OfficeServ™ 7000

General Description

Software Version 4.9x

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Revision History

Revised	Remarks
August 2015	Updated for launch of v4.91, v4.92 software and new SMT i6011 & i6021 IP Phones
April 2015	Updated section 4.13 TCP/UDP Port Numbers table
December 2014	Original Document for launch of V4.8x software

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Introduction

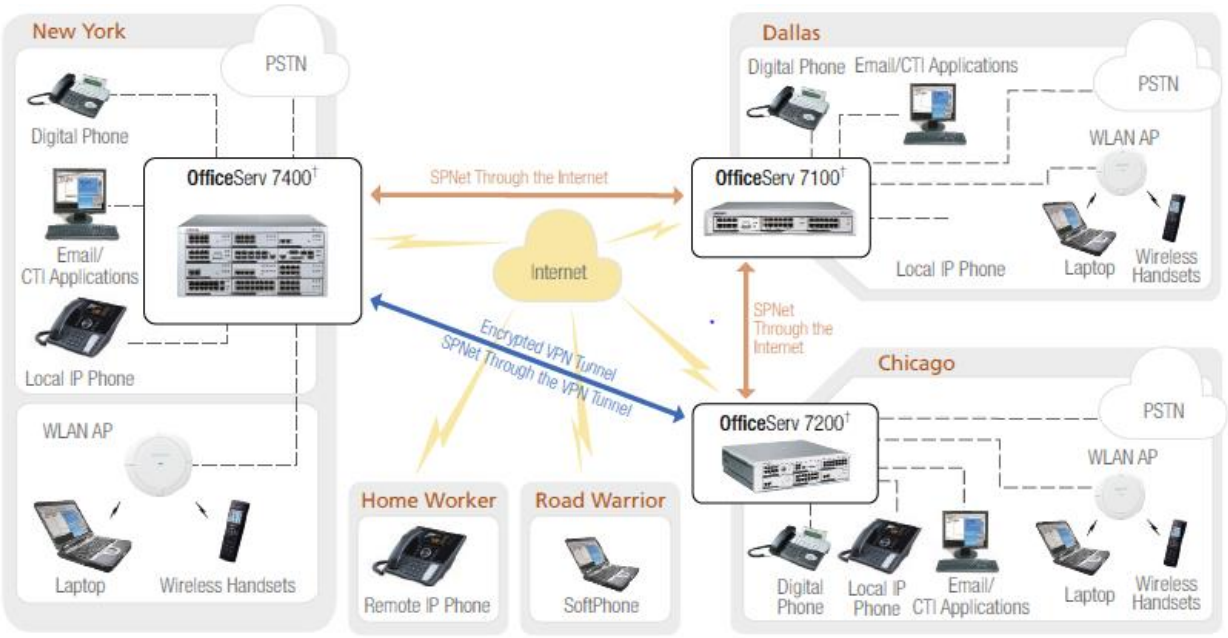
Unleash the power of your business with the multitasking technology of Samsung's OfficeServ 7000 Series. Used alone or as a part of a connected multi-site network among main offices, smaller branches and remote workers, this unified system puts the power of a convergence into the hands of today's growing businesses.

The OfficeServ 7000 family converges wired, wireless and VoIP technologies within the same platform. Choose the model from one of five platforms that is scaled to meet your business needs.

	MAXIMUM VOICE CAPACITIES	HYBRID CONFIGURATIONS				
		7030	**7100**	**7200-S**	**7200**	**7400**
STATIONS	Wireless Handsets	16	56	64	128	192
	Analog Phones	10	32			480
	Digital Phones	8	32			
	Samsung IP Phones/Softphones	16	56			
	3rd Party SIP Phones	16				
	WE VoIP Clients	16	32	56	56	224
	Maximum Stations	**16**	**56**	**64**	**128**	**480**
TRUNKS	Standard SIP Trunks	8	64	32	64	256
	Standard H.323	-	24	24	32	64
	Analog Trunks	4	20	32	64	240
	Digital Trunks PRI	-	23	60	60	
	Networking Trunks (SPNet)	8	64	32	64	224
	Maximum Trunks	**8**	**64**	**60**	**64**	**240**
	Maximum Stations + Trunks	**24**	**120**	**108**	**188**	**688**
VM	Voice Mail – In-skin	2	4	6	20	20
	Voice Mail – IP-UMS Server	-	-	-	32	128

This table is subject to change without notice

Larger enterprises benefit by deploying a network of OfficeServ systems using Samsung's proprietary network protocol (SPNet) over an IP Network using the perfect size system for each office.



1 System Overviews

1.1 OfficeServ 7030 System

1.1.1 General Description

Figure 1.1.1

The OfficeServ 7030 is an “office in a box” solution that converges IP with the 99.999% reliability of TDM voice processing. The OfficeServ 7030 platform supports industry standard Voice over Internet Protocol (VoIP), Session Initiation Protocol (SIP) as well as the more robust Telephony over IP (ToIP). Combine these technologies with Samsung’s Wireless LAN IP Handsets, smart phone soft client application, embedded Voice Mail Application, a suite of OfficeServ Computer Telephony applications, and much more, all in one powerful platform….A COMPLETE VOICE SOLUTION FOR THE OFFICE.

The OfficeServ 7030 can be wall-mounted, or set on a desktop. Its compact cabinet design, RJ-45 connectors, and CAT 5 cabling allows it to easily integrate into any data center environment along with existing data equipment. Installing the OfficeServ 7030 system is both economical and easy. With a single cabinet providing 2 universal card slots, its low and high density card design allows greater flexibility when configuring a system for the right combination of lines and stations.

The OfficeServ 7030 offers a variety of interface cards that allow connection to the public switched telephone network (PSTN) and/or to private networks using analog circuits. Samsung's proprietary digital phones, called "keysets, connect to Digital Line Interface cards (DM). In addition to these digital keysets, Samsung offers a complete lineup of IP terminals. These IP terminals use the latest Voice over Internet Protocol (VoIP) technology and can be deployed over LANs or WANs. They are ideal for distant (remote) locations providing all the benefits of the OfficeServ 7030 to home workers and road warriors. Standard telephones, generally called "single line sets", connect to single line interface cards (SM). In addition, DM station ports are used to connect peripheral devices such as door phones and add-on modules. Miscellaneous circuits are built-in to allow such optional features as external paging, music on hold, background music, and common audible devices.

All digital and IP telephones utilize a single PCB with surface-mounted components assuring the highest product quality and long life. Samsung's customary large, easy-to-read displays and LEDs in the button design make them much easier to use. In many instances, sophisticated features are made simple through the use of friendly display prompts or push-on/push-off feature keys.

BENEFITS

- End to End Samsung components, Samsung Support and Samsung Training. The Ultimate in single source Shopping and maintenance!
- The OfficeServ 7030 networks (via SPNET over IP or SIP Peering) to other 7030's or any OfficeServ 7000 system.

1.1.2 Size and Configuration

The OfficeServ 7030 is a modular and flexible platform, see figure 1.1.2. The cabinet has one (1) dedicated trunk slot for the 4TM and two (2) universal slots for the 4DM, 2DM, 4SM, or 4LM. Each of the card slots provides 8 communication channels.

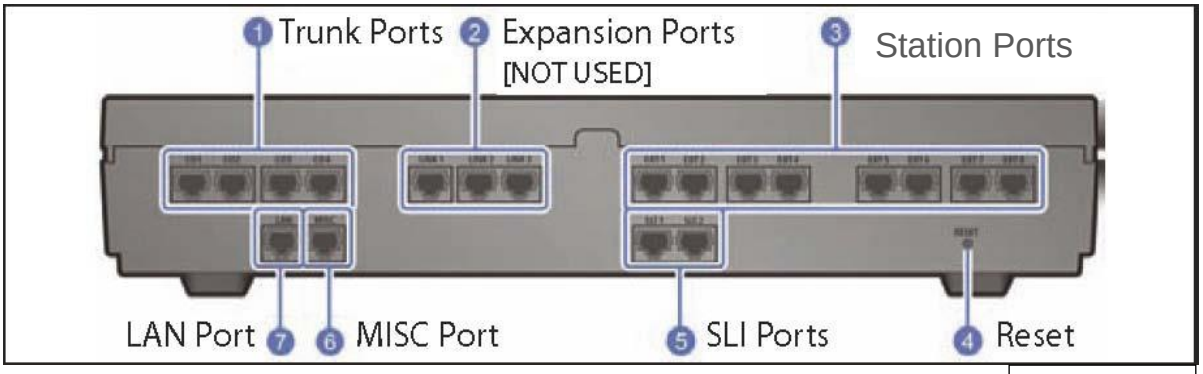


Figure 1.1.2

Physical Cabinet Slots

Figure 1.1.3 indicates the physical card slots in the OfficeServ 7030. These physical card slots support the various combinations of 2/4 port modules detailed in section 1.1.3

System configuration is very flexible. Plug in various four port modules in the 2 locations provided on the main unit.

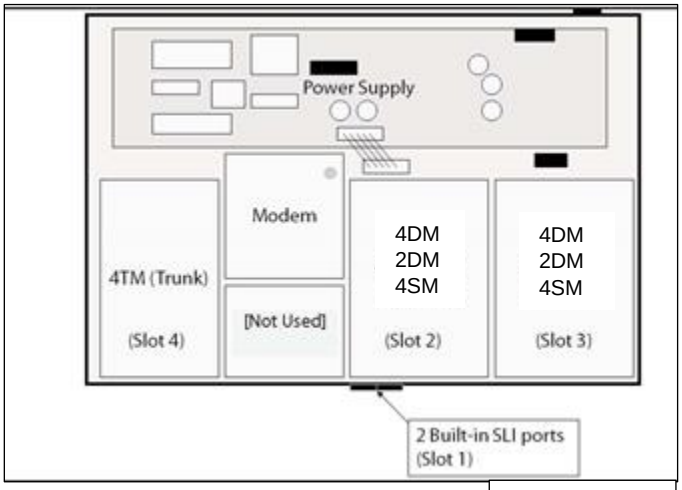


Figure 1.1.3

Virtual Devices and Slots

Virtual devices are stations and trunks that exist in the software database but do not require a physical connection to cards in the cabinet. The available virtual device types are listed below:

1. Virtual Single Line Interface – VSL
2. Virtual Digital Line Interface – VDL
3. IP telephones – WIRED ITP
4. Wireless IP handsets – WLAN ITP
5. Samsung proprietary network trunk – SPNET TRK
6. SIP Trunks – SIP TRK
7. SIP Station – SIP STN
8. MOBEX Stations – MOBEX STN
9. Group Conference Stations – GCONF STN *(Group Conference Feature no longer supported)*

Virtual cabinet 0 provides 1 slot, cabinet 1 provides 3 slots and cabinets 2~4 provides 5 slots each. All slots have 4 virtual ports except cabinet 0; Slot 3 has only 2 ports. The total virtual port devices allowed are 80. See Figure 1.1.4.

Virtual Cabinet Slot Assignment

Figure 1.1.4 indicates what virtual devices can be assigned to each virtual cabinet and slot. Each virtual slot can be assigned 2~4 devices of the same type. Default Selection is in **BOLD.**

Virtual Cabinet	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5
0			**WIRED ITP**		
			WIFI ITP		
			SIP STN		
1	**WIRED ITP**	**WIRED ITP**	**WIRED ITP**		
	WIFI ITP	WIFI ITP	WIFI ITP		
	SIP STN	SIP STN	SIP STN		
2	**VSL**	**VDL**	**VDL**	**GRP CONF**	**GRP CONF**
	VDL	VSL	VSL	VSL	VSL
	GRP CONF	GRP CONF	GRP CONF	VDL	VDL
	MOBEX	MOBEX	MOBEX		
3	**SPNET TK**	**SIP TRK**	**SIP TRK**	**VDL**	**VDL**
	GRP CONF	GRP CONF	GRP CONF	MOBEX	MOBEX
		SPNET TK			
4	**MOBEX STN**	**MOBEX STN**	**MOBEX STN**	**MOBEX STN**	**MOBEX STN**
	VDL	VDL	VDL	VDL	VDL

Figure 1.1.4

NOTE: Virtual cabinet 1, slots 2 and 3 can be used as physical card slot or virtual card slot depending on system programming in Device Manager 2.3.0 Virtual Cabinet Information.

Cabinet 1, slots 2 and 3 are fixed slots. This means these two slots can be used for physical card or virtual cards. These slots are set as a physical card (wired ITP) at default and will support 4DM, 2DM, and 4SM cards. When these slots are used as virtual, no hardware (physical) card should be installed in the slot(s).

System Capacities

When configuring a system to meet your requirements, select the appropriate number of interface cards listed in this section to support the various types of switches, trunks, stations, voice mail and miscellaneous functions. Combine both the physical ports of the main cabinet with the virtual ports in virtual cabinets 1 through 5 to build a system as required. The following table, figure 1.1.5 indicates the maximum number of each circuit type or device available in the OfficeServ 7030. The system architecture is designed to be extremely flexible so as to provide a myriad of configurations. However, it is impossible to accommodate all the maximum numbers of each station or trunk type into one system.

	OfficeServ 7030 SYSTEM CAPACITIES		
STATIONS	Wireless Handsets	16	
	Analog Phones	10	
	Digital Phones	8	
	Samsung IP Phones / Softphones (UDP)	16	Maximum is 5 when using TCP with or without sRTP
	3rd Party SIP Phones	16	
	WE VoIP Clients	16	Best performance is less than 5
	Maximum Stations	**16**	
TRUNKS	Standard SIP Trunks	8	
	Analog Trunks	4	
	Networking Trunks (SPNet)	8	
	Maximum Trunks	**8**	
	Maximum Stations + Trunks	**24**	
VM	Voice Mail – In-skin	2	Comes with 2 ports of AA (Auto Attendant) The optional VM license is required to add VM to these two ports.
VoIP	MGI Channels Embedded	4	Required to connect an IP phone to a TDM device including paging and background music and ports used for networking or trunking.
	MPS (Media Proxy Service) Channels (2 channels used per call)	16	Provides IP to IP conversations without using MGI channels
OTHER DEVICES	Networking Nodes (SPNet via IP)	99	Limited by IP table in Device Manager 3.3.1
	Mobile Extensions (MOBEX)	20	
	Conference Circuits ▪ 5 party Add-on ▪ Unsupervised ▪ Barge-In ▪ Call Record ▪ AME (Answer Machine Emulation	 6 6 6 6 6	Six Conference Circuits to be shared by all these features.
	Common Resources ▪ DTMF Receivers/Senders ▪ Analog Caller ID Senders/Receivers ▪ External Music On Hold (MOH) ▪ Executive MOBEX Resources ▪ Common Relays (Loud Bell, Common Bell, External Paging)	 4 4 1 8 2	All on Motherboard
	Paging ▪ Audio Output ▪ Internal Zones ▪ External Zones	 1 5 4	 1 on mother board Requires customer provided equipment

Figure 1.1.5

1.1.3 Hardware Description

Base Cabinet

This paragraph describes the configuration and the functions of the OfficeServ 7030 base unit. The Base unit is a main control board that controls all functions of OfficeServ 7030. It performs the voice switching function, signal processing function and Programmable Store System (PSS) management function. Base board carries out the system booting function.

The OfficeServ 7030 base cabinet is a complete 4 lines by 8 extension phone system. It has the main processor, automated attendant and main memory containing system software and storage embedded into the main board along with other common resources such as 2 built-in single line ports, MGI channels, MPS channels, DTMF sender/receivers, page relays etc.

The 7030 base cabinet (Figure 1.1.6) has 4 slots, a Modem slot, an AC to DC power supply, a battery backup connector and a power on/off switch. The cabinet is designed to be wall mounted, or placed on a table top.

Slot 1 is fixed with 2 single line ports (SLT)
Slot 2 and 3 are universal and can be used for Single Line Module (4SM), Digital Station Module (2/4DM)
Slot 4 is dedicated to the analog 4 port Trunk Module (4TM) card.

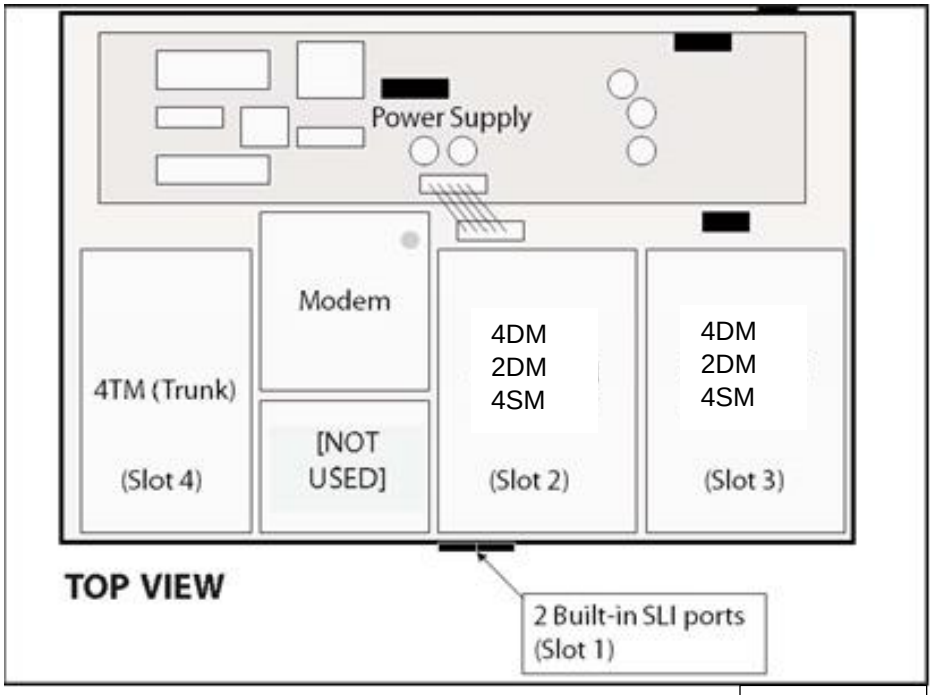


Figure 1.1.6

The base cabinet has openings for mounting the cards into the cabinet. When the cards are

mounted, the RJ45 connectors provide an interface to 4 CO lines, 8 extensions, 2 single line ports, a MISC port and a LAN port. See Figure 1.1.7

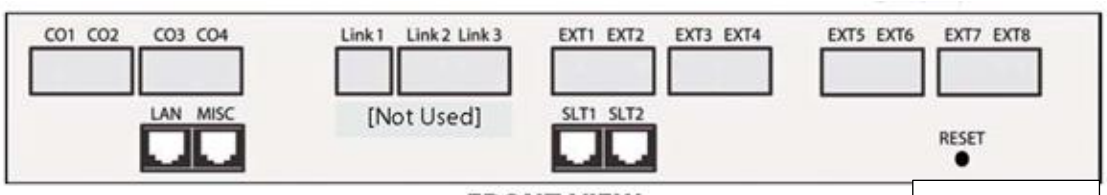


Figure 1.1.7

Interface Cards or Daughterboard Modules

Figure 1.1.8 indicates where the Interface Cards (Daughterboard Modules) can be installed.

Interface Card (Module)	Location	Total
4DM	Slots 2 & 3	2
2DM	Slots 2 & 3	2
4SM	Slots 2 & 3	2
4TM	Slot 4	1
MODEM	Dedicated Slot	1

Figure 1.1.8

4DM (DIGITAL PHONE MODULE)

This daughter module is a four circuit digital station interface card that provides service for the different models of Samsung digital keyset. The 4DM can be inserted in any of the two slots 2 and/or 3 of the main unit.

2DM (DIGITAL PHONE MODULE)

This daughter module is a two circuit digital station interface card that provides service for the different models of Samsung digital keyset. The 4DM can be inserted in any of the two slots 2 and/or 3 of the main unit.

4SM (SINGLE LINE MODULE)

This daughter module is a four circuit analog station interface for industry standard single line telephones. The card can only be installed in slots 2 and or 3 of the main unit/expansion units. The 4SM does not contain any over-voltage protection and is not qualified an OPX. It also does not contain DTMF receivers, but instead shares the system DSP resources. The OfficeServ 7030 SLI ports support caller ID to single line telephones and loop open disconnect signaling. Connecting multiple telephones to a port may result in incorrect operation or damage to the card.

The main functions of 4SM voice station module are:

- Generating the ring of 20 Hz
- Detecting Dial Tone Multi Frequency (DTMF)/dial pulse
- Detecting on/off-hook
- Generating a tone

4TM (TRUNK MODULE)

This daughterboard module contains four loop start CO lines interface circuits with CO disconnect detection. It also contains the circuitry needed for Caller ID. The 4TM can only be inserted into slot 4 of the main unit. Each port of this card is intended for connection to Telco. Connecting multiple telephone lines (half-tapping) to a port may result in incorrect operation or damage to the card.

4TM voice trunk line board performs the functions below:

- Detecting ring reception
- Detecting on/off-hook
- Transmitting dial pulse
- CID function
- Line monitoring function that checks if the line is connected
- Caller information relay path function

1.1.4 Embedded Applications

AUTO ATTENDANT

The OfficeServ 7030 processor has the voicemail and automated attendant application (2 ports standard) embedded onto the main board. The VMAA is designed to meet the demands of the sophisticated voice mail user without sacrificing simplicity. The Automated Attendant is available with two ports for processing AA traffic routed to the Automated Attendant. The same two ports can be enabled to perform both the voicemail and automated attendant function of answering calls and storing messages into mailboxes for each extension. Two ports of AA comes standard in the OfficeServ 7030, however the 2 ports of voicemail require a license key to enable the voicemail.

MEDIA GATEWAY INTERFACE

Four (4) MGI channels are embedded on the main processor, and can be enabled (licensed in 1 port increments) to support VoIP functions such as IP phones, IP networking, and IP trunking. The embedded MGI channels can be enabled to support the following capabilities:

- IP Phones
- IP Networking

- (Network multiple OfficeServ 7000 systems using Samsung Proprietary Networking Protocol (SPNet)
- G.729 CODEC, G.723.1, G.711, G.729A CODECs
- IP Trunking (SIP)
- T.38 Fax CODEC
- Inband or Out-of-band signaling of DTMF tones

COMMON RESOURCES

The 7030 provides common resources (standard equipment) that are shared through the system to support various system functions. These are:

- Six 5 party conference circuits
- Sixteen MPS channels
- Eight Caller ID sender /receiver circuits
- 2 AA ports (to add VM feature to these ports requires VM License Key)
- Eight DTMF receivers/transmitters
- Eight Executive Mobex DSPs (detect DTMF dialing
- 4 MGI channels (licensed) for IP phones, IP during Executive Mobex calls) trunks and IP networking

MISCELLANEOUS FUNCTIONS

The 7030 provides hardware and circuits to support the following popular miscellaneous functions:

- One External Music on Hold / Background Music
- One Loud Bell audio output Input
- Two Programmable Relays (to control common
- One External Page Announcement output bells or external page zones)

MEDIA PROXY SERVICE (MPS)

Media Proxy Service (MPS) of the OfficeServ 7030 system allows IP devices (such as SIP stations, IP phones, and SIP trunks) to be in conversation state without the need to first convert conversations to TDM. There are 16 MPS channels embedded on the 7030 motherboard. This means that up to 8 IP-to-IP calls can be connected.

Any IP device talking to any TDM device will still require an MGI channel. Figure 1.1.9 below shows where MPS channels can be used and where devices will peer without using any system resources.

			STATIONS		TRUNKS					
			LAN	WAN	LAN			WAN		
			ITP/WIP/SIP	ITP/WIP/SIP	SIP	H.323	SPNET	SIP	H.323	SPNET
STATIONS	LOCAL	ITP	PEER	MPS	PEER	MPS	PEER	MPS	MPS	MPS
		WIP	PEER	MPS	PEER	MPS	PEER	MPS	MPS	MPS
		SIP	PEER	MPS	PEER	MPS	PEER	MPS	MPS	MPS
	REMOTE	ITP	MPS	MPS	MPS	MPS	MPS	MPS	MPS	MPS
		WIP	MPS	MPS	MPS	MPS	MPS	MPS	MPS	MPS
		SIP	MPS	MPS	MPS	MPS	MPS	MPS	MPS	MPS
TRUNKS	LOCAL	SIP	PEER	MPS	PEER	MPS	PEER	MPS	MPS	MPS
		H.323	MPS	MPS	MPS	MPS	MPS	MPS	MPS	MPS
		SPNET	PEER	MPS	PEER	MPS	PEER	MPS	MPS	MPS
	REMOTE	SIP	MPS	MPS	MPS	MPS	MPS	MPS	MPS	MPS
		H.323	MPS	MPS	MPS	MPS	MPS	MPS	MPS	MPS
		SPNET	MPS	MPS	MPS	MPS	MPS	MPS	MPS	MPS

Figure 1.1.9

MODEM

A modem board can be mounted on the main unit. The modem board has a 2-Wire Full Duplex modem that can be used with all the OfficeServ 7000 Series systems. Be careful of the direction of the modem board when mounting/demounting the board to the Base board.

The modem board operates in OfficeServ 7030 via V.24 interface and uses a modem chip for Central Office, which can perform Pulse Code Modulation (PCM) highway interface. In addition, the Modem board supports V.90 protocol. OfficeServ 7030 controls the Modem board via serial communication using standard AT commands. The modem board can be used to connect the IT tool for remote programming when internet access is not available.

1.1.5 Technology

MEMORY

The system operates using stored program control. This program is stored on a NAND Flash memory. The memory also provides space for a backup customer database and approximately 14 hours of voicemail storage. The customer database is stored indefinitely in NAND Flash. Call Logs, Alarms, UCD call statistics, program logs and traffic reports are stored in NAND flash. No on/off battery switch is required for the OfficeServ 7030 main unit.

MICROPROCESSORS

OfficeServ 7030 uses distributed processing. The primary processor operates at a clock speed of 375 MHz. This provides all the main processing necessary for the system. The tertiary level of processing is done in the keysets. The digital keysets use a Hitachi H8 processor for data communication within the system.

1.1.6 Programming

The OfficeServ 7030 is a self-configuring system. This means that immediately after applying power, the OfficeServ 7030 reads the types and locations of all installed interface cards and keysets and assigns default data to them. This data provides for system operation within a few minutes after applying power. All trunks and stations are assigned three digit numbers according to the default numbering plan. This numbering plan is flexible and may be changed to suit customer requirements. The installing technician customizes this default data to meet the end user's requirements. The system comes up default in a 4 CO line by 8 station squared configuration, with Caller ID enabled and 2 ports of voicemail/auto attendant. Voicemail ports require a license key.

The OfficeServ 7030 provides two methods to program the system from a personal computer. Access the system's embedded Device Manager programming interface using Internet Explorer 6.0 or higher for convenient web based access to the telephone and voice mail systems. Another method is to use the stand alone proprietary version of the Device Manager application running on any PC that meets the minimum requirements. Both methods allow programming from anywhere in the world provided there is a LAN/WAN or modem connection.

Device Manager permits a technician to access the phone system, modify the customer database, or download (save) the entire customer database to a file. This file can be saved as a backup and can be uploaded when required to restore the database. The Device Manager can also be used to view the customer database offline, and to send new loads of software upgrades to the media card in a live system.

The system also can be programmed from any IP or digital two line display keyset without interrupting system operation. There are three levels of programming: technician, customer, and station. The technician level has access to all programs and can allow the customer access to system programs as needed. Technician and customer access levels are controlled by a different security pass codes and access procedure.

1.2 OfficeServ 7100 System

1.2.1 General Description

Figure 1.2.1

The OfficeServ 7100 is an “office in a box” solution that converges IP with the 99.999% reliability of TDM voice processing. The OfficeServ 7100 platform supports industry standard Voice over Internet Protocol (VoIP), Session Initiation Protocol (SIP) as well as the more robust Telephony over IP (ToIP). Combine these technologies with Samsung’s Wireless LAN IP Handsets, smart phone soft client application, embedded Voice Mail Application, a suite of OfficeServ Computer Telephony applications, and much more, all in one powerful platform….A COMPLETE VOICE SOLUTION FOR THE OFFICE.

The OfficeServ 7100 can be rack-mounted in a standard 19" data rack, wall-mounted, or set on a desktop. Its compact cabinet design, RJ-45 connectors, and CAT 5 cabling allows it to easily integrate into any data center environment along with existing data equipment. Expanding the OfficeServ 7100 system is both economical and easy. With a single cabinet providing 2 universal card slots, its low and high density card design allows greater flexibility when configuring a system for the right combination of lines and stations. The removable SD card makes it convenient to upgrade the software to future feature packages.

The OfficeServ 7100 offers a variety of interface cards that allow connection to the public telephone network and/or to private networks using either analog or digital circuits. Samsung's proprietary digital phones, called "keysets, connect to Digital Line Interface cards (DLM or DLI). In addition to these conventional digital keyset, Samsung offers a complete line-up of IP terminals. These IP terminals use the latest Voice over Internet Protocol (VoIP) technology and can be deployed over LANs or WANs. They are ideal for distant (remote) locations providing all the benefits of the OfficeServ 7100 to home workers and road warriors. Standard telephones, generally called "single line sets", connect to single line interface cards (SLM or SLI). In addition, DLI station ports are used to connect peripheral devices such as door phones and add-on modules. Miscellaneous circuits are built-in to allow such optional features as external paging, music on hold, background music, and common audible devices.

All digital and IP telephones utilize a single PCB with surface-mounted components assuring the highest product quality and long life. Samsung's customary large, easy-to-read displays and LEDs in the button design make them much easier to use. In many instances, sophisticated features are made simple through the use of friendly display prompts or push-on/push-off feature keys.

The OfficeServ 7100 includes all of this, PLUS the same, robust, time proven, market tested feature package offered on all the OfficeServ 7000 systems.

BENEFITS

- End to End Samsung components, Samsung Support and Samsung Training. The Ultimate in single source Shopping and maintenance!
- The OfficeServ 7100 networks (via SPNET over IP or QSig over PRI) to other 7030, 7100, 7200-S, 7200 and 7400 OfficeServ Systems.

1.2.2 Size and Configuration

The OfficeServ 7100 is a modular and flexible platform.

The cabinet has one (1) dedicated processor slot for the MP10a (Main Processor) and two (2) Universal slots. Each of the card slots provides 64 communication channels to support high density modules. See figure 1.2.2.

Figure 1.2.2

Physical Cabinet Slots

Figure 1.2.3 indicates the physical card slots in the OfficeServ 7100. These physical card slots support the various combinations of 4 port modules detailed in Section 1.2.3.
System configuration is very flexible. Plug in various four port modules in the 7 locations provided by the MP10a card and two universal cards.

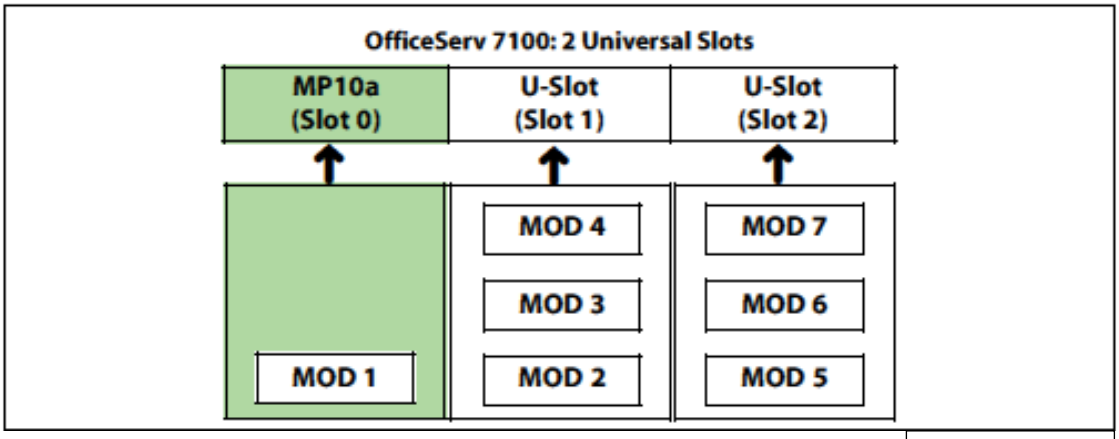
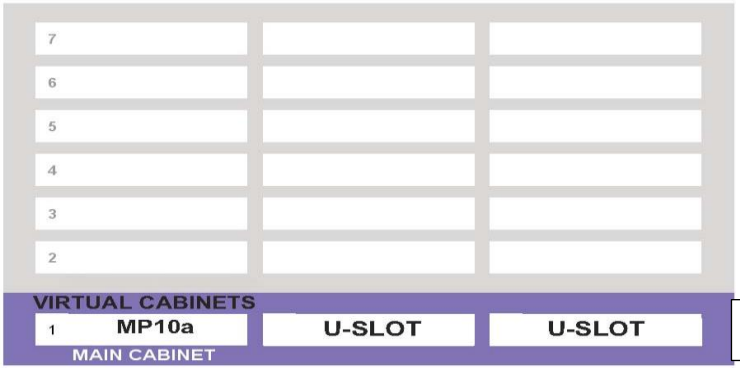


Figure 1.2.3

Virtual Cabinets

Virtual cabinets 2~7 provide (3) slots each, with each slot providing 8 virtual ports. The total virtual ports devices allowed are 144. See Figure 1.2.4



6 Virtual Cabinets (2 ~ 7)

8 Channels x 3 slots = 24 ports

Total of 144 virtual ports

Figure 1.2.4

Virtual Devices and Virtual Slot Assignments

Virtual devices are stations and trunks that exist in the software database but do not require a physical connection to cards in the cabinet. The available virtual device types are listed below.

1. Virtual Single Line Interface – VSL
2. Virtual Digital Line Interface – VDL
3. IP telephones – WIRED ITP
4. Wireless IP handsets – WIFI ITP
5. Samsung proprietary network trunk – SPNET TRK
6. SIP Trunks – SIP TRK
7. H.323 Trunks – H323 TRK
8. SIP Station – SIP STN
9. MOBEX Stations – MOBEX
10. Group Conference Stations – GCONF *(Group Conference Feature no longer supported)*

Figure 1.2.5 indicates what virtual devices can be assigned to each virtual cabinet and slot. Each virtual slot can be assigned 8 devices of the same type. Default selection is in **BOLD**.

Virtual Cabinet	Slot 1	Slot 2	Slot 3
2	**VSL**	**VDL**	**VDL**
	VDL	VSL	VSL
	WIRED ITP	WIRED ITP	WIRED ITP
	WIFI ITP	WIFI ITP	WIFI ITP
	SIP STN	SIP STN	SIP STN
	MOBEX	MOBEX	MOBEX
3	**WIRED ITP**	**WIRED ITP**	**WIRED ITP**
	VSL	WIFI ITP	WIFI ITP
	VDL	SIP STN	SIP STN
	WIFI ITP	SPNET TK	SPNET TK
	SIP STN	SIP TRK	SIP TRK
	MOBEX	MOBEX	MOBEX
4	**WIFI ITP**	**NONE**	**GRP CONF**
	WIRED ITP	GRP CONF	SPNET TK
	SIP STN	SPNET TK	SIP TRK
	SPNET TK	SIP TRK	MOBEX
	SIP TRK	MOBEX	
	MOBEX		
5	**SPNET TK**	**SIP TK**	**H323 TRK**
	GRP CONF	GRP CONF	GRP CONF
	SIP TRK	SPNET TK	SPNET TK
	H323 TRK	H323 TRK	SIP TRK
6	**MOBEX STN**	**MOBEX STN**	**MOBEX STN**
	VDL	VDL	VDL
7	**MOBEX STN**	**MOBEX STN**	**MOBEX STN**
	VDL	VDL	VDL

Figure 1.2.5

System Capacities

When configuring a system to meet your requirements, select the appropriate number of interface cards listed in Section 1.2.3 of this book to support the various types of switches, trunks, stations, voice mail and miscellaneous functions. Combine both the physical ports of the main cabinet with the virtual ports in virtual cabinets 2 through 7 to build a system as required.

Figure 1.2.6 indicates the maximum number of each circuit type or device available in the OfficeServ 7100. The system architecture is designed to be extremely flexible so as to provide a myriad of configurations.
However, it is impossible to accommodate all the maximum numbers into one system.

	OfficeServ 7100 SYSTEM CAPACITIES		
STATIONS	Wireless Handsets	56	
	Analog Phones	32	
	Digital Phones	32	
	Samsung IP Phones / Softphones (UDP)	56	Maximum is 18 when using TCP with or without sRTP
	3rd Party SIP Phones		
	WE VoIP Clients	32	Best performance is less than 10
	Maximum Stations	**56**	
TRUNKS	Standard SIP Trunks	64	
	Standard H.323	24	
	Analog Trunks	20	
	Digital Trunks PRI	23	
	Networking Trunks (SPNet)	64	
	Maximum Trunks	**64**	
	Maximum Stations + Trunks	**120**	
VM	Voice Mail – In-skin	4	Auto Attendant and Voice Mail
VoIP	MGI Channels 1 OAS card + 8 embedded	24	Required to connect an IP phone to a TDM device including paging, background music and ports used for networking or trunking.
	MPS (Media Proxy Service) Channels (2 channels used per call)	16	Provides IP to IP conversations without using MGI channels. OAS card cannot provide MPS channels in the 7100 cabinet.
OTHER DEVICES	Networking Nodes SPNet via QSIG (PRI) SPNet via IP	 99 99	 Uses available PRI card slots Limited by IP table in Device Manager 3.3.1
	Mobile Extensions (MOBEX)	60	
	Conference Circuits ▪ 5 party Add-on ▪ Unsupervised ▪ Barge-In ▪ Call Record ▪ AME (Answer Machine Emulation	 6 6 6 6 6	Six Conference Circuits to be shared by all these features.

OfficeServ 7100 SYSTEM CAPACITIES		
Common Resources		
▪ DTMF Receivers/Senders	8	4 on MP10a + 12 on optional MFM
▪ Analog Caller ID Senders/Receivers	8	All on MP10a
▪ External Music On Hold (MOH)	1	Requires optional MIS
▪ Executive MOBEX Resources	8	
▪ Loud bell audio output	1	
▪ Common Programmable Relays	2	Control common bells or ext. page zones
Paging		
▪ Audio Output	1	1 on MP10a Card
▪ Internal Zones	5	
▪ External Zones	4	Requires customer provided equipment

Figure 1.2.6

Sample Configuration

To better understand how the OfficeServ 7100 is configured, below figure 1.2.7 is an example of a practical 4 x 12 configuration using a combination of digital and IP telephones. Cabinet 1 shows the type of card installed in each physical slot. Cabinets 2~7 show the default to the virtual assignments for each virtual slot. The IP telephones are connected to existing (external) data equipment.

12 Stations and 4 Trunks
4 Analog Loop Trunks
8 Digital Telephones
4 IP Telephones
4 MGI Channels (VoIP)
4 Voice Mail Ports

Note: MGI channels are licensed in 1~8 port increments

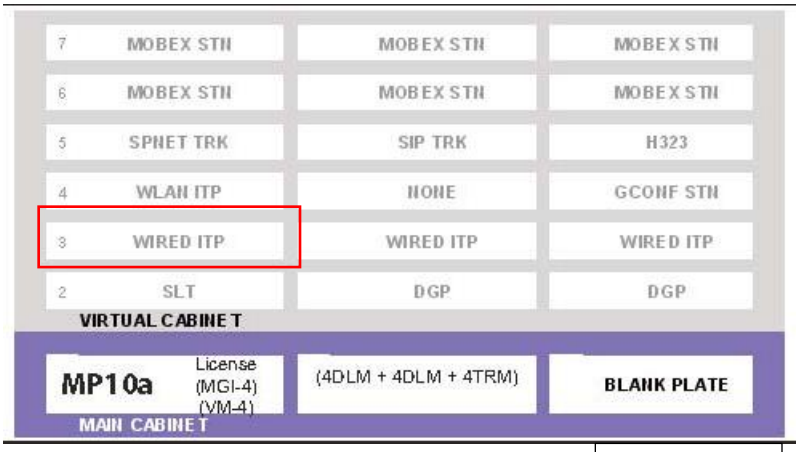


Figure 1.2.7

1.2.3 Hardware Description

SYSTEM CABINET

The OfficeServ 7100 cabinet has three slots to mount boards, an AC to DC power supply, cooling fan, a battery backup connector, and power on/off switch. The cabinet is designed to be rack mounted in a 19 inch rack, wall-mounted with a wall-mounted bracket, or placed on a table top. Slot 0 is exclusively used for the MP10a processor card, while slots 1 and 2 are 64 channel universal slots that the UNI cards or other OfficeServ 7000 station/trunk cards can be installed in.

MP10a (MAIN PROCESSOR CARD)

This is the main processor controlling system operation. The MP10a always goes in slot 0 of the cabinet. The MP10a provides a LAN connection, a MISC port (external page, MOH/BGM, loud/common bell), an SIO port (Samsung Maintenance Only), four universal ports for either digital phones or power of Ethernet ports *(dependent on the type of daughterboard module plugged in)*, an internal modem slot, and a media card (SD) slot which can accommodate a SD card containing the system software and storage space for voicemail messages and prompts. The MP10a also includes embedded Automated Attendant, Voicemail, and MGI channels (license key required).

The MP10a has a connector for mounting a 4DLM card. When the 4DLM card is installed on the processor it will provide an interface for 4 Digital telephone sets. The MP10a also has a connector for mounting the optional modem board. This modem board can be used for remote access to system administration at installations that do not have a LAN or WAN connection. This is the same modem card used in the other OfficeServ systems. *The MP10a card cannot migrate to the OfficeServ 7200, OfficeServ 7200-S or OfficeServ 7400 systems.*

7100 INTERFACE CARDS

UNI CARD

These cards provide the interface connections for telephone lines and stations to the KSU. These cards fit into the universal card slots to configure the system as required.

The UNI card can be installed in any of the two universal slots of the OfficeServ 7100 system. The UNI card is used to accommodate these optional daughter boards. See figure 1.2.8.

- 4DLM
- 4SL2U
- 4TRM

Any combination of these modules can be installed in any of the three slots on the UNI card for a total of 12 ports per UNI card. This type of slot configuration allows the customers to grow or expand in 4 port increments. Customer can start out and configure the system as a 4 line by 8 station system and later expand to an 8 by 16 configuration and beyond.

Each slot can be used as a voice trunk line board or voice station board depending on the mounted option board. If a 4TRM option board is mounted in the UNI board, it operates as a voice trunk line board. If 4SL2U and 4DLM option boards are mounted, it operates as a voice

station board. The UNI card is not hot swappable. *This card cannot migrate to the OfficeServ 7200 or OfficeServ 7400 systems*. See installation manual for details.

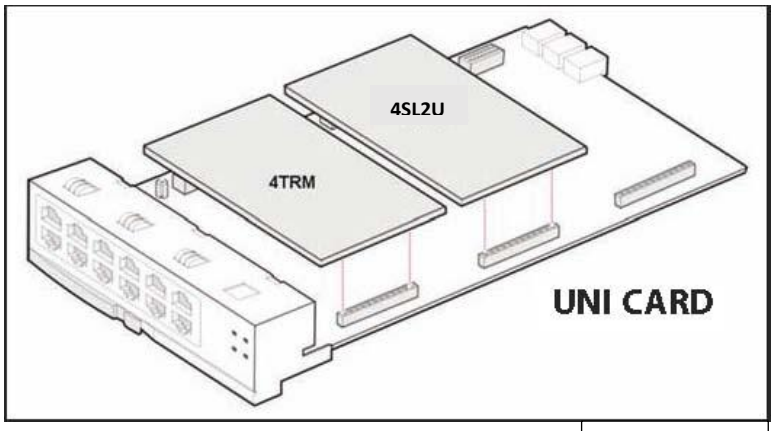


Figure 1.2.8

4DLM

This daughter module is a four circuit digital station interface card that provides 1B+D service for the different models of Samsung digital keyset. The 4DLM can be inserted in any of the three slots on the UNI card or on the MP10a card. See installation manual for details.

4SL2U

This daughter board module is a four circuit analog station interface for industry standard single line telephones that require operation of an industry standard message waiting lamp with a voltage range of 85~96 VDC. The card can only be installed on the UNI card. The lamp can flash at a rate of 200ms to 500ms ON/OFF times. The 4SL2U does not contain any over-voltage protection and is not qualified as OPX. It also does not contain DTMF receivers, but instead shares the system DSP resources. The OfficeServ 7100 4SLM supports Caller ID to single line telephones. The 4SL2U can only be inserted in any of the three slots on the UNI card. Each port on this card is intended for connection to one telephone. Connecting multiple telephones to a port may result in incorrect operation or damage to the card. See installation manual for details.

4TRM

This daughterboard module contains four loop start C.O. lines interface circuits with C.O. disconnect detection. It also contains the circuitry needed for Caller ID. The 4TRM can only be inserted in any of the three slots on the UNI card. Each port on this card is intended for connection to Telco. See installation manual for details.

7100 COMMON OfficeServ INTERFACE CARDS

The following common OfficeServ interface cards are compatible with the OfficeServ 7100 system. See figure 1.2.9. These cards can be installed in slots 1 and 2 of the OfficeServ 7100 cabinet to achieve higher port configurations than the 12 port UNI card. See Section 2, Common Hardware, for details on each of the following interface cards.

8TRK	16TRK	8COMBO3	8SLI3	8DLI2
16DLI2	16SLI3	TEPRIa	OAS	

7100 HARDWARE CAPACITIES		
Interface Card	**Location**	**Maximum per System**
UNI Card	Slots 1 & 2	2
4DLM	UNI card & MP10a	6
4SL2U	UNI card	6
4TRM	UNI card	5
8TRK2	Slots 1 & 2	2
16TRK	Slots 1 & 2	2
8COMBO3	Slots 1 & 2	1
8SLI3	Slots 1 & 2	2
8DLI2	Slots 1 & 2	2
16DLI2	Slots 1 & 2	1
16SLI3	Slots 1 & 2	1
TEPRIa	Slots 1 & 2	1
OAS	Slots 1 & 2	1
MAXIMUM AOM CAPACITIY		
	Per Station	**Maximum per System**
TDM 64 Button AOM	2	Limited by available DLI ports
IP 64 Button AOM	2	Limited by available IP/Virtual Ports

Figure 1.2.9

1.2.4 Embedded Applications

VOICEMAIL/AUTO ATTENDANT

The MP10a processor has the voicemail and automated attendant application embedded onto the card. The VMAA is designed to meet the demands of the sophisticated voice mail user without sacrificing simplicity. The Automated Attendant is available with four ports for processing voicemail/AA traffic routed to the Automated Attendant. The same four ports can be enabled to perform both the voicemail and automated attendant function of answering calls and storing messages into mailboxes for each extension.

MEDIA GATEWAY INTERFACE

Eight (8) MGI channels are embedded on the MP10a processor, and can be enabled (licensed in 4 port increments) to support VoIP functions such as IP phones, IP networking, and IP trunking. The embedded MGI channels can be enabled to support the following capabilities:

- IP Phones
- IP Networking (Network multiple systems over an SPNet IP Network)*
- G.729 CODEC, G.723.1, G.711, G.729A CODECs
- IP Trunking (SIP/H.323)
- T.38 Fax CODEC
- Inband or Out-of-band signaling of DTMF tones

Note: An additional 16 MGI channels can be added to the system if necessary by installing one OAS card.

COMMON RESOURCES

The 7100 provides common resources (standard equipment) that are shared through the system to support various system functions. These are:

- Six 5 party conference circuits
- Sixteen MPS channels
- Eight Caller ID sender /receiver circuits
- Four Voice Mail / Auto Attendant ports
- Eight DTMF receivers/transmitters
- Eight Executive Mobex DSPs (detect DTMF dialing during Executive Mobex calls)
- Eight MGI channels (licensed) for IP phones, IP trunks and IP networking

MISCELLANEOUS FUNCTIONS

The 7100 provides hardware and circuits to support the following popular miscellaneous functions:

- One External Music on Hold / Background Music
- One Loud Bell audio output input
- Two Programmable Relays (to control common bells or external page zones)
- One External Page Announcement output

MEDIA PROXY SERVICE

Media Proxy Service (MPS) is an exciting feature of the OfficeServ 7100 system. The MPS allows IP devices (such as SIP stations, IP phones, and SIP trunks) to be switched on the backplane without the need to first convert conversations to TDM. There are 16 MPS channels embedded on the MP10/MP10a processor. This means that up to 8 IP-to-IP calls can be switched without the need to purchase an MGI license or any additional hardware.

Any IP device talking to any TDM device will still require an MGI channel. The below chart (Figure 1.2.10) shows where MPS channels can be used and where devices will peer without using any system resources:

			STATIONS		TRUNKS					
			LAN	WAN	LAN			WAN		
			ITP/WIP/SIP	ITP/WIP/SIP	SIP	H.323	SPNET	SIP	H.323	SPNET
STATIONS	LOCAL	ITP	PEER	MPS	PEER	MPS	PEER	MPS	MPS	MPS
		WIP	PEER	MPS	PEER	MPS	PEER	MPS	MPS	MPS
		SIP	PEER	MPS	PEER	MPS	PEER	MPS	MPS	MPS
	REMOTE	ITP	MPS	MPS	MPS	MPS	MPS	MPS	MPS	MPS
		WIP	MPS	MPS	MPS	MPS	MPS	MPS	MPS	MPS
		SIP	MPS	MPS	MPS	MPS	MPS	MPS	MPS	MPS
TRUNKS	LOCAL	SIP	PEER	MPS	PEER	MPS	PEER	MPS	MPS	MPS
		H.323	MPS	MPS	MPS	MPS	MPS	MPS	MPS	MPS
		SPNET	PEER	MPS	PEER	MPS	PEER	MPS	MPS	MPS
	REMOTE	SIP	MPS	MPS	MPS	MPS	MPS	MPS	MPS	MPS
		H.323	MPS	MPS	MPS	MPS	MPS	MPS	MPS	MPS
		SPNET	MPS	MPS	MPS	MPS	MPS	MPS	MPS	MPS

Figure 1.2.10

1.2.5 Technology

MEMORY

The system operates using stored program control. This program is stored on a Secure Digital (SD) media card inserted into the Main Processor card (MP10a). The media card also provides space for a backup customer database. In addition the SD card is used for voicemail message storage. Depending on the date of purchase the SD card will either be a 1 GB, providing approximately 52 hours of voicemail storage, or a 2 GB, providing approximately 123 hours of voicemail storage. The customer database is stored indefinitely in NAND Flash. Call Logs, Alarms, UCD call statistics, program logs and traffic reports are stored in NAND flash. No on/off battery switch is required for the MP10a.

MICROPROCESSORS

OfficeServ 7100 uses distributed processing. Its primary processor is a M82511G (MP10a), operating at a clock speed of 375 MHz. This provides all the main processing necessary for the system. The tertiary level of processing is done in the keysets. The digital keysets use a Hitachi H8 processor for data communication within the system.

1.2.6 Programming

The OfficeServ 7100 is a self-configuring system. This means that immediately after applying power, the OfficeServ 7100 reads the types and locations of all installed interface cards and keysets and assigns default data to them. This data provides for system operation within a few minutes after applying power. All trunks and stations are assigned three digit numbers according to the default numbering plan. This numbering plan is flexible and may be changed to suit customer requirements. The installing technician customizes this default data to meet the end user's requirements. The system comes up default in a 4 CO line by 8 station squared configuration, with Caller ID enabled and 4 ports of voicemail/auto attendant.

DEVICE MANAGER

The OfficeServ 7100 provides two methods to program the system from a personal computer. Access the system's embedded Device Manager programming interface using Internet Explorer 6.0 or higher for convenient web based access to the telephone and voice mail systems. Another method is to use the stand alone proprietary version of Device Manager Application running on any PC that meets the minimum requirements. Both methods allow programming from anywhere in the world provided there is a LAN/WAN or modem connection.

Device Manager permits a technician to access the phone system, modify the customer database, or download (save) the entire customer database to a file. This file can be saved as a backup and can be uploaded when required to restore the database. The Device Manager can also be used to view the customer database offline, and to send new loads of software upgrades to the media card in a live system.

The system can also be programmed from any IP or digital two line display keyset without interrupting system operation. There are three levels of programming: technician, customer, and station. The technician level has access to all programs and can allow the customer access to system programs as needed. Technician and customer access levels are controlled by a different security pass codes and access procedure.

MEDIA CARD

An OfficeServ 7100 system must have a media card installed in the MEDIA CARD slot in the main control processor (MP10a). The media card type is an SD card. The media card contains the operating system, a backup customer database and voicemail messages to supplement the database stored in the NAND Flash.

Note: The SD media card has a write protect switch that will prevent a backup if in read only position.

1.2.7 Migration to OfficeServ 7200S, 7200 or 7400

For businesses using the OfficeServ 7100, Samsung provides a convenient, easy and affordable migration path to the larger OfficeServ 7200-S, 7200 or OfficeServ 7400 systems.

- All keysets can be used on the larger OfficeServ 7000 systems.
- Features and operation are the same so there is no need to retrain users.

These 7100 interface cards migrate to other OfficeServ systems as indicated in figure 1.2.11

7100 CARD MIGRATION			
Interface Card	**7200-S**	**7200**	**7400**
MP10a	No	No	No
UNI Card 4DLM 4SL2U 4TRM	Yes	No	No
4SWM	No		
8TRK2	Yes		
16TRK	Yes		
8COMBO3	Yes		
8SLI3	Yes		
8DLI2	Yes		
16DLI2	Yes		
OAS	Yes		
TEPRIa	Yes		

Figure 1.2.11

1.3 OfficeServ 7200-S System

1.3.1 General Description

Figure 1.3.1

The OfficeServ 7200-S is an “office in a box” solution that converges IP with the 99.999% reliability of TDM voice processing. The OfficeServ 7200-S platform supports industry standard Voice over Internet Protocol (VoIP), Session Initiation Protocol (SIP), as well as the more robust Telephony over IP (ToIP). Combine these technologies with Samsung’s Wireless LAN IP Handsets, smart phone soft client application, embedded Voice Mail Application, a suite of OfficeServ Computer Telephony applications, and much more, all in one powerful platform….A COMPLETE VOICE SOLUTION FOR THE OFFICE.

The OfficeServ 7200-S can be rack-mounted in a standard 19" data rack, wall-mounted, or set on a desktop. Its compact cabinet design, RJ-45 connectors, and CAT 5 cabling allows it to easily integrate into any data center environment along with existing data equipment. Expanding the OfficeServ 7200-S system is both economical and easy. With a single cabinet providing 5 universal card slots, its low and high density card design allows greater flexibility when configuring a system for the right combination of lines and stations. The removable SD card makes it convenient to upgrade the software to future feature packages.
The OfficeServ 7200-S offers a variety of interface cards that allow connection to the public telephone network and/or to private networks using either analog or digital circuits. Samsung's Proprietary digital phones, called "keysets, connect to Digital Line Interface cards (DLM or DLI). In addition to these conventional digital keyset, Samsung offers a complete line-up of IP terminals. These IP terminals use the latest Voice over Internet Protocol (VoIP) technology and can be deployed over LANs or WANs. They are ideal for distant (remote) locations providing all the benefits of the OfficeServ 7200-S to home workers and road warriors. Standard telephones, generally called "single line sets", connect to single line interface cards (SLM or SLI). In addition, DLI station ports are used to connect peripheral devices such as door phones and add-on modules. Miscellaneous circuits are built-in to allow such optional features as external paging, music on hold, background music, and common audible devices.
All digital and IP telephones utilize a single PCB with surface-mounted components assuring the highest product quality and long life. Samsung's customary large, easy-to-read displays and LEDs in the button design make them much easier to use. In many instances, sophisticated features are made simple through the use of friendly display prompts or push-on/push-off feature keys.

The OfficeServ 7200-S includes all of this, PLUS the same, robust, time proven, market tested feature package offered on all the OfficeServ 7000 systems.

BENEFITS

- End to End Samsung components, Samsung Support and Samsung Training. The Ultimate in single source Shopping and maintenance!
- The OfficeServ 7200-S networks (via SPNET over IP or QSig over PRI) to other 7030, 7100, 7200-S, 7200 and 7400 OfficeServ Systems

1.3.2 Size and Configuration

The OfficeServ 7200-S is a modular and flexible platform.
The cabinet has one dedicated processor slot and five universal slots. The MP20S card is the main processor that fits into dedicated slot 0 of the system cabinet. Each of the card slots provides either 16 or 32 communication channels to support high density modules. See figure 1-3.2

Figure 1.3.2

When configuring a system to meet your requirements, select the appropriate number of interface cards listed in Section 1.3.3 of this book to support the various types of trunks, stations, data needs, and miscellaneous functions.

Physical Cabinet Slots

Figure 1.3.3 shows the 7200-S main cabinet (1) with the five physical universal slots and the number of communication channels per slot.

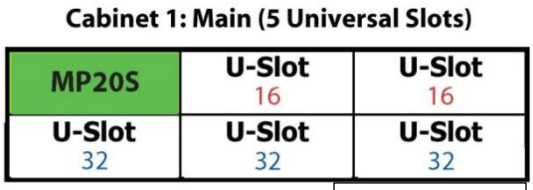


Figure 1.3.3

Virtual Devices

Virtual devices are stations and trunks that exist in the software database but do not require a physical connection to cards in the cabinet. The available virtual device types are listed below.

1. Virtual Single Line Interface – VSL
2. Virtual Digital Line Interface – VDL
3. IP telephones – WIRED ITP
4. Wireless IP handsets – WIFI ITP
5. Samsung proprietary network trunk – SPNET TRK
6. SIP Trunks – SIP TRK
7. H.323 Trunks – H323 TRK
8. SIP Station – SIP STN
9. MOBEX Stations – MOBEX
10. Group Conference Stations – GCONF *(Group Conference Feature no longer supported)*
11. SIP Application – SIP APP

Virtual Cabinets and Slot Assignments

There are 5 virtual cabinets (2 ~ 6). Each virtual slot has 8 ports (communication channels). Figure 1.3.4 indicates the virtual devices that can be assigned to each virtual cabinet and slot. Each virtual slot can be assigned 8 devices of the same type. Default selection is in **BOLD**.

Virtual Cabinet	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5	Slot 6
2	**VSL**	**VSL**	**VDL**	**VDL**	**WIRED ITP**	**WIRED ITP**
	VDL	VDL	VSL	VSL	WIFI ITP	WIFI ITP
	MOBEX	MOBEX	MOBEX	MOBEX	SIP STN	SIP STN
3	**WIRED ITP**	**WIRED ITP**	**WIRED ITP**	**WIRED ITP**	**WIFI ITP**	**WIFI ITP**
	WIFI ITP	WIFI ITP	WIFI ITP	WIFI ITP	VDL	VDL
	SIP STN	SIP STN	SIP STN	SIP STN	WIRED ITP	WIRED ITP
	MOBEX	MOBEX	MOBEX	MOBEX	MOBEX	MOBEX
4		**GRP CONF**	**SPNET TRK**	**SPNET TRK**	**SIP TRK**	**H323 TRK**
	GRP CONF		GRP CONF	GRP CONF	SPNET TRK	SPNET TRK
			SIP TRK	SIP TRK	H323 TRK	SIP TRK
				H323 TRK		
5	**MOBEX**	**MOBEX**	**MOBEX**	**MOBEX**	**MOBEX**	**MOBEX**
6	**MOBEX**	**MOBEX**	**MOBEX**	**MOBEX**	**MOBEX**	**MOBEX**

Figure 1.3.4

System Capacities

When configuring a system to meet your requirements, select the appropriate number of interface cards listed in Section 1.3.3 of this book to support the various types of switches, trunks, stations, voice mail and miscellaneous functions. Combine both the physical ports of the cabinet with the virtual ports in virtual cabinets 2 through 6 to build a system as required.

The following table (figure 1.3.5) indicates the maximum number of each circuit type or device available in the OfficeServ 7200-S. The system architecture is designed to be extremely flexible so as to provide a myriad of configurations.
However, it is impossible to accommodate all the maximum numbers into one system.

	OfficeServ 7200-S SYSTEM CAPACITIES		
STATIONS	Wireless Handsets	64	
	Analog Phones		
	Digital Phones		
	Samsung IP Phones / Softphones (UDP)		Maximum is 21 when using TCP with or without sRTP
	3rd Party SIP Phones		
	WE VoIP Clients	56	Best performance is less than 10
	Maximum Stations	**64**	
TRUNKS	Standard SIP Trunks	32	
	Standard H.323	24	
	Analog Trunks	32	
	Digital Trunks PRI	60	
	Networking Trunks (SPNet)	32	
	Maximum Trunks	**60**	
	Maximum Stations + Trunks	**108**	
VM	Voice Mail – In-skin	6	Auto Attendant and Voice Mail
VoIP	MGI Channels 3 OAS cards + 6 embedded	54	Required to connect an IP phone to a TDM device including paging, background music and ports used for networking or trunking.
	MPS (Media Proxy Service) Channels (2 channels used per call)	208	Provides IP to IP conversations without using MGI channels. 16 embedded on MP-20S and 192 added with OAS cards
OTHER DEVICES	Networking Nodes SPNet via QSIG (PRI) SPNet via IP	 99 99	 Uses available PRI card slots Limited by IP table in Device Manager 3.3.1
	Mobile Extensions (MOBEX)	60	
	Conference Circuits ▪ 5 party Add-on ▪ Unsupervised ▪ Barge-In ▪ Call Record ▪ AME (Answer Machine Emulation Conference Card (CNF24) ▪ Meet Me Conference channels	 6 6 6 6 6 1 24	Six Conference Circuits to be shared by all these features. Maximum of 1 CNF24 card per system 1 CNF24 card x 24 ports = 24 channels
	Common Resources ▪ DTMF Receivers/Senders ▪ Analog Caller ID Senders/Receivers ▪ External Music On Hold (MOH) ▪ Executive MOBEX Resources ▪ Loud bell audio output ▪ Common Programmable Relays	 6 8 1 60 1 2	 Embedded on MP20-S Embedded on MP20-S Embedded on MP20-S 8 on MP20-S + 52 added with OAS cards Control common bells or ext. page zones
	Paging ▪ Audio Output ▪ Internal Zones ▪ External Zones	 1 5 4	 1 on MP20-S Requires customer provided equipment

Figure 1.3.5

1.3.3 Hardware

SYSTEM CABINET

The OfficeServ 7200-S supports a single cabinet which may be wall mounted for smaller applications or alternatively the system may be mounted in a standard nineteen inch (19”) equipment rack. Each cabinet is comprised of the following:

- Five (5) universal interface card slots
- One processor card slot
- One power supply (installed in back panel of the cabinet)
- AC power connector
- DC power (Battery Backup) connector

CONTROL PROCESSOR (MP20S)

This is the main processor controlling system operation. The MP20S always goes in slot 0 of the cabinet. The MP20S provides a LAN connection, a MISC port (external page, MOH/BGM, loud/common bell), an SIO port (Samsung Maintenance Only), an internal modem slot, and a media card (SD) slot which can accommodate a SD card containing the system software and storage space for voicemail messages and prompts. The MP20S also includes embedded Automated Attendant, Voicemail, and MGI channels (license key required).
The MP20S has a connector for mounting the optional modem board. This modem board can be used for remote access to system administration at installation that does not have a LAN connection. This is the same modem card used in the other OfficeServ systems.

7200-S INTERFACE CARDS

UNI CARD

These cards provide the interface connections for telephone lines and stations to the KSU. These cards fit into the universal card slots to configure the system as required.
The UNI card can be installed in any of the two universal slots of the OfficeServ 7200-S system. The UNI card is used to accommodate these optional daughter boards. See figure 1.2.9 and section 2.4 Special Feature Cards for additional details.

- 4DLM
- 4SLM
- 4TRM

Any combination of these modules can be installed in any of the three slots on the UNI card for a total of 12 ports per UNI card. This type of slot configuration allows the customers to grow or expand in 4 port increments. Each slot can be used as a voice trunk line board or voice station board depending on the mounted option board. If a 4TRM option board is mounted in the UNI board, it operates as a voice trunk line board. If 4SLM and 4DLM option boards are mounted, it operates as a voice station board. The UNI card is not hot swappable. *This card cannot migrate to the OfficeServ 7200 or OfficeServ 7400 systems*. See installation manual for details.

7200-S COMMON OfficeServ INTERFACE CARDS

The following common OfficeServ interface cards are compatible with the OfficeServ 7200-S system. See figure 1.3.6. These cards can be installed in slots 1, 2, 3, 4 & 5 of the 7200 -S cabinet to achieve higher port configurations than the 12 port UNI card. See Section 2, Common Hardware, for details on each of the following interface cards.

8TRK2 16TRK TEPRIa 8DLI2 16DLI2 8SLI3
16SLI3 8COMBO3 OAS CNF24

7200-S HARDWARE CAPACITIES		
Interface Card	**Location**	**Maximum per System**
UNI Card	Slots 1, 2, 3, 4, 5	5
4DLM	UNI card	15
4SLM	UNI card	15
4TRM	UNI card	15
8TRK2	Slots 1, 2, 3, 4, 5	5
16TRK	Slots 1, 2, 3, 4, 5	3
8COMBO3	Slots 1, 2, 3, 4, 5	4
8SLI3	Slots 1, 2, 3, 4, 5	5
8DLI2	Slots 1, 2, 3, 4, 5	5
16DLI2	Slots 1, 2, 3, 4, 5	4
16SLI3	Slots 1, 2, 3, 4, 5	4
TEPRIa	Slots 3, 4, 5	2
OAS	Slots 3, 4, 5	3
CNF24	Slots 3, 4, 5	1
MAXIMUM AOM CAPACITIY		
	Per Station	**Maximum per System**
TDM 64 Button AOM	2	Limited by available DLI ports
IP 64 Button AOM	2	Limited by available IP/Virtual Ports

Figure 1.3.6

1.3.4 Embedded Applications

VOICEMAIL/AUTO ATTENDANT

The MP20S processor has the voicemail and automated attendant application embedded onto the card. The VMAA is designed to meet the demands of the sophisticated voice mail user without sacrificing simplicity. The Automated Attendant is available with six ports for processing voicemail/AA traffic routed to the Automated Attendant. The same six ports can be enabled to perform both the voicemail and automated attendant function of answering calls and storing messages into mailboxes for each extension. Four ports of VM/AA come standard. VM ports 5 and 6 require a license for each.

MEDIA GATEWAY INTERFACE

Six (6) MGI channels are embedded on the MP20S processor, and can be enabled on a per port basis with optional licenses. The embedded MGI channels can be enabled to support the following capabilities:

- IP Phones
- IP Networking (Network multiple systems over an SPNet IP Network)*
- G.729 CODEC, G.723.1, G.711, G.729A CODECs
- IP Trunking (SIP/H.323)
- T.38 Fax CODEC
- Inband or Out-of-band signaling of DTMF tones

The OfficeServ 7200-S can network using QSig over PRI or SP-Net over IP to other Samsung OfficeServ systems.

Note: An additional 16 MGI channels can be added to the system if necessary by installing an OAS card. The MP20S processor supports up to 3 OAS cards, in slots 3, 4, or 5.

MEDIA PROXY SERVICE

Media Proxy Service (MPS) is an exciting feature of the OfficeServ 7200-S system. The MPS allows IP devices (such as SIP stations, IP phones, and SIP trunks) to be switched on the backplane without the need to first convert conversations to TDM. This means that IP traffic can be switched without the use of an MGI channel. There are 16 MPS channels embedded on the MP20S processor card. This means that up to 8 IP-to-IP conversations can be occurring in the switch without the need to purchase an MGI license or any extra hardware. MPS channels can be expanded by adding OAS cards at a rate of 64 MPS channels per OAS card to a maximum of 3 OAS cards (192MPS channels.)

Remember that any IP device talking to any TDM device will still require an MGI channel. The below chart, figure 1.3.7 shows where MPS channels can be used and where devices will peer without using any system resources:

			STATIONS		TRUNKS					
			LAN	WAN	LAN			WAN		
			ITP/WIP/SIP	ITP/WIP/SIP	SIP	H.323	SPNET	SIP	H.323	SPNET
STATIONS	LOCAL	ITP	PEER	MPS	PEER	MPS	PEER	MPS	MPS	MPS
		WIP	PEER	MPS	PEER	MPS	PEER	MPS	MPS	MPS
		SIP	PEER	MPS	PEER	MPS	PEER	MPS	MPS	MPS
	REMOTE	ITP	MPS	MPS	MPS	MPS	MPS	MPS	MPS	MPS
		WIP	MPS	MPS	MPS	MPS	MPS	MPS	MPS	MPS
		SIP	MPS	MPS	MPS	MPS	MPS	MPS	MPS	MPS
TRUNKS	LOCAL	SIP	PEER	MPS	PEER	MPS	PEER	MPS	MPS	MPS
		H.323	MPS	MPS	MPS	MPS	MPS	MPS	MPS	MPS
		SPNET	PEER	MPS	PEER	MPS	PEER	MPS	MPS	MPS
	REMOTE	SIP	MPS	MPS	MPS	MPS	MPS	MPS	MPS	MPS
		H.323	MPS	MPS	MPS	MPS	MPS	MPS	MPS	MPS
		SPNET	MPS	MPS	MPS	MPS	MPS	MPS	MPS	MPS

Figure 1.3.7

MISCELLANEOUS FUNCTIONS

The 7200-S provides built-in hardware and circuits to support the following popular miscellaneous functions:

- One External Music on Hold / Background Music
- One External Page Announcement output
- One Loud Bell audio output input
- Two Programmable Relays to control common bells or external page zones

COMMON RESOURCES

The 7200-S provides common resources (standard equipment) that are shared through the system to support various system functions. These are:

- Six 5 party conference circuits
- Eight Caller ID sender /receiver circuits
- Eight DTMF receivers/transmitters
- Six MGI channels (licensed) for IP phones, IP
- Eight Executive Mobex DSPs (detect DTMF dialing trunks and IP networking during Executive Mobex calls)
- Sixteen MPS channels
- Six Voice Mail / Auto Attendant ports (four included as standard, ports 5 & 6 require an optional VM/AA License)

1.3.5 Technology

MEMORY

The system operates using stored program control. This program is stored on a Secure Digital (SD) media card inserted into the Main Processor card (MP20S). The media card also provides space for a backup customer database. The customer database is stored indefinitely in NAND Flash. Call Logs, Alarms, UCD call statistics, program logs and traffic reports are stored in NAND flash. No on/off battery switch is required for the MP20S. In addition, the SD card is used for voice message storage. Depending on the date of purchase the SD card will either be a 1 GB, providing approximately 52 hours of voicemail storage, or a 2 GB, providing approximately 123 hours of voice-mail storage.

Upon boot up this program is loaded into RAM. The OfficeServ 7200-S runs from RAM memory.

MICROPROCESSORS

OfficeServ 7200-S uses distributed processing. Its primary processor is a M82511G, operating at a clock speed of 375 MHz. This provides all the main processing necessary for the system. The tertiary level of processing is done in the keysets. The digital keysets use a Hitachi H8 processor for data communication within the system.

1.3.6 Programming

The OfficeServ 7200-S is a self-configuring system. This means that immediately after applying power, the OfficeServ 7200-S reads the types and locations of all installed interface cards and keysets and assigns default data to them. This data provides for system operation within a few minutes after applying power. All trunks and stations are assigned three digit numbers according to the default numbering plan. This numbering plan is flexible and may be changed to suit customer requirements. The installing technician customizes this default data to meet the end user's requirements.

DEVICE MANAGER

The OfficeServ 7200-S provides two methods to program the system from a personal computer. Access the system's embedded Device Manager programming interface using Internet Explorer 6.0 or higher for convenient web based access to the telephone and voice mail systems. Another method is to use the stand alone proprietary version of Device Manager Application running on any PC that meets the minimum requirements. Both methods allow programming from anywhere in the world provided there is a LAN/WAN or modem connection.

Device Manager permits a technician to access the phone system, modify the customer database, or download (save) the entire customer database to a file. This file can be saved as a backup and can be uploaded when required to restore the database. The Device Manager can also be used to view the customer database offline, and to send new loads of software upgrades to the media card in a live system.

The system can also be programmed from any IP or digital two line display keyset without interrupting system operation. There are three levels of programming: technician, customer, and station. The technician level has access to all programs and can allow the customer access to system programs as needed. Technician and customer access levels are controlled by a different security pass codes and access procedure.

MEDIA CARD

An OfficeServ 7200-S system must have a media card installed in the MEDIA CARD slot in the main control processor (MP20S). The media card type is an SD card. The media card contains the operating system, a backup customer database and voicemail messages to supplement the database stored in the NAND Flash.

Note: The SD media card has a write protect switch that will prevent a backup if in read only position.

1.3.7 Migration to OfficeServ 7200 or7400

For businesses using the OfficeServ 7200-S, Samsung provides a convenient, easy and affordable migration path to the larger OfficeServ7200 or OfficeServ 7400 systems.

- All keysets can be used on the larger OfficeServ 7000 systems.
- Features and operation are the same so there is no need to retrain users.

These 7200-S interface cards migrate to other OfficeServ systems as indicated in figure 1.3.8

7200-S CARD MIGRATION		
Interface Card	**7200**	**7400**
MP20S	No	No
UNI Card 4DLM 4SLM 4TRM	No	No
8TRK2	Yes	
16TRK	Yes	
8COMBO3	Yes	
8SLI3	Yes	
8DLI2	Yes	
16DLI2	Yes	
OAS	Yes	
TEPRIa	Yes	

Figure 1.3.8

1.4 OfficeServ 7200 System

1.4.1 General Description

Figure 1.4.1

The OfficeServ 7200 is an “office in a box” solution that converges IP with the 99.999% reliability of TDM voice processing. The OfficeServ 7200 platform supports industry standard Voice over Internet Protocol (VoIP), Session Initiation Protocol (SIP) as well as the more robust Telephony over IP (ToIP). Combine these technologies with Samsung’s Wireless LAN IP Handsets, smart phone soft client application, embedded Voice Mail Application, a suite of OfficeServ Computer Telephony applications, and much more, all in one powerful platform….A COMPLETE VOICE SOLUTION FOR THE OFFICE.

The OfficeServ 7200 can be mounted in a standard 19” rack, wall mounted, or set on a desktop. Media Gateway Cards (MGI), local IP keysets, remote IP keysets, and IP networking are easily and economically added as needed.

The OfficeServ 7200 offers a variety of interface cards that allow connection to the public telephone network and/or to private networks. These are generally referred to as trunk cards. Proprietary digital phones, called “keysets”, connect to Digital Line Interface cards (DLI). In addition to these conventional digital keyset, Samsung offers IP keysets. These IP keysets use the latest Voice over Internet protocol (VoIP) technology. They are ideal for distant (remote) locations where the digital keysets will not work. Connect to an Ethernet LAN and communicate with the system through the Media Gateway Interface cards (MGI). The MGI allows IP phones to communicate with TDM devices. Standard telephones, generally called “single line sets”, connect to single line interface cards (SLI). In addition, DLI station ports are used to connect peripheral devices such as door phones and add-on modules. Miscellaneous circuits are provided to allow such optional features as external paging, music on hold, background music, and common audible devices.

All keysets utilize a single PCB with surface-mounted components assuring the highest product quality and long life. Samsung’s customary large, easy-to-read displays and LEDs in the button design make them much easier to use. In many instances, sophisticated features are made simple through the use of friendly display prompts or push-on/push-off feature keys.

Expanding the OfficeServ 7200 system is both economical and easy. Begin with a single cabinet configured as a basic Key Service Unit and then add up to one more cabinet as your business grows. Its low and medium density card design allows greater flexibility when configuring a system for the right combination of lines and stations. A removable media card makes it convenient to upgrade to future feature packages.

1.4.2 Size and Configuration

The OfficeServ 7200 is a modular and flexible system available as a single cabinet or fully expanded two cabinet system. See figures 1.4.2 and 1.4.3

Figure 1.4.2

Each cabinet has one dedicated processor slot and five universal slots. The MP20 card is the main processor that fits into dedicated slot 0 of the main cabinet. The LCP card is the local processor that fits into the dedicated slot 0 of the expansion cabinet. There is only one cabinet type. The presence of an MP20 or LCP determines whether it is a main cabinet or an expansion cabinet.

Figure 1.4.3

Physical Cabinets and Slots

Physical cabinets 1 and 2 support the various combinations of cards detailed in Section 1.4.3. In a fully expanded two cabinet system there are a total of 10 universal card slots to configure the OfficeServ 7200 as required. Figure 1.4.4 shows the physical slots and the number of communication channels (ports) each slot supports.

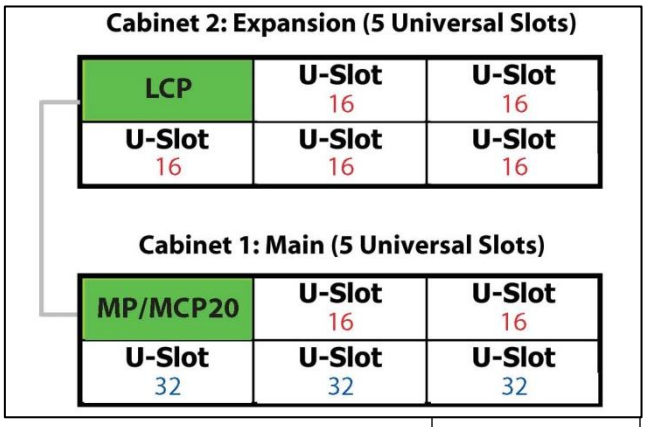


Figure 1.4.4

Virtual Cabinets

Virtual cabinets 3 ~ 8 provide six (6) slots each with each slot providing 8 communication channels (ports) for a total of 288 virtual devices.

See figure 1.4.5

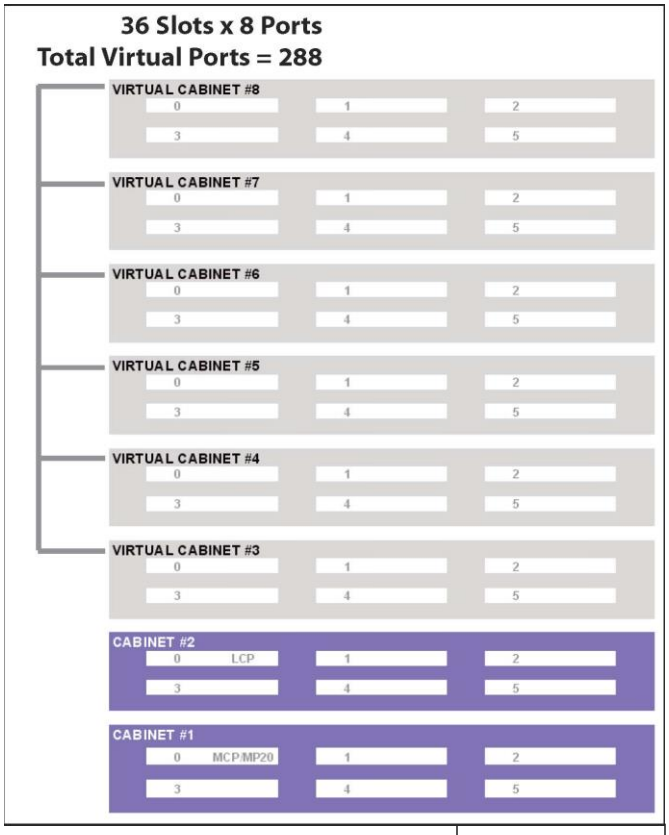


Figure 1.4.5

Virtual Devices

Virtual devices are stations and trunks that exist in the software database but do not require a physical connection to cards in the cabinet. The available virtual device types are listed below:

1. Virtual Single Line Interface – VSL
2. Virtual Digital Line Interface – VDL
3. IP telephones – WIRED ITP
4. Wireless IP handset – WIFI ITP
5. Samsung proprietary network trunk – SPNET TRK
6. SIP Trunks – SIP TRK
7. H.323 Trunks – H323 TRK
8. SIP Station – SIP STN
9. MOBEX Stations – MOBEX
10. Group Conference Stations – GCONF *(Group Conference Feature no longer supported)*
11. SIP Application – SIP APP (IP-UMS is an example of a SIP Application)

Virtual Cabinet Slot Assignment

Figure 1.4.6 indicates the virtual devices that can be assigned to each virtual cabinet and slot. Each virtual slot can be assigned 8 devices of the same type. Default is in **BOLD**.

Virtual Cabinet	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5	Slot 6
3	**VSL**	**VSL**	**VDL**	**VDL**	**WIRED ITP**	**WIRED ITP**
	VDL	VDL	VSL	VSL	VSL	VSL
	WIRED ITP	WIRED ITP	WIRED ITP	WIRED ITP	VDL	VDL
	WIFI ITP	WIFI ITP	WIFI ITP	WIFI ITP	WIFI ITP	WIFI ITP
	SIP STN	SIP STN	SIP STN	SIP STN	SIP STN	SIP STN
	MOBEX	MOBEX	MOBEX	MOBEX	MOBEX	MOBEX
4	**WIRED ITP**	**WIRED ITP**	**WIRED ITP**	**WIRED ITP**	**WIRED ITP**	**WIRED ITP**
	VSL	VSL	VDL	VDL	VDL	VDL
	VDL	VDL	WIFI ITP	WIFI ITP	WIFI ITP	WIFI ITP
	WIFI ITP	WIFI ITP	SIP STN	SIP STN	SIP STN	SIP STN
	SIP STN	SIP STN	SIP APP	SIP APP	SIP APP	SIP APP
	MOBEX	MOBEX	MOBEX	MOBEX	MOBEX	MOBEX
5	**WIFI ITP**	**WIFI ITP**	**WIFI ITP**	**WIFI ITP**		
	VDL	VDL	VDL	VDL	GRP CONF	GRP CONF
	WIRED ITP	WIRED ITP	WIRED ITP	WIRED ITP	SPNET TRK	SPNET TRK
	SIP STN	SIP STN	SIP STN	SIP STN	SIP TRK	SIP TRK
	SIP APP	SIP APP	SIP APP	SIP APP	MOBEX	MOBEX
	MOBEX	MOBEX	MOBEX	MOBEX		
6	**GRP CONF**	**GRP CONF**	**SPNET TRK**	**SPNET TRK**	**SIP TRK**	**H323 TRK**
	SPNET TRK	SPNET TRK	GRP CONF	GRP CONF	GRP CONF	GRP CONF
	SIP TRK	SIP TRK	SIP TRK	SIP TRK	SPNET TRK	SPNET TRK
			H323 TRK	H323 TRK	H323 TRK	SIP TRK
7	**VDL**	**VDL**	**MOBEX**	**MOBEX**	**MOBEX**	**MOBEX**
	MOBEX	MOBEX	VDL	VDL	VDL	VDL
8	**MOBEX**	**MOBEX**	**MOBEX**	**MOBEX**	**MOBEX**	**MOBEX**
	VDL	VDL	VDL	VDL	VDL	VDL

Figure 1.4.6

System Capacities

When configuring a system to meet your requirements, select the appropriate number of interface cards listed in Section 1.4.3 of this book to support the various types of switches, trunks, stations, voice mail and miscellaneous functions. Combine both the physical ports of the cabinet with the virtual ports in virtual cabinets 3 through 8 to build a system as required.

The following table (figure 1.4.7) indicates the maximum number of each circuit type or device available in the OfficeServ 7200. The system architecture is designed to be extremely flexible so as to provide a myriad of configurations.

However, it is impossible to accommodate all the maximum numbers into one system.

	OfficeServ 7200 SYSTEM CAPACITIES		
STATIONS	Wireless Handsets	128	
	Analog Phones		
	Digital Phones		
	Samsung IP Phones / Softphones (UDP)		Maximum is 42 when using TCP with or without sRTP
	3rd Party SIP Phones		
	WE VoIP Clients	56	Best performance is less than 20
	Maximum Stations	**128**	
TRUNKS	Standard SIP Trunks	64	
	Standard H.323	32	
	Analog Trunks	64	
	Digital Trunks PRI	60	Regardless of how many TEPRIa cards are installed
	Networking Trunks (SPNet)	64	
	Maximum Trunks	**64**	
	Maximum Stations + Trunks	**188**	
VM	Voice Mail – In-skin	20	SVMi-20i Auto Attendant and Voice Mail
	Voice Mail- IP-UMS	32	Optional server based Unified VM/AA
VoIP	MGI Channels 5 OAS cards	80	Required to connect an IP phone to a TDM device including paging, background music and ports used for networking or trunking.
	MPS (Media Proxy Service) Channels (2 channels used per call)	256	Provides IP to IP conversations without using MGI channels. Available on OAS cards
OTHER DEVICES	Networking Nodes SPNet via QSIG (PRI) SPNet via IP	 99 99	 Uses availableT1/PRI card slots Limited by IP table in Device Manager 3.3.1
	Mobile Extensions (MOBEX)	60	
	Conference Circuits ▪ 5 party Add-on ▪ Unsupervised ▪ Barge-In ▪ Call Record ▪ AME (Answer Machine Emulation Conference Card (CNF24) ▪ Meet Me Conference channels	 6 6 6 6 6 2 48	Six Conference Circuits to be shared by all these features. Maximum of 2 CNF24 card per system 2 CNF24 cards x 24 ports = 48 channels
	Common Resources ▪ DTMF Receivers ▪ DTMF Senders ▪ Analog Caller ID Senders/Receivers ▪ External Music On Hold (MOH) ▪ Executive MOBEX Resources ▪ Loud bell audio output ▪ Common Programmable Relays	 16 48 14 2 64 1 2	 4 on MP20 + 12 on optional CRM module 32 on MP20 + 16 on optional CRM module On optional CRM module Requires optional MIS Module and CPE Requires OAS Cards On optional MIS Module Need MIS module for programmable relays

	Paging ▪ Audio Output ▪ Internal Zones ▪ External Zones	 1 5 4	 1 on MIS card Requires customer provided equipment

Figure 1.4.7

1.4.3 Hardware

SYSTEM CABINETS

The cabinets that make up the OfficeServ 7200 system are of metal construction and may be utilized as either as an expansion cabinet or as a main cabinet / key service unit (KSU). The cabinets may be used individually or may be stacked up to two (2) high to achieve maximum capacity. A single cabinet may be wall mounted for smaller applications or alternatively the system may be mounted in a standard nineteen inch (19") equipment rack. Each cabinet is comprised of the following:

Five (5) universal interface card slots
One processor card slot
One power supply (installed in back panel of the cabinet)
AC power connector
DC power (Battery Backup) connector

PROCESSOR CARDS

The OfficeServ 7200 requires a processor card in order to operate. In a single cabinet OfficeServ 7200 system, only one processor card, the Main Control Processor (MP20), is required. Each expansion cabinet requires its own Local Control Processor (LCP). These processor cards are described below.

MAIN CONTROL PROCESSOR (MP20)

The Main Control Processor (MP20) is installed the dedicated processor slot, slot 0, of the first cabinet. The MP20 is using a MPC8247 processor chip for superior performance and is using SRAM and NAND flash memory. The SRAM has 128MB of memory. The backup memory is using NAND flash memory and does not have a super capacitor for database backup. The database will do a backup every 5 minutes from SRAM to NAND flash memory or when the user disables programming.

Without additional daughter boards the MP20 includes the following common system resources:

- 4 DTMF Receiver
- 32 DTMF Senders
- 6 Five Party Conference Groups

Important Note: The MP20 requires a Secure Digital (SD) media card with proprietary Samsung format. This is the standard media card for the OfficeServ 7200 system. The card has a switch that can put it into a READ ONLY state what will not allow a backup database to be created. Make sure the switch is in write mode (position the switch toward the contact pins).

The MP20 card has positions for three daughter boards. The first daughter board position (labeled "MIS") can support the MIS daughter board ONLY. The second daughter board position is only for the CRM daughter board. The third daughter board position is dedicated only for the CRM daughter board or the modem board. See figure 1.4.8

MAIN CONTROL PROCESSOR (MP20) DAUGHTER BOARD CAPABILITIES	
Position	**Types of Daughter Boards**
MP20 – D1	MIS
MP20 – D2	CRM
MP20 – D3	MODEM / CRM

Figure 1.4.8

LOCAL CONTROL PROCESSOR (LCP)

The Local Control Processor (LCP) card is installed in a dedicated processor slot, slot 0, of the expansion cabinet. The LCP controls the interface boards in the expansion cabinet and communicates with the MP20. A three (3) wire link cable connects the LCP to the MP20.

COMMON RESOURCE MODULE (CRM)

The multi-functional board provides various common resources that are shared through the system cabinets. The CRM provides the following:

- Six five party conference circuits
- Two (2) 8 channel DSPs. The two DSPs act like one large DSP and can be programmed either as an Analog Caller ID receiver/transmitter or as a DTMF receiver. Choices are:
    - Eight (8) CID Receive/Transmitter plus 8 DTMF Receivers
    - Sixteen (16) CID Receivers/Transmitters
    - Sixteen (16) DTMF Receivers

Note: DTMF receivers and CID senders are included on the 8SLI3, 8COMBO3, and 16SLI3 cards to support the analog devices and do not need to share these common system resources.

MISCELLANEOUS FUNCTION MODULE (MIS)

The Miscellaneous Function Module (MIS) daughter board installs in the first position on the MP20 card. The MIS daughter board is used to provide external music on hold/audio inputs (radios, digital announcers, etc.), external paging auto output, loud bell, common bell and programmable dry contact closures.

The MIS consists of the following:

- Two (2) external music/audio inputs
- One (1) external paging audio output
- One (1) loud bell audio output
- One (1) common bell relay contact closure
- Two (2) software programmable relay contact closures

Only one MIS per system is allowed.

7200 COMMON OfficeServ INTERFACE CARDS

The following common OfficeServ interface cards are compatible with the OfficeServ 7200 system. See Figure 1.4.9 below. These cards can be installed in any of the 10 universal slots (U-Slots) shown in figure 1.4.4 of this section. See Section 2, Common Hardware for individual card details.

8TRK2	**16TRK**	**TEPRIa**	**8DLI2**	**16DLI2**	**8SLI3**
16SLI3	**8COMBO3**	**OAS**	**CNF24**	**SVMi-20i**	

7200 HARDWARE CAPACITIES		
Interface Card	**Location**	**Maximum per System**
8TRK2	Slots 1, 2, 3, 4, 5 of Cabinet 1 or 2	5
16TRK	Slots 1, 2, 3, 4, 5 of Cabinet 1 or 2	3
8COMBO3	Slots 1, 2, 3, 4, 5 of Cabinet 1 or 2	4
8SLI3	Slots 1, 2, 3, 4, 5 of Cabinet 1 or 2	5
8DLI2	Slots 1, 2, 3, 4, 5 of Cabinet 1 or 2	5
16DLI2	Slots 1, 2, 3, 4, 5 of Cabinet 1 or 2	4
16SLI3	Slots 1, 2, 3, 4, 5 of Cabinet 1 or 2	4
TEPRIa	Slots 3, 4, and 5 of Cabinet 1 to get all 23 trunks Any universal slot will provide only 16 trunks	3
OAS	Slots 3, 4, 5 to get max MPS & Exec, Mobex Any universal slot will provide only 16 MGI	5
SVMi-20i	Slots 3, 4, and 5 of Cabinet 1 to get all 20 ports Any universal slot will provide only 16 ports	1
CNF24	Slots 3, 4, 5 of Cabinet 1 Any universal slot will provide only 16 CNF ports	2

MAXIMUM AOM CAPACITIY		
	Per Station	**Maximum per System**
TDM 64 Button AOM	4	Limited by available DLI ports
IP 64 Button AOM	4	Limited by available IP/Virtual Ports

Figure 1.4.9

NOTE: OAS CARD SLOT CONSIDERATIONS

The OAS card can be installed in any universal slot. When installed in slot 1 or 2 of the main cabinet or any slot in the expansion cabinet (see figure 1.4.4) only 16 timeslots are available for the OAS card, so a maximum of 16 MOBEX DTMF receivers per card is possible. All other slots allow up to 32 MOBEX receivers per card. A maximum of 5 OAS cards can be installed, allowing up to 64 Executive MOBEX users, 80 MGI channels, or a mixture of each, and up to 256 MPS channels. See Mobile Extension (MOBEX) for more information.

Note: Unlike the smaller OfficeServ 7030, 7100 and 7200-S systems there are no embedded applications on the OfficeServ 7200.

The following functions require dedicated cards.

VOICEMAIL/AUTO ATTENDANT	**SVMi-20i or IP-UMS**
MEDIA GATEWAY INTERFACE (MGI)	**OAS Cards**
MEDIA PROXY SERVICE (MPS)	**OAS Cards**
COMMON RESOURCES	**CRM Daughter Board**
MISCELLANEOUS FUNCTIONS	**MIS Daughter Board**

1.4.4 Technology

MEMORY

The system program is stored on a Secure Digital (SD) media card inserted into the Main Processor card (MP20). Upon power up the system, program is loaded into 128MB of SRAM. The customer database is written to SRAM then permanently saved in NAND flash memory every five minutes or immediately upon existing system programming. The media card also stores a backup copy of the system databases. This can be restored to RAM at any time.

MICROPROCESSORS

OfficeServ 7200 uses distributed processing. Its primary processor is a 32 bit Motorola MPC8247 operating at a clock speed of 266 MHz on the MP20 card. The time switch uses a STC9604 processor, and the RTC uses a RTC8564 chip. In a multi cabinet system, the secondary level of processing is on the LCP card for the expansion cabinet. The digital keysets use a Hitachi H8 processor for data communication within the system.

1.4.5 Programming

The OfficeServ 7200 is a self-configuring system. This means that immediately after initial startup, the OfficeServ 7200 reads the types and locations of all installed cards and keysets and assigns a default database according to the switches set on the MP20 card. The switch settings allow for a three or four digit number plan for lines, trunks, and groups. The installing technician customizes this default data to meet the end customers' requirements.

The system can be programmed from any LCD set whether IP or Digital without interrupting system operations. There are three levels of programming: technician, customer, and station. The technician level has access to all programs and can allow the customer access to system programs as needed. Technician and customer access levels are controlled by a different security passcode and access procedures.

DEVICE MANAGER

The OfficeServ 7200 provides two methods to program the system from a personal computer. Access the system's embedded Device Manager programming interface using Internet Explorer 6.0 or higher for convenient web based access. Another method is to use the stand alone proprietary version of Device Manager running on any PC that meets the minimum requirements. Both methods allow programming from anywhere in the world provided there is a LAN/WAN or modem connection. Device Manager permits a technician to access the system using a personal computer. DM can be used on-site to modify the customer database or to download (save) the entire customer database to a file. This file can then be saved as a backup and be uploaded when required to restore the database. Through the use of LAN connection, DM can access the OfficeServ system remotely (off-site) to make database changes or perform uploads or downloads of the customer database as if the technician were on-site.

MEDIA CARD

An OfficeServ 7200 system must have a media card installed in the MEDIA CARD slot in the main control processor (MP20). The media card contains the system operating software, a backup customer database file, and backup copies of the software for the LCP, and TEPRIa cards. The media card is a Secure Digital (SD) type media device.

Note: The SD media card has a write protect switch that will prevent a backup if in read only position.

1.4.6 Migration to OfficeServ 7400

When communication requirements exceed the maximum capacity of the OfficeServ 7200, Samsung provides a convenient, easy, and affordable migration path to the larger OfficeServ 7400. Simply install a 7400 as the main cabinet. Replace the MP20 card with an LCP card and your existing 7200 cabinets and interface cards become part of a much larger OfficeServ 7400

- All keysets can be used on the larger OfficeServ 7000 systems.
- Features and operation are the same so there is no need to retrain users.

These 7200 interface cards migrate to the OfficeServ 7400 systems as indicated in figure 1.4.10.

7200 CARD MIGRATION	
Interface Card	**7400**
MP20S	No
8TRK2	Yes
16TRK	Yes
8COMBO3	Yes
8SLI3	Yes
8DLI2	Yes
16DLI2	Yes
OAS	Yes
TEPRIa	Yes
MIS	Yes
CRM	Yes
SVMi-20i	Yes

Figure 1.4.10

Figures 1.4.11, 1.4.12 and 1.4.13 show the possible combinations of OfficeServ 7200 Cabinets and 7400 Cabinets. The 7200 system cabinets become expansion cabinets in a 7400 system.

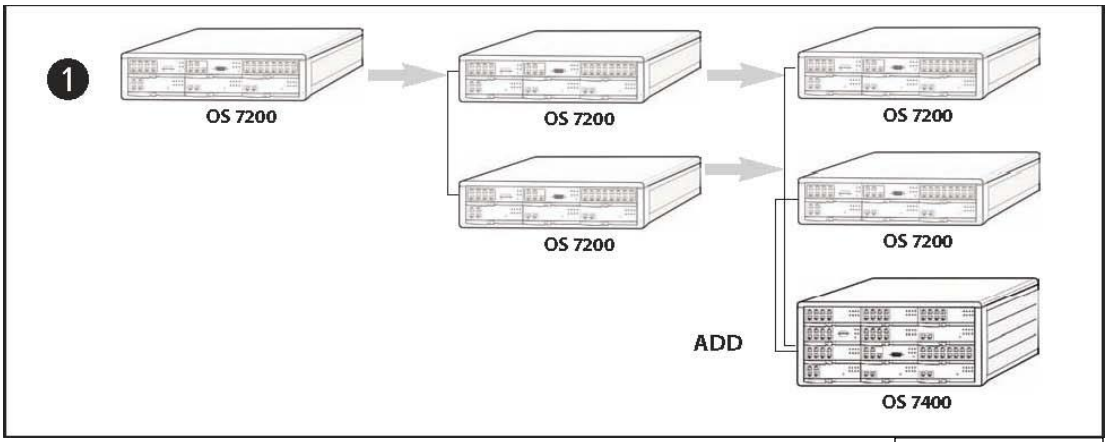


Figure 1.4.11

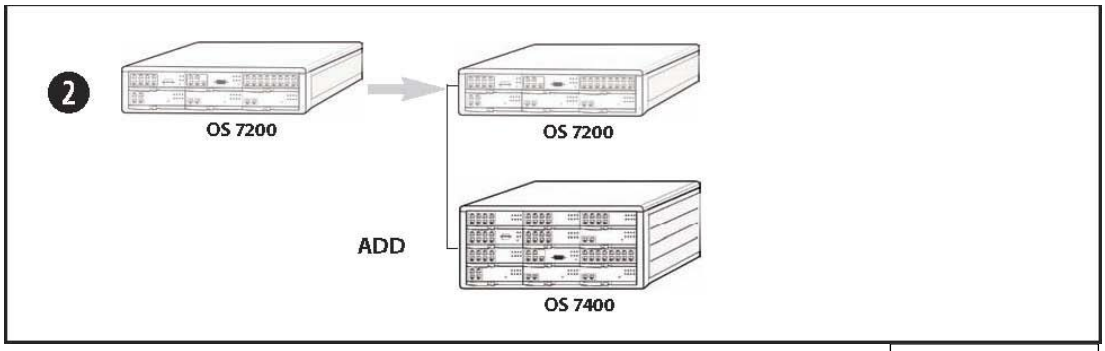


Figure 1.4.12

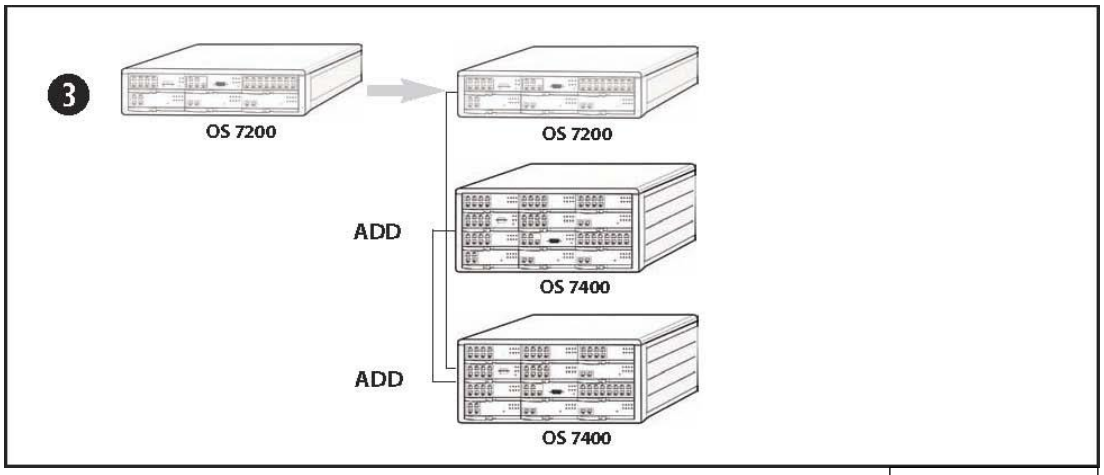


Figure 1.4.13

1.5 OfficeServ 7400 System

1.5.1 General Description

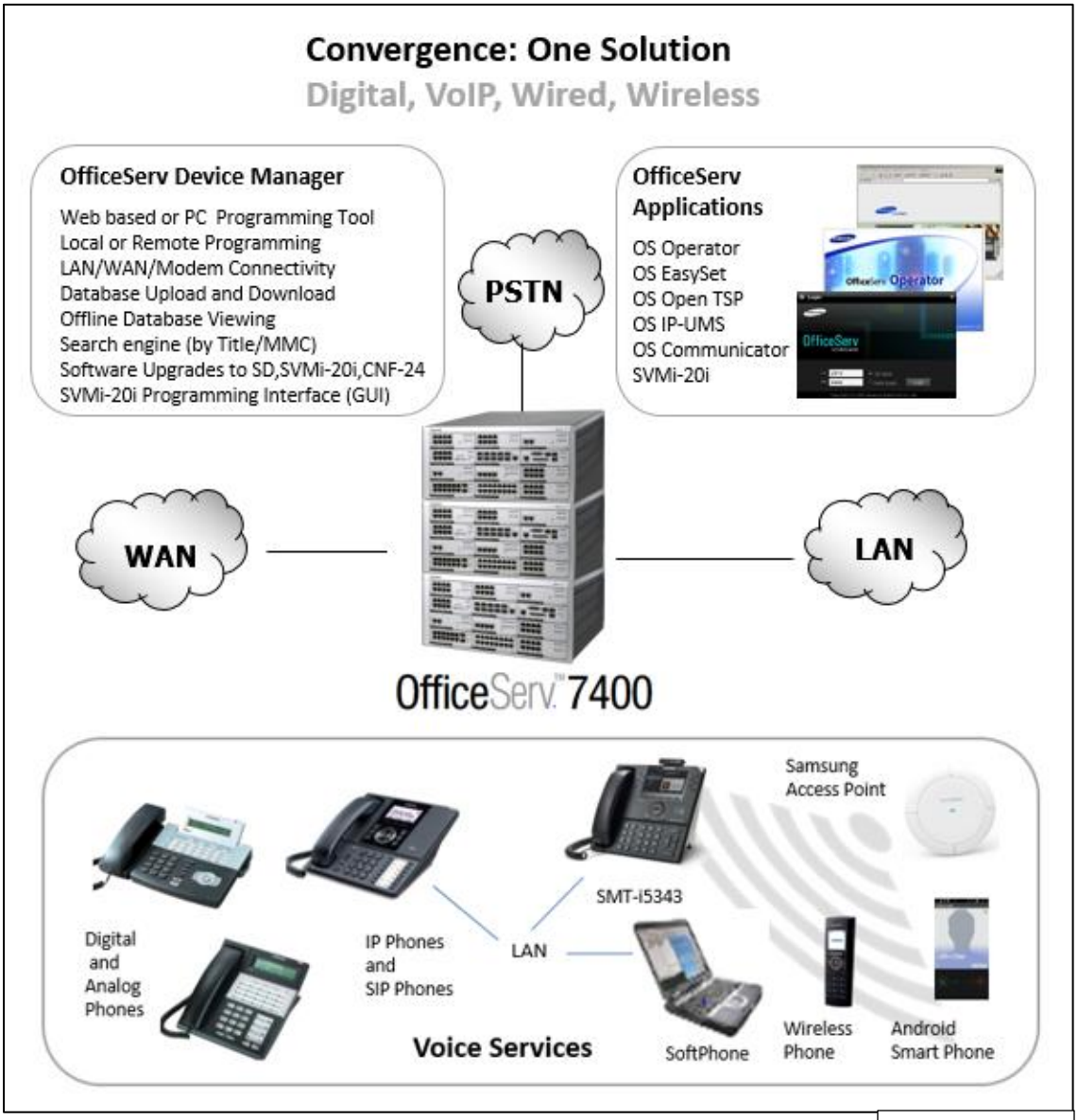


Figure 1.5.1

The OfficeServ 7400 is an “office in a box” solution that converges IP with the 99.999% reliability of TDM voice processing. The OfficeServ 7400 platform supports industry standard Voice over Internet Protocol (VoIP), Session Initiation Protocol (SIP) as well as the more robust Telephony over IP (ToIP). Combine these technologies with Samsung’s Wireless LAN IP Handsets, smart phone soft client application, embedded Voice Mail Application, a suite of OfficeServ Computer Telephony applications, and much more, all in one powerful platform….A COMPLETE VOICE SOLUTION FOR THE OFFICE.

The OfficeServ 7400 can be rack-mounted in a standard 19" data rack or set on a desktop. Its compact cabinet design, RJ-45 connectors, and CAT 5 cabling allows it to easily integrate into any data center environment along with existing data equipment. Expanding the OfficeServ 7400 system is both economical and easy. Begin with a single cabinet providing 10 universal card slots, then add up to two additional cabinets as your business grows. Its low and high density card design allows greater flexibility when configuring a system for the right combination of lines and stations. A removable media makes it convenient to upgrade to future feature packages.

The OfficeServ 7400 offers a variety of interface cards that allow connection to the public telephone network and/or to private networks using either analog or digital circuits. Proprietary digital phones called "keysets" connect to Digital Line Interface cards (DLI). In addition to these conventional digital keyset, Samsung offers a complete line-up of IP terminals. These IP terminals use the latest Voice over Internet Protocol (VoIP) technology and can be deployed over LANs or WANs. They are ideal for distant (remote) locations providing all the benefits of the OfficeServ 7400 to home workers and road worriers. Standard telephones, generally called "single line sets", connect to single line interface cards (SLI). In addition, DLI station ports are used to connect peripheral devices such as door phones and add-on modules. Miscellaneous circuits are provided to allow such optional features as external paging, music on hold, background music, and common audible devices.

All digital and IP telephones utilize a single PCB with surface-mounted components assuring the highest product quality and long life. Samsung's customary large, easy-to-read displays and LEDs in the button design make them much easier to use. In many instances, sophisticated features are made simple through the use of friendly display prompts or push-on/push-off feature keys. The OfficeServ 7400 includes all of this, PLUS the same, robust, time proven, market tested feature package offered on all the OfficeServ 7000 systems.

BENEFITS

- End to End Samsung components, Samsung Support and Samsung Training. The Ultimate in single source Shopping and maintenance!
- Hardware migration from the 7100, 7200-S and 7200 to the 7400.
- The OfficeServ 7400 networks (via SPNET over IP or QSig over PRI) to other 7400's or any other OfficeServ 7030, 7100, 7200-S, 7200 systems.

1.5.2 Size and Configuration

The OfficeServ 7400 is a modular and flexible platform from one to three cabinets. See Figure 1.5.2 showing a one, two and fully expanded three cabinet OfficeServ 7400 system.

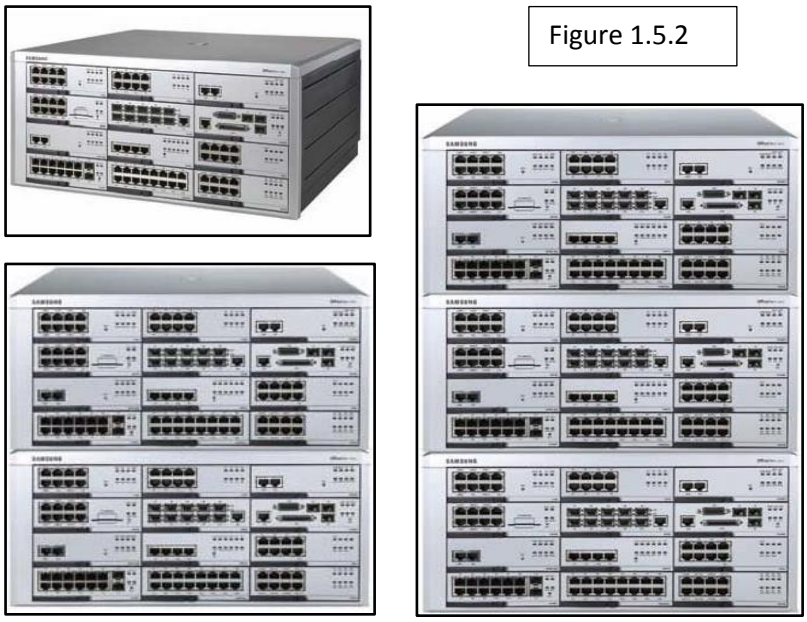


Figure 1.5.2

Physical Cabinets and Slots

The first or Main Cabinet has two dedicated processor slots for the MP40 (Main Processor) and the LP40 (Local Processor) and 10 universal slots. Each of the card slots provides 64 communication channels to support high density modules. See Figure 1-5. The second and third cabinets (expansion cabinets) require only the LP40 so they provide 11 universal slots each. Each of the expansion cabinet card slots provides 32 communication channels. The combined total of universal slots for a fully expanded OfficeServ 7400 is 32, (10 + 11 + 11). See Figure 1.5.3.

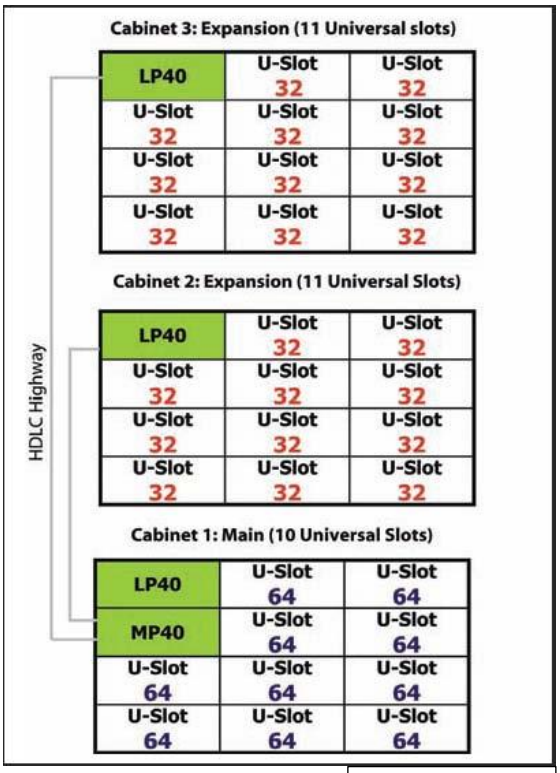


Figure 1.5.3

Virtual Cabinets

Figure 1.5.4 shows the OfficeServ 7400 system has three virtual cabinets, numbered 4, 5 and 6.
Each virtual cabinet provides 12 slots. Each virtual slot provides 32 communication channels (ports).

36 Slots X 32 Ports = 1,152 virtual ports available for virtual devices

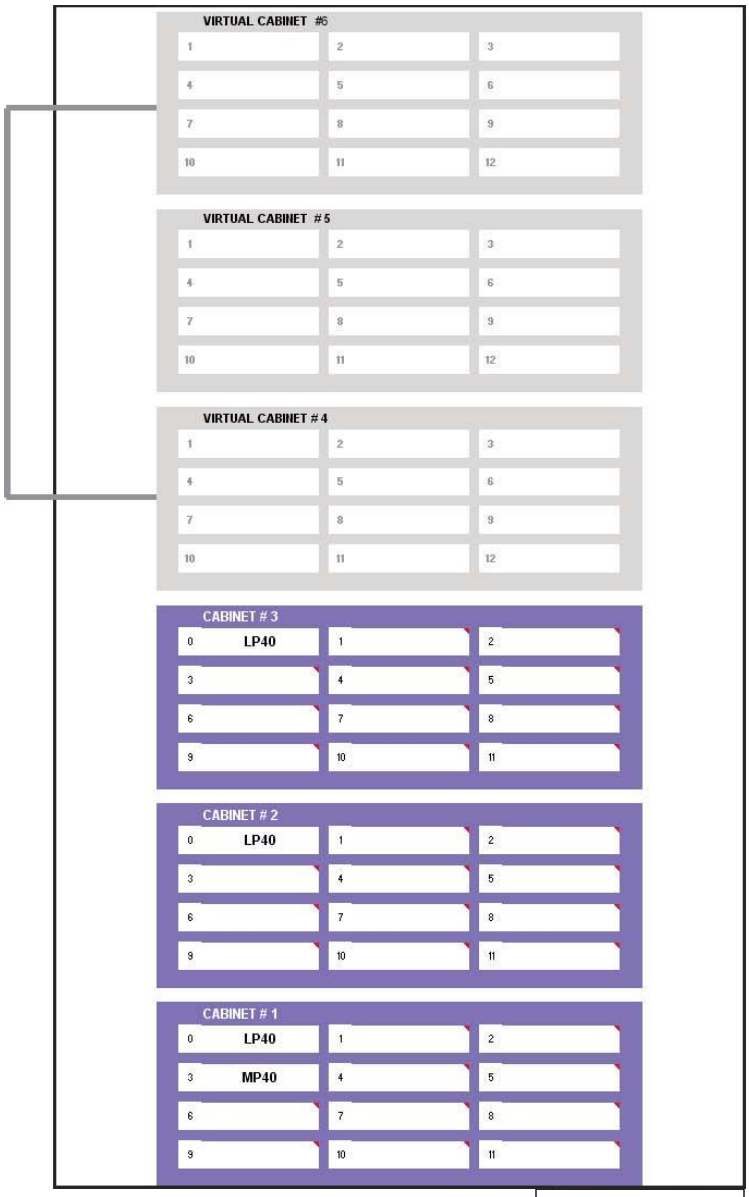


Figure 1.5.4

Virtual Devices

Virtual devices are stations and trunks that exist in the software database but do not require a physical connection to cards in Cabinets 1, 2 and 3. The available virtual device types are listed below:

1. Virtual Single Line Interface– VSL
2. Virtual Digital Line Interface – VDL
3. IP telephones – WIRED ITP
4. Wireless IP handset – WIFI ITP
5. Samsung proprietary network trunk – SPNET TRK
6. SIP Trunks – SIP TRK
7. H.323 Trunks – H323 TRK
8. SIP Station – SIP STN
9. MOBEX Stations – MOBEX
10. Group Conference Stations – GCONF *(Group Conference Feature no longer supported)*
11. SIP Application – SIP APP (IP-UMS is an example of a SIP Application)

Virtual Cabinet Slot Assignment

Figure 1.5.5 indicates the virtual devices that can be assigned to each slot in virtual cabinets 4, 5 and 6. Each virtual slot can be assigned 32 devices of the same type.

	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5	Slot 6	Slot 7	Slot 8	Slot 9	Slot 10	Slot 11	Slot 12
4	**VSL**	**VSL**	**VDL**	**VDL**	**WIRED ITP**	**WIRED ITP**	**WIRED ITP**	**WIFI ITP**	**WIFI ITP**	**WIFI ITP**	**WIRED ITP**	**WIRED ITP**
	VDL	VDL	VSL	VSL	VSL	VSL	VSL	VSL	VDL	VDL	VDL	VDL
	WIRED ITP	WIRED ITP	WIRED ITP	WIRED ITP	VDL	VDL	VDL	VDL	WIRED ITP	WIRED ITP	WIFI ITP	WIFI ITP
	SIP STN	SIP STN	SIP STN	SIP STN	SIP STN	SIP STN	WIFI ITP	WIFI ITP	SIP STN	SIP STN	SIP STN	SIP STN
			SIP APP	SIP APP	SIP APP	SIP APP	SIP STN	SIP STN	SIP APP	SIP APP	MOBEX	MOBEX
					MOBEX	MOBEX	SIP APP	SIP APP	MOBEX	MOBEX		
5	**WIRED ITP**	**WIRED ITP**	**WIRED ITP**			**GRP CONF**	**SPNET TRK**	**SPNET TRK**	**SIP TRK**	**SIP TRK**	**H322**	**H323**
	VDL	VDL	VDL	GRP CONF	GRP CONF	SPNET TRK	GRP CONF	GRP CONF	GRP CONF	GRP CONF	SPNET TRK	SIP TRK
	SIP STN	SIP STN	SIP STN	MOBEX	SPNET TRK	SIP TRK	SIP TRK	SIP TRK	SPNET TRK	SPNET TRK	SIP TRK	
	MOBEX	MOBEX	MOBEX		MOBEX							
6	**VDL**	**VDL**	**MOBEX**	**MOBEX**	**MOBEX**	**MOBEX**	**MOBEX**	**MOBEX**	**MOBEX**	**MOBEX**	**MOBEX**	**MOBEX**
	MOBEX	MOBEX	VDL	VDL	VDL	VDL	VDL	VDL	VDL	VDL	VDL	VDL

Figure 1.5.5

System Capacities

When configuring a system to meet your requirements, select the appropriate number of interface cards listed in Section 1.4.3 of this book to support the various types of trunks, stations, voice mail and miscellaneous functions. Combine both the physical ports of cabinets 1, 2 and 3 with the virtual ports in virtual cabinets 4, 5 and 6 to build a system as required.

The following table (figure 1.5.6) indicates the maximum number of each circuit type or device available in the OfficeServ 7400. The system architecture is designed to be extremely flexible so as to provide a myriad of configurations.
However, it is impossible to accommodate all the maximum numbers into one system.

	OfficeServ 7400 SYSTEM CAPACITIES		
STATIONS	Wireless Handsets	192	
	Analog Phones	480	
	Digital Phones		
	Samsung IP Phones / Softphones (UDP)		Maximum is 160 when using TCP with or without sRTP
	3rd Party SIP Phones		
	WE VoIP Clients	224	Best performance is less than 40
	Maximum Stations	**480**	
TRUNKS	Standard SIP Trunks	256	
	Standard H.323	64	
	Analog Trunks	240	
	Digital Trunks PRI		
	Networking Trunks (SPNet)	224	
	Maximum Trunks	**240**	
	Maximum Stations + Trunks	**688**	
VM	Voice Mail – In-skin	20	SVMi-20i Auto Attendant and Voice Mail
	Voice Mail- IP-UMS	128	Optional server based Unified VM/AA
VoIP	MGI Channels	512	Required to connect an IP phone to a TDM device including paging, background music and ports used for networking or trunking.
	MPS (Media Proxy Service) Channels (2 channels used per call)	512	Provides IP to IP conversations without using MGI channels. Requires OAS cards
OTHER DEVICES	Networking Nodes SPNet via QSIG (PRI) SPNet via IP	 99 99	 Uses availableT1/ PRI card slots Limited by IP table in Device Manager 3.3.1
	Mobile Extensions (MOBEX)	400	
	Conference Circuits ▪ 5 party Add-on ▪ Unsupervised ▪ Barge-In ▪ Call Record ▪ AME (Answer Machine Emulation Conference Card (CNF24) ▪ Meet Me Conference channels	 6 6 6 6 6 4 96	Maximum of 54 conference circuits to be shared by all these features. To get all 54 circuits requires 3 cabinets plus 6 CRM modules Maximum of 4 CNF24 card per system 4 CNF24 cards x 24 ports = 96 channels
	Common Resources ▪ DTMF Receivers ▪ DTMF Senders ▪ Analog Caller ID Senders/Receivers ▪ External Music On Hold (MOH) ▪ Executive MOBEX Resources ▪ Loud bell audio output ▪ Common Programmable Relays	 16 32 14 6 256 3 2	 4 on MP40 + 12 on optional CRM module All on MP40 On optional CRM module 2 per MIS module (1 MIS per cabinet) Requires OAS Cards 1 per MIS Module (1MIS per cabinet) 2 per MIS module (1 MIS per cabinet)
	Paging ▪ Audio Output ▪ Internal Zones ▪ External Zones	 3 5 4	 1 on each MIS module (1 per cabinet) Requires customer provided equipment

Figure 1.5.6

1.5.3 Hardware

SYSTEM CABINETS

The OfficeServ 7400 system has a common universal cabinet design. This cabinet can be configured as the main cabinet or as an expansion cabinet. Inserting both the MP40 & LP40 cards in specific slots makes it the main cabinet. Inserting the LP40 card in a dedicated slot make it an expansion cabinet. The system can be a single cabinet or expand to a 3-cabinet system by adding up to 2 additional expansion cabinets. The main cabinet offers 10 universal slots and each expansion 7400 cabinet offers 11 universal slots. Therefore, a 3-cabinet system offers a total of 32 universal slots. In the main cabinet, all slots are 64-channel slots while the slots in the 7400 expansion cabinets are 32-channel slots. The OfficeServ 7200 cabinet can also be used as an expansion cabinet. It offers 1 32-channel slot and four 16-channel slots.

MP40 (MAIN CONTROL PROCESSOR)

This is the main processor controlling system operation. The MP40 always goes in slot 3 of the main cabinet. The MP40 provides the LP40 link connectors to connect two expansion cabinets, a LAN port, and a media card.

The MP40 also has a connector for mounting the optional modem daughter board. This modem board can be used for remote access to system administration at installations that do not have a LAN or WAN connection. In addition it may be used as a backup for LAN connectivity. This is the same modem board used with the other OfficeServ 7000 systems.

The MP40 includes, without additional daughter boards, the following common system resources:

- 4 DTMF Receivers
- 32 DTMF Senders
- 6 Five-Party Conference Group.

LP40 (LOCAL CONTROL PROCESSOR)

The LP40 is a local processor that is required in every cabinet. It must go into slot 0 of each cabinet. Even if you have a single cabinet system, you must install an LP40. Each LP40 provides 6 five-party conference circuits and 8 DTMF receivers. All system daughter boards are installed on LP40 cards except for the modem daughter board.

LP40 CARD-DAUGHTER BOARDS

There following types of optional daughter boards are available to increase system resources in various combinations as required. They can only be mounted on the LP40 cards
See Figure 1.5.7.

LP40 DAUGHTER BOARD CAPABILITIES	
Position	**Types of Daughter Boards**
LP40 – LOC1	CRM
LP40 – LOC2	CRM
LP40 – LOC3	MIS

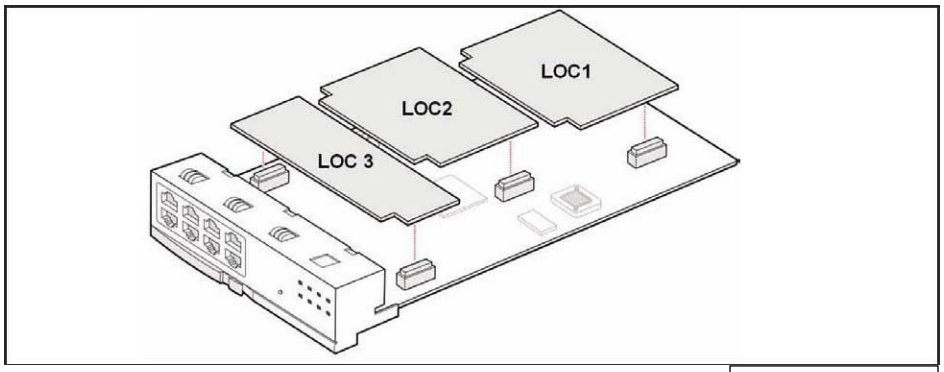


Figure 1.5.7

1. **COMMON RESOURCE MODULE (CRM)**

   The multi-functional board provides various common resources that are shared through the system cabinets. The CRM provides the following:

   - Six five party conference circuits
   - Two (2) 8 channel DSPs. The two DSPs act like one large DSP and can be programmed either as an Analog Caller ID receiver/transmitter or as a DTMF receiver. Choices are:
     - Eight (8) CID Receive/Transmitter plus 8 DTMF Receivers
     - Sixteen (16) CID Receivers/Transmitters
     - Sixteen (16) DTMF Receivers

   Maximum of 6 CRM modules per system per system, 2 CRMs per LP40

2. **MISCELLANEOUS FUNCTION MODULE (MIS)**

   The Miscellaneous Function Module (MIS) daughter board can only be installed in LOC3 of the LP40 card. The MIS daughter board is used to provide external music on hold/audio inputs (radios, digital announcers, etc.), external paging audio output, loud bell audio output, common bell relays and programmable dry contact closures. The MIS consists of the following:

   - Two (2) external music/audio inputs
   - One (1) external paging audio output
   - One (1) loud bell audio output
   - One (1) common bell relay contact closure
   - Two (2) software programmable relay contact closures

   Maximum of 3 MIS modules per system, 1 MIS per LP40

7200 COMMON OfficeServ INTERFACE CARDS

The following common OfficeServ interface cards are compatible with the OfficeServ 7400 system. See Figure 1.5.8 below. These cards can be installed in any of the 32 universal slots (U-Slot) shown in figure 1.5.3 of this section. See Section 2, Common Hardware for individual card details.

8TRK2 16TRK TEPRIa 8DLI2 16DLI2 8SLI3 16SLI3 8COMBO3 OAS SVMi-20i TEPRI2 MGI64 CNF24

7400 HARDWARE CAPACITIES		
Interface Card	**Location**	**Maximum per System**
8TRK2	Any of the 32 Universal Slots in Cabinet 1, 2 or 3	30
16TRK	Any of the 32 Universal Slots in Cabinet 1, 2 or 3	15
8COMBO3	Any of the 32 Universal Slots in Cabinet 1, 2 or 3	30
8SLI3	Any of the 32 Universal Slots in Cabinet 1, 2 or 3	30
8DLI2	Any of the 32 Universal Slots in Cabinet 1, 2 or 3	30
16DLI2	Any of the 32 Universal Slots in Cabinet 1, 2 or 3	30
16SLI3	Any of the 32 Universal Slots in Cabinet 1, 2 or 3	30
TEPRIa	Any of the 32 Universal Slots in Cabinet 1, 2 or 3	11
TEPRI2	Any slot in Cabinet 1	5
OAS	Any of the 32 Universal Slots in Cabinet 1, 2 or 3	32
MGI64	Any slot in Cabinet 1	8
SVMi-20i	Any of the 32 Universal Slots in Cabinet 1, 2 or 3	1
CNF24	Any of the 32 Universal Slots in Cabinet 1, 2 or 3	3

MAXIMUM AOM CAPACITIY		
	Per Station	**Maximum per System**
TDM 64 Button AOM	4	Limited by available DLI ports
IP 64 Button AOM	4	Limited by available IP/Virtual Ports

Figure 1.5.8

NOTE: OAS CARD SLOT CONSIDERATIONS in OfficeServ 7400 Cabinets

The OAS card can be installed in any universal slot in any cabinet. If installed in any 64 channels slot on the main 7400 cabinet all resources of the card are available. If installed in an expansion cabinet the number of configurable DSP's is reduced to 32 due to the timeslot restrictions in expansion cabinets thereby reducing the number of Executive MOBEX users.

A maximum of 32 OAS cards can be installed, allowing up to 256 Executive MOBEX users, 512 MGI channels, or a mixture of each, and up to 512 MPS channels.

Note: Executive MOBEX is a licensed feature. See Mobile Extension (MOBEX) for more information.

Note: Unlike the smaller OfficeServ 7030, 7100 and 7200-S systems there are no embedded applications on the OfficeServ 7400.

The following functions require dedicated cards.

VOICEMAIL/AUTO ATTENDANT	**SVMi-20i or IP-UMS**
MEDIA GATEWAY INTERFACE (MGI)	**OAS or MGI64 Cards**
MEDIA PROXY SERVICE (MPS)	**OAS Cards**
COMMON RESOURCES	**CRM Daughter Board**
MISCELLANEOUS FUNCTIONS	**MIS Daughter Board**

1.5.4 Technology

MEMORY

The system operates using stored program control. This program is stored on a Secure Digital (SD) media card inserted into the Main Processor card (MP40). The media card also provides space for a backup customer database. The customer database is stored indefinitely in NAND Flash. 2MB of SRAM backed up by a super capacitor stores information such as Call Logs, Alarms, UCD call statistics, program logs and traffic reports up to 12 hours without main system power.

MICROPROCESSORS

OfficeServ 7400 uses distributed processing. Its primary processor is a 32 bit Motorola MPC8271 operating at a clock speed of 266 MHz on the MP40 card. This provides all the main processing necessary for the system. In a multi cabinet system the secondary level of processing is on the LP40 card for the expansion cabinet. The tertiary level of processing is done in the keysets. The digital keysets use a Hitachi H8 processor for data communication within the system.

1.5.5 Programming

The OfficeServ 7400 is a self-configuring system. This means that immediately after applying power, the OfficeServ 7400 reads the types and locations of all installed interface cards and keysets and assigns default data to them. This data provides for system operation within a few minutes after applying power. All trunks and stations are assigned three or four digit numbers according to the settings of the switches on the MP40 card and the default numbering plan. This numbering plan is flexible and may be changed to suit customer requirements. The installing technician customizes this default data to meet the end user's requirements.

The system can be programmed from any IP or digital two line display keyset without interrupting system operation. There are three levels of programming: technician, customer, and station. The technician level has access to all programs and can allow the customer access to system programs as needed. Technician and customer access levels are controlled by a different security pass codes and access procedure.

DEVICE MANAGER

The OfficeServ 7400 provides two methods to program the system from a personal computer. Access the system's embedded Device Manager programming interface using Internet Explorer 6.0 or higher for convenient web based access. Another method is to use the stand alone proprietary version of Device Manager running on any PC that meets the minimum requirements. Both methods allow programming from anywhere in the world provided there is a LAN/WAN or modem connection. Device Manager permits a technician to access and program the system on-site and remotely and also to download (save) the entire customer database to a file. This file can then be saved as a backup and be uploaded when required to restore the database. Through the use of LAN or WAN connection or a modem, a PC can access the OfficeServ 7400 system remotely (off-site) to make database changes or perform uploads or downloads of the customer database as if the technician were on-site.

MEDIA CARD

An OfficeServ 7400 system must have a media card installed in the MEDIA CARD slot in the main control processor (MP40) as the media card contains the system operating software. The media card is a Secure Digital (SD) type media. The media card can also be used to store a backup customer database to supplement the database stored in NAND Flash. In addition the media card can store backup copies of the operating software for the LP40, and TEPRI cards.
Note: The SD card has a write protect switch that will prevent backup if in the read only position.

1.5.6 Migration

For businesses using the OfficeServ 7200, Samsung provides a convenient, easy and affordable migration path to the larger OfficeServ 7400. Simply install a 7400 as the main cabinet. Replace the MP20 card of the 7200 systems with an LP40 card and your existing 7200 cabinets and interface cards become part of a much larger OfficeServ 7400 system.

Figures 1.5.9, 1.5.10 and 1.5.11 show the possible combinations of OfficeServ 7200 Cabinets and 7400 Cabinets. The 7200 system cabinets become expansion cabinets in a 7400 system.

- All keysets can be used on the larger OfficeServ 7000 systems.
- Features and operation are the same so there is no need to retrain users.

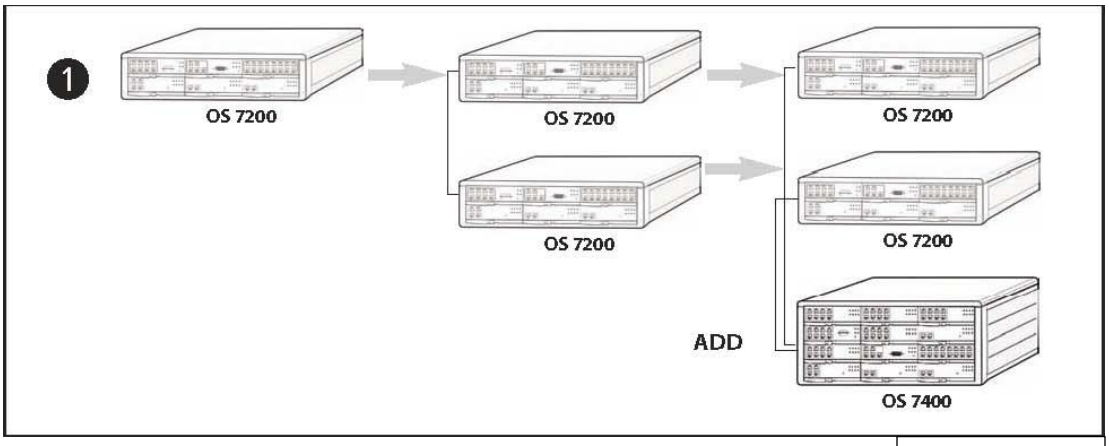


Figure 1.5.9

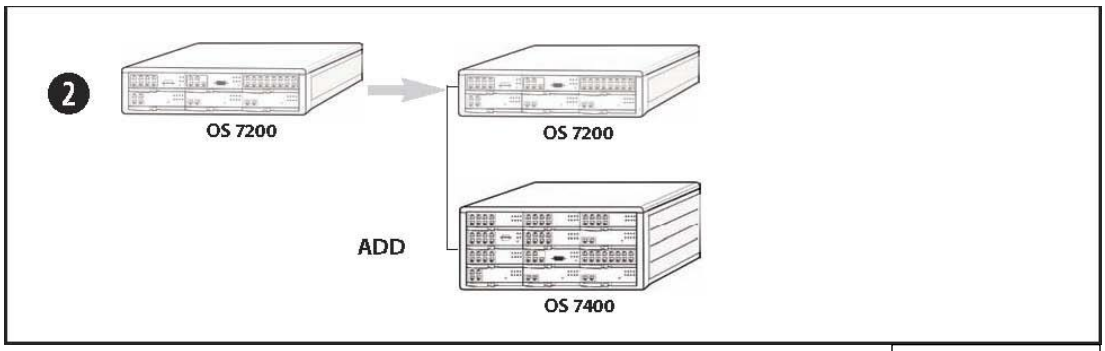


Figure 1.5.10

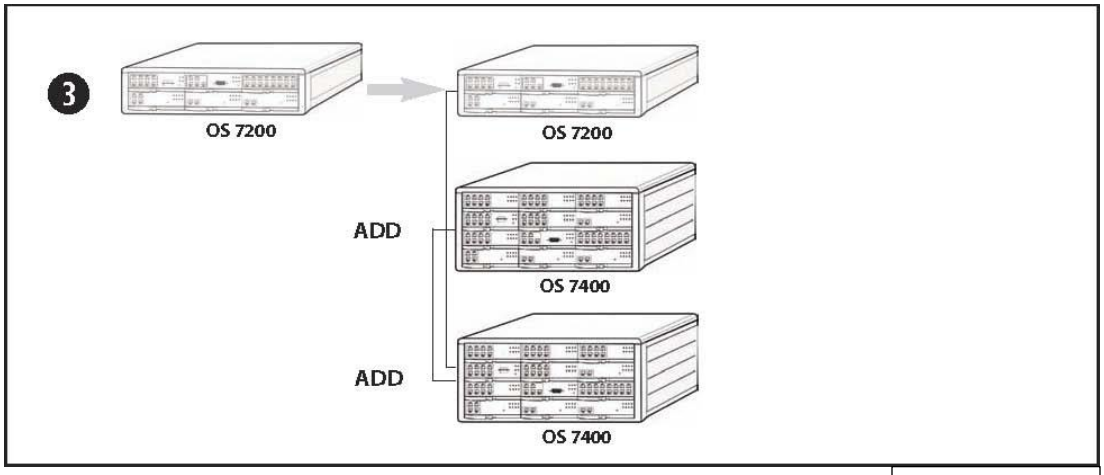


Figure 1.5.11

2 Common Hardware

Most of the Station, Trunk, VoIP and Special Service cards are common across the platform. Only the number of each card that can be installed is different per system.

COMMON HARDWARE	7030	7100	7200-S	7200	7400
Trunk Interface Cards					
4TRM (requires UNI card)		✓	✓	✓	
8TRK2		✓	✓	✓	✓
16TRK		✓	✓	✓	✓
TEPRIa		✓	✓	✓	✓
TEPRI2					✓
Station Interface Cards					
4DLM (requires UNI card)		✓	✓	✓	✓
4SL2U (requires UNI card)		✓	✓	✓	✓
8DLI		✓	✓	✓	✓
16DLI-2		✓	✓	✓	✓
8SLI3		✓	✓	✓	✓
16SLI3		✓	✓	✓	✓
8COMBO3		✓	✓	✓	✓
VoIP Cards					
OAS		✓	✓	✓	✓
MGI64					✓
Special Service Cards					
Modem Card	✓	✓	✓	✓	✓
UNI Card		✓	✓		
CNF24			✓	✓	✓
SVMi-20i				✓	✓

Note: Processor cards, daughter boards and miscellaneous interfaces unique to each system are explained in the overview of each OfficeServ System in Section 1 of this document.

2.1 Trunk Interface Cards

4TRM

This daughterboard module contains four loop start C.O. line interface circuits with C.O. disconnect detection. It also contains the circuitry needed for Caller ID. The 4TRM can **only** be inserted in any of the three slots on the UNI card. Each port on this card is intended for connection to the local telephone company.

8TRK2

This card contains eight loop start C.O. line interface circuits with C.O. disconnect detection. It also contains the circuitry needed for Caller ID. It can be inserted in any universal card slot.

16TRK

This card contains sixteen loop start C.O. line interface circuits with C.O. disconnect detection. It also contains the circuitry needed for Caller ID. It can be inserted in any universal card slot.

TEPRIa (Digital Trunks)

When the card is programmed as a PRI it will provide 23 bearer channels and 1 data channel (23B+D). This card can be installed in any universal slot supporting 32 channels. If using an OfficeServ 7200 expansion cabinet, this card can only be installed in slot 3. This card is also used for networking to other systems (QSig/PRI networking).

When programmed as a T1 this card provides up to 24 trunk circuits in any combination of the following:

- Loop start lines
- DID (Direct Inward Dialing)
- Ground start lines
- E & M tie lines or two way DID calling

Note: T1 service only supported on 7200 and 7400 systems.

TEPRI2 (Digital Trunks)

This is a dual circuit digital trunk interface card. It offers the exact functionality of the TEPRIa card. The difference is that it supports two T1 or PRI circuits on one card.

Each circuit provides 24 channels for T1/PRI CO trunking OR for QSig over PRI networking so you can network to other OfficeServ systems. In one slot, you get 48 channels for T1 or 46 channels for PRI or QSig functions. This card can be installed in any universal slot; however, you get dual circuits in the main cabinet only and a single circuit per card in OS7400 expansion cabinets. You cannot install this card in an OS7200 expansion cabinet.
NOTE: You can set one circuit for T1/PR1 and the other for QSig PRI Networking.

2.2 Station Interface Cards

4DLM
This daughter module is a four circuit digital station interface card that provides 1B+D service for the different models of Samsung digital keyset. The 4DLM can be inserted in any of the three slots on the UNI card or on the MP10a card.

4SL2U
This daughter board module is a four circuit analog station interface for industry standard single line telephones. It supports operation of an industry standard message waiting lamp with a voltage range of 85~96 VDC. The card can only be installed on the UNI card. The lamp can flash at a rate of 200ms to 500ms ON/OFF times. The 4SL2U does not contain any over-voltage protection and is not qualified for OPX connections. It also does not contain DTMF receivers, but instead shares the system DSP resources. The 4SL2U supports Caller ID to single line telephones. The 4SL2U can **only** be inserted in any of the three slots on the UNI card. Each port on this card is intended for connection to one telephone. Connecting multiple telephones to a port may result in incorrect operation or damage to the card.

8DLI
This card is an eight circuit digital station interface card that provides 2B+D service when installed in any universal card slot in all cabinets.

16DLI-2
This card is a sixteen circuit digital station interface card that provides 1B+D service when installed in any universal card slot in all cabinets.

8SLI3
This card is an eight circuit analog station interface for industry standard single line telephones or other analog peripheral devices. The 8SLI3 does not contain any over-voltage protection and is not qualified as OPX. This card automatically detects DTMF or dial pulse signals from the SLT ports. Each port on this card has built-in DTMF receivers (for DTMF tone detections from analog devices) and CID transmitters (sends FSK signals for displaying CID name and number to analog devices).
Note: The 8SLI3 does not need to share these system resources. This will relieve the congestion of the CRM system resources.
It can be inserted in any universal card slot in all cabinets. The SLI3 card has a built-in ring generator to generate the sine wave ring tone required by certain types of legacy hardware. Each port on this card is intended for connection to one telephone. Connecting multiple telephones to a port may result in incorrect operation or damage to the card. The 8SLI3 supports message waiting lamp functionality for analog stations that have this capability. This card supports Power Fail Transfer feature. See the installation manual for details. *(This card requires software version 4.60 or higher)*.

16SLI3

This card is a sixteen circuit analog station interface for industry standard single line telephones that require operation of an industry standard message waiting lamp with a voltage range of 85~96 VDC. The lamp can flash at a rate of 100ms to 200ms ON/OFF times. The 16SLI3 does not contain any over-voltage protection and is not qualified as OPX. This card provides sixteen ports of connecting analog stations. It can go into any universal slot of any cabinet. Add as many as needed. This card automatically detects DTMF or dial pulse signals from the SLT. Each port on this card has built-in DTMF receivers (for DTMF tone detections from analog devices) and CID transmitters (sends FSK signals for displaying CID name and number to analog devices).
Note: The 16SLI3 do not need to share these system resources. This will relieve the congestion of the CRM system resources.
It can be inserted in any universal card slot in all cabinets. The 16SLI3 card has a built-in ring generator to generate the sine wave ring tone required by certain types of legacy hardware. Each port on this card is intended for connection to one telephone. Connecting multiple telephones to a port may result in incorrect operation or damage to the card. The 16SLI3 supports message waiting lamp functionality for analog stations that have this capability. This card supports the Power Fail Transfer feature. *(This card requires software version 4.60 or higher).*
NOTE: The 16SLI3 is not capable of providing a Continuous Message Waiting Indicator (MWI) status and must use a blinking or flashing cadence.

8COMBO3

This card has a combination of eight dedicated digital stations ports (1B+D) for Samsung Digital Keysets and eight dedicated analog station ports for industry standard single line telephones or other analog devices. This card installs in any universal slot in any cabinet. The 8COMBO card has a built-in ring generator to generate the sine wave ring tone required by certain types of legacy hardware. Each port on this card has built-in DTMF receivers (for DTMF tone detections from analog devices) and CID transmitters (sends FSK signals for displaying CID name and number to analog devices).
Note: The 8COMBO3 does not need to share these system resources. This will relieve the congestion of the CRM system resources.
The 8COMBO3 supports message waiting lamp functionality for analog stations that have this capability. *(This card requires software version 4.60 or higher).*

2.3 VoIP Cards

OAS (OPTIONAL APPLICATION SERVICES)
The OfficeServ OAS card provides 64 digital signal processors (DSPs) that can be configured as MGI channels, MOBEX DTMF receivers used by the Executive MOBEX feature, or a mix of the two. MGI channels are enabled in 4 port increments, and each increment will decrease the available MOBEX DTMF receivers. See the table below for OAS configuration options 0~4 based on what universal slot the OAS card is installed.

OPTION		16 TIME SLOTS	32 TIME SLOTS	64 TIME SLOTS
0	All MOBEX	ONLY 16 MOBEX	ONLY 32 MOBEX	ONLY 64 MOBEX
1	MIXED	4 MGI + 12 MOBEX	4 MGI + 28 MOBEX	4 MGI + 48 MOBEX
2	MIXED	8 MGI + 8 MOBEX	8 MGI + 24 MOBEX	8 MGI + 32 MOBEX
3	MIXED	12 MGI + 4 MOBEX	12 MGI + 16 MOBEX	12 MGI + 16 MOBEX
4	ALL MGI	ONLY 16 MGI	ONLY 16 MGI	ONLY 16 MGI

In addition, to these configurable DSP's the OAS card provides dedicated DSPs to providing 64 Media Proxy Service (MPS) channels.
The OAS card can be installed in any universal slot.
Maximum number of OAS Cards per system:

- OfficeServ 7400 system can have a maximum of 32 OAS cards providing up to 512 MGI Channels and up to 512 MPS channels (256 MPS Calls).
- OfficeServ 7200 system can have a maximum of 5 OAS cards providing up to 80 MGI channels and up to 256 MPS channels (128 MPS Calls).
- OfficeServ 7200-S system can have a maximum of 3 OAS cards providing up to 48 MGI Channels and up to 192 MPS channels (96 MPS Calls).
    - The 7200S has an additional 6 MGI channels embedded in the system making a total of 54 MGI channels.
    - The 7200S has an additional 16 MPS channels embedded in the system making a total of 208 MPS channels (104 MPS Calls).
- OfficeServ 7100 system can have only one OAS card providing up to 16 MGI channels
    - The 7100 has an additional 8 MGI channels embedded in the system making a total of 24 MGI channels.
    - The OAS card cannot provide any MPS channels in the 7100 system because the time slot is limited to 16 channels. The 7100 uses the 16 embedded MPS channels on the MP10a card.
- OfficeServ 7030 does ***not*** support the OAS card.

MGI64 (MEDIA GATEWAY INTERFACE)
The MGI64 card offers 64 VoIP channels per card when installed in the main OS7400 cabinet and 32 channels when installed in an OS7400 expansion cabinet. IT can be installed in any available universal slot. The MGI64 supports the following features:

- IP Phones
- IP Networking (Network multiple systems over an IP Network)*
- G.729 (8K) CODEC, G.723.1, G.711, G.729A CODECs
- IP Trunking (SIP/H.323)
- T.38 Fax CODEC
- In-band or Out-of-band signaling of DTMF tones
- QoS (ToS / DiffServ)
- 802.1q, 802.1p VLAN Tagging, Priority
- OfficeServ™ IP-UMS

OfficeServ 7400 system can have a maximum of 4 MGI64 cards providing up to 256 MGI Channels.

NOTE: The MGI64 does ***not*** provide MOBEX DTMF Receivers or MPS channels.

2.4 Special Feature Cards

MODEM

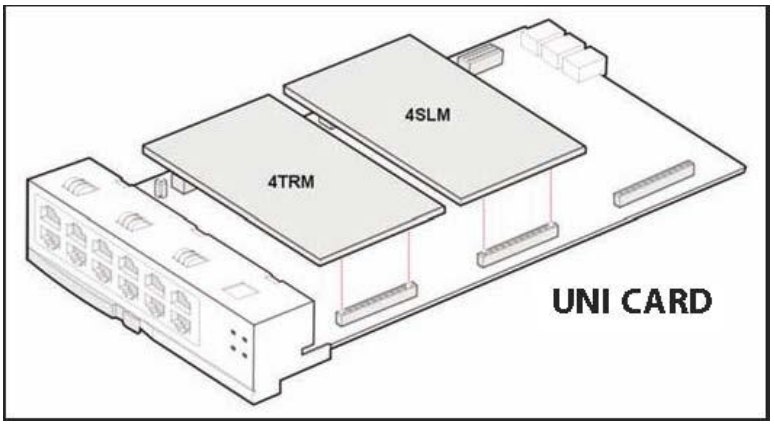
The modem board has a 2-Wire Full Duplex modem that can be used with all the OfficeServ 7000 Series systems.

The modem board operates via V.24 interface and uses a modem chip for Central Office, which can perform Pulse Code Modulation (PCM) highway interface. In addition, the Modem board supports V.90 protocol. OfficeServ 7000 systems control the Modem board via serial communication using standard AT commands. The modem board can be used to connect the Device Manager for remote programming when internet access is not available.

UNI CARD

This universal card (UNI) provides has no interfaces included. It is a carrier for the 4DLM, 4SLM and 4TRM interface cards.

The UNI card can be installed in any universal slot of the OfficeServ 7100, 7200-S systems.



The UNI card provides flexible and economical station and trunk configurations that cannot be achieved using larger 8 and 16 port interface cards. This makes it ideally suited for the smaller OfficeServ 7100 and 7200-S systems. Any combination of the 4DLM, 4SLM or 4TRM modules can be installed in any of the three slots on the UNI card for a total of 12 ports per UNI card. This type of slot configuration allows the customers to grow or expand in 4 port increments. Each slot can be used as a voice trunk line board or voice station board depending on the mounted option board. If a 4TRM option board is mounted in the UNI board, it operates as a voice trunk line board. If 4SLM and 4DLM option boards are mounted, it operates as a voice station board. The UNI card is not hot swappable.

CNF24 (CONFERENCE CARD)

This optional application card provides 24 conferences channels that can be individually assigned to either Meet-Me or Ad Hoc conferences, but not both. *Each Meet-Me channel requires a license.*

The application program and related database are stored in memory on the card. The CNF24 can be installed in any universal card slot that has 24 channels on the slot. Note: If the CNF24 card is installed on a slot that supports more than 24 or more channels, all 24 conference channels are used. If installed on a 16 channel slot, only 16 conference channels are supported.

Maximum number of CNF24 cards per system:

- OfficeServ 7400 system can have a maximum of four CNF24 cards for a total of 96 conference channels.

- OfficeServ 7200 system can have a maximum of two CNF24 cards for a total of 48 conference channels.
- OfficeServ 7200-S system can have a maximum of one CNF24 cards for a total of 24 conference channels.

A conference cannot be split between cards. Only outside callers on PRI or SIP trunks and internal stations can access the conferences on the CNF24. More details are available in the System Feature section of this document under Conference – Meet-Me and Ad-Hoc. System must be running software version V4.53 or higher to use the CNF24 features. System must be running software version V4.53 or higher to use the CNF24 features.

SVMi-20i

The SVMi-20i is designed to meet the demands of the sophisticated voice mail user with-out sacrificing simplicity. The SVMi-20i is a self-contained plug in (In-Skin) Auto Attendant and Voice Mail card.

The SVMi-20i may act as an Auto Attendant system only, a Voice Mail System only, or both. The SVMi-20i is equipped with 4 Ports built onto the main PCB assembly and can handle 4 calls simultaneously. By adding additional voice mail license keys (4 port increments) the SVMi-20i can grow to a maximum of 20 ports.

On the SVMi-20i unit, no external line or power connection is necessary as it is an In-Skin product. The power and telephone connections are accomplished directly through the phone system on the backplane edge connectors. Currently the Message Storage capacity on the SVMi-20i is approximately 240 hours.

The design of the SVMi-20i allows it to be expanded through license keys (single point increments) to add voice and fax mail ports as needed. Only one SVMi-20i card can be installed in a system and another voice mail system can NOT be used in combination with the SVMi-20i. This card can be installed in any universal slot.

The SVMi-20i voice mail is programmed by accessing the VMAA menus in Device Manager. The SVMi-20i cannot be programmed using the modem.

Note: This card requires software version 4.60 or higher.

3 Station Equipment

3.1 SMT-i6000 Series IP Phones Future Release Coming Soon

SMT-i6021 (Figure 3.1.1**) Future Release Coming Soon**

- Wired or Wireless 802.a/b/g/n (Wi-Fi Certified)
- 99 Programmable buttons – 24 fixed on phone
- Dual Radios and Antennas 2.4GHz and 5 GHz
- Full Duplex HD Speakerphone
- Bluetooth headset or smartphone support
- Two RJ45 1GB Ethernet ports (LAN & PC)
- Manage phone with Samsung Deskphone Manager
- Upload Contacts from your cell phone using SDM
- Supports PoE (802.3af) or optional AC Adapter

Figure 3.1.1

SMT-i6020 (Figure 3.1.2) **Future Release Coming Soon**

- 99 Programmable buttons – 24 fixed on phone
- Full Duplex HD Speakerphone
- Two RJ45 1GB Ethernet ports (LAN & PC)
- Supports PoE (802.3af) or optional AC Adapter

Photo not Available

Coming Soon

Figure 3.1.2

SMT-i6011 (Figure 3.1.3) **Future Release Coming Soon**

- Wired or Wireless 802.a/b/g/n (Wi-Fi Certified)
- 99 Programmable buttons – 12 fixed on phone
- Dual Radios and Antennas 2.4GHz and 5 GHz
- Half Duplex Speakerphone
- Bluetooth headset or smartphone support
- Two RJ45 1GB Ethernet ports (LAN & PC)
- Manage phone with Samsung Deskphone Manager
- Upload Contacts from your cell phone using SDM
  Supports PoE (802.3af) or optional AC Adapter

Figure 3.1.3

SMT-i6010 (Figure 3.1.4) **Future Release Coming Soon**

- 99 Programmable buttons – 12 fixed on phone
- Half Duplex Speakerphone
- Two RJ45 1GB Ethernet ports (LAN & PC)
- Supports PoE (802.3af) or optional AC Adapter

Photo not Available

Coming Soon

Figure 3.1.4

3.2 SMT- iSeries IP Phones

SMT-i3105 (Figure 3.2.1)

- Entry level IP phone Ideal for basic calling in common areas such as lobbies or waiting rooms
- Transfer, hold, conference or mute with ease
- Multiple ring tones facilitate personalization
- Desk or wall mountable
- Send short messages to other phones via the display interface
- Supports PoE or optional AC Adapter

Figure 3.2.1

SMT-i5210S (Figure 3.2.2)

- Perfect for administrative use and routine answering and dialing
- 14-button phone with backlit display
- Intuitive interface for easy navigation
- Easy access to call logs, voicemail, directory, etc.
- Supports Gigabit adapter for large data transfer
- Supports PoE or optional AC Adapter

Figure 3.2.2

SMT-i5220S (Figure 3.2.3)

- Perfect for administrative use and routine answering and dialing
- 24-button phone with backlit display
- Intuitive interface for easy navigation
- Easy access to call logs, voicemail, directory, etc.
- Supports Gigabit adapter for large data transfer
- Supports PoE or optional AC Adapter

Figure 3.2.3

SMT-i5230 (Figure 3.2.4)

- Desiless model is excellent for sales staff with numerous contacts that frequently change
- View five numbers at once, scroll up or down to view a total of 99 numbers
- User-definable labels--no paper strips needed to customize your phone
- Supports Gigabit adapter for large data transfer
- XML browser
- Supports PoE or optional AC Adapter

Figure 3.2.4

SMT-i5343 (Figure 3.2.5)

- Top-of-the-line model with style and personalization
- Wired or Wireless (Wi-Fi Certified)
- Dual Radios and Antennas 2.4GHz and 5 GHz
- Video Calls using optional Samsung Camera
- Full Duplex HD Speakerphone
- 1GB LAN port.
- Manage phone with Samsung Deskphone Manager
- Upload Contacts from your cell phone using SDM
- 2 USB Ports: (1 dedicated to Samsung Camera)
- Supports PoE or optional AC Adapter
- Wireless mode requires optional AC Power Adapter WDS-AADT, sold separately.
- Shown here with optional Samsung Video Camera SMT-AW53CA

Figure 3.2.5

Samsung Deskphone Manager (SDM) for SMT-i5343

- Android Mobile application for select Samsung smartphones
- Authenticate the wireless phone using NFC
- Use the cell phone Call Log, program buttons and configure phone settings
- Upload Contacts to the SMT-i5343 from your cell phone using SDM
- Switch cell phone audio to SMT-i5343 speakerphone using NFC.

SMT-i5264 AOM (Figure 3.2.6)

- IP Add-on Module with 64 programmable keys
- Powered by PoE or external AC adaptor (max. 5.8W)
- Registered as a Samsung IP Phone
- High Angle: 7.7” (H) x 5.4” (W) x 5.1” (D)
- Low Angle: 5.2” (H) x 5.4” (W) x 7.6” (D)
- Can be used with any SMT-i Series and Digital phones.
- Cosmetic design matches SMT series phones.

Figure 3.2.6

- **SMT-A52GE** (Figure 3.2.7)
- Gigabit adaptor for SMT-i 5000 Series IP phones
- 2 Ports 10/100/1000 BASE-T RJ45
  (1 for Gb LAN, 1 for Gb PC)
- 1 Port 10/100 BASE-TX RJ-45 (for IP Phone connection)
- Powered by PoE or AC power adaptor (max 7.2W)
- 1.8” (H) x 10.5” (W) x 8” (D)
- Attaches to the bottom of the phone.
- Compatible with SMT-3105 but does not attach to the base of the phone.

Figure 3.2.7

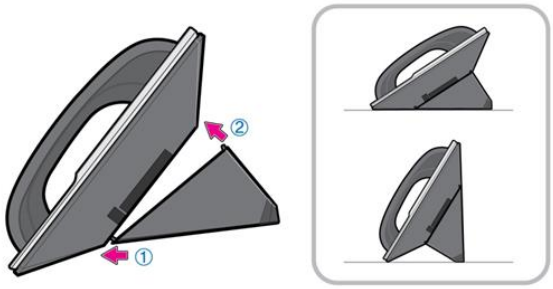
SMT-AW53CA (Figure 3.2.8)

- Samsung Video Camera for SMT-i5343 Phone
- 1.3M Pixel CMOS Camera
- Max. 30 frames per second
- MPEG-4, H.263, H.264
- Switch image position hide my image

Figure 3.2.8

SMT i5000 Phone Base Wedge

(High & Low Positions)



SMT-iSeries IP Phone Comparison					
	i3105	**i5210S**	**i5220S**	**i5230**	**i5343**
Dimensions	7.8”(H) 6.7”(W) 4.3”(D)	High Angle 7.7”(H) x 8.8”(W) x 5.1: (D) Low Angle 5.2”(H) x 8.8”(W) x 7.6”(D)			5.8”(H) 8.8”(W) 8.8”(D)
Display	2.8” (128x64)	3.2” Backlit (128x64)	3.2” Backlit (128x64)	3.2” Backlit (128x64)	4.3” Color (480x272)
Max. Power Consumption	4W	5W	5W	5W	10W with Camera 14W with Camera & Hot Spot
Programmable Hard Buttons	5	14	24	5	10
Programmable Soft Buttons Via AOM softkey	99	99	99	99	-
Desi-less	No	No	No	Yes	Yes
Speakerphone	Yes	Yes	Yes	Full Duplex	Full Duplex
Multiple Ring Tones	5	5	5	5	27
Headset Jack (RJ-22)	No	Yes	Yes	Yes	Yes
2 Port Switch	Yes	Yes	Yes	Yes	Yes
Gigabit Support	Adaptor	Adaptor	Adaptor	Adaptor	Built-In
HD Voice (G.722)	No	Yes	Yes	Yes	Yes
PoE- 802.3af Class 3	Yes	Yes	Yes	Yes	Yes
External USB Port	No	No	No	No	2
Bluetooth Capable	No	No	No	No	Yes
Samsung USB Video Camera	No	No	No	No	Optional
Wall Mount	Yes	Yes[1]	Yes[1]	Yes[1]	No
Desk Mount – 2 Positions	No	Yes	Yes	Yes	Yes
Phone Book Items	100	100	100	100	500
Call Logs	100	100	100	100	300
Short Messages In/Out	30/30	30/30	30/30	30/30	100/100
OfficeServ Communicator OSC UC Mode[2]	No	Yes	Yes	Yes	No

[1]Requires external bracket sold separately

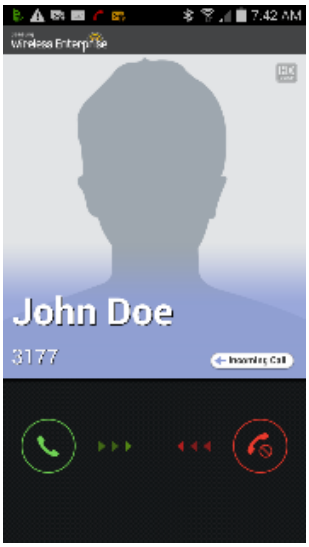
[2]Requires licenses on OfficeServ 7000

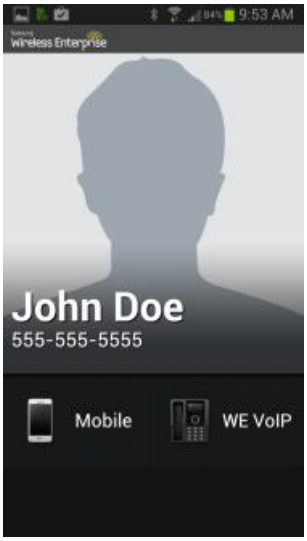
3.3 OfficeServ Communicator Softphone

Samsung OfficeServ™ Communicator Softphone is a software-based application that turns your computer into a full-featured Samsung IP telephone. It is installed directly onto your laptop or desktop PC running Microsoft Windows XP or higher OS. Once a USB headset or a USB handset is connected; the Softphone delivers virtually identical functionality as the IP desktop phones. OfficeServ™ Communicator Softphone is ideal for telecommuter and mobile users. Remote workers can simply connect their laptop to the corporate network, snap in a USB headset, and function as if they were in their own office. They can place, receive, and handle calls on both the internal and external network, providing a truly portable and practical solution.
Note: OfficeServ Link is not required for implementation of OfficeServ Communicator Softphone.

3.4 WE VoIP Client

Samsung WE VoIP is a mobile SIP phone client that makes your Android smartphone an extension of the OfficeServ phone system. A dual mode smartphone and phone system communicate with each other over a private Wi-Fi network in the office and a public Wi-Fi or 4G/LTE network when out of the office. With WE VoIP, you can make or answer a VoIP call using the default dialer and Contacts of your smartphone.





A WE VoIP user license is required for each WE VoIP Client extension. The license count is concurrent users so it is possible to configure more WE VoIP clients than the license count. The license count on the system can exceed the recommended WE VoIP capacity. Please contact technical support to verify your configuration.

OfficeServ System	7030	7100	7200-S	7200	7400
License Max.	5	5	10	20	40

For a list of compatible smartphones visit the Google Play Store, and search “Samsung WE VoIP”. Read the application notes.

3.5 SIP Devices

Standard SIP devices (phones, ATA adapters, etc.) made by other manufacturers can register to the OfficeServ SIP server as SIP clients and function as internal stations. SIP stations registered to the OfficeServ systems can use the following SIP supplementary feature set:
Notes:

SIP Basic Functions	SIP Supplementary Functions
• Registration • Basic Call Setup	• Hold/Resume • Music on Hold • Consultation Hold • Transfer (Consultation/Blind) • Call Forward (All/Busy/No-Answer) • DND • MWI • Conference • Call Waiting • Call Pickup • Call Park

1. Samsung does not make a Samsung SIP phone for the US market, but other third party devices are supported on the OfficeServ systems.
2. SIP devices not made by Samsung require the purchase of a 3rd. party SIP user license (one license per device).
3. Some SIP devices have buttons dedicated to special features such as conference buttons. These types of buttons rarely conform to the standard SIP protocol and exist to provide enhanced features in specific manufacturer's systems. These buttons may or may not work with Samsung systems, and as such are not supported. Only basic call delivery and acceptance can be guaranteed.
4. SIP device are may be required to us feature codes to access some **SIP Supplementary Functions.**

3.6 DS 5000 Series Digital Keysets

DS 5021D Keyset (Figure 3.6.1)

- 32 character display (2 lines x 16 characters) with three associated soft keys and a scroll key
- 21 programmable keys with tri-colored lights
- Five fixed function keys
- Terminal Status Indicator
- Built-in speakerphone (Half Duplex)
- Eight selectable ring tones
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted
-

Figure 3.6.1

DS 5014D Keyset (Figure 3.6.2)

- 32 character display (2 lines x 16 characters) with three associated soft keys and a scroll key
- 14 programmable keys with tri-colored lights
- Five fixed function keys
- Terminal Status Indicator
- Built-in speakerphone (Half Duplex)
- Eight selectable ring tones
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted
-

Figure 3.6.2

DS 5007S Keyset (Figure 3.6.3)

- 32 character display (2 lines x 16 characters) with three associated soft keys and a scroll key
- 7 programmable keys with tri-colored lights
- Five fixed function keys
- Terminal Status Indicator
- Built-in speakerphone (Half Duplex)
- Eight selectable ring tones
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted

Figure 3.6.3

DS 5064 AOM (Figure 3.6.4)

- 64 programmable keys with red lights
- A maximum of 2 can be assigned to any keyset to provide additional programmable keys
- The maximum number of DS 5064B AOM per system is limited by the available DLI ports.

- Note: This AOM can be used with an IP keyset. The cosmetic design matches the DS-5000 series keysets. A digital station port is required for this AOM.

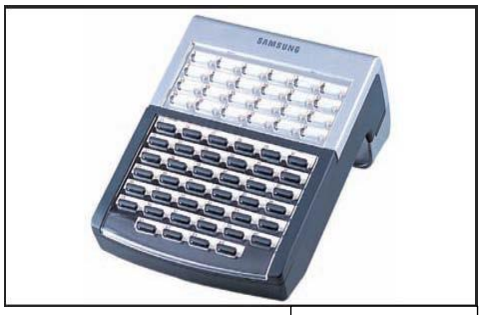


Figure 3.6.4

3.7 iDCS Series Digital Keysets

iDCS 28D Keyset (Figure 3.7.1)

- 32 character display (2 lines x 16 characters) with three associated soft keys and a scroll key
- 28 programmable keys with tri-colored lights
- Four fixed function keys
- Terminal Status Indicator
- Built-in speakerphone (Half Duplex)
- Eight selectable ring tones
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted
- Available in dark gray

Figure 3.7.1

iDCS 18D Keyset (Figure 3.7.2)

- 32 character display (2 lines x 16 characters) with three associated soft keys and a scroll key
- 18 programmable keys with tri-colored lights
- Four fixed function keys
- Terminal Status Indicator
- Built-in speakerphone (Half Duplex)
- Eight selectable ring tones
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted
- Available in dark gray

Figure 3.7.2

iDCS 8D Keyset (Figure 3.7.3)

- 32 character display (2 lines x 16 characters) with three associated soft keys and a scroll key
- 8 programmable keys with tri-colored lights (LEDs)
- Four fixed function keys
- Terminal Status Indicator
- Built-in speakerphone (Half Duplex)
- Eight selectable ring tones
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted
- Available in dark gray
  Note: iDCS-8D keyset cannot use a 14 Button Strip.

Figure 3.7.3

iDCS 14 Button Strip (Figure 3.7.4)

- 14 programmable keys with red lights only.
- A maximum of one button strip can be mounted to the right hand side of any 28D or 18D keyset to provide additional programmable keys
- Does not require a digital station port
- Available in dark gray

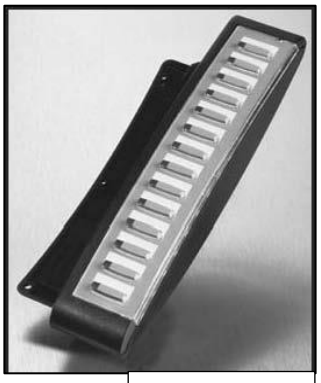


Figure 3.7.4

iDCS 64 Button AOM (Figure 3.7.5)

- 64 programmable keys with red lights only.
- A maximum of 2 can be assigned to any keyset to provide additional programmable keys
- The maximum number of iDCS 64B AOMs per system is limited by the available DLI ports.
- Requires a digital station port
- Available in dark gray

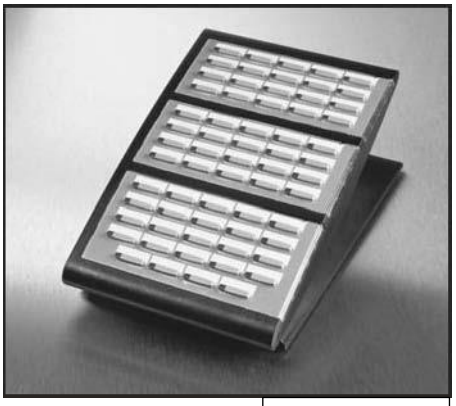


Figure 3.7.5

4 Specifications

4.1 Cabinet Dimensions

OfficeServ 7030

	HEIGHT	WIDTH	DEPTH
OfficeServ 7030 System Cabinet	2.875”	12.56”	14.31”

OfficeServ 7100

	HEIGHT	WIDTH	DEPTH
OfficeServ 7100 System Cabinet	3.11”	17.32”	16”

Note: When the cabinet is rack mounted, the rack mount bracket will add some height to the system

OfficeServ 7200-S

	HEIGHT	WIDTH	DEPTH
OfficeServ 7200-S System Cabinet	4.87”	17.32”	16.14”

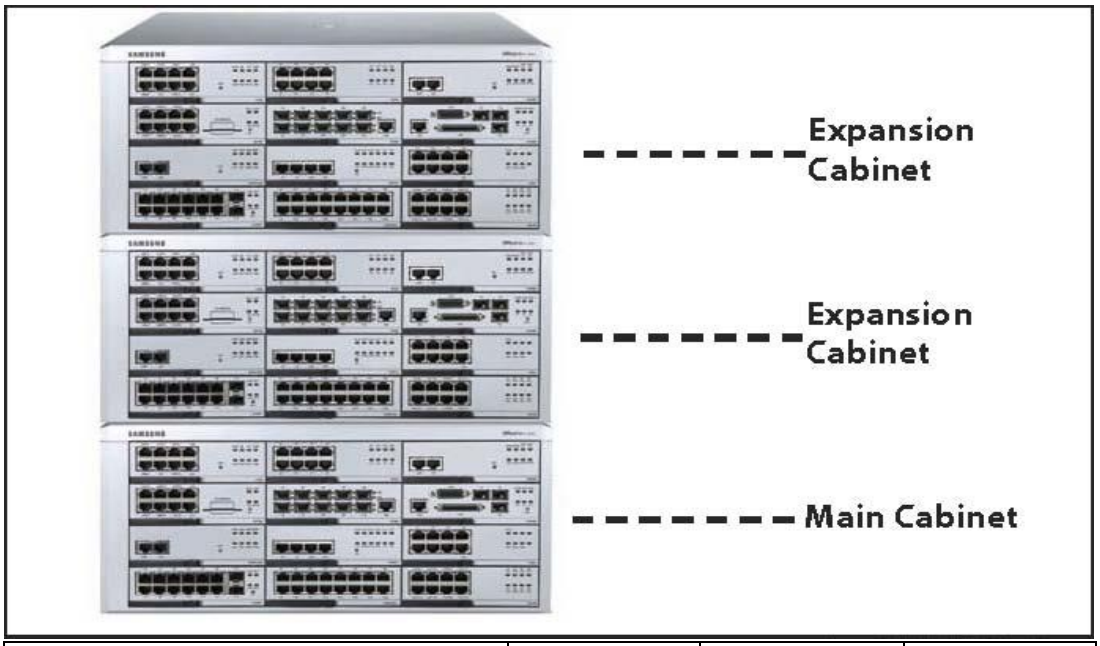
Note: When the cabinet is rack mounted, the rack mount bracket will add some height to the system

OfficeServ 7200

	HEIGHT	WIDTH	DEPTH
OfficeServ 7200 Main Cabinet	4.87”	17.32”	16.14”
OfficeServ 7200 Main Cabinet + Expansion Cabinet	9.74”	17.32”	16.14”

Note: When the cabinet is rack mounted, the rack mount bracket will add some height to the system

OfficeServ 7400



	HEIGHT	WIDTH	DEPTH
OfficeServ 7400 Main Cabinet	8.8”	17.32”	16.14”
OfficeServ 7400 Main Cabinet + Expansion Cabinet	17.6”	17.32”	16.14”
OfficeServ 7400 Main Cabinet + Expansion Cabinet + Expansion Cabinet	26.4”	17.32”	16.14”

Note: When the cabinet is rack mounted, the rack mount bracket will add some height to the system

4.2 Electrical Specifications

The OfficeServ system power supplies receive AC input or battery input, then converts it to various DC voltages to be used throughout the system cabinet

Electrical Specifications of OfficeServ 7000 Systems					
	7030	**7100**	**7200-S**	**7200**	**7400**
INPUT VOLTAGE	110~120V AC 2A 50/60Hz -------- -48V DC, 1.5A (for Battery Backup)	110~120V AC 2A 50/60Hz ---------- -48V DC, 3A (for Battery Backup)	110~120V AC 6A 50/60Hz ---------- -48V DC, 3A (for Battery Backup)	110~120V AC A 50/60Hz --------- -48V DC (for Battery Backup)	110~120V AC A 50/60Hz ---------- -54V DC (for Battery Backup)
OUTPUT VOLTAGE	DC -54V, 0.5A	DC -54V, 1.1A	DC -48V 2.2A	DC -48V 2.2A	DC -54V, 6.6A
	DC +5V, 3A	DC +5V, 5A	DC +5V, 8A	DC +5V, 8A	DC +5V, 16A
	-	DC -5.3V, 0.3A	DC -54V, 0.4A	DC -54V, 0.4A	DC -5.3V, 2A
	-	DC +3.3V, 5A	DC +3.3V, 10A	DC +3.3V, 10A	DC +3.3V, 30A
	DC +12V, 1.8A	DC +12V, 0.4A	DC +3.3V, 10A	DC +12V, 0.4A	DC +12V, 1A
Trickle Charge >	Does not charge batteries Use a UPS	DC -56V, 0.4A (Battery Backup)	DC -56V, 0.4A (Battery Backup)	DC -56V, 0.4A (Battery Backup)	DC -54V, 0.4A (Battery Backup)
MAXIMUM POWER CONSUMPTION	77.1 W	120.8W	210W	210W	582.3 W Per Cabinet
BATTERY BACKUP	DC 48V 26AH per Cabinet	DC 48V 26AH per Cabinet	DC 48V 45AH per Cabinet	DC 48V 45AH per Cabinet	DC 48V 45AH per Cabinet

4.3 Cable Requirements

Cable Requirements for OfficeServ 7000 Systems				
STATION EQUIPMENT	**CABLE**	**AWG**	**MAX FEET**	**MAX METERS**
DIGITAL KEYSET	1 PR. TWISTED	24	1300	400
ADD-ON MODULE	1 PR. TWISTED	24	1300	400
ANALOG SINGLE LINE STATION	1 PR. TWISTED	24	3000	1 KM

4.4 Environmental Limits

Environmental Limits of OfficeServ 7000 Systems					
	7030	7100	7200-S	7200	7400
OPERATING TEMPERATURE	32 ~ 113 °F 0 ~ 45 °C				
STORAGE TEMPERATURE	14 ~ 122 °F -10 ~ 50 °C				
HUMIDITY	10% ~ 90% Non-Condensing				
BTU - MAXIMUM LOAD (per cabinet)					
Wattage	77.1W	120.8W	210.3W	210.3W	582.3W
BTU/h	263.1	412.3	717.8	717.8	1987.4
BTU/min	4.39	6.87	11.96	11.96	33.12
BTU - 70% LOAD (per cabinet)					
Wattage	53.97W	84.56	147.21W	147.21W	407.61W
BTU/h	184.2	288.6	502.4	502.4	1391.2
BTU/min	3.07	4.81	8.37	8.37	23.2

4.5 System Ring Signals

The OfficeServ 7000 systems provide the trunk line ring, station ring, and alarm ring signals. The ON/OFF cycle or cadence of each ring is shown in the table below. The values are different according to the country, and can be modified using Device Manager.

Ring Signals for all OfficeServ 7000 Systems	
RING	**ON/OFF CYCLE**
TRUNK LINE RING	1000/2000 ms
STATION RING	400/200/400/3000 ms
ALARM RING	400/200/400/200/400/200/400/1000 ms
ANALOG RING VOLTAGE 4SM, 4SLM,	Output: 75Vrms Square Wave Frequency: 20~25 Hz
ANALOG RING VOLTAGE 8SLI3, 16SLI3, 8COMBO3	Output: 75Vrms Sine Wave Frequency: 20~25 Hz

4.6 System Tones

System Tones for all OfficeServ 7000 Systems	
TONE	**ON/OFF CYCLE**
DIAL TONE	1000/250 ms
BUSY TONE	500/500 ms
DO NOT DISTURB TONE	250/250 ms
RING BACK TONE	1000/2000 ms
CALL PARK TONE	CONTINUOUS
CONFIRMATION/CAUTION/BARGE-IN TONE	50/50 ms
CALL BACK/HOLD TONE	500/3500 ms
RING BACK TONE	1000/2000 ms
ERROR/NUMBER UNOBTAINABLE TONE	250/250 ms
MESSAGE CAMP ON TONE	CONTINUOUS

4.7 Keyset LED Indications

Keyset LED Indications for all OfficeServ 7000 Systems			
CONDITION	**LED COLOR**	**LED ON**	**LED OFF**
LINE IDLE	OFF	—	OFF
LINE IN USE	RED / GREEN	STEADY	—
RECALL	AMBER	500 ms	500 ms
CALL ON HOLD	RED / GREEN	500 ms	500 ms
RINGING C.O. CALL	GREEN	100 ms	100 ms
RINGING INTERNAL CALL	GREEN	100 ms	100 ms
DND INDICATION	RED	112 IPM for 500 ms	500 ms
OPERATOR CALLS	RED	100 ms	100 ms
ANS / RLS (DND)	RED	112 IPM for 500 ms	500 ms
ANS / RLS (HANDSET MODE)	RED	STEADY	—
TRSF (FORWARD ALL)	RED	STEADY	—

4.8 Default IP Address and DM Password

Default IP Address for each OfficeServ 7000 System				
SYSTEM	**IP ADRESS**	**SUBNET MASK**	**DM PASSWORD**	**KMMC PASSWORD**
OS 7030	10.0.2.10	255.255.255.0	#PBX1357sec.com	4321
OS 7100	10.0.2.10	255.255.255.0	#PBX1357sec.com	4321
OS 7200-S	10.0.2.10	255.255.255.0	#PBX1357sec.com	4321
OS 7200	165.213.176.10	255.255.255.0	#PBX1357sec.com	4321
OS 7400	165.213.176.10	255.255.255.0	#PBX1357sec.com	4321

4.9 Call Performance Ratings

Call Performance Rating for each OfficeServ 7000 System						
SYSTEM	**BHCCS (90s/c, 0.5E)**			**CPS (calls per second)**		
	All IP Configuration	All PCM Configuration	IP/PCM Hybrid Configuration	All IP Configuration	All PCM Configuration	IP/PCM Hybrid Configuration
OS 7030	320	360	360	0.1	0.1	0.1
OS 7100 MP10a	1,800	800	1,800	0.5	0.2	0.5
OS 7200-S MP20S	1,800	1,700	1,800	0.5	0.5	0.5
OS 7200 MP20 **TLS enabled**	3,600 1,800	2,500	3,600	1 0.5	0.7	1
OS 7400 MP40 **TLS enabled**	10,800 3,600	9,200	10,800	3 1	2.5	3

4.10 FoIP and sRTP

Channel Capacities with Fax & sRTP Services			
Device	VoIP (RTP)	VoIP (sRTP)	FoIP (T.38)
OAS Card MPS/RTG MGI	48 32 16	42 32 10	16 X 16
MGI64	64	40	20

4.11 MTBF Ratings

OfficeServ 7000 MTBF					
Model	**Card**	**MTBF (Year)**	**Model**	**Phone**	**MTBF (Year)**
OfficeServ 7030	002BASE	52	DS 5000 Series Phones	DS-5007S	45.77
	4TM	12		DS-5014S	46.88
	2DM	433		DS-5021D	35.87
	4DM	360		DS-5064B	62.03
	4SM	22			
	4LM	184			
OfficeServ 7100	MP10a	25			
	4DLM	70			
	4SL2U	248	SMT-i Series Phones	SMT-i5210	27.09
	4TRM	18		SMT-i5220	42.09
	UNI	100		SMT-i5230	24.93
	Mother Board	100		SMT-i5343	20.42
OfficeServ 7200 & 7200-S	MP20	30		SMT-i5264	75.77
	MP20s	25		SMT-i3105	30.51
	LCP	45			
	MISC	100			
	16DLI2	49			
	8TRK	32			
	TEPRIa	41	iDCS Series Phones	iDCS-28D	33
	CNF24	76		iDCS-18D	36
	8SLI3	24.62		iDCS-8D	46
	16SLI3	17.03		iDCS-64 AOM	60
	16SLIS3	17.03		iDCS-14B	60
	8COMBO3	18.66			
	SVMi-20i	17.42			
	OAS	40			
OfficeServ 7400	MP40	24			
	LP40	44			
	MGI64	40			
	TEPRI2	41			
	Mother Board	80			
	CRM	100			

4.12 Voice Mail Capacities

Voice Mail Capacities for OfficeServ 7000 Systems					
SYSTEM/MODEL	**DEFAULT PORTS**	**MAXIMUM VM PORTS**	**MAILBOXES**	**STORAGE TIME**	**EMAIL GATEWAY**
OS 7030 Embedded SVM	2 -AA 0- VM	2	256	14 hrs.	5 users free
OS 7100 Embedded SVM	4	4	256	100 hrs.	5 users free
OS 7200-S Embedded SVM	4	6	256	100 hrs.	5 users free
OS 7200/7400 SVMi-20i Card	4	20	10,000	240 hrs.	5 users free
OS 7200 IP-UMS Server *	0	32	10,000	* 80 GB HDD 800~1300 hrs.	Unlimited free users
OS 7400 IP-UMS Server *	0	128			Unlimited free users

* See OfficeServ IP-UMS General Description for more details. The number of mailboxes and storage time is limited by the numbering plan, size of hard drive, number of installed languages, length of personal greetings and the selected codec.

4.13 TCP/UDP Port Numbers

OfficeServ 7000 System TCP/UDP Port Numbers			
Service Type	**Port Number**	**Protocol**	**Remarks**
VoIP Networking (SPNet)	6100	TCP	For connection setup
IP Phone Interface (system side)	6000	TCP/UDP	For connection setup
IP Phone (phone side)	9000, 9001	UDP RTP, RTCP	Signaling for MP Voice data for MGI or ITP
WIP	8000, 8001	UDP	For wireless IP phone connection
WE_VoIP	80 9012 5060 5061	UDP/TCP UDP/TCP UDP/TCP UDP/TCP	Uses this port to get login profile Control signaling to system MP SIP signaling SIP signaling using TLS
H.323	1719 1720	UDP TC	For connection with Gatekeeper For connection setup
SIP	5060 5061	UDP/TCP TCP	For connection setup For connection setup
MGI Service OAS & MGI64	30000 ~	RTP RTCP (also seen as UDP)	(2 * number of channels -1) Even port: RTP for each MGI channel Odd port: RTCP for each MGI channel
RTG	45000 ~	UDP	(2 * number of channels -1) Real-time Tone Generation service
MPS	40000 ~	UDP	(2 * number of channels -1) For Media Proxy Service
CTI	5002	TCP	CTI Connection
SVMi-20i	30000 ~	UDP	(2 * number of channels -1) licensed VM channels on SVMi-20i card
SVMi-20i - Control	6001, 6002	TCP	Voice mail control
SVMi-20i - FTP	21	TCP	SVMi-20i file transfer
SVMi-20i - Upgrade	60024	TCP	SVMi-20i software upgrade
CNF24	30000 ~	UDP	(2 * number of channels -1) licensed Conference channels on CNF24 card
CNF24 – FTP	21	TCP	CNF24 file transfer
CNF24 – Upgrade	60000	TCP	Upgrade CNF24 program
DM	5090, 5091	TCP	Connection port for Device Manager, system programming application

OfficeServ 7000 System TCP/UDP Port Numbers			
Service Type	**Port Number**	**Protocol**	**Remarks**
DM – FTP	21	TCP	Device Manager file transfer
DM – VM	6001, 6002	TCP	Embedded Voice Mail
DM File Control	5003	TCP	Program upload to Media Card
SMDR Print	5100	TCP	SMDR Printout to IP connection
UCD Print	5101	TCP	UCD Printout to IP connection
Traffic Report	5102	TCP	Traffic Report to IP connection
Alarm Report	5103	TCP	System Alarm Report to IP connection
UCD View	5104	TCP	UCD View printout to IP connection
Periodic UCD	5105	TCP	Periodic UCD printout to IP connection
Hotel Report	5106	TCP	Hotel Report to IP connection
PMS	5109	TCP	Property Management System to IP connection
MP Trace	80 23 5030	TCP	HTTP Telnet MP Trace

5 Business Feature Package

5.1 System Feature Matrix

The following table indicates the Business features that are available on each of the OfficeServ Systems.

SYSTEM FEATURES	7030	7100	7200-S	7200	7400
ACCOUNT CODE ENTRY Voluntary Forced – Not Verified Forced – Verified	✓	✓	✓	✓	✓
ACCOUNT CODE KEY	✓	✓	✓	✓	✓
ACCOUNT CODE KEY – ONE TOUCH Extender = 000 Extender = 001~999 No Extender	✓	✓	✓	✓	✓
ADMINISTRATOR PROGRAM KEY	✓	✓	✓	✓	✓
ALL CALL VOICE PAGE Multicast Paging	✓	✓	✓	✓	✓
ATTENTION TONE	✓	✓	✓	✓	✓
AUDIO MESSAGE WITH ALARM (TIMER) REMINDER	✓	✓	✓	✓	✓
AUDIO RINGBACK TONES	✓	✓	✓	✓	✓
AUTHORIZATION CODES Forced Voluntary	✓	✓	✓	✓	✓
AUTO ANSWER ON CO	✓	✓	✓	✓	✓
AUTO ATTENDANT (AA	✓	✓	✓	✓	✓
AUTOMATIC CALL DISTRIBUTION (ACD)	✓	✓	✓	✓	✓
AUTOMATIC HOLD	✓	✓	✓	✓	✓
BACKGROUND MUSIC	✓	✓	✓	✓	✓
BRANCH GROUP	✓	✓	✓	✓	✓
CALL ACTIVITY DISPLAY	✓	✓	✓	✓	✓
CALL CENTER OfficeServ Embedded Call Center Samsung Call Management Suite (CMS) Samsung Contact Center Pro (SCC Pro)	✓	✓	✓	✓	✓
CALL COSTING	✓	✓	✓	✓	✓
CALL FORWARDING All Calls Busy No Answer Busy /No Answer	✓	✓	✓	✓	✓

SYSTEM FEATURES	7030	7100	7200-S	7200	7400
Forward DND Follow Me External To Voice Mail Preset Destination Preset Forward Busy					
CALL HOLD Exclusive System Remote	✓	✓	✓	✓	✓
CALL PARK AND PAGE	✓	✓	✓	✓	✓
CALL PICKUP Directed Group Established	✓	✓	✓	✓	✓
CALL RECORDING	✓	✓	✓	✓	✓
CALL WAITING/CAMP-ON	✓	✓	✓	✓	✓
CALLER EMERGENCY SERVICE ID (CESID)	✓	✓	✓	✓	✓
CALLER ID FEATURES Name/Number Display Next Call Save Caller ID Number Store Caller ID Number Inquire Park / Hold Caller ID Review List Investigate Abandon Call List (Missed Call) Caller ID ON SMDR Number to Name Translation Caller ID to PSTN Caller ID to Analog Port	✓	✓	✓	✓	✓
CALLER IDENTIFICATION Automatic Number Identification (ANI) Caller ID Calling Line Identification (CLI)	✓	✓	✓	✓	✓
CENTREX/PBX USE	✓	✓	✓	✓	✓
CHAIN DIALING	✓	✓	✓	✓	✓
CHAIN FORWARD	✓	✓	✓	✓	✓
CLASS OF SERVICE	✓	✓	✓	✓	✓
COMMON BELL CONTROL	✓	✓	✓	✓	✓
COMPUTER TELEPHONY INTEGRATION (CTI) OfficeServ™ Link	✓	✓	✓	✓	✓

SYSTEM FEATURES	7030	7100	7200-S	7200	7400
OfficeServ™ EasySet OfficeServ™ Operator OfficeServ™ Communicator					
CONFERENCE					
Meet Me Conference (CNF24)	NA	NA	✓	✓	✓
Unsupervised	✓	✓	✓	✓	✓
Split	✓	✓	✓	✓	✓
Emergency 911 Conference	✓	✓	✓	✓	✓
Add-On (5 Parties)	✓	✓	✓	✓	✓
Ad-Hoc	✓	✓	✓	✓	✓
CUSTOMER SET RELOCATION	✓	✓	✓	✓	✓
DATA SECURITY	✓	✓	✓	✓	✓
DATABASE PRINTOUT	✓	✓	✓	✓	✓
DAYLIGHT SAVING TIME-AUTOMATIC	✓	✓	✓	✓	✓
DIRECT INWARD DIALING (DID)	✓	✓	✓	✓	✓
DIRECT IN LINES	✓	✓	✓	✓	✓
DIALED NUMBER IDENTIFICATION SERVICE (DNIS)	✓	✓	✓	✓	✓
DIRECT INWARD SYSTEM ACCESS (DISA)	✓	✓	✓	✓	✓
DIRECT TRUNK SELECTION	✓	✓	✓	✓	✓
DIRECTORY NAMES	✓	✓	✓	✓	✓
DISA SECURITY	✓	✓	✓	✓	✓
DISTINCTIVE RINGING	✓	✓	✓	✓	✓
E & M TIE LINES (T1 Service Only)	NA	✓	✓	✓	✓
E-MAIL GATEWAY	✓	✓	✓	✓	✓
EXECUTIVE BARGE-IN (OVERRIDE) With Warning Tone Without Warning Tone Trunk Monitor or Service Observing	✓	✓	✓	✓	✓
EXTERNAL MUSIC INTERFACES	✓	✓	✓	✓	✓
EXTERNAL PAGE INTERFACES	✓	✓	✓	✓	✓
FLASH KEY OPERATION	✓	✓	✓	✓	✓
FLEXIBLE NUMBERING	✓	✓	✓	✓	✓
GROUND START EMULATION on T1 TRUNKS	✓	✓	✓	✓	✓
GROUP BUSY SETTING	✓	✓	✓	✓	✓
HOT DESKING (IP KEYSETS)	✓	✓	✓	✓	✓
HOT LINE	✓	✓	✓	✓	✓
IN GROUP/OUT OF GROUP	✓	✓	✓	✓	✓
INCOMING CALL DISTRIBUTION	✓	✓	✓	✓	✓

SYSTEM FEATURES	7030	7100	7200-S	7200	7400
INCOMING/OUTGOING SERVICE	✓	✓	✓	✓	✓
INDIVIDUAL LINE CONTROL	✓	✓	✓	✓	✓
IP KEYSETS	✓	✓	✓	✓	✓
ISDN SERVICE	✓	✓	✓	✓	✓
LAN INTERFACE	✓	✓	✓	✓	✓
LEAST COST ROUTING	✓	✓	✓	✓	✓
LICENSING	✓	✓	✓	✓	✓
LIVE SYSTEM PROGRAMMING	✓	✓	✓	✓	✓
MALICIOUS CALL RESTRICTION	✓	✓	✓	✓	✓
MEET ME PAGE AND ANSWER	✓	✓	✓	✓	✓
MEMORY PROTECTION	✓	✓	✓	✓	✓
MESSAGE WAITING INDICATIONS	✓	✓	✓	✓	✓
MESSAGE WAITING KEY	✓	✓	✓	✓	✓
MICROPHONE ON/OFF PER STATION	✓	✓	✓	✓	✓
MOBILE EXTENSION (MOBEX)	✓	✓	✓	✓	✓
MOBILITY SOLUTION SMT-W5120D WE VoIP Client	✓	✓	✓	✓	✓
MULTIPLE LANGUAGE SUPPORT	✓	✓	✓	✓	✓
MUSIC ON HOLD—FLEXIBLE	✓	✓	✓	✓	✓
MUSIC ON HOLD – SOURCES	✓	✓	✓	✓	✓
NETWORKING (SPNet)	✓	✓	✓	✓	✓
OfficeServ™ CONNECT	✓	✓	✓	✓	✓
OPERATOR GROUP	✓	✓	✓	✓	✓
OVERFLOW Operator Station Group	✓	✓	✓	✓	✓
OVERRIDE CODES	✓	✓	✓	✓	✓
PAGING	✓	✓	✓	✓	✓
PARK ORBITS	✓	✓	✓	✓	✓
PLUG-N-PLAY	✓	✓	✓	✓	✓
PRIME LINE SELECTION	✓	✓	✓	✓	✓
PRIORITY CALL QUEUING	✓	✓	✓	✓	✓
PRIVATE LINES	✓	✓	✓	✓	✓
PROGRAMMABLE LINE PRIVACY	✓	✓	✓	✓	✓
PROGRAMMABLE TIMERS	✓	✓	✓	✓	✓
RECALLS	✓	✓	✓	✓	✓
RECALL TO OPERATOR	✓	✓	✓	✓	✓
REDIAL REVIEW	✓	✓	✓	✓	✓
REMOTE PROGRAMMING—PC (Device Manager)	✓	✓	✓	✓	✓

SYSTEM FEATURES	7030	7100	7200-S	7200	7400
RING MODES Time Based Routing – Plans Automatic / Manual Holiday Schedule Temporary Override	✓	✓	✓	✓	✓
RING OVER PAGE	✓	✓	✓	✓	✓
SECRETARY POOLING	✓	✓	✓	✓	✓
SECURITY	✓	✓	✓	✓	✓
SIMULTANEOUS RINGING	✓	✓	✓	✓	✓
SINGLE LINE CONNECTIONS	✓	✓	✓	✓	✓
SIP SERVICES Multiple SIP Carriers SIP Trunking SIP Station SIP Peering	✓	✓	✓	✓	✓
SPEED DIAL NUMBERS	✓	✓	✓	✓	✓
SPEED DIAL BY DIRECTORY	✓	✓	✓	✓	✓
STATION HUNT GROUPS Sequential Distributed Unconditional	✓	✓	✓	✓	✓
STATION MESSAGE DETAIL RECORDING (SMDR)	✓	✓	✓	✓	✓
STATION PAIR	✓	✓	✓	✓	✓
SYSTEM ALARMS	✓	✓	✓	✓	✓
SYSTEM DIRECTORY	✓	✓	✓	✓	✓
TENANT SERVICE (2)	✓	✓	✓	✓	✓
TOLL RESTRICTION	✓	✓	✓	✓	✓
TOLL RESTRICTION OVERRIDE	✓	✓	✓	✓	✓
TONE OR PULSE DIALING	✓	✓	✓	✓	✓
TRAFFIC REPORTING	✓	✓	✓	✓	✓
TRANSFER	✓	✓	✓	✓	✓
TROUBLE SHOOTING TOOLS	✓	✓	✓	✓	✓
TRUNK GROUPS	✓	✓	✓	✓	✓
TWINNING	✓	✓	✓	✓	✓
UNIFIED MESSAGING	✓	✓	✓	✓	✓
UNIFIED VOICEMAIL					
E-Mail Gateway	✓	✓	✓	✓	✓
OfficeServ™ IP-UMS	NA	NA	NA	✓	✓
UNIFORM CALL DISTRIBUTION (UCD)	✓	✓	✓	✓	✓
UNIVERSAL ANSWER	✓	✓	✓	✓	✓
VIRTUAL EXTENSIONS	✓	✓	✓	✓	✓

SYSTEM FEATURES	7030	7100	7200-S	7200	7400
VOICE MAIL					
Integrated (In-Skin) SVMi	✓	✓	✓	✓	✓
External OfficeServ IP-UMS	NA	NA	NA	✓	✓
Inband Signaling to 3rd Party VM	✓	✓	✓	✓	✓
VOICE OVER INTERNET PROTOCOL (VoIP)	✓	✓	✓	✓	✓
WALKING CLASS OF SERVICE	✓	✓	✓	✓	✓

5.2 System Feature Descriptions

ACCOUNT CODE ENTRY

Station users may enter an account code (maximum 12 digits) before hanging up from a call. This account code will appear in the SMDR printout for that call record. Keyset users may enter this code using an account code key without interrupting a conversation. Single line telephone users must temporarily interrupt the call by hook-flashing and dialing the feature access code. Manually entered account codes can be up to 12 digits long. In some cases users can be forced to enter an account code and this account code may or may not be verified as described below.

Forced – Verified

When set for this option the user must enter an account code for all outgoing calls. The account code entered will be verified from a system list of 999 entries. Forced Verified codes can contain the digits 0~9.

Forced – Not Verified

When set for this option the user must enter an account code for all outgoing calls, but the account code is not verified against the system list. Non verified account codes can contain the digits 0~9, * and #.

Voluntary

In this case account codes are not required to make outgoing calls but may be used if desired. This is also the method used to assign an account code to incoming calls. These account codes can contain the digits 0~9, * and #.

ACCOUNT CODE KEY

The account code (ACCT) key can be programmed on any keyset and will appear as a soft key on display key-sets. This key allows the user to enter account codes without interrupting a call.

ACCOUNT CODE KEY – ONE TOUCH

The account code (ACC) key can be programmed on any keyset. This key can be programmed with an extender and operates in three different ways depending on the extender as follows.

Extender = 000

When programmed with an extender of 000 the user will be prompted to enter an account code when the key is pressed.

Extender = 001~999

When programmed with an extender ranging from 001 to 999 the key will, when pressed,

automatically insert the account code contained in that bin of the system account code list. This is known as One Touch account codes. This option can be denied in system programming to prevent users from bypassing the security of system account codes.

No Extender

When programmed without an extender the key will, when pressed, prompt the user to enter the bin number the system account code table where the account codes are stored.

ADMINISTRATOR PROGRAM KEY

This feature gives designated stations the ability to administer a number of System functions from their key-set using an assigned button. The Administrator Program (PROG) key is programmed in DM Menu 4.9.2 – Station Key. The station passcode must be changed from the default value to use this feature. See the System Administrator Guide for more information.

ALL CALL VOICE PAGE

Users can page all internal zones and all external paging zones at the same time by dialing the All Page code. Phones may be restricted from making or receiving pages in system programming. See System Specifications regarding the maximum number of phones that can be programmed in each internal page zone per system. **Note:** Each IP keyset being paged requires an MGI channel to deliver the page audio. If all MGI channels are busy, then no IP keysets will receive a page. Paging from a digital keyset to another digital keyset does not require an MGI channel.

Multicast Paging

OfficeServ software V4.60 or higher supports the ability to page to IP phones through multicast data packets. This means that instead of sending a separate data stream (and assigning a separate MGI channel) to each IP phone receiving the page, the system can send only one stream for all phones and use only one MGI channel. This not only reduces the load on the data network during a page, but may also reduce the number of OAS or MGI64 cards or MGI licenses needed in the system.

NOTE: Multicast paging feature applies to SMT-I IP phones only on the same local network as the OfficeServ 7000 system. Remote IP phones will still require separate MGI channels for each remote IP phone being paged, unless the router at the remote location can support the multicast feature. Many routers can support multicast.

ATTENTION TONE

To get your attention, a brief tone precedes all page announcements and intercom voice calls. There is separate programmable duration timers for page and voice announce tones.

AUDIO MESSAGE WITH ALARM (TIMER) REMINDER

This feature provides an option that allows a recorded message to be played to a user when they go off hook to answer an alarm reminder ring (timed reminder ring). The message is recorded on the Samsung embedded voicemail. In addition, if the AA group is busy when the reminder call is answered the system will play a designated MOH source to the user. Alternatively System programming can define an external music source to be played when the Appointment Reminder is answered.

AUDIO RINGBACK TONES

Audio ringback tones allow a caller to hear a custom recording in place of standard ringback tone when calling to the OfficeServ system. This is extremely useful in call center applications where all callers must be alerted of call recordings, or where agents must always answer calls with a specific script. This feature requires a Samsung Voicemail as the custom recordings are stored as prompts in the voicemail system.

AUTHORIZATION CODES

Authorization codes are used to give permission to make a call. A maximum of 500 four to ten-digit authorization codes can be either forced or voluntary. When used, authorization codes will automatically change the dialing station's class of service to the level assigned to the authorization code. Authorization codes may be programmed to print or not print on SMDR.

Forced

When a station is programmed for forced authorization, the user must always enter this code before dialing is allowed. The dialed authorization code is verified from the system list of 500 authorization codes.

Voluntary

Any station user can always enter an authorization code before they begin dialing. The dialed authorization code is verified from a system list of 500 authorization codes.

AUTO ANSWER ON CO

Allows new CO calls directed to a certain keyset to auto answer and be in the call announce mode. This means that private lines and DID calls can be "auto answered" in the same manner as intercom calls. Transferred calls and calls to a station group of which that keyset is a member will continue to ring.

AUTO ATTENDANT (AA)

OfficeServ systems provide a very powerful and extremely flexible Auto Attendant functionality. The AA application is embedded on the MP of the 7030, 7100 & 7200-S systems and resides on the Optional SVMi-20i VM/AA card or OfficeServ IP-UMS for the 7200 and 7400 systems. The Auto Attendant provides customized interactive call routing for public and internal callers. The Auto Attendant multi-level customizable Menu Trees can be very simple or as complex as needed for the application. Callers can be automatically routed based on CID, ANI, CLI, DNIS, and/or Trunk ID information received.

The Automated Attendant can handle simultaneous callers up to the number of voice mail ports licensed in the system.

There are professionally recorded prompts installed that help the caller navigate through the system and customizable prompts per system that can be added to personalize the application to an organization's specific needs.

There are 500 professionally recorded prompts per language installed that help the caller navigate through the system and 9000 customizable prompts per system that can be added to personalize the application to an organization's specific needs. The SVMi-20i has three languages included from the factory; English, Spanish, and French/Canadian. The OfficeServ™ IP-UMS also includes English, Spanish, and French prompts.

When a caller is routed to an extension and that extension is then forwarded back to the SVMi-20i card or the OfficeServ™ IP-UMS application, it will speak default professionally recorded prompts

stating the reason the called party did not answer based on their call condition (Busy, No-Answer, Blocked) or speak a customized greeting recorded by the intended extension owner (subscriber).

AUTOMATIC CALL DISTRIBUTION (ACD)
ACD is a call distribution method by which callers in a queue are routed to the next available agent. While waiting in a queue a canned or customized announcement can be periodically played to the caller based on a programmable timer while retaining their place in the queue. Statistical and historical reports are available to assist supervisors in managing a call center. See Call Center

AUTOMATIC HOLD
While a keyset user is engaged on an outside (C.O.) call, pressing another trunk key, route key or CALL button automatically places the call on hold when Automatic Hold is enabled. Pressing TRSF, CONFERENCE, PAGE or a DSS key always automatically places a C.O. call on hold. Intercom calls can be automatically held only by pressing TRSF or CONFERENCE. Each keyset user can enable or disable Automatic Hold.

BACKGROUND MUSIC
Keyset users may choose to hear music through their keyset speakers when optional external source is installed. Each user may adjust this level by the use of a volume control program at the selected keyset.

BRANCH GROUP
This feature allows stations included in a branch group to answer a ringing call to another station in the group by simply lifting the handset or going on speakerphone mode. This feature works well when there is a need to answer calls for people who may be away from their desk or when a common answering pool is needed. Calls can be directed to a common bell and then can be answered by anyone in the Branch Group. A station can only be in one branch group.
See System Specifications for the number of Branch Groups per system.

CALL ACTIVITY DISPLAY
The OfficeServ system will record and buffer all calling activity within the system. With a Call Activity Display (CAD) key, the system can display a “snapshot” of the following information:

- The maximum number of ports that have been used
- The maximum number of trunks that have been used
- The maximum number of stations that have been used
- The current number of ports in use
- The current number of trunks in use
- The current number of stations in use

CALL CENTER
OfficeServ 7000 systems support three Call Center solutions:

1. **OfficeServ Embedded Call Center Solution**

ACD/UCD Call Centers are required when the user expects to have more ringing calls than people (agents) to answer them. This functionality prevents callers from receiving busy signals or lengthy ring delays before answering. Callers reaching a busy group with no available agents are held in queue for the next available agent. First and second announcements reassure the caller until an agent becomes available. The OfficeServ systems can have multiple simultaneous ACD/UCD groups with a specific number of agents per group using sequential or distributed ring modes.
See System Specifications for the number of ACD groups and Agents per system.

Any time there are one or more calls in queue and no available agents, the longest waiting call will automatically be distributed to the next available agent. When there are no calls in queue the next new call will be routed to the next idle agent according to a specified distribution method. In order to keep pace with the rapidly evolving needs of small call centers a Maximum Calls in Queue count allows the number of waiting calls for a UCD Group to be capped at a desired limit. Any calls above this maximum threshold will be automatically rerouted to a predefined destination. This allows a call center manager to, for example, have the call center configured so that a maximum of 4 calls may be in queue, and any calls beyond that go immediately to a voicemail box.

There are two available reporting options to support the [system] call center functionality. The embedded basic reporting package included with the telephone system is ideal for small informal call center solutions as it provides simple ASCII text reports to a customer provided LAN printer, as well as informational displays at a supervisor's display telephone

NOTE: Some features require optional hardware or software. Ask your authorized Samsung Dealer for details.

Agent Busy / Manual Wrap-Up Key

This UCD group feature allows an agent to have a programmed button that when depressed will remove the keyset from free status within the group. The agent can depress the button again to return the keyset to free status. This provides a method for agents to manually extend their wrap-up time when necessary. This also allows agents to perform other duties such as receiving or making telephone calls without having to log out of the group.

Agent PIN (ID) Numbers

When desired this feature allows agents to be assigned a PIN number to use when logging in and out of a UCD group. This allows an agent to move from location to location and retain their productivity records. There are a total of 300 PIN numbers available in the system.

Agent Login & Logout

At any time agents may login or out of a station call group by dialing an access code or simply pressing the IG button for the selected group. A red LED on the IG button indicates you are in the group.

Automatic Logout

This feature allows the system to further limit ringing delays by automatically logging out stations that are unattended. If a call is delivered to a station that does not answer after a programmable number of rings, the station is automatically logged out of the group so that no further call attempts will be made until the agent has logged back in.

Automatic Wrap-up Timer

The wrap-up timer prevents calls to an agent for a programmable period of time. This allows the agent to finish up paper work associated with the last call.

Priority Call Queuing

This feature places calls to a station queue ahead of other calls based on priority level (1-9).The system compares the Caller ID or trunk ID to a preprogrammed table and assigns the call a corresponding priority that places it in the appropriate position in the queue. This functionality is ideal when specific customers require special treatment.

Optional Samsung ACD products are available for the customers requiring a more sophisticated or formal Call Center application.

EMBEDDED REPORTING PACKAGE

OfficeServ 7000 systems provide some basic reports and statistics available to a supervisor using a display keyset.

Agent Statistics

UCD supervisor positions using a display keyset can monitor the number of agents in a group and how many agents are currently logged in. Each station's status can be reviewed for the number of calls answered and the average call length for the day.

Call Statistics

UCD supervisor positions using a display keyset can monitor the number of calls in queue, the longest wait time for calls currently in queue, the average wait time for the day, and the total number of calls answered for the day.

Group Supervisors

Multiple supervisors can be assigned to each group and one station can be given supervisor status for multiple UCD groups. The group supervisor (using a display keyset) can log agents in and out of the group in real time to help manage the workload.

Printed Reports

UCD supervisor positions using a display keyset may run printed reports to a customer-provided printer, showing the data available from the supervisor displays. These reports can be run manually or scheduled to run at specific intervals.

2. Samsung Call Management Suite (CMS)

Samsung's Suite of Call Management products that deliver enhanced value to the OfficeServ 7000 Series systems experience with value add Recording, Reporting and Call Agent features. CMS supports multi-system or multi-site customers. The following products are delivered as optional features to your portfolio.

Samsung CMS Report – Gives managers complete visibility of call traffic and call costs for single or multiple sites, with the ability to charge costs to different individuals, departments or clients. Primary call statistics can be displayed on a wallboard or PC monitor.

Samsung CMS Record – The plug-in module for CMS Call Reporting and Samsung Contact Centre provides a complete management and call recording solution. Use it to store, find, playback, archive and email encrypted recordings.

Samsung CMS Contact –Brings call center and handset functions to the agent's desktop. Separate modules show each agent's call history, call previews and performance statistics.

CMS Agent – Brings call center and handset functions to the agent's desktop to view agent's call history, call previews and performance statistics.
See separate CMS documentation for more information.

3. **Samsung Contact Center Pro (SCC Pro)**
   Samsung Contact Center Pro (SCC Pro) is an optional high end call center application specially designed for enterprises with more demanding requirements typically found in classic inbound and outbound contact centers. SCC Pro supports multi-system or multi-site customers. Whatever the nature of your business, we can provide a modular approach, allowing you to scale your contact center as your business needs develop, and as your requirements become more complex. Contact Center Pro includes the following modules:
   - SCC Call Routing
   - SCC Reports
   - SCC IVR
   - SCC Call Recording

   Hardware Connectivity: Telephone lines are directly connected to the OfficeServ or SCM system. Calls are connected to the Samsung Contact Center Pro Server using SIP Peering
   Features and Functionality:
   - Multiple ACD call routing modes with customized overflows and routing
   - Skills/priority based routing with 9,999 skill levels
   - Supports 100 queues, 500 agents and/or supervisors
   - Cross platform web-based desktop agent applications
   - Real time configurations and modifications
   - Multi-device agent application including PCs, Tablets and Smartphones
   - User friendly IVR design & programming application
   - Fully scriptable IVR
   - Historical reports with data archive management
   - Intuitive web based administration interface
   - Customizable ACD Wallboards
   - PCI compliant agent call recording
   - Directory services integration and Simple Network Management Protocol (SNMP) monitoring
   - Drag and Drop management of Call Flows
   - Configuration and administration accessed by web browser interface
   - Reporting deliverable as Windows application or via a web browser
   - Multi operating system working, Windows PC, Citrix, MAC, Linux
   - Voicemail queuing
   - Position in Queue (PIQ) announcement

See separate SCC Pro documentation for more information.

CALL COSTING
OfficeServ 7000 software provides programmable call costing tables to calculate the cost of incoming and outgoing calls. Rates are calculated by the number dialed, and may include

surcharges. Display keysets can be set to show the call duration timer or the call cost. The SMDR report will show either the call duration or the call cost depending on the station selection. One call handled by multiple callers will cost each call segment separately.

CALL FORWARDING

This feature allows the user to redirect (forward) incoming calls. The calls can be redirected to the attendant, a hunt group, voice mail, external number or another station user. If the destination station is in Do Not Disturb (DND), the calling party will receive DND/Reorder tone.
Note: Calls cannot be forwarded to a door phone.

All Calls

This type of forwarding is not affected by the condition of the station. All calls are immediately redirected to the designated destination. If desired, the destination station may redirect the call back to the forwarded station by using the transfer feature. The forwarded station user can continue to originate calls as usual. If no key is programmed as Forward All, the TRSF key lights steady when a Forward All condition is set.

Busy

This feature forwards all calls only when the station set is busy. The station user can originate calls as usual.

No Answer

This feature forwards calls that are go unanswered for a preprogrammed time period. The user can originate calls as usual and receive call if present. The timer is programmable on a per-station basis to allow for differences in individual work habits.

Busy /No Answer

This feature allows the station user to use both types of forwarding simultaneously, provided the destinations have already been entered in the usual manner.

Forward DND

This feature works with the Do Not Disturb feature. This allows calls directed to a station in Do Not Disturb or One Time Do Not Disturb to forward immediately to another destination.

Follow Me

This feature allows the user to forward all calls from another station to the user's station or change the forward destination to the user's current location.

External

Stations can be programmed to forward all, forward busy, forward no answer, forward DND C.O. calls to an external number via a central office trunk if allowed by class of service. Intercom calls may also be programmed to forward to an external number via a central office trunk.

To Voice Mail

Each station may be programmed to allow or deny the ability to forward intercom calls to voice mail. When denied, valuable message time in the voice mail system can be saved.

Preset Destination

If desired this feature provides for a permanent (preset) forward no answer destination for each extension. It can only be programmed by the system technician or system administrator. When any station does not have FWD/NO-ANSWER set, the call will ring this preset destination if one is programmed.

Preset Forward Busy

This feature allows the Preset Forward No Answer setting to also work for busy status. When PRESET BUSY is turned on the calls will follow the preset for both busy and no answer conditions.

CALL HOLD

OfficeServ systems offer three ways to hold an outside call.

Exclusive

Outside calls can be placed on exclusive hold at any keyset by pressing HOLD twice during a call. Calls placed on exclusive hold can only be retrieved at the keyset that placed the call on hold. Intercom calls are always placed on exclusive hold. Exclusive hold for trunk calls can be denied in class of service.

System

Outside calls can be placed on system hold at any station. Users may dial the access code or press the HOLD button. Calls on system hold may be retrieved at any station.

Remote

Outside calls can be placed on hold at a station other than the station placing the call on hold. This feature allows calls to be answered at one keyset and placed on hold at another station. This allows time for the user to proceed to that station or allows the party that the call was intended for to have that call placed at their station. The call or trunk button will flash at the remote hold station. NOTE: Intercom calls cannot be remote held.

CALL PARK AND PAGE

Each C.O. line has its own park zone. This simple method eliminates confusion and ensures that a park zone is always available. Pressing the PAGE key parks the trunk call automatically and connects to the paging system. There are no extra buttons to press and there is no lost time looking for a free park zone. Note: The Call Park & Page feature is different than the manual park zone method.

CALL PICKUP

OfficeServ systems offer three types of call pick up a ringing call.

Directed

With directed call pickup, users can answer calls ringing at any station by dialing a code plus that station's extension number or by pressing the feature button and then dialing the extension. There is a system option to allow a DSS key to perform a pickup function rather than a transfer function when pressed.

Group

In addition, calls can be picked up from a station group in a similar manner. The group pickup feature allows users to answer any call ringing within any pickup group. There are 10 pickup groups available in the system. A station cannot be in more than one pickup group. To use this feature, station users either dial the access code or press the assigned feature button followed by the pickup group number.

Established

This feature enables a keyset user to pick-up an establish call in progress at a single line extension connected to a modem on a PC. An EP key with this extension number must be

programmed on the keyset. Established call pickup is useful with PC dialing programs that out dial from a large list of telephone numbers. Let the computer dial for you, then press the EP key to speak with the called party.

CALL RECORDING

When using Samsung's embedded voicemail system, keyset and OfficeServ Softphone users can record their telephone conversations in their personal mailbox for playback or e-mail later. Voicemail license key is required for call recording.

CALL WAITING/CAMP-ON

Busy stations are notified that a call is waiting (camped-on) when they receive a tone. The tone is repeated at a programmable interval. Digital keysets receive an off-hook ring signal through the speaker while single line stations and IP keysets receive a tone in the earpiece of the handset. The volume of the camp-on tone can be set by the station user. Camped-on calls follow Forward No Answer if a Forward No Answer destination has been set.
Optionally any station can be programmed to automatically camp-on to a busy station instead of having to press the camp-on button or dial a camp-on code.

CALLER EMERGENCY SERVICE ID (CESID)

This service is provided in the OfficeServ 7100, 7200-S, 7200 and 7400 systems via an ISDN PRI circuit configured for bothway DID and connected to the TEPRIa card.

This is a service where the telephone system sends a number, usually a call back number, to the Public Service Answering point (PSAP) when a station user dials 911. This number is associated in the PSAP with a location indicating exactly where the call originated. This allows the emergency services to respond directly to the correct building or floor of a building rather than to have to make inquiries as to the location of the emergency. This service is sometimes referred to as Enhanced 911 or E-911.

CALLER ID FEATURES

The following features apply to all forms of Caller Identification, however, to make them easier to read Caller Identification is referred to as Caller ID.

Name/Number Display

Each LCD keyset user can configure their display to see the name and number in the display on all inbound direct calls.

Next Call

In the event that you have a call waiting or a camped-on call at your keyset, you can press the NEXT key to display the Caller ID information associated with this next call in queue at your station. Either the Caller ID name or number will show in the display depending on your selection.

Save Caller ID Number

At any time during an incoming call that provides Caller ID information, you may press the SAVE key. This saves the Caller ID number in the Save Number feature. Pressing the SAVE number redial key will dial the Caller ID number. The system must be using Least Cost Routing (LCR) to dial the saved number.

Store Caller ID Number

At any time during an incoming call that provides Caller ID information, you may press the STORE key. This saves the Caller ID number as a speed dial number in your personal speed dial list. The system must be using LCR to dial the stored number.

Inquire Park / Hold

Having been informed that an incoming call is on hold or has been parked, you may view the Caller ID information before you retrieve the call. This will influence how you choose to handle the call.

Caller ID Review List

This feature allows display keyset users to review Caller ID information for calls sent to their stations. This list can be from ten to fifty calls in a first in, first out basis. The list includes calls that you answered and calls that rang your station but that you did not answer (missed calls). When reviewing this list, you can press one button to dial the person back. The system must be using LCR to dial the stored number. There is also an option called CID REVW ALL in the User ON/OFF options. When set to ON the feature will operate the same as described. However, when set to OFF only calls that are not answered (missed calls) at the station will be recorded in the Review list.

Investigate

This feature allows selected stations with a special class of service to investigate any call in progress. If Caller ID information is available for an incoming call, you will know to whom this station user is speaking. On outgoing calls, you can see who was called. After investigating, you may barge-in on the conversation, disconnect the call or hang up.

Abandon Call List (Missed Call)

The system has a system-wide abandon call list that stores Caller ID information for calls that rang but were not answered (missed call). The list is accessed using the administrator's passcode. When reviewing this list, you are provided options to CLEAR the entry or DIAL the number. You can see the NND key to toggle between the Caller ID Name, Number and the Date and time the call came in. The system must be using LCR to dial numbers from the abandon call list. The abandoned call list will store up to 100 unanswered calls.

Caller ID ON SMDR

The Station Message Detail Records report can be set to include Caller ID name and Caller ID number for incoming calls. This format expands the printout to 113 characters. Use a wide carriage printer or an 80 column printer set for condensed print.

Number to Name Translation

The system provides a translation table for 1000 entries. When the Caller ID number is received, the table is searched. When a match is found, the system will display the corresponding name.

Caller ID to PSTN

When calling out on ISDN-PRI services, each station can be programmed to send any one of the listed directory numbers provided on the PRI circuit. Examples are: the main number, another number or an individual DID number. (PSTN=Public Switch Telephone Network) In addition, keysets can be configured to block Caller ID delivery to the PRI. This will alert the provider that the call number should be restricted, allowing a keyset to make calls that will display as "Anonymous", "Restricted", or "Unavailable" to the called party. This blocking can be set for

each keyset, and is not user-configurable. This means that when enabled, all calls will show as blocked.

Caller ID to Analog Port

When enabled through programming Caller ID from the telephone company is sent directly to analog ports within the system. Optional CID senders must be required on some systems.

CALLER IDENTIFICATION

OfficeServ 7000 systems support three methods of identifying an incoming caller depending on the circuit type as described below.

Automatic Number Identification (ANI)

On a digital T1 trunk programmed as E&M trunks calling party information is called ANI. This information is the telephone number of the calling party and is sent as in-band DTMF digits during the call setup. Care should be taken to ensure the system has sufficient DTMF receiver resources to handle the expected volume of call traffic. Although ANI provides the number only, a name can be attached to the telephone number of frequent callers via the CID/ANI translation table. *Not available on 7030, 7100 and 7200-S systems*

Caller ID

On an analog loop start CO line or SIP trunk, calling party information is called Caller ID and is available from the telephone company in two formats, Number only and Name and Number, sometimes called Deluxe. The OfficeServ 7000 systems are compatible with both formats. Even if the telephone company only offers the number only, a name can be attached to the telephone number of frequent callers via the CID/ANI translation table. Caller ID is supported on Digital, IP and Single Line stations.

Calling Line Identification (CLI)

On ISDN circuits, calling party information is called CLI and is supported on PRI type circuits from 5ESS and DMS 100/250 switches using NI2 format. PRI circuits support both name and number.

CENTREX/PBX USE

CENTREX and PBX lines can be installed in lieu of central office trunks. CENTREX and PBX feature access codes including the command for hook-flash (FLASH) can be stored under one touch buttons. Toll restriction programming can ignore PBX or CENTREX access codes so that toll calls can be controlled when using these services.

CHAIN DIALING

Keyset users may manually dial additional digits following a speed dial call or chain together as many speed dial numbers as are required.

CHAIN FORWARD

The chain forward option determines whether a forwarded intercom call that subsequently forwards to voicemail will target the original stations mailbox or the second stations mailbox.

CLASS OF SERVICE

The system allows a maximum of 30 station classes of service. Each class of service can be customized in memory to allow or deny access to features and to define a station's dialing class. Each station can be assigned different classes of service for day and night operation.

COMMON BELL CONTROL

OfficeServ 7000 systems provide relays that may be programmed to control a customer-provided common bell or common audible device. These contacts must be programmed as members of a station group and may provide steady or interrupted closure. These relays are shared with external page zones. See system specification for the number of relays for each system.

COMPUTER TELEPHONY INTEGRATION (CTI)

Computer Telephone Integration (CTI) allows integration between the OfficeServ systems and a personal computer (PC) on a local area network (LAN). Caller ID service is required for TAPI inbound call applications that use the CID information to display computer records in conjunction with the presentation of the call to the station on the OfficeServ system

OfficeServ™ Link

Samsung's proprietary CTI Server Application that manages all call control functions between the OfficeServ 7030 main unit and all OfficeServ™ CTI Applications.

OfficeServ™ EasySet

OfficeServ EasySet is a web enabled application that allows keyset customization from virtually any location. The EasySet application server runs on Microsoft IIS web server software, which is included with Windows 2000, XP Professional, 2003, 2008, and Windows 7.

OfficeServ™ Operator

OfficeServ Operator is a PC-based attendant console that works in conjunction with either a TDM or IP Keyset. OfficeServ Operator can support up to 20 OfficeServ Operators Consoles simultaneously.

OfficeServ™ Communicator

The OfficeServ Communicator is a Windows® based client application that provides call control features, screen pops from an internal or external database, and more. The OfficeServ Communicator provides you access to all the power of the OfficeServ 7000 Series system features in a sleek, easy to use interface. Users can set the Communicator to run in one of three modes:

1. **Deskphone Mode**
   - Ideal application for users with digital stations or IP stations.
   - Dial from, and screen pop to, Microsoft Outlook, an LDAP directory, an internal Communicator phonebook, or a DDE-compatible database.
   - Configure common station options such as call forwarding, dial and answer modes, and more.
   - TAPI-based connection to any station in the system through the OfficeServ Link CTI gateway. –Access is granted by purchasing OfficeServ Communicator seats for OfficeServ Link License
2. **Softphone Mode**
   - Ideal for telecommuters and road warriors.
   - Process internal and external calls as if you were in the office with a software IP phone that has much of the functionality of a physical IP station (for more information refer to OfficeServ Communicator User Guide).

- If you have a webcam installed you gain video calling capability when talking to other users running OfficeServ Softphone, OfficeServ Communicator's Softphone or UCPhone mode, or users who have a webcam installed on their SMT-i5243 station.
- Record audio and video calls to your PC for later reference (files cannot be exported).
- Dial from, and screen pop to, Microsoft Outlook, an LDAP directory, an internal Communicator phonebook, or a DDE-compatible database.
- Connect directly to the OfficeServ 7000 Series system as a fully functional software IP phone. Access is granted by purchasing **OfficeServ Softphone** seats for your **OfficeServ 7000 Series Service License**.

3. UCPhone Mode

- Specifically designed for users with SMT Series IP stations.
- If you have a webcam installed you gain video calling capability when talking to other users running OfficeServ Softphone, OfficeServ Communicator's Softphone or UCPhone mode, or users who have a webcam installed on their SMT-i5243 station.
- Synchronize your station phonebook with your OfficeServ Communicator phonebook, your Microsoft Outlook contacts list, or an LDAP directory.
- Dial from, and screen pop to, Microsoft Outlook, an LDAP directory, an internal Communicator phonebook, or a DDE-compatible database.
- Configure common station options such as call forwarding, dial and answer modes, and more.
- Record audio and video calls to your PC for later reference (files cannot be exported).
- Connect directly to the OfficeServ 7000 Series system as a fully functional software IP phone. Access is granted by purchasing **OfficeServ Communicator** seats for your **OfficeServ 7000 Series Service License**.

CONFERENCE

OfficeServ 700 systems provide the following conference features.

Add-On (5 Parties)

Any combination of up to five parties (stations or outside lines) can be joined together in an add-on conference. Parties may be eliminated or added after a conference has been established.

Unsupervised

A station user may set up a conference with two or more outside lines and then exit the conference leaving the outside lines connected in an unsupervised (trunk to trunk) conference.

Split

A keyset user can "split" a conference into separate outside calls, and then speak with each caller privately. Then the individual calls can be conferenced again in any combination. NOTE: This feature requires individual trunk buttons and auto-hold must be enabled.

Emergency 911 Conference

For networked systems or large enterprise businesses it is critically important that **911** calls be monitored and tracked not only so that the right people are aware of emergency situations, but also so emergency personnel can be directed properly. Set up to 3 predefined monitoring stations that will be auto-

conferenced in when any user dials 911. These can be local station numbers, SPNet stations, or external numbers.

The caller who dials 911 will be routed by highest priority to emergency services. This means that if all trunks are busy or all MGI channels are in use the system will automatically drop a call in progress in order to make available resources for the 911 call. These predefined monitoring stations will automatically be muted when they answer the 911 Emergency Conference call. If the monitoring station user wishes to speak to the 911 caller or the 911 operator they can un-mute their phone to speak. *Available with PRI or SIP trunks only*

Meet Me Conference

Using the optional CNF24 card users can host a meet–me conference of up to 24 members maximum or multiple smaller conferences with less attendees. System software version V4.53 or higher comes with an embedded web server. Users log in to the OfficeServ Conference Scheduler to schedule and manage their personal conferences. There are options to:

- Set the conference ID and select the attendees, either internal users or external people
- Schedule for once, daily or weekly, reoccurring daily or weekly for up to 3 months
- Set for early entrance
- Deliver invitations by email and include instructions and comments. Can specify a user's "from" address in the conference invitation email. This ensures that attendees can reply to the invitation with any comments or questions without having to write a new email.
- When the Conference Card sends invite emails to attendees they now contain an **iCalendar** (**.ics**) file attachment, which is an industry standard calendar file that can be added to most any personal or business calendar.
- Available prompt languages are US English, Korean, UK English, Australian English, German, Greek, Italian, Russian, Castilian Spanish, Turkish, Finnish, French, Dutch, Danish, Portuguese, Swedish, and Norwegian. When the prompt language is changed the Conference Invite Email template language is also changed.
- To avoid confusion when inviting conference attendees from different or multiple time zones, Phase 2 allows the user to set the **local time zone** for the conference. This ensures that when attendees add the conference to their calendar they are saving the correct time.
- Page internal users to remind them of a conference that is about to start.
- The conference can be recorded and saved as .wav file and then moved to your PC or server like any other file for later review or archive.

During the meet-me conference the Host screen shows who is In, Not In or has Exited, Caller ID, and member ID if entered. Host has options to *Remove* or *Mute* any attendee as well as start or stop recording and terminate the conference. Internal attendees can join the conference using the MJOIN button on their telephone as an alternative to using outside telephone lines. The conference can be locked to prevent additional users from joining.

Ad-Hoc

Using the optional CNF24 card, users can set up an Ad-Hoc conference with up to 24 parties (you and 23 others). The maximum number is determined by the number of channels dedicated to the Ad-Hoc conference feature. The parties can be internal stations or outside calls. The Ad-Hoc conference works similar to the OfficeServ Add-on conference but is not limited to 5 parties. Users must have the MCONF button to initiate an Ad-Hoc conference.

CUSTOMER SET RELOCATION
Customer Set Relocation allows the customer to exchange or swap similar stations in the OfficeServ 7000 systems without wiring changes. All individual station assignments such as trunk ring, station group, station COS, station speed dial, button appearances, call forwarding, etc. will follow the Customer Set Relocation program.

DATA SECURITY
Single line extensions used with modems and facsimile machines can be programmed so that they will not receive any system-generated tones that would disrupt data transmissions. In addition, these devices receive DCS C.O. ringing pattern instead of intercom ring pattern. Devices connected to an SLI card receive a disconnect signal upon termination.

DATABASE PRINTOUT
A copy of the customer database can be obtained by using Installation Tool (IT). This information can be directed to a printer or the PC screen and may be done either on-site or remotely. A complete database or specific data blocks may be obtained.

DAYLIGHT SAVING TIME-AUTOMATIC
The system has a table that can be programmed with the daylight savings change dates for up to 10 years. At 2:00 am on these dates the system will automatically adjust the system clock to match daylight savings time. If no dates are programmed the clock will not change.

DIALED NUMBER IDENTIFICATION SERVICE (DNIS)
When DNIS service is provided on an incoming E&M trunk call can be routed based on the numbers received. (See DID) E&M Trunks are not available on every OfficeServ 7000 system

DIRECT IN LINES
Outside lines may be programmed to bypass the operator(s) and ring directly at any station or group of stations.

DIRECT INWARD DIALING (DID) (ISDN PRI Service Only)
The term Direct Inward Dialing refers to types of digit steered inbound call handling. These are DID, Bothway DID, Dialed Number Identification service (DNIS) and Direct Dial In (DDI).

DID is an inbound only service where multiple telephone numbers are assigned, usually in blocks of twenty, to a single circuit or small group of circuits. The DID service must be provided by ISDN/PRI trunks connected to the OfficeServ 7000 TEPRIa or TEPRI2 card.
Direct Dial In (DDI). This is the name given to the above three services when they are provided over an ISDN PRI circuit.
The OfficeServ has an option to select which MOH source is played to callers to a specific DID number.

- **DID Call Limits**
  This option defines the maximum number of simultaneous calls that the system will accept for each DID number and for each Ring Plan. Any call attempts after the Maximum Call (MC) count has been reached will be rejected and busy tone returned.

DIRECT INWARD SYSTEM ACCESS (DISA)
Users can call in on specific DISA lines at any time, input a security code and receive system dial tone. Users can now place internal calls or if permitted, calls using C.O. lines. The caller must have a tone dial phone and know his/her DISA security code if DISA security codes/passcodes are turned on. DISA lines can be used as bothway lines or incoming only and may be allowed or disallowed for any of the 6 ring plan time periods. The C.O. lines used for DISA must be provisioned for disconnect supervision. The requirement to put in a DISA security code can be disabled if desired.

DIRECT TRUNK SELECTION
Each station can be allowed or denied access to a trunk or trunk group by access code when LCR is activated. When restricted, the station user must use a trunk key or a route key.

DIRECTORY NAMES
Each station, station group and C.O. line may be assigned a directory name (maximum 11 characters). In addition, each personal speed dial number, system speed dial number and entry in the DID translation table may be assigned a name (maximum 11 characters). These names are displayed during calls with these ports and in the case of station and speed dial names, can be used to originate calls. See the Dial by Name feature (Station Features).

DISA SECURITY
Telephone fraud and long distance theft are a serious concern. The OfficeServ system provides a strong DISA security system. If an incorrect DISA passcode is entered repeatedly (as is the case with “hackers”), the DISA system can be automatically disabled temporarily. Both the number of incorrect passcode attempts and the time that DISA is disabled are programmable. In addition, all failed attempts to access DISA print on SMDR (if provided) with a “DE” DISA error flag.

DISTINCTIVE RINGING
The OfficeServ system provides distinctive ringing at a station based on selected parameters.
Outside calls have a single ring repeated, while intercom calls have a double ring repeated.
Any trunk or station can be programmed to ring a specific digital keyset with a predefined ring tone (18) or an analog station with a predefined cadence (1-5) selection.
Digital keysets and analog stations may receive distinctive ringing based on the Caller ID number received or the DID number dialed.

E & M TIE LINES (T1 Service only on 7200 & 7400 systems)
Your office can be connected to another office with a tie line. Use it to make calls to stations in the other system. If programming allows, you can access lines in the other system to make outside calls. Tie line calls can be put on hold, transferred and conferenced in the same way as are other outside calls. Users accessing the tie line from the other system can get a line in your system and make outgoing calls. These calls can be controlled by assigning a dialing class to the tie line. Your local telephone company may use E&M tie lines to provide DID service. In this case these tie lines can be programmed to follow the DID translation table. See DID. Translated E & M tie line calls have Ring Plan routing capabilities. *DISA is only available on OfficeServ systems that support T1 service.*

E-MAIL GATEWAY—See Unified Voicemail

EXECUTIVE BARGE-IN (OVERRIDE)

The feature allows specially programmed stations with a barge-in key to override the automatic privacy of another station or outside trunk. Programming allows barge-in with or without a warning tone. Stations may also be programmed as "secure" so that they cannot be barged-in on.

With Warning Tone

When the barge-in with tone option is set, the barging-in keyset has its microphone on and the barged-in on station receives an override display. A double burst of warning tone sounds and repeats every ten seconds. This feature does not work from single line sets.

Without Warning Tone

When the barge-in without tone option is set, the barging-in keyset has its microphone muted and the barged-in on station does not receive an override display. This feature does not work from single line sets.

Trunk Monitor or Service Observing

This feature allows the user who barged-in to retain the trunk call after the original station has hung up.

WARNING: BARGE-IN WITHOUT TONE MAY VIOLATE STATE OR FEDERAL LAWS CONCERNING THE RIGHT TO PRIVACY. SAMSUNG TELECOMMUNICATIONS AMERICA IS IN NO WAY RESPONSIBLE FOR THE POSSIBLE MISUSE OF THIS FEATURE.

EXTERNAL MUSIC INTERFACES

The OfficeServ 7000 systems provide one or more inputs for connecting customer provided external music sources. This source can be used to provide background music, or any of the varied Music on Hold (MOH) uses. See System Specifications for details regarding the external MOH interfaces per system.

EXTERNAL PAGE INTERFACES

The OfficeServ 7000 systems provide one or more external page output and zone control relays. Common relays are shared between external page zones and common bell features. See System Specifications for details regarding the external page interfaces per system.

FLASH KEY OPERATION

While a user is on an outside line, pressing the FLASH key will send a timed disconnect signal to the central office or PBX. This is used for custom calling features on C.O. lines or in conjunction with CENTREX/PBX operation. System programming allows individual flash times for C.O. and PBX lines. When C.O. or PBX flash is not required, setting the timers for two seconds releases the existing call and returns dial tone to make a new call.

FLEXIBLE NUMBERING

System programming allows stations to have two, three or four digit extension numbers beginning with the digit 2 or 3. Three digit default extension numbers begin with 201 and four digit defaults begin with 2001. Station group numbers can be three or four digits beginning with the digit 5. Using digits other than 2, 3 or 5 will require the technician to change other default feature access codes in

the system default numbering plan. User guides will need to be modified as these are all written using the OfficeServ 7000 default numbering plan.

GROUND START Emulation on T1 TRUNKS (T1 Service only on 7200 and 7400 systems)
The OfficeServ 7400 and 7200 can utilize these trunks to support a positive disconnect signal and prevent call collisions on heavy traffic usage. Caller ID or ANI service is not available on these trunks. *Ground Start Trunks are only available on OfficeServ systems that support T1 service.*

GROUP BUSY SETTING
This feature provides a busy signal to intercom callers that ring to a station group when all logged-in stations are busy. The feature is activated in DM Menu 4.1.1. When set to ON, this allows an intercom caller to hear a busy signal when calling a station group. Upon hearing a busy the intercom caller will know that all stations are busy and can call back. When this option is set to OFF, the intercom caller will hear ring-back tone when all stations are busy and the call will queue for the next available station. Turning this option ON will override the Overflow setting when the group is busy. The default setting is OFF.

HOT DESKING (IP KEYSETS)
Hot desking is an industry term that describes stations where multiple people have one or more work areas or share a common work area. Samsung IP keysets allow users to log in and out from any keyset of the same model in the system. This allows a user to work from any available desk and retain their phone number; speed dials, voicemail, and programmed buttons.

HOT LINE
Stations can be programmed to call a pre-defined station or station group whenever that station goes off-hook. A hot line delay timer of 0–250 seconds can be programmed to allow sufficient time to make a different call. This timer is programmable on a per station basis.

IN GROUP/OUT OF GROUP
Individuals assigned to a station hunt group may temporarily remove their telephones from the group by pressing the In/Out of Group button providing that there is someone still in the group. There is a system wide option to allow all members to log out of a station group. Stations out of a group will not receive calls to that group but will continue to receive calls to their individual extension numbers. When desired, the user may put him/her back into the group by pressing the button again. Users who do not have this button may dial the access code and the group desired. A station user is allowed to be in several groups, providing a key and the extender of that group are assigned for each group on the user's phone.

HOSPITALITY (Hotel/Motel)
Samsung OfficeServ 7000 systems combine the business feature package with additional features to meet the needs of the Hospitality Industry.
The Samsung hospitality solution is available in two distinct products to address two distinct market applications. The OfficeServ Concierge-Lite is for very small (5 to 15 rooms), bed-n-breakfast inns

and hunting lodge type properties. The OfficeServ Concierge-Elite is for the medium size (25 to 400 rooms) properties that integrate with a Property Management System (PMS)
See Section 6 of this document for details of the OfficeServ Hospitality solutions.

INCOMING CALL DISTRIBUTION
Incoming calls can be assigned to ring a distributed station hunt group. This allows all members of the group to share the call load.

INCOMING/OUTGOING SERVICE
Outside lines are available for incoming or outgoing service. Programming allows any outside line to be used for incoming calls only, outgoing calls only or both way service.

INDIVIDUAL LINE CONTROL
Each station in the system can be individually programmed to allow or deny dialing out as well as allow or deny answering for each outside line.

IP KEYSETS
OfficeServ 7000 systems allow the use of Samsung proprietary keysets that use Internet Protocols (IP) for voice and data transport. They may be local to the system or installed in a remote location via a LAN/WAN. System supports UDP or TCP protocols. (UDP is default) *When TCP is selected the number of supported IP Keysets is significantly reduced. See individual System Capacities tables in each System Overview in section 1.*
For more information on how to setup the IP keysets please refer to the VOIP Special Applications Section of the Technical Manual and the Hot Desking (IP keysets) section above.

ISDN SERVICE
Primary Rate Interface (PRI)
The OfficeServ 7100, 7200, 7200-S and 7400 support Primary Rate Interface ISDN. PRI allows simultaneous data calls, calling party and calling line identification, high speed call setup and disconnect are among the benefits of ISDN calling. The 23+D configuration of ISDN allows call information to be delivered via the data channel (the “D” of 23B+D) thus leaving the bearer channels (the “B” of 23B+D) available for single use or combined use to provide a wider bandwidth for data and video. OfficeServ 7000 systems supports the most popular protocol standards in the U.S. PRI Protocols supported: National ISDN-2 (NI2) AT&T No. 5 ESS DMS 100/250

LAN INTERFACE
The MP20S processor card provides a 10/100 base T Ethernet interface for connection to a data network. This interface allows a high speed connection for PC programming across an IP network. This interface also allows the system software to be uploaded to the media card via the OfficeServ™ Installation Tool program.

LEAST COST ROUTING

Least Cost Routing (LCR) is the ability to automatically select the most cost effective central office route for the outside number dialed by any station. The LCR program includes the following features:

- Option to use or not user LCR or a tenant basis
- Programmable LCR access code
- Digit analysis table of 2000 entries each with ten digits
- Routing by time of day and day of week (4 time bands per day)
- Modify digits table of 200 entries
- Flexible trunk group advance timer
- Option to use or not use trunk group advance warning tones

LICENSING

The OfficeServ 7000 system requires various licenses for IP devices, voicemail/auto attendant ports, system services, CTI applications and optional external server based applications. Below is a list of the licenses. See OfficeServ Order Form for license details and ordering information.

System Resource License includes:

- Voice Mail - per ports
- Fax per ports for SVMi-20i in OS7200 & OS7400 systems
- Embedded MGI Channels

System SIP Stack License includes:

- 3rd Party SIP Phones
- SIP Application Ports
- SIP Trunks
- WE VoIP Clients

System Service license includes:

- OS Softphone & Communicator Softphone Mode
- Communicator UCPhone Mode
- H.323 Trunks,
- SPNet,
- CNF24 Meet-Me Conference channels
- Executive MOBEX users

CTI Licenses:

- OS Link
- OS Call
- OS Operator
- TSP for Xchange
- OS Communicator Deskphone

Email Gateway: Unlimited port license

OfficeServ IP UMS license includes:

- Application Ports
- Sync with Exchange & Outlook
- Fax Send enable

- Fax Receive enable
- TTS Ports
- TTS Languages

Samsung Call Management Suite (CMS)
Samsung Contact Center Pro (SCC Pro)

Note: TDM devices such as Samsung Digital Keysets, standard analog phones (SLT), loop start analog trunks and digital trunks (T1/PRI) do not require a license.

DEFAULT LICENSES
All OfficeServ 7000 Systems have two 'Temporary' licenses to use is special cases.

Tutorial
The Tutorial license only works when there is no system licenses (Resource, SIP Stack & Service) installed. Enabling the Tutorial license will allow the system to support the maximum amount of these features/devices (listed in the table below) for 1440 hours of service. This will allow evaluation of these features before purchasing a permanent license. When the 1440 hours expire these features/devices are no longer supported until permanent licenses are installed. The Tutorial license can never be used again after the 1440 hours expire.

TUTORIAL LICENSE	7030	7100	7200-S	7200	7400
RESOURCE					
MGI	4	8	6	-	-
VMS	2	4	6	20	20
FAX ports on SVMi-20i Card	-	-	-	4	4
SIP STACK					
SIP Trunk	8	64	32	64	256
3rd Party SIP Phone	16	56	64	128	480
SIP Application Ports	-	-	-	64	64
WE VoIP	16	32	56	56	224
SERVICE					
H.323 Trunk	-	24	24	32	64
Soft Phone	16	56	64	128	480
Mobex Executive	4	8	60	64	400
SPNet	Enable	Enable	Enable	Enable	Enable
Conference (CNF24)	-	-	24	48	96

Urgent
The Urgent license is intended to be used in the case when the main system processor (MP) has to be replaced. The Urgent license only works when there are system licenses (Resource, SIP Stack & Service) already installed but the MAC address of the replacement MP does not match

the MAC used to generate the System Licenses. Enable the Urgent license until the permanent licenses are transferred to the MAC address of the replacement MP.
When operating in the Urgent license mode the system does not look for a MAC address match. The same number of features/devices in the system licenses will be supported. The Urgent license is only available for 1440 hours from the time it is activated. So it should be a priority to contact Samsung Technical Support the next work day to get the system licenses transferred to the new MP or Motherboard. The Urgent license can never be used again after the 1440 hours expire.

LIVE SYSTEM PROGRAMMING

The system can be programmed from any display keyset or personal computer without interrupting normal system operation. There are 3 levels of programming: Technician, Customer and Station. The technician level has access to all programs and can allow the customer access to system programs as needed. Technician and customer access are controlled by different security passcodes.
Programming from a PC requires a current stand-alone version of the Samsung proprietary Device Manager Application. Optionally, the technician can use Internet Explorer 6.0 or higher to access the system and use the embedded version of Device Manager. The Embedded Device Manager requires Java 6 or Java 7, Update 25. The system can also be programmed remotely over the internet via the LAN/WAN.
The Auto Attendant/Voice Mail application can only be programmed with a personal computer using Internet Explorer 6.0 or higher connecting to the Web Management application embedded in the OfficeServ 7000 systems.
Programming both the Auto Attendant/Voice Mail and Telephone System can be accomplished on site using a LAN connection or remotely via the Internet.

MALICIOUS CALL RESTRICTION

The Malicious Call Restriction feature is used to protect the OfficeServ system against fraudulent SIP calls. By enabling this feature you can prevent unauthorized SIP calls going through the system via the SIP trunk or SIP peering. The OfficeServ system blocks the IP address when a SIP phone tries to register to the system with a wrong User ID or Password.

MEET ME PAGE AND ANSWER

After a user makes a Meet Me Page, the user may remain off-hook to allow the paged party to meet the user for a private conversation.

MEMORY PROTECTION

In the event that power is lost to the system, the system database is stored in NAND flask *indefinitely*. Temporary logs, peg counts, alarms and statistics are stored in SRAM by a “super capacitor” for approximately 12~24 hours. Additionally, the media card (SD) may be used to store the system database. The Device Manager (DM) administrative interface may be used to produce a backup copy of the customer database.

MESSAGE WAITING INDICATIONS

When calling a station and receiving a busy signal or the no answer condition, the caller can leave an indication that a message is waiting. The message button will flash red at the messaged keyset. A single line phone connected to an Office SLI interface card that supports Message Waiting will have a message light otherwise it will receive a distinctive message waiting dial tone. Five message waiting indications can be left at any station.

MESSAGE WAITING KEY

The Message Waiting (MW) key is used in conjunction with a voicemail card. The MW key is programmed with an extender matching a station or station group number and is used to access the voice mailbox associated with the extender.

MICROPHONE ON/OFF PER STATION

The microphone can be disabled at any keyset. When the microphone is disabled, the keyset cannot use the speakerphone, although on-hook dialing and group listening are still possible.

MOBILE EXTENSION (MOBEX)

MOBEX, short for Mobile Extension, is a feature that allows you to assign a 3, or 4 digit extension number to a remote device such as a cell phone. Calls to MOBEX phones are treated almost identically to other station calls. MOBEX phones can be placed in station groups, have voicemail and forwarding, and be directly dialed by other stations. This allows users to have an extension on the phone system without needing a physical keyset. MOBEX can only be used with SIP or PRI trunks.

The **Executive MOBEX** feature also allows MOBEX phone users to transfer callers to another station, place the call on remote hold at another station, or send the caller directly to voicemail. You can even set up a direct access number that will allow MOBEX users to dial in to the system and make phone calls as if they were at a local keyset in the office.
Executive MOBEX requires a valid license key, an OAS card configured to allow MOBEX DTMF receivers, and SIP or PRI trunks.

MOBILITY SOLUTION

OfficeServ systems provide a mobile handset solutions using industry standard Wi-Fi technology 802.11 over WLAN.

WE VoIP Client

Samsung WE VoIP is a mobile SIP phone client that makes your smartphone an extension of the office phone system. A dual mode smartphone and phone system communicate with each other over a private Wi-Fi network in the office and a public Wi-Fi or 4G/LTE network when out of the office. With WE VoIP, you can make or answer a VoIP call using the default dialer and Contacts of your smartphone. A WE VoIP user license is required for each WE VoIP Client extension.
The WE VoIP Client is currently compatible with these Samsung Galaxy Edition smartphones: Galaxy S3, S4, S5, Note2 and Note 3.
See WE VoIP Product Brochure and documentation for more details.

MULTIPLE LANGUAGE SUPPORT

The OfficeServ system can be programmed to support multiple display languages. Each station can be set to a selected language as defined in DM Menu 5.15.3-Station Display. The current languages are: English, Spanish, Italian, German, Portuguese, Norwegian, Danish, Dutch, Swedish, US Spanish, and Canadian French.

MUSIC ON HOLD—FLEXIBLE

The OfficeServ 7000 systems allow its music sources to be used in flexible manner as follows:

- Each keyset can have a designated music source for playing as Background Music (BGM) through the keyset speaker.
- Each Station can have a designated music source for playing to callers placed on Exclusive hold at that station.
- Each Trunk can have a designated music source for playing to callers placed on hold. This setting is overridden by some of the other settings such as station music on hold, DID MOH and UCD MOH.
- Each UCD group can have a designated music source to be played while a caller is in queue.
- Each entry in the DID translation table can have a designated music source to be played when a caller to that DID number is placed on hold.

MUSIC ON HOLD – SOURCES

The OfficeServ 7000 system provide for multiple different types of Music on Hold sources;

- **None**: No audio is played to the listener
- **Tone**: A tone or “beep” is repeated at a programmable interval
- **Chime**: A music chime source (Old Folks At Home) located on the MP20S card is played to the listener.
- **External Source**: An external source connected to a MISC port, such as a digital announcer or radio, is played to the listener.
- **Voicemail Sound File**: If the OfficeServ 7000 system has either the embedded voicemail enabled or a separate SVMi-20i card installed, custom recorded sound files from the Voice Mail card can be used for MOH sources. For more information on creating the sound files refer to Voice Mail Programming Manual. If you select this option be advised that each VMMOH source requires a dedicated voicemail port.

See system specification regarding MOH sources available on a per system basis.

NETWORKING (SPNet)

The OfficeServ 7000 systems allows up to 2~42 systems (see specifications) using QSIG over PRI or 99 systems using QSIG over IP to be networked together with a high level of feature integration. The networked systems may be any combination of OfficeServ 100, OfficeServ 500, OfficeServ 7100 V4.40 or higher software, and OfficeServ 7200 systems running V2.46 or higher software, OfficeServ 7030 systems running V4.40 or higher, OfficeServ 7200-S systems running V4.40 or higher, and OfficeServ 7400 systems running V3.31 or higher software. The physical connection between systems can be an IP network or proprietary PRI connection using Samsung’s proprietary version of QSIG, called **SPNet**. If PRI connection is used, the maximum number of nodes may be limited by the maximum number of TEPRI/TEPRIa cards that can be installed.

When engineering the network of systems, a discrete numbering plan must be used. The size and complexity of the numbering plan as well as the number of stations and trunks may limit the actual number of nodes available to the network.

Only the following features are supported between networked systems. Some of these features when used in a network configuration work differently than the same feature in a stand-alone system.

Auto Answer across the network: This setting will allow station to station calls across the network to follow the auto answer setting of the called keyset

Call Completion, Busy Station (CCBS) also known as Callback or Busy Station Callback. When a station in one system calls a station in another system across the network link and the destination station is busy the calling station can set a Callback to the busy station. When the busy station becomes idle the system will notify the callback originating station by ringing that station and when the originating station answers, the system will call the destination station. *Not available on QSIG over PRI.*

Call Completion, No Response (CCNR) also known as Callback or No Answer Callback. When a station in one system calls a station in another system across the network link and the destination station does not answer the calling station can set a Callback to the called station. When that station indicates the user is present by becoming busy then idle the system will notify the callback originating station by ringing that station and when the originating station answers, the system will call the destination station.

Call Intrusion (Barge In): Calls across the network link can be barged in on however the barging station will not be muted.

Call Offer/Call Waiting (Camp On): This feature operates in the same manner as in a non-networked switch. When a called station is busy the caller can press a camp on key and the call will appear as a ringing call on the second call button.

Note: If a station is set for Auto Camp On to 'ON' in DM menu 5.15.4-Keyset On/Off, The Auto Camp On feature will not work for calls across a network link.

Call Pick-up Across the Network: This feature allows ringing calls, held calls and recalls to be picked up by other stations through the network. A station user in a Branch Office can use the Directed Pick-up, Hold Pick-up or Page/Park Pick-up codes to answers calls from the Main Office.

Call Transfer: Calls answered in one network node can be transferred to a station or station group in another network node.

Caller ID: Caller ID in its various forms that are currently available (Analog CID Name and Number, ANI Number, PRI Name and Number) will be transported across the network link with the original call.

Centralized Automated Attendant: The Samsung Voicemail provides the Auto Attendant Application. The Samsung Voicemail can transfer callers to other stations or station groups in another Node. It can be installed in any Node regardless of where the lines/trunks from the telephone company are connected. Callers to Node A can be answered by the Samsung Voicemail in Node B, and then transferred to Node C. An incoming caller that dials an invalid extension number to the Samsung Voicemail can be

routed after a programmable number of attempts to a predetermined station or station group anywhere in the network to receive assistance.

Note: The embedded voicemail of the OfficeServ 7030, 7100 and 7200-S is limited in the number of ports so it is not recommended for use as the main Centralized Auto Attendant/Voicemail node. When possible always use the SVMi-20i voice mail card in a 7200 or 7400 system as the centralized auto attendant.

Centralized Operator/Attendant: A station in any Node may dial "O" and ring a designated Centralized Operator/Attendant. When programmed, hold/transfer/camp-on/park recalls can be directed to the Centralized Operator/Attendant in a network arrangement instead of the Local Operator within that Node. Ring plan assignments will allow recalls to a Centralized Operator/Attendant during the day and to the Local Operator after hours. There can only be one Centralized Operator/Attendant designated in the network. Each Node must be set for either Local Operator or Centralized Operator/Attendant, but not both.

Centralized Voice Mail with Message Waiting Lights: This feature allows one Voice mail system to be shared by all stations in a multi-node network. This feature is only available with Samsung voice mail systems. Users in one Node can call forward their calls to the voice mail system in another Node. Messages left in the voice mail system will be indicated by lighting the corresponding voice message button or lamp on any station in any Node of the network. Messages are retrieved by pressing the VMSG button or calling the voice mail group number. In addition, display keyset user will receive softkey

DID with Pass Through: Incoming DID, DNIS or DDI calls can be routed through one switch across a network link to be processed by the DID table of the destination switch.

Direct Station Selection and Busy Lamp Indication Across the Network: A Network Station key (NS) can appear on extension "2101" in Node A. It is programmed as "NS2205" representing an extension in Node B. This NS key will light Red when extension 2205 is on the phone. Station 2101 can press this NS key to call extension 2205 in Node B. With this feature the CEO can see when the VP in New York is on the phone or may call him with the press of a button. Any keyset can have multiple NS keys.

Do Not Disturb (DND): This feature operates in the same manner as in a non-networked (stand-alone) system.

Forward External: This feature operates in the same manner as a non-networked system with the exception that, because calls across a network link are trunk calls, network calls do not follow the ICM FWD EXT ON/OFF setting in DM 5.14.6. It is therefore suggested that this setting be set to ON in a networked switch to avoid confusion in operation between networked and non-networked calls.

Group Overflow Across the Network: Calls to a station group in one Node may overflow after a programmable time to another station group in another Node.

Intercom Calling/Discrete Dialing Plan: Station to station and station to group calls can be made across the network link without having to dial an access code for a call within the network. LCR can also be programmed to route calls across a network link and to access local trunks in another networked system.

Message Key Across the Network: This feature allows station users to set a message waiting indication to another station in another Node in the network. Upon receiving a busy or no-answer condition, press the MSG key or dial the feature code. This will light the message waiting light at the called station. To return the message press the MSG key with the flashing red LED.

Network Page Key: With one or more of these keys users may make page announcements to page zones in others Nodes in the Network. The network page (NP) key is different than the Page key in a single node. For example, It is programmed as NPO24 where 02 = Node 2 and 4 = page zone 4 in Node 2.

Network Time Protocol (NTP): Network Time Protocol (NTP) Client is a supported feature of the OfficeServ 7000 system. When this system is connected to the network (WAN), the internal clock of the phone system will update and stay current by polling the network of a National Timer Server. Note: *This feature requires software version 4.60 or higher.*

Network Trunk Ring Destination: This feature allows lines/trunks from the telephone company connected to one Node to be programmed to ring at a destination (station or station group) in another Node.

Remote Hold Across the Network: Calls may be placed on hold at stations in another Node. Then page that Node and announce that there is a call on holding on extension 2xxx. Anybody in this Node may pick up the call by dialing 12 + 2xxx. This is useful when one Node does not have a dedicated answering position. The caller is on Hold listening to music rather than listening to ringback tone. Note: Remote Hold to a virtual extension in another node is not available.

Transfer Recall: Calls transferred across a network link will recall to the transferring station after the originating system transfer recall timer expires. After recalling, if not answered prior to that systems attendant recall timer expiring, the call will recall to that systems designated operator group. Attendant recalls will not recall to a 'Centralized Attendant".

Transfer Retrieve: Calls on Transfer Hold during a screened transfer can be retrieved by pressing the call button for that call.

Voice Mail Transfer Key: Users may transfer a caller directly to a co-workers voice mail box without ringing their telephone by pressing the VT key and dialing their extension number. The caller will then hear that co-workers personal greeting regardless of where they are in the network.

OfficeServ™ CONNECT

The OfficeServ™ Connect feature allows up to 5 devices to ring simultaneously with a Master Station. When one device answers the others stop ringing. This allows users to have phones in more than one location (such as an office phone and a conference room phone) but receive calls from one phone number. When combined with the Mobile Extension (MOBEX) feature the OfficeServ™ Connect allows users to have business calls ring at their desk and on their cell phone at the same time by having users dial one common number, keeping the user from being forced to give out their cell phone number. Calls that are unanswered by either device will forward to the voicemail box for the Master Station.

Note: *Mobex Callback, Call Type and Scheduling features are supported on software version 4.60 or higher*

Mobex Callback: This feature saves on outbound call charges from a mobile phone. Now users can simply make an incoming call into the OfficeServ system and get a busy signal followed by a disconnect signal. After a short time, the systems will callback the user's phone and give dial tone from the system. (This is now an incoming call to the user and not an outbound call). Now the user is able to make the call through the OfficeServ without incurring the normal charges of an outbound call.

Mobex Call Type (Targeting): This feature gives more control to the user on incoming calls to the master station. This feature allows each user to determine which type of incoming calls will follow the OfficeServ Connect ring group assignment. For example, a Mobex user may decide that incoming internal, SPNet, and station group callers will only ring the master station, but incoming trunk calls will ring the master station as well as all members in the ring group. This allows each Mobex user the flexibility to route incoming call patterns to suit their individual needs.

Mobex Scheduling: This feature has been added to allow each user to set a schedule to automatically turn on or off the OfficeServ Connect feature by time of day and day of the week. When set to ON, incoming calls to the desk phone (master station) will simultaneously ring up to 5 devices in the ring group. When one device answers, the others stop ringing. When set to OFF, only the deskphone (master station) will ring.

OPERATOR GROUP

The operator group can contain 32 stations to answer incoming calls. Calls to this group can be set for dis125roll125e, sequential or unconditional ringing. Operators can use the In/Out of Group feature to meet flexible operator requirements. Operator groups are selectable per ring plan.

OVERFLOW

Operator

When calls ringing an operator group go unanswered, they can overflow to another destination after a programmed period of time. The operator group has its own timer. The overflow destination can be a station or station group.

Station Group

When calls ringing a station group go unanswered, they can overflow to another destination after a programmed period of time. When the call overflows, it continues to ring the first group as well as the new overflow destination. Each station group has its own overflow timer. The overflow destination can be a station or another station group located in the same system.

OVERRIDE CODES

This feature allows users to make emergency outside calls from a station that has a forced code such as Account Code or Authorization Code enabled but without requiring them to enter a forced code. The basis of this feature is an override code table containing 8 entries of up to 11 digits each. The system will examine digits that are dialed from a station to see if they match any entry in the Override Code table. If the digits match the table, the system will process the call without requiring a forced code.

PAGING

System programming allows the use of internal and external paging zones. Stations can page any individual internal zone, all internal zones, individual external zone or all external zones plus internal zones simultaneously (All Page). Using system programming, each station may be allowed or denied the abilities to make and/or receive page announcements to any zone or combination of zones. The Default Number Plan provides an access code for all external page zones but not all systems support all the external zones because of the limited number of external zone relays. Common control relays are shared between external page zones and common bell feature. See System Specifications regarding the number of Common Relays per system.

PARK ORBITS

The system has 10 park orbits (0–9).These orbits can be used to park calls prior to paging and allows the call to be retrieved by dialing a park code plus the orbit number. Calls parked in this manner can also be retrieved by dialing the park pickup code (10) plus the station or trunk number. This feature is different than the Call Park and Page feature.

PLUG-N-PLAY

For companies with a large amount of IP telephones a significant number of man hours can be spent setting IP addresses, updating software, and registering phones. This directly affects a company's ability to stay efficient and keep costs down. To help alleviate many of the common time sinks involved with installing IP phones Samsung has developed a new Plug-N-Play feature for the OfficeServ 7000 Series and OfficeServ SMT-i Series IP Phones. This feature allows SMT-i Series phones to find the OfficeServ 7000 Series system automatically and register with very minimal programming.

PRIME LINE SELECTION

Any station can be programmed to select a specific line, trunk group, telephone number, station or station group when the handset is lifted or the speaker key is pressed (same as Hot Line feature).

PRIORITY CALL QUEUING

This feature places calls to an UCD or NORMAL station queue ahead of other calls based on priority level (19).The system reads the DID number, Caller ID number or trunk ID number, compares it to a preprogrammed table, then assigns it the corresponding priority that places it in the appropriate position in the group queue.

PRIVATE LINES

For private line use, stations can be prevented from dialing and/or answering any line.

PROGRAMMABLE LINE PRIVACY

Each outside line can be programmed to ignore the automatic line privacy. This allows up to four other parties to join your conversation by pressing the line button. This is similar to 1A2 key telephone operation.

PROGRAMMABLE TIMERS

There are over 50 programmable system timers to allow each installation to be customized to best fit the end user's application.

RECALLS

Calls put on hold, transferred or camped-on to any station will recall to the originating station if not answered within a programmable time. A recall that goes unanswered for the duration of the attendant recall timer will recall to the system operator group. Hold, transfer, camp-on and attendant recalls have individual programmable timers. Calls recalling to buttons with tri-colored LEDs will flash amber.

RECALL TO OPERATOR

This function will allow the call to recall the operator instead of to the transferring station after the transfer recall time expires.

REDIAL REVIEW

The Redial Review feature allows a review of the last number before dialing or allows access to the Call Log Blocks if assigned. These Call Log Blocks record the last ten (10) numbers dialed. When the LNR key is pressed the last number dialed is displayed. The log can then be scrolled using the Volume (Up/Down) keys and a previously dialed number can be selected.

REMOTE PROGRAMMING—PC (Device Manager)

Remote programming allows the technician to access the system database from a remote location for the purpose of making changes to the customer data. Device Manager (DM) is a proprietary programming applications used to access and manipulate the database. The Device Manager program connects to the system via LAN connection to the Main Processor of the system. The Device Manager program is available in two versions: **Embedded** version, which resides on the phone system processor card and can be accessed using Internet Explorer 6.0 or higher, or **Client** version, which resides on the technician's PC. The embedded voicemail system is programmed remotely using Internet Explorer 6.0 or higher to access the embedded Web Management application.

RING MODES

Time Based Routing – Plans

Each C.O. line can be programmed to ring at any station or station group. Each line can be assigned a ring destination based on six (6) different ring plans based on time of day and the day of the week. The system operator (intercom dial "0") can also be a different station group for each ring mode.

Automatic / Manual

Ring destinations will automatically change based on time of day and day of week. At any time the system can be manually forced into a specific ring plan. It will remain in this ring plan until manually taken out.

Holiday Schedule
The system has a table of 20 dates that are used to define holidays. On a date designed as a holiday the system will remain in a ring plan for that calendar day providing the system was already in that ring plan. This feature will override the ring plan time table.
Temporary Override
At any time the system can be forced into a specific ring plan for a temporary period of time until the next scheduled ring plan automatically takes effect.

RING OVER PAGE
Any outside line can be programmed to ring over a customer-provided paging system. Outside lines, door phones and station groups may ring over page in the day or night mode.

SECRETARY POOLING
Each keyset may be defined as an executive (BOSS in programming) or a secretary (SECY in programming) in system programming. Each executive can have up to four secretaries and each secretary can have up to four executives. These arrangements are known as executive/secretary pools. There can be multiple pools in a system. When an executive is in DND, all calls to the executive ring the first secretary assigned to that executive; if that secretary is busy, the call will hunt to the next available secretary assigned to that executive. If the secretary must communicate with the executive while he/she is in DND, pressing the corresponding executive button on the secretary's keyset results in an Auto Answer intercom call being made to the executive (providing the executive is free). There is also a system wide option to allow the stations to ring rather than auto announce the executive secretary calls. A station can only be the executive of one secretary pool. In addition, a station cannot be in more than one pool.

SECURITY
With the expansion of IP telephone usage is an expansion of threats to business security. **V**oice-over-**IP** puts business communications on a data network where it is exposed to common data security threats like hackers or network attacks, and the compromise of business communications can be devastating to a company. To help mitigate the risks of **VoIP** telephony OfficeServ 7000 systems provide the following security measures.

Password Encryption: for Device Manager Login, SIP Phone Password an Authorization Password for SIP Carrier.
Secure Device Manager Login: The default DM password must be changed immediately after first login attempt and there are a repetitive login control settings.
No Default Password for SIP Phones: This prevents unauthorized registration. The installing technician must create IDs and passwords for each SIP station. The password must be 6~8 digits.

Voice Mailbox Password Security: Subscribers can be forced to change default password and deny simple repeating numbers like 1234, 4321, 1111 and 0000.
IP White List: Several IP White lists are available to control what PCs, Samsung IP Phones, SIP Phones, CTI Servers and LAN Printers can connect to the OfficeServ System.
Programmable Telenet ID & Password
IP Phone Passwords can be 6~8 characters.
TLS is available for signaling on SIP Trunking, SIP Peering Trunks and SIP stations. TLS is only available on OS 7200 and OS7400 systems. TLS Performance is guaranteed when 'TLS reuse option' is enabled. Enabling TLS will reduce the number of SIP Phones and SIP trunks as indicated below. This will decrease the BHCC and CPS ratings. See section 4.9

Device	OS7400 (MP40)	OS7200 (MP20)
SIP Phone **SIP Phone with TLS**	480 **160**	128 **64**
SIP Trunk **SIP Trunk with TLS**	224 **54**	64 **32**

SIP Connection Reuse: Sets whether or not TLS certification must happen on every call or only once during registration.
SIP Mutual TLS Enable: Sets whether or not to use TLS encryption for SIP stations.
SIP Validate Any TLS Certificate: Sets whether the system will reject (Disable) or accept (enable) unknown certificates during the TLS handshake.
SIP Communication Exclusive Option: With this Carrier Exclusive selection the OfficeServ system will ignore all the SIP messages from an unauthorized IP address.
Secure RTP (sRTP) encrypts audio streams for Voice Mail, MGI Channels, IP Phones, Wireless handset, and SPNet. The sRTP option is only supported on larger 7200 and 7400 systems. When sRTP is enabled it reduces the number of available MGI channels as indicated below.

Device	VoIP with RTP	VoIP with sRTP
OAS Card	16	10
MGI64	64	40

SIMULTANEOUS RINGING—See OfficeServ™ Connect

SINGLE LINE CONNECTIONS
Single line ports (Analog) allow connection of a variety of single line telephones plus facsimile machines, answering machines, loud bells, computer modems, cordless phones and credit card machines. When connecting customer-provided equipment to these extensions, compatibility should be checked out before purchase to ensure correct operation. Central office ring cadence can be selected for SLT stations. This is helpful when optional devices cannot detect OfficeServ 7000 systems intercom ring cadence.

Most of the OfficeServ 7000 analog station interface cards support Message Waiting lamp operation built-in sine wave ring generator. See Section 3.2 regarding the 8SLI3, 16SLI3 and 8Combo3 cards.

SIP SERVICES

SIP (Session Initiation Protocol) Services are supported on the OfficeServ 7000 Series systems. The systems can be programmed to serve as a User Agent Client (UAC) supporting such SIP Services as SIP trunking or as a User Agent Client Server (UAS), supporting SIP stations or as a peer to peer supporting SIP peering (networking).

Multiple SIP Carriers

Multiple SIP Carries is a supported feature on the OfficeServ 7000 system. The system can register with up to four SIP service providers simultaneously. For businesses that require telephone services from more than one SIP service provider, the OfficeServ can be configured to register to multiple SIP carriers. Note: *This feature requires software version 4.60 or higher.*

SIP Trunking

In the case of the UAC, the OfficeServ system can be configured as a client and registered to sit behind an external SIP server, supporting SIP trunking services from various SIP providers.

SIP Station

In the case of the UAS, the OfficeServ system can be configured as the server, permitting standard SIP terminals (Non-Samsung) from third party manufacturers (e.g.; Cisco, Linksys, Aastra) to register as internal stations and use the entire Samsung SIP supplementary feature set of the OfficeServ SIP server.

SIP Peering

The OfficeServ system can also be configured to support SIP peering which allows multiple OfficeServ systems to network and communicate with one another via the VoIP (SIP signaling protocol).

SPEED DIAL NUMBERS

The system maintains a library of speed dial numbers that can be allocated to either a shared system wide list or to an individual user list.

The OfficeServ system can be programmed to have either 500 or 950 numbers in the shared system wide list. The remaining numbers in the library can be assigned in blocks of 10 each to individual stations for their personal use. A maximum of 5 blocks (50 numbers) can be assigned to a station. See System Specifications regarding the number of speed dial number available per system.

SPEED DIAL BY DIRECTORY

The OfficeServ 7000 systems provide the user with the ability to look up a speed dial number and place the call. There are three speed dial selections: Personal, System and Station. This feature requires a display keyset.

STATION HUNT GROUPS

System programming allows from 10~50 station hunt groups with one of three ring modes is available for each group

Sequential: Rings stations in the sequence they are listed in the group. The sequence always starts with the first member and only hunts to the second member if the first member does not answer the call.
Distributed: Distributes calls throughout the group. First member get the first call, the second member get the next call and the third member gets the third call, and so on until each member answered a call. A group members turn in the sequence is passed over if that member is still busy or has logged out of the group. This is used for embedded system ACD groups.
Unconditional: This method simultaneously rings all the members in the group whether they are idle or busy on another call.
A station may be assigned to more than one group. Each station group has its own recall timer for calls transferred to that group. There is a Next Hunt timer for each group to provide circular hunting within the group. See System Specifications regarding the number of groups and members per group for each system.

Considerations when using Hunt Groups in a Network of OfficeServ 7000 systems (SPNet):

- Cannot assign stations in one Node to a Station Group in another Node. Hunt Group members must be in the same System/Node.
- Phones in the first group stop ringing when the call overflows to a station hunt group in another Node.

STATION MESSAGE DETAIL RECORDING (SMDR)

The system provides records of calls made, received and transferred. Connecting a customer-provided printer or call accounting system will allow collection of these records. Each call record provides the following details: station number, outside line number, start date, start time, duration of call, digits dialed (maximum 18) and an account code if entered. The system may print a header followed by 50 call records per page or send continuous records with no header for use with a call accounting machine. See the sample printouts.
The SMDR output can be provided through the LAN port of the system. The SMDR format contains many options that allow it to be customized for a company's individual needs. Options to print include incoming calls, outgoing calls, in and out of group status, change in DND status, authorization codes, and caller ID on incoming calls. When Caller ID is enabled a wide carriage printer is required.
The SMDR Buffering feature allows up to 10,000 SMDR records to be stored in RAM in the event that the call accounting package, billing system or printer that gathers SMDR data loses connection from the system. When the device reconnects the buffered SMDR data are sent immediately.

STATION PAIR

This feature allows stations to be assigned as a "pair", identifying one as the primary and the other as the secondary. Calling the primary station will make both stations ring. A single Caller ID number can be used for both the primary and secondary stations or each can send their individual Caller ID. Selected features such as Message Notification, DND, Callback, and Class of Service act as one station. This is convenient when an individual has two offices or an office extension and a cordless extension. NOTE: Not all system features are applicable to station pairs. Features designed for a single user may conflict with paired stations.

SYSTEM ALARMS

DISA Alarm will warn the customer if the DISA security system has been triggered by too many incorrect password attempts. The alarm can ring any station or group of stations and show an appropriate display at the assigned stations.

Major/Minor Alarms: OfficeServ systems continuously perform internal system diagnostics. When either a major or minor fault is detected the system can ring stations that have an ALARM KEY assigned. The keyset display shows information that includes the description, location and date and time stamp for each alarm.

A log of 100 alarms is stored in a buffer and can be reviewed at a display keyset or sent to email address or sent to a printer.

Email Alarm feature allows system alarms and crash reports to be automatically emailed to up to four system administrators, managers, or necessary personnel. Emails can be sent immediately when an error occurs, or they can be buffered and sent on demand or daily.

SYSTEM DIRECTORY

Each station, station group and outside line can have an 11 character directory name. This name will appear on keyset displays to provide additional information about lines and stations.

TENANT SERVICE (2)

The OfficeServ 7200 and 7400 systems support two forms of tenant service as detailed below.

System Splitting: In the first form there are several programs that allow the OfficeServ 7400 to be installed in tenant applications. These features allow a technician to split the system in two with each tenant having individual control over operator groups, page zones, speed dial numbers, night service (manual or automatic), DISA and customer level programming. Each tenant is totally separate in the system and no intercom calling between tenants is permitted.

Port Splitting: In this form of tenant services system programming is used to allow or deny access for making and receiving calls on a per station basis. These settings can be applied to trunks, trunk groups, stations and station groups. This allows common items on the system such as the operator group and LCR to be used by everyone on the system while ensuring that each company can only access their own lines and incoming calls.

TOLL RESTRICTION

There are 500 allow and 500 deny entries of 11 digits each. Each of these entries can apply to dialing classes B, C, D, E, F and G. Expensive 976, 1-900, 411 and operator-assisted calls, as well as specific area and office codes, can be allowed or denied on a per-class basis. Toll Class A stations have no dialing restrictions and Toll Class H stations cannot make outside calls. Any outside line may be programmed to follow station toll restriction or follow the toll restriction class assigned to it. Each station and trunk can have a different dialing class for each ring plan.

Special Code Table

A Special Code Table of ten entries (four digits each) allows use of telephone company features such as CID blocking (*67) or call waiting disable (*70) without interference to toll restriction or LCR. The Special Code table allows use of these custom calling features on a per call basis.

TOLL RESTRICTION OVERRIDE
Program options allow system speed dial numbers to follow or bypass a station's toll restriction class. In addition, users may make calls from a toll restricted station by using the walking class of service or authorization code feature.

TONE OR PULSE DIALING
Outside lines can be programmed for either tone or pulse dialing to meet local telephone company requirements.

TRAFFIC REPORTING
The OfficeServ system can store peg counts for various types of calls. These peg counts can be printed on-demand, daily, hourly, or up to three separate programmable shifts. The report includes statistics for each trunk, trunk group, station, station groups and page announcements. For more details see section 5.9 of this document. .

TRANSFER
System operation permits station users to transfer calls to other stations in the system. Transfers can be screened, unscreened or camped-on to a busy station.

TROUBLE SHOOTING TOOLS
The system provides several tools that can help qualified technicians trouble shoot problems when they occur.

IP Conflict Alarm
When the system IP address is conflicted, the administrator is able to check the MAC address of related devices in DM 6.1.1 Alarm History

System Call Log
System call log events are saved in real time to the database. Download database, then send to Samsung Technical Support for analysis.

System SIP Log
The System saves SIP error messages in real time to the database. Download database, then send to Samsung Technical Support for analysis.

Remote MP Trace Tool
The MP Trace Tool will allow a ***Technician*** to check and save trace data from a remote system.

Syslog Options
Various options can be enabled a per phone basis to get Syslog traces from the SMT-i6000 series phones.

TRUNK GROUPS
Outside lines can be grouped for easy access by dialing a code or pressing a button.
See System Specifications regarding the number of trunk groups for each system.

TWINNING—See Mobile Extension (MOBEX)

UNIFIED MESSAGING—See Unified Voicemail

UNIFIED VOICEMAIL

Samsung's Unified Voicemail solution allows users to receive voicemail directly in their email inbox. It is available in two products:

E-Mail Gateway is a feature of Samsung Integrated Voice Mail (SVMi) available on either the Embedded SVMi or the SVMi-20i card.

Samsung's E-Mail Gateway Unified Voicemail solution allows users to receive voicemail and fax messages directly in their email inbox. E-Mail Gateway provides a vast array of functionality from listening to messages from any sound-enabled device that can access your email to archiving important messages. This functionality provides a simple, secure, and personalized way to access a voicemail box without the need to remember command sequences or phone numbers.

The E-Mail Gateway feature supports delivery of any Samsung mailbox message, including voicemail and fax mail items. Delivery is configured on a per-user basis, and supports delivery to any standard SMTP mail server. Users can view these emails from any standard email client, such as Microsoft® Outlook.

Two different E-Mail Gateway email styles can be defined. Notification Only emails include a complete detailing of both the caller's information and the message status. Delivery emails include this information in addition to a file attachment of WAV (for voicemail) or TIF (for fax mail).

Once in the user's email inbox the message can be archived or forwarded just like any other email. Voicemails delivered to a user's email inbox can optionally be deleted from the voicemail system to minimize mailbox clutter and reduce system overhead.

The E-Mail Gateway feature can be enabled for up to 5 users by default. An additional license can allow the system to provide the feature to all users. E-Mail Gateway also allows an administrator to be notified in the event of a problem in the E-Mail Gateway performance.

NOTE: Some features require optional hardware. Ask your authorized Samsung Dealer for details.

OfficeServ™ IP-UMS

Samsung's OfficeServ™ IP-UMS application is a server-based unified messaging system solution scalable from 4 to 128 ports when connected to the OfficeServ 7200 or 7400 system. The OfficeServ™ IP-UMS includes the same E-Mail Gateway functionality as the SVMi-20i card, but it further extends the Samsung Unified Voicemail solution by adding UMS Subscribers, Text-To-Speech capability, and web-based programming.

UMS Subscribers are given a special Microsoft® Outlook Add-In that adds Unified Voicemail functionality directly into their Outlook interface. The Outlook Add-In allows UMS Subscribers to fully configure their voice-mail box, record greetings, and set message alerting options. It also enables users to receive email notification of voicemail messages, listen to those voicemail messages, create and send voicemail messages from the desktop using either the microphone attached to their PC or from their keyset. Voicemail messages listened to from the Add-In are automatically flagged as read in the voicemail box, providing a fully unified messaging solution. An optional Fax Add-In allows users to send fax messages from their desktop and receive fax mail messages left in their voicemail box.

The built in Text-To-Speech engine also allows UMS subscribers to have their email messages read to them from anywhere in the world that they are able to access their voicemail box. Text-To-Speech can also be used to generate custom voice prompts for voice menus and Auto Attendant applications. The Text-To-Speech engine is a licensed version of the RealSpeak™ engine by Nuance®. It can be licensed from 3 to 27 languages and over 30 voice personalities.

UNIFORM CALL DISTRIBUTION (UCD)

UCD is a call distribution method by which callers in a queue are routed to the next available agent. While waiting in a queue a canned or customized announcement can be periodically played to the caller based on a programmable timer while retaining their place in the queue. Statistical and historical reports are available to assist supervisors in managing a call center. See Call Center

UNIVERSAL ANSWER

Station users may dial the Universal Answer code or press the UA key to answer any outside lines programmed to ring the UA device. The UA device can be a station, group of stations, common bell or ring over page.

VIRTUAL EXTENSIONS

The OfficeServ 7000 systems have a number of virtual extension ports encoded in the system database. They can be assigned as keyset or single line analog ports. These ports have all the attributes of an actual station port including call forwarding. These virtual ports can be exchanged with real station ports using the set relocation feature to provide hot desking.

VOICE MAIL

OfficeServ 7000 systems provide two Samsung proprietary Voice Mail (VM)/Automated Attendant (AA) solutions as well as integration to third party AA/VM system.

Integrated (In-Skin) SVMi: OfficeServ 7000 systems support two versions of the SVMi VM/AA application:

- Embedded SVMi on the OfficeServ 7030, 7100 and 7200-S systems.
- SVMi-20i card for the OfficeServ 7200 and 7400 systems. (Maximum of 20 ports) Because it is integrated to the system it provides such features as one touch call record, answering machine emulation, and voice mail box administration with interactive keyset displays. See Unified Voicemail

External Server – OfficeServ IP-UMS: The OfficeServ 7200 and 7400 systems can be attached to Samsung's OfficeServ™ IP-UMS application to provide a server based unified messaging system scalable from 8 to 125 ports. See Unified Voicemail.

Inband Signaling for 3rd Party VM: The OfficeServ 7400 system uses DTMF tones (inband signaling) to communicate with any compatible voice mail system. Stations can call forward to a voice mail system. When answered, the system will send DTMF tones routing the caller directly to the called station user's mailbox. Keyset users can press one button to retrieve messages from the voice mail system. A Voice Mail Transfer key permits keyset users to easily transfer a caller directly to an individual voicemail box without navigating through menus.

VOICE OVER INTERNET PROTOCOL (VoIP)

The OfficeServ 7000 systems are VoIP enabled and as such supports the following VoIP services:

- H.323 Trunking to another H.323 Gateway.
- SIP IP Trunking to another gateway.
- IP Telephone Sets: OfficeServ SMT-i Series and OfficeServ Softphone.
  These IP Keysets can be installed in the local office or in a remote office, home office with full feature operation.
- IP Networking: Connect up to 99 systems together over a Managed IP network.
- OfficeServ 7000 systems provide Media Gateway Interface (MGI) channels and Media Proxy Service in the following ways:
  1. Embedded channels on the following systems:
  - S7030: Base Cabinet has 4 MGI Channels (Licensed) and 16 MPS Channels
  - OS7100: MP10a has 8 MGI Channels (Licensed) and 16 MPS Channels
  - OS7200-S: MP20S has 6 MGI Channels (Licensed) and 16 MPS Channels

  2. OAS Card providing MGI or MPS protocols. Maximum 16 MGI channels per OAS
  3. MGI-64 card providing 64 MGI channels
  4. The SVMi-20i card has 20 built-in MGI Channels dedicate to AA/VM calls.
  See section 2.3 VoIP Cards – regarding OAS and MGI64 cards and MGI and MPS channels.
- With VoIP certain compression standards have also been adopted to represent each second of voice with an amount of bandwidth. The Office MGI channels utilize G.711, G.729, G.729A or G.723 standards voice compression codecs. This allows for a selectable 64kbps (G711), 8Kbps (G729A) or 6.3Kbps (G723) bandwidth use when preparing voice compression for IP transport. Compression is used to reduce the digitized voice into a smaller bandwidth that can be carried in smaller packets. The VoIP gateway determines the compression method for each call setup. There is also a certain amount of frame/packet overhead in each compression channel. 64K of bandwidth can support 6~7 calls simultaneously. This can vary depending on efficiency features like Silence Suppression and multiframe counts. Unlike switched networks, VoIP connections consist of a sequence of numbered data packets. Since voice conversation is usually considered “real time” these packets need to be delivered in a consistent manner with minimal delay.
- In any Ethernet environment, packet transfers are subject to delays and/or loss. If these delays are greater than 200ms the voice quality will deteriorate. The Ethernet data traffic and network topology should be a consideration when using VoIP. Network congestion will affect call quality in any VoIP application.

WALKING CLASS OF SERVICE

This feature allows users to make calls or use features from a station that is restricted. The users may either use the WCOS feature code or the authorization code feature. Both methods change the class of service to correspond with the station passcode or authorization code that is dialed. After the call is completed, the station returns to its programmed class of service.

5.3 Station Feature Matrix

STATION FEATURES	7030	7100	7200-S	7200	7400
ADD-ON MODULES	✓	✓	✓	✓	✓
APPOINTMENT REMINDER	✓	✓	✓	✓	✓
AUTOMATIC HOLD	✓	✓	✓	✓	✓
AUTOMATIC PRIVACY	✓	✓	✓	✓	✓
BACKGROUND MUSIC	✓	✓	✓	✓	✓
BUSY STATION CALLBACK	✓	✓	✓	✓	✓
BUSY STATION INDICATIONS (BLF)	✓	✓	✓	✓	✓
CALL COVERAGE KEY	✓	✓	✓	✓	✓
CALL FORWARDING	✓	✓	✓	✓	✓
CALL FORWARD OVERRIDE	✓	✓	✓	✓	✓
CALL LOGS	✓	✓	✓	✓	✓
CALL PICKUP	✓	✓	✓	✓	✓
DIRECT STATION SELECTION (DSS)	✓	✓	✓	✓	✓
DIVERT TO VOICEMAIL	✓	✓	✓	✓	✓
DO NOT DISTURB (OVERRIDE)	✓	✓	✓	✓	✓
DO NOT DISTURB (PROGRAMMABLE)	✓	✓	✓	✓	✓
DOOR LOCK RELEASE	✓	✓	✓	✓	✓
EXCLUSIVE HOLD	✓	✓	✓	✓	✓
GROUP LISTENING	✓	✓	✓	✓	✓
HEADSET OPERATION	✓	✓	✓	✓	✓
HEARING AID COMPATIBLE	✓	✓	✓	✓	✓
LINE QUEUING WITH CALLBACK	✓	✓	✓	✓	✓
LINE SKIPPING	✓	✓	✓	✓	✓
LOUD RINGING INTERFACE	✓	✓	✓	✓	✓
MANUAL SIGNALLING	✓	✓	✓	✓	✓
MESSAGE WAITING LIGHT/INDICATION	✓	✓	✓	✓	✓
MUTE MICROPHONE/HANDSET	✓	✓	✓	✓	✓
OFF-HOOK RINGING	✓	✓	✓	✓	✓
OFF-HOOK VOICE ANNOUNCE	✓	✓	✓	✓	✓
ONE TIME DO NOT DISTURB	✓	✓	✓	✓	✓
ONE TOUCH DIALING KEYS	✓	✓	✓	✓	✓
ON-HOOK DIALING	✓	✓	✓	✓	✓
PRIVACY RELEASE	✓	✓	✓	✓	✓
PROGRAMMABLE KEYS	✓	✓	✓	✓	✓
PROGRAMMED STATION MESSAGES	✓	✓	✓	✓	✓
PROTECTION FROM BARGE-IN	✓	✓	✓	✓	✓
REDIAL	✓	✓	✓	✓	✓

STATION FEATURES	7030	7100	7200-S	7200	7400
REMOTE HOLD	✓	✓	✓	✓	✓
RING MODES	✓	✓	✓	✓	✓
RINGING PREFERENCE	✓	✓	✓	✓	✓
SPEAKERPHONE	✓	✓	✓	✓	✓
STATION LOCK	✓	✓	✓	✓	✓
TERMINAL STATUS INDICATOR	✓	✓	✓	✓	✓
TRI-COLORED LIGHTS	✓	✓	✓	✓	✓
VOLUME SETTINGS	✓	✓	✓	✓	✓

5.4 Station Feature Descriptions

ADD-ON MODULES

iDCS 14 BUTTON AOM

The 14B AOM attaches to the right hand side of an iDCS 18D or iDCS 28D keyset and provides 14 buttons with red LEDs. These buttons can be used for DSS keys, speed dial bins or any key that does not require a dual colored LED. This module does not require a separate DLI port. It uses the same DLI port the keyset is attached to.

iDCS and DS 64 BUTTON MODULE

The 64-button module adds to the capability of any keyset. The 64 programmable red LED buttons can be used for feature keys, DSS/BLF keys or one touch speed dial buttons. A maximum of 4 can be assigned to a station. One DLI port is required per 64-button module. You can connect as many units to the system limited only by the number of available DLI ports.
†Requires optional hardware and/or software. Ask your dealer for details.

SMT-i5264 IP 64 BUTTON MODULE

The SMT-i5264 64-button module adds to the capability of any SMT-i 5000 Series keyset. Up to two 64-button modules can be added to any SMT-i 5000 keyset. The 64 programmable red LED buttons with red LED can be used for feature keys, DSS/BLF keys or one touch speed dial buttons. Maximum number of AOMs per system is limited by the available IP/Virtual ports. One IP port is required per 64-button module.

TABLET / SMARTPHONE AOM

The Samsung Deskphone Manager (SDM) application can be downloaded from the Android PlayStore and installed on select models of Samsung Tables and Smartphones. This will allow these devices to perform as external Add-on Modules providing access to all 99 programmable buttons assigned to the SMT-i5343, SMT-i6021 and SMT-i6011 IP phones. The Tablet and Smartphone communicate to the deskphone via Wi-Fi connection.

APPOINTMENT REMINDER

When programmed for a specific time, a keyset will sound a distinctive ring to remind the user of meetings or appointments. Alarms can be set for “today only” or for every day at the same time. Up to three alarms may be set at each keyset. Display keysets can program a message to be displayed

when the alarm rings. Non-display keyset users must have the system administrator program messages for them.

AUTOMATIC HOLD

Station users can enable or disable automatic hold at their keysets. While a user is engaged on an outside (C.O.) call, pressing another trunk key, route key or CALL button automatically puts the call on hold when this feature is enabled. Pressing TRSF, CONFERENCE, PAGE or a DSS key will always automatically place the call on hold. This type of automatic hold is not a user-selectable option. Intercom calls can be automatically held if Intercom Auto Hold is set to ON for the entire system.

AUTOMATIC PRIVACY

All conversations on outside lines and intercom calls are automatically private. The privacy feature can be turned off on a per-line basis.

BACKGROUND MUSIC

Keyset users may choose to hear music through their keyset speakers when optional external sources are installed. Each user may adjust this level by the use of a volume control program at the selected keyset.

BLUETOOTH COMPATIBLE

SMT-i5343, SMT-i6021 and SMT-i6011 IP phones support Bluetooth function. The phone menu allows a user to pair the phone to either a Bluetooth Headset or Bluetooth Smartphone.
When the Bluetooth Smartphone option is selected the audio of the cell phone call can be played over the speaker of the deskphone. This is like pairing your cell phone to your car audio system.

BUSY STATION CALLBACK

When reaching a busy station, callers may request a callback by pressing one button or dialing a code. The system rings the caller back when that station becomes idle (a system-wide maximum of 100 callbacks are allowed at one time including busy station and busy trunk).

BUSY STATION INDICATIONS (BLF)

DSS/BLF keys may be assigned to any keyset or add-on module. These buttons will be off when the station is idle, light red when that station is in use and flash distinctively when that station is in the DND mode. The system can be programmed to allow the DSS keys to be used to pick up calls at other keysets. In a network of systems use the NS key to indicate BLF function for a station in some other node.

CALL COVERAGE KEY

These keys (buttons) provide a convenient way to cover calls ringing at other stations. Keyset users can have one or multiple call coverage keys programmed for a station. These buttons flash when a new call or recall is ringing at the programmed station. In addition, a call coverage delay ring time can be programmed to provide an audible ring tone either immediately or delayed from 1 to 250

seconds. Call coverage keys only flash and ring when the covered station is idle. Call coverage key lights red to indicate the covered station is off hook and busy.

CALL FORWARDING

Station users can forward internal and outside calls to other destinations immediately (Forward All), when busy (Forward Busy) or if not answered in a programmable number of seconds (Forward No Answer). These forward destinations can all be different. Once a destination has been programmed, it can be turned on and off with a programmable key. Forward All takes priority over Busy and No Answer conditions.

In addition to the three usual methods of forwarding described above, a fourth option called Follow Me is available. This option allows a station user to set a Forward All condition from his/her station to another station while at the remote station. To display the Follow Me condition, the TRSF/transfer key lights steady red at the station that is forwarded. The TRSF/transfer key also lights if Forward All is set and no key is programmed for Forward All. Keyset users can be given an external call forward button to forward their calls to an external phone number. Each outside line may be programmed to either follow or ignore station call forwarding. A per-station option controls whether internal calls forward to voice mail or not. Single line telephones must have the system administrator program this feature for them.

CALL FORWARD OVERRIDE

When this option is set to yes for a station then intercom calls from that station will override any call forwarding settings of the called station.

CALL LOGS

With the call log feature, a display keyset user can review up to 50 of the last incoming calls from the Caller ID review list or up to 50 of the last external telephone numbers that were dialed. The numbers can be viewed, stored and/or dialed using the associated soft keys. LCR must be enabled for dialing and storing numbers from the CID review list. Optional hardware and/or software may be needed for Caller ID.

CALL MOVE

Select Samsung Galaxy S series smartphones can be registered as WE_VoIP wireless extensions paired to an OfficeServ IP deskphone. Calls made through the WE VoIP application or OfficeServ can be moved between the smartphone and the deskphone with a press of the Call Move button.

CALL PICKUP

With directed call pickup, a user can answer calls ringing at any station by dialing a code plus that extension number. The group pickup feature allows the user to answer any call ringing within a pickup group. Pickup keys may be customized with extenders to allow pickup from a specific station or pickup group. See System Specifications regarding the number of pickup groups for each system.

DIRECT STATION SELECTION (DSS)

Programmable keys can be assigned as DSS keys and associated with extension numbers. Users press these keys to call or transfer calls to the assigned stations. In a network of systems use the NS key to provide DSS function to a station in some other node.

DIVERT TO VOICEMAIL
A keyset user can immediately divert a ringing call to their personal voice mailbox by pressing the # key. This will override any call forward no answer setting.

DO NOT DISTURB (OVERRIDE)
The DND Override feature allows a keyset with a DND Override key (DNDO) and the appropriate class of service to override the DND setting at a called keyset. This will allow a user to go into DND while waiting for an important call and have that call transferred to them via a screened transfer from a station (for example the users secretary) with a DNDO key.

DO NOT DISTURB (PROGRAMMABLE)
The Do Not Disturb (DND) feature is used to stop all calls to a station. System programming can allow or deny use of the DND feature for each station. Parties calling a station in DND will receive reorder tone. When in DND mode, calls may be forwarded to another destination. See Forward DND option. A keyset without a DND button can activate DND via the feature access code. The ANS/RLS key will flash at 112 impulses per minute (rapidly) when DND is set. There is a programmable option to allow a C.O. line to override DND at its ring destination if that destination is a single station.

DOOR LOCK RELEASE
Stations programmed to receive calls from a door phone can dial a code to activate a contact closure for con141roll of a customer-provided electronic door lock.

EXCLUSIVE HOLD
Pressing HOLD twice will hold a call exclusively at a station so no other station can pick up that call. Intercom calls are automatically placed on exclusive hold. Exclusive hold for trunk calls can be denied in class of service.

GROUP LISTENING
This feature allows users to turn on the speaker while using the handset. It allows a group of people to listen to the distant party over the speaker without the microphone turned on.

HEADSET OPERATION
Every keyset can be programmed to allow the use of a headset. In the headset mode, the hookswitch is disabled and the ANS/RLS key is used to answer and release calls. Keyset users may turn headset operation ON/OFF by keyset programming or more easily by pressing the headset ON/OFF key. The headset key lights steady red when the keyset is in headset mode.

HEARING AID COMPATIBLE
All OfficeServ keysets are hearing aid compatible as required by Part 68 of the FCC requirements.

LINE QUEUING WITH CALLBACK

When the desired outside line is busy, the user can press the CALLBACK key or dial the access code to place his/her station in a queue. The user will be called back when the line is available (a maximum of 100 callbacks are allowed system-wide at one time including busy station and busy trunk).

LINE SKIPPING

When the user is talking on an outside line and the automatic hold feature is turned off, he/she may press an idle line key and skip to that line without causing the previous call to go on hold.

LOUD RINGING INTERFACE

The MIS daughter board provides an audible ring tone output. This can be connected to a paging system or single loud speaker to provide loud ring tone for a specific station only. The tone is preset and cannot be changed.

MANUAL SIGNALLING

Keysets can signal each other via a programmable key. This allows one station to alert another without establishing a voice conversation. Each press of the key results in a 500 milliseconds of ring tone being set to the intended station. An individual manual signaling key must be programmed for each station to be signaled.

MESSAGE WAITING LIGHT/INDICATION

When calling a station and receiving a busy signal or the no answer condition, the caller can leave an indication that a message is waiting. The message button will flash red at the messaged keyset. A single line phone connected to any SLI card/module support the message waiting feature will have a message light; otherwise it will receive a distinctive message waiting dial tone. Five message waiting indications can be left at any station.

MUTE MICROPHONE/HANDSET

Any keyset user can mute the keyset's handset transmitter by pressing the MUTE key. In addition, keyset users can also mute the keyset microphone while the keyset is in speakerphone mode.

OFF-HOOK RINGING

When a keyset is in use, the system will provide an off-hook ring signal to indicate that another call is waiting. The ring signal is a single ring repeated. The interval is controlled by a system-wide timer. Single line stations will receive a tone burst through the handset receiver instead of a ring.

OFF-HOOK VOICE ANNOUNCE

Keysets may receive a voice announcement while on another call. The calling station must have an OHVA key. When transferring a call to a busy keyset or while listening to busy signal, the station user can press the OHVA key to make an OHVA call to the busy keyset. If the called keyset is in the DND mode, it cannot receive OHVA calls. When the called station is on the handset the OHVA announcement will be heard through speaker. If the called station is on the speakerphone and Secure OHVA is OFF, the OHVA announcement will be heard over the speaker.

ONE TIME DO NOT DISTURB
The Do Not Disturb (One Time) feature is used to stop all calls to a station when the user is on an outside line and does not want to be disturbed for the duration of the call. Upon completion of the call, DND is canceled and the station is returned to normal service. This feature requires a programmed button.

ONE TOUCH DIALING KEYS
Frequently used speed numbers can be assigned to one touch dialing keys for fast accurate dialing.

ON-HOOK DIALING
Any keyset user can originate calls without lifting the handset. When the called party answers, the user may speak into the microphone or lift the handset for more privacy.

PRIVACY RELEASE
This feature will allow another station to join in on your conversation by temporarily releasing privacy on the C.O. line from your keyset. This requires a Privacy Release key to be programmed on your keyset. A maximum of three (3) other people can join in. This uses one of the conference circuits in the system.

PROGRAMMABLE KEYS
Each key can be programmed for more than 40 different uses to personalize each phone. Examples of keys include individual outside line, individual station, group of lines, group of stations and one touch speed dial buttons. Using these keys eliminates dialing access codes.
The following feature keys have extenders that make them more specific: SPEED DIAL, SUPERVISOR, PAGE, DSS, DIRECTED PICKUP, GROUP PICKUP, DOOR PHONE, BOSS, PROGRAMMED MESSAGE, IN AND OUT OF GROUP, FORWARD and VOICE MAIL TRANSFER. The extender can be a station, a group or another identifying number.

PROGRAMMED STATION MESSAGES
Any station may select one of the programmed station messages to be displayed at a calling party's keyset to advise others of their status. Messages 1 ~ 10 are factory-programmed but may be reprogrammed. Messages 11 ~ 15 can be created by the system administrator. Each display keyset user may create 3 messages (16 ~ 18) unique to them. Messages 19 (RETURN ON ……) and message 20 (RETURN AT …….) can be set individually.
NOTE: The calling party must have a display keyset to view these messages.

PROTECTION FROM BARGE-IN
Each station can be programmed as secure or not secure. Secure stations cannot be barged-in on. A station that is not secure cannot be barged-in on when talking to a secure station.

REDIAL
There are five ways to redial an external number. Each type can redial up to a maximum of 18 digits.

- **Auto Retry**—When an outside number is dialed, and a busy signal is received, the auto retry feature can be used to reserve the outside line and automatically redial the number for a programmable number of attempts (available to keyset users only).
- **Last Number**—The most recently dialed number on a C.O. line is saved and may be redialed by pressing the redial key or dialing the LNR access code.
- **Manual Retry with LNR**—When you make an outside call and receive a busy signal, press the LNR key (Last Number Redial) to redial the same number again. This operation can be manually repeated for a limited number of attempts as defined by system programming (available to keyset users only).
- **Memo Redial**—when calling directory assistance, you can store the number you are given using the dial pad and the SAVE number feature. There is no need for a pencil and paper (available to keyset users only).
- **Save Number**—any number dialed on a C.O. line may be saved for redial at a later time.

REMOTE HOLD

When you wish to place a call on hold at another station, press TRSF and dial the station number (or press the appropriate DSS key). Press the HOLD key. This will place the call on system hold on an available CALL button or Line Key at the remote station.

RING MODES

Each keyset user can select one of three distinct ways to receive intercom calls. The phone can automatically answer on the speakerphone, voice announce through the speaker or receive ringing. When the ring mode is selected, keyset users can choose one of eight distinct ring tones. Forced Auto Answer is invoked by the calling station and is controlled by the calling station's class of service.

RINGING PREFERENCE

Lifting the handset or pressing the speaker button automatically answers a call ringing at the keyset. Using this method, users are assured of answering the oldest call first. When ringing preference is turned off, the user must press the flashing button to answer. Users may answer ringing lines in any order by pressing the flashing button.

SPEAKERPHONE

The speakerphone enables calls to be made and received without the use of the handset. All Samsung telephones have speakerphone capability.

STATION LOCK

With a programmable personal station passcode, any keyset or single line station can be locked and unlocked to control use of each telephone. There are two lock options:
1=LOCKED OUTGOING
2=LOCKED ALL CALLS

	0 UNLOCKED	1 LOCKED OUTGOING	2 LOCKED ALL CALLS
Make Outside Calls	YES	NO	NO

Receive Outside Calls	YES	YES	NO
Make Intercom Calls	YES	YES	NO
Receive Intercom Calls	YES	YES	NO
911 Emergency Calls	YES	YES	NO

TERMINAL STATUS INDICATOR

OfficeServ keysets are equipped with a terminal status indicator lamp. The terminal status indicator light is positioned on the top right corner of the keyset above the display. The terminal status indicator is a tri-colored (red, green, and amber) light that provides greater visibility of your keysets status than the individual key LEDs. The terminal status indicator provides the following indications:

– Busy/Off Hook Steady Red
– Intercom Ring Flashing Red
– Outside Call Ring Flashing Green
– Recall Ring Flashing Amber
– Message Waiting Flashing Red
– Do Not Disturb Fast Flash Red at 1 Second Intervals

TRI-COLORED LIGHTS

Samsung keysets have keys equipped for tri-colored LED indications (green, red and amber). To avoid confusion, your calls always light green, other calls show red and recalls light amber. See Hardware Section of this document for the number of tri-colored lights per keyset model.

VOLUME SETTINGS

Each keyset user may separately adjust the volume of the ringer, speaker, handset receiver, background music, page announcement and off-hook ring tone.

5.5 Display Feature Matrix

DISPLAY FEATURES	7030	7100	7200-S	7200	7400
ACCOUNT CODE DISPLAY	✓	✓	✓	✓	✓
CALL DURATION TIMER	✓	✓	✓	✓	✓
CALL FOR GROUP IDENTIFICATION	✓	✓	✓	✓	✓
CALL LOGS	✓	✓	✓	✓	✓
CALL PROCESSING INFORMATION	✓	✓	✓	✓	✓
CALLER ID INFORMATION					
Name / Number Display	✓	✓	✓	✓	✓
Next Call	✓	✓	✓	✓	✓
Save CID/ANI Number	✓	✓	✓	✓	✓
Store CID/ANI Number	✓	✓	✓	✓	✓
Inquire Park/Hold	✓	✓	✓	✓	✓
CID/ANI Review List	✓	✓	✓	✓	✓
Investigate	✓	✓	✓	✓	✓
Abandon Call List	✓	✓	✓	✓	✓
CALLING PARTY NAME	✓	✓	✓	✓	✓
CALLING PARTY NUMBER	✓	✓	✓	✓	✓
CONFERENCE INFORMATION	✓	✓	✓	✓	✓
DATE AND TIME DISPLAY	✓	✓	✓	✓	✓
DIAL BY NAME					
System Wide Speed Dial List	✓	✓	✓	✓	✓
Personal Speed Dial List	✓	✓	✓	✓	✓
Station Directory	✓	✓	✓	✓	✓
DIALED NUMBER	✓	✓	✓	✓	✓
ENHANCED STATION PROGRAMMING	✓	✓	✓	✓	✓
IDENTIFICATION OF RECALLS	✓	✓	✓	✓	✓
IDENTIFICATION OF TRANSFERS	✓	✓	✓	✓	✓
MESSAGE WAITING CALLER NUMBER	✓	✓	✓	✓	✓
OUTSIDE LINE IDENTIFICATION	✓	✓	✓	✓	✓
OVERRIDE IDENTIFICATION	✓	✓	✓	✓	✓
PROGRAMMED MESSAGE DISPLAY	✓	✓	✓	✓	✓
SOFT KEYS	✓	✓	✓	✓	✓
STOPWATCH TIMER	✓	✓	✓	✓	✓
TEXT MESSAGING	✓	✓	✓	✓	✓
UCD SUPERVISOR DISPLAYS					
Call Screen	✓	✓	✓	✓	✓
Agent Screen	✓	✓	✓	✓	✓

5.6 Display Feature Description

ACCOUNT CODE DISPLAY
Account codes are conveniently displayed for easy confirmation. If entered incorrectly, users may press the ACCOUNT key again and reenter the account code.

CALL DURATION TIMER
The system can automatically time outside calls and show the duration in minutes and seconds. Station users may manually time calls by pressing the TIMER button.

CALL FOR GROUP IDENTIFICATION
Calls ringing to a station group pilot number can be programmed in several ways to display various combinations of the following information: Station Group Number, Name, Caller ID Name, Caller ID Number, DID Name, DID Number, or specific combinations of the above. Consult your Service Technician for setup options and operation. Processing outside calls through Samsung Voice Mail System is required to receive Call for Group Number and Group Name display.

CALL LOGS
Display keyset users may view telephone numbers in incoming and outgoing call logs. With the press of a button the entry can be cleared, dialed or the CID Name, Number and Date of a specific call can be reviewed.

CALL PROCESSING INFORMATION
During every day call handling, the keyset display will provide information that is helpful and in some cases invaluable. Displays such as [CALL FROM 203], [TRANSFER TO 202], [701: RINGING], [TRANSFER FM 203], [708 busy], [Camp on to 204], [Recall from 204], [Call for 501], [message from 204] and [FWD ALL to 204] keep users informed of what is happening and where they are. In some conditions, the user is prompted to take action and in other cases the user receives directory information.

CALLER ID INFORMATION
Caller ID information is dependent on the use of display keysets. The following list explains the displays that are used with Caller ID.

Name / Number Display
Each display keyset user can decide if he/she wants to see the Caller ID name, Caller ID number, DID name, DID number, or a mix of CID and DID information in the display. Regardless of which information is selected to be seen, the NND key is pressed to view the CID information.

Next Call
In the event that there is a call waiting or a camped-on call at the user's keyset, the user can press the NEXT key to display the Caller ID information associated with the next call in queue at the station. Either the CID name or CID number will show in the display depending on the Name/Number (N/NN) user selection in KMMC 119. Press TRANSFER key + 119 to make selections.

Save CID/ANI Number

At any time during an incoming call that provides CID information, the user may press the SAVE key. This saves the CID number in the Save Number feature. Pressing the SAVE number redial key will dial the CID number. The system must be using LCR to dial the saved number.

Store CID/ANI Number

At any time during an incoming call that provides CID information, the user may press the STORE key. This saves the CID number as a speed dial number in the personal speed dial list. The system must be using LCR to dial the stored number.

Inquire Park/Hold

When a user is informed that an incoming call is on hold or has been parked, the user may view the Caller ID or ANI information before he/she retrieves the call. This will influence how the user chooses to handle the call.

CID/ANI Review List

This feature allows display keyset users to review CID information for calls sent to their stations. This list can be from ten to fifty calls in a first in, first out basis. The list includes calls that were answered and calls that rang the user's station but that were not answered. When reviewing this list, the user can press one button to dial the person back. The system must be using LCR to dial the stored number.

Investigate

This feature allows selected stations with a special class of service to investigate any call in progress. If CID/ANI information is available for an incoming call, the selected stations can know to whom the OfficeServ 7400 user is speaking. On outgoing calls, the selected stations can see who was called. After investigating, the selected stations may barge-in on the conversation, disconnect the call or hang up.

Abandon Call List

The system has a system-wide abandon call list that stores CID/ANI information for calls that rang but were not answered. The list is accessed using the operator's passcode. When reviewing this list, you are provided options to CLEAR the entry or DIAL the number. You can use the NND key to toggle between the CID name, CID or ANI number and the date and time the call came in. The system must be using LCR to dial numbers from the abandon call list. The abandoned call list will store up to 100 unanswered calls.

CALLING PARTY NAME

For intercom calls, display keysets show the calling party's name before answering. The names must be stored in the system directory list and can be up to 11 characters long.

CALLING PARTY NUMBER

When an intercom call is received, all display stations show the calling party's extension number before the call is answered.

CONFERENCE INFORMATION

When a conference is set up, each extension and outside line number is displayed at the controlling station when it is added. When a station is added, its display shows [Conf with xxx] alerting the user that other parties are on the line.

DATE AND TIME DISPLAY
In the idle condition, the current date and time are conveniently displayed. Display keysets can have a 12 or 24 hour clock in either the ORIENTAL or WESTERN display format with information shown in upper case or lower case letters.

DIAL BY NAME
Each station and speed dial number can have an associated directory name. Any station or speed dial number can be selected by scrolling alphabetically through a directory list. There are three directories:

System wide speed dial list
Personal speed dial list
Station directory list

This online "phone book" allows display keyset users to look up and dial any speed dial number or station in seconds. Entries can be searched by entering the first or second character/digit.

DIALED NUMBER
When an outside call is made, digits are displayed as the user dials them. If the display indicates an incorrect number was dialed, the user can quickly hang up before billing begins.

ENHANCED STATION PROGRAMMING
Personal programming options are easier to select and confirm with the help of the display.

IDENTIFICATION OF RECALLS
Hold recalls and transfer recalls are identified differently than other ringing calls. Hold recalls indicate the recalling line or station number and the associated name. Transfer recalls indicate the recalling line or station and where it is coming from.

IDENTIFICATION OF TRANSFERS
The display will identify who transferred a call to the user. This display will override any user-specified Caller ID name/number settings configured by the user. This ensures that transfers are always identified and not mistaken for new calls.

MESSAGE WAITING CALLER NUMBER
When the message indication is on, pressing the MESSAGE button displays the station number(s) of the per-son(s) who have messages for the user. Display keyset users can scroll up and down to view message indications.

OUTSIDE LINE IDENTIFICATION
Each line can be identified with an 11 character name. Incoming calls display this name before the call is answered. This feature is helpful when individual lines must be answered with different greetings.

OVERRIDE IDENTIFICATION

If another station barges-in on a user's conversation, the display will alert the user with a [Barge from 2xx] display if the system is set for barge-in with tone.

PROGRAMMED MESSAGE DISPLAY

Preprogrammed station messages set by other stations are displayed at the calling station's keyset.

SOFT KEYS

Below the display, there are three soft keys and a SCROLL button. These keys allow the user to access features in his/her class of service without requiring the keyset to have designated feature keys.

STOPWATCH TIMER

Display keyset users find this feature very convenient to time meetings, calls and other functions. Users simply press once to start the timer and press again to stop the timer.

TEXT MESSAGING

This feature allows two display keyset users to respond to each other with preprogrammed messages. After receiving an Off Hook Voice Announcement or Station Camp-On, you may respond with a text message while continuing to talk and listen to your outside party. The other station can view this message and take the appropriate action or respond back with another text message.
Up to 100 display station users can program their own individual ten (10) text messages that can be sent to another display keyset. Only the display keysets that are allowed in the system programming (DM 2.5.6) will receive the (TMSG) text message softkey in the display and can use this feature.

UCD SUPERVISOR DISPLAYS

When a UCD supervisor key is pressed, supervisors can view information about the UCD group, calls or agents.

Call Screen

This allows the supervisor to view how many calls are in queue, the longest wait time, how many calls have been received today, what the average time in queue is and how many calls were abandoned.

Agent Screen

This allows the supervisor to monitor how many agents are logged in, check each agent's status (IN GROUP, OUT OF GROUP, or DND), and view each agent's total number of calls, average call length or average ring time.

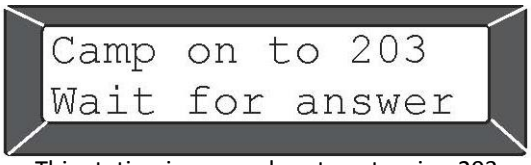
Note: Accessing this screen will also allow a Supervisor to change the IN GROUP, OUT OF GROUP, or DND status of each agent.

5.7 Sample Phone Displays

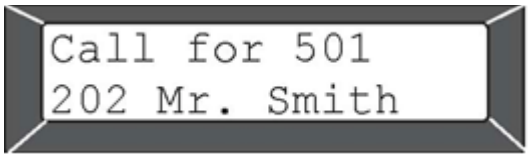
Helpful call processing information is provided so everyday call handling is quick and easy. Here are just some of the displays providing helpful information during various call states.

5.7.1 Call Progress Displays

Idle display shows extension, name, day, date and time.



This station is camped-on to extension 203 and is waiting for 203 to answer



This station in the sales department is receiving a group call from Mr. Smith

This display indicates a new incoming call to group 501

This station is calling station 203 which is currently busy

This station is receiving an off-hook voice announcement from station 203.

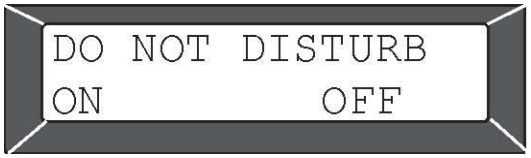
This station is on a conference call with John, extension 203. Assume other parties will hear the conversation

This station is on a conference call with extension 202 and trunk 702 and has the option to add two more parties.

This station is transferring a call to John at extension 203.

This station is receiving a call from extension 201

This station is talking on line number 703



This station is setting the Do Not Disturb

5.7.2 Caller ID Displays

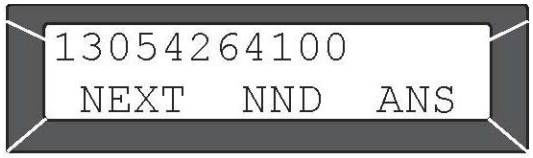
This display shows an incoming call from 1-305-426-4100 on Line 702 ringing directly to this station

This display shows the information on the abandoned call list. This call came in on May 25 at 9:41 A.M. on line 702. The user can CLEAR the entry, DIAL the caller back or examine further NND information

This display shows a call from 1-305-426-4100 that has been transferred to you from station

This display shows an entry in a station review list showing the initial three options available. The arrow indicates there are other options available to you by pressing the SCROLL key

This display shows an inquiry of a station that is talking to Samsung Telecom. You can BARGE-IN to the conversation, DROP the call from the system or examine further NND information



This display is seen while examining calls in queue at your keyset.

This display shows an incoming call from Samsung Telecom ringing to group 500

This display can be seen when investigating an intercom call. The investigator can BARGE-in or DROP the connection

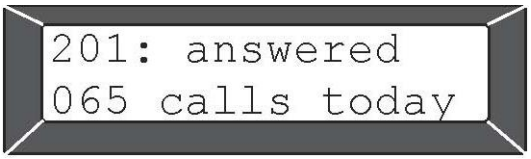
This display is seen while using the INQUIRE feature. It shows the three options available while you are checking on a held or parked call.

5.7.3 Sample UCD Displays

There are five calls currently waiting to be answered by the UCD group.

There are six members in the group. Only four of the members are currently logged in.

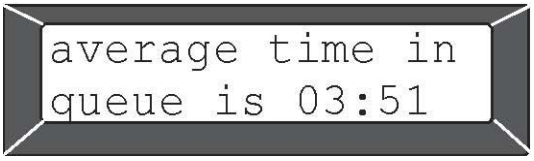
The longest call on hold (waiting to be answered) was for two minutes 24 seconds. This data applies to all calls since the supervisor data was last cleared. It does not necessarily represent calls currently in queue.



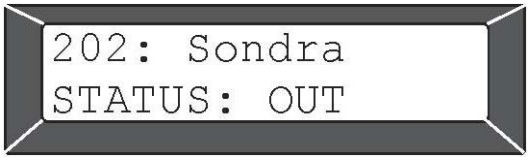
The agent at station 201 has answered 65 calls today.

The UCD group has received 124 calls today.

The average call length for station 201 is four minutes and 43 seconds.



The average time on hold (waiting to be answered) is three minutes and 51 seconds.



Station 202 is currently out of the group. The display can also show IN GROUP and DND status.

5.8 Feature Capacities per System with V4.9x software

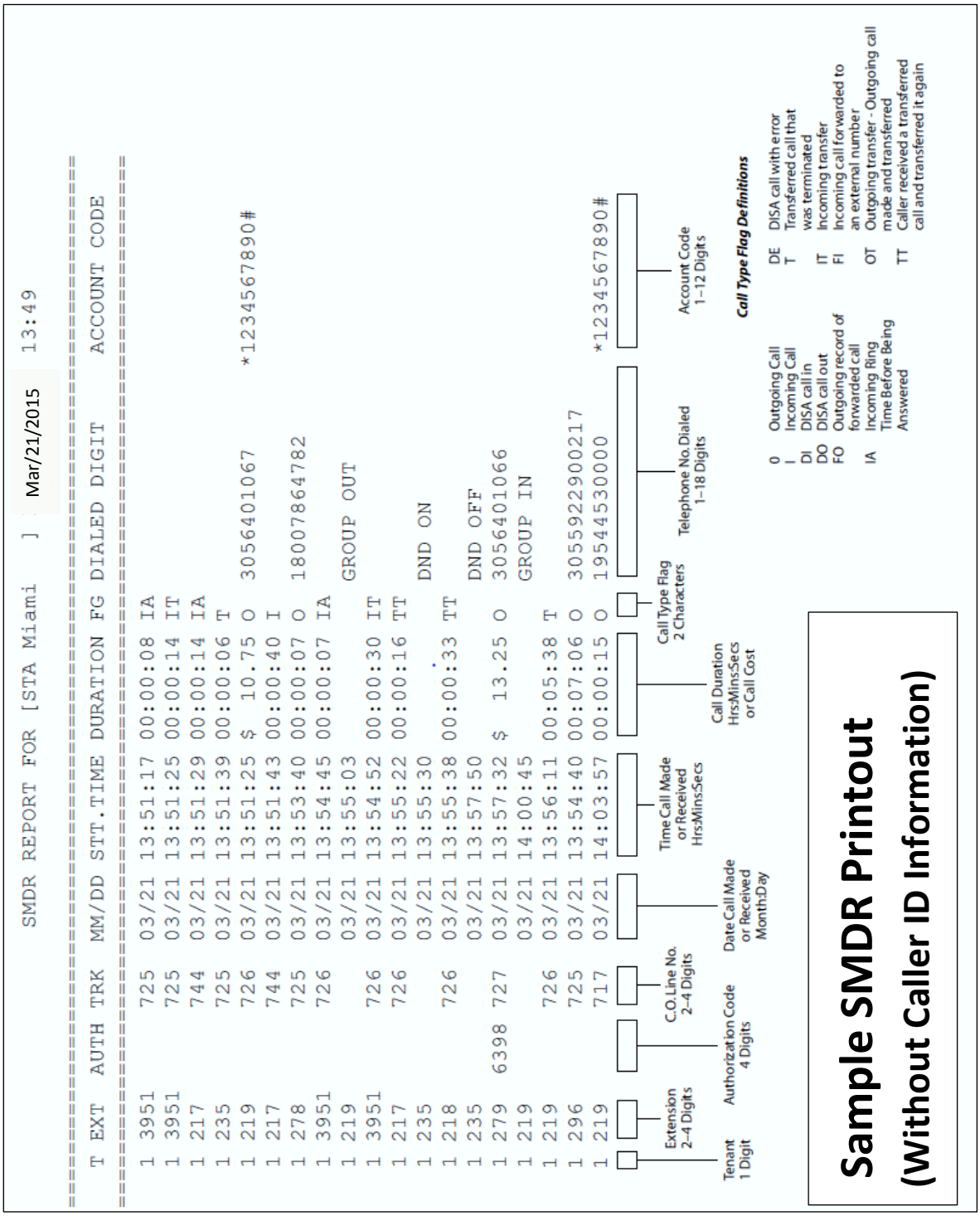
This table indicates the maximum number per feature per system. NA = Not Available

FEATURES CAPACITIES	7030	7100	7200-S	7200	7400
Station Groups	10	20	20	40	80
Trunk Groups	5	11	11	30	30
UCD Groups	10	10	10	20	40
Sequential / Distributed Group Members	16	32	32	48	99
Unconditional Group Members	16	32	32	32	32
Trunk Group Members	8	60	60	99	99
Internal Page Zones	5	5	5	5	5
Internal Page Members per zone	8	32	64	99	99
External Page Zone Access Codes	4	4	4	4	4
External Page Zone Control Relays	1	1	4	2	4
Toll Restriction Entries	500	500	500	500	500
Toll Allowance Entries	500	500	500	500	500
DID Translation Entries	100	999	999	999	999
Authorization Code Entries	500	500	500	500	500
Account Code Entries	999	999	999	999	999
LCR Digit Entries	2000	2000	2000	2000	2000
LCR Modify Digit Tables	200	200	200	200	200
LCR Time Tables	4	4	4	4	4
LCR Time Bands	4	4	4	4	4
LCR Route Tables	99	99	99	32	99
Alarm Reminder Buffers	3	3	3	3	3
Speed Dial Entries	1500	2000	2000	2500	6000
System Buffers (MAX)	500/950	500/950	500/950	500/950	500/950
Station Buffers (MAX)	50	50	50	50	50
CID Review Buffers	500	1500	1500	2000	5000
CID Abandon List Entries (system wide)	100	100	100	100	100
CID Name Translation Entries	1000	1000	1000	1000	2000
Call Buttons per Station	8	8	8	8	8
Call Logs Entries (per system)	500	1500	1500	2000	5000
Call Log Entries per Station	50	50	50	50	50
Tenant Groups	1	1	1	2	2
Ring Plans	6	6	6	6	6
Programmed Station Messages	20 (15+5)	20 (15+5)	20 (15+5)	20 (15+5)	20 (15+5)
64 Button AOM per Station	2	2	2	4	4
Call Cost Digit Entries	500	500	500	500	500
Call Cost Rate Tables	8	8	8	8	8
PBX Access Code Entries	5	5	5	5	5

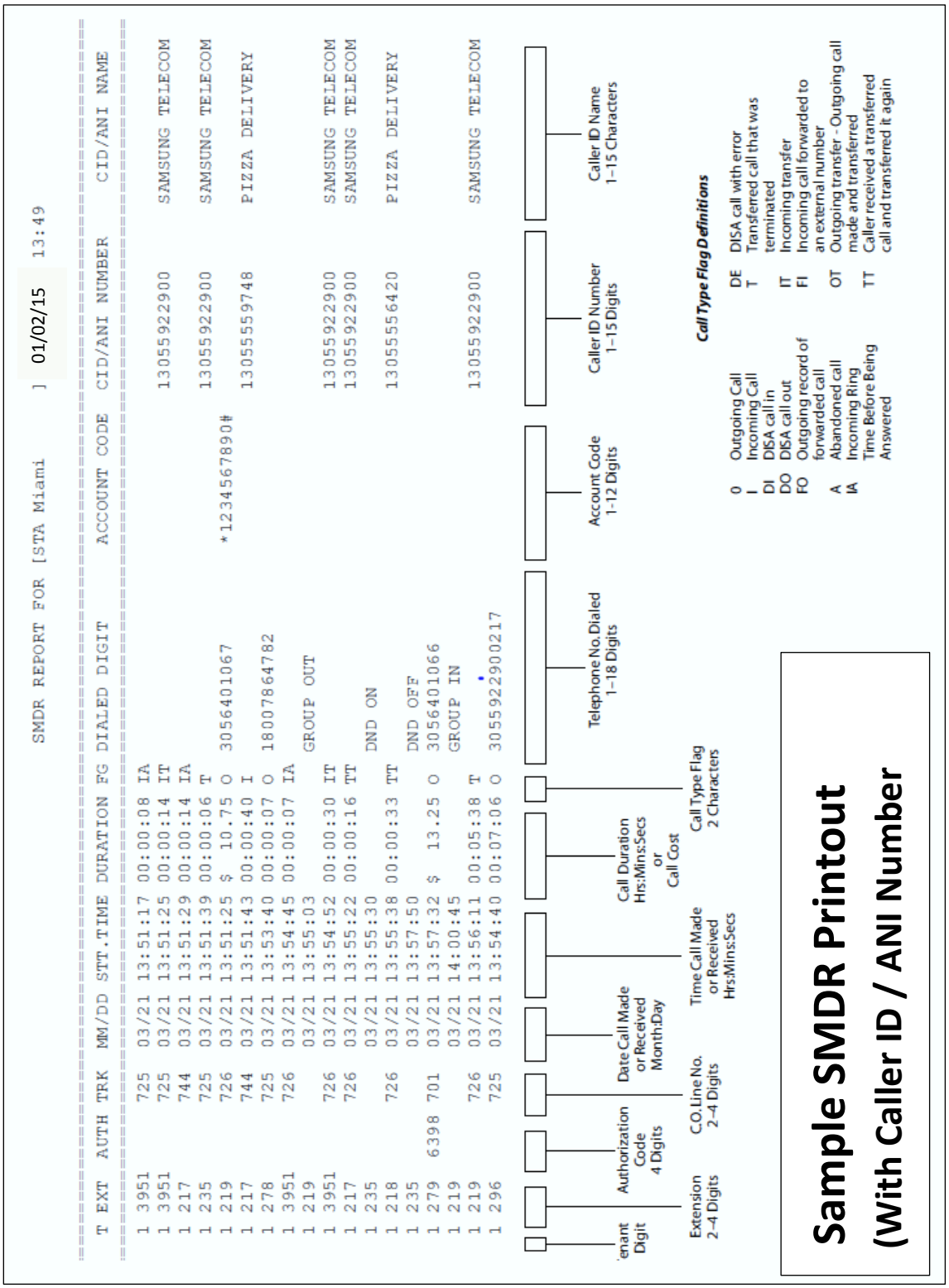
FEATURES CAPACITIES	7030	7100	7200-S	7200	7400
Special Code Entries	10	10	10	10	10
Emergency/Override Code Entries	8	8	8	8	8
Holiday Entries	60	60	60	60	60
Station Class of Service Tables (COS)	30	30	30	30	30
LCR Classes	8	8	8	8	8
Message Waiting Indications per Station	5	5	5	5	5
Conference Groups	6	6	6	6	54
Members in a Conference	5	5	5	5	5
Meet Me Conference (CNF-24 card)	NA	NA	24	48	96
Pickup Groups	10	20	20	99	99
Redial & External FWD Dial Digits	18	18	18	18	18
IP Keysets	16	56	64	128	480
Virtual Extensions	48	96	96	62	384
Text Messages	10/20	10/20	10/20	10/100	10/100
Agent Pin Numbers	100	100	100	100	300
MOBEX Ports	20	40	60	120	400
Executive MOBEX Users	4	8	60	64	256
Media Proxy Service Channels (MPS)	16	16	208	256	512
WE VoIP Clients	16	32	56	56	224

5.9 Sample SMDR Printouts

5.9.1 SMDR Printout without Caller ID



5.9.2 SMDR Printout with Caller ID/ANI Number



5.10 Embedded UCD Report

5.10.1 Embedded UCD - Sample Report

==========

UCD GROUP 529 : SALES
FROM: SUN 02 Feb 00:00
TO : SUN 02 Feb 02:54

CALL STATISTICS

==========

AVERAGE RING TIME (TIME TO ANSWER).....00:40
NUMBER OF TIMES ALL AGENTS BUSY.....00002
AVERAGE TIME IN QUEUE.....00:51
TOTAL CALLS RECEIVED.....00011
LONGEST QUEUE TIME (TODAY).....02:14
TOTAL CALLS ABANDONED.....00004

AGENT STATISTICS

==========

MEMBER	AGENT	NAME	CALLS ANSWERED	AVERAGE CALL TIME	RING TIME
01	210	JOHN	0002	01:55	00:05
02	211	SAM	0001	02:18	00:06
03	208	MIKE	0003	01:22	00:04
04	207	PETER	0001	03:16	00:05

==========

UCD GROUP 515 : SUPPORT
FROM: MON 03 Jan 08:30
TO : SUN 02 Jan 02:54

CALL STATISTICS

==========

AVERAGE RING TIME (TIME TO ANSWER).....00:07
NUMBER OF TIMES ALL AGENTS BUSY.....00005
AVERAGE TIME IN QUEUE.....01:06
TOTAL CALLS RECEIVED.....00023
LONGEST QUEUE TIME (TODAY).....01:02
TOTAL CALLS ABANDONED.....00001

AGENT STATISTICS

========== ==========

MEMBER	AGENT	NAME	CALLS ANSWERED	AVERAGE CALL TIME	RING TIME
01	223	FRED	0012	02:33	00:08
02	213	JANE	0010	01:04	00:04

5.10.2 Embedded UCD Call Statistics

CALLS IN QUEUE NOW
How many calls are currently in queue? This statistic is a real time statistic and so will not print on a report.

ABANDONED CALLS
This shows the number of callers that reached the UCD group, but hung up before being answered. A high number probably means that there are not enough agents available and the wait time is too long.

AVERAGE RING TIME
This is calculated from the time an agent begins to ring until the time an agent answers the call, this does not include ringing at an agent station that does not answer or is logged out because of the ring next option.

NUMBER OF TIMES ALL AGENTS BUSY
This is the number of times that a call is placed to an UCD group and all agents are busy or out of group. This check is made when the call is first placed to the group.
Example: If there are 5 members in a group, 3 are Out of Group one is busy and one is idle, then a call is placed to the group, because there is an idle station, the all agents busy counter is not incremented.
If the idle station rings, does not answer and is logged out, although the condition of the group is now all agents busy, the check has been made and the agent busy statistic does not increment.
Also if a call comes into a group with all agents busy and then one becomes idle, the busy counter will increment because the check has been made.

AVERAGE TIME IN QUEUE
This is calculated as an average of all the calls that were in queue.
Note that this is ONLY an average of the calls that were in queue. The caller must have overflowed to the UCD recording to be considered in queue.
A call is considered in queue until it is answered or until it goes to the final destination.

TOTAL CALLS RECEIVED
The total number of times that calls was sent to a group. This includes.

A. Calls that were answered by the group
B. Calls that went to a group with all agents busy or out of group
C. Calls that are abandoned
D. Calls that go to the UCD final destination.
E. This includes intercom calls to the UCD group.

If this number is less than the total calls received by all the agents it is possible that calls were transferred from one agent to another.

If this number is more than the total calls received by all the agents it is possible that calls were unanswered by an agent and went to final destination or callers hung up while in queue.

This statistic includes:

A. Calls answered by agent.
B. Calls that are not answered by an agent and go to final destination.
C. Calls that are sent to the UCD group but callers hang up before being answered.

LONGEST QUEUE TIME TODAY

This shows the longest call in queue today. The queue time is calculated as follows:

A. Queue time begins when a caller starts to hear the first UCD message.
B. Queue time ends when a caller is either
    - Answered by an agent
    - System gets disconnected from C.O. or
    - Caller is transferred to final destination

LONGEST QUEUE TIME NOW

This shows the longest call currently in queue. The queue time is calculated as follows:

A. Queue time begins when a caller starts to hear the first UCD message.
B. Queue time ends when a caller is either
    - Answered by an agent
    - System gets disconnected from C.O. or
    - Caller is transferred to final destination

5.10.3 Embedded UCD Agent Statistics

LOGGED IN
The number of stations programmed in the UCD group and the number of stations that are currently logged in. This statistic is a real time statistic and so will not print on a report.

STATUS
This screen shows the agents name, extension number and status. The status can be In Group, Out of group or in DND. This statistic is a real time statistic and so will not print on a report.

CALLS ANSWERED
This is the total number of calls answered by the agent. This does not include ring no answer to an agent station. If this total number is less than the calls received by the group it is possible that calls were unanswered by an agent and went to final destination or that callers hung up while in queue. If this total number is more than the calls received by the group it is possible that calls were transferred from one agent to another.

AVERAGE CALL TIME
This is an average of all the call durations for the agent.

AVERAGE RING TIME
This is an average of all the ring times for the agent. Ring times are previously explained.

5.11 Traffic Statistics Report

5.11.1 Sample Traffic Statistics Report

```
TRAFFIC REPORT FOR [   STA Miami         ]  Mar/21/2015  13:35
*************************** SYSTEM STATISTICS ****************************

BEGINNING:  Mar/15/1999  00:42                      ENDING:    Mar/21/2015  13:32

      ACTIVITY                                              SYSTEM TOTAL

      INCOMING TRUNK CALLS - ANSWERED.................        3041
      INCOMING TRUNK CALLS - NOT ANSWERED.............          26
      OUTGOING TRUNK CALLS ...........................        2168
      A SELECTED TRUNK WAS BUSY.......................          44

      INTERCOM CALLS - COMPLETED......................        7178
      INTERCOM CALLS - NOT ANSWERED...................        1540

      TRUNK RECALLS TO STATION........................         145
      TRUNK RECALLS TO OPERATOR GROUP.................          32

      INTERNAL PAGE USED..............................          35
      EXTERNAL PAGE USED..............................          79
      ALL PAGE USED...................................         231

*************************** TRUNK GROUPS *********************************

 GROUP      OUTGOING   BUSY
   9          1245     18
   800         521      3
   801          20      3
   802           0      0
*************************** INDIVIDUAL TRUNKS ****************************

TRUNK      TRUNK-NAME       ATTA      ANSD      NOT-ANSD      OUTGOING    BUSY
  701      LOCAL 1             0       737             0            19      12
  702      LOCAL 2             0       541             4            26      11
  703      LOCAL 3             0       290             1            37      21

************************* STATION HUNT GROUPS ****************************

          <--------- OUTSIDE CALL --------->                          <-INTERCOM->
GROUP    ANSD    NOT-ANSD                                              ANSD
  500     439      19                                                    61
  501     261      37                                                    38
  502      40       2                                                    77
  503      87       5                                                   162
  504      19       1                                                    44

*********************** INDIVIDUAL STATIONS ***************************
                   <------- OUTSIDE CALL ------------------------------><-INTERCOM-->
EXT STATION-NAME ATTA ANSD NOT-ANSD DIALED ICM-TRSF TRK-TRK PICKUP  ANSD DIALED
201 Operator        9  360      11     15      341       0      0    39     72
202 Barbara        12   60       2     80       20       0     12    49     66
203 Ivania          4   25       1     36        3       0     18    86     29
```

5.11.2 Traffic Report Overview

A******** **SYSTEM STATISTICS** **********

1 BEGINNING: 04/01/15 08:00 ENDING: 04/01/15 17:30

2 ACTIVITY SYSTEM TOTAL

3 INCOMING TRUNK CALLS – ANSWERED.....0000
4 INCOMING TRUNK CALLS - NOT ANSWERED.....0000
5 OUTGOING TRUNK CALLS.....0000
6 A SELECTED TRUNK WAS BUSY.....0000

7 INTERCOM CALLS – COMPLETED.....0000
8 INTERCOM CALLS - NOT ANSWERED.....0000

9 TRUNK RECALLS TO STATION.....0000
10 TRUNK RECALLS TO OPERATOR GROUP.....0000

11 INTERNAL PAGE USED.....0000
12 EXTERNAL PAGE USED.....0000
13 ALL PAGE USED.....0000

1. **BEGINNING & ENDING** This identifies when the statistics were collected. It includes dates and time.
2. **ACTIVITY:** Overall summary of traffic in the system for activities 3 to 13.
3. **INCOMING TRUNK CALLS-ANSWERED:** These are any incoming trunk calls to the system. These calls are pegged when answered by any device and/or station in the system whether it is a new call or a recall.
4. **INCOMING TRUNK CALLS-NOT ANSWERED:** These are any incoming trunk calls that were not answered by any station or device in the systems. These are the same calls that would be flagged as abandoned in SMDR.
5. **OUTGOING TRUNK CALLS:** These are all outgoing trunk calls that were originated by any station or through the DISA feature. Outgoing trunk calls are valid calls as defined by the SMDR START TIME in Device Manager Menu 5.14.7 SMDR/Alarm/Hotel Options.
6. **A SELECTED TRUNK WAS BUSY:** Pegged every time a trunk or trunk group was busy regardless of the manner in which it was selected (e.g., DTS key, LCR,“9”, 7XX,TRK GROUP SELECT, SPD, External call forward, DISA).
7. **INTERCOM CALLS COMPLETED:** These are all intercom calls that were completed to any station, station group or device.
8. **INTERCOM CALLS NOT COMPLETED:** These are all intercom calls that were not answered and resulted in the calling party hanging up. A call to a station group that overflows to another station is considered not answered whether the overflow destination did or did not answer.
9. **TRUNK RECALLS TO STATION:** These are trunk calls that were placed on any kind of hold and recalled a station. These are also trunk calls that were transferred and were not answered

and recalled the transferring station. This includes members of the operator group that put calls on hold and then recalled to the operators station.

10. **TRUNK RECALLS TO OPERATOR GROUP:** These are any trunk calls that recalled to the operator group.
11. **INTERNAL PAGE USED:** Peg count of every time internal page was accessed.
12. **EXTERNAL PAGE USED:** Peg count for every time external page was accessed.
13. **ALL PAGE USED:** Peg count of every time the all page feature was accessed. This does not include internal or external page, only 55+✱ or PAGE ✱.

B******** **TRUNK GROUPS** **********

1 GROUP	**2** OUTGOING	**3** BUSY
9	0000	0000
800	0000	0000
801	0000	0000

1. **GROUP:** A listing of all trunk groups assigned in the system.
2. **OUTGOING:** These are the number of outgoing trunk calls made using each trunk group. Pegged every time a member of this trunk group was used to make a valid outgoing call. A valid outgoing call is defined by the SMDR Start Time programmed in Device Manager Menu 5.14.7 SMDR/Alarm/Hotel Options.
3. **BUSY:** This is the number of times each trunk group was busy when someone attempts to access it.

C******** **INDIVIDUAL TRUNKS** **********

1TRUNK	**2**TRUNK-NAME	**3**ATTA	**4**ANSD	**5**NOT-ANSD	**6**OUTGOING	**7**BUSY
701		0000	0000	0000	0000	0000
702		0000	0000	0000	0000	0000
703		0000	0000	0000	0000	0000
704		0000	0000	0000	0000	0000
705		0000	0000	0000	0000	0000
706		0000	0000	0000	0000	0000
707		0000	0000	0000	0000	0000
708		0000	0000	0000	0000	0000
709		0000	0000	0000	0000	0000
710		0000	0000	0000	0000	0000

1. **TRUNK:** A listing of each trunk in the system.
2. **TRUNK NAME:** The names of each trunk as programmed in Device Manager Menu 2.4.2.
3. **ATTA:** Average Time To Answer for trunks is counted in the number of seconds that ringing voltage is detected at the trunk interface and the timer stops when trunk is answered by station or device in the system. The ATTA is the sum of all answered times divided by the answered call count.

4. **ANSD:** This is the number of times this specific trunk was answered by any station or device whether it is a new call or a recall.
5. **NOT-ANSD:** This is the number of times this specific trunk rang the system but was not answered. These are the same calls that would be flagged as abandoned in SMDR.
6. **OUTGOING:** This is the number of times this trunk was used to make an outgoing call. A valid outgoing call is defined by the SMDR START TIME programmed in Device Manager Menu 5.14.7 SMDR/Alarm/Hotel Options.
7. **BUSY:** This is the number of times this trunk was busy when accessed by a button or dial code.

D******** **STATION HUNT GROUPS** **********

<———————— **1** OUTSIDE CALL ————————————————————> **5** <-INTERCOM->

2GROUP	**3**ANSD	**4**NOT-ANSD	**6**ANSD
500	0000	0000	0000
501	0000	0000	0000
502	0000	0000	0000
503	0000	0000	0000
504	0000	0000	0000

1. **OUTSIDE CALLS:** These statistics are for outside calls that reach these station groups regardless how they arrive there.
2. **GROUP:** Listing of all station groups in the system.
3. **ANSD:** This column is a peg count of all answered trunk calls that rang to the specific group directory number regardless of how these arrived.
4. **NOT-ANSD:** The number of times any trunk call directed to the specific group number was not answered by any member of the group.
5. **INTERCOM:** An intercom call made from a station or device within the system to the specific group number.
6. **ANSD:** This is a count of how many times an intercom call was answered by any group member of that specific group.

E******** **INDIVIDUAL STATIONS** **********

					1					**11**
<———————— OUTSIDE CALL ————————> <-INTERCOM->										
2	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**12**	**13**
EXT	STATION-NAME	ATTA	ANSD	NOT-ANSD	DIALED	ICM-TRSF	TRK–TRK	PICKUP	ANS	DIALED
201		0000	0000	0000	0000	0000	0000	0000	0000	0000
202		0000	0000	0000	0000	0000	0000	0000	0000	0000
203		0000	0000	0000	0000	0000	0000	0000	0000	0000
204		0000	0000	0000	0000	0000	0000	0000	0000	0000
205		0000	0000	0000	0000	0000	0000	0000	0000	0000

1. **OUTSIDE CALLS:** These statistics are for outside calls that in any way reach individual stations or devices.
2. **EXT:** Listing of all extension numbers in the system. This also includes AA/VM ports.
3. **STATION NAME:** The name for each particular station as programmed in Device Manager Menu 2.4.2 Port Common Data.
4. **ATTA:** Average Time To Answer for stations is counted in the number of seconds that ringing signal is applied to a station for trunk calls and recalls. The ATTA is the sum of all answered times divided by the answered call count. Use the same calculation method as used for individual trunk ATTA.
5. **ANSD:** This is a count of how many times an outside call was answered by the specific station. Outside callers recalling a station are not counted again when they are answered.
6. **NOT-ANSD:** This is a count of how many times a trunk call was directed to the station but was not answered by this station.
7. **DIALED:** Peg count of how many times the station made a valid outside call. An outside call is defined by the SMDR start time in DM 5.14.7.
8. **ICM-TRSF:** This is the number of times a trunk call was successfully transferred to another station using the intercom. It includes both screened and unscreened transfer.
9. **TRK–TRK:** This is the number of times a trunk call was transferred to another trunk (tie line). This is called a trunk–to–trunk transfer. This field gets pegged every time the station completes a trunk to trunk transfer.
10. **PICKUP:** This is a count of the outside calls that were picked up by the specific station. Picked-up calls are calls that are not ringing at your station but were answered by you. This peg count is separate from the number of answered call in #5 of Individual Stations section E.
11. **INTERCOM:** Statistics for intercom calls. An intercom call made from a station or a station device within the system to another station.
12. **ANSD:** This is the number of times an intercom call was answered by this specific station. Screened transfers count as an answered intercom call.
13. **DIALED:** This is the number of times the specific station dialed another station or station group. Screened transfers count as a dialed intercom call.

6 Samsung Hospitality Solutions

6.1 Hospitality Overview

The Hospitality applications for the OfficeServ 7000 systems combine the business feature package with additional features included to meet the needs of the Hospitality Industry.
The hospitality solutions are available in two distinct products to address two distinct market applications; the OfficeServ Concierge-Lite for very small (5 to 15 rooms), bed-n-breakfast, hunting lodge type properties, and the OfficeServ Concierge-Elite for the medium size (25 to 400 rooms) properties.
The phone system combined with a Digital Keyset, 64 button add-on module, and printer can provide a total solution for small installations. Guest check-in/out, guest billing, guest room call costing and more can be provided by the Samsung solution.
In the case of the medium sized market, the installation will almost always require integration for the Samsung phone system to communicate with a third party on premise Property Management System. This will require the involvement of a systems integrator to develop the PMS integration module for the PMS and phone system to work together.

6.2 OfficeServ Supporting Functionality

Many components have to come together in a Hospitality Installation. Each property is unique and different in how and what are required to manage the property. The following sections will briefly describe some of the supporting functions that may be required for the OfficeServ system to fully support and integrate in a Hospitality Installation. Below are the supporting functions that are described in more details:

- SMDR Output to Call Accounting
- Bi-directional PMS Stream
- Third Party Property Management System
- PMS Transaction Module
- Hospitality Voicemail (3rd. Party)

6.2.1 SMDR

The phone system provides an SMDR output stream via the LAN to a third party call accounting application for billing purposes. The call accounting system will use the information from the SMDR stream to determine phone usage and perform the costing of phone calls.

6.2.2 Property Management System (PMS)

The Property Management system is the heart and soul of the mid-size Property. Think of it as a single user interface used by the front desk Administrator to manage many services on the property and tie many chargeable transactions together to a single consolidated record or account folio. Phone use, movie rental, internet, voice-mail, mini bar, POS transactions can all be controlled and combined into a unified record or bill through the use of the PMS. The PMS is not provided by Samsung, but there are a dozen or so PMS vendors that offer a PMS systems to the Hospitality Industry. Samsung only provides the BD-PMS link. Each Property will have to have the on-site PMS system integrated to the Samsung phone system. This is not done by Samsung but is done by a 3rd Party solution at a cost.

6.2.3 Bi-Directional PMS Link

The Office Server 7000 systems provide a bi-directional PMS link via a LAN connection. The link allows for the integration of a server with the Property Management System software package installed, to be utilized for inputting room related charges as well as creating room bills, reports, etc. Any transactions, related to guest or meeting rooms, that take place within the hotel system, will be sent immediately to this link from the OfficeServ System.

The OS phone system may be required to provide a Bi-directional PMS stream via the LAN to third party Property Management System. Many small to mid-sized properties will use a computer console and PMS software at the front desk to provide the attendant with a user interface to administer room services such and guest check-in, checkout, adding charges to rooms, wakeup calls, set message waiting, and printing room bills.

Samsung only supplies the Bi-directional PMS link. This link will not interface directly to any PMS system or software directly without the development of integration software or PMS integration module. The PMS integration module is what allows the external PMS system to integrate and communicate with the phone system. The PMS integration module is required but is not provided by Samsung. A systems integrator will always be required to create the PMS integration module to integrate the phone system to the Property Management System.

Samsung has an embedded PMS application that can cost phone calls and post additional charges from POS (Point of Sales) terminals, and print room bills, but this will be limited in larger properties. This may be used in very small, bed-n-breakfast type applications without the need for integration to another on premise PMS.

6.2.4 PMS Link Transaction Module

A large percentage of all properties will have a proprietary PMS system on site. The PMS system will have to be integrated to the Samsung phone system. The Samsung phone system provides a proprietary PMS link but Samsung does not provide a PMS system. All the Samsung phone system provides is the PMS link. The PMS link is a proprietary protocol that will not connect directly to any PMS system on the market.

In order for the Samsung phone system to integrate and communicate to other PMS systems, integration software or PMS integration module (software that functions as a conversion of translation layer) will have to be developed by a systems integrator.

6.2.5 Hospitality Voice Mail

Samsung provides a voicemail system, but it is not suitable for the Hospitality Industry. Other Voicemail vendors make a voicemail solution design specifically for the hospitality Industry. Third party voicemail applications can build the required mailboxes for each room when a guest is checked in at front desk console. In addition, the voicemail can clear the mailbox and delete and/or archive all messages left by the previous guest upon checkout from the front desk console. The Samsung SVMi voicemail is limited in this type of functionality and is not recommended for use in a Hospitality installation.

6.3 OfficeServ Concierge-Elite

The OfficeServ Concierge-Elite is the advanced solution for the high end properties that combines the following components to provide a unified all-in-one solution:

❶ Samsung OfficeServ Phone System

❷ Hospitality solution provided by a 3rd party

❸ Property Management System (PMS) provided by the customer

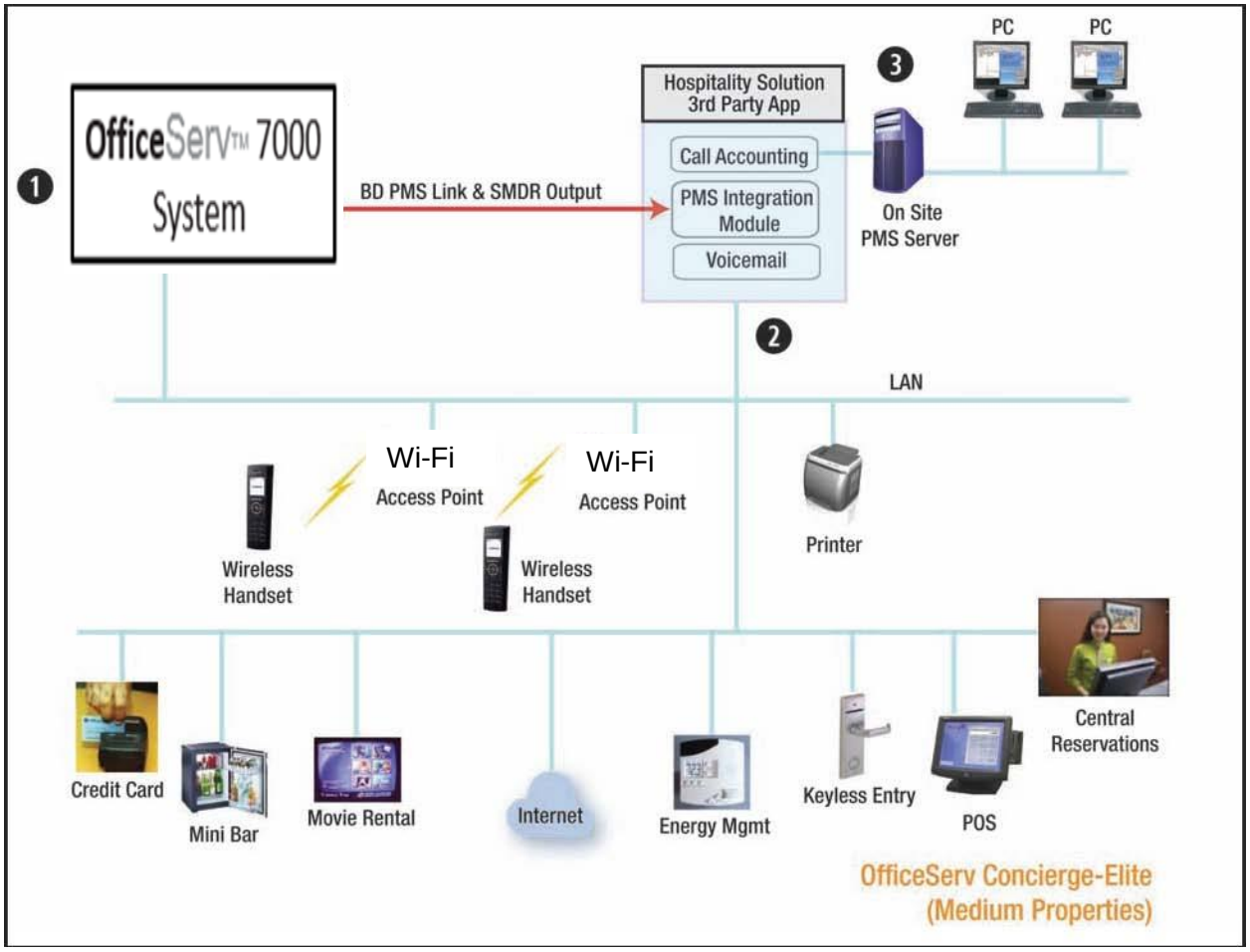


Figure 6-1

Many systems are required to manage the high-end property (call accounting, mini bar, voicemail, PMS, etc.) can be unified and controlled by a single user interface including the control of many features of OfficeServ phone system (wakeup calls, messages waiting, set DND, checkin/checkout, call cost, credit posting, etc.). See Figure 6-1.

6.4 OfficeServ Concierge-Lite

6.4.1 Overview

The OfficeServ Hotel / Motel software package combines the OfficeServ business features with additional features created to meet the needs of the Hotel / Motel industry. This combination meets the requirements of the Hotel General Business offices as well as those of the Hotel Guest. The OfficeServ Hotel / Motel package MUST be enabled in Device Manager Menu 2.1.5 System Options, before it can be used.
Samsung's OfficeServ Hotel / Motel software is designed to operate in very small to medium sized hotel properties with up to approximately, 400 rooms.

The OfficeServ Hotel / Motel software offers a bi-directional PMS link. All system transactions related to the guest and meeting rooms will be sent to the PMS system via this link. Likewise any information input from a PMS or POS terminal will be sent into the OfficeServ system via this same link. Station status can be changed via these PMS and POS PC terminals. Message lights can be activated and Do Not Disturb can be set across the PMS link.

The Office system makes it possible to manage a very small hotel/motel without the need for an expensive PMS system. The key to utilizing the Hotel / Motel software without an external PMS is the OfficeServ Concierge-Lite. The keyset can be programmed with features and functions pertinent to the hospitality industry, which make it convenient to perform day to day routine functions. However in the case of larger hotels, the owner / operator would probably choose to interface to the bi-directional PMS link.
For those systems that are not utilizing a PMS software package, the OfficeServ Hotel / Motel software will maintain a record of all transactions that occur throughout the system. These records are maintained until the guest is checked out. The OfficeServ maintains 10,000 transaction records. Each transaction records represent one line of the guest room bill. These records are purged once the room is checked out. See figure 6-2.

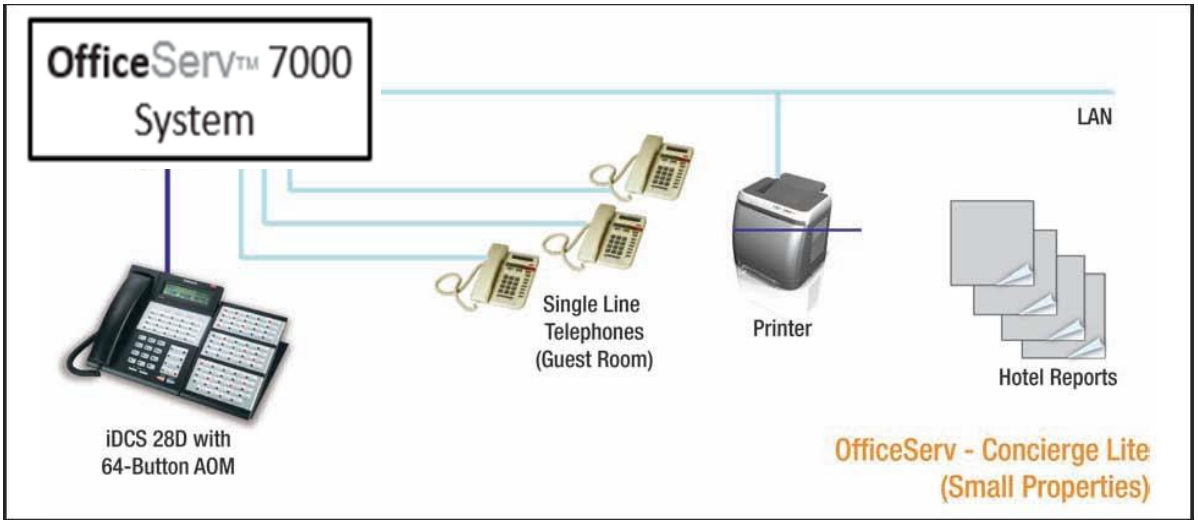


Figure 6-2

6.4.2 OfficeServ Concierge Lite - Feature Matrix

The following features are provided with the Samsung **embedded** hospitality solution – OfficeServ Concierge –Lite

Concierge – Lite Features	7030	7100	7200S	7200	7400
CALL COSTING	✓	✓	✓	✓	✓
CHECK IN	✓	✓	✓	✓	✓
CHECK OUT	✓	✓	✓	✓	✓
DEPOSIT POSTING	✓	✓	✓	✓	✓
DSS KEY FEATURE ACTIVATION	✓	✓	✓	✓	✓
ENHANCED USER PROGRAMMING	✓	✓	✓	✓	✓
EXECUTIVE DND	✓	✓	✓	✓	✓
EXPRESS CHECK-IN	✓	✓	✓	✓	✓
GUEST SERVICES BILLING 100 Item Codes with costing	✓	✓	✓	✓	✓
LOBBY PHONE SERVICE	✓	✓	✓	✓	✓
PRINTED REPORTS Phone Bill Guest and Meeting Room Bill Room Status Wake Up Call Activity Room Rate Discounts Room Status Conditions	✓	✓	✓	✓	✓
ROOM DIALING RESTRICTIONS	✓	✓	✓	✓	✓
ROOM RATE DISCOUNTS	✓	✓	✓	✓	✓
ROOM STATUS CONDITIONS	✓	✓	✓	✓	✓
ROOM STATUS Keyset Indications 64 Button AOM Indications Printed Report	✓	✓	✓	✓	✓
ROOM STATUS UPDATE Automatic Manual	✓	✓	✓	✓	✓
STAFF I.D. CODES (500)	✓	✓	✓	✓	✓
STATION TYPES Normal Station Administrator Meeting Room Guests No Smoking Guest Smoking Fax Station	✓	✓	✓	✓	✓
TELEPHONE CREDIT LIMIT	✓	✓	✓	✓	✓

Concierge – Lite Features	7030	7100	7200S	7200	7400
WAKE UP CALLS	✓	✓	✓	✓	✓
TRANSACTION RECORD OUTPUT	✓	✓	✓	✓	✓
WAKE UP CALLS Set By Attendant Set By Guest Answered Not Answered Canceled Auto Attendant Announcement	✓	✓	✓	✓	✓

6.4.3 OfficeServ Concierge Lite - Feature Descriptions

CALL COSTING
The OfficeServ 7000 Hotel / Motel software provides call costing, for guest and meeting room phones. The call cost will appear on the guest's room bill, the SMDR report, the transaction record output, and the PMS output.
The system uses programmable call costing tables to calculate the cost of incoming and outgoing calls. Rates are calculated using the number dialed, duration of the call addition and any optional surcharges.

CHECK IN
The OfficeServ 7000 Hotel / Motel software allows an Administrator keyset to check a guest into a room by pressing the CHECK IN key and following the prompts in the display. When the CHECK IN key is pressed the clerk can credit the room account if the guest wishes to prepay for the room and/or the phone service. The clerk can also assign the guest's name to the room.
This feature is supported on a 64-Button Module. The associated DSS key assigned to a 64-Button Module can be used to enter the room number that is being checked in.

CHECK OUT
In addition the feature allows an Administrator keyset to check a guest out of a room by pressing the CHECK OUT key. The CHECK OUT option will print out the total room charges and clear the room information from the transaction record buffer. It also changes the room to the Needs Cleaning status. Checking a guest out of a room prior to the ROOM CLEAN TIME will automatically change the room to the NEEDS CLEANING status.
This feature is supported on a 64-Button Module. The associated DSS key assigned to a 64-Button Module can be used to enter the room number that is being checked out.

DEPOSIT POSTING
The credit feature allows any Administrator keyset to add a cash deposit to a room bill, to offset charges already incurred or to prepay either the room or phone charges or both. This feature

requires a CREDIT key to be assigned to the administration phones. This feature is supported on a 64-Button Module. The associated DSS key assigned to a 64-Button Module can be used to enter the room number that the deposit is being posted to.

DSS KEY FEATURE ACTIVATION

When utilizing the Administrator keyset to activate system features / functions, many will request the room number to be entered. In most cases the associated DSS key can be pressed to enter the station number.

The exceptions are Wakeup Call Setting and Lobby Phone Service. These features will not respond to the DSS key press. The associated station number must be assigned via the keypad.

ENHANCED USER PROGRAMMING

The OfficeServ 7000 systems allow the System Administrator (Customer) access to several user programming menus using Device Manager. When a station is assigned as either an ADMINISTRATOR or a NORMAL phone, they can access these programming menus to change some settings for any station within the system.

This Enhanced System Programming requires these selected stations to login as ADMINISTRATOR using the Device Manager programming interface to make changes as follows:

DM 5.15.1 Station Options: Station Lock, DND Status and Initialize Password

DM 5.15.6 Call Forwarding: Change forward status and destination.

DM 2.4.2 Port Common Data: Assign or change the station name.

DM 5.15.9 User Programmed Messages

DM 5.15.8 Alarm Reminder: Set and cancel station alarm messages.

DM 2.1.3 System Time: Set the system date and time.

DM 4.4.0 System Speed Dial: Assign System Speed Dial numbers and names.

DM 4.9.2 Station Key: Assign programmable station keys/buttons

EXECUTIVE DND

The Executive DND feature (SET DND key) allows Front Desk personnel to set and cancel DND to a guest's room. This means that a guest can request that their room be flagged as DND, saving the guest from having to learn system feature codes. This key will allow Front Desk personnel to change DND status, as an additional guest service.

This feature can be set and canceled from the guest room phone. This feature is supported on a 64-Button Module. The associated DSS key assigned to a 64-button module can be used to enter the room number to set DND to.

EXPRESS CHECK-IN

This feature is designed to expedite the Check In procedure. It is a second check in option. It is used expressly to check in a guest quickly.

The Express Check In feature (X-CHIN key) eliminates several steps from the standard Check In procedure. This feature does not request any billing type, or guest's name information. This feature is supported on a 64-Button Module. The associated DSS key assigned to a 64-button module can be used to enter the room number that is being checked in.

GUEST SERVICES BILLING

The guest service billing feature allows a staff member, to enter an item code and a dollar amount to a specific room bill using specific telephone stations. The dollar amount entered at time of sale for the item code can be multiplied by the tax rates defined for the items or will have the tax amount added if the tax is a fixed dollar amount.

There are 100 item codes in the system. Each item code can have a name, with up to 10 characters, programmed to describe the charge.

This feature requires a staff ID code to be entered to add or delete a charge to a room. The staff ID codes are assigned in the Authorization Code table. The staff ID code will be verified from the table, and if an incorrect code is entered, an error tone will be returned and the station will return to idle.

The room number will also be verified, from the list of rooms that are checked in. If a room number is not occupied, an error tone will be returned and the station will return to idle.

This feature can be used by either a keyset or a single line telephone with DTMF dialing. The keyset requires a BILL key.

LOBBY PHONE SERVICE

This feature allows a hotel operator to bill a call to a guest room even though it was made at a remote location, such as a lobby phone. This phone can be a dial “0” type or a Hotline to the operator.

The guest will request the operator to bill an outside call to his/her room. The operator will press the Remote Bill key (RB) and place the guest on transfer hold, then enter the guest’s room number and receive confirmation tone. The operator can then dial the number for the guest and transfer the ringing call back to the guest.

PRINTED REPORTS

In those cases where the bi-directional PMS link is not used, the OfficeServ Hotel / Motel software package will provide various printed reports of selected activities throughout the system. These reports are initiated from any administrator’s display keyset and sent to the designated printer connected to the network.

In order to provide a permanent record, it is advisable to use two-part paper in the printer, or do a room bill printout, prior to checking the room out.

Phone Bill

The Phone Bill report provides only the phone bill information for a specific room. This print out is separate from the guest room bill. This allows a guest to pay for them separately, so no phone calls appear on the room bill. When using this feature you have the option of saving or deleting all telephone call information from the guest’s bill.

The information in the phone bill includes the date and time the report was requested, the room number requested, date and time of call, the number dialed, call duration and the charge for the call.

Guest and Meeting Room Bill

This printout includes all room-related charges, from time of check in. Associated taxes and/or surcharges are automatically calculated by the system based on programmable rate

table entries. Any deposits made are automatically deducted from the total bill. This printout also includes daily room charges, phone calls, services charged to the room, wakeup call activity, and any deposits made. This printout is made on a per room basis.

Room Status

The system can print six different Room Status reports. There are five (5) individual reports for the following room status conditions: Available, Occupied, Needs Cleaning, Needs Maintenance, and Hold for Late Checkout. A sixth report will show all rooms and all room status conditions.

Wake Up Call Activity

This report will detail all wakeup call information related to a specific room since check in. The printout includes the time a wakeup call was set, the requested wake up time, the time the call was answered, unanswered wake up calls, canceled wake up calls and charges for the service if programmed.

ROOM DIALING RESTRICTIONS

This feature is used to program station to station calling restrictions and is sometimes referred to as intercom blocking. For instance you can restrict rooms from dialing the administration offices while still being able to dial the front desk, other hotel service phones or other guest rooms.

ROOM RATE DISCOUNTS

The OfficeServ Hotel / Motel software offers a method of discounting room rates, on a day-by-day basis. This discount is based on a percentage of the full room rate. The percentage is programmable and variable.

ROOM STATUS CONDITIONS

The system will indicate the status of each guest or meeting room when requested. See Room Status

The five possible conditions are (the last four conditions in the list are sent to update PMS information only):

- **AVAILABLE** – Ready to check in.
- **OCCUPIED** – Guest is checked in.
- **NEEDS CLEANING** – Condition after check out or morning update for all occupied rooms.
- **NEEDS MAINTENANCE** – Temporary condition for rooms requiring some repair or maintenance.
- **HOLD (LATE CHECK OUT)** – Indicates a guest requires a late checkout so hotel staff will delay cleaning.
- **CLEANED** – Message sent for updating PMS. Indicates that the room has been cleaned.
- **REPAIRED** – Message sent to update PMS. Indicates that the room has been repaired.
- **HOLD AND NEED CLEANING** – Message sent to update PMS. Indicates that the room is being held and requires cleaning.

- **HOLD AND NEEDS MAINTENANCE** – Message sent to update PMS. Indicates that the room is being held and requires maintenance.

ROOM STATUS

The OfficeServ 7000 Hotel / Motel system provides three methods to review the five room status conditions.

1 An administrator's display keyset can be used to view the status of any individual room and scroll through the list of all other rooms to view their status.
2 One or more 64 Button Modules can be used to view the status of all rooms for any of the five room conditions (Example: press the Room Status View key for "AVAILABLE" and all the buttons corresponding to available rooms will light red).
3 Printed reports can be obtained to review the room status conditions for all rooms. See Printed Reports–Room Status listed above.

ROOM STATUS UPDATE

The system operation provides two methods to update the status of each guest or meeting room.

Automatic

The hotel manager informs the system technician of the preprogrammed time he wants all rooms to automatically change from "Occupied" to "Needs Cleaning" on a daily basis. In addition each room is automatically changed to "Needs Cleaning" upon check out.

Manual

Hotel personnel, such as maids, maintenance men or administrators, can dial a code from the guest/meeting room telephone to manually update the room status as required. The manual room status update codes are:

0= Room needs to be cleaned.
1= Room cleaned. This updates the room status to either AVAILABLE or OCCUPIED.
2= Room needs maintenance. This makes the room NOT AVAILABLE for check in.
3= Room repaired. This updates the room status to either AVAILABLE or OCCUPIED.

STAFF I.D. CODES

These are simply Authorization Codes that hotel employees must enter to access various Hotel / Motel features. These codes will appear on the Room Bill printout to indicate who posted the charges to a specific room. They provide a measure of security and control for hotel management. There are 500 STAFF ID codes in the software.

STATION TYPES

The system software enables station ports to be defined for a specific use throughout the hotel. Each telephone can be designated as being one of the five following types. A class of service has been established for each station type.

1. **Normal Station** – This is the default setting. The station will operate in the manner associated with a normal business station.
2. **Administrator** – Only stations designated as Administrator can access special Hotel / Motel features, such as Check In, Check Out, Room Status, Print Report, etc.

3. **Meeting Room** – A meeting room is similar to a guest room in the respect that it generates a room bill but has different class of service option requirements.
4. **Guests No Smoking** – When a station is designated as this type, it will appear in the administrator's key-set display as a no smoking room. This station type will generate a room bill and follow its associated class of service options.
5. **Guest Smoking** – When a station is designated as this type, it will appear in the administrator's keyset display as a smoking room. This station type will generate a room bill and follow its associated class of service options.
6. **Fax Station** – When a station is designated as this type, the associated station number can be paired with a fax extension so that calls from the fax extension can be billed to the room.

TELEPHONE CREDIT LIMIT

This feature is designed to control phone charges for hotel guests that do not use a credit card. These guests will need to make a cash deposit for their phone calls. When the credit warning threshold has been reached the guest will receive two beeps in their ear, (the warning threshold is determined by the COST RATE feature and occurs one billing period prior to the credit limit being reached).When the credit limit is reached, the call will be dropped, and the phone will then be restricted. An additional cash deposit is required to re-activate the phone.

TRANSACTION RECORD OUTPUT TO PMS

The OfficeServ 7000 Hotel / Motel software provides an output for all Hotel / Motel transactions. Any transactions, related to guest or meeting rooms, that take place within the hotel system, will be immediately sent –"on the fly" to the LAN port. The LAN port will be assigned as PMS. This transaction stream would typically be connected to a PC with a PMS software package, for system reports.

WAKE UP CALLS

The OfficeServ 7000 Hotel / Motel software package supports a comprehensive wake-up feature.

- **Set By Attendant** – The hotel administrator stations or operator/attendant can set a wake call.
- **Set By Guest** – Each hotel guest can set his/her own wakeup call using the room phone
- **Answered** – Both the guest room bill and wakeup call activity report will show the date and time the guest answered the wakeup call.
- **Not Answered** – Both the guest room bill and wakeup call activity report will show each wakeup call attempt that was not answered by the hotel guest. This information will print out on the printer designated for the Hotel / Motel Report.
- **Canceled** – Both the guest room bill and wakeup call activity report will indicate each canceled wake up call. Only Hotel / Motel administrator's keysets can cancel wake up calls. The guest can reprogram a wake up request if he made a mistake. System programming provides a programmable number of wakeup call attempts and a programmable time interval between attempts.

- **Auto Attendant Announcement** – The system can be programmed have the automated attendant play a message when a guest answers a wakeup call.

6.4.4 OfficeServ Concierge Lite Sample Reports and Printout

1. Guest Room Bill Printout

Includes the following information:

- Date and time the bill was printed
- Room number requested
- Daily room charge
- Phone calls and their charges
- Wakeup call activity
  - Time wake up was set for
  - Each wakeup call attempt, answered/not answered
  - Cancelled wake up
- Room related charges and applicable taxes
- Item codes and associated descriptions for room related charges
  - Date and time item was billed
- Details column
  - Staff code of employee performing function
  - Duration of phone calls
  - Time wakeup call was set for
- Room and/or phone deposits
- Total room charges

❄ ❄ ❄

- Automatically increments the daily room charge
- Automatically applies room and phone deposits to the total bill
- Room bills are printed on a per room basis
- By default, the printout is 55 lines, a header followed by 50 lines per page
- Printout size is adjustable through programming

EQUIPMENT REQUIRED

Sample Guest Room Bill printout for room 210 Hotel letterhead is Customer Provided

GUEST BILL FROM [SUNSHINE SUITES] Mar/21/2015 14:13

CHARGES BILLED TO ROOM NUMBER : 210

ROOM	DATE	TIME	ITEM	DESCRIPTION	DETAILS	CHARGE
210	01/27	12:11	02	RM CHARGE	1234	100.00
210	01/27	12:11	02	STATE TAX		6.00
210	01/27	12:11	02	BED TAX		1.50
210	01/27	12:11	00	RM Deposit	5555	-100.00
210	01/27	12:30	03	RM SVC	9876	20.00
210	01/27	12:30	03	STATE TAX		1.20
210	01/27	12:30	03	SVC CHARGE		2.00
210	01/27	12:31	TEL	3055922900	00:00:49	.75
210	01/27	14:55	89	W/UP SET	05:30	000.00
210	01/27	14:55	05	MOVIE RNTL	5555	5.00
210	01/27	14:55	05	STATE TAX		.30
210	01/27	14:55	TEL	18008764782	00:02:03	.25
210	01/27	14:58	01	PH Deposit	1234	-2.50
210	01/27	14:58	TEL	3055922900	00:02:18	1.25
210	01/27	15:01	92	W/UP CANCL		000.00
210	01/27	15:01	04	DRY CLEAN	1234	22.00
210	01/27	15:01	04	SVC CHARGE		2.00
210	01/27	19:35	89	W/UP SET	06:00	000.00
210	01/28	06:00	91	W/UP N/ANS		000.00
210	01/28	06:01	90	W/UP ANS		000.00
210	01/28	06:30	03	RM SVC	5555	18.50
210	01/28	06:30	03	STATE TAX		1.11
210	01/28	06:30	03	SVC CHARGE		2.00
210	01/28	12:00	02	RM CHARGE		100.00
210	01/28	12:00	02	STATE TAX		6.00
210	01/28	12:00	02	BED TAX		1.50
210	01/28	13:32	TEL	18008764782	00:01:59	.25
210	01/28	14:06	TEL	3055922900	00:01:03	.75
					TOTAL	189.86

Page 1 of 1

Sunshine Suites

2. Room Status Printouts

Includes the following information:

- Date and time the report was printed
- Status of guest and meeting rooms
  - On an individual, status type basis
    OR
  - As a complete report of all rooms and their status
- Room Status Printout Types:
  - AVAILABLE
  - OCCUPIED
  - NEEDS CLEANING
  - NEEDS MAINTENANCE
  - HOLD
  - ALL

Room status is updated by either the administrator access, automatic room update or maid codes.

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- By default, the printout is 55 lines, a header followed by 50 lines per page
- Printout size is adjustable through programming

NOTE: Systems utilizing the optional 64 button module, can temporarily display room status, when a printout is not needed.

EQUIPMENT REQUIRED

Sample Room Status printout for **AVAILABLE** rooms Hotel letterhead is Customer Provided

ROOM STATUS PRINTOUT AVAILABLE 11:59 12/02

ROOM	STATUS	ROOM	STATUS	ROOM	STATUS
209	AVAILABLE	220	AVAILABLE	213	AVAILABLE
215	AVAILABLE	217	AVAILABLE	219	AVAILABLE
220	AVAILABLE	221	AVAILABLE	223	AVAILABLE
225	AVAILABLE	226	AVAILABLE	227	AVAILABLE
228	AVAILABLE	301	AVAILABLE	302	AVAILABLE
303	AVAILABLE	304	AVAILABLE	306	AVAILABLE
307	AVAILABLE	403	AVAILABLE	405	AVAILABLE
406	AVAILABLE	407	AVAILABLE	409	AVAILABLE

Sunshine Suites

Sample Report From
OfficeServ CONCIERGE-LITE

Sample Room Status printout for **OCCUPIED** rooms Hotel letterhead is Customer Provided

ROOM STATUS PRINTOUT OCCUPIED 13:56 11/02

ROOM	STATUS	ROOM	STATUS	ROOM	STATUS
211	OCCUPIED	212	OCCUPIED	214	OCCUPIED
216	NEED MAINTENANCE	218	OCCUPIED	222	OCCUPIED
224	OCCUPIED	305	OCCUPIED	308	NEEDS CLEANING
309	HOLD	310	NEEDS MAINTENANCE	401	NEEDS CLEANING
402	NEED MAINTENANCE	404	NEEDS CLEANING	408	NEEDS CLEANING

Sunshine Suites

Sample Report From
OfficeServ CONCIERGE-LITE

Sample Room Status printout for **NEEDS CLEANING** Hotel letterhead is Customer Provided

ROOM STATUS PRINTOUT NEEDS CLEANING 13:50 11/02

ROOM	STATUS	ROOM	STATUS	ROOM	STATUS
211	NEEDS CLEANING	212	NEEDS CLEANING	214	NEEDS CLEANING
215	NEEDS CLEANING	218	NEEDS CLEANING	220	NEEDS CLEANING
222	NEEDS CLEANING	224	NEEDS CLEANING	303	NEEDS CLEANING
305	NEEDS CLEANING	310	NEEDS CLEANING	401	NEEDS CLEANING
404	NEEDS CLEANING	408	NEEDS CLEANING		

Sunshine  Suites

Sample Report From
OfficeServ CONCIERGE-LITE

Sample Room Status printout for **NEEDS MAINTENANCE** Hotel letterhead is Customer Provided

```
    ROOM STATUS PRINTOUT     NEED MAINTENANCE       14:01   11/02

ROOM       STATUS          ROOM       STATUS       ROOM      STATUS

216   NEED MAINTENANCE      308  NEED MAINTENANCE 402  NEED MAINTENANCE
```

Sunshine Suites

Sample Report From
OfficeServ CONCIERGE-LITE

Sample Room Status printout for **HOLD** Hotel letterhead is Customer Provided

```
    ROOM STATUS PRINTOUT     HOLD       11:58   12/02

ROOM       STATUS          ROOM       STATUS       ROOM      STATUS

212   HOLD                 214   HOLD              309   HOLD

401   HOLD
```

Sunshine Suites

Sample Report From
OfficeServ CONCIERGE-LITE

Sample Room Status printout for **ALL** Hotel letterhead is Customer Provided

ROOM STATUS PRINTOUT ALL 13:58 11/02

ROOM	STATUS	ROOM	STATUS	ROOM	STATUS
209	AVAILABLE	210	AVAILABLE	211	OCCUPIED
212	OCCUPIED	213	AVAILABLE	214	NEEDS CLEANING
215	NEEDS CLEANING	216	NEED MAINTENANCE	217	AVAILABLE
218	NEEDS CLEANING	219	AVAILABLE	220	NEEDS CLEANING
221	AVAILABLE	222	NEEDS CLEANING	223	AVAILABLE
224	NEEDS CLEANING	225	AVAILABLE	226	AVAILABLE
227	AVAILABLE	228	OCCUPIED	301	OCCUPIED
302	OCCUPIED	303	NEEDS CLEANING	304	AVAILABLE
305	NEEDS CLEANING	306	AVAILABLE	307	AVAILABLE
308	NEED MAINTENANCE	309	HOLD	310	NEEDS CLEANING
401	NEEDS CLEANING	402	NEED MAINTENANCE	403	AVAILABLE
404	HOLD	405	AVAILABLE	406	OCCUPIED
407	AVAILABLE	408	NEEDS CLEANING	409	AVAILABLE

Sunshine Suites

Sample Report From
OfficeServ CONCIERGE-LITE

3. Transaction Record Output Sample

The PMS output stream includes information from all transactions within the Hotel / Motel system. This is a one way output only, from the phone system to the PMS system.

This information includes:

- Check In confirmation with:
  - Room charges and applicable taxes
  - Updated room status
- Check Out information with:
  - Updated room status
- Room related charges and applicable taxes
- Daily room charge updates
- Room / phone deposits
- Maid / maintenance room status updates
- Phone calls and charges
- Wake up calls time set for
- Unanswered wake up calls
- Cancelled wake up calls

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- The system outputs this information immediately after transaction is completed.

EQUIPMENT REQUIRED

Sample Transaction Record Output Hotel letterhead is Customer Provided

211	01/29	06:10	02	RM CHARGE	5555	69.99
211	01/29	06:10	02	STATE TAX		4.19
211	01/29	06:10	02	BED TAX		1.50
211	01/29	06:10	93	Check In	5555	000.00
211	01/29	06:10	96	Occupied	5555	000.00
209	01/29	06:11	03	RM SVC	9876	25.00
209	01/29	06:11	03	STATE TAX		1.50
209	01/29	06:11	03	SVC CHARGE		2.00
216	01/29	06:11	89	W/UP SET	06:00	000.00
213	01/29	06:11	TEL	3055922900	00:00:34	.75
214	01/29	06:12	00	RM Deposit	1234	-20.00
211	01/29	06:13	94	Check Out		000.00
211	01/29	06:13	97	Clean Room		000.00
209	01/29	06:12	TEL	18008764782	00:01:29	.25
216	01/29	06:15	92	W/UP CANCL		000.00
217	01/29	06:16	07	MISC	5555	150.00
209	01/29	12:00	02	RM CHARGE		100.00
209	01/29	12:00	02	STATE TAX		6.00
209	01/29	12:00	02	BED TAX		1.50
209	01/29	12:00	97	Clean Room		000.00
210	01/29	12:00	02	RM Charge		100.00
210	01/29	12:00	02	STATE TAX		6.00
210	01/29	12:00	02	BED TAX		1.50
210	01/29	12:00	97	Clean Room		000.00
213	01/29	12:00	02	RM CHARGE		69.00
213	01/29	12:00	02	STATE TAX		4.14
213	01/29	12:00	02	BED TAX		1.50
213	01/29	12:00	97	Clean Room		000.00
215	01/29	12:00	02	RM CHARGE		89.99
215	01/29	12:00	02	STATE TAX		5.39
215	01/29	12:00	02	BED TAX		1.50
215	01/29	12:00	97	Clean Room		000.00
216	01/29	12:00	02	RM CHARGE		79.95
216	01/29	12:00	02	STATE TAX		4.79
216	01/29	12:00	02	BED TAX		1.50
216	01/29	12:00	97	Clean Room		000.00
217	01/29	12:00	02	RM CHARGE		250.00
217	01/29	12:00	02	STATE TAX		15.00
217	01/29	12:00	02	BED TAX		1.50
217	01/29	12:00	97	Clean Room		000.00
216	01/29	15:38	89	W/UP SET	06:00	000.00
216	01/30	06:00	91	W/UP N/ANS		000.00
216	01/30	06:01	90	W/UP ANS		000.00

Sample Report From
OfficeServ CONCIERGE-LITE

4. Individual Guest Phone Bill

Includes the following information:

- Date and time the bill was printed
- Room number requested
- Date and time phone call was initiated
- Number dialed
- Duration of call
- Charge of call
- Total charge for all calls
- Displays all call information since check in

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- Automatically applies phone credits to the bill
- Phone bills are printed out on a per room basis
- Phone bill information may be:
  - Printed and saved in memory
  - Printed and cleared from memory
- By default, the printout is 55 lines, a header followed by 50 lines per page
- Printout size is adjustable through programming

EQUIPMENT REQUIRED

Sample Individual Guest Phone Bill for room 211 Hotel letterhead is Customer Provided

PHONE BILL FROM [SUNSHINE SUITES] Mar/21/2015 13:44

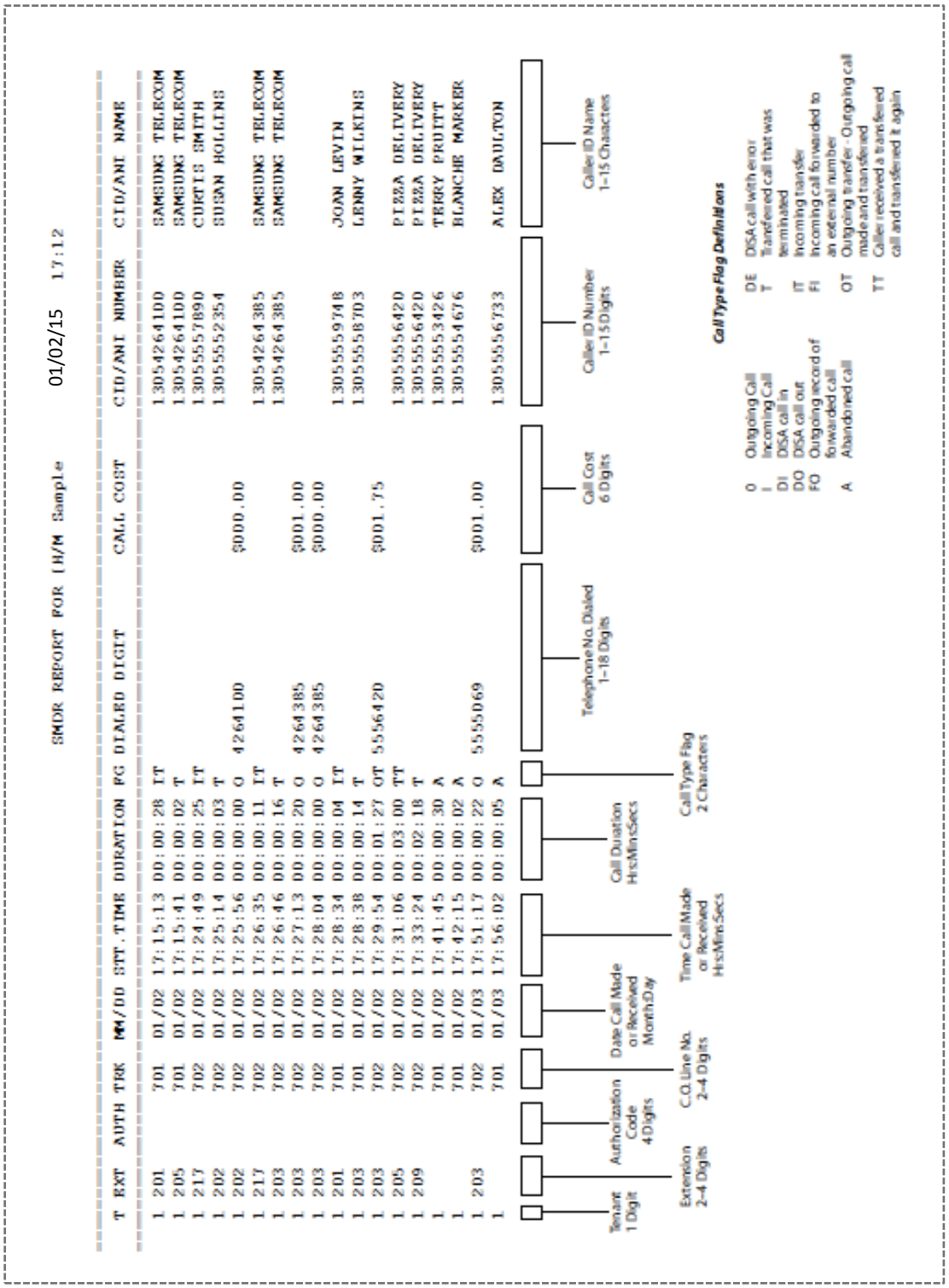
CHARGES BILLED TO ROOM NUMBER: 211

ROOM	DATE	TIME	ITEM	DESCRIPTION	DETAILS	CHARGE
211	02/10	15:30	TEL	3055922900	01:01:00	.35
211	02/10	20:44	TEL	18008764782	00:01:45	.25
211	02/11	06:34	TEL	18008764782	00:02:00	.25
211	02/11	13:15	TEL	3055922900	00:02:16	.45
211	02/11	13:40	TEL	3055922900	00:02:31	.55
					TOTAL	1.85

Sunshine Suites

Sample Report From
OfficeServ CONCIERGE-LITE

All Guest Phone Bill (SMDR)



SMDR REPORT FOR [H/M Sample 01/02/15 17:12

T	EXT	AUTH	TRK	MM/DD	STT.TIME	DURATION	FG	DIALED DIGIT	CALL COST	CID/ANI NUMBER	CID/ANI NAME
1	201		701	01/02	17:15:13	00:00:28	IT			13054264100	SAMSUNG TELECOM
1	205		701	01/02	17:15:41	00:00:02	T			13054264100	SAMSUNG TELECOM
1	217		702	01/02	17:24:49	00:00:25	IT			13055557890	CURTIS SMITH
1	202		702	01/02	17:25:14	00:00:03	T			13055552354	SUSAN HOLLINS
1	202		702	01/02	17:25:56	00:00:00	O	4264100	$000.00		
1	217		702	01/02	17:26:35	00:00:11	IT			13054264385	SAMSUNG TELECOM
1	203		702	01/02	17:26:46	00:00:16	T			13054264385	SAMSUNG TELECOM
1	203		702	01/02	17:27:13	00:00:20	O	4264385	$001.00		
1	203		702	01/02	17:28:04	00:00:00	O	4264385	$000.00		
1	201		701	01/02	17:28:34	00:00:04	IT			13055559748	JOAN LEVIN
1	203		701	01/02	17:28:38	00:00:14	T			13055558703	LENNY WILKINS
1	203		702	01/02	17:29:54	00:01:27	OT	5556420	$001.75		
1	205		702	01/02	17:31:06	00:03:00	TT			13055556420	PIZZA DELIVERY
1	209		702	01/02	17:33:24	00:02:18	T			13055556420	PIZZA DELIVERY
1			701	01/02	17:41:45	00:00:30	A			13055553426	TERRY PRUITT
1			701	01/02	17:42:15	00:00:02	A			13055554676	BLANCHE MARKER
1	203		702	01/03	17:51:17	00:00:22	O	5555069	$001.00		
1			701	01/03	17:56:02	00:00:05	A			13055556733	ALEX DAULTON

Tenant 1 Digit
Extension 2-4 Digits
Authorization Code 4 Digits
C.O.Line No. 2-4 Digits
Date Call Made or Received Month:Day
Time Call Made or Received Hrs:Mins:Secs
Call Duration Hrs:Mins:Secs
Call Type Flag 2 Characters
Telephone No. Dialed 1-18 Digits
Call Cost 6 Digits
Caller ID Number 1-15 Digits
Caller ID Name 1-15 Characters

Call Type Flag Definitions

O	Outgoing Call	DE	DISA call with error
I	Incoming Call	T	Transferred call that was terminated
DI	DISA call in		
DO	DISA call out	IT	Incoming transfer
FO	Outgoing record of forwarded call	FI	Incoming call forwarded to an external number
A	Abandoned call	OT	Outgoing transfer - Outgoing call made and transferred
		TT	Caller received a transferred call and transferred it again

5. Individual Wakeup Activity Report

Includes the following information:

- Date and time the report was printed
- Room number requested
- Time wake up activity performed
- Item code for activity performed
- Description of activity performed
- Details column
  – Time wakeup call is set for
- Charges for wake up related service

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ACTIVITY TYPES:

- W/UP SET The time a wakeup call is set for
- W/UP ANS Wakeup call answered
- W/UP N/ANS Wakeup call not answered
- W/U CANCEL Wakeup call cancelled

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- Displays all wakeup call activity since room was checked in
- Wake up activity report print on a per room basis
- By default, the printout is 55 lines, a header followed by 50 lines per page
- Printout size is adjustable through programming

EQUIPMENT REQUIRED

Sample Individual Wake Up Activity for room 213 Hotel letterhead is Customer Provided

WAKE UP ACTIVITY FROM [SUNSHINE SUITES] Mar/21/2015 14:35

CHARGES BILLED TO ROOM NUMBER: 213

ROOM	DATE	TIME	ITEM	DESCRIPTION	DETAILS	CHARGE
213	01/23	12:22	89	W/UP SET	05:30	000.00
213	01/23	12:25	92	W/UP CANCL		000.00
213	01/24	11:51	89	W/UP SET	05:30	000.00
213	01/25	05:30	91	W/UP N/ANS		000.00
213	01/25	05:31	90	W/UP ANS		000.00
					TOTAL	000.00

Sunshine Suites

Sample Report From
OfficeServ CONCIERGE-LITE

7 General User Information

7.1 Radio Frequency Interference

WARNING: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

7.2 FCC requirements

The OfficeServ 7000 electronic telephone systems comply with Part 68 of the Federal Communications Commission Rules and Regulations.

ADA Compliant: All OfficeServ phone have ADA Compliant handsets

FCC REGISTRATION NUMBERS:

OfficeServ 7030: Key System - A3LKF04BOS7030 and Multifunction - A3LMF04BOS7030
OfficeServ 7100: Key System - A3LKF13BOS7100 and Multifunction - A3LMF13BOS7100
OfficeServ 7200-S: Key System - A3LKF14BOS7200 and Multifunction - A3LMF14BOS7200
OfficeServ 7200: Key System - A3LKF14BOS7200 and Multifunction - A3LMF14BOS7200
OfficeServ 7400: Key System - A3LKF13BOS7400 and Multifunction - A3LMF13BOS7400

UNAUTHORIZED MODIFICATIONS

Any changes or modifications performed on this equipment that are not expressly approved in writing by SAMSUNG TELECOMMUNICATIONS AMERICA could cause noncompliance with the FCC rules and void the user's authority to operate the equipment.
NOTE: Allowing this equipment to be operated in such a manner as to not provide for proper answer supervision is a violation of Part 68 of the FCC's rules.

TELEPHONE CONNECTION REQUIREMENTS

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. It is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for details.

7.3 Telephone Company Interfaces

CIRCUIT TYPE	HARDWARE INTERFACE	FACILITY INTERFACE CODE	NETWORK JACK
Analog Loop Start Line	4TM 4TRM 8TRK2 16TRK	OSLS2 02LS2 02LS2 02LS2	RJ11C, RJ4C, RJ21X, RJ25C RJ11C, RJ4C, RJ21X, RJ25C RJ11C, RJ4C, RJ21X, RJ25C RJ21X
Digital Trunk PRI • Loop Start Line • DID • Ground Start • E&M Tie Lines or Two Way DID calling	TEPRIa, TEPRI2	04DU9.BN	RJ48C

RINGER EQUIVALENCE (REN)

The REN is used to determine the number of devices that may be connected to an analog telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. For earlier products, the REN is separately shown on the label.
REN for OfficeServ analog trunk cards:

- OfficeServ 7030: 0.4B for 4TM
- OfficeServ 7100: 1.3B for 4TRM, 1.4B for 8TRK2 and 1.3B for 16TRK
- OfficeServ 7200-S: 1.4B for 8TRK2 and 1.3B for 16TRK
- OfficeServ 7200: 1.4B for 8TRK2 and 1.3B for 16TRK
- OfficeServ 7400: 1.4B for 8TRK2 and 1.3B for 16TRK

INCIDENCE OF HARM

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

CHANGES TO TELEPHONE COMPANY EQUIPMENT OR FACILITIES

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

HEARING AID COMPATIBILITY
The telephones connected to the OfficeServ 7000 system are hearing aid compatible as specified in Part 68 of the FCC Rules.

EQUIPMENT WITH DIRECT INWARD DIALING ("DID")
THIS EQUIPMENT SHOULD BE OPERATED WITH PROPER ANSWER SUPERSIVISION. FAILURE TO PROVIDE FOR PROPER ANSWER SUPERVISION IS A VIOLATION OF THE PART 68 OF THE FCC'S RULES. PROPER ANSWER SUPERVISION IS DEFINED AS FOLLOWS:
A. This equipment returns answer supervision to the public switched telephone network (PSTN) when DID calls are:

- Answered by the called station.
- Answered by the attendant.
- Routed to a recorded announcement that can be administered by the customer premises equipment (CPE) user.
- Routed to a dial prompt.

B. This equipment returns answer supervision on all DID calls forwarded to the PSTN. Permissible exceptions are:

- A call is answered.
- A busy tone is received.
- A reorder tone is received.

EQUAL ACCESS REQUIREMENTS
This equipment is capable of providing user's access to interstate providers of operator services through the use of access codes. Modification of this equipment by call aggregators to block access dialing codes is a violation of the Telephone Operator consumers Act of 1990.

ELECTRICAL SAFETY ADVISORY
Parties responsible for equipment requiring AC power should consider including an advisory notice in their customer information suggesting the customer use a surge protector. Telephone companies report that electrical surges, typically lightning transients, are very destructive to customer terminal equipment connected to AC power sources. This has been identified as a major nationwide problem.

7.4 Music on Hold Warning

IMPORTANT NOTICE: In accordance with US copyright laws, a license may be required from the American Society of Composers, Authors and Publishers (ASCAP) or other similar organizations if copyright music is transmitted through the Music on Hold feature.
SAMSUNG TELECOMMUNICATIONS AMERICA hereby disclaims any liability arising out of failure to obtain such a license.

7.5 DISA Warning

Lines that are used for the direct Inward System Access feature must have the disconnect supervision options provided by the telephone company.
WARNING: As it is impossible to control who may access your DISA line it is suggested that you do not turn this feature on unless you intend to use it. If you do use this feature, it is good practice to frequently change pass codes and periodically review your telephone records for unauthorized use. See **DISA Security** in section 5.2 of this document.

7.6 Underwriters Laboratories and Canadian Standards Association

All of the OfficeServ 7000 systems have been tested to comply with safety standards in the United States and Canada as listed below.

LISTED 51YL
E149091 Vol.X2
I.T.E. Telephone Equipment

For earlier products, the UL Mark is separately shown on the label.