



AV Surround Receiver NR1710



[Click here!](#)

On-line service parts list

<http://dmedia.dmglobal.com/Document/DocumentDetails/25777>

[ONLINE PARTS LIST \(P5\)](#)

WEB owner's manual

NA: <http://manuals.marantz.com/NR1710/NA/EN/index.php>

EU: <http://manuals.marantz.com/NR1710/EU/EN/index.php>

JP: <http://manuals.marantz.com/NR1710/JP/JA/index.php>

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

BEFORE SERVICING THIS UNIT

ELECTRICAL

MECHANICAL

REPAIR INFORMATION

UPDATING

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

Confidential

BEFORE SERVICING THIS UNIT

SAFETY PRECAUTIONS

NOTE FOR SCHEMATIC DIAGRAM

HANDLING THE SEMICONDUCTOR AND OPTICS

ONLINE PARTS LIST

Accessing the Parts List

Searching Part Numbers or Ref. Numbers

NOTE FOR PARTS LIST

SERIAL NUMBER

Serial Number Organization

SKU Code of this Unit

POST-SERVICE PRECAUTIONS

Initializing this Unit

JIG FOR SERVICING

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 \triangle mark on schematic diagrams and parts lists, be sure to use the designated parts.

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

For safety 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 \triangle mark.
- (2) Parts lists Indicated by the \triangle mark.

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

NOTE FOR SCHEMATIC DIAGRAM

WARNING:

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

CAUTION:

Before returning the set to the customer, be sure to carry out either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 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

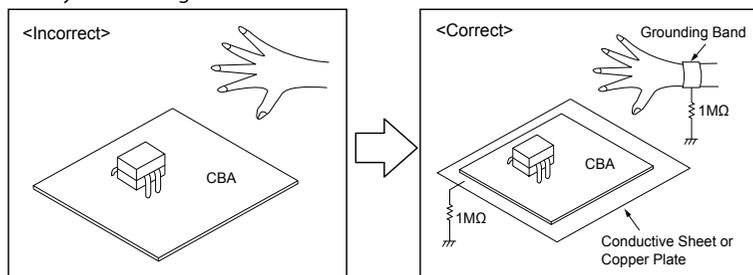
Electrostatic breakdown of the semi-conductors or optical pickup may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

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.

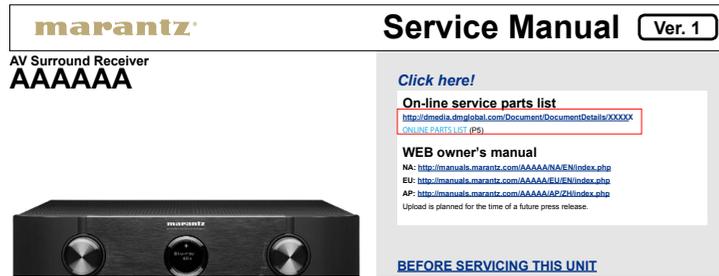
2. Ground for Workbench

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



Accessing the Parts List

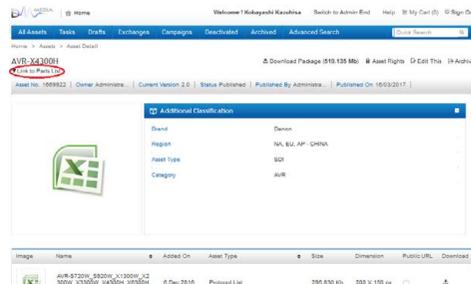
- (1) Access from the Service Manual
 - Click the URL link on the cover of the service manual.
Examples of display



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.

S.No.	Sheet	REF. No.	Part No.	Part Name	Remarks	Qty	New	Ver
1	MAIN	D4007	0002780401905	158133-0034-AVXAL LRC	K0001133000405	1		
2	MAIN	D4019	0002780401905	158133-0034-AVXAL LRC	K0001133000405	1		
3	MAIN	D4019	0002780401905	158133-0034-AVXAL LRC	K0001133000405	1		
4	MAIN	D4031_4032	0002780401905	158133-0034-AVXAL LRC	K0001133000405	2		
5	MAIN	D4007	0002780401905	158133-0034-AVXAL LRC	K0001133000405	1		
6	INPUT	D4210-4212	0002780401905	158133-0034-AVXAL LRC	K0001133000405	3		
7	SMP5	D4150	0002780401905	158133-0034-AVXAL LRC	K0001133000405	1		

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

S.No.	Sheet	REF. No.	Part No.	Part Name	Remarks	Qty	New	Ver
1	MAIN	D4007	0002780401905	158133-0034-AVXAL LRC	K0001133000405	1		
2	MAIN	D4019	0002780401905	158133-0034-AVXAL LRC	K0001133000405	1		
3	MAIN	D4019	0002780401905	158133-0034-AVXAL LRC	K0001133000405	1		

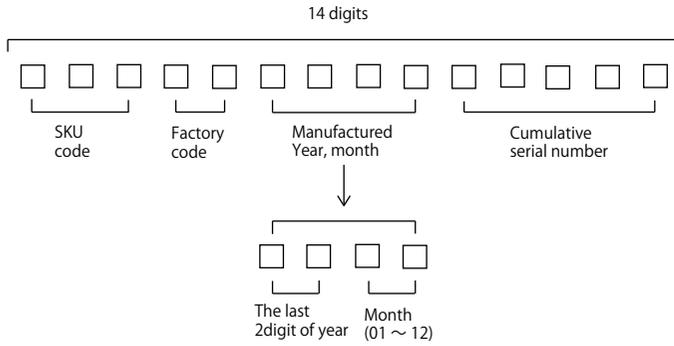
NOTE FOR PARTS LIST

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

SERIAL NUMBER

Serial Number Organization

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



SKU Code of this Unit

Product SKU	SKU Code
NR1710/U1B	BHP
NR1710/N1B	BHQ
NR1710/N1SG	BHR
NR1710/FB	BHS
NR1710/FN	BHT

POST-SERVICE PRECAUTIONS

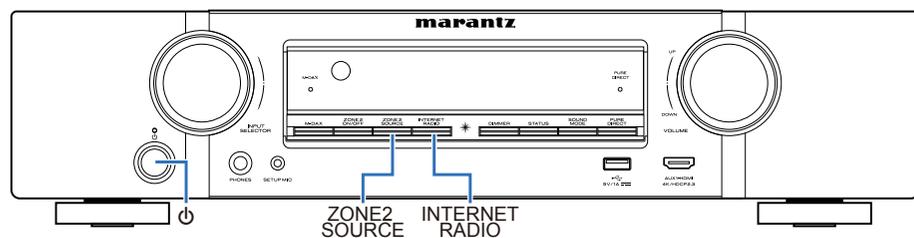
Initializing this Unit

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 "**ZONE2 SOURCE**" and "**INTERNET RADIO**" 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
(See [JIG FOR SERVICING](#))

ELECTRICAL

SCHEMATIC DIAGRAMS

SCH01 HDMI SW, TMDS261B
SCH02 HDMI SW1
SCH03 HDMI SW2
SCH04 ADV8003
SCH05 ADV8003 DDR
SCH06 HDMI TX
SCH07 NET PHY
SCH08 CPU
SCH09 CPU LEVEL CHG
SCH10 DSP
SCH11 DIR A.PLD
SCH12 MAIN DAC
SCH13 D.SUPPLY
SCH14 DIGITAL CNT
SCH15 SPK
SCH16 REG CNT
SCH17 SIDE CNT
SCH18 INPUT
SCH19 VIDEO
SCH20 TUNER
SCH21 F-HDMI
SCH22 FRONT
SCH23 AMP1
SCH24 AMP2
SCH25 SMPS
SCH26 REG
SCH27 FRONT CNT

PRINTED CIRCUIT BOARDS

DIGITAL, F HDMI
AV
SPK, REG CNT, HDMI GUIDE A, HDMI GUIDE
AMP, FRONT, MC HP, USB
REG, GUIDE L, FRONT FFC GUID, FRONT CNT, SMPS, SIDE CNT

LEVEL DIAGRAM

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

BLOCK DIAGRAM

ANALOG AUDIO DIAGRAM
DIGITAL AUDIO DIAGRAM
VIDEO DIAGRAM

POWER DIAGRAM

WIRING DIAGRAM

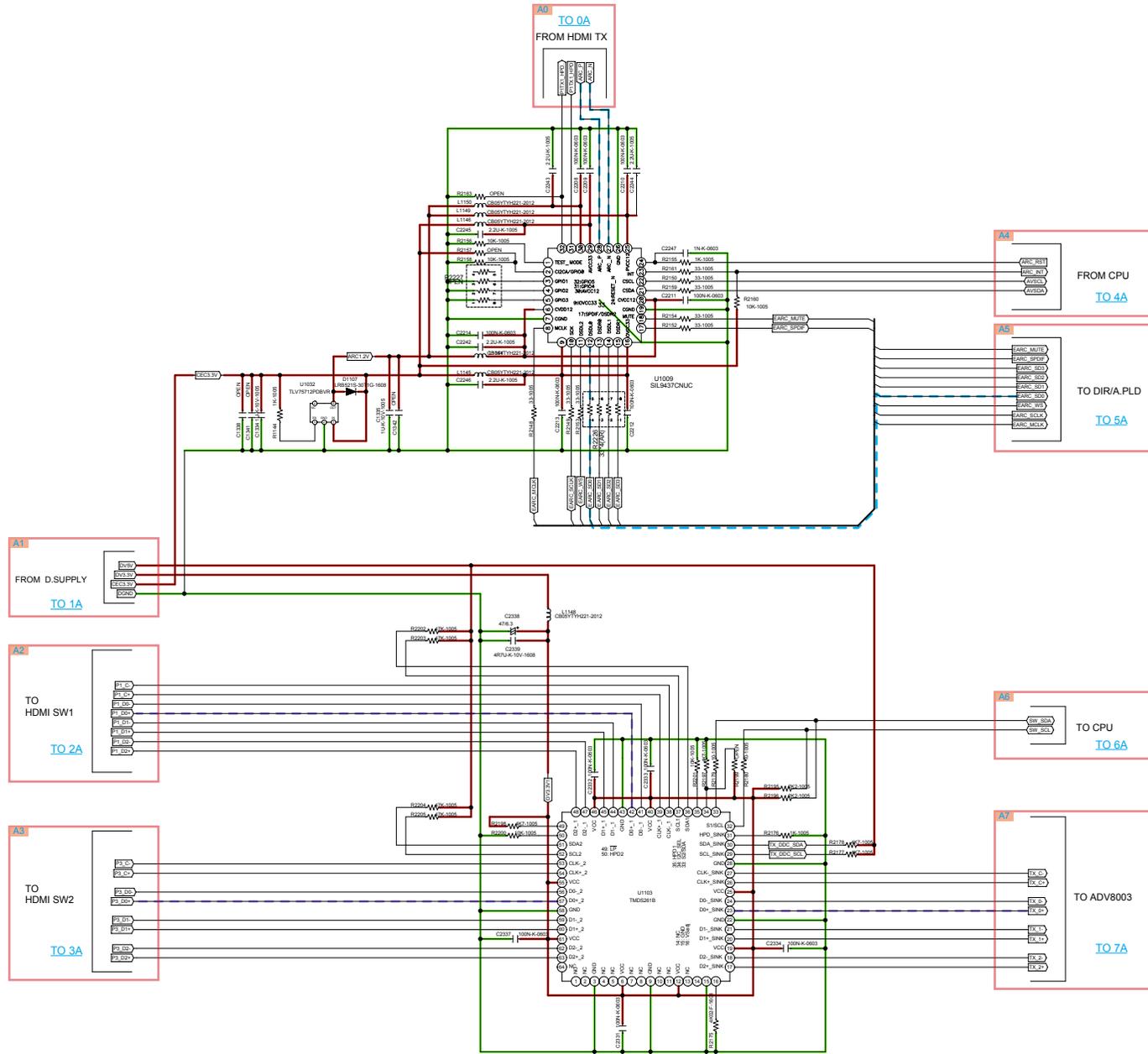
SEMICONDUCTORS

1. IC's
2. FL DISPLAY
3. Remote Code Table

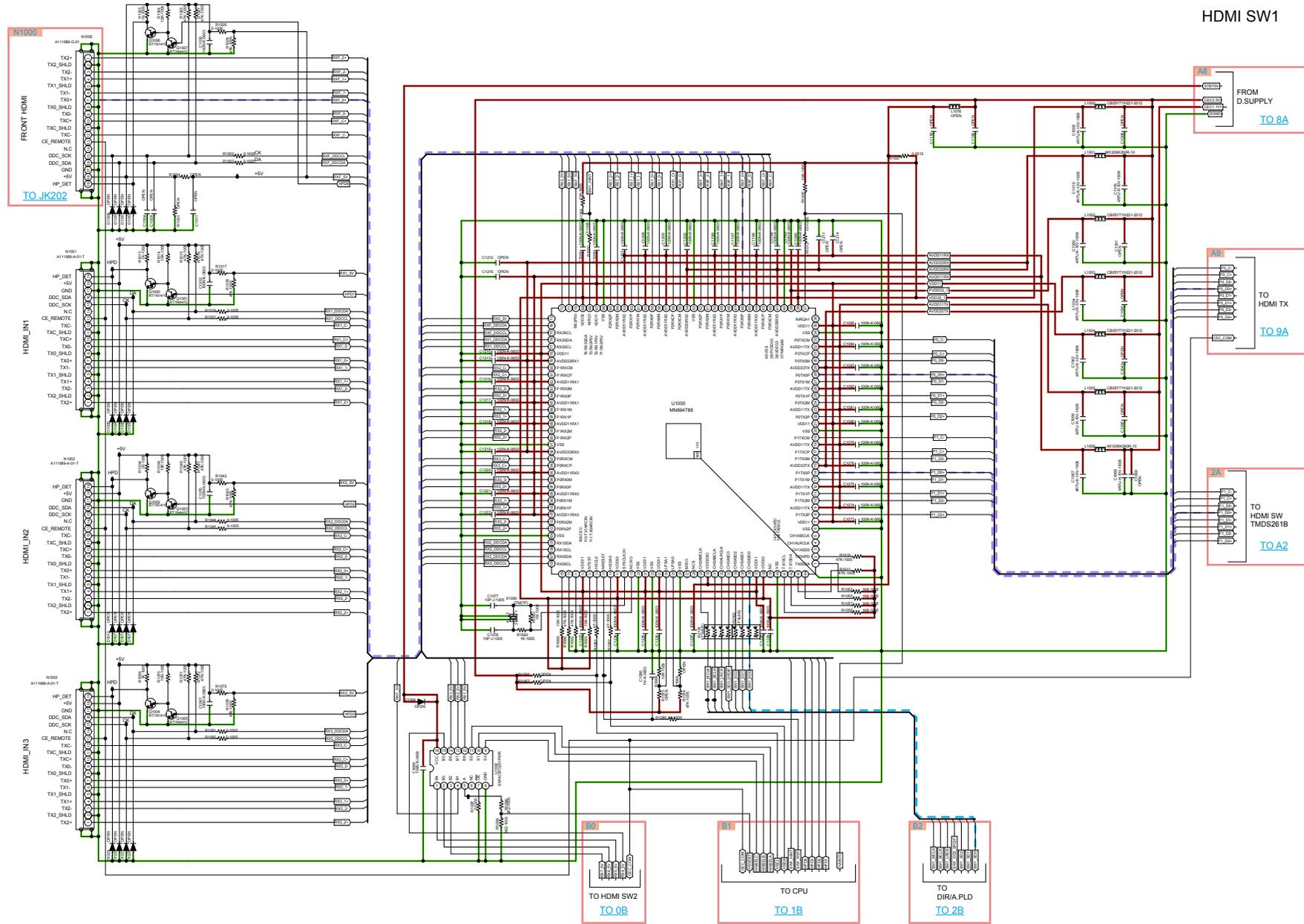
SCHEMATIC DIAGRAMS

SCH01 HDMI SW, TMD5261B

HDMI SW
TMD5261B

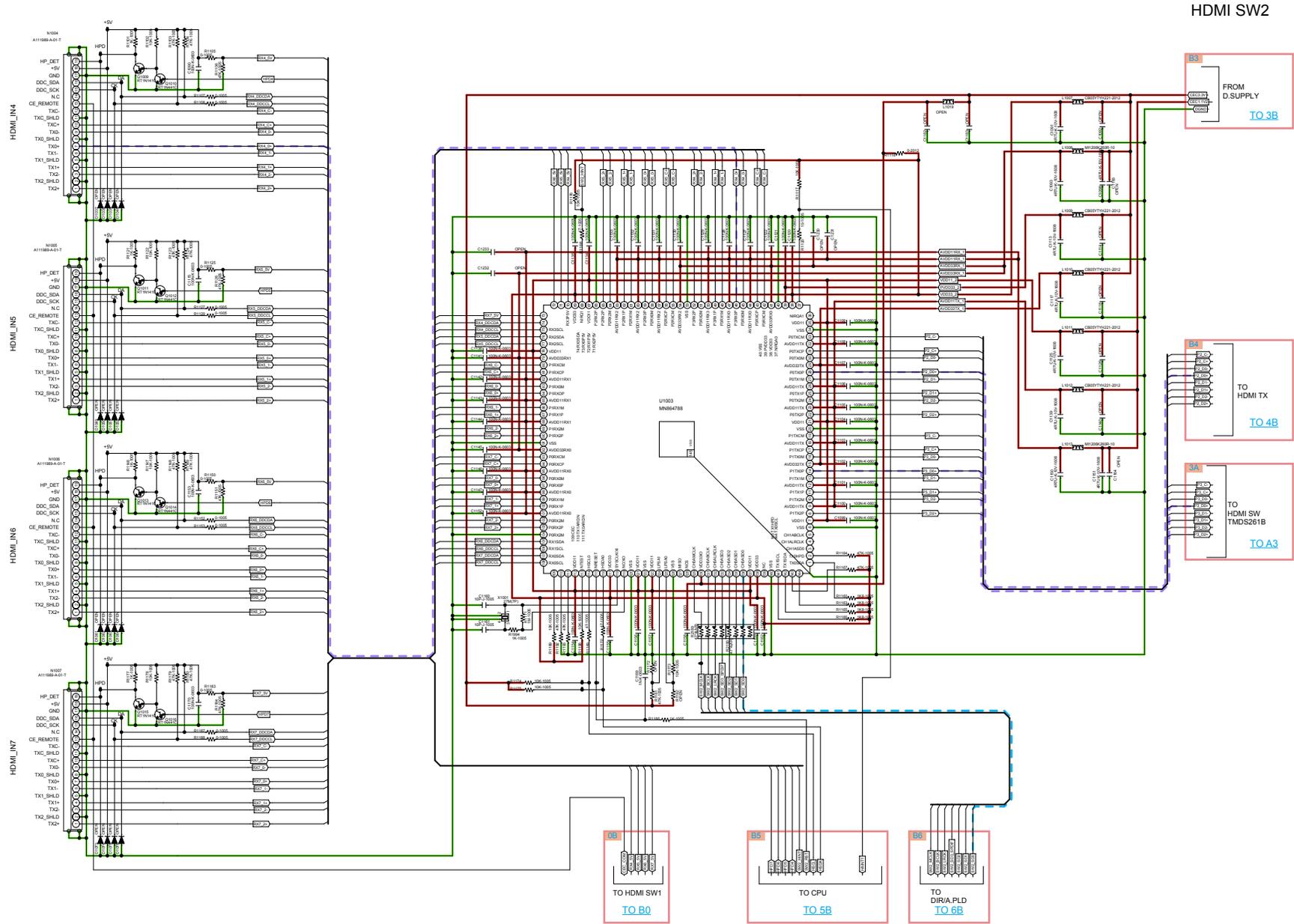


— GND LINE
 — POWER+ LINE
 — POWER- LINE
 — ANALOG AUDIO
 — DIGITAL AUDIO
 — TMDS SIGNAL
 — VIDEO SIGNAL
 — COMPONENT(Y)
 — STBY POWER



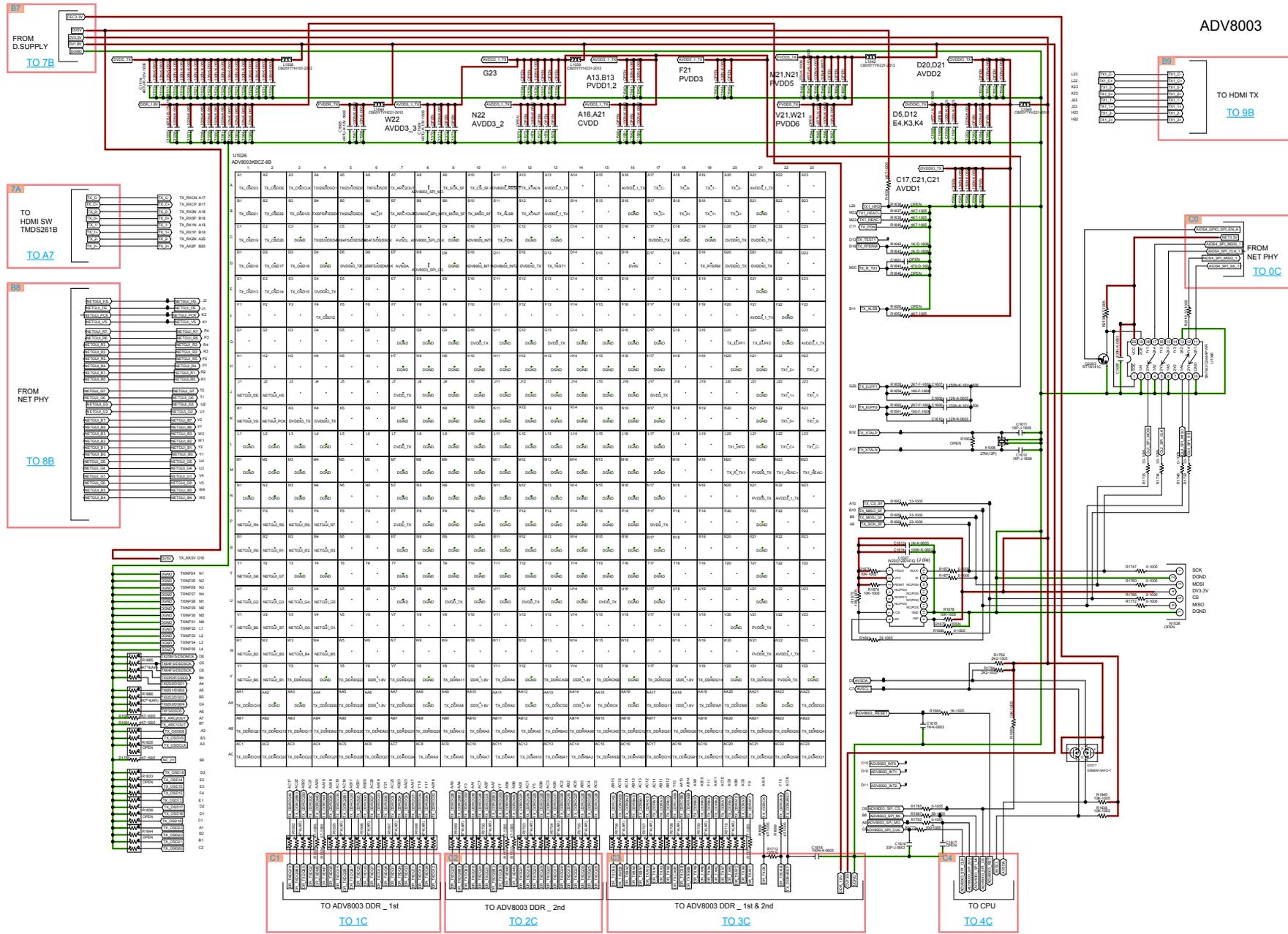
HDMI SW1

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



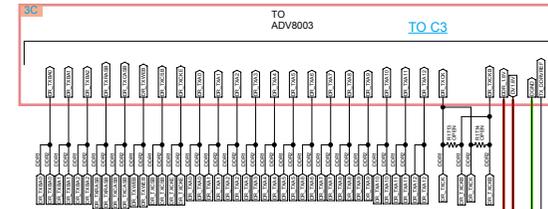
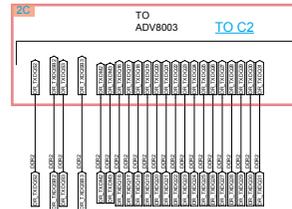
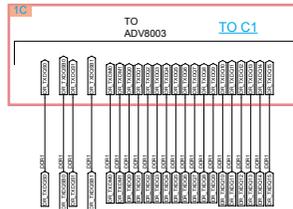
HDMI SW2

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



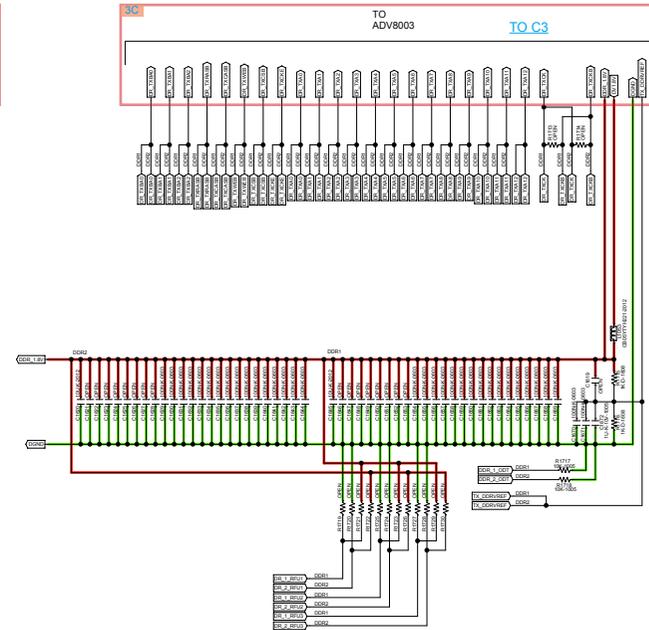
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL VIDEO SIGNAL COMPONENT(Y) STBY POWER

Before Servicing This Unit
 Electrical
 Mechanical
 Repair Information
 Updating

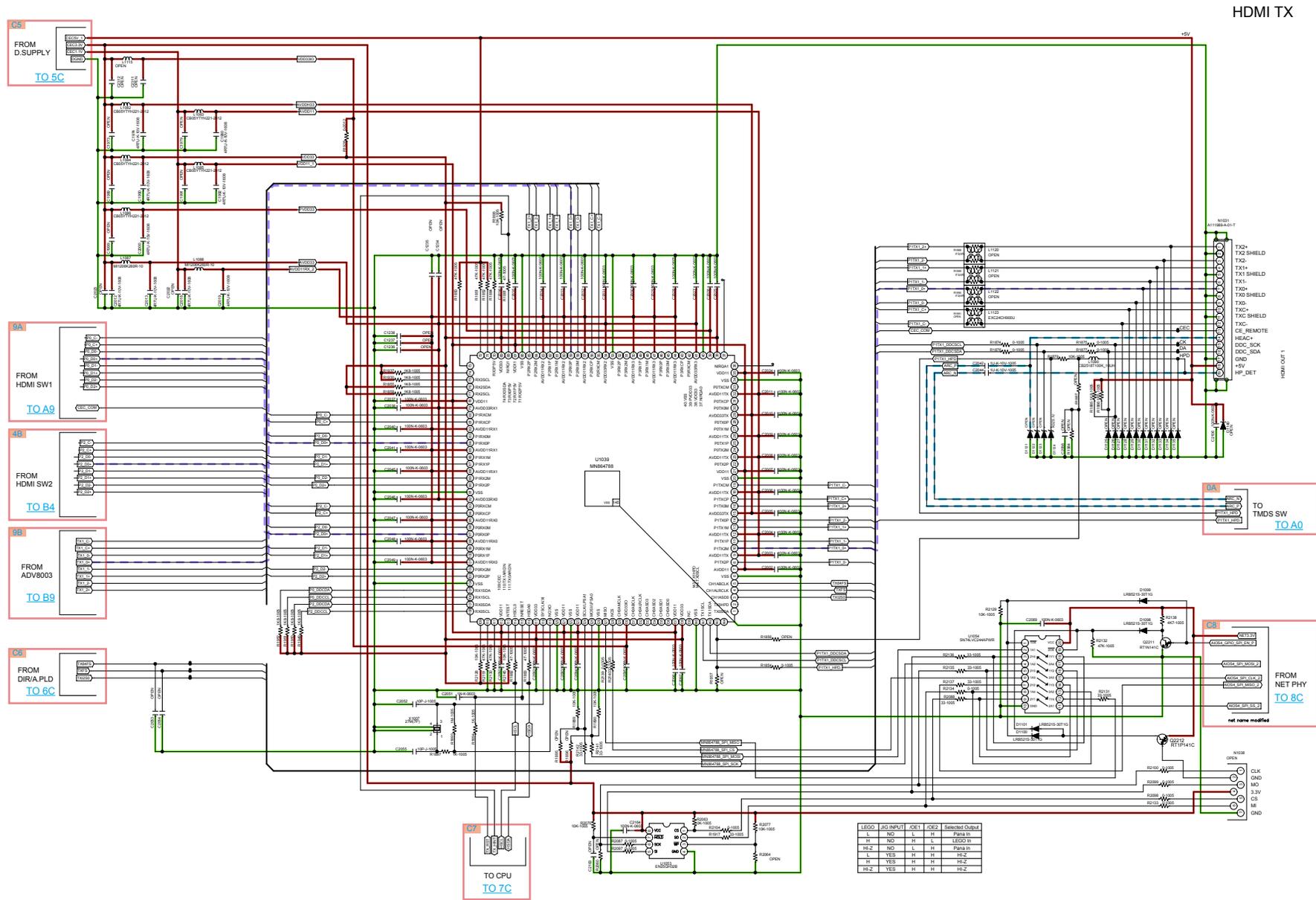


	1	2	3	U102B	A3R124-000F-RES(03A)	7	8	9
A1	DDR_1_BV	*	D080			A7	A8	A9
B1	DR_1_00004	D080	DR_1_00001			B7	B8	B9
C1	DDR_1_BV	DR_1_00008	DDR_1_BV			C7	C8	C9
D1	DR_1_00001	D080	DR_1_00001			D7	D8	D9
E1	DDR_1_BV	*	D080			E7	E8	E9
F1	DR_1_00008	D080	DR_1_00008			F7	F8	F9
G1	DDR_1_BV	DR_1_00008	DDR_1_BV			G7	G8	G9
H1	DR_1_00004	D080	DR_1_00004			H7	H8	H9
J1	DDR_1_BV	DR_1_00008	D080			J7	J8	J9
K1	DR_1_00008	D080	DR_1_00008			K7	K8	K9
L1	DR_1_00004	DR_1_00004	DR_1_00004			L7	L8	L9
M1	DR_1_00004	DR_1_00004	DR_1_00004			M7	M8	M9
N1	DR_1_00004	DR_1_00004	DR_1_00004			N7	N8	N9
P1	DR_1_00004	DR_1_00004	DR_1_00004			P7	P8	P9
Q1	DR_1_00004	DR_1_00004	DR_1_00004			Q7	Q8	Q9
R1	DR_1_00004	DR_1_00004	DR_1_00004			R7	R8	R9
S1	DR_1_00004	DR_1_00004	DR_1_00004			S7	S8	S9
T1	DR_1_00004	DR_1_00004	DR_1_00004			T7	T8	T9
U1	DR_1_00004	DR_1_00004	DR_1_00004			U7	U8	U9
V1	DR_1_00004	DR_1_00004	DR_1_00004			V7	V8	V9
W1	DR_1_00004	DR_1_00004	DR_1_00004			W7	W8	W9
X1	DR_1_00004	DR_1_00004	DR_1_00004			X7	X8	X9
Y1	DR_1_00004	DR_1_00004	DR_1_00004			Y7	Y8	Y9
Z1	DR_1_00004	DR_1_00004	DR_1_00004			Z7	Z8	Z9

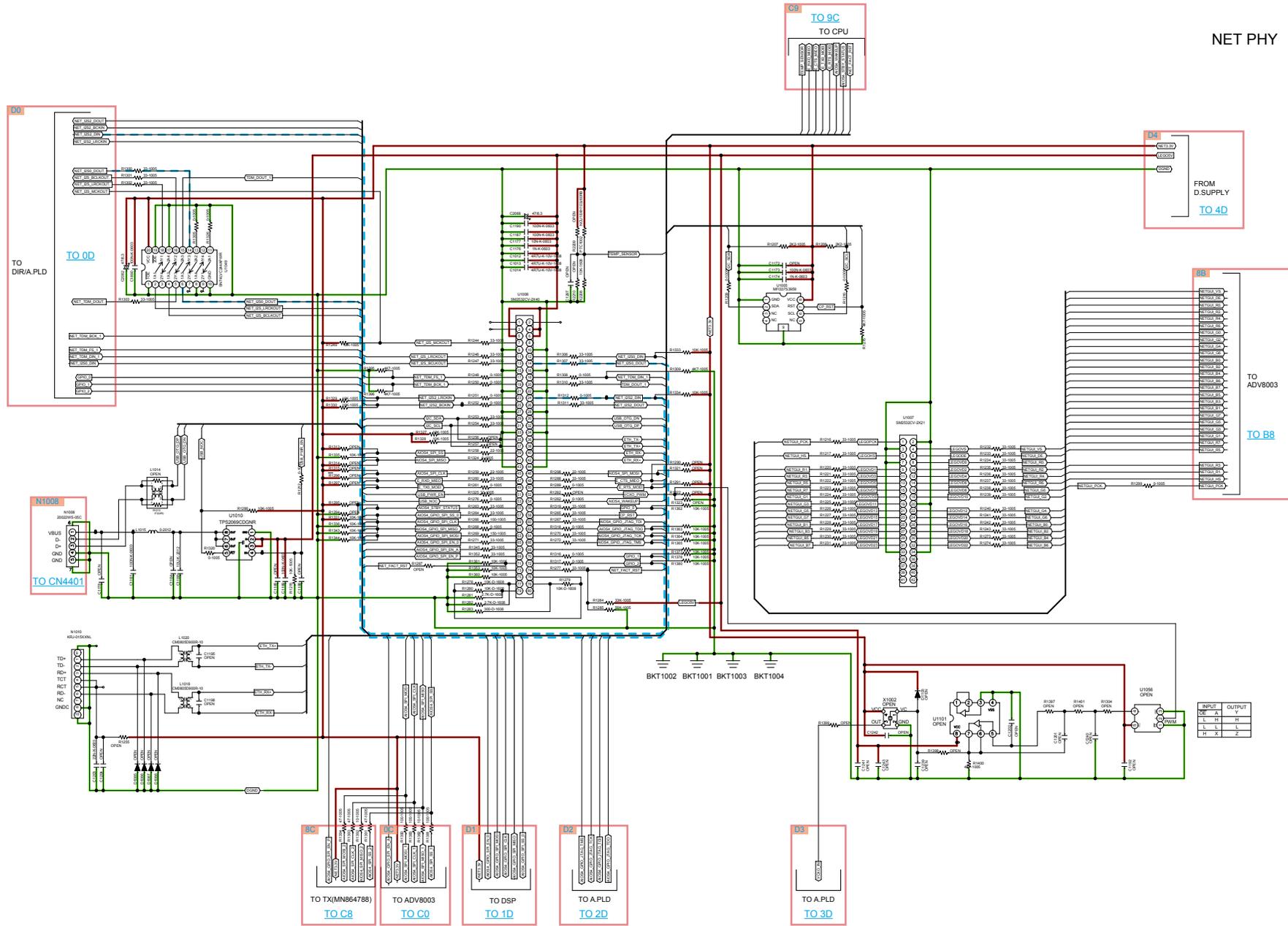
	1	2	3	U102B	A3R124-000F-RES(03A)	7	8	9
A1	DDR_1_BV	*	D080			A7	A8	A9
B1	DR_1_00004	D080	DR_1_00008			B7	B8	B9
C1	DDR_1_BV	DR_1_00008	DDR_1_BV			C7	C8	C9
D1	DR_1_00008	D080	DR_1_00008			D7	D8	D9
E1	DDR_1_BV	*	D080			E7	E8	E9
F1	DR_1_00008	D080	DR_1_00008			F7	F8	F9
G1	DDR_1_BV	DR_1_00008	DDR_1_BV			G7	G8	G9
H1	DR_1_00004	D080	DR_1_00004			H7	H8	H9
J1	DDR_1_BV	DR_1_00008	D080			J7	J8	J9
K1	DR_1_00008	D080	DR_1_00008			K7	K8	K9
L1	DR_1_00004	DR_1_00004	DR_1_00004			L7	L8	L9
M1	DR_1_00004	DR_1_00004	DR_1_00004			M7	M8	M9
N1	DR_1_00004	DR_1_00004	DR_1_00004			N7	N8	N9
P1	DR_1_00004	DR_1_00004	DR_1_00004			P7	P8	P9
Q1	DR_1_00004	DR_1_00004	DR_1_00004			Q7	Q8	Q9
R1	DR_1_00004	DR_1_00004	DR_1_00004			R7	R8	R9
S1	DR_1_00004	DR_1_00004	DR_1_00004			S7	S8	S9
T1	DR_1_00004	DR_1_00004	DR_1_00004			T7	T8	T9
U1	DR_1_00004	DR_1_00004	DR_1_00004			U7	U8	U9
V1	DR_1_00004	DR_1_00004	DR_1_00004			V7	V8	V9
W1	DR_1_00004	DR_1_00004	DR_1_00004			W7	W8	W9
X1	DR_1_00004	DR_1_00004	DR_1_00004			X7	X8	X9
Y1	DR_1_00004	DR_1_00004	DR_1_00004			Y7	Y8	Y9
Z1	DR_1_00004	DR_1_00004	DR_1_00004			Z7	Z8	Z9



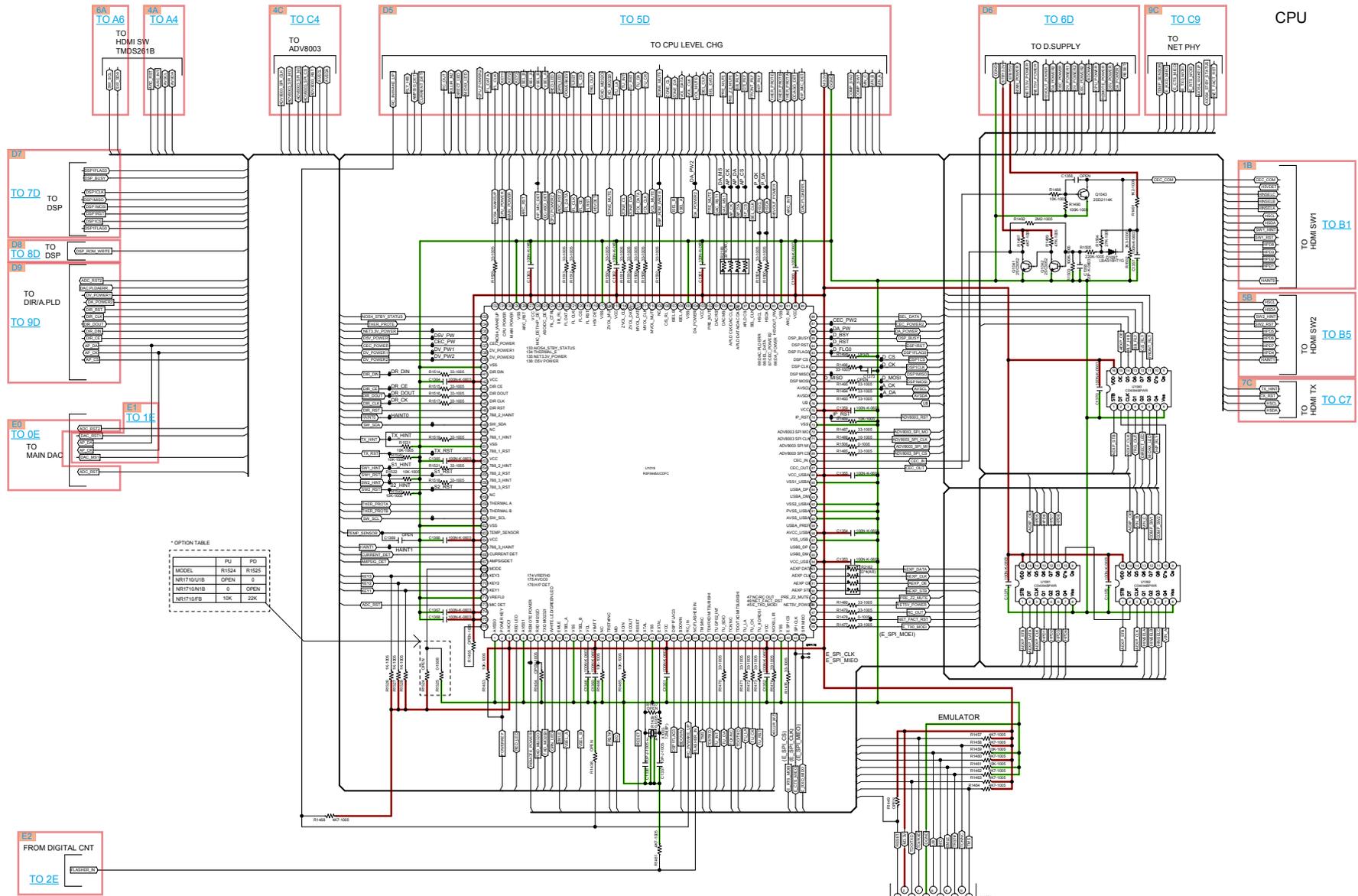
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL VIDEO SIGNAL COMPONENT(Y) STBY POWER



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

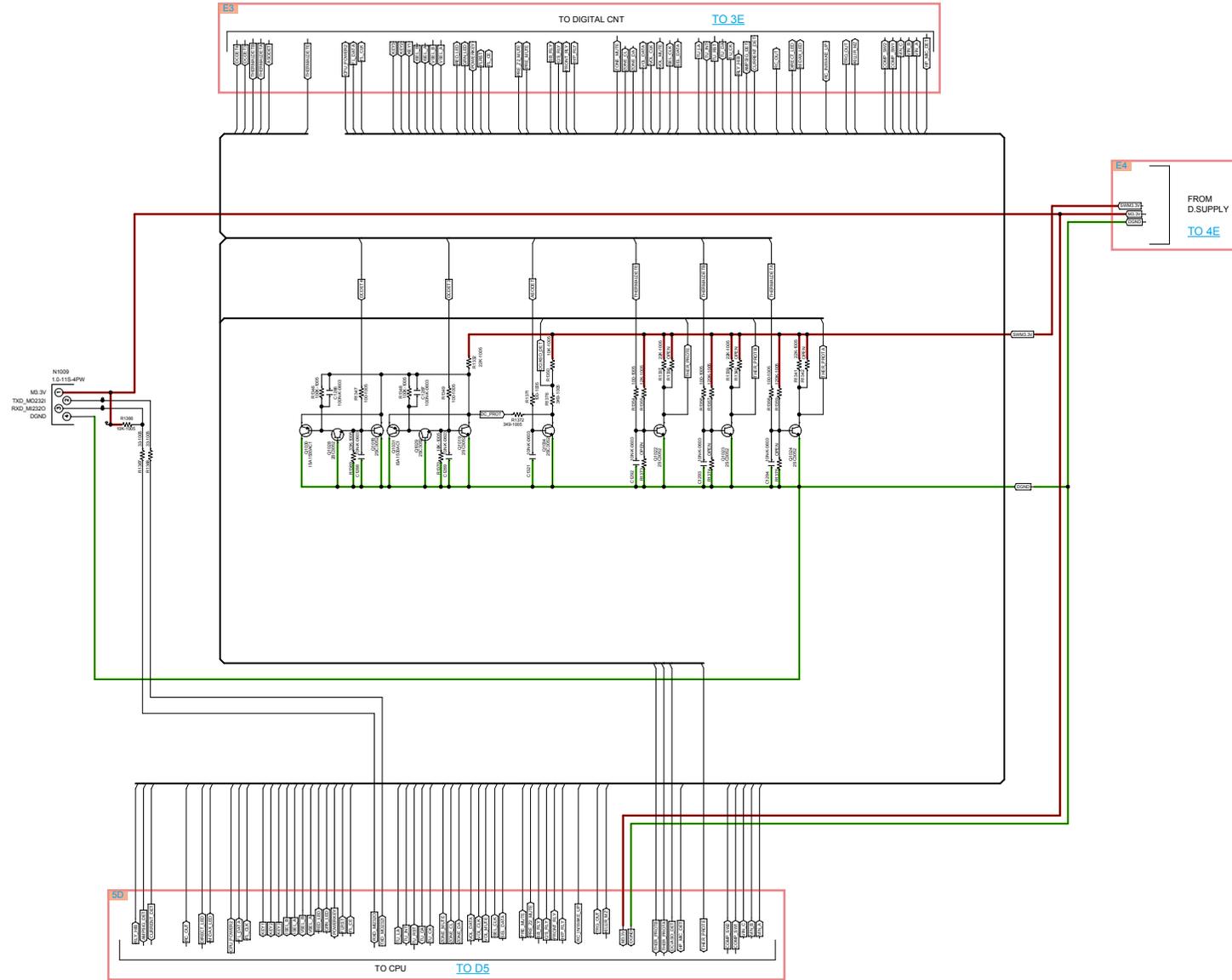


GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL VIDEO SIGNAL COMPONENT(Y) STBY POWER



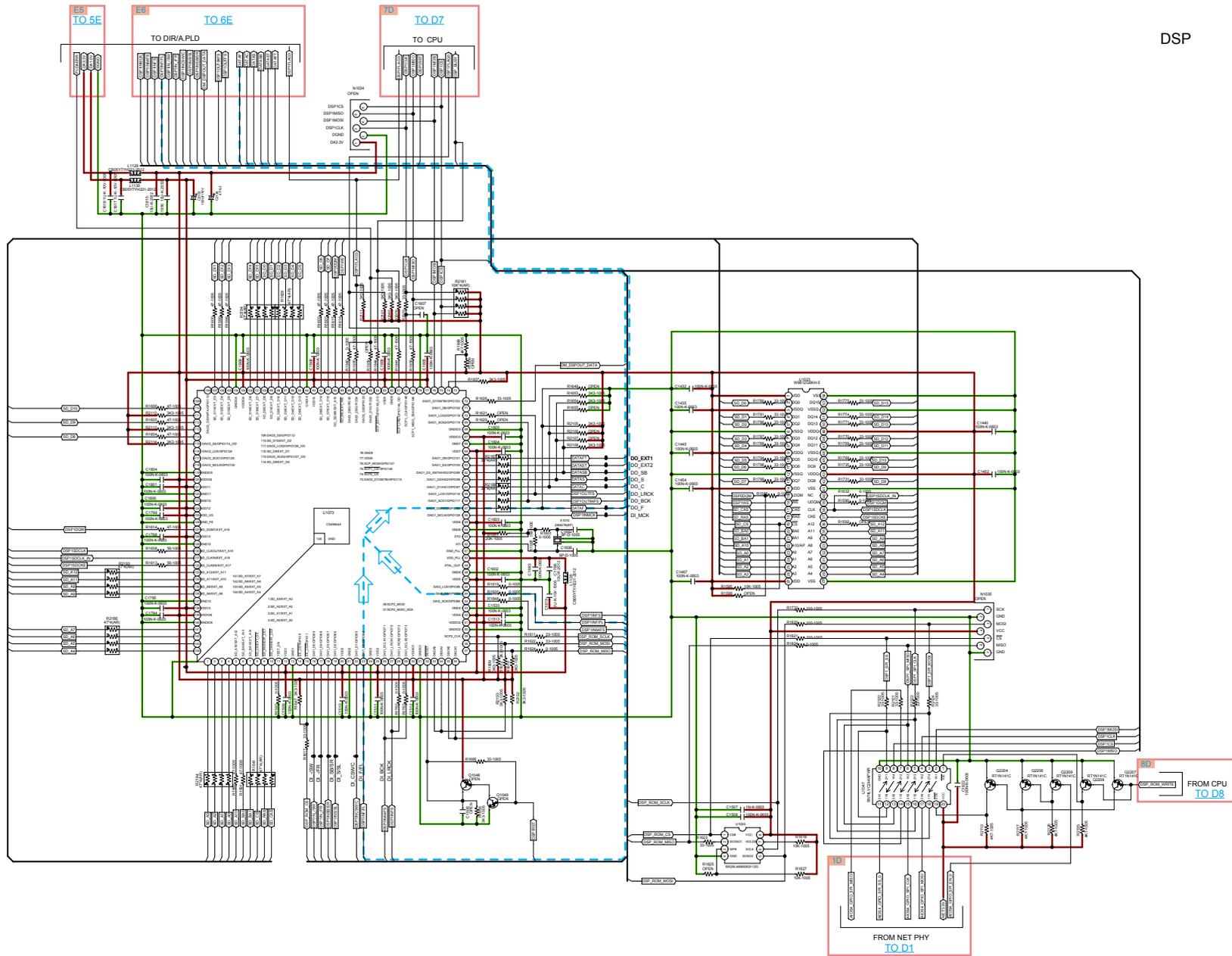
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL VIDEO SIGNAL COMPONENT(Y) STBY POWER

CPU LEVEL CHG

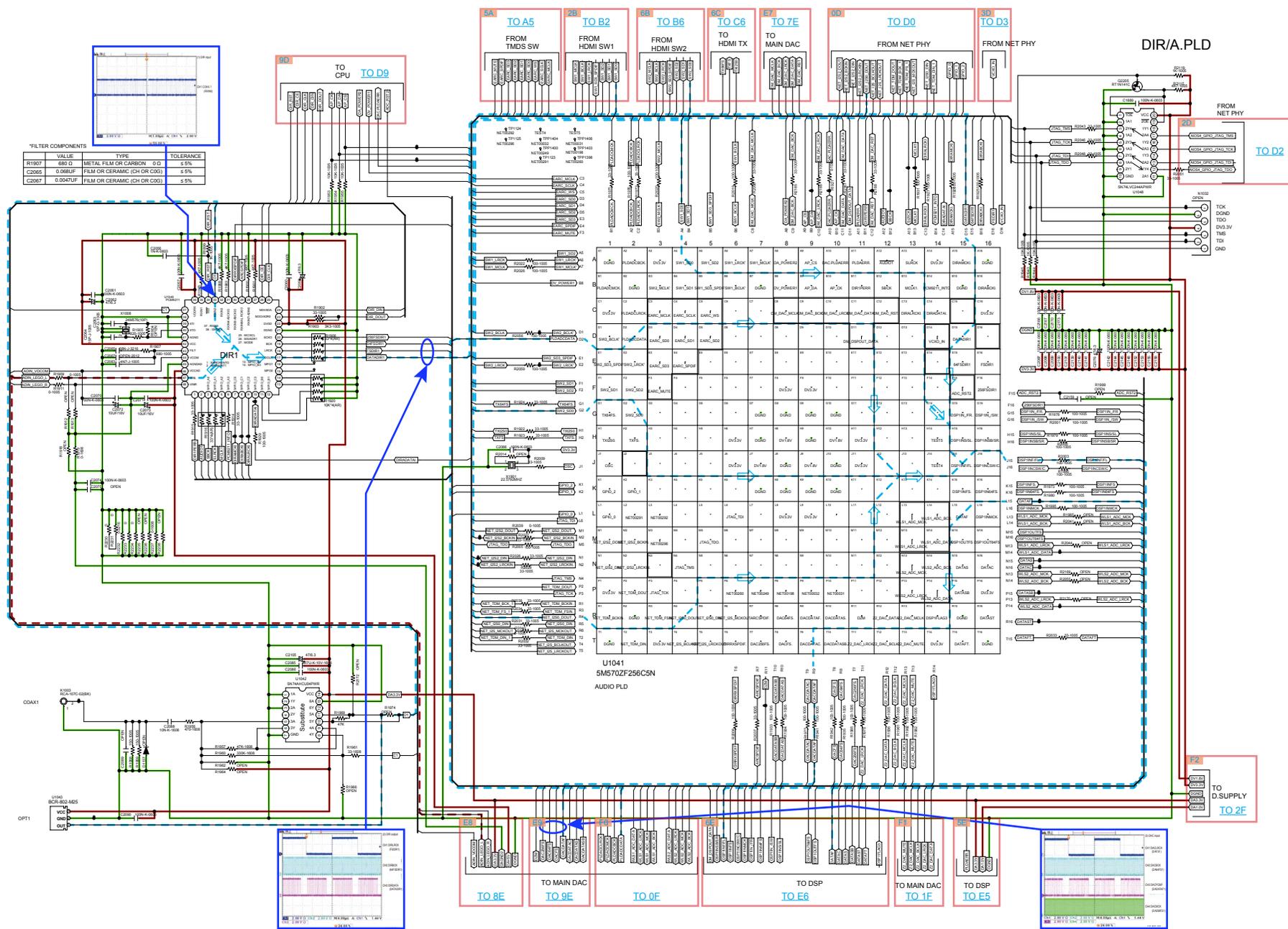


- GND LINE
- POWER+ LINE
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- STBY POWER

DSP



— GND LINE
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 — ANALOG AUDIO
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 — TMDS SIGNAL
 — VIDEO SIGNAL
 — COMPONENT(Y)
 — STBY POWER



Before Servicing
This Unit

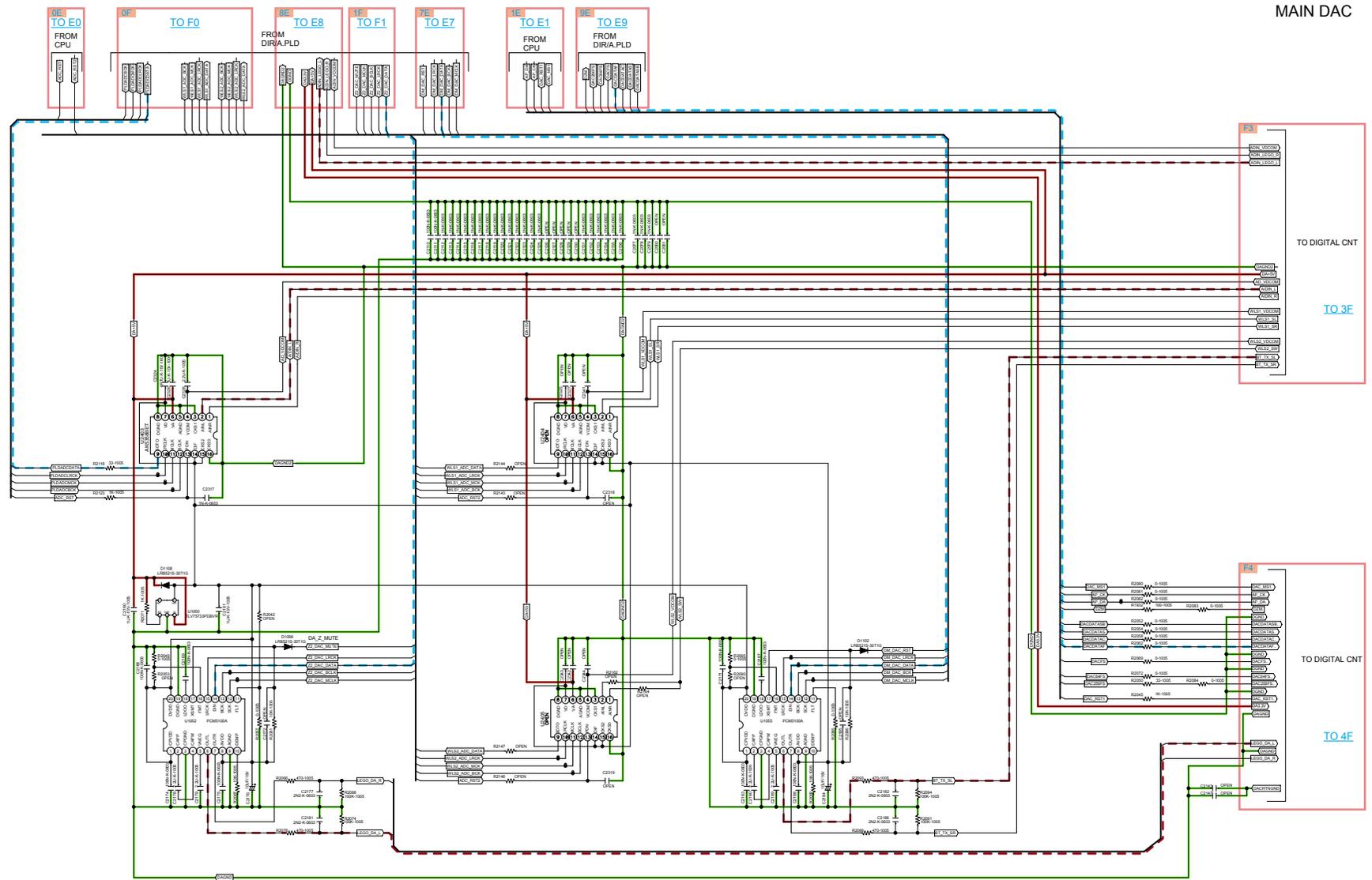
Electrical

Mechanical

Repair Information

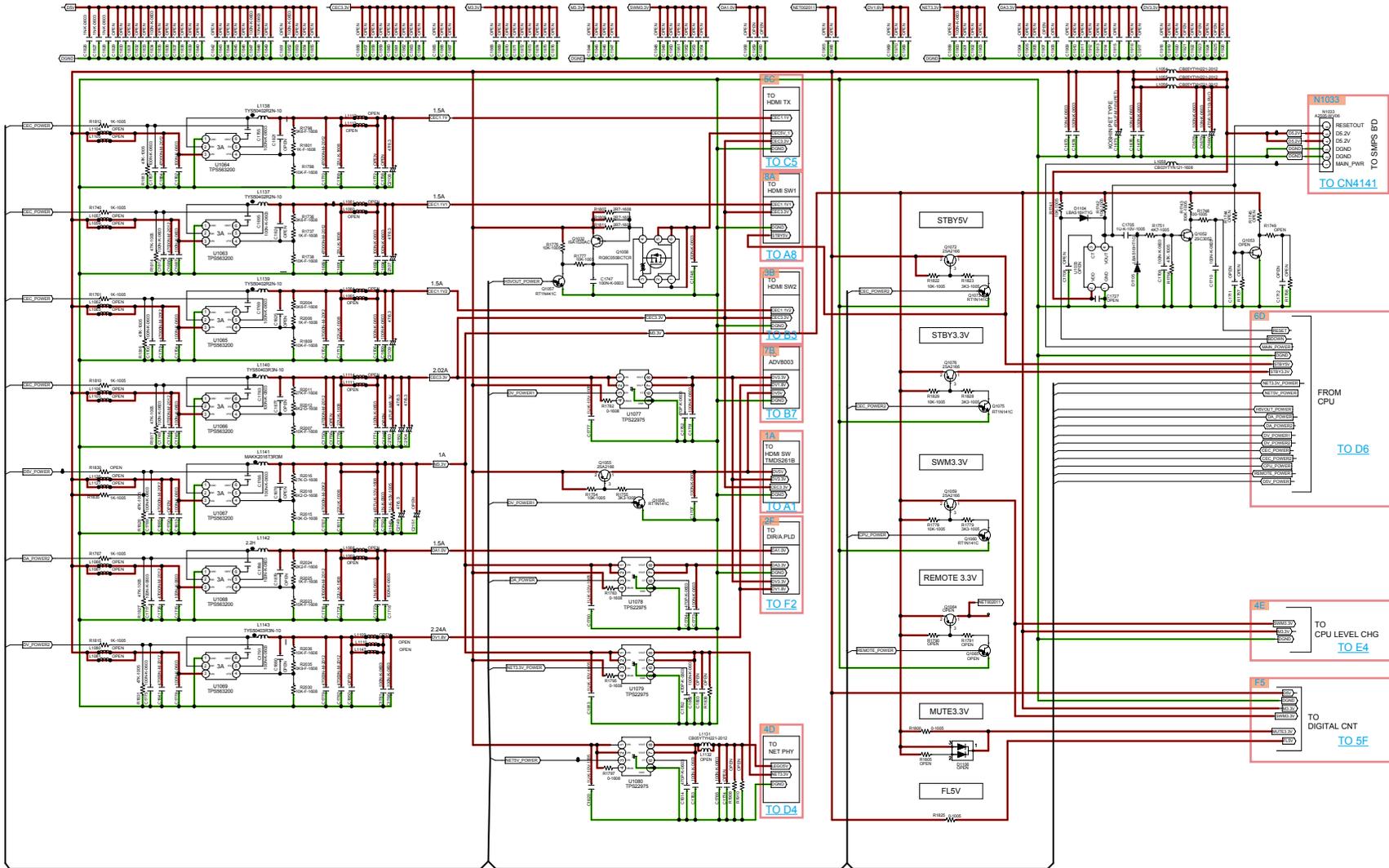
Updating

SCH12 MAIN DAC

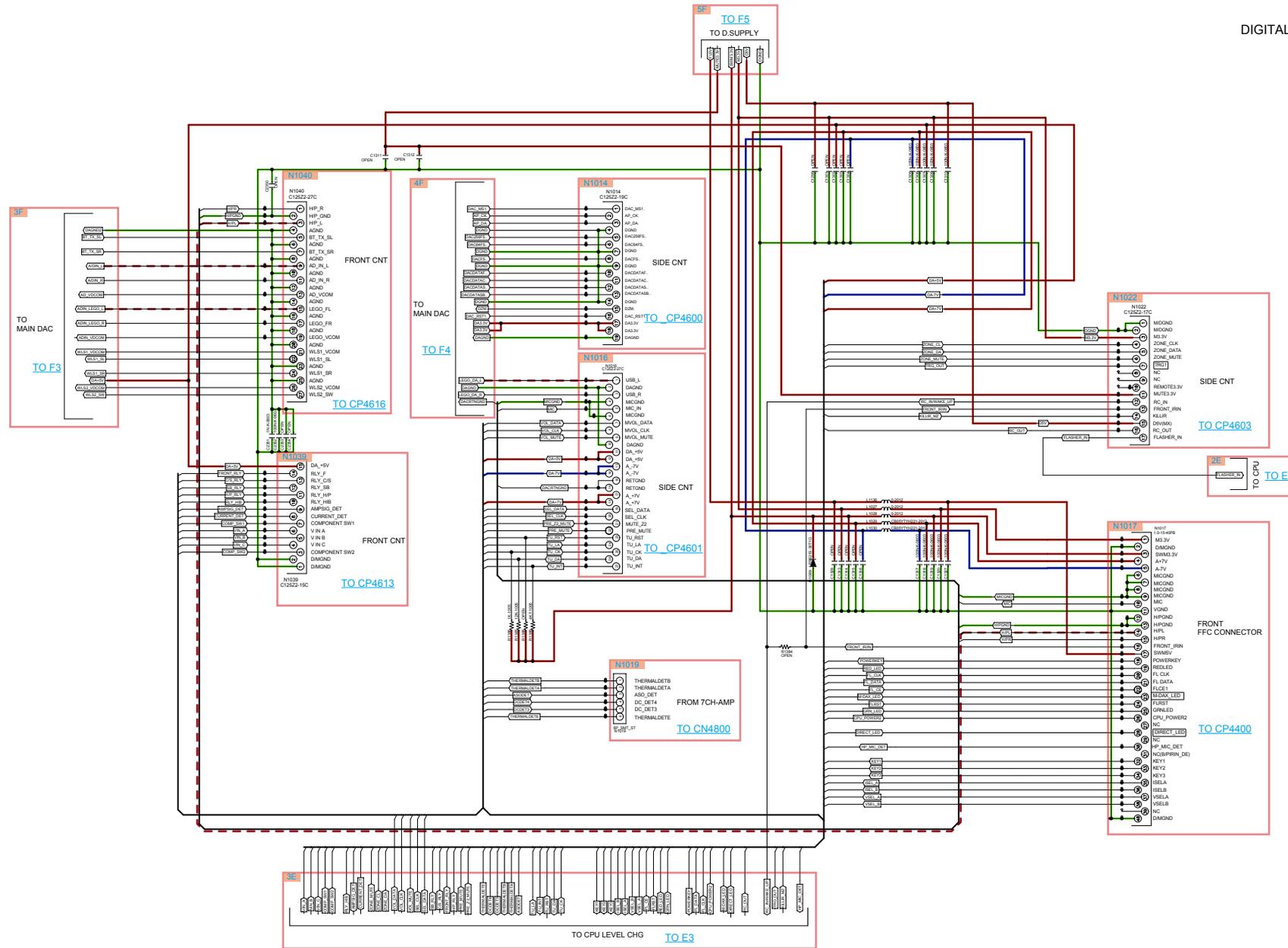


— GND LINE
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D.SUPPLY

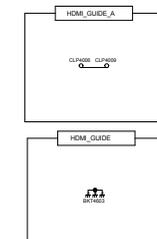
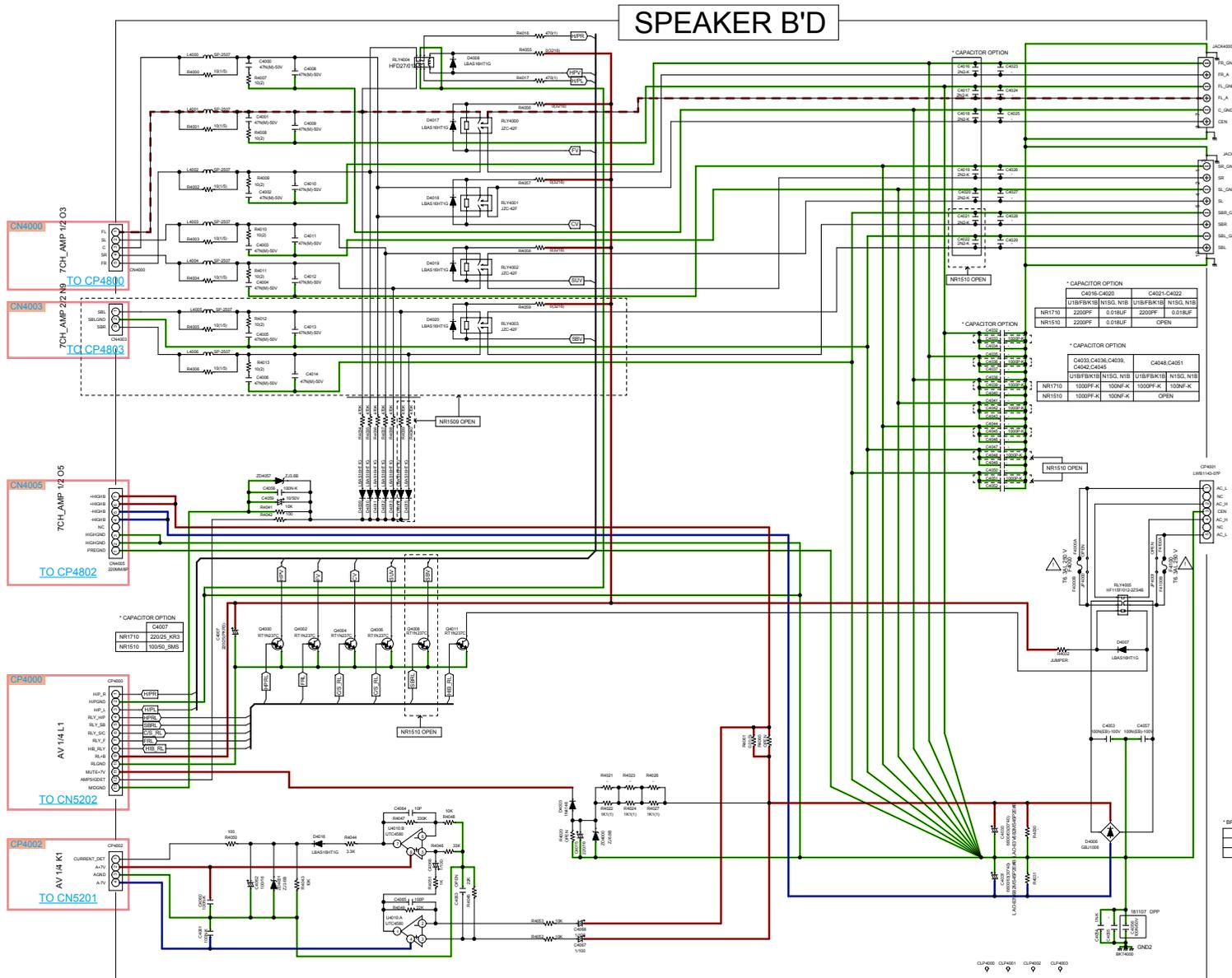


GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL VIDEO SIGNAL COMPONENT(Y) STBY POWER



— GND LINE
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SPK_SCNT 1/2
MP

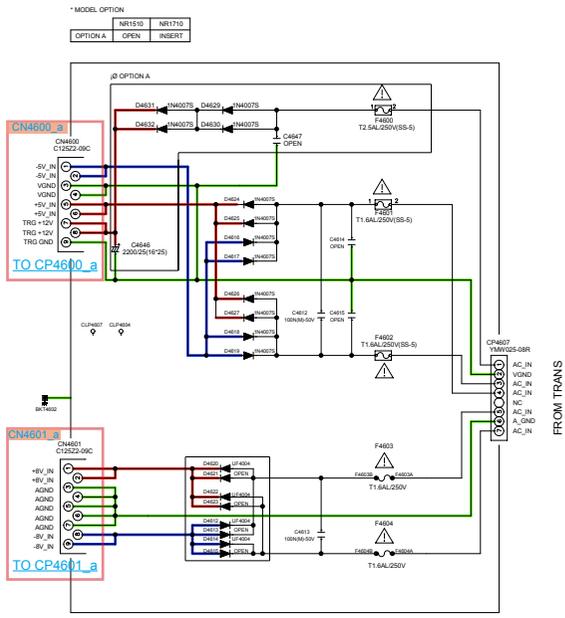


* BRIDGE DIODE

D4006	
NR1710	NR1510
GR5206	GR5706

REG CNT

SPK_REG CNT 2/2
MP



Before Servicing
This Unit

Electrical

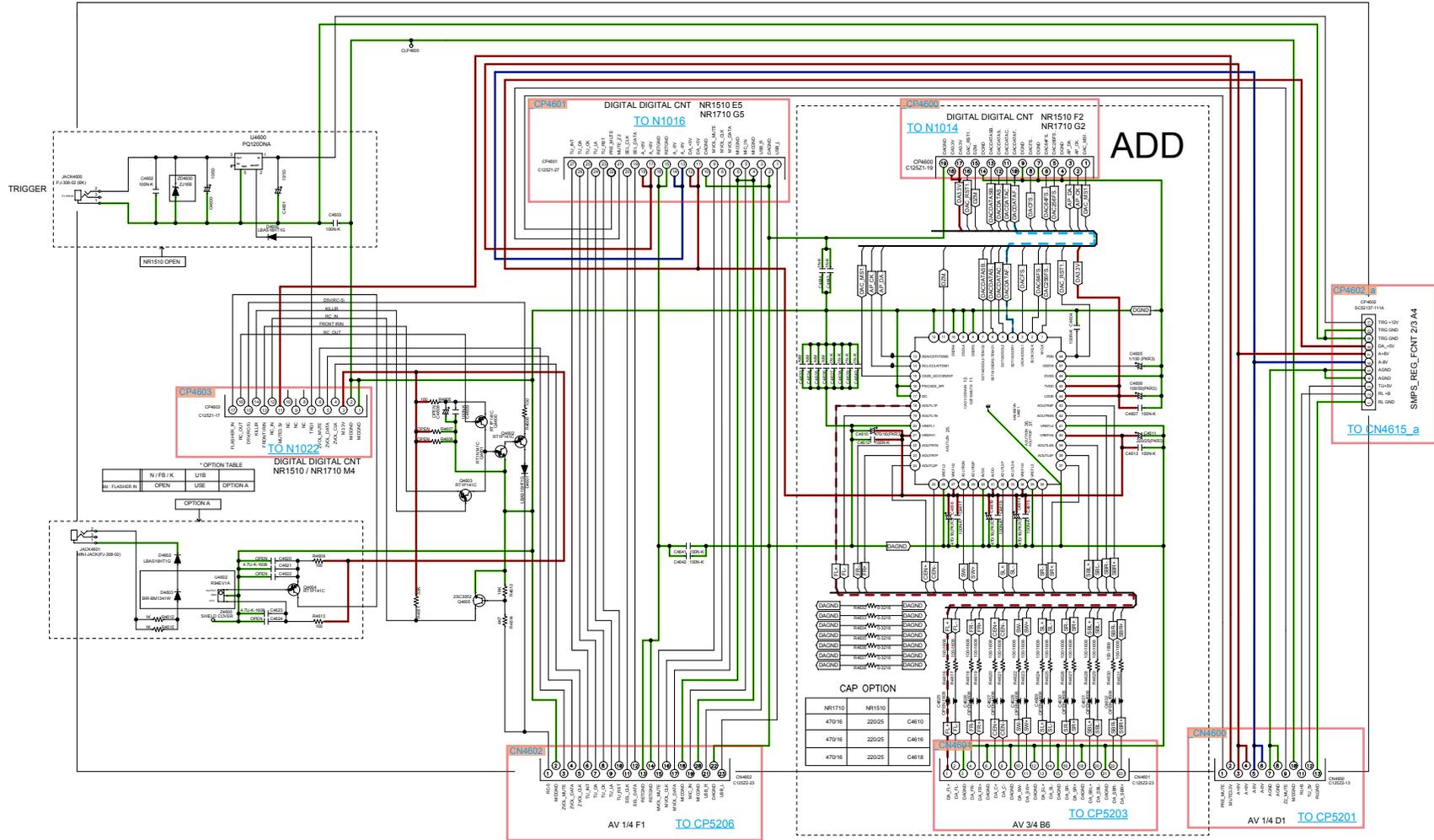
Mechanical

Repair Information

Updating

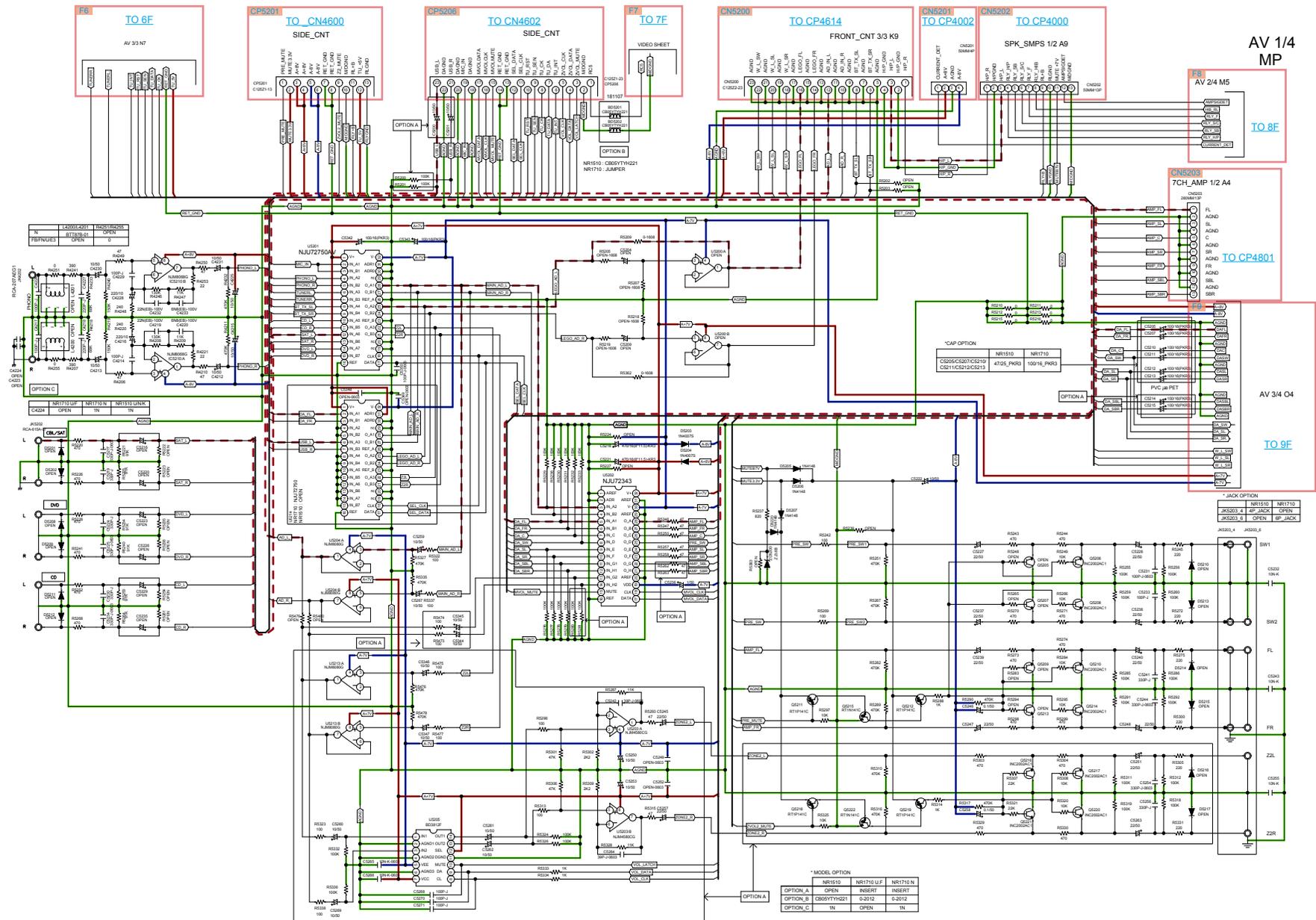
SIDE CNT 1/1
MP

SIDE CONNECTOR



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

SCH18 INPUT



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

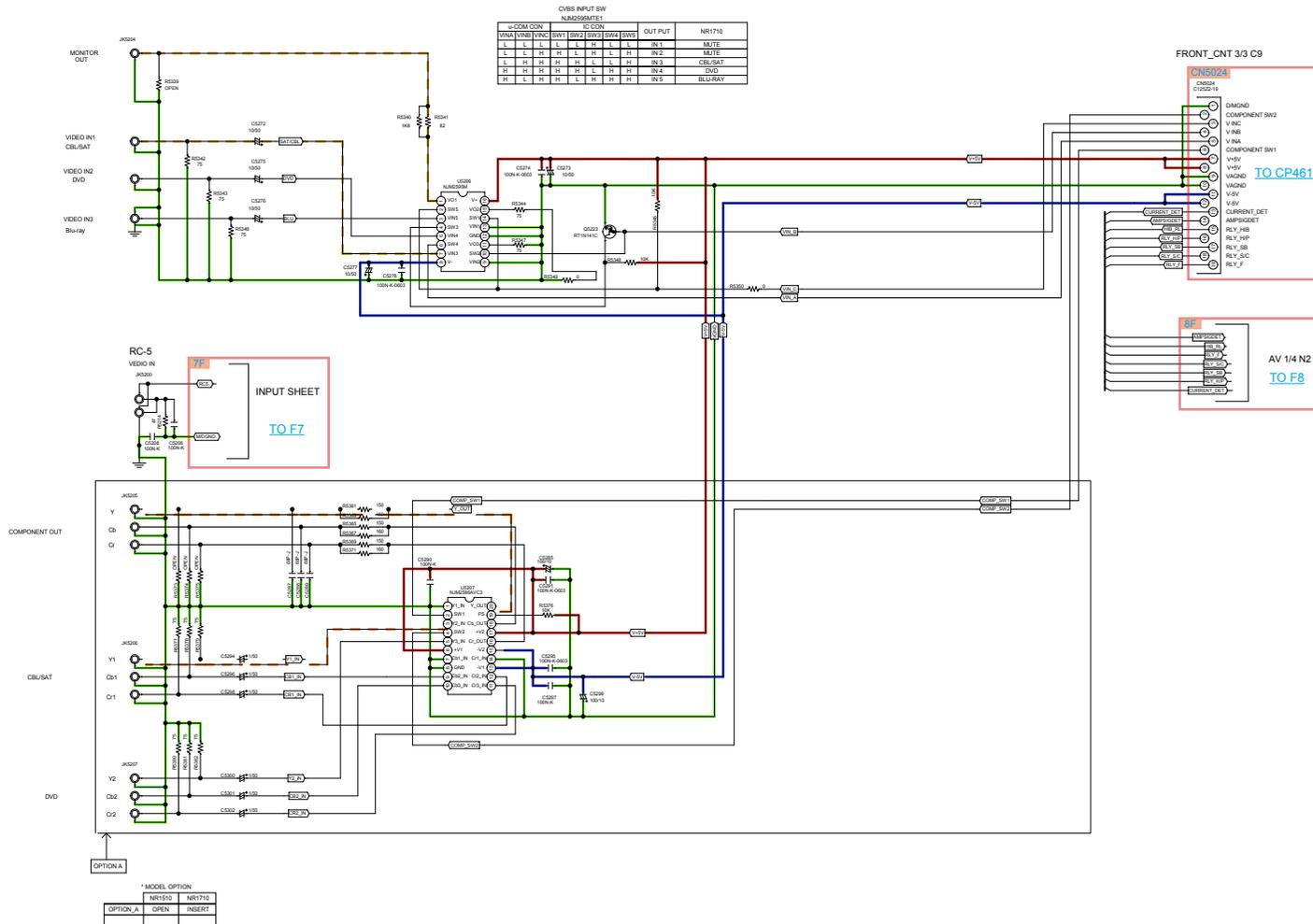
Before Servicing
This Unit

Electrical

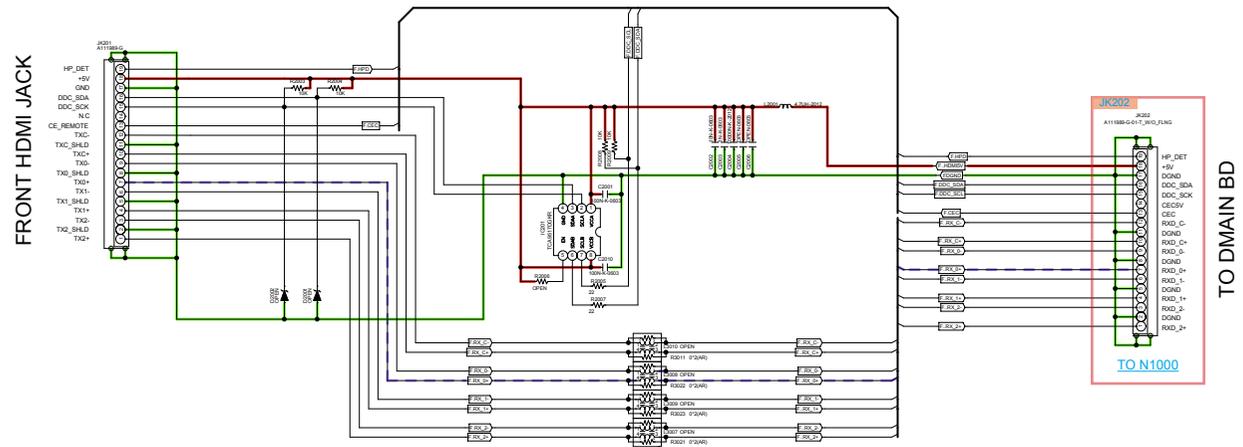
Mechanical

Repair Information

Updating



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

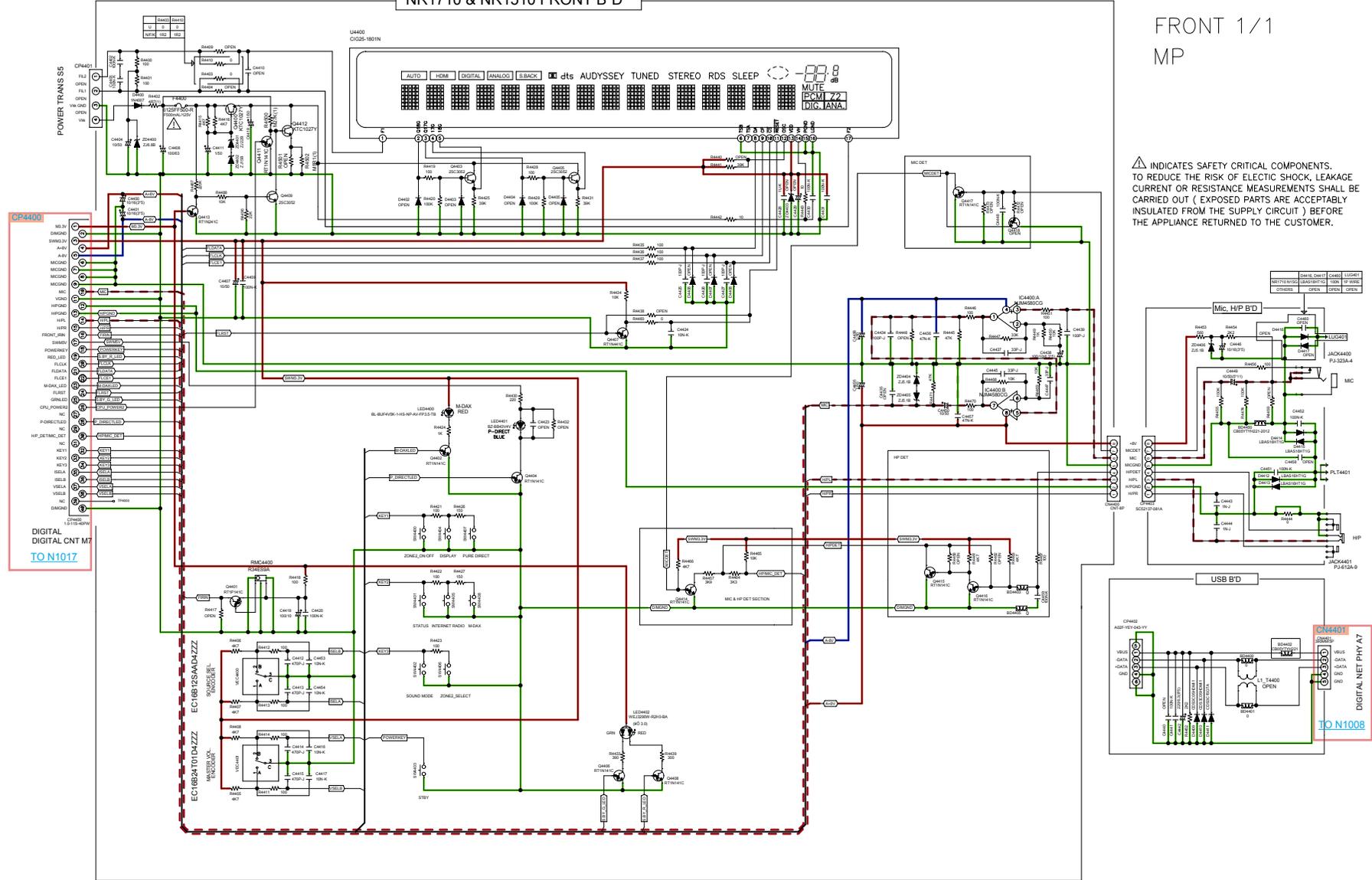


GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL VIDEO SIGNAL COMPONENT(Y) STBY POWER

NR1710 & NR1510 FRONT B'D

FRONT 1 / 1
MP

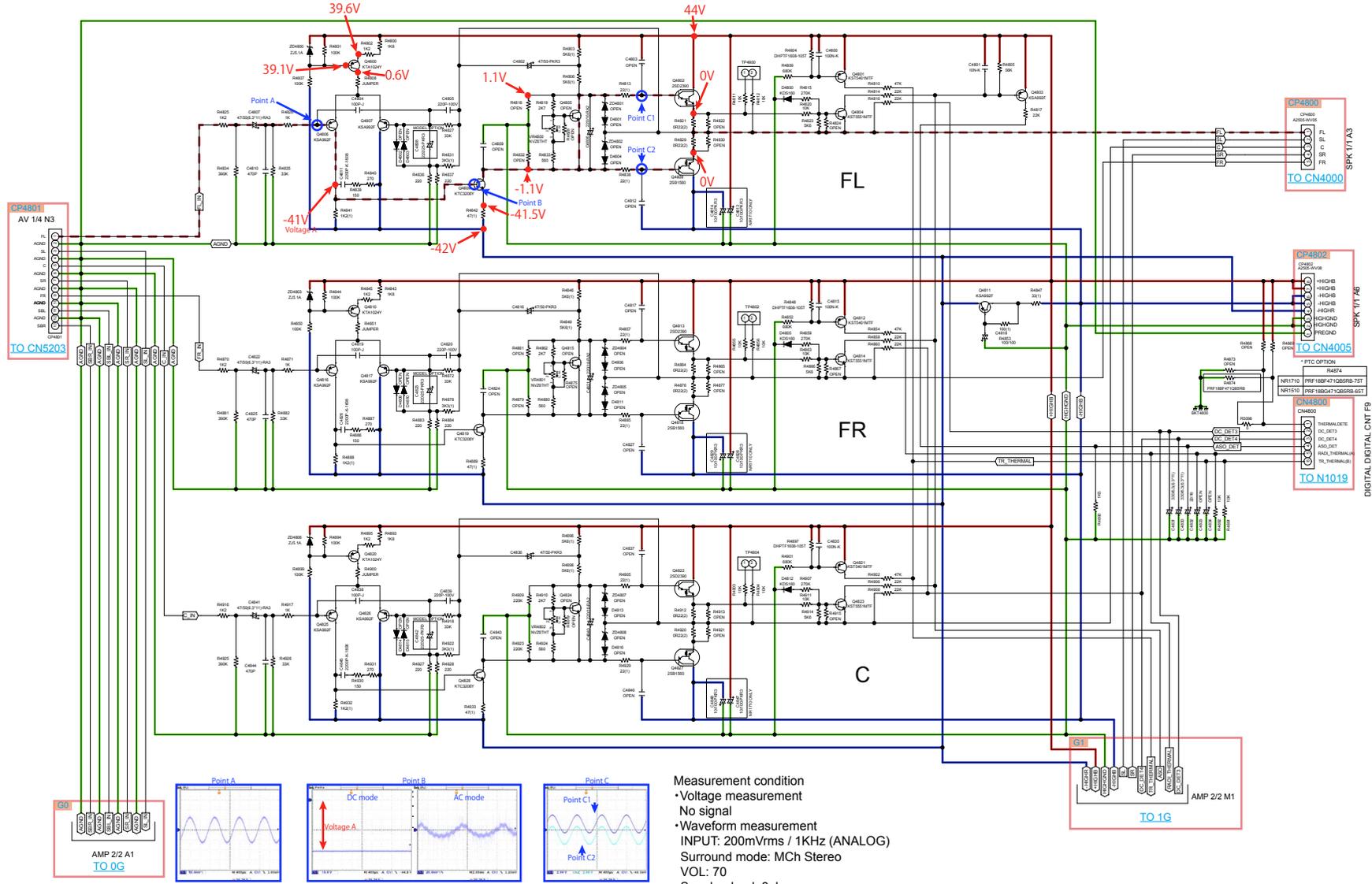
⚠ INDICATES SAFETY CRITICAL COMPONENTS. TO REDUCE THE RISK OF ELECTRIC SHOCK, LEAKAGE CURRENT OR RESISTANCE MEASUREMENTS SHALL BE CARRIED OUT (EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT) BEFORE THE APPLIANCE RETURNED TO THE CUSTOMER.



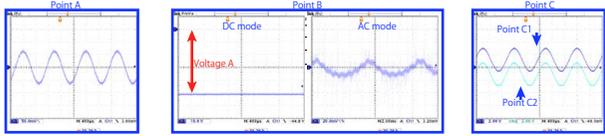
- GND LINE
- POWER+ LINE
- POWER- LINE
- ANALOG AUDIO
- DIGITAL AUDIO
- TMDS SIGNAL
- VIDEO SIGNAL
- COMPONENT(Y)
- STBY POWER

NR1710, NR1510 AMP B'D 1/2

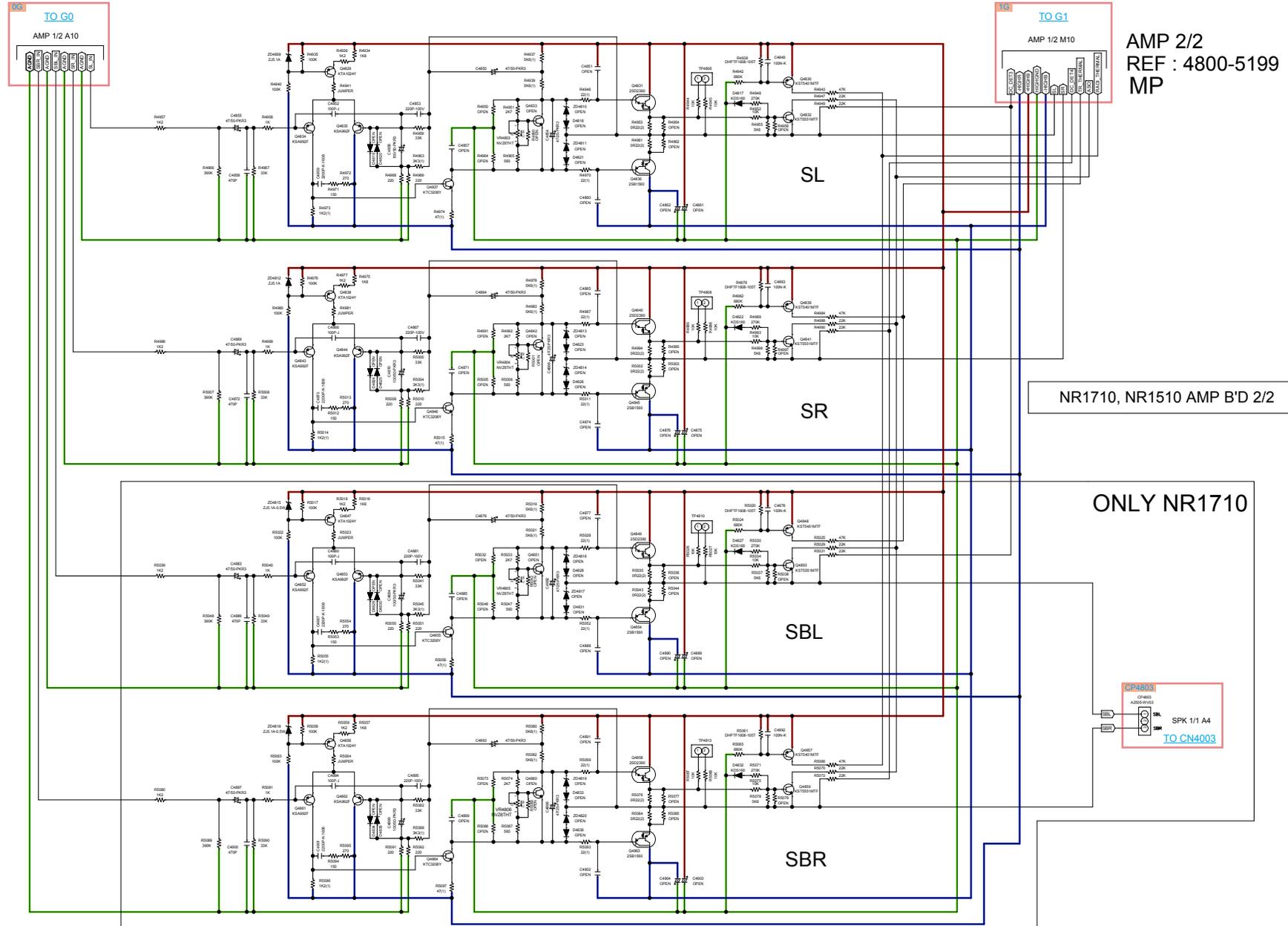
AMP 1/2
REF : 4800-5199
MP



Measurement condition
 • Voltage measurement
 No signal
 • Waveform measurement
 INPUT: 200mVrms / 1KHz (ANALOG)
 Surround mode: MCh Stereo
 VOL: 70
 Speaker load: 8ohms

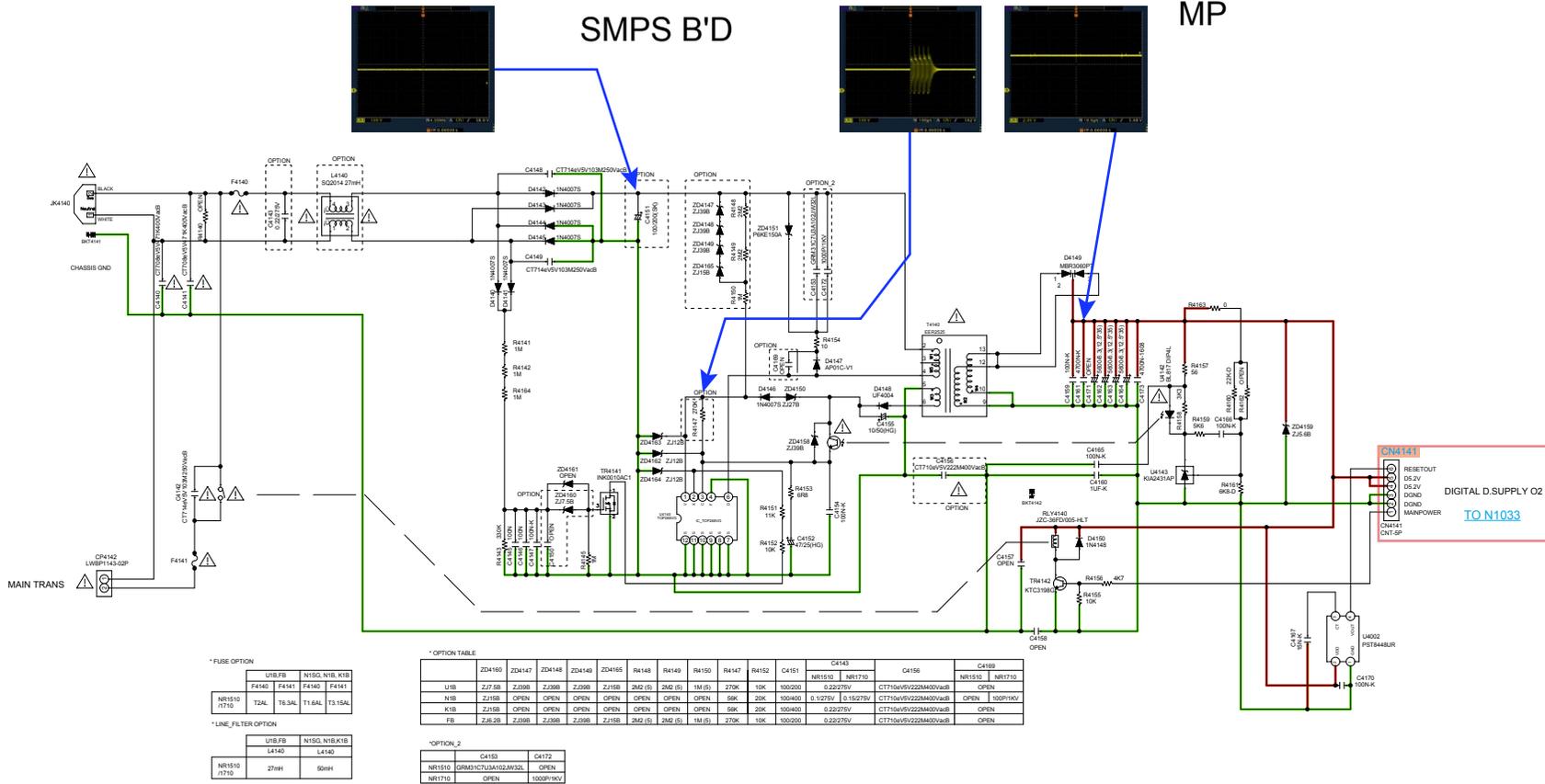


GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL VIDEO SIGNAL COMPONENT(Y) STBY POWER



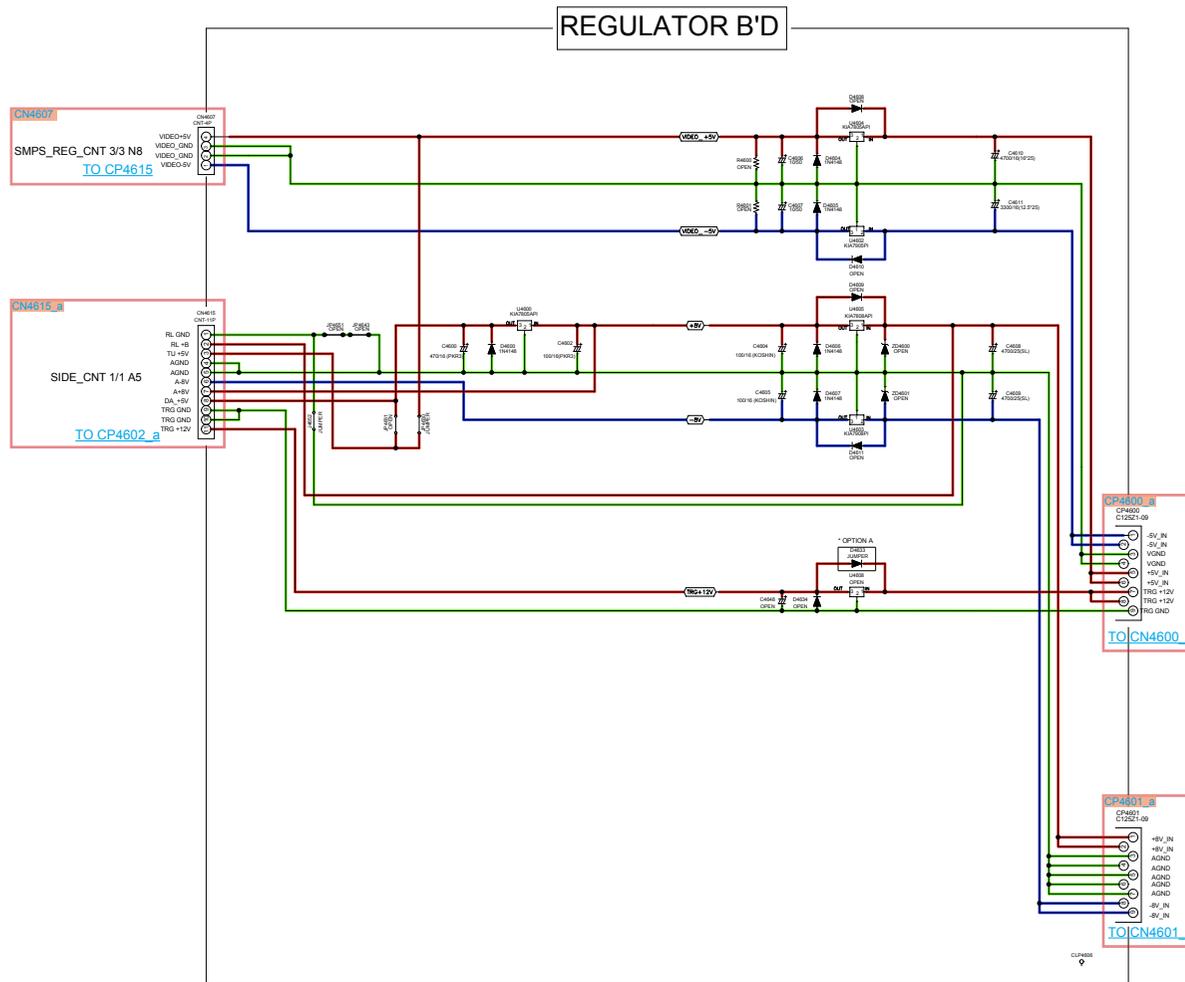
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL VIDEO SIGNAL COMPONENT(Y) STBY POWER

SMPS_REG_FCNT 1/3 MP



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

SMPS_REG_FCNT 2/3
MP

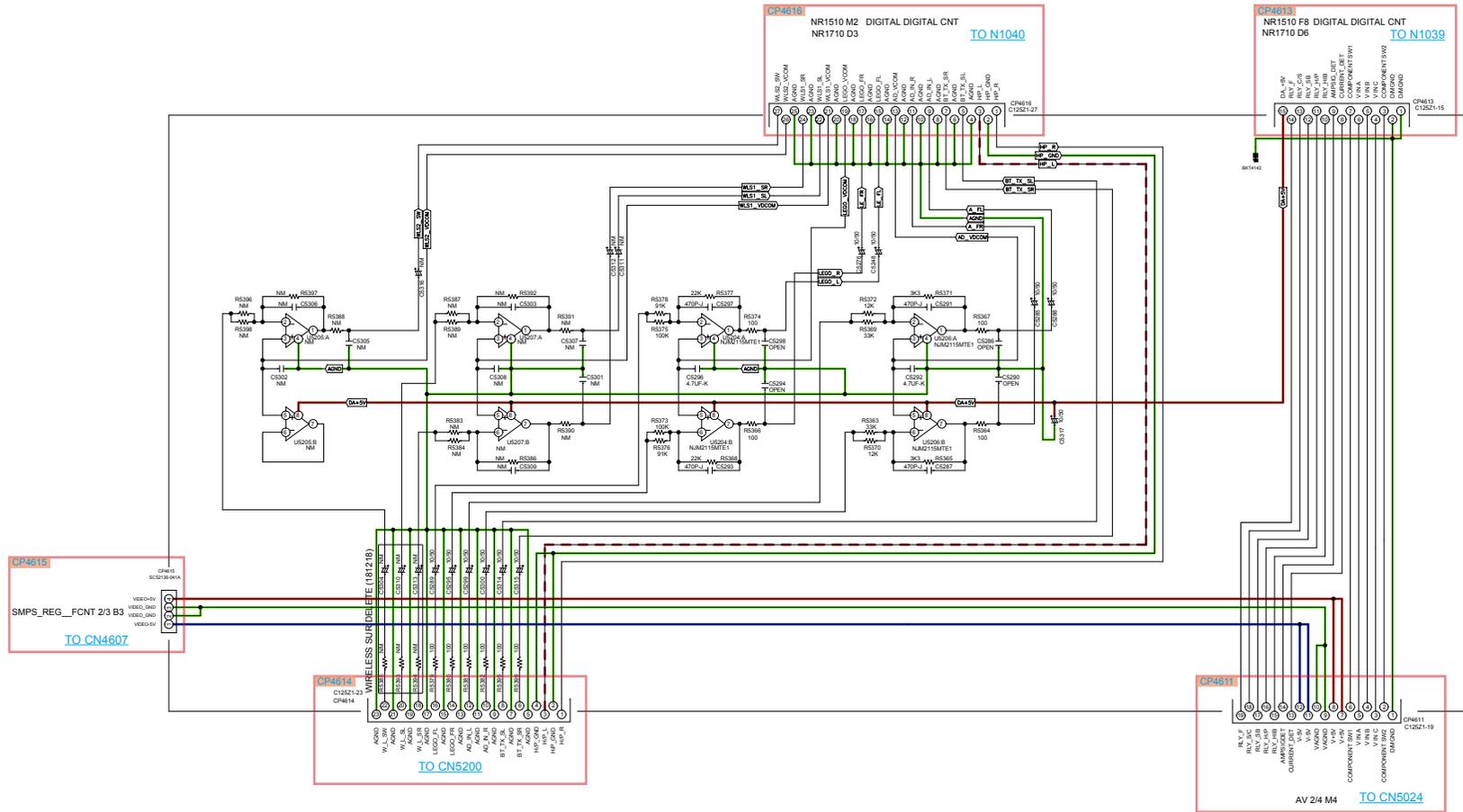


⚠ INDICATES SAFETY CRITICAL COMPONENTS.
TO REDUCE THE RISK OF ELECTRIC SHOCK, LEAKAGE
CURRENT OR RESISTANCE MEASUREMENTS SHALL BE
CARRIED OUT (EXPOSED PARTS ARE ACCEPTABLY
INSULATED FROM THE SUPPLY CIRCUIT) BEFORE
THE APPLIANCE RETURNED TO THE CUSTOMER.

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

FRONT CONNECTOR

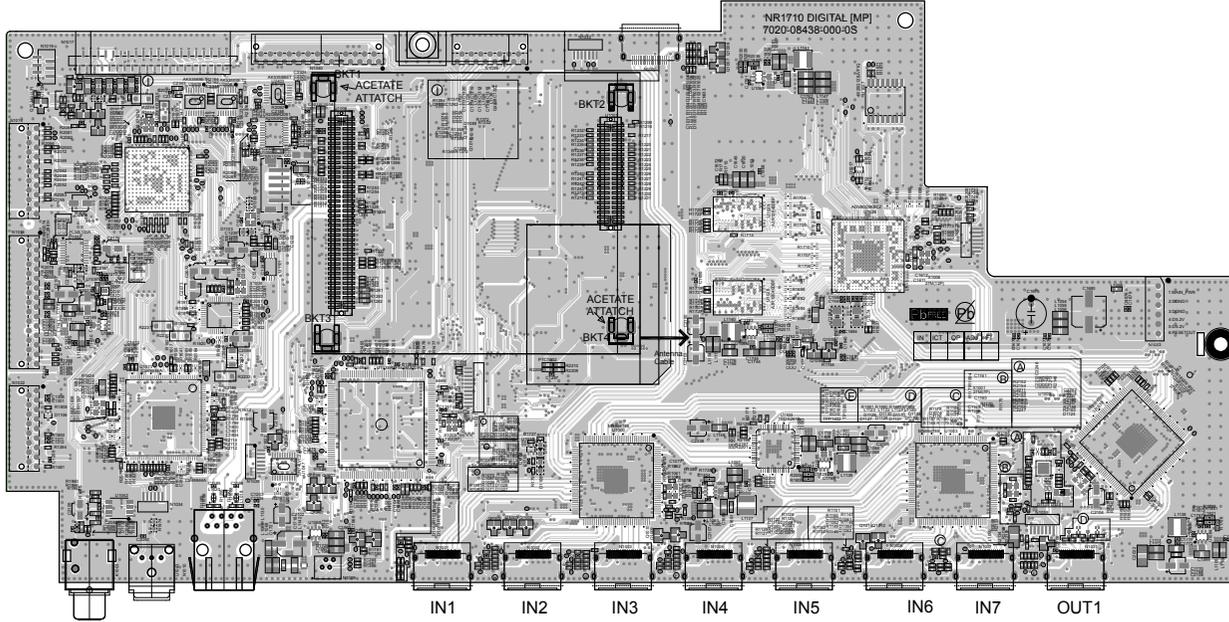
SMPS_REG_FCNT 3/3 MP



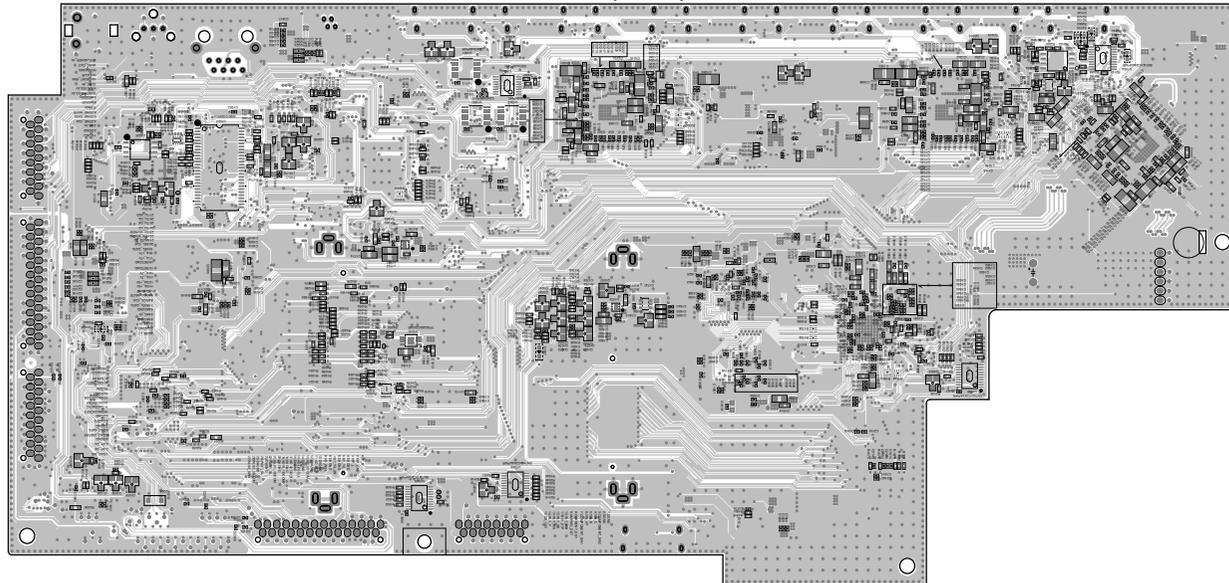
GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL VIDEO SIGNAL COMPONENT(Y) STBY POWER

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

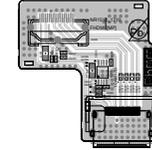
DIGITAL (A SIDE)



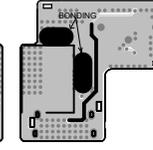
DIGITAL (B SIDE)

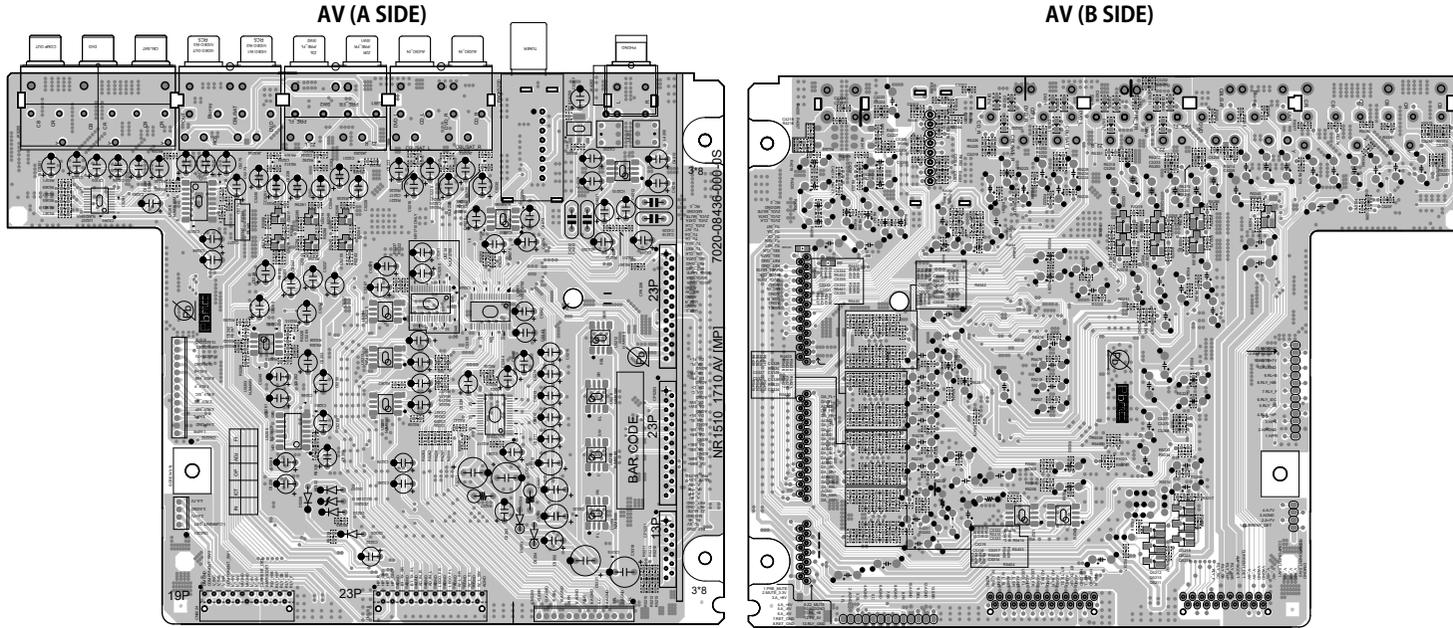


F HDMI (A SIDE)



F HDMI (B SIDE)





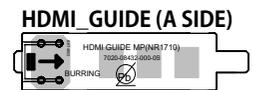
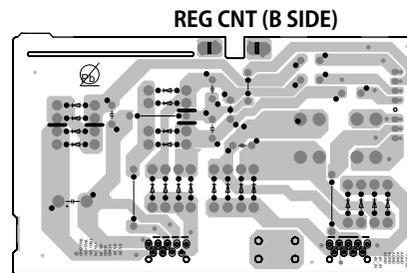
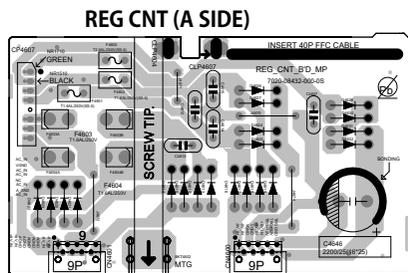
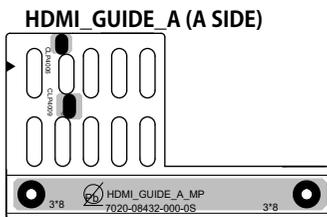
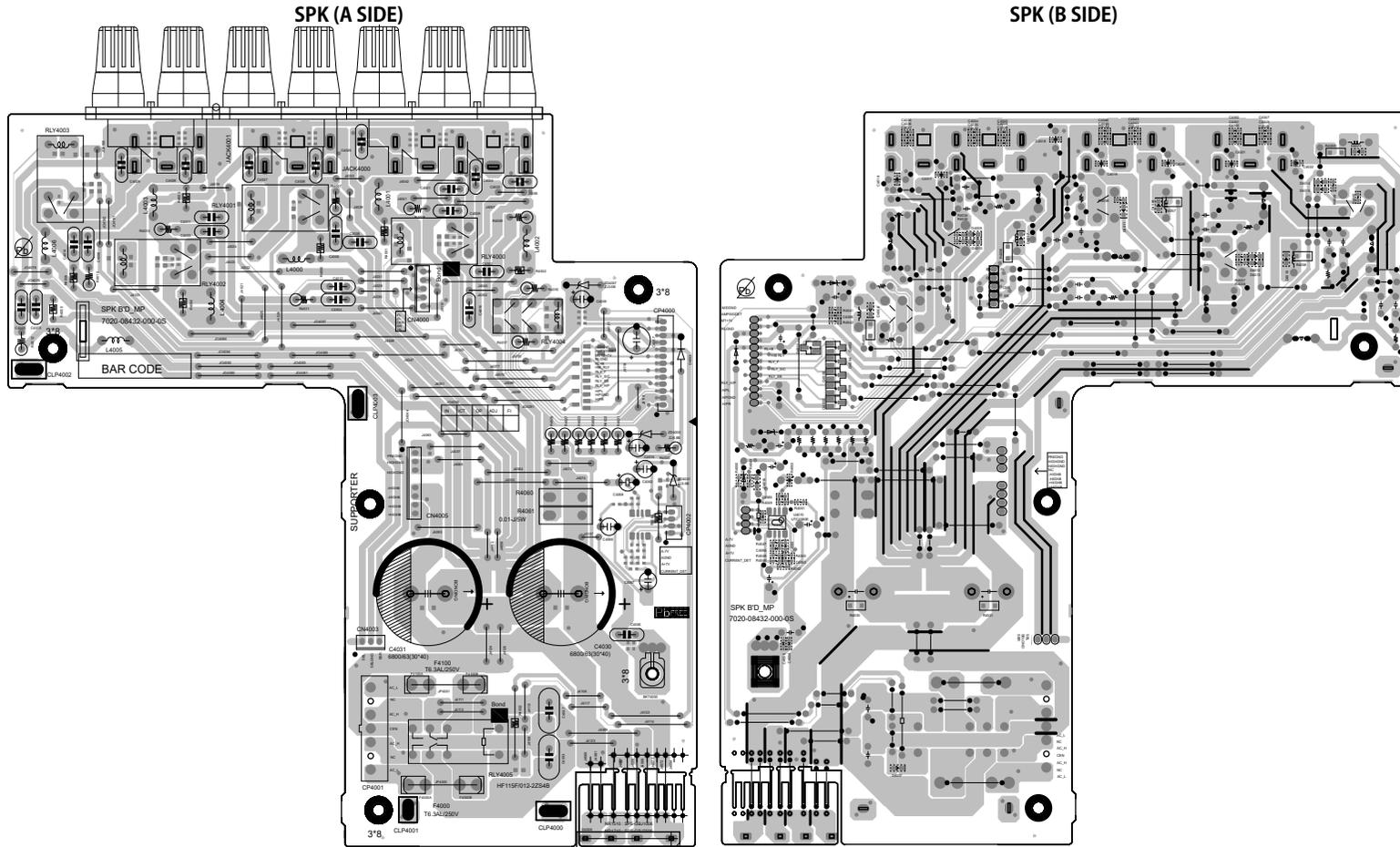
Before Servicing This Unit

Electrical

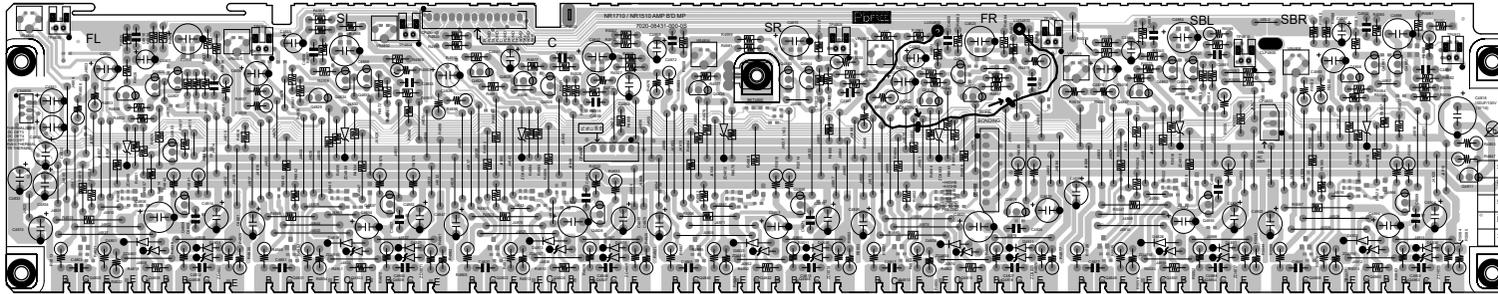
Mechanical

Repair Information

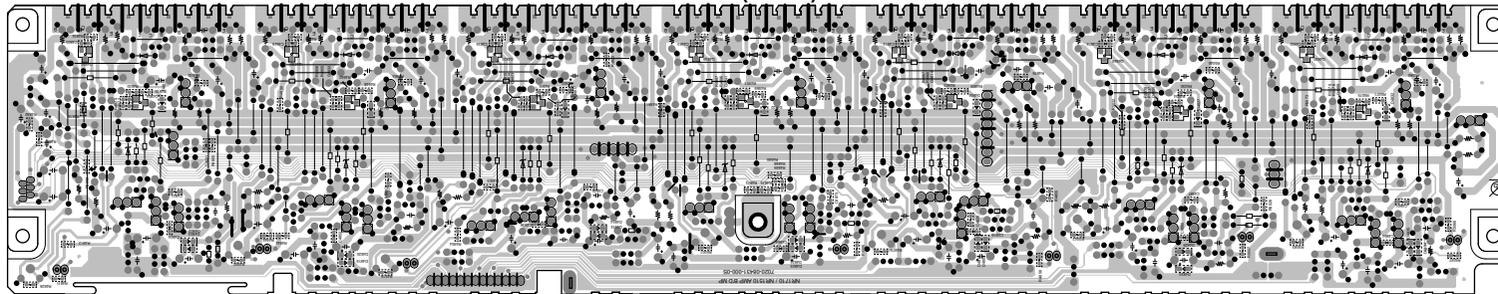
Updating



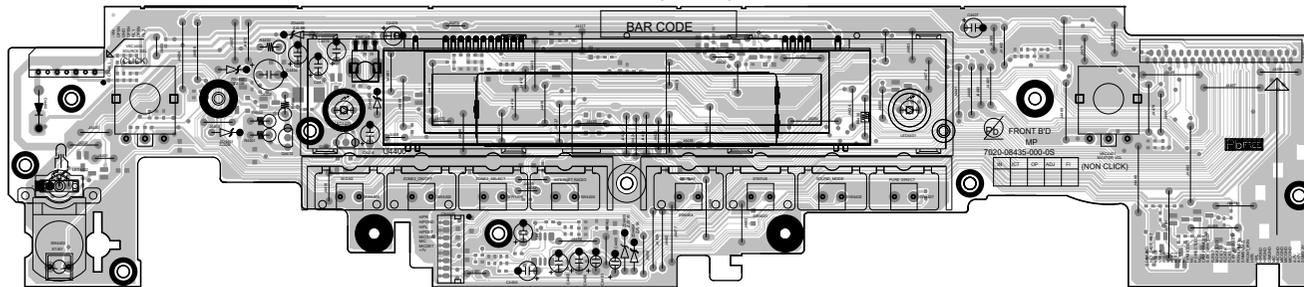
AMP (A SIDE)



AMP (B SIDE)

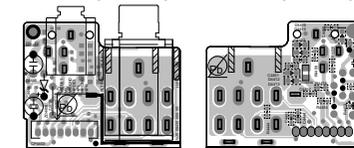


FRONT (A SIDE)

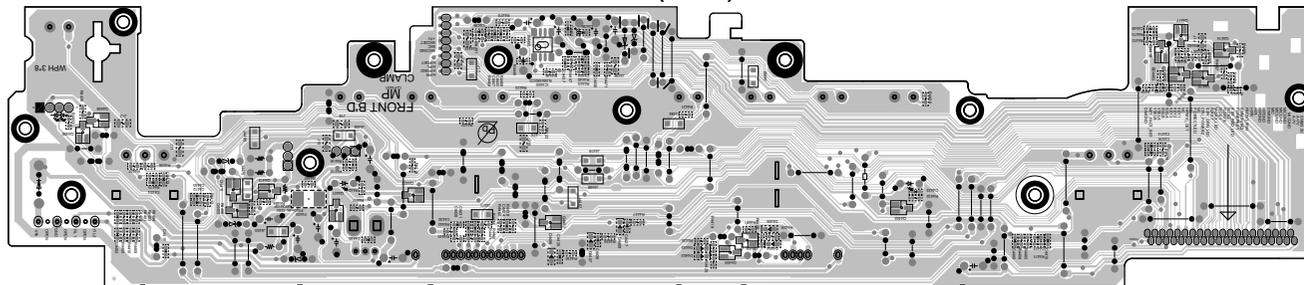


MC HP (A SIDE)

MC HP (B SIDE)

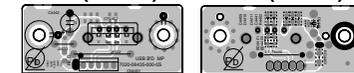


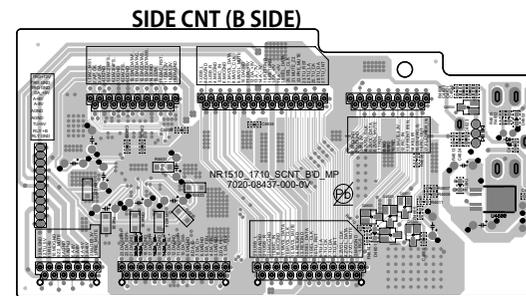
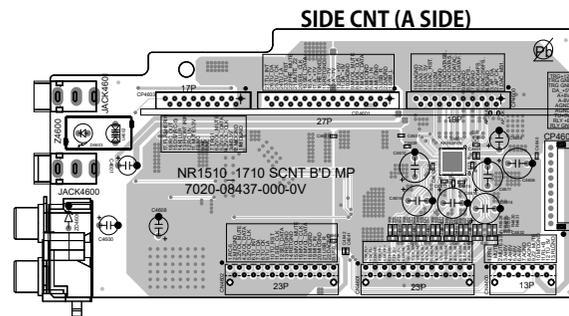
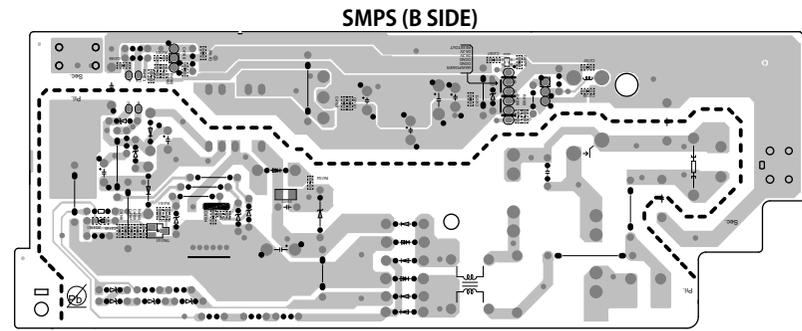
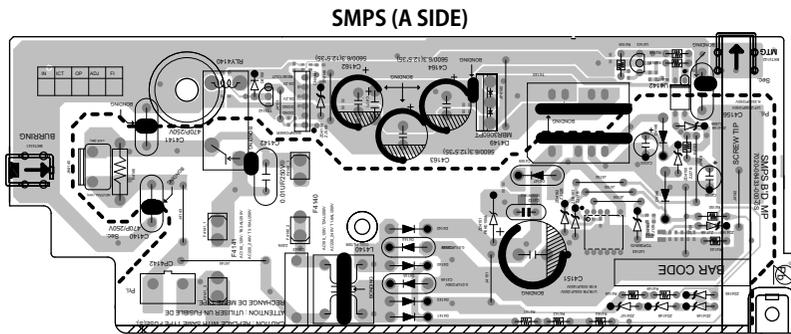
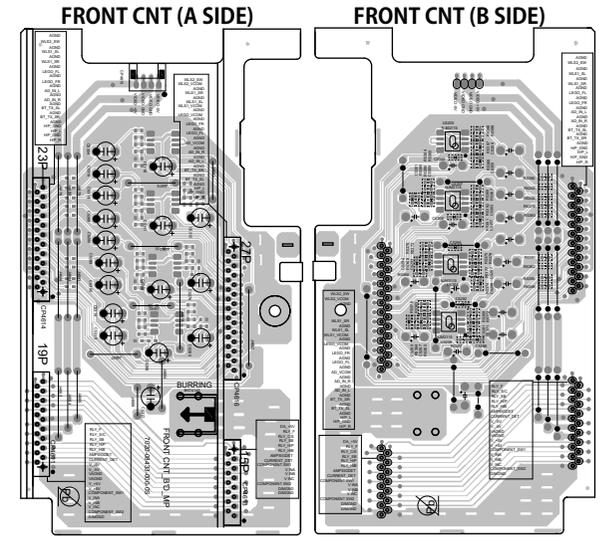
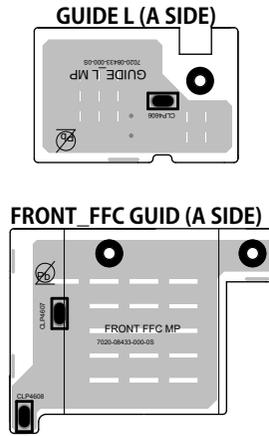
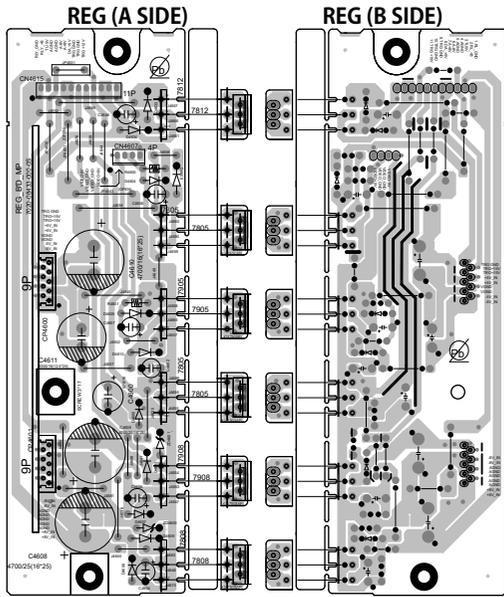
FRONT (B SIDE)



USB (A SIDE)

USB (B SIDE)

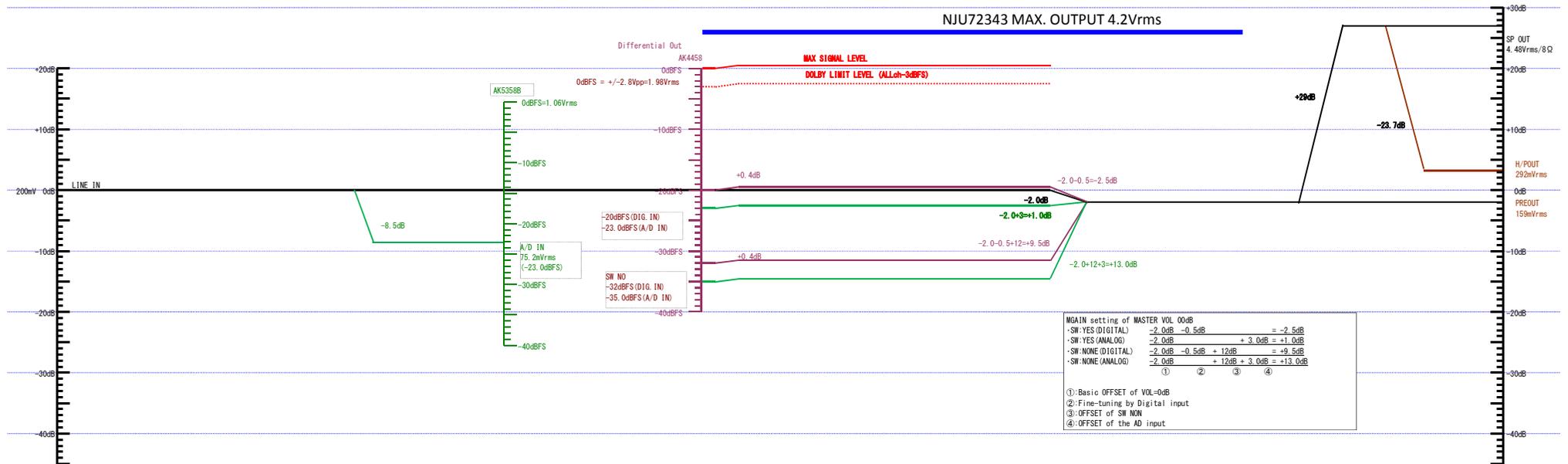
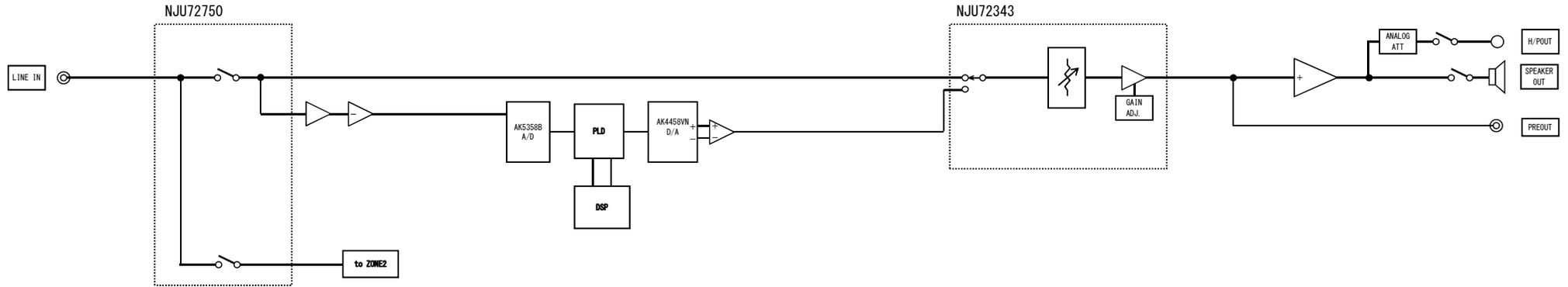


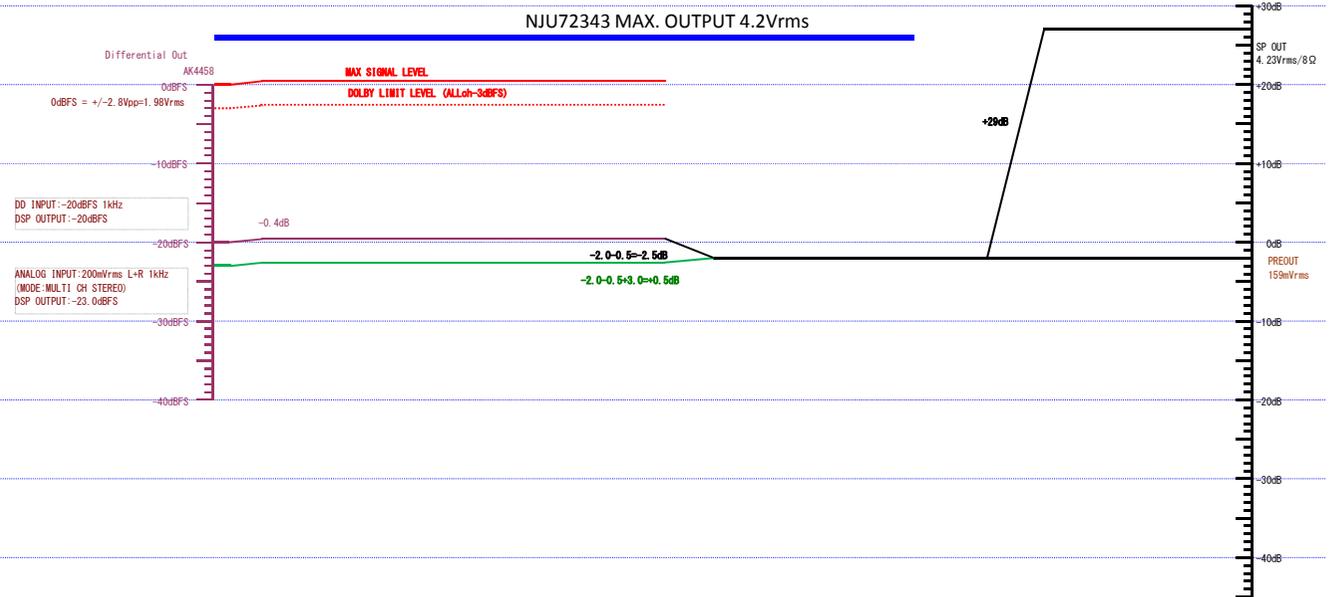
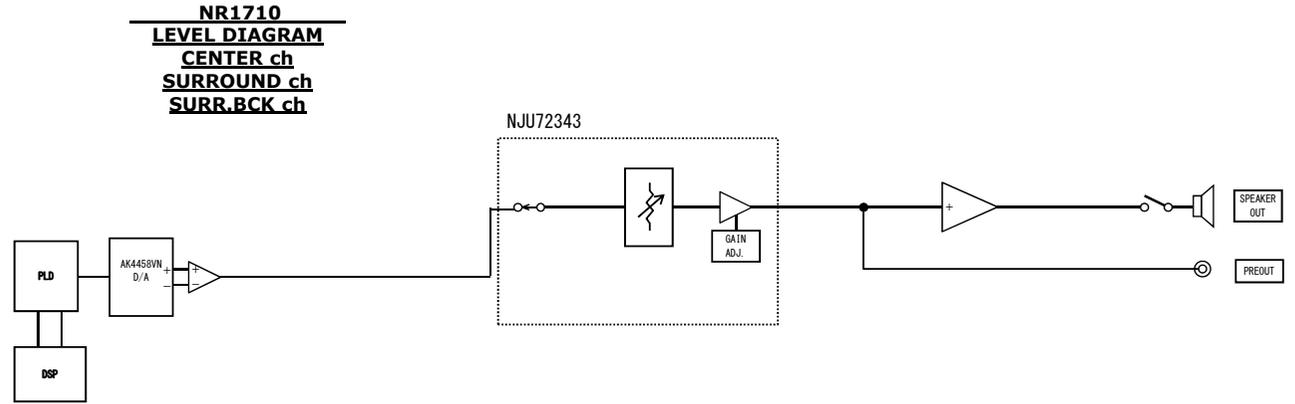


LEVEL DIAGRAM

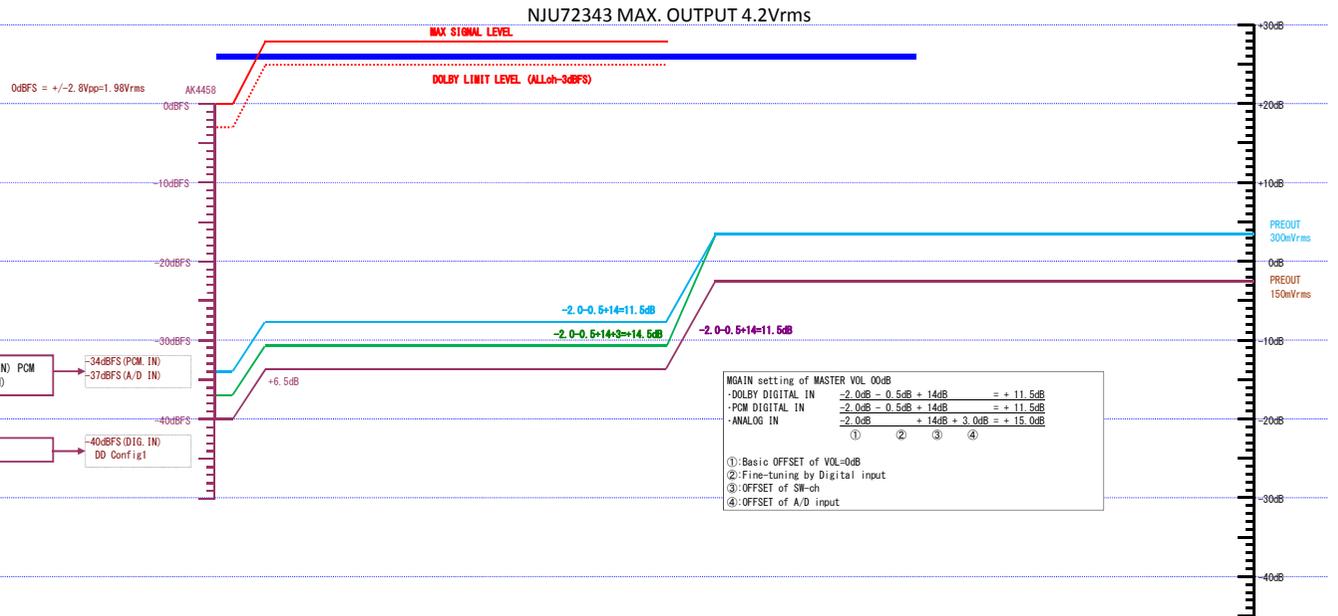
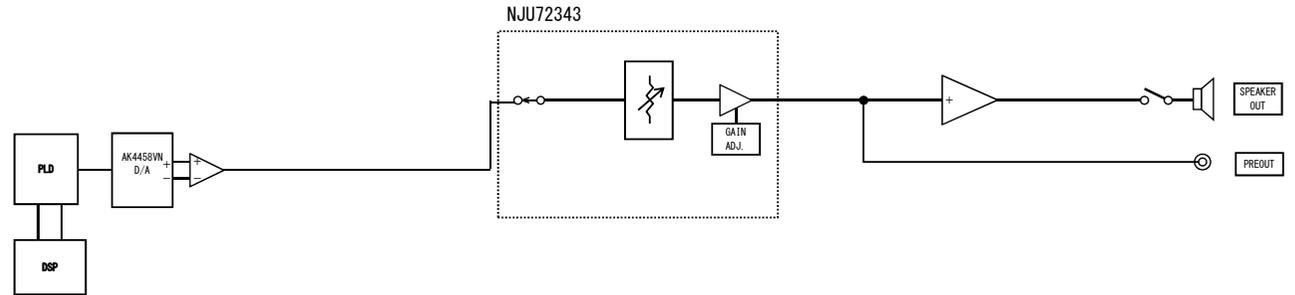
FRONT ch

NR1710 LEVEL DIAGRAM FRONT ch

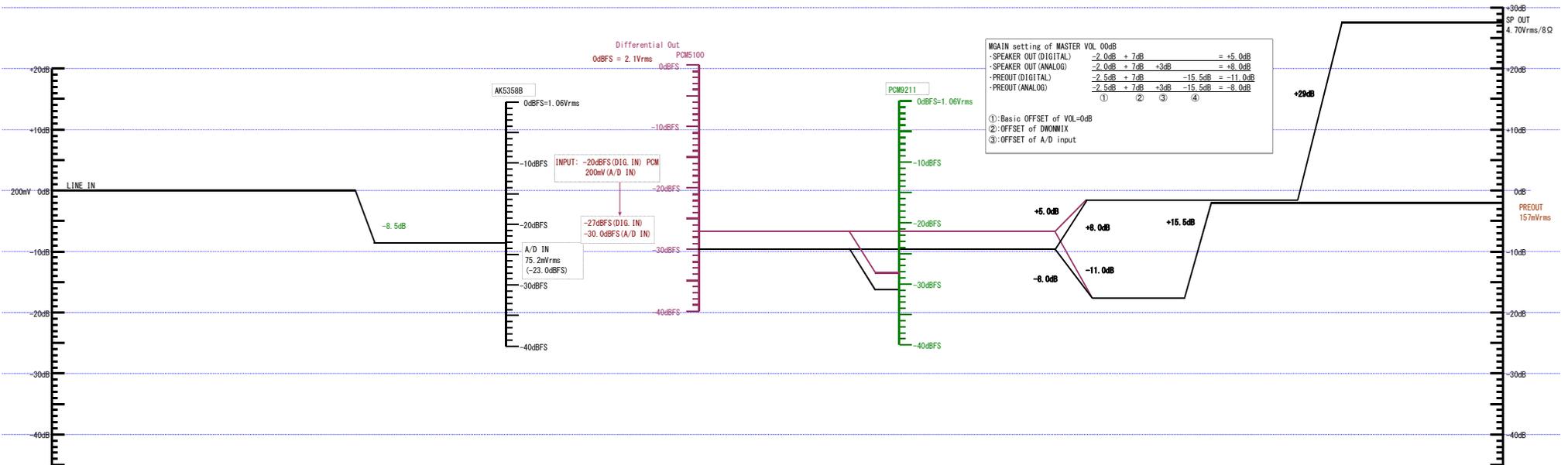
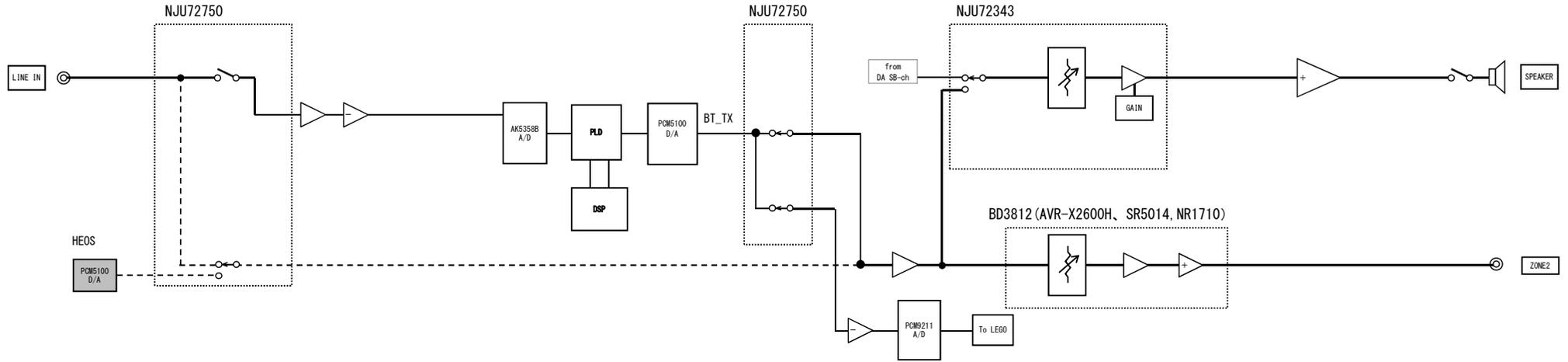




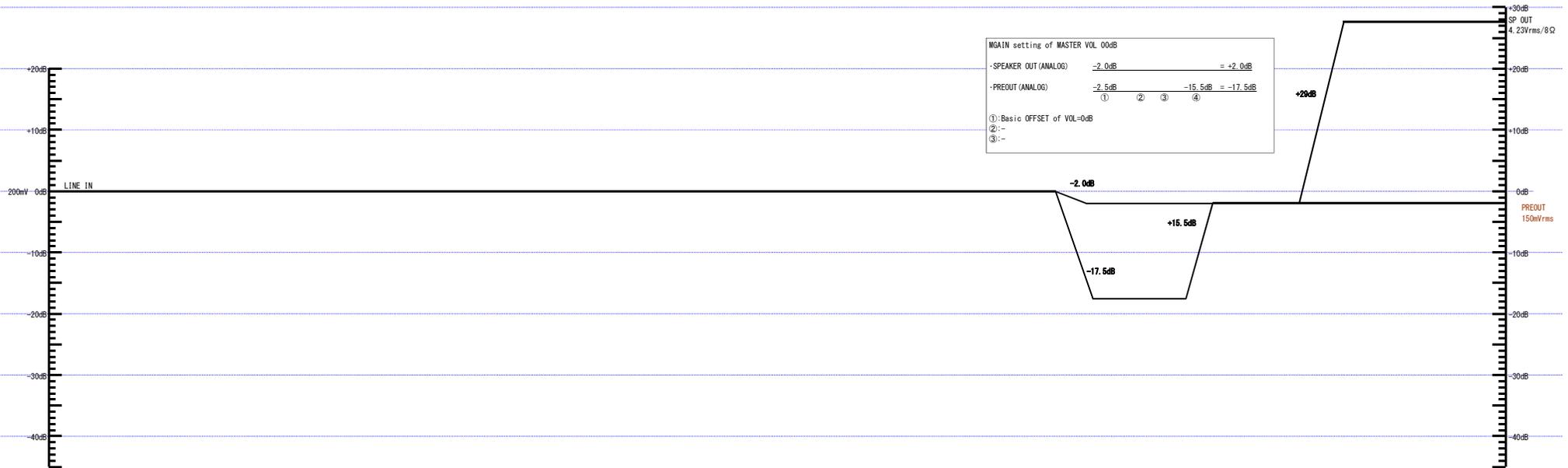
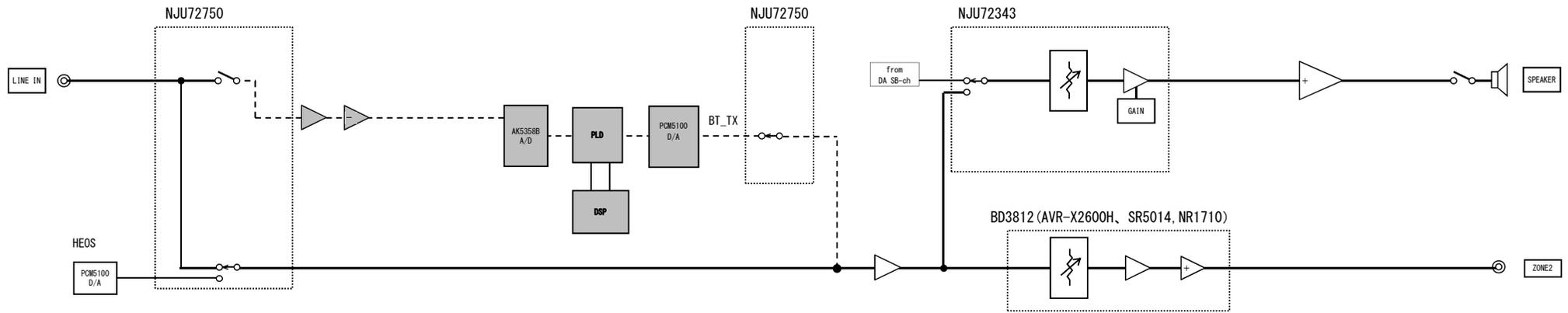
**NR1710
LEVEL DIAGRAM
SUBWOOFER ch**



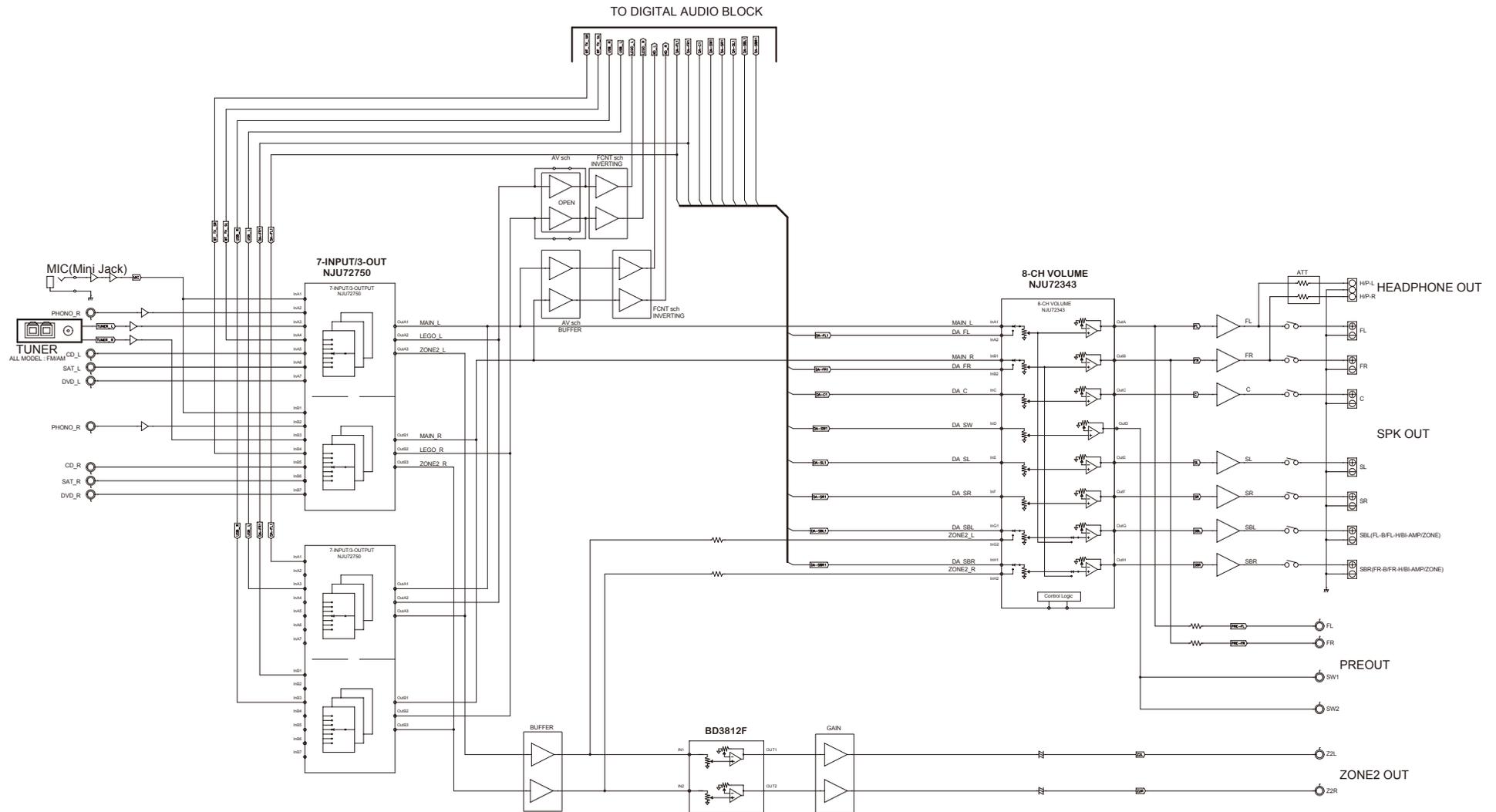
**NR1710
LEVEL DIAGRAM
Distribution
ZONE2(w/ Source)**



NR1710
LEVEL DIAGRAM
ZONE2(w/o Source)



NR1710 ANALOG AUDIO DIAGRAM



Before Servicing
This Unit

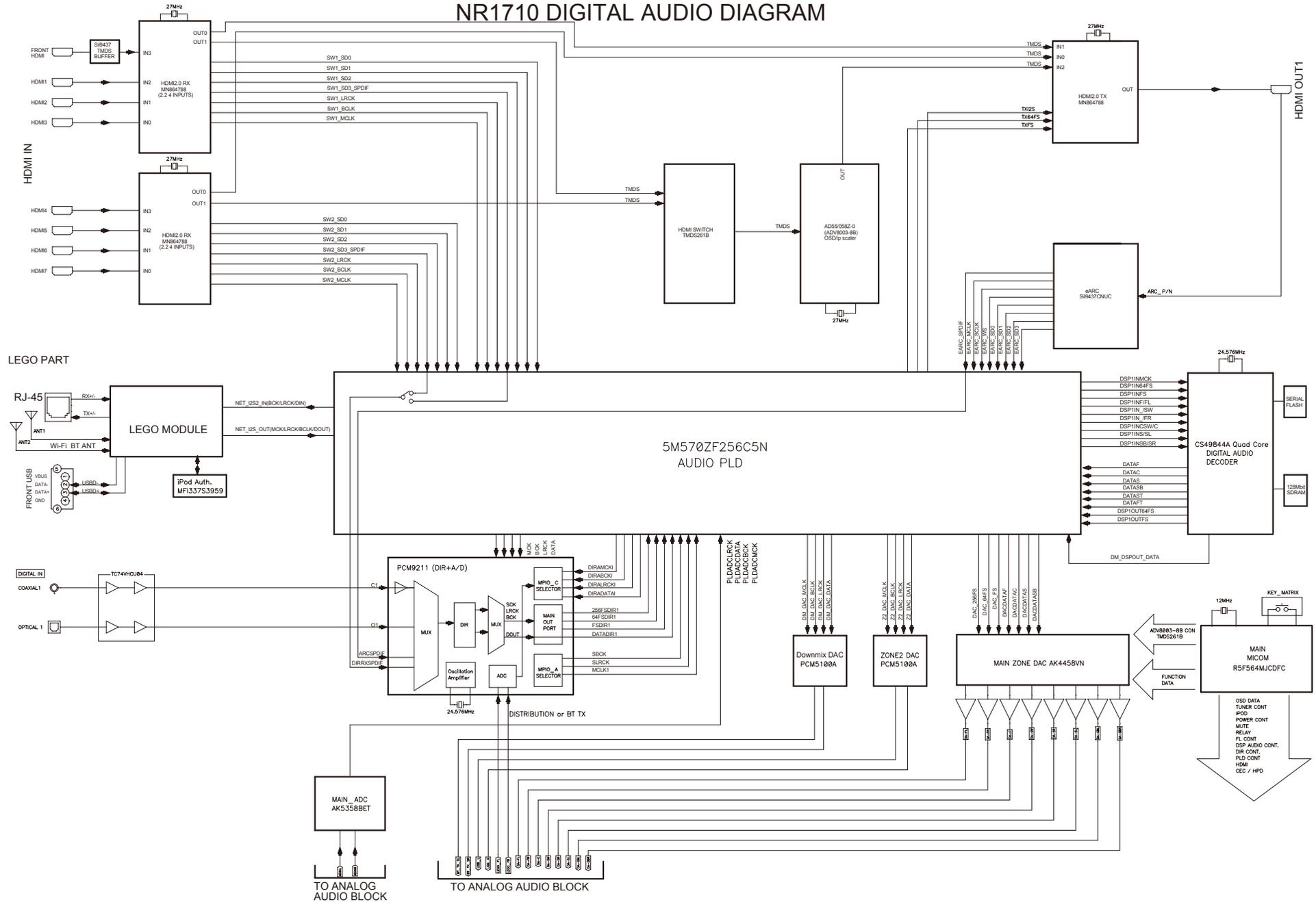
Electrical

Mechanical

Repair Information

Updating

NR1710 DIGITAL AUDIO DIAGRAM



Before Servicing
This Unit

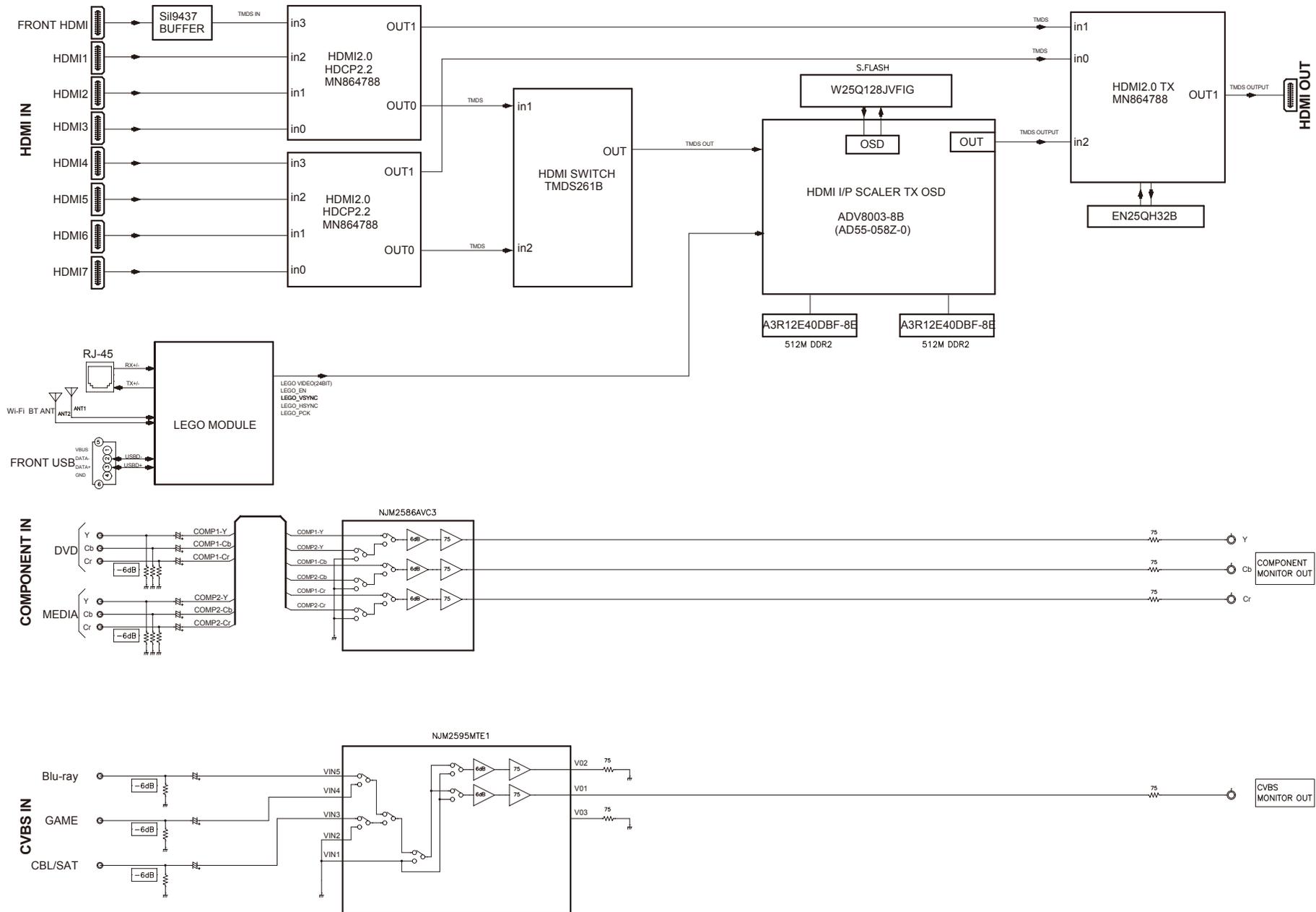
Electrical

Mechanical

Repair Information

Updating

NR1710 VIDEO BLOCK DIAGRAM



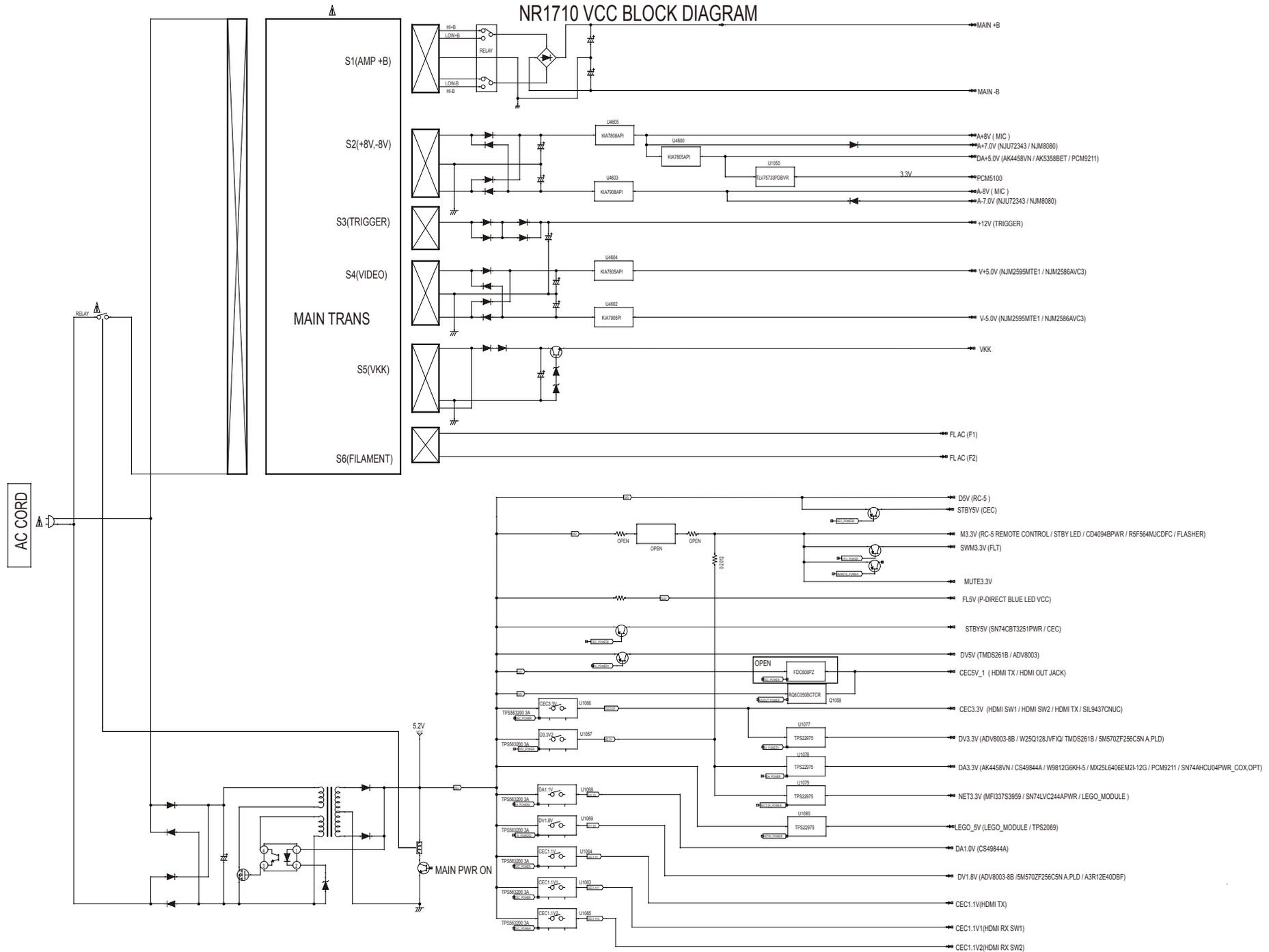
Before Servicing
This Unit

Electrical

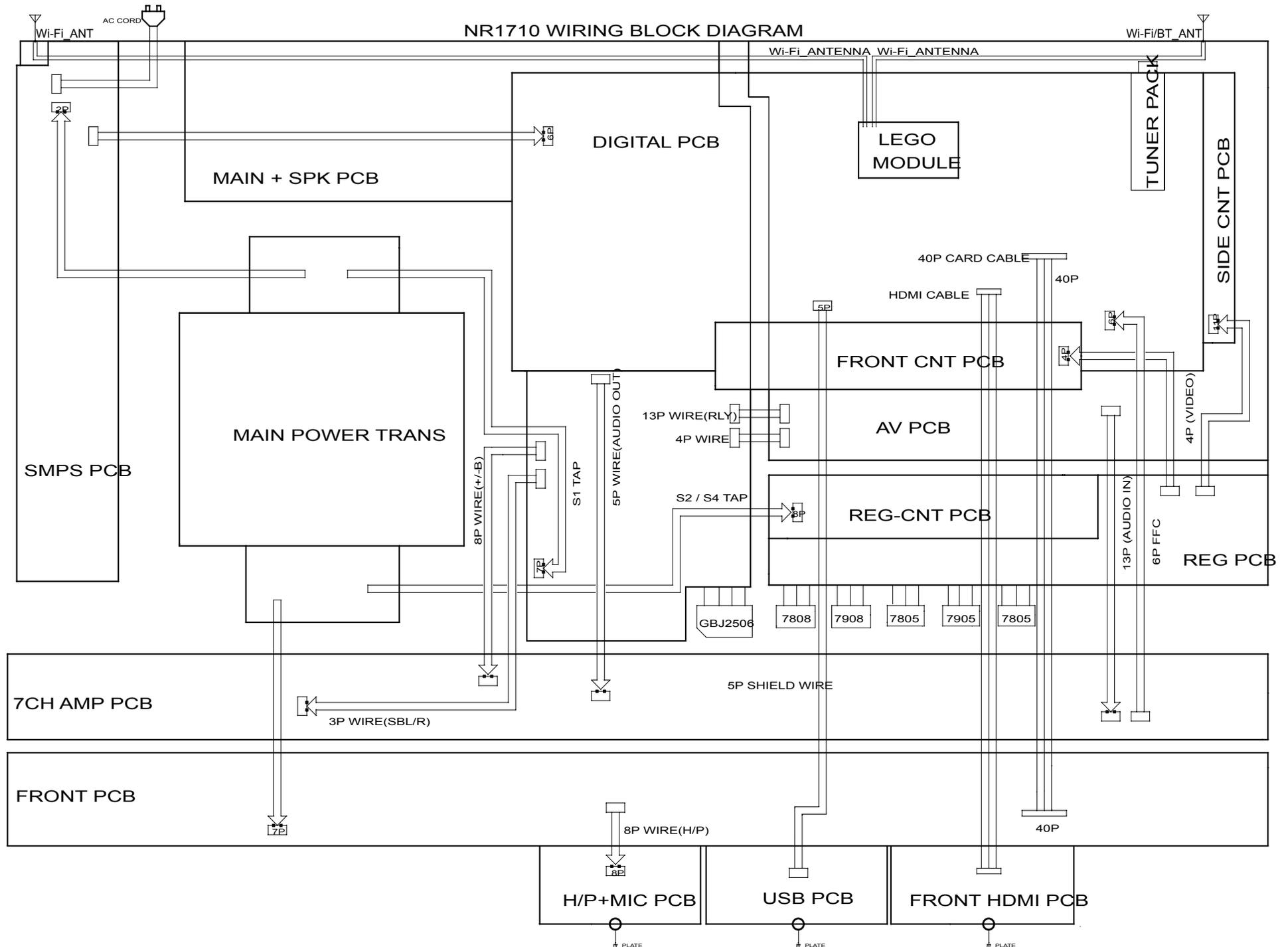
Mechanical

Repair Information

Updating



WIRING DIAGRAM



Before Servicing
This Unit

Electrical

Mechanical

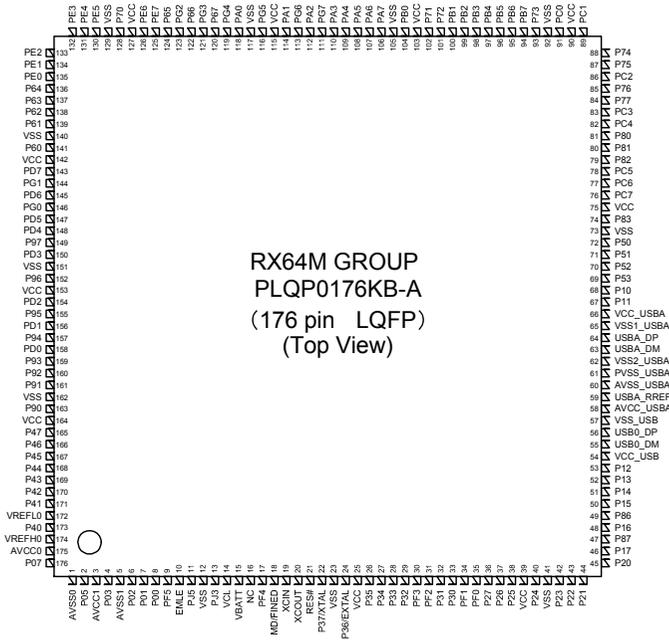
Repair Information

Updating

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

1. IC's

R5F564MJCDFC (DIGITAL : U1018)



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

Terminal Functions

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
1	AVSS0	AVSS0	-	-	-	-	-	Ground pin
2	P05/IRQ13	POWER_KEY	I	M3VPu	I	I	I	Detect Power switch (Release from Wait Mode,Set to interrupt)
3	AVCC1	AVCC1	-	-	-	-	-	Power supply pin
4	P03/IRQ11	RED_LED	O	-	L/H	L	H	POWER/STANDBY LED control pin
5	AVSS1	AVSS1	-	-	-	-	-	Ground pin
6	P02/SCK6/IRQ10/AN120	REMOTE_POWER	O	-	L	L	L	232C power supply (REMOTE 3.3V) control pin
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_MO2321	O	-	L	L	L	External data output port (for AMX/FW update via 232C) :Connector is FFC
9	PF5/IRQ4	WHITE_LED (X2600H(NA))/ GREEN_LED (X2600H(EU/CH/JP) / S950H/SR5014/NR1710)	O	-	L	L	L	POWER LED control pin
10	EMLE	EMLE	I	Pd	-	-	-	E20 Emulator control pin (On chip Emulator is used,this pin should be High. Not used,it should be Low)

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
11	PJ5	VSEL_A	I	SW3VPu	I	I	I	Master Volume (Rotary encoder) signal input pin
12	VSS	VSS	-	-	-	-	-	Ground pin
13	PJ3	VSEL_B	I	SW3VPu	I	I	I	Master volume (Rotary encoder) signal input pin
14	VCL	VCL	I	-	-	-	-	Smoothing capacitor connection pin
15	VBATT	VBATT	-	-	-	-	-	Power supply pin
16	NC	NC	I	Pd	-	-	-	NC(Pull down)
17	TRST#/PF4	TRST#/NC (NORMRAL)	I/I	Pd	I/I	I/I	I/I	E20 Emulator control pin/When normal operating mode,set to input.
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	XCOU	XCOU	I	-	-	-	-	NC(open)
21	RES#	RESET	I	M3VPu	-	-	-	Reset signal input pin
22	XTAL/P37	XTAL	I	-	-	-	-	Pins for a crystal resonator (Xin=12MHz × 10)
23	VSS	VSS	-	-	-	-	-	Ground pin
24	EXTAL/P36	EXTAL	-	-	-	-	-	Pins for a crystal resonator (Xin=12MHz × 10)
25	VCC	VCC	-	-	-	-	-	Power supply pin
26	UPSEL/P35(IN)/NMI	DSP_FLAG3	I	DA3VPu	I	I	I	DSP(CS49844A) interrupt signal input pin
27	P34/SCK6/SCK0/IRQ4	BDOWN	I	M3VPu	I	I	I	Detect power down
28	P33/TIOCD0/RXD6/RXD0/IRQ3-DS	RC_IN	I	Pd (S950H/X2600H) M3VPu (SR5014/NR1710)	I	I	I	Remote input
29	P32/TIOCC0/TXD6/TXD0/IRQ2-DS		O/I	-/Pd	L/I	L/I	L/I	Flasher (Remote) input pin (When standby mode,set to interrupt)
30	TMS/PF3	TMS/NC (NORMRAL)	I/I	M3VPu	-/I	-/I	I	E20 Emulator control pin/When normal operating mode,set to input.
31	TDI/PF2/RXD1	TDI/RXD_MIT-SUBISHI	I/O/I	M3VPu	-/I	-/I	I	E20 Emulator control pin/Mitsubishi writer control pin/When normal operating mode,set to input.
32	P31/IRQ1-DS	TU_INT (except AVR-X2600HDAB) / NC (AVR-X2600HDAB)	I	SW3VPu	L	L	L	TUNER control
33	P30/RXD1	TU_DA (except AVR-X2600HDAB) / DAB_Rx (AVR-X2600HDAB)	I/O	SW3VPu	L	L	L	TUNER control
34	TCK/FINEC/PF1/SCK1	TCK/NC (NORMRAL)	I/I/I	M3VPu	-/I	-/I	I	E20 Emulator control pin/When normal operating mode,set to input.
35	TD0/TXD1/PF0	TDO/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_LA (except AVR-X2600HDAB) / NC (AVR-X2600HDAB)	O	-	L	L	L	TUNER control

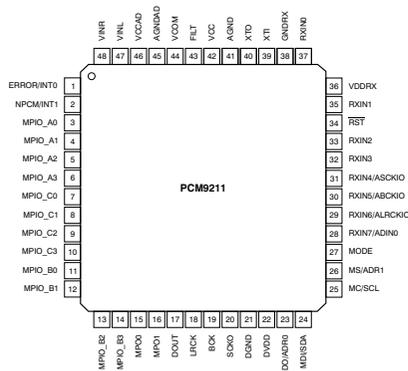
Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
37	P26/TXD1	TU_CK (except AVR-X2600HDAB) / DAB_Tx (AVR-X2600HDAB)	O	SW3VPu	L	L	L	TUNER control
38	P25/RXD3	TU_RST (except AVR-X2600HDAB) / DAB_EN (AVR-X2600HDAB)	O		L	L	L	TUNER control
39	VCC	VCC	-		-	-	-	Power supply pin
40	P24/SCK3	NC (S950H/X2600H) / KILL_IR (NR1710/SR5014)	O		L	L	L	Front IR disable control pin
41	VSS	VSS	-		-	-	-	Ground pin
42	P23/TXD3	E_RTS_MOEI	O	Pd (BCMS58305 Internal Pd)	L	L	L	Ethernet(Network Module) control pin
43	P22/SCK0	E_CTS_MIEO	I	Pd (onboard+BCMS58305 Internal Pd)	I	I	I	Ethernet(Network Module) control pin
44	P21/RXD0/IRQ9	E_RXD_MIEO	I	Pd (onboard+BCMS58305 Internal Pd)	I	L	I	Ethernet(Network Module) control pin
45	P20/TXD0/IRQ8	E_TXD_MOEI	O	Pd (BCMS58305 Internal Pd)	L	L	L	Ethernet(Network Module) control pin
46	P17/SCK1/TXD3/IRQ7	NET_FACT_RST	O (ODR)	Pu (BCMS58305 Internal Pu)	Z	Z	Z	Ethernet(Network Module) control pin
47	P87/TXD10/TIOCA2	NC (S950H/X2600H) /RC_OUT (NR1710/SR5014)	O		L/H	L/L	L/H	Remote code (RC-5) output pin
48	P16/TXD1/RXD3/IRQ6	NET5V_POWER	O		L	L	L	Ethernet power supply (Net5V) control pin
49	P86/RXD10	PRE_Z2_MUTE (X2600H/NR1710/SR5014) /NC (S950H)	O	Pd	L	L	L	MUTE for ZONE2 preout control pin
50	P15/RXD1/SCK3/IRQ5	AEXP_STB	O		L	L	L	Expander (MC14094) control pin
51	P14/IRQ4	AEXP_OE	O		L	L	L	Expander (MC14094) control pin
52	P13/TXD2/IRQ3	AEXP_CLK	O		L	L	L	Expander (MC14094) control pin
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	STB3VPu	I	I	I	CEC-D control pin
69	P53	ADV8003_SPL_CS	O	DV3VPu	L	L	L	GUI control pin(ADV8003)
70	P52/RXD2	ADV8003_SPL_MI	I		L	L	L	GUI control pin(ADV8003)

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
71	P51/SCK2	ADV8003_SPL_CLK	O		L	L	L	GUI control pin(ADV8003)
72	P50/TXD2	ADV8003_SPL_MO	O		L	L	L	GUI control pin(ADV8003)
73	VSS	VSS	-		-	-	-	Ground pin
74	P83/SCK10	IP_RST	O	Pd	I	I	L	Scaler w/ GUI (ADV8003) Reset control pin
75	VCC	VCC	-		-	-	-	Power supply pin
76	UB/PC7/TXD8/IRQ14	UB	I	Pd	-	-	-	Pins for setting the boot mode(select the Boot Mode or User Boot Mode)
77	PC6/RXD8/IRQ13	AVSDA	I_O	DV3VPu	O/L	O/L	L	VIDEO I2C control pin for ADV8003/ ADV7180(except X2600H/S950/NR1710) /ARC IC
78	PC5/SCK8	AVSCL	I_O	DV3VPu	O/L	O/L	L	VIDEO I2C control pin for ADV8003/ ADV7180(except X2600H/S950/NR1710) /ARC IC
79	P82/TXD10	DSP_MOSI	O	DA3VPu	L	L	L	DSP(CS49844A) control pin
80	P81/RXD10	DSP_MISO	I	DA3VPu	L	L	L	DSP(CS49844A) control pin
81	P80/SCK10	DSP_CLK	O	DA3VPu	L	L	L	DSP(CS49844A) control pin
82	PC4/SCK5	DSP_CS	O	DA3VPu	L	L	L	DSP(CS49844A) control pin
83	PC3/TXD5	DSP_FLAG0	I	DA3VPu	L	L	L	DSP(CS49844A) interrupt signal input pin
84	P77/TXD11	DSP_RST	O	Pd	L	L	L	DSP(CS49844A) reset control pin
85	P76/RXD11	DSP_BUSY	I	DA3VPu	L	L	L	DSP BUSY signal input
86	PC2/RXD5	DA_POWER	O		L	L	L	Digital audio power supply (DA3.3V,DA1.2V) control pin
87	P75/SCK11	CEC_POWER2	O		L	L	H	CEC standby power control (for CEC Standby Mode 3)
88	P74	SEL_DATA	O		L	L	L	Audio selector control pin for NJU72750
89	PC1/SCK5/IRQ12	DAC_PLD_ERR	I		L	L	L	Detect PLD error (from Audio PLD)
90	VCC	VCC	-		-	-	-	Power supply pin
91	PC0/IRQ14	ARC_INT	I	IOVc-c3VPu	L	L	L	ARC IC interrupt signal input pin
92	VSS	VSS	-		-	-	-	Ground pin
93	P73	H5VOUT_POWER	O		L	L	L	HDMI 5V power supply control pin
94	PB7/TXD9	HSDA	I/O	CEC3VPu	L	L	L	HDMI I2C control pin for MN864788
95	PB6/RXD9	HSSL	I/O	CEC3VPu	L	L	L	HDMI I2C control pin for MN864788
96	PB5/SCK9	SEL_CLK	O		L	L	L	Audio selector control pin for NJU72750
97	PB4	APLD_CS	O	Pd	L	L	L	Audio PLD (5M570ZF256C5N) control pin
98	PB3/SCK4/SCK6	APLD_DATA/DAC_DATA	O	Pd	L	L	L	Audio PLD (5M570ZF256C5N) control pin/DAC (AK4458VN) control pin
99	PB2	APLD_CLK/DAC_CLK	O	Pd	L	L	L	Audio PLD (5M570ZF256C5N) control pin/DAC (AK4458VN) control pin
100	PB1/TXD4/TXD6/IRQ4-DS	DAC_MS	O		L	L	L	DAC (AK4458VN) control pin
101	P72	DAC_RST	O		L	L	L	DAC (AK4458VN) control pin
102	P71	PRE_MUTE	O	Pd	L	L	L	MUTE for preout control pin
103	VCC	VCC	-		-	-	-	Power supply pin
104	PB0/RXD4/RXD6/IRQ12	DA_POWER2	O		L	L	L	Digital audio power supply (DA1.0V) control pin
105	VSS	VSS	-		-	-	-	Ground pin
106	PA7	ISEL_A	I	SW3VPu	I	I	I	Input selector (Rotary encoder) signal input pin
107	PA6	ISEL_B	I	SW3VPu	I	I	I	Input selector (Rotary encoder) signal input pin
108	PA5	NC	O		L	L	L	NC
109	PA4/TXD5/SSDA5/IRQ5-DS	DSP_ROM_WRITE	O		L	L	L	DSP ROM writing control(When writing,set to High)
110	PA3/RXD5/SSCL5	MVOL_MUTE	O		L	L	L	Volume control pin (NJU72343)
111	TRDATA3/PG7	MVOL_CLK	O		L	L	L	Volume control pin (NJU72343)
112	PA2/RXD5	MVOL_DATA	O		L	L	L	Volume control pin (NJU72343)
113	TRDATA2/PG6	ZVOL_DATA (X2600H/NR1710/SR5014)/NC (S950H)	O		L	L	L	ZONE2 volume control pin (BD3812F)

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
114	PA1/SCK5/IRQ11	ZVOL_CLK (X2600H/ NR1710/ SR5014) /NC (S950H)	O		L	L	L	ZONE2 volume control pin (BD3812F)
115	VCC	VCC	-		-	-	-	Power supply pin
116	TRCLK/PG5	ZVOL_MUTE (X2600H/ NR1710/ SR5014)/NC (S950H)	O		L	L	L	ZONE2 volume control pin (BD3812F)
117	VSS	VSS	-		-	-	-	Ground pin
118	PA0	H5V_DET	I	-	I	I	I	HDMI IN 5V detect signal pin
119	TRSYNC/PG4	FL_RST	O		L	L	L	FL display control pin
120	P67/IRQ15	FL_CE	O		L	L	L	FL display control pin
121	TRDATA1/PG3	FL_CLK	O		L	L	L	FL display control pin
122	P66	FL_DATA	O		L	L	L	FL display control pin
123	TRDATA0/PG2	ADC_RST2	O		I	L	I	A/D convertor(AK5358) for WS reset control pin
124	P65	CPU_POWER_2 (S950H/ X2600H/ NR1710) /FIL_CTRL (SR5014)	O		L	L	L	CPU power supply control pin(same as 131 pin) / Filament Power control pin (for Portal FLD)
125	PE7/IRQ7/AN105	ASO/DC_DET	I	SW3VPu	I	L	I	Protection detect signal input pin (for ASO and DC) (A/D converter)
126	PE6/IRQ6/AN104	MIC_DET/H/ P_DET	I	SW3VPu	I	L	I	Headphone insert detect pin/Microphone insert detect pin (A/D converter)
127	VCC	VCC	-		-	-	-	Power supply pin
128	P70	ARC_RST	O		L	L	L	Reset control pin for ARC IC
129	VSS	VSS	-		-	-	-	Ground pin
130	PE5/IRQ5/AN103	MAIN_POWER	O	Pd	L	L	L	Power supply control pin
131	PE4/AN102	CPU_POWER	O		L	L	L	CPU power supply control pin
132	PE3/AN101	AIOS4_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))
133	PE2/RXD12/IRQ7-DS/AN100	AIOS4_STBY_STATUS	I	-	I	I	I	Not used (This port use to detect for Network Module standby status in the future (Low : normal, High : Deep Standby))
134	PE1/TXD12	THERMAL_E	I	SW3VPu	I	L	I	Protection detect signal input pin (for Heat sink)
135	PE0/SCK12	NET3.3V_POWER	O		L	L	L	Ethernet power supply control(Net3.3V)
136	P64	D5V_POWER	O		L	L	H	Digital 5V power supply control pin(3.3V and 1.8V generate from 5V)(When CEC standby mode3,set to Low)
137	P63	CEC_POWER	O		L	L	H	CEC standby power supply control(CEC5V,CEC3.3V,CEC1.8V)(When CEC standby mode3,set to Low)
138	P62	DV_POWER1	O		L	L	L	Digital video power supply (DV5V,DV3.3V) control pin
139	P61	DV_POWER2	O		L	L	L	Digital video power supply (DV1.8V) control pin
140	VSS	VSS	-		-	-	-	Ground pin
141	P60	DIR_DIN	O		L	L	L	DIR (PCM9211) control pin
142	VCC	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	788_2_HAINT	I	CEC3VPu	Z		-	HDMI Rx (MN864788) audio interrupt signal det
148	PD4/IRQ4/AN112	SW_SDA	I_O	DV3VPu	O/L	O/L	L	HDMI TMDS switch I2C control pin for TMDS261B
149	P97	DE_RST (SR5014)/ NC (S950H/ X2600H/ NR1710)	O	Pd	Z		L	Video decoder (ADV7180) reset control pin

Pin	Pin Name	Symbol	I/O	Pu/Pd	STBY	STOP	CEC STBY	Function
150	PD3/IRQ3/AN111	788_1_HINT	I	CEC3VPu	Z		-	HDMI Tx (MN864788) interrupt signal input pin
151	VSS	VSS	-		-	-	-	Ground pin
152	P96	788_1_RST	O	Pd	Z		H	HDMI Tx (MN864788) reset control pin (When CEC standby mode3,set to reset)
153	VCC	VCC	-		-	-	-	Power supply pin
154	PD2/IRQ2/AN110	788_2_HINT	I	CEC3VPu	Z		-	HDMI Rx (MN864788) interrupt signal input pin
155	P95	788_2_RST	O	Pd	Z		H	HDMI Rx (MN864788) reset control pin (When CEC standby mode3,set to reset)
156	PD1/IRQ1/AN109	788_3_HINT	I	CEC3VPu	Z		-	HDMI Rx (MN864788) interrupt signal input pin
157	P94	788_3_RST	O	Pd	Z		H	HDMI Rx (MN864788) reset control pin (When CEC standby mode3,set to reset)
158	PD0/IRQ0/AN108	A_TO_H/NET (SR5014)/ NC (S950H/ X2600H/ NR1710)	O		L	L	L	Video PLD control pin (Net GUI:High,A to H:Low)
159	P93/AN117	THERMAL_A	I	SW3VPu	I	L	I	Protection detect signal input pin (for power TR)
160	P92/RXD7/AN116	THERMAL_B	I	SW3VPu	I	L	I	Protection detect signal input pin (for power TR)
161	P91/AN115	SW_SCL	I_O	DV3VPu	O/L	O/L	L	HDMI TMDS switch I2C control pin for TMDS261B
162	VSS	VSS	-		-	-	-	Ground pin
163	P90/TXD7/AN114	TEMP_SENSOR	I	NET3.3VPu	I	L	I	Temperature sensor input pin (for SRM)
164	VCC	VCC	-		-	-	-	Power supply pin
165	P47/IRQ15-DS/ AN007	788_3_HAINT	I	CEC3VPu	Z		-	HDMI Rx (MN864788) audio interrupt signal det
166	P46/IRQ14-DS/ AN006	CURRENT_DET	I	Pd	I	L	I	Current level monitor pin (A/D converter)
167	P45/IRQ13-DS/ AN005	AMPSIGDET	I	Pd	I	L	I	Signal level monitor pin (AD converter)
168	P44/IRQ12-DS/ AN004	MODE	I		I	I	I	Region setting pin
169	P43/IRQ11-DS/ AN003	KEY3	I	M3VPu	I	I	I	Key control signalinput pin (When standby mode,set to interrupt)
170	P42/IRQ10-DS/ AN002	KEY2	I	M3VPu	I	I	I	Key control signalinput pin (When standby mode,set to interrupt)
171	P41/IRQ9-DS/ AN001	KEY1	I	M3VPu	I	I	I	Key control signalinput pin (When standby mode,set to interrupt)
172	VREFL0	VREFL0	-		-	-	-	Ground pin
173	P40	ADC_RST	O		I	L	I	A/D convertor(AK5358) reset control pin
174	VREFH0	VREFH0	-		-	-	-	Power supply pin
175	AVCC0	AVCC0	-		-	-	-	Power supply pin
176	P07/IRQ15	COMP_DET (SR5014)/ NC (S950H/ X2600H/ NR1710)	I	M3VPu	I	I	I	Component video signal detect pin

PCM9211 (DIGITAL : U1040)

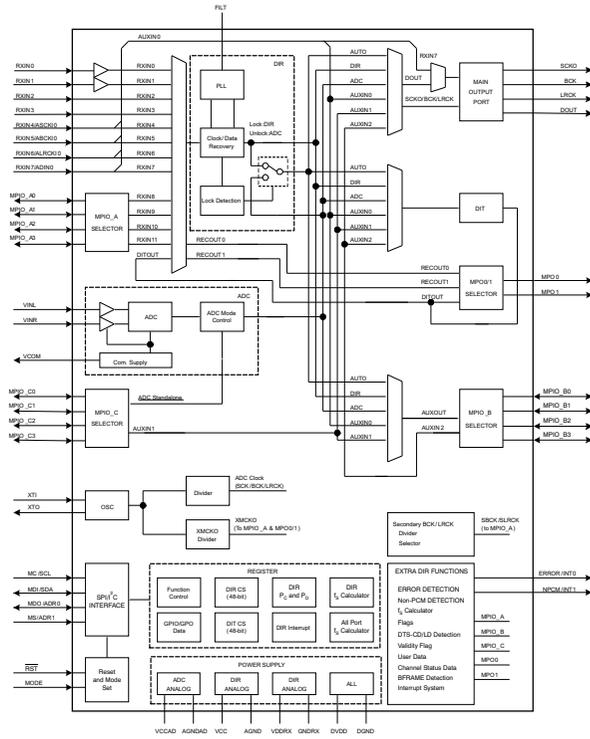


PIN Functions

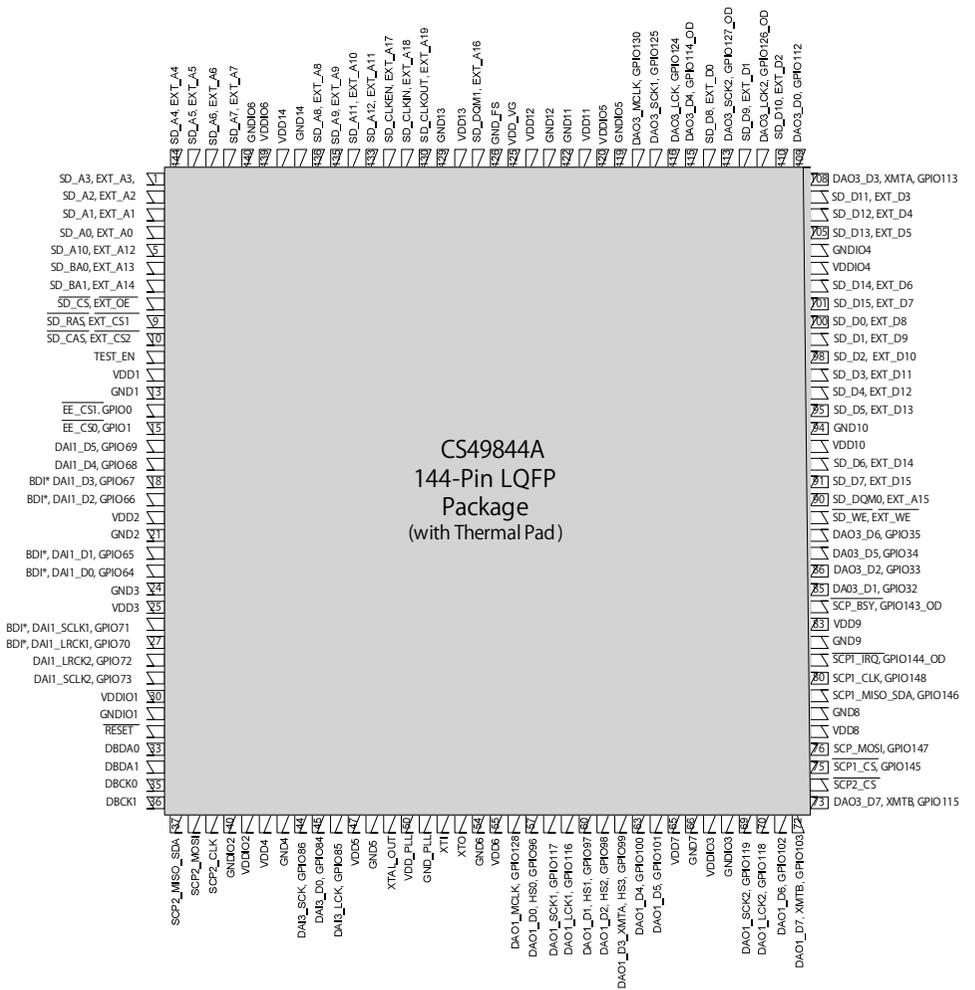
PIN				DESCRIPTION
NO.	NAME	I/O	5-V TOLERANT	
1	ERROR/INT0	O	No	DIR Error detection output / Interrupt0 output
2	NPCM/INT1	O	No	DIR Non-PCM detection output / Interrupt1 output
3	MPIO_A0	I/O	Yes	Multipurpose I/O, Group A(1)
4	MPIO_A1	I/O	Yes	Multipurpose I/O, Group A(1)
5	MPIO_A2	I/O	Yes	Multipurpose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

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/ALRCKIO	I	Yes	Biphase signal, input 6 / AUXIN0, LR clock input(2)
30	RXIN5/ABCKIO	I	Yes	Biphase signal, input 5 / AUXIN0, bit clock input(2)
31	RXIN4/ASCKIO	I	Yes	Biphase signal, input 4 / AUXIN0, system clock input(2)
32	RXIN3	I	Yes	Biphase signal, input 3(2)
33	RXIN2	I	Yes	Biphase signal, input 2(2)
34	RST	I	Yes	Reset Input, active low(2) (4)
35	RXIN1	I	Yes	Biphase signal, input 1, built-in coaxial amplifier
36	VDDRX	-	-	Power supply, 3.3 V (typ.), for RXIN0 and RXIN1.
37	RXIN0	I	Yes	Biphase signal, input 0, built-in coaxial amplifier
38	GNDRX	-	-	Ground, for RXIN
39	XTI	I	No	Oscillation circuit input for crystal resonator or external 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

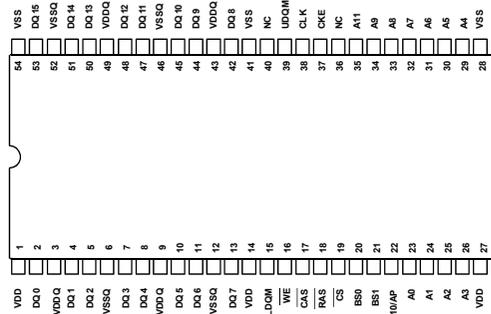


CS49844A (DIGITAL : U1073)



CS49844A
144-Pin LQFP
Package
(with Thermal Pad)

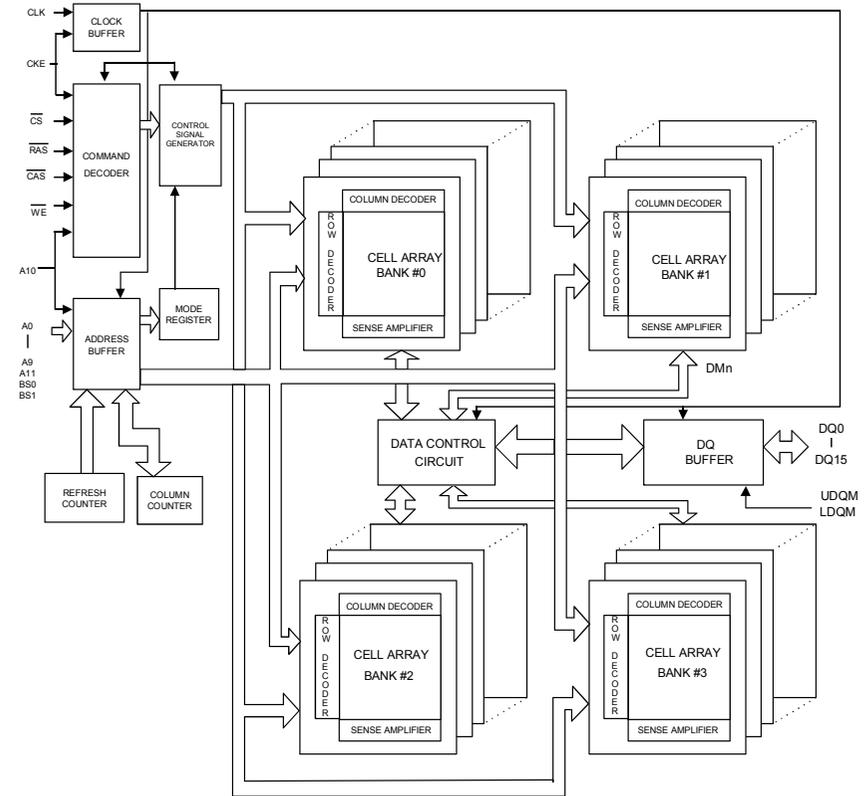
W9812G6KH-5 (DIGITAL : U1023)



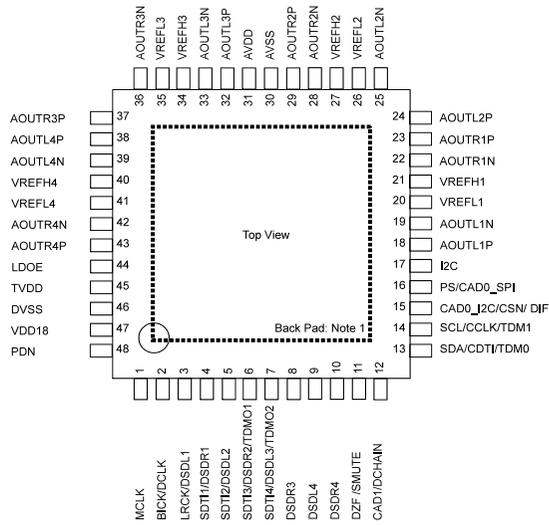
Pin description

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

Block diagram



AK4458VN (DIGITAL : U4601)



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 Pull down
	DSDR2	I	Audio Serial Data Input in DSD mode	
	TDMO1	O	Audio Serial Data Output in Daisy Chain mode	
7	SDTI4	I	Audio Serial Data Input in PCM mode	100k Ω Pull down
	DSDL3	I	Audio Serial Data Input in DSD mode	
	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 Pull down
	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.	
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	Hi-Z
	CDTI	I	Control Data Input Pin in 3-wire serial control mode	
14	TDM0	I	TDM Mode select pin in Parallel control mode.	Hi-Z
	SCL	I	Control Data Clock Pin in I2C Bus serial control mode	
14	CCLK	I	Control Data Clock Pin in 3-wire serial control mode	Hi-Z
	TDM1	I	TDM Mode select pin in Parallel control mode.	

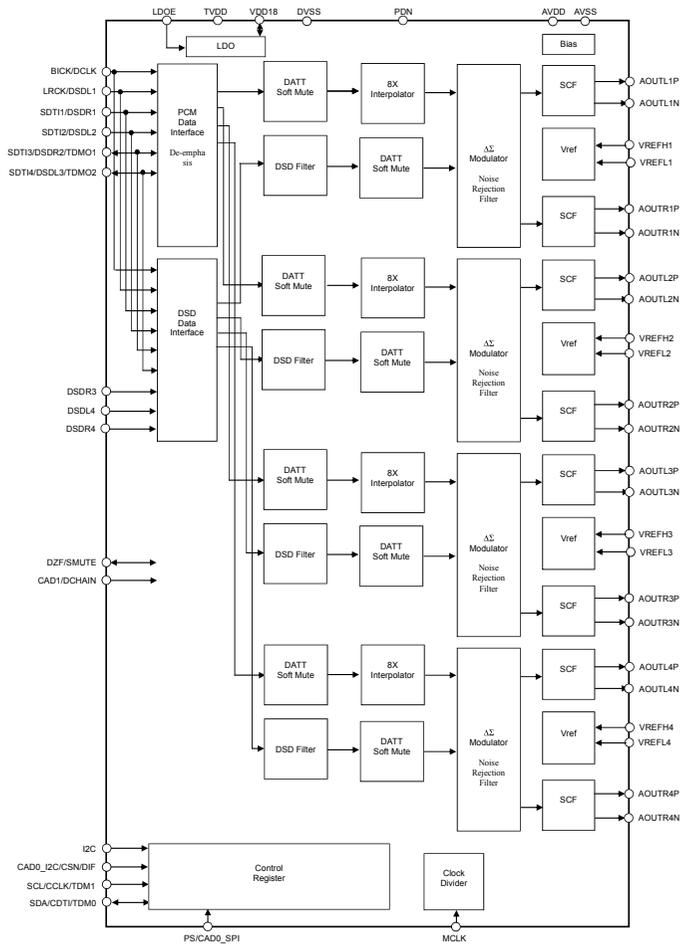
No.	Pin Name	I/O	Function	PD State
15	CAD0_I2C	I	Chip Address 0 Pin in I2C Bus serial control mode	Hi-Z
	CSN	I	Chip Select Pin in 3-wire serial control mode	
	DIF	I	Audio Data Format Select in Parallel control mode. "L": 32-bit MSB, "H": 32-bit I2S	
16	PS	I	(I2C pin = "H") Control Mode Select Pin "L": 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 1.0μF.	(Note 4)
		I	1.8V Power Input Pin (LDOE pin = "L")	
48	PDN	I	Power-Down & Reset Pin When this pin is "L", the AK4458 is powered-down and the control registers are reset to default state.	Hi-Z

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

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

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

FUNCTIONAL BLOCK DIAGRAM



PCM5100A (DIGITAL : U1052, U1055)

PCM510X (top view)

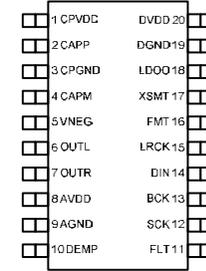


Table 2. TERMINAL FUNCTIONS, PCM510x

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

PCM5100 Block Diagram

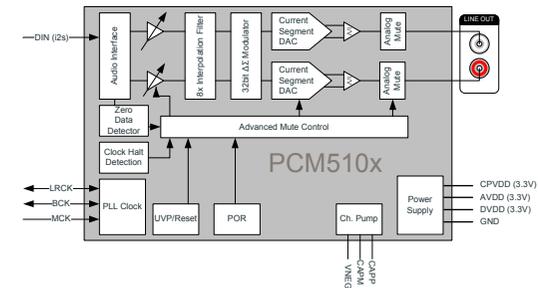
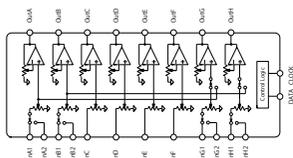


Figure 1. PCM510x Functional Block Diagram

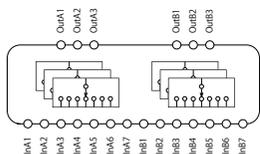
NJU72343 (AV : U5202)



Pin Function

No.	Symbol	Function	No.	Symbol	Function
1	AREF	Analog reference potential terminal	17	DATA	IC control data input
2	ADR	Address selection terminal	18	CLOCK	IC control clock input
3	InA2	Ach input2	19	VDDOUT	Digital power supply output terminal
4	InB2	Bch input2	20	AREF	Analog reference potential terminal
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 terminal
14	InH2	Dch input2	30	V-	negative power supply terminal
15	MUTE	External mute control terminal	31	AREF	Analog reference potential terminal
16	REF	Digital reference potential terminal	32	V+	positive power supply terminal

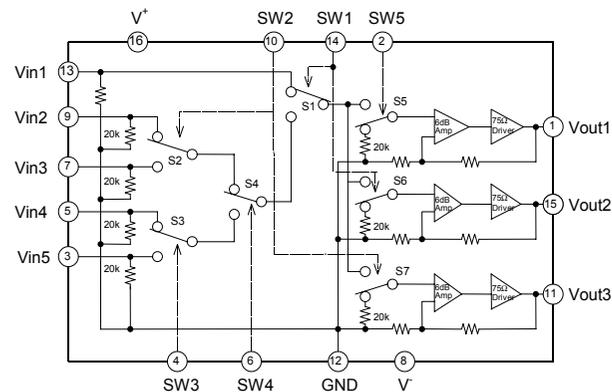
NJU72750A (AV : U5201, U5214)



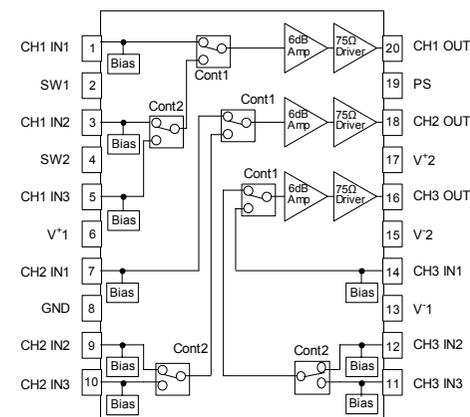
Pin Function

No.	Symbol	Function	No.	Symbol	Function
1	V+	positive power supply terminal	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 terminal
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 terminal
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	Reference potential terminal for BIAS	32	V-	negative power supply terminal

NJM2595MTE1 (AV : U5206)



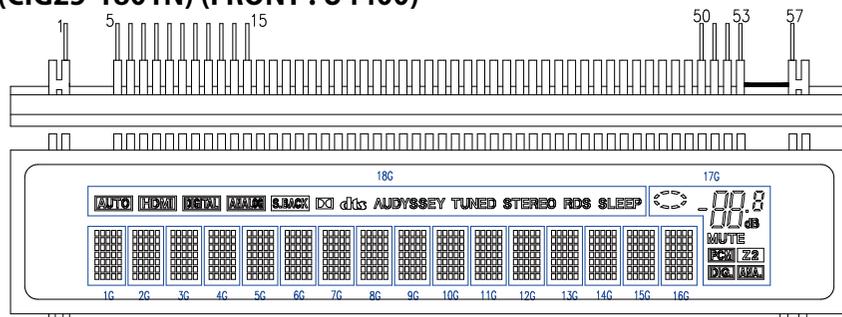
NJM2586AVC3(AV : U5207)



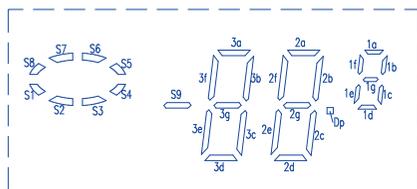
SSOP20-C3

2. FL DISPLAY

FLD (CIG25-1801N) (FRONT : U4400)



(1G~16G)



17G

PIN CONNECTION

CONNECTION	PIN NO.
F1	1
NP	2
NP	3
NP	4
LGND	5
PGND	6
VH	7
VDD	8
OSC	9
RESET	10
CS	11
CP	12
DA	13
TSA	14
TSB	15
NX	16-49
18G	50
17G	51
Q17G	52
Q18G	53
NP	54
NP	55
NP	56
F2	57

NOTE

- 1) F1, F2 ----Filament
- 2) NP -----No pin
- 3) NX -----No extend pin
- 4) LGND ----Logic GND pin
- 5) PGND ----Power GND pin
- 6) VH -----High Voltage Supply pin
- 7) VDD -----Logic Voltage Supply pin
- 8) CP ----Shift Register Clock
- 9) DA ----Serial Data Input
- 10) TSA, B --Test pin
- 11) OSC ----Pin for self-oscillation
- 12) 17G, 18G ---Grid
- 13) Q17G, Q18G ---Driver Output Port.

ANODE CONNECTION

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G	14G	15G	16G	17G(AD3)	18G(AD4)
SEGA1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	S9	-
SEGA2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3d	-
SEGA3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2d	-
SEGA4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3e	-
SEGA5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	2e	-
SEGA6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3c	-
SEGA7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	2c	-
SEGA8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	3g	-
SEGA9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	2g	-
SEGA10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	3f	-
SEGA11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	2f	-
SEGA12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	3b	-
SEGA13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	2b	-
SEGA14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	3a	-
SEGA15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	2a	-
SEGA16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	Dp	-
SEGA17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	dB	-
SEGA18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	1d	-
SEGA19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	1e	-
SEGA20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	1c	-
SEGA21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	1g	-
SEGA22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	1f	-
SEGA23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	1b	-
SEGA24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	1a	AUTO
SEGA25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	S1	HDMI
SEGA26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	S2	DIGITAL
SEGA27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	S3	ANALOG
SEGA28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	S4	S.BACK
SEGA29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	S5	□
SEGA30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	S6	dts
SEGA31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	S7	AUDYSSEY
SEGA32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	S8	TUNED
SEGA33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	MUTE	STEREO
SEGA34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	PCM	RDS
SEGA35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	FZ	SLEEP
AD1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DIG.	-
AD2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ANA.	-

3. Remote Code Table

Marantz Remote Command Chart

18-Mar-19
V01

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

* Note is placed at end of this chart
Function description is located right next

Zone	Command Name	System	System Extension	For search	For AMX Extension Command(7)	Slim Line AV Receiver	Slim Line AV Receiver	FUNCTION
Main Zone	POWER ON/OFF	16	12	16 12	RRCR516012	X	X	Power the unit On / Standby (Toggle)
	POWER ON	16	12	01	RRCR51601201	X	X	Power On
	POWER OFF	16	12	02	RRCR51601202	X	X	Standby
	SYSTEM POWER OFF	16	12	13	RRCR51601213	X	X	Turn MAIN Zone and MULTI Zone to standby
	VOL +	16	16	16	RRCR516016	X	X	Master volume up & unmute
	VOL -	16	17	17	RRCR516017	X	X	Master volume down & unmute
	Direct VOLUME	16	111	00-63	16 111 00-63	X	X	Direct Volume level select
	AUDIO MUTE	16	13	00	16 13 00	X	X	Mute
	AUDIO MUTE OFF	16	13	01	RRCR51601301	X	X	Unmute
	AUDIO MUTE (Toggle)	16	13	02	RRCR51601302	X	X	Mute/Unmute (Toggle)
Speaker Output	SPEAKER Sel	16	23	16 23	RRCR516023	X	X	Select Speaker (SPKR-A+ SPKR-B+ SPKR-A+B- SPKR-C+)
	SPEAKER A ON/OFF	16	35	16 35	RRCR516035	X	X	Speaker A On/Off Toggle
	SPEAKER B ON/OFF	16	39	16 39	RRCR516039	X	X	Speaker B On/Off Toggle
	OSD Menu On	16	82	16 82	RRCR516082	X	X	OSD Menu On
	MENU	16	82	60	RRCR51608260	X	X	Menu on/off
	OPTION	16	82	11	RRCR51608211	X	X	Option Menu on/off
	EXIT MENU	16	83	16 83	RRCR516083	X	X	Exit from OSD menu
	ENTER (OK)	16	87	16 87	RRCR516087	X	X	Enter
	Return	16	87	04	RRCR51608704	X	X	Return
	CURSOR Up	16	89	16 89	RRCR516089	X	X	Cursor Up
Menu Control	CURSOR Down	16	89	16 89	RRCR516089	X	X	Cursor Down
	CURSOR Left	16	85	16 85	RRCR516085	X	X	Cursor Left
	CURSOR Right	16	86	16 86	RRCR516086	X	X	Cursor Right
	Dimmer(Display)	16	15	00	RRCR51601500	X	X	FL Display mode (Input > Surround+ Auto-off >) or Dimmer
	Info.	16	15	08	RRCR51601508	X	X	Information On/Off
	OSD Info.	16	15	16	RRCR51601516	X	X	OSD General information On / Off
	Status	16	15	07	RRCR51601507	X	X	Display the status
	Video Select	16	15	50	16 15 50	X	X	Select Video Select mode
	VIDEO OFF (V OFF)	16	13	02	16 13 02	X	X	Video auto Off/On toggle
	Input Source	INPUT NEXT	16	00	13	RRCR51600013	X	X
INPUT BACK		16	00	14	RRCR51600014	X	X	Switch input backward
TUNER (TUNER FM)		17	63	17 63	RRCR517063	X	X	Select Tuner
Blu-ray(BD)(Code1)		07	63	00	RRCR52076300	X	X	Select Blu-ray input
Blu-ray(BD)(Code2)		28	63	00	RRCR52086300	X	X	Select Blu-ray input
Blu-ray/DVD		16	02	04	RRCR51600204	X	X	Select Blu-ray /DVD input
CD		00	63	00	RRCR52006300	X	X	Select CD input
TV AUDIO		00	63	00	RRCR52006300	X	X	Select TV(AUDIO) input
DVD		16	00	10	RRCR51600010	X	X	Select DVD input

X Hex Code (Basic Commands Only)
This pink color's cell = New assigned code

Video Mode	Video Mode: Movie	16	84	52	16 84 52	RRCR51608452	X	X	Select Video Mode = Movie
	Video Mode: Game	16	84	53	16 84 53	RRCR51608453	X	X	Select Video Mode = Game
	Video Mode: Bypass	16	84	54	16 84 54	RRCR51608454	X	X	Select Video Mode = Bypass
	HDMI Output Select (Toggle)	16	120	00	16 120 00	RRCR51612000	X	X	HDMI Output select 1-2 (Toggle) SR8001 from MZ2000000000
	HDMI Out-1	16	120	01	16 120 01	RRCR51612001	X	X	HDMI Output 1 select (SR8001 later S/N:MZ2000000000)
	HDMI Out-2	16	120	02	16 120 02	RRCR51612002	X	X	HDMI Output 2 select (SR8001 later S/N:MZ2000000000)
	HDMI Out-Auto(Dual)	16	120	03	16 120 03	RRCR51612003	X	X	HDMI Output-Auto Select
	HDMI Control (CEC) ON	16	84	08	16 84 08	RRCR51608408	X	X	HDMI Control(CEC) On
	HDMI Control (CEC) OFF	16	84	09	16 84 09	RRCR51608409	X	X	HDMI Control(CEC) Off
	Surround Mode	SURROUND Select (Toggle/NEXT)	16	34	16	16 34 16	RRCR51603416	X	X
SURROUND MODE (Back)		16	34	15	16 34 15	RRCR51603415	X	X	Change Surround mode (Back to previous mode)
MOVIE SURROUND		16	37	29	16 37 29	RRCR51603729	X	X	Change Surround mode (MOVIE)
MUSIC SURROUND		16	37	53	16 37 53	RRCR51603753	X	X	Change Surround mode (MUSIC)
GAME SURROUND		16	84	18	16 84 18	RRCR51608418	X	X	Change Surround mode (GAME)
AUTO		16	37	45	16 37 45	RRCR51603745	X	X	Select AUTO Surround
STEREO		16	37	30	16 37 30	RRCR51603730	X	X	Select STEREO mode
MONO		16	37	37	16 37 37	RRCR51603737	X	X	Select MONO mode
MULTI-CH Stereo		16	37	37	16 37 37	RRCR51603737	X	X	Select MULTI-CH Stereo
THX		16	34	13	16 34 13	RRCR51603413	X	X	Select THX mode
THX Cinema	THX CINEMA	16	37	36	16 37 36	RRCR51603736	X	X	Select normal THX mode (THX Surround EX Off)
	THX SURROUND EX	16	37	58	16 37 58	RRCR51603758	X	X	Select THX Surround EX mode
	THX ULTRA 2	16	64	07	16 64 07	RRCR51606407	X	X	Select THX Ultra 2 mode
	THX SELECT 2	16	64	07	16 64 07	RRCR51606407	X	X	Select THX Select 2 mode
	THX 5.1 MUSIC	16	64	04	16 64 04	RRCR51606404	X	X	Select normal THX 5.1 Music mode
	THX GAMES	16	64	16	16 64 16	RRCR51606416	X	X	Select THX Select 2 mode
	NEURAL	16	37	41	16 37 41	RRCR51603741	X	X	Select THX mode
	DOLBY	16	37	41	16 37 41	RRCR51603741	X	X	Select Dolby mode (PL II mode/PL-1)
	PRO LOGIC	16	37	00	16 37 00	RRCR51603700	X	X	Select Pro Logic mode
	PL II(z) Movie / PL II Music	16	64	00	16 64 00	RRCR51606400	X	X	Select Pro Logic II(z) movie mode
Dolby Atmos	PL II(z) Music / PL II Music	16	64	01	16 64 01	RRCR51606401	X	X	Select Pro Logic II(z) music mode
	PL II(z) Game	16	64	12	16 64 12	RRCR51606412	X	X	Select Pro Logic II(z) game mode
	PL II(z) iz	16	64	17	16 64 17	RRCR51606417	X	X	Select Pro Logic II(z) mode
	DOLBY HEADPHONE	16	37	01	16 37 01	RRCR51603701	X	X	Select Dolby Headphone On/Off
	EXES	16	37	01	16 37 01	RRCR51603701	X	X	Select Dolby EX or EXES mode
	Dolby Atmos ON/OFF	16	64	25	16 64 25	RRCR51606425	X	X	Select Dolby Atmos On/Off
	DTS	16	64	08	16 64 08	RRCR51606408	X	X	Select DTS mode (PL II mode/PL-1)
	DTS ES	16	37	46	16 37 46	RRCR51603746	X	X	Select DTS ES mode
	DTS Neo6 Cinema	16	64	05	16 64 05	RRCR51606405	X	X	Select DTS Neo6 Cinema mode
	DTS Neo6 Music	16	64	06	16 64 06	RRCR51606406	X	X	Select DTS Neo6 Music mode
VIRTUAL Decoder Mode	DTS NEO:X ON/OFF	16	64	22	16 64 22	RRCR51606422	X	X	Select DTS Neo:X mode (Dolby Digital)
	DTS Neo:X	16	64	22	16 64 22	RRCR51606422	X	X	Select DTS Neo:X mode (Dolby Digital)
	DSP MODE	16	37	63	16 37 63	RRCR51603763	X	X	Select DSP mode
	PURE DIRECT (Toggle)	16	34	01	16 34 01	RRCR51603401	X	X	Select Pure Direct mode
	PURE DIRECT (Toggle)	16	34	01	16 34 01	RRCR51603401	X	X	Select Pure Direct mode

MEDIAPLAYER	CBL/SAT	06	63	06 63	RRCR520663	X	X	Select VCR1(MEDIA PLAYER) input	
	AUX1(AUX)	16	00	06	16 00 06	RRCR51600006	X	X	Select AUX1(AUX) input
	AUX2	16	00	07	16 00 07	RRCR51600007	X	X	Select AUX2 input or L/R channel of Multi channel direct input
	AUX3(Additional Source)	16	00	08	16 00 08	RRCR51600008	X	X	Select AUX3 (Additional Source)
	AUX4(Additional Source)	16	02	00	16 02 00	RRCR51600200	X	X	Select AUX4(Additional Source)
	AUX5(Additional Source)	16	02	01	16 02 01	RRCR51600201	X	X	Select AUX5(Additional Source)
	AUX7(Additional Source)	16	02	02	16 02 02	RRCR51600202	X	X	Select AUX7(Additional Source)
	Bluetooth	16	00	62	16 00 62	RRCR51600062	X	X	Select Bluetooth input
	GAME	16	00	08	16 00 08	RRCR51600008	X	X	Select Game input
	PHONO	21	63	21 63	RRCR521063	X	X	Select PHONO input	
USB	HEOS Music(NETWORK)	24	63	11	24 63 11	RRCR52406311	X	X	Select HEOS Music input
	Internet Radio Select	27	63	20	27 63 20	RRCR52706320	X	X	Select Internet Radio directly
	USB(AUX)	16	00	07	16 00 07	RRCR51600007	X	X	Select USB input directly
	AUX3(Additional Source)	16	00	08	16 00 08	RRCR51600008	X	X	Select USB input directly
	AUX4(Additional Source)	16	02	00	16 02 00	RRCR51600200	X	X	Select USB input directly
	AUX5(Additional Source)	16	02	01	16 02 01	RRCR51600201	X	X	Select USB input directly
	AUX7(Additional Source)	16	02	02	16 02 02	RRCR51600202	X	X	Select USB input directly
	Bluetooth	16	00	62	16 00 62	RRCR51600062	X	X	Select USB input directly
	GAME	16	00	08	16 00 08	RRCR51600008	X	X	Select USB input directly
	PHONO	21	63	21 63	RRCR521063	X	X	Select USB input directly	
Smart Select	Smart Select1	16	02	21	16 02 21	RRCR51600221	X	X	Smart Select 1
	Smart Select2	16	02	22	16 02 22	RRCR51600222	X	X	Smart Select 2
	Smart Select3	16	02	23	16 02 23	RRCR51600223	X	X	Smart Select 3
	Smart Select4	16	02	24	16 02 24	RRCR51600224	X	X	Smart Select 4
	Smart Select5	16	02	25	16 02 25	RRCR51600225	X	X	Smart Select 5
	Input Mode Select	16	01	01	16 01 01	RRCR51600101	X	X	Change the input mode (Auto-HDMI-Digital-Analog-Ext-In-Auto)
	INPUT MODE-AUTO	16	01	15	16 01 15	RRCR51600115	X	X	Input Mode: Auto
	INPUT MODE-HDMI	16	01	16	16 01 16	RRCR51600116	X	X	Input Mode: HDMI
	INPUT MODE-DIGITAL	16	01	17	16 01 17	RRCR51600117	X	X	Input Mode: fixed Digital
	INPUT MODE-ANALOG	16	01	18	16 01 18	RRCR51600118	X	X	Input Mode: fixed Analog
Bilingual (Audio Delay)	Bilingual (Audio Channel)	16	01	14	16 01 14	RRCR51600114	X	X	Select AAC Bilingual (Main + Sub + Main+Sub)
	LIP SYNC (Audio Delay)	16	01	14	16 01 14	RRCR51600114	X	X	LIP Sync: Mode
	Resolution(Analog)	16	15	10	16 15 10	RRCR51601510	X	X	Resolution for Analog
	Resolution(HDMI)	16	15	11	16 15 11	RRCR51601511	X	X	Resolution for HDMI (Auto-480p-1080i-720p-1080p-1080p24-audio)
	Vertical Stretch On	16	15	12	16 15 12	RRCR51601512	X	X	Vertical Stretch On
	Vertical Stretch Off	16	15	13	16 15 13	RRCR51601513	X	X	Vertical Stretch Off
	HDMI Audio Output: Enable (Decode by AVR)	16	84	00	16 84 00	RRCR51608400	X	X	Select AVR decode pass through the audio signal of HDMI
	HDMI Audio Output: Through (Decode by TV)	16	84	01	16 84 01	RRCR51608401	X	X	AVR decode the audio signal of HDMI
	HDMI Audio Output: Enable (Decode by AVR)	16	84	02	16 84 02	RRCR51608402	X	X	AVR pass through the audio signal of HDMI to TV
	COMPONENT-2 for MAIN	16	84	31	16 84 31	RRCR51608431	X	X	Component 2 out switch to Main zone
COMPONENT-2 for MULTI-A	16	84	32	16 84 32	RRCR51608432	X	X	Component 2 out switch to ZONE2	
Video Mode (Toggle)	16	84	50	16 84 50	RRCR51608450	X	X	To select Video Mode (Auto/Game/Movie)	
Video Mode: Auto	16	84	51	16 84 51	RRCR51608451	X	X	Select Video Mode = Auto	

Before Servicing This Unit Electrical Mechanical Repair Information Updating

	Front Height R + (Up)	16	26	19	16 26 19	RCRC51602619	X	—	Front Height R channel Volume up
	Front Height R - (Down)	16	26	20	16 26 20	RCRC51602620	X	—	Front Height R channel Volume down
	Center + (Up)	16	37	11	16 37 11	RCRC51603711	X	X	Center Channel Volume up
	Center - (Down)	16	37	12	16 37 12	RCRC51603712	X	X	Center Channel Volume down
	Subwoofer + (Up)	16	37	49	16 37 49	RCRC51603749	X	X	Subwoofer channel Volume up
	Subwoofer - (Down)	16	37	50	16 37 50	RCRC51603750	X	X	Subwoofer channel Volume down
	Subwoofer 2 + (Up)	16	44	23	16 44 23	RCRC51606423	X	—	Subwoofer 2 channel Volume up
	Subwoofer 2 - (Down)	16	44	24	16 44 24	RCRC51606424	X	—	Subwoofer 2 channel Volume down
	Top Front L + (Up)	16	26	21	16 26 21	RCRC51602621	X	—	Top Front L channel Volume up
	Top Front L - (Down)	16	26	22	16 26 22	RCRC51602622	X	—	Top Front L channel Volume down
	Top Front R + (Up)	16	26	23	16 26 23	RCRC51602623	X	—	Top Front R channel Volume up
	Top Front R - (Down)	16	26	24	16 26 24	RCRC51602624	X	—	Top Front R channel Volume down
	Top Middle L + (Up)	16	26	25	16 26 25	RCRC51602625	X	—	Top Middle L channel Volume up
	Top Middle L - (Down)	16	26	26	16 26 26	RCRC51602626	X	—	Top Middle L channel Volume down
	Top Middle R + (Up)	16	26	27	16 26 27	RCRC51602627	X	—	Top Middle R channel Volume up
	Top Middle R - (Down)	16	26	28	16 26 28	RCRC51602628	X	—	Top Middle R channel Volume down
	Top Rear L + (Up)	16	26	29	16 26 29	RCRC51602629	X	—	Top Rear L channel Volume up
	Top Rear L - (Down)	16	26	30	16 26 30	RCRC51602630	X	—	Top Rear L channel Volume down
	Top Rear R + (Up)	16	26	31	16 26 31	RCRC51602631	X	—	Top Rear R channel Volume up
	Top Rear R - (Down)	16	26	32	16 26 32	RCRC51602632	X	—	Top Rear R channel Volume down
	Rear Height L + (Up)	16	26	33	16 26 33	RCRC51602633	X	—	Rear Height L channel Volume up
	Rear Height L - (Down)	16	26	34	16 26 34	RCRC51602634	X	—	Rear Height L channel Volume down
	Rear Height R + (Up)	16	26	35	16 26 35	RCRC51602635	X	—	Rear Height R channel Volume up
	Rear Height R - (Down)	16	26	36	16 26 36	RCRC51602636	X	—	Rear Height R channel Volume down
	Front Dolby L + (Up)	16	26	37	16 26 37	RCRC51602637	X	—	Front Dolby L channel Volume up
	Front Dolby L - (Down)	16	26	38	16 26 38	RCRC51602638	X	—	Front Dolby L channel Volume down
	Front Dolby R + (Up)	16	26	39	16 26 39	RCRC51602639	X	—	Front Dolby R channel Volume up
	Front Dolby R - (Down)	16	26	40	16 26 40	RCRC51602640	X	—	Front Dolby R channel Volume down
	Surround Dolby L + (Up)	16	26	41	16 26 41	RCRC51602641	X	—	Surround Dolby L channel Volume up
	Surround Dolby L - (Down)	16	26	42	16 26 42	RCRC51602642	X	—	Surround Dolby L channel Volume down
	Surround Dolby R + (Up)	16	26	43	16 26 43	RCRC51602643	X	—	Surround Dolby R channel Volume up
	Surround Dolby R - (Down)	16	26	44	16 26 44	RCRC51602644	X	—	Surround Dolby R channel Volume down
	Back Dolby L + (Up)	16	26	45	16 26 45	RCRC51602645	X	—	Back Dolby L channel Volume up
	Back Dolby L - (Down)	16	26	46	16 26 46	RCRC51602646	X	—	Back Dolby L channel Volume down
	Back Dolby R + (Up)	16	26	47	16 26 47	RCRC51602647	X	—	Back Dolby R channel Volume up
	Back Dolby R - (Down)	16	26	48	16 26 48	RCRC51602648	X	—	Back Dolby R channel Volume down
	Surround Height L + (Up)	16	26	49	16 26 49	RCRC51602649	X	—	Surround Height L channel Volume up
	Surround Height L - (Down)	16	26	50	16 26 50	RCRC51602650	X	—	Surround Height L channel Volume down
	Surround Height R + (Up)	16	26	51	17 26 51	RCRC51602651	X	—	Surround Height R channel Volume up
	Surround Height R - (Down)	16	26	52	17 26 52	RCRC51602652	X	—	Surround Height R channel Volume down
	Top Surround + (Up)	16	26	53	17 26 53	RCRC51602653	X	—	Top Surround channel Volume up
	Top Surround - (Down)	16	26	54	17 26 54	RCRC51602654	X	—	Top Surround channel Volume down
	Center Height + (Up)	16	26	55	16 26 55	RCRC51602655	X	—	Center Height channel Volume up
	Center Height - (Down)	16	26	56	16 26 56	RCRC51602656	X	—	Center Height channel Volume down
Audyssey	Audyssey MultiEQ OFF	16	26	00	16 26 00	RCRC51602600	X	X	Select Audyssey MultiEQ mode: Off
	Audyssey MultiEQ MODE (Toggle)	16	26	02	16 26 02	RCRC51602602	X	X	Select Audyssey MultiEQ mode: Toggle
	Audyssey Dynamic EQ/VOL	16	26	40	16 26 40	RCRC51602640	X	X	Select Audyssey Dynamic EQ or Volume mode
	Audyssey Dynamic EQ Mode	16	28	20	16 28 20	RCRC51602820	X	X	Audyssey Dynamic EQ turn On/Off
	Audyssey Dynamic EQ Mode Off	16	28	21	16 28 21	RCRC51602821	X	X	Audyssey Dynamic EQ turn Off
	Audyssey Dynamic EQ Mode On	16	28	22	16 28 22	RCRC51602822	X	X	Audyssey Dynamic EQ turn On
	Audyssey Dynamic Volume Mode	16	28	30	16 28 30	RCRC51602830	X	X	Turn On/Off Audyssey Dynamic Volume mode
	Audyssey Dynamic Volume Mode Off	16	28	31	16 28 31	RCRC51602831	X	X	Turn Off Audyssey Dynamic Volume mode: Off
	Audyssey Dynamic Volume Mode Light	16	28	32	16 28 32	RCRC51602832	X	X	Select Audyssey Dynamic Volume mode: Light
	Audyssey Dynamic Volume Mode Medium	16	28	33	16 28 33	RCRC51602833	X	X	Select Audyssey Dynamic Volume mode: Medium
	Audyssey Dynamic Volume Mode Heavy	16	28	34	16 28 34	RCRC51602834	X	X	Select Audyssey Dynamic Volume mode: Heavy
	Audyssey Dynamic EQ Offset -5dB	16	28	51	16 28 51	RCRC51602851	X	X	Turn Off Audyssey Dynamic EQ Offset: -5dB
	Audyssey Dynamic EQ Offset -5dB (Toggle)	16	28	52	16 28 52	RCRC51602852	X	X	Select Audyssey Dynamic EQ Offset mode: -5dB
	Audyssey Dynamic EQ Offset -10dB	16	28	53	16 28 53	RCRC51602853	X	X	Select Audyssey Dynamic EQ Offset mode: -10dB
	Audyssey Dynamic EQ Offset -10dB (Toggle)	16	28	54	16 28 54	RCRC51602854	X	X	Select Audyssey Dynamic EQ Offset mode: -10dB
	Audyssey LFC ON/OFF	16	64	40	16 64 40	RCRC51606440	X	—	Audyssey LFC turn On/Off
	Audyssey LFC ON	16	64	41	16 64 41	RCRC51606441	X	—	Audyssey LFC turn On
	Audyssey LFC OFF	16	64	42	16 64 42	RCRC51606442	X	—	Audyssey LFC turn Off
	Audyssey DSX ON/OFF	16	64	50	16 64 50	RCRC51606450	X	—	Select Audyssey DSX On/Off (Toggle)
	Audyssey DSX OFF	16	64	51	16 64 51	RCRC51606451	X	—	Select Audyssey DSX Off
	Audyssey DSX On(Height)	16	64	52	16 64 52	RCRC51606452	X	—	Select Audyssey DSX On(Height)
	Audyssey DSX On(Wide)	16	64	53	16 64 53	RCRC51606453	X	—	Select Audyssey DSX On(Wide)
	Audyssey DSX On(Wide/Height)	16	64	54	16 64 54	RCRC51606454	X	—	Select Audyssey DSX On(Wide/Height)
Graphic EQ	Graphic EQ ON/OFF	16	28	10	16 28 10	RCRC51602810	X	X	Graphic EQ turn On/Off
	Graphic EQ ON	16	28	12	16 28 12	RCRC51602812	X	X	Graphic EQ turn On
	Graphic EQ OFF	16	28	11	16 28 11	RCRC51602811	X	X	Graphic EQ turn Off
ECO	ECO Mode	16	58	10	16 58 10	RCRC51605810	X	X	ECO Mode set toggle
	ECO Mode ON	16	58	12	16 58 12	RCRC51605812	X	X	ECO Mode set: On
	ECO Mode OFF	16	58	11	16 58 11	RCRC51605811	X	X	ECO Mode set: Off
	ECO Mode AUTO	16	58	13	16 58 13	RCRC51605813	X	X	ECO Mode set: Auto
Sleep	SLEEP	16	38	—	16 38	RCRC51603800	X	X	Sleep Timer set toggle
	SLEEP OFF	16	38	00	16 38 00	RCRC51603800	X	X	Sleep Timer set Off
Trigger	DC-Trigger-1 ON	16	125	01	16 125 01	RCRC51612501	X	—	DC-Trigger-1 remote output On
	DC-Trigger-1 OFF	16	125	02	16 125 02	RCRC51612502	X	—	DC-Trigger-1 remote output Off
	DC-Trigger-2 ON	16	125	03	16 125 03	RCRC51612503	X	—	DC-Trigger-2 remote output On
	DC-Trigger-2 OFF	16	125	04	16 125 04	RCRC51612504	X	—	DC-Trigger-2 remote output Off
	DC-Trigger-3 ON	16	125	05	16 125 05	RCRC51612505	X	—	DC-Trigger-3 remote output On
	DC-Trigger-3 OFF	16	125	06	16 125 06	RCRC51612506	X	—	DC-Trigger-3 remote output Off
	DC-Trigger-4 ON	16	125	07	16 125 07	RCRC51612507	X	—	DC-Trigger-4 remote output On
	DC-Trigger-4 OFF	16	125	08	16 125 08	RCRC51612508	X	—	DC-Trigger-4 remote output Off
Tuner	STAND	17	47	01	17 47 01	RCRC51704701	X	X	Select FM and AM (Toggle) FM and DAB (Toggle)
	FM	17	46	—	17 46	RCRC517046	X	X	Select FM for Tuner-1
	AM	17	46	—	17 46	RCRC517046	X	X	Select AM for Tuner-1
	DAB	17	44	01	17 44 01	RCRC5174401	X	—	Select DAB
	T-MODE	17	47	—	17 47	RCRC517037	X	X	Tuning mode (Auto or Manual) for Tuner-1
	MEMO (MEMORY)	17	41	—	17 41	RCRC517041	X	X	Memory for Tuner-1(HD Radio/Tuner)
	MEMORY	24	41	50	24 41 50	RCRC52404150	X	X	Enter Preset memory mode/Store
	FREQ.(tuning) Up +	17	30	—	17 30	RCRC517030	X	X	Frequency(Scan) up for Tuner-1
	FREQ.(tuning) Down	17	31	—	17 31	RCRC517031	X	X	Frequency(Scan) down for Tuner-1

	PRESET Up +	17	32	—	17 32	RCRC517032	X	X	Preset(Skip) up for Tuner-1
	PRESET Down -	17	33	—	17 33	RCRC517033	X	X	Preset(Skip) down for Tuner-1
	0 (PRESET 0)	17	00	—	17 00	RCRC517000	X	X	Ten Key 0 (Preset No. or Frequency) for Tuner-1
	1 (PRESET 1)	17	01	—	17 01	RCRC517001	X	X	Ten Key 1 (Preset No. or Frequency) for Tuner-1
	2 (PRESET 2)	17	02	—	17 02	RCRC517002	X	X	Ten Key 2 (Preset No. or Frequency) for Tuner-1
	3 (PRESET 3)	17	03	—	17 03	RCRC517003	X	X	Ten Key 3 (Preset No. or Frequency) for Tuner-1
	4 (PRESET 4)	17	04	—	17 04	RCRC517004	X	X	Ten Key 4 (Preset No. or Frequency) for Tuner-1
	5 (PRESET 5)	17	05	—	17 05	RCRC517005	X	X	Ten Key 5 (Preset No. or Frequency) for Tuner-1
	6 (PRESET 6)	17	06	—	17 06	RCRC517006	X	X	Ten Key 6 (Preset No. or Frequency) for Tuner-1
	7 (PRESET 7)	17	07	—	17 07	RCRC517007	X	X	Ten Key 7 (Preset No. or Frequency) for Tuner-1
	8 (PRESET 8)	17	08	—	17 08	RCRC517008	X	X	Ten Key 8 (Preset No. or Frequency) for Tuner-1
	9 (PRESET 9)	17	09	—	17 09	RCRC517009	X	X	Ten Key 9 (Preset No. or Frequency) for Tuner-1
	Cursor Up	17	80	01	17 80 01	RCRC51708001	X	X	Cursor up
	Cursor Down	17	81	01	17 81 01	RCRC51708001	X	X	Cursor down
	Cursor Left	17	85	01	17 85 01	RCRC51708501	X	X	Cursor left
	Cursor Right	17	86	01	17 86 01	RCRC51708601	X	X	Cursor right
	Cursor Enter	17	87	01	17 87 01	RCRC51708701	X	X	Enter function
	RETURN	17	83	01	17 83 01	RCRC51708301	X	X	Return function on Analog Tuner
	PTY (For Europe Model) (*5)	17	120	—	17 120	RCRC5170120	X	X	Select Program Type for RDS
	RDS (For Europe Model) (*5)	17	120	40	17 120 40	RCRC51712040	X	X	RDS RT on/off
	RDS/SEARCH	17	120	60	17 120 60	RCRC51712060	X	X	Direct Tuning/RDS Search
USB	Cursor Up	24	80	01	24 80 01	RCRC52408001	X	X	Cursor up in USB mode
	Cursor Down	24	81	01	24 81 01	RCRC52408101	X	X	Cursor down in USB mode
	Cursor Left	24	85	01	24 85 01	RCRC52408501	X	X	Cursor left in USB mode
	Cursor Right	24	86	01	24 86 01	RCRC52408601	X	X	Cursor right in USB mode
	Enter	24	87	01	24 87 01	RCRC52408701	X	X	Enter in USB mode
	Return	24	87	21	24 87 21	RCRC52408721	X	X	Go back to previous folder
	Page Previous	24	32	20	24 32 20	RCRC52403220	X	X	Go to next page
	Page Next	24	33	20	24 33 20	RCRC52403320	X	X	Go to previous page
	Play/Pause	24	53	01	24 53 01	RCRC52405301	X	X	Pause/Resume playback
	Play	24	53	01	24 53 01	RCRC52405301	X	X	Start playback
	Pause	24	48	01	24 48 01	RCRC52404801	X	X	Pause the playback
	Stop	24	54	01	24 54 01	RCRC52405401	X	X	Stop the playback
	Next	24	32	01	24 32 01	RCRC52403201	X	X	Go to next song
	Previous	24	33	01	24 33 01	RCRC52403301	X	X	Go to previous song
	REW (Toggle)	24	50	01	24 50 01	RCRC52405001	X	X	Change REW mode (Toggle)
	FF (Toggle)	24	52	01	24 52 01	RCRC52405201	X	X	Change F.F. mode (Toggle)
	Random(Toggle)	24	28	01	24 28 01	RCRC52402801	X	X	Change Random mode Off->Songs->Album->Off
	Random Off	24	28	02	24 28 02	RCRC52402802	X	X	Random mode: Off
	Random On(Songs)	24	28	03	24 28 03	RCRC52402803	X	X	Songs Random mode on
	Repeat(Toggle)	24	29	01	24 29 01	RCRC52402901	X	X	Change Repeat mode
	Repeat Off	24	29	02	24 29 02	RCRC52402902	X	X	Repeat mode: Off
	Repeat One	24	29	03	24 29 03	RCRC52402903	X	X	One track repeat mode on
	Repeat All	24	29	04	24 29 04	RCRC52402904	X	X	All repeat mode on
Network	Network(DMP								

	Blu-ray(BD)	16	30	12	16 30 12	RRCR51603012	X	--	Turn On and select BD
	Blu-ray/DVD	16	29	29	16 29 29	RRCR51602929	--	--	Turn On and select Blu-ray/DVD input
	M-XPport	16	30	13	16 30 13	RRCR51603013	--	--	Turn On and select M-XPport
	Game	16	30	14	16 30 14	RRCR51603014	X	--	Turn On and select Game
	PHONE	16	30	15	16 30 15	RRCR51603015	X	--	Turn On and select Phone
	Bluetooth	16	30	16	16 30 16	RRCR51603016	X	--	Turn On and select Bluetooth
	Internet Radio	16	30	17	16 30 17	RRCR51603017	X	--	Turn On and select Internet Radio as Zone 2 source
	SUB/SUM(M/C4)	16	30	29	16 30 29	RRCR51603029	X	--	Turn On and select Status M/C as Zone 2 source
	Media Server	16	30	24	16 30 24	RRCR51603024	X	--	Turn On and select Media Server as Zone 2 source
	Pandora (4)	16	30	26	16 30 26	RRCR51603026	X	--	Turn On and select Pandora as Zone 2 source
Smart Select	Smart Select1	16	30	21	16 30 21	RRCR51603021	X	--	Zone 2 Smart Select 1
	Smart Select2	16	30	22	16 30 22	RRCR51603022	X	--	Zone 2 Smart Select 2
	Smart Select3	16	30	23	16 30 23	RRCR51603023	X	--	Zone 2 Smart Select 3
	Smart Select4	16	30	24	16 30 24	RRCR51603024	X	--	Zone 2 Smart Select 4
	Smart Select5	16	30	25	16 30 25	RRCR51603025	X	--	Zone 2 Smart Select 5
Control	Cursor Up	16	31	10	16 31 10	RRCR51603110	X	--	Zone 2 Cursor Up
	Cursor Down	16	31	11	16 31 11	RRCR51603111	X	--	Zone 2 Cursor Down
	Cursor Left	16	31	12	16 31 12	RRCR51603112	X	--	Zone 2 Cursor Left
	Cursor Right	16	31	13	16 31 13	RRCR51603113	X	--	Zone 2 Cursor Right
	Enter	16	31	14	16 31 14	RRCR51603114	X	--	Zone 2 Enter
	Return	16	31	15	16 31 15	RRCR51603115	X	--	Zone 2 Return
	Memory	16	31	16	16 31 16	RRCR51603116	X	--	AUX6(Additional Source)
Sleep	SLEEP (Toggle)	16	29	10	16 29 10	RRCR51602910	X	--	Sleep Timer set
	SLEEP OFF	16	29	10	16 29 10	RRCR51602910	X	--	Sleep Timer set: Off
Tuner	[Tuner-1] 0	17	29	00	17 29 00	RRCR51702900	X	--	Ten Key 0 (Pre set No. or Frequency) for Tuner-1
	[Tuner-1] 1	17	29	01	17 29 01	RRCR51702901	X	--	Ten Key 1 (Pre set No. or Frequency) for Tuner-1
	[Tuner-1] 2	17	29	02	17 29 02	RRCR51702902	X	--	Ten Key 2 (Pre set No. or Frequency) for Tuner-1
	[Tuner-1] 3	17	29	03	17 29 03	RRCR51702903	X	--	Ten Key 3 (Pre set No. or Frequency) for Tuner-1
	[Tuner-1] 4	17	29	04	17 29 04	RRCR51702904	X	--	Ten Key 4 (Pre set No. or Frequency) for Tuner-1
	[Tuner-1] 5	17	29	05	17 29 05	RRCR51702905	X	--	Ten Key 5 (Pre set No. or Frequency) for Tuner-1
	[Tuner-1] 6	17	29	06	17 29 06	RRCR51702906	X	--	Ten Key 6 (Pre set No. or Frequency) for Tuner-1
	[Tuner-1] 7	17	29	07	17 29 07	RRCR51702907	X	--	Ten Key 7 (Pre set No. or Frequency) for Tuner-1
	[Tuner-1] 8	17	29	08	17 29 08	RRCR51702908	X	--	Ten Key 8 (Pre set No. or Frequency) for Tuner-1
	[Tuner-1] 9	17	29	09	17 29 09	RRCR51702909	X	--	Ten Key 9 (Pre set No. or Frequency) for Tuner-1
	[Tuner-1] FM	17	29	10	17 29 10	RRCR51702910	X	--	Select FM for Tuner-1
	[Tuner-1] AM	17	29	11	17 29 11	RRCR51702911	X	--	Select AM for Tuner-1
	[Tuner-1] DAB	17	29	60	17 29 60	RRCR51702960	X	--	Select DAB
	[Tuner-1] PRESET Up +	17	29	13	17 29 13	RRCR51702913	X	--	Presets (Skip) Up for Tuner-1
	[Tuner-1] PRESET Down -	17	29	14	17 29 14	RRCR51702914	X	--	Presets (Skip) Down for Tuner-1
	[Tuner-1] FREQ (tuning) Up +	17	29	15	17 29 15	RRCR51702915	X	--	Frequency (Scan) Up for Tuner-1
	[Tuner-1] FREQ (tuning) Down -	17	29	16	17 29 16	RRCR51702916	X	--	Frequency (Scan) Down for Tuner-1
	[Tuner-1] T-MODE	17	29	17	17 29 17	RRCR51702917	X	--	Switch FM MODE (Auto Stereo / Mono) for Tuner-1
	BAND (FM/AM)	17	29	61	17 29 61	RRCR51702961	X	--	Select FM and AM (Toggle) FM and DAB (Toggle)
USB	RDS/SEARCH	17	29	62	17 29 62	RRCR51702962	X	--	Direct Tuning/RDS Search
	Next	24	33	02	24 33 02	RRCR52403302	X	--	Go to next song
	Previous	24	33	01	24 33 01	RRCR52403301	X	--	Go to previous song
	Random (Toggle)	24	41	01	24 41 01	RRCR52404101	X	--	Change Random mode (Toggle)
	Random On	24	41	02	24 41 02	RRCR52404102	--	--	
	Repeat (toggle)	24	42	01	24 42 01	RRCR52404201	--	--	Change Repeat mode (Toggle)
	Repeat Off	24	42	02	24 42 02	RRCR52404202	--	--	Turn Off the repeat mode
	Repeat One	24	42	03	24 42 03	RRCR52404203	--	--	One track repeat mode on
	Repeat All	24	42	04	24 42 04	RRCR52404204	--	--	All track repeat mode
	Pause	24	45	02	24 45 02	RRCR52404502	X	--	Pause the playback
	REW (Toggle)	24	50	02	24 50 02	RRCR52405002	X	--	Change REW mode (Toggle)
	FF (Toggle)	24	52	02	24 52 02	RRCR52405202	X	--	Change FF mode (Toggle)
	Play	24	53	02	24 53 02	RRCR52405302	X	--	Start a playback
	Play/Pause	24	53	10	24 53 10	RRCR52405310	X	--	Play/Pause Toggle
	iPod Play	24	53	32	24 53 32	RRCR52405332	X	--	Start a playback directly in a folder of USB storage
	USB Direct Play	24	53	61	24 53 61	RRCR52405361	X	--	Stop the playback
	Stop	24	54	02	24 54 02	RRCR52405402	X	--	
Network	Network(DMP): Next	27	33	02	27 33 02	RRCR52703302	X	--	
	Network(DMP): Previous	27	33	01	27 33 01	RRCR52703301	X	--	
	JPEG Skip + (Next)	27	33	11	27 33 11	RRCR52703311	X	--	
	JPEG Skip - (Previous)	27	33	10	27 33 10	RRCR52703310	X	--	
	Network(DMP): Random (toggle)	27	41	01	27 41 01	RRCR52704101	X	--	
	Network(DMP): Random Off	27	41	02	27 41 02	RRCR52704102	X	--	
	Network(DMP): Random On	27	41	03	27 41 03	RRCR52704103	X	--	
	Memory	27	41	52	27 41 52	RRCR52704152	X	--	
	Network(DMP): Repeat (toggle)	27	42	01	27 42 01	RRCR52704201	X	--	
	Network(DMP): Repeat Off	27	42	02	27 42 02	RRCR52704202	X	--	
	Network(DMP): Repeat 1	27	42	03	27 42 03	RRCR52704203	X	--	
	Network(DMP): Repeat All	27	42	04	27 42 04	RRCR52704204	X	--	
	Network(DMP): Repeat All	27	42	05	27 42 05	RRCR52704205	X	--	
	Network(DMP): USB: REW	27	50	02	27 50 02	RRCR52705002	X	--	
	Network(DMP): USB: FF	27	52	02	27 52 02	RRCR52705202	X	--	
	Network(DMP): Play/Pause	27	53	02	27 53 02	RRCR52705302	X	--	
	Internet Radio - Recent Played Station	27	53	61	27 53 61	RRCR52705361	X	--	
	Favorite Direct Play	27	53	62	27 53 62	RRCR52705362	X	--	
	Network(DMP): Stop	27	54	02	27 54 02	RRCR52705402	X	--	
	Network(DMP): Pause	27	48	02	27 48 02	RRCR52704802	X	--	
	Network(DMP): Cursor Up	27	80	02	27 80 02	RRCR52708002	X	--	
	Network(DMP): Cursor Down	27	81	02	27 81 02	RRCR52708102	X	--	
	Network(DMP): Cursor Left	27	85	02	27 85 02	RRCR52708502	X	--	
	Network(DMP): Cursor Right	27	87	02	27 87 02	RRCR52708702	X	--	
	Network(DMP): Enter	27	87	02	27 87 02	RRCR52708702	X	--	
	Network(DMP): Page Previous	27	29	13	27 29 13	RRCR52702913	X	--	
	Network(DMP): Page Next	27	29	14	27 29 14	RRCR52802914	X	--	
	Network(DMP): Back(Return)	27	83	02	27 83 02	RRCR52708302	X	--	(Return)
	Network(DMP): HOME	27	84	02	27 84 02	RRCR52708402	X	--	
3rd Zone (Multi)	POWER ON/OFF (Toggle)	16	93	00	16 93 00	RRCR51609300	X	--	Turn Power On/Off (Toggle)
	POWER OFF	16	93	04	16 93 04	RRCR51609304	X	--	Power Off
Zone B)	Volume	16	93	01	16 93 01	RRCR51609301	--	--	Volume Up

Control	VOL -	16	93	02	16 93 02	RRCR51609302	--	--	Volume Down
	Direct VOLUME	16	113	00-63	16 113 00-63	RRCR51611300-63	--	--	Discrete Multi-level B Volume level select
	MUTE (Toggle)	16	93	08	16 93 08	RRCR51609308	--	--	Mute/Unmute (Toggle)
Input Source	INPUT NEXT	16	92	03	16 92 03	RRCR51609203	--	--	Zone3 Switch Input forward
	INPUT BACK	16	92	04	16 92 04	RRCR51609204	--	--	Zone3 Switch Input backward
	Source Call	16	92	10	16 92 10	RRCR51609210	--	--	Turn On and select Mem. Zone Source Call
	USB	16	92	11	16 92 11	RRCR51609211	--	--	Select USB input directly
	Blu-ray(BD)	16	92	12	16 92 12	RRCR51609212	--	--	Turn On and select Blu-ray/DVD
	M-XPport	16	92	13	16 92 13	RRCR51609213	--	--	Turn On and select M-XPport
	Game	16	92	14	16 92 14	RRCR51609214	--	--	Turn On and select Game
	PHONE	16	92	15	16 92 15	RRCR51609215	--	--	Turn On and select Phono
	Bluetooth	16	92	16	16 92 16	RRCR51609216	--	--	Turn On and select Bluetooth
	CD	16	93	11	16 93 11	RRCR51609311	--	--	Turn On and select CD
	TV AUDIO(OV)	16	93	15	16 93 15	RRCR51609315	--	--	Turn On and select TV
	DVD	16	93	16	16 93 16	RRCR51609316	--	--	Turn On and select DVD
	MEDIA PLAYER(VCR1)	16	93	17	16 93 17	RRCR51609317	--	--	Turn On and select VCR1
	VCR2	16	93	18	16 93 18	RRCR51609318	--	--	Turn On and select VCR2
	CBL/SAT(SAT)	16	93	19	16 93 19	RRCR51609319	--	--	Turn On and select DISC (SAT)
	AUX1(AUX)	16	93	20	16 93 20	RRCR51609320	--	--	Turn On and select Front Aux1 input
	AUX2	16	93	21	16 93 21	RRCR51609321	--	--	Turn On and select LR channel of Multi channel direct input
	AUX3(Additional Source)	16	93	24	16 93 24	RRCR51609324	--	--	Turn On and select AUX3
	AUX4(Additional Source)	16	93	25	16 93 25	RRCR51609325	--	--	Turn On and select AUX4
	AUX5(Additional Source)	16	93	26	16 93 26	RRCR51609326	--	--	Turn On and select AUX5
	AUX6(Additional Source)	16	93	27	16 93 27	RRCR51609327	--	--	Turn On and select AUX6
	AUX7(Additional Source)	16	93	28	16 93 28	RRCR52009328	--	--	Turn On and select AUX7
	HEOS Music(NETWORK)	16	93	23	16 93 23	RRCR51609323	--	--	Turn On and select Digital Media Player
	TUNER(TUNER 1,FM)	16	93	30	16 93 30	RRCR51609330	--	--	Turn On and select Tuner-1 or Change BAND (= FM > AM > LW)
	TUNER2	16	93	31	16 93 31	RRCR51609331	--	--	Turn On and select Tuner-1 or Change BAND (= FM > AM > LW)
	Internet Radio	16	93	32	16 93 32	RRCR52709332	--	--	Turn On and select Internet Radio
	SUB/SUM(M/C4)	16	93	29	16 93 29	RRCR52709329	--	--	Turn On and select Status M/C
	Media Server	16	93	24	16 93 24	RRCR52709324	--	--	Turn On and select Media Server
	Pandora (4)	16	93	26	16 93 26	RRCR52709326	--	--	Turn On and select Pandora
Smart Select	Smart Select1	16	92	21	16 92 21	RRCR51609221	--	--	Zone 3 Smart Select 1
	Smart Select2	16	92	22	16 92 22	RRCR51609222	--	--	Zone 3 Smart Select 2
	Smart Select3	16	92	23	16 92 23	RRCR51609223	--	--	Zone 3 Smart Select 3
	Smart Select4	16	92	24	16 92 24	RRCR51609224	--	--	Zone 3 Smart Select 4
	Smart Select5	16	92	25	16 92 25	RRCR51609225	--	--	Zone 3 Smart Select 5
Control	Cursor Up	16	91	10	16 91 10	RRCR51609110	--	--	Zone 3 Cursor Up
	Cursor Down	16	91	11	16 91 11	RRCR51609111	--	--	Zone 3 Cursor Down
	Cursor Left	16	91	12	16 91 12	RRCR51609112	--	--	Zone 3 Cursor Left
	Cursor Right	16	91	13	16 91 13	RRCR51609113	--	--	Zone 3 Cursor Right
	Enter	16	91	14	16 91 14	RRCR51609114	--	--	Zone 3 Enter
	Return	16	91	15	16 91 15	RRCR51609115	--	--	Zone 3 Return
	Memory	16	91	16	16 91 16	RRCR51609116	--	--	Zone 3 Memory
Sleep	SLEEP (Toggle)	16	93	02	16 93 02	RRCR51609302	--	--	Sleep Timer set
	SLEEP OFF	16	93	02	16 93 02	RRCR51609302	--	--	Sleep Timer set: Off
Tuner	[Tuner-1] 0	17	93	00	17 93 00	RRCR51709300	--	--	Ten Key 0 (Pre set No. or Frequency) for Tuner-1
	[Tuner-1] 1	17	93	01	17 93 01	RRCR51709301	--	--	

Internet Radio Recent Played Station	27	53	52	27 53 52	RCRC52705352	---	---	
Network: Favorite Direct Play	27	53	63	27 53 63	RCRC52705363	---	---	
Network(DMP): Stop	27	54	03	27 54 03	RCRC52705403	---	---	
Network(DMP): Cursor Up	27	80	03	27 80 03	RCRC52708003	---	---	
Network(DMP): Cursor Down	27	81	03	27 81 03	RCRC52708103	---	---	
Network(DMP): Cursor Left	27	85	03	27 85 03	RCRC52708503	---	---	
Network(DMP): Cursor Right	27	86	03	27 86 03	RCRC52708603	---	---	
Network(DMP): Enter	27	87	03	27 87 03	RCRC52708703	---	---	
Network(DMP): Back(Return)	27	83	03	27 83 03	RCRC52708303	---	---	
Network(DMP):HOME	27	88	02	27 88 02	RCRC52708802	---	---	
Page Previous	27	93	13	27 93 13	RCRC52709313	---	---	
Page Next	27	93	14	27 93 14	RCRC52709314	---	---	

Notes: Specifications subject to change without prior notice.

X The command is available for the model.
 --- The command is NOT available for the model.

- *1 Main room commands work as Multi room commands when the Multi room RC-IN input was used.
 These commands are recognized as for Main room(zone) commands when they are received via Front IR receiver or Rear Remote Control In.
 These commands are recognized as for Multi room(zone) commands when they are received via Rear Multi room Remote In.
- *2 Need an input assign to the input in Menu in advance the use
- *4 /U1x version (for North America) model only
- *5 /N1x version (for Europe) model only
- *6 /U1x (for North America), /N1x version (for Europe) model only
- *7 The RC code can be sent using RS-232C/IP Serial protocol commands

Revision

18-Mar-19 V01 Issued NR1510/1710

DISASSEMBLY

Flowchart

1. FRONT PANEL ASSY

2. RADIATOR ASSY

3. DIGITAL PCB

4. SPK PCB

5. TRANS

6. SMPS PCB

7. REG PCB

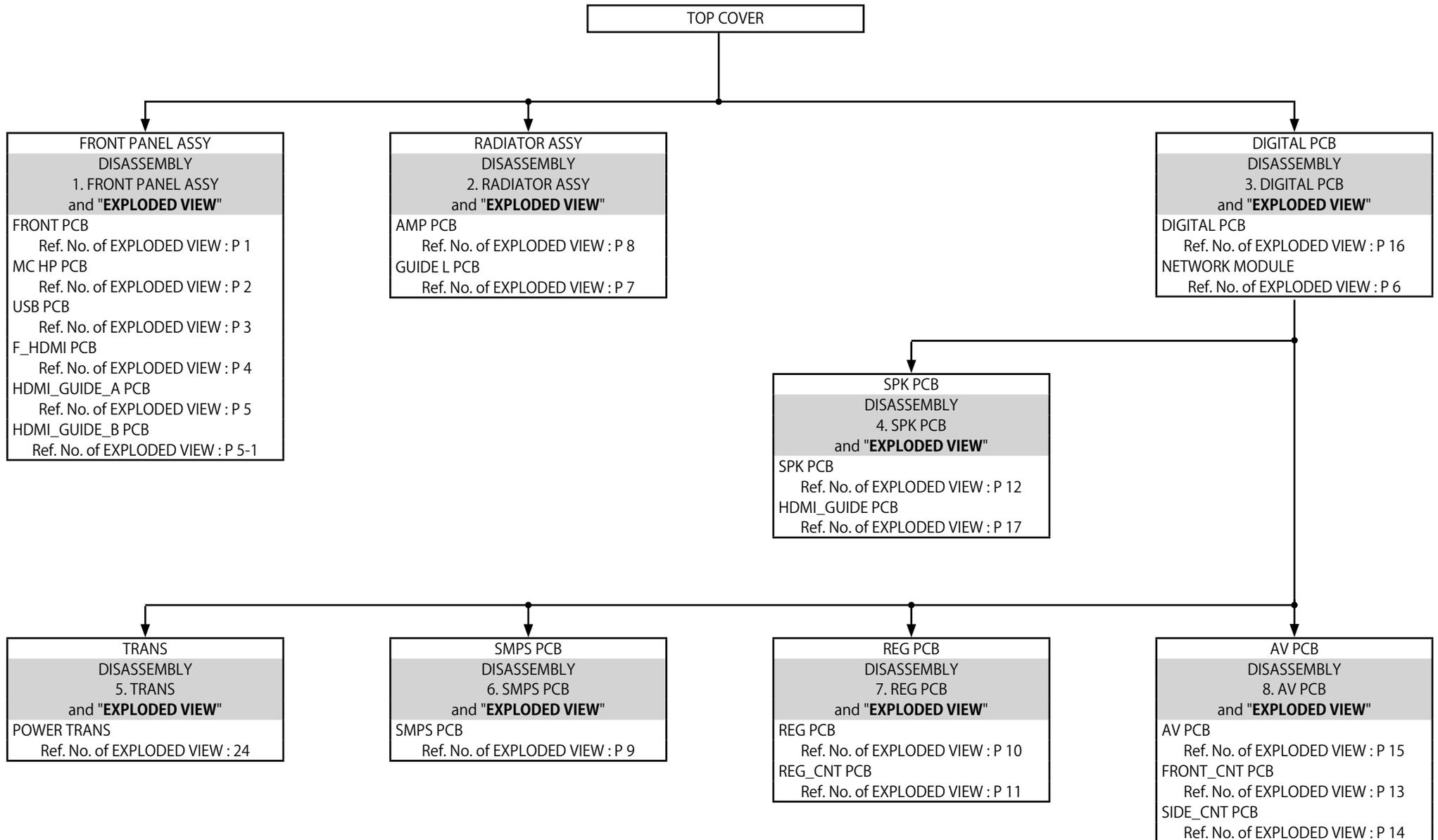
8. AV PCB

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](#)"

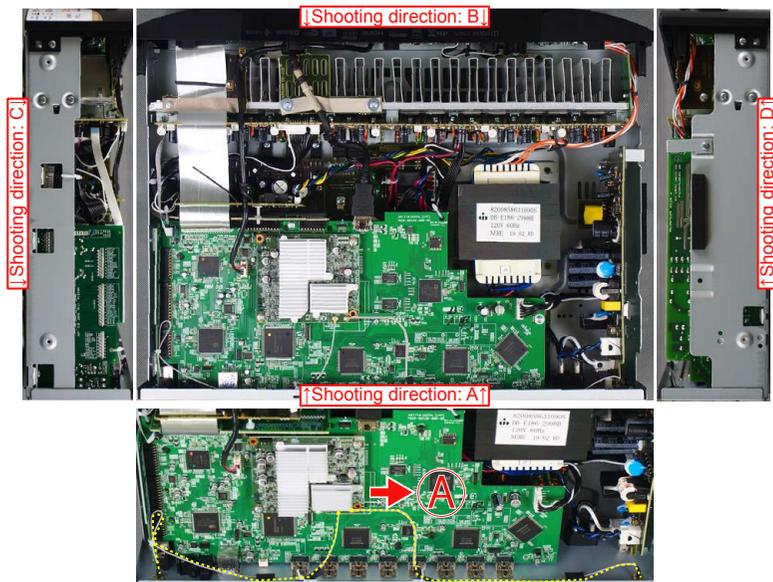


Explanatory Photos for DISASSEMBLY

- 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 NR1710 U are used in this manual.

The viewpoint of each photograph

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

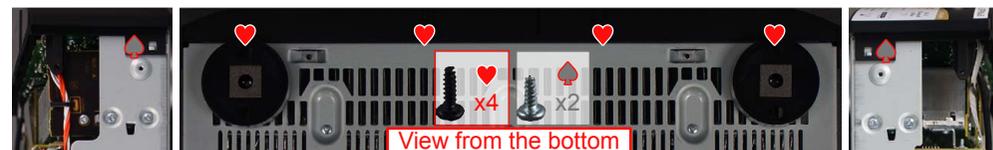


Attention :
When reinserting the Antenna Cable after it has been disconnected, make sure it is facing the direction shown in **A** above.

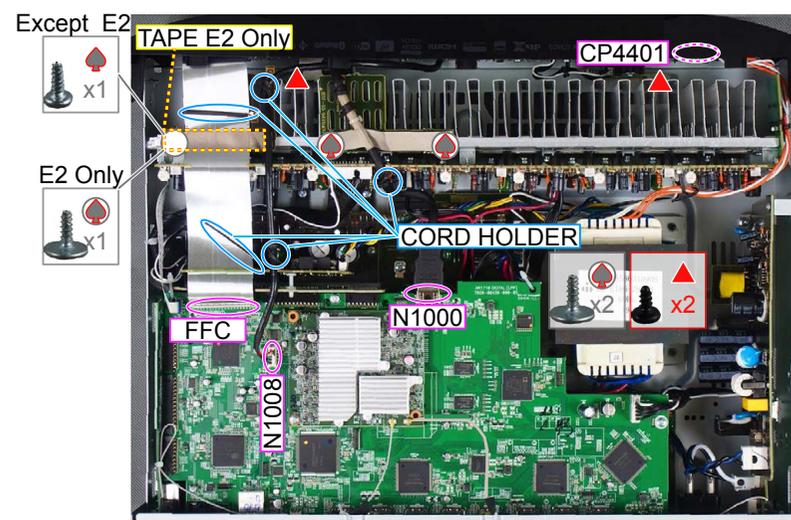
1. FRONT PANEL ASSY

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

(1) Remove the screws.



(2) Remove the screws. Remove the CORD HOLDER and connectors. Remove the FFC. Remove the TAPE.



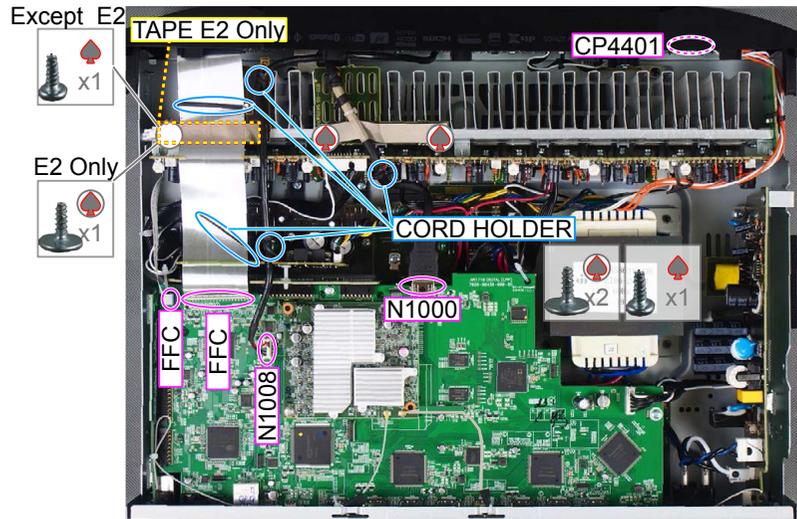
2. RADIATOR ASSY

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

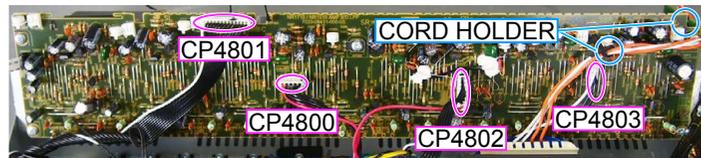
(1) Remove the screws.



(2) Remove the screws. Remove the CORD HOLDER and connectors. Remove the FFC. Remove the TAPE.



(3) Remove the CORD HOLDERS and connectors.



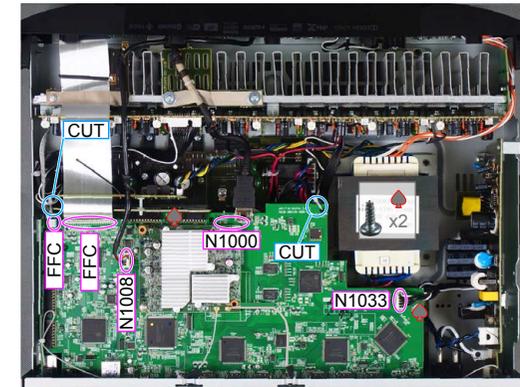
3. DIGITAL PCB

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

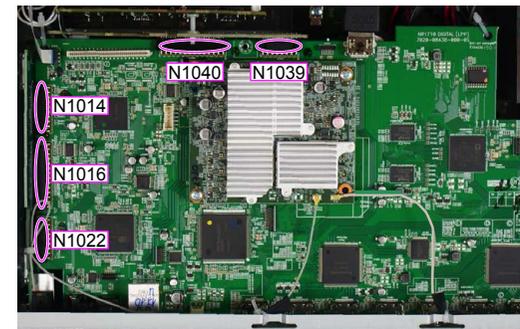
(1) Remove the screws.



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



(3) Remove the connector.



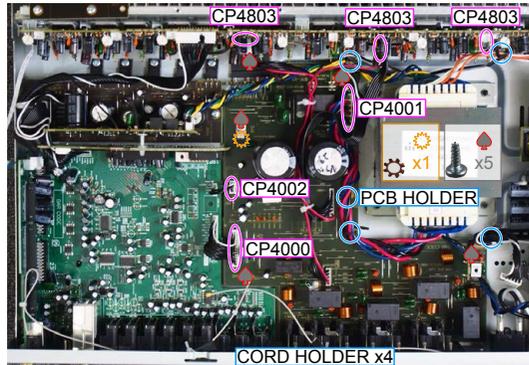
4. SPK PCB

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

(1) Remove the screws.



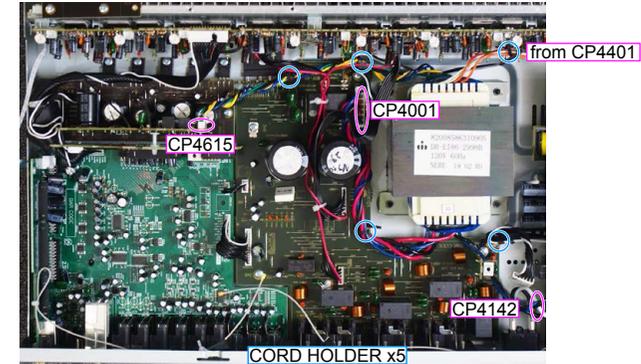
(2) Remove the screws. Remove the CORD HOLDER and connectors. Remove the HOLDER.



5. TRANS

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

(1) Remove the CORD HOLDERS and connector wires.



(2) Remove the screws.



NOTE : It will separate and TRANS will fall from SET, if screws is removed.

6. SMPS PCB

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

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

7. REG PCB

Proceeding : **TOP COVER** → **REG PCB**

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

8. AV PCB

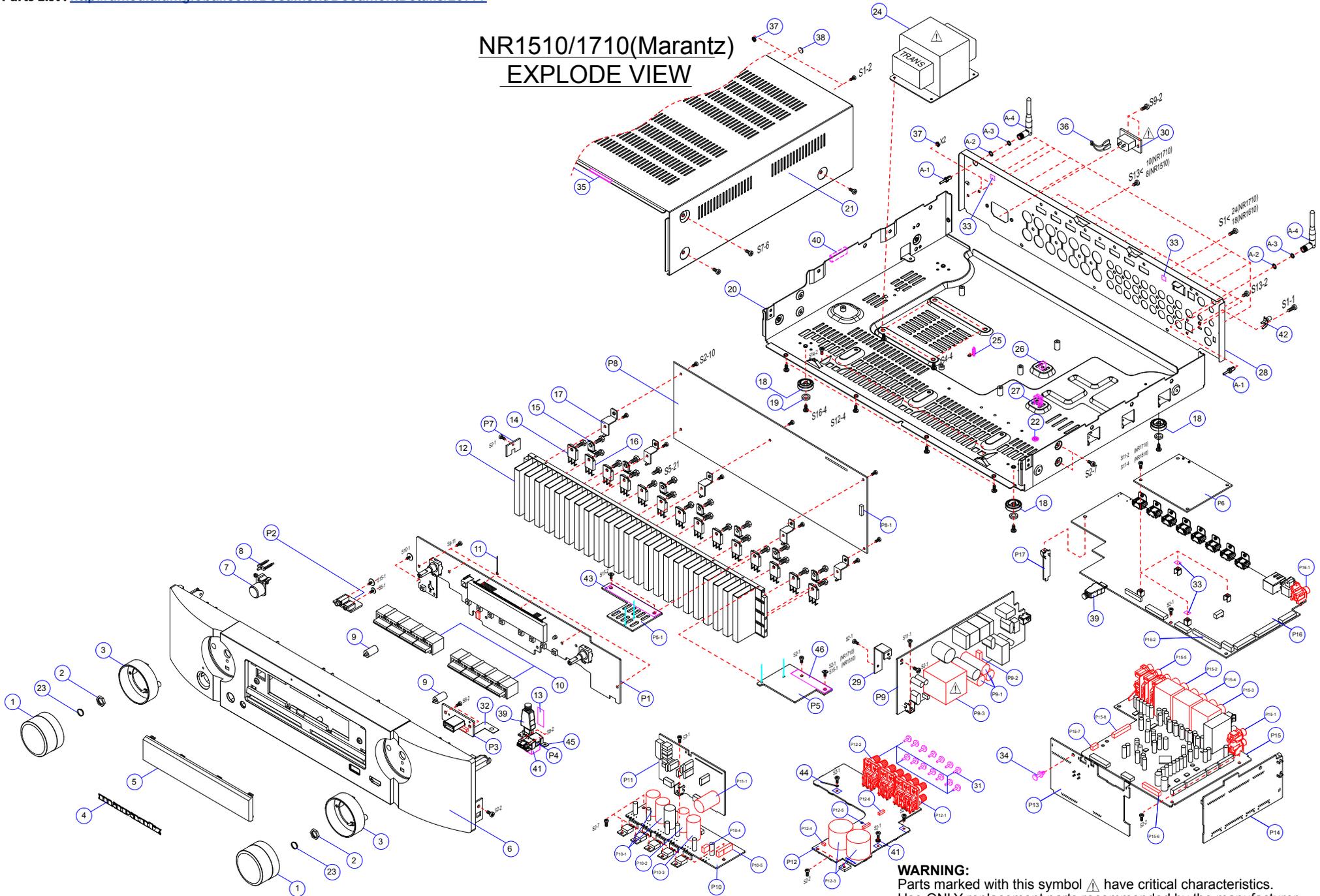
Proceeding : **TOP COVER** → **DIGITAL PCB** → **AV PCB**

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

EXPLODED VIEW

Parts List : <http://dmedia.dmglobal.com/Document/DocumentDetails/25777>

NR1510/1710(Marantz) EXPLODE VIEW



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

Before Servicing
This Unit

Electrical

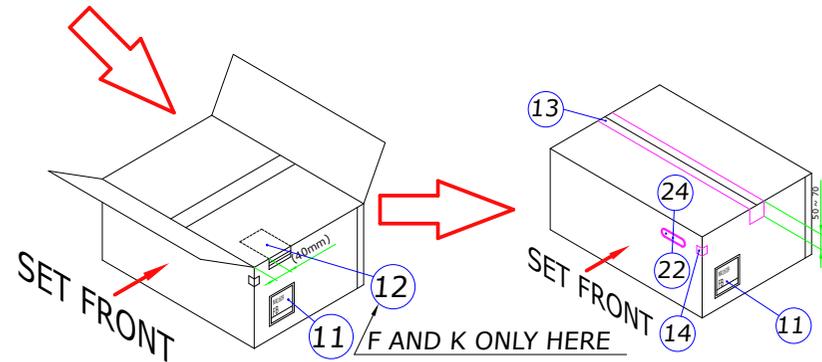
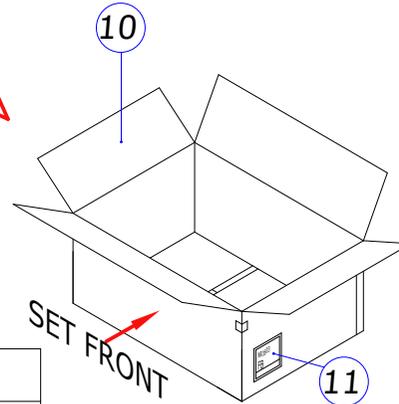
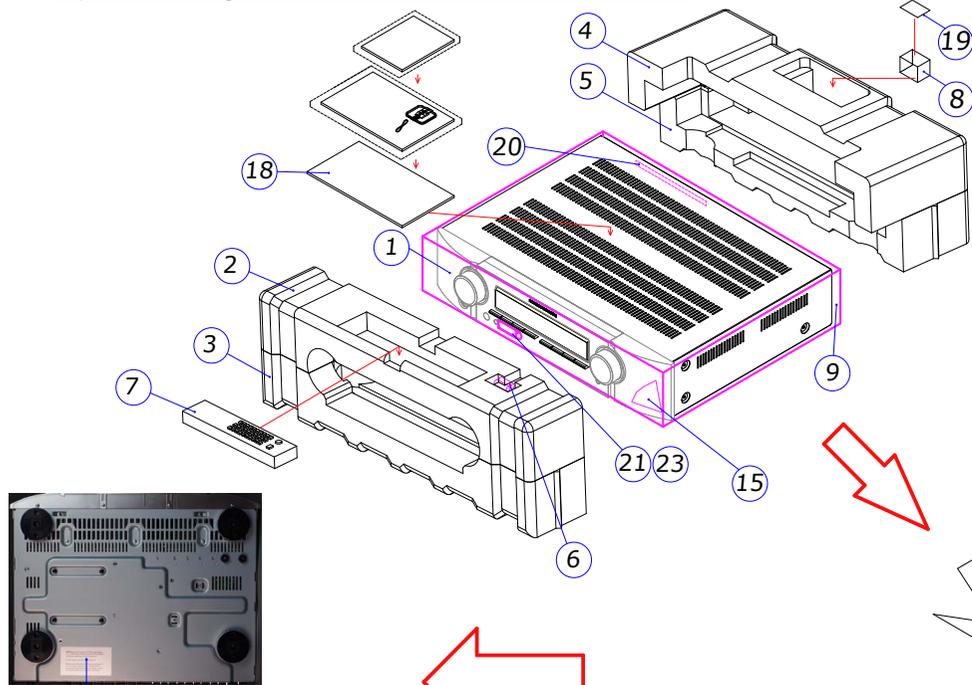
Mechanical

Repair Information

Updating

PACKAGING VIEW

Parts List : <http://dmedia.dmglobal.com/Document/DocumentDetails/25777>



MANUAL POLYBAG ASSY		*MIC ASSY*
POLYBAG CODE: 6337-04006-201-0S ZIPPERBAG(A4size) 26 Notes on RADIO (ALL) 27 Cautions on Using Batteries (N Only) 28 SAFETY INST. (ALL) 29 MAINLY (U Only) 28 SPK WIRE LABEL (ALL) 30 TV Antenna 31 Bluetooth 32 W-Fi 33 ZIPPERBAGSIZE (100x140mm) 34 CARD PASS (OPTION) 35 35 36 36 37 37 38 38 39 39		POLYBAG CODE: 6330-21071-900-0S ZIPPERBAG(A5size) 43 Set the free holder (N) (U Only) 42 JAWA insertion sheet (U Only) 41 SPOTBY insertion sheet (U Only) 40 JAPAN HOST CARD (U Only) 39 QUICK START GUIDE (ALL)
POLYBAG CODE: 4148-21017-000-0H SETUP MIC STAND 18-1 SIZE: 355mm x 210mm This part together with document and zipper bag are supplied. 18-1 MIC STAND ASSEMBLY INSTRUCTIONS		

* POLY BAG PACKING STYLE	* BOX BOTTOM TAPE (O)	* BOX BOTTOM CLIP (X)
TAPE (Yellow) 16 CORD AC OLNY UK PLUG(at store)	13	

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

HDMI "Rx/Tx" Failure Detection

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

CLOCK FLOW & WAVE FORM IN DIGITAL BLOCK

SPECIAL MODE

Special mode setting button

1. Version Display Mode
2. PANEL / REMOTE LOCK Selection Mode
- 3-1. Selecting the Mode for Service-related
- 3-2. Protection History Display Mode
- 3-3. 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

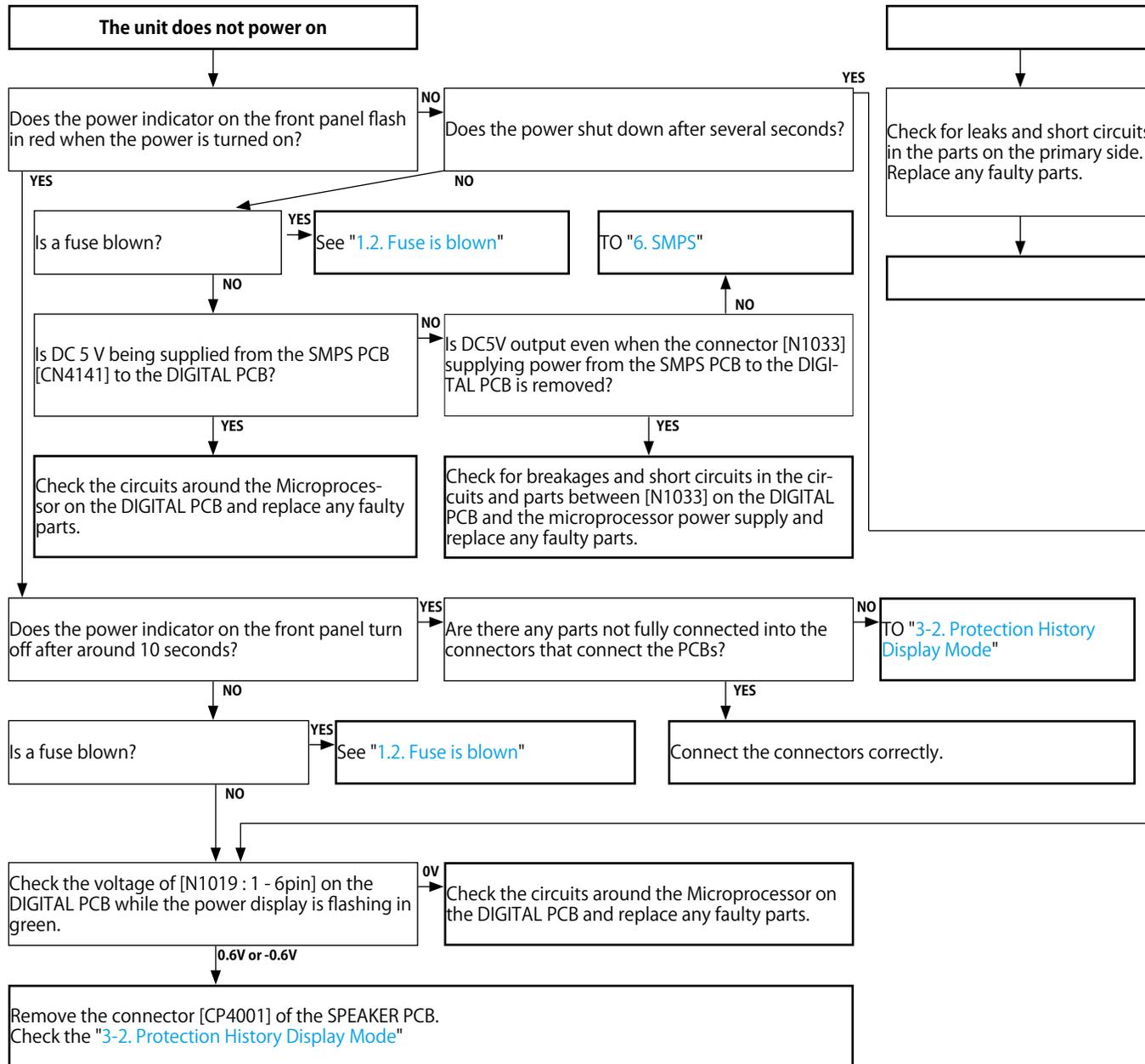
JIG FOR SERVICING

ADJUSTMENT

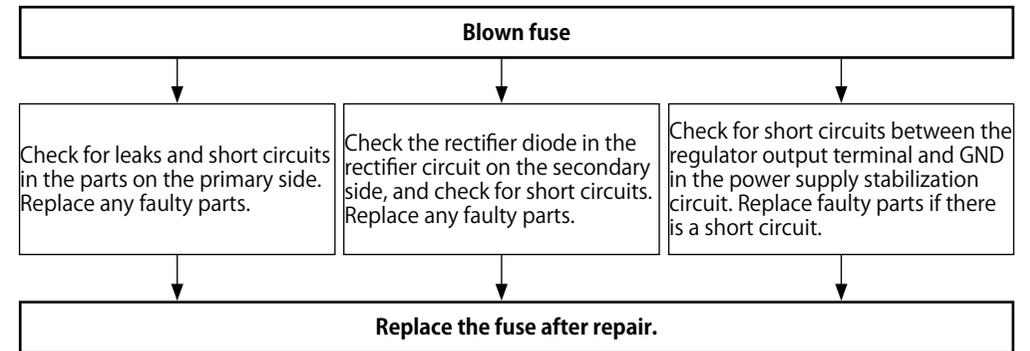
TROUBLE SHOOTING

1. POWER

1.1. The unit does not power on



1.2. Fuse is blown



Before Servicing This Unit

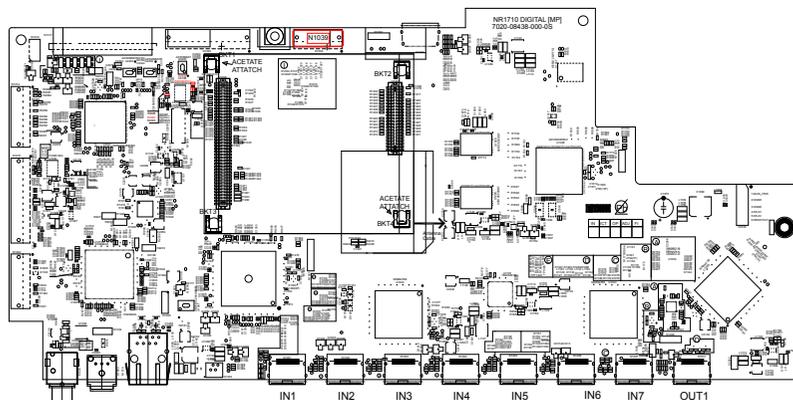
Electrical

Mechanical

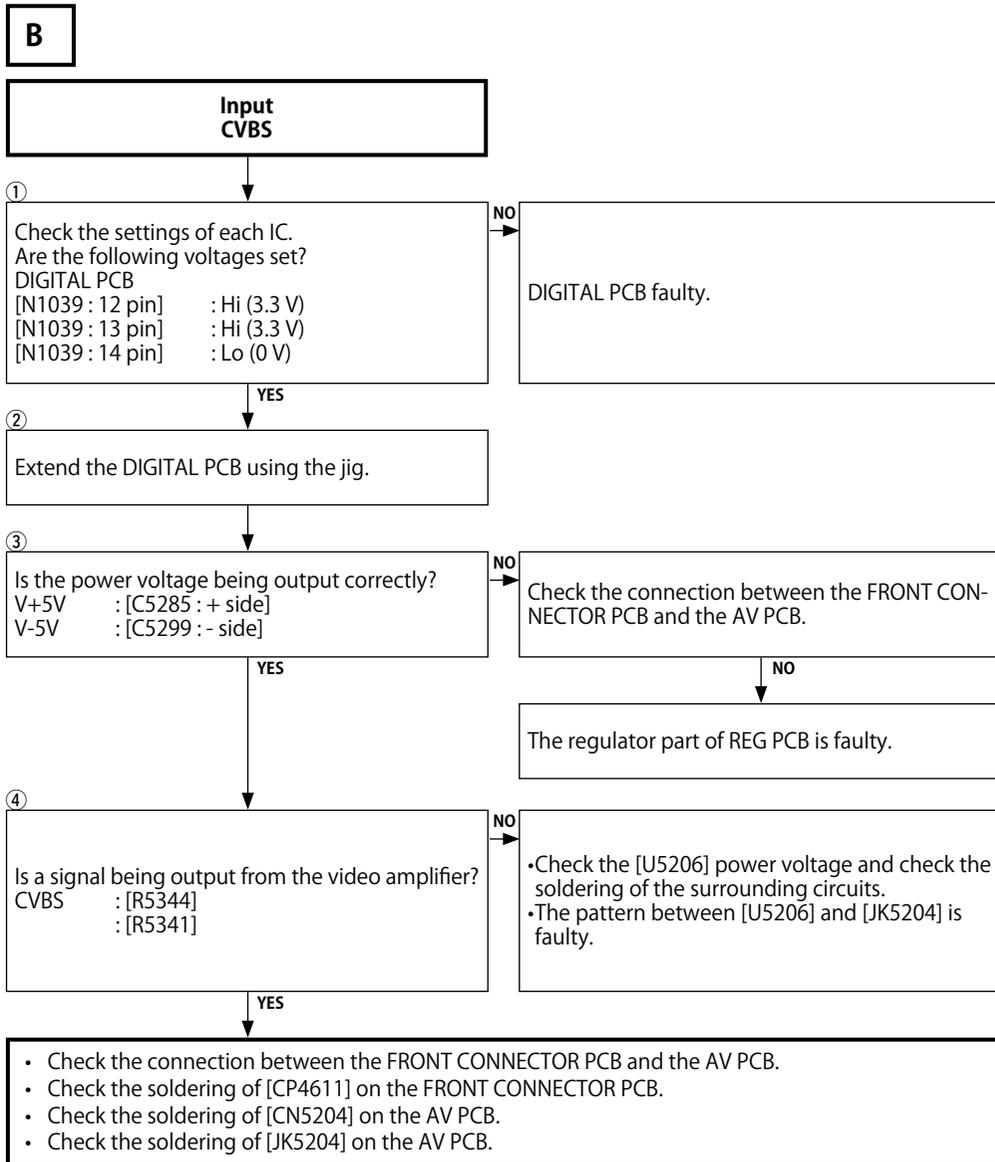
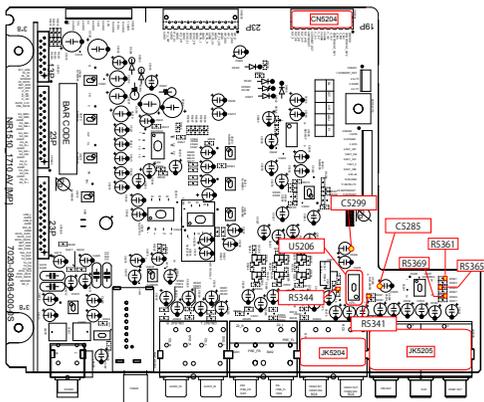
Repair Information

Updating

DIGITAL test point

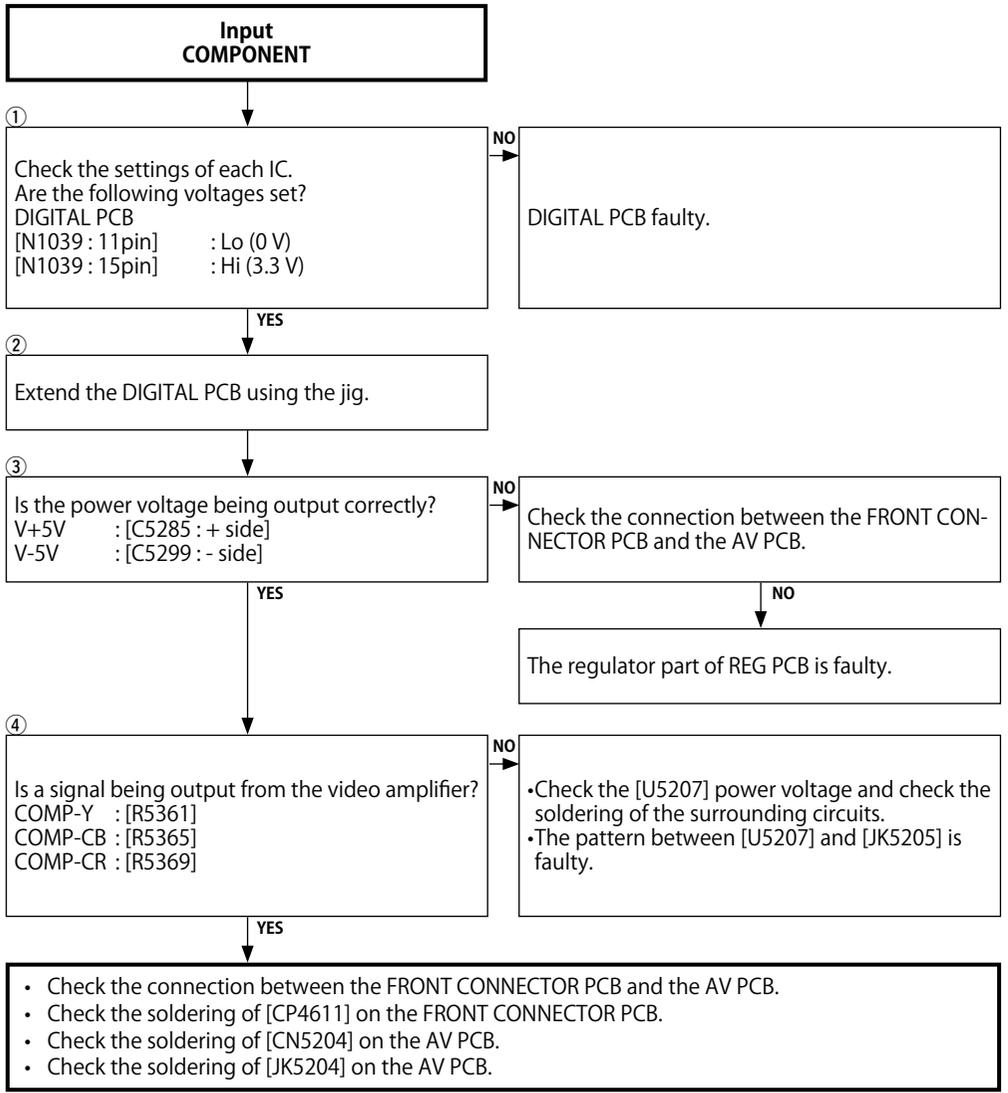


AV test point



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

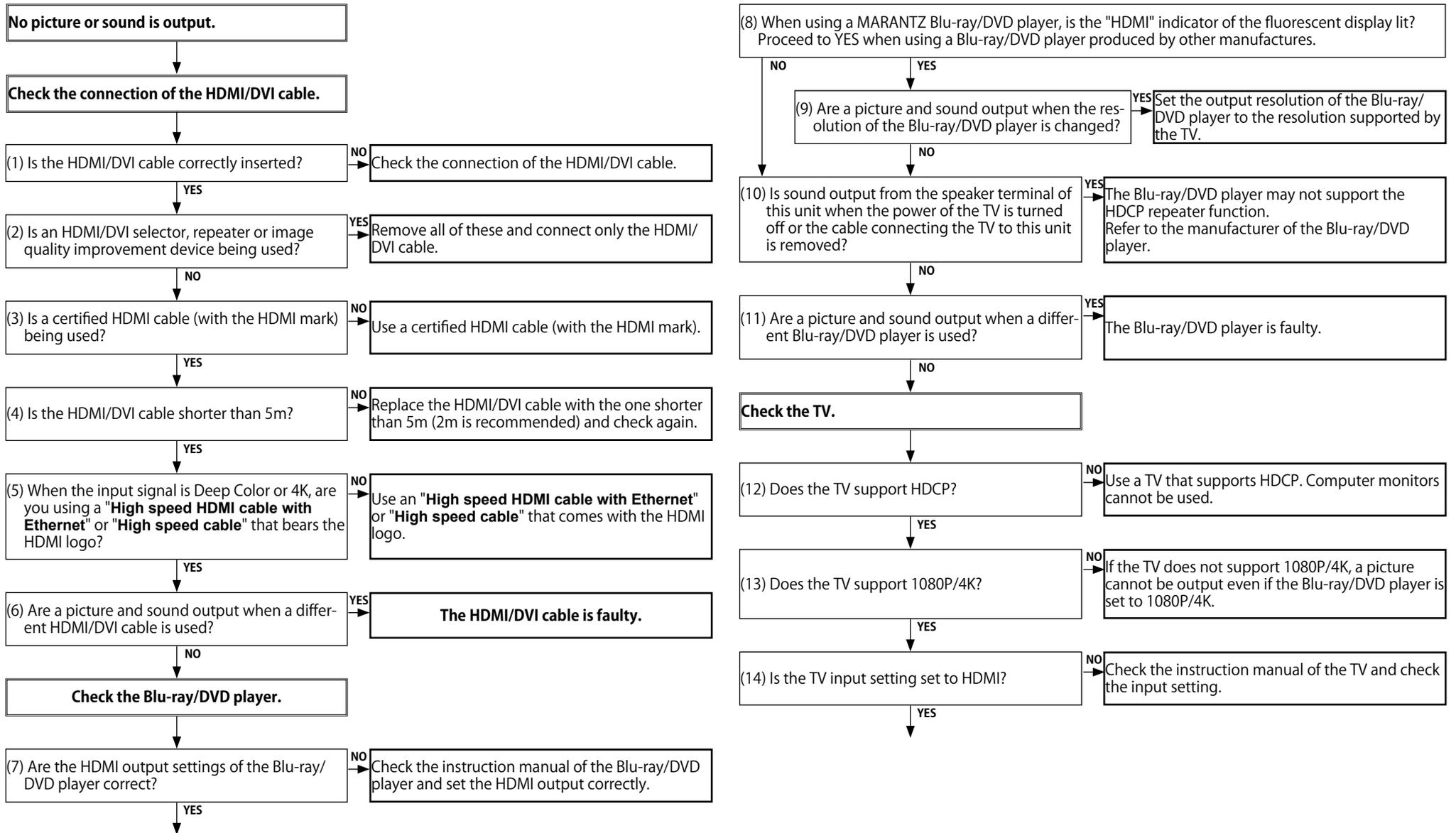
C



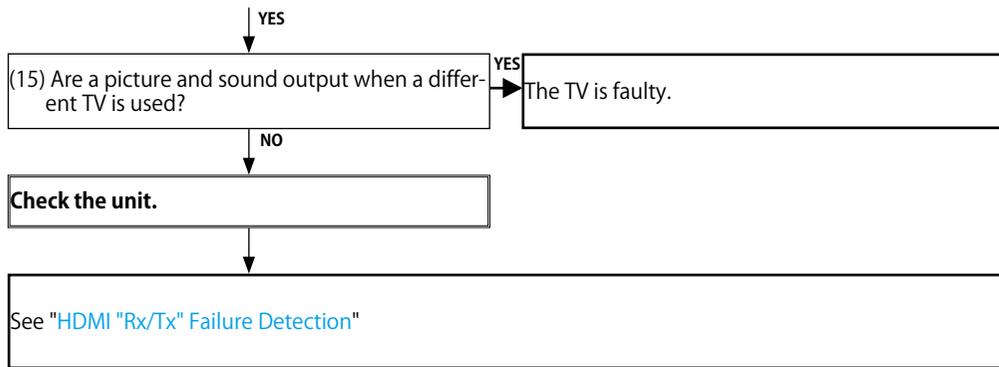
※ These instructions refer to the AV PCB unless otherwise specified.

3. HDMI/DVI

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

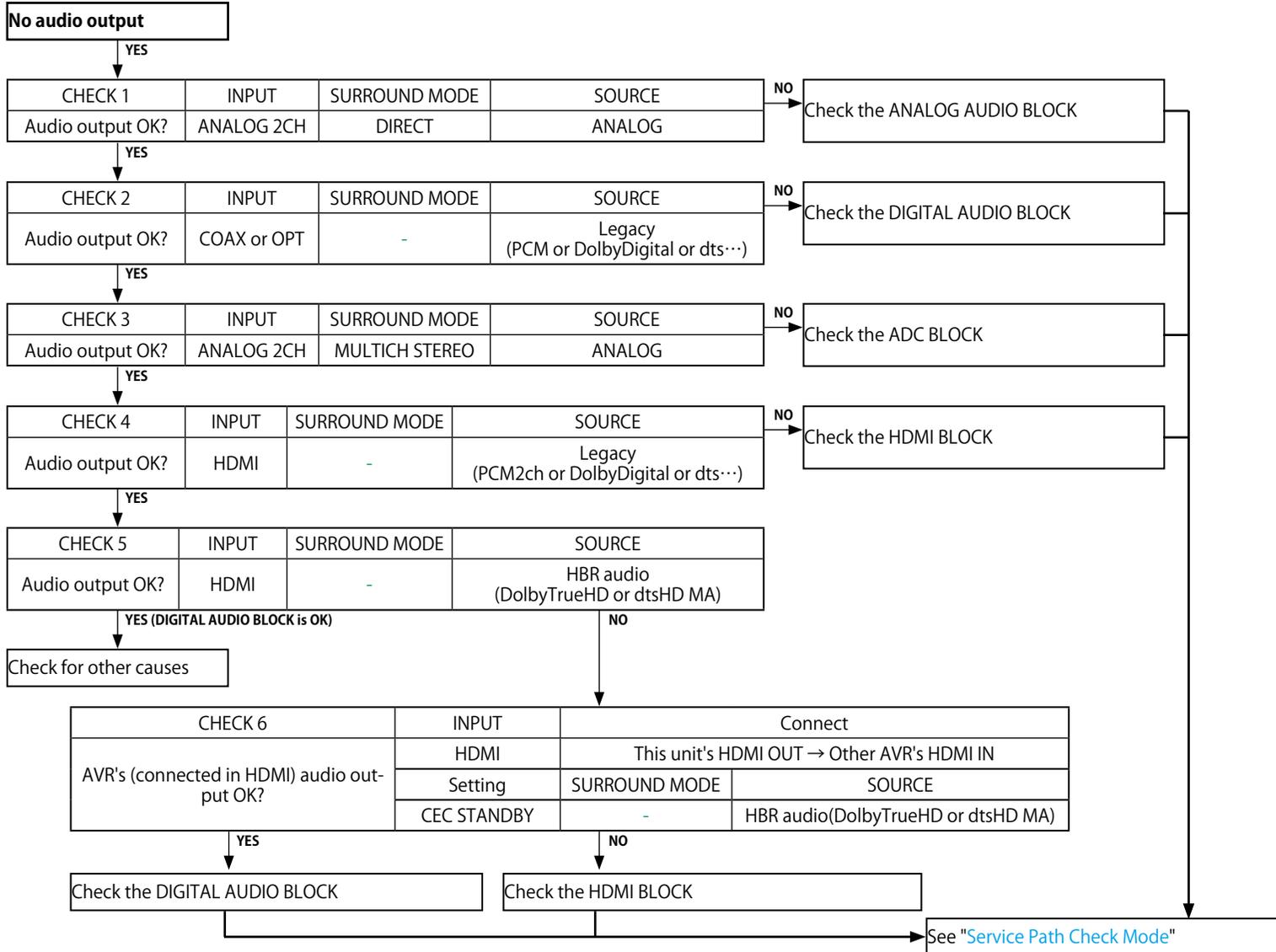


Go to next page.



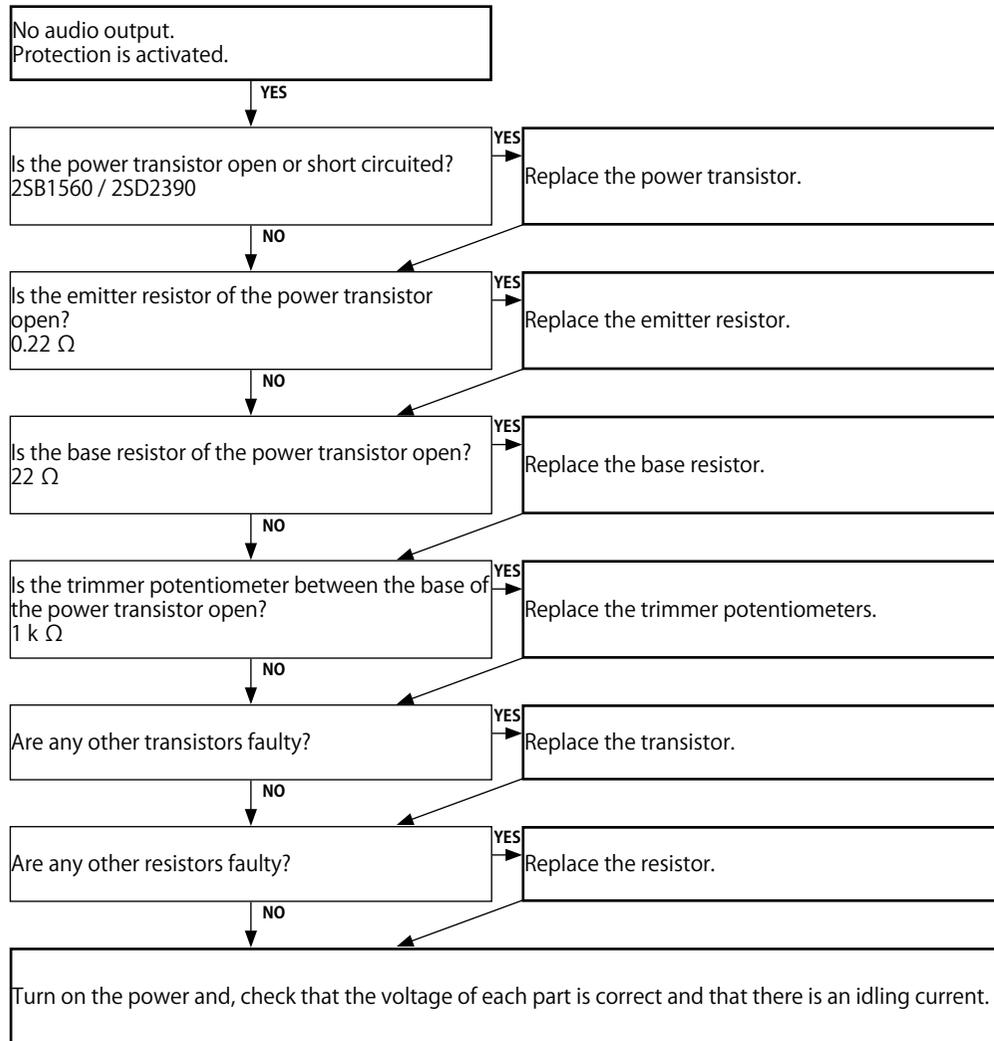
4. AUDIO

4.1. AUDIO CHECK

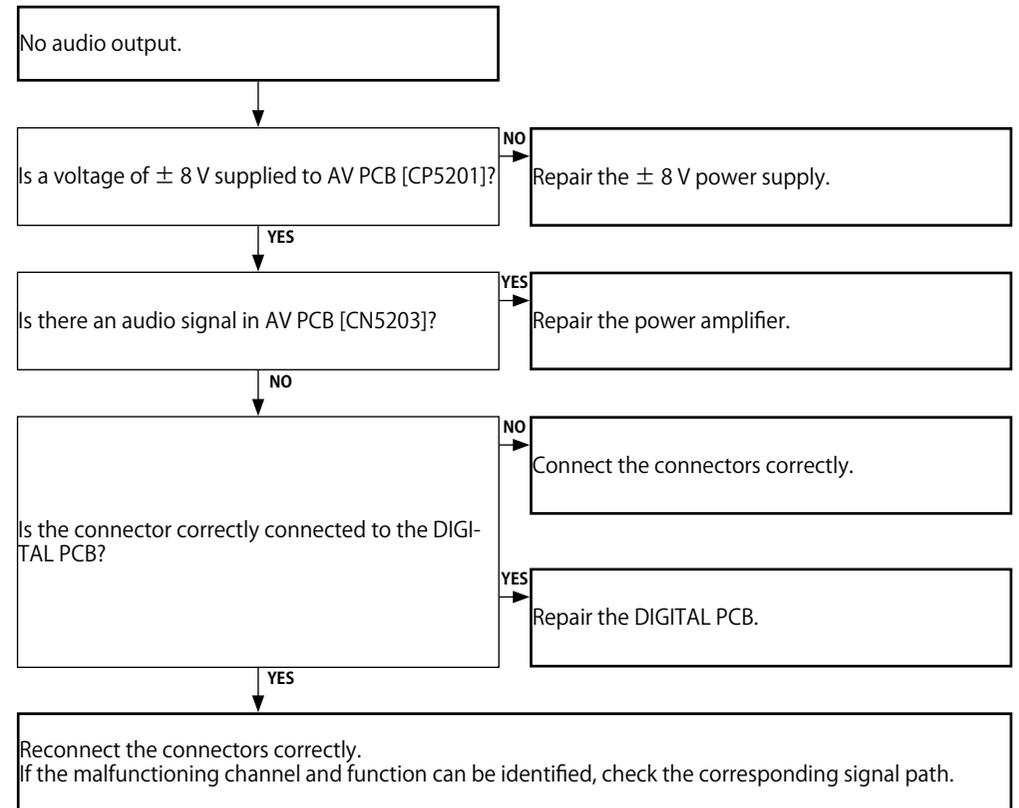


4.2. Power AMP (AMP PCB)

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

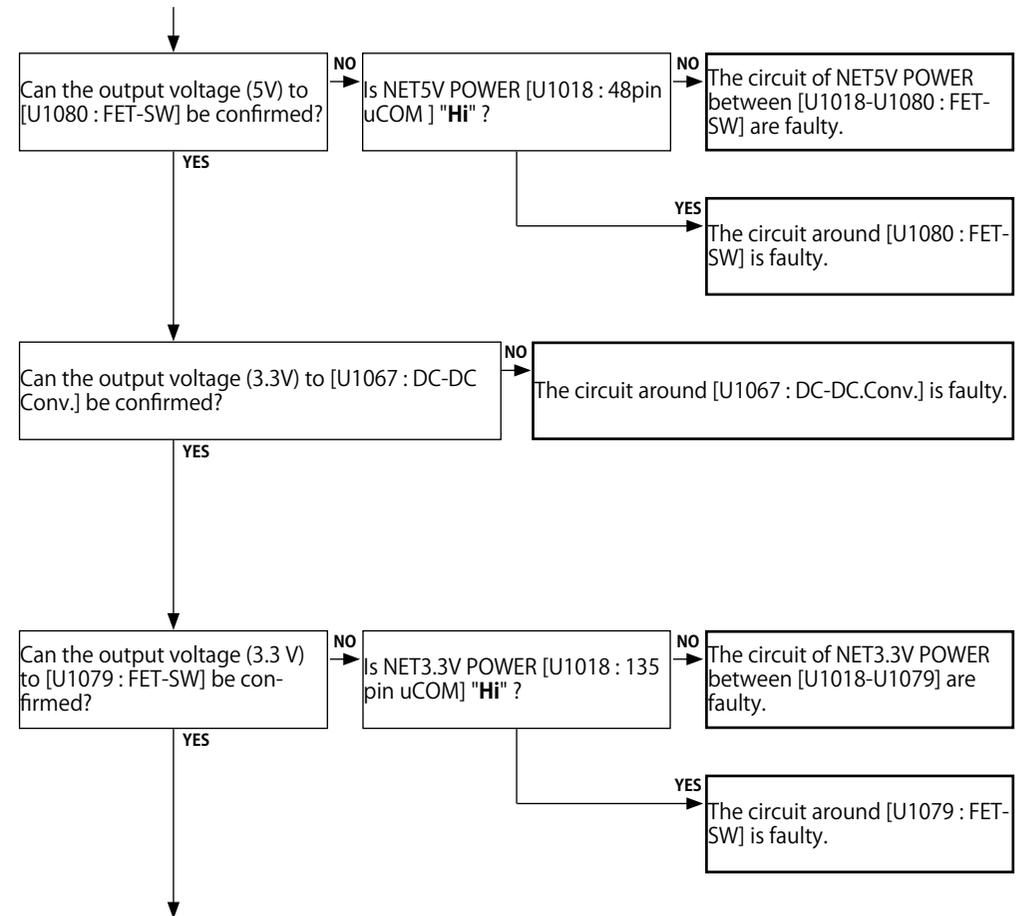
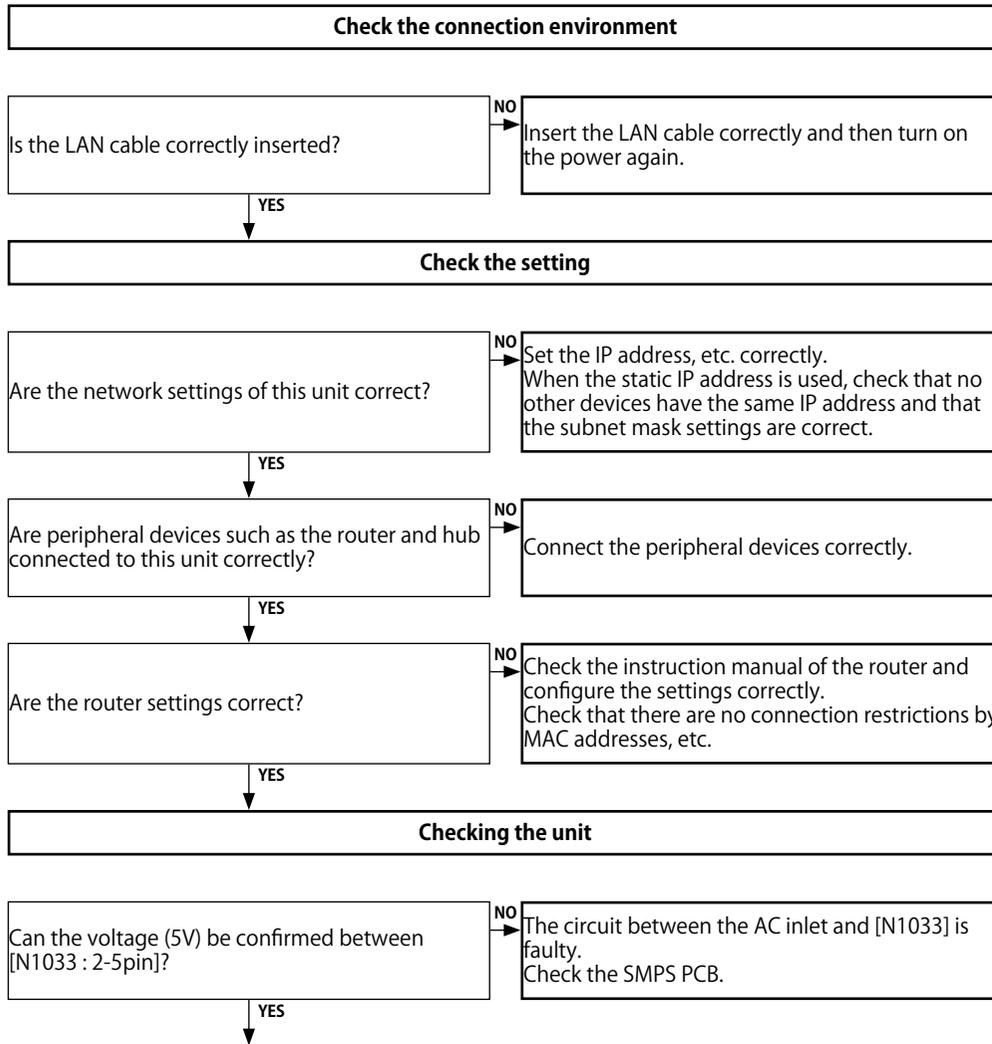


4.3. Analog audio

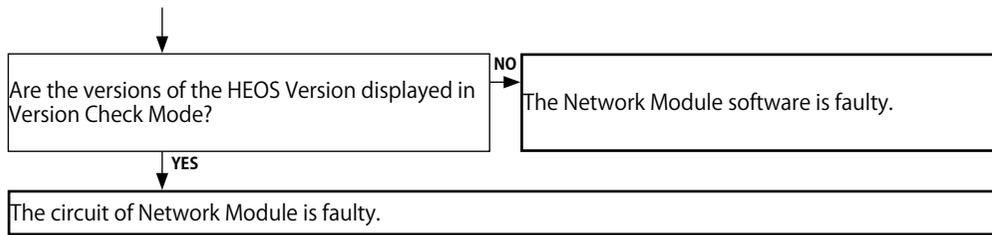


5. Network / Bluetooth / USB

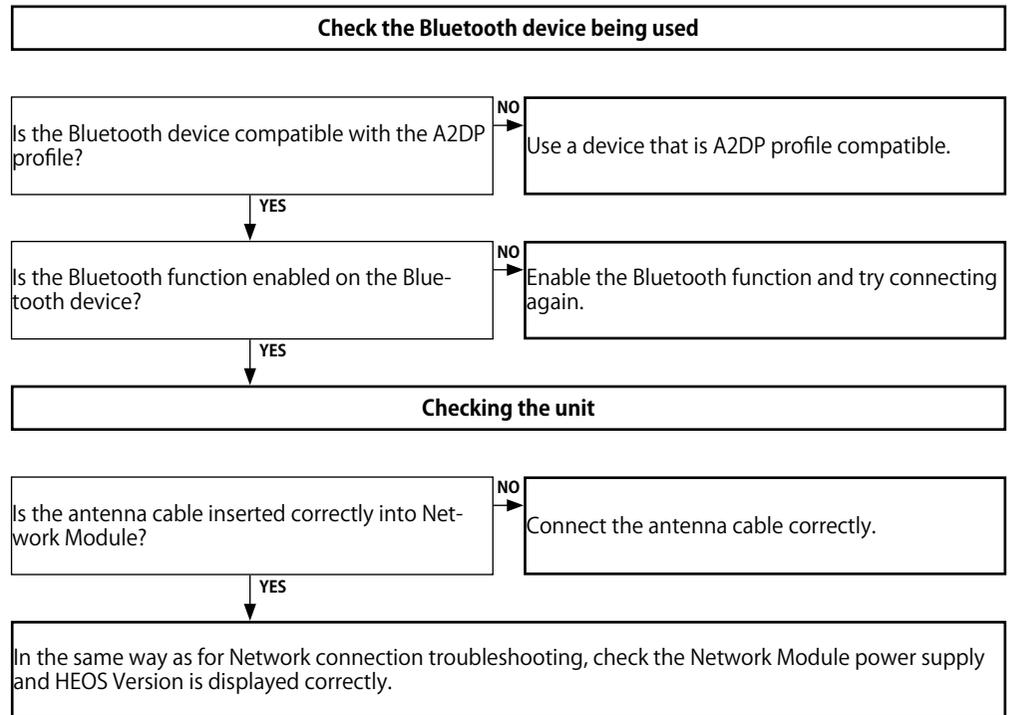
5.1. Cannot connect to the network



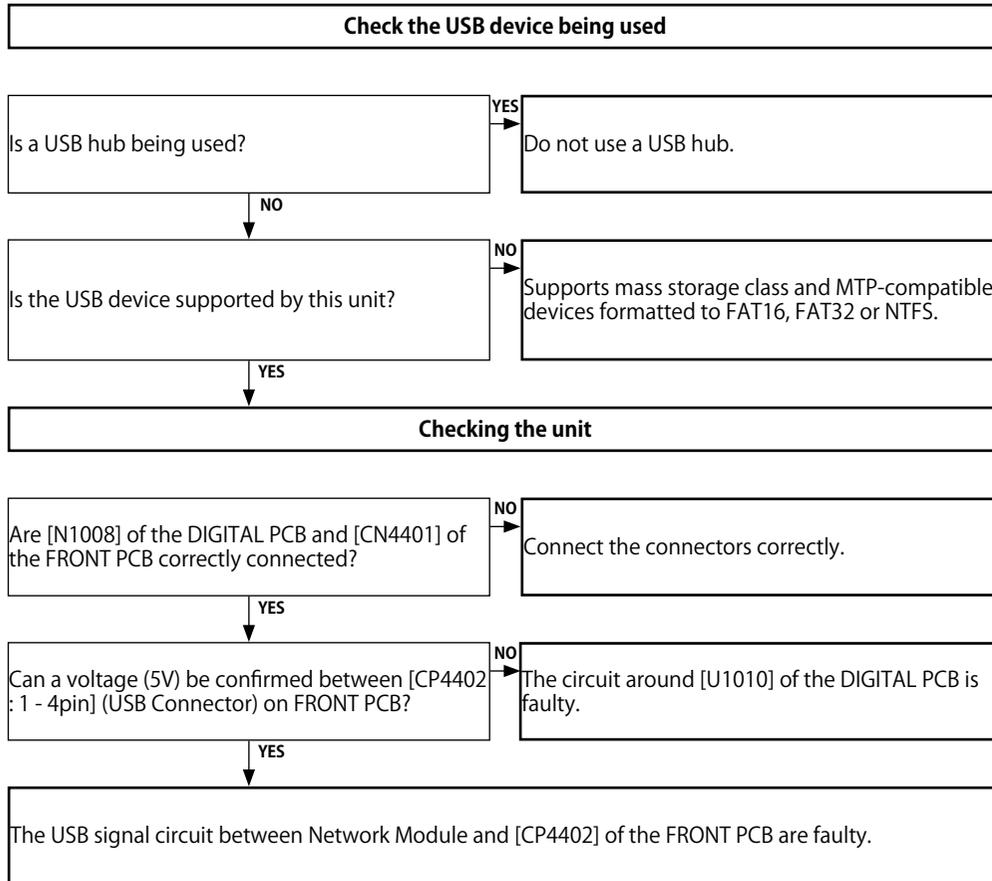
Go to next page.



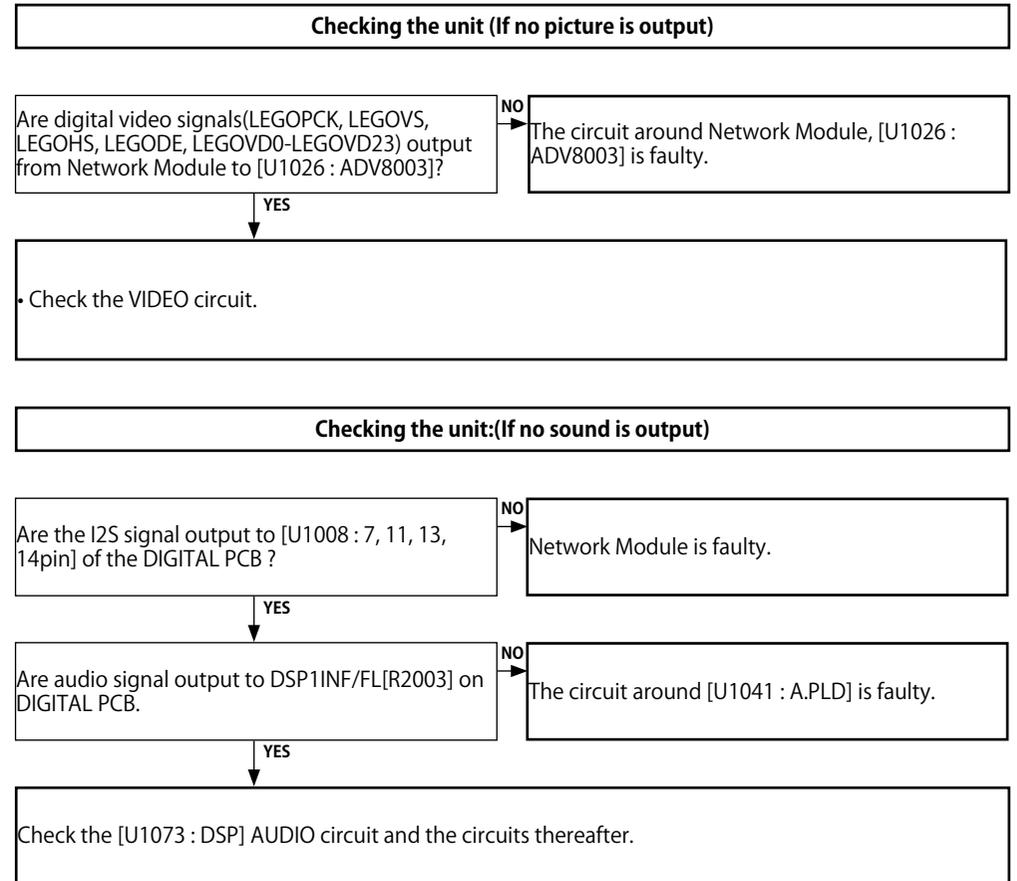
5.2. Cannot establish a Bluetooth connection



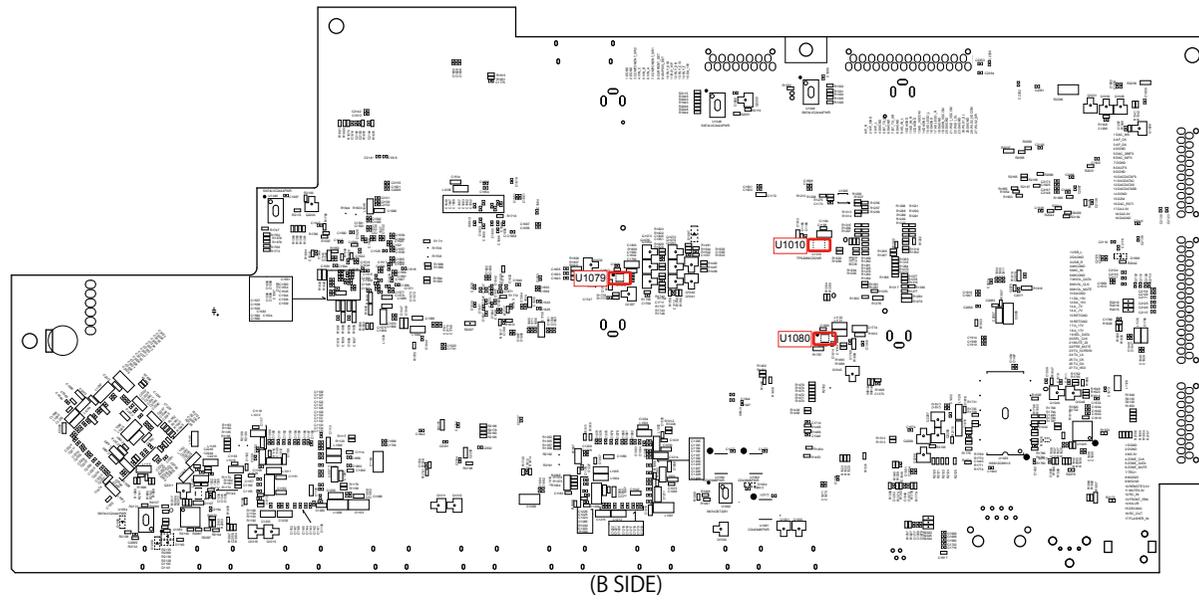
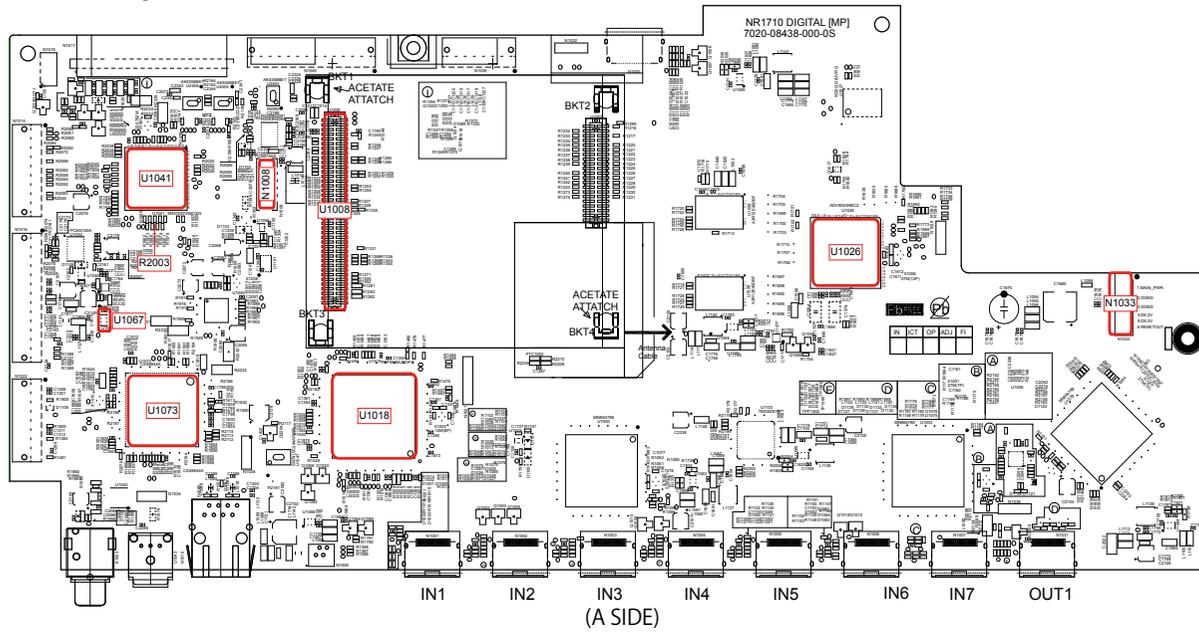
5.3. Cannot recognize the connected USB device



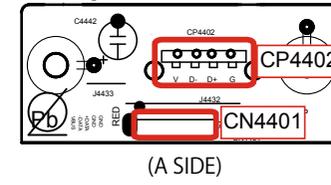
5.4. No picture or sound is output



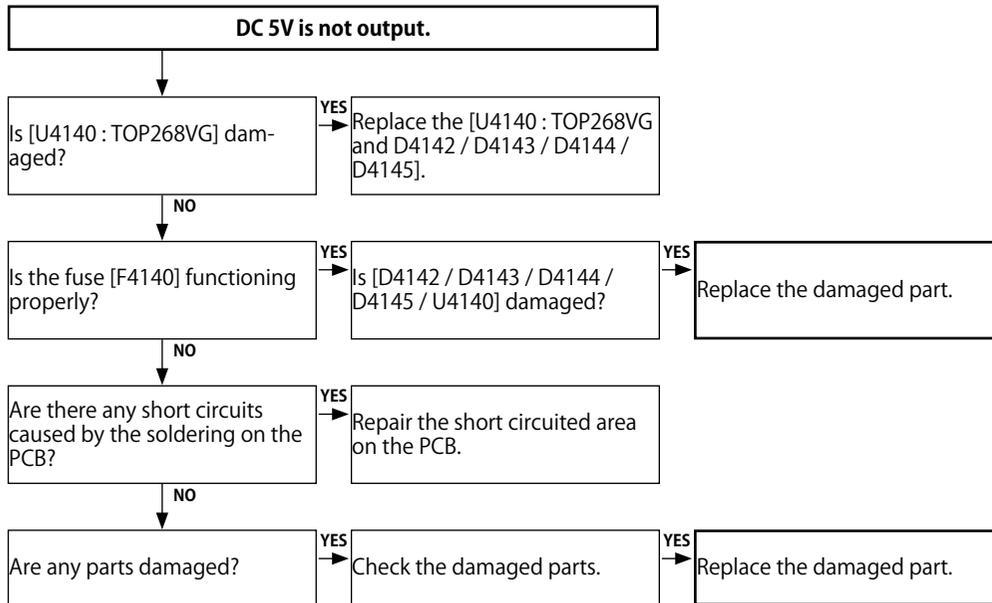
DIGITAL test point



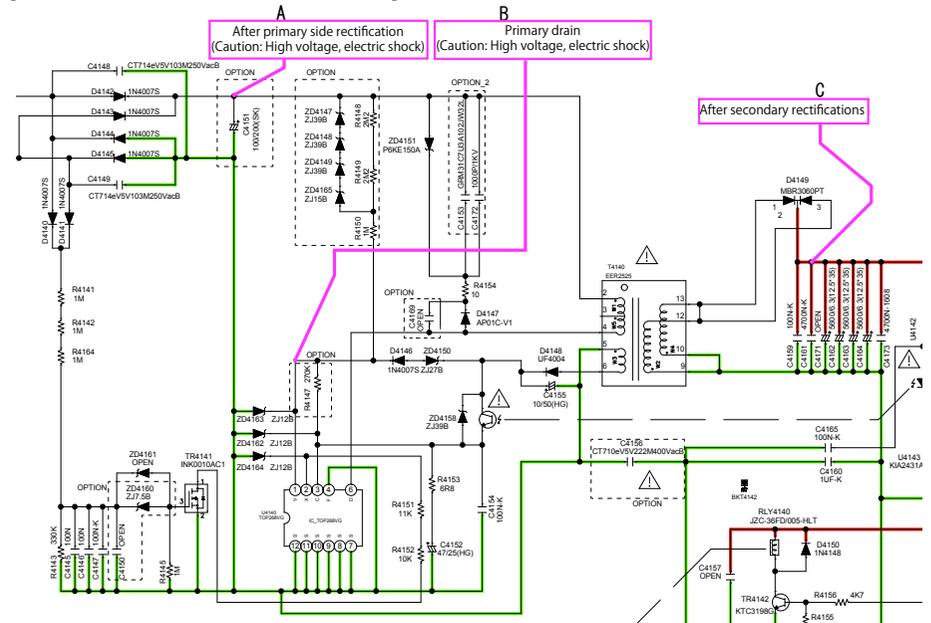
USB test point



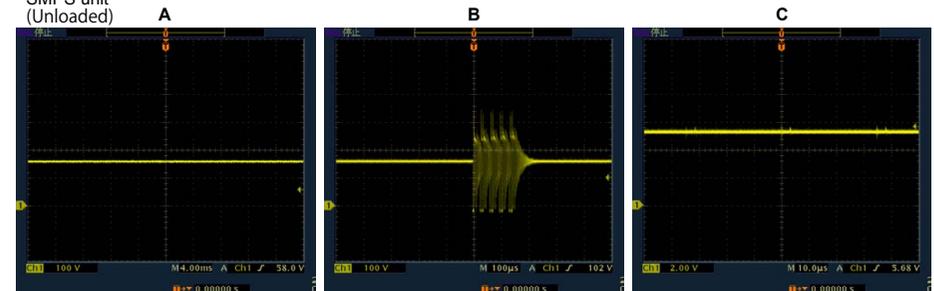
6. SMPS



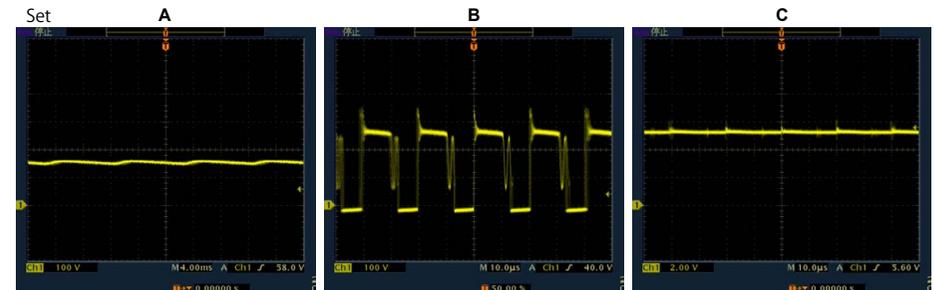
Operation waveform for each part



SMPS unit (Unloaded)



Set



Before Servicing
This Unit

Electrical

Mechanical

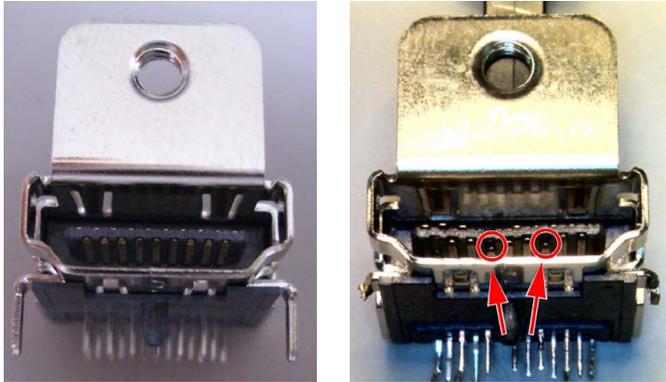
Repair Information

Updating

HDMI "Rx/Tx" Failure Detection

1. Prior checking

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



OK

NG

Check for deformed pins.

None of the pins are deformed.

There are deformed pins.

Replace the HDMI connector.

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) 8U-210100S WRITING KIT
- 8) 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.

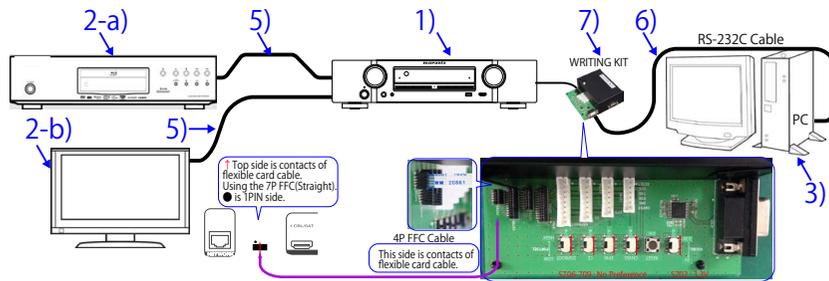


Figure 1 Device Connection Method (NR1710)

2-3. Device configuration method

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

After executing Termite.exe, click [Settings].

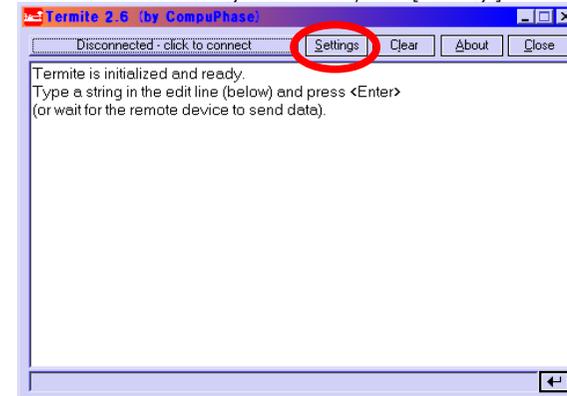


Figure 2. Screen After Executing Termite.exe

The serial port setup screen will be displayed.

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

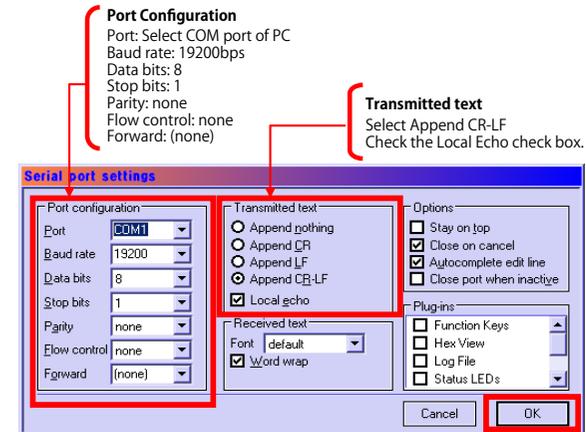


Figure 3. Serial Port Setup Screen

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.

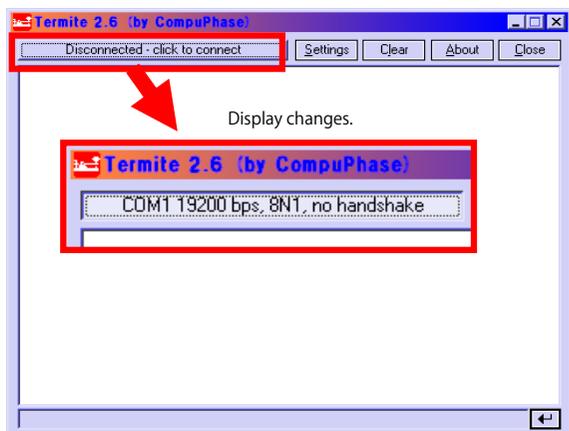


Figure 4. Change of the Display of the Communication Start Button Name

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 "M-DAX" and "ZONE2 SOURCE" 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.

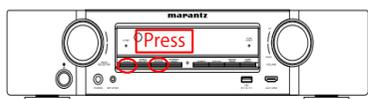


Figure 6-1. AVR settings (NR1710)



Figure 6 FLD Display When Set

When the settings are correct, the following message will be displayed in the window of Termite.
 [00]Start Sub CPU Log Mode

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

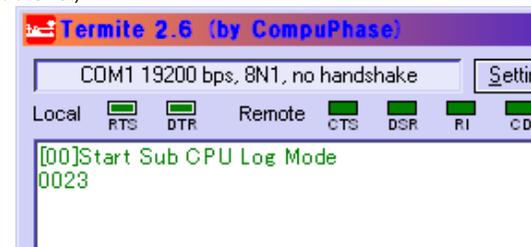


Figure 7. Display of Termite When AVR is Set

The setup is now complete.

Method for sending commands

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

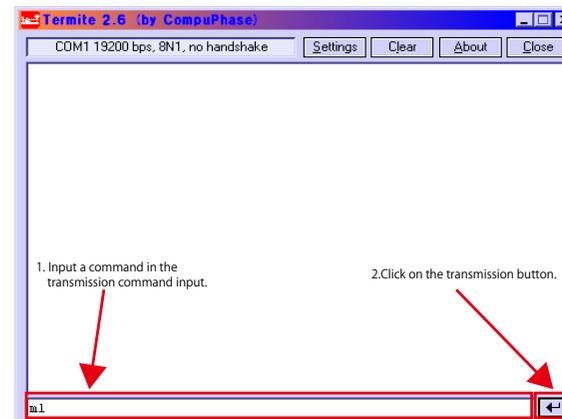


Figure 8. Method for Sending Termite Commands

3. Starting detecting the point of failure

Check item(3.1).

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

Start in HDMI Diagnostics mode

While the power is on, hold down buttons "DIMMER" and "M-DAX" for at least 3 seconds.

HDMI DIAGNOSTICS

↓ "HDMI DIAGNOSTICS" is displayed.

When the mode has switched, start Hardware Check.

HardwareCheck...



Display when an Error is detected.

Err: H1-XX

↓↑ Alternating display.

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 [U1039 : MN864788]
H1-02	Check item (3-2.1)	Communication Error with HDMI SW1 [U1000 : MN864788]
H1-03	Check item (3-3.1)	Communication Error with HDMI SW2 [U1003 : MN864788]
H1-04	Check item (3-7.1)	Communication Error with TMDS SW [U1103 : TMDS261B]
H1-06	Check item (3-4.1)	Communication Error with GUI IC [U1026 : ADV8003]
H1-08	Check item (3-8.1)	Communication Error with DSP [U1073 : CS49844A]
H1-12	Check item (3-9.1)	Communication Error with DIR [U1040 : PCM9211]
H1-14	Check item (3-5.1)	DDR check Error [U1028, U1029 : A3R12E40DBF-8E]
H1-15	Check item (3-6.1)	Communication Error with GUI ROM [U1027 : W25Q128JVFIQ]
H1-16	Check item (3-10.1)	Communication Error with ARC IC [U1009 : SiI9437]

Display when an Error is not detected.

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). : Check operation of the HDMI input terminal.



When the HDMI input terminal of this device is connected to the player correctly, is sound heard from the speaker?
 ※ When checking, turn the AV amplifier on and off after checking the connection terminal with the player. (To set the same conditions during verification of operation)

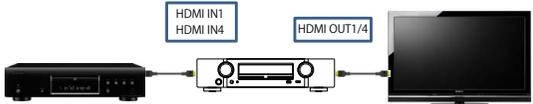
Check that sound is heard from the input terminal of the HDMI 1-7.
 Use any of Dolby TrueHD/DTSHD MA/PCM 8ch for the playback audio format.

NO
 Is the "DIG" indicator illuminated on the FLD?
 When the "DIG" indicator is illuminated, the digital audio block is faulty.
 If the "DIG" indicator is not illuminated, go to **check item (3-11.1.)**.
 (HDMI RX IC [MN864788] failure detection procedure)

Check that sound is heard from the input terminal of the FRONT AUX.

NO
 Go to **check item (3-12.1.)**.
 (HDMI DDC Buffer [TCA9517] failure detection procedure)

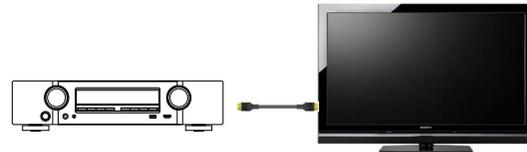
Check item(3.3). :
 (1) Turn Video Conversion "OFF" on the setup menu.
 (Setup Menu - Video - Output Settings - Video Conversion)
 (2) Does a video signal come from HDMI OUT to TV correctly?



When the player is connected in order to the HDMI input terminals (HDMI1, 4), in each case is the player video played back on the TV connected to the HDMI output terminal (HDMI OUT)?

NO
 Go to **check item (3-13.1.)**.
 HDMI transmission IC [MN864788] failure detection procedure

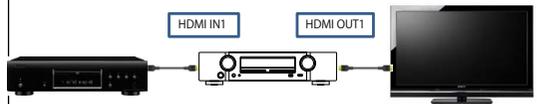
Check item(3.4). : Check operation of the HDMI output terminal.



When the "SETUP" button on a remote control is pressed, is "MENU" displayed on TV which is connected to the HDMI output terminal on the AVR?

NO
 Go to **check item (3-14.1.)**.
 (GUI IC [ADV8003] failure detection procedure 2)

Check item(3.5). :
 (1) Turn Video Conversion "ON" on the setup menu.
 (Setup Menu - Video - Output Settings - Video Conversion)
 (2) Does a video signal come from HDMI OUT1 to TV correctly?



When the player is connected to the HDMI input terminals in order, are the images on the player displayed on the TV in both cases?

NO
 Go to **check item (3-15.1.)**.
 (HDMI SW IC [TMDS261B] failure detection procedure)

YES
 There is no problem with Rx, Tx, and GUI of HDMI as well as IC of SW.

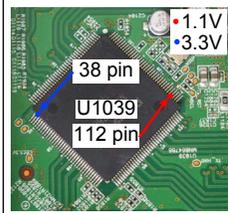
3-1. Error Code H1-01 failure detection procedure

Checking device. [U1039 : MN864788]

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 [U1039] 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 [U1064/U1066] and the pattern on the substrate.
If there is no problem, remove the HDMI Tx [U1039] 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

NO

Replace with a new device.

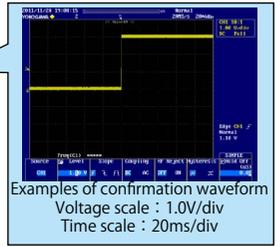
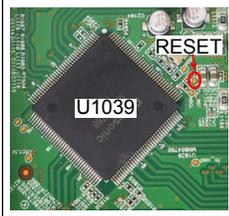
The power supply circuit is faulty.
Replace the PCB.

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

Checking the reset waveform. (HDMI Tx)

Check item(3-1.3). Checking the reset waveform :
Check the CPU.
Is the "RESET" waveform of the TP near the HDMI Tx [U1039] correct (like the one shown in the diagram) when the power is turned on?

HDMI Tx

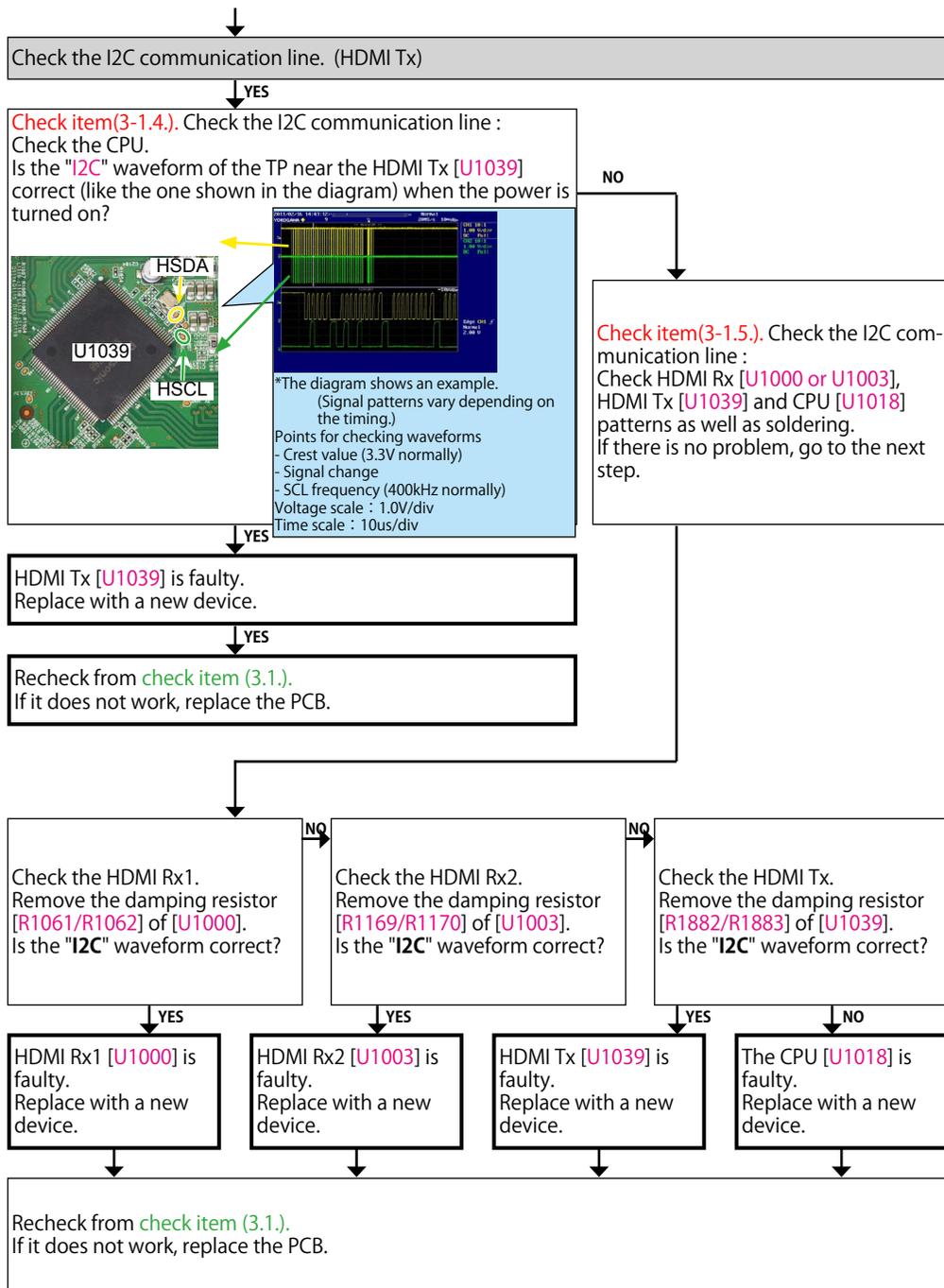


NO

Check the reset circuit between CPU [U1018] and HDMI Tx [U1039].
If there is no problem, the HDMI Tx [U1039] 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.



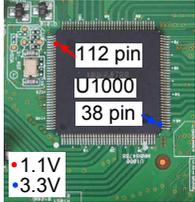
3-2. Error Code H1-02 failure detection procedure

Checking device. [U1000 : MN864788]

Check the power supply voltage. (HDMI Rx)

Check item(3-2.1). Check the power supply voltage. :
Does the power supply voltage of the HDMI Rx1 [U1000] indicate the correct voltage (1.1V, 3.3V)?
The test points are as follows.

HDMI Rx1



YES

NO

Check item(3-2.2). Check the power supply voltage. :
Check the power components [U1063/U1066] and the pattern on the substrate.
If there is no problem, remove the HDMI Rx1 [U1000] 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

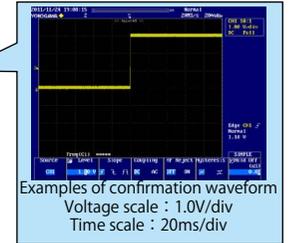
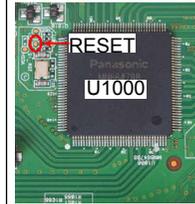
Replace with a new device.

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 Rx)

Check item(3-2.3). Checking the reset waveform :
Check the waveform.
Is the "RESET" waveform of the TP near the HDMI Rx1 [U1000] correct (like the one shown in the diagram) when the power is turned on?
HDMI Rx1

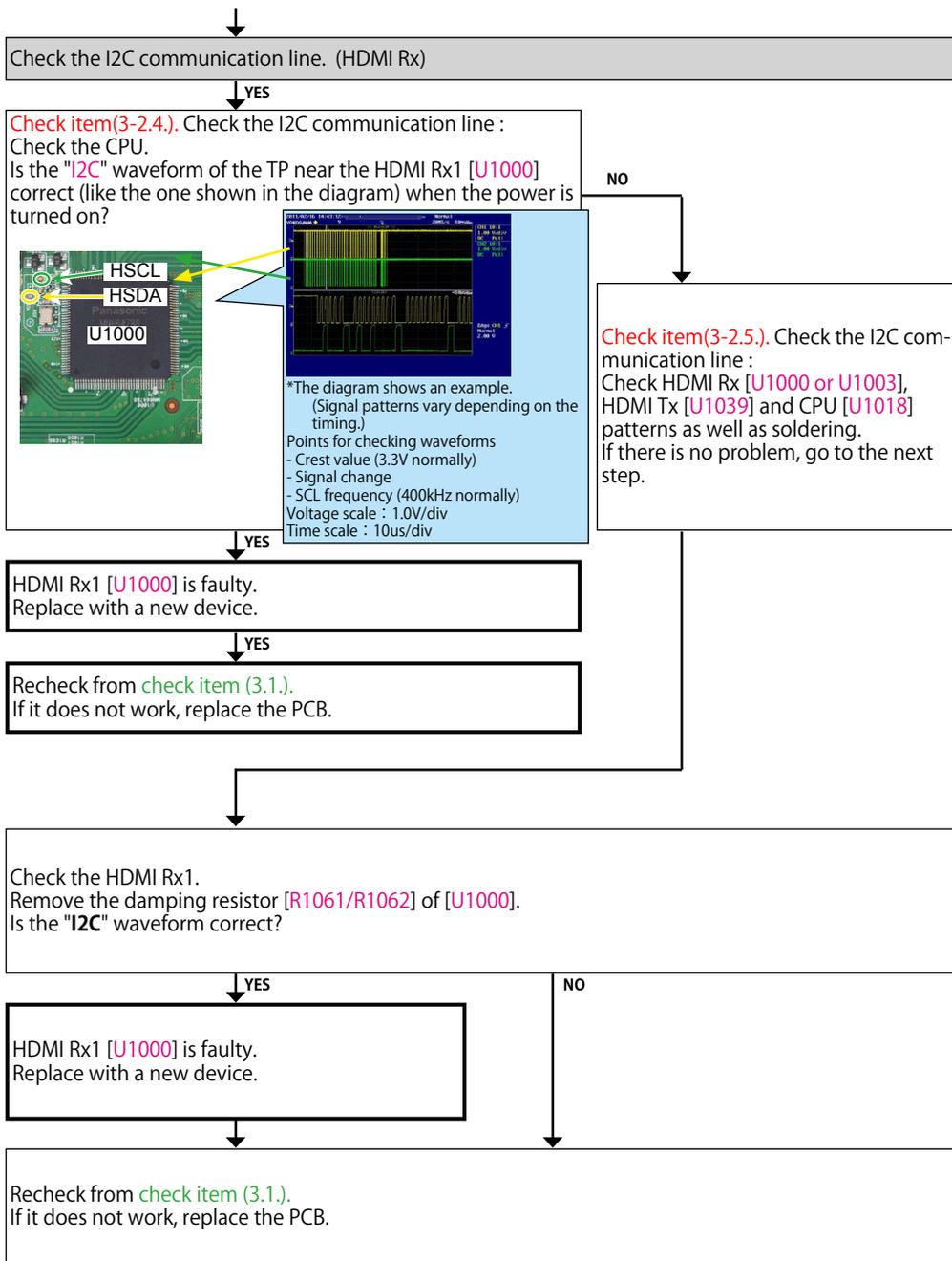


NO

Check the reset circuit between CPU [U1018] and HDMI Rx1 [U1000].
If there is no problem, the HDMI Rx1 [U1000] 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.

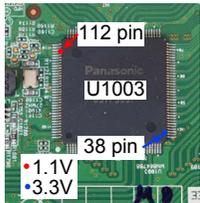


3-3. Error Code H1-03 failure detection procedure

Checking device. [U1003 : MN864788]

Check the power supply voltage. (HDMI Rx)

Check item(3-3.1). Check the power supply voltage. :
Does the power supply voltage of the HDMI Rx2 [U1003] indicate the correct voltage (1.1V, 3.3V)?
The test points are as follows.
HDMI Rx2



YES

NO

Check item(3-3.2). Check the power supply voltage. :
Check the power components [U1065] and the pattern on the substrate.
If there is no problem, remove the HDMI Rx2 [U1003] 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

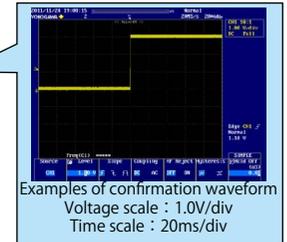
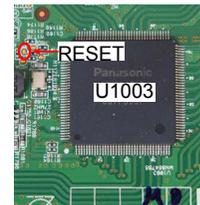
Replace with a new device.

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 Rx)

Check item(3-3.3). Checking the reset waveform :
Check the waveform.
Is the "RESET" waveform of the TP near the HDMI Rx2 [U1003] correct (like the one shown in the diagram) when the power is turned on?
HDMI Rx2

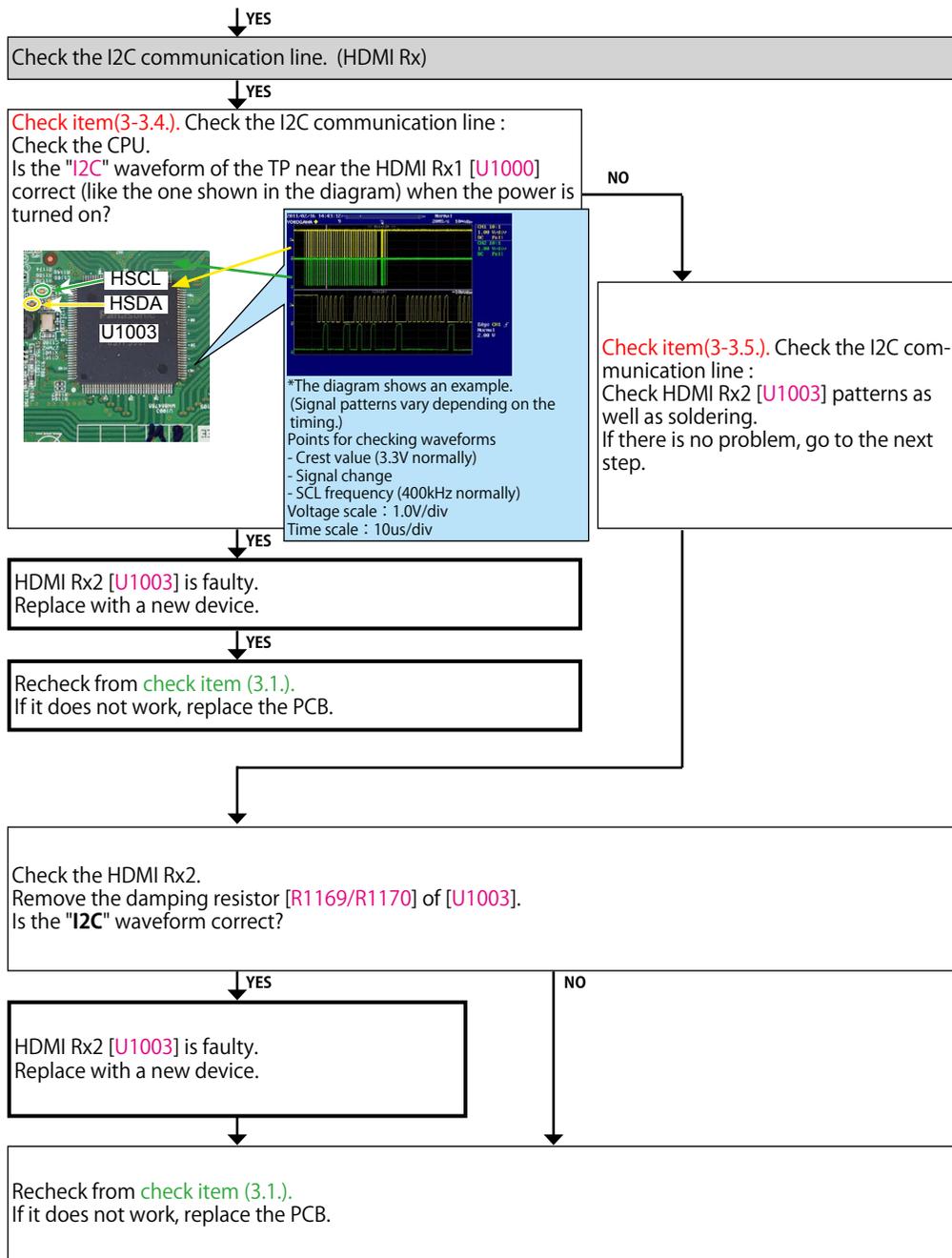


NO

Check the reset circuit between CPU [U1018] and HDMI Rx2 [U1003].
If there is no problem, the HDMI Rx2 [U1003] 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.

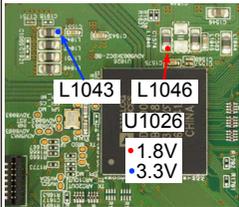


3-4. Error Code H1-06 failure detection procedure

Checking device. [U1026 : ADV8003]

Check the power supply voltage.

Check item(3-4.1). Check the power supply voltage. :
Does the power supply voltage of the GUI [U1026] indicate the appropriate voltage (1.8V, 3.3V)?
The test points are as follows.



Check item(3-4.2). Check the power supply voltage. :
Check the power supply components [U1069/ U1077] on the substrate and peripheral pattern. If there is no problem, remove the GUI [U1026] 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

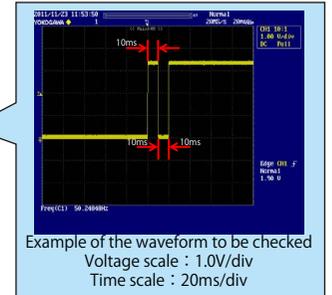
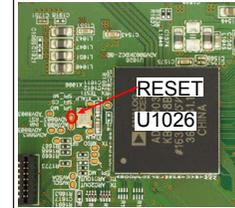
The power supply circuit is faulty.
Replace the PCB.

GUI [U1026] 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 [U1026] correct (like the one shown in the diagram) when the power is turned on?



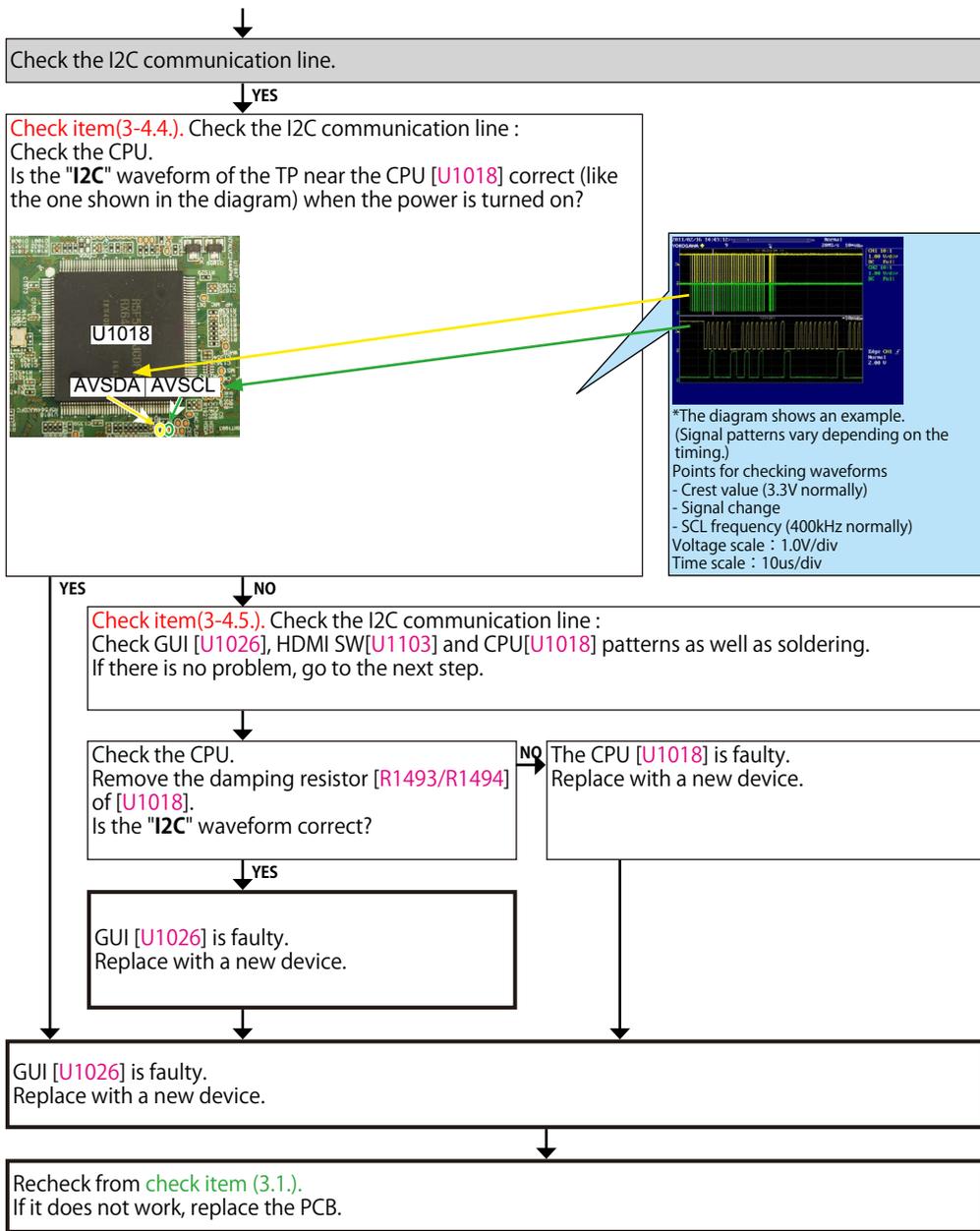
YES

NO

Check the reset circuit between CPU [U1018] and GUI [U1026].
If there is no problem, the GUI [U1026] 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. [U1028/U1029 : A3R12E40DBF-8E]

Check item(3-5.1).

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

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

Checking device. [U1027 : W25Q128JVFIQ]

Check item(3-6.1).
Write to the GUI ROM.

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

NO

YES

Check item(3-6.2).
Replace [U1029] with a new device.

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

NO

YES

Go to check item (3-4.1).

Recheck from check item (3.2).

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

Checking device. [U1103 : TMDS261B]

Check item(3-7.1).
Replace [U1103] with a new device.
Recheck from check item (3.1).
Does Error Code H1-04 continue?

NO

YES

Replace the PCB.

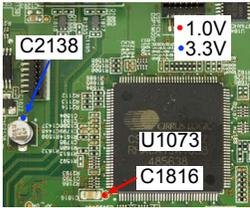
Recheck from check item (3.2).

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

Checking device. [U1073 : CS49844A]

Check the power supply voltage.

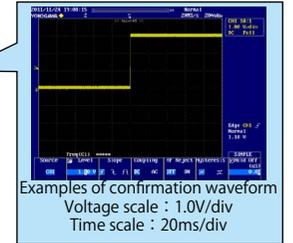
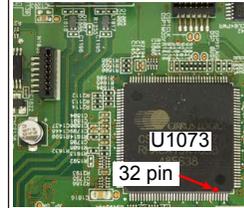
Check item(3-8.1). Check the power supply voltage.:
Does the power supply voltage of the DSP [U1073] indicate the appropriate voltage (1.0V, 3.3V)?
The test points are as follows.



Check item(3-8.2). Check the power supply voltage.:
Check the power supply components [U1067/ U1068/U1078] on the substrate and peripheral pattern.
If there is no problem, remove the DSP [U1073] from the substrate and measure the voltage at the test point of **check item (3-8.1)**.
Is the voltage correct (1.0V or 3.3V)?

Checking the reset waveform.

Check item(3-8.3). Checking the reset :
Check the CPU.
Is the waveform of the TP near the DSP [U1073] correct (like the one shown in the diagram) when the power is turned on?



YES

YES

NO

YES

NO

The power supply circuit is faulty.
Replace the PCB.

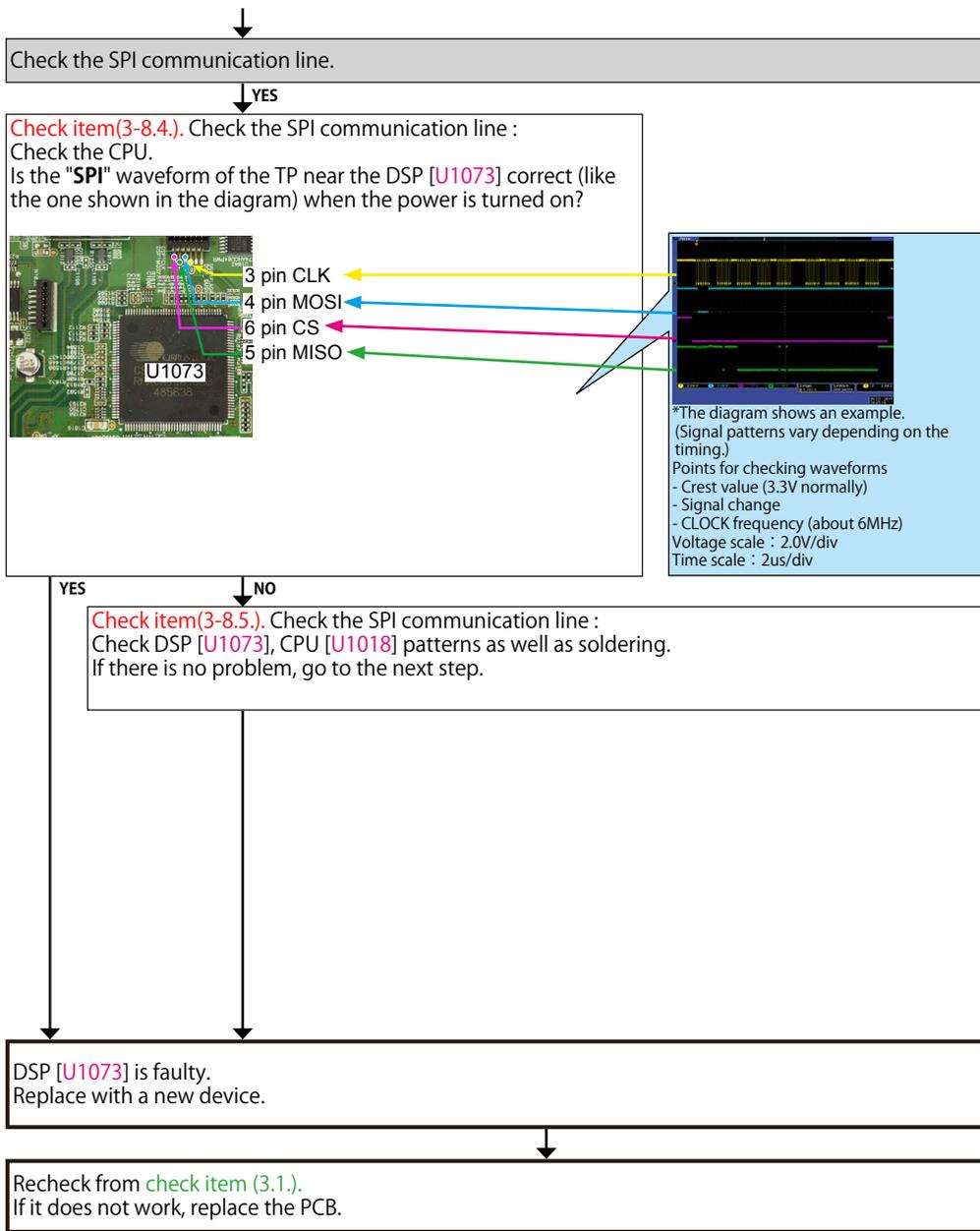
DSP [U1073] is faulty.
Replace with a new device.

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

Check the reset circuit between CPU [U1018] and DSP [U1073].
If there is no problem, the DSP [U1073] 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.



3-9. Error Code H1-12 failure detection procedure

Checking device. [U1040 : PCM9211]

Check the power supply voltage.

Check item(3-9.1). Check the power supply voltage.:
Does the power supply voltage of the DIR [U1040] indicate the appropriate voltage (3.3V)?
The test points are as follows.



Check item(3-9.2). Check the power supply voltage.:
Check the power supply components [U1067/ U1078] on the substrate and peripheral pattern.
If there is no problem, remove the DIR [U1040] from the substrate and measure the voltage at the test point of **check item (3-8.5)**.
Is the power supply voltage correct (3.3V)?

YES

YES

NO

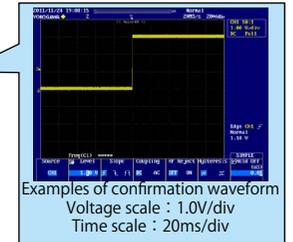
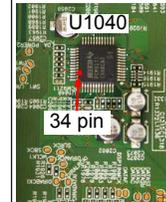
The power supply circuit is faulty.
Replace the PCB.

DIR [U1040] 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(3-9.3). Checking the reset :
Check the CPU.
Is the waveform of the TP near the DIR [U1040] correct (like the one shown in the diagram) when the power is turned on?



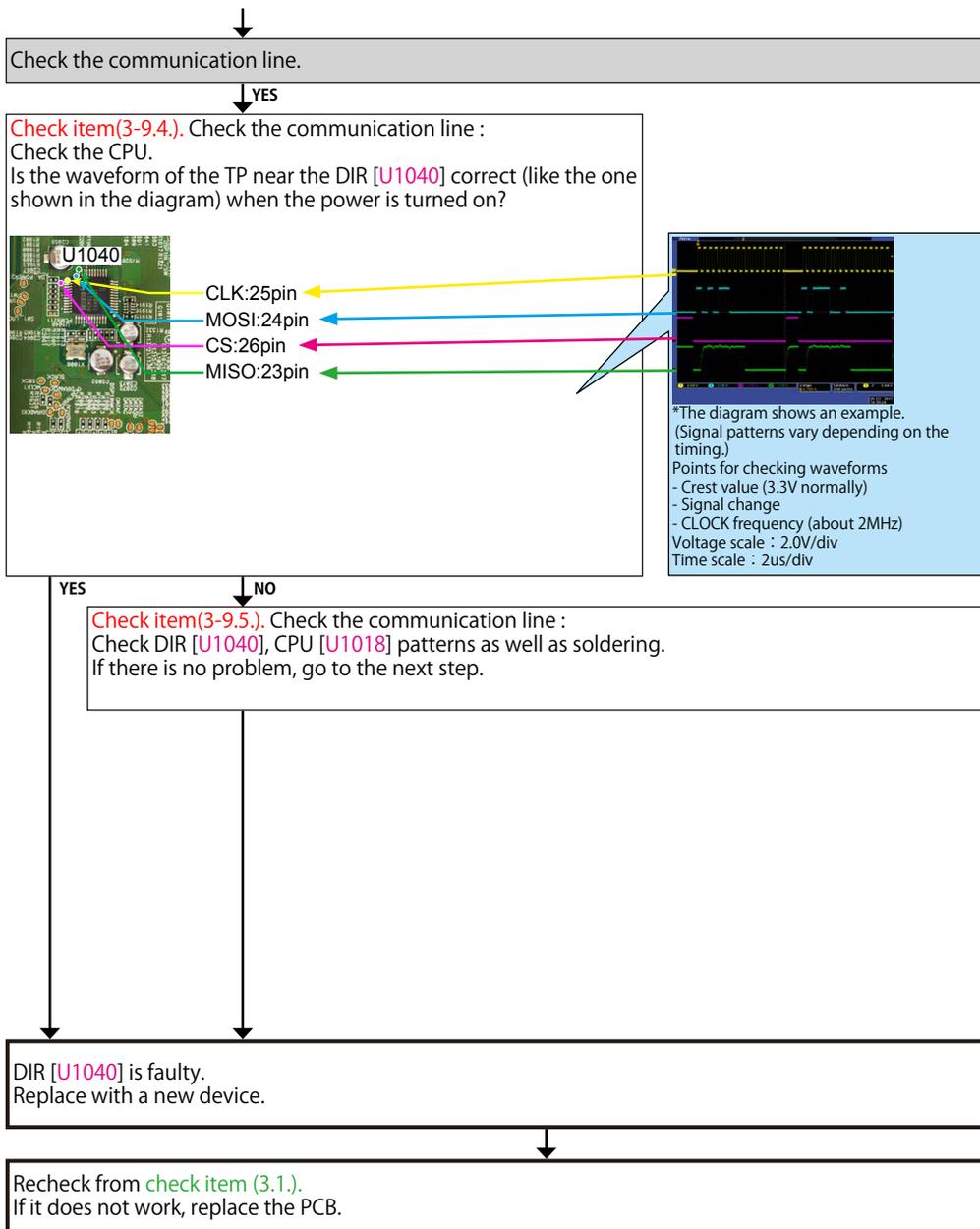
YES

NO

Check the reset circuit between CPU [U1018] and DIR [U1040].
If there is no problem, the DIR [U1040] 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.

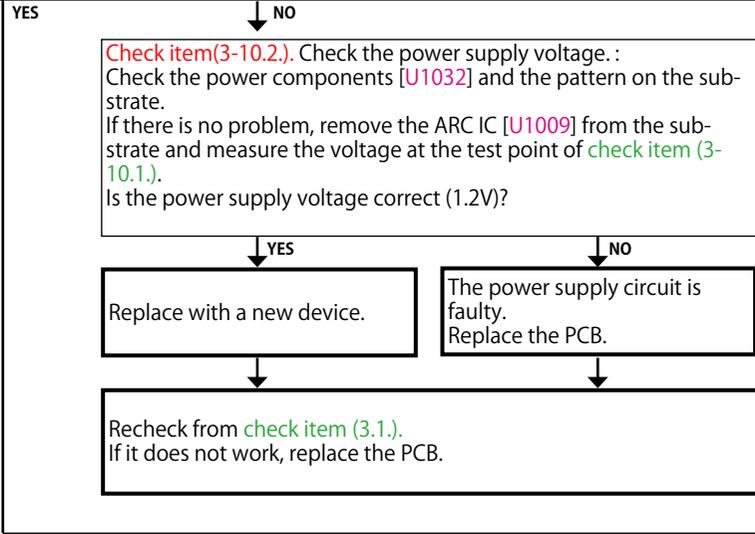


3-10. Error Code H1-16 failure detection procedure

Checking device. [U1009 : Sil9437]

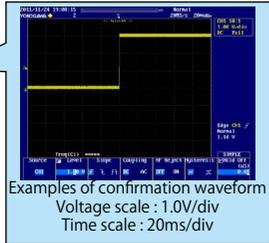
Check the power supply voltage. (ARC IC)

Check item(3-10.1). Check the power supply voltage. :
Does the power supply voltage of the ARC IC [U1009] indicate the correct voltage (1.2V)?
The test points are as follows.

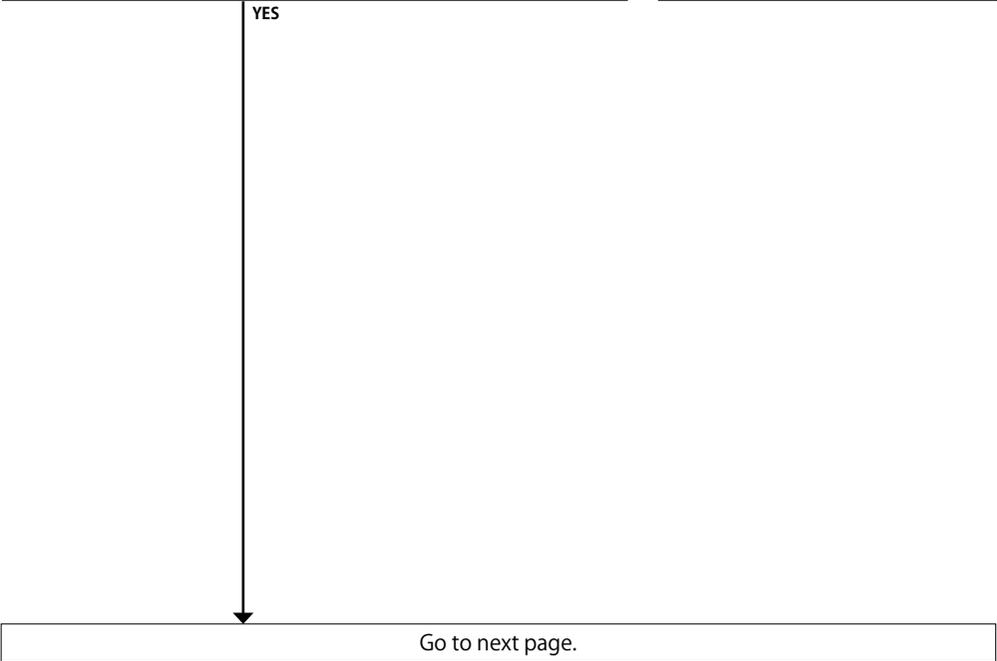
Checking the reset waveform. (ARC IC)

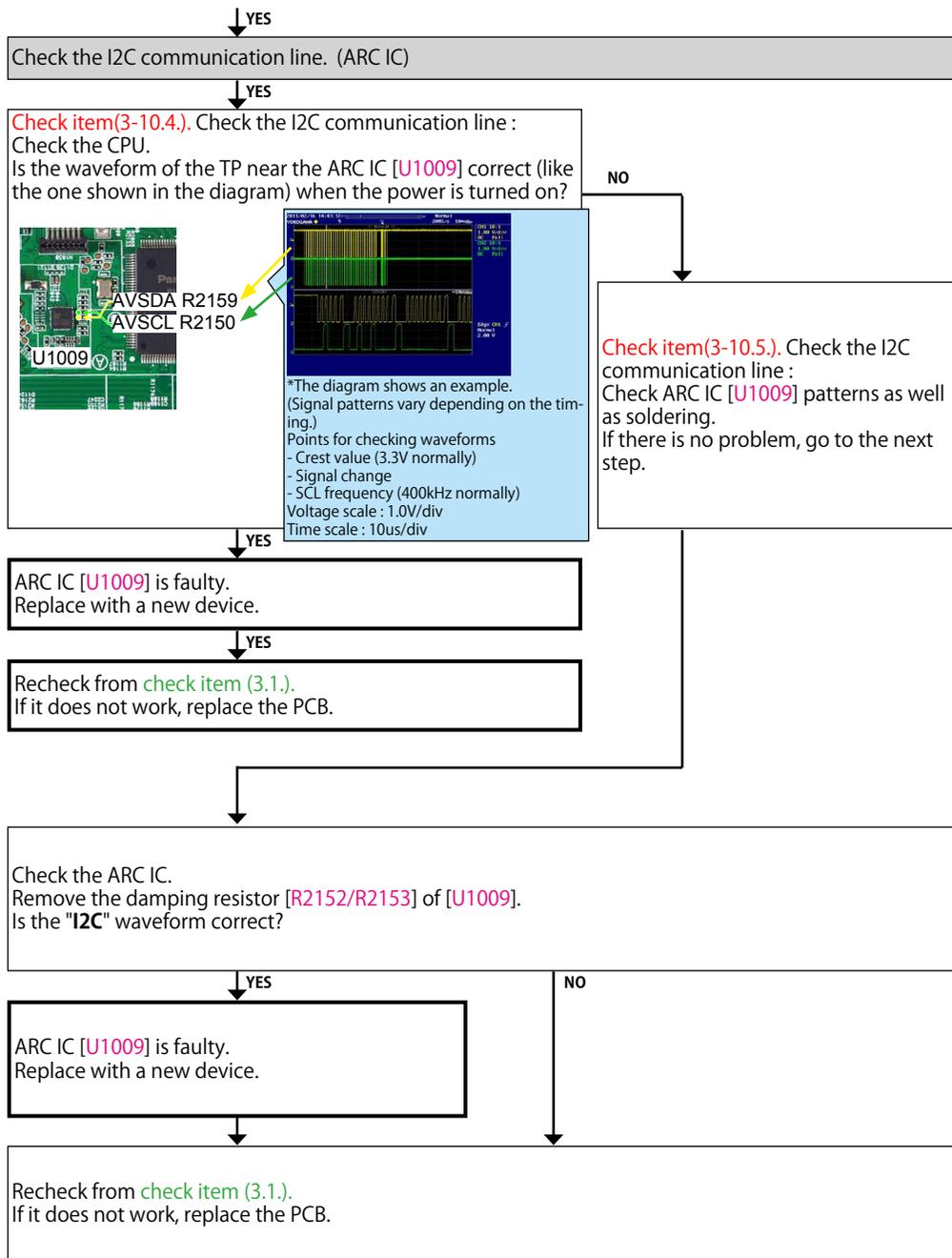
Check item(3-10.3). Checking the reset waveform :
Check the waveform.
Is the "RESET" waveform of the ARC IC [U1009] correct (like the one shown in the diagram) when the power is turned on?
HDMI Rx2

NO

Check the reset circuit between CPU [U1018] and ARC IC [U1009].
If there is no problem, the ARC IC [U1009] is faulty.
Replace with a new device.
Recheck from **check item (3.1.)**.
If it does not work, replace the PCB.





3-11. HDMI Rx [MN864788] failure detection procedure

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



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

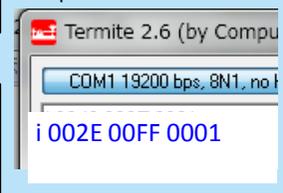
Checking the +5V/DDC status register (HDMI Rx)

Check item(3-11.1). Checking the 5V status register :
Send the following command from Termite.exe.

HDMI Rx1 (When checking HDMI inputs 1, 2, and 3)
Send the command "i 002E 00FF 0001".
HDMI Rx2 (When checking HDMI inputs 4, 5, 6, and 7)
Send the command "i 0056 00FF 0001".

Move to the branch destination according to the value returned.

Example



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

Go to **check item (3-11.3).**

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

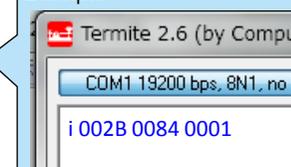
Check item(3-11.2). Checking the DDC status register :
Send the following command from Termite.exe.

HDMI Rx1 (When checking HDMI inputs 1, 2, and 3)
Case of HDMI IN1
Send the command "i 002B 0084 0001".
Case of HDMI IN2
Send the command "i 002B 0054 0001".
Case of HDMI IN3
Send the command "i 002B 0024 0001".

HDMI Rx2 (When checking HDMI inputs 4, 5, 6, and 7)
Case of HDMI IN4
Send the command "i 0053 00B4 0001".
Case of HDMI IN5
Send the command "i 0053 0084 0001".
Case of HDMI IN6
Send the command "i 0053 0054 0001".
Case of HDMI IN7
Send the command "i 0053 0024 0001".

Move to the branch destination according to the value returned.

Example



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

Go to **check item (3-11.4).**

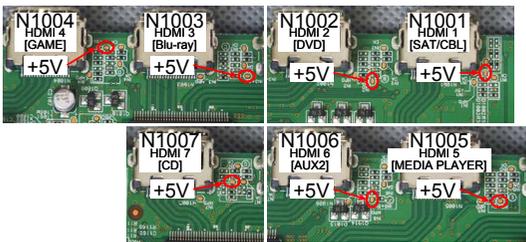
"22"
(Detection of DDC is OK)

Go to **check item (3-11.5).**

When the results of check item (3-11.1.) are "00"
(Detection of 5V is not OK)

Check the +5V voltage. (HDMI Rx)

Check item(3-11.3.). Check the +5V voltage.
Does "+5V" at the following test point indicate 5V?



YES

NO

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

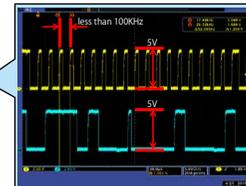
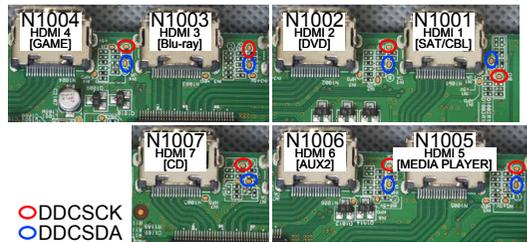
Check for a short circuit in the 5V line and the 5V Switch IC [U1002].
If there is no problem, the HDMI Rx [U1000 or U1003] or the 5V Switch IC [U1002] is faulty.
Replace with a new device.

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

When the results of check item (3-11.2.) are "00 or 04"
(Detection of DDC is not OK.)

Check the DDC line. (HDMI Rx)

Check item(3-11.4.). Check the DDC line :
Are waveforms of "DDCSCK" and "DDCSDA" observed at the test point near the HDMI input terminal?



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

YES

NO

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

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

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

Before Servicing
This Unit

Electrical

Mechanical

Repair Information

Updating

When the results of check item (3-11.2.) are "22"
(Detection of DDC is OK.)

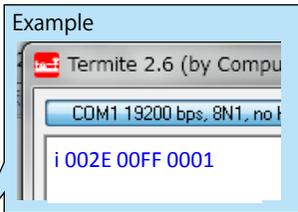
Checking the TMDS status register

Check item(3-11.5). Checking register of the TMDS CLK detection status register :
Send the following command from Termit.exe.

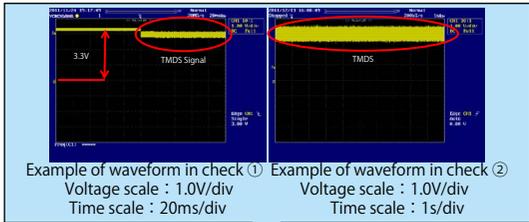
HDMI Rx1 (When checking HDMI inputs 1, 2, and 3)
Send the command "i 002E 00FF 0001".
Rx2 (When checking HDMI inputs 4, 5, 6, and 7)
Send the command "i 0056 00FF 0001".

When the following value is returned, go to Yes.
HDMI IN1 "44" HDMI IN2 "22" HDMI IN3 "11" HDMI IN4 "88" HDMI IN5 "44" HDMI IN6 "22" HDMI IN7 "11"

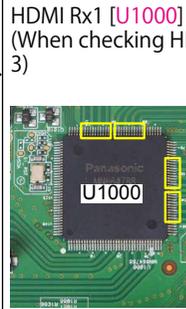
When the following value is returned, go to No.
HDMI IN1 "40" HDMI IN2 "20" HDMI IN3 "10" HDMI IN4 "80" HDMI IN5 "40" HDMI IN6 "20" HDMI IN7 "10"



NO



Check item(3-11.6). Checking the TMDS input waveform. :
Check the TMDS waveform at the following test point.
Is the waveform like the sample?



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

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

YES

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

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

NO

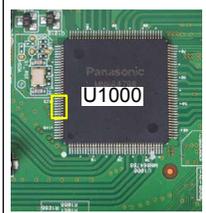
Check for a short circuit in the pattern of the TMDS line of the HDMI Rx [U1000 or U1003] from the HDMI input terminal.
If there is no problem, the HDMI Rx [U1000 or U1003] is faulty.
Replace with a new device.

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

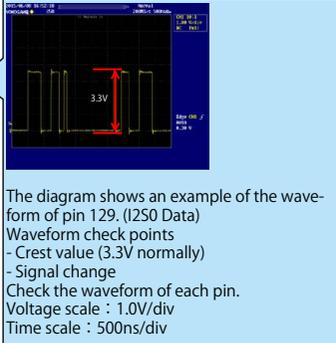
Check item(3-11.7). Checking the audio signal output :
Check the audio signal waveform at the following test point.
Is the waveform like the sample?

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

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



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



YES

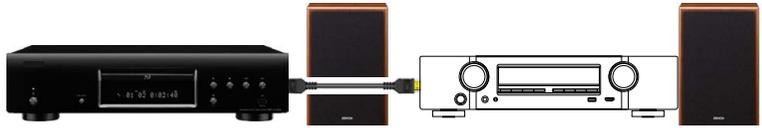
The digital audio block is faulty.
Check the digital audio device.
Check "AUDIO" in troubleshooting.
If it does not work, replace the PCB.

NO

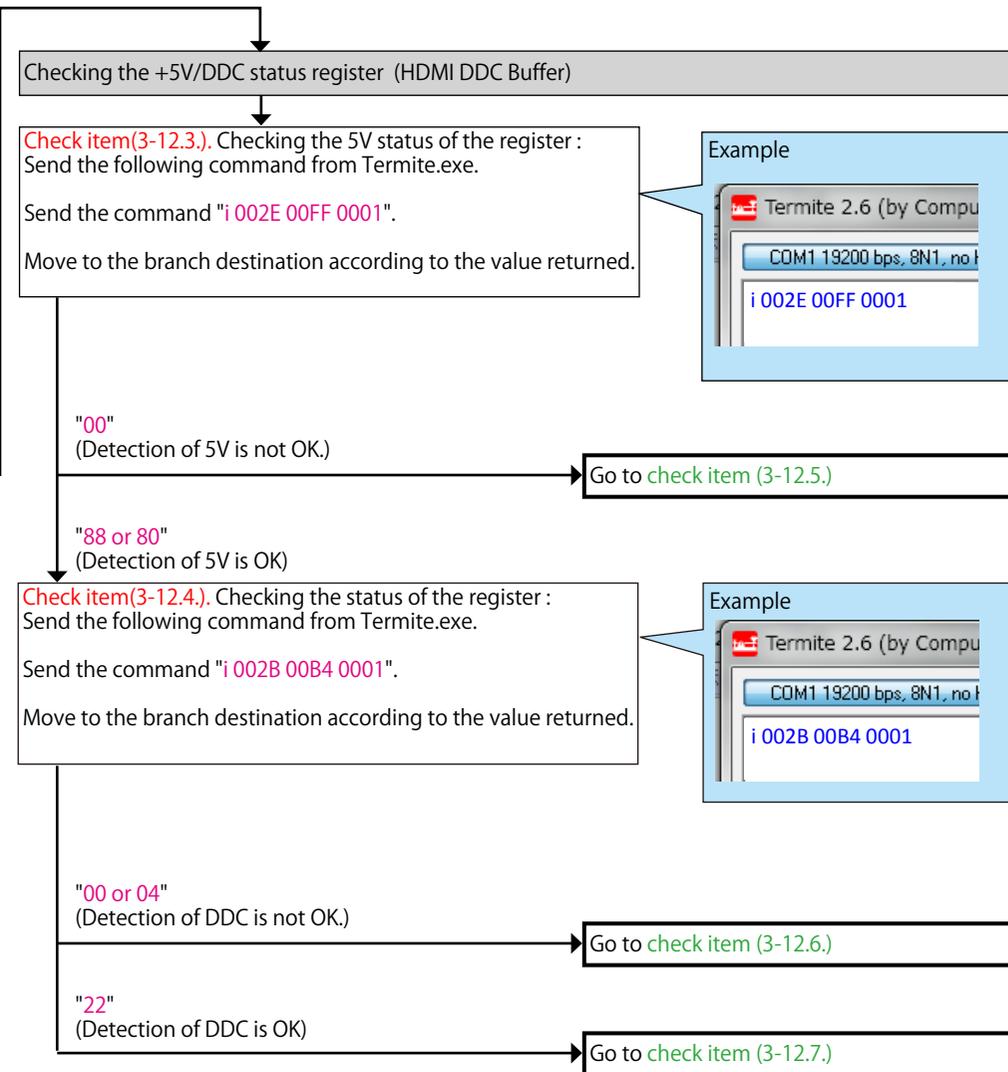
HDMI Rx [U1000 or U1003] is faulty.
Replace with a new device.

3-12. HDMI DDC Buffer [TCA9517] failure detection procedure

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



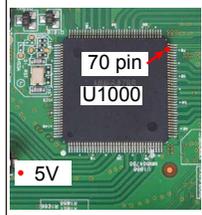
※ In order to check, connect the player to the HDMI terminal and configure the player as AVR source. Check the sound output while turning on the player.



When the results of check item (3-12.3.) are "00"
(Detection of 5V is not OK.)

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

Check item(3-12.5). Check the +5V voltage :
Does "+5 V" at the following test point indicate 5V?
The test points are as follows.



NO
Check for a short circuit in the 5V line, the
Front HDMI Cable, and the 5V Switch [U1002].
If there is no problem, the HDMI Rx1 [U1000]
or the 5 V Switch [U1002] is faulty.
Replace with a new device.

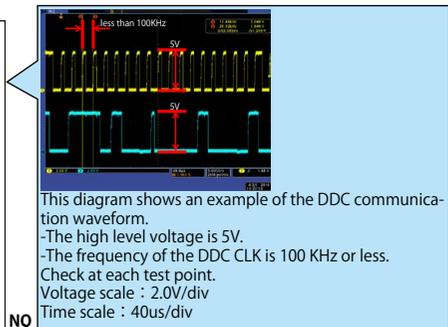
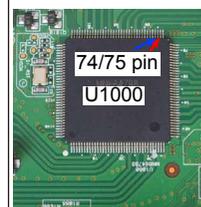
YES
HDMI Rx1 [U1000] is faulty.
Replace with a new device.

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

When the results of check item (3-12.4.) are "00 or 04"
(If the DDC are not OK)

Check the DDC line. (HDMI DDC Buffer)

Check item(3-12.6). Check the DDC line :
Does "DDCCL / DDCDA" signal of the RX1 [U1000]
indicate 5 V?
The test points are as follows.



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

YES
HDMI Rx1 [U1000] is faulty.
Replace with a new device.

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

Before Servicing
This Unit

Electrical

Mechanical

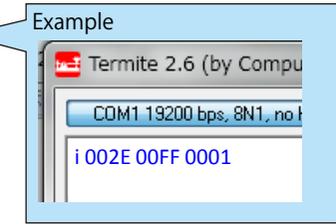
Repair Information

Updating

When the results of check item (3-12.4.) are "22"
(Detection of DDC is OK)

Checking the TMDS status register

Check item(3-12.7). Check the TMDS CLK detection status of the register :
Send the following command from Termite.exe.
Send the command "i 002E 00FF 0001".
When the following value is returned, go to Yes.
"88"
When the following value is returned, go to No."80"



NO

YES

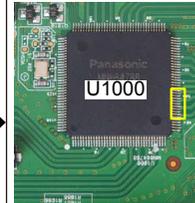
HDMI Rx1 [U1000] is faulty.
Replace with a new device.

HDMI Rx1 [U1000] is faulty.
Replace with a new device.

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

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

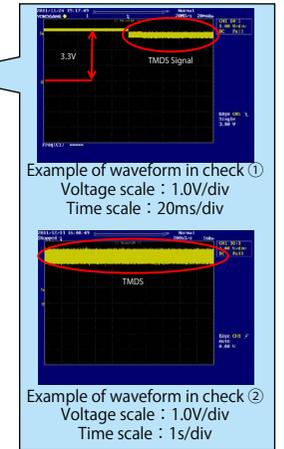
Check item(3-12.8). Checking the TMDS input waveform :
Check the TMDS waveform at the following test point.
Is the waveform like the sample?
HDMI Rx1 [U1000]



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

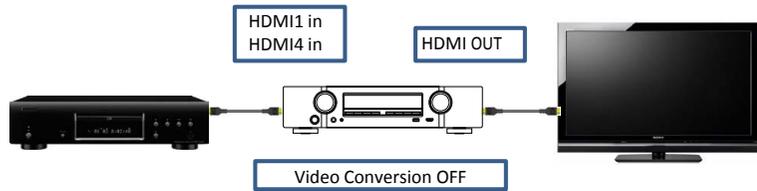
YES

NO



3-13. HDMI transmission IC [MN864788] failure detection procedure

Checking operation between the HDMI (Rx) device and the HDMI device (Tx).
Checking operation between the HDMI (Tx) device and TV.

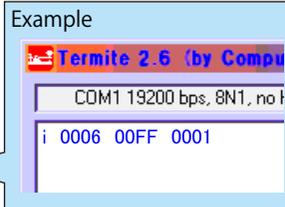


Checking the TMDS status register (HDMI Rx -> HDMI Tx)

Check item(3-13.1). Check the TMDS CLK detection status of the register.
Send the following command from Termit.exe.

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

When checking the signal path from HDMI4 IN to HDMI OUT
"71" : Go to Yes.
"74" : Go to No.

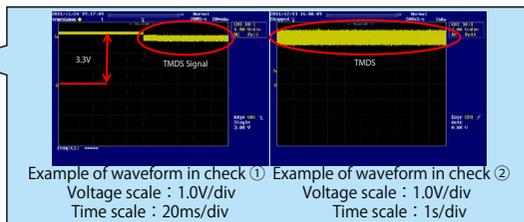


YES
The first operation : Checking between Monitor and the TV.
Go to [check item \(3-13.3\).](#)

Check item(3-13.2). Checking the TMDS input. :
TMDS waveform at the following points.



Between HDMI Rx1 and HDMI Tx
80/81/83/84/86/87/89/90 pin
Between HDMI Rx2 and HDMI Tx
93/94/96/97/99/100/102/103 pin



NO
HDMI Tx [U1039] is faulty.
Replace with a new device.

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

NO
If it is No between HDMI Rx1 and HDMI Tx.
HDMI Rx1 [U1000] is faulty.
Replace with a new device.

If it is No between HDMI Rx2 and HDMI Tx.
HDMI Rx2 [U1003] is faulty.
Replace with a new device.

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

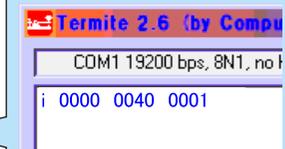
Checking the HPD/RXSENSE status register. (HDMI Tx -> Monitor)

Check item(3-13.3). Check the HPD and RXSENSE register value of the HDMI TX device. :
Send the following command from Termit.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 \(3-13.4\).](#)

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

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

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

Go to [check item \(3-13.8\).](#)

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

Go to [check item \(3-13.9\).](#)

When the results of check item (3-13.3.) are "30"
(Detection of HPD is OK / Detection of RXSENSE is OK)

Checking the EDID register. (Monitor)

Check item(3-13.4). 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 Termit.exe.
 Are the first eight bytes of the returned value "00FFFFFFFFF00"?

Example

The first eight bytes are normally "00FFFFFFFFF00".
 *If the AVR and the TV are not connected via HDMI, the correct register value cannot be verified.

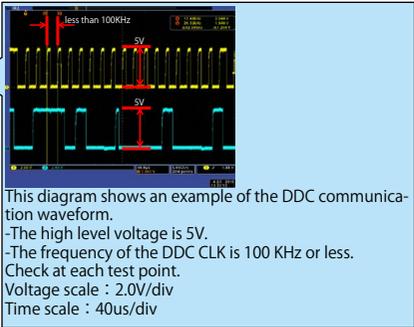
↓ YES

Check item(3-13.5). Checking the TMDS :
 Check the TMDS waveform at the following test point.

↓ NO

Check item(3-13.6). Check the communication :
 Are waveforms of "DDCCLK/DDCSDA" observed at the test point near the HDMI output terminal [N1031]?

○ DDCSCK
 ● DDCSDA



↓ YES

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

↓ NO

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

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

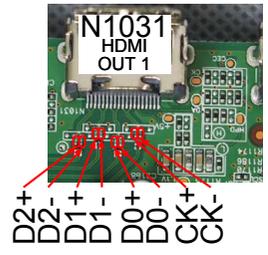
HDMI Tx [U1039] is faulty.
 Replace with a new device.

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

When the results of check item (3-13.3.) are "10"
(Detection of HPD is OK / Detection of RXSENSE is not OK)

Check the RXSENSE. (Monitor)

Check item(3-13.7). Checking the RXSENSE :
Does the test point of RXSENSE close to the HDMI output terminal [N1031] indicate the (3.3V)?



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

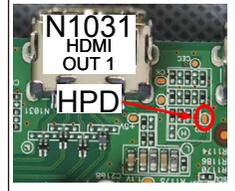
HDMI Tx [U1039] is faulty.
Replace with a new device.

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

When the results of check item (3-13.3.) are "20"
(Detection of HPD is not OK / Detection of RXSENSE is OK)

Check the HPD. (Monitor)

Check item(3-13.8). Checking the HPD :
Does the voltage of HPD test point close to the HDMI output terminal [N1031] indicate Hi (3-5V)?



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

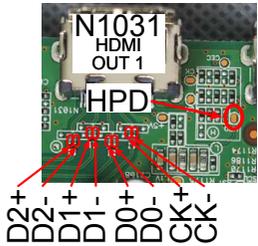
HDMI Tx [U1039] is faulty.
Replace with a new device.

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

When the results of check item (3-13.3.) are "00"
(Detection of HPD is not OK / Detection of RXSENSE is not OK)

Check the RXSENSE/HPD. (Monitor)

Check item(3-13.9). Checking the HPD and RXSENSE. :
Does the test point of RXSENSE close to the HDMI output terminal [N1031] indicate the (3.3V)?
Does the voltage of HPD test point close to the HDMI output terminal [N1031] indicate Hi (3-5V)?



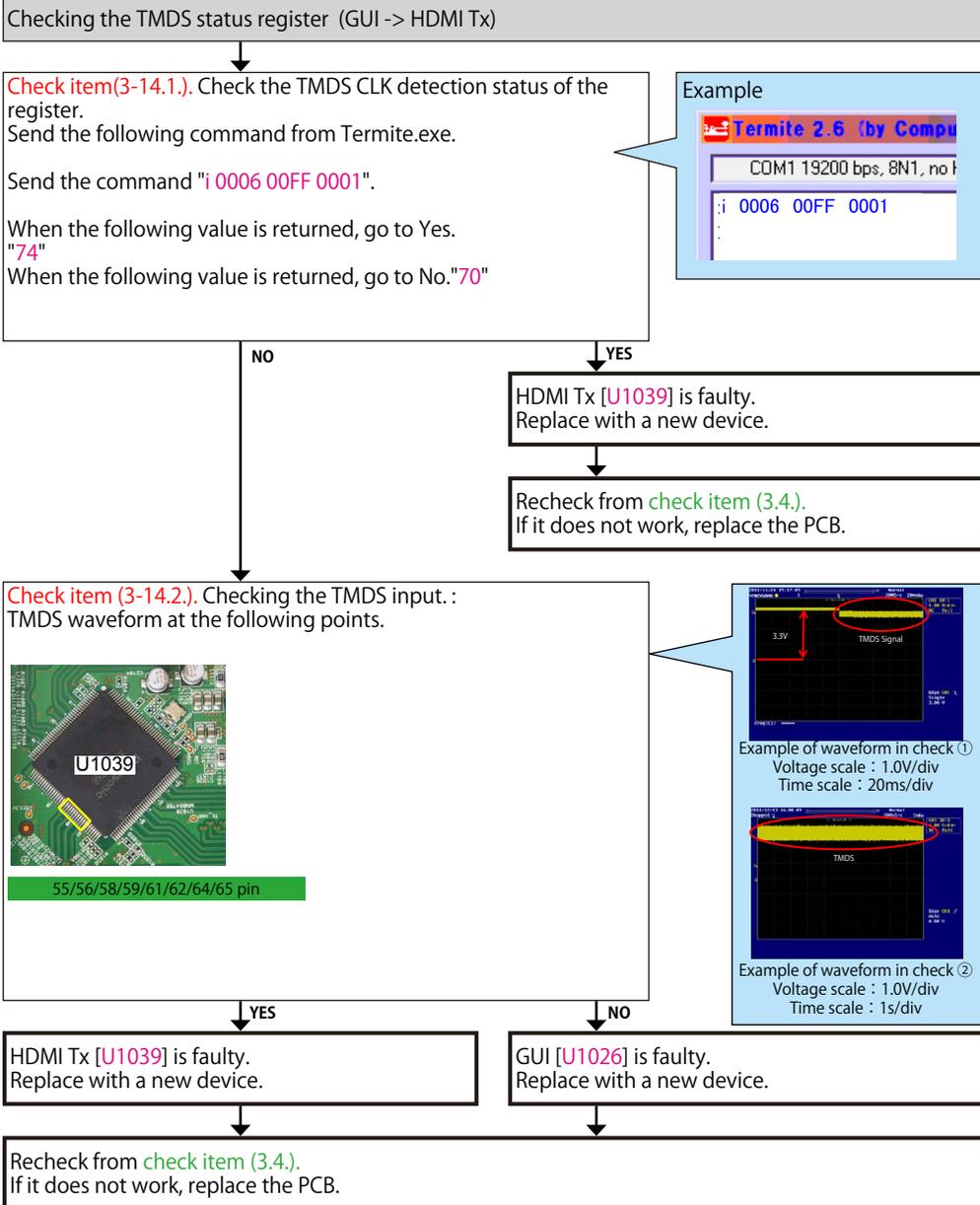
YES NO

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

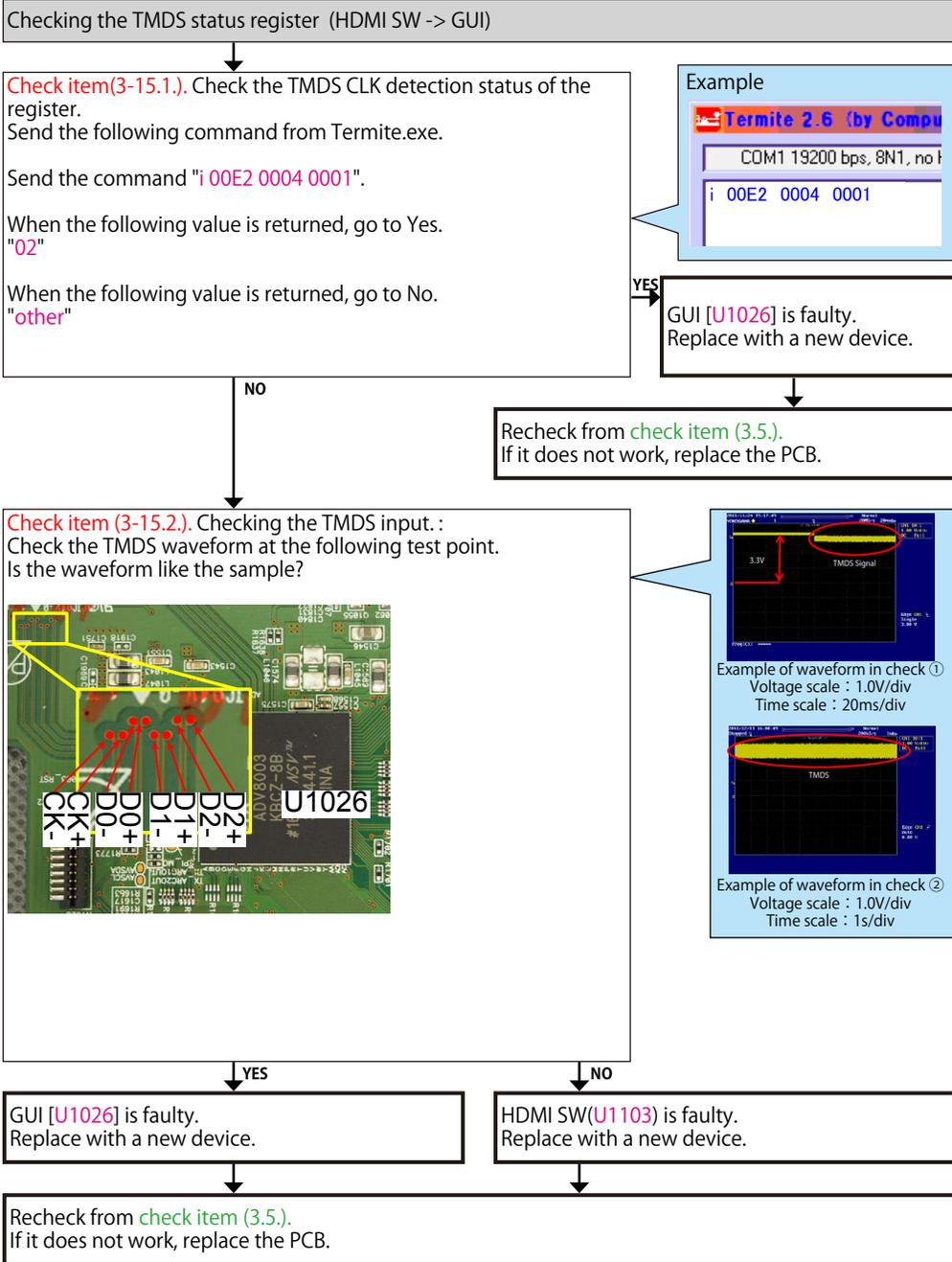
HDMI Tx [U1039] is faulty.
Replace with a new device.

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

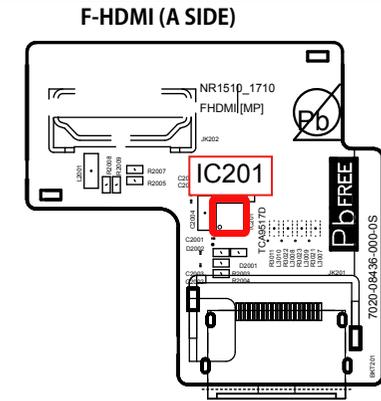
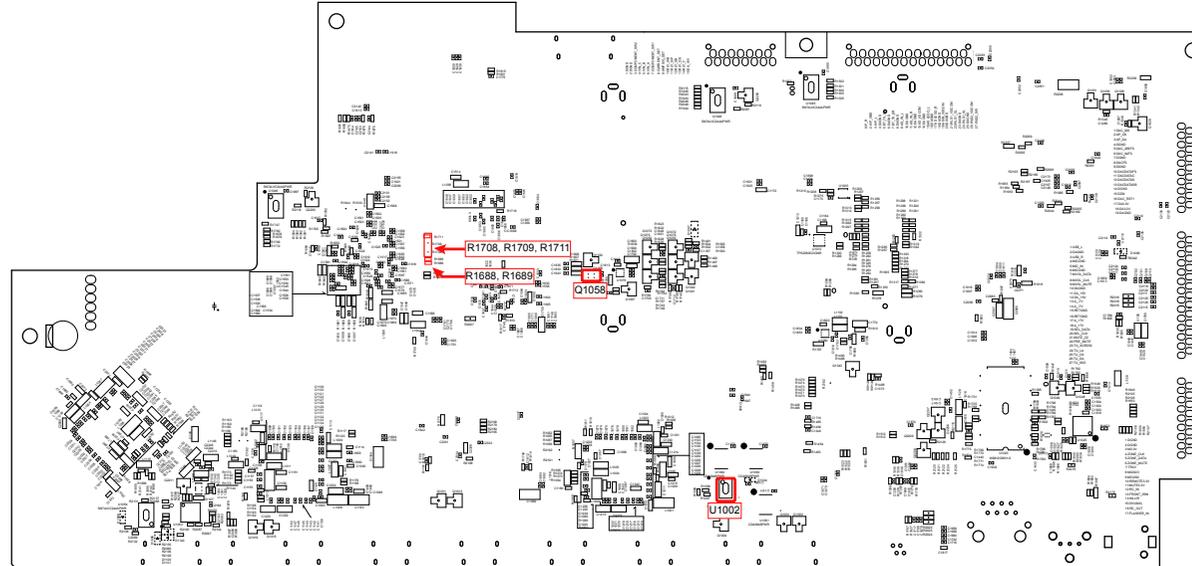
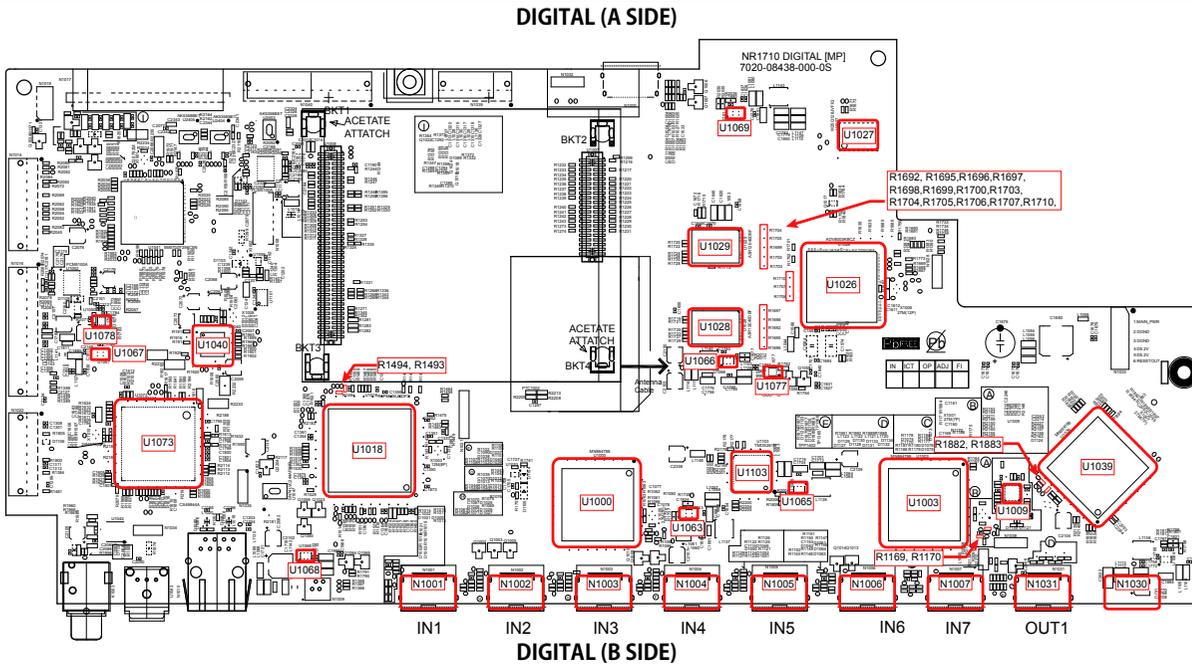
3-14. GUI IC [ADV8003] failure detection procedure



3-15. HDMI SW IC [TMDS261B] failure detection procedure



4. Device implementation location



Before Servicing
This Unit

Electrical

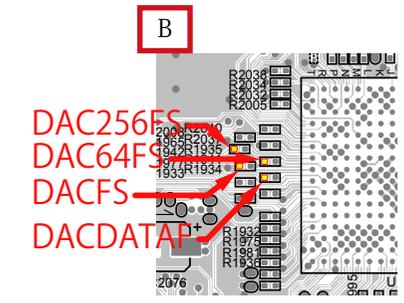
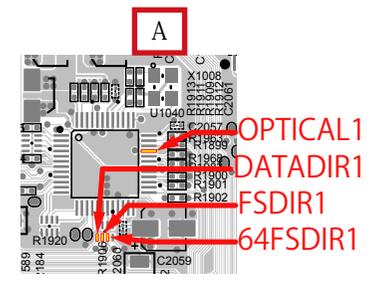
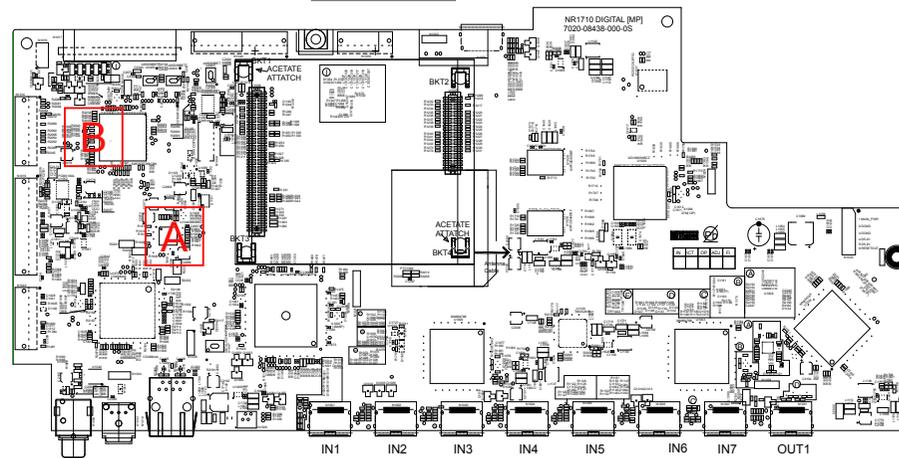
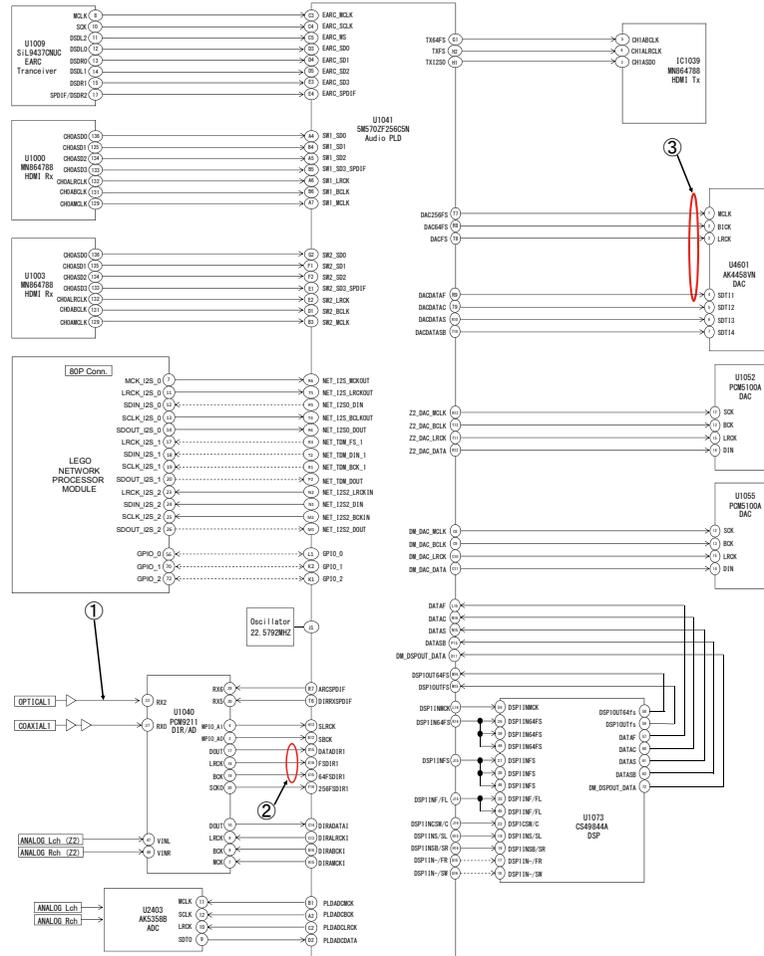
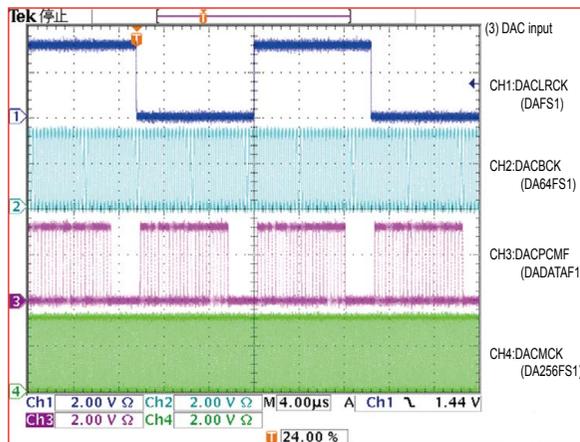
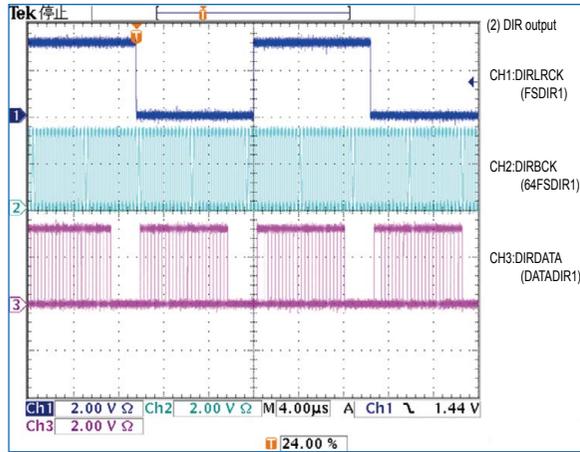
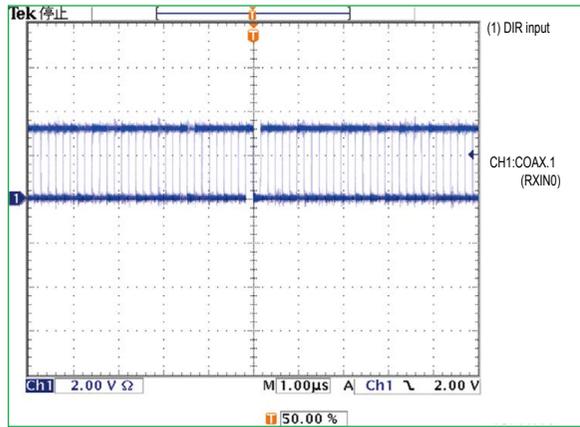
Mechanical

Repair Information

Updating

CLOCK FLOW & WAVE FORM IN DIGITAL BLOCK

WAVE FORM



Before Servicing This Unit

Electrical

Mechanical

Repair Information

Updating

SPECIAL MODE

Special mode setting button

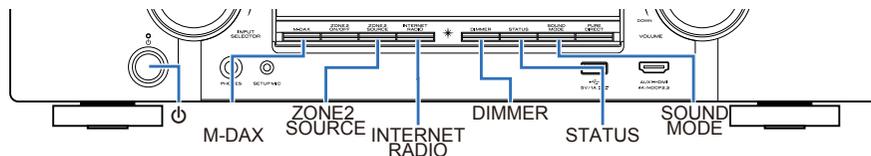
※ No. 1 - 4, 6 - 8: While holding down buttons "A", "B" and "C" simultaneously, press the power button to turn on the power.

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

No.	Mode	Button A	Button B	Button C	Descriptions
1	Version Display Mode (MCU / DSP Error Display)	DIMMER	STATUS	-	Displays the version of firmware such as the MCU or DSP. Errors that have occurred are displayed. (See 1. Version Display Mode)
2	PANEL / REMOTE LOCK Selection Mode	M-DAX	DIMMER	-	Activates the unit in PANEL/REMOTE LOCK selection mode to enable PANEL LOCK and Remote Lock On/Off to be set. (See 2. PANEL / REMOTE LOCK Selection Mode)
3	Selecting the Mode for Service-related	ZONE2 SOURCE	STATUS	-	A selection mode for entering service-related modes. Service-related modes : No. 3-1 - No. 3-4 (See 3-1. Selecting the Mode for Service-related)
3-1	Check the Video/Audio path Mode	↑	↑	-	This is a special mode for service confirmation used during repair work to simplify the confirmation work for the Audio channel / video channel. (See Service Path Check Mode)
3-2	Protection history display mode	↑	↑	-	Displays the latest occurred protection history. (See 3-2. Protection History Display 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 the FM/AM tuner reception frequency step to be changed. (See 3-4. TUNER STEP mode (U / N only))
4	Protection Pass Mode	DIMMER	STATUS	SOUND MODE	Enables the power to be turned on when protection detection is disabled. (See 4. Protection Pass Mode)
5	Network Initialization Mode	ZONE2 SOURCE	DIMMER	-	Network module backup data is initialized. (See 5. Network Initialization Mode)
6	User Initialization Mode	M-DAX	ZONE2 SOURCE	-	Initialize the backup data for the MCU and network module. (Settings for the Installer are not initialized.)
7	Factory Initialization Mode	ZONE2 SOURCE	INTERNET RADIO	-	Initialize the backup data only for MCU. (Settings for the Installer are initialized) (Network function settings are not initialized.) (See POST-SERVICE PRECAUTIONS)
8	Clearing of Operation Info	DIMMER	INTERNET RADIO	-	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	M-DAX	DIMMER	-	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	DIMMER	SOUND MODE	-	Acquires the Network Module log. As the Network Module reboots, the log is deleted. Make sure to obtain the log before turning off the unit's power. (See 7. Log Capture feature)

NOT : If the volume indicator displays "-00.0", the unit has entered the developer's special mode. In this case, the RS-232C communication is not available.

To release this special mode, press and hold the "M-DAX" and "ZONE2 SOURCE" buttons for 3 seconds or more while the power is ON. When the volume indicator returns to the normal display, the RS-232C communication is available.



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 → ② Serial Number

→ ③ Firmware Package → ④ MCU → ⑤ MCU 1st Boot Loader → ⑥ DSP → ⑦ Audio PLD

→ ⑧ GUI SFLASH → ⑨ PIMG → ⑩ HEOS Version → ⑪ HEOS Build → ⑫ HEOS Module

→ ⑬ HEOS Configuration → ⑭ HEOS Locale → ⑮ Restore Version → ⑯ Ether Mac Address

→ ⑰ WiFi Mac Address → ⑱ BT Mac Address → ⑲ Audyssey App Interface Version

① Model destination information :

```
NR0000 \
@ : Model name (1710)
\ : Region (U, N, K, F)
```

② Serial Number :

```
SN??*~*****
% : SKU code
```

③ Firmware Package :

```
Package :****
```

④ MCU :

```
M:*****
```

⑤ MCU 1st Boot Loader :

```
Main FBL :**.*
```

⑥ DSP ROM :

```
DSP :**.*
```

⑦ Audio PLD :

```
A.PLD :*****
```

⑧ GUI SFLASH :

```
GUI :00$~****
@ : 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
```

⑨ PIMG :

```
PIMG :*****
```

⑩ HEOS Version :

```
HEOS Version
↓"Press "STATUS" button.
*_***_***
```

⑪ HEOS Build :

```
HEOS Build
↓"Press "STATUS" button.
*****
```

⑫ HEOS Module :

```
HEOS Module
↓"Press "STATUS" button.
***
```

⑬ HEOS Config :

```
HEOS Config
↓"Press "STATUS" button.
Development
Production
```

⑭ HEOS Locale :

```
HEOS Locale
↓"Press "STATUS" button.
*****
```

⑮ Restore Version :

```
RSTR
↓"Press "STATUS" button.
*****
```

⑯ Ether MAC Address :

```
*Ether MAC
↓"Press "STATUS" button.
*****-*****
```

⑰ Wi-Fi MAC Address :

```
*Wi-Fi MAC
↓"Press "STATUS" button.
*****-*****
```

⑱ Bluetooth MAC Address :

```
*BT MAC Address
↓"Press "STATUS" button.
*****-*****
```

⑲ Audyssey App Interface Ver :

```
Audy IFVer:***.*
```

1.4. Error display

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

If multiple errors occur, only one item is displayed.

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

Condition	States	Display	TROUBLE SHOOTING
① Firm Check Error	<p>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.</p> <p>"▲" is not displayed if firmware information is correct.</p>	<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">FIRM ERROR</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">▲M:*****</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">▲Main FBL :**,**</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">▲DSP :**,**</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">▲A.PLD :*****</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">▲GUI :*****</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">▲PING :*****</div>	<ul style="list-style-type: none"> •Check the resistor for setting the region [R1524, 1525, DIGITAL PCB]. •Write the firmware for the correct region. <p>PIMG Error indication</p> <ul style="list-style-type: none"> •Check the circuits around the Logic[U1054] and SFROM[U1053]. If there appear to be no problems, [U1054] or [U1053] is faulty.
② IP SCALER Error	<p>An error occurs in Loop back Test of the DDR memory which is performed during the initial setting of i/p Scaler(ADV8003).</p> <p>During the initial setting of i/p Scaler (ADV8003) , there is not the reply of the Loop back Test result of the DDR memory .</p>	<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">IP SCALER ERR 01</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">IP SCALER ERR 02</div>	<ul style="list-style-type: none"> •Check the circuits around the IP SCALER [U1026, DIGITAL PCB] and DDR2 [U1028/U1029]. If there appear to be no problems, [U1026] or [U1028/U1029] is faulty.
③ GUI Serial Flash Error	<p>If the MCU version is not supported by the GUI Serial Flash (ADV8003), "▼" is displayed as the first character of the GUI firmware version.</p> <p>If GUI Serial Flash is damaged, "▲" is displayed as the first character.</p>	<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">GUI VER. ERROR</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">▼GUI :*****</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">▲GUI :*****</div>	<ul style="list-style-type: none"> •Check the firmware version.
④ DIR Error	<p>This error is displayed if there is no response from the DIR.</p>	<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">DIR ERROR 01</div>	<ul style="list-style-type: none"> •Check the DIR [U1040, DIGITAL PCB] and surrounding circuits.
⑤ DSP Error	<p>Boot error 1 (After reset the DSP, DSP_Flag0 port is "Low")</p> <p>Boot Error 2 (After reset the DSP, MCU received state error command)</p> <p>Signal Detect Error (No response after input set for 1sec)</p> <p>Mode Change Error (No response after mode change for 1sec)</p> <p>Invalid situation (Detecting invalid situation with autodetect)</p> <p>Busy Error ("Busy" port remains "Low" for 1sec)</p> <p>Output Fs Error (Fs status between MCU output and actual DSP is different)</p> <p>Input Fs Error (Fs status between AutoDetect Msg and ACCN Msg is different)</p> <p>SPI communication error</p>	<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">DSP ERROR 01</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">DSP ERROR 02</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">DSP ERROR 03</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">DSP ERROR 04</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">DSP ERROR 05</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">DSP ERROR 06</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">DSP ERROR 07</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">DSP ERROR 08</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">DSP ERROR 09</div>	<ul style="list-style-type: none"> •Check the DSP [U1073, DIGITAL PCB] and surrounding circuits.
⑥ BACKUP Error	<p>Error occurred in BACKUP. it is an error of the check sum.</p>	<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">BACKUP ERROR</div>	

1.5. Version Display in the Setup Menu

Follow the steps below to display the firmware information.

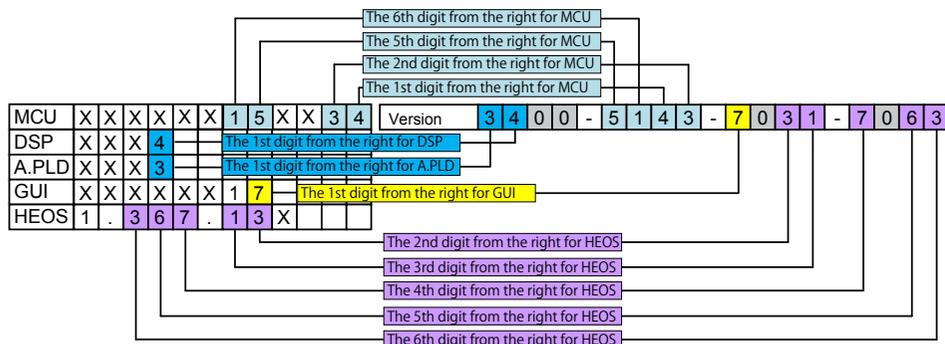
- (1) Press the "SETUP" button on the remote control.
- (2) Select "General - Information - Firmware".

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



GUI Image

This 16-digit number comprises a part of the version number of each device and module. Numerics and version numbers correspond as shown below.



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

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

X.XXX.X → X.XXX.00X
 X.XXX.XX → X.XXX.0XX
 X.XXX.XXX → X.XXX.XXX

2. PANEL / REMOTE LOCK Selection Mode

2.1. Actions

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

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

2.2. Starting up

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

Select the desired mode using the "INTERNET RADIO" button, then press the "STATUS" button to confirm.

2.3. Displaying and Selecting Each Mode

The information shown on the display switches each time the "INTERNET RADIO" button is pressed. Press the "STATUS" button to set the currently displayed mode and restart the device. The setting with "*" is selected for each mode.

①

FP/VOL LOCK*On

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

②

FP LOCK On

The buttons on the unit does not function.

③

FP LOCK Off

The PANEL LOCK mode is turned off.

④

RC LOCK On

The device cannot be operated by the remote control.

⑤

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, or Operation Info mode or TUNER STEP mode.

3-1.2. Starting up

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

Select the desired mode using the "INTERNET RADIO" button, then press the "STATUS" button to confirm.

3-1.3. Displaying and Selecting Each Mode

The information shown on the display switches each time the "INTERNET RADIO" button is pressed. Press the "STATUS" button to set the currently displayed mode and restart the device.

①

1. SERVICE CHECK

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

2. PROTECTION

The protection history can be checked.



③

4. OP INFO

Operation Info for the unit can be checked.



④ U and N model only

5. TUNER FREQ SET

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

3-1.4. Canceling the selected mode

Press the power button to turn off the power.

3-2. Protection History Display Mode

3-2.1. Actions

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

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

3-2.2. Starting up

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

Select the "2. PROTECTION" using the "INTERNET RADIO" button, then press the "STATUS" button then to confirm.

3-2.3. Protection information and displays

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

(1) If no protections has occurred.

NO PROTECT

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

PRT:ASO

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

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

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

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

PRT:DC

Cause : DC output of the power amplifier is abnormal.

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

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

PRT:THERMAL A

PRT:THERMAL B

PRT:THERMAL E

Cause : Abnormal heat sink temperature.

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

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

:CURRENT

Cause : An over current flowed in power amp.

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

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

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

3-2.4. Clearing the Protection History

There are two ways to clear the protection history.

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

PRT:DC

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



PRT: CLEAR

The above is displayed and protection history is cleared.



NO PROTECT

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

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

Warning Displays by POWER LED

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

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

3-3. 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

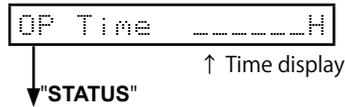
While holding down buttons "ZONE2 SOURCE" and "STATUS" simultaneously, press the power button to turn on the power.

Select the "4. OP INFO" using the "INTERNET RADIO" button, then press the "STATUS" button then to confirm.

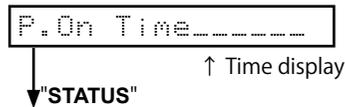
3-3.3. Operations

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



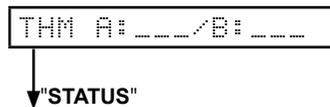
- (2) Power On time



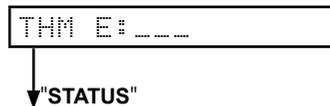
- (3) DC / ASO Protection count



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



- (5) Thermal Protection (E) count



- (6) Current Protection count



(Returns to normal display)

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

3-4.1. Actions

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

3-4.2. Starting up

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

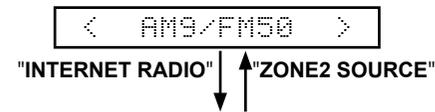
Select the "5. TUNER FRQ SET" using the "INTERNET RADIO" button, then press the "STATUS" button then to confirm.

3-4.3. Displays

Start up this unit in TUNER STEP mode, select the desired option using the "INTERNET RADIO" button, then enter using the "STATUS" button.

The following information is displayed in the following order.

- (1) AM9 kHz / FM50 kHz is selected



- (2) AM10 kHz / FM200 kHz is selected



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

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

4. Protection Pass Mode

4.1. Actions

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

4.2. Operations

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

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



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

5.2. Operations

When the power is on and the input source is HEOS Music, press and hold the "**ZONE2 SOURCE**" and "**DIMMER**" buttons for more than 3 seconds.

Initializing Display



Network Reset...

Complete Display



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 "**DIMMER**" and "**INTERNET RADIO**" simultaneously, press the power button to turn on the power.

PRODUCT MODE P

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

7. Log Capture feature

7.1. Actions

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

7.2. Starting up

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

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

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

Storing Logs...

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

USB SUCCESS

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

USB FAILED

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

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

Storing Logs...

- (2) When the log package is uploaded, the ticket numbers "**XXXXX**" and "**Push ENTER**" are displayed until the "**Enter**" or "**Back**" button of RC is pressed.

XXXXX Push ENTER

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

FAILED

1.1. Actions

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

1.2. Starting up

While holding down buttons "ZONE2 SOURCE" and "STATUS" simultaneously, press the power button to turn on the power.
Select the "1. SERVICE CHECK" using the "INTERNET RADIO" button, then press the "STATUS" 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	M-DAX	INTERNET RADIO	SLEEP	CURSOR ◀	CURSOR ▶

1.5. Audio system confirmation items

See the block diagram fig.AXXth.

Paths to be confirmed		Display	Settings	What to confirm
1	Analog	fig.A01 A01:ANALOG PASS	Input Source : CBL/SAT Input Mode : Analog (fixed) Sound mode : DIRECT Amp assign : Surround Back MAIN ZONE : On ZONE2 : Off	<ul style="list-style-type: none"> • Analog input ⇒ Speaker 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 : Surround Back Speaker Config ALL Speaker = Small/SW=Yes(2ch) MAIN ZONE : On ZONE2 : Off	<ul style="list-style-type: none"> • Digital input ⇒ Pre output (Front L/R, Center, Surround L/R, Surround Back L/R) • Digital input ⇒ Pre OUT output (Subwoofer) (※ The input source can be switched to any source except CBL/SAT.)
3	DIGITAL (ZONE2)	fig.A03a fig.A03b A03: DIGITAL-22	Input Source : HEOS Music Input Mode : Auto Sound mode : STEREO ZONE2 Source : HEOS Music Amp assign : ZONE2 MAIN ZONE : On ZONE2 : On	<ul style="list-style-type: none"> • Digital(PCM) input ⇒ Speaker output (Surround Back (ZONE2) L/R) • Digital(PCM) input ⇒ Pre OUT output (ZONE2 L/R)

Paths to be confirmed		Display	Settings	What to confirm
4	HDMI	fig.A04a fig.A04b	A05:HDMI Input Source : CBL/SAT Input Mode : HDMI (fixed) Sound mode : STEREO Amp assign : Surround Back MAIN ZONE : On ZONE2 : Off	<ul style="list-style-type: none"> • HDMI input ⇒ Speaker output (Front L/R) (※ The input source can be switched to any source except CBL/SAT.)
5	Analog AD (MAIN ZONE)	fig.A05a fig.A05b	A06:AD Input Source : CBL/SAT Input Mode : Analog (fixed) Sound mode : MULTI CH STEREO Vol 60(-20dB) Amp assign : Surround Back Config ALL Speaker = Small / SW = Yes(2ch) MAIN ZONE : On ZONE2 : Off	<ul style="list-style-type: none"> • Analog input ⇒ Speaker output (Front L/R, Center, Surround L/R, Surround Back L/R) • Analog input ⇒ Pre OUT output SW(20Hz) (※ 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)
6	Analog Amp Assign (Amp Assign : ZONE2)	fig.A06	A07:ASSIGN-Z2 Input Source : CBL/SAT Input Mode : Auto Sound mode : STEREO Z2 Source : Source Vol 60(-20dB) Amp assign : ZONE2 MAIN ZONE : On ZONE2 : On	<ul style="list-style-type: none"> • Analog input ⇒ Speaker output (Surround Back (ZONE2) L/R) • Analog input ⇒ Pre OUT output (ZONE2 L/R) (※ The input source can be switched to any source except CBL/SAT.) (※ Volume 60 is the value when Absolute settings are used. The value is -20 when Relative settings are used)
7	ZONE2 Downmix (Amp Assign : ZONE2)	fig.A07a fig.A07b	A22:Z2 Downmix Input Source : CBL/SAT Input Mode : Auto ZONE2 Source : Source ZONE2 Vol : 60 Amp Assign : ZONE2 MAIN ZONE : On ZONE2 : On	<ul style="list-style-type: none"> • Analog input ⇒ Speaker output (Surround Back (ZONE2) L/R) • Analog input ⇒ Pre OUT output (ZONE2 L/R) (※ The input source can be switched to any source except CBL/SAT.) (Leave the ZONE2 Source as Source.) (※ Volume 60 is the value when Absolute settings are used. The value is -20 when Relative settings are used)

1.6. Confirmation items for the video system

See the block diagram fig.VXXth.

Paths to be confirmed		Display	Settings	What to confirm
1	Analog Video pass fig.V01	V01:VIDEO PASS	Input Source : CBL/SAT Video Mode : Bypass (IP Scaler : OFF), All sources MAIN ZONE : On ZONE2 : On	<ul style="list-style-type: none"> • CVBS input ⇒ CVBS output • Component input ⇒ Component output (※ The input source can be switched to any source except CBL/SAT.)
2	Video Convert (HDMI ⇒ HDMI) fig.V02	V02:V.CONVERT	Input Source : CBL/SAT Video Mode : Auto, All sources IP Scaler : On, All sources Resolution : "Auto", All sources MAIN ZONE : On ZONE2 : Off	<ul style="list-style-type: none"> • HDMI input (exept 4K60p) ⇒ IP Scaler ⇒ HDMI output (exept 4K60p) • HDMI input (4K60p) ⇒ HDMI output (4K60p) & Vol display • ETHERNET input ⇒ IP Scaler ⇒ HDMI output. (※ The input source can be switched to any source except CBL/SAT.)
3	HDMI pass (MAIN ZONE) fig.V03	V03:HDMI PASS	Input Source : CBL/SAT Video Mode (IP Scaler) : Bypass MAIN ZONE : On ZONE2 : Off	<ul style="list-style-type: none"> • HDMI input (MAIN function) ⇒ HDMI output (MAIN) (※ The input source can be switched to any source except CBL/SAT.)
4	HDMI CEC (Control Monitor : HDMI Monitor1) fig.V04	V04:HDMI CEC	Input Source : CBL/SAT HDMI Control : On MAIN ZONE : On ZONE2 : Off	<ul style="list-style-type: none"> • 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	V05:H.AUDIO-AVR	Input Source : CBL/SAT HDMI Control : Off HDMI Audio : AVR (if checking the audio output from AVR)	<ul style="list-style-type: none"> • 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.V06	V06:H.AUDIO-TV	HDMI Audio : TV (if checking the audio output from TV)	<ul style="list-style-type: none"> • 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 Mode : Auto, All source IP Scaler : On, All source Resolution : "Auto", All source MAIN ZONE : On ZONE2 : Off	<ul style="list-style-type: none"> • GUI display ⇒ HDMI output. (※ The input source can be switched to any source except CBL/SAT.)

NR1710 ANALOG AUDIO DIAGRAM

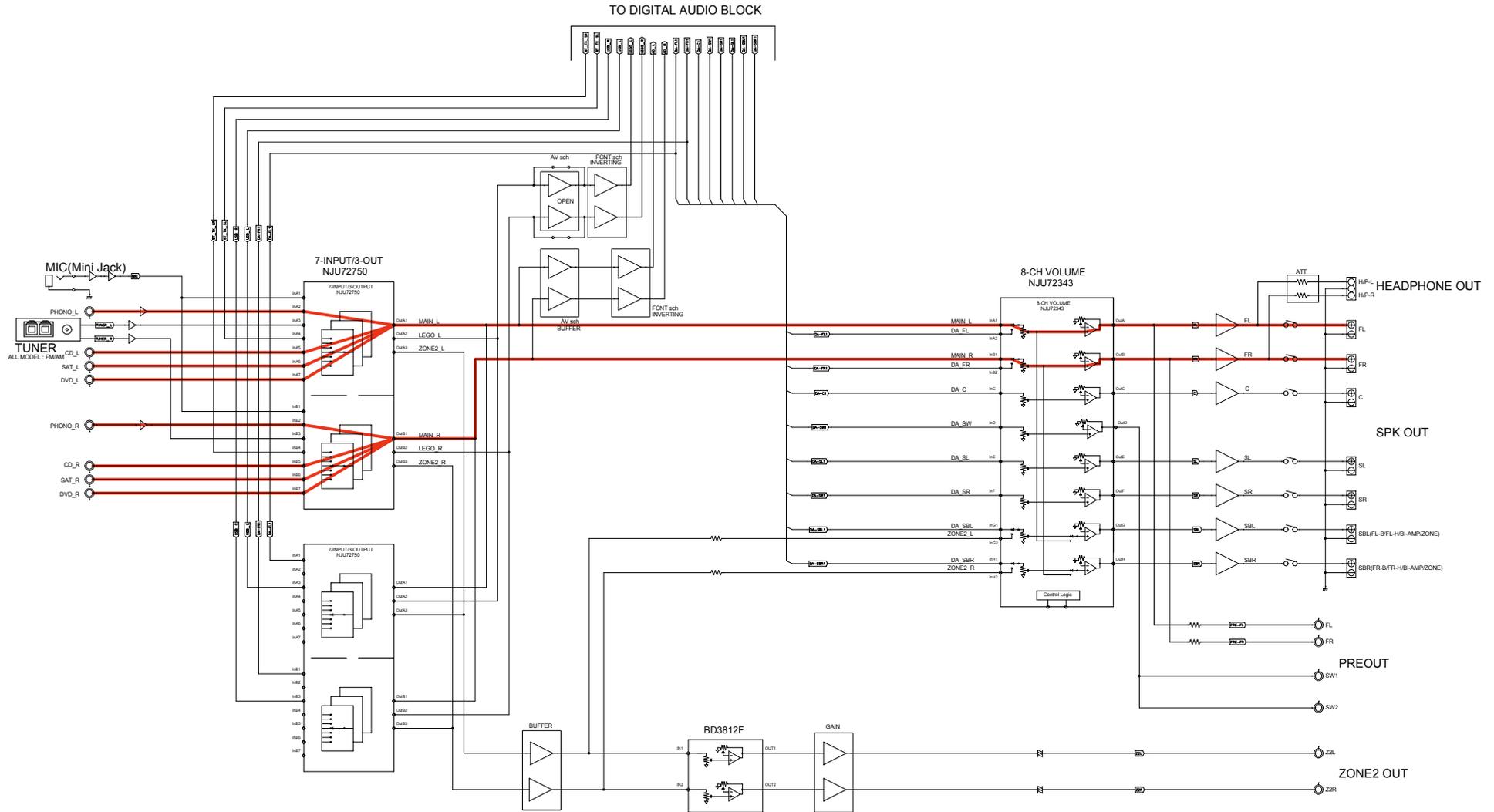


fig.A02a

NR1710 DIGITAL AUDIO DIAGRAM

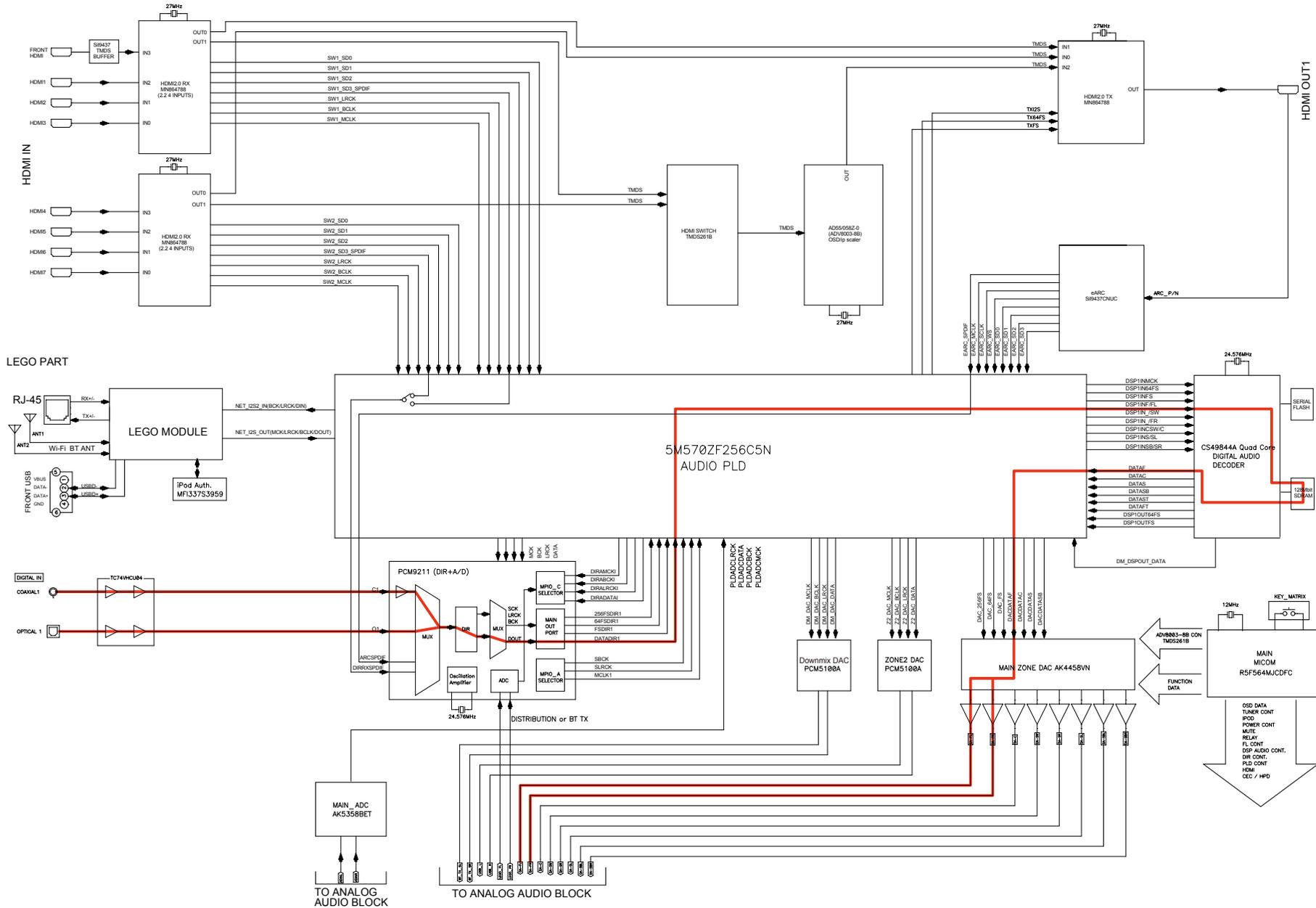


fig.A02b

NR1710 ANALOG AUDIO DIAGRAM

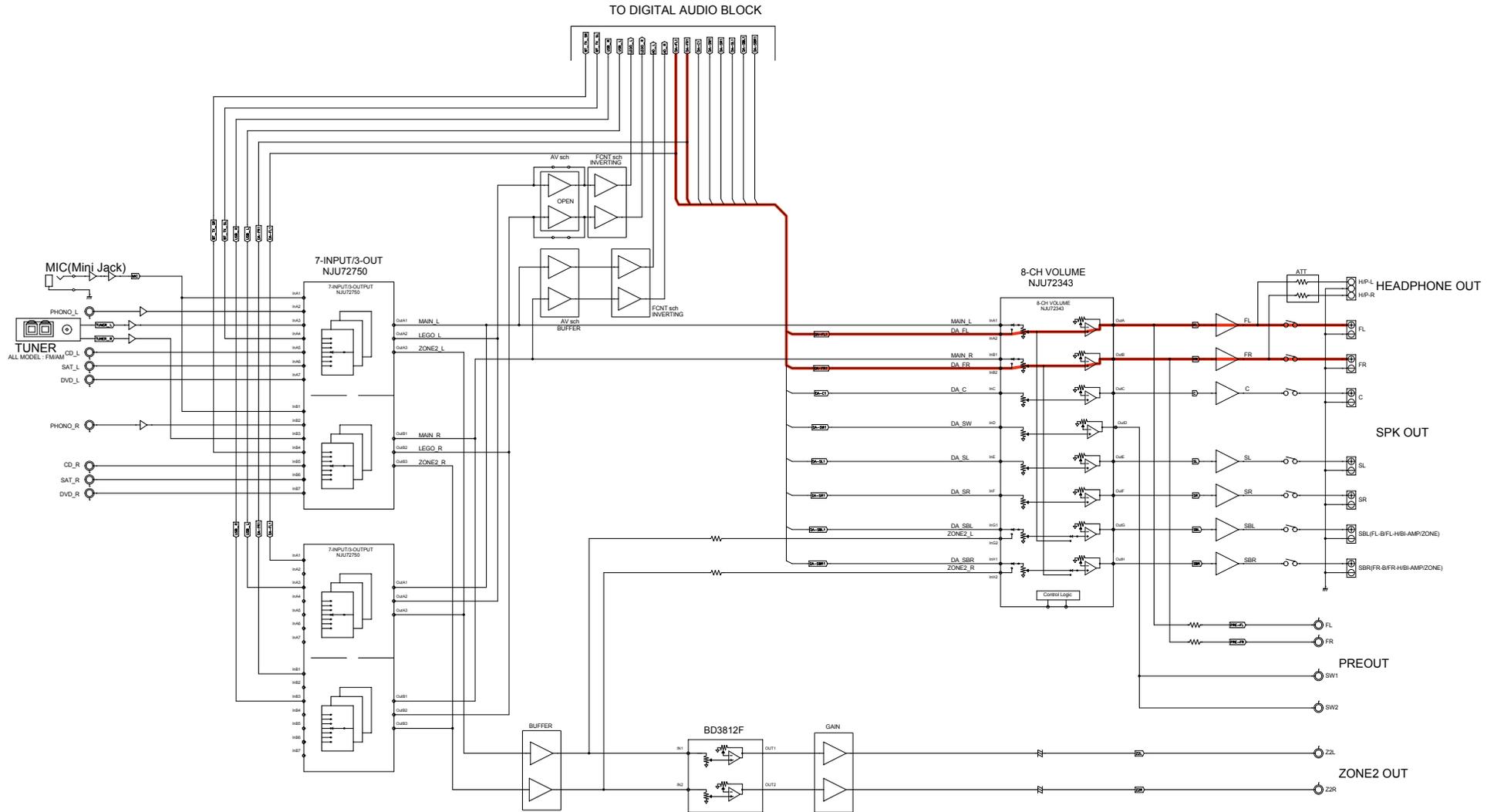


fig.A03a

NR1710 DIGITAL AUDIO DIAGRAM

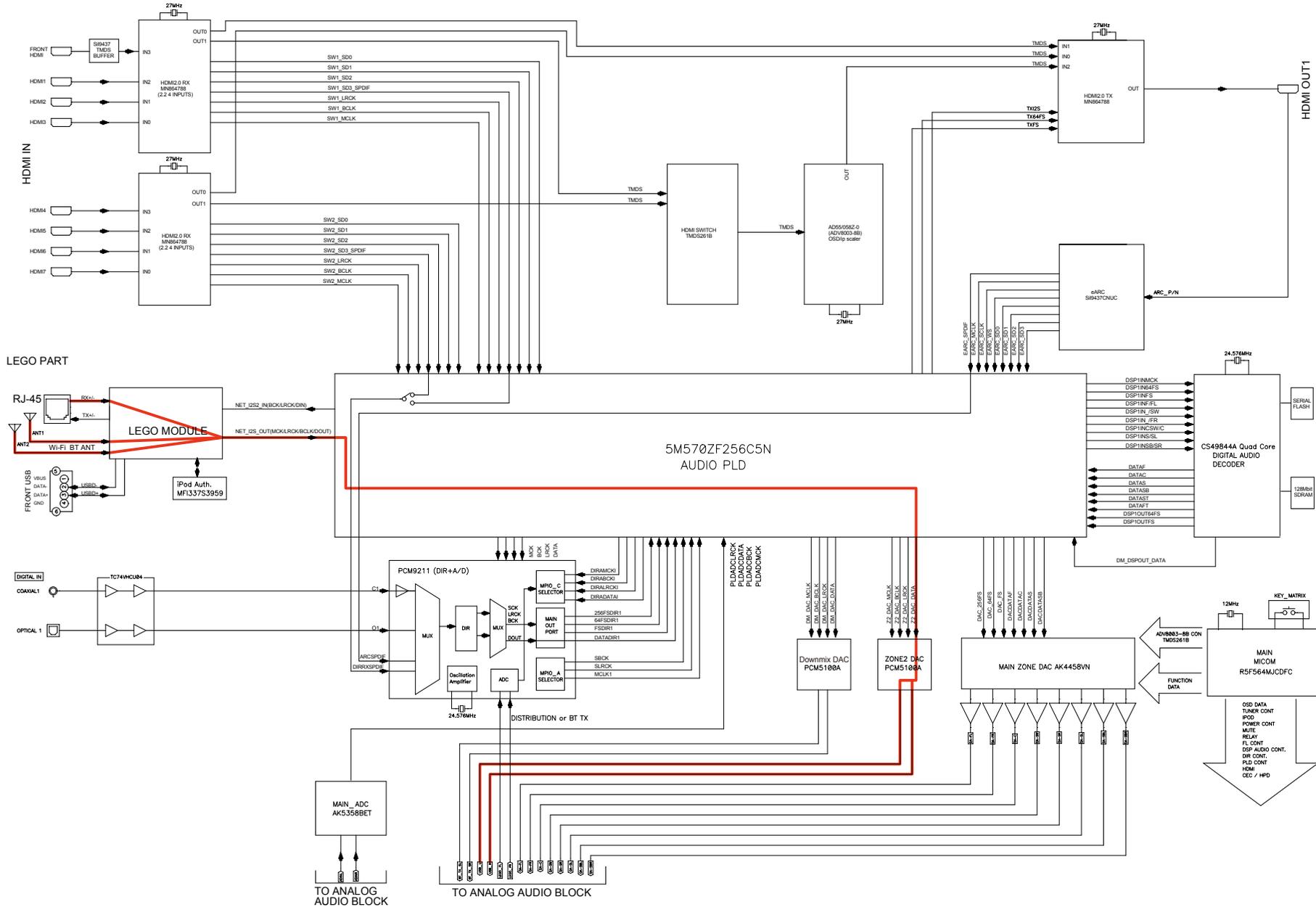


fig.A03b

NR1710 ANALOG AUDIO DIAGRAM

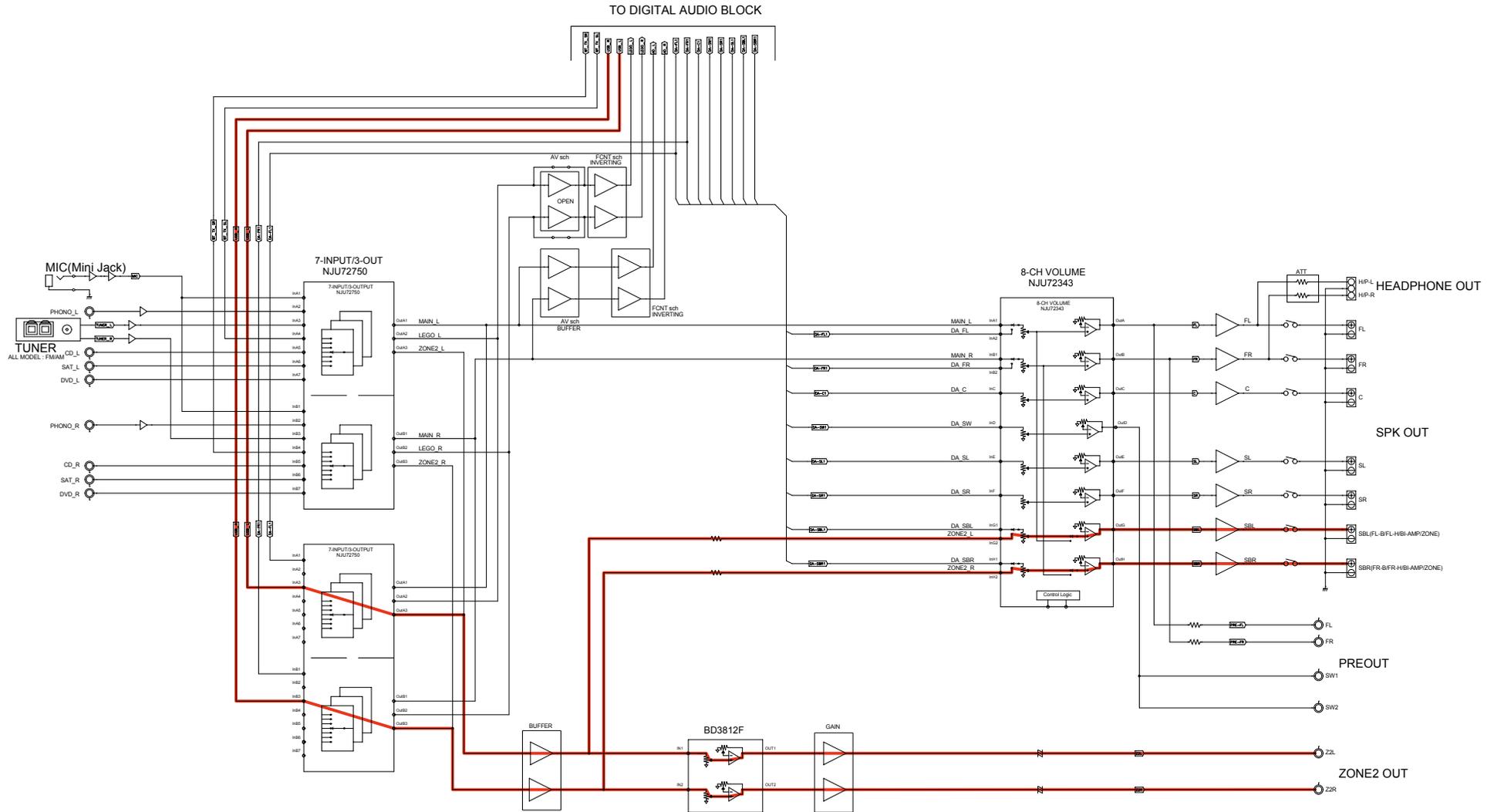


fig.A04a

NR1710 DIGITAL AUDIO DIAGRAM

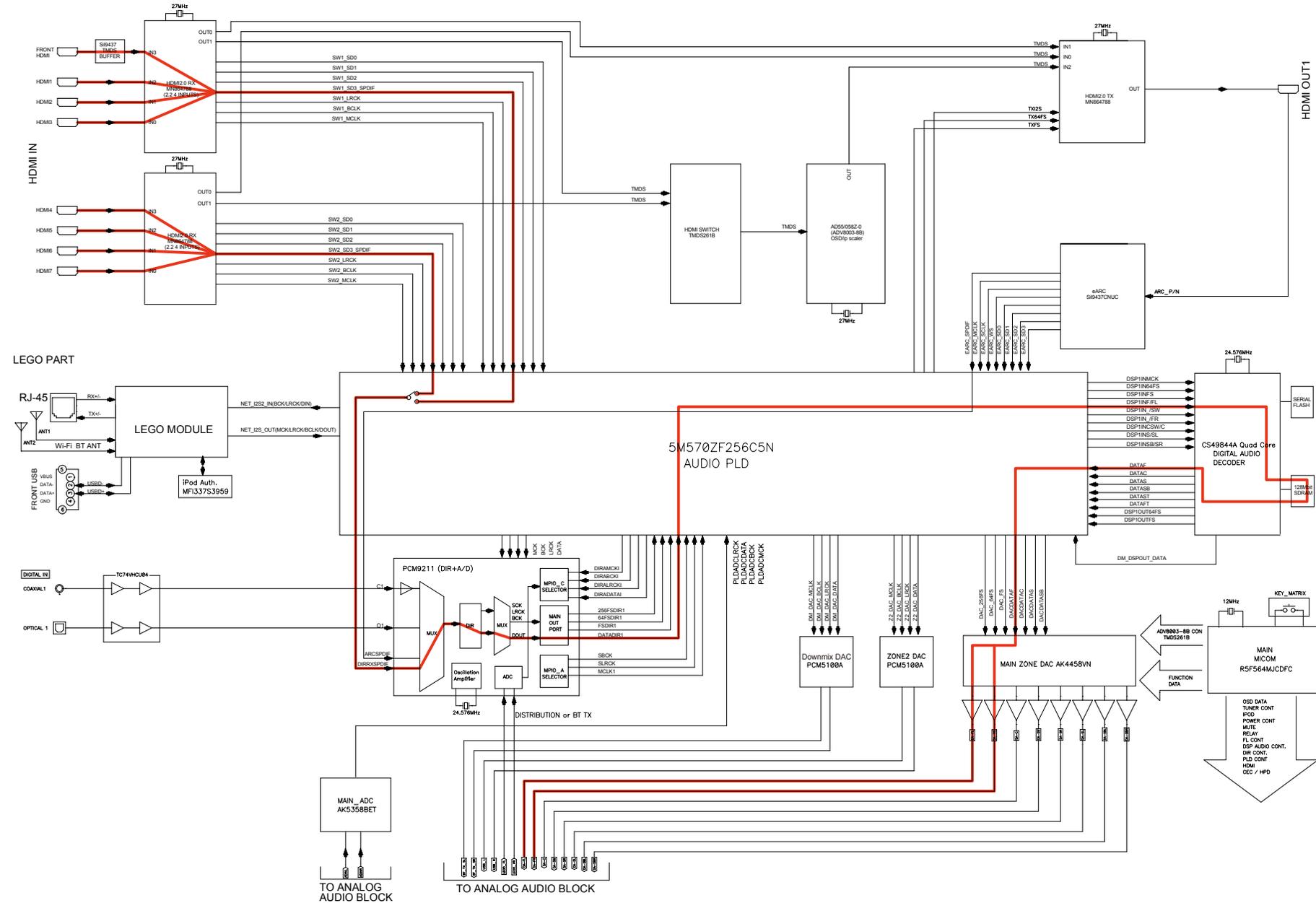


fig.A04b

NR1710 ANALOG AUDIO DIAGRAM

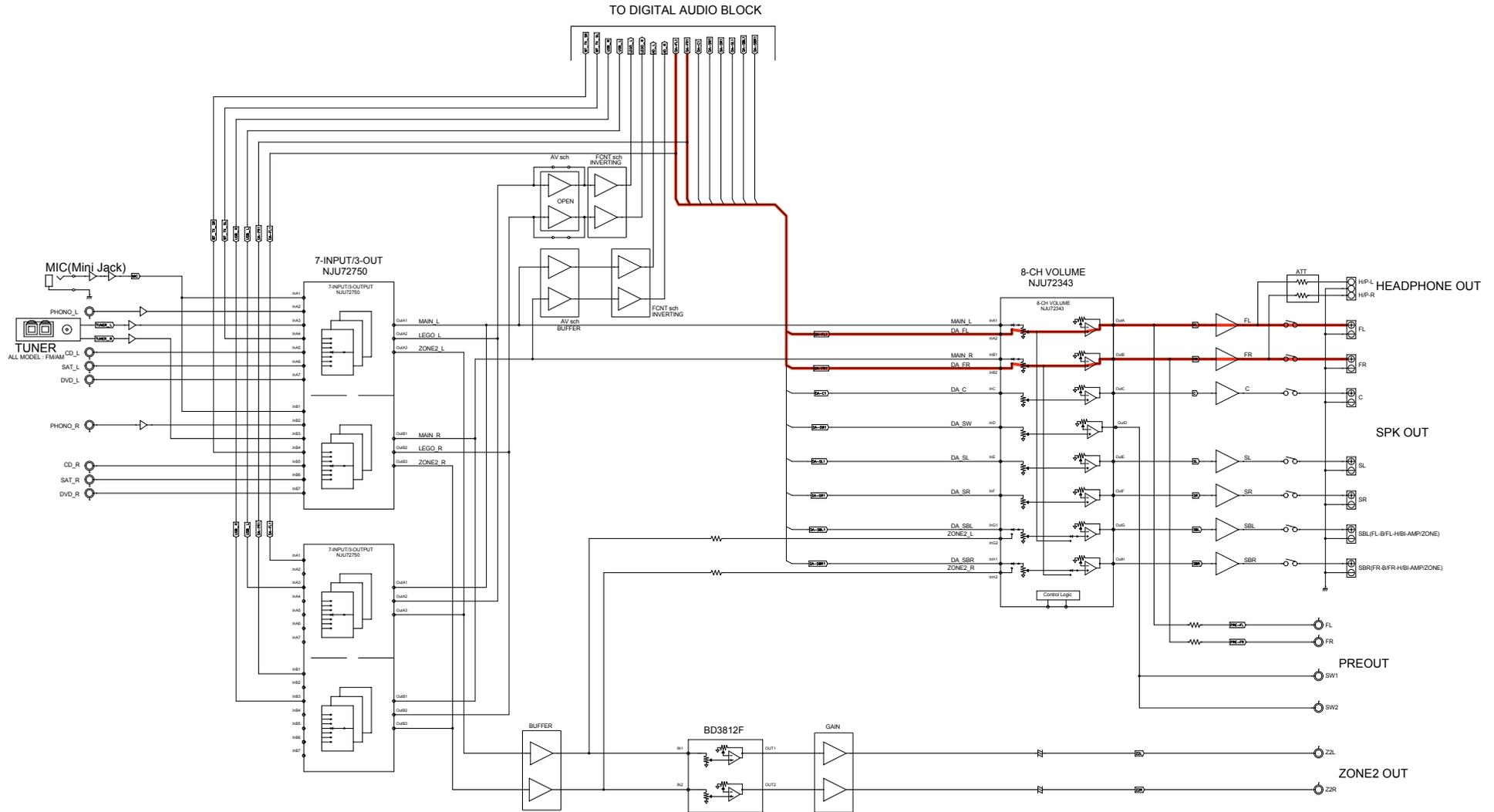


fig.A05a

NR1710 DIGITAL AUDIO DIAGRAM

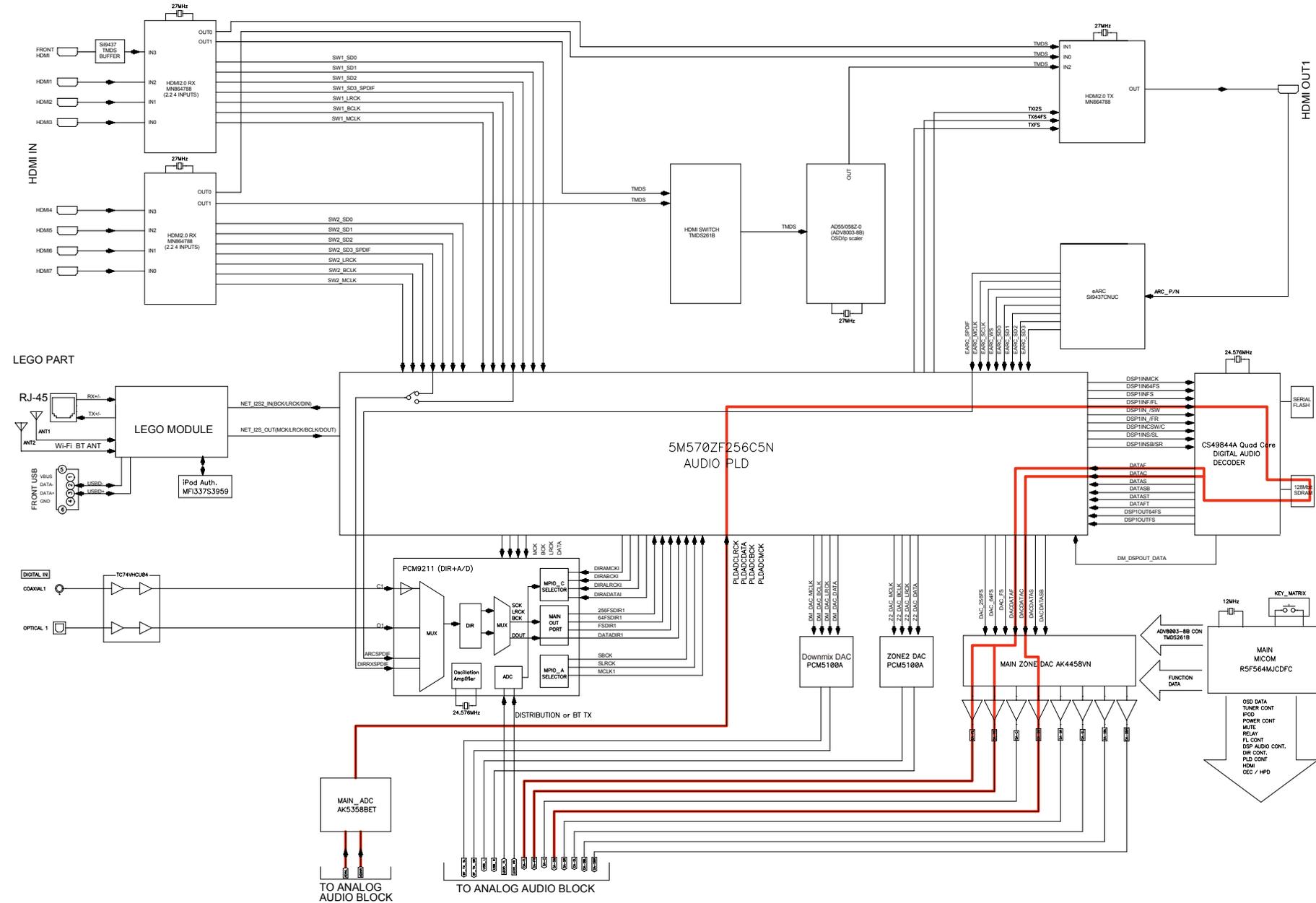


fig.A05b

NR1710 ANALOG AUDIO DIAGRAM

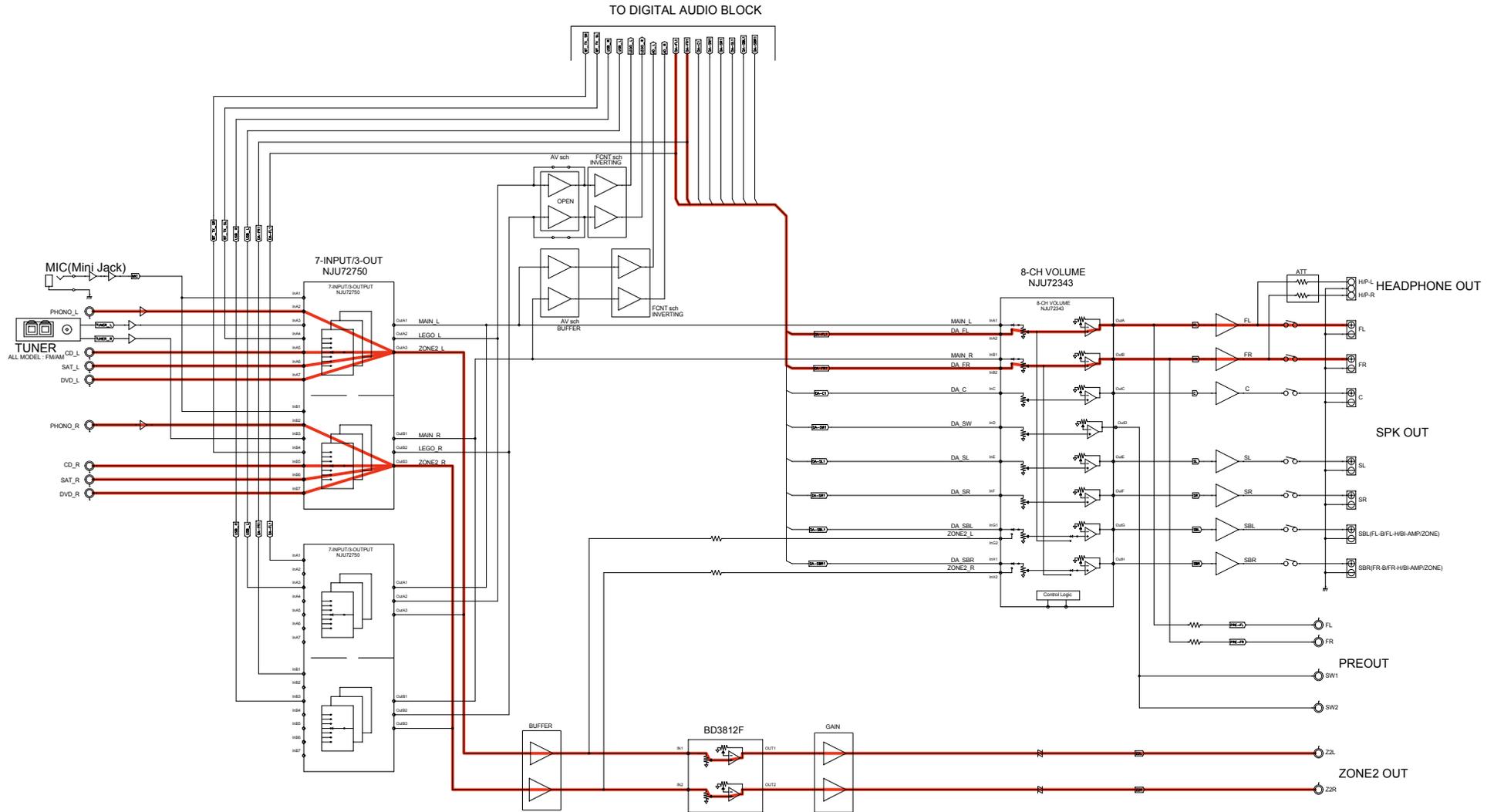


fig.A06

NR1710 ANALOG AUDIO DIAGRAM

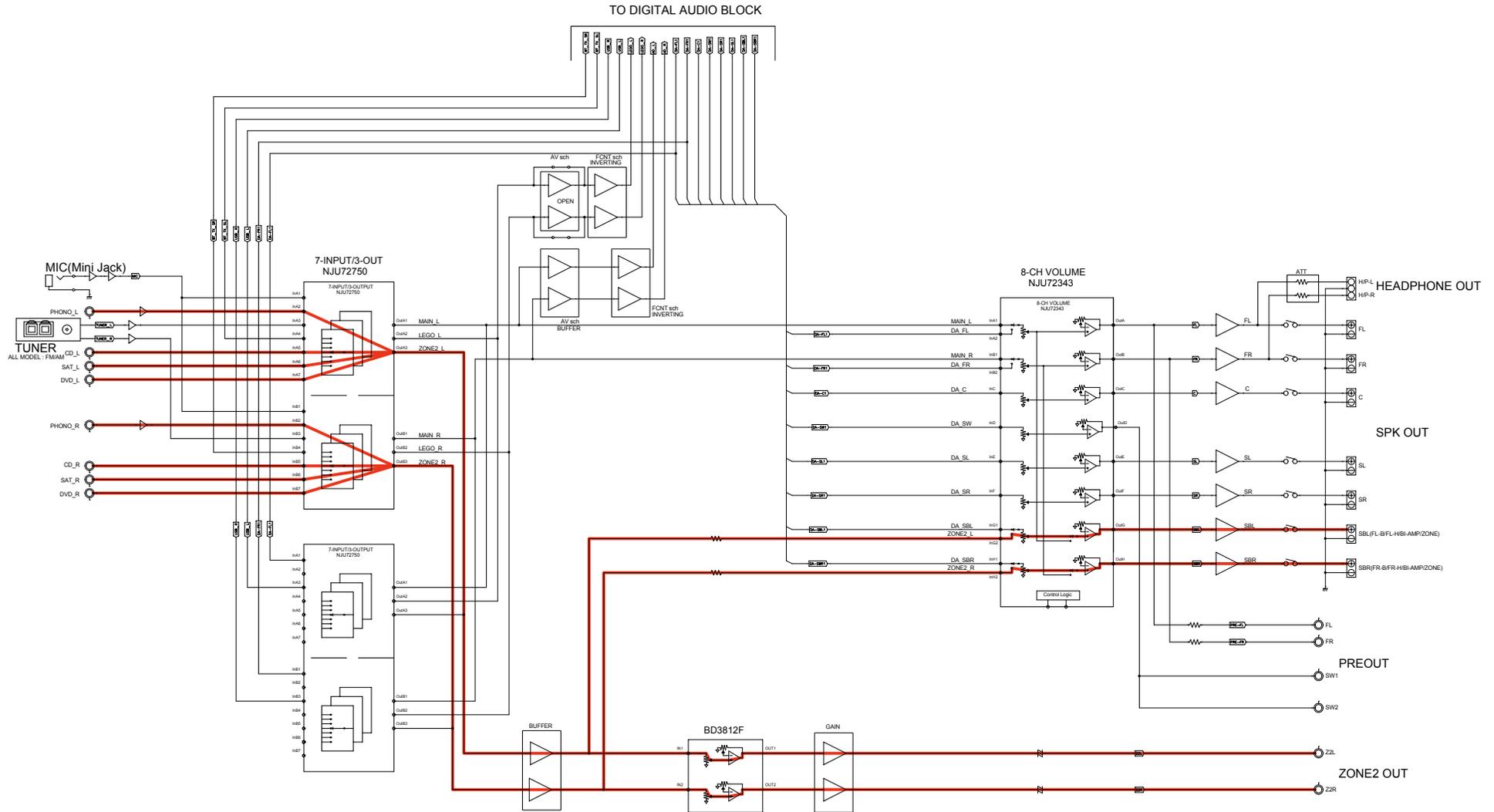


fig.A07a

NR1710 DIGITAL AUDIO DIAGRAM

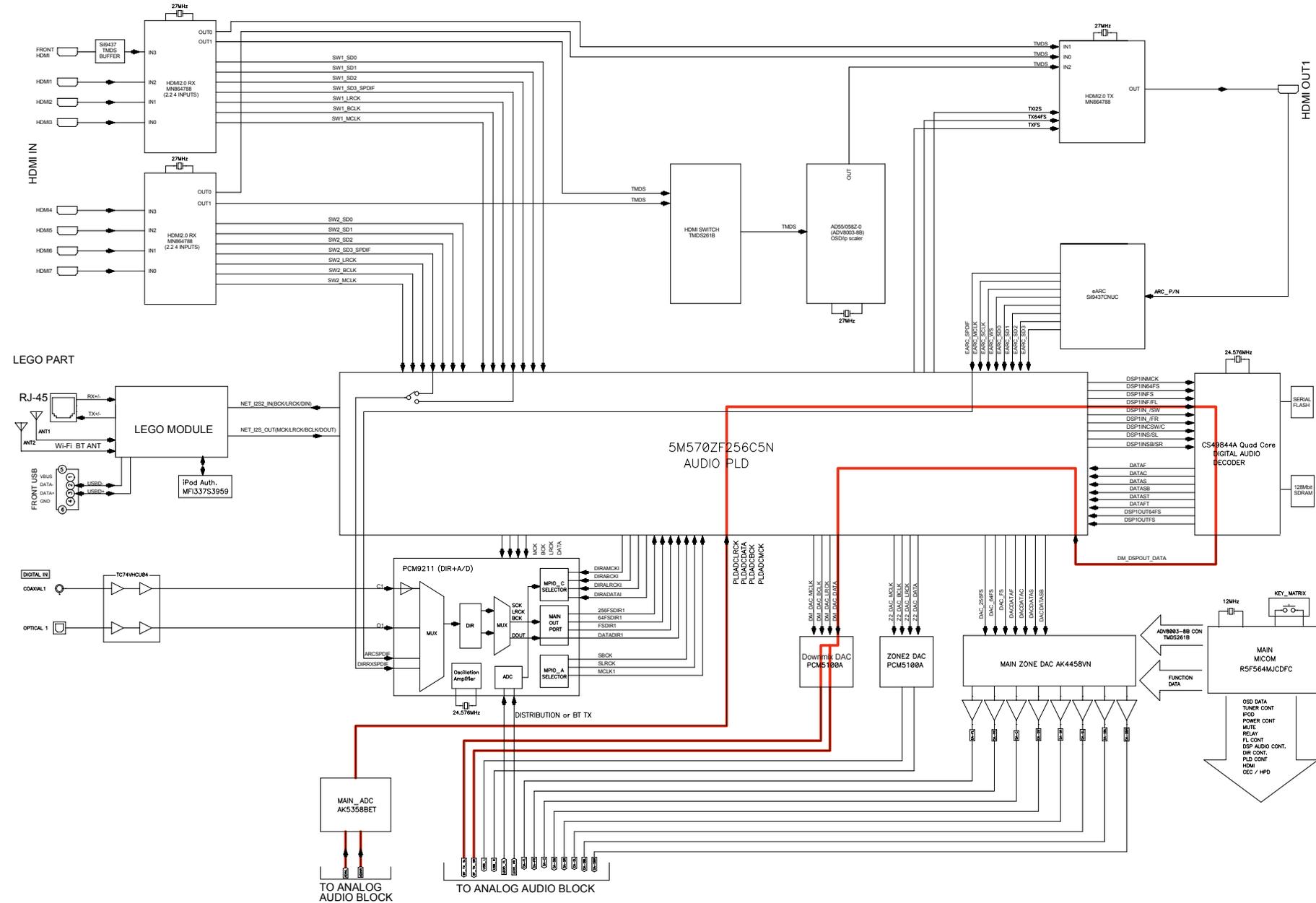


fig.A07b

NR1710 ANALOG AUDIO DIAGRAM

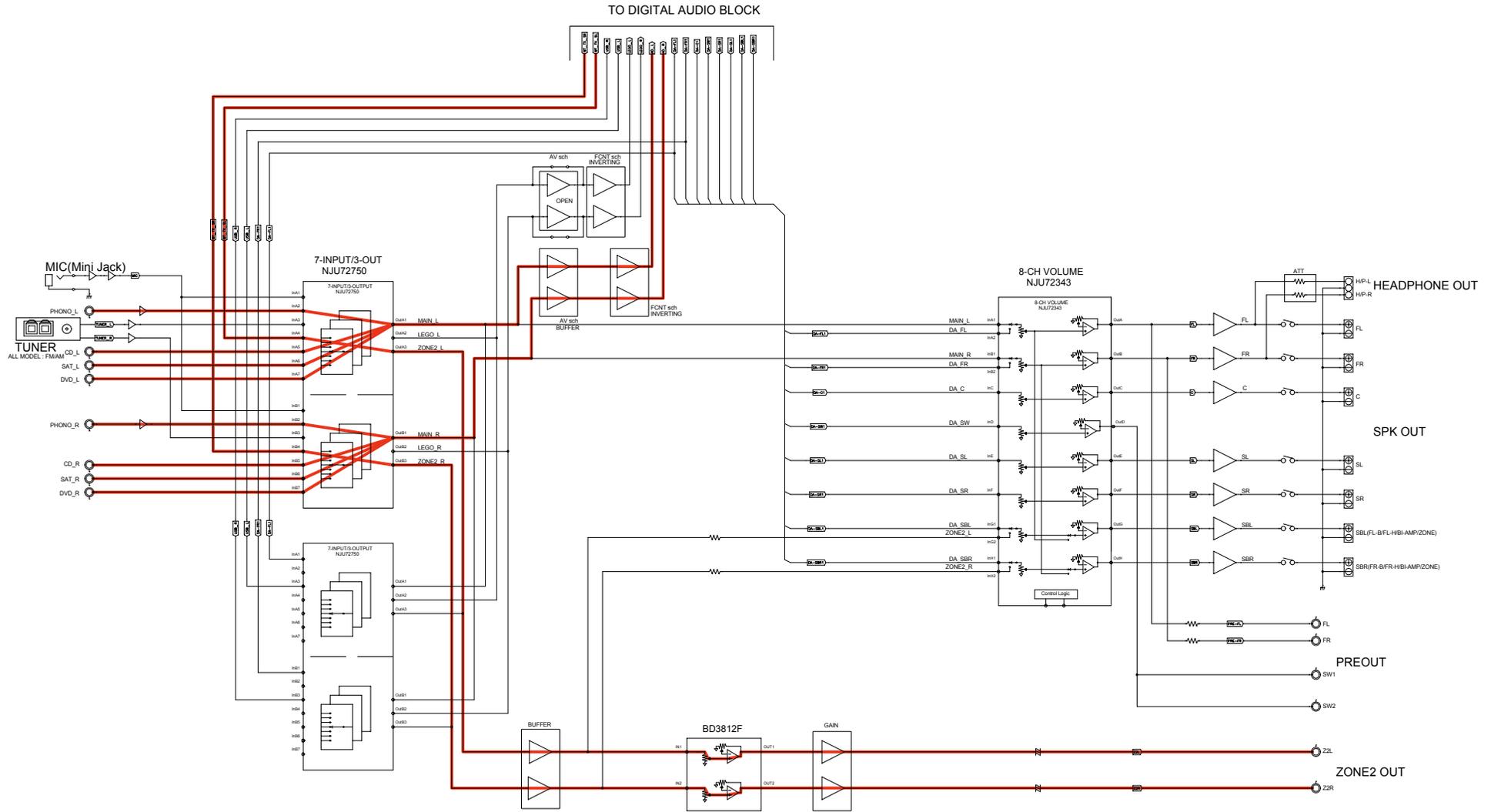
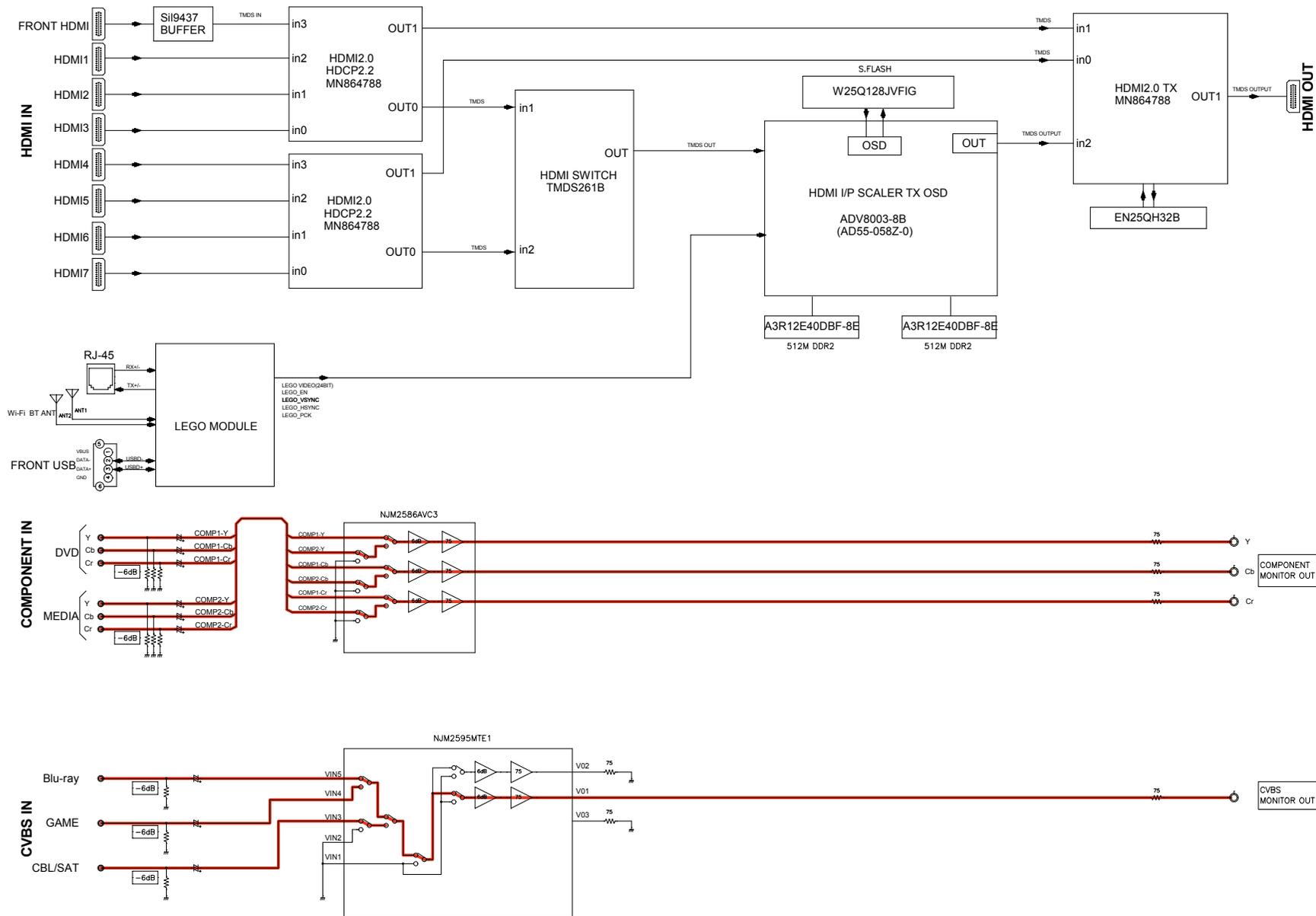


fig.V01

NR1710 VIDEO BLOCK DIAGRAM



Before Servicing
This Unit

Electrical

Mechanical

Repair Information

Updating

fig.V02

NR1710 VIDEO BLOCK DIAGRAM

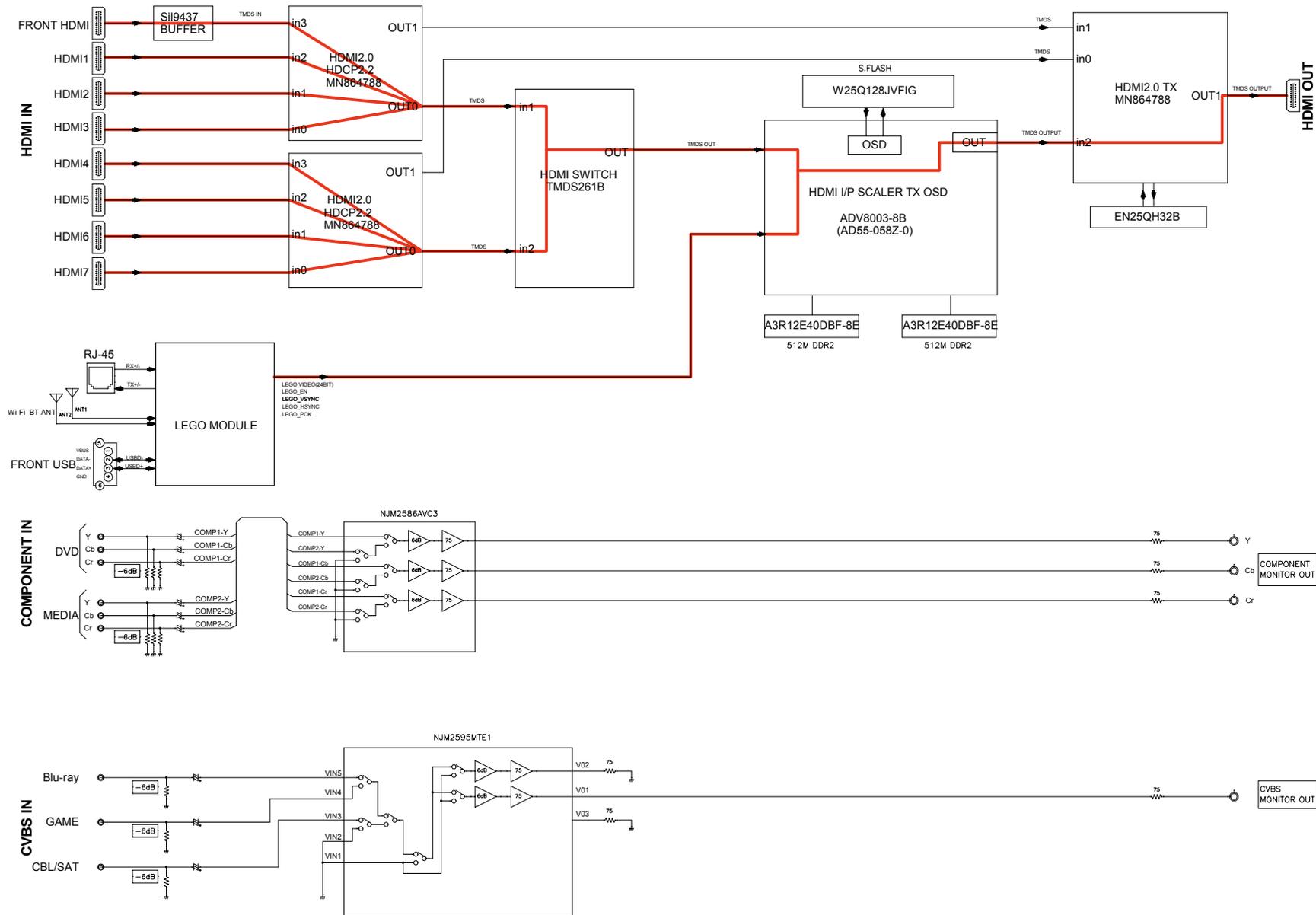


fig.V03

NR1710 VIDEO BLOCK DIAGRAM

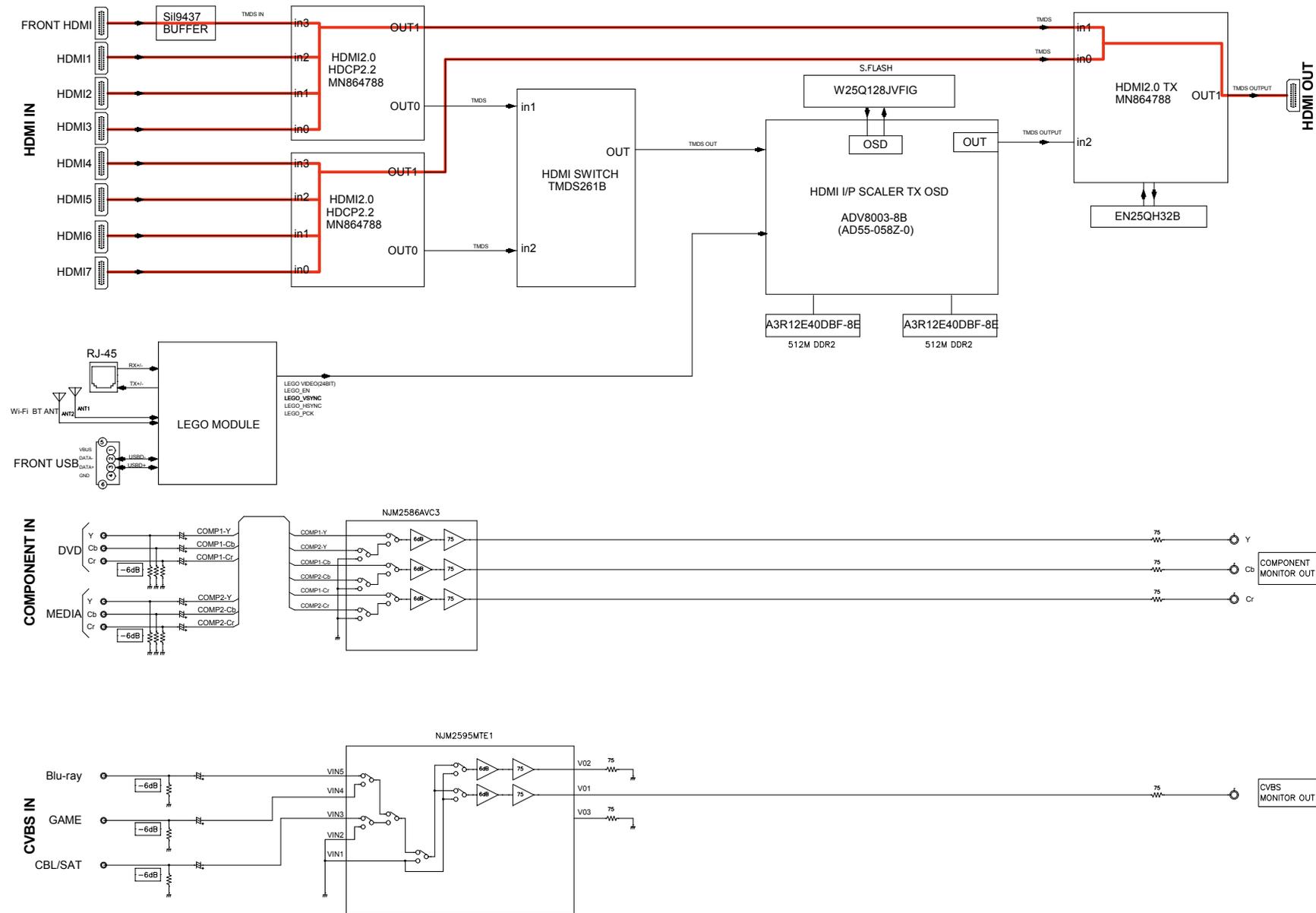


fig.V04

NR1710 VIDEO BLOCK DIAGRAM

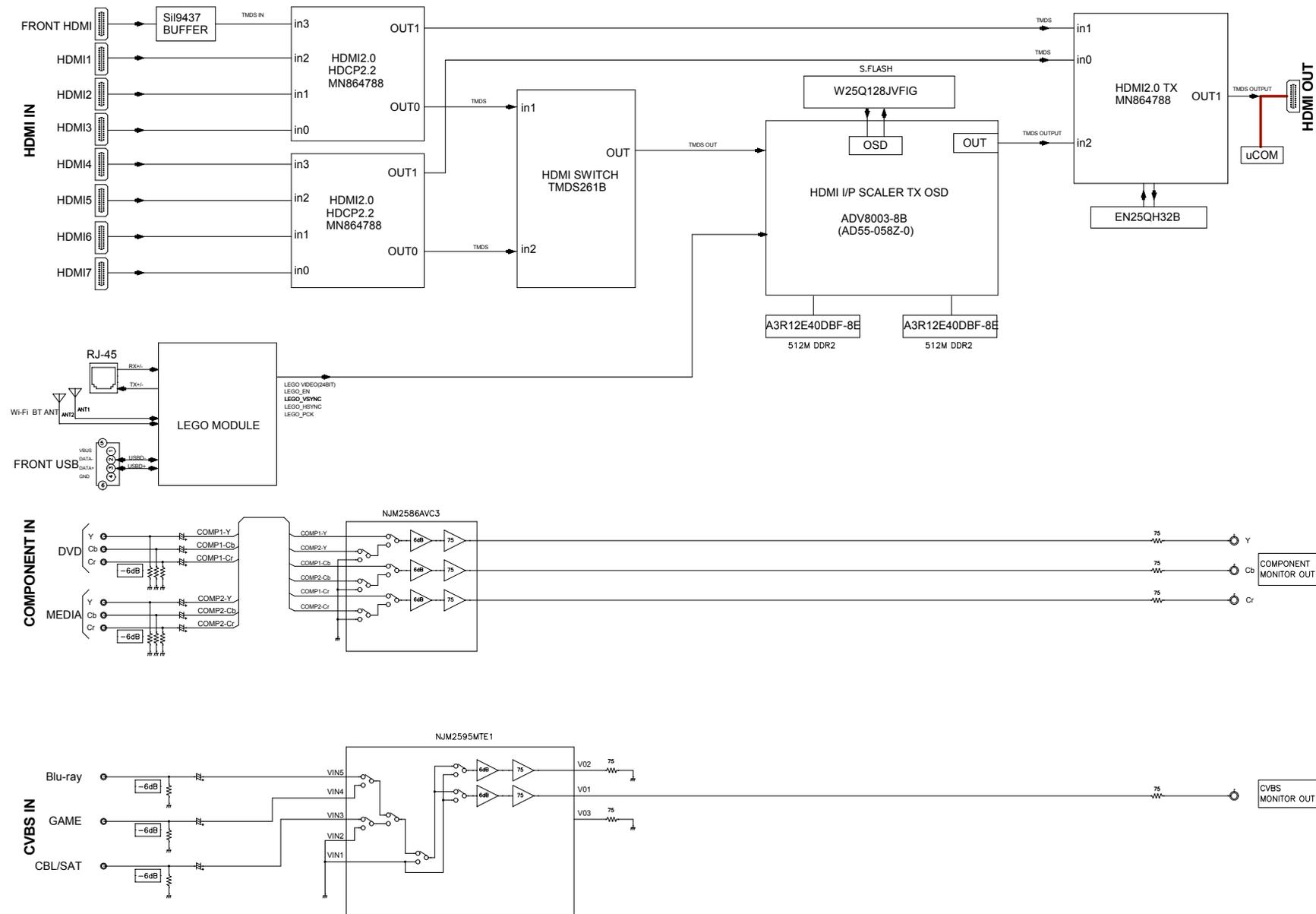


fig.V05a

NR1710 DIGITAL AUDIO DIAGRAM

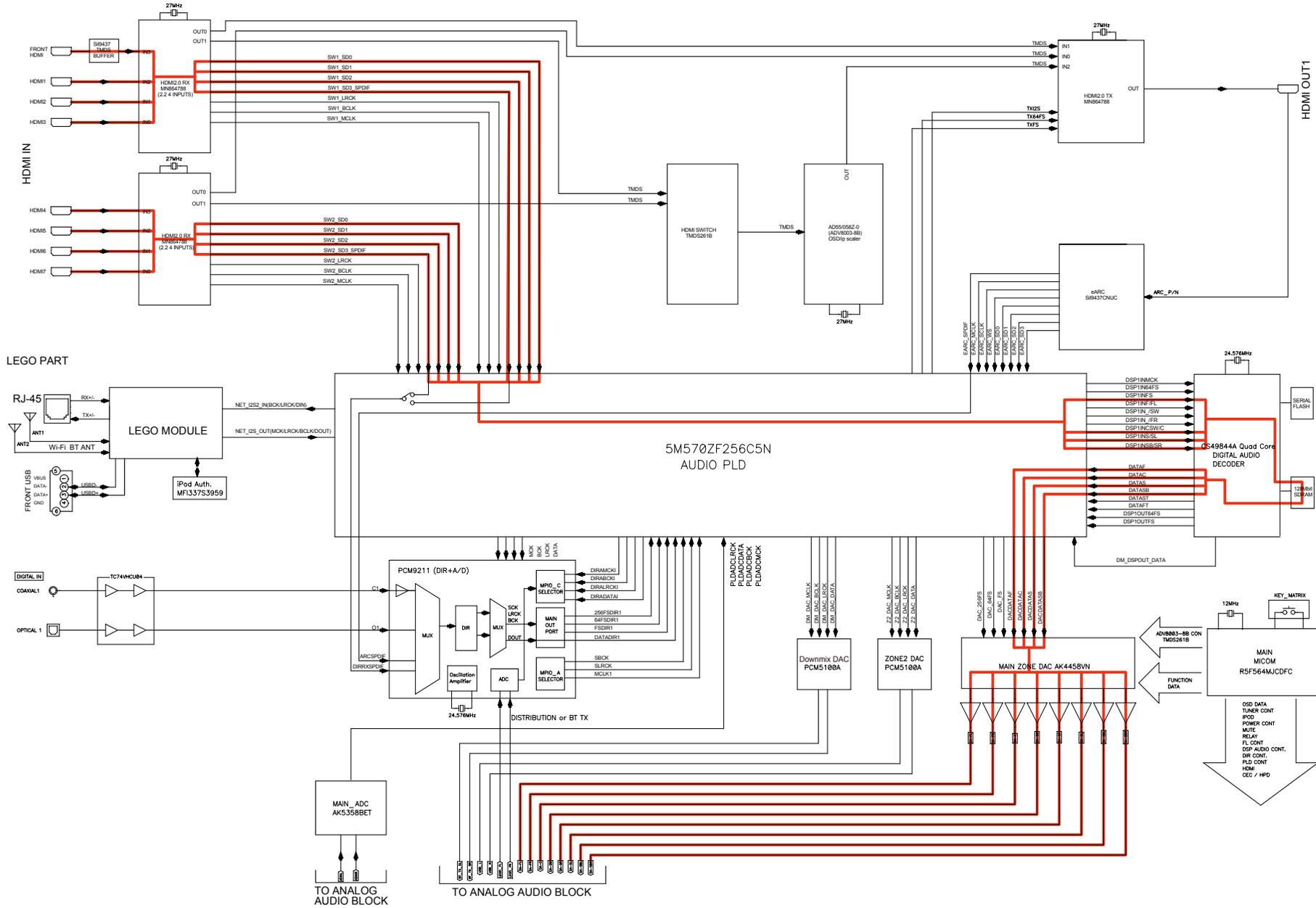


fig.V05b

NR1710 ANALOG AUDIO DIAGRAM

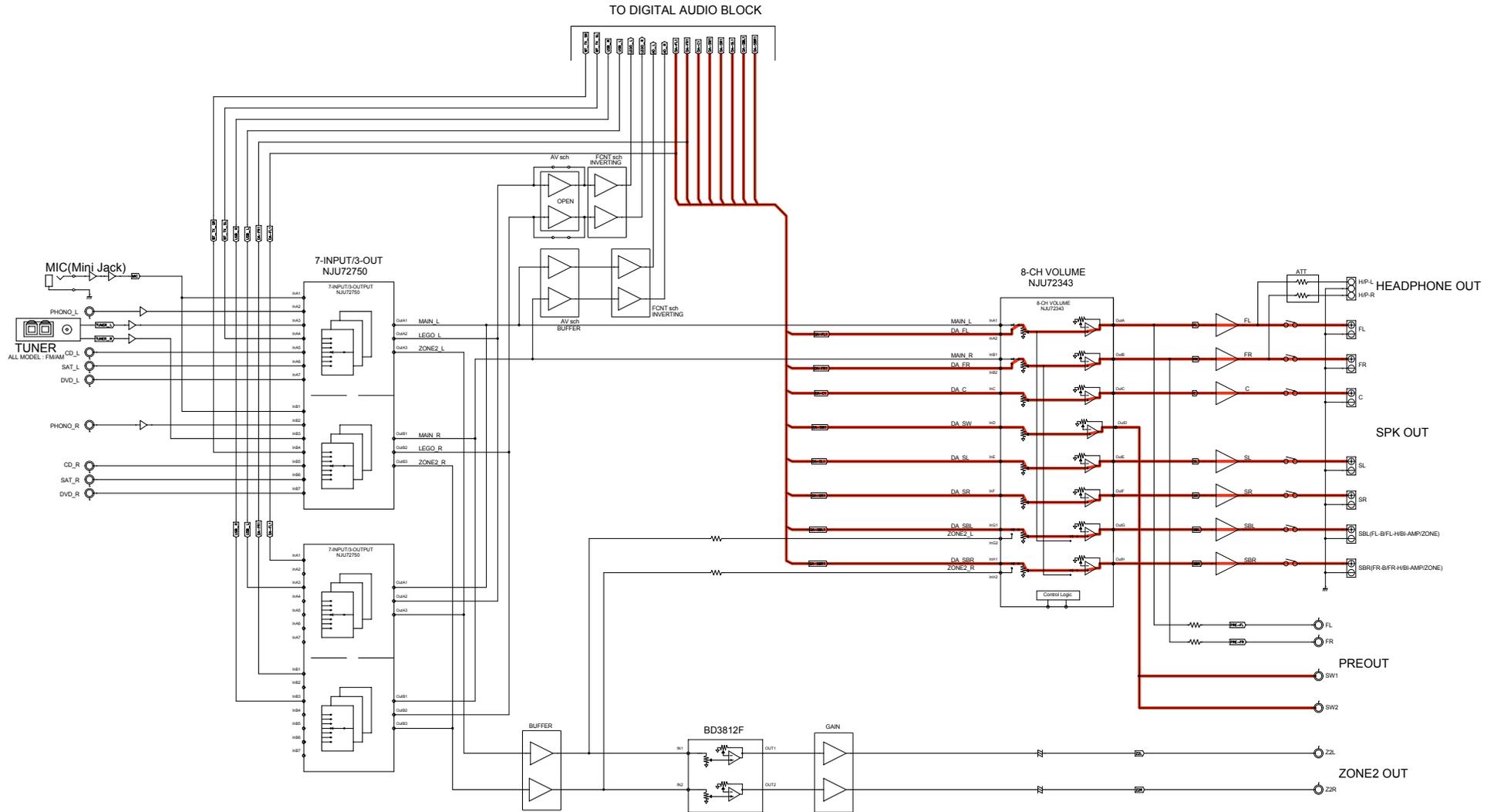


fig.V06

NR1710 DIGITAL AUDIO DIAGRAM

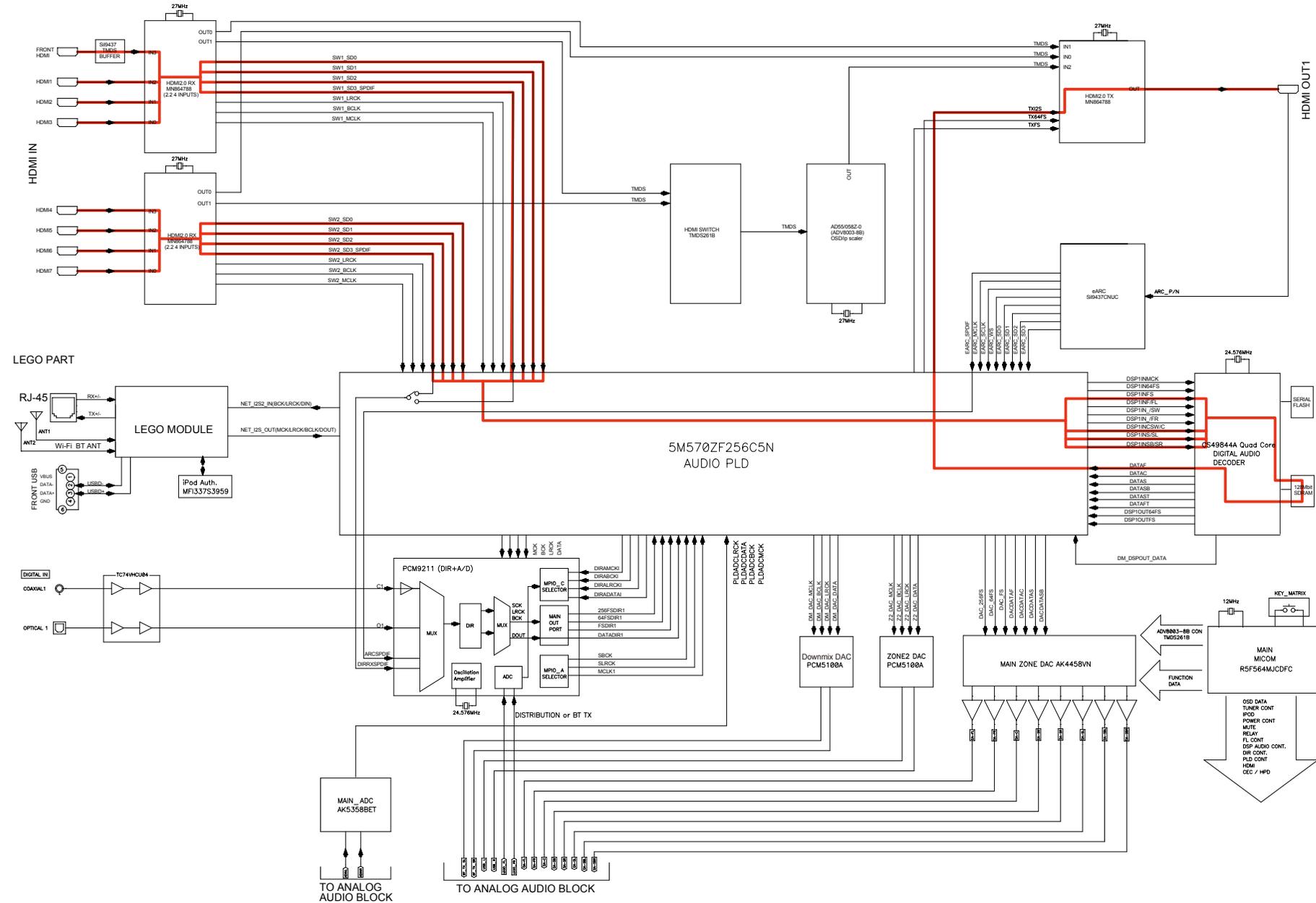
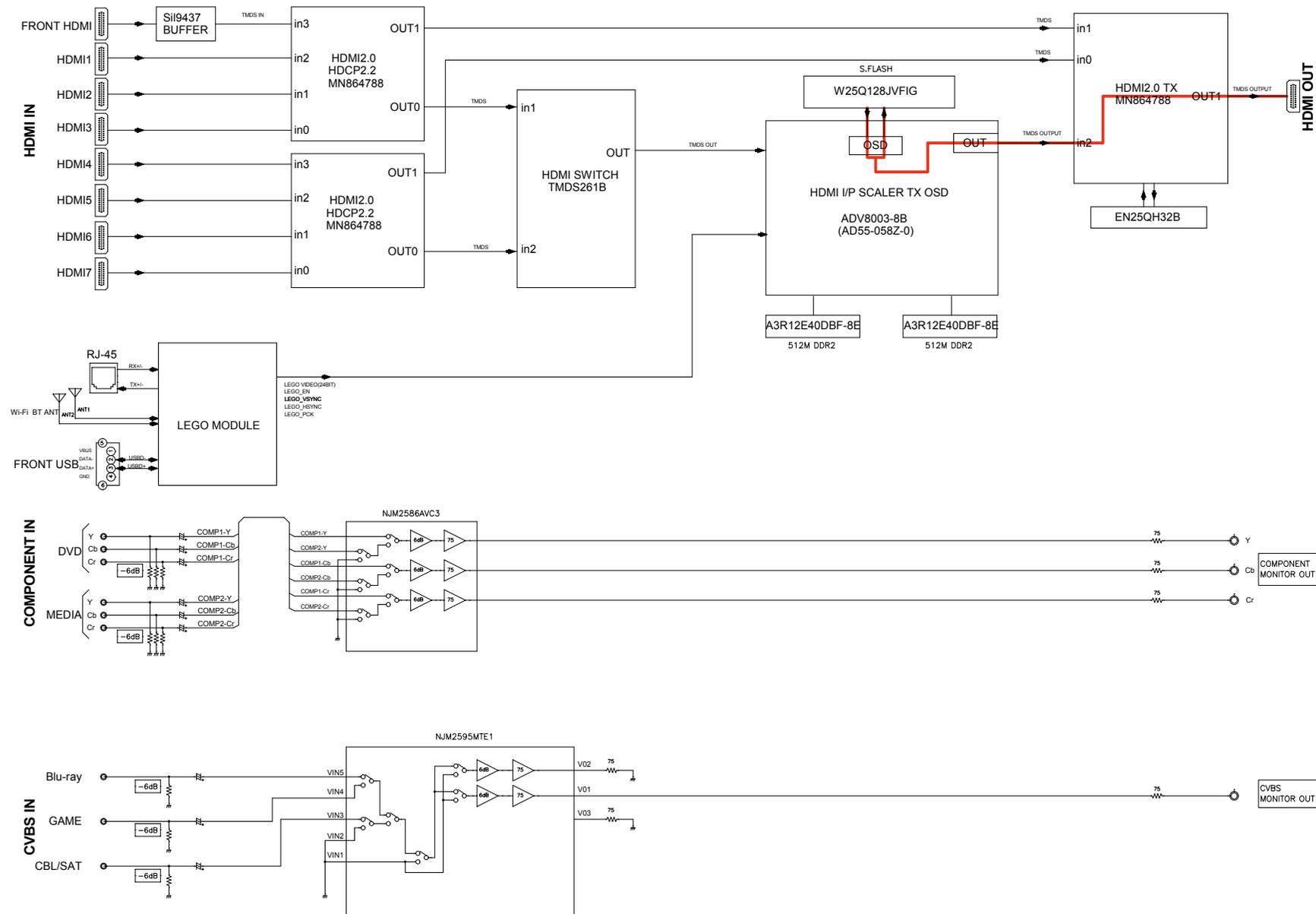


fig.V07

NR1710 VIDEO BLOCK DIAGRAM



JIG FOR SERVICING

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

CAUTION : Incorrect connections may cause malfunction.

Connection of Jig for DIGITAL PCB

---Items to Be Prepared---

8U-110084S : EXTENSION UNIT KIT : 1 Set
Insulation sheet (Not supplied) : 1 sheet
Ground lead (Not supplied) : 2 pc

-Proceeding-

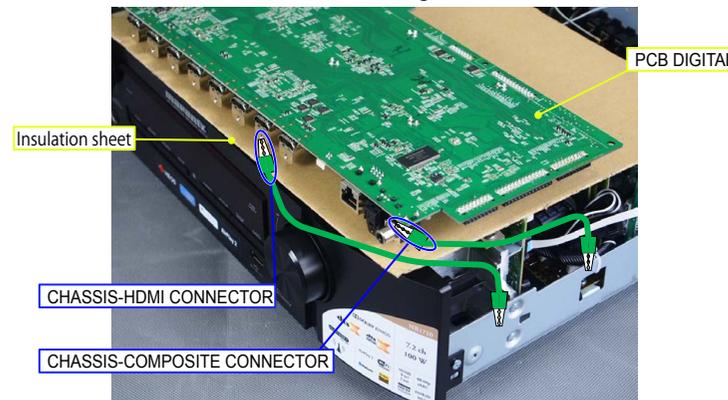
(1) Remove the screws.



(2) Remove the connector PCB.



(3) Remove the DIGITAL PCB from the chassis and turn it over.
Place an insulation sheet larger than the PCB underneath the DIGITAL PCB.
※ Connect the earth of the PCB to the chassis using an earth wire, etc.



(4) Connect the expansion cables.



Board-to-Board Connections

No.	Pin	Ref. No.	PCB		Ref. No.	PCB
①	17pin	CP4603	SIDE CNT	↔	N1022	DIGITAL
②	27pin	CP4601	SIDE CNT	↔	N1016	DIGITAL
③	19pin	CP4600	SIDE CNT	↔	N1014	DIGITAL
④	27pin	CP4616	FRONT CNT	↔	N1040	DIGITAL
⑤	15pin	CP4613	FRONT CNT	↔	N1039	DIGITAL

Before Servicing
This Unit

Electrical

Mechanical

Repair Information

Updating

Adjusting Idling Current

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

1. Preparation

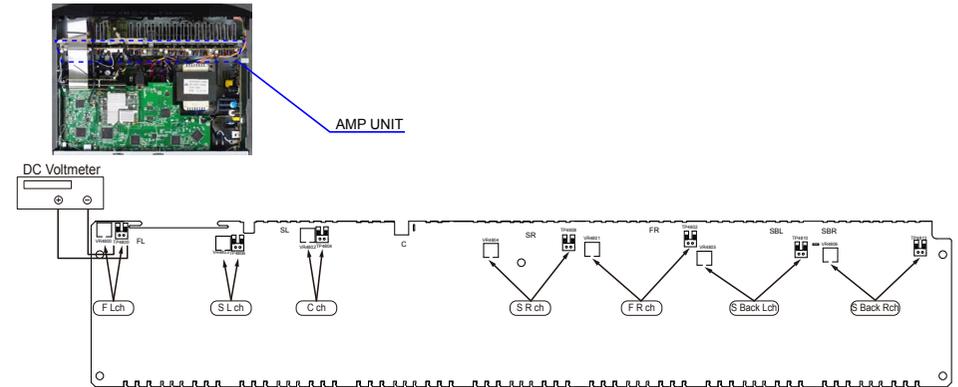
- (1) Prepare a DC voltmeter.
- (2) Place the unit under normal usage conditions, away from highly ventilated areas such as next to an air conditioning machine or electric fan.
The set requires an ambient temperature of 15°C to 30°C and standard humidity.
- (3) Settings of This Unit
 - POWER (Power source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

2. Adjustment Procedure

- (1) Make sure that "ECO Mode" is off.
 - Press the "SETUP" button on the remote control to display the GUI menu.
 - Press the cursor button to select "General" → "ECO" → "Mode" → "Off".
- (2) Remove the top cover and turn **VR4800** (ALL Channel) of the AMP PCB counterclockwise(⤵) as far as possible.
- (3) Connect the DC Voltmeter to the test points.

FRONT-Lch	: TP4800	: VR4800
FRONT-Rch	: TP4802	: VR4801
CENTER ch	: TP4804	: VR4802
SURROUND-Lch	: TP4806	: VR4803
SURROUND-Rch	: TP4808	: VR4804
SURROUND-BACK Lch	: TP4810	: VR4805
SURROUND-BACK Rch	: TP4813	: VR4806
- (4) Connect the power cord to an outlet. Next, press the power button to turn on the power.
- (5) Set this unit as follows.

MASTER VOLUME	: "----" (⤵ min.) : turn counterclockwise to the lowest position.
SPEAKER (Speaker terminal)	: No load (Do not connect equipment such as speakers or dummy resistors.)
MODE	: MCH STEREO
FUNCTION	: TUNER
- (6) Turn **VR4800** clockwise (⤴) and adjust the voltage of the test point to "**2.0mV ± 0.5mV DC**" within 2 minutes.
- (7) Check whether the voltage is within the range "**2.0mV +2mV/-1mV DC**" 10 minutes after adjustment.
- (8) Adjust the variable resistance of each channel using the same method.



PROCEDURE AFTER REPLACING THE PCB.

PROCEDURE AFTER REPLACING THE U-COM, ETC.

FIRMWARE UPDATE PROCEDURE

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

PROCEDURE AFTER REPLACING THE PCB.

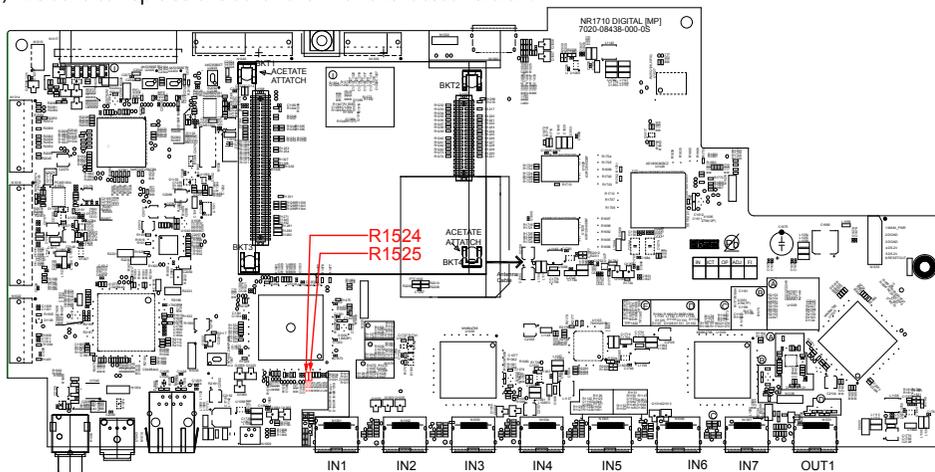
The procedure after replacing the printed circuit boards is as follows.

(1) Change the resistor for setting the region.

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

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 MCU (microprocessor), flash ROM, etc. is as follows.

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

PCB Name	Ref. No.	Description	Procedure after Replacement	Remark
DIGITAL	U1018	R5F564MJCDFC 32BIT	B	SOFTWARE : Main
DIGITAL	U1025	MX25L6406EM2I-12G 64M	B	SOFTWARE : DSP ROM
DIGITAL	U1027	W25Q128JVFIQ	B	SOFTWARE : GUI ROM
DIGITAL	U1041	5M570ZF256C5N	C	SOFTWARE : AUDIO PLD
DIGITAL	U1053	EN25QH32B-104HIP2C	B	SOFTWARE : PIMG ROM
MODULE	P6	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.

Before Servicing This Unit

Electrical

Mechanical

Repair Information

Updating

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
NR1710	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
NR1710 U	North America (U)	Product ID : 100100750100	DPMS_NR1710ALL_LEGO_xxxx.zip	heos_40.prod_x.xxx.xx.zip
NR1710 N	Europe (N)	Product ID : 100100750200		
NR1710 F	Japan (F)	Product ID : 100100750400		

Before Servicing
This Unit

Electrical

Mechanical

Repair Information

Updating

2. Update preparation with a USB flash drive

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

2.1. Connecting to the USB flash drive

(1) Preparation

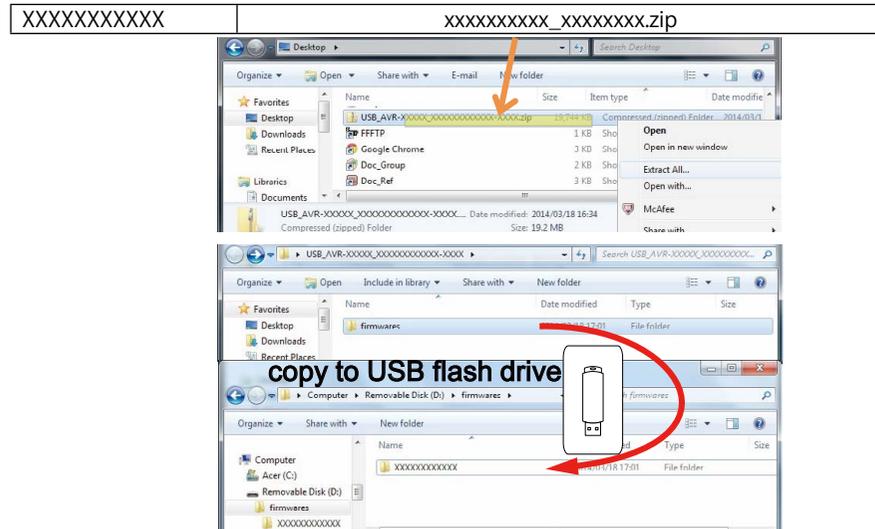
- Windows PC
- USB flash drive format : Prepare a USB flash drive formatted in FAT16 or FAT32.
※We recommend a USB flash drive that has an LED installed.

NOTE :

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

2.2. Unzipping the Downloaded File

Unzip the downloaded file on your computer.



There are folders or files after unzipping.

Copy these folders or files onto the USB flash drive.

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

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

3.1. File structure on USB flash drive

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

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

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

USB flash drive root

- + avr_40.prod.update.factory
- + xxxxxxx.ota-download
- + heos_40.prod.update.factory

xxxxxx : Model name
zz : Region



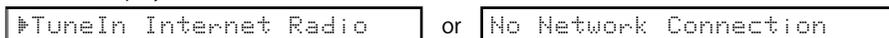
3.2. Start the update.

NOTE :

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

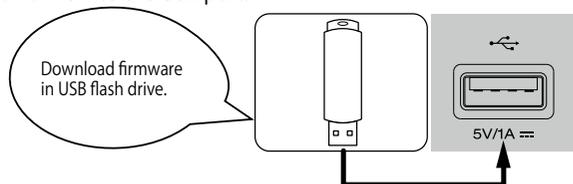
Once an update is started, normal operations cannot be performed until it is completed.

- (1) Press the power button to turn on the power.
- (2) Wait for this unit to start up.
- (3) Set the input source to HEOS Music. Check that the display is as shown below.



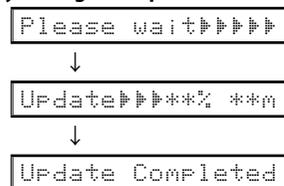
Content of the display is scrolled.

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



- (5) USB Update starts automatically. The Standby LED lights red.

Display during USB update

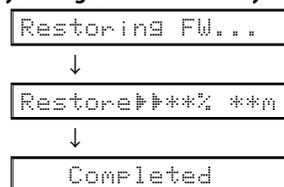


It takes a maximum of approximately 25 minutes for update to complete.

- (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 "STATUS" and "PURE DIRECT" simultaneously, press the power button to turn on the power.

Display during Firmware Factory Restore



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

- (8) Execute Service Region Settings. See "4. Update Method for Service Region Settings"
- (9) Check that the version is the specified version. See "1. Version Display Mode"
- (10) If necessary, use OTA or the USB flash drive to update the firmware to the newest version.
 - ※We recommend using the firmware update method using OTA. See "5. Normal Firmware Update Method from USB Flash Drive" or "6. Normal Firmware Update Method from OTA"

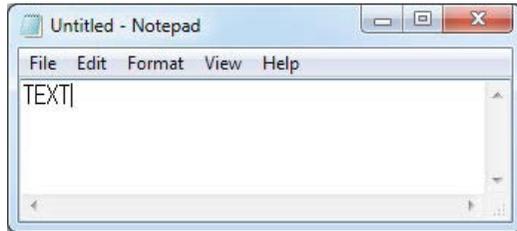
4. Update Method for Service Region Settings

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

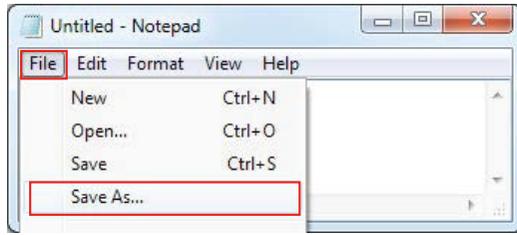
4.1. Creating a Service Region Settings file

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

(2) Enter "TEXT".



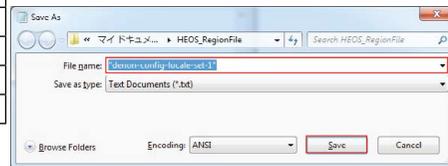
(3) Click "File", and then click "Save As...".



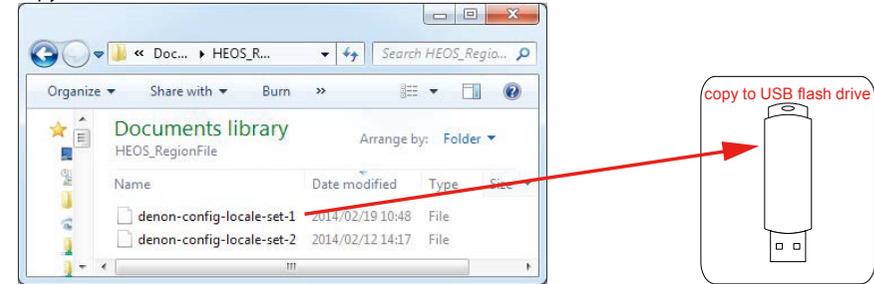
(4) Enter the file name and click the Save button.

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

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



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

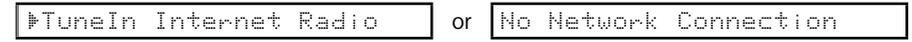


4.2. Starting Service Region Settings

NOTE :

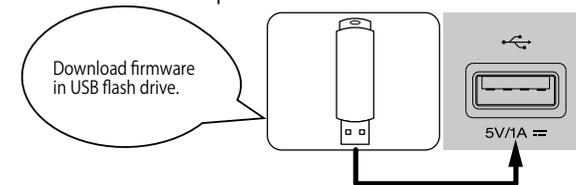
- Remove the LAN cable from this unit when updating. (Do not connect to a wired or wireless network.)
- We recommend a USB memory device that has an LED installed.

- (1) Press the power button to turn on the power.
- (2) Wait for this unit to start up.
- (3) Set the input source to HEOS Music.
Check that the display is as shown below.



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

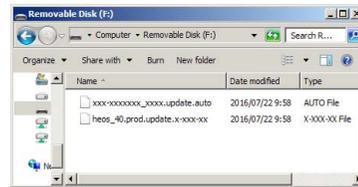
Copy the normal update files onto the USB flash drive in the following structure.

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_NR1710ALL_LEGO_XXXX.zip Product ID : 100100750100	heos_40.prod_x.xxx.xx.zip
Europe (N)	DPMS_NR1710ALL_LEGO_XXXX.zip Product ID : 100100750200	
Japan (F)	DPMS_NR1710ALL_LEGO_XXXX.zip Product ID : 100100750400	

USB flash drive root

- + NRxxxx_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.)
- Do not remove the USB flash drive until updating is completed.
- Do not turn off the power until updating is completed.
- It takes a maximum of approximately 25 minutes for update to complete.

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

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

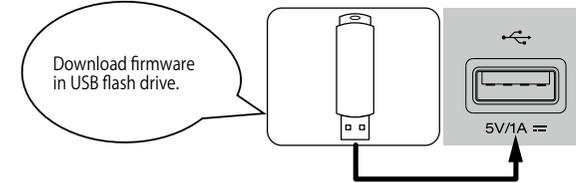
Note down the settings before updating, and set them again after updating.

- (1) Press the power button to turn on the power.
- (2) Wait for this unit to start up.
- (3) Set the input source to HEOS Music.
Check that the display is as shown below.

▶TuneIn Internet Radio or No Network Connection

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

Please wait▶▶▶▶▶▶



Update▶▶▶▶% **n



Update Completed

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

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

6. Normal Firmware Update Method from OTA

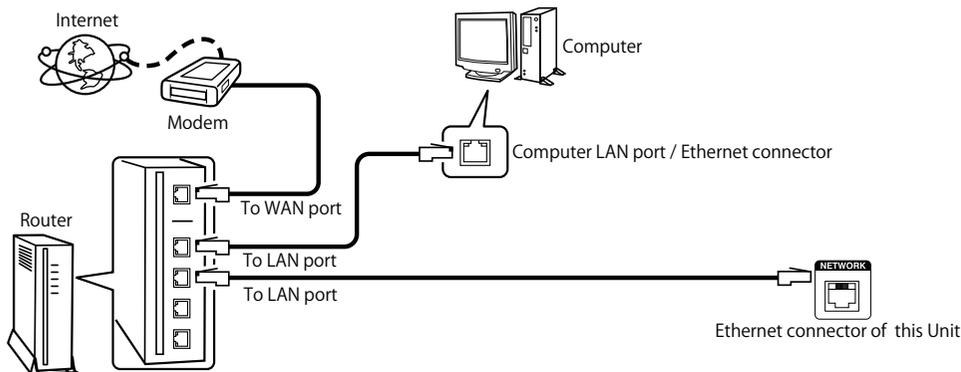
Download the latest firmware from our website and update the firmware.

---Cautions on Firmware Update---

- For the update procedure, a proper broadband Internet connection environment and settings are required.
 - Do not turn off the power until updating is completed.
 - It takes a maximum of approximately 25 minutes for update to complete.
- Once an update is started, normal operations cannot be performed until it is completed. The GUI menu settings and image adjustment settings of this unit may be initialized. Note down the settings before updating, and set them again after updating.

6.1. Network Connection

- (1) System Requirements
 - Internet Connection by Broadband Circuit
 - Modem
 - Router
 - Ethernet cable (CAT-5 or greater is recommended)
- (2) Setting

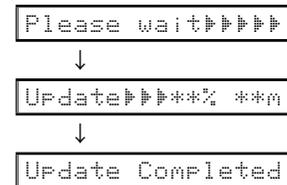


6.2. Check and update the firmware

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

- (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



- 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"

7. About the error codes

See the table below for details on error codes and solutions when updating the firmware. Error codes are displayed in 4 digits, **YYXX**(**YY**: DeviceID, **XX**: ErrorCode).

Display

Update▶▶▶▶**% **n



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

↓ ↑ The display is alternately displayed.

Please check you

Content of the display is scrolled.

Remedies

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

Device ID table

Device ID (YY)	Device Name
00	General
01	Main CPU
0E	Main FBL (No used)
11	DSP1 or DSP
12	DSP2 ※ Except : NR1510/NR1710/SR5014
13	DSP3 ※ Except : NR1510/NR1710/SR5014
19	DSP4 ※ Except : NR1510/NR1710/SR5014
15	Audio PLD
22	Video PLD ※ Except : NR1510/NR1710
2A	GUI
2B	PIMG ※ ONLY : NR1510/NR1710/SR5014
33	LEGO

Error Code table

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