

SCD-XB940

SONY®

*AEP Model
UK Model*

SERVICE MANUAL

SUPPLEMENT-1

File this supplement with the service manual.

Subject:

1. Addition of Test Mode
2. Addition of Block Diagram and IC Pin Function Description

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1. TEST MODE

Jigs

- Disc

Model	Type *1	Category	Application
HLX-503/ HLX-504	SL	12 cm	adjustment and check
HLX-501/ HLX-505	DL	12 cm	adjustment and check
PATD-012	CD	12 cm	adjustment and check
*2	HYBRID -L1	12 cm	adjustment and check
	HYBRID -L0	12 cm	adjustment and check
	SL	8 cm	Check
	CD	8 cm	Check
	HYBRID -L1	8 cm	Check

*1 SL: Single Layer

DL: Dual Layer

*2 Normally do not use.

- Remote Commander
- Extension cable (MAIN board (CN601) ↔ DISPLAY board (CN202)) (Part No. J-2501-195-A)

How to Enter the Test Mode

With  controller pressed, turn the **POWER** switch ON. Then, immediately press  button. If  button is not pressed, the set will start in normal mode. When the Test mode is activated, “Test Mode Menu” is displayed.

How to Exit the Test Mode

Turn the **POWER** switch OFF, and the Test mode is deactivated.

Selection of Test Mode

To select “Test Mode Menu”, perform as follows.

- (1) Rotating  controller, select the menu and press  controller to enter. (If the remote commander is available, select and enter the number directly.)
- (2) To return to the previous step, press  button.

Contents of “Test Mode Menu”

DISPLAY	Contents of Menu
0. Syscon Diag	Self diagnosis
1. Auto Adjust	Servo adjustment (Auto)
2. Manual Opr	Manual operation adjustment
3. Mecha Aging	Mechanism aging
4. Emg History	Servo emergency history information display
5. Ver Info	Version information display
6. RF Jit Disp	RF jitter measured value display
7. PDM Mode	Normally do not use
8. CDM Adjust	Normally do not use
9. Set Up Init	Initializing and restart
10. Sld Ship Pos	Sled ship position

Execution of Test Mode Menu

0. Syscon Diag menu

From the “Test Mode Menu”, rotate  controller counterclockwise to select “0. Syscon Diag”. Press  controller, and “SELF DIAG Menu” will be displayed. Rotating

 controller can select the following menu.

DISPLAY	Contents of Menu
0. All (SELF)	Self diagnosis of all items 1. – 7.
1. SRAM	Self diagnosis of SRAM
2. EEPROM	Self diagnosis of EEPROM
3. HGA	Self diagnosis of HGA
4. Servo DSP	Self diagnosis of servo DSP
5. ARP	Self diagnosis of ARP
6. SADC Chip	Self diagnosis of SADC chip
7. SD Bus	Self diagnosis of SD Bus
8. Diag Hist	Self diagnosis emergency history display

(1) 0. All (SELF)

From the “SELF DIAG Menu” display, rotate  controller clockwise to select “0. All (SELF)”, and press  controller. Then, the self diagnosis of items 1. –7. will be executed in the following order. At successful completion, “All Success” is displayed and the set returns to the first step.

“0. All (SELF)” → “SRAM Check” → “ExSRAM Start” → “ExRAM OK” → “EEPROM Check” → “EEPROM Start” → “Check 00” → “Check 10” → “Check 20” → “Check 30” → “Check 40” → “Check 50” → “Check 60” → “Check 70” → “Check 80” → “Check 90” → “Check A0” → “Check B0” → “Check C0” → “Check D0” → “Check E0” → “Check F0” → “EEPROM OK” → “HGA Check” → “HGA Start” → “HGA OK” → “Servo DSP” → “SDSP Start” → “SDSP OK” → “ARP Register” → “ARP Reg Start” → “ARP Reg OK” → “ARP Data” → “ARP DBus Start” → “ARP DBus OK” → “ARP Address” → “ARP ABus Start” → “ARP ABus OK” → “ARP DRAM” → “ARP DRAM Start” → “Wait ...” → “ARP DRAM OK” → “DSD Chp Bus” → “DSD Bus Start” → “DSD Bus OK” → “DSD Chp DRAM” → “DSD DRAM Start” → “Wait ...” → “DSD DRAM OK” → “SDBus Check” → “SDBus Start” → “Wait ...” → “SDBus OK” → “All Success” → “0. All (SELF)”

In case of an error in the Self Diag mode, the diagnosis restarting method can be selected in three ways, “QUIT”, “REPEAT” and “CONTINUE”, which function as follows:

QUIT : Quit diagnosis and return to the menu.

REPEAT : Restart diagnosis from the address where an error occurred.

CONTINUE : Restart diagnosis from the address next to the one where an error occurred.

- The error codes are listed in Self diagnosis error code list. (see page 8)

(2) 1. SRAM

From the “SELF DIAG Menu” display, rotate  controller clockwise to select “1. SRAM” and press  controller.

Then, “ExSRAM Start” → “ExRAM OK” → “1. SRAM” will be displayed and the check will finish.

(3) 2. EEPROM

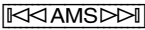
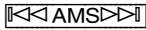
From the “SELF DIAG Menu” display, rotate  controller clockwise to select “2. EEPROM” and press  controller.

Then, the following will be displayed and the check will finish.

“EEPROM Start” → “Check 00” → “Check 10” → “Check 20” → “Check 30” → “Check 40” → “Check 50” → “Check 60” → “Check 70” → “Check 80” → “Check 90” → “Check A0” → “Check B0” → “Check C0” → “Check D0” → “Check E0” →

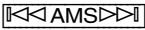
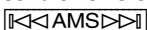
“Check F0” → “EEPROM OK” → “2. EEPROM”

(4) 3. HGA

From the “SELF DIAG Menu” display, rotate  controller clockwise to select “3. HGA” and press  controller.

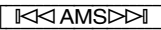
Then, “HGA Start” → “HGA OK” → “3. HGA” will be displayed and the check will finish.

(5) 4. Servo DSP

From the “SELF DIAG Menu” display, rotate  controller clockwise to select “4. Servo DSP” and press  controller.

Then, “SDSP Start” → “SDSP OK” → “4. Servo DSP” will be displayed and the check will finish.

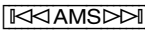
(6) 5. ARP Check

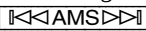
From the “SELF DIAG Menu” display, rotate  controller clockwise to select “5. ARP”.

• Checking items

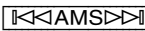
DISPLAY	Contents of Check
0. All Check	Check of all items 1. – 4.
1. ARP Register	ARP register check
2. ARP Data	ARP data check
3. ARP Address	ARP address check
4. ARP DRAM	ARM DRAM check

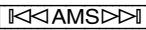
① 1. ARP Register

From the “5. ARP” display, press  controller, and then “1. ARP Register” will be displayed.

Press  controller once more, and then “ARP Reg Start” → “ARP Reg OK” will be displayed and the check will finish.

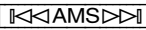
② 2. ARP Data

From the “1. ARP Register” display, rotate  controller clockwise to select “2. ARP Data”.

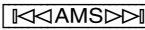
Press  controller, and then “ARP DBus Start” → “ARP DBus OK” → “2. ARP Data” will be displayed and the check will finish.

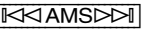
③ 3. ARP Address

From the “1. ARP Register” display, rotate  controller clockwise to select “3. ARP Address”.

Press  controller, and then “ARP ABus Start” → “ARP ABus OK” → “3. ARP Address” will be displayed and the check will finish.

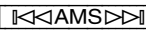
④ 4. ARP DRAM

From the “1. ARP Register” display, rotate  controller clockwise to select “4. ARP DRAM”.

Press  controller, and then “ARP DRAM Start” → “Wait ...” → “ARP DRAM OK” → “4. ARP DRAM” will be displayed and the check will finish.

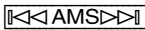
⑤ 0. All Check

From the “1. ARP Register” display, rotate  controller counterclockwise to select “0. All Check”.

Press  controller, and then the following will be displayed and the check will finish.

“ARP Register” → “ARP Reg Start” → “ARP Reg OK” → “ARP Data” → “ARP DBus Start” → “ARP DBus OK” → “ARP Address” → “ARP ABus Start” → “ARP ABus OK” → “ARP DRAM” → “ARP DRAM Start” → “Wait ...” → “ARP DRAM OK” → “Diag Success” → “0. All Check”

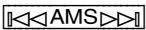
(7) 6. SACD Chip

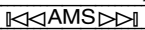
From the “SELF DIAG Menu” display, rotate  controller clockwise to select “6. SACD Chip”.

• Checking items

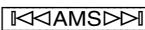
DISPLAY	Contents of Check
0. All Check	Check of all items 1. and 2.
1. DSD Chp Bus	Check presence of error in SACD DSD Chp Bus
2. DSD Chp DRAM	Check presence of error in SACD DSD Chp DRAM

① 1. DSD Chp Bus

From the “6. SACD Chip” display, press  controller, and then “1. DSD Chp Bus” will be displayed.

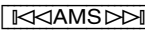
Press  controller once more, and then “DSD Bus Start” → “DSD Bus OK” → “1. DSD Chp Bus” will be displayed and the check will finish.

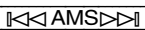
② 2. DSD Chp DRAM

From the “1. DSD Chp Bus” display, rotate  controller clockwise to select “2. DSD Chp DRAM”.

Press  controller, and then “DSD DRAM Start” → “Wait ...” → “DSD DRAM OK” → “DSD Chp DRAM” will be displayed and the check will finish.

③ 0. All Check

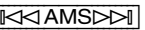
From the “1. DSD Chp Bus” display, rotate  controller counterclockwise to select “0. All Check”.

Press  controller, and then the following will be displayed and the check will finish.

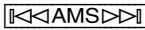
“DSD Chp Bus” → “DSD Bus Start” → “DSD Bus OK” → “DSD Chp DRAM” → “DSD DRAM Start” → “Wait ...” → “DSD DRAM OK” → “Diag Success” → “0. All Check”

(8) 7. SDBus

From the “SELF DIAG Menu” display, rotate  controller clockwise to select “7. SDBus”.

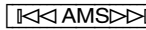
Press  controller, and then “SDBus Start” → “Wait ...” → “SDBus OK” → “7. SDBus” will be displayed and the check will finish.

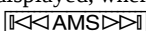
(9) 8. Diag Hist

From the “SELF DIAG Menu” display, rotate  controller clockwise to select “8. Diag Hist”.

Press  controller, and then “1.” will be displayed, and as the  controller is rotated clockwise, “2.” – “10.” will be displayed.

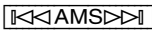
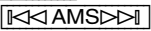
1. Auto Adjust Menu

From the “Test Mode Menu”, rotate  controller clockwise to select “1. Auto Adjust”.

Press  controller, and then “Auto Adj Menu” will be displayed, where you can select the following menu by rotating the  controller.

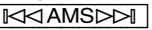
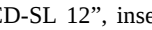
DISPLAY	Contents of Adjustment
0. All (Adjust)	Adjustment of all items 1. – 3.
1. SACD-SL	SACD-SL adjustment
2. CD	CD adjustment
3. SACD-DL	SACD-DL adjustment
4. HYBRID	HYBRID adjustment
5. All-Adj LFO	Adjustment of all items 1. – 3. with LFO value
6. Memory Check	Memory check

(1) 0. All (Adjust)

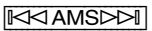
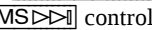
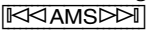
From the “Auto Adj Menu”, rotate  controller clockwise to select “0. All (Adjust)”. Press  controller, and then the servo setting data in the EEPROM will be cleared and initialized. After that, set the disc following the message and press  controller, so that the adjustments 1. – 3. are executed in order.

- ① In setting a disc, the disc type and size necessary for adjustment are displayed such as “Set SACD-SL 12”, and accordingly set the specified disc.
- ② Each time the adjustment for one disc finished, the disc is ejected. Replace it with the disc specified by the message.
- ③ In performing auto adjustment that requires the Loop Filter Offset value to be adjusted, from the “Auto Adj Menu”, rotate  controller clockwise to select “5. All-Adj LFO”. Set default value to the servo setting in the EEPROM, and then perform the Loop Filter Offset adjustment. For details of the adjustment, see (6) 5. All-Adj LFO.

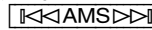
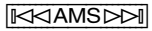
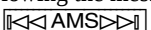
(2) 1. SACD-SL (Single Layer Disc) Adjustment

From the “Auto Adj Menu”, rotate  controller to select “1. SACD-SL”, and press  controller. Following the message “Set SACD-SL 12”, insert the disc and press  controller. Then, the adjustment will be executed in the adjustment values will be written to the EEPROM. Upon completion, “Remove Disc” message is displayed and the CD is ejected.

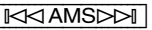
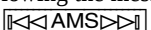
(3) 2. CD (CD Disc) Adjustment

From the “Auto Adj Menu”, rotate  controller to select “2. CD”, and press  controller. Following the message “Set CD 12”, insert the disc and press  controller. Then, the adjustment will be executed in the adjustment values will be written to the EEPROM. Upon completion, “Remove Disc” message is displayed and the CD is ejected.

(4) 3. SACD-DL (Dual Layer Disc) Adjustment

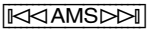
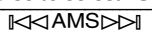
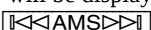
From the “Auto Adj Menu”, rotate  controller to select “3. SACD-DL”, and press  controller. Following the message “Set SACD-DL 12”, insert the disc and press  controller. Then, the adjustment will be executed in the following steps and the adjustment values will be written to the EEPROM. Upon completion, “Remove Disc” message is displayed and the CD is ejected.

(5) 4. HYBRID (Hybrid Disc CD Layer) Adjustment

From the “Auto Adj Menu”, rotate  controller to select “4. HYBRID”, and press  controller. Following the message “Set HYBRID 12”, insert the disc and press  controller. Then, the adjustment will be executed in the following steps and the adjustment values will be written to the EEPROM.

However, if a hybrid disc (12 cm) is not available, skip this adjustment. In this case, press the  button to quit the adjustment. Upon completion, “Remove Disc” message is displayed and the CD is ejected.

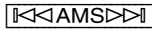
(6) 5. All-Adj LFO

From the “Auto Adj Menu”, rotate  controller clockwise to select “5. All-Adj LFO”. Press  controller, and then “Press Enter” will be displayed, and press it once more, and then “EepDfltSet” → “L.F. OFFSET=09” will be displayed. From the “L.F. OFFSET=09” display, rotate  controller, and then the L.F.OFFSET value can be increased or decreased as shown below.

“L.F. OFFSET = 09”

└ Offset value

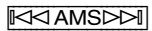
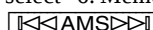
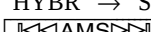
00 ← 01 ← 02 ← 03 ← 04 ← 05 ← 06 ←
07 ← 08 ← 09 → 0A → 0B → 0C → 0D →
0E → 0F → 10 → 11 → 12 → 13 → 14 →
15 → 16 → 17 → 18 → 19 → 1A → 1B →
1C → 1D → F8 → F9 → FA → FB → FC
→ FD → FE → FF)

Select L.F. OFFSET value and press  controller, and then the CD, SACD-SL and SACD-DL will be adjusted with the L.F. OFFSET value specified here.

The subsequent operation is similar to that in (1) 0. All (Adjust).

(7) 6. Memory Check

The Memory Check displays the contents of servo setting stored in the EEPROM.

From the “Auto Adj Menu”, rotate  controller clockwise to select “6. Memory Check”. “EEPROM Data” will be displayed if  controller is pressed, or “CD” → “HYBR” → “SL” → “DL-L0” → “DL-L1” will be displayed if  controller is rotated clockwise.

At each mode display, press  controller and rotate  controller, and then the following will be displayed. (oo: HEX)

① Contents of CD servo setting

CD FG = oo TG = oo
CD F0 = oo T0 = oo
CD L0 = oo EB = oo
CD JT = oo MT = oo

② Contents of HYBR servo setting

H1 FG = oo TG = oo
H1 F0 = oo T0 = oo
H1 L0 = oo EB = oo
H1 JT = oo

③ Contents of SL servo setting

SL FG = oo TG = oo
SL F0 = oo T0 = oo
SL L0 = oo EB = oo
SL JT = oo MT = oo

④ Contents of DL-L0 servo setting

D0 FG = oo TG = oo
D0 F0 = oo T0 = oo
D0 L0 = oo EB = oo
D0 JT = oo MT = oo

⑤ Contents of DL-L1 servo setting

D1 FG = oo TG = oo
D1 F0 = oo T0 = oo
D1 L0 = oo EB = oo
D1 JT = oo

• How to See Error Code

If a fatal error occurred during adjustment and the adjustment could not continue, the adjustment is interrupted and the error is displayed.

[Example]

Error	15	11	35
			└ DSP error code
		Mechanism error	
	Service command		

This case shows “Focus ON command, DSP error, Sequence interrupted during Focus ON operation”.

DSP error code list (see page 8)

At the end of adjustment, whether the jitter is proper, and whether the adjustment value is within allowable range are judged and displayed as a whole. If all parameters are within allowable range, “Param Chk OK” will be displayed. If parameters out of the range are detected, an error message such as “3 Errs occur” will be displayed (this case shows three errors occurred). Press controller once to switch the display to the error list.

1. Error No.

SL Disc type

TG Parameter type

High

Err: SL TG Prm

M:7C E:3F U:27
└─ Limit value (U: Upper limit, L:
Lower limit)
Value stored in EEPROM

To return to the previous step, or to exit from the error display, press the  button.

From the “Test Mode Menu”, rotate controller clockwise to select “2. Manual Opr”. Press controller, and then “TiltSledReset” → “Manual Opr” will be displayed, where you can select the following menu by rotating the controller clockwise.

DISPLAY	Contents of Menu
1. Disc Type	Disc type check
2. Srv Control	Servo control
3. T/L Jump	Tracking jump
4. Manual Adj	Manual adjustment
5. Auto Adj	Auto adjustment
6. Mem Check	Servo memory check
0. Disc Chk Mem	Disc check

From the “Manual Opr” menu, rotate the controller clockwise to select “1. Disc Type”. Press controller, and then “Disc Type” will be displayed, where you can select the following menu by rotating the controller and also can check each menu item by pressing the controller.

DISPLAY	Contents of Menu
1. Type Auto	Disc type is checked and the mode for that disc is set.
2. SACD SL 12cm	Disc type is set.
3. SACD DL 12cm	
4. CD 12cm	
5. HYBR-L1 12cm	
6. HYBR-L0 12cm	
7. SACD SL 8cm	
8. CD 8cm	
9. HYBR-L1 8cm	
0. RST Sld/Tlt	Tilt/Sled are reset.

Note: Before “Servo Control”, “Disc Type Set” is needed.

DISPLAY	Contents of Menu
1. LD	(1: ON, 0: OFF)
2. SD	
3. Focus	
4. TRK	
5. SLED	
6. CLVA	
7. F-Sch	Focus search
8. R S/T	Tilt/Sled are reset.

“1. LD” 1 0 0 0 0 0 0

Execution command LD ON Spindle ON Focus ON Tracking ON Sled ON CLVA ON Focus Search ON

The above case is that only the LD is turned on. Rotating  controller clockwise, turn on the servo in order of 1. – 6. to check the servo.

Also, with the servo of 1. – 6. turned on, press the **CHECK** button on the remote commander, so that you can check the disc type, jitter, etc. To return to original display, press the **CHECK** button again.

[Example]

SL 18 2A 020520
 Disc type Jitter value CLV status Sector address

CAUTION: In 7. F-Sch menu, the servo is not applied, thus causing optical system to be damaged if used together with other menu. Never use it.

(3) 3. T/L Jump

This adjustment is not normally used.

(4) 4. Manual Adj

This adjustment is not normally used.

(5) 5. Auto Adj

This adjustment is not normally used.

(6) 6. Mem Check

From the “Manual Opr” menu, rotate **◀◀AMS▶▶** controller clockwise to select “6. Mem Check”. Press **◀◀AMS▶▶** controller, and then “EEPROM Data” will be displayed, where you can select the following menu by rotating the **◀◀AMS▶▶** controller clockwise.

DISPLAY	Contents of Menu
CD	Servo setting check
HYBR	
SL	
DL-L0	
DL-L1	

- ① Select each menu and press **◀◀AMS▶▶** controller, and then the contents of servo setting stored in the EEPROM will be displayed.
- ② The contents of servo setting are same as those in (7) 6. Memory Check of Auto Adjust menu. (See page 4)
- ③ In this menu, default value can be written to the EEPROM. Press the **CLEAR** button on the Remote commander, “Deflt Set? Y/N” message will be displayed, and then press **◀◀AMS▶▶** controller. When “EepDfltSet” message is displayed, default value can be written to the EEPROM. To cancel default value setting, press the **■** button.

CAUTION: If you do “EepDfltSet”, after “EepDfltSet”, “Auto Adjustment” is needed. (see page 3)

(7) 7. Disc Chk Mem

From the “Manual Opr” menu, rotate **◀◀AMS▶▶** controller clockwise to select “0. Disc Chk Mem”. Press **◀◀AMS▶▶** controller, and then “Disc Check” will be displayed, where you can select the following menu by rotating the **◀◀AMS▶▶** controller clockwise.

DISPLAY	Contents of Menu
1. SL Disc Chk	Disc Type Check
2. CD Disc Chk	
3. DL Disc Chk	
0. Rst Sld/Tlt	Tilt and Sled are reset.

- Select the menu 1. – 3. and press the **◀◀AMS▶▶** control-

ler, and “New 3D” will be displayed, and then each display corresponding to the selected menu 1. – 3. will return.

3. Mecha Aging Menu

This is the mechanism aging mode.

From the “Test Mode Menu”, rotate **◀◀AMS▶▶** controller clockwise to select “3. Mecha Aging”. Press **◀◀AMS▶▶** controller, and “Mecha Aging” → “Abort Stop Key” → “Press Open Key” will be displayed. Press **⏏** button → **▶** button in this order, and the tray will be opened and closed repeatedly, and its count will be displayed. Up to 2,147,483,647 times can be counted. In such a case, the disc type is also checked.

[Example]

C: 2526

Number of counts

To quit this operation, press **■** and **■** buttons. (Simultaneously, the count is cleared.)

4. Emg History Menu

From the “Test Mode Menu”, rotate **◀◀AMS▶▶** controller clockwise to select “4. Emg History”. Press **◀◀AMS▶▶** controller, and “EMG History” message will be displayed. Rotating the **◀◀AMS▶▶** controller clockwise switches to the following display where the servo emergency history (1. – 10.) and the laser lighting hours are displayed.

1. 1F 06080000
 2. 2F 06080000
 3. 00 00000000
 4. 00 00000000
 5. 00 00000000
 6. 00 00000000
 7. 00 00000000
 8. 00 00000000
 9. 00 00000000
 10. 00 00000000
 LASR 0h
 CD 0h
 SACD 0h
 Clear History?

① How to see code

[Example]

11 06 04 C701
 History buffer 2byte DSP error code (see page 8)
 History disc type (see page 8)
 Mechanism mode (see page 8)
 Mechanism error code (see page 7)

This case shows “DSP error, Spin up mode, SL 12cm, CLV unlock at Sled ON”.

Also, at this time, pressing **◀◀AMS▶▶** controller causes all emergency information (16 bytes) to be displayed every 4 bytes for 4 items.

[Example]

1-1 00000000
 Emergency information 1

Item No.: Variable each time the **◀◀AMS▶▶** controller is pressed

② Laser lighting hours

[Example]

LASR 14h
 CD 6h
 SACD 8h

LASR displayed value is the total of CD and SACD laser lighting hours. (The time less than minutes is omitted.)

③ History clear

- How to clear all history data

For the items with “Clear History?” message, press **◀◀AMS▶▶** controller, and all emergency history data and all laser lighting hours are cleared to 0.

- How to clear individual data

① Emergency history clear

Press **DISPLAY MODE**, **CLEAR** buttons on the remote commander in this order.

② Laser lighting hour clear

Press **SACD/CD**, **CLEAR** buttons on the remote commander in this order.

③ Setup clear

Press **REPEAT**, **CLEAR** buttons on the remote commander in this order.

Five backup data of **PLAY MODE**, **CLEAR**, **SACD/CD**, **TIME/TEXT**, **DIGITAL FILTER** are cleared to the initial data.

5. Ver Info Menu

From the “Test Mode Menu”, rotate **◀◀AMS▶▶** controller clockwise to select “5. Ver Info”. Press **◀◀AMS▶▶** controller, and “Version Info” message will be displayed. Rotating the **◀◀AMS▶▶** controller clockwise switches to the following display where the ROM version, date of creation, servo DSP version, and checksum are displayed.

[Example]

V1.00 00/02/14
SrvDSP 1.000
RomCsum 711C

6. RF Jit Disp

From the “Test Mode Menu”, rotate **◀◀AMS▶▶** controller clockwise to select “6. RF Jit Disp”. Press **◀◀AMS▶▶** controller, and then “Set Disc” message will be displayed. Set a disc and press **◀◀AMS▶▶** controller, and “Sinup...” will be displayed, then the jitter will be measured and displayed. To exit from this mode, press the **||** button.

<Jitter measurement and display example>

CD 22 2A 000000
 Sector address
 CLV status
 Jitter value
Disc type (auto check)

SL : Single layer disc

HC : Hybrid layer disc, CD layer

HD : Hybrid layer disc, SACD layer

DL : Dual layer disc

CD : CD disc

- ① The disc type is checked automatically.

- ② For a hybrid disc, rotating the **◀◀AMS▶▶** controller can switch the layer during jitter adjustment. Also, rotating the **◀◀AMS▶▶** controller can jump to inner track, middle track, or outer track. However, the address is fixed. Music cannot be searched. For a dual layer disc, a jump between layers is possible.

1. Play HD-HL0
2. Play CD-HL1
3. Jp Md1 Track
4. Jp Inn Track
5. Jp Out Track
6. Jp DL0 -> DL1
7. Jp DL1 -> DL0

- ③ Press **⏏** button to change the disc.

7. PDM Mode Menu

This mode is not normally used.

8. CDM Adj Menu

This mode is not normally used.

9. Set Up Init Menu

From the “Test Mode Menu”, rotate **◀◀AMS▶▶** controller clockwise to select “7. Set Up Init”. Press **◀◀AMS▶▶** controller, and “Initialized” will be displayed, then “Reset? Y/N” will be displayed. Press again **◀◀AMS▶▶** controller, and “Restart ...” will be displayed, and then the player will be reset and restarted. (At the restart, the set exits from the Test mode.)

10. Sld Ship Pos Menu

Moving sled the factory set up position.

Mechanism error code

Category	Emergency Name	Emergency Code
Electrical	SSI ERR	10
	DSP ERR	11
	EEP ERR	12
	EEP HOURS METER WRITE ERR	13
	DSP BUSY TIME OUT	14
	EEP CHECK SUM NG	15
	DSP BUSY TIME OUT ESCAPE	16
Mechanism	TILT SLED RESET NG	20
	TILT MOVE NG	21
	TILT REQ POSI NG	22
	SLED MOVE NG	23
	SLED REQ POSI NG	24
Adjustment	ADJ TRK BAL NG	30
	ADJ TRK GAIN	31
	ADJ FCS BAL NG	32
	ADJ FCS BIAS NG	33
	ADJ FCS GAIN	34
	ADJ TILT NG	35
	ADJ EQ BOOST NG	36
	ADJ GD NG	37
	ADJ LAST JITTER NG	38
	ADJ GAIN RANGE OVER	3F
Focus	FOCUS NG	F1
	FOCUS JUMP COUNT OVER	41
Spindle	CLV LOCK NG	1F
	SPDL BRAKE COUNT OVER	51
Sheek	SACD REQ ADR NG	60
	CD REQ ADR NG	61
	CD REQ INDEX NG	62
	SACD SEEK COUNT OVER	63
	CD SA SEARCH COUNT OVER	64
	CD INDEX SEARCH COUNT OVER	65
Date	SACD INFO NG	70
	CD INFO TIME OUT	71
Other	RECOVERY DISC CHECK NG	DF
	RECOVERY COUNT OVER	81
	DISC CHECK ERR	DF
	DISC CHECK TIME OUT	83
	INVALID CMD CODE	84
	INVALID CMD	85
	DUMMY JOB	86
	NEXT MODE NONE	87

History disc type

Display	Contents
0x00	TBD
0x01	CheckErr
0x02	NoDisc
0x03	SacdSl08
0x04	SacdSl12
0x05	SacdDl08
0x06	SacdDl12
0x07	Cd08
0x08	Cd12
0x09	Hl08
0x0a	Hl12

0x: Hex.

Mechanism mode

Display	Contents
0x00	Reset
0x01	DriveInit
0x02	PonReady
0x03	MechInit
0x04	Stop
0x05	DiscCheck
0x06	SpinUp
0x07	SpinDown
0x08	Seek
0x09	Trace
0x0a	Pause
0x0b	Recovery
0x0c	RecoDc
0x0d	SrvStop
0x0e	Srv

0x: Hex.

Self diagnosis error code

Display	Contents
00	Normal end
01	SRAM Read/Write NG
02	HGA NG
03	EEPROM NG
04	ARP Resister NG
05	ARP DATA BUS NG
06	ARP ADDRESS BUS NG
07	ARP RAM Read/Write NG
08	Servo DSP Resister NG
09	SACD CHIP DRAM NG
10	SACD CHIP DRAM TIME OUT
11	SACD CHIP BUS NG
12	SDBUS NG
13	SDBUS TIME OUT

Service command

Display	Contents	code
Tray Open	Tray open	01
Tray Close	Tray close	02
Set Disc Type	Set Disc Type	03
Sled Go Home	Sled move Home position	04
Tilt Go Home	Tilt move Home Position	05
Sled Tilt Reset	Sled/Tilt Reset	06
Tray Down	Tray chuck Down	07
All Servo Stop	All Servo stop	10
Ld On	Laser diode ON	11
Ld Off	Laser diode OFF	12
Focus Search	Focus Search	13
Focus Off	Focus Servo OFF	14
Focus Search On	Focus Servo ON	15
Tracking On	Tracking Servo ON	17
Tracking Off	Tracking Servo OFF	18
Sled On	Sled Servo ON	19
Sled Off	Sled Servo OFF	1A
Sled Move Fwd	Sled Move Foward	1B
Sled Move Rev	Sled Move Reverse	1C
Sled Direct Move	Sled Direct Move	1D
Spdl Start	disc size cheking and spendle start	20
Spdl Stop	Spingdle stop	21
Cav On	Spindle with normal speed ON	22
Clva On	CLVA Servo ON	26
Tilt Move Down	Tilt Move Down	2B
Tilt Move Up	Tilt Move Up	2C
Tilt Direct Move	Tilt Direct Move	2D
Lj (L0 -> L1)	LayerJump (Tracking/Sled Servo ON)	3A
Lj (L1 -> L0)		3B
Fj (L0 -> L1)	FocusJump (Tracking/Sled Servo OFF)	3C
Fj (L1 -> L0)		3D

DSP error code

Task code (Upper Column)

Code*	Contents
2	Traking balance adjustment
3	Focus Search
4	Focus jump
5	Traking ON
6	1, 2 Track jump
7	Middle Track jump
8	Large Track jump
9	Sled move
c	Sled ON
d	Sereal

*Code: Hex.

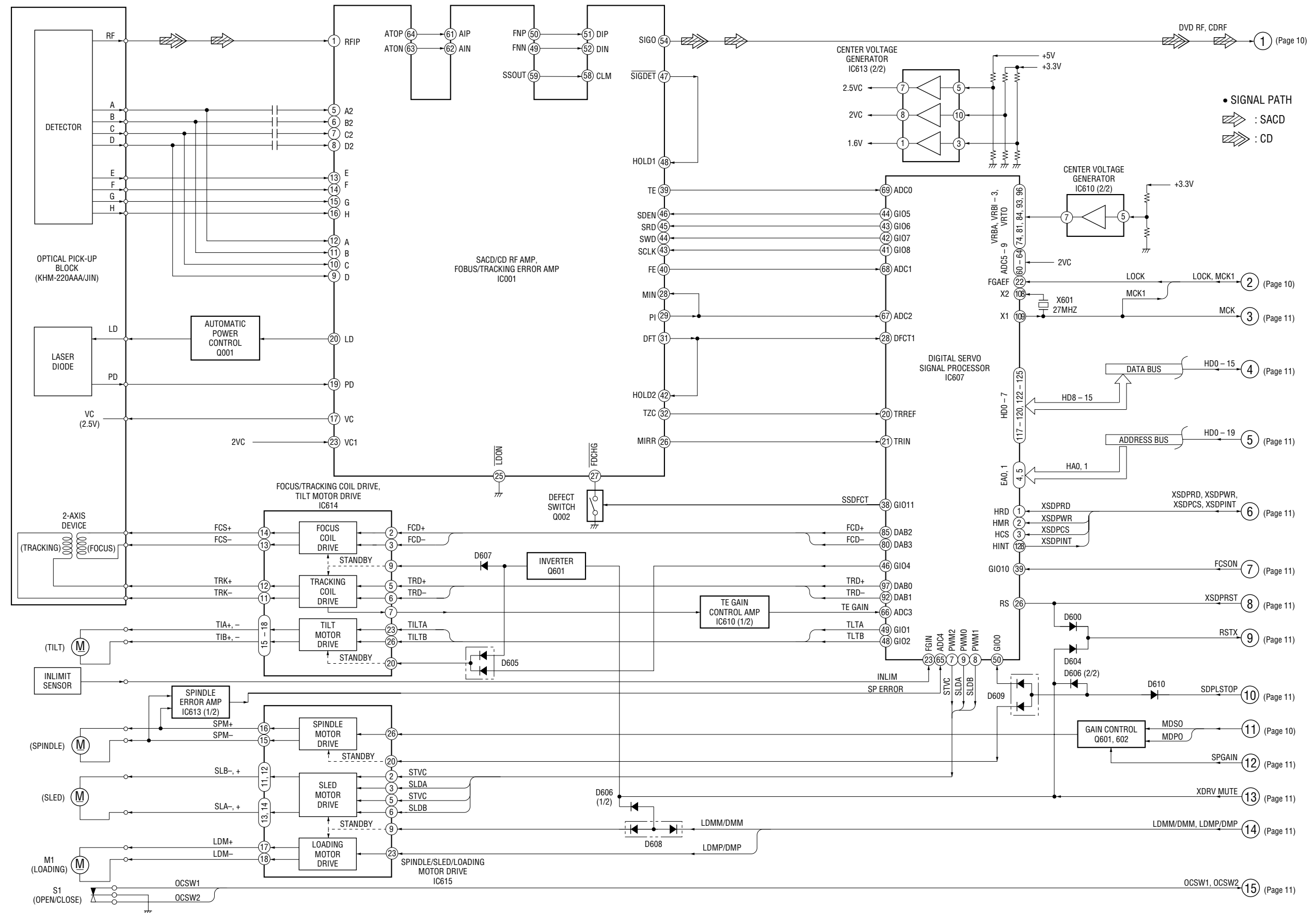
Error code (Lower column)

Code*	Contents
2	Sequence Command in Sequence
3	Invalid Parameter
4	Sequence Stop by "time out"
5	Sequence Stop except "time out"
6	Not FOK
7	Not LOCK
8	Servo ON in servo ON
9	Defect Continuation Detect
a	Focus OFF
b	Tracking OFF
c	ACK Error

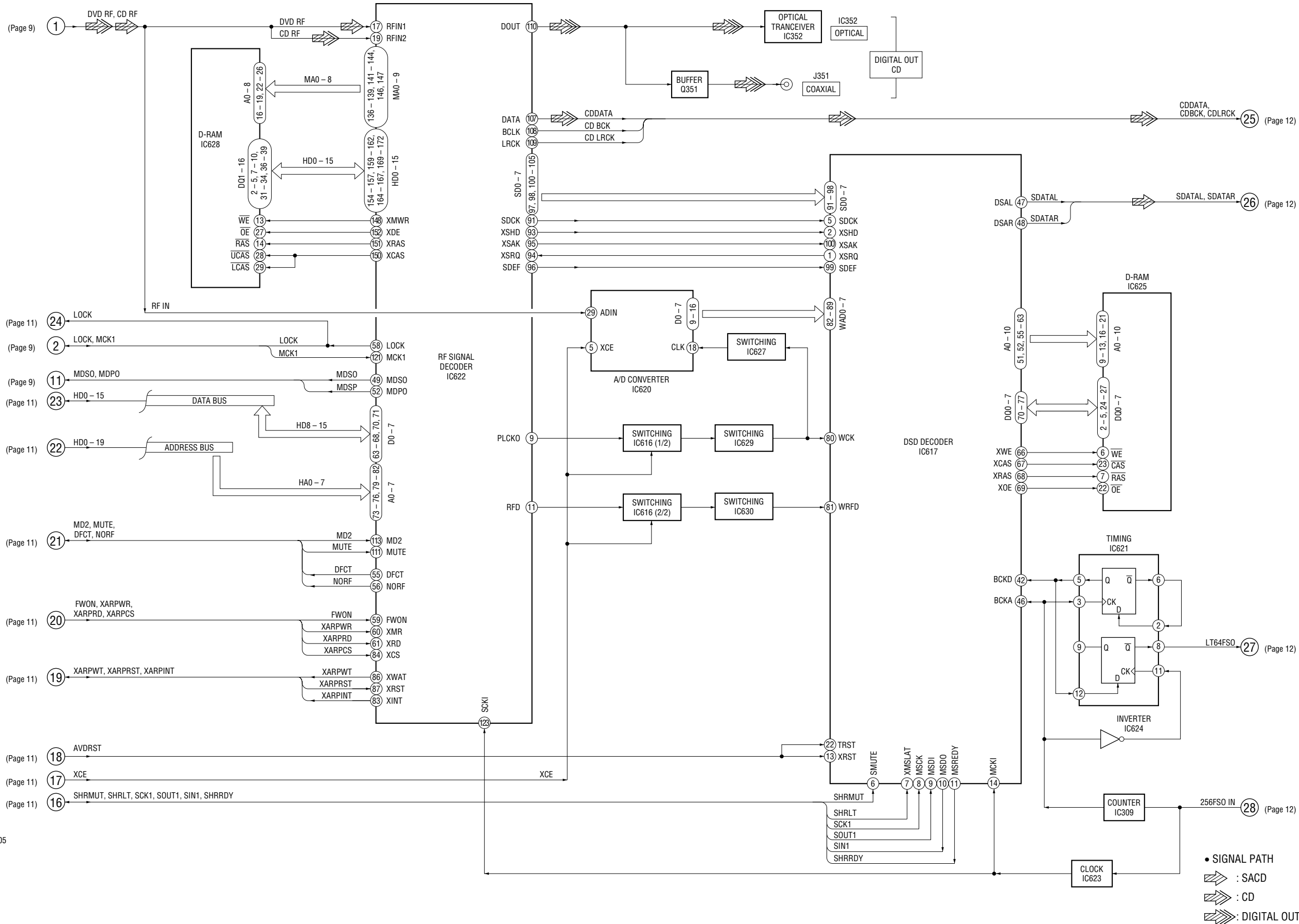
*Code: Hex.

2. DIAGRAMS

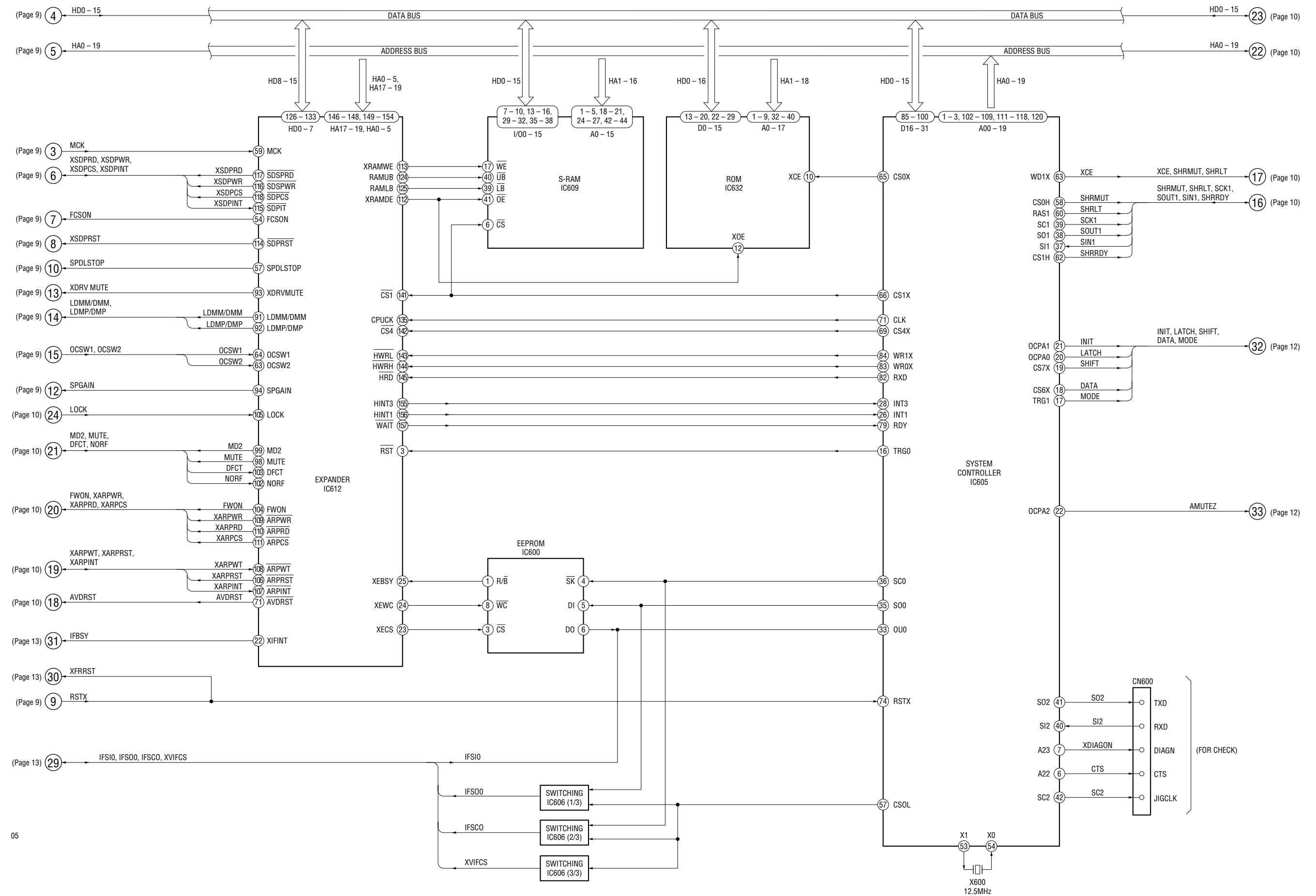
2-1. BLOCK DIAGRAM – RF/SERVO Section –



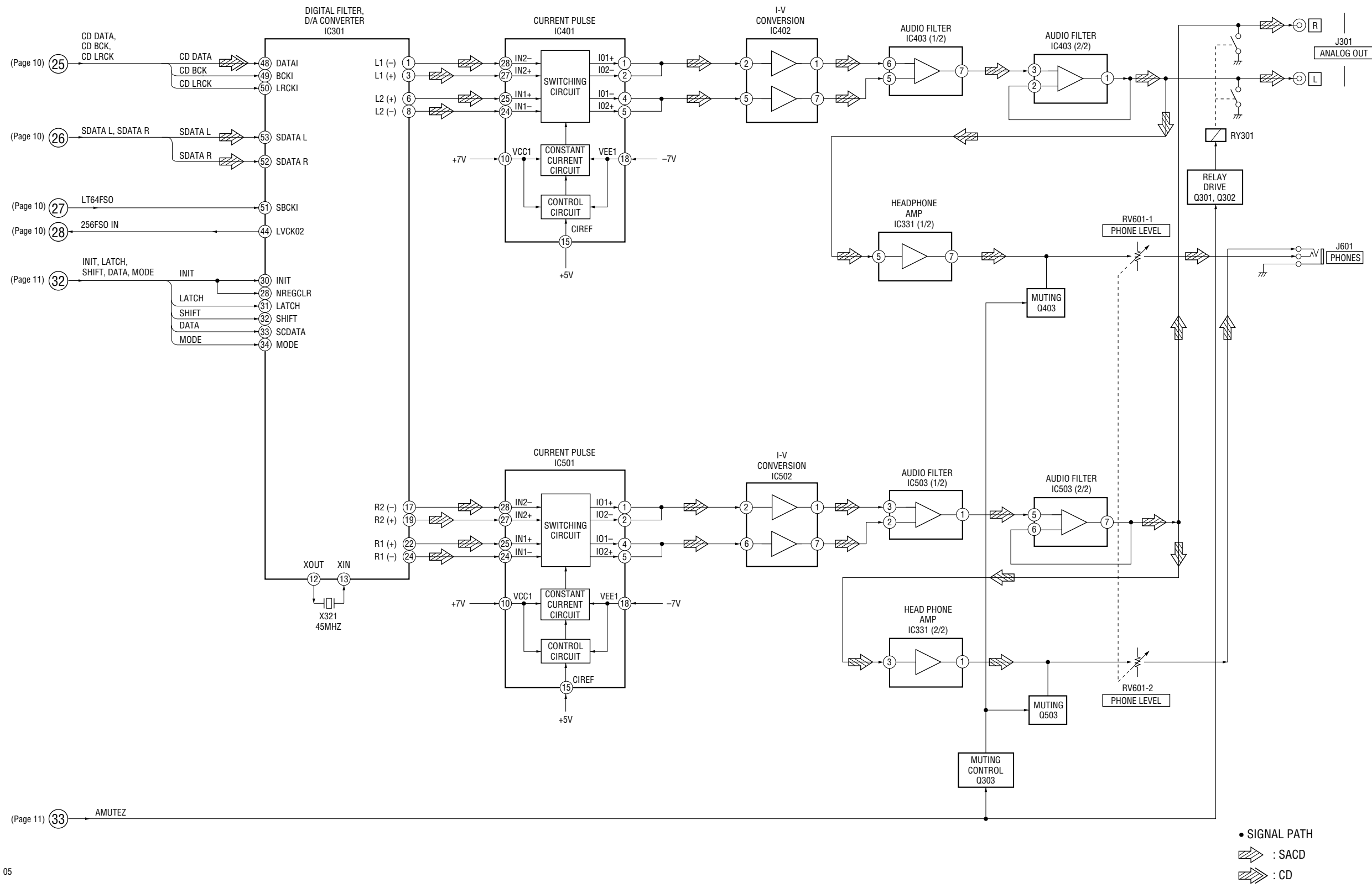
2-2. BLOCK DIAGRAM – MAIN Section (1/2) –



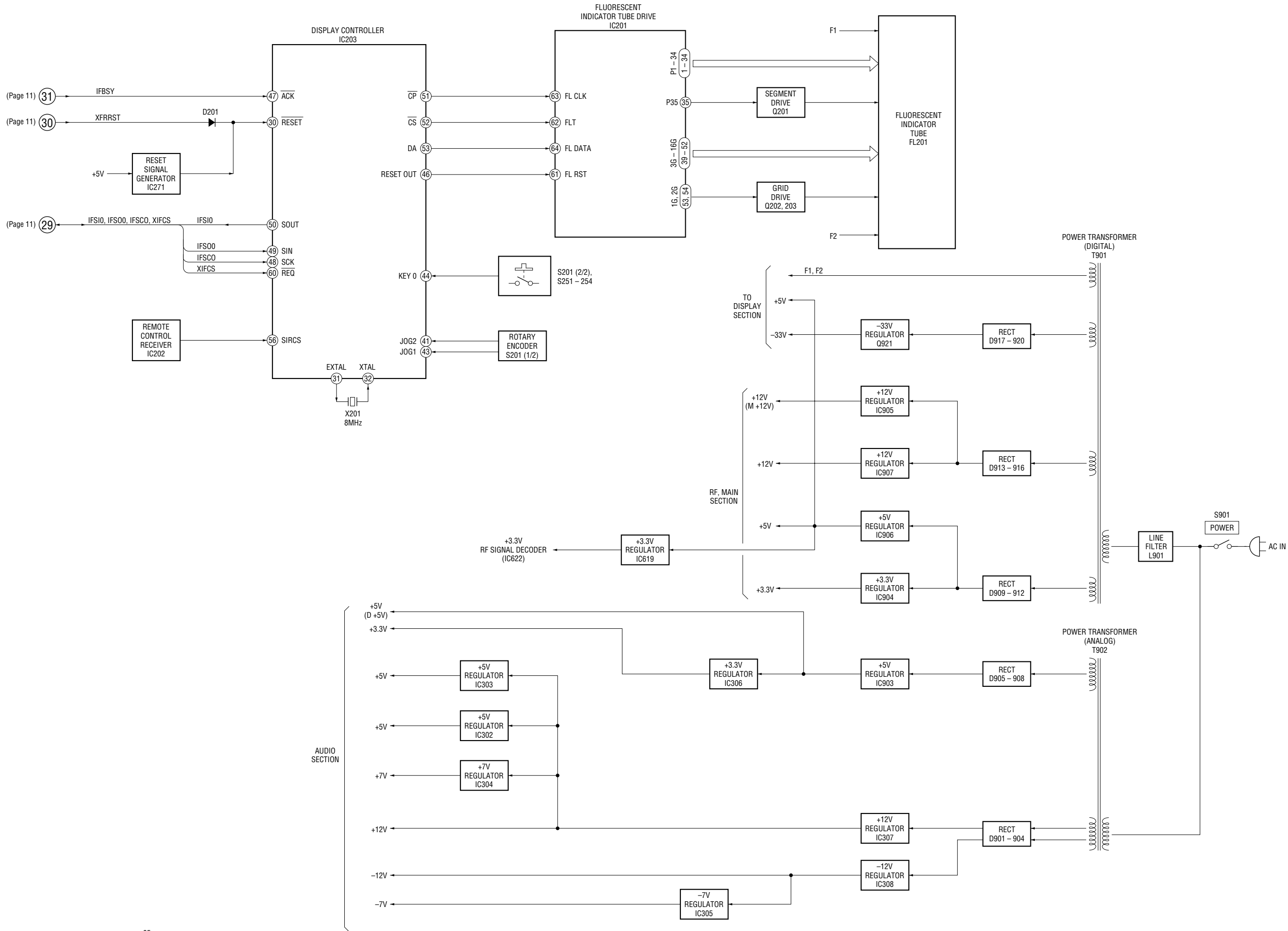
2-3. BLOCK DIAGRAM – MAIN Section (2/2) –



2-4. BLOCK DIAGRAM – AUDIO Section –



2-5. BLOCK DIAGRAM – DISPLAY/POWER SUPPLY Section –



2-6. IC PIN FUNCTION DESCRIPTION

• MAIN BOARD IC605 MB91107PFV-G-BND (SYSTEM CONTROLLER)

Pin No.	Pin Name	I/O	Description
1, 2	A17/P61, A18/P62	O	Address signal output to the expander (IC612) and ROM (IC632)
3	A19/P63	O	Address signal output to the expander (IC612)
4, 5	A20/P64, A21/P65	O	Address signal output terminal Not used (open)
6, 7	A22/P66, A23/P67	O	Test signal output terminal for check (fixed at “H” in this set)
8	A24/P70	O	Address signal output terminal (fixed at “H” in this set)
9	AVCC	—	Power supply terminal (+3.3V) (for A/D converter)
10	AVRH	—	Reference voltage input (high) terminal (for A/D converter)
11	AVSS/AVRL	—	Ground terminal (for A/D converter) and Reference voltage input (low) terminal
12 to 15	AN0 to AN3	I	Analog input terminal (for A/D converter)
16	TRG0/PH0	O	Reset signal output to the expander (IC612) “L”: reset
17	TRG1/PH1	O	SACD/CD mode signal output to the digital filter (IC301)
18	TRG2/PH2/CS6X	O	Serial data output to the digital filter (IC301)
19	TRG3/PH3/CS7X	O	Shift signal output to the digital filter (IC301)
20	OCPA0/PH4	O	Latch signal output to the digital filter (IC301)
21	OCPA1/PH5	O	Initial signal output to the digital filter (IC301)
22	OCPA2/PH6	O	Audio muting signal output terminal “L”: muting
23	OCPA3/PH7	O	Filter control signal output terminal
24	VCC	—	Power supply terminal (+3.3V) (digital system)
25	INT0/PG0	I	External interrupt request signal input terminal Not used (fixed at “H”)
26	INT1/PG1	I	Interrupt request 1 signal input from the expander (IC612)
27	INT2/PG2	I	External interrupt request signal input terminal Not used (fixed at “H”)
28	INT3/PG3	I	Interrupt request 3 signal input from the expander (IC612)
29 to 32	INT4/PG4 to INT7/PG7	I	External interrupt request signal input terminal Not used (fixed at “H”)
33	SI0/RF0	I	Serial data input from the display controller (IC203) and EEPROM (IC600)
34	VSS	—	Ground terminal (digital system)
35	SO0/PF1	O	Serial data output to the display controller (IC203) and EEPROM (IC600)
36	SC0/PF2	O	Clock signal output to the display controller (IC203) and EEPROM (IC600)
37	SI1/PF3	I	Serial data input from the DSD decoder (IC617)
38	SO1/PF4	O	Serial data output to the DSD decoder (IC617)
39	SC1/PF5	O	Clock signal output to the DSD decoder (IC617)
40	SI2/PF6	I	Serial data input terminal for check
41	SO2/PF7	O	Serial data output terminal for check
42	SC2/PE0	O	Clock signal output terminal for check
43	DREQ0/PE1	I	External transfer request signal input terminal
44	DACK0/PE2	O	External transfer request acknowledge signal output terminal
45	EOP0/PE3	O	Not used (open)
46	DREQ1/PE4	I	External transfer request signal input terminal Not used (fixed at “H”)
47	DACK1/PE5	O	External transfer request acknowledge signal output terminal Not used (fixed at “H”)
48	EOP1/PE6	O	Not used (open)
49	DREQ2/PE7	I	External transfer request signal input terminal Not used (open)
50	DACK2/PI0	O	External transfer request acknowledge signal output terminal Not used (open)
51	EOP2/PI1/ATGX	O	Not used (open)

Pin No.	Pin Name	I/O	Description
52	VSS	—	Ground terminal (digital system)
53	X1	O	System clock output terminal (12.5MHz)
54	X0	I	System clock input terminal (12.5MHz)
55	VCC	—	Power supply terminal (+3.3V) (digital system)
56	RAS0/PB0	O	Control signal output terminal Not used (fixed at “H”)
57	CS0L/PB1	O	Interrupt request signal output to the display controller (IC203)
58	CS0H/PB2	O	Muting signal output to the DSD decoder (IC617) “L”: muting
59	DW0X/PB3	O	Not used (open)
60	RAS1/PB4	O	Latch signal output to the DSD decoder (IC617)
61	CS1L/PB5	O	Not used (open)
62	CS1H/PB6	I	Ready signal input from the DSD decoder (IC617) “L”: ready
63	DW1X/PB7	O	Write enable signal output terminal “L”: active
64	C	—	Bypass capacitor terminal for internal capacitor
65	CS0X	O	Chip select signal output to the ROM (IC632) “L”: active
66	CS1X/PA1	O	Chip select signal output to the expander (IC612) and S-RAM (IC632) “L”: active
67, 68	CS2X/PA2, CS3X/PA3	O	Chip select signal output terminal “L”: active (fixed at “H” in this set)
69	CS4X/PA4	O	Chip select signal output to the expander (IC612) “L”: active
70	CS5X/PA5	O	Chip select signal output terminal “L”: active (fixed at “H” in this set)
71	CLK/PA6	O	Clock signal output to the expander (IC612)
72	NMIX	I	Non maskable interrupt signal input terminal “L”: active (fixed at “H” in this set)
73	HSTX	I	Hardware standby signal input terminal “L”: active (fixed at “H” in this set)
74	RSTX	I	Reset signal input from the display controller (IC203)
75	VSS	—	Ground terminal (digital system)
76	MD0	I	Mode set signal input terminal (fixed at “H”)
77, 78	MD1, MD2	I	Mode set signal input terminal (fixed at “L”)
79	RDY/P80	I	Wait signal input from the expander (IC612)
80	BGRNTX/P81	O	External bus release acknowledge signal output terminal (fixed at “H” in this set)
81	BRQ/P82	I	External bus release request signal input terminal (fixed at “L” in this set)
82	RDX	O	Read strobe signal output to the expander (IC612)
83	WROX	O	Write strobe 0 signal output to the expander (IC612)
84	WR1X/P85	O	Write strobe 1 signal output to the expander (IC612)
85 to 92	D16/P20 to D23/P27	I/O	Two-way data bus with the S-RAM (IC609) and ROM (IC632)
93 to 100	D24 to D31	I/O	Two-way data bus with the servo digital signal processor (IC607), S-RAM (IC609), expander (IC612), RF signal decoder (IC622), and ROM (IC632)
101	VSS	—	Ground terminal (digital system)
102	A00	O	Address signal output to the servo digital signal processor (IC607), expander (IC612), and RF signal decoder (IC622)
103	A01	O	Address signal output to the servo digital signal processor (IC607), S-RAM (IC609), expander (IC612), RF signal decoder (IC622), and ROM (IC632)
104 to 107	A02 to A05	O	Address signal output to the S-RAM (IC609), expander (IC612), RF signal decoder (IC622), and ROM (IC632)
108, 109	A06, A07	O	Address signal output to the S-RAM (IC609), RF signal decoder (IC622), and ROM (IC632)
110	VCC	—	Power supply terminal (+3.3V) (digital system)
111 to 118	A08 to A15	O	Address signal output to the S-RAM (IC609) and ROM (IC632)
119	VSS	—	Ground terminal (digital system)
120	A16/P60	O	Address signal output to the S-RAM (IC609) and ROM (IC632)

• MAIN BOARD IC607 CXD8791AQ (DIGITAL SERVO SIGNAL PROCESSOR)

Pin No.	Pin Name	I/O	Description
1	HRD/HRXD	I	Data read strobe signal input from the expander (IC612)
2	HWR/HFS	I	Data write strobe signal input from the expander (IC612)
3	HCS	I	Chip select signal input from the expander (IC612)
4, 5	HA1, HA0/HCK	I	Address signal input from the system controller (IC605)
6	VDD	—	Power supply terminal (+3.3V) (digital system)
7 to 9	PWM0 to PWM2	O	Sled motor control signal output to the sled motor drive (IC615)
10	VSS	—	Ground terminal (digital system)
11, 12	EMU1, EMU0	I/O	Emulator signal input/output terminal Not used (open)
13	TDO	O	Test data output terminal Not used (open)
14	TCK	I	Test clock input terminal Not used (open)
15	TDI	I	Test data input terminal Not used (open)
16	TMS	I	Test mode select signal input terminal Not used (open)
17	TRST	I	Test reset signal input terminal Not used (open)
18	VDD	—	Power supply terminal (+3.3V) (digital system)
19	VSS	—	Ground terminal (digital system)
20	TRREF	I	Tracking reference signal input from the SSI33P3722 (IC001)
21	TRIN	I	Mirror detect signal input from the SSI33P3722 (IC001)
22	FGREF	I	FG reference clock signal input from the RF signal decoder (IC622)
23	FGIN	I	FG signal input terminal
24	PGREF	I	PG reference signal input terminal Not used (open)
25	PGIN	I	PG signal input terminal Not used (open)
26	RS	I	Reset signal input from the expander (IC612)
27	LG	I	Not used (open)
28	DFCT1	I	Defect signal input terminal
29	HEAD	I	Head signal input terminal Not used (open)
30	CLKODIS	I	CLKOUT1 (pin ㉓) disable signal input terminal “H”: disable (fixed at “L” in this set)
31	CLKOUT1	O	Master clock output terminal Not used (open)
32	VDD	—	Power supply terminal (+3.3V) (digital system)
33	VSS	—	Ground terminal (digital system)
34 to 37	GIO15 to GIO12	—	Not used (open)
38	GIO11	O	Defect control signal output terminal
39	GIO10	O	Function control signal input from the expander (IC612)
40	GIO9	—	Not used (open)
41	GIO8	O	Clock signal output to the SSI33P3722 (IC001)
42	GIO7	O	Serial write data output to the SSI33P3722 (IC001)
43	GIO6/TMC2	I	Serial read data input from the SSI33P3722 (IC001)
44	GIO5/TMC1	O	Serial data enable output to the SSI33P3722 (IC001)
45	VDD	—	Power supply terminal (+3.3V) (digital system)
46	GIO4/TMC0	I	Standby signal input from the tilt motor drive (IC614)
47	GIO3/INT5	—	Not used (open)
48	GIO2/INT4	O	Tilt motor control signal output to the tilt motor drive (IC614)
49	GIO1/INT3	O	Tilt motor control signal output to the tilt motor drive (IC614)
50	GIO0/INT2	I	Interrupt signal input terminal
51	VSS	—	Ground terminal (digital system)
52	TESTC	I	Test signal input terminal (fixed at “L”)

Pin No.	Pin Name	I/O	Description
53 to 56	TEST3 to TEST0	I	Test signal input terminal (fixed at “L”)
57, 58	TESTSIA1, TESTSIA0	I	Test signal input terminal (fixed at “L”)
59	TESTSOA	O	Test signal output terminal (open)
60 to 64	ADC9 to ADC5	I	Reference voltage input terminal
65	ADC4	I	Spindle error signal input terminal
66	ADC3	I	TE gain control signal input terminal
67	ADC2	I	PI signal input from the SSI33P3722 (IC001)
68	ADC1	I	FE signal input from the SSI33P3722 (IC001)
69	ADC0	I	TE signal input from the SSI33P3722 (IC001)
70	VRTA	I	Reference voltage (top) input terminal (for A/D converter)
71	VCCA1	—	Power supply terminal (+3.3V) (analog system)
72	TESTA	O	Test signal output terminal (open)
73	GNDA1	—	Ground terminal (analog system)
74	VRBA	I	Reference voltage (bottom) input terminal (for A/D converter)
75	VSS3V1	—	Ground terminal (analog system)
76	VDD3V1	—	Power supply terminal (+3.3V) (analog system)
77	GNDA2	—	Ground terminal (analog system)
78	VCCA2	—	Power supply terminal (+3.3V) (analog system)
79	VRT3	I	Reference voltage (top) input terminal (for D/A converter)
80	DAB3	O	Focus coil control signal output to the focus coil drive (IC614)
81	VRB3	I	Reference voltage (bottom) input terminal (for D/A converter)
82	VSS3V2	—	Ground terminal (analog system)
83	VDD3V2	—	Power supply terminal (+3.3V) (analog system)
84	VRB2	I	Reference voltage (bottom) input terminal (for D/A converter)
85	DAB2	O	Focus coil control signal output to the focus coil drive (IC614)
86	VRT2	I	Reference voltage (top) input terminal (for D/A converter)
87	VCCA3	—	Power supply terminal (+3.3V) (analog system)
88	GNDA3	—	Ground terminal (analog system)
89	GNDA4	—	Ground terminal (analog system)
90	VCCA4	—	Power supply terminal (+3.3V) (analog system)
91	VRT1	I	Reference voltage (top) input terminal (for D/A converter)
92	DAB1	O	Tracking coil control signal output to the tracking coil drive (IC614)
93	VRB1	I	Reference voltage (bottom) input terminal (for D/A converter)
94	VSS3V3	—	Ground terminal (analog system)
95	VDD3V3	—	Power supply terminal (+3.3V) (analog system)
96	VRB0	I	Reference voltage (bottom) input terminal (for D/A converter)
97	DAB0	O	Tracking coil control signal output to the tracking coil drive (IC614)
98	VRT0	I	Reference voltage (top) input terminal (for D/A converter)
99	VCCA5	—	Power supply terminal (+3.3V) (analog system)
100	GNDA5	—	Ground terminal (analog system)
101, 102	TESTSIB1, TESTSIB0	I	Test signal input terminal (fixed at “L”)
103	TESTSOB	O	Test signal output terminal (open)
104	PLLMD	I	PLL mode select signal output terminal Not used (fixed at “H”)
105	TESTB	I	Test signal input terminal (fixed at “L”)

Pin No.	Pin Name	I/O	Description
106	VDD	—	Power supply terminal (+3.3V) (digital system)
107	VSS	—	Ground terminal (digital system)
108	X2/CLKIN	I	Clock input terminal (27MHz)
109	X1	O	Clock output terminal (27MHz)
110	VDD	—	Power supply terminal (+3.3V) (digital system)
111	VSS	—	Ground terminal (digital system)
112	VCCA6	—	Power supply terminal (+3.3V) (analog system)
113	LF	I/O	LF signal input/output terminal
114	GND A6	—	Ground terminal (analog system)
115	VDD	—	Power supply terminal (+3.3V) (digital system)
116	VSS	—	Ground terminal (digital system)
117	HD7/HIO	I/O	Two-way data bus with the system controller (IC605), S-RAM (IC609), expander (IC612) , RF signal decoder (IC622), and ROM (IC632)
118 to 120	HD6/HO6, HD4/HO4	I/O	Two-way data bus with the system controller (IC605), S-RAM (IC609), expander (IC612) , RF signal decoder (IC622), and ROM (IC632)
121	VDD	—	Power supply terminal (+3.3V) (digital system)
122 to 125	HD3/HO3, HD0/HO0	I/O	Two-way data bus with the system controller (IC605), S-RAM (IC609), expander (IC612) , RF signal decoder (IC622), and ROM (IC632)
126	VSS	—	Ground terminal (digital system)
127	SRPRN	I	Parallel/serial mode select signal input terminal “L”: parallel mode (fixed at “L” in this set)
128	HINT/HTXD	O	Interrupt signal output to the expander (IC612)

• MAIN BOARD IC612 CXD9515Q (EXPANDER)

Pin No.	Pin Name	I/O	Description
1	VDD	—	Power supply terminal (+3.3V)
2	NC	—	Not used (open)
3	$\overline{\text{RST}}$	I	Reset signal input from the system controller (IC605) “L”: reset
4	XFBSY	I	Busy signal input terminal “L”: busy
5	$\overline{\text{NFBSY}}$	I	Not used (fixed at “H”)
6	NFCLE	O	Not used (open)
7	NFALE	O	Not used (open)
8	$\overline{\text{NFCE}}$	O	Not used (open)
9	$\overline{\text{NFRE}}$	O	Not used (open)
10	$\overline{\text{NFW E}}$	O	Not used (open)
11	$\overline{\text{NFWP}}$	O	Not used (open)
12 to 19	NFD0 to NFD7	I/O	Not used (open)
20	VDD	—	Power supply terminal (+3.3V)
21	GND	—	Ground terminal
22	XIFBSY	I	Busy signal input from the display controller (IC203) “L”: busy
23	XECS	O	Chip select signal output to the EEPROM (IC600)
24	XEWC	O	Write control signal output to the EEPROM (IC600)
25	XEBSY	I	Busy signal input from the EEPROM (IC600) “L”: busy
26	$\overline{\text{DACRST}}$	O	Not used (open)
27	$\overline{57\text{RST}}$	O	Not used (open)
28	$\overline{01\text{CS}}$	O	Not used (open)
29, 30	$\overline{01\text{IT0}}, \overline{01\text{IT1}}$	I	Not used (open)
31	$\overline{01\text{RST}}$	O	Not used (open)
32	$\overline{\text{KRRST}}$	O	Not used (open)
33	XKRDY	I	Not used (fixed at “H”)
34	$\overline{\text{KARLT}}$	O	Not used (open)
35	$\overline{\text{CLAPBSY}}$	I	Not used (fixed at “H”)
36	CLAPSW1	O	Not used (open)
37	CLAPSW0	O	Not used (open)
38	OTASUKE	I	Not used (fixed at “H”)
39	NC	—	Not used (open)
40	VDD	—	Power supply terminal (+3.3V)
41, 42	GND	—	Ground terminal (digital system)
43	NC	—	Not used (open)
44	SMC	I	Not used (fixed at “L”)
45	SIN	I	Not used (fixed at “L”)
46	SOT	O	Not used (open)
47	SCK	I	Not used (fixed at “L”)
48	AMC	I	Not used (fixed at “L”)
49	MAMUTE	O	Not used (open)
50	MICMUTE	O	Not used (open)
51	EUROV/Y	O	Not used (open)
52	RGBSEL	O	Not used (open)
53	VS	O	Not used (open)
54	FCSON	I	Function control signal input from the servo digital signal processor (IC607)

Pin No.	Pin Name	I/O	Description
55, 56	EXPO0, EXPO1	O	Not used (open)
57	SPDLSTOP	O	Spindle motor control signal output terminal
58	GND	—	Ground terminal
59	MCK	I	Clock input terminal (27MHz)
60	GND	—	Ground terminal
61	DSLED	O	Not used (open)
62	XHDSPCS	O	Not used (open)
63	OSCW2	I	Open/close switch (S1) (close) input terminal
64	OSCW1	I	Open/close switch (S1) (open) input terminal
65 to 67	TSW3 to TSW1	I	Not used (open)
68	DSW1	I	Not used (fixed at “L”)
69, 70	TRNS, TRMP	O	Not used (fixed at “H”)
71	AVDRST	O	Reset signal output to the DSD decoder (IC617) “L”: reset
72	AVDWT	I	Not used (fixed at “H”)
73	XJGWT	I	Not used (fixed at “H”)
74	XJGCS	O	Not used (open)
75	AVDRQ1IN	I	Not used (fixed at “H”)
76	AVDRQ0IN	I	Not used (fixed at “H”)
77	AVDADO	O	Not used (open)
78	NC	—	Not used (open)
79, 80	GND	—	Ground terminal
81	VDD	—	Power supply terminal (+3.3V)
82	NC	—	Not used (open)
83	CKSW2	I	Not used (fixed at “H”)
84, 85	EXPI1, EXPI2	I	Not used (fixed at “L”)
86	UCSW	I	Not used (fixed at “L”)
87	DLSW	I	Not used (fixed at “L”)
88	CKSW1	I	Not used (fixed at “H”)
89, 90	CKMM, CKMP	O	Not used (open)
91, 92	LDMM, LDMP	O	Loading motor (M1) control signal output to the loading motor drive (IC615)
93	XDRVMUTE	O	Muting signal output terminal “L”: muting
94	SPGAIN	O	Spindle gain control signal output terminal
95	KARAOKEON	O	Not used (open)
96	XDACS2	O	Not used (open)
97	XDACS3	O	Not used (open)
98	MUTE	O	Muting signal output to the RF signal decoder (IC622)
99	MD2	O	Mode control signal output to the RF signal decoder (IC622)
100	VDD	—	Power supply terminal (+3.3V)
101	GND	—	Ground terminal
102	NORF	I	RF signal input from the RF signal decoder (IC622)
103	DFCT	O	Defect signal output to the RF signal decoder (IC622)
104	FWON	I	Control signal input from the RF signal decoder (IC622)
105	LOCK	I	FG reference clock signal input from the RF signal decoder (IC622)
106	ARPRST	O	Reset signal output to the RF signal decoder (IC622) “L”: reset
107	ARPINT	I	Interrupt signal input from the RF signal decoder (IC622)
108	ARPWT	I	Wait signal input from the RF signal decoder (IC622)
109	ARPWR	O	Write enable signal output to the RF signal decoder (IC622)

Pin No.	Pin Name	I/O	Description
110	$\overline{\text{ARPRD}}$	O	Read data output to the RF signal decoder (IC622)
111	$\overline{\text{ARPCS}}$	O	Chip select signal output to the RF signal decoder (IC622) “L”: active
112	XRAMOE	O	Data enable signal output to the S-RAM (IC609) and ROM (IC632)
113	XRAMWE	O	Data write enable signal output to the S-RAM (IC609)
114	$\overline{\text{SDPRST}}$	O	Reset signal output to the servo digital signal processor (IC607) “L”: reset
115	$\overline{\text{SDPINT}}$	I	Interrupt signal input from the servo digital signal processor (IC607)
116	$\overline{\text{SDPWR}}$	O	Data write strobe signal output to the servo digital signal processor (IC607)
117	$\overline{\text{SDPRD}}$	O	Data read strobe signal output to the servo digital signal processor (IC607)
118	$\overline{\text{SDPCS}}$	O	Chip select signal output to the servo digital signal processor (IC607) “L”: active
119	NC	—	Not used (open)
120	VDD	—	Power supply terminal (+3.3V)
121, 122	GND	—	Ground terminal
123	NC	—	Not used (open)
124	RAMUB	O	Upper byte write enable signal output to the S-RAM (IC609)
125	RAMLB	O	Low byte write enable signal output to the S-RAM (IC609)
126 to 133	HD7 to HD0	I/O	Two-way data bus with the system controller (IC605), S-RAM (IC609), RF signal decoder (IC622), and ROM (IC632)
134	GND	—	Ground terminal
135	CPUCK	I	Clock signal input from the system controller (IC605)
136	GND	—	Ground terminal
137	HDAK1IN	I	Not used (fixed at “H”)
138	HDAK0IN	I	Not used (fixed at “H”)
139	HDRQ1OUT	O	Not used (open)
140	HDRQ0OUT	O	Not used (open)
141	$\overline{\text{CS1}}$	I	Chip select signal output to the system controller (IC605) “L”: active
142	$\overline{\text{CS4}}$	I	Chip select signal output to the system controller (IC605) “L”: active
143	$\overline{\text{LWR}}$	I	Write strobe 1 signal output to the system controller (IC605)
144	$\overline{\text{HWR}}$	I	Write strobe 0 signal output to the system controller (IC605)
145	$\overline{\text{HRD}}$	I	Read strobe signal output to the system controller (IC605)
146 to 154	HA19 to HA18, HA5 to HA0	I	Address signal output to the system controller (IC605)
155	XINT3	O	Interrupt signal 3 output to the system controller (IC605)
156	XINT1	O	Interrupt signal 1 output to the system controller (IC605)
157	$\overline{\text{WAIT}}$	O	Wait signal output to the system controller (IC605)
158	NC	—	Not used (open)
159, 160	GND	—	Ground terminal

• MAIN BOARD IC617 CXD2751Q (DSD DECODER)

Pin No.	Pin Name	I/O	Description
1	XSRQ	O	Data request signal output to the RF signal decoder (IC622)
2	XSHD	I	Header flag signal input from the RF signal decoder (IC622)
3	VDD	—	Power supply terminal (+3.3V)
4	VSS	—	Ground terminal
5	SDCK	I	Serial data clock signal input from the RF signal decoder (IC622)
6	SMUTE	I	Muting signal input from the system controller (IC605) “L”: muting
7	XMSLAT	I	Latch signal input from the system controller (IC605)
8	MSCK	I	Clock signal input from the system controller (IC605)
9	MSDATI	I	Serial data input from the system controller (IC605)
10	MSDATO	O	Serial data output to the system controller (IC605)
11	MSREDY	O	Ready signal input from the system controller (IC605) “L”: ready
12	XMSDOE	O	Data enable signal output terminal Not used (open)
13	XRST	I	Reset signal input from the expander (IC612)
14	MCKI	I	Master clock signal input terminal
15	VSS	—	Ground terminal
16	CK75S	I	Master clock select signal input terminal “L”: 512fs, “H”: 768fs (fixed at “H” in this set)
17	EXCKO1	O	External clock 1 signal output terminal Not used (open)
18	EXCKO2	O	External clock 2 signal output terminal Not used (open)
19	LRCK	I/O	Clock signal input/output terminal (44.1kHz) Not used (open)
20	NC	—	Not used (open)
21	MNT2	O	Monitor 2 signal output terminal Not used (open)
22	TRST	I	Reset signal input from the expander (IC612) “L”: reset
23	TCK	I	Clock signal input terminal for test (normally: fixed at “L”)
24	TDI	I	Data input terminal for test (normally: open)
25	TENA1	I	Data enable signal input terminal for test (normally: open)
26	TDO	O	Data output terminal for test (normally: open)
27	VST	—	Ground terminal for test (normally: fixed at “L”)
28	VDD	—	Power supply terminal (+3.3V)
29	VSS	—	Ground terminal
30	MNT1	O	Monitor 1 signal output terminal Not used (open)
31	MNT0	O	Monitor 0 signal output terminal Not used (open)
32	XBIT	O	Monitor signal output terminal Not used (open)
33	F75HZ	O	Clock output terminal (75Hz) Not used (open)
34	SUPDAT	O	Serial data output terminal Not used (open)
35	XSUPAK	O	Data flag signal output terminal Not used (open)
36	SUPEN	O	Data enable signal output terminal Not used (open)
37	TEST1	I	Test 1 signal input terminal for test (normally: fixed at “L”)
38	VSS	—	Ground terminal
39	TEST2	I	Test 2 signal input terminal for test (normally: fixed at “L”)
40, 41	VSS	—	Ground terminal
42	BCKD	I	Phase reference signal input terminal
43 to 45	NC	—	Not used (open)
46	BCKA	I	Shift clock signal input terminal
47	DSAL	O	DSD data (Lch) output terminal
48	DSAR	O	DSD data (Rch) output terminal
49	ZDFLGL	O	Data (Lch) flag detect signal output terminal

Pin No.	Pin Name	I/O	Description
50	ZDFLGR	O	Data (Rch) flag detect signal output terminal
51, 52	A0, A1	O	Address signal output to the D-RAM (IC625)
53	VDD	—	Power supply terminal (+3.3V)
54	VSS	—	Ground terminal
55 to 63	A2 to A10	O	Address signal output to the D-RAM (IC625)
64	NC	—	Not used (open)
65	VSS	—	Ground terminal
66	XWE	O	Write enable signal output to the D-RAM (IC625)
67	XCAS	O	Column address strobe signal output to the D-RAM (IC625)
68	XRAS	O	Row address strobe signal output to the D-RAM (IC625)
69	XOE	O	Read enable signal output to the D-RAM (IC625)
70 to 77	DQ0 to DR7	I/O	Two-way data bus with the D-RAM (IC625)
78	VDD	—	Power supply terminal (+3.3V)
79	VSS	—	Ground terminal
80	WCK	I	Clock signal input terminal for disk mark detect
81	WRFD	I	RF data signal input terminal for disk mark detect
82 to 89	WAD0 to WAD7	I	A/D data signal input from the A/D converter (IC620) for disk mark detect
90	VSS	—	Ground terminal
91 to 98	SD7 to SD0	I	Stream data signal input from the RF signal decoder (IC622)
99	SDEF	I	Error flag signal input from the RF signal decoder (IC622)
100	XSAK	I	Data flag signal input from the RF signal decoder (IC622)