CoreDX DDS™

TWINOAKS COMPUTING INC.™
PRACTICAL MIDDLEWARE EXPERTISE

CoreDX™ DDS

CoreDX DDS is an Open-Standard High Performance Publish Subscribe Middleware Component

CoreDX DDS™: Communications Middleware

A common challenge for today's Software and IT departments is meeting the increasing demands from customers and management in the face of reduced schedules, staff, and budget. This challenge raises the same question from companies everywhere: *How can I do more with less?*

CoreDX DDS™ is an easy-to-use, cross-platform, cross-language inter-process Communication (IPC) library. It is the revolutionary communications middleware that reduces schedule time and risk on distributed software development projects. CoreDX DDS is high performance, outperforming other common middleware technologies like CORBA and JMS. CoreDX DDS is flexible, making it easy to maintain and extend your systems in the future.

Based on Open Standards for guaranteed Interoperability and long term viability, CoreDX DDS is the preferred IPC for a wide variety of distributed software programs: from mobile games and consumer electronic devices to surgical equipment, health care applications, complex DoD systems and robots working in space.

CoreDX DDS is essential for effective Open System architectures.

The Power of CoreDX DDS

Our CoreDX DDS communications middleware provides enormous flexibility during all phases of your software development project. From the fine-grained controls that configure communication behavior, to the standardized API across operating systems and programming languages, to the dynamic deployment models, CoreDX DDS allows you to change and extend your system, during development and after deployment, with reduced project schedule and budget.

CoreDX DDS provides these features in a compact product that can be built to fit any computing platform from cell phones to FPGA's and DSP's to desktop computers and high availability servers. CoreDX DDS has low line of code counts (~30% of comparable products), small library sizes (~10% of comparable products), and minimal run-time requirements - conserving memory and CPU utilization even while scaling to large numbers of nodes.

Ordering Instructions

Twin Oaks offers Free CoreDX DDS IR&D Licenses to qualified research projects and institutions.

Get started by visiting our website and downloading the 30-day Full Featured CoreDX DDS Evaluation software.   During the download process, you can indicate that you are interested in the University or IR&D License Program.

Download an evaluation: http://www.twinoakscomputing.com/coredx/download

Twin Oaks Computing, Inc | 720-733-7906 | www.twinoakscomputing.com

Common API across all languages, OS, and Hardware:
- Reduce development and maintenance costs

Dynamic Discovery:
- No configuration of end points
- Producers do not need to know who, if anyone, needs their data, or where they are located

Interoperable:
- API and wire protocol interoperability with other DDS implementations

Small Footprint:
- Complete C library < 500KB

No Operating System Services Required:
- Eases installation, deployment and maintenance
- Eliminates a single-point-of-failure concern

Clean, Easy to Use API
- Uncluttered, compliant with standards

Powerful Data Tools
- Filtering—content based and time based
- User Defined data types (including keys)
- Robust DDS IDL compiler for basic and constructed IDL types
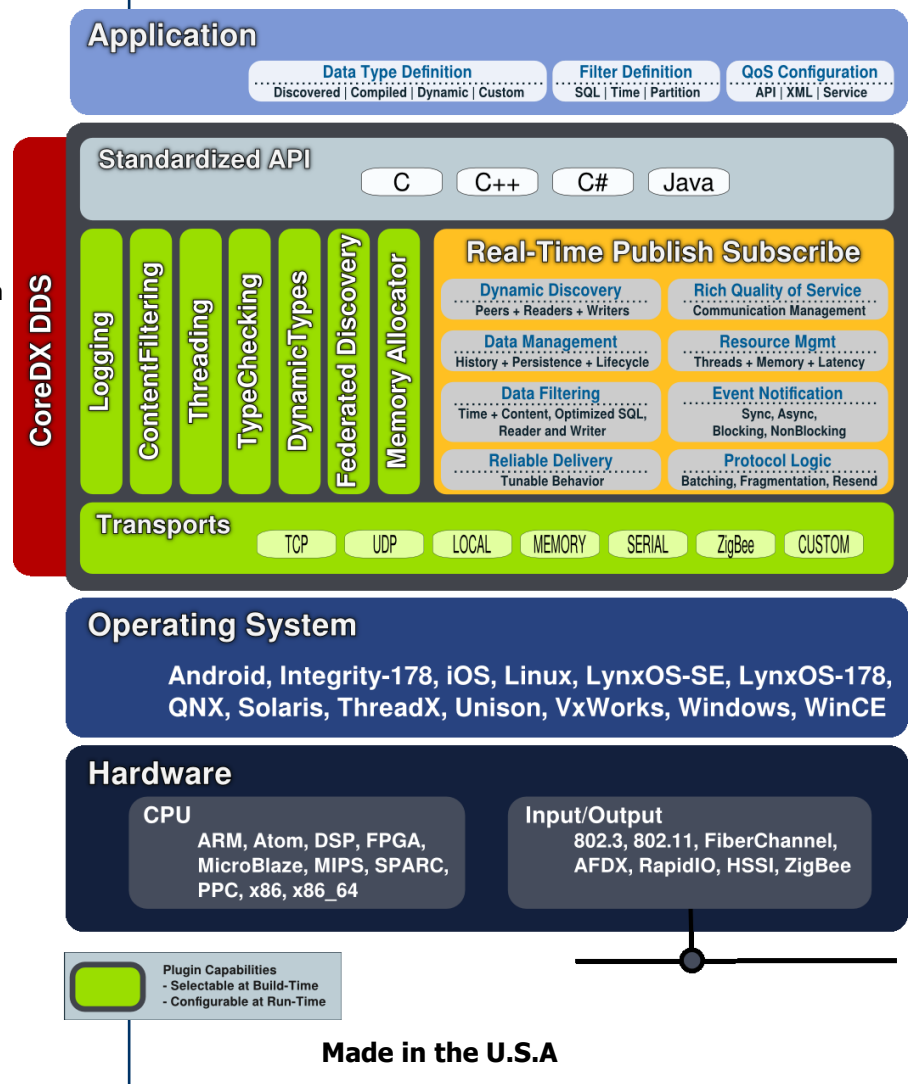- Supports Dynamic Data Types

Outstanding Network Performance:
- 70 µsec latencies (20 µsec on machine)
- 900 Mbps throughput

Event Notification:
- Synchronous notification via Conditions / WaitSets
- Asynchronous notification via Listeners (callbacks)

CoreDX DDS Flexible Architecture

Application
- Data Type Definition: Discovered | Compiled | Dynamic | Custom
- Filter Definition: SQL | Time | Partition
- QoS Configuration: API | XML | Service

CoreDX DDS

Standardized API: C, C++, C#, Java

Logging, ContentFiltering, Threading, TypeChecking, DynamicTypes, Federated Discovery, Memory Allocator

Real-Time Publish Subscribe

- **Dynamic Discovery**: Peers + Readers + Writers
- **Rich Quality of Service**: Communication Management
- **Data Management**: History + Persistence + Lifecycle
- **Resource Mgmt**: Threads + Memory + Latency
- **Data Filtering**: Time + Content, Optimized SQL, Reader and Writer
- **Event Notification**: Sync, Async, Blocking, NonBlocking
- **Reliable Delivery**: Tunable Behavior
- **Protocol Logic**: Batching, Fragmentation, Resend

Transports: TCP, UDP, LOCAL, MEMORY, SERIAL, ZigBee, CUSTOM

Operating System

Android, Integrity-178, iOS, Linux, LynxOS-SE, LynxOS-178, QNX, Solaris, ThreadX, Unison, VxWorks, Windows, WinCE

Hardware

- **CPU**: ARM, Atom, DSP, FPGA, MicroBlaze, MIPS, SPARC, PPC, x86, x86_64
- **Input/Output**: 802.3, 802.11, FiberChannel, AFDX, RapidIO, HSSI, ZigBee

Plugin Capabilities
- Selectable at Build-Time
- Configurable at Run-Time

Made in the U.S.A

CoreDX DDS Specifications

Operating Systems:
- Linux 2.6
- Windows
- Solaris
- Thread-X
- Unison
- Nexusware
- QNX
- Android
- iOS
- WinCE
- INTEGRITY
- LynxOS
- VxWorks
- DeOS

Hardware Platforms:
- X86, 32bit, 64bit
- UltraSPARC
- ARM7, ARM9
- MIPS 32bit, 64bit
- PowerPC
- FPGA's
- DSP

Development Languages:
- C
- C++
- C#
- Java

Transports:
- RTPS (UDP, IPv4, IPv6)
- TCP
- Multicast / Unicast
- Serial
- Zigbee
- ARINC-653

Customizations for additional platforms and transports are quick and easy, contact us for information.

About Twin Oaks Computing

Twin Oaks Computing, Inc. provides state-of-the-art engineering in support of high-performance communications, including device drivers, communication protocols, inter-process communications, network services, and secure environments. Our unique company culture allows us to be agile and provide superior responsiveness to our customers, and our extensive domain experience is essential to our customers' ability to perform their missions. We are committed to being a premier source of quality high-performance communications technologies for use in DoD and commercial applications.

Twin Oaks Computing, Inc

755 Maleta Ln Ste 203
Castle Rock, CO 80108
Phone (toll-free): 1-855-671-8754

www.twinoakscomputing.com
contact@twinoakscomputing.com