DATASHEET

RTI Connext DDS Cert

CONNECTIVITY PLATFORM FOR SAFETY-CRITICAL SYSTEMS

HIGHLIGHTS

Ability to meet stringent safety certification standards

Commercially supported DO-178C Level A Certification Package

Small memory footprint

Support for low power CPUs

Scalability from embedded 16-bit microcontrollers to multicore 64-bit CPUs

Bundled source code

Connext® DDS Cert significantly reduces the time and cost of developing distributed safety-critical systems. It provides certification efforts by providing an off-the-shelf Certification Package and saving potentially tens of thousands of lines of custom code. In addition, because it supports the DDS standard, applications are easier to develop, integrate, evolve and maintain than those using bespoke solutions.

OVERVIEW

Intelligent systems in mission-critical environments are held to extremely high standards. Whether these applications are in cars, planes, medical equipment or the battlefield, they rely on real-time data exchange to support real-time control and automated insight. With its small code size and fully deterministic behavior, Connext DDS Cert offers the portability and reliability demanded by these systems. It also works in devices with minimal memory, flash, CPU power or even no operating system. By abstracting out low-level networking and communication details and providing a flexible integration framework, Connext DDS Cert reduces development time and cost by minimizing the amount of device or application specific code that has to be created.

It also benefits both military and commercial drones, also known as Unmanned Air Vehicles (UAVs). Traditionally, UAVs have only been allowed to fly within line-of-sight with an observer, either on the ground or in a chase plane. They have also been prohibited from operating in the civilian National Airspace System (NAS). These restrictions limit their utility and make them expensive to operate. In order to unleash the potential of UAVs by increasing their operating range and integrating them into NAS, they will need to comply with civilian standards such as DO-178C. Connext DDS Cert makes it easier and more cost-effective to do so.

COMPREHENSIVE MESSAGING SOLUTION

Peer-to-peer communication

Connext DDS Cert uses an innovative, completely decentralized architecture that delivers consistent low-latency, high throughput and scalability. Applications directly exchange data in a true peer-to-peer manner – no servers, message brokers or daemon processes act as bottlenecks or single points of failure.

Real-time Quality of Service (QoS)

Applications have comprehensive control over and visibility into real-time behavior, including timing, deadlines, resource utilization and system state. QoS can be specified per-topic and per-subscriber.

Optimized publish/subscribe

Data can be reliably multicast to multiple applications and devices for extremely efficient streaming data distribution. With multicast, messages can be routed and filtered by the network switch instead of by the middleware or application software.

Wire efficiency

The Real-Time Publish-Subscribe (RTPS) protocol is extremely wire efficient. Data is sent in a compact binary representation. Most metadata is only exchanged once, at discovery time.

OPTIMIZED FOR SMALL-FOOTPRINT APPLICATIONS

Low memory requirement

Connext DDS Cert is a library that links with your application. The library size is optimized for small footprint applications and memory allocation is kept to a minimum.

Highly portable

Bundled source code enables developers to port Connext DDS Cert to new operating systems, compilers or processor architectures. RTI Connext DDS Cert has no built-in dependency on operating system services. Applications can be implemented on platforms with minimal operating system capabilities or no operating system at all. Processor support ranges from 16-bit microcontrollers with 32-bit integer support to multicore Intel and PowerPC CPUs. Leading enterprise operating systems, including Linux and Windows, are supported as well to ease application development and testing.

DESIGNED FOR SAFETY-CRITICAL APPLICATIONS

Safety certification

RTI Connext DDS Cert is designed to become certifiable as a component of a complete system undergoing certification to RTCA/ DO-178B/C (EUROCAE ED-12B/C). RTI provides services to support certification efforts by developing the necessary certification artifacts, including software development, verification, and configuration management plans and software requirements, design and code standards. Certification evidence is licensed separately.

Small code size

With minimized lines of source code, Connext DDS Cert provides a cost-effective foundation for rigorous certifications.

Deterministic behavior

The code is developed using process guidelines that ensure deterministic behavior. All memory allocation is done at startup and no memory is freed at run-time.

ADDITIONAL RTI PRODUCTS

Connext DDS Cert is fully interoperable with Connext DDS Professional, the world's most popular implementation of the DDS standard, which is augmented with many powerful tools and run-time services.

ABOUT RTI

Real-Time Innovations (RTI) is the Industrial Internet of Things (IIoT) connectivity company. The RTI Connext® Databus is a software framework that shares information in real time, making applications work together as one, integrated system. It connects across field, fog and cloud. Its reliability, security, performance and scalability are proven in the most demanding industrial systems. Deployed systems include medical devices and imaging; wind, hydro and solar power; autonomous planes, trains and cars; traffic control; Oil and Gas; robotics, ships, and defense.

RTI lives at the intersection of functional artificial intelligence and pervasive networking℠.

RTI is the largest vendor of products based on the Object Management Group (OMG) Data Distribution Service™ (DDS) standard. RTI is privately held and headquartered in Sunnyvale, Calif.

Download a free 30-day trial of the latest, fully-functional Connext DDS software today: https://www.rti.com/downloads.

Your systems. Working as one.

CORPORATE HEADQUARTERS
232 E. Java Drive, Sunnyvale, CA 94089
Telephone: +1 (408) 990-7400
Fax: +1 (408) 990-7402
info@rti.com

rti.com
rti_software
rtisoftware
company/rti
connextpodcast
rti_software