Intel® Dialogic® System Release 6.0 cPCI Feature Pack 1 for Windows

Release Guide

September 2004

05-2372-001

Contents

About This Publication

The following topics provide information about this publication:

Applicability

This Release Guide provides information about Intel® Dialogic® System Release 6.0 cPCI Feature Pack 1 for Windows.

Intended Audience

This document is intended for all users of Intel Dialogic System Release 6.0 cPCI Feature Pack 1 for Windows. This Release Guide is intended for the following types of customers:

- Distributors
- System Integrators
- Toolkit Developers
- Independent Software Vendors (ISVs)
- Value Added Resellers (VARs)
- Original Equipment Manufacturers (OEMs)

How to Use This Publication

The information found in this document is organized into the following sections:

- Chapter 1, “Release Overview” provides a high-level overview of this release.
- Chapter 2, “System Requirements” describes what you need to install and use this release.
- Chapter 3, “New Features by Product” describes the new features of this release.
- Chapter 4, “Installation and Configuration” provides information about installation and configuration.
- Chapter 5, “OA&M Software” describes the operation, administration, maintenance, and diagnostics supported in this release.

- Chapter 6, “Programming Libraries [and Tools]” describes the programming libraries and tools that are available in this release.
- Chapter 7, “Demonstration Software” describes the demonstration programs provided in this release.
- Chapter 8, “Supported Hardware” provides a list of all the hardware supported in this release.
- Chapter 9, “Separately Orderable Products” describes the additional software that may be required to use certain features of this release.
- Chapter 10, “Documentation” provides a list of the documents that accompany this release either on CD or downloadable from the Intel® Telecom Support Resources website.

Related Information

Refer to the following for additional information:

- If you are new to Intel® telecom products or some of the latest technology and don’t want to search through the documentation to find the information you need, use the Learn About website to get an overview of the products supported in this release. Learn About is located at the following link:
  http://resource.intel.com/telecom/support/documentation/learnabout/index.htm
- For Technical Support, visit the Intel Telecom Support Resources website at the following link:
  http://developer.intel.com/design/telecom/support/index.htm
- For Products and Services Information, visit the Intel Telecom Products website at the following link:
  http://www.intel.com/design/network/products/telecom/index.htm
- For Sales Offices and other contact information, visit the Where to Buy Intel Telecom Products website at the following link:
  http://www.intel.com/buy/wtb/wtb1028.htm
- The *Intel Dialogic System Release 6.0 cPCI Feature Pack 1 for Windows Release Update* document contains information about known problems, resolved problems, and documentation updates associated with this system release. The Release Update is available at the following link:
  http://resource.intel.com/telecom/support/documentation/releases/index.htm

Note: Refer to the Release Update for late-breaking changes or corrections to the release information. Information is updated in the Release Update, as needed, during the lifecycle of the system release.

Release Overview 1

This chapter provides a high-level overview of the products and features that are newly supported in Intel® Dialogic® System Release 6.0 cPCI Feature Pack 1 for Windows. Products and features that are newly supported are new since Intel® Dialogic® System Release 6.0 for cPCI on Windows 2000.

This release provides customers with the components they need to build cost-effective, high-density, highly available solutions that can be easily installed, configured and operated either locally or remotely. This release provides the capabilities to enable carrier grade solutions that meet the stringent demands of the service provider market.

This release introduces two Intel® NetStructure™ computer telephony boards as well as several key feature enhancements for existing board families.

Release Highlights

Intel Dialogic System Release 6.0 cPCI Feature Pack 1 for Windows supports all the same boards and features as the previous Intel Dialogic System Release 6.0 for cPCI on Windows 2000, including the following new products and features:

- Operating systems support:
  - Windows 2000 (Professional, Server, or Advanced Server) SP2 or greater, including simplified Chinese version

    or
  - Windows Server 2003 Standard and Enterprise Editions, including simplified Chinese version
- New Intel® NetStructure™ DMT160TEC boards possessing the same 16-span interface features as the DMN160TEC, in addition to the following:
  - DMTF and Global tone detection
  - Global tone generation
  - MF signaling (R1 and R2)
  - Call Progress Analysis
  - Automatic number identification/dialed number identification service (ANI/DNIS) information retrieval
  - Support for CAS protocols
- New Intel® NetStructure™ IPT10000C board containing 1000 Voice-over-IP G.711 ports, making it one of the highest-density IP boards available (by extending the density range of the IPT family of boards from 120 to 1000 ports). Other new Intel® NetStructure™ IPT Series features include:
  - IPT6720C: 672 Channel IP Gateway w/ LBR coders, RFC2833, T.38, and Gigabit on-board data network interfaces. Up to 20% of the IP channels may be used for T.38 relay.

- IPT4800C: 480 Channel IP Gateway w/ LBR coders, RFC2833, T.38, and Gigabit on-board data network interfaces. Up to 20% (96) of the IP channels may be used for T.38 relay.
- IPT2400C: 240 Channel IP Gateway w/ LBR coders, RFC2833, T.38, and Gigabit on-board data network interfaces. Up to 20% (48) of the IP channels may be used for T.38 relay.
- IPT1200C: 120 Channel IP Gateway w/ LBR coders, RFC2833, T.38, and Gigabit on-board data network interfaces.

- New SS7 products
  - SIU520
  - SIU131
  - SIU231
  - CPM8
- Redundant System Swap (RSS) / Redundant Host (RH)
  - Windows 2000 SP4 only
  - Supported on the following platforms:
    - Intel® NetStructure™ ZT5085 with ZT5524A-1A SBC (Dual CPU)
    - Intel® NetStructure™ ZT5085 with ZT5524A-1B SBC (Single CPU)
- Peripheral Hot Swap (PHS) on the following chassis:
  - Supported on Microsoft Windows 2000 only
  - Supported on the following platforms:
    - Intel® NetStructure™ ZT5085
    - Westek P5100 with Advantech MIC-3358 SBC
    - Advantech MIC-3038 with MIC-3358 SBC

  Note: PHS is only supported on the Microsoft Windows 2000 operating system.
- OA&M enhancements
  - Activate and de-activate Layer 2 (D-Channel). The Global Call API can now be used to set the logical data link (D-channel) state using the gc_Extension( ) function with extension ID (ext_id) of GDIS_EXID_SETDLINKSTATE. For more information, see the *Global Call ISDN Technology Guide*
  - Re-configure trunks between ISDN and Clear Channel (on DMT160TEC and DMN160TEC boards). See the section, “Configuring Trunks for Clear Channel Signaling”, in the *Intel NetStructure for DM3 Architecture for cPCI on Windows* for more information.
  - Ability to dynamically configure the following trunk parameters at runtime:
    - CRC4 ON or CRC4 OFF
    - Selecting between user and network modes
- Support for Global Call Alarm Management System (GCAMS)
- Overlap Send/Receive support for CAS
- Support T.38 relay mode (gateway) on Intel® NetStructure™ DM/IP and IPT Series boards
- Support QoS alarm monitoring on DM/IP and IPT Series boards
- Interoperable with CISCO 5300 running IOS 12.3(1)

- New H.323 Features
  - H.450.2 Call Transfer
  - Set Bearer Capabilities
  - Set/get CallID
  - Access to CallPresentationAllowed
  - Multiple IP ports for establishing trunk groups
- New SIP Features
  - Multiple IP ports for establishing trunk groups
  - REINVITE for Fax
  - SIP-T
  - Set/get CallID
- New RFC2833 Features
- New Diagnostics tools and capabilities
  - Centralized suite of logging tools into one tool (pstndiag tool combines the functionality of four existing diagnostics and administrative tools: lineadmin, phone, tspmon, and tsptrace)
  - Improved debugging capabilities with the Intel® Telecom Subsystem Summary Tool (its_sysinfo)
  - Improved tracing capabilities available with the Runtime Trace Facility (RTF)
  - Automatically archive logs to prevent overwriting on system restart
  - Provide method for managing size of RTF logs
  - Dynamically turn RTF Logging on/off without system restart

System Requirements 2

This chapter describes the system requirements for Intel® Dialogic® System Release 6.0 cPCI Feature Pack 1 for Windows:

2.1 Basic Hardware Requirements

Minimum Hardware Requirements

The minimum hardware requirements are listed below for this release. Customers that use high-densities systems may require more robust systems.

- CompactPCI* chassis
- 700 MHz Intel® Pentium® 3 processor
- 512 MB RAM
- 500 MB free space on hard disk
- CD-ROM drive
- VGA display
- Pointing device

Note: Drivers for Windows do not support more then 4 GB of RAM.

Recommended Hardware Requirements

The recommended hardware requirements are listed below for this release:

- CompactPCI* chassis
- 850 MHz or faster Intel® Pentium® processor
- 512 MB RAM
- 600 MB free space on hard disk
- CD-ROM drive
- VGA display
- Pointing device

2.2 Basic Software Requirements

The basic software requirements include:

- Windows 2000 (Professional, Server, or Advanced Server) SP2 or greater, including simplified Chinese version

  OR

- Windows Server 2003 Standard and Enterprise Editions, including simplified Chinese version
- Compiler support for Developer Studio 6.0 and 7.0

New Features by Product 3

This chapter describes the key features for the following Intel® NetStructure™ boards supported in Intel® Dialogic® System Release 6.0 cPCI Feature Pack 1 for Windows:

3.1 New Intel NetStructure DMT160TEC Board

This release introduces support for the Intel® NetStructure™ DMT160TEC. The Intel NetStructure DMT160TEC network interface board is a high-density, digital telephone interface on a CompactPCI* form factor. This board supports up to 16 spans or 480 ports, and is programmable as T1, E1, or a mix of both (in units of four spans). The Intel NetStructure DMT160TEC is new board that was not available previously in Intel Dialogic System Release 6.0 for cPCI on Windows 2000.

Features

The following features are supported in Intel Dialogic System Release 6.0 cPCI Feature Pack 1 for Windows. These features are new since Intel Dialogic System Release 6.0 for cPCI on Windows 2000.

- CAS support including all PDK protocols
- Tone Detection and Generation including GTD/GTG
- Ability to dynamically configure the following trunk parameters at runtime:
  - CRC4 ON/OFF
  - Selecting between user and network modes
- Clear Channel support for T1 and E1
- Ability to query Layer 1 statistics
- Ability to enable/disable D-Channel without having to bring the entire system down
- Ability to reconfigure trunks between ISDN and Clear Channel on both DMN160TEC and DMT160TEC

  Note: This feature requires new PCD files, user modifications to configuraton files and re-initialization of the board.

3.2 New Intel NetStructure IPT10000C IP Board

This release introduces support for the Intel® NetStructure™ IPT10000 IP board. This board supports 1000 Voice-over-IP G.711 ports, extending the density range of the IPT family of boards from 120 to 1000 ports. The Intel NetStructure IPT10000 IP board is a new board that was not supported previously in Intel Dialogic System Release 6.0 for cPCI on Windows 2000.

Features

Intel NetStructure IPT10000 IP board supports the following features in this release:

- 1000 channels of Voice-over-IP G.711 ports

3.3 New Intel NetStructure SIU520, SIU231 and SIU131 Signaling Interface Units

This release introduces support for the following SS7 Signaling Interface Units (SIUs):

- Intel® NetStructure™ SIU520
- Intel® NetStructure™ SIU231
- Intel® NetStructure™ SIU131

Features

This release provides the following features to support Intel NetStructure SIU520, SIU231 and SIU131:

- Application development with the Global Call API for network call control

3.4 New Intel NetStructure CPM8 SS7 Signaling Board

This release introduces support for the Intel® NetStructure™ CPM8 SS7 signaling board.

Features

This release provides the following feature to support the Intel NetStructure CPM8 board:

- Application development with the Global Call API for network call control

3.5 New Features for Intel Netstructure DM/IP Series Products

The Intel® NetStructure™ DM/IP platform offer zero, one, or two T1 or E1 spans plus VoIP and media processing in a single-slot solution. These DM/IP Series products are ideal for larger enterprise and carrier-grade IP media gateway solutions. They support the H.323 and SIP IP telephony standards, as well as traditional APIs from Intel including R4 and Global Call.

Note: DM/IP products do not support Continuous Speech Processing (CSP).

New Features

The following new Intel NetStructure DM/IP Series features are introduced in this release:

- T.38 Gateway support
- H.450.2 Call Transfer
- Ability to send and receive SIP-T information via MIME-encoded messages
- Ability to send/receive Facility IE as part of SETUP message in H.323
- Access to Bearer Capability IE in incoming and outgoing H.323 SETUP messages
- Access to PresentationIndicator field in incoming and outgoing H.323 SETUP messages
- Access to MediaWaitForConnect field in incoming and outgoing H.323 SETUP messages
- Ability to set CallID/GUID in outgoing H.323 SETUP messages
- Access to Progress Indicator IE in incoming H.323 PROGRESS messages
- Access to message information fields in incoming and outgoing SIP INVITE messages:
  - Contact Display string
  - Contact URI
  - Diversion URI
  - From Display string
  - From URI
  - Referred-by
  - Replaces
  - Request URI
  - To Display string
  - To URI
- Ability to retrieve local and remote RTP addresses
- IP Call control implemented on the host with RTP/RTCP implemented on the board (All NIC-enabled).
- Host-based SIP protocol stack
- Host-based H.323 protocol stack
- Supports the ability to change from voice to fax coder without application intervention

- Setting DTMF transfer mode on a per call basis
- IP Precedence ToS (ToS byte)
- Multicast
- Interoperable with CISCO 5300 running IOS 12.3(1)

3.6 New Features for Intel NetStructure DM/V and DM/V-A Boards

The Intel® NetStructure™ DM/V and DM/V-A boards are based on the DM3 architecture. DM/V-A boards provide enhanced media in addition to 0, 2 or 4 trunks. DM/V boards provide basic voice in addition to 4 trunks. Both boards provide voice processing on a single-slot cPCI chassis.

New Features

The following new Intel NetStructure DM/V features are introduced in this release.

- Ability to restart a single trunk of DM/V products
- ETSI compliant Frequency Shift Keying (FSK). For more information, see the Documentation Updates section in the Release Update document for this system release.
- Configurable FSK Transmit and Receive Signal Level. Refer to the section, “Setting the FSK Transmit and Receive Signal Level”, in the *Intel NetStructure for DM3 Architecture for cPCI on Windows* for more information
- Support for Global Call Alarm Management System (GCAMS). Refer to the *Global Call E-1/T-1 CAS/R2 Technology User’s Guide and Global Call ISDN Technology Guide* for more information.
- 8 KHz linear PCM coder supported at 64 Kbps (8 bits) and 128 Kbps (16 bits) for play and record, VOX and WAVE file formats. For more information, see the Documentation Updates section in the Release Update document for this system release.
- Activate and de-activate Layer 2 (D-Channel). The Global Call API can now be used to set the logical data link (D-channel) state using the gc_Extension( ) function with extension ID (ext_id) of GDIS_EXID_SETDLINKSTATE. For more information, see the *Global Call ISDN Technology Guide.*
- Media Load 9F (120 channels of rich conferencing, in addition to 15 channels of fax) available on DM/V2400AcPCI. Refer to the *Intel NetStructure for DM3 Architecture for CompactPCI on Windows* for more information.
- Ability to dynamically turn CRC4 on/off
- Clear Channel support for the DMN1200-4E1-cPCI & DMN960-4E1-cPCI boards. Refer to the *Intel NetStructure for DM3 Architecture for cPCI on Windows* for more information.

3.7 New Features for Intel NetStructure IPT Series Products

The Intel® NetStructure™ IPT Series boards provide carrier-grade, open, standards-based platforms that offer a highly scalable, flexible, carrier-grade solution for IP telephony gateways and media servers. The boards provide IP services, enabling the optimal utilization of the next generation network (NGN) architecture. In addition, Intel NetStructure IPT Series boards offer unmatched scalability with up to 672 IP telephony channels on a single CompactPCI* board.

New Features

The following new Intel NetStructure IPT Series features are introduced in this release.

- Support for up to 672 LBR coders
- H.450.2 Call Transfer
- Ability to send and receive SIP-T information via MIME-encoded messages
- Ability to send/receive Facility IE as part of SETUP message in H.323
- Access to Bearer Capability IE in incoming and outgoing H.323 SETUP messages
- Access to PresentationIndicator field in incoming and outgoing H.323 SETUP messages
- Access to MediaWaitForConnect field in incoming and outgoing H.323 SETUP messages
- Ability to set CallID/GUID in outgoing H.323 SETUP messages
- Ability to get Progress Indicator IE in incoming H.323 PROGRESS messages
- Access to message information fields in incoming and outgoing SIP INVITE messages:
  - Contact Display string
  - Contact URI
  - Diversion URI
  - From Display string
  - From URI
  - Referred-by
  - Replaces
  - Request URI
  - To Display string
  - To URI
- Ability to retrieve local and remote RTP addresses
- QoS monitoring/setting via Global Call or IP Media Library APIs
- Ability to start RTP stream independently of Global Call using the IP Media Library; provides a mechanism for starting an RTP session when using a 3rd party stack.

Installation and Configuration 4

This chapter provides information about the installation and configuration of Intel® Dialogic® System Release 6.0 cPCI Feature Pack 1 for Windows. This information is provided in the following sections:

4.1 Installation

Intel Dialogic System Release 6.0 cPCI Feature Pack 1 for Windows is not an overlay. It must be installed on a clean system. Therefore, you must completely uninstall the base release (Intel® Dialogic® System Release 6.0 for cPCI on Windows 2000) before installing the Feature Pack 1 release.

Changes to the installation include the following:

New Install Navigation Screen

The Feature Pack 1 release includes an Install Navigation Screen which comes up automatically when the CD is inserted. The navigation screen identifies installable content on the CD and allows separate installation of the following:

- Intel® Dialogic® System Release 6.0 cPCI Feature Pack 1 for Windows
- Pigeon Point* Peripheral Hot Swap software
- Pigeon Point Redundant System Slot software

The navigation screen also allows you to view the Release Guide and user documentation.

Existing Hot Swap Kit must be uninstalled

If you had installed the Hot Swap Kit with the base release (Intel® Dialogic® System Release 6.0 for cPCI on Windows 2000), you must uninstall the Hot Swap Kit before installing the new release.

Installation using an InstallShield response file

A procedure for installing the software using an InstallShield response file has been added to the *Intel Dialogic System Release 6.0 cPCI Feature Pack 1 for Windows Software Installation Guide*.

Cleanup utility available

A cleanup utility is available to remove some files that will not be removed by the uninstall process. To find out more about this utility and to obtain updated versions of the utility (which will continue to be enhanced outside of the system release), go to: *http://resource.intel.com/telecom/support/tnotes/tnbyos/2000/tn020.htm*

Uninstall software using Add/Remove Programs

You should uninstall the software by going to the Windows Control Panel and selecting Add/Remove Programs. Do not uninstall from the Start menu.

For more information about installing and uninstalling Intel Dialogic System Release 6.0 cPCI Feature Pack 1 for Windows, refer to the *Intel Dialogic System Release 6.0 cPCI Feature Pack 1 for Windows Software Installation Guide* for this release. Online help is also available during the installation process.

4.2 Configuration

This chapter describes the configuration software capabilities that are supported in Intel Dialogic System Release 6.0 cPCI Feature Pack 1 for Windows.

Configuration is performed after the system release software is installed, using the configuration manager (DCM). Different configuration methods are used for different product families because of differences in the underlying architecture. Products are distributed with preconfigured default settings.

The following new configuration capabilities are provided in Intel Dialogic System Release 6.0 cPCI Feature Pack 1 for Windows:

- New media load 9F supported on DM/V2400A cPCI boards (DM3 product family)
- Ability to modify Frequency Shift Keying (FSK) transmit and receive signal levels by modifying the configuration file (DM3 product family)

Detailed procedures on product configuration are provided in the *Intel NetStructure for DM3 Architecture for cPCI on Windows Configuration Guide and Intel NetStructure IPT Series on Windows Configuration Guide.*

OA&M Software 5

This chapter provides the OA&M software features supported in Intel® Dialogic® System Release 6.0 cPCI Feature Pack 1 for Windows. This information is organized into the following sections:

5.1 Administration Software

This section describes the system administration software capabilities that are supported in this release. Administrative software allows the administrator to perform such tasks as starting and stopping the Intel Dialogic System, running demo programs, monitoring performance, and replacing a board in an active system with the same board type.

There are no new administration software capabilities or enhancements to existing capabilities since Intel® Dialogic® System Release 6.0 for cPCI on Windows 2000.

New Tools

There are no new administration tools or new features of existing administration tools since Intel Dialogic System Release 6.0 for cPCI on Windows 2000.

New API Libraries

There are no new API libraries or new features of existing API libraries since Intel Dialogic System Release 6.0 for cPCI on Windows 2000.

5.2 Diagnostics Software

This section describes the new diagnostic capabilities and tools available for this release. For more information about the diagnostics software, refer to the *Intel Dialogic System Software for DM3 Architecture Products on Windows Diagnostics Guide*.

This release provides the following new capabilities in the diagnostics software:

A centralized suite of logging tools

The pstndiag tool combines the functionality of four existing diagnostics and administrative tools:lineadmin, phone, tspmon, and tsptrace. This eliminates the need to use several different logging applications.

Improved debugging capabilities

Intel® Telecom Subsystem Summary Tool (its_sysinfo) is a single utility that collects a complete system of diagnostic information designed for users without a telephony background.

Improved tracing capabilities

The improved tracing capabilities available with the Runtime Trace Facility (RTF) allow you to do the following:

- Configure tracing to automatically archive log files so that they are not overwritten during an automated system restart
- Dynamically turn Runtime Trace Facility (RTF) logging on and off without restarting the system
- Add a Date field to all logging capability
- Span logging over multiple files to control size of disk usage

New Tools

This release provides the following new or enhanced diagnostics tools:

PSTN Diagnostics tool

The PSTN Diagnostics tool (pstndiag) is a utility for diagnosing and troubleshooting public switched telephone network (PSTN) connectivity problems on specific hardware products based on DM3 architecture. The pstndiag tool combines several existing logging tools and allows you to perform the following activities:

- Query the system for board information
- View all boards in the system that have been downloaded
- Monitor all components (boards, trunks, channels) in the system, and view trunk and channel information, such as trunk status, alarm status, channel state, and call state
- Display the protocol family running on a channel (ISDN or CAS)
- Produce a consolidated log file for all components that are being actively monitored in the system
- Display a previously saved log file
- Launch the ISDNtrace and CAStrace tools to perform further diagnostic tests

Runtime Trace Facility (RTF) tool

The RTF tool provides a mechanism for tracing the execution path of various Intel Dialogic runtime libraries. The trace information can be captured in log files or sent to a debug stream. The resulting log file/debug stream output helps troubleshoot runtime issues for applications that are built with Intel Dialogic software.

Intel® Telecom Subsystem Summary Tool (its_sysinfo)

The Intel Telecom Subsystem Summary Tool (its_sysinfo) provides a simple way to collect information about systems built using Intel® telecom products. The its_sysinfo tool collects data from the system on which you execute it and provides you with information about the system environment: the operating system, computer architecture, Intel Dialogic System Release, and operational logs.

Programming Libraries [and Tools] 6

This chapter describes the features of the programming libraries and other development software features and tools that are supported in Intel® Dialogic® System Release 6.0 cPCI Feature Pack 1 for Windows. The development software is divided into the following categories:

6.1 Audio Conferencing API Library (DCB)

The Audio Conferencing API library supports development of host-based conferencing applications on Intel® NetStructure™ boards. The Audio Conferencing API library provides many features that can be used to develop customized audio conferencing servers.

The Audio Conferencing software includes library functions, device drivers, and firmware.

Note: Refer to the *Audio Conferencing API for Windows Programming Guide* and the *Audio Conferencing API Library Reference* for additional information.

New Features

No new Audio Conferencing (DCB) features have been implemented since Intel® Dialogic® System Release 6.0 for cPCI on Windows 2000.

6.2 CSP (Continuous Speech Processing) API Library

The CSP API library supports development of host-based automatic speech recognition (ASR) applications. CSP provides many features such as high-performance echo

cancellation, voice energy detection, barge-in, voice event signaling, pre-speech buffering, and full-duplex operation.

The CSP software includes library functions, device drivers, firmware, and demonstration programs.

Note: Refer to the *Continuous Speech Processing API Programming Guide* and *Continuous Speech Processing API Library Reference* for more information.

New Features

No new Continuous Speech Processing (CSP) features have been implemented since Intel® Dialogic® System Release 6.0 for cPCI on Windows 2000.

6.3 Fax API Library

The Fax API library supports development of a wide variety of fax applications such as fax mail, fax broadcast and fax-on-demand. The Fax software includes library functions, device drivers, firmware, and demonstration programs.

Note: Refer to the *Fax Software Reference* for more information.

New Features

The Fax API library provides the following new feature in this release.

T.30 Non-Standard Facilities (NSF)
: Ability to send customized T.30 Non-Standard Facilities (NSF) message. To implement this new feature, use the FC_TXNSF define in **dx_setparm()**.

6.4 Global Call API Library

The Global Call API library provides a uniform call control interface for developing applications for multiple network interface technologies.The Global Call API library supports a variety of protocols operating on Intel NetStructure, DM3, and Springware architectures.

The Global Call API library is designed to:

- Support a variety of protocols; for example, E-1 CAS, T-1 robbed bit, analog loop start, ISDN, IP H.323, and SIP interfaces
- Provide a consistent application interface for the various protocols and technologies
- Use the same input and output parameters at the application level to configure and control the different interfaces

  The generic functionality of Global Call is documented in the *Global Call API Library Reference* and the *Global Call API for Windows Programming Guide*. Technology-specific functionality is documented in Global Call Technology User's Guides.

New Features

The Global Call API library supports the following new features for the **IP technology**:

T.38 gateway support (on Intel NetStructure DM/IP boards only)

Support for SIP-T
: SIP Telephony (SIP-T) information may be sent and received via MIME-encoded messages . The embedded information is handled as raw data.

H.450.2 Call Transfer
: The library provides full support for blind and supervised call transfers between endpoints on the same virtual board

Access to Facility IE
: The Facility IE in H.323 SETUP, CONNECT, and FACILITY messages may be set or retrieved

Access to Bearer Capability IE
: The Bearer Capability IE in outgoing and incoming H.323 SETUP messages can be set or retrieved

Access to PresentationIndicator
: The PresentationIndicator field in outgoing and incoming H.323 SETUP messages can be set or retrieved

Access to MediaWaitForConnect
: The MediaWaitForConnect field in outgoing and incoming H.323 SETUP messages can be set or retrieved

Access to CallID/GUID
: The CallID/GUID can be set in outgoing H.323 SETUP messages. This complements the existing capability to retrieve the CallID from incoming SETUP messages.

Access to Progress Indicator IE
: The Progress Indicator IE can be retrieved from incoming H.323 PROGRESS messages

Access to SIP message information fields
: The following message information fields can be set or retrieved in outgoing or incoming SIP INVITE messages:
  - Contact Display string
  - Contact URI
  - Diversion URI
  - From Display string
  - From URI
  - Referred-by
  - Replaces
  - Request URI
  - To Display string
  - To URI

Ability to retrieve RTP addresses
Both local and remote RTP addresses, which include the port number as well as the IP address, can be retrieved when a connection events is received

The Global Call API library supports the following new features for the **ISDN technology**:

Alarm handling for DM3 boards
Global Call Alarm Management System (GCAMS) support for the management of alarms on DM3 boards

Dynamic configuration of the D-channel at runtime
The ability to enable or disable the D-channel at runtime

Dynamic configuration of trunk parameters at runtime
The ability to configure the CRC setting (on or off) and the ISDN protocol operating mode (user or network)at runtime

The Global Call API library supports the following new feature for the **E-1/T-1 technologies**:

Alarm handling for DM3 boards
Global Call Alarm Management System (GCAMS) support for the management of alarms on DM3 boards

The Global Call API library supports the following new features for the **SS7 technology**:

Signaling Interface Unit (SIU) support
Provides support for developing applications that use the following SIUs:

- Intel NetStructure SIU520
- Intel NetStructure SIU231
- Intel NetStructure SIU131

CompactPCI* board support
Provides support for developing applications that use the Intel NetStructure CPM8 board

6.5 IP Media Library API

The IP Media Library (IPML) API is used to control media on IP devices. Voice-over-IP applications that use IP signaling stacks other than those supplied with Intel products may use this library for application development.

IP media library functionality is documented in the *IP Media Library API Programming Guide* and the *IP Media Library API Library Reference*.

New Features

No new IP Media (IPML) features have been implemented since Intel® Dialogic® System Release 6.0 for cPCI on Windows 2000.

6.6 Modular Station Interface API

The Modular Station Interface (MSI) API is used by Intel® NetStructure™ High Density Station Interface (HDSI) boards, which provide high density analog station connectivity. The HDSI board can support up to 120 stations with tone detection and generation, and FSK Caller ID transmission.

Note: Refer to the *MSI API Programming Guide* and *MSI API Library Reference* for more information.

New Features

No new Modular Station Interface (MSI) features have been implemented since Intel® Dialogic® System Release 6.0 for cPCI on Windows 2000.

6.7 Standard Runtime Library API

The Standard Runtime Library (SRL) API provides a common interface for event handling and other functionality common to all Intel® Dialogic® devices. The Standard Runtime Library provides the framework for implementing the supported programming models and serves as the central dispatcher for events that occur on all devices. Through the Standard Runtime Library, events are handled in a standard manner.

Note: Refer to the *SRL API for Windows Programming Guide* and the *SRL API Library Reference* for more information.

New Features

No new Standard Runtime Library (SRL) features have been implemented since Intel® Dialogic® System Release 6.0 for cPCI on Windows 2000.

6.8 Voice API Library

The Voice API library provides a rich set of features for building a wide range of high-density call processing applications such as voice messaging, interactive voice response, telemarketing/call center, operator services, and more. Features include tone signaling, global tone detection and generation, call progress analysis, and a variety of voice encoding algorithms selectable on a channel-by-channel basis.

Note: Refer to the *Voice API for Windows Programming Guide* and the *Voice API for Windows Library Reference* for more information.

New Features

The Voice API library provides the following new features in this release.

8K linear coder
: Ability to play and record using linear PCM at 8 kHz with 8-bit samples (64 kbps) and 8 kHz with 16-bit samples (128 kbps) linear coding, VOX and WAVE file formats. Coders are specified using the DX_XPB structure.

ETSI-compliant FSK
: Support for sending and receiving two-way frequency shift keying (FSK) data, compliant with European Telecommunications Standards Institute (ETSI). Parameters to support this feature are available in **dx_setparm( )**.

Note: For more information on these new features, see the Documentation Updates section in the Release Update (available on the web only).

Demonstration Software 7

Demonstration programs are provided to demonstrate the functionality and features of Intel® Dialogic® and Intel® NetStructure™ products and serve as examples of application programming using Intel® Dialogic® API libraries. All demo programs are supplied as source code which users may modify to explore other capabilities of the products. All demo programs listed below are located in \Program Files\Dialogic\demos following standard installation of Intel® Dialogic® System Release 6.0 cPCI Feature Pack 1 for Windows.

This chapter provides information about demonstration programs provided in this release.

7.1 New Demo Programs

The following new demo programs are included in this release. These demo programs are new since Intel® Dialogic® System Release 6.0 for cPCI on Windows 2000. These demos are located in C:\Program Files\Dialogic\demos following the standard installation.

CSPAuto

This Non-interactive (automatic) CSP demo demonstrates key features of the CSP API library, including barge-in, voice activity detection, and echo-cancelled recording. Runs in automatic mode or diagnostic mode.

Note: For more information on the CSPAuto demo, refer to the *Continuous Speech Processing API Demo Guide*.

CSPLive

This interactive CSP demo demonstrates key features of the CSP API library, including barge-in, voice activity detection, and echo-cancelled recording. Runs in interactive mode or diagnostic mode.

Note: For more information on the CSPLive demo, refer to the *Continuous Speech Processing API Demo Guide*.

IPMediaServer (replaces iptmail_r4)

This demo demonstrates how to build a PSTN-IP gateway using the IPML API. The demo must use a proprietary IP protocol stack. This demo is available on both the Intel® NetStructure™ DM/IP and Intel® NetStructure™ IPT Series boards.

Note: For more information on the IPMedia Server demo, refer to the *IP Media Server (Global Call) Demo Guide*.

RHManager5085

This demo demonstrates how to integrate basic Hot Swap and Redundant System Slot High Availability architectures into systems and applications that are developed

from the software. It uses the RH APIs from Pigeon Point for the ZT5085 chassis as well as the NCM API.

Note: For more information about this demo program, refer to the *High Availability Demo Guide*.

7.2 Updated Demo Programs

There are no demo programs that have been updated, modified or enhanced since Intel Dialogic System Release 6.0 for cPCI on Windows 2000.

7.3 Other Supported Demo Programs

The following demo programs continue to be supported in this release.

RSSManager5084 (formerly RSSManager)

This demo demonstrates how to integrate basic Hot Swap and Redundant System Slot High Availability architectures using NCM APIs into systems and applications that are developed from the software. This demo differs from RHmanager5085 because it supports the Pigeon Point APIs for the ZT5084 chassis; however, it does make use of the NCM API.

Note: For more information about this demo program, refer to the *High Availability Demo Guide*.

gateway_r4

Using the Global Call API, this demo demonstrates how to build a PSTN-IP gateway using the H.323 and SIP protocol stacks in the C programming language.This demo is available on both the Intel NetStructure DM/IP and Intel NetStructure IPT Series boards.

Note: For more information on this demo, refer to the *IP Gateway (Global Call) Demo Guide*.

multicastclient_r4

This demo demonstrates how an IP server can use RTP multicasting to continuously deliver an RTP stream to a multicast IP address. This demo is available only on the Intel NetStructure DM/IP boards.

Note: For more information on this demo, refer to the *IP Multicast Client (IPML) Demo Guide*.

multicastserver_r4

This demo demonstrates how an IP-PSTN gateway can listen to the correct RTP multicast stream and route the information to an incoming PSTN call. This demo is available only on the Intel NetStructure DM/IP boards.

Note: For more information on this demo, refer to the *IP Multicast Server (IPML) Demo Guide*.

RGAdemo (Revenue Generating Application Demo)

The Revenue Generating Application (RGA) demo illustrates how to develop a highly available call control application using the following Intel Dialogic libraries:

- Global Call API Library
- Event Service API Library
- Native Configuration Manager API Library
- Standard Runtime API Library

Note: For more information about this demo program, refer to the *High Availability Demo Guide*.

PFManager (Peripheral Fault Manager)

The Peripheral Fault Manager (PFM) uses the Event Service API event notification framework (ADMIN_CHANNEL and FAULT_CHANNEL events) and the Power On Self Test-on-demand utility to provide the following features, all of which are done without stopping the RGA:

- monitoring peripheral boards for Control Processor (CP) and Signal Processor (SP) faults (fault detection)
- automatically running Power On Self Test (POST) diagnostics on any peripheral board that generates a CP or SP fault (fault identification and diagnosis)
- automatically restarting a peripheral board that passes POST diagnostics (fault recovery)
- prompting a system administrator to replace a peripheral board that fails POST
- diagnostics (fault isolation)
- basic hot swap of peripheral boards (fault repair)

Note: For more information about this demo program, refer to the *High Availability Demo Guide.*

Supported Hardware 8

This chapter lists the hardware products that are supported in Intel® Dialogic® System Release 6.0 cPCI Feature Pack 1 for Windows. It is important to note that this release supports all the same boards as the previous Intel® Dialogic® System Release 6.0 for cPCI on Windows 2000 product along with some additions.

The following Intel® NetStructure™ boards are supported in this release:

Notes:1. Starting with Intel Dialogic System Release 6.0 for cPCI on Windows 2000, those boards formerly known as DM3 boards: DM3 Fax (now known as DM/F products), DM3 IPlink (now known as DM/IP products), and DM3 MediaSpan (now known as DM/V products), will now be known as Intel® NetStructure™ boards.

2. For more detailed information about these products, please refer to the datasheets found at:
http://developer.intel.com/design/network/products/telecom/boards/index.htm

8.1 Media Processing - Combined Media Boards

The Intel® NetStructure™ Media Processing Combined Media Boards consist of the following subcategories:

- Voice with Conferencing + Speech + Fax Boards
- Voice with Speech and Conferencing

8.1.1 Voice with Conferencing + Speech + Fax Boards

The Intel® NetStructure™ Voice with Conferencing + Speech + Fax Boards include the following:

- DM/V2400A-cPCI

  Note: These boards support voice with conferencing, speech and fax features, but don't support all these features in one media load. Different combinations of these features are available depending on the media load.

8.1.2 Voice with Speech and Conferencing

Intel® NetStructure™ Voice with Speech and Conference boards include the following:

- DMV480A2T1CR2
- DMV600A2E1CR2
- DM/V960A-4T1-cPCI (conference and voice mutually exclusive)
- DM/V1200A-4E1-cPCI (conference and voice mutually exclusive)
- DMV960A4T1CR2 (conference and voice mutually exclusive)
- DMV1200A4E1CR2 (conference and voice mutually exclusive)
- DM/V480A-2T1-cPCI
- DM/V600A-2E1-cPCI

8.2 Media Processing- Single Media Boards

The Intel® NetStructure™ Media Processing-Single Media Boards include the following subcategories:

- Fax Boards
- Voice Boards

8.2.1 Fax Boards

The Intel® NetStructure™ DM/F Fax Series includes the following boards:

- DM/F240-cPCI
- DM/F300-cPCI

8.2.2 Voice Boards

The Intel® NetStructure™ Voice Boards include the following:

- DM/V480-4T1-cPCI
- DM/V600-4E1-cPCI
- DM/V960-4T1-cPCI
- DM/V1200-4E1-cPCI

8.3 Signaling Products

The Intel® NetStructure™ Signaling products consist of the following subcategories:

- Digital Telephony Interface Boards
- IP Boards

8.3.1 Digital Telephony Interface Boards

Intel® NetStructure™ Digital Interface Boards include the following:

- DMN160TEC
- DM/N960-4T1-cPCI
- DM/N1200-4E1-cPCI
- DMT160TEC
- DM/T960-4T1-cPCI
- DM/T1200-4E1-cPCI

8.3.2 IP Boards

The Intel® NetStructure™ IP Boards include the following:

- DM/IP481-2T1-cPCI-100BT
- DM/IP601-2E1-cPCI-100BT
- DM/IP601-cPCI-100BT
- IPT1200C
- IPT2400C
- IPT4800C
- IPT6720C
- IPT10000C

8.4 Switching Boards

The Intel® NetStructure™ Switching Boards consist of the following subcategory:

- Station Interface Boards

8.4.1 Station Interface Boards

The Intel® NetStructure™ High Density Station Interface Series includes the following boards:

- HDSI/480-cPCI
- HDSI/720-cPCI
- HDSI/960-cPCI
- HDSI/1200-cPCI

8.5 Cisco Interoperability

All IP Protocols included in Intel® Dialogic® System Release 6.0 cPCI Feature Pack 1 for Windows shall interoperate with the following Cisco configuration: Cisco Model AS5300 IOS, Version 12.3.

8.6 Obsolete Products

The following products discontinued for future releases, but are still supported in Intel® Dialogic® System Release 6.0 cPCI Feature Pack 1 for Windows.

- DM/V480A-2T1-cPCI
- DM/V600A-2E1-cPCI
- DM/V960A-4T1-cPCI
- DM/V1200A-4E1-cPCI

Separately Orderable Products 9

This section describes separately orderable products that are not part of Intel® Dialogic® System Release 6.0 cPCI Feature Pack 1 for Windows, but are required to perform some of the functions supported by the system release.

- Global Call Protocols Package version 4.2

The Global Call Protocols provides analog and E1/T1 CAS/R2 protocols for a variety of countries and switches on Intel® NetStructure™ and Intel® Dialogic® boards. The Global Call Protocols Package contains:

- Global Call PDK and ICAPI protocol binaries and country-dependent parameter (CDP) files
- Global Call Protocols Release Notes, which describes the features in the current release and provides installation instructions
- Global Call Country Dependent Parameters (CDP) Configuration Guide, which describes the parameters associated with each of the countries needed for utilizing Global Call protocols

Note: The Global Call Protocols Package can be downloaded from the Intel Telecom Support Resources website at the following link: *http://developer.intel.com/design/telecom/support/index.htm*

Documentation 10

This chapter provides information about the documentation that has been developed to accompany the Intel® Dialogic® System Release 6.0 cPCI Feature Pack 1 for Windows release. This information is organized into the following sections:

10.1 System Release Documentation

The following system release documentation is provided to support this release:

- *Intel Dialogic System Release 6.0 cPCI Feature Pack 1 for Windows Release Guide* (this document) †
- *Intel Dialogic System Release 6.0 cPCI Feature Pack 1 for Windows Release Update* (available on web only) †

Note: A dagger (†) next to a document title indicates that the document has been updated since Intel® Dialogic® System Release 6.0 for cPCI on Windows 2000 or is an entirely new document.

10.2 Installation and Configuration Documentation

The following installation and configuration documentation is provided to support this release:

- *Intel Dialogic System Release 6.0 cPCI Feature Pack 1 for Windows Software Installation Guide* †
- *Intel NetStructure for DM3 Architecture for cPCI on Windows Configuration Guide* †
- *Intel NetStructure IPT Series on Windows Configuration Guide*

Note: A dagger (†) next to a document title indicates that the document has been updated since Intel Dialogic System Release 6.0 for cPCI on Windows 2000 or is an entirely new document.

10.3 OA&M Software Documentation

The following operation, administration and maintenance documentation is provided to support this release:

- *Intel Dialogic System Release 6.0 on cPCI for Windows Administration Guide* †
- *Intel Dialogic System Software for DM3 Architecture Products on Windows Diagnostics Guide* †
- *SNMP Agent Software for Windows Administration Guide*
- *Third Party Hardware TDM Bus Administration for Windows*
- *Board Management API Library Reference* †
- *Event Service API for Windows Programming Guide*
- *Event Service API for Windows Library Reference*
- *Native Configuration Manager API for Windows Programming Guide*
- *Native Configuration Manager API for Windows Library Reference* †

Note: A dagger (†) next to a document title indicates that the document has been updated since Intel Dialogic System Release 6.0 for cPCI on Windows 2000 or is an entirely new document.

10.4 Programming Libraries Documentation

The following programming libraries documentation is provided to support this release:

Call Control

- *Global Call API for Windows Programming Guide* †
- *Global Call API Library Reference* †
- *Global Call E1/T1 CAS/R2 Technology User's Guide* †
- *Global Call IP Technology Guide* †
- *Global Call ISDN Technology Guide* †
- *Global Call SS7 Technology Guide* †
- *Porting Global Call H.323 Applications from Embedded Stack to Host-Based Stack Application Note*
- *Digital Network Interface Software Reference* †

Conferencing

- *Audio Conferencing API for Windows Programming Guide* †
- *Audio Conferencing API Library Reference* †

Continuous Speech Processing

- *Continuous Speech Processing API Programming Guide*
- *Continuous Speech Processing API Library Reference*

Fax

- *Fax Software Reference* †

IP Media

- *IP Media Library API Programming Guide*
- *IP Media Library API Library Reference* †

Modular Station Interface

- *Modular Station Interface API Programming Guide* †
- *Modular Station Interface API Library Reference* †

Standard Runtime Library

- *Standard Runtime Library API for Windows Programming Guide*
- *Standard Runtime Library API Library Reference*

Voice

- *Voice API for Windows Programming Guide*
- *Voice API for Windows Library Reference*

Note: A dagger (†) next to a document title indicates that the document has been updated since Intel Dialogic System Release 6.0 for cPCI on Windows 2000 or is an entirely new document.

10.5 Demonstration Software Documentation

The following demonstration software documentation is provided to support this release:

- *Continuous Speech Processing Demo Guide* †
- *Global Call API Demo Guide* †
- *High Availability for Windows Demo Guide* †
- *IP Gateway (Global Call) Object Oriented Demo Guide* †
- *IP Media Server (Global Call) Demo Guide for Windows* †
- *IP Media Gateway (IPML) Demo Guide* †
- *IP Multicast Client (IPML) Demo Guide* †
- *IP Multicast Server (IPML) Demo Guide* †

Note: A dagger (†) next to a document title indicates that the document has been updated since Intel Dialogic System Release 6.0 for cPCI on Windows 2000 or is an entirely new document.

10.6 Online Help

The following online help is provided to support this release:

- DCM Help
- Install Help

Publication Date: September 2004

Document Number: 05-2372-001

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