HiPath 3000 Real-Time IP System

For small to medium enterprise sites

HiPath™ 3000 is a powerful multimode real-time IP system which also supports traditional interfaces and features.

HiPath 3000 Real-Time IP System is a native IP system for small to medium enterprise (SME) sites. HiPath 3000 can be configured with up to 500 IP telephones, 384 digital phones, or in a mixed configuration up to 500 telephones and soft clients.

HiPath 3000 may easily migrate into a larger real-time IP system configuration. Today, in a HiPath 5000 Real-Time IP System environment, the HiPath 3000 is leveraged as a survivable media gateway. Up to 64* survivable media gateways can be managed as a single system supporting up to 2,000* users (refer to the data sheet of the HiPath 5000 Real-Time IP System).

HiPath 3000 may also be deployed as a gateway. HiPath 3000 within this configuration provides connectivity between a HiPath 3000 environment and a variety of competitive and legacy communication platforms using CorNet® IP and traditional networking protocols like CorNet N and QSIG.

HiPath 3000 comes in three variants optimized for different sized locations: HiPath 3300, HiPath 3500 and HiPath 3700. A professional and homogeneous set of HiPath ComScendo™ features is provided across all systems which can be used by all workpoint clients.

System Family
HiPath 3000 is available for various installation requirements

- Floor standing: HiPath 3750
- Wall-mounted: HiPath 3550/3350
- 19" Rack-mounted: HiPath 3700/3500/3300

On the HiPath 3700/3750, a patch panel can be purchased for connecting peripherals. The other rack-mounted models provide RJ-45 connectors that allow peripherals to be connected directly.

- Can be configured with up to 500 IP telephones, 384 digital phones, or in mixed configuration, up to 500 telephones and soft clients

- May also easily migrate into a larger real-time IP system configurations

- Supports traditional interfaces and features

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System Features
The HiPath 3000 offers a wide range of HiPath ComScendo features

Selected HiPath ComScendo features

Caller list Unanswered internal and external calls are recorded on system telephones with a display if external calls contain a caller ID number (ISDN) and internal calls are transmitted with the caller's name. The calls are entered in a list with a date and time stamp and the number of call attempts is recorded. A callback to internal callers can be initiated directly from this list.

Do-not-disturb/"silent caller" Users can block incoming calls. Callers go directly to voice mail (if application is implemented) or hear the busy signal when "do-not-disturb" has been activated. Authorized users (attendants, for example) can override this feature. Acoustic signaling or ringing of calls can be deactivated on system telephones so they are only indicated on the display (not available on optiset® E/optiPoint™ 500 entry).

Call pickup Calls can be picked up on users' own telephones within a call pickup group or selectively for specific colleagues.

Override Authorized stations can intrude on other users' calls in progress.

Classes-of-service Different access authorizations can be assigned to each user, with a distinction being made between:
• No trunk access
• Outward restricted trunk access
• Unrestricted trunk access
• 6 allow lists/6 deny lists
• 254 outdial rules coupled to toll restriction

Broadcast intercom call to system telephones or over external loudspeakers.

Call cost log for individual stations or trunks is provided in countries where metered pulses are available. In addition, call records can be output to a local printer in a standard format or can be output to a separate Call Accounting device (Call Accounting requires the purchase of additional equipment).

Group call for a total of 800/150/20 (model dependent) groups with max. 20 users per group. Individual stations can temporarily leave the group.

HiPath 3700

HiPath 3750

HiPath 3500

HiPath 3550

HiPath 3300

HiPath 3350

HiPath 3000 is available for various installation requirements

• **Floor standing: HiPath 3750**

• **Wall-mounted: HiPath 3550/3350**

• **19" Rack-Mounted: HiPath 3700/3500/3300**

Line keys (MULAP) The following flexible setups are possible with line keys:
- Teams
- Executive/secretary functions

Internal telephone directory All extensions are stored with their associated names in the system's internal telephone directory. They can be searched and dialed directly via the display on system telephones.

Speed dialing individual/system It is possible to store up to 10 individual destinations on each telephone and up to 1,000 destinations centrally in the system. System numbers are accessible via the internal telephone directory.

Toggling between two existing connections.

Text messages Any user can send another user a pre-defined message or short messages can be typed to individual stations and viewed via the display.

Advisory messages can be left on your own telephone (e.g., Back at...). When internal callers contact you they receive the advisory message via their telephone display.

Project code Telephone costs can be assigned to a specific procedure or project by entering the project code (maximum 11 digits). This can also be done while a call is in progress.

Call number suppression With ISDN connections, callers can suppress the display of their directory number on the called party's terminal either on a system-wide basis or temporarily.

Distinctive call signaling for internal calls, external calls, recalls and callback calls.

Add-on ringing Call signaling simultaneously at several telephones.

Switches (actuators/sensors) (optional) Via a control relay module it is possible to connect up to four free relays that can be accessed via codes.
(No sensors on the HiPath 3700/3750).

Door interface For entrance telephone and door opener functions. Calls from the entrance telephone can even be routed to an external destination by using external call forwarding.

Automatic redial (expanded) for the last three external call numbers dialed.

Uniform Call Distribution With uniform call distribution (UCD), incoming internal or external calls are routed to the station user (agent) idle the longest in a UCD group. Agents can log on from any telephone by entering an ID. After logging on, the agent is available and is assigned to that telephone until logged off. If agents are busy, the call may be routed to an overflow group, or put in queue and then distributed to the group members when available. The UCD group may also be forwarded (night answer for UCD).

Standard Features
Intercept position/attendant console

Camp-on/call waiting tone

Call forwarding from the extension

Display languages (can be specified individually)

Conference (internal/external)

Line seizure (automatic)

Music on hold

External music source (optional)

Night service/day service

Park

Consultation

Callback on busy and no answer (automatic)

Call forwarding no answer after timeout

Hunt group (linear/cyclic)

Lock telephone (individual code lock)

Telephone book, central

Transferring a call (internal/external)

Recall from the public carrier

Attendant Consoles
optiPoint Attendant
An optiPoint system telephone can be used as an attendant console. This allows outside calls to be extended if the Direct Inward Dialing (DID) function has been set up. In DID mode, this position can be organized as an information, intercept, or night service station.

Special features in addition to the conventional telephone functions are also provided. These are:
- Night service
- Telephone book
- Number of queued calls (can be set up on up to six telephones in the system)
- Enabling for call waiting
- Hold
- Call key 1
- Call key 2
- Release

In addition, a key can be set up with the "error key" feature.

The attendant console can be accessed internally via a second directory number.

It is possible to extend undialed lines and calls on hold. If the number of users on hold reaches a preset level, calls will be forwarded to a specified destination. This will also take place when the length of time a call is queued exceeds a specified limit.

Operation is also possible without an attendant console. In such cases, the user assigned in each case to one line will be regarded as the attendant.

optiClient™ Attendant
This software package simulates a comfortable attendant console on a PC's screen. All attendant features can be activated and executed via the PC keyboard and mouse.

The PC attendant can be connected via V.24, USB or via IP (additional information is available in the data sheet of the optiClient Attendant).

optiPoint BLF
The busy lamp field (BLF) is an additional module principally for optiPoint Attendant. It has ninety LEDs and freely programmable function keys. The individual LEDs are assigned on the telephone or via HiPath 3000 Manager C/E. The status of the users is displayed (free, busy, called).

Braille Console
Optical displays are translated into Braille by an add-on device connected to the PC. This enables visually impaired employees to perform all call-extending tasks.

Executive/Secretary Features

These features ensure rapid communication between executives and secretaries.

- Camp-on at an executive's phone by the secretary's phone
- Secretarial function transfer
- Call transfer to the secretary's phone
- DSS keys for executive/secretary
- Conference corner telephone with parallel call signaling to the executive's phone
- A private line can be set up for either the executive or secretary

System Administration

System administration by the customer can be carried out either on the telephone or using HiPath 3000 Manager C (additional information available in the data sheet of HiPath 3000 Manager C).

The feature Manager C allows customers to perform administration tasks on any system telephone with a display. The optiPoint 600 office IP/TDM telephone is recommended, as this has an alphanumeric keypad (e.g for entering station names etc.).

HiPath 3000 Manager C is a customer tool that runs under Microsoft® Windows and is installed on the PC connected to the system via a V.24, S_0 or TCP-IP-based LAN interface.

Service technicians have other PC-based service tools to assist them in completely installing the communication system and for comprehensive administrative functions; changes to settings on the communication system can also be done remotely. Customer data security is guaranteed with maximum protection in accordance with data protection legislation.

The real-time IP system can be incorporated in Ethernet LANs by means of a LAN interface. Data is exchanged using SNMP (Simple Network Management Protocol). The following functions are supported:

- System administration
- Fault management
- System software updating

Relocate

This feature allows system telephones to be plugged in at another location without the need for subsequent interventions by system administrators. A relocated terminal retains its existing extension number and user features. This ensures that all users involved are available again as quickly as possible following relocation (e.g. project groups). (Cannot be used in conjunction with E-911 feature).

Data Protection/Data Security

To protect the real-time IP system and customer data from unauthorized access, the Service menu can only be entered by means of individual user IDs. This means it is possible at all times to establish who carried out what system modifications and when.

System administration is structured as follows:

- **User data** Access via the Service menu using an individual user ID and password to protect customer data such as speed dialing destinations and call charge data. Real-time IP system owners can make minor system settings with a defined scope themselves

- **System data** Access via the Service menu using a user ID for system administration and password. Access to this data area is restricted to qualified personnel and is password-protected.
  - Password concept with individual identification and authentication
  - System access via telephone or service tool and remote access is controlled
  - Administrative procedures can be logged. ("Who made changes, and when")

User Solutions

Integrated Voice Messaging—HiPath Xpressions™ Compact This is an adaptable speech memory system for deferred and location-independent storage, retrieval, and distribution of voice messages in users' own individual voice mailboxes. HiPath Xpressions Compact also provides auto-attendant functionality.

HiPath ProCenter® Compact provides a professional, cost-effective call center application for single node HiPath 3000. HiPath ProCenter Compact is a Windows based application that runs on a desktop PC and extends the benefits of HiPath 3000 integrated uniform call distribution (UCD) to provide the following monitoring and reporting capabilities for incoming UCD calls.

- Supervisor station with real-time reporting
- Statistical reporting
- Wallboards connectivity

Computer Telephony Integration (CTI) HiPath TAPI 120/170 The driver software was developed as a supplement for connecting a PC to digital system telephones on HiPath. Support is provided for TAPI–compliant CTI applications.

Third-party Video Conferencing A variety of multimedia applications can be combined with HiPath 3000 to form a convenient video conference system. Applications from various manufacturers are available.

HiPath HG 1500

HiPath HG 1500 is the LAN and gateway interface card in the HiPath 3000. This card makes voice, fax and data communication possible via ISDN or other PSTN offerings from the carrier network and from any PC network via the LAN. HiPath HG 1500 includes an H.323 gateway which supports standardized voice communication over IP networks. The HiPath 3000 forms the interface to the company's Ethernet LAN, allowing communication solutions and applications with multi-station capability to be implemented with HiPath 3000.

Depending on the required bandwidth, HiPath 3000 makes flexible use of the ISDN or PSTN lines and LCR intelligence for voice, fax and data communication. No external routers or additional servers are required for LAN PCs because the router functionality, firewall functions, and security are already integrated in HiPath HG 1500.

Second LAN Interface The second LAN interface can also be employed to connect a DSL line behind a third-party router and to couple (route) two LAN segments (LAN-LAN).

LAN-LAN coupling Through LAN-LAN coupling, Ethernet LANs at different locations are linked into a single corporate network using ISDN dial-up lines. This makes it possible for outside locations to access central files or files at other locations, thereby meeting the requirement for interactively combining workflows in organizational units at different locations.

Remote LAN access By linking PCs that are installed outside the corporate LAN, an authorized group of people can be allowed to access central applications and information sources from an external location. This means home workstation users can access the same LAN services as users of PCs connected to the corporate LAN (data, email, PC programs).

Dynamic channel bundling In the case of LAN-LAN coupling via ISDN up to 8 or 16 B-channels are bundled automatically depending on the transmission volume and the application packages implemented. The threshold values for dynamic channel bundling can be set. The number of B-channels can be configured for each routing partner.

Internet access In addition to LAN-LAN coupling there is the possibility of Internet routing with the following features:
- Dynamic IP address procurement from the Internet provider
- Internet accessing using just one IP address of the Internet provider, i.e. cost-effective solution for all PCs in the network
- Dynamic or static channel bundling (load-dependent B-channel switching)

The Internet provider must also support these features.

Authentication The Password Authentication Protocol (PAP) and Challenge Handshake Authentication Protocol (CHAP) protocols were developed in response to increasing demands placed on the security aspects of data networks.

The PAP/CHAP/MS-CHAP procedures can be employed to authenticate the users if an external connection (WAN) is set up via HiPath 3000.

Access Control (Firewall) prevents unauthorized persons from accessing the corporate LAN. The firewall mechanisms are:
- ISDN call number checking
- Automatic callback without setting up an ISDN toll call
- Checking the IP addressing
- MAC firewall (checking the MAC/IP address combination in the internal LAN)
- Port filtering; Enabling and disabling services according to IP addresses

Telematic services Access to telematic services ensures the transmission of fax reports and files to/from any PC.
- Group 3 Fax up to 14,400 bit/s
- Fax-on-Demand in receive direction
- ISDN file transfer

Call Charge Management
A variety of PC-based software programs are supported for recording and assigning incoming and outgoing call charge data that permit evaluation by extension, trunk, department etc.

The call charge data can be transmitted directly to a central server via the LAN interface.

IPSec*
By utilizing IPSec, users and systems can be securely connected using a VPN. Certification Authority Software is also available.

Least Cost Routing
HiPath 3000 uses least cost routing (LCR) to automatically control the path used for an outgoing call. Calls can be routed via the public network or various carriers or a private network. The most favorable connection path for the external call is found using the routing tables.

A trunk is seized after reference to the routing tables. These analyze the digits dialed by the user and determine the directory number to be dialed by the system.

Individual network providers in many cases offer different charge rates for certain connections and conditions, so with LCR it is possible to automatically select the most economical connection for each outgoing telephone call depending on the time of day and route.

Networking
Digital Nailed Connections
Corporate communication networks can be implemented over digital trunks nailed connections between several HiPath real-time IP systems using the CorNet N protocol and between HiPath and non-Siemens systems using the QSIG protocol. The systems are linked with each other via public and/or private lines.

Virtual Network
A virtual network of HiPath real-time IP systems via digital dial-up lines is advisable from an economic viewpoint in situations where nailed connections are not viable due to low traffic levels or if the full range of services offered by a nailed connection is not required.

IP Networking
With HiPath 3000 it is possible to network multiple locations (nodes) via TCP/IP-based data lines. In doing so, the CorNet IP protocol is tunneled in the data flow.

Telephones

The following telephones, optiPoint 400 family, optiPoint 500 family, and optiPoint 600 office are available for various workstation requirements:

optiGuide™, the interactive user prompting via a display and dialog keys, facilitates feature activation from digital telephones, as well as on IP telephones.

optiPoint 400 economy

The economic feature rich IP telephone with 12 two-level function keys, hands-free listening, Ethernet port, and in-line power. Multiple line capabilities when connected to a HiPath real-time IP system.

optiPoint 400 standard

The full feature IP telephone with 12 two-level function keys, full-duplex echo suppression speakerphone, built-in Ethernet switch and in-line power. Multiple line capabilities when connected to a HiPath real-time IP system.

optiPoint 500 entry

The economic digital telephone with open listening.

optiPoint 500 basic

The digital telephone with integrated USB-interface, display and open listening.

optiPoint 500 standard SL

The digital telephone with full-duplex speakerphone, integrated USB interface, 1 adapter port and display. Multiple line capabilities when connected to a HiPath 3000 only.

optiPoint 500 standard

The digital telephone with full-duplex speakerphone, integrated USB-interface, one adapter port and display. Multiple line capabilities when connected to any HiPath real-time IP system.

optiPoint 500 advance

The digital telephone for highest level of communication demands with background lighted display, 2 adapter ports, 19 function keys with LED, integrated interface for headset. integrated USB-interface and full-duplex hands-free talking

optiPoint 600 office

Universal IP/TDM telephone supporting your choice of IP and circuit-switched configurations, large back-lit touch-screen display, support of several web protocols (WAP, XML, JAVA), 19 function keys, full-duplex speakerphone, with built in USB and TAPI interfaces, built-in Ethernet switch and in-line power.

optiPoint Key Module

Add-on device for optiPoint 500 digital telephones with 16 function keys (double entries) and LEDs.

optiPoint BLF

Add-on device for optiPoint 500 digital telephones with 90 function keys and LEDs.

System Telephone
optiset E

The optiset E telephones are supported on HiPath 3000 V4.0.

Soft Client
optiClient 130

The optiClient 130 PC Client can be used with one of three different selectable user interfaces.
- **phone** user interface provides the user with a representation identical to that of a conventional phone including the optiGuide for easy access to all HiPath ComScendo features
- **easyCom** affords the user a "drag and drop" method of establishing and manipulating calls as well as support for data collaboration and interfaces to desktop applications such as email or Internet access
- **office** user interface provides a more traditional Windows look and feel and is easy to integrate with other desktop applications

Adapters

The optiPoint telephone's adapter concept means you can connect a wide variety of add-on devices directly to the digital telephones. Individual workstations can thus keep pace with continuously changing requirements.

A wide range of adapters are available offering a high level of flexibility when it comes to meeting the requirements of individual workstations. These include:

optiPoint Phone Adapter

For connecting another optiPoint 500 telephone.

optiPoint ISDN Adapter

For connecting ISDN terminals with a non-powered S 0 interface (e.g. PC with S_0 card or video equipment).

optiPoint Analog Adapter

For connecting an analog terminal such as a group 3 fax machine, modems.

optiPoint Acoustic Adapter

For connecting active loudspeaker box, headset, two contacts for busy display or door opener.

optiPoint Recorder Adapter

For connecting a recorder or a second headset.

Software Solutions for the USB Interface
CallBridge® TU

Software solution for CTI support over the USB interface of the optiPoint 500.

CallBridge for Data

Software solution for data communication over the USB interface of the optiPoint 500.

System Interfaces

On the Trunk Side
US-ISDN
- Basic Rate Interface (BRI) and Primary Rate Interface (T1/PRI)

Analog Trunks
- Analog trunk connection with and without Direct Inward Dial (DID)

On the User Side
Analog
- a/b (t/r) for connecting analog terminals such as group 2 and 3 fax, Vtx, modem

Digital
- $U_{P0/E}$ for connecting digital two-channel telephones
- S_0 user bus for up to eight independently powered terminal devices (e.g. group 4 fax, ISDN PC card)

HiPath HG 1500
- 10/100 MBit/10Base-T
- Integration in LANs
- For speech/data applications

Additional Interfaces

V.24
- For connecting external CSTA applications to a service PC, call charge computer, or call charge printer (V.24 is required)
- For connecting Hotel applications, care sector applications

E&M tie line interface
(HiPath 3700/3750 only)
- Analog nailed connection
- Announcement before answer

S_0FV, S_{2MFV} or PRI with CorNet N or QSIG protocol
- Digital nailed connection

LAN interface
- 10 Mbit for system administration via TCP/IP

Technical Data

Power Supply
Systems, by default, are designed for AC operation. Possible power outages can be optionally bypassed with an uninterruptible power supply (UPS).

Rated Input Voltage (AC) 88 - 264V

Rated Frequency 50/60 Hz

Battery Supply (DC) -48 V

Environment/Operating Conditions Temperature +5 °C to +40 °C

Relative Humidity 5 – 85%

Range
Between HiPath 3000 and workpoint client/telephone: 500 m maximum. Up to approximately 1000 m with the plug-in power supply unit, depending on line network.

Between networked HiPath systems on premises belonging to the company: S_0 point-to-point connection approximately 1000 m.

Installation of network adapters is necessary for increasing range.

Technical Data*

Expansions	HiPath 3750/HiPath 3700 (Base System/19" Rack)	HiPath 3550 (Wall-mounted System)	HiPath 3500 (19" Rack)	HiPath 3350 (Wall-mounted System)	HiPath 3300 (19" Rack)
Analog users (a/b) maximum	384	44	44	36	20
Digital users ($U_{P0/E}$) maximum	384	72	48	24	24
IP user	500	192	192	96	96
Maximum users in mixed configuration (TDM and IP)	384	164 with SLC 16/SLC 16N or 156	84	60	44
Additional users via optiPoint phone adapter	116	72	48	24	24
V.24 interfaces	2	2	1	2	1
optiClient Attendant (PC attendant console)	6	4	4	4	4
optiPoint key modules	100	100	100	30	30
optiPoint BLFs	12	6	6	NA	NA
optiPoint ISDN adapter	50	48	48	8	8
IP networked nodes	32	32	32	32	32
Number of HiPath HG 1500 boards	8	4	4	2	2
Dimensions H x W x D (in mm)	490 x 410 x 390	450 x 460 x 200	155 x 440 x 380 (3,5 U)	450 x 460 x 130	89 x 440 x 380 (2 U)
Weight (approximate)	22 kg fully equipped	8 kg	8 kg	6 kg	6 kg
Case color	Ergo gray	Warm gray	Bluegreen basic	Warm gray	Bluegreen basic
Software version	V4.0	V4.0	V4.0	V4.0	V4.0

* Maximum capacities vary from country to country depending on available interfaces. Maximum capacities cannot all be reached simultaneously and are configuration dependent.

Our strengths—your gain

Siemens Information and Communication Networks is a leading supplier of real-time voice/data networks for corporate customers, network operators and service providers. We are represented in more than 160 countries. A million customers—including 70% of the U.S. Fortune 500 companies and 350 fixed network operators—put their trust in our solutions. With Siemens expertise and know-how in the fields of voice and IP communication, we easily implement even the most complex networks. The excellent quality of our end-to-end solutions is founded on our particular strengths.

Real-Time IP Systems

Siemens real-time IP systems open up a whole new world of IP services and solutions to our customers—with the same proven level of security and reliability as our voice communication. Future-proof migration strategies guarantee the best possible protection of your investments.

Partners for Profitable Networks

Our customers' profitability is always our highest priority. Our products and services open up new business opportunities for you and help you optimize processes. We integrate your existing systems to protect your investments. Our solutions make communication more cost-effective and contribute to a faster return on investment.

Let Siemens Help You Implement Your Solution

Siemens offers a full range of professional services to complement your in-house technology staff. For more information on how Siemens can help you get more value from your investment, visit **www.siemensenterprise.com/hipath**

Siemens—Award-Winning Solutions

2003 Product of the Year
Communications Convergence
HiPath CorporateConnect

2002 Product of the Year
Customer Inter@ction Solutions Magazine
HiPath ProCenter®

2002 Editor's Choice
Customer Inter@ction Solutions Magazine
HiPath Portfolio

2002 Product Innovation Award
Frost & Sullivan

2002 Business Development Strategy Award
Frost & Sullivan
HiPath Convergence Architecture

2002 Product of the Year
Internet Telephony Magazine
HiPath ComResponse