

# PacketMedia HMP 2.0

## Software Platform for Rich Media Processing

**N**MS Communications' PacketMedia™ HMP is a scalable and cost-effective host media processing platform for deploying media server applications on standard, general-purpose computing platforms without the need for specialized hardware. PacketMedia HMP supports a rich set of media processing functions, including VoIP packetization, IVR, and conferencing, enabling deployment of a wide range of powerful IP media server applications, from announcement servers to voicemail and more. Deploying these applications across the enterprise and service-provider back office on standard Pentium®-compatible servers greatly simplifies solution rollout and maintenance.

As part of the Open Access™ family, PacketMedia HMP developers leverage the powerful Natural Access™ development environment to bring media server applications to market quickly and at a lower cost. Backed by the best developer support in the industry, PacketMedia HMP adds another dimension to the creation of high-value media processing applications.



FEATURES	BENEFITS
All media processing runs on Intel Pentium and compatible processors	No specialized media processing hardware is required reducing total cost of ownership
Support for a variety of popular processors	Developers may choose from a wide range of PC platforms to deliver cost effective solutions
Uses familiar Natural Access development environment	Versatile, consistent, and easy-to-use API for rapid application development
Support for smallaudio conferences using the NaturalConference API	Robust audio conferencing capability without the need for specialized hardware
Native RTP record/play	Higher voice quality, and lower media processing cost, enabling a more scalable HMP environment
VoIP call control using SIP for Natural Access	Interoperability with media gateways and other IP endpoints
Interoperability with VoiceXML servers	Standard interface to VoIP application server environments
G.711 and G.729 vocoders (10, 20, 30 ms frame sizes)	Provides a wide range of options to meet customer business requirements
G.711 DTMF carriage based on RFC 2833	Support for interactive voice applications

# PacketMedia HMP 2.0

## MORE FEATURES

- Simultaneous play and record with barge-in enables voice applications with a high user acceptance
- Supports Windows® 2000 Professional and Windows 2003 Standard in single, dual, and quad server configurations
- Supports Red Hat® Linux® ES 3.0 in single and dual processor configurations
- High-performance G.729 vocoder implementation
- PSTN connectivity support using NMS CG and TX series boards with signaling support

## APPLICATIONS

- IP media servers
- Gateways
- Voice portals
- IP announcement servers
- VoIP telephony testing systems
- Messaging

## TECHNICAL DESCRIPTION

PacketMedia HMP 2.0 is a host media processing (HMP) platform that enables the development of high-value media processing applications on general-purpose PC hardware, without the need for specialized DSP-based hardware. The product supports a rich set of media processing functions including IVR, VoIP packetization, DTMF generation and detection, native RTP play/record, and conferencing. This results in a cost-effective and scalable platform for OEMs building next-generation IP media server solutions.

Developers may use the rich development environment provided by Natural Access to bring applications to market quickly and at reduced cost. Media server applications may be moved between the PacketMedia HMP and NMS's CG Series boards with minimal modifications, enabling a wide range of deployment options.

### Real-Time Media Processing

PacketMedia HMP 2.0's unique design enables real-time media processing on standard Windows and Linux OS environments. The media processing engine and the application run as separate OS user processes, not as kernel processes. As a result, the application and the HMP implementation are shielded from OS instabilities, such as rogue device drivers, leading to a more reliable media processing environment. The application is also easier to debug because it runs in its own process space.

### Built-in Conferencing

PacketMedia HMP 2.0 introduces robust audio conferencing capability based on NMS's NaturalConference API. Conferencing features including full-duplex conferencing, conference recording, automatic gain control, and DTMF clamping are supported. The need for specialized audio conferencing hardware is removed and developers may easily build conferencing capabilities into their applications.

### G.711 and G.729 Vocoder Support

PacketMedia HMP 2.0 supports G.711 with 10, 20, 30 ms frame sizes and G.729 vocoders with 10, 20, 30 ms frame sizes. G.711 offers toll-grade voice quality while operating at 64 kbps. G.729 operates at 8 kbps and provides an excellent trade-off in terms of bandwidth and voice quality. By supporting both G.711 and G.729, PacketMedia HMP 2.0 gives customers the flexibility to deploy a solution that best meets their technical and business requirements.

### Native RTP Record/Play

PacketMedia HMP 2.0 supports a native RTP record/play function that increases voice quality and reduces computational cost. Voice quality is improved by recording and playing back an RTP audio stream in the same format that it was received in. Media processing cost is reduced by avoiding expensive transcoding operations when the playback caller has the same transcoding type as the native RTP recording. In case the playback caller has a different vocoder type, the proper transcoder channel is established, ensuring that all callers are able to play back any format. The native RTP record/play feature enables better voice quality and a more scalable HMP platform.

### SIP Interoperability

The powerful combination of PacketMedia HMP 2.0 and the SIP API for Natural Access provides a robust development environment for building high-value media applications that interface with SIP-aware network elements, such as proxy servers, application servers, and softswitches.

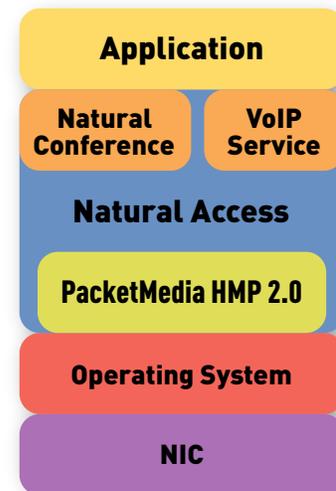


Figure 1: Block Diagram of PacketMedia HMP 2.0, Natural Access, VoIP Service (Fusion), and NaturalConference

## TECHNICAL SPECIFICATIONS

### Host CPU

- Runs on Intel Pentium 4 and code-compatible processors
- Supports single, dual, and quad processor configurations with or without Hyperthreading
- Support for multiple 10/100/1000Base-T Ethernet interfaces

### Distribution and Licensing

- Distributed by software download from NMS web site
- Software license is node-locked to a particular computer
- Time-limited demo licenses available for product evaluation purposes

### Software Environment

- Windows 2000, Windows 2003 Server, Red Hat Enterprise Linux (RHEL) 3.0 ES, RHEL 4.0 ES
- Natural Access 2005-1 SP2 development environment
  - VoIP Service (Fusion) API
  - NaturalConference
- Optional software components
  - SIP for Natural Call Control™
  - Universal Speech Access (MRCP)

### Protocols Supported

- IP, UDP, RTP/RTCP (with forking and switching)
- SNMP RTP MIB
- G.711 DTMF acoustic, and packet carriage based on RFC 2833

### Media Stream Processing

- Comprehensive IVR support for play and record
- Vocoders: G.711 A-law and  $\mu$ -law (10, 20, 30 ms) and G.729a/b (10, 20, 30 ms)
- Native RTP play/record
- Voice activity detection (VAD), automatic gain control (AGC), DTMF (acoustic and packet)
- Audio conferencing using NaturalConference; full duplex conferencing including support for Automatic gain control and DTMF clamping

### IVR Application on PacketMedia HMP 2.0

Number of G.711 sessions	Minimum Processor	Memory
90	Pentium 4, 2 GHz, single CPU	512 MB
180	Pentium 4, 3 GHz, single CPU	512 MB

## NMS SERVICES

NMS has a full range of service contract options to support customers at all phases of the solution life cycle. NMS Technical Services offers development, deployment, and production support, and provides the on-call resources and training needed to speed products to market, ensure quality, and exceed expectations.

For the latest information on supported features and operating systems, refer to our web site at [www.nmscommunications.com](http://www.nmscommunications.com).

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