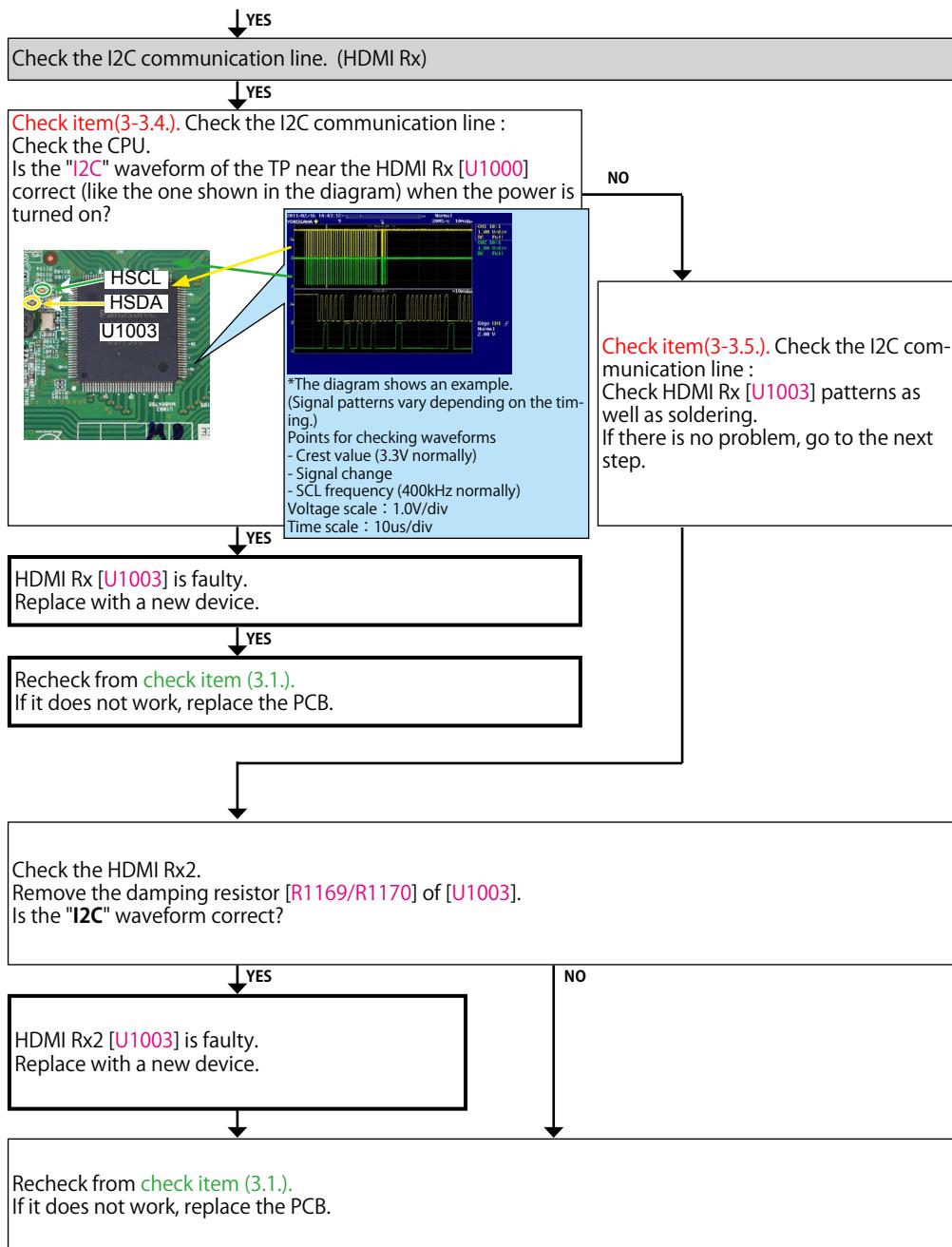
### 3-2. Error Code H1-02 failure detection procedure



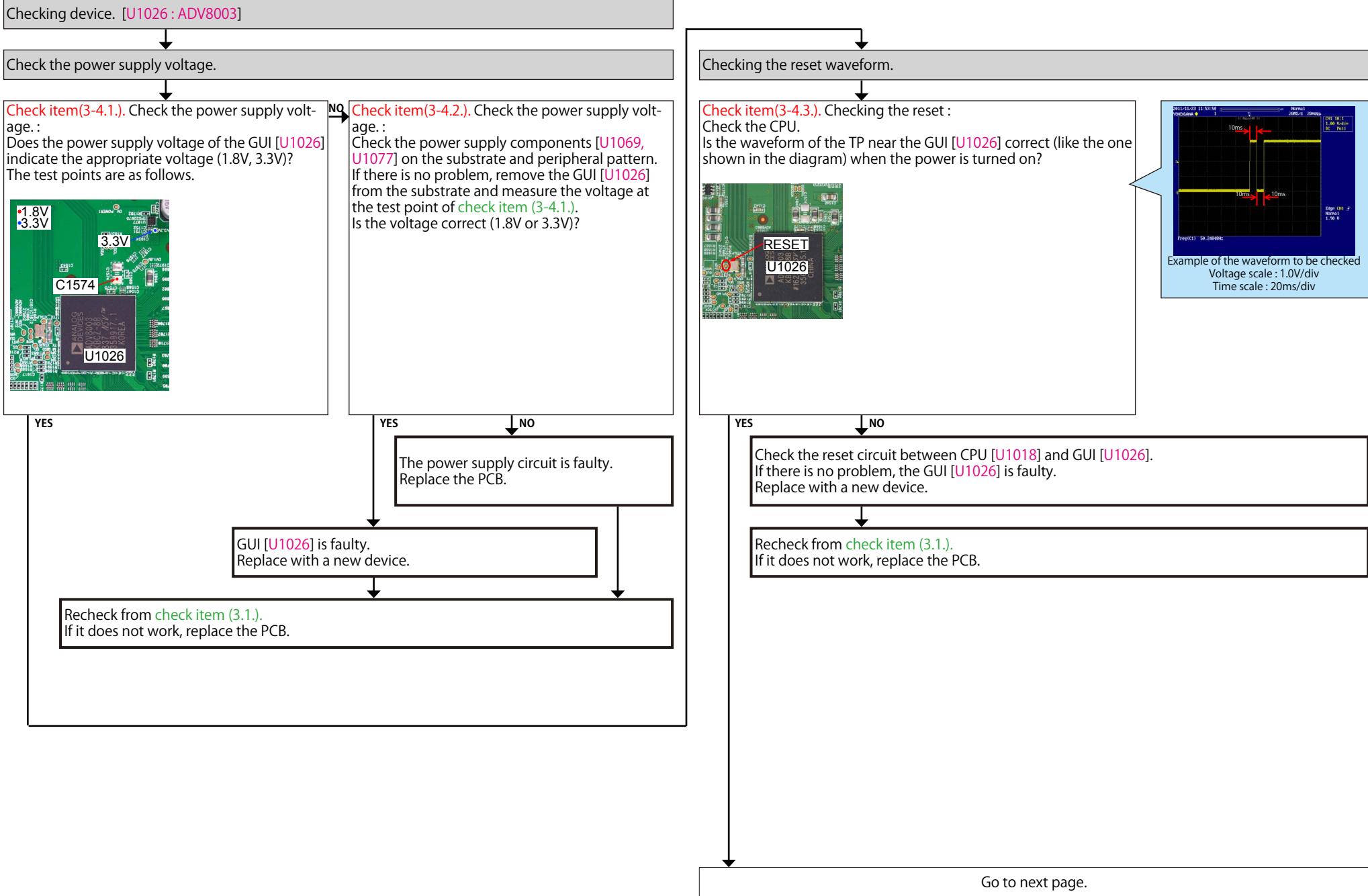


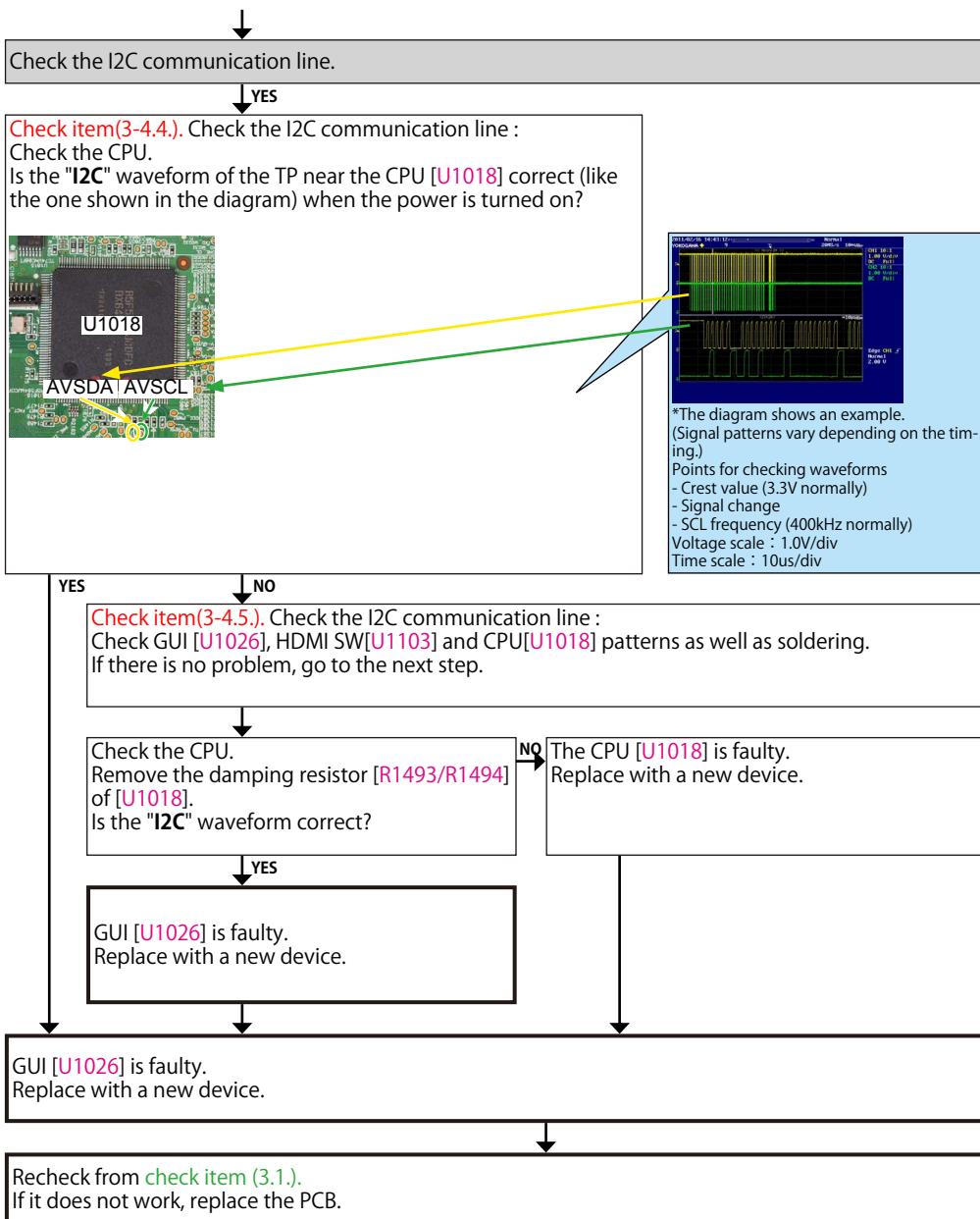
### 3-3. Error Code H1-03 failure detection procedure





### 3-4. Error Code H1-06 failure detection procedure





### 3-5. Error Code H1-14 failure detection procedure

Checking device. [U1028, U1029 : A3R12E40DBF-8E]

#### Check item(3-5.1.).

Check soldering of IP SCALER [U1026], DDR2 [U1028/U1029] and its peripheral circuits.  
Check soldering of the resistors [R1688/1689/1692/1695 to 1700/1703 to 1711] between IP SCALER and DDR2.  
If there is no problem with soldering, [U1026/U1028/U1029] is defective. Replace their IC. Or replace the substrate.

### 3-6. Error Code H1-15 failure detection procedure

Checking device. [U1027 : W25Q128JVFIQ]

#### Check item(3-6.1.).

Write to the GUI ROM.

Recheck from [check item \(3.1.\)](#).  
Does Error Code H1-15 continue?

NO

YES

#### Check item(3-6.2.).

Replace [U1029] with a new device.

Recheck from [check item \(3.1.\)](#).  
Does Error Code H1-15 continue?

NO

YES

Go to [check item \(3-4.1.\)](#).

Recheck from [check item \(3.2.\)](#).

### 3-7. Error Code H1-04 failure detection procedure

Checking device. [U1103 : TMDS261B]

Check item(3-7.1.).  
Replace [U1103] with a new device.

Recheck from [check item \(3.1.\)](#).  
Does Error Code H1-04 continue?

NO

Replace the PCB.

Recheck from [check item \(3.2.\)](#).

YES

### 3-8. Error Code H1-05 failure detection procedure

Checking device. [U2022 : ADV7180]

Check item(3-8.1.).  
Replace [U2022] with a new device.

Recheck from [check item \(3.1.\)](#).  
Does Error Code H1-05 continue?

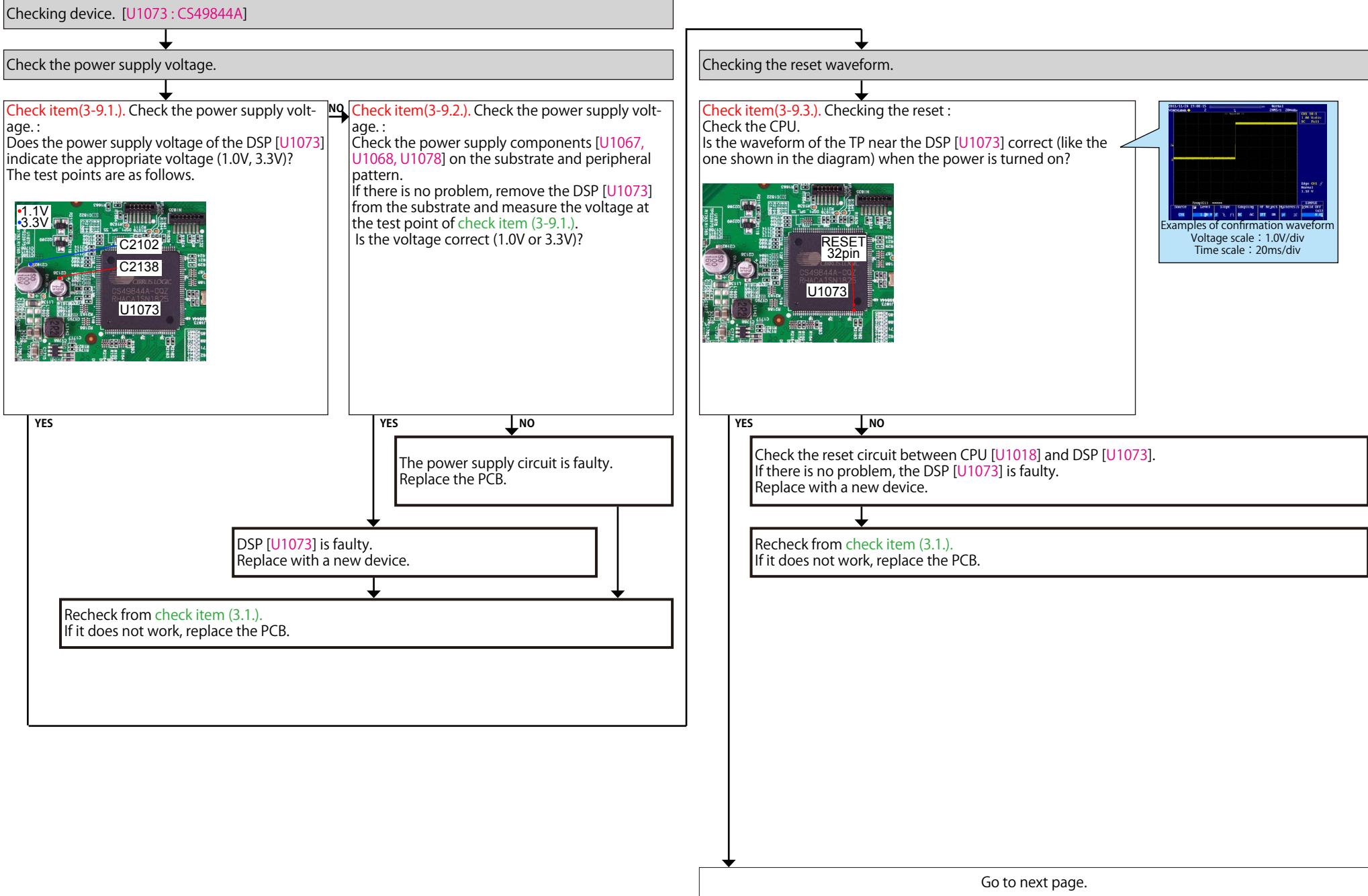
NO

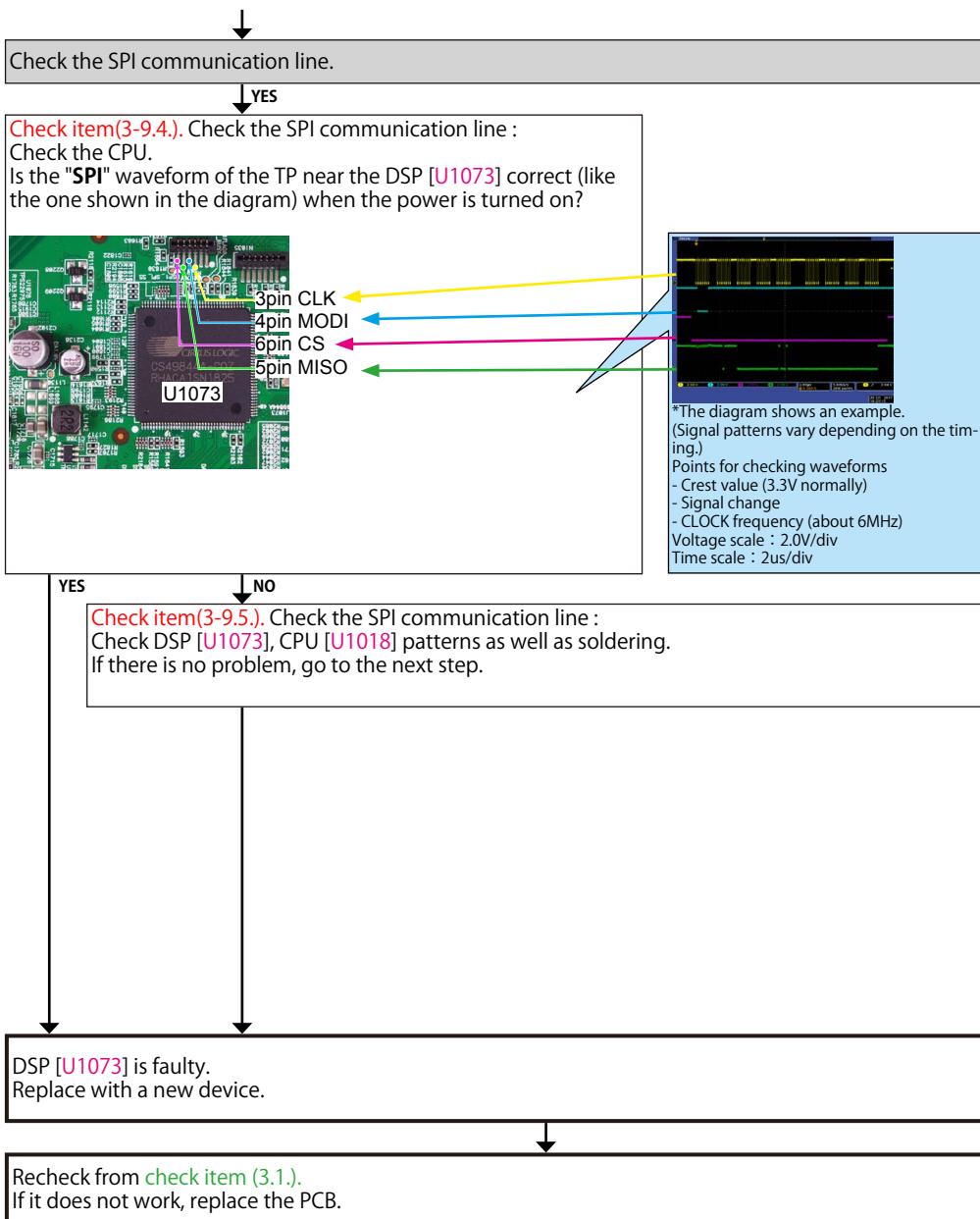
Replace the PCB.

Recheck from [check item \(3.2.\)](#).

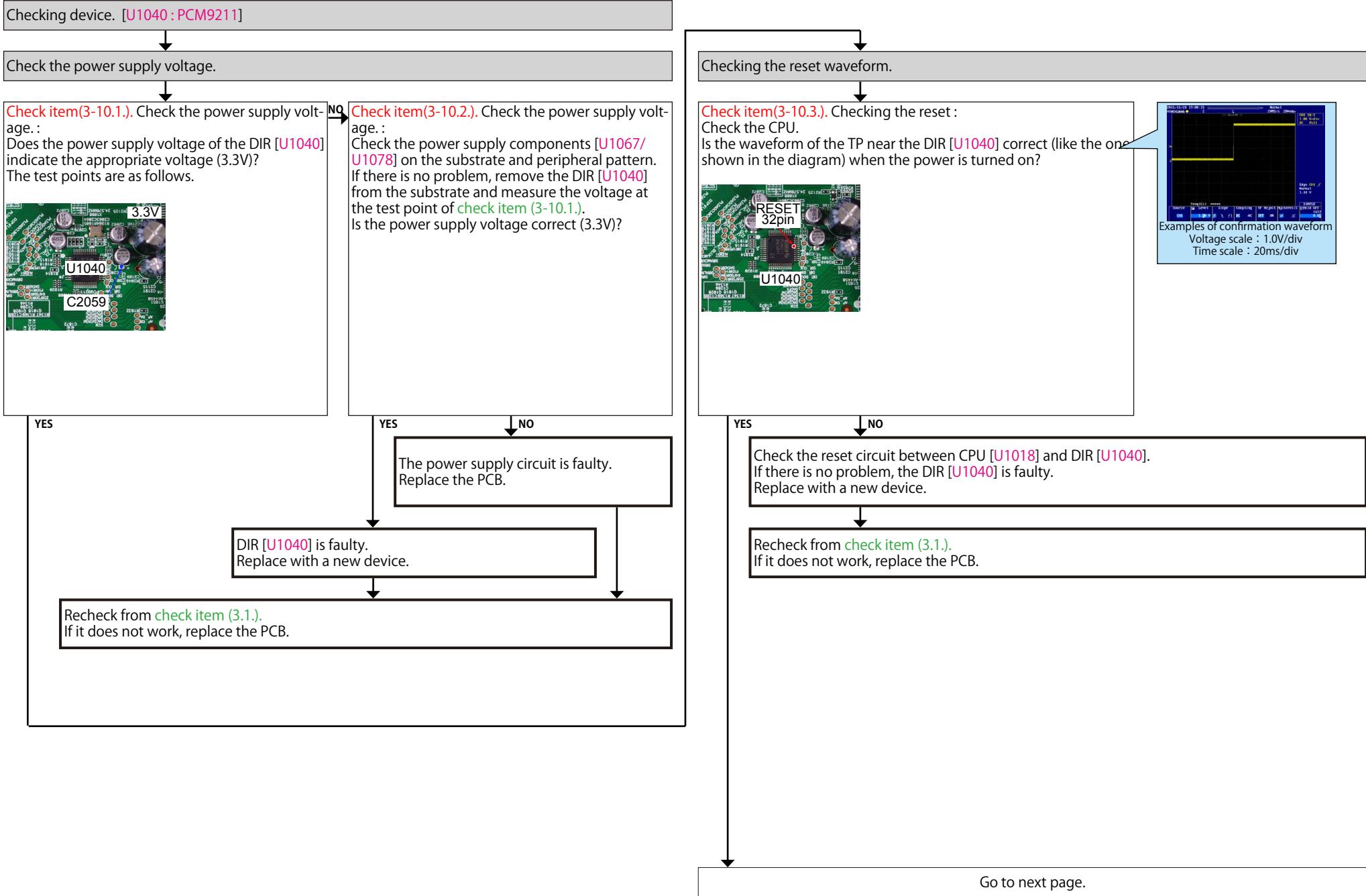
YES

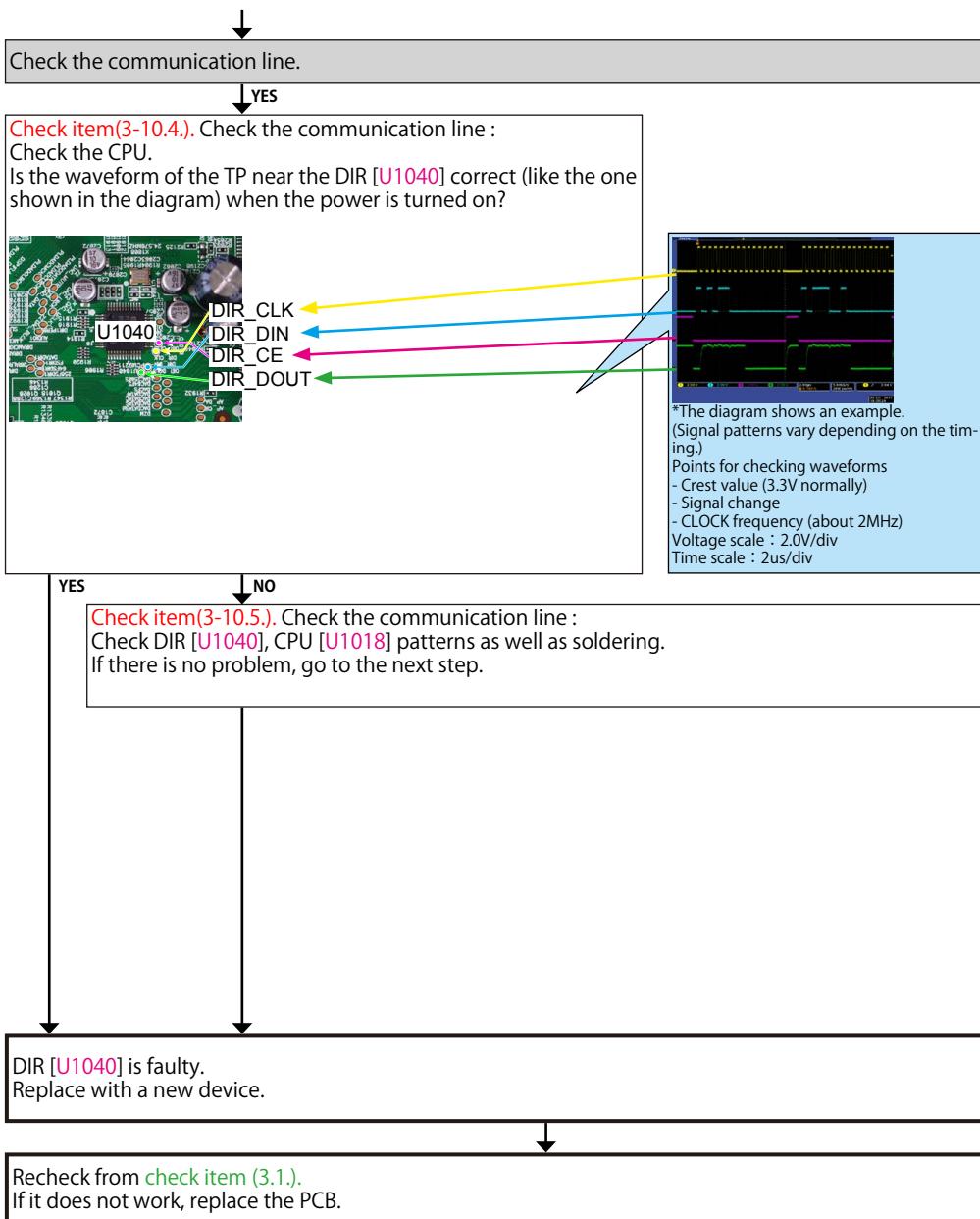
### 3-9. Error Code H1-08 failure detection procedure



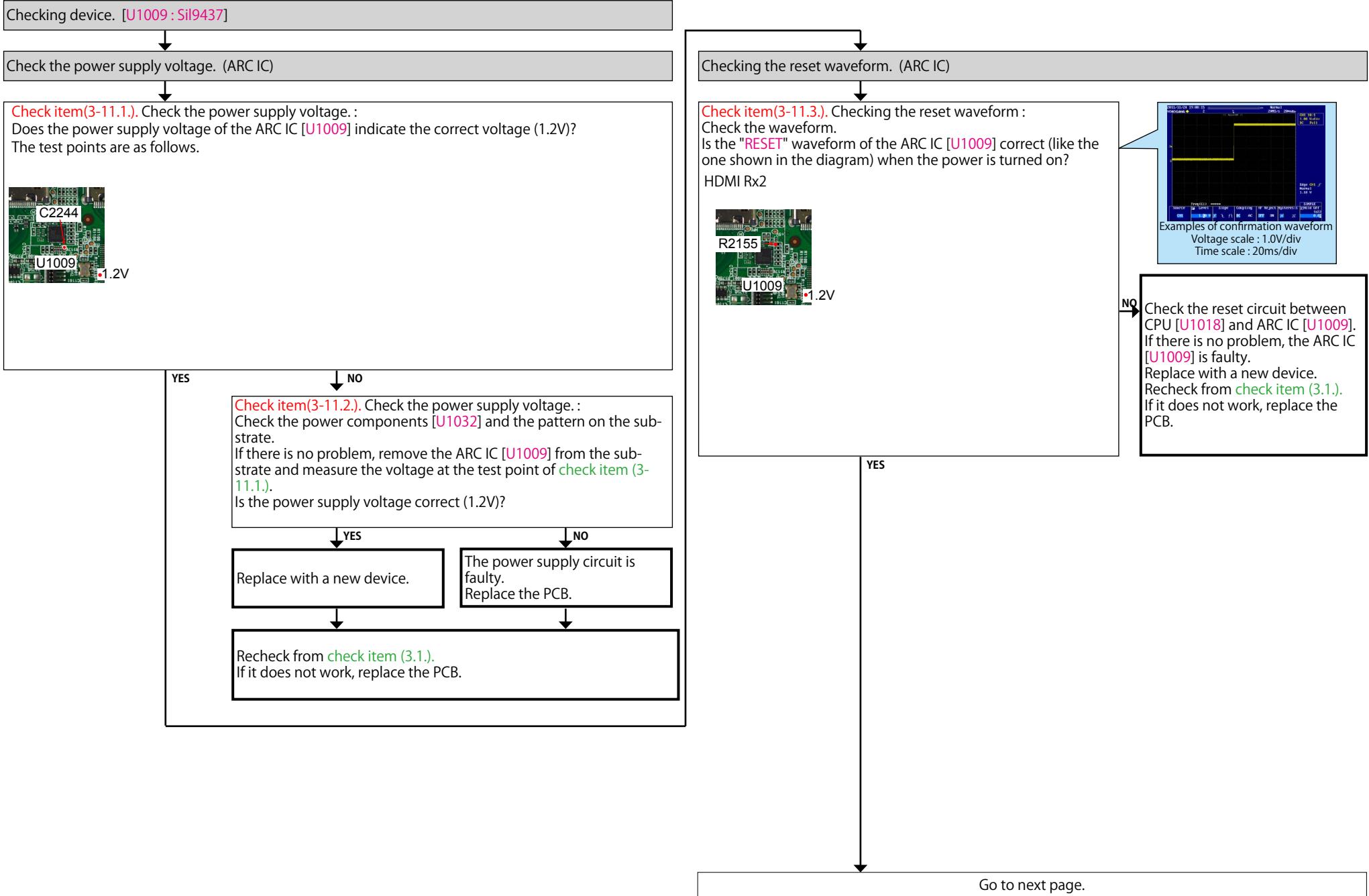


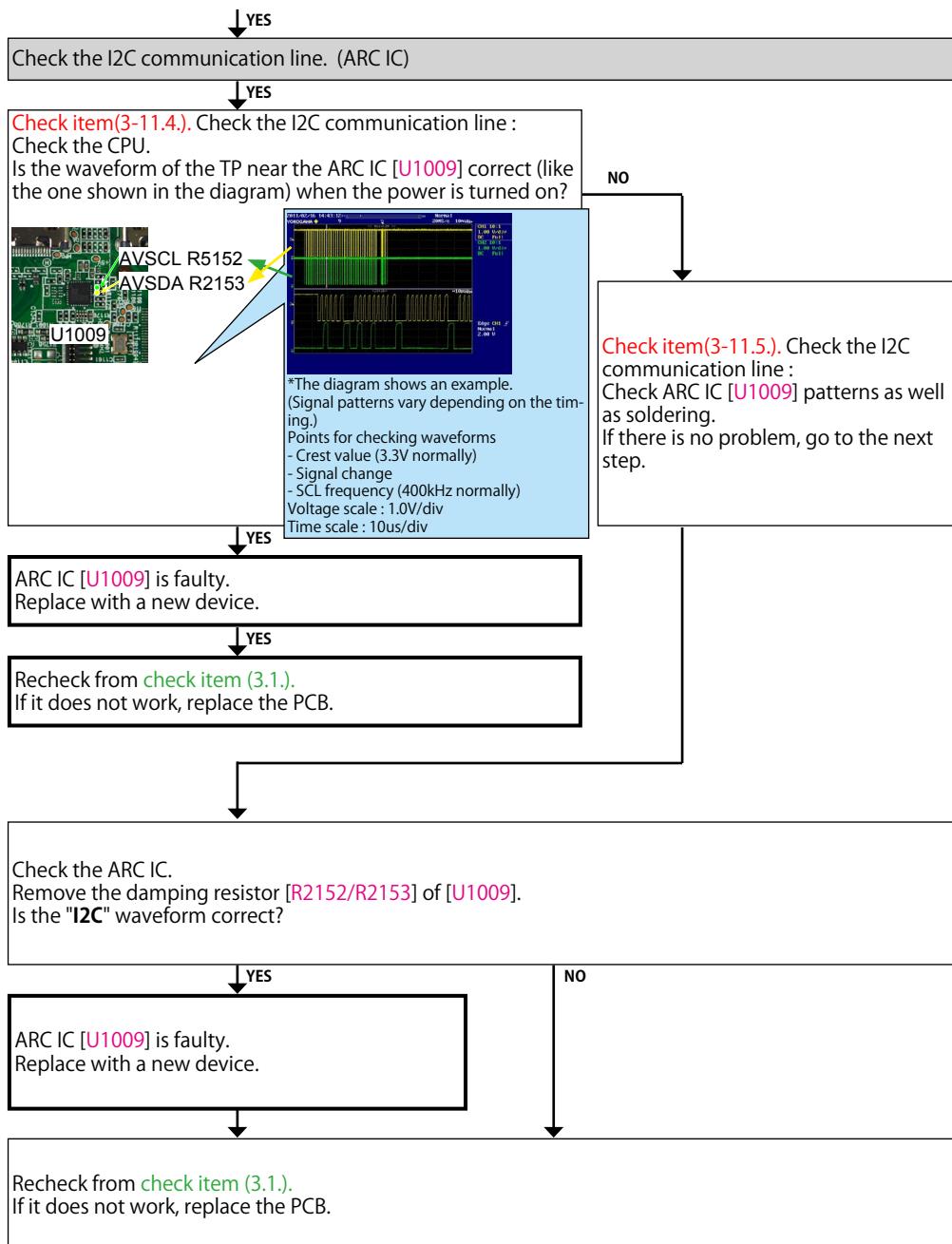
### 3-10. Error Code H1-12 failure detection procedure





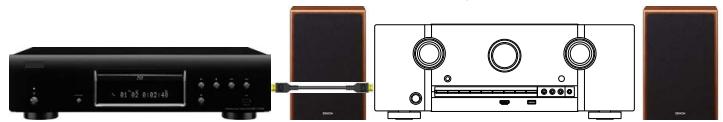
### 3-11. Error Code H1-16 failure detection procedure





### 3-12. HDMI Rx [MN864788] failure detection procedure

Checking operation between the HDMI (Rx) device and the player



※ In order to check, connect the player to the HDMI terminal and configure the player as AVR source. Check the sound output while turning on the player.

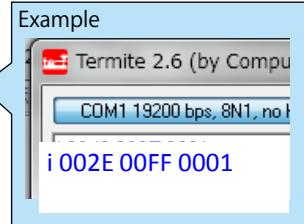
Checking the +5V/DDC status register (HDMI Rx)

**Check item(3-12.1).** Checking the 5V status register :  
Send the following command from Termite.exe.

HDMI Rx1 (When checking HDMI inputs 1, 2, and 3)  
Send the command "i 002E 0OFF 0001".

HDMI Rx2 (When checking HDMI inputs 4, 5, 6, and 7)  
Send the command "i 0056 0OFF 0001".

Move to the branch destination according to the value returned.



HDMI IN 1 ~ 7 "00"  
(Detection of 5V is not OK.)

Go to [check item \(3-12.3.\).](#)

HDMI IN1 "44 or 40" HDMI IN2 "22 or 20" HDMI IN3 "11 or 10"  
HDMI IN4 "88 or 80" HDMI IN5 "44 or 40" HDMI IN6 "22 or 20"  
HDMI IN7 "11 or 10"  
(Detection of 5V is OK)

**Check item(3-12.2).** Checking the DDC status register :  
Send the following command from Termite.exe.

HDMI Rx1 (When checking HDMI inputs 1, 2, and 3)

Case of HDMI IN1

Send the command "i 002B 0084 0001".

Case of HDMI IN2

Send the command "i 002B 0054 0001".

Case of HDMI IN3

Send the command "i 002B 0024 0001".

HDMI Rx2 (When checking HDMI inputs 4, 5, 6, and 7)

Case of HDMI IN4

Send the command "i 0053 00B4 0001".

Case of HDMI IN5

Send the command "i 0053 0084 0001".

Case of HDMI IN6

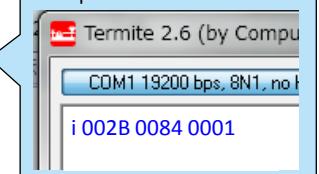
Send the command "i 0053 0054 0001".

Case of HDMI IN7

Send the command "i 0053 0024 0001".

Move to the branch destination according to the value returned.

Example



"00 or 04"  
(Detection of DDC is not OK.)

Go to [check item \(3-12.4.\).](#)

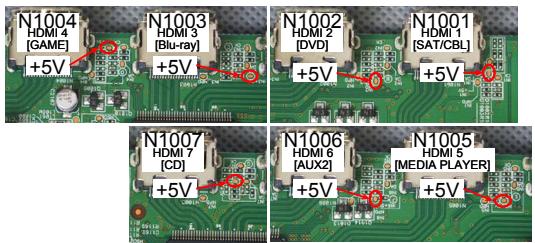
"22"  
(Detection of DDC is OK)

Go to [check item \(3-12.5.\).](#)

When the results of check item (3-12.1.) are "00"  
(Detection of 5V is not OK)

Check the +5V voltage. (HDMI Rx)

**Check item(3-12.3.).** Check the +5V voltage.  
Does "+5V" at the following test point indicate 5 V?



YES

HDMI Rx [U1000 or U1003] is faulty.  
Replace with a new device.

NO

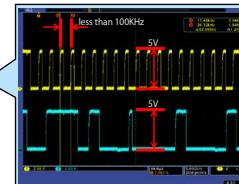
Check for a short circuit in the 5 V line and the 5 V Switch IC [U1002].  
If there is no problem, the HDMI Rx [U1000 or U1003] or the 5 V Switch IC [U1002] is faulty.  
Replace with a new device.

Recheck from [check item \(3.2.\).](#)  
If it does not work, replace the PCB.

When the results of check item (3-12.2.) are "00 or 04"  
(Detection of DDC is not OK)

Check the DDC line. (HDMI Rx)

**Check item(3-12.4.).** Check the DDC line :  
Are waveforms of "DDCSCK" and "DDCSDA" observed at the test point near the HDMI input terminal?



This diagram shows an example of the DDC communication waveform.  
-The high level voltage is 5V.  
-The frequency of the DDC CLK is 100 KHz or less.  
Check at each test point.  
Voltage scale : 2.0V/div  
Time scale : 40us/div

YES

HDMI Rx [U1000 or U1003] is faulty.  
Replace with a new device.

NO

Check for a short circuit in the DDC line.  
If there is no problem, the HDMI Rx1 [U1000] or HDMI Rx2 [U1003] is faulty.  
Replace with a new device.

Recheck from [check item \(3.2.\).](#)  
If it does not work, replace the PCB.

When the results of check item (3-12.2.) are "22"  
(Detection of DDC is OK.)

Checking the TMDS status register

**Check item(3-12.5.).** Checking register of the TMDS CLK detection status register :

Send the following command from Termite.exe.

HDMI Rx1 (When checking HDMI inputs 1, 2, and 3)

Send the command "i 002E 00FF 0001".

Rx2 (When checking HDMI inputs 4, 5, 6, and 7)

Send the command "i 0056 00FF 0001".

When the following value is returned, go to Yes.

HDMI IN1 "44" HDMI IN2 "22" HDMI IN3 "11" HDMI IN4 "88" HDMI IN5 "44" HDMI IN6 "22" HDMI IN7 "11"

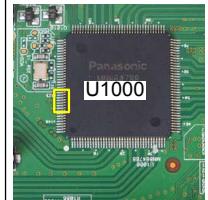
When the following value is returned, go to No.

HDMI IN1 "40" HDMI IN2 "20" HDMI IN3 "10" HDMI IN4 "80" HDMI IN5 "40" HDMI IN6 "20" HDMI IN7 "10"

YES

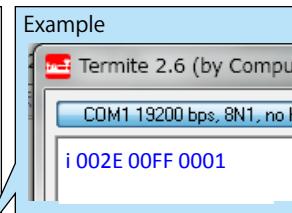
**Check item(3-12.6.).** Checking the audio signal output :  
Check the audio signal waveform at the following test point.  
Is the waveform like the sample?

HDMI Rx1 [U1000]  
(When checking HDMI inputs 1, 2, and 3)



129/131/132/133/134/135/136 pin

HDMI Rx2 [U1003]  
(When checking HDMI inputs 4, 5, 6, and 7)



NO



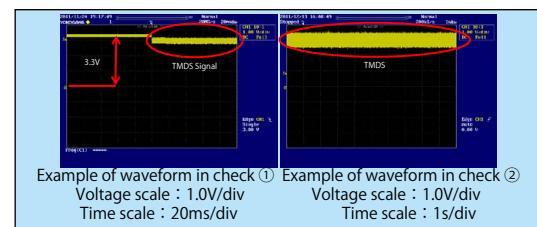
The diagram shows an example of the waveform of pin 129. (I2SO Data)  
Waveform check points  
- Crest value (3.3V normally)  
- Signal change  
Check the waveform of each pin.  
Voltage scale : 1.0V/div  
Time scale : 500ns/div

The digital audio block is faulty.  
Check the digital audio device.  
Check "AUDIO" in troubleshooting.  
If it does not work, replace the PCB.

YES

NO

HDMI Rx [U1000 or U1003] is faulty.  
Replace with a new device.



**Check item(3-12.7.).** Checking the TMDS input waveform. :  
Check the TMDS waveform at the following test point.  
Is the waveform like the sample?

HDMI Rx1 [U1000]

(When checking HDMI inputs 1, 2, and 3)  
(When checking HDMI inputs 4, 5, 6, and 7)



HDMI Rx2 [U1003]

(When checking HDMI inputs 1, 2, and 3)  
(When checking HDMI inputs 4, 5, 6, and 7)



HDMI IN3/7 93/94/96/97/99/100/102/103 pin
HDMI IN2/6 80/81/83/84/86/87/89/90 pin
HDMI IN1/5 55/56/58/59/61/62/64/65 pin
HDMI IN4 42/43/45/46/48/49/51/52 pin

YES

HDMI Rx [U1000 or U1003] is faulty.  
Replace with a new device.

Recheck from [check item \(3.2.\).](#)  
If it does not work, replace the PCB.

NO

Check for a short circuit in the pattern of the TMDS line of the HDMI Rx [U1000 or U1003] from the HDMI input terminal.  
If there is no problem, the HDMI Rx [U1000 or U1003] is faulty. Replace with a new device.

### 3-13. HDMI DDC Buffer failure IC detection procedure

Checking operation between the HDMI (HDMI DDC Buffer) and the player



※ In order to check, connect the player to the HDMI terminal and configure the player as AVR source. Check the sound output while turning on the player.

Check the power supply voltage. (HDMI Rx)

Checking the +5V/DDC status register (HDMI DDC Buffer)

**Check item(3-13.3).** Checking the 5V status of the register : Send the following command from Termite.exe.

Send the command "i 002E 00FF 0001".

Move to the branch destination according to the value returned.

Example

```
Termite 2.6 (by Compu
COM1 19200 bps, 8N1, no H
i 002E 00FF 0001
```

"00"  
(Detection of 5V is not OK.)

Go to [check item \(3-13.5.\)](#)

"88 or 80"  
(Detection of 5V is OK)

**Check item(3-13.4).** Checking the status of the register : Send the following command from Termite.exe.

Send the command "i 002B 00B4 0001".

Move to the branch destination according to the value returned.

Example

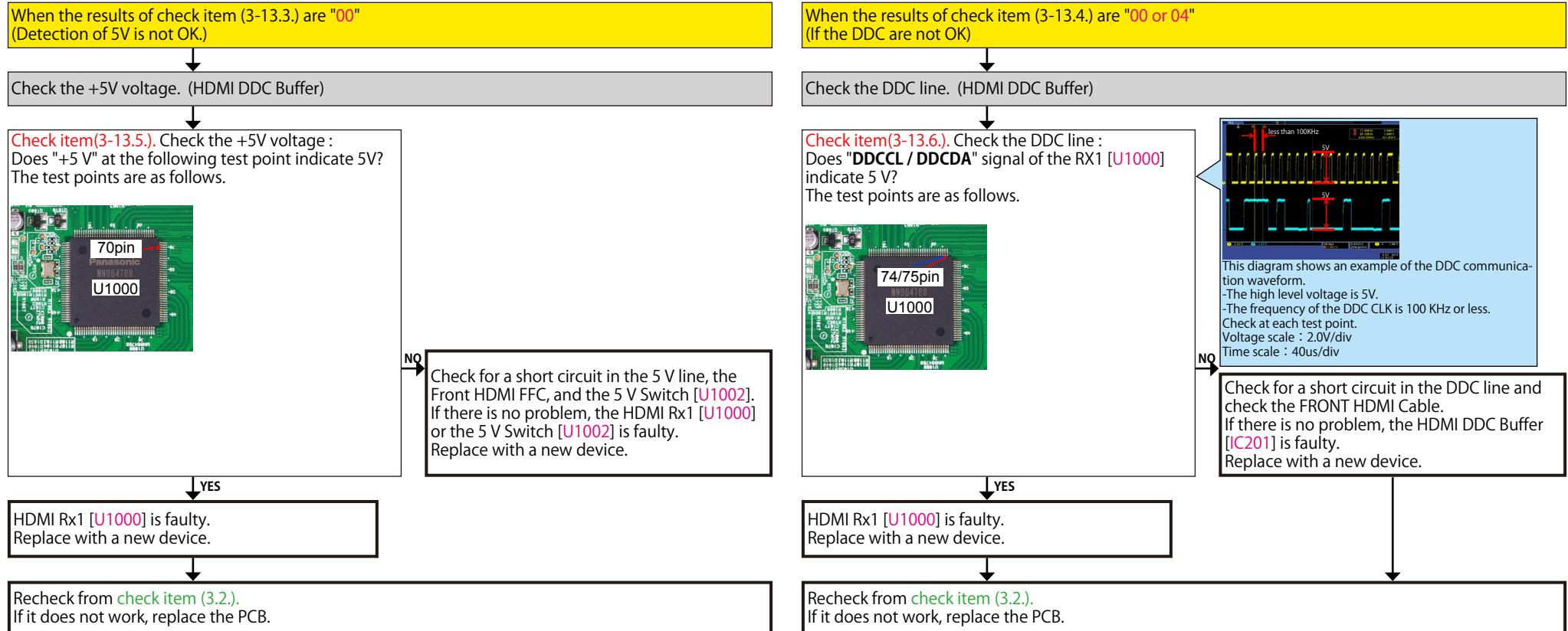
```
Termite 2.6 (by Compu
COM1 19200 bps, 8N1, no H
i 002B 00B4 0001
```

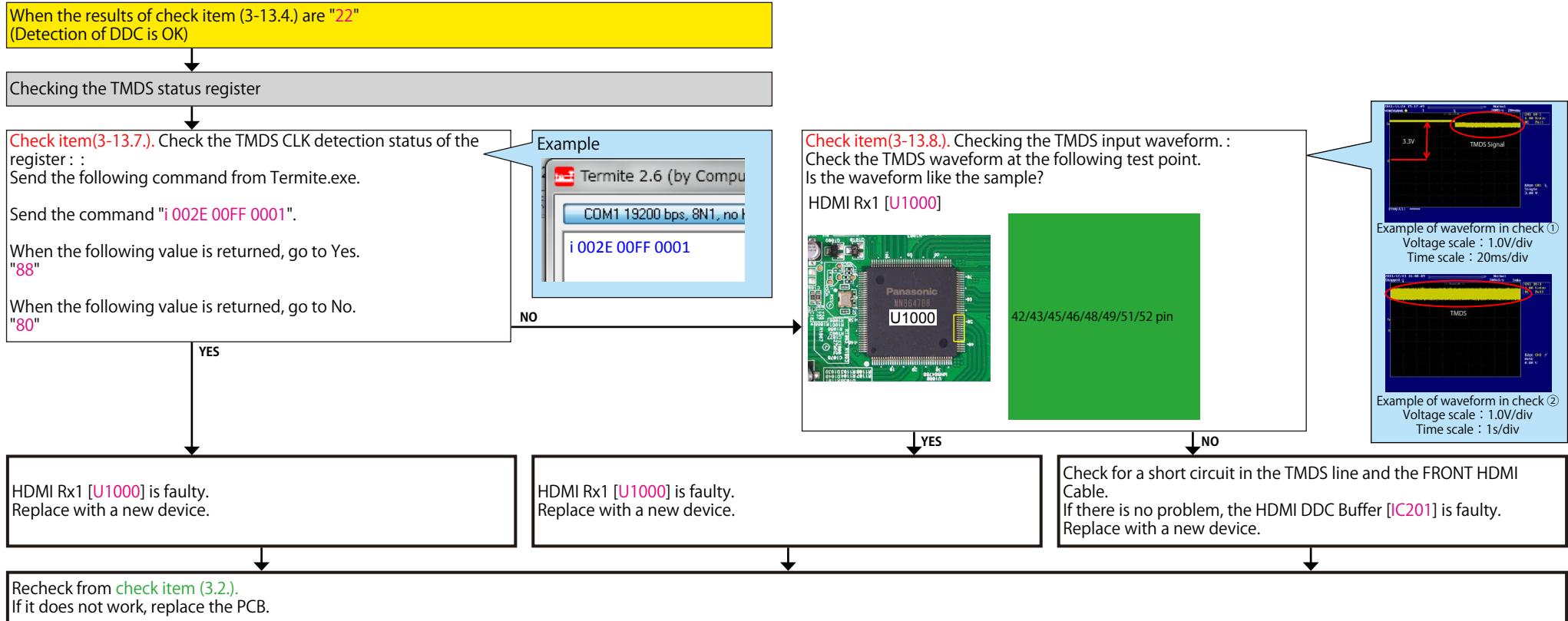
"00 or 04"  
(Detection of DDC is not OK.)

Go to [check item \(3-13.6.\)](#)

"22"  
(Detection of DDC is OK)

Go to [check item \(3-13.7.\)](#)





### 3-14. HDMI transmission IC [MN864788] failure detection procedure

Check the output terminal.

**Check item(3-14.1.)**. Check the video output port for failure.:  
Check the Monitor 1 output video signal is correct.

After checking the Monitor 1, change the HDMI cable connection from OUT1 to OUT2.  
Turn off the AV AMP and turn it on again.  
To check under the same conditions, use the same procedure as that for checking Monitor 1 when checking the Monitor 2 output.

No video signal is output from both Monitor 1 and Monitor 2.

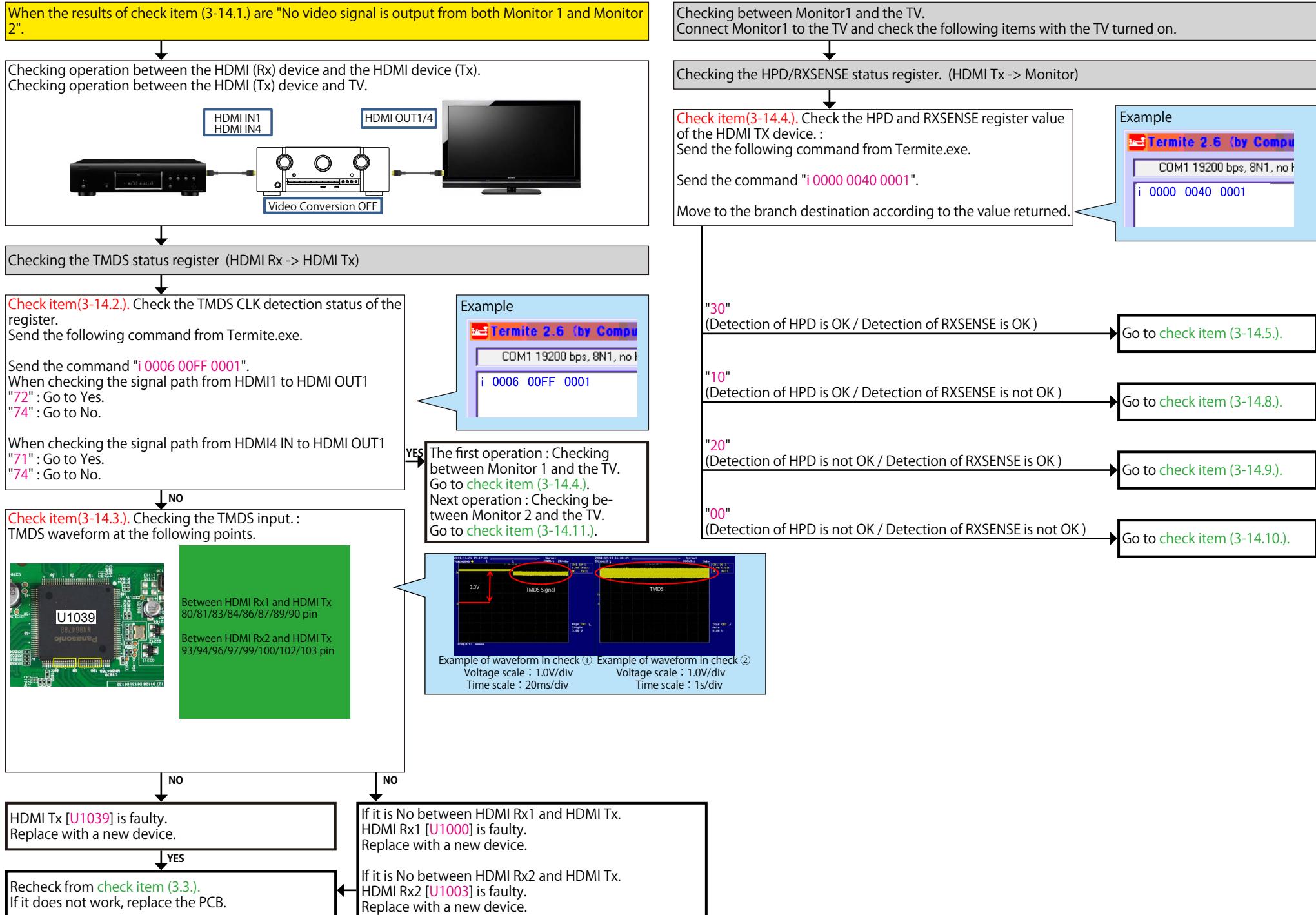
Go to [check item \(3-14.2.\).](#)

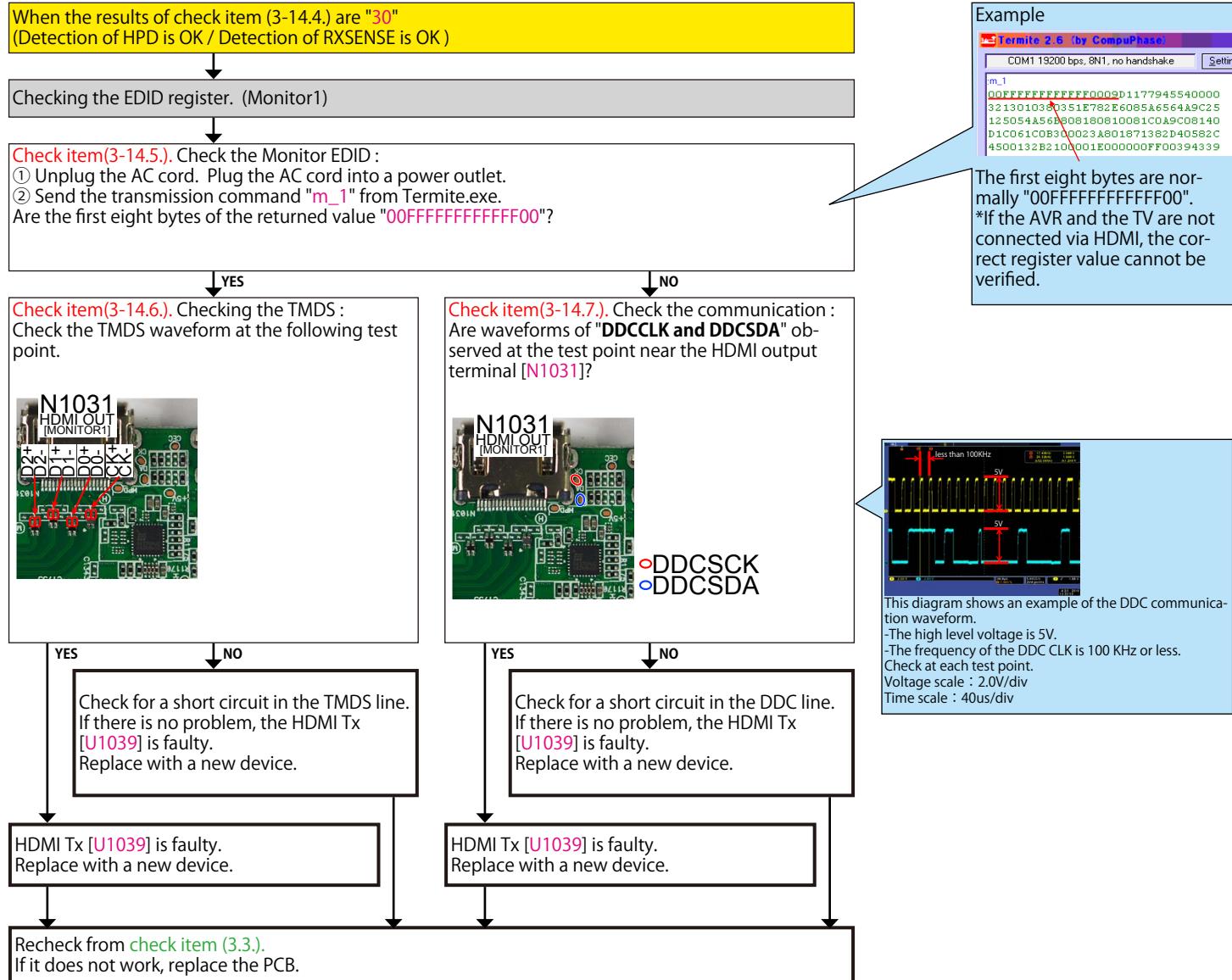
No video signal is output from Monitor 1 only.

Go to [check item \(3-14.4.\).](#)

No video signal is output from Monitor 2 only.

Go to [check item \(3-14.11.\).](#)

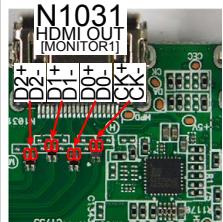




When the results of check item (3-14.4.) are "10"  
(Detection of HPD is OK / Detection of RXSENSE is not OK)

Check the RXSENSE. (Monitor1)

**Check item(3-14.8).** Checking the RXSENSE :  
Does the test point of RXSENSE close to the HDMI output terminal [N1031] indicate the (3.3V)?



YES      NO

Check for a short circuit in the TMDS line.  
If there is no problem, the HDMI Tx [U1039] is faulty.  
Replace with a new device.

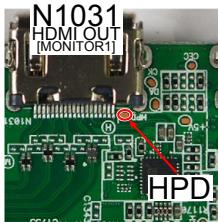
HDMI Tx [U1039] is faulty.  
Replace with a new device.

Recheck from [check item \(3.3.\).](#)  
If it does not work, replace the PCB.

When the results of check item (3-14.4.) are "20"  
(Detection of HPD is not OK / Detection of RXSENSE is OK)

Check the HPD. (Monitor1)

**Check item(3-14.9).** Checking the HPD :  
Does the voltage of HPD test point close to the HDMI output terminal [N1031] indicate Hi (3-5V)?

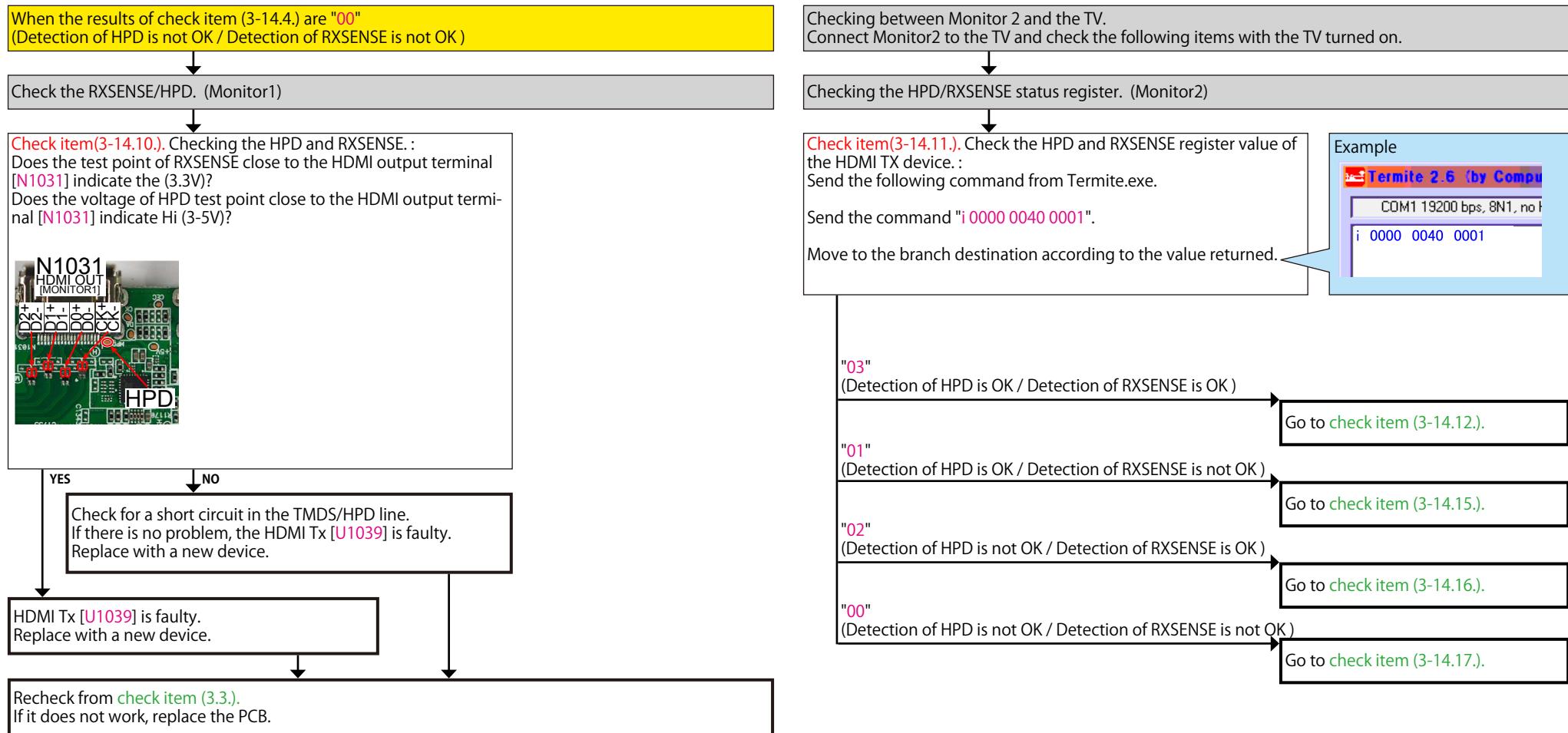


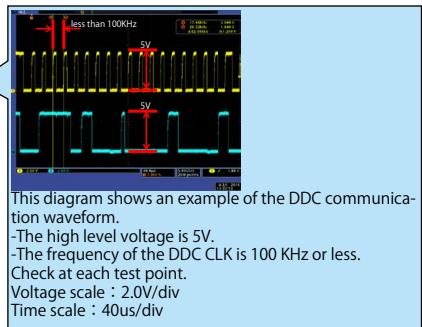
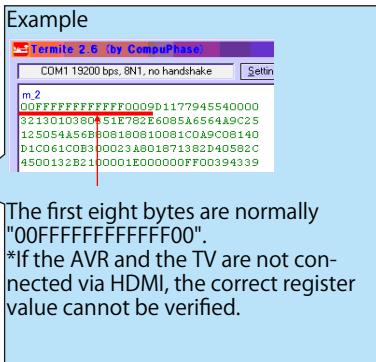
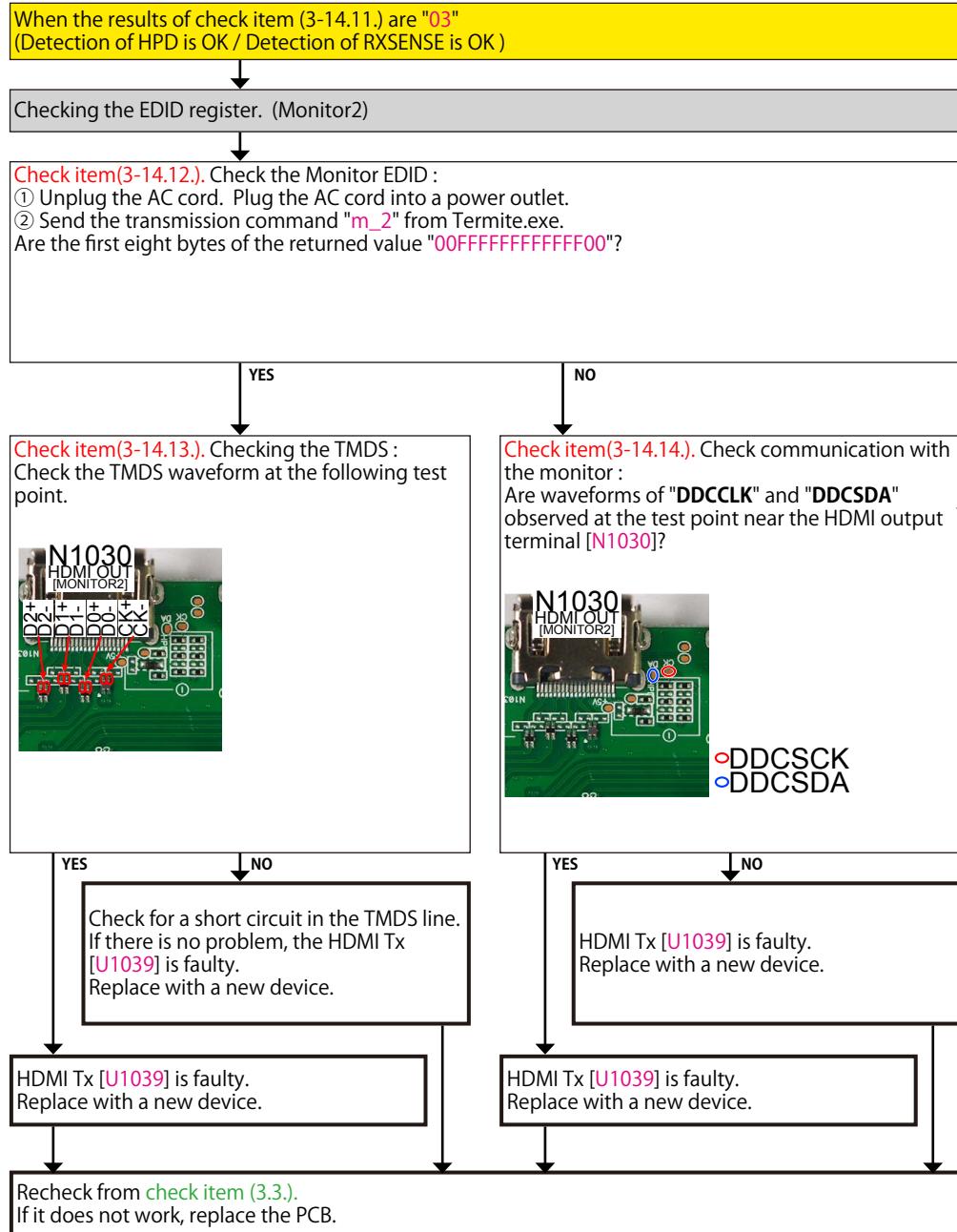
YES      NO

Check for a short circuit in the HPD line.  
If there is no problem, the HDMI Tx [U1039] is faulty.  
Replace with a new device.

HDMI Tx [U1039] is faulty.  
Replace with a new device.

Recheck from [check item \(3.3.\).](#)  
If it does not work, replace the PCB.

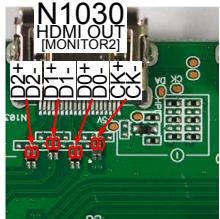




When the results of check item (3-14.11.) are "01"  
(Detection of HPD is OK / Detection of RXSENSE is not OK)

Check the RXSENSE. (Monitor2)

**Check item(3-14.15).** Checking the RXSENSE :  
Does the test point of RXSENSE close to the HDMI output terminal [N1030] indicate the (3.3V)?



YES      NO

Check for a short circuit in the TMDS line.  
If there is no problem, the HDMI Tx [U1039] is faulty.  
Replace with a new device.

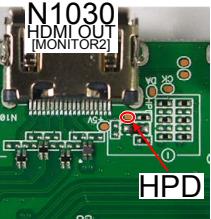
HDMI Tx [U1039] is faulty.  
Replace with a new device.

Recheck from [check item \(3.3.\).](#)  
If it does not work, replace the PCB.

When the results of check item (3-14.11.) are "02"  
(Detection of HPD is not OK / Detection of RXSENSE is OK)

Check the HPD. (Monitor2)

**Check item(3-14.16).** Checking the HPD :  
Does the voltage of HPD test point close to the HDMI output terminal [N1030] indicate Hi (3-5 V)?

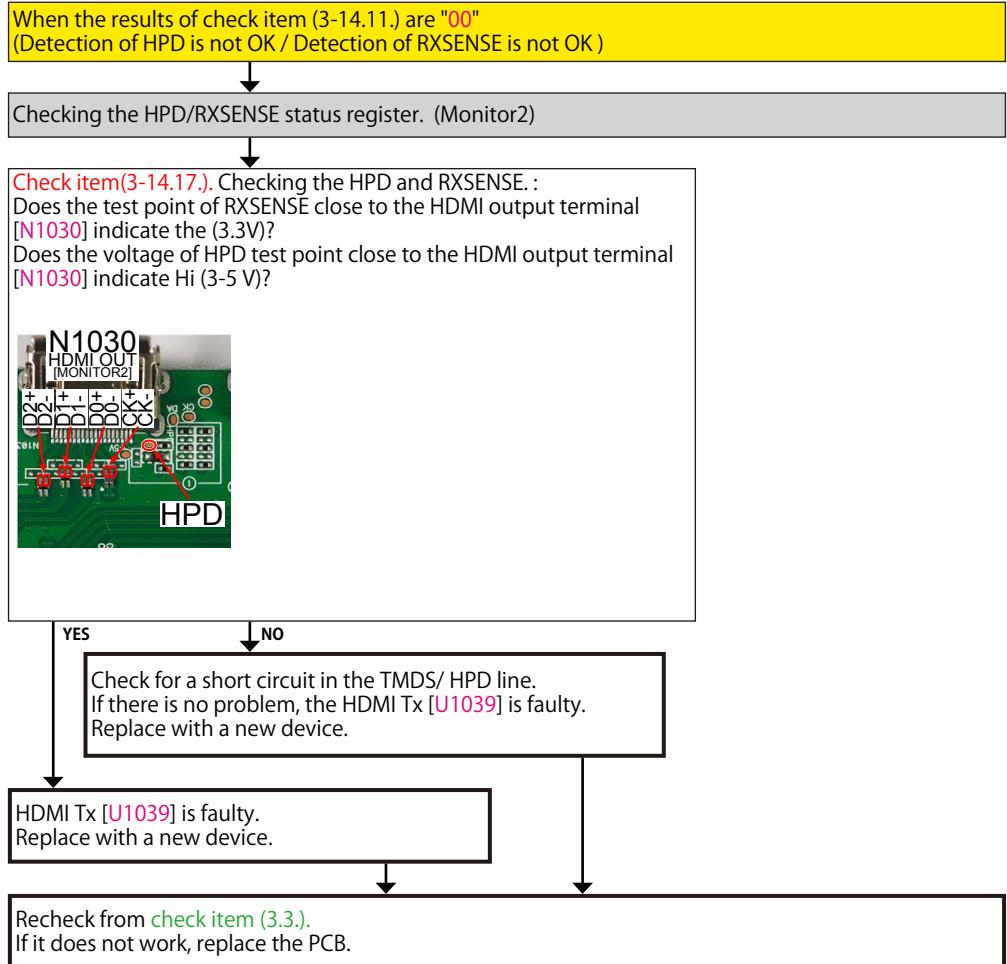


YES      NO

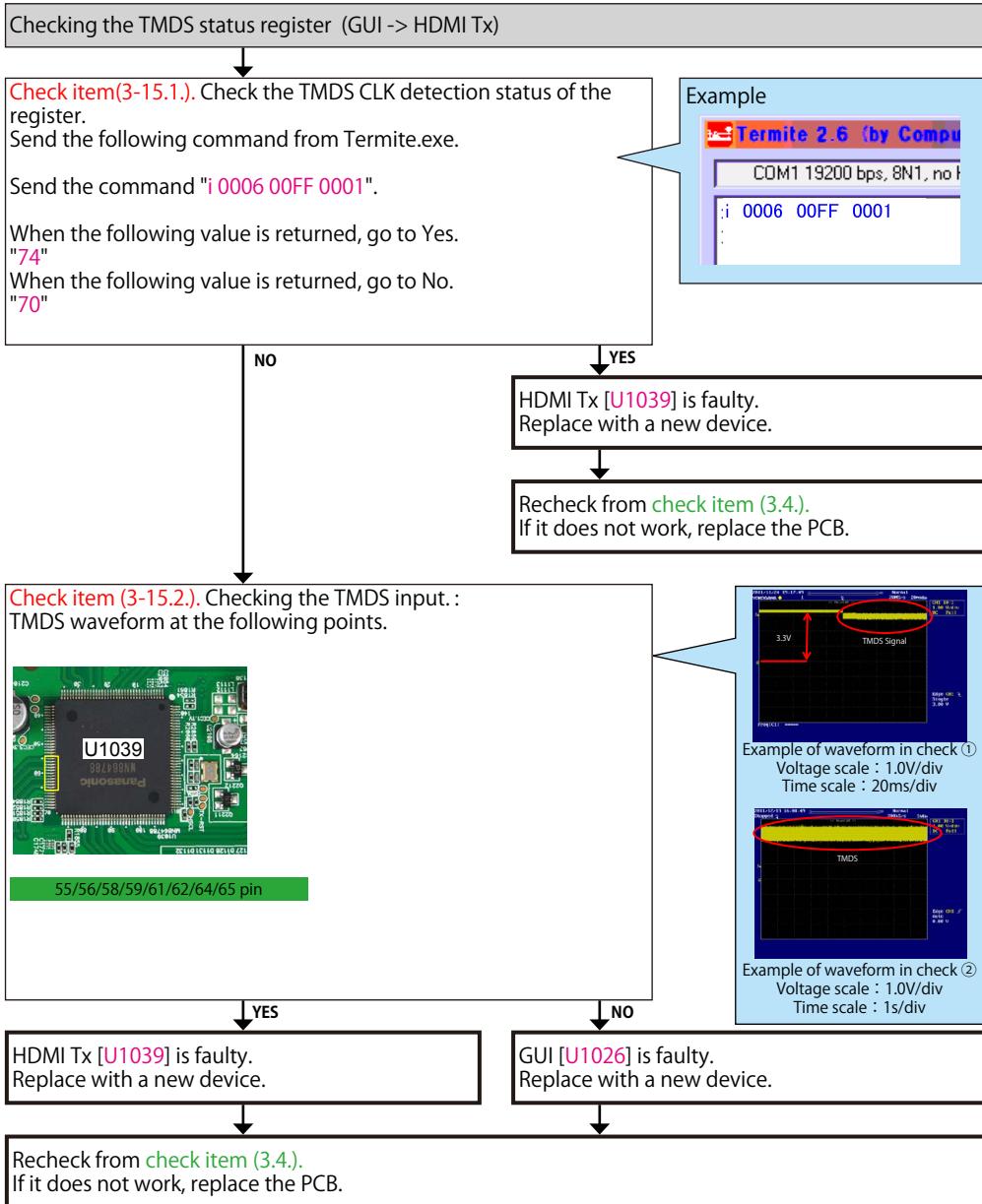
Check for a short circuit in the HPD line.  
If there is no problem, the HDMI Tx [U1039] is faulty.  
Replace with a new device.

HDMI Tx [U1039] is faulty.  
Replace with a new device.

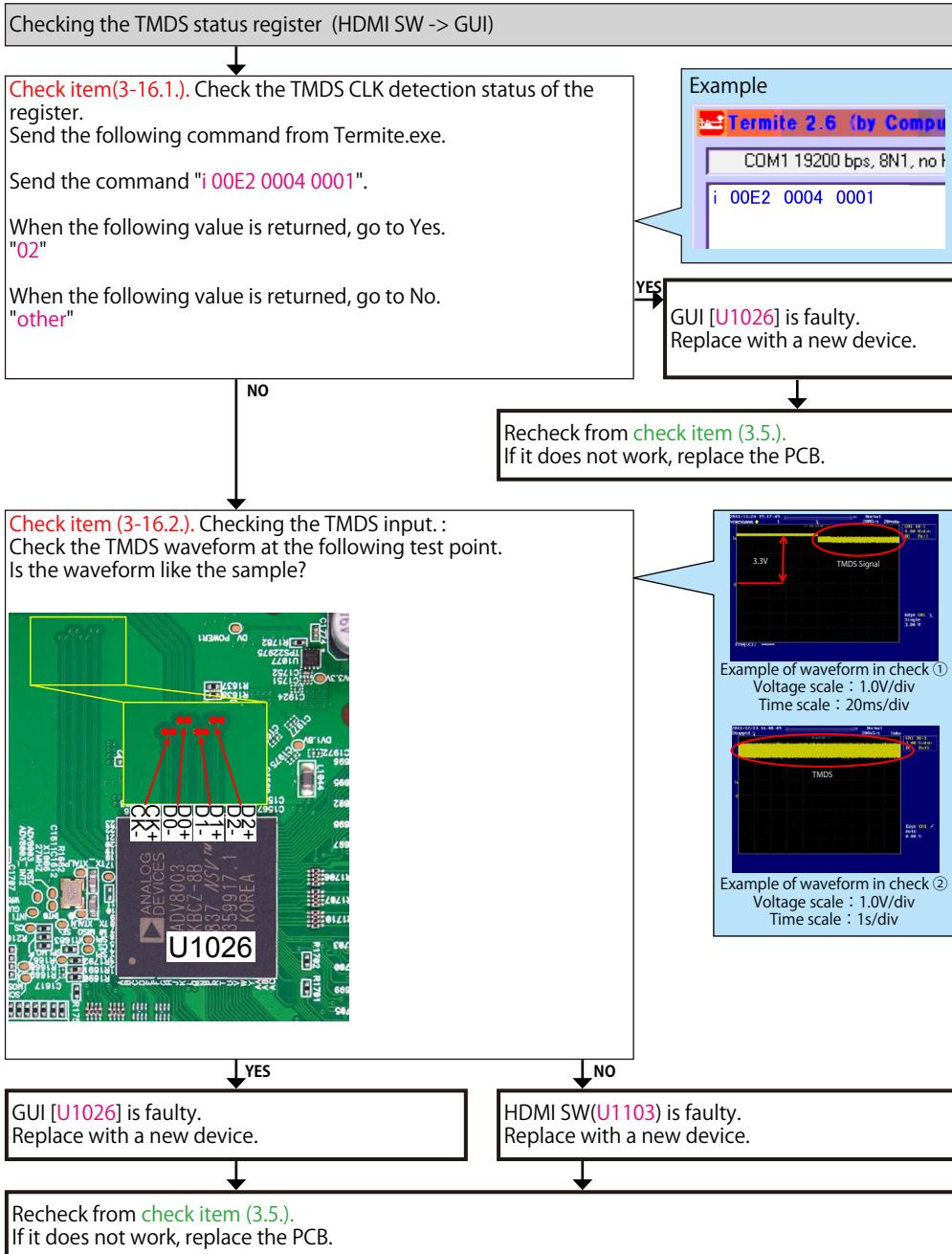
Recheck from [check item \(3.3.\).](#)  
If it does not work, replace the PCB.



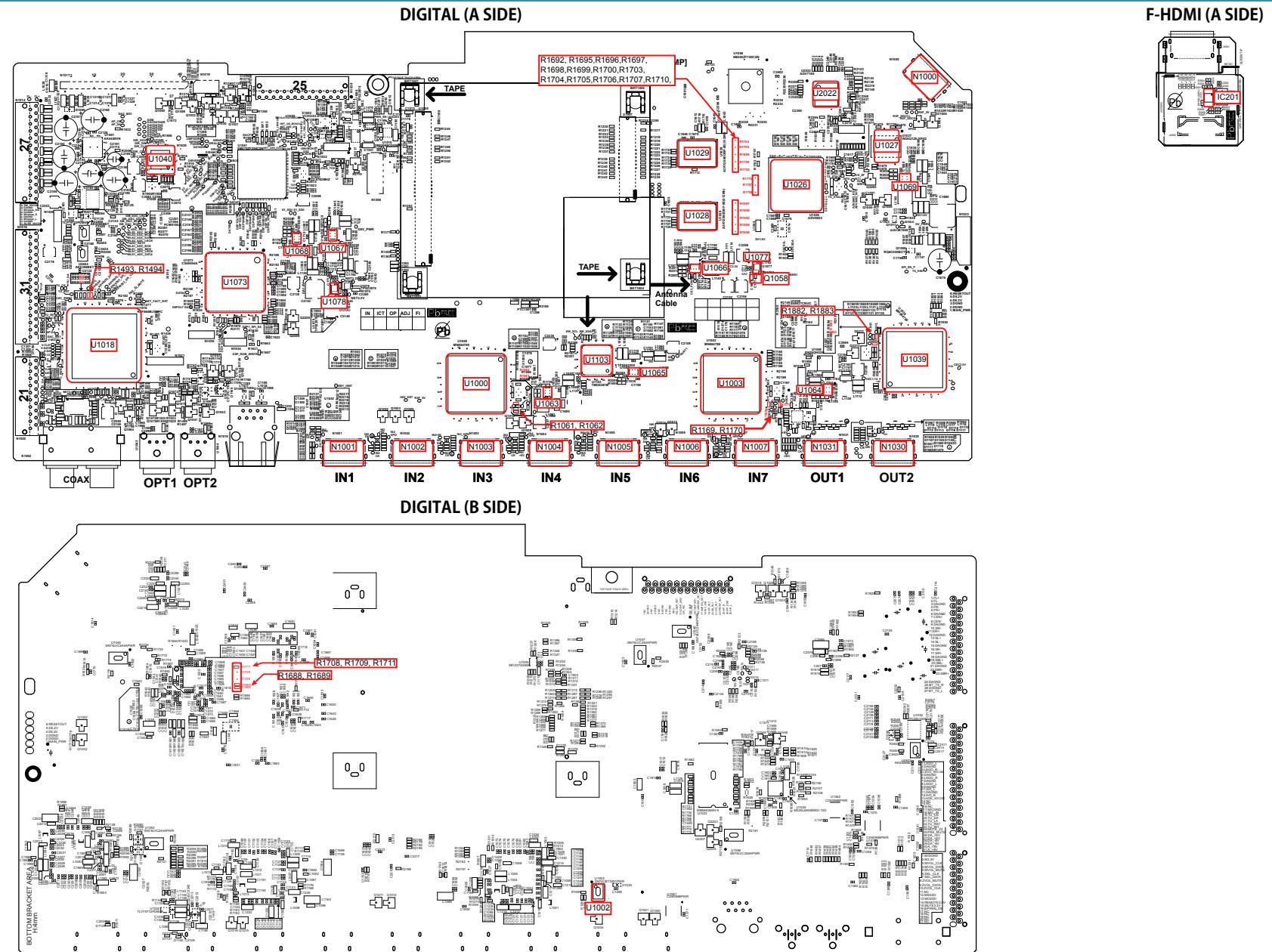
### 3-15. GUI IC [ADV8003] failure detection procedure



### 3-16. HDMI SW IC [TMDS261B] failure detection procedure

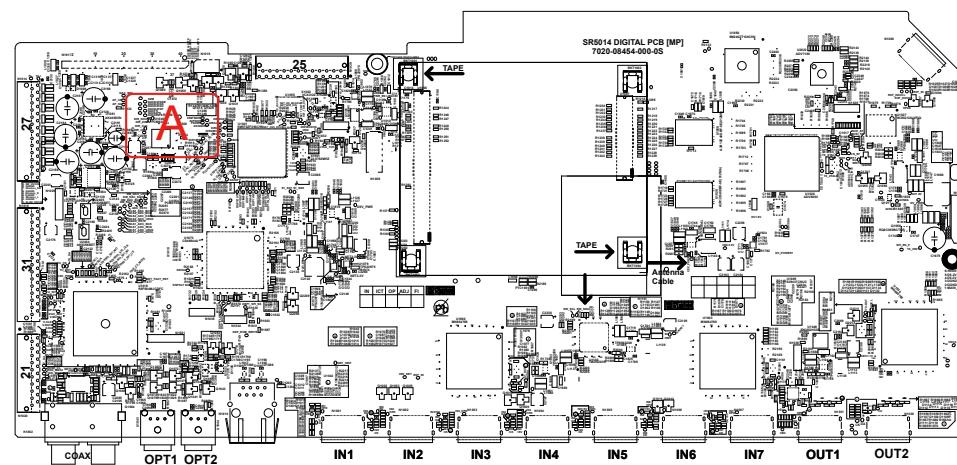
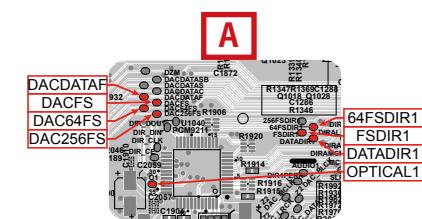
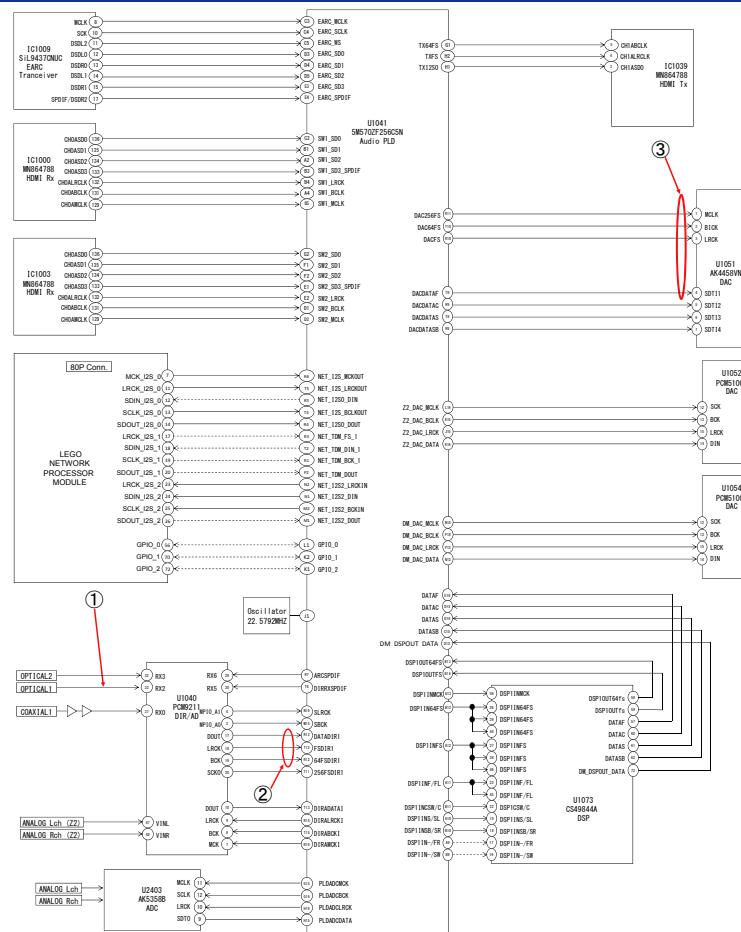
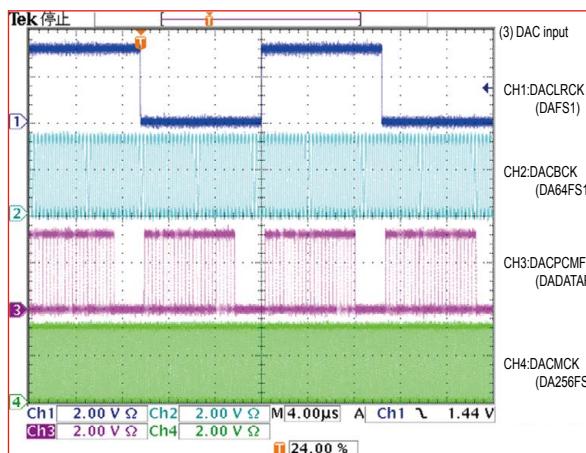
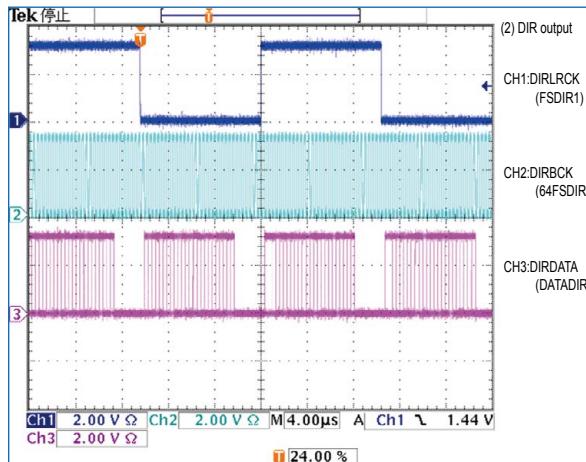
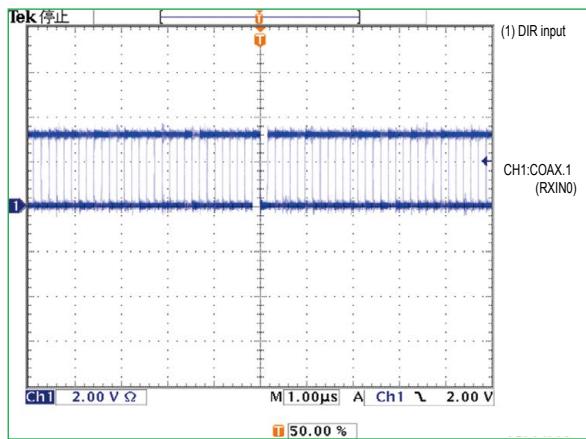


## 4. Device implementation location



# CLOCK FLOW & WAVE FORM IN DIGITAL BLOCK

## WAVE FORM



# SPECIAL MODE

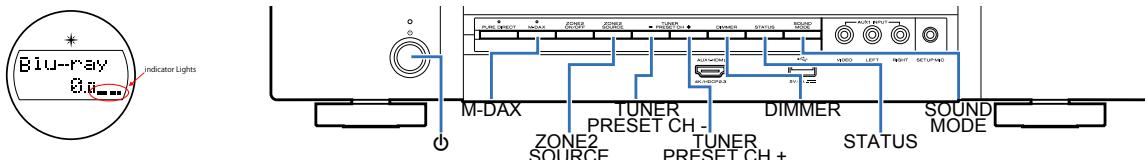
## Special mode setting button

※ No. 1 - 4, 6 - 8: While holding down buttons "A", "B" and "C" simultaneously, press the power button to turn on the power.

※ No. 5, 9, 10: While the power is on, hold down buttons "A", "B", and "C" for at least 3 seconds.

No.	Mode	Button A	Button B	Button C	Descriptions
1	Version Display Mode (MCU / DSP Error Display)	DIMMER	STATUS	-	Displays the version of firmware such as the MCU or DSP. Errors that have occurred are displayed. (See <a href="#">1. Version Display Mode</a> )
2	PANEL / REMOTE LOCK Selection Mode	M-DAX	DIMMER	-	Activates the unit in PANEL/REMOTE LOCK selection mode to enable PANEL LOCK and Remote Lock On/Off to be set. (See <a href="#">2. PANEL / REMOTE LOCK Selection Mode</a> )
3	Selecting the Mode for Service-related	ZONE2 SOURCE	STATUS	-	A selection mode for entering service-related modes. Service-related modes : No. 3-1 - No. 3-5 (See <a href="#">3-1. Selecting the Mode for Service-related</a> )
3-1	Check the Video/Audio path Mode	↑	↑	-	This is a special mode for service confirmation used during repair work to simplify the confirmation work for the Audio channel / video channel. (See <a href="#">Service Path Check Mode</a> )
3-2	Protection history display mode	↑	↑	-	Displays the latest occurred protection history. (See <a href="#">3-2. Protection History Display Mode</a> )
3-3	232C Standby Clear Mode	↑	↑	-	Switches from 232C standby mode to normal standby mode. (See <a href="#">3-3. 232C Standby Clear Mode</a> )
3-4	Operation Info Mode	↑	↑	-	Displays the accumulated operating time of the unit, the number of times the power was switched on, and the number of occurrences of each protection. (See <a href="#">3-4. Operation Info Mode</a> )
3-5	TUNER STEP Mode (U and N model only)	↑	↑	-	Enables the FM/AM tuner reception frequency step to be changed. (See <a href="#">3-5. TUNER STEP mode (U / N only)</a> )
4	Protection Pass Mode	DIMMER	STATUS	SOUND MODE	Enables the power to be turned on when protection detection is disabled. (See <a href="#">4. Protection Pass Mode</a> )
5	Network Initialization Mode	TUNER PRESET CH -	DIMMER	-	Network module backup data is initialized. (See <a href="#">5. Network Initialization Mode</a> )
6	User Initialization Mode	M-DAX	ZONE2 SOURCE	-	Initialize the backup data for the MCU and network module. (Settings for the Installer Setup are not initialized.)
7	Factory Initialization Mode	TUNER PRESET CH -	TUNER PRESET CH +	-	Initialize the backup data only for MCU. (Settings for the Installer Setup are initialized) (Network function settings are not initialized.) (See <a href="#">POST-SERVICE PRECAUTIONS</a> )
8	Clearing of Operation Info	TUNER PRESET CH +	DIMMER	-	Clear the accumulated operating time of the unit, the number of times the power was switched on, and the number of occurrences of each protection. (See <a href="#">6. Clearing of Operation Info</a> )
9	HDMI Diagnostics Mode	DIMMER	SOUND MODE	-	This mode is used to identify and solve the cause when there is a connectivity issue with this unit and an HDMI device. For details on the operating methods and diagnosis procedures, see the HDMI Diagnostics and Troubleshooting guide issued on SDI.
10	Log Capture feature	TUNER PRESET CH +	STATUS	-	Acquires the Network Module log. As the Network Module reboots, the log is deleted. Make sure to obtain the log before turning off the unit's power. (See <a href="#">7. Log Capture feature</a> )

**NOTE:** If the two indicator lights at the bottom right of the FLD display "0.0.0.", this means that the unit has entered the special developer's mode. In this case, the RS-232C communication is not available. To release this special mode, press and hold the "DIMMER" and "STATUS" buttons for 3 seconds or more while the power is ON. The RS-232C communication is available when the two indicator lights at the bottom right of the FLD go out.



## 1. Version Display Mode

### 1.1. Actions

Version information is displayed when the device is started in this mode.

### 1.2. Starting up

While holding down buttons "DIMMER" and "STATUS" simultaneously, press the power button to turn on the power.

then press the "STATUS" button to display the information in section 1.3 on the display.

※ The version list is also displayed on GUI while the version is displayed on the display.

### 1.3. Display Order

Error information(See "1.4. Error display") → ① Model destination information, Serial Number  
 → ② Firmware Package → ③ MCU, MCU 1st Boot Loader → ④ DSP → ⑤ Audio PLD  
 → ⑥ Video PLD → ⑦ GUI SFLASH → ⑧ PIMG → ⑨ HEOS Version → ⑩ HEOS Build → ⑪ HEOS Module  
 → ⑫ HEOS Configuration → ⑬ HEOS Locale → ⑭ Restore Version → ⑮ Ether Mac Address  
 → ⑯ WiFi Mac Address → ⑰ BT Mac Address → ⑱ Audyssey App Interface Version

①Model destination information, Serial Number :

L1	00000000 ~
L2	SNZXXXXXXX
L3	*****

~ : Model name (SR5014)  
 ~ : Region (U, N, K, F)  
 \* : SKU code

②Firmware Package :

L1	PACKAGE
L2	
L3	****

③MCU, MCU 1st Boot Loader :

L1	M1 *****
L2	*****
L3	BL-***, ***

④DSP ROM :

L1	DSP
L2	
L3	***, ***

⑨HEOS Version :

L1	HEOS Ver
L2	*.***
L3	.*.***

⑮Ether MAC Address :

L1	EtherMAC
L2	*****
L3	-*****

⑯Wi-Fi MAC Address :

L1	Wi-Fi MAC
L2	*****
L3	-*****

⑰Bluetooth MAC Address :

L1	BT MAC
L2	*****
L3	-*****

⑱Audyssey App Interface Ver :

L1	Audy IF
L2	
L3	***, ***

⑤Audio PLD :

L1	A. PLD
L2	
L3	*****

⑥Video PLD :

L1	V. PLD
L2	
L3	*****

⑦GUI SFLASH :

L1	GUI
L2	00\$~,***
L3	

⑨ : Model code, \$ : Brand code (De=1, Mz=2),  
 ~ : Region code (U=1, N=2, K=5, F=4, ALL=0),  
 \* : version

⑧PIMG :

L1	PIMG
L2	*****
L3	

⑩HEOS Build :

L1	Build
L2	
L3	*****

⑪HEOS Module :

L1	Module
L2	
L3	***

⑫HEOS Config :

L1	Config
L2	Product
L3	on

⑬HEOS Locale :

L1	Locale
L2	
L3	*****

⑭Restore Version:

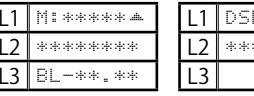
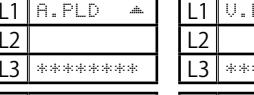
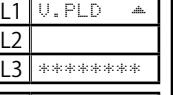
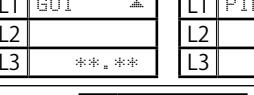
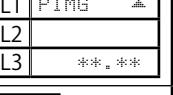
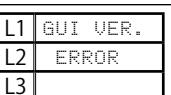
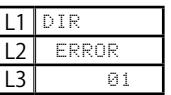
L1	RSTR
L2	***
L3	*****

## 1.4. Error display

See the table below for descriptions of the displayed errors and countermeasures for these.

If multiple errors occur, only one item is displayed.

The priority order is ②, ③, ④, ⑤, ⑥, ①.

Condition	States	Display	TROUBLE SHOOTING
① Firm Check Error	The model name, brand name and region information written in the firmware are compared to the region settings in the PCB. This error is displayed if the information does not match.  " ▲ " is not displayed if firmware information is correct.	      	<ul style="list-style-type: none"> <li>Check the resistor for setting the region [R1524, 1525, DIGITAL PCB].</li> <li>Write the firmware for the correct region.</li> </ul> <p><b>PIMG Error indication</b></p> <ul style="list-style-type: none"> <li>Check the circuits around the Logic[U1053] and SFROM[U1048]. If there appear to be no problems, [U1053] or [U1048] is faulty.</li> </ul>
② IP SCALER Error	An error occurs in Loop back Test of the DDR memory which is performed during the initial setting of i/p Scaler(ADV8003).		<ul style="list-style-type: none"> <li>Check the circuits around the IP SCALER [U1026, DIGITAL PCB] and DDR2 [U1028/1029]. If there appear to be no problems, [U1026] or [U1028/1029] is faulty.</li> </ul>
③ GUI Serial Flash Error	During the initial setting of i/p Scaler (ADV8003) , there is not the reply of the Loop back Test result of the DDR memory .		
④ DIR Error	If the MCU version is not supported by the GUI Serial Flash (ADV8003), " ▼ " is displayed as the first character of the GUI firmware version. If GUI Serial Flash is damaged, " ▲ " is displayed as the first character.		<ul style="list-style-type: none"> <li>Check the firmware version.</li> </ul>
	This error is displayed if there is no response from the DIR.		<ul style="list-style-type: none"> <li>Check the DIR [U1040, DIGITAL PCB] and surrounding circuits.</li> </ul>

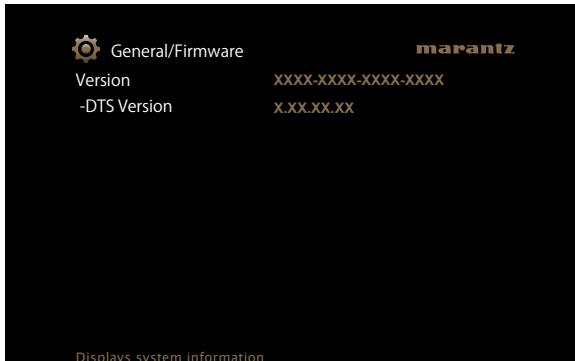
Condition	States	Display	TROUBLE SHOOTING
(5) DSP Error	Boot error 1 (After reset the DSP, DSP_Flag0 port is " <b>Low</b> ")	L1 DSP L2 ERROR L3 01	<ul style="list-style-type: none"> <li>Check the DSP [U1073, DIGITAL PCB] and surrounding circuits.</li> </ul>
	Boot Error 2 (After reset the DSP, MCU received state error command)	L3 02	
	Signal Detect Error (No response after input set for 1sec)	L3 03	
	Mode Change Error (No response after mode change for 1sec)	L3 04	
	Invalid situation (Detecting invalid situation with autodetect)	L3 05	
	Busy Error ("Busy" port remains " <b>Low</b> " for 1sec)	L3 06	
	Output Fs Error (Fs status between MCU output and actual DSP is different)	L3 07	
	Input Fs Error (Fs status between AutoDetect Msg and ACCN Msg is different)	L3 08	
	SPI communication error	L3 09	
(6) BACKUP Error	Error occurred in BACKUP. it is an error of the check sum.	L1 BACKUP L2 ERROR L3 ***	

## 1.5. Version Display in the Setup Menu

Follow the steps below to display the firmware information.

- (1) Press the "SETUP" button on the remote control.
- (2) Select "General - Information - Firmware".

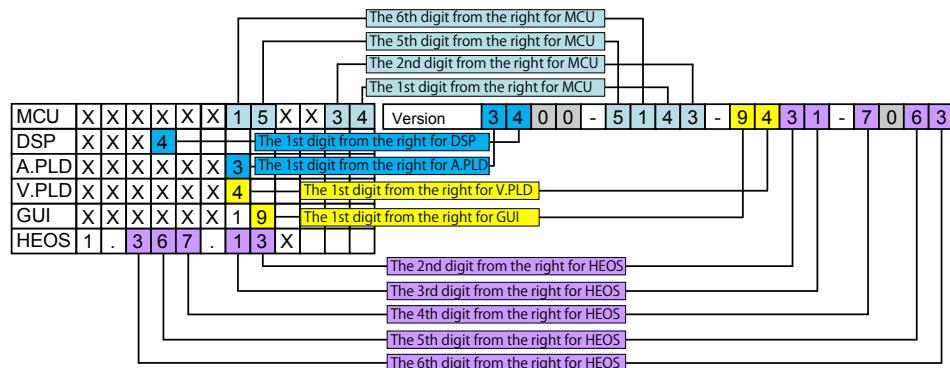
The version information is displayed as a 16-digit number as shown in the screenshot below.



GUI Image

This 16-digit number comprises a part of the version number of each device and module.

Numerics and version numbers correspond as shown below.



※ The firmware version numbers and this 16-digit version information are written in the Service Information.

※ Replace as follows for the 5th to 7th digits of HEOS version.

X.XXX.X → X.XXX.00X

X.XXX.XX → X.XXX.0XX

X.XXX.XXX → X.XXX.XXX

## 2. PANEL / REMOTE LOCK Selection Mode

### 2.1. Actions

Switch the PANEL LOCK and REMOTE LOCK modes between on and off.

- PANEL LOCK Mode (with Volume)
 

Disables reception from all keys and encoders on the front panel except the power button (including the volume).
- PANEL LOCK Mode (without Volume)
 

Disables reception from all keys and encoders on the front panel except the power button and volume encoder.
- PANEL LOCK mode is turned off

### 2.2. Starting up

While holding down buttons "M-DAX" and "DIMMER" simultaneously, press the power button to turn on the power.

Select the desired mode using the "TUNER PRESET CH +/-" button, then press the "STATUS" button to confirm.

### 2.3. Displaying and Selecting Each Mode

The information shown on the display switches each time the "TUNER PRESET CH +/-" button is pressed.

Press the "STATUS" button to set the currently displayed mode and restart the device.

The setting with "\*" is selected for each mode.

(4)

L1	RC LOCK
L2	On
L3	

The device cannot be operated by the remote control.

(5)

L1	RC LOCK
L2	*Off
L3	

The REMOTE LOCK mode is turned off.

(1)

L1	P/V LOCK
L2	*On
L3	

The buttons on the unit and the master volume knob does not function.



(2)

L1	FP LOCK
L2	On
L3	

The buttons on the unit does not function.



(3)

L1	FP LOCK
L2	*Off
L3	

The PANEL LOCK mode is turned off.



## 3-1. Selecting the Mode for Service-related

### 3-1.1. Actions

Select diagnostic mode (service path check mode), protection history display mode, 232C standby clear mode, Operation Info mode or TUNER STEP mode.

### 3-1.2. Starting up

While holding down buttons "ZONE2 SOURCE" and "STATUS" simultaneously, press the power button to turn on the power.

Select the desired mode using the "TUNER PRESET CH +/-" button, then press the "STATUS" button to confirm.

### 3-1.3. Displaying and Selecting Each Mode

The information shown on the display switches each time the "TUNER PRESET CH +" button is pressed.

Press the "STATUS" button to set the currently displayed mode and restart the device.

①

L1	1SERVICE
L2	CHECK
L3	

Service Path Check Mode : See "[DIAGNOSTIC MODE](#)"

The Video and Audio paths can be checked.

This function is convenient for confirming problem paths in the product and checking the paths after repairing.



②

L1	2PROTECT
L2	
L3	

The protection history can be checked.



③

L1	3RS232C
L2	RESET
L3	

Switches from 232C standby mode to normal standby mode.



④

L1	4OP INFO
L2	
L3	

Operation Info for the unit can be checked.



⑤ U and N model only

L1	5TUNER
L2	FREQ
L3	

Enables the reception frequency STEP of the ANALOG TUNER to be changed.

### 3-1.4. Canceling the selected mode

Press the power button to turn off the power.

## 3-2. Protection History Display Mode

### 3-2.1. Actions

This mode enables the unit to record and display the event when the THERMAL, ASO or DC protection is activated.

If protections have been activated multiple times, the latest protection operation is recorded.

### 3-2.2. Starting up

While holding down buttons "ZONE2 SOURCE" and "STATUS" simultaneously, press the power button to turn on the power.

Select the "2PROTECT" using the "TUNER PRESET CH +/-" button, then press the "STATUS" button then to confirm.

### 3-2.3. Protection information and displays

- Press the "STATUS" button in Protection History Display Mode.
- The protection history can be checked.

(1) If no protections has occurred.

L1	PROTECT
L2	HISTORY
L3	: NO

(2) ASO (if the last protection is ASO)

L3	: ASO
----	-------

**Cause** A short circuit occurred between the speaker terminals, or speakers with an impedance outside the rating were connected.

**Note** : Short circuits in speaker terminals or speakers can be identified.

If the power is turned on in the abnormal state, protection is activated after around 6 seconds and the power is turned off.

(3) DC (if the last protection is DC)

L3	: DC
----	------

**Cause** : DC output of the power amplifier is abnormal.

If the power is turned on in the abnormal state, protection is activated after around 6 seconds and the power is turned off.

(4) THERMAL (if the last protection is THERMAL(A) or THERMAL(B) or THERMAL(E) )

L3	: THM A
----	---------

L3	: THM B
----	---------

L3	: THM E
----	---------

**Cause** : Abnormal heat sink temperature.

If the power is turned on under abnormal conditions, the protection function works immediately and the power is turned off.

(5) Case of CURRENT (when the last protection incident is CURRENT protection)

L3	: CURRENT
----	-----------

**Cause** : An over current flowed in power amp.

If the power is turned on in the abnormal state, protection is activated after around 90 seconds and the power is turned off.

**Caution** : These protections may also be activated due to other factors such as disconnection of connectors or operations around the MCU.

After viewing the above protection history, press the "STATUS" button to return to the normal display.

### 3-2.4. Clearing the Protection History

There are two ways to clear the protection history.

- (1) Activate Protection History Display Mode. Press the "STATUS" button to display the protection history.

L1	PROTECT
L2	HISTORY
L3	: DC

Press and hold the "DIMMER" button for 3 seconds.



L3	CLEAR
----	-------

The above is displayed and protection history is cleared.



L3	NO
----	----

- (2) Initialize this unit. (See "[POST-SERVICE PRECAUTIONS](#)")

※ Use the method in **3-2.4. (1)** if you do not want to erase your settings from this unit.

### Warning Displays by POWER LED

If the power is turned Off while a protection is being detected, the POWER LED flashes in red to warn you depending on the protection status as follows.

- (1) ASO/DC protection: Flashes at 0.5-second intervals (0.25 seconds lit, 0.25 seconds unlit)
- (2) THERMAL (A/B/E) protection: Flashes at 2-second intervals (1 seconds lit, 1 seconds unlit)
- (3) CURRENT protection: Flashes at 4-second intervals (2 seconds lit, 2 seconds unlit)

### 3-3. 232C Standby Clear Mode

#### 3-3.1. Actions

Switches from 232C standby mode to normal standby mode.

#### 3-3.2. Starting up

While holding down buttons "ZONE2 SOURCE" and "STATUS" simultaneously, press the power button to turn on the power.

Select the "3RS232C RESET" using the "TUNER PRESET CH +/-" button, then press the "STATUS" button then to confirm.

L1	3RS232C
L2	RESET
L3	

## 3-4. Operation Info Mode

### 3-4.1. Actions

This mode enables the unit to display the accumulated operating time, power On count and each protection count.

### 3-4.2. Starting up

While holding down buttons "ZONE2 SOURCE" and "STATUS" simultaneously, press the power button to turn on the power.

Select the "4OP INFO" using the "TUNER PRESET CH +/-" button, then press the "STATUS" button then to confirm.

### 3-4.3. Operations

Press the "STATUS" button after starting up this device in Operation Info mode.

The following information is displayed in the following order.

(1) Accumulated operating time

L1	Operate
L2	Time:
L3	----- H

↑ Time display  
↓ "STATUS"

(2) Power On time

L1	Power On
L2	Time:
L3	-----

↑ Time display  
↓ "STATUS"

(3) DC / ASO Protection count

L1	Protect
L2	DC# -----
L3	ASO# -----

↓ "STATUS"

(4) Thermal Protection (A/B/E) count

L1	Protect
L2	TH A# -----
L3	TH B# -----
L2	TH E# -----

↓ "STATUS"

(5) Current Protection count

L1	Protect
L2	Current# -----
L3	-----

↓ "STATUS"

(Returns to normal display)

## 3-5. TUNER STEP mode (U / N only)

### 3-5.1. Actions

This is a special mode that enables the reception frequency STEP of the ANALOG TUNER to be changed.

### 3-5.2. Starting up

While holding down buttons "ZONE2 SOURCE" and "STATUS" simultaneously, press the power button to turn on the power.

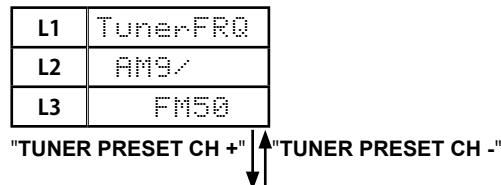
Select the "5TUNER FREQ" using the "TUNER PRESET CH +/-" button, then press the "STATUS" button then to confirm.

### 3-5.3. Displays

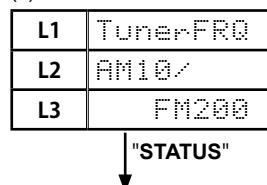
Start up this unit in TUNER STEP mode, select the desired option using the "TUNER PRESET CH +/" button, then enter using the "STATUS" button.

The following information is displayed in the following order.

- (1) AM9 kHz / FM50 kHz is selected



- (2) AM10 kHz / FM200 kHz is selected



- (3) Press the power button to turn off the power.

- (4) Press the power button to turn on the power.

## 4. Protection Pass Mode

### 4.1. Actions

- This mode allows the power to be turned on without activating protections.
- This mode functions in the same way as normal power-on, except that protections are not activated.
- When using the protection pass mode, do not connect speakers to the speaker terminals.

### 4.2. Operations

While holding down buttons "**DIMMER**", "**STATUS**" and "**SOUND MODE**" simultaneously, press the power button to turn on the power.

The device returns to the normal display message after the following is displayed.

L1	Protect
L2	Pass
L3	

This is displayed for 5 seconds before returning to the normal display.

## 5. Network Initialization Mode

### 5.1. Actions

The following items are initialized.

- (1) Network setup
- (2) Friendly Name
- (3) Auto Update setting
- (4) Allow Update setting
- (5) Time Zone setting
- (6) Queue list
- (7) Internet Radio recently played station
- (8) Smart Select playback station
- (9) AirPlay Password
- (10) Bluetooth Pairing History

### 5.2. Operations

When the power is on and the input source is HEOS Music, press and hold the "**TUNER PRESET CH -**" and "**DIMMER**" buttons for more than 3 seconds.

Initializing Display

L1	Network
L2	Reset... .

Complete Display

L1	Complete
----	----------

This is displayed for 5 seconds before returning to the normal display.

## 6. Clearing of Operation Info

### 6.1. Actions

- Displays the accumulated operating time of the unit, the number of times the power was switched on, and the number of occurrences of each protection.

### 6.2. Operations

Remove all input/output terminals and the AC plug.

Connect the AC plug again and place the product in standby mode.

While holding down buttons "TUNER PRESET CH +" and "DIMMER" simultaneously, press the power button to turn on the power.

L1	PRODUCT P
L2	MODE

When "PRODUCT MODE" appears on the display, release the button and press the button "power" → "ZONE2 ON/OFF" to place the product in standby mode.

## 7. Log Capture feature

### 7.1. Actions

- Acquires the Network Module log.
- The log is deleted when the Network Module is deleted.  
If an error occurs, it is acquired without turning off the power of this unit.
- The log can be copied to a writable USB flash drive.  
It can also be sent to a server if this unit is connected to the Internet.
- The log is stored in the root folder of the USB flash drive with the name "**logs-<friendlyname>-<number>.tar.gz**".  
<friendlyname> indicates the friendly name and <number> indicates the sequence number.  
Previous logs on the USB flash drive are not overwritten. The log is encrypted.

### 7.2. Starting up

While the power is on, hold down buttons "TUNER PRESET CH +" and "STATUS" for at least 3 seconds.

#### 7.2.1. If the USB flash drive is connected after starting the unit

- (1) The log is written to the USB flash drive and "Storing Logs..." is displayed.

The log is also sent to the server.

L1	Storing
L2	Logs...

- (2) When a log package is saved to a USB flash drive, "USB SUCCESS" appears in the display for 5 seconds, regardless of whether the upload to the server was successful.

L1	USB
L2	SUCCESS

- (3) When saving of the log package fails, "USB FAILED" appears in the display for 5 seconds, regardless of whether the upload to the server was successful.

L1	USB
L2	FAILED

#### 7.2.2. When the USB flash drive is not connected after startup, and this unit is connected to the Internet.

- (1) The log is sent to the server and the display shows "Storing Logs..." for 5 seconds.

L1	Storing
L2	Logs...

- (2) When the log package is uploaded, the ticket numbers "No:XXXXX" and "Push ENTER" are displayed until RC or the "Enter" or "Back" button of this machine is pressed.

L1	No:XXXXX
L2	PushENTER

- (3) If the log package upload fails, "FAILED" is displayed for 5 seconds.

L1	FAILED
L2	

## Service Path Check Mode

## 1.1. Actions

This function is convenient for confirming problem paths in the product and checking the paths after repairing.

The Video and Audio paths can be checked.

The backup data is not rewritten.

## 1.2. Starting up

While holding down buttons "ZONE2 SOURCE" and "STATUS" simultaneously, press the power button to turn on the power.

Select the "1SERVICE CHECK" using the "TUNER PRESET CH +/-" button, then press the "STATUS" button then to confirm.

The "\_\_\_\_\_" segment in L3 is lit in this mode.

L1	*****
L2	***.*
L3	_____

## 1.3. Canceling diagnostic mode

Press the power button to turn off the power.

## 1.4. Selecting items to check

Press the ① button to switch between video items and audio items.

Press the ② or ③ button to select the previous or next item.

Actions	The unit			Remote control unit		
	①	②	③	①	②	③
	Audio ⇄ Video	PREVIOUS	NEXT	Audio ⇄ Video	PREVIOUS	NEXT
Button	DIMMER	TUNER PRESET CH -	TUNER PRESET CH +	SLEEP	CURSOR ◀	CURSOR ►

## 1.5. Audio system confirmation items

See the block diagram fig.AXXth.

Paths to be confirmed			Display	Settings	What to confirm
1	Analog	<b>fig.A01</b>	A01ANLG ****.*	Input Source : CBL/SAT Input Mode : Analog (fixed) Sound mode : DIRECT Amp assign : Surround Back MAIN ZONE : On ZONE2 : Off	• Analog input ⇒ Speaker output (Front L/R) (※ The input source can be switched to any source except CBL/SAT.)
2	DIGITAL (MAIN)	<b>fig.A02a</b> <b>fig.A02b</b>	A2DIG. ****.*	Input Source : CBL/SAT Input Mode : DIGITAL (fixed) Sound mode : MULTI CH STEREO Amp assign : Surround Back Speaker Config ALL Speaker = Small/SW = Yes(2ch) MAIN ZONE : On ZONE2 : Off	• Digital input ⇒ Pre output (Front L/R, Center, Surround L/R, Surround Back L/R) • Digital input ⇒ Pre output (Front L/R, Center, Surround L/R, Surround Back L/R, Subwoofer) (※ The input source can be switched to any source except CBL/SAT.)

Paths to be confirmed		Display	Settings	What to confirm	
3	DIGITAL (ZONE2)	<a href="#">fig.A03a</a> <a href="#">fig.A03b</a>	A03Z2DIG ***.*	Input Source : HEOS Music Input Mode : Auto Sound mode : STEREO ZONE2 Source : HEOS Music Amp assign : ZONE2 MAIN ZONE : On ZONE2 : On	<ul style="list-style-type: none"> <li>Digital(PCM) input ⇒ Speaker output (Surround Back (ZONE2) L/R)</li> <li>Digital(PCM) input ⇒ Pre OUT output (ZONE2 L/R)</li> </ul> <p>(※ Only HEOS Music can be set as the input source.)</p>
4	HDMI	<a href="#">fig.A04a</a> <a href="#">fig.A04b</a>	A05HDMI ***.*	Input Source : CBL/SAT Input Mode : HDMI (fixed) Sound mode : STEREO Amp assign : Surround Back MAIN ZONE : On ZONE2 : Off	<ul style="list-style-type: none"> <li>HDMI input ⇒ Speaker output (Front L/R)</li> </ul> <p>(※ The input source can be switched to any source except CBL/SAT.)</p>
5	Analog AD (MAIN ZONE)	<a href="#">fig.A05a</a> <a href="#">fig.A05b</a>	A06AD ***.*	Input Source : CBL/SAT Input Mode : Analog (fixed) Sound mode : MULTI CH STEREO Vol 60(-20dB) Amp assign : Surround Back Speaker Config ALL Speaker = Small/SW = Yes(2ch) MAIN ZONE : On ZONE2 : Off	<ul style="list-style-type: none"> <li>Analog input ⇒ Speaker output (Front L/R, Center, Surround L/R, Surround Back L/R)</li> <li>Analog input ⇒ Pre OUT output SW(20Hz)</li> </ul> <p>(※ The input source can be switched to any source except CBL/SAT.)</p> <p>(※ Volume 60 is the value when Absolute settings are used. The value is -20 when Relative settings are used)</p>
6	Analog Amp Assign (Amp Assign : ZONE2)	<a href="#">fig.A06</a>	A07Z2ASS ***.*	Input Source : CBL/SAT Input Mode : Auto Sound mode : STEREO Z2 Source : CBL/SAT Vol 60(-20dB) Amp assign : ZONE2 MAIN ZONE : On ZONE2 : On	<ul style="list-style-type: none"> <li>Analog input ⇒ Speaker output (Surround Back (ZONE2) L/R)</li> <li>Analog input ⇒ Pre OUT output (ZONE2 L/R)</li> </ul> <p>(※ The input source for ZONE2 can be switched to any source except CBL or SAT.)</p> <p>(Do not select "SOURCE" as the input source for Zone2.)</p> <p>(※ Source for ZONE2 does not change even when Source for the MainZone is changed.)</p> <p>(※ Volume 60 is the value when Absolute settings are used. The value is -20 when Relative settings are used)</p>
7	ZONE2 Downmix (Amp Assign : ZONE2)	<a href="#">fig.A07a</a> <a href="#">fig.A07b</a>	A22ZZ-DM ***.*	Input Source : CBL/SAT Input Mode : Auto ZONE2 Source : Source ZONE2 Vol : 60 Amp Assign : ZONE2 MAIN ZONE : On ZONE2 : On	<ul style="list-style-type: none"> <li>Analog input ⇒ Speaker output (Surround Back (ZONE2) L/R)</li> <li>Analog input ⇒ Pre OUT output (ZONE2 L/R)</li> </ul> <p>(※ The input source can be switched to any source except CBL/SAT.)</p> <p>(Do not change the input source for Zone2 from "SOURCE".)</p> <p>(※ Volume 60 is the value when Absolute settings are used. The value is -20 when Relative settings are used)</p>

## 1.6. Confirmation items for the video system

See the block diagram fig.VXXth.

Paths to be confirmed		Display	Settings	What to confirm
1	Analog Video pass	<a href="#">fig.V01</a>	V01VIDEO ***,*	Input Source : CBL/SAT Video Convert : Off (IP Scaler : Off), All sources MAIN ZONE : On ZONE2 : On  • CVBS input ⇒ CVBS output • Component input ⇒ Component output (※ The input source can be switched to any source except CBL/SAT.)
2	Video Convert (HDMI ⇒ HDMI)	<a href="#">fig.V02</a>	V02CONV ***,*	Input Source : CBL/SAT Video Convert : On, All sources IP Scaler : "Analog & HDMI", All sources Resolution : "Auto", All sources MAIN ZONE : On ZONE2 : Off  • CVBS input ⇒ IP Scaler ⇒ HDMI output. • Component input ⇒ IP Scaler ⇒ HDMI output. • HDMI input (except 4K60p) ⇒ IP Scaler ⇒ HDMI output (except 4K60p) • HDMI input (4K60p) ⇒ HDMI output (4K60p) & Vol display • ETHERNET input ⇒ IP Scaler ⇒ HDMI output. (※ The input source can be switched to any source except CBL/SAT.)
3	HDMI pass (MAIN ZONE)	<a href="#">fig.V03</a>	V03HDMI ***,*	Input Source : CBL/SAT Video Convert : Off (IP Scaler : Off), All sources Video Mode (IP Scaler) : Bypass MAIN ZONE : On ZONE2 : Off  • HDMI input (MAIN function) ⇒ HDMI output (MAIN) (※ The input source can be switched to any source except CBL/SAT.)
4	HDMI CEC (Control Monitor : HDMI Monitor1)	<a href="#">fig.V04</a>	V04CEC ***,*	Input Source : CBL/SAT HDMI Control : On MAIN ZONE : On ZONE2 : Off  • When the power supply of a TV is put in the standby mode, make sure that the power supply of this unit is also put in the standby mode. (※ The input source can be switched to any source except CBL/SAT.) • The ARC path can also be checked (check this using the TV input source).
5	HDMI Audio (Audio : AVR)	<a href="#">fig.V05a</a> <a href="#">fig.V05b</a>	V05H-AUR ***,*	Input Source : CBL/SAT HDMI Control : Off HDMI Audio : AVR (if checking the audio output from AVR)  • HDMI input (PCM, DolbyDigital, DTS) ⇒ Speaker output. • HDMI input(HD audio) ⇒ Speaker output. (※ The input source can be switched to any source except CBL/SAT.)
6	HDMI Audio (Audio : TV)	<a href="#">fig.V06</a>	V06H-TU ***,*	HDMI Audio : TV (if checking the audio output from TV)  • HDMI input (PCM, DolbyDigital, DTS) ⇒ HDMI output (audio output from connected TV) (※ The input source can be switched to any source except CBL/SAT.)
7	GUI	<a href="#">fig.V07</a>	V07MENU ***,*	Input Source : CBL/SAT Video Convert : Off (IP Scaler : On), All sources IP Scaler : "Analog & HDMI", All sources Resolution : "Auto", All source Setup Menu : On MAIN ZONE : On ZONE2 : Off  • GUI display ⇒ HDMI output. (※ The input source can be switched to any source except CBL/SAT.)

## DIAGNOSTIC PATH DIAGRAM

fig.A01

## SR5014 ANALOG AUDIO DIAGRAM

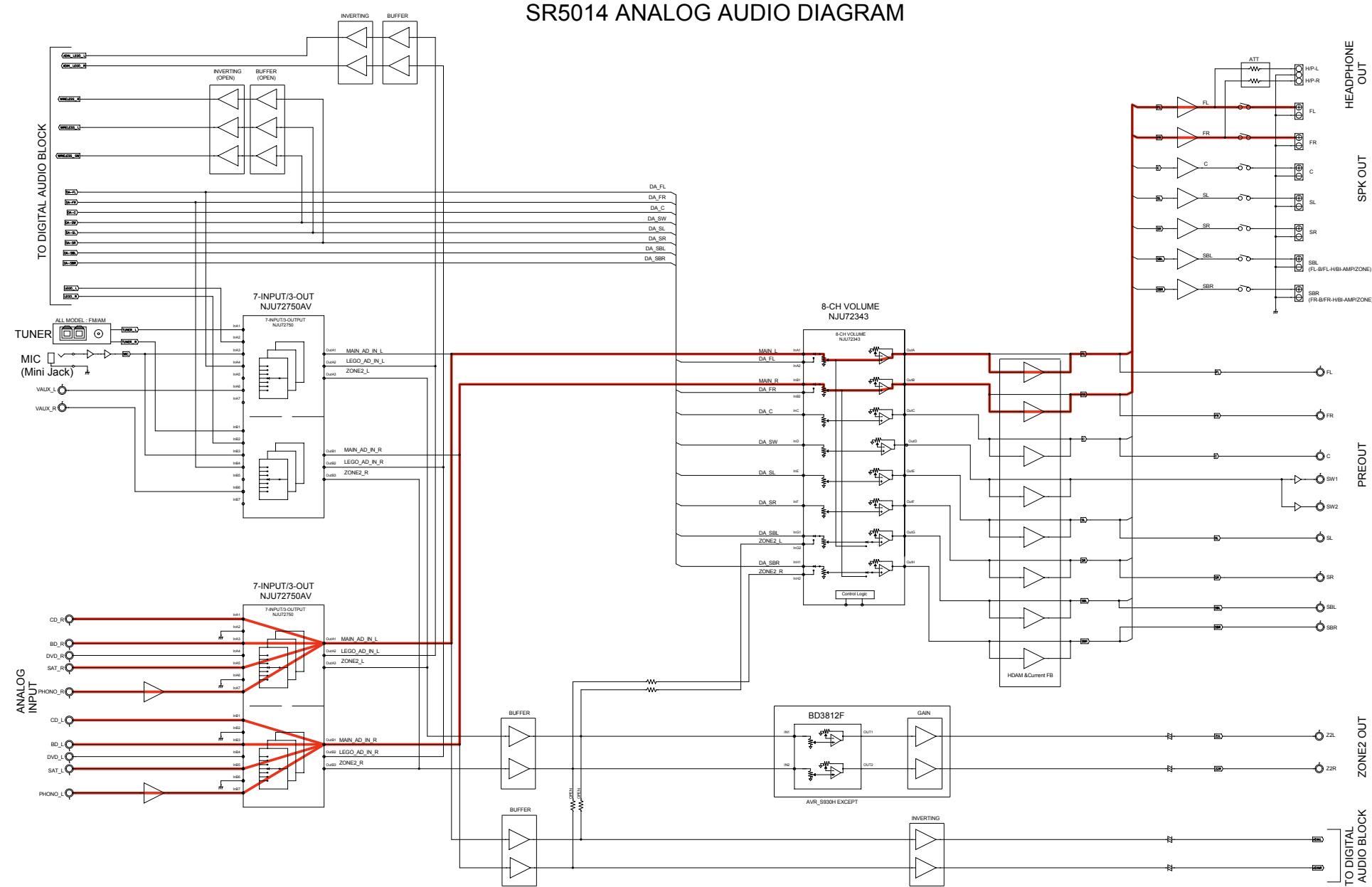


fig.A02a

## SR5014 DIGITAL AUDIO DIAGRAM

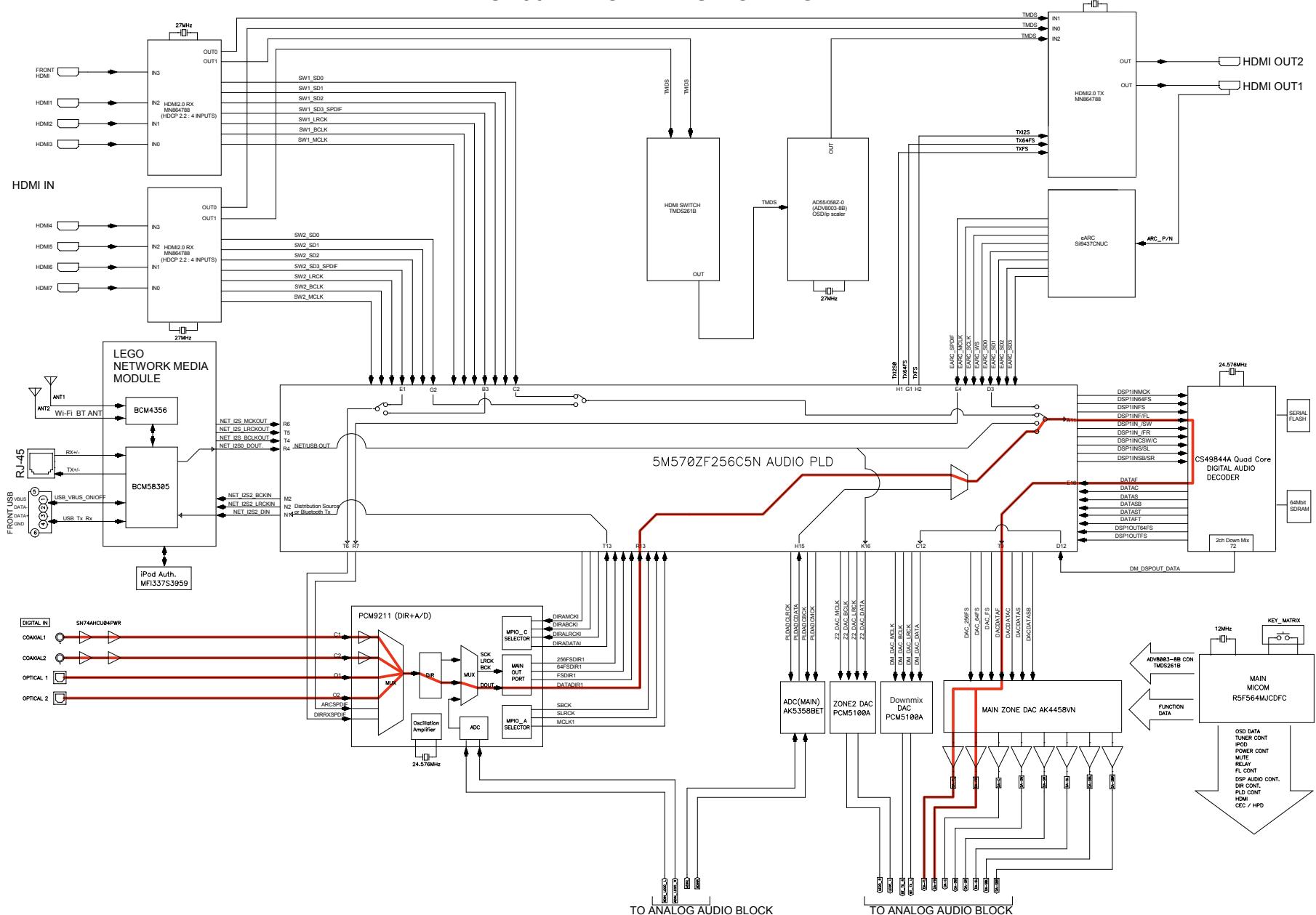


fig.A02b

## SR5014 ANALOG AUDIO DIAGRAM

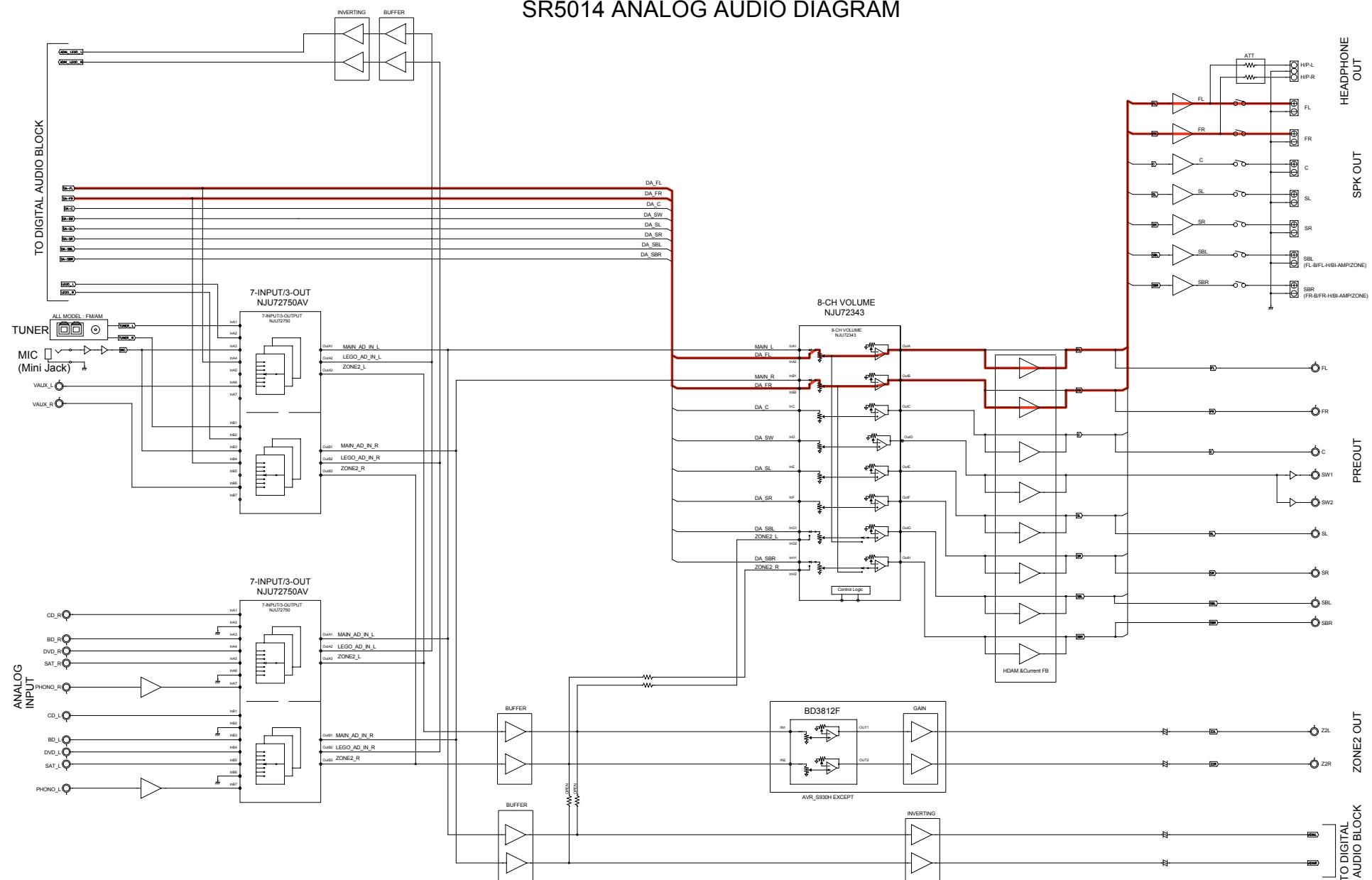


fig.A03a

## SR5014 DIGITAL AUDIO DIAGRAM

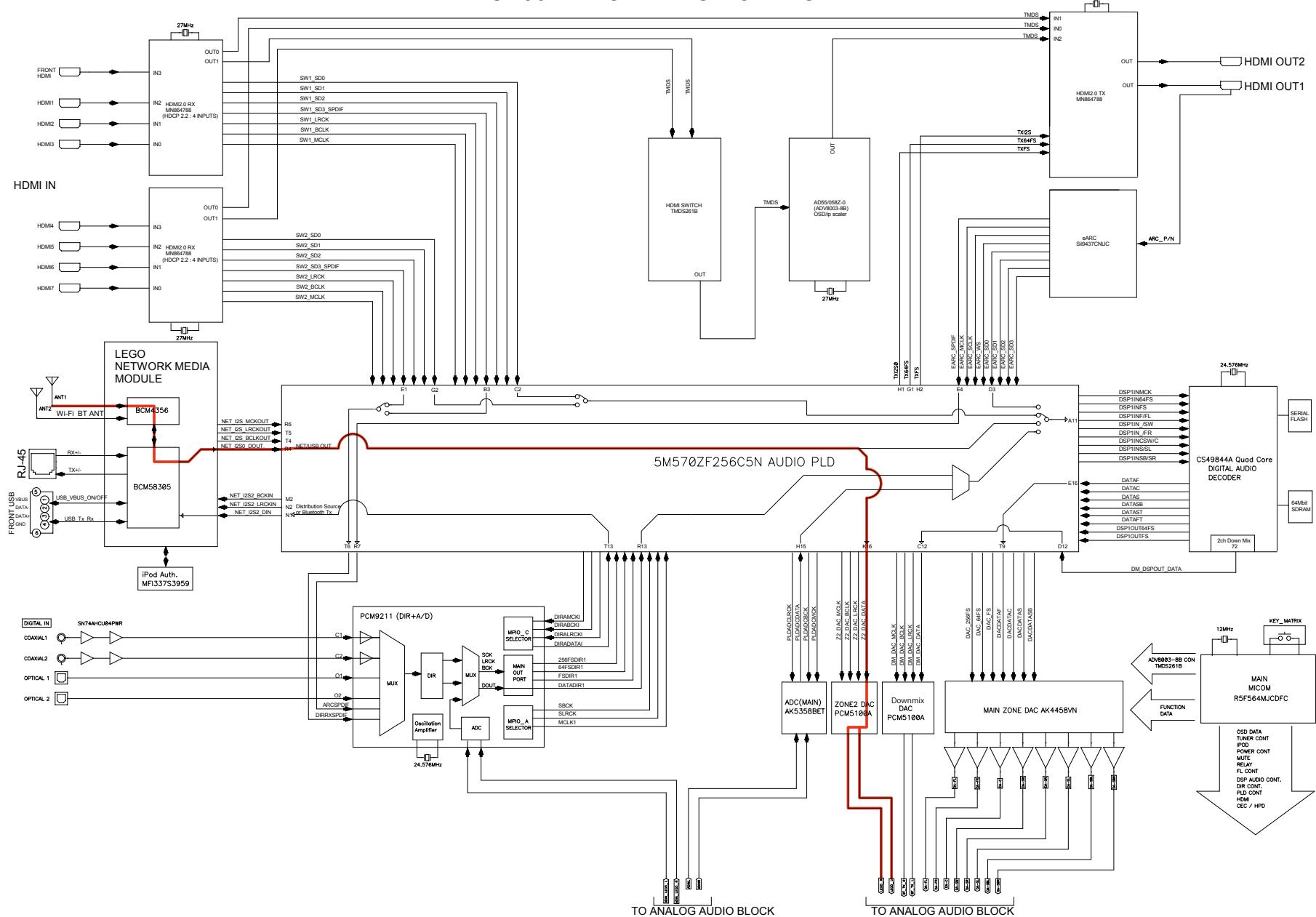


fig.A03b

## SR5014 ANALOG AUDIO DIAGRAM

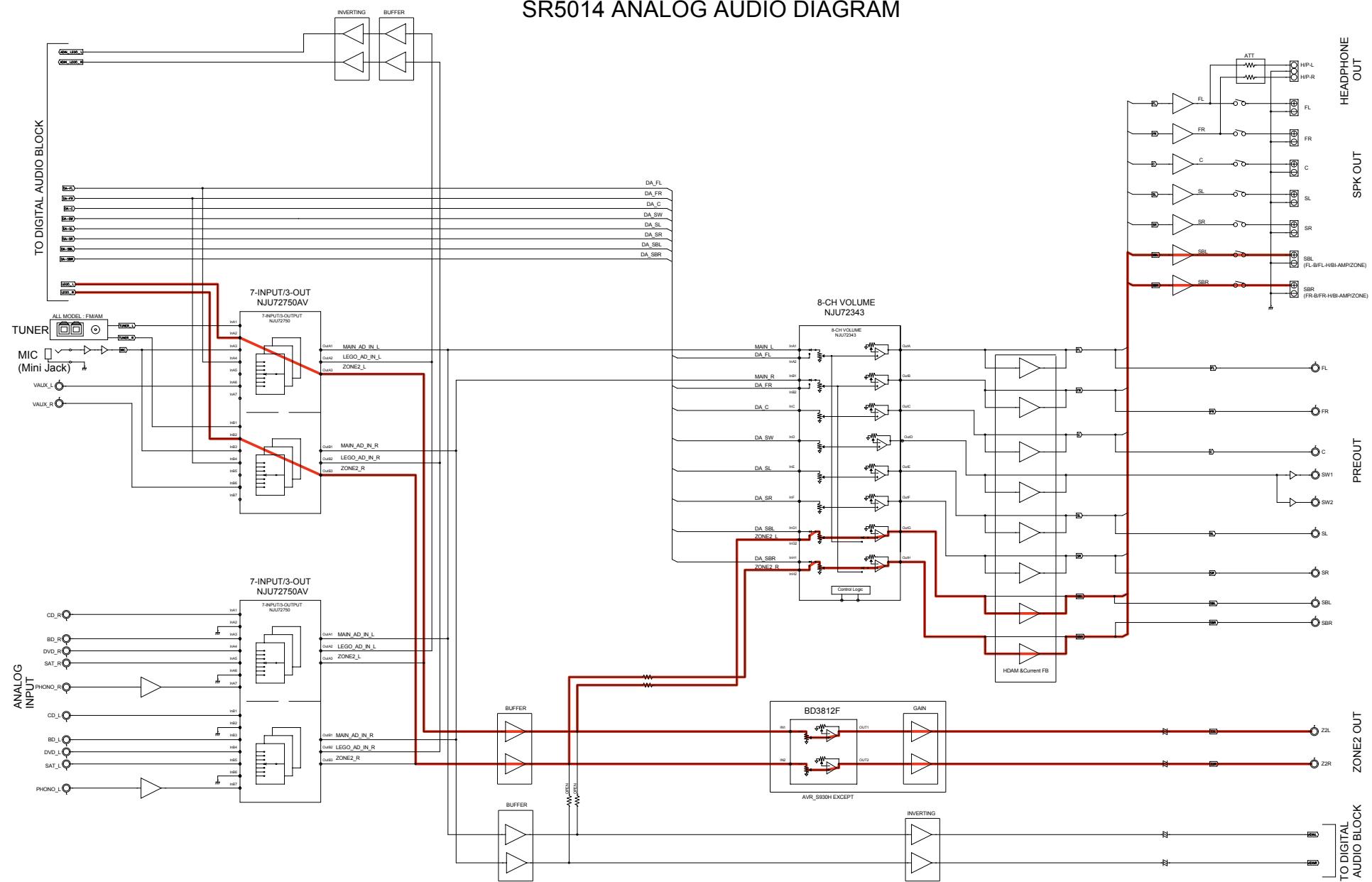


fig.A04a

## SR5014 DIGITAL AUDIO DIAGRAM

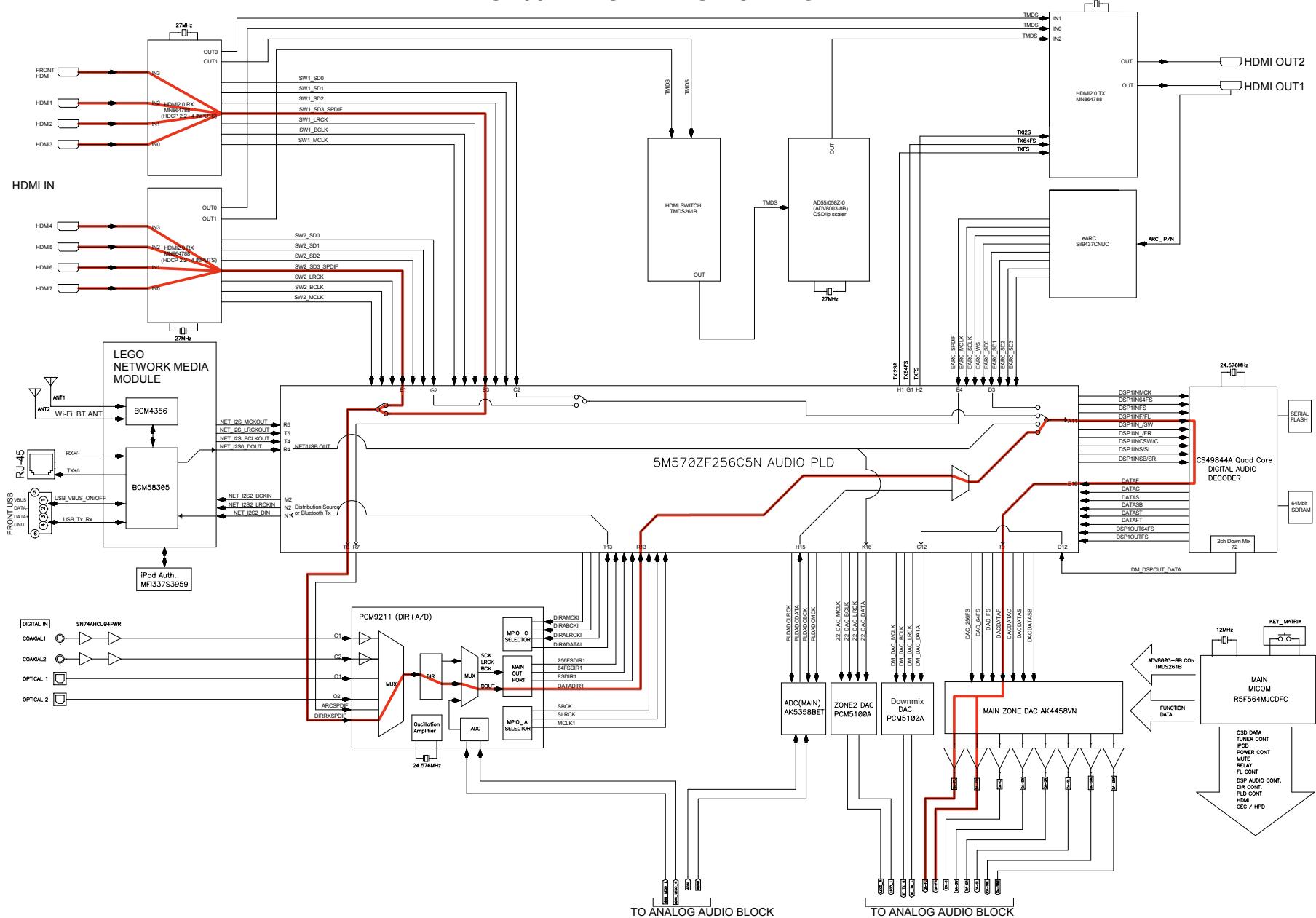


fig.A04b

## SR5014 ANALOG AUDIO DIAGRAM

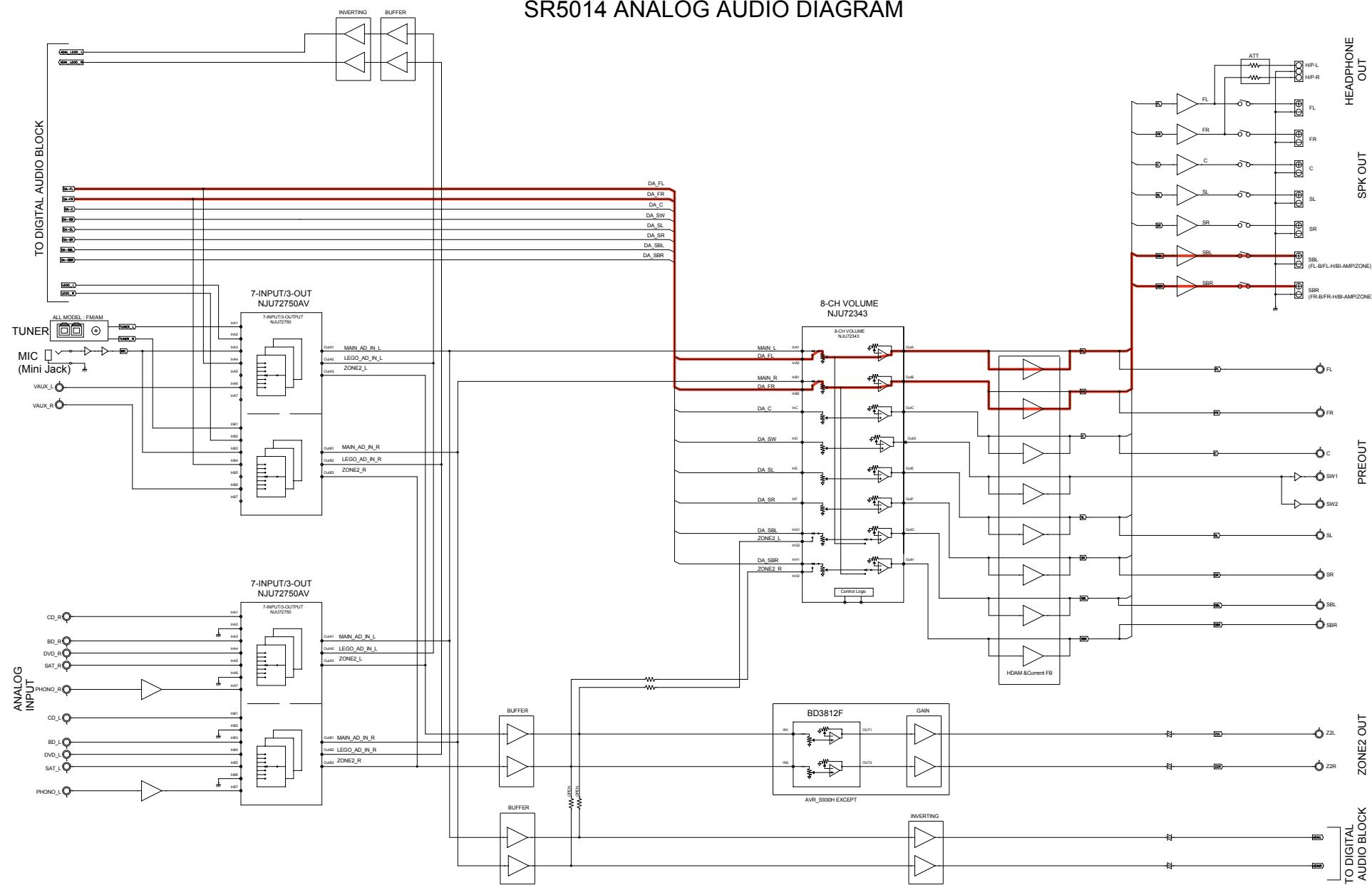


fig.A05a

## SR5014 DIGITAL AUDIO DIAGRAM

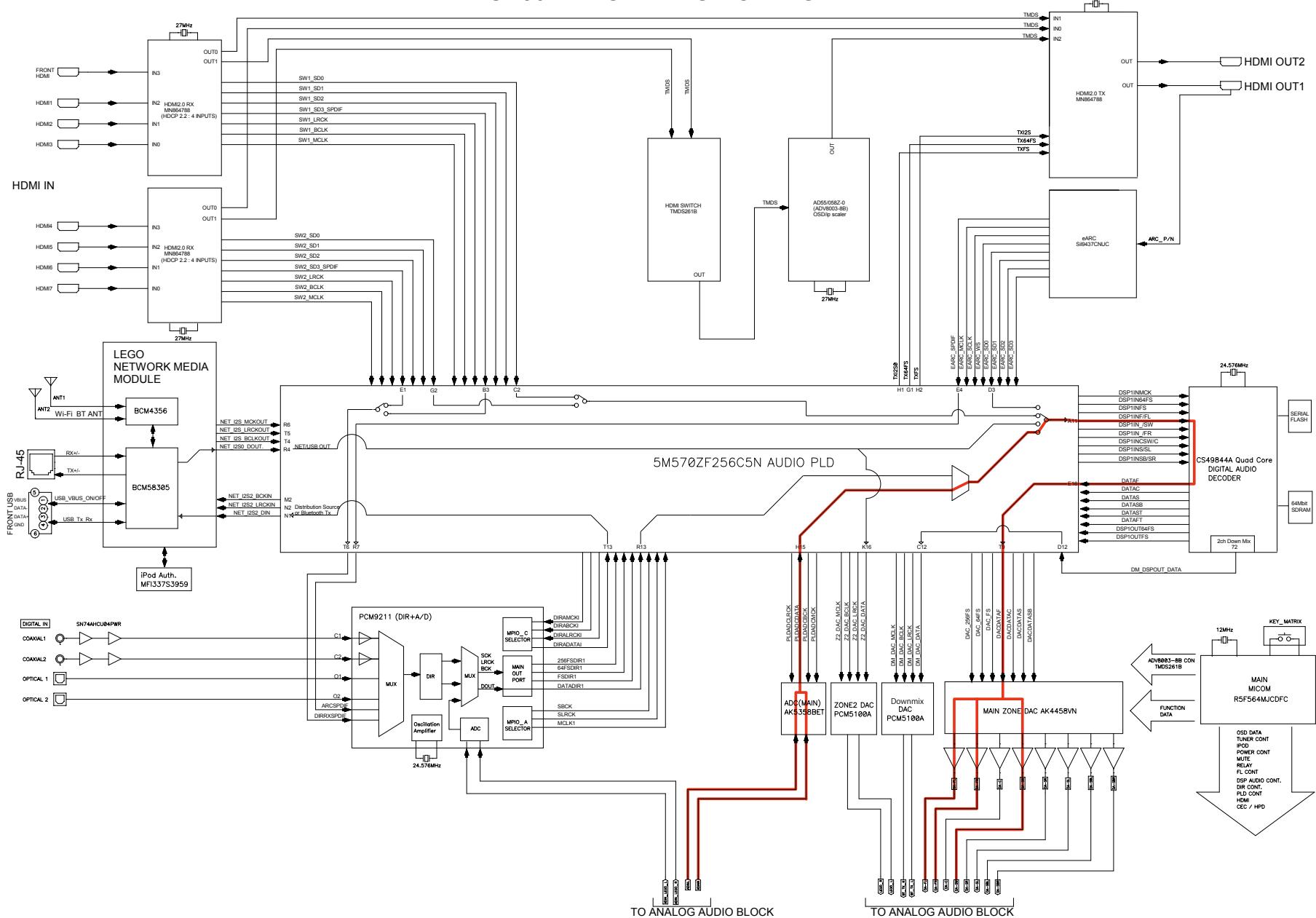


fig.A05b

## SR5014 ANALOG AUDIO DIAGRAM

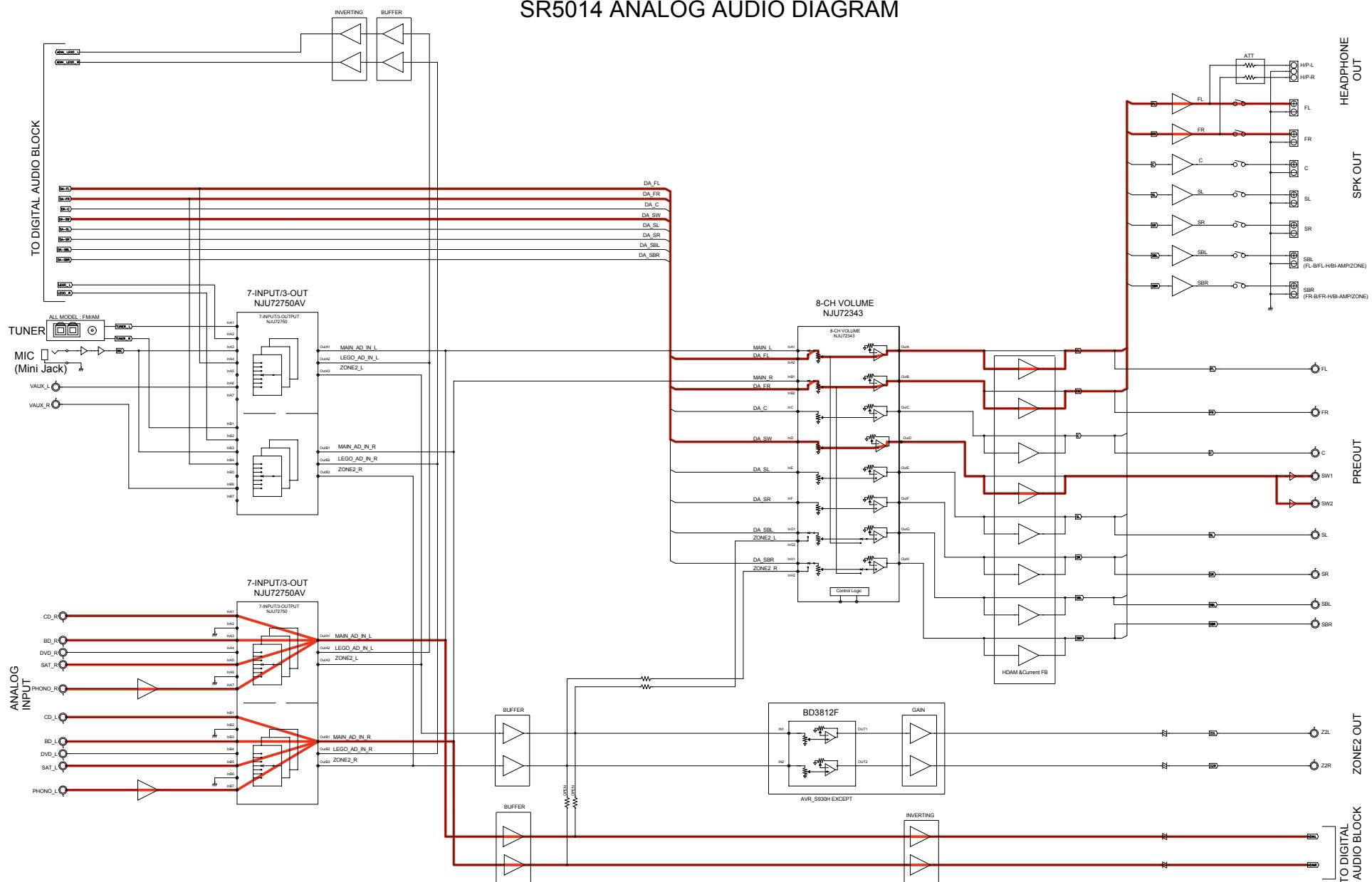


fig.A06

## SR5014 ANALOG AUDIO DIAGRAM

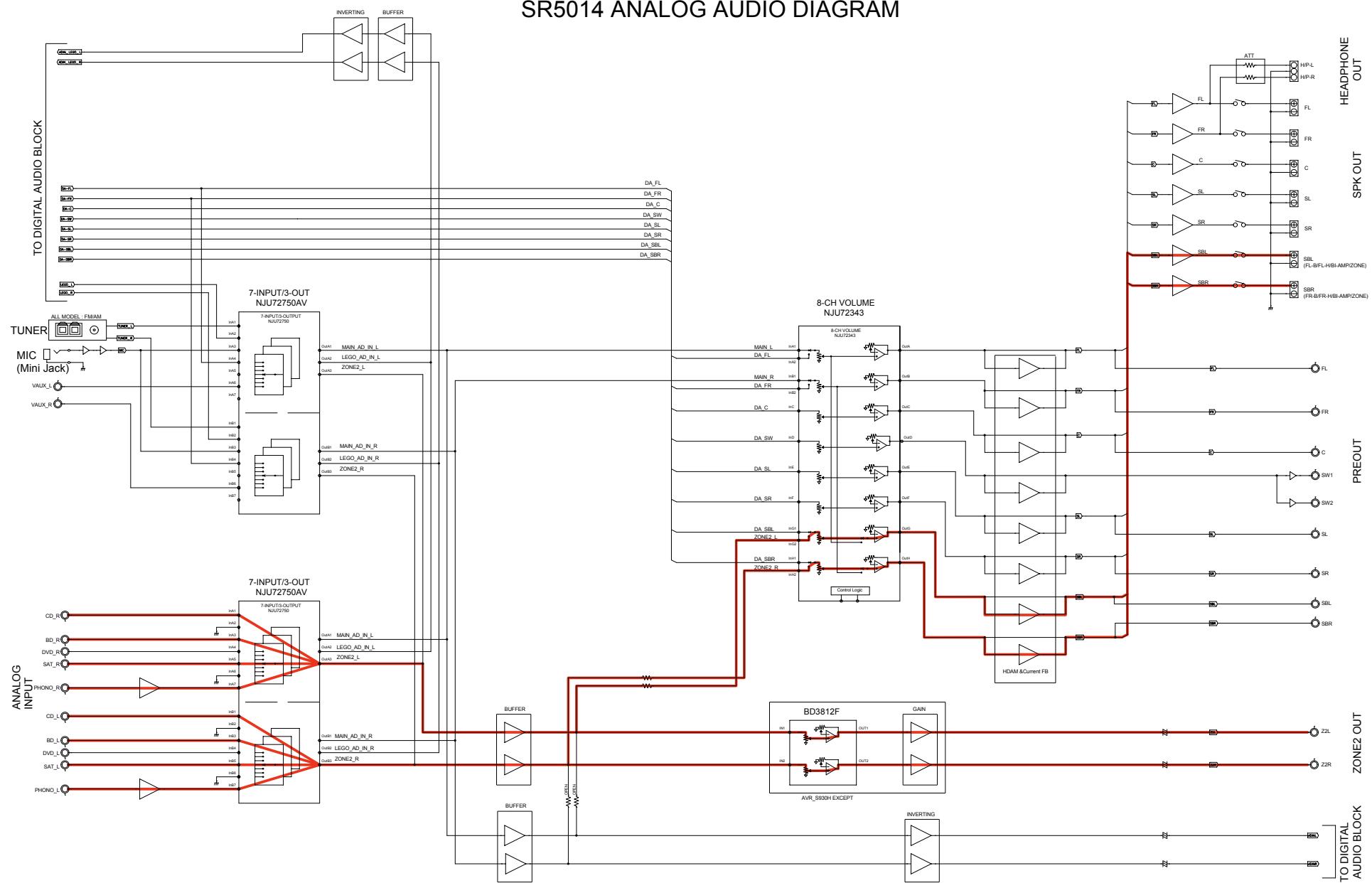


fig.A07a

## SR5014 DIGITAL AUDIO DIAGRAM

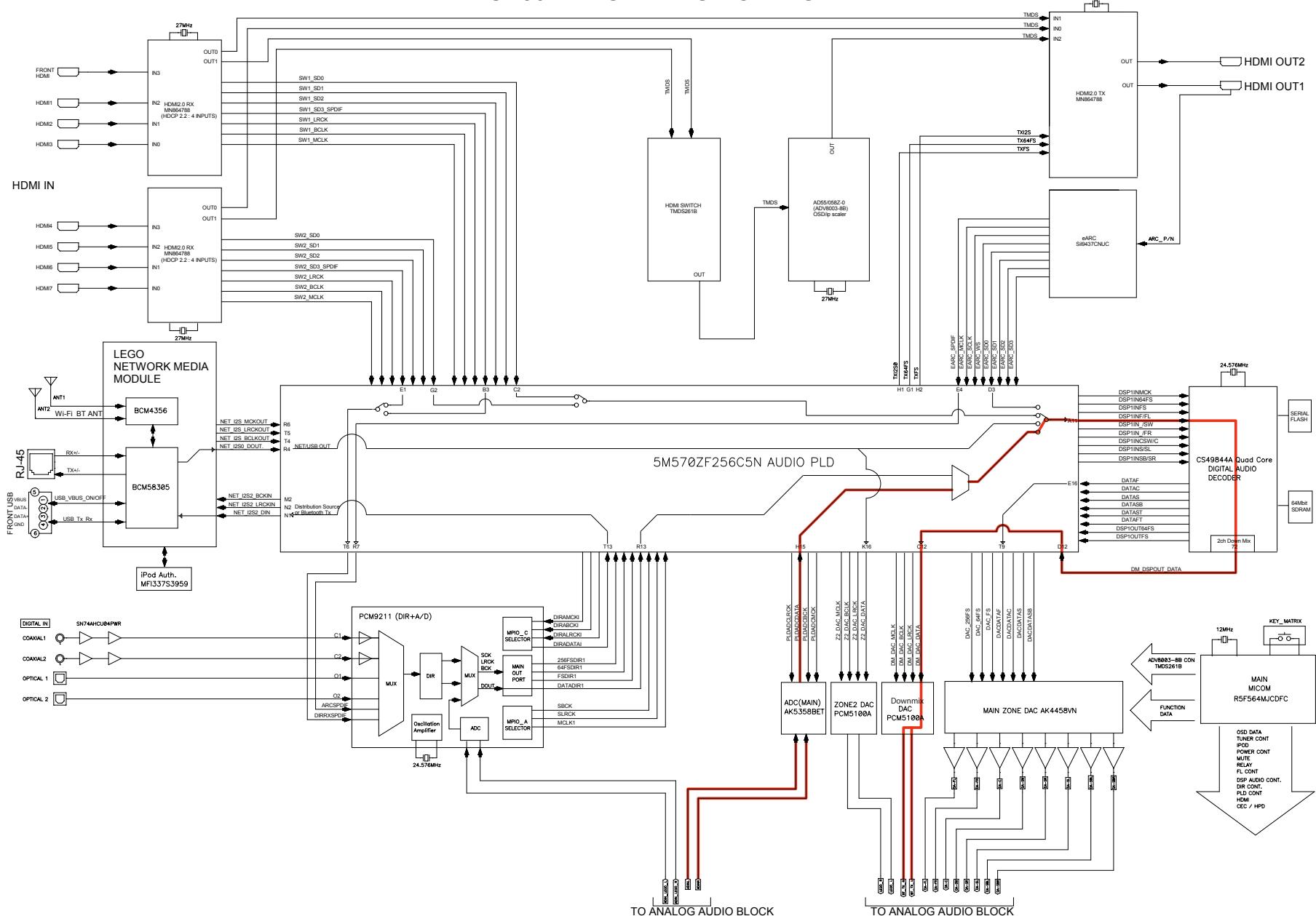


fig.A07b

## SR5014 ANALOG AUDIO DIAGRAM

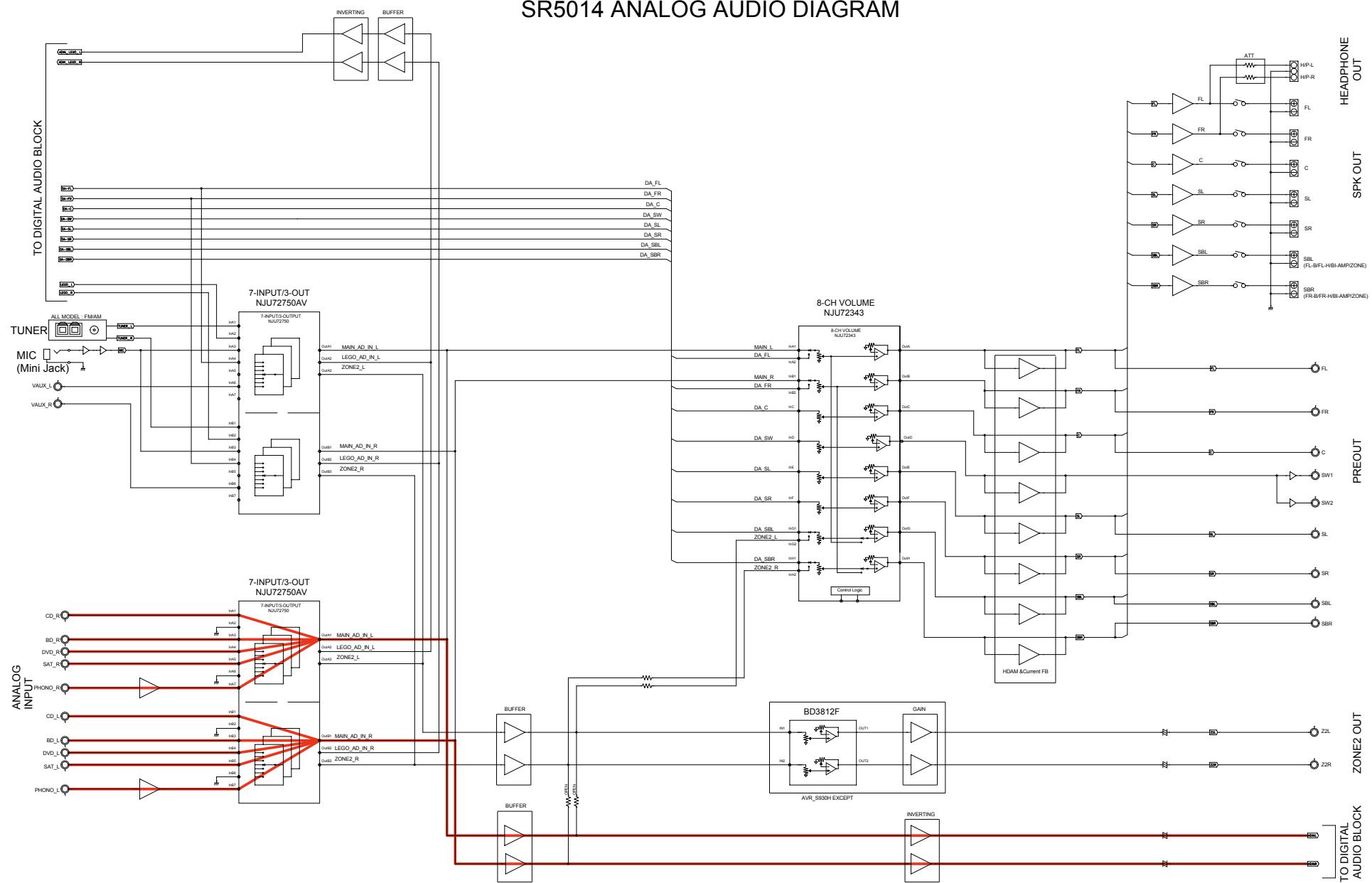


fig.V01

## SR5014 VIDEO DIAGRAM

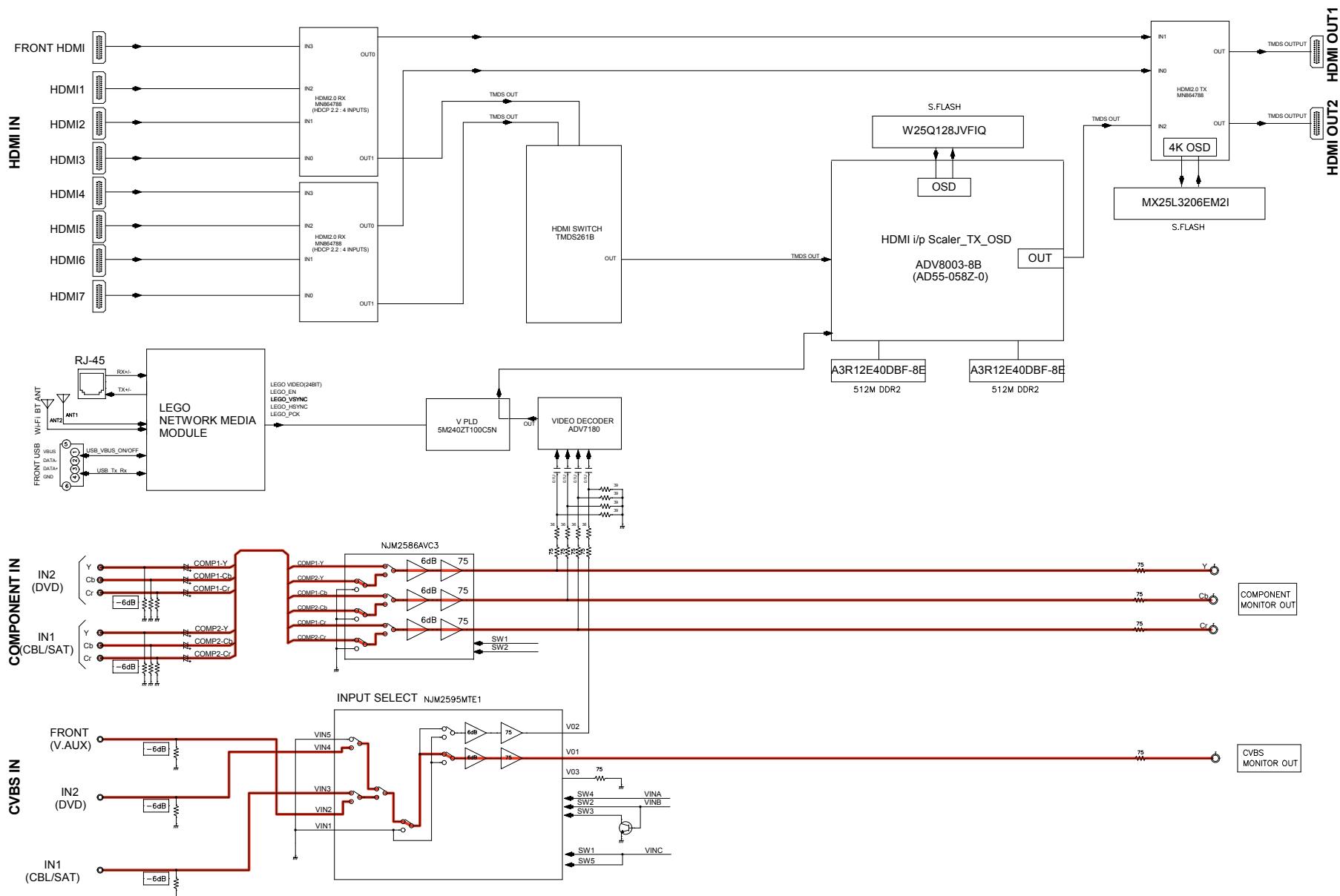


fig.V02

## SR5014 VIDEO DIAGRAM

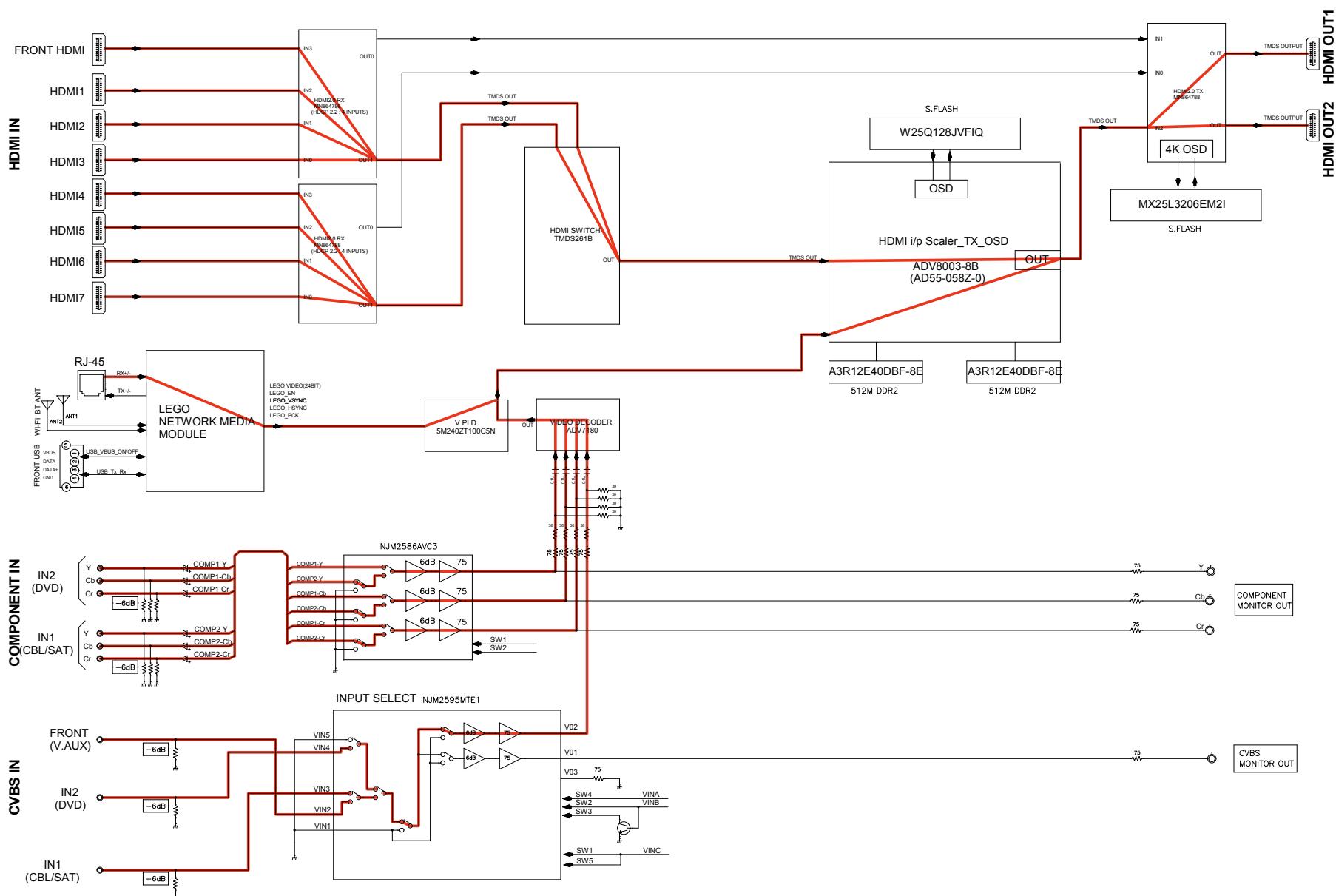


fig.V03

## SR5014 VIDEO DIAGRAM

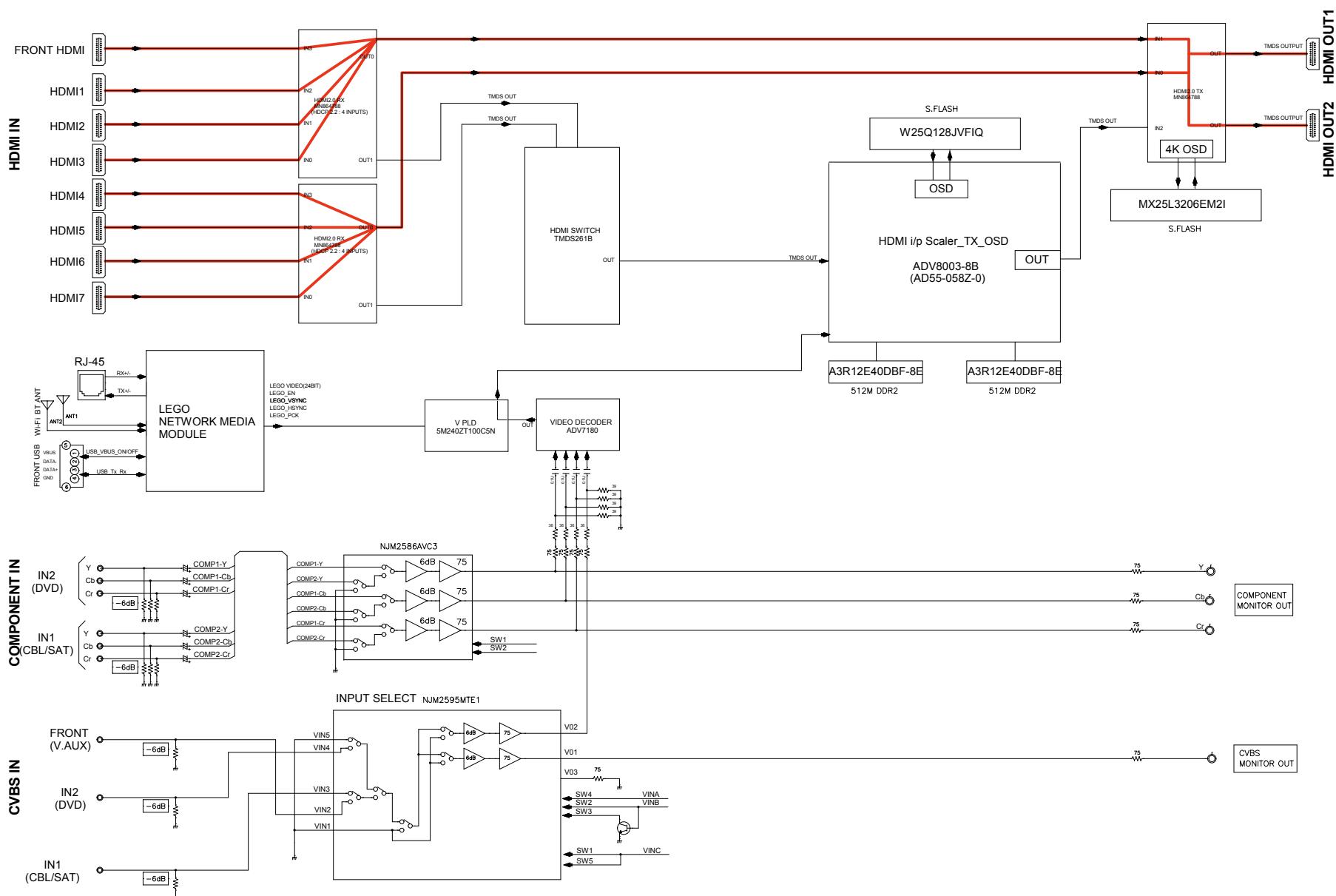


fig.V04

## SR5014 VIDEO DIAGRAM

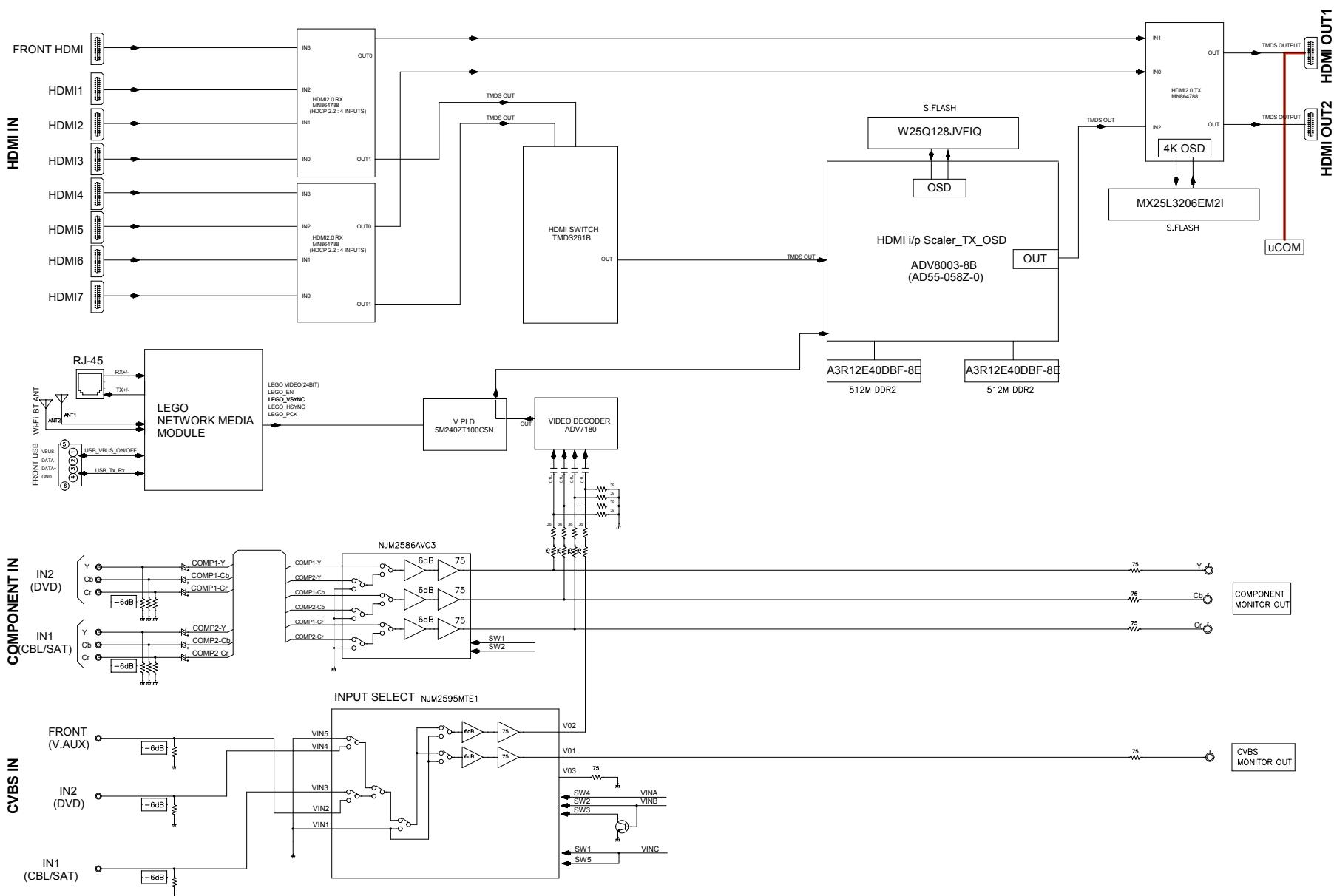


fig.V05a

## SR5014 DIGITAL AUDIO DIAGRAM

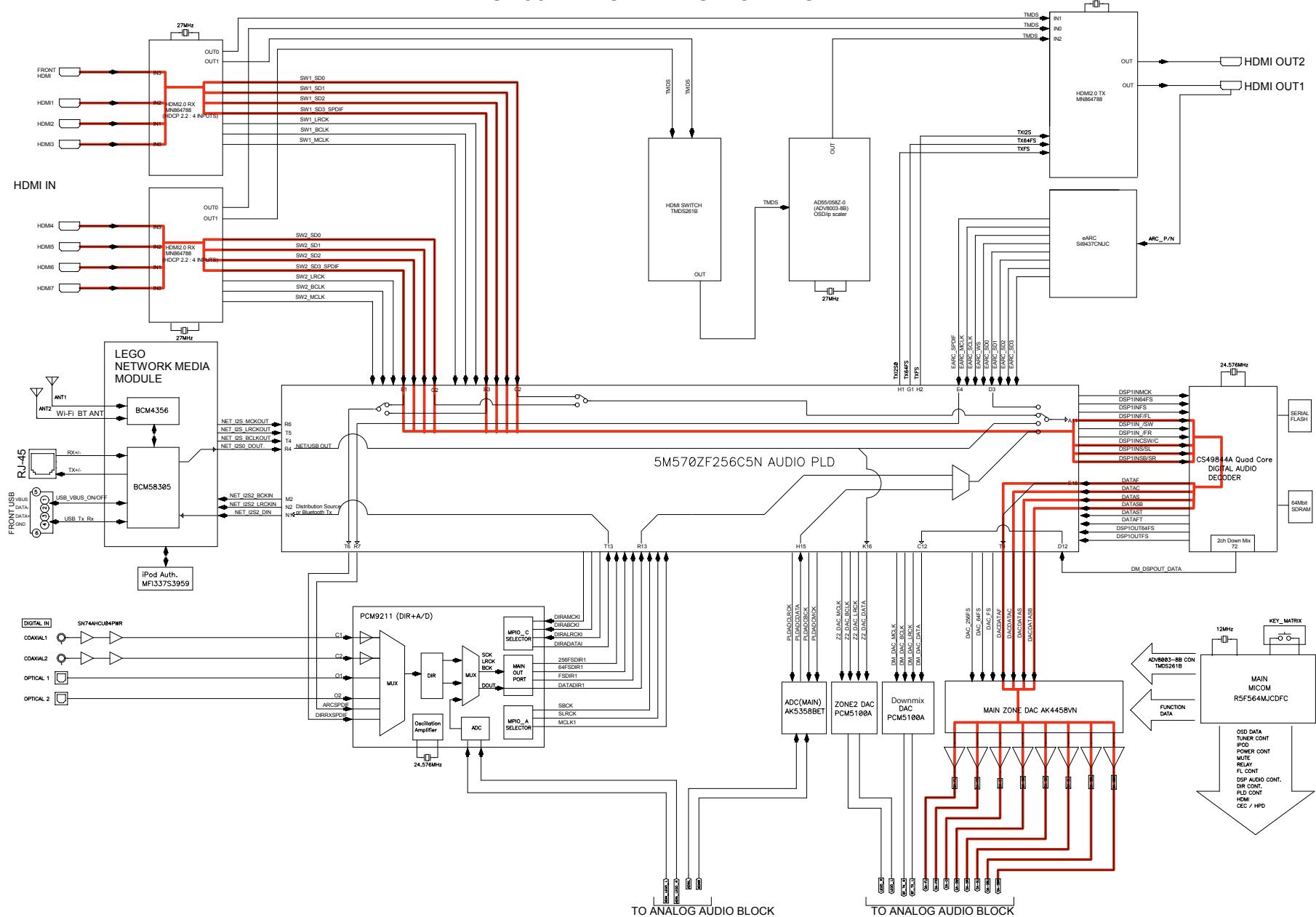


fig.V05b

## SR5014 ANALOG AUDIO DIAGRAM

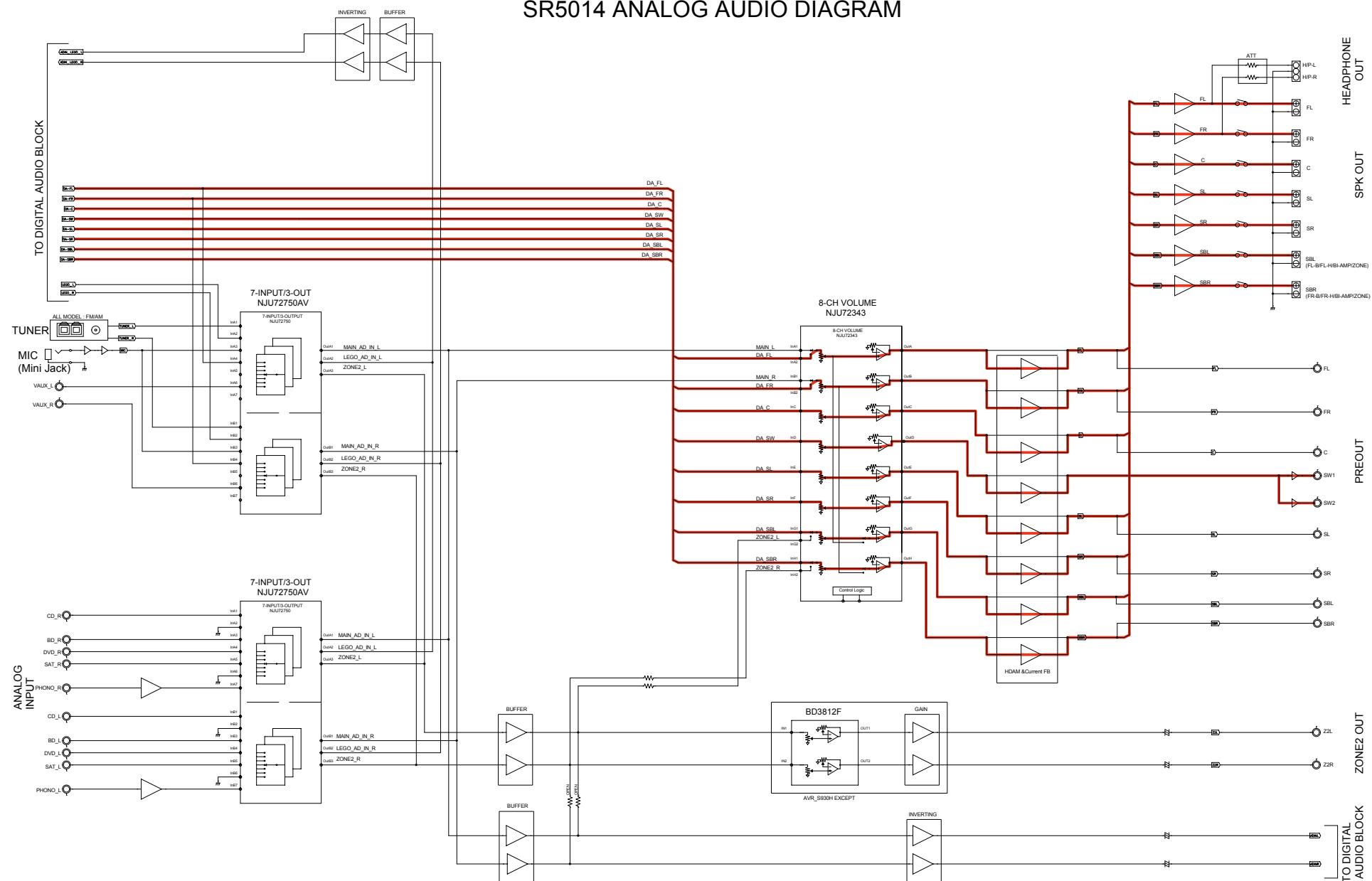


fig.V06

## SR5014 DIGITAL AUDIO DIAGRAM

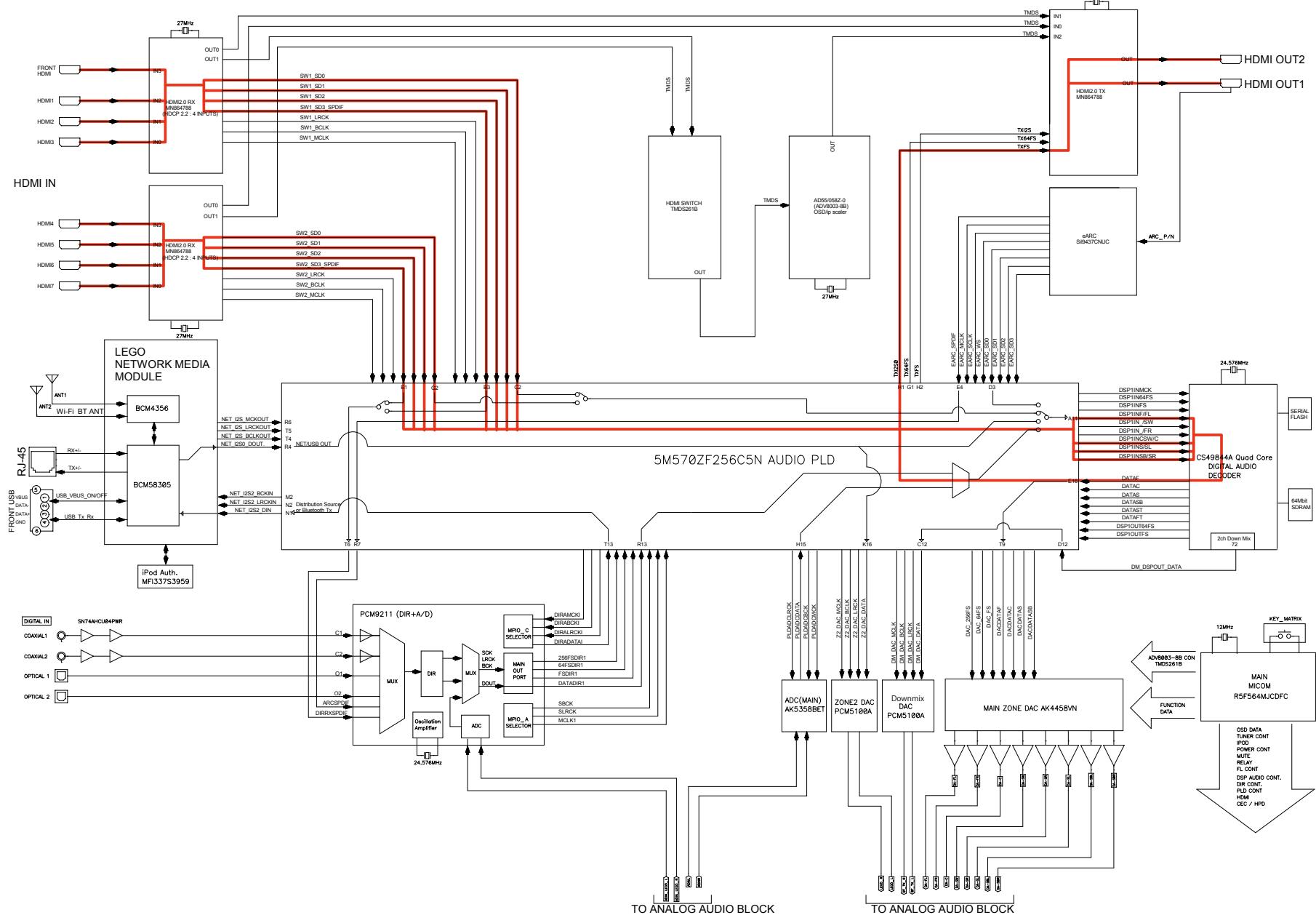
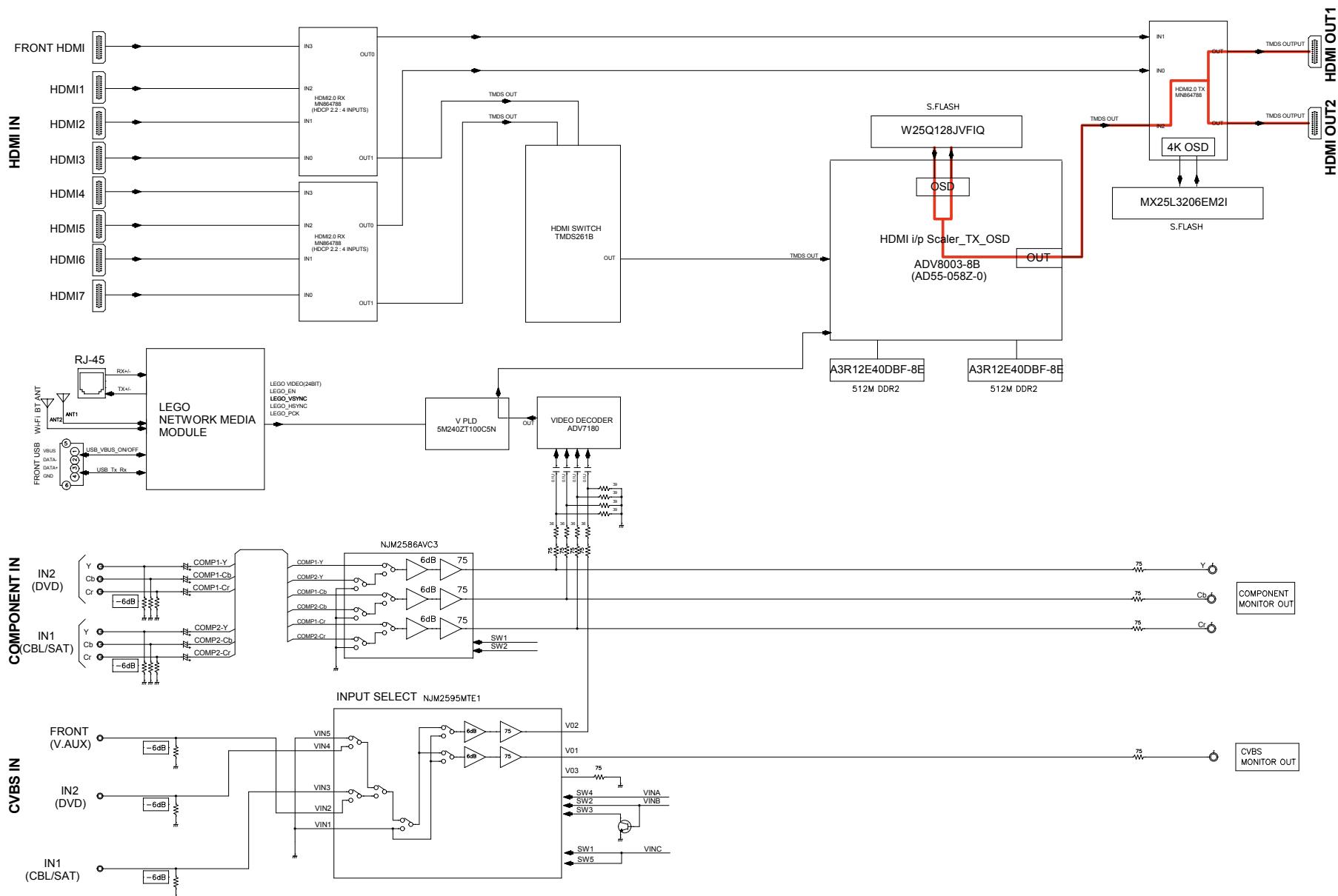


fig.V07

## SR5014 VIDEO DIAGRAM



# JIG FOR SERVICING

Use the following jigs (extension cable kit) when repairing the PCBs.  
Order with your dealer for the jigs your dealer if necessary.

**CAUTION : Incorrect connections may cause malfunction.**

Connection of Jig for DIGITAL PCB

--Items to Be Prepared---

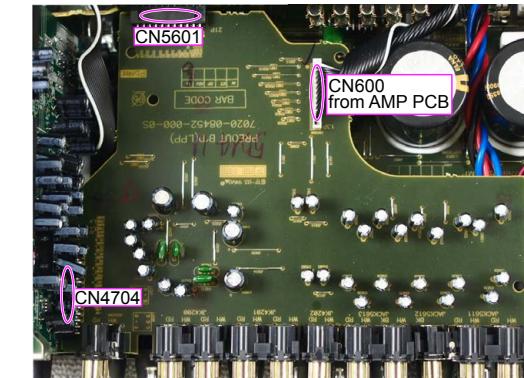
8U-1100849 : EXTENSION UNIT KIT	:	1 Set
8U-1101365 : EXTENSION UNIT KIT	:	1 Set
Insulation sheet (Not supplied)	:	3 sheet
Ground lead (Not supplied)	:	3 pc

-Proceeding-

(1) Remove the screws.



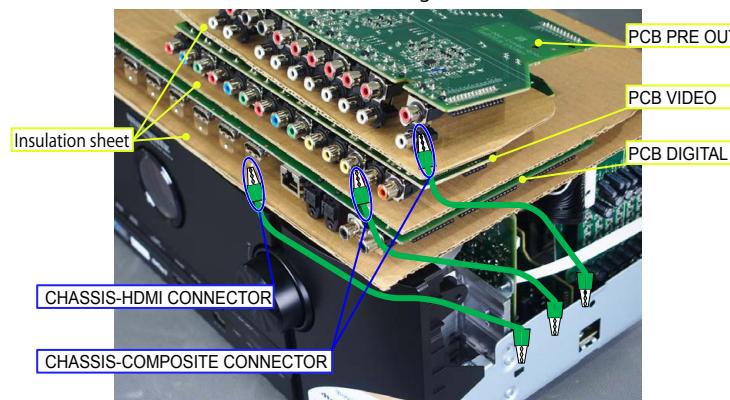
(2) Remove the connector PCB.



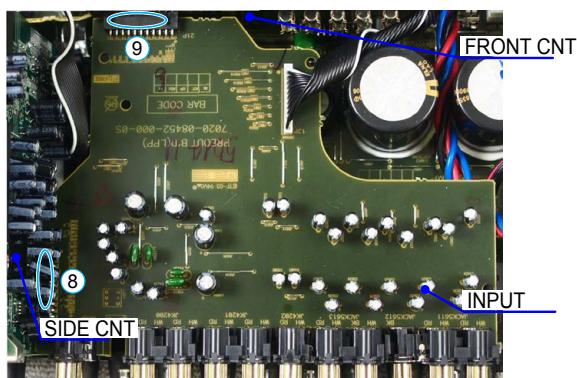
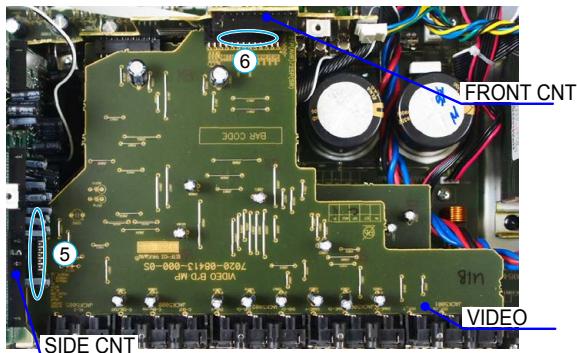
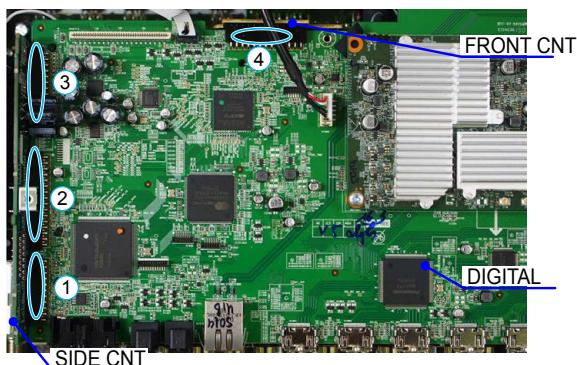
(3) Remove the DIGITAL PCB from the chassis and turn it over.

Place an insulation sheet larger than the PCB underneath the DIGITAL PCB.

※ Connect the earth of the PCB to the chassis using an earth wire, etc.



(4) Connect the expansion cables.



#### Board-to-Board Connections

No.	Pin	Ref. No.	PCB		Ref. No.	PCB
①	21pin	CP4200	INPUT	↔	N1020	DIGITAL
②	31pin	CP4205	INPUT	↔	N1016	DIGITAL
③	27pin	CP4201	INPUT	↔	N1014	DIGITAL
④	25pin	CP3403	FRONT CNT	↔	N1039	DIGITAL
⑤	11pin	CP4204	INPUT	↔	CN5003	VIDEO
⑥	25pin	CP5000	FRONT CNT	↔	CN5000	VIDEO
⑦	27pin	CP4207	INPUT	↔	CN4704	PREOUT
⑧	21pin	CP3403	FRONT CNT	↔	CN5601	PREOUT

## Adjusting Idling Current

**NOTE :** Adjusting the idling current when "ECO Mode" is set may damage the Power AMP.

## 1. Preparation

- (1) Prepare a DC voltmeter.
- (2) Place the unit under normal usage conditions, away from highly ventilated areas such as next to an air conditioning machine or electric fan.  
The set requires an ambient temperature of 15°C to 30°C and standard humidity.
- (3) Settings of This Unit
  - POWER (Power source switch) STANDBY
  - SPEAKER (Speaker terminal) No load  
(Do not connect equipment such as speakers or dummy resistors.)

## 2. Adjustment Procedure

- (1) Make sure that "ECO Mode" is off.
  - Press the "SETUP" button on the remote control to display the GUI menu.
  - Press the cursor button to select "General" → "ECO" → "Mode" → "Off".
- (2) Remove the top cover and turn **VR401** (ALL Channel) of the AMP PCB counterclockwise(○) as far as possible.

- (3) Connect the DC Voltmeter to the test points.

FRONT-Lch	: CP501	: VR401
FRONT-Rch	: CP502	: VR402
CENTER ch	: CP503	: VR403
SURROUND-Lch	: CP504	: VR404
SURROUND-Rch	: CP505	: VR405
SURROUND-BACK Lch	: CP506	: VR406
SURROUND-BACK Rch	: CP507	: VR407

- (4) Connect the power cord to an outlet. Next, press the power button to turn on the power.

- (5) Set this unit as follows.

MASTER VOLUME : "—" (○ min.) : turn counterclockwise to the lowest position.

SPEAKER (Speaker terminal) : No load

(Do not connect equipment such as speakers or dummy resistors.)

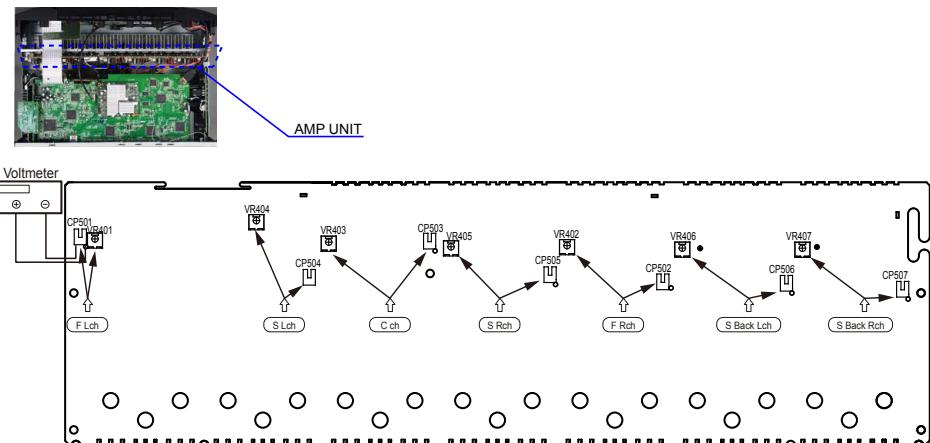
MODE : MCH STEREO

FUNCTION : TUNER

- (6) Turn **VR401** clockwise (○) and adjust the voltage of the test point to "**8.0mV ± 0.5mV DC**" within 2 minutes.

- (7) Check whether the voltage is within the range "**8.0mV ± 2mV DC**" 10 minutes after adjustment.

- (8) Adjust the variable resistance of each channel using the same method.



# UPDATING

## PROCEDURE AFTER REPLACING THE PCB.

## PROCEDURE AFTER REPLACING THE U-COM, ETC.

### FIRMWARE UPDATE PROCEDURE

- [1. Items necessary for update](#)
- [2. Update preparation with a USB flash drive](#)
- [3. Update method when the DIGITAL PCB or network module is replaced \(Using a USB flash drive\)](#)
- [4. Update Method for Service Region Settings](#)
- [5. Normal Firmware Update Method from USB Flash Drive](#)
- [6. Normal Firmware Update Method from OTA](#)
- [7. About the error codes](#)

## PROCEDURE AFTER REPLACING THE PCB.

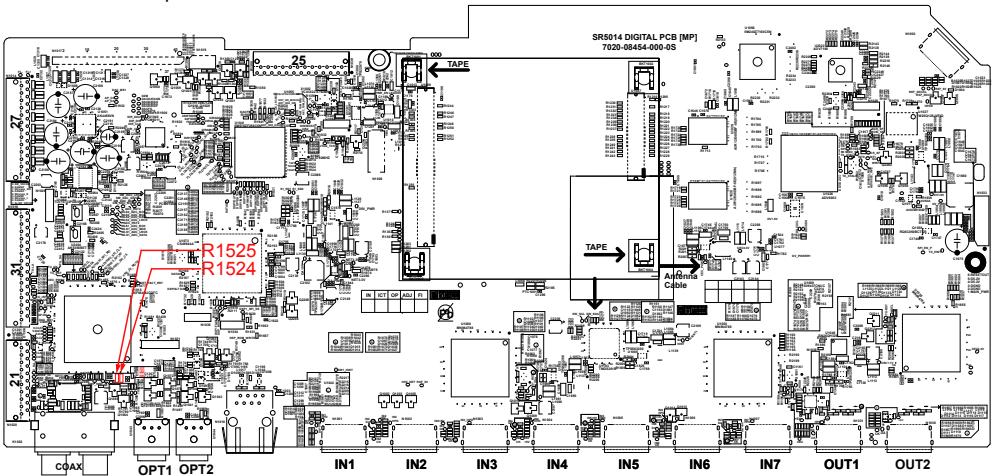
The procedure after replacing the printed circuit boards is as follows.

- Change the resistor for setting the region.

Model Area	DIGITAL PCB	
	R1524	R1525
North America (U)	OPEN	0
Europe (N)	0	OPEN
China (K)	10k	10k

See the PCB below.

- Be sure to replace the software with the latest version.



## PROCEDURE AFTER REPLACING THE U-COM, ETC.

The procedure after replacing the MCU (microprocessor), flash ROM, etc. is as follows.

Implement the update method when the DIGITAL PCB or network module is replaced.

PCB Name	Ref. No.	Description	Procedure after Replacement	Remark
DIGITAL	U1018	R5F564MJCDFC 32BIT	B	SOFTWARE : Main
DIGITAL	U1025	MX25L6406EM2I-12G 64M	B	SOFTWARE : DSP ROM
DIGITAL	U1027	W25Q128JVFIQ	B	SOFTWARE : GUI ROM
DIGITAL	U1048	EN25QH32B-104HIP2C	B	SOFTWARE : PIMG ROM
DIGITAL	U1041	5M570ZF256C5N	C	SOFTWARE : AUDIO PLD
DIGITAL	U1055	5M240ZT100C5N	C	SOFTWARE : VIDEO PLD
MODULE	P21	NETWORK MODULE	D	SOFTWARE : Network

### Procedure after Replacement

**A :** The software has been written. The software is not written at the time of replacement.

**B :** The software has been written. The software may need to be rewritten by version updates. Check the version.

**C :** The software has not been written. The software needs to be written after replacement.

See "[FIRMWARE UPDATE PROCEDURE](#)" for information on writing the software.

**D :** The software has been written. Be sure to rewrite with the latest software for your service region.

See "[3. Update method when the DIGITAL PCB or network module is replaced \(Using a USB flash drive\)](#)" for information on rewriting the software.

# FIRMWARE UPDATE PROCEDURE

## 1. Items necessary for update

Items necessary for update are as follows.

Update Type	Needed Part for Update	Requirement	Offered / not Offered		
			Standard Service Equipment Not offered by D&M	Purchase from D&M Article code	Download from SDI
Via USB	USB flash drive (USB 2.0 : Min 1GB) • We recommend a USB memory device that has an LED installed.	Formatting FAT16 or FAT 32	X	-	" <a href="#">Table 1</a> " or " <a href="#">Table 2</a> "
Via OTA	Internet Connection by Broadband Circuit	-	X	-	-
	Modem	-	X	-	-
	Router	-	X	-	-
	Ethernet cable (CAT-5 or greater is recommended)	-	X	-	-

**Table 1**

Update download file when the DIGITAL PCB or network module is replaced

Model Name	Model Area	Download from SDI
SR5014	ALL	avr_40.prod.update.factory.xxxx.zip

**Table 2**

Update download file when the firmware is updated (Two files, "HW component" and "LEGO component")

Model Name	Model Area	Download from SDI		
		For HW component		For LEGO component
SR5014 U	North America (U)	Product ID : 100100760100	DPMS_SR5014ALL_LEG0_xxxx.zip	heos_40.prod_x.xxx.xx.zip
SR5014 N	Europe (N)	Product ID : 100100760200		
SR5014 K	China (K)	Product ID : 100100760500		

## 2. Update preparation with a USB flash drive

You can update the firmware by downloading the latest version with USB flash drive.

### 2.1. Connecting to the USB flash drive

#### (1) Preparation

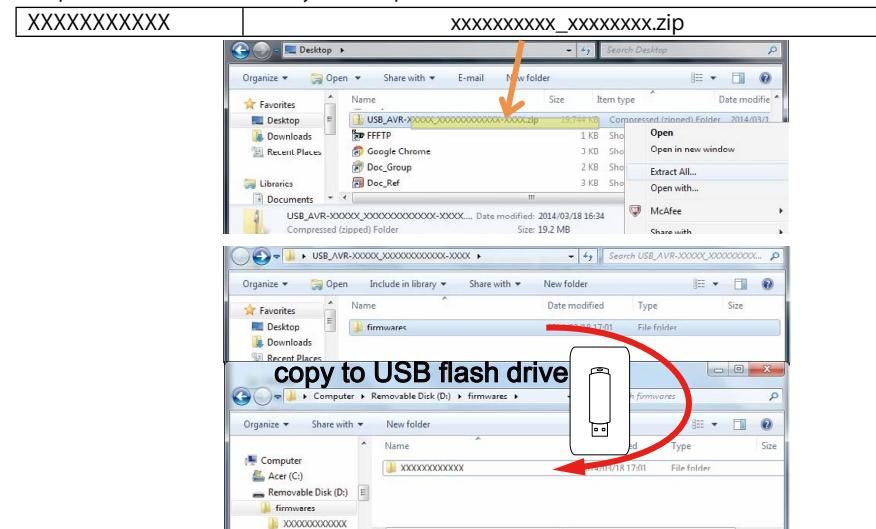
- Windows PC
- USB flash drive format : Prepare a USB flash drive formatted in FAT16 or FAT32.  
※We recommend a USB flash drive that has an LED installed.

#### NOTE :

- Use a memory that supports USB2.0.
- Do not run the USB flash drive through a hub.
- Do not connect a computer to the USB port of this unit using a USB cable.
- Do not use an extension cable when connecting the USB flash drive.
- Save the update file on a blank USB flash drive for use.
- If a USB flash drive cannot be updated, replace it with a different USB flash drive and perform the update again.

### 2.2. Unzipping the Downloaded File

Unzip the downloaded file on your computer.



There are folders or files after unzipping.

Copy these folders or files onto the USB flash drive.

The folders or files must be placed in the root directory of the USB flash drive.

### 3. Update method when the DIGITAL PCB or network module is replaced (Using a USB flash drive)

#### 3.1. File structure on USB flash drive

DIGITAL PCB or network module is replaced onto the USB flash drive in the following structure.

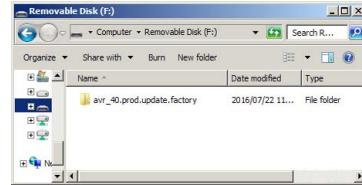
After unzipping the files, store them in the root of the same USB flash drive.

Model Area	Download from SDI
ALL	avr_40.prod.update.factory.xxxx.zip

USB flash drive root

- + avr\_40.prod.update.factory
- + xxxxxxxx.ota-download
- + heos\_40.prod.update.factory

xxxxxx : Model name  
zz : Region



#### 3.2. Start the update.

NOTE :

- Remove the LAN cable from this unit when updating.  
(Do not connect to a wired or wireless network.)
- The GUI menu setting details and image quality adjustment setting details are initialized when Firmware Factory Restore is performed. Therefore, take a note of the setting details beforehand and reconfigure the settings after update.
- Do not remove the USB flash drive until updating is completed.
- Do not turn off the power until updating is completed.
- It takes a maximum of approximately 25 minutes for update to complete.

Once an update is started, normal operations cannot be performed until it is completed.

- (1) Press the power button to turn on the power.
- (2) Wait for this unit to start up.
- (3) Set the input source to HEOS Music.

Check that the display is as shown below.

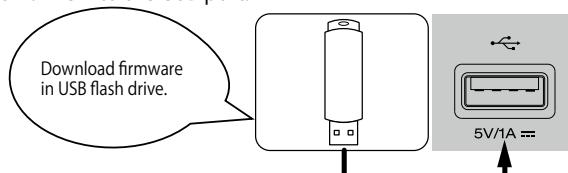
Display(Main Display)

L1	HEOS
L2	▶ TuneIn Internet Radio

or
No Network Connection

L2 : Content of the display is scrolled.

- (4) Insert the USB flash drive into the USB port.



- (5) USB Update starts automatically.

The Standby LED lights red.

Display during USB update (Main Display)

L1	Wait
L2	▶▶▶▶▶
↓	
L1	Updating
L2	▶▶▶ xx%
L3	xxmin
↓	
L1	Update
L2	Complete

It takes a maximum of approximately 25 minutes for update to complete.

- (6) The unit restarts when update is complete.

※When update is complete, the folder name on the USB flash drive changes to "avr\_40.prod.update.factory.done". To use the files again, delete the ".done" part.

- (7) Execute Firmware Factory Restore.

While holding down buttons "M-DAX" and "TUNER PRESET CH +" simultaneously, press the power button to turn on the power.

Display during Firmware Factory Restore(Main Display)

L1	Restore
L2	FW...
↓	
L1	Restore
L2	▶▶▶ xx%
L3	xxmin
↓	
L1	Complete

It takes approximately 15 minutes for Firmware Factory Restore to complete.

- (8) Execute Service Region Settings.

See "4. Update Method for Service Region Settings"

- (9) Check that the version is the specified version. See "1. Version Display Mode"

- (10) If necessary, use OTA or the USB flash drive to update the firmware to the newest version.

※We recommend using the firmware update method using OTA.

See "5. Normal Firmware Update Method from USB Flash Drive" or "6. Normal Firmware Update Method from OTA"

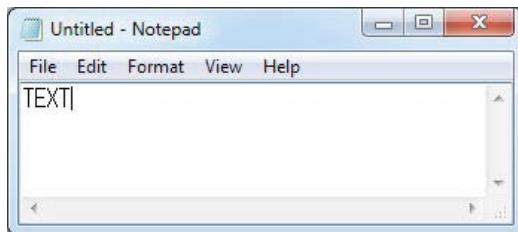
## 4. Update Method for Service Region Settings

Copy the Service Region Settings from the USB flash drive to this unit.

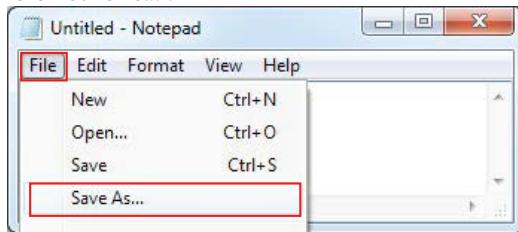
### 4.1. Creating a Service Region Settings file

(1) Click [Start button] - [Accessories] - [notepad] on the PC to launch the notepad.

(2) Enter "TEXT".



(3) Click "File", and then click "Save As...".



(4) Enter the file name and click the Save button.

NOTE : Enter the file name in double quotation marks. (The file extension is not required.)

Service Region	File name
North America	"denon-config-locale-set-1"
Europe	"denon-config-locale-set-2"
Japan	"denon-config-locale-set-3"
Australia	"denon-config-locale-set-4"
Korea	"denon-config-locale-set-5"
China	"denon-config-locale-set-6"
Israel	"denon-config-locale-set-7"



(5) Copy the files created on the USB flash drive.



### 4.2. Starting Service Region Settings

NOTE :

- Remove the LAN cable from this unit when updating.  
(Do not connect to a wired or wireless network.)
- We recommend a USB memory device that has an LED installed.

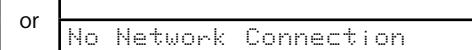
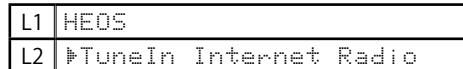
(1) Press the power button to turn on the power.

(2) Wait for this unit to start up.

(3) Set the input source to HEOS Music.

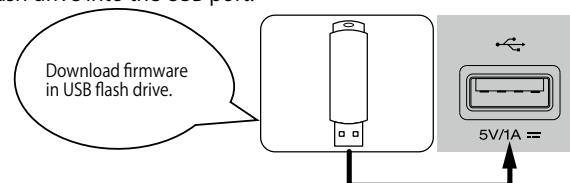
Check that the display is as shown below.

Display(Main Display)



L2 : Content of the display is scrolled.

(4) Insert the USB flash drive into the USB port.



(5) Wait for at least 10 seconds before removing the USB flash drive.

(If the USB flash drive has an LED, this LED will be flashing. Remove the USB flash drive when the LED stops flashing.)

## 5. Normal Firmware Update Method from USB Flash Drive

### 5.1. File structure on USB flash drive

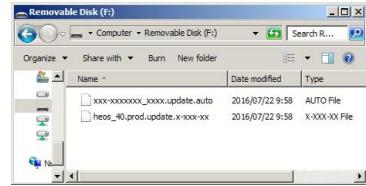
Copy the normal update files onto the USB flash drive in the following structure.

After unzipping the HW component USB update files for the target model and LEGO USB update files, store them in the root of the same USB flash drive.

Model Area	Download from SDI	
	For HW component	For LEGO component
North America (U)	DPMS_SR5014ALL_LEG0_xxxx.zip Product ID : 100100760100	
Europe (N)	DPMS_SR5014ALL_LEG0_xxxx.zip Product ID : 100100760200	heos_40.prod_x.xxx.xx.zip
China (K)	DPMS_SR5014ALL_LEG0_xxxx.zip Product ID : 100100760500	

USB flash drive root

+ SRxxxxx\_xxxx.update.auto  
+ heos\_40.prod.update.x-xx-xx



### 5.2. Start normal update

NOTE :

- Remove the LAN cable from this unit when updating.  
(Do not connect to a wired or wireless network.)
- Do not remove the USB flash drive until updating is completed.
- Do not turn off the power until updating is completed.
- It takes a maximum of approximately 25 minutes for update to complete.

Once an update is started, normal operations cannot be performed until it is completed.

The GUI menu settings and image adjustment settings of this unit may be initialized.

Note down the settings before updating, and set them again after updating.

- (1) Press the power button to turn on the power.
- (2) Wait for this unit to start up.
- (3) Set the input source to HEOS Music.

Check that the display is as shown below.

#### Display(Main Display)

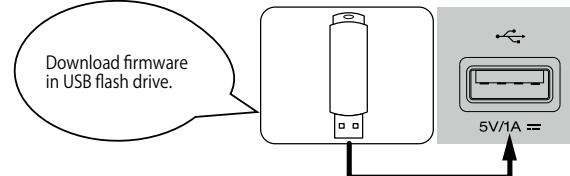
L1	HEOS
L2	TuneIn Internet Radio

or

No Network Connection
-----------------------

#### L2 : Content of the display is scrolled.

- (4) Insert the USB flash drive into the USB port.



- (5) USB Update starts automatically.

The Standby LED lights red.

#### Display during USB update (Main Display)

L1	Wait
L2	►►►►►

↓

L1	Updating
L2	►►► xx%
L3	xxmin

↓

L1	Update
L2	Complete

It takes a maximum of approximately 25 minutes for update to complete.

- (6) The unit restarts when update is complete.

- (7) After updating the firmware, check the version.

See "1. Version Display Mode"

## 6. Normal Firmware Update Method from OTA

Download the latest firmware from our website and update the firmware.

### ---Cautions on Firmware Update---

- For the update procedure, a proper broadband Internet connection environment and settings are required.
- Do not turn off the power until updating is completed.
- It takes a maximum of approximately 25 minutes for update to complete.

Once an update is started, normal operations cannot be performed until it is completed.

The GUI menu settings and image adjustment settings of this unit may be initialized.

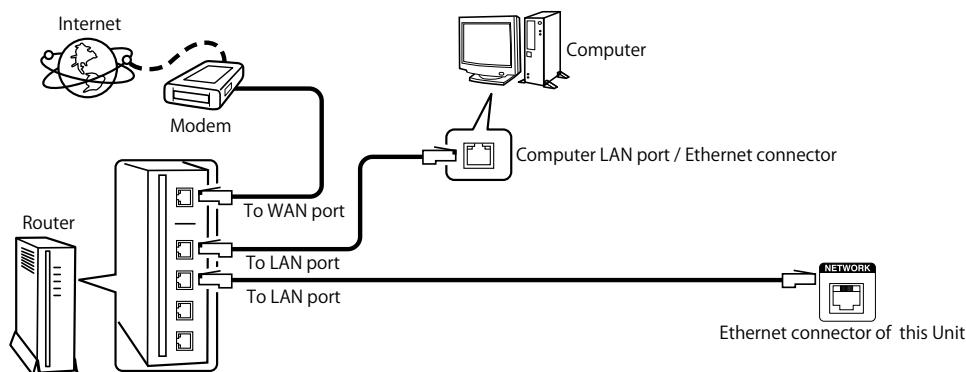
Note down the settings before updating, and set them again after updating.

### 6.1. Network Connection

#### (1) System Requirements

- Internet Connection by Broadband Circuit
- Modem
- Router
- Ethernet cable (CAT-5 or greater is recommended)

#### (2) Setting

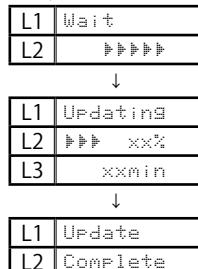


### 6.2. Check and update the firmware

Check if there is a firmware update available. It is also possible to check approximately how long the update will take.

- Press the "SETUP" button on the remote control to display the GUI menu.
- Press the cursor button to select "General" → "Firmware" → "Check for Update".
- Check update
  - If the firmware version is anything other than the latest version, select "Update Now" to update the firmware.
  - "No update required. Latest version installed." is displayed when the firmware version is up to date.
- OTA Update starts automatically.  
The Standby LED lights red.

#### Display during OTA update (Main Display)



It takes a maximum of approximately 25 minutes for update to complete.

- The unit restarts when update is complete.
- After updating the firmware, check the version.  
See "1. Version Display Mode"

## 7. About the error codes

See the table below for details on error codes and solutions when updating the firmware.

Error codes are displayed in 4 digits, YYXX (YY : DeviceID, XX : ErrorCode).

### Display(Main Display)

L1	Updating
L2	▶▶▶ ***%
L3	***min

↓

L1	Error
L2	YYXX
L3	Please check you

Update Error YYXX (YY : DeviceID, XX : ErrorCode)

L3 : Content of the display is scrolled.

### Remedies

Error Code (YYXX) (DeviceID/ErrorCode)	Remedies
0008	"Connection failed. Please check your network, then try again."
0009	"Update failed. Please check your network, then try again."
0009	"Upgrade failed. Please check your network, then try again."
YY00 YY01 YY02 YY03 YY04 YY07	"Please check your network, unplug and reconnect the power cord, and try again."
YY00 YY01 YY02 YY03 YY04 YY07	"Please unplug and reconnect the power cord, and try again."
0005	"Incompatible update file found on the USB device. Please check the file."
0006	"Update file is corrupted. Please check the file."
000B	"Please contact customer service in your area." ※ Check the power supply and communication lines of each device.

### Device ID table

Device ID (YY)	Device Name
00	General
01	Main CPU
0E	Main FBL (No used)
11	DSP1 or DSP
12	DSP2 ※ Except : NR1510/NR1510/SR5014/SR6014
13	DSP3 ※ Except : NR1510/NR1510/SR5014/SR6014
19	DSP4 ※ Except : NR1510/NR1510/SR5014/SR6014
15	Audio PLD
22	Video PLD ※ Except : NR1510
29	GUI
2E	PIMG ※ ONLY : NR1510/NR1510/SR5014
33	LEGO

### Error Code table

Type code (XX)	Description
00	Logical error
01	Error during erasing
02	Error during writing
03	Error during verifying
04	No access for the component
05	Package mismatched. Product ID, package version un-matched of the package manifest
06	Unpack dis-available of component package file
07	Time out
08	Latest firmware has already installed.
09	Error during download
0A	Error connection
0B	Hardware Error

### ---Checking the Firmware Version After the Update---

After updating the firmware, check the version.

See "1. Version Display Mode"

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