Dialogic® Host Media Processing Software Release 3.1LIN

Datasheet
Dialogic® HMP Software

Dialogic® Host Media Processing Software Release 3.1LIN is high-density media processing software for building robust IP-based telephony solutions. Dialogic HMP Software 3.1 extends the capabilities of software-based IP media processing by introducing support for Dialogic® HMP Interface Boards and 3G-324M, native streaming, native play/record, AMR transcoding, and security features. Dialogic HMP Software 3.1 scales up to 1000 concurrent user sessions, with media processing, per system.

Features	Benefits
Native streaming and native play/record	Improves system performance by reducing CPU load and latency
3G-324M for video-enabled mobile applications with H.263 and AMR-NB coders	Allows customers to build 3G-324M video servers and gateways for 3G wireless networks
Up to 1000 channels of voice play/record over G.711 with user applications running on the same system	Supports high density, cost-effective IP and TDM solutions on standard servers
Compatible with Dialogic® T1/E1 HMP Interface Boards: single, dual, quad, and octal-span (PCI and PCIe)	Board/HMP combination provides excellent converged TDM/IP and TDM-only solutions
Dialogic® Global Call Software support for SS7 signaling	Allows Dialogic HMP Software 3.1 to be used in single-server solutions for pre-paid wireless and color ring back tone applications that require SS7 signaling and media resources
Secure RTP (SRTP) and SIP Transport Layer Security (TLS)	Enables customers to utilize encryption security at the media layer with SRTP and at the signaling layer with TLS
Dialogic® Global Call API, Dialogic® R4 API, and MSML support	Global Call and R4 APIs allow compatibility with other Dialogic® communications products, providing easy migration of existing applications; MSML interface enables a remote application to use a media server based on Dialogic HMP Software 3.1 in an IMS environment.

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Applications

Service Provider

- Mobile Solutions
  - — Messaging adjunct for IP-enabled PBX
  - — Video content delivery
  - — Video messaging
  - — Video and audio color ring back
  - — Video announcement
  - — 3G gateway
  - — IVR
  - — Conferencing server
  - — IMS
- Fixed Network Enhanced Services
  - — Announcement server
  - —IVR
  - — Conferencing server
  - — IMS

Enterprise

- IP PBX
  - — Switching
  - — Integrated messaging
  - — Conferencing
  - — Unified messaging
- Gateway
  - — Converged PBX
  - — 3G gateway
  - — TDM/IP gateway
- Contact Center
  - — Switching
  - — ACD
  - — IVR
  - — Speech-enabled IVR
  - — Conferencing
  - — Video enablement

Dialogic HMP Software 3.1 performs media processing tasks on general-purpose servers based on standard server architecture without requiring specialized hardware. The software provides media services for building flexible, scalable, and cost-effective next-generation IP media servers and converged telephony applications.

Dialogic HMP Software 3.1 introduces support for native streaming. Native streaming allows a media server created with Dialogic HMP Software 3.1 to join two calls via the same coder without transcoding, thereby reducing latency and increasing densities for low-bit-rate coders on the media server. Supported features include:

- **RTP pass-through** — Applications can directly access the RTP payload via memory/buffer interfaces in native format.
- **Native hairpinning** — Applications can form RTP media stream connections, allowing a received RTP media session to be retransmitted to the outgoing RTP media stream of another IP media session.
- **Native play/record** — Data can be stored to and read from a file in its native format without buffering as in RTP pass-through.

Multimedia

Dialogic HMP Software 3.1 introduces support for 3G-324M and AMR-NB transcoding for 3G applications. **Note:** Using the AMR-NB resource in Dialogic HMP Software 3.1 does not grant the right to practice the AMR-NB standard. To seek a patent license agreement to practice the standard, contact the VoiceAge Corporation at licensing@voiceage.com.

Dialogic HMP Software 3.1 supports the initiation and termination of a multimedia (audio/video) call, which includes SIP-based call control and H.263 video format. Dialogic HMP 3.1 Software supports up to 480 half-duplex multimedia sessions. Dialogic HMP Software 3.1 synchronizes voice and video streams for playback on IP video phones and video-enabled soft clients and connection to a 3G network. Dialogic HMP Software 3.1 can also deliver only the audio portion of a video call to an audio-only endpoint for 3G/2G gateway functionality.

Security Features

Dialogic HMP Software 3.1 also introduces security features using Secure RTP (SRTP) and SIP Transport Layer Security (TLS) to encrypt media and signaling information to keep media transactions secure. Because SRTP provides encryption, message authentication and integrity, and replay protection to RTP data, conversations are secure and cannot be stolen for later playback. TLS prevents dialing information on outbound calls from being stolen because it secures SIP signaling information.

Easy Migration to Hybrid TDM-IP and Pure IP Solutions

Dialogic HMP Software 3.1 uses the host server's built-in Network Interface Card (NIC) and Dialogic® HMP Interface Boards (DNI Boards) to provide IP and PSTN connectivity. Dialogic HMP Software 3.1 also supports the IETF RFC 3261 SIP standard for voice and video call session establishment. The ITU H.323 protocol is supported for voice calls along with H.450.2 for supplementary services. Compatibility with industry standards such as SIP, H.323, and H.450.2 provides interoperability with a wide range of gateways, gatekeepers, and other IP endpoints.

When combined with DNI Boards, Dialogic HMP Software 3.1 provides a cost-effective platform for developers to build TDM solutions today and migrate those solutions easily to hybrid platforms later and finally pure IP deployments. The hybrid platforms can be deployed as IP media gateways, enhanced services platforms, and converged PBX solutions.

The DNI Boards supported are the Dialogic® DNI/300TEPHMP Digital Network Interface Board, the Dialogic® DNI601/TEPHMP Digital Network Interface Board, the Dialogic® DNI/1200TEPHMP Digital Network Interface Board, the Dialogic® DNI/310TEPHMP Digital Network Interface Board, the Dialogic® DNI/610TEPHMP Digital Network Interface Board, the Dialogic® DNI/1210TEPHMP Digital Network Interface Board, and the Dialogic® DNI/2410TEPHMP Digital Network Interface Board.

To help customers accelerate their time-to-market and migrate existing applications to IP easily, Dialogic HMP Software 3.1 supports two direct APIs: the Dialogic® R4 API for media processing and the Dialogic® Global Call API for call control. These APIs are consistent with Dialogic® boards with DM3 architecture to enable quick application development and easy migration to a Dialogic HMP Software 3.1 platform.

Interoperability

To provide the interoperability needed for high-quality media streaming with a wide variety of industry-standard IP gateways and endpoints, Dialogic HMP Software 3.1 supports RTP/RTCP protocols for streaming over IP using G.711 (frame size of 10 ms, 20 ms, and 30 ms), G.726, G.723.1, G.729ab voice coders, AMR-NB format, and a standard Ethernet NIC for network connectivity.

To improve Quality of Service (QoS) and minimize latency to enable high voice quality, Dialogic HMP Software 3.1 supports threshold alarms, packet loss reduction/concealment, RTP/RTCP timeouts, and Type Of Service (TOS) byte setting. Additional QoS features include the ability to detect and report timeouts in RTP and RTCP sessions to the application.

Conferencing

The conferencing features in Dialogic HMP Software 3.1 facilitate the development of advanced conferencing applications. These features include coaching, active talker notification, tone clamping, echo cancellation, and scalability with a maximum of 600 conferees per system and 240 conferees in a single conference.

Other Important Features

Dialogic HMP Software 3.1 also includes the following important features:

- The ability to use Dialogic's IP call control API or to integrate any other IP call control protocol stack
- The ability to programmatically control the volume of RTP sessions in order to improve the end-user experience
- Support for a variety of media processing functions such as
  - — Play with volume control
  - — Record with Automatic Gain Control (AGC)
  - — Dual-Tone MultiFrequency (DTMF)
  - — User-defined tone detection and generation, including industry-standard RFC 2833 and H.245 User Input Indication (UII) mechanisms
- Support for outbound call progress analysis with positive voice detection and positive answering machine detection algorithms
- Support for Continuous Speech Processing (CSP) functionality with APIs fully compatible with other Dialogic® boards so Dialogic HMP Software 3.1 can integrate with Automatic Speech Recognition (ASR) and Text-To-Speech (TTS) engines
- Ability to scale up to 1000 concurrent user sessions with a mix of voice, video, speech, T.38 fax, and conferencing media processing resources per system
- Support for multi-CPU, multi-core configurations, and hyper-threading

Flexible Licensing

Dialogic HMP Software 3.1 can be licensed and deployed in numerous combinations of call control and media processing channels, allowing customers to choose the combination of media processing resources they need.

Runtime licenses can be created for any user-defined configuration within the product's scalability parameters and based on deployment server's hardware features such as CPU and memory. The software is licensed using an industry-standard model that node locks the software using FlexNet software from Macrovision.

Configurations

Configurations for IP media servers that can be developed with Dialogic HMP Software 3.1 include video portal, network announcements, IVR, voice mail, and conferencing servers.

An IP media server is the endpoint that terminates an IP connection in the network, and it is deployed differently in service provider and enterprise environments. The following sections discuss typical deployment environments.

Service Provider Configuration

Figure 1 illustrates how an IP media server based on Dialogic HMP Software 3.1 can be deployed in a typical service provider environment to deliver video messaging, IVR, announcements, voice mail/messaging, speech, or conferencing applications.

An IP-PSTN gateway terminates PSTN connections. A soft switch manages all aspects of call establishment and teardown over IP. Once the call is established, an RTP connection is created between the IP media server and an endpoint. The soft switch tells the media server, IP endpoints, and IP-PSTN gateway when to establish or drop connections.

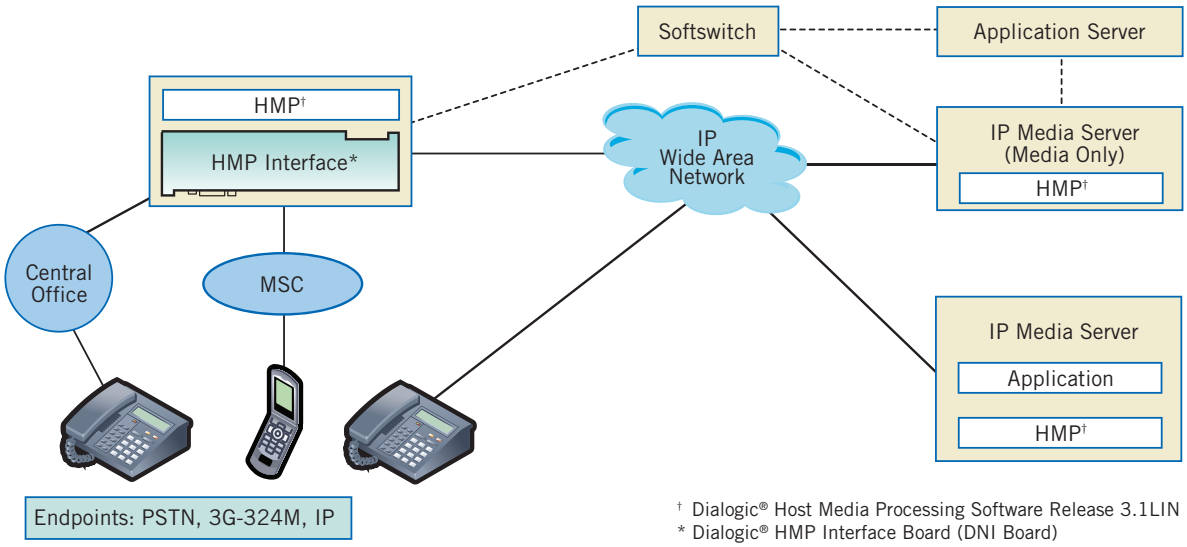

Figure 1. Dialogic HMP Software 3.1 in a Service Provider Environment

IP media servers are deployed according to two main models:

- **Local** — An application resides in the media server and controls the media processing functionality of Dialogic HMP Software 3.1 via direct APIs such as R4 and Global Call
- **Remote** — An application server controls the IP media server via remote interfaces such as MSML

Service providers often use remote deployment because scalability and availability can easily be increased by adding more servers. Remote deployments also work better in the hosted environments frequently used by service providers.

Figure 2 provides a view of a 3G-324M implementation. Dialogic HMP Software 3.1 supports media as well as SIP call control and can be implemented with Dialogic® DSI SS7 Stack and Dialogic® DSI SIGTRAN Stack.

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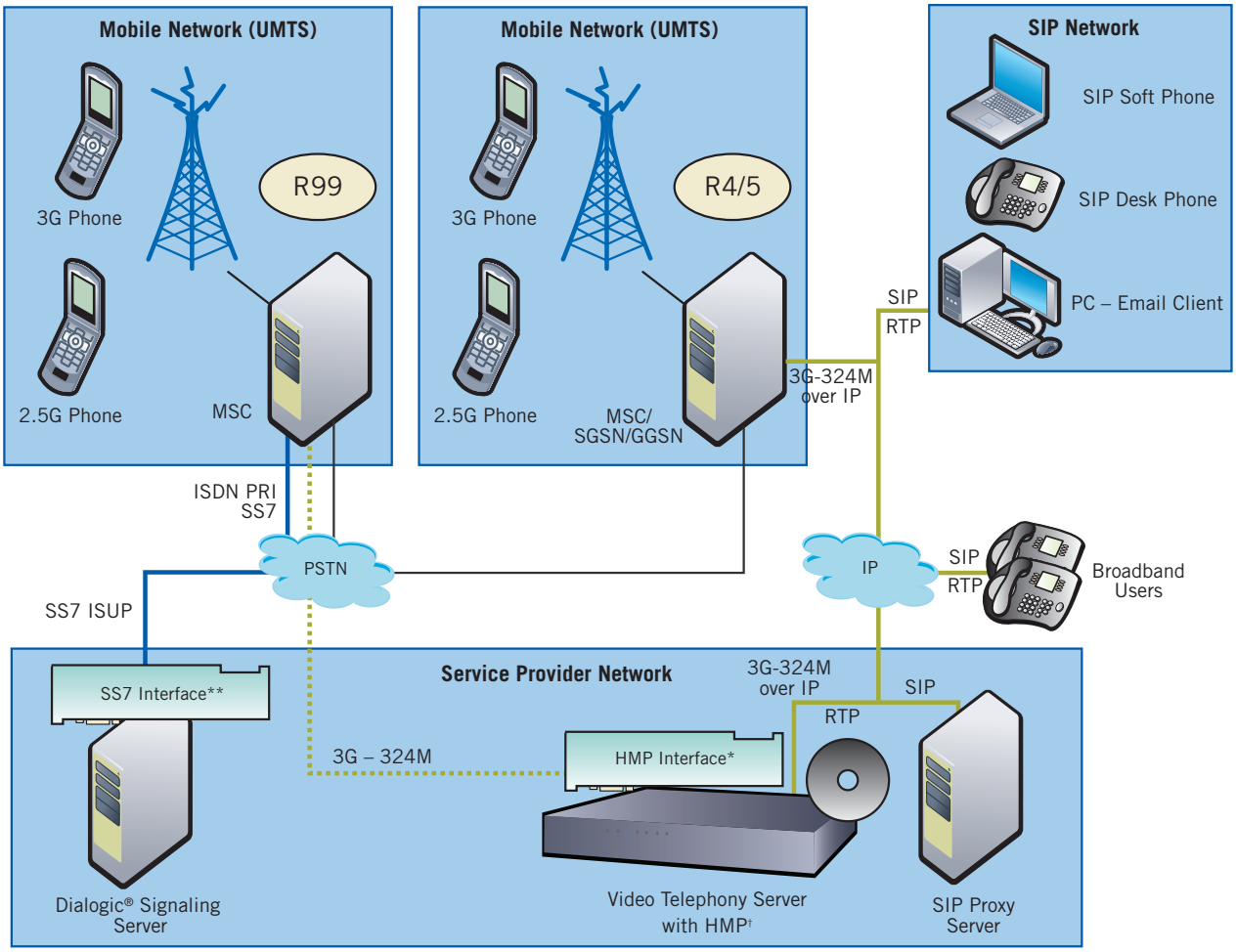

† Dialogic® Host Media Processing Software Release 3.1LIN
* Dialogic® HMP Interface Board (DNI Board)
** Dialogic® DSI SS7HDP Network Interface Board

Figure 2. Dialogic HMP Software 3.1 in a 3G-324M Video Server

Dialogic HMP Software 3.1 runs on a video telephony server, providing the play, record, playback, and synchronization used to display video on 3G wireless, IP soft clients, and IP video phones.

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Enterprise Configurations

Figure 3 shows how Dialogic HMP Software 3.1 can be deployed in an enterprise environment for IVR, video portal, auto attendant, voice mail, unified messaging, speech, or conferencing services.

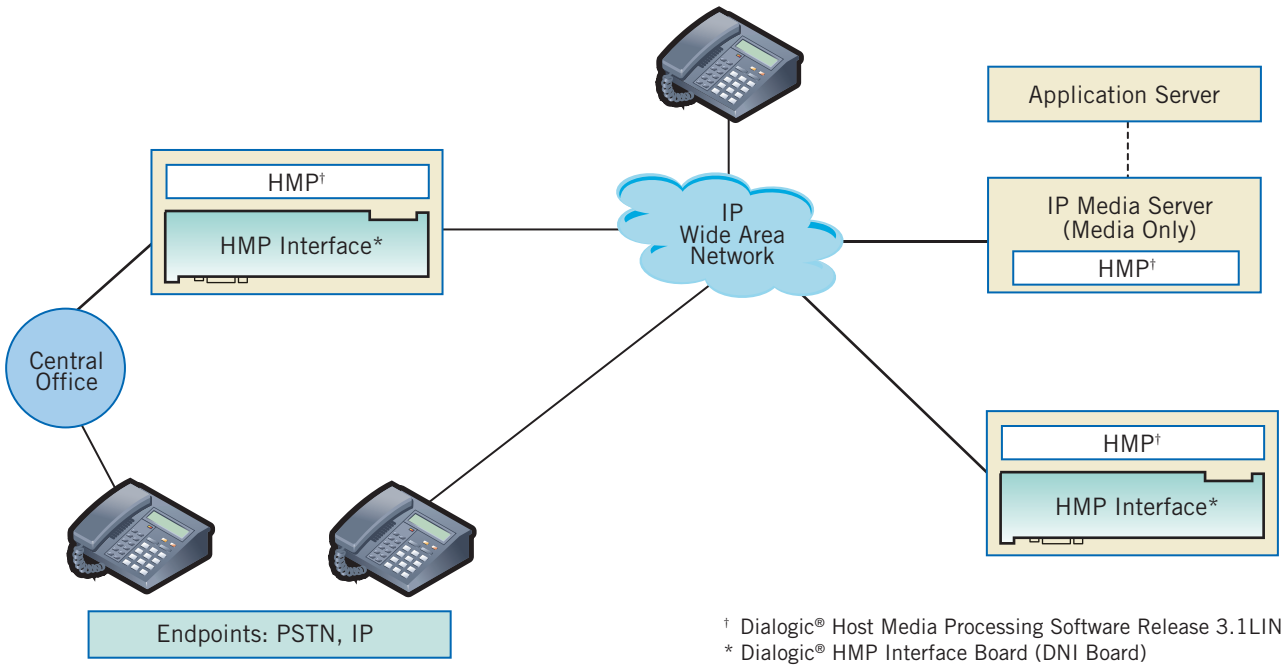

Figure 3. Dialogic HMP Software 3.1 in an Enterprise Environment

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Technical Specifications

Network Interface	
	IP over a standard Ethernet connection
Call Control over IP	
Protocols	SIP
	Transport Layer Security
	3G-324M for TDM (E1) and for IP (NbUP)
	SS7
	H.323
	H.450.2
	Integration with third-party call and connection control stacks using the IP media library
Media Streaming over IP	
Protocols	RTCP
	RTP
	Secure RTP
Coders	G.711
	G.723.1
	G.726
	G.729a
	G.729b
	AMR-NB (**Note:** Using the AMR-NB resource in Dialogic HMP Software 3.1 does not grant the right to practice the AMR-NB standard. To seek a patent license agreement to practice the standard, contact the VoiceAge Corporation at licensing@voiceage.com)
QoS	Alarms
	Frames per packet control
	Packet loss concealment
	RTP/RTCP timeouts
Tone generation and detection	RFC 2833
	H.245 UII
Media control over RTP	Programmatic control of inbound RTP stream gain and outbound RTP stream volume
API Support	
Call control	Dialogic® Global Call API for H.323, SIP, H.450.2, Dialogic® Global Call Software for SS7 signaling
	Third-party stack integrated via IP Media Library
Security	Transport Layer Security (TLS) for SIP messages
	Secure RTP

Technical Specifications *(continued)*

Remote control of media server	MSML
Voice processing	R4 voice (dx_)
Conferencing	R4 conferencing (cnf_)
	R4 conferencing (dcb_)
Fax	R4 fax (fx_)
Continuous speech processing	R4 EC (ec_)
IP media (QoS, etc.)	R4 IPML (ipm_)
Multimedia	MM (mm_)
3G-324M	3G-324M (m3g_)
Event reporting, device enumeration, and other related functionality	R4 SRL (sr_)

Channel Density

1000 concurrent user sessions with a combination of RTP streaming, voice, fax, speech, multimedia and conferencing resources per system

Voice Processing Features

Features supported	Play, record, and tone generation and detection
Play	Volume control and index play
Record	AGC
Audio file formats for play/record	OKI ADPCM 24 k, 32 k
	G.711 A-law, μ-law 48 k, 64 k
	All of the above in Wave format
	Linear PCM 8b 11 k (Wave format only)
	Linear PCM 8b 8 k
	GSM 13 k
Tone generation and detection	Inband DTMF generation and detection
	User-defined global tone generation and detection (GTG, GTD)
	RFC 2833 tone generation and detection
	H.245 UII tone generation and detection

Video Processing Features

Features supported	Play, Record
Play	Playback of voice and video, voice only
	Synchronization of voice and video
Record	Stores synchronized voice and video to a file
Video stream format	H.263 (profile 0 level 30)
Picture sizes	CIF, QCIF, sub-QCIF

Technical Specifications *(continued)*

Video file formats	Proprietary format
	Audo file (.pcm): Liner PCM 16b 8 k
	Video file (.vid): H.263 bit-stream data
Offline conversion tool	Convert AVI Type-2 (DVSD or DV25) files (PAL or NTSC) to proprietary format
	Convert proprietary format to 3GP Release 4 file format (.3gp)
Tone generation and detection	RFC 2833
	Inband

Conferencing Features

Total parties per server	600
Single conference maximum size	240
Advanced features	N-way summing
	Coach/pupil mode
	DTMF detection
	DTMF clamping
	Active talker notification

Supported Dialogic® HMP Interface Boards

Network interface	DNI/300TEPHMP— Single span PCI with 24 T1 or 30 E1 channels
	DNI/601TEPHMP — Dual span PCI with 48 T1 or 60 E1 channels
	DNI/1200TEPHMP — Quad span PCI with 96 T1 or 120 E1 channels
	DNI/310TEPHMP — Single span PCIe with 24 T1 or 30 E1 channels
	DNI/610TEPHMP — Dual span PCIe with 48 T1 or 60 E1 channels
	DNI/1210TEPHMP — Quad span PCIe with 96 T1 or 120 E1 channels
	DNI/2410TEPHMP — Octal span PCIe with 192 T1 or 240 E1 channels

Licensing

Enabling method	Node-locked using FlexNet licensing utility

System Requirements

Hardware

Processor: Intel Xeon, Intel Dual Core Xeon, Intel Quad Core Xeon, Intel Multi Core Xeon, Intel Pentium 4, Intel Pentium Extreme

Memory: 1 GB recommended for voice applications; 2 GB recommended for audio/video applications; 4 GB recommended for high density applications

Disk Space: 500 MB required for full installation of Dialogic HMP Software 3.1

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System

IP-only solutions: Single- or dual-processor platform with an Ethernet NIC (Note: 100Base-T recommended)

Converged solutions: Single- or dual-processor PIC platform with an Ethernet NIC and Dialogic HMP Interface Boards

Note: Dialogic HMP Software 3.1 provides a very high level of flexibility in choosing media processing configurations, making it impossible to list all the available combinations of media processing resources. Please contact your authorized Dialogic distributor to configure your system and obtain detailed system information specific to your configuration.

Operating System

Red Hat 3 Update 7 with 2.6.8.1 kernel*

Red Hat 4 Update 1, 2, 3, or 4

Red Hat 5 Advanced Server, Enterprise Server, or Workstation (AS/ES/WS)

SUSE Professional 9.3 with 2.6.11 kernel

SUSE Linux Enterprise Server (SLES) 9 SP3 with 2.6.5 kernel

* Compatible with IP-only solutions

Order Information

Order Code	Type of Resource	Features
DMIPS10A31L	Maintenance	One year of maintenance that allows upgrades to future Dialogic HMP Software releases for Linux available within the one-year time period
DMIPS10AMR31L	AMR-NB Coder	Adds the capability of AMR-NB coder. Note: Using the AMR-NB resource in Dialogic HMP Software 3.1 does not grant the right to practice the AMR-NB standard. To seek a patent license agreement to practice the standard, contact the VoiceAge Corporation at licensing@voiceage.com
DMIPS10C31L	Conferencing	Includes advanced features such as coach/pupil mode, tone clamping, and active talker notification
DMIPS10E31L	G.729, G.723 Coders	Adds the capability of transcoding a single channel using the G.723.1, G.729a, and G.729b coders. *Requires a Basic RTP Streaming Resource.*
DMIPS10F31L	Fax termination	V.17 and T.38 fax termination enables unified messaging applications
DMIPS10G31L	3G-324M	Provides synchronization between voice and video streams for playback on IP video phones and video-enabled soft clients, and connection to a 3G network
DMIPS10I31L	IP call control	Provides call control stacks for H.323 with H.450.2 supplementary services, SIP protocols, and MSML server support for media server mode
DMIPS10M31L	Multimedia	Audio and video resource for multimedia messaging; video format H.263 (profile 0 level 30). *Requires a Basic RTP Streaming Resource.*
DMIPS10NP31L	Native Play/Record	Record and play a message in its native format. *Requires a Basic RTP Streaming Resource.*
DMIPS10NS31L	Basic RTP Streaming	Provides a streaming digitized RTP or SRTP interface that enables hairpinning and is required for streams and for native play/record
DMIPS10R31L	G.711, G.726 Coders	Provides the capability of transcoding the G.711 coder with 10 ms, 20 ms, and 30 ms frames. *Requires a Basic RTP Streaming Resource.*
DMIPS10S31L	Speech integration	Integrates Dialogic HMP Software 3.1 with speech engines for ASR and TTS support by using Continuous Speech Processing (CSP) APIs. *Add on top of the voice resource.*
DMIPS10V31L	Voice	Play with volume control, record with AGC, DTMF, user-defined tone detection and generation, including RFC 2833 and H.245 UII

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www.dialogic.com

Dialogic Corporation
9800 Cavendish Blvd., 5th floor
Montreal, Quebec
CANADA H4M 2V9

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