

OfficeServ 7400
Installation Manual



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INTRODUCTION

Purpose

OfficeServ 7400 is a key phone system proper for mid-small sized office using circuit lines with 500 subscribers or less. OfficeServ 7400 provides not only the voice call function but also the data transfer function. This manual describes the condition for OfficeServ 7400 system installation and how to install, inspect and operate the system.

Document Content and Organization

This manual consists of eight chapters and abbreviations. Each chapter is summarized as below.

CHAPTER 1. Before Installing

This chapter describes the checklists, such as the installation site and the grounding & the power conditions, to be inspected before installing the OfficeServ 7400 system. This chapter also describes the items included in the OfficeServ 7400 package and the installation procedure.

CHAPTER 2. Installing Cabinets

This chapter describes how to install an OfficeServ 7400 cabinet on the ground or inside a rack, depending on the installation environment, and how to connect the grounding wire.

CHAPTER 3. Mounting and Replacing Boards

This chapter describes how to mount or replace various boards of the OfficeServ 7400 system.

CHAPTER 4. Connecting External Batteries and Rectifiers

This chapter describes how to connect an external battery and a rectifier to the OfficeServ 7400 system.

CHAPTER 5. Connecting the Power

This chapter describes how to connect the power to the OfficeServ 7400 system.

CHAPTER 6. Connecting C.O. lines

This chapter describes how to connect C.O. lines to the OfficeServ 7400 system.

CHAPTER 7. Connecting Stations and Additional Equipment

This chapter describes how to connect various stations and additional equipment, such as analog/digital phones, door phones and door locks, to the OfficeServ 7400 system.

CHAPTER 8. Starting the System

This chapter describes items to check before starting the OfficeServ 7400 system, the procedure for starting the system, and the procedure for testing whether the system is normally operating after startup.

ABBREVIATIONS

Abbreviations frequently used in this document are described.

Conventions

The following types of paragraphs contain special information that must be carefully read and thoroughly understood. Such information may or may not be enclosed in a rectangular box, separating it from the main text, but is always preceded by an icon and/or a bold title.



WARNING

Provides information or instructions that the reader should follow in order to avoid personal injury or fatality.



CAUTION

Provides information or instructions that the reader should follow in order to avoid a service failure or damage to the system.



CHECKPOINT

Provides the operator with checkpoints for stable system operation.



NOTE

Indicates additional information as a reference.

Reference

OfficeServ 7400 System Manual

This document introduces OfficeServ 7400 and describes the system information, such as hard configuration, specification, and functions, necessary for this system.

Revision History

EDITION	DATE OF ISSUE	REMARKS
00	09. 2005.	Original Draft



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SAFETY CONCERNS

For product safety and correct operation, the following information must be given to the operator/user and shall be read before the installation and operation.

Symbols

**Caution**

Indication of a general caution

**Restriction**

Indication for prohibiting an action for a product

**Instruction**

Indication for commanding a specifically required action

WARNING



Caution for Grounding

- Do not connect the grounding wire of the OfficeServ 7400 system to a power conduit of a building
- The standards for power and grounding should comply with the country standard and the pertinent work should be conducted according to the country standard.
- External grounding is required to prevent human injuries or system damages caused by lightning, static electricity, or voltage surge.
- Unplug the AC power cord before connecting the grounding wire. Failure to do so may cause human injury.
- The OfficeServ 7400 system should be connected to an outlet with a protective ground.
- The GND in the back panel of the OfficeServ 7400 system should be grounded.



Caution for AC Power Connection

A single AC outlet should be used solely for the system's AC power. Sharing the AC power with other devices may cause noise or a voltage drop, resulting in a system malfunction or fire.



Caution for C.O. line Connection

Do not connect C.O. lines in extreme weather conditions such as storm and lightning. Voltage surgery may cause system damage or human injury.



Use of External Grounding

External grounding is required to prevent human injuries or system damages caused by lightning, static electricity, or voltage surge.



Caution for powers when mounting/demounting boards

Check if the cabinet power is off when mounting boards on slots. Inserting or ejecting a board while the power is on may damage the board.

 **CAUTION****Caution for the connection of External Batteries**

Do not connect an external AC power until the battery and the system is completely disconnected. To do so may cause electric shock to the constructor or the system.

Make sure that the specified polarities(+, -) are correctly connected when connecting external batteries.

**Prohibition of Metal Accessories**

Do not wear metal accessories such as rings and watches to prevent electrical damages to the system.

**Un-allowed Use of Selector Switch**

The OfficeServ 7400 system only use 220V. Do not change the input power freely by means of the selector switch.

**AC Power Connection Inhibited**

Do not operate other devices with the AC power of the OfficeServ SME system or with the DC power of external batteries

**Caution for when connecting rectifier**

It is for the PoE connecting terminal, do not connect the emergency battery.

**Board Reset**

New settings are applied only after the board is reset. The system may malfunction if the board is not properly initialized.

**Caution for Installation**

Only a trained service staff can install the OfficeServ 7400 system.



Use of Stable AC Power

The system should always use the stable AC power.

The momentary power failure due to unstable supply of the power may cause system malfunction or battery failure.

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ABBREVIATION I

A ~ L	I
M ~ W	II

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CHAPTER 1. Before Installing

This chapter describes items to check when inspecting the installation site and the grounding and power conditions before installing the OfficeServ 7400 system. This chapter also describes the items included in the OfficeServ 7400 package and the installation procedure.

1.1 Site Information

Select a site that satisfies the following conditions for safety, temperature and humidity:

Safety Conditions

- The OfficeServ 7400 system should not be installed near materials that can cause a fire, such as explosive gas and inflammables.
- The OfficeServ 7400 system should not be near equipments that generate electromagnetic waves, such as monitors or copying machines.
- The installation location should be convenient for distributing trunk lines and extension lines, for connecting power and grounding wires, and for maintenance and repair.
- The OfficeServ 7400 system should not be installed in aisles or passageways that are populated or used for moving equipment.
- Always maintain cleanliness to prevent dust from damaging the board-connecting part of the cabinet.
- Before installing the OfficeServ 7400 system, check items such as the electrical wiring status, grounding status, voltage and frequency.

Temperature and Humidity

- The conditions for temperature and humidity are as follows:
 - Operation Temperature: 0~45°C
 - Storage temperature: -10~50°C
 - Humidity: 10~90%
 - Cool area without direct sunlight
- Ventilators should be installed to remove dust.

1.2 Grounding Conditions

The following cautions should be taken when grounding the OfficeServ 7400 system:

- The grounding wire of the OfficeServ 7400 system should be grounded to the earth using a proper material.
- The flow of electric current between the grounding wire of the power plug and the exposed metal surface of the system should be satisfactory.
- When connecting grounding of external additional equipments to the grounding of the system, the groundings should be connected through a single connection point.



Cautions for Grounding

- Do not connect the grounding wire of the OfficeServ 7400 system to a power conduit of a building.
- The standards for power and grounding should comply with the country standard and the pertinent work should be conducted according to the country standard.
- External grounding is required to prevent human injuries or system damages caused by lightning, static electricity, or voltage surge.
- Unplug the AC power code before connecting the ground line. Failure to do so may cause bodily damage.
- OfficeServ 7400 System should be connected to an wall outlet with a protective ground.
- The GND in the back of the OfficeServ 7400 system should be grounded.

1.3 Power Conditions

The power supply board of the OfficeServ 7400 system receives AC input power or battery power, and supplies -54 V, -5 V, +5 V, +3.3 V, +12 V, and -56 V to the system cabinet.

The power condition is as follows:

- AC 100~240 V, 3 A, 50/60 Hz, or DC 48 V, 10 A

Table 1.1 I/O voltage of Power Supply Board

Power Supply		Specification
Power Supply Unit (PSU)	Input Power	AC 110V, 220V(Free Voltage)
	Input Power	- DC -54 V, 6.6 A - DC +5 V, 16 A - DC -5.3 V, 2 A - DC +3.3 V, 30 A - DC +12 V, 1 A - DC -56 V, 0.4 A(for Backup)
External Rectifier (Model: OfficeServ 7150)	Input Power	AC 110V, 220V(Free Voltage)
	Output Power	DC -54 V, 10 A

1.4 Checking the Package

The list of items included in the OfficeServ 7400 package is as follows.

Table 1.2 Package Items

Category	Name	Quantity	Remark
Basic Cabinet	Basic Cabinet	1	-
	Main Control Board(MP40)	1	-
	Sun-control Board(LP40)	1	-
	Power Cable	1	-
	Battery Cable	1	-
	Smart Media	1	-
	Installation Handbook	1	-
Items for 19" Rack Installation	Bracket for Cabinet	1	Option
	Screw for Cabinet	3	Option
	Bracket for Rack	2	Option
	Screw for Rack	6	Option
	Nut for Rack	6	
	Other clamp Screws	2	Option
Others	Blank stiffener	-	Option
Expansion Cabinet	Expansion Cabinet	1	-
	Sub-control Board(LP40)	1	-
	Extension Cable	1	-
	MP40, LP40 Extension Cable	1	-



NOTE

UTP Cable Types

Available UTP cables are Straight-through UTP cable and Crossover UTP cable. The Straight-through UTP cable is used for connecting LIM/GLIMP module of the OfficeServ 7400 system to other modules such as MP40, LP40, MGI, GWIM, and 4DSL.



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CHAPTER 2. Installing Cabinets

This chapter describes how to install an OfficeServ 7400 cabinet on the ground, inside rack or on a wall depending on the installation environment

2.1 Procedure of the System Installation

The procedure of system installation is as follows:

- 1) Install the OfficeServ SME cabinet on the ground, inside rack depending on the installation environment.
- 2) Earth to the ground lug behind the basic cabinet.
- 3) Insert the LP board into the slot 0 of the basic cabinet. If there is an expansion cabinet, insert the LP 40 board into the slot 0 of the expansion cabinet.
- 4) Mount interface boards into the universal slots(slot 1 through slot 11).
- 5) Connect an external battery.
- 6) Connect input power with AC 110/220 V.

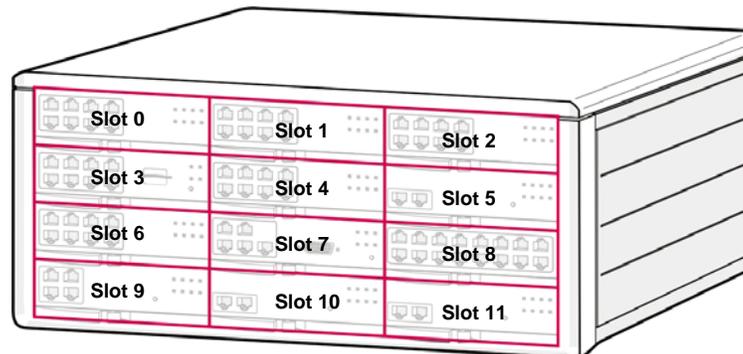


Figure 2.1 Configuration of the Front Side of the System

2.2 Selecting Installation Method

The OfficeServ 7400 cabinet can be installed on the ground, inside a 19-inch rack depending on the number of cabinets and environment of the installation area.



Caution for Installation

Only a trained service staff can install the OfficeServ 7400 system.

2.3 Installing in a Rack

This section describes how to install the OfficeServ 7400 cabinet inside a 19-inch rack

2.3.1 Cautions for Installation

Take the following cautions when installing the OfficeServ 7400 cabinet inside a rack:

- The 19-inch rack should be a standard electric equipment rack.
- When using an enclosed-type rack, check if the rack is properly ventilated. Vents should be equipped on the side of the rack and fans should be attached to ventilate cool air into the rack.
- When using an enclosed-type rack, check if the rack is properly ventilated. Vents should be equipped on the side of the rack and fans should be attached to ventilate cool air into the rack.
- When using an open rack, do not block the entrance of a port or fan of the OfficeServ 7400 system.

2.3.2 Tools Required

- A middle-sized cross screwdriver
- A bracket and three screws for attaching cabinet
- Two brackets, six screws, six nuts for attaching rack
- Two clamp screws

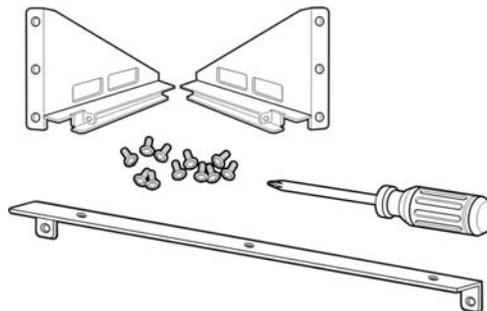


Figure 2.2 Tools for the Installation inside a Rack

2.3.3 Installing in a Rack

The procedure for installing the OfficeServ 7400 cabinet inside a 19-inch rack is as follows:

- 1) Attach the cabinet bracket to the bottom surface of the OfficeServ 7400 cabinet and fasten the bracket firmly with the three screws.

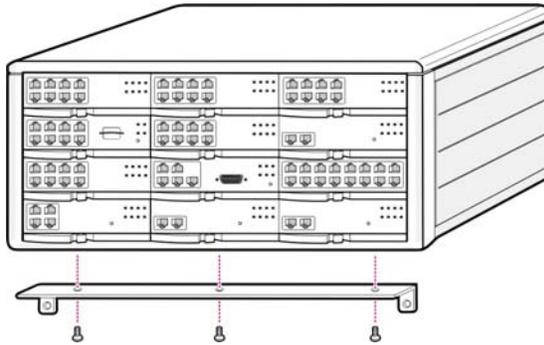


Figure 2.3 Rack Installation (1)

- 2) Attach the rack brackets to both sides of the rack and fasten the brackets firmly with the six screws.

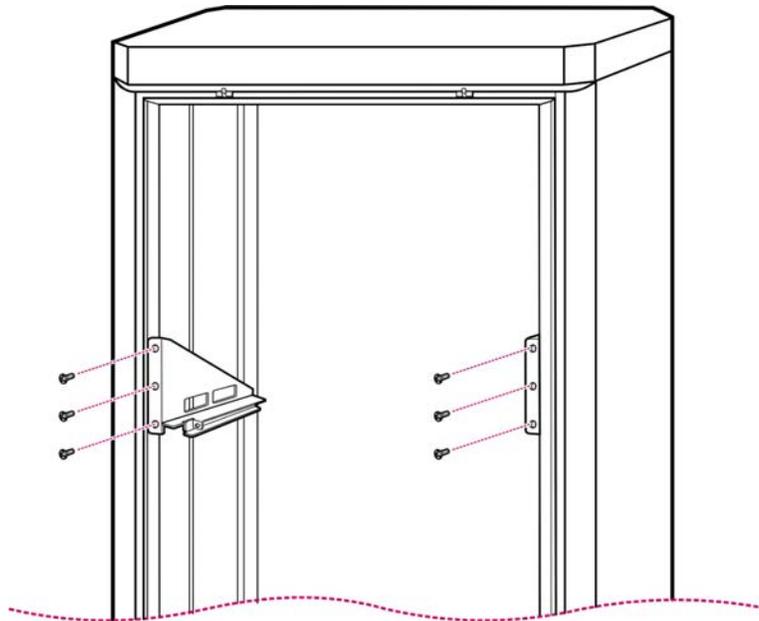


Figure 2.4 Rack Installation (2)

- 3) Align the cabinet to the guardrails of the rack and slide the cabinet into the rack.

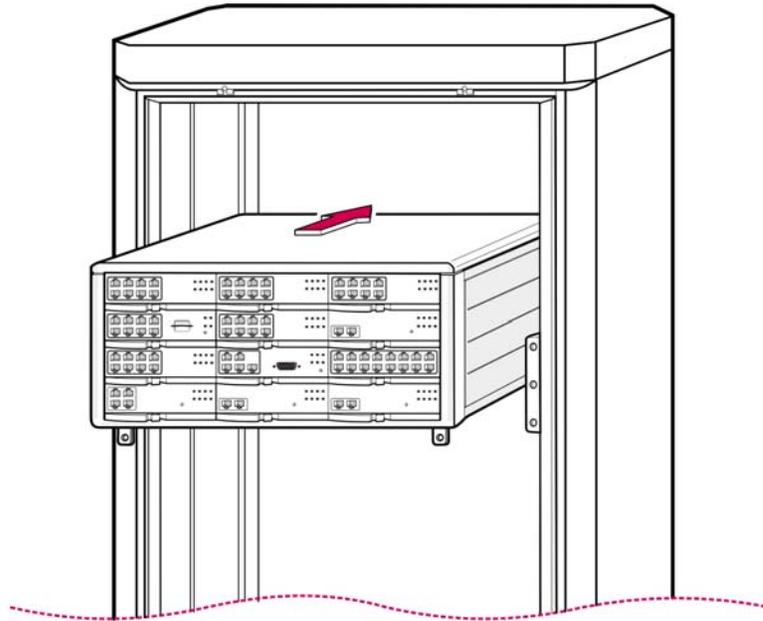


Figure 2.5 Rack Installation (3)

- 4) Align the two holes of the cabinet bracket and the holes of the rack brackets, and fasten the cabinet to the rack with the two screws.

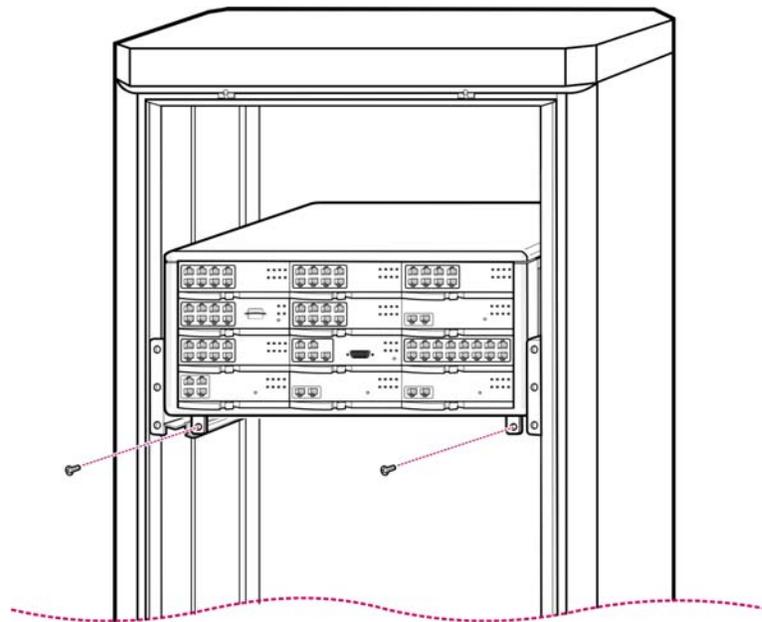


Figure 2.6 Rack Installation (4)

- 5) The above steps 1) through 4) also apply to expansion cabinets.

2.4 Connecting the Grounding Wire

This section describes how to connect an external grounding wire to the OfficeServ SME system.



External Grounding

External grounding is required to prevent human injuries or system damages caused by lightning, static electricity, or voltage surge.

As shown in the figure below, earth to the ground lug behind the OfficeServ 7400. To use an expansion cabinet, earth the external grounding wire between and the basic cabinet and the expansion cabinet.

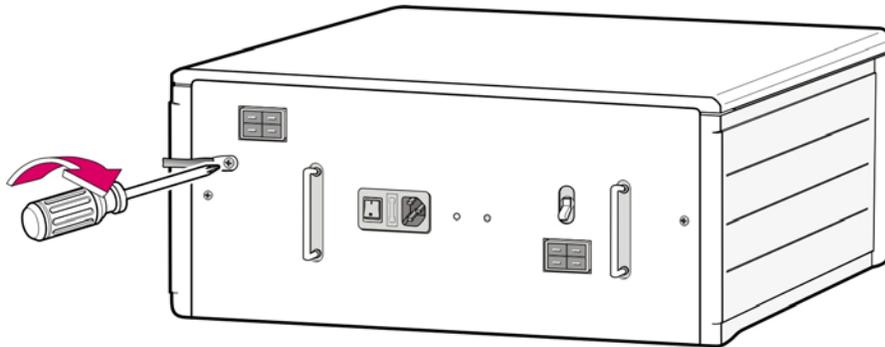


Figure 2.7 Grounding



Checking external grounding

After installing the OfficeServ 7400 system, make sure that the GND in the back side of the system cabinet is connected to the external ground for communication before the operation.



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CHAPTER 3. Mounting and Replacing Boards

This chapter describes how to mount and replace various boards of the OfficeServ 7400 system.

3.1 Cabinet Configuration

The OfficeServ 7400 system can be configured with a basic cabinet and two expansion cabinets. The basic and expansion cabinets of the OfficeServ 7400 system have 12 slots.

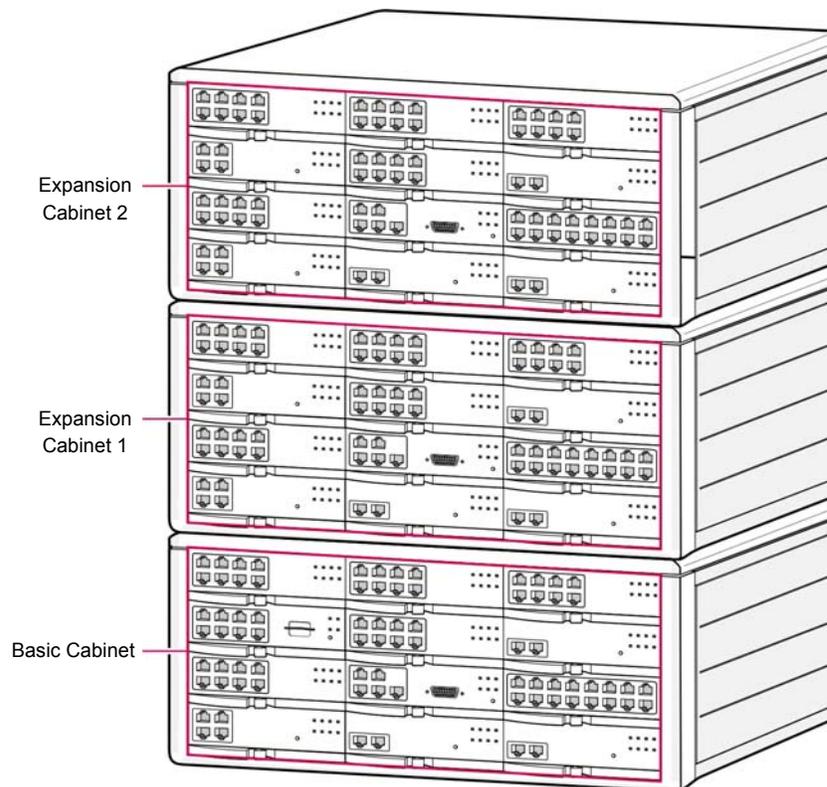


Figure 3.1 Front View of OfficeServ 7400 Cabinet

Following boards are mounted on the slots according to the configuration of the OfficeServ 7400.

Table 3.1 Mountable Boards on Slots

Cabinet	Slot	Mountable Board
Basic Cabinet (OfficeServ Access)	Slot 0	For LP40
	Slot 1, 2	Boards Except LP40 and MP40
	Slot 3	For MP40
	Slot 4~11	Boards Except LP40 and MP40
Expansion Cabinet (OfficeServ Expansion)	Slot 0	For LP40
	Slot 1~11	Boards Except LP40 and MP40



Position of Slots Equipped with Board

MG165 board and TEPR12 boards should be mounted on slot 1, 2, 4~11 of the basic rack to use the whole capacity(64ch) of board channels.

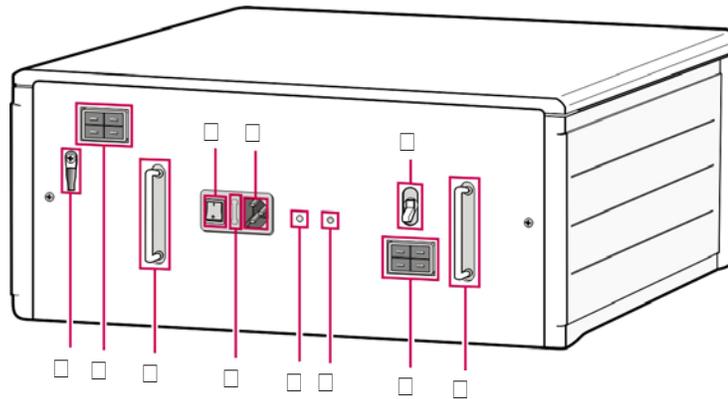


Figure 3.2 Rear View of OfficeServ 7400 Cabinet

Functions of the back panel parts of the cabinet are as follows:

Table 3.2 Parts in the Rear Panel of the Cabinet

Part	Function
<input type="checkbox"/> Ground Lug	Lug for grounding system communication
<input type="checkbox"/> Receptacle for External Rectifier	Receptacle to supply external DC power for Power over Ethernet(PoE)
<input type="checkbox"/> Knob for Mounting or Demounting Power Module	Knob to mount or demount power module
<input type="checkbox"/> Fuse Holder	Fuse to protect AC input power
<input type="checkbox"/> AC LED	The LED indicates the input of AC power.
<input type="checkbox"/> DC LED	The LED indicates the normal output of DC power.
<input type="checkbox"/> Battery Receptacle	Receptacle for an external battery.
<input type="checkbox"/> Power Switch	Power-on/off of OfficeServ 7400
<input type="checkbox"/> Power I/O Connector	Connector for power cable
<input type="checkbox"/> Battery Switch	Switch to supply the power to OfficeServ 7400 or charge an battery

3.2 Mounting Control Boards

This section describes the procedures for setting switches, mounting optional boards, mounting the boards on a slot, and how to connect between the MP/40 and LP40 boards.

3.2.1 Setting MP 40 Board Switches and Mounting Optional Boards

The MP40 board features switches used for optimizing the board to the user requirements and system configuration. The procedure for setting switches and mounting optional boards is as follows:

- 1) Set the S1 switch of the MP40 board into On.
- 2) Set all of SW1~SW5 of the S2 switch into off.
- 3) Set SW6~SW8 of the S2 switch in accordance with user's purpose.

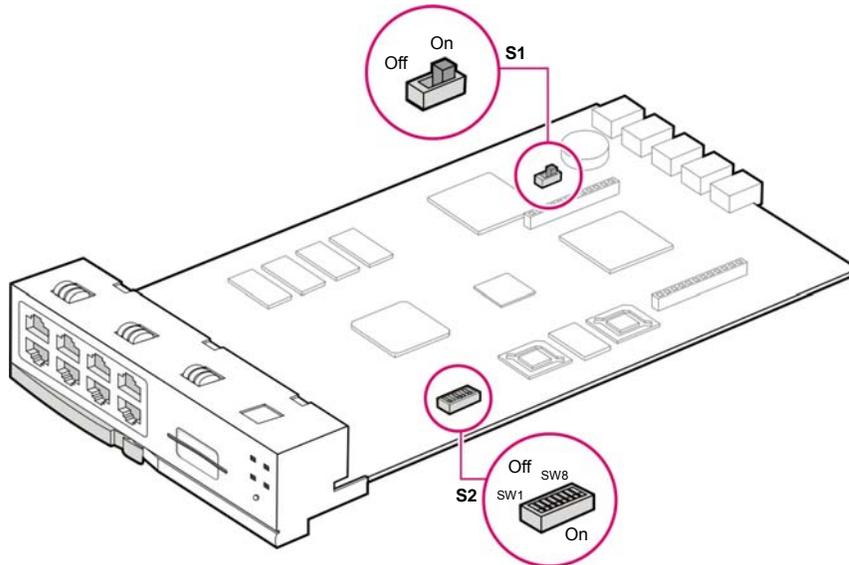


Figure 3.3 Setting Switches of MP40 Board

Table 3.3 Switched of MP40 Board

Switch	Description	
S1	Set S1 switch into On before mounting on a slot to back up memory.	
S2	SW1~SW5	For domestic use, set all switches into Off.
	SW6~SW8	Sets the number of digits for C.O./extension lines and extension. SW6-On: 4 digits for C.O. line Off: 3 digits for C.O. line SW7-On: 4 digits for an extension group Off: 3 digits for an extension group SW8-On: 4 digits for an extension number Off: 3 digits for an extension number

- 4) Align the connectors and holes of the MP40 board to that of the optional boards (Modem), and firmly press the optional boards downward with two hands.

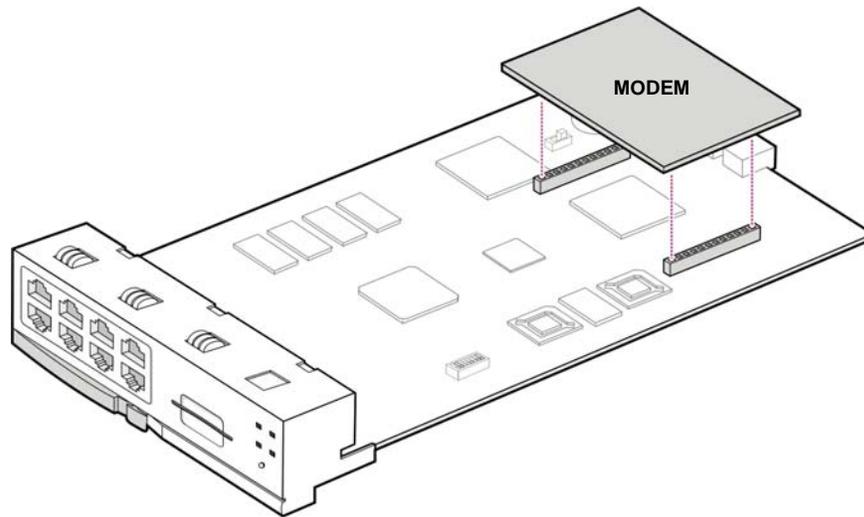


Figure 3.4 Mounting Optional Board

3.2.2 Setting LP 40 Board Switches and Mounting Optional Boards

The LP40 board is Equipped with various optional boards(SCM, MFM, MIS, RCM, RCM2, CRM) in according to user's purpose and system configuration. Mount optional boards as follows:

- 1) Check the exterior of the optional board for any damages.
- 2) Mount optional boards(RCM, RCM2) with switch setup after setting the switch depending on the system configuration.

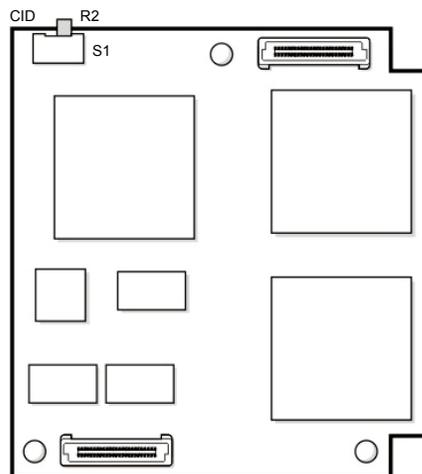


Figure 3.5 Setting Switches of a RCM Board

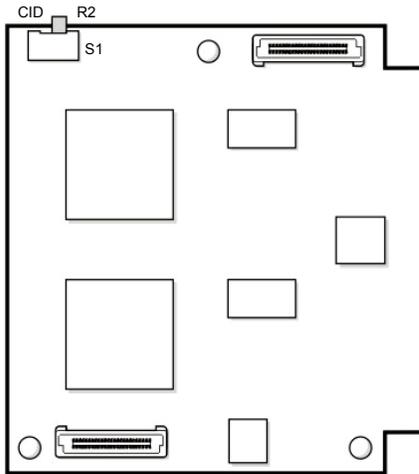


Figure 3.6 Setting Switches of a RCM2 Board

Table 3.4 Switches of RCM/RCM2 Board

Switch	Description	
S1	According to the selection of R2/CID in the switch(S1), R2 or CID function can be switched.	
R2	R2	R2(R2 Signaling): 30-channel
CID	CID	CID(Caller ID): Receiver 14-channel(default state)

- To mount optional boards to the LP40 board, check the available positions and the numbers of the mountable boards as shown in following table. Align the connectors of the optional board to that of the board to mount the optional board, and firmly press the optional board downward with two hands.

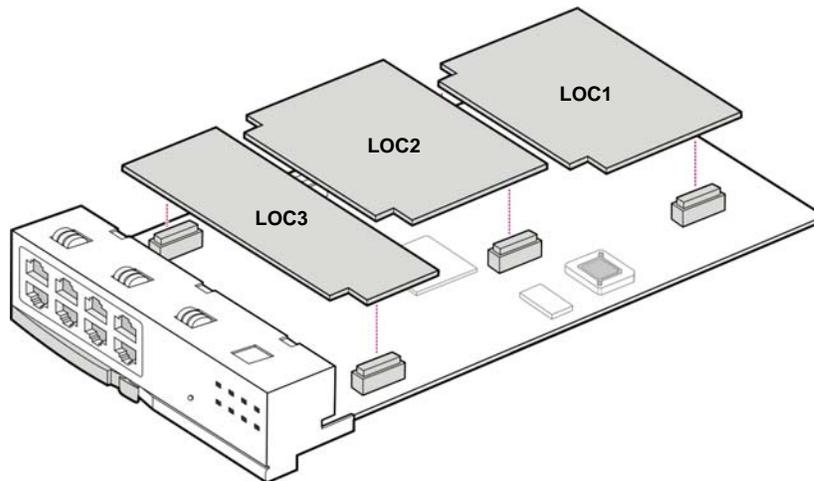


Figure 3.7 Mounting an Optional Board to the LP40 Board

Table 3.5 Position of Optional Boards

Clas.	Positions for Optional Boards	
Description	There are three positions to mount optional boards in LP40.	
Position of Optional Boards	LOC1	SCM, MFM, RCM, RCM2, CRM
	LOC2	SCM, MFM, RCM, RCM2, CRM
	LOC3	MIS

**Cautions for Mounting Optional Boards**

The SCM board can be only mounted on one of LOC1 and LOC2, and the MIS board can be only mounted on LOC3.

3.2.3 Mounting Control Boards

Mount LP40 and MP40, which are control boards, on Slot 0 and slot 3 in the basic cabinet of the OfficeServ 7400 system. For expansion cabinets, LP40 and an interface board can be mounted o slot0 and slot3, respectively. For the locations of Slot 0 through slot 11, refer to '3.1. Cabinet Configuration' section of this chapter.

Table 3.6 Types of Control Boards

Control Board	Slot Available
MP40	Slot 3 of the basic cabinet
LP40	Slot 0 of the basic/expansion cabinet

The procedure for mounting the MP40 board and the LP40 board to each slot is as follows:

- 1) Check the exterior of the MP40 board and LP40 board for any damage. If any damage has occurred in the exterior, stop the installation and contact your dealer.

**Caution for the power when mounting boards**

Check if the cabinet power is off when mounting boards on slots. Inserting or ejecting a board while the power is on may damage the board or cause fire..

- 2) Align the MP40 board to the guardrail of slot 3 of the basic cabinet, and slide the MP40 board into the slot.

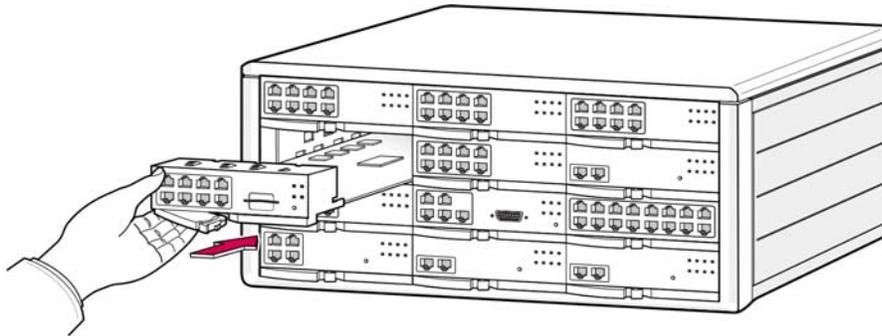


Figure 3.8 Mounting the Control Board to Slot 0

- 3) Push the front panel lever of the MP40 board until the board is completely inserted into the connector of the OfficeServ 7400 main board.

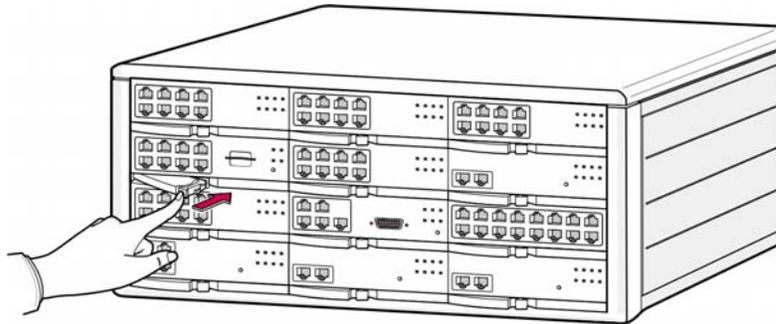


Figure 3.9 Inserting the Control Board to a connector of the Main Board

- 4) Align the LP40 board to the guardrail of slot 0 of the basic cabinet, and slide the LP40 board into the slot.

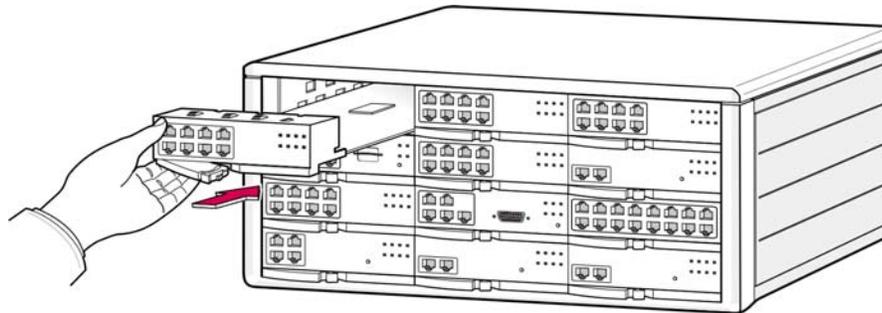


Figure 3.10 Mounting the Control Board on Slot 0

- 5) Push the front panel lever of the LP40 board until the board is completely inserted into the connector of the OfficeServ 7400 main board.

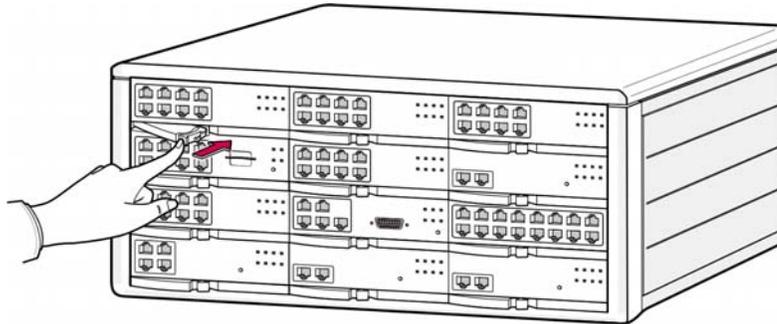


Figure 3.11 Inserting the Control Board to a Connector of the Main Board

- 6) Like step 4 to step6, mount the LP40 board of the expansion board to on slot of OfficeServ 7400 expansion cabinet.

3.2.4 Connecting a M40 Board and a LP40 Board

If the OfficeServ 7400 system consists of a basic cabinet and an extension cabinet, connect a MP40 board to a LP40 board using extension cables to transmit and receive signals between the control boards.

- 1) Three extension cables are needed to connect the MP40 board to the LP40 board. If two expansion cabinets exist, six cables are required.

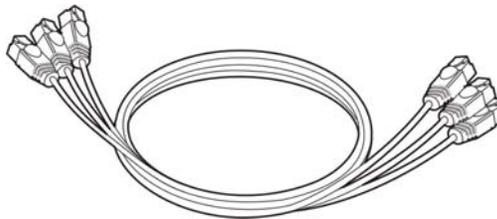


Figure 3.12 Extension Cable

- 2) With an extension cable, connect the 'LINK21' port of the MP40 board built in the basic cabinet and the 'LINK21' port of the LP40 board built in the expansion cabinet.
- 3) With another extension cabinet, connect the 'LINK22' port of the MP40 board and the 'LINK2' port of the LP40 board.

- 4) With the other cable, connect the 'LINK23' port of the MP40 board and the 'LINK3' port of the LP40 board.

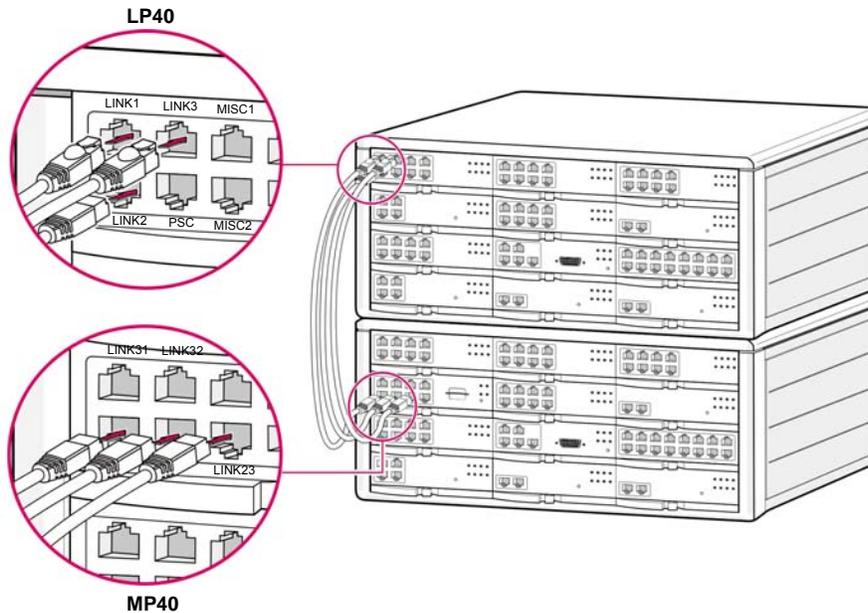


Figure 3.13 Connecting the MP40/LP40 Board

- 5) For two expansion cabinets, connect the 'LINK31', 'LINK32' and 'LINK33' port of the MP40 board built in the basic cabinet with extension cables in the same way as described above.

3.2.5 Connecting a M40 Board and a LP40 Board

With the OfficeServ 7400 system as the basic cabinet, the expansion cabinets of the existing OfficeServ 7200 system can be connected to the OfficeServ 7400 system. To do so, the MP40 board and LCP board should be connected with an extension cable to enable signal transfer between control boards.

- 1) Three extension cables are needed to connect the MP40 board to the LCP board. If two expansion cabinets exist, six cables are required.

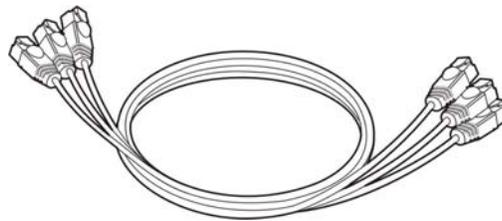


Figure 3.14 Extension Cable

- 2) With an extension cable, connect the 'LINK21' port of the MP40 board built in the basic cabinet and the 'LINK21' port of the LCP board built in an expansion cabinet.
- 3) With another extension cabinet, connect the 'LINK22' port of the MP40 board and the 'LINK2' port of the LCP board.
- 4) With the other cable, connect the 'LINK23' port of the MP40 board and the 'LINK3' port of the LCP board.

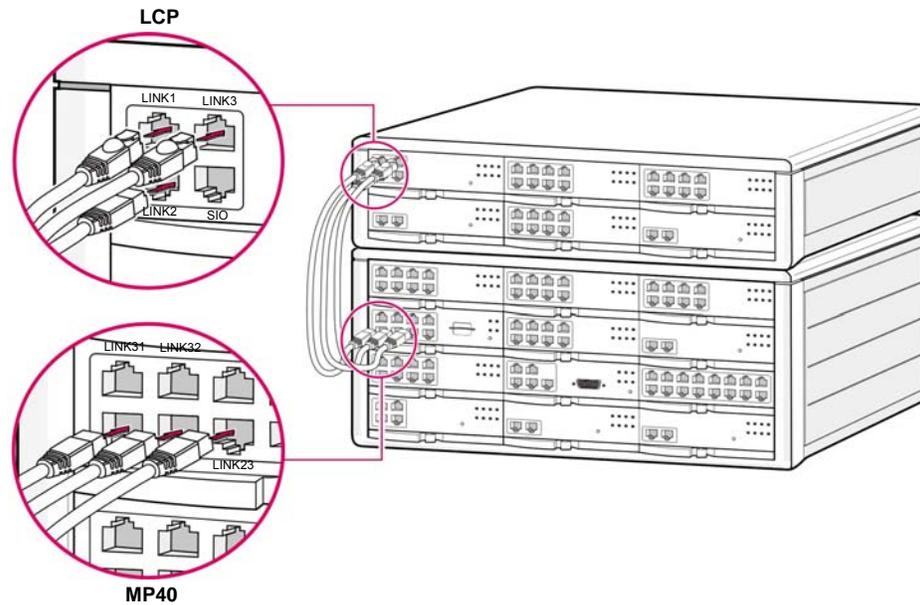


Figure 3.15 Connecting the MP40/LCP Board

- 5) For two expansion cabinets, connect the 'LINK31', 'LINK32' and 'LINK33' port of the MP40 board built in the basic cabinet with extension cables in the same way as described above.

3.3 Mounting Interface Boards

This section describes how to set jumpers and switches of an interface board, how to mount optional boards to an interface board, and how to mount interface boards into slots.

3.3.1 Setting Switches and Mounting Optional Boards

Interface boards allow users to operate the boards in accordance with the users' purpose and system configurations.

These interface boards are divided into the boards to set switches or jumpers and the boards to mount optional boards.

Table 3.7 Interface Boards with Switched/Jumpers

Interface Board	Jumpers/Switches	Functions
GWIM	J1~J2	Selection of power source(-54 V) - EXT: Supply of 54 V from an external PoE power module - INT: Supply of 54 V from the system power supply
MGI	Memory Backup Switch	Setup of memory setup
TEPRI	S1(SW1~SW8)	Setup of T1, E1, T1/E1, PRI, 24B+D/24B, User/Network, 17H/13H
TEPRI2	S2(1~4) S3(1~4)	Setup of T1, E1, T1/E1, PRI, 24B+D/24B, User/Network, 1AH
LIM-P	J1~J3	Selection of power source(-54 V) for PoE - EXT: Supply of 54 V from an external PoE power module - INT: Supply of 54 V from the system power supply
GLIMP	J1~J4	Selection of power source(-54 V) for PoE - EXT: Supply of 54 V from an external PoE power module - INT: Supply of 54 V from the system power supply
GSIM	J13~J14	- Selection of power source(-54 V) - EXT: Supply of 54 V from an external PoE power module - INT: Supply of 54 V from the system power supply

Table 3.8 Interface Boards for Optional Boards

Interface board	Optional Board
GWIM	GWIMS
MGI	MGI2D

3.3.1.1 GWIM Boards

Gigabit WAN Interface Module(GWIM), which is an board for external Internet and data communication, provides not only various external interfaces but also ports for the connection with the internal network.

Set jumpers in the GWIM board and mount an extension board as follows:

- 1) Set J1 and J2 of the GWIM board.

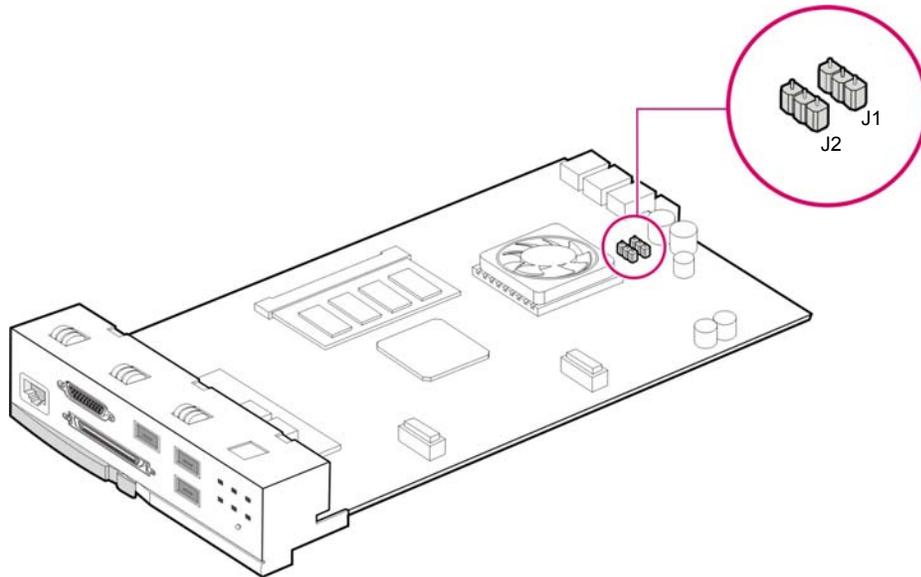


Figure 3.16 Setting GWIM Board Jumpers

- 2) Align the connector of an extension board(GWIMS) board to that of the optional board mounted on the GWIM board, and firmly press the optional board downward.

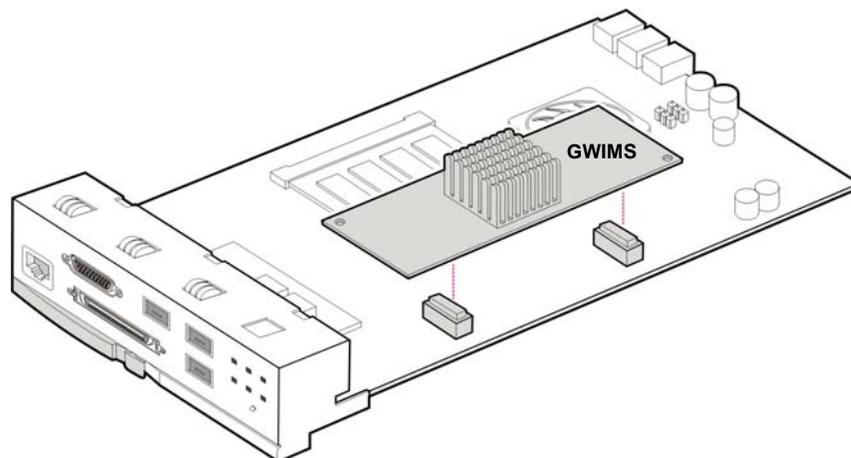


Figure 3.17 Mounting an Extension Board on the GWIM Board

3.3.1.2 MGI Boards

Media Gateway Interface(MGI) board is a board that converts voices to data and transfers the data through data network. The MGI board provides up to 16-channel and the voice compression/decompression function of G.729, G.723, G.726 and G.711. In addition, the board supports the fax function satisfying T.38 standard.

The procedure for setting the MGI board switches and mounting optional boards is as follows:

- 1) Set memory backup switches of the MGI board.

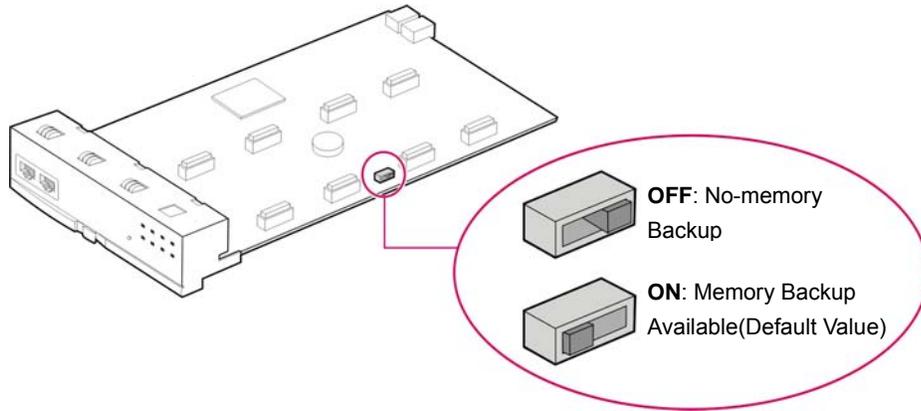


Figure 3.18 Setting the Switch of the MGI Board

- 2) Align the connector of the MGI board to the connector of the optional board (MGI1D/2D) and insert the optional board downward. Up to four optional boards can be mounted.

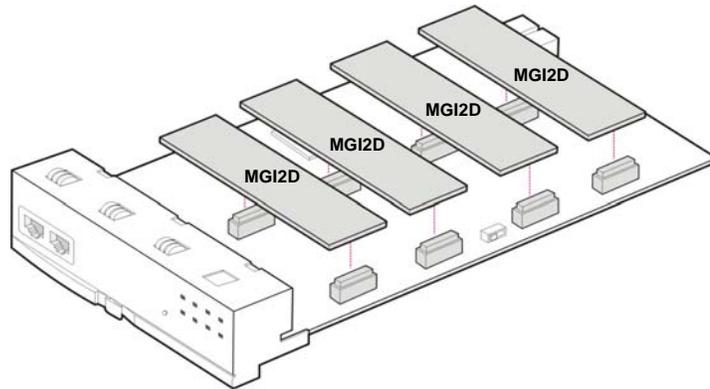


Figure 3.19 Mounting an Optional Board on the MGI Board

3.3.1.3 TEPRI Boards

T1E1PRI(TEPRI) board, which provides a digital C.O. line, supports E1, T1 and ISDN PRI and provides the Q-SIG function.

Set the S1 switch and jumpers of the TEPRI board as follows:

Setting S1 Switch

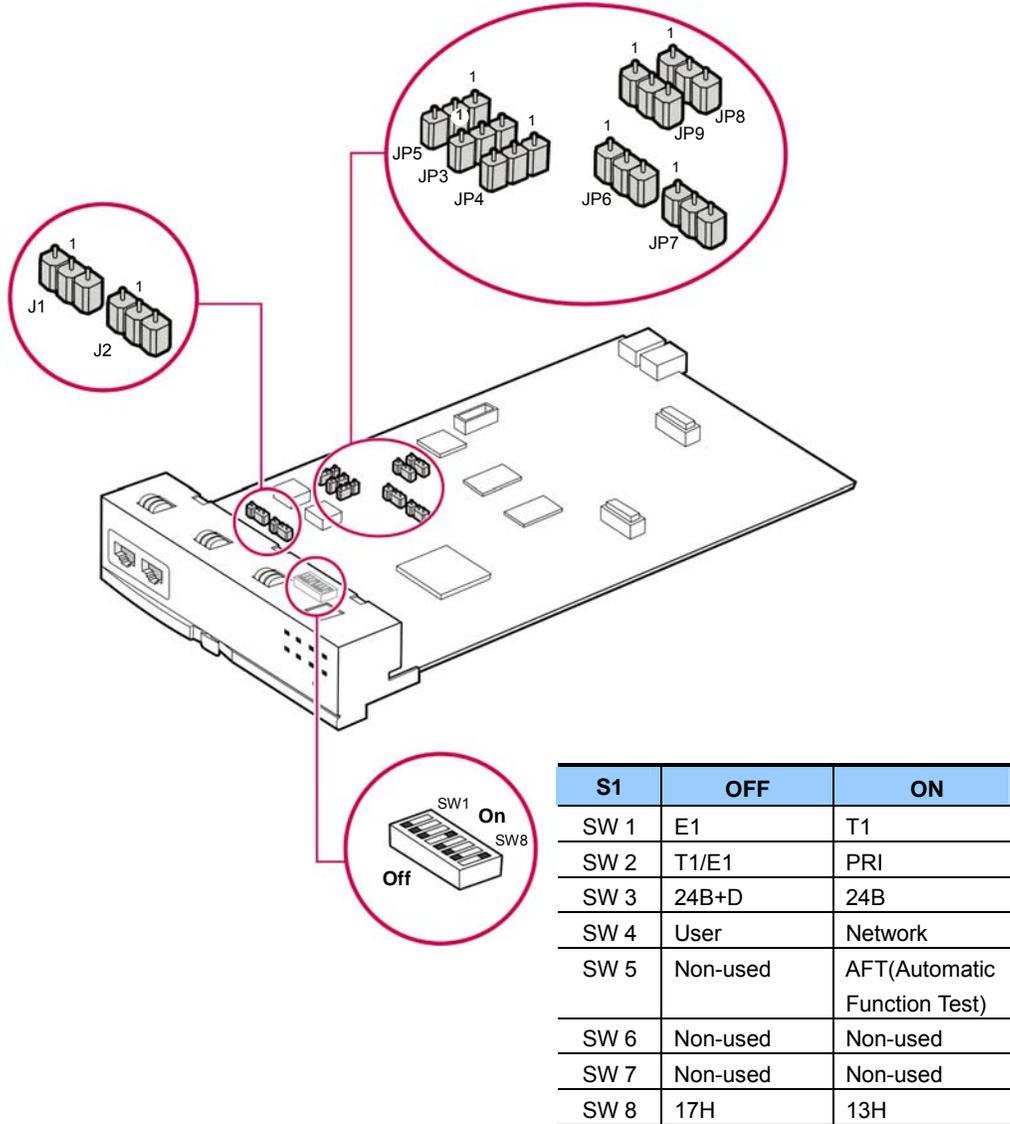


Figure 3.20 Setting S1 Switch of the TEPRI Board

Setting Jumpers

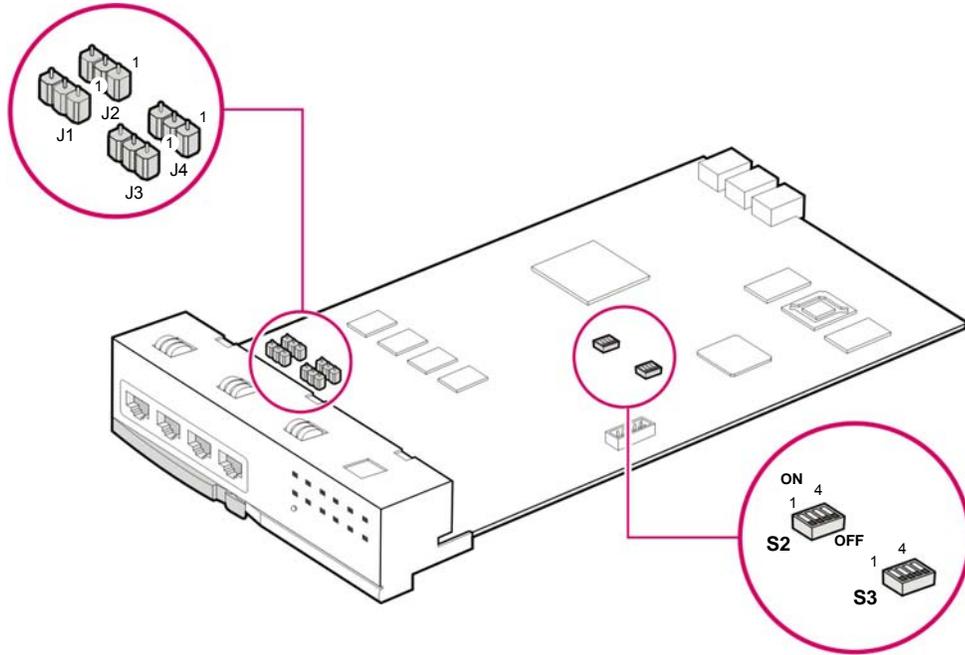
- J1 and J2: Connect #1 and #2 for E1 cable, #2 and #3 for T1 cable.
- JP3, 4, 5, 6, 7, 8, 9: Connect #2 and #3 for E1/PRI, #1 and #2 for T1 Each jumper is numbered in ascending order from the marked '1' in the above figure.

3.3.1.4 TEPRI2 Boards

TEPRI2(T1E1PRI2) board, which provides a digital C.O. line, supports E1, T1 and two ISDN PRI ports, and provides the Q-SIG function.

Set S2 and S3 switches and jumpers of the TEPRI2 board as follows:

Setting Switches



S2	OFF	ON
1	E1	T1
2	T1/E1	PRI
3	24B + D	24B
4	User	Network
S3	OFF	ON
1	Non-used	Non-used
2	T1/E1	PRI
3	24B + D	24B
4	User	Network

Figure 3.21 Setting Switches of the TEPRI2 Board

Setting Jumpers

J1, J2, J3 and J4: Connect #1 and #2 for E1 cable, #2 and #3 for T1 cable.

3.3.1.5 LIM-P Boards

LAN Interface Module with PoE(LIM-P) can use Power Supply Unit(PSU) or an external rectifier and selects the power supply source by using shunt pins.

- For the use of PSU: The shunt pins(J1, J2 and J3) are connected between pin1 and pin2.
Since the available capacity is limited to PSU, the use of ports is limited to 16 ports and the use of digital phones is, also, limited.(For more information on the limitation about the use of digital phone phones in accordance with the use of LIM-P port, contact your dealer.)
- For the use of an external rectifier: The shunt pins(J1, J2 and J3) are connected between pin2 and pin3.
Since the external rectifier can supply 10 A current per module, any limitation for the use of ports or digital phones does not exist.
Limit each current running through LIM-P ports below 0.1A and in the board below 1.6 A.

Each jumper is numbered in ascending order from the marked '1' in the following figure.

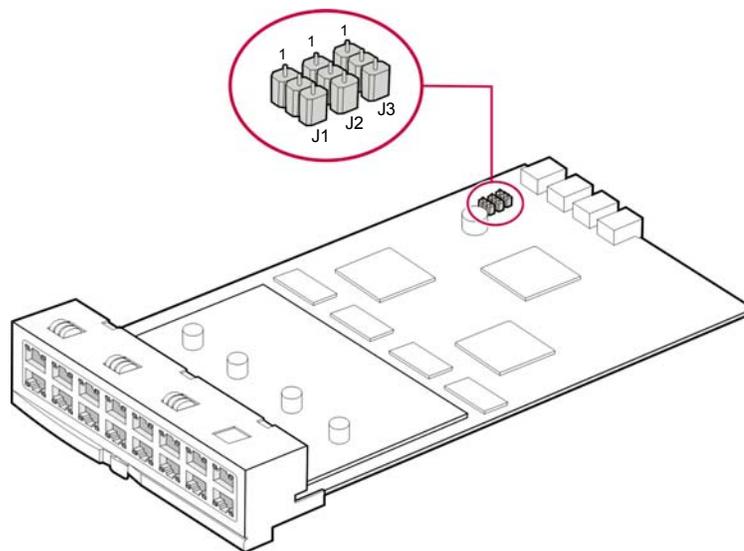


Figure 3.22 LIM-P Board

Pin No.	1	2	3	4	5	6	7	8
RJ-45	Tx+	Tx-	Rx+	RTN	RTN	Rx-	-48 V	-48 V

-48 V power and RTN are the return ground of -48 V power.

3.3.1.6 GSIM Boards

Gigabit Switch Interface Module(GSIM) provides the Giga bit LAN interface of Layer 2 and Layer 3 to support data network.

Set jumpers in the GSIM board and mount an extension board as follows:

- 1) Set J3 and J4 of the GSIM board.

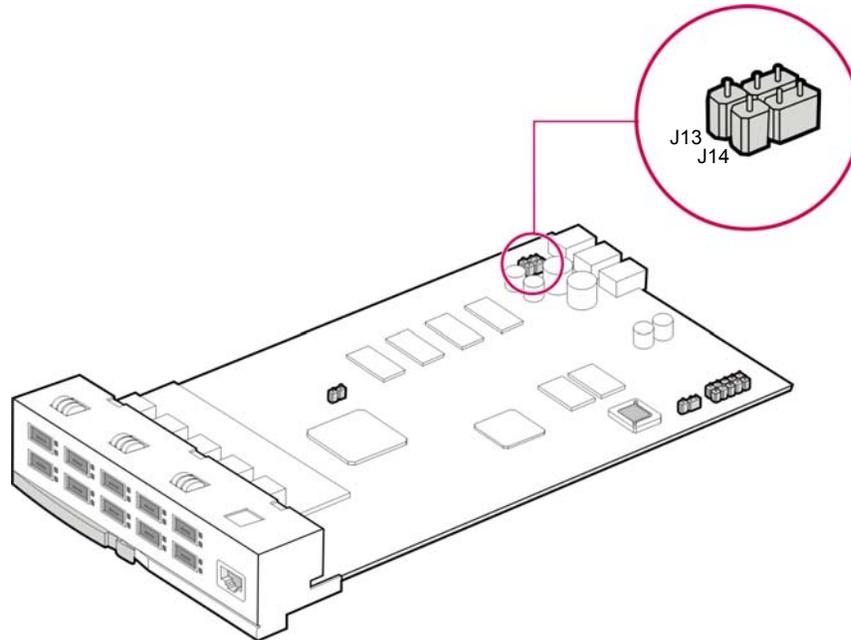


Figure 3.23 Setting the Jumpers of the GSIM Board

3.3.1.7 GLIMP Boards

GLIMP(Gigabit LAN Interface Module with PoE) is a board which sends/receives the data from the intranet, and provides 12 ports of 10/100 BASE-T interface and 2 ports of 1000 BASE-TX/SX/LX. The GLIMP only operates as a simple switching for the hub, and interfaces with GWIM with one board to provide VLAN function for supporting QoS.

Set jumpers J1~J4 in the GLIMP board, and mount an extension board.

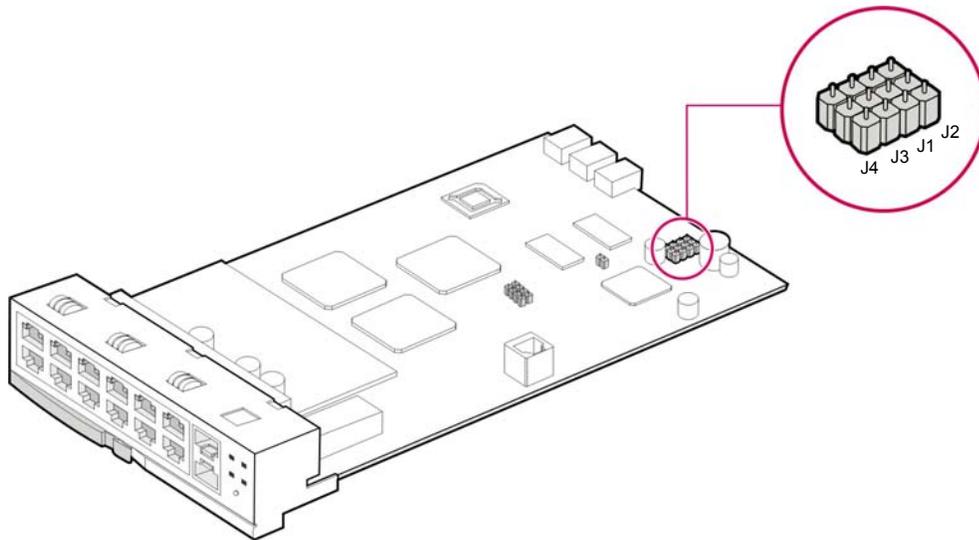


Figure 3.24 Setting the jumpers of the GLIMP board

3.3.2 Mounting Interface Boards to Slots

Interface boards are mounted on slot1~slot11 of each slot(For the basic cabinet, slot3 is reserved for MP40 board). The following table describes the slot locations for interface boards. For the locations of Slot 0 through slot 1, refer to '3.1. Cabinet Configuration' section of this chapter.

Table 3.9 Types of Interface Boards and Slots Available

Category	Interface Board	Slots Available
Voice C.O. line	TEPRI,8TRK,4TRK	Slot 1, 2, 4~11 of the basic cabinet Slot 1 to 11 of the expansion cabinet
	TEPRI2	Slot 1, 2, 4~11 of the basic cabinet Slot 1 to 11 of the expansion cabinet (When mounting to the expansion cabinet, only limited use of 32 channels)
Voice extension	16DLI, 8DLI, 16SLI, 8SLI, 8HYB 16SLI2, 16DLI2, 8HYB2	Slot 1, 2, 4~11 of the basic cabinet Slot 1 to 11 of the expansion cabinet
Data voice application	GWIM,GSIM	Slot 1, 2, 4~11 of the basic cabinet Slot 1 to 11 of the expansion cabinet
	LIM, LIM-P, GLIMP	Slot 1, 2, 4~11 of the basic cabinet Slot 1 to 11 of the expansion cabinet
	4DSL	Slot 1, 2, 4~11 of the basic cabinet Slot 1 to 11 of the expansion cabinet
	4WLI, MGI	Slot 1, 2, 4~11 of the basic cabinet Slot 1 to 11 of the expansion cabinet
	MGI64	Slot 1, 2, 4~11 of the basic cabinet Slot 1 to 11 of the expansion cabinet (When mounting to the expansion cabinet, only limited use of 32 channels)
VMS	SVMi-20E	Slot 1, 2, 4~11 of the basic cabinet Slot 1 to 11 of the expansion cabinet



NOTE

Functions and Characteristics of Each Interface

For detail information on functions and characteristics of each Interface board, refer to 'OfficeServ 7400 System Manual'

The Procedure for mounting the interface board to each slot is as follows:

- 1) Check the exterior of the interface board for any damages.
- 2) Align each Interface board to the guardrail of the universal slot of the OfficeServ 7400 basic cabinet or expansion cabinet, and slide the Interface board into the slot.

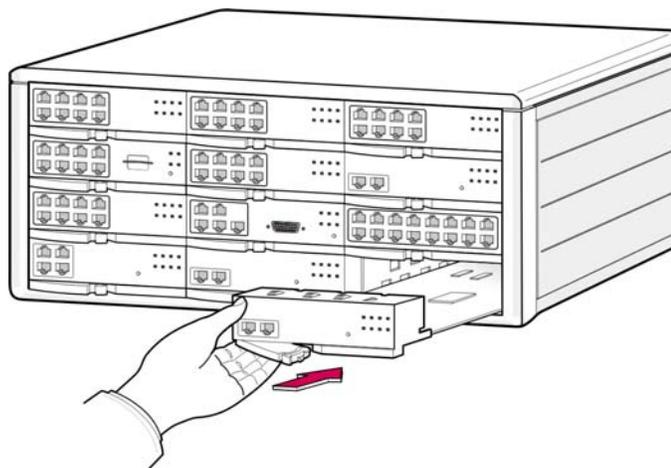


Figure 3.25 Mounting an Interface Board on a Slot

- 3) Push the front panel lever of the Interface board until the board is completely inserted into the connector of the OfficeServ 7400 main board.

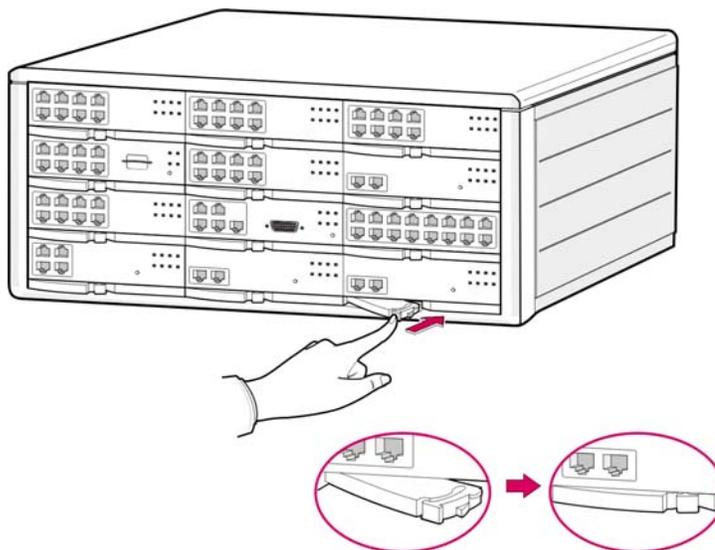


Figure 3.26 Locking the front Panel Level of the Interface Board

3.4 Connecting Power Backup Lines

If AC power is fails while no battery is connected, connect a power backup circuit by connecting C.O. lines to extensions.

If a pair of any C.O. lines(8TRK) is connected to pin1 and pin2 of the first port in 16SLI or 8SLI, lines are connected to general phones through pin4 and 5 of 8TRK. In power failure, emergency calls can be available since the C.O. line is directly connected to the phone connected to pin4 and 5 through pin1 and 2 of SLI by the internal relay operation.

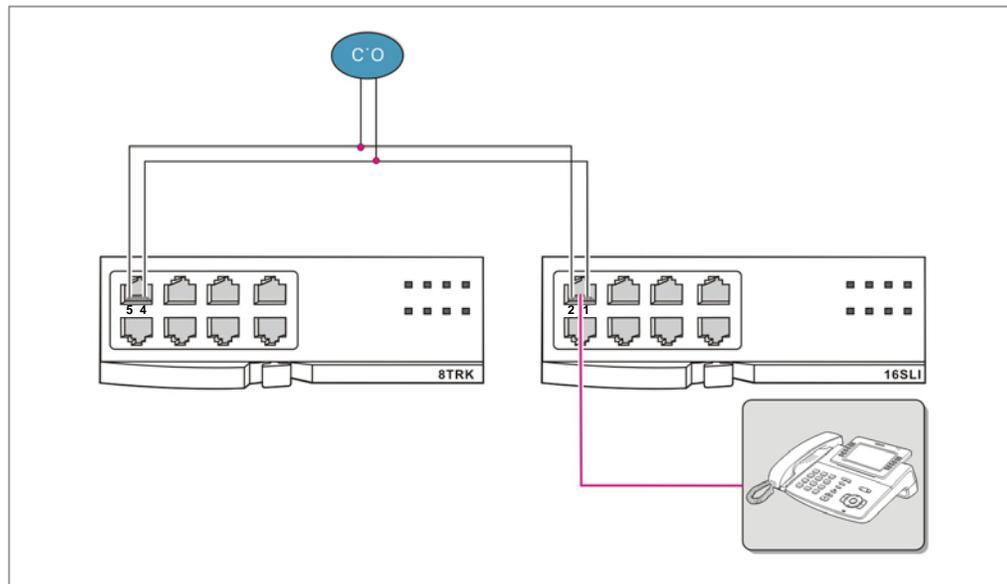


Figure 3.27 Connecting Power Backup Line to a 8/16SLI Board

3.5 Replacing Boards

If the OfficeServ 7400 system fails to operate normally due to an error on the power supply board, control board, or interface board, replace the board to a new one.



CHECK

Removing Cables

Replace a board after removing all cables connected to the board.

The procedure for replacing a board mounted in a slot of a cabinet is as follows:

- 1) Turn off the power of the cabinet if the board to be removed is a control board. Perform step 3 without turning off the power switch of the mounted cabinet if the board to be removed is an interface board.

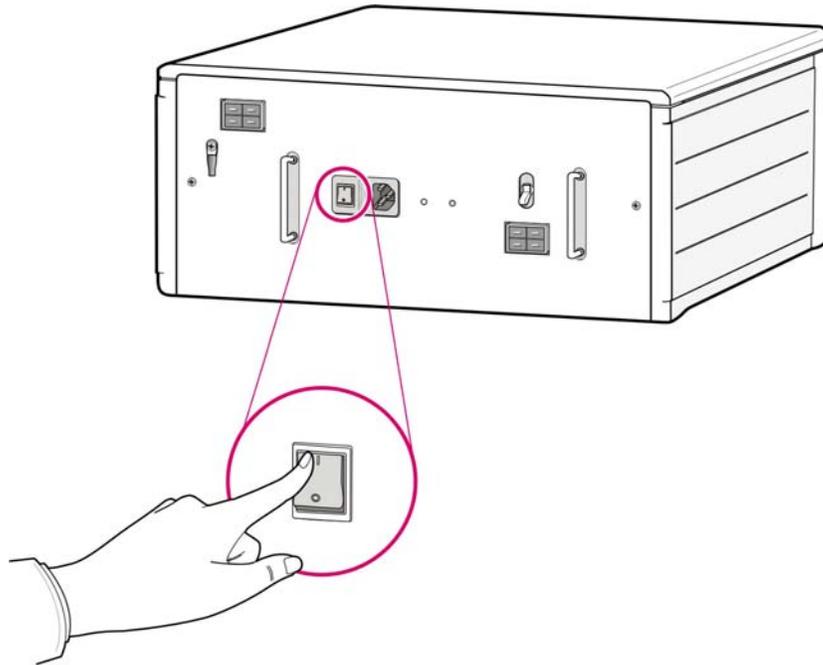


Figure 3.28 Turning the Cabinet Power Off

- 2) When replacing a control board, first, remove the extension cable connecting the MP40 board to the LP40 board. Also, remove all cables connected to the board to be replaced.

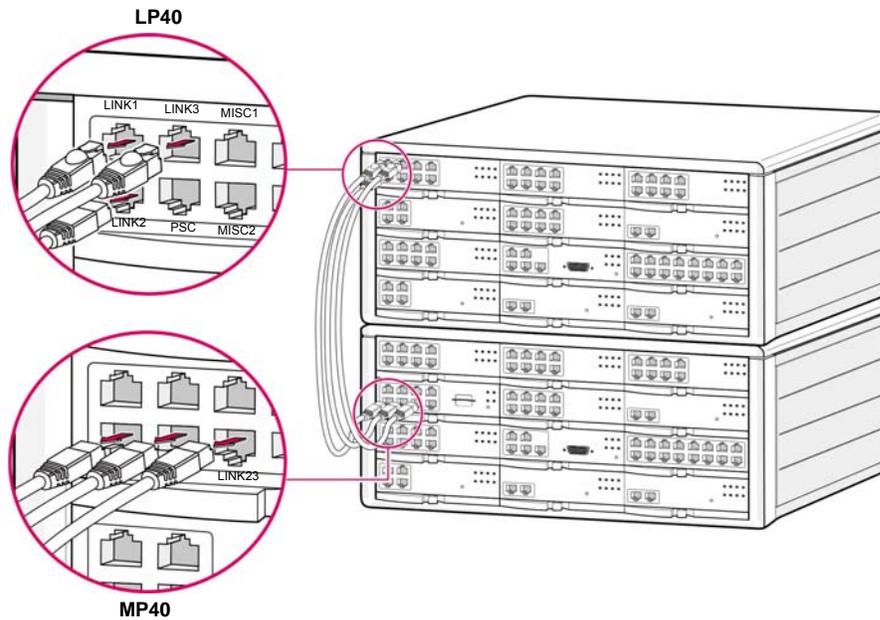


Figure 3.29 Removing Cables

- 3) Extract the board by pulling the lever of the board carefully.

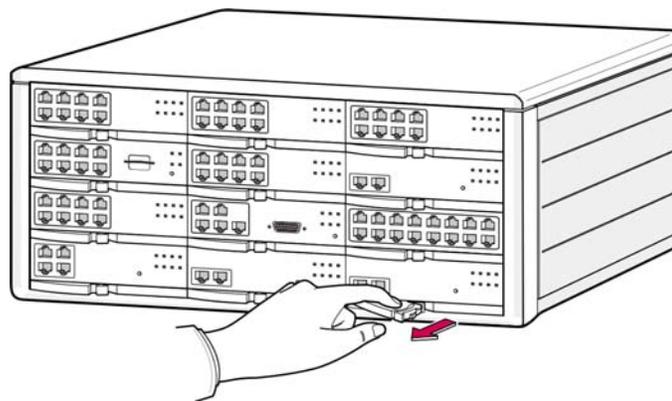


Figure 3.30 Removing a Board

- 4) Align the new board to the guardrail of the slot, and slide the new board into the slot. After then, lock the lever in the front panel of the board to fully insert into the connector of the OfficeServ 7400 main board.

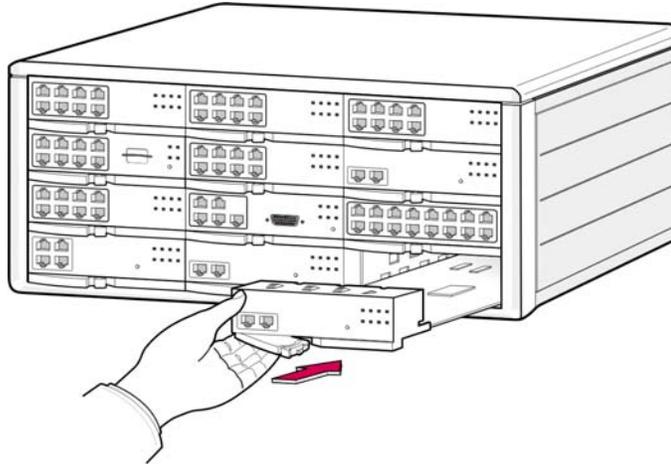


Figure 3.31 Replacing a New Board



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CHAPTER 4. Connecting external batteries and Rectifiers

This chapter describes how to connect external batteries and rectifiers to the OfficeServ 7400 system.

4.1 Connecting External Batteries

Cautions when Connecting External Batteries

External batteries are required to ensure stable operation of the OfficeServ 7400 system in case a power failure occurs. The rated capacity of an external battery is DC 48V per cabinet. Batteries should be connected to each cabinet.



Cautions for connecting an external battery

Do not connect external AC power to the system before connecting an external battery to the system. To do so, may cause electric shock for the system or the constructor.

Make sure that the polarities(+/-) between the external battery ant the system are equal.

The procedure for using a battery cable to connect an external battery to the OfficeServ 7400 system is as follows:

- 1) Prepare the battery cable that was provided with the OfficeServ 7400 system. The battery cable consists of a red line and a blue line, and at the end of each line, GND(red line), -48VDC(blue line) are labeled. The other part of battery cable has a connector for the battery socket of OfficeServ 7400 system.
- 2) Connect the red line(GND) of the battery cable to the(+) terminal, and the blue line (-48 VDC) to the(-) terminal of the battery.
Then, connect the other end of the battery cable to the external battery socket on the rear panel of the OfficeServ 7400 cabinet. When using two or more OfficeServ cabinets, prepare as much external batteries as the number of cabinets and connect the batteries to each cabinet.

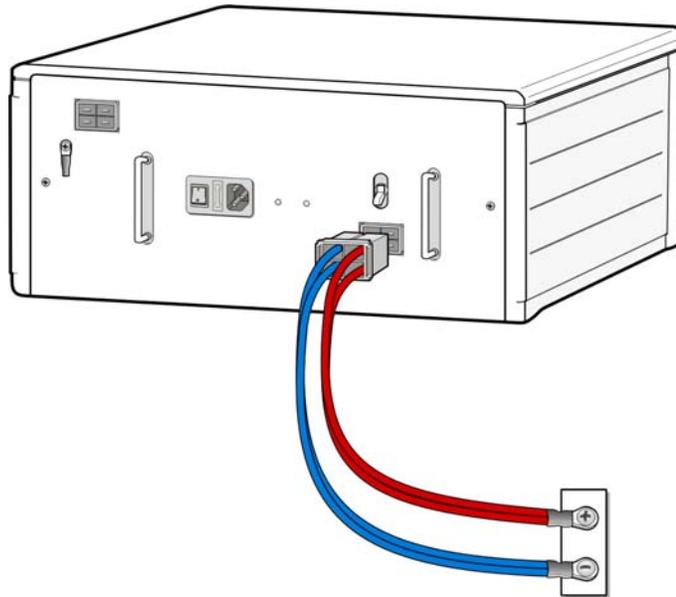


Figure 4.1 Connecting an External Battery



CAUTION

Cautions for connecting an external battery

Do not connect external AC power to the system before connecting an external battery to the system. To do so, may cause electric shock for the system or the constructor.

Make sure that the polarities(+/-) between the external battery ant the system are equal.

4.2 Connecting External Rectifiers

The external rectifier is an external power that supplies the power to IP phones or WBS24 connected when LIM-P board is used in the OfficeServ 7400 system. Since the internal power source has the insufficient capacity, the additional power source to supply the power to external equipment is required.

The procedure to connect an external rectifier is as follows:

- 1) Power off the OfficeServ 7400 System and an external rectifier.
- 2) There are three screws to connect the power cable to A and B parts(GND and -54 V) in the back panel of the external rectifier.

Prepare a power cable like the figure below. The power cable consists of a red line and a blue line and the ends of the lines are marked as GND(for red line), -48VDC(for blue line). The other end of the power cable has the connector to connect to the socket of the external rectifier for the OfficeServ 7400 system.

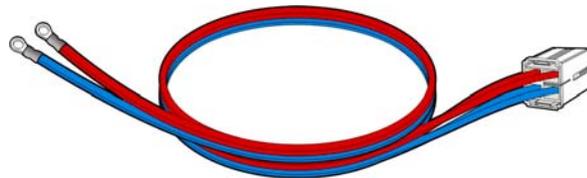


Figure 4.2 Power Cable

- 3) Loose screws and connect the power cable as shown the figure below. Connect GND(red line) and -48 VDC(blue line) of the power cable to A part(GND) and B part(-54 V), separately. At this time, any of three screws in each part is allowed to be connected.

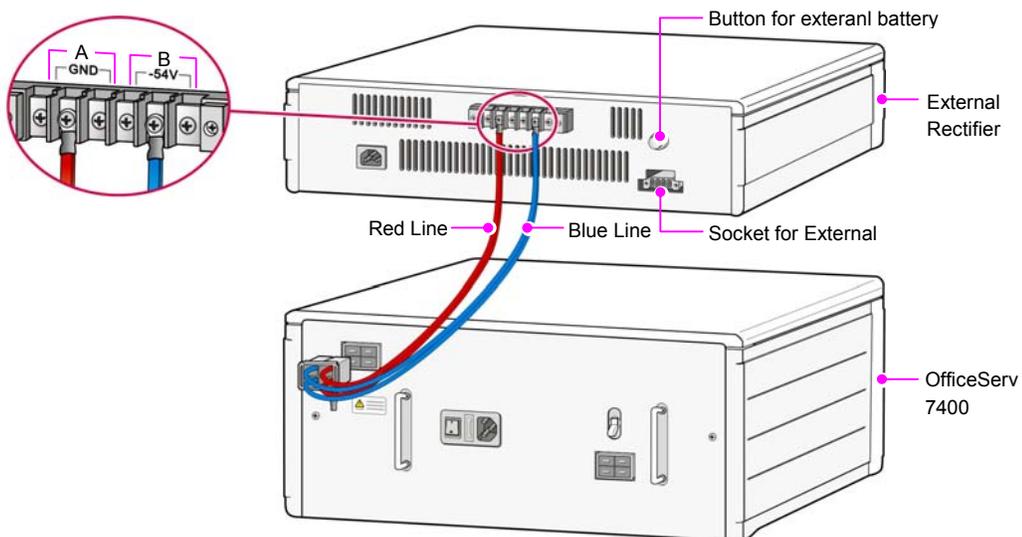


Figure 4.3 Connecting an External Rectifier

- 4) Connect the other end of the power cable to the socket of external rectifier for the OfficeServ 7400 system.
- 5) Power on the system.
- 6) Power on the external rectifier.



NOTE

External Battery connected to an External Rectifier

An external battery connected to an external rectifier should have the same capacity as that of the OfficeServ 7400 system. In addition, the procedure and the cautions to connect are, also, same. For detailed information on the capacity of the external battery, refer to '4.1 connecting External Batteries' in this chapter.



CAUTION

Caution for when connecting rectifier

It is for the PoE connecting terminal, do not connect the emergency battery.

CHAPTER 5. Connecting the Power

This chapter describes how to connect power to the OfficeServ 7400 system.

5.1 Cautions when Connecting Power

When input power is normally supplied, the AC power is supplied to the Power Supply Unit(PSU), which charges the external battery. If the input power is interrupted, the system can be operated using the charged power of the external battery.

Cautions to be taken when connecting power to the OfficeServ 7400 system are as follows:

- AC power of the system supports 110V, 220 V(Free Voltage).
- Make sure that the input power of the OfficeServ 7400 is within the range of AC 100~240 V and other electric devices, such as motors and compressors, do not use the same input power.
- A single AC outlet should be used solely for the system's AC power. Sharing the AC power with other devices can cause noise or a voltage drop, resulting in a system malfunction or fire.
- Use a stable power source that can always supply AC power since instantaneous power failures can cause malfunctions or battery failures. Procedure for Connecting Power.

5.2 Connecting the Power

Single cabinet configuration

Use the power cable provided with the OfficeServ 7400 system to connect the input power terminal on the back panel of the basic cabinet to a grounded outlet

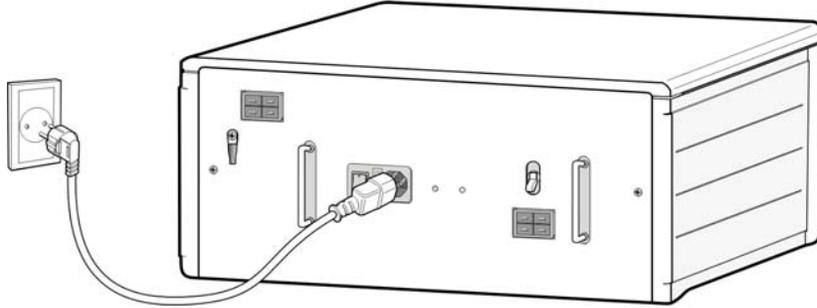


Figure 5.1 Connecting the Power (use of a cabinet)

Basic + Expansion Cabinet Configuration

The connection procedure depends on the environment of the installation area as shown below. Select a procedure according to your environment.

- Connect each input power cable of the cabinets to a grounded outlet.

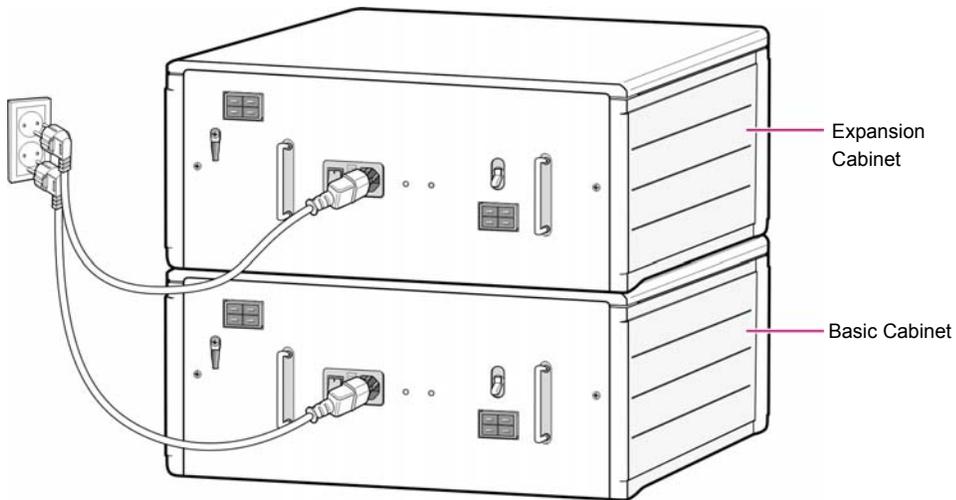


Figure 5.2 Connecting the Power (connecting each cabinet)

CHAPTER 6. Connecting C.O. Lines

This chapter describes how to connect C.O. lines to the OfficeServ 7400 system after installation.

6.1 Line Conditions

Cautions for connecting C.O. lines are as follows:

- Cables with AWG #24 or AWG #26 width should be used as subscriber lines.
- When wiring cables in high-humidity areas, remove moisture before wiring.
- Cables should be handled carefully to prevent any changes or damages.
- Subscriber lines should be kept indoors if possible.
- Do not cable subscriber lines around any high-voltage power line.

Leak resistance for C.O. lines connected to the OfficeServ 7400 system is as follows:

Table 6.1 Conditions of OfficeServ 7400 Line

Line Condition	Leak Resistance
Leak Resistance between Lines	20 k Ω or higher
Leak Resistance Between Grounds	20 k Ω or higher

6.2 Connecting C.O. Lines

This section describes how to connect a common C.O. line(8TRK board) and T1/E1/PRI C.O. lines(TEPRI/TEPRI2 board).

6.2.1 Cautions when Connecting C.O. Lines

Cautions for preventing bodily injuries and system damages when connecting C.O. lines are as follows:

- Do not connect C.O. lines in extreme weather conditions such as storm and lightning.
- Do not connect C.O. lines in areas with moisture.

6.2.2 Connecting Common C.O. Lines

Use a pair of cable with AWG #24(or AWG #26) width to connect a common C.O. line to the terminal pin of a terminal box connected to the OfficeServ 7400 system equipped with a 8TRK board.



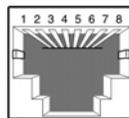
P1-P8 Ports
(RJ-45)

Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	C.O TIP	C.O RING	-	-	-

Figure 6.1 RJ-45 Port of 8TRK Board

6.2.3 Connecting T1/E1/PRI

TEPRI/TEPRI2 boards can be connected to a T1/E1 C.O. line through a RJ-45 port. As shown below, connect a T1 type C.O. line or an E1 type PRI C.O. line to the T1/E1/PRI port of the TEPRI/TEPRI2 built in the OfficeServ 7400 system.



T1/E1/PRI Port
(RJ-45)

Pin No.	1	2	3	4	5	6	7	8
E1 Mode Function	-	-	-	Tx+	Tx-	-	Rx-	Rx+
T1 Mode Function	Rx+	Rx-	-	Tx+	Tx-	-	-	-

Figure 6.2 RJ-45 Port of TEPRI/TEPRI2 Board

CHAPTER 7. Connecting Stations and Additional Equipment

This chapter describes how to connect various stations and additional equipment, such as analog/digital phones, door phones and door locks, to the OfficeServ SME system.

7.1 Connecting Stations

7.1.1 Cautions for Connecting Stations

Take the following cautions when connecting stations:

- Do not connect stations in weather conditions such as storm and lightning.
- Do not connect stations in a humid area.
- Comply with the manual of the station and with this document when reconnecting stations or changing connections.
- Connect stations to a pair of #24 AWG or #26 AWG cables.

The distances between stations and the OfficeServ SME system are as follows:

Table 7.1 Distance Between Stations and the System

Station	Distance
Digital Phone	Maximum 400 m(for AWG #24)
Analog Phone	Maximum 1000 m(for AWG #24)
Door Phone	Maximum 400 m(for AWG #24)
AOM	Maximum 400 m(for AWG #24)
WBS24	Maximum 600 m(for 0.64 twisted cable) Maximum 400 m(for 0.40 twisted cable)

7.1.2 Connecting Analog Phones

Connect an analog phone to the 8SLI, 16SLI, 16SLI2, 8HYB or 8HYB board mounted on the OfficeServ 7400 system.

Connecting to a 8SLI Board

Connect an analog phone to the ports of a 8SLI board by using a pair of AWG #24 or AWG #26 cables.

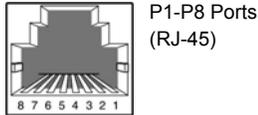


Figure 7.1 RJ-45 Port of 8SLI Board

P1 Port

Pin No.	1	2	3	4	5	6	7	8
Function	PFT TIP	PFT RING	-	SLI TIP	SLI RING	-	-	-

P2-P8 Ports

Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	SLI TIP	SLI RING	-	-	-

Connecting to a 16SLI Board

Connect an analog phone to the ports of a 16SLI board by using a pair of AWG #24 or AWG #26 cables.

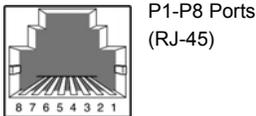


Figure 7.2 RJ-45 Port of 16SLI Board

P1 Port

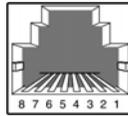
Pin No.	1	2	3	4	5	6	7	8
Function	PFT TIP	PFT RING	-	SLI 1 TIP	SLI 1 RING	-	SLI 9 TIP	SLI 9 RING

P2-P8 Ports

Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	SLI 2 TIP	SLI 2 RING	-	SLI 10 TIP	SLI 10 RING

Connecting to a 16SLI2 Board

Connect an analog phone to the 16SLI2 board by using a pair of AWG #24 or AWG #26 cables to P1 through P8.



P1-P16 Ports
(RJ-45)

Figure 7.3 RJ-45 Port of 16SLI2 Board

P1 Port

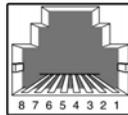
Pin No.	1	2	3	4	5	6	7	8
Function	PFT TIP	PFT RING	-	SLI 1 TIP	SLI 1 RING	-	-	-

P2-P16 Ports

Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	SLI 2 TIP	SLI 2 RING	-	-	-

Connecting to a 8HYB Board

Connect an analog phone to the ports of a 8HYB board by using a pair of AWG #24 or AWG #26 cables.



P1-P8 Ports
(RJ-45)

Figure 7.4 RJ-45 Port of 8HYB Board (for Analog phone)

Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	SLI TIP	SLI RING	-	-	-

Connecting to a 8HYB2 Board

Connect an analog phone to the ports of 8HYB2 board by using a pair of AWG #24 or AWG #26 cables.



Figure 7.5 RJ-45 Port of 8HYB2 Board (for Analog phone)

P1-P8 Ports

Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	SLI TIP	SLI RING	-	-	-

7.1.3 Connecting Digital Phones

Connect a digital phone to 8DLI, 16DLI, 16DLI2, 8HYB and 8HYB2 board.

Connecting to a 8DLI Board

Connect a digital phone to the ports of a 8DLI board by using a pair AWG #24 or AWG #26 cables.

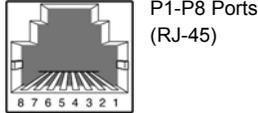


Figure 7.6 RJ-45 Port of 8DLI Board (for digital phone)

Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	DLI TIP	DLI RING	-	-	-

Connecting to a 16DLI Board

Connect a digital phone to the ports of the 16DLI board by using a pair AWG #24 or AWG #26 cables.

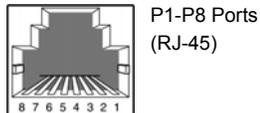


Figure 7.7 RJ-45 Port of 16DLI Board (for digital phone)

Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	DLI 1 TIP	DLI 1 RING	-	DLI 9 TIP	DLI 9 RING

Connecting to a 16DLI2 Board

Connect a digital phone to the ports of the 16DLI2 board by using a pair AWG #24 or AWG #26 cables.

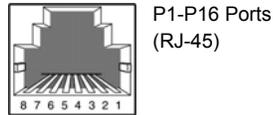


Figure 7.8 RJ-45 Port of 16DLI2 Board (for digital phone)

Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	DLI TIP	DLI RING	-	-	-

Connecting to a 8HYB Board

Connect a digital phone to the ports of the 8HYB board by using a pair AWG #24 or AWG #26 cables.

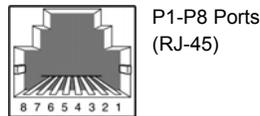


Figure 7.9 RJ-45 Port of 8HYB Board (for digital phone)

Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	-	-	-	DLI TIP	DLI RING

Connecting to a 8HYB2 Board

Connect a digital phone to the ports of the 8HYB2 board by using a pair AWG #24 or AWG #26 cables.



Figure 7.10 RJ-45 Port of 8HYB2 Board (for digital phone)

Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	DLI TIP	DLI RING	-	-	-



CHECK

Maximum number of DS-5012L phones connectable

Up to eight DS-5012L phones can be connected to each DLI board(8DLI/16DLI) of the OfficeServ 7400 system. If more than eight DS-5012L phones are connected to the DLI board, the power for all digital phones connected to the same board is blocked automatically. Up to 24 DS-5012L phones can be connected to the basic cabinet or the expansion cabinet.

7.1.4 Connecting IP Phones

IP phone is a phone that provides calls through Ethernet LAN. The interface between a digital phone connected to the OfficeServ 7400 system and an IP phone connected to LAN is as follows:

- 1) The connection between a digital phone and an IP phone is established or released using the IP address of the LAN connected to the OfficeServ 7400 system.
- 2) The digital phone connected to the OfficeServ 7400 system converts the analog voice data to PCM voice data and transmits the data to the MGI board via through 16 DLI board.
- 3) PCM voice data is converted to packet data by the MGI/MGI64 board and transferred to the IP phone.
- 4) The IP phone converts packet voice data to analog voice signals and displays the signals through a phone receiver or a speaker.
- 5) Voice signals from the IP phone is converted to packet data and transmitted to the MGI board in the same way.
- 6) The MGI/MGI64 board converts the packet voice data to PCM voice data and transmits the data to the digital phone through the 16DLI board.
- 7) The digital phone converts and sends the PCM voice data to analog data.

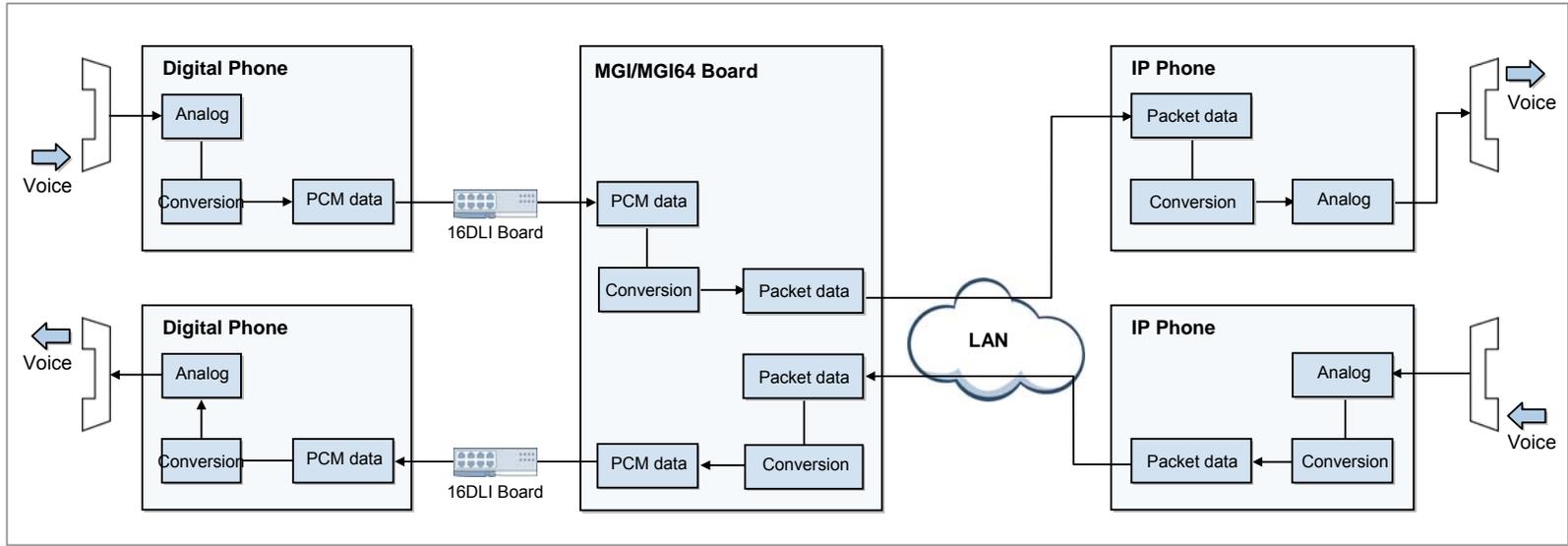


Figure 7.11 Signal Transfer of IP Phones

Therefore, IP phones must be supported by the MGI/MGI64 board, which allows to access LAN. Use the IP phone after the proper MMC setting.

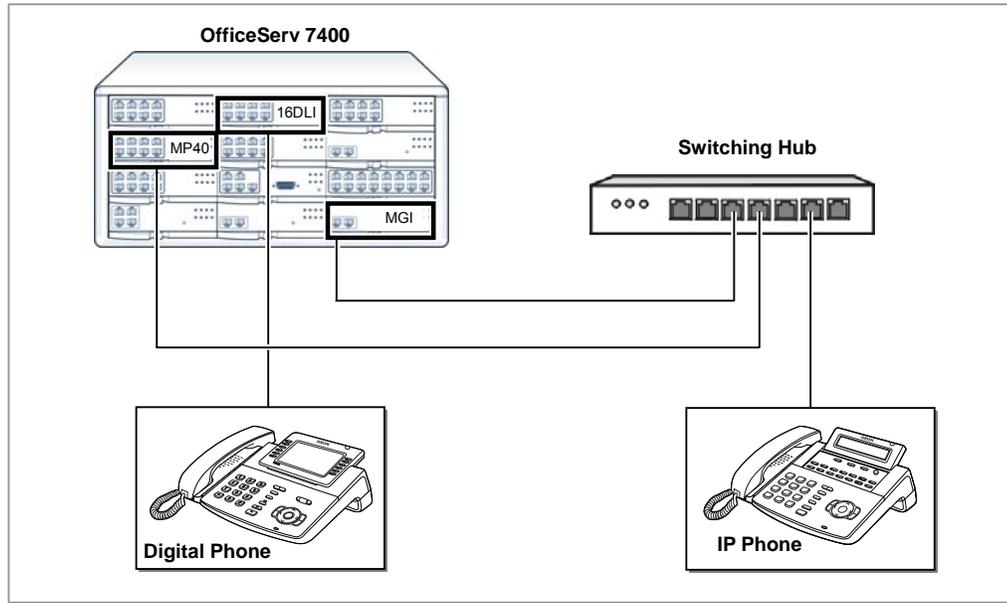


Figure 7.12 Connection of IP Phones

7.1.4.1 Connecting Boards to Ethernet

GWIM/GSIM/GLIMP/WIM/LIM/LIM-P/4DSL/MGI/MGI64/MP40/LP40/TEPRI2/SVMi-20E board can be connected to Ethernet by using an Ethernet cable.

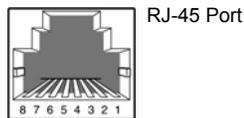


Figure 7.13 RJ-45 Port of Ethernet Connection Board

- LIM Board - All ports(P1~P16)
- GWIM Board - All ports(P1, P2, P3)
- GSIM Board - All ports(P1~P10)
- GLIMP Board - All ports(P1~P14)

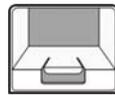
Since all ports of GWIM and GSIM and Up Link port (P13, P14) of GLIMP only support the SFP type of 1000Base SX/LX/TX, in order to connect the 10/100 BaseT with the RJ45 Connector, use P1~P12 port of GLIMP.

- 4DSL Board - Up Link port(LAN)
- MP40, LP40, MGI, MGI64, TEPRI2 and SVMi-20E Boards-LAN port

Pin No.	1	2	3	4	5	6	7	8
Function	Tx+	Tx-	Rx+	-	-	Rx-	-	-

The use of LIM port as an Uplink required the use of a twisted LAN cable.

7.1.4.2 Mounting Gigabit module of Switching board



RJ-45 포트

GLIMP, GSIM, GWIM boards provide Gigabit Interface, and by using the SFP (Small Form-factor Pluggable) Connector, support all 1000BASE-TX/SX/LX. Therefore, it is important to mount the correct specification of Gigabit Interface Module, and connect each other with the same kind of cables.

- 1000BASE-TX SFP Module - UTP Cable
- 1000BASE-SX - MMF Optic Cable
- 1000BASE-SX - SMF Optic Cable

7.1.5 Connecting an Wireless LAN Access Point

Wireless LAN service offered by the OfficeServ 7400 system requires the following equipment: 4WLI board:

- WLI Board: A board mounted on the OfficeServ 7400 system for WBS24 connection
- WBS24: Wireless LAN Access Point(AP)
- WIP-5000M: Wireless LAN IP phone

Table 7.2 Specification for Wireless LAN Equipment Connection

Items	OfficeServ 7400 System (Both of Basic Cabinet and Basic + Expansion Cabinet.s)
Numbers of 4WLI Boards	3
Max. Numbers of WBS24	12
Max. Numbers of Users	120
Numbers of Simultaneous Users	48



NOTE

Installation and Usage of WBS 24 and WIP-5000M

For information on how to install and use WBS24 and WIP-5000M, refer to 'OfficeServ Wireless LAN Service Manual' and 'WIP-5000M User Guide'.

Connect the 4WLI board and WBS24 by using two 0.64 mm twisted cables(RJ-45 Ethernet cable, 600 m maximum distance) or two 0.40 mm twisted cables(RJ-45 Ethernet cable, 400 m maximum distance).

Wiring Diagram between 4WLI and WBS24

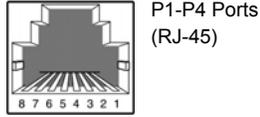


Figure 7.14 RJ-45 Port of 4WLI Board

Table 7.3 Wiring between 4WLI and WBS24

Pin No. of WBS24 Port	WBS24 No.	Signal	Pin No. of 4WLI Port
4	1	D Channel Data	4
5			5
3		Sync. Line	3
6			6
4	2	D Channel Data	4
5			5
3		Sync. Line	3
6			6
4	3	D Channel Data	4
5			5
3		Sync. Line	3
6			6
4	4	D Channel Data	4
5			5
3		Sync. Line	3
6			6

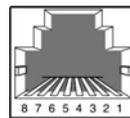
For cable connection, use the cable that #3~#6 and #4~#5 are twisted.

7.1.6 Connecting to a Door Phone and a Door Lock

Connect a door phone and a door lock to the OfficeServ 7400 system by using a Door Phone Interface Module(DPIM).

- 1) Connect a pair of #24 AWG or #26 AWG cables to the LINE port of DPIM and to P1-p8 ports of 8DLI/16DLI/16DLI2/8HYB/8HYB2 board of the OfficeServ 7400 system.

Connecting to a 8DLI Board

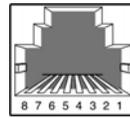


P1-P8 Ports
(RJ-45)

Figure 7.15 RJ-45 Port of 8DLI Board (for Door Phone)

Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	DLI TIP	DLI RING	-	-	-

Connecting to a 16DLI Board

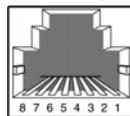


P1-P8 Ports
(RJ-45)

Figure 7.16 RJ-45 Port of 16DLI Board (for door phone)

Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	DLI 1 TIP	DLI 1 RING	-	DLI 9 TIP	DLI 9 RING

Connecting to a 16DLI2 Board

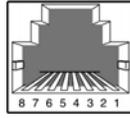


P1-P16 Ports
(RJ-45)

Figure 7.17 RJ-45 Port of 16DLI2 Board (for door phone)

Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	DLI TIP	DLI RING	-	-	-

Connecting to a 8HYB Board

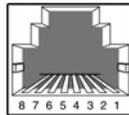


P1-P8 Ports

Figure 7.18 RJ-45 Port of 8HYB board (for door phone)

Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	-	-	-	DLI TIP	DLI RING

Connecting to a 8HYB2 Board



P9-P16 Ports

Figure 7.19 RJ-45 Port of 8HYB2 Board (for door phone)

Pin No.	1	2	3	4	5	6	7	8
Function	-	-	-	DLI TIP	DLI RING	-	-	-

- 2) Connect the Door Box port of the DPIM to the Line port of the door phone.
- 3) When using an automatic door lock, connect the Lock port of the DPIM and the door phone contact point to the door lock.

The door lock contact point is designed to control low-voltage relay and uses 24 VDC and 100 mA. MMC



NOTE

MMC Related

MMC 211 is used to assign call numbers to door phones

For detailed information on the program, refer to 'OfficeServ 7400 Programming Manual' in e-manual site(<http://www.samsungdocs.co.kr>) of SAMSUNG Electronics Co., Ltd.

7.1.7 Connecting KDB-D/KDB-S

KDB-D and KDB-S are modules installed on a digital phone connected to the OfficeServ 7400 system. The KDB module enhances the functions of the phone and increases the number of local ports according to module types.



CHECK

Cautions for connecting KDB module

KDB-D and KDB-S is only for a digital phone connected to the 8DLI board, not for a digital phone connected to the 16DLI/16LDI2/8HYB/8HYB2 board

The following example shows how a KDB module is installed on a DS-5000D series digital phone:

- 1) Take off the plastic cover on the bottom surface of the phone.

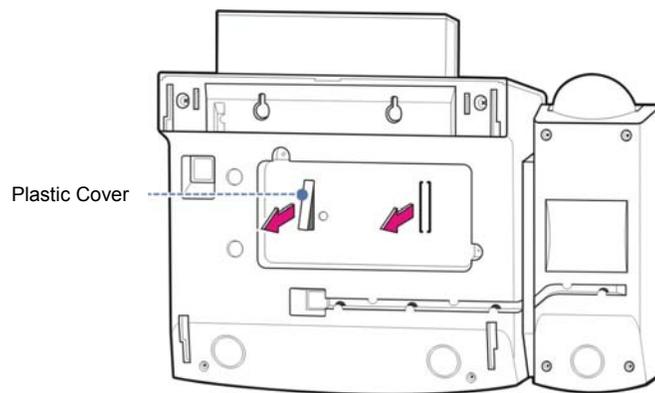


Figure 7.20 Installing KDB Module (1)

- 2) Insert the KDB module into the expansion module connector, and fasten the KDB with screws.

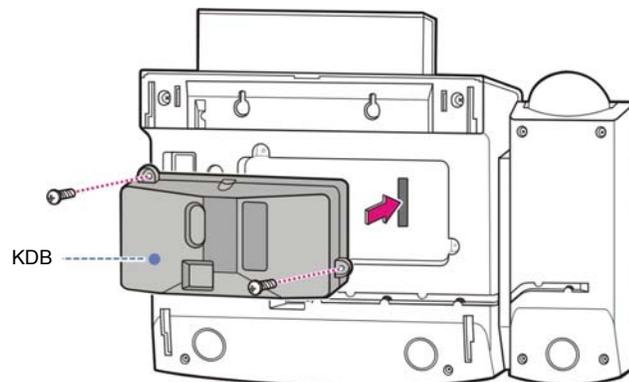


Figure 7.21 Installing KDB Module (2)

7.2 Connecting Additional Equipment

This section describes how to connect optional equipment, such as Music on Hold(MOH)/Background Music(BGM) sources, external page devices, common bells, and PCs for PCMMC/SMDR/CTI, to the OfficeServ 7400 system.

7.2.1 Connecting MOH/BGM Equipment

The OfficeServ 7400 system offers music when while on hold.

The system provides internal tone/music and external music sources per C.O. or extension lines as the music source.

Two external music sources are offered while on hold. Connect the music sources to the MISC port of the LP40 board. At this time, a MIS optional board should be mounted on the LP40 board.

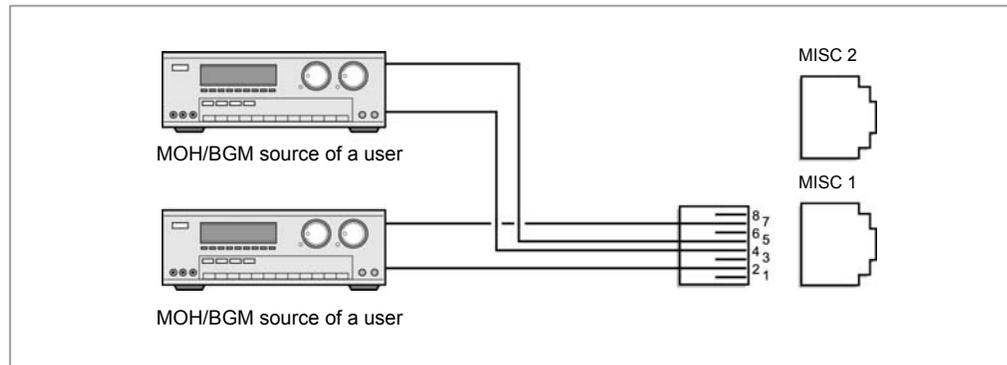


Figure 7.22 Connecting MOH/BGM Sources



NOTE

MMC Related

Select music sources for C.O. lines through MMC 408 and music sources for extensions through MMC 308

For detailed information on the program, refer to 'OfficeServ 7400 Programming Manual' in e-manual site(<http://www.samsungdocs.co.kr>) of SAMSUNG Electronics Co., Ltd.

7.2.2 Connecting External/Additional Page Equipment

Instead of an internal speaker, external broadcasting equipment, such as amps or speakers, and additional equipment that can broadcast page(ring) signals outside a building can be connected to the OfficeServ 7400 system.

Connect external/additional page equipment to the MISC1 and MISC2 ports of the LP40 board. The MIS optional board should have been mounted on the LP40 board. The power of the external/additional page equipment should be separately connected.

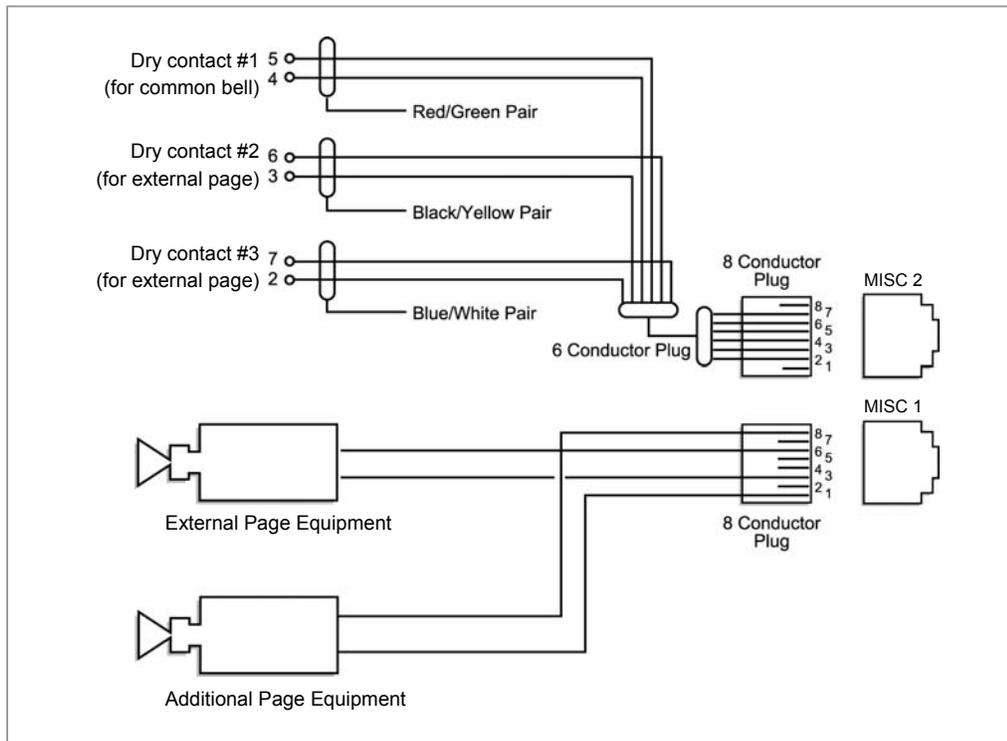


Figure 7.23 Connecting External/Additional Page Equipment



NOTE

Dry Contact

Dry Contact is a switch that can connect or cut the power or line to external equipment.

7.2.3 Connecting Common Bell

Common Bell is the ring type. So, when a ring is received through an extension of a group, all extensions of the group also receive the ring.

Using common bell is required to connect the common bell to the MISC1 and MISC2 ports of the LP40 board. At this time, a MIS optional board should be mounted on the LP40 board.

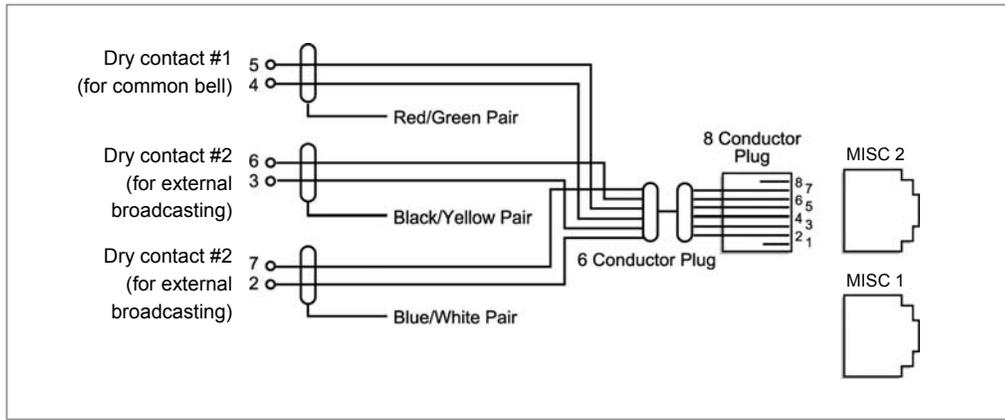


Figure 7.24 Connecting Common Bells

7.2.4 Connection OfficeServ WebMMC

The OfficeServ WebMMC is a web application program to provide various functions for system maintenance through WebMMC software when installing new system elements and change them, or modify the system database.

Refer to the OfficeServ WebMMC user’s manual for the additional information of detail installation and the use.

7.2.5 Connecting SMDR

The Station Message Detail Recording(SMDR) computer is used for recording call information and for calculating phone bills or displaying various analysis data based on the call data provided by the system.

The SMDR computer can be connected via the LIM board built in the OfficeServ 7400 system or an external LAN port.

SMDR system specification is as follows:

Table 7.4 Specification of SMDR System

Category	Specification
Platform	IBM PC
CPU	Pentium 586 or higher
Operating System	Windows 95/98 or later
Main Memory	32 MB or more

If LAN is established within the firm, connect LAN to the LAN port of the MP40 board and a SMDR computer to the LAN. IF separate LAN is not established, connect the SMDR computer to the LAN port of the LIM board.

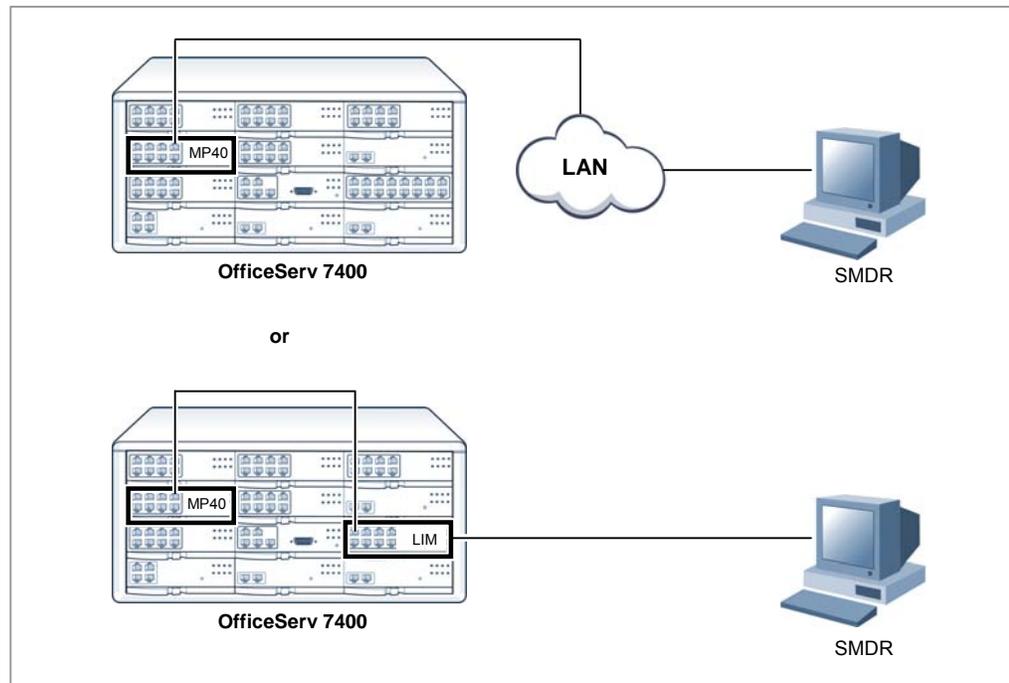


Figure 7.25 Connecting SMDR

7.2.6 Connecting Printers

The OfficeServ SME system can connect to printers. The system can print various call information or event information created by the system.

If LAN is established within the firm, connect LAN to the LAN port of the MP40 board and a printer to the LAN. IF separate LAN is not established, connect the printer to the LAN port of the LIM board.

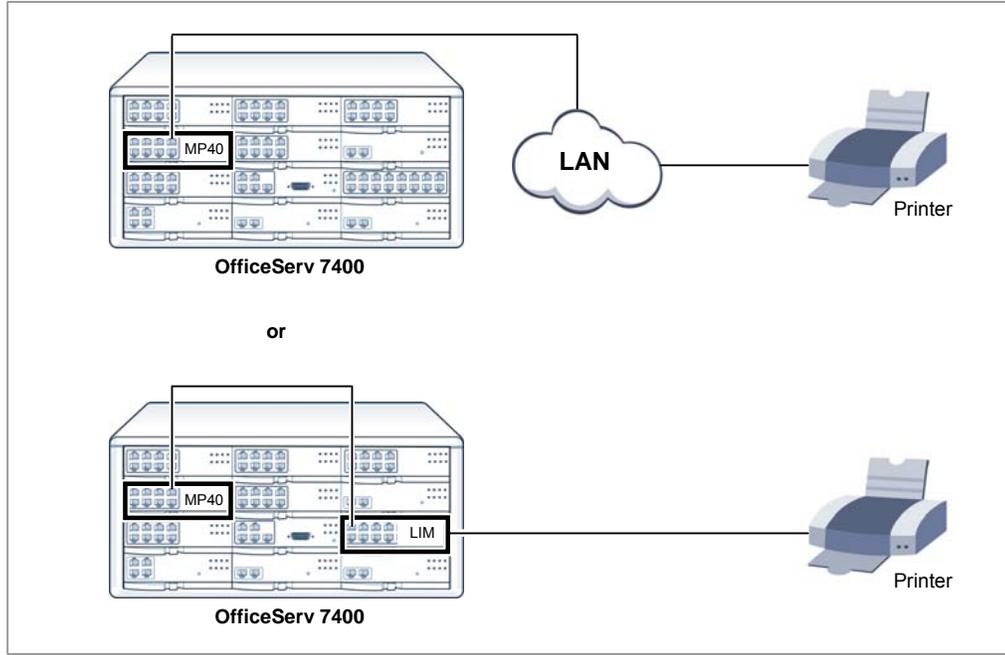


Figure 7.26 Connecting Printer



NOTE

MMC Related and Print Setting

- After connecting a printer, execute MMC 804 and enter the I/O port through which the printer is connected
- For the method to connect to the network, refer to print user's manual.
- For detailed information on the program, refer to 'OfficeServ 7400 Programming Manual' in e-manual site(<http://www.samsungdocs.co.kr>) of SAMSUNG Electronics Co., Ltd.

CHAPTER 8. Starting the System

This chapter describes items to check before starting the OfficeServ 7400 system, the procedure for starting the system, and the procedure to test the operation of the system.

8.1 Pre-Check

This section describes items to check before starting the OfficeServ 7400 system.

8.1.1 Environment

- **Temperature**
Check if the room temperature is between 0°C and 45°C. If the room temperature is out of range from the normal operation temperature, install a heating/cooling device to maintain the normal operation temperature.
- **Humidity**
Check if the humidity of the room where the system is installed is between 10% and 90%. Take special caution since humidity affects the electrical components and connectors of the system.
- **Direct Sunlight and Dust**
The room where the OfficeServ 7400 system is installed should be protected from direct sunlight and should have ventilation systems to prevent the system from malfunctioning due to dusts.

8.1.2 Safety Conditions

The building where the OfficeServ 7400 system is installed should have lightning rods and grounding to protect the system against lightning and electric leakage.

- Check if the OfficeServ 7400 system is not inclined and is maintained horizontally.
- Do not place devices that may cause electromagnetic interference near the system.
- Place a fire extinguisher near the system. Since spring coolers can seriously damage the system, use extinguishers such as Halon 1301 and Carbon Dioxide.
- Make sure that the input power of the OfficeServ 7400 system is within the range of AC 100~240 V and other electric devices, such as motors and compressors, do not use the same input power.
- Check if the grounding terminal on the rear panel of the system is properly connected to the external grounding.

8.2 Starting the System

The procedure for starting the OfficeServ 7400 system is as follows:

- 1) Check if the boards and cables are properly mounted and connected to the OfficeServ 7400 cabinet.
- 2) Turn on the power of the OfficeServ 7400 basic cabinet, and turn on the power of the expansion cabinet.
- 3) Check the LEDs of the MP40 and LP40 boards.

The RUN LED of the MP40 board lights green and the SM LED flashes when the system normally starts the booting process.

Once the booting is complete, the RUN LED of the MP40 board flashes green, and the SM LED stops flashing and remains lighted.

The RUN LED of the LP40 board flashes when the power supply and processor status of the expansion rack is normal.



NOTE

If the Smart Media is not detected

If the system cannot detect the smart media, the SM LED of the MCP board might not light or flash. In such cases, turn off the power of the basic cabinet, replace the smart media and turn the power on again.

- 4) Check if the LED statuses of other interface boards are normal.
- 5) If the LED status of a MP40, LP40, or interface board is abnormal, turn off the power of the cabinet and turn the power on again.



NOTE

Board LED Status & Shut-down

- Refer to the 'OfficeServ SME System Manual' for LED statuses of each board
- Shut-down is hardly required while operating the OfficeServ SME system. However, when shutting down the system due to reasons such as moving the system, turn off the power of the expansion cabinet, and turn off the power of the basic cabinet

8.3 Numbering Extensions and C.O. Lines

Once the OfficeServ 7400 system is booted, the MP40/LP40 board verifies the boards mounted on each slot and saves this information as the default configuration of the system.

According to the setting of the S2 switches(SW6, SW7 and SW8) of the MP40 board, the OfficeServ SME system assigns 3 or 4 digits to C.O. lines, extensions, and extension groups. Refer to '3.2 Mounting Control Boards' of this manual for details on setting the S2 switch.

C.O. line numbers from 701 or 7001 are sequentially assigned to the C.O. line board mounted on Slot 1 of the basic cabinet, and following numbers are continuously assigned to the next board of the next slot. This numbering process continues until the C.O. line numbers are assigned to all C.O. lines. However, only the numbers from 701 to 799 are assigned when using 3 digits. For example, if a 8TRK board is mounted on Slot 1 and a 8TRK board is mounted on Slot 2, 701 is assigned to the C1/S1/P1 port and 712 is assigned to the C1/S2/P4 port.(The 12th C.O. line is assigned to the 4th port of the 2nd slot of the 1st cabinet.)

Extension numbers from 201 or 2001 are sequentially assigned to the extension board mounted on Slot 1 of the basic cabinet, and following numbers are continuously assigned to the next extension board of the next slot. This numbering process continues until the extension numbers are assigned to all extensions. However, only the numbers from 201 to 349 are assigned when using 3 digits.

The last port of the first 8DLI or 16DLI board is assigned to the attendant group as default. All C.O. lines ring this attendant extension unless the default value is changed. Thus, a phone with an LCD panel should be connected to the last port of the first 8DLI board.

Numbers between 500-549 or 5001-5049 are assigned to an extension group.

The numbers of C.O. lines, extensions, or extension groups can be changed using the MMC 724 program.

8.4 Checking System Operation

After starting the OfficeServ 7400 system, check if the system is operating normally.

Check if the basic functions of the OfficeServ 7400 system, such as Station Call, Station Camp-On, C.O. Line Call, and C.O. Line Camp-On are properly executed.

8.4.1 Station Call Function

First, follow the procedure below and check if calls between stations are enabled:

- 1) Lift the handset of a station.
Verify the intercom dial tone.
- 2) Press an extension number.
Check if the dial tone stops.
- 3) Press all extension numbers.
Verify the ring back tone.
- 4) Once the recipient answers the call, check the call status.
- 5) Hang up the phone and call a busy station.
Verify the busy tone.

8.4.2 Station Camp-On Function

If a caller dials a number and the recipient is busy, this function automatically connects the recipient and the caller right after the recipient hangs up the call.

Follow the procedure below and check the Station Camp-On function:

- 1) Lift the handset of the test phone and dial a busy station.
Verify the busy tone.
Upon verifying the busy tone, press the hook flash button.
Check if the busy tone stops.
- 3) Press the reservation code.
Verify the confirmation tone.
- 4) Lift the handset of the test phone and dial a busy station.
Check if the test phone rings.
- 5) Lift the handset of the test phone.
Check if the ring stops and confirm the ring-back tone.
Check if the other phone rings.
- 6) Lift the handset of the other phone.
Check if the other phone stops to ring, if the ring-back tone of the test phone stops, and if the parties are normally connected.

8.4.3 C.O. Line Call Function

Follow the procedure below and check if outside calls are normally connected.

- 1) Lift the handset of the test phone.
Verify the intercom dial tone.
- 2) Press the C.O. line call code.
Verify the C.O. line dial tone.
- 3) Check if an error tone is activated for phones that do not support C.O. line calls.
- 4) Press an external number.
Verify the ring back tone.
- 5) Once the call is connected, check the call status.

8.4.4 C.O. Line Camp-On Function

If a caller presses a C.O. line code to make an outside call and all C.O. lines are busy, this function reserves a C.O. line and notifies the caller if the C.O. line becomes available.

Follow the procedure below and check the C.O. Line Camp-On function.

- 1) Lift the handset of the test phone and press a C.O. line code.
Verify the C.O. line dial tone.
- 2) Check if a busy tone rings when all C.O. lines are busy.
- 3) Upon verifying the busy tone, press the hook flash switch of the test phone.
Check if the busy tone stops.
- 4) Press the code number of the C.O. line Camp-On function.
Verify the confirmation tone.
- 5) Replace the handset of the test phone and make the C.O. line idle.
Check if the test phone rings and if the C.O. line becomes busy.
- 6) Lift the handset of the test phone.
Check if the test phone stops to ring and verify the intercom dial tone and the C.O. line dial tone.

8.4.5 Fan Operation

The system has the function to power off DC 48 power and the system operation after 24 hours to prevent from the overheat of the system if the fan connected to the system is not working. This function is a function that manages the system via program setup by providing the pre-alarm to the extension within 24 hours.

The procedure to set the function is as follows:

- 1) Specify the SYSALM key in MMC722, initially. Set the specified key to the digital manager phone.
- 2) If an alarm occurs in the phone, the reason for the alarm is displayed in MMC851. MJA08 is the message to tell the malfunction of the fan and inform that the system will be turned off after 24 hours.

If this alarm occurs, the fan should be replaced within 24 hours.



ABBREVIATION

A

AC	Alternating Current
AFT	Automatic Function Test
AOM	Add On Module
AP	Access Point
AWG	American Wire Gauge

C

CTI	Computer Telephony Integration
-----	--------------------------------

D

DC	Direct Current
DLI	Digital Line Interface
DPIM	Door Phone Interface Module
DSL	Digital Subscriber Line

G

GND	Ground
-----	--------

H

HYB	Hybrid
-----	--------

I

IP	Internet Protocol
----	-------------------

K

KDB	Keypad Daughter Board
-----	-----------------------

L

LAN	Local Area Network
LCD	Liquid Crystal Display
LP40	Local Control Processor 40
LED	Light Emitting Diode
LIM	LAN Interface Module

M

MP40	Main Control Processor 40
MGI	Media Gateway Interface
MGI64	Media Gateway Interface 64channel
MMC	Man Machine Command
MIS	Miscellaneous
MFM	Multi-Frequency Module

P

PC	Personal Computer
PCM	Pulse Code Modulation
PCMMC	PC based Man Machine Communication
PRI	Primary Rate Interface
PSU	Power Supply Unit

R

RCM	R2 CID Module
-----	---------------

S

SLI	Single Line Interface
SMDR	Station Message Detail Recording
SME	Small Medium Enterprise

T

TEPRI	T1E1PRI
TEPRI2	T1E1PRI 2port
TRK	Trunk

U

UTP	Unshielded Twisted Pair
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V

VLAN	Virtual Local Area Network
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W

WAN	Wide Area Network
WBS	Wireless Base Station
WIM	Wide Area Network Interface Module
WIMD	WAN Interface Module Daughter board
WIP	Wireless IP Phone
WLI	Wireless LAN Interface

OfficeServ 7400
Installation Manual

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