HG 1500 V3.0
IP communication in medium-size companies

HG 1500 is the LAN and gateway board for the HiPath 3000 Real Time IP system for small and medium-size companies. HG 1500 permits the direct connection of Ethernet LANs (10/100 Mbps) to HiPath 3000 systems.

This makes voice, fax, and data communication possible via an ISDN carrier network from any PC networked via the LAN. HG 1500 includes an H.323 gateway which supports standardized voice communication over IP networks (Voice-over-IP).

HG 1500 V3.0 also enables Virtual Private Networks (VPN) to be set up using fast and economical Internet connections. IPSec encryption and authentication mechanisms allow secure remote networks and secure access for teleworkers, while also enabling external partners to be included in business communication flow.

HG 1500 V3.0 connects the HiPath 3000 Real Time IP systems to the relevant customer Ethernet LAN. Features from the traditional telecommunication world and other applications are provided on the relevant terminals based on IP protocols. This enables communication solutions with multi-station capability to be implemented:

- Voice over IP (VoIP) in the public/corporate network

- Voice gateway between traditional voice networks and VoIP networks

- IP Networking and Virtual Private Networking (VPN) for economic and flexible connectivity between locations

- LAN-LAN coupling via ISDN

- Remote LAN access/teleworking

- Fax (T.30/T.38) / modem over IP in the network

- Internet access

- Computer Telephony Integration (CTI)

- Telematic services such as fax transmission and Eurofile Transfer

- Platform for 3rd party applications such as IP accounting

- Standard based network management with SNMP, i.e. administration, alarm and performance management in a central management platform.

Voice over IP clients

- optiClient 130 V5.0
  IP telephony at the user's PC

- optiPoint 410/420 family
  The new IP telephone family for real-time IP systems

- optiPoint 600 office
  Top-of-the-range model with IP and TDM capability with IP and TDM capabilites to meet all requirements

- optiClient Attendant V7.0
  PC Attendant Console

- AP 1120
  Connection of analog devices via the IP network

- Certified standard H.323 clients

Internet access

- Dynamic IP addressing from an Internet service provider (ISP)

- Internet access using one Internet provider IP address and Network Address Translation (NAT/NAPT), i.e. cost-effective solution for all PCs in the network

- Internet access via ISDN
  Dynamic or static channel bundling (load-dependent B channel switching)
  – The Internet provider must also support these features.

- Internet access via xDSL lines or fixed Internet connections

Access control

- ISDN call number checking

- Automatic callback without setting up an ISDN toll call

- IP address verification

- MAC firewall (checking the MAC/IP address combination in the internal LAN)

- Stateful packet filter firewall
  IP address-based service release/block

- Protection against denial of service attacks
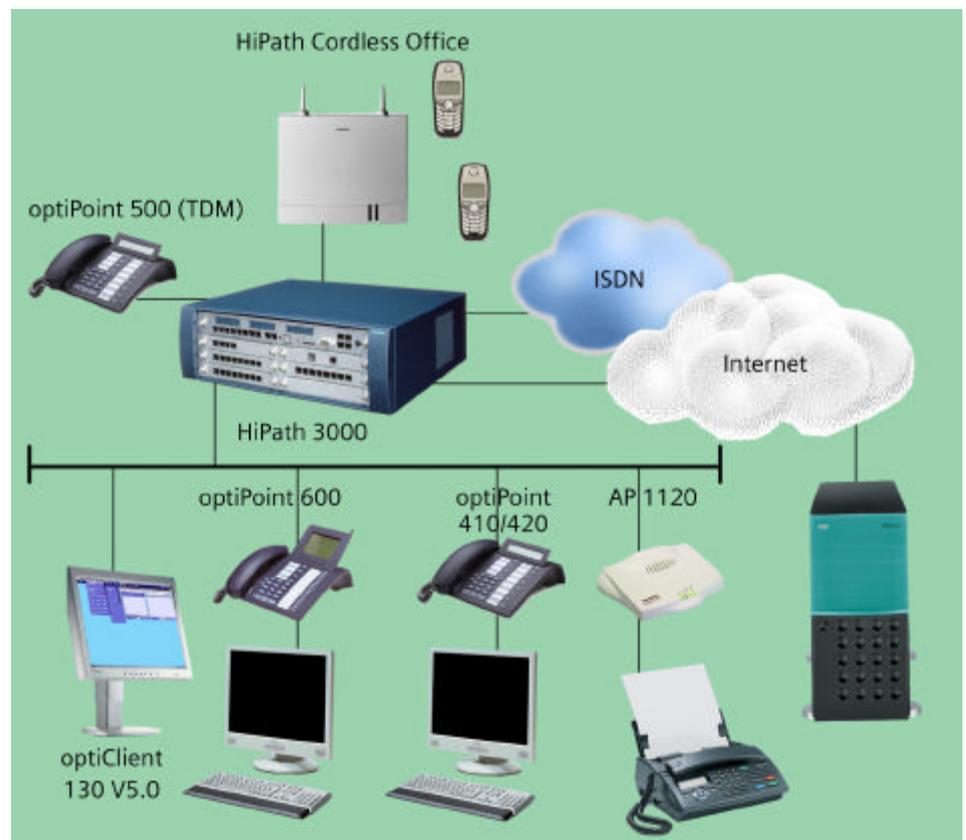
IP networking

When using the HG 1500 it is possible to network HiPath 3000, HiPath 4000 and HiPath 5000 systems with each other via IP. Up to 1,000 users and 32 nodes can exist in a HiPath network.

Second LAN interface

HG 1500 has a second LAN interface. This can be used for an ADSL line or to connect behind a 3rd-party SDSL router in order to provide faster Internet access. Alternatively, the second LAN interface can also be used for connecting two LAN segments (LAN-LAN).

Remote LAN access

By linking PCs that are installed outside the corporate LAN, an authorized group of people can have access to central applications and information on the LAN.

This means home workstation users can access the same LAN services as users of PCs connected to the corporate LAN (data, e-mail, PC programs).

Virtual Private Networking

Thanks to the integrated VPN gateway HG 1500 V3.0, HiPath 3000 offers a secure and flexible solution for networking locations and allows teleworker remote access via the cost effective infrastructure of the public Internet.

An integrated Light Weight Certification Authority (LWCA) enables certificates to be generated for the purpose of secure authentication of VPN users.

The Safenet Sentinel Client VPN Client Software provides a secure connection from the teleworker's PC to the HG 1500 V3.0 VPN Gateway within the company. This means that central applications are available throughout the network.

LAN-LAN coupling

Through LAN-LAN coupling, Ethernet LANs at different locations are linked into a single corporate network using ISDN dialup 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.

Dynamic channel bundling

In the case of LAN-LAN coupling via ISDN up to 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.
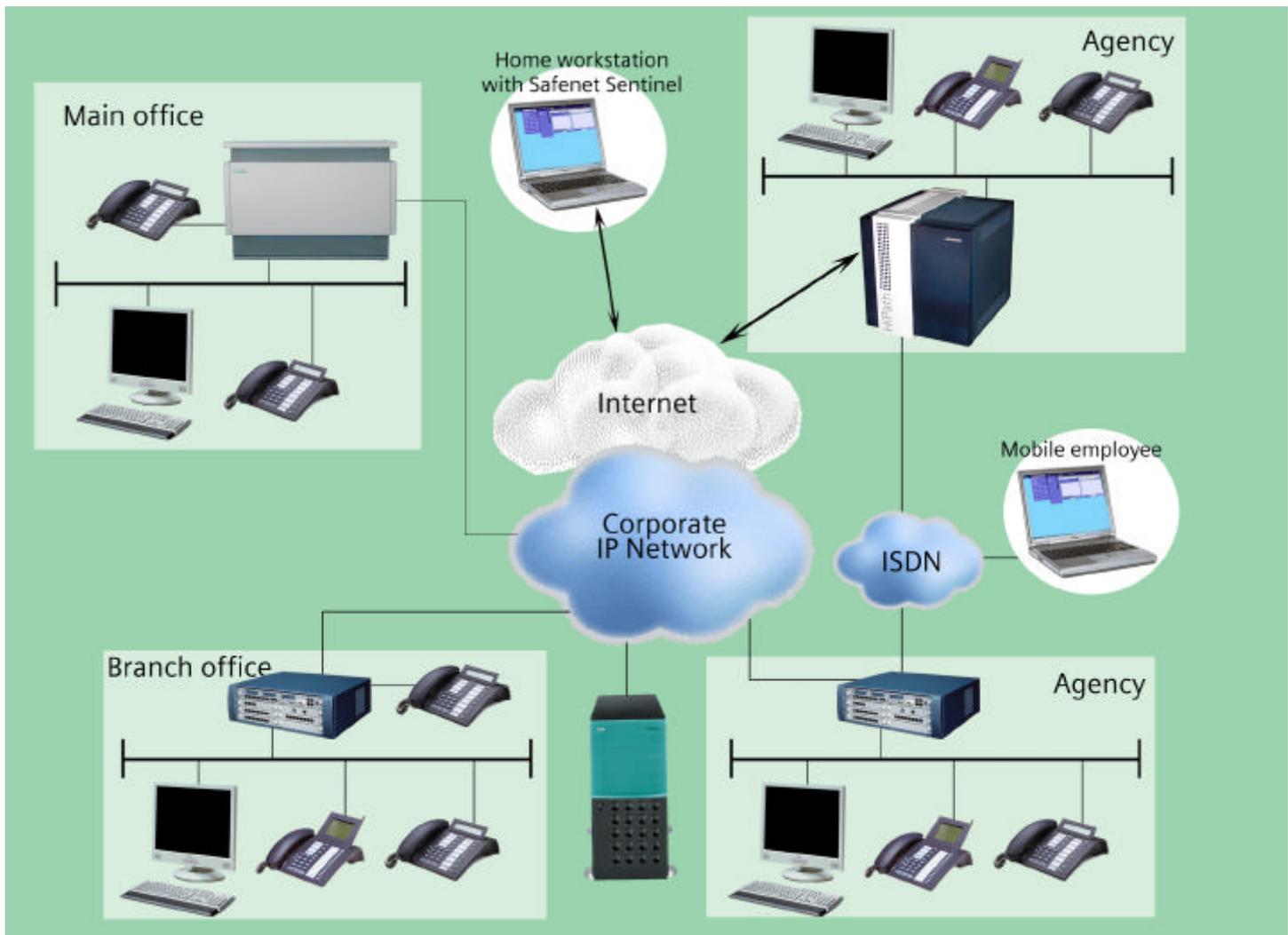
Administration

In the case of HG 1500 V3.0, all the important functions can be configured via a Web-Based Management (WBM) from the IP network.

- Microsoft Internet Explorer® for administration

- Intuitive user interface

- Secure administration via SSL/TLS

- Administration, maintenance, and software upgrading on site or via remote Administration & Maintenance

- Own administration by the customer via LAN

- SNMP (Single Network Management Protocol) for incorporation in a network management system

IP accounting

The cost of Internet access can be tracked through IP accounting with TeleData Office V3.0:
HG 1500 provides an internal interface by means of which TeleData Office V3.0 charge solutions can also gather and evaluate charge rates for pure data connections.

Computer Telephony Integration (CTI)

The "Smartset 2000 for ISDN" software is an application for computer-supported dialing using the LAN.
This solution can be employed for analog and digital terminals.

Telematic services

Access to telematic services is provided via, for example, the Fritz!32 telematic software. This ensures the transmission of fax reports and files to/from any PC.

- Group 3 fax up to 14,400 bps
- Fax-on-Demand in receive direction
- ISDN file transfer

Customer benefits

Advantages for users
- Standard protocols and interfaces supported

- Flexible connection to a wide range to 3rd party applications for CTI, Unified Messaging and telematic functions

Strategic benefits
- Gradual or complete migration of voice communication to the IP network

- Safeguarding investment: Existing technology can continue to be used

- Flexible design of the corporate network in terms of bandwidth, scalability and choice of access media

- Business processes protected by VPN

- Implementation of modern workstation models (tele/mobile workers)

- Increase efficiency for mobile workers due to secure access to business information when travelling

- Short to medium-term return on investment for your network solution

Cost saving
- Use of cost effective, fast, broadband Internet access as an alternative to expensive IP or TDM dedicated lines

- Only one infrastructure used, reducing investment and administration costs

- Reduced administration effort for MACs (Moves, Adds, Changes)

- Saving on external routers and ISDN cards:
Flexible use of HiPath 3000 ISDN trunk lines (depending on required bandwidth)
Use of LCR intelligence of HiPath system for voice, fax and data communication

- Reduced call charges with short-hold function

Basic package

- HG 1500 V3.0 incl. 2 B channels

- TAPI 120 V2.0 1st party TAPI service provider for connecting up to 6 clients in smaller networks

- Windows driver for CAPI 2.0 interface

- Documentation

Expansion options

- License for every further B-channel

- Expansion Module PDM1 for 8 additional B channels. Hardware Module to extend from 8 to max 16 B channels for HiPath 33x0 and HiPath 35x0; from 16 to max 32 B channels with HiPath 37x0

- ComScendo license for IP WorkPoints on HiPath 3000/5000 V5.0

- IPSec encryption package

- Safenet Sentinel VPN client

- Light Weight Certification Authority (LWCA) package

- TAPI 120 V2.0 1st party TAPI service provider for connecting more than 6 clients. The supplied CSTA Message Dispatcher (CMD) should be installed. Available for delivery in different expansion packages.

- TAPI 170 V2.0 (TAPI driver for connecting TAPI-enabled 3rd-party applications) 3rd-party TAPI Service Provider. Available for delivery in various basic and expansion packages.

- Smartset 2000 for ISDN (CTI application for PC-supported telephony)

- "Fritz!32" telematic software

- Routing application package

- DSL-Routing application package

Product software

HG 1500 V3.0 for HiPath 3000 V5.0

Technical data at a glance

System requirements
- HiPath 3000 4.0/V5.0
- At least one Euro-ISDN basic access (connection to the network or another HiPath system)
- At least one free slot in the basic system

Maximum number of HG 1500 Gateways that can be used in the system
- HiPath 3300/3350: 1 gateway
- HiPath 3500/3550: 3 gateways
- HiPath 3700/3750: 4 gateways per box 8 gateways per system
- HiPath 3800: 4 gateways per box 8 gateways per system

Interfaces
- S_0-Basic Rate Interface (BRI) with DSS1 protocol
  - system interface
  - multidevice interface

- S_{2M}-Primary Rate Interface (PRI) with DSS1 protocol

- Ethernet interfaces:
  - 10/100 Mbit/s
  - 10/100 Mbit/s (DSL with PPPoE/PPTP)

PC / LAN
- Microsoft Windows® 98/NT 4.0/2000/XP
- Microsoft Internet Explorer 5.5/6.0®
- Network protocol TCP/IP

System environment
- Switched LAN 10/100 BaseT

- Client/Server and peer-to-peer networks with TCP/IP protocol

Network topology
HG 1500 supports Ethernet LANs and is configured for twisted pair port (RJ45) as standard.

Protocols
- Voice coding:
  - G.711
  - G.722
  - G.723.1
  - G.729A/AB

- Fax over IP
  - T.30 (Fax over G.711)
  - T.38

- G.168 compliant echo compensation

- Point-to-point protocols and features:
  - PPoE
  - PPTP
  - PPP compression MPPC/STAC
  - PPP/PPP multilink
  - Static and dynamic bandwidth management
  - Voice over PPP

- Remote access:
  - Analog V.34
  - Analog V 90
  - GSM V.110 bit rate adaptation
  - ISDN
  - CAPI 2.0 interface
  - TAPI 2.2/3.0 interface

Quality of Service
- Quality of Service Layer 2
  - IEEE 802.1p

- Quality of Service Layer 3
  - Type of Service (ToS)/IP Precedence
  - DiffServ

Access control/firewall/other security functions/miscellaneous
- Callback for registered station numbers (RAS)
- PAP
- CHAP
- MS-CHAP V1
- NAT/NAPT
- MAC address filtering
- IP address filtering
- Stateful Packet Firewall
- Denial of service protection
- H.235
  - Authentication and integrity
- IP mapping
- Secure administration
  - Web-based management via SSL/TLS
- Bandwidth control
  - Reservation of bandwidth for voice and data
- Dynamic control of jitter buffer
- SNTP server
- LDAP interface

VPN protocols
- IPSec protocols
  - Encapsulating Security Payload (ESP)
  - Tunnel mode encapsulation

- Key management
  - Internet Key Exchange (IKE)
  - Diffie-Hellman algorithms
  - Oakley groups 1, 2 and 5
  - Main mode/aggressive mode
  - Perfect Forward Secrecy (PFS)
  - Export/import in PKCS#12 format

- Symmetrical encryption algorithms
  - DES
  - 3DES
  - AES

- Hash algorithms
  - HMAC-MD5
  - HMAC-SHA1

- Public Key algorithms
  - Rivest, Shamir, Adleman (RSA)
  - Digital Signature Algorithm (DSA)

- Authentication
  - Preshared Keys
  - X.509v3 certificates

- PKI (Public Key Infrastructure)

- Certification Authority
  - Integrated Light Weight CA (LWCA)
  - Private or public PKI

Our strengths - Your advantages

Whatever your corporate structure, networked communication will optimize work and business processes. Distributed locations, teleworkers and branch networks can be integrated in the HiPath Real Time IP systems simply and inexpensively. Features are then available to all employees, regardless of their current location within your company. Furthermore, thanks to the wide range of applications and terminals available, the communication solution can be perfectly tailored to your requirements.

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Siemens Information and Communication Networks is a leading provider of networks and real time applications for businesses and network providers. One million customers in over 160 countries place their trust in our solutions. The global strategy pursued by Siemens and our expertise in voice and IP communication enable us to implement complete network solutions of all sizes and levels of complexity.

LifeWorks
Siemens already offers the communication of the future with LifeWorks. Innovative applications are available independently of network infrastructure and terminals in user-friendly and efficient form. Thus LifeWorks offers network providers, businesses and private users the full potential of Next Generation Networks.

Next Generation Networks
Next Generation Networks is a comprehensive network for voice, data and video across all application areas. Network operators increase their profitability through growth in sales with minimized costs. Businesses increase their productivity through the integration of our communication solutions in their business processes. Private users enjoy the benefits of new voice/data applications.

Siemens Information and Communication Networks offers everything to allow you to migrate gently and profitably from existing networks to Next Generation Networks:
- Real Time Communications
- Next Generation Switching
- Next Generation Access
- Next Generation Optics

Comprehensive services
We offer our customers comprehensive services for the entire added value chain. Our worldwide presence guarantees individual customer support at local level.

Your partner for profitable networks
Siemens Information and Communication Networks has comprehensive expertise in carrier and business networks. We use this knowledge to implement our vision of a consistent network, from the global carrier to the end-user. As your partner, we offer innovative solutions that ensure speedy return-on-investment and higher productivity and secure new sales opportunities. That's because your success is our number one priority.