

Product Release Notice

RTX64 2013 with Service Pack 1

General Availability Release Date

October 25, 2013

Product Overview

RTX64 2013 with Service Pack 1 is the latest 64-bit version of IntervalZero's market-leading hard real-time software products. IntervalZero's RTX and RTX64 products transform the Windows operating system into a real-time operating system (RTOS).

RTX64 2013 with Service Pack 1 is supported on 64-bit versions of Windows 7 with SP1, Windows Embedded Standard 7 with SP1, Windows 8, and Windows Embedded Standard 8.

Symmetric multiprocessing-enabled RTX64 takes full advantage of 64-bit memory and performance capabilities. Uniquely, the RTX64 RTOS scheduler enables embedded real-time applications to directly access the 512GB of addressable physical memory available on 64-bit Windows.

This is critical to modern day real-time systems and represents a gigantic leap from the 4GB physical memory limit of traditional 32-bit Windows systems. The 4GB barrier has stymied innovation in many industries that depend on real-time systems and that require memory access far beyond 4GB.

RTX64 is a key component of the IntervalZero RTOS Platform that comprises x86 and x64 multicore multiprocessors, the Windows operating system, and real-time Ethernet (e.g. EtherCAT or PROFINET) to outperform real-time hardware such as DSPs and radically reduce the development costs for systems that require determinism or hard real-time.

Leading OEMs worldwide use the IntervalZero RTOS Platform to achieve system development cost reductions of 25 to 50%, as well as breakthroughs in throughput and yields, in production quality, and in a more compact physical footprint.

Release Highlights

- The addition of real-time kernel (RTK) support allows Windows drivers to communicate with real-time applications. This functionality gives developers greater flexibility within their application design. Developers can choose to combine Windows processes (.EXE), Windows kernel drivers (.SYS), real-time processes (.RTSS) and real-time dynamic link libraries (.RTDLLs) to build applications that can take advantage of the full feature set of the Windows operating system.
- The addition of a control panel allows for configuration of the RTX64 subsystem. The control panel integrates seamlessly into the Windows control panel area, making RTX64 functionality searchable and configurable using standard Windows search capabilities.
- Microsoft Visual Studio 2012 build support is available. An application wizard is available to allow for quick real-time application creation with selectable common code templates using objects such as events or interrupts. IntervalZero has also verified that a subset of the Microsoft Visual Studio 2012 C Runtime library can be used within real-time applications, allowing developers to use standard C Runtime functionality within their Windows and real-time processes.
- A real-time network driver – RtlGB – supporting the Intel® i210 Ethernet controllers is now available for use with the RT-TCP/IP stack. This driver expands the set of network adapters supported by default within RTX64.
- RTX64 operating system support has been expanded to support Windows 8 and Windows Embedded Standard 8.
- A new Latency View tool allows users to view and compare system timer response latencies on multiple cores at the same time. Users can also add loads to stress the system to determine if it can meet their application's real-time needs.

Additional Features and Resolved Issues

RTX64 2013 with Service Pack1 also includes the following new features and updates:

Activation and Configuration

- Resolved an issue regarding slow license validation (1907, 1682)

Subsystem

- Improved error messages when the real-time subsystem cannot be stopped (1751)
- Resolved issues regarding local memory, and improved functionality related to expanding and shrinking the memory pool (1805, 1640, 1791, 1760, 1640, 1568)
- Resolved an issue regarding the RTX64 watchdog timer not properly freezing all processes (2132, 1702)
- Resolved an issue regarding thread priority when using a Windows thread interacting with the real-time subsystem (1998, 618, 2179)

- Resolved an issue regarding RTAPI calls not correctly returning the proper error code (1754)
- Resolved an issue regarding Windows applications waiting on an object causing the Window process to hang if the process was terminated (1627, 1792)
- Improved the way RTX64 prevents power management functionality, such as Intel SpeedStep, from causing latencies within the real-time subsystem (1019)
- Resolved an issue regarding the RTX64 server not logging data to a file (1663)
- Resolved an issue regarding device conversion back to Windows that could result in a green screen (2204)
- Resolved an issue regarding the inability to edit Windows interfaces after a network interface was converted to RTX64 (2179)

RT-TCP/IP Stack and Drivers

- Resolved an issue where the network interface pointer was not always accessible in a filter driver, adding API calls RtnTxFilterEx and RtnRxFilterEx (2059, 2005)
- Resolved an issue regarding shutdown handling with the RT-TCP/IP stack (2143)
- Resolved an issue regarding setting socket options (2175)
- Resolved an issue regarding FD_ISSET causing a linker error (1579)
- Resolved an issue regarding system green screening on repeated starting and stopping of the RT-TCP/IP Stack (2151, 2150)
- Resolved an issue regarding multiple critical sections within our real-time network drivers (2187, 1654)
- Resolved an issue regarding RtnFrameTransmit including random data at the end of the packet data passed to the driver (1973)

SDK

- Added RTAPI calls RtQueryPerformanceFrequency and RtQueryPerformanceCounter to allow for easier Windows and RTSS latency comparisons (1600)
- Added RTAPI calls RtWaitForSingleObjectEx and RtWaitForMultipleObjectsEx to improve granularity of wait timeouts (1625, 1753)
- Added a define RTX64_SDK_VERSION in Rtapi.h so customers can determine the SDK version (997)
- Added RTAPI calls RtAllocateLocalMemoryEx and RtShrinkLocalMemory to improve local memory (1805, 1640, 1791, 1760, 1640, 1568)
- Improved the samples provided as part of the SDK (1623)
- Resolved an issue regarding RtCreateProcess failing when the lpStartupInfo parameter was NULL (1548)
- Resolved issues regarding API calls that access the Windows registry: RegCreateKeyEx, RegSetValueEx and RegQueryValueEx, RegQueryKeyEx, and RegEnumValue (2203, 2022, 1727, 1726, 1718, 1638, 1634, 1605, 291)
- Resolved issues regarding the read and write port functions (1604)

Activation & Licensing

The IntervalZero product licensing system allows for flexibility in how features are activated and deployed.

Please [click here](#) for an overview of the IntervalZero product licensing.

For additional information on deployment refer to the RTX64 deployment guide located on the [IntervalZero web site](#).

Availability

RTX64 2013 with Service Pack 1 is available beginning October 25, 2013 through Partners and by contacting Sales: sales@intervalzero.com or (781) 996-4481.

We look forward to comments and feedback. If you have any recommendations or wish to suggest any product enhancements, please contact Product Management at: productmanagement@intervalzero.com.