

AV Surround Receiver

SR7012



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

Click here!

On-line service parts list

<http://dmedia.dmglobal.com/Document/DocumentDetails/23566>

[Online Parts List](#) (P5 to P7)

WEB owner's manual (Release schedule)

<http://manuals.marantz.com/SR7012/NA/EN/index.php> (September 2017)

<http://manuals.marantz.com/SR7012/EU/EN/index.php> (September 2017)

CAUTION IN SERVICING

ELECTRICAL

MECHANICAL

REPAIR INFORMATION

UPDATING

Confidential



CAUTION IN SERVICING

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INSTRUCTIONS FOR HANDLING SEMICONDUCTORS AND OPTICAL UNIT

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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 milliamps, 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.

Ⓢ 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 deteriorate 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 Ω or greater. If it is less, the set must be inspected and repaired.

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 ⚠ 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 reasons, some parts use tapes, tubes or other insulating materials, and some parts are mounted away from the surface of printed circuit boards. Care is also 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.

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 ⚠ mark.

(2) Parts lists Indicated by the ⚠ 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 milliamps, 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:

ALL RESISTANCE VALUES IN OHM. k=1,000 OHM / M=1,000,000 OHM

ALL CAPACITANCE VALUES ARE EXPRESSED IN MICRO FARAD, UNLESS OTHERWISE INDICATED. P INDICATES MICRO-MICRO FARAD. N INDICATES NANO FARAD. EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION. CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

NOTE FOR PARTS LIST

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

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

INSTRUCTIONS FOR HANDLING SEMICONDUCTORS AND OPTICAL UNIT

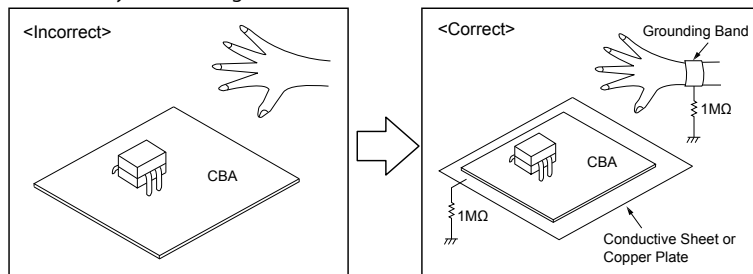
Electrostatic breakdown of the semi-conductors or optical pickup may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

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.

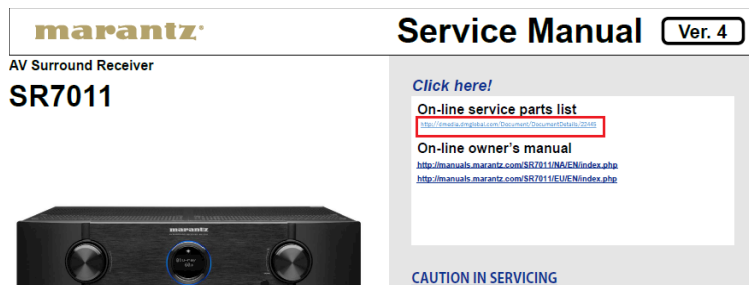
2. Ground for Workbench

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

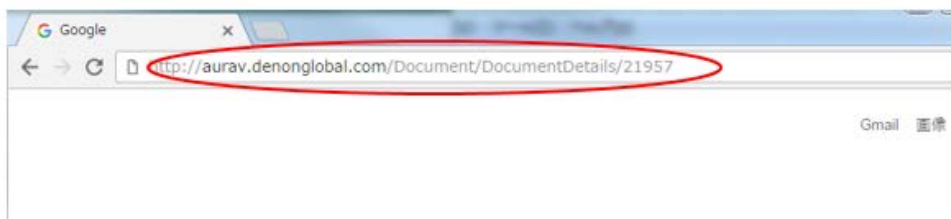


Accessing the Parts List

- (1) 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) When the login screen is displayed, enter your username and password.
- (3) Enter the 5 letters shown as the blue CAPTCHA code as single-byte characters.
If the text is unclear, click "**Refresh**" to change the CAPTCHA code, and enter it again.



- (4) Press the "**Login**" button.

Logging in to New SDI and Accessing the Parts List

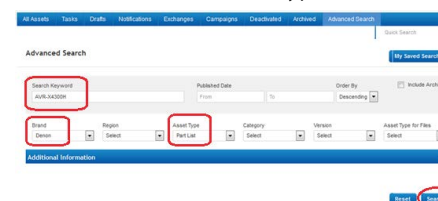
- (1) Access New SDI from the URL below.
<http://dmedia.dmglobal.com>
- (2) When the login screen is displayed, enter your username and password.
- (3) Enter the 5 letters shown as the blue CAPTCHA code as single-byte characters.
If the text is unclear, click "**Refresh**" to change the CAPTCHA code, and enter it again.



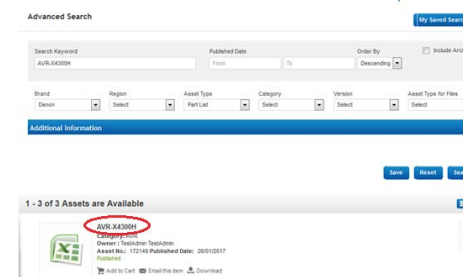
- (4) Press the "**Login**" button.
- (5) When the Home screen is displayed, click "**Advanced Search**".



- (6) Enter the following search conditions and click "**Search**".
Keyword : Model name Brand : brand name Asset Type : Part list

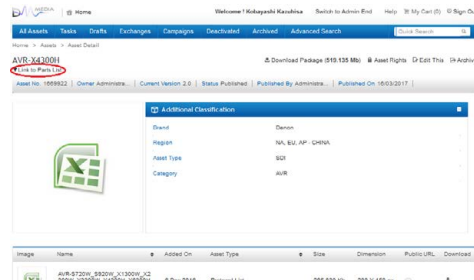


- (7) Click the model name when the search results are displayed.



Accessing the Part List from the Model Asset Screen

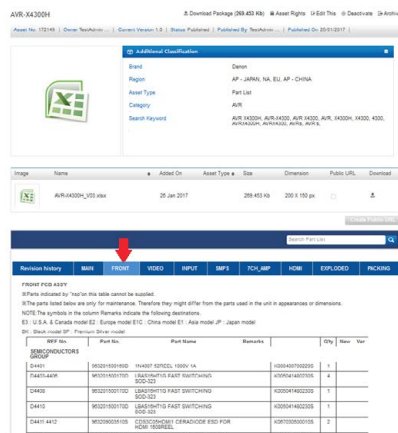
- (1) Display Model Asset from New SDI.
- (2) Click the section displayed as ▼ Link to Part Lists under the model name.



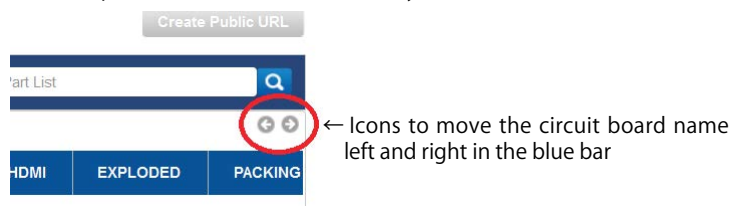
NOTE: If the ▼ Link to Parts List section is not displayed, download the parts table from the Asset list.

PRINTED CIRCUIT BOARDS Parts Table

- (1) Display the Parts List. Click the PCB name in the blue bar to display the parts list for the board.

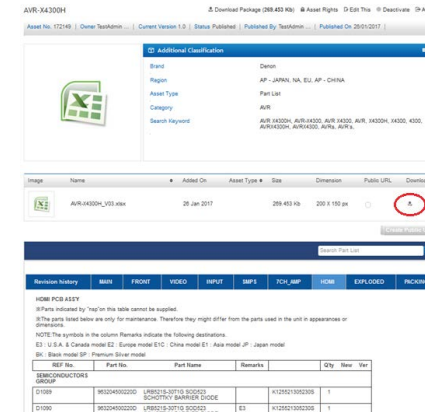


Left and right arrow icons are displayed if the circuit board name does not fit in the blue bar. Click these icons to display a different part of the name when necessary.



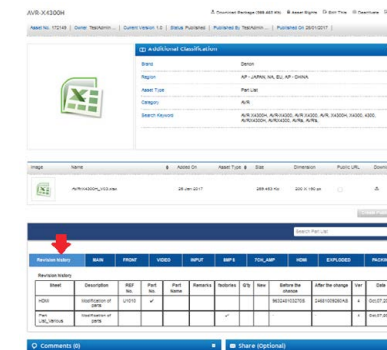
Downloading the Parts List as an Excel File

- (1) Displays the Parts List. Click the Download icon.



Revision History

- (1) Click "Revision history" in the blue bar.



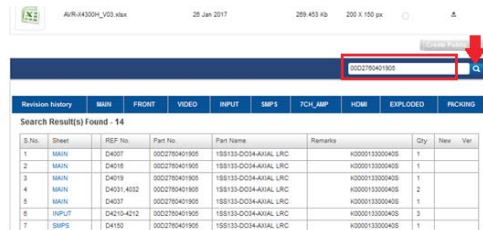
The following details are displayed.

Sheet : Name of the changed sheet
 Description : Description of the changes
 Remarks : Destination, color information
 Factories : Factory number
 Ver : Version number after revision if changes were made to the parts list
 Date : Date of changes

Searching Part Numbers or Ref. Numbers

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

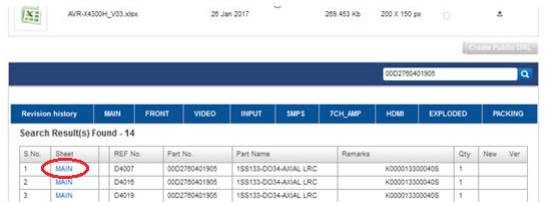
- (1) Enter the part number or Ref. number in the search window of the Parts List, and press the search button.
- (2) The search results are displayed.
The name of the sheet in which the search part is used and the part's line are displayed.



Search Result(s) Found - 14

S.No.	Sheet	REF No.	Part No.	Part Name	Remarks	Qty	New	Ver
1	MAIN	D4007	0002700401905	15S133-DQ34-AJIAL LRC	K0000133000405	1		
2	MAIN	D4016	0002700401905	15S133-DQ34-AJIAL LRC	K0000133000405	1		
3	MAIN	D4019	0002700401905	15S133-DQ34-AJIAL LRC	K0000133000405	1		
4	MAIN	D4031.4032	0002700401905	15S133-DQ34-AJIAL LRC	K0000133000405	2		
5	MAIN	D4037	0002700401905	15S133-DQ34-AJIAL LRC	K0000133000405	1		
6	INPUT	D4014.4012	0002700401905	15S133-DQ34-AJIAL LRC	K0000133000405	3		
7	SMP5	D4150	0002700401905	15S133-DQ34-AJIAL LRC	K0000133000405	1		

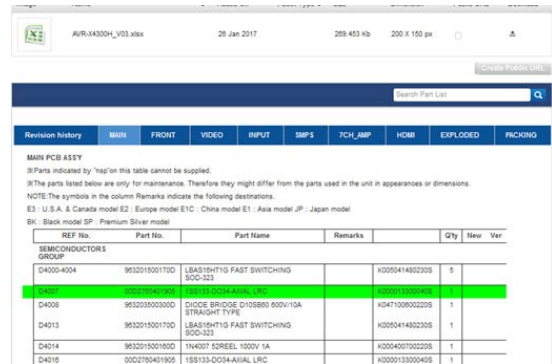
- (3) Next, click the **"Sheet"** section of the search results.



Search Result(s) Found - 14

S.No.	Sheet	REF No.	Part No.	Part Name	Remarks	Qty	New	Ver
1	MAIN	D4007	0002700401905	15S133-DQ34-AJIAL LRC	K0000133000405	1		
2	MAIN	D4016	0002700401905	15S133-DQ34-AJIAL LRC	K0000133000405	1		
3	MAIN	D4019	0002700401905	15S133-DQ34-AJIAL LRC	K0000133000405	1		

- (4) The Board Part Table opens and the line on which the searched part number appears is highlighted.



MAIN PCB ASSY

※Parts indicated by "rep" on this table cannot be supplied.
 ※The parts listed below are only for maintenance. Therefore they might differ from the parts used in the unit in appearances or dimensions.
 NOTE: The symbols in the column Remarks indicate the following destinations.
 E3 : U.S.A. & Canada model E2 : Europe model E1C : China model E1 : Asia model JP : Japan model
 BK : Black model SP : Premium Silver model

REF No.	Part No.	Part Name	Remarks	Qty	New	Ver
D4000-4004	9632015001700	LBAS15HT1G FAST SWITCHING BOD-323	K0000414002005	5		
D4005	9632015001700	LBAS15HT1G FAST SWITCHING BOD-323	K0000414002005	1		
D4008	9632030003000	DIODE BRIDGE D10B80 800V10A STRAIGHT TYPE	K0471008002205	1		
D4013	9632015001700	LBAS15HT1G FAST SWITCHING BOD-323	K0000414002005	1		
D4014	9632015001500	1N4007 52RREEL 1000V 1A	K0004007002205	1		
D4016	0002700401905	15S133-DQ34-AJIAL LRC	K0000133000405	1		

CAUTION IN SERVICING.

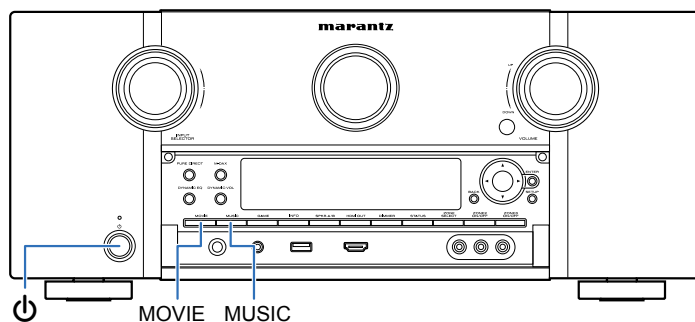
Initializing This Unit

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 "**MOVIE**" and "**MUSIC**" 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-110084S : EXTENSION UNIT KIT : 1 Set
8U-110136S : EXTENSION UNIT KIT : 1 Set
(See [JIG FOR SERVICING](#))



SCHEMATIC DIAGRAMS

[SCH01_DIGITAL CONNECT](#)
[SCH02_DIGITAL POWER](#)
[SCH03_MAIN CPU](#)
[SCH04_EXPANDER](#)
[SCH05_CPU LEVEL CHG](#)
[SCH06_DIR](#)
[SCH07_AUDIO PLD](#)
[SCH08_DSP1](#)
[SCH09_DSP2](#)
[SCH10_DSP3](#)
[SCH11_DSP4](#)
[SCH12_ADC](#)
[SCH13_ZONE, LEGO DAC](#)
[SCH14_LEGO](#)
[SCH15_VIDEO DECODER](#)
[SCH16_HDMI SW2](#)
[SCH17_HDMI SW1](#)
[SCH18_VSP & IP & OSD](#)
[SCH19_VIDEO PLD](#)
[SCH20_HDMI TX & ARC](#)
[SCH21_INPUT](#)
[SCH22_PREOUT](#)
[SCH23_F-HDMI](#)
[SCH24_A-VIDEO](#)
[SCH25_RC-5](#)
[SCH26_RS232C_TRIGGER](#)
[SCH27_SIDE CNT](#)
[SCH28_FRT CNT](#)
[SCH29_MAIN DAC1](#)
[SCH30_MAIN DAC2](#)
[SCH31_SPK](#)
[SCH32_REGULATOR](#)
[SCH33_5CH AMP](#)
[SCH34_4CH AMP](#)

[SCH35_FRONT](#)
[SCH36_HDAM1](#)
[SCH37_HDAM2](#)
[SCH38_SMPS](#)

PRINTED CIRCUIT BOARDS

[DIGITAL](#)
[INPUT, F-HDMI, CONNECT-2, CONNECT-3,](#)
[CONNECT-4](#)
[VIDEO, GUIDE, SIDE CNT, FRONT CONT FFC](#)
[SPK, SPK H2L, GUIDE TRANS, GUIDE TOP, GUIDE SIDE](#)
[5CH AMP, 4CH AMP](#)
[FRONT, FHDMI FFC TOP, FRONT SW, HP](#)
[FRONT CNT, TUNER, BKT, SMPS](#)

LEVEL DIAGRAM

[FRONT ch](#)
[CENTER / SURROUND ch](#)
[SUBWOOFER ch](#)
[ASSIGN1 / 2 \(SURR.BACK / HEIGHT1 / HEIGHT2\) ch](#)
[ZONE2 / ZONE3 ch](#)

BLOCK DIAGRAM

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

POWER DIAGRAM

WIRING DIAGRAM

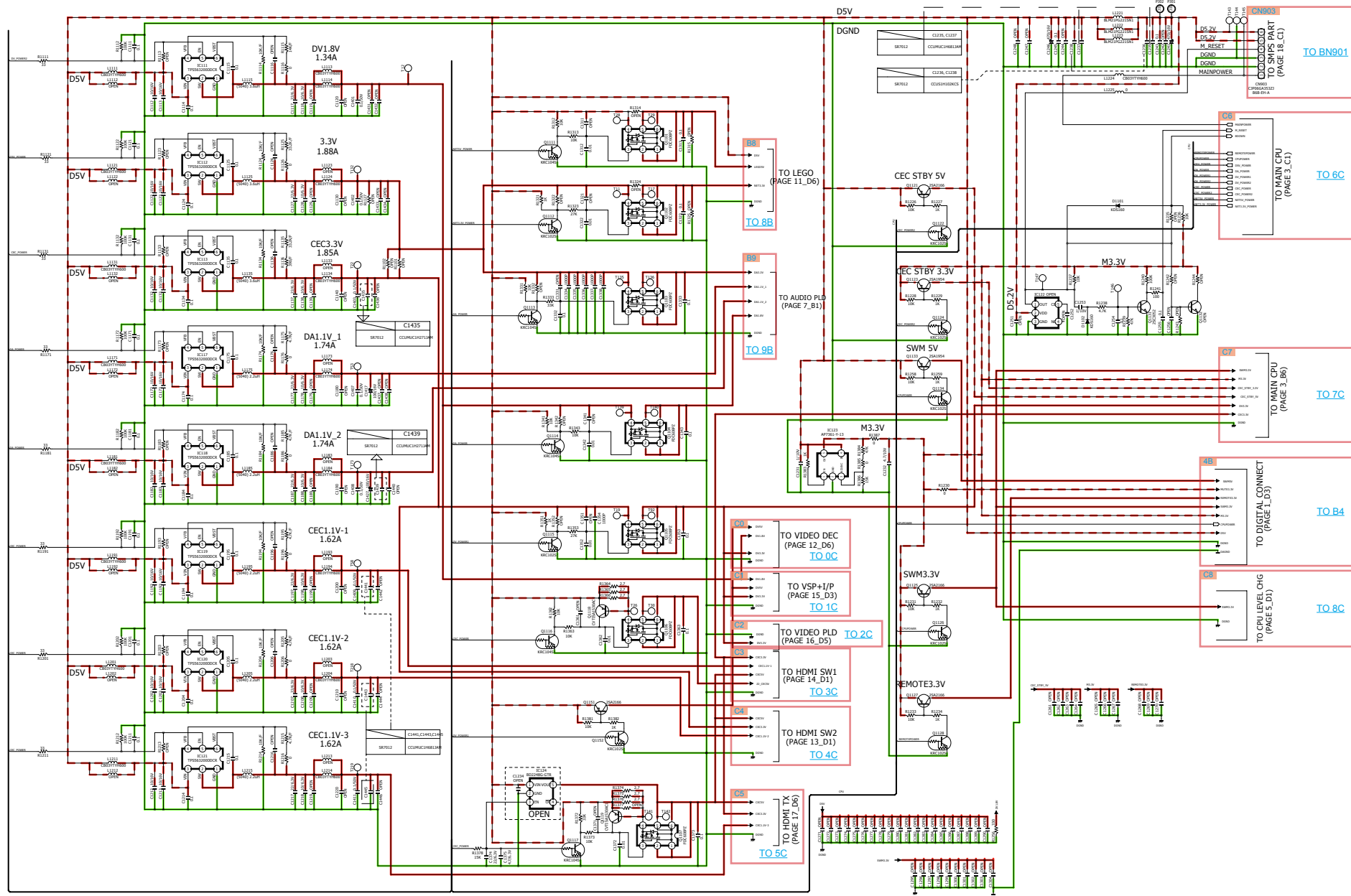
SEMICONDUCTORS

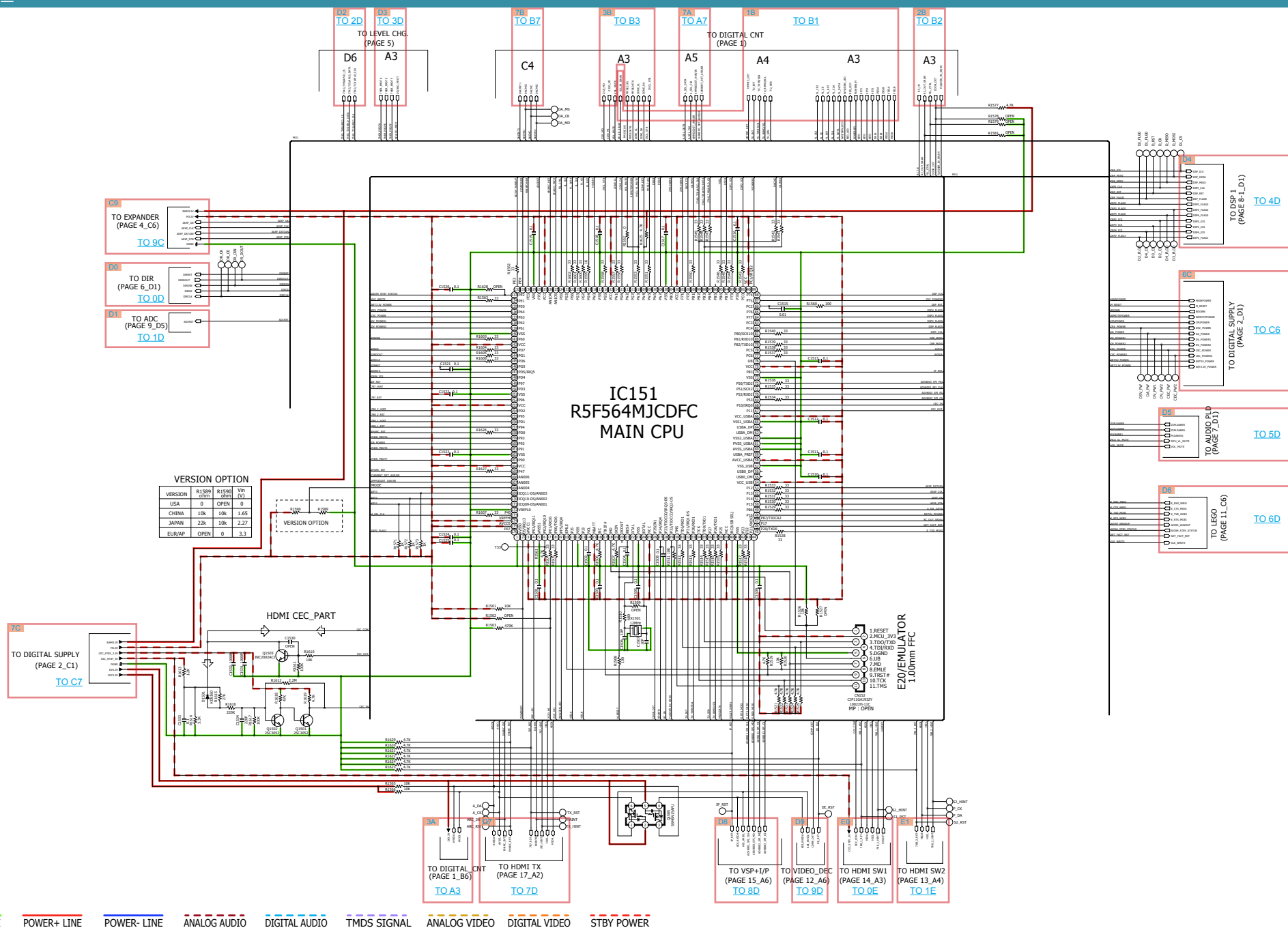
- [1. IC's](#)
- [2. FL DISPLAY](#)
- [3. Remote Code Table](#)

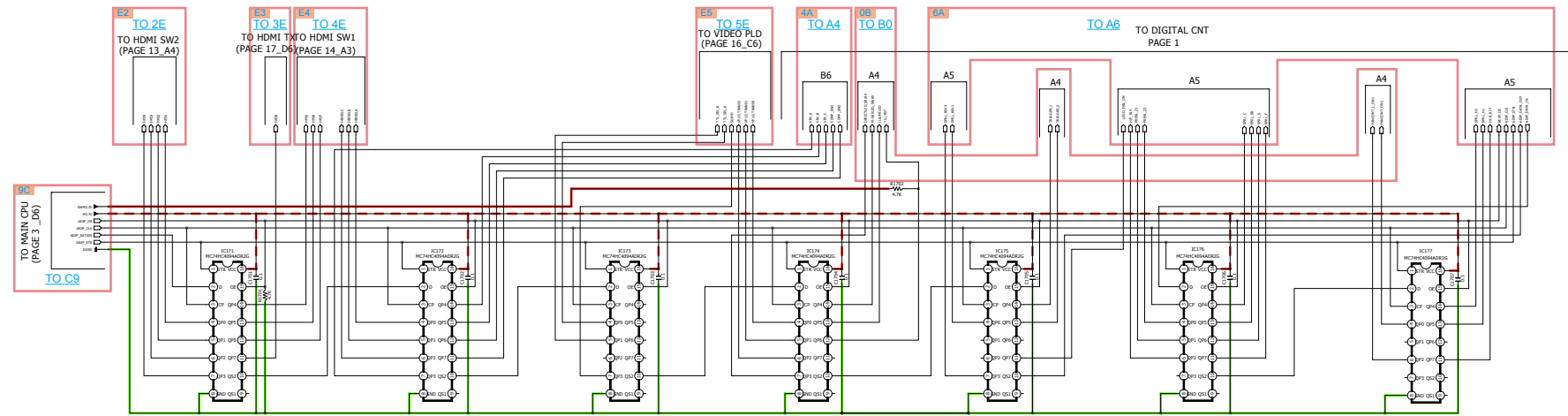


SCH01_DIGITAL CONNECT

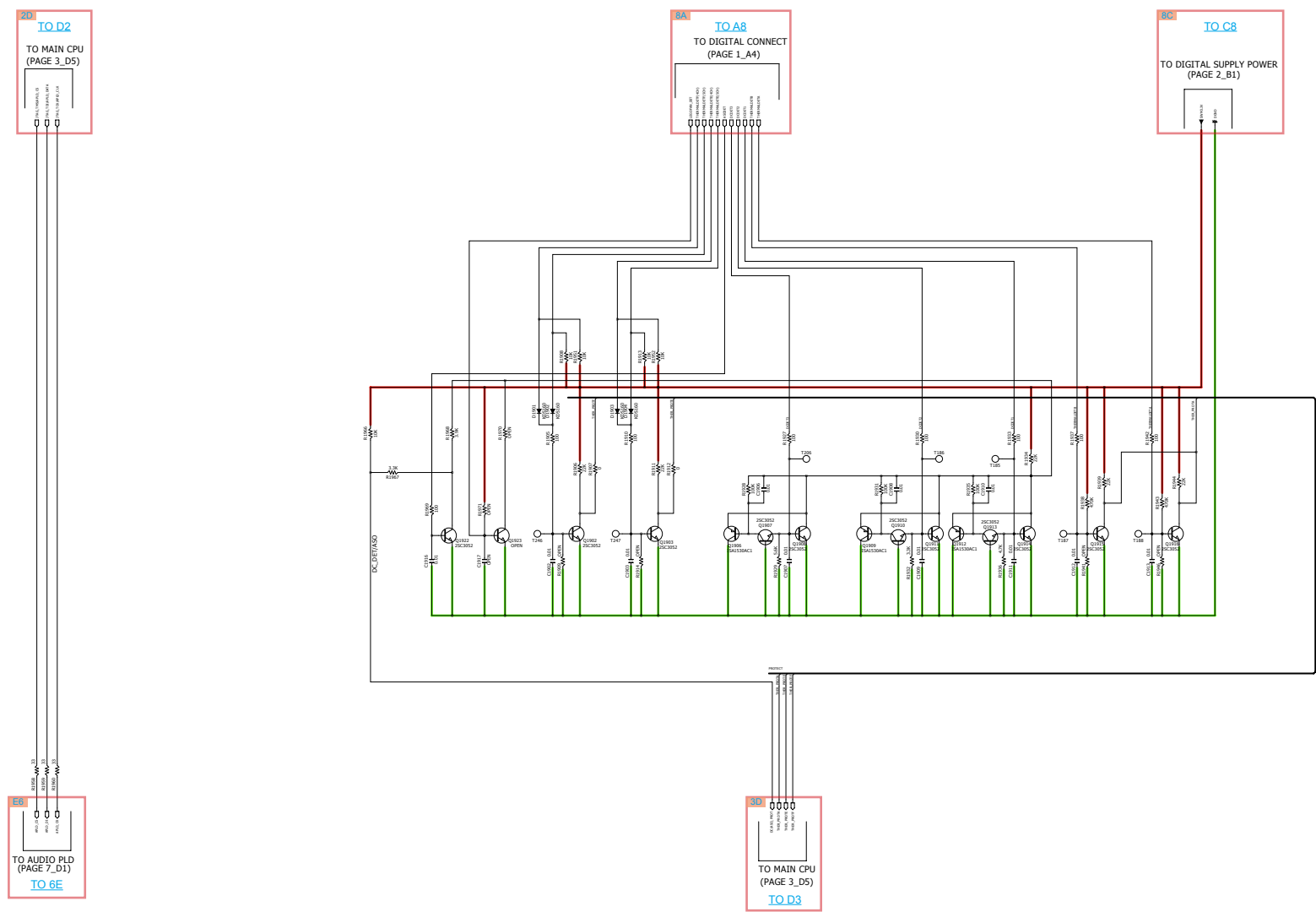




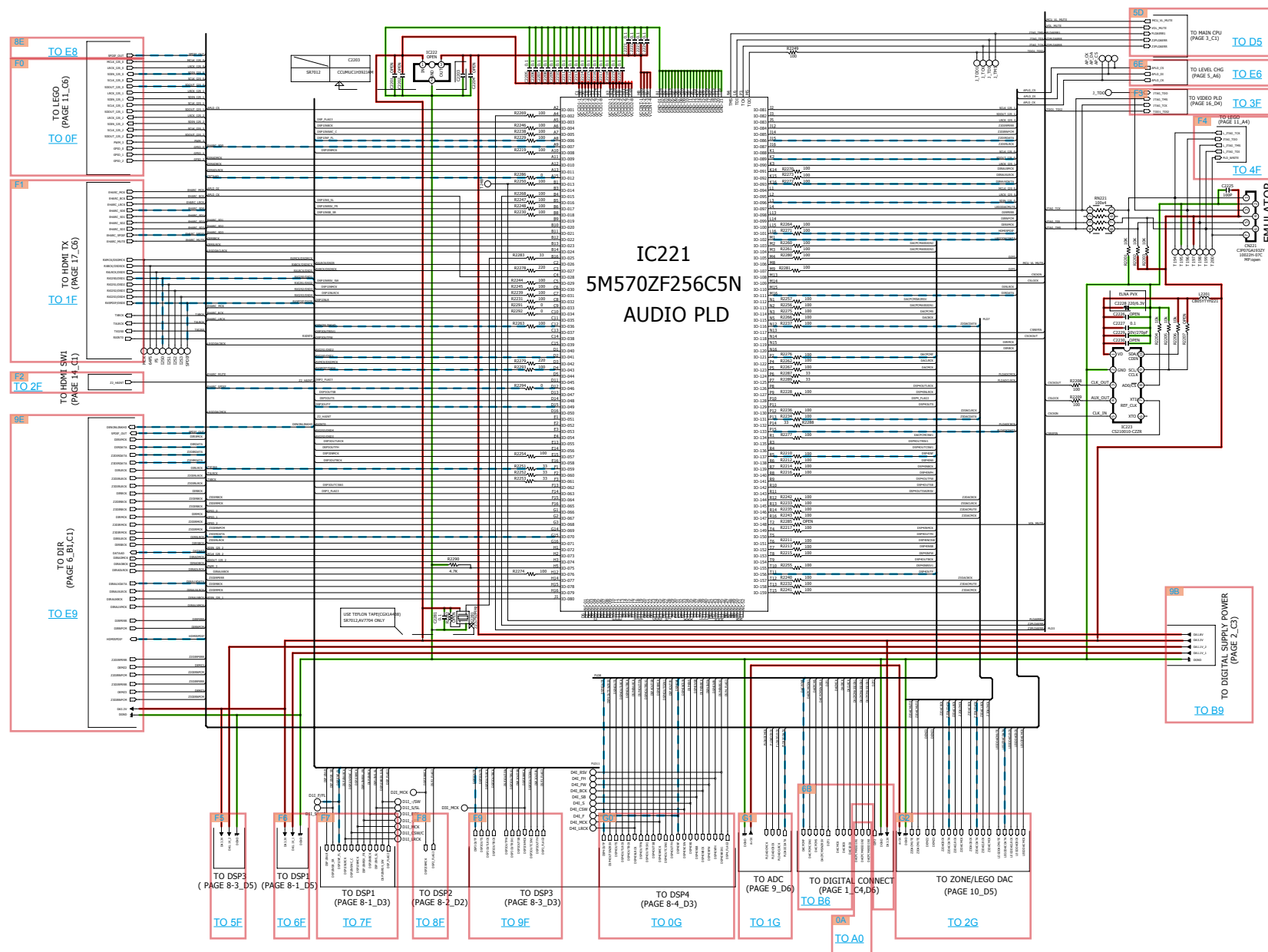




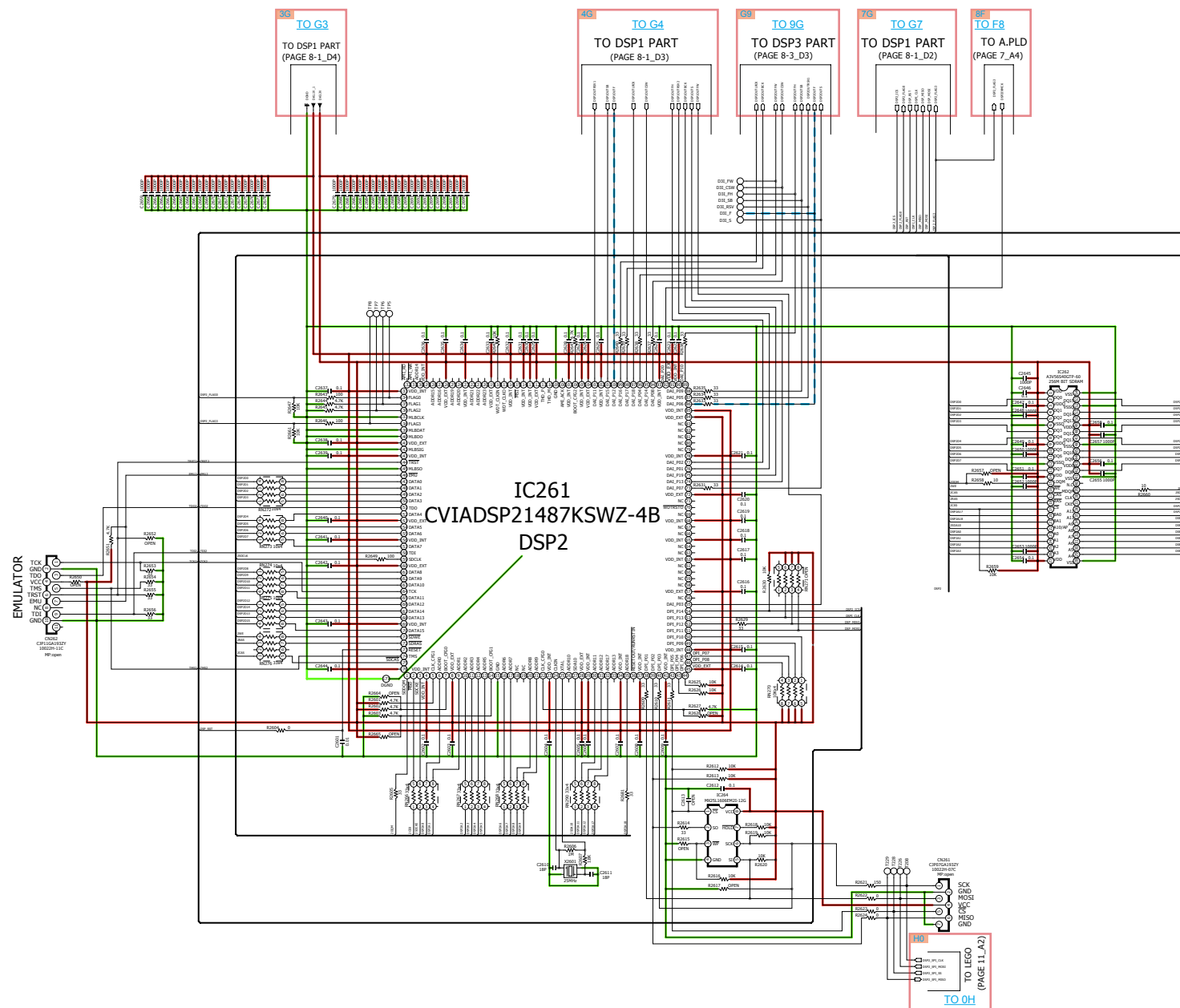
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO DIGITAL VIDEO STBY POWER

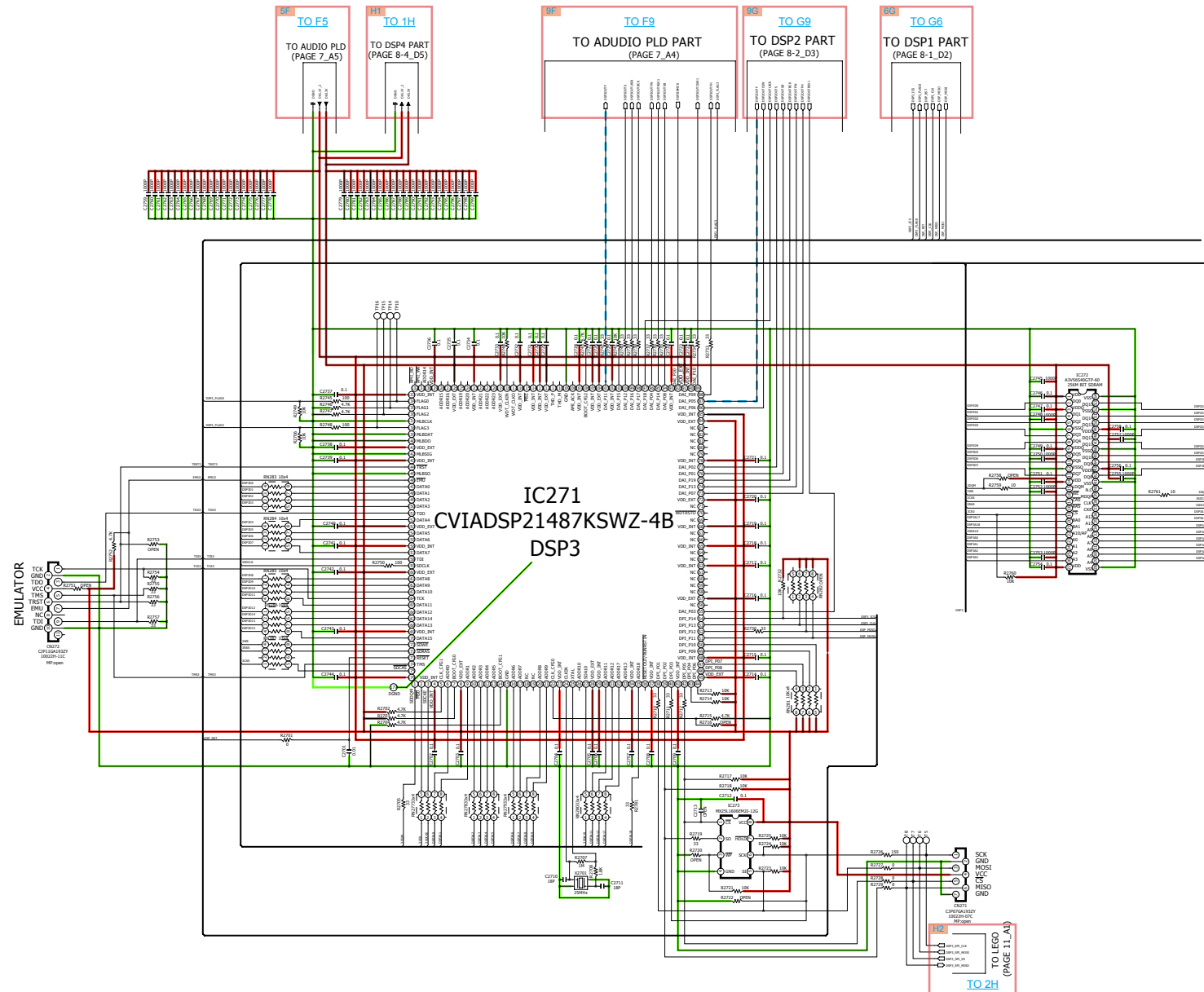


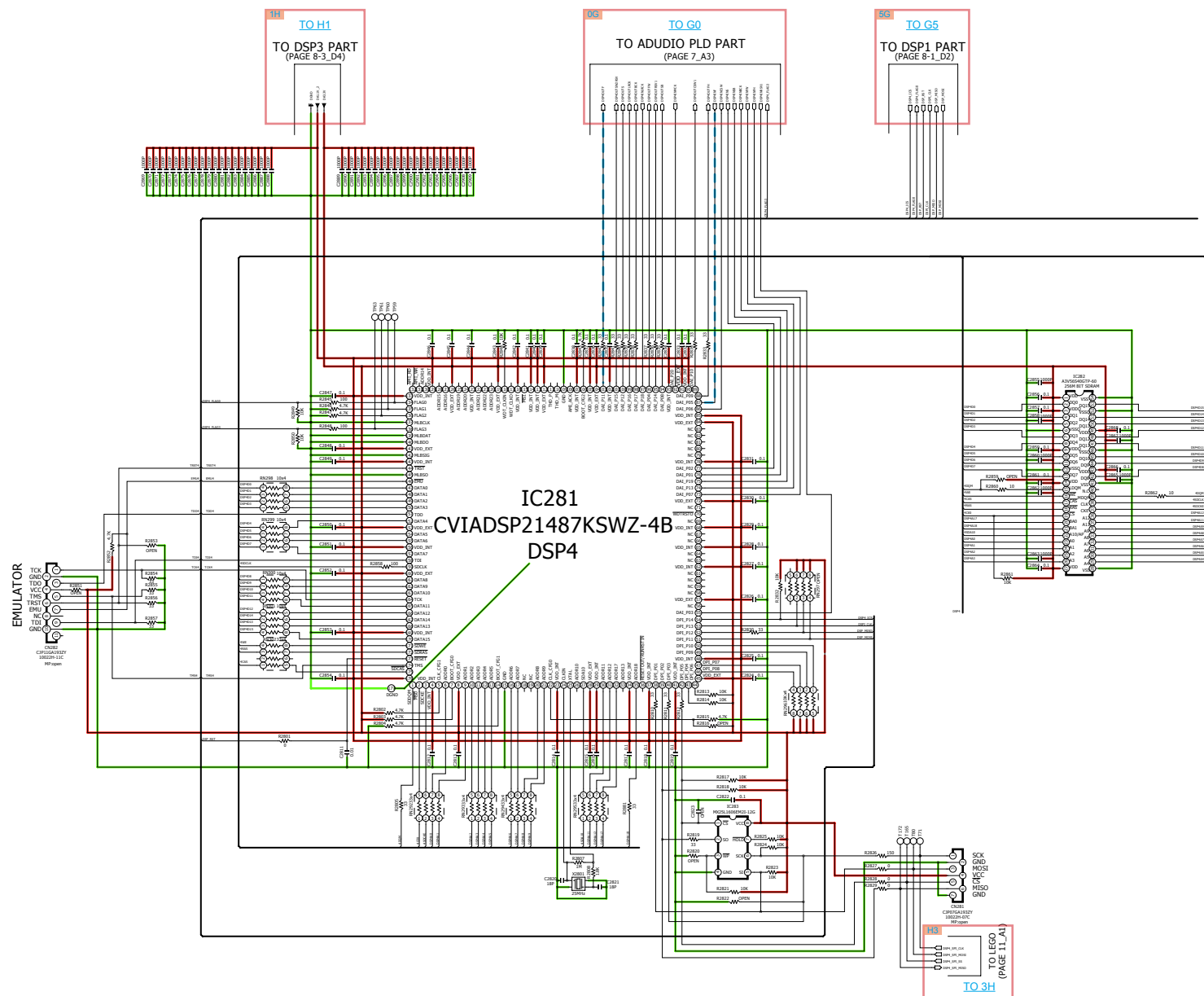
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO DIGITAL VIDEO STBY POWER



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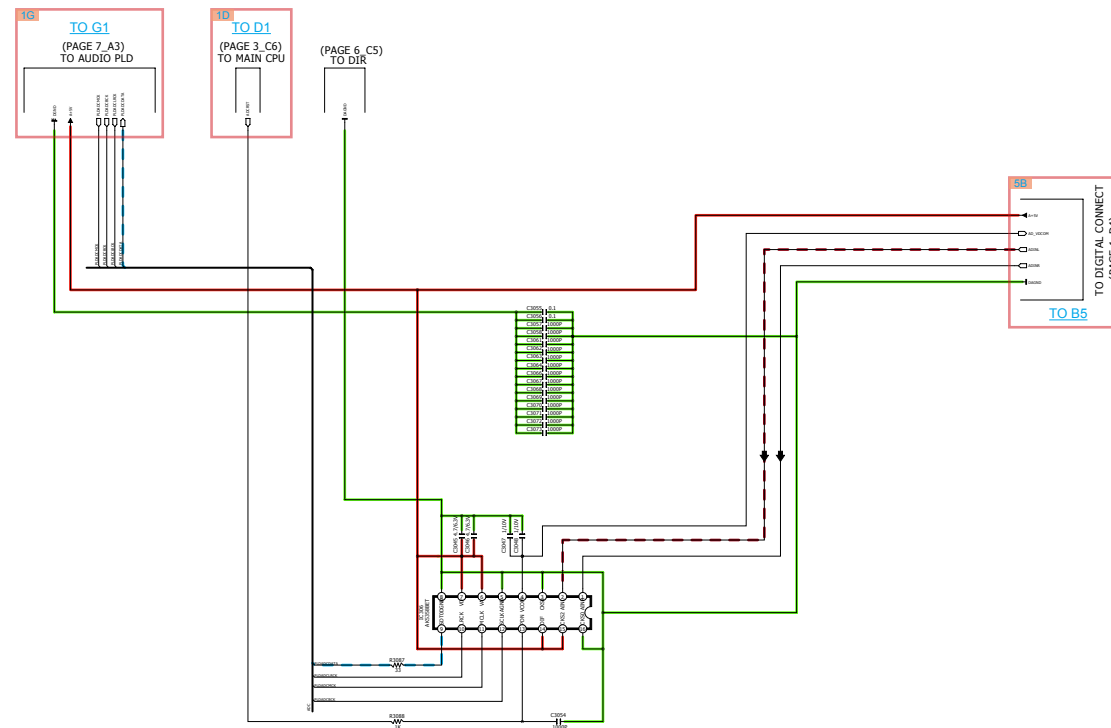




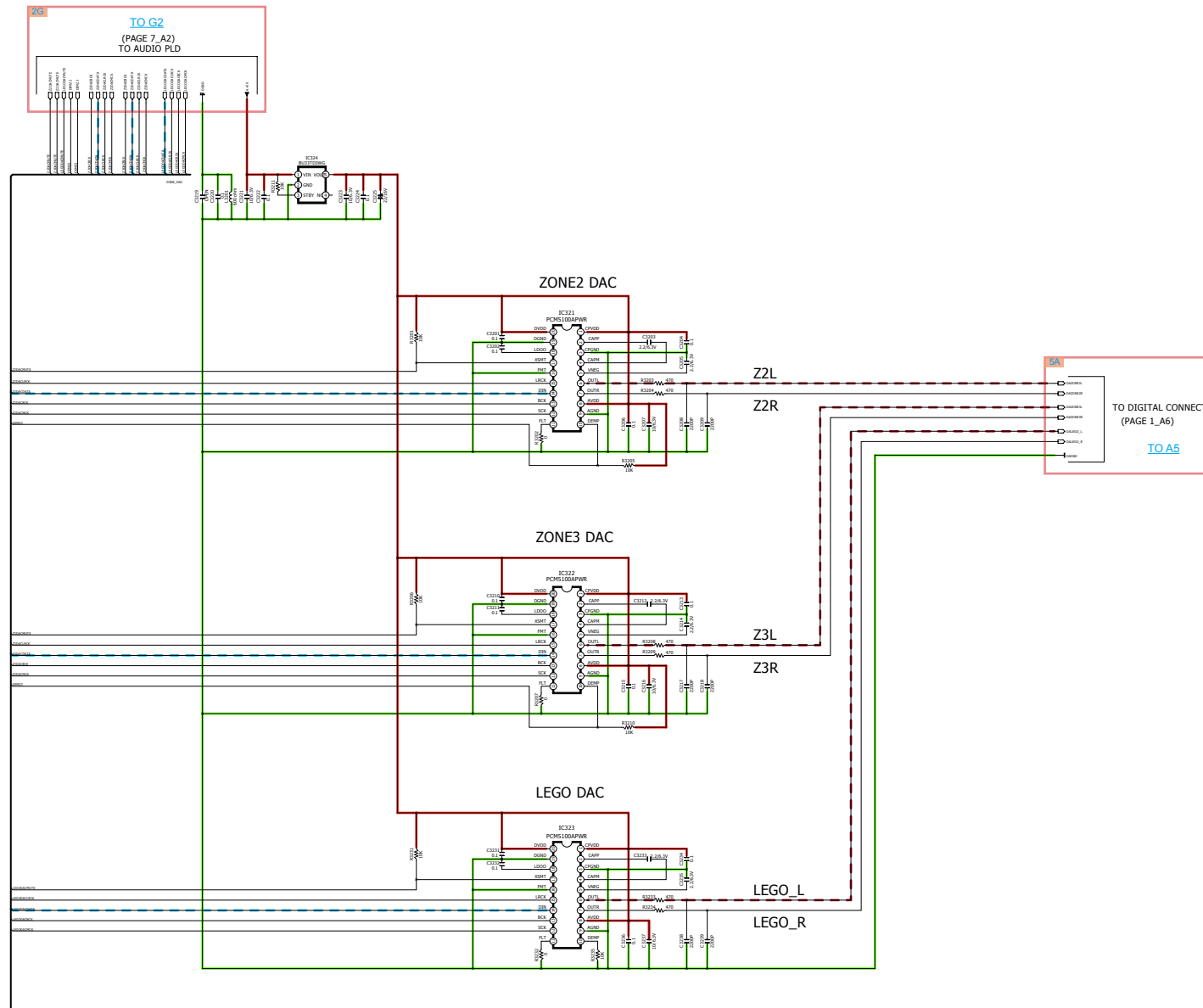


GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO DIGITAL VIDEO STBY POWER



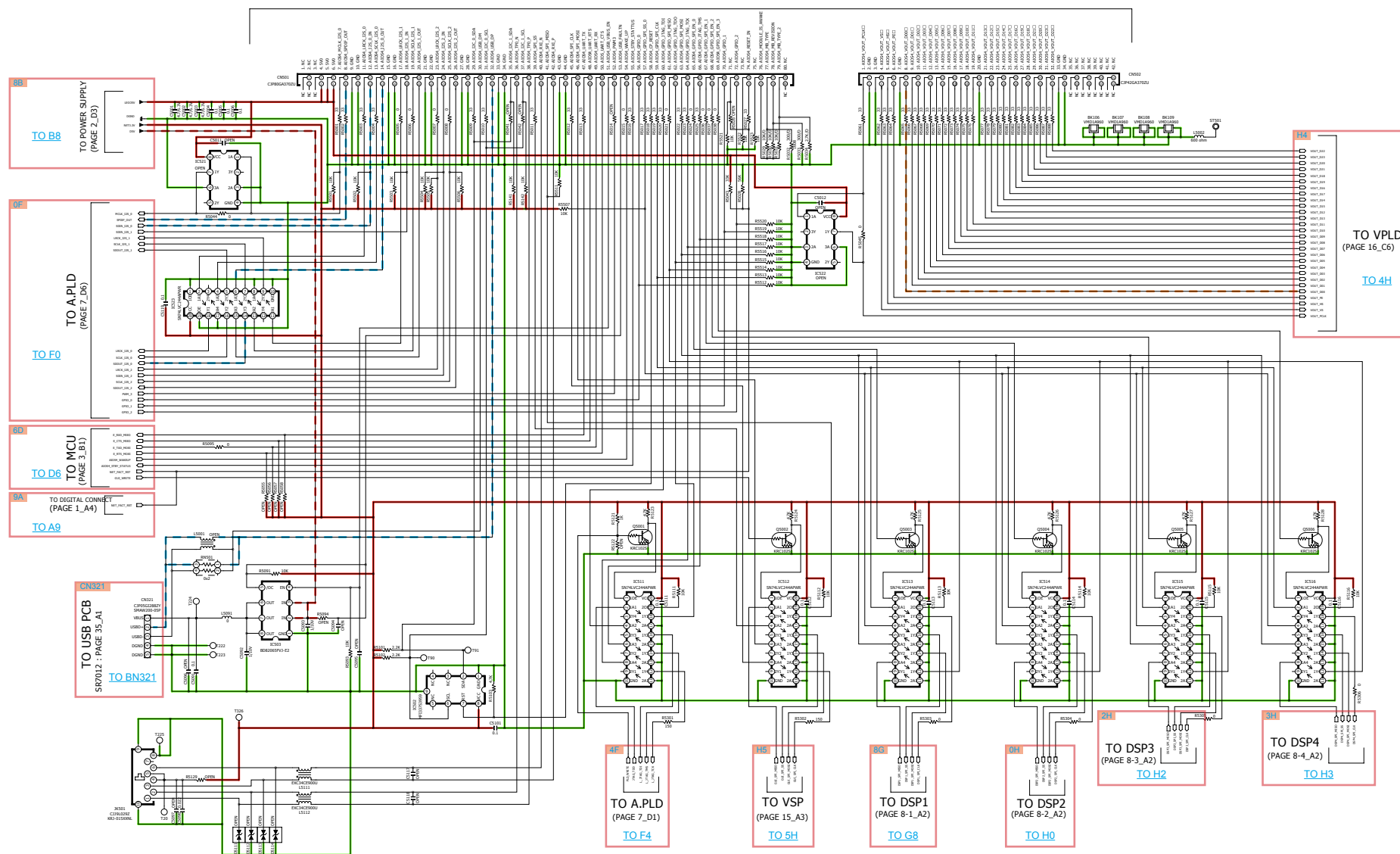


GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO DIGITAL VIDEO STBY POWER



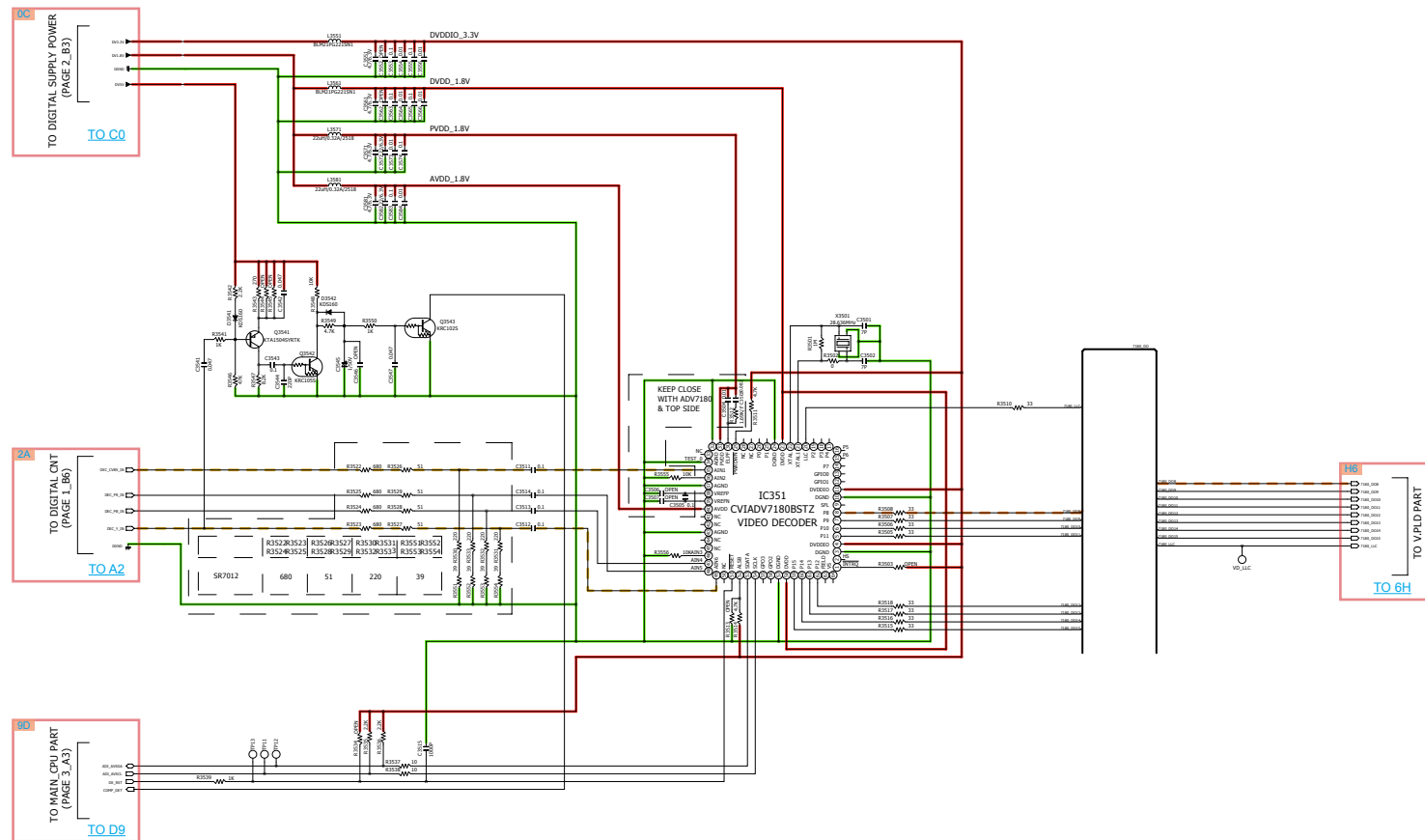
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMD5 SIGNAL ANALOG VIDEO DIGITAL VIDEO STBY POWER

FROM LEGO MODULE



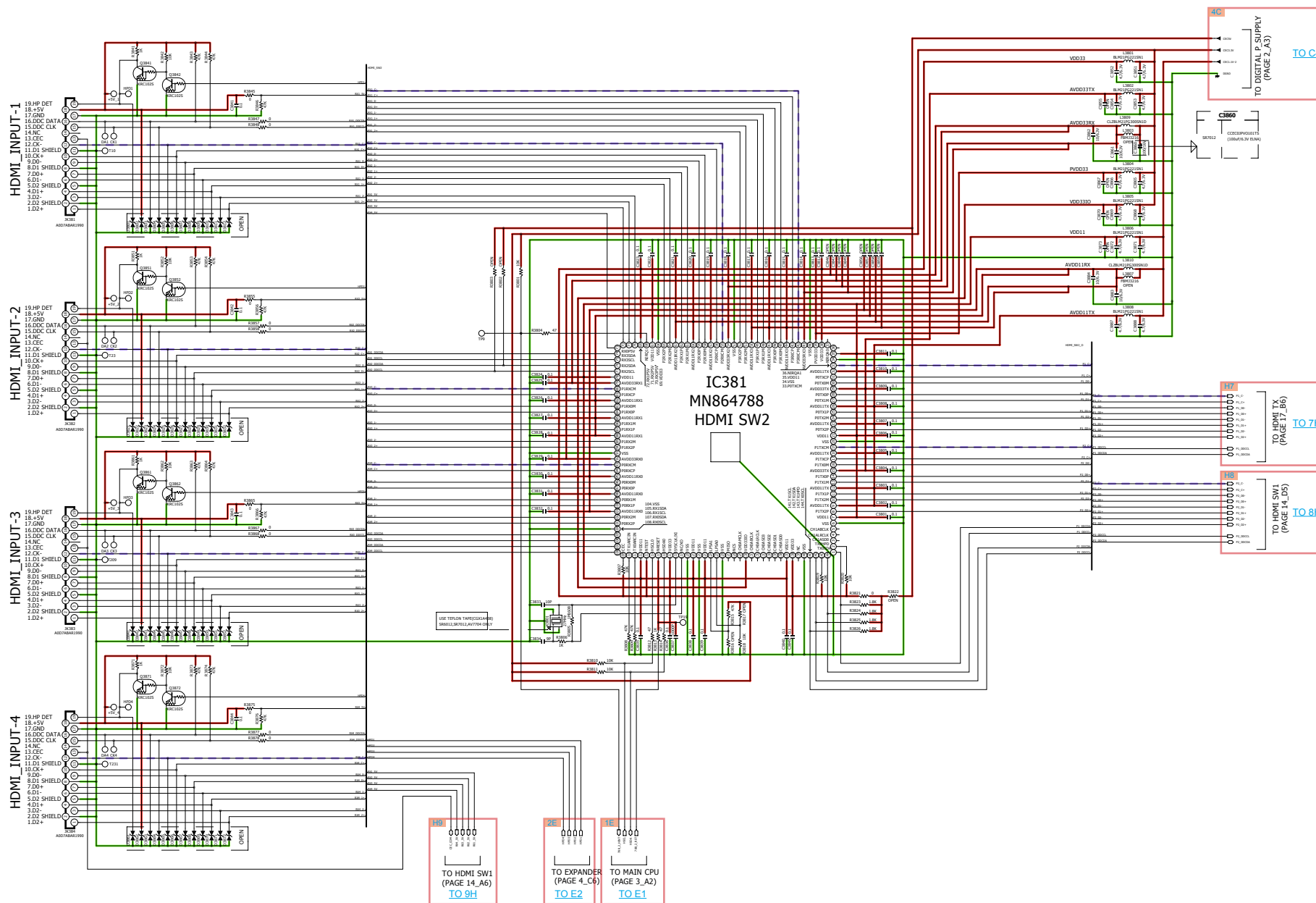
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO DIGITAL VIDEO STBY POWER

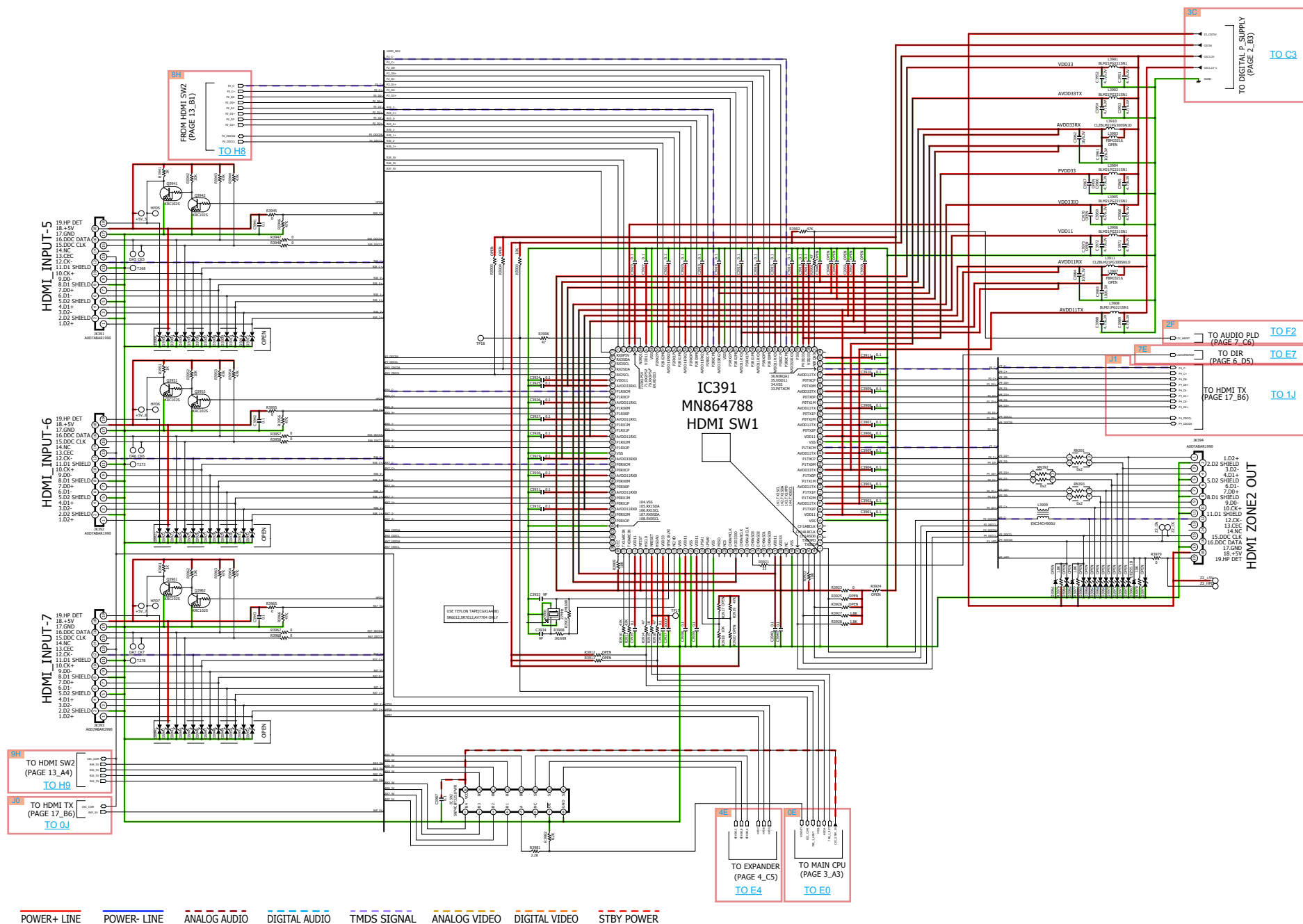


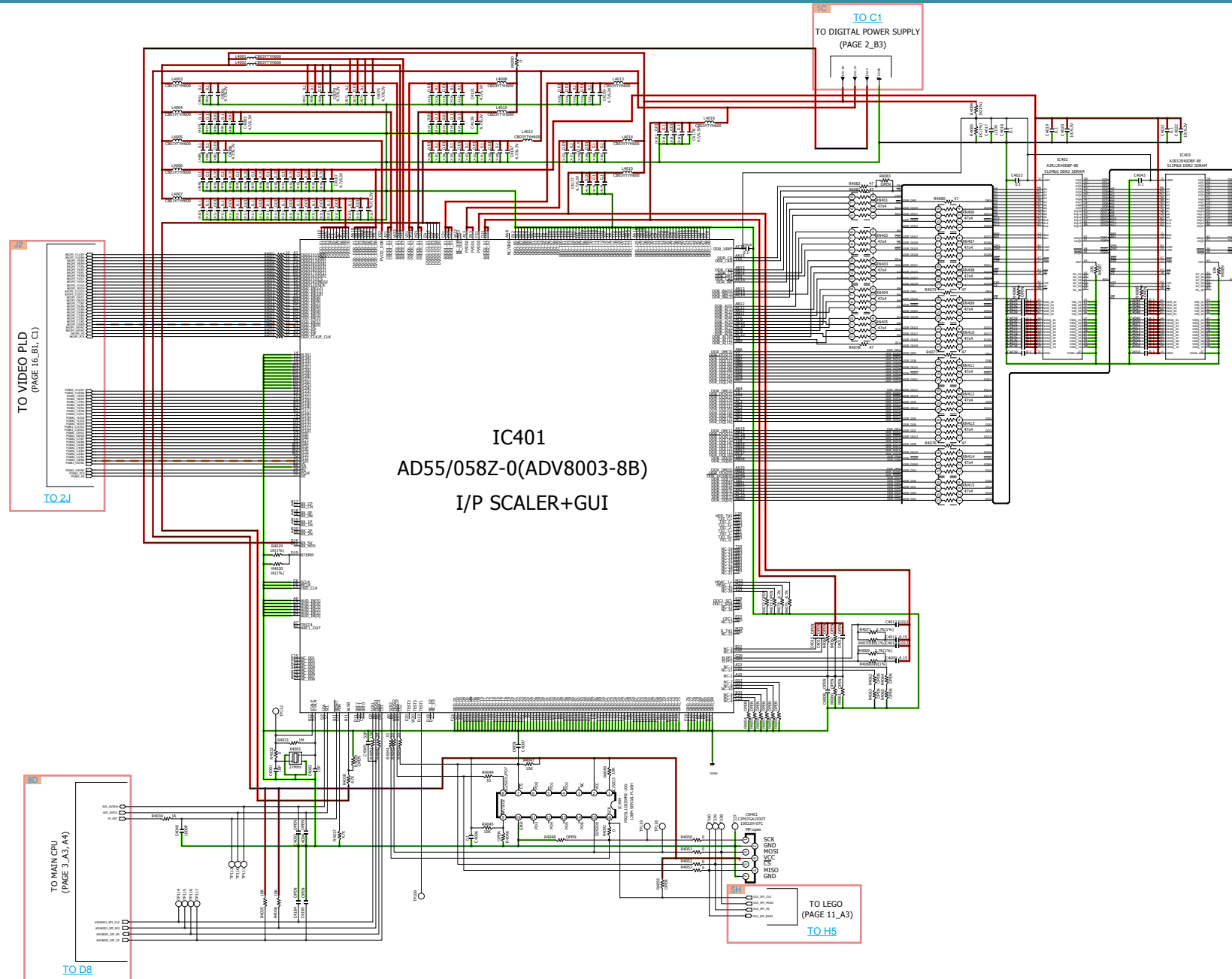


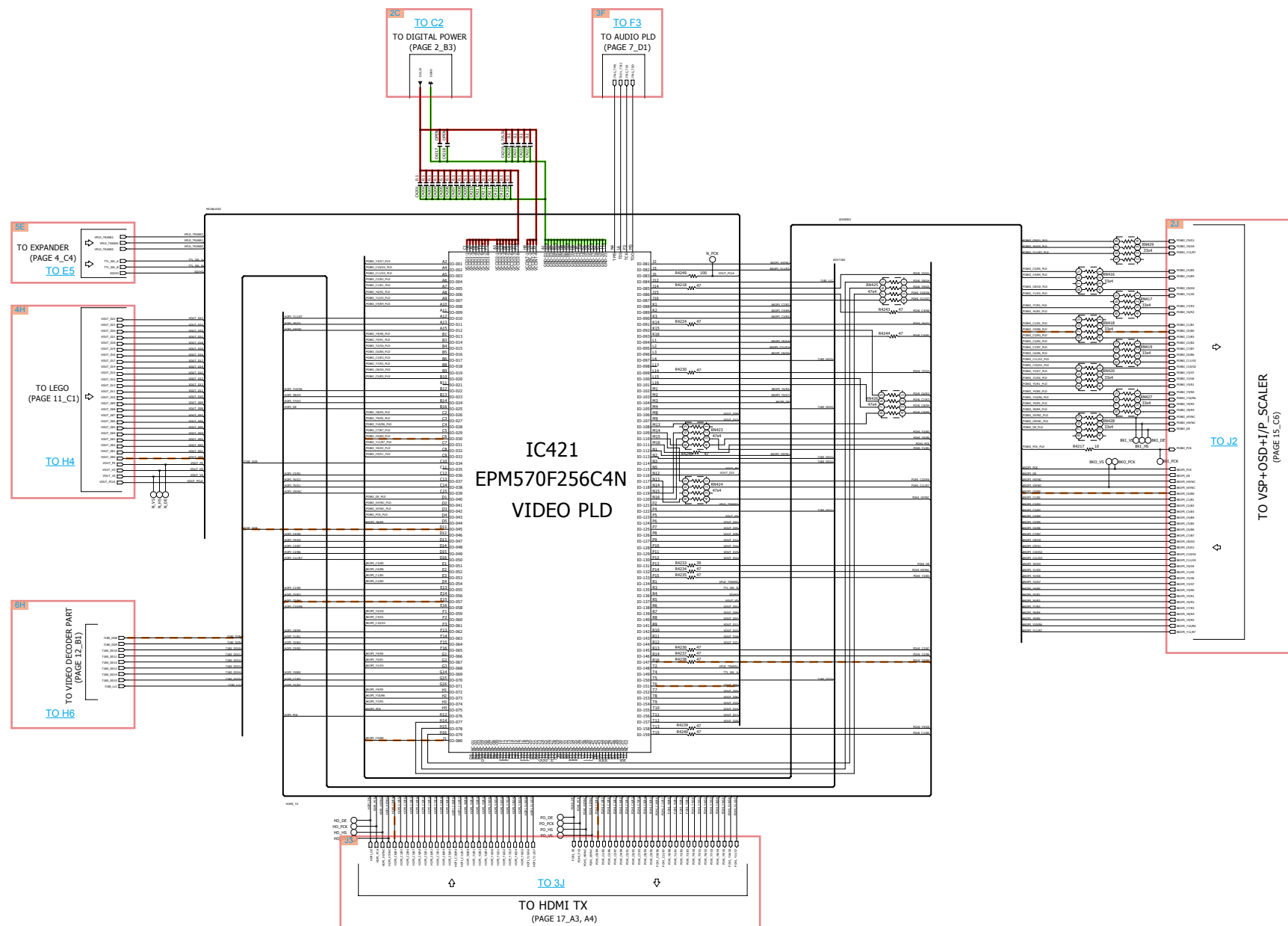
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO DIGITAL VIDEO STBY POWER

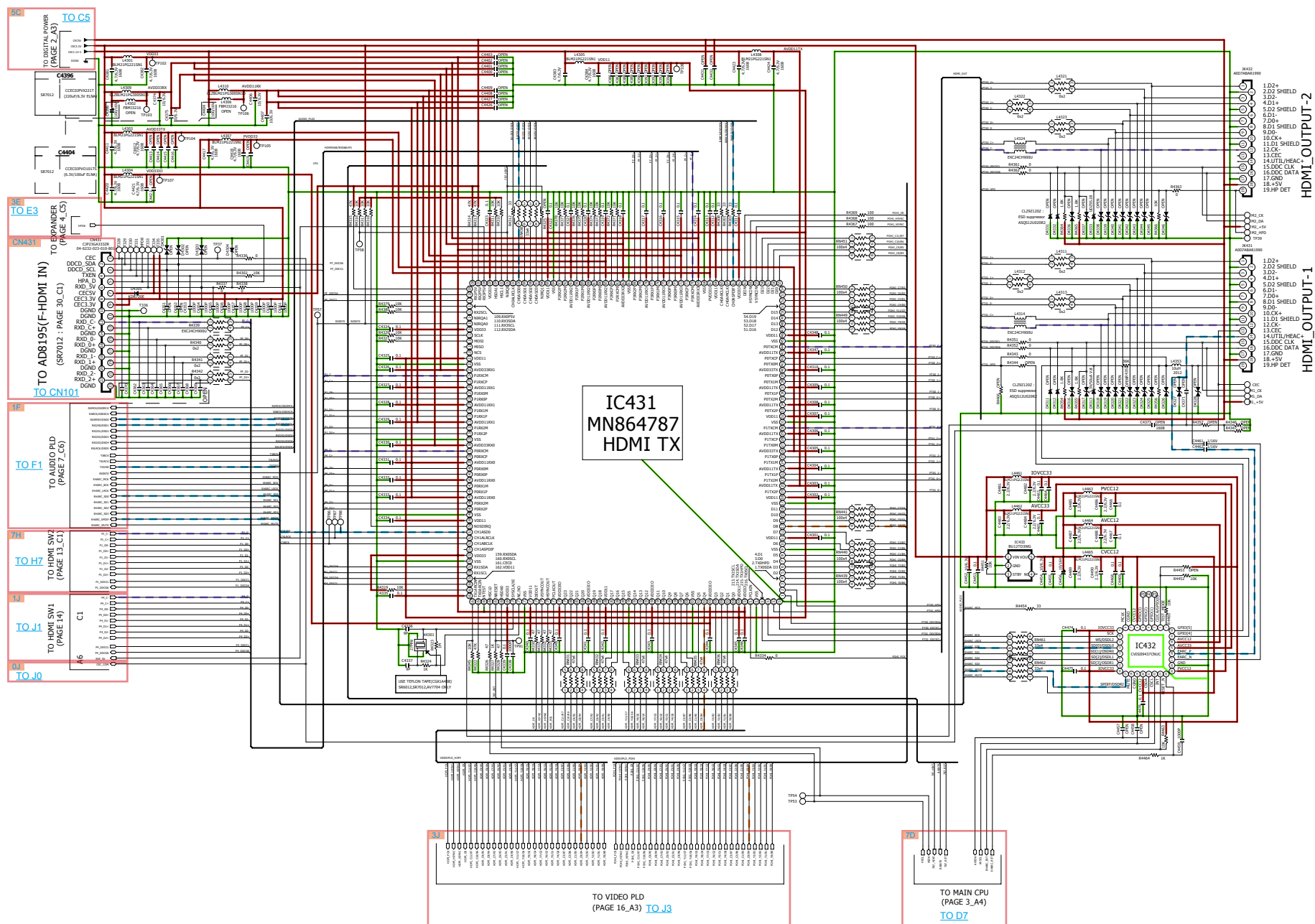






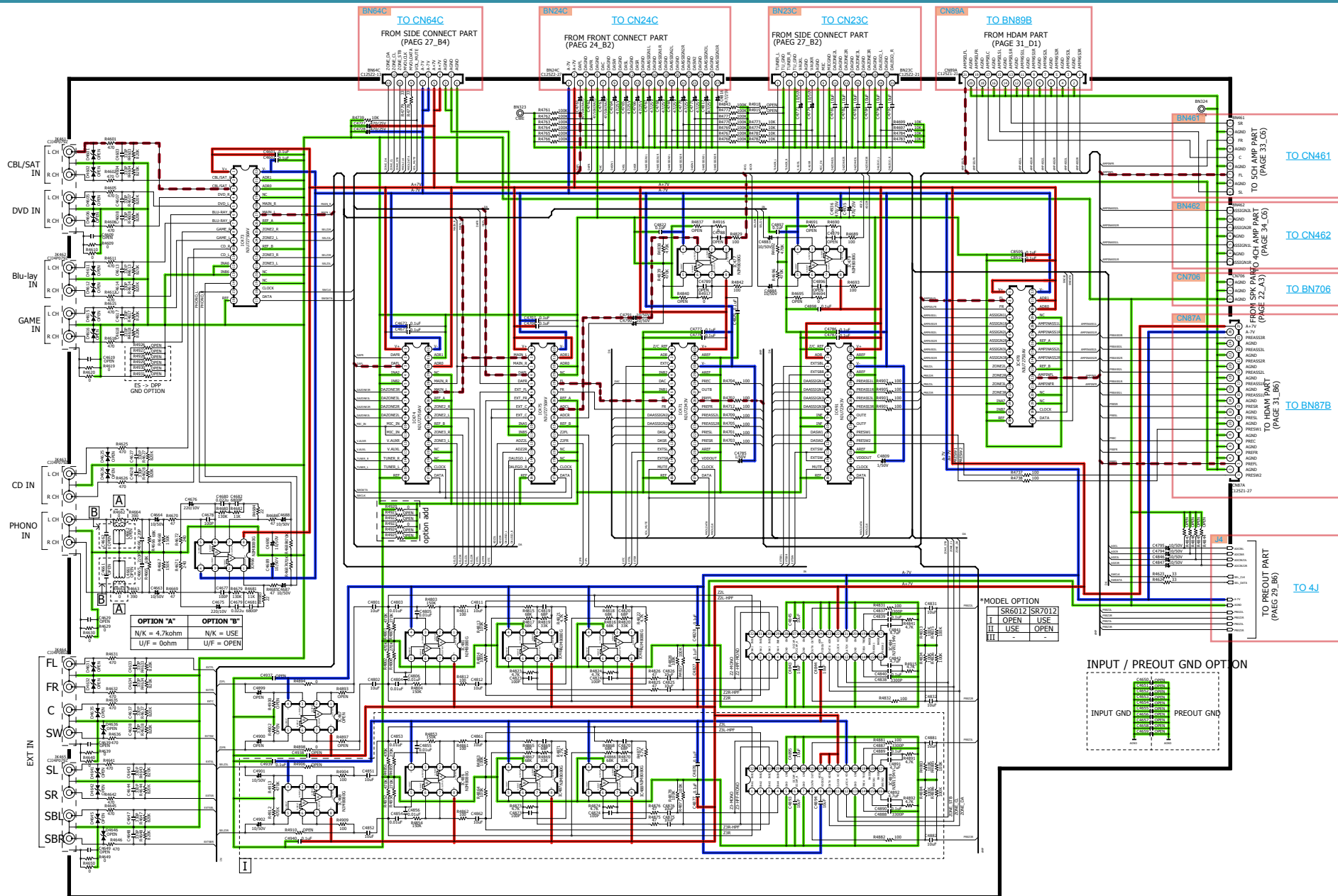


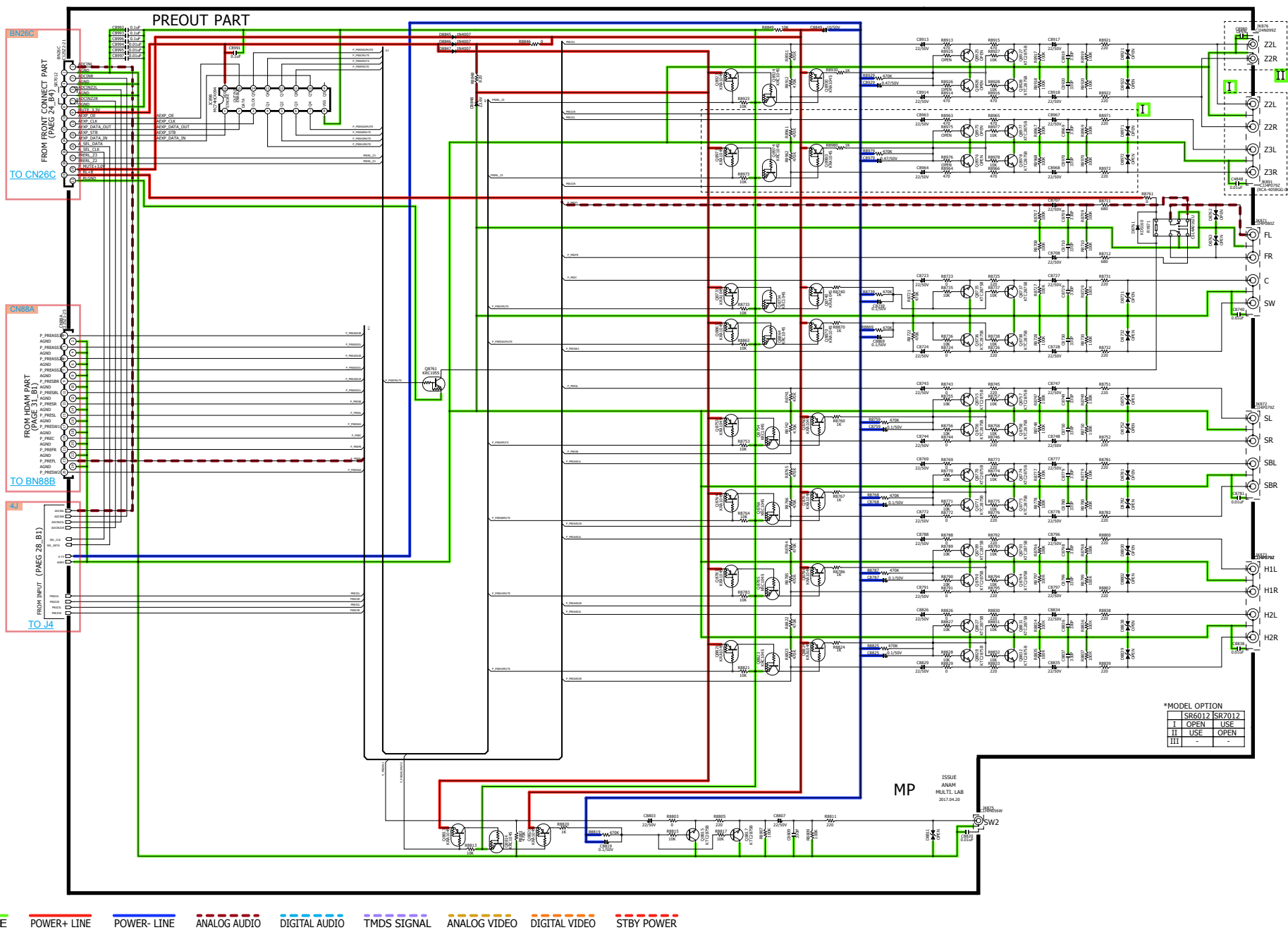


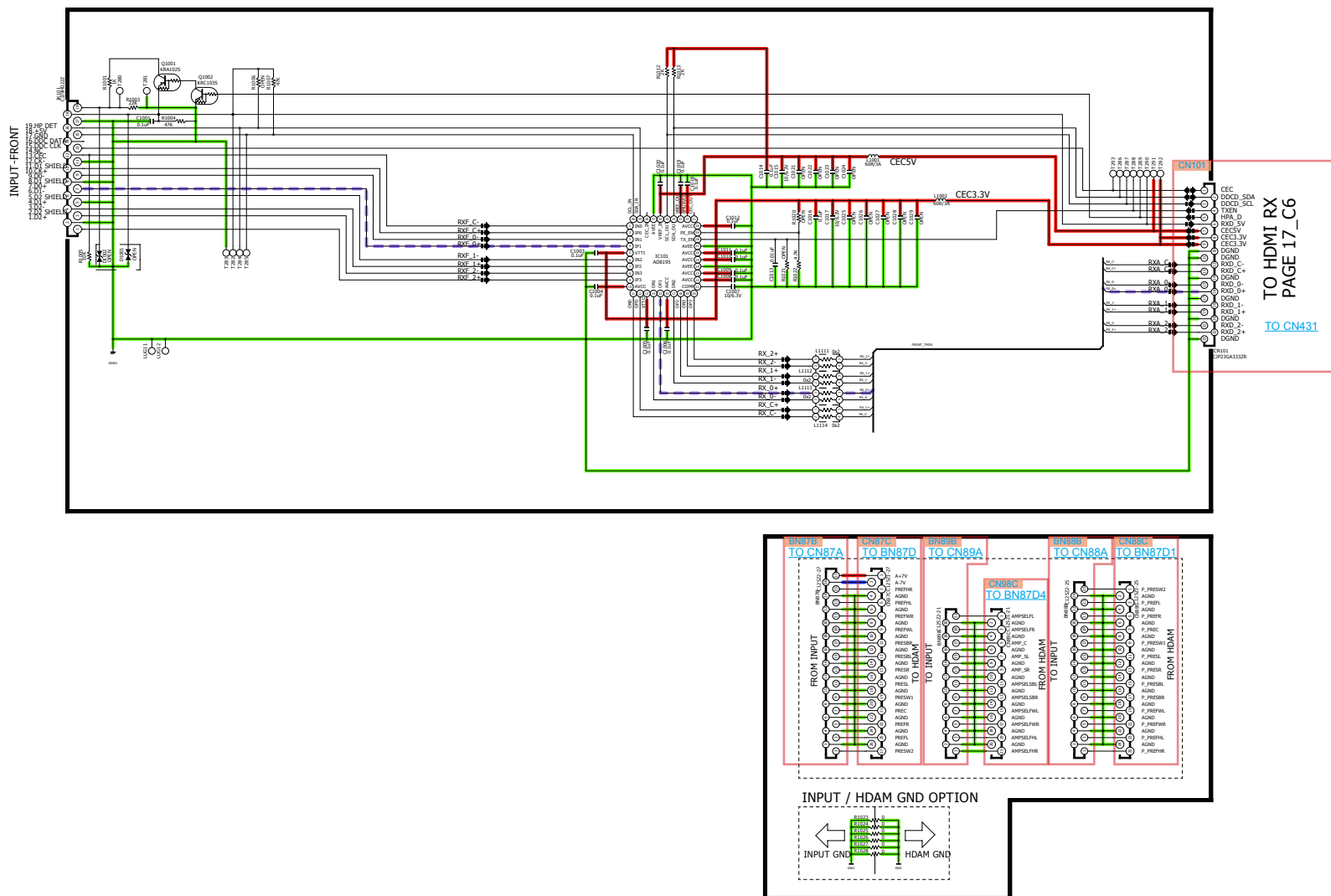


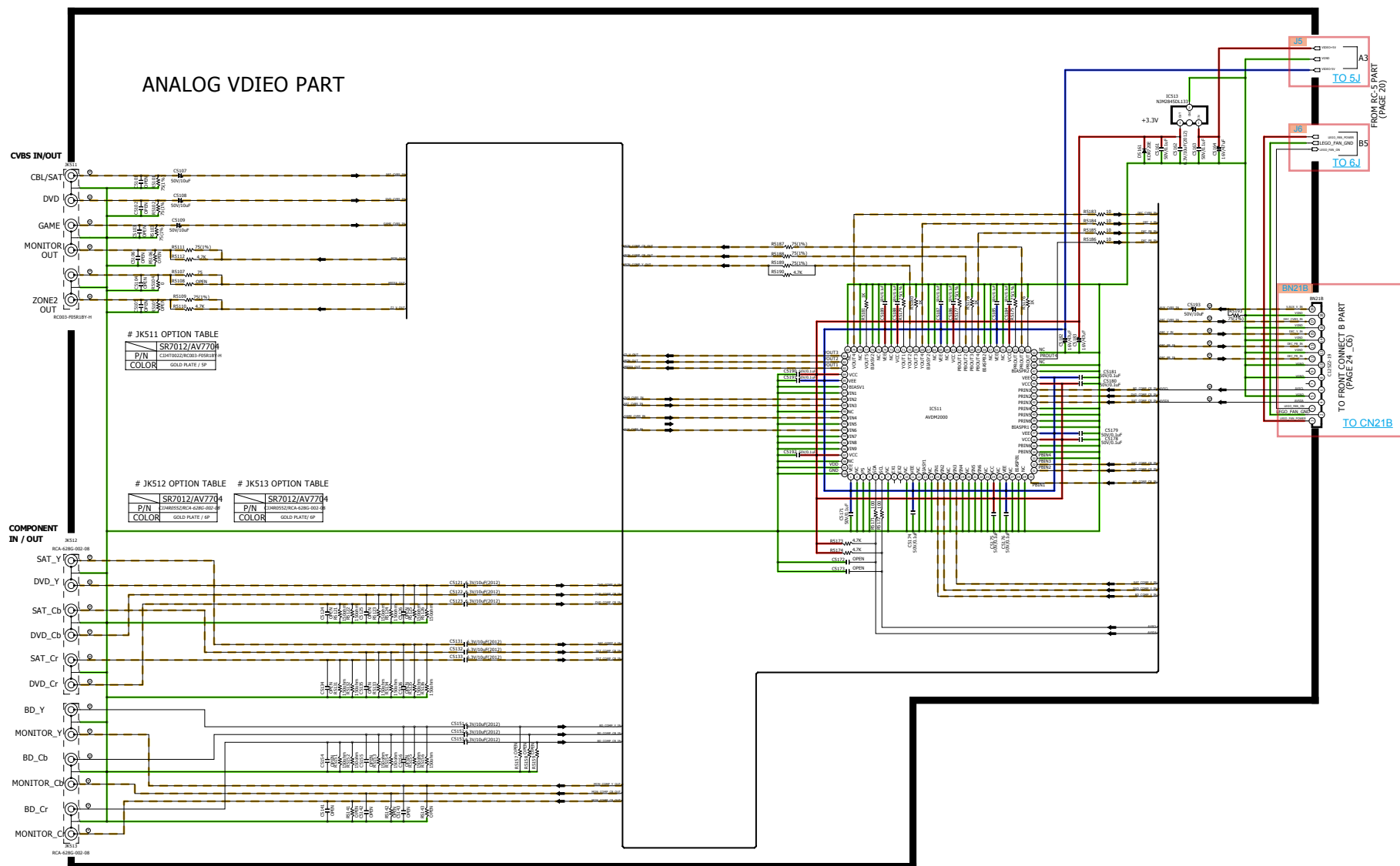
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO DIGITAL VIDEO STBY POWER

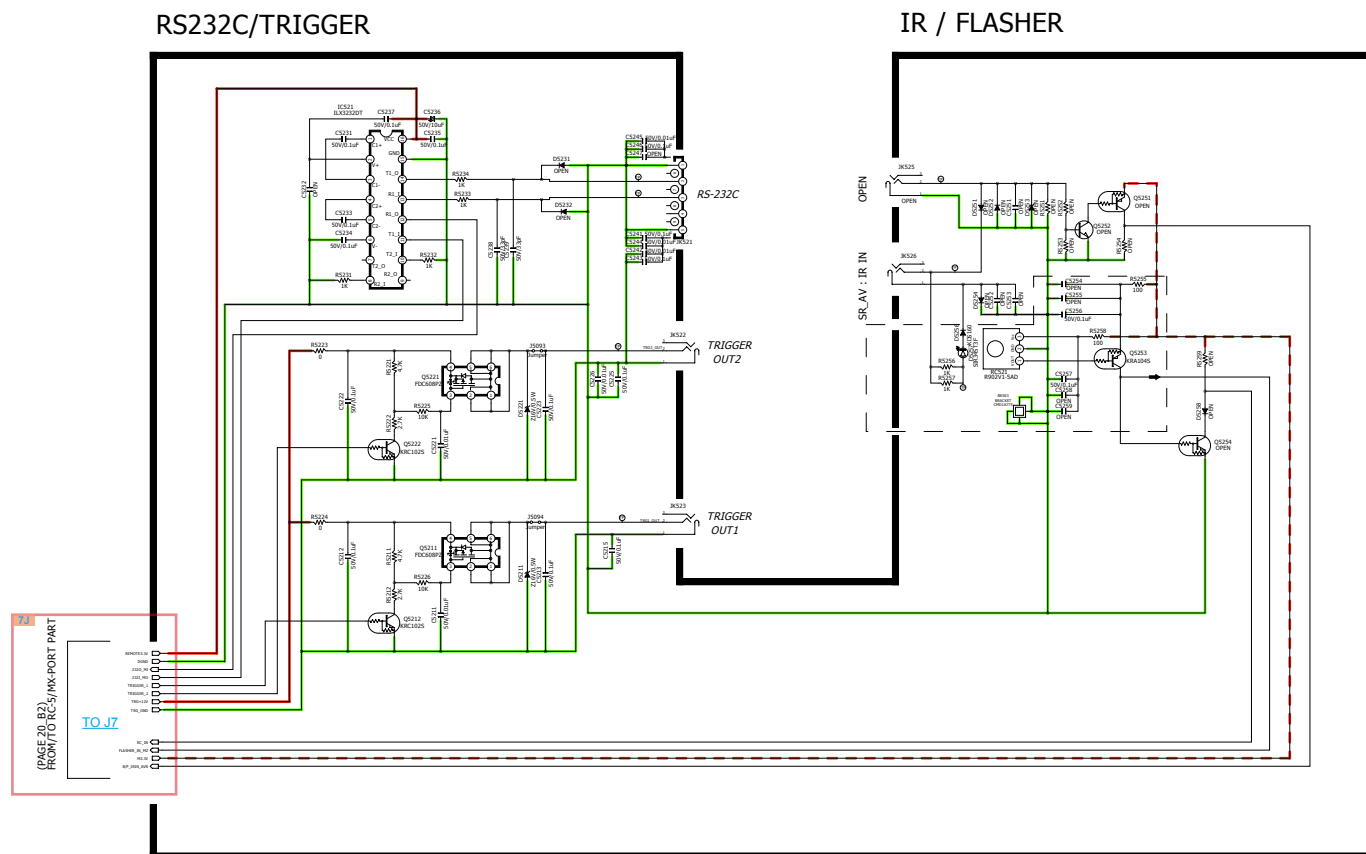




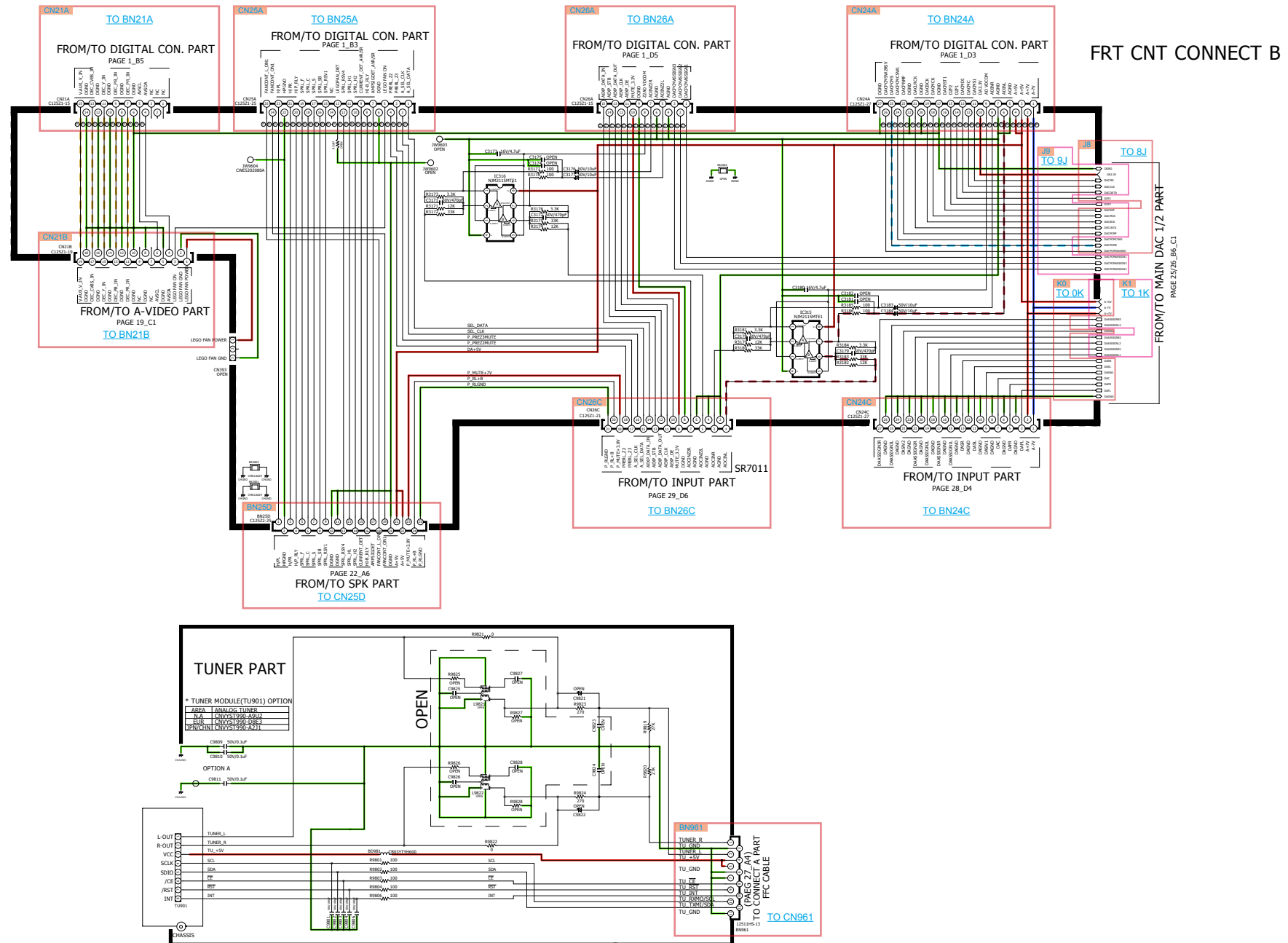


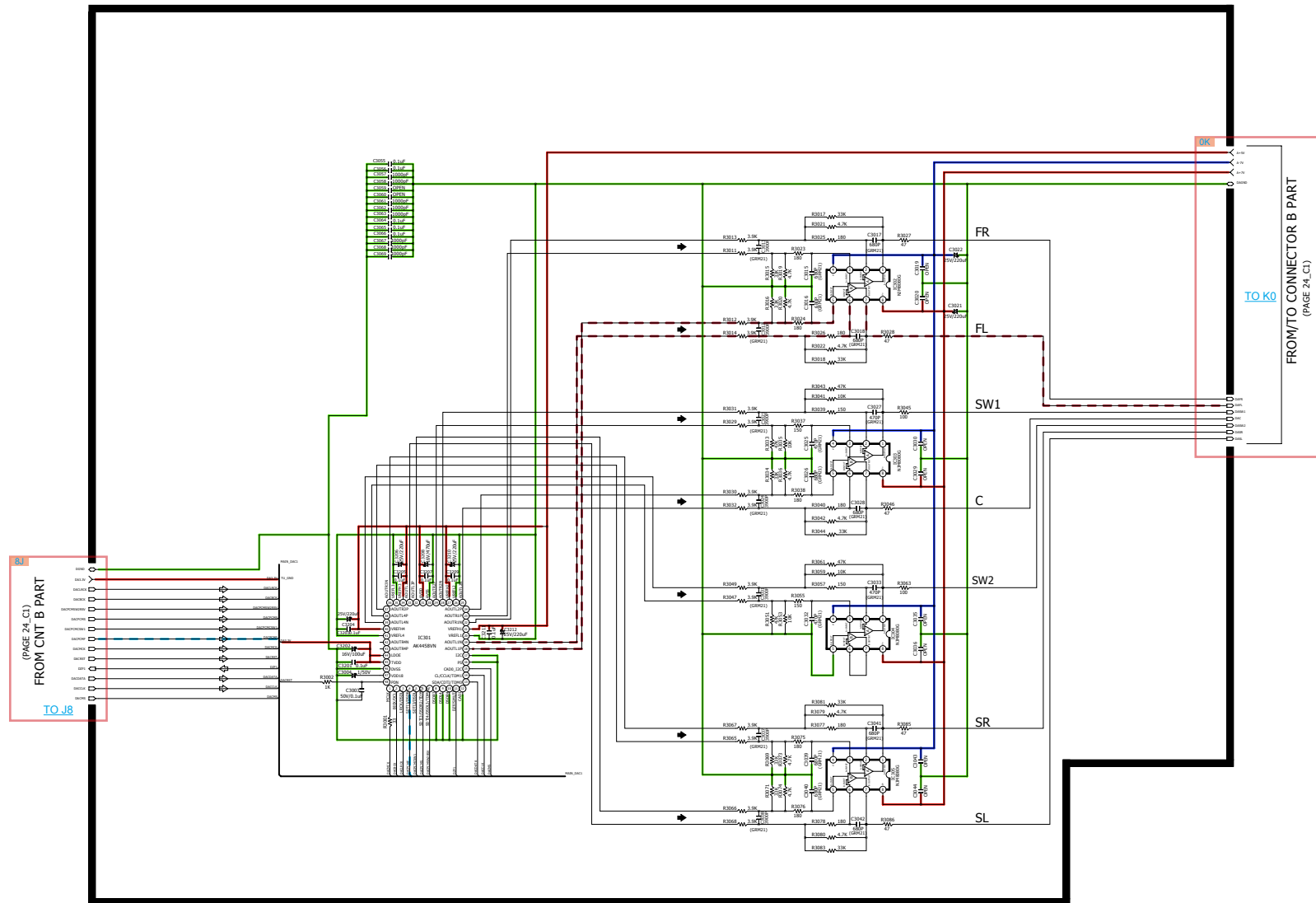


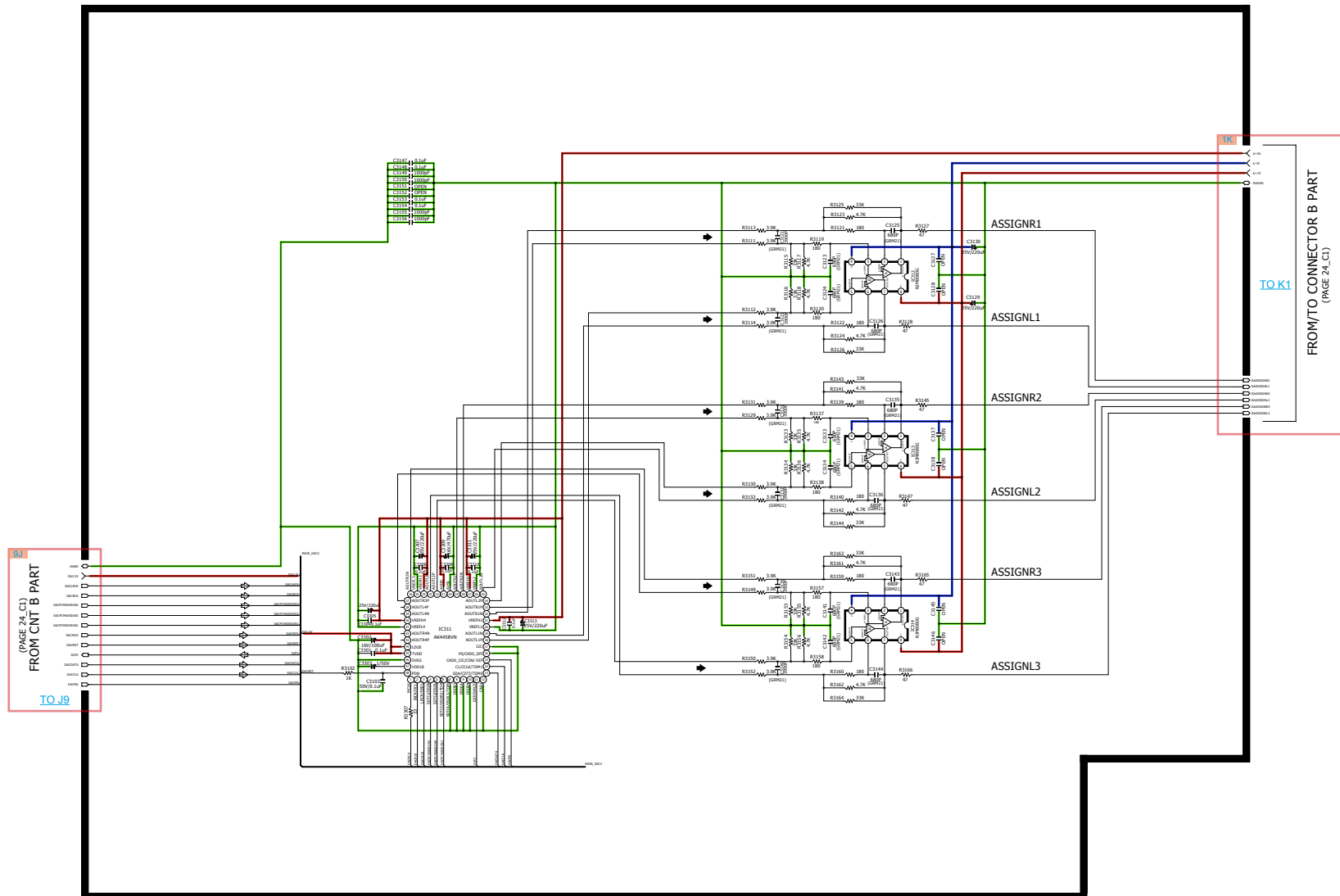






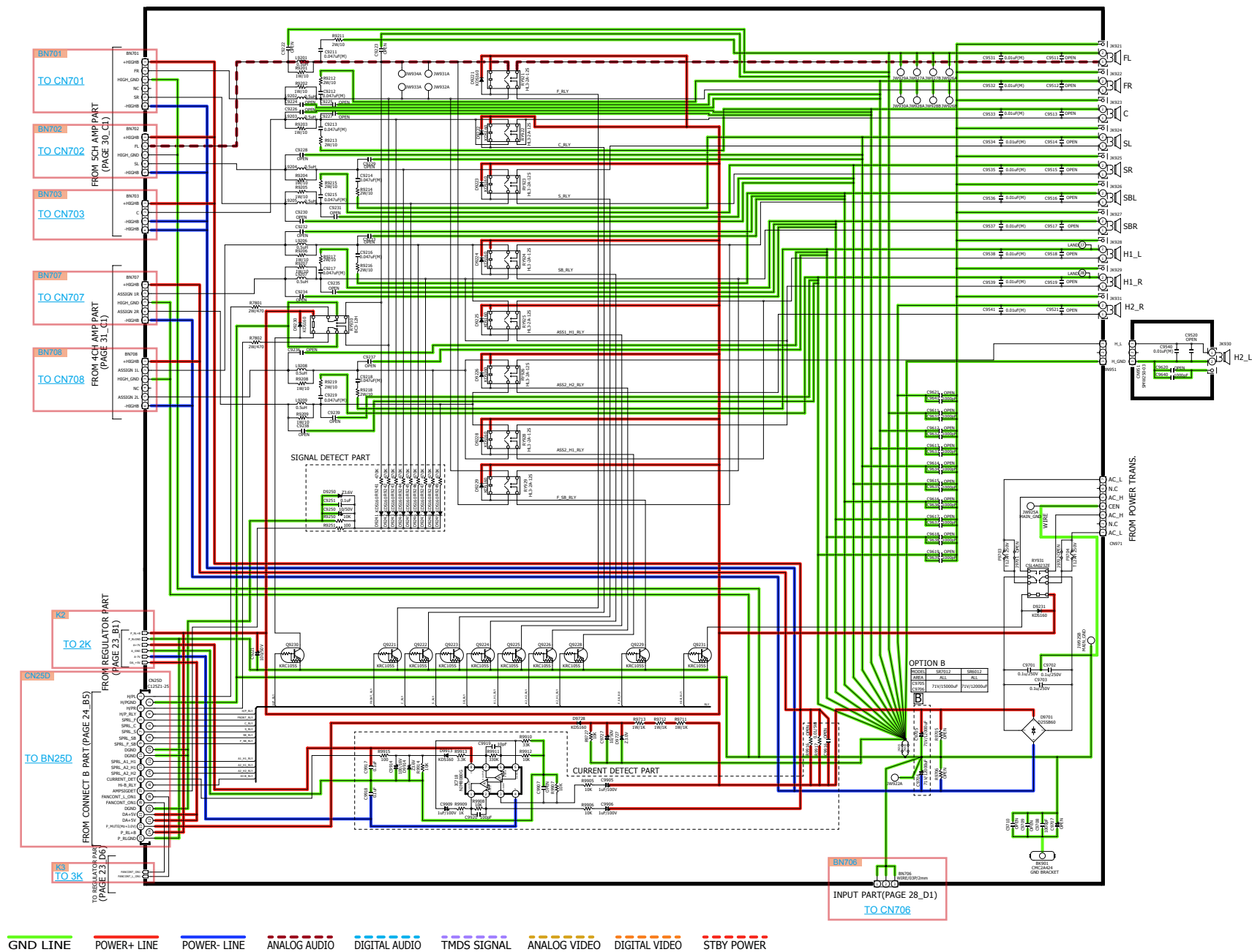


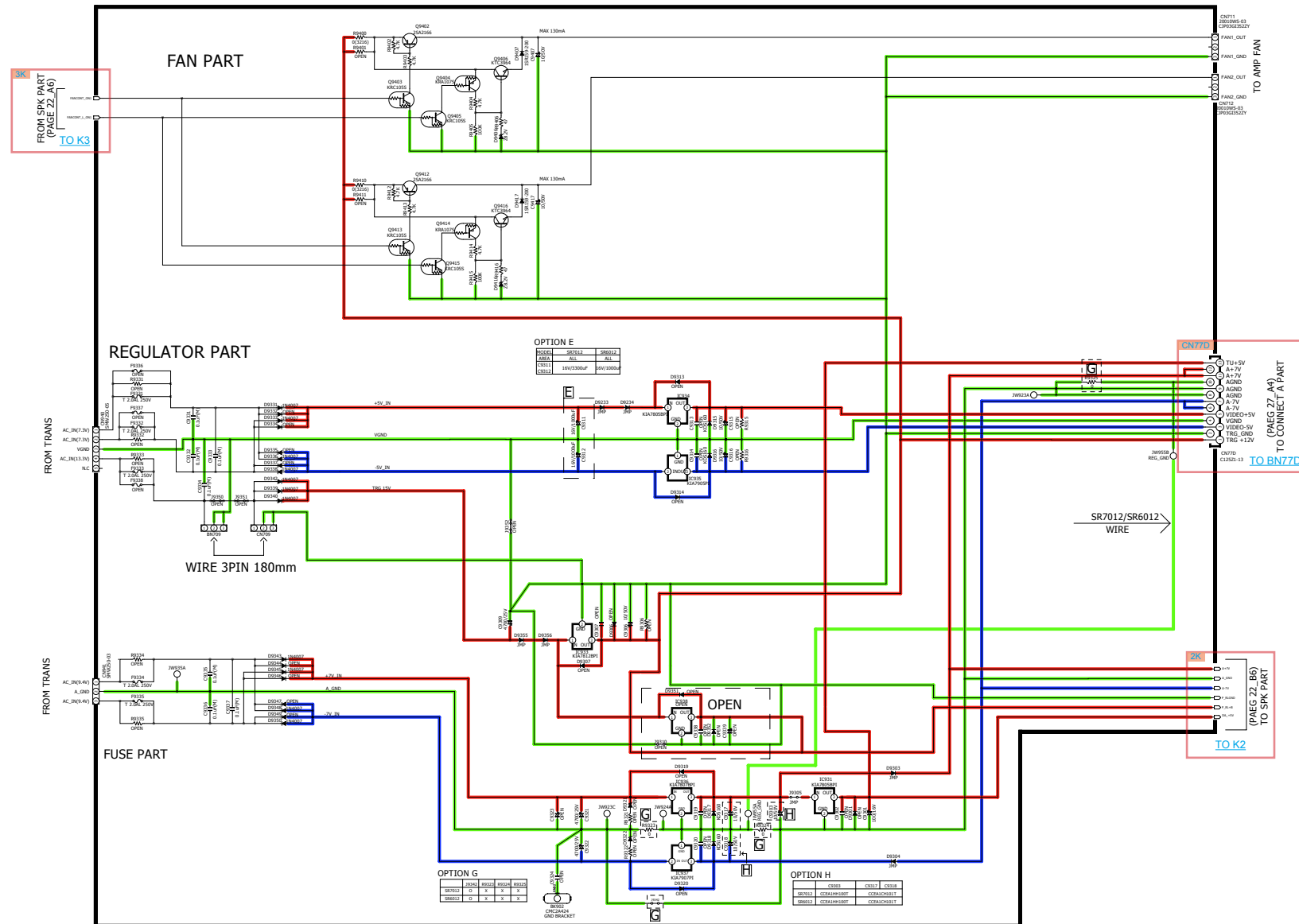


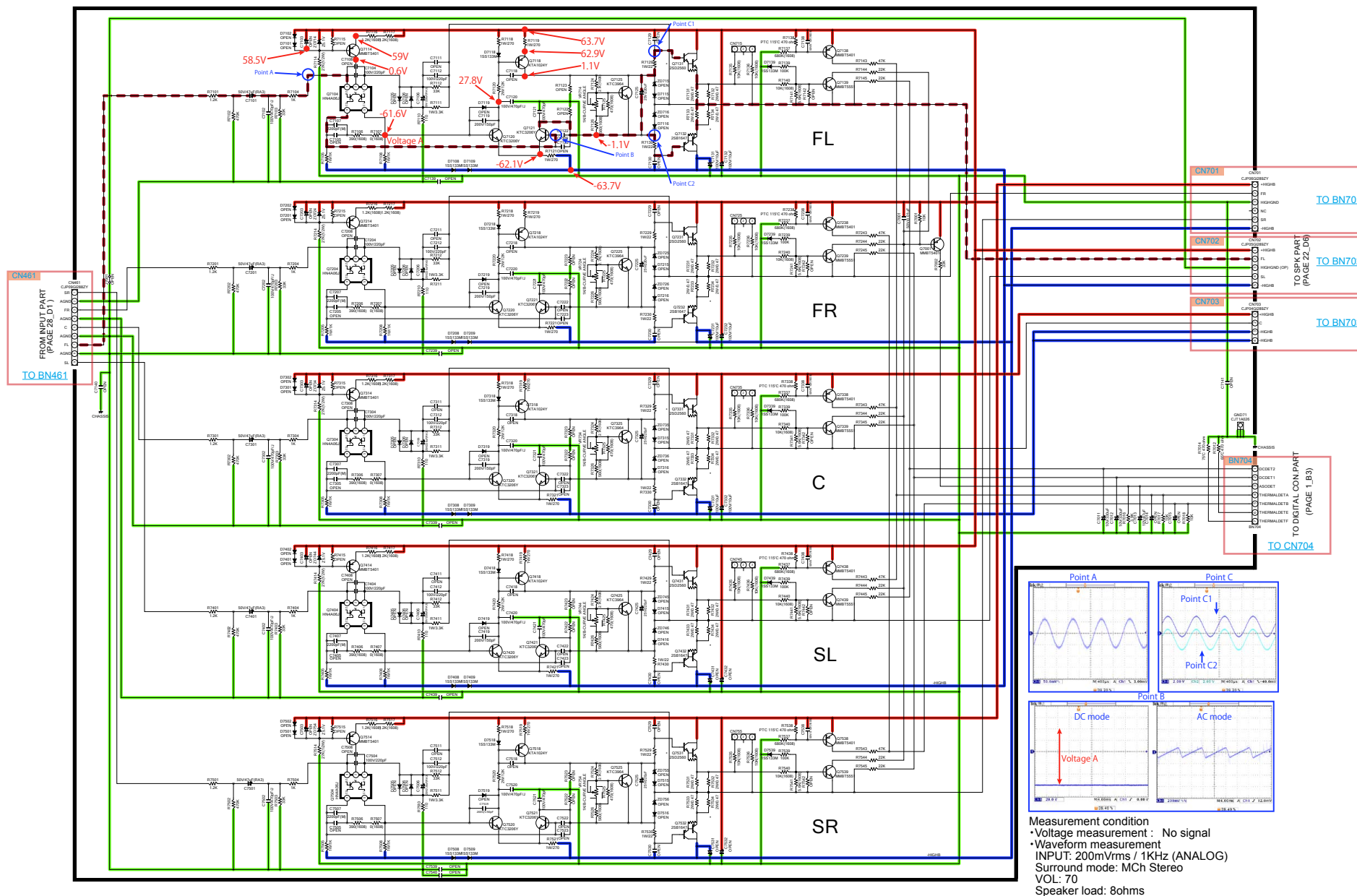


GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO DIGITAL VIDEO STBY POWER



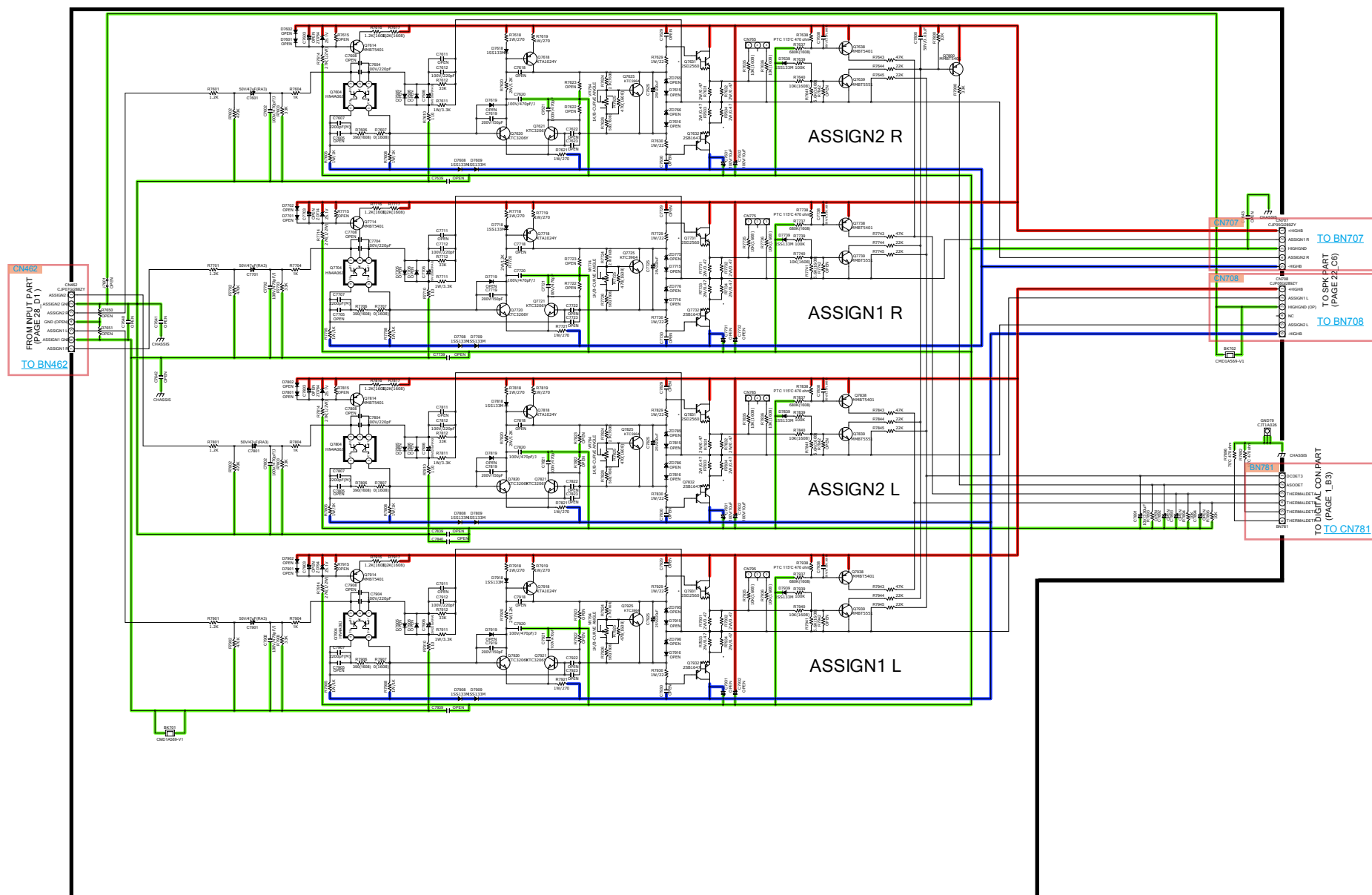






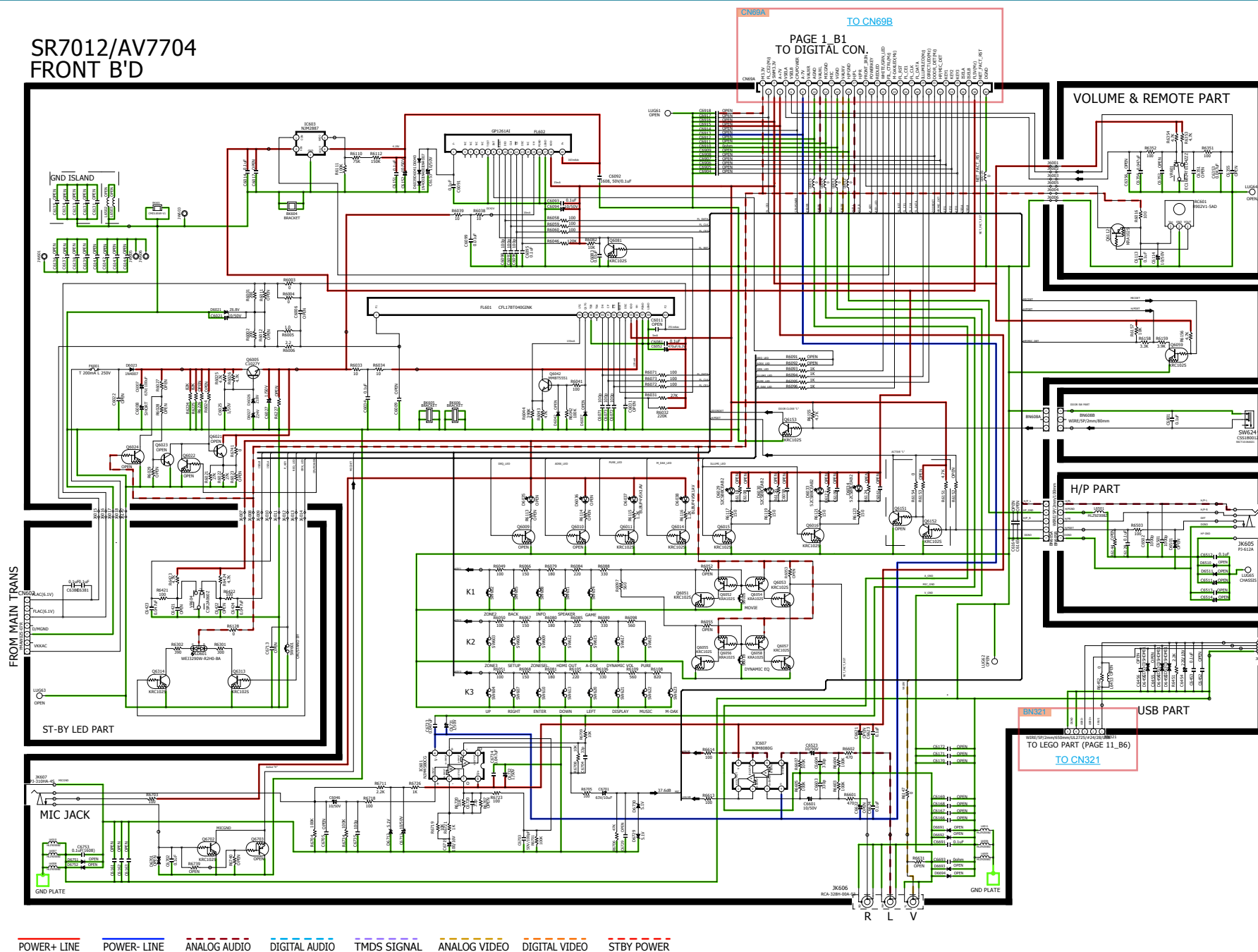
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO DIGITAL VIDEO STBY POWER



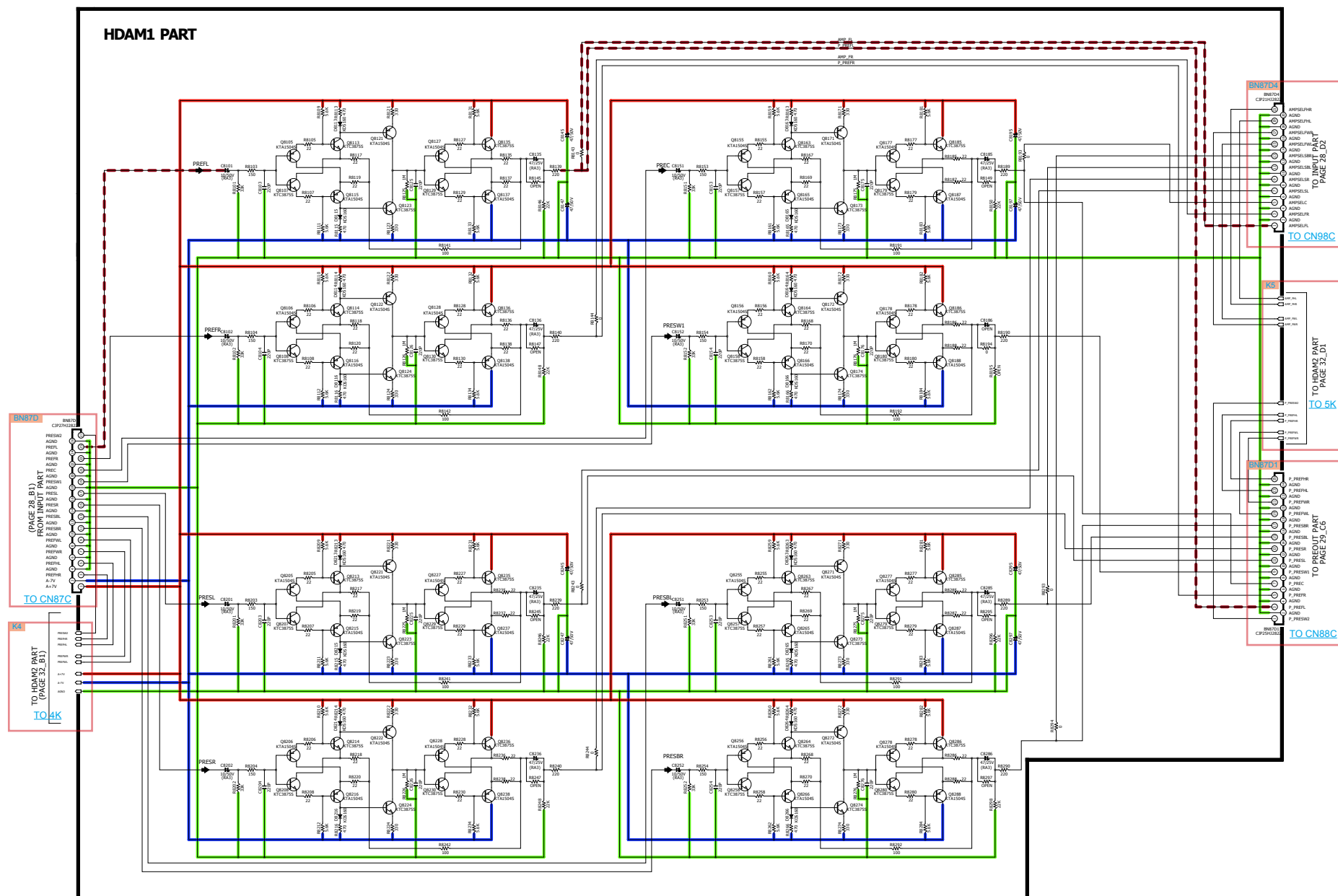


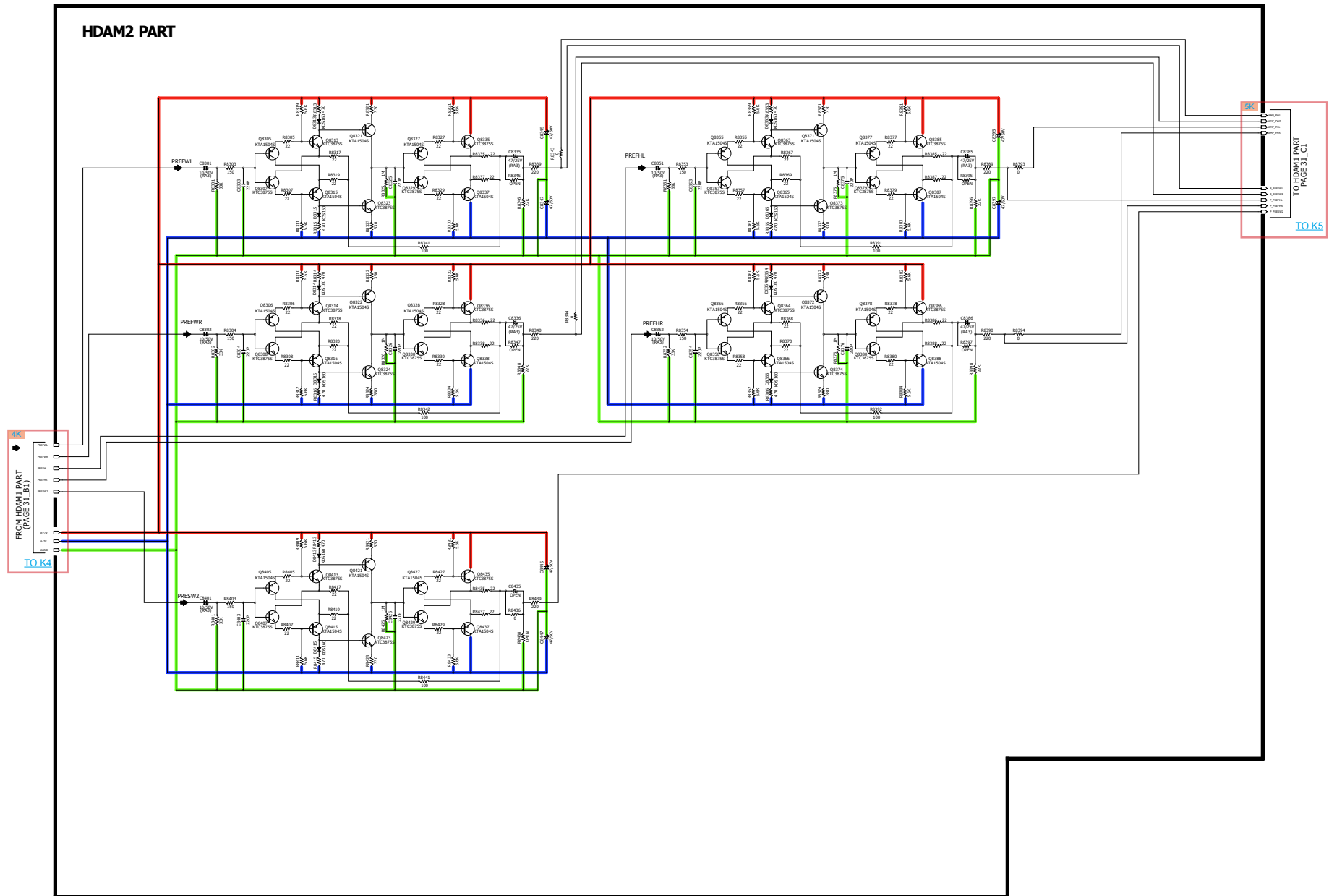
 GND LINE
 POWER+ LINE
 POWER- LINE
 ANALOG AUDIO
 DIGITAL AUDIO
 TMDS SIGNAL
 ANALOG VIDEO
 DIGITAL VIDEO
 STBY POWER

SR7012/AV7704
FRONT B'D



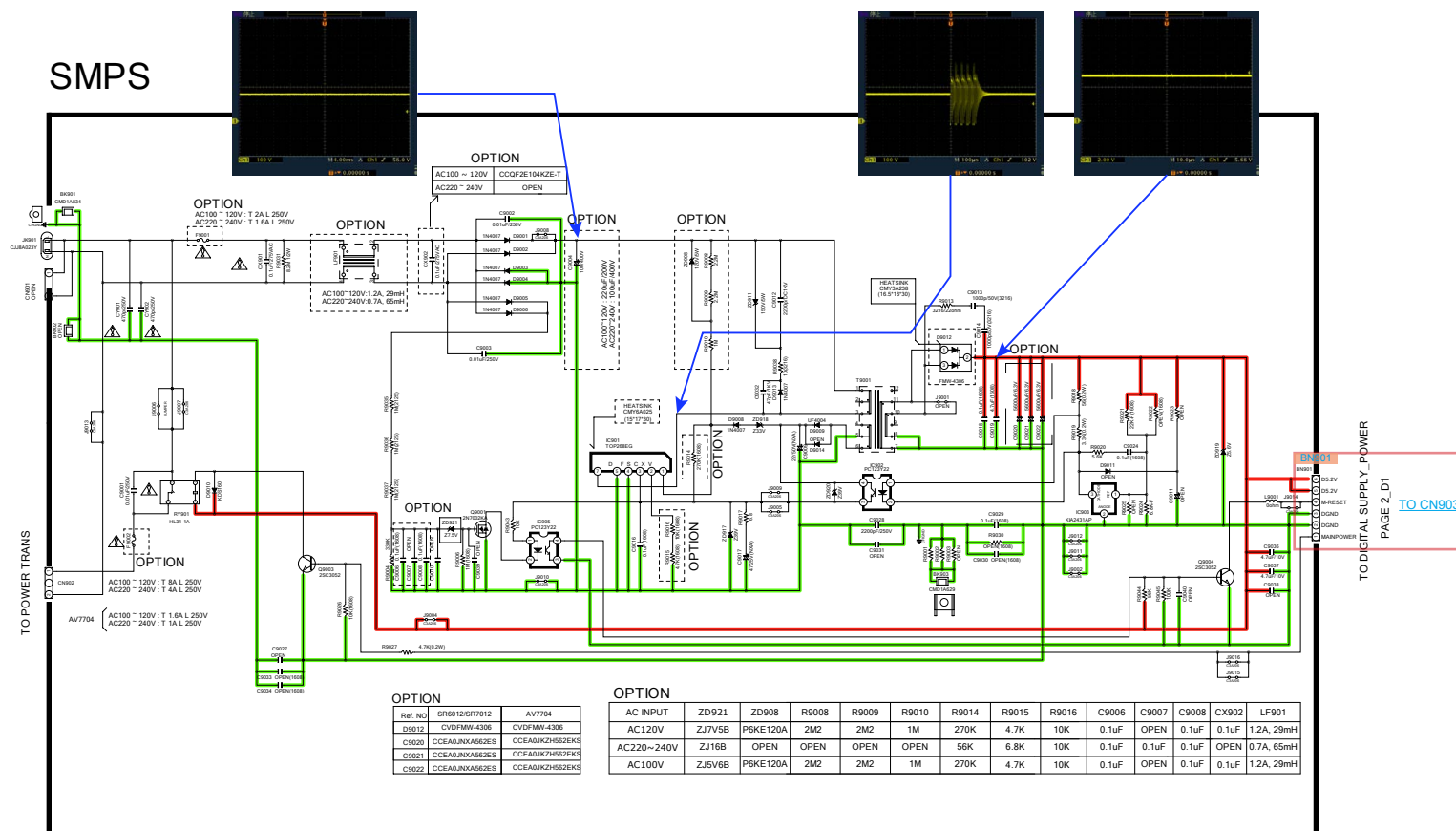
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO DIGITAL VIDEO STBY POWER





 GND LINE
 POWER+ LINE
 POWER- LINE
 ANALOG AUDIO
 DIGITAL AUDIO
 TMDS SIGNAL
 ANALOG VIDEO
 DIGITAL VIDEO
 STBY POWER





*** IMPORTANT SAFETY NOTICE. COMPONENT IDENTIFIED BY MARK  HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS USE ONLY MANUFACTURER'S SPECIFIED PARTS.

** THE UNIT OF RESISTANCE IS OHM.
 $K = 1000 \text{ OHM}$, $M = 1000000 \text{ OHM}$.

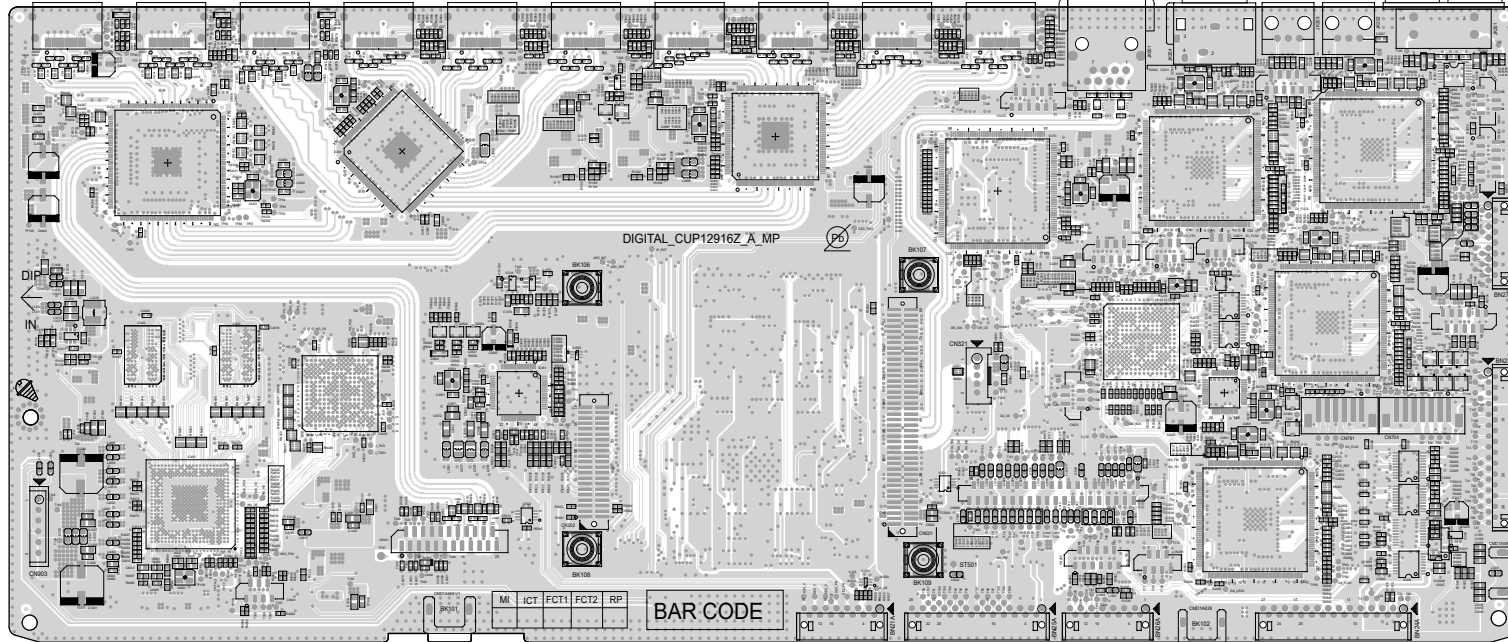
** THE UNIT OF CAPACITANCE IS MICROFARAD(μF)
 $\text{pF} = 10^{-12}\text{F}$

** THIS SCHEMATIC DIAGRAM MAY MODIFIED AT ANY TIME WITH THE IMPROVEMENT OF PERFORMANCE.

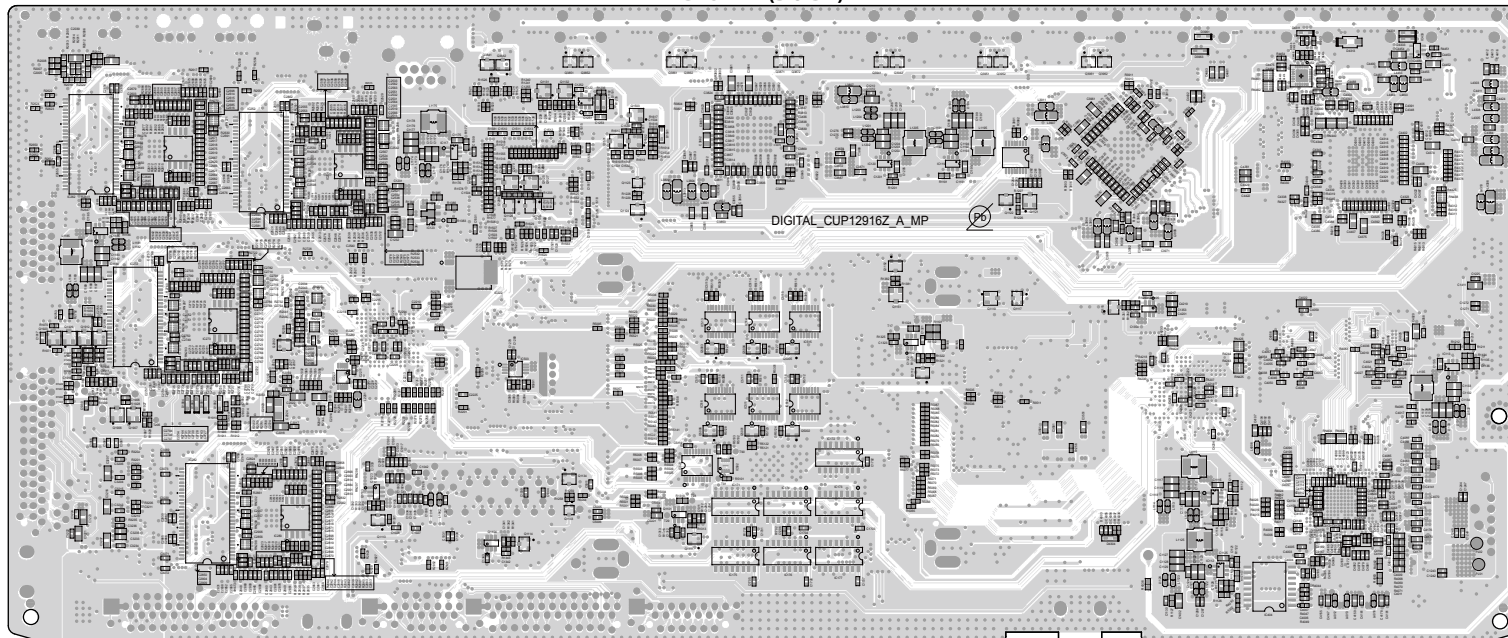
Lead-free Solder

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

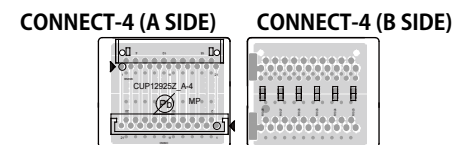
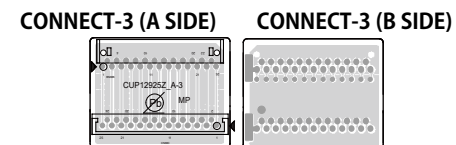
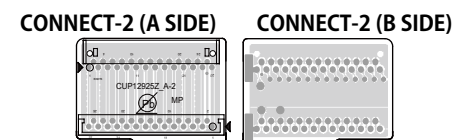
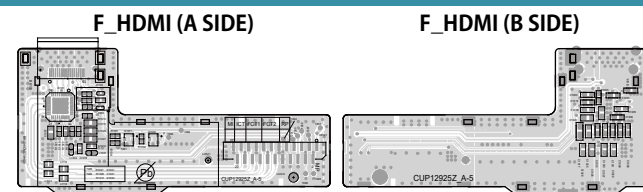
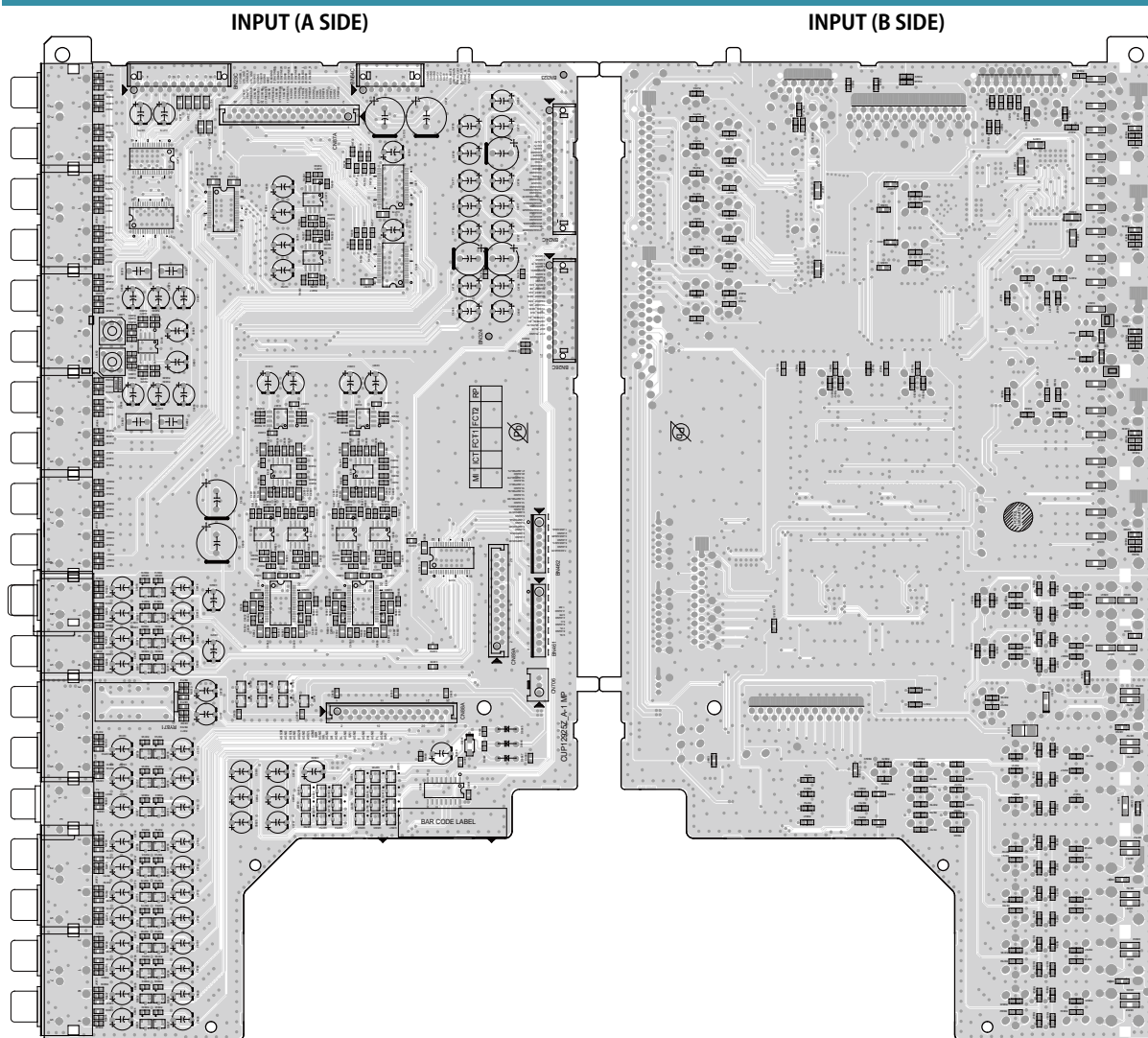
DIGITAL (A SIDE)



DIGITAL (B SIDE)



INPUT, F-HDMI, CONNECT-2, CONNECT-3, CONNECT-4



Caution in
servicing

Electrical

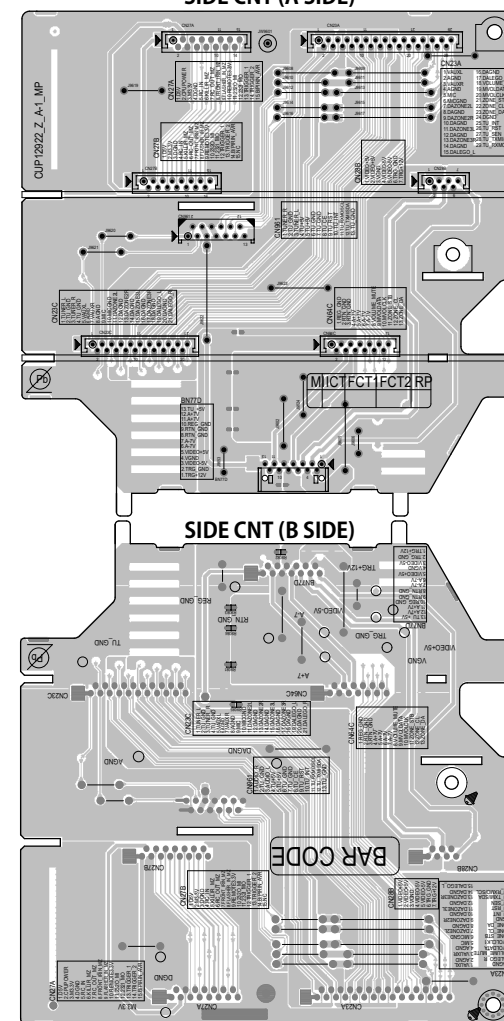
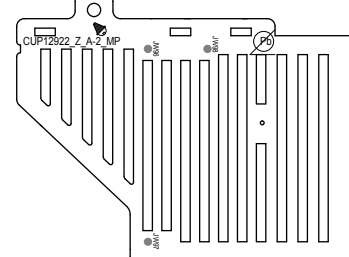
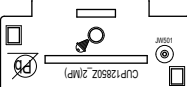
Mechanical

Repair Information

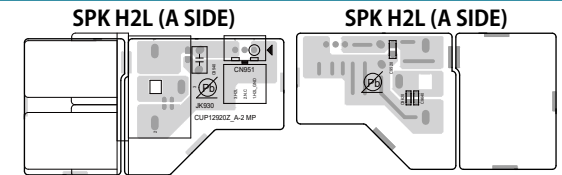
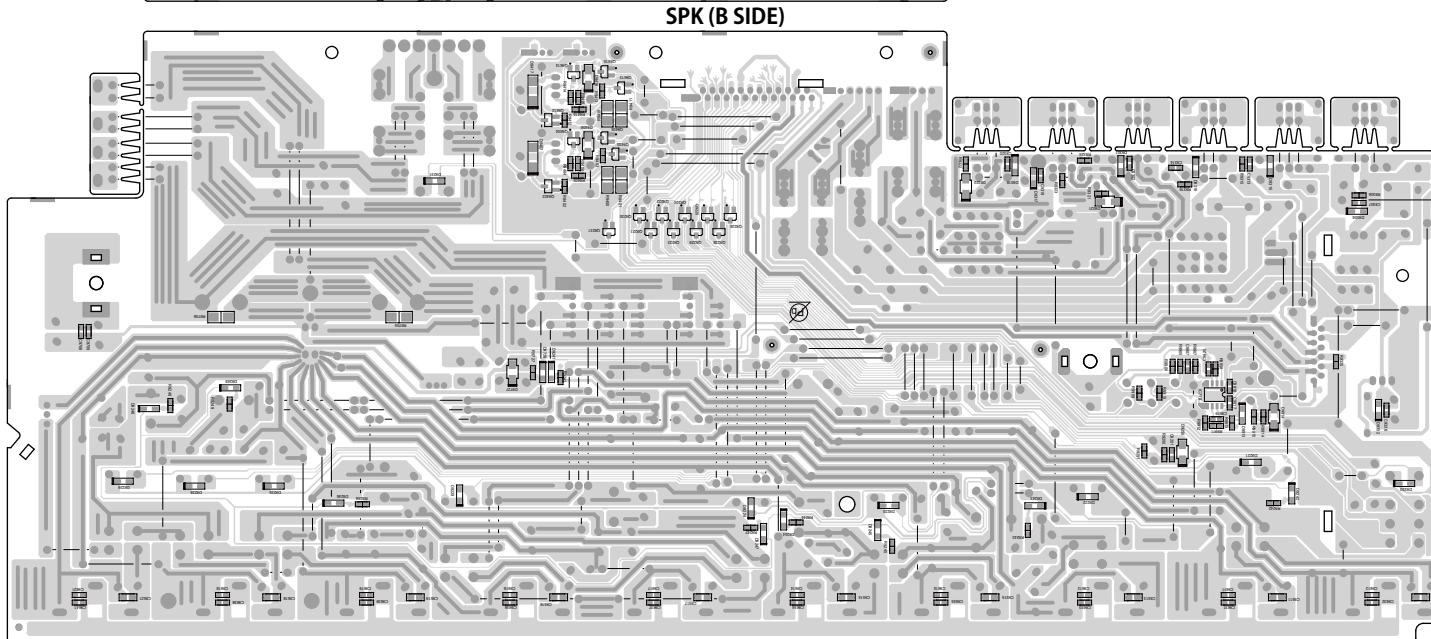
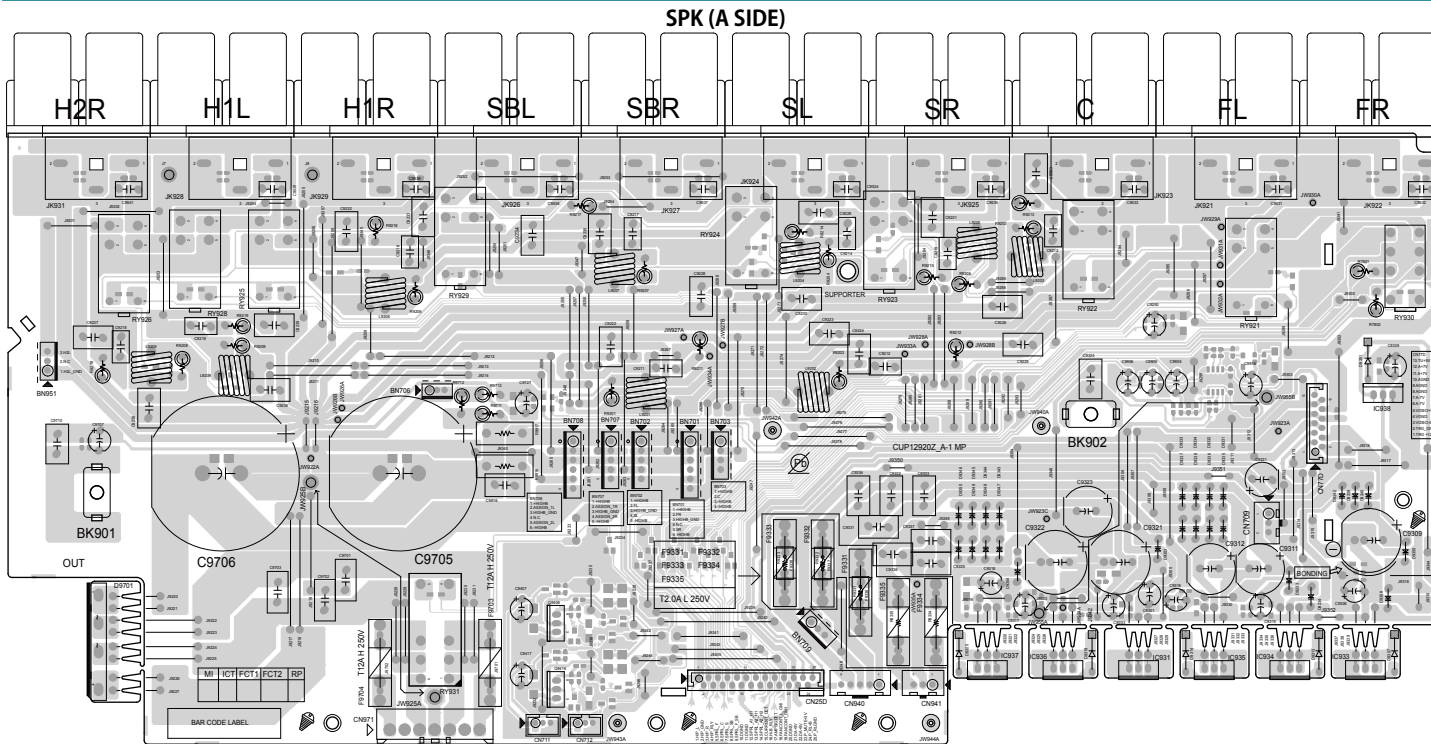
Updating



FRONT CONT FFC (A SIDE)



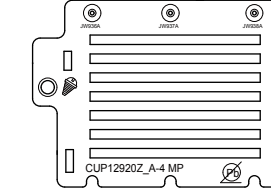
SPK, SPK H2L, GUIDE TRANS, GUIDE TOP, GUIDE SIDE



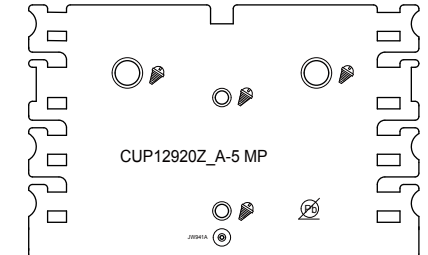
GUIDE TRANS (A SIDE)



GUIDE TOP (A SIDE)



GUIDE SIDE (A SIDE)



Caution in
servicing

Electrical

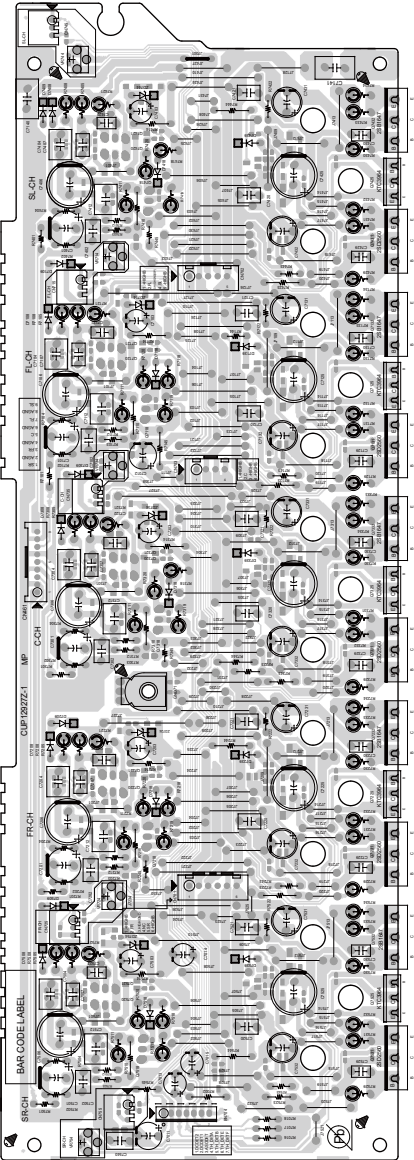
Mechanical

Repair Information

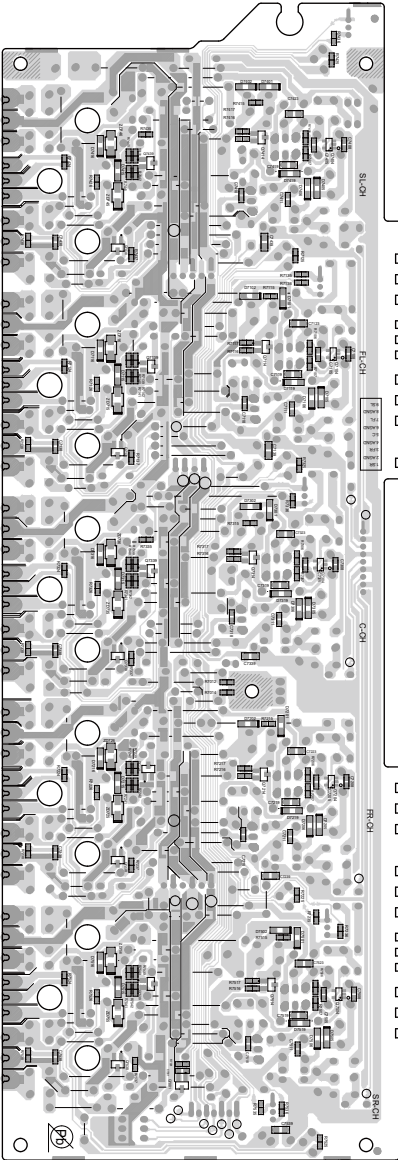
Updating



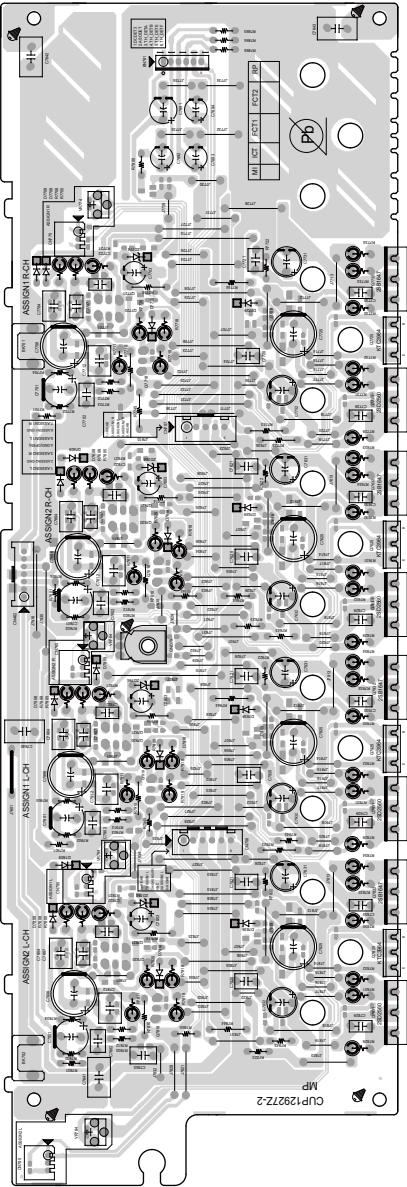
5CH AMP (A SIDE)



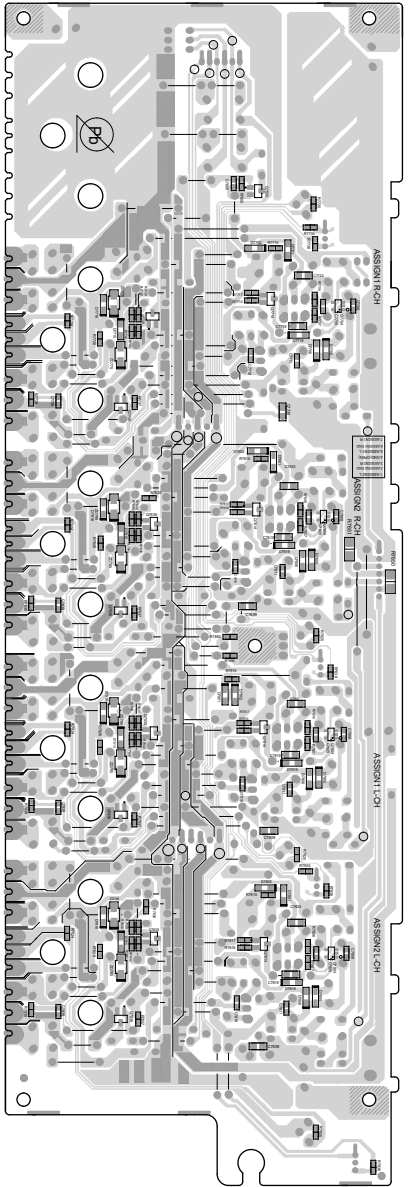
5CH AMP (B SIDE)



4CH AMP (A SIDE)



4CH AMP (B SIDE)



Caution in
servicing

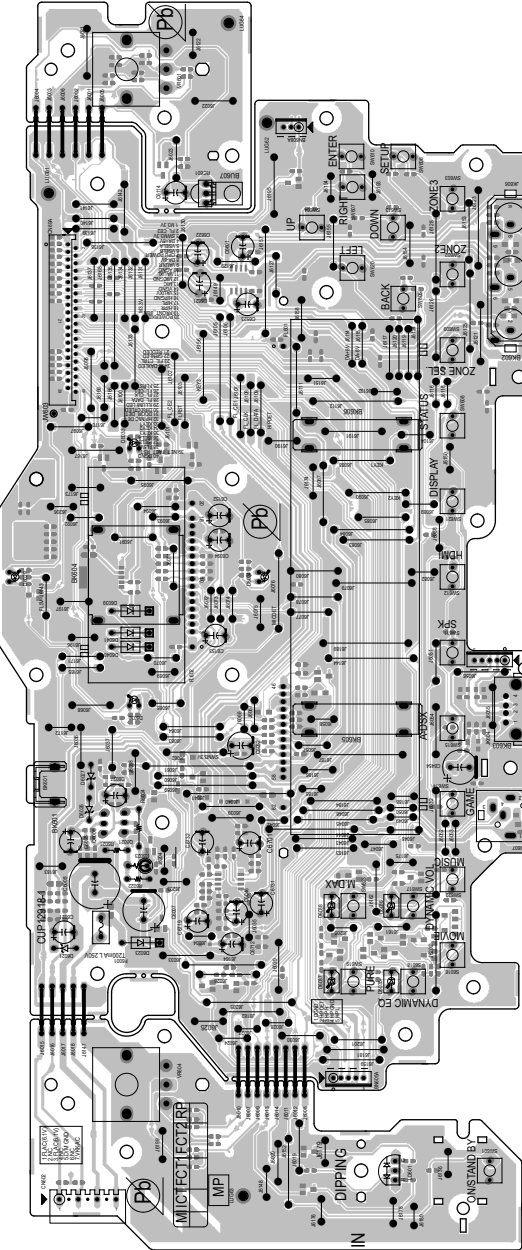
Electrical

Mechanical

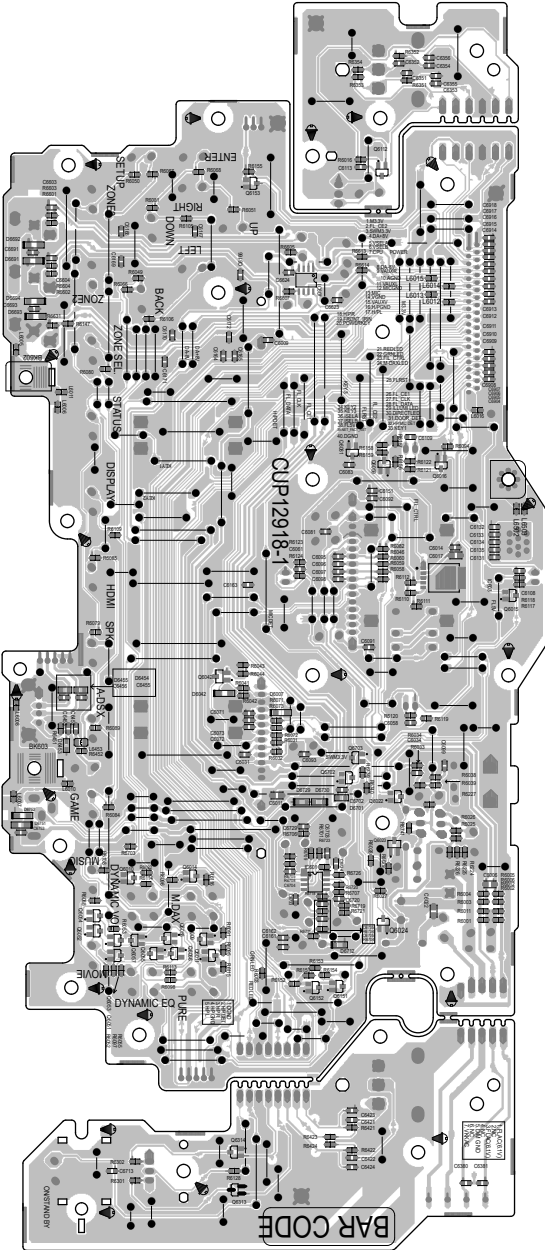
Repair Information

Updating

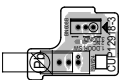
FRONT (A SIDE)



FRONT (B SIDE)



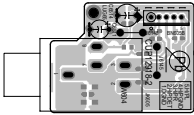
FRONT SW (A SIDE)



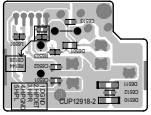
FRONT SW (B SIDE)



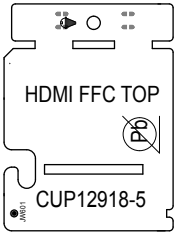
HP (A SIDE)



HP (B SIDE)



FHDMI FFC TOP (A SIDE)



Caution in
servicing

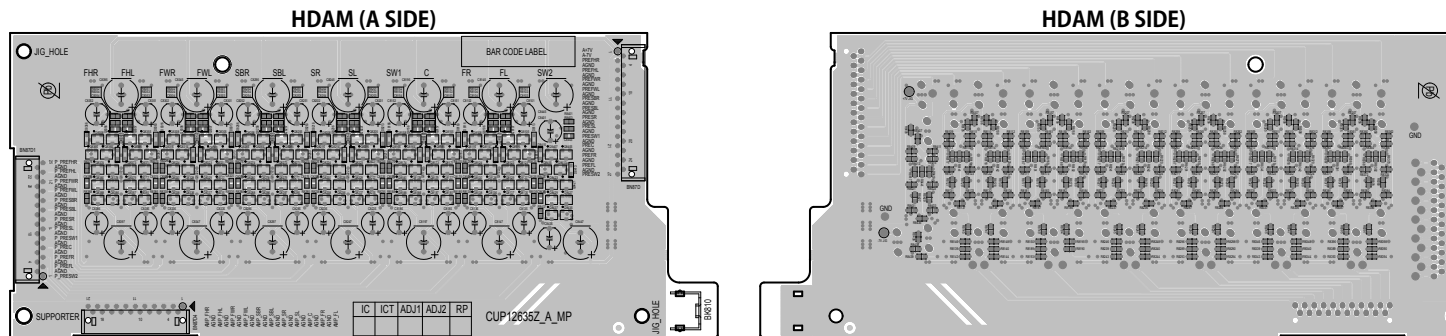
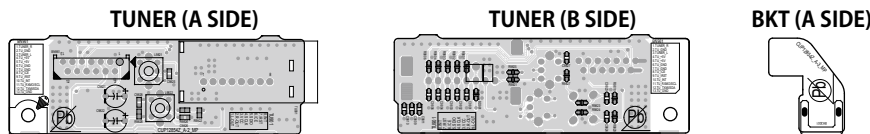
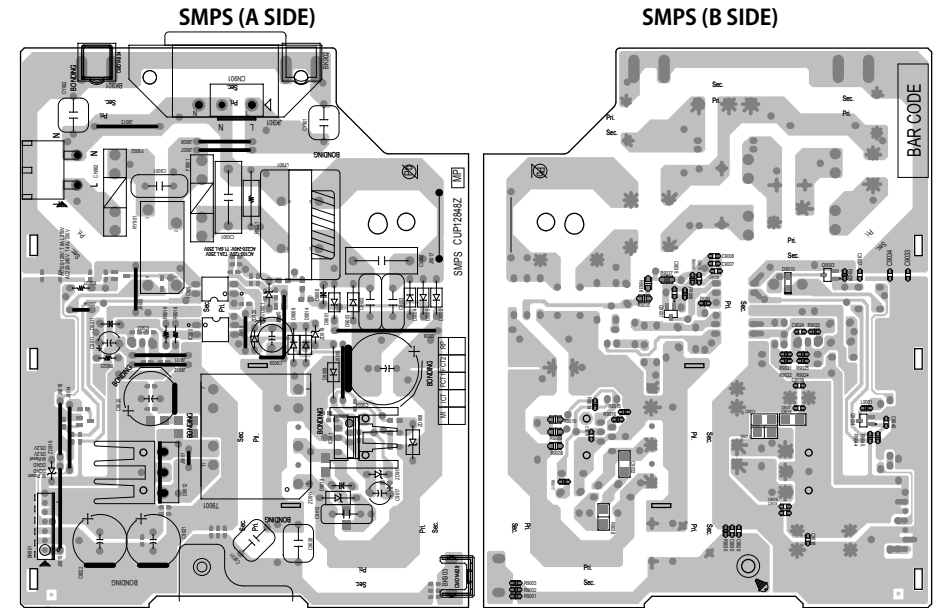
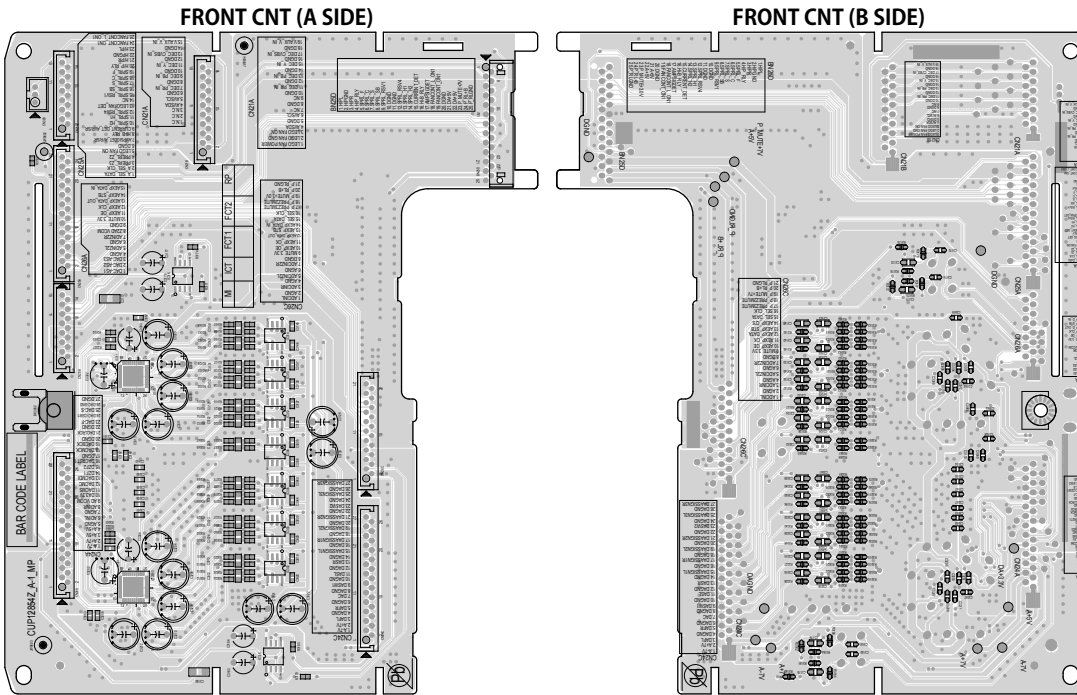
Electrical

Mechanical

Repair Information

Updating

FRONT CNT, TUNER, BKT, SMPS



Caution in
servicing

Electrical

Mechanical

Repair Information

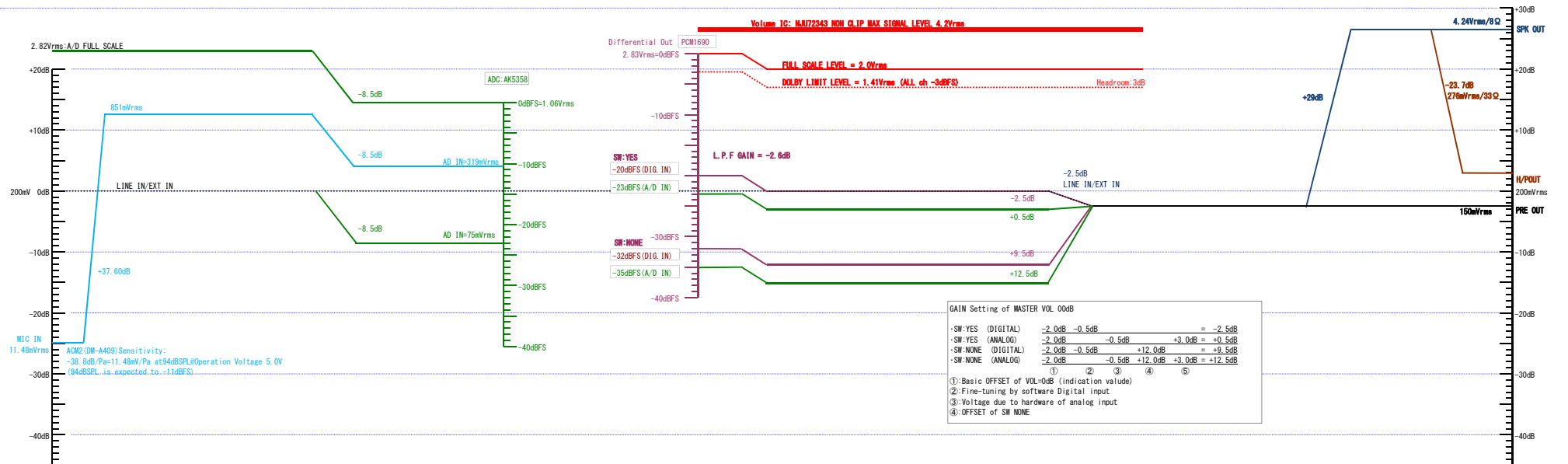
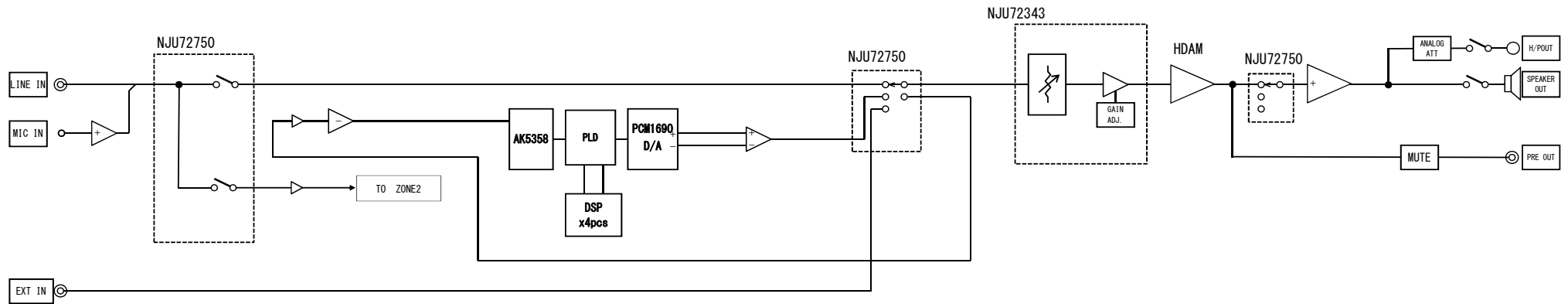
Updating



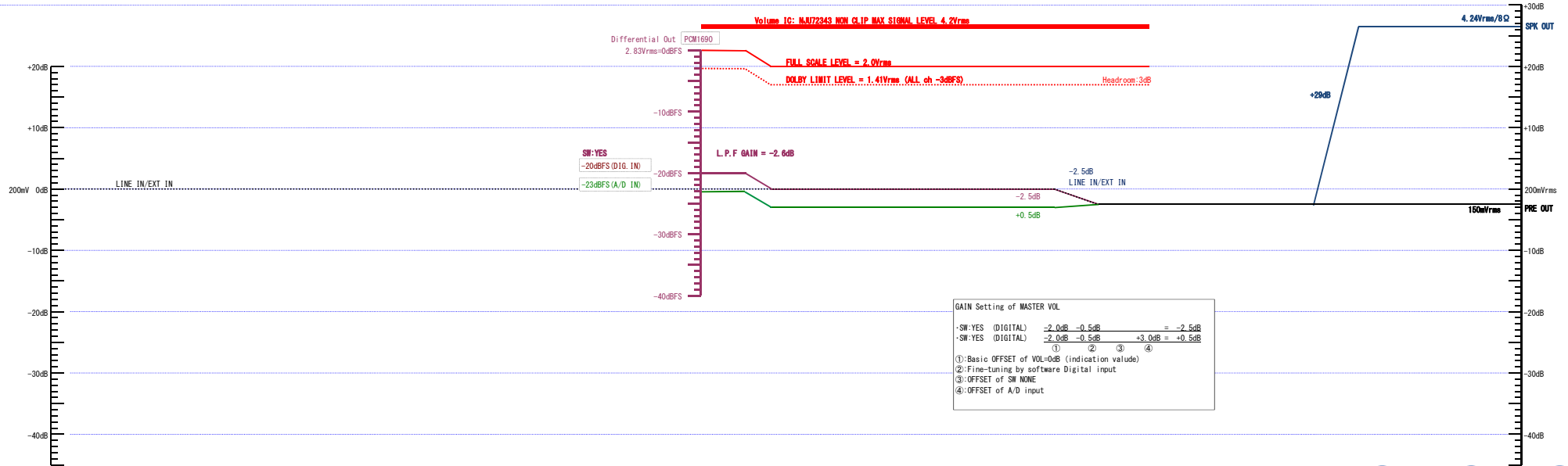
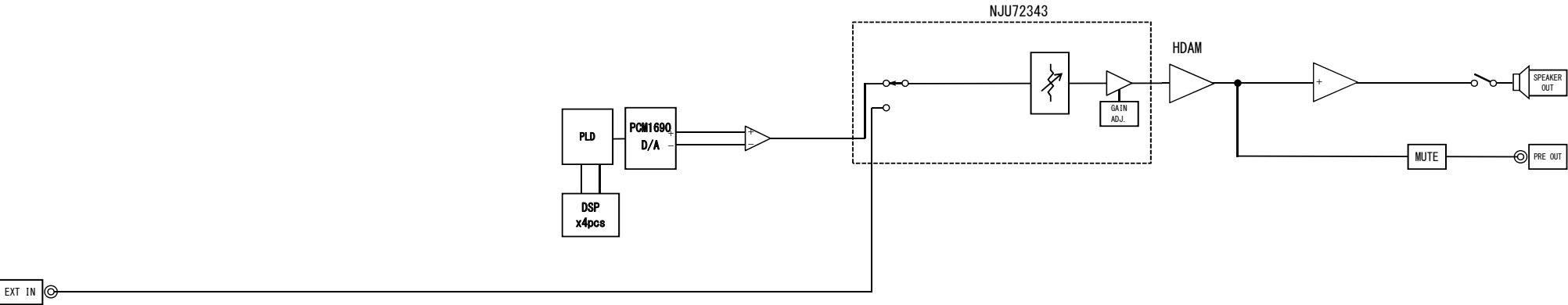
LEVEL DIAGRAM

FRONT ch

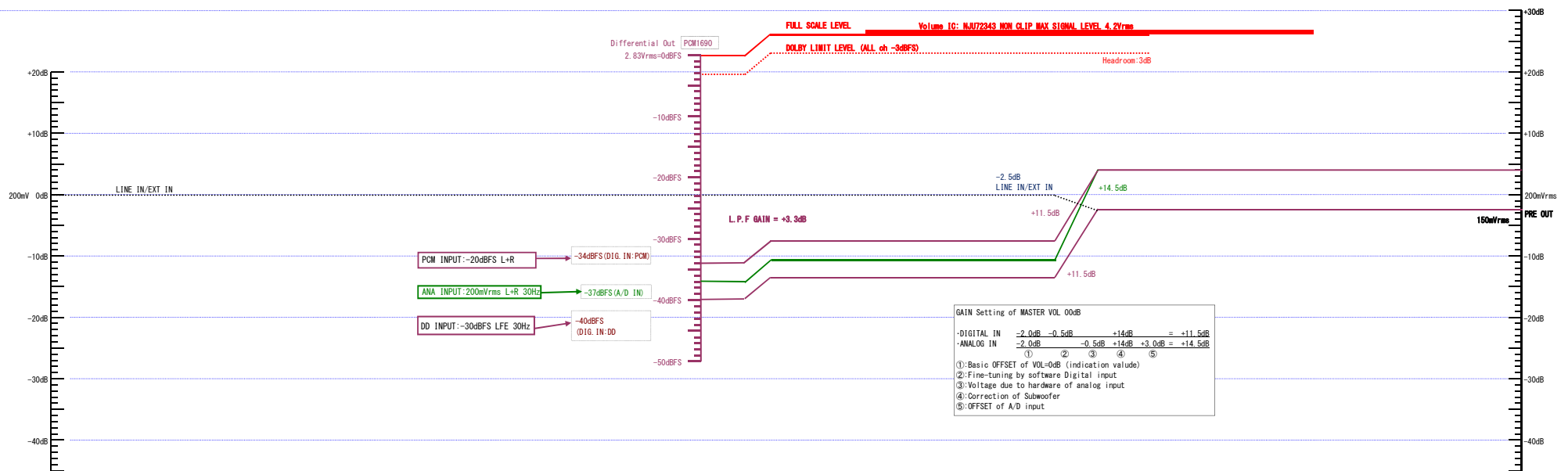
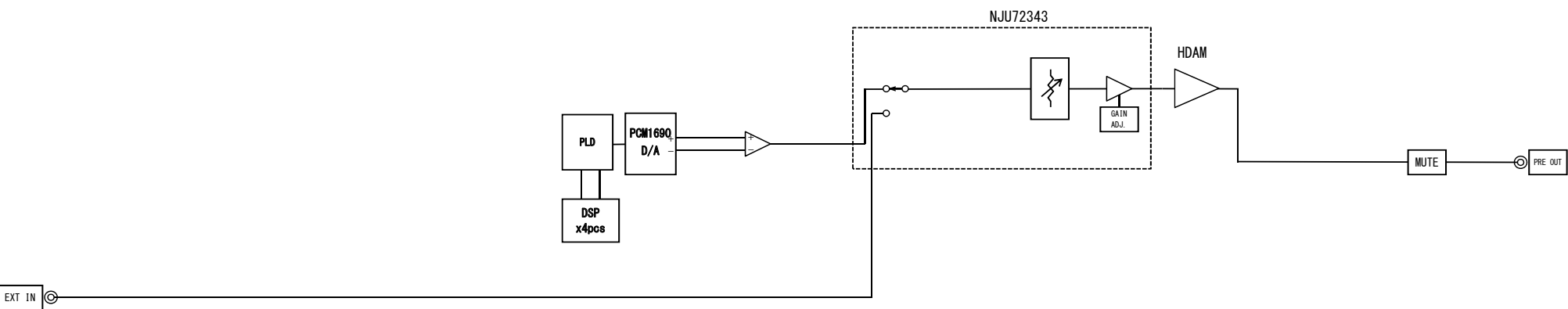
SR7012 LEVEL DIAGRAM FRONT ch



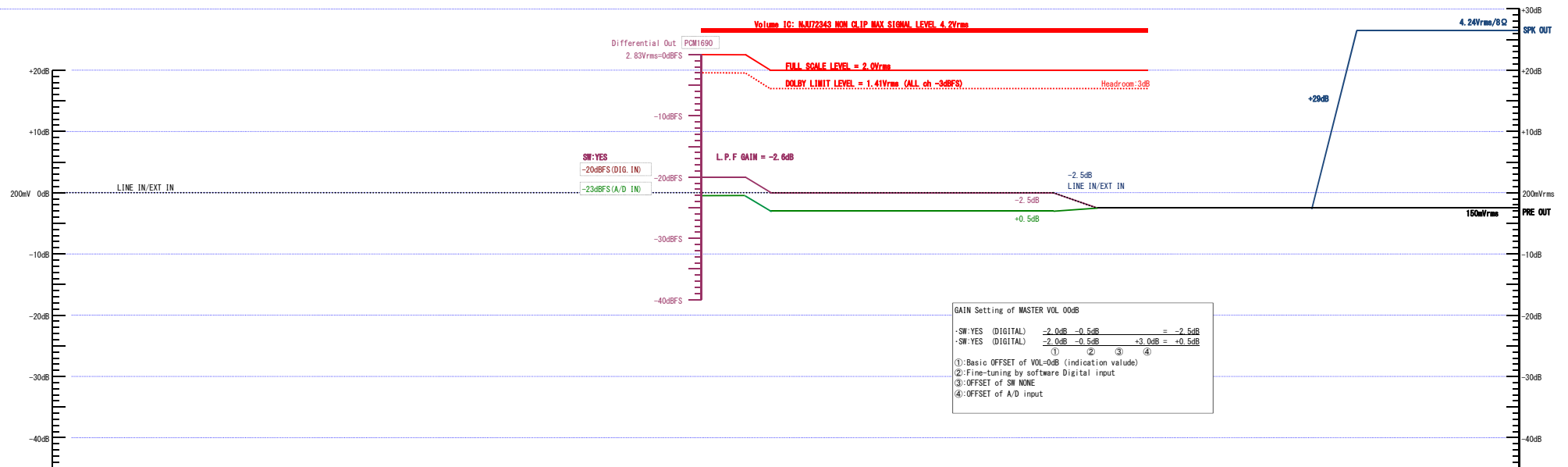
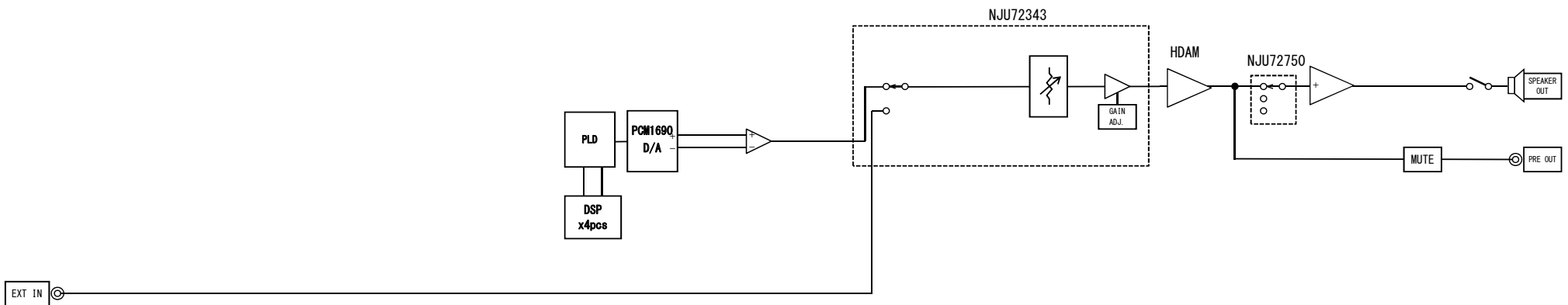
SR7012
LEVEL DIAGRAM
CENTER/SURROUND ch



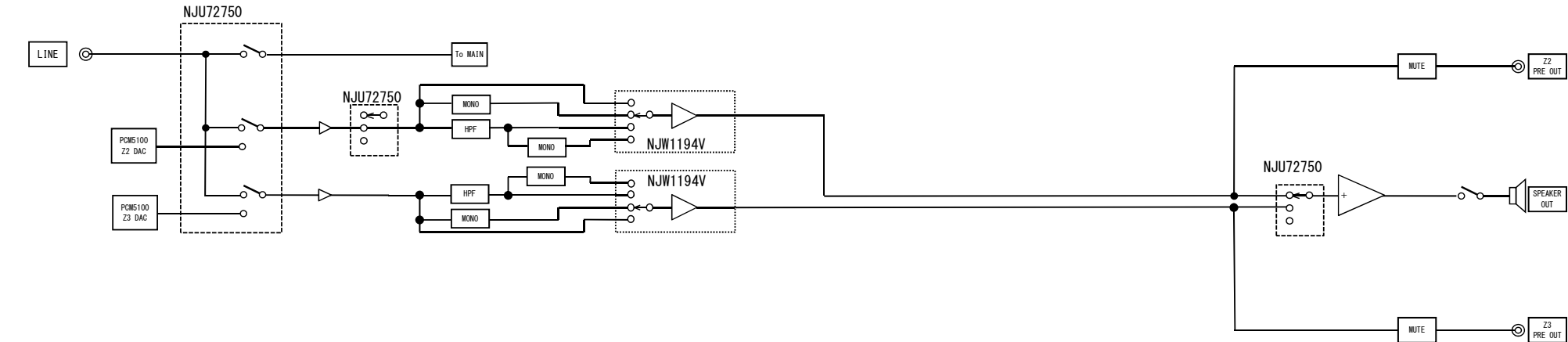
SR7012
LEVEL DIAGRAM
SUB WOOFER ch

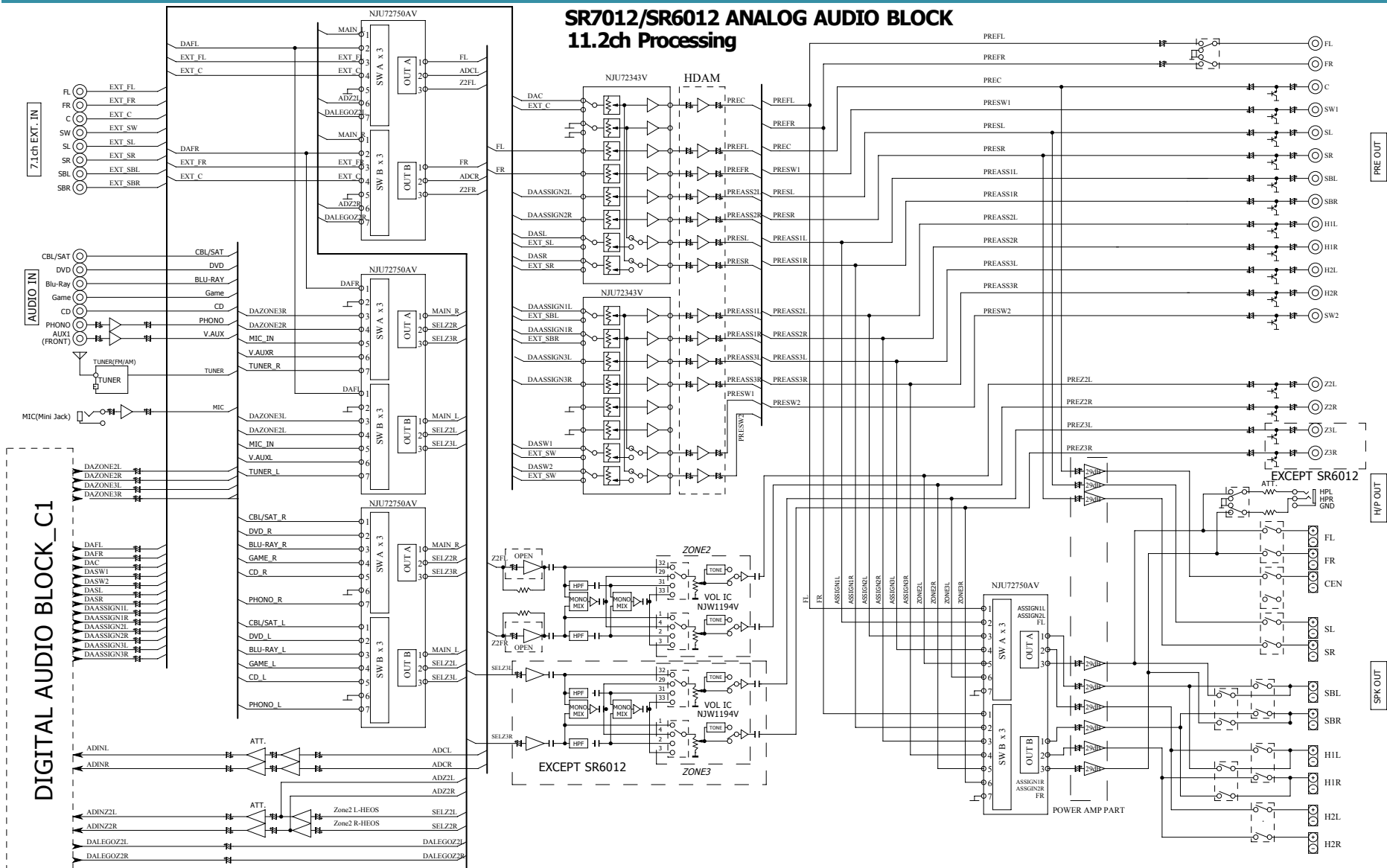


SR7012
LEVEL DIAGRAM
ASSIGN1/2 (SURROUND BACK/HEIGHT1/HEIGHT2) ch



SR7012
LEVEL DIAGRAM
ZONE2/ZONE3





Caution in
servicing

Electrical

Mechanical

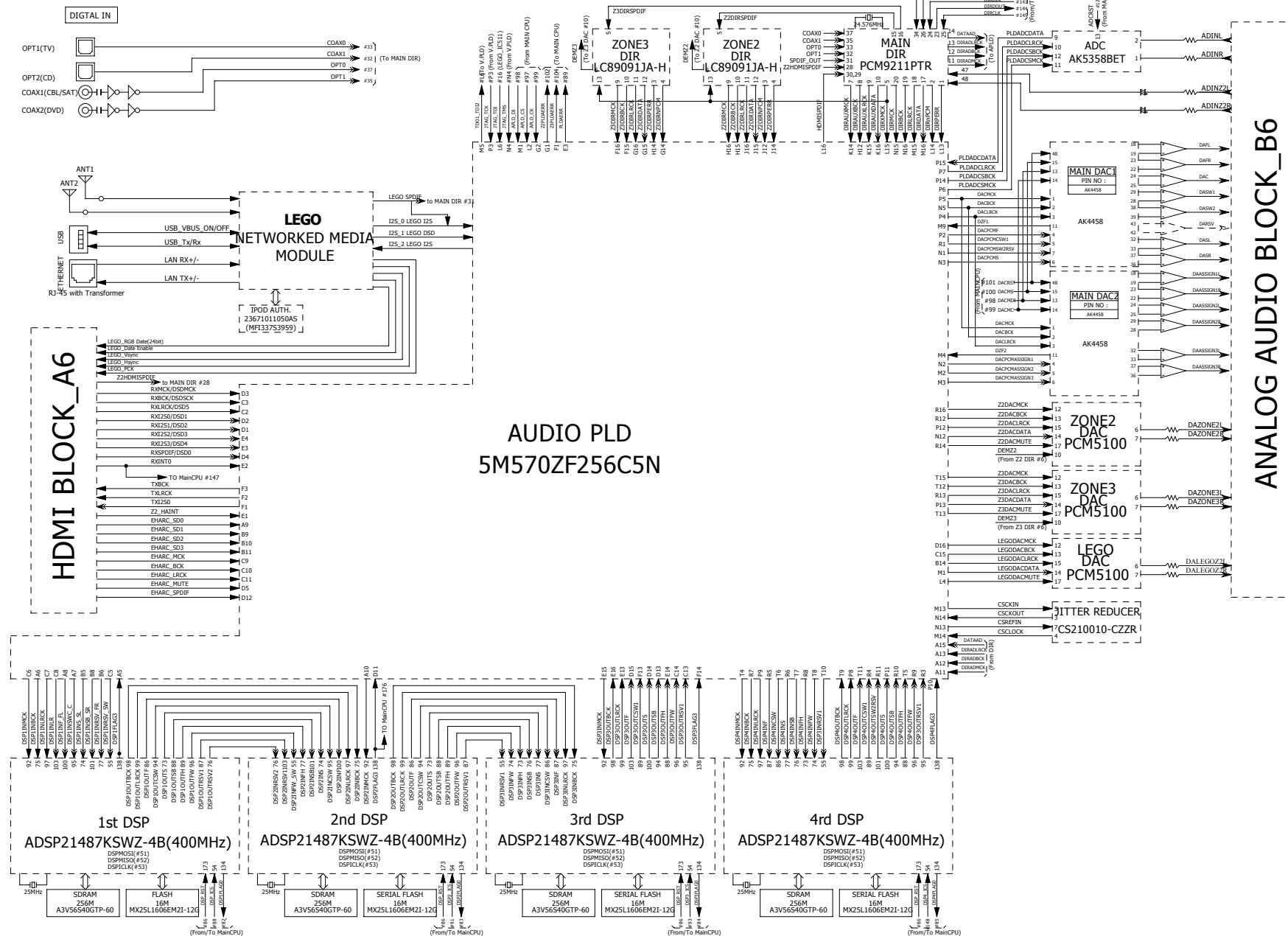
Repair Information

Updating



DIGITAL AUDIO DIAGRAM

SR7012/AV7704 DIGITAL AUDIO BLOCK(ADI)



Caution in
servicing

Electrical

Mechanical

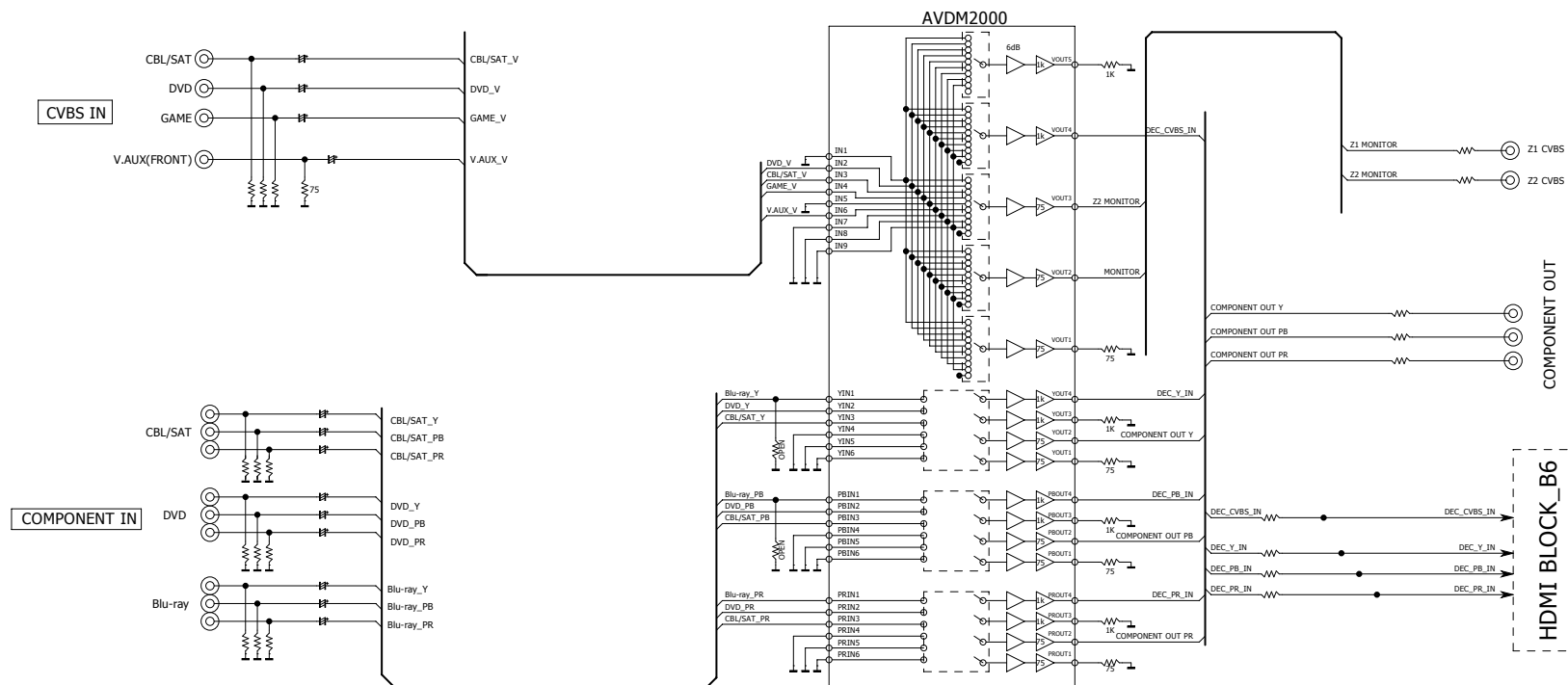
Repair Information

Updating



VIDEO DIAGRAM

SR7012/AV7704 ANALOG VIDEO BLOCK



Caution in
servicing

Electrical

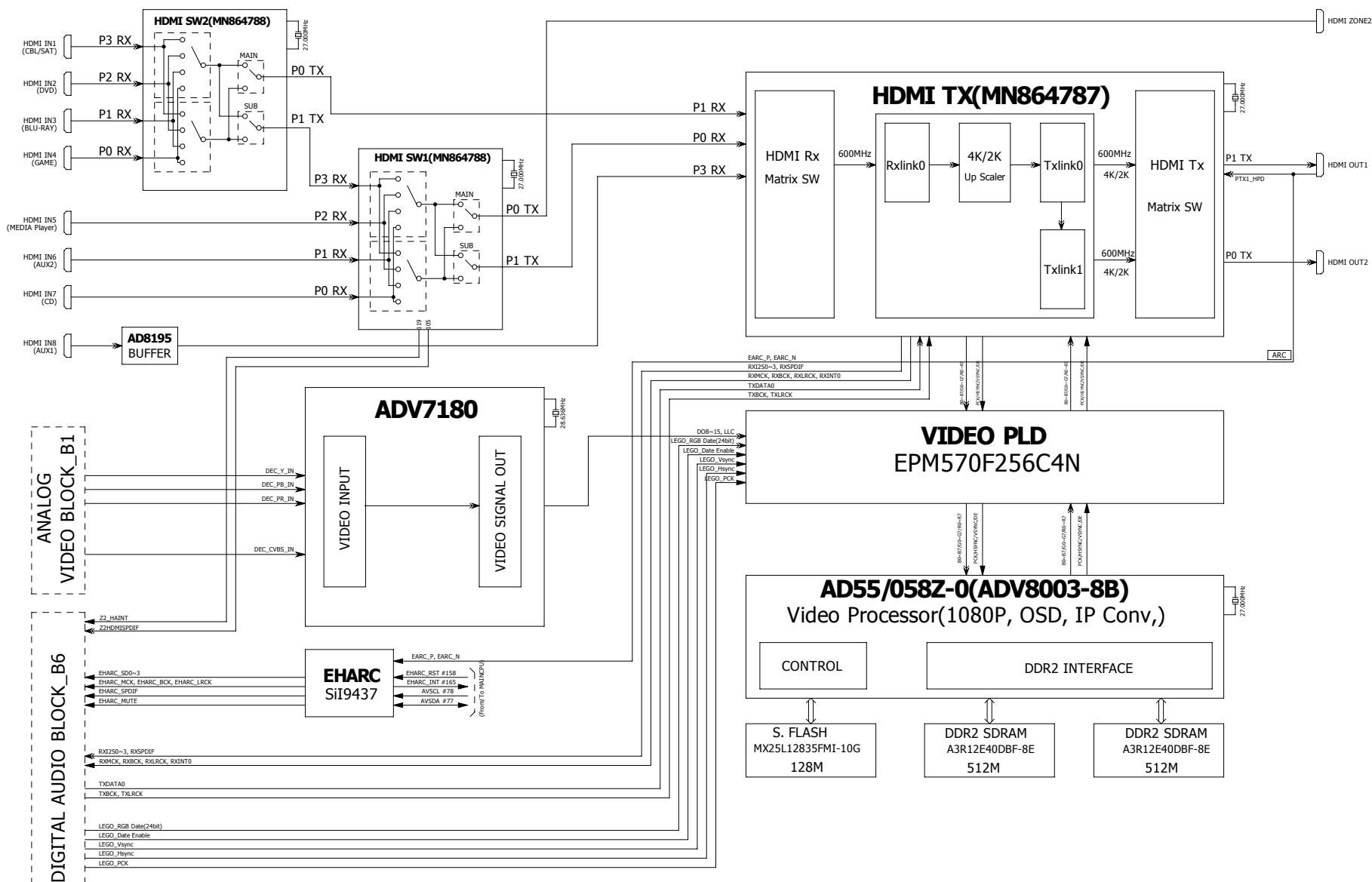
Mechanical

Repair Information

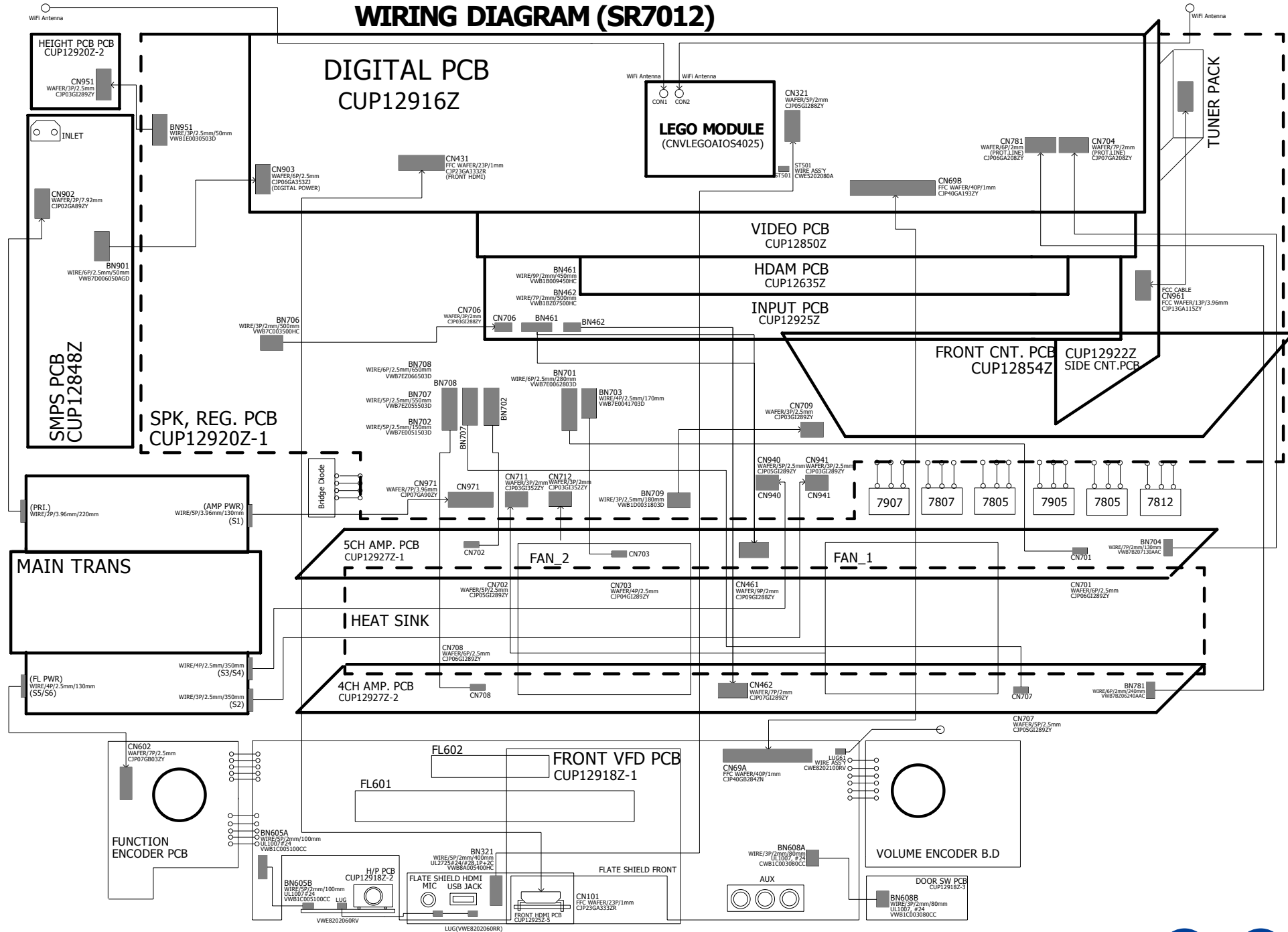
Updating



AVRX4400H/SR7012/AV7704/SR6012 HDMI BLOCK



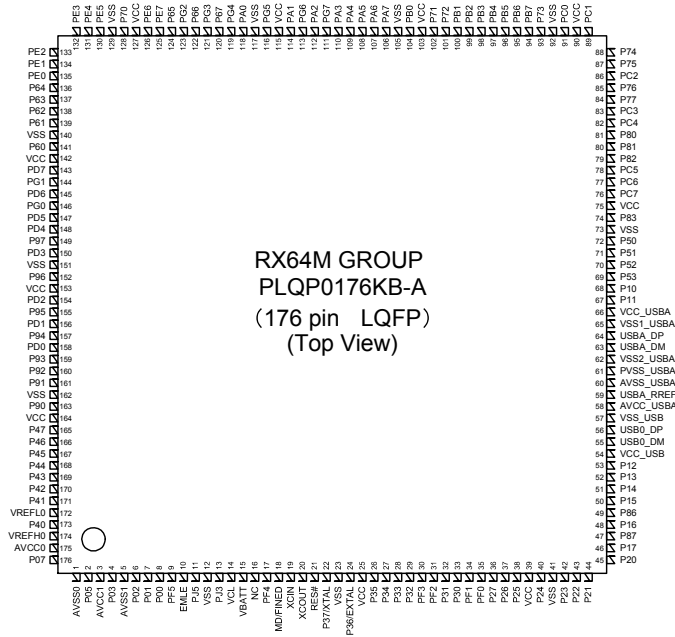
WIRING DIAGRAM (SR7012)



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 : IC151)



RX64M GROUP
PLQP0176KB-A
(176 pin LQFP)
(Top View)

R5F56108VNFP Terminal Functions

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC 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	FANDET_ON/ HIGH(X4400/ SR6012/ SR7012/ NC(AV7704))	I/O	SW3VPu	I/L	I/L	I/L	Thermally detection input pin (for FAN control)(A/D converter)
7	P01/RXD6/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(X4400(NA))/ GREEN_LED(X4400(EU/ CH/JP)/SR6012/ SR7012/AV7704)	O	-	L	L	L	POWER LED control pin

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
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	-	I	I	I	Master Volume (Rotary encoder) signal input pin
12	VSS	VSS	-	-	-	-	-	Ground pin
13	PJ3	VSEL_B	I	-	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.
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	XCOUT	XCOUT	I	-	-	-	-	NC(open)
21	RES#	RESET	I	-	-	-	-	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	NC(X4400/ SR6012)/ DOOR_DET(SR7012/ AV7704)	I	M3VPu	I	I	I	Front trap door open/close detect input pin (High:Door open)
27	P34/SCK6/SCK0/IRQ4	BDOWN	I	-	I	I	I	Detect power down
28	P33/TIOCD0/RXD6/ RXD0/IRQ3-DS	RC_IN	I	-	I	I	I	Remote input
29	P32/TIOCC0/TXD6/ TXD0/IRQ2-DS	NC(X4400)/ FLASHER_IN(SR6012/ SR7012/ AV7704)	O/I	-	L/I	L/I	L/I	IR Flasher control signal input (When standby mode,set to interrupt)
30	TMS/PF3	TMS/ NC(NORMRAL)	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/I/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_GPO2_INT(X4400/ SR6012(ALL),SR7012/ AV7704(ALL))	I	-	L	L	L	TUNER control
33	P30/RXD1	TU_SDO(X4400/ SR6012(ALL),SR7012/ AV7704(ALL))	I_O	-	L	L	L	TUNER control
34	TCK/FINEC/PF1/ SCK1	TCK/ NC(NORMRAL)	I/I	M3VPu	-/I	-/I	I	E20 Emulator control pin/When normal operating mode,set to input.
35	TD0/TXD1/PF0	TD0/TXD_MITSUBISHI	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_SEN(X4400/ SR6012(ALL),SR7012/ AV7704(ALL))	O	-	L	L	L	TUNER control
37	P26/TXD1	TU_SCLK(X4400/ SR6012(ALL),SR7012/ AV7704(ALL))	O	-	L	L	L	TUNER control
38	P25/RXD3	VOL_DATA	O	-	L	L	L	Volume control pin (NJU72343)
39	VCC	VCC	-	-	-	-	-	Power supply pin

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
40	P24/SCK3	NC(X4400)/ KILL- IR(SR6012/ SR7012/ AV7704)	O		L	L	L	Front IR disable control pin
41	VSS	VSS	-		-	-	-	Ground pin
42	P23/TXD3	E_RTS_MOEI	O	Pd (BCM5830S internal Pd)	L	L	L	Ethernet(LEGO) control pin
43	P22/SCK0	E_CTS_MIEO	I	Pd (onboard BCM5830S internal Pd)	I	I	I	Ethernet(LEGO) control pin
44	P21/RXD0/IRQ9	E_RXD_MIEO	I	Pd (onboard BCM5830S internal Pd)	I	L	I	Ethernet(LEGO) control pin
45	P20/TXD0/IRQ8	E_TXD_MOEI	O	Pd (BCM5830S internal Pd)	L	L	L	Ethernet(LEGO) control pin
46	P17/SCK1/TXD3/IRQ7	NET_FACT_RST	O(ODR)	Pu (BCM5830S internal Pd)	Z	Z	Z	Ethernet(LEGO) control pin
47	P87/TXD10/TIOCA2	NC(X4400)/ RC- OUT(SR6012/ SR7012/ AV7704)	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	SEL_DATA	O		L	L	L	Audio selector control pin (NJU72750/72751)
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
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_USBA	PVSS_USBA	-		-	-	-	Ground pin
62	VSS2_USBA	VSS2_USBA	-		-	-	-	Ground pin
63	USBA_DM	USBA_DM	-		-	-	-	NC(open)
64	USBA_DP	USBA_DP	-		-	-	-	NC(open)
65	VSS1_USBA	VSS1_USBA	-		-	-	-	Ground pin
66	VCC_USBA	VCC_USBA	-		-	-	-	Power supply pin
67	P11/SCK2/IRQ1	CEC_OUT	O		L	L	-	CEC-D control pin
68	P10/IRQ0	CEC_IN	I	SW3VPu	I	I	I	CEC-D control pin
69	P53	ADV8003_SPI_CS	O		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/ ARC IC/ ADVM2000(except SR6012)
78	PC5/SCK8	AVSCL	I/O	DV3VPu	O/L	O/L	L	VIDEO I2C control pin for ADV8003/ ADV7180/ ARC IC/ ADVM2000(except SR6012)
79	P82/TXD10	DSP_MOSI	O	DA3VPu	L	L	L	DSP(ADI) control pin
80	P81/RXD10	DSP_MISO	I	DA3VPu	L	L	L	DSP(ADI) control pin

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
81	P80/SCK10	DSP_CLK	O	DA3VPu	L	L	L	DSP(ADI) control pin
82	PC4/SCK5	DSP1FLAG0	I	Pd	L	L	L	DSP(ADI) interrupt signal input pin
83	PC3/TXD5	DSP2FLAG0	I	Pd	L	L	L	DSP(ADI) interrupt signal input pin
84	P77/TXD11	DSP3FLAG0	I	Pd	L	L	L	DSP(ADI) interrupt signal input pin
85	P76/RXD11	DSP4FLAG0	I	Pd	L	L	L	DSP(ADI) interrupt signal input pin
86	PC2/RXD5	DSP_RST	O		L	L	L	DSP(ADI) reset control pin
87	P75/SCK11	CEC_POWER2	O		L	L	L	CEC standby power control (for CEC Standby Mode 3)
88	P74	DSP1CS	O	DA3VPu	L	L	L	DSP(ADI) control pin
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	DSP2CS	O	DA3VPu	L	L	L	DSP(ADI) control pin
92	VSS	VSS	-		-	-	-	Ground pin
93	P73	DSP3CS	O	DA3VPu	L	L	L	DSP(ADI) control pin
94	PB7/TXD9	HSDA	I/O	CEC3VPu	L	L	L	HDMI I2C control pin for MN864787/MN864788
95	PB6/RXD9	HSCL	I/O	CEC3VPu	L	L	L	HDMI I2C control pin for MN864787/MN864788
96	PB5/SCK9	NC	O		L	L	L	NC
97	PB4	APLD_CS	O		L	L	L	Audio PLD (5M80ZT100C5N) control pin
98	PB3/SCK4/SCK6	APLD_DATA/ DAC_DATA	O		L	L	L	Audio PLD (5M80ZT100C5N) control pin/DAC (AK4458VN) control pin
99	PB2	APLD_CLK/ DAC_CLK	O		L	L	L	Audio PLD (5M80ZT100C5N) 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	Z2PLD_ERR	I	-	L	L	L	Detect PLD error (from Audio PLD)
103	VCC	VCC	-		-	-	-	Power supply pin
104	PB0/RXD4/RXD6/IRQ12	Z3PLD_ERR	I	-	L	L	L	Detect PLD error (from Audio PLD)
105	VSS	VSS	-		-	-	-	Ground pin
106	PA7	ISEL_A	I		I	I	I	Input selector (Rotary encoder) signal input pin
107	PA6	ISEL_B	I		I	I	I	Input selector (Rotary encoder) signal input pin
108	PA5	VOL_CLK	O		L	L	L	Volume control pin (NJU72343)
109	PA4/TXD5/SSDA5/IRQ5-DS	COMP_DET	I	SW3VPu	I	I	I	Component video signal detect pin
110	PA3/RXD5/SSCL5	MVOL_MUTE	O		L	L	L	Volume control pin (NJU72343)
111	TRDATA3/PG7	REMOTE_POWER(232C)	O		L	L	L	232C power supply (REMOTE 3.3V) control pin
112	PA2/RXD5	NC/(USB_EN)	O		L	L	L	NC/(for X7500H/AV8805)
113	TRDATA2/PG6	ZVOL_DATA	O		L	L	L	ZONE2 volume control pin (NJW1194)
114	PA1/SCK5/IRQ11	ZVOL_CLK	O		L	L	L	ZONE2 volume control pin (NJW1194)
115	VCC	VCC	-		-	-	-	Power supply pin
116	TRCLK/PG5	ZVOL_STB	O		L	L	L	ZONE2 volume control pin (NJW1194)
117	VSS	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	NC(X4400)/ SR6012)/FL- CE2(SR7012/ AV7704)	O		L	L	L	FL display control pin
124	P65	NC(X4400)/ FIL- CTRL(SR6012/ SR7012/ AV7704)	O		L	L	L	Filament Power control pin (for Portal FLD)



Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
125	PE7/IRQ7/AN105	ASO/DC_DET(X4400/SR6012/SR7012)/NC(AV7704)	I		I	I	I	Protection detect signal input pin (for ASO and DC) (A/D converter)
126	PE6/IRQ6/AN104	MIC_DET/_H/P_DET	I		I	I	I	Headphone insert detect pin/Microphone insert detect pin (A/D converter)
127	VCC	VCC	-		-	-	-	Power supply pin
128	P70	ADC_RST	O		I	L	I	A/D convertor(AK5358) reset control pin
129	VSS	VSS	-		-	-	-	Ground pin
130	PE5/IRQ5/AN103	MAIN_POWER	O		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_WAKE-UP	O		L	L	L	same as NET5V_POWER,NET3.3V_POWER (This port use to control for LEGO standby mode in the future(Low : Deep Standby, High : normal))
133	PE2/RXD12/IRQ7-DS/AN100	AIOS4_STBY_STATUS	I	Pd	I	I	I	Not used (This port use to detect for LEGO standby status in the future (Low : normal, High : Deep Standby))
134	PE1/TXD12	GUI_WRITE	O		L	L	L	GUI flash rom writing control
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)
137	P63	CEC_POWER	O		L	L	※	CEC standby power supply control(CEC5V,CEC3.3V,CEC1.8V)
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	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	PG0	DIR_RST	O		L	L	L	DIR (PCM9211) control pin
147	PD5/IRQ5/AN113	787_HAINT	I	-	Z	-	-	HDMI Rx (MN864787) audio interrupt signal det
148	PD4/IRQ4/AN112	DSP4CS	O	-	Pd	Z	L	DSP(ADI) control pin
149	P97	DE_RST	O	Pd	Z	-	L	Video decoder (ADV7850) reset control pin
150	PD3/IRQ3/AN111	787_HINT	I	-	Z	-	-	HDMI Tx (MN864787) interrupt signal input pin
151	VSS	VSS	-		-	-	-	Ground pin
152	P96	787_RST	O	Pd	Z	-	※	HDMI Tx (MN864787) reset control pin
153	VCC	VCC	-		-	-	-	Power supply pin
154	PD2/IRQ2/AN110	788_2_HINT	I	-	Z	-	-	HDMI Rx (MN864788) interrupt signal input pin
155	P95	788_2_RST	O	Pd	Z	-	※	HDMI Rx (MN864788) reset control pin
156	PD1/IRQ1/AN109	788_1_HINT	I	-	Z	-	-	HDMI Rx (MN864788) interrupt signal input pin
157	P94	788_1_RST	O	Pd	Z	-	※	HDMI Rx (MN864788) reset control pin
158	PD0/IRQ0/AN108	ARC_RST	O		L	L	L	Reset control pin for ARC IC
159	P93/AN117	THERMAL_A(X4400/SR6012/SR7012)/NC(AV7704)	I	SW3VPu	I	L	I	Protection detect signal input pin (for power TR)
160	P92/RXD7/AN116	DA_POWER1	O		L	L	L	Digital audio power supply (DA3.3V,DA1.2V) control pin
161	P91/AN115	THERMAL_E(X4400/SR6012/SR7012)/NC(AV7704)	I/I	SW3VPu	I/I	L	I/I	Protection detect signal input pin (for Heat sink)
162	VSS	VSS	-		-	-	-	Ground pin
163	P90/TXD7/AN114	THERMAL_F(X4400/SR6012/SR7012)/NC(AV7704)	I/I	SW3VPu	I/I	L	I/I	Protection detect signal input pin (for Heat sink)

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
164	VCC	VCC	-		-	-	-	Power supply pin
165	P47/IRQ15-DS/AN007	ARC_INT	I		L	L	L	ARC IC interrupt signal input pin
166	P46/IRQ14-DS/AN006	CURRENT_DET(X4400/SR6012/SR7012)/NC(AV7704)	I/O		I/L	L/L	I/L	Current level monitor pin (A/D converter)
167	P45/IRQ13-DS/AN005	AMPSIGDET(X4400/SR6012/SR7012)/NC(AV7704)	I		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 inturrupt)
170	P42/IRQ10-DS/AN002	KEY2	I	M3VPu	I	I	I	Key control signalinput pin (When standby mode,set to inturrupt)
171	P41/IRQ9-DS/AN001	KEY1	I	M3VPu	I	I	I	Key control signalinput pin (When standby mode,set to inturrupt)
172	VREFL0	VREFL0	-		-	-	-	Ground pin
173	P40	SEL_CLK	O		L	L	L	Audio selector control pin (NJU72750/72751)
174	VREFH0	VREFH0	-		-	-	-	Power supply pin
175	AVCC0	AVCC0	-		-	-	-	Power supply pin
176	P07/IRQ15	DSP2FLAG3	I	Pd	L	L	L	DSP(ADI) control pin

Caution in
servicing

Electrical

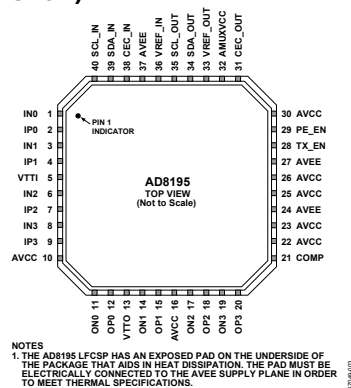
Mechanical

Repair Information

Updating



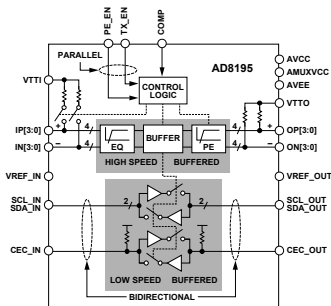
AD8195ACPZ (F-HDMI : IC101)



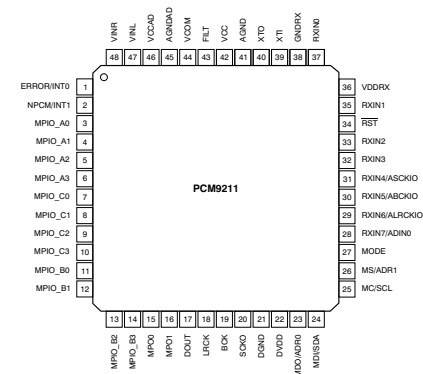
AD8195ACPZ Termini Function

Pin No.	Mnemonic	Type ¹	Description
1	IN0	HS I	High Speed Input Complement.
2	IP0	HS I	High Speed Input.
3	IN1	HS I	High Speed Input Complement.
4	IP1	HS I	High Speed Input.
5	VTTI	Power	Input Termination Supply. Nominally connected to AVCC.
6	IN2	HS I	High Speed Input Complement.
7	IP2	HS I	High Speed Input.
8	IN3	HS I	High Speed Input Complement.
9	IP3	HS I	High Speed Input.
10, 16, 22, 23, 25, 26, 30	AVCC	Power	Positive Analog Supply. 3.3 V nominal.
11	ON0	HS O	High Speed Output Complement.
12	OP0	HS O	High Speed Output.
13	VTT0	Power	Output Termination Supply. Nominally connected to AVCC.
14	ON1	HS O	High Speed Output Complement.
15	OP1	HS O	High Speed Output.
17	ON2	HS O	High Speed Output Complement.
18	OP2	HS O	High Speed Output.
19	ON3	HS O	High Speed Output Complement.
20	OP3	HS O	High Speed Output.
21	COMP	Control	Power-On Compensation Pin. Bypass to ground through a 10 µF capacitor.
24, 27, 37, Exposed Pad	AVEE	Power	Negative Analog Supply. 0 V nominal.
28	TX_EN	Control	High Speed Output Enable Parallel Interface.
29	PE_EN	Control	High Speed Preemphasis Enable Parallel Interface.
31	CEC_OUT	LS I/O	CEC Output Side.
32	AMUXVCC	Power	Positive Auxiliary Buffer Supply. 5 V nominal.

AD8195ACPZ Block diagram



PCM9211 (DIGITAL : IC202)



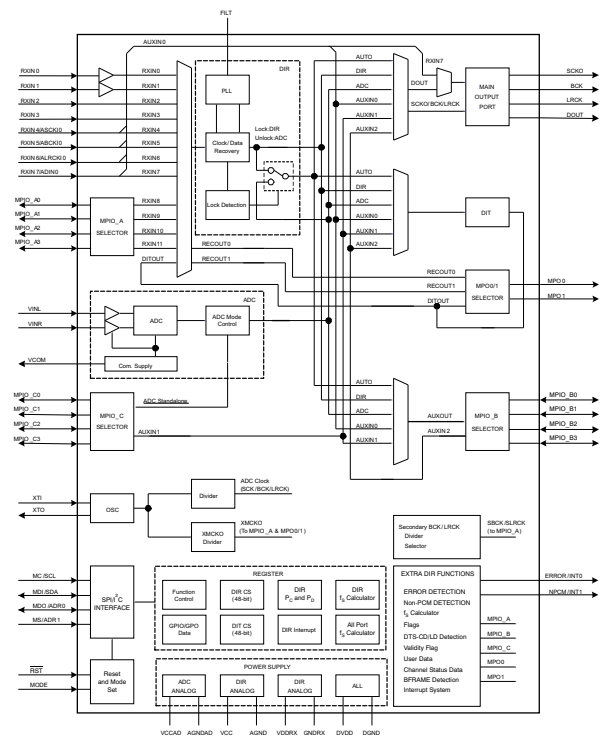
PIN Functions

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)

PIN				DESCRIPTION
NO.	NAME	I/O	5-V TOLERANT	
26	MS/ADR1	I	Yes	Software control I/F, SPI chip select / I2C slave address setting ¹⁽²⁾
27	MODE	I	No	Control mode setting. (see the Serial Control Mode section, Control Mode Pin Setting)
28	RXIN7/ADIN0	I	Yes	Biphase signal, input 7 / AUXIN0, serial audio data input ⁽²⁾
29	RXIN6/ALRCKI0	I	Yes	Biphase signal, input 6 / AUXIN0, LR clock input ⁽²⁾
30	RXIN5/ABCKI0	I	Yes	Biphase signal, input 5 / AUXIN0, bit clock input ⁽²⁾
31	RXIN4/ASCKI0	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	VDDR _X	—	—	Power supply, 3.3 V (typ.), for RXIN0 and RXIN1.
37	RXIN0	I	Yes	Biphase signal, input 0, built-in coaxial amplifier
38	GNDR _X	—	—	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

PCM9211 BLOCK DIAGRAM



Caution in
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Electrical

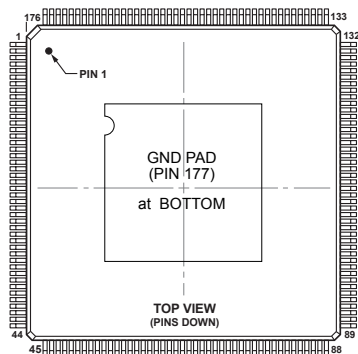
Mechanical

Repair Information

Updating



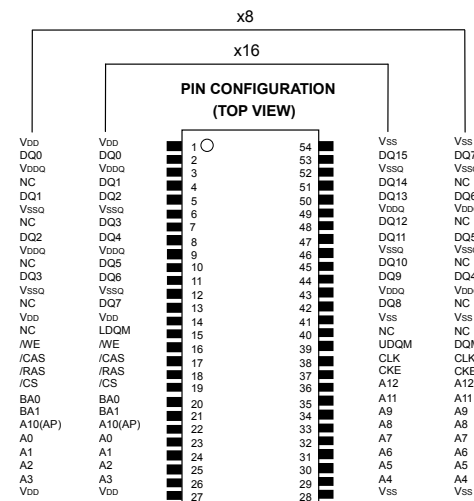
ADSP21487KSWZ4B (DIGITAL : IC251 / IC261 / IC271 / IC281)



Terminal Function

Pin Name	Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name	Pin No.
SDDQM	1	V _{DD_EXT}	45	DAI_P10	89	V _{DD_INT}	133
MS0	2	DPI_P08	46	V _{DD_INT}	90	FLAG0	134
SDCKE	3	DPI_P07	47	V _{DD_EXT}	91	FLAG1	135
V _{DD_INT}	4	V _{DD_INT}	48	DAI_P20	92	FLAG2	136
CLK_CFG1	5	DPI_P09	49	V _{DD_INT}	93	NC	137
ADDR0	6	DPI_P10	50	DAI_P08	94	FLAG3	138
BOOT_CFG0	7	DPI_P11	51	DAI_P14	95	NC	139
V _{DD_EXT}	8	DPI_P12	52	DAI_P04	96	NC	140
ADDR1	9	DPI_P13	53	DAI_P18	97	V _{DD_EXT}	141
ADDR2	10	DPI_P14	54	DAI_P17	98	NC	142
ADDR3	11	DAI_P03	55	DAI_P16	99	V _{DD_INT}	143
ADDR4	12	NC	56	DAI_P12	100	TRST	144
ADDR5	13	V _{DD_EXT}	57	DAI_P15	101	NC	145
BOOT_CFG1	14	NC	58	V _{DD_INT}	102	EMU	146
GND	15	NC	59	DAI_P11	103	DATA0	147
ADDR6	16	NC	60	V _{DD_EXT}	104	DATA1	148
ADDR7	17	NC	61	V _{DD_INT}	105	DATA2	149
NC	18	V _{DD_INT}	62	BOOT_CFG2	106	DATA3	150
NC	19	NC	63	V _{DD_INT}	107	TDO	151
ADDR8	20	NC	64	AMI_ACK	108	DATA4	152
ADDR9	21	V _{DD_INT}	65	GND	109	V _{DD_EXT}	153
CLK_CFG0	22	NC	66	THD_M	110	DATA5	154
V _{DD_INT}	23	NC	67	THD_P	111	DATA6	155
CLKIN	24	V _{DD_INT}	68	V _{DD_THD}	112	V _{DD_INT}	156
XTAL	25	NC	69	V _{DD_INT}	113	DATA7	157
ADDR10	26	WDTRSTO	70	V _{DD_INT}	114	TDI	158
SDA10	27	NC	71	MST	115	SDCLK	159
V _{DD_EXT}	28	V _{DD_EXT}	72	V _{DD_INT}	116	V _{DD_EXT}	160
V _{DD_INT}	29	DAI_P07	73	WDT_CLKO	117	DATA8	161
ADDR11	30	DAI_P13	74	WDT_CLKIN	118	DATA9	162
ADDR12	31	DAI_P19	75	V _{DD_EXT}	119	DATA10	163
ADDR17	32	DAI_P01	76	ADDR23	120	TCK	164
ADDR13	33	DAI_P02	77	ADDR22	121	DATA11	165
V _{DD_INT}	34	V _{DD_INT}	78	ADDR21	122	DATA12	166
ADDR18	35	NC	79	V _{DD_INT}	123	DATA14	167
RESETOUT/RUNRSTIN	36	NC	80	ADDR20	124	DATA13	168
V _{DD_INT}	37	NC	81	ADDR19	125	V _{DD_INT}	169
DPI_P01	38	NC	82	V _{DD_EXT}	126	DATA15	170
DPI_P02	39	NC	83	ADDR16	127	SDWE	171
DPI_P03	40	V _{DD_EXT}	84	ADDR15	128	SDRAS	172
V _{DD_INT}	41	V _{DD_INT}	85	V _{DD_INT}	129	RESET	173
DPI_P05	42	DAI_P06	86	ADDR14	130	TMS	174
DPI_P04	43	DAI_P05	87	AML_WR	131	SDCAS	175
DPI_P06	44	DAI_P09	88	AML_RD	132	V _{DD_INT}	176
						GND	177*

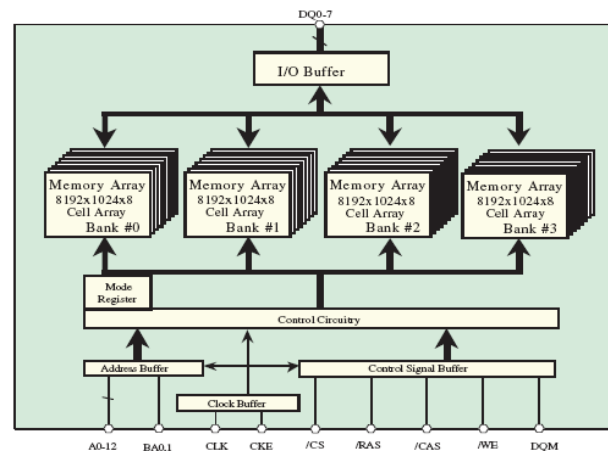
A3V56S40GTP-60 (DIGITAL : IC252 / IC262 / IC272 / IC282)



CLK : Master Clock
 CKE : Clock Enable
 /CS : Chip Select
 /RAS : Row Address Strobe
 /CAS : Column Address Strobe
 /WE : Write Enable
 DQ0-7 : Data I/O (A3V56S30GTP)
 DQ0-15 : Data I/O (A3V56S40GTP)

DQM : Output Disable / Write Mask (A3V56S30GTP)
 U.L. DQM : Output Disable / Write Mask (A3V56S40GTP)
 A0-12 : Address Input
 BA0,1 : Bank Address
 V_{DD} : Power Supply
 V_{DDQ} : Power Supply for Output
 V_{SS} : Ground
 V_{SSQ} : Ground for Output

Block Diagram



Caution in
servicing

Electrical

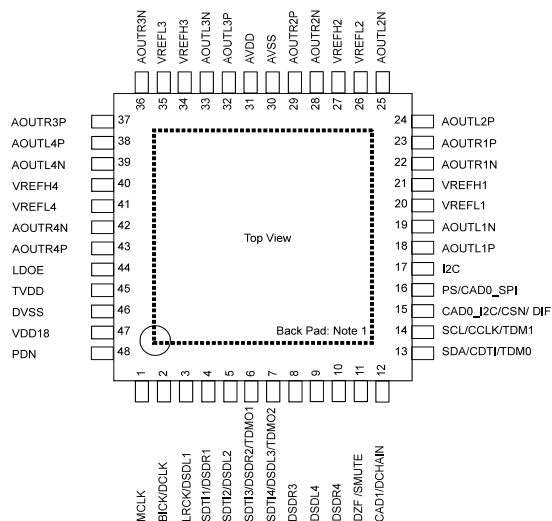
Mechanical

Repair Information

Updating



AK4458VN (FRONT CNT : IC301, IC311)



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	Hi-Z
	DSDL1	I	Audio Serial Data Input in DSD mode	
4	SDT1	I	Audio Serial Data Input in PCM mode	Hi-Z
	DSDR1	I	Audio Serial Data Input in DSD mode	
5	SDT2	I	Audio Serial Data Input in PCM mode	Hi-Z
	DSDL2	I	Audio Serial Data Input in DSD mode	
6	SDT3	I	Audio Serial Data Input in PCM mode	100k Ω
	DSDR2	I	Audio Serial Data Input in DSD mode	Pull down
	TDM01	O	Audio Serial Data Output in Daisy Chain mode	
7	SDT4	I	Audio Serial Data Input in PCM mode	100k Ω
	DSDL3	I	Audio Serial Data Input in DSD mode	Pull down
	TDM02	O	Audio Serial Data Output in Daisy Chain mode	
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	100k Ω
	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.	Pull down
12	CAD1	I	Chip Address 0 Pin in I C Bus or 3-wire serial control mode	Hi-Z
	DCHAIN	I	Daisy Chain Mode select pin in Parallel control mode.	
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	Hi-Z
	CCLK	I	Control Data Clock Pin in 3-wire serial control mode	
	TDM1	I	TDM Mode select pin in Parallel control mode.	

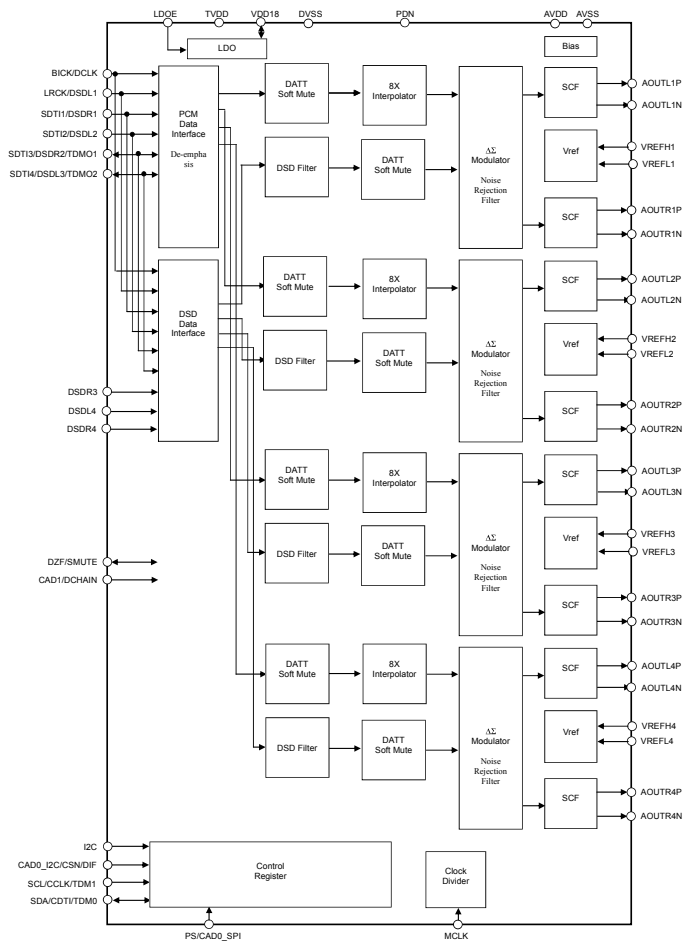
No.	Pin Name	I/O	Function	PD State
15	CAD0_I2C	I	Chip Address 0 Pin in I2C Bus serial control mode	Hi-Z
	CSN	I	Chip Select Pin in 3-wire serial control mode	
	DIF	I	Audio Data Format Select in Parallel control mode. "L": 32-bit MSB, "H": 32-bit I2S	
16	PS	I	(I2C pin = "H") Control Mode Select Pin "L": I2C Bus serial control mode, "H": Parallel control mode.	Hi-Z
	CAD0_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 1.0 μ F.	(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



PCM5100 (DIGITAL : IC321, IC322, IC323)

PCM5100x (top view)

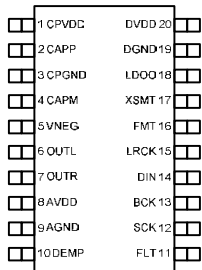


Table 2. TERMINAL FUNCTIONS, PCM510x

TERMINAL NAME	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 ⁽¹⁾ : 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 ² 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

PCM5100 Block Diagram

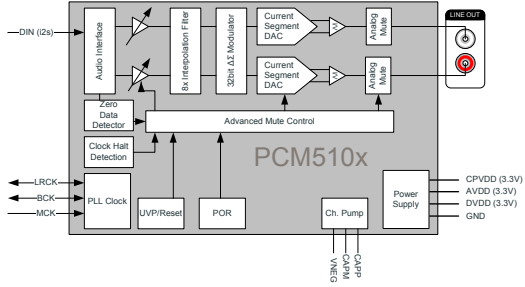


Figure 1. PCM510x Functional Block Diagram

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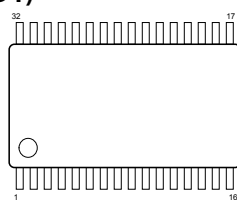
Mechanical

Repair Information

Updating

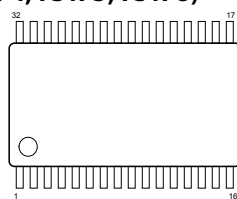


NJU72343 (INPUT : IC471, IC491)



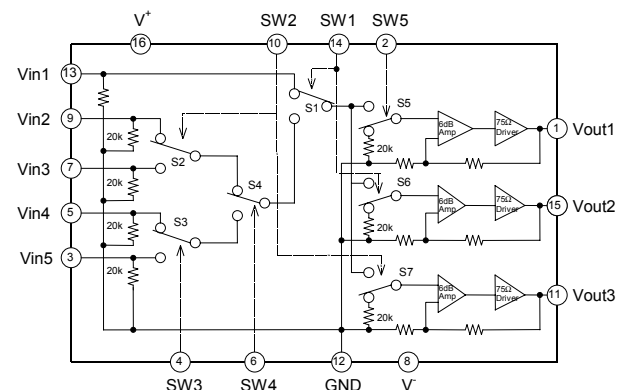
No.	Symbol	Function	No.	Symbol	Function
1	AREF	Analog reference potential	17	DATA	IC control data input
2	ADR	Address selection	18	CLOCK	IC control clock input
3	InA2	Ach input2	19	VDDOUT	Digital power supply output
4	InB2	Bch input2	20	AREF	Analog reference potential
5	InA1	Ach input1	21	OutH	Hch output
6	InB1	Bch input1	22	OutG	Gch output
7	InC	Cch input	23	OutF	Fch output
8	InD	Dch input	24	OutE	Ech output
9	InE	Ech input	25	OutD	Dch output
10	InF	Fch input	26	OutC	Cch output
11	InG1	Gch input1	27	OutB	Bch output
12	InH1	Hch input1	28	OutA	Ach output
13	InG2	Cch input2	29	AREF	Analog reference potential
14	InH2	Dch input2	30	V-	Power supply(-)
15	MUTE	External mute control	31	AREF	Analog reference potential
16	REF	Digital reference potential	32	V+	Power supply(+)

NJU72750 (INPUT : IC473, IC474, IC475, IC478)

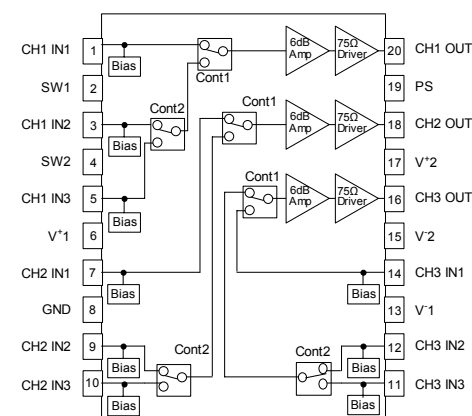


No.	Symbol	Function	No.	Symbol	Function
1	V+	Power supply(+)	17	DATA	IC control data input
2	InA1	Ach input1	18	CLOCK	IC control clock input
3	InB1	Bch input1	19	NC	-
4	InA2	Ach input2	20	NC	-
5	InB2	Bch input2	21	OutB3	Bch output3
6	InA3	Ach input3	22	OutA3	Ach output3
7	InB3	Bch input3	23	REF_B	Bch reference potential
8	InA4	Ach input4	24	OutB2	Bch output2
9	InB4	Bch input4	25	OutA2	Ach output2
10	InA5	Ach input5	26	REF_A	Ach reference potential
11	InB5	Bch input5	27	OutB1	Bch output1
12	InA6	Ach input6	28	OutA1	Ach output1
13	InB6	Bch input6	29	NC	-
14	InA7	Ach input7	30	ADR0	Address selection pin 0
15	InB7	Bch input7	31	ADR1	Address selection pin 1
16	REF	BIAS reference potential	32	V-	Power supply(-)

NJM2595MTE1 (VIDEO : IC511)



NJM2586AVC3(VIDEO : IC516)

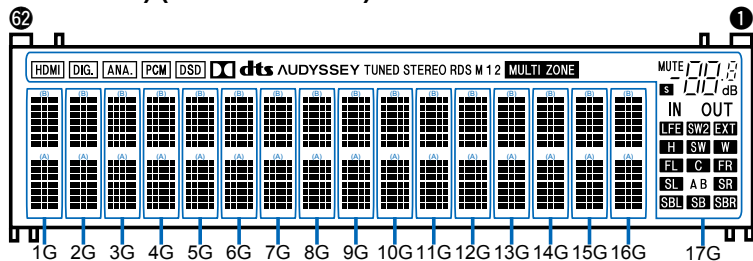


SSOP20-C3



2. FL DISPLAY

FLD (17-BT-40GINK) (FRONT : FL601)



PIN CONNECTION

CONNECTION	PIN NO.
F2	62
NX	61
NP	60
NP	59
LGND	58
PGND	57
VH	56
VDD	55
OSC	54
RESET	53
CS	52
CP	51

CONNECTION	PIN NO.
DA	50
TSA	49
17G	48
17G	47
17G	46
NX	45
NX	44
NX	43
NX	42
NX	41
NX	40
NX	39
NX	38
NX	37
NX	36
NX	35
NX	34
NX	33
NX	32
NX	31
NX	30
NX	29
NX	28
NX	27
NX	26
NX	25
NX	24
NX	23
NX	22
NX	21
NX	20
NX	19
NX	18
NX	17
NX	16
NX	15
NX	14
NX	13
NX	12
NX	11
NX	10
NX	9
NX	8
NX	7
NX	6
NP	5
NP	4
NP	3
NP	2
F1	1

NOTE

- 1) F1, F2 ----Filament
- 2) NP -----No pin
- 3) DL -----Datum Line
- 4) NX -----No extend pin
- 5) 17G ----Grid
- 6) Q17G ----Driver Output Port.
- 7) LGND ----Logic GND pin
- 8) PGND ----Power GND pin
- 9) VH -----High Voltage Supply pin
- 10) VDD -----Logic Voltage Supply pin
- 11) OSC ----Pin for self-oscillation
- 12) RESET --Reset Input
- 13) CS -----Chip Select Input pin
- 14) CP ----Shift Register Clock
- 15) DA ----Serial Data Input
- 16) TSA, B --Test pin
- 17) Solder composition is Sn-3Ag-0.5Cu.
- 18) Field of vision is a minimum of 21.8° from the lower side.

PATTERN DETAIL

1G-16G				
1-1	2-1	3-1	4-1	5-1
1-2	2-2	3-2	4-2	5-2
1-3	2-3	3-3	4-3	5-3
1-4	2-4	3-4	4-4	5-4
1-5	2-5	3-5	4-5	5-5
1-6	2-6	3-6	4-6	5-6
1-7	2-7	3-7	4-7	5-7

ANODE CONNECTION

	1G-16G	17G
D0A	1-1A	-
D1A	2-1A	-
D2A	3-1A	-
D3A	4-1A	-
D4A	5-1A	-
D5A	1-2A	-
D6A	2-2A	-
D7A	3-2A	-
D8A	4-2A	-
D9A	5-2A	-
D10A	1-3A	dB
D11A	2-3A	Dp
D12A	3-3A	3d
D13A	4-3A	3e
D14A	5-3A	3c
D15A	1-4A	3g
D16A	2-4A	3f
D17A	3-4A	3b
D18A	4-4A	3a
D19A	5-4A	2d
D20A	1-5A	2e
D21A	2-5A	2c
D22A	3-5A	2g
D23A	4-5A	2f
D24A	5-5A	2b
D25A	1-6A	2a
D26A	2-6A	1d
D27A	3-6A	1e
D28A	4-6A	1c
D29A	5-6A	1g
D30A	1-7A	1f
D31A	2-7A	1b
D32A	3-7A	1a
D33A	4-7A	S1
D34A	5-7A	S

	1G-16G	17G
D0B	1-1B	HDMI
D1B	2-1B	DIG.
D2B	3-1B	ANA.
D3B	4-1B	PCM
D4B	5-1B	DSD
D5B	1-2B	DT
D6B	2-2B	dts
D7B	3-2B	AUDYSSEY
D8B	4-2B	TUNED
D9B	5-2B	STEREO
D10B	1-3B	RDS
D11B	2-3B	M
D12B	3-3B	1
D13B	4-3B	2
D14B	5-3B	MULTI ZONE
D15B	1-4B	INDEXING
D16B	2-4B	MUTE
D17B	3-4B	IN
D18B	4-4B	OUT
D19B	5-4B	LFE
D20B	1-5B	SW2
D21B	2-5B	EXT
D22B	3-5B	H
D23B	4-5B	SW
D24B	5-5B	W
D25B	1-6B	FL
D26B	2-6B	C
D27B	3-6B	FR
D28B	4-6B	SL
D29B	5-6B	A
D30B	1-7B	B
D31B	2-7B	SR
D32B	3-7B	SBL
D33B	4-7B	SB
D34B	5-7B	SBR

Caution in
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Electrical

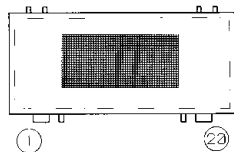
Mechanical

Repair Information

Updating



FLD (GP1261AI) (FRONT : FL602)



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			-	-	-	T15			T16			T17
1-1	2-1	3-1	4-1	5-1	6-1	7-1	8-1	-	-	-	42-1	43-1	44-1	45-1	46-1	47-1	48-1
1-2	2-2	3-2	4-2	5-2	6-2	7-2	8-2	-	-	-	42-2	43-2	44-2	45-2	46-2	47-2	48-2
1-3	2-3	3-3	4-3	5-3	6-3	7-3	8-3	-	-	-	42-3	43-3	44-3	45-3	46-3	47-3	48-3
1-4	2-4	3-4	4-4	5-4	6-4	7-4	8-4	-	-	-	42-4	43-4	44-4	45-4	46-4	47-4	48-4
1-5	2-5	3-5	4-5	5-5	6-5	7-5	8-5	-	-	-	42-5	43-5	44-5	45-5	46-5	47-5	48-5
1-6	2-6	3-6	4-6	5-6	6-6	7-6	8-6	-	-	-	42-6	43-6	44-6	45-6	46-6	47-6	48-6
1-7	2-7	3-7	4-7	5-7	6-7	7-7	8-7	-	-	-	42-7	43-7	44-7	45-7	46-7	47-7	48-7
1-8	2-8	3-8	4-8	5-8	6-8	7-8	8-8	-	-	-	42-8	43-8	44-8	45-8	46-8	47-8	48-8
1-9	2-9	3-9	4-9	5-9	6-9	7-9	8-9	-	-	-	42-9	43-9	44-9	45-9	46-9	47-9	48-9
1-10	2-10	3-10	4-10	5-10	6-10	7-10	8-10	-	-	-	42-10	43-10	44-10	45-10	46-10	47-10	48-10
1-11	2-11	3-11	4-11	5-11	6-11	7-11	8-11	-	-	-	42-11	43-11	44-11	45-11	46-11	47-11	48-11
1-12	2-12	3-12	4-12	5-12	6-12	7-12	8-12	-	-	-	42-12	43-12	44-12	45-12	46-12	47-12	48-12
1-13	2-13	3-13	4-13	5-13	6-13	7-13	8-13	-	-	-	42-13	43-13	44-13	45-13	46-13	47-13	48-13
1-14	2-14	3-14	4-14	5-14	6-14	7-14	8-14	-	-	-	42-14	43-14	44-14	45-14	46-14	47-14	48-14
1-15	2-15	3-15	4-15	5-15	6-15	7-15	8-15	-	-	-	42-15	43-15	44-15	45-15	46-15	47-15	48-15
1-16	2-16	3-16	4-16	5-16	6-16	7-16	8-16	-	-	-	42-16	43-16	44-16	45-16	46-16	47-16	48-16
1-17	2-17	3-17	4-17	5-17	6-17	7-17	8-17	-	-	-	42-17	43-17	44-17	45-17	46-17	47-17	48-17
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1-21	2-21	3-21	4-21	5-21	6-21	7-21	8-21	-	-	-	42-21	43-21	44-21	45-21	46-21	47-21	48-21
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1-23	2-23	3-23	4-23	5-23	6-23	7-23	8-23	-	-	-	42-23	43-23	44-23	45-23	46-23	47-23	48-23
T1		T2			T3			-	-	-	T15			T16			T17

ANODE CONNECTION

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G	14G	15G	16G	17G(AD3)	18G(AD4)
D0	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	S9	-
D1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	3d	-
D2	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	2d	-
D3	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	3e	-
D4	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	2e	-
D5	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	3c	-
D6	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2c	-
D7	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3g	-
D8	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	2g	-
D9	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	3f	-
D10	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	2f	-
D11	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	3b	-
D12	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	2b	-
D13	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	3a	-
D14	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	2a	-
D15	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	Dp	-
D16	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	dB	-
D17	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	1d	-
D18	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	1e	-
D19	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	1c	-
D20	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1g	-
D21	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	1f	-
D22	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	1b	-
D23	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	1a	AUTO
D24	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	S1	HDMI
D25	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	S2	DIGITAL
D26	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	S3	ANALOG
D27	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	S4	S.BACK
D28	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	S5	□
D29	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	S6	dts
D30	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	S7	AUDYSSEY
D31	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	S8	TUNED
D32	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	MUTE	STEREO
D33	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	PCM	RDS
D34	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	Z2	SLEEP
AD1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DIG.	-
AD2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ANA.	-

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3. Remote Code Table

Marantz Remote Command Chart

Last update: July 25, 2017

X

This pink color's cell = New assigned code

Item: AV Pre/Processor, AV Receiver, Stereo Receiver

* Note is placed at end of this chart.

Remote Code:

Zone		Command Name		System Command Extension		For Search	For AX Extension (Command 7)	AV Pre Processor	AV Receiver	AV Receiver	AV Receiver	AV Receiver	Slim Line AV Receiver	Slim Line AV Receiver
Zone	Power Control	Command Name	System Command	Extension	For Search	For AX Extension (Command 7)	AV Pre Processor	AV Receiver	AV Receiver	AV Receiver	AV Receiver	Slim Line AV Receiver	Slim Line AV Receiver	
Zone 1	Power Control	POWER ON/OFF	16	12	11	16 12	RCCRS16012							
		POWER ON	16	12	00	16 12 00	RCCRS16012001							
		POWER OFF	16	12	02	16 12 02	RCCRS1601202							
		VOL. -	16	12	13	16 12 13	RCCRS1601213							
		SYSTEM POWER OFF	16	12	13	16 12 13	RCCRS1601213							
	Volume Control	VOL. +	16	12	14	16 12 14	RCCRS1601214							
		Direct VOLUME	16	111	00-63	16 111 00-63	RCCRS16011							
		Audio MUTE On	16	13	00	16 13 00	RCCRS1601300							
		Audio MUTE Off	16	13	01	16 13 01	RCCRS1601301							
		Audio MUTE (Toggle)	16	13	—	16 13	RCCRS16013							
Speaker	SPEAKER Std.	16	29	—	16 29	RCCRS16029								
	SPEAKER A ON/OFF	16	35	—	16 35	RCCRS16035								
	SPEAKER B ON/OFF	16	36	—	16 36	RCCRS16036								
	NO Menu On	16	82	—	16 82	RCCRS16082								
	NO Menu Off	16	82	—	16 82	RCCRS16082								
Menu Control	MENU	16	82	60	16 82 60	RCCRS1608260								
	OPTION	16	82	11	16 82 11	RCCRS1608211								
	EXIT MENU	16	83	—	16 83	RCCRS16083								
	ENTER (OK)	16	87	—	16 87	RCCRS16087								
	Return	16	87	04	16 87 04	RCCRS1608704								
	CURSOR Up	16	80	—	16 80	RCCRS16080								
	CURSOR Down	16	81	—	16 81	RCCRS16081								
	CURSOR Left	16	85	—	16 85	RCCRS16085								
	CURSOR Right	16	86	—	16 86	RCCRS16086								
	Search	16	82	61	16 82 61	RCCRS1608261								
Display / Input	Insert	16	77	01	16 77 01	RCCRS1607701								
	Delete	16	78	01	16 78 01	RCCRS1607801								
	Dimmer/Display	16	15	80	16 15 80	RCCRS1601580								
	Info	16	15	88	16 15 88	RCCRS1601588								
	LED Info.	16	15	—	16 15	RCCRS16015								
	Status	16	15	87	16 15 87	RCCRS1601587								
	Video Select	16	15	80	16 15 80	RCCRS1601580								
	VIDEO OFF (V OFF)	16	13	02	16 13 02	RCCRS1601302								
	INPUT NEXT	16	00	13	16 00 13	RCCRS1600013								
	INPUT BACK	16	00	14	16 00 14	RCCRS1600014								
Source	TUNER (TUNER/FM)	17	63	—	17 63	RCCRS17063								
	Blue-ray(BD/Code1)	07	63	00	07 63 00	RCCRS0706300								
	Blue-ray(BD/Code2)	28	63	00	28 63 00	RCCRS2806300								
	Blue-ray(BD/Code3)	16	62	04	16 62 04	RCCRS1606204								
	CD	20	63	—	20 63	RCCRS20063								
	TV AUDIO	00	63	—	00 63	RCCRS00063								
	DVD	16	68	—	16 68	RCCRS16068								
	MEDIA/PLAYER	65	63	—	65 63	RCCRS65063								
	CEC/BAT	66	63	—	66 63	RCCRS66063								
	AUX1(AUX1X)	16	00	08	16 00 08	RCCRS1600008								
AUX2	16	00	07	16 00 07	RCCRS1600007									
AUX3(Additional Source)	16	00	08	16 00 08	RCCRS1600008									
AUX4(Additional Source)	16	02	00	16 02 00	RCCRS1600200									
AUX5(Additional Source)	16	02	01	16 02 01	RCCRS1600201									
AUX6(Additional Source)	16	02	02	16 02 02	RCCRS1600202									
AUX7(Additional Source)	16	02	03	16 02 03	RCCRS1600203									
Bluetooth	16	02	16	16 02 16	RCCRS1600216									
GAME	16	00	62	16 00 62	RCCRS1600062									
PHONO	21	63	—	21 63	RCCRS21063									
JISB	24	63	01	24 63 01	RCCRS2406301									
	24	63	11	24 63 11	RCCRS2406311									
	24	63	10	24 63 10	RCCRS2406310									
	Internet Radio Select	27	63	20	27 63 20	RCCRS2706320								
	Bluetooth	27	63	29	27 63 29	RCCRS2706329								
	Media Server Select	27	63	24	27 63 24	RCCRS2706324								
	Selectable Input (i)	27	63	26	27 63 26	RCCRS2706326								
	27	63	10	27 63 10	RCCRS2706310									
	27	63	11	27 63 11	RCCRS2706311									
	M-Port	29	63	01	29 63 01	RCCRS2906301								
Smart Select	T.I & ICH Input ON	16	01	12	16 01 12	RCCRS1600112								
	Smart Select1	16	02	21	16 02 21	RCCRS1600221								
	Smart Select2	16	02	22	16 02 22	RCCRS1600222								
	Smart Select3	16	02	23	16 02 23	RCCRS1600223								
	Smart Select4	16	02	24	16 02 24	RCCRS1600224								
	Smart Select5	16	02	25	16 02 25	RCCRS1600225								
	Input Mode Select	16	01	01	16 01 01	RCCRS1600101								
	INPUT MODE-AUTO	16	01	16	16 01 16	RCCRS1600116								
	INPUT MODE-DIGITAL	16	01	17	16 01 17	RCCRS1600117								
	INPUT MODE-ANALOG	16	01	18	16 01 18	RCCRS1600118								
BD Setting	Bilingual (Audio Channel)	16	01	14	16 01 14	RCCRS1600114								
	LIP SYNC (Audio Delay)	16	10	01	16 10 01	RCCRS1601001								
	Resolution(Analog)	16	15	16	16 15 16	RCCRS1601516								
	Resolution(HDMI)	16	15	11	16 15 11	RCCRS1601511								
	Vertical Stretch On	16	15	12	16 15 12	RCCRS1601512								
	Vertical Stretch Off	16	15	13	16 15 13	RCCRS1601513								
	HDMI Audio Output Select (Toggle)	16	84	80	16 84 80	RCCRS1608480								
	HDMI Audio Output: Enable (Exclude by AVR)	16	84	01	16 84 01	RCCRS1608401								
	Enable Audio Output: Through (Exclude by TV)	16	84	02	16 84 02	RCCRS1608402								
	COMPONENT 2 for MAIN	16	84	31	16 84 31	RCCRS1608431								
COMPONENT 2 for MULTIA	16	84	32	16 84 32	RCCRS1608432									
	Video Mode: Toggle	16	84	50	16 84 50	RCCRS1608450								
	Video Mode: Auto	16	84	51	16 84 51	RCCRS1608451								
	Video Mode: Movie	16	84	52	16 84 52	RCCRS1608452								
	Video Mode: Game	16	84	53	16 84 53	RCCRS1608453								
	HDMI Output Select (Toggle)	16	120	00	16 120 00	RCCRS1612000								
	HDMI Out 1	16	120	01	16 120 01	RCCRS1612001								
	HDMI Out 2	16	120	02	16 120 02	RCCRS1612002								
	HDMI Out Auto(Dual)	16	120	03	16 120 03	RCCRS1612003								
	CEC	HDMI Control (CEC) ON	16	84	08	16 84 08	RCCRS1608408							
HDMI Control (CEC) OFF		16	84	09	16 84 09	RCCRS1608409								
SURROUND MODE (Toggle/NEXT)		16	37	—	16 37	RCCRS16037								
SURROUND MODE (Back)		16	64	15	16 64 15	RCCRS1606415								
MOVIE SURROUND		16	37	29	16 37 29	RCCRS1603729								
MUSIC SURROUND		16	37	53	16 37 53	RCCRS1603753								
GAME SURROUND		16	64	18	16 64 18	RCCRS1606418								
AUTO		16	37	45	16 37 45	RCCRS1603745								
STEREO		16	37	30	16 37 30	RCCRS1603730								
MONO		16	37	37	16 37 37	RCCRS1603737								
THX	MULTI-CH Stereo	16	37	67	16 37 67	RCCRS1603767								
	THX CINEMA	16	37	13	16 37 13	RCCRS1603713								
	THX CINEMA	16	37	36	16 37 36	RCCRS1603736								
	THX SURROUND EX	16	37	88	16 37 88	RCCRS1603788								
	THX ULTRA 2	16	37	87	16 37 87	RCCRS1603787								

[illegible]

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[illegible]

DISASSEMBLY

Flowchart

1. WiFi ANT
2. FRONT ASSY
3. RADIATOR ASSY
4. REAR PANEL
5. DIGITAL PCB
6. VIDEO PCB
7. INPUT PCB
8. TUNER PCB
9. SPK PCB
10. SMPS PCB
11. TRANS

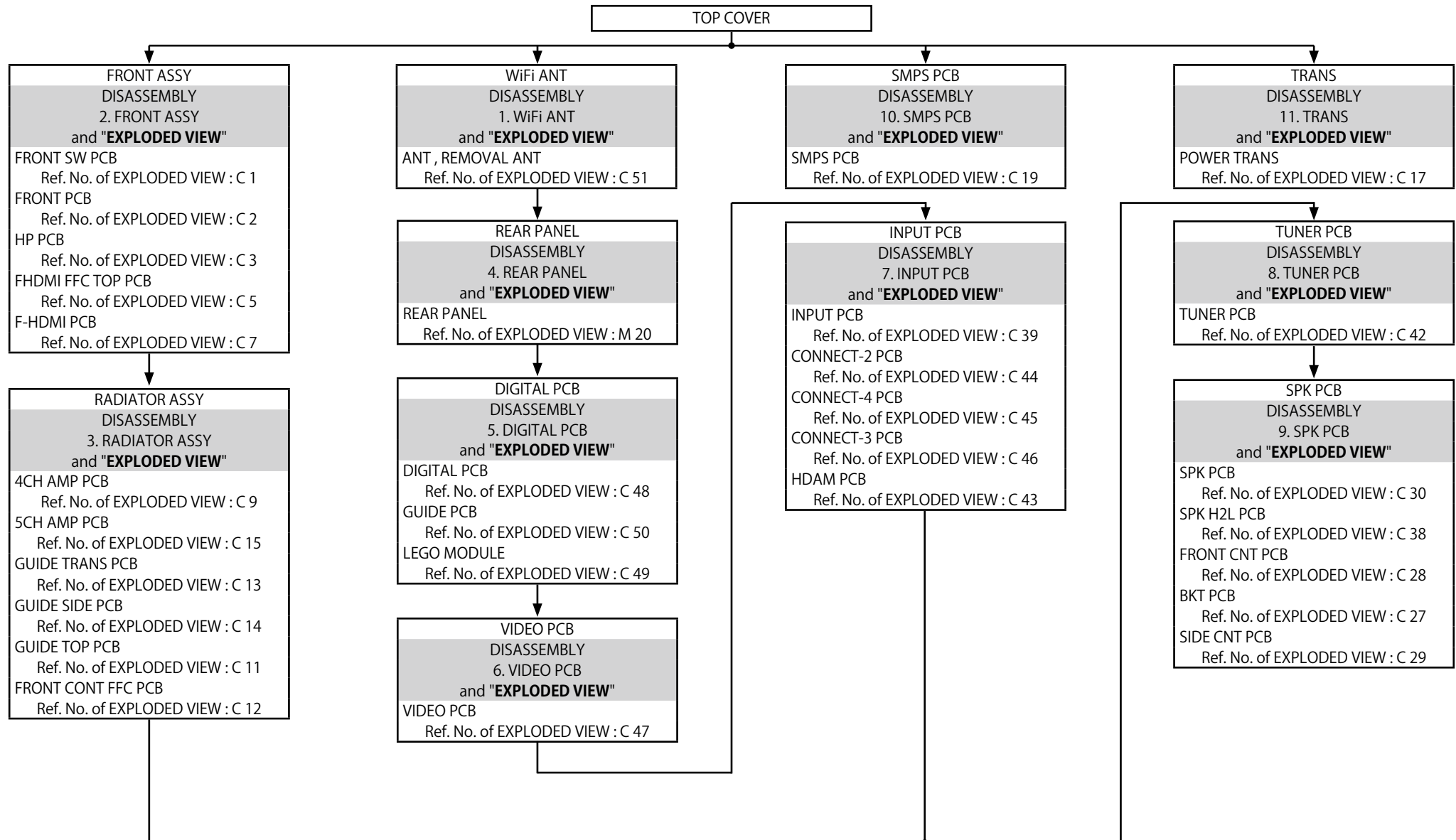
EXPLODED VIEW

PACKING VIEW



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](#)"

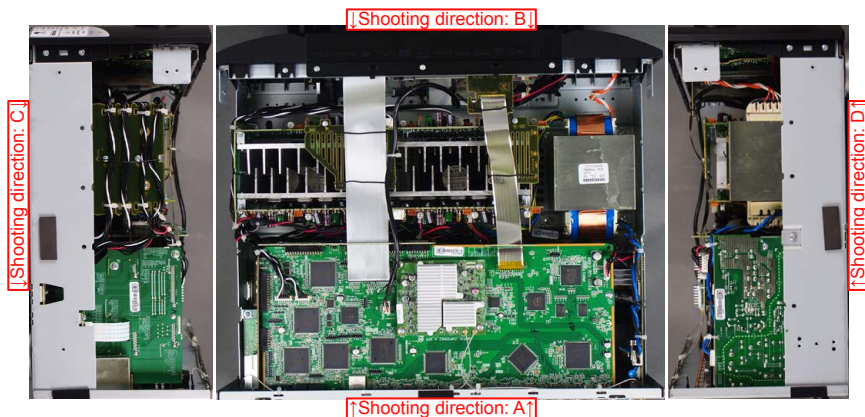


Explanatory Photos for DISASSEMBLY

- 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 SR7012 U are used in this manual.

The viewpoint of each photograph

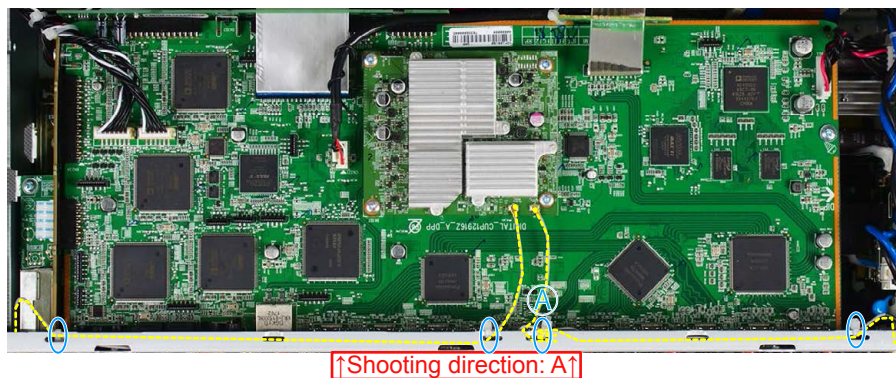
(Shooting direction : X) [View from the top]



1. WiFi ANT

Proceeding : **TOP COVER** → **WiFi ANT**

- (1) Cut the wire clamps.



NOTE : • Turn up and spare wire at position A.

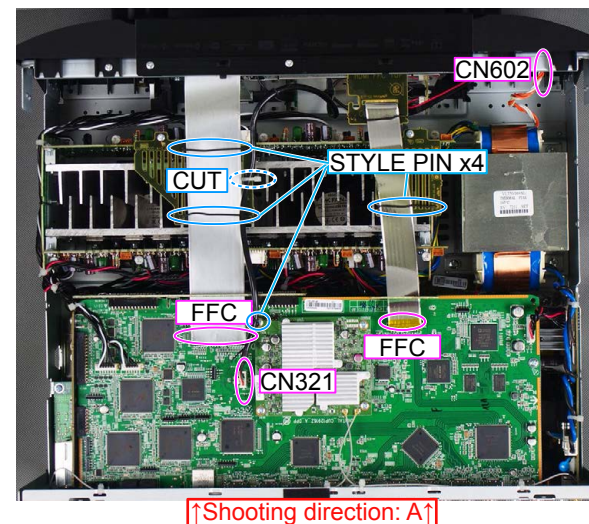
2. FRONT ASSY

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

- (1) Remove the screws.



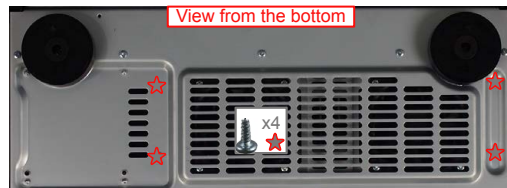
- (2) Remove the STYLE PINs and connectors. Remove the FFC. Cut the wire clamps. Remove the screws.



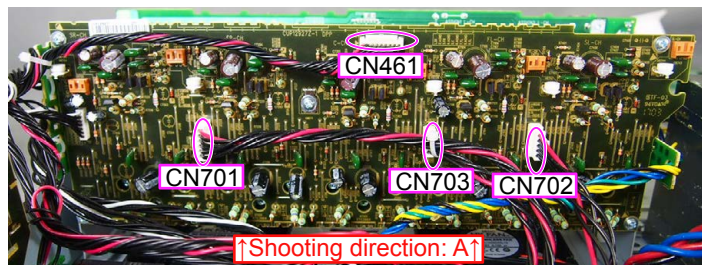
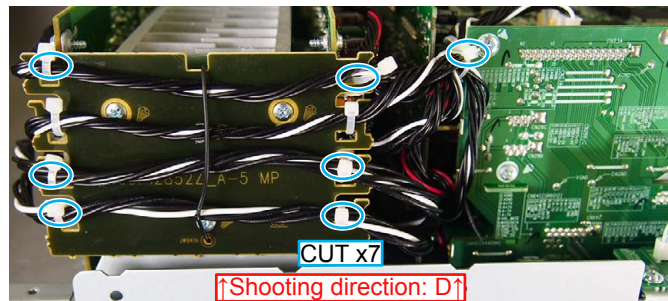
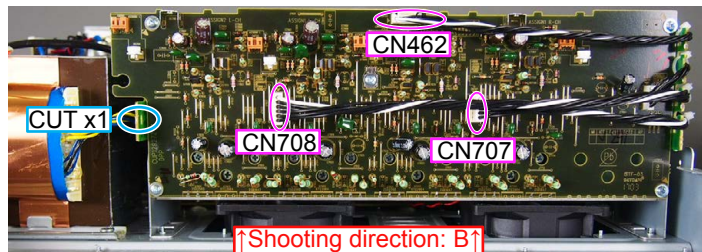
3. RADIATOR ASSY

Proceeding : TOP COVER → FRONT ASSY → RADIATOR ASSY

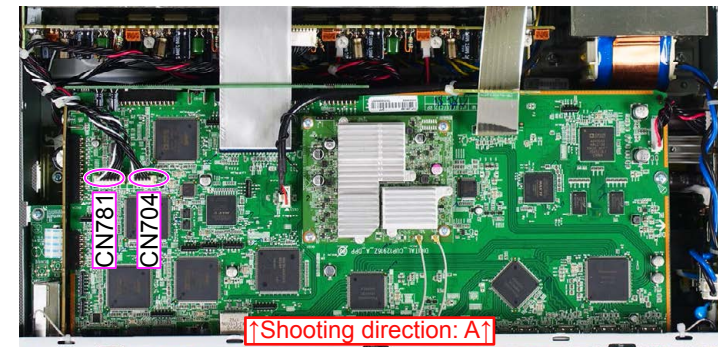
(1) Remove the screws.



(2) Cut the wire clamp, then remove the connector.



(3) Remove the connector.



4. REAR PANEL

Proceeding : TOP COVER → WiFi ANT → REAR PANEL

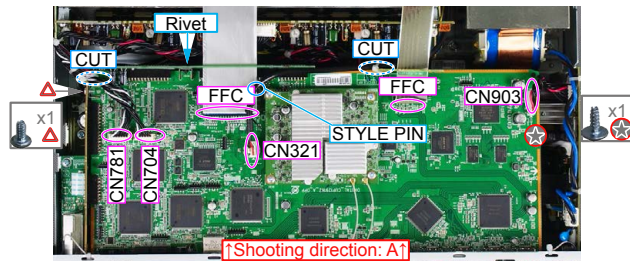
(1) Remove the screws.



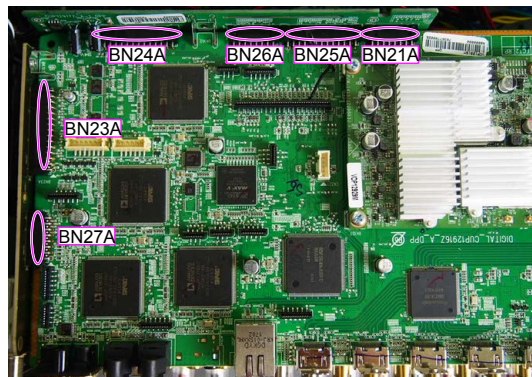
5. DIGITAL PCB

Proceeding : TOP COVER → WiFi ANT → REAR PANEL → DIGITAL PCB

- (1) Remove the screws. Remove the Rivet. Cut the wire clamp, then remove the connector. Remove the FFC. Remove the STYLE PIN.



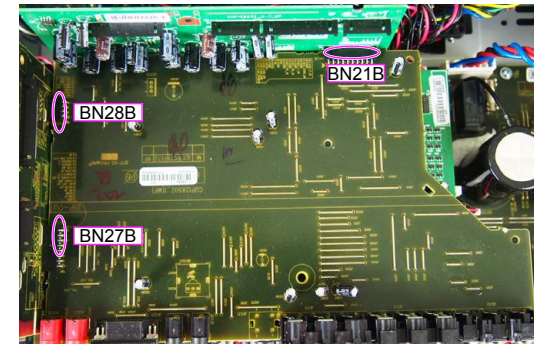
- (2) Remove the connector.



6. VIDEO PCB

Proceeding : TOP COVER → WiFi ANT → REAR PANEL → DIGITAL PCB → VIDEO PCB

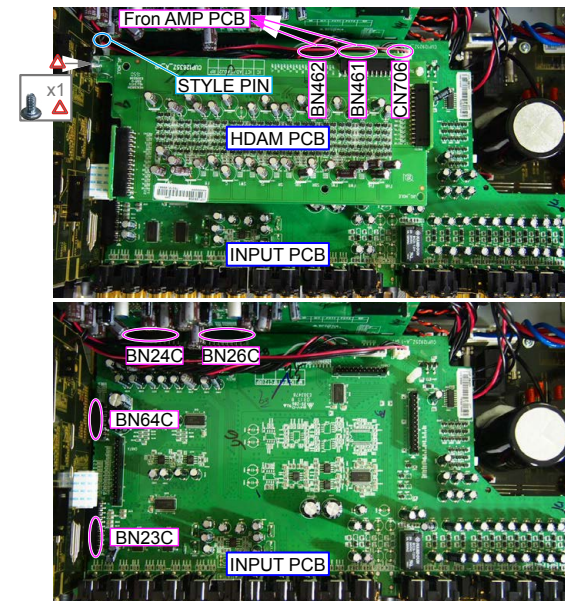
- (1) Remove the connector.



7. INPUT PCB

Proceeding : TOP COVER → WiFi ANT → REAR PANEL → DIGITAL PCB → VIDEO PCB → INPUT PCB

- (1) Remove the screws. Remove the connector. Remove the STYLE PIN.



8. TUNER PCB

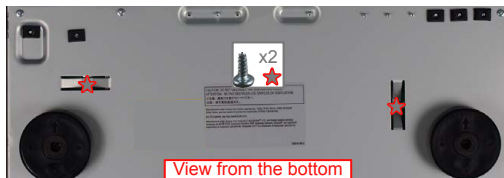
Proceeding : **TOP COVER** → **WiFi ANT** → **REAR PANEL** → **DIGITAL PCB** → **VIDEO PCB**
→ **INPUT PCB** → **TUNER PCB**

See "[EXPLODED VIEW](#)" for instructions on removing the TUNER PCB.

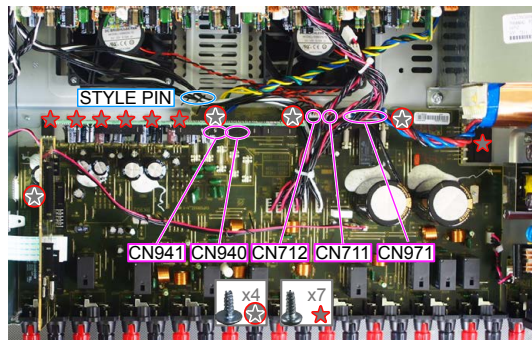
9. SPK PCB

Proceeding : **TOP COVER** → **WiFi ANT** → **FRONT ASSY** → **RADIATOR ASSY**
→ **REAR PANEL** → **DIGITAL PCB** → **VIDEO PCB** → **INPUT PCB**
→ **TUNER PCB** → **SPK PCB**

(1) Remove the screws.



(2) Remove the screws. Remove the connector. Remove the STYLE PIN.



10. SMPS PCB

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

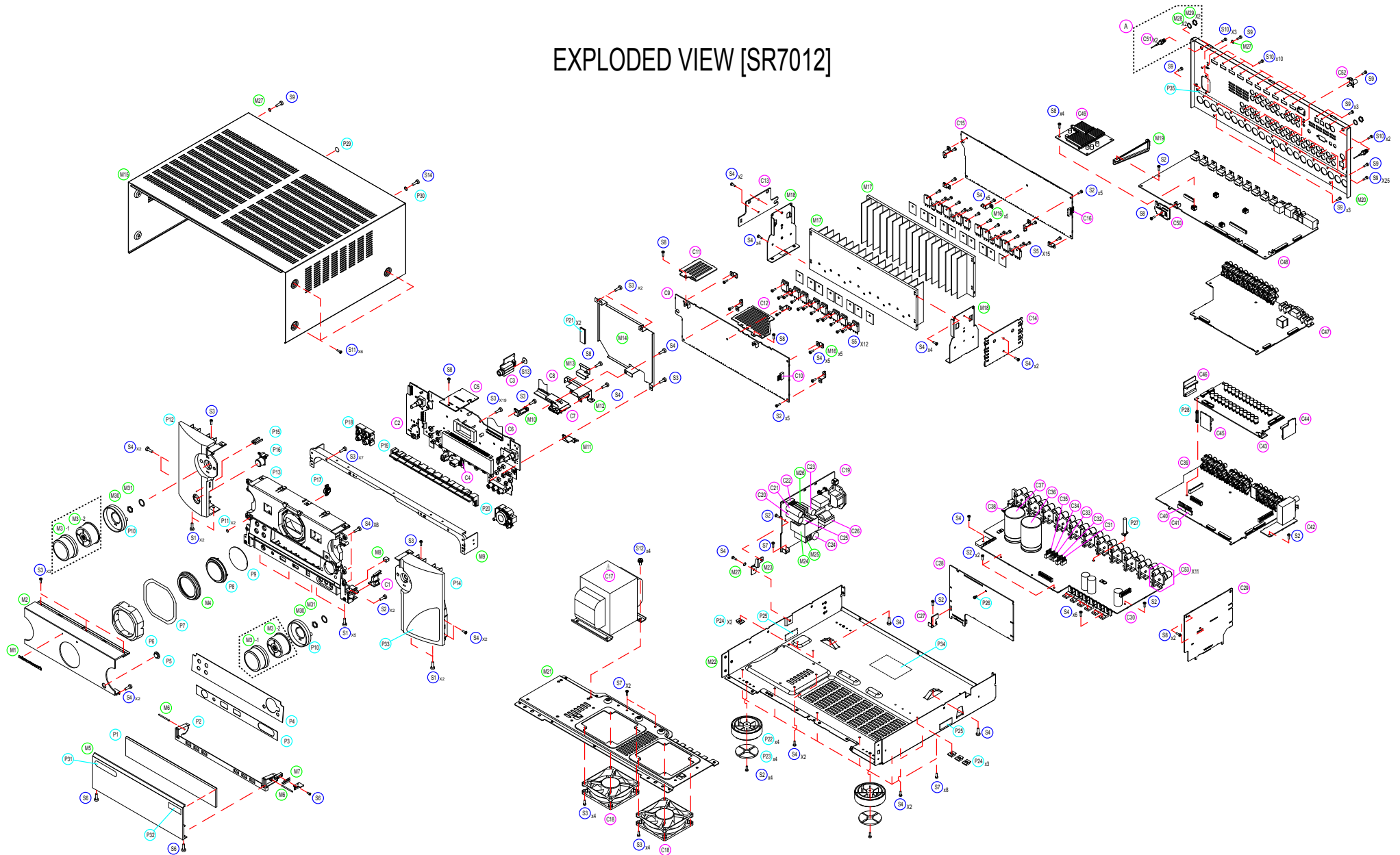
See "[EXPLODED VIEW](#)" for instructions on removing the SMPS PCB.

11. TRANS

Proceeding : **TOP COVER** → **TRANS**

See "[EXPLODED VIEW](#)" for instructions on removing the transformer (TRANS).

EXPLODED VIEW [SR7012]



WARNING:
Parts marked with this symbol  have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

Caution in
servicing

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Parts List : <http://dmedia.dmglobal.com/Document/DocumentDetails/23566>



REPAIR INFORMATION

TROUBLE SHOOTING

1. POWER
2. Analog video
3. HDMI/DVI
4. AUDIO
5. Network / Bluetooth / USB
6. SMPS

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 the Operation Info
7. Log Capture feature

PROTECTION DIAGRAM

AUDIO CHECK PASS

DIAGNOSTIC MODE

Service Path Check Mode

DIAGNOSTIC PATH DIAGRAM

JIG FOR SERVICING

ADJUSTMENT

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Mechanical

Repair Information

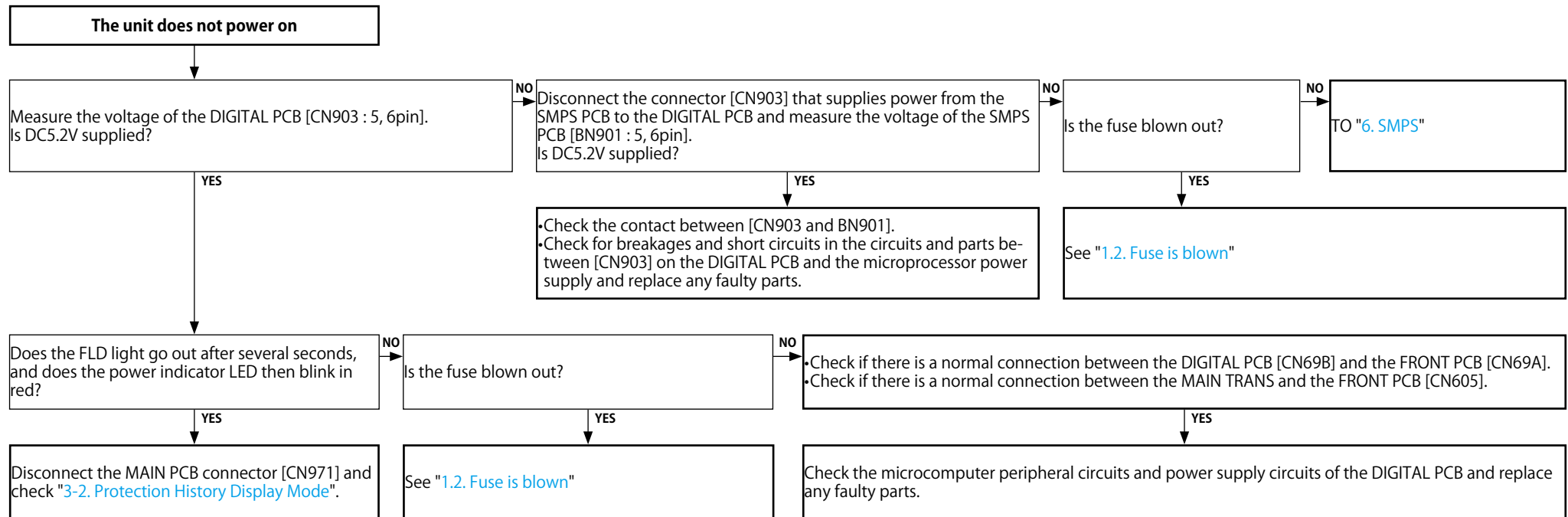
Updating



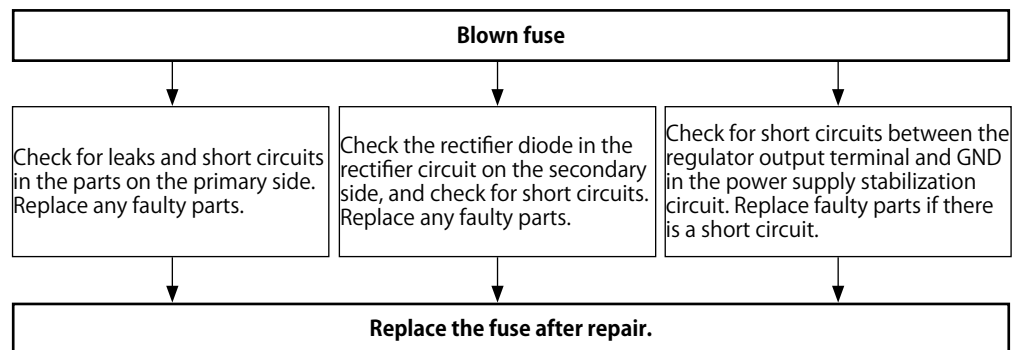
TROUBLE SHOOTING

1. POWER

1.1. The unit does not power on



1.2. Fuse is blown



2. Analog video

Perform the operation below beforehand.

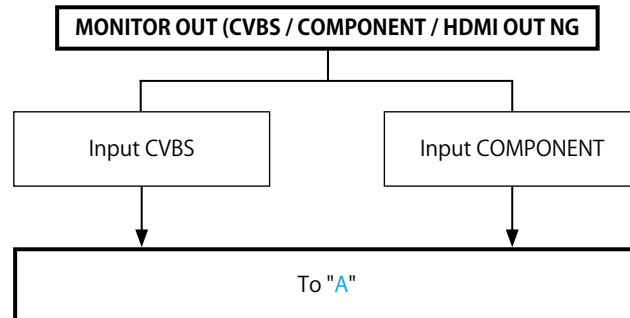
※ Check it whether connection cable and Monitor are normal.

※ VIDEO Convert is set to ON.

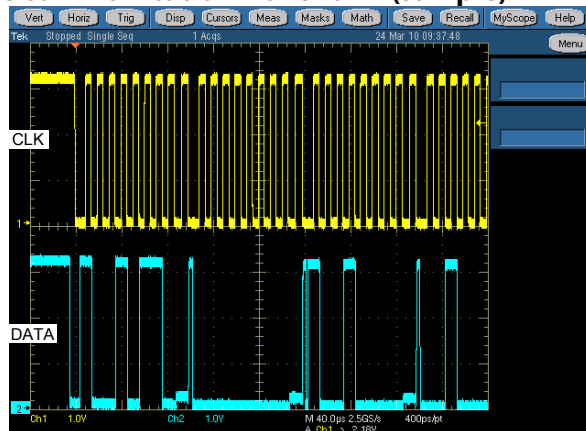
※ Setting as follows.

V : SAT

COMPONENT : SAT



I2C communication wave form (sample)



A

**Input
CVBS / COMPONENT**

Is the power voltage being output correctly?
SIDE CNT PCB
V+5V : [CN28B : 1pin]
V-5V : [CN28B : 5 pin]

NO

· SIDE CNT PCB [BN77D] connection is faulty.
· REGULATOR (SPEAKER) PCB faulty.

YES

Check of the I2C control signal for video selector
IC [IC511].
DIGITAL PCB
I2C(SCL) : [BN21A : 5 pin] (AVSCL)
I2C(SDA) : [BN21A : 4 pin] (AVSDA)
See "I2C communication wave form (sample)"

NO

DIGITAL PCB faulty.

YES

Does the signal input to the video decoder
[IC351]?
DIGITAL PCB
V : [R3527]
COMPONENT-Y : [R3530]
COMPONENT-Cb : [R3528]
COMPONENT-Cr : [R3529]

NO

· FRONT CNT board is faulty or inserted incor-
rectly.
[CN21A]
VIDEO PCB faulty. ⇒ TO "B"

YES

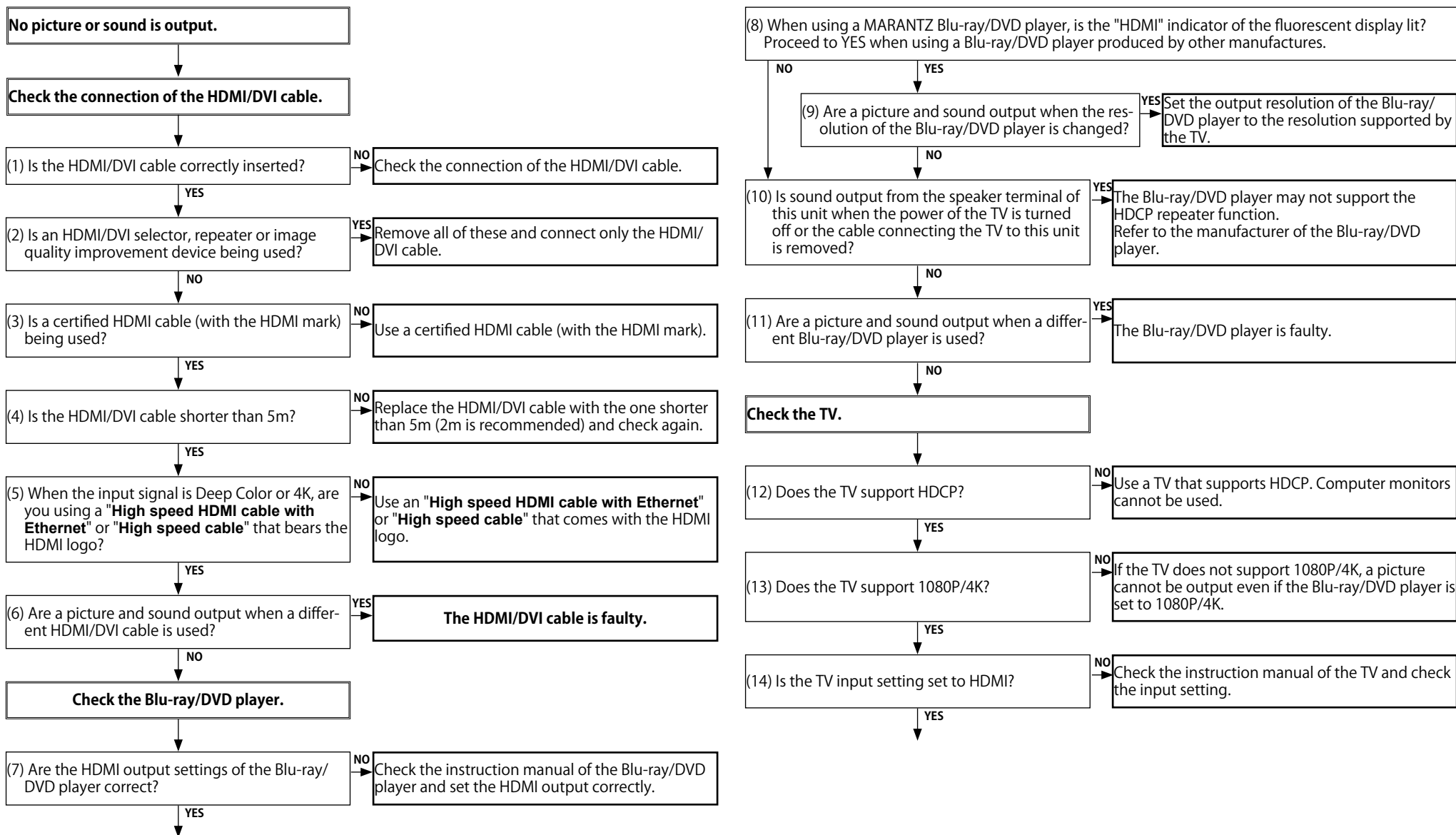
· CVBS Monitor Out is NG
· COMPONENT Monitor Out is NG ⇒ To "B"
· HDMI Out is NG ⇒ TROUBLE SHOOTING To "3. HDMI/DVI"





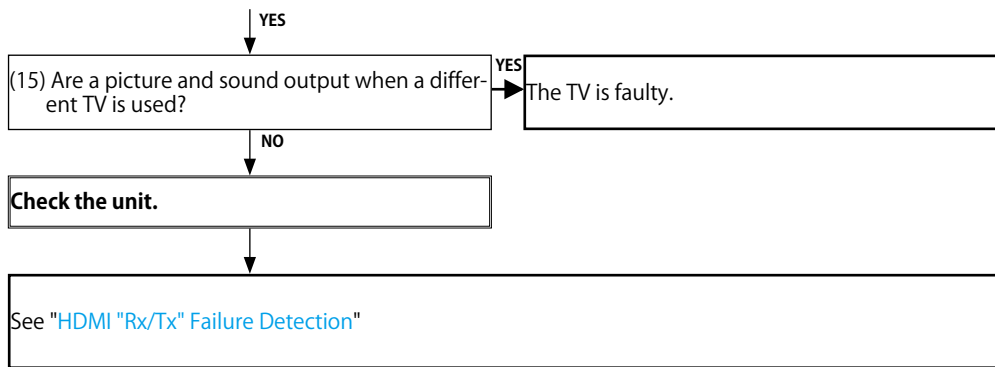
3. HDMI/DVI

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



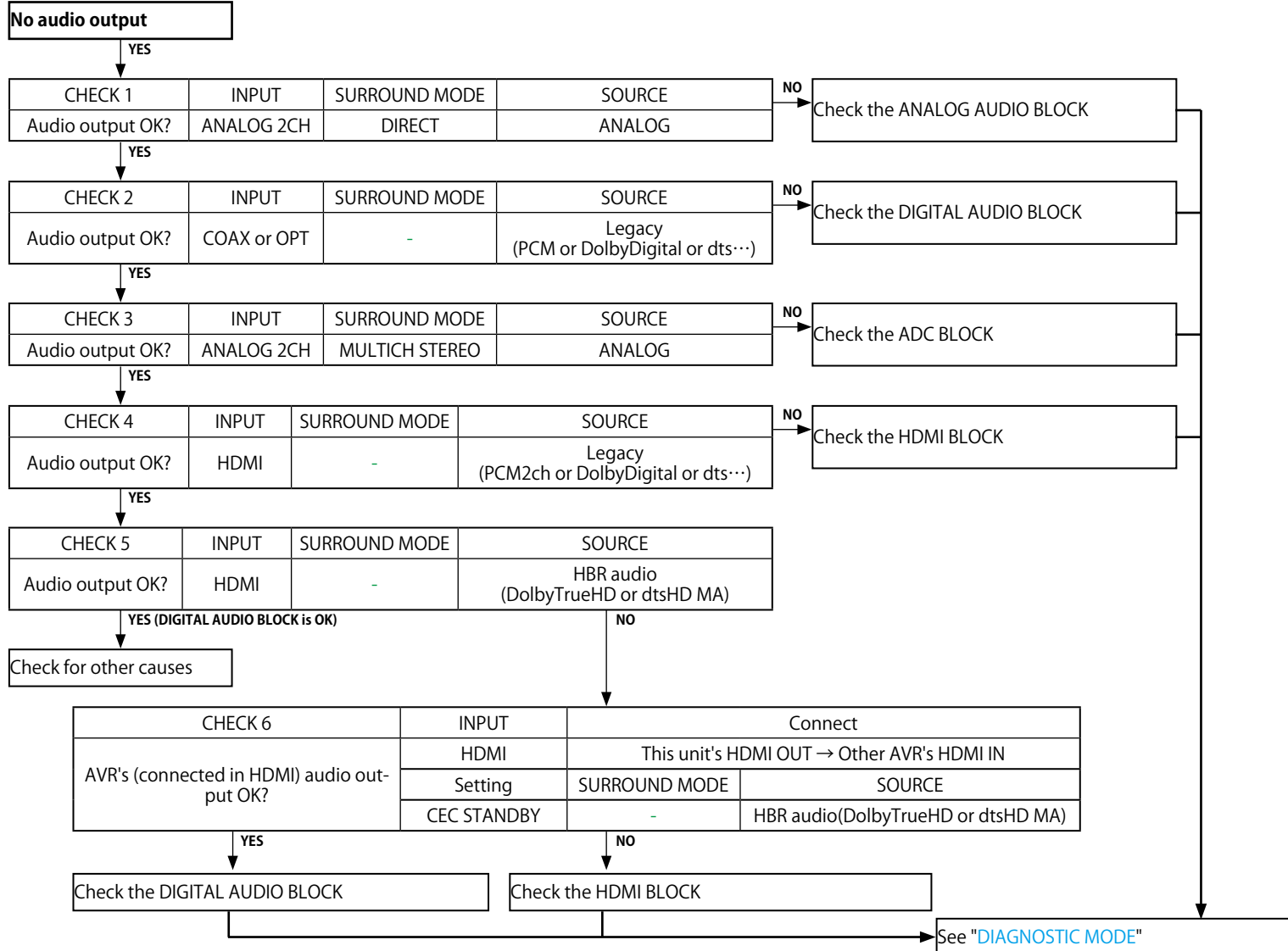
Go to next page.





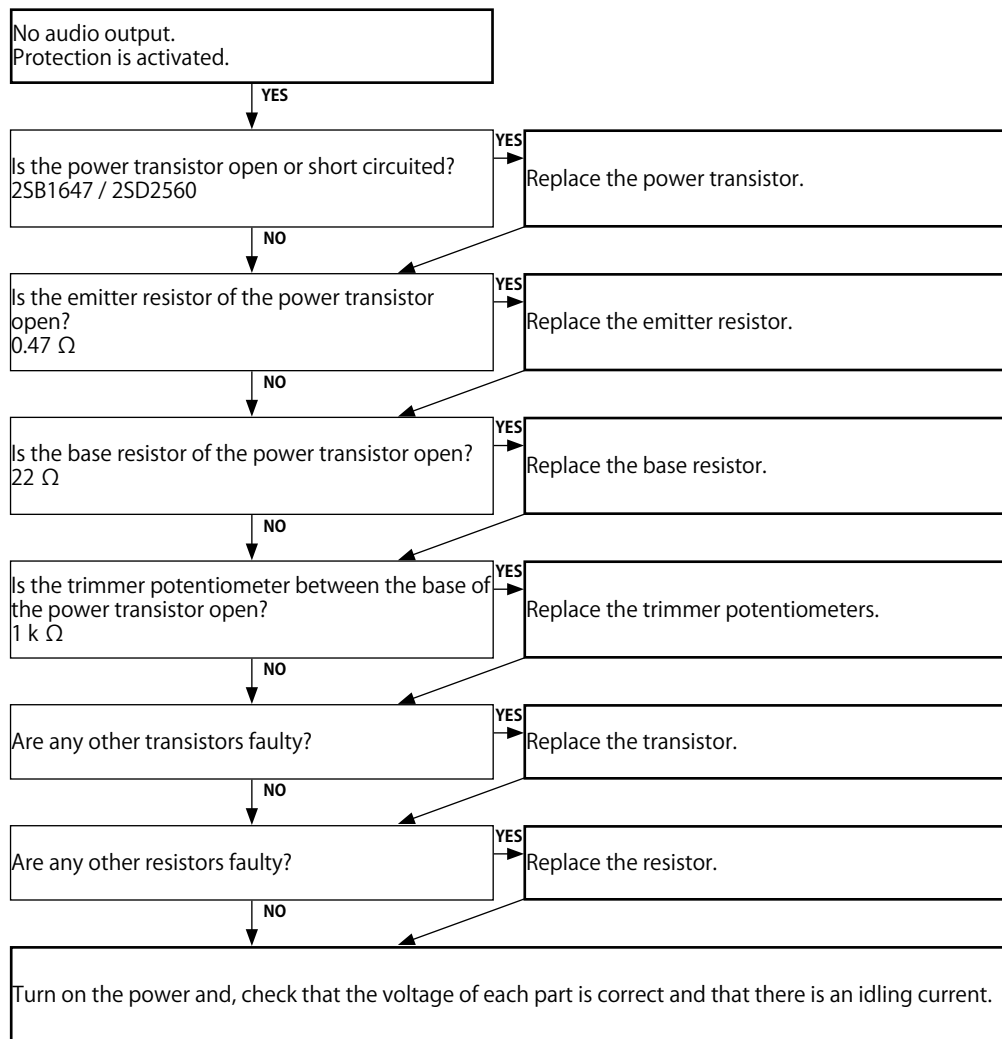
4. AUDIO

4.1. AUDIO CHECK

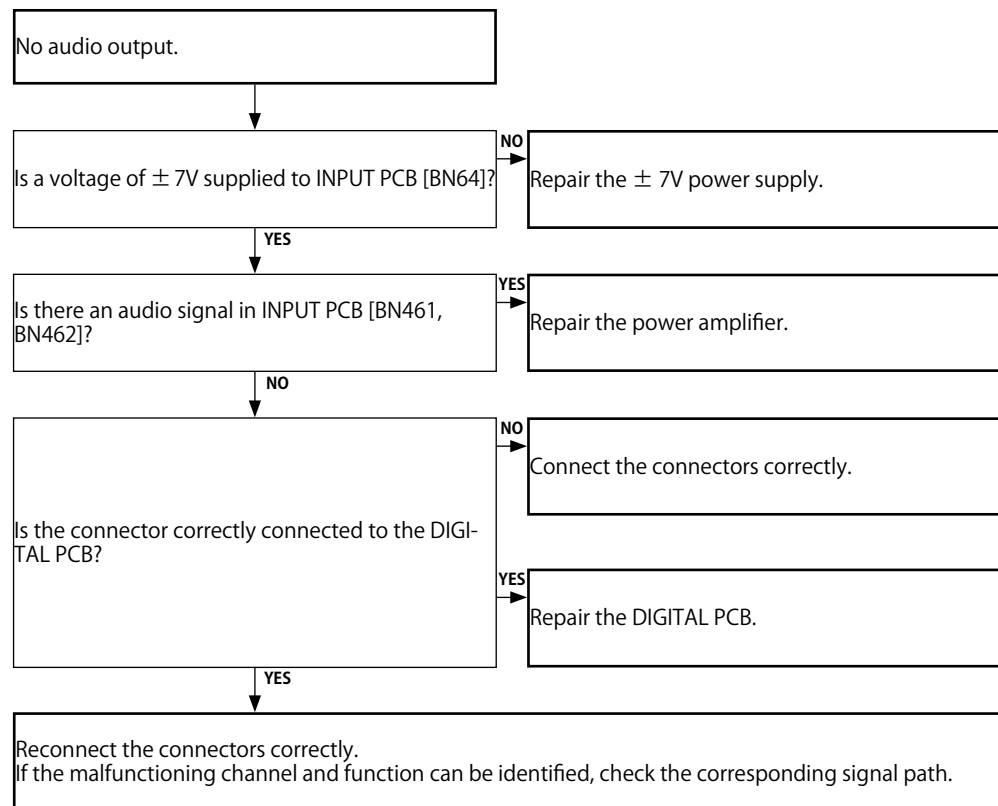


4.2. Power AMP (AMP PCB)

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

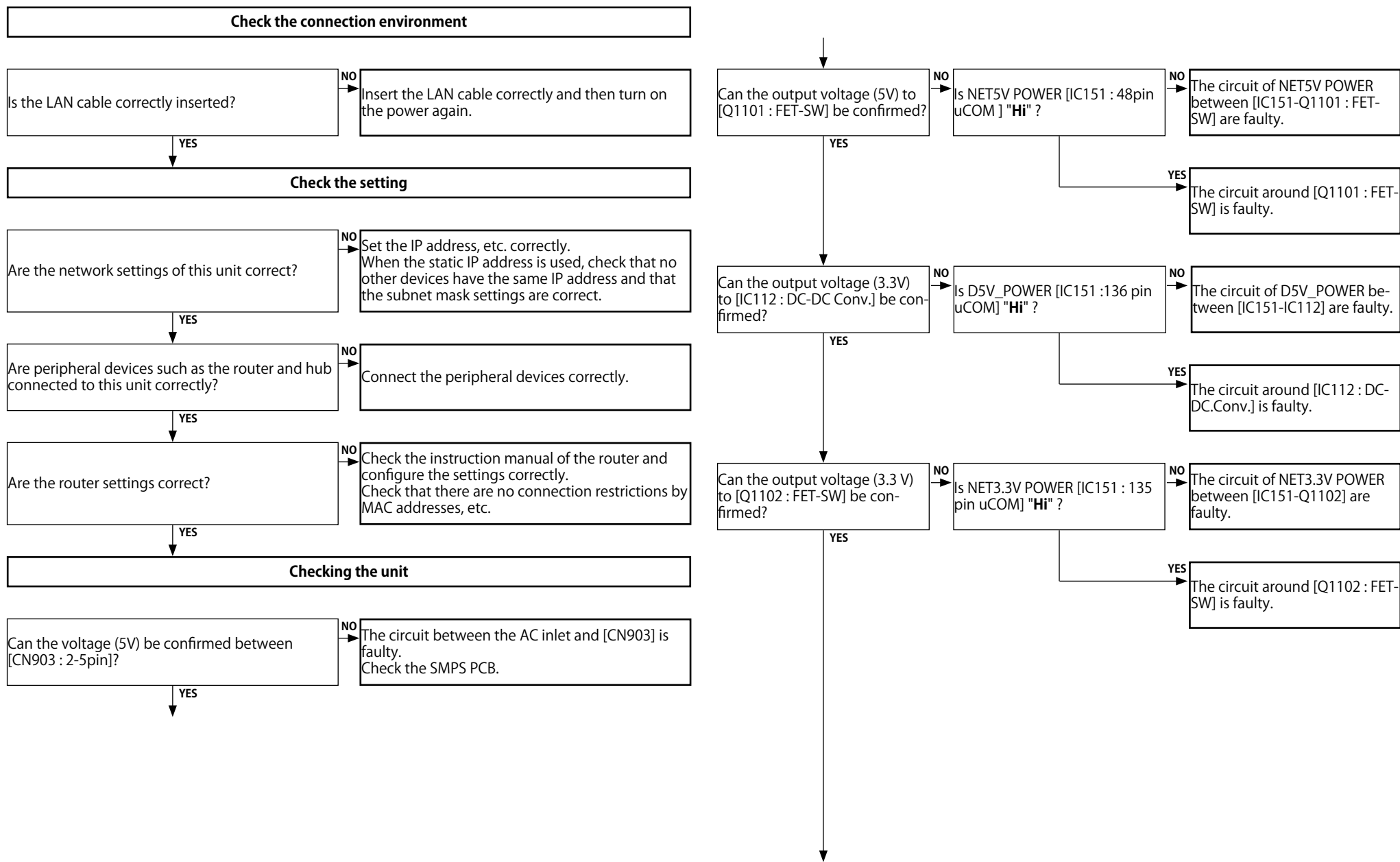


4.3. Analog audio



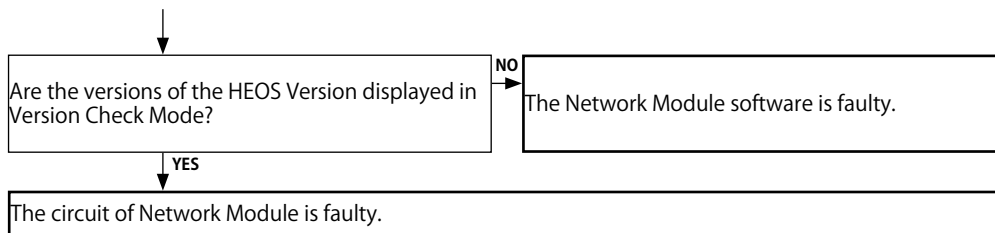
5. Network / Bluetooth / USB

5.1. Cannot connect to the network

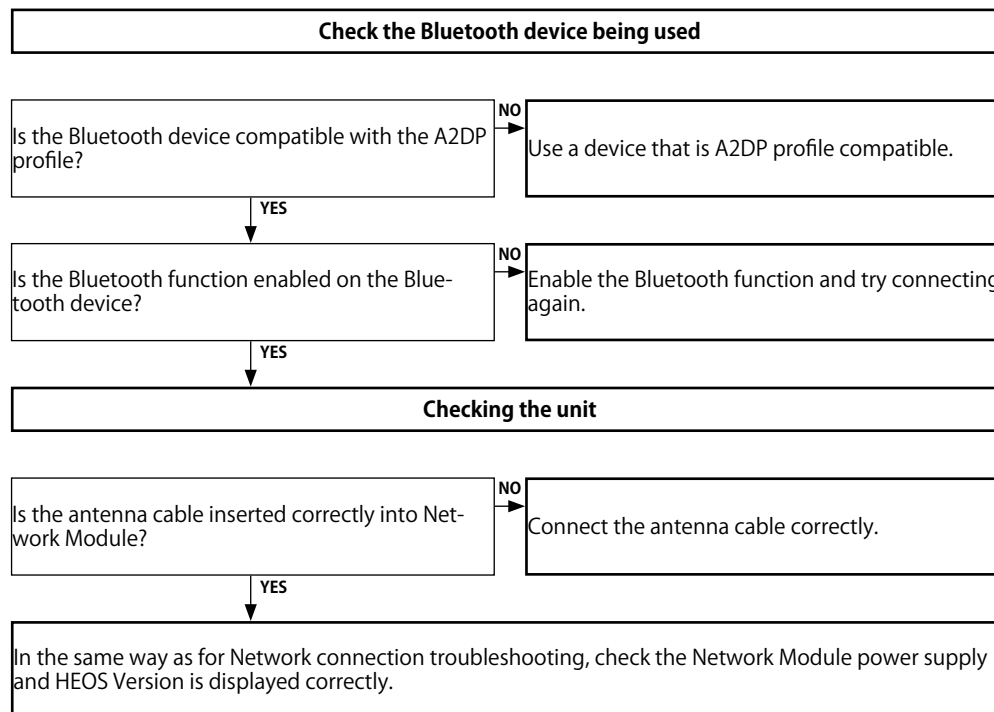


Go to next page.

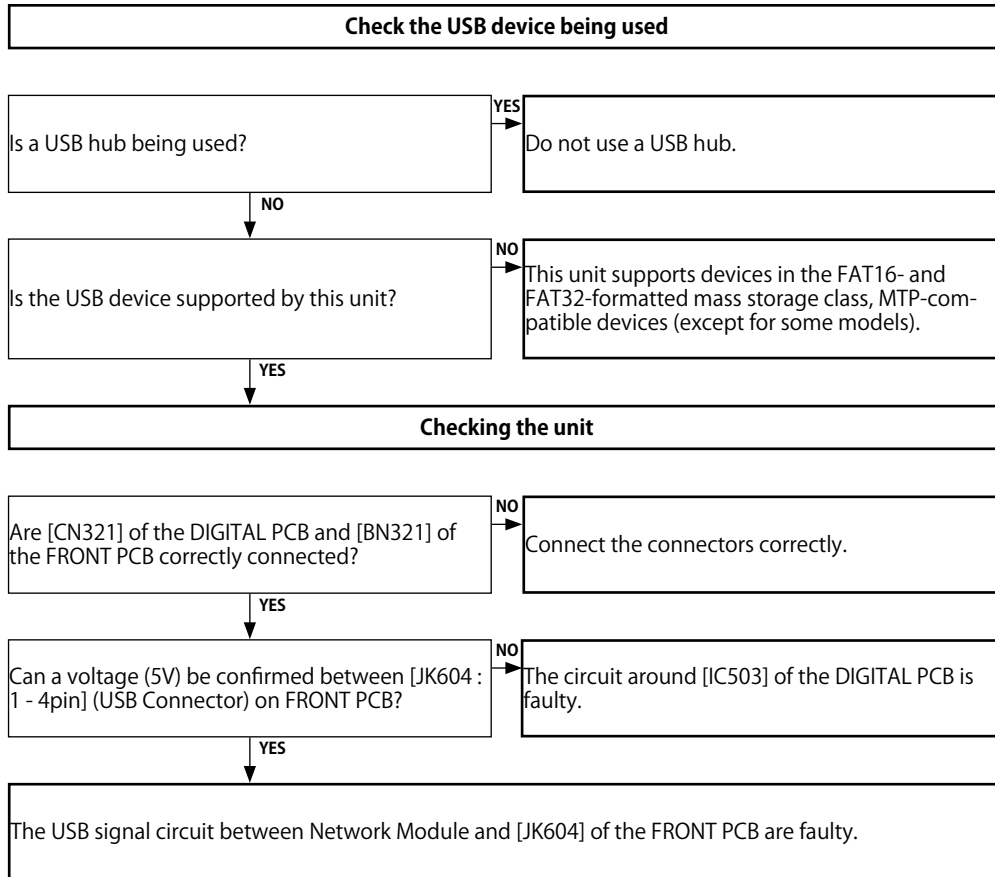




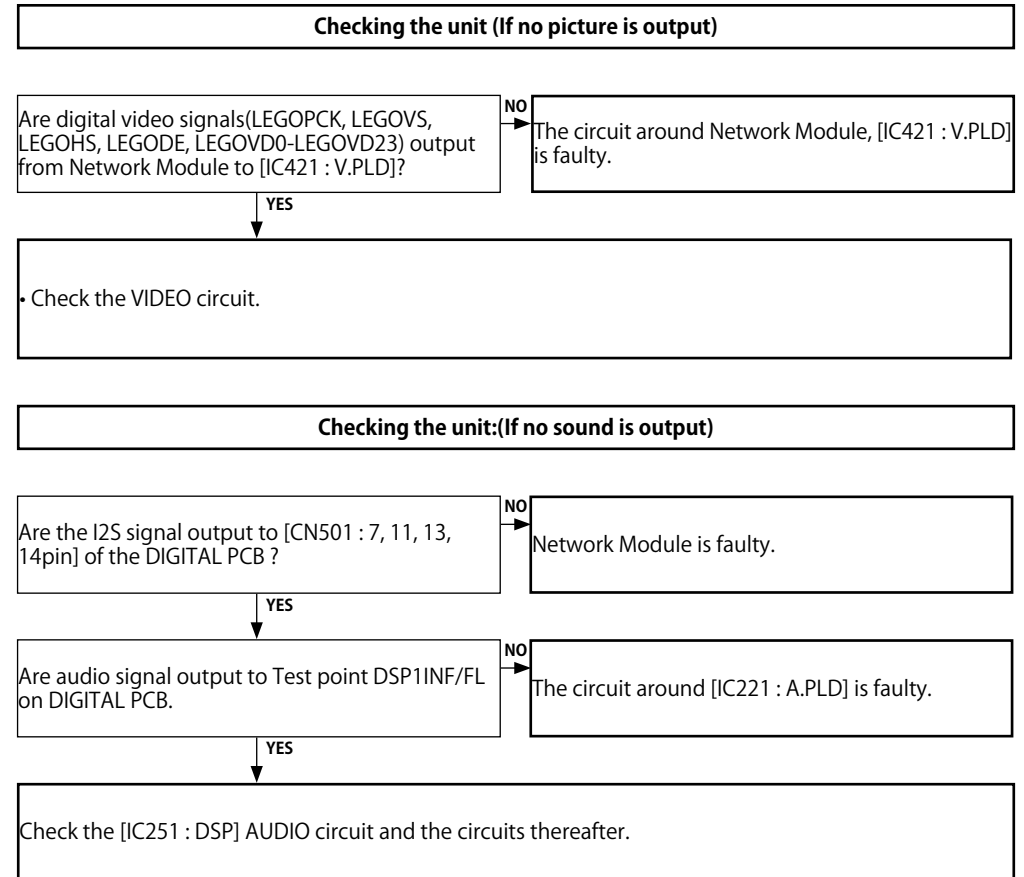
5.2. Cannot establish a Bluetooth connection



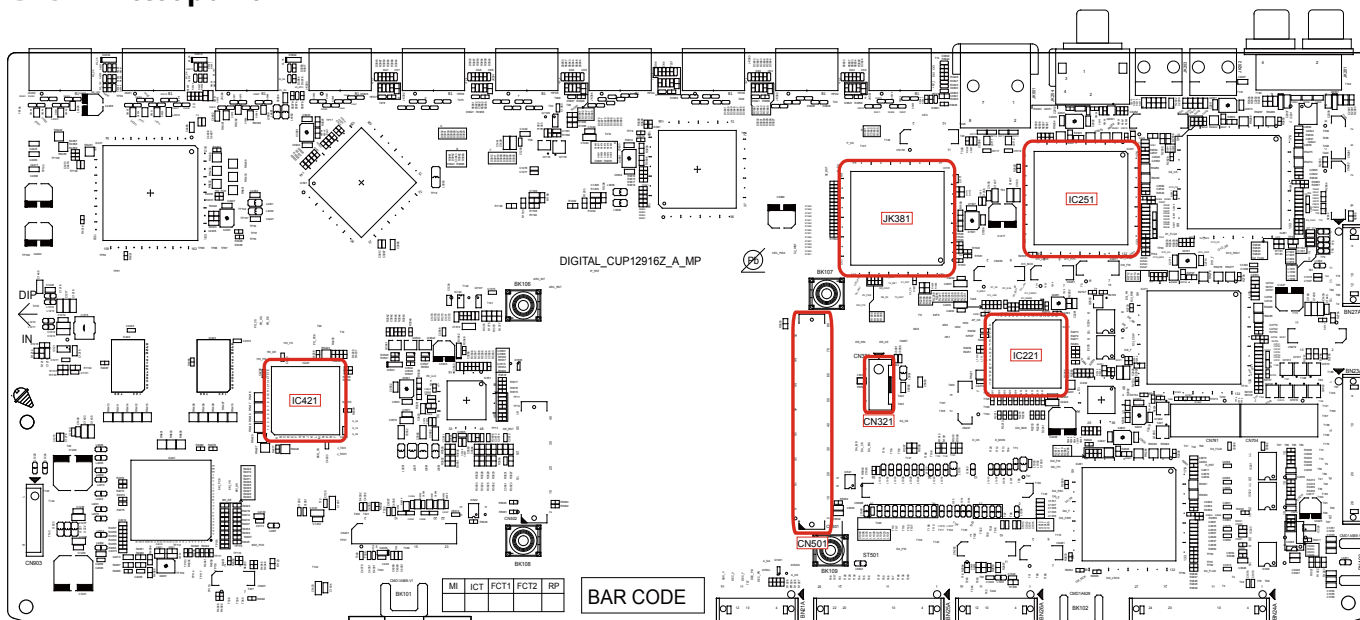
5.3. Cannot recognize the connected USB device



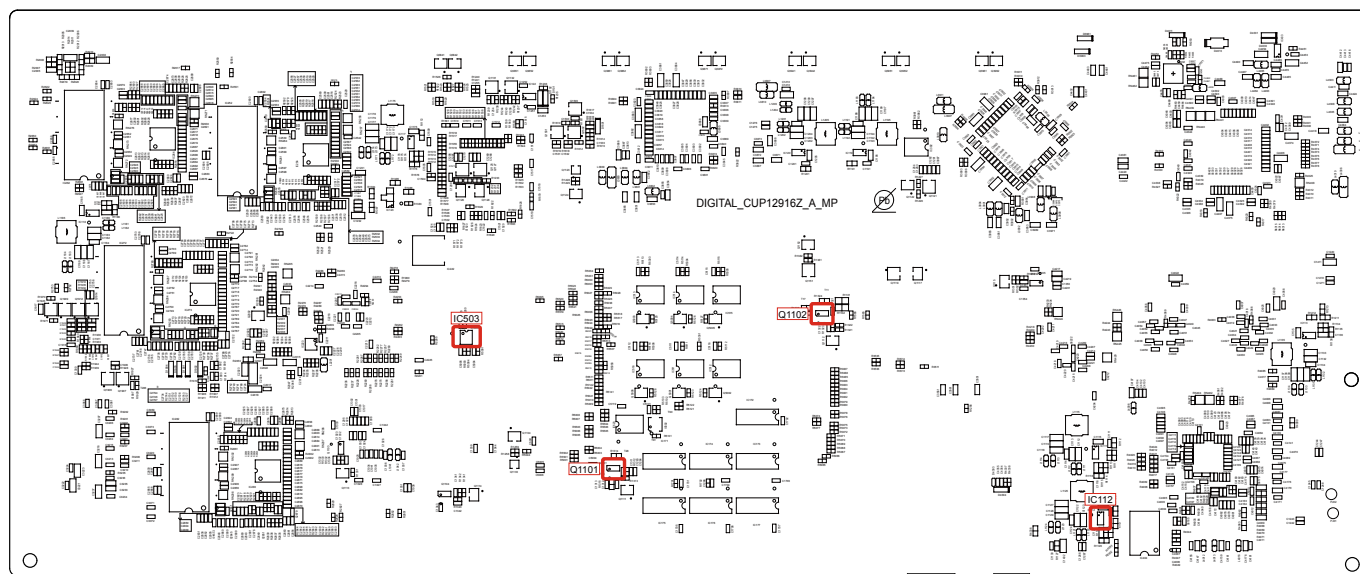
5.4. No picture or sound is output



DIGITAL test point

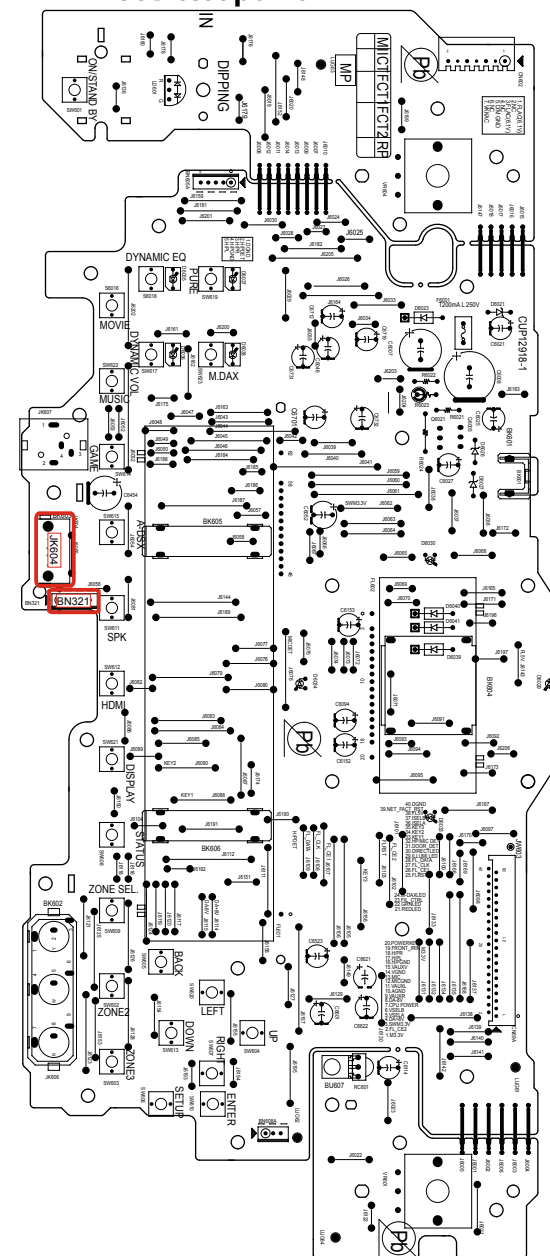


(A SIDE)



(B SIDE)

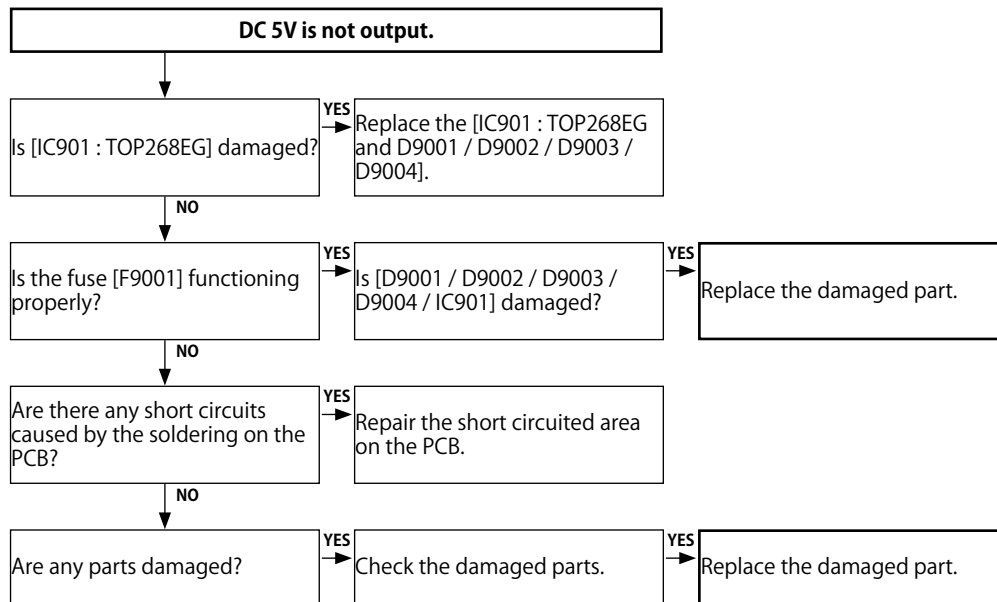
USB test point



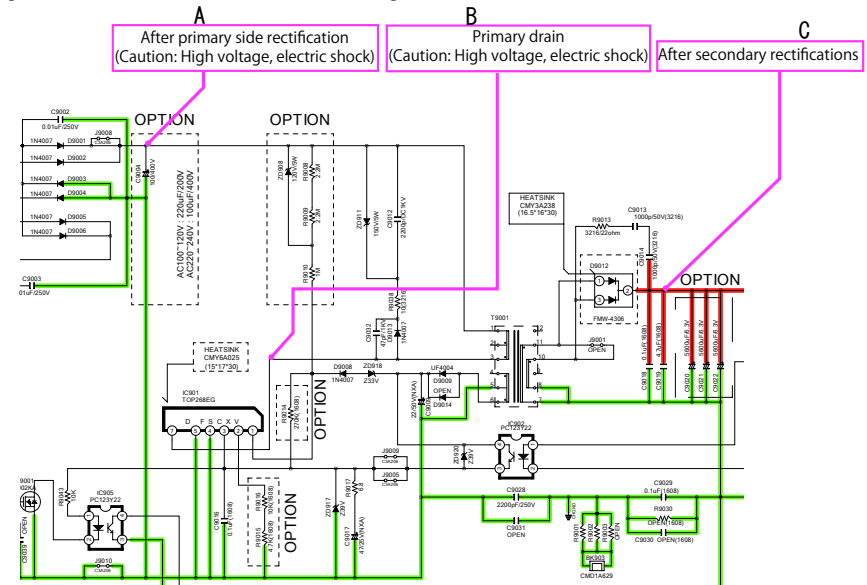
(A SIDE)



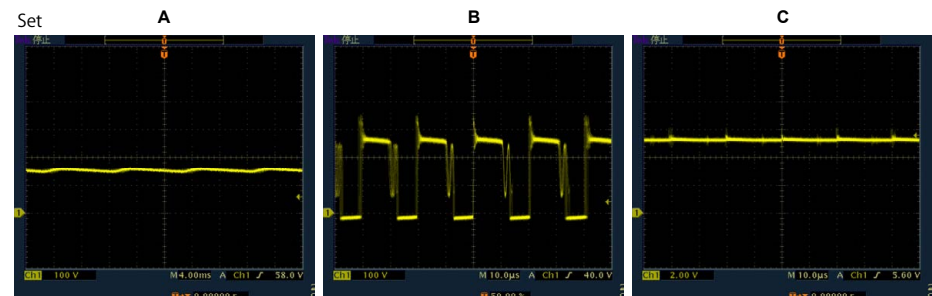
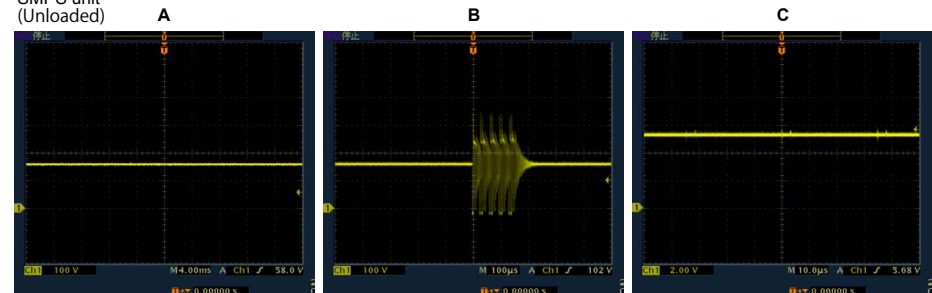
6. SMPS



Operation waveform for each part

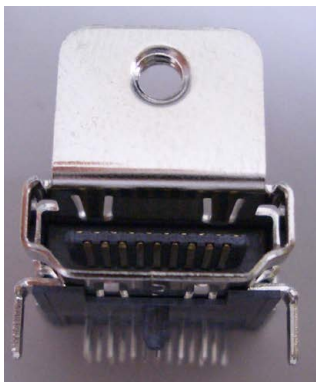


SMPS unit (Unloaded)



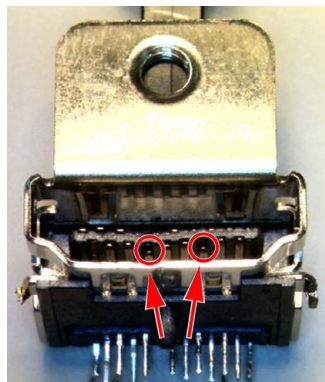
1. Prior checking

Check item(0). : Checking the HDMI connector
Checking the condition of the HDMI pin (rear/front).



OK

Check for deformed pins.



NG

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 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.

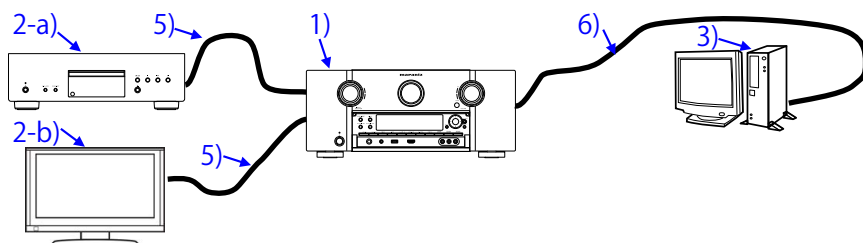


Figure 1. Device Connection Method

2-3. Device configuration method

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

After executing Termite.exe, click [Settings].

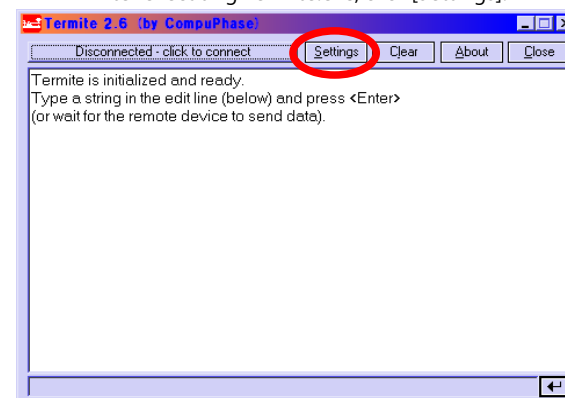


Figure 2. Screen After Executing Termite.exe

The serial port setup screen will be displayed.
Configure the settings as shown in Figure 3 and click the "OK" button.

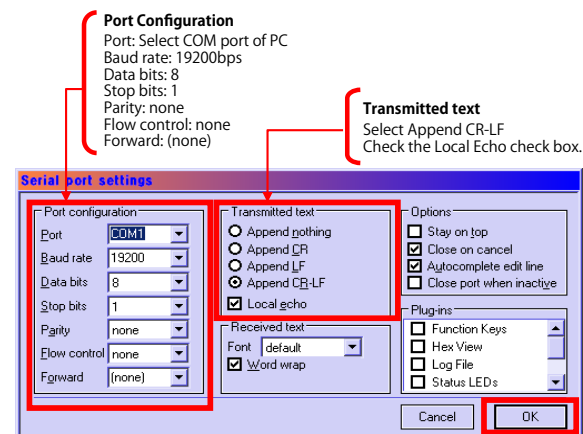


Figure 3. Serial Port Setup Screen

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.

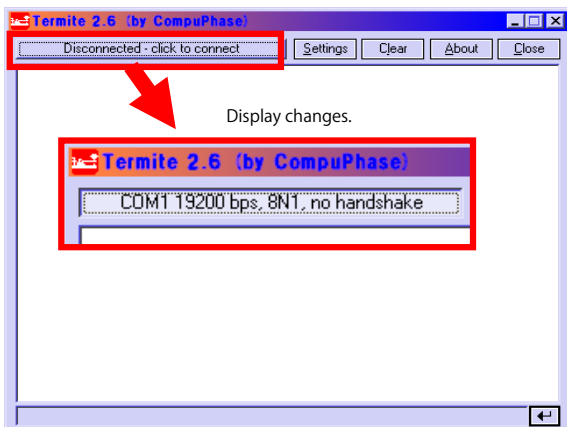


Figure 4. Change of the Display of the Communication Start Button Name

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.
(Continue to press and hold the buttons until all segments of the FLD volume illuminate.)
※ When the power is turned on after initialization, "**Setup Assistant**" will be displayed.
After exiting "**Setup Assistant**" execute the above.

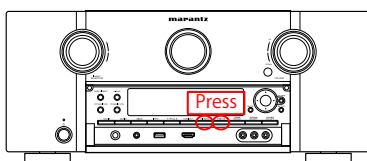


Figure 6. AVR settings

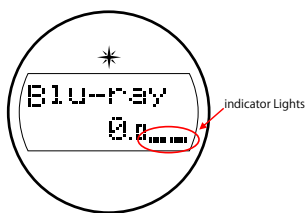


Figure 6. FLD Display When Set

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.)

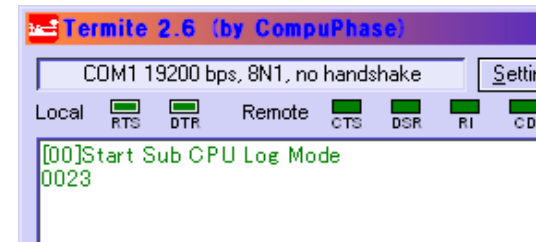


Figure 7. Display of Termite When AVR is Set

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.

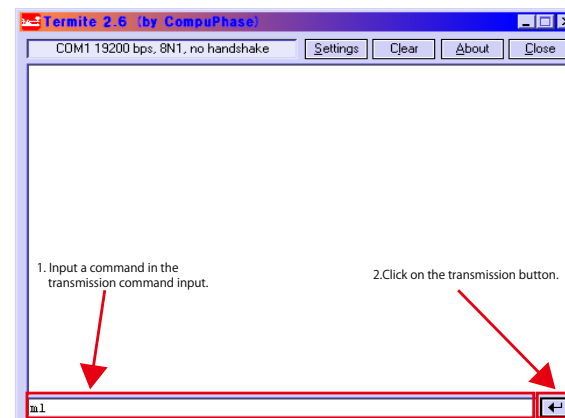


Figure 8. Method for Sending Termite Commands

3. Starting detecting the point of failure

Check item(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.

(1) Start in HDMI Diagnostics mode

While the power is on, hold down buttons "CURSOR ▲" and "BACK" for at least 3 seconds.

L1	HDMI DIAGNOSTICS
L2	

↓ "HDMI DIAGNOSTICS" is displayed.

When the mode has switched, start Hardware Check.

L1	HDMI DIAGNOSTICS
L2	HardwareCheck...



(2-1) Display when an Error Code is displayed.

L1	Err: H1-01
L2	Contact support

Check the Error Code table items.

Error Code table

Error Code	Check item No.	Description
H1-01	Check item (6)	Communication Error with HDMI Tx [IC431 : MN864787]
H1-02	Check item (11)	Communication Error with HDMI SW1 [IC391 : MN864788]
H1-03	Check item (14)	Communication Error with HDMI SW2 [IC381 : MN864788]
H1-05	Check item (25)	Communication Error with VIDEO DECODER [IC351 : ADV7180]
H1-06	Check item (17)	Communication Error with GUI IC [IC401 : ADV8003]
H1-08	Check item (26)	Communication Error with DSP1 [IC251 : ADSP21487]
H1-09	Check item (31)	Communication Error with DSP2 [IC261 : ADSP21487]
H1-10	Check item (34)	Communication Error with DSP3 [IC271 : ADSP21487]
H1-11	Check item (39)	Communication Error with DSP4 [IC281 : ADSP21487]
H1-12	Check item (42)	Communication Error with DIR [IC202 : PCM9211]
H1-14	Check item (22)	DDR check Error [IC402, IC403 : A3R12E40DBF-8E]
H1-15	Check item (23)	Communication Error with GUI ROM [IC404 : MX25L12835FMI-10G]
H1-16	Check item (45)	Communication Error with ARC IC [IC432 : Sii9437]

(2-2) Display when an Error is not detected.

L1	HDMI DIAGNOSTICS
L2	1 Auto Test

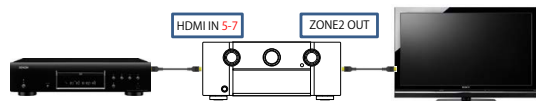
Cancel the mode, and proceed to [check item \(2\)](#).

Canceling the selected mode

Press the power button to exit off the power.



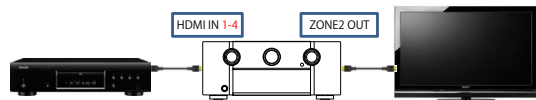
Check item(2). : Does a video signal come from HDMI ZONE2 OUT to TV correctly?



When the HDMI input terminal (HDMI 5, 6, 7) are connected in order to the player, are the audio and video from the player played back on the TV correctly in each case?

YES

Check item(3). : Does a video signal come from HDMI ZONE2 OUT to TV correctly?



When the HDMI input terminal (HDMI 1, 2, 3, 4) are connected in order to the player, are the audio and video from the player played back on the TV correctly in each case?

YES

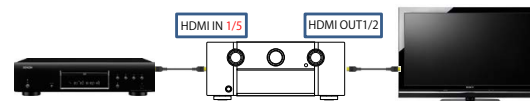
NO

Go to [check item \(48\)](#)
(Switcher1 failure detection procedure)

NO

Go to [check item \(61\)](#)
(Switcher2 failure detection procedure)

Check item(4). Does a video signal come from HDMI OUT1 to TV correctly?



Turn Video Conversion "**OFF**" on the setup menu.
(SETUP MENU-> Video-> Output Settings-> Video Conversion = Off)

When the player is connected in order to the HDMI input terminals (HDMI 1, 5), in each case is the player video played back on the TV connected to the HDMI output terminal (HDMI OUT 1,2)?

YES

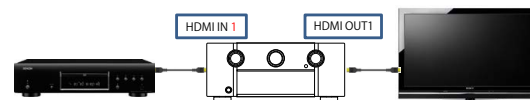
When the HDMI input terminal (AUX1) is connected to the player, the video from the player will be played back on the TV?
Use any of Dolby TrueHD/DTS HD MA/PCM 8ch for the playback audio format.

NO

Is the "**DIG**" indicator illuminated on the FLD?
When the "**DIG**" indicator is illuminated, the DIGITAL AUDIO block is faulty.
If the "**DIG**" indicator is not illuminated, go to [check item \(86\)](#).
(Front HDMI Buffer [AD8195] failure detection procedure)

YES

Check item(5). Does a video signal come from HDMI OUT1 to TV correctly?



Turn Video Conversion "**ON**" on the setup menu.
(SETUP MENU-> Video-> Output Settings-> Video Conversion = On)

When the HDMI input terminal (HDMI 1) is connected to the player, the video from the player will be played back on the TV?

YES

NO

Go to [check item \(95\)](#)
(GUI and PLD failure detection procedure)

There are no problems with the HDMI device.



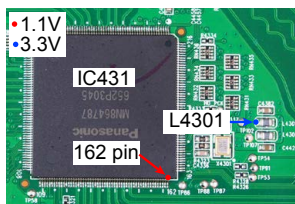
3-1. Error Code H1-01 failure detection procedure

Checking device. [IC431 : MN864787]

Check the power supply voltage. (HDMI Tx)

Check item(6). Check the power supply voltage. :
Does the power supply voltage of the HDMI Tx [IC431] indicate the correct voltage (1.1V, 3.3V)?
The test points are as follows.

HDMI Tx



YES

NO

Check item(7). Check the power supply voltage. :
Check the power components [IC121/IC113] and the pattern on the substrate.
If there is no problem, remove the HDMI Tx [IC431] from the substrate and measure the voltage at the test point of **check item (6)**.
Is the voltage correct (1.1V or 3.3V)?

YES

Replace with a new device.

NO

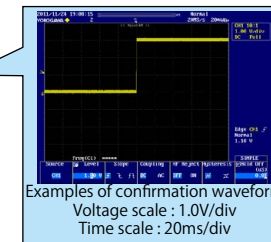
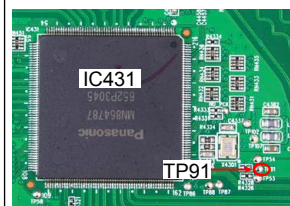
The power supply circuit is faulty.
Replace the PCB.

Recheck from **check item (1)**.
If it does not work, replace the PCB.

Checking the reset waveform. (HDMI Tx)

Check item(8). Checking the reset waveform :
Check the waveform.
Is the "TP91" waveform of the TP near the HDMI Tx [IC431] correct (like the one shown in the diagram) when the power is turned on?

HDMI Tx

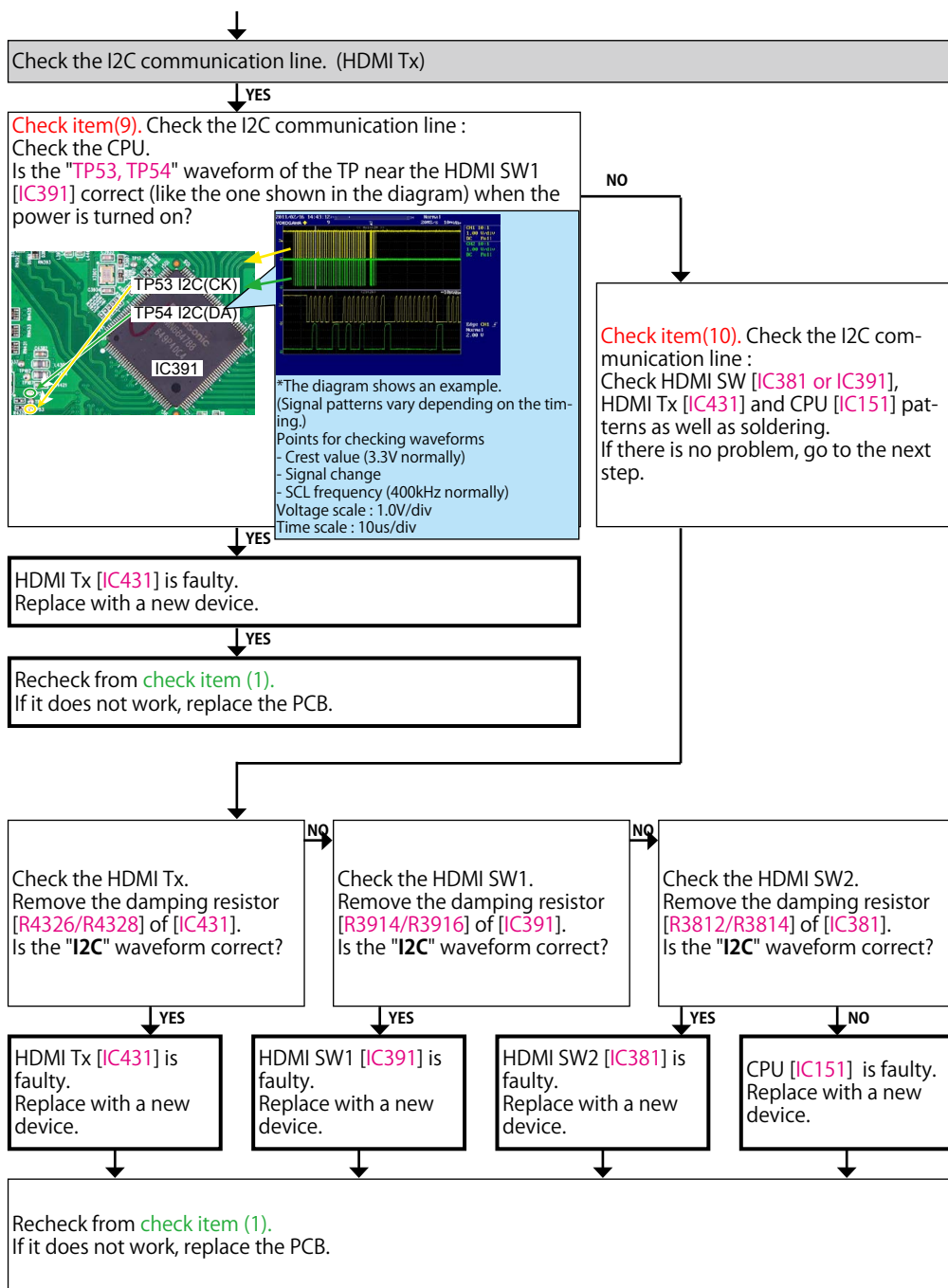


NO

Check the reset circuit between CPU [IC151] and HDMI Tx [IC431].
If there is no problem, the HDMI Tx [IC431] is faulty.
Replace with a new device.
Recheck from check item (1).
If it does not work, replace the PCB.

YES

Go to next page.



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

Checking device. [IC391 : MN864788]

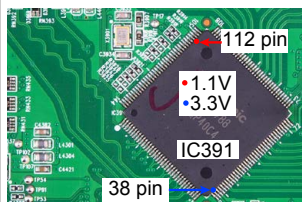
Check the power supply voltage. (HDMI SW1)

Check item(11). Check the power supply voltage. :

Does the power supply voltage of the HDMI SW1 [IC391] indicate the correct voltage (1.1V, 3.3V)?

The test points are as follows.

HDMI SW1



YES

NO

Check item(12). Check the power supply voltage. :
Check the power components [IC119] and the pattern on the substrate.
If there is no problem, remove the HDMI SW1 [IC391] from the substrate and measure the voltage at the test point of **check item (11)**.
Is the voltage correct (1.1V or 3.3V)?

YES

NO

Replace with a new device.

The power supply circuit is faulty.
Replace the PCB.

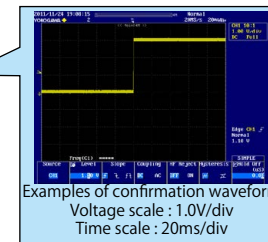
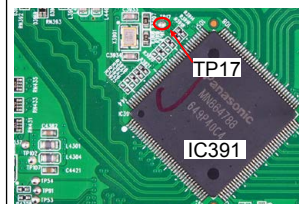
Recheck from **check item (1)**.
If it does not work, replace the PCB.

Checking the reset waveform. (HDMI SW1)

Check item(13). Checking the reset waveform :
Check the waveform.

Is the "TP17" waveform of the TP near the HDMI SW1 [IC391] correct (like the one shown in the diagram) when the power is turned on?

HDMI SW1



NO

Check the reset circuit between CPU [IC151] and HDMI SW1 [IC391].
If there is no problem, the HDMI SW1 [IC391] is faulty.
Replace with a new device.

YES

Check item (1) again after replacing [R3914/R3916] with a new resistor.
If there is still a problem, the HDMI SW1 [IC391] is faulty.
Replace with a new device.

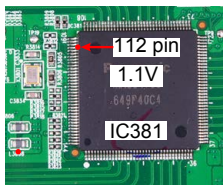
Recheck from **check item (1)**.
If it does not work, replace the PCB.

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

Checking device. [IC381 : MN864788]

Check the power supply voltage. (HDMI SW2)

Check item(14). Check the power supply voltage. :
Does the power supply voltage of the HDMI SW2 [IC381] indicate the correct voltage (1.1V)?
The test points are as follows.
HDMI SW2



YES

NO

Check item(15). Check the power supply voltage. :
Check the power components [IC120/IC113] and the pattern on the substrate.
If there is no problem, remove the HDMI SW2 [IC381] from the substrate and measure the voltage at the test point of **check item (14)**.
Is the voltage correct (1.1V or 3.3V)?

YES

NO

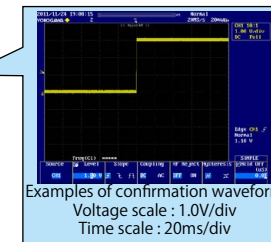
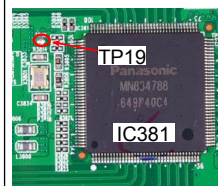
Replace with a new device.

The power supply circuit is faulty.
Replace the PCB.

Recheck from **check item (1)**.
If it does not work, replace the PCB.

Checking the reset waveform. (HDMI SW2)

Check item(16). Checking the reset waveform :
Check the waveform.
Is the "TP19" waveform of the TP near the HDMI SW2 [IC381] correct (like the one shown in the diagram) when the power is turned on?
HDMI SW2



NO

Check the reset circuit between CPU [IC151] and HDMI SW2 [IC381].
If there is no problem, the HDMI SW2 [IC381] is faulty.
Replace with a new device.
Recheck from check item (16).
If it does not work, replace the PCB.

YES

check item (1) again after replacing [R3812/R3814] with a new resistor.
If there is still a problem, the HDMI SW2 [IC381] is faulty.
Replace with a new device.

Recheck from **check item (1)**.
If it does not work, replace the PCB.

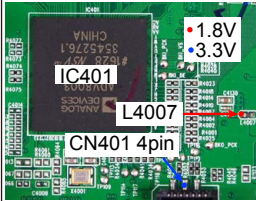
3-4. Error Code H1-06 failure detection procedure

Checking device. [IC401 : ADV8003]

Check the power supply voltage.

Check item(17). Check the power supply voltage.

Does the power supply voltage of the GUI [IC401] indicate the appropriate voltage (1.8V, 3.3V)?
The test points are as follows.



YES

Recheck from check item (1).
If it does not work, replace the PCB.

YES

GUI [IC401] is faulty.
Replace with a new device.

NO

The power supply circuit is faulty.
Replace the PCB.

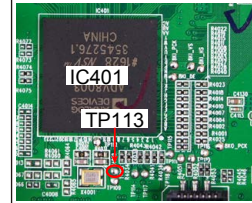
Check item(18). Check the power supply voltage.

Check the power supply components [IC111, Q1105] on the substrate and peripheral pattern. If there is no problem, remove the GUI [IC401] from the substrate and measure the voltage at the test point of check item (17).
Is the voltage correct (1.8V or 3.3V)?

Checking the reset waveform.

Check item(19). Checking the reset :
Check the CPU.

Is the waveform of the TP near the GUI [IC401] correct (like the one shown in the diagram) when the power is turned on?

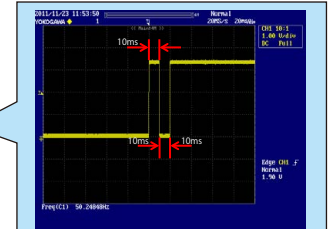


YES

NO

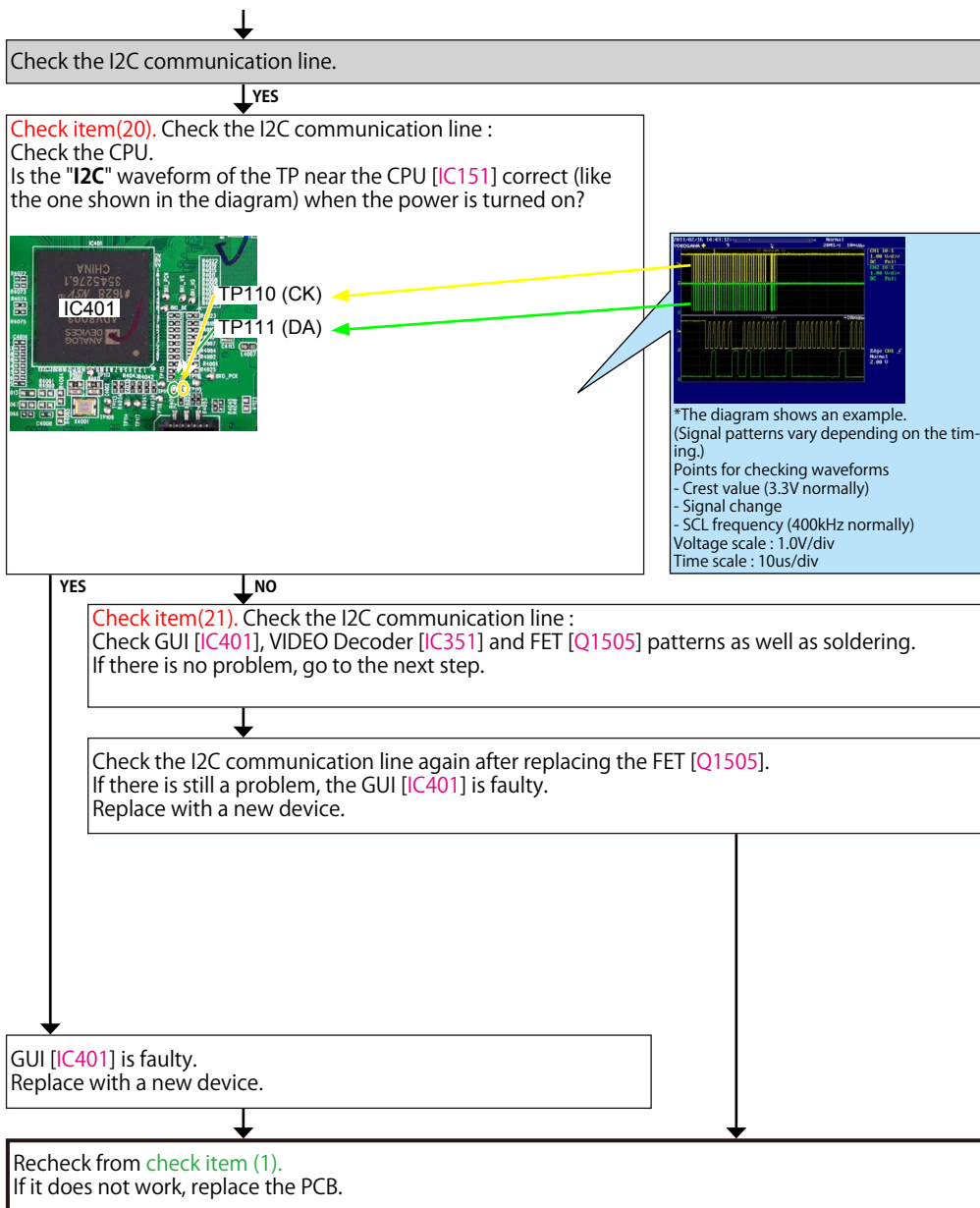
Check the reset circuit between CPU [IC151] and GUI [IC401].
If there is no problem, the GUI [IC401] is faulty.
Replace with a new device.

Recheck from check item (1).
If it does not work, replace the PCB.



Example of the waveform to be checked
Voltage scale : 1.0V/div
Time scale : 20ms/div

Go to next page.



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

Checking device. [IC402, IC403 : A3R12E40DBF-8E]

Check item(22).

Check soldering of IP SCALER [IC401], DDR2 [IC402/IC403] and its peripheral circuits.
Check soldering of the resistors [R4076 to R4082, RN401 to RN415] between IP SCALER and DDR2.
If there is no problem with soldering, [IC401/IC402/IC403] is defective. Replace their IC. Or replace the substrate.

Recheck from [check item \(1\)](#).

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

Checking device. [IC404 : W25Q128JVF1Q]

Check item(23).

Write to the GUI ROM.

Recheck from [check item \(1\)](#).
Does Error Code H1-15 continue?

NO

YES

Check item(24).

Replace [IC403] with a new device.

Recheck from [check item \(1\)](#).
Does Error Code H1-15 continue?

NO

YES

Go to [check item \(17\)](#)

Recheck from [check item \(2\)](#).



3-7. Error Code H1-05 failure detection procedure

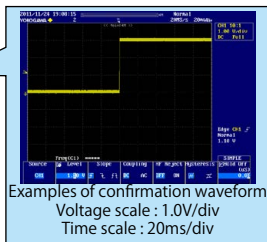
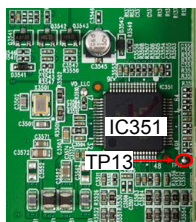
Checking device. [IC351 : ADV7180]

Checking the reset waveform. (VIDEO DECODER)

Check item(25). Checking the reset waveform :
Check the waveform.

Is the "TP13" waveform of the TP near the VIDEO DECODER [IC351] correct (like the one shown in the diagram) when the power is turned on?

VIDEO DECODER



NO

Check the reset circuit between CPU [IC151] and VIDEO DECODER [IC351].
If there is no problem, the VIDEO DECODER [IC351] is faulty.
Replace with a new device.
Recheck from check item (25).
If it does not work, replace the PCB.

YES

check item (1) again after replacing [R3537/R3538] with a new resistor.
If there is still a problem, the VIDEO DECODER [IC351] is faulty.
Replace with a new device.

Recheck from check item (1).
If it does not work, replace the PCB.

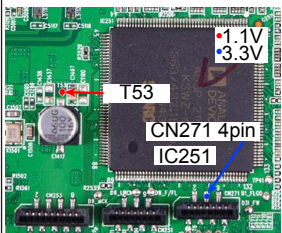


3-8. Error Code H1-08 failure detection procedure

Checking device. [IC251 : ADSP21487]

Check the power supply voltage. (DSP1)

Check item(26). Check the power supply voltage.
Does the power supply voltage of the DSP [IC251] indicate the appropriate voltage (1.1V, 3.3V)?
The test points are as follows.



YES

Check item(27). Check the power supply voltage.
Check the power supply components [IC112, Q1103, IC117] on the substrate and peripheral pattern.
If there is no problem, remove the DSP [IC251] from the substrate and measure the voltage at the test point of **check item (26)**.
Is the voltage correct (1.1 V or 3.3V)?

YES

NO

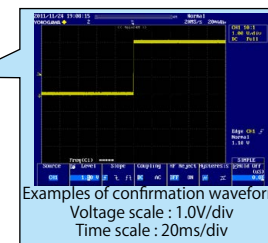
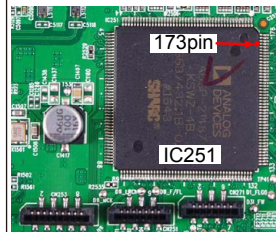
The power supply circuit is faulty.
Replace the PCB.

DSP [IC251] is faulty.
Replace with a new device.

Recheck from **check item (1)**.
If it does not work, replace the PCB.

Checking the reset waveform. (DSP1)

Check item(28). Checking the reset :
Check the CPU.
Is the waveform of the TP near the DSP [IC251] correct (like the one shown in the diagram) when the power is turned on?



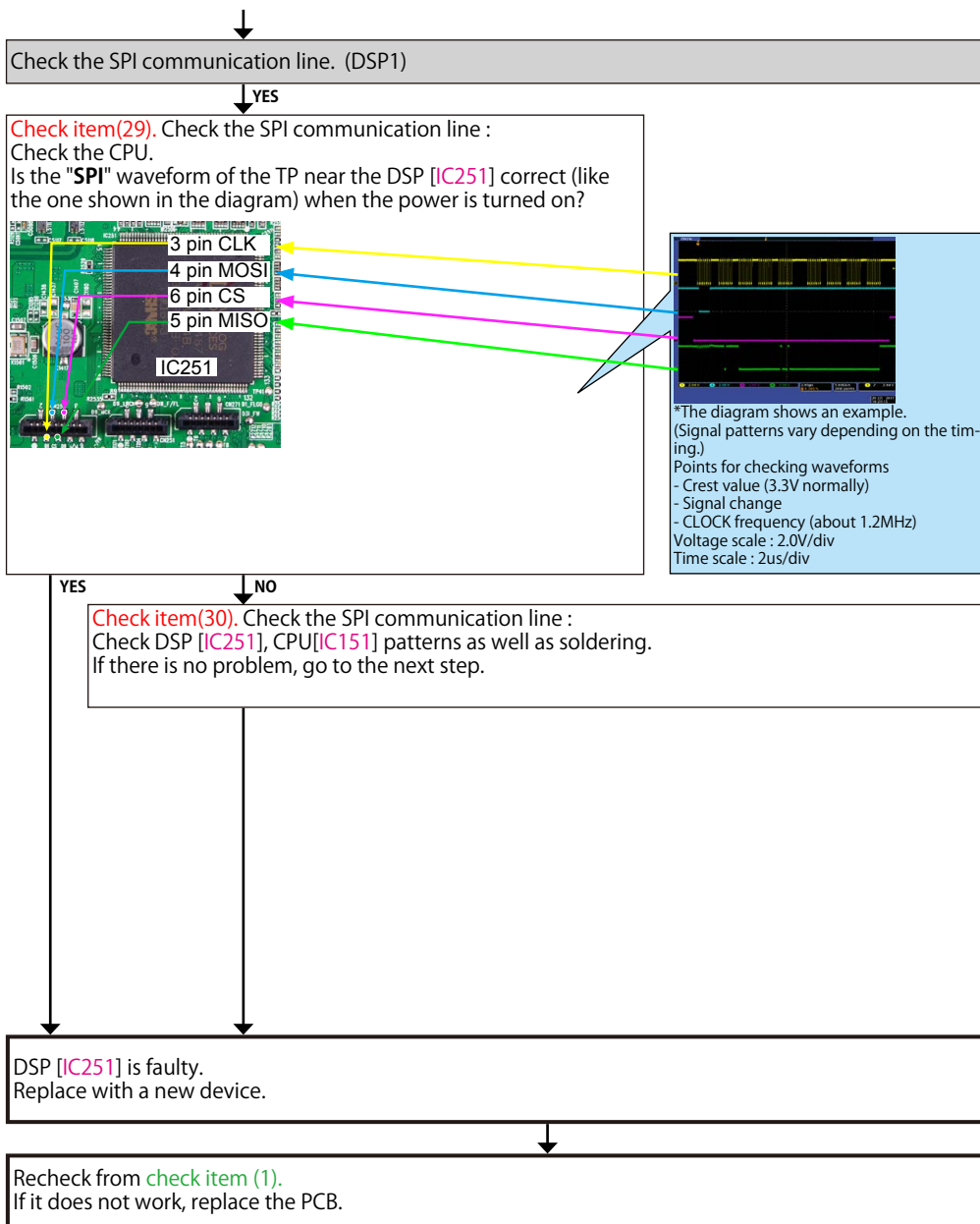
YES

NO

Check the reset circuit between CPU [IC151] and DSP [IC251].
If there is no problem, the DSP [IC251] is faulty.
Replace with a new device.

Recheck from **check item (1)**.
If it does not work, replace the PCB.

Go to next page.



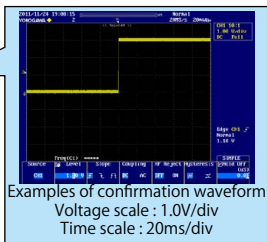
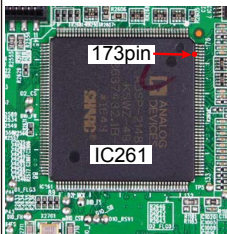
3-9. Error Code H1-09 failure detection procedure

Checking device. [IC261 : ADSP21487]

Checking the reset waveform. (DSP2)

Check item(31). Checking the reset :
Check the CPU.

Is the waveform of the TP near the DSP [IC261] correct (like the one shown in the diagram) when the power is turned on?



YES

NO

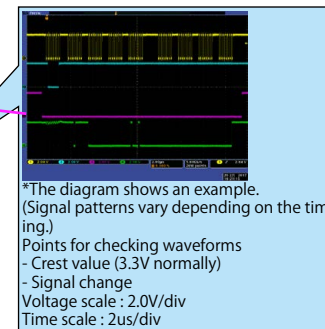
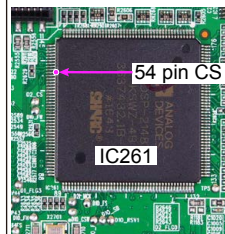
Check the reset circuit between CPU [IC151] and DSP [IC261].
If there is no problem, the DSP [IC261] is faulty.
Replace with a new device.

Recheck from **check item (1)**.
If it does not work, replace the PCB.

Check the SPI communication line. (DSP2)

Check item(32). Check the SPI communication line :
Check the CPU.

Is the "SPI" waveform of the TP near the DSP [IC261] correct (like the one shown in the diagram) when the power is turned on?



YES

NO

Check item(33). Check the SPI communication line :
Check DSP [IC261], CPU[IC151] patterns as well as soldering.
If there is no problem, go to the next step.

DSP [IC261] is faulty.
Replace with a new device.

Recheck from **check item (1)**.
If it does not work, replace the PCB.

Caution in
servicing

Electrical

Mechanical

Repair Information

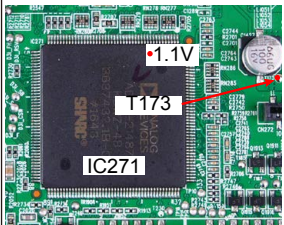
Updating

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

Checking device. [IC271 : ADSP21487]

Check the power supply voltage. (DSP3)

Check item(34). Check the power supply voltage.
Does the power supply voltage of the DSP [IC271] indicate the appropriate voltage (1.1V)?
The test points are as follows.



YES

Check item(35). Check the power supply voltage.
Check the power supply components [IC112, Q1103, IC118] on the substrate and peripheral pattern.
If there is no problem, remove the DSP [IC271] from the substrate and measure the voltage at the test point of **check item (34)**.
Is the power supply voltage correct (1.1V)?

YES

The power supply circuit is faulty.
Replace the PCB.

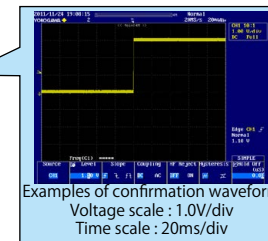
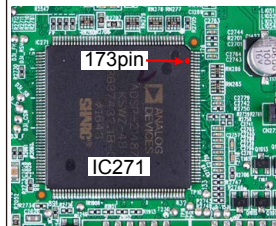
NO

DSP [IC271] is faulty.
Replace with a new device.

Recheck from **check item (1)**.
If it does not work, replace the PCB.

Checking the reset waveform. (DSP3)

Check item(36). Checking the reset :
Check the CPU.
Is the waveform of the TP near the DSP [IC271] correct (like the one shown in the diagram) when the power is turned on?



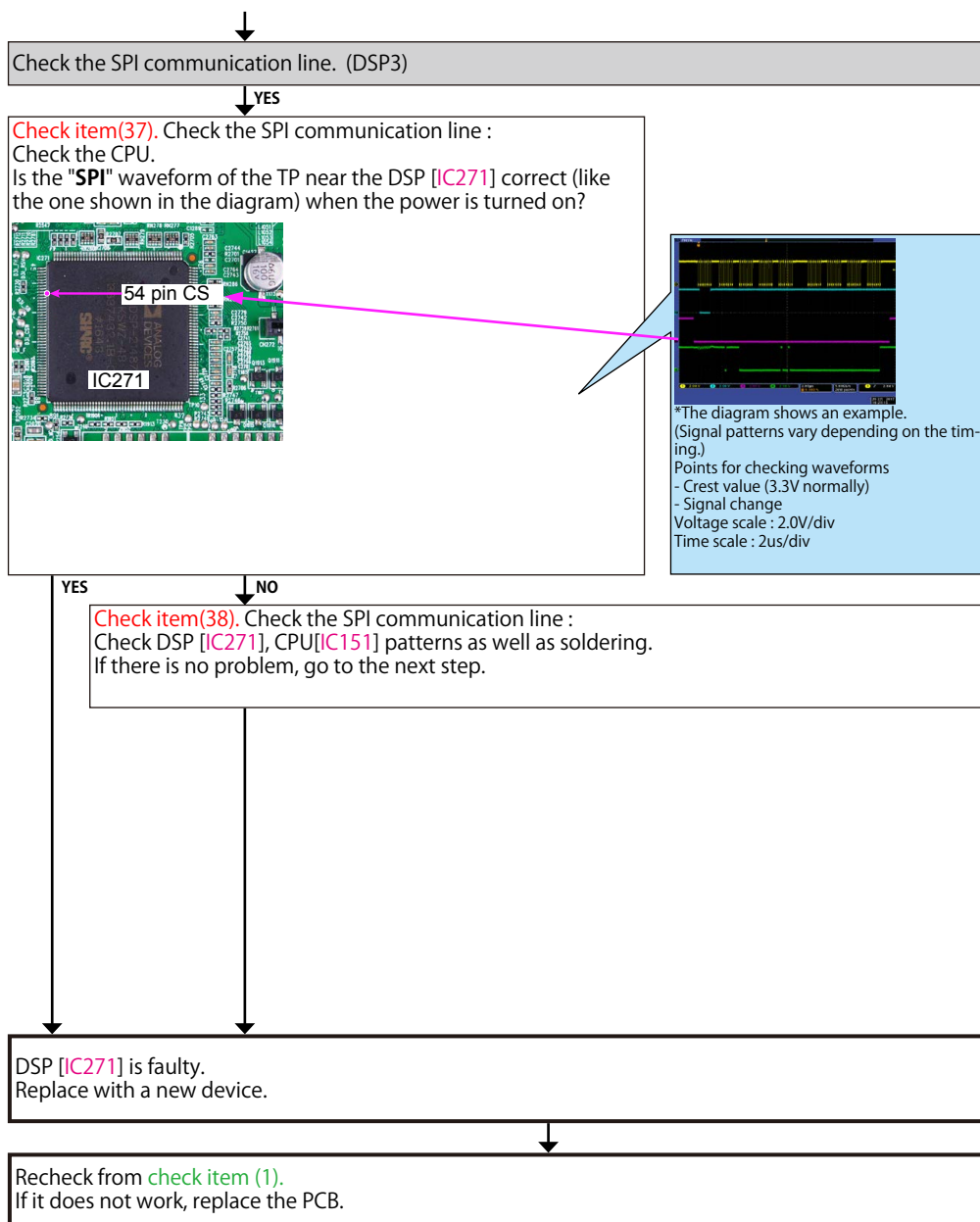
YES

Check the reset circuit between CPU [IC151] and DSP [IC271].
If there is no problem, the DSP [IC271] is faulty.
Replace with a new device.

NO

Recheck from **check item (1)**.
If it does not work, replace the PCB.

Go to next page.



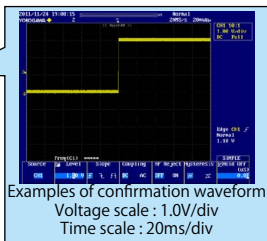
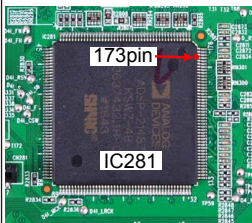
3-11. Error Code H1-11 failure detection procedure

Checking device. [IC281 : ADSP21487]

Checking the reset waveform. (DSP4)

Check item(39). Checking the reset :
Check the CPU.

Is the waveform of the TP near the DSP [IC281] correct (like the one shown in the diagram) when the power is turned on?



YES

NO

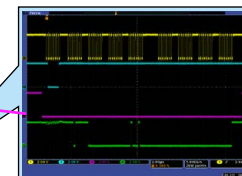
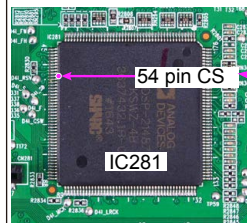
Check the reset circuit between CPU [IC151] and DSP [IC281].
If there is no problem, the DSP [IC281] is faulty.
Replace with a new device.

Recheck from **check item (1)**.
If it does not work, replace the PCB.

Check the SPI communication line. (DSP4)

Check item(40). Check the SPI communication line :
Check the CPU.

Is the "SPI" waveform of the TP near the DSP [IC281] correct (like the one shown in the diagram) when the power is turned on?



YES

NO

Check item(41). Check the SPI communication line :
Check DSP [IC281], CPU[IC151] patterns as well as soldering.
If there is no problem, go to the next step.

DSP [IC281] is faulty.
Replace with a new device.

Recheck from **check item (1)**.
If it does not work, replace the PCB.

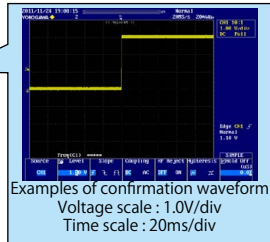
3-12. Error Code H1-12 failure detection procedure

Checking device. [IC202 : PCM9211]

Checking the reset waveform. (DIR)

Check item(42). Checking the reset :
Check the CPU.

Is the waveform of the TP near the DIR [IC202] correct (like the one shown in the diagram) when the power is turned on?



YES

NO

Check the reset circuit between CPU [IC151] and DIR [IC202].
If there is no problem, the DIR [IC202] is faulty.
Replace with a new device.

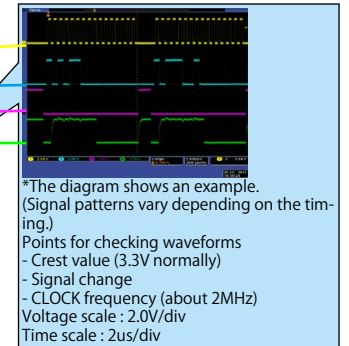
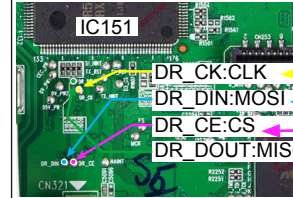
Recheck from check item (1).
If it does not work, replace the PCB.

Check the communication line. (DIR)

YES

Check item(43). Check the communication line :
Check the CPU.

Is the waveform of the TP near the DIR [IC202] correct (like the one shown in the diagram) when the power is turned on?



YES

NO

Check item(44). Check the communication line :
Check DIR [IC202], CPU [IC151] patterns as well as soldering.
If there is no problem, go to the next step.

DIR [IC202] is faulty.
Replace with a new device.

Recheck from check item (1).
If it does not work, replace the PCB.

3-13. Error Code H1-16 failure detection procedure

Checking device. [IC432 : SiI9437]

Check the power supply voltage. (ARC IC)

Check item(45). Check the power supply voltage. :
Does the power supply voltage of the ARC IC [IC432] indicate the correct voltage (1.21V)?
The test points are as follows.



YES

NO

Check item(46). Check the power supply voltage. :
Check the power components [IC433] and the pattern on the substrate.
If there is no problem, remove the ARC IC [IC432] from the substrate and measure the voltage at the test point of **check item (45)**.
Is the power supply voltage correct (1.2V)?

YES

NO

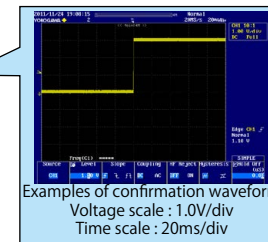
Replace with a new device.

The power supply circuit is faulty.
Replace the PCB.

Recheck from **check item (1)**.
If it does not work, replace the PCB.

Checking the reset waveform. (ARC IC)

Check item(47). Checking the reset waveform :
Check the waveform.
Is the "RESET" waveform of the ARC IC [IC432] correct (like the one shown in the diagram) when the power is turned on?



NO

Check the reset circuit between CPU [IC151] and ARC IC [IC432].
If there is no problem, the ARC IC [IC432] is faulty.
Replace with a new device.

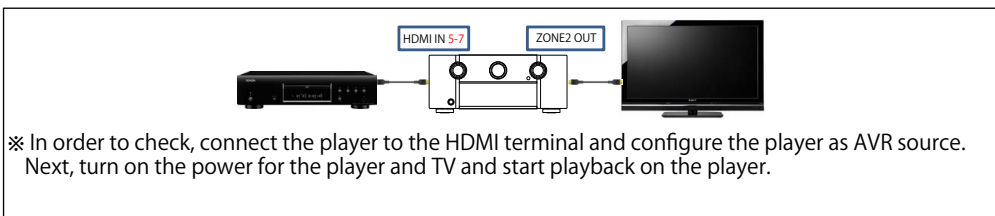
YES

ARC IC [IC432] is faulty.
Replace with a new device.

Recheck from **check item (1)**.
If it does not work, replace the PCB.



3-14. Switcher1 failure detection procedure

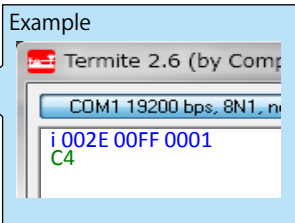


Checking the +5V/DDC status register (HDMI Switcher1)

Check item(48). Checking the 5V status register :
Send the following command from Termite.exe.

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

Case of IN5
Is the return value "C4 or C0" ?
(IN6 : "A2 or A0", IN7 : "91 or 90")



YES

NO

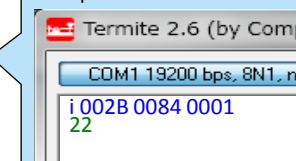
Go to **check item (50)**

Check item(49). Checking the DDC status register :
Send the following command from Termite.exe.

Case of IN5
Send the command "i 002B 0084 0001".
Case of IN6
Send the command "i 002B 0054 0001".
Case of IN7
Send the command "i 002B 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 (51)**

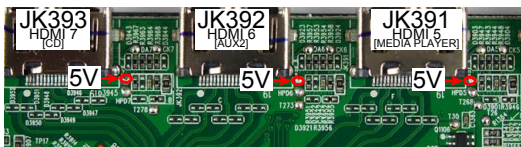
"22 or 11"
(Detection of DDC is OK)

Go to **check item (52)**

When the results of check item (48) are "NO"
(Detection of 5V is not OK)

Check the +5V voltage. (HDMI IN5 - 7)

Check item(50). Check the +5V voltage.
Does the test point near HDMI input terminal [JK391/JK392/JK393] indicate 5V?



YES

HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

NO

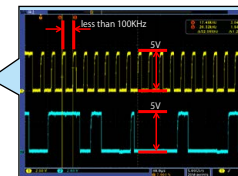
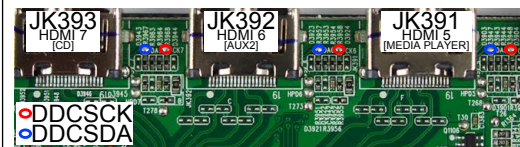
Check for a short circuit in the 5V line and the 5V
Switch IC [IC392].
If there is no problem, the HDMI Switcher1 [IC391]
or the 5V Switch IC [IC392] is faulty
Replace with a new device.

Recheck from check item (2).
If it does not work, replace the PCB.

When the results of check item (49) are "00 or 04"
(Detection of DDC is not OK.)

Check the DDC line. (HDMI IN5 - 7)

Check item(51). Check the DDC line :
Are waveforms of "DDCSCK" and "DDCSDA" observed at the test point near the HDMI input terminal
[JK391/JK392/JK393]?



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

YES

HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

NO

Check for a short circuit in the DDC line.
If there is no problem, the HDMI Switcher1 [IC391]
is faulty.
Replace with a new device.

Recheck from check item (2).
If it does not work, replace the PCB.



When the results of check item (49) are "22 or 11"
(Detection of DDC is OK.)

Checking the TMDS status register (HDMI Switcher1)

Check item(52). Checking register of the TMDS CLK detection status register :

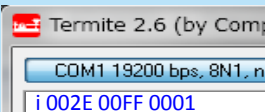
Send the following command from Termit.exe.

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

When the following value is returned, go to YES.
HDMI IN5 "C4", HDMI IN6 "A2", HDMI IN7 "91"

When the following value is returned, go to NO.
HDMI IN5 "C0", HDMI IN6 "A0", HDMI IN7 "90"

Example



NO

YES

Checking the HPD/RXSENSE status register. (HDMI ZONE2 OUT)

Check item(53). Check the HPD and RXSENSE register value of the device.

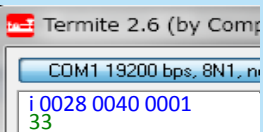
Send the following command from Termit.exe.

Send the command "i 0028 0040 0001".

Check the value.

Move to the branch destination according to the value returned.

Example



If it is normal, "33" is returned.
The correct resistor value cannot be checked if the AVR and TV are not connected by HDMI.

"33 or 23 or 13 or 03"

(Detection of HPD is OK / Detection of RXSENSE is OK)

Go to check item (55)

"31 or 21 or 11 or 01"

(Detection of HPD is OK / Detection of RXSENSE is not OK)

Go to check item (58)

"32 or 22 or 12 or 02"

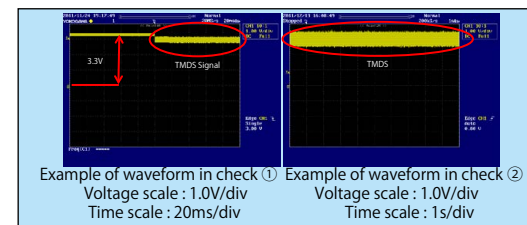
(Detection of HPD is not OK / Detection of RXSENSE is OK)

Go to check item (59)

"30 or 20 or 10 or 00"

(Detection of HPD is not OK / Detection of RXSENSE is not OK)

Go to check item (60)



Example of waveform in check ①

Voltage scale : 1.0V/div

Time scale : 20ms/div

Example of waveform in check ②

Voltage scale : 1.0V/div

Time scale : 1s/div

Check item(54). Checking the TMDS input waveform. :
Check the TMDS waveform at the following test point.
Is the waveform like the sample?



HDMI IN5
55/56/58/59/61/62/64/65 pin
HDMI IN6
80/81/83/84/86/87/89/90 pin
HDMI IN7
93/94/96/97/99/100/102/103 pin

YES

HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

NO

Check for a short circuit in the pattern of the
TMDS line of the HDMI Switcher1 [IC391] from
the HDMI input terminal.
If there is no problem, the HDMI Switcher1 [IC391]
is faulty.
Replace with a new device.

Recheck from check item (2).
If it does not work, replace the PCB.

When the results of check item (53) are "33 or 23 or 13 or 03"
(Detection of HPD is OK / Detection of RXSENSE is OK)

Checking the EDID register. (HDMI ZONE2 OUT)

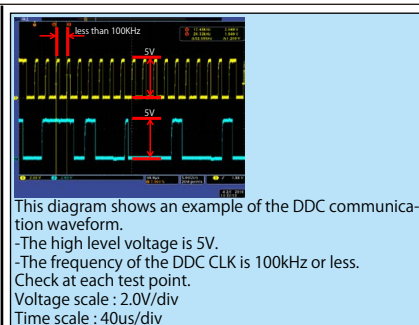
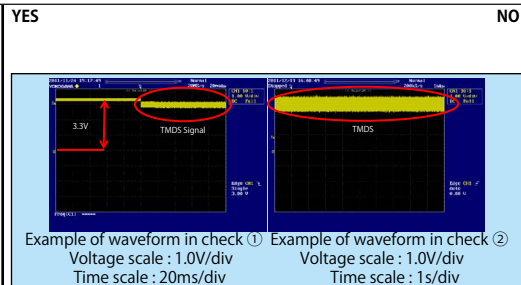
Check item(55). Check the Monitor EDID :

- ① Unplug the AC cord. Plug the AC cord into a power outlet.
 - ② Send the transmission command "m_3" from Termite.exe.
- Are the first eight bytes of the returned value "00FFFFFFF00"?

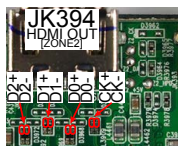
Example

Termite 2.6 (by CompuPhase)
COM1 19200 bps, 8N1, no handshake [Setin]
m_3
00FFFFFFF0009D1177945540000
3213010380351E782E6085A6564A9C25
125054A56808180810081C0A9C08140
D1C061C0B300023A801871382D40582C
4500132B2100001E000000FF00394339

The first eight bytes are normally "00FFFFFFF00".
The correct resistor value cannot be checked if the AVR and TV are not connected by HDMI.



Check item(56). Checking the TMDs :
Check the TMDs waveform at the following test point.



YES

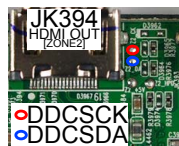
NO

Check for a short circuit in the TMDs line.
If there is no problem, the HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

Recheck from check item (2).
If it does not work, replace the PCB.

Check item(57). Check the communication :
Do "CK" and "DA" indicate (5V) at the test point near HDMI output connector [JK394]?



YES

NO

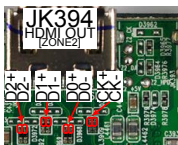
Check for a short circuit in the DDC line.
If there is no problem, the HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

When the results of check item (53) are "31 or 21 or 11 or 01"
(Detection of HPD is OK / Detection of RXSENSE is not OK)

Check the TMDS. (HDMI ZONE2 OUT)

Check item(58). Checking the RXSENSE. :
Does the test point near HDMI output terminal [JK394] indicate
(3.3V)?



YES NO

Check for a short circuit in the TMDS line.
If there is no problem, the HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

Recheck from check item (2).
If it does not work, replace the PCB.

When the results of check item (53) are "32 or 22 or 12 or 02"
(Detection of HPD is not OK / Detection of RXSENSE is OK)

Check the HPD. (HDMI ZONE2 OUT)

Check item(59). Checking the HPD :
Does the test point near HDMI output terminal [JK394] indicate
Hi(3-5V)?



YES NO

Check for a short circuit in the HPD line.
If there is no problem, the HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

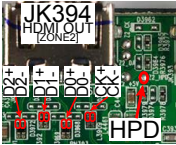
Recheck from check item (2).
If it does not work, replace the PCB.



When the results of check item (53) are "30 or 20 or 10 or 00"
(Detection of HPD is not OK / Detection of RXSENSE is not OK)

Check the TMDS/HPD. (HDMI ZONE2 OUT)

Check item(60). Checking the HPD and RXSENSE. :
Does the test point near HDMI output terminal [JK394] indicate (3.3V)?
Does the test point (HPD) near HDMI output terminal [JK394] indicate "Hi(3-5V)"?



YES

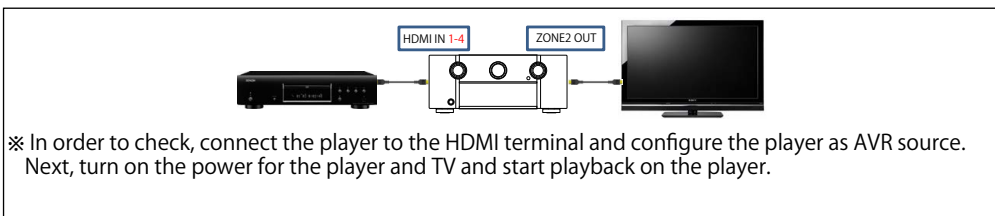
NO

Check for a short circuit in the TMDS/ HPD line.
If there is no problem, the HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

Recheck from check item (2).
If it does not work, replace the PCB.

3-15. Switcher2 failure detection procedure

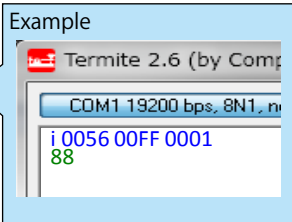


Checking the +5V/DDC status register (HDMI Switcher2)

Check item(61). Checking the 5V status register :
Send the following command from Termite.exe.

Send the command "i 0056 00FF 0001".

Case of IN1
Is the return value "88 or 80" ?
(IN2 : "44 or 40", IN3 : "22 or 20", IN4 : "11 or 10")



YES

NO

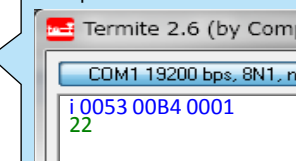
Go to **check item (63)**

Check item(62). Checking the DDC status register :
Send the following command from Termite.exe.

Case of IN1
Send the command "i 0053 00B4 0001".
Case of IN2
Send the command "i 0053 0084 0001".
Case of IN3
Send the command "i 0053 0054 0001".
Case of IN4
Send the command "i 0053 0024 0001".

Move to the branch destination according to the value returned.

Example

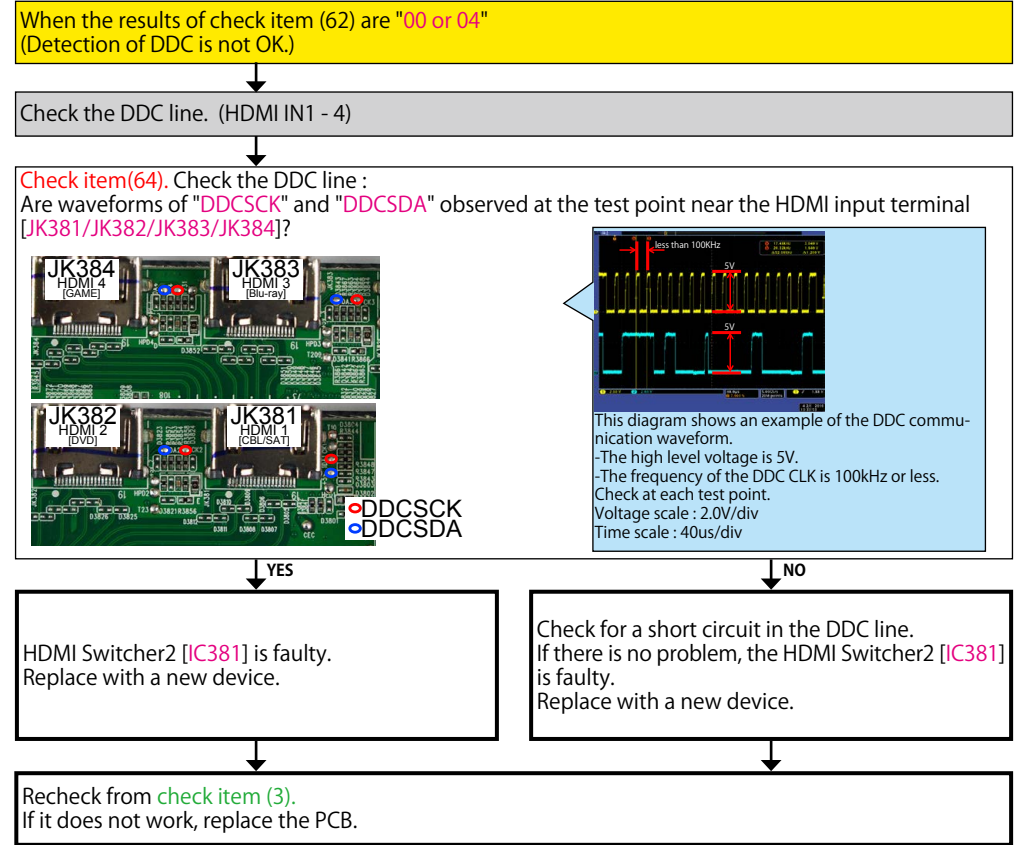
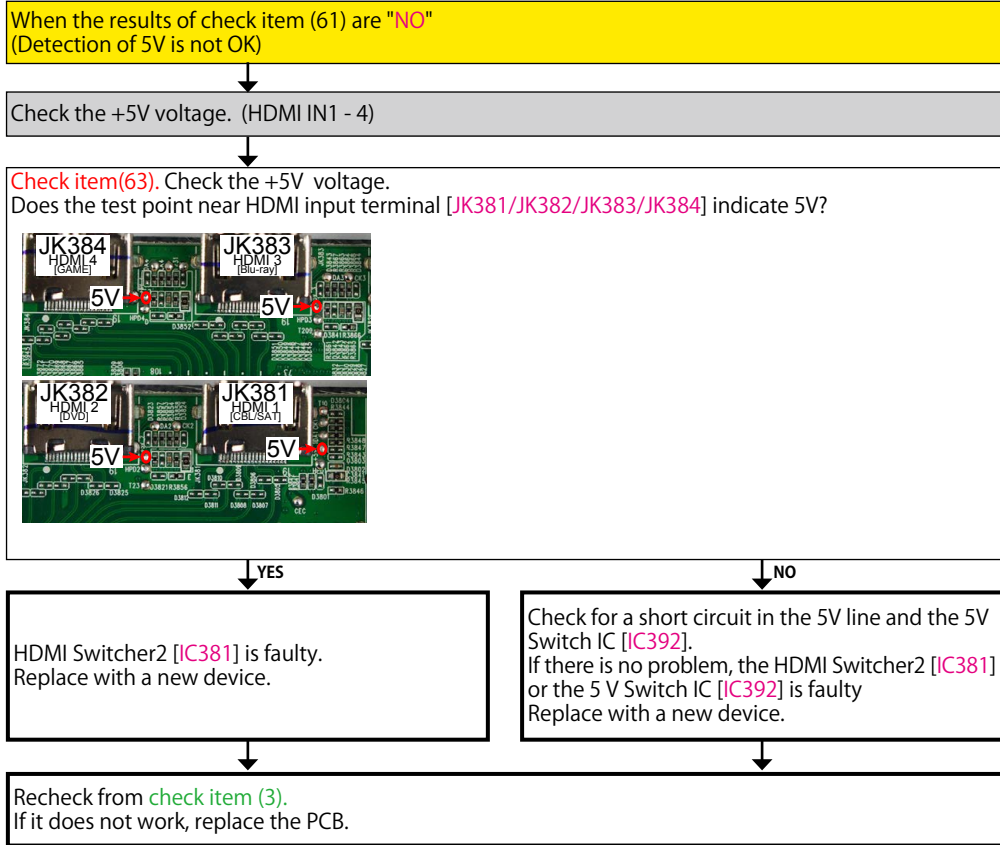


"00 or 04"
(Detection of DDC is not OK.)

Go to **check item (64)**

"22 or 11"
(Detection of DDC is OK)

Go to **check item (65)**



When the results of check item (62) are "22 or 11"
(Detection of DDC is OK.)

Checking the TMDS status register (HDMI Switcher2)

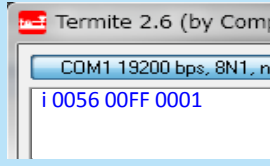
Check item(65). Checking register of the TMDS CLK detection status register :

Send the following command from Termite.exe.
Send the command "i 0056 00FF 0001".

When the following value is returned, go to YES.
HDMI IN1 "88", HDMI IN2 "44", HDMI IN3 "22", HDMI IN4 "11"

When the following value is returned, go to NO.
HDMI IN1 "80", HDMI IN2 "40", HDMI IN3 "20", HDMI IN4 "10"

Example



NO

YES

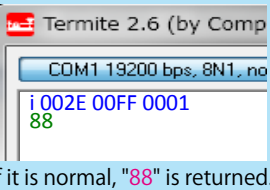
Checking the TMDS status register (HDMI Switcher2 -> HDMI Switcher1)

Check item(67). Check the TMDS CLK detection status of the register :

Send the following command from Termite.exe.
Send the command "i 002E 00FF 0001".

Is the return value "88" ?

Example :



If it is normal, "88" is returned.

NO

YES

HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

Recheck from [check item \(3\)](#).
If it does not work, replace the PCB.

Check item(66). Checking the TMDS input waveform. :
Check the TMDS waveform at the following test point.
Is the waveform like the sample?



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

YES

NO

HDMI Switcher2 [IC381] is faulty.
Replace with a new device.

Check for a short circuit in the pattern of the
TMDS line of the HDMI Switcher2 [IC381] from
the HDMI input terminal.
If there is no problem, the HDMI Switcher2 [IC381]
is faulty.
Replace with a new device.

Recheck from [check item \(3\)](#).
If it does not work, replace the PCB.

Check item(68). Checking the TMDS input waveform. :
Check the TMDS waveform at the following test point.
Is the waveform like the sample?

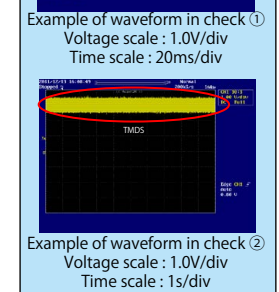
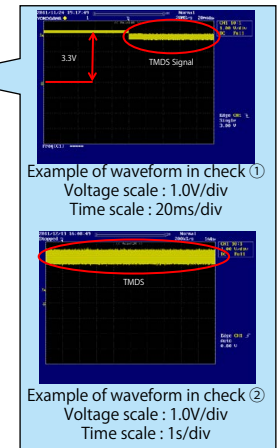


42/43/45/46/48/49/51/52 pin

YES

NO

Check for a short circuit in the TMDS line.
If there is no problem, the HDMI Switcher2 [IC381] is faulty.
Replace with a new device.



3-16. Tx failure detection procedure

Check the output terminal.

Check item(69). 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.

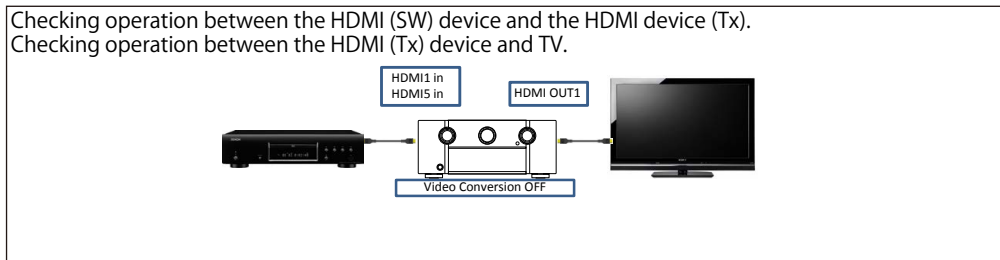
Also, No video signal is output from Monitor 1 only.

Go to [check item \(70\)](#)

No video signal is output from Monitor 2 only.

Go to [check item \(79\)](#)





Checking the TMDS status register (Switcher1/2 -> HDMI Tx)

Check item(70). Check the TMDS CLK detection status of the register.
Send the following command from Termite.exe.

Send the command "**i 0006 00FF 0001**".
When checking the signal path from HDMI1 to HDMI OUT1
"72" : Go to YES.
"74" : Go to No.

When checking the signal path from HDMI5 IN to HDMI OUT1
"71" : Go to YES.
"74" : Go to No.

Example

YES

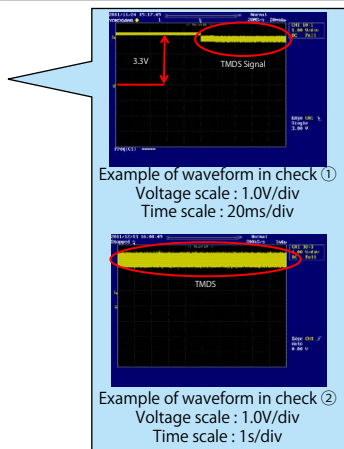
The first operation : Checking between Monitor 1 and the TV.
Go to **check item (69)**
Next operation : Checking between Monitor 2 and the TV.
Go to **check item (76)**

Check item(71). Checking the TMDS input. :
TMDS waveform at the following points.



HDMI IN1
124/125/127/128/130/131/133/134 pin

HDMI IN5
137/138/140/141/143/144/146/147 pin



HDMI Tx [IC431] is faulty.
Replace with a new device.

YES

Recheck from **check item (4)**.
If it does not work, replace the PCB.

Case of HDMI IN1
HDMI Switcher2 [IC381] is faulty.
Replace with a new device.

Case of HDMI IN5
HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

Checking between Monitor1 and the TV.
Connect Monitor1 to the TV and check the following items with the TV turned on.

Checking the HPD/RXSENSE status register. (HDMI Tx -> Monitor)

Check item(72). Check the HPD and RXSENSE register value of the HDMI Tx device. :
Send the following command from Termite.exe.

Send the command "**i 0000 0040 0001**".

Move to the branch destination according to the value returned.

Example

"30"
(Detection of HPD is OK / Detection of RXSENSE is OK)

Go to **check item (73)**

"10"
(Detection of HPD is OK / Detection of RXSENSE is not OK)

Go to **check item (76)**

"20"
(Detection of HPD is not OK / Detection of RXSENSE is OK)

Go to **check item (77)**

"00"
(Detection of HPD is not OK / Detection of RXSENSE is not OK)

Go to **check item (78)**



When the results of check item (72) are "30"
(Detection of HPD is OK / Detection of RXSENSE is OK)

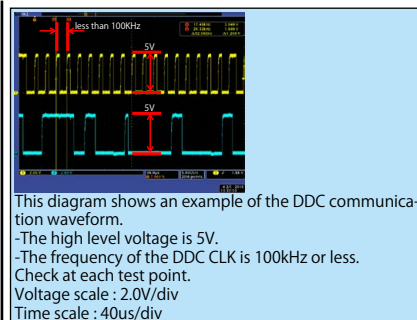
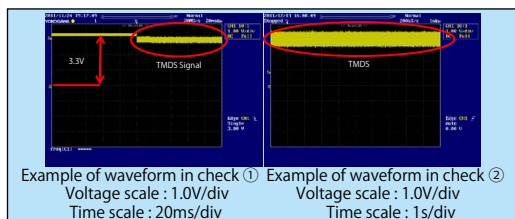
Checking the EDID register. (HDMI OUT1)

Check item(73). Check the Monitor EDID :

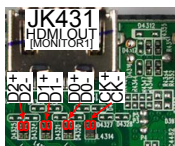
- ① Unplug the AC cord. Plug the AC cord into a power outlet.
 - ② Send the transmission command "m_1" from Termite.exe.
- Are the first eight bytes of the returned value "00FFFFFFF00"?

YES

NO



Check item(74). Checking the TMDs :
Check the TMDs waveform at the following test point.



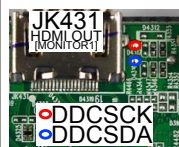
YES

NO

Check for a short circuit in the TMDs line.
If there is no problem, the HDMI Tx
[IC431] is faulty.
Replace with a new device.

HDMI Tx [IC431] is faulty.
Replace with a new device.

Check item(75). Check the communication :
Are the waveforms for "CLK" and "DATA" at the
test point near the HDMI output connector
[JK431] correct (as shown in the figure)?



YES

NO

Check for a short circuit in the DDC line.
If there is no problem, the HDMI Tx
[IC431] is faulty.
Replace with a new device.

HDMI Tx [IC431] is faulty.
Replace with a new device.

Recheck from check item (4).
If it does not work, replace the PCB.

Example

```
Termite 2.6 (by CompuPhase)
COM1 19200 bps, 8N1, no handshake
m_1
00FFFFFFF000D1177945540000
3213010380351E782E6085A6564A9C25
125054A56808180810081C0A9C08140
D1C061C0B300023A801871382D40582C
4500132B2100001E000000FF00394339
```

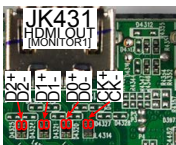
The first eight bytes are normally "00FFFFFFF00".
The correct resistor value cannot be checked if the AVR and TV are not connected by HDMI.



When the results of check item (72) are "10"
(Detection of HPD is OK / Detection of RXSENSE is not OK)

Check the TMDS. (HDMI OUT1)

Check item(76). Checking the RXSENSE :
Does the test point near HDMI output terminal [JK431] indicate (3.3V)?



YES NO

Check for a short circuit in the TMDS line.
If there is no problem, the HDMI Tx [IC431] is faulty.
Replace with a new device.

HDMI Tx [IC431] is faulty.
Replace with a new device.

Recheck from check item (4).
If it does not work, replace the PCB.

When the results of check item (72) are "20"
(Detection of HPD is not OK / Detection of RXSENSE is OK)

Check the HPD. (HDMI OUT1)

Check item(77). Checking the HPD :
Does the test point (HPD) near HDMI output terminal [JK431] indicate "Hi(3-5V)"?



YES NO

Check for a short circuit in the HPD line.
If there is no problem, the HDMI Tx [IC431] is faulty.
Replace with a new device.

HDMI Tx [IC431] is faulty.
Replace with a new device.

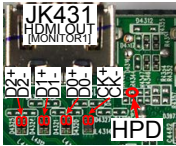
Recheck from check item (4).
If it does not work, replace the PCB.



When the results of check item (72) are "00"
(Detection of HPD is not OK / Detection of RXSENSE is not OK)

Check the TMDS/HPD. (HDMI OUT1)

Check item(78). Checking the HPD and RXSENSE. :
Does the test point near HDMI output terminal [JK431] indicate (3.3V)?
Does the test point (HPD) near HDMI output terminal [JK431] indicate "Hi(3-5V)"?



YES

NO

Check for a short circuit in the TMDS/HPD line.
If there is no problem, the HDMI Tx [IC431] is faulty.
Replace with a new device.

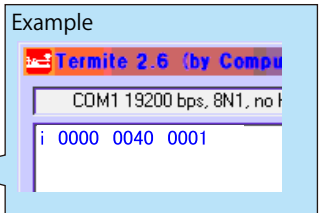
HDMI Tx [IC431] is faulty.
Replace with a new device.

Recheck from check item (4).
If it does not work, replace the PCB.

Checking between Monitor 2 and the TV.
Connect Monitor2 to the TV and check the following items with the TV turned on.

Checking the HPD/RXSENSE status register. (HDMI OUT2)

Check item(79). Check the HPD and RXSENSE register value of the HDMI TX device. :
Send the following command from Termite.exe.
Send the command "i 0000 0040 0001".
Move to the branch destination according to the value returned.



"03"
(Detection of HPD is OK / Detection of RXSENSE is OK)

Go to **check item (80)**

"01"
(Detection of HPD is OK / Detection of RXSENSE is not OK)

Go to **check item (83)**

"02"
(Detection of HPD is not OK / Detection of RXSENSE is OK)

Go to **check item (84)**

"00"
(Detection of HPD is not OK / Detection of RXSENSE is not OK)

Go to **check item (85)**

When the results of check item (79) are "03"
(Detection of HPD is OK / Detection of RXSENSE is OK)

Checking the EDID register. (OUT2)

Check item(80). Check the Monitor EDID :

- ① Unplug the AC cord. Plug the AC cord into a power outlet.
 - ② Send the transmission command "m_2" from Termite.exe.
- Are the first eight bytes of the returned value "00FFFFFFF00"?

Example

```

Termit 2.6 by CompuPhase
COM1 19200 bps, 8N1, no handshake
[Set]

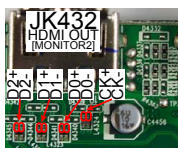
m_2
00FFFFFFF0009B1177945540000
3213010380151E782E6085A6564A9C25
125054A56B08180810081C0A9C08140
D1C061C0B300023A801871382D40582C
4500132B2100001E000000FF00394339
  
```

The first eight bytes are normally "00FFFFFFF00".
*If the AVR and the TV are not connected via HDMI, the correct register value cannot be verified.

YES

NO

Check item(81). Checking the TMDS :
Check the TMDS waveform at the following test point.



YES

NO

Check for a short circuit in the TMDS line.
If there is no problem, the HDMI Tx [IC431] is faulty.
Replace with a new device.

HDMI Tx [IC431] is faulty.
Replace with a new device.

Check item(82). Check communication with the monitor :
Are waveforms of "DDCSCK" and "DDCSDA" observed at the test point near the HDMI output terminal [JK432]?



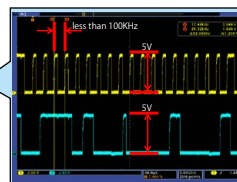
YES

NO

HDMI Tx [IC431] is faulty.
Replace with a new device.

HDMI Tx [IC431] is faulty.
Replace with a new device.

Recheck from check item (4).
If it does not work, replace the PCB.



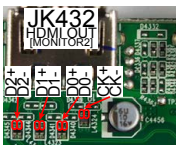
This diagram shows an example of the DDC communication waveform.
-The high level voltage is 5V.
-The frequency of the DDC CLK is 100kHz or less.
Check at each test point.
Voltage scale : 2.0V/div
Time scale : 40us/div



When the results of check item (79) are "01"
(Detection of HPD is OK / Detection of RXSENSE is not OK)

Check the RXSENSE. (OUT2)

Check item(83). Checking the RXSENSE :
Does the test point of RXSENSE close to the HDMI output terminal
[JK432] indicate the (3.3V)?



YES

NO

Check for a short circuit in the TMDS line.
If there is no problem, the HDMI Tx [IC431] is faulty.
Replace with a new device.

HDMI Tx [IC431] is faulty.
Replace with a new device.

Recheck from check item (4).
If it does not work, replace the PCB.

When the results of check item (79) are "02"
(Detection of HPD is not OK / Detection of RXSENSE is OK)

Check the HPD. (OUT2)

Check item(84). Checking the HPD :
Does the voltage of HPD test point close to the HDMI output terminal
[JK432] indicate Hi (3-5 V)?



YES

NO

Check for a short circuit in the HPD line.
If there is no problem, the HDMI Tx [IC431] is faulty.
Replace with a new device.

HDMI Tx [IC431] is faulty.
Replace with a new device.

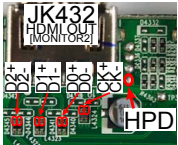
Recheck from check item (4).
If it does not work, replace the PCB.



When the results of check item (79) are "00"
(Detection of HPD is not OK / Detection of RXSENSE is not OK)

Checking the HPD/RXSENSE status register. (OUT2)

Check item(85). Checking the HPD and RXSENSE. :
Does the test point of RXSENSE close to the HDMI output terminal
[JK432] indicate the (3.3V)?
Does the voltage of HPD test point close to the HDMI output terminal
[JK432] indicate Hi (3-5V)?



YES

NO

Check for a short circuit in the TMDS/ HPD line.
If there is no problem, the HDMI Tx [IC431] is faulty.
Replace with a new device.

HDMI Tx [IC431] is faulty.
Replace with a new device.

Recheck from **check item (4)**.
If it does not work, replace the PCB.

3-17. Front HDMI Buffer (AD8195) failure detection procedure

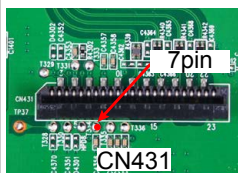
Checking operation between the HDMI (Front HDMI Buffer) and the player



※ 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. (Front HDMI Buffer)

Check item(86). Check the power supply voltage. :
Does the power supply voltage of the Front HDMI FFC base [CN431] indicate the correct voltage (5V)?
The test points are as follows.



YES

Check item(87). Check the power supply voltage. :
Check the FET SW [Q1108] and peripheral pattern.
If there is no problem, remove the Front HDMI FFC from the substrate and measure the voltage at the test point of **check item (83)**.
Is the power supply voltage correct (5 V)?

YES

Front HDMI Buffer [IC101] is faulty.
Replace with a new device.

NO

Replace the FET SW [Q1107] and recheck from **check item (83)**.
If it does not work, replace the PCB.

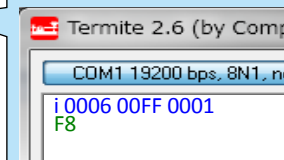
Recheck from **check item (4)**.
If it does not work, replace the PCB.

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

Check item(88). Checking the 5V status register :
Send the following command from Termite.exe.
Send the command "i 0006 00FF 0001".

Check the value.
Move to the branch destination according to the value returned.

Example



"78 or 70"
(Detection of 5V is not OK.)

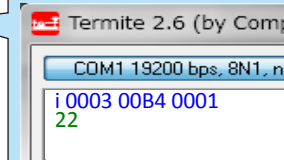
Go to **check item (90)**

"F8 or F0"
(Detection of 5V is OK)

Check item(89). Checking the status register :
Send the following command from Termite.exe.
Send the command "i 0003 00B4 0001".

Check the value.
Move to the branch destination according to the value returned.

Example



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

Go to **check item (91)**

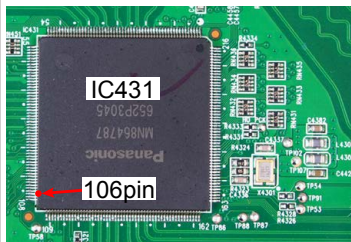
"22"
(Detection of DDC is OK)

Go to **check item (92)**

When the results of check item (88) are "78 or 70"
(Detection of 5V is not OK.)

Check the +5V voltage. (Front HDMI Buffer)

Check item(90). Check the +5V voltage.
Does the HDMI Tx [IC431] test point indicate (5V)?
The test points are as follows.



NO

Check for a short circuit in the 5 V line, the
Front HDMI FFC, and the 5 V Switch [IC392].
If there is no problem, the HDMI Tx [IC431] or
the 5 V Switch [IC392] is faulty.
Replace with a new device.

YES

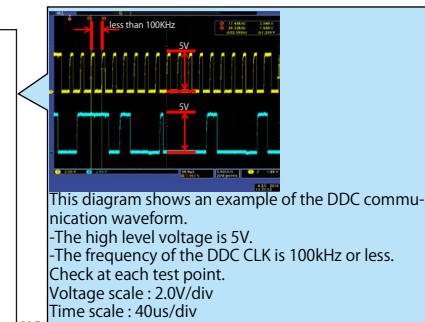
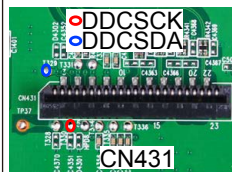
HDMI Tx [IC431] is faulty.
Replace with a new device.

Recheck from check item (4).
If it does not work, replace the PCB.

When the results of check item (89) are "00 or 04"
(Detection of DDC is not OK.)

Check the DDC Line. (Front HDMI Buffer)

Check item(91). Check the DDC line :
Are the "DDCSCK" and "DDCSDA" waveforms for
the HDMI Tx [IC431] signal correct (as shown in the
figure)?
The test points are as follows.



This diagram shows an example of the DDC communication waveform.

-The high level voltage is 5V.

-The frequency of the DDC CLK is 100kHz or less.

Check at each test point.

Voltage scale : 2.0V/div

Time scale : 40us/div

NO

Check for a short circuit in the DDC line and
check the Front HDMI FFC.

If there is no problem, the Front HDMI Buffer

[IC101] is faulty.

Replace with a new device.

YES

HDMI Tx [IC431] is faulty.
Replace with a new device.

Recheck from check item (4).
If it does not work, replace the PCB.



When the results of check item (89) are "22"
(Detection of DDC is OK)

Checking the TMDS status register (Front HDMI Buffer)

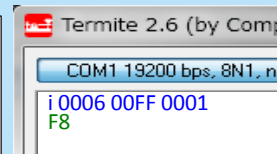
Check item(92). Check the TMDS CLK detection status of the register :

Send the following command from Termite.exe.
Send the command "i 0006 00FF 0001".

When the following value is returned, go to YES.
"F8"

When the following value is returned, go to NO.
"F0"

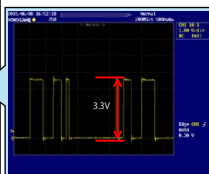
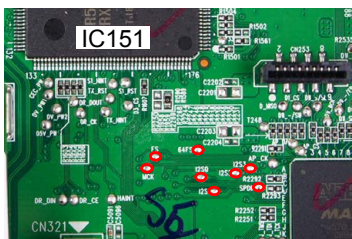
Example



NO

YES

Check item(94). Check the AUDIO signal output :
Check the AUDIO signal waveform at the following test point.
Is the waveform like the sample?



The diagram shows an example of the waveform of I2S0.
Waveform check points
- Crest value (3.3 V normally)
- Signal change
Check the waveform of each pin.
Voltage scale : 1.0V/div
Time scale : 500us/div

YES

NO

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

HDMI Tx [IC431] is faulty.
Replace with a new device.

Recheck from check item (4).
If it does not work, replace the PCB.

Check item(93). Checking the TMDS input waveform :
Check the TMDS waveform at the following test point.
Is the waveform like the sample?



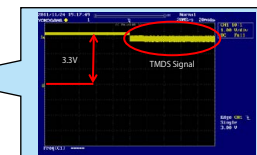
YES

NO

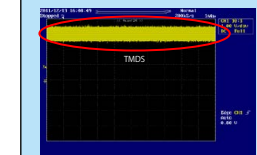
HDMI Tx [IC431] is faulty.
Replace with a new device.

Check for a short circuit in the TMDS line and the Front HDMI FFC.
If there is no problem, the Front HDMI Buffer [IC101] is faulty.
Replace with a new device.

Recheck from check item (4).
If it does not work, replace the PCB.



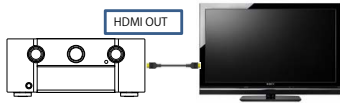
Example of waveform in check ①
Voltage scale : 1.0V/div
Time scale : 20ms/div



Example of waveform in check ②
Voltage scale : 1.0V/div
Time scale : 1s/div

3-18. GUI and PLD failure detection procedure

Check item(95). Does a video signal come from HDMI OUT to TV correctly? :



Turn Video Conversion "**ON**" on the setup menu.
(SETUP MENU-> Video-> Output Settings-> Video Conversion = On)
When the "**SETUP**" button on a remote control is pressed, is "**MENU**" displayed on TV which is connected to the HDMI output terminal on the AVR?

NO

Go to **check item (96)**

YES

Go to **check item (99)**

When the results of check item (95) are "**NO**"
(When the menu display is not OK)

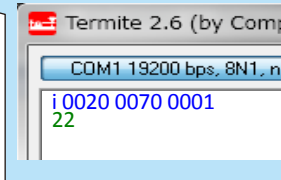
Check the Video signal line. (GUI -> HDMI Tx)

Check item(96). Check the format of the resistor video signal :

Send the following command from Termite.exe.
Send the command "**i 0020 0070 0001**".

Is the return value "**22/21/20/1F/15/14/13/11/10/06/05/04/02**" ?

Example



NO

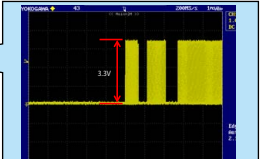
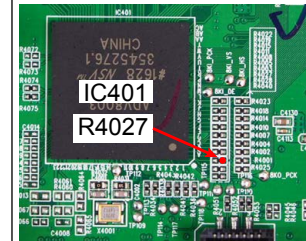
Check the Video signal line. (GUI -> PLD)

YES

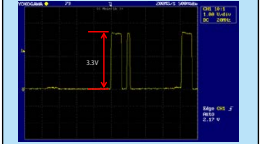
HDMI Tx [**IC431**] is faulty.
Replace with a new device.

Recheck from **check item (5)**.
If it does not work, replace the PCB.

Check item(97). Check the GUI video signal line from the HDMI Tx :
Check the video signal waveform at the following test point.
Is the waveform like the sample?



Example of waveform in check ①
Voltage scale : 1.0V/div
Time scale : 1ms/div



Example of waveform in check ②
Voltage scale : 1.0V/div
Time scale : 50ns/div

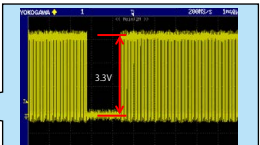
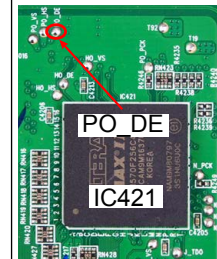
NO

Check the peripheral pattern between the GUI [**IC401**] and PLD [**IC421**].
If there is no problem, the GUI [**IC401**] is faulty.
Replace with a new device.

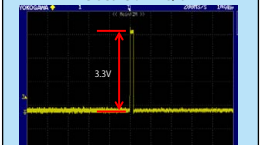
Recheck from **check item (5)**.
If it does not work, replace the PCB.

Check the Video signal line. (PLD -> HDMI Tx)

Check item(98). Check the HDMI Tx video signal line from the PLD :
Check the video signal waveform at the following test point.
Is the waveform like the sample?



Example of waveform in check ①
Voltage scale : 1.0V/div
Time scale : 1ms/div



Example of waveform in check ②
Voltage scale : 1.0V/div
Time scale : 1us/div

YES

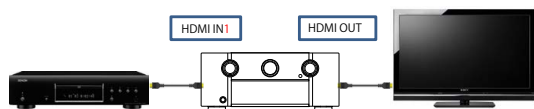
HDMI Tx [**IC431**] is faulty.
Replace with a new device.

Recheck from **check item (5)**.
If it does not work, replace the PCB.

NO

Check the peripheral pattern between the PLD [**IC421**] and HDMI Tx [**IC431**].
If there is no problem, the PLD [**IC421**] is faulty.
Replace with a new device.

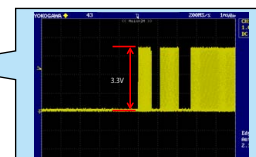
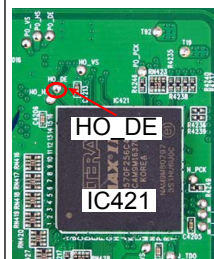
When the results of check item (95) are "YES"
(When the menu display is OK)



Turn Video Conversion "ON" on the setup menu.
(SETUP MENU-> Video-> Output Settings-> Video Conversion = On)
In order to check, connect the player to the HDMI terminal and configure the player as AVR source.
Next, turn on the power for the player and TV and start playback on the player.

Check the Video signal line. (HDMI Tx -> PLD)

Check item(99). Check the PLD video signal line from the HDMI Tx :
Check the video signal waveform at the following test point.
Is the waveform like the sample?



Example of waveform in check ①
Voltage scale : 1.0V/div
Time scale : 1ms/div



Example of waveform in check ②
Voltage scale : 1.0V/div
Time scale : 1us/div

YES

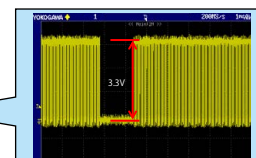
NO

Check the peripheral pattern between the HDMI Tx [IC431] and PLD [IC421].
If there is no problem, the HDMI Tx [IC431] is faulty.
Replace with a new device.

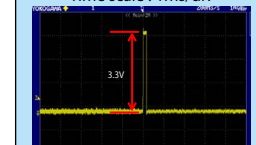
Recheck from check item (5).
If it does not work, replace the PCB.

Check the Video signal line. (PLD -> GUI)

Check item(100). Check the GUI video signal line from the PLD :
Check the video signal waveform at the following test point.
Is the waveform like the sample?



Example of waveform in check ①
Voltage scale : 1.0V/div
Time scale : 1ms/div



Example of waveform in check ②
Voltage scale : 1.0V/div
Time scale : 1us/div

YES

NO

GUI [IC401] is faulty.
Replace with a new device.

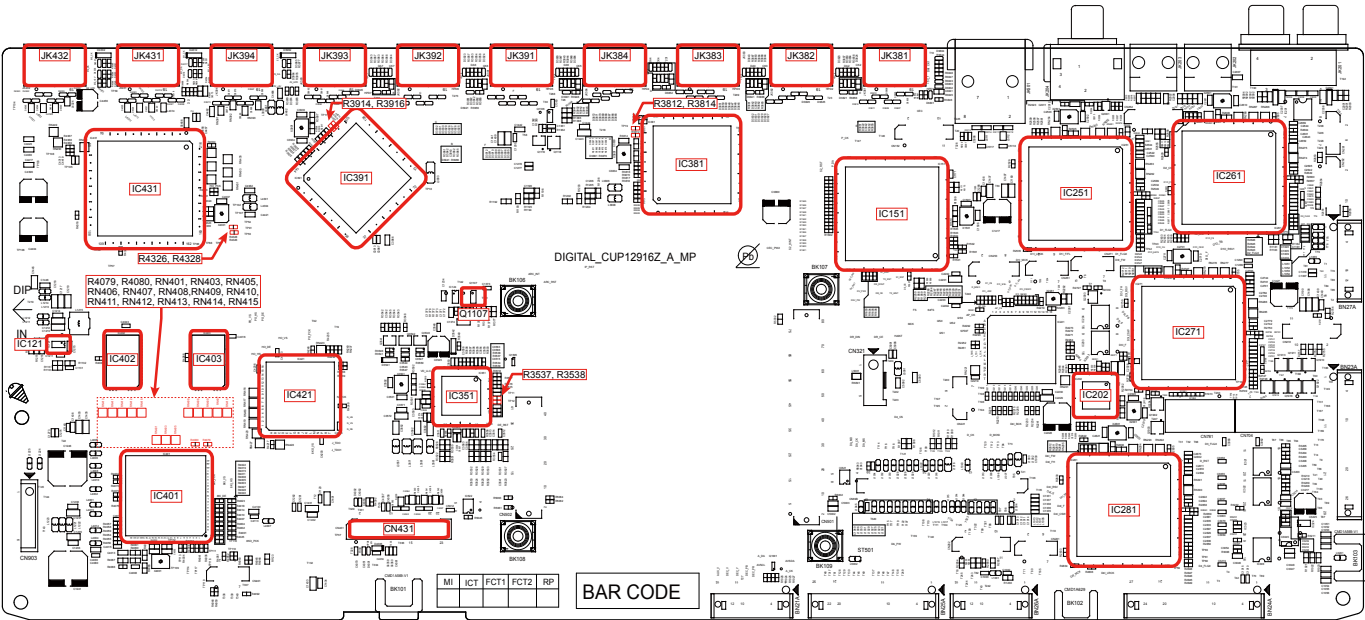
Check the peripheral pattern between the PLD [IC421] and GUI [IC401].
If there is no problem, the PLD [IC421] is faulty.
Replace with a new device.

Recheck from check item (5).
If it does not work, replace the PCB.

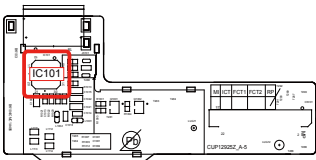


4. Device implementation location

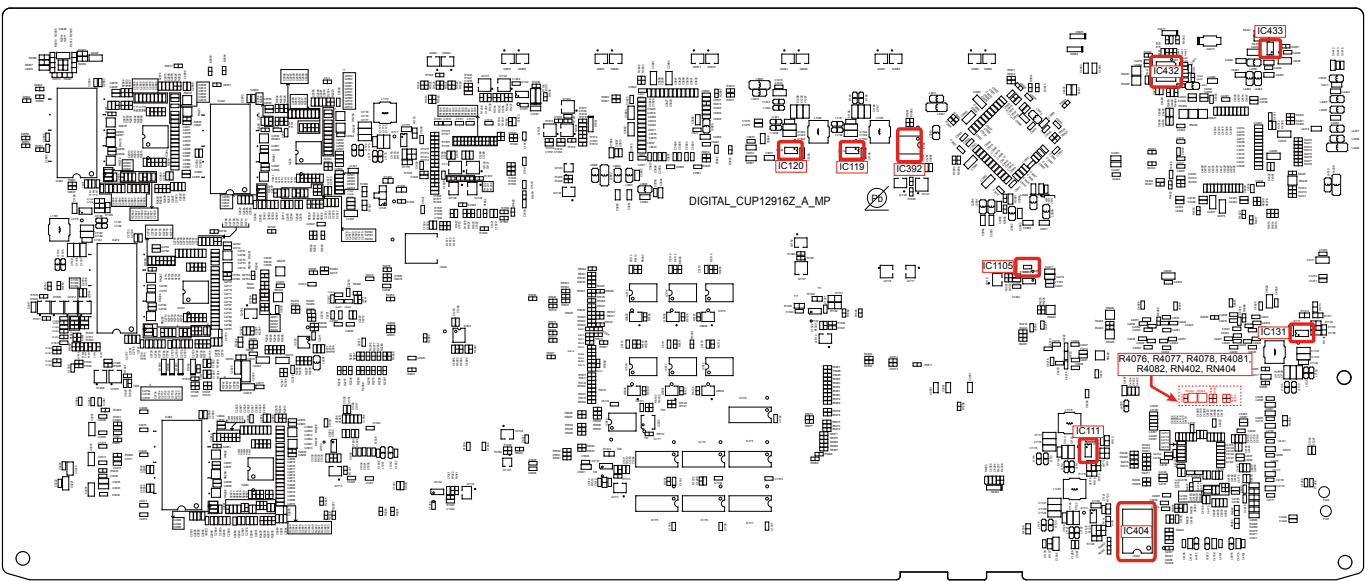
DIGITAL (A SIDE)



F HDMI (A SIDE)



DIGITAL (B SIDE)



Caution in servicing

Electrical

Mechanical

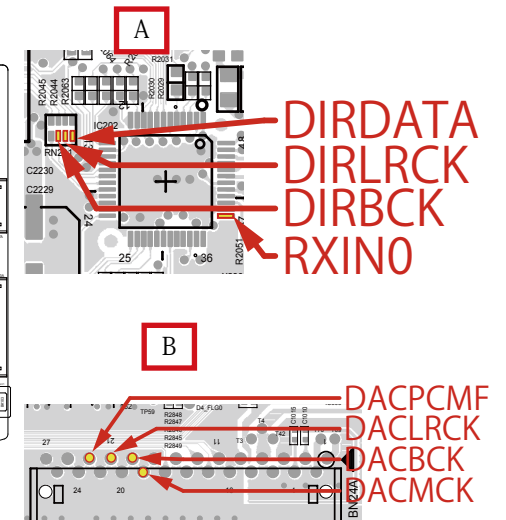
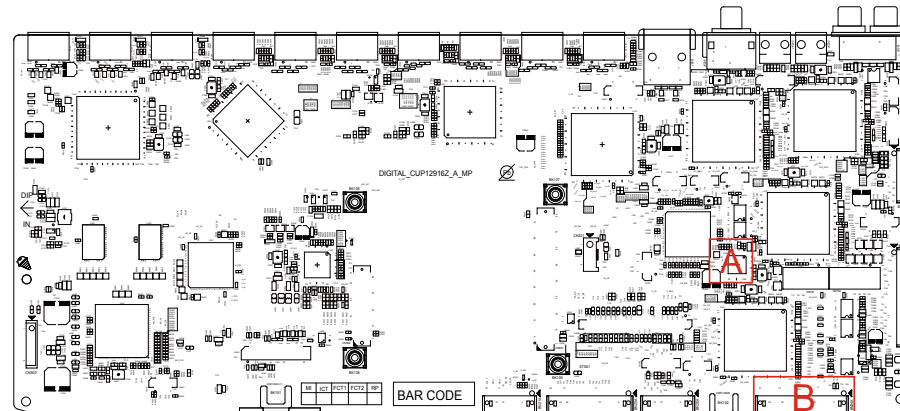
Repair Information

Updating



Caution in servicing

Electrical



SPECIAL MODE

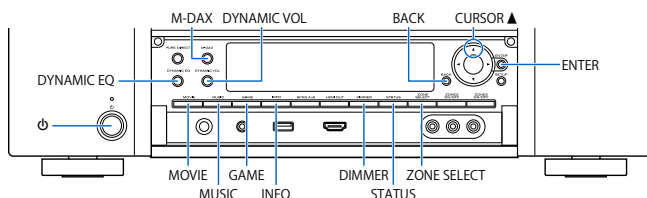
Special mode setting button

※ 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 (u-COM / DSP Error Display)	DIMMER	STATUS	-	Displays the version of firmware such as the main firmware or DSP. Errors that have occurred are displayed. (See 1. Version Display Mode)
2	PANEL / REMOTE LOCK Selection Mode	BACK	ENTER	-	Start this unit in the PANEL/REMOTE LOCK selection mode so that PANEL LOCK and Remote Lock can be switched between On and Off. (See 2. PANEL / REMOTE LOCK Selection Mode) ·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
3	Selecting the Mode for Service-related	ZONE SELECT	BACK	-	This is a display for turning on each service-related mode. Service-related modes: No. 3-1 - No. 3-5
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 Service Path Check Mode)
3-2	Protection history display mode	↑	↑	-	Displays the protection occurrence history. (See 3-2. Protection History Display Mode)
3-3	232C Standby Clear Mode	↑	↑	-	Switches from 232C standby mode to normal standby mode. (See 3-3. 232C Standby Clear Mode)
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 3-4. Operation Info Mode)
3-5	TUNER STEP Mode (U and N model only)	↑	↑	-	Enables reception STEP of the ANALOG TUNER to be changed. (See 3-5. TUNER STEP mode (U, N only))
4	Protection Pass Mode	M-DAX	DYNAMIC EQ	DYNAMIC VOL	Enables the power to be turned on when protection detection is disabled. (See 4. Protection Pass Mode)
5	Network Initialization Mode	BACK	ENTER	-	Network module backup data is initialized. (See 5. Network Initialization Mode)
6	User Initialization Mode	GAME	INFO	-	Initialize the backup data for the MCU and network module. (Settings for the Installer Setup are not initialized.)
7	Factory Initialization Mode	MOVIE	MUSIC	-	Initialize the backup data only for MCU. (Settings for the Installer Setup are initialized) (Network function settings are not initialized.) (See Initializing This Unit)
8	Clearing the Operation Info	DYNAMIC EQ	DYNAMIC VOL	-	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 6. Clearing the Operation Info)
9	HDMI Diagnostics Mode	BACK	CURSOR ▲	-	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	MOVIE	INFO	-	Acquires the Network Module log. The log is deleted when the Network Module is deleted. (See 7. Log Capture feature)

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 Main μ-com, Main 1st Boot Loader → ④ DSP1/2/3/4 ROM → ⑤ Audio, Video PLD → ⑥ GUI SFLASH → ⑦ HEOS Version → ⑧ HEOS Build → ⑨ HEOS Module → ⑩ HEOS Configuration → ⑪ HEOS Locale → ⑫ Ether Mac Address → ⑬ WiFi Mac Address → ⑭ BT Mac Address → ⑮ Audyssey App Interface Version

① Model destination information, Serial Number :

L1	SR7012 \
L2	SN- *****

\ : Region (U, N, K, F)

② Firmware Package :

L1	Firm. Package
L2	Ver. : *****

③ Main μ-com, Main 1st Boot Loader :

L1	M: *****
L2	Main FBL : **.*

④ DSP 1/2/3/4 ROM :

L1	DSP1 : **.*
L2	DSP2 : **.*

L1	DSP3 : **.*
L2	DSP4 : **.*

⑤ Audio, Video PLD :

L1	Audio PLD: **.*
L2	Video PLD: **.*

⑥ GUI SFLASH :

L1	GUI : @#\$~*****
----	------------------

@ : Model code

\$: Brand code (Non=0, De=1, Mz=2, Mc=3)

~ : Region code (U=1, N=2, K=5, F=4, ALL=0)

* : version

⑦ HEOS Version :

L1	HEOS Version
L2	*.*.*.*

⑧ HEOS Build :

L1	HEOS Build
L2	*****

⑨ HEOS Module :

L1	HEOS Module
L2	***

⑩ HEOS Configuration :

L1	HEOS Config
L2	Development
	Production

⑪ HEOS Locale :

L1	HEOS Locale
L2	*****

⑫ Ether Mac Address :

L1	*Ether MAC
L2	*****-*****

⑬ WiFi Mac Address :

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

⑭ BT Mac Address :

L1	*BT MAC Address
L2	*****-*****

⑮ Audyssey App Interface Version :

L1	Audy IFVer: **.*
L2	



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 NG (# : 1/2/3/4)	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 displayed as the first character if the firmware is not correct (see the illustrations on the right).	FIRM ERROR ▲M:***** ▲Main FBL :**.* ▲DSP# :**.* ▲Audio PLD:**.* ▲Video PLD:**.* ▲GUI :*****	•Check the resistor for setting the region(R1590/R1589, DIGITAL PCB). •Write the firmware for the correct region.
② IP SCALER NG	An error occurs in Loop back Test of the DDR memory which is performed during the initial setting of i/p Scaler(ADV8003). During the initial setting of i/p Scaler (ADV8003) , there is not the reply of the Loop back Test result of the DDR memory .	IP SCALER ERR 01 IP SCALER ERR 02	•Check the circuits around the IP SCALER (IC401, DIGITAL PCB) and DDR2 (IC402/IC403). - If there appear to be no problems, IC401 or IC402/IC403 is faulty.
③ GUI Serial Flash NG	If the Main CPU version is not supported by the GUI Serial Flash (ADV8003), "▼" is displayed as the first character of the GUI firmware version.	GUI VER. ERROR ▼GUI :*****	•Check the firmware version.
④ DIR NG	This error is displayed if there is no response from the DIR.	DIR ERROR 01	•Check the DIR (IC202, DIGITAL PCB) and surrounding circuits.
⑤ DSP# NG (# : 1/2/3/4)	The DSP FLAG0 port does not enter "Hi" status while booting a DSP code even after resetting DSP. The DSP FLAG0 port does not enter "Hi" status before issuing a DSP command. Setting WRITE to "Lo" does not set ACK to "Hi" during DSP data reading. Setting REQ to "Lo" does not set ACK to "Lo" during DSP data reading. Setting WRITE to "Hi" does not set ACK to "Hi" during DSP data writing. Setting REQ to "Lo" does not set ACK to "Lo" during DSP data writing.	DSP# ERROR 01 DSP# ERROR 02 DSP# ERROR 03 DSP# ERROR 04 DSP# ERROR 05 DSP# ERROR 06	•Check the DSP (IC251/IC261/IC271/ IC281, DIGITAL PCB) and surrounding circuits.
⑥ EEPROM NG	An error occurred in a checksum of the EEPROM(*** is a block address number).	BACKUP ERROR	

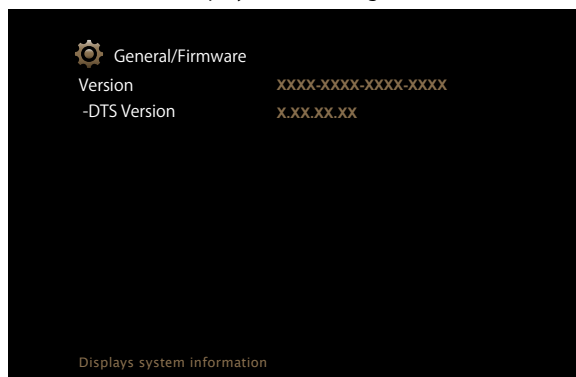


1.5. Version Display in the Setup Menu

Follow the steps below to display the firmware information.

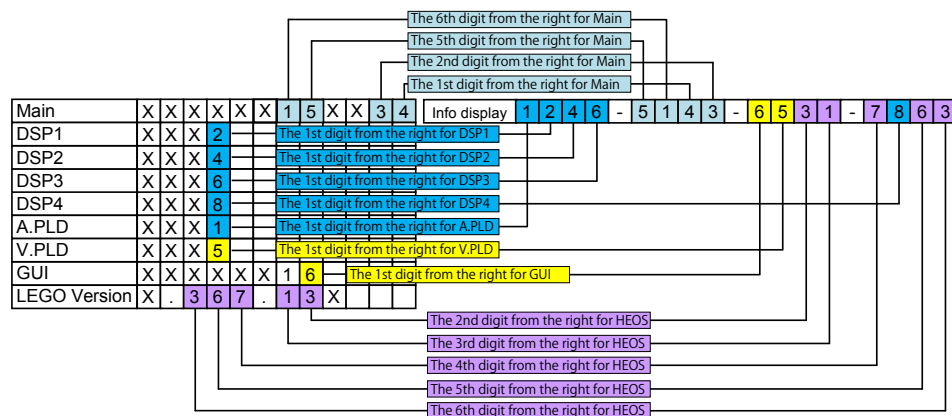
- (1) Press the "SETUP" button on the remote control.
- (2) Select "General - Information - Firmware".

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.

2.2. Starting up

While holding down buttons "**BACK**" and "**ENTER**" simultaneously, press the power button to turn on the power.

Select the desired mode using the "**CURSOR ▼/▲**" button, then press the "**ENTER**" button to confirm.

2.3. Displaying and Selecting Each Mode

The information shown on the display switches each time the "**CURSOR ▼/▲**" button is pressed.

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

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

①

L1	▶FP/VOL LOCK*On
L2	FP LOCK On

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



②

L1	FP/VOL LOCK*On
L2	▶FP LOCK On

The buttons on the unit does not function.



③

L1	FP LOCK On
L2	▶FP LOCK Off

The PANEL LOCK mode is turned off.



④

L1	FP LOCK Off
L2	▶RC LOCK On

The device cannot be operated by the remote control.



⑤

L1	RC LOCK On
L2	▶RC LOCK *Off

The REMOTE 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, TUNER STEP mode or Remote ID Setup Mode.

3-1.2. Starting up

While holding down buttons "ZONE SELECT" and "BACK" simultaneously, press the power button to turn on the power.

Select the desired mode using the "CURSOR ▼/▲" button, then press the "ENTER" button to confirm.

3-1.3. Displaying and Selecting Each Mode

The information shown on the display switches each time the "CURSOR ▼/▲" button is pressed. Press the "ENTER" button to set the currently displayed mode and restart the device.

①

L1	▶1.SERVICE CHECK
L2	2.PROTECTION

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	1.SERVICE CHECK
L2	▶2.PROTECTION

The protection history can be checked.



③

L1	2.PROTECTION
L2	▶3.RS232C RESET

Switches from 232C standby mode to normal standby mode.



④

L1	3.RS232C RESET
L2	▶4.OP INFO

Operation Info for the unit can be checked.



⑤

L1	4.OP INFO
L2	▶5.TUNER FRQ SET

Enables reception 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 "**ZONE SELECT**" and "**BACK**" simultaneously, press the power button to turn on the power.

Select the "**2. PROTECTION**" using the "**CURSOR ▼/▲**" button, then press the "**ENTER**" button to confirm.

3-2.3. Protection information and displays

· Press the "**STATUS**" button in Protection History Display Mode.

· The protection history can be checked.

(a) If no protections has occurred.

L1	PROTECT HISTORY
L2	: NO PROTECT

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

L2	: 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.

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

L2	: 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.

(e) Case of THERMAL (when the last protection incident is THERMAL(E) protection)

L2	: THERMAL 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.

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

L2	: 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 microcomputer.

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.

- (a) Activate Protection History Display Mode. Press the "**STATUS**" button to display the protection history. Press and hold the "**ENTER**" button for 3 seconds.

L1	PROTECT HISTORY
L2	≡DC

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



L2	CLEAR
----	-------

The above message is displayed and the protection history is cleared.



L2	≡NO PROTECT
----	-------------

- (b) Initialize this unit. (See "[Initializing This Unit](#)")

※ Use the method in 3-2.4. (a) 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.

- (a) ASO/DC protection: Flashes at 0.5-second intervals (0.25 seconds lit, 0.25 seconds unlit)
- (b) THERMAL (E) protection: Flashes at 2-second intervals (1 seconds lit, 1 seconds unlit)
- (c) 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 "**ZONE SELECT**" and "**BACK**" simultaneously, press the power button to turn on the power.

Select the "**3.RS232C RESET**" using the "**CURSOR ▼/▲**" button, then press the "**ENTER**" button to confirm.

L1	2. PROTECTION
L2	➡3. RS232C RESET



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 "ZONE SELECT" and "BACK" simultaneously, press the power button to turn on the power.

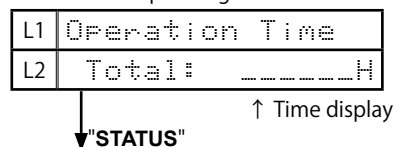
Select the "4. OP INFO" using the "CURSOR ▼/▲" button, then press the "ENTER" button to confirm.

3-4.3. Operations

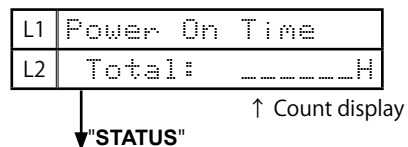
Press the "STATUS" button after starting up this device in Operation Info mode.

The following information is displayed in the following order.

(a) Accumulated operating time



(b) Power On count



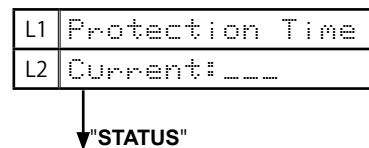
(c) DC / ASO Protection count



(d) Thermal Protection (E) count



(e) Current Protection count



(Returns to normal display)



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

3-5.1. Actions

This is a special mode for enabling reception STEP of the ANALOG TUNER to be changed.

3-5.2. Starting up

While holding down buttons "**ZONE SELECT**" and "**BACK**" simultaneously, press the power button to turn on the power.

Select the "**5. TUNER FRQ SET**" using the "**CURSOR ▼/▲**" button, then press the "**ENTER**" button to confirm.

3-5.3. Displays

Start up this unit in TUNER STEP mode, select the desired option using the "**CURSOR ◀/▶**" button, then enter using the "**ENTER**" button.

The following information is displayed in the following order.

- (a) AM9 kHz / FM50 kHz is selected

L1	*TUNER FRQ Set
L2	< AM9/FM50 >

"CURSOR ◀" ↓ ↑ "CURSOR ▶"

- (b) AM10 kHz / FM200 kHz is selected

L2	< AM10/FM200 >
----	----------------

↓ "ENTER"

- (c) Press the power button to turn off the power.
(d) 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 "**M-DAX**", "**DYNAMIC EQ**" and "**DYNAMIC VOL**" simultaneously, press the power button to turn on the power.

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

L1 Protection Pass

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) Quick Select playback station
- (9) AirPlay Password
- (10) Bluetooth Pairing History
- (11) Crestron Connected Setup

5.2. Operations

When the power is on and the input source is HEOS Music, press and hold the "**BACK**" and "**ENTER**" buttons for more than 3 seconds.

Initializing Display

L1 Network Reset...

Complete Display

L1 Completed

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

6. Clearing the 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 "**DYNAMIC EQ**" and "**DYNAMIC VOL**" simultaneously, press the power button to turn on the power.

L1	PRODUCT MODE
----	--------------

When "**PRODUCT MODE**" appears on the display, release the button and press the button "**power**" → "**ZONE2 ON/OFF**" → "**ZONE3 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 "**MOVIE**" and "**INFO**" for at least 3 seconds.

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

- (a) The log is written to the USB flash drive and "**Storing Logs...**" is displayed.
The log is also sent to the server.

L1	Storing Logs...
----	-----------------

- (b) 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 SUCCESS
----	-------------

- (c) 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 FAILED
----	------------

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

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

L1	Storing Logs...
----	-----------------

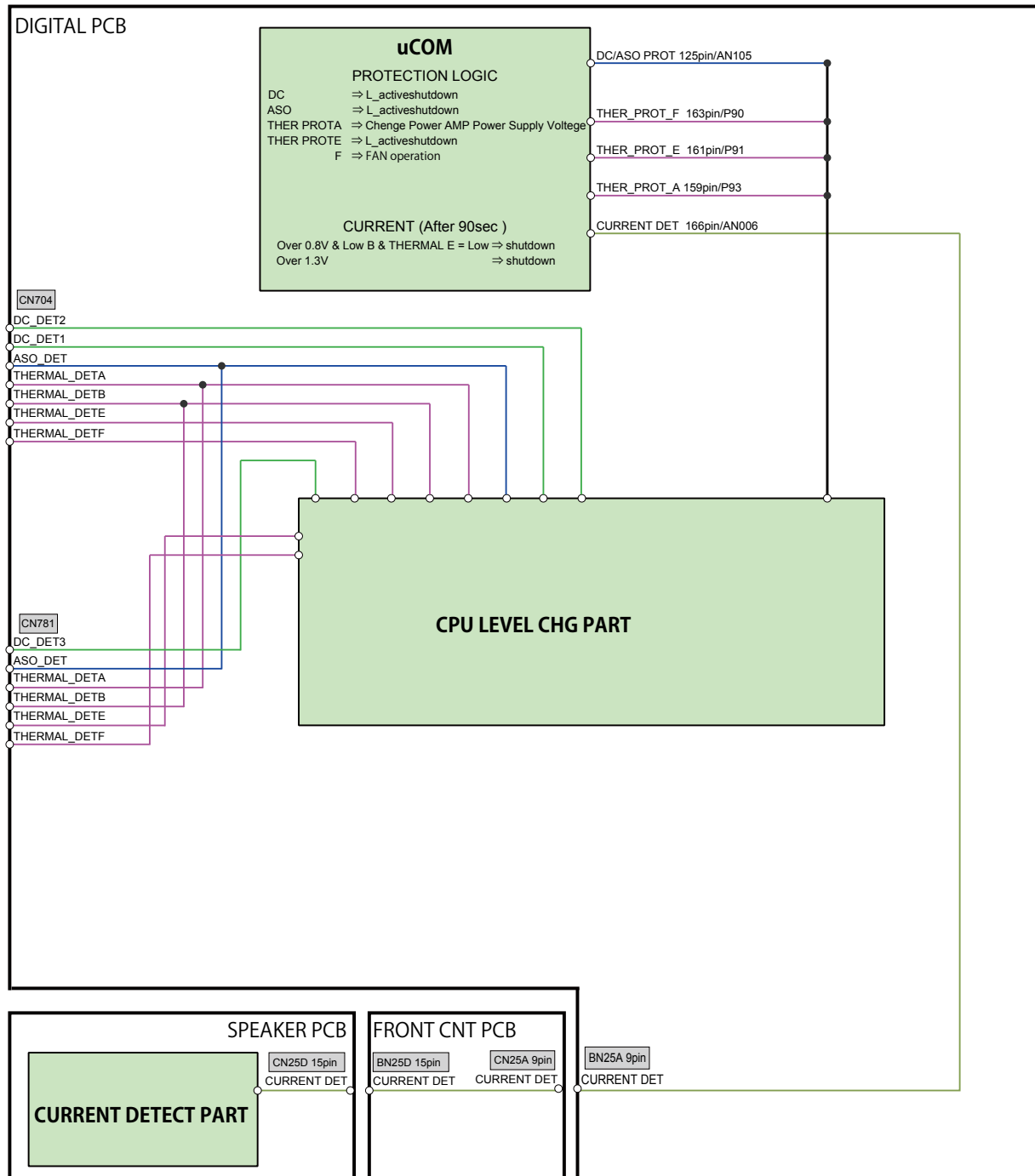
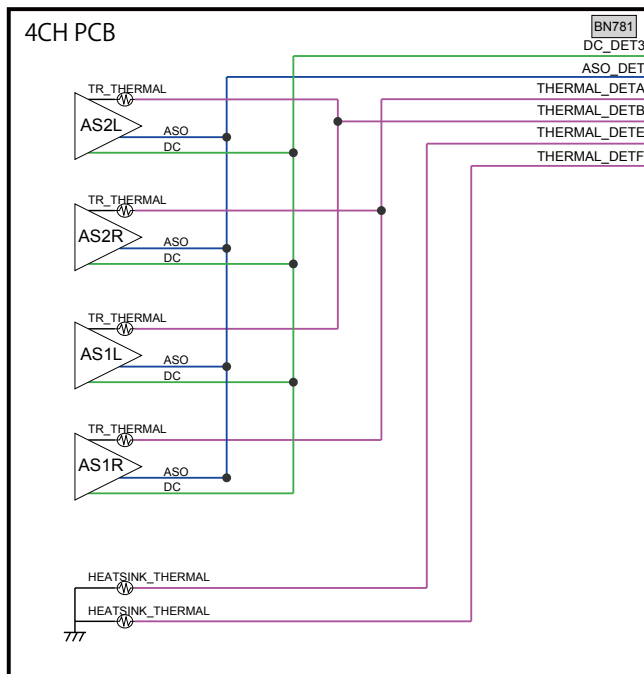
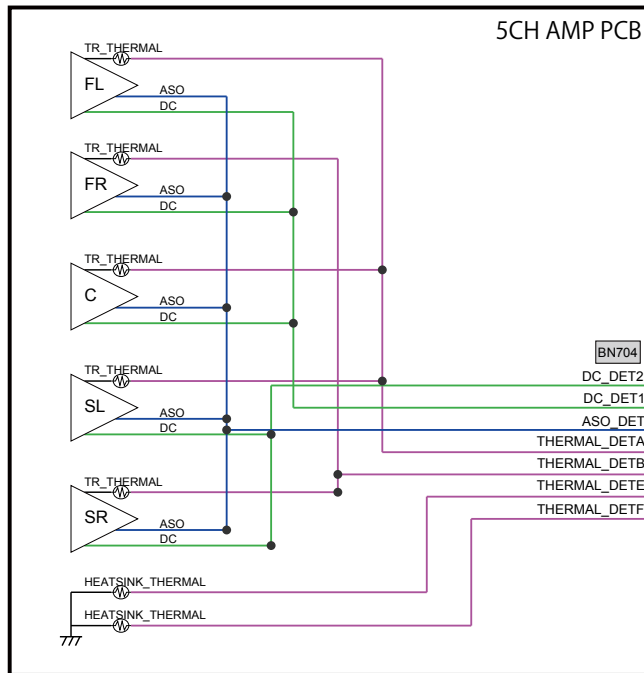
- (b) When the log package is uploaded, the ticket numbers "**UPLOAD No : XXXXX**" and "**Push ENTER**" are displayed until RC or the "**Enter**" or "**Back**" button of this machine is pressed.

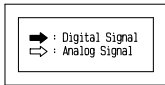
L1	TicKet No:XXXXX
----	-----------------

L2	Push ENTER
----	------------

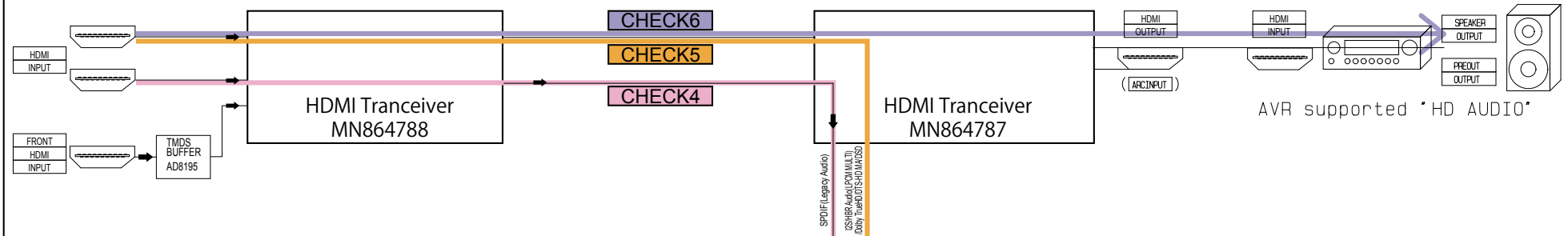
- (c) If the log package upload fails, "**FAILED**" is displayed for 5 seconds.

L1	FAILED
----	--------

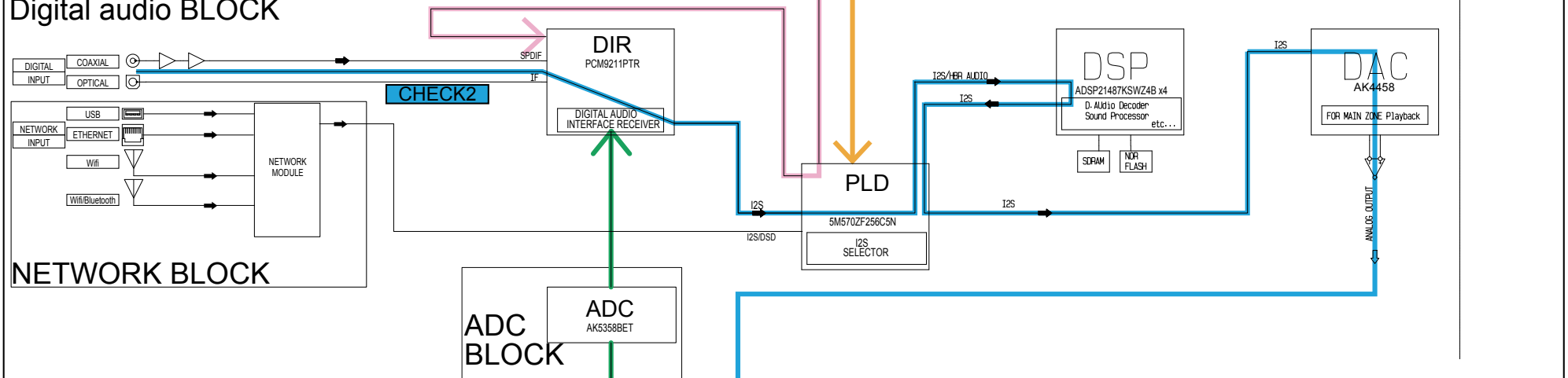




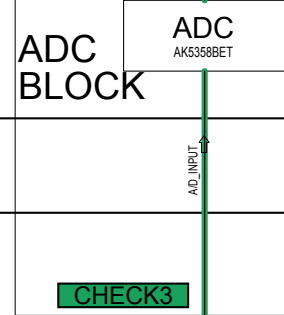
HDMI BLOCK



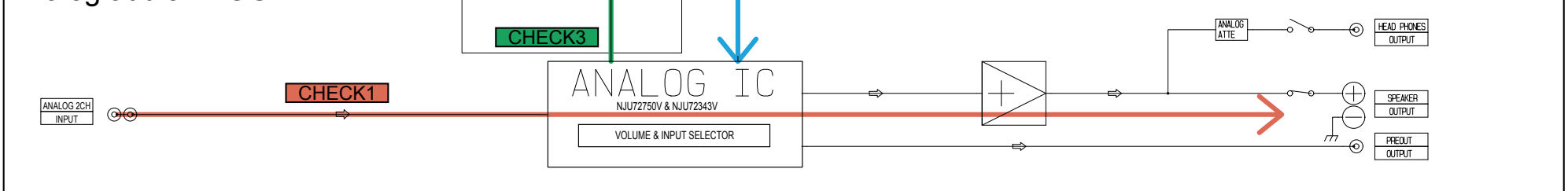
Digital audio BLOCK



NETWORK BLOCK



Analog audio BLOCK



1.1. Actions

This function is convenient for confirming problem paths in the product and checking the paths after repairing.
The video system, audio system and fan operation paths can be checked.
The backup data is not rewritten.

1.2. Starting up

While holding down buttons "**ZONE SELECT**" and "**BACK**" simultaneously, press the power button to turn on the power.
Select the "**1. SERVICE CHECK**" using the "**CURSOR ▼**" button, then press the "**ENTER**" button then to confirm.
The "**TUNED**", "**STEREO**" and "**RDS**" segments are lit in this mode.

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 ⇄ FAN	PREVIOUS	NEXT	Audio ⇄ Video	PREVIOUS	NEXT
Button	DIMMER	CURSOR ◀	CURSOR ▶	SLEEP	CURSOR ◀	CURSOR ▶

1.5. Audio system confirmation items

See the block diagram fig.XXth. Change the Amp Assign and Speaker Config settings manually when checking the audio system path.

Paths to be confirmed			Display (Sub Display)	Settings	What to confirm
1	Analog	fig.01	A01:ANALOG PASS	Input Source : CBL/SAT Input Mode : Analog (fixed) Sound mode : DIRECT Amp assign : 9.1ch Floor Layout : 5.1&SB Height Sp : 2ch Dolby Sp : None Height Layout : Front Height MAIN ZONE : On ZONE2 : Off ZONE3 : Off	- Analog input ⇒ Speaker output (Front L/R) - Analog input ⇒ Pre OUT output (Front L/R) (※ The input source can be switched to any source except CBL/SAT.)
2	DIGITAL (MAIN)	fig.02a fig.02b	A02:DIGITAL	Input Source : CBL/SAT Input Mode : DIGITAL (fixed) Sound mode : MULTI CH STEREO Amp assign : 9.1ch Floor Layout : 5.1&SB Height Sp : 2ch Dolby Sp : None Height Layout : Front Height Speaker Select : Floor Speaker Config ALL Speaker = Small / SW = Yes(2ch) MAIN ZONE : On ZONE2 : Off ZONE3 : Off	- Digital input ⇒ Speaker output (Front L/R, Center, Surround L/R, S.Back L/R) - Digital input ⇒ Pre output (Front L/R, Center, Surround L/R, S.Back L/R, Subwoofer1/2) (※ The input source can be switched to any source except CBL/SAT.)

Paths to be confirmed			Display (Sub Display)	Settings	What to confirm
3	DIGITAL (ZONE2)	fig.03a fig.03b fig.03c	A03: DIGITAL-Z2	Input Source : HEOS Music Input Mode : Auto Sound mode : STEREO Amp assign : 7.1ch + ZONE2 Floor Layout : 5ch Height Sp : 2ch Dolby Sp : None Height Layout : Front Height MAIN ZONE : On ZONE2 : On ZONE3 : Off	• Digital(PCM) input ⇒ Speaker output (Height2 (ZONE2) L/R) • Digital(PCM) input ⇒ Pre OUT output (ZONE2 L/R) (※ The input source can be switched to any source except HEOS Music.)
4	DIGITAL (ZONE3)	fig.04a fig.04b	A04: DIGITAL-Z3	Input Source : HEOS Music Input Mode : Auto Sound mode : STEREO Amp assign : 7.1ch + ZONE Floor Layout : 5ch Height Sp : 2ch Dolby Sp : None Height Layout : Front Height MAIN ZONE : On ZONE2 : Off ZONE3 : On	• Digital(PCM) input ⇒ Amp Assign Speaker output (Height2 (ZONE3) L/R) • Digital(PCM) input ⇒ Pre OUT output (ZONE3 L/R) (※ The input source can be switched to any source except HEOS Music.)
5	HDMI	fig.05a fig.05b fig.05c	A05: HDMI	Input Source : CBL/SAT Input Mode : HDMI (fixed) Sound mode : STEREO Amp assign : 9.1ch Floor Layout : 5ch&SB Height Sp : 2ch Dolby Sp : None Height Layout : Front Height MAIN ZONE : On ZONE2 : Off ZONE3 : Off	• HDMI input ⇒ Speaker output (Front L/R) • HDMI input ⇒ Pre OUT output (Front L/R) (※ The input source can be switched to any source except CBL/SAT.)
6	Analog AD (MAIN)	fig.06a fig.06b	A06: AD	Input Source : CBL/SAT Input Mode : Analog (fixed) Sound mode : MULTI CH STEREO Amp assign : 9.1ch Floor Layout : 5ch&SB Height Sp : 2ch Dolby Sp : None Height Layout : Front Height Speaker Select : Floor & Height Speaker Config ALL Speaker = Small/SW = Yes(2ch) MAIN ZONE : On ZONE2 : Off ZONE3 : Off	• Analog input ⇒ Speaker output (Front L/R, Center, Surround L/R, S.Back L/R, Height1 L/R) • Analog input ⇒ Speaker output, SW(20Hz) (Front L/R, Center, Surround L/R, S.Back L/R, Height1 L/R, Subwoofer1/2) (※ The input source can be switched to any source except CBL/SAT.) (※ Volume 60 is the value when Absolute settings are used. The value is -20 when Relative settings are used)
7	Analog Amp Assign (Amp Assign : ZONE2)	fig.07	A07: ASSIGN-Z2	Input Source : CBL/SAT Input Mode : Auto Sound mode : STEREO Z2 Source : Source Amp assign : 7.1ch + ZONE2 Floor Layout : 5ch Height Sp : 2ch Dolby Sp : None Height Layout : Front Height MAIN ZONE : On ZONE2 : On ZONE3 : Off	• Analog input ⇒ Speaker output (Height2 (ZONE2) L/R) • Analog input ⇒ Pre OUT output (ZONE2 L/R) (※ The input source can be switched to any source except CBL/SAT.) (※ Volume 60 is the value when Absolute settings are used. The value is -20 when Relative settings are used)
8	Analog Amp Assign (Amp Assign : ZONE3)	fig.08	A08: ASSIGN-Z3	Input Source : CBL/SAT Input Mode : Auto Sound mode : STEREO Z3 Source : Source Amp assign : 7.1ch + ZONE3 Floor Layout : 5ch Height Sp : 2ch Dolby Sp : None Height Layout : Front Height MAIN ZONE : On ZONE2 : Off ZONE3 : On	• Analog input ⇒ Speaker output (Height2 (ZONE3) L/R) • Analog input ⇒ Pre OUT output (ZONE3 L/R) (※ The input source can be switched to any source except CBL/SAT.) (※ Volume 60 is the value when Absolute settings are used. The value is -20 when Relative settings are used)



Paths to be confirmed			Display (Sub Display)	Settings	What to confirm
9	Analog Amp Assign (Amp Assign : ZONE2/ZONE3- MONO)	fig.09	A09: ASSIGN-Z2/3M	Input Source : CBL/SAT Input Mode : Auto Sound mode : STEREO Z2 Source : Source Z3 Source : Source Amp assign : 7.1ch + ZONE2/3 Floor Layout : 5ch&SB MAIN ZONE : On ZONE2 : On ZONE3 : On	• Analog input ⇒ Speaker output (Height2 (ZONE2) L, Height2 (ZONE3) R) • Analog input ⇒ Pre OUT output (ZONE2 L/R MONO, ZONE3 L/R MONO) (※ The input source can be switched to any source except CBL/SAT.) (※ Volume 60 is the value when Absolute settings are used. The value is -20 when Relative settings are used)
10	Amp Assign (Amp Assign : BiAMP)	fig.10a fig.10b	A11: ASSIGN-BiAMP	Input Source : CBL/SAT Input Mode : Auto Sound mode : MULTI CH STEREO Amp assign : 7.1ch + BiAMP Floor Layout : 5ch Height Sp : 2ch Dolby Sp : None Height Layout : Front Height MAIN ZONE : On ZONE2 : Off ZONE3 : Off	• Analog input ⇒ Speaker output (Height2 L/R (Top Front)) (※ The input source can be switched to any source except CBL/SAT.) (※ Volume 60 is the value when Absolute settings are used. The value is -20 when Relative settings are used)
11	Front Height	fig.11a fig.11b	A14: FRONT HEIGHT	Input Source : CBL/SAT Input Mode : Auto Sound mode : MULTI CH STEREO Amp assign : 9.1ch Floor Layout : 5ch Height Sp : 4ch Dolby Sp : None Height Layout : Top Front & Top Rear Speaker Select : Floor & Height MAIN ZONE : On ZONE2 : Off ZONE3 : Off	• Analog input ⇒ Speaker output (Height1 L/R (Top Front), Height2 L/R (Top Front)) • Analog input ⇒ Pre OUT output (Height1 L/R (Top Front), Height2 L/R (Top Rear)) • Pre OUT output (※ The input source can be switched to any source except CBL/SAT.) (※ Volume 60 is the value when Absolute settings are used. The value is -20 when Relative settings are used)
12	7.1ch	fig.12	A19: 7.1CH IN	Input Source : CBL/SAT Input Mode : 7.1Ch In Amp Assign : 9.1ch Floor Layout : 5ch&SB Height Sp : None Dolby Sp : None Speaker Config ALL Speaker = Small/SW = Yes(2ch)	• 7.1ch IN input ⇒ Speaker output (Front L/R, Center, Surround L/R, S.Back L/R) • Pre OUT output (Front L/R, Center, Surround L/R, S.Back L/R, Subwoofer1/2)
13	Front Amp ⇒ Sur- round Back	fig.13a fig.13b	A20: F-AMP BACK	Input Source : CBL/SAT Input Mode : Auto Sound mode : MULTI CH STEREO Amp assign : 11.1ch Height Speakers : 4Height Speakers Height Layout : Top Front & Top Rear Pre OUT Channel : Front Speaker Select : Floor & Height MAIN ZONE : On ZONE2 : Off ZONE3 : Off	• Analog input ⇒ Speaker output (S.Back L/R) (※ The input source can be switched to any source except CBL/SAT.) (※ Volume 60 is the value when Absolute settings are used. The value is -20 when Relative settings are used)



1.6. Confirmation items for the video system

See the block diagram fig.XXth.

Paths to be confirmed			Display	Settings	What to confirm
1	Analog Video pass	fig.14	U01:VIDEO PASS	Input Source : CBL/SAT MAIN ZONE : On ZONE2 : On	• Component input ⇒ Component output • CVBS input ⇒ CVBS output (※ The input source can be switched to any source except CBL/SAT.)
2	Video Convert (Analog or HDMI ⇒ HDMI)	fig.15a fig.15b	U02:V. CONVERT	Input Source : CBL/SAT Video Conversion (IP Scaler) : "Auto", All sources IP Scaler : "HDMI", All sources Resolution : "Auto", All sources MAIN ZONE : On ZONE2 : Off	• HDMI input ⇒ IP Scaler ⇒ HDMI output. • ETHERNET input ⇒ IP Scaler ⇒ HDMI output. • CVBS input ⇒ IP Scaler ⇒ HDMI output. • Component input ⇒ IP Scaler ⇒ HDMI output. (※ The input source can be switched to any source except CBL/SAT.)
3	HDMI pass (MAIN ZONE)	fig.16	U03:HDMI PASS	Input Source : CBL/SAT Video Conversion (IP Scaler) : Off 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)	fig.17	U04:HDMI CEC	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)	fig.18a fig.18b fig.18c	U05:H. AUDIO-AVR	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)	fig.19a fig.19b	U06:H. AUDIO-TV	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	fig.20	U07:GUI MENU ON	Input Source : CBL/SAT IP Scaler : On, All sources Resolution : "AUTO", All sources Setup Menu : On MAIN ZONE : On ZONE2 : Off	• GUI display ⇒ HDMI output. (※ The input source can be switched to any source except CBL/SAT.)
8	HDMI pass (MAIN ZONE2)	fig.21	U08:ZONE2 HDMI	Input Source : CBL/SAT Z2 Source : Source MAIN ZONE : On ZONE2 : On ZONE3 : Off	• HDMI input (ZONE2 Function) ⇒ HDMI output (ZONE2) (※ The input source can be switched to any source except CBL/SAT.)

1.7. Confirmation items for fan operation

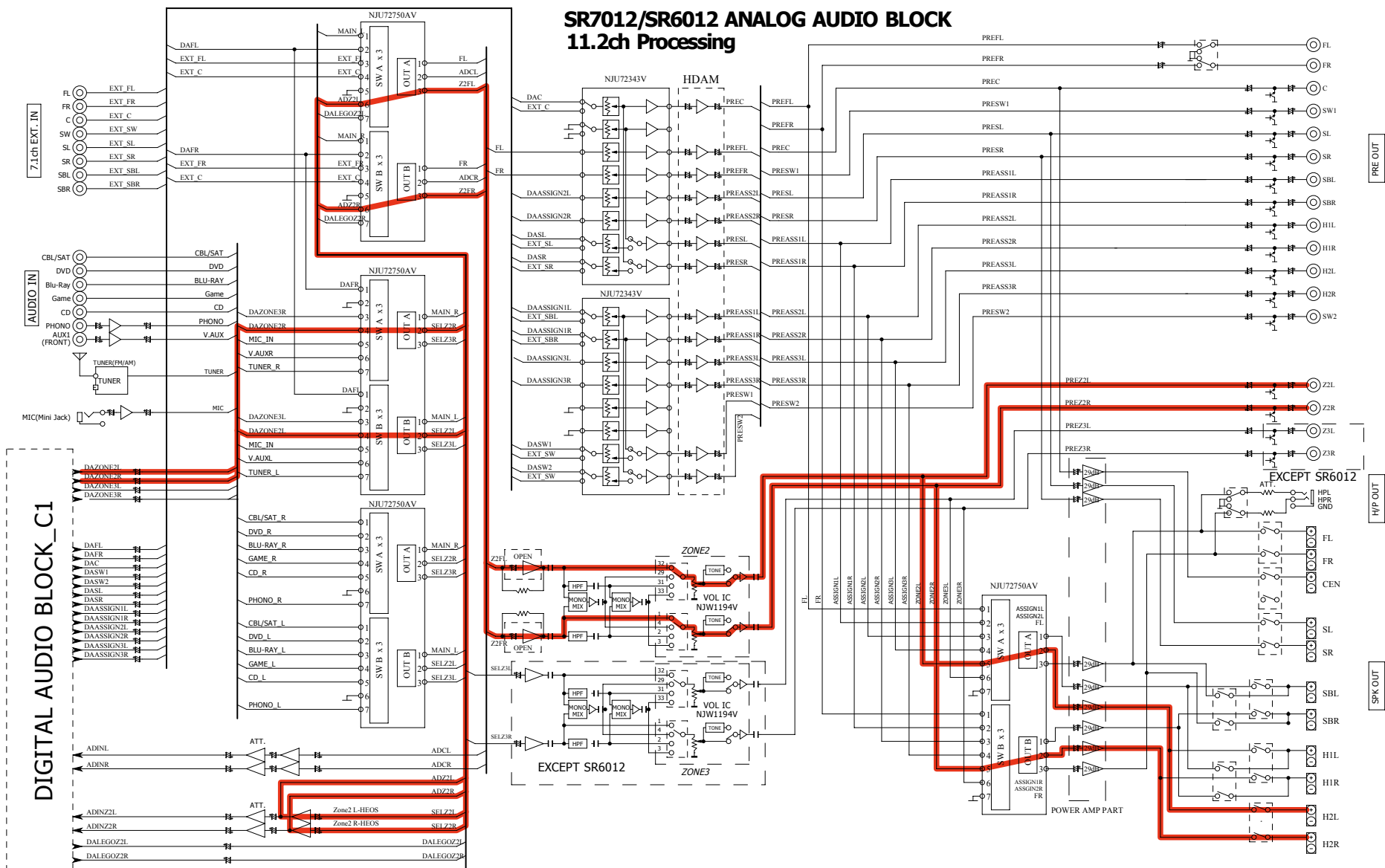
Paths to be confirmed			Display	Settings	What to confirm
1	Low-speed fan	-	F01:FAN LOW	FAN CONT_LOW = HIGH FAN CONT_HIGH = LOW MAIN_ZONE ON ZONE2 OFF ZONE3 OFF	• Low-speed fan (※ The input source can be switched to any source except CBL/SAT.)
2	High-speed fan	-	F03:FAN HIGH	FAN CONT_LOW = LOW FAN CONT_HIGH = HIGH MAIN_ZONE ON ZONE2 OFF ZONE3 OFF	• High-speed fan (※ The input source can be switched to any source except CBL/SAT.)



[illegible]

SR7012/AV7704 DIGITAL AUDIO BLOCK(ADI)

fig.03a



Caution in
servicing

Electrical

Mechanical

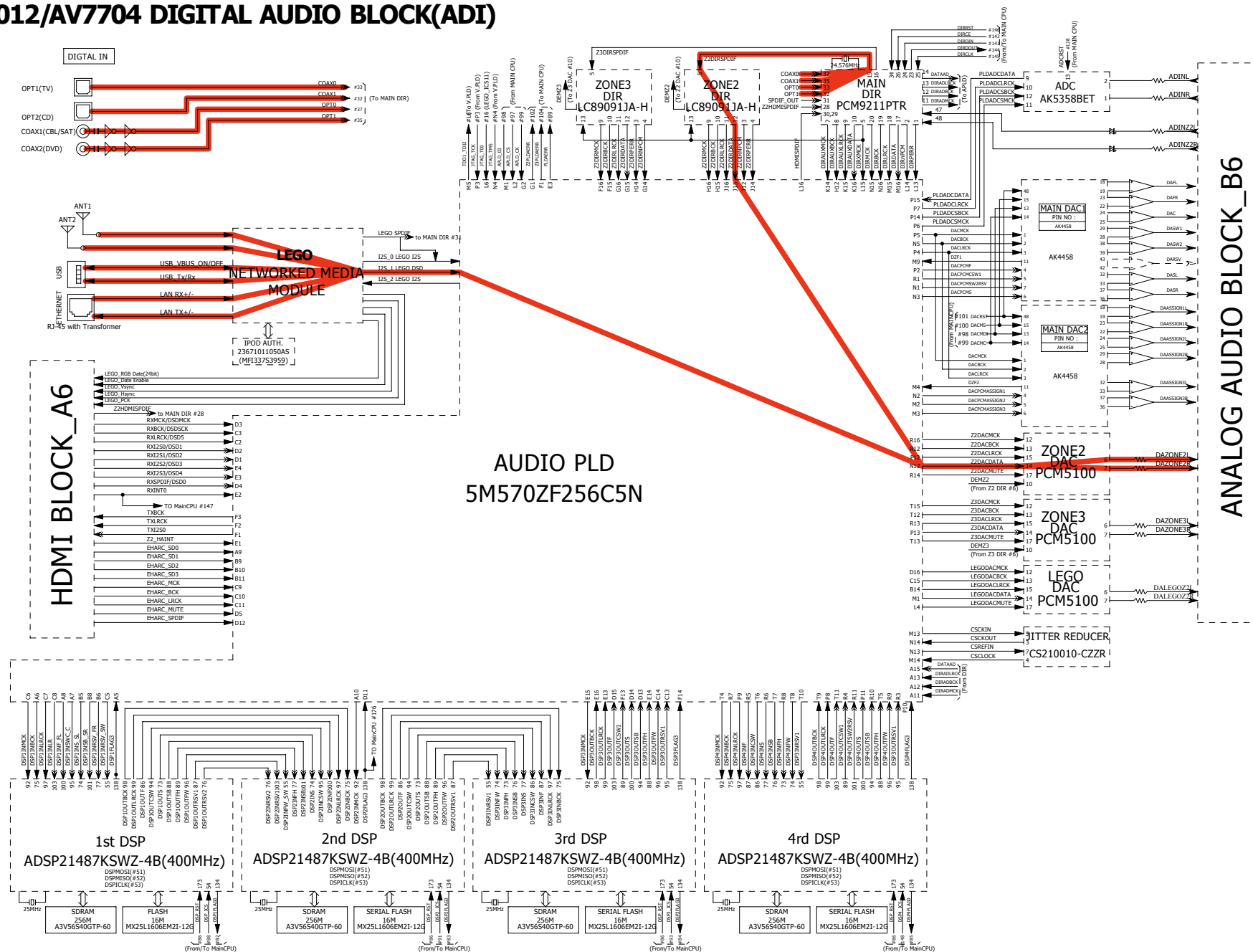
Repair Information

Updating



fig.03b

SR7012/AV7704 DIGITAL AUDIO BLOCK(ADI)

Caution in
servicing

Electrical

Mechanical

Repair Information

Updating



fig.03c

AVRX4400H/SR7012/AV7704/SR6012 HDMI BLOCK

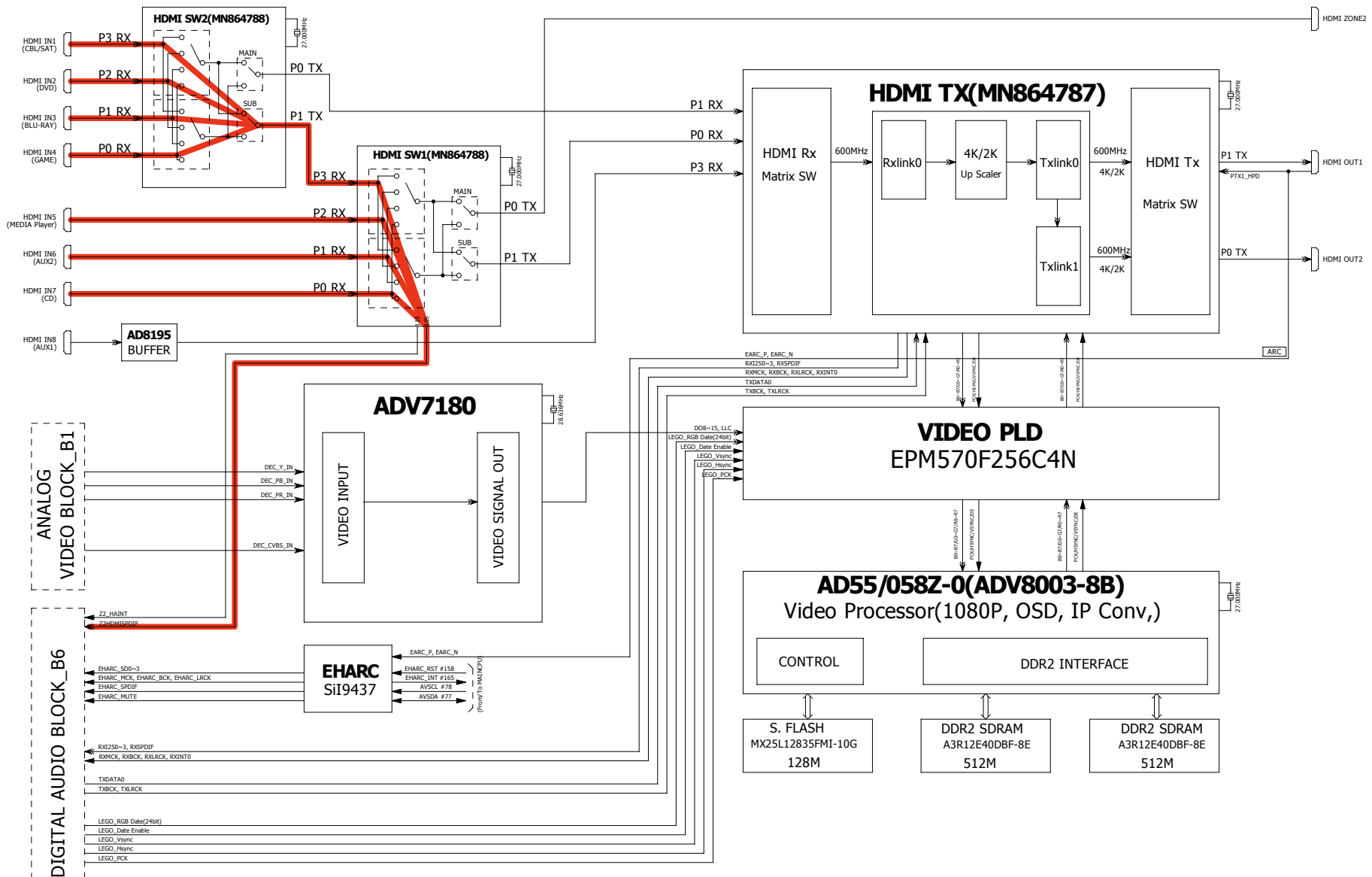


fig.04a

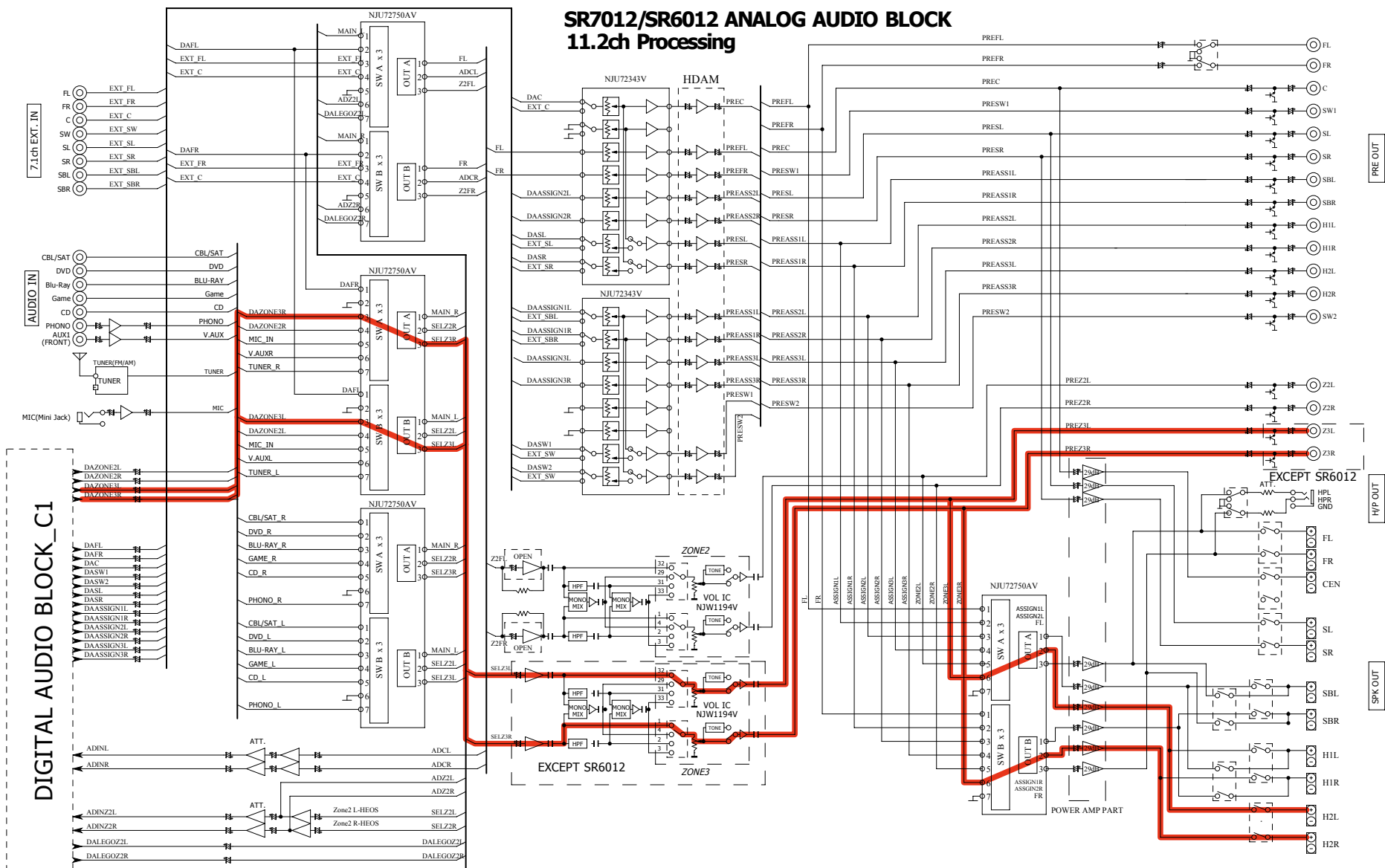


fig.04b

SR7012/AV7704 DIGITAL AUDIO BLOCK(ADI)

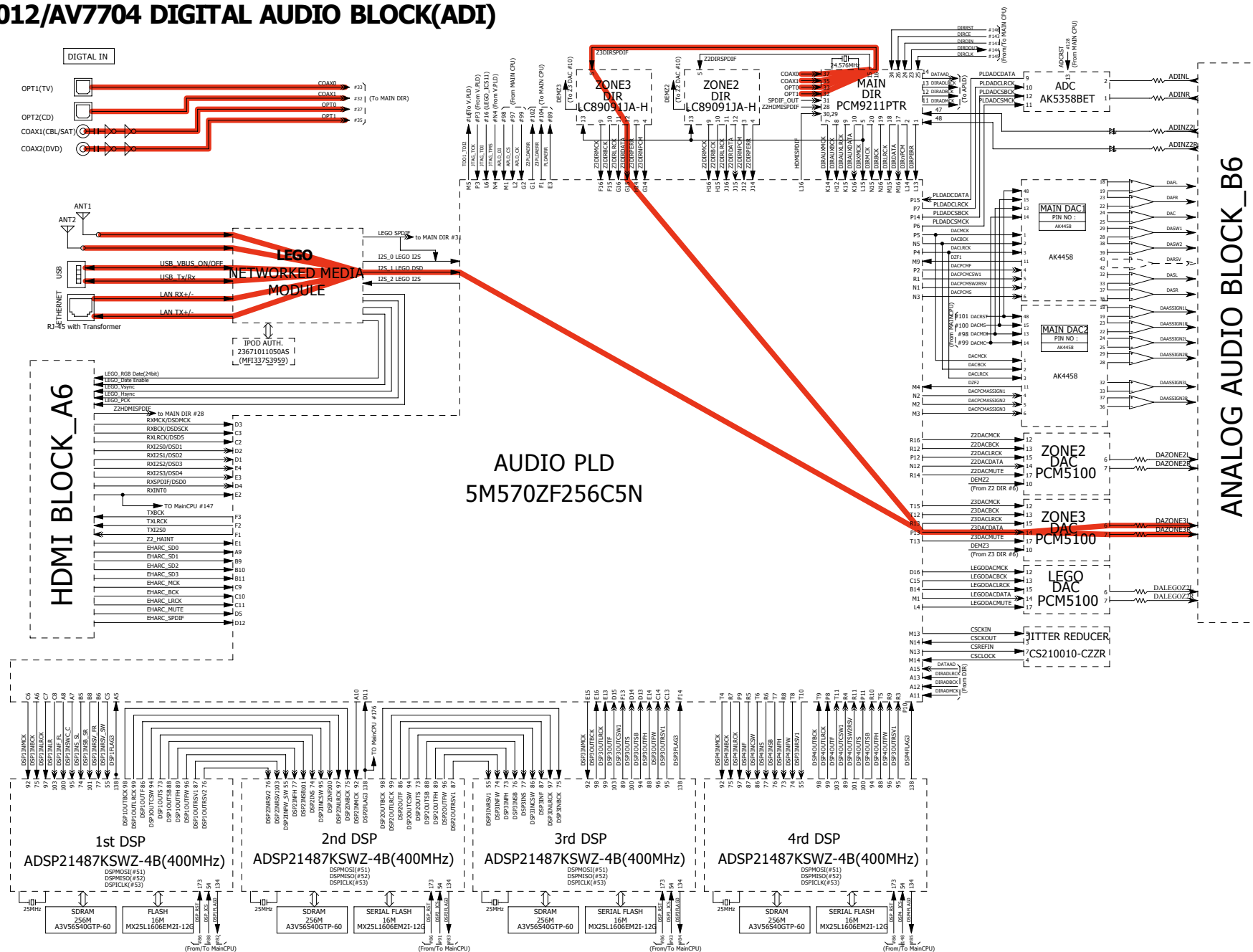
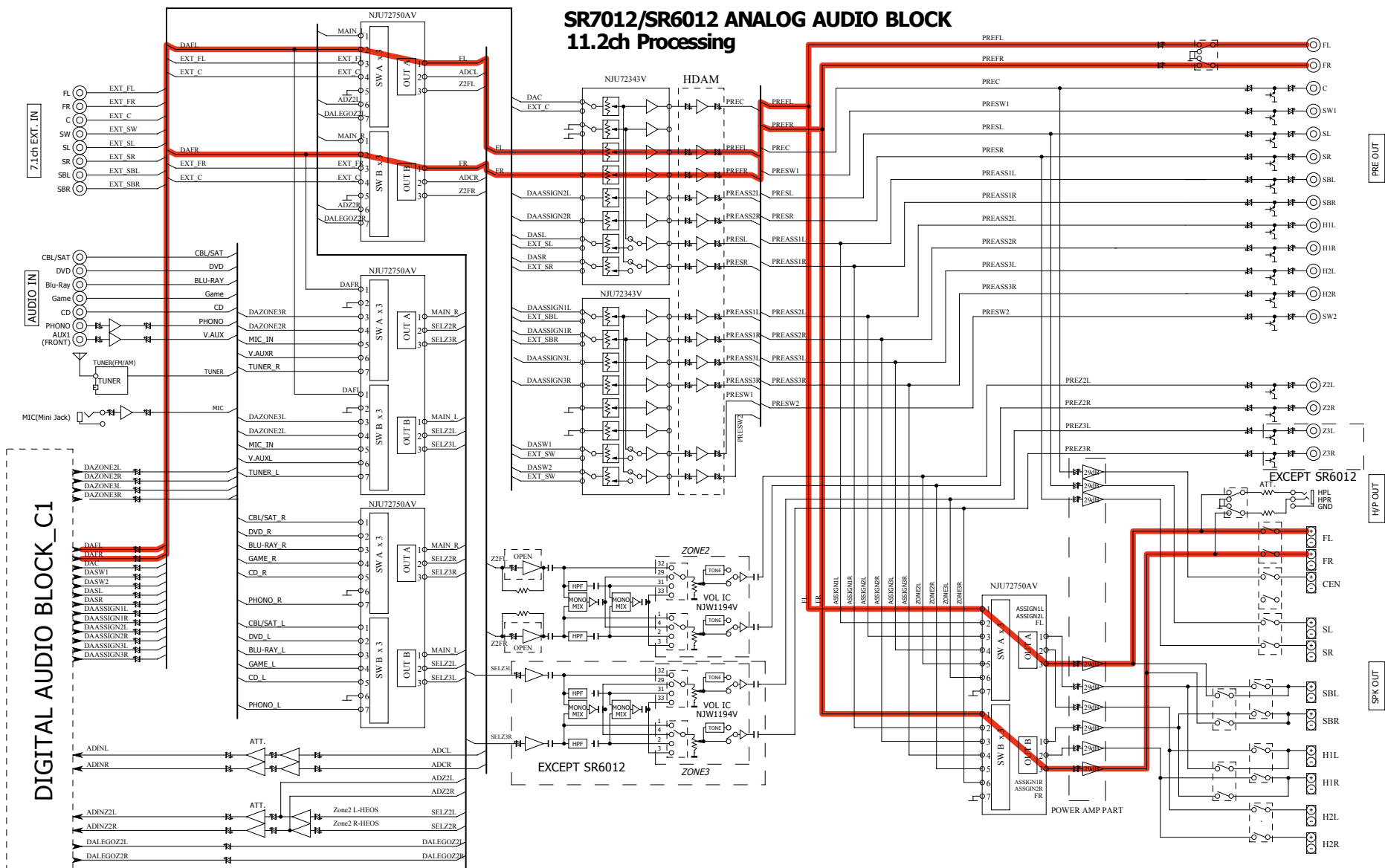


fig.05a



Caution in
servicing

Electrical

Mechanical

Repair Information

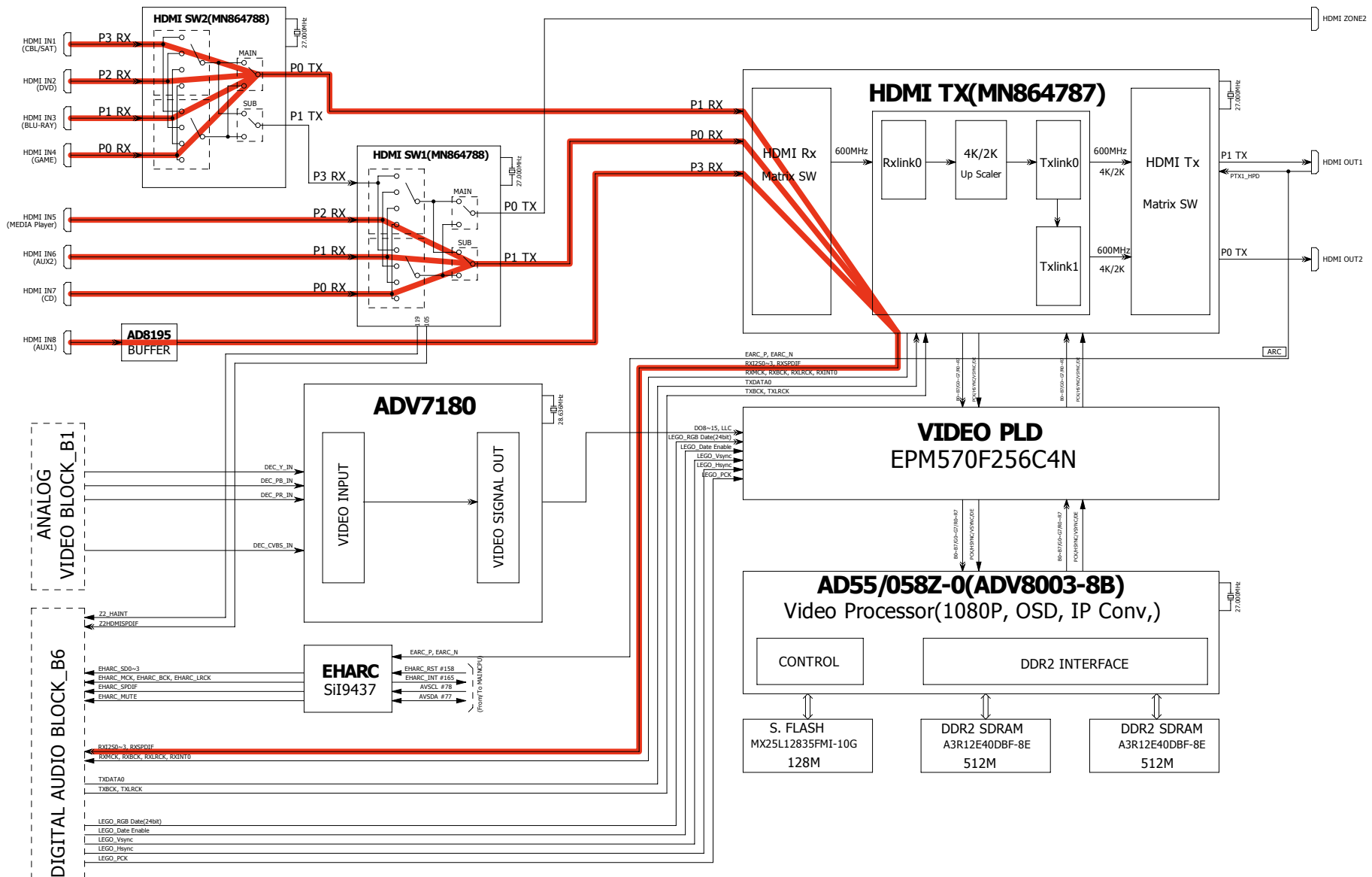
Updating



SR7012/AV7704 DIGITAL AUDIO BLOCK(ADI)

fig.05c

AVRX4400H/SR7012/AV7704/SR6012 HDMI BLOCK



The diagram illustrates the internal wiring of a 7.1ch digital audio receiver, organized into three main functional blocks:

- DIGITAL AUDIO BLOCK C1:** This section on the left handles digital inputs. It includes connections for 7.1ch EXT. IN, AUDIO IN (CBL/SAT, DVD, BLU-RAY, Game, CD, PHONO, AUX1), and MIC (Mini Jack). These inputs feed into digital-to-analog converters (DACs) and are then routed through various switches (SW A, SW B, SW C) to the main audio processing stage.
- 11.2ch ANALOG AUDIO BLOCK:** The central section is dedicated to analog processing. It features three DAC chips (NJU72343V) and a central HDAM (High Definition Audio Modulator) block. The DACs output signals to the HDAM, which then drives the main audio amplifiers. This block also includes a volume control section with NJW1194V ICs and tone controls.
- DIGITAL AUDIO BLOCK C2:** The rightmost section handles digital outputs and additional processing. It includes a digital-to-analog converter (DAC) and a switch (SW A) that routes signals to the final speaker outputs. It also includes a section for "EXCEPT SR6012" and "EXCEPT SR6012" outputs.

The diagram shows a complex network of red and black lines representing the signal paths, with various components like capacitors, resistors, and integrated circuits labeled throughout. The final output section on the right shows the connections to the speakers, including FL, FR, C, SW1, SL, SR, SBL, SBR, H1L, H1R, H2L, H2R, Z2L, Z2R, Z3L, Z3R, and CEN.

fig.06b

SR7012/AV7704 DIGITAL AUDIO BLOCK(ADI)

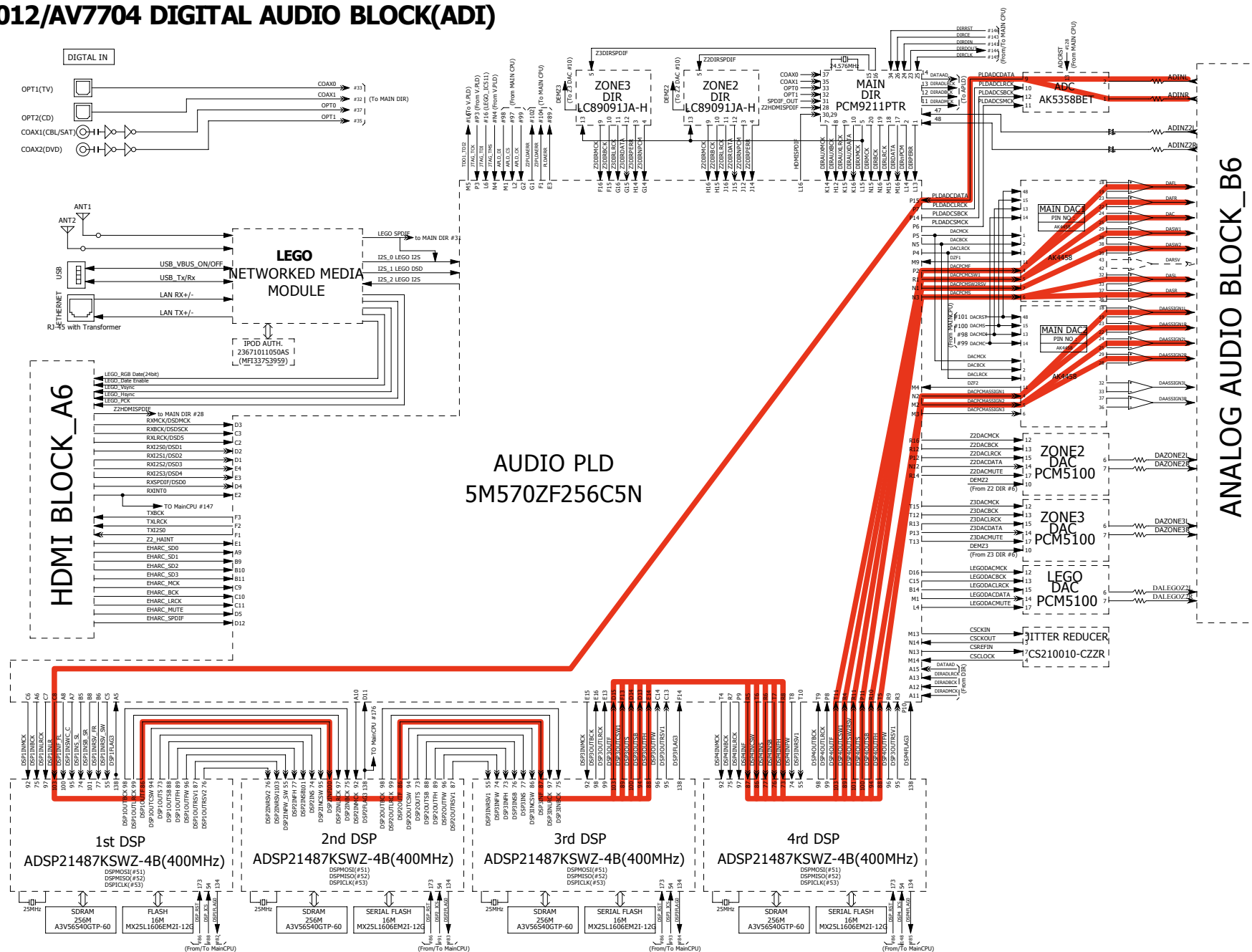
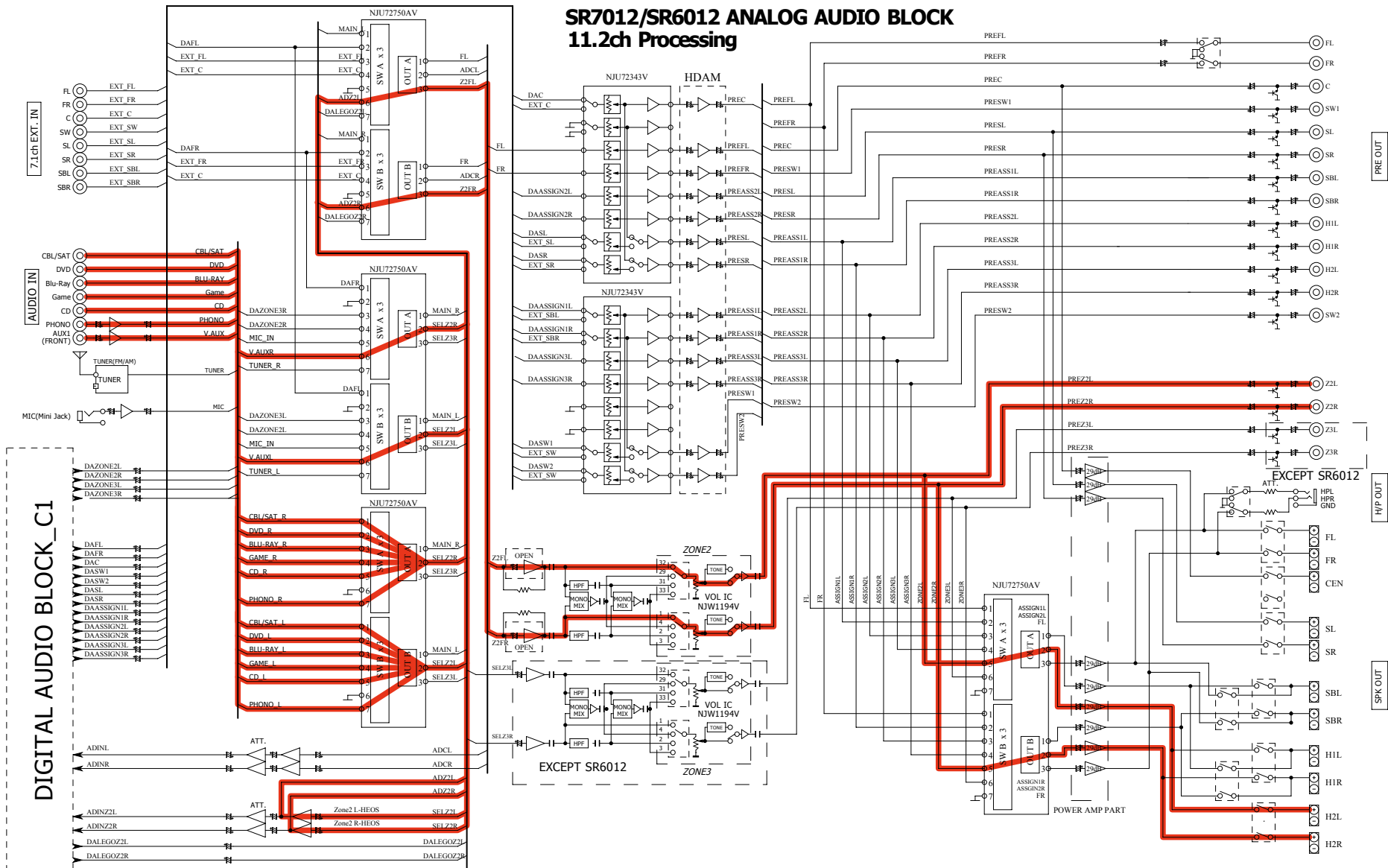


fig.07



Caution in
servicing

Electrical

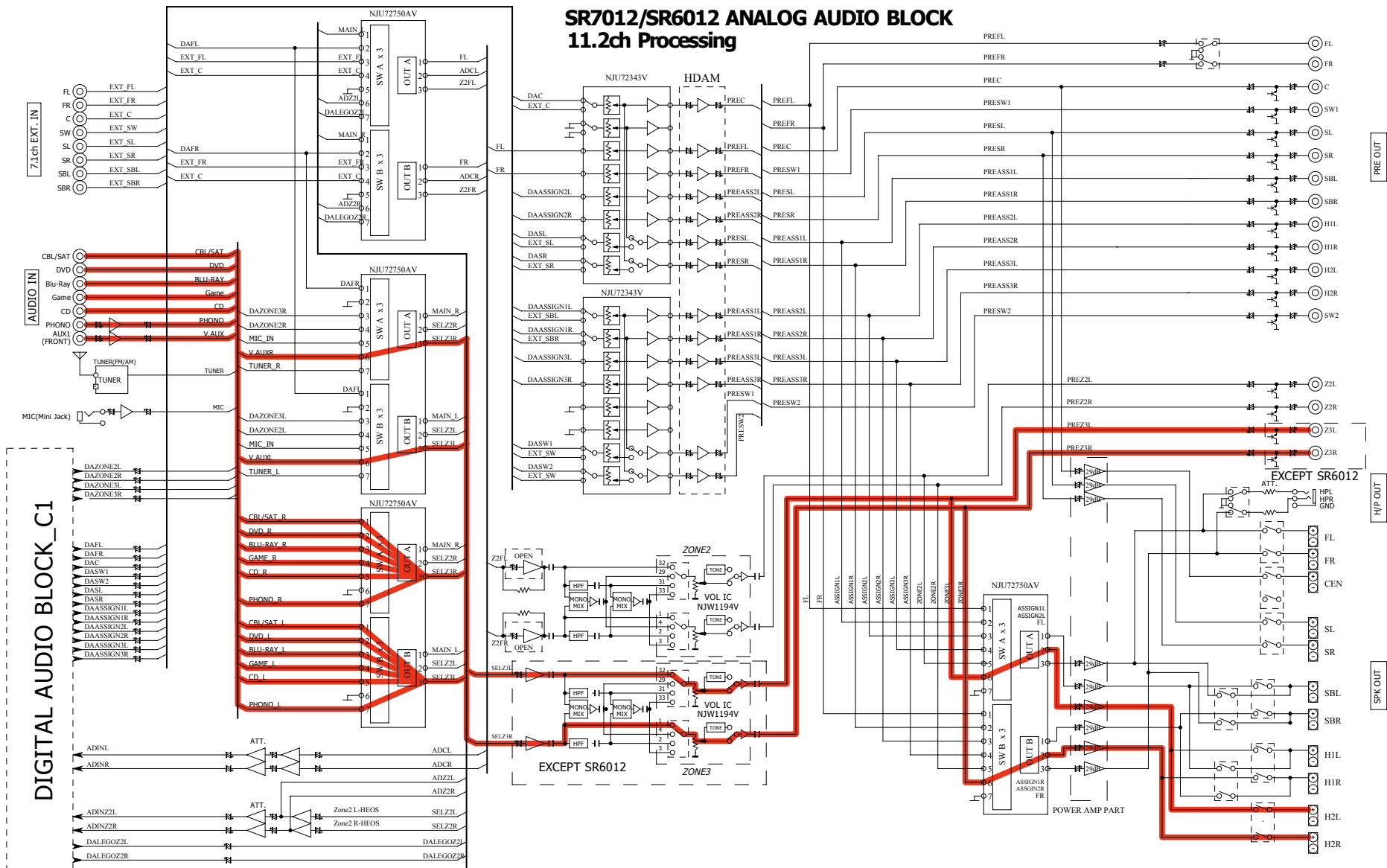
Mechanical

Repair Information

Updating



fig.08



Caution in
servicing

Electrical

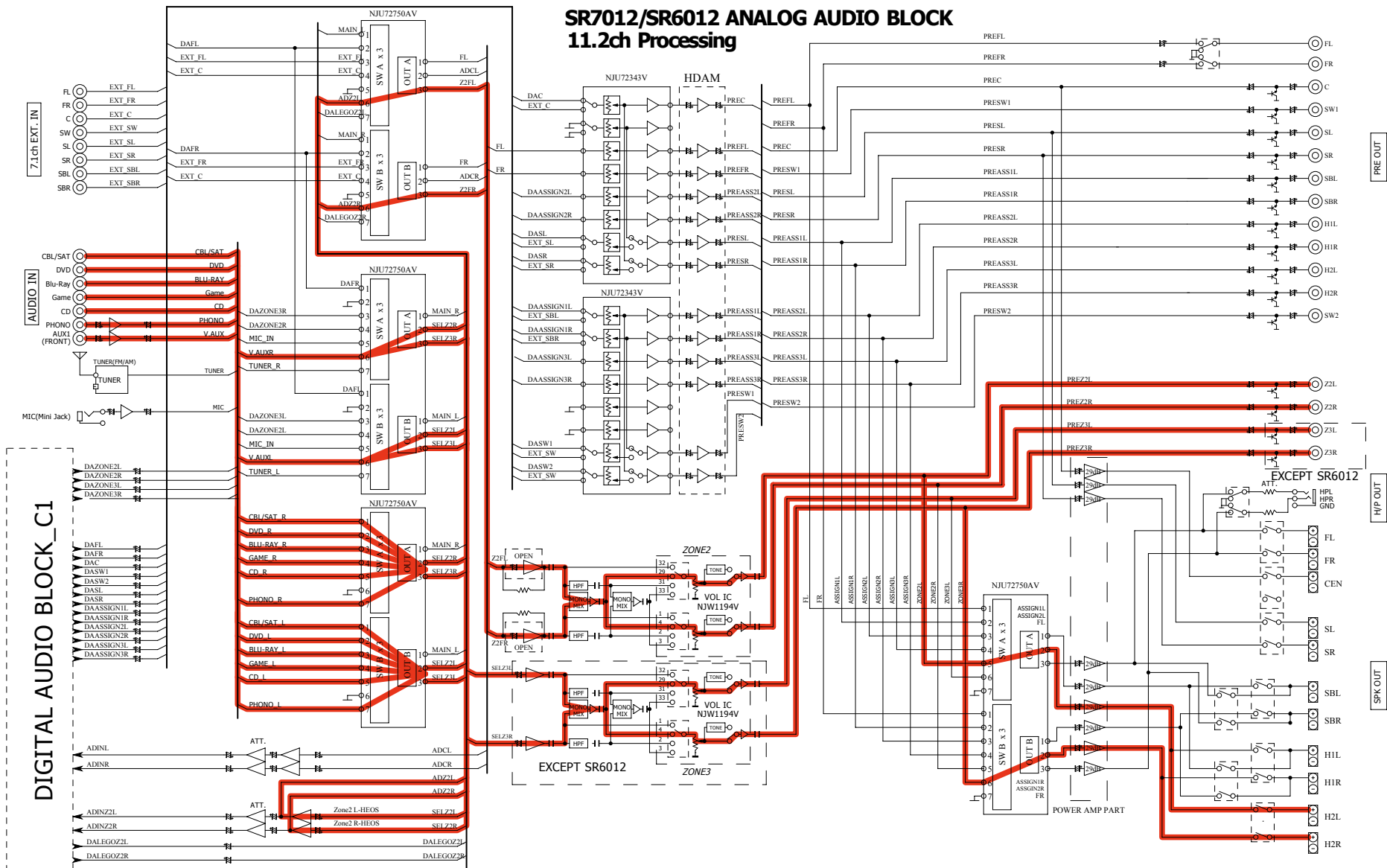
Mechanical

Repair Information

Updating



fig.09



Caution in
servicing

Electrical

Mechanical

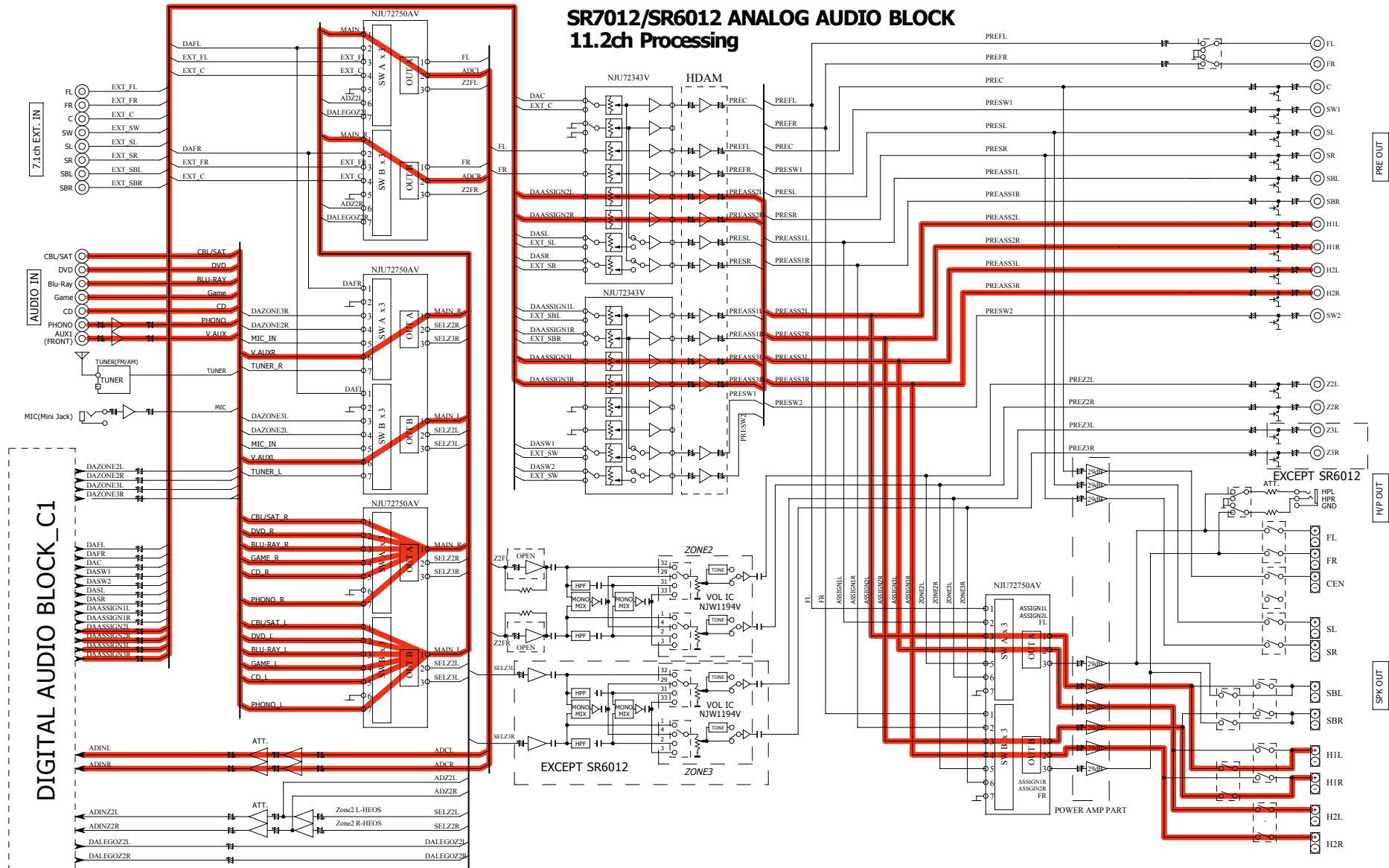
Repair Information

Updating



SR7012/AV7704 DIGITAL AUDIO BLOCK(ADI)

fig.11a



Caution in
servicing

Electrical

Mechanical

Repair Information

Updating



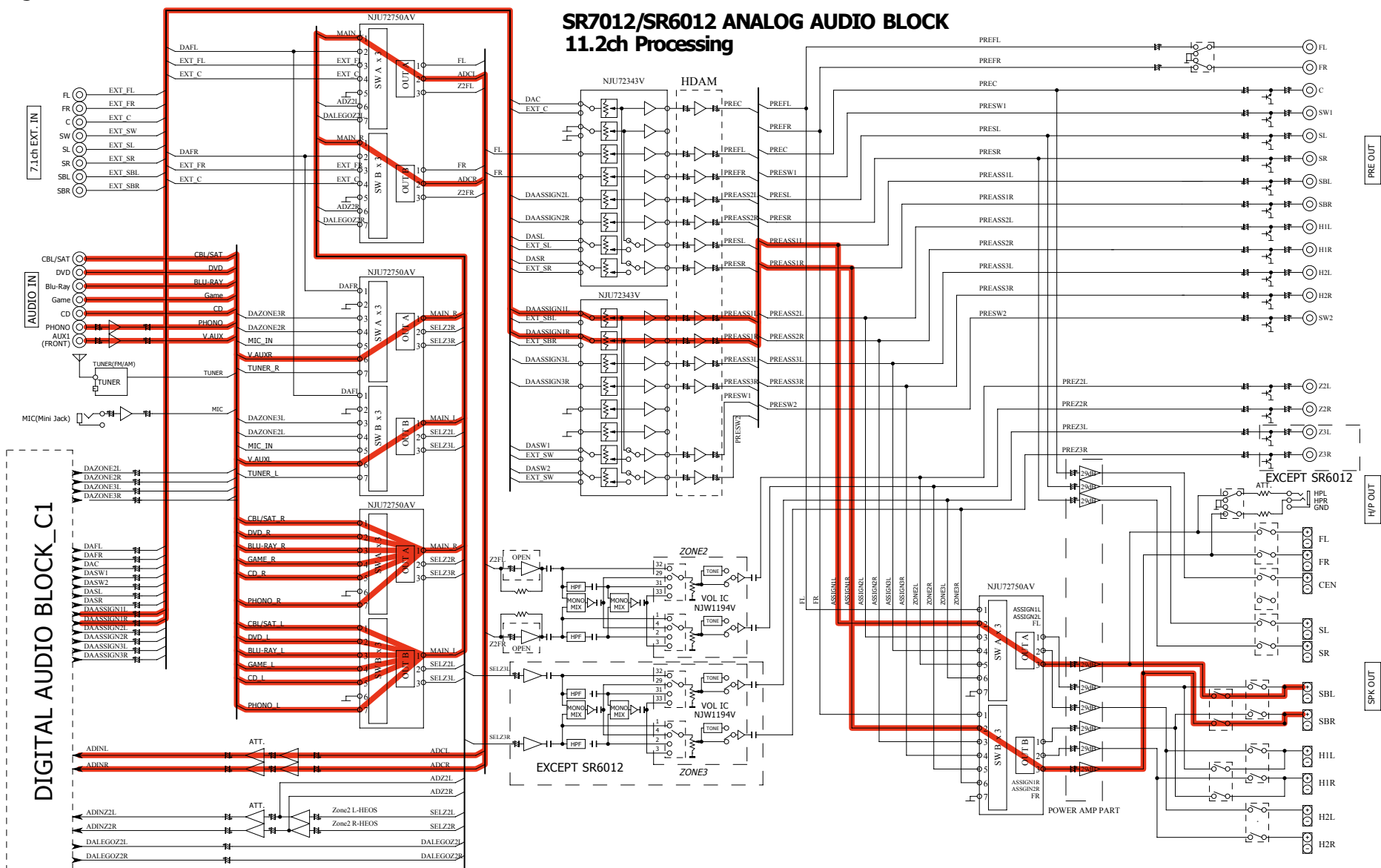
SR7012/AV7704 DIGITAL AUDIO BLOCK(ADI)

The diagram illustrates a complex 11.2ch audio processing system, organized into three main functional blocks:

- DIGITAL AUDIO BLOCK C1:** This section on the left handles digital inputs. It includes a 7.1ch EXT. IN section with channels FL, FR, C, SW, SL, SR, SBL, and SBR. Below this is the AUDIO IN section with inputs for CBL/SAT, DVD, Blu-Ray, Game, CD, PHONO, and MIC. The DIGITAL AUDIO BLOCK C1 section contains a series of digital-to-analog converters (DACs) and switches (SW A x 3, SW B x 3) that route signals to the analog processing stage.
- SR7012/SR6012 ANALOG AUDIO BLOCK 11.2ch Processing:** The central section of the diagram. It features three DACs (NJU72343V) and a central HDAM (High Dynamic Amplifier Module). The DACs convert digital signals from the Digital Audio Block into analog. The HDAM then processes these signals, providing pre-amplification and volume control for the main channels (MAIN L, MAIN R) and surround channels (SELZ2L, SELZ2R, SELZ3L, SELZ3R). This section also includes a "ZONE2" and "ZONE3" sub-section with additional DACs and amplifiers.
- SR7012/SR6012 ANALOG AUDIO BLOCK:** The rightmost section, which handles the final output stages. It includes a "POWER AMP PART" with NJW1194V amplifiers and a final output section with PRE OUT, H/P OUT, and SPK OUT terminals. The outputs are labeled with channel names: FL, FR, C, SW1, SL, SR, SBL, SBR, H1L, H1R, H2L, H2R, Z2L, Z2R, Z3L, Z3R, and CEN.

The diagram uses a color-coding system to distinguish between different signal paths: red lines for the main 11.2ch processing, purple lines for the digital audio block, and black lines for the power amp and output sections. Various components like NJU7250AV, NJU72343V, and NJW1194V are labeled throughout the circuit.

fig.13a



SR7012/AV7704 DIGITAL AUDIO BLOCK(ADI)

fig.14

SR7012/AV7704 ANALOG VIDEO BLOCK

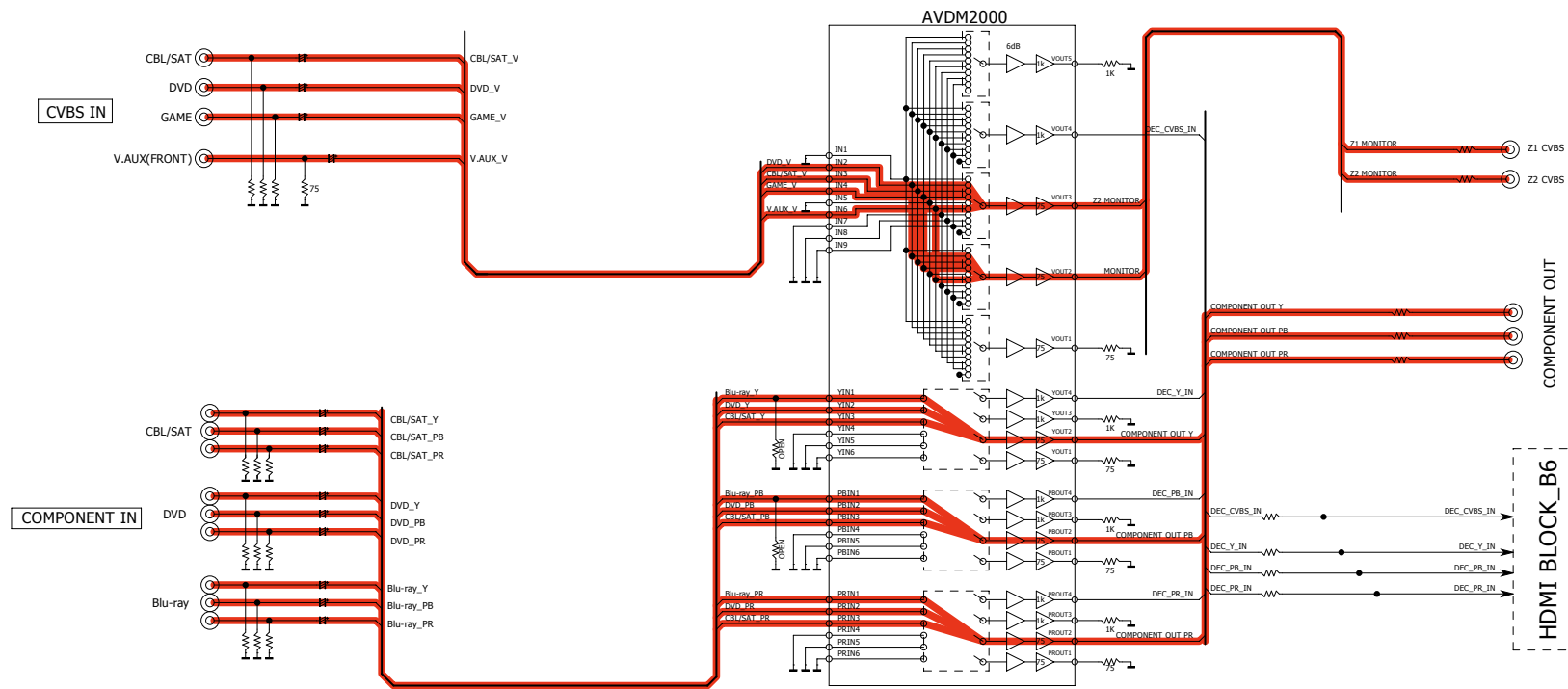


fig.15a

SR7012/AV7704 ANALOG VIDEO BLOCK

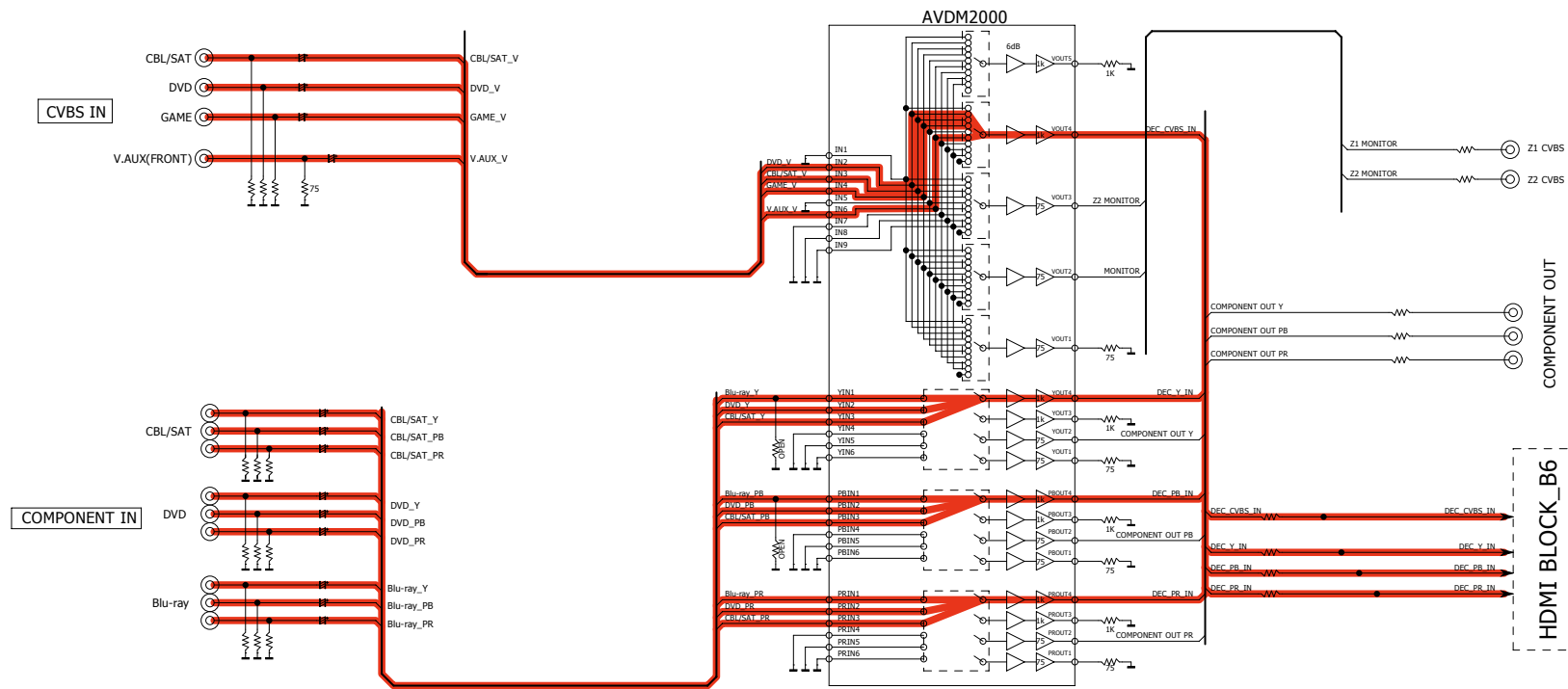


fig.15b

AVRX4400H/SR7012/AV7704/SR6012 HDMI BLOCK

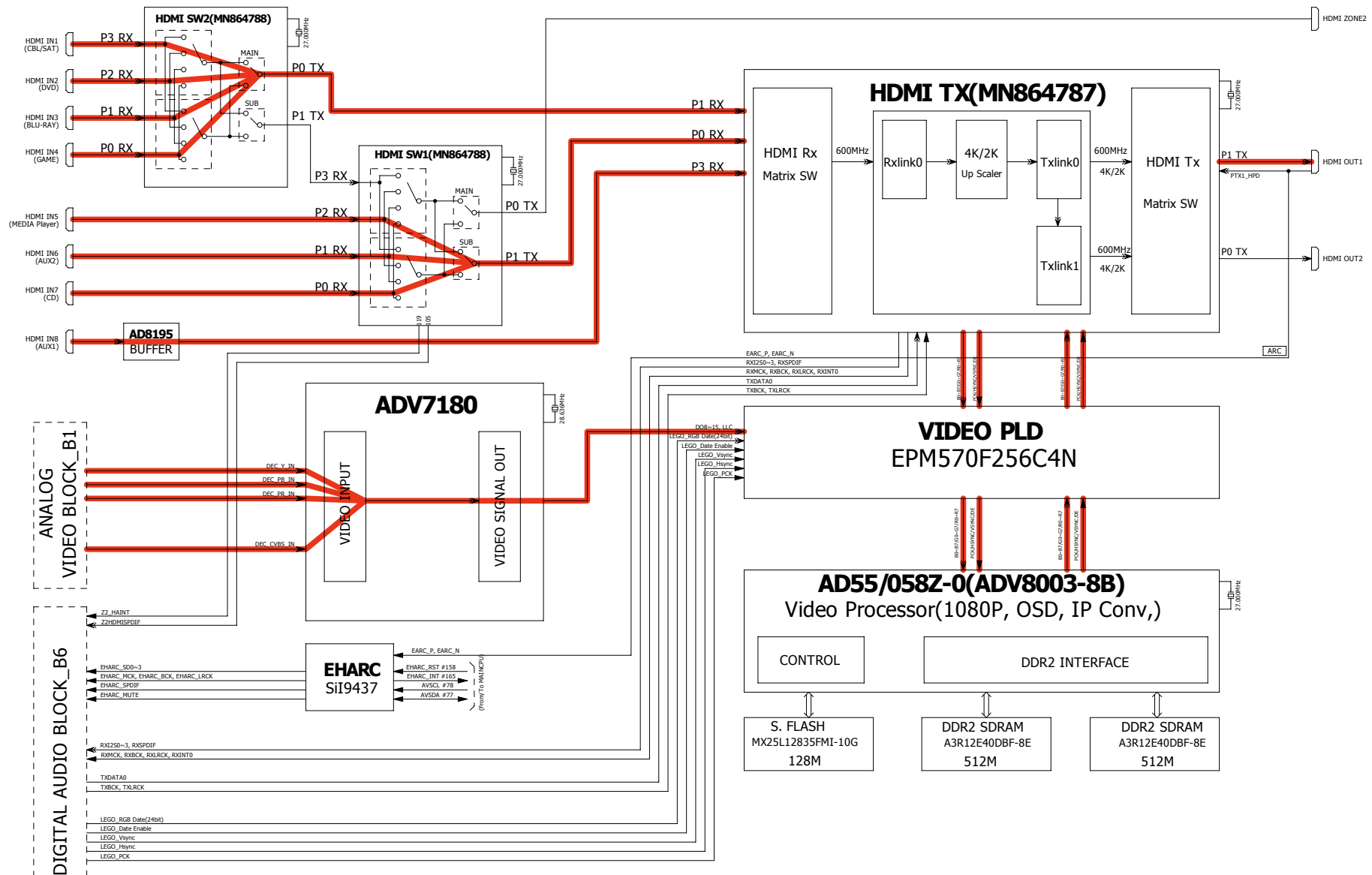


fig.16

AVRX4400H/SR7012/AV7704/SR6012 HDMI BLOCK

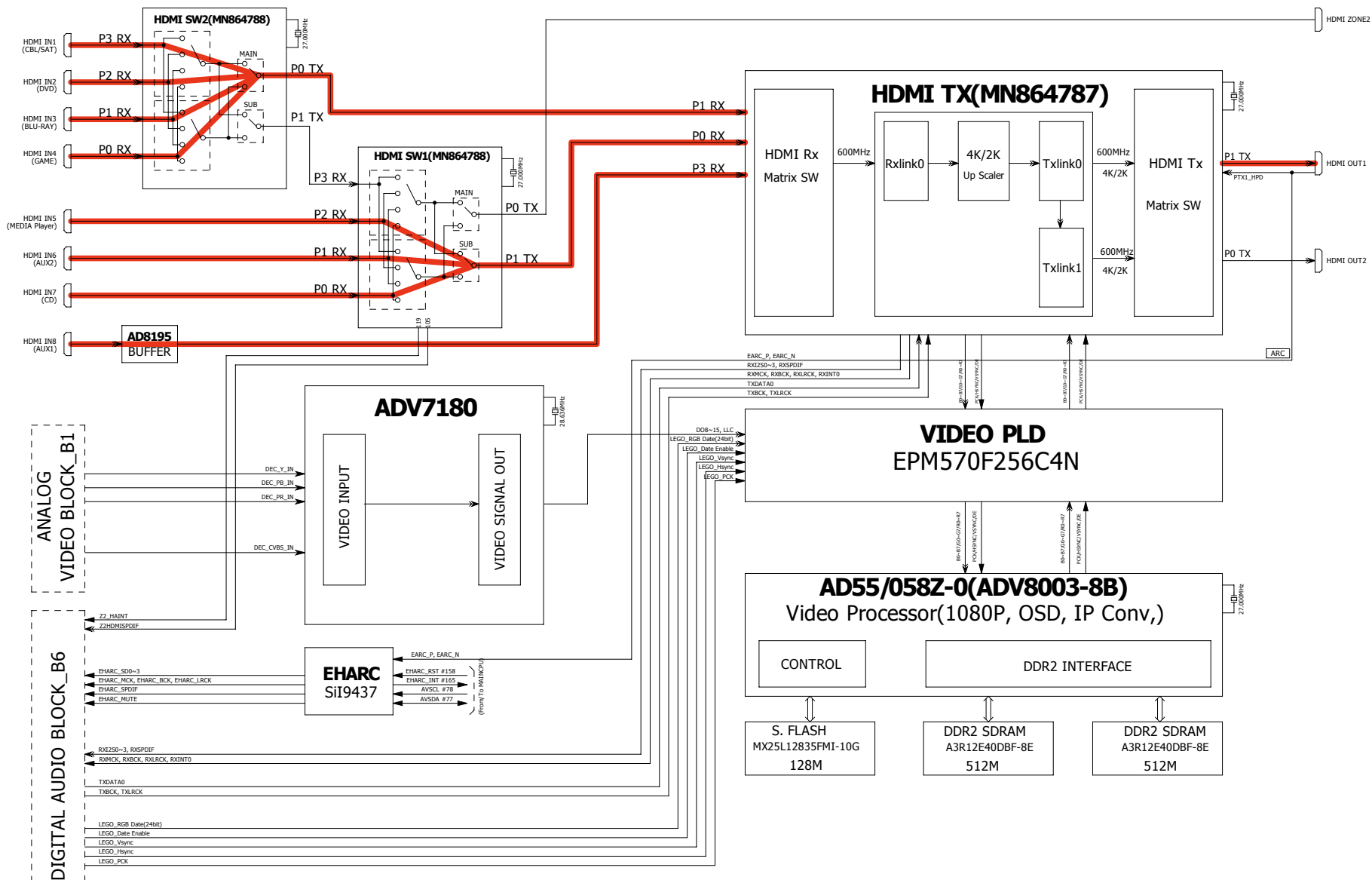
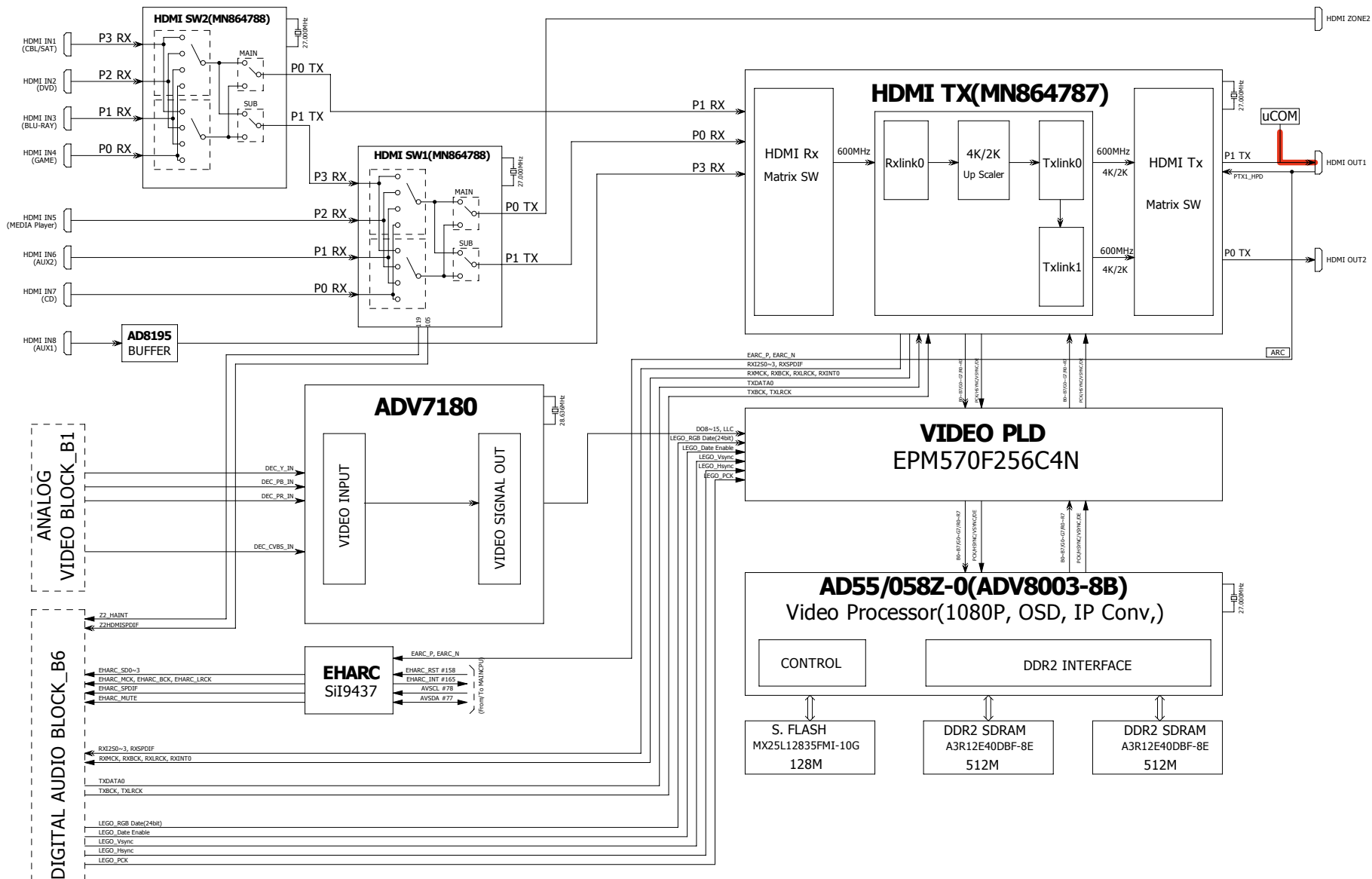


fig.17

AVRX4400H/SR7012/AV7704/SR6012 HDMI BLOCK



7.1ch EXT. IN

AUDIO IN

DIGITAL AUDIO BLOCK C1

SR7012/SR6012 ANALOG AUDIO BLOCK

11.2ch Processing

EXCEPT SR6012

POWER AMP PART

PRE OUT

H/P OUT

S/PK OUT

fig.18b

SR7012/AV7704 DIGITAL AUDIO BLOCK(ADI)

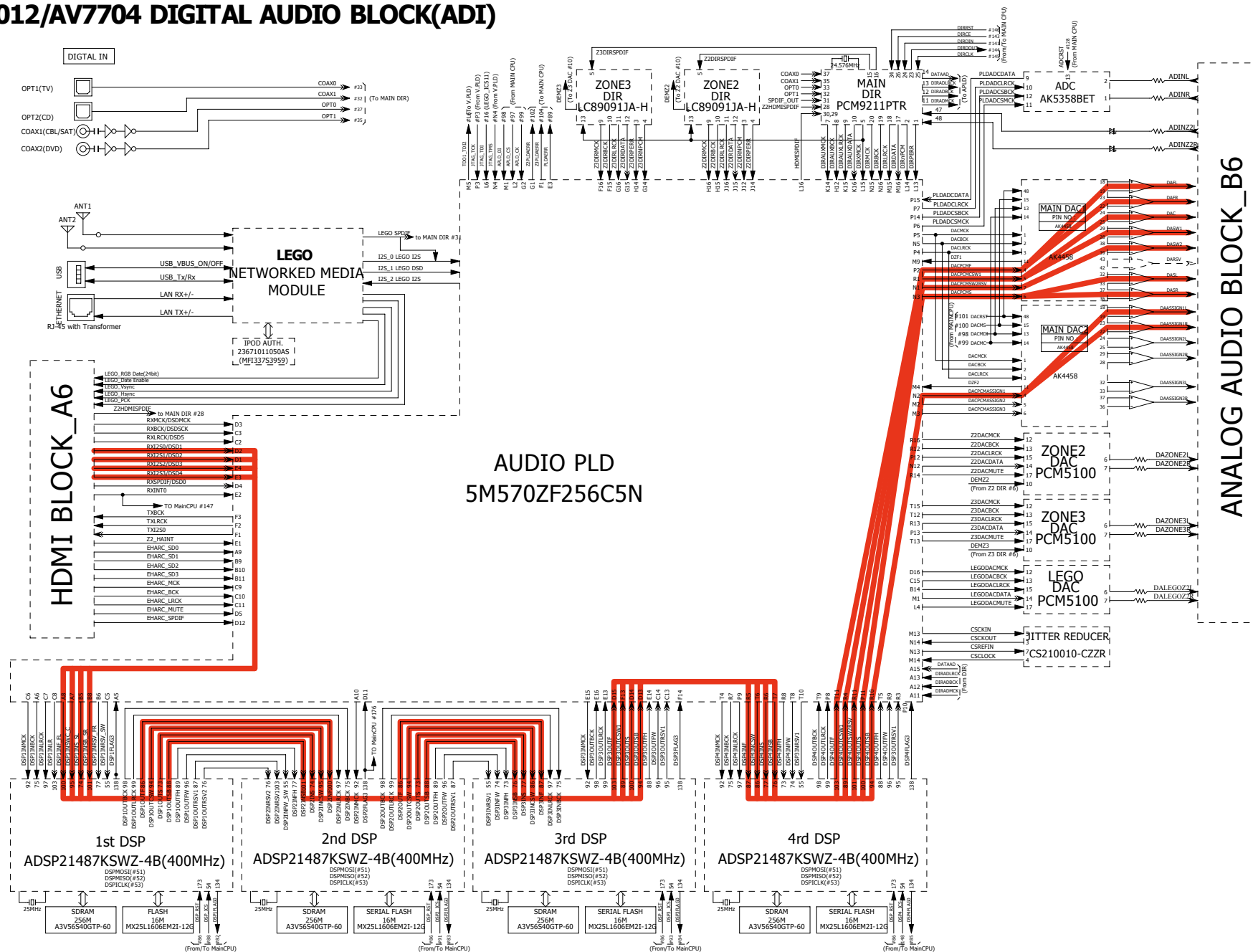
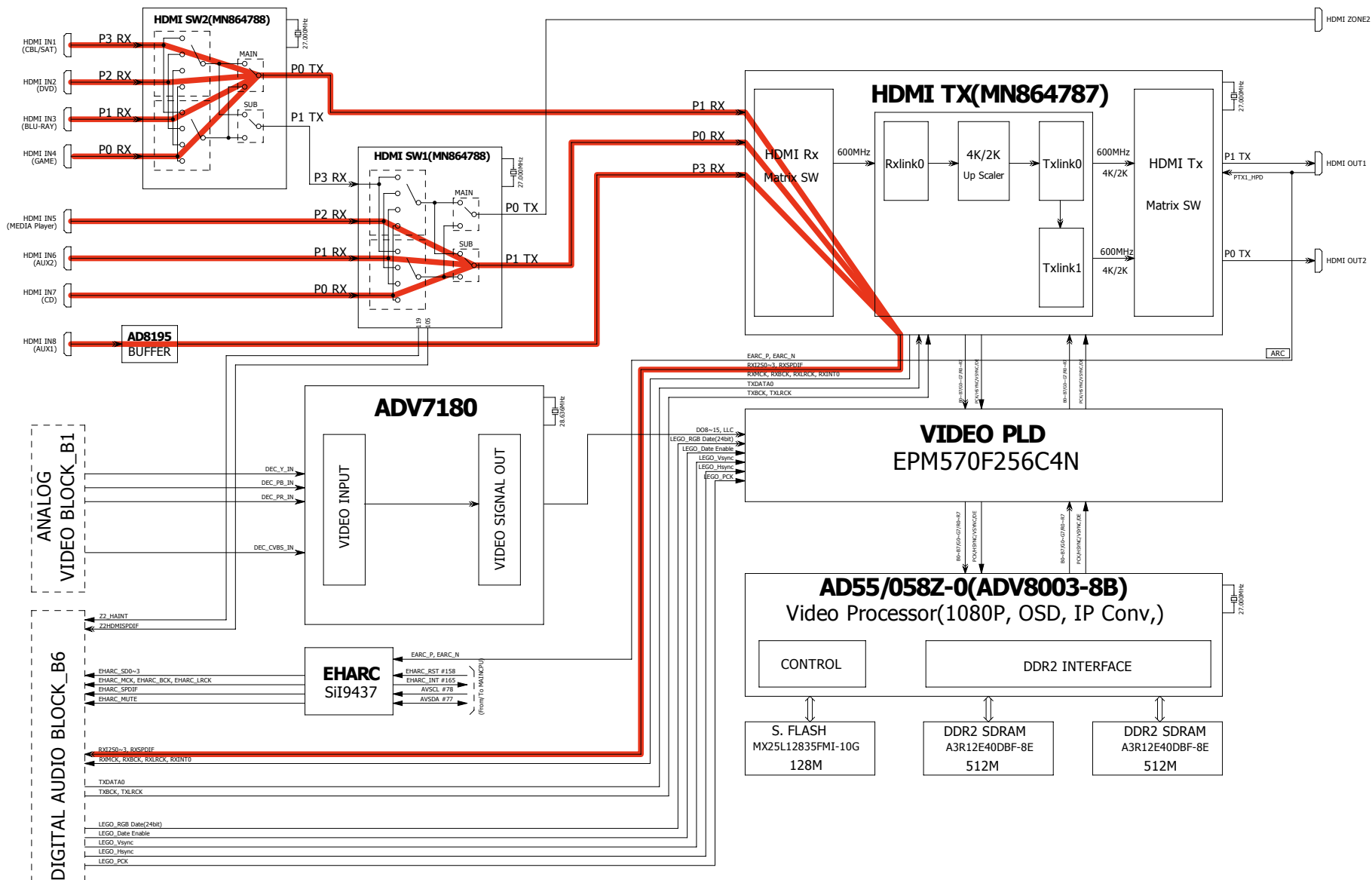


fig.18c

AVRX4400H/SR7012/AV7704/SR6012 HDMI BLOCK



SR7012/AV7704 DIGITAL AUDIO BLOCK(ADI)



fig.19b

AVRX4400H/SR7012/AV7704/SR6012 HDMI BLOCK

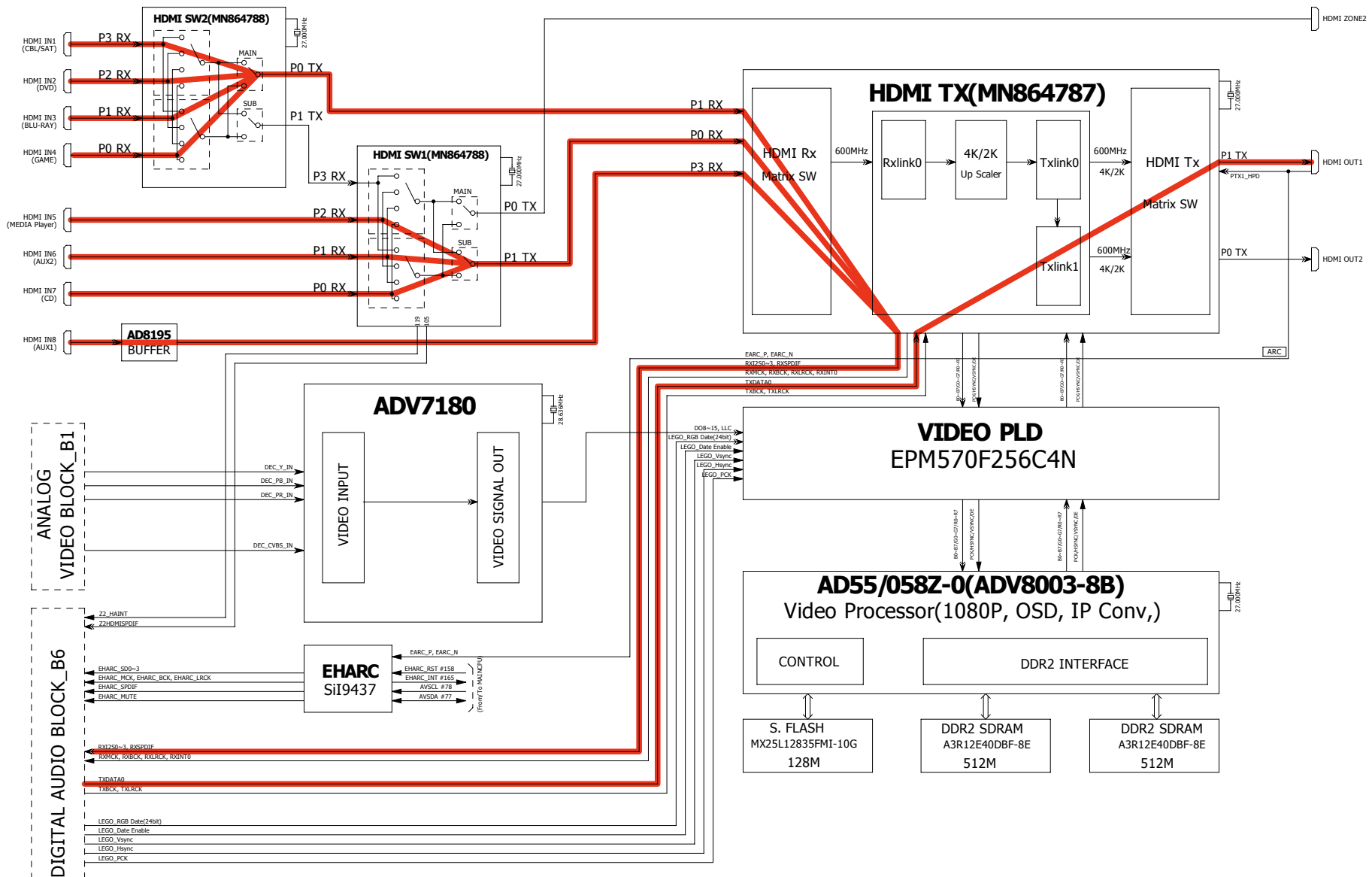


fig.20

AVRX4400H/SR7012/AV7704/SR6012 HDMI BLOCK

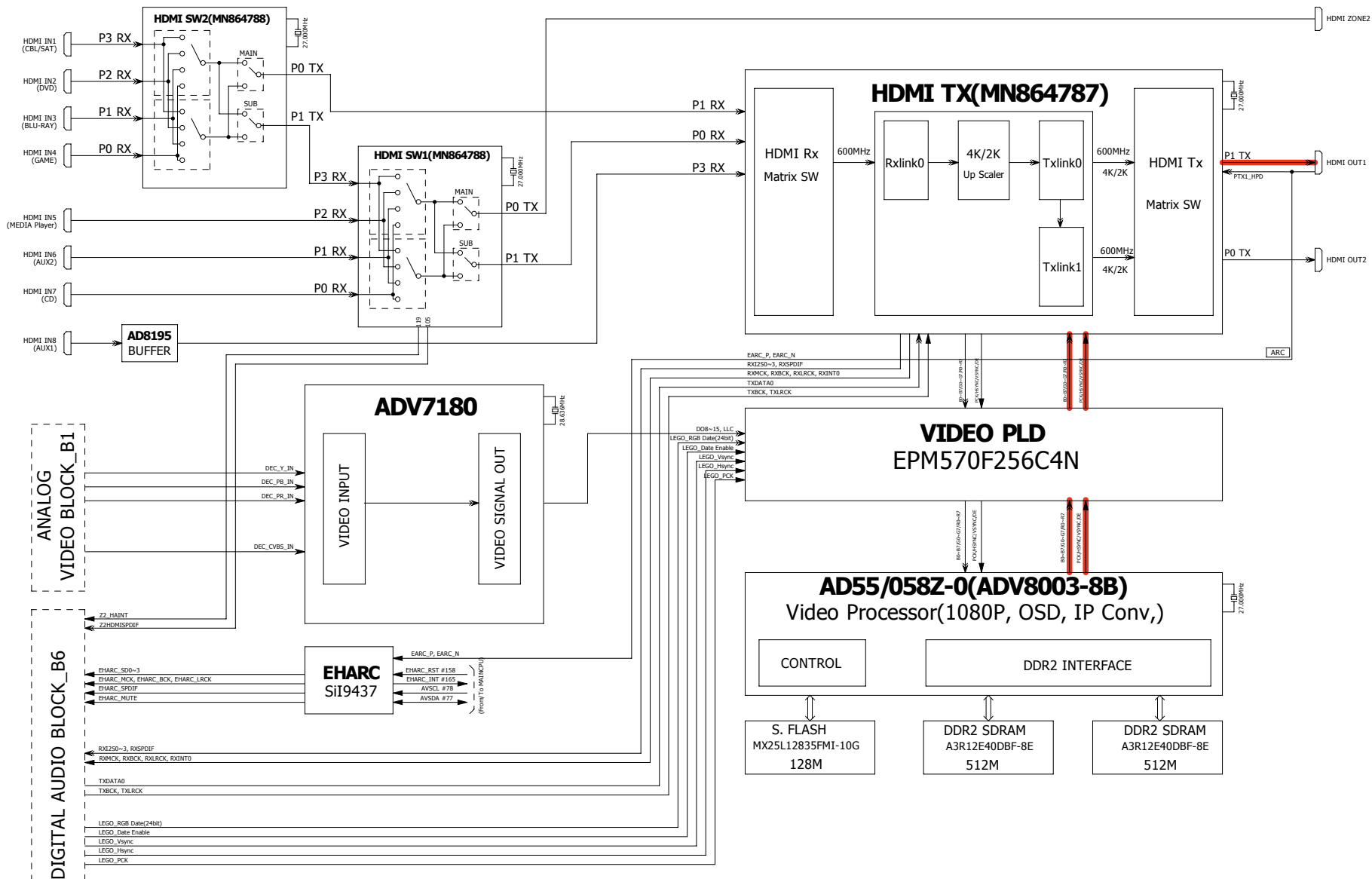
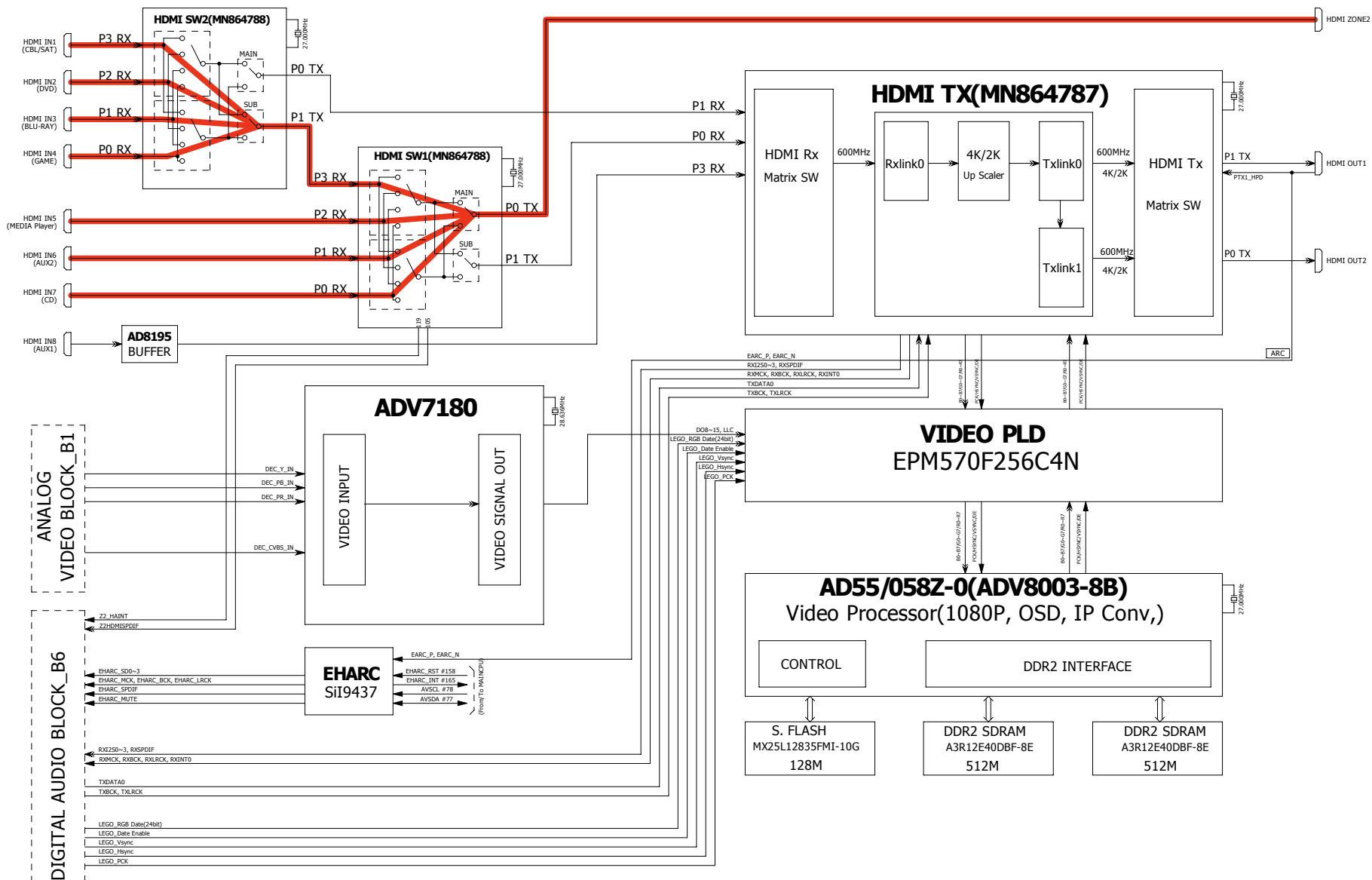


fig.21

AVRX4400H/SR7012/AV7704/SR6012 HDMI BLOCK



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---

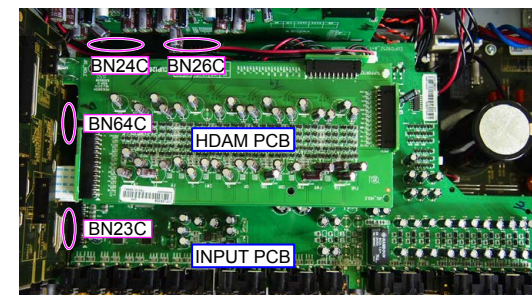
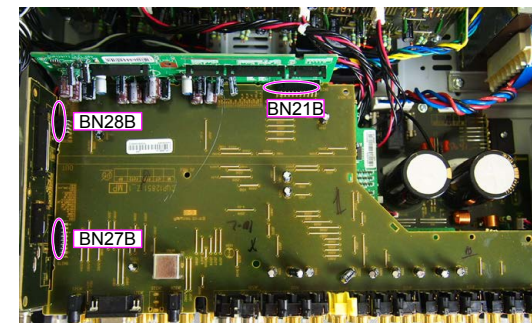
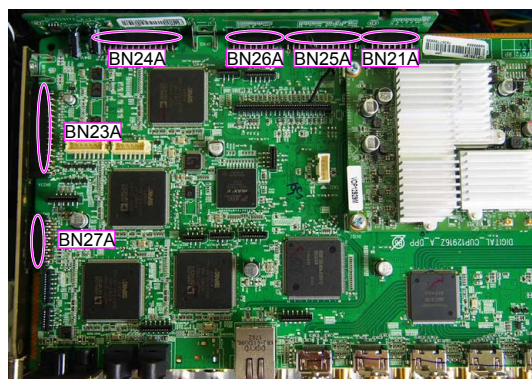
8U-110084S : EXTENSION UNIT KIT	:	1 Set
8U-110136S : EXTENSION UNIT KIT	:	1 Set
Insulation sheet (Not supplied)	:	3 sheet
Ground lead (Not supplied)	:	3 pc

-Proceeding-

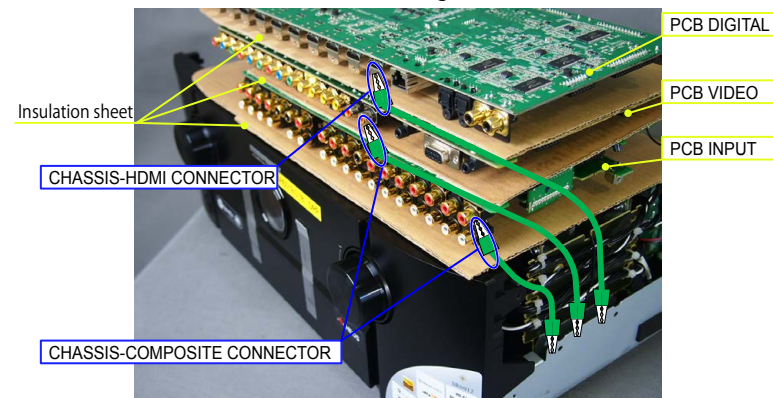
(1) Remove the screws.



(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.



Caution in
servicing

Electrical

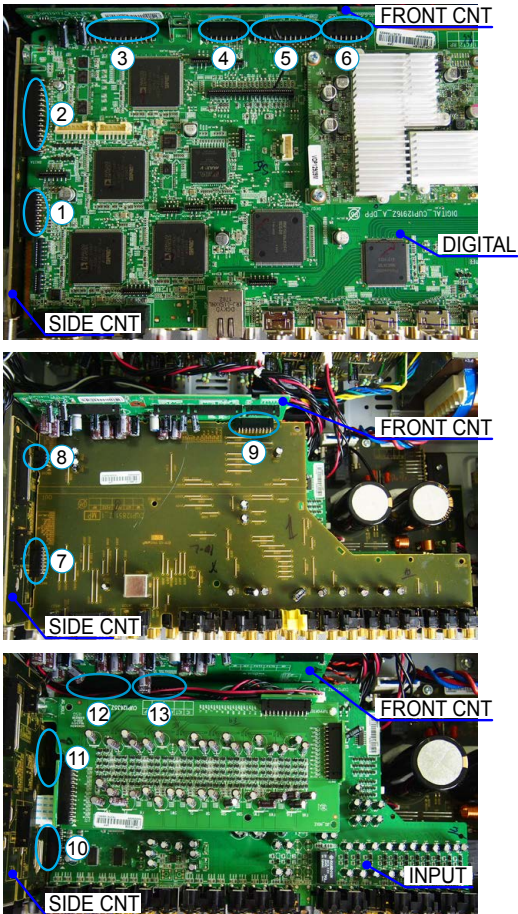
Mechanical

Repair Information

Updating



(4) Connect the expansion cables.



Board-to-Board Connections

No.	Pin	Ref. No.	PCB		Ref. No.	PCB
①	15pin	CN27A	SIDE CNT	↔	BN27A	DIGITAL
②	29pin	CN23A	SIDE CNT	↔	BN23A	DIGITAL
③	27pin	CN24A	FRONT CNT	↔	BN24A	DIGITAL
④	15pin	CN26A	FRONT CNT	↔	BN26A	DIGITAL
⑤	25pin	CN25A	FRONT CNT	↔	BN25A	DIGITAL
⑥	15pin	CN21A	FRONT CNT	↔	BN21A	DIGITAL
⑦	15pin	CN27B	SIDE CNT	↔	BN27B	VIDEO
⑧	7pin	CN28B	SIDE CNT	↔	BN28B	VIDEO
⑨	19pin	CN21B	FRONT CNT	↔	BN21B	VIDEO
⑩	21pin	CN23C	SIDE CNT	↔	BN23C	INPUT
⑪	13pin	CN64C	SIDE CNT	↔	BN64C	INPUT
⑫	27pin	CN24C	FRONT CNT	↔	BN24C	INPUT
⑬	21pin	CN26C	FRONT CNT	↔	BN26C	INPUT

Caution in
servicing

Electrical

Mechanical

Repair Information

Updating

Adjusting Idling Current

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

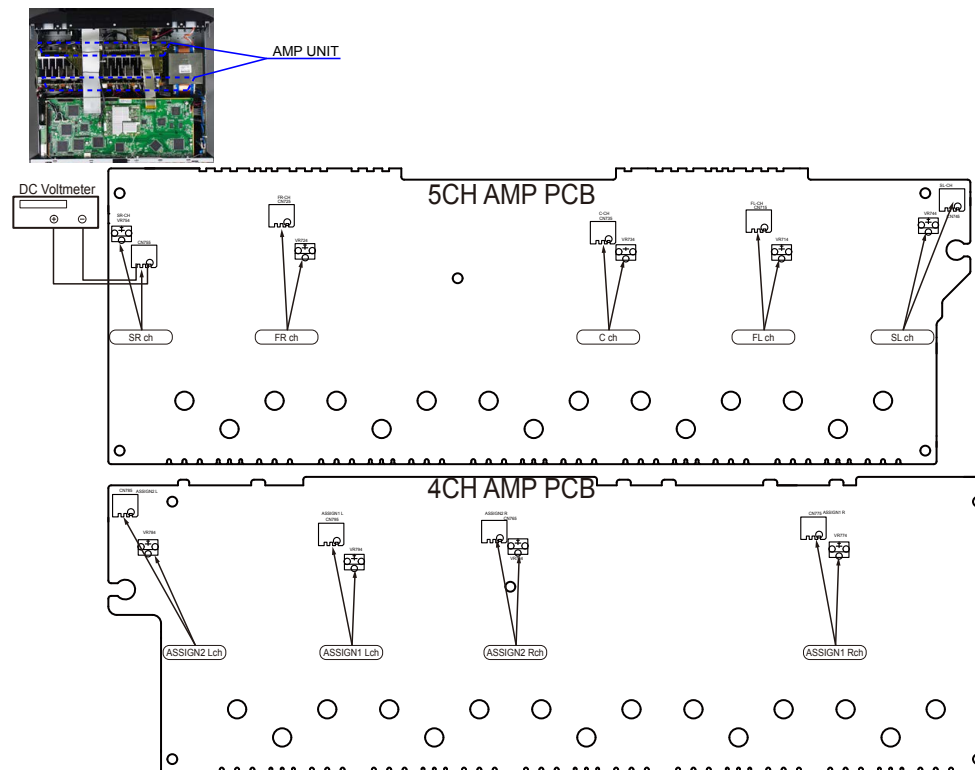
- (1) Remove the top cover and turn **VR714** (ALL Channel) of the AMP PCB counterclockwise(↺) as far as possible.
- (2) Connect the DC Voltmeter to the test points.

FRONT-Lch	: CN715	: VR714
FRONT-Rch	: CN725	: VR724
CENTER ch	: CN735	: VR734
SURROUND-Lch	: CN745	: VR744
SURROUND-Rch	: CN755	: VR754
ASSIGN-2Rch	: CN765	: VR764
ASSIGN-1Rch	: CN775	: VR774
ASSIGN-2Lch	: CN785	: VR784
ASSIGN-1Lch	: CN795	: VR794
- (3) Connect the power cord to an outlet. Next, press the power button to turn on the power.
- (4) 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	: DVD
- (5) Turn **VR741** clockwise (↻) and adjust the voltage of the test point to "**8.0mV ± 0.5mV DC**" within 2 minutes.
- (6) Check whether the voltage is within the range "**8.0mV ± 2mV DC**" 10 minutes after adjustment.
- (7) Adjust the variable resistance of each channel using the same method.



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.

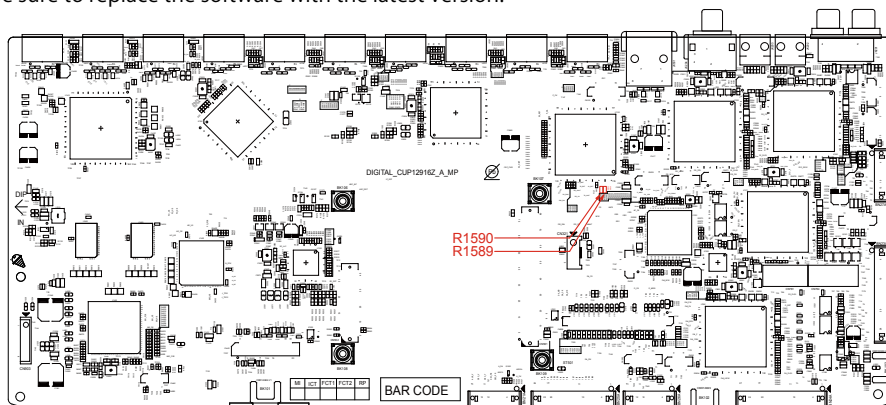
The procedure after replacing the printed circuit boards is as follows.

(1) Change the resistor for setting the region.

Model Area	DIGITAL PCB	
	R1589	R1590
North America (U)	0	OPEN
Europe (N)	OPEN	0

See the PCB below.

(2) Be sure to replace the software with the latest version.



PROCEDURE AFTER REPLACING THE U-COM, ETC.

The procedure after replacing the u-COM (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	IC151	R5F564MJCDFC	B	SOFTWARE : Main
DIGITAL	IC254 IC264 IC273 IC283	MX25L1606EM2I-12G	B	SOFTWARE : DSP1/2/3/4 ROM
DIGITAL	IC404	MX25L12835FMI-10G 128M	B	SOFTWARE : GUI ROM
DIGITAL	IC421	EPM570F256C4N	B	SOFTWARE : VIDEO PLD
DIGITAL	IC221	5M570ZF256C5N	C	SOFTWARE : AUDIO PLD
MODULE	C49	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 replace the software with the latest version.

See "[3. Update method when the DIGITAL PCB or network module is replaced \(Using a USB flash drive\)](#)" for information on writing 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	-	"Table 1" or "Table 2"
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
SR7012	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
SR7012U	North America (U)	Product ID : 100100590100	DPMS_SR7012ALL_LEGO_xxxx.zip	heos_40.prod_x.xxx.xx.zip
SR7012N	Europe (N)	Product ID : 100100590200		

Caution in
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Repair Information

Updating



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

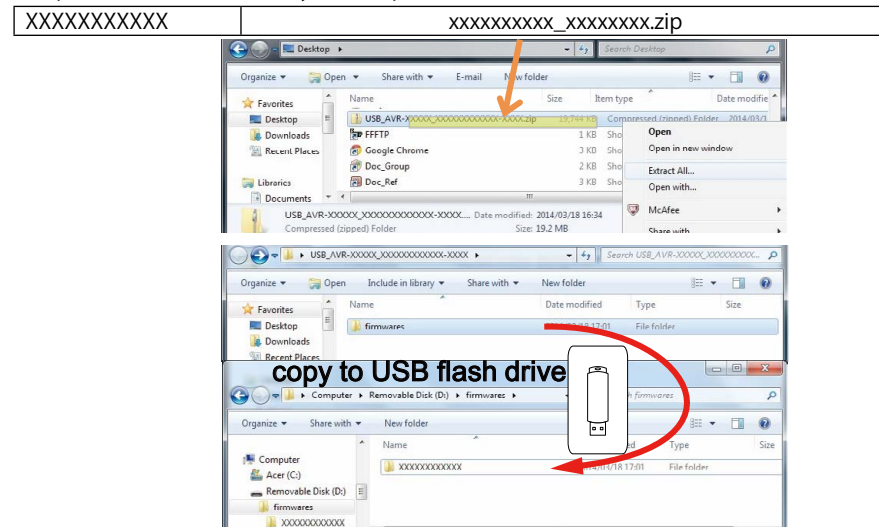
- Windows PC
- USB flash drive format : Prepare a USB flash drive formatted in FAT16 or FAT32.
※We recommend a USB flash drive that has an LED installed.

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.

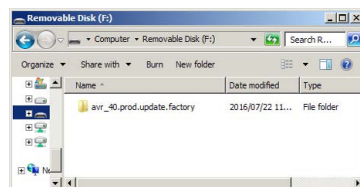
After unzipping the files, store them in the root of the same USB flash drive.

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

USB flash drive root

+ avr_40.prod.update.factory
+ xxxxxxzz.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.

(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.

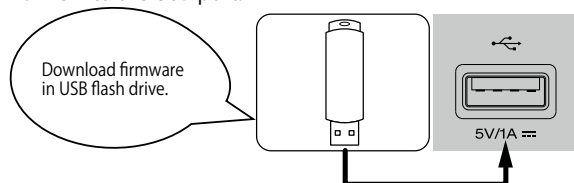
Check that the display is as shown below.

Display (Sub Display)

L1	TuneIn Internet Radio	or	No Network Connection
L2	HEOS Favorites		

L1 : 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 "DYNAMIC EQ" and "M-DAX" 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"

---Cautions on Firmware 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.



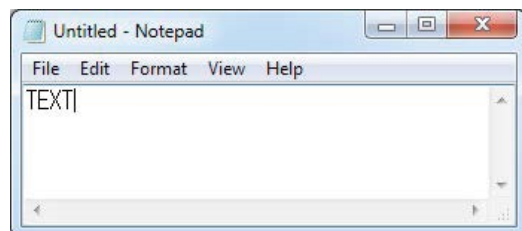
4. Update Method for Service Region Settings

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

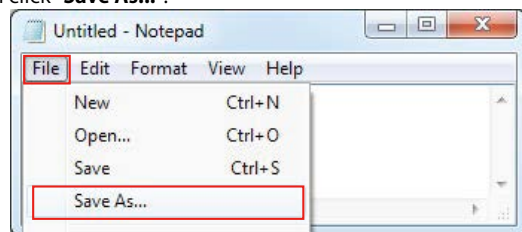
4.1. Creating a Service Region Settings file

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

(2) Enter "TEXT".



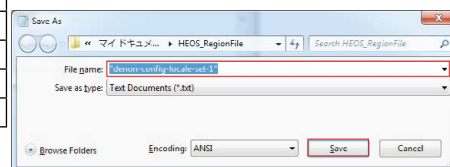
(3) Click "File", and then click "Save As...".



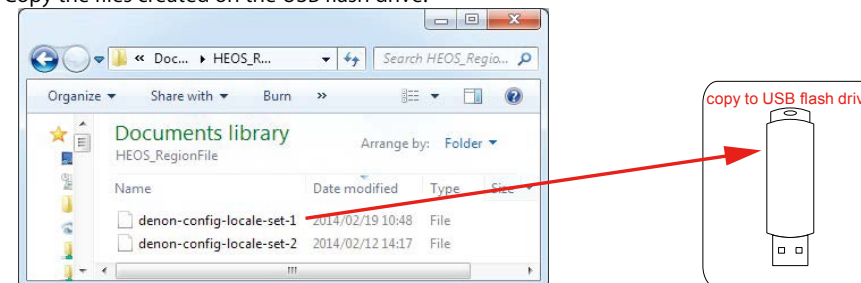
(4) Enter the file name and click the Save button.

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.

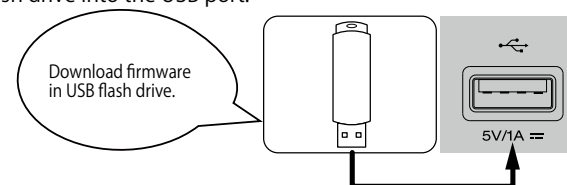
Check that the display is as shown below.

Display (Sub Display)

L1	▶TuneIn Internet Radio	or	No Network Connection
L2	HEOS Favorites		

L1 : 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

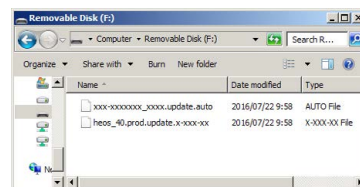
Copy the normal update files onto the USB flash drive in the following structure.

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_SR7012ALL_LEGO_xxxx.zip Product ID : 100100590100	heos_40.prod.update.x-xxx.xx.zip
Europe (N)	DPMS_SR7012ALL_LEGO_xxxx.zip Product ID : 100100590200	

USB flash drive root

- + SR7012xx_xxxx.update.auto
- + heos_40.prod.update.x-xxx-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.)

- (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.

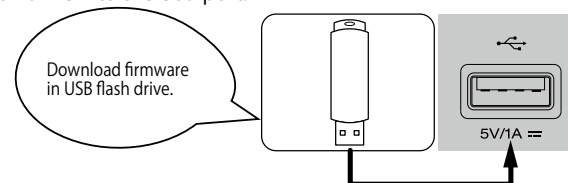
Check that the display is as shown below.

Display (Sub Display)

L1	TuneIn Internet Radio	or	No Network Connection
L2	HEOS Favorites		

L1 : 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"

---Cautions on Firmware 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. 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. Normal Firmware Update Method from OTA

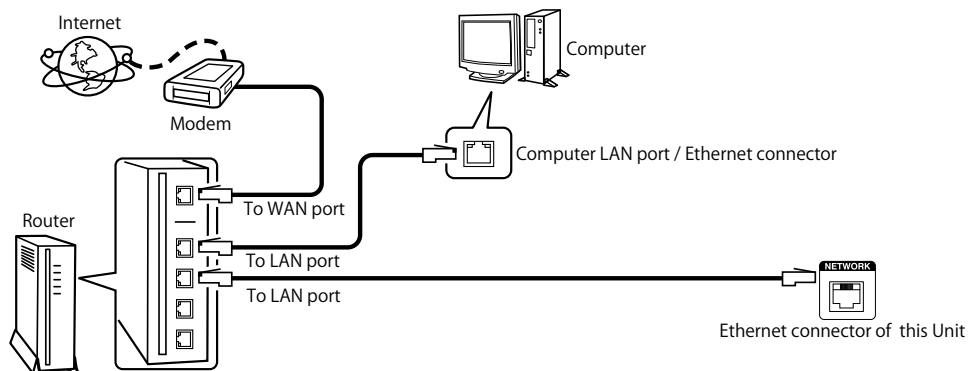
Download the latest firmware from our website and update the firmware.

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.

(1) Press the **"SETUP"** button on the remote control to display the GUI menu.

(2) Press the cursor button to select **"General" → "Firmware" → "Update" → "Check for Update"**.

(3) 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.

(4) OTA Update starts automatically.

The Standby LED lights red.

Display during OTA 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.

(5) The unit restarts when update is complete.

(6) After updating the firmware, check the version.

See ["1. Version Display Mode"](#)

---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.



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 (Sub Display)

L1	Updating▶▶▶▶ **%
L2	***min



L1	Update ErrorYYXX
L2	Please check you

L2 : Content of the display is scrolled.

Remedies

Error Code (YYXX) (DeviceID/ErrorCode)	Remedies
000A	"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
0B	Main FBL (No used)
11	DSP1 or DSP
12	DSP2 ※ Except : NR1508/NR1608/SR5012
13	DSP3 ※ Except : NR1508/NR1608/SR5012
19	DSP4 ※ Except : NR1508/NR1608/SR5012
15	Audio PLD
22	Video PLD ※ Except : NR1508
2A	GUI
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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