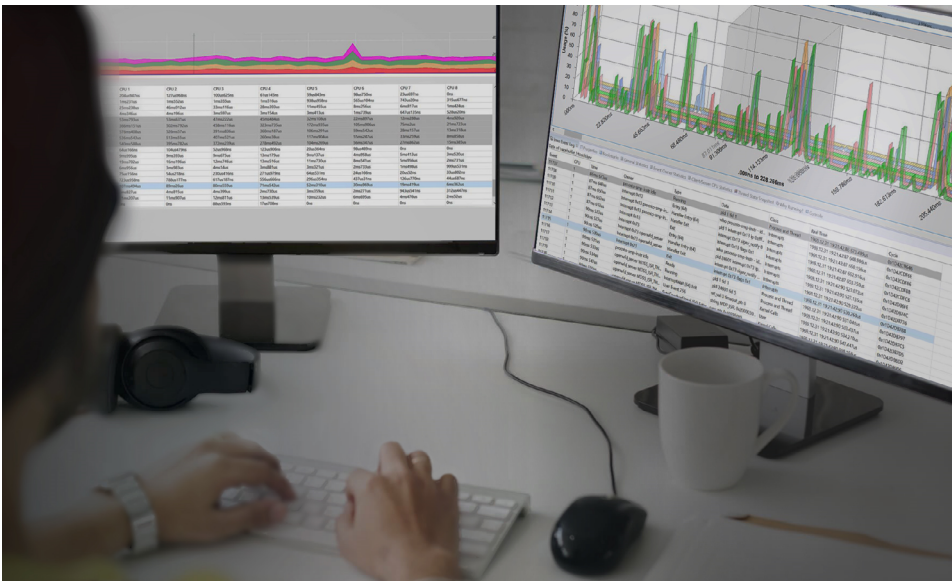# QNX Momentics Tool Suite

Code Development

The QNX Momentics Tool Suite provides you with an optimized C and C++ environment that lets you focus on what you do best: design and develop your embedded applications and systems.

A Familiar Development Environment

The QNX Momentics® Tool Suite offers a comprehensive Eclipse-based integrated development environment (IDE) and powerful command-line tools for building, updating and optimizing your systems and applications built on the QNX Neutrino® Real-time Operating System (RTOS), the QNX OS for Safety, the QNX Hypervisor or the QNX Hypervisor for Safety.

Whether you work on Linux, macOS or Windows, if you've worked with POSIX-compliant environments, the QNX Momentics tools will be familiar to you.

Design and Programming Flexibility

The QNX Momentics Tool Suite lets your development teams work with their preferred programming languages. They can even work with a mix of languages (e.g., C, C++ and Python), and develop for multiple system on a chip (SoC) architectures (ARM and x86) simultaneously.

Focus on Your Code

As well as its powerful command-line tools and familiar Eclipse-based IDE in which you can create and develop your embedded software projects, the QNX Momentics Tools Suite allows you to easily manage your code with wizards, editors and more.

- **Project Wizards**

  Automate the entire project-creation process: choose the language, populate the project with build directories, dependency files and starting source code, and even compile for your embedded target.

- **Editors**

  Configure your work space with user-defined preferences and time-saving features such as cut-and-paste, undo, commenting, highlighting, and language-specific indentation.

- **Build Tools**

  Use your preferred build tools: the command-line tools and the IDE can build *exactly* the same binaries.

- **Source Control**

  Manage your source with command-line tools or with the IDE, which supports GIT, Subversion and CVS, as well as Eclipse plugins for ClearCase, Perforce SCWI, etc.

Spend Less Time Debugging

The QNX Momentics Tool Suite includes unique tools you can use to track down and fix bugs as well as optimize your system's performance.

- **Source Debugging**

  Dynamically attach to running processes and debug multiple applications and processes, tracking individual threads and execution paths across CPUs.

- **Application Profiling**

  Evaluate program performance, no matter how large or complex, to quickly target areas for debugging, further analysis and optimization.

- **System Profiling**

  Use the system profiler in concert with the QNX Neutrino RTOS instrumented kernel to profile thread state changes and messaging, and thread migration between CPUs to eliminate IPC bottlenecks, excessive contention for resources, and inefficient thread migrations.

- **Code Coverage**

  Highlight exercised source code paths for speedier and more thorough testing, modify tests to run untried code, and even remove dead code—especially useful for safety certifications such as ISO 26262.

Debug and Optimize

QNX Momentics tools offer unique debugging features, such as multi-core profiling, so you'll spend less time bug hunting and have more time to create and optimize.
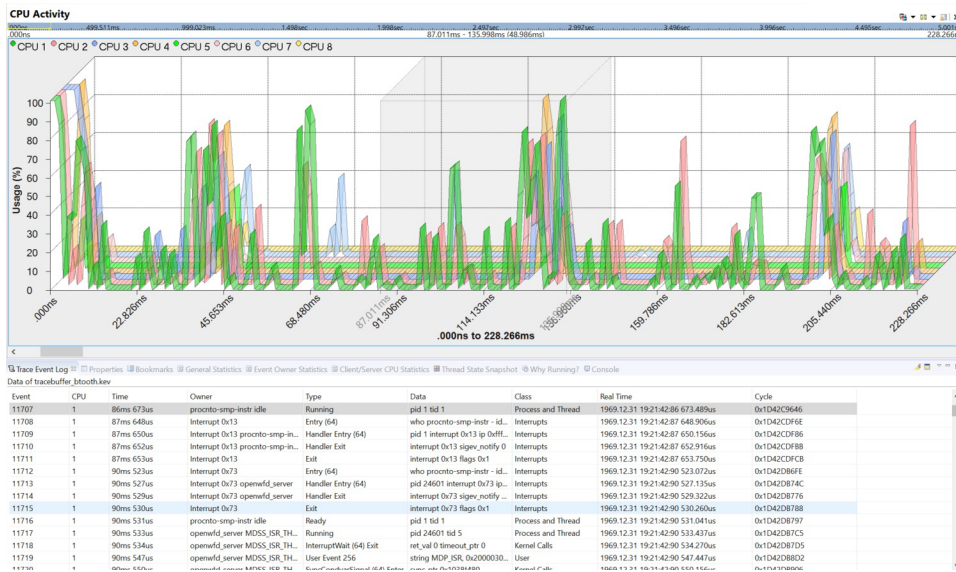
Optimize Performance on the Target

As well as a system builder that simplifies building target images, the QNX Momentics Tool Suite includes tools that let you work directly on your target board.

- **System Builder**

  Create bootable OS images, flash filesystem images or images that combine multiple components, such as an Initial Program Loader (IPL), an OS image and a filesystem image into a single image.

- **Target Agent and Navigator**

  Communicate directly with the target to transfer new files, launch applications, debug code *in situ*, profile the system or specific applications, and gather the information you need to improve and optimize your system.

The QNX Momentics Tool Suite provides productivity and quality analysis tools that accelerate all phases of product development and delivery.

See Code Run on the Target

Understand exactly what your code is doing in its intended production environment so you can quickly identify and resolve subtle issues, and optimize performance.

The QNX Momentics Tool Suite at a Glance

Fully Integrated IDE
- Based on open Eclipse framework
- Support for Eclipse Marketplace
- Manage and control source
- Edit and compile
- Debug on host or target
- Unit test
- Ensure code coverage
- Profile memory
- Detect runtime errors
- Build target images
- Monitor targets

Multiple Development Hosts
- Linux
- macOS
- Windows

Familiar Environment
- C18 and C++17 support
- Perl, Python, Toybox
- GCC compiler
- GDB debugger
- Valgrind Runtime Error Detection
- Familiar environment for Linux developers

Board Support Packages
- Support for the latest ARMv8 and x86-64 processors
- Continued support for ARMv7

Documentation
- Example projects
- Context-sensitive help
- Online manuals

Related Products

QNX SDP 7.1

The QNX Software Development Platform (SDP) 7.1 includes the QNX Neutrino RTOS, QNX Momentics Tool Suite and QNX Software Center to provide you with a full-featured RTOS for the next generation of ARMv8 and x86-64 embedded hardware platforms, and a POSIX-compliant development environment familiar to anyone who's worked on Linux or Windows.

QNX Neutrino RTOS

The QNX Neutrino RTOS offers the performance and reliability needed to meet the requirements of complex embedded systems built to today's increasingly exacting standards for safety and security. Systems built on the QNX Neutrino RTOS can be designed to run almost indefinitely—as long as the hardware lasts.

Training Packages

Developed by experts in embedded software development and delivered by the BlackBerry QNX technical training team, these courses provide an overview of key concepts and principles that will help your team improve design effectiveness and productivity:

- Introduction to Real-time Programming — an overview of real-time programming, using the QNX Neutrino RTOS

- Introduction to the QNX Momentics IDE— an overview of developing, debugging and analyzing performance using the QNX Momentics IDE tool set

QNX Software Center

Take the guesswork out of managing multiple, complex software installations. With the QNX Software Center, you don't have to track dependencies and updates by hand. The software center automatically manages product dependencies, and pro-actively alerts you when relevant product releases, patches and security updates are posted.

About BlackBerry® QNX®

BlackBerry QNX is a leading supplier of safe, secure, and trusted operating systems, middleware, development tools, and engineering services for mission-critical embedded systems. BlackBerry QNX helps customers develop and deliver complex and connected next generation systems on time. Their technology is trusted in over 150 million vehicles and more than 300 million embedded systems in medical, industrial automation, energy, and defense and aerospace markets. Founded in 1980, BlackBerry QNX is headquartered in Ottawa, Canada and was acquired by BlackBerry in 2010

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