



Product Release Notice: RTX 2011 with Service Pack 1

- **Product Released for General Availability on Aug 24, 2011**

IntervalZero announces the release of Service Pack 1 for RTX 2011, our market-leading, symmetric multiprocessing-enabled (SMP) hard real-time extension for Microsoft Windows.

RTX 2011 SP1 is supported on Windows 7, up through SP1; Windows Embedded Standard 7, up through SP1; Windows Vista, up through SP2; Windows XP SP3; and Windows Embedded Standard 2009.

RTX hard real-time software replaces real-time hardware such as DSPs and FPGAs, reducing system bill of materials costs by 25-50%, doubling application performance every 18 months, and providing developers with opportunities to open new markets through expanded product lines.

By leveraging RTX's tight integration with the Windows environment, along with its native SMP support on x86 multicore multiprocessors, OEMs move the hard real-time control logic, such as programmable logic control, motion logic, and digital media algorithms, from specialized hardware components to software components.

RTX 2011 SP1 supports systems with up to 32 processors and has six Runtime editions, offering customers multiple options for choosing the level of SMP functionality required for their embedded systems.

RTX 2011 SP1 Release Overview:

The most significant aspect of the RTX 2011 SP1 release is its support for Intel's Advance Vector Extension (AVX), a 256-bit instruction set extension to Streaming SIMD Extensions (SSE) designed for applications that are floating point intensive.

Intel released AVX earlier this year as part of the Sandy Bridge processor family. Its wider vectors, new extensible syntax, and rich functionality improve the performance of general purpose applications such as image, audio/video processing, medical systems, industrial automation, and scientific simulations.

The addition of AVX support allows RTX developers to fully leverage the Sandy Bridge architecture to maximize system performance while minimizing system costs and shortening time to market.

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AVX instructions extend previous Single Instruction Multiple Data (SIMD) with the following features:

- The 128-bit SIMD registers have been expanded to 256 bits. AVX is designed to support 512 or 1024 bits in the future.
- Three-operand, nondestructive operations have been added. Previous two-operand instructions performed operations such as $A = A + B$, which overwrites a source operand. The new operands can perform operations like $A = B + C$, leaving the original source operands unchanged.
- Memory alignment requirements for operands are relaxed.
- A new extension coding scheme called VEX has been designed to make future additions easier as well as making coding of instructions smaller and faster to execute.

Additional RTX 2011 SP1 Highlights:

- RTX now supports SSE exception handling. SSE exceptions are controlled by the SIMD status and control register.
- RTX Installer now allows users to configure the number of Windows and RTSS processors on a multiprocessor system.
- RTX now allows greater control of the RTX local memory pool. The automatic expansion of the local memory pool can now be disabled. If automatic expansion is enabled, users can select the minimum amount of memory by which to expand the pool. Also, developers have the ability to force the pool size increase if needed by calling `RtExpandLocalMemory`. This allows developers to control when non-deterministic behavior happens.
- The `Rt8257x` and `Rt82580` drivers, released earlier this year as stand-alone downloads, are now included in the product installation.
- The `RtE1000` driver now supports the 82571 EB Intel Pro 1000 PT Quad Port LP Server adapter.
- RTX managed code now provides a pointer to the shared memory region in addition to the streaming functions. This allows managed code to access the shared memory directly using unsafe pointers.
- A help button, menu item and F1 support for all RTX tools provides user with access to relevant documentation as needed.

RTX 2011 SP1 Updates:

- Fixed an issue where converting RTX devices confused Windows, resulting in interrupts not attaching correctly.
- Modified local memory pool logic to notify users when it fails to allocate memory.
- Resolved an issue where the debugged process and thread would show up as running on different processors.
- Resolved an issue with the IntelPro1000 managed code sample.
- Resolved an issue with structured exception handling on a shared configuration.
- Resolved a silent installation issue where an error dialog box would appear if the RTX subsystem was running.
- Resolved an installation issue where a repair was required if the user removed the subsystem during a modification.
- Resolved an issue in which the Control Panel/Properties API had an unnecessary dependency that caused USB to depend on the TCP/IP stack.
- Resolved an issue in which the silent installation did not provide error information if incorrect command line parameters were provided.
- Resolved an issue where the Usage Dialog did not appear when the .msi file was double-clicked during silent install.
- Resolved an issue where a blue screen occurred during startup of the RTX HAL Extension on systems that did not support the Execute Disable Bit.
- Resolved an issue where the RTX Properties control panel would not open following the error: "The RTX Control Panel was unable to determine RTX subsystem settings."
- Resolved an issue where the RTX Properties control panel would hang when the Transports directory under Debug Connection Settings pointed to a folder that did not contain the transport .dll files.
- Resolved an issue where device icons were not appearing in the Pnp Device Settings list on Windows XP.
- Resolved an issue where the RTX Properties control panel would crash when RTX User Account Control Override (UAC) was enabled but the RtxUAC service was not running.
- Resolved an issue where converting a NIC card to RTX control generated a Windows error when RTX was in PnP Automatic startup mode.
- Resolved an issue that occurred when jumbo packets were used with the Intel Pro 1000 CT adapter.
- Resolved an issue where removing RT-TCP/IP or USB features during a modification did not remove the RTSS process dependencies on them.
- Resolved an issue where the ping timer did not use the correct timings.
- Updated the RTX Analyzer log to collect information from RtxPnpNet.inf.
- Additional information has been added to the RTX Analyzer log to acquire memory changes.

- Resolved an issue where RTX Analyzer didn't accurately report the current Intel SpeedStep configuration, as set in the RTX Properties control panel > Hardware tab.
- Resolved an issue in RTSS Object Viewer where non-RTSS process objects would appear even when View > Only RTSS Process Objects was selected.
- Resolved an issue where RtxWriteFile would write bytes during a failure.

Availability

RTX 2011 SP1 will be generally available beginning Wednesday, August 24 2011. Please contact IntervalZero Sales, sales@intervalzero.com.

Please direct comments and suggestions to IntervalZero Product Management, productmanagement@intervalzero.com.