

AV Pre Tuner
AV7705

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

Click here!

On-line service parts list

<http://dmedia.dmglobal.com/Document/DocumentDetails/24927>

ONLINE PARTS LIST (P5)

WEB owner's manual

NA: <http://manuals.marantz.com/AV7705/NA/EN/index.php>

EU: <http://manuals.marantz.com/AV7705/EU/EN/index.php>

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

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

Please refer to the MODIFICATION NOTICE.

Confidential



BEFORE SERVICING THIS UNIT

SAFETY PRECAUTIONS

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HANDLING THE SEMICONDUCTOR AND OPTICS

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SERIAL NUMBER

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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.

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 should also be taken with the positions of the wires by arranging them and using clamps to keep them away from heating and high voltage parts, so be sure to set everything back as it was originally placed.

ⓘ Make a safety check after servicing!

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

(Insulation check procedure)

Unplug the power cord from the power outlet, disconnect the antenna, plugs, etc., and on the power.

Using a 500V insulation resistance tester, check that the insulation resistance value between the inplug and the externally exposed metal parts (antenna terminal, headphones terminal, input terminal, etc.) is 1M Ω or greater. If it is less, the set must be inspected and repaired.

CAUTION

Concerning important safety parts

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

- (1) Schematic diagrams Indicated by the ⚠ 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:

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

HANDLING THE SEMICONDUCTOR AND OPTICS

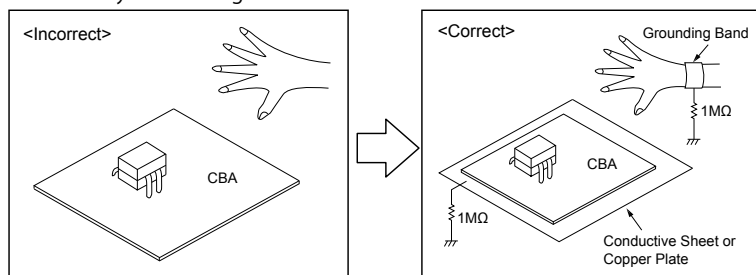
Electrostatic breakdown of the semi-conductors or optical pickup may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

1. Ground for Human Body

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

2. Ground for Workbench

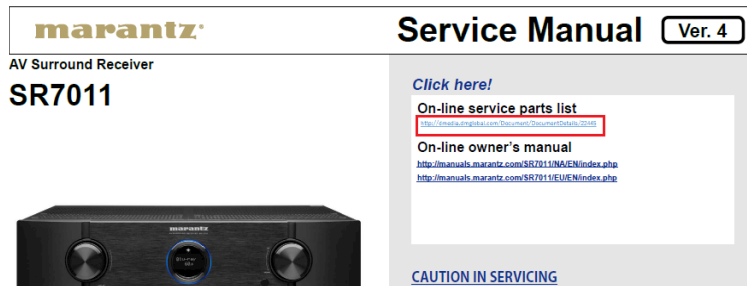
Be sure to place a conductive sheet or copper plate with proper grounding (1 M ohm) on the workbench or other surface, where the semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semi-conductors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



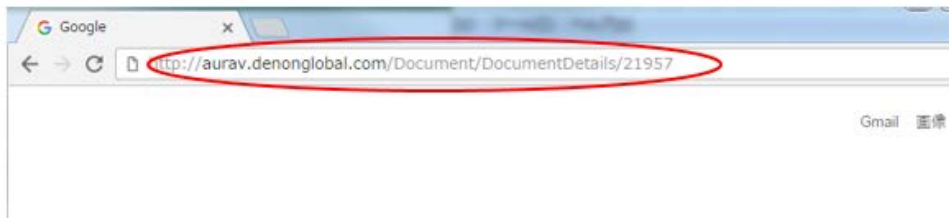
ONLINE PARTS LIST

Accessing the Parts List

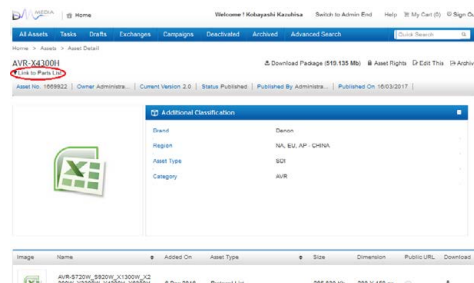
- (1) Access from the Service Manual
 - Click the URL link on the cover of the service manual.
- Examples of display



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



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



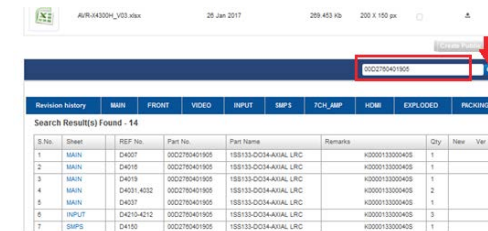
NOTE: If the ▼ Link to Parts List section is not displayed, download the parts table from the Asset list.

Searching Part Numbers or Ref. Numbers

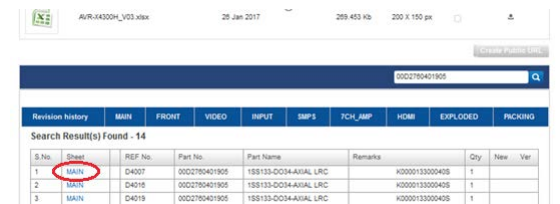
You can search a Parts List for part numbers or Ref. numbers.

- (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.



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



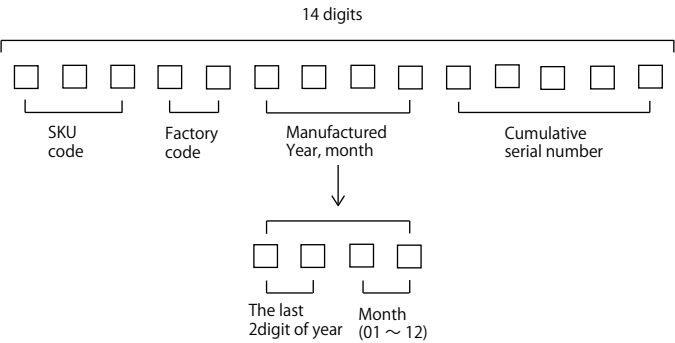
NOTE FOR PARTS LIST

- Parts indicated by "nsp" on this table cannot be supplied.
 - When ordering a part, make a clear distinction between "1" and "I" (i) to avoid mis-supplying.
 - A part ordered without specifying its part number can not be supplied.
 - Part indicated by "@" mark is not illustrated in the exploded and packaging view.
- WARNING:** Parts indicated by the ⚠ mark have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

SERIAL NUMBER

Serial Number Organization

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



SKU Code of this Unit

Product SKU	SKU Code
AV7705/U1B	BCJ
AV7705/N1B	BCK

Before Servicing
This Unit

Electrical

Mechanical

Repair Information

Updating

POST-SERVICE PRECAUTIONS

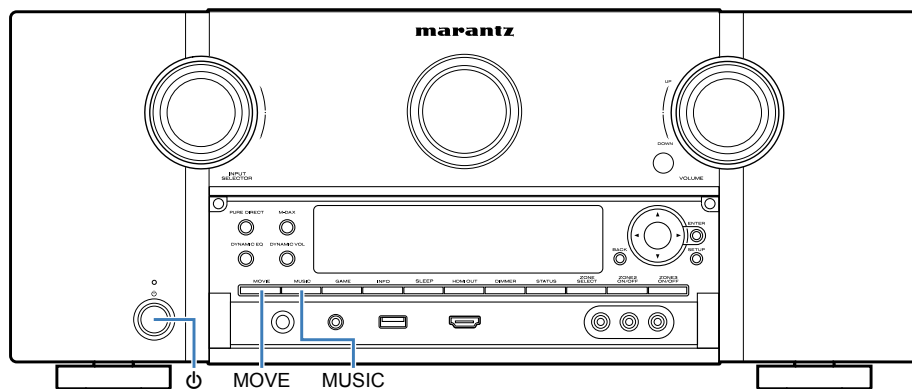
Initializing this Unit

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

1. Press the power button to turn off the power.
2. While holding down buttons "**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
900639103810S : JIG 29P EXTENSION CABLE : 1 Set
(See [JIG FOR SERVICING](#))

SCHEMATIC DIAGRAMS

[SCH01_DIGITAL CONNECT](#)
[SCH02_DIGITAL POWER](#)
[SCH03_MAIN CPU](#)
[SCH04_EXPANDER](#)
[SCH05_PROTECTION](#)
[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 & HDAM CNT](#)
[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_FRONT](#)
[SCH34_HDAM1](#)
[SCH35_HDAM2](#)
[SCH36_HDAM3](#)
[SCH37_HDAM4](#)
[SCH38_HDAM5](#)
[SCH39_SMPS](#)

PRINTED CIRCUIT BOARDS

[DIGITAL](#)
[INPUT, F-HDMI, FRONT CABLE](#)
[VIDEO, SIDE CNT, GUIDE FFC1](#)
[XLR\(Aside\), FUSE](#)
[XLR\(Bside\), FRONT CNT](#)
[FRONT, FRONT SW, HP](#)
[HDAM, 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](#)

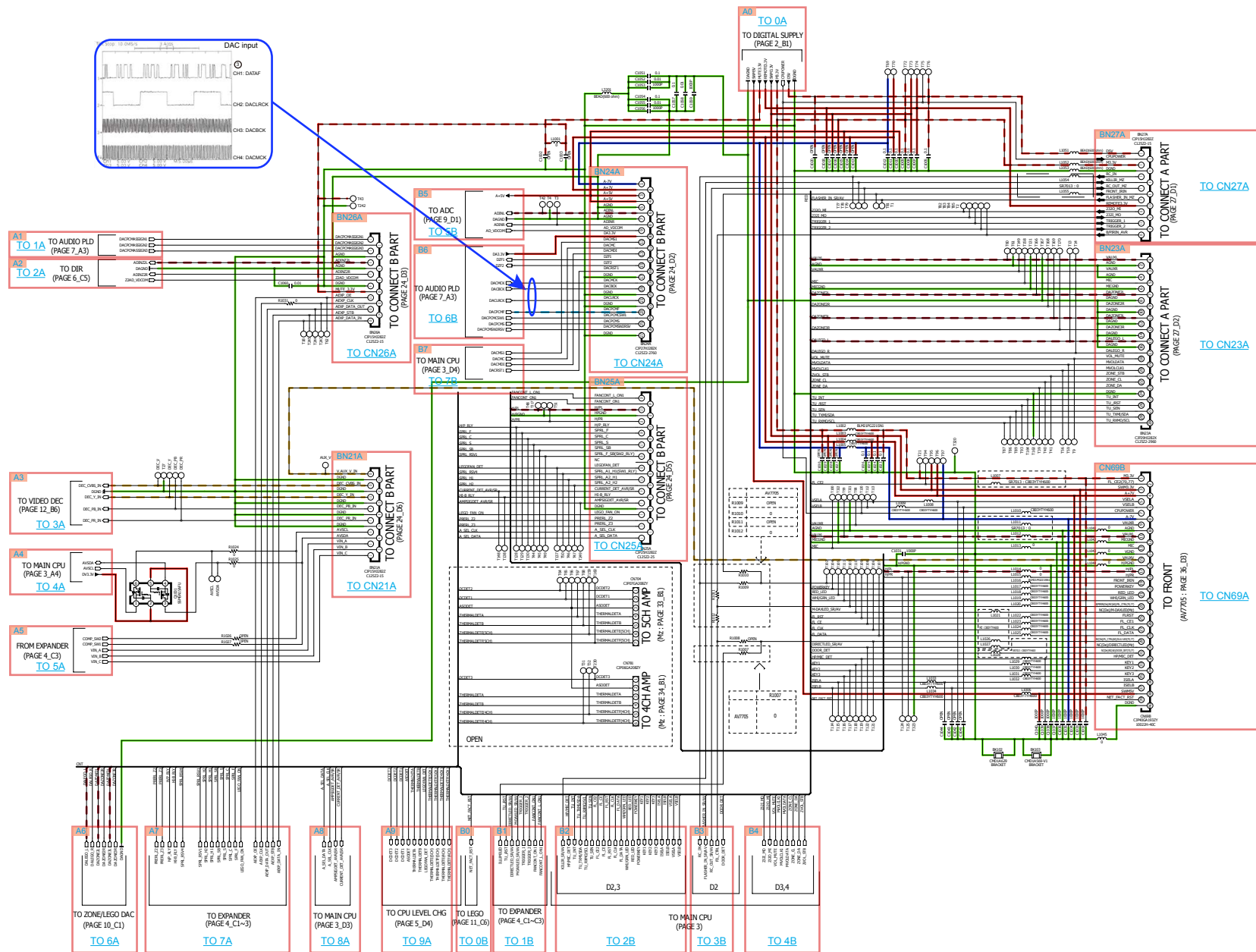
POWER DIAGRAM

WIRING DIAGRAM

SEMICONDUCTORS

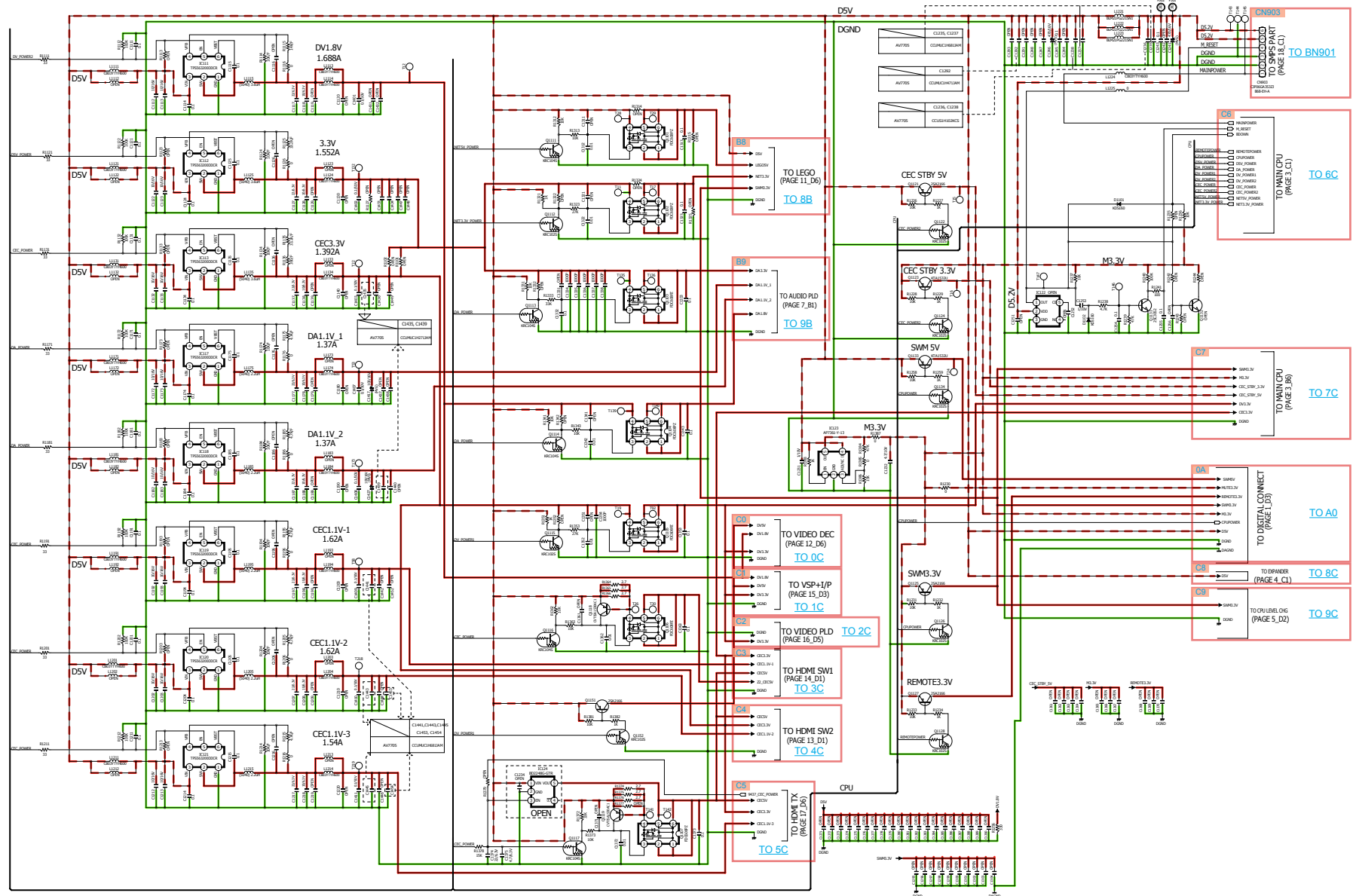
- [1. IC's](#)
- [2. FL DISPLAY](#)
- [3. Remote Code Table](#)



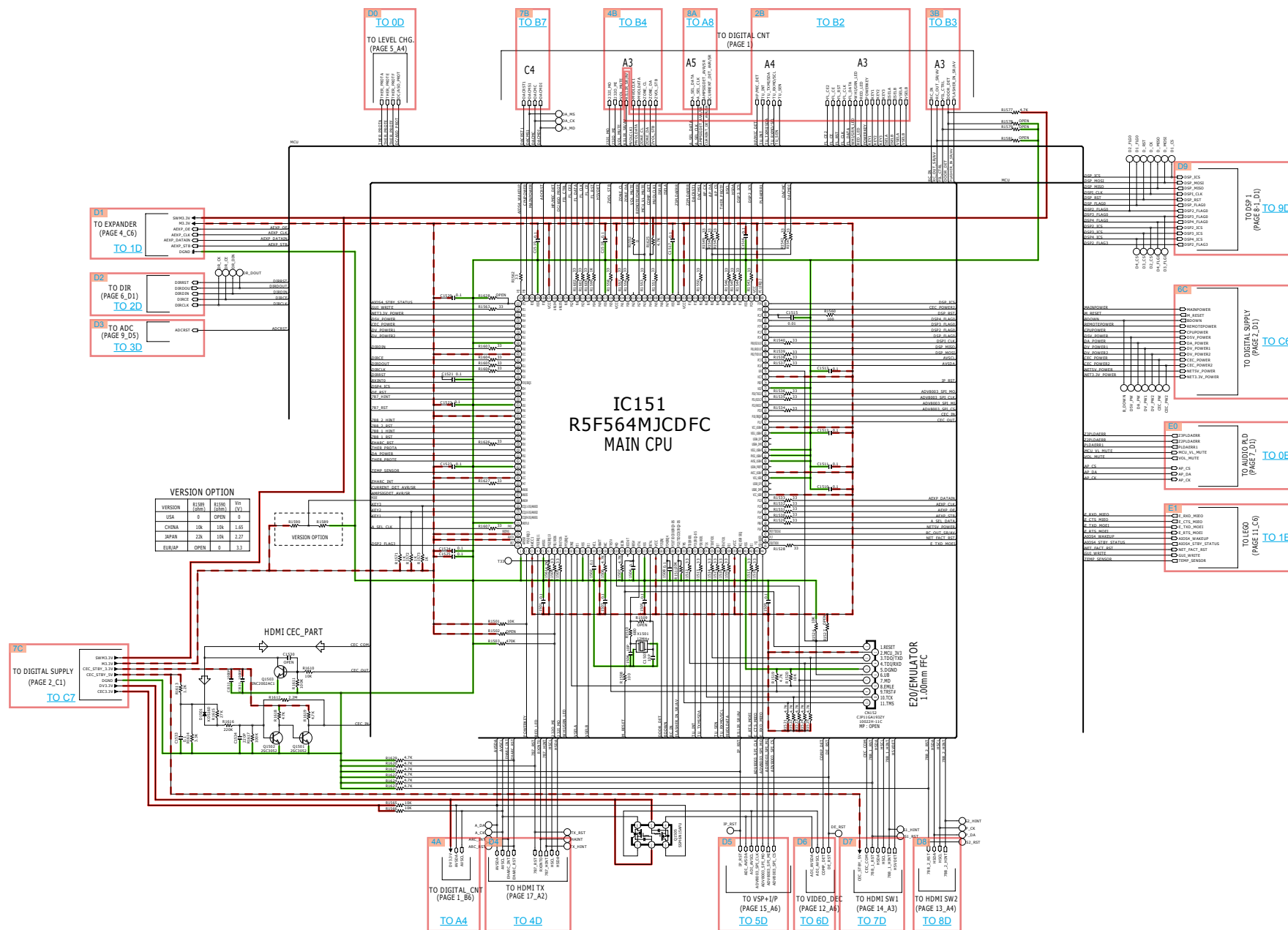


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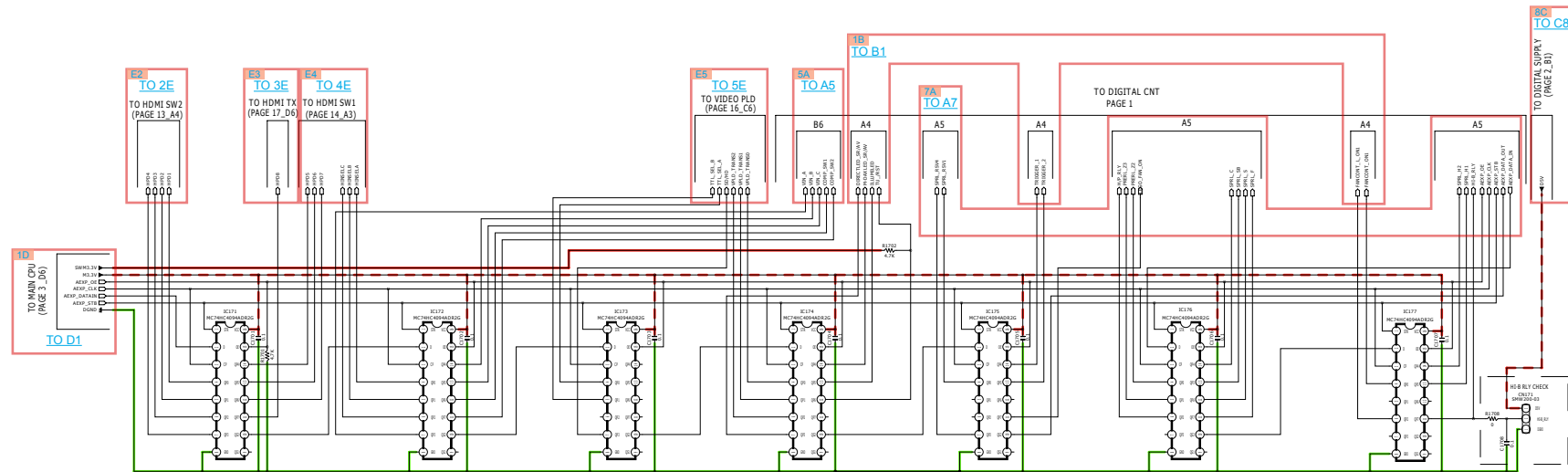




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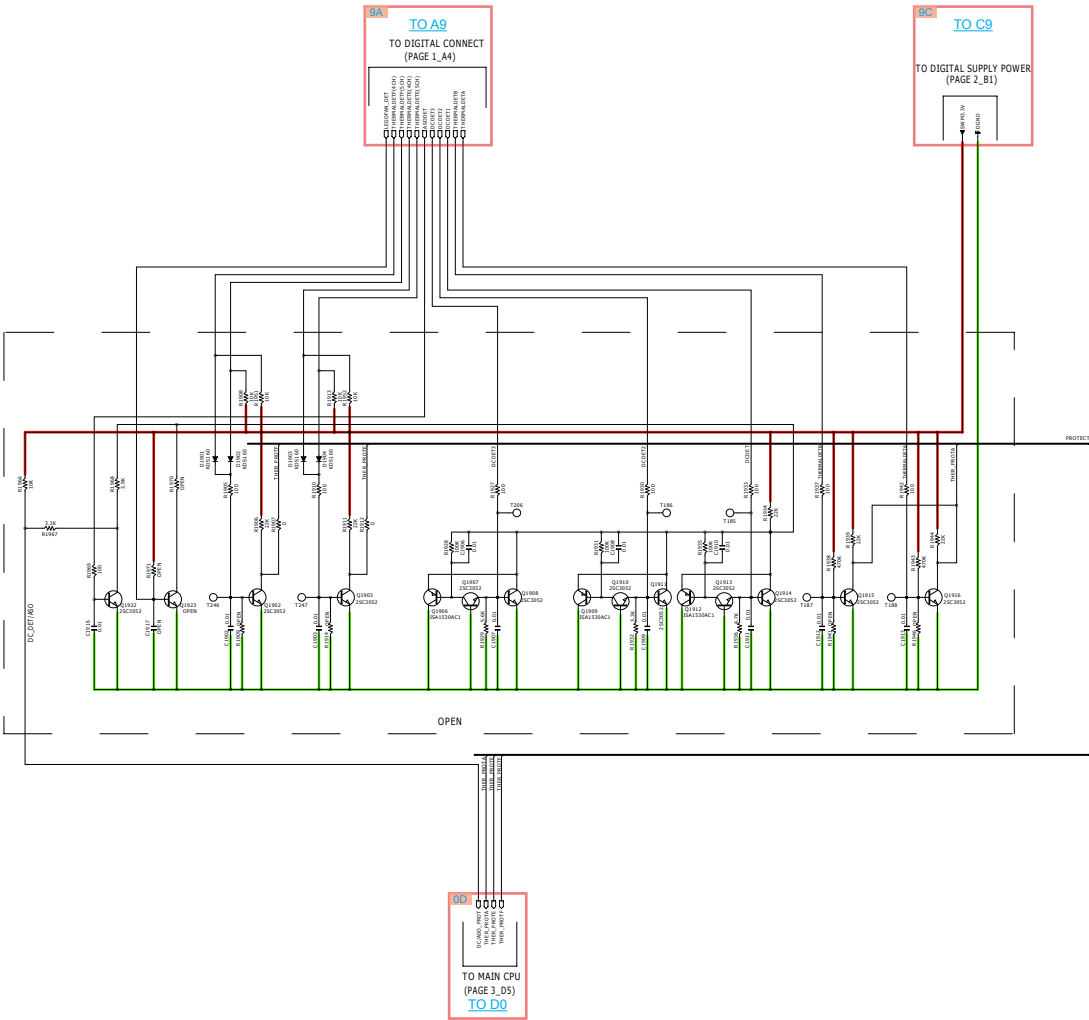


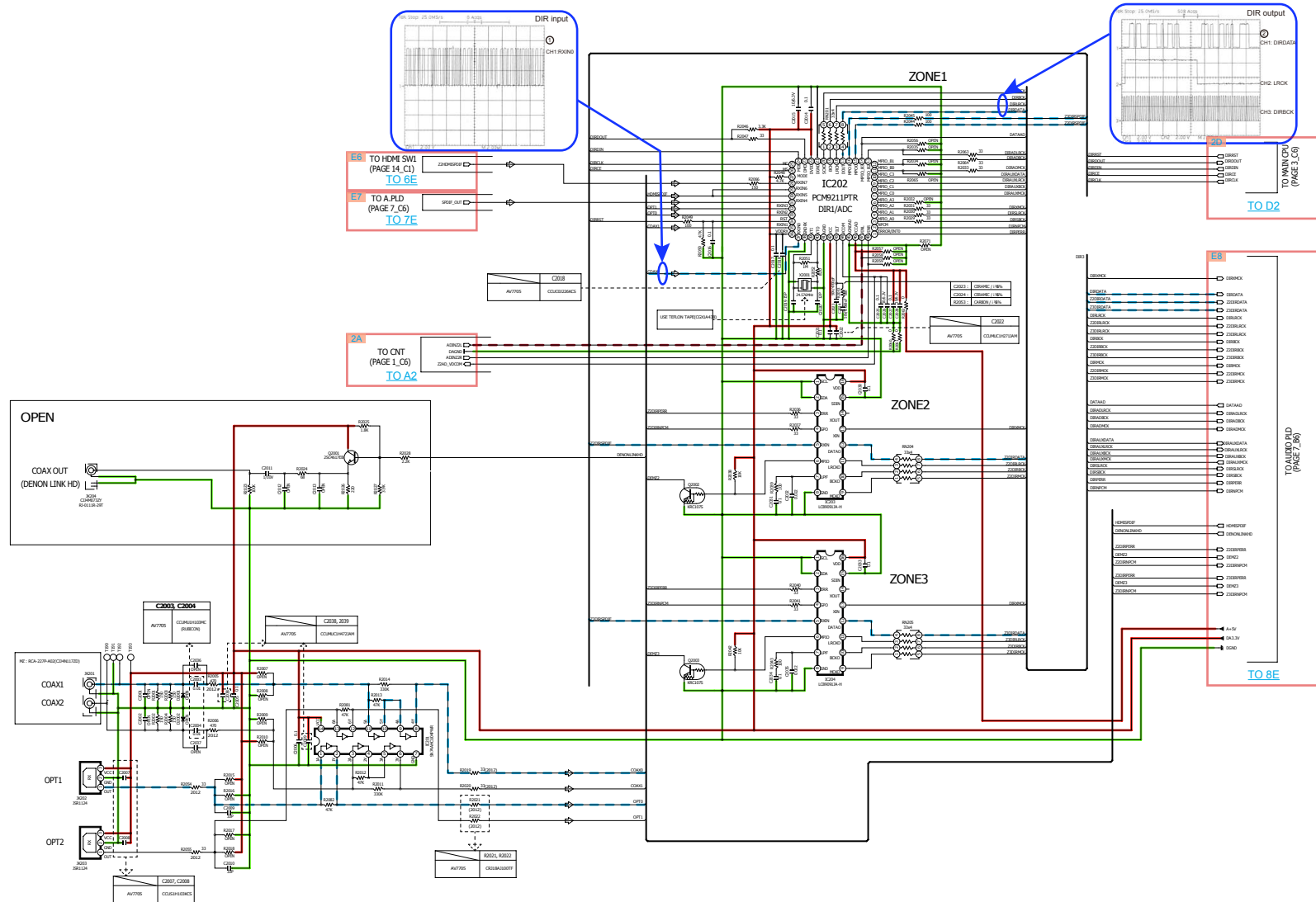
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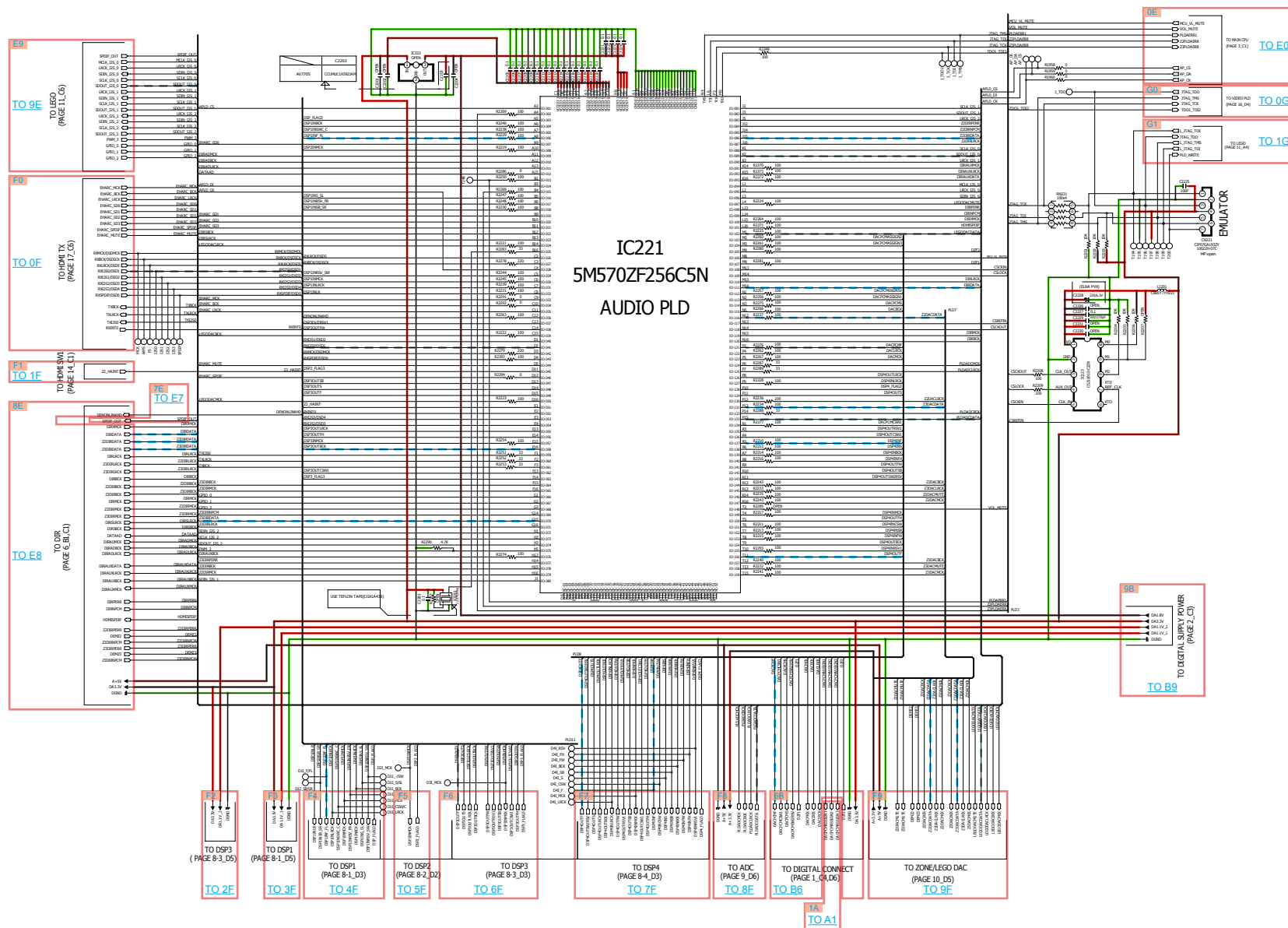


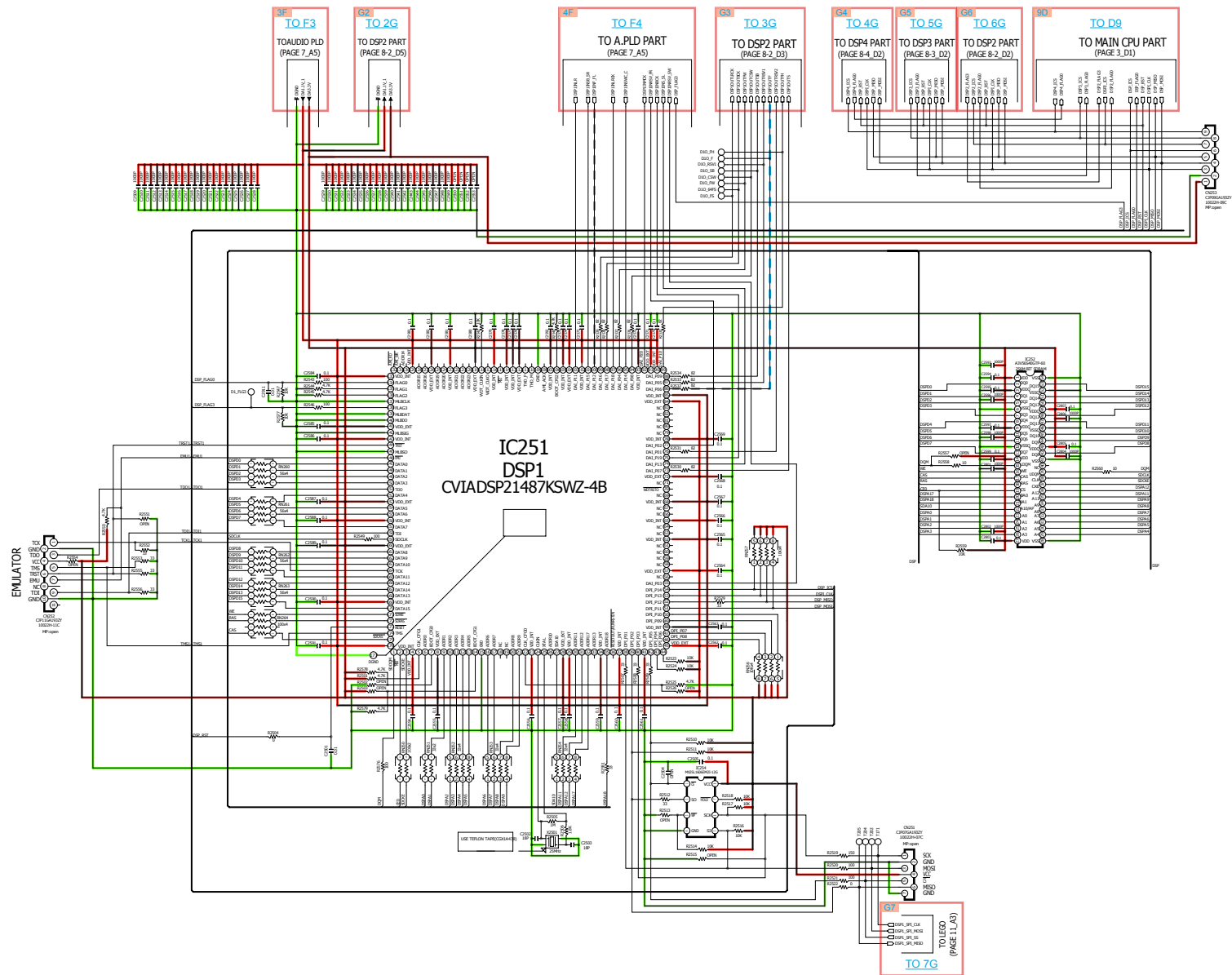
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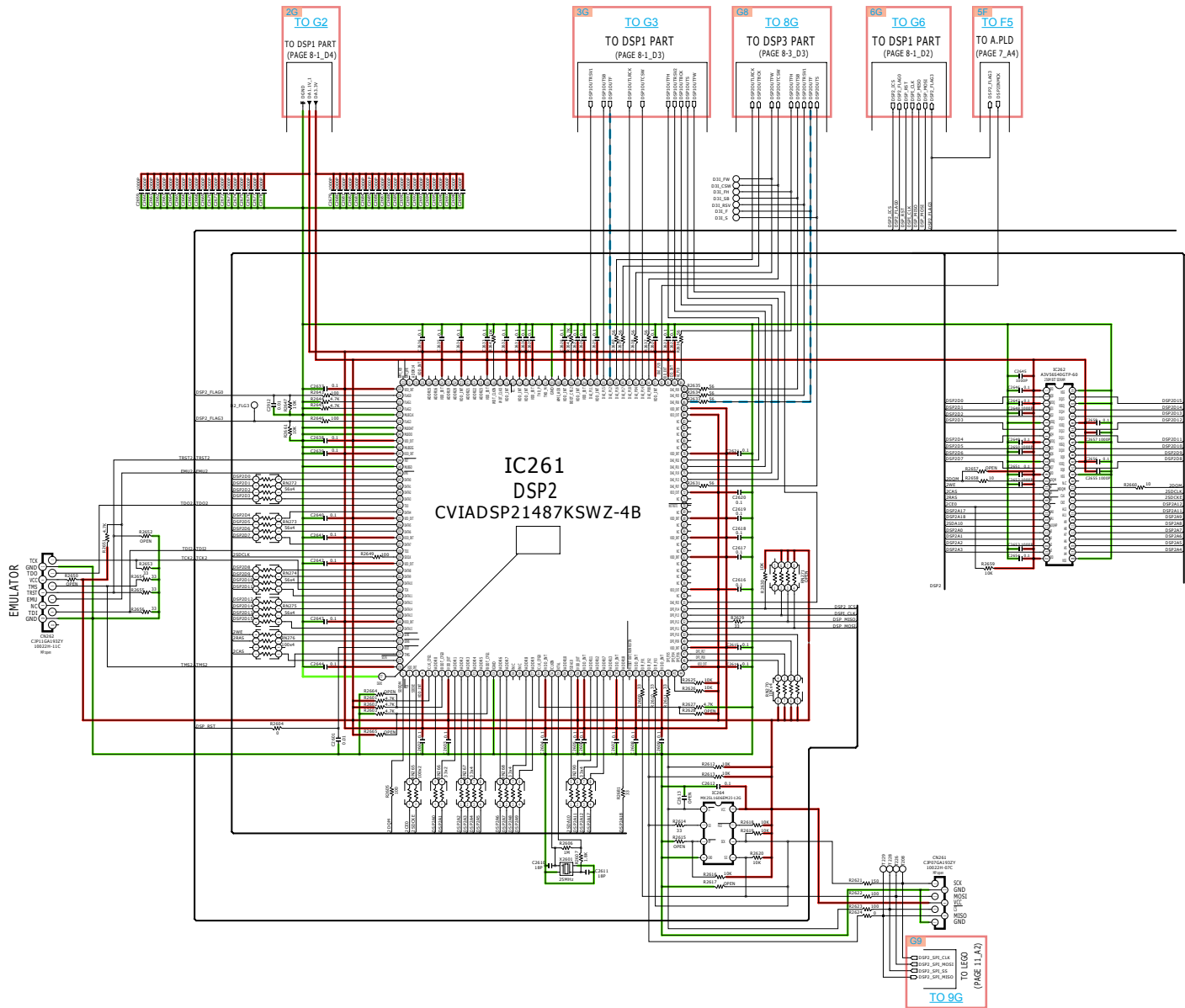




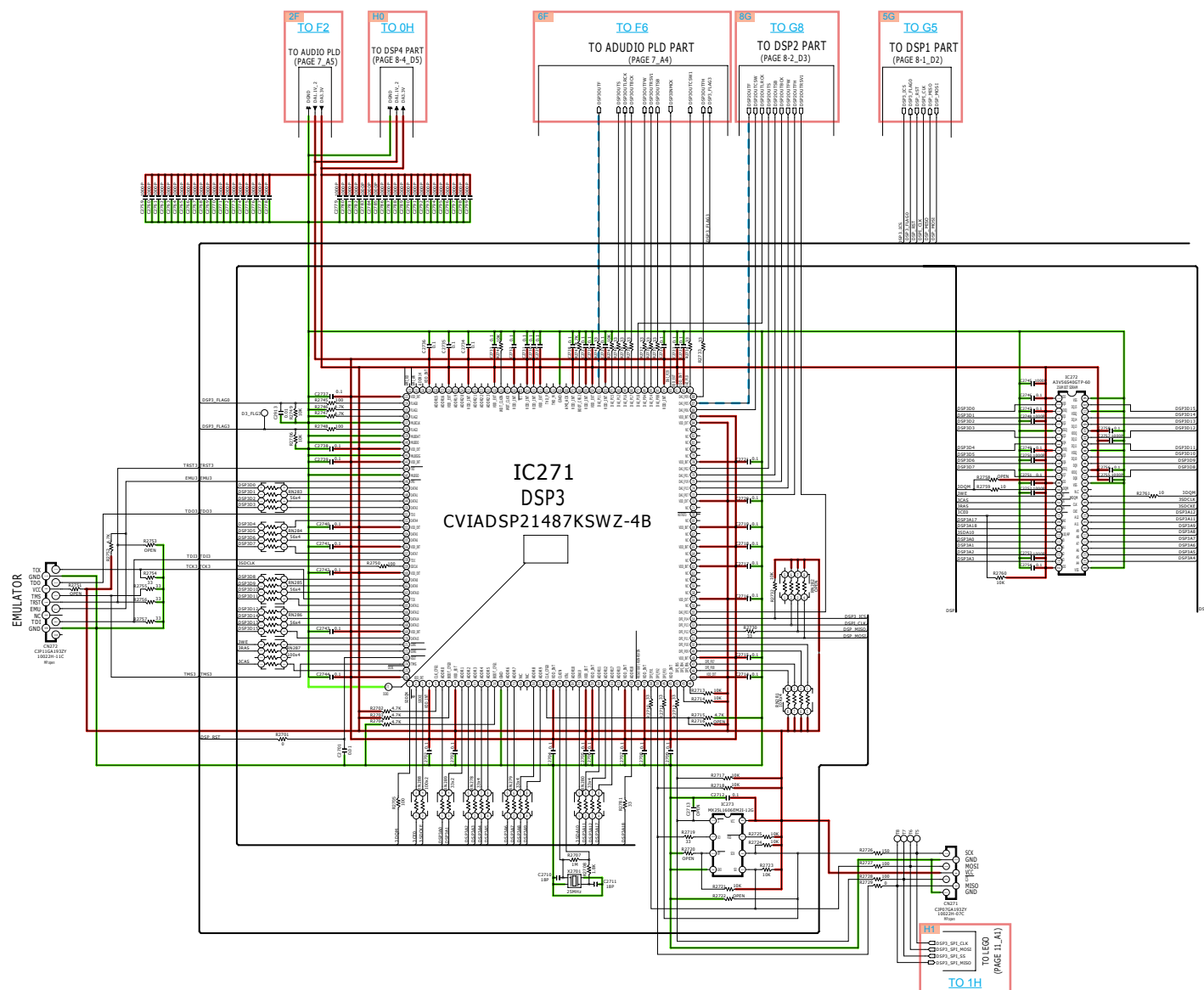


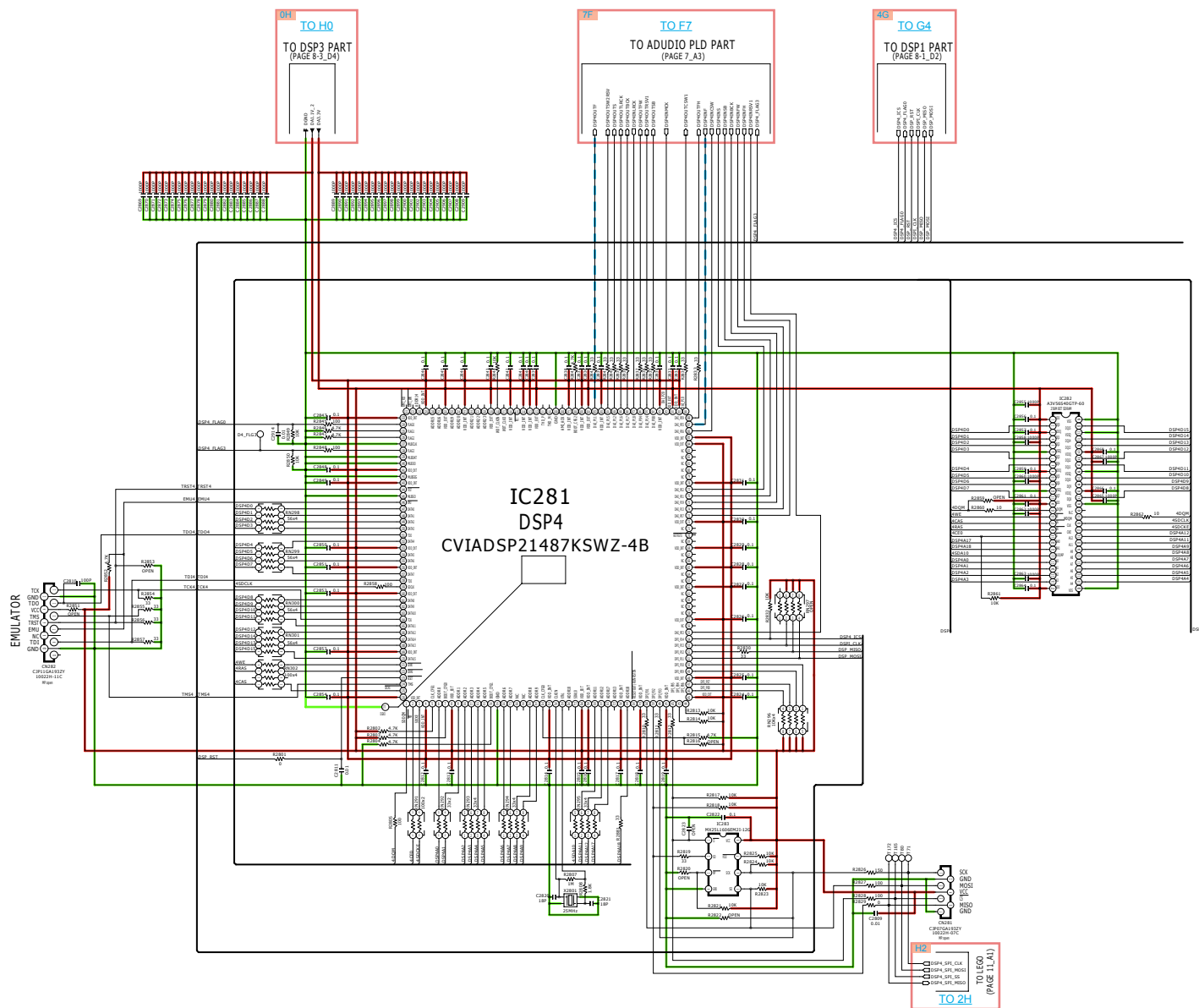


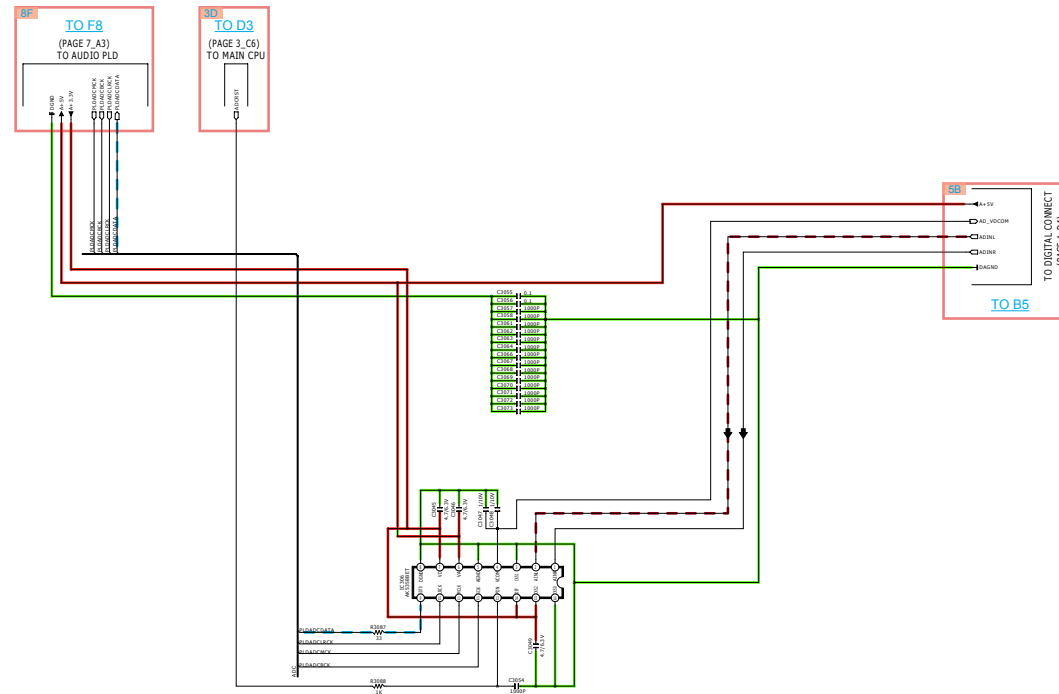




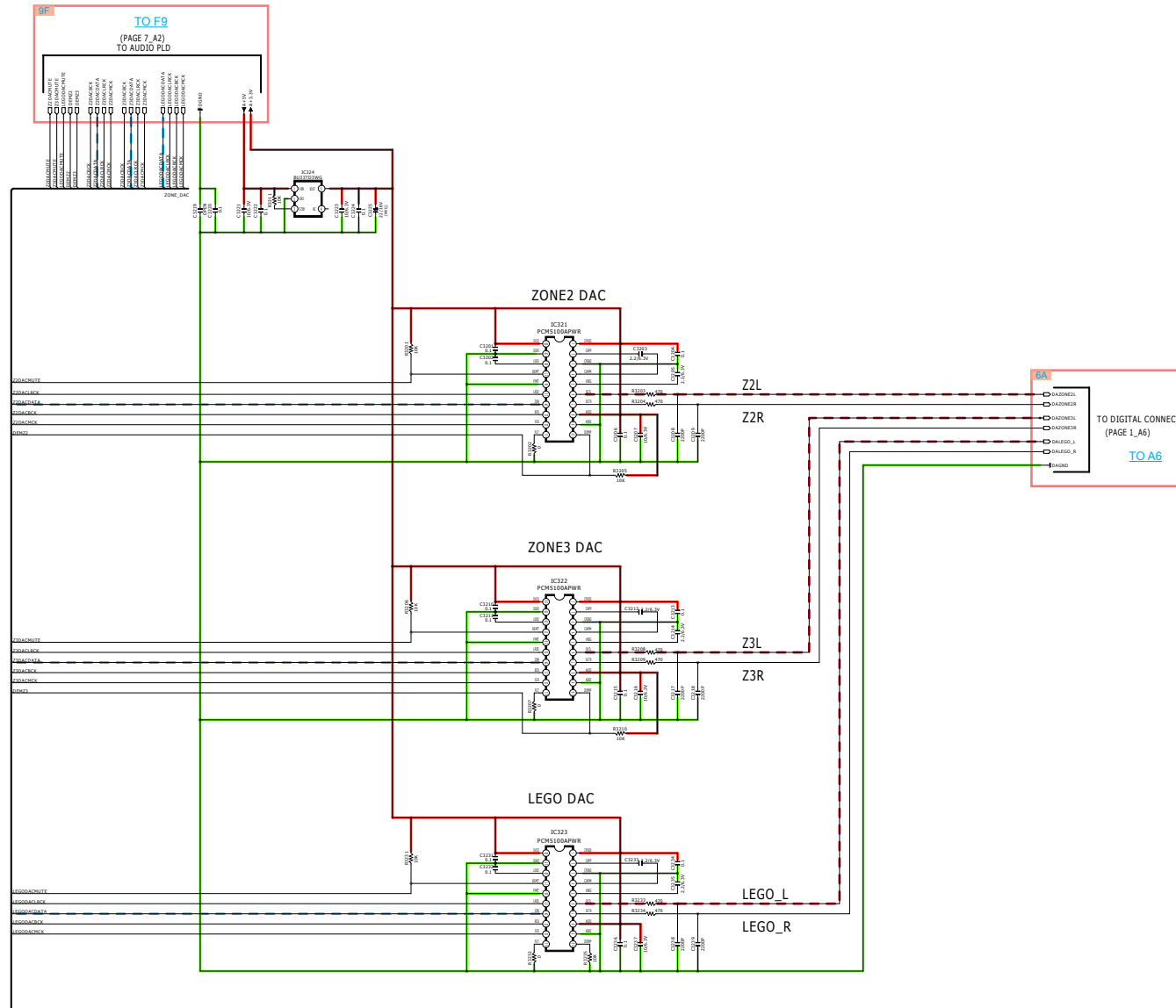
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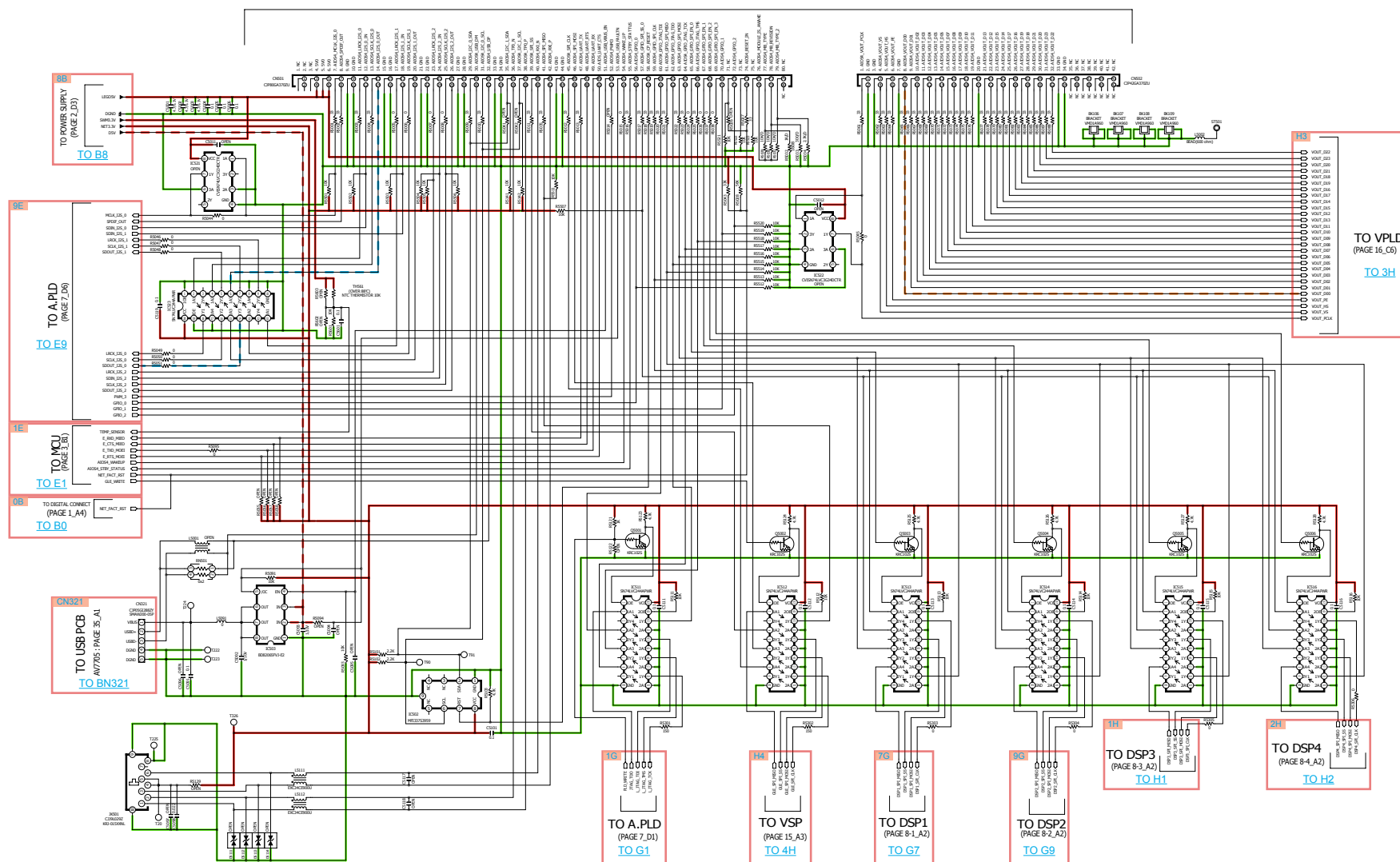


— GND LINE
 — POWER+ LINE
 — POWER- LINE
 - - - ANALOG AUDIO
 - - - DIGITAL AUDIO
 - - - TMDS SIGNAL
 - - - ANALOG VIDEO
 - - - DIGITAL VIDEO
 - - - STBY POWER

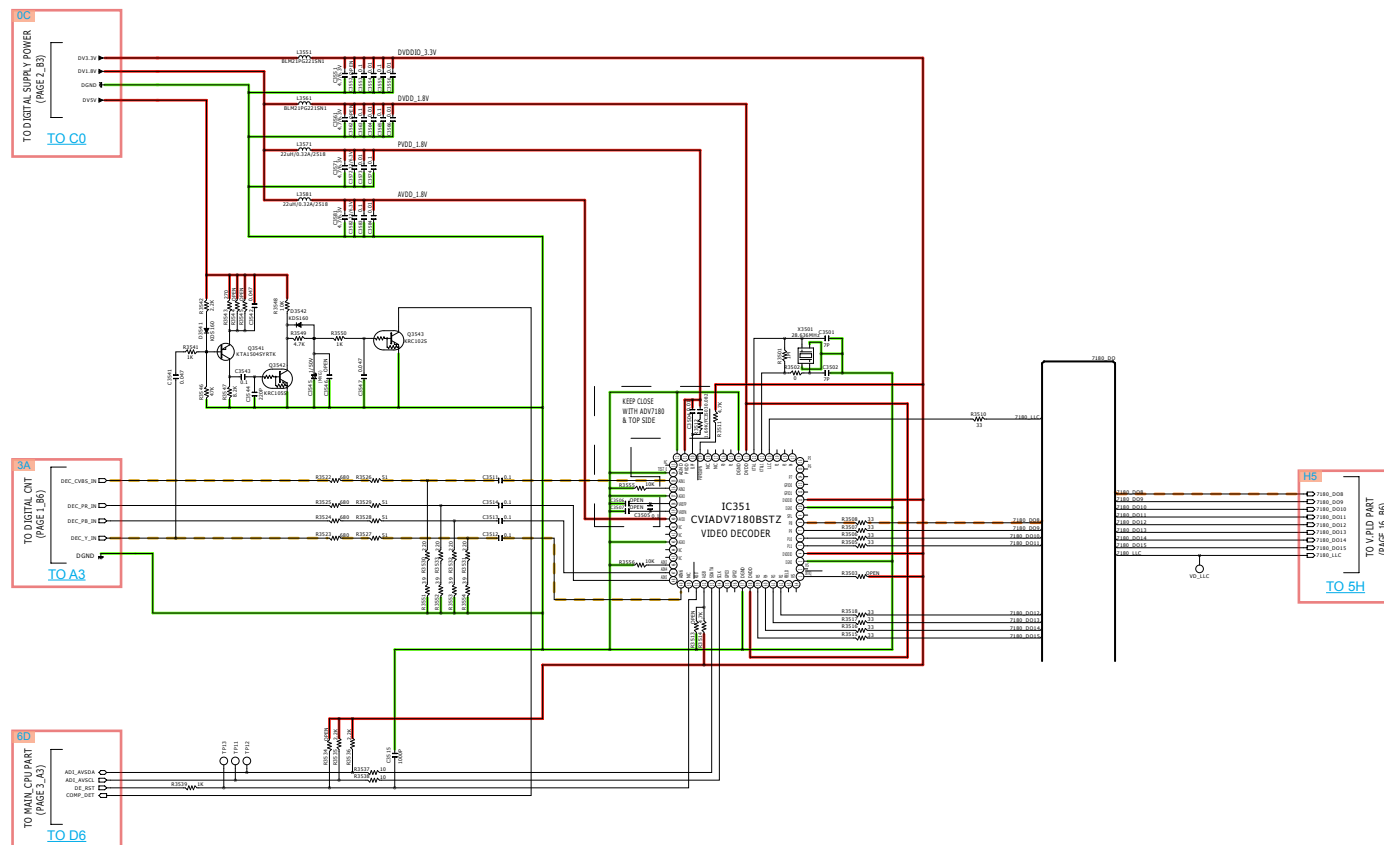


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FROM LEGO MODULE

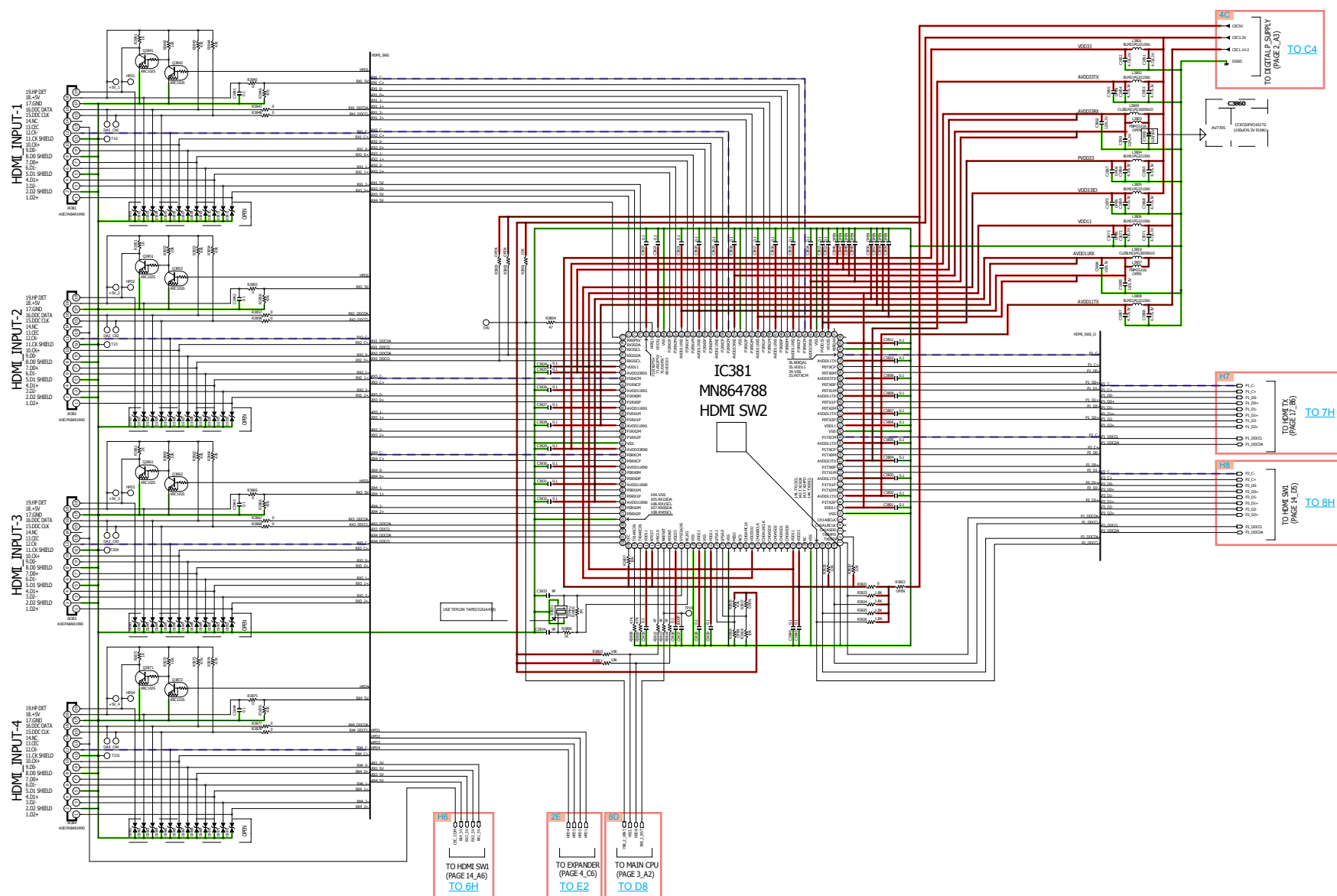


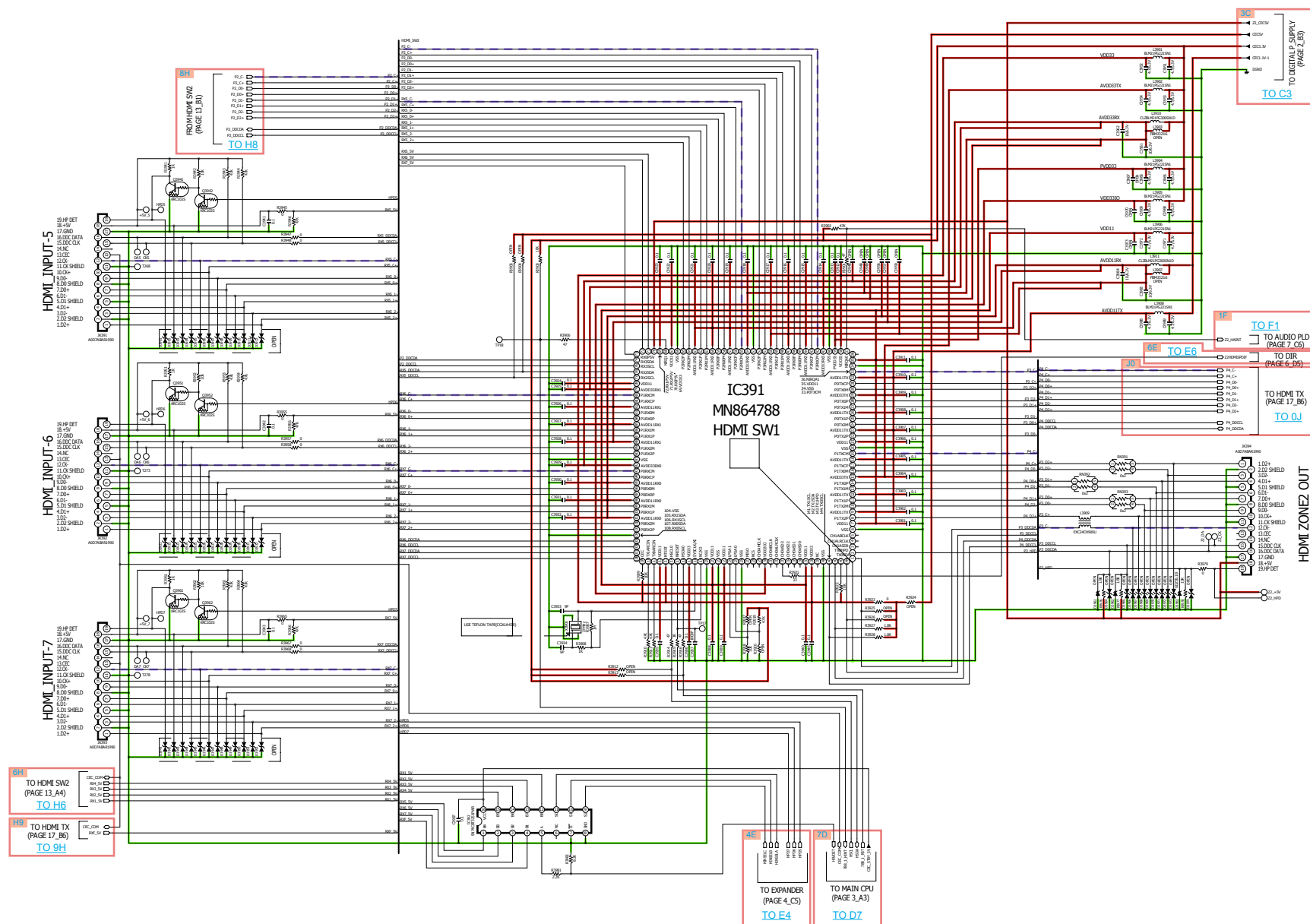
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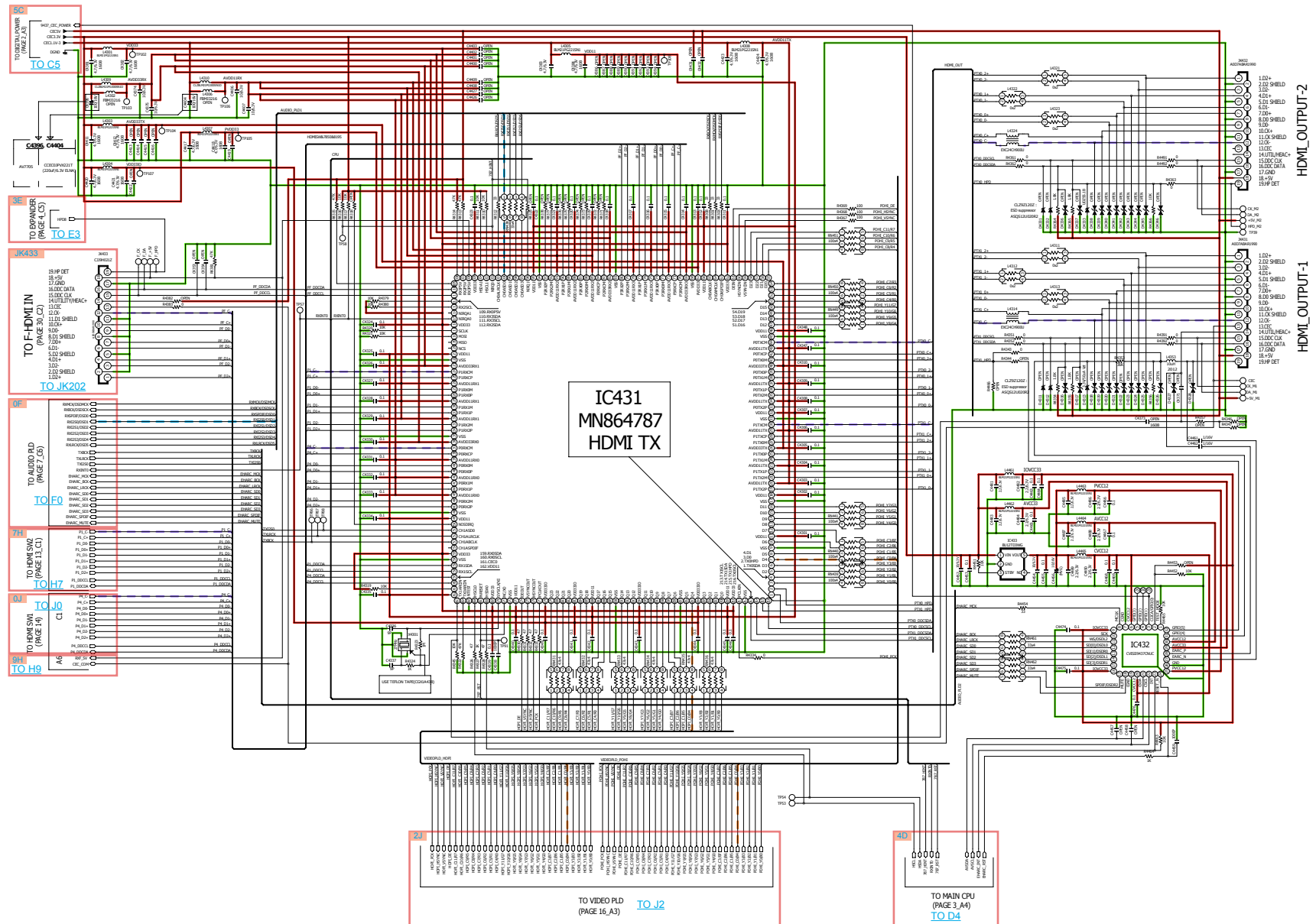






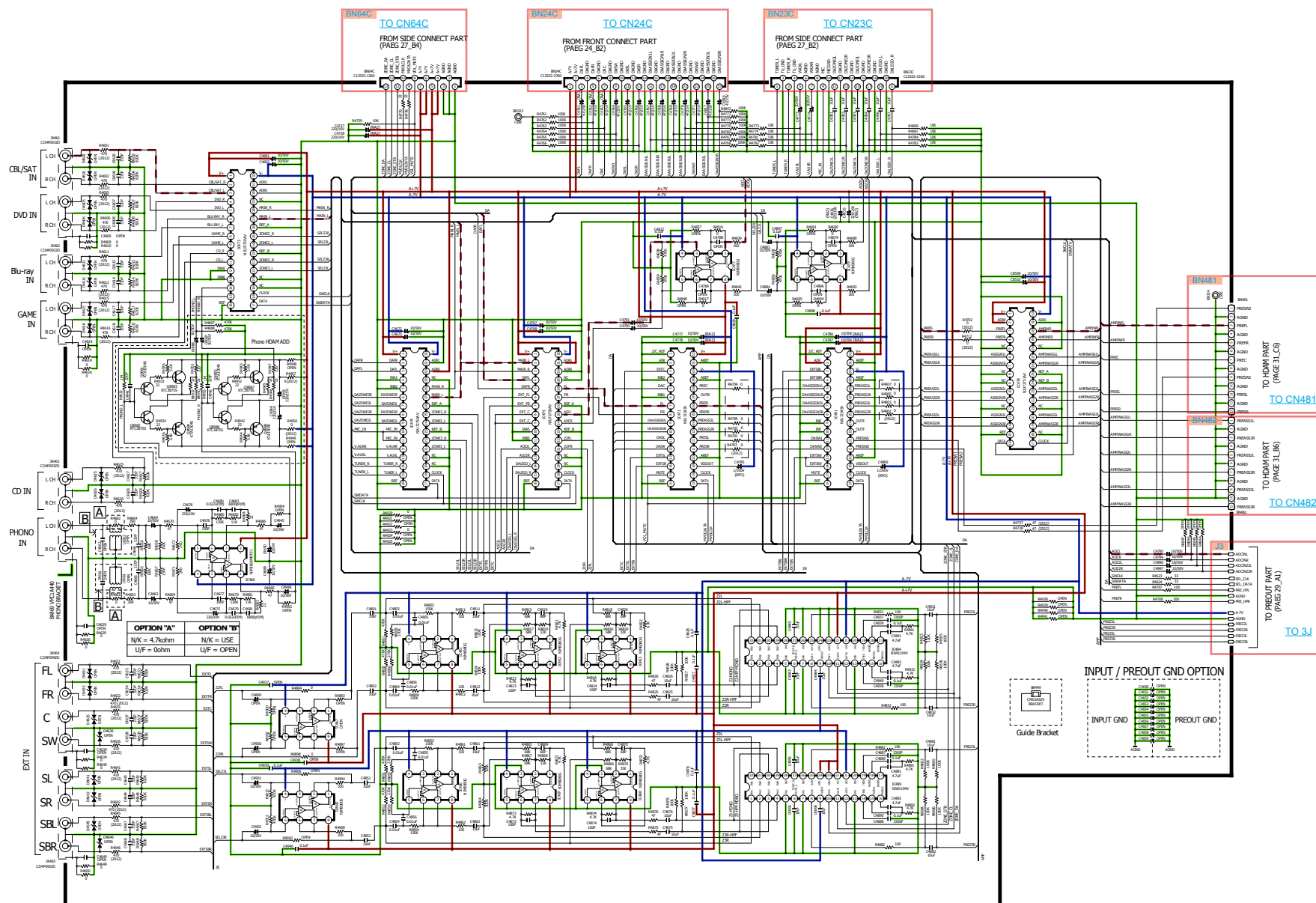
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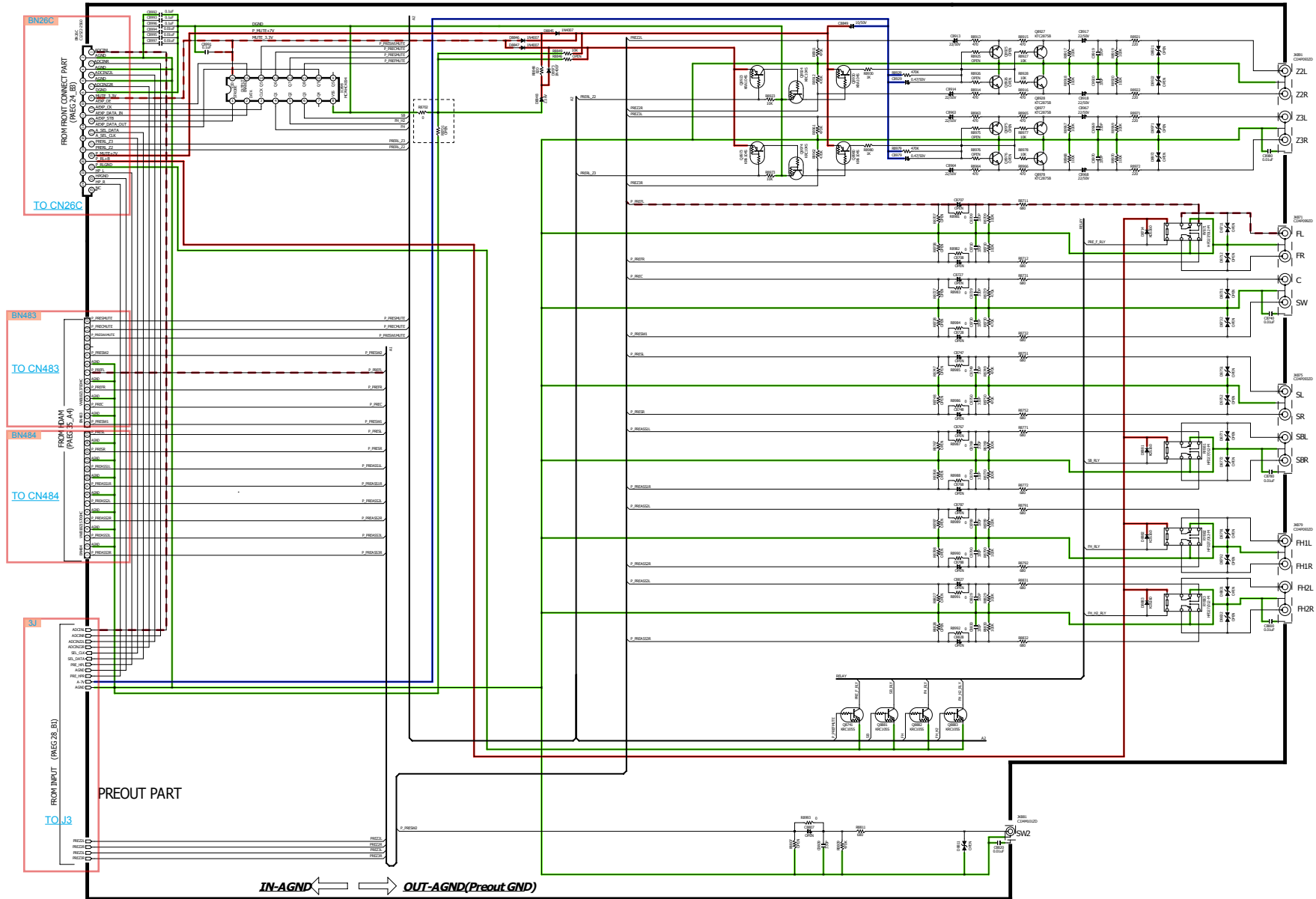




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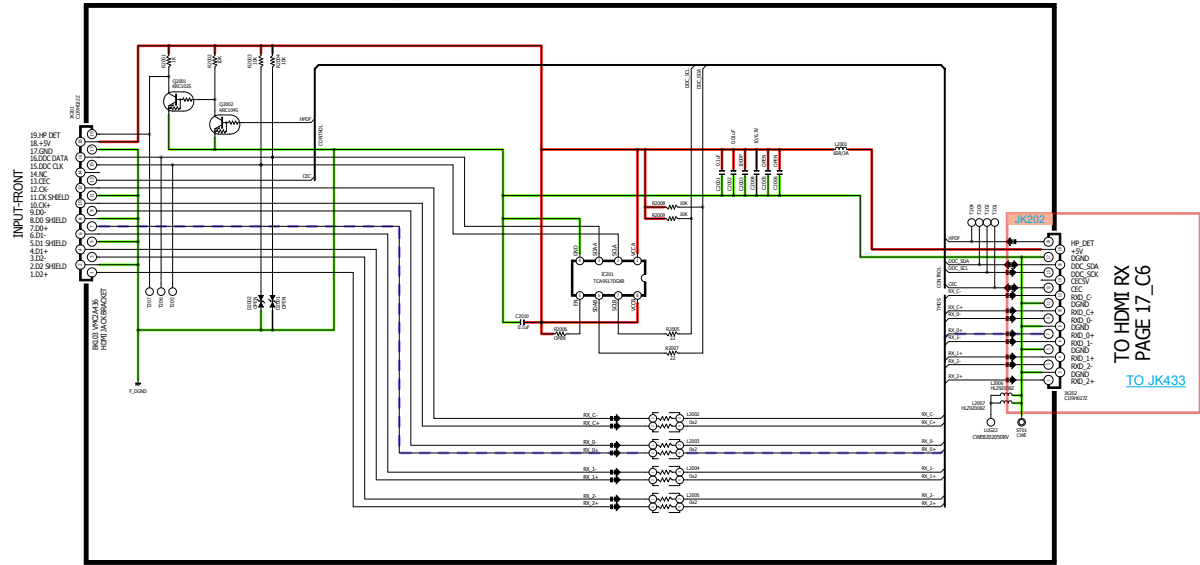




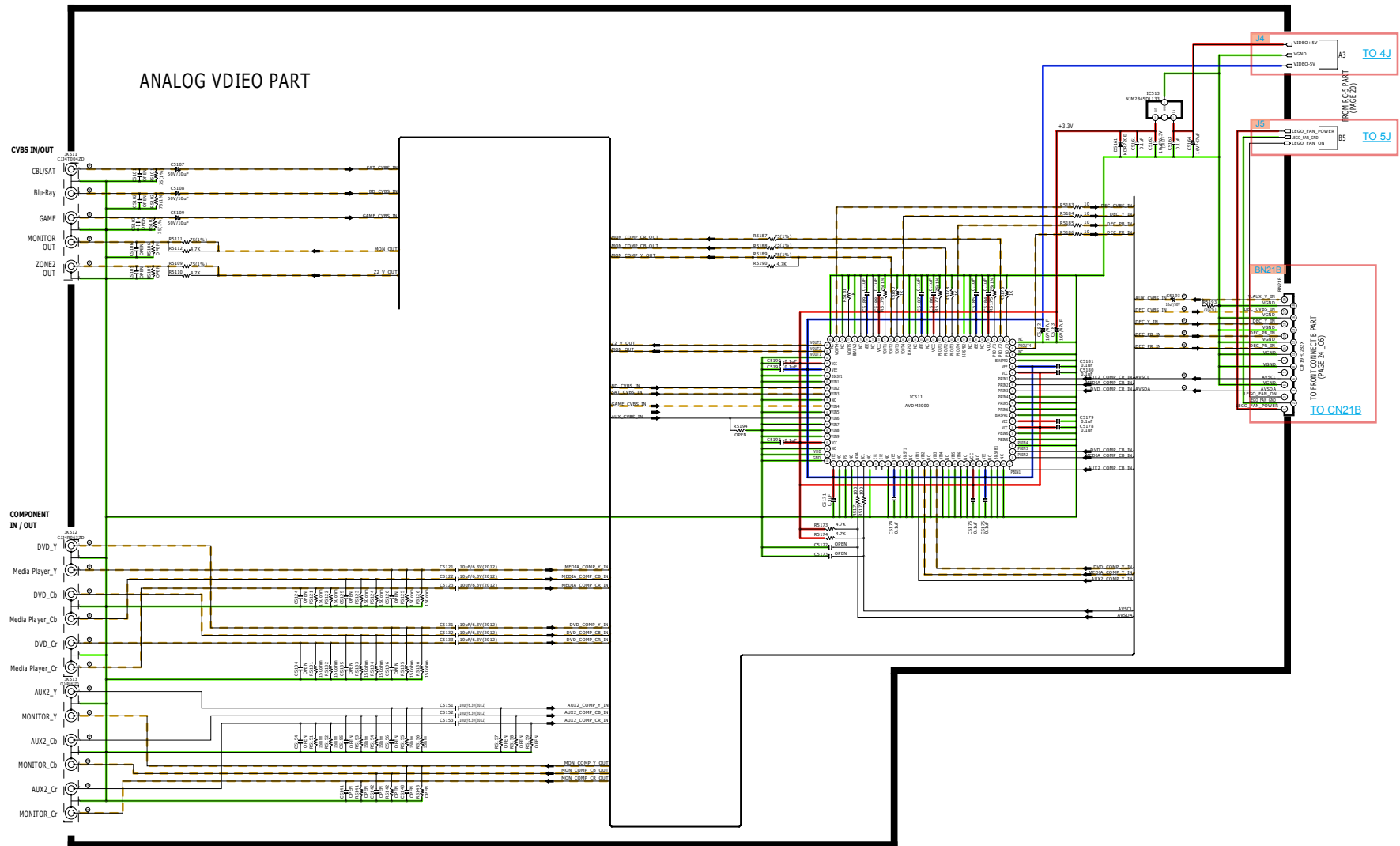
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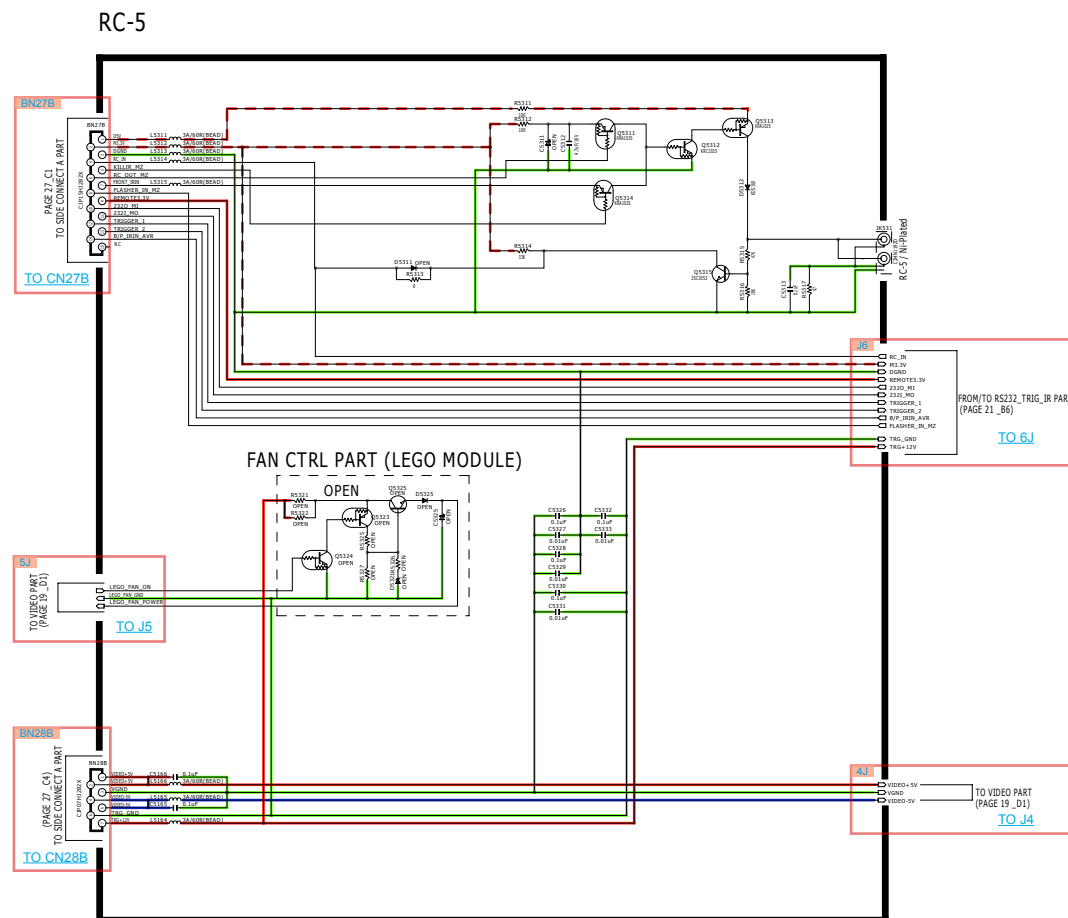


FRONT HDMI (TCA9517DGKR)



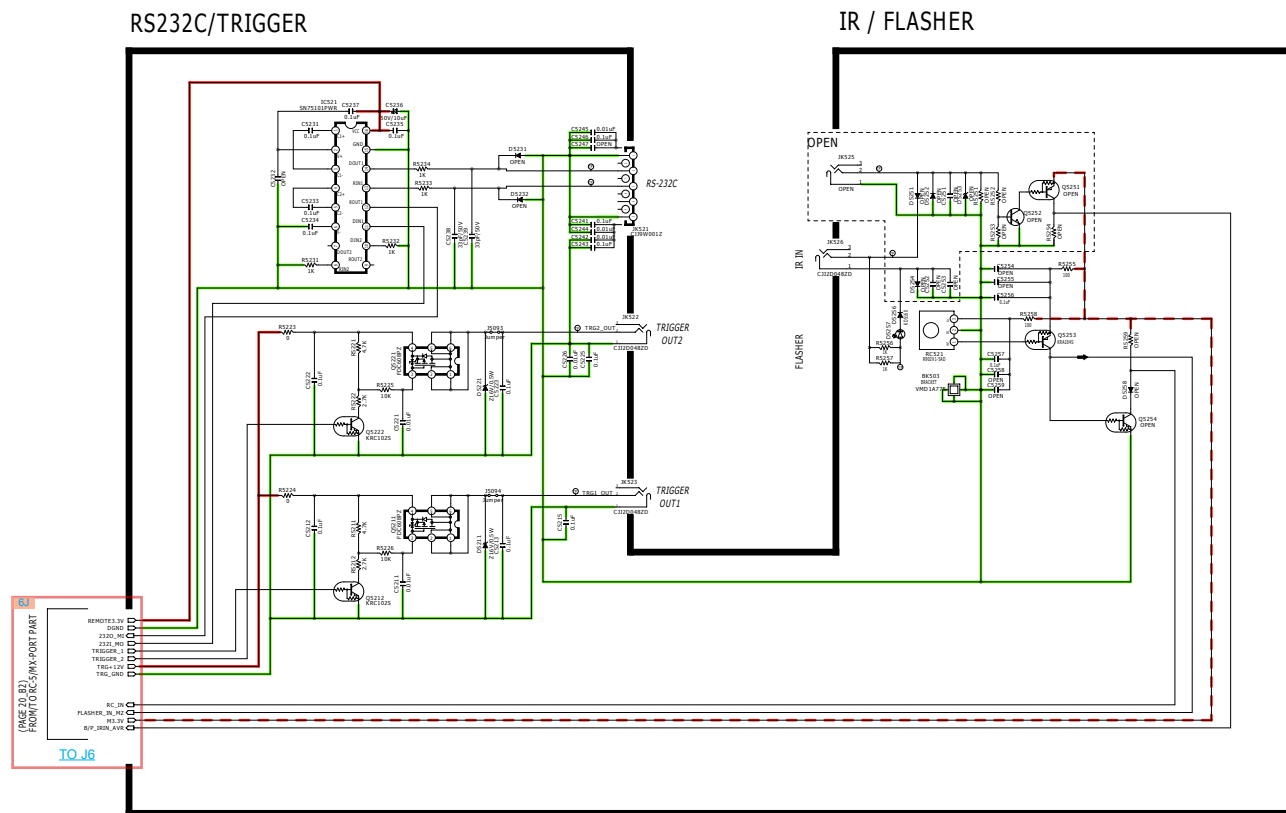
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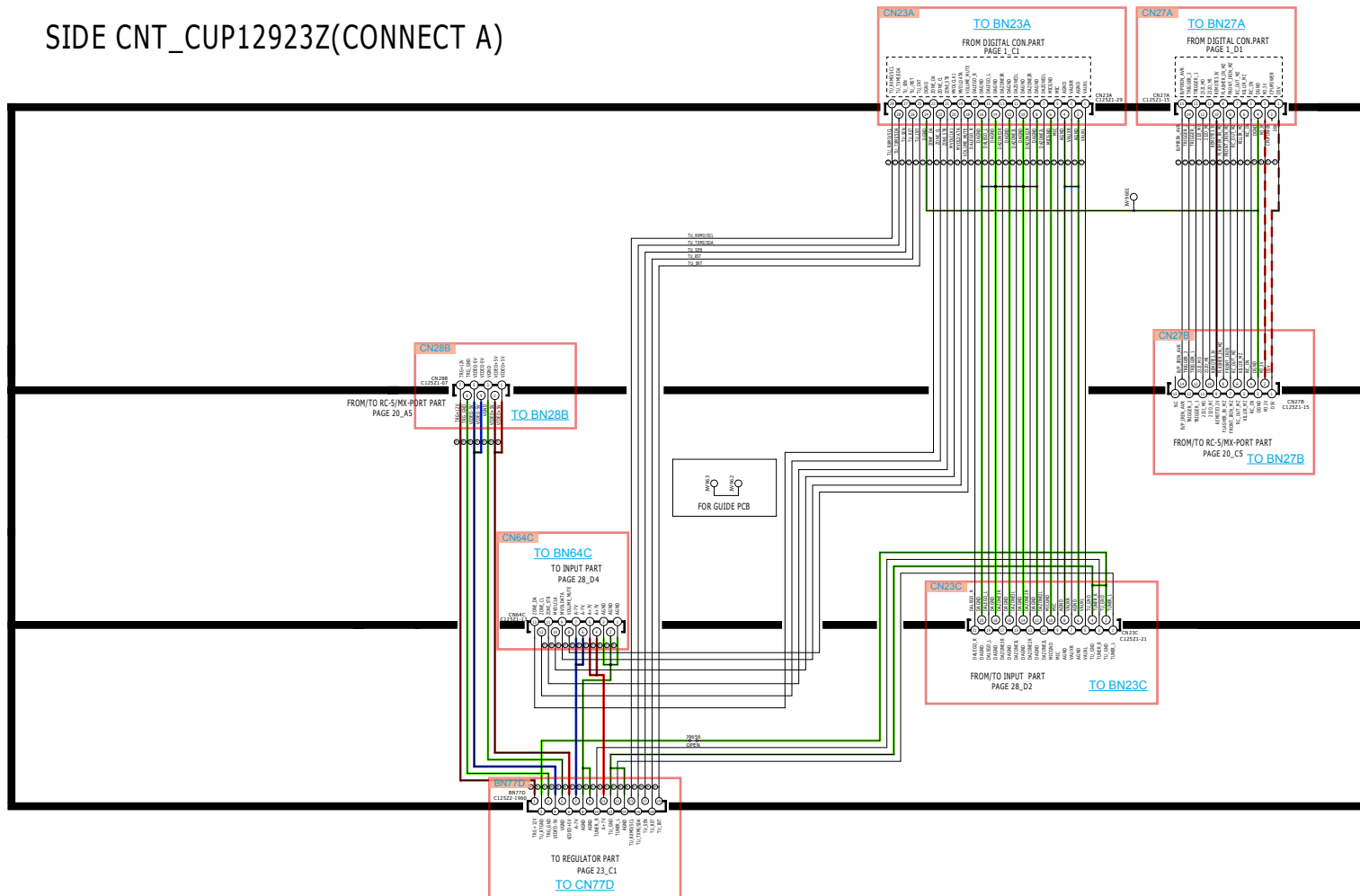




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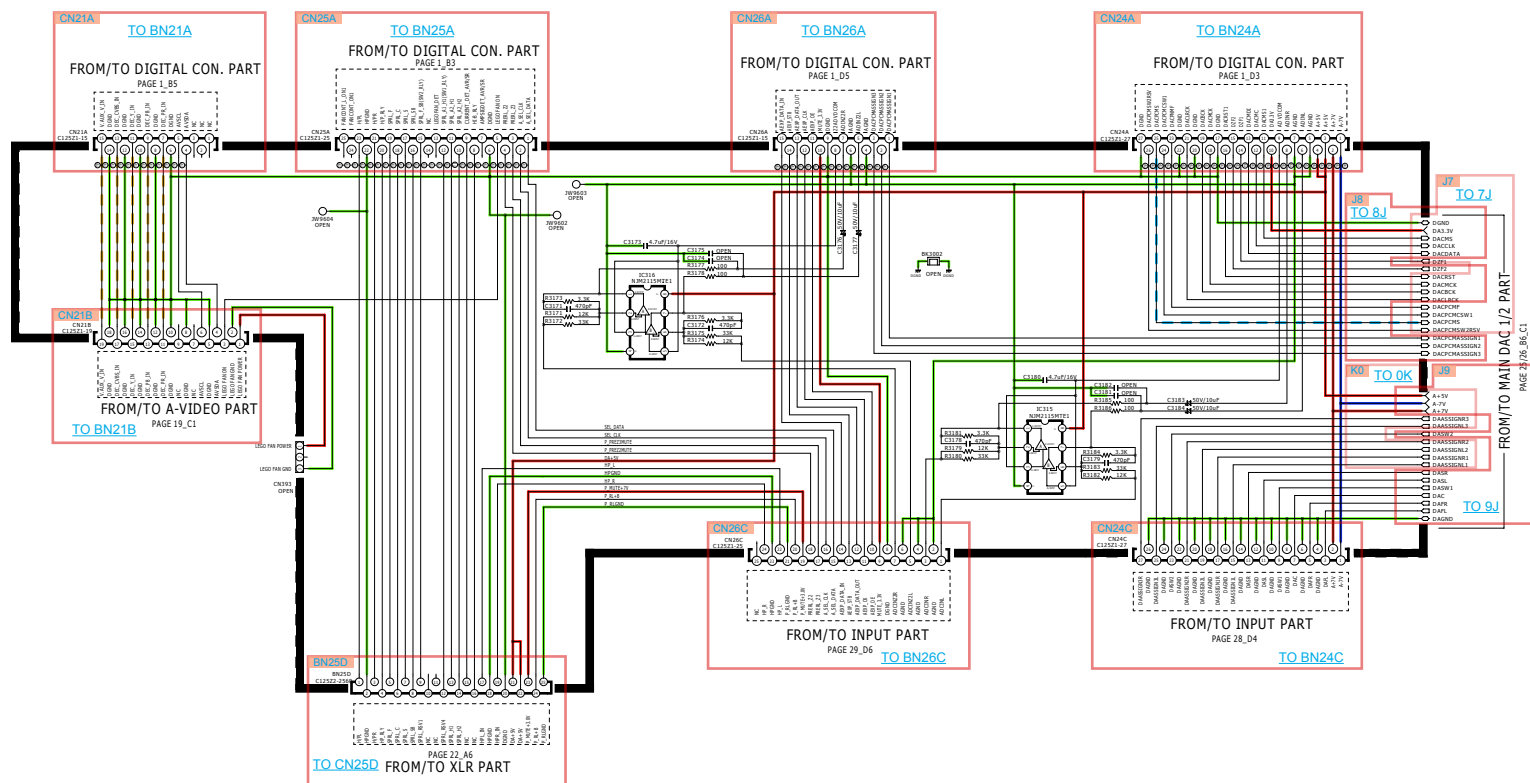
SIDE CNT_CUP12923Z(CONNECT A)

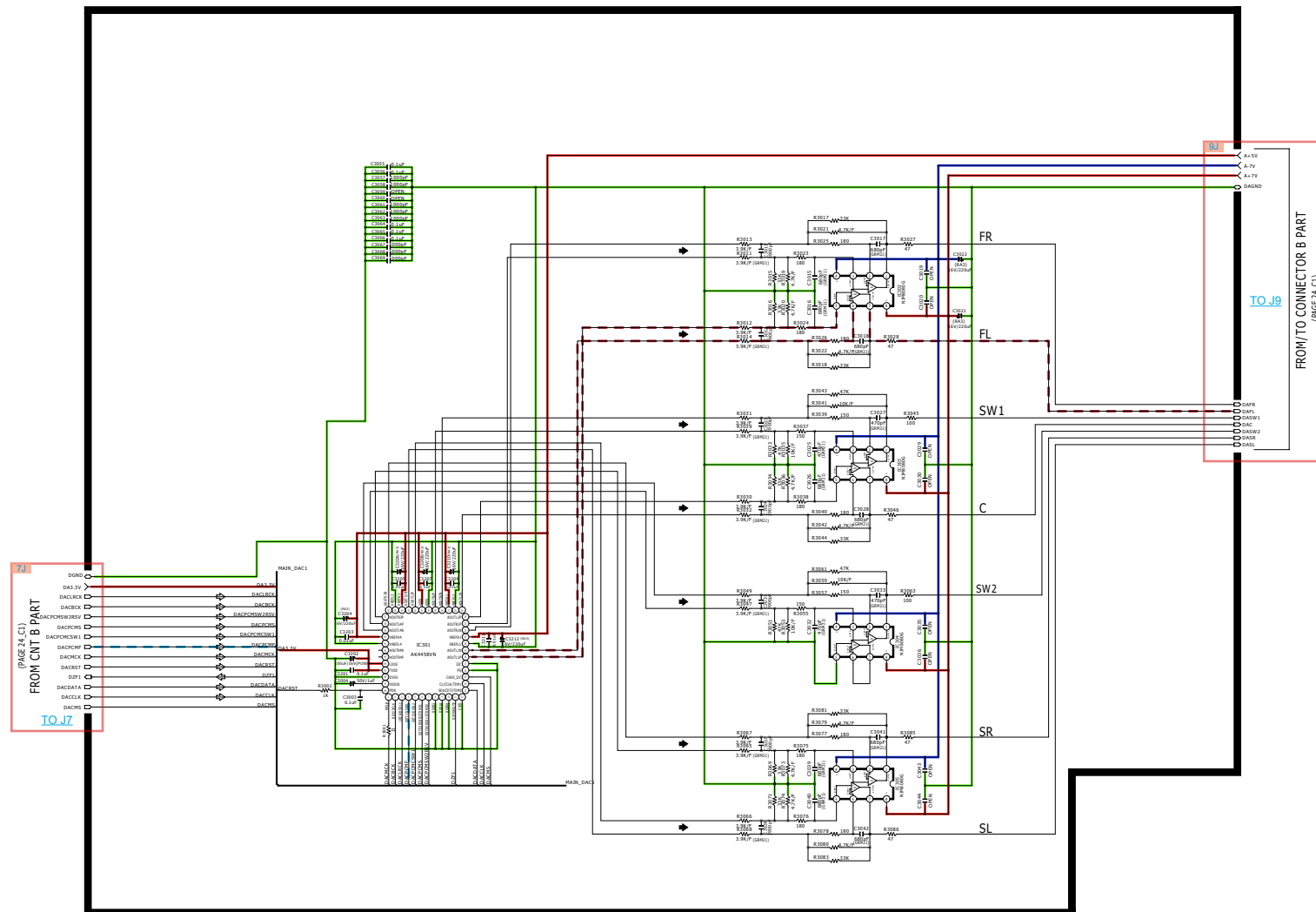


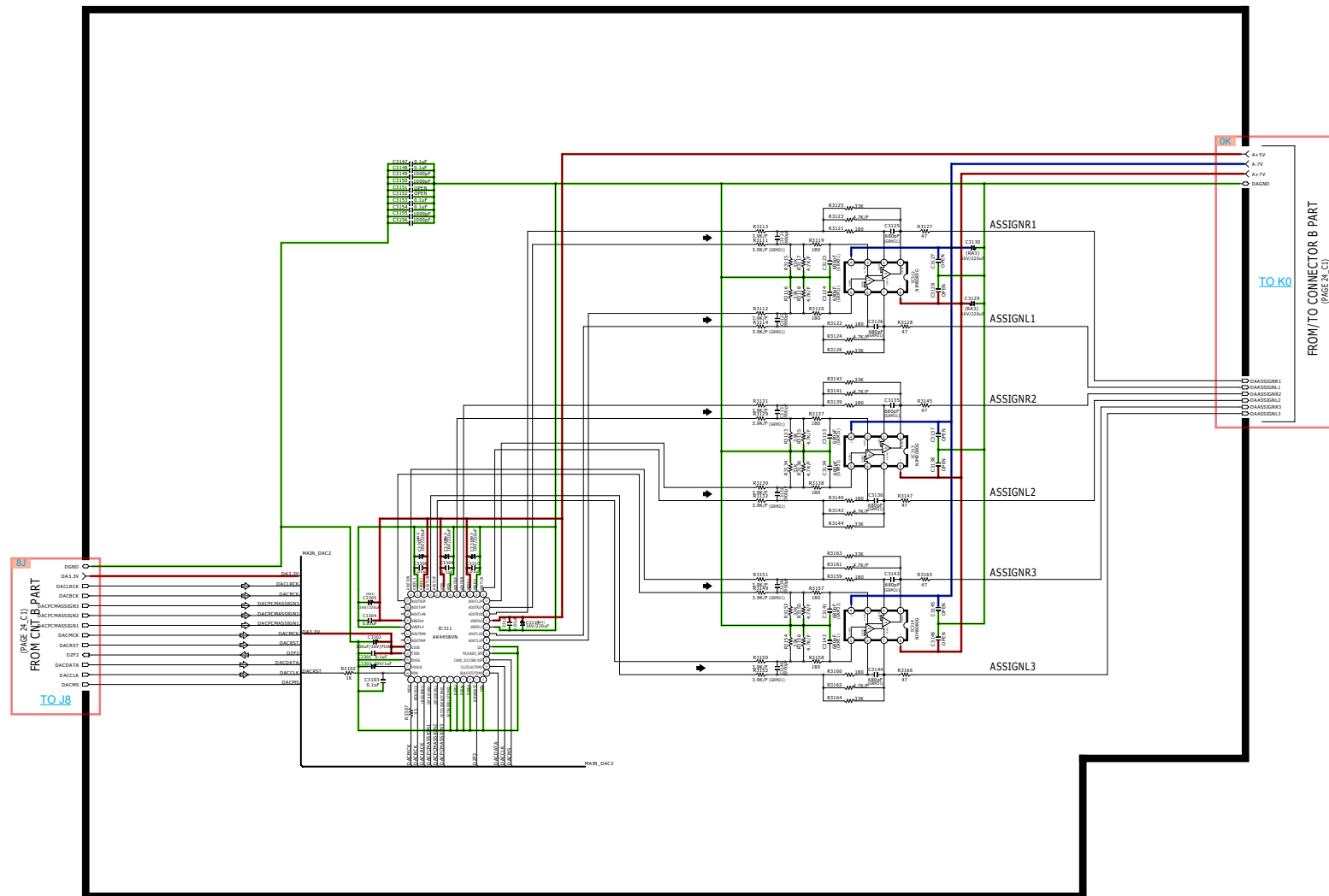
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 — TMDS SIGNAL
 — ANALOG VIDEO
 — DIGITAL VIDEO
 — STBY POWER

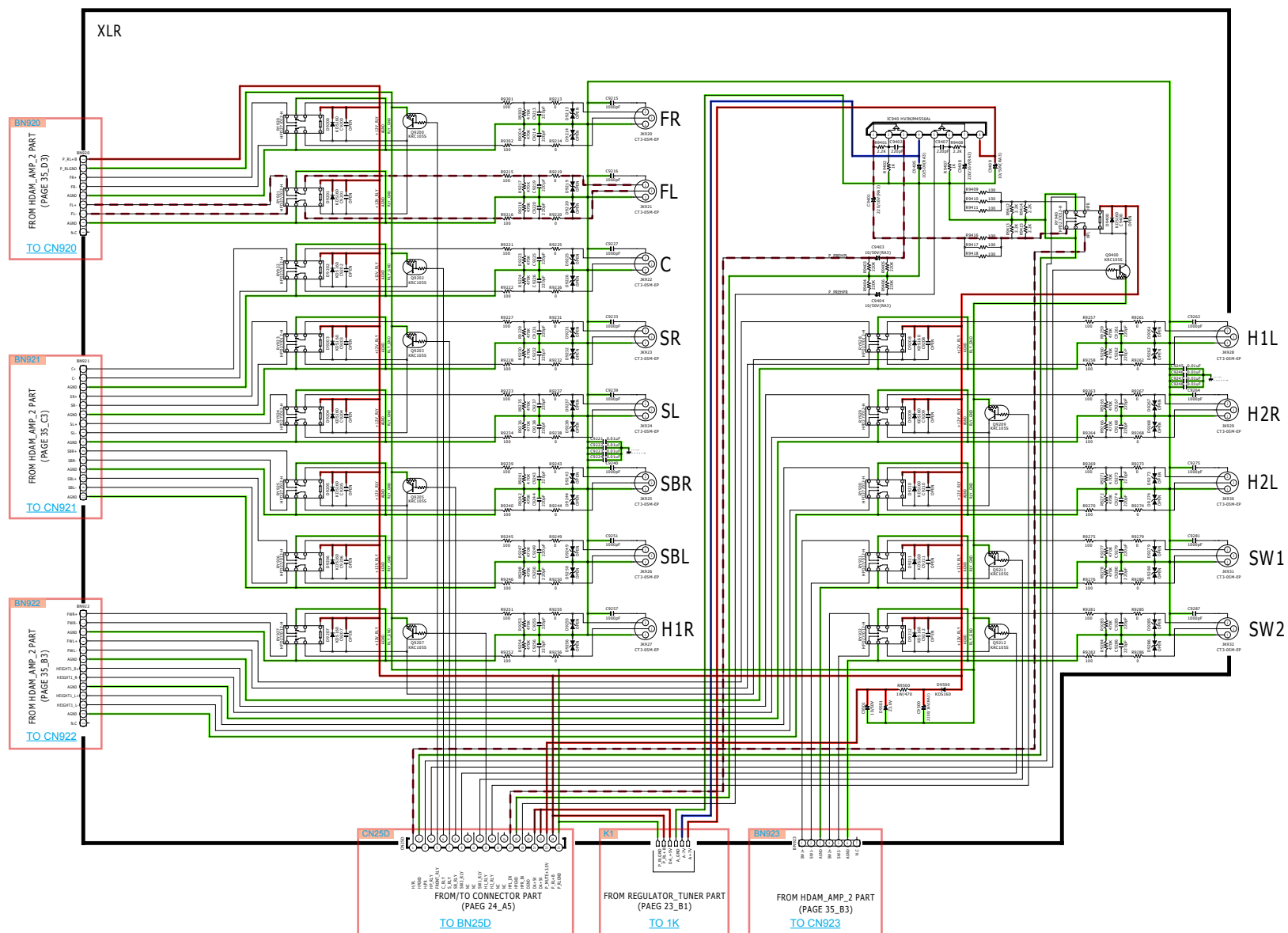


FRT CNT CONNECT B





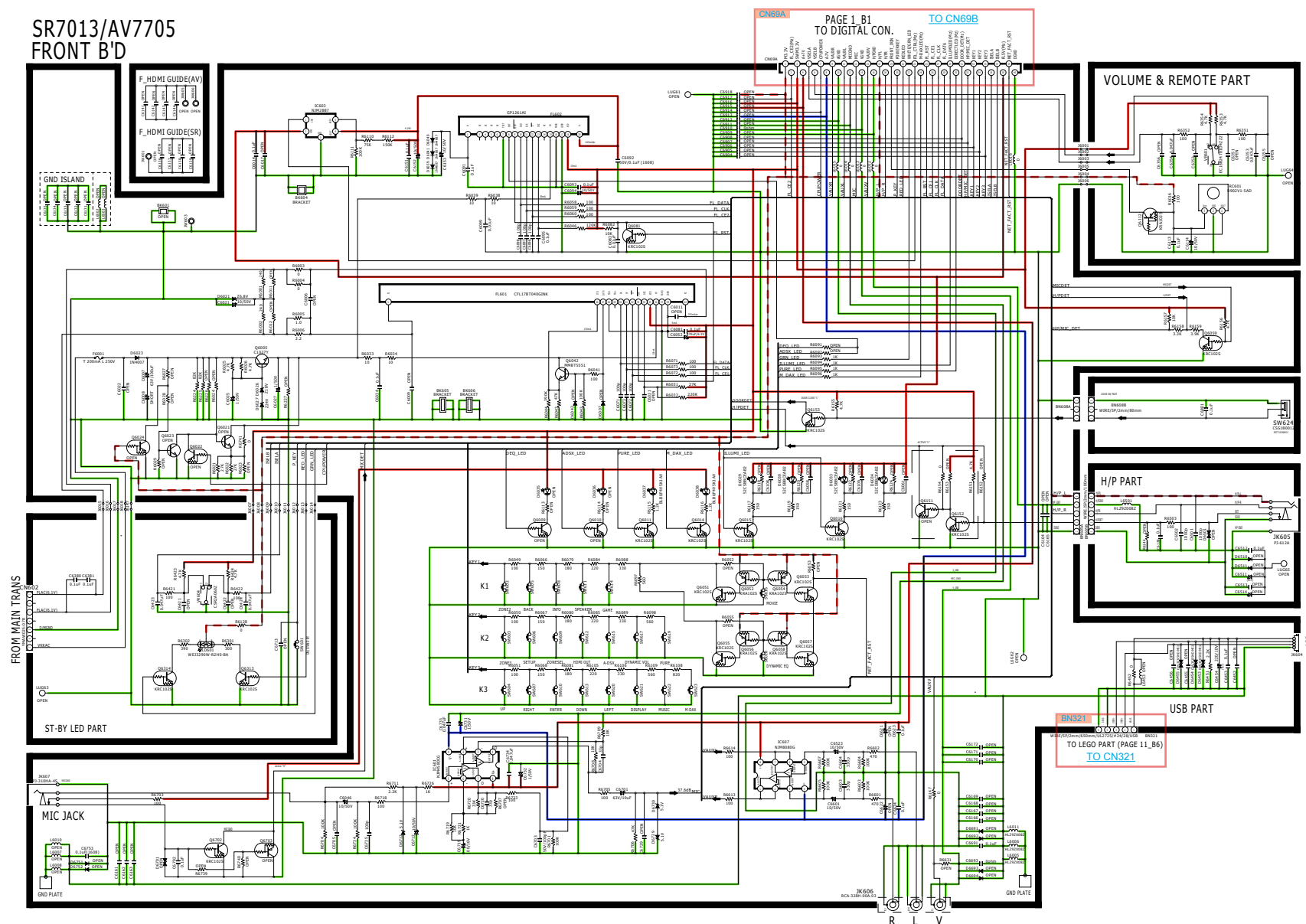


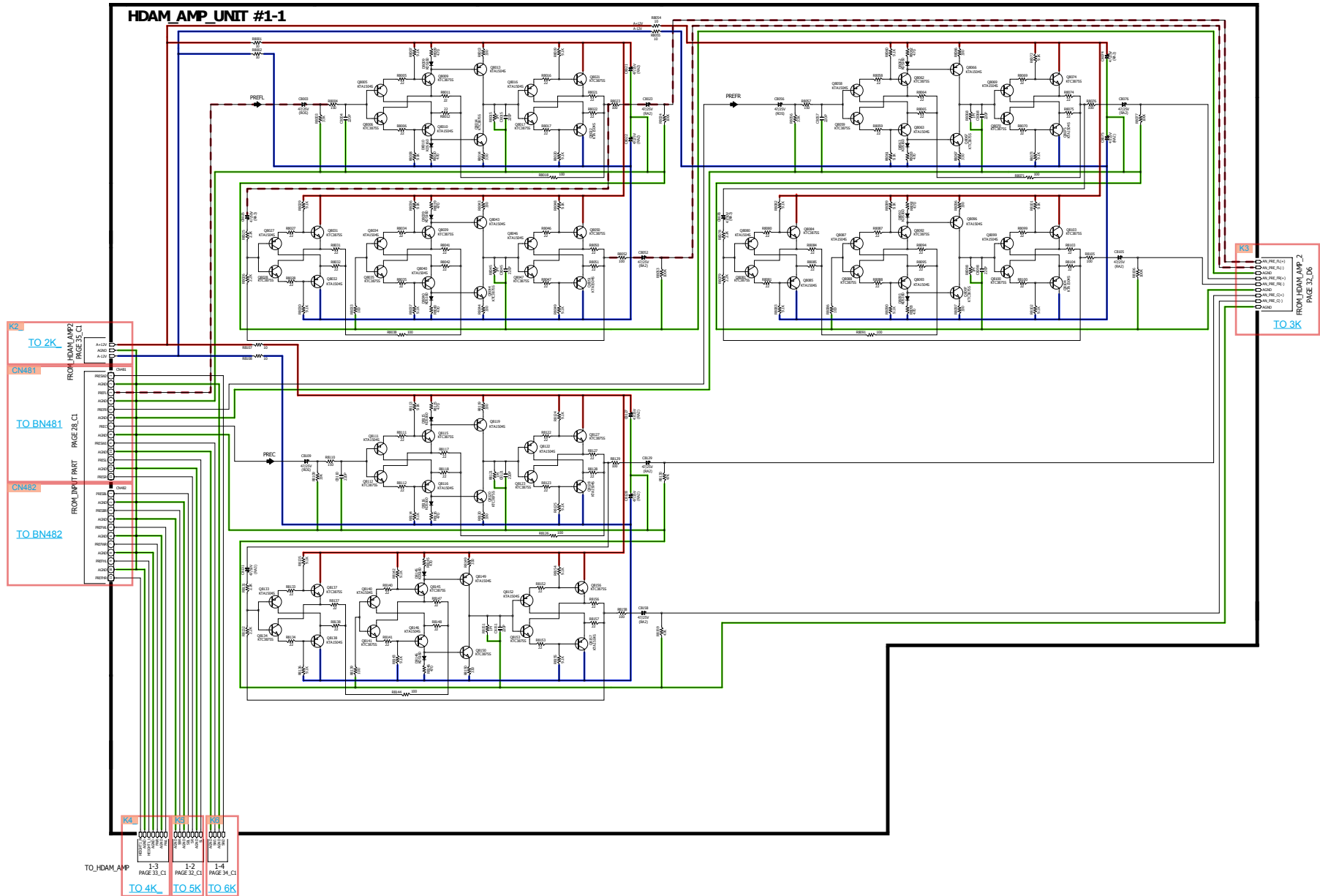


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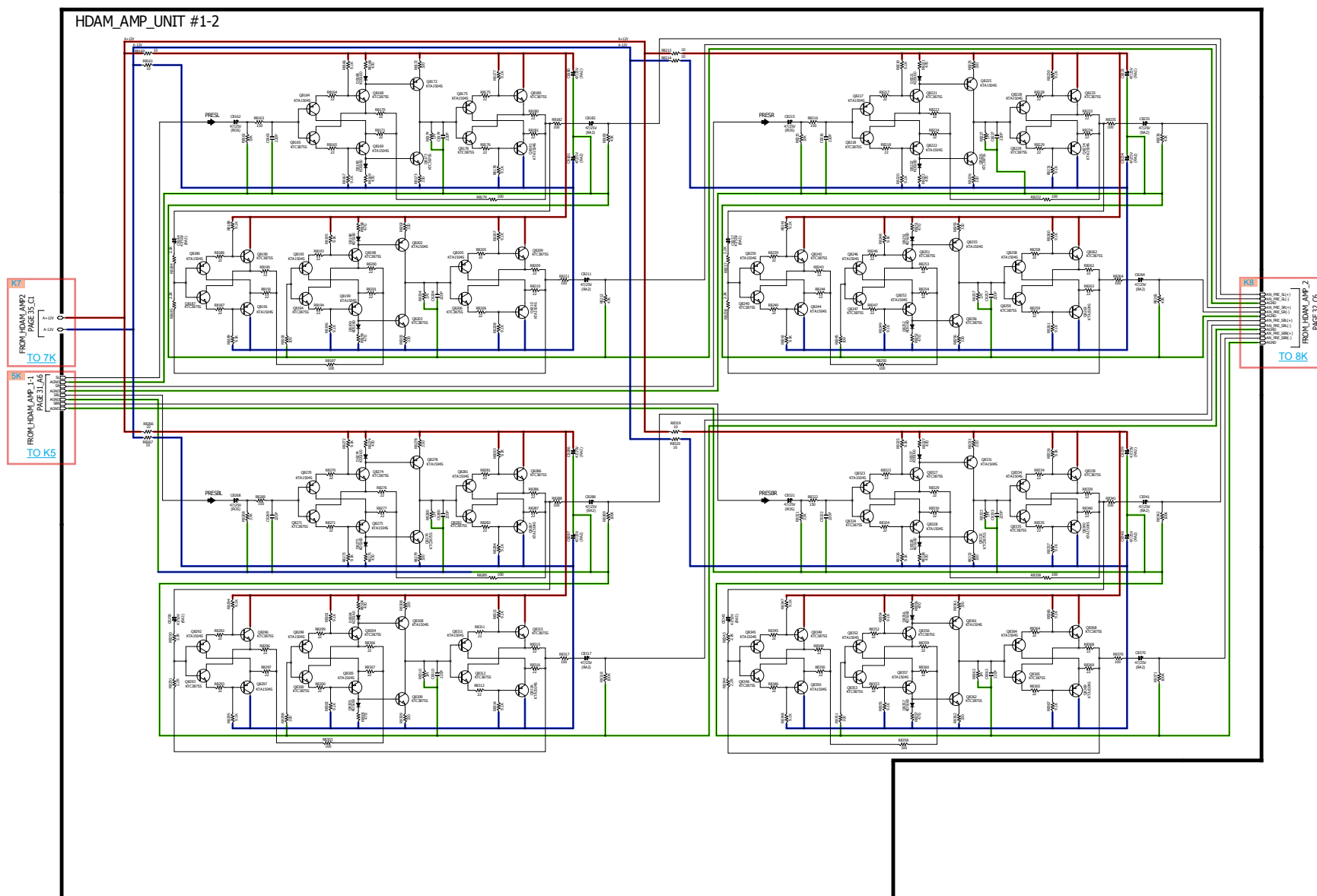
SR7013/AV7705
FRONT B'D





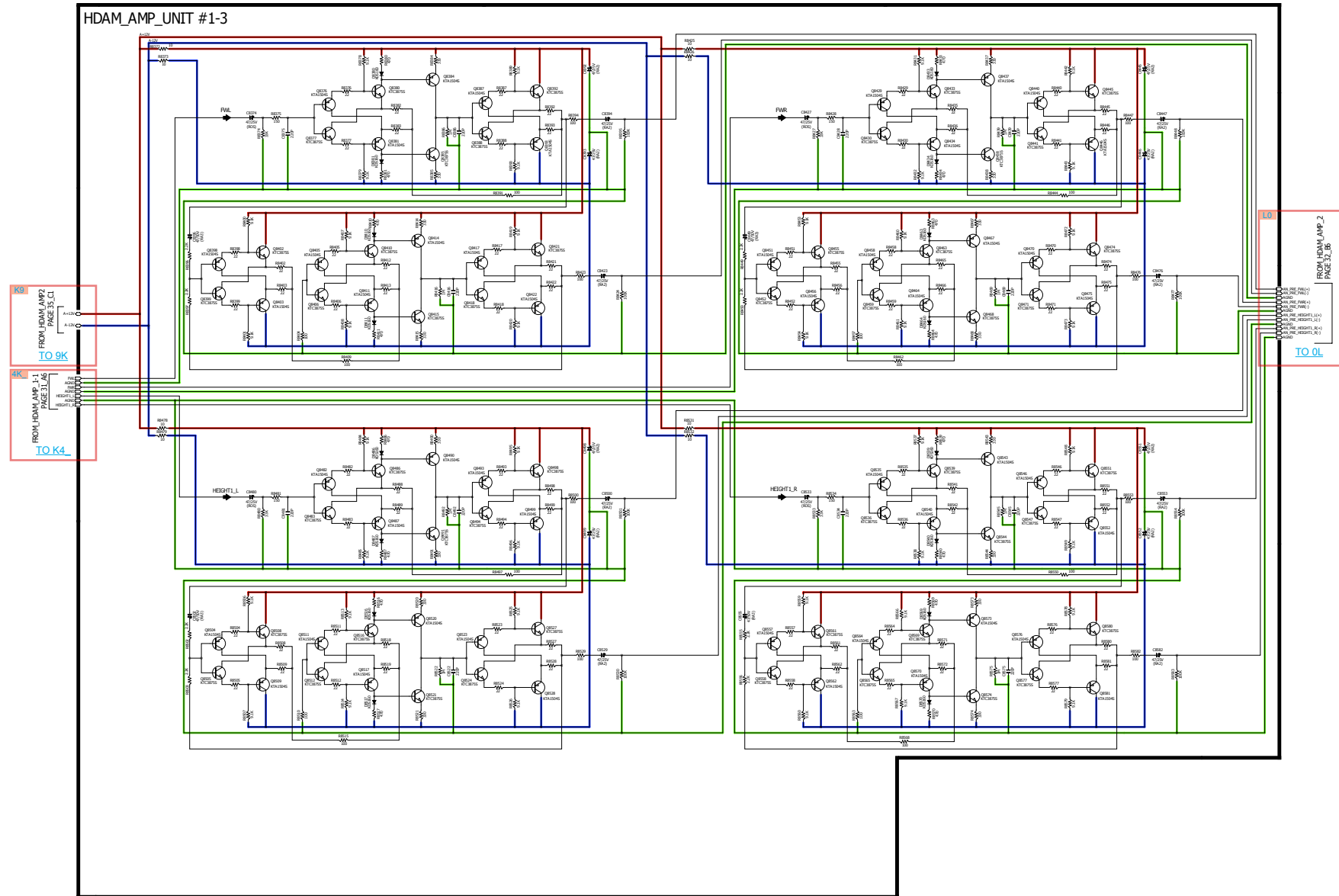
— GND LINE
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 — TMDS SIGNAL
 — ANALOG VIDEO
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 - - - STBY POWER





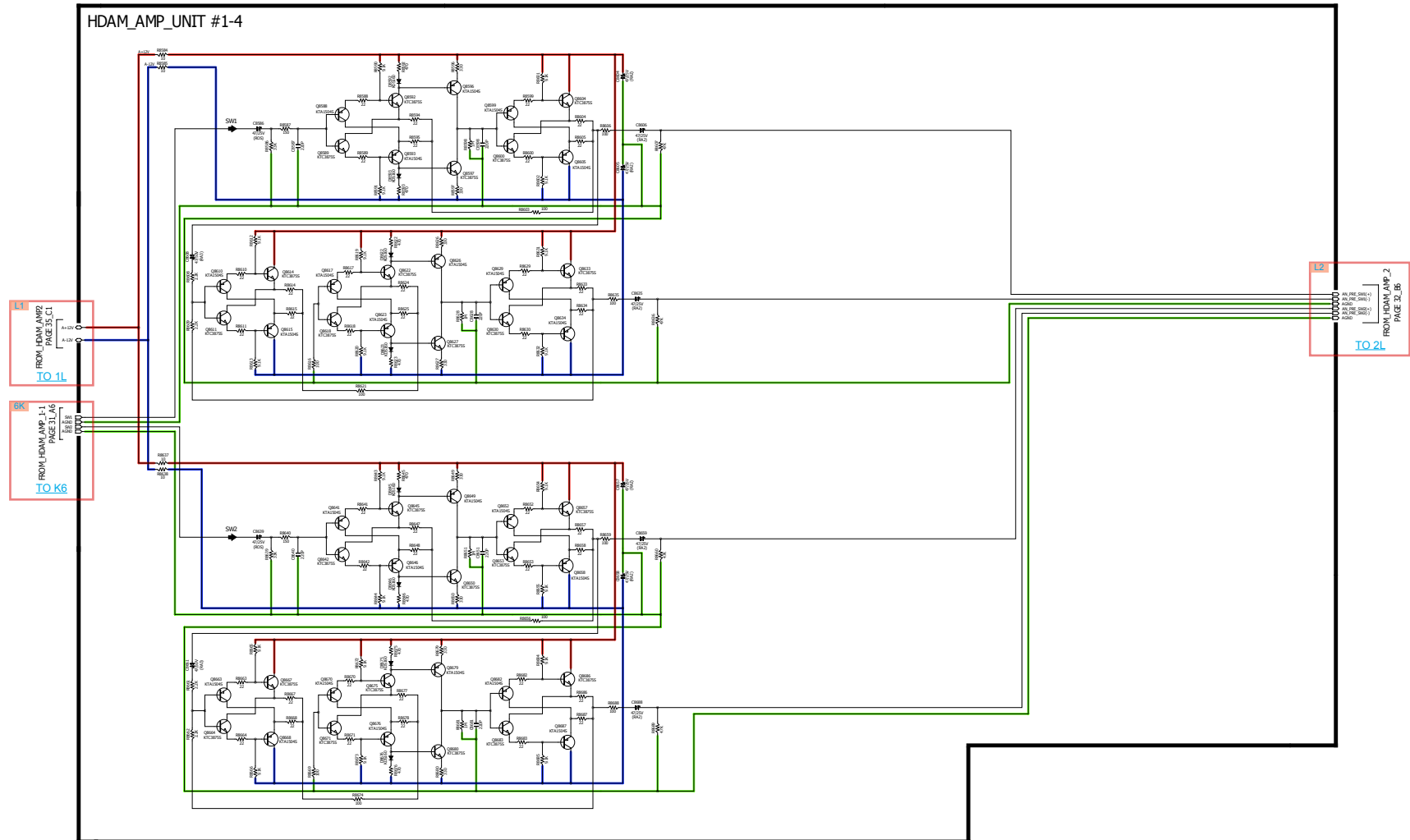
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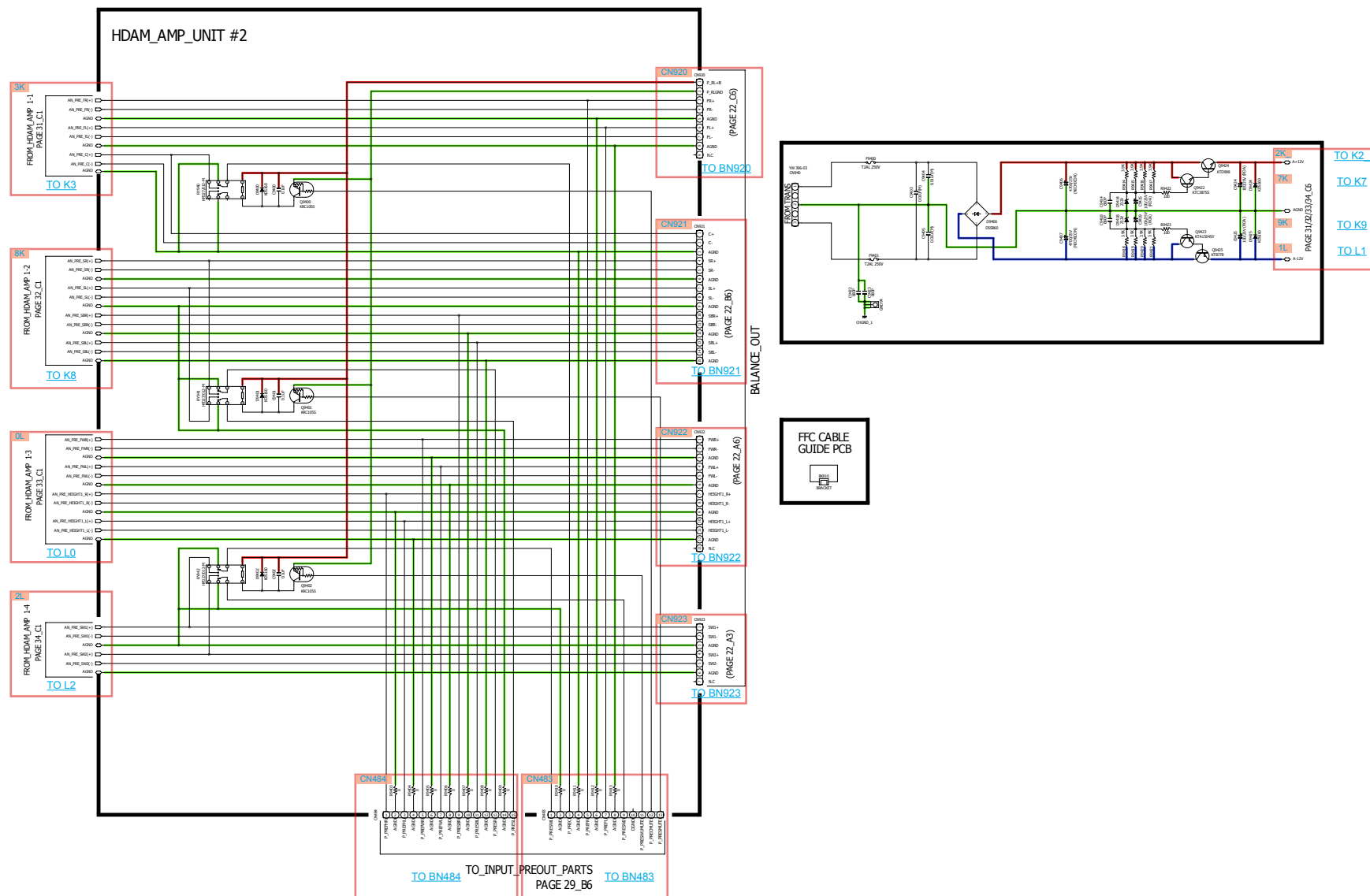


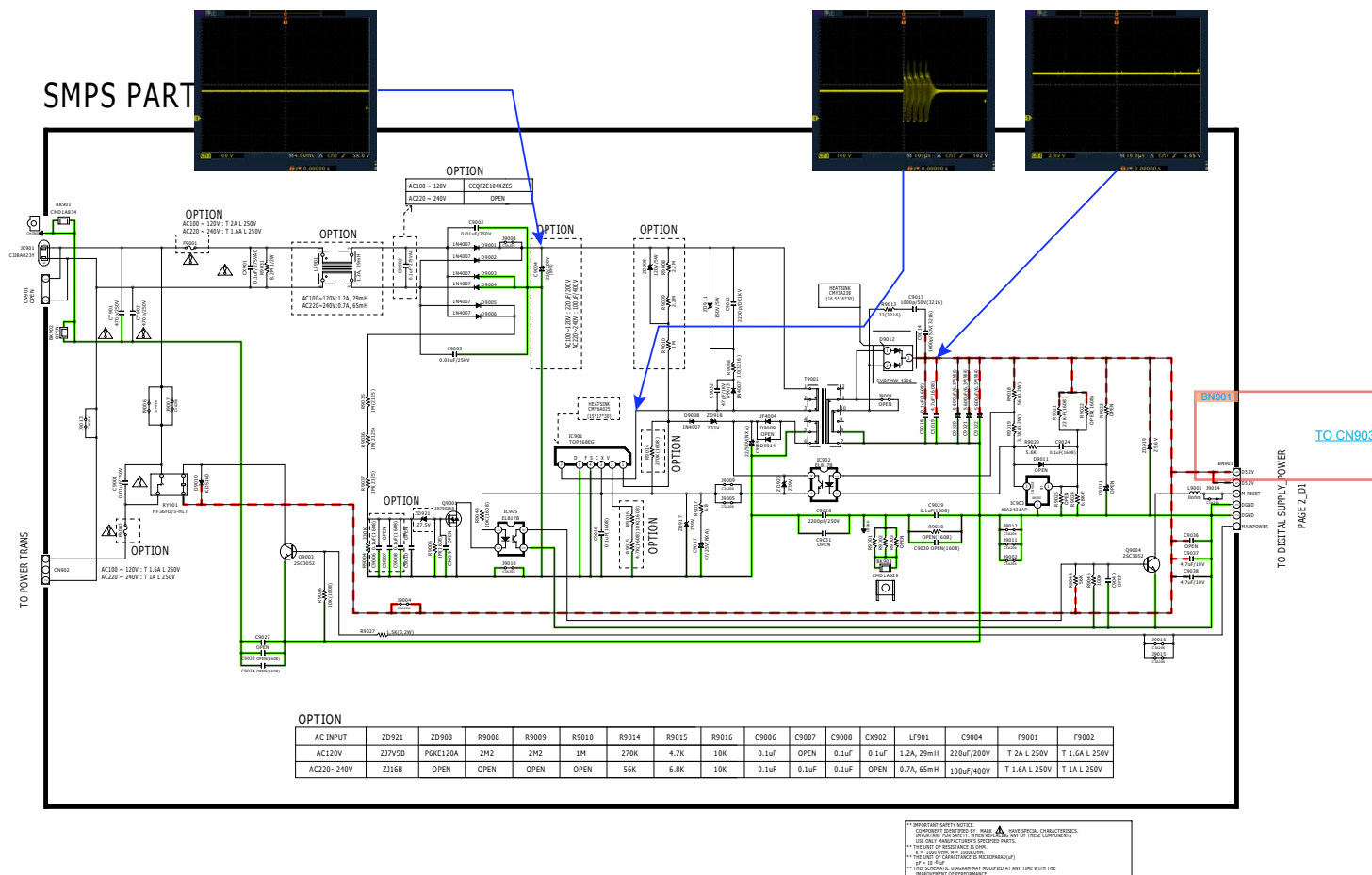


GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO DIGITAL VIDEO STBY POWER





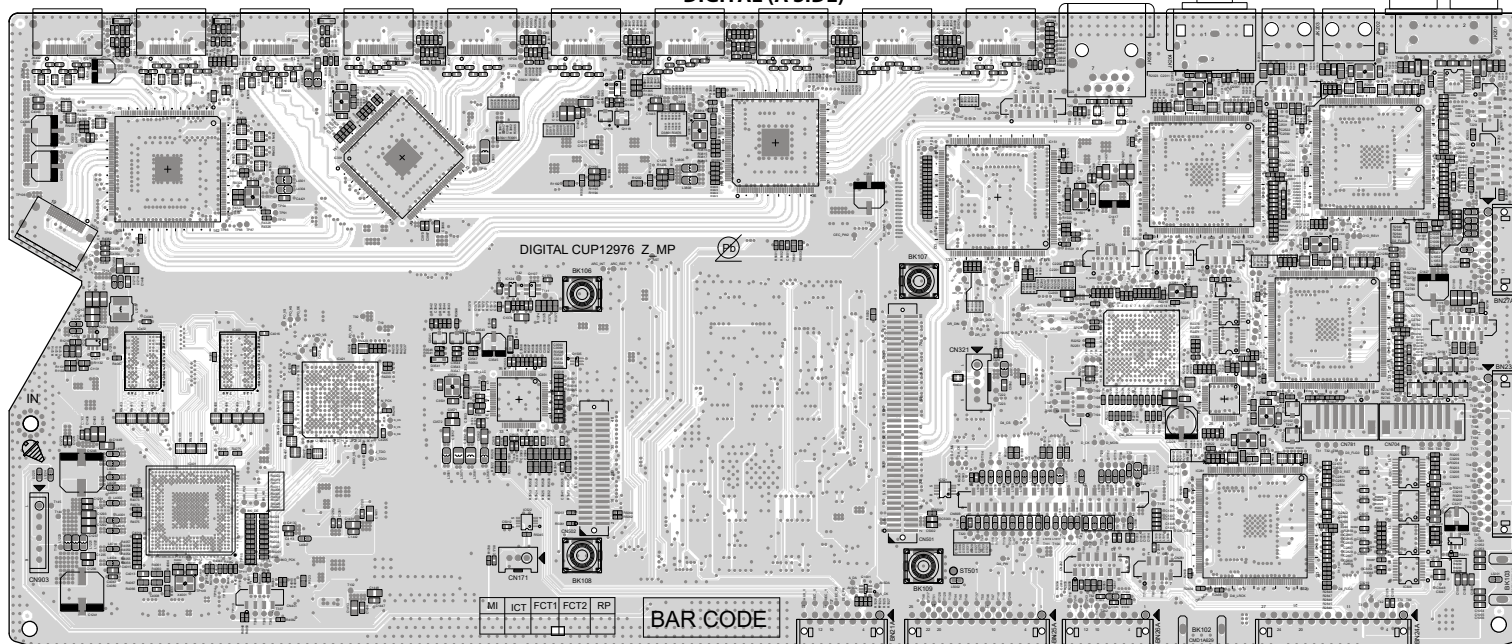




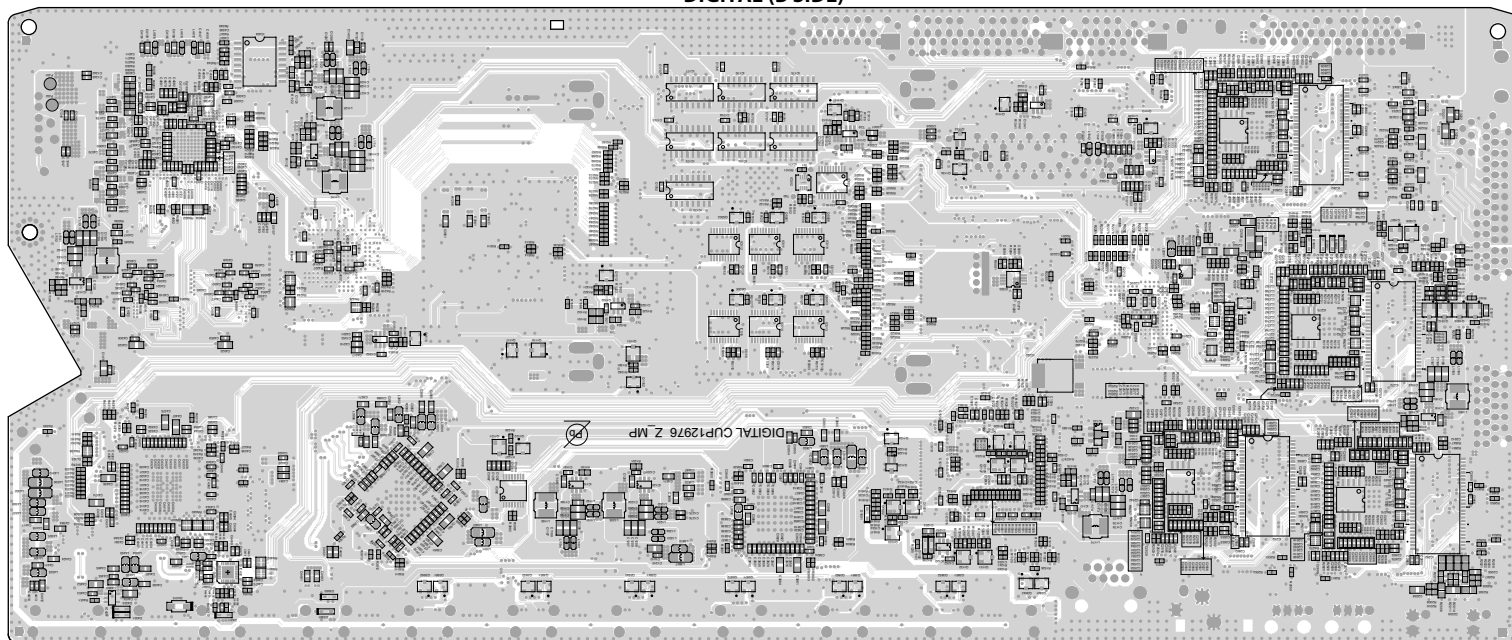
Lead-free Solder

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

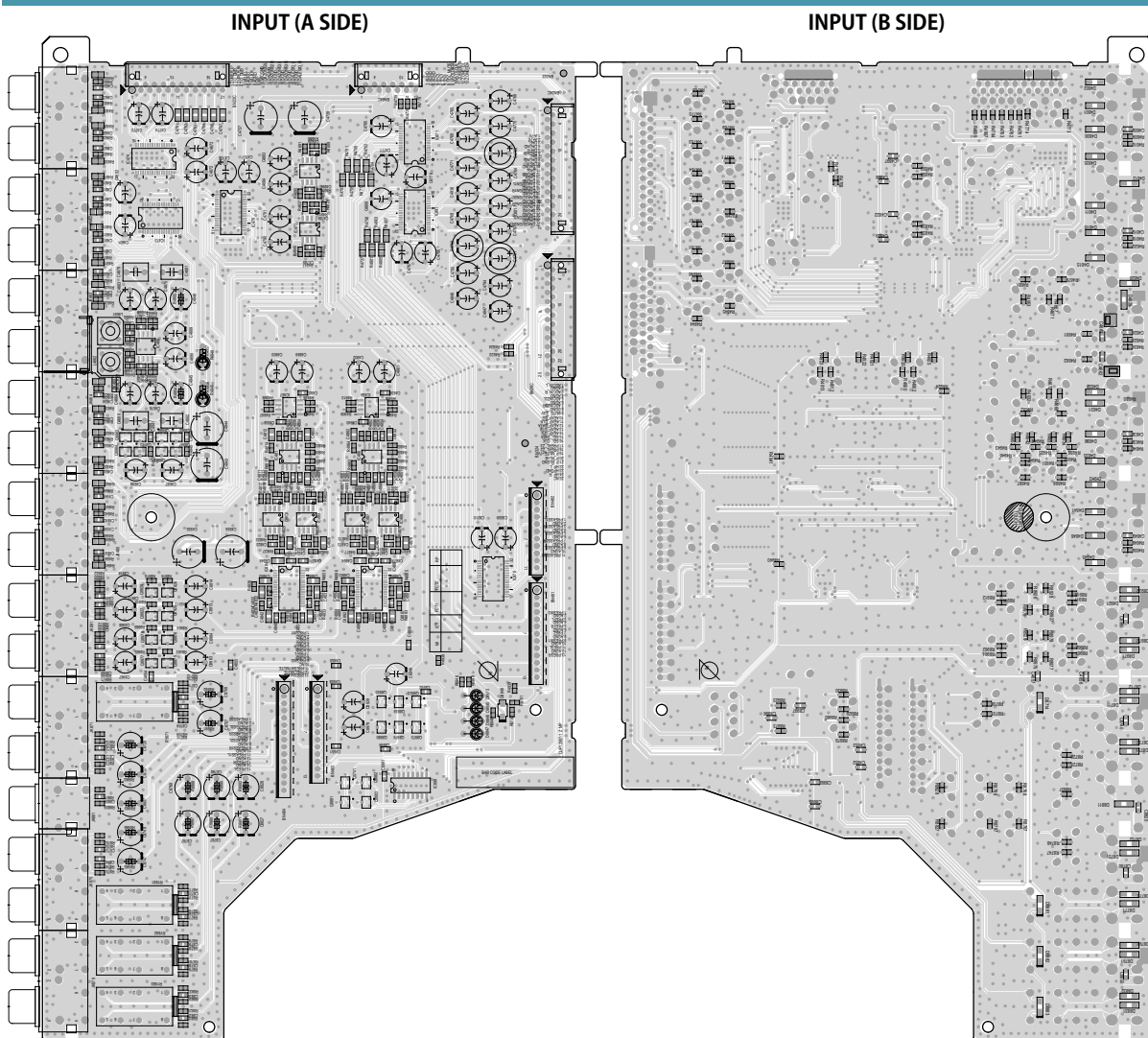
DIGITAL (A SIDE)



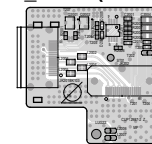
DIGITAL (B SIDE)



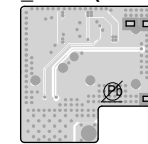
INPUT, F-HDMI, FRONT CABLE



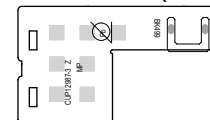
F HDMI (A SIDE)



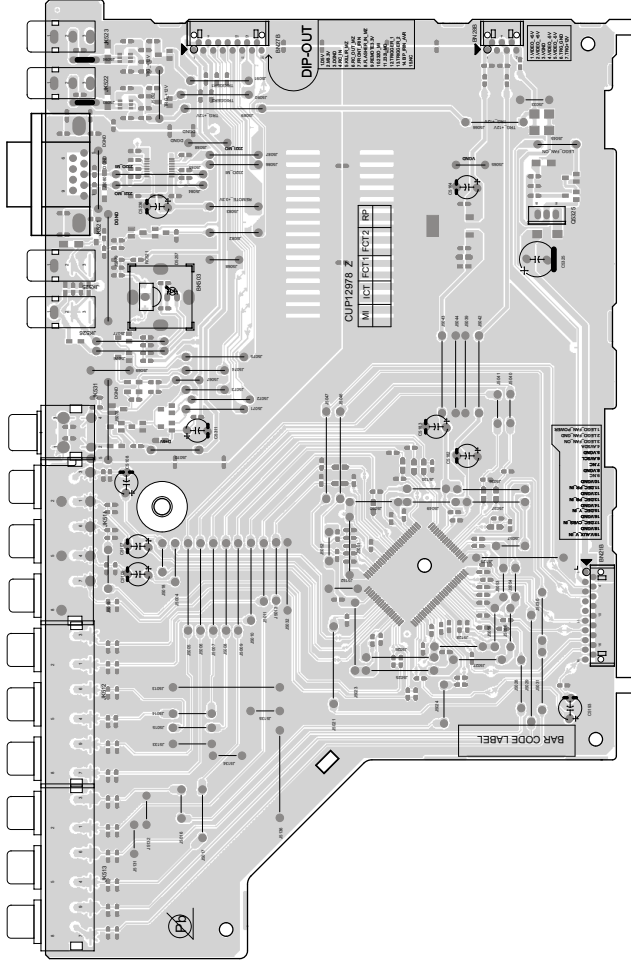
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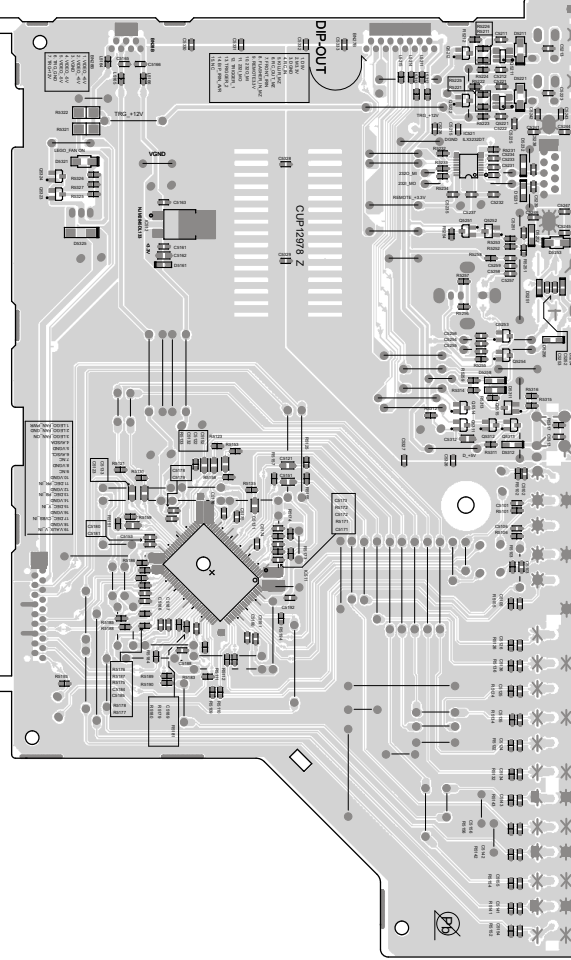
FRONT CABLE (A SIDE)



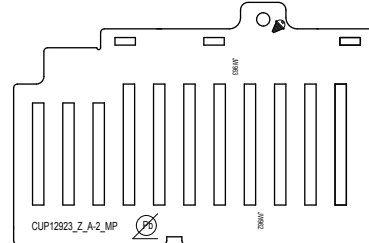
VIDEO (A SIDE)



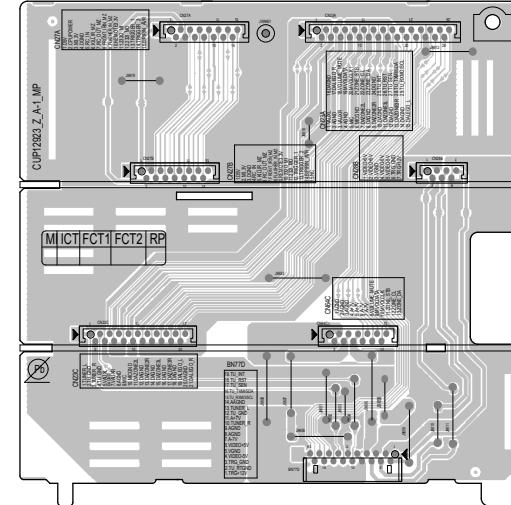
VIDEO (B SIDE)



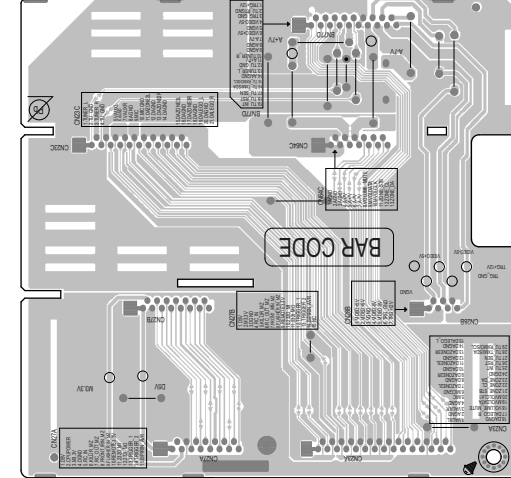
GUIDE FFC1 (A SIDE)

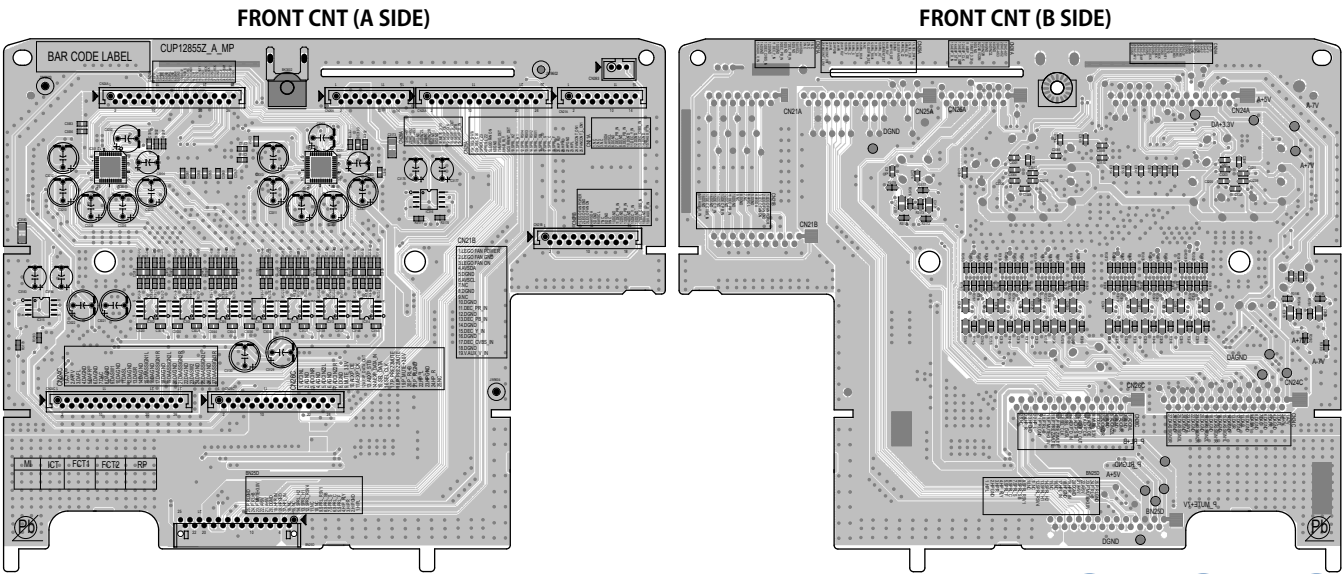
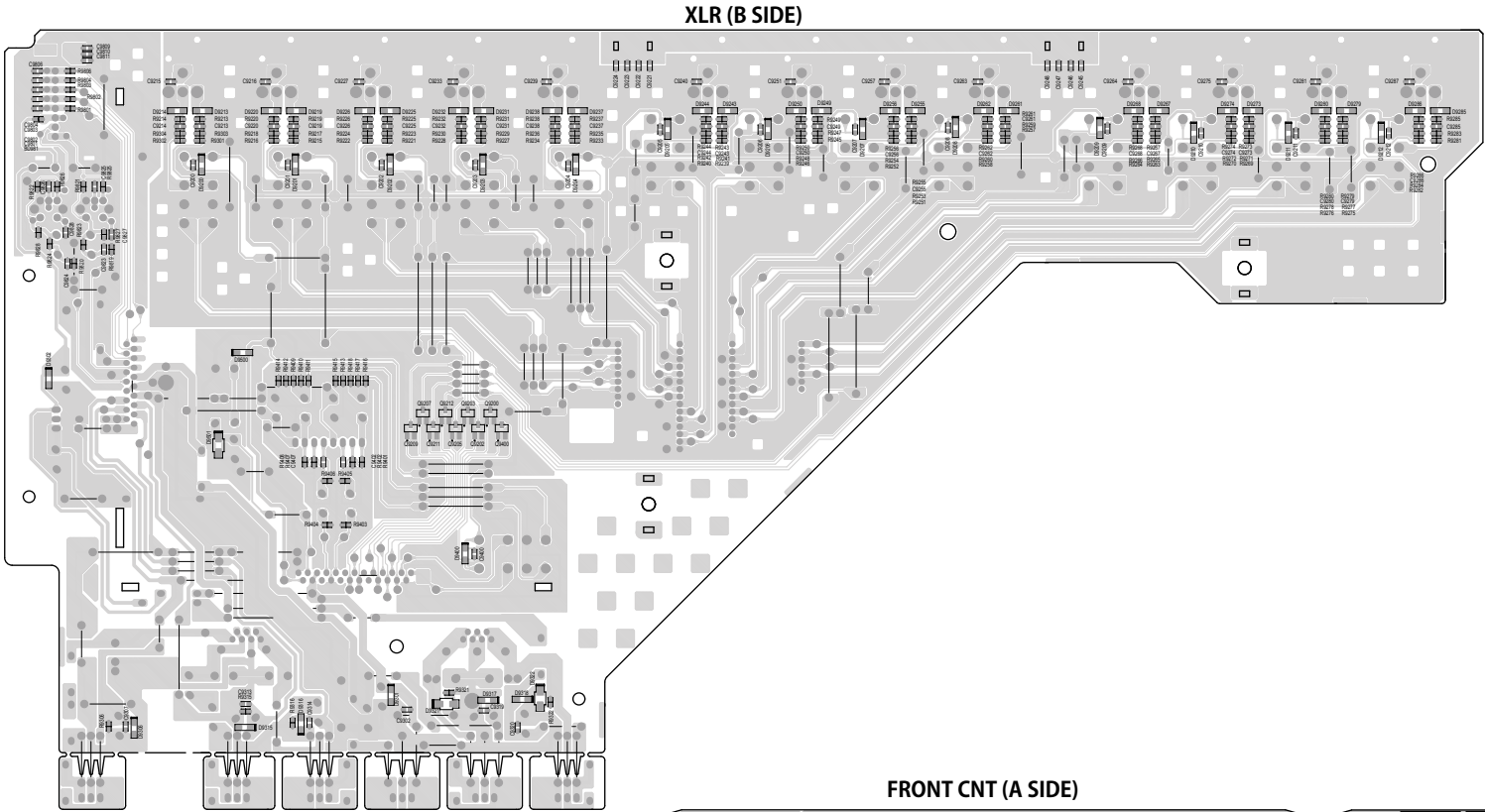


SIDE CNT (A SIDE)

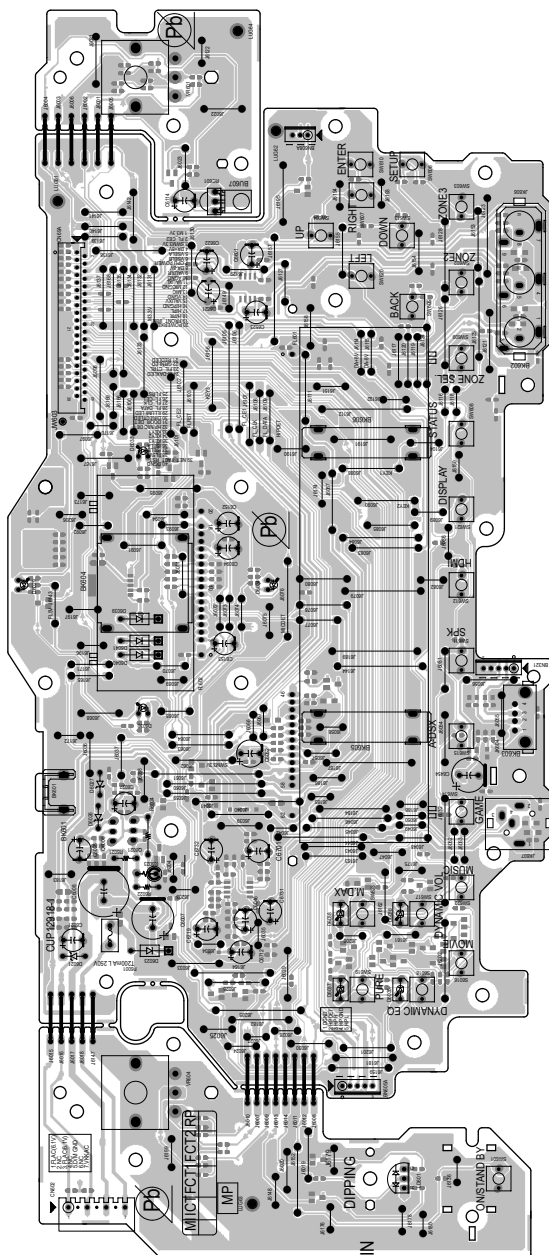


SIDE CNT (B SIDE)

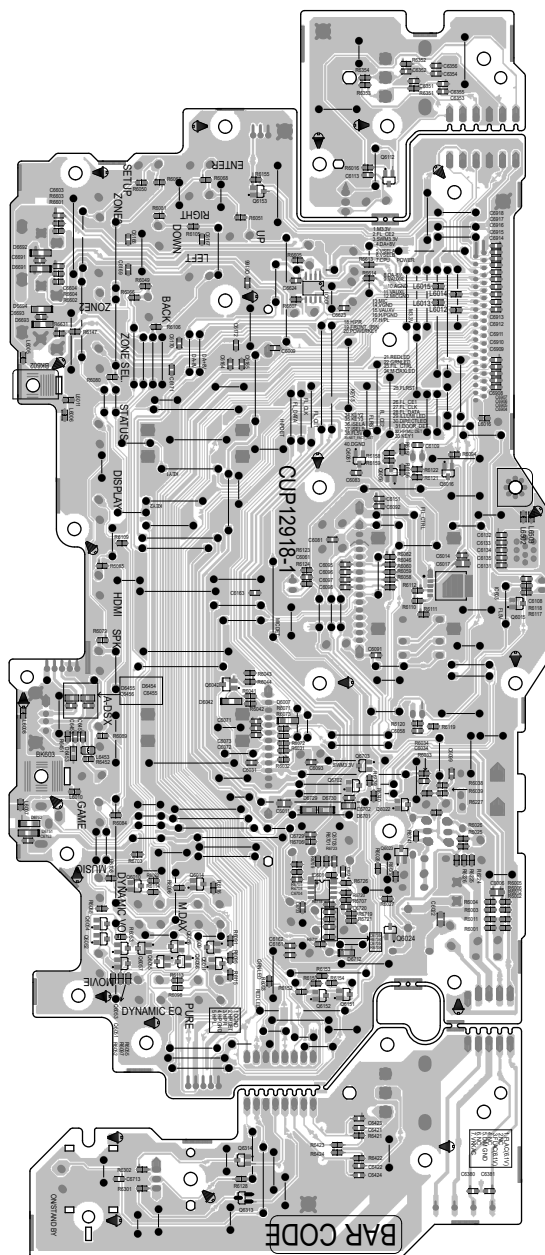




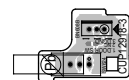
FRONT (A SIDE)



FRONT (B SIDE)



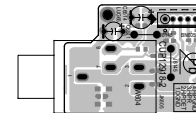
FRONT SW (A SIDE)



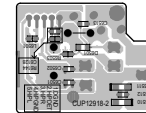
FRONT SW (B SIDE)

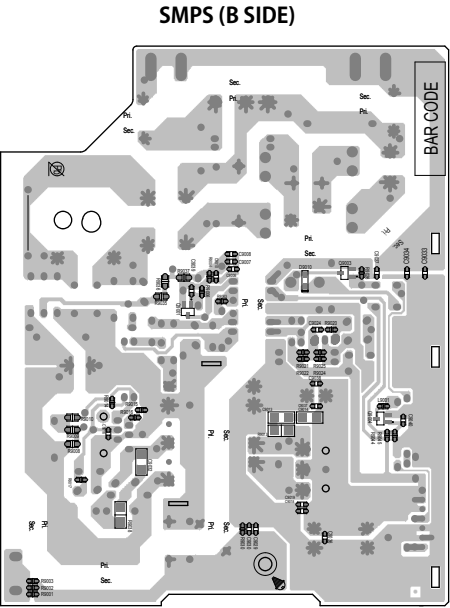
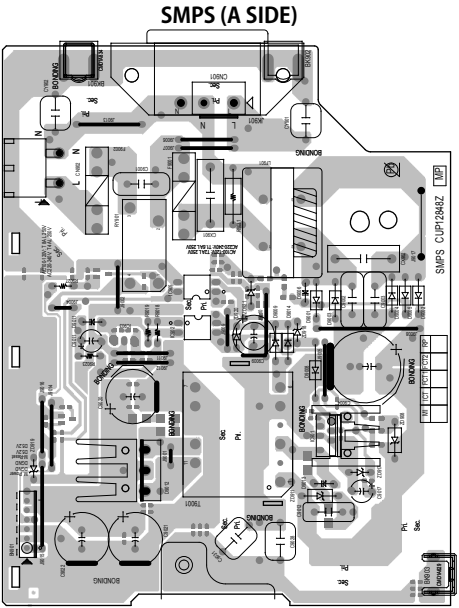
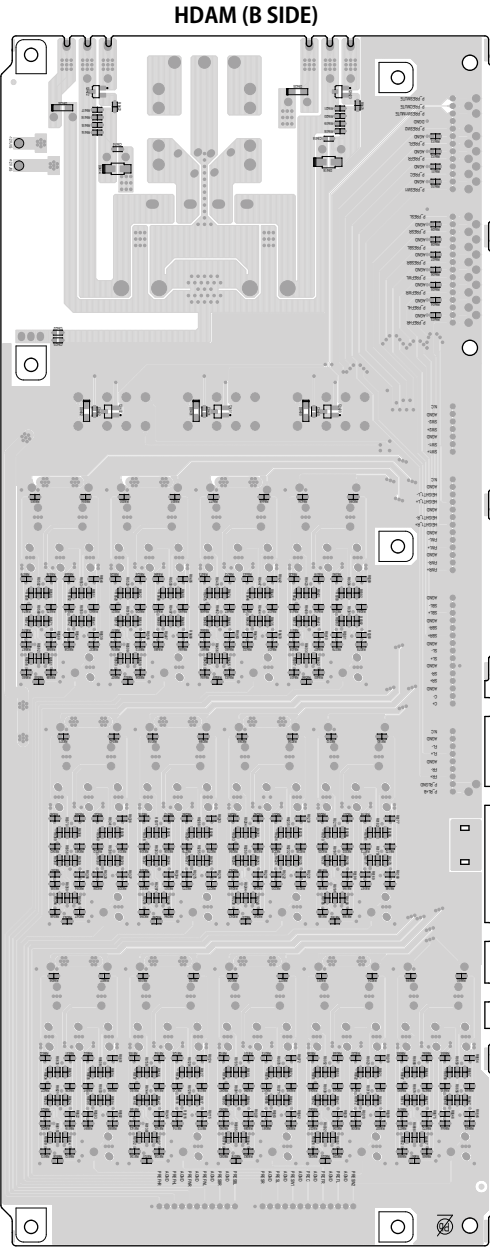
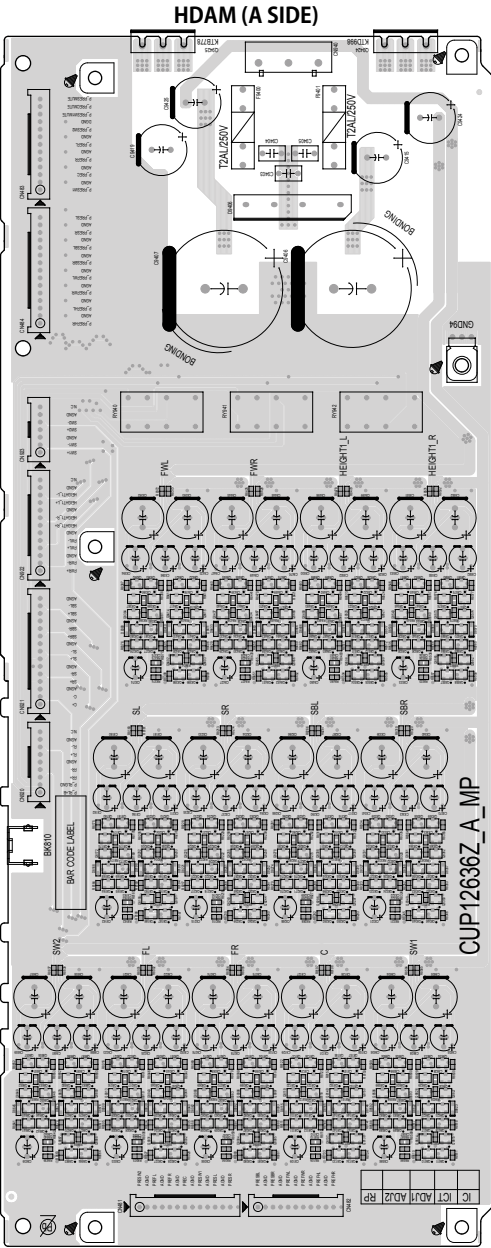


HP (A SIDE)



HP (B SIDE)

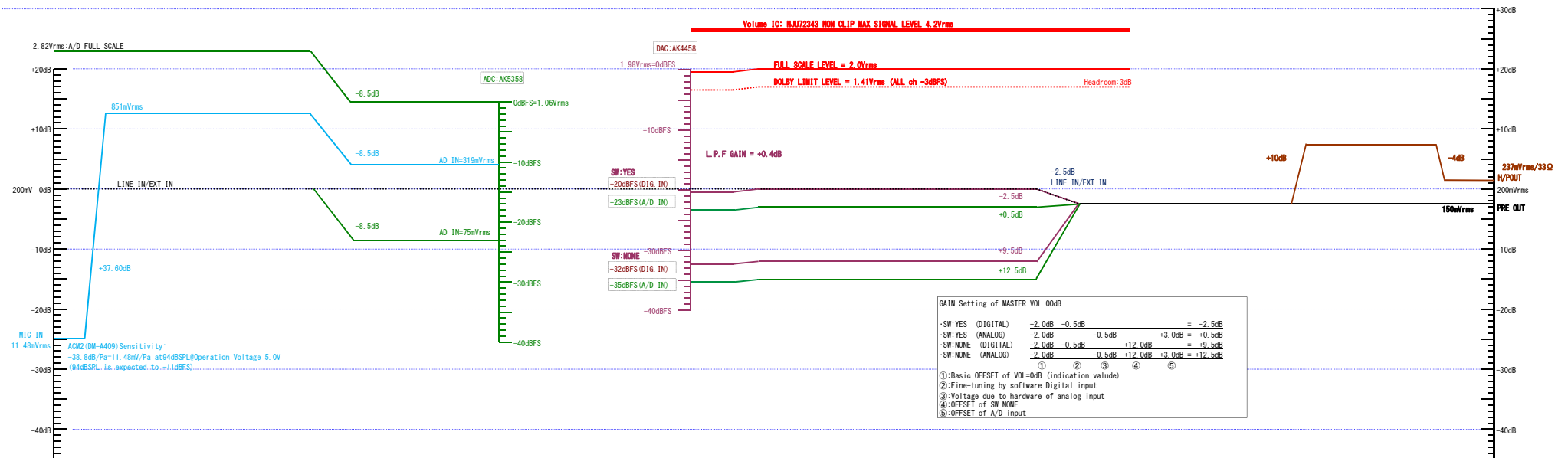
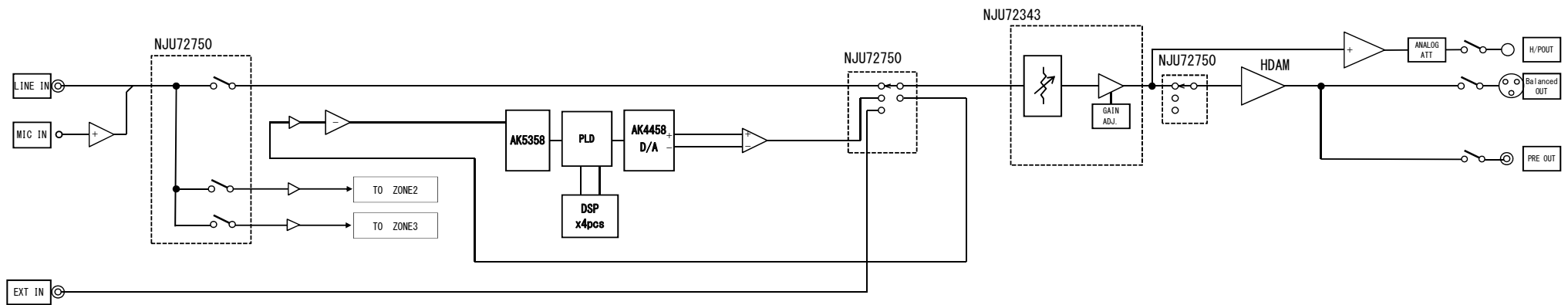




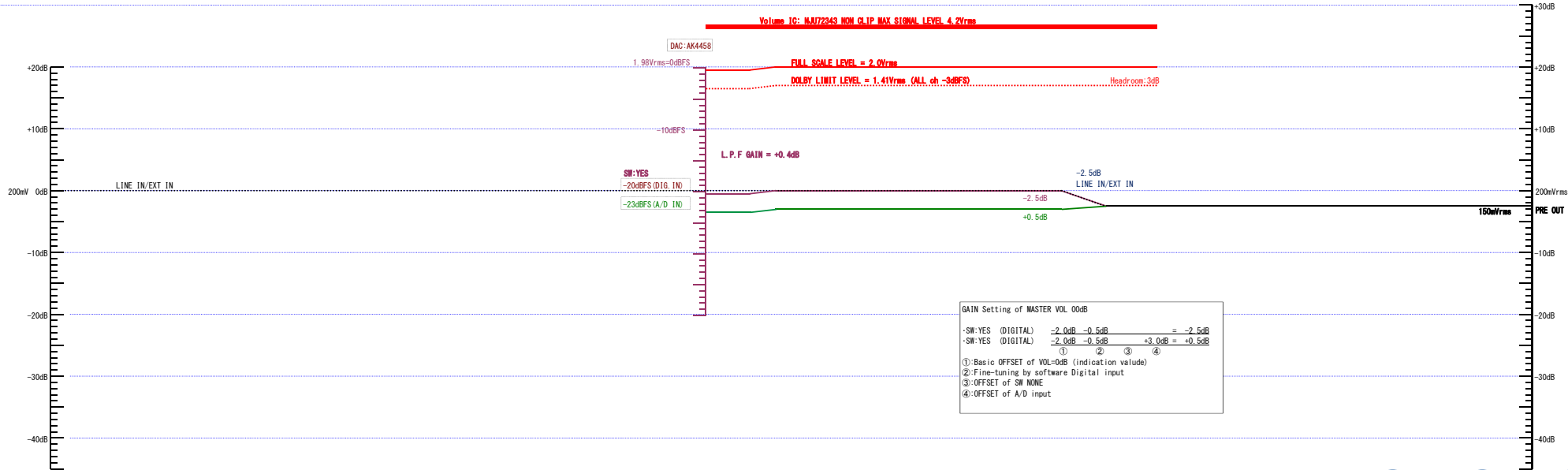
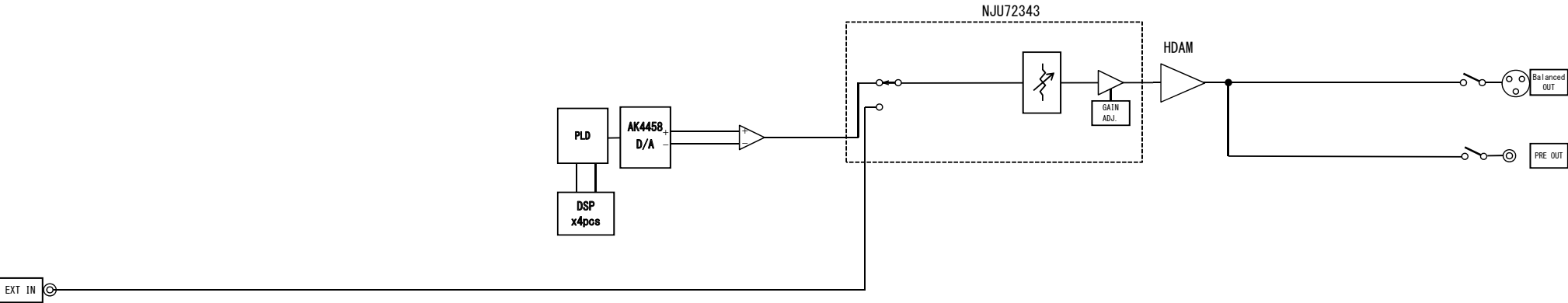
LEVEL DIAGRAM

FRONT ch

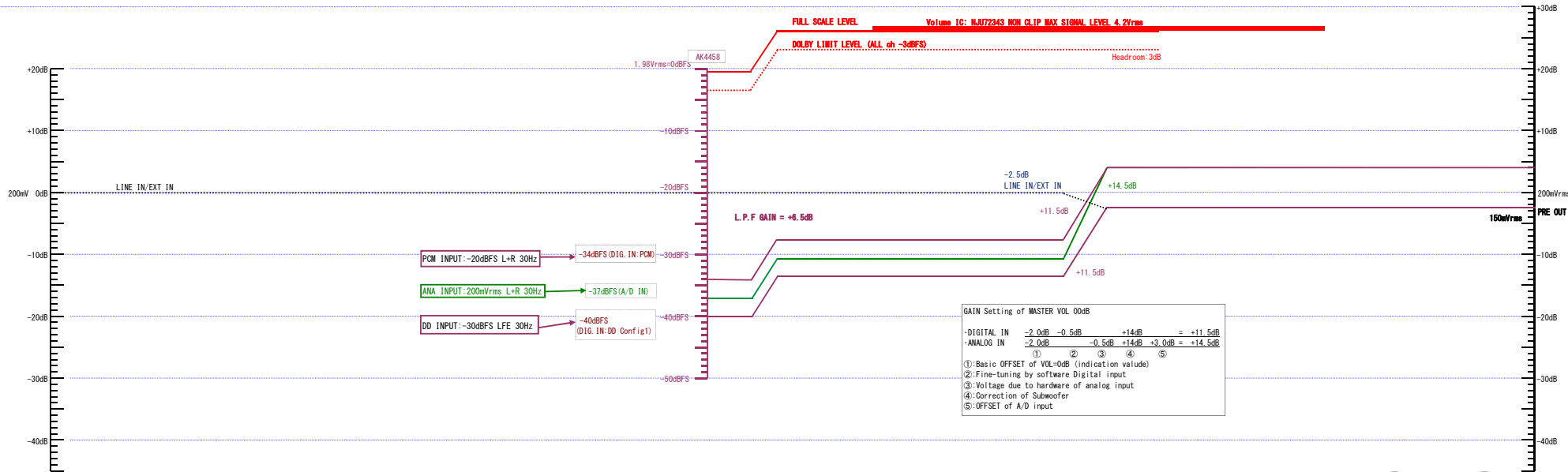
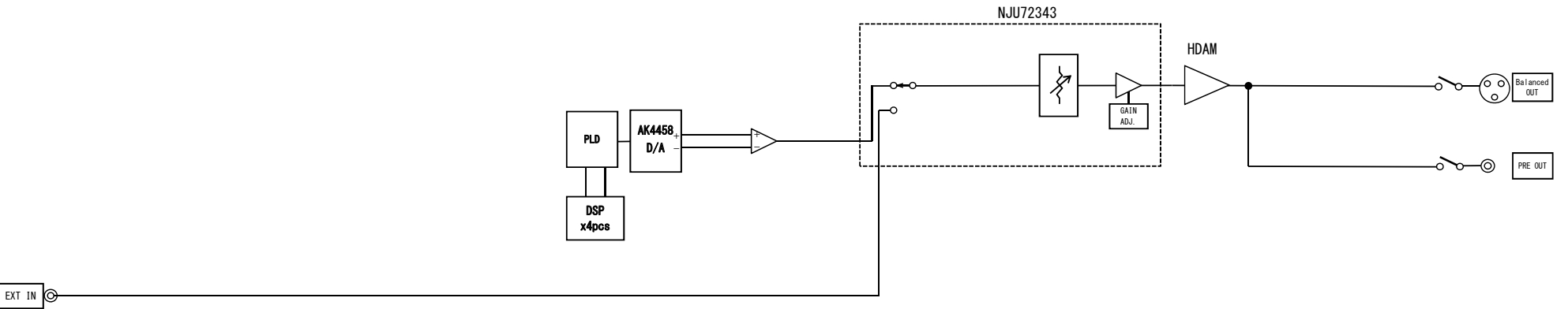
AV7705 LEVEL DIAGRAM FRONT ch



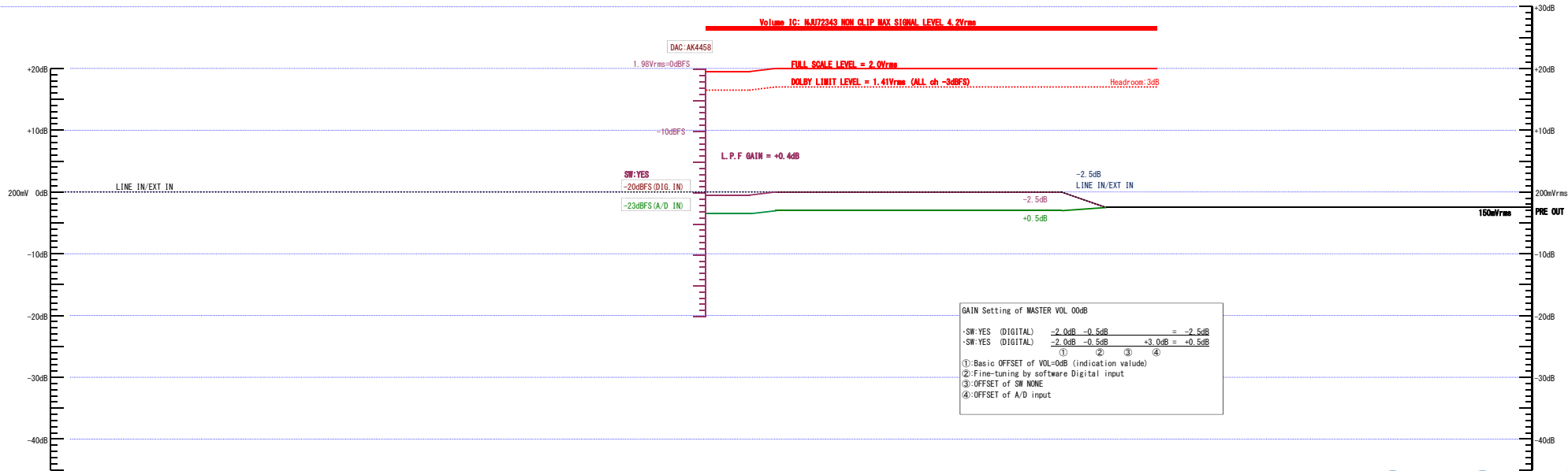
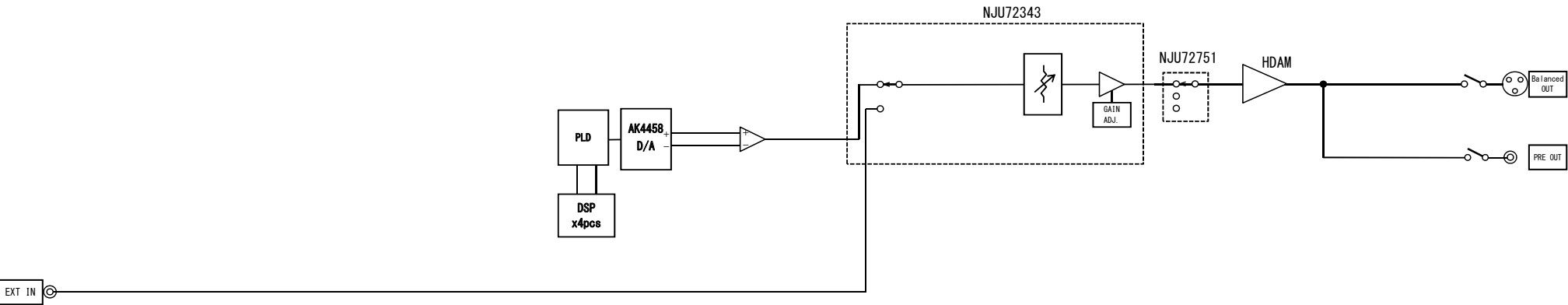
AV7705
LEVEL DIAGRAM
CENTER/SURROUND ch



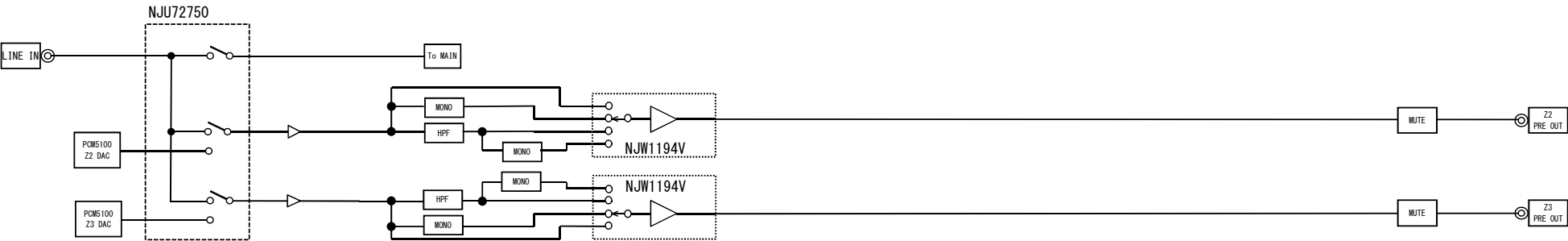
AV7705
LEVEL DIAGRAM
SUB WOOFER ch

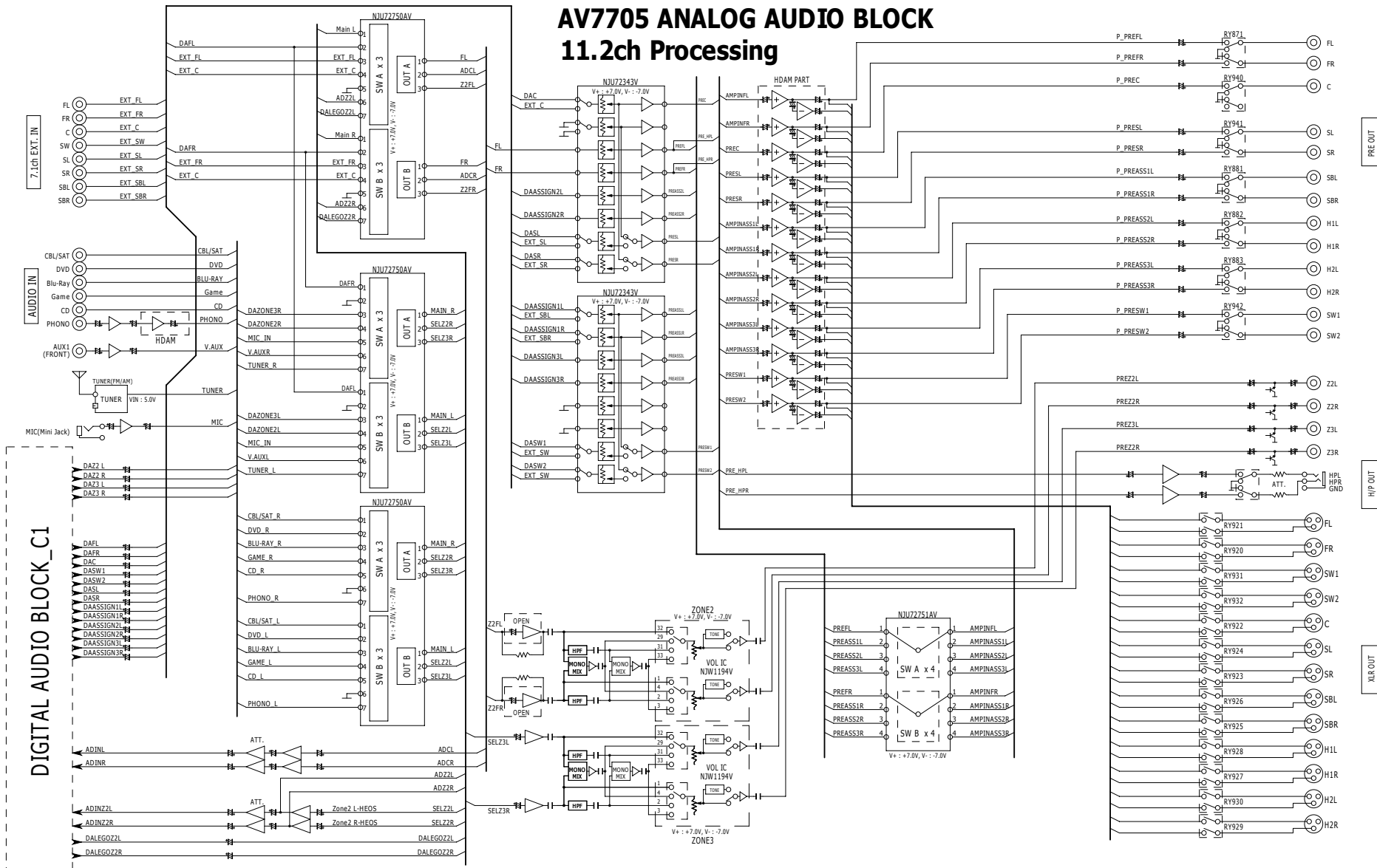


AV7705
LEVEL DIAGRAM
ASSIGN1/2/3 (SURROUND BACK/HEIGHT1/HEIGHT2) ch



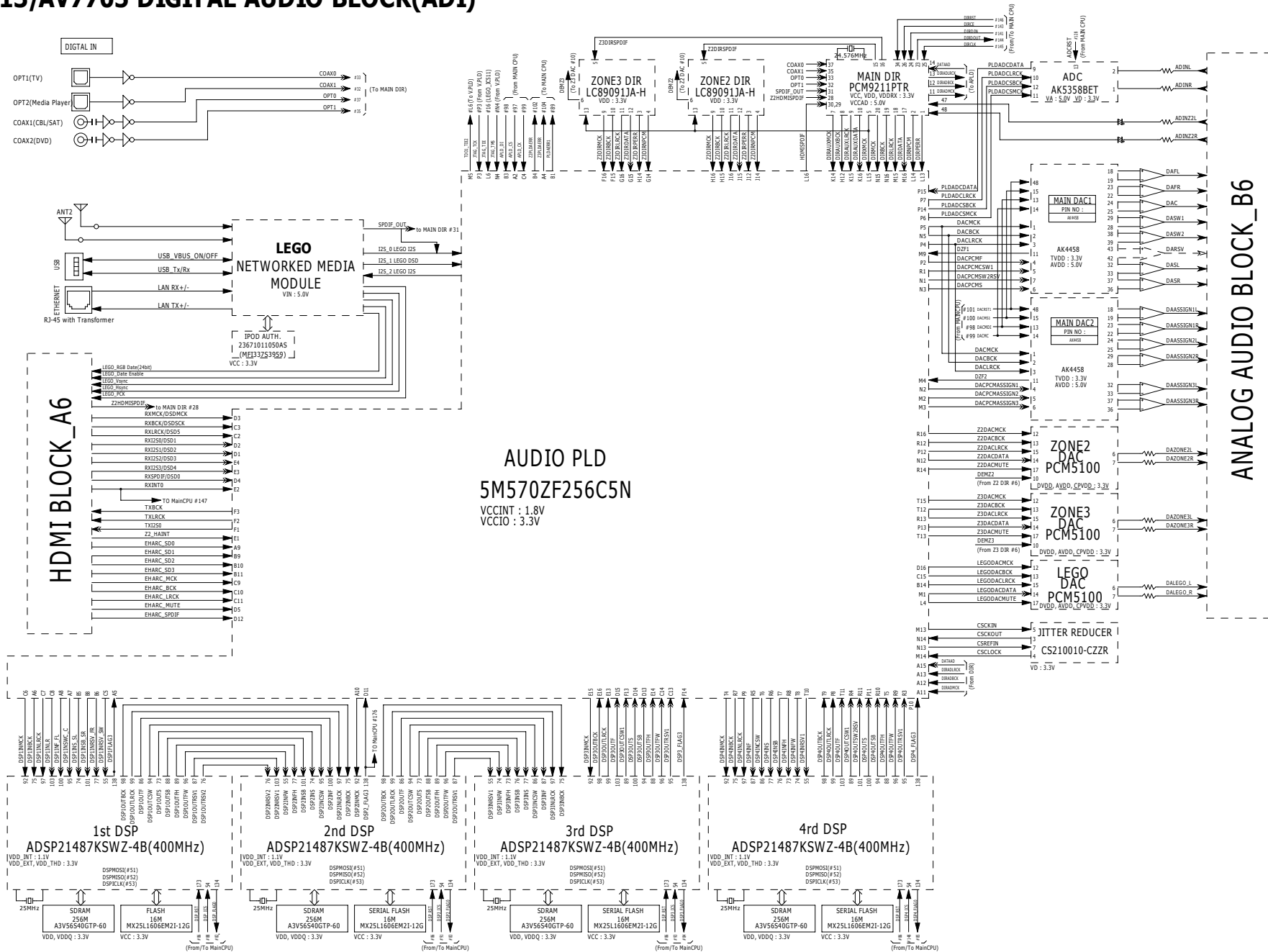
AV7705
LEVEL DIAGRAM
ZONE2/ZONE3





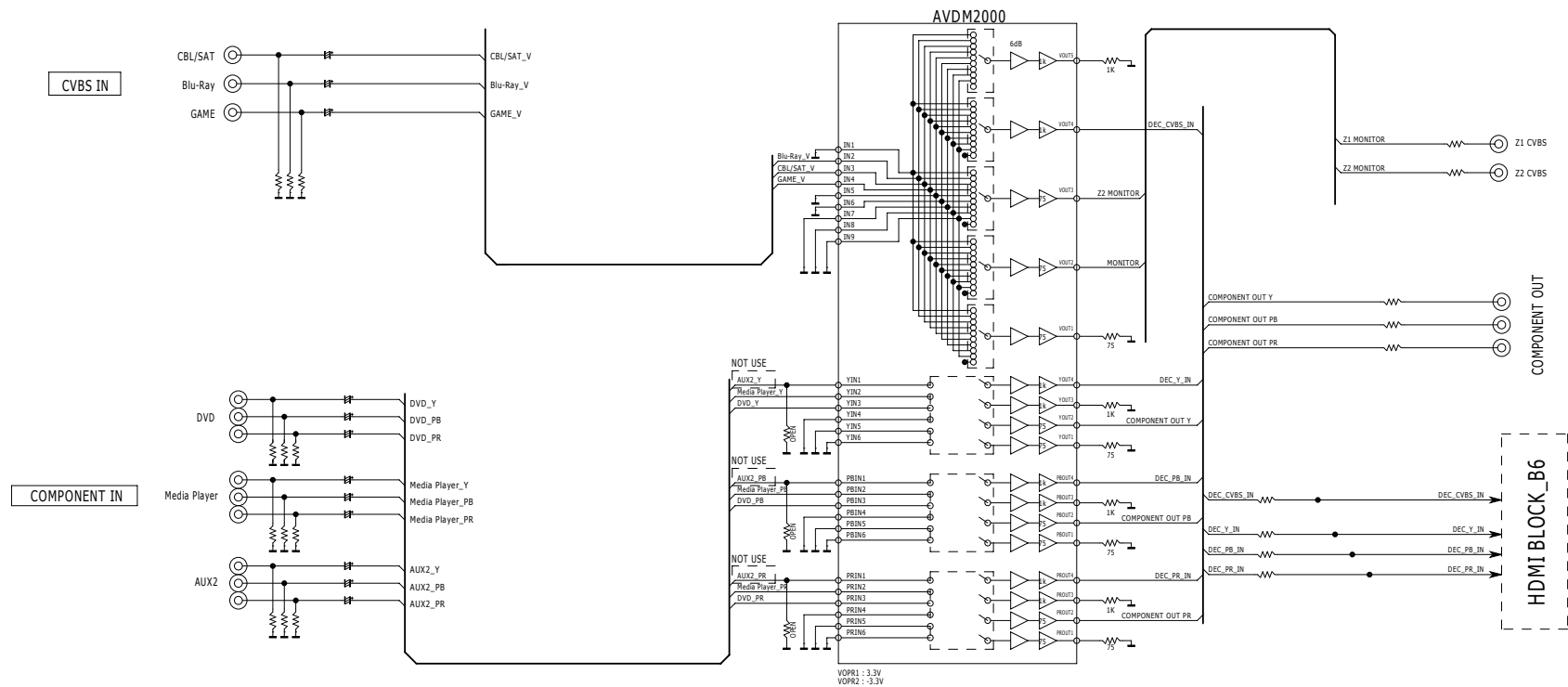
DIGITAL AUDIO DIAGRAM

SR7013/AV7705 DIGITAL AUDIO BLOCK(ADI)



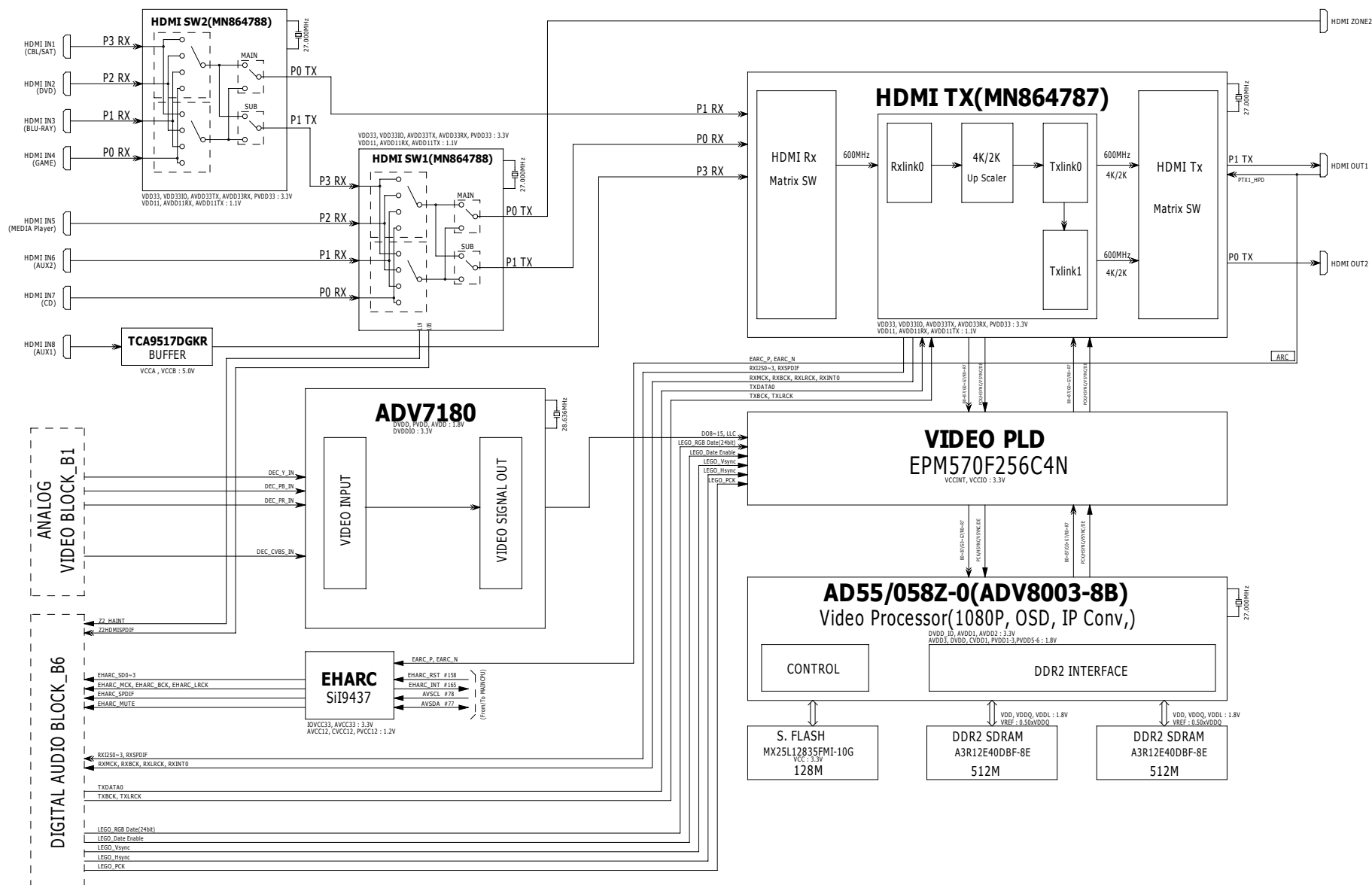
VIDEO DIAGRAM

SR7013/AV7705 ANALOG VIDEO BLOCK

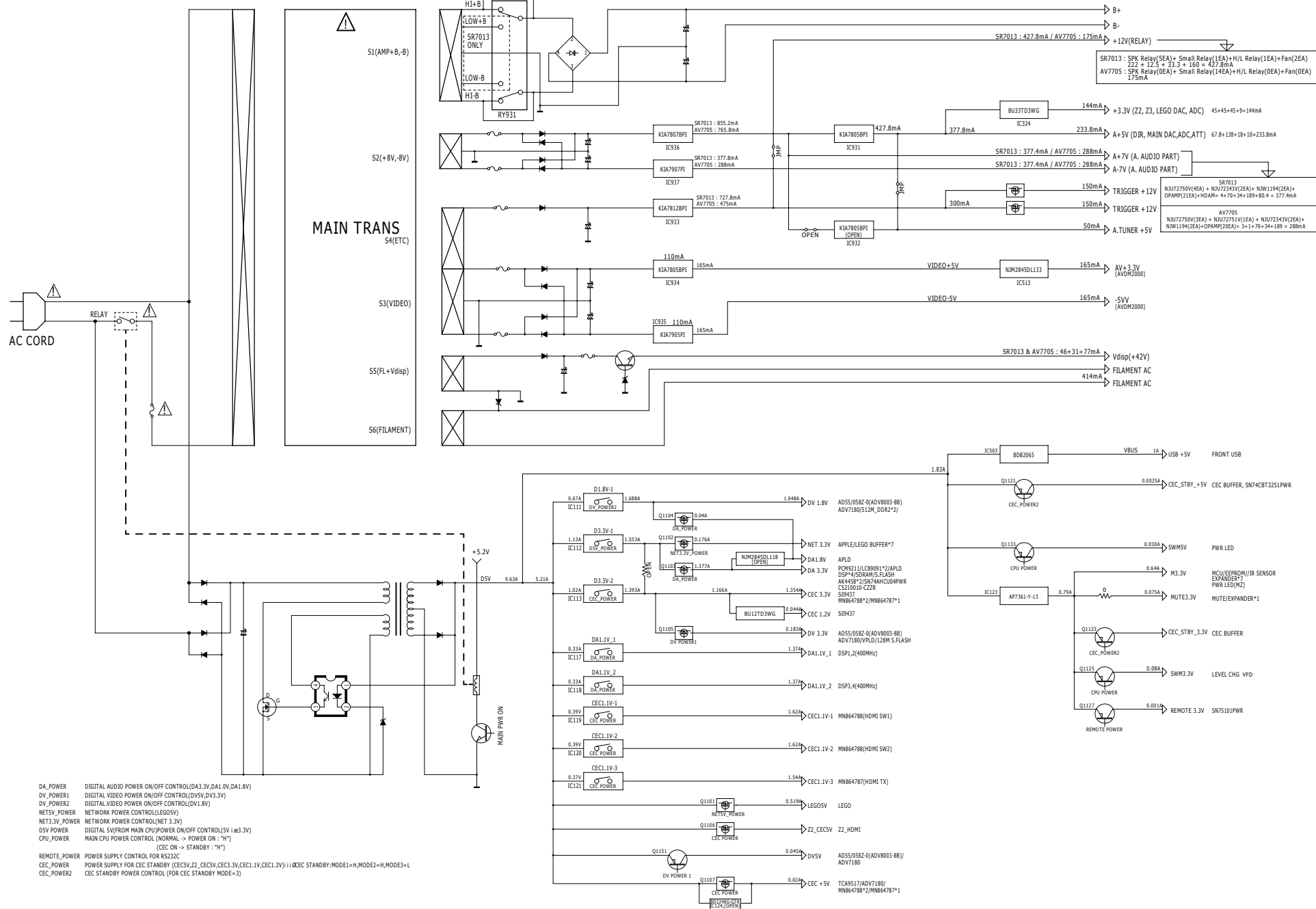


HDMI DIAGRAM

SR7013/AV7705/SR6013 HDMI BLOCK



64

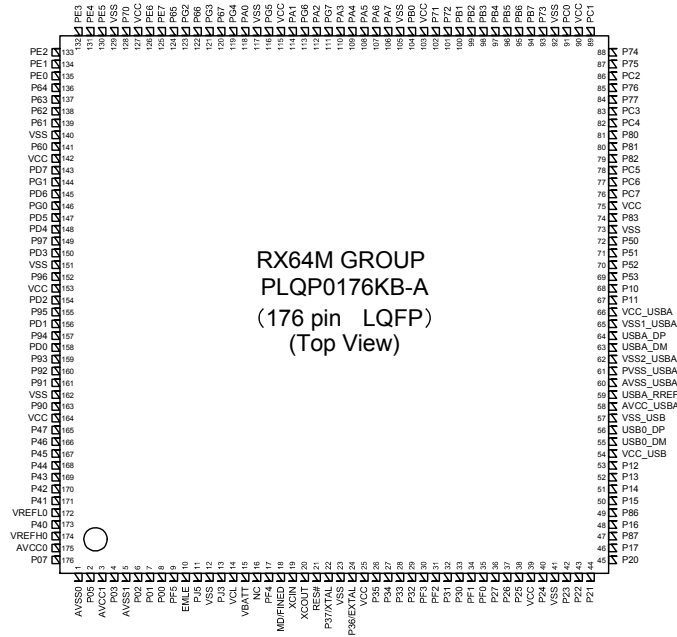




Only major semiconductors are shown, general semiconductors etc. are omitted to list.
The semiconductor which described a detailed drawing in a schematic diagram are omitted to list.

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	H	POWER/STANDBY LED control pin
5	AVSS1	AVSS1	-	-	-	-	-	Ground pin
6	P02/SCK6/IRQ10/AN120	NC	I	M3VPu	I	I	I	NC
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 (X4500H(NA))/ GREEN_LED (X4500H(EU)/ CH/JP)/SR7013/ AV7705)	O		L	L	L	POWER LED control pin
10	EMLE	EMLE	I	Pd	-	-	-	E20 Emulator control pin (On chip Emulator is used,this pin should be High. Not used,it should be Low)
11	PJ5	VSEL_A	I		I	I	I	Master Volume (Rotary encoder) signal input pin
12	VSS	VSS	-	-	-	-	-	Ground pin

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
13	PJ3	VSEL_B	I		I	I	I	Master volume (Rotary encoder) signal input pin
14	VCL	VCL	I		-	-	-	Smoother capacitor connection pin
15	VBATT	VBATT	-		-	-	-	Power supply pin
16	NC	NC	I	Pd	-	-	-	NC(Pull down)
17	TRST#/PF4	TRST#/NC(NORMAL)	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(X4500H)/ DOOR_DET(SR7013/ AV7705)	I	SW3VPu/ SW3VPu	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(X4500H)/ FLASHER_IN(SR7013/ AV7705)	O/I	Pd	L/I	L/I	L/I	IR Flasher control signal input (When standby mode,set to interrupt)
30	TMS/PF3	TMS/NC(NORMAL)	I/I	M3VPu	-/I	-/I	I	E20 Emulator control pin/When normal operating mode,set to input.
31	TDI/PF2/RXD1	TDI/RXD_MIT-SUBISHI	I/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	I		L	L	L	TUNER control
33	P30/RXD1	TU_SDIO	I_O		L	L	L	TUNER control
34	TCK/FINEC/PF1/SCK1	TCK/NC(NORMAL)	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	O		L	L	L	TUNER control
37	P26/TXD1	TU_SCLK	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
40	P24/SCK3	NC(X4500H)/ KILL_IR(SR7013/ AV7705)	O		L	L	L	Front IR disable control pin
41	VSS	VSS	-	-	-	-	-	Ground pin
42	P23/TXD3	E_RTS_MOEI	O	Pd (BCM58305 Internal Pd)	L	L	L	Ethernet(Network Module) control pin
43	P22/SCK0	E_CTS_MIEO	I	Pd (onboard + BCM58305 Internal Pd)	I	I	I	Ethernet(Network Module) control pin
44	P21/RXD0/IRQ9	E_RXD_MIEO	I	Pd (onboard + BCM58305 Internal Pd)	I	L	I	Ethernet(Network Module) control pin
45	P20/TXD0/IRQ8	E_TXD_MOEI	O	Pd (BCM58305 Internal Pd)	L	L	L	Ethernet(Network Module) control pin
46	P17/SCK1/TXD3/IRQ7	NET_FACT_RST	O(ODR)	Pu (BCM58305 Internal Pu)	Z	Z	Z	Ethernet(Network Module) control pin

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
47	P87/TXD10/TIOCA2	NC(X4500H)/RC_OUT(SR7013/AV7705)	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	CEC_ST-BY3VPu	I	I	I	CEC-D control pin
69	P53	ADV8003_SPI_CS	O	DV3VPu	L	L	L	GUI control pin(ADV8003)
70	P52/RXD2	ADV8003_SPI_MI	I		L	L	L	GUI control pin(ADV8003)
71	P51/SCK2	ADV8003_SPI_CLK	O		L	L	L	GUI control pin(ADV8003)
72	P50/TXD2	ADV8003_SPI_MO	O	DV3VPu	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	CEC3VPu	O/L	O/L	L	VIDEO I2C control pin for ADV8003/ ADV7180/ ARC IC/ ADVM2000
78	PC5/SCK8	AVSCL	I/O	CEC3VPu	O/L	O/L	L	VIDEO I2C control pin for ADV8003/ ADV7180/ ARC IC/ ADVM2000
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
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	H	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

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
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	THERMAL_F(X4500H/SR7013)/NC(AV7705)	I/I	SW3VPu	I/I	L	I/I	Protection detect signal input pin (for Heat sink)
97	PB4	APLD_CS	O		L	L	L	Audio PLD (5M570ZF256C5N) control pin
98	PB3/SCK4/SCK6	APLD_DATA/DAC_DATA	O		L	L	L	Audio PLD (5M570ZF256C5N) control pin/DAC (AK4458VN) control pin
99	PB2	APLD_CLK/DAC_CLK	O		L	L	L	Audio PLD (5M570ZF256C5N) control pin/DAC (AK4458VN) control pin
100	PB1/TXD4/TXD6/IRQ4-D5	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-D5	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	O		L	L	L	NC
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(X4500H)/FL_CE2(SR7013/AV7705)	O		L	L	L	FL display control pin
124	P65	NC(X4500H)/FIL_CTRL(SR7013/AV7705)	O		L	L	L	Filament Power control pin (for Portal FLD)
125	PE7/IRQ7/AN105	ASO/DC_DET(X4500H/SR7013)/NC(AV7705)	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 Network Module standby mode in the future(Low : Deep Standby, High : normal))

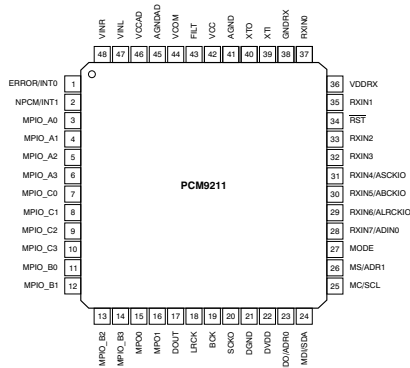


Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
133	PE2/RXD12/IRQ7-DS/AN100	AIOS4_STBY_STATUS	I	-	I	I	I	Not used (This port use to detect for Network Module standby status in the future (Low : normal, High : Deep Standby))
134	PE1/TXD12	GUI_WRITE	O		L	L	L	GUI flash rom writing control
135	PE0/SCK12	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)(When CEC standby mode3,set to Low)
137	P63	CEC_POWER	O		L	L	H	CEC standby power supply control(CEC5V,CEC3.3V,CEC1.8V)(When CEC standby mode3,set to Low)
138	P62	DV_POWER1	O		L	L	L	Digital video power supply (DV5V,DV3.3V) control pin
139	P61	DV_POWER2	O		L	L	L	Digital video power supply (DV1.8V) control pin
140	VSS	VSS	-		-	-	-	Ground pin
141	P60	DIR_DIN	O		L	L	L	DIR (PCM9211) control pin
142	VCC	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	CEC3VPu	Z		-	HDMI Rx (MN864787) audio interrupt signal det
148	PD4/IRQ4/AN112	DSP4CS	O	DA3VPu	Pd	Z	L	DSP(ADI) control pin
149	P97	DE_RST	O	Pd	Z		L	Video decoder (ADV7180) reset control pin
150	PD3/IRQ3/AN111	787_HINT	I	CEC3VPu	Z		-	HDMI Tx (MN864787) interrupt signal input pin
151	VSS	VSS	-		-	-	-	Ground pin
152	P96	787_RST	O	Pd	Z		H	HDMI Tx (MN864787) reset control pin (When CEC standby mode3,set to reset)
153	VCC	VCC	-		-	-	-	Power supply pin
154	PD2/IRQ2/AN110	788_2_HINT	I	CEC3VPu	Z		-	HDMI Rx (MN864788) interrupt signal input pin
155	P95	788_2_RST	O	Pd	Z		H	HDMI Rx (MN864788) reset control pin (When CEC standby mode3,set to reset)
156	PD1/IRQ1/AN109	788_1_HINT	I	CEC3VPu	Z		-	HDMI Rx (MN864788) interrupt signal input pin
157	P94	788_1_RST	O	Pd	Z		H	HDMI Rx (MN864788) reset control pin (When CEC standby mode3,set to reset)
158	PD0/IRQ0/AN108	ARC_RST	O	Pd	L	L	L	Reset control pin for ARC IC
159	P93/AN117	THERMAL_A(X4500H/SR7013)/NC(AV7705)	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(X4500H/SR7013)/NC(AV7705)	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	TEMP_SENSOR	I		I	L	I	Temperature sensor input pin (for SRM)
164	VCC	VCC	-		-	-	-	Power supply pin
165	P47/IRQ15-DS/AN007	ARC_INT	I	IOVC3VPu	L	L	L	ARC IC interrupt signal input pin
166	P46/IRQ14-DS/AN006	CURRENT_DET(X4500H/SR7013)/NC(AV7705)	I/O		I/L	L/L	I/L	Current level monitor pin (A/D converter)
167	P45/IRQ13-DS/AN005	AMPSIGDET(X4500H/SR7013)/NC(AV7705)	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)

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
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



PCM9211 (DIGITAL : IC202)



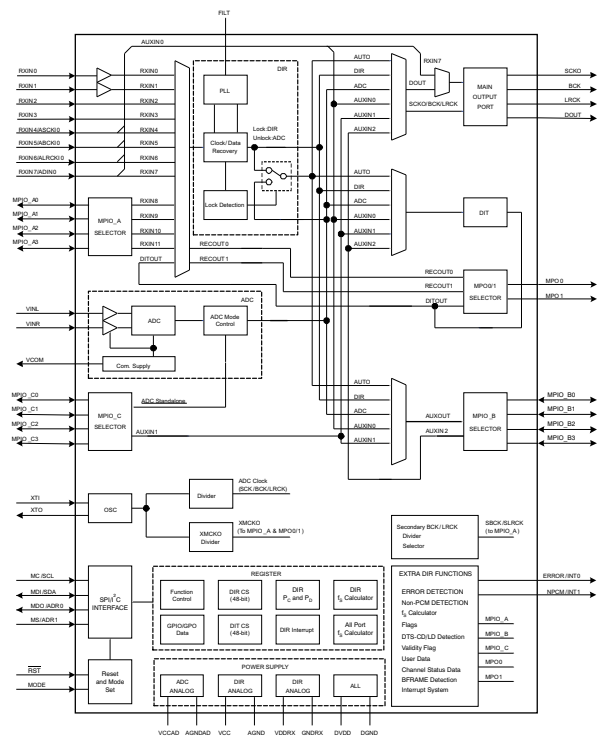
PIN Functions

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)

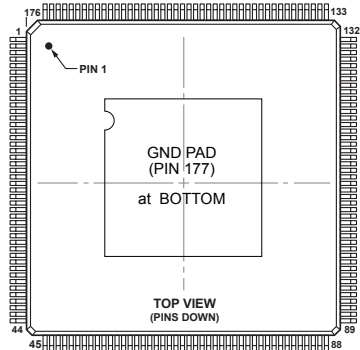
PIN				DESCRIPTION
NO.	NAME	I/O	5-V TOLERANT	
26	MS/ADR1	I	Yes	Software control I/F, SPI chip select / I2C slave address setting1(2)
27	MODE	I	No	Control mode setting, (see the Serial Control Mode section, Control Mode Pin Setting)
28	RXIN7/ADIN0	I	Yes	Biphase signal, input 7 / AUXIN0, serial audio data 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	VDDRX	–	–	Power supply, 3.3 V (typ.), for RXIN0 and RXIN1.
37	RXIN0	I	Yes	Biphase signal, input 0, built-in coaxial amplifier
38	GNDRX	–	–	Ground, for RXIN
39	XT1	I	No	Oscillation circuit input for crystal resonator or external XT1 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



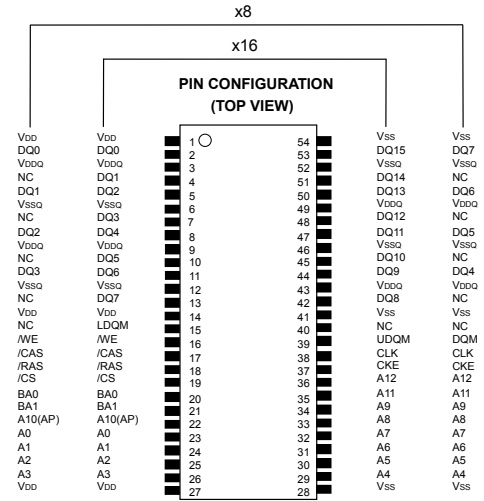
ADSP21487KSWZ4B (DIGITAL : IC251 / IC261 / IC271 / IC281)



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

CKE

/CS

/RAS

/CAS

/WE

DQ0-7

DQ0-15
- : Master Clock

: Clock Enable

: Chip Select

: Row Address Strobe

: Column Address Strobe

: Write Enable

: Data I/O (A3V56S30GTP)

: Data I/O (A3V56S40GTP)
- DQM

U.L. DQM

A0-12

BA0,1

VDD

VDDQ

VSS

VSSQ
- : Output Disable / Write Mask (A3V56S30GTP)

: Output Disable / Write Mask (A3V56S40GTP)

: Address Input

: Bank Address

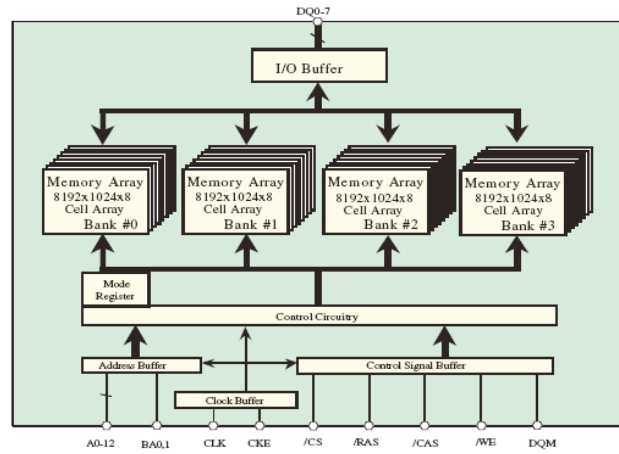
: Power Supply

: Power Supply for Output

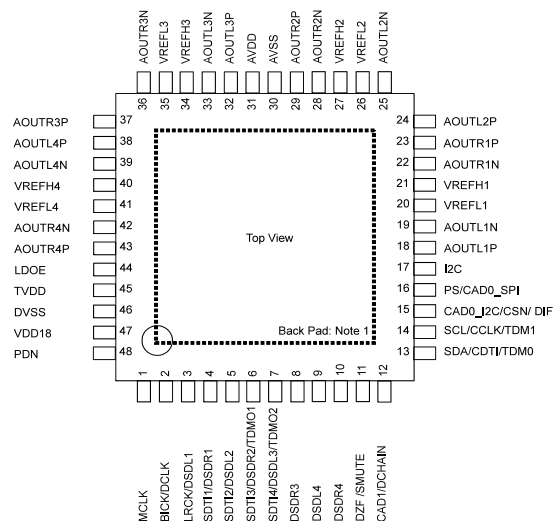
: Ground

: Ground for Output

Block Diagram



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	SDTI1	I	Audio Serial Data Input in PCM mode	Hi-Z
	DSDR1	I	Audio Serial Data Input in DSD mode	
5	SDTI2	I	Audio Serial Data Input in PCM mode	Hi-Z
	DSDL2	I	Audio Serial Data Input in DSD mode	
6	SDTI3	I	Audio Serial Data Input in PCM mode	100k Ω
	DSDR2	I	Audio Serial Data Input in DSD mode	Pull down
	TDMO1	O	Audio Serial Data Output in Daisy Chain mode	
7	SDTI4	I	Audio Serial Data Input in PCM mode	100k Ω
	DSDL3	I	Audio Serial Data Input in DSD mode	Pull down
	TDMO2	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.	

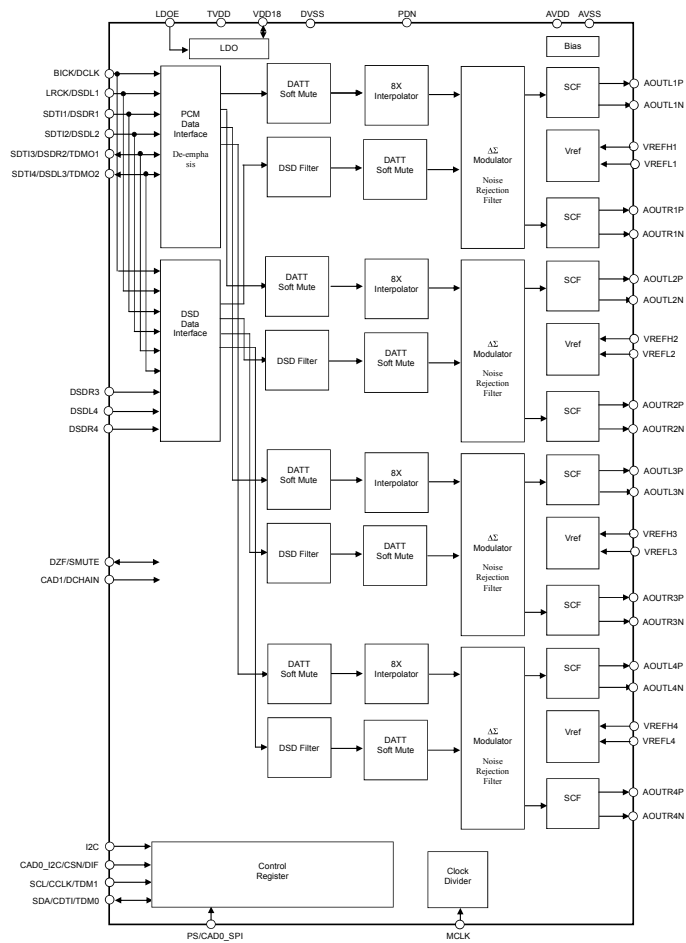
No.	Pin Name	I/O	Function	PD State
15	CAD0_I2C	I	Chip Address 0 Pin in I2C Bus serial control mode	Hi-Z
	CSN	I	Chip Select Pin in 3-wire serial control mode	
	DIF	I	Audio Data Format Select in Parallel control mode. "L": 32-bit MSB, "H": 32-bit I2S	
16	PS	I	(I2C pin = "H") Control Mode Select Pin "L":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

PCM510X (top view)

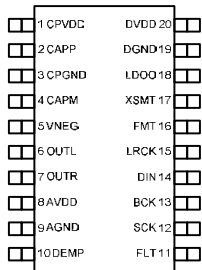


Table 2. TERMINAL FUNCTIONS, PCM510x

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

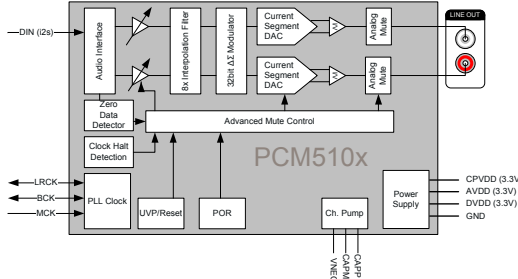
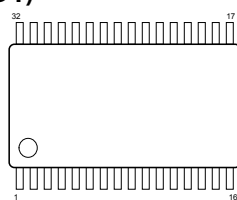


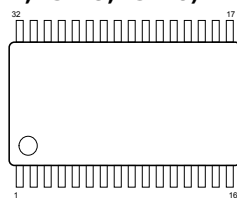
Figure 1. PCM510x Functional Block Diagram

NJU72343 (INPUT : IC471, IC491)



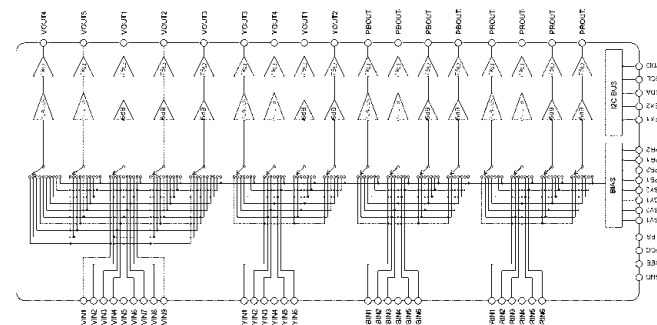
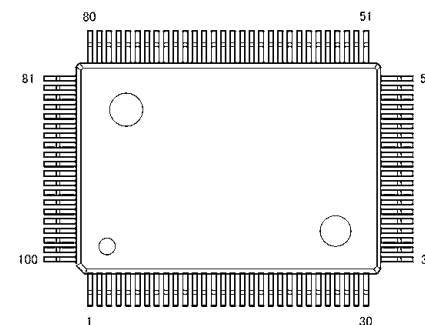
No.	Symbol	Function	No.	Symbol	Function
1	AREF	Analog reference potential	17	DATA	IC control data input
2	ADR	Address selection	18	CLOCK	IC control clock input
3	InA2	Ach input2	19	VDDOUT	Digital power supply output
4	InB2	Bch input2	20	AREF	Analog reference potential
5	InA1	Ach input1	21	OutH	Hch output
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(-)

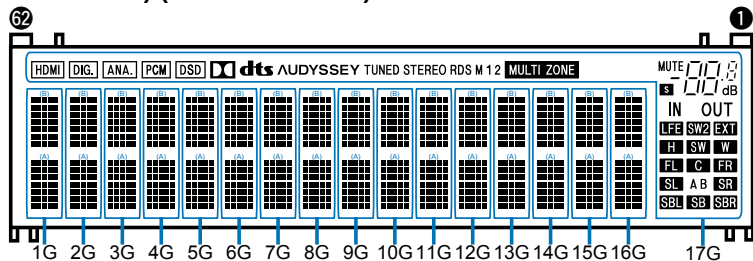
AVDM2000 (VIDEO : IC511)



Pin No.	記号	Pin No.	記号	Pin No.	記号	Pin No.	記号
1	VEE	26	VEE	51	PROUT3	76	BIASV2
2	NC	27	NC	52	PROUT2	77	VOUT5
3	PS	28	BIASPB1	53	PROUT1	78	NC
4	NC	29	NC	54	VCC	79	VOUT4
5	SDA	30	PBIN1	55	NC	80	NC
6	SCL	31	PBIN2	56	VEE	81	VOUT3
7	NC	32	PBIN3	57	NC	82	VOUT2
8	EX1	33	PBIN4	58	BIASPB2	83	VOUT1
9	EX2	34	PBIN5	59	PBOUT4	84	VCC
10	NC	35	PBIN6	60	PBOUT3	85	VEE
11	VEE	36	VCC	61	PBOUT2	86	BIASV1
12	NC	37	VEE	62	PBOUT1	87	VIN1
13	BIASV1	38	BIASPR1	63	VCC	88	VIN2
14	NC	39	PRIN6	64	NC	89	VIN3
15	YIN1	40	PRIN5	65	VEE	90	NC
16	YIN2	41	PRIN4	66	NC	91	VIN4
17	NC	42	PRIN3	67	BIASV2	92	VIN5
18	YIN3	43	PRIN2	68	YOUT4	93	VIN6
19	YIN4	44	PRIN1	69	YOUT3	94	VIN7
20	NC	45	VCC	70	YOUT2	95	VIN8
21	YIN5	46	VEE	71	YOUT1	96	VIN9
22	YIN6	47	BIASPR2	72	VCC	97	VCC
23	NC	48	NC	73	NC	98	NC
24	VCC	49	PROUT4	74	VEE	99	VDD
25	NC	50	NC	75	NC	100	GND

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
NX	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	D
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

Before Servicing
This Unit

Electrical

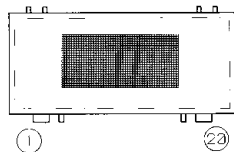
Mechanical

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
1-18	2-18	3-18	4-18	5-18	6-18	7-18	8-18	-	-	-	42-18	43-18	44-18	45-18	46-18	47-18	48-18
1-19	2-19	3-19	4-19	5-19	6-19	7-19	8-19	-	-	-	42-19	43-19	44-19	45-19	46-19	47-19	48-19
1-20	2-20	3-20	4-20	5-20	6-20	7-20	8-20	-	-	-	42-20	43-20	44-20	45-20	46-20	47-20	48-20
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
1-22	2-22	3-22	4-22	5-22	6-22	7-22	8-22	-	-	-	42-22	43-22	44-22	45-22	46-22	47-22	48-22
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

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

18-MJ-11
V03

X
This pink color's cell = New assigned code

			Remote Code RC-6 / RC-5 Ex. Format		For search For AX Extension Command(7)	AV Pre Proposal	AV Receiver	AV Receiver	AV Receiver	AV Receiver	Sim Line AV Receiver	Sim Line AV Receiver
Zone		Command Name	System	Command Extension								
Power Control		POWER ON/OFF	16	12	01	16 12 01						
		POWER ON	16	12	02	01	16 12 02					
		POWER OFF	16	12	02	16 12 02		X	X	X	X	X
		SYSTEM POWER OFF	16	12	13	16 12 13		X	X	X	X	X
Volume Control		VOL -	16	16	—							
		VOL +	16	17	—							
		Direct VOLUME	16	111	00-63	16 111 00-63						
		Audio MUTE ON	16	13	01	16 13 01		X	X	X	X	X
Speaker Output		Audio MUTE (Toggle)	16	13	01	16 13 01		X	X	X	X	X
		SPEAKER Set	16	29	—							
		SPEAKER-A ON/OFF	16	35	—							
		SPEAKER-B ON/OFF	16	36	—							
Mute Control		OSD Menu On	16	82	—							
		MENU	16	82	60	16 82 60		X	X	X	X	X
		OPTION	16	82	11	16 82 11		X	X	X	X	X
		EXT MENU	16	83	—							
		ENTER (OK)	16	87	—							
		Cursor Up	16	87	84	16 87 84		X	X	X	X	X
		Cursor Down	16	88	—							
		Cursor Left	16	81	—							
		Cursor Right	16	85	—							
		Cursor Right	16	86	—							
		Dimmer(Display)	16	15	00	16 15 00		X	X	X	X	X
		Info	16	15	08	16 15 08		X	X	X	X	X
Display/Video		OSD Info	16	15	15	16 15 15		X	X	X	X	X
		Status	16	15	07	16 15 07		X	X	X	X	X
		Video Select	16	16	00	16 16 00		X	X	X	X	X
		VIDEO OFF (V OFF)	16	13	13	16 13 13						
Input Source		INPUT NEXT	16	00	13	16 00 13		X	X	X	X	X
		INPUT BACK	16	00	14	16 00 14		X	X	X	X	X
		TUNER (Input FM)	16	63	17-63	16 63 17-63		X	X	X	X	X
		Blue-ray(DI/Coder)	07	63	00	07 63 00		X	X	X	X	X
		Blue-ray(DI/Coder)	28	63	00	28 63 00		X	X	X	X	X
		Blue-ray(DI/Coder)	16	62	04	16 62 04		X	X	X	X	X
		CD	20	63	—							
		TV AUDIO	00	63	—							
		DVD	16	60	02	16 60 02		X	X	X	X	X
		MEDIA LAYER	05	63	—							
		CELBAT	06	63	—							
		AUX1(AUX1)	16	00	07	16 00 07		X	X	X	X	X
		AUX2	16	00	07	16 00 07		X	X	X	X	X
		AUX3(Additional Source)	16	00	08	16 00 08		X	X	X	X	X
		AUX4(Additional Source)	16	02	00	16 02 00						
		AUX5(Additional Source)	16	02	01	16 02 01						
		AUX6(Additional Source)	16	02	02	16 02 02		X	X	X	X	X
		AUX7(Additional Source)	16	02	03	16 02 03						
		Bluetooth	16	02	16	16 02 16		X	X	X	X	X
		GAME	16	00	62	16 00 62		X	X	X	X	X
PHONE		PHONE	16	00	68	16 00 68		X	X	X	X	X
		USB	21	63	—							
		USB	24	63	01	24 63 01		X	X	X	X	X
		HEOS Music(NETWORK)	24	63	11	24 63 11		X	X	X	X	X
		Internet Radio Select	27	63	20	27 63 20		X	X	X	X	X
		Media Server Select	27	63	29	27 63 29		X	X	X	X	X
		Favorite Select (4)	27	63	24	27 63 24						
		HEOS MUSIC	27	63	16	27 63 16		X	X	X	X	X
Smart Select		M-Port	29	63	01	29 63 01		X	X	X	X	X
		7.1 (L,Y) Input ON	16	01	12	16 01 12		X	X	X	X	X
		Smart Select 1	16	02	21	16 02 21		X	X	X	X	X
		Smart Select 2	16	02	22	16 02 22		X	X	X	X	X
		Smart Select 3	16	02	23	16 02 23		X	X	X	X	X
		Smart Select 4	16	02	24	16 02 24		X	X	X	X	X
		Smart Select 5	16	02	25	16 02 25		X	X	X	X	X
		Input Mode:Auto	16	01	01	16 01 01		X	X	X	X	X
Input Mode:HDMI		INPUT MODE:Auto	16	01	15	16 01 15		X	X	X	X	X
		INPUT MODE:HDMI	16	01	16	16 01 16		X	X	X	X	X
		INPUT MODE:DIGITAL	16	01	17	16 01 17		X	X	X	X	X
		INPUT MODE:ANALOG	16	01	18	16 01 18		X	X	X	X	X
		Bilingual (Audio Channel)	16	01	14	16 01 14						
		LIP SYNC (Audio Delay)	16	10	01	16 10 01		X	X	X	X	X
		Resolution(Analog)	16	15	16	16 15 16		X	X	X	X	X
		Resolution(HDMI)	16	15	11	16 15 11		X	X	X	X	X
		Vertical Stretch On	16	15	12	16 15 12						
		Vertical Stretch OFF	16	15	13	16 15 13						
		HDMI Audio Output Select (Toggle)	16	84	00	16 84 00		X	X	X	X	X
		HDMI Audio Output: Enable (Decode by AVT)	16	84	01	16 84 01		X	X	X	X	X
		OSD Audio Output: Through (Decode by TV)	16	84	03	16 84 03		X	X	X	X	X
		COMPONENT 2 for MULTIA	16	84	32	16 84 32		X	X	X	X	X
		Video Mode: (Toggle)	16	84	31	16 84 31		X	X	X	X	X
		Video Mode: Auto	16	84	01	16 84 01		X	X	X	X	X
		Video Mode: Movie	16	84	62	16 84 62		X	X	X	X	X
		Video Mode: Game	16	84	24	16 84 24		X	X	X	X	X
		HDMI Auto Select (Toggle)	16	120	00	16 120 00		X	X	X	X	X
		HDMI Out-1	16	120	01	16 120 01		X	X	X	X	X
		HDMI Out-2	16	120	02	16 120 02		X	X	X	X	X
		HDMI Out-Auto(Default)	16	120	03	16 120 03		X	X	X	X	X
		HDMI Control (CEC) ON	16	84	08	16 84 08		X	X	X	X	X
		HDMI Control (CEC) OFF	16	84	09	16 84 09		X	X	X	X	X
Surround Mode		SURROUND Mode (Toggle/Next)	16	37	—							
		SURROUND Mode (Back)	16	64	15	16 64 15		X	X	X	X	X
		Movie SURROUND	16	37	29	16 37 29		X	X	X	X	X
		MUSIC SURROUND	16	37	63	16 37 63		X	X	X	X	X
		GAME SURROUND	16	64	18	16 64 18		X	X	X	X	X
		AUTO	16	37	45	16 37 45		X	X	X	X	X
		STEREO	16	37	36	16 37 36		X	X	X	X	X
		MONO	16	37	37	16 37 37		X	X	X	X	X
THX		THX 5.1 Stereo	16	37	87	16 37 87		X	X	X	X	X
		THX	16	64	13	16 64 13		X	X	X	X	X
		THX CINEMA	16	37	36	16 37 36						
		THX SURROUND EX	16	37	58	16 37 58		X	X	X	X	X
		THX ULTRA 2	16	64	07	16 64 07		X	X	X	X	X
		THX SELECT 2	16	64	07	16 64 07		X	X	X	X	X
		THX 5.1 MUSIC	16	64	04	16 64 04		X	X	X	X	X
		THX MUSIC	16	64	04	16 64 04		X	X	X	X	X

[illegible]

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	MUTE	16	29	08	16:29:08	RCCS1602008	X	X	X	X	X	X	--	
Input Source	INPUT NEXT	16	30	03	16:30:03	RCCS1603003	--	--	--	--	--	--	--	
	INPUT BACK	16	30	04	16:30:04	RCCS1603004	X	X	X	X	X	X	--	
	Sources Call	16	30	10	16:30:10	RCCS1603010	X	X	X	X	X	X	--	
	CD	16	29	11	16:29:11	RCCS1602911	--	--	--	--	--	--	--	
	TU AUDIO(TV)	16	29	16	16:29:16	RCCS1602916	X	X	X	X	X	X	--	
	DVD	16	29	16	16:29:16	RCCS1602916	X	X	X	X	X	X	--	
	MEDIA LAYER	16	29	17	16:29:17	RCCS1602917	--	--	--	--	--	--	--	
	CBL SAT	16	29	19	16:29:19	RCCS1602919	X	X	X	X	X	X	--	
	AUX(AUX1)	16	29	20	16:29:20	RCCS1602920	X	X	X	X	X	X	--	
	AUX2	16	29	21	16:29:21	RCCS1602921	X	X	X	X	X	X	--	
	AUX3(Additional Source)	16	29	24	16:29:24	RCCS1602924	--	--	--	--	--	--	--	
	AUX4(Additional Source)	16	29	25	16:29:25	RCCS1602925	--	--	--	--	--	--	--	
	AUX5(Additional Source)	16	29	26	16:29:26	RCCS1602926	--	--	--	--	--	--	--	
	AUX6(Additional Source)	16	29	27	16:29:27	RCCS1602927	--	--	--	--	--	--	--	
	AUX7(Additional Source)	16	29	28	16:29:28	RCCS1602928	--	--	--	--	--	--	--	
	TUNER TUNER FM	16	29	29	16:29:29	RCCS1602929	X	X	X	X	X	X	--	
	HDC(MUSIC NETWORK)	HEOS Music	16	29	23	16:29:23	RCCS1602923	X(HEOS Music)	X(HEOS Music)	X(HEOS Music)	X(HEOS Music)	X(HEOS Music)	X(HEOS Music)	--
USB		16	30	11	16:30:11	RCCS1603011	X(LSB)	X(LSB)	X(Pool USB)	X(Pool USB)	X(LSB)	X(LSB)	--	
Nu-ry(BD)		16	30	12	16:30:12	RCCS1603012	--	--	--	--	--	--	--	
M-Port		16	30	13	16:30:13	RCCS1603013	--	--	--	--	--	--	--	
Game		16	30	14	16:30:14	RCCS1603014	--	--	--	--	--	--	--	
PICNO		16	30	15	16:30:15	RCCS1603015	--	--	--	--	--	--	--	
Bluetooth		16	30	16	16:30:16	RCCS1603016	X	X	X	X	X	X	--	
Internet Radio		17	02	20	17:02:20	RCCS1607020	X	X	X	X	X	X	--	
LBS(LINK)CSJ		17	02	29	17:02:29	RCCS1607029	X	X	X	X	X	X	--	
Media Server		17	02	24	17:02:24	RCCS1607024	--	--	--	--	--	--	--	
Videos+G		17	02	26	17:02:26	RCCS1607026	--	--	--	--	--	--	--	
Smart Select		Smart Select1	16	30	21	16:30:21	RCCS1603021	X	X	X	X	X	X	--
		Smart Select2	16	30	22	16:30:22	RCCS1603022	X	X	X	X	X	X	--
		Smart Select3	16	30	23	16:30:23	RCCS1603023	X	X	X	X	X	X	--
		Smart Select4	16	30	24	16:30:24	RCCS1603024	X	X	X	X	X	X	--
Smart Select5		16	30	25	16:30:25	RCCS1603025	X	X	X	X	X	X	--	
Cursor		Cursor Up	16	31	10	16:31:10	RCCS1603110	X	X	X	X	X	X	--
	Cursor Down	16	31	11	16:31:11	RCCS1603111	X	X	X	X	X	X	--	
	Cursor Left	16	31	12	16:31:12	RCCS1603112	X	X	X	X	X	X	--	
	Cursor Right	16	31	13	16:31:13	RCCS1603113	X	X	X	X	X	X	--	
Enter	16	31	14	16:31:14	RCCS1603114	X	X	X	X	X	X	--		
Return	16	31	15	16:31:15	RCCS1603115	X	X	X	X	X	X	--		
Memory	16	31	16	16:31:16	RCCS1603116	X	X	X	X	X	X	--		
Sleep	(SLEEP) Toggle	16	29	10	16:29:10	RCCS1602910	--	--	--	--	--	--	--	
	SLEEP OFF	16	29	10	16:29:10	RCCS1602910	--	--	--	--	--	--	--	
Tuner	[Tuner-0]	17	29	06	17:29:06	RCCS1607060	X	X	X	X	X	X	--	
	[Tuner-1]	17	29	07	17:29:07	RCCS1607061	X	X	X	X	X	X	--	
	[Tuner-1.2]	17	29	07	17:29:07	RCCS1607062	X	X	X	X	X	X	--	
	[Tuner-1.3]	17	29	07	17:29:07	RCCS1607063	X	X	X	X	X	X	--	
	[Tuner-1.4]	17	29	07	17:29:07	RCCS1607064	X	X	X	X	X	X	--	
	[Tuner-1.5]	17	29	07	17:29:07	RCCS1607065	X	X	X	X	X	X	--	
	[Tuner-1.6]	17	29	07	17:29:07	RCCS1607066	X	X	X	X	X	X	--	
	[Tuner-1.7]	17	29	07	17:29:07	RCCS1607067	X	X	X	X	X	X	--	
	[Tuner-1.8]	17	29	08	17:29:08	RCCS1607068	X	X	X	X	X	X	--	
	[Tuner-1.9]	17	29	08	17:29:08	RCCS1607069	X	X	X	X	X	X	--	
	[Tuner-1 FM]	17	29	10	17:29:10	RCCS1607090	X	X	X	X	X	X	--	
	[Tuner-1 AM]	17	29	11	17:29:11	RCCS1607091	X	X	X	X	X	X	--	
	[Tuner-1 PRESET Up +]	17	29	13	17:29:13	RCCS1607093	X	X	X	X	X	X	--	
	[Tuner-1 PRESET Down -]	17	29	14	17:29:14	RCCS1607094	X	X	X	X	X	X	--	
	[Tuner-1 FREQ Tuning Up +]	17	29	15	17:29:15	RCCS1607095	X	X	X	X	X	X	--	
	[Tuner-1 FREQ Tuning Down -]	17	29	16	17:29:16	RCCS1607096	X	X	X	X	X	X	--	
	[Tuner-1 T-MODE]	17	29	17	17:29:17	RCCS1607097	X	X	X	X	X	X	--	
BAND (FMAN)	Band	17	29	17	17:29:17	RCCS1607097	X	X	X	X	X	X	--	
	RDS-SEARCH	17	29	02	17:29:02	RCCS1607002	--	--	--	--	--	--	--	
	Next	24	32	62	24:32:62	RCCS2403262	X	X	X	X	X	X	--	
	Previous	24	33	61	24:33:61	RCCS2403361	X	X	X	X	X	X	--	
USB	Random (Toggle)	--	--	--	--	--	--	--	--	--	--	--	--	
	Random On	24	41	61	24:41:61	RCCS2404161	X	X	X	X	X	X	--	
	Random Off	24	41	62	24:41:62	RCCS2404162	X	X	X	X	X	X	--	
	Repeat (Toggle)	24	42	61	24:42:61	RCCS2404261	--	--	--	--	--	--	--	
	Repeat On	24	42	62	24:42:62	RCCS2404262	--	--	--	--	--	--	--	
	Repeat Off	24	42	63	24:42:63	RCCS2404263	--	--	--	--	--	--	--	
	Pause	24	42	64	24:42:64	RCCS2404264	--	--	--	--	--	--	--	
	Play	24	42	65	24:42:65	RCCS2404265	--	--	--	--	--	--	--	
	REW (Toggle)	24	43	62	24:43:62	RCCS2404362	X	X	X	X	X	X	--	
	FF (Toggle)	24	43	63	24:43:63	RCCS2404363	X	X	X	X	X	X	--	
	Play/Pause	24	43	64	24:43:64	RCCS2404364	X	X	X	X	X	X	--	
	Play	24	43	65	24:43:65	RCCS2404365	X	X	X	X	X	X	--	
	USB Direct Play	24	43	66	24:43:66	RCCS2404366	--	--	--	--	--	--	--	
	Stop	24	43	67	24:43:67	RCCS2404367	--	--	--	--	--	--	--	
	Stop	24	44	64	24:44:64	RCCS2404464	--	--	--	--	--	--	--	
	Network	Network(DMP): Next	27	32	62	27:32:62	RCCS2703262	X	X	X	X	X	X	--
		Network(DMP): Previous	27	33	62	27:33:62	RCCS2703362	X	X	X	X	X	X	--
JPEG Skip + (Next)		27	33	11	27:33:11	RCCS2703311	--	--	--	--	--	--	--	
JPEG Skip - (Previous)		27	33	11	27:33:11	RCCS2703311	--	--	--	--	--	--	--	
Network(DMP): Random (toggle)		27	41	61	27:41:61	RCCS2704161	--	--	--	--	--	--	--	
Network(DMP): Random On		27	41	62	27:41:62	RCCS2704162	--	--	--	--	--	--	--	
Network(DMP): Random Off		27	41	63	27:41:63	RCCS2704163	--	--	--	--	--	--	--	
Memory		27	41	62	27:41:62	RCCS2704162	--	--	--	--	--	--	--	
Network(DMP): Repeat (toggle)		27	42	61	27:42:61	RCCS2704261	--	--	--	--	--	--	--	
Network(DMP): Repeat Off		27	42	62	27:42:62	RCCS2704262	--	--	--	--	--	--	--	
Network(DMP): Repeat 1		27	42	63	27:42:63	RCCS2704263	--	--	--	--	--	--	--	
Network(DMP): Repeat All		27	42	64	27:42:64	RCCS2704264	--	--	--	--	--	--	--	
Network(DMP): USB: REW		27	60	62	27:60:62	RCCS2706062	--	--	--	--	--	--	--	
Network(DMP): USB: FF		27	62	62	27:62:62	RCCS2706262	--	--	--	--	--	--	--	
Network(DMP): Play/Pause		27	63	62	27:63:62	RCCS2706362	X	X	X	X	X	X	--	
Internet Radio - Recent Played Station		27	63	67	27:63:67	RCCS2706367	--	--	--	--	--	--	--	
Favorite Direct Play		Favorite Direct Play	27	63	62	27:63:62	RCCS2706362	--	--	--	--	--	--	--
	Network(DMP): Stop	27	64	62	27:64:62	RCCS2706462	X	X	X	X	X	X	--	
	Network(DMP): Pause	27	65	62	27:65:62	RCCS2706562	X	X	X	X	X	X	--	
	Network(DMP): Cursor Up	27	66	62	27:66:62	RCCS2706662	X	X	X	X	X	X	--	
	Network(DMP): Cursor Down	27	67	62	27:67:62	RCCS2706762	X	X	X	X	X	X	--	
	Network(DMP): Cursor Left	27	68	62	27:68:62	RCCS2706862	X	X	X	X	X	X	--	
	Network(DMP): Cursor Right	27	69	62	27:69:62	RCCS2706962	X	X	X	X	X	X	--	
	Network(DMP): Enter	27	67	62	27:67:62	RCCS2706762	--	--	--	--	--	--	--	
	Network(DMP): Page Previous	27	68	62	27:68:62	RCCS2706862	--	--	--	--	--	--	--	
	Network(DMP): Page Next	27	69	62	27:69:62	RCCS2706962	--	--	--	--	--	--	--	
	Network(DMP): Back(Return)	27	63	62	27:63:62	RCCS2706362	X(Return)	X(Return)	X(Return)	X(Return)	X(Return)	X(Return)	--	
	Network(DMP): HOME	27	64	64	27:64:64	RCCS2706464	--	--	--	--	--	--	--	
	2nd Zone (Main Zone B)	Power Control	16	93	00	16:93:00	RCCS1609300	--	--	--	--	--	--	--
		POWER ON	16	93	03	16:93:03	RCCS1609303	X	X	X	X	X	X	--
		POWER OFF	16	93	04	16:93:04	RCCS1609304	X	X	X	X	X	X	--
		VOL +	16	93	01	16:93:01	RCCS1609301	--	--	--	--	--	--	--
	Volume Control	VOL -	16	93	02	16:93:02	RCCS1609302	X	X	X	X	X	X	--
Direct VOLUME		16	93	00	16:93:00	RCCS1609300	--	--	--	--	--	--	--	
MUTE (Toggle)		16	93	08	16:93:08	RCCS1609308	--	--	--	--	--	--	--	
Input Source		16	92	03	16:92:03	RCCS1609203	X	X	X	X	X	X	--	
Input Source	INPUT NEXT	16	92	03	16:92:03	RCCS1609203	--	--	--	--	--	--	--	
	INPUT BACK	16	92	04	16:92:04	RCCS1609204	X	X	X	X	X	X	--	
	Sources Call	16	92	10	16:92:10	RCCS1609210	X	X	X	X	X	X	--	
	CD	16	92	11	16:92:11	RCCS1609211	--	--	--	--	--	--	--	

DISASSEMBLY

Flowchart

1. FRONT ASSY
2. RADIATOR ASSY
3. REAR PANEL
4. DIGITAL PCB
5. VIDEO PCB
6. INPUT PCB
7. XLR PCB
8. SMPS PCB
9. TRANS

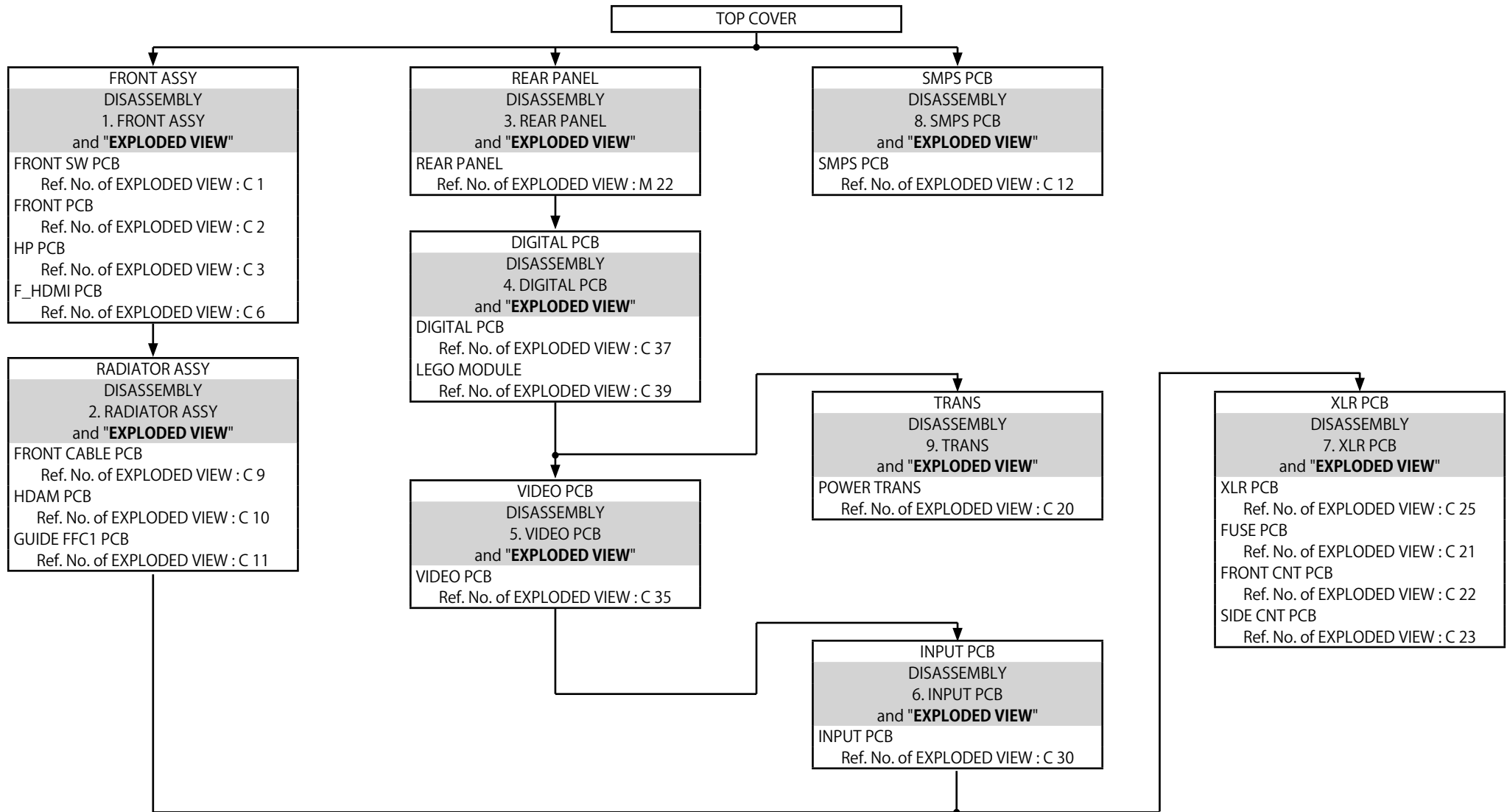
EXPLODED VIEW

PACKAGING 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](#)"

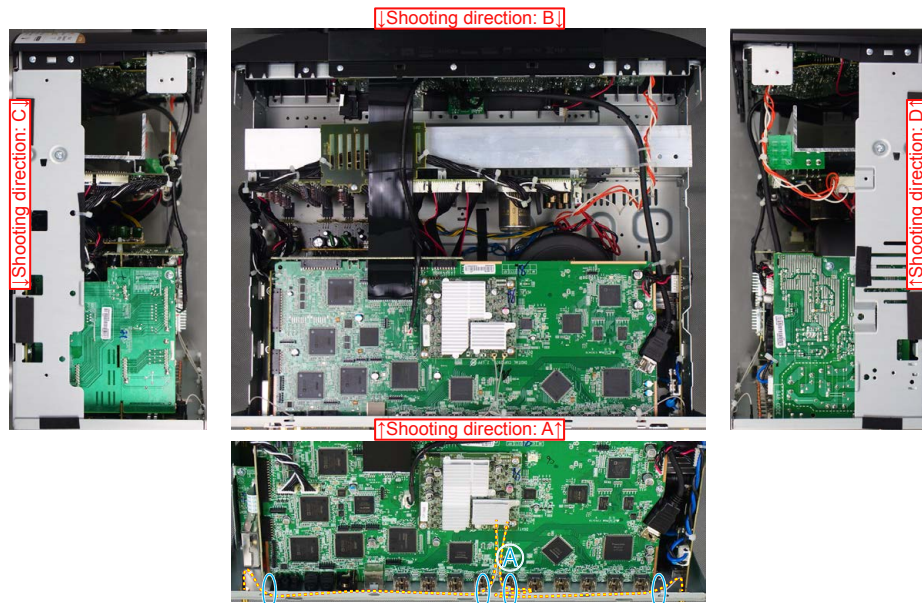


Explanatory Photos for DISASSEMBLY

- 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 AV7705 U are used in this manual.

The viewpoint of each photograph

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

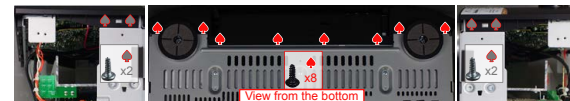


Caution : Turn up and spare wire at position ① .

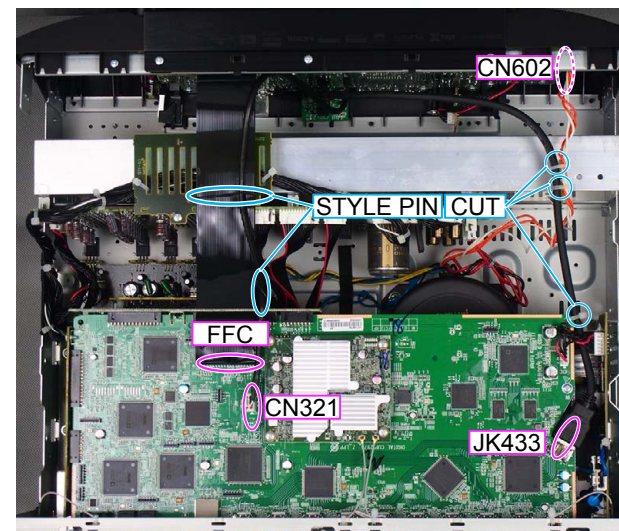
1. FRONT ASSY

Proceeding : TOP COVER → FRONT ASSY

- (1) Remove the screws.



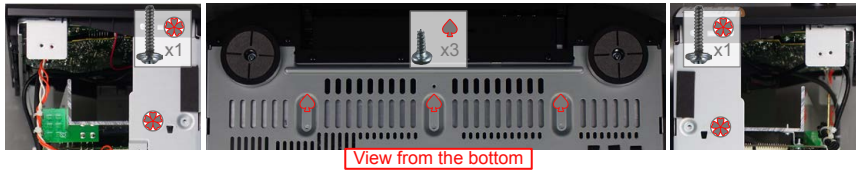
- (2) Remove the STYLE PINs and connectors. Remove the FFC.
Cut the wire clamps.



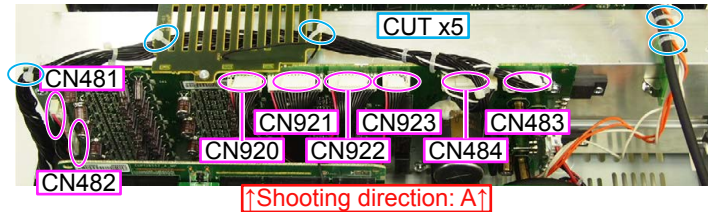
2. RADIATOR ASSY

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

- (1) Remove the screws.



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



3. REAR PANEL

Proceeding : **TOP COVER** → **REAR PANEL**

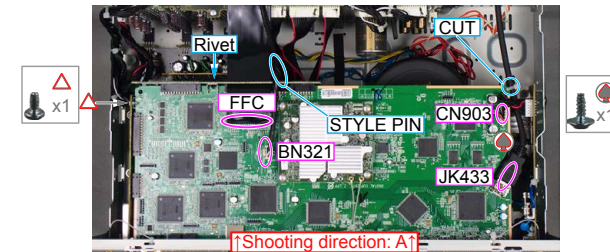
- (1) Remove the screws.



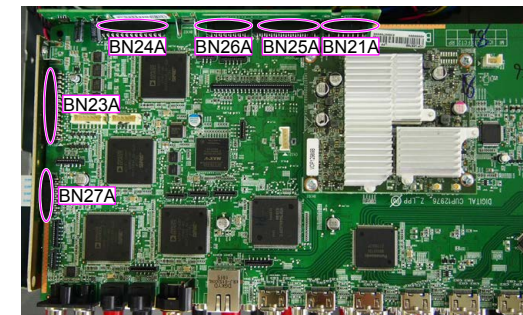
4. DIGITAL PCB

Proceeding : **TOP COVER** → **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.



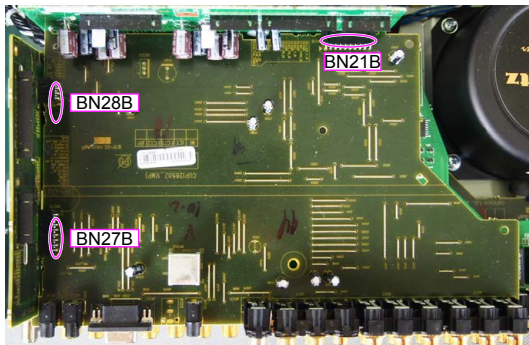
- (2) Remove the connector.



5. VIDEO PCB

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

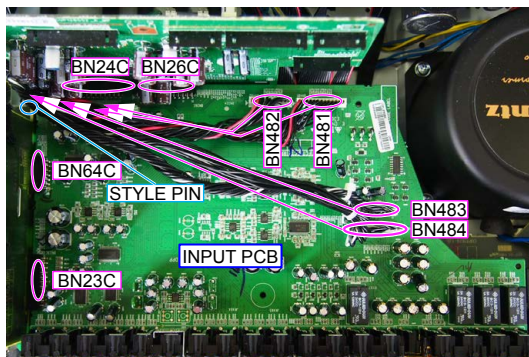
(1) Remove the connector.



6. INPUT PCB

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

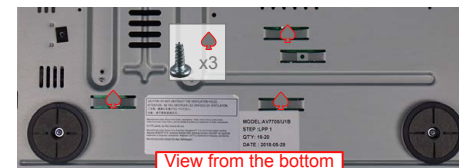
(1) Remove the connector. Remove the STYLE PIN.



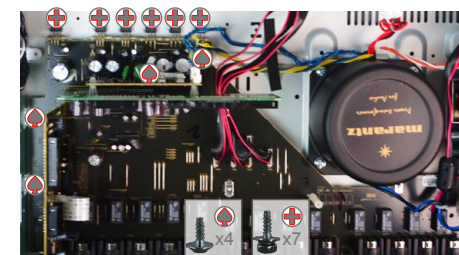
7. XLR PCB

Proceeding : **TOP COVER** → **FRONT ASSY** → **RADIATOR ASSY**
→ **REAR PANEL** → **DIGITAL PCB** → **VIDEO PCB** → **INPUT PCB**
→ **XLR PCB**

(1) Remove the screws.



(2) Remove the screws.



8. SMPS PCB

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

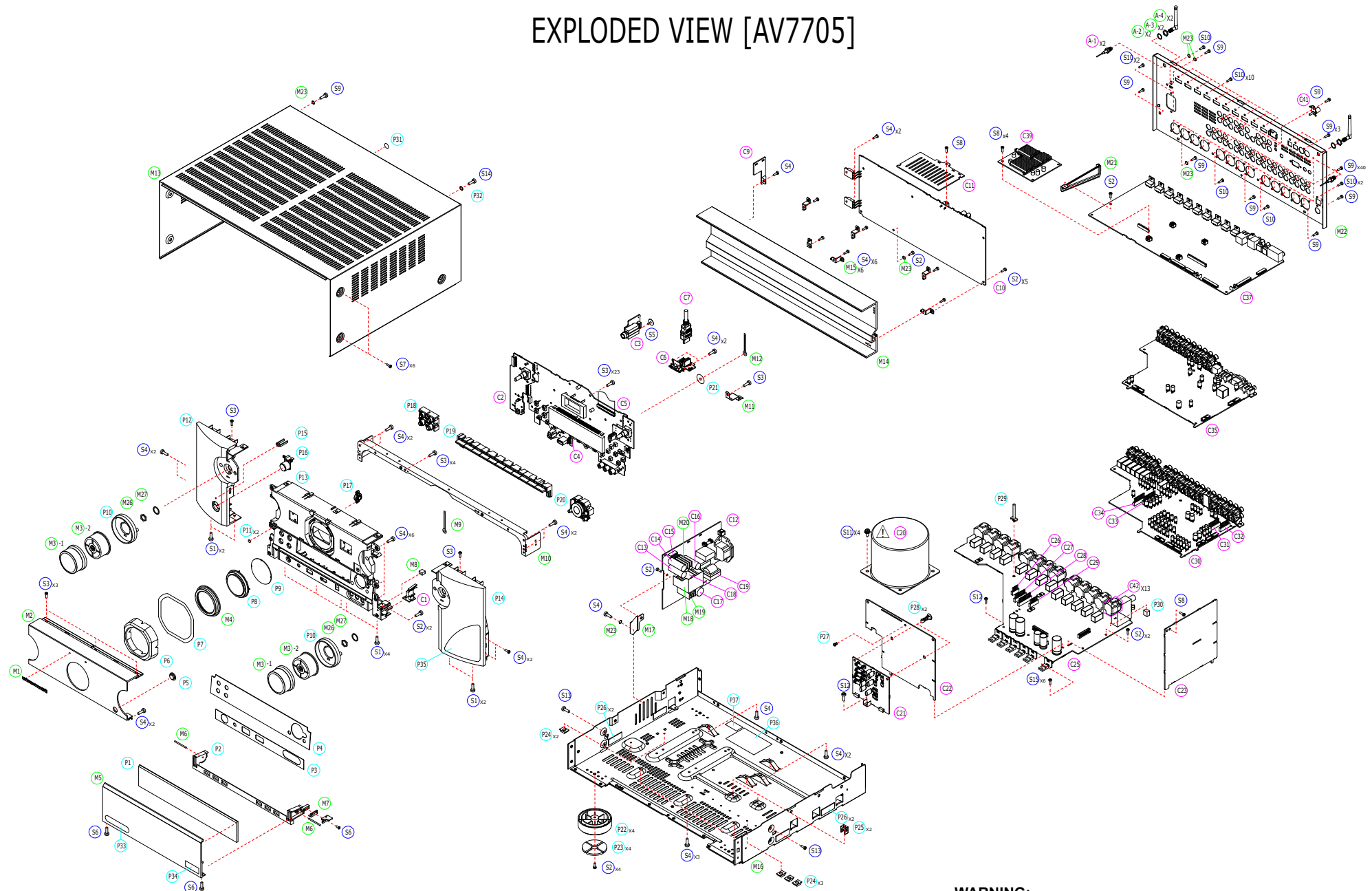
See "EXPLODED VIEW" for instructions on removing the SMPS PCB.

9. TRANS

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

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

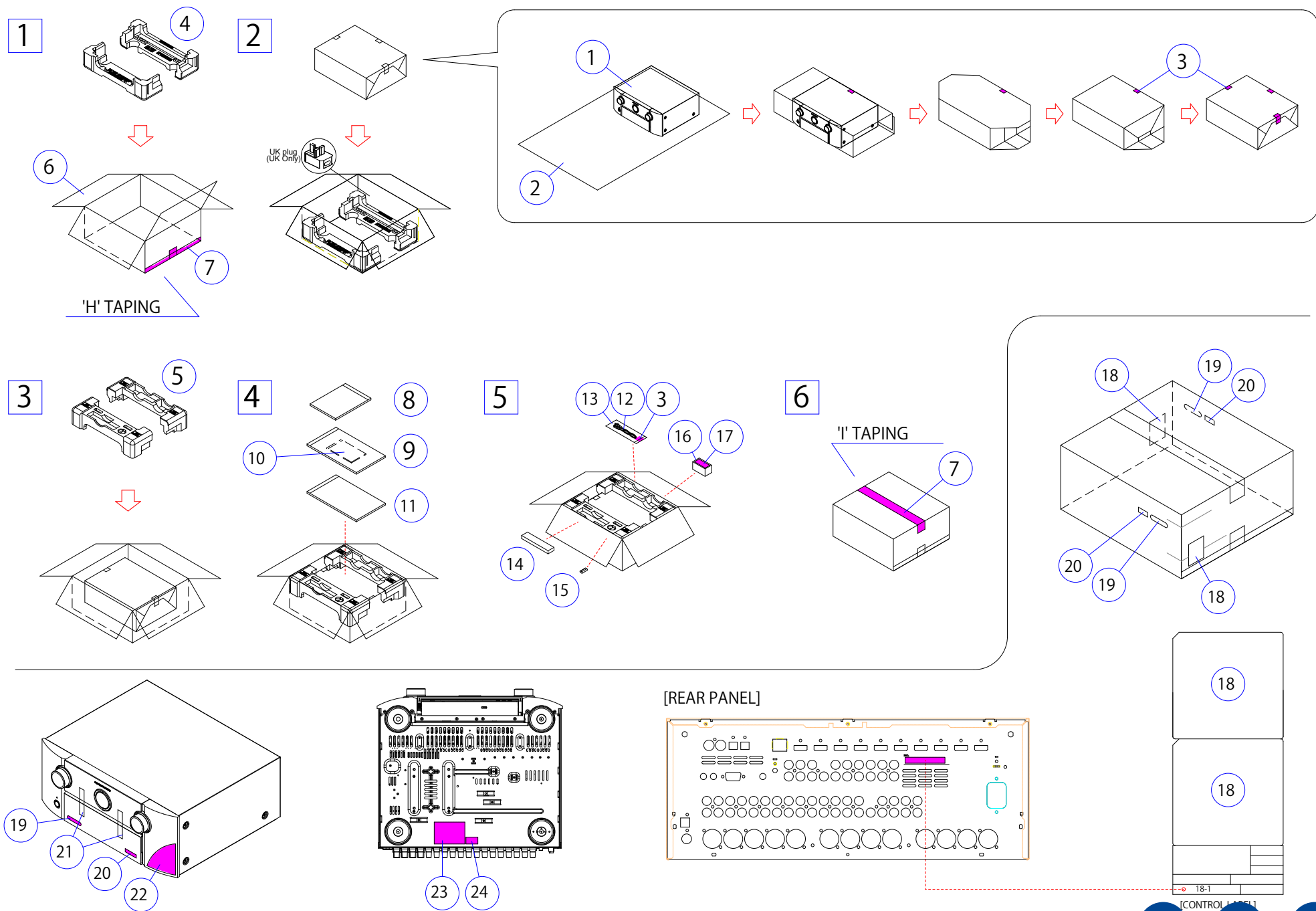
EXPLODED VIEW [AV7705]



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

PACKAGING VIEW

Parts List : <http://dmedia.dmgglobal.com/Document/DocumentDetails/24927>



Before Servicing
This Unit

Electrical

Mechanical

Repair Information

Updating



REPAIR INFORMATION

TROUBLE SHOOTING

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

AUDIO CHECK PATH

HDMI "Rx/Tx" Failure Detection

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

CLOCK FLOW & WAVE FORM IN DIGITAL BLOCK

SPECIAL MODE

Special mode setting button

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

DIAGNOSTIC MODE

Service Path Check Mode

DIAGNOSTIC PATH DIAGRAM

JIG FOR SERVICING

Before Servicing
This Unit

Electrical

Mechanical

Repair Information

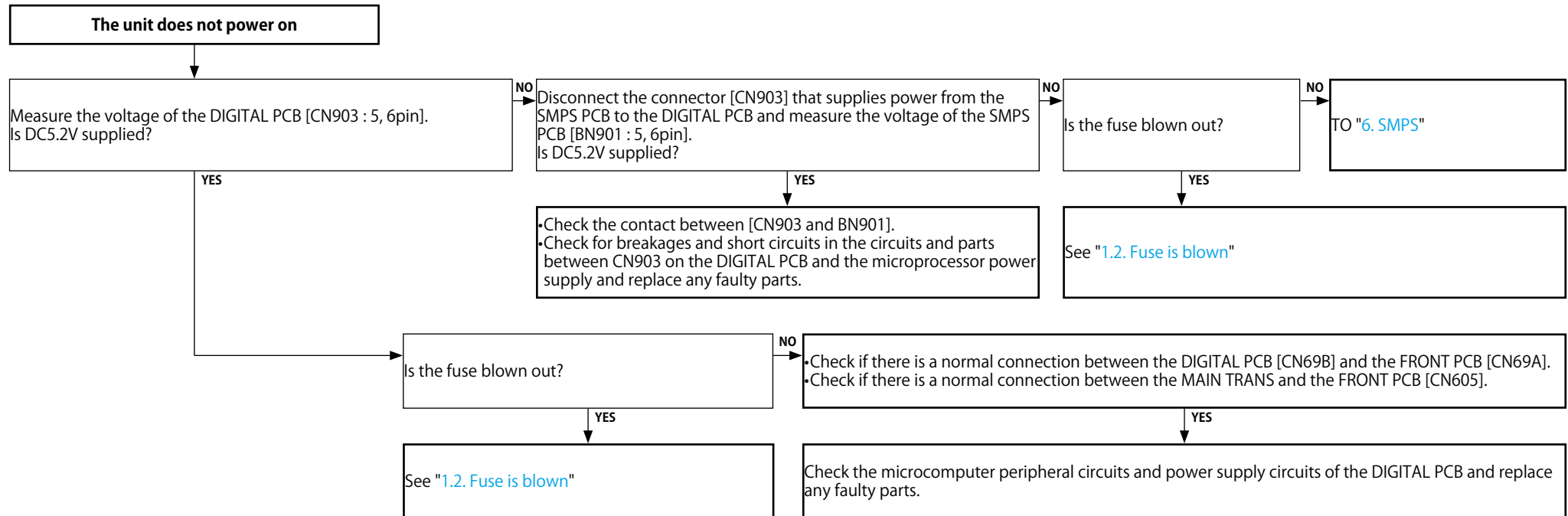
Updating



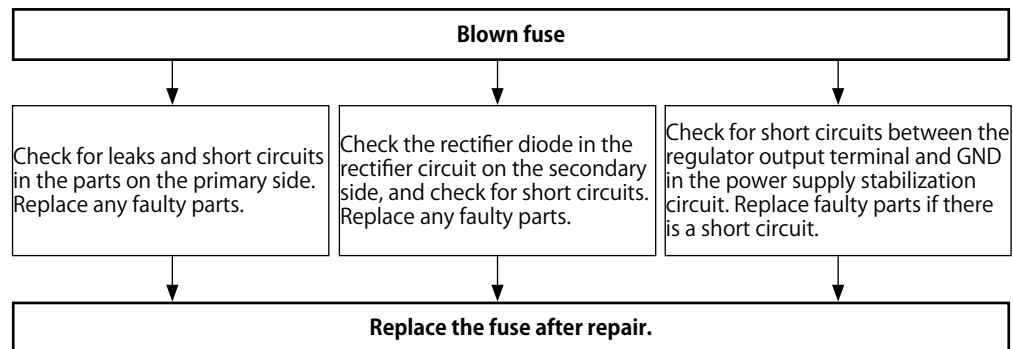
TROUBLE SHOOTING

1. POWER

1.1. The unit does not power on



1.2. Fuse is blown



2. Analog video

Perform the operation below beforehand.

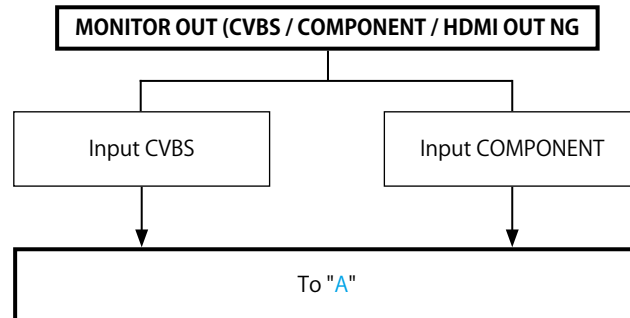
※ Check it whether connection cable and Monitor are normal.

※ VIDEO Convert is set to ON.

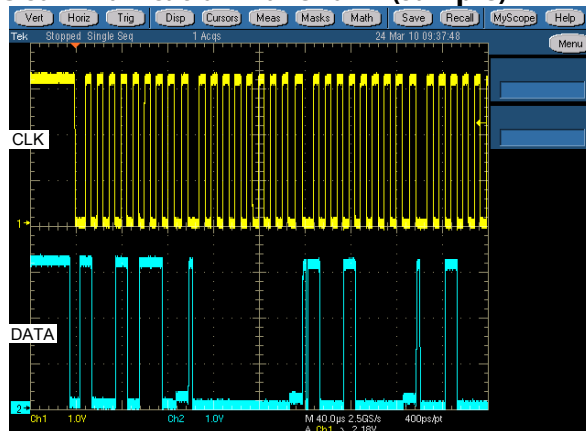
※ Setting as follows.

V : SAT

COMPONENT : DVD



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 : [R3526]
COMPONENT-Y : [R3527]
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"

B

VIDEO PCB faulty.

Extend the DIGITAL PCB using the jig.

YES

Check the I2C signal and power supply of the video selector IC.

VIDEO PCB [IC511]
V+3.3V : [J5043]
V-5V : [J5042]
I2C(SCL) : [J5046]
I2C(SDA) : [J5047]

NO

Power supply IC [IC513] faulty.
SIDE CNT PCB [BN28B] faulty.
Video selector IC [IC511] faulty.

YES

Check the input signal of the video selector IC.

VIDEO PCB [IC511]
V : [C5107]
COMPONENT-Y : [J5010]
COMPONENT-Cb : [J5007]
COMPONENT-Cr : [J5006]

NO

[IC511] part is faulty.

YES

Check the output signal of the video selector IC.

VIDEO PCB [IC511] to MONITOR to DIGITAL PCB
V : [J5019, BN21B : 17pin]
COMPONENT-Y : [J5016, BN21B : 15pin]
COMPONENT-Cb : [J5028, BN21B : 13pin]
COMPONENT-Cr : [J5029, BN21B : 11pin]

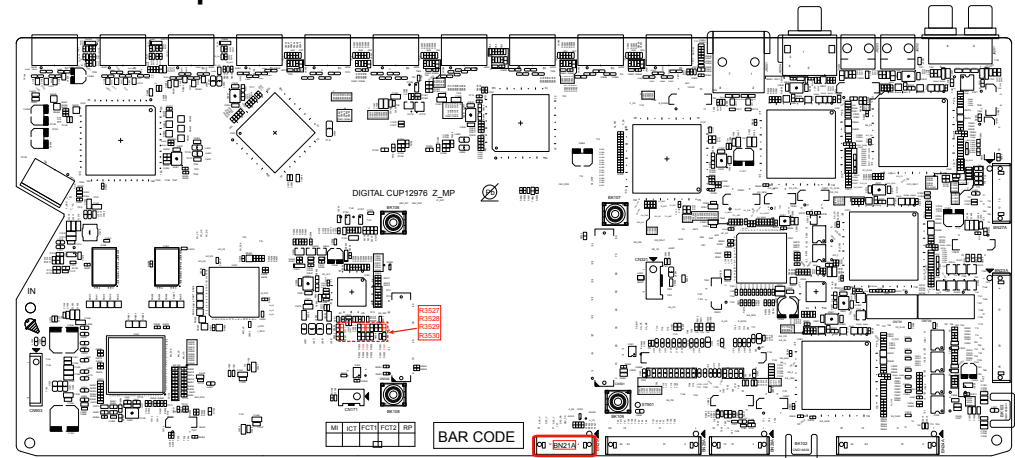
NO

IC511 soldering problem or [IC511] is faulty.

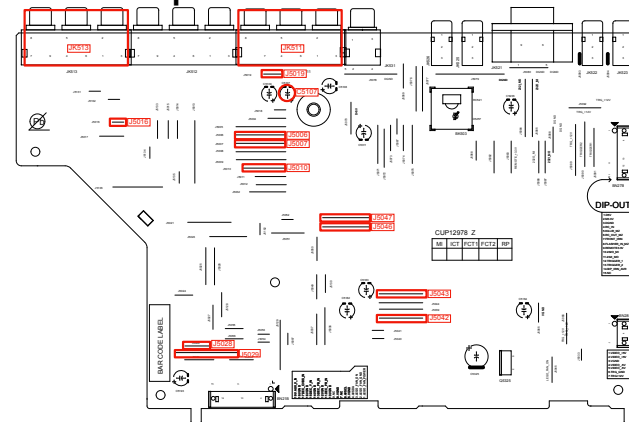
YES

- **MONITOR OUT**
Output connector [JK511 or JK513] or pattern fault
- **HDMI OUT**
FRONT CNT PCB [BN21B] connection is faulty or FRONT CNT PCB pattern is faulty.

DIGITAL test point

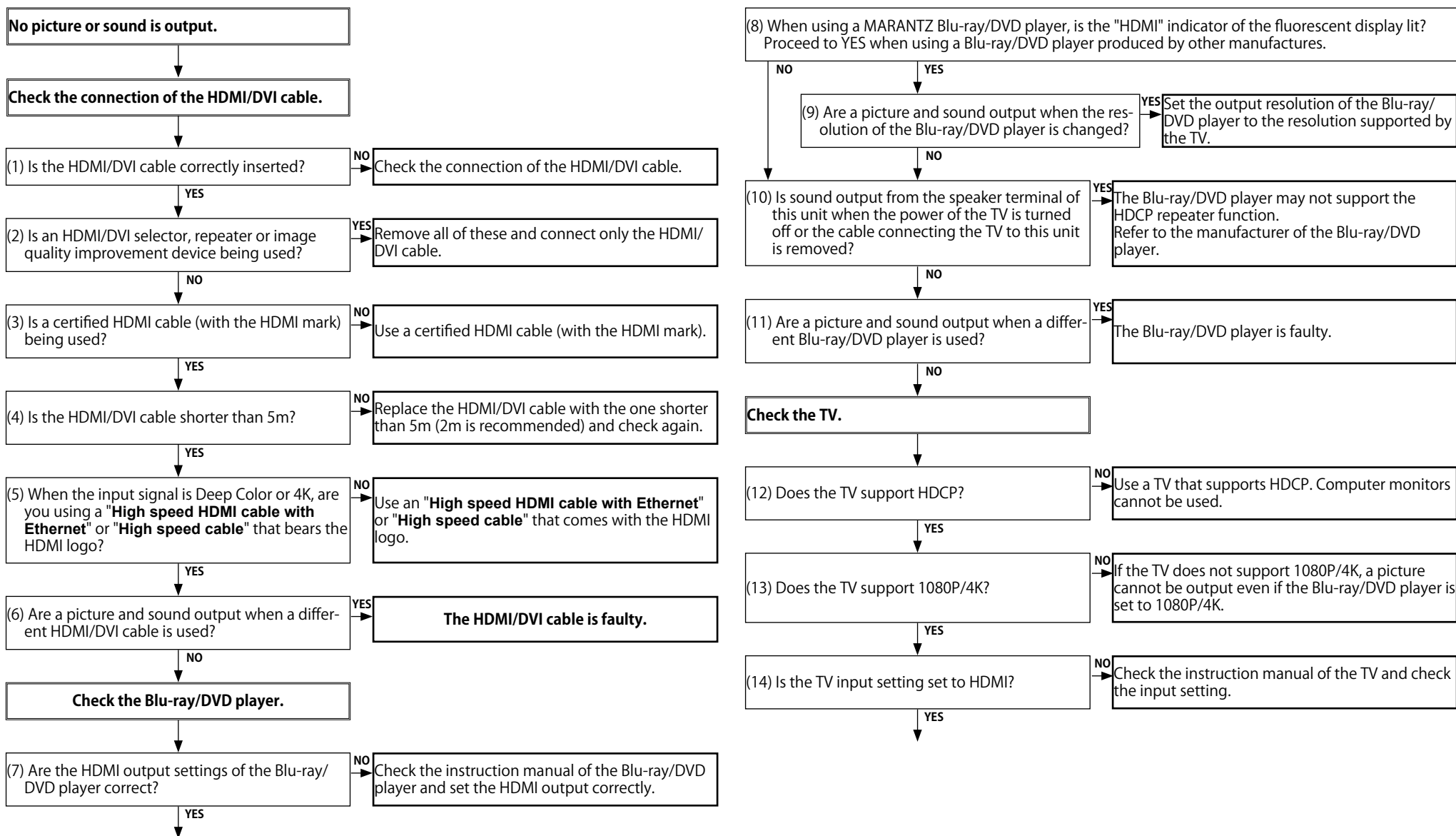


VIDEO test point



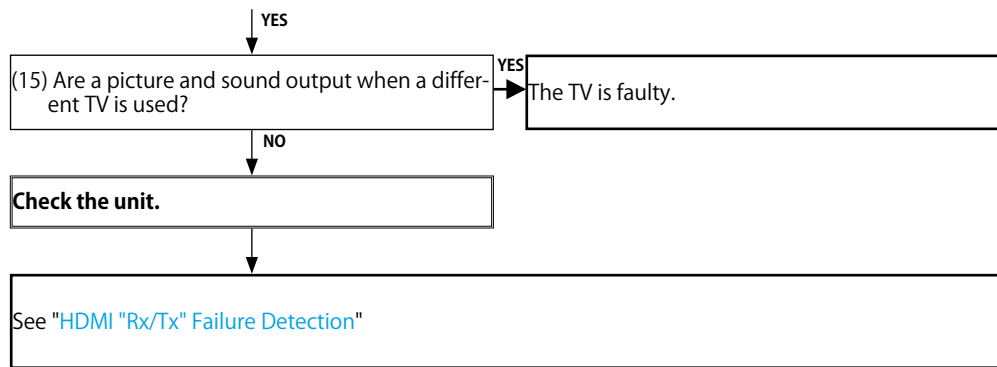
3. HDMI/DVI

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



Go to next page.

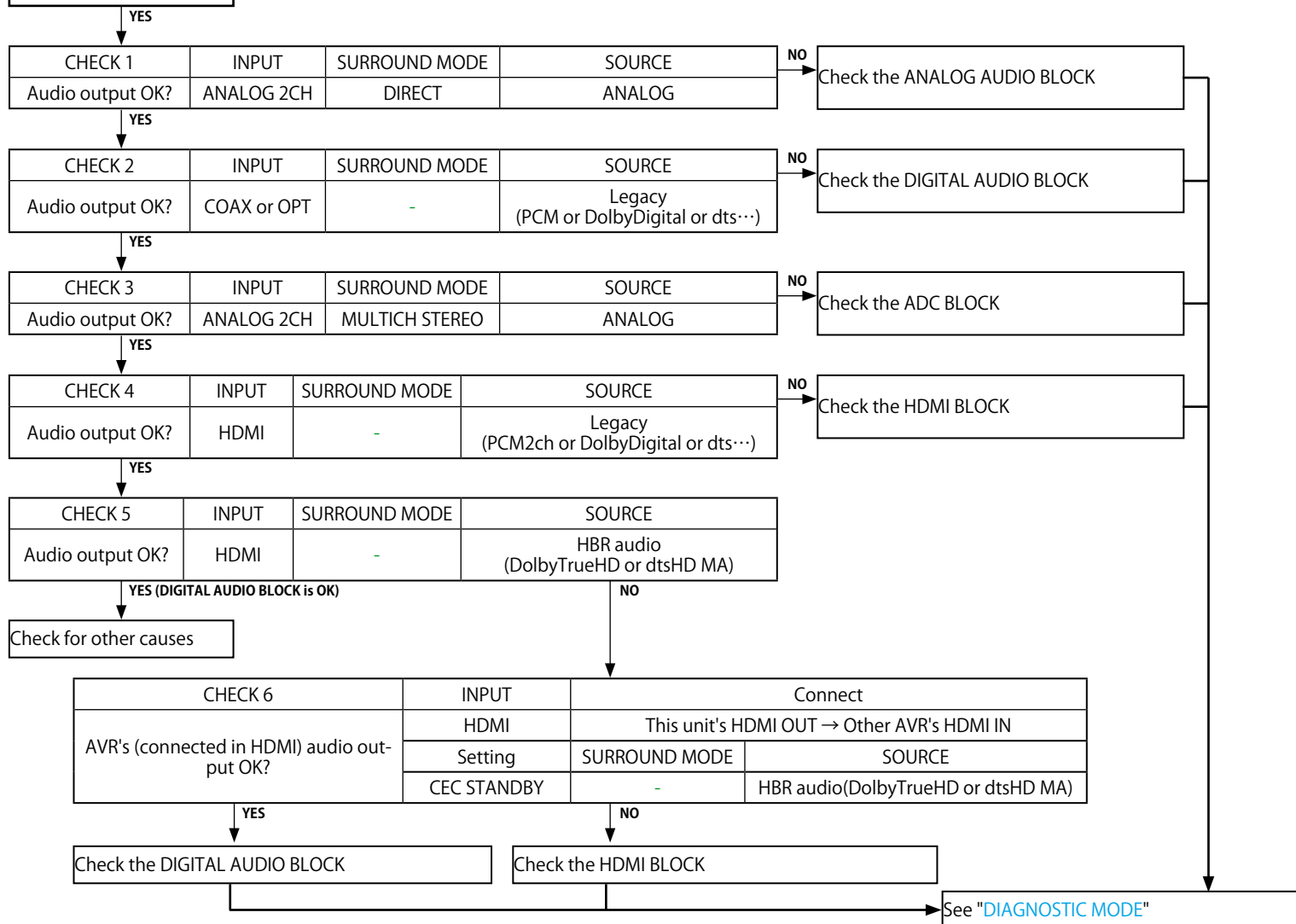




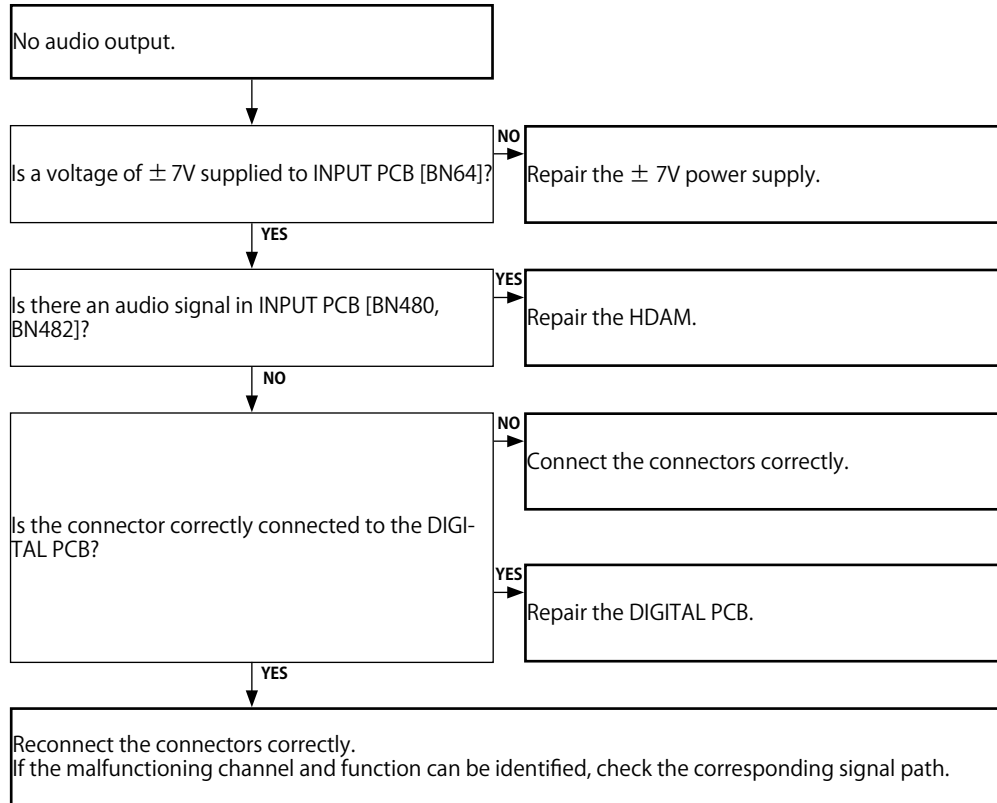
4. AUDIO

4.1. AUDIO CHECK

No audio output

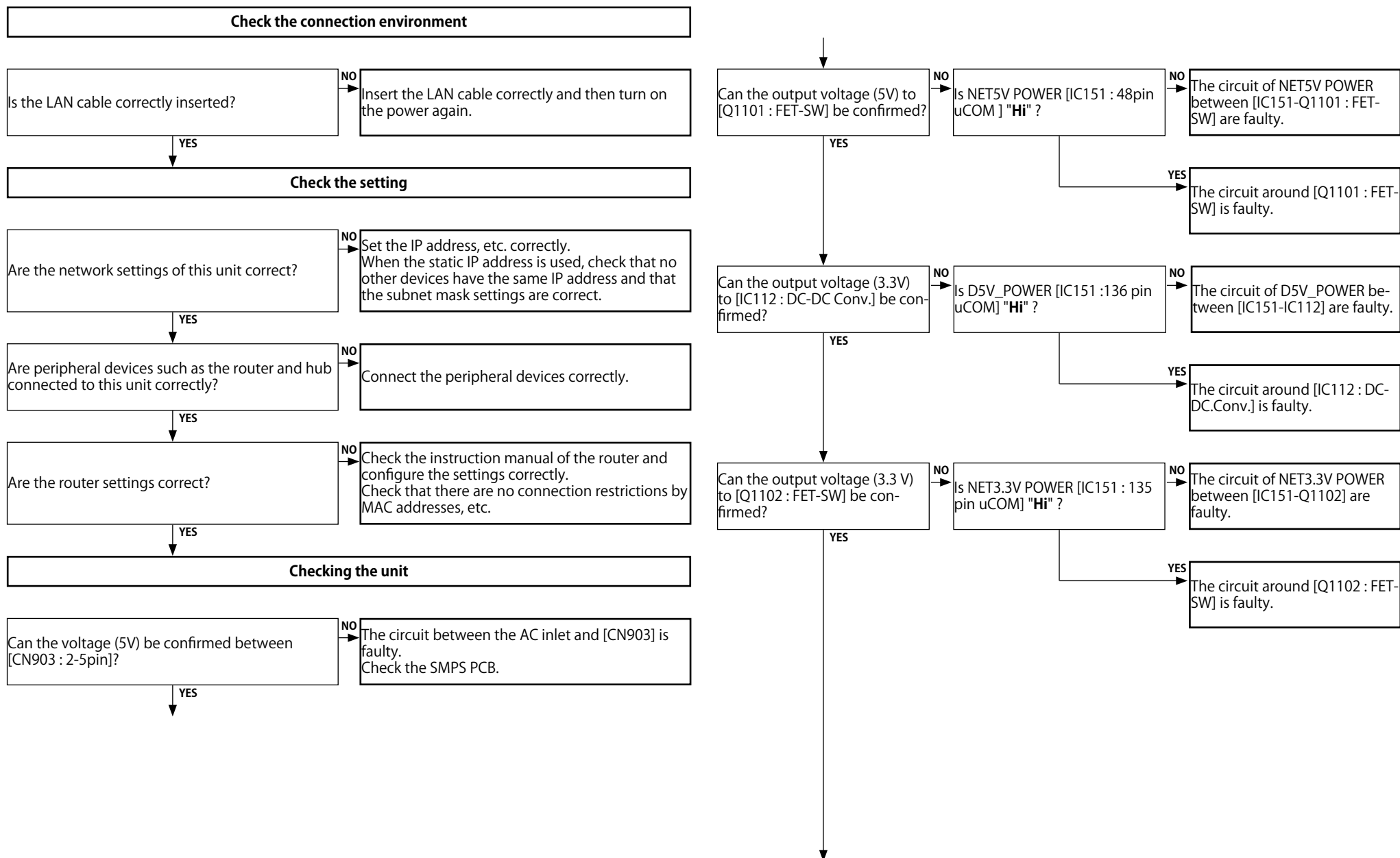


4.2. Analog audio



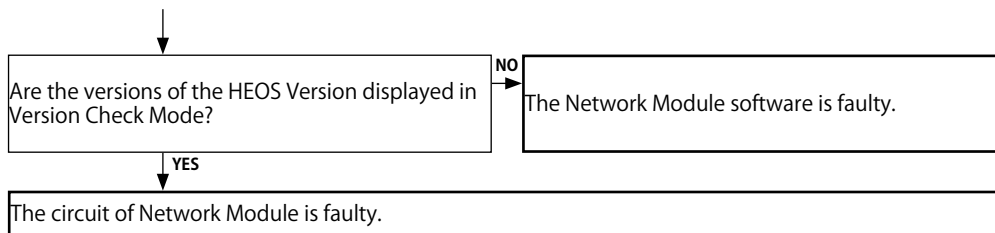
5. Network / Bluetooth / USB

5.1. Cannot connect to the network

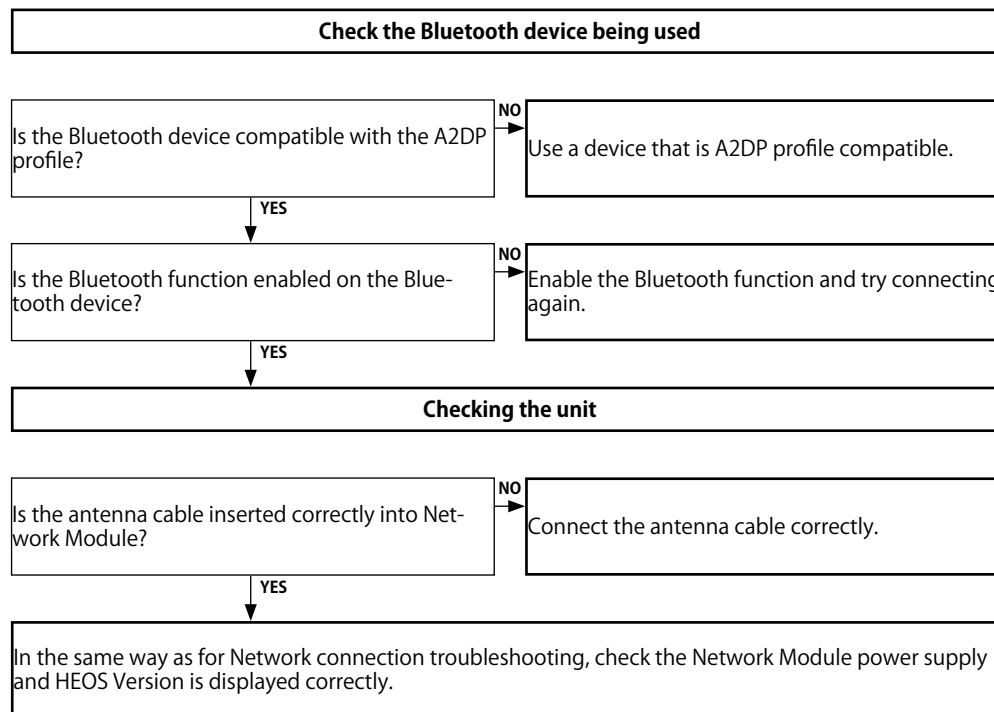


Go to next page.

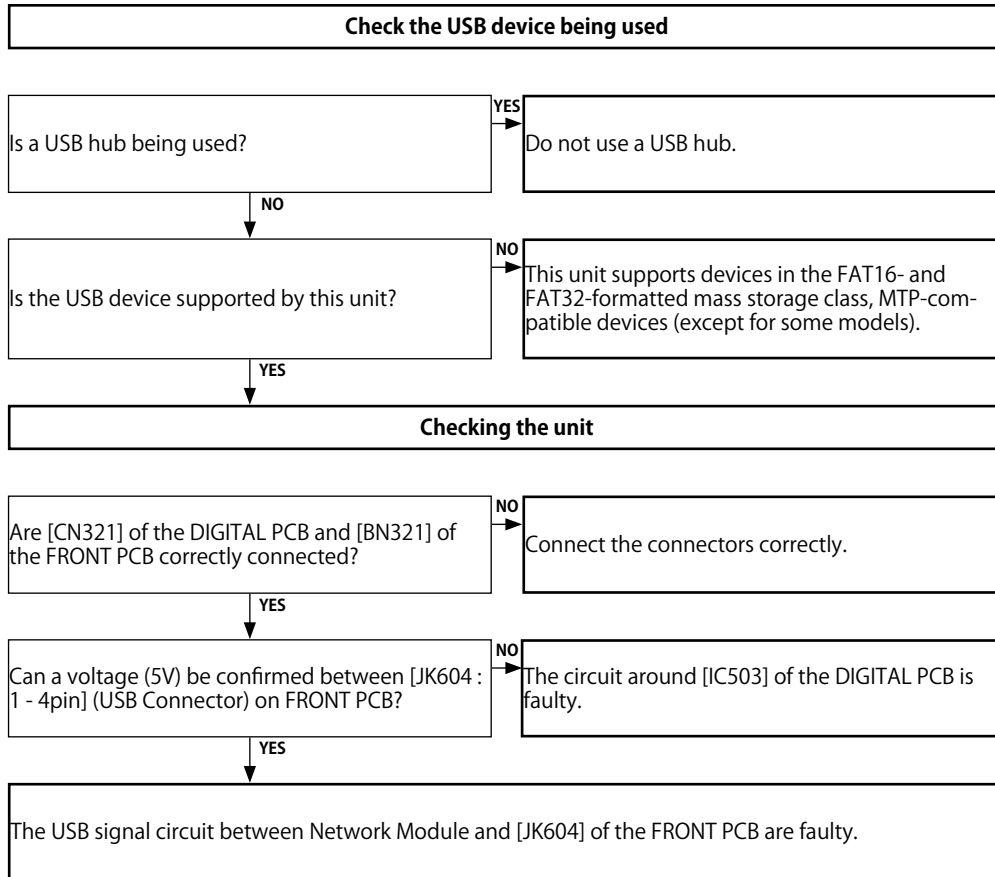




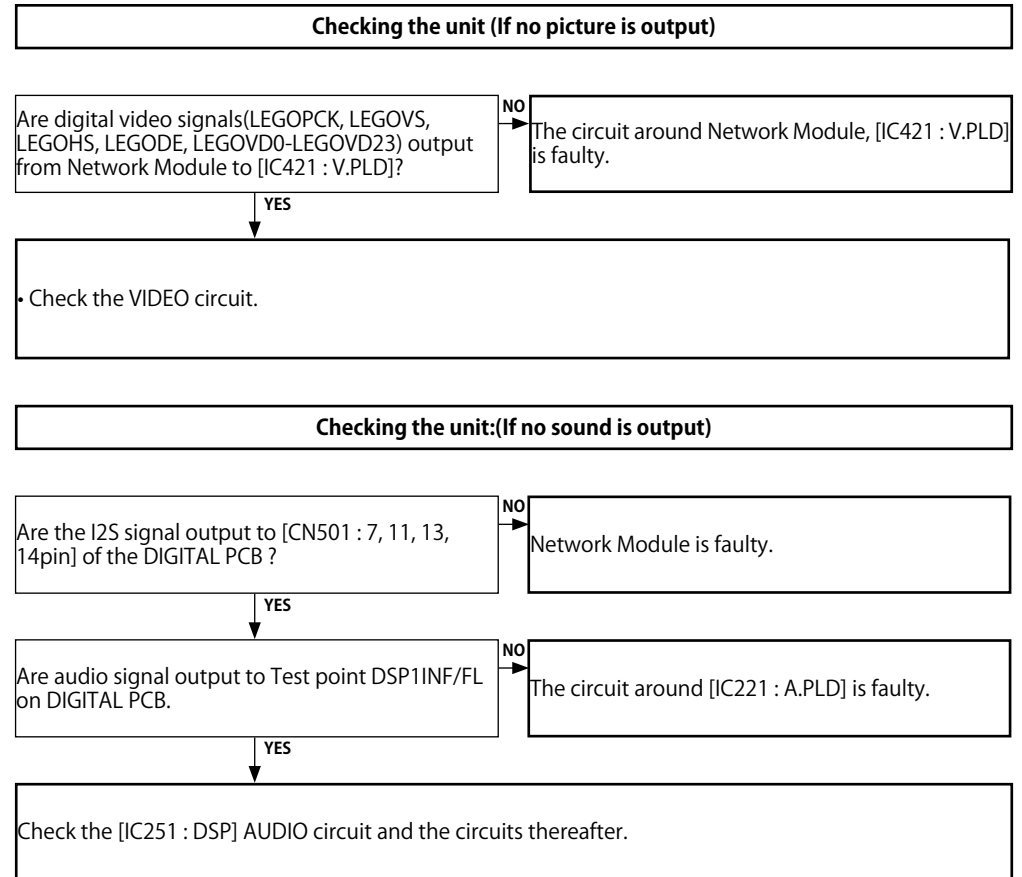
5.2. Cannot establish a Bluetooth connection



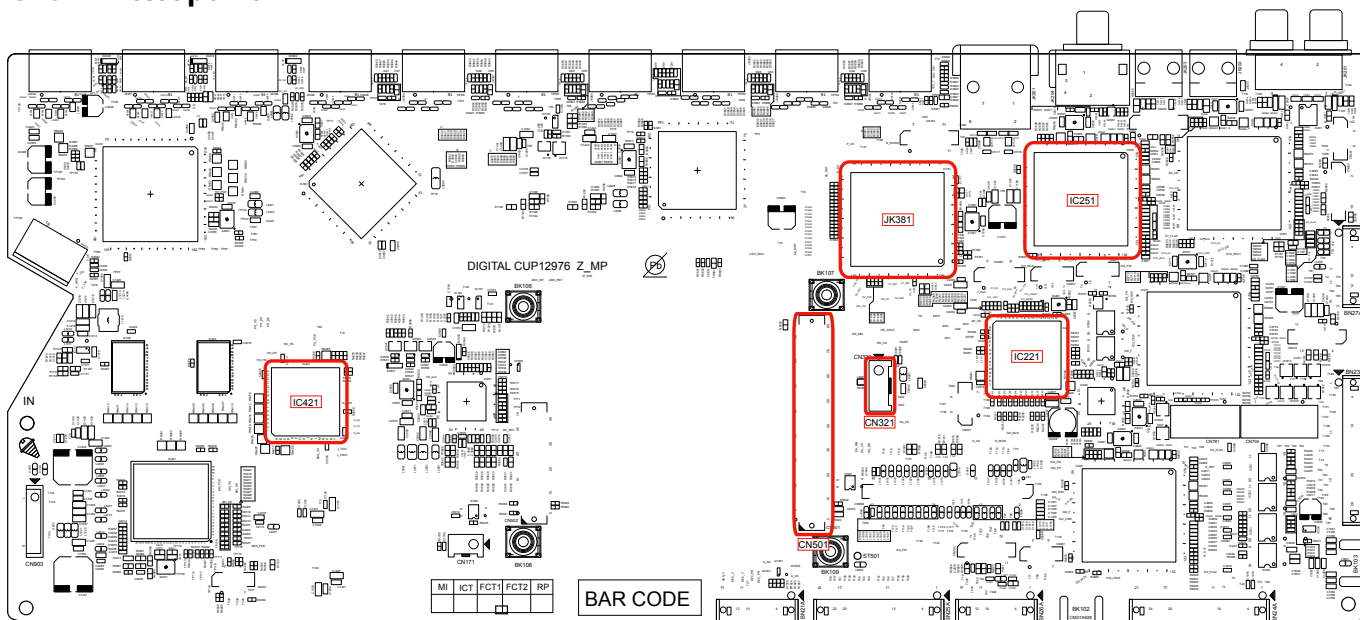
5.3. Cannot recognize the connected USB device



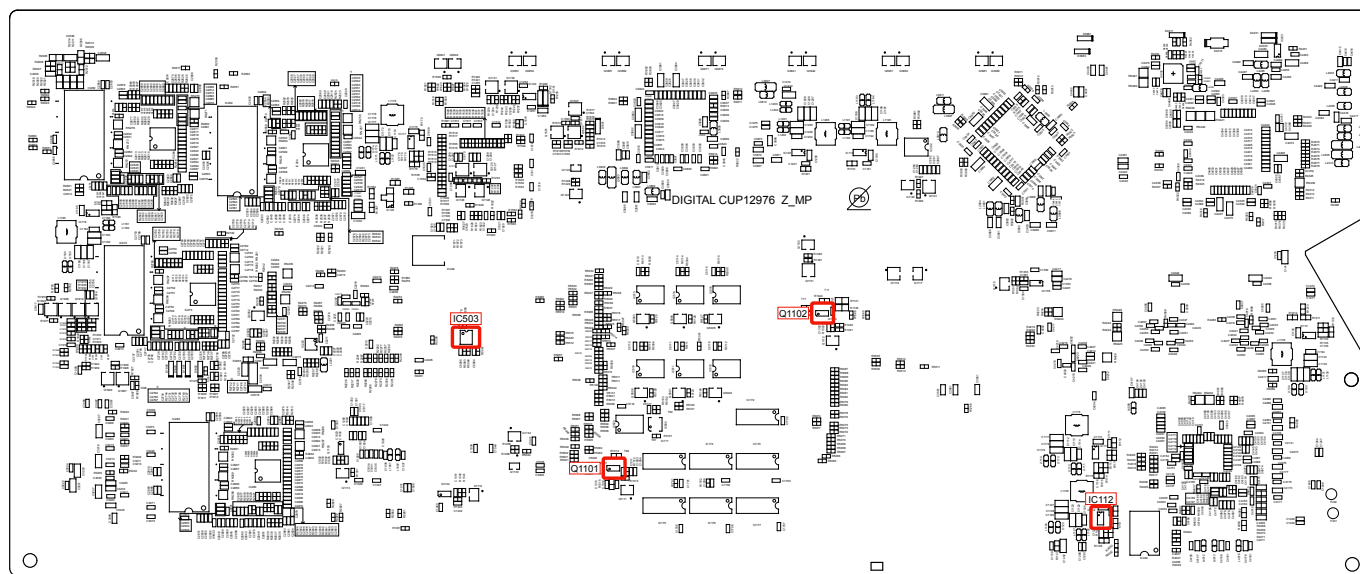
5.4. No picture or sound is output



DIGITAL test point

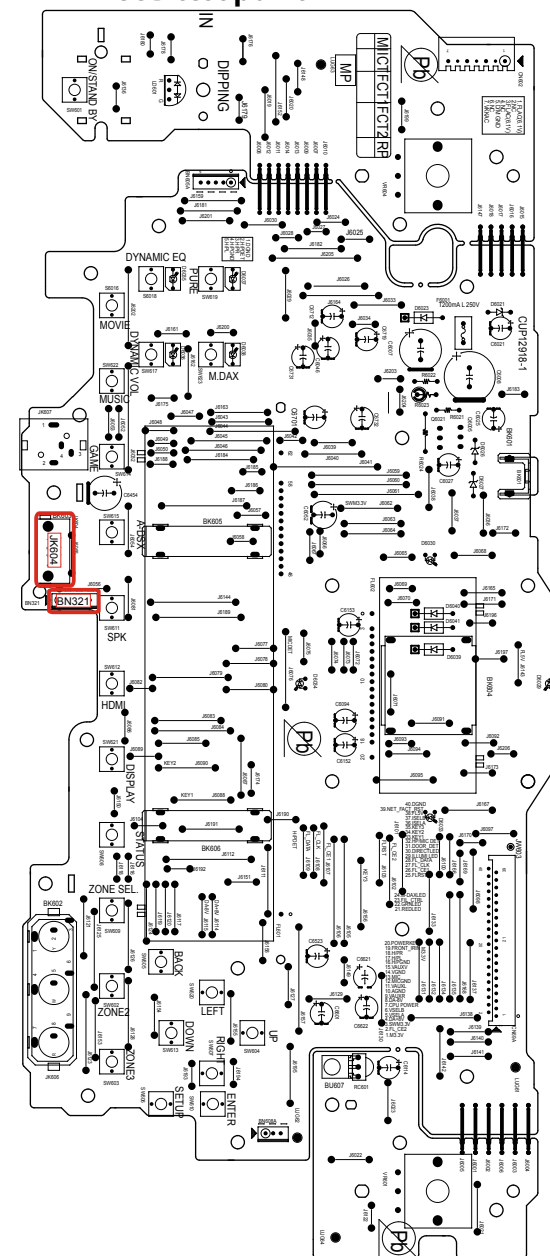


(A SIDE)



(B SIDE)

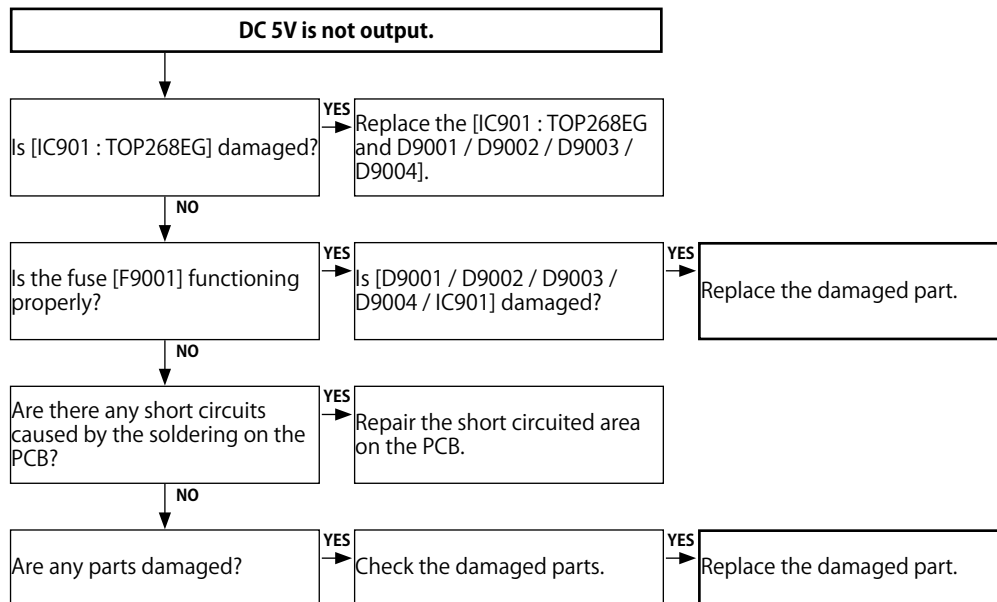
USB test point



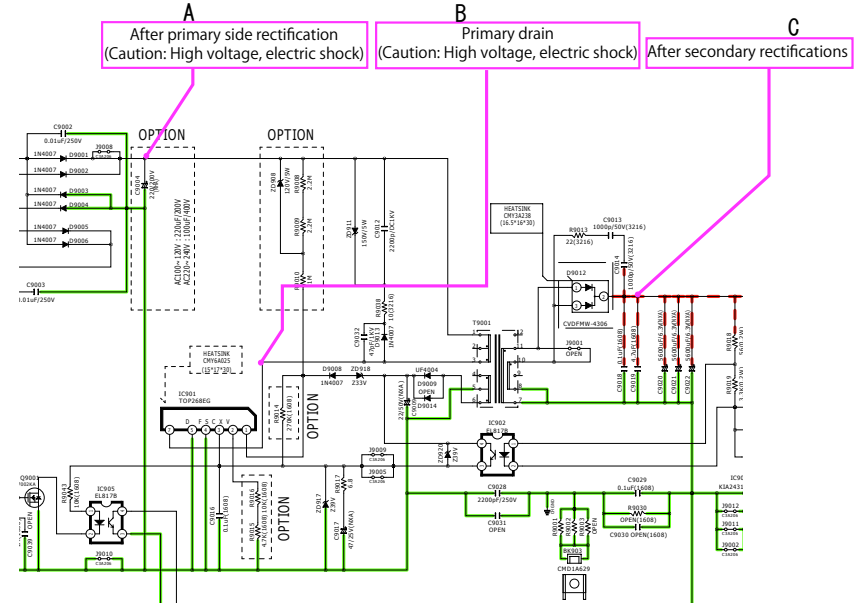
(A SIDE)



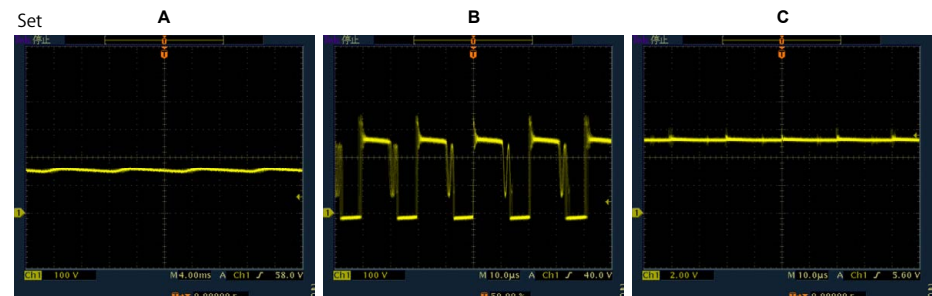
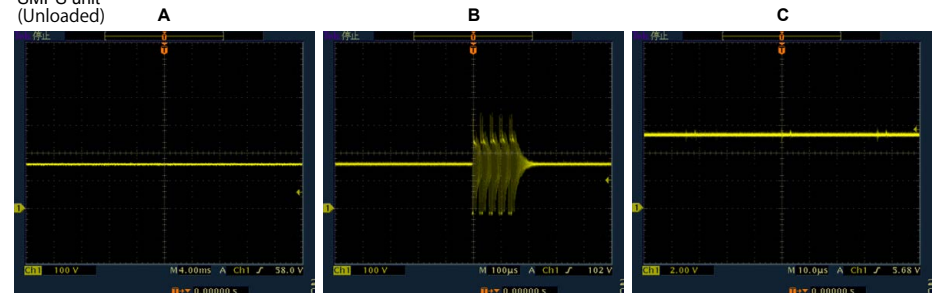
6. SMPS

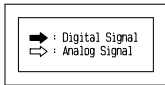


Operation waveform for each part

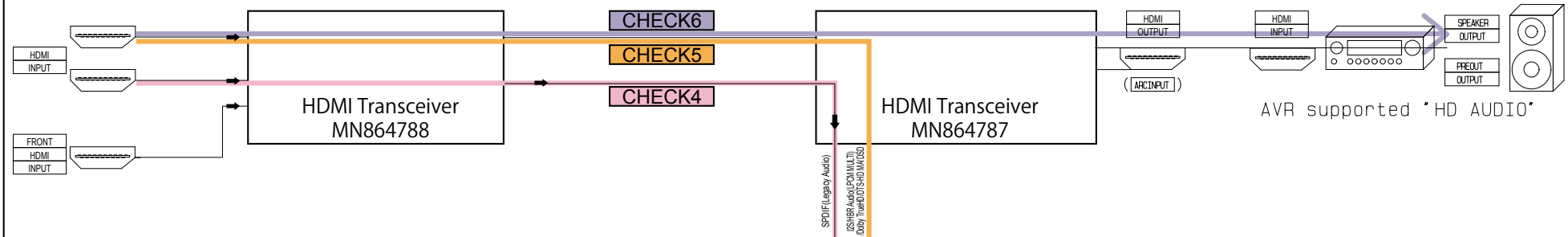


SMPS unit (Unloaded)

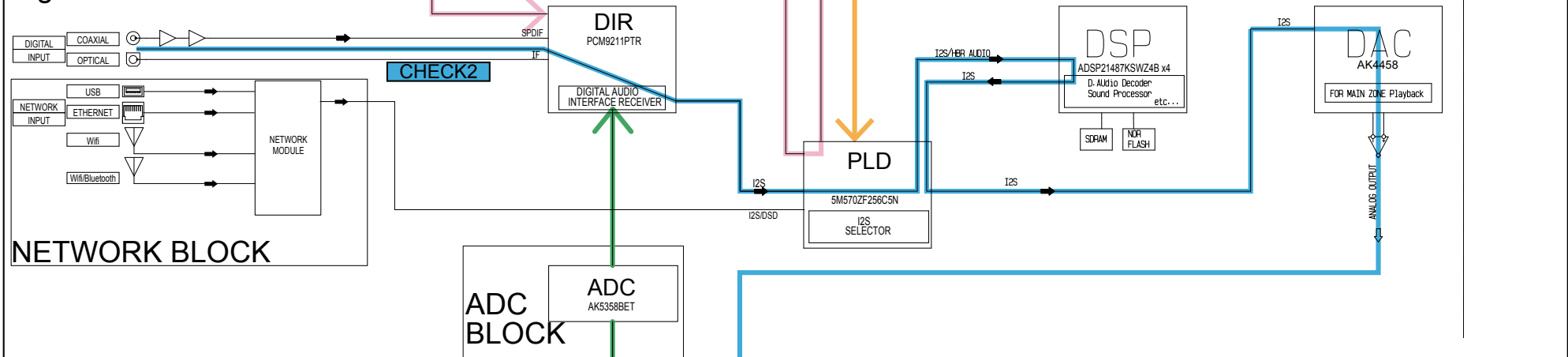




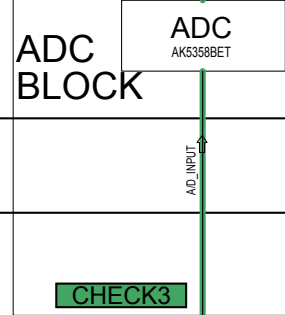
HDMI BLOCK



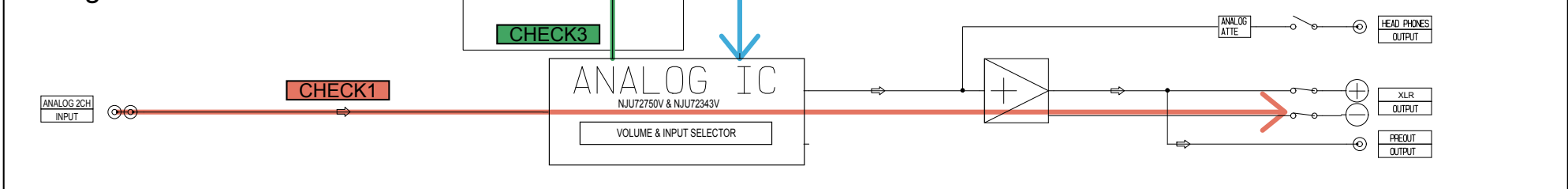
Digital audio BLOCK



NETWORK BLOCK

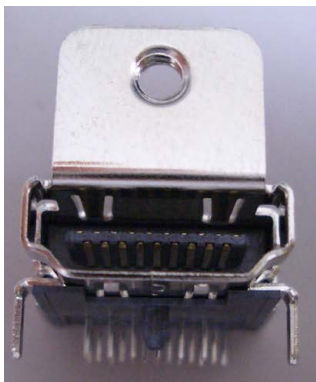


Analog audio BLOCK



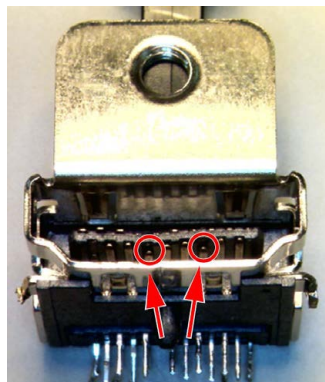
1. Prior checking

Check item(1). 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.

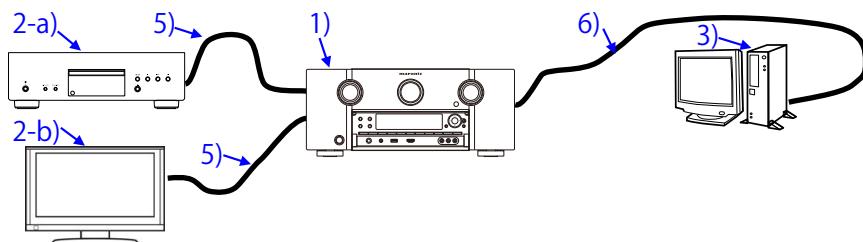


Figure 1. Device Connection Method

2-3. Device configuration method

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

After executing Termite.exe, click [Settings].

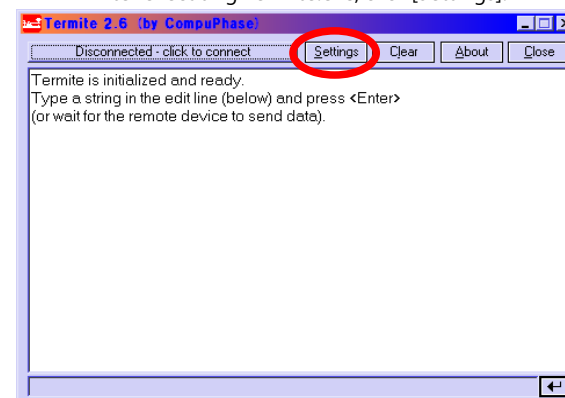


Figure 2. Screen After Executing Termite.exe

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

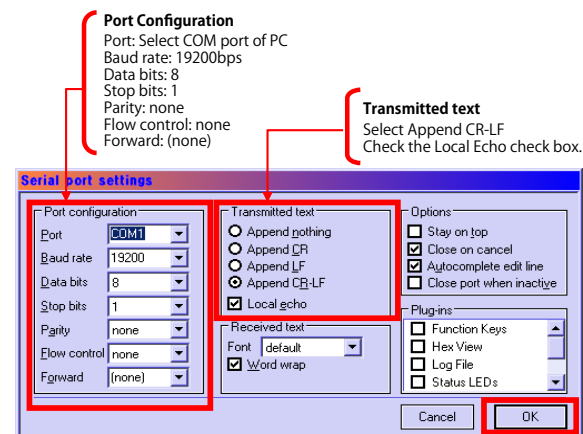


Figure 3. Serial Port Setup Screen

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.

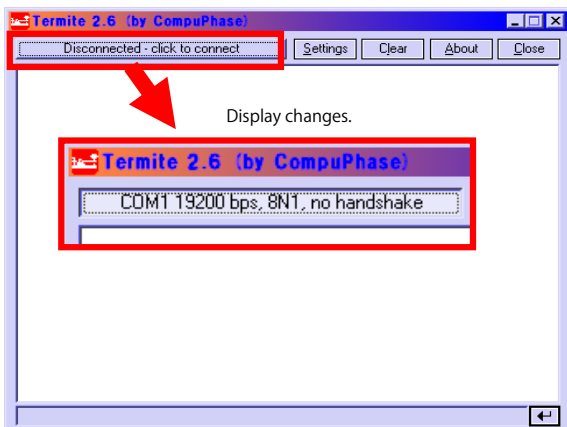


Figure 4. Change of the Display of the Communication Start Button Name

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.

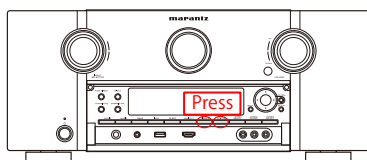


Figure 6. AVR settings



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.)

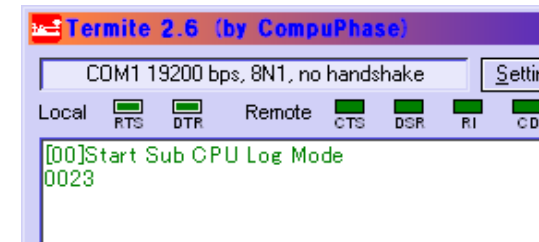


Figure 7. Display of Termite When AVR is Set

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.

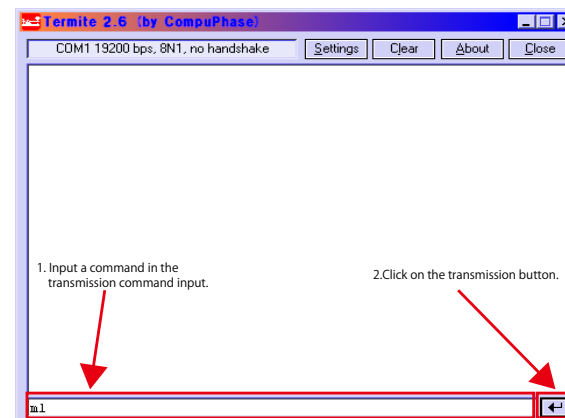


Figure 8. Method for Sending Termite Commands

3. Starting detecting the point of failure

Check item(3.1.).

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

Start in HDMI Diagnostics mode

While the power is on, hold down buttons "**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...



Display when an Error is detected.

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 (3-1.1.)	Communication Error with HDMI Tx [IC431 : MN864787]
H1-02	Check item (3-2.1.)	Communication Error with HDMI SW1 [IC391 : MN864788]
H1-03	Check item (3-3.1.)	Communication Error with HDMI SW2 [IC381 : MN864788]
H1-05	Check item (3-7.1.)	Communication Error with VIDEO DECODER [IC351 : ADV7180]
H1-06	Check item (3-4.1.)	Communication Error with GUI IC [IC401 : ADV8003]
H1-08	Check item (3-8.1.)	Communication Error with DSP1 [IC251 : ADSP21487]
H1-09	Check item (3-9.1.)	Communication Error with DSP2 [IC261 : ADSP21487]
H1-10	Check item (3-10.1.)	Communication Error with DSP3 [IC271 : ADSP21487]
H1-11	Check item (3-11.1.)	Communication Error with DSP4 [IC281 : ADSP21487]
H1-12	Check item (3-12.1.)	Communication Error with DIR [IC202 : PCM9211]
H1-14	Check item (3-5.1.)	DDR check Error [IC402, IC403 : A3R12E40DBF-8E]
H1-15	Check item (3-6.1.)	Communication Error with GUI ROM [IC404 : MX25L12835FMI-10G]
H1-16	Check item (3-13.1.)	Communication Error with ARC IC [IC432 : Sil9437]

Display when an Error is not detected.

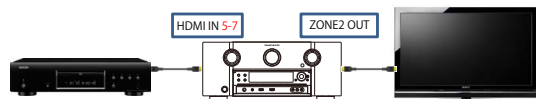
L1	HDMI DIAGNOSTICS
L2	1 Auto Test

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

Canceling the selected mode

Press the power button to exit off the power.

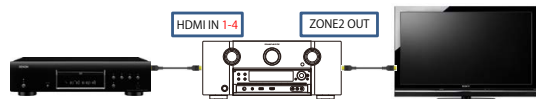
Check item(3.2.). : Does a video signal come from HDMI ZONE2 OUT to TV correctly?



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



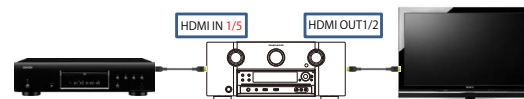
When the HDMI input terminal (HDMI 1, 2, 3, 4) are connected in order to the player, are the audio and video from the player played back on the TV correctly in each case?

YES

NO
Go to [check item \(3-14.1.\)](#)
(Switcher1 failure detection procedure)

NO
Go to [check item \(3-15.1.\)](#)
(Switcher2 failure detection procedure)

Check item(3.4.). Does a video signal come from HDMI OUT to TV correctly?



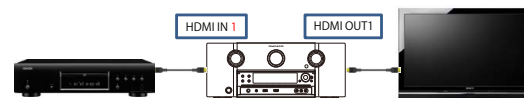
Turn Video Conversion "**OFF**" on the setup menu.
(SETUP MENU-> Video-> Output Settings-> Video Conversion = Off)
When the player is connected in order to the HDMI input terminals (HDMI 1, 5), in each case is the player video played back on the TV connected to the HDMI output terminal (HDMI OUT 1,2)?

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/DTSHD MA/PCM 8ch for the playback audio format.

YES

Check item(3.5.). 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 HDMI input terminal (HDMI 1) is connected to the player, the video from the player will be played back on the TV?

YES

There are no problems with the HDMI device.

NO
Go to [check item \(3-16.1.\)](#)
(Tx failure detection procedure)

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 \(3-17.1.\)](#).
(HDMI DDC Buffer [TCA9517] failure detection procedure)

NO
Go to [check item \(3-18.1.\)](#)
(GUI and PLD failure detection procedure)

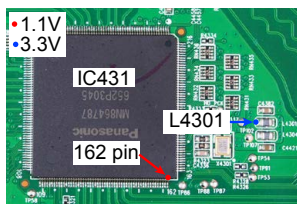
3-1. Error Code H1-01 failure detection procedure

Checking device. [IC431 : MN864787]

Check the power supply voltage. (HDMI Tx)

Check item(3-1.1). 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(3-1.2). 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 (3-1.1)**.
Is the voltage correct (1.1V or 3.3V)?

YES

Replace with a new device.

NO

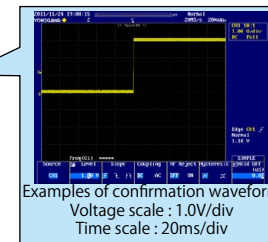
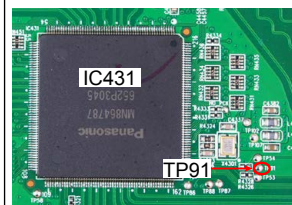
The power supply circuit is faulty.
Replace the PCB.

Recheck from **check item (3.1)**.
If it does not work, replace the PCB.

Checking the reset waveform. (HDMI Tx)

Check item(3-1.3). 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

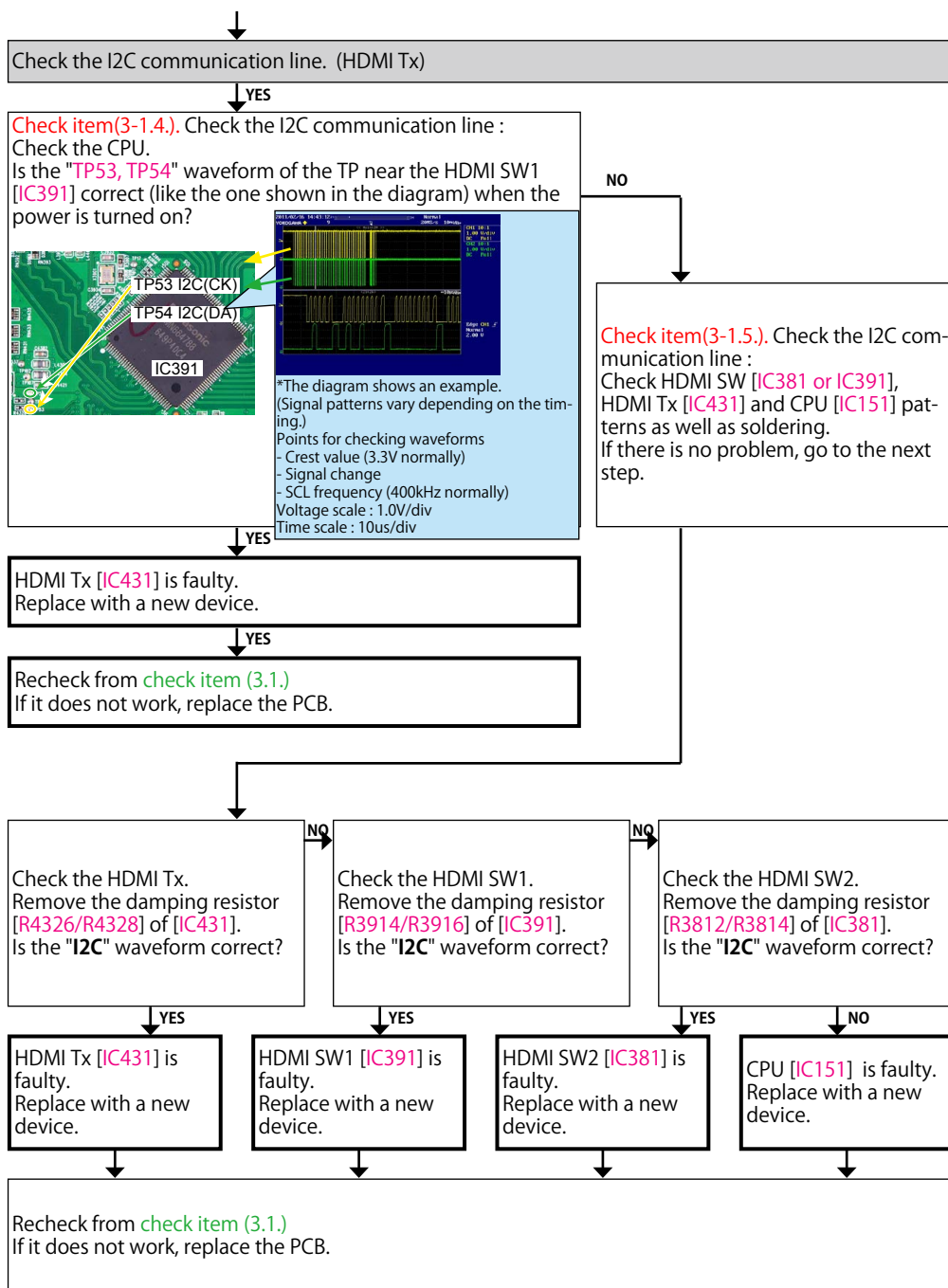


NO

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 (3.1)**.
If it does not work, replace the PCB.

YES

Go to next page.



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

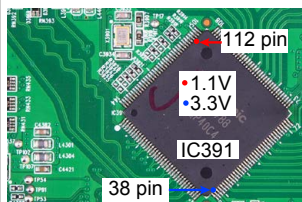
Checking device. [IC391 : MN864788]

Check the power supply voltage. (HDMI SW1)

Check item(3-2.1). 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(3-2.2). 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 (3-2.1)**.
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.

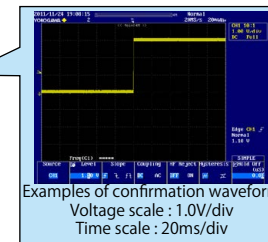
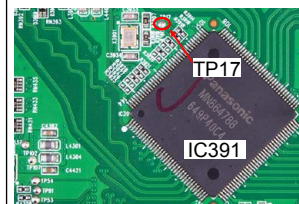
Recheck from **check item (3.1)**.
If it does not work, replace the PCB.

Checking the reset waveform. (HDMI SW1)

Check item(3-2.3). 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 (3.1) 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 (3.1)**.
If it does not work, replace the PCB.

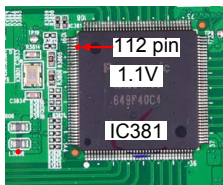
3-3. Error Code H1-03 failure detection procedure

Checking device. [IC381 : MN864788]

Check the power supply voltage. (HDMI SW2)

Check item(3-3.1). 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(3-3.2). 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 (3-3.1)**.
Is the voltage correct (1.1V or 3.3V)?

YES

NO

Replace with a new device.

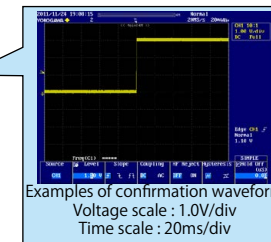
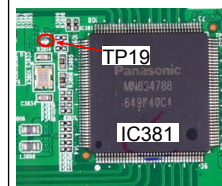
The power supply circuit is faulty.
Replace the PCB.

Recheck from **check item (3.1)**.
If it does not work, replace the PCB.

Checking the reset waveform. (HDMI SW2)

Check item(3-3.3). 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 (3-3.3)**.
If it does not work, replace the PCB.

YES

check item (3.1) 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.

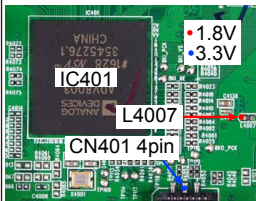
Recheck from **check item (3.1)**.
If it does not work, replace the PCB.

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

Checking device. [IC401 : ADV8003]

Check the power supply voltage.

Check item(3-4.1.). 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.



NO
Check item(3-4.2.). 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 (3-4.1.). Is the voltage correct (1.8V or 3.3V)?

YES

YES

NO

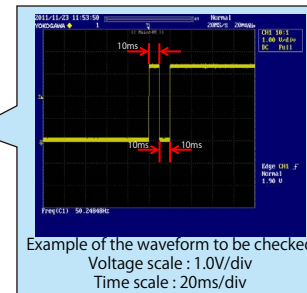
The power supply circuit is faulty.
Replace the PCB.

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

Recheck from check item (3.1.)
If it does not work, replace the PCB.

Checking the reset waveform.

Check item(3-4.3.). 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?



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

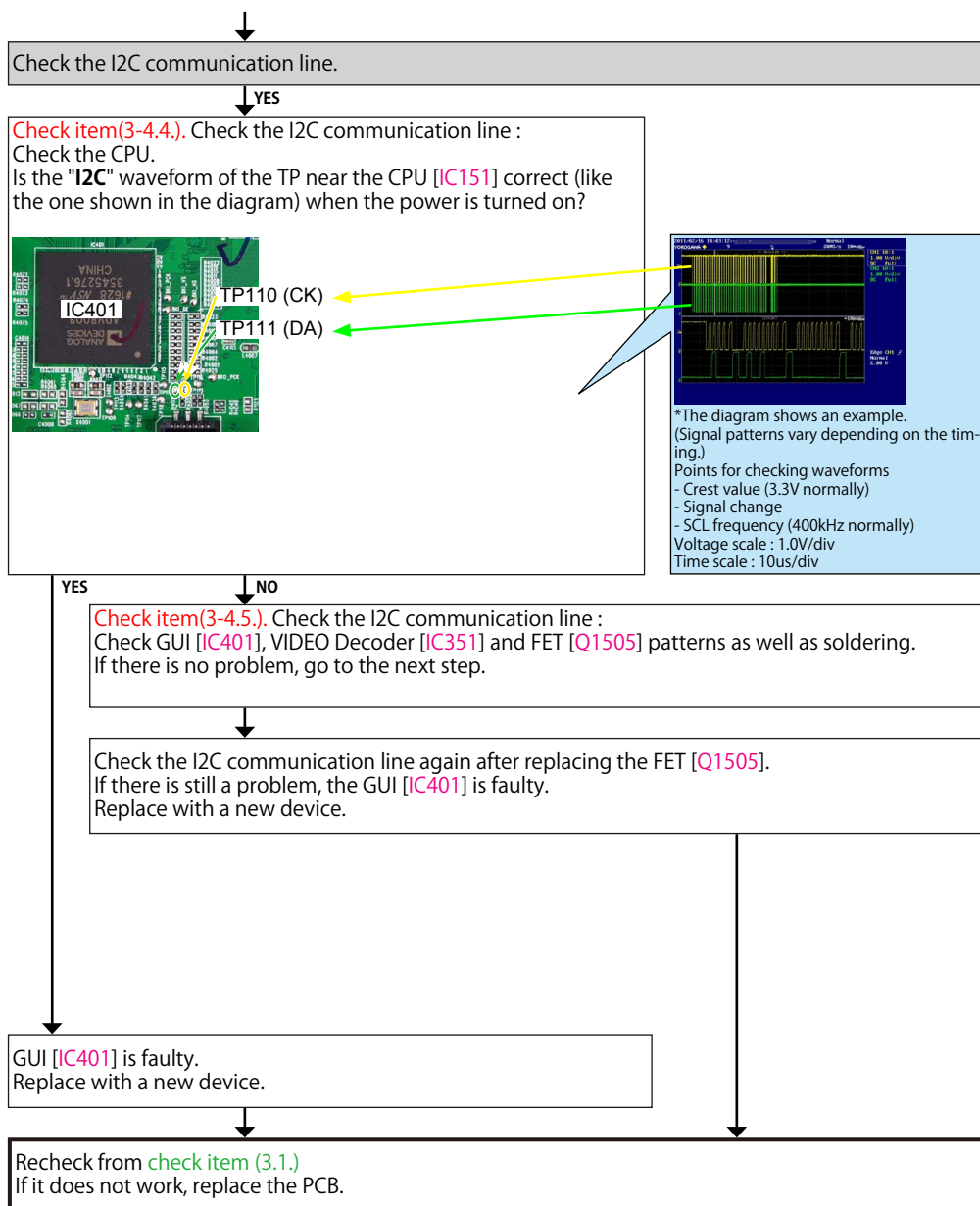
YES

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 (3.1.)
If it does not work, replace the PCB.

Go to next page.



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

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

Check item(3-5.1.).

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 \(3.1.\)](#)

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

Checking device. [IC404 : MX25L12835FMI-10G]

Check item(3-6.1.).

Write to the GUI ROM.

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

NO

YES

Check item(3-6.2.).

Replace [IC403] with a new device.

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

NO

YES

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

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



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

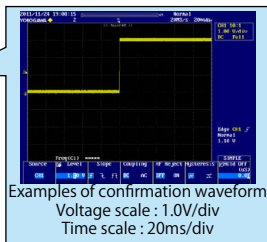
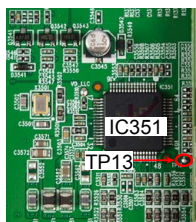
Checking device. [IC351 : ADV7180]

Checking the reset waveform. (VIDEO DECODER)

Check item(3-7.1.). 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 (3-7.1.)
If it does not work, replace the PCB.

YES

check item (3.1.) 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.

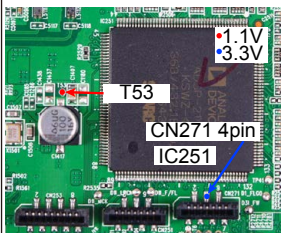
Recheck from check item (3.1.)
If it does not work, replace the PCB.

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

Checking device. [IC251 : ADSP21487]

Check the power supply voltage. (DSP1)

Check item(3-8.1.). 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(3-8.2.). 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 (3-8.1.)**.
Is the voltage correct (1.1V or 3.3V)?

YES

The power supply circuit is faulty.
Replace the PCB.

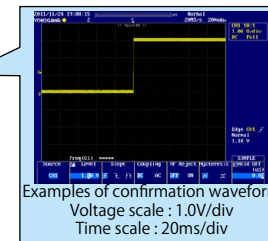
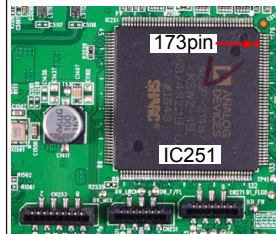
NO

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

Recheck from **check item (3.1.)**
If it does not work, replace the PCB.

Checking the reset waveform. (DSP1)

Check item(3-8.3.). 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?



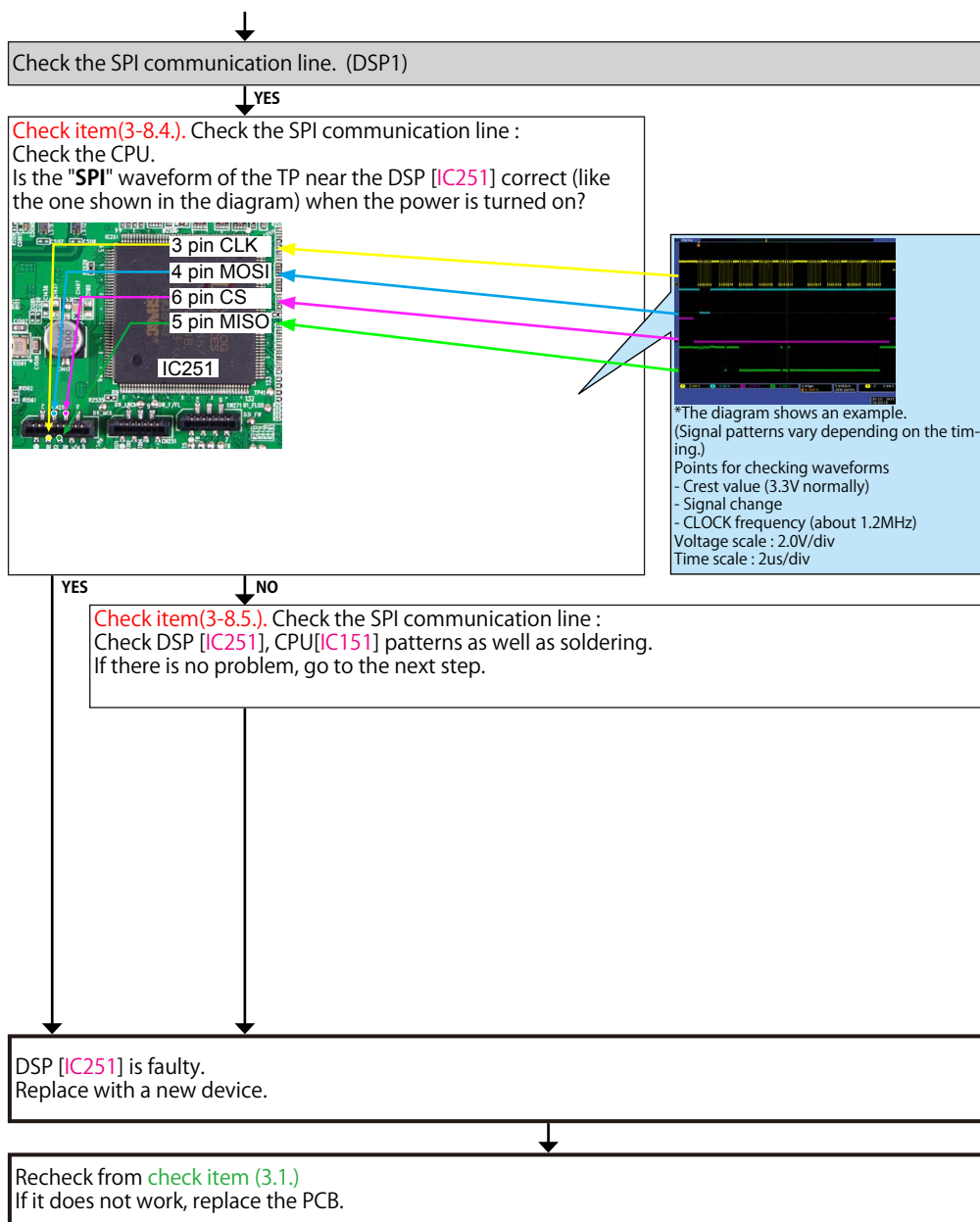
YES

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.

NO

Recheck from **check item (3.1.)**
If it does not work, replace the PCB.

Go to next page.



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

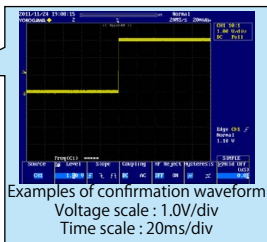
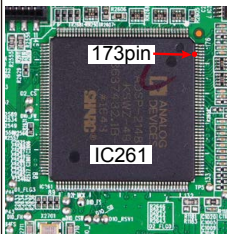
Checking device. [IC261 : ADSP21487]

Checking the reset waveform. (DSP2)

Check item(3-9.1.). 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.

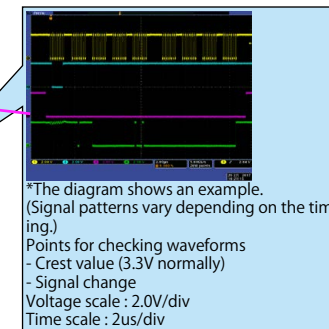
Recheck from check item (3.1.)
If it does not work, replace the PCB.

Check the SPI communication line. (DSP2)

Check item(3-9.2.). 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(3-9.3.). 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.

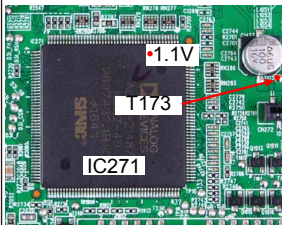
Recheck from check item (3.1.)
If it does not work, replace the PCB.

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

Checking device. [IC271 : ADSP21487]

Check the power supply voltage. (DSP3)

Check item(3-10.1). 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(3-10.2). 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 (3-10.1)**.
Is the power supply voltage correct (1.1V)?

YES

The power supply circuit is faulty.
Replace the PCB.

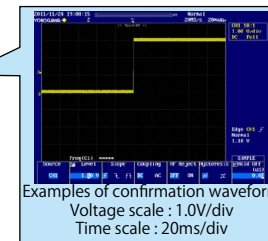
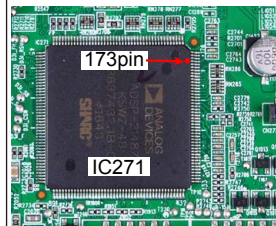
NO

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

Recheck from **check item (3.1)**.
If it does not work, replace the PCB.

Checking the reset waveform. (DSP3)

Check item(3-10.3). 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?



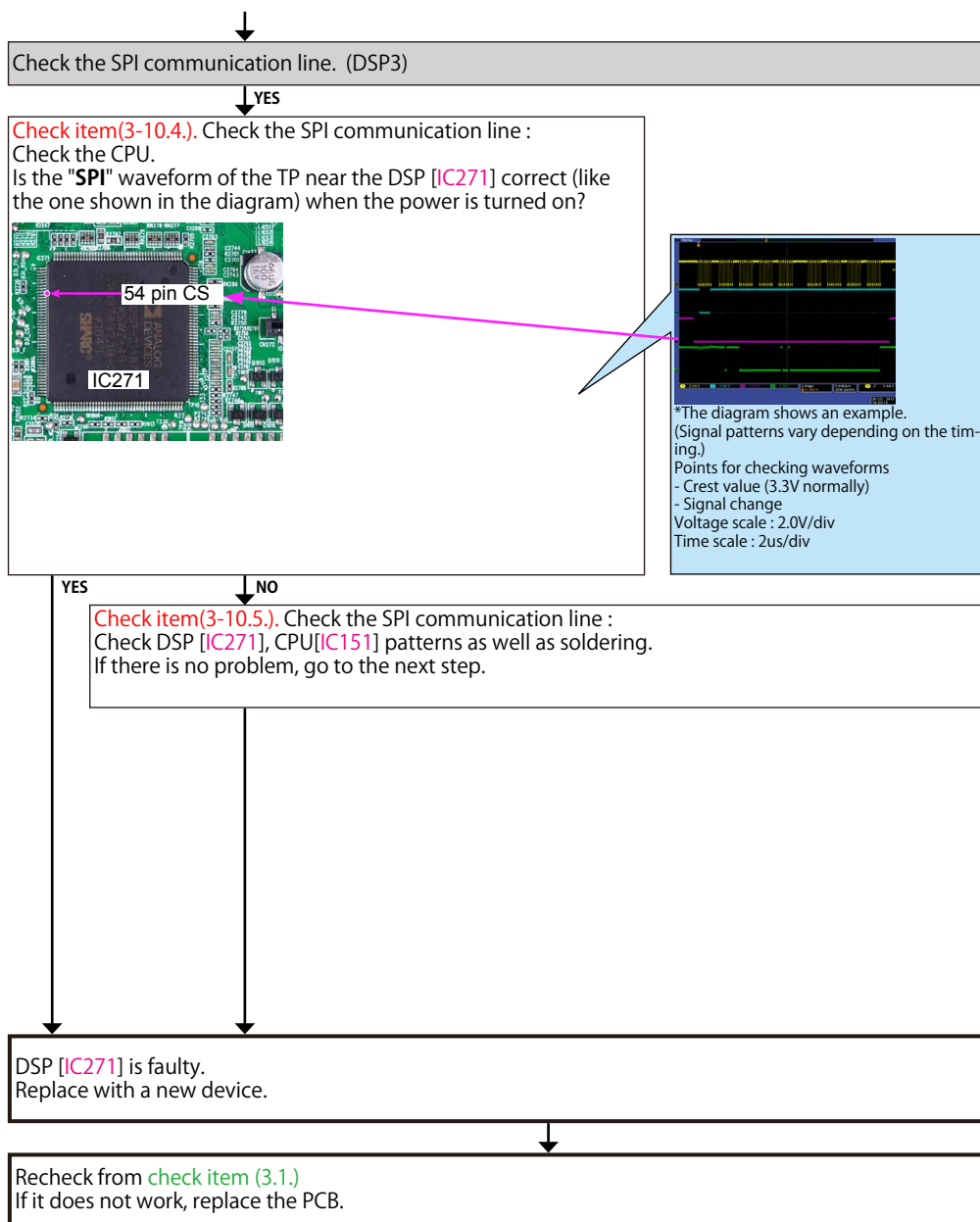
YES

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 (3.1)**.
If it does not work, replace the PCB.

Go to next page.



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

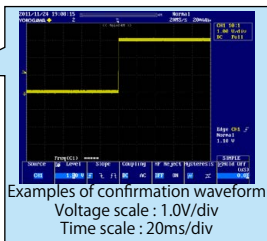
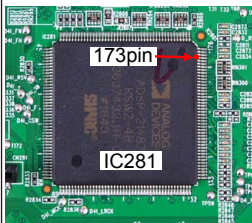
Checking device. [IC281 : ADSP21487]

Checking the reset waveform. (DSP4)

Check item(3-11.1.). 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.

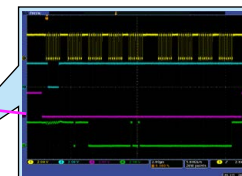
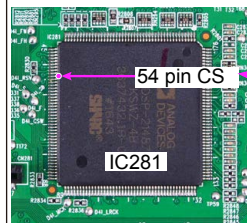
Recheck from [check item \(3.1.\)](#)
If it does not work, replace the PCB.

Check the SPI communication line. (DSP4)

Check item(3-11.2.). 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(3-11.3.). 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 \(3.1.\)](#)
If it does not work, replace the PCB.



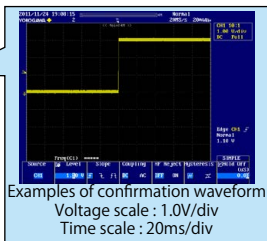
3-12. Error Code H1-12 failure detection procedure

Checking device. [IC202 : PCM9211]

Checking the reset waveform. (DIR)

Check item(3-12.1.). 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.

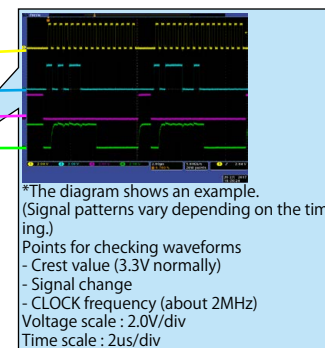
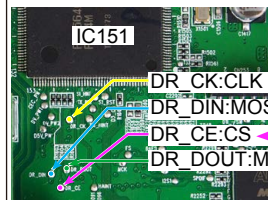
Recheck from [check item \(3.1.\)](#)
If it does not work, replace the PCB.

Check the communication line. (DIR)

YES

Check item(3-12.2.). 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(3-12.3.). 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 \(3.1.\)](#)
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(3-13.1.). 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(3-13.2.). 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 (3-13.1.)**.
Is the power supply voltage correct (1.2V)?

YES

NO

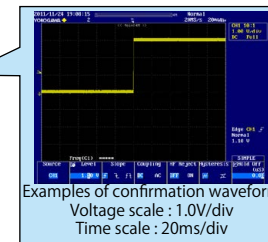
Replace with a new device.

The power supply circuit is faulty.
Replace the PCB.

Recheck from **check item (3.1.)**
If it does not work, replace the PCB.

Checking the reset waveform. (ARC IC)

Check item(3-13.3.). 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

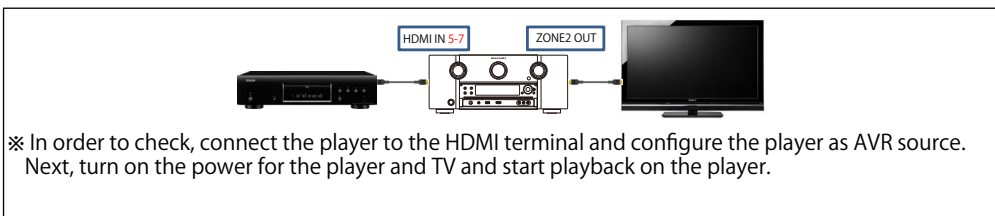
Check the reset circuit between CPU [IC151] and ARC IC [IC432].
If there is no problem, the ARC IC [IC432] is faulty.
Replace with a new device.

YES

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

Recheck from **check item (3.1.)**
If it does not work, replace the PCB.

3-14. Switcher1 failure detection procedure

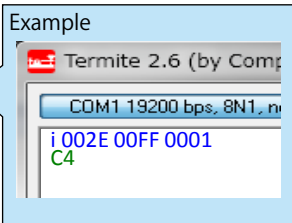


Checking the +5V/DDC status register (HDMI Switcher1)

Check item(3-14.1). 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

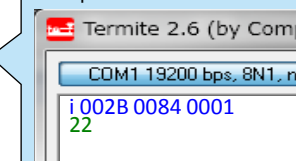
NO

Go to [check item \(3-14.3.\)](#)

Check item(3-14.2). 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".

Example



Move to the branch destination according to the value returned.

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

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

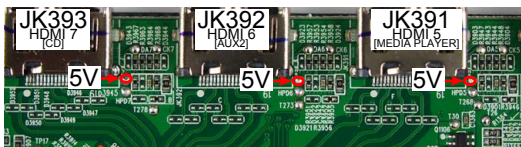
"22 or 11"
(Detection of DDC is OK)

Go to [check item \(3-14.5.\)](#)

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

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

Check item(3-14.3.). 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

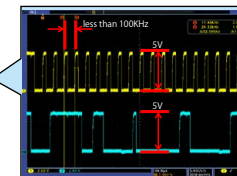
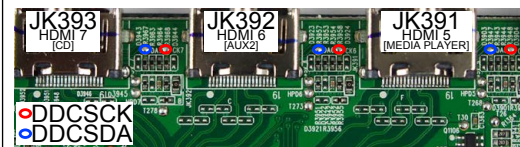
Check for a short circuit in the 5 V line and the 5 V Switch IC [IC392].
If there is no problem, the HDMI Switcher1 [IC391] or the 5 V Switch IC [IC392] is faulty.
Replace with a new device.

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

When the results of check item (3-14.2.) are "00 or 04"
(Detection of DDC is not OK.)

Check the DDC line. (HDMI IN5 - 7)

Check item(3-14.4.). 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 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

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 (3.2.)
If it does not work, replace the PCB.



When the results of check item (3-14.2.) are "22 or 11"
(Detection of DDC is OK.)

Checking the TMDS status register (HDMI Switcher1)

Check item(3-14.5). Checking register of the TMD SCLK detection status register :

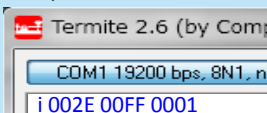
Send the following command from Termite.exe.

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)

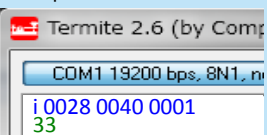
Check item(3-14.6). Check the HPD and RXSENSE register value of the device.

Send the following command from Termite.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 \(3-14.8.\)](#)

"31 or 21 or 11 or 01"

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

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

"32 or 22 or 12 or 02"

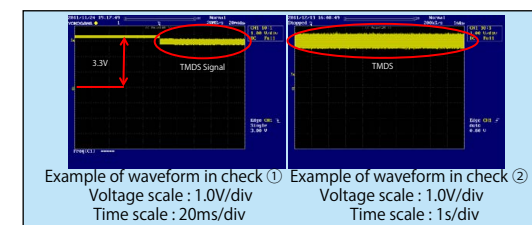
(Detection of HPD is not OK / Detection of RXSENSE is OK)

Go to [check item \(3-14.12.\)](#)

"30 or 20 or 10 or 00"

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

Go to [check item \(3-14.13.\)](#)



Check item(3-14.7). 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 \(3.2.\)](#)
If it does not work, replace the PCB.



When the results of check item (3-14.6.) 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)

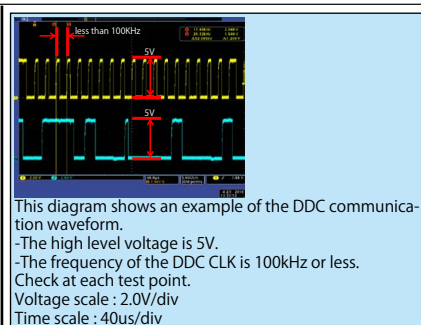
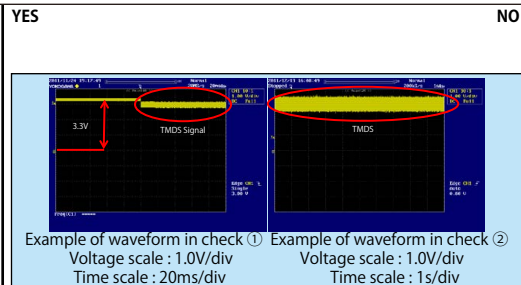
Check item(3-14.8). Check the Monitor EDID :

- 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"?

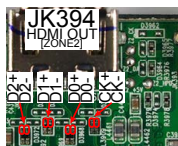
Example

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(3-14.9). Checking the TMDS :
Check the TMDS waveform at the following test point.



YES

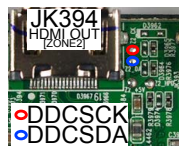
NO

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 (3.2.)
If it does not work, replace the PCB.

Check item(3-14.10). Check the communication :
Do "CK" and "DA" indicate (5V) at the test point near HDMI output connector [JK394]?



YES

NO

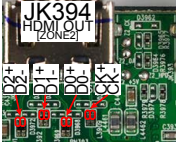
Check for a short circuit in the DDC line.
If there is no problem, the HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

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

When the results of check item (3-14.6.) 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(3-14.11.). 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 (3.2.)
If it does not work, replace the PCB.

When the results of check item (3-14.6.) 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(3-14.12.). 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.

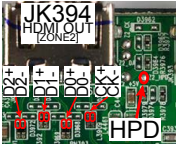
HDMI Switcher1 [IC391] is faulty.
Replace with a new device.

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

When the results of check item (3-14.6.) 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(3-14.13.). 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

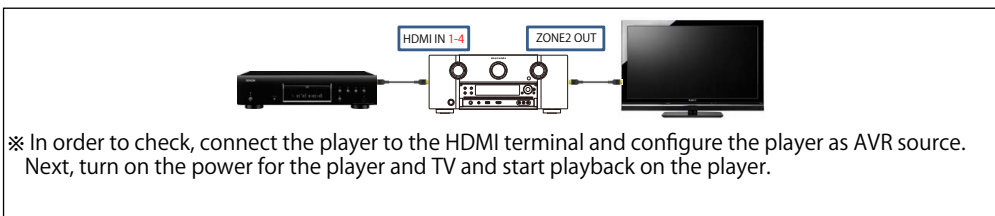
NO

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 (3.2.)
If it does not work, replace the PCB.

3-15. Switcher2 failure detection procedure

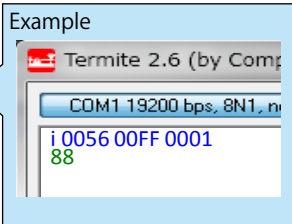


Checking the +5V/DDC status register (HDMI Switcher2)

Check item(3-15.1). 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

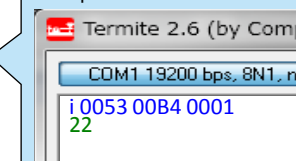
Go to [check item \(3-15.3.\)](#)

Check item(3-15.2). 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

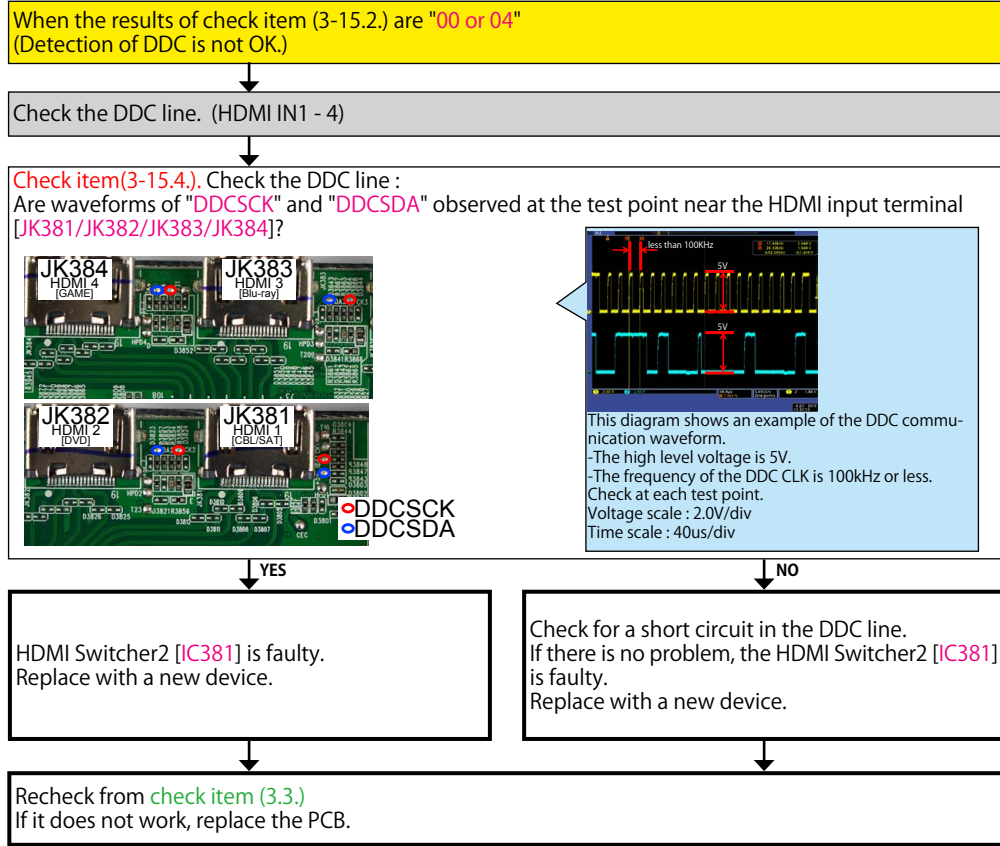
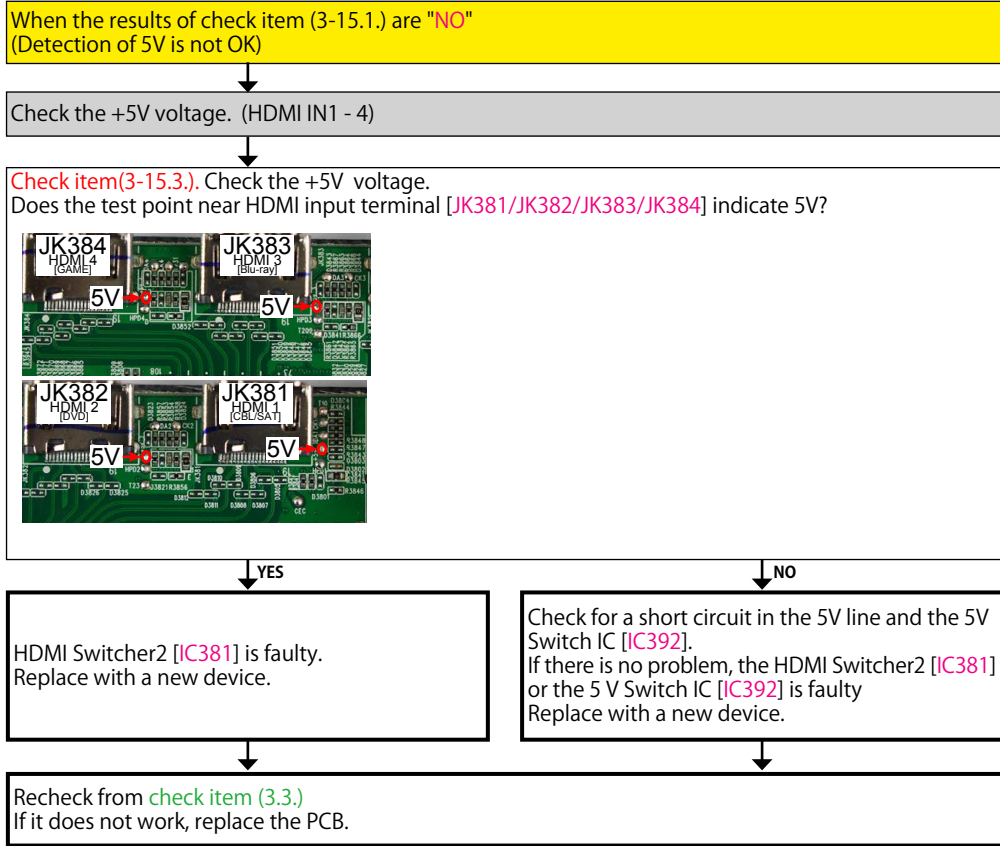


"00 or 04"
(Detection of DDC is not OK.)

Go to [check item \(3-15.4.\)](#)

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

Go to [check item \(3-15.5.\)](#)



When the results of check item (3-15.2.) are "22 or 11"
(Detection of DDC is OK.)

Checking the TMDS status register (HDMI Switcher2)

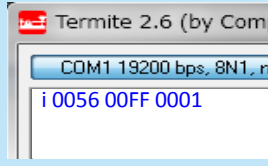
Check item(3-15.5). Checking register of the TMDS CLK detection status register :

Send the following command from Termit.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

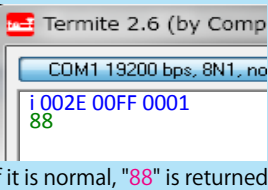
Checking the TMDS status register (HDMI Switcher2 -> HDMI Switcher1)

Check item(3-15.7). Check the TMDS CLK detection status of the register.

Send the following command from Termit.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 \(3.3.\)](#)
If it does not work, replace the PCB.

Check item(3-15.6). 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 \(3.3.\)](#)
If it does not work, replace the PCB.

Check item(3-15.8). Checking the TMDS input waveform. :
Check the TMDS waveform at the following test point.
Is the waveform like the sample?

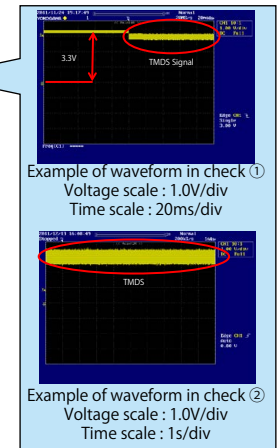


42/43/45/46/48/49/51/52 pin

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(3-16.1.). Check the video output port for failure. :
Check the Monitor 1 output video signal is correct.

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

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

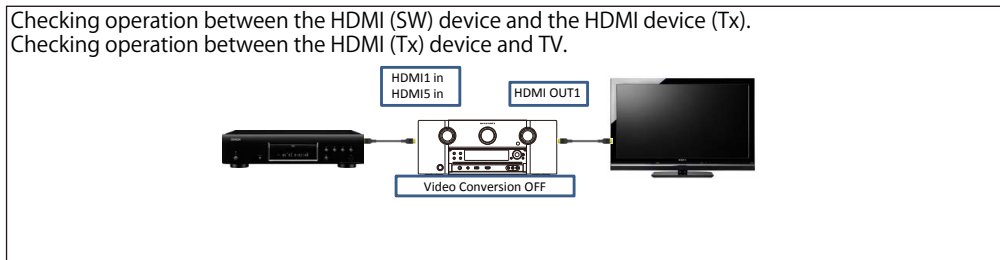
Also, No video signal is output from Monitor 1 only.

Go to [check item \(3-16.2.\)](#)

No video signal is output from Monitor 2 only.

Go to [check item \(3-16.11.\)](#)





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

Check item(3-16.2). 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.

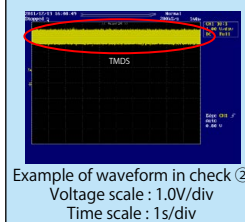
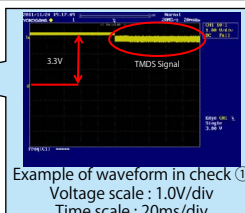
Example

YES
The first operation : Checking between Monitor 1 and the TV.
Go to [check item \(3-16.1.\)](#)
Next operation : Checking between Monitor 2 and the TV.
Go to [check item \(3-16.8.\)](#)

NO
Check item(3-16.3). 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 \(3.4.\)](#)
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(3-16.4). 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 \(3-16.5.\)](#)

"10"

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

Go to [check item \(3-16.8.\)](#)

"20"

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

Go to [check item \(3-16.9.\)](#)

"00"

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

Go to [check item \(3-16.10.\)](#)

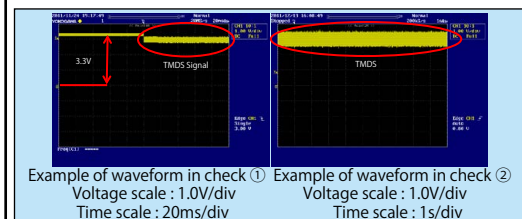
When the results of check item (3-16.4.) are "30"
(Detection of HPD is OK / Detection of RXSENSE is OK)

Checking the EDID register. (HDMI OUT1)

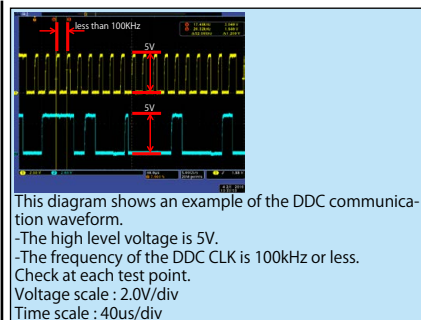
Check item(3-16.5). Check the Monitor EDID :

- 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"?

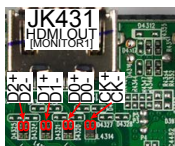
YES



NO



Check item(3-16.6). Checking the TMDS :
Check the TMDS waveform at the following test point.



YES

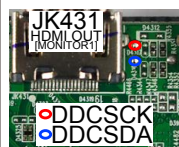
NO

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.

Recheck from check item (3.4.)
If it does not work, replace the PCB.

Check item(3-16.7). 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 (3.4.)
If it does not work, replace the PCB.

Example

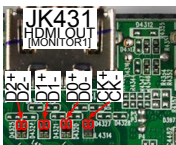
```
Termite 2.6 (by CompuPhase)
COM1 19200 bps, 8N1, no handshake
m_1
00FFFFFFF000D1177945540000
3213010380351E782E6085A6564A9C25
125054A56808180810081C0A9C08140
D1C61C0B300023A801871382D40582C
4500132B2100001E000000FF00394339
```

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 (3-16.4.) are "10"
(Detection of HPD is OK / Detection of RXSENSE is not OK)

Check the TMDS. (HDMI OUT1)

Check item(3-16.8.). 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 (3.4.)
If it does not work, replace the PCB.

When the results of check item (3-16.4.) are "20"
(Detection of HPD is not OK / Detection of RXSENSE is OK)

Check the HPD. (HDMI OUT1)

Check item(3-16.9.). 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.

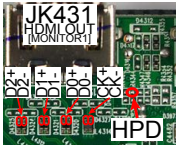
Recheck from check item (3.4.)
If it does not work, replace the PCB.



When the results of check item (3-16.4.) are "00"
(Detection of HPD is not OK / Detection of RXSENSE is not OK)

Check the TMDS/HPD. (HDMI OUT1)

Check item(3-16.10.). 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.

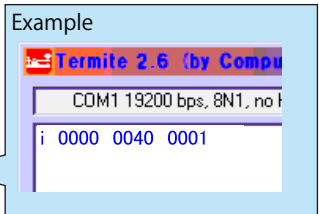
Recheck from check item (3.4.)
If it does not work, replace the PCB.



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(3-16.11). 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 \(3-16.12.\)](#)

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

Go to [check item \(3-16.15.\)](#)

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

Go to [check item \(3-16.16.\)](#)

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

Go to [check item \(3-16.17.\)](#)

When the results of check item (3-16.11.) are "03"
(Detection of HPD is OK / Detection of RXSENSE is OK)

Checking the EDID register. (OUT2)

Check item(3-16.12.). 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 Terminate.exe.
- Are the first eight bytes of the returned value "00FFFFFFF00"?

Example

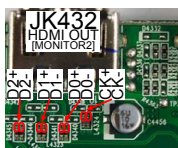
```
Terminate 2.6 by CompuPhase
COM1 19200 bps, 8N1, no handshake
m_2
00FFFFFFF0009B1177945540000
32130103B0151E782E6085A6564A9C25
125054A56B08180810081C0A9C08140
D1C061C0B300023A801871382D40582C
4500132B2100001E000000FF00394339
```

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(3-16.13.). 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(3-16.14.). Check communication with the monitor :
Are waveforms of "DDCSCK" and "DDCSDA" observed at the test point near the HDMI output terminal [JK432]?



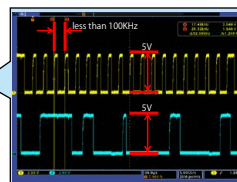
YES

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 (3.4.)
If it does not work, replace the PCB.



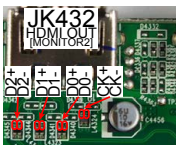
This diagram shows an example of the DDC communication waveform.
-The high level voltage is 5V.
-The frequency of the DDC CLK is 100kHz or less.
Check at each test point.
Voltage scale : 2.0V/div
Time scale : 40us/div



When the results of check item (3-16.11.) are "01"
(Detection of HPD is OK / Detection of RXSENSE is not OK)

Check the RXSENSE. (OUT2)

Check item(3-16.15.). 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 (3.4.)
If it does not work, replace the PCB.

When the results of check item (3-16.11.) are "02"
(Detection of HPD is not OK / Detection of RXSENSE is OK)

Check the HPD. (OUT2)

Check item(3-16.16.). Checking the HPD :
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 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.

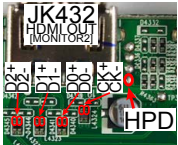
Recheck from check item (3.4.)
If it does not work, replace the PCB.



When the results of check item (3-16.11.) are "00"
(Detection of HPD is not OK / Detection of RXSENSE is not OK)

Checking the HPD/RXSENSE status register. (OUT2)

Check item(3-16.17.). 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 (3.4.)
If it does not work, replace the PCB.

3-17. HDMI DDC Buffer (TCA9517) failure detection procedure

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



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

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

Check item(3-17.1.). 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

```
Termite 2.6 (by Com
COM1 19200 bps, 8N1.r
i 0006 00FF 0001
F8
```

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

Go to [check item \(3-17.3.\)](#)

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

Check item(3-17.2.). 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

```
Termite 2.6 (by Com
COM1 19200 bps, 8N1.r
i 0003 00B4 0001
22
```

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

Go to [check item \(3-17.4.\)](#)

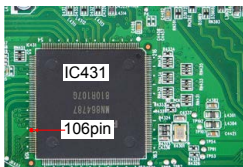
"22"
(Detection of DDC is OK)

Go to [check item \(3-17.5.\)](#)

When the results of check item (3-17.1.) are "78 or 70"
(Detection of 5V is not OK.)

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

Check item(3-17.3.). 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

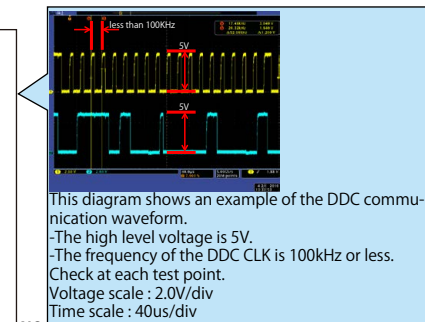
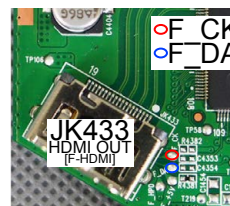
HDMI Tx [IC431] is faulty.
Replace with a new device.

Recheck from check item (3.4.)
If it does not work, replace the PCB.

When the results of check item (3-17.2.) are "00 or 04"
(Detection of DDC is not OK.)

Check the DDC Line. (HDMI DDC Buffer)

Check item(3-17.4.). 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.



NO

Check for a short circuit in the DDC line and check the Front HDMI FFC.
If there is no problem, the HDMI DDC Buffer [IC201] is faulty.
Replace with a new device.

YES

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

Recheck from check item (3.4.)
If it does not work, replace the PCB.

When the results of check item (3-17.2.) are "22"
(Detection of DDC is OK)

Checking the TMDS status register (HDMI DDC Buffer)

Check item(3-17.5.). Check the TMDS CLK detection status of the register.

Send the following command from Termit.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"

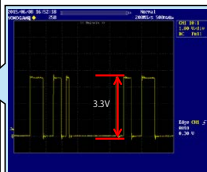
Example

Termite 2.6 (by Com
COM1 19200 bps, 8N1, r
i 0006 00FF 0001
F8

NO

YES

Check item(3-17.7.). Check the AUDIO signal output :
Check the AUDIO signal waveform at the following test point.
Is the waveform like the sample?
(MCK/64FS/FS/I2S0/I2S1/I2S2/I2S3/SPDIF)



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 (3.4.)
If it does not work, replace the PCB.

Check item(3-17.6.). Checking the TMDS input waveform :
Check the TMDS waveform at the following test point.
Is the waveform like the sample?



70/71/73/74/76/77/79/80 pin

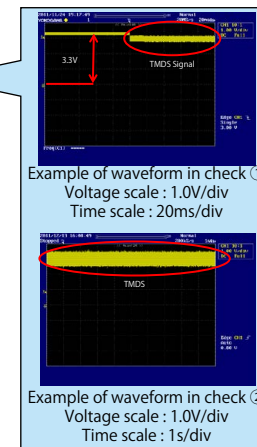
YES

NO

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

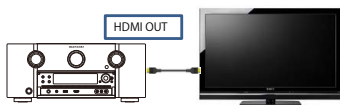
Check for a short circuit in the TMDS line and the Front HDMI FFC.
If there is no problem, the HDMI DDC Buffer [IC201] is faulty.
Replace with a new device.

Recheck from check item (3.4.)
If it does not work, replace the PCB.

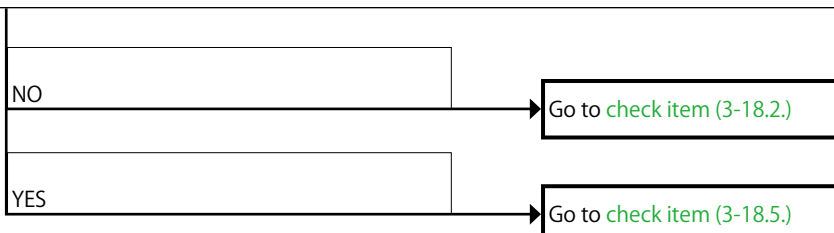


3-18. GUI and PLD failure detection procedure

Check item(3-18.1.). 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?



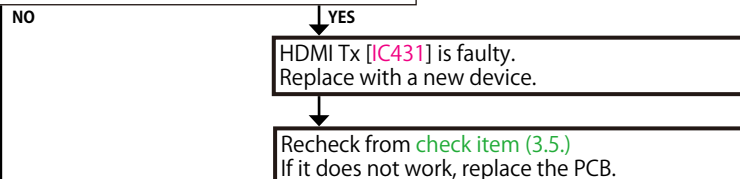
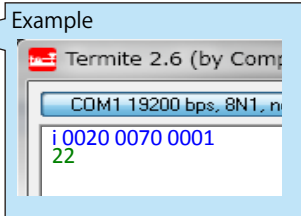
When the results of check item (3-18.1.) are "NO"
(When the menu display is not OK)

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

Check item(3-18.2.). Check the format of the resistor video signal :

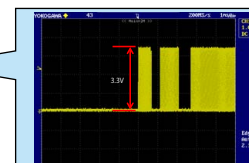
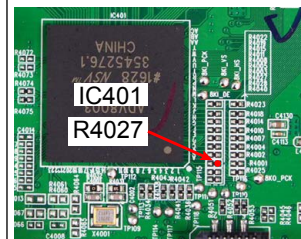
Send the following command from Termite.exe.
Send the command "i 0020 0070 0001".

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

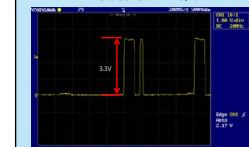


Check the Video signal line. (GUI -> PLD)

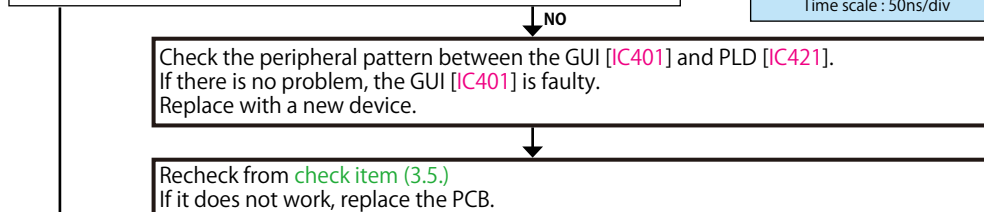
Check item(3-18.3.). Check the PLD video signal line from the GUI :
Check the video signal waveform at the following test point.
Is the waveform like the sample?



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

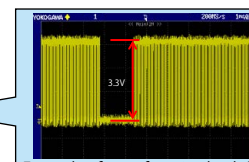
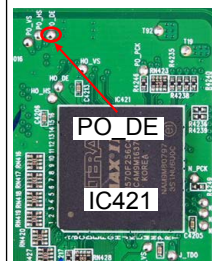


Example of waveform in check ②
Voltage scale : 1.0V/div
Time scale : 50ns/div

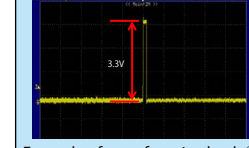


Check the Video signal line. (PLD -> HDMI Tx)

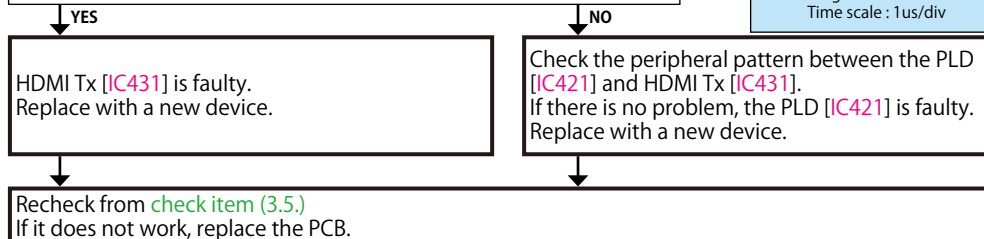
Check item(3-18.4.). Check the HDMI Tx video signal line from the PLD :
Check the video signal waveform at the following test point.
Is the waveform like the sample?



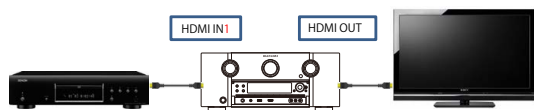
Example of waveform in check ①
Voltage scale : 1.0V/div
Time scale : 1ms/div



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



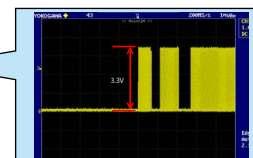
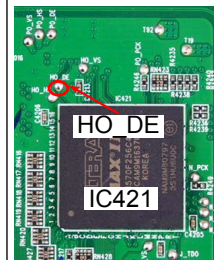
When the results of check item (3-18.1.) are "YES"
(When the menu display is OK)



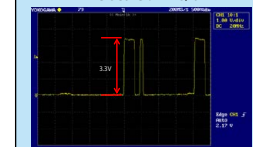
Turn Video Conversion "ON" on the setup menu.
(SETUP MENU-> Video-> Output Settings-> Video Conversion = On)
In order to check, connect the player to the HDMI terminal and configure the player as AVR source.
Next, turn on the power for the player and TV and start playback on the player.

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

Check item(3-18.5.). 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

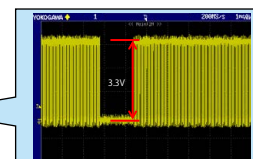
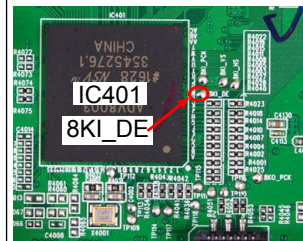
NO

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.

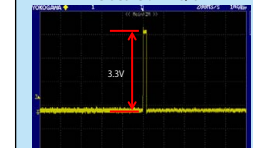
Recheck from check item (3.5.)
If it does not work, replace the PCB.

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

Check item(3-18.6.). 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

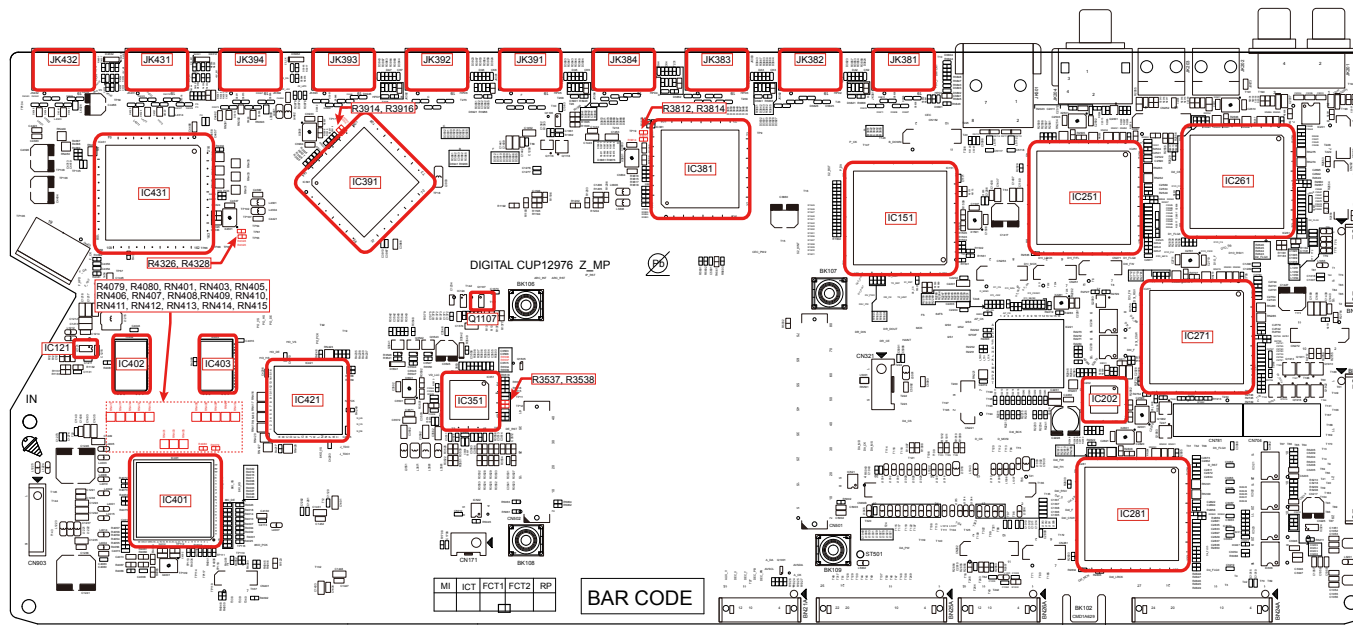
GUI [IC401] is faulty.
Replace with a new device.

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.

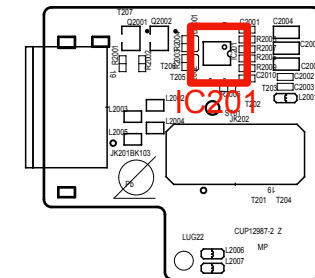
Recheck from check item (3.5.)
If it does not work, replace the PCB.

4. Device implementation location

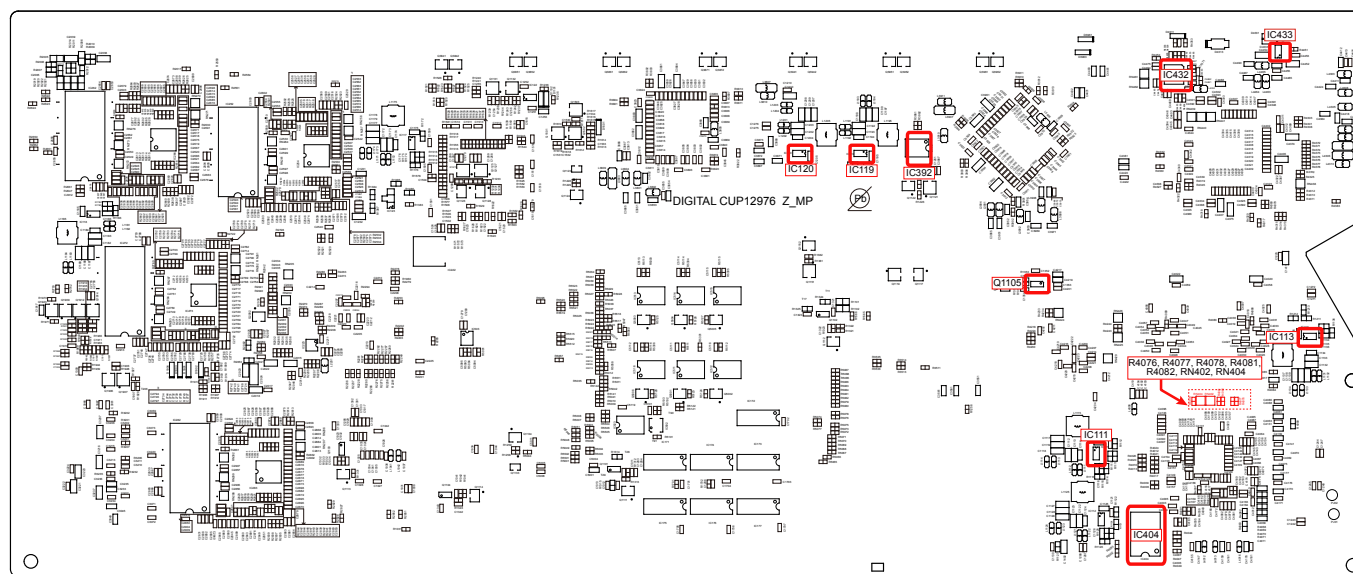
DIGITAL (A SIDE)



F HDMI (A SIDE)

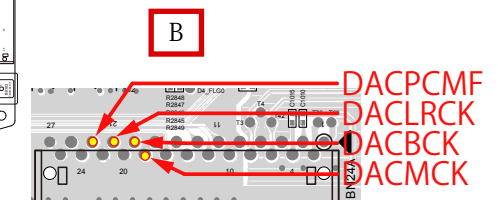
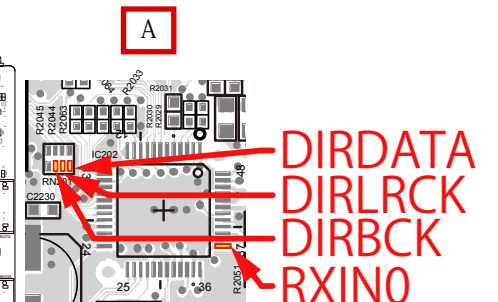
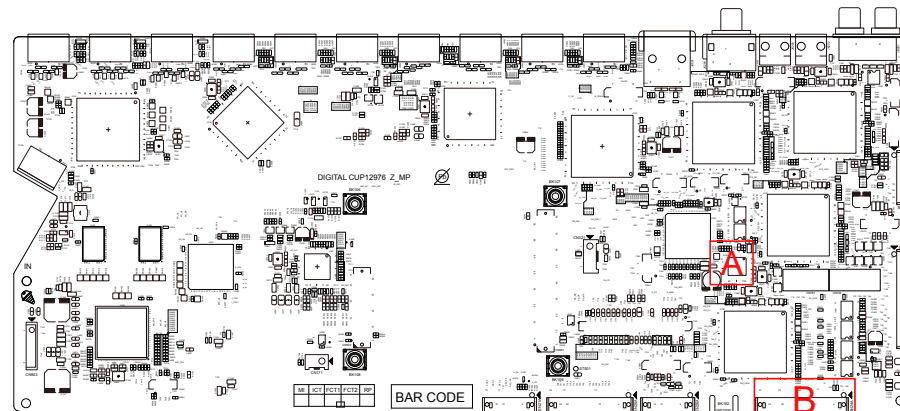
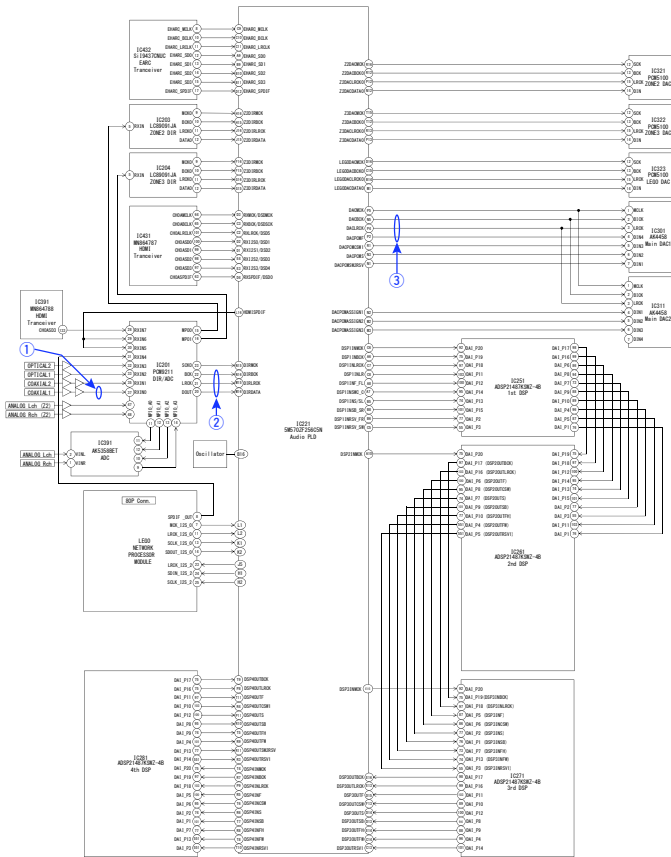
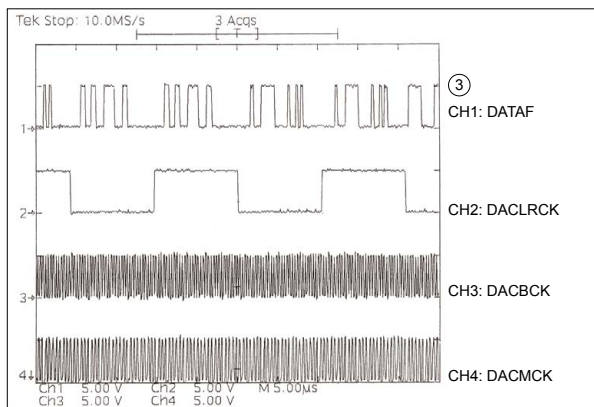
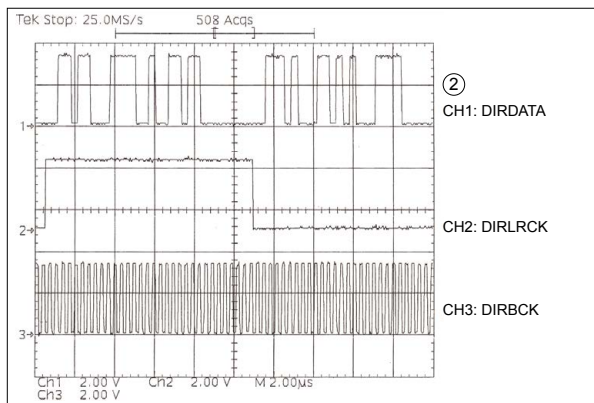
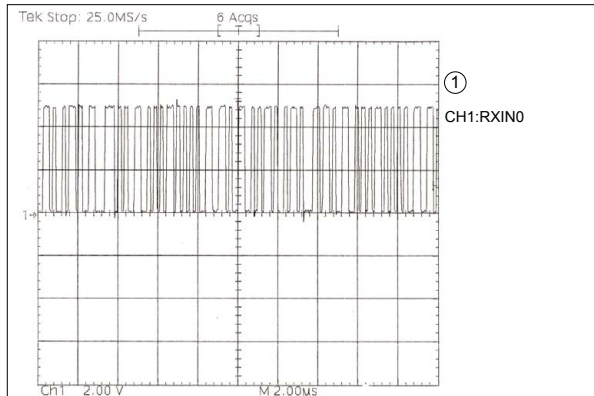


DIGITAL (B SIDE)



CLOCK FLOW & WAVE FORM IN DIGITAL BLOCK

WAVE FORM



SPECIAL MODE

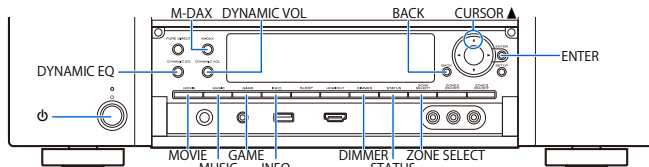
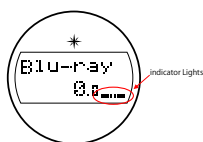
Special mode setting button

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

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

No.	Mode	Button A	Button B	Button C	Descriptions
1	Version Display Mode (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. 3-4
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	232C Standby Clear Mode	↑	↑	-	Switches from 232C standby mode to normal standby mode. (See 3-2. 232C Standby Clear Mode)
3-3	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 3-3. Operation Info Mode)
3-4	TUNER STEP Mode (U and N model only)	↑	↑	-	Enables reception STEP of the ANALOG TUNER to be changed. (See 3-4. 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", 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 Restore Version → ⑬ Ether Mac Address → ⑭ WiFi Mac Address → ⑮ BT Mac Address → ⑯ Audyssey App Interface Version

① Model destination information, Serial Number :

L1	AU7705 \
L2	SN%%*****

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

% : SKU code

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 Restore Version :

L1	RSTR
L2	*****

⑬ Ether Mac Address :

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

⑭ WiFi Mac Address :

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

⑮ BT Mac Address :

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

⑯ 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	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. If GUI Serial Flash is damaged, "▲" is displayed as the first character.	GUI VER. ERROR ▼GUI :***** ▲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)	Boot error 1 (After reset the DSP, DSP_Flag0 port is "Low") Boot error 2 (After reset the DSP, DSP initialization is not completed) (Unused) Command error 1 (After sending the command to the DSP, DSP_Flag0 port is "Low".) Command error 2 (After sending the command to the DSP, MCU received "COMMAND ERROR".) Command error 3 (After sending the command to the DSP, MCU did not receive "COMMAND SUCCESS".) IDL error 1 (Before receiving IDL, "COMMAND BYTE" is not cleared.) IDL error 2 (MCU received "IDL SERIOUS ERROR".) SPI communication error	DSP# ERROR 01 DSP# ERROR 02 DSP# ERROR 03 DSP# ERROR 04 DSP# ERROR 05 DSP# ERROR 06 DSP# ERROR 07 DSP# ERROR 08 DSP# ERROR 09	•Check the DSP [IC251, IC261, IC271, IC281, DIGITAL PCB] and surrounding circuits.
⑥ BACKUP NG	Error occurred in BACKUP. it is an error of the check sum.	BACKUP ERROR	

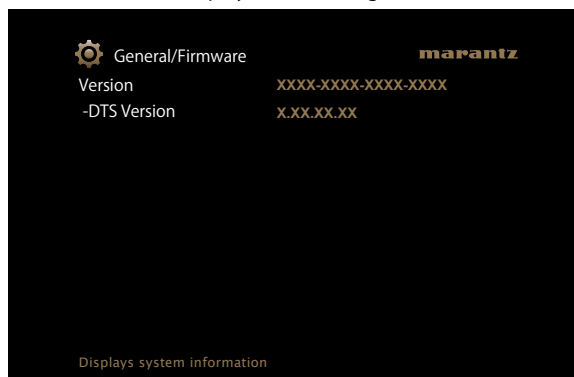


1.5. Version Display in the Setup Menu

Follow the steps below to display the firmware information.

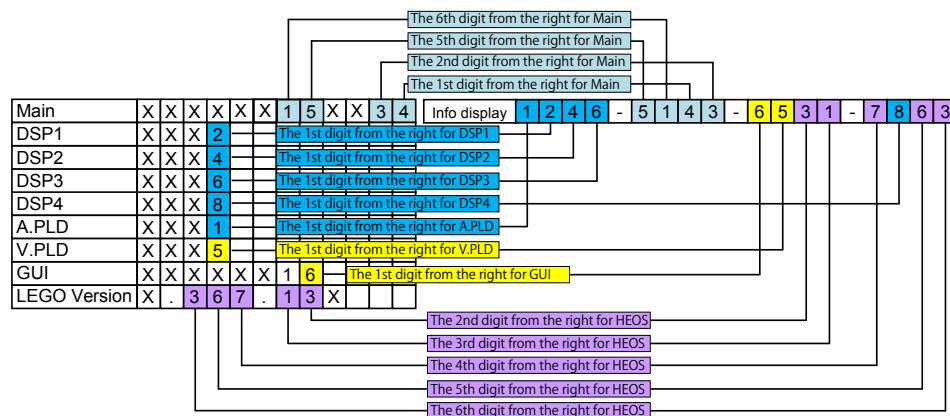
- (1) Press the "**SETUP**" button on the remote control.
- (2) Select "**General - Information - Firmware**".

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	3.RS232C RESET

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	▶3.RS232C RESET

Switches from 232C standby mode to normal standby mode.



③

L1	3.RS232C RESET
L2	▶4.OP INFO

Operation Info for the unit can be checked.



④

L1	4.OP INFO
L2	▶5.TUNER FREQ 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. 232C Standby Clear Mode

3-2.1. Actions

Switches from 232C standby mode to normal standby mode.

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

L1	1.SERVICE CHECK
L2	▶3.RS232C RESET

3-3. Operation Info Mode

3-3.1. Actions

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

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

3-3.3. Operations

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

The following information is displayed in the following order.

(1) Accumulated operating time

L1	Operation Time
L2	Total: ____H

↑ Time display

↓ "STATUS"

(2) Power On time

L1	Power On Time
L2	Total: ____H

↑ Time display

↓ "STATUS"

(Returns to normal display)

3-4. TUNER STEP mode (U, N only)

3-4.1. Actions

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

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

3-4.3. 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.

- (1) AM9 kHz / FM50 kHz is selected

L1	*TUNER FRQ Set
L2	< AM9/FM50 >

"CURSOR ◀" ↓ ↑ "CURSOR ▶"

- (2) AM10 kHz / FM200 kHz is selected

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

↓ "ENTER"

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

4. Protection Pass Mode

4.1. Actions

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

4.2. Operations

While holding down buttons "**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

- 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...
----	-----------------

- 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
----	-------------

- 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.

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

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

- 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
----	------------

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

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



Service Path Check Mode

1.1. Actions

This function is convenient for confirming problem paths in the product and checking the paths after repairing.
The Video and Audio paths can be checked.
The backup data is not rewritten.

1.2. Starting up

While holding down buttons **"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	PREVIOUS	NEXT	Audio ⇄ Video	PREVIOUS	NEXT
Button	DIMMER	CURSOR ◀	CURSOR ▶	SLEEP	CURSOR ◀	CURSOR ▶

1.5. Audio system confirmation items

See the block diagram fig.AXXth.

Paths to be confirmed			Display (Sub Display)	Settings	What to confirm
1	Analog	fig.A01	A01:ANALOG PASS	Input Source : CBL/SAT Input Mode : Analog (fixed) Sound mode : DIRECT Amp assign : 11.1ch Floor Layout : 5.1&SB Height Sp : 2ch Dolby Sp : None Height Layout : Front Height MAIN ZONE : On ZONE2 : Off ZONE3 : Off	- Analog input ⇒ RCA output (Front L/R) - Analog input ⇒ XLR output (Front L/R) (※ The input source can be switched to any source except CBL/SAT.)
2	DIGITAL (MAIN)	fig.A02a fig.A02b	A02:DIGITAL	Input Source : CBL/SAT Input Mode : DIGITAL (fixed) Sound mode : MULTI CH STEREO Amp assign : 11.1ch Floor Layout : 5&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 ⇒ RCA output (Front L/R, Center, Surround L/R, S.Back L/R) - Digital input ⇒ XLR 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.A03a fig.A03b fig.A03c	A03: DIGITAL-Z2	Input Source : HEOS Music Input Mode : Auto Sound mode : STEREO Amp assign : 11.1ch Floor Layout : 5ch Height Sp : 2ch Dolby Sp : None Height Layout : Front Height MAIN ZONE : On ZONE2 : On ZONE3 : Off	• Digital(PCM) input ⇒ ZONE2 RCA output (ZONE2 L/R) (※ The input source can be switched to any source except HEOS Music.)
4	DIGITAL (ZONE3)	fig.A04a fig.A04b	A04: DIGITAL-Z3	Input Source : HEOS Music Input Mode : Auto Sound mode : STEREO Amp assign : 11.1ch Floor Layout : 5ch Height Sp : 2ch Dolby Sp : None Height Layout : Front Height MAIN ZONE : On ZONE2 : Off ZONE3 : On	• Digital(PCM) input ⇒ ZONE3 RCA output (ZONE3 L/R) (※ The input source can be switched to any source except HEOS Music.)
5	HDMI	fig.A05a fig.A05b fig.A05c	A05: HDMI	Input Source : CBL/SAT Input Mode : HDMI (fixed) Sound mode : STEREO Amp assign : 11.1ch Floor Layout : 5ch&SB Height Sp : 2ch Dolby Sp : None Height Layout : Front Height MAIN ZONE : On ZONE2 : Off ZONE3 : Off	• HDMI input ⇒ RCA output (Front L/R) • HDMI input ⇒ XLR output (Front L/R) (※ The input source can be switched to any source except CBL/SAT.)
6	Analog AD (MAIN)	fig.A06a fig.A06b	A06: AD	Input Source : CBL/SAT Input Mode : Analog (fixed) Sound mode : MULTI CH STEREO Amp assign : 11.1ch Floor Layout : 5ch&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	• Analog input ⇒ RCA output (Front L/R, Center, Surround L/R, S.Back L/R) • Analog input ⇒ XLR output, SW(20Hz) (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.) (※ 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.A07	A07: ASSIGN-Z2	Input Source : CBL/SAT Input Mode : Auto Sound mode : STEREO Z2 Source : Source Amp assign : 11.1ch Floor Layout : 5ch&SB Height Sp : 2ch Dolby Sp : None Height Layout : Front Height MAIN ZONE : On ZONE2 : On ZONE3 : Off	• Analog input ⇒ ZONE2 RCA 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.A08	A08: ASSIGN-Z3	Input Source : CBL/SAT Input Mode : Auto Sound mode : STEREO Z3 Source : Source Amp assign : 11.1ch Floor Layout : 5ch&SB Height Sp : 2ch Dolby Sp : None Height Layout : Front Height MAIN ZONE : On ZONE2 : Off ZONE3 : On	• Analog input ⇒ ZONE3 RCA 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	Amp Assign (Amp Assign : BiAMP-Surround Back)	fig.A09a fig.A09b	A11:BiAMP-SB	Input Source : CBL/SAT Input Mode : Auto Sound mode : STEREO Amp assign : 9.1ch (BiAMP) Preout for Bi-Amp : SURROUND BACK Floor Layout : 5ch Height Sp : None Dolby Sp : None MAIN ZONE : On ZONE2 : Off ZONE3 : Off	• Analog input ⇒ RCA output (Front L/R, S.Back L/R (Front)) • Analog input ⇒ XLR output (Front L/R, S.Back L/R (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)
10	Amp Assign (Amp Assign : BiAMP-Height2)	fig.A10a fig.A10b	A12:BiAMP-H2	Input Source : CBL/SAT Input Mode : Auto Sound mode : STEREO Amp assign : 9.1ch (BiAMP) Preout for Bi-Amp : HEIGHT2 Floor Layout : 5ch Height Sp : None Dolby Sp : None MAIN ZONE : On ZONE2 : Off ZONE3 : Off	• Analog input ⇒ RCA output (Front L/R, Height2 L/R (Front)) • Analog input ⇒ XLR output (Front L/R, Height2 L/R (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.A11a fig.A11b	A14:FRONT HEIGHT	Input Source : CBL/SAT Input Mode : Auto Sound mode : MULTI CH STEREO Amp assign : 11.1ch Floor Layout : 5ch&SB 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 ⇒ RCA output (Height1 L/R (Top Front), Height2 L/R (Top Front)) • Analog input ⇒ XLR output (Height1 L/R (Top Front)) • Pre OUT 出力 (※ 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.A12	A19:7.1CH IN	Input Source : CBL/SAT Input Mode : 7.1Ch In Amp Assign : 11.1ch Floor Layout : 5ch&SB Height Sp : None Dolby Sp : None Speaker Config Front, Center, Surround, Surround Back(2spkrs) Speaker Config ALL Speaker = Small/SW = Yes(2ch) MAIN ZONE : On ZONE2 : Off ZONE3 : Off	• 7.1ch IN input ⇒ RCA output (Front L/R, Center, Surround L/R, S.Back L/R, Subwoofer1/2) • 7.1ch IN input ⇒ XLR output (Front L/R, Center, Surround L/R, S.Back L/R, Subwoofer1/2)



1.6. Confirmation items for the video system

See the block diagram fig.VXXth.

Paths to be confirmed			Display (Sub Display)	Settings	What to confirm
1	Analog Video pass	fig.V01	V01:VIDEO PASS	Input Source : CBL/SAT Video Conversion (IP Scaler) : Off MAIN ZONE : On ZONE2 : On ZONE3 : Off	• Component input ⇒ Component output (※ The input source can be switched to any source except CBL/SAT.)
2	Video Convert (Analog or HDMI ⇒ HDMI)	fig.V02a fig.V02b	V02:V. CONVERT	Input Source : CBL/SAT Video Conversion (IP Scaler) : On, All sources IP Scaler : "Analog&HDMI", All sources Resolution : "Auto", All sources MAIN ZONE : On ZONE2 : Off ZONE3 : 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.V03	V03:HDMI PASS	Input Source : CBL/SAT Video Conversion (IP Scaler) : Off MAIN ZONE : On ZONE2 : Off ZONE3 : Off	• HDMI input (MAIN function) ⇒ HDMI output (MAIN) (※ The input source can be switched to any source except CBL/SAT.)
4	HDMI CEC	fig.V04	V04:HDMI CEC	Input Source : CBL/SAT HDMI Control : On MAIN ZONE : On ZONE2 : Off ZONE3 : 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.V05a fig.V05b fig.V05c	V05: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.V06a fig.V06b	V06: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.V07	V07:GUI MENU ON	Input Source : CBL/SAT Video Conversion (IP Scaler) : On, All sources IP Scaler : "Analog&HDMI", All sources Resolution : "AUTO", All sources Setup Menu : On MAIN ZONE : On ZONE2 : Off ZONE3 : Off	• GUI display ⇒ HDMI output. (※ The input source can be switched to any source except CBL/SAT.)
8	HDMI pass (MAIN ZONE2)	fig.V08	V08: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.)



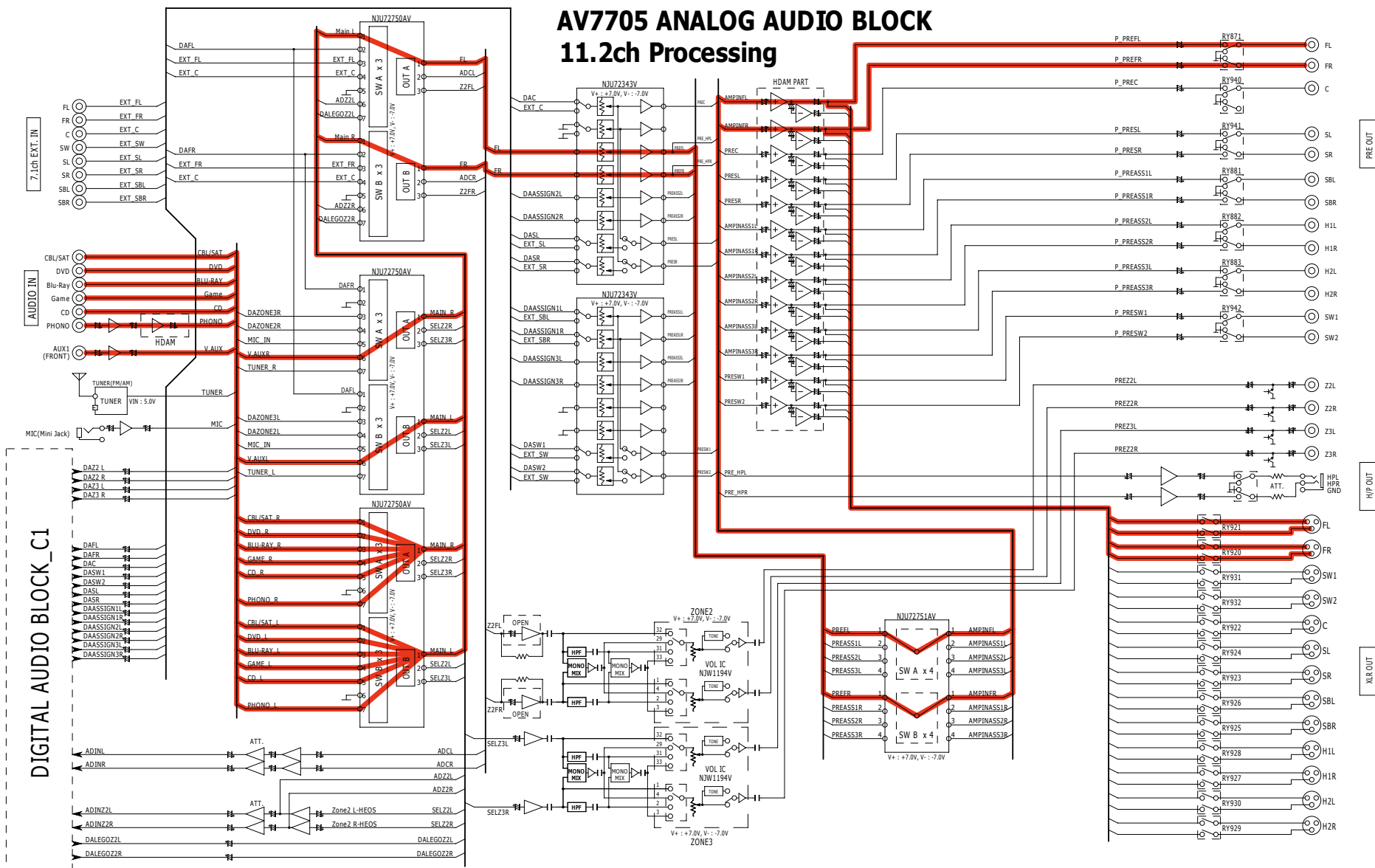
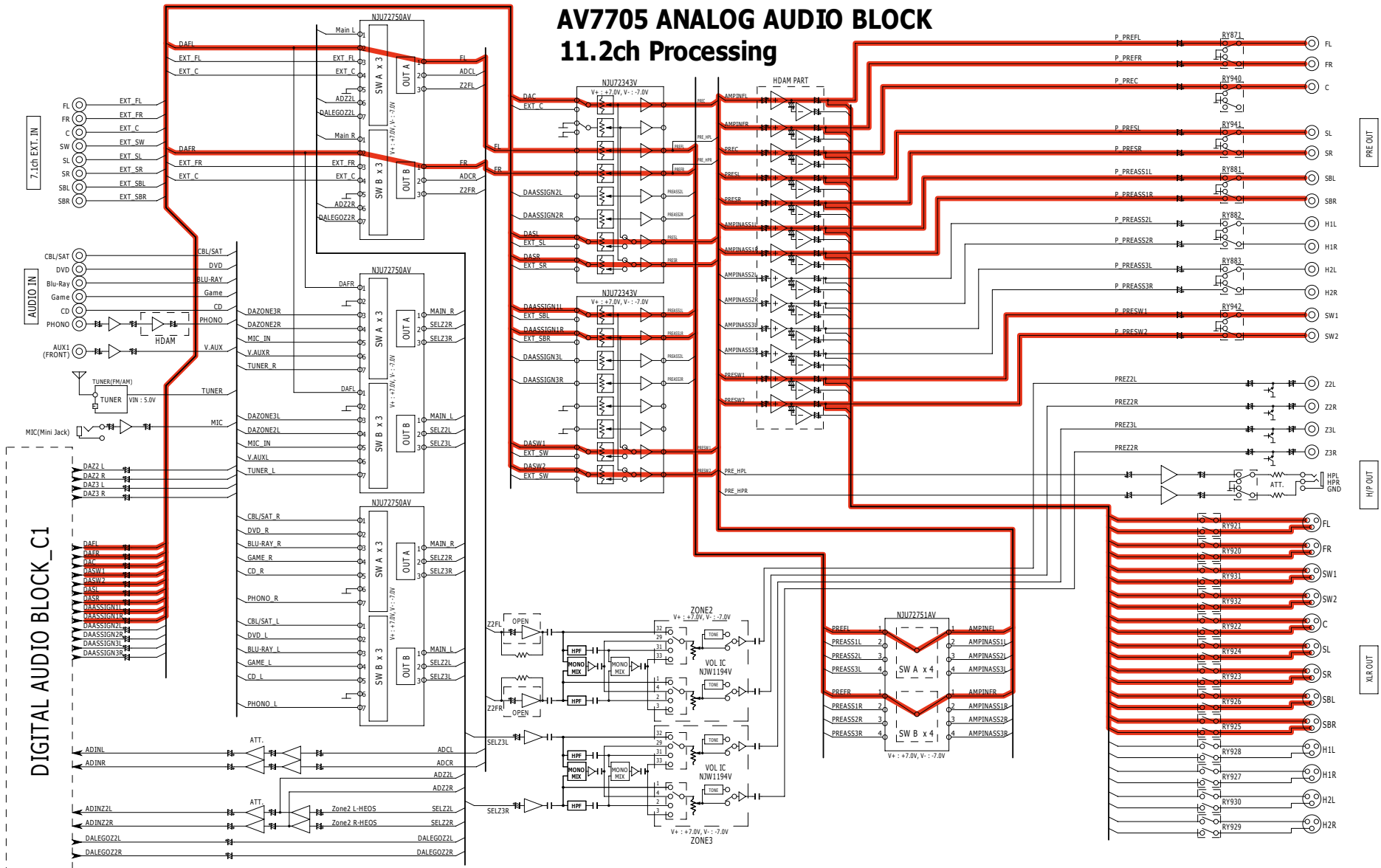


fig.A02a



Before Servicing This Unit

Electrical

Mechanical

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fig.A03b

SR7013/AV7705 DIGITAL AUDIO BLOCK(ADI)

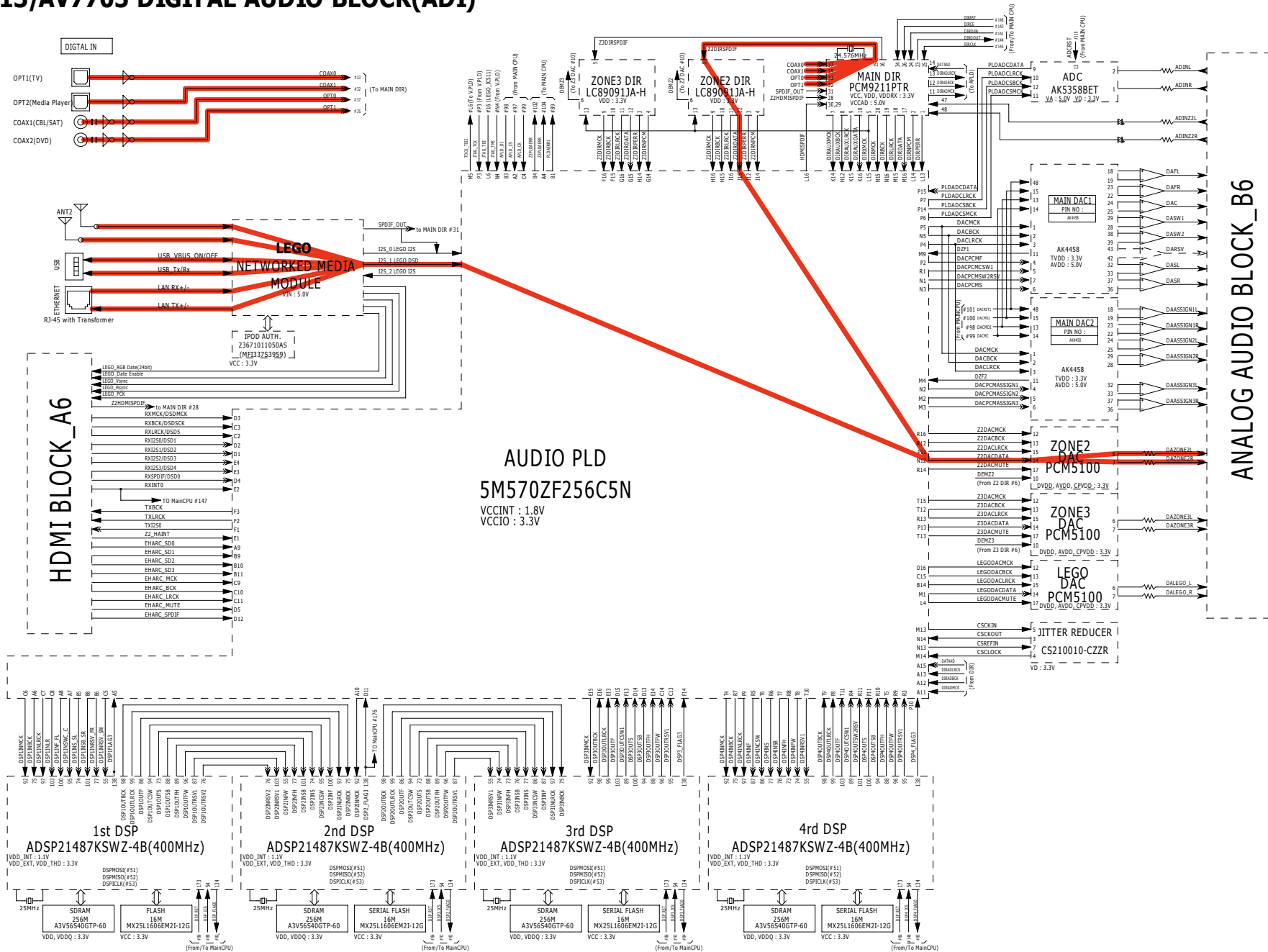


fig.A03c

SR7013/AV7705/SR6013 HDMI BLOCK

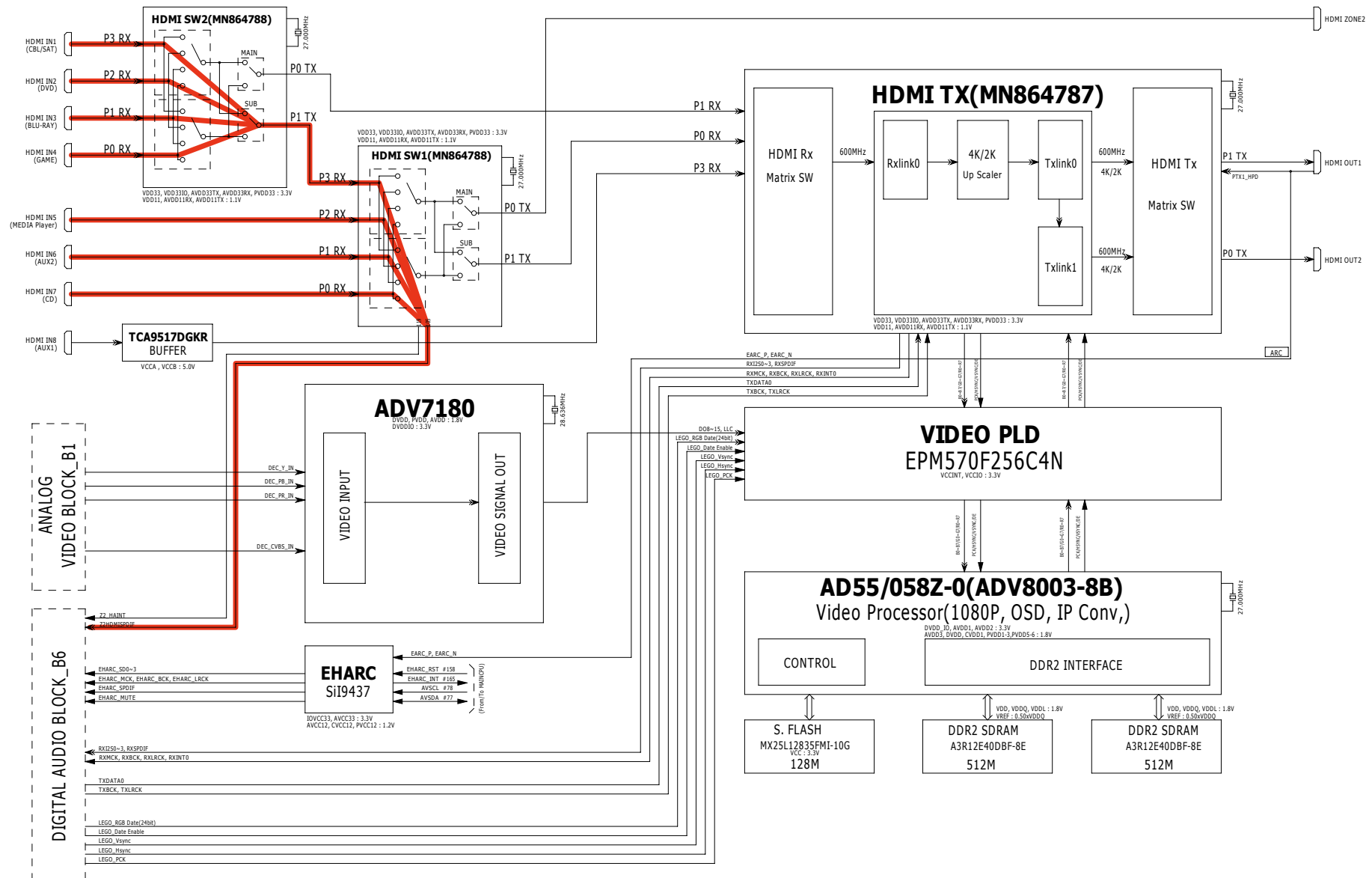


fig.A04a

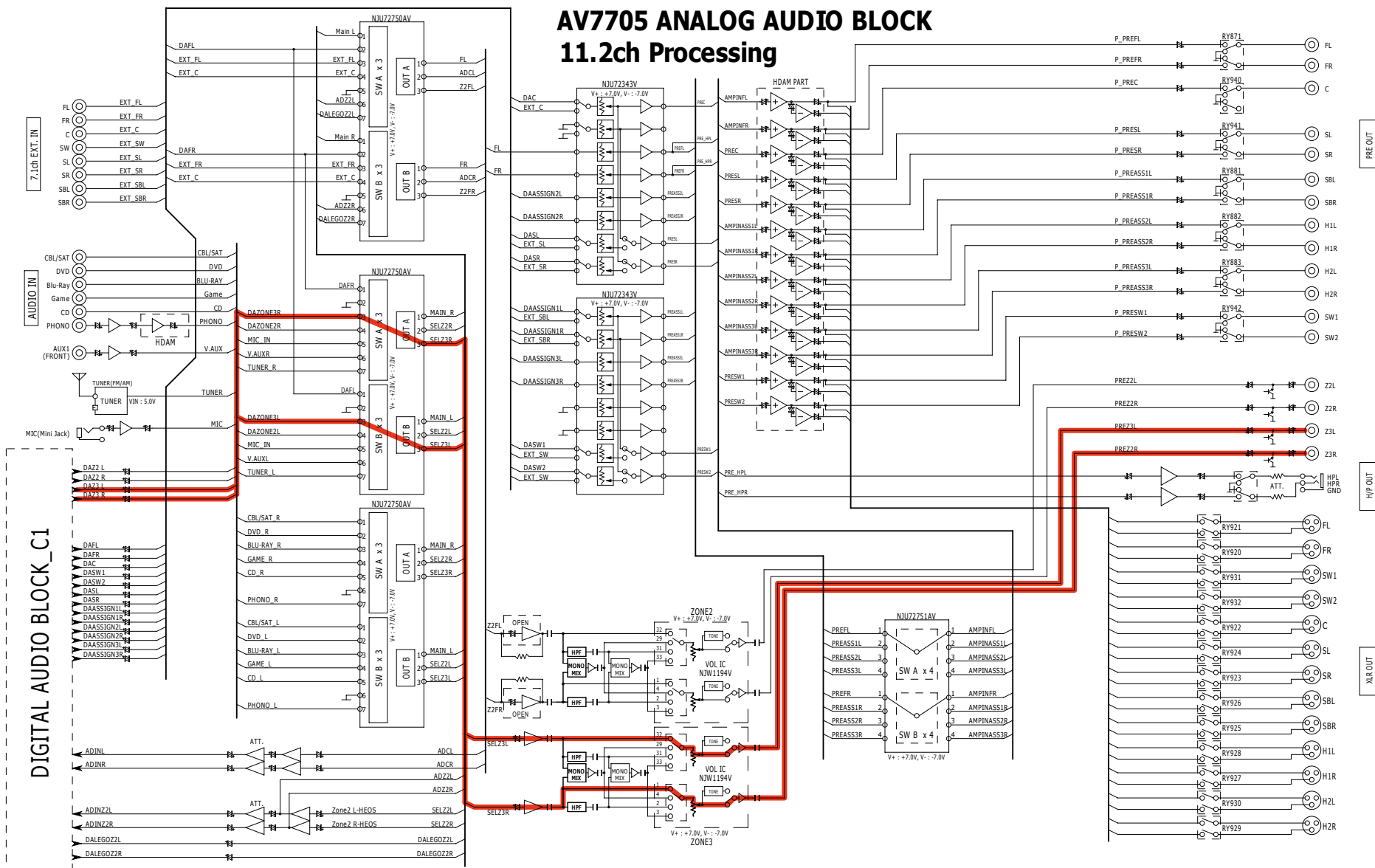


fig.A05a

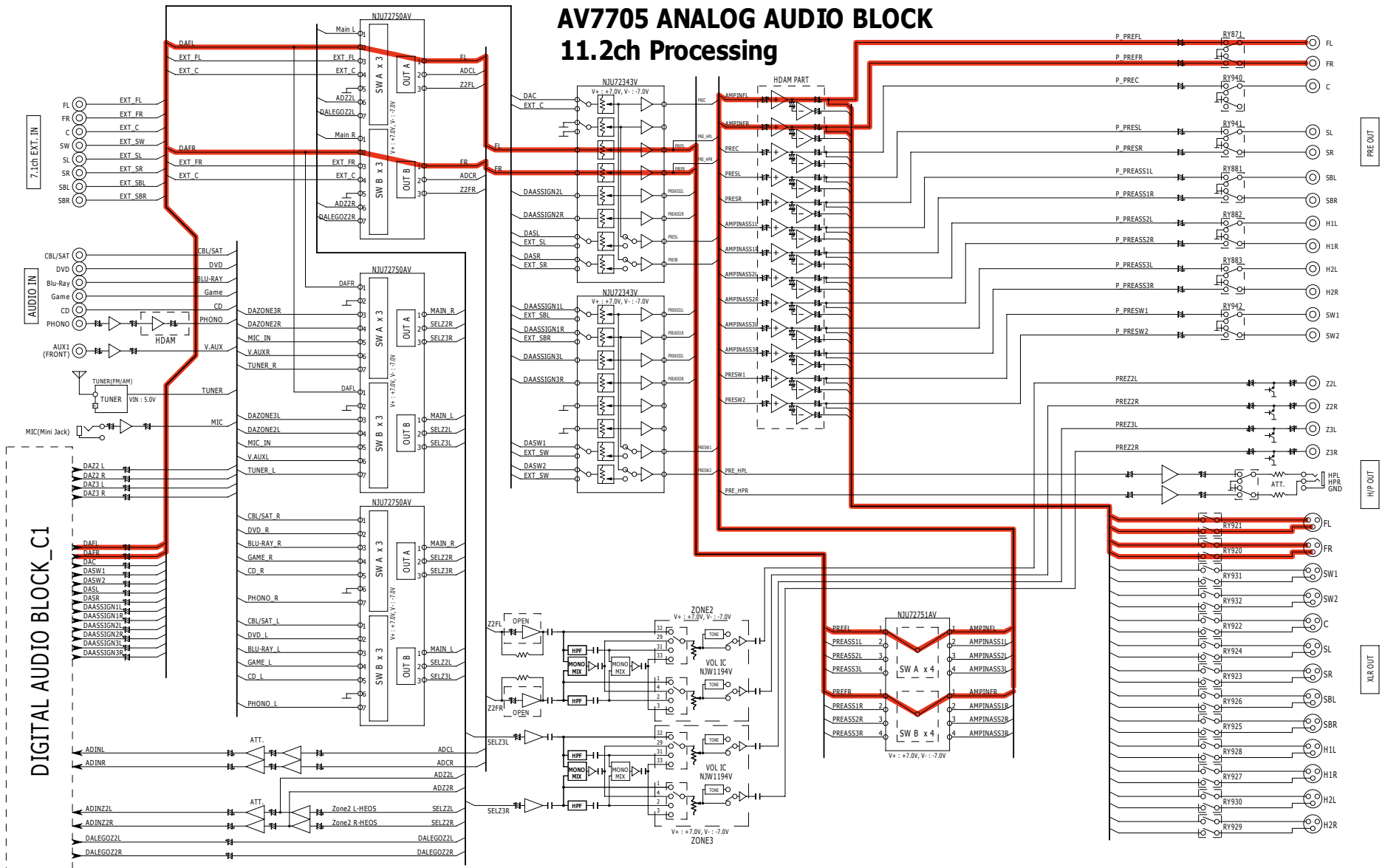


fig.A05b

SR7013/AV7705 DIGITAL AUDIO BLOCK(ADI)

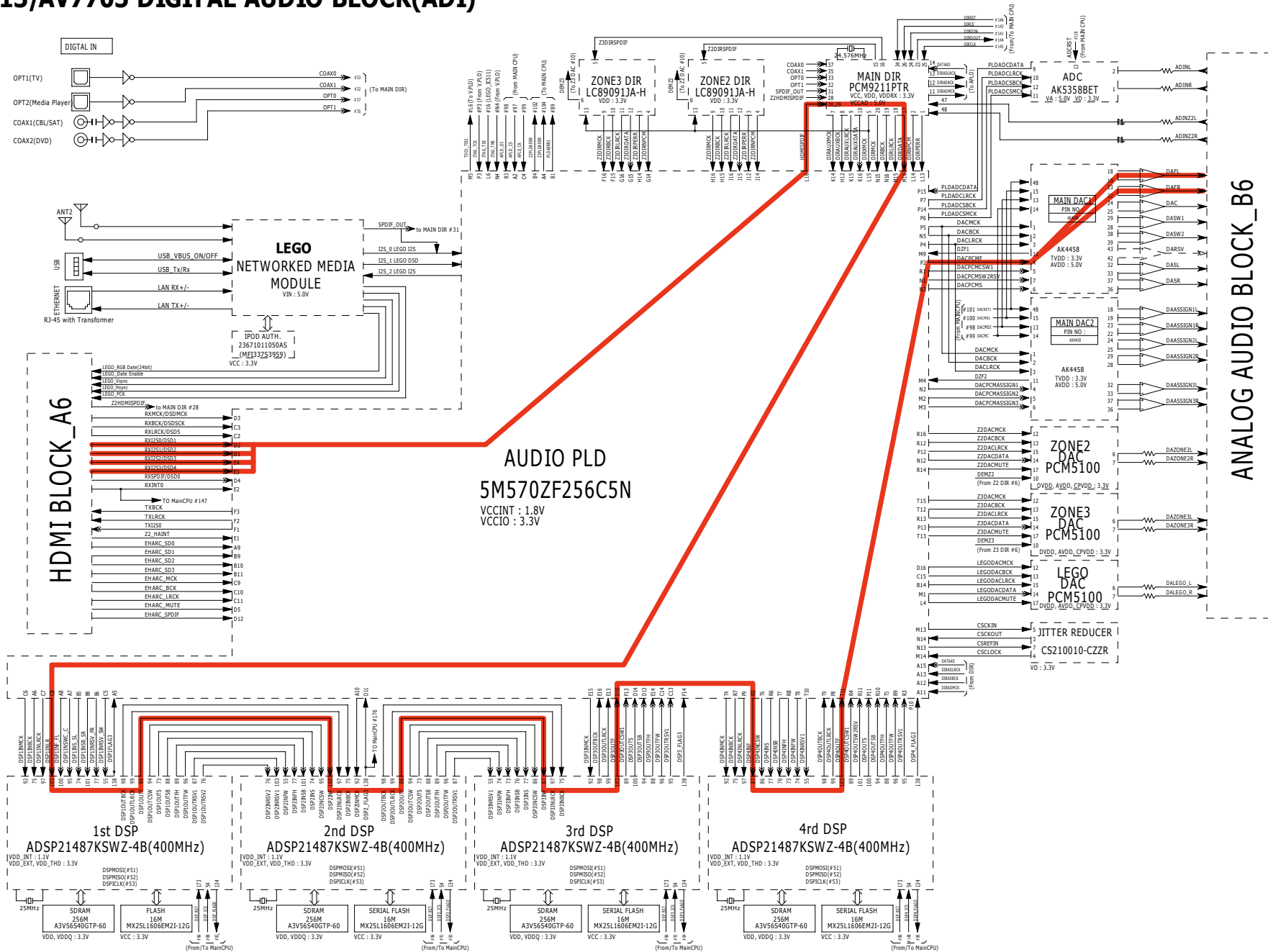


fig.A05c

SR7013/AV7705/SR6013 HDMI BLOCK

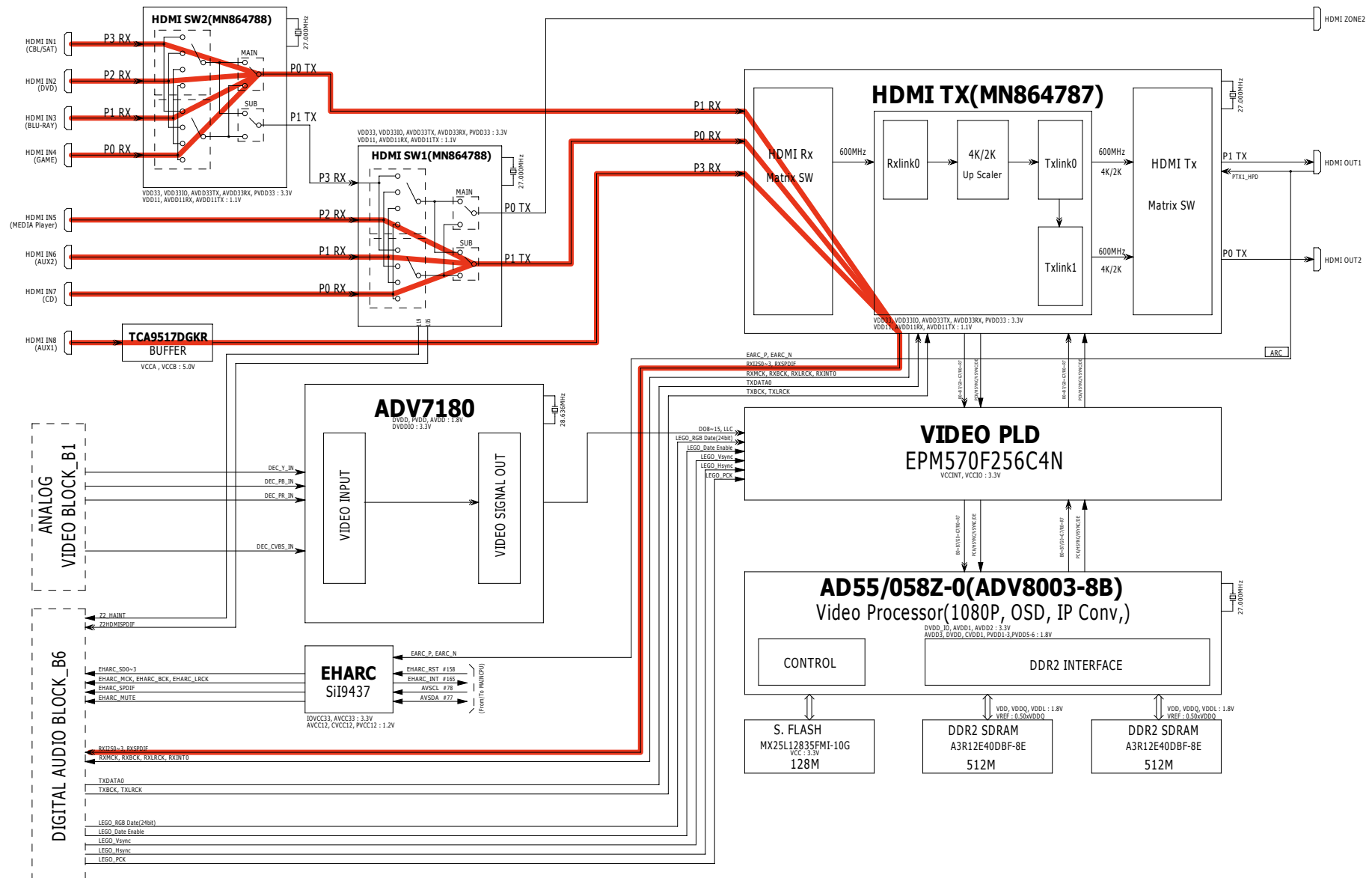


fig.A06a

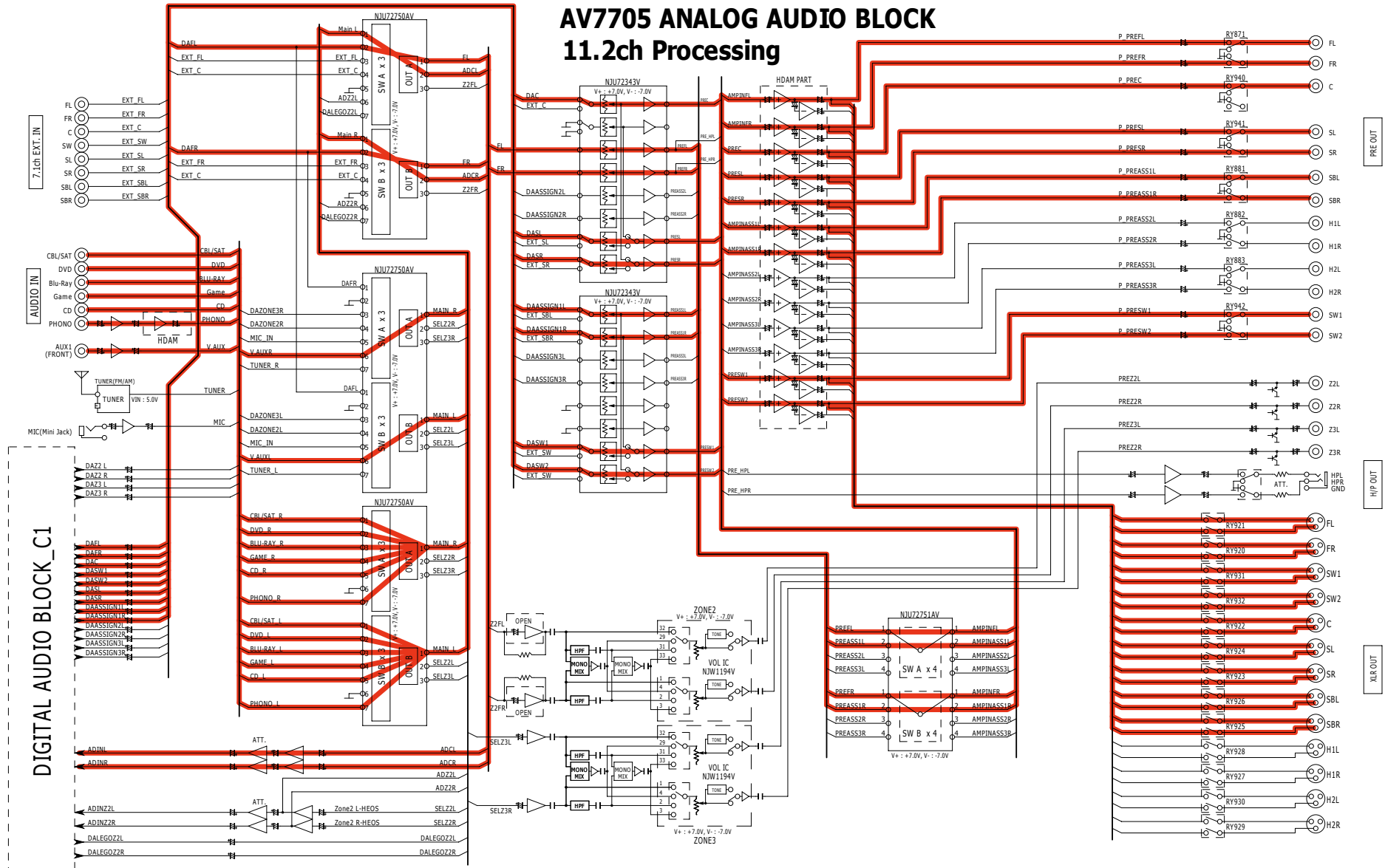


fig.A07

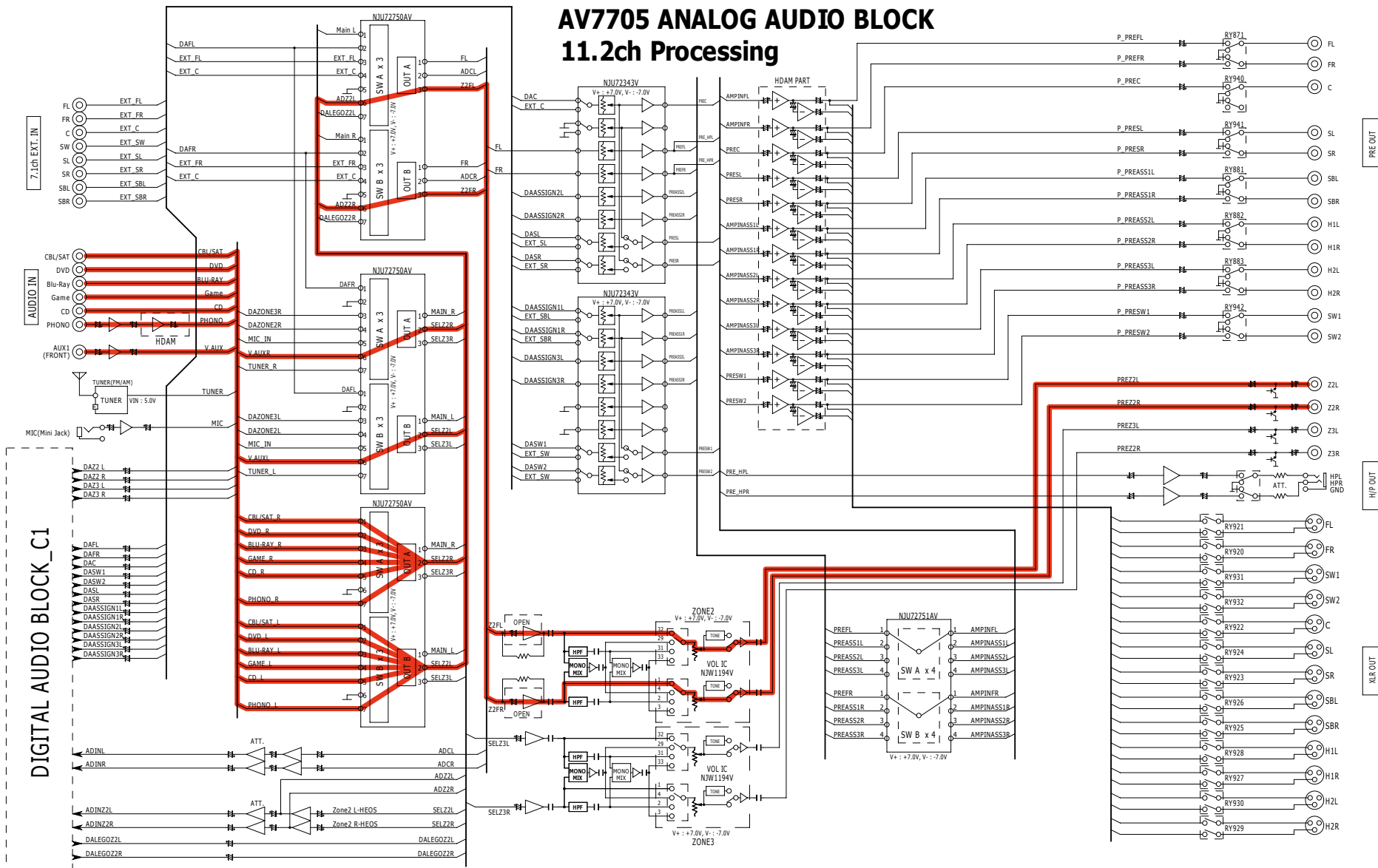
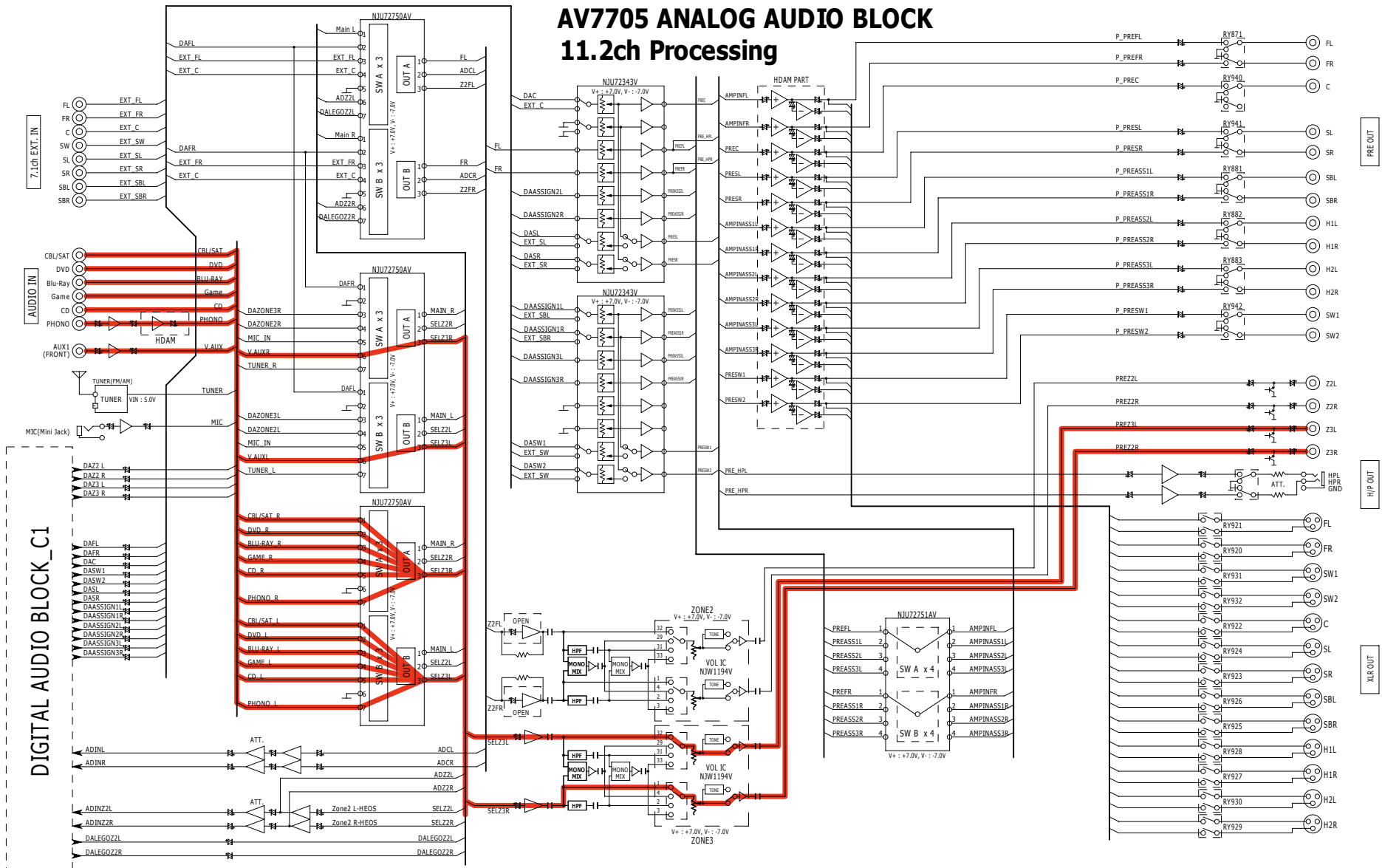


fig.A08



Before Servicing
This Unit

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Updating



fig.A09a

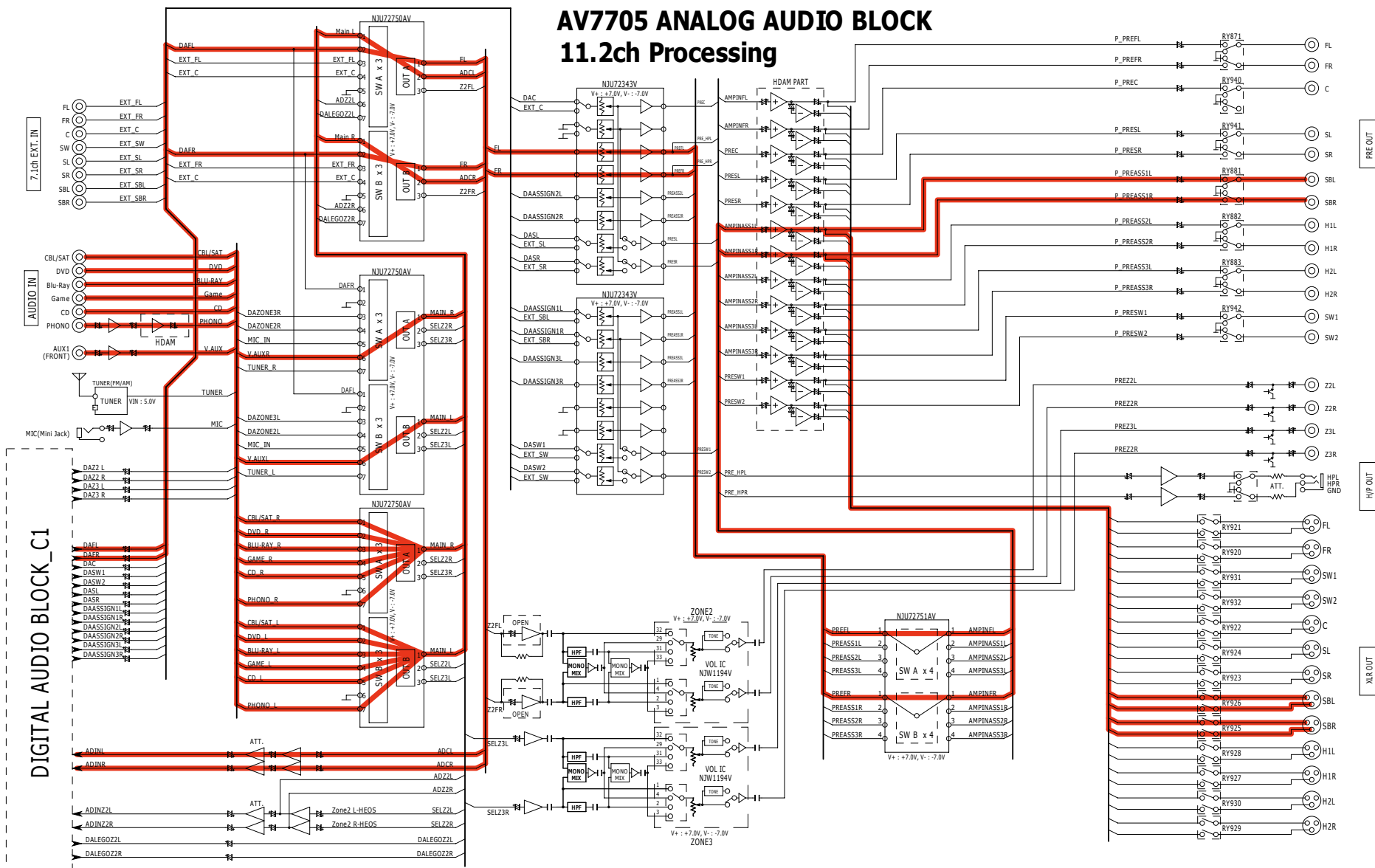


fig.A10a

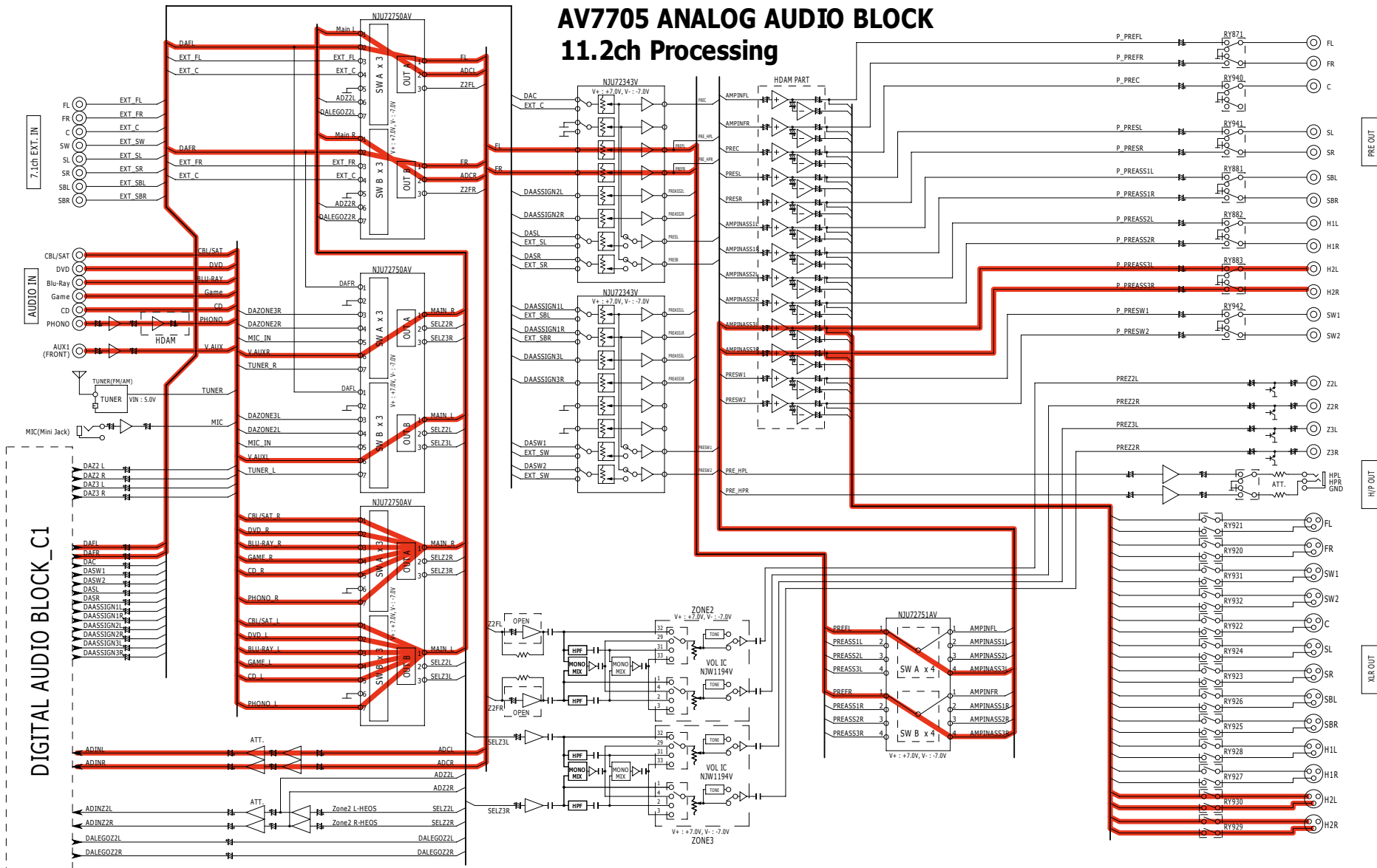
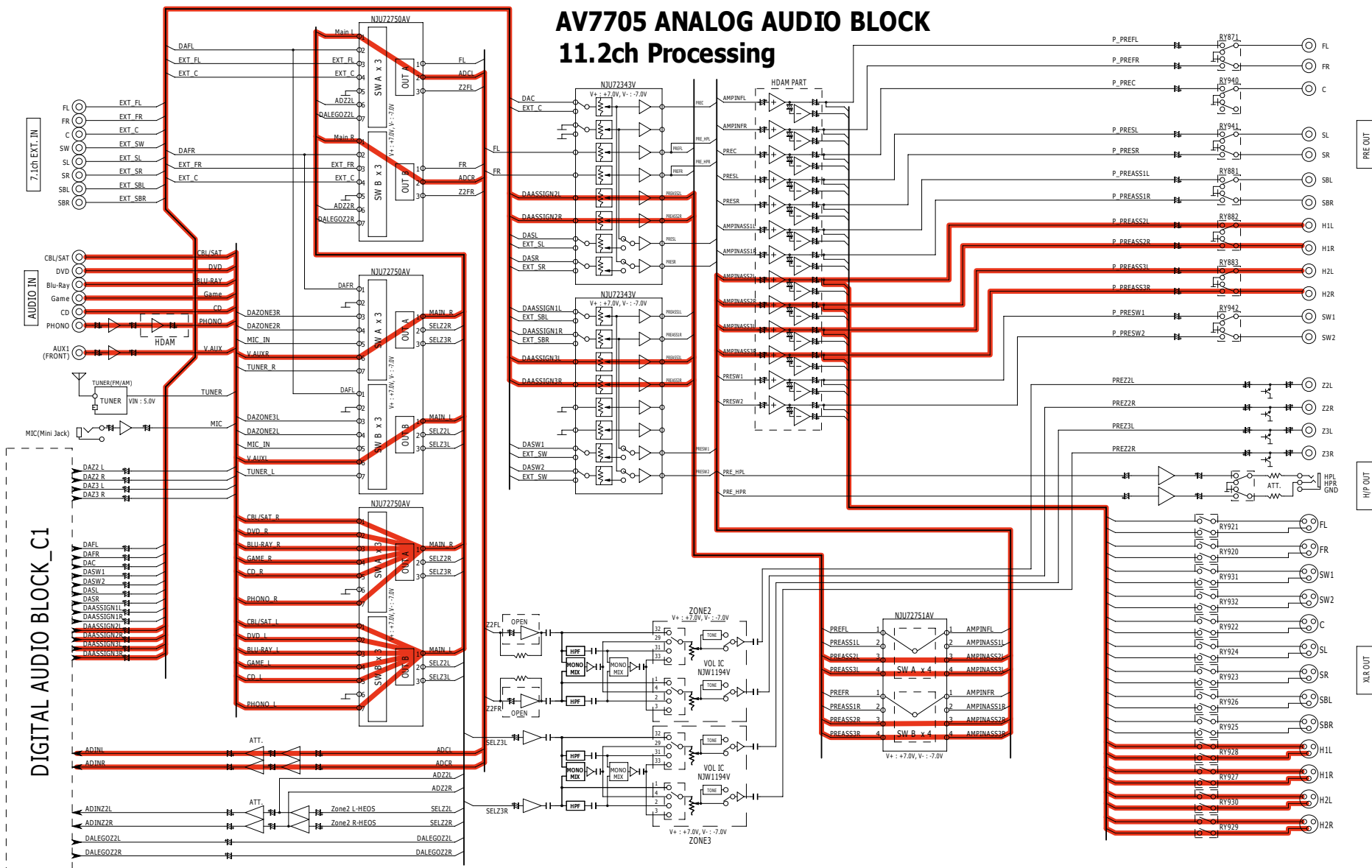


fig.A11a



AV7705 ANALOG AUDIO BLOCK
11.2ch Processing

The diagram illustrates the internal circuitry of the AV7705 Analog Audio Block, designed for 11.2ch processing. It includes various input sections, DACs, and a large array of output channels.

Inputs:

- 7.1ch EXT. IN:** FL, FR, C, SW, SL, SR, SBL, SBR.
- AUDIO IN:** CBL/SAT, DVD, Blu-Ray, Game, CD, PHONO, AUX1 (FRONT), TUNER (FM/AM), MIC (Mini Jack).
- DIGITAL AUDIO BLOCK_C1:** ADINL, ADINR, ADINZ2L, ADINZ2R, DALEGOZ2L, DALEGOZ2R.

Processing and Output Stages:

- Zone 1:** NJU72750AV chips for Main L, Main R, and SELZ2L, SELZ2R.
- Zone 2:** NJU72750AV chips for Main L, Main R, and SELZ2L, SELZ2R.
- Zone 3:** NJU72750AV chips for Main L, Main R, and SELZ2L, SELZ2R.
- Zone 4:** NJU72751AV chips for PREFL, PREFR, PREC, PRESL, PRESR, PRESS1L, PRESS1R, PRESS2L, PRESS2R, PRESS3L, PRESS3R, PRESW1, PRESW2.
- Zone 5:** NJU72751AV chips for PREFL, PREFR, PREC, PRESL, PRESR, PRESS1L, PRESS1R, PRESS2L, PRESS2R, PRESS3L, PRESS3R, PRESW1, PRESW2.

Outputs:

- PRE OUT:** P PREFL, P PREFR, P PREC, P PRESL, P PRESR, P PRESS1L, P PRESS1R, P PRESS2L, P PRESS2R, P PRESS3L, P PRESS3R, P PRESW1, P PRESW2.
- HIP OUT:** Z2L, Z2R, Z3L, Z3R, HPL, HPR, END.
- XAR OUT:** FL, FR, C, SL, SR, SBL, SBR, H1L, H1R, H2L, H2R, SW1, SW2.

fig.V01

SR7013/AV7705 ANALOG VIDEO BLOCK

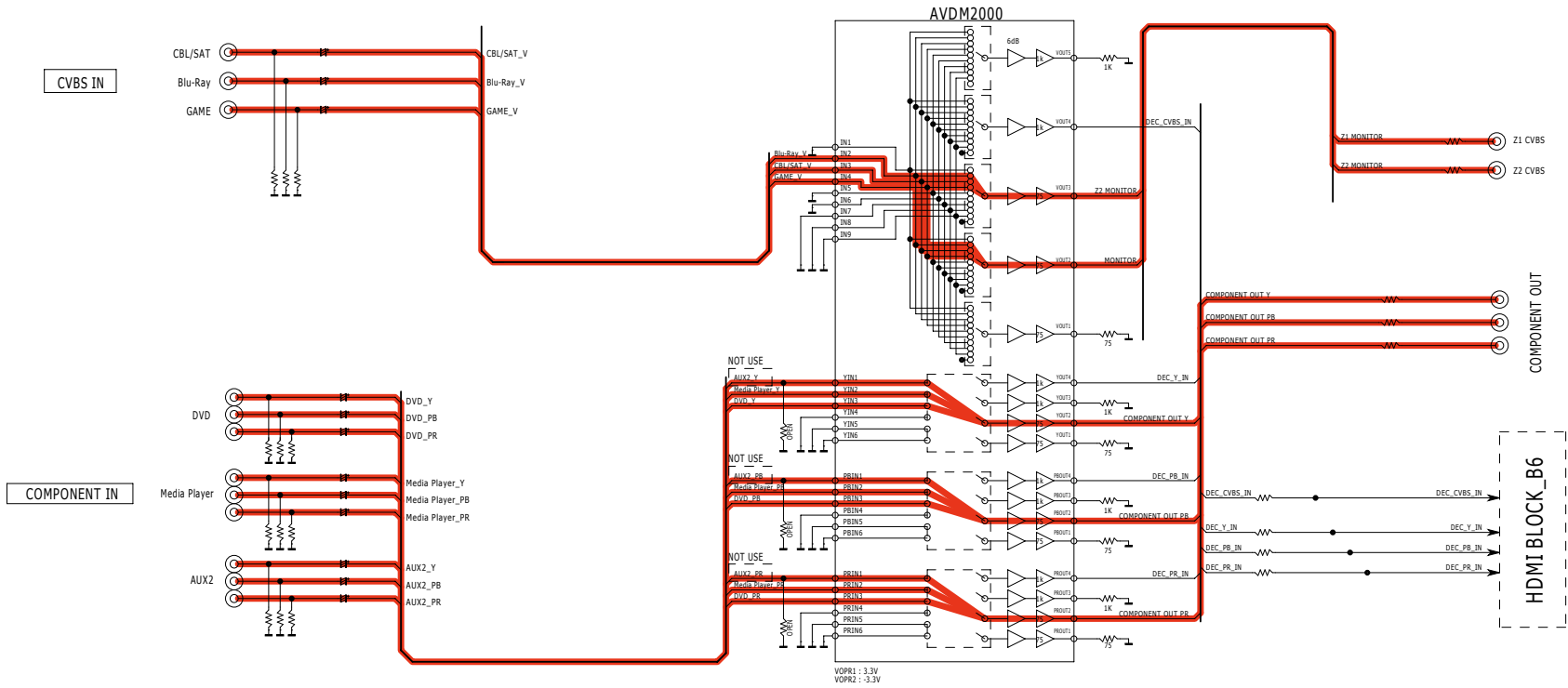


fig.V02a

SR7013/AV7705 ANALOG VIDEO BLOCK

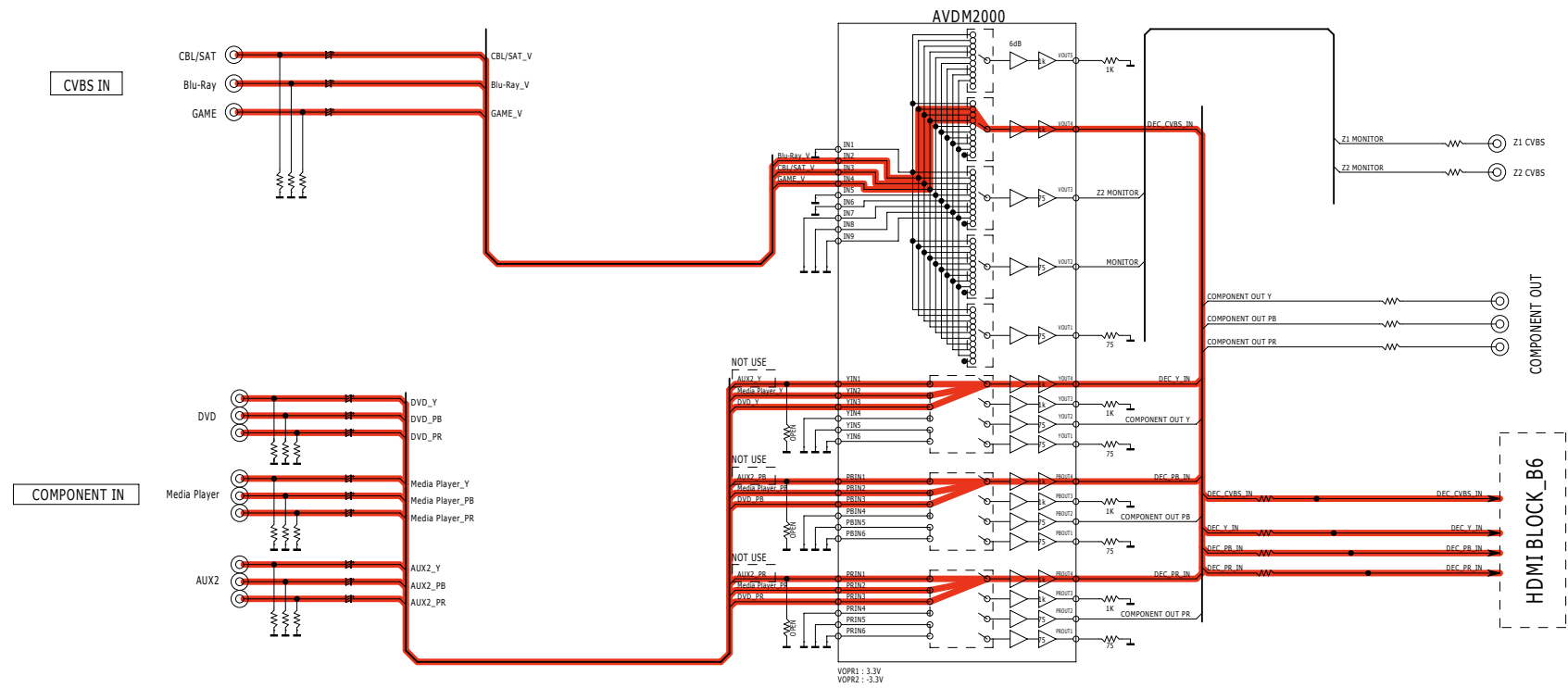


fig.V02b

SR7013/AV7705/SR6013 HDMI BLOCK

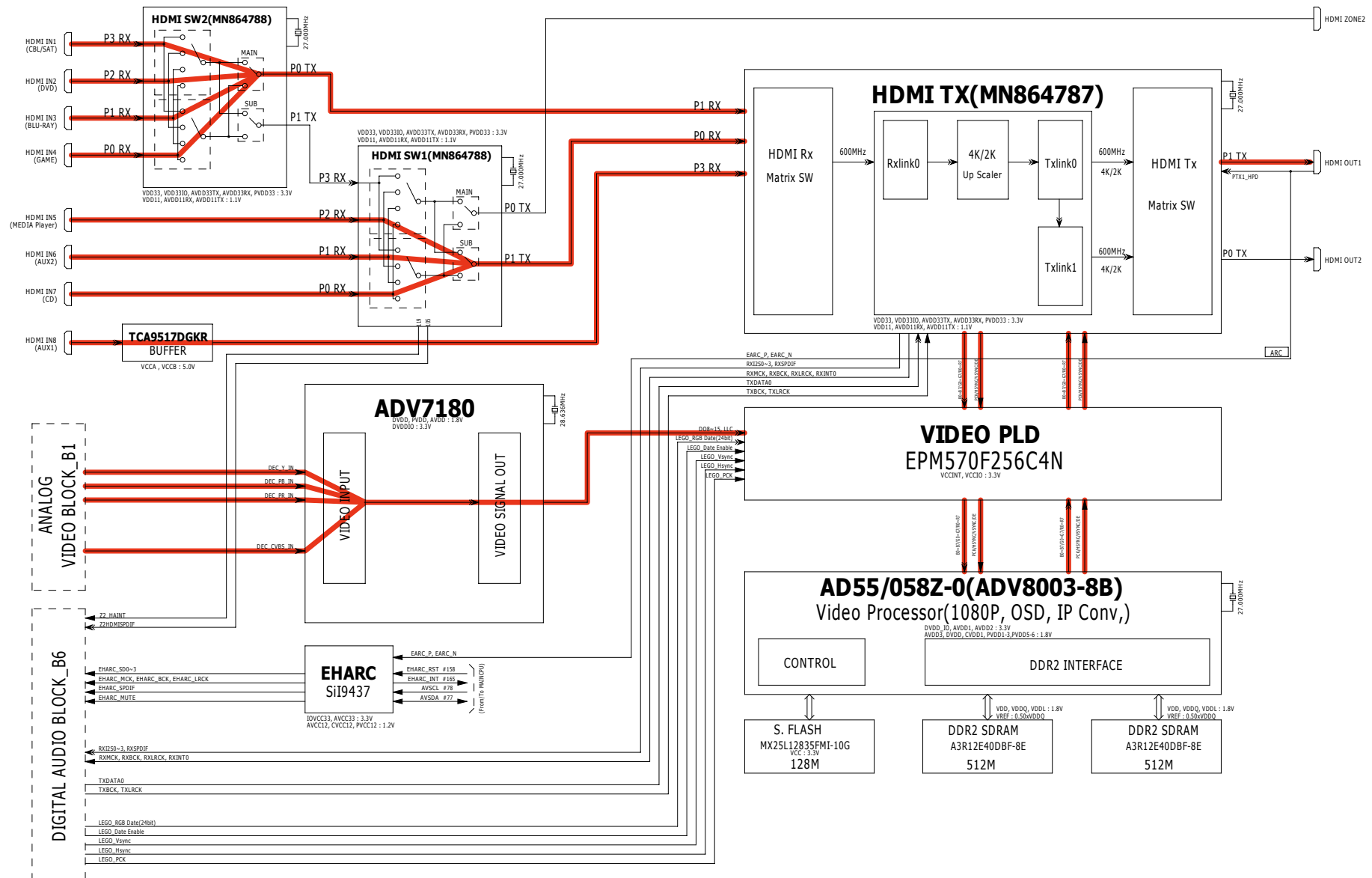


fig.V03

SR7013/AV7705/SR6013 HDMI BLOCK

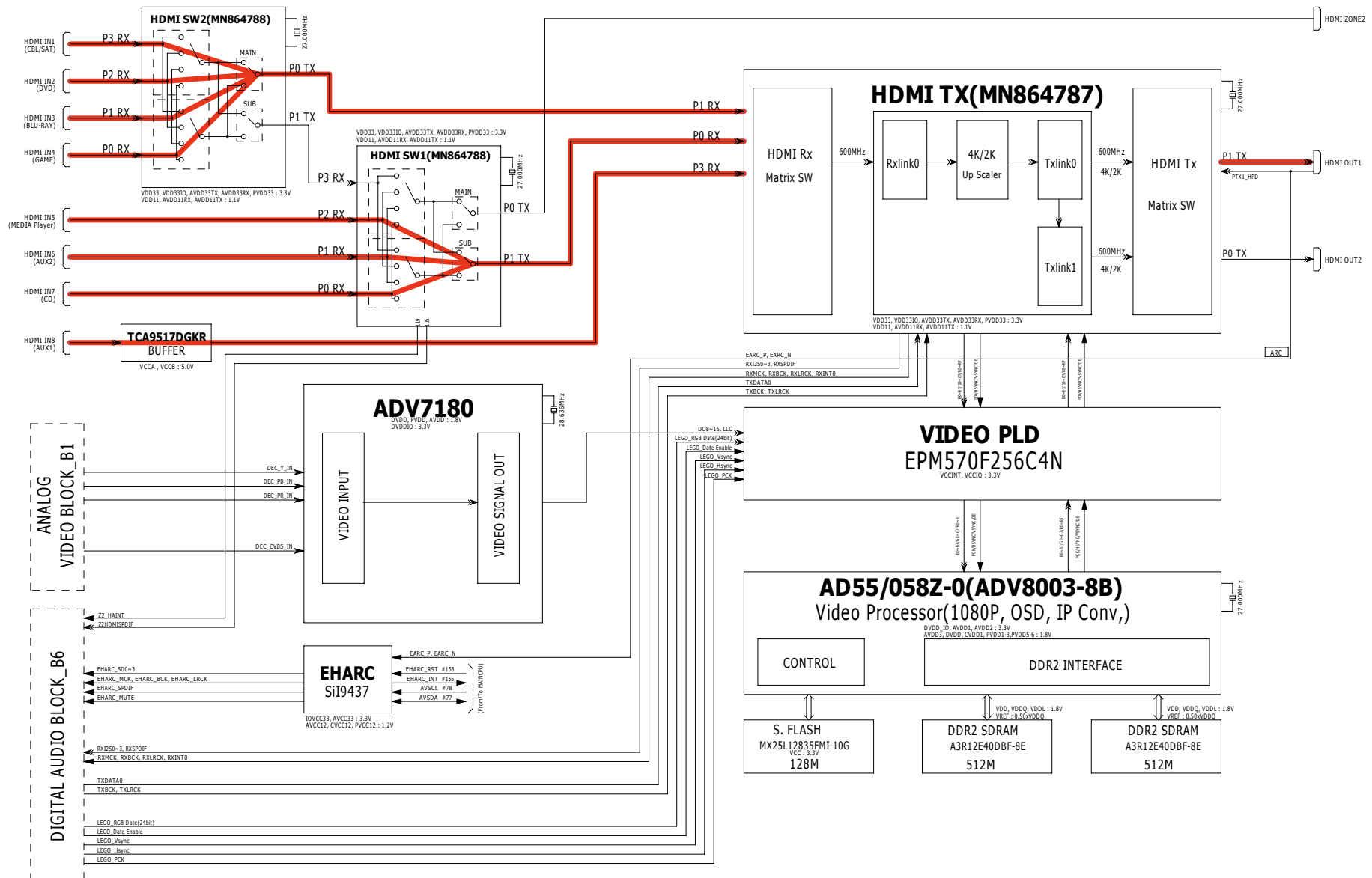


fig.V04

SR7013/AV7705/SR6013 HDMI BLOCK

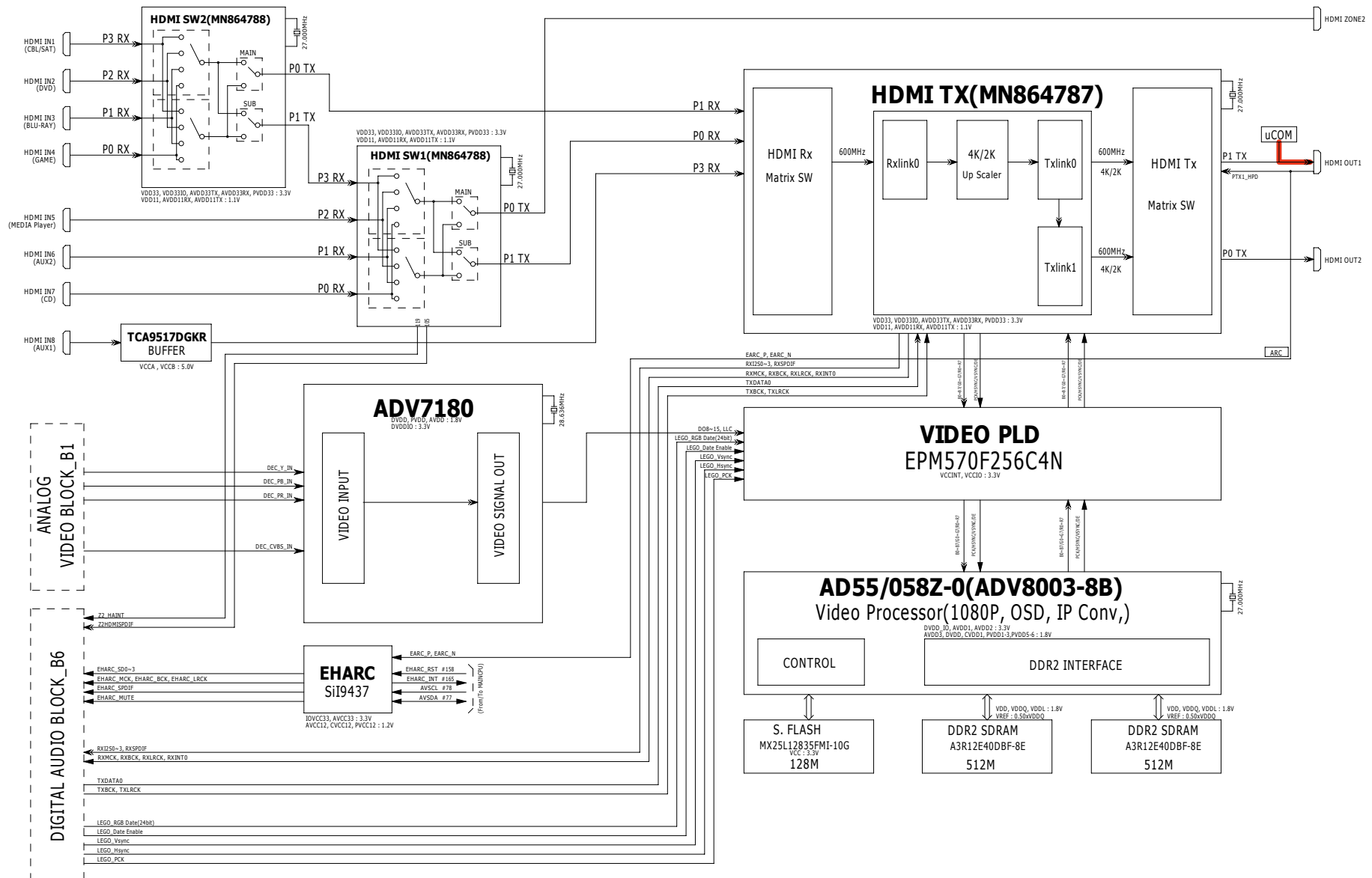


fig.V05a

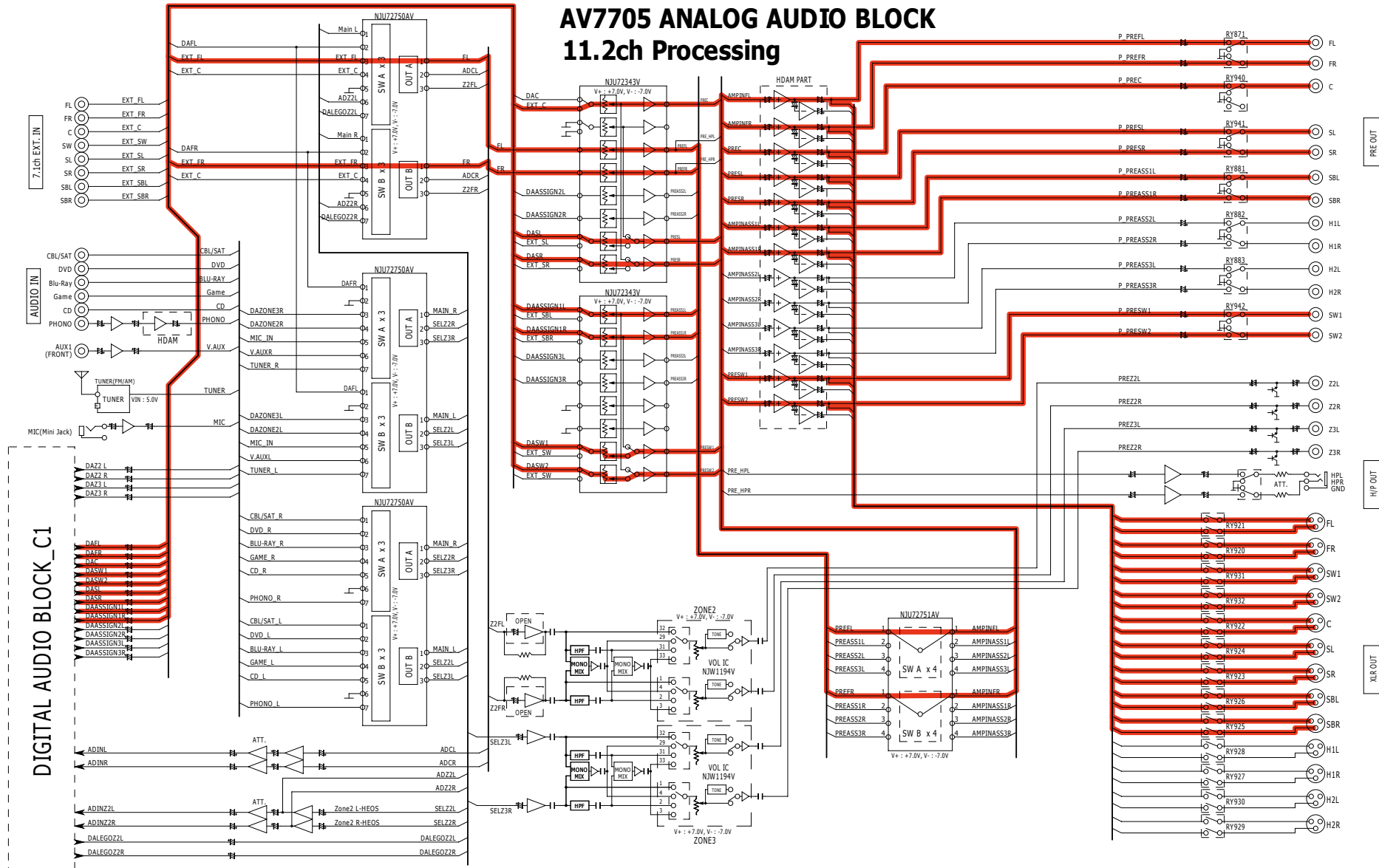


fig.V05c

SR7013/AV7705/SR6013 HDMI BLOCK

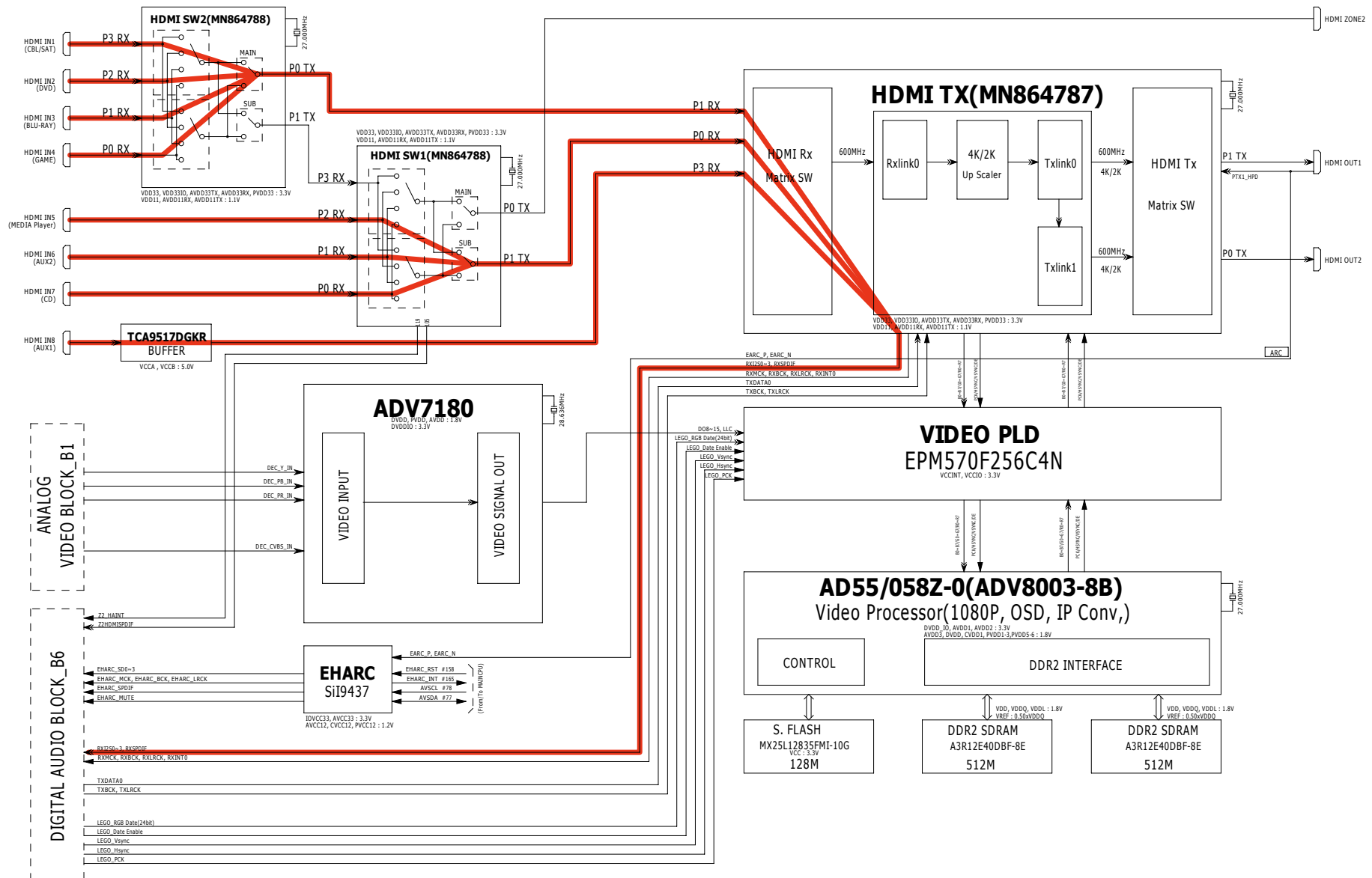


fig.V06b

SR7013/AV7705/SR6013 HDMI BLOCK

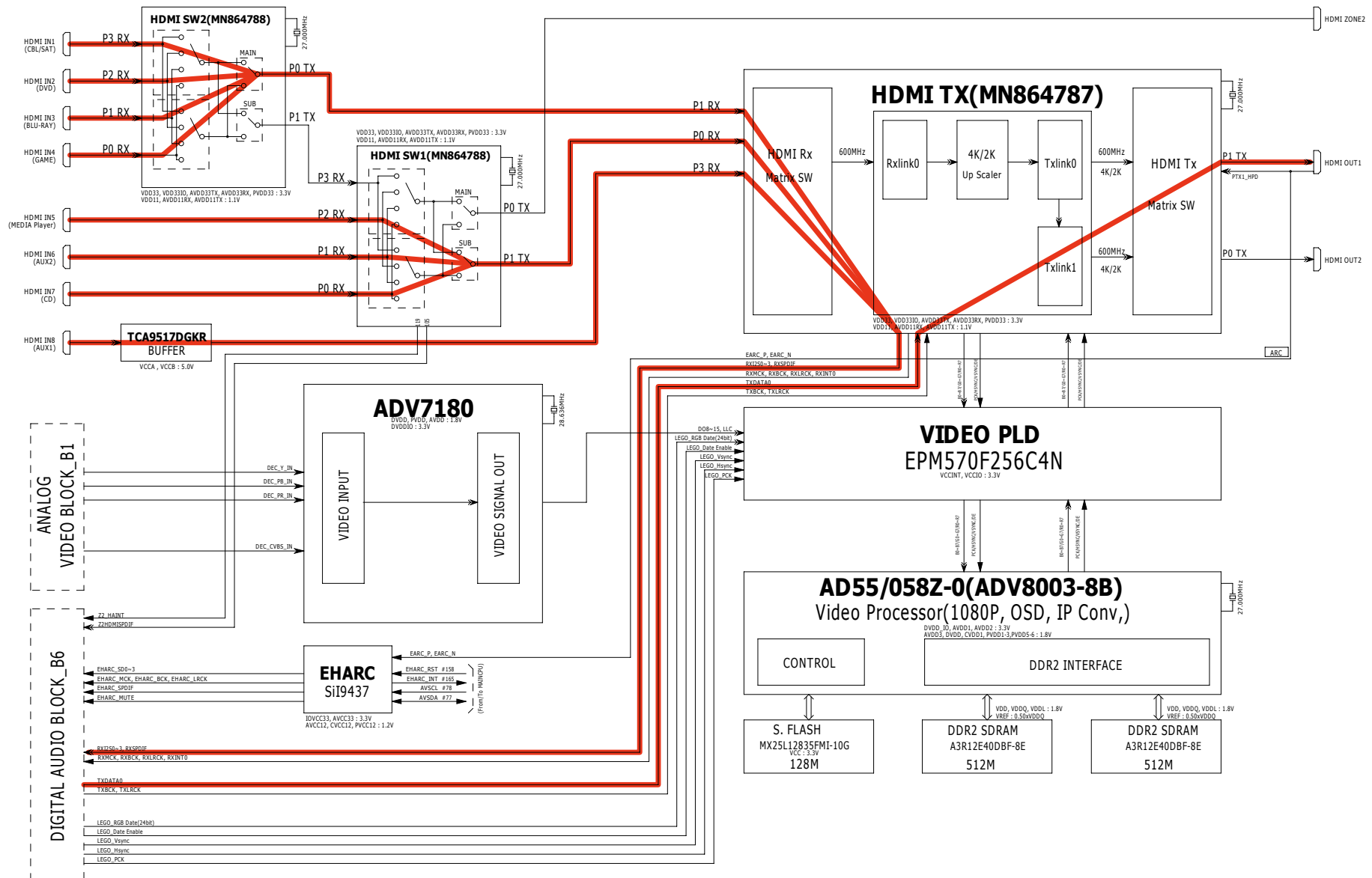
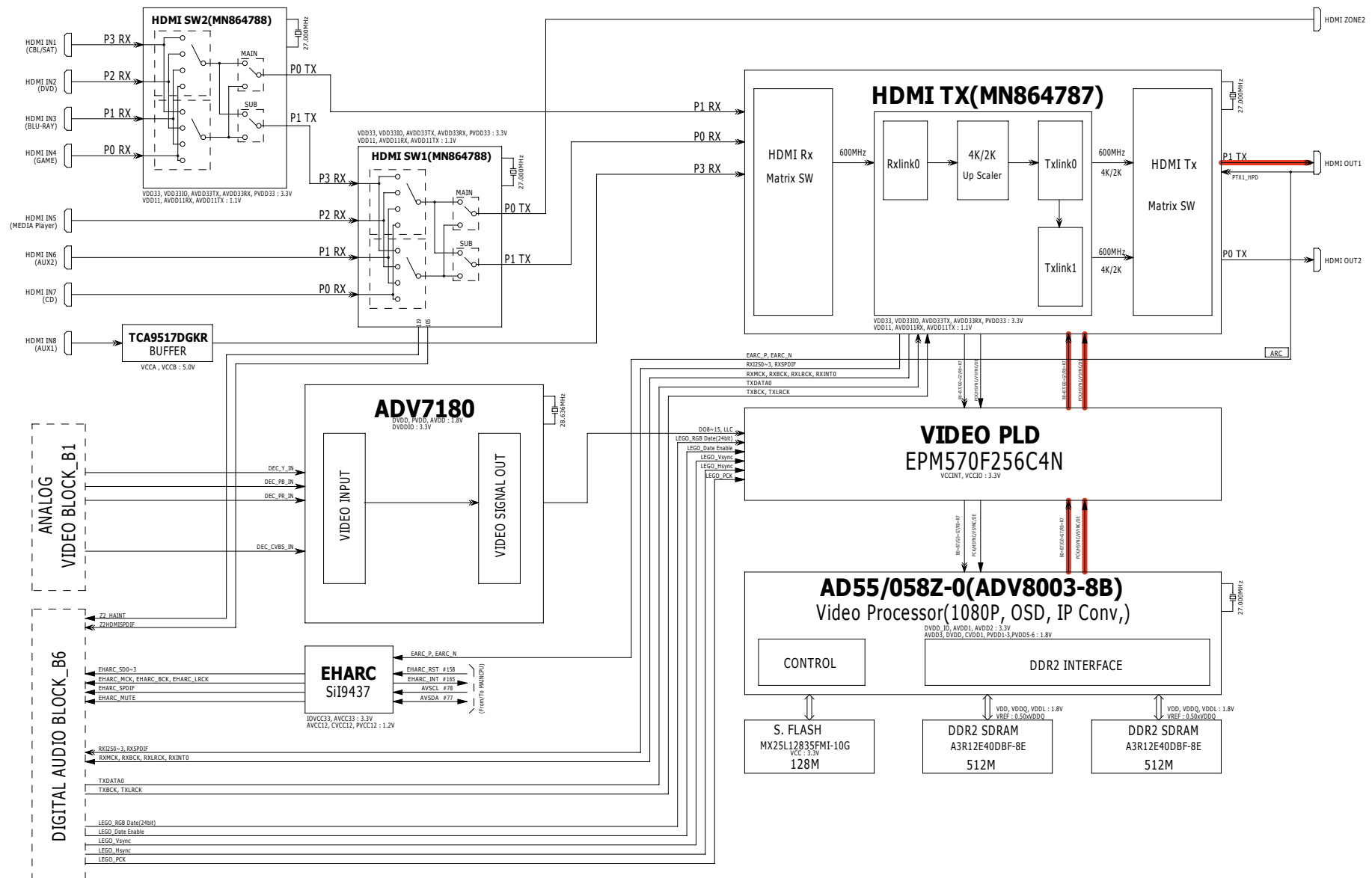


fig.V07

SR7013/AV7705/SR6013 HDMI BLOCK



SR7013/AV7705/SR6013 HDMI BLOCK



Mechanical

Repair Information

Updating

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---

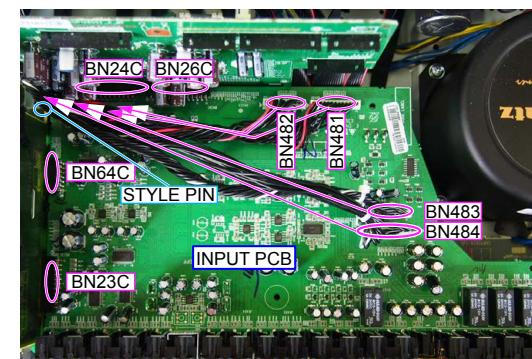
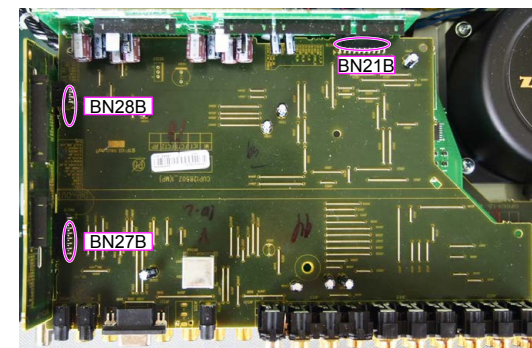
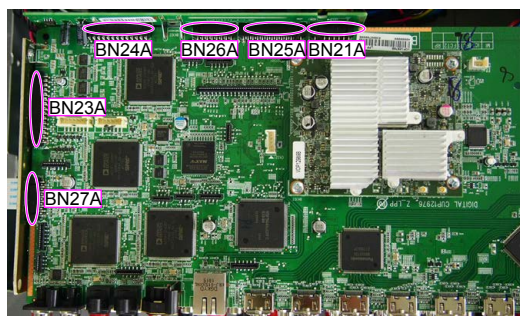
8U-110084S : EXTENSION UNIT KIT	:	1Set
8U-110136S : EXTENSION UNIT KIT	:	1 Set
900639103810S : JIG 29P EXTENSION CABLE	:	1 Set
Insulation sheet (Not supplied)	:	3 sheet
Ground lead (Not supplied)	:	3 pc

-Proceeding-

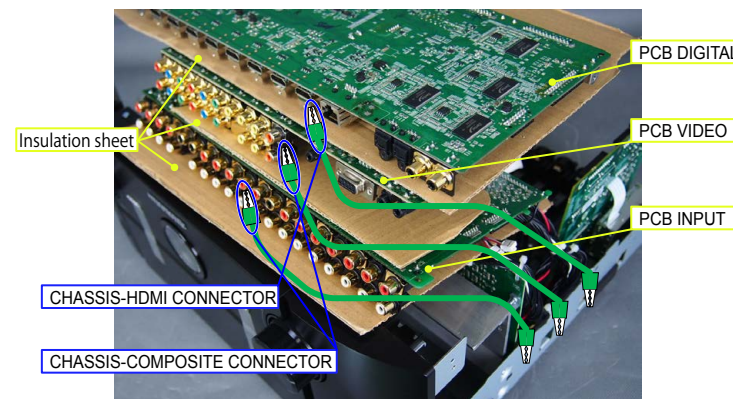
(1) Remove the screws.



(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.



Before Servicing
This Unit

Electrical

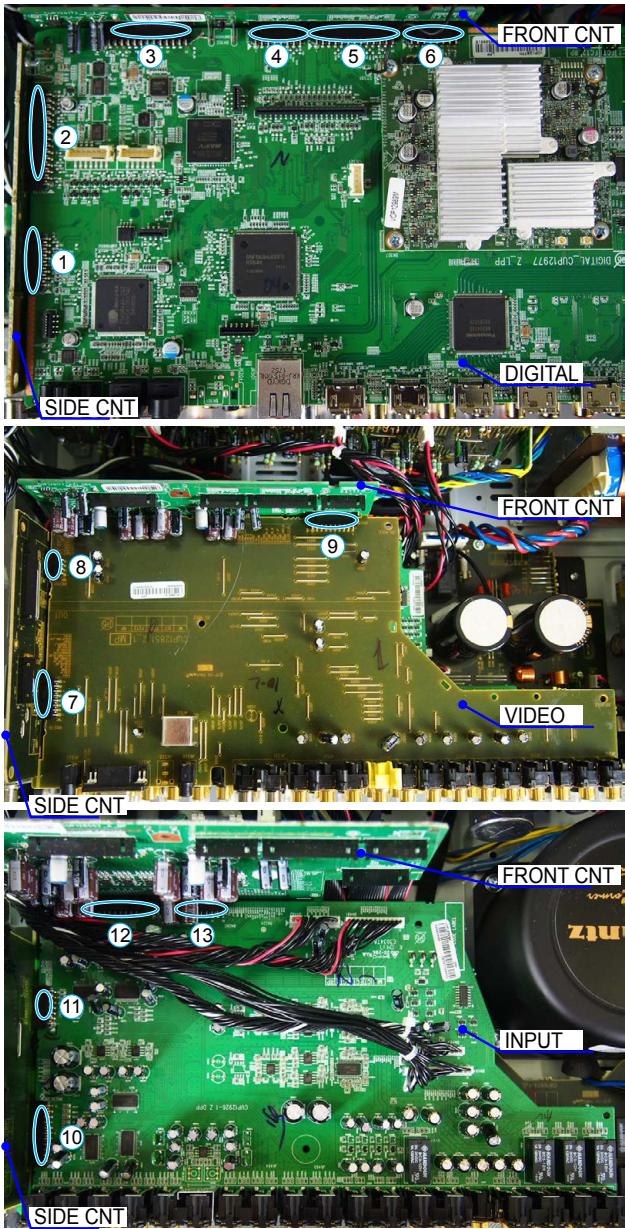
Mechanical

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	25pin	CN26C	FRONT CNT	↔	BN26C	INPUT

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.

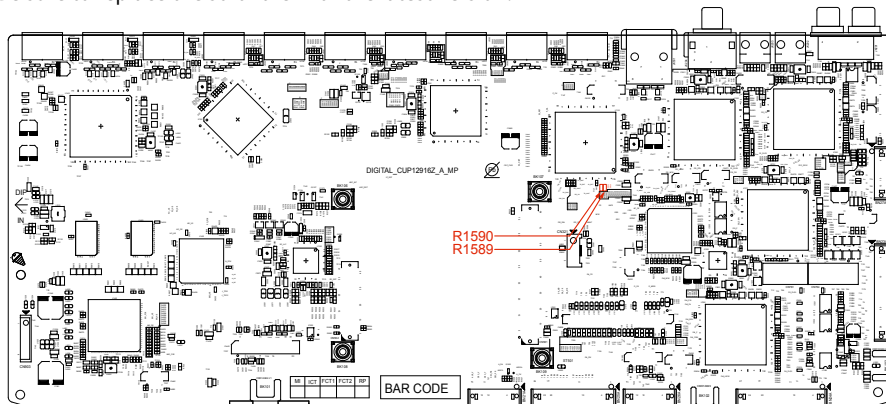
The procedure after replacing the printed circuit boards is as follows.

(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	C	SOFTWARE : VIDEO PLD
DIGITAL	IC221	5M570ZF256C5N	C	SOFTWARE : AUDIO PLD
MODULE	C39	NETWORK MODULE	D	SOFTWARE : Network

Procedure after Replacement

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

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

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

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

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

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



FIRMWARE UPDATE PROCEDURE

1. Items necessary for update

Items necessary for update are as follows.

Update Type	Needed Part for Update	Requirement	Offered / not Offered		
			Standard Service Equipment Not offered by D&M	Purchase from D&M Article code	Download from SDI
Via USB	USB flash drive (USB 2.0 : Min 1GB) • We recommend a USB memory device that has an LED installed.	Formatting FAT16 or FAT 32	X	-	"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
AV7705	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
AV7705U	North America (U)	Product ID : 100100700100	DPMS_AV7705ALL_LEGO_xxxx.zip	heos_40.prod_x.xxx.xx.zip
AV7705N	Europe (N)	Product ID : 100100700200		

Before Servicing
This Unit

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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

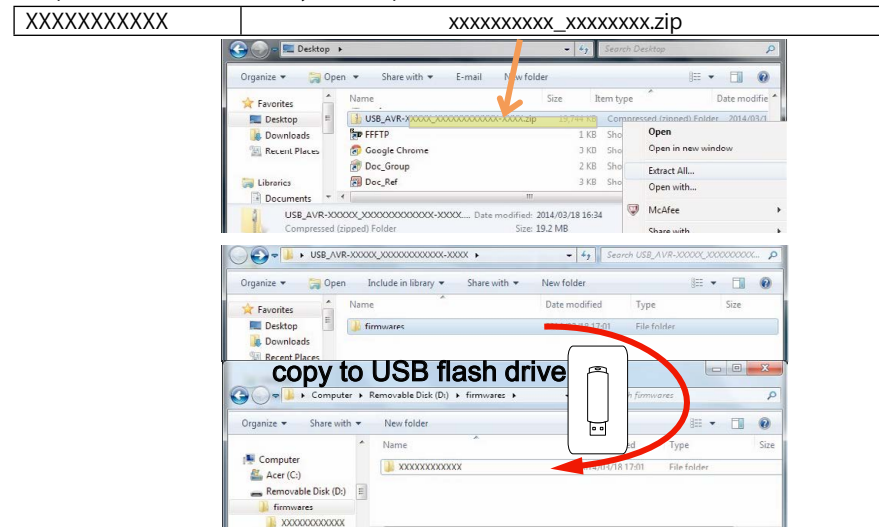
- Windows PC
- USB flash drive format : Prepare a USB flash drive formatted in FAT16 or FAT32.
※We recommend a USB flash drive that has an LED installed.

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.

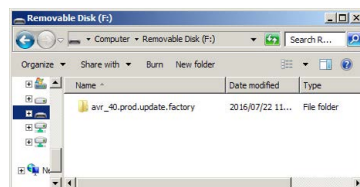
After unzipping the files, store them in the root of the same USB flash drive.

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.

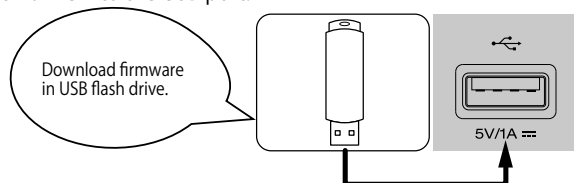
(3) Set the input source to HEOS Music.
Check that the display is as shown below.

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.



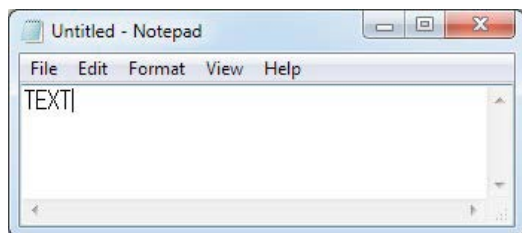
4. Update Method for Service Region Settings

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

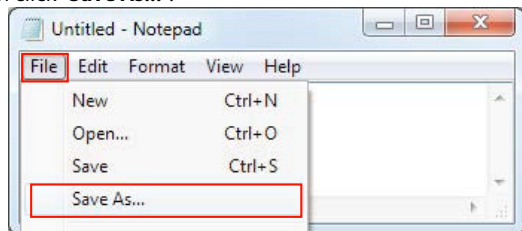
4.1. Creating a Service Region Settings file

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

(2) Enter "TEXT".



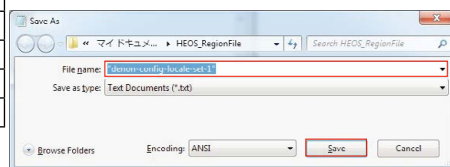
(3) Click "File", and then click "Save As...".



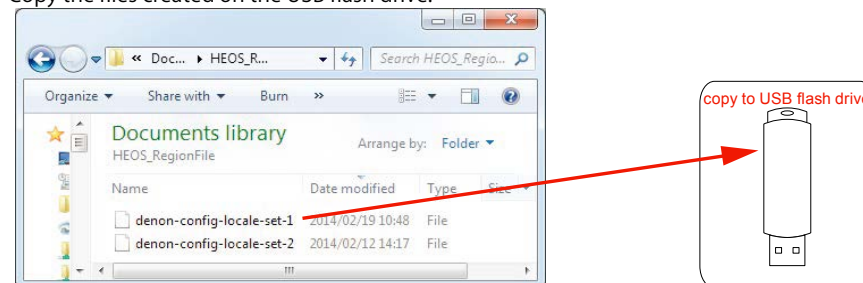
(4) Enter the file name and click the Save button.

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.

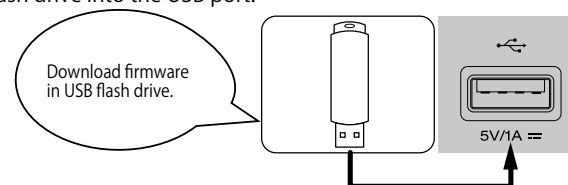
Check that the display is as shown below.

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

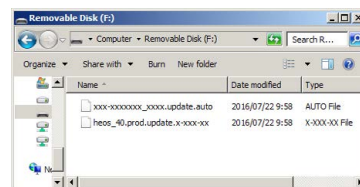
Copy the normal update files onto the USB flash drive in the following structure.

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_AV7705ALL_LEGO_XXXX.zip Product ID : 100100700100	heos_40.prod.x.xxx.xx.zip
Europe (N)	DPMS_AV7705ALL_LEGO_XXXX.zip Product ID : 100100700200	

USB flash drive root

- + AV7705xx_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.)

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

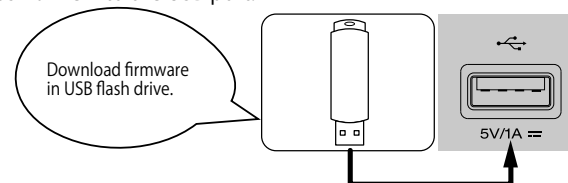
Check that the display is as shown below.

Display (Sub Display)

L1	TuneIn Internet Radio	or	No Network Connection
L2	HEOS Favorites		

L1 : Content of the display is scrolled.

- Insert the USB flash drive into the USB port.



- 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.

- The unit restarts when update is complete.
- 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

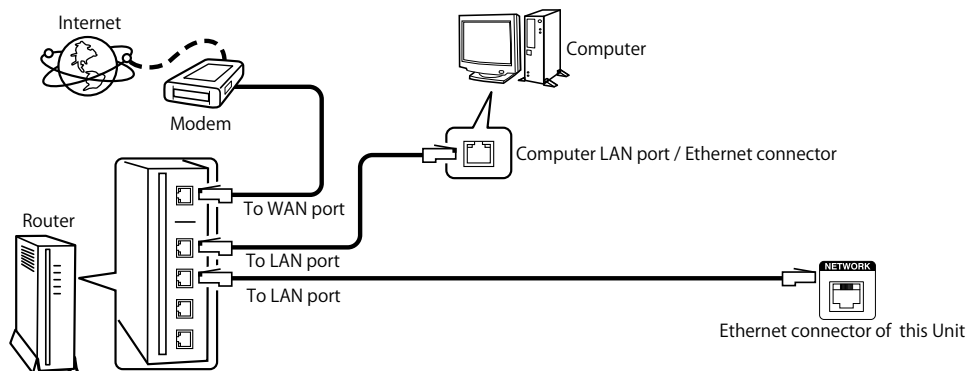
Download the latest firmware from our website and update the firmware.

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" → "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 : Error Code).

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/Error Code)	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 : NR1509/NR1609/SR5013
13	DSP3 ※ Except : NR1509/NR1609/SR5013
19	DSP4 ※ Except : NR1509/NR1609/SR5013
15	Audio PLD
22	Video PLD ※ Except : NR1509
2A	GUI
2B	PIMG ※ ONLY : NR1509/NR1609/SR5013
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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