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White Paper

VoIP Market Enters New Era

System-On-Chip (SoC) Data and Voice Processor Combines with Open-Source Developers Ecosystem to Accelerate Already-Rapid Market Growth

Mindspeed OpenMind™ Third-Party Developer Program Gives Customers Expanding Range of Options to Improve Time to Market and Reduce Execution Risk

After years of mounting expectations, the worldwide VoIP market is experiencing significant growth as the deployment benefits of converged, packetized voice and data services are realized by service providers, businesses and consumers. Designers are rapidly adding these mixed-media capabilities to what until now have been islands of voice-centric or data-centric networks. In the residential market, the focus is on integrating basic voice features into a single packet-based gateway. Meanwhile, enterprise-class designers are focusing on adding full voice quality and secure VPN data routing into converged mixed-media platforms. Finally, equipment vendors all have opportunities to build carrier-class systems that benefit from this new mixed-media architectural model. In all three cases, the advent of open-source voice applications has stimulated important new opportunities, providing designers with a head-start on basic convergence features, and a foundation upon which they can add customized features and capabilities while optimizing quality, performance and cost, with faster time to market.

Mindspeed has embraced this VoIP development revolution with the creation of its OpenMind initiative, the first of its kind to let equipment manufacturers take full advantage of open-source applications as a basis for both turnkey and customizable solutions running on the company's optimized mixed-media silicon platform. OpenMind is a third-party developer program that enables VoIP system designers to quickly and easily integrate the company's single-chip Comcerto™ Series processor family with products and services from Mindspeed's growing network of participating hardware, software and contract manufacturing companies. The program delivers both new market entrants and established voice equipment players, alike, the necessary ecosystem of resources with which to quickly create baseline designs and then value-add their own customized features and capabilities, as desired.

OpenMind brings together all of the elements required to deliver products to market. Customer options range from complete turnkey solutions to flexible design solutions that allow them to more easily customize and differentiate their products for specific market segments. The ability to run Comcerto-proven open-source and third-party applications, combined with access to a variety of hardware integration options, enables customers to cut development costs and execution risks while accelerating time to market for broader product offerings that have expanded feature sets plus improved real-time performance and scalability. At the same time, customers are able to leverage their development investment across a broad range of residential, enterprise and carrier applications.

Key OpenMind program elements include:

- Processor platform optimized for open-source VoIP applications: Mindspeed's Comcerto processor integrates an application Control and Signaling Processor (CSP) with a real-time Media-Stream Processor (MSP). This provides a deterministic architecture with best-in-class voice quality that is capable of scaling from data-only applications to full packet telephony capabilities operating on four to four thousand complex voice channels. Mindspeed has developed and refined scalable voice band processing systems for more than 10 years. The company's VoIP subsystems can be integrated into new platforms across a wide density range with very low integration effort, and the Comcerto technology provides a solid migration path to a complete office-in-a-box

offering. The Comcerto devices are pin-compatible, application program interface (API)-compatible, and run the same VoIP firmware, enabling a Comcerto-based system to scale across residential gateway, enterprise integrated service, and carrier wireline and wireless gateway applications. Combined with an extensive programmable software suite, the Comcerto family offers equipment designers a sophisticated open-source processing system for a complete mixed-media processing solution on a single chip.

- Rich library of open-source and third-party applications: Mindspeed has established an ecosystem of open-source application vendors, adding all necessary software and APIs to the Comcerto processor to provide developers with an embedded platform for creating a wide variety of new services and capabilities.
- Comprehensive development/manufacturing ecosystem: Mindspeed's growing roster of OpenMind companies includes silicon providers, software and application suppliers, contract manufacturers, turnkey original design manufacturers (ODMs) and hardware designers who collectively provide their mutual customers with all of the necessary support for developing a complete VoIP solution. Mindspeed has been building its OpenMind community since early 2005, working with them to forge a new collaborative, open-source-based design approach for next-generation VoIP equipment. This approach is easier, faster and less costly and cumbersome than traditional communications equipment development models.

A New Development Model

Mindspeed's OpenMind program differs dramatically from traditional component-centric approaches that require extensive internal development work on the part of the equipment manufacturer. In contrast, Mindspeed's OpenMind initiative creates a robust and significantly more comprehensive solution while offering numerous advantages to customers and partners, alike. Mindspeed can now mobilize OpenMind companies on behalf of its customers across each step of the design-to-manufacturing development chain, enabling them to benefit from reduced development costs and design cycles for modular and scalable products. At the same time, OpenMind vendor participants benefit from the synergies inherent with offering a holistic and coordinated multi-vendor approach to VoIP equipment design based on a foundation of open-source applications.

Exciting New Applications

OpenMind participants have considerable experience working with the Comcerto processing platform, and are currently developing Comcerto-based VoIP designs with leading VoIP equipment manufacturers worldwide. Mindspeed's OpenMind initiative has already resulted in a number of exciting new equipment designs including:

- Firmix has integrated a customized API channel module for Comcerto processors into the Asterisk Open Source PBX application, enhancing the time-to-market advantage of enterprise equipment customers designing open-source-based PBX systems.
- Netbricks has integrated its SIP-Bricks session initiation protocol (SIP) software into Mindspeed's Comcerto processors, creating an enhanced system-on-chip voice processing solution for enterprise PBX, gateway and voice-enabled router equipment.
- Mindspeed and Viking InterWorks have collaborated to integrate Comcerto VoIP processors into Viking Interworks' VRDE1401 family of voice-gateway modules, allowing equipment manufacturers to quickly add robust voice services to existing router, enterprise PBX and carrier gateway equipment.

OpenMind Ecosystem

Mindspeed is collaborating with leading companies in each of five critical categories of VoIP equipment-development resources. Current participants include:

Software Application Developers:

ARM, Askey, Digium, Flextronics, LynuxWorks, M5T, Netbricks, Psytechnics

Design Services Providers:

Askey, Flextronics, Firmix, Teleca, Viking InterWorks

Turnkey ODM Solutions Providers:

Askey, Flextronics, TelcoBridges, Telrad, Viking InterWorks

For additional information about Mindspeed's OpenMind program, visit www.mindspeed.com.

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