OfficeServ™ 7200-S
General Description

Supports Software Version 4.50 or Higher

Publication Information

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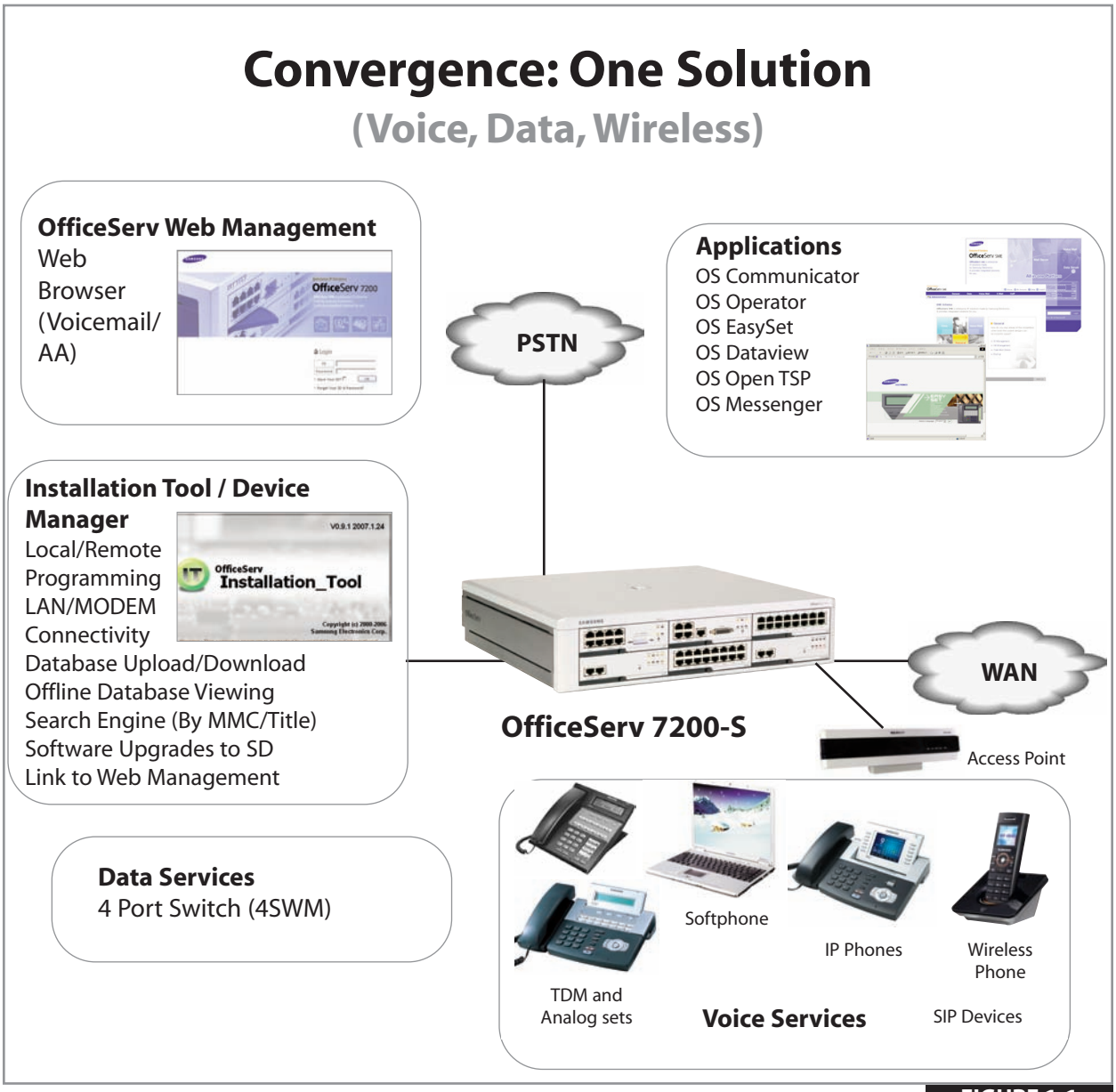


FIGURE 1-1

PART 1. SYSTEM OVERVIEW

1.1 GENERAL DESCRIPTION

The OfficeServ 7200-S is an "office in a box" solution that converges LAN switching functions (LAN/WAN) 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). The integrated Layer 2 switch module adds powerful access capabilities providing data network solution for your enterprise. Combine these technologies with Samsung's Wireless LAN IP Handsets, 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 ENTERPRISE.

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 or to private networks using either analog or digital circuits. 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 the OfficeServ 7100, OfficeServ 7200, and OfficeServ 7400 products.

BENEFITS

- End to End Samsung components, Samsung Support and Samsung Training. The Ultimate in single source Shopping and maintenance!
- The OfficeServ 7200-S can also integrate into an existing office data network providing many solutions such as isolating voice traffic onto the separate data network.
- The OfficeServ 7200-S networks (via SPNET over IP or Qsig over PRI) to other 7100's or any OfficeServ 7400, 7200, 500 or 100 systems.

1.2 SIZE AND CONFIGURATION

The OfficeServ 7200-S is a modular and flexible platform.

This system has one (1) dedicated processor slot for the MP20S (Main Processor) and five (5) universal slots. Each of the card slots provide either 16 or 32 communication channels to support high density modules. See figures 1-2.

FIGURE 1-2

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. There are 5 universal card slots to configure the OfficeServ 7200-S as required. See figure 1-3.

When configuring a system to meet your requirements, select the appropriate number of interface cards listed in Part 2 of this book to support the various types of trunks, stations, data needs, and miscellaneous functions. Your authorized Samsung Installation and Service Company has special knowledge and training to do this.
The decision to install the Samsung data modules in the OfficeServ 7200-S system or use third party external data

equipment will impact the maximum system capacity. Using internal data modules will decrease total system capacity of stations and trunks as they utilize the same 5 universal cards slots.

1.2.1 CABINET LAYOUT

Figure 1.4 and Figure 1.5 indicates the physical and virtual cabinets available in the OfficeServ 7200-S. Physical card slots in the cabinet support the various combinations of cards detailed in Part 2. HARDWARE DESCRIPTIONS. Virtual cabinets 2~6 provide six (6) slots each with each slot providing 8 ports (communication channels).

Cabinet 1: Main (5 Universal Slots)

MP20S	U-Slot 16	U-Slot 16
U-Slot 32	U-Slot 32	U-Slot 32

FIGURE 1-3

Virtual Cabinet/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 as listed below:

1. Single line telephone – SLT
2. Digital telephone – DGP
3. IP telephones – WIRED ITP
4. Wireless IP handsets – WLAN 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 Station – MOBEX STN*
10. Group Conference Stations – CGONF STN

Virtual Cabinet	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5	Slot 6
2	SLT	SLT	DGP	DGP	WIRED ITP	WIRED ITP
	DGP	DGP	SLT	SLT	WLAN ITP	WLAN ITP
	MOBEX STN	MOBEX STN	MOBEX STN	MOBEX STN	SIP STN	SIP STN
					MOBEX STN	MOBEX STN
3	WIRED ITP	WIRED ITP	WIRED ITP	WIRED ITP	WIRED ITP	WIRED ITP
	WLAN ITP	WLAN ITP	WLAN ITP	WLAN ITP	WLAN ITP	WLAN ITP
	SIP STN	SIP STN	SIP STN	SIP STN	SIP STN	SIP STN
	MOBEX STN	MOBEX STN	MOBEX STN	MOBEX STN	MOBEX STN	MOBEX STN
4	NONE	GCONF STN	SPNET TRK	SPNET TRK	SIP TRK	H323 TRK
	GCONF STN		GCONF STN	GCONF STN	SPNET TRK	SPNET TRK
			SIP TRK	SIP TRK	H323 TRK	SIP TRK
				H323 TRK		
5	MOBEX STN	MOBEX STN	MOBEX STN	MOBEX STN	MOBEX STN	MOBEX STN
6	MOBEX STN	MOBEX STN	MOBEX STN	MOBEX STN	MOBEX STN	MOBEX STN

FIGURE 1-4

Virtual Cabinet Slot Assignment

Figure 1-5 indicates the virtual stations and trunks 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 noted with *.

Virtual Cabinet	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5	Slot 6
2	**SLT***	**SLT***	**DGP***	**DGP***	**WIRED ITP***	**WIRED ITP***
	DGP	DGP	SLT	SLT	SLT	SLT
	WIRED ITP	WIRED ITP	WIRED ITP	WIRED ITP	DGP	DGP
	WLAN ITP	WLAN ITP	WLAN ITP	WLAN ITP	WLAN ITP	WLAN ITP
	SIP STN	SIP STN	SIP STN	SIP STN	SIP STN	SIP STN
	MOBEX STN	MOBEX STN	MOBEX STN	MOBEX STN	MOBEX STN	MOBEX STN
3	**WIRED ITP***	**WIRED ITP***	**WIRED ITP***	**WIRED ITP***	**WIRED ITP***	**WIRED ITP***
	SLT	SLT	DGP	DGP	DGP	DGP
	DGP	DGP	WLAN ITP	WLAN ITP	WLAN ITP	WLAN ITP
	WLAN ITP	WLAN ITP	SIP STN	SIP STN	SIP STN	SIP STN
	SIP STN	SIP STN	SIP APPL	SIP APPL	SIP APPL	SIP APPL
	MOBEX STN	MOBEX STN	MOBEX STN	MOBEX STN	MOBEX STN	MOBEX STN
4	**WLAN ITP***	**WLAN ITP***	**WLAN ITP***	**WLAN ITP***	**NONE***	**NONE***
	DGP	DGP	DGP	DGP	GCONF STN	GCONF STN
	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 APPL	SIP APPL	SIP APPL	SIP APPL	MOBEX STN	MOBEX STN
	MOBEX STN	MOBEX STN	MOBEX STN	MOBEX STN		
5	**GCONF STN***	**GCONF STN***	**SPNET TRK***	**SPNET TRK***	**SIP TRK***	**H323 TRK***
	SPNET TRK	SPNET TRK	GCONF STN	GCONF STN	GCONF STN	GCONF STN
	SIP TRK	SIP TRK	SIP TRK	SIP TRK	SPNET TRK	SPNET TRK
			H323 TRK	H323 TRK	H323 TRK	SIP TRK
6	**MOBEX STN***	**MOBEX STN***	**MOBEX STN***	**MOBEX STN***	**MOBEX STN***	**MOBEX STN***
	DGP	DGP	DGP	DGP	DGP	DGP

FIGURE 1-5

1.2.2 SYSTEM CAPACITIES

When configuring a system to meet your requirements, select the appropriate number of interface cards listed in Part 2 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 5 to build a system as required. Your authorized Samsung Installation and Service Company has special knowledge and training to do this. The following table 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.

Stations	Wireless Handsets		64
	Standard SIP Phones		
	Analog Phones		64
	Digital Phones		
	Samsung IP Phones / Softphone		64
	Voice Mail (Embedded on MP20S)		6
	COMBINED TOTAL OF ALL STATION TYPES CANNOT EXCEED: 70		
Trunks	Standard SIP Trunks		32
	Standard H.323 Trunks		
	Analog Trunks		60
	Digital Trunks PRI Only		46
	Networking Trunks (SPNet)		46
	COMBINED TOTAL OF ALL TRUNKS TYPES CANNOT EXCEED: 60		
	MAXIMUM STATIONS + TRUNKS + VOICE MAIL		**130**
Other Devices	Networking Nodes ▪ SPNet via QSig ▪ SPNet via IP	99	Uses available PRI card slots. Limited by IP Address Table, MMC 820.
	Media Gateway (MGI) Ports	54	Required to connect an IP phone to a TDM device including paging and background music and ports used for networking or trunking (3 OAS cards + 6 embedded).
	Media Proxy Service (MPS) Channels	208	Provides IP to IP conversations without using MGI channels. 16 Embedded on MP20S, 192 possible with OAS cards.
	Mobile Extensions (MOBEX)*	60	
	Conferencing Circuits ▪ 5 Party Add-On ▪ Unsupervised ▪ Barge-In ▪ Call Record ▪ AME Conference Card (CNF24) ▪ Meet-Me Conference	 6 6 6 6 6 1 24	 Six Conference Circuits to be shared by all of these features. Maximum of 1 CNF24 Card per system. 1 CNF24 x 24 Ports Each = 24 Ports
	Common Resources ▪ DTMF Receivers / DTMF Senders ▪ Analog Caller ID Senders/Receivers ▪ External Music On Hold (MOH) ▪ Voicemail Ports ▪ Executive MOBEX Resources	 6 8 1 6 60	 Embedded All on MP20S 8 Embedded on MP20S, 52 possible with OAS cards.
	Paging ▪ Audio Output ▪ Internal Zones ▪ External Zones	 1 5 2	 1 on MP20S card (32 members each zone) Requires customer provided equipment.
	Max. BHCA (Busy Hour Call Attempts) (MP20S)	1,600	(0.45 erl, 90 sec)

Figure 1-6 indicates the physical and virtual hardware ports used to support each system device type.

ITEM	MAXIMUM #	AVAILABLE HARDWARE
Max # of Analog Trunk Ports	60	4TRM and/or 8TRK / 16TRK
Max # of Digital Trunk Ports PRI ONLY. (T1 not supported)	46	TEPRIa = 23 (23B + D) x 2
Max # of SIP Trunk Ports	32	4 virtual slots x 8 ports = 32
Max # of H.323 Trunk Ports	32	4 virtual slots x 8 ports = 32
Max # of SPNet Trunk Ports	32	4 virtual slots x 8 ports = 32
MAX # OF TRUNKS CANNOT EXCEED 60.		
Max # of Analog Sets	64	4SLM, 8SLI and/or 16MWSLI
Max # of Digital Sets	64	4DLM, 8DLI, 8COMBO and/or 16DLI
Max # of Samsung IP Phone/Softphone	64	8 virtual slots x 8 ports = 64
Max # of WLAN Phone Ports	64	8 virtual slots x 8 ports = 64
Max # of SIP Station Ports	64	8 virtual slots x 8 ports = 64
MAX # OF STATION PORTS CANNOT EXCEED 64.		
Max # of VM Ports	6	Embedded on the MP20S
MAX STATION + TRUNKS + VOICEMAIL	**130**	**64 STATIONS + 60 TRUNKS + 6 VM = 130**
Max # of MGI Ports	54	6 MGI Embedded (requires MGI license) and/or OAS cards.
MAX # OF MGI PORTS CANNOT EXCEED 54.		
Max # of Virtual SLI Ports	32	4 virtual slots x 8 ports = 32
Max # of Virtual DLI Ports	32	4 virtual slots x 8 ports = 32
Max # of Mobex	64	8 channels x 8 slots = 64
MAX # OF VIRTUAL ANALOG + DIGITAL STATION PORTS CANNOT EXCEED 32.		
Max # of Network Nodes	99	Using SPNet over IP
Max # of Station Group Members	32	Any ring type.
Max # of Virtual Ports Supported	240	8 channels x 6 slots x 5 cabinets = 240

FIGURE 1-6

1.3 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 1Gb, providing approximately 52 hous of voicemail storage, or a 2Gb, providing approximately 123 hours of voicemail 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.

1.4 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.

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 back up and can be uploaded when required to restore the database. The DM 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.

1.5 MIGRATION TO OFFICESERV 7200/7400

For businesses using the OfficeServ 7200-S, Samsung provides a convenient, easy and affordable migration path to the larger OfficeServ 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. See the OfficeServ 7200 or OfficeServ 7400 General Description for more details.

Some cards can migrate to the OfficeServ 7200 and OfficeServ 7400 while others can not. Consult with an OfficeServ certified installation and service company for details.

PART 2. HARDWARE DESCRIPTIONS

2.1 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

2.2 PROCESSOR CARDS

MAIN 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 a 4SWM card. When the 4SWM card is installed on the processor the LAN connection is provided on the front panel of the MP20S. The MP20S also has a connector for mounting the optional modem board. This modem board can be used for remote access to system administration at installation that do not have a LAN connection. This is the same modem card used in the other OfficeServ systems. If the 4SWM is installed the switch and LAN is automatically connected by way of the backplane. In addition it may be used as a backup for LAN connectivity.

2.2.1 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. The 5th and 6th ports 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 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 2-1

MISCELLANEOUS FUNCTIONS

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

- One External Music on Hold / Background Music input
- One External Page Announcement output
- One Loud Bell audio output
- 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 trunks and IP networking
- Sixteen MPS channels
- Six Voice Mail / Auto Attendant ports (four included as standard, ports 5 & 6 require an optional VM/AA License)
- Eight Executive Mobex DSPs (detect DTMF dialing during Executive Mobex calls)

2.2.2 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.

2.3 INTERFACE CARDS

UNI CARD (Universal)

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 five universal slots of the OfficeServ 7200-S system. The UNI card is used to accommodate other optional daughter boards. Any combination of the 4DLM, 4SLM or 4TRM modules can be installed in any of the five 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 a 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 4SLM and 4DLM option boards are mounted, it operates as a voice station board. The UNI card is not hot swappable. *This card **can not** migrate to the OfficeServ 7200 or OfficeServ 7400 systems*. See installation manual for details.

> **NOTE:** UNI cards manufactured before September 2009 may need to be upgraded for proper operation with the OS 7200-S. Older boards need to be shipped to Repair for free upgrade. To ensure you have the latest board look for a sticker on the board. The sticker should say **UNI, V05, 007E**.

2.4 SPECIAL FEATURE CARDS

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. 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 channels, all 24 conference channels are used. If installed on a 16 channel slot, only 16 conference channels are supported. The OfficeServ 7200-S system can have a maximum of one CNF24 card 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.

2.5 DAUGHTERBOARD MODULES

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. See installation manual for details.

4SLM

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 4SLM does not contain any over-voltage protection and is not qualified a OPX. It also does not contain DTMF receivers, but instead shares the system DSP resources. The OfficeServ 7200-S 4SLM supports Caller ID to single line telephones. *The 4SLM 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.

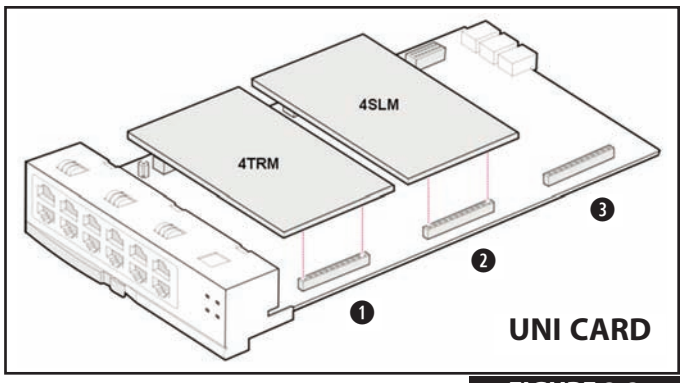


FIGURE 2-2

4SWM (DATA MODULE)

The OfficeServ 7200-S supports one enterprise class data module. The 4SWM can be combined in the same cabinet with the telephone system cards to provide a converged voice and data solution. 4SWM, which is a data board of OfficeServ 7200-S, provides 10/100 BASE-T interface and performs the Layer2 Switch function as the data transmission/reception board to/from a LAN. These ports can be used to connect IP phones, WAPs, SP-Net, LAN printers, PC programming, uplink to other data switches or any other Ethernet devices. This module may be used in conjunction with the licensed MGI channels when providing IP telephony services. *This module can only be installed on the optional daughter board slot on the MP20S card*. See installation manual for details.

The main functions of the 4SWM board are as follows:

- Auto-detection function of 100 BASE-T and Full/Half duplex
- Layer 2 Switch function
- 802.1p and VLAN function to support QoS
- Flow Control (802.3x)
- Spanning Tree Protocol (RSTP)
- IGMP Snooping

2.6 COMMON OfficeServ INTERFACE CARDS

The following OfficeServ 7200 and OfficeServ 7400 interface cards are compatible with the OfficeServ 7200-S system. These cards can be installed in slots 1 through 5 of the OfficeServ 7200-S cabinet to achieve higher port configurations.

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. The 8TRK card is not hot swappable.

16TRK

This cards 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 TRUNK BOARD

The card can be programmed as a PRI and will provide 23 bearer channels and 1 data channel (23B+D). This card can be installed in universal slots 3, 4, or 5 of the OfficeServ 7200-S cabinet. This card is also used for networking to other systems (QSig/PRI networking)*. Add up to two PRI spans. T1 is not supported on this card in the OfficeServ 7200-S. The TEPRI/TEPRIa is not hot swappable.

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. In addition, to these configurable DSP's the OAS card provides 32 DSP's dedicated to providing 64 Media Proxy Service (MPS) channels. The OAS card can be installed in any universal slot. When installed in slots 1 or 2 only 16 timeslots are available to the OAS card, so a maximum of 16 MOBEX DTMF receivers is possible per card. Slots 3, 4, and 5 allow up to 32 MOBEX receivers per slot. A maximum of 3 OAS cards can be installed, allowing up to 60 Executive MOBEX users, 48 MGI channels, or a mixture of each, and up to 192 MPS channels.

Note: Executive MOBEX is a licensed feature available on the MP20S. See Mobile Extension (MOBEX) for more information.

8DLI2

This card is an eight circuit digital station interface card that provides 1B+D service when installed in any universal card slot. The KDB-D/S keyset daughter boards will not work when connected to this card in the Officeserv 7200-S. The 8DLI card is not hot swappable.

16DLI2

This card is a sixteen circuit digital station interface card that provides 1B+D service when installed in any universal card slot. The KDB-D/S keyset daughter boards will not work when connected to this card in the OfficeServ 7200-S. The 16DLI2 card is not hot swappable

8SLI2

This card is a eight circuit analog station interface for industry standard single line telephones or other analog peripheral devices. The 8SLI does not contain any over-voltage protection and is not qualified as OPX. It also does not contain DTMF receivers, but shares system DSP resources. It can be inserted in any universal card slot. 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. This card supports Power Fail Transfer feature. See the instal-

lation manual for details. The OfficeServ 7200-S supports Caller ID to single line telephones. The 8SLI is not hot swappable.

16MWSLI

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 be programmed to be on continuously or flash at a programmable rate of 100ms to 2000ms ON/OFF times. The 16MWSLI 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. It can be inserted in any universal card slot. 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. This card supports the Power Fail Transfer feature. See installation manual for details. The OfficeServ 7200-S supports Caller ID to single line telephones. The 16MWSLI is not hot swappable.

8COMBO2

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 OfficeServ 7200-S supports Caller ID to single line telephones. The 8COMBO2 is not hot swappable.

HARDWARE CAPACITIES

Interface Card	Location	Maximum per System
UNI Card	Slots 1, 2, 3, 4, 5	5
4SWM	MP20S	1
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
8COMBO2	Slots 1, 2, 3, 4, 5	4
8SLI2	Slots 1, 2, 3, 4, 5	5
8DLI2	Slots 1, 2, 3, 4, 5	5
16DLI2	Slots 1, 2, 3, 4, 5	4
16MWSLI	Slots 1, 2, 3, 4, 5	4
TEPRIa	Slots 3, 4, 5	2
OAS	Slots 3, 4, 5	3

FIGURE 2-3

MAXIMUM AOM CAPACITIES

	Maximum 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 2-4

2.7 STATION EQUIPMENT

2.7.1 DS 5000 SERIES EQUIPMENT

DS 5021D KEYSET (See Figure 2–5)

- 32 character display (2 x 16) 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
- Optional Full Duplex speakerphone module
- Eight selectable ring tones
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted

FIGURE 2-5

DS 5014D KEYSET (See Figure 2–6)

- 32 character display (2 x 16) 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
- Optional Full Duplex speakerphone module
- Eight selectable ring tones
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted

FIGURE 2-6

DS 5007S KEYSET (see Figure 2–7)

- 32 character display (2 x 16) 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
- Eight selectable ring tones
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted

FIGURE 2-7

DS 5064B AOM (See Figure 2–8)

- 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 AOMs per system is limited by the available DLI ports.

Note: This AOM can be used with an IP keyset. The cosmetic design matches both the DS-5000 and the ITP-5100 keysets. A DLI port is required for this AOM.

FIGURE 2-8

2.7.2 iDCS SERIES EQUIPMENT

iDCS 28D KEYSET (See Figure 2–9)

- 32 character display (2 x 16) 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
- Eight selectable ring tones
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted
- Available in dark gray or light gray

FIGURE 2-9

iDCS 18D KEYSET (See Figure 2–10)

- 32 character display (2 x 16) 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
- Eight selectable ring tones
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted
- Available in dark gray or light gray

FIGURE 2-10

iDCS 8D KEYSET (see Figure 2–11)

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

FIGURE 2-11

Note: This keyset type cannot use keyset daughter boards or the 14 button strip.

iDCS 64B AOM (See Figure 2–12)

- 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 iDCS 64B AOMs per system is limited by the available DLI ports.
- Requires a DLI port
- Available in dark gray

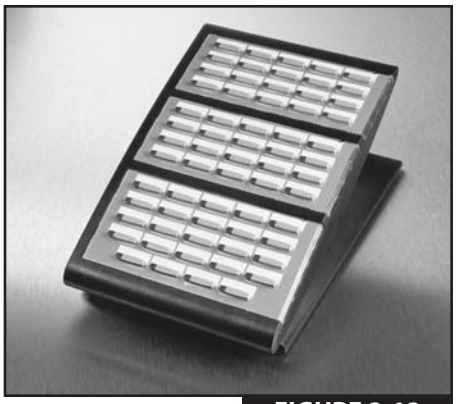


FIGURE 2-12

iDCS 14B STRIP (See Figure 2–13)

- 14 programmable keys with red lights
- A maximum of one can be added to any 28D or 18D keyset to provide additional programmable keys
- Does not require a DLI port
- Available in dark gray

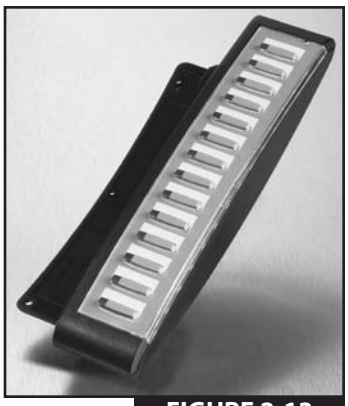


FIGURE 2-13

DOOR PHONE INTERFACE MODULE (DPIM) & DOOR PHONE

(see Figures 2–14 and 2–15)

- The DPIM adapts any DLI circuit for use with the door phone unit
- Commonly used to request entry through locked doors (interior or exterior) or as a room monitoring box
- Provides contact control to be used with customer-provided electric door lock
- Door phone is wall-mounted
- Door phone is weather resistant

FIGURE 2-14

FIGURE 2-15

2.7.3 DCS SERIES KEYSETS

Samsung's earlier DCS model phones and AOMs (version 1.2 or higher) will work on the OfficeServ 7200-S system.

Note: This AOM can be used with an IP keyset. The cosmetic design matches both the DS-5000 and ITP-5100 key

2.7.4 OfficeServ™ SMT-i SERIES IP EQUIPMENT

SMT-i3105 (see Figure 2–16)

- Ideal for basic dialing 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

FIGURE 2-16

SMT-i5210 (see Figure 2–17)

- 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

FIGURE 2-17

SMT-i5220 (see Figure 2–18)

- Dynamic phone suitable for customer service or other call-intensive areas requiring multiple lines for diverse functions
- Easy navigation (similar to Samsung mobile phone)
- Customizable soft keys and hard buttons
- Supports Gigabit adapter for large data transfer
- XML browser

FIGURE 2-18

SMT-i5230 (see Figure 2–19)

- 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

FIGURE 2-19

SMT-i5243 (see Figure 2–20)

- Top-of-the-line model with style and personalization
- Caller ID with photo (visual phone book)
- Downloadable ring tones and pictures
- XML Browser
- Supports Gigabit adapter for large data transfers

FIGURE 2-20

SMT-i5264 (see Figure 2–21)

- 64 programmable keys IP add-on module
- 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 ITP-5100 keysets, SMT-i Series, and TDM phones.
- Cosmetic design matches the SMT-i5200 Series phones.

FIGURE 2-21

SMT-A52GE (see Figure 2–22)

- 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)

FIGURE 2-22

	SMT-i3105	SMT-i5210	SMT-i5220	SMT-i5230	SMT-i5243
Dimensions	7.8″ (H) x 6.7″ (W) x 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)		
LCD	2.8″ (128 x 64) LCD	3.2″ (128 x 64) Backlit LCD	3.2″ (128 x 64) Backlit LCD	Main: 3.2″ (128 x 64) Backlit LCD DESI: 2.8″ (128 x 64) Backlit LCD	4.3″ (480 x 272) Color LCD Display
Maximum Power Consumption	4W	5W	5W	5W	5.2W (7.5W when USB camera connected)
Programmable Hard Buttons	5	14	24	5	14
Programmable Soft Buttons (via AOM soft key)	99	99	99	99	99
Speakerphone	Yes	Yes	Yes	Full Duplex	Full Duplex
Multiple Ring Tones	5	5	16	5	20
Headset Jack (RJ-22)	No	Yes	Yes	Yes	Yes
Gigabit Adaptor	No	Yes	Yes	Yes	Yes
HD Voice (G.722)	No	Yes	Yes	Yes	Yes
PoE	Yes	Yes	Yes	Yes	Yes
External USB Port	No	No	No	No	One
Support USB Bluetooth Dongle	No	No	No	No	Yes
Support USB Camera	No	No	No	No	Yes
Import/Export Phone Book to USB Memory	No	No	No	No	Yes
Wall Mount	Yes	Yes[1]	Yes[1]	Yes[1]	Yes[1]
Two Positions Desk Mount	No	Yes	Yes	Yes	Yes
Phone Books 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	Yes
Download Images via OSC	No	No	No	No	Yes
Download Ringtones via OSC	No	No	No	No	Yes
OfficeServ Messenger[3]	No	No	No	No	Yes

[1] Required external bracket
[2] Required licenses on OfficeServ 7000
[3] Required licenses on OfficeServ Link

2.7.5 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 operating system. Once a USB headset or a USB handset is connected; the Softphone delivers virtually identical functionality as the IP desktop phones. With the addition of a USB camera to a PC running the OfficeServ Communicator Softphone, the video calling feature is available.

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.

2.7.6 OfficeServ™ Wireless

DUAL-BAND AP SOLUTION

WIRELESS DUAL-BAND ACCESS POINT (SMT-R2000) (See Figure 2–23)

FIGURE 2-23

The wireless access point (SMT-R2000) provides wireless coverage to the building. It supports IEEE 802.11a/b/g WLAN standard for both voice and data. It gives priority to voice packets. The quality of the service for voice is always guaranty.

Highlights of SMT-R2000 Features

- Two radios. Radio 1: 5GHz IEEE 802.11a (54 Mbps) and Radio 2: 2.4 GHz IEEE 802.11b/g (54 Mbps)
- 8 voice calls per Access Point.
- Wireless data stations or handsets association per AP, 802.11a: 255, 802.11b/g: 255. Total: 32
- Wireless Access Point or repeater mode
- RP-SMA type connector for external antenna
- Router mode support
- Enhanced security (WEP, WPA, WPA2, etc.)
- QoS supports 802.1 p/q, DSCP, 802.11e (WMM), ToS
- PoE (Power over Ethernet) support or External Power Adapter (supplied)
- Easy Web Management
- Wi-Fi certified
- No MGI channel required for conversation between handset to handset or handset to IP desktop phone

WIRELESS INTERNET PHONE HANDSET (see Figure 2-24)

Wireless Internet Phone (SMT-W5100E/SMT-W5120D) is a compact handheld unit that works within the Samsung OfficeServ Wireless system. The three ounce handset comes with a rich set of features. Its graphical display and menu-driven function make it very simple to use. The handset package comes with a charger, two batteries, a leather carrying case and a headset with hook switch.

FIGURE 2-24

Features Highlights

- IEEE 802.11g
- Wi-Fi Certified
- 1.5 Color LCD
- Security: WEP/WPA/WPA2
- QoS: 802.11e (WMM)
- Caller Name and Number Display
- Call Waiting
- Voice Mail Indication
- Hot Key for Voice Mail Access
- System Hold
- Call Transfer
- Call Forward
- Call Mute
- Call Pick Up
- Do Not Disturb
- Dynamic Soft Keys
- Hard keys for TRANSFER, HOLD and CONFERENCE
- Redial
- Pre-Dial
- Local Phone Book with 2,400 Entries
  - Each entry can store 3 phone numbers
  - There is a total of 800 phone numbers
- Hold Key for Vibrator Function *
- 99 Incoming Call Log, 99 Outgoing Call Log and 99 Missed Call Log
- Adjustable Volume
- 16 different Ringer Tones and adjustable Ringer Volume
- Hot Key for Keypad Lock/Unlock (#)
- 4 Hours Talk Time
- 40 Hours Standby Time
- 3.5 Hours Fast Charger
- Spare Battery Slot in Charger
- Software Upgrade Through Wireless Connection
- Remote location operation

2.7.8 SIP DEVICES

Standard SIP devices (phones ATA adapters, etc) made by other manufacturers (eg; Cisco, Linksys, Aastra) 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:

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

Notes:

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.

PART 3. SPECIFICATIONS

3.1 ELECTRICAL SPECIFICATIONS

POWER SUPPLY UNIT

The Power Supply Unit (PSU) is installed in the cabinet of the OfficeServ 7200-S. The PSU supplies the power of -48 V DC received from the external power supply unit to each board. The rating is as follows.

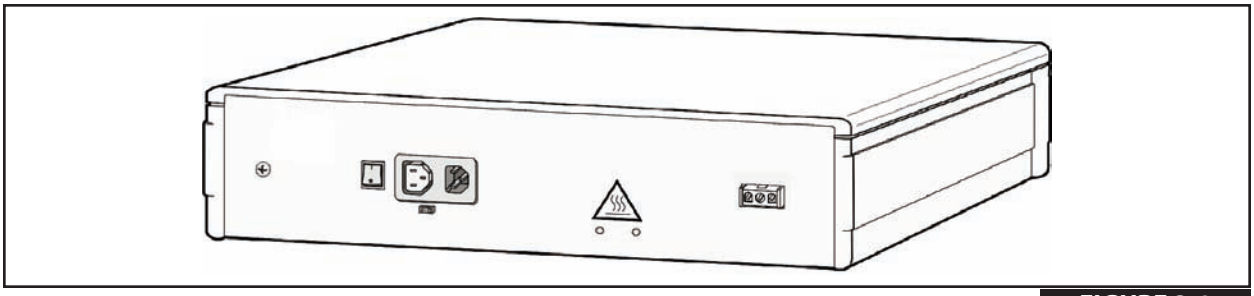


FIGURE 3-1

- RATING: AC220-240 V; 6A; 50/60 Hz or DC48 V 3 A
- RATING: AC100-120 V; 6 A; 50/60 Hz or DC48 V 3 A

The specifications of the power I/O are shown in the table below.

3.1a I/O VOLTAGE of the PSU

PSU (OfficeServ 7200-S)	Input Voltage	110 V AC -48 VDC (for Battery Backup)
	Output Voltage	-48 V/2.2 A
		-54 V/0.4 A Backup
		+5 V/8 A
		+3.3 V/10 A
		+12 V/0.4 A
		-56 V Backup 0.4 A

3.1b I/O VOLTAGE of OfficeServ 7150 PoE Power Supply

Rated Output for AC Operation	
1 Module	DC -54V / 7.5A
2 Module	DC -54V / 15A
Battery	DC 54V / 0.45A
Rated Output for DC Operation	
1 Module	Battery By-Pass (DC 48V, 48AH or lower) / 7.5A
2 Module	Battery By-Pass (DC 48V, 48AH or lower) / 15A

3.2 DIMENSIONS

The OfficeServ 7200-S consists of one cabinet shown in the figure below:

FIGURE 3-2

	HEIGHT	WIDTH	DEPTH
OfficeServ 7200-S Cabinet	4.87″	17.32″	16.14″

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

3.3 ENVIRONMENTAL LIMITS

OPERATING TEMPERATURE	32—113 °F / 0—45 °C
STORAGE TEMPERATURE	14—122 °F / –10—50 °C
HUMIDITY	10%—90% Non-Condensing

BTU	MAXIMUM LOAD			70% LOAD		
	Wattage	BTU/h	BTU/min	Wattage	BTU/h	BTU/min
	210.3W	717.8	11.96	147.21W	502.4	8.37

3.4 CABLE REQUIREMENTS

EQUIPMENT	CABLE	AWG	MAX FEET	MAX METERS
DIGITAL KEYSET	1 PR. TWISTED	24	1300	400
ADD-ON MODULE	1 PR. TWISTED	24	1300	400
SINGLE LINE STATION	1 PR. TWISTED	24	3000	1 KM
DOOR PHONE	2 PR. TWISTED	24	330*	100

*This the maximum distance a door phone can be from the DPIM. The DPIM can be up to 900 cable feet from the KSU. The total distance must not exceed 1230 feet.

3.5 RINGS AND TONES

3.5.1 RING CYCLES

The OfficeServ 7200-S provides the trunk line rings, station rings, door rings, and alarm rings. The ON/OFF cycle of each ring is shown in the table below (it is different according to the country, and can be modified by MMC programming).

3.5.1a SYSTEM RING CYCLES

RING	ON/OFF CYCLE
TRUNK LINE RING	1000/2000 ms
STATION RING	400/200/400/3000 ms
DOOR RING	400/200/400/200/400/2000 ms
ALARM RING	400/200/400/200/400/200/400/1000 ms

Note: The ON/OFF cycle can be adjusted by changing the values of the system database.

3.5.2 RING

The output voltage and frequency of the ring signals in the OfficeServ 7200-S are as follows:

- Output voltage: 75 Vrms Square Wave (Built in SLI)
- Frequency: 20 or 25 Hz

The OfficeServ 7200-S provides the users with various tones to notify the users of the status of functional operations. The ON/OFF cycles of currently specified tones are shown in the table on the next page.

3.5.3 SYSTEM TONES

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

Note: The ON/OFF cycle can be adjusted by changing the values of the system database.

3.6 KEYSET LED INDICATIONS

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	—

*Overrides headset mode.
**DCS model keysets only.

OfficeServ 7200-S Feature Capacities

Station Groups	20
Trunk Groups	10
UCD Groups	10
Station Group Members	32
Unconditional Group Members	32
Trunk Group Members	60
Internal Page Members	64 x 5
Toll Restriction Entries	500
Toll Allowance Entries	500
DID Translation Entries	999
Authorization Code Entries	500
Account Code Entries	999
Station Groups	20
LCR Digit Entries	2000
LCR Modify Digit Tables	200
LCR Time Tables	4
LCR Time Bands	4
LCR Route Tables	99
Alarm Reminder Buffers	3
Speed Dial Entries	2500
System Buffers (MAX)	500 / 950
Station Buffers (MAX)	50
CID Review Buffers	500
CID Abandon Lists	100
CID Name Translation Entries	1000
Call Buttons per Station	8
Call Logs Entries	2000

Call Log per Station	50
Tenant Groups	1
Ring Plans	6
Programmed Messages	15 (10+5)
AOM Pairs per Station	4
Call Cost Digit Entries	500
Call Cost Rate Tables	8
PBX Access Code Entries	5
Special Code Entries	10
Emergency/Override Code Entries	8
Holiday Entries	60
Class of Service	30
LCR Classes	8
Message Waiting per Station	5
Conference Groups	6
Conference Group Members	5
Meet Me Conference	24
Pickup Groups	20
Internal/External Page Zones	5/4
Redial & External FWD Dial Digits	18
IP Keysets	64
Virtual Extensions	96
Text Messages	10/24
Agent PIN Numbers	100
MOBEX Ports	60
Executive MOBEX Users	60
Media Proxy Service Channels	208

PART 4. BUSINESS FEATURE PACKAGE

SYSTEM FEATURES

- Live System Programming
  - From any Display Keyset
  - With a Personal Computer
- Meet Me Page and Answer
- Memory Protection
- Message Waiting Indications
- Message Waiting Key
- Microphone On/Off per Station
- Mobile Extension (MOBEX)
- Mobility Solution
- Multiple Language Support
- Music on Hold—Flexible
- Music on Hold—Sources
- Networking
  - QSIG over IP
  - QSIG over PRI
- OfficeServ™ Connect
- Operator Group
- Overflow
  - Operator
  - Station Group
- Override Codes
- Paging
  - Internal Zones (5)
  - External Zones (4)
  - All External
  - Page All
- Park Orbits
- Power over Ethernet (PoE)
- Prime Line Selection
- Priority Call Queuing
- Private Lines
- Programmable Line Privacy
- Programmable Timers
- Recalls
- Recall to Operator
- Redial Review
- Remote Programming—PC
- Ring Modes
  - Time Based Routing–Plans
  - Automatic / Manual
  - Holiday Schedule
  - Temporary Override
- Ring Over Page
- Secretary Pooling
- Simultaneous Ringing—*See OS Connect*
- Single Line Connections
- SIP Services
- Speed Dial Numbers
  - Station List
  - System List
- Speed Dial by Directory
- Station Hunt Groups
  - Distributed
  - Sequential
  - Unconditional
- Station Message Detail Recording (SMDR)
- Station Pair
- System Alarms
- System Maintenance Alarms
- System Directory
- Toll Restriction
  - By Day or Night
  - By Line or Station
  - Eight Dialing Classes
  - Special Code Table
- Toll Restriction Override
- Tone or Pulse Dialing
- Traffic Reporting
- Transfer
  - Screened/Unscreened
  - Voice Mail Transfer Key
  - With Camp-On
- Trunk Groups
- Twinning—*See Mobile Extension (MOBEX)*
- Unified Voicemail
  - E-Mail Gateway
- Uniform Call Distribution (UCD)
- Universal Answer
- Virtual Extensions
- Voice Mail
  - Inband Signalling
  - Integrated (Embedded)
- VoIP
- Walking Class of Service
- Wireless Handsets—*See Mobility Solution*

†Requires optional hardware and/or software. Ask your dealer for details.

4.1 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 keysets. 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 keyset using a flexibly assigned button. The Administrator Program (PROG) key is programmed in MMC 722. 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 internal zone zero and all external paging zones at the same time by dialing the All Page code. Keysets may be restricted from making or receiving pages in system programming. A maximum of 99 keysets can be programmed in each internal page zone to receive page announcements.

Note: Each IP keyset being paged requires an MGI channel to carry the page audio. If all MGI channels are busy then no IP keysets will receive a page.

ATTENTION TONE

To get your attention, a brief tone precedes all page announcements and intercom voice calls. There are 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 SVMi-20E/AA card. 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

The Auto Attendant provides very powerful and extremely flexible Auto Attendant functionality. As it is embedded into the MP20S of the OfficeServ 7200-S the Auto Attendant provides Customized interactive Call routing for Public and Internal (Subscriber) callers.
The embedded Auto Attendant multi-level customizable Menu Trees. These 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 Auto Attendant can handle up to 6 simultaneous callers.

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.

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 sources are 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. There are a total of 99 branch groups available, but a station can only be in one branch group.

CALL ACTIVITY DISPLAY

The OfficeServ 7200-S will record and buffer all calling activity within the system. With a Call Activity Display (CAD) key, the OfficeServ 7200-S will 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

ACD/UCD Call Centers are required when the user expects to have more ringing calls then 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 7200-S can have 20 simultaneous ACD/UCD groups with a maximum of 32 agents per group. 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.

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 ACII text reports to a customer provided LAN printer, as well as informational displays at a supervisor's display telephone. The more sophisticated call center may require the optional OfficeServ DataView CTI application that provides historical reporting, agent and call monitoring and wallboard displays.

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 IOG button for the selected group. A red LED on the IOG 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 DID number, 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.

EMBEDDED REPORTING PACKAGE

The OfficeServ 7200-S system provides some basic reports and statistics available to a supervisor using a display keyset. These features can be used in conjunction with, or independently of, the OfficeServ™ DataView reporting and monitoring package.

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.

OFFICESERV DATAVIEW

For users who require more power than the embedded reports can provide, the web-based OfficeServ™ DataView CTI application can be used for enhanced reporting and monitoring functionality. See separate DataView Literature for more details.

UCD Statistics

OfficeServ™ DataView provides over a dozen different historical reports to provide detailed statistics on call volume and call times as well as agent activity. Also included is a detailed Abandoned Call list to define each lost call to the UCD group.

UCD Monitoring

OfficeServ™ DataView provides several different monitoring interfaces that allow users to easily see live connection status and port activity for UCD groups and agents.

Wallboard-Style Display Windows

OfficeServ™ DataView is equipped with a series of wallboard-style displays which allow quick and easy visibility of live call status information about the group, such as longest wait time, calls in queue, agents busy,

and more. This information can display as a personal PC Wallboard on an agent's monitor. When used in conjunction with customer provided large screen display, such as an LCD or plasma monitor (TV), these same wallboard windows can provide this data to the entire call center from a greater distance with a level of clarity and flexibility that isn't possible with traditional LED wallboards.

CALL COSTING

The OfficeServ 7200-S 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. 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 not answered within a preprogrammed time. 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

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 call automatically. There are no extra buttons to press and there is no lost time looking for a free zone.

CALL PICKUP

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.

Groups

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 20 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 outdial 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 proprietary voice mail systems, keyset and OfficeServ Softphone users can record their telephone conversations in their personal mailbox for playback or e-mail later.

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 7200-S via an ISDN PRI circuit configured for both way DID connected to the TEPRI/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.

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. 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

The system has a system-wide abandon call list that stores Caller ID information for calls that rang but were not answered. 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 equipped with the embedded DSPs the MP20S supports Caller ID from the telephone company sent to analog ports within the system.

CALLER IDENTIFICATION

The OfficeServ 7200-S supports three methods of identifying an incoming caller depending on the circuit type as described below.

Caller ID

On an analog, loop start CO line, 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 7200-S is 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.

Calling Line Identification (CLI)

On ISDN circuits, calling party information is called CLI and is supported on both BRI and PRI type circuits as described below. BRI service is not supported on the OfficeServ 7200-S system in North America.

PRI

On 5ESS and NI2 PRI circuits both name and number support is provided on the OfficeServ 7200-S system. On a DMS100 circuit Name and Number service is provided.

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

The MP20S provides 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. Common relays are shared between external page zones and common bell feature. Maximum 1 relay per system.

COMPUTER TELEPHONY INTEGRATION (CTI)

Computer Telephone Integration (CTI) allows integration between the OfficeServ 7200-S 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 7200-S.

OfficeServ™ Link

Samsung's proprietary CTI Server Application that manages all call control functions between the OfficeServ 7200-S Main Processor and all OfficeServ™ CTI Applications.

OfficeServ™ DataView

OfficeServ DataView is a web enabled Call Center and system traffic reporting package. The DataView application provides live connection status and features usage statistics as well as a wide variety of detailed historical reports. The DataView application server runs on Microsoft IIS web server software, which is included in Windows 2000, XP Professional, 2003, 2008, and Windows 7.

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, and 2003, 2008, and Windows 7.

OfficeServ™ Call

OfficeServ Call is a call manager application with support for contact management, inbound screen pop, outbound dialing via the desktop, scheduling, and call logging, as well as providing access to some digital telephone facility programming. OfficeServ Call is a client server based application that supports both an end-user (GUI) interface and industry standards such as TAPI. The client application has support for a wide range of operating systems including Windows 2000 and Windows XP.

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™ Operator—See OfficeServ™ Communicator Softphone Mode

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 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**
   - Interface to the OfficeServ Messenger application for chat and collaboration with other users.
     - Access is granted by purchasing **PC User** seats for your **OfficeServ Messenger 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**.
   - Interface to the OfficeServ Messenger application for chat and collaboration with other users.
     - Access is granted by purchasing **PC User** seats for your **OfficeServ Messenger 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.
   - Upload and download background images and ringtones to the SMT-i5243 station.
   - 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**.
   - Interface to the OfficeServ Messenger application for chat and collaboration with other users.
     - Access is granted by purchasing **PC User** seats for your **OfficeServ Messenger License**.

OfficeServ™ Messenger

The OfficeServ Messenger is a Windows® based server application that provides chatting, white-boarding, file sharing, and other collaborative functions to users. All file transfer activities are logged to the server so that user activity can be archived or reviewed. The Messenger includes a web-based administration panel that allows a supervisor to manage user accounts and user groups, as well as to send broadcast messages and view Messenger activity logs. The OfficeServ Messenger software connects to the OfficeServ 7000 Series of systems through the OfficeServ Link V3 gateway, but rather than licensing through the OfficeServ Link the OfficeServ Messenger carries its own license. This allows you to implement the Messenger software without the need to disrupt other CTI applications.

Users connect to the OfficeServ Messenger through the OfficeServ Communicator application. Upon connection the Communicator provides a Messenger Contacts interface dedicated to the following OfficeServ Messenger functions:

- Manage buddy lists and groups.
- Set Messenger status (Away, Online, Lunch, etc).
- Configure your profile (nickname, email address, alternate contacts, etc).
- View buddy profiles.
- Click to call, video call, chat, email, or send a station or Messenger text message.
  - From a chat or video call window you can share files or initiate a white-boarding or screen-sharing session for visual collaboration.
- View your saved chat history.

Users of SMT-i5243 IP stations gain extra functionality from the OfficeServ Messenger by connecting directly to the server to download your buddy list and assign programmable keys to display the status of buddies or call them. Users connecting their SMT-i5243 station to the OfficeServ Messenger directly are granted access by purchasing Phone Users seats for your OfficeServ Messenger License.

CONFERENCE

The system allows six simultaneous conferences up to 5 parties each.

Add-On (5 Party)

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, 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.

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, select the attendees, either internal users or external people, schedule for once, daily or weekly, set for early entrance, deliver invitations by email, include instructions and comments and 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 (yourself 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.

CONFERENCE GROUP

Users that have an IP large screen keyset or OfficeServ Softphone may have 1-5 conference groups programmed. Each conference group can have up to 4 parties assigned. They can be extensions in the system or telephone numbers of people outside the system. Press the Conference Group button to call all members of the group at the same time. Status indications appear in the display. Press the corresponding softkey to drop or call parties as desired (maximum 100 users).

CUSTOMER SET RELOCATION

Customer Set Relocation allows the customer to exchange or swap similar stations in the OfficeServ 7200-S 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 the OfficeServ 7200-S can route calls based on the numbers received. (See DID)

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, Both Way DID, Dialed Number Identification service (DNIS) and Direct Dial In (DDI).

The OfficeServ 7200-S supports the following types:

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 7200-S TEPRI/TEPRIa 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 7200-S 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. 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 both way 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 have disconnect supervision. The requirement to put in a DISA security code can be disabled if desired.

DIRECT TRUNK SELECTION

Each station can be allowed access to or denied access from 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 7200-S 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 7200-S 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 (1-8) 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.

DOOR LOCK RELEASE (PROGRAMMABLE)

After answering a call from the door phone, users can dial a code to activate a contact closure. This can be used to operate a customer-provided electric door lock release mechanism. The contact closure timer is programmable from 100–2500 ms.

DOOR PHONES

The door phone interface module (DPIM) provides for connection of a door phone to a DLI port. Pressing the button on the door phone produces a distinctive ring (three short rings repeated) at the assigned station or station group. If not answered within a programmable time, the system releases the door phone and stops the ringing. Stations may call the door phone directly and monitor the surrounding areas. Door phones follow the system ring mode plan.

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 7200-S provides one input for connecting to customer provided external music sources. This source can be used to provide background music, or any of the varied Music On Hold (MOH) uses.

EXTERNAL PAGE INTERFACES

The OfficeServ 7200-S provides one external page output and two zone control relays. Common relays are shared between external page zones and common bell features.

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 7200-S default numbering plan.

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 MMC 601 and when set to ON setting, 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 position 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/herself 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.

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

The OfficeServ 7200-S system allows 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. The OfficeServ 7200-S can support up to 64 IP stations. An "IP station" is considered to be any of the following: SMT-i3105, SMT-i5200 Series, ITP-5100 Series, Softphone, or wireless handset SMT-W5100E/SMT-W5120D. 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 7200-S supports 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. The OfficeServ 7200-S supports the most popular protocol standards in the U.S. A total of 2 PRI spans is supported with the MP20S processor card.

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 OfficeServ 7200-S 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

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 the Installation Tool (IT) or Device Manager program. The system can also be programmed remotely over the internet via the LAN card.

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 7200 MP20S processor card.

Programming both the Auto Attendant/Voice Mail and Telephone System can be accomplished on site using a LAN connection or remotely via the Internet.

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, database is stored in 2MB SRAM. Temporary logs, peg counts, alarms and statistics are stored in 2MB of SRAM by a "super capacitor" for approximately 24 hours. Additionality, the media card may be used to store the system database. The OfficeServ Web Management administrative interface may be used to produce a backup copy of the voicemail 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 a 16MWSLI or 4SLM 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 licensed Executive MOBEX feature also allows MOBEX 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 mobility solution using the SMT-W5100E/SMT-W5120D wireless handset based on the voice over Wi-Fi technology (802.11). It allows users to stay connected to the office telephone system or data network through WLAN access points either in the office location or at the remote office locations.

OfficeServ's mobility solution consists of three components: wireless access points – SMT-R2000, wireless handset – SMT-W5100E/SMT-W5120D, and IP-enabled OfficeServ system.

MULTIPLE LANGUAGE SUPPORT

The OfficeServ 7200-S can be programmed to support multiple languages in the display. This is on a per-keyset basis. When set the keyset will have its display information presented in the programmed language. The languages are defined in MMC 121. The current languages are as follows: English, Spanish, Italian, German, Portuguese, Norwegian, Danish, Dutch, Swedish, US Spanish, and Canadian French.

MUSIC ON HOLD—FLEXIBLE

The OfficeServ 7200-S allows 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 7200-S provides for up to five different types of Music on Hold source including silence or "NONE" as listed below:

- 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 MP20S MISC port card, such as a digital announcer or radio, is played to the listener.
- Voicemail Sound File: If the OfficeServ 7200-S system has the embedded voicemail enabled, 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.

NETWORKING

The OfficeServ 7200-S system allows up to 2 systems 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, 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.

- Auto Answer Across 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 appear as a ringing call on the second call button. The Auto camp on feature will not work on calls across a network link if set to ON in MMC 110.
- 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, 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 7200-S should not be used as the main Centralized Auto Attendant/Voicemail node because of the limited port capacity. The OfficeServ 7200-S should only be used as the remote node.
- 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 options to navigate through the voice mail system. Softkeys include: PLAY, SAVE, DELETE, PAUSE FAST FORWARD, REVIEW, REPLY, FORWARD, CALL and HELP.

- 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. *This feature is only supported with QSIG over IP networking.*
- Do Not Disturb (DND): This feature operates in the same manner as in a non networked switch.
- 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 MMC 210. 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 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 then 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 with out 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.

OPERATOR GROUP

The operator group can contain 32 stations to answer incoming calls. Calls to this group can be set for distributed, 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 a 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. Each station group has its own timer. The overflow destination can be a station or station group located in that 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 OfficeServ 7200-S 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 software allows the use of five internal and two external paging zones. Stations can page any individual zone, all external zones or all external zones plus internal zone zero simultaneously. 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. Two common relays are shared between external page zones and common bell feature.

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 in addition to Call Park and Page.

POWER over ETHERNET (PoE)

Both the OfficeServ PLIM and PLIM2 offer16 data switch ports with PoE. Power is supplied by the cabinet power supply. When additional power is required the optional OS-7150 supplemental PoE power supply can be installed.

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 (1-9). 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

Remote programming allows the technician to access the system database from a remote location for the purpose of making changes to the customer data. Installation Tool and Device Manager are proprietary programming applications used to access and manipulate the database. The Installation Tool program connects to the system via LAN connection to the MP20S. The Device Manager program is available in two versions: Embedded version, which resides on the phone system processor card, 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.

SIMULTANEOUS RINGING—See OfficeServ™ Connect

SINGLE LINE CONNECTIONS

Single line ports 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 7200-S intercom ring cadence.

SIP SERVICES

SIP (Session Initiation Protocol) Services are supported on the OfficeServ 7000 Series systems. The OfficeServ 7100/7200/7200 Lite/7400 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).

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 services such as SIP trunking to a third party SIP service provider such as Excel, Cbeyond, Bandwidth, Broadbox, etc.

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 (eg; 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 signalling 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 7200-S has a library of 1500 numbers.

The OfficeServ 7200-S can be programmed to have either 500 or 950 numbers in the system 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.

SPEED DIAL BY DIRECTORY

The OfficeServ 7200-S system provides 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 up to 20 station hunt groups. One of three ring patterns—sequential, distributed and unconditional—is available for each group. Each unconditional group may contain a maximum of 32 stations and each sequential and distributed group may contain a maximum of 32 stations. 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.

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.

STATION PAIR

This feature allows station to be assigned as a "pair". That is to say a primary and secondary. Calling the primary station will make both stations ring. 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

A 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.

SYSTEM MAINTENANCE ALARMS

The OfficeServ 7200-S continuously performs internal system diagnostics. When either a major or minor fault is detected the system can ring stations with 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 are stored in a buffer and can be reviewed at a display keyset or sent to a printer.

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.

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. Class A stations have no dialing restrictions and 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 7200-S 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 and explanations see sections 4.9 and 4.10 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.

TRUNK GROUPS

Outside lines can be grouped for easy access by dialing a code or pressing a button. There are 30 trunk groups available.

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 through a feature called the E-Mail Gateway. Unified voicemail 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 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 Unified Voicemail 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).

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. Unified Voicemail 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.

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 7200-S has a number of virtual extension ports encoded in the system database. They can be assigned as keyset or single line analog ports. The system has 176 (8 x 22) virtual extension 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

The OfficeServ 7200-S voice mail/auto attendant is included with every OfficeServ 7200-S system as a standard feature. It is embedded in the main system program and provides 6 ports of voice processing. Because it is embedded into 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.

The OfficeServ 7200-S system uses MGI channels (VoIP) at G.726 compression to communicate with the embedded voicemail application. Stations can call forward to a voice mail. 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 voice mail box without navigating through menus.

Note: The OfficeServ 7200-S does not support the SVMi-20E voice mail card.

Voice Over Internet Protocol (VoIP)

The OfficeServ 7200-S system is VoIP enabled and as such supports the following VoIP services:

1) H.323 Trunking to another H.323 Gateway.
2) SIP IP Trunking to another gateway.
3) IP Telephone Sets: OfficeServ SMT-i Series, ITP-5100 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.
4) IP Networking: Connect up to 99 systems together over a managed IP network.

The embedded OfficeServ 7200-S Media Gateway Interface (MGI) channels support 6 voice calls using VoIP services per card over an IP network connection. The OfficeServ 7200-S OAS card can be added into any universal OfficeServ 7200-S card slot. The OfficeServ 7200-S supports a maximum of 3 OAS cards per system. The OfficeServ 7200-S comes with 6 MGI channels built-in and can be activated with the appropriate license key. A total of 48 MGI channels can be supported using the OAS cards.

With VoIP certain compression standards have also been adopted to represent each second of voice with an amount of bandwidth. The OfficeServ 7200-S MGI utilizes G.711, G.729, G.729A or G.723 standards voice compression codec's. 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.

WIRELESS LAN—See Section 2.4.6

STATION FEATURES

4.2 STATION FEATURES 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. Does not require a separate DLI port. It uses the same DLI port as the keyset is attached to.

iDCS and DS 64 BUTTON MODULE

iDCS and DS 64 BUTTON MODULE

Both models of the 64-button module add to the capability of any keyset. Up to two 64-button modules can be added to each 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. The maximum of AOMs per system is limited by the available DLI ports. One DM port is required per 64-button module.

†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-i5000 Series keyset. Up to two 64-button modules can be added to any SMT-i5000 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.

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.

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 pickup calls at other keysets.

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. When the covered station is off hook the call coverage key lights red to indicate a busy condition.

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 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. The OfficeServ 7200-S has 99 programmable pickup groups.

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.

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 ipm (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 control 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 7200-S 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 can not 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 a 16MWSLI 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 (STANDARD)

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. The software has an user programmable option that will allow the OHVA to be heard through the speaker rather than in the handset.

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.

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 25 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 15 messages to be displayed at a calling party's keyset to advise others of their status. Ten messages are factory-programmed but may be reprogrammed. Five can be created by the system administrator. Each display keyset user may create five additional messages unique to them.

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 three types of external redial available to all station users. 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 you can press the LNR key 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 you are calling directory assistance you can store the number you are given using the dial pad and 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 and 2=LOCKED ALL CALLS. See the following table for more details.

	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

TERMINAL STATUS INDICATOR

iDCS 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

DCS LCD 24B keysets have 16 keys equipped for tri-colored LED indications (green, red and amber). The DCS LCD 12B model has six of these keys and the DCS 7 button keysets have three. All programmable keys on the iDCS keysets have tri-colored LEDs. To avoid confusion, your calls always light green, other calls show red and recalls light amber.

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.

WALL-MOUNTABLE KEYSETS

Each keyset, add on module and 64 button module can be wall mounted by reversing the base wedge.

DISPLAY FEATURES

4.3 DISPLAY FEATURES DESCRIPTIONS

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 everyday 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 N/N (MMC 119) selection.

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 7200-S 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:

1. System wide speed dial list
2. Personal speed dial list
3. Station directory list

This online "phone book" allows display keyset users to look up and dial any speed dial number or station in seconds.

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 person(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 24 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 (MMC 611) 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 agents status (IN GROUP, OUT OF GROUP, or DND), view each agents total number of calls, average call length or average ring time.

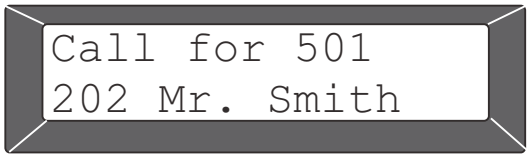
Note: Accessing this screen will also allow a Supervisor to change the status of each agent (IN GROUP, OUT OF GROUP, or DND).

SAMPLE DISPLAYS

Display model keysets have a large, easy-to-read, 32 character liquid crystal display. Helpful call processing information is provided so everyday call handling is quick and easy. Here are just some of the displays you may see.

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

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

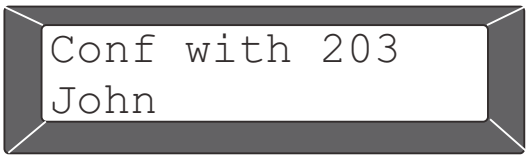


This station in the sales department is receiving a group call from Mr. Smith.

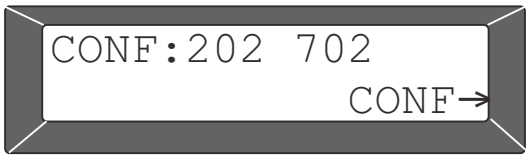
This display tells you this is a new incoming call to the sales department.

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 your conversation.



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

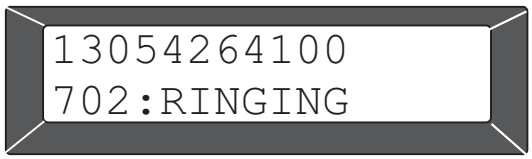
This station is transferring a call to John at extension 203.

This station is receiving a call from extension 201.

This station is setting the Do Not Disturb feature.

This station is speaking on trunk 703.

SAMPLE CALLER ID



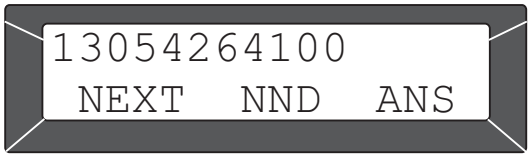
This display shows an incoming call from 1-305-426-4100 on Line 702 ringing directly at your station.

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 201.

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

This display shows an investigation of a station that is talking to Samsung Telecom. Investigator 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 at group 500.

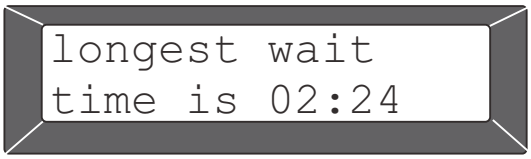
This display can be seen when investigating an intercom call. The investigator can BARGE-in or DROP the connection.

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.

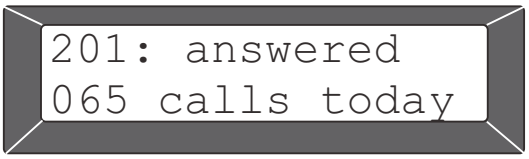
SAMPLE UCD DISPLAYS

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

There are six members in the group. Four of the members are currently logged in.



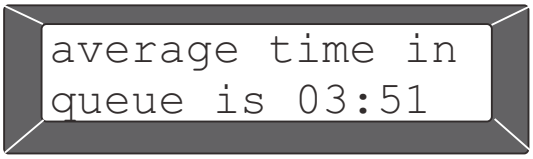
The longest call on hold (waiting to be answered) was for two minutes, 24 seconds. This data applies to all calls since the supervisor data was last cleared. It does not necessarily represent calls currently in queue.



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.)

AUTO ATTENDANT FEATURES

4.4 AUTOMATED ATTENDANT FEATURES DESCRIPTIONS

APPLICATION BACKUP AND RESTORE

The customer's automated attendant application data can be backed up for archiving and restoration purposes.

AUTOMATIC SELF CONFIGURATION

During the initial setup of the phone system the automated attendant will automatically set up greetings and menus used in a typical install. This greatly reduces system setup time. By default the system will create day and night menus that allow users to dial any extension or press 0 for the operator.

CALLER ID ROUTING

If the customer's Central Office provides Caller ID this information can be used by the automated attendant to identify and route calls.

CAMP-ON SUPPORT

The automated attendant can be configured so that calls transferred to a busy station can be "camped on" to the station, causing it to ring with a special off-hook ring tone even while in a call.

FAX DETECTION AND ROUTING

The OfficeServ 7200-S automated attendant can detect a fax call and transfer it to any extension in the system. This detection can be enabled in any menu and assigned to different destinations for each menu.

GLOBAL OPERATOR ACCESS

Callers connected to the automated attendant can press 0 at any time to be transferred to the operator group. This feature requires that a valid operator group be defined in MMC 600.

INTERRUPTIBLE VOICE PROMPTS

Users may dial a menu option at any time during a prompt or greeting, without the need to wait for that option to be spoken aloud. This is very useful for users who are familiar with the options and wish to speed up the process.

MENU TREE ROUTING

The automated attendant routes calls through a menu tree structure. Menus are able to process callers by a variety of means, such as: digits entered, caller ID, or DNIS information. Callers may be transferred to a multitude of destinations such as stations, groups, the voicemail directory, or 'Question and Answer' applications. Menus can be cascaded together to form complex application trees.

MUSIC-ON-HOLD SUPPORT

Music or announcements may be recorded into the automated attendant and used in the phone system as Music-On-Hold. The recorded announcement or music will play in a continuous loop and may be used to provide custom on-hold announcements or promotional messages.

MULTIPLE LANGUAGE SUPPORT

The OfficeServ 7200-S automated attendant supports up to 3 simultaneous languages. The default language is English (United States). Spanish (Castilian) and French (Canadian) are also installed by the factory as standard languages. A list of available languages can be obtained through your local authorized Samsung service provider.

PASSWORD SECURITY

Automated attendant administration is password protected to prevent unauthorized access.

QUESTION & ANSWER FORMS

This feature allows the OfficeServ 7200-S to be used to conduct surveys or collect responses to a questionnaire. Answers can be collated and stored in a specific mailbox or split into many different mailboxes. This is a useful tool any time you need to collect specific information from a caller but do not want to devote a staff member to take the calls directly. Answer messages can be prefixed with an optional header message, which helps in transcription by preventing silence in the event the caller skips a question. There is no fixed limit to the number of questions in a Q&A application, nor is there a fixed limit to the number of possible Q&A applications.

RECORDABLE SYSTEM PROMPTS

The OfficeServ 7200-S automated attendant includes an integrated voice studio that allows you to edit or re-record any prompt in the system. You can also create new prompts in order to help unify your company image.

SCHEDULE-ORIENTED CALL PROCESSING

The OfficeServ 7200-S automated attendant processes calls according to an administrator controlled scheduling table. This table determines which mode of operation the system will run in (day, night, holiday, etc). Each programming object in the automated attendant can be configured to route calls differently depending on the active operating mode. The schedule table can set mode by individual port, time of day, day of the week, and calendar date. Up to 99 modes can be created, and the system administrator can manually override the schedule at any time from a touchtone telephone.

SPECIAL EVENTS SCHEDULER

When your business closes because of a holiday or a special event the OfficeServ 7200-S can provide appropriate prompting to your callers by using the scheduling feature. Events can be pre-programmed to activate automatically or activated on the fly by an administrator.

SYSTEM ACTIVITY REPORTS

The OfficeServ 7200-S provides many useful automated attendant reports. These reports can be used to manage traffic patterns as well as to detect misuse of the system. Administrators can view these reports from the web programming interface.

TRANSFER DIRECT TO MAILBOX

The OfficeServ 7200-S automated attendant can transfer callers directly to a voicemail box without the need to ring a station first. This is handy for things such as night time message taking or for playing announcements, such as directions, to a customer.

VOICE PROMPT PROGRAMMING

The OfficeServ 7200-S provides a robust telephone user interface (TUI) for automated attendant programming. This TUI allows administrators the ability to record prompts and change operating modes.

WEB PROGRAMMING

Configuration of the OfficeServ 7200-S automated attendant and voice mail is performed through a web-based application called OfficeServ WebManagement which runs on an embedded web server inside the system's main processor. This allows the automated attendant to be programmed from any PC on the LAN that has Internet Explorer installed. With proper router configuration the web server can be accessed remotely from anywhere on the internet.

VOICE MAIL FEATURES

4.5 VOICE MAIL FEATURES DESCRIPTIONS

AVAILABILITY SCHEDULE

OfficeServ 7200-S voicemail subscribers can configure a weekly availability schedule that lets the system know when they will be available to take calls. Calls made outside of normal working hours will be sent directly to the user's voicemail box.

ADMINISTRATION MAILBOX

Subscribers can be designated as Mailbox Administrators, giving them the added functionality of being able to record and send broadcast messages.

ANSWERING MACHINE EMULATION

This feature allows you to hear calls being left in your voicemail box through the speaker of your keyset, similar to a home answer machine. This feature is not available across the network.

AUTOMATICALLY FORWARD MESSAGES

Voicemail boxes in the OfficeServ 7200-S can be configured to automatically forward messages to another mailbox optionally leaving a copy in the original mailbox.

AUTOMATICALLY LOG IN

A user's voicemail can be configured such that upon calling in to the voicemail they are automatically logged in to their mailbox without being prompted for a password.

AUTOMATIC SELF CONFIGURATION

During the initial setup of the phone system the OfficeServ 7200-S will automatically create mailboxes for each station in the system, greatly reducing system setup time.

BUSY STATION QUEUING

An administrator may configure a voicemail box to allow queuing when the subscriber's phone is busy. Callers are given an option to hold for the busy station and can be informed of their position in queue and the estimated hold time.

Note: Each queued caller will consume a voicemail port.

CALLBACKS

When listening to voice mail messages subscribers are given the option to automatically call back the person who left the message. This call back feature may be allowed for internal calls and / or external calls. For external calls the number called back is determined by Caller ID, which requires that Caller ID be received from the phone company. Long distance callback numbers can be blocked if desired.

CALL BLOCKING

The administrator may grant voicemail subscribers the option to enable call blocking. When activated, call blocking prevents the voicemail and automated attendant from trying to call the subscriber's keyset, instead forwarding them straight to the subscriber's voicemail box.

DATE / TIME STAMP

All voicemail messages are stamped with the date and time they were received. This information is spoken to the subscriber before the message by default, but can be set to only be spoken upon request.

DIRECT MESSAGING / QUICK MEMOS

The OfficeServ 7200-S allows voicemail subscribers to quickly leave voice messages for other subscribers, without the need to actually call the subscriber.

E-MAIL GATEWAY—See Unified Voicemail

FIND ME

If authorized to do so, a subscriber can create a list of stored telephone numbers for their mailbox. When callers reach the subscribers voicemail they are given the option to try to locate the subscriber. The OfficeServ 7200-S will dial through the stored telephone number list attempting to reach the subscriber. If the subscriber is not reached or chooses to reject the call, the caller will be sent to the subscriber's voicemail box.

FLEXIBLE NUMBERING PLAN

The OfficeServ 7200-S voicemail is capable of distinguishing between similar dialing strings. For example mailboxes 2, 201, and 2011 can all coexist without risk of callers being misdirected. This is very useful in situations where one subscriber may require multiple voicemail boxes. The voicemail can accommodate mailboxes with as few as 1 or as many as 10 digits.

FOLLOW ME

If authorized to do so, a subscriber can choose to have callers that reach their voicemail box to be forwarded to another destination, such as a cell phone. The OfficeServ 7200-S will dial the new destination and prompt the subscriber to accept or reject the call. If the subscriber is not reached or chooses to reject the call, the caller will be sent to the subscriber's voicemail box.

GROUPING / SORTING OF MESSAGES

If authorized to do so, a subscriber can choose to have callers that reach their voicemail box to be forwarded to another destination, such as a cell phone. The OfficeServ 7200-S will dial the new destination and prompt the subscriber to accept or reject the call. If the subscriber is not reached or chooses to reject the call, the caller will be sent to the subscriber's voicemail box.

GROUP MAILBOXES

The OfficeServ 7200-S provides the ability to create voicemail boxes that are associated to a station group rather than a single station.

INDIVIDUALLY DEFINED MAILBOXES AND STATIONS

The OfficeServ 7200-S allows creation of voicemail boxes that do not have associated stations. This is ideal for creating announcement mailboxes or for allowing remote users to have voicemail without actually being a part of the phone system.

KEYSET DISPLAY AND SOFT KEY SUPPORT

For subscribers who have a station equipped with a display the OfficeServ 7200-S voicemail application can provide additional functionality. The display will be used to display notification of new messages. Also, when navigating the voicemail options the display will enable special soft key commands for faster navigation through the system.

MAILBOX BACKUP AND RESTORE

The customer can backup mailbox data for archiving and restoration purposes.

MESSAGE DELIVERY OPTIONS

When creating a quick memo or messaging another subscriber a subscriber may set any of a number of priority delivery options. Messages can be flagged any of the following: Urgent Priority, Return Receipt Request, Callback Request, Private, or Reply Required.

MESSAGE LENGTH CONTROLS

The administrator can configure many options to control the usage of disk space in the OfficeServ 7200-S voicemail. These options include setting the maximum number of messages a mailbox can take, the maximum greeting length a subscriber can record, and the maximum length of messages left by a caller. The administrator can even configure an entire mailbox to be automatically deleted after a certain period of time. These options help to more efficiently manage message storage space and prevent abuse of the system. The maximum voice mail message length capability is 2.5 hours.

MESSAGE NOTIFICATION

The OfficeServ 7200-S voicemail can alert subscribers of messages in a variety of ways. In addition to the normal keyset indicator, the subscriber can be notified via: cell phone, pager, and e-mail. Any or all of these options can be enabled. This allows subscribers a great deal of flexibility in how and where they receive their messages.

MESSAGE PLAYBACK OPTIONS

Subscribers are given a wide variety of options when listening to messages. In addition to the standard play, pause, rewind, fast forward, replay, delete, forward, and reply subscribers can: adjust the volume of messages up or down, increase the playback speed of the recording, or choose to scan messages by playing only the first few seconds of each message.

MESSAGE UNDELETE

When a message is deleted by a user it is flagged for deletion during the nightly maintenance, which takes place at 3 a.m. The OfficeServ 7200-S voicemail allows subscribers to retrieve deleted messages anytime before the daily maintenance has run. This is extremely useful for those occasions where a subscriber accidentally deletes a message or finds they missed one critical piece of information from the message.

MESSAGE UNSEND

A subscriber may choose to unsend a message any time before the recipient has listened to the message. The message will be immediately purged from the recipient's mailbox.

MESSAGE WAITING INDICATION

The OfficeServ 7200-S will automatically update message waiting indicators when a new voicemail message arrives. Additionally, subscribers who have a display keyset will be shown the total number of new messages in their mailbox.

MINIMUM PASSWORD LENGTH

The administrator can set a minimum length for subscriber passwords. Password length can be set from 0 (no minimum length) to 8 digits. This feature is useful for situations where enhanced security is required.

MULTIPLE ALPHABETICAL DIRECTORIES

The OfficeServ 7200-S voicemail application allows the creation of up to 1000 unique directories. These directories are used by both the voicemail and automated attendant applications to allow callers and subscribers to dial or message subscribers based upon their name rather than their station number.

MULTIPLE PERSONAL GREETINGS

The OfficeServ 7200-S voicemail recognizes five different reasons why a subscriber does not answer a call. These reasons are referred to as 'Call Coverage Conditions'. The voicemail administrator can allow a subscriber to assign a different personal greeting to each Call Coverage Condition. Subscribers may record a pool of up to 9 different custom greetings to assign to Call Coverage Conditions.

NAME ADDRESSING

This feature allows a subscriber to address messages to other subscribers by name instead of by mailbox number, eliminating the need to look up numbers or carry personal directories while traveling.

NETWORK MAILBOXES (AMIS)

The OfficeServ 7200-S voicemail application is AMIS (Audio Messaging Interchange Specification) compliant. The AMIS network provides the ability to retransmit voicemail messages from one voicemail unit to another. Any voicemail application that is AMIS compliant can send messages to or receive messages from the OfficeServ 7200-S voicemail. This is particularly useful in network environments where more than one voicemail unit is in use.

NIGHT INTERCEPT

If a subscriber configures their availability schedule the system will automatically intercept calls made after hours. Instead of attempting to ring the subscriber at their station, the caller is immediately shunted to the voicemail box to leave a message.

NOTE: For this feature to work properly calls must be routed to the subscriber through the automated attendant.

PARK AND OVERHEAD PAGE

For those subscribers who are frequently away from their desk, the OfficeServ 7200-S voicemail provides a Park and Page capability. When a caller reaches one of these subscribers they can be given the option to page the subscriber. The subscriber is then paged and given the option to pick up the caller. If the subscriber rejects the call or does not respond the caller is routed to the subscriber's voicemail box.

PERSONAL MAILBOX ADMINISTRATION

The OfficeServ 7200-S voicemail application provides an extensive telephone user interface for subscribers to use for configuration of their mailbox. From this interface users can configure every aspect of their mailbox such as: changing passwords, recording and editing greetings, setting up stored telephone numbers, setting availability schedules, and more.

PERSONAL SINGLE DIGIT OPTIONS

The OfficeServ 7200-S voicemail provides the administrator the ability to configure single digit options for a subscriber's mailbox. When callers reach the subscriber's voicemail they are presented with the ability to use these single digit options. This feature is useful for giving callers the ability to dial other departments or access automated attendant functions.

PROGRAMMABLE MESSAGE RETENTION

The administrator may set a specific time limit to store messages for a subscriber's voicemail box. When a message has not been listened to for this length of time it will be automatically deleted. This option is configured on a per-mailbox basis.

RETRIEVE PUBLIC CALLER

If a caller is holding or leaving a message for a subscriber and that subscriber logs in to their mailbox, they will be notified that a caller is currently waiting for them and asked if they wish to retrieve the caller. The subscriber can then choose to speak to the caller or send them to the voicemail box to leave a message.

SCHEDULE FUTURE DELIVERY

The OfficeServ 7200-S voicemail application allows subscribers to set a future delivery date when attempting to send a quick memo or messaging another subscriber. This is very useful for creating "to-do" lists, or for sending such things as meeting or holiday reminders.

SUBSCRIBER ADMINISTRATION

The OfficeServ 7200-S provides an administrator access to a telephone user interface for system administration. The system administration interface allows the administrator to create, delete, or edit voicemail boxes. Edit mode allows access to things such as resetting passwords and entering directory names.

VOICE PROMPTED PROGRAMMING

The OfficeServ 7200-S provides a robust telephone user interface (TUI) for voicemail configuration. This TUI allows administrators the ability to manage subscriber mailboxes. It also provides subscribers the ability to configure almost every aspect of their mailbox without the need to memorize a complicated series of keystrokes.

UNIFIED VOICEMAIL

Samsung's Unified Voicemail solution allows users to receive voicemail directly in their email inbox through a feature called the E-Mail Gateway. Unified voicemail 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 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. The maximum length of an e-mail gateway file attachment is 10 minutes. E-mail gateway messages of more than 10 minutes will only send a notification.

Two different Unified Voicemail 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).

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.

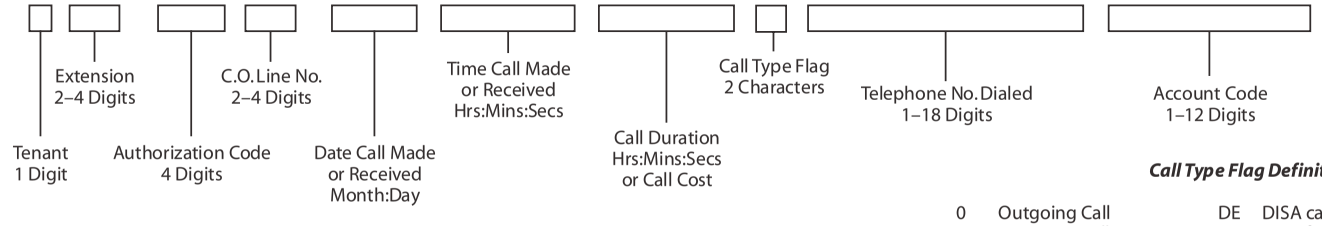
The E-Mail Gateway feature can be enabled for up to 5 users by default (voicemail license key required). An additional license can allow the system to provide the feature to all users. Unified Voicemail also allows an administrator to be notified in the event of a problem in the E-Mail Gateway performance.

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

4.6 SAMPLE SMDR PRINTOUT (WITHOUT CALLER ID)

```
                    SMDR REPORT FOR [STA Miami   ] Mar/21/1999 13:49

================================================================================
   T EXT   AUTH TRK  MM/DD STT.TIME DURATION FG DIALED DIGIT     ACCOUNT CODE
================================================================================
   1 3951       725  03/21 13:51:17 00:00:08 IA
   1 3951       725  03/21 13:51:25 00:00:14 IT
   1 217        744  03/21 13:51:29 00:00:14 IA
   1 235        725  03/21 13:51:39 00:00:06 T
   1 219        726  03/21 13:51:25 $  10.75 O  3056401067      *1234567890#
   1 217        744  03/21 13:51:43 00:00:40 I
   1 278        725  03/21 13:53:40 00:00:07 O  18007864782
   1 3951       726  03/21 13:54:45 00:00:07 IA
   1 219             03/21 13:55:03            GROUP OUT
   1 3951       726  03/21 13:54:52 00:00:30 IT
   1 217        726  03/21 13:55:22 00:00:16 TT
   1 235             03/21 13:55:30            DND ON
   1 218        726  03/21 13:55:38 00:00:33 TT
   1 235             03/21 13:57:50            DND OFF
   1 279  6398 727  03/21 13:57:32 $  13.25 O  3056401066
   1 219             03/21 14:00:45            GROUP IN
   1 219        726  03/21 13:56:11 00:05:38 T
   1 296        725  03/21 13:54:40 00:07:06 O  3055922900217
   1 219        717  03/21 14:03:57 00:00:15 O  19544530000      *1234567890#
```

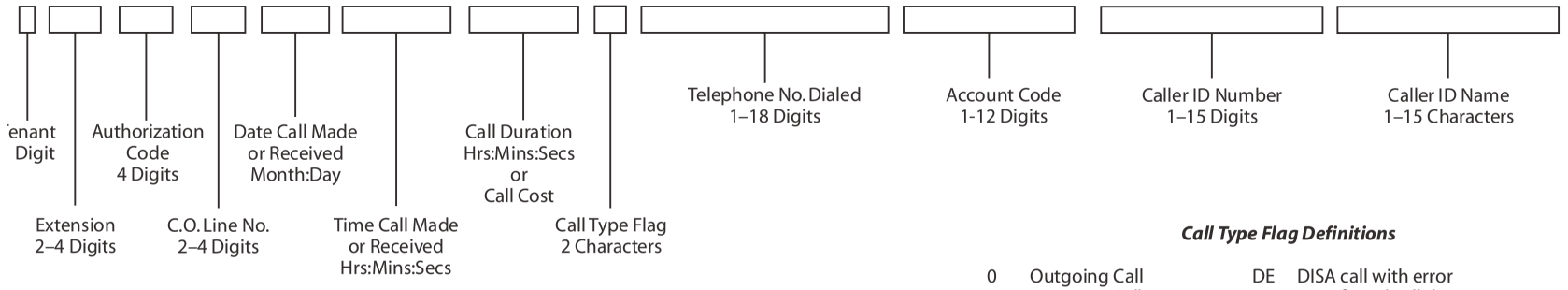


Call Type Flag Definitions

0	Outgoing Call	DE	DISA call with error
I	Incoming Call	T	Transferred call that was terminated
DI	DISA call in	IT	Incoming transfer
DO	DISA call out	FI	Incoming call forwarded to an external number
FO	Outgoing record of forwarded call	OT	Outgoing transfer - Outgoing call made and transferred
IA	Incoming Ring Time Before Being Answered	TT	Caller received a transferred call and transferred it again

SMDR REPORT FOR [STA Miami] Mar/21/99 13:49

T	EXT	AUTH	TRK	MM/DD	STT.TIME	DURATION	FG	DIALED DIGIT	ACCOUNT CODE	CID/ANI NUMBER	CID/ANI NAME
1	3951		725	03/21	13:51:17	00:00:08	IA				
1	3951		725	03/21	13:51:25	00:00:14	IT			13055922900	SAMSUNG TELECOM
1	217		744	03/21	13:51:29	00:00:14	IA				
1	235		725	03/21	13:51:39	00:00:06	T			13055922900	SAMSUNG TELECOM
1	219		726	03/21	13:51:25	$ 10.75	O	3056401067	*1234567890#		
1	217		744	03/21	13:51:43	00:00:40	I			13055559748	PIZZA DELIVERY
1	278		725	03/21	13:53:40	00:00:07	O	18007864782			
1	3951		726	03/21	13:54:45	00:00:07	IA				
1	219			03/21	13:55:03			GROUP OUT			
1	3951		726	03/21	13:54:52	00:00:30	IT			13055922900	SAMSUNG TELECOM
1	217		726	03/21	13:55:22	00:00:16	TT			13055922900	SAMSUNG TELECOM
1	235			03/21	13:55:30			DND ON			
1	218		726	03/21	13:55:38	00:00:33	TT			13055556420	PIZZA DELIVERY
1	235			03/21	13:57:50			DND OFF			
1	279	6398	701	03/21	13:57:32	$ 13.25	O	3056401066			
1	219			03/21	14:00:45			GROUP IN			
1	219		726	03/21	13:56:11	00:05:38	T			13055922900	SAMSUNG TELECOM
1	296		725	03/21	13:54:40	00:07:06	O	3055922900217			



Call Type Flag Definitions

0	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
IA	Incoming Ring Time Before Being Answered	TT	Caller received a transferred call and transferred it again

4.7 SAMPLE SMDR PRINTOUT (WITH CALLER ID/ANI NUMBER)

4.8 SAMPLE OF UCD EMBEDDED 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        AVERAGE     RING
                             ANSWERED    CALL TIME    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         AVERAGE    RING
                             ANSWERED    CALL TIME    TIME
------------------------------------------------------------
01       223    FRED          0012        02:33       00:08
02       213    JANE          0010        01:04       00:04
```

4.9 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, and 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 were sent to a group. This includes calls that were answered by the group, calls that went to a group with all agents busy or out of group, calls that are abandoned and calls that go to UCD final destination. 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

4.10 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

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.

4.11 SAMPLE TRAFFIC REPORT

```
TRAFFIC REPORT FOR [   STA Miami        ] Mar/21/1999 13:35
**************************** SYSTEM STATISTICS ******************************

BEGINNING:  Mar/15/1999  00:42                      ENDING:  Mar/21/1999 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
```

4.12 TRAFFIC REPORT OVERVIEW

```
A**************************** SYSTEM STATISTICS ****************************

1 BEGINNING:   04/01/99   08:00                          ENDING:   04/01/99 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 MMC 501.

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 recall 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 MMC 501.

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 MMC 404.

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 MMC 501.

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** OUTSIDE CALL		——>	**11** <-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 MMC 104.

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 MMC 501.

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:** The number of times the specific station dialed another station or station group. Screened transfers count as a dialed intercom call.

PART 5. DATA MODULE FEATURES

With the LIM, PLIM, PLIM2, and GPLIMT data modules, the OfficeServ 7200-S functions as a data router, data switch, performs security functions, and serves as a data access interface.

5.1 PLIM/PLIM2 FEATURES

Using the PLIM/PLIM2 as an Unmanaged Switch

The PLIM/PLIM2 performs the function of a layer 2 Ethernet switch as well as the Learning Bridge function based on the MAC address filtering and forwarding algorithm.

The PLIM/PLIM2 provides 16 LAN ports per card. Each port is 10/100 Base T, auto sensing, full duplex.

802.1d Spanning Tree

The switch configures and processes the forwarding tree based on the spanning tree algorithm to prevent a packet forwarding loop in the switch.

802.1p Packet Priority

The switch extracts the priority field from the Ethernet frame configured according to the 802.1p specification standard, and discriminatively processes the frame according to the priority of the specified operation standard.

The packets are categorized into emergent packets and non-emergent packets and are then processed.

VLAN

Virtual Local Area Network(VLAN) groups can be created to separate and group the physical ports of the PLIM/PLIM2. Each VLAN group can be treated as if they were each a separate private LAN. The VLAN removes the effects of unnecessary broadcast packets and configures a stable switching subnet only for the corresponding group by separating and processing the group in the virtual LAN.

Accordingly, the switch can provide the differentiated QoS services. The VLAN can be configured based on the switch port and MAC address.

IGMP Snooping

IGMP Snooping provides a method for intelligent forwarding of multicast packets within a layer 2 broadcast domain. By snooping IGMP registration information, a distribution list of work stations is formed that determines which end-stations will receive packets with a specific multicast address.

5.2 PLIM2

The PLIM2 is an unmanaged layer 2 LAN switch. It provides 16 10/100 Base-T Ethernet interfaces and supports Power over Ethernet (IEEE 802.3af). Each Ethernet port is auto sensing and full duplex.

PART 6. GENERAL USER INFORMATION

6.1 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.

6.2 FCC REQUIREMENTS

The OfficeServ 7200-S electronic telephone system complies with Part 68 of the Federal Communications Commission Rules and Regulations.

FCC REGISTRATION NUMBERS:

A3LKF14BOS7200
A3LMF14BOS7200
EUT Certification: SC09102701-HCT-070

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. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for details.

6.3 TELEPHONE COMPANY INTERFACES

CIRCUIT TYPE	CARD TYPE	FACILITY INTERFACE CODE	NETWORK JACK
ANALOG LOOP START LINE	8TRK/8TRK2	02LS2 04DU9.1KN 04DU9.1SN 04DU9.1SN (PRI)	RJ45S RJ48C RJ41S RJ48C
	4TRM 16TRK	04DU9.1KN 04.DU9.1SN 04DU9.1SN(PRI)	
DID SERVICE	TEPRI/TEPRIa	04DU9.BN	RJ48C
DIGITAL TRUNKS PRI ONLY	TEPRI/TEPRIa	04DU9.BN	RJ48C

RINGER EQUIVALENCE (REN)

The REN is used to determine the number of devices that may be connected to a 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.

INCIDENCE OF HARM

If this equipment, the OfficeServ 7200-S, 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

This equipment, the OfficeServ 7200-S is 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 users 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 lightining transients, are very destructive to customer terminal equipment connected to AC power sources. This has been identificed as a major nationwide problem. REN for OfficeServ 7200-S is 1.4B.

6.4 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.

6.5 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.

6.6 UNDERWRITERS LABORATORIES and CANADIAN STANDARDS ASSOCIATION

The OfficeServ 7200-S system has been tested to comply with safety standards in the United States and Canada as listed below.

C UL US

LISTED
51YL
E149091 Vol.X2
I.T.E.
Telephone Equipment

For earlier products, the UL Mark is separately shown on the label.

SAMSUNG TELECOMMUNICATIONS AMERICA
BUSINESS COMMUNICATION SYSTEMS 5 YEAR WARRANTY

SAMSUNG TELECOMMUNICATIONS AMERICA ("STA"), warrants to its authorized Dealers and to the original retail purchaser ("Users") of a STA product for a period of 60 months from the date of shipment of the Product from STA's facility, that the Product (except for lamps, fuses, and other consumable items) will be free from defects in material and workmanship. Repaired or replaced materials shall be warranted for the balance of the warranty remaining on the original equipment, or 90 days from date of shipment from STA's facility, whichever is longer.

This warranty is for the benefit of and shall apply only to authorized Dealers and to Users. This warranty will not apply if the defect arises out of accident, neglect, alteration or misuse, failure of electric power, air conditioning, humidity control, causes other than ordinary use, or causes beyond STA's control. All warranty claims shall be waived unless reported, in writing, to STA or its authorized Dealer, prior to the expiration of the applicable warranty period.

The obligation of STA under this warranty is, at the sole option of STA: 1) the repair or replacement (with new or refurbished parts), of the defective or missing parts that are causing the malfunction and which are determined to be the defective by STA, and the return shipment of such parts to the Dealer (Dealer or User shall be responsible to pay for shipment of the defective parts to STA and for all the expenses connected with their removal and reinstallation); or 2) in lieu of repair or replacement, STA may refund the price charged by STA to its Dealer for such parts as are determined by STA to be defective and which are returned to STA through an authorized Dealer within the warranty period and no later than 30 days after such malfunction, whichever occurs first.

To obtain service under this warranty:

(1) USERS must provide written notice of the malfunction to an authorized STA Dealer within the warranty period and not later than 30 days after the date of the malfunction, whichever occurs first. If the USER is unable to identify an authorized STA Dealer, USER must provide written notice of the malfunction, including proof of the date of purchase of the equipment and the serial number of the malfunctioning Product, to STA at its corporate offices. Upon receipt of such notice and determination by STA that User is eligible for Warranty service, STA will provide the USER with the name of an authorized STA Dealer to contact for warranty service DEALERS must provide written notice of malfunction to STA no later than the expiration of the warranty period 30 days after the date the Dealer becomes aware of the malfunction, whichever comes first. For purposes of this Warranty, the issuance by STA of a Material Return Authorization (MRA) number by telephone to an authorized Dealer shall be deemed to be written notice from the Dealer with respect to the material returned under that MRA.

STA MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, AND SPECIALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THESE WARRANTIES ARE DEALER'S AND USER'S SOLE REMEDIES AND IN LIEU OF ALL OBLIGATIONS OR LIABILITIES ON THE PART OF STA FOR DAMAGES, INCLUDING, BUT NOT LIMITED TO, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF OR IN CONNECTION WITH THE USE OF THE PRODUCTS, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, ARISING OUT OF OR IN CONNECTION WITH THE PERFORMANCE OF THE PRODUCTS, WHETHER IN A CONTRACT OR TORT ACTION. INCLUDING NEGLIGENCE, EVEN IF STA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, THE TOTAL MAXIMUM LIABILITY OF STA FOR BREACH OF WARRANTY SHALL BE LIMITED TO A REFUND OF THE COST OF THE DEFECTIVE PRODUCT.

No Dealer and no person other than an officer of SAMSUNG TELECOMMUNICATIONS AMERICA may extend or modify this warranty, and no modification or extension of this warranty shall be effective unless in writing signed by the authorized officer of SAMSUNG TELECOMMUNICATIONS AMERICA.