DATASHEET

RTI Connext Micro

FIRST SOFTWARE FRAMEWORK DESIGNED FOR RESOURCE-CONSTRAINED AUTONOMOUS SYSTEMS

HIGHLIGHTS

Supports resource-constrained devices

User-configurable feature set through build options

Scalability from embedded 16-bit microcontrollers to multi-core 64-bit CPUs

Bundled source code

Runs on bare metal devices and a wide variety of OS, including Linux, Windows, FreeRTOS, VxWorks, QNX, and ThreadX

Supports the OMG® DDS Security™ specification and interoperates with other implementations of DDS Security

Connext® Micro is a small-footprint software framework for smart machines and autonomous systems. It accelerates time to market and reduces sustainment costs by enabling the development of modular, loosely-coupled applications that meet stringent Size, Weight and Power (SWaP) requirements. It is standards-compliant and fully interoperable with other Connext® products.

OVERVIEW

Embedded systems and devices are in cars, production-line environments and medical equipment — and they increasingly connect to a network or even the internet. In building intelligent distributed systems, system developers are faced with the challenges of increasing software complexity and the data volumes produced by these systems and devices. Smart machines must act upon this data in real time for enhanced automation, analytics and business intelligence.

Connext Micro provides a small-footprint modular framework and connectivity solution for resource-limited devices that have minimal memory, flash or CPU power, or even no operating system at all.

By abstracting out low-level networking and communication details and providing a flexible integration framework, Connext Micro minimizes the amount of device or application specific code that needs to be created.

Built on the Connext databus — a data-centric framework for distributing and managing real-time data in distributed autonomous systems — Connext Micro provides a high-level

and standards-compliant alternative to in-house development. Building with Connext Micro significantly reduces development costs as well as system communications risks.

COMPREHENSIVE CONNECTIVITY SOLUTION

Peer-to-peer communication
Connext Micro uses an innovative, completely decentralized architecture. 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. As a result, Connext Micro delivers the consistent low-latency, high throughput and scalability required for big data in motion.

Plug-and-play communication
Devices and applications are automatically discovered and connected at run-time. No system administration or directory service is required, allowing use in autonomous, dynamic and ad hoc intelligent systems.

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 Micro libraries provide an interface to the Connext databus, embeddable directly into applications and devices. 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 Micro to new operating systems, compilers or processor architectures.

It 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 ARM, Intel and PowerPC CPUs. Leading enterprise operating systems, including Linux and Windows, are supported as well to ease application development and testing.

Modular and user-configurable architecture

A core library provides the baseline capabilities for publish/subscribe messaging. By rebuilding the library from source code, additional features such as asynchronous notification, reliable communication and filtering can be compiled in, enabling developers to make application-specific trade-offs between available features and footprint.

COMPLEMENTARY PRODUCTS

Connext Micro is fully interoperable with Connext® Professional, the trusted connectivity framework for developing and integrating secure autonomous systems, from edge to cloud.
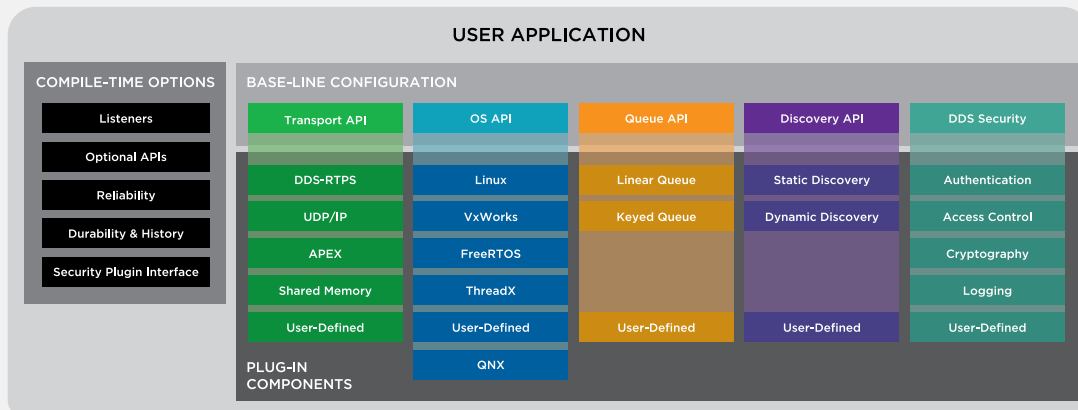
Connext Micro enables developer flexibility with a modular and user-configurable architecture.

ABOUT RTI

Real-Time Innovations (RTI) is the infrastructure software company for smart-world systems. Across industries, RTI Connext® is the leading software framework for intelligent distributed systems. RTI runs a smarter world.

RTI is the market leader in products compliant with the Data Distribution Service (DDS™) standard. RTI is privately held and headquartered in Silicon Valley with regional offices in Colorado, Spain, and Singapore.

Your systems.
Working as one.

CORPORATE HEADQUARTERS

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

rti.com
company/rti
rti_software
rti.com/blog
rtisoftware
rti_software