



Using Dialogic® Boards to Enhance Unified Messaging Applications



Executive Summary

Voice mail, fax, and email have become indispensable in offices of every size. Because organizations rely on these media for message delivery, better message management is a growing business need. Using a unified approach to message delivery and storage is an efficient way to manage these very different media. Although the forms of Unified Messaging (UM) solutions vary, they all rely on the convergence of voice and data. Today's Internet Protocol (IP) and speech technologies are expanding the potential of UM offerings and how employees manage their multiple-media messages. Dialogic® JCT Media Boards and Dialogic® PBX Integration Boards provide technology to support the features and functions of UM solutions.



Table of Contents

Introduction.....	2
Unified Messaging Applications	2
JCT Media Boards and Dialogic® PBX Integration Boards.....	2
Features and Benefits.....	3
Typical Configurations.....	4
For More Information.....	4

Introduction

Using Unified Messaging (UM) for message delivery and storage is an efficient way to manage voice mail, fax, and email. Although UM solutions vary, they all rely on the convergence of voice and data. Dialogic® JCT Media Boards and Dialogic® PBX Integration Boards provide multimedia processing and call control that can enable flexible UM solutions, providing the integrated collection and retrieval of messages in different media formats. Dialogic® development tools and professional services enable developers, integrators, service providers, and end users to create customized applications and systems.

Using UM enables users to:

- Locate and access important messages quicker than when accessing their voice mailbox via the phone
- Access and review all their messages at once, rather than having to dial one number for voice mail, another number for email, and locate an assistant to manually forward fax messages
- Annotate a fax or email message with a voice introduction before forwarding it to other users in the UM system

Unified Messaging Applications

The following list is a sample of messaging applications that can be enabled by the JCT Media Boards and PBX Integration Boards:

- Messaging
- Unified messaging
- Voice mail
- Voice- and fax-to-email
- Email- and fax-to-voice mail

JCT Media Boards and PBX Integration Boards

The JCT Media Boards and PBX Integration Boards are suitable for developing applications that require multimedia functionality in a single PCI slot. The consistent features, application programming interface, and installation requirements of the JCT Media Boards and PBX Integration Boards enable scaling of applications from four analog lines to two E-1 trunks (60 voice channels) using a single PCI slot with little or no changes to existing software. When additional PCI slots are available, more boards can be added to further increase system density.

The following table shows the various environments and applications that the JCT Media Boards and PBX Integration Boards support:

Environment	Dialogic Boards
Telco or service provider (xSP) with E1/T1 trunks (SS7*, ISDN, or CAS signaling)	Dialogic® D/600JCT-2E1 JCT Media Board Dialogic® D/600JCT-1E1 JCT Media Board Dialogic® D/480JCT-2T1 JCT Media Board Dialogic® D/480JCT-1T1 JCT Media Board
Medium-to-large enterprise with E1/T1 trunks (ISDN or CAS signaling)	Dialogic® D/300JCT-E1 JCT Media Board Dialogic® D/600JCT-1E1 JCT Media Board Dialogic® D/240JCT- T1 JCT Media Board Dialogic®D/480JCT-1T1 JCT Media Board
Medium-to-large enterprise with analog trunks or analog PBX extensions	D/120JCT-LS Dialogic® JCT Media Board
Small-medium-large enterprise with compatible** digital PABX ports	Dialogic® D/82JCT-U PBX Integration Board Dialogic® D/42JCT-U PBX Integration Board
Small-to-medium enterprise with analog trunks or analog PABX extensions	Dialogic® D/41JCT-LS JCT Media Board Dialogic® VFX/41JCT-LS JCT Media Board

* SS7 signaling requires additional hardware. For more information, visit the Dialogic® Signaling Boards and SS7 Products web site at <http://www.dialogic.com/support/helpweb/signaling/default.htm>

**For PBX compatibility information, visit the Dialogic® PBX Integration Boards web site at http://www.dialogic.com/products/tdm_boards/signaling/default.htm

Features and Benefits

JCT Media Boards and PBX Integration Boards are well suited for developers and service providers interested in creating and deploying cost-effective, highly scalable, low- to high-density UM applications that require multimedia resources including voice, software-based speech recognition, and fax.

JCT Media Boards and PBX Integration Boards can reduce the cost of ownership for systems requiring multimedia functionality by featuring programmable ports capable of supporting voice, fax, call handling, and host-based speech technologies. They enable system integrators and developers to lower costs by incorporating more ports per chassis, using less expensive desktop-style machines, and simplifying configuration and installation.

Most of the JCT Media Boards and PBX Integration Boards feature Continuous Speech Processing (CSP) support for host-based Automatic Speech Recognition (ASR), and come pre-loaded with DSP-based Softfax fax capability. The CSP barge-in capability, coupled with perfect digit DTMF (touchtone) functionality, lets users get to their messages quickly by speaking or keying ahead through the menu options.

The following JCT Media Boards have CSP capability:

D/600JCT-1E1	ISDN or CAS = 30 ports CSP
D/480JCT-2T	CAS = 48 ports CSP
D/480JCT-1T1	ISDN=24 ports CSP
D/240JCT-T1	CAS = 24 ports CSP
D/120JCT-LS	12 ports CSP
D/41JCT-LS	4 ports CSP
VFX/41JCT-LS	4 ports CSP

Low bit rate coders such as GSM and G.726 (the de facto standard when complying with Voice Profile for Internet Messaging [VPIM] applications) provide the capability to migrate legacy voice mail systems to enhanced UM solutions.

Advanced features in the JCT Media Boards and PBX Integration Boards enable self-service options such as click-to-talk, voice portal services for information retrieval and v-Commerce capabilities, advanced call routing and call data handling, plus more. These features are designed to provide customer satisfaction and a positive end-user experience.

The JCT Media Boards and PBX Integration Boards offer specialized features to help satisfy the needs of their targeted markets:

- The single span JCT Media Boards, featuring the D/240JCT-T1 and D/300JCT-E1, provide the functionality and network connectivity to enable medium-to-large enterprises to deploy UM. The digital signaling capability of E1 and T1 trunks provides the network connectivity method of choice for larger enterprises.
- The dual span JCT Media Boards, featuring the D/600JCT-2E1 and D/480JCT-2T1, provide the density, functionality, and network connectivity to enable telcos and service providers to offer UM.
- The D/120JCT-LS is a core building block for global multimedia solutions in medium-to-large enterprises. With 12 analog loop-start telephony ports, this high-density PCI voice processing board features a unique dual-processor architecture that handles telephony signaling and performs DTMF and audio/voice signal-processing tasks on-board, which reduces host CPU overhead.
- The D/82JCT-U offers eight digital interfaces connecting to some of the most widely used PBXs on the market. UM applications built with the D/82JCT-U can enable small-to-medium-to-large enterprises to increase the value of their PBX investment and reap the benefits of digital signaling for call control.
- The D/42JCT-U offers four digital interfaces connecting to some of the most widely used PBXs on the market. UM applications built with the D/42JCT-U can enable small-to-medium enterprises to increase the value of their PBX investment and reap the benefits of digital signaling for call control.
- The D/41JCT-LS is the entry-level, high-performance, four-port analog voice and fax processing board for UM applications in small-to-medium enterprises. Capable of supporting fax on all four ports simultaneously, this board offers the most features per channel of any of the JCT Media Boards.
- The VFX/41JCT-LS is the entry-level, high-performance, four-port analog voice and fax processing board for UM applications in small-to-medium enterprises. This board has the same features as the D/41JCT-LS, but offers four channels of an enhanced version of fax.

JCT Media Boards and PBX Integration Boards enable developers, system integrators and end users to lower costs and rapidly scale their UM systems by installing multiple boards in industry-standard PCI computers and servers.

Typical Configurations

In Figure 1, a UM system processes voice calls through the PSTN and PBX. When a user is unavailable to answer an incoming call, the voice-messaging component of the UM system answers the call and records a message, which the user can still retrieve via the phone. Fax messages are processed through the PSTN and PBX, and directed to the UM system where they are stored for user access and retrieval. Email messages are processed by and stored on the email server, and the UM system communicates to the email server through the data network (that is, LAN, WAN, etc.).

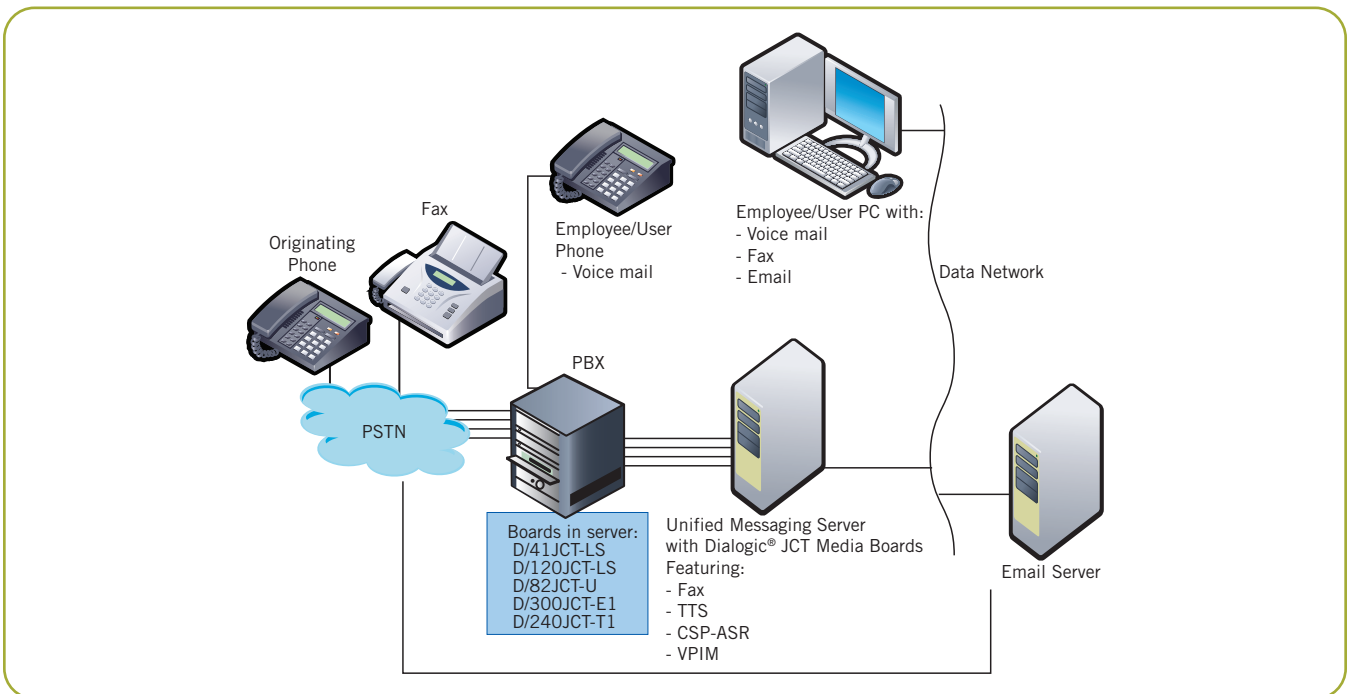


Figure 1. Unified Messaging Configuration

The UM system containing the voice mail and fax messages, the email server containing the email messages, and the user PC are all connected to the data network and communicate with each other. This configuration enables a user to use a PC to access and retrieve voice, fax, and email messages.

Depending on the configuration and services selected in any given application, many of the UM capabilities can be provided by JCT Media Boards and PBX Integration Boards:

- Lower system cost due to all-in-one multimedia capabilities
- Pre-processing for Text-To-Speech (TTS) applications providing telephone access and management of email or fax messages
- Pre-processing for speech recognition for converting voice messages to email messages and speech-enabled auto-attendant
- On-board, DSP-based Softfax for consolidation of fax message processing

For More Information

Dialogic® JCT Media Boards — http://www.dialogic.com/products/tdm_boards/media_processing/default.htm

Dialogic® PBX Integration Boards — http://www.dialogic.com/products/tdm_boards/signaling/default.htm

To learn more, visit our site on the World Wide Web at <http://www.dialogic.com>.

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