

## vPort Product Family

The VoIP market is a leading growth segment in networking and telecommunications, and is poised to eventually replace legacy phone systems as the dominant voice communications platform. To succeed in the market, equipment manufacturers need to deliver exceptional VoIP performance (call quality) and advanced functionality, all at a low price point. Embedded VoIP software allows vendors to bridge the price/performance gap with devices that incorporate the latest integrated communications processors, advanced features and robust functionality, while providing the hardware architecture flexibility required for cost and performance optimization.

D2 Technologies' vPort solutions deliver the high voice quality, efficiently tuned system implementation, and broad OS and IC support necessary for manufacturers to build winning VoIP solutions. With vPort, OEMs and ODMs can quickly and cost-effectively develop a broad range of VoIP-enabled devices without being distracted from product platform design and branding. It is a flexible platform that supports multiple services, such as SIP-based VoIP and VOIM (PC-based IM/P2P voice such as Skype, GoogleTalk, Yahoo! and MSN). In addition, the vPort solution simultaneously lowers costs by enabling the use of "softDSP," provides OS and IC flexibility by abstracting the software layer, and improves performance by eliminating latency inherent in other solutions.

vPort leads the market in performance and efficiency, enabling networking, signaling and voice processing functions to execute

## Product Brief

as an integrated solution on a single processor. This in turn offers substantial advantages in bill-of-materials (BOM) cost, power consumption and ease of integration. The software is highly optimized not just for voice quality, but also for a small memory footprint, low processor (CPU MHz) impact and low latency, and adds true real-time performance to non-real-time operating systems.

### vPort Architecture

Designed for flexibility and portability, vPort can execute on both RISC and CISC platforms under industry-standard operating systems. It is currently optimized for both ARM and MIPS processor architectures under the VxWorks, Nucleus and LINUX operating systems. vPort's virtual DSP architecture enables the voice DSP functions to run as "soft DSP" on a RISC processor or as DSP code on a hardware DSP core, providing further design flexibility.

The support of multiple processor architectures and operating systems, along with the unique virtual DSP capability, allows OEMs to choose best-of-breed components and avoid being locked into a particular hardware platform or architecture. It also simplifies software development, support and maintenance, since all the software operates under a single environment using one set of tools. Because of its modular architecture, vPort can be quickly modified for customer-specific applications and runtime platforms.

### Benefits

#### Optimized

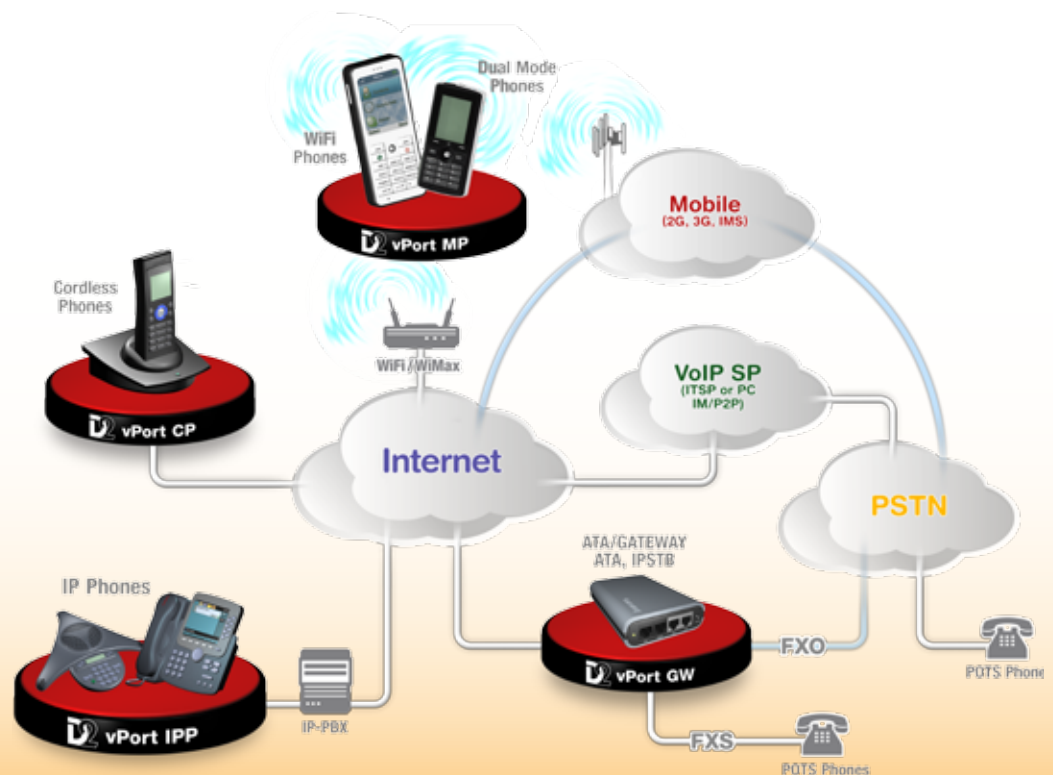
- Low CPU MHz (MIPS) impact
- Efficient memory utilization
- True real-time performance

#### Flexible

- Supports leading CPUs and Operating Systems
- DSP-less (softDSP) or DSP implementations
- Multi-protocol support: SIP, MGCP, XMPP, others

#### Proven

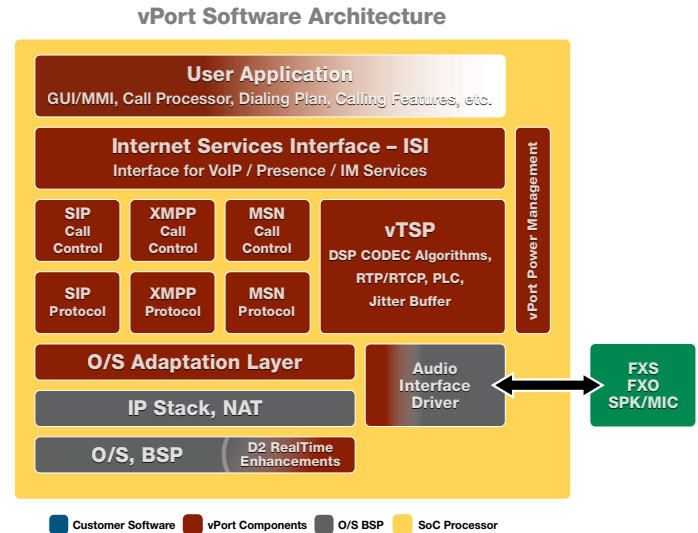
- Solutions for CPE, mobile terminals, infrastructure
- Leading voice quality, interoperability and reliability



## Applications and Features

vPort products are available for use by manufacturers in a wide variety of product segments covering consumer, enterprise and carrier devices. At the heart of each vPort solution, there is a core technology that has been successfully deployed for applications such as wired/wireless voice-enabled terminal adapters, routers and gateways as well as VoIP phones and mobile handsets. vPort products can be integrated into an existing product or a new device and can be optimized to specific end-user device requirements.

This software solution is backed by more than 13 years of voice and Internet technology experience and offers unique voice engine, protocol processing and system implementation optimizations that are critical in advanced CPE and terminal devices such as noted in the table below.



## vPort Product Family Matrix

Product	Applications	Specific Features	Common Features
<b>vPort MP</b> (Mobile Phone)	<ul style="list-style-type: none"> <li>• Wi-Fi Phone <ul style="list-style-type: none"> <li>- VoWLAN</li> </ul> </li> <li>• FMC/Dual-Mode <ul style="list-style-type: none"> <li>- VoWLAN + GSM</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• SIP or IM/P2P protocol*</li> <li>• Speaker Phone <ul style="list-style-type: none"> <li>- Full Duplex + Acoustic Echo Canceller</li> <li>- Audio Drivers</li> </ul> </li> <li>• Wideband CODECs*</li> <li>• Power Management</li> </ul>	<b>Voice and Telephony Signal Processing</b> <ul style="list-style-type: none"> <li>Voice Compression (CODECs)</li> <li>Adaptive Jitter Buffer</li> <li>Packet Loss Compensation</li> <li>Echo Cancellation</li> <li>VAD/Silence Comp</li> <li>DTMF Detect/Relay</li> </ul>
<b>vPort IPP</b> (IP Phone)	<ul style="list-style-type: none"> <li>• IP Desk Phone</li> <li>• IP Speaker Phone</li> <li>• Video Phone <ul style="list-style-type: none"> <li>- Voice functionality</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Speaker Phone <ul style="list-style-type: none"> <li>- Full Duplex + Acoustic Echo Canceller</li> <li>- Audio Drivers</li> </ul> </li> <li>• Wideband CODECs*</li> </ul>	<b>Signaling Protocols</b> <ul style="list-style-type: none"> <li>SIP &amp; H.323/MGCP</li> <li>XMPP*</li> </ul> <b>OS Integration</b> <ul style="list-style-type: none"> <li>OSAL: OS Abstraction Layer</li> <li>Real-Time OS enhancements</li> </ul>
<b>vPort GW</b> (CPE Gateway)	<ul style="list-style-type: none"> <li>• ATA/Router/IAD <ul style="list-style-type: none"> <li>- DSL, Cable</li> <li>- VDSL, FTTx, GPON</li> <li>- WiMAX, 3/3.5G</li> </ul> </li> <li>• Voice+Video/Triple Play <ul style="list-style-type: none"> <li>- IPSTB</li> <li>- VOD</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• FXS support <ul style="list-style-type: none"> <li>- SLIC drivers</li> <li>- Line Echo Canceller</li> </ul> </li> <li>• FXO support* <ul style="list-style-type: none"> <li>- PSTN Fail-over</li> <li>- PSTN connectivity/call origination</li> </ul> </li> <li>• Fax Relay*</li> </ul>	
<b>vPort CP</b> (DECT/Cordless Phone)	<ul style="list-style-type: none"> <li>• DECT/Cordless VoIP <ul style="list-style-type: none"> <li>- SIP-based for ITSP</li> <li>- IM/P2P Voice (stand-alone, w/o PC)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• FXS support* <ul style="list-style-type: none"> <li>- SLIC drivers</li> <li>- Line Echo Canceller</li> </ul> </li> <li>• FXO support* <ul style="list-style-type: none"> <li>- PSTN Fail-over</li> <li>- PSTN connectivity/call origination</li> </ul> </li> </ul>	

\* Optional Features

Copyright © 2007 D2 Technologies, Inc. All rights reserved. While every effort is made to ensure the information given is accurate, D2 Technologies does not accept liability for any errors or mistakes which may arise. All specifications are subject to change without notice. VPFAMPB0307-Rev 1