

SONY[®]

SWITCHER PROCESSOR PACK

MVS8000SF-C

MULTI FORMAT SWITCHER PROCESSOR

MVS-8000SF

HK-PSU04

MKS-8110HD

MKS-8110SD

MKS-8110M

MKS-8160HD

MKS-8160SD

MKS-8160M

MKS-8170HD

MKS-8170SD

MKS-8170M

MKS-8210HD

MKS-8210SD

MKS-8210M

MKS-8440HD

MKS-8440SD

MKS-8440M

MKS-8210K1

MKS-8440K1

MKS-8420M

INSTALLATION MANUAL

1st Edition (Revised 2)

⚠ 警告

このマニュアルは、サービス専用です。
お客様が、このマニュアルに記載された設置や保守、点検、修理などを行うと感電や火災、人身事故につながる可能性があります。
危険をさけるため、サービストレーニングを受けた技術者のみご使用ください。

⚠ WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠ WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠ AVERTISSEMENT

Ce manuel est destiné uniquement aux personnes compétentes en charge de l'entretien. Afin de réduire les risques de décharge électrique, d'incendie ou de blessure n'effectuer que les réparations indiquées dans le mode d'emploi à moins d'être qualifié pour en effectuer d'autres. Pour toute réparation faire appel à une personne compétente uniquement.

MVS-8000SF	Serial No. 10001 and Higher
MKS-8110HD	Serial No. 10001 and Higher
MKS-8110SD	Serial No. 10001 and Higher
MKS-8110M	Serial No. 10001 and Higher
MKS-8160HD	Serial No. 10001 and Higher
MKS-8160SD	Serial No. 10001 and Higher
MKS-8160M	Serial No. 10001 and Higher
MKS-8170HD	Serial No. 10001 and Higher
MKS-8170SD	Serial No. 10001 and Higher
MKS-8170M	Serial No. 10001 and Higher
MKS-8210HD	Serial No. 10001 and Higher
MKS-8210SD	Serial No. 10001 and Higher
MKS-8210M	Serial No. 10001 and Higher
MKS-8420M	Serial No. 10001 and Higher
MKS-8440HD	Serial No. 10001 and Higher
MKS-8440SD	Serial No. 10001 and Higher
MKS-8440M	Serial No. 10001 and Higher
MKS-8210K1	Serial No. 10001 and Higher
MKS-8440K1	Serial No. 10001 and Higher
HK-PSU04	Serial No. 10001 and Higher

Attention-when the product is installed in Rack:

1. Prevention against overloading of branch circuit

When this product is installed in a rack and is supplied power from an outlet on the rack, please make sure that the rack does not overload the supply circuit.

2. Providing protective earth

When this product is installed in a rack and is supplied power from an outlet on the rack, please confirm that the outlet is provided with a suitable protective earth connection.

3. Internal air ambient temperature of the rack

When this product is installed in a rack, please make sure that the internal air ambient temperature of the rack is within the specified limit of this product.

4. Prevention against achieving hazardous condition due to uneven mechanical loading

When this product is installed in a rack, please make sure that the rack does not achieve hazardous condition due to uneven mechanical loading.

5. Install the equipment while taking the operating temperature of the equipment into consideration

For the operating temperature of the equipment, refer to the specifications of the Operation Manual.

6. When performing the installation, keep the rear of the unit 10 cm (4 inches) or more away from walls in order to obtain proper exhaust and radiation of heat.

When using a LAN cable:

For safety, do not connect to the connector for peripheral device wiring that might have excessive voltage.

Table of Contents

Manual Structure

Purpose of this manual	3
Related manuals	3
Contents	3

1. Installation

1-1. Operating Environment	1-1
1-2. Power Supply	1-1
1-2-1. Power Specifications	1-1
1-2-2. Recommended Power Cord	1-1
1-3. Installation Space (External dimensions)	1-2
1-3-1. MVS8000SF-C	1-2
1-4. Installing the Options	1-3
1-4-1. Installing the Plug-in Boards	1-3
1-4-2. Installing the Connector Board	1-6
1-4-3. Installing the HK-PSU04	1-7
1-4-4. Upgrade	1-7
1-4-5. Installing the MKS-8420M	1-8
1-5. Rack Mounting	1-9
1-6. Matching Connectors	1-11
1-7. Input/Output Signals of Connectors	1-12
1-8. Checks on Completion of Installation	1-14
1-8-1. Description of On-board Switches and LEDs	1-14
1-8-2. Checks on the Switch Setting the Number of Power Supply Units	1-57
1-9. System Connection	1-58

2. Service Overview

2-1. Troubleshooting	2-1
2-2. Periodic Inspection and Maintenance	2-2
2-2-1. Cleaning	2-2
2-3. About the Data Backup Capacitor	2-2

Manual Structure

Purpose of this manual

This manual is the installation manual of Switcher Processor Pack MVS8000SF-C and their optional boards and units.

This manual is intended for use by trained system and service engineers, and describes the information on installing the MVS8000SF-C.

Related manuals

The following manuals are prepared for MVS8000SF-C and their optional boards and units.

- **Operation Manual (Supplied with MVS8000SF-C)**

This manual describes the application and operation of MVS8000SF-C.

- **System Setup Manual (Available on request)**

This manual describes the information that is required to connect the MVS-8xxx/MVE-8000/DCU-8000/CCP-8000 to the MVS-8000 system, and to start up the system.

If this manual is required, please contact your local Sony Sales Office/Service Center.

- **Maintenance Manual (Available on request)**

This manual describes the detailed service information.

If this manual is required, please contact your local Sony Sales Office/Service Center.

Contents

This manual is organized by following sections.

Section 1 Installation

This section describes the operating environment, power supply, installation space, installation of optional boards and units, rack mounting, connectors, input and output signals of connectors, checking upon completion of installation, and system configuration.

Section 2 Service Overview

This section describes the troubleshooting and periodic inspection and maintenance.

Section 1

Installation

1-1. Operating Environment

Operating guaranteed temperature :	+5 °C to +40 °C
Performance guaranteed temperature :	+10 °C to +35 °C
Operating humidity :	10 % to 90 % (relative humidity)
Storage temperature :	-20 °C to +60 °C
Mass :	Approx. 45 kg (when all options are installed)

Prohibited locations for installation

- Areas where the unit will be exposed do direct sunlight or any other strong lights.
- Dusty areas
- Areas subject to vibration.
- Areas with strong electric or magnetic fields.
- Areas near heat sources.
- Areas subject to electrical noise.
- Areas subject where is subjected to static electricity.

Ventilation

The inside of the MVS8000SF-C is cooled by a fan (on both sides).

The power supply can be damaged if the exhaust vent (on both sides) and air intake (front panel) are blocked or the fan is stopped.

Therefore, leave a blank space of more than 10 cm in the front and back of the MVS8000SF-C.

1-2. Power Supply

1-2-1. Power Specifications

A switching regulator is used for the power supply of this unit. The voltage within the range of 100 V to 240 V can be used without changing the supply voltage.

Power requirements :	AC 100 to 240 V \pm 10 %
Power frequency :	50/60 Hz
Current consumption :	100 V : 10 A, 240 V : 4.2 A (with all options installed)

Notes

- As the inrush current at turn-on is a maximum 60 A (at 100 V)/110 A (at 230 V), the capacity of the AC power source must be commensurate with this load.
If the capacity of the AC power is not adequately large, the AC power source braker will operate or the unit will abnormally operate.
- This system contains the two power supply units as the standard configuration. A fourth, redundant, power supply may be installed as an option.
When starting up this system, be sure to turn on the power of all the power supply units.

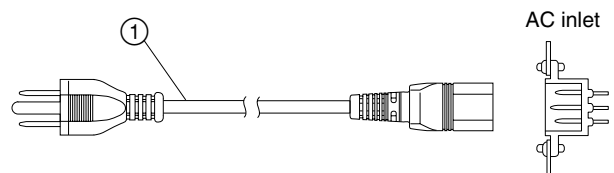
1-2-2. Recommended Power Cord

WARNING

- The power cord is not supplied with the MVS8000SF-C. Be sure to use the power cord that is applicable to places in the area.
To avoid a fire or an electric shock, be sure to use the designated power cord.
- Do not damage the power cord otherwise a fire or electric shock may result.

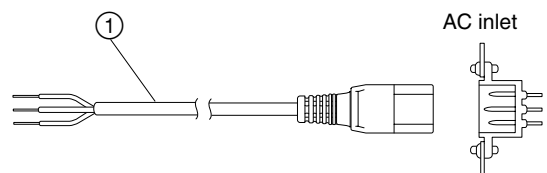
For customers in the U.S.A. and Canada

① Power cord, 125 V 10 A (2.4 m) : Δ 1-557-377-11



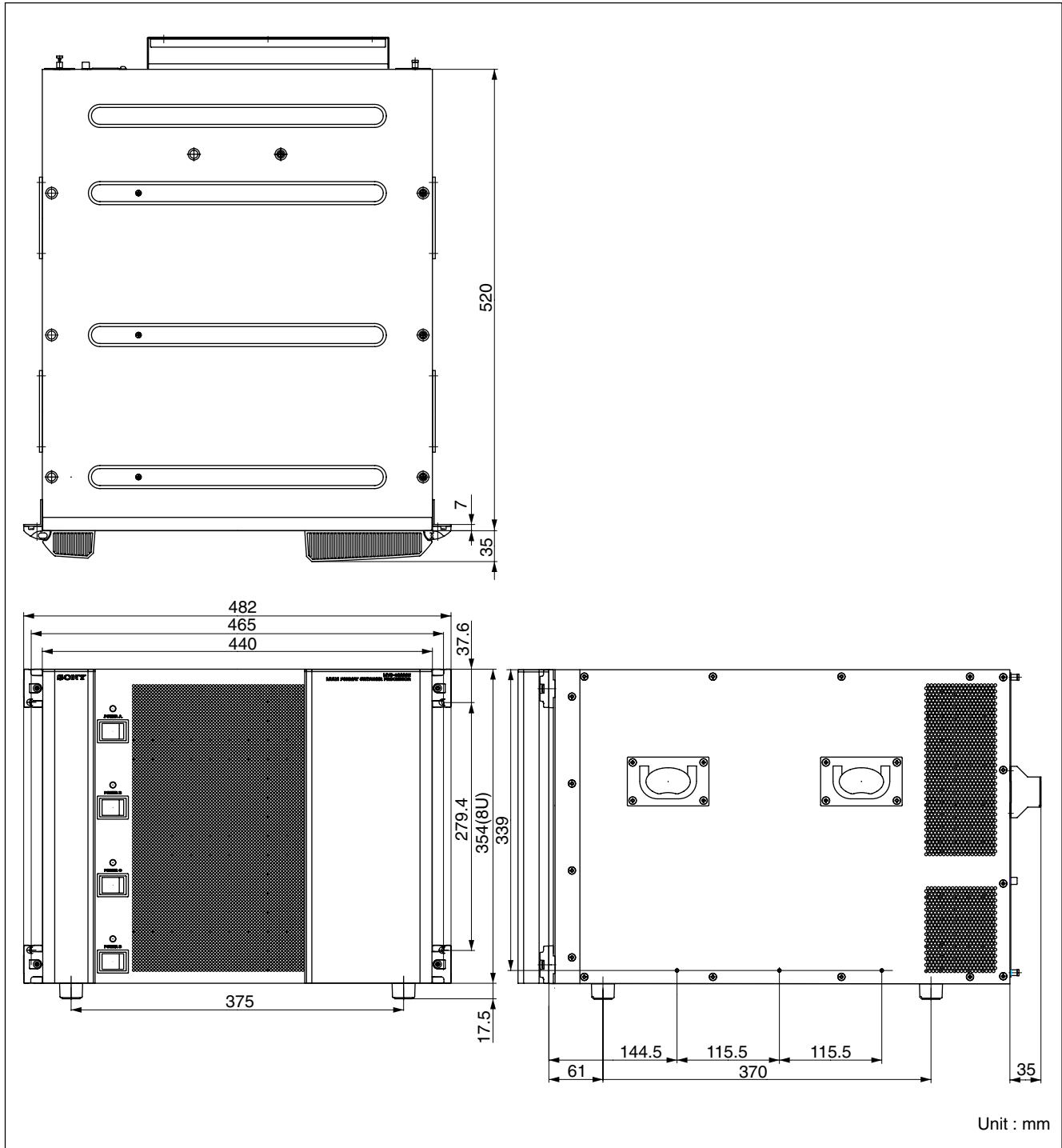
For customers in the all European countries

① Power cord, 250 V 10 A (2.4 m) : Δ 1-782-929-21



1-3. Installation Space (External dimensions)

1-3-1. MVS8000SF-C



1-4. Installing the Options

The MVS8000SF-C is shipped from the factory with the necessary option boards (refer to the following table) already installed in accordance with the specified system configuration.

The following options are available for the MVS-8000SF.

MVS-8000SF Option List

Model name	Board Structure	
	Plug-in board	Connector board
MKS-8110HD 17 Input Board	–	CNI-9 board
MKS-8110SD 17 Input Board	–	CNI-10 board
MKS-8110M 17 Input Board	–	CNI-22 board
MKS-8160HD 8 Output Board	OUT-23 board	CNO-11 board
MKS-8160SD 8 Output Board	OUT-24 board	CNO-17B board
MKS-8160M 8 Output Board	OUT-27 board	CNO-23 board
MKS-8170HD DME Interface Board	DIF-119 board	–
MKS-8170SD DME Interface Board	DIF-122 board	–
MKS-8170M DME Interface Board	DIF-141 board	–
MKS-8210HD Mix/Effect Board Set	DI-40 board	–
	DO-41 board	–
	MIX-45 board	–
	KPC-16 board	–
MKS-8210SD Mix/Effect Board Set	DI-41 board	–
	DO-42 board	–
	MIX-45 board	–
	KPC-16 board	–
MKS-8210M Mix/Effect Board Set	DI-43 board	–
	DO-44 board	–
	MIX-45 board	–
	KPC-16 board	–
MKS-8420M Color Corrector Board	CC-90 board	–
MKS-8440HD Frame Memory Board Set	DIO-62 board	–
	MY-102 board	–
MKS-8440SD Frame Memory Board Set	DIO-63 board	–
	MY-102 board	–

Model name	Board Structure	
	Plug-in board	Connector board
MKS-8440M Frame Memory Board Set	DIO-74 board	–
	MY-102 board	–
MKS-8210K1 1 M/E Upgrade Kit	DI-43 board	–
	DO-44 board	–
MKS-8440K1 Frame Memory Upgrade Kit	DIO-74 board	–
	–	–
HK-PSU04 Power Supply Unit	–	–

1-4-1. Installing the Plug-in Boards

Each plug-in board of the Multi Format Switcher MVS-8000SF is allocated to a specific slot into which they must be installed. Check to see that the respective plug-in boards are installed in their respective slots.

The name of the board is shown near the eject lever at the right-most end of each plug-in board.

The respective slot numbers to which plug-in boards that are allocated are shown inside the front panel of the MVS-8000SF. Install the respective plug-in board according to this instruction.

Note

Check to see that connectors of the plug-in boards are securely into the MB-974 board of the MVS-8000SF without loose contact.

If any plug-in board is inserted into the incorrect slot, it causes a system error and the system will not work correctly.

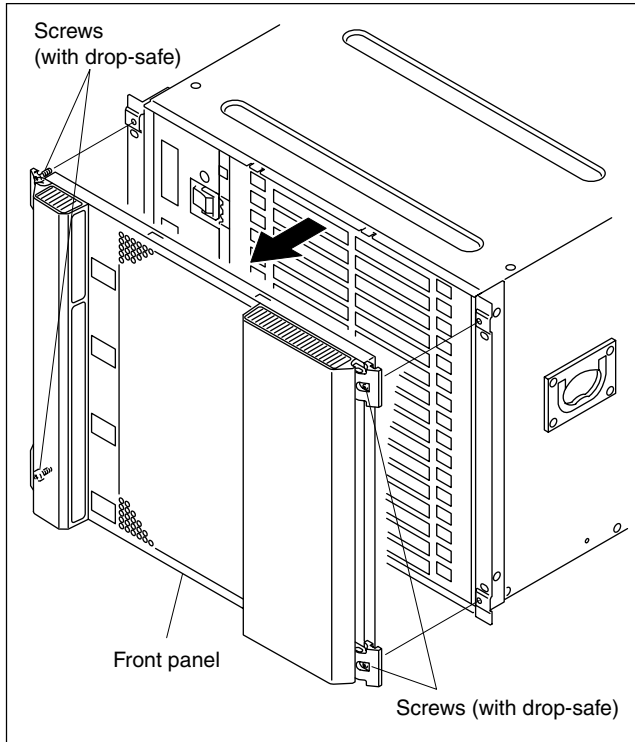
CAUTION

Be sure to turn off the POWER switch before starting installation work.

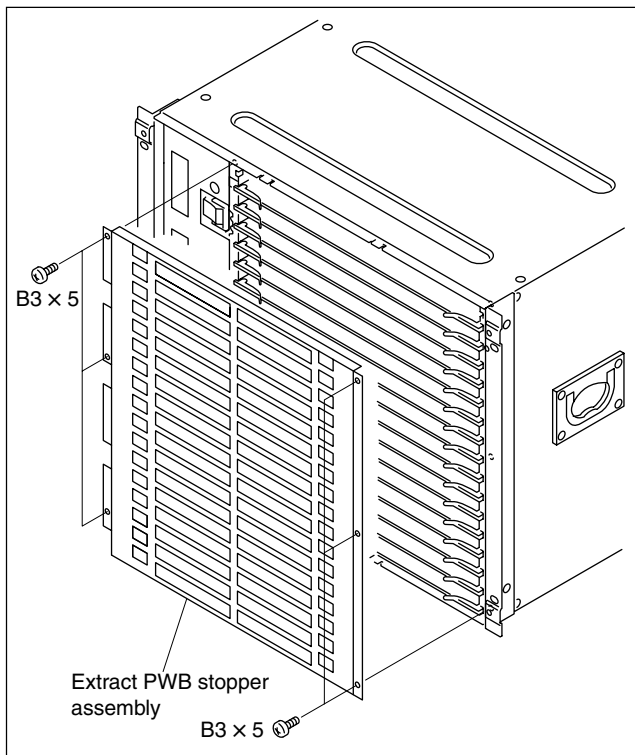
If installation work is started with the POWER switch left on, it may cause electrical shock or damage to printed circuit boards.

Installation Procedure

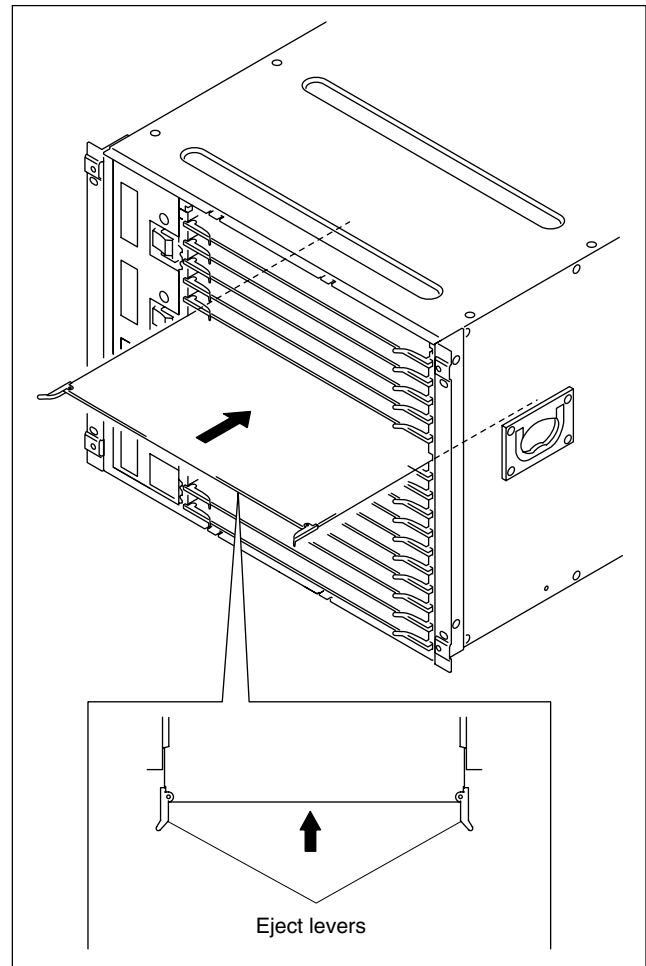
1. Turn off the main power of the MVS-8000SF and disconnect the AC power cord from the wall outlet.
2. Loosen the four screws (with drop-safe) and remove the front panel to the arrow.



3. Remove the six screws and remove the plug-in board loose-proof assembly.



4. While the eject levers are opened as shown in the illustration, insert the plug-in board into the board guide rail.



Name of option	Name of board	Slot on the front side
MKS-8210HD/SD/M*1	DO-41/DO-42/ DO-44 board	3, 8
	MIX-45 board	4, 9
	KPC-16 board	5, 10
	DI-40/DI-41/ DI-43 board	6, 11
MKS-8170HD/SD/M	DIF-119/DIF-122/ DIF-141 board	7
MKS-8420M	CC-90 board	12
MKS-8160HD/SD/M*2	OUT-23/OUT-24/ OUT-27 board	14, 15
MKS-8440HD/SD/M	DIO-62/DIO-63/ DIO-74 board	16
	MY-102 board	17

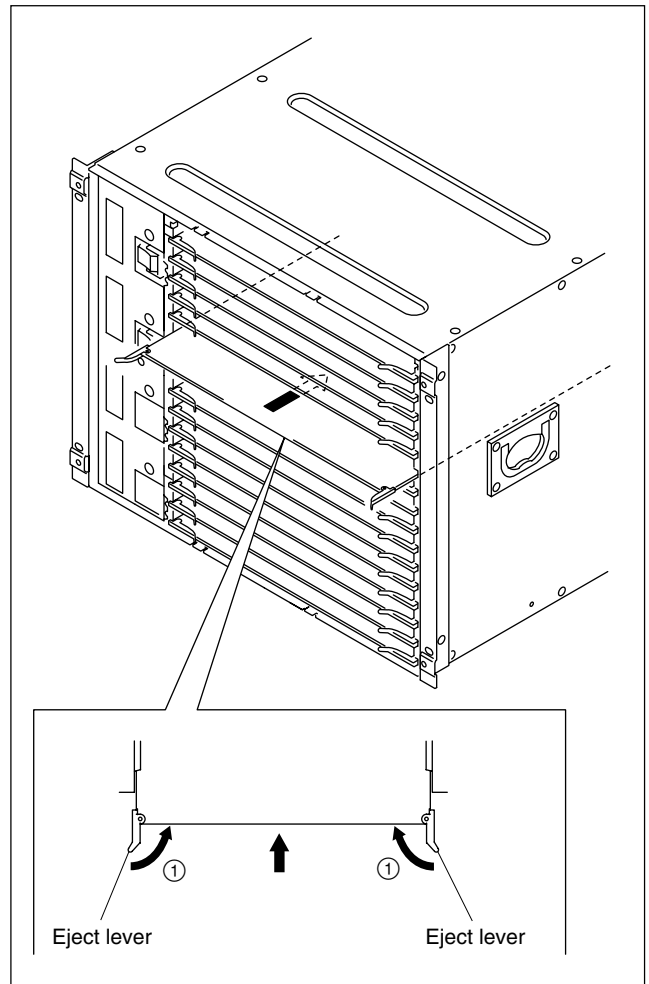
*1 : Note when installing the MKS-8210HD/8210SD/8210M
The MKS-8210HD/8210SD/8210M must be inserted into the specified slot only for M/E. Be sure to insert it into the correct slot without fail. The slots into which the MKS-8210HD/8210SD/8210M can be inserted are determined in accordance with the configuration of M/Es as shown in the following table.

Slot	M/E
SLOT 3 to 6	M/E 1
SLOT 8 to 11	PGM/PST

*2 : Relation between the slots in which OUT-23/OUT-24/OUT-27 boards (MKS-8160HD/8160SD/8160M) are installed and OUTPUT is shown below.

Slot	OUTPUT
SLOT 14	1 to 8
SLOT 15	9 to 16

5. While closing the eject levers in the direction of arrow ①, push in the plug-in board.



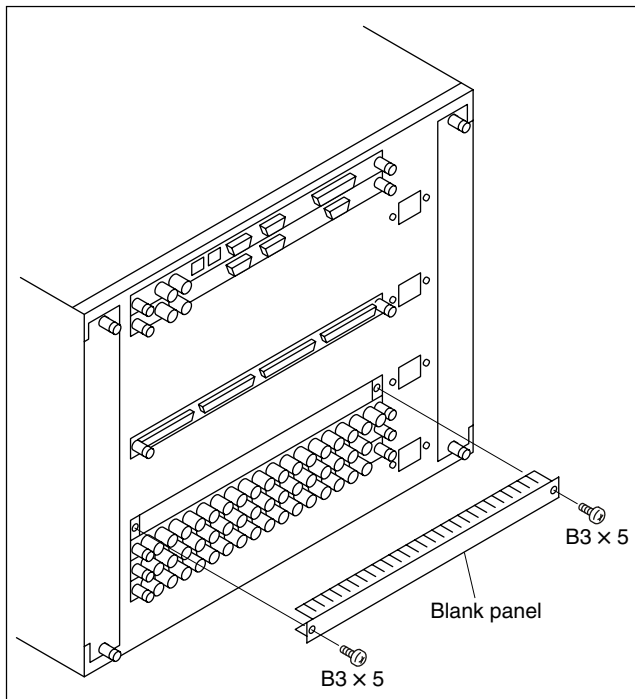
6. Attach the plug-in board loose-proof assembly and the front panel by reversing the installation steps of 2, 3.

1-4-2. Installing the Connector Board

1. Remove the two screws and remove the blank panel.

Note

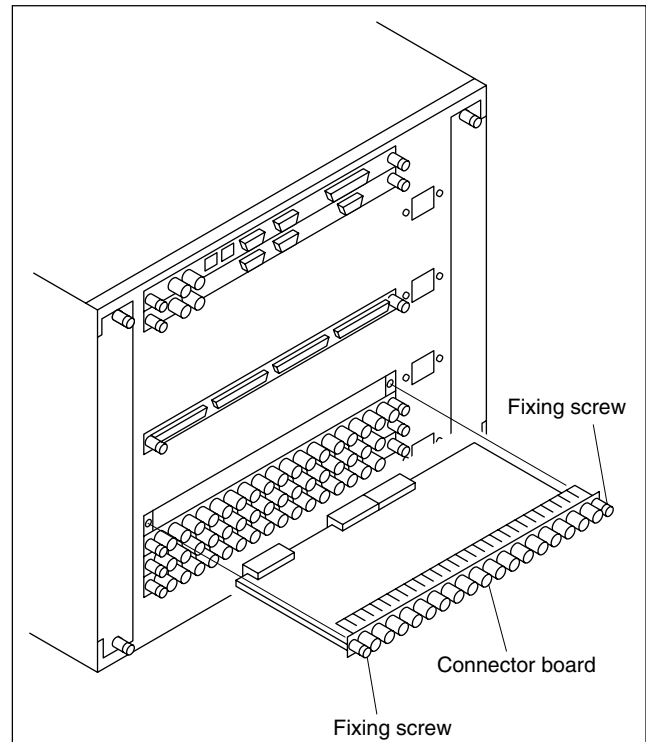
To install the connector board into the slot in which the other board is installed already, loosen the two fixing screws and remove the connector board that is installed already.



Note

Store the removed blank panel in a safe place.

2. Insert the connector board horizontally level and secure it with the two fixing screws.



Name of option	Name of board	Slot on the rear side
MKS-8110HD	CNI-9 board	IN 1 to 17
MKS-8110SD	CNI-10 board	18 to 34
MKS-8110M	CNI-22 board	
MKS-8160HD	CNO-11 board	Insert into the slot on the rear that corresponds to the slot on the front side.
MKS-8160SD	CNO-17B board	
MKS-8160 M	CNO-23 board	

1-4-3. Installing the HK-PSU04

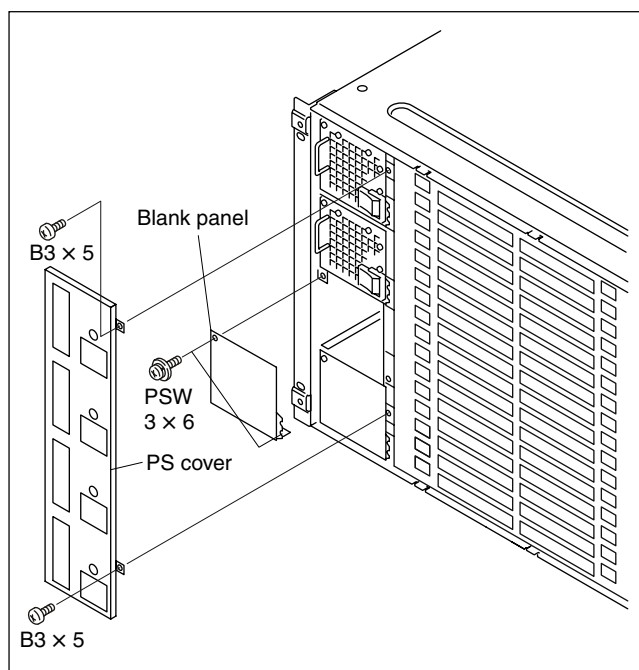
The HK-PSU04 is used after it is installed in the MVS-8000SF.

Note

Before installing the HK-PSU04, be sure to turn off the main power. If the HK-PSU04 is installed while the main power is turned on, it can result in electrical shock or damage to printed circuit boards.

Installation procedure

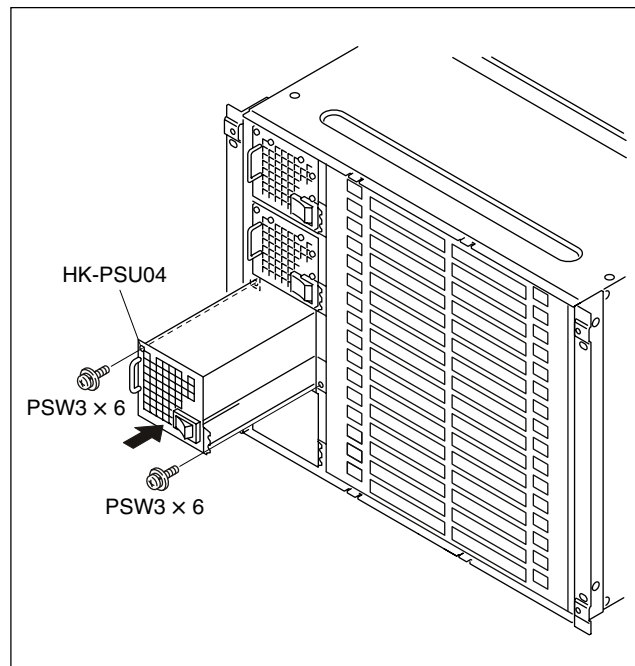
1. Remove the front panel of the MVS-8000SF. (Refer to Section 1-4-1.)
2. Remove the two screws (B3 × 5) fixing the power supply cover, and remove the power supply cover.
3. Remove the two screws (PSW3 × 6) fixing the blank panel to the location where the HK-PSU04 is going to be installed. Then remove the blank panel.



Note

Store the removed blank panel in a safe place.

4. Push the portion of the HK-PSU04 marked by the arrow and insert the HK-PSU04 into deep end as far as it will go.
5. Secure the HK-PSU04 with the two screws removed in step 3.



6. Attach the power supply cover and the front panel by reversing the installation steps of 1, 2.

1-4-4. Upgrade

The MVS-8000 system can be upgraded by the use of the following upgrade kit.

Name of upgrade kit	Name of board	Slot on the front side
MKS-8210K1	DO-44 board	3, 8
	DI-43 board	6, 11
MKS-8440K1	DIO-74 board	16

1. When MKS-8210K1 is used

Exchange the DO-41/42 boards of the M/E unit that you want to upgrade, with the DO-44 board of the upgrade kit. Also, exchange the DI-40/41 boards that you want to upgrade, with the DI-43 board of the upgrade kit.

2. When MKS-8440K1 is used

Exchange the DIO-62/63 boards in the slot 16 with the DIO-74 board of the upgrade kit.

1-4-5. Installing the MKS-8420M

MKS-8420M consists of the following boards.

- CC-90 board : 1 piece
- CPU-DK module : 3 pieces

CC-90 board installation

Refer to “1-4-1. Installing the Plug-in Boards”.

CPU-DK module installation

Replace a CPU-DK module on the following boards with each CPU-DK module of MKS-8420M.

Replacement procedure of the CPU-DK module is described as follows using the OUT-23 board as an example. Other boards (DIF-119, DIF-122, DIF-141, OUT-24, OUT-27, XPT-21) can also be replaced in the same way.

Front side slot No.	Board name (The installed boards are different depending on the system configuration.)
7	DIF-119 or DIF-122 or DIF-141 ^(*1)
13	XPT-21
14	OUT-23 or OUT-24 or OUT-27

(*1) : MKS-8170HD, MKS-8170SD, MKS-8170M
Depending on the system configuration, above DME Interface Board is not installed in slot 7.

CAUTION

Be sure to turn off the POWER switch before starting installation work.

If installation work is started with the POWER switch left on, it may cause electrical shock or damage to printed circuit boards.

Removal

1. Remove the OUT-23 board from the MVS-8000SF.
2. Remove the two screws and washers. Remove the bracket (K).
3. Remove the CPU-DK module from the connector of the board.
4. Peel off the heat conduction sheet 1 (SDI) from the removed CPU-DK module.

Note

The heat conduction sheet 1 (SDI) will be reused.

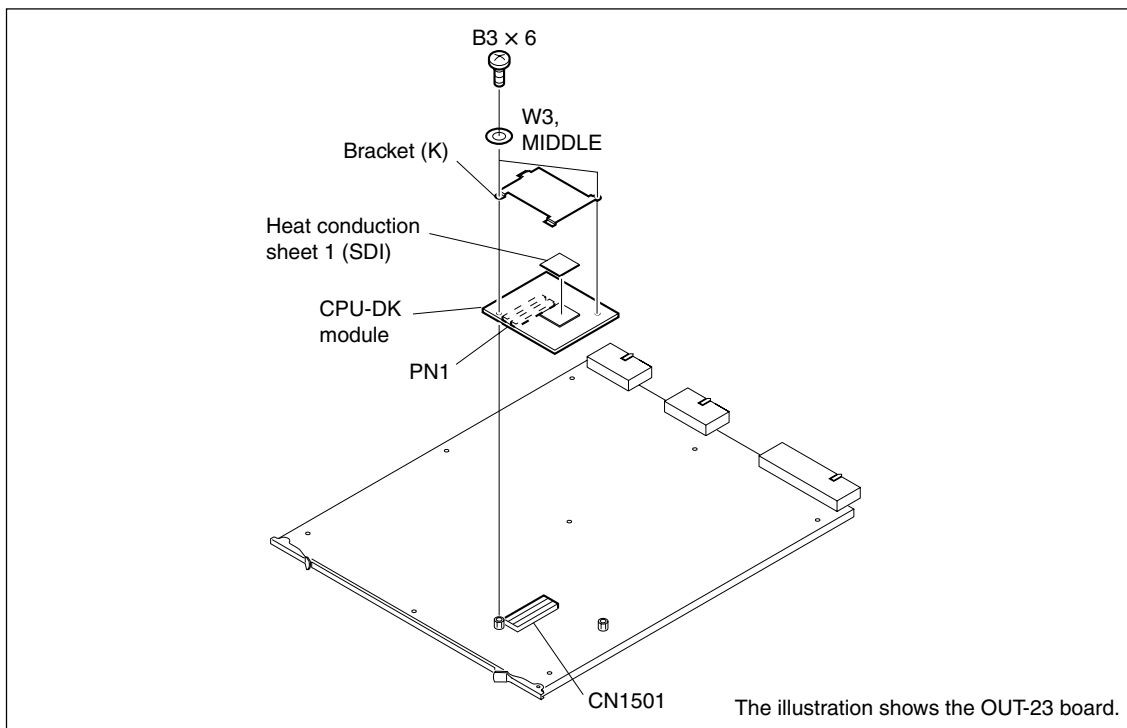
Installation

1. Attach the heat conduction sheet 1 (SDI) that is removed in step 4 of removal procedure to the new CPU-DK module.
2. Insert the CPU-DK module connector (PN1) to the connector (CN1501) on the OUT-23 board.

Note

Confirm that the connector is securely inserted to its root.

3. Install the OUT-23 board by reversing the steps of removal.



1-5. Rack Mounting

The MVS-8000SF is mounted in the 19-inch standard rack. To mount the MVS-8000SF in the rack, use the specified rack mount kit and follow the procedure described below.

Specified rack mount kit : RMM-10

Note

If other than the specified rack mount kit is used, the unit may not be mounted in the 19-inch standard rack.

Parts of the RMM-10

- | | |
|---|-------|
| • Rack tool | 2 pcs |
| • Right rack mount adapter | 1 pc |
| • Left rack mount adapter | 1 pc |
| • Rack tool attaching screw
(B4 × 6 : 7-682-560-09) | 6 pcs |
| • Rack tool attaching screw
(B4 × 10 : 7-682-560-10) | 6 pcs |

Other required parts

To mount in the rack, the rack mount kit RMM-10 and the following part are required.

- | | |
|---|-------|
| • Screw for rack mounting
(B5 × 12 : 7-682-576-04) | 4 pcs |
|---|-------|

1. Precautions for Rack Mounting

WARNING

- To prevent the rack from falling or moving, fix the rack on a flat and steady floor using bolt or others.
If the rack falls due to the weight of the equipment, it may cause death or injury.
- Be sure to use the specified rack mount kit.
If not, injury may result and the equipment may fall due to insufficient strength.
- After rack mounting, be sure to tighten the screws on the rack angle and fix the unit in the rack.
If the screws on the rack angle are not tightened, the unit may slip from the rack and fall, causing injury.

CAUTION

When mounting the unit in the rack, note the following:

- Be sure to mount in the rack with two persons or more.
- Be careful not to catch your fingers or hands in the rack mount rail or others.
- Mount in the rack in a stable position.

Note

If several units are mounted in a rack, it is recommended to install a ventilation fan to prevent temperature rise inside the rack.

2. Rack Mounting Procedure

This section describes the rack mounting procedure using the RMM-10 rack mount kit.

Note

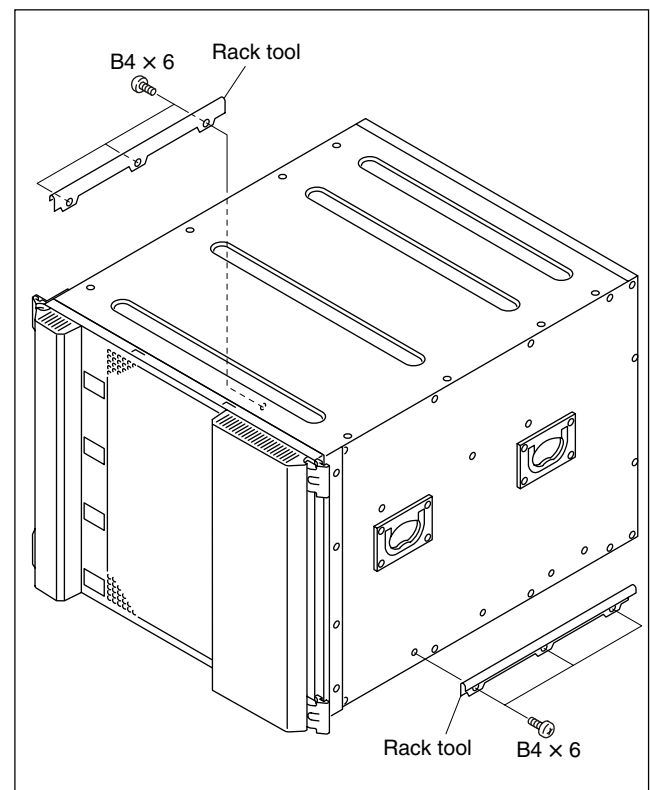
Tighten the screws to the following torque.

Tightening torque : $120 \times 10^{-2} \text{ N}\cdot\text{m}$ { 12.2 kgf·cm }

1. Attach the rack tool to the side of the equipment using the specified six screws.

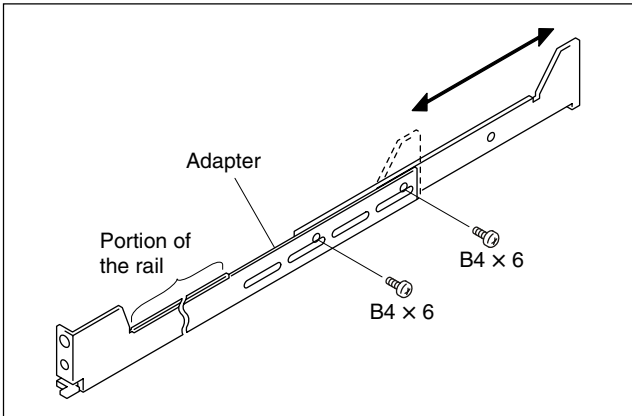
Note

Use B4 × 6 screws.



- Loosen the screws on the rear of the right and left adapters and adjust the length of the adapter according to the depth of the rack.

(The illustration below shows the left adapter.)

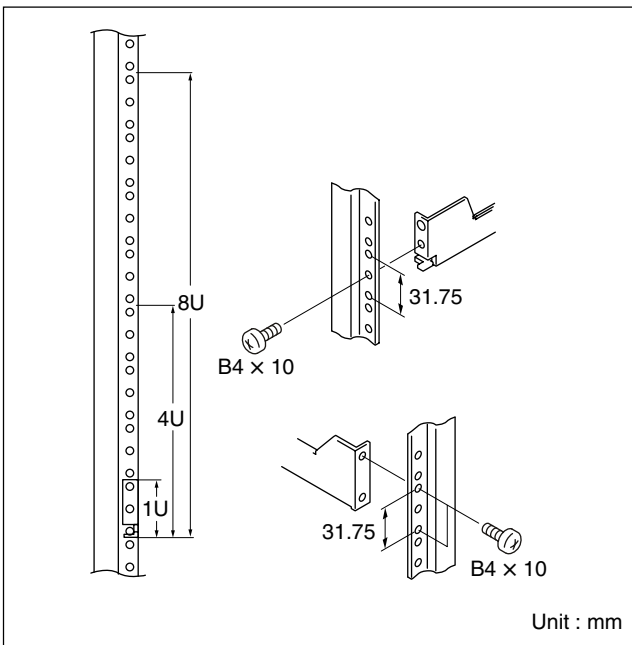


Note

Maximum depth of adapter : 750 mm
 Minimum depth of adapter : 595 mm

- Attach the right and left adapters to the rack completely using the specified six screws.

(The illustration below shows the left adapter.)

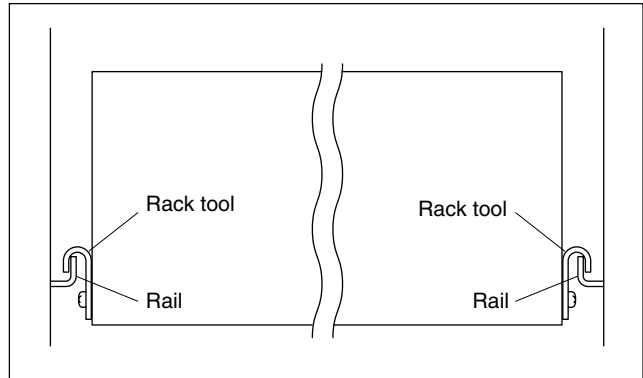


- Tighten the screws (B4 x 6 : two screws each on the right and left) for adjusting the length of the adapter completely (the screws that were loosened in step 2).
- Remove the front panel of the equipment. (Refer to Section 1-4-1.)

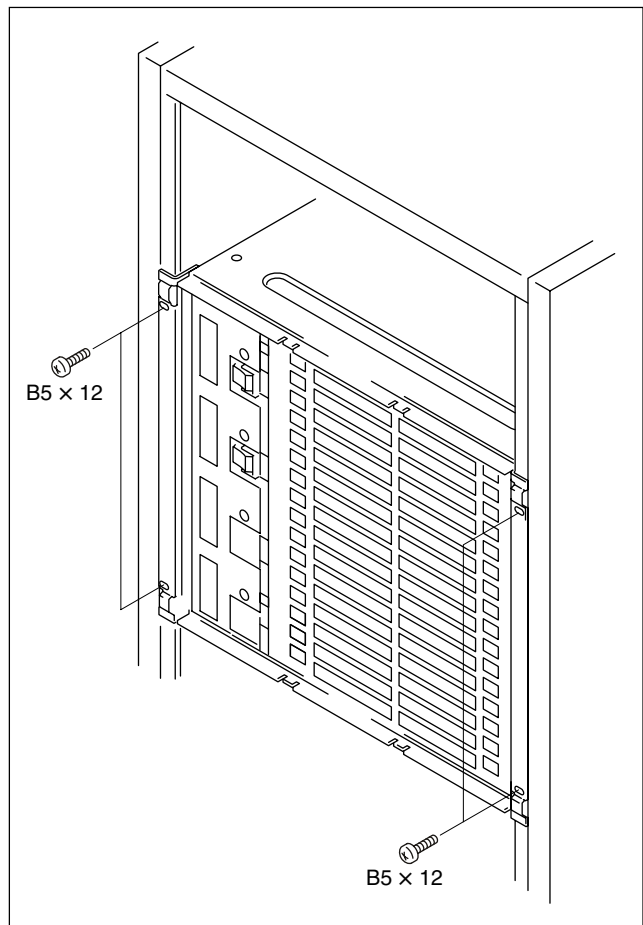
- Align the groove of the rack tool at the side of the equipment with the rail, and slide the equipment to the rear.

Note

The rack tools are hooked on the rails as shown below.



- Fix the rack angle in the rack using the specified screws.



- Attach the front panel to the equipment. (Refer to Section 1-4-1.)

1-6. Matching Connectors

Use the following connectors, cables or equivalents when connecting cables to the unit.

Model name	Panel indication	Connector name	Matching connector and cable	
			Name	Sony part No.
MKS-8110SD/HD/M	PRIMARY INPUTS 1 to 17	BNC, 75 Ω	Belden 8281 coaxial cable (SDTV system)	—
MKS-8160SD/HD/M	OUTPUTS 1 to 8		or Belden 1694 coaxial cable (HDTV system)	
MVS-8000SF	REF IN	BNC, 75 Ω	Belden 8281 coaxial cable	—
	REF OUT			
	EXT			
	REMOTE 1 to 4 TERMINAL	D-sub 9-pin, Female	D-sub 9-pin, Male Connector 9-pin, Male Junction Shell 9-pin	1-560-651-00*1 1-561-749-00
	GPI	D-sub 25-pin, Female	D-sub 25-pin, Male Connector 25-pin, Male Junction Shell 25-pin	1-560-904-11*1 1-563-377-11
DATA CTRL	RJ-45 modular jack*2	—	—	
	DME 1A, 1B, 2A, 2B	MDR 68-pin, Female	Dedicated cable (supplied with the MVE-8000)	—

*1 : The following crimp contact is required for the plug.

AWG#18 to #22 : 1-566-493-21

AWG#22 to #24 : 1-564-774-11

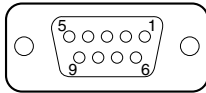
AWG#24 to #30 : 1-564-775-11

*2 : Conforms to the IEEE 802.3 Ethernet 100BASE-TX standards.

1-7. Input/Output Signals of Connectors

The input/output signals of the connectors at the rear panel are as follows.

TERMINAL : RS-232C (D-sub 9-pin, Female)
to Terminal



— EXT VIEW —

Pin No.	Signal Name	Function
1	DCD	Data Carrier detect (*1)
2	RXD	Received data
3	TXD	Transmitted data
4	DTR	Data terminal ready (*1)
5	GND	Ground
6	DSR	Data set ready (*1)
7	RTS	Request to send (*2)
8	CTS	Clear to send (*2)
9	—	—

(*1) : Pins 1, 4 and 6 are internally connected together on the CN-2133 board.

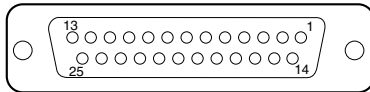
(*2) : Pins 7 and 8 are internally connected together on the CN-2133 board.

GPI : (D-sub 25-pin, Female)

INPUT × 8, TTL

OUTPUT × 4, relay contacts 30 V 0.1 A
(resistive load)

OUTPUT × 4, open collector, 30 V rated voltage



— EXT VIEW —

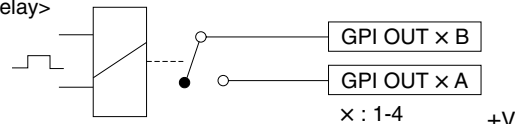
Pin No.	Signal Name	Function
1	GND	Ground
2	GND	Ground
3	GPI IN 2	General-purpose input
4	GPI IN 4	
5	GPI IN 6	
6	GPI IN 8	
7	GPI OUT 1B	General-purpose open collector output (B) (*3)
8	GPI OUT 2B	
9	GPI OUT 3B	
10	GPI OUT 4B	

Pin No.	Signal Name	Function
11	GPI OUT 6	General-purpose relay output (B) (*4)
12	GPI OUT 8	
13	GPI OUT COM	Ground for open collector output
14	GND	Ground
15	GPI IN 1	General-purpose input
16	GPI IN 3	
17	GPI IN 5	
18	GPI IN 7	
19	GPI OUT 1A	General-purpose relay output (A) (*3)
20	GPI OUT 2A	
21	GPI OUT 3A	
22	GPI OUT 4A	
23	GPI OUT 5	General-purpose open collector output (*4)
24	GPI OUT 7	
25	GPI OUT COM	Ground for open collector output

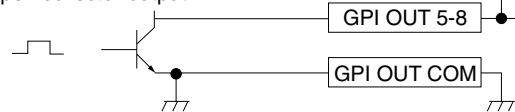
Note

A and B of the same number constitute a pair of relay contacts.

(*3) <Relay>

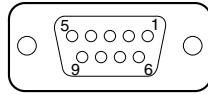


(*4) <Open collector output>



REMOTE 1 to 4 : RS-422A (D-sub 9-pin, Female)

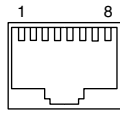
<DEVICE> (*5) from External Devices



– EXT VIEW –

Pin No.	Signal Name	Function
1	FG	Frame ground
2	TX-	Transmitted data (-)
3	RX+	Received data (+)
4	GND	Common ground
5	-	No Connection
6	GND	Common ground
7	TX+	Transmitted data (+)
8	RX-	Received data (-)
9	-	No Connection

(*5) <DEVICE> : Controlling equipment

DATA/CTRL : 100BASE-TX, RJ-45 (8-pin)

– EXT VIEW –

Pin No.	Signal Name	Function
1	TX+	Transmitted data (+)
2	TX-	Transmitted data (-)
3	RX+	Received data (+)
4	-	No Connection
5	-	No Connection
6	RX-	Received data (-)
7	-	No Connection
8	-	No Connection

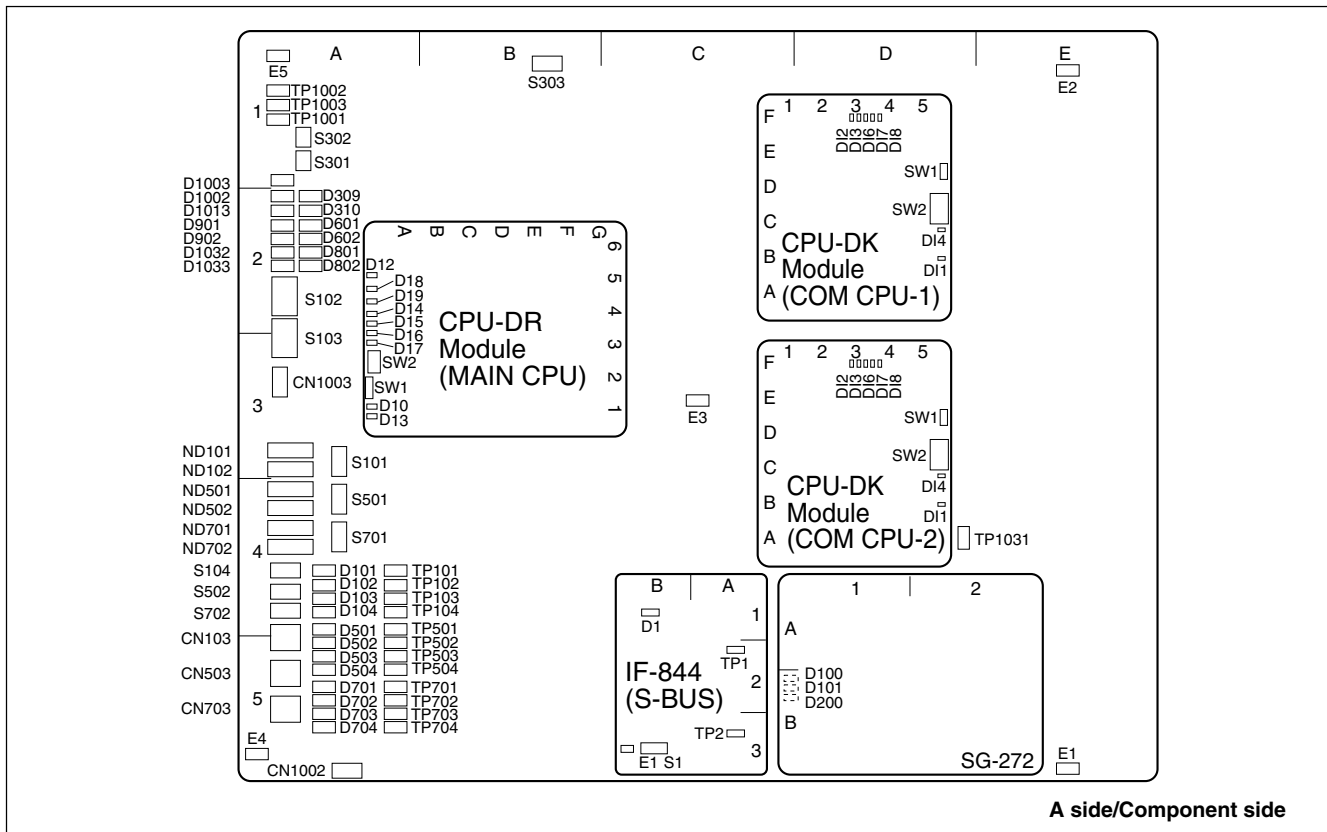
1-8. Checks on Completion of Installation

1-8-1. Description of On-board Switches and LEDs

Note

The number shown in the parentheses () indicated the address on the circuit board.

1. CA-44 board (MVS-8000SF)



<LED>

D101, D102, D103, D104 (A-4), ND101, ND102 (A-3) : MAIN CPU status LED

Main CPU status indication.

D309 (A-2) : RESET status LED

System reset status indication.

Lit when S301 is pressed or the power voltage drops to +3.3 V.

D310 (A-2) : CPU RESET status LED

CA-44 board reset status indication.

Lit when S302 is pressed or the power voltage drops to +3.3 V.

D501 (A-4), D502, D503, D504 (A-5) : COM CPU-1 status LED

COM CPU-1 status indication.

D601 (A-2) : COM1 ACT status LED

COM CPU-1 Ethernet communication status indication.

Lit while data send or receive is in progress.

D602 (A-2) : COM1 100 status LED

COM CPU-1 Ethernet communication speed status indication.

Lit : 100 Mb/s

Not lit : 10 Mb/s

D701, D702 (A-4), D703, D704 (A-5) : COM CPU-2 status LED

COM CPU-2 status indication.

D801 (A-2) : COM2 ACT status LED

COM CPU-2 Ethernet communication status indication.

Lit while data send or receive is in progress.

D802 (A-2) : COM2 100 status LED

COM CPU-2 Ethernet communication speed status indication.

Lit : 100 Mb/s

Not lit : 10 Mb/s

D901 (A-2) : REF EXT status LED

REF IN signal presence/absence status indication.

Lit when the REF signal is input to the REF IN connector.

Not lit when the REF signal is not input to the REF IN connector.

D902 (A-2) : PLL LOCK status LED

REF IN signal format status indication.

Lit when the REF IN signal matches with the switcher format setup.

D1002 (A-2) : +3.3 V

+3.3 V power supply status indication.

Lit when the +3.3 V power is supplied.

D1003 (A-1) : +12 V

+12 V power supply status indication.

Lit when the +12 V power is supplied.

If this LED does not light, the fuse may have blown.

D1013 (A-2) : +5 V

+5 V power supply status indication.

Lit when the +5 V power is supplied.

D1032 (A-2) : SBUS TX status LED

S-BUS send status indication.

Lit while the data send is in progress.

D1033 (A-2) : SBUS RX status LED

S-BUS receive status indication.

Lit while the data receive is in progress.

ND501, ND502 (A-4) : COM CPU-1 status LED

COM CPU-1 status indication.

ND701, ND702 (A-4) : COM CPU-2 status LED

COM CPU-2 status indication.

<Switch>**S101 (A-3) : Mode setting switch for the main CPU**

Sets the modes of the main CPU.

Default setting when shipped from the factory is all OFF.

S102 (A-2) : Group ID setting switch for LAN

Sets the group ID for connecting LAN.

For details, refer to "System Setup Manual".

S103 (A-2) : Unit ID setting switch for LAN

Sets the unit ID for connecting LAN.

For details, refer to "System Setup Manual".

S104 (A-4) : Monitor reset switch for the main CPU

Pressing this switch resets the system while maintaining this unit through the main CPU control terminal connector.

S301 (A-1) : System reset switch

Pressing this switch activates the system reset and the system re-starts.

S302 (A-1) : CA-CPU reset switch

Pressing this switch resets the CA-44 board.

S303 (B-1) : Switch setting the number of the power supply units

Sets the number of the power supply units that are required for this unit.

Default setup when shipped from the factory is bits 1, 2 and 4 : OFF, and bits 3 : ON.

S501 (A-4) : Modes setting switch for the COM CPU-1

Sets the modes of the COM CPU-1.

Default setting when shipped from the factory is all OFF.

S502 (A-4) : Monitor reset switch for the COM CPU-1

Pressing this switch resets the system while maintaining this unit through the COM CPU-1 control terminal.

S701 (A-4) : Modes setting switch for the COM CPU-2

Default setting when shipped from the factory is all OFF.

S702 (A-4) : Monitor reset switch for the COM CPU-2

Pressing this switch resets the system while maintaining this unit through the COM CPU-2 control terminal.

<Connector>**CN103 (A-4) : TERMINAL pin**

This pin is connected to the main CPU control terminal and used during maintenance.

Conforms to RS-232C.

CN503 (A-5) : TERMINAL pin

This pin is connected to the COM CPU-1 control terminal and used during maintenance.

Conforms to RS-232C.

CN703 (A-5) : TERMINAL pin

This pin is connected to the COM CPU-2 control terminal and used during maintenance.

Conforms to RS-232C.

CN1003 (A-3) : ISP common connector

Used only for production in the assembly factory. Used for program writing into the JTAG device with ISP.

CN1002 (A-5) : TERMINAL pin

This pin is connected to the S-BUS CPU control terminal and used during maintenance.

Conforms to RS-232C.

<TEST terminal>

E1 (E-5), E2 (E-1), E3 (C-3), E4 (A-5), E5 (A-1) : GND terminal

Use this terminal as the earth point for measuring the respective check terminals.

TP101, TP102, TP103, TP104 (A-4) : Main CPU status check terminal

Main CPU status check terminal.

TP501 (A-4), TP502, TP503, TP504 (A-5) : COM CPU-1 status check terminal

COM CPU-1 status check terminal.

TP701, TP702, TP703, TP704 (A-5) : COM CPU-2 status check terminal

COM CPU-2 status check terminal.

TP1001 (A-1) : +3.3 V check terminal

+3.3 V measuring terminal.

TP1002 (A-1) : +12 V check terminal

+12 V measuring terminal.

TP1003 (A-1) : +5 V check terminal

+5 V measuring terminal.

TP1031 (D-4) : SBUS RX check terminal

S-BUS communication line measuring terminal.

<LED on the CPU DR module> : Main CPU

D10 (green) (A-1) : RUN status LED

RUN status indication.

Lit when the CPU-DR module starts operating.

D12 (green) (A-4) : CD (Card Detect) status LED

Lit when the CPU-DR module is inserted correctly into the parent board.

D13 (green) (A-1) : +2.5 V

Indicates the status of the +2.5 V power that is generated by the VCC (CORE) and supplied to the CPU-DR module.

Lit while the specified power is turned on.

D14, D15, D16, D17 (A-3) (green) : STATUS1 to STATUS4 status LED

Used for maintenance purpose. Only the STATUS1 LED is lit in normal operation.

D18 (green) (A-4) : +3.3 V

Indicates the status of the VCC (I/O) power that is supplied to the CPU-DR module.

Lit while the specified power is turned on.

D19 (green) (A-4) : CORE status LED

Indicates the status of the VCC (CORE) power that is supplied to the CPU-DR module.

Lit while the specified power is turned on.

<Switch on the CPU DR module> : Main CPU

SW1 (A-1) : RESET switch

Pressing this switch resets the CPU-DR module.

Note

In some machines in which the CPU-DR module is installed, the system reset may be activated.

SW2 (A-2) : MODE switch

8-pin DIP switch

Used only for production in the assembly factory. All switches are set to OFF for normal operation.

<LED on the CPU DK module> : COM CPU-1 : COM CPU-2

DI1 (green) (B-5) : CD (Card Detect) status LED

Lit when the CPU-DK module is inserted correctly to the parent board.

DI2 (green) (F-3) : RUN status LED

Lit when the CPU-DK module starts operating.

DI3 (F-3), DI6 (F-3), DI7 (F-3), DI8 (F-4) (green) : STATUS1 to STATUS4 LED

Used for maintenance purpose. Only the STATUS1 LED is lit in normal operation.

DI4 (green) (B-5) : +3.3 V

Indicates the status of the VCC (CORE) and VCC (I/O) powers that are supplied to the CPU-DK module.

**<Switch on the CPU DK module> : COM CPU-1
: COM CPU-2****SW1 (D-5) : RESET switch**

Pressing this switch resets the CPU-DK module.

Note

In some machines in which the CPU-DK module is installed, the system reset may be activated.

**SW2 (C-5) : MODE switch
8-pin DIP switch**

Used only for production in the assembly factory. All switches are set to OFF for normal operation. Default setting when shipped from the factory is all OFF.

<LED on the IF-844 board> : S-BUS**D1 (B-1) : SBUS RX status LED**

Lit when receiving data.

<Switch on the IF-844 board> : S-BUS**S1 (B-3) : RESET switch**

Pressing this switch resets the IF-844 board.

<TEST terminal on the IF-844 board>**E1 (B-3) : GND terminal**

Use this terminal as the earth point for measuring the respective check terminals.

TP1 (A-2) : RX check terminal

S-BUS communication line measuring terminal.

TP2 (A-3) : TEST terminal

Terminal for testing.

<LED on the SG-272 board>**D100 (B-1) : REF OK status LED**

Lit while V sync of the reference input is detected.

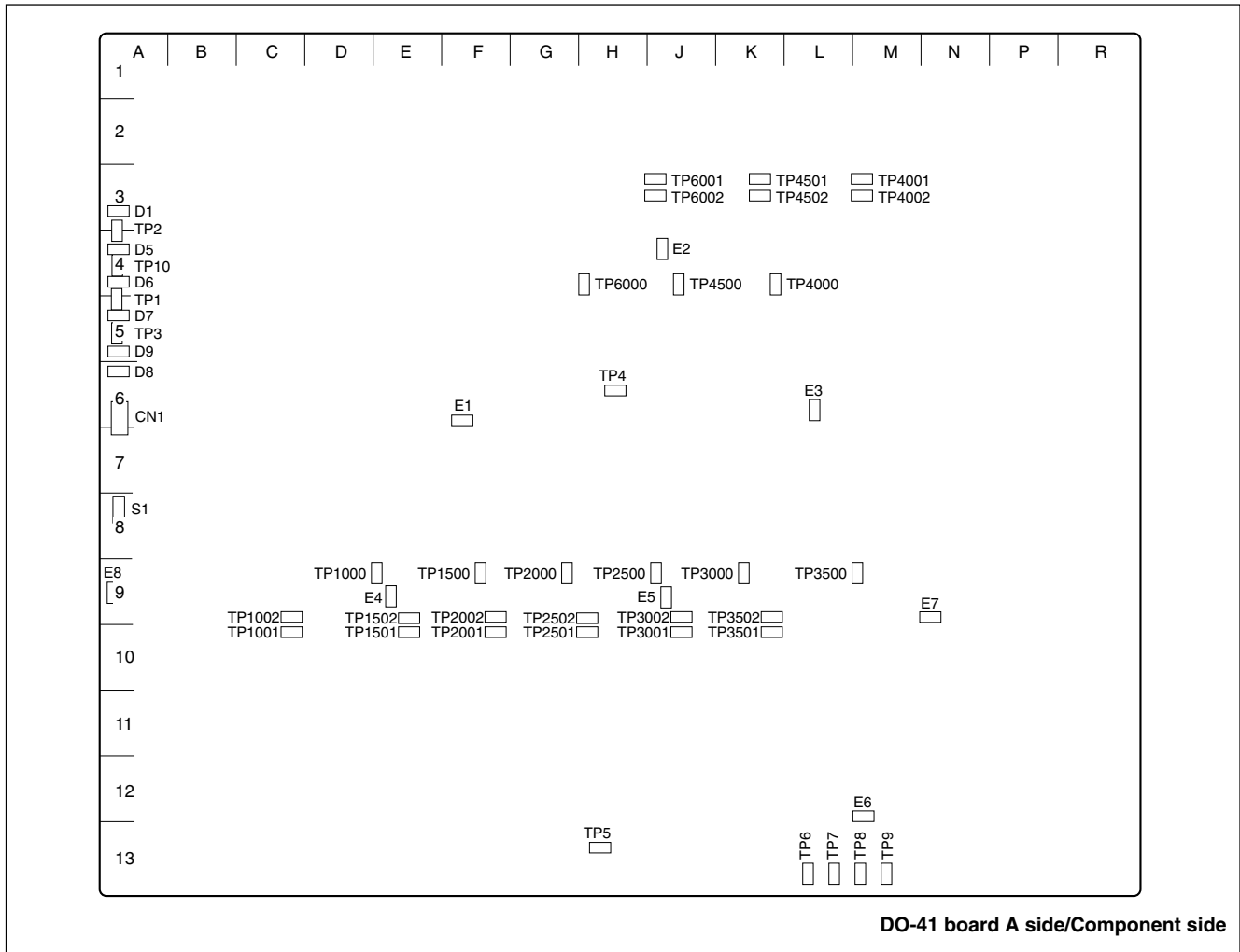
D101 (B-1) : REF EXT status LED

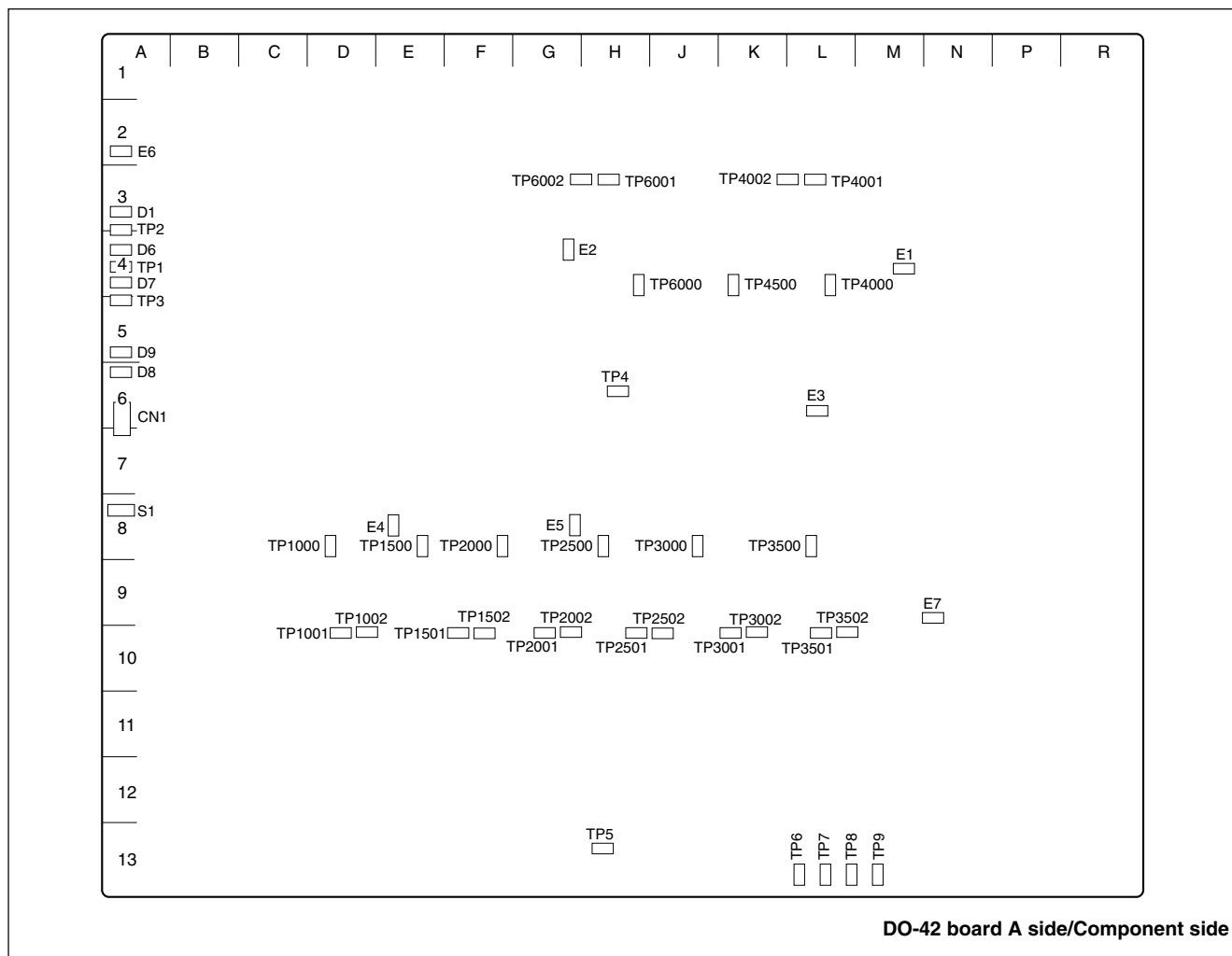
Lit while sync signal is input to the reference input.

D200 (B-1) : LOCK status LED

Lit while the machine is locked to the reference signal.

2. DO-41 board (MKS-8210HD)/DO-42 board (MKS-8210SD)/DO-44 board (MKS-8210M)





• DO-41/42 board

<LED>

D1 (A-3) : +12 V

+12 V power supply status indication.
Lit when the +12 V power is supplied.
If this LED does not light, the fuse may have blown.

D5 (A-4) : +5 V (DO-41 board)

+5 V power supply status indication.
Lit when the +5 V power is supplied.

D6 (A-4) : +3.3 V

+3.3 V power supply status indication.
Lit when the +3.3 V power is supplied.

D7 (A-5) : +2.5 V

+2.5 V power supply status indication.
Lit when the +2.5 V power is supplied.

D8 (A-6) : CONF2 status LED

D10 to L10 FPGA (Spartan II) CONFIG DONE status indication.
Not lit when configuration is completed.

D9 (A-5) : CONF1 status LED

H2 to L2 FPGA (Spartan II) CONFIG DONE status indication.
Not lit when configuration is completed.

<Switch>

S1 (A-8) : Reset switch

Pressing this switch initializes the DO-41/42 board.

<Connector>

CN1 (A-6) : ISP common connector

Used only for production in the assembly factory. Used for program writing into the JTAG device with ISP.

<TEST terminal>

E1 (F-6), E2 (J-4), E3 (L-6), E4 (E-9), E5 (J-9), E-6 (M-12), E-7 (N-9), E-8 (A-9) : GND terminal (DO-41 board)

Use this terminal as the earth point for measuring the respective check terminals.

E1 (M-4), E2 (G-4), E3 (L-6), E4 (E-8), E5 (G-8), E6 (A-2), E7 (N-9) : GND terminal (DO-42 board)

Use this terminal as the earth point for measuring the respective check terminals.

TP1 (A-4) : +3.3 V check terminal

+3.3 V measuring terminal.

TP2 (A-4) : +12 V check terminal

+12 V measuring terminal.

TP3 (A-5) : +2.5 V check terminal

+2.5 V measuring terminal.

TP4 (H-6), TP5 (H-13) : CK (clock for video signal) signal check terminal

Used when checking the clock for video signal.

TP6 (L-13) : VD (vertical sync) signal check terminal

Used when checking the VD signal supplied from the mother board.

TP7 (L-13) : CKX (control timing) signal check terminal

Used when checking the CKX signal supplied from the mother board.

TP8 (M-13) : HD (horizontal sync) signal check terminal

Used when checking the HD signal supplied from the mother board.

TP9 (M-13) : FLOE (field odd even) signal check terminal

Used when checking the FLOE signal supplied from the mother board.

TP10 (A-4) : +5 V check terminal (DO-41 board)

+5 V measuring terminal.

TP1000 (E-9), TP1500 (F-9), TP2000 (G-9), TP2500 (J-9), TP3000 (K-9), TP3500 (M-9), TP4000 (K-4), TP4500 (J-4), TP6000 (H-4) : PLL LOCK signal check terminal (DO-41 board)

PLL-LOCK signal measuring terminal.

TP1001 (C-10), TP1501 (E-10), TP2001 (F-10), TP2501 (H-10), TP3001 (J-10), TP3501 (K-10), TP4001 (M-3), TP4501 (K-3), TP6001 (J-3) : EAV_C signal check terminal (DO-41 board)

EAV_C signal measuring terminal.

TP1001 (D-10), TP1501 (F-10), TP2001 (G-10), TP2501 (H-10), TP3001 (K-9), TP3501 (L-9), TP4001 (L-3), TP4501 (J-3), TP6001 (H-3) : EAV_C signal check terminal (DO-42 board)

EAV_C signal measuring terminal.

TP1002 (C-9), TP1502 (E-9), TP2002 (F-9), TP2502 (H-9), TP3002 (J-9), TP3502 (K-9), TP4002 (M-3), TP4502 (K-3), TP6002 (J-3) : EAV_Y signal check terminal (DO-41 board)

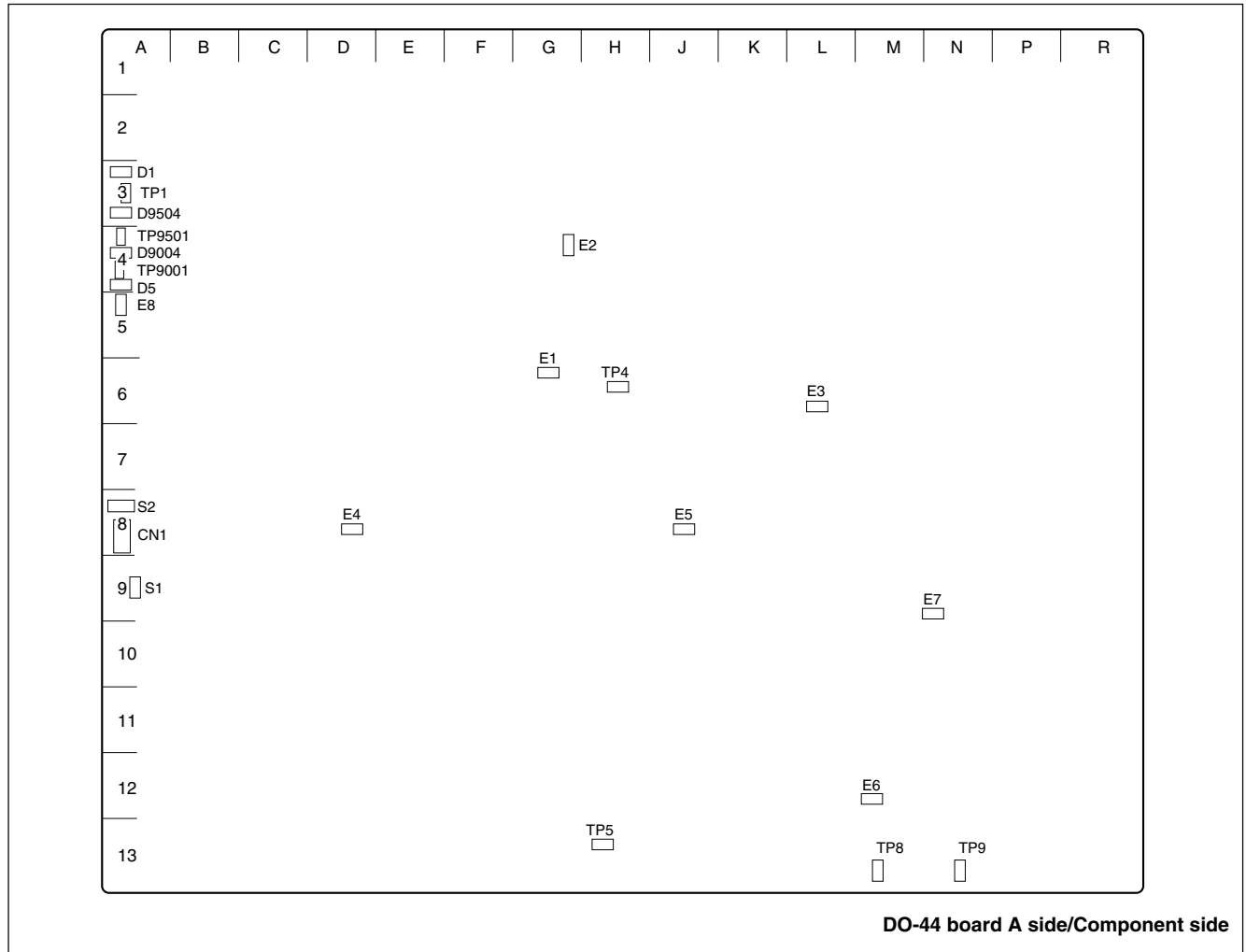
EAV_Y signal measuring terminal.

TP1002 (D-10), TP1502 (F-10), TP2002 (G-10), TP2502 (J-10), TP3002 (K-9), TP3502 (L-9), TP4002 (L-3), TP4501 (J-3), TP6002 (H-3) : EAV_Y signal check terminal (DO-42 board)

EAV_Y signal measuring terminal.

TP1000 (D-8), TP1500 (E-8), TP2000 (F-8), TP2500 (H-8), TP3000 (J-8), TP3500 (L-8), TP4000 (L-4), TP4500 (K-4), TP6000 (H-4) : VCO-FRQ signal check terminal

VCO-FRQ signal measuring terminal.



• DO-44 board

<LED>

D1 (A-3) : +12 V

+12 V power supply status indication.

Lit when the +12 V power is supplied.

If this LED does not light, the fuse may have blown.

D5 (A-4) : CONF ERR status LED

FPGA (EP20K100E) CONFIG DONE status indication.

Not lit when all configurations are completed.

D9004 (A-4) : +1.8 V

+1.8 V power supply status indication.

Lit when the +1.8 V power is supplied.

D9504 (A-3) : +3.3 V

+3.3 V power supply status indication.

Lit when the +3.3 V power is supplied.

<Switch>

S1 (A-9) : Reset switch

Pressing this switch initializes the DO-44 board.

S2 (A-8) : JTAG switch

Used only for production in the assembly factory. Set this switch to ON only when writing program in the JTAG device with ISP.

<Connector>

CN1 (A-8) : ISP common connector

Used only for production in the assembly factory. Used for program writing into the JTAG device with ISP.

<TEST terminal>

E1 (G-6), E2 (G-4), E3 (L-6), E4 (D-8), E5 (J-8), E-6 (M-12), E-7 (N-9), E-8 (A-5) : GND terminal

Use this terminal as the earth point for measuring the respective check terminals.

TP1 (A-3) : +12 V check terminal

+12 V measuring terminal.

TP4 (H-6), TP5 (H-13), TP9 (N-13) : CK (clock for video signal) signal check terminal

Used when checking the clock for video signal.

TP8 (M-13) : HD (horizontal sync) signal check terminal

Used when checking the HD signal supplied from the mother board.

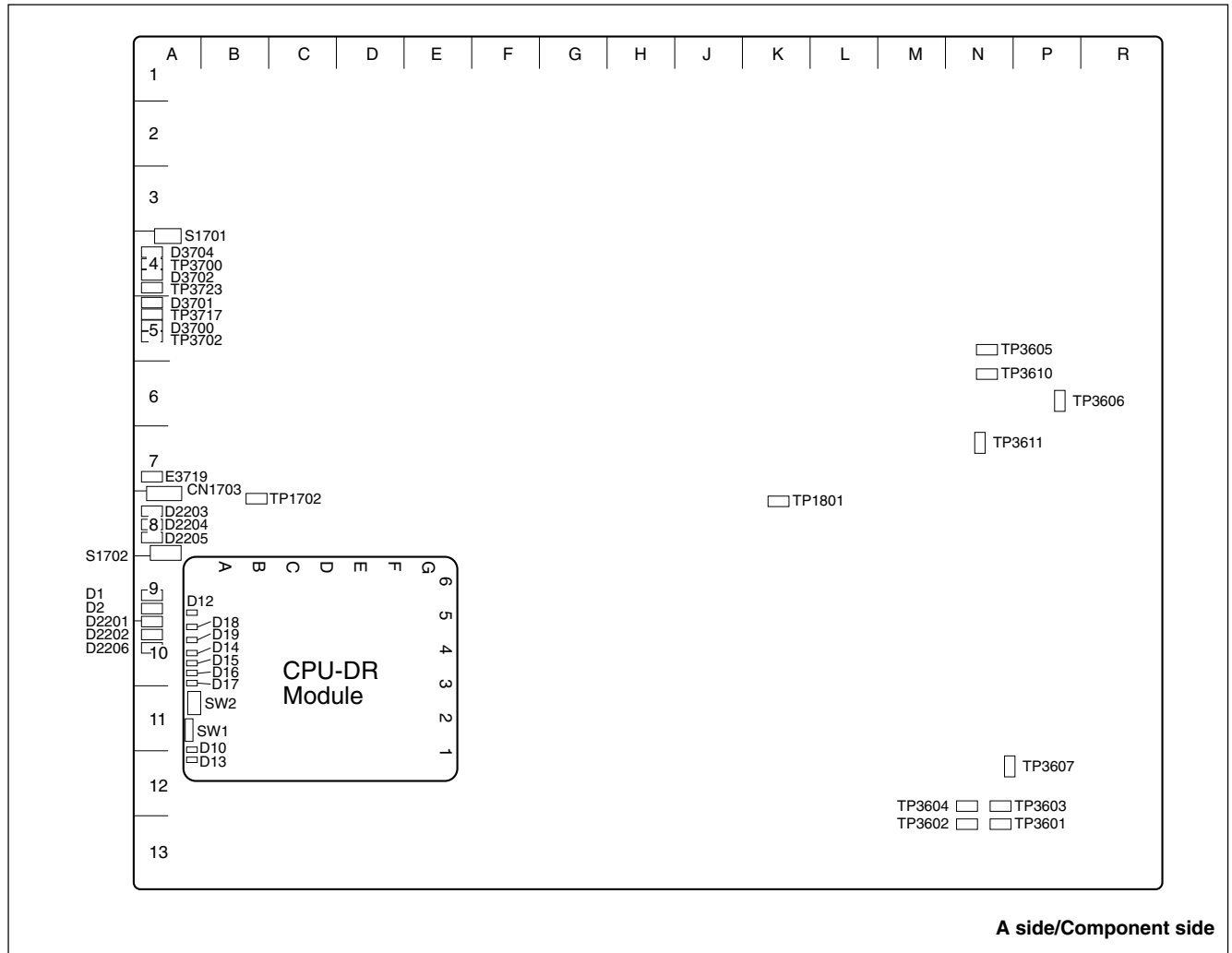
TP9001 (A-4) : +1.8 V check terminal

+1.8 V measuring terminal.

TP9501 (A-4) : +3.3 V check terminal

+3.3 V measuring terminal.

3. MIX-45 board (MKS-8210HD/SD/M)



<LED>

D1 (A-9) : MIXER (Y) status LED

MIXER (Y) CONFIG DONE status indication.
Not lit when configuration is completed.

D2 (A-9) : MIXER (C) status LED

MIXER (C) CONFIG DONE status indication.
Not lit when configuration is completed.

D2201 (A-9) : TBC-A system status LED

TBC-A system CONFIG DONE status indication.
Not lit when configuration is completed.

D2202 (A-10) : TBC-B system status LED

TBC-B system CONFIG DONE status indication.
Not lit when configuration is completed.

D2203, D2204, D2205 (A-8) : MIX-CPU status LED

Indicates the CPU status on the MIX board.

D2206 (A-10) : P-XPT status LED

PXPT CONFIG DONE status indication.
Not lit when configuration is completed.

D3700 (A-5) : +1.8 V

+1.8 V power supply status indication.
Lit when the +1.8 V power is supplied.

D3701 (A-5) : +2.5 V

+2.5 V power supply status indication.
Lit when the +2.5 V power is supplied.

D3702 (A-4) : +3.3 V

+3.3 V power supply status indication.
Lit when the +3.3 V power is supplied.

D3704 (A-4) : +12 V

+12 V power supply status indication.
Lit when the +12 V power is supplied.
If this LED does not light on, the fuse may have blown.

<Switch>

S1701 (A-4) : MIX-CPU reset switch

Pressing this switch initializes the CPU on the MIX-45 board.

S1702 (A-8) : Monitor reset switch

The reset switch that is used to reset the monitor during maintenance through the terminal.

<Connector>

CN1703 (A-8) : TERMINAL pin

TERMINAL pin
This pin is connected to the control terminal and used during maintenance.
Conforms to RS-232C.

CN2201 (A-6) : ISP common connector

Used only for production in the assembly factory. Used for program writing into the JTAG device with ISP.

<TEST terminal>

E3719 (A-7) : GND terminal

Use this terminal as the earth point for measuring the respective check terminals.

TP1702 (B-8) : CPU CK (CPU clock) signal check terminal

Use this terminal to check the CPU clock for video signal.

TP1801 (K-7) : DLY_WE terminal

Use this terminal to check the Write_Enable signal of the delay circuit.

TP3601 (N-13) : FLOE (field odd even) signal check terminal

Use this terminal to check the FLOE signal from the mother board.

TP3602 (N-13) : HD (horizontal sync) signal check terminal

Use this terminal to check the HD signal supplied from mother board.

TP3603 (N-12) : CKX (control timing) signal check terminal

Use this terminal to check the CKX signal supplied from mother board.

TP3604 (N-12) : VD (vertical sync) signal check terminal

Use this terminal to check the VD signal supplied from mother board.

TP3605 (N-5) : Buffered VD0 (vertical sync) signal check terminal

Use this terminal to check the VD signal that is used on this board.

TP3606 (P-6) : Buffered CKX0 (switching) signal check terminal

Use this terminal to check the CKX signal that is used in this circuit board.

TP3607 (N-12) : CK (clock for video) signal check terminal

Use this terminal to check the clock for video signal that is used in this circuit board.

TP3610 (N-6) : Buffered HD0 (horizontal sync) signal check terminal

Use this terminal to check the HD signal that is used in this circuit board

TP3611 (N-7) : Buffered FLOE0 (field odd even) signal check terminal

Use this terminal to check the FLOE signal that is used in this circuit board.

TP3700 (A-4) : +12 V check terminal

+12 V measuring terminal.

TP3702 (A-5) : +1.8 V check terminal

+1.8 V measuring terminal.

TP3717 (A-5) : +2.5 V check terminal

+2.5 V measuring terminal.

TP3723 (A-4) : +3.3 V check terminal

+3.3 V measuring terminal.

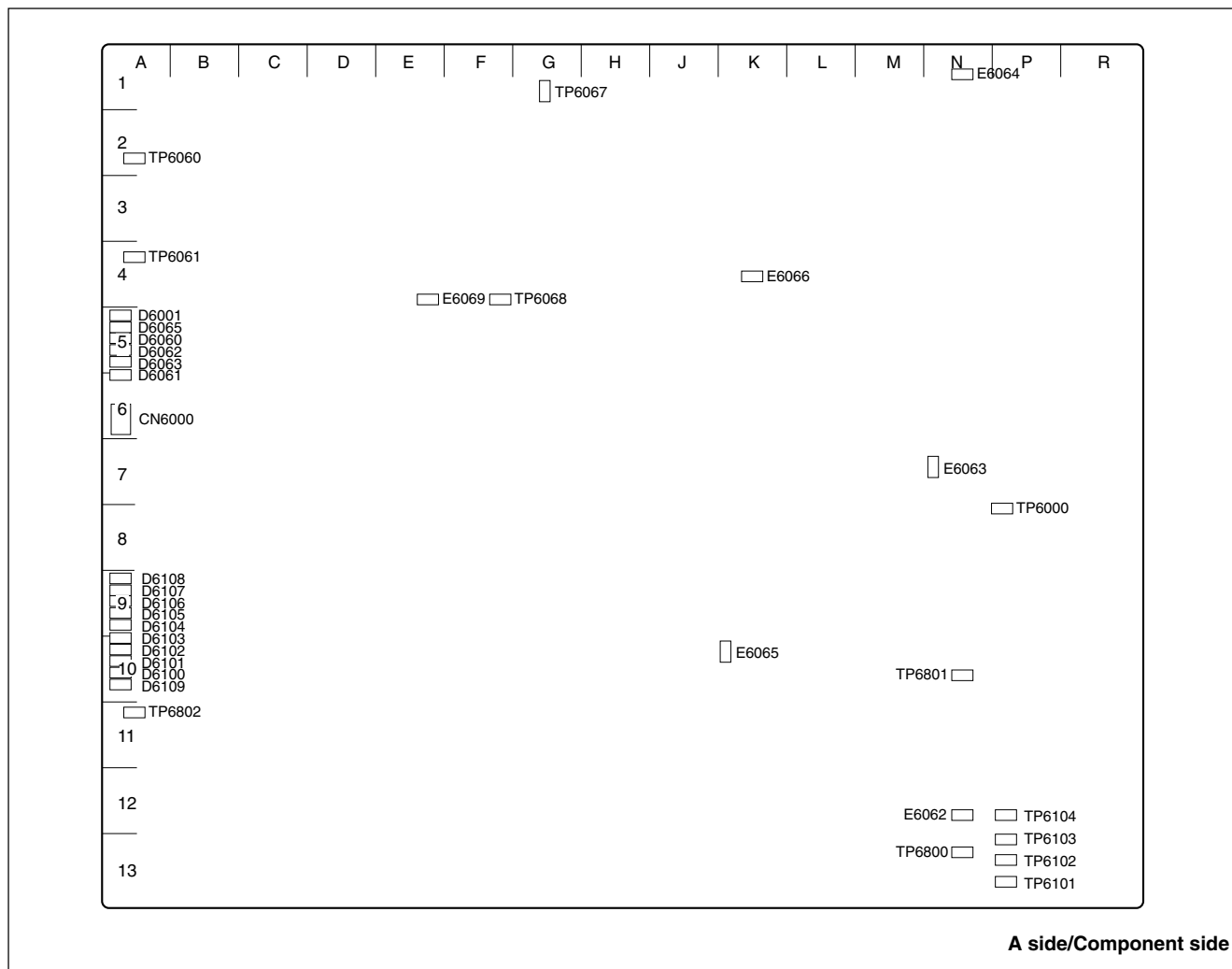
<LED on the CPU DR module> (C11)

Refer to < LED on the CPU DR module > in "1. CA-44 board".

<Switch on the CPU DR module> (C11)

Refer to < Switch on the CPU DR module > in "1. CA-44 board".

4. KPC-16 board (MKS-8210HD/SD/M)



<LED>

D6001 (A-5) : RESET status LED

System reset status indication.

Lit when the +3.3 V power decreases.

D6060 (A-5) : +3.3 V

+3.3 V power supply status indication.

Lit when the +3.3 V power is supplied.

D6061 (A-6), D6062 (A-5), D6063 (A-5) : +1.8 V

+1.8 V power supply status indication.

Lit when the +1.8 V power is supplied.

D6065 (A-5) : +12 V

+12 V power supply status indication.

Lit when the +12 V power is supplied.

If this LED does not light, the fuse may have blown.

D6100 (A-10) : COMMON WASH FPGA CONFIG DONE status LED

COMMON WASH FPGA CONFIG DONE status indication.

Not lit when configuration is completed.

D6101 (A-10) : WASH4 FPGA CONFIG DONE status LED

WASH4 FPGA CONFIG DONE status indication.

Not lit when configuration is completed.

D6102 (A-10) : WASH3 FPGA CONFIG DONE status LED

WASH3 FPGA CONFIG DONE status indication.

Not lit when configuration is completed.

D6103 (A-10) : WASH2 FPGA CONFIG DONE status LED

WASH2 FPGA CONFIG DONE status indication.
Not lit when configuration is completed.

D6104 (A-9) : WASH1 FPGA CONFIG DONE status LED

WASH1 FPGA CONFIG DONE status indication.
Not lit when configuration is completed.

D6105 (A-9) : KEYER4 FPGA CONFIG DONE status LED

KEYER4 FPGA CONFIG DONE status indication.
Not lit when configuration is completed.

D6106 (A-9) : KEYER3 FPGA CONFIG DONE status LED

KEYER3 FPGA CONFIG DONE status indication.
Not lit when configuration is completed.

D6107 (A-9) : KEYER2 FPGA CONFIG DONE status LED

KEYER2 FPGA CONFIG DONE status indication.
Not lit when configuration is completed.

D6108 (A-9) : KEYER1 FPGA CONFIG DONE status LED

KEYER1 FPGA CONFIG DONE status indication.
Not lit when configuration is completed.

D6109 (A-10) : WKG FPGA CONFIG DONE status LED

WKG FPGA CONFIG DONE status indication.
Not lit when configuration is completed.

<Connector>

CN6000 (A-6) : ISP common connector

Used only for production in the assembly factory. Used for program writing into the JTAG device with ISP.

<TEST terminal>

E6062 (N-12), E6063 (N-7), E6064 (N-1), E6065 (K-10), E6066 (K-4), E6069 (E-4), : GND terminal

Use this terminal as the earth point for measuring the respective check terminals.

TP6000 (P-8) : SYS_CLK signal check terminal

Used for checking the SYSTEM CLOCK signal.

TP6060 (A-2) : +3.3 V check terminal

+3.3 V measuring terminal.

TP6061 (A-4), TP6067 (G-1), TP6068 (F-4) : +1.8 V check terminal

+1.8 V measuring terminal.

TP6101 (N-13) : VD (vertical sync) signal check terminal

Used to check the VD signal supplied from the mother board.

TP6102 (N-13) : CKX (control timing) signal check terminal

Used to check the CKX signal supplied from the mother board.

TP6103 (N-13) : HD (horizontal sync) signal check terminal

Used to check the HD signal supplied from the mother board.

TP6104 (N-12) : FLOE (field odd even) signal check terminal

Used to check the FLOE signal supplied from the mother board.

TP6800 (N-13) : HALF VIDEO CLOCK signal check terminal

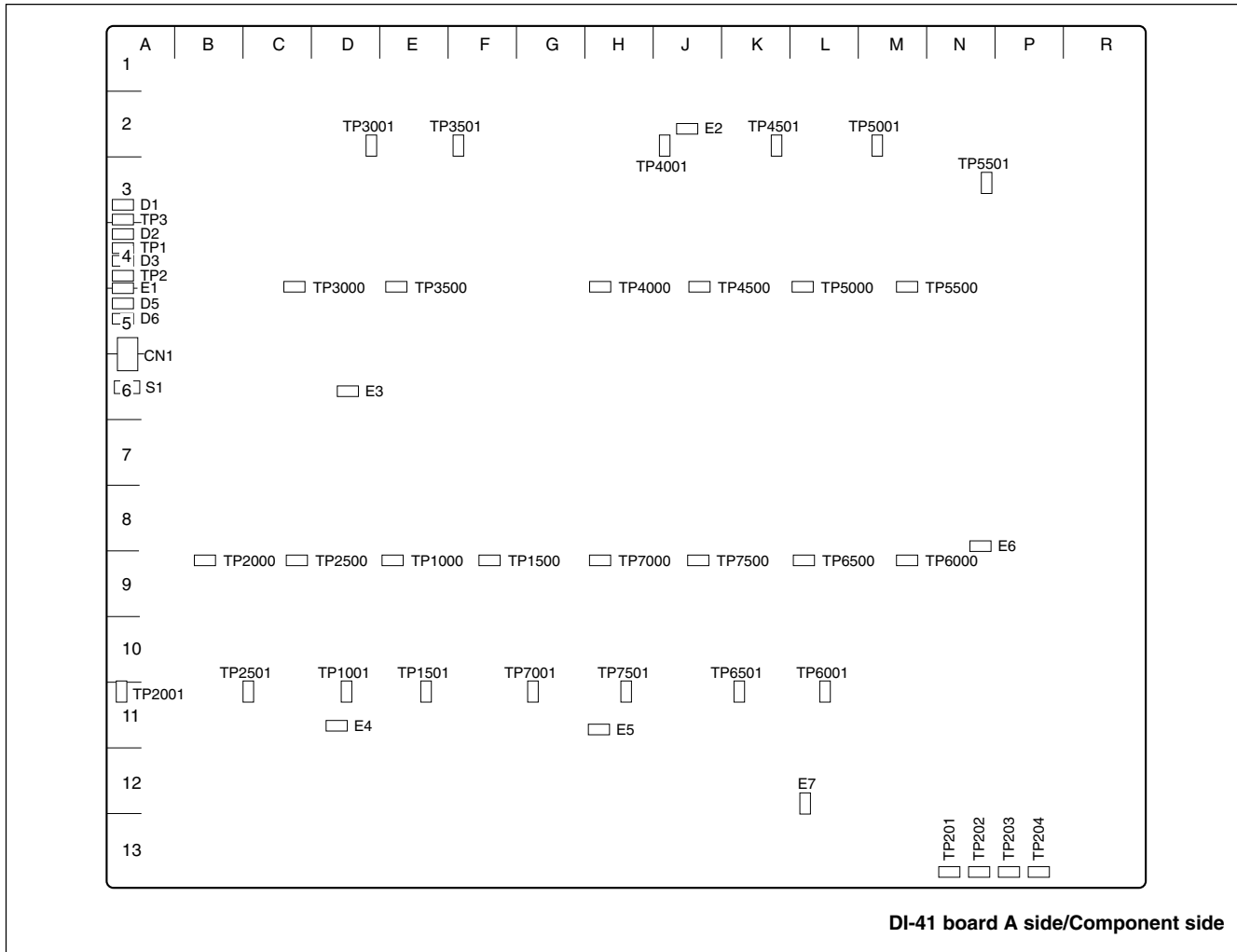
Used to check the HALF VIDEO CLOCK signal.

TP6801 (N-10) : VCLK (clock for video signal) signal check terminal

Used to check the clock for video signal

TP6802 (A-11) : DLY_WE terminal

Used to check the Write-Enable signal of the delay circuit.



• **DI-40/41 board**

<LED>

D1 (A-3) : +12 V

+12 V power supply status indication.
Lit when the +12 V power is supplied.
If this LED does not light, the fuse may have blown.

D2 (A-4) : +3.3 V

+3.3 V power supply status indication.
Lit when the +3.3 V power is supplied.

D3 (A-4) : +2.5 V

+2.5 V power supply status indication.
Lit when the +2.5 V power is supplied.

D5 (A-5) : CONF1 status LED

H2 to L2 FPGA (Spartan II) CONFIG DONE status indication.
Not lit when configuration is completed.

D6 (A-5) : CONF2 status LED

D10 to L10 FPGA (Spartan II) CONFIG DONE status indication.
Not lit when configuration is completed.

<Switch>

S1 (A-6) : DI reset switch

Pressing this switch initializes the DI-40 and D-I41 boards.

<Connector>

CN1 (A-6) : ISP common connector

Used only for production in the assembly factory. Used for program writing into the JTAG device with ISP.

<TEST terminal>

E1 (C-6), E2 (J-2), E3 (P-5), E4 (B-11), E5 (H-11), E6 (N-8), E7 (A-7) : GND terminal bard

Use this terminal as the earth point for measuring the respective check terminals.

E1 (A-4), E2 (J-2), E3 (F-6), E4 (D-11), E5 (H-11), E6 (N-8), E7 (L-12) : GND terminal (DI-41 board)

Use this terminal as the earth point for measuring the respective check terminals.

TP1 (A-4) : +3.3 V check terminal

+3.3 V measuring terminal.

TP2 (A-4) : +2.5 V check terminal

+2.5 V measuring terminal.

TP3 (A-3) : +12 V check terminal

+12 V measuring terminal.

TP201 (N-13) : VD (vertical sync) signal check terminal

VD signal measuring terminal.

TP202 (N-13) : CKX (control timing) signal check terminal

CKX signal measuring terminal.

TP203 (P-13) : HD (horizontal sync) signal check terminal

HD signal measuring terminal.

TP204 (P-13) : FLOE (field odd even) signal check terminal

FLOE signal measuring terminal.

TP1000 (D-8), TP1500 (E-8), TP2000 (A-8), TP2500 (B-8), TP3000 (D-5), TP3500 (E-4), TP4000 (H-5), TP4500 (K-5), TP5000 (L-5), TP5500 (N-5), TP6000 (L-8), TP6500 (K-8), TP7000 (G-8), TP7500 (H-8), TP8000 (G-4) : 1R001 signal check terminal (DI-40 board)

1R001 signal measuring terminal.

TP1001 (D-8), TP1501 (E-8), TP2001 (A-8), TP2501 (B-8), TP3001 (D-5), TP3501 (E-4), TP4001 (H-5), TP4501 (K-5), TP5001 (L-5), TP5501 (N-5), TP6001 (L-8), TP6501 (K-8), TP7001 (G-8), TP7501 (H-8), TP8001 (G-4) : HANC signal check terminal (DI-40 board)

HANC signal measuring terminal.

TP1002 (D-8), TP1502 (E-8), TP2002 (A-8), TP2502 (B-8), TP3002 (D-5), TP3502 (E-4), TP4002 (H-5), TP4502 (K-5), TP5002 (L-5), TP5502 (N-5), TP6002 (L-8), TP6502 (K-8), TP7002 (G-8), TP7502 (H-8), TP8002 (G-4) : LINE signal check terminal (DI-40 board)

LINE signal measuring terminal.

TP1003 (D-8), TP1503 (E-8), TP2003 (A-8), TP2503 (B-8), TP3003 (D-5), TP3503 (E-4), TP4003 (H-5), TP4503 (K-5), TP5003 (L-5), TP5503 (N-5), TP6003 (L-8), TP6503 (K-8), TP7003 (G-8), TP7503 (H-8), TP8003 (G-4) :**FRAME signal check terminal (DI-40 board)**

FRAME signal measuring terminal.

TP1004 (D-8), TP1504 (E-8), TP2004 (A-8), TP2504 (B-8), TP3004 (D-5), TP3504 (E-4), TP4004 (H-5), TP4504 (K-5), TP5004 (L-5), TP5504 (N-5), TP6004 (L-8), TP6504 (K-8), TP7004 (G-8), TP7504 (H-8), TP8004 (G-4) : CRC signal check terminal (DI-40 board)**CRC signal check terminal (DI-40 board)**

CRC signal measuring terminal.

TP1005 (D-8), TP1505 (E-8), TP2005 (A-8), TP2505 (B-8), TP3005 (D-5), TP3505 (E-4), TP4005 (H-5), TP4505 (K-5), TP5005 (L-5), TP5505 (N-5), TP6005 (L-8), TP6505 (K-8), TP7005 (G-8), TP7505 (H-8), TP8005 (G-4) : SIG DET signal check terminal (DI-40 board)**SIG_DET signal check terminal (DI-40 board)**

SIG_DET signal measuring terminal.

TP1006 (D-8), TP1506 (E-8), TP2006 (A-8), TP2506 (B-8), TP3006 (D-5), TP3506 (E-4), TP4006 (H-4), TP4506 (K-4), TP5006 (L-4), TP5506 (N-4), TP6006 (L-11), TP6506 (K-8), TP7006 (G-8), TP7506 (H-8), TP8006 (G-4) : EAV_Y signal check terminal (DI-40 board)**EAV_Y signal check terminal (DI-40 board)**

EAV_Y signal measuring terminal.

TP1007 (D-8), TP1507 (E-8), TP2007 (A-8), TP2507 (B-8), TP3007 (D-5), TP3507 (E-4), TP4007 (H-4), TP4507 (K-4), TP5007 (L-4), TP5507 (N-4), TP6007 (L-11), TP6507 (K-8), TP7007 (G-8), TP7507 (H-8), TP8007 (G-4) : EAV_C signal check terminal (DI-40 board)**EAV_C signal check terminal (DI-40 board)**

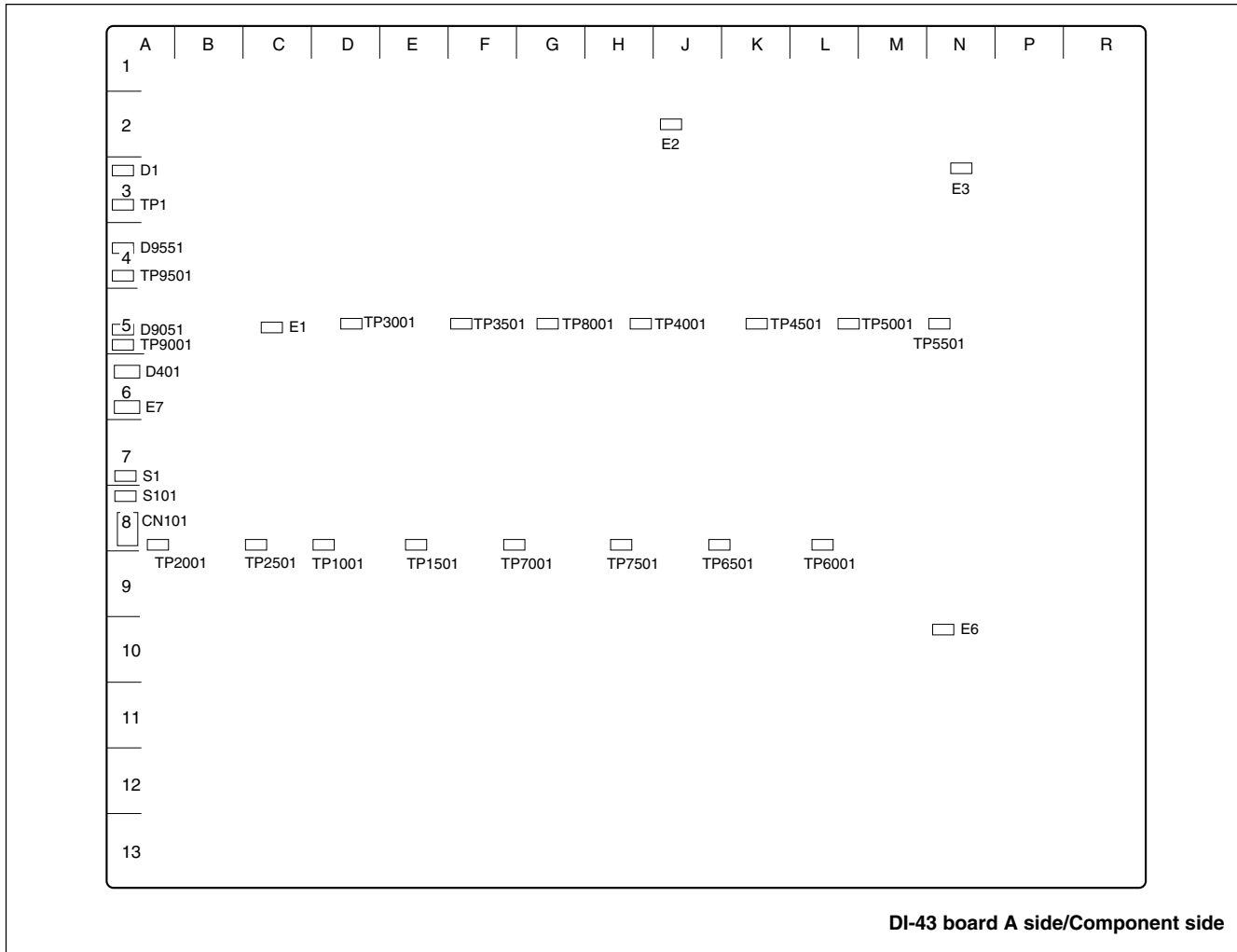
EAV_C signal measuring terminal.

TP1000 (E-9), TP1500 (F-9), TP2000 (B-9), TP2500 (C-9), TP3000 (C-4), TP3500 (E-4), TP4000 (H-4), TP4500 (J-4), TP5000 (L-4), TP5500 (M-4), TP6000 (M-9), TP6500 (L-9), TP7000 (H-9), TP7500 (J-9), TP8000 (F-4) :**VCO_FRQ signal check terminal (DI-41 board)**

VCO_FRQ signal measuring terminal.

TP1001 (D-11), TP1501 (E-11), TP2001 (A-11), TP2501 (C-11), TP3001 (D-2), TP3501 (F-2), TP4001 (J-2), TP4501 (K-2), TP5001 (M-2), TP5501 (N-3), TP6001 (L-11), TP6501 (K-11), TP7001 (G-11), TP7501 (H-11), TP8000 (F-4) : EAV_Y signal check terminal (DI-41 board)**EAV_Y signal check terminal (DI-41 board)**

EAV_Y signal measuring terminal.



• **DI-43 board**

<LED>

D1 (A-3) : +12 V

+12 V power supply status indication.
Lit when the +12 V power is supplied.
If this LED does not light, the fuse may have blown.

D401 (A-6) : CONF ERR status LED

FPGA (EP20K100E) CONFIG DONE status indication.
Not lit when all configurations are completed.

D9051 (A-5) : +1.8 V

+1.8 V power supply status indication.
Lit when the +1.8 V power is supplied.

D9551 (A-4) : +3.3 V

+3.3 V power supply status indication.
Lit when the +3.3 V power is supplied.

<Switch>

S1 (A-7) : DI reset switch

Pressing this switch initializes the DI-43 board.

S101 (A-8) : JTAG switch

Used only for production in the assembly factory. Set this switch to ON only when writing program in the JTAG device with ISP.

<Connector>

CN101 (A-8) : ISP common connector

Used only for production in the assembly factory. Used for program writing into the JTAG device with ISP.

<TEST terminal>

E1 (C-5), E2 (J-2), E3 (N-3), E4 (C-11), E6 (N-10), E7 (A-6) : GND terminal

Use this terminal as the earth point for measuring the respective check terminals.

TP1 (A-3) : +12 V check terminal

+12 V measuring terminal.

TP501 (P-13) : HD (horizontal sync) signal check terminal

HD signal measuring terminal.

**TP1001 (D-8), TP1501 (E-8), TP2001 (A-8), TP2501 (C-8),
TP3001 (D-5), TP3501 (F-5), TP4001 (H-5), TP4501 (K-5),
TP5001 (L-5), TP5501 (N-5), TP6001 (L-8), TP6501 (K-8),
TP7001 (G-8), TP7501 (H-8), TP8001 (G-5) : ERR
check terminal**

SDI signal error measuring terminal.

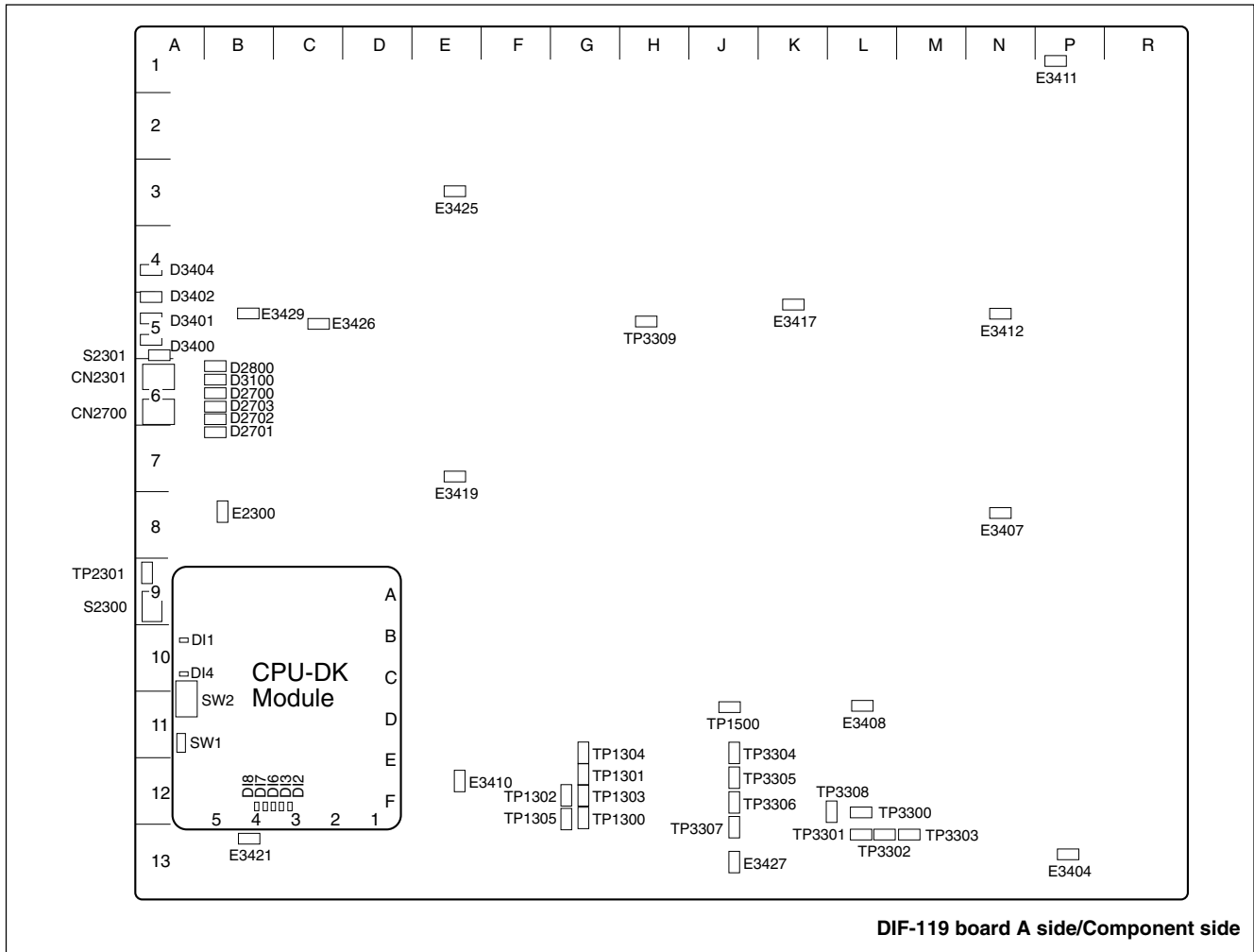
TP9001 (A-5) : +1.8 V check terminal

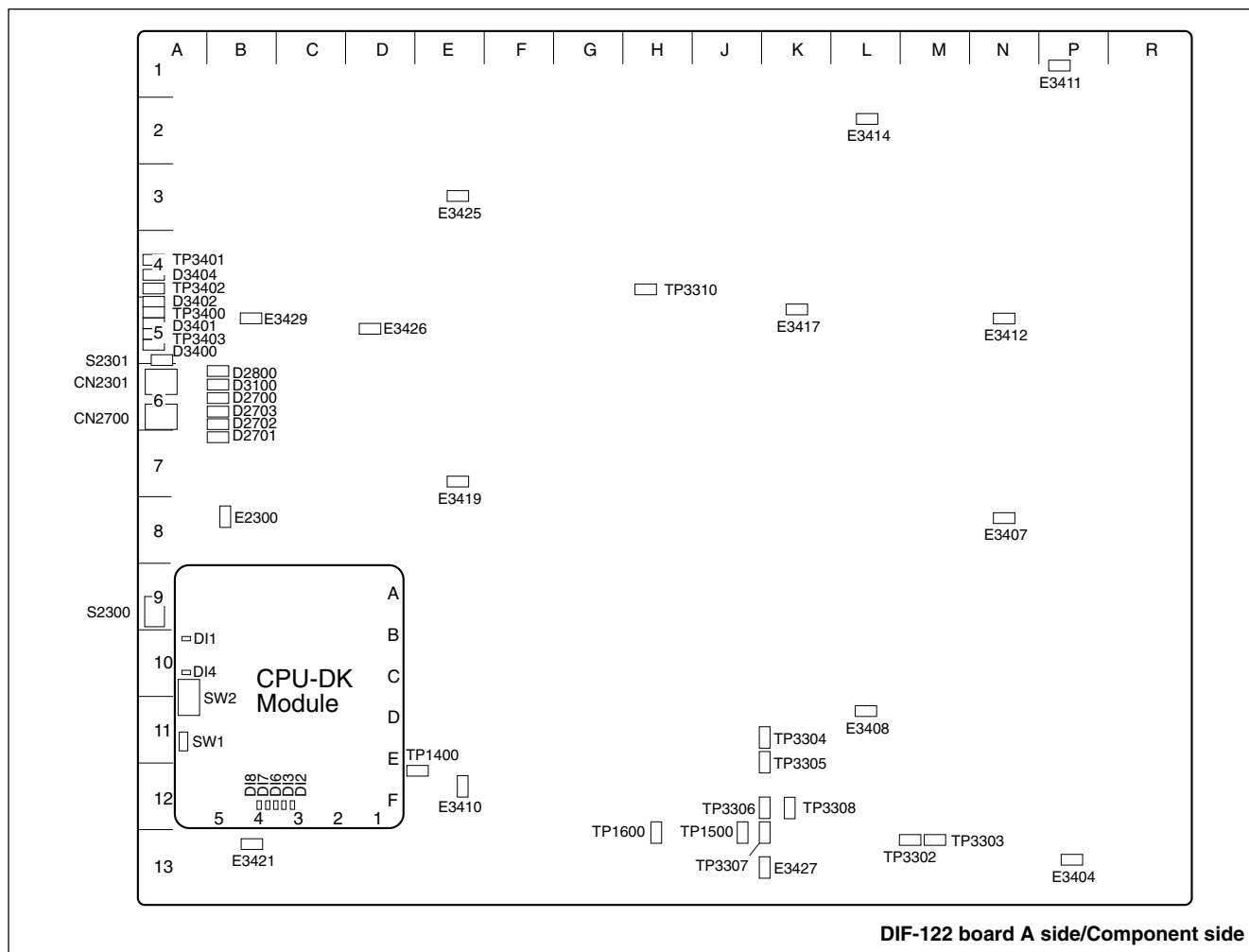
+1.8 V measuring terminal.

TP9501 (A-4) : +3.3 V check terminal

+3.3 V measuring terminal.

6. DIF-119 board (MKS-8170HD)/DIF-122 board (MKS-8170SD)/DIF-141 board (MKS-8170M)





• DIF-119/122 board

<LED>

D2700 (B-6) : TBC-1 system status LED

TBC-1 system CONFIG DONE status indication.
Not lit when configuration is completed.

D2701 (B-7), D2702 (B-6), D2703 (B-6) : MAIN CPU status LED

Main CPU status indication.

D2800 (B-6) : XPT status LED

XPT CONFIG DONE status indication.
Not lit when configuration is completed.

D3100 (B-6) : TBC-2 system status LED

TBC-2 system CONFIG DONE status indication.
Not lit when configuration is completed.

D3400 (A-5) : +1.8 V

+1.8 V power supply status indication.
Lit when the +1.8 V power is supplied.

D3401 (A-5) : +2.5 V

+2.5 V power supply status indication.
Lit when the +2.5 V power is supplied.

D3402 (A-5) : +3.3 V

+3.3 V power supply status indication.
Lit when the +3.3 V power is supplied.

D3404 (A-4) : +12 V

+12 V power supply status indication.
Lit when the +12 V power is supplied.
If this LED does not light, the fuse may have blown.

D3406 (A-5) : +5 V

+5 V power supply status indication.
Lit when the +5 V power is supplied.

<Switch>

S2300 (A-9) : RESET switch

Pressing this switch resets the DIF-119 and 122 board.

S2301 (A-5) : MONITOR reset switch

The reset switch that is used to reset the monitor in the maintenance from the TERMINAL.

<Connector>

CN2301 (A-6) : TERMINAL pin

This pin is connected to the CPU control terminal and used during maintenance. Conforms to RS-232C.

CN2700 (A-6) : ISP common connector

Used only for production in the assembly factory. Used for program writing into the JTAG device with ISP.

<TEST terminal>

E2300 (B-8), E3404 (P-13), E3407 (N-8), E3408 (L-11), E3410 (E-12), E3411 (P-1), E3412 (N-5), E3417 (K-5), E3419 (E-7), E3421 (B-13), E3425 (E-3), E3426 (C-5), E3427 (J-13), E3429 (B-5) : GND terminal (DIF-119 board)

Use this terminal as the earth point for measuring the respective check terminals.

E2300 (B-8), E3404 (P-13), E3407 (N-8), E3408 (L-11), E3410 (E-12), E3411 (P-1), E3412 (N-5), E3414 (L-2), E3417 (K-5), E3419 (E-7), E3421 (B-13), E3425 (E-3), E3426 (D-5), E3427 (K-12), E3429 (B-5) : GND terminal (DIF-122 board)

Use this terminal as the earth point for measuring the respective check terminals.

TP1300 (G12) : 1.001 signal check terminal (DIF-119 board)

1.001 signal measuring terminal.

TP1301 (G-12) : HANC signal check terminal (DIF-119 board)

HANC signal measuring terminal.

TP1302 (G-12) : LINE signal check terminal (DIF-119 board)

LINE signal measuring terminal.

TP1303 (G-12) : FRAME signal check terminal (DIF-119 board)

FRAME signal measuring terminal.

TP1304 (G-12) : CRC signal check terminal (DIF-119 board)

CRC signal measuring terminal.

TP1305 (G-12) : SIGDET signal check terminal (DIF-119 board)

SIGDET signal measuring terminal.

TP1500 (J-11) : RCLK signal check terminal (DIF-119 board)

RCLK signal measuring terminal.

TP2301 (A-9) : CPU CK (CPU clock) signal check terminal (DIF-119 board)

Used to check the CPU clock.

TP3300 (L-12) : FLOE (field odd even) signal check terminal (DIF-119 board)

FLOE signal measuring terminal.

TP3301 (L-13) : HD (horizontal sync) signal check terminal (DIF-119 board)

HD signal measuring terminal.

TP3302 (L-13) : CKX (control timing) signal check terminal (DIF-119 board)

CKX signal measuring terminal.

TP3303 (M-13) : VD (vertical sync) signal check terminal (DIF-119 board)

VD signal measuring terminal.

TP3304 (J-12) : VDO signal check terminal (DIF-119 board)

VDO signal measuring terminal.

TP3305 (J-12) : HDO signal check terminal (DIF-119 board)

HDO signal measuring terminal.

TP3306 (J-12) : FLOEO signal check terminal (DIF-119 board)

FLOEO signal measuring terminal.

TP3307 (J-12) : CKXO signal check terminal (DIF-119 board)

CKXO signal measuring terminal.

TP3308 (L-12) : CK (clock for video signal) signal (DIF-119 board)

Uses this terminal when checking the clock signal for video.

TP3309 (H-5) : CK2 signal check terminal (DIF-119 board)

Uses this terminal when checking the clock signal for video.

TP1300 (F-12), TP1400 (D-12), TP1500 (J-12) , TP1600 (H-12) : VCO_FRQ signal check terminal
VCO_FRQ signal measuring terminal.**TP3302 (M-13) : CKX (control timing) signal check terminal (DIF-122 board)**

CKX signal measuring terminal.

TP3303 (M-13) : VD (vertical sync) signal check terminal (DIF-122 board)

VD signal measuring terminal.

TP3304 (K-11) : VDO signal check terminal (DIF-122 board)

VDO signal measuring terminal.

TP3305 (K-11) : HDO signal check terminal (DIF-122 board)

HDO signal measuring terminal.

TP3306 (K-12) : FLOEO signal check terminal (DIF-122 board)

FLOEO signal measuring terminal.

TP3307 (K-12) : CKXO signal check terminal (DIF-122 board)

CKXO signal measuring terminal.

TP3308 (K-12) : CK27 signal check terminal (DIF-122 board)

CK27 signal measuring terminal.

TP3310 (H-4) : CK1 signal check terminal (DIF-122 board)

Used to check the CK1 signal.

TP3400 (A-5) : +2.5 V check terminal (DIF-122 board)

+2.5 V measuring terminal.

TP3401 (A-4) : +12 V check terminal (DIF-122 board)

+12 V measuring terminal.

TP3402 (A-4) : +3.3 V check terminal (DIF-122 board)

+3.3 V measuring terminal.

TP3403 (A-5) : +1.8 V check terminal (DIF-122 board)

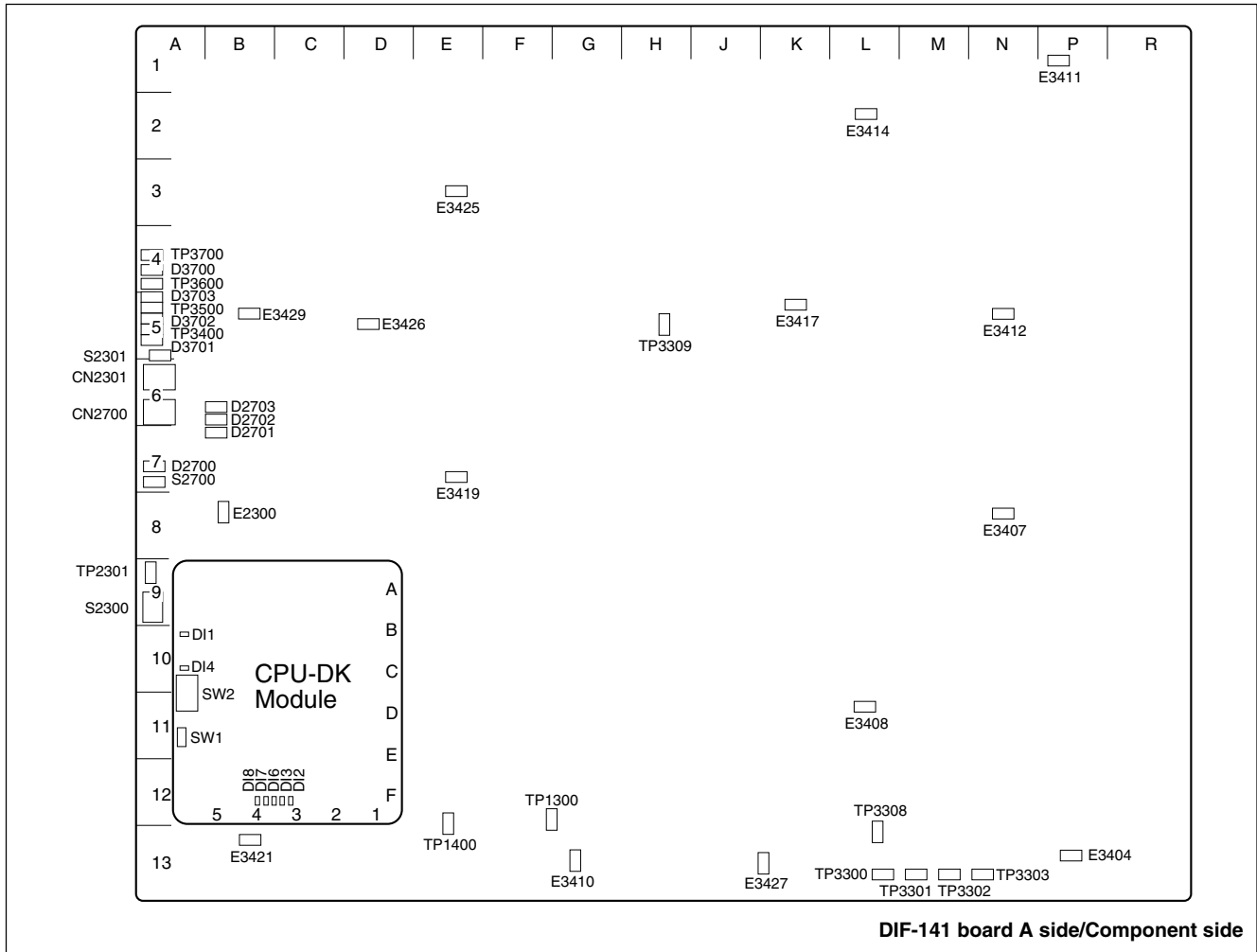
+1.8 V measuring terminal.

<LED on the CPU DK module> (C-10)

Refer to < LED on the CPU DR module > in "1. CA-44 board".

<Switch on the CPU DK module> (C-10)

Refer to < Switch on the CPU DR module > in "1. CA-44 board".



• **DIF-141 board**

<LED>

D2700 (A-7) : CONF ERR status LED

FPGA (EP20K100E and Spartan II) CONFIG DONE status indication.

Not lit when all configurations are completed.

D2701 (B-7), D2702 (B-6), D2703 (B-6) : MAIN CPU status LED

Main CPU status indication.

D3700 (A-4) : +12 V

+12 V power supply status indication.

Lit when the +12 V power is supplied.

If this LED does not light, the fuse may have blown.

D3701 (A-5) : +1.8 V

+1.8 V power supply status indication.

Lit when the +1.8 V power is supplied.

D3702 (A-5) : +2.5 V

+2.5 V power supply status indication.

Lit when the +2.5 V power is supplied.

D3703 (A-4) : +3.3 V

+3.3 V power supply status indication.

Lit when the +3.3 V power is supplied.

<Switch>

S2300 (A-9) : RESET switch

Pressing this switch resets the DIF-141 board.

S2301 (A-5) : MONITOR reset switch

The reset switch that is used to reset the monitor in the maintenance from the TERMINAL.

S2700 (A-7) : JTAG switch

Used only for production in the assembly factory. Set this switch to ON only when writing program in the JTAG device with ISP.

<Connector>**CN2301 (A-6) : TERMINAL pin**

This pin is connected to the CPU control terminal and used during maintenance. Conforms to RS-232C.

CN2700 (A-6) : ISP common connector

Used only for production in the assembly factory. Used for program writing into the JTAG device with ISP.

<TEST terminal>

E2300 (B-8), E3404 (P-13), E3407 (N-8), E3408 (L-11), E3410 (G-13), E3411 (P-1), E3412 (N-5), E3414 (L-2), E3417 (K-5), E3419 (E-7), E3421 (B-13), E3425 (E-3), E3426 (D-5), E3427 (K-12), E3429 (B-5) : GND terminal

Use this terminal as the earth point for measuring the respective check terminals.

TP1300 (G-13), TP1400 (E-13) : ERR check terminal

SDI signal error measuring terminal.

TP2301 (A-9) : CPU CK (CPU clock) signal check terminal

Used to check the CPU clock.

TP3300 (L-13) : FLOE (field odd even) signal check terminal

FLOE signal measuring terminal.

TP3301 (M-13) : HD (horizontal sync) signal check terminal

HD signal measuring terminal.

TP3302 (M-13) : CKX (control timing) signal check terminal

CKX signal measuring terminal.

TP3303 (M-13) : VD (vertical sync) signal check terminal

VD signal measuring terminal.

TP3308 (L-12) : CK1 (clock for video signal) signal

Uses this terminal when checking the clock signal for video.

TP3309 (H-5) : CK2 signal check terminal

Uses this terminal when checking the clock signal for video.

TP3310 (G-11) : CK3 signal check terminal

Uses this terminal when checking the clock signal for video.

TP3400 (A-5) : +1.8 V check terminal

+1.8 V measuring terminal.

TP3500 (A-4) : +2.5 V check terminal

+2.5 V measuring terminal.

TP3600 (A-4) : +3.3 V check terminal

+3.3 V measuring terminal.

TP3700 (A-4) : +12 V check terminal

+12 V measuring terminal.

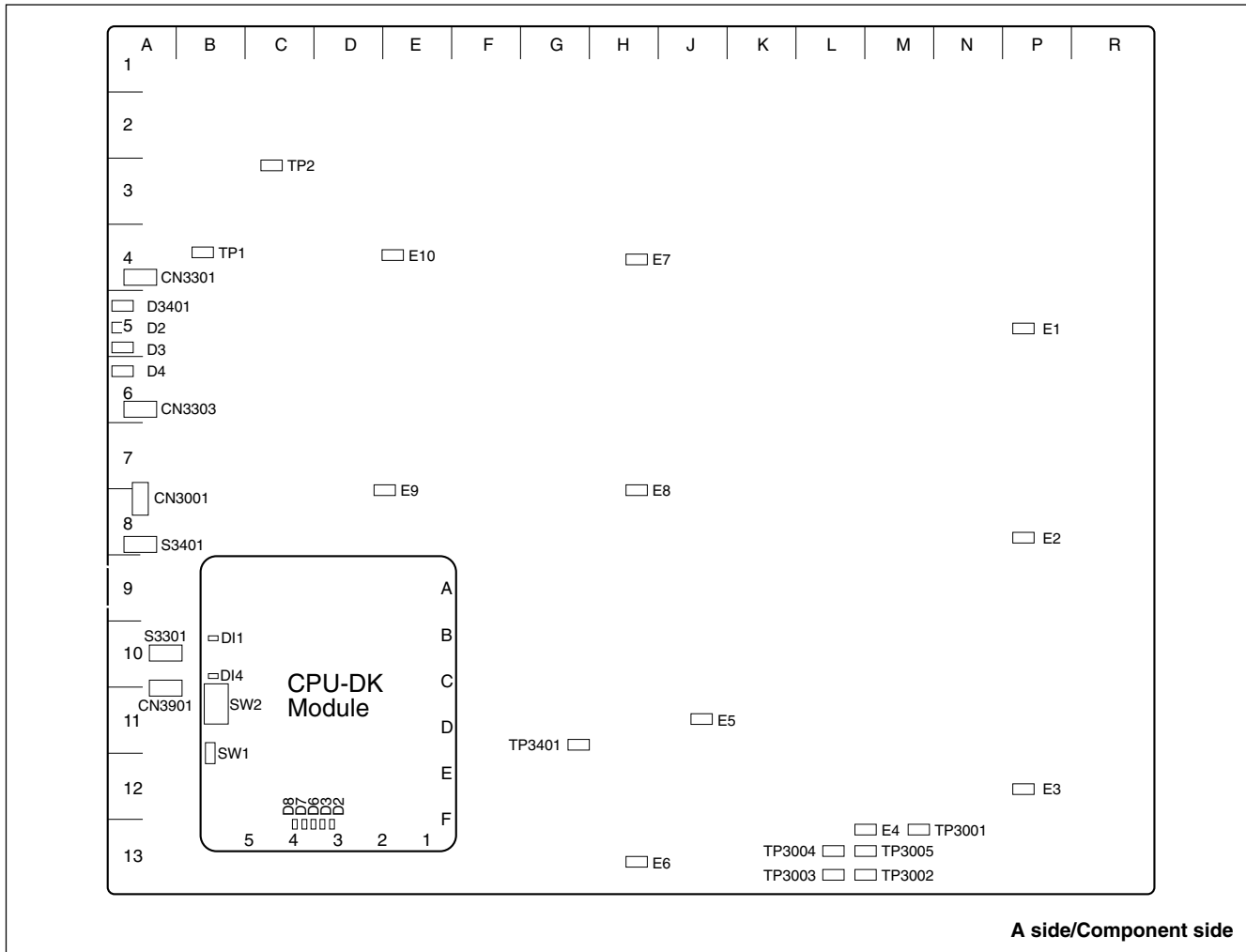
<LED on the CPU DK module> (C-10)

Refer to < LED on the CPU DR module > in "1. CA-44 Board".

<Switch on the CPU DK module> (C-10)

Refer to < Switch on the CPU DR module > in "1. CA-44 Board".

7. XPT-21 board (MVS-8000SF)



<LED>

D3401 (A-5) : RESET status LED

System reset status indication.

Lit when S3401 is pressed or the power voltage drops to +3.3 V.

D3 (A-5) : +3.3 V

+3.3 V power supply status indication.

Lit when the +3.3 V power is supplied.

D4 (A-6) : +2.5 V

+2.5 V power supply status indication.

Lit when the + 2.5 V power is supplied.

D2 (A-5) : +12 V

+12 V power supply status indication.

Lit when the +12 V power is supplied.

<Switch>

S3401 (A-8) : XPT-RESET switch

Pressing this switch initializes the CPU on the XPT-21 board.

S3301 (A-10) : MONITOR switch

Factory use only. (Do not change the setting.)

<Connector>

CN3001 (A-8) : ISP common connector

Used only for production in the assembly factory. Used for program writing into the JTAG device with ISP.

CN3301 (A-4) : TERMINAL pin

This pin is connected to the CPU control terminal and used during maintenance.

Conforms to RS-232C.

CN3303 (A-6) : DEBUG terminal

Not used.

This terminal conforms to RS-232C.

CN3901 (A-11) : IEEE1394 terminal

Not used.

This terminal conforms to IEEE1394.

<TEST terminal>

**E1 (P-4), E2 (P-8), E3 (P-12), E4 (L-12), E5 (J-11),
E6 (H-13), E7 (H-4), E8 (H-8), E9 (D-8), E10 (E-4) :**

GND terminal

Use this terminal as the earth point for measuring the respective check terminals.

TP1 (B-4) : +3.3 V check terminal

+3.3 V measuring terminal.

TP2 (D-3) : +2.5 V check terminal

+2.5 V measuring terminal.

TP3001 (M-12) : VCLK signal check terminal

VCLK signal measuring terminal.

TP3002 (L-13) : VD (vertical sync) signal check terminal

VD signal measuring terminal.

TP3003 (L-13) : HD (horizontal sync) signal check terminal

HD signal measuring terminal.

TP3004 (L-13) : FLOE (Field Odd Even) signal check terminal

FLOE signal measuring terminal.

TP3005 (L-13) : CKX (control timing) signal check terminal

CKX signal measuring terminal.

TP3401 (H-12) : EXT_CLK check terminal

CPU clock measuring terminal.

(KOA CPU clock check terminal)

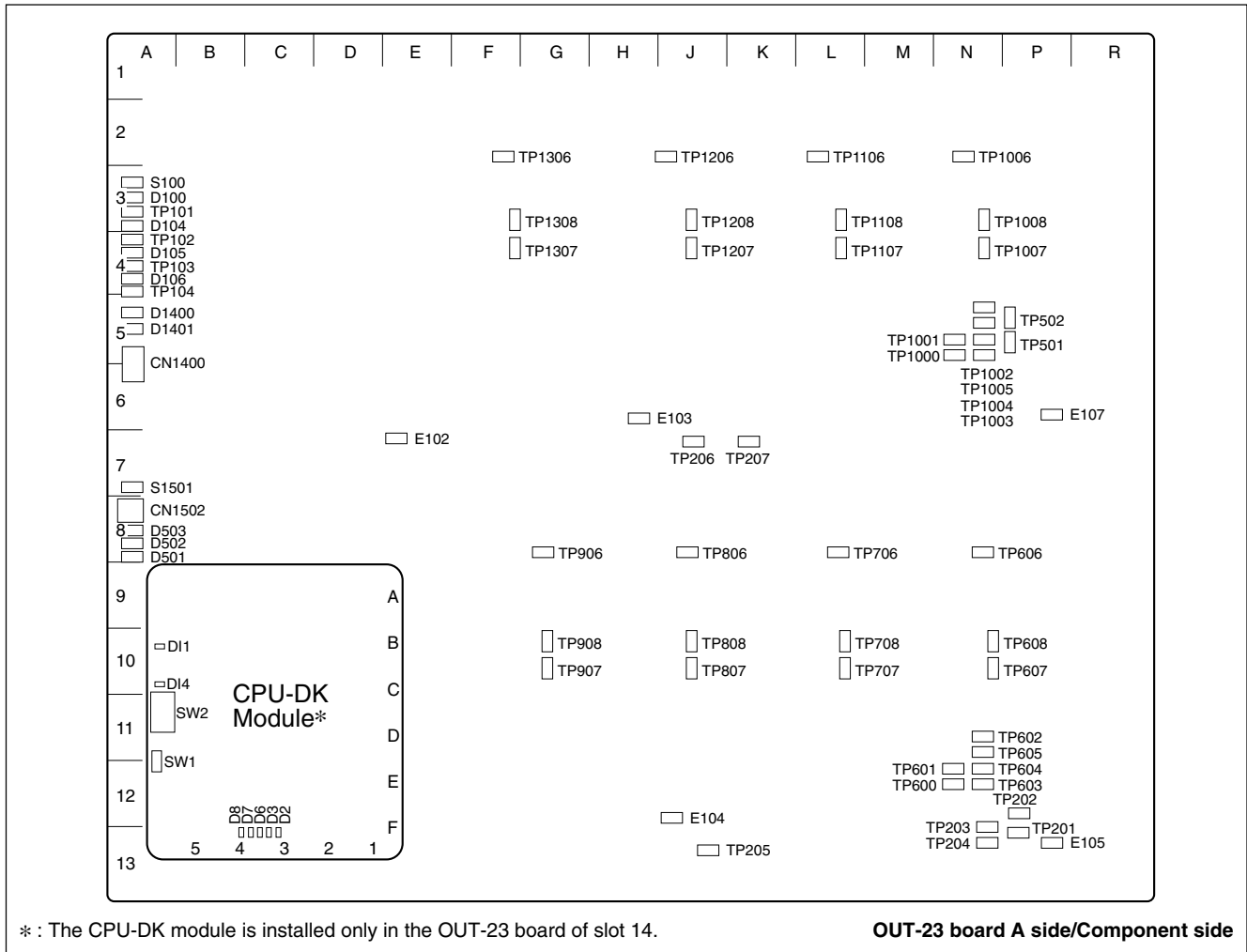
<LED on the CPU DK module> (C-10)

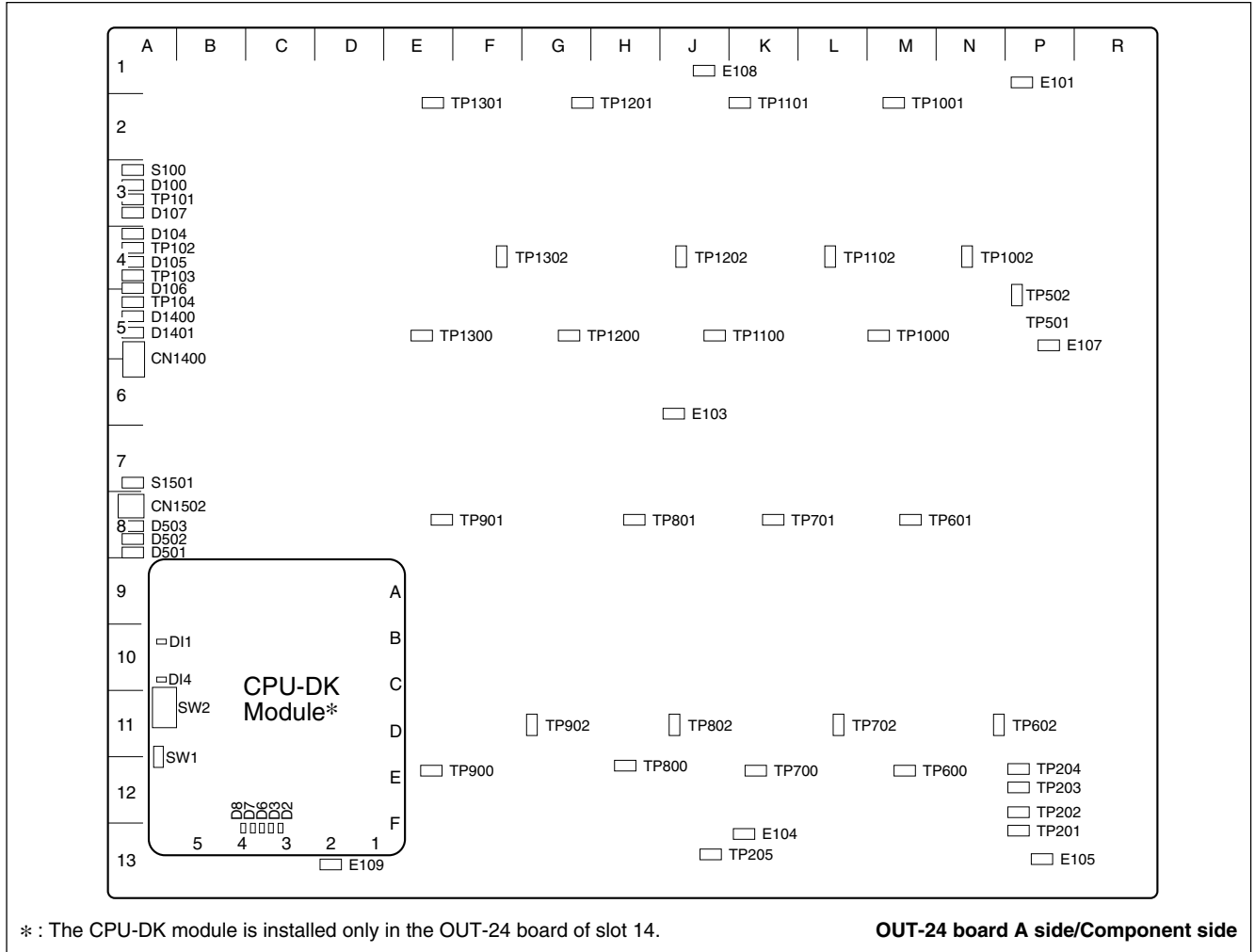
Refer to < LED on the CPU DK module > in “1. CA-44 board”.

<Switch on the CPU DK module> (C-10)

Refer to < Switch on the CPU DK module > in “1. CA-44 board”.

8. OUT-23 board (MKS-8160HD)/OUT-24 board (MKS-8160SD)/OUT-27 board (MKS-8160M)





• OUT-23/24 board

<LED>

D100 (A-3) : +12 V

+12 V power supply status indication.
Lit when the +12 V power is supplied.
If this LED does not light, the fuse may have blown.

D104 (A-3) : +5 V (OUT-23 board)

+5 V power supply status indication.
Lit when the +5 V power is supplied.

D104 (A-4), D107 (A-3) : +5 V (OUT-24 board)

+5 V power supply status indication.
Lit when the +5 V power is supplied.

D105 (A-4) : +3.3 V

+3.3 V power supply status indication.
Lit when the +3.3 V power is supplied.

D106 (A-4) : +2.5 V

+2.5 V power supply status indication.
Lit when the +2.5 V power is supplied.

D501, D502, D503 (A-8) : OUT-CPU status LED

OUT-23 and OUT-24 boards CPU status indication.

D1400 (A-5) : TBC-1 system status LED

TBC-1 system CONFIG DONE status indication.
Not lit when configuration is completed.

D1401 (A-5) : TBC-2 system status LED

TBC-2 system CONFIG DONE status indication.
Not lit when configuration is completed.

<Switch>

S100 (A-3) : OUT-CPU RESET switch

Pressing this switch initializes the CPU on the OUT-23/24 board.

S1501 (A-7) : MONITOR reset switch

The reset switch that is used to reset the monitor during maintenance through the terminal.

<Connector>

CN1400 (A-5) : ISP common connector

Used only for production in the assembly factory. Used for program writing into the JTAG device with ISP.

CN1502 (A-8) : TERMINAL pin

This pin is connected to the control terminal and used during maintenance.

<TEST terminal>

E102 (E-7), E103 (H-6), E104 (J-12), E105 (P-13), E107 (P-6) : GND terminal (OUT-23 board)

Use this terminal as the earth point for measuring the respective check terminals.

E103 (J-6), E104 (K-13), E105 (P-13), E107 (P-5), E109 (D-13), E108 (J-1), E1010 (P-1) : GND terminal (OUT-24 board)

Use this terminal as the earth point for measuring the respective check terminals.

TP101 (A-3) : +12 V check terminal

+12 V measuring terminal.

TP102 (A-4) : +5 V check terminal

+5 V measuring terminal.

TP103 (A-4) : +3.3 V check terminal

+3.3 V measuring terminal.

TP104 (A-4) : +2.5 V check terminal (OUT-23 board)

+2.5 V measuring terminal.

TP104 (A-5) : +2.5 V (OUT-24 board)

+2.5 V measuring terminal.

TP201 (P-13) : VD (vertical sync) signal check terminal

VD signal measuring terminal.

TP202 (P-12) : CKX (control timing) signal check terminal

CKX signal measuring terminal.

TP203 (N-12) : HD (horizontal sync) signal check terminal (OUT-23 board)

HD signal measuring terminal.

TP204 (N-13) : FLOE (field odd even) signal check terminal

FLOE signal measuring terminal.

TP203 (P-12) : HD (horizontal sync) signal check terminal (OUT-24 board)

HD signal measuring terminal.

TP204 (P-12) : FLOE (Field Odd Even) signal check terminal

FLOE signal measuring terminal.

TP205 (J-13), TP206 (J-7) : CK (clock for video) signal check terminal (OUT-23 board)

Uses this terminal when checking the clock signal for video.

TP205 (J-13), TP206 (J-6) : EAV_C signal check terminal (OUT-24 board)

CLOCK signal measuring terminal.

TP207 (K-7) : VCO CLOCK signal check terminal (OUT-23 board)

VCO CLOCK signal measuring terminal.

TP501 (P-5) : CPU_OE signal check terminal

CPU_OE signal measuring terminal.

TP502 (P-5) : CPU_WE signal check terminal

CPU_WE signal measuring terminal.

TP600 (N-12), TP1000 (N-5) : 1R001 signal check terminal (OUT-23 board)

1R001 signal measuring terminal.

TP601 (N-12), TP1001 (N-5) : HANC signal check terminal (OUT-23 board)

HANC signal measuring terminal.

TP602 (N-11), TP1002 (N-5) : LINE signal check terminal (OUT-23 board)

LINE signal measuring terminal.

TP603 (N-12), TP1003 (N-5) : FRAME signal check terminal (OUT-23 board)

FRAME signal measuring terminal.

TP604 (N-12), TP1004 (N-5) : CRC signal check terminal (OUT-23 board)

CRC signal measuring terminal.

TP605 (N-11), TP1005 (N-5) : SIG_DET signal check terminal (OUT-23 board)

SIG_DET signal measuring terminal.

TP606 (N-8), TP706 (L-9), TP806 (J-9), TP906 (G-9), TP1006 (N-2), TP1106 (L-2), TP1206 (J-2), TP1306 (F-2) : PLL_LOCK signal check terminal (OUT-23 board)

PLL_LOCK signal measuring terminal.

TP607 (N-10), TP707 (L-10), TP807 (J-10), TP907 (G-10), TP1007 (N-4), TP1107 (L-4), TP1207 (J-4), TP1307 (F-4) : EAV_Y signal check terminal (OUT-23 board)

EAV_Y signal measuring terminal.

TP602 (P-10), TP702 (L-10), TP802 (J-10), TP902 (G-10), TP1002 (N-4), TP1102 (L-4), TP1202 (J-4), TP1302 (F-4) : EAV_Y signal check terminal (OUT-24 board)

EAV_Y signal measuring terminal.

TP608 (N-10), TP708 (L-10), TP808 (J-10), TP908 (G-10), TP1008 (N-3), TP1108 (L-3), TP1208 (J-4), TP1308 (F-4) : EAV_C signal check terminal (OUT-23 board)

EAV_C signal measuring terminal.

TP600 (M-12), TP601 (M-8), TP700 (K-11), TP701 (K-8), TP800 (H-12), TP801 (H-8), TP900 (E-12), TP901 (F-8), TP1000 (M-5), TP1001 (M-2), TP1100 (J-5), TP1101 (K-2), TP1200 (G-5), TP1201 (G-2), TP1300 (E-5), TP1301 (E-2) : V_FRQ signal check terminal (OUT-24 board)

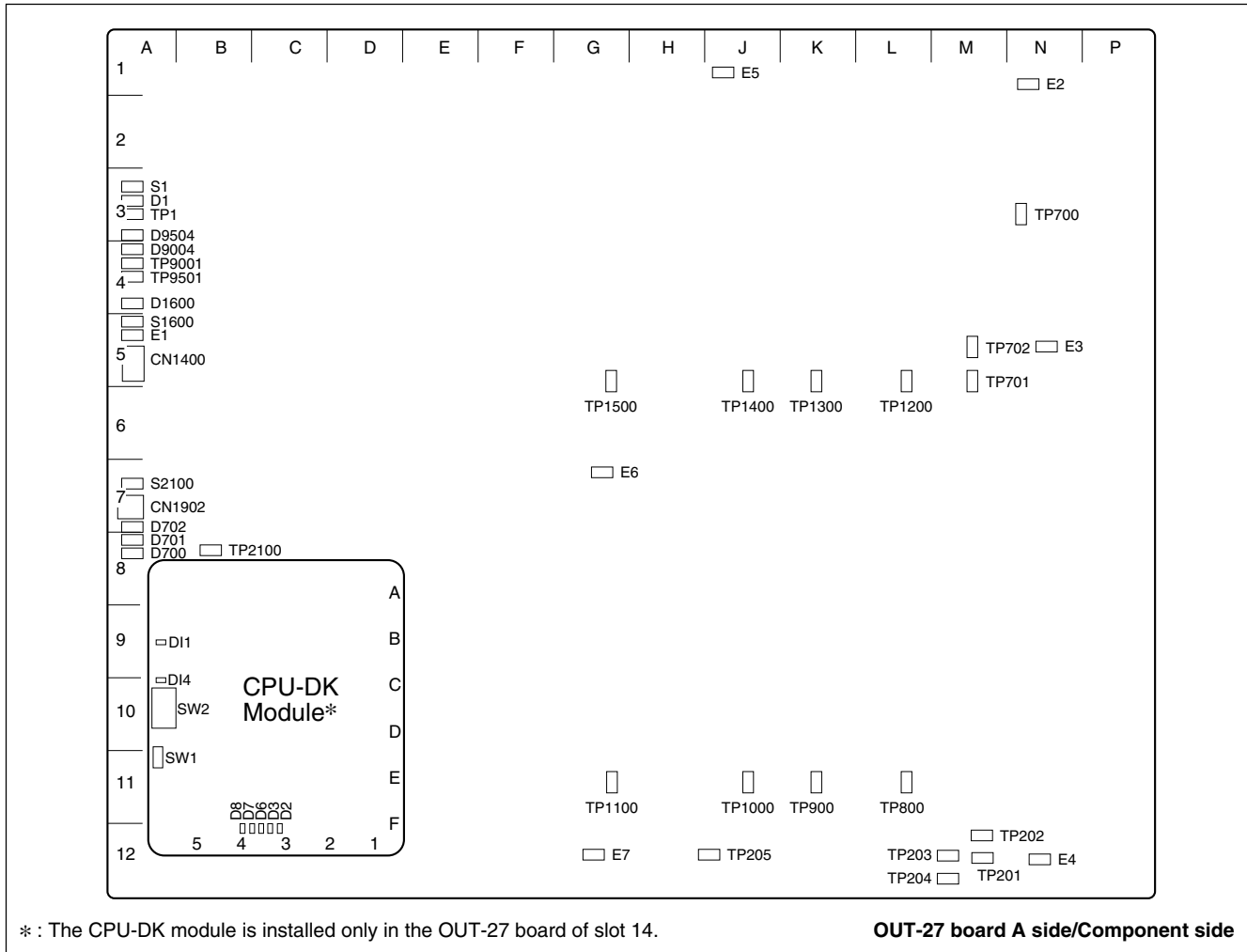
V_FRQ signal measuring terminal.

<LED on the CPU DK module> (C10)

Refer to < LED on the CPU DR module > in “1. CA-44 board”.

<Switch on the CPU DK module> (C10)

Refer to < Switch on the CPU DR module > in “1. CA-44 board”.



• OUT-27 board

<LED>

D1 (A-3) : +12 V

+12 V power supply status indication.
Lit when the +12 V power is supplied.
If this LED does not light, the fuse may have blown.

D700, D701, D702 (A-8) : OUT-CPU status LED

OUT-27 board CPU status indication.

D1600 (A-4) : CONF ERR status LED

FPGA (EP20K100E) CONFIG DONE status indication.
Not lit when all configurations are completed.

D9004 (A-4) : +1.8 V

+1.8 V power supply status indication.
Lit when the +1.8 V power is supplied.

D9504 (A-3) : +3.3 V

+3.3 V power supply status indication.
Lit when the +3.3 V power is supplied.

<Switch>

S1 (A-3) : OUT-CPU RESET switch

Pressing this switch initializes the CPU on the OUT-27 board.

S1600 (A-5) : JTAG switch

Used only for production in the assembly factory. Set this switch to ON only when writing program in the JTAG device with ISP.

S2100 (A-7) : MONITOR reset switch

The reset switch that is used to reset the monitor during maintenance through the terminal.

<Connector>**CN1600 (A-5) : ISP common connector**

Used only for production in the assembly factory. Used for program writing into the JTAG device with ISP.

CN1902 (A-7) : TERMINAL pin

This pin is connected to the control terminal and used during maintenance.

<TEST terminal>**E1 (A-5), E2 (N-1), E3 (N-5), E4 (N-12), E5 (J-1), E6 (G-7), E7 (G-12) : GND terminal**

Use this terminal as the earth point for measuring the respective check terminals.

TP1 (A-3) : +12 V check terminal

+12 V measuring terminal.

TP201 (M-12) : VD (vertical sync) signal check terminal

VD signal measuring terminal.

TP202 (M-12) : CKX (control timing) signal check terminal

CKX signal measuring terminal.

TP203 (M-12) : HD (horizontal sync) signal check terminal

HD signal measuring terminal.

TP204 (M-12) : FLOE (field odd even) signal check terminal

FLOE signal measuring terminal.

TP205 (J-12), TP206 (J-7) : CK (clock for video) signal check terminal

Uses this terminal when checking the clock signal for video.

TP700 (N-3) : CPU_CS2 signal check terminal

CPU_CS2 signal measuring terminal.

TP701 (M-5) : CPU_OE signal check terminal

CPU_OE signal measuring terminal.

TP702 (M-5) : CPU_WE signal check terminal

CPU_WE signal measuring terminal.

TP800 (L-11), TP900 (K-11), TP1000 (H-11), TP1100 (G-11), TP1200 (L-5), TP1300 (K-5), TP1400 (H-5), TP1500 (G-5) : ERR check terminal

SDI signal error measuring terminal.

TP2100 (B-8) : CPU CK (CPU clock) signal check terminal

Uses this terminal when checking the CPU clock.

TP9001 (A-4) : +1.8 V check terminal

+1.8 V measuring terminal.

TP9501 (A-4) : +3.3 V check terminal

+3.3 V measuring terminal.

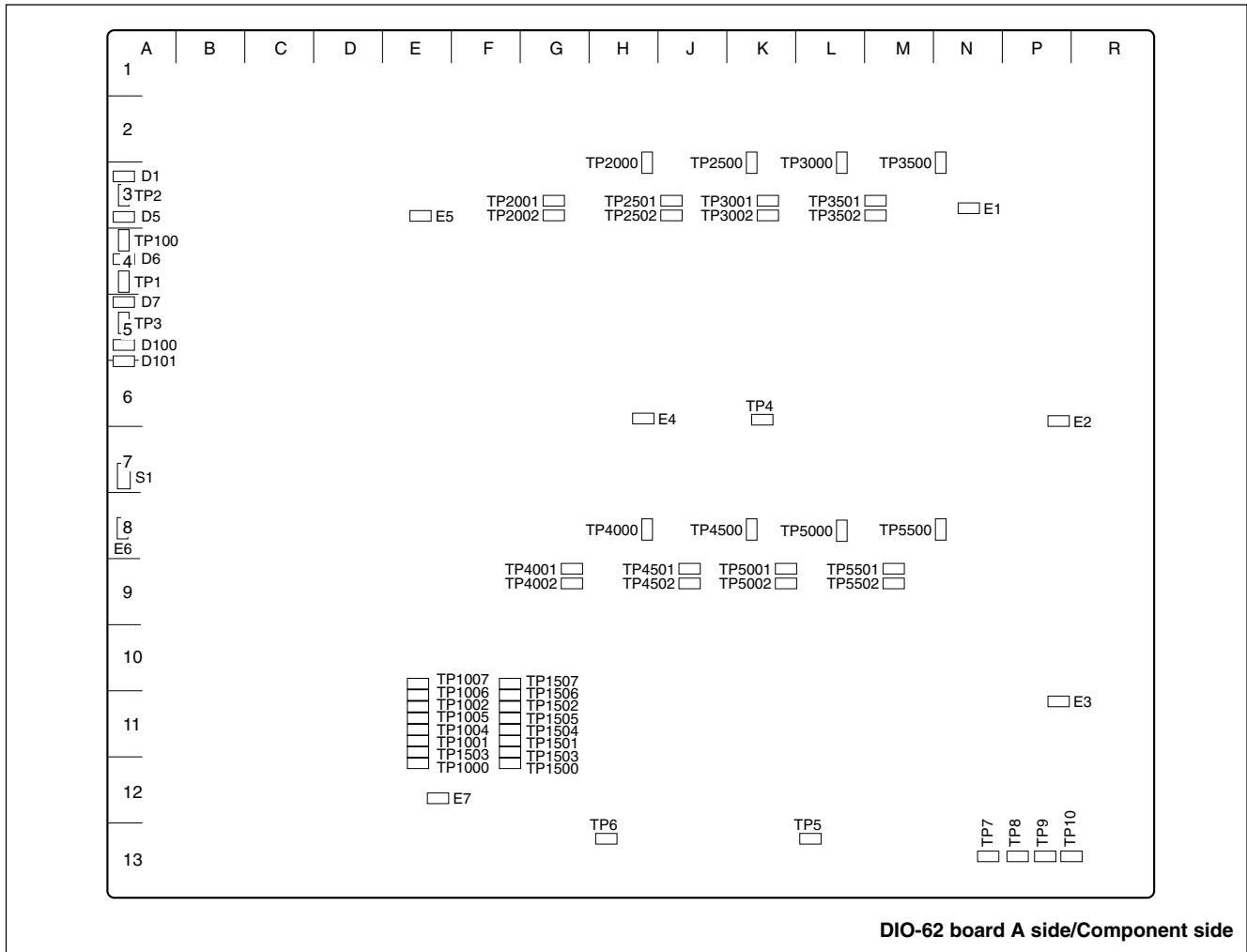
<LED on the CPU DK module> (C10)

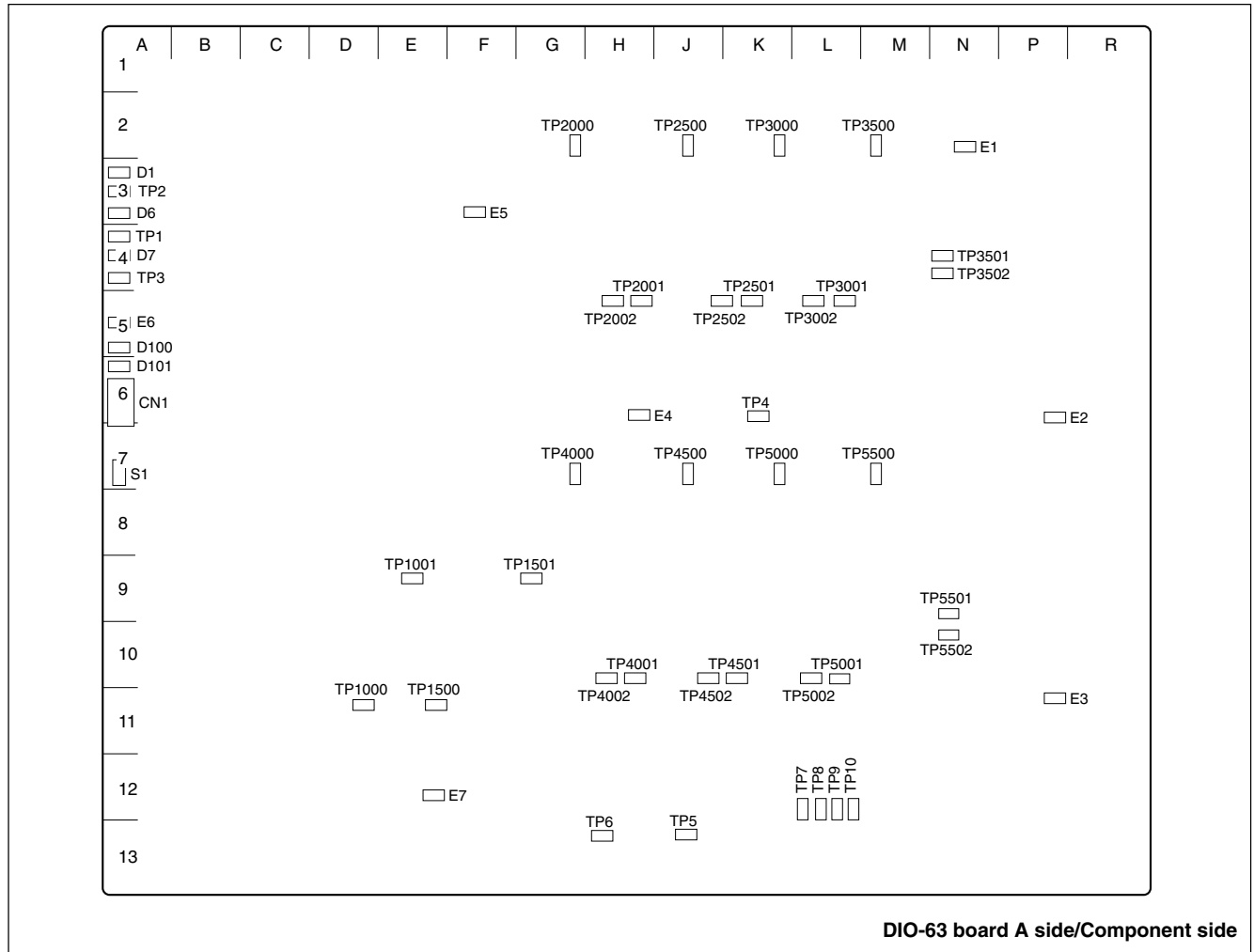
Refer to < LED on the CPU DR module > in “1. CA-44 Board”.

<Switch on the CPU DK module> (C10)

Refer to < Switch on the CPU DR module > in “1. CA-44 Board”.

9. DIO-62 board (MKS-8440HD)/DIO-63 board (MKS-8440SD)/DIO-74 board (MKS-8440M)





• DIO-62/63 board

<LED>

D1 (A-3) : +12 V

+12 V power supply status indication.

Lit when the +12 V power is supplied.

If this LED does not light, the fuse may have blown.

D5 (A-3) : +5 V (DIO-62 board)

+5 V power supply status indication.

Lit when the +5 V power is supplied.

D6 (A-4) : +3.3 V

+3.3 V power supply status indication.

Lit when the +3.3 V power is supplied.

D7 (A-5) : +2.5 V

+2.5 V power supply status indication.

Lit when the +2.5 V power is supplied.

D100 (A-5) : CONF1

H2 to L2 FPGA (Spartan II) CONFIG DONE status indication.

Not lit when configuration is completed.

D101 (A-6) : CONF2

D10 to L10 FPGA (Spartan II) CONFIG DONE status indication.

Not lit when configuration is completed.

<Switch>

S1 (A-7) : DIO reset switch

Pressing this switch initializes the CPU on the DIO-62 and DIO-63 board.

<Connector>

CN1 (A-6) : ISP common connector

Used only for production in the assembly factory. Used for program writing into the JTAG device with ISP.

<TEST terminal>

E1 (N-3), E2 (P-6), E3 (P-11), E4 (H-6), E5 (F-3), E6 (A-8), E7 (E-12) : GND terminal (DIO-62 board)

Use this terminal as the earth point for measuring the respective check terminals.

E1 (N-2), E2 (P-6), E3 (P-10), E4 (H-6), E5 (F-3), E6 (A-5), E7 (A-12) : GND terminal (DIO-63 board)

Use this terminal as the earth point for measuring the respective check terminals.

TP1 (A-4) : +3.3 V check terminal

+3.3 V measuring terminal.

TP2 (A-3) : +12 V check terminal

+12 V measuring terminal.

TP4 (K-6), TP5 (L-13), TP6 (H-13) : CK (clock for video) signal check terminal (DIO-62 board)

Uses this terminal when checking the clock signal for video.

TP7 (N-13) : VD (vertical sync) signal check terminal (DIO-62 board)

VD signal measuring terminal.

TP8 (P-13) : CKX (control timing) signal check terminal (DIO-62 board)

CKX signal measuring terminal.

TP9 (P-13) : HD (horizontal sync) signal check terminal (DIO-62 board)

HD signal measuring terminal.

TP10 (P-13) : FLOE (field odd even) signal check terminal (DIO-62 board)

FLOE signal measuring terminal.

TP4 (K-6), TP5 (J-13), TP6 (H-13) : CK (clock for video) signal check terminal (DIO-63 board)

Uses this terminal when checking the clock signal for video.

TP7 (L-12) : VD (vertical sync) signal check terminal (DIO-63 board)

VD signal measuring terminal.

TP8 (L-12) : CKX (control timing) signal check terminal (DIO-63 board)

CKX signal measuring terminal.

TP9 (L-12) : HD (horizontal sync) signal check terminal (DIO-63 board)

HD signal measuring terminal.

TP10 (L-12) : FLOE (field odd even) signal check terminal (DIO-63 board)

FLOE signal measuring terminal.

TP100 (A-4) : +5 V check terminal (DIO-62 board)

+5 V measuring terminal.

TP3 (A-5) : +2.5 V check terminal

+2.5 V measuring terminal.

TP1000 (E-11), TP1500 (F-11) : 1R001 signal check terminal (DIO-62 board)

1R001 signal measuring terminal.

TP1001 (E-11), TP1501 (F-11) : HANC signal check terminal (DIO-62 board)

HANC signal measuring terminal.

TP1002 (E-11), TP1502 (F-11) : LINE signal check terminal (DIO-62 board)

LINE signal measuring terminal.

TP1003 (E-11), TP1503 (F-11) : FRAME signal check terminal (DIO-62 board)

FRAME signal measuring terminal.

TP1004 (E-11), TP1504 (F-11) : CRC signal check terminal (DIO-62 board)

CRC signal measuring terminal.

TP1005 (E-11), TP1505 (F-11) : SIG DET signal check terminal (DIO-62 board)

SIG DET signal measuring terminal.

TP1006 (E-11), TP1506 (F-11), TP2001 (G-3), TP2501 (J-3), TP3001 (K-3), TP3501 (M-3), TP4001 (G-9), TP4501 (J-9), TP5001 (K-9), TP5501 (M-9) : EAV_Y signal check terminal (DIO-62 board)

EAV_Y signal measuring terminal.

TP1007 (E-10), TP1507 (F-10), TP2002 (G-3), TP2502 (J-3), TP3002 (K-3), TP3502 (M-3), TP4002 (G-9), TP4502 (J-9), TP5002 (K-9), TP5502 (M-9) : EAV_C signal check terminal (DIO-62 board)

EAV_C signal measuring terminal.

TP2000 (H-2), TP2500 (K-2), TP3000 (L-3), TP3500 (N-3), TP4000 (L-3), TP4500 (K-8), TP5000 (L-8), TP5500 (N-8) : PLL_LOCK signal check terminal (DIO-62 board)

PLL_LOCK signal measuring terminal.

TP1000 (D-11), TP1500 (E-11), TP2000 (G-2), TP2500 (J-2), TP3000 (K-2), TP3500 (M-2), TP4000 (G-7), TP4500 (J-7), TP5000 (K-7), TP5500 (M-7) : VCO_FRQ signal check terminal (DIO-63 board)

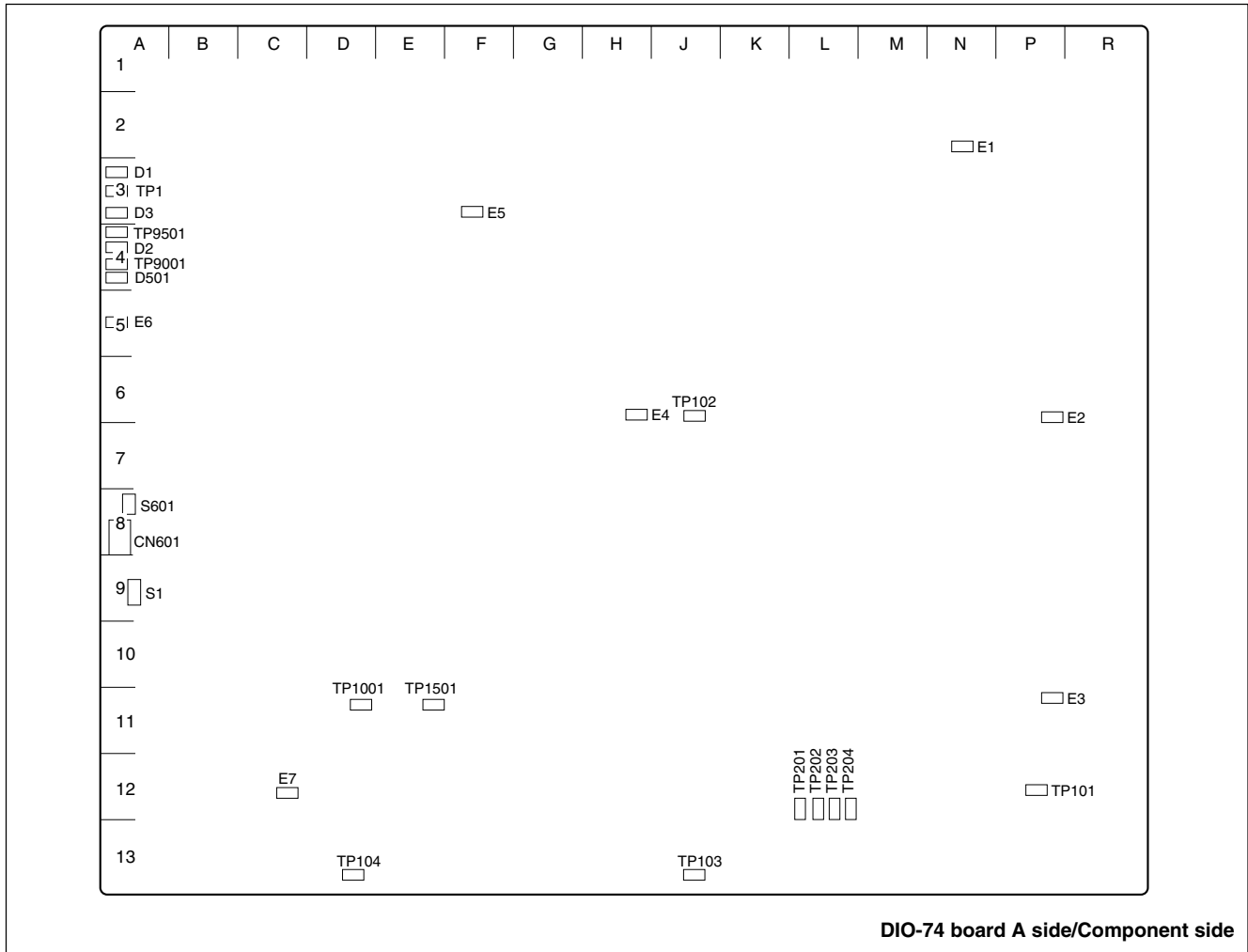
VCO_FRQ signal measuring terminal.

TP1001 (E-9), TP1501 (G-9), TP2001 (H-5), TP2501 (J-5), TP3001 (L-5), TP3501 (N-9), TP4001 (H-10), TP4501 (K-10), TP5001 (L-10), TP5501 (N-9) : EAV_Y signal check terminal (DIO-63 board)

EAV_Y signal measuring terminal.

TP2002 (H-5), TP2502 (J-5), TP3002 (L-5), TP3502 (N-4), TP4002 (H-10), TP4502 (J-10), TP5002 (L-10), TP5502 (N-10) : EAV_C signal check terminal (DIO-63 board)

EAV_C signal measuring terminal.



• **DIO-74 board**

<LED>

D1 (A-3) : +12 V

+12 V power supply status indication.
Lit when the +12 V power is supplied.
If this LED does not light, the fuse may have blown.

D2 (A-4) : +1.8 V

+1.8 V power supply status indication.
Lit when the +1.8 V power is supplied.

D3 (A-4) : +3.3 V

+3.3 V power supply status indication.
Lit when the +3.3 V power is supplied.

D501 (A-4) : CONF ERR

FPGA (EP20K100E) CONFIG DONE status indication.
Not lit when all configurations are completed.

<Switch>

S1 (A-9) : DIO reset switch

Pressing this switch initializes the CPU on the DIO-74 board.

S601 (A-8) : JTAG switch

Used only for production in the assembly factory. Set this switch to ON only when writing program in the JTAG device with ISP.

<Connector>

CN601 (A-8) : ISP common connector

Used only for production in the assembly factory. Used for program writing into the JTAG device with ISP.

<TEST terminal>

**E1 (N-2), E2 (P-6), E3 (P-10), E4 (H-6), E5 (F-3), E6 (A-5),
E7 (C-12) : GND terminal**

Use this terminal as the earth point for measuring the respective check terminals.

TP1 (A-3) : +12 V check terminal

+12 V measuring terminal.

**TP101 (P-12), TP102 (J-6), TP103 (J-13), TP104 (D-13) :
CK (clock for video) signal check terminal**

Uses this terminal when checking the clock signal for video.

**TP201 (L-12) : VD (vertical sync) signal check
terminal**

VD signal measuring terminal.

**TP202 (L-12) : CKX (control timing) signal check
terminal**

CKX signal measuring terminal.

**TP203 (L-12) : HD (horizontal sync) signal check
terminal**

HD signal measuring terminal.

**TP204 (L-12) : FLOE (field odd even) signal check
terminal**

FLOE signal measuring terminal.

TP9001 (A-4) : +1.8 V check terminal

+1.8 V measuring terminal.

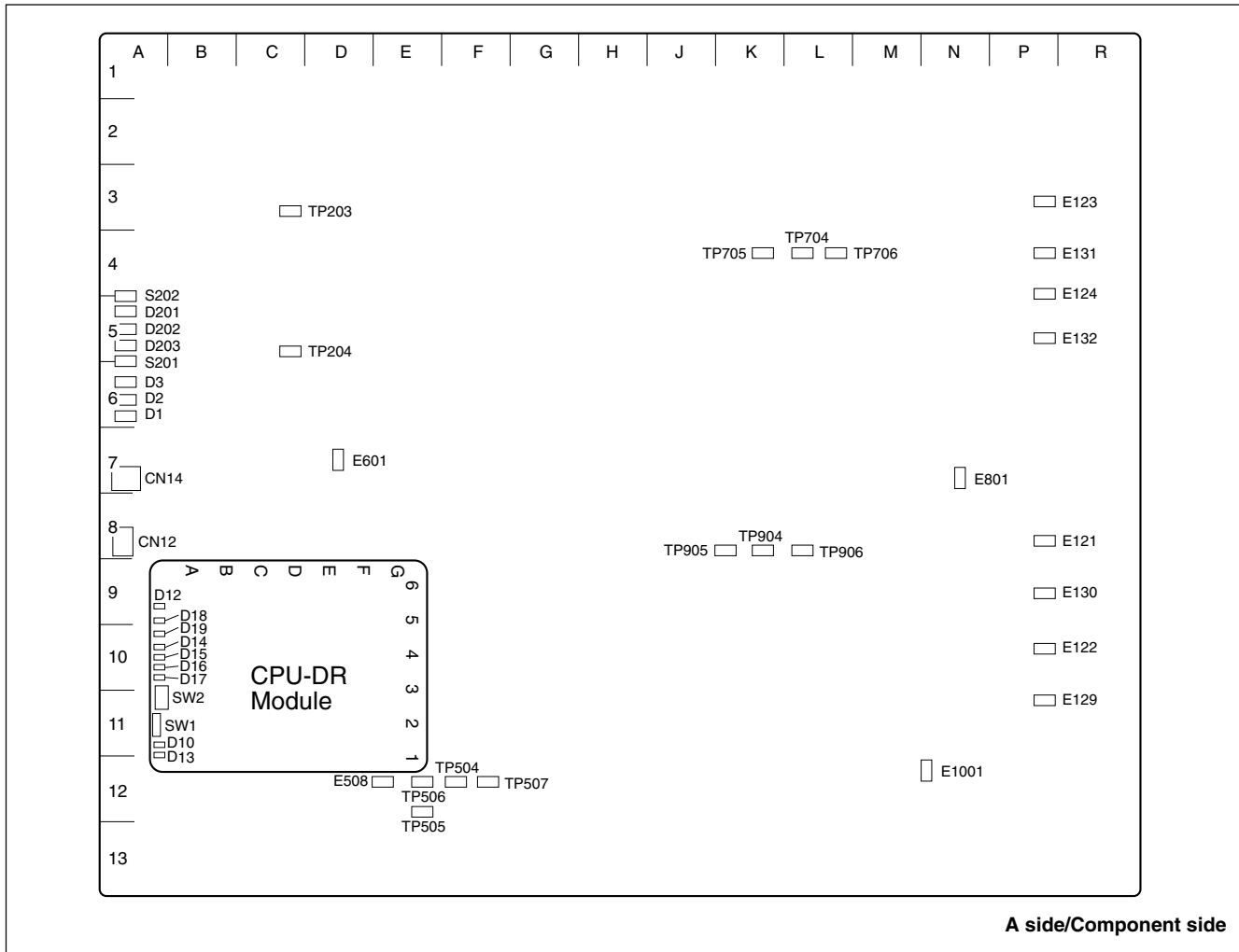
TP9501 (A-4) : +3.3 V check terminal

+3.3 V measuring terminal.

TP1001 (D-11), TP1501 (E-11) : ERR check terminal

SDI signal error measuring terminal.

10. MY-102 board (MKS-8440HD/SD/M)



<LED>

D1, D2, D3 (A-6) : MY-CPU status LED

Status indication of the CPU on the MY-102 board.

D201 (A-5) : +12 V

+12 V power supply status indication.
Lit when the +12 V power is supplied.
If this LED does not light, the fuse may have blown.

D202 (A-5) : +3.3 V

+3.3 V power supply status indication.
Lit when the +3.3 V power is supplied.

D203 (A-5) : +1.8 V

+1.8 V power supply status indication.
Lit when the +1.8 V power is supplied.

<Switch>

S201 (A-5) : MY-CPU reset switch

Pressing this switch initializes the CPU on the MY-102 board.

S202 (A-5) : MONITOR reset switch

The reset switch that is used to reset the monitor during maintenance through the terminal.

<Connector>

CN12 (A-8) : ISP common connector

Used only for production in the assembly factory. Used for program writing into the JTAG device with ISP.

CN14 (A-7) : TERMINAL pin

This pin is connected to the CPU control terminal and used during maintenance.
Conforms to RS-232C.

<TEST terminal>

**E121 (P-8), E122 (P-10), E123 (P-3), E124 (P-4),
E129 (P-11), E130 (P-9), E131 (P-4), E132 (P-5),
E508 (E-12), E601 (D-7), E801 (N-7), E1001 (N-12) :**

GND terminal

Use this terminal as the earth point for measuring the respective check terminals.

TP203 (C-3) : +3.3 V check terminal

+3.3 V measuring terminal.

TP204 (C-5) : +1.8 V check terminal

+1.8 V measuring terminal.

TP504 (F-2) : CKX (control timing) signal check terminal

CKX signal measuring terminal.

TP505 (E-12), TP706 (L-4), TP906 (L-8) : FLOE (field odd even) signal check terminal

FLOE signal measuring terminal.

TP506 (E-12), TP704 (L-4), TP904 (K-8) : VD (vertical sync) signal check terminal

VD signal measuring terminal.

TP507 (F-12), TP705 (K-4), TP905 (K-8) : HD (horizontal sync) signal check terminal

HD signal measuring terminal.

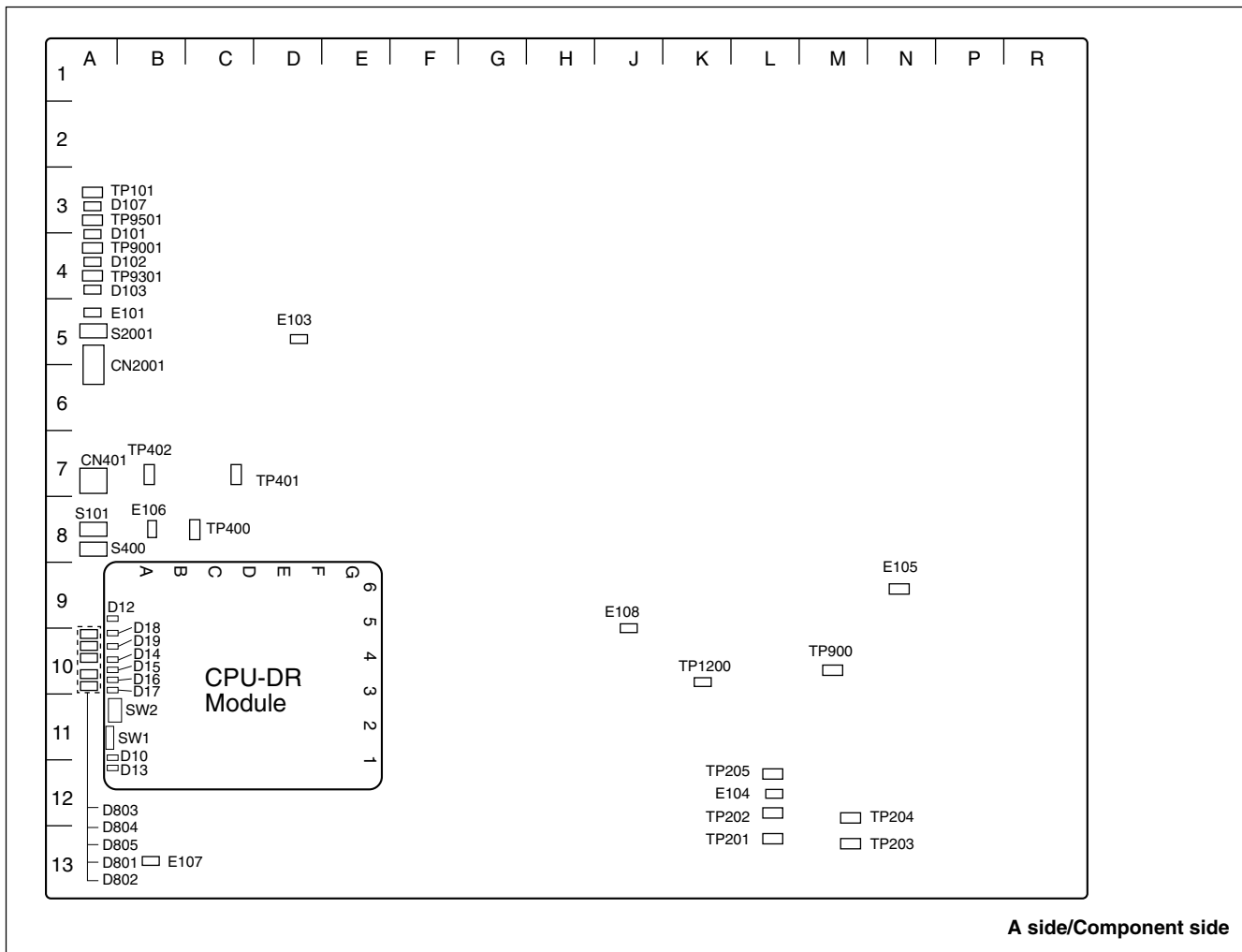
<LED on the CPU DR module> (C-10)

Refer to < LED on the CPU DR module > in “1. CA-44 board”.

<Switch on the CPU DR module> (C-10)

Refer to < Switch on the CPU DR module > in “1. CA-44 board”.

11. CC-90 board (MKS-8420M)



<LED>

D107 (A-3) : +12 V

+12 V power supply status indication.
Lit when the +12 V power is supplied.
If this LED does not light on, the fuse may have blown.

D101 (A-3) : +3.3 V

+3.3 V power supply status indication.
Lit when the +3.3 V power is supplied.

D102 (A-4) : +1.8 V-1

+1.8 V-1 power supply status indication.
Lit when the +1.8 V-1 power is supplied.

D103 (A-4) : +1.8 V-2

+1.8 V-2 power supply status indication.
Lit when the +1.8 V-2 power is supplied.

D803, D804, D805 (A-10) : CC-CPU status LED

Indicates the CPU status on the CC-90 board.

D801 (A-10) : DLL status LED

Indicates lock/unlock of the DLL (Delay Locked Loop) in the CC-90 board.
If this LED lit, the DLL can possibly be unlocked.

D802 (A-10) : FPGA CONFIG status LED

CC-90 board FPGA CONFIG DONE status indication.
Not lit when all configurations are completed.

<Switch>**S2001 (A-5) : JTAG switch**

Used only for production in the assembly factory. Set this switch to ON only when writing program in the JTAG device with ISP.

S101 (A-8) : CC-CPU reset switch

Pressing this switch initializes the CPU on the CC-90 board.

S400 (A-8) : Monitor reset switch

The reset switch that is used to reset the monitor during maintenance through the terminal.

<Connector>**CN2001 (A-6) : ISP common connector**

Used only for production in the assembly factory. Used for program writing into the JTAG device with ISP.

CN401 (A-7) : Terminal pin

This pin is connected to the control terminal and used during maintenance.
Conforms to RS-232C.

<TEST terminal>**E101 (A-5), E103 (D-5), E104 (L-12), E105 (N-8), E106 (B-8), E107 (B-13), E108 (J-9) : GND terminal**

Use this terminal as the earth point for measuring the respective check terminals.

TP101 (A-3) : +12 V check terminal

+12 V measuring terminal.

TP9501 (A-3) : +3.3 V check terminal

+3.3 V measuring terminal.

TP9001 (A-4) : +1.8 V-1 check terminal

+1.8 V-1 measuring terminal.

TP9301 (A-4) : +1.8 V-2 check terminal

+1.8 V-2 measuring terminal.

TP400 (C-8) : System clock signal check terminal

Use this terminal to check the system clock signal supplied from CPU module.

TP401 (C-7) : CPU half clock signal check terminal

Use this terminal to check the CPU half clock signal.

TP402 (B-7) : CPU clock signal check terminal

Use this terminal to check the CPU clock signal.

TP900 (M-10), TP1200 (K-10) : ERR check terminal
SDI signal error measuring terminal.**TP201 (L-13) : VD (vertical sync) signal check terminal**

Use this terminal to check the VD signal that is used in this circuit board.

TP202 (L-12) : CKX (control timing) signal check terminal

Use this terminal to check the CKX signal that is used in this circuit board.

TP203 (M-13) : HD (horizontal sync) signal check terminal

Use this terminal to check the HD signal that is used in this circuit board.

TP204 (M-12) : FLOE (field odd even) signal check terminal

Use this terminal to check the FLOE signal that is used in this circuit board.

TP205 (L-12) : VCLK (clock for video signal) signal check terminal

Use this terminal to check the clock for video signal.

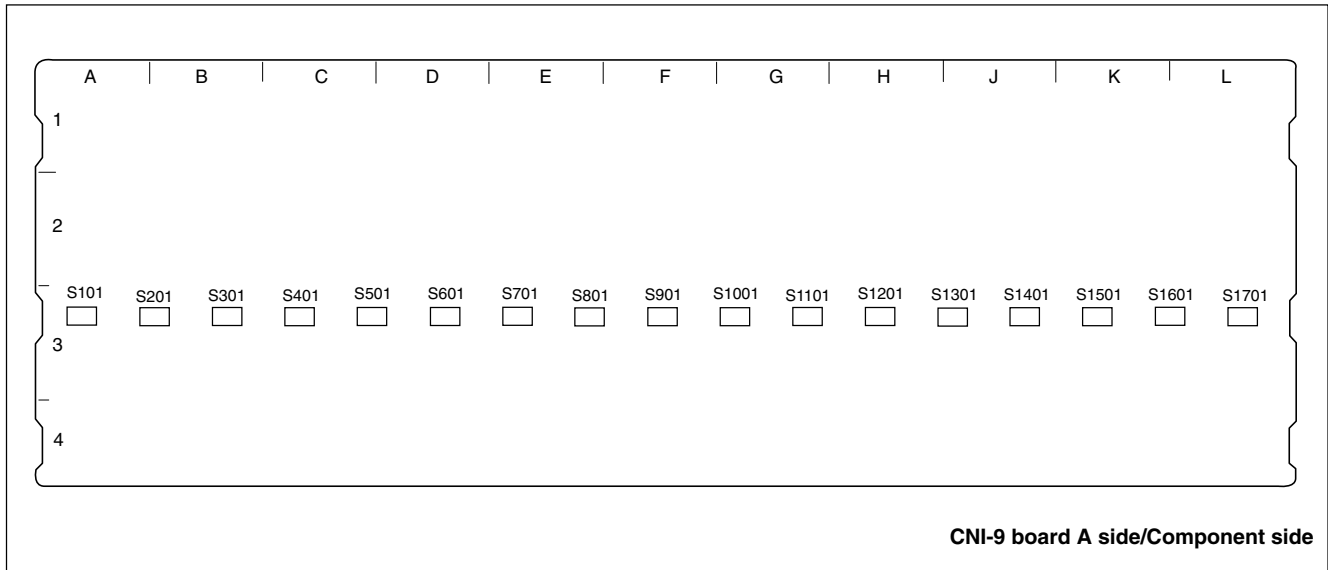
<LED on the CPU DR module> (C11)

Refer to < LED on the CPU DR module > in "1. CA-44 Board".

<Switch on the CPU DR module> (C11)

Refer to < Switch on the CPU DR module > in "1. CA-44 Board".

12. CNI-9 board (Suffix : -12) (MKS-8110HD)



<Switch>

S101 (A-3), S201, S301 (B-3), S401, S501 (C-3), S601 (D-3), S701, S801 (E-3), S901 (F-3), S1001, S1101 (G-3), S1201 (H-3), S1301, S1401 (J-3), S1501, S1601 (K-3), S1701 (L-3) :

Output band-width compensation switch

They are the output band-width compensation ON/OFF switches.

Use these switches in the factory setting positions.

Factory setting

S101 to S1701 : All OFF

1-8-2. Checks on the Switch Setting the Number of Power Supply Units

Before turning on the power of the MVS-8000SF, confirm that the switch S303 on the CA-44 board is set in the following position (default setting).

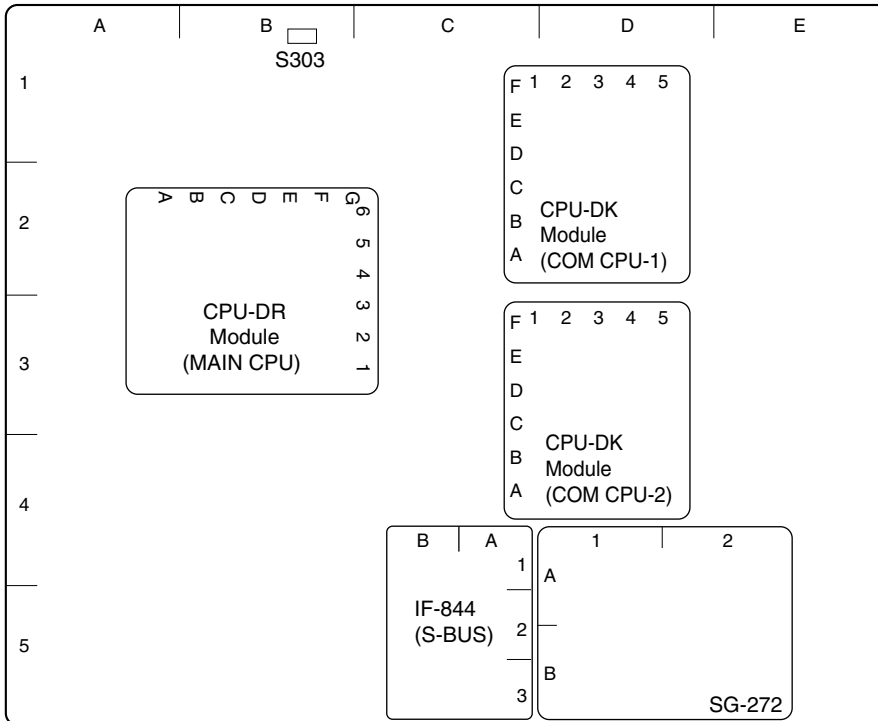
S303 (B-1)/CA-44 board : Switch setting the number of power supply units (DIP type)

S303-1 : OFF

S303-2 : OFF

S303-3 : ON

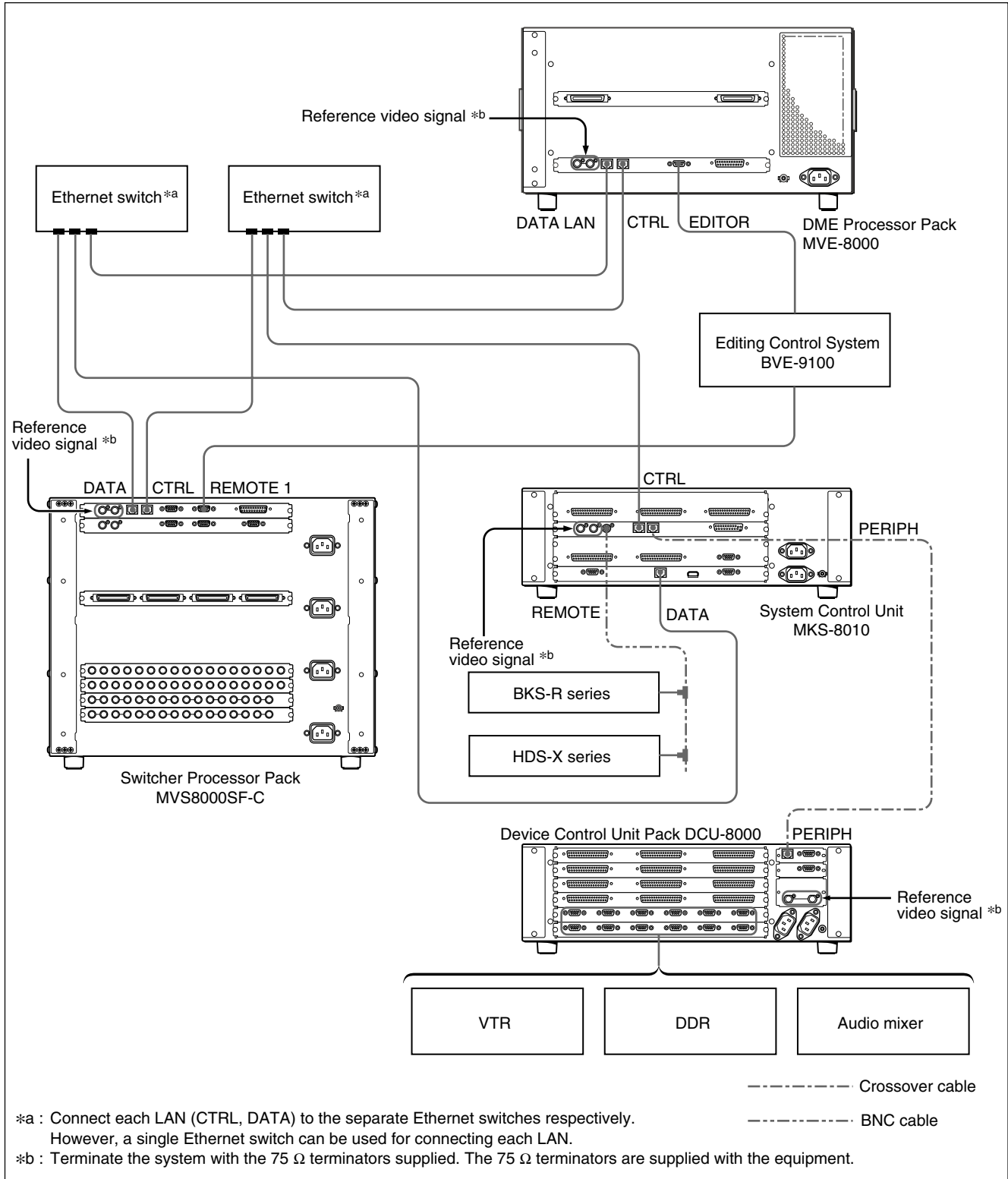
S303-4 : OFF



1-9. System Connection

Configure the MVS-8000 system connections referring to the connection example as shown below.

1. Connection example

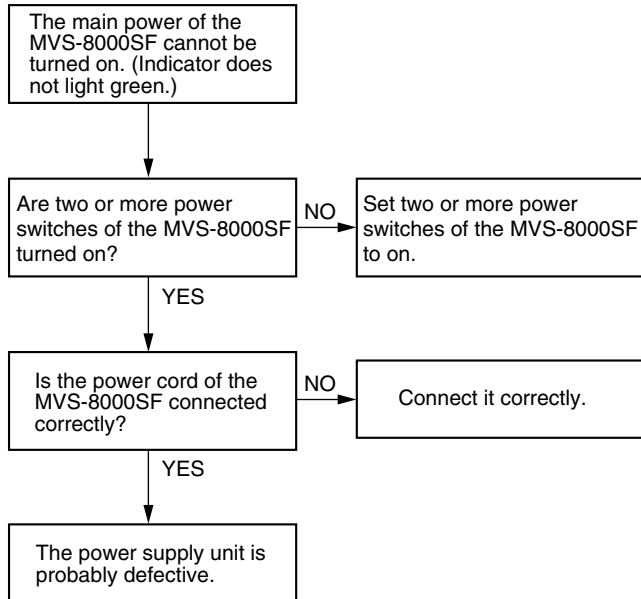


Section 2

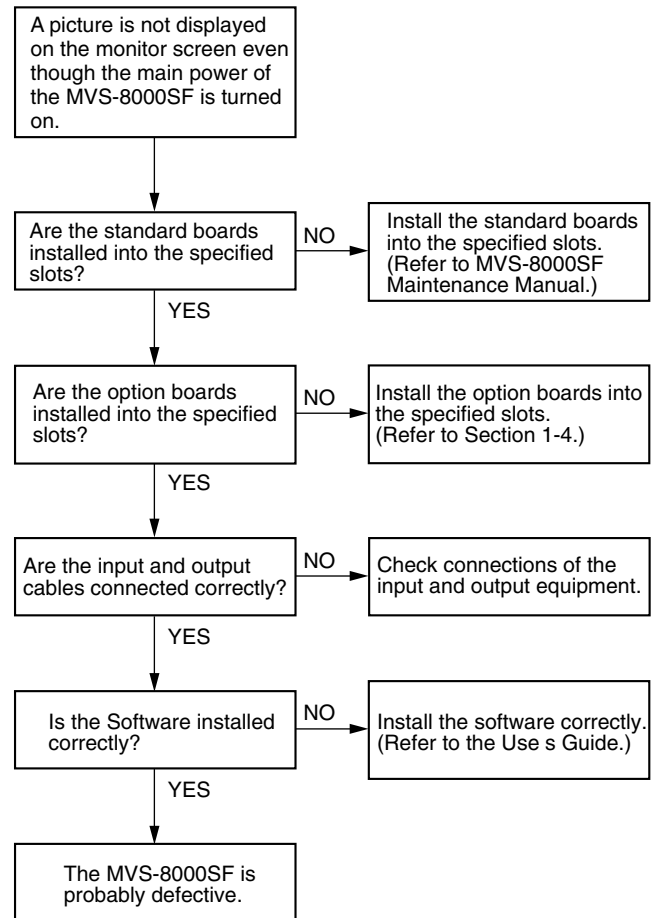
Service Overview

2-1. Troubleshooting

The main power of the MVS-8000 cannot be turned on. (Indicator does not light green.)



The monitor picture is not displayed correctly.



2-2. Periodic Inspection and Maintenance

2-2-1. Cleaning

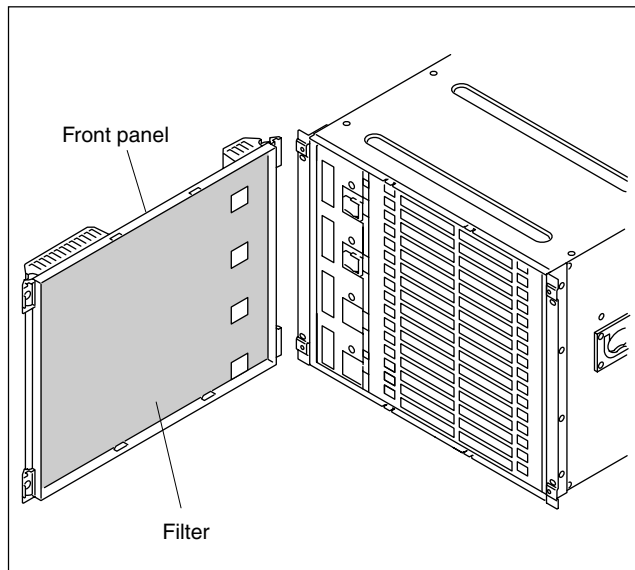
1. Front panel

The filter on the rear of the front panel can easily accumulate the dust. Be sure to remove dust by cleaning as follows.

- (1) Remove the front panel. (Refer to Section 1-4-1.)
- (2) Remove the dust accumulated on the filter with a vacuum cleaner.

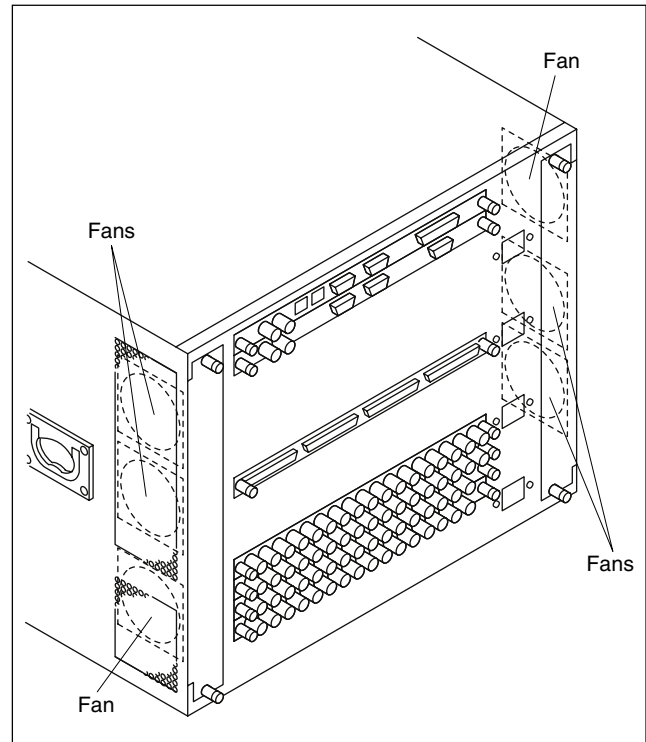
Note

Cleaning the filter by washing in water is recommended when there is a heavy accumulation of dust. Be sure to dry the filter completely after it has been washed.



2. Fan

MVS-8000SF is air-cooled by the fans (on both sides). If dust has accumulated in the intake of the fan, air is prevented from flowing smoothly and this may result in a temperature rise inside the machine. This may have an adverse effect on performance and the life of the machine. Cleaning of the fan every month is recommended. Contact your local Sony Sales Office/Service Center for information on cleaning the fan.



2-3. About the Data Backup Capacitor

A large capacitor is installed on the CA-44 board in order to backup the memory storing the setup and other data in the MVS-8000SF.

Leave the main power of the MVS-8000SF turned on for one hour or longer in order to charge the large capacitor. The data can be backed up for about one week when the capacitor is fully charged under the normal operating temperature.

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