



Green Hills Software Introduces Version 5.0 of its velOSity Microkernel and INTEGRITY RTOS

Enhancements for Automotive, Resource-constrained and Multiprocessing Applications; Easier Porting from Legacy Kernels; First Certified OS in New POSIX® Certification Program

SANTA BARBARA, CA ([PRWEB](http://prweb.com)) August 4, 2004 -- Green Hills Software, Inc., the market leader in embedded software development tools and royalty-free Real-Time Operating Systems (RTOS), today introduced version 5.0 of its velOSity microkernel and INTEGRITY RTOS. Significant additions in velOSity and INTEGRITY 5.0 include enhancements for automotive, resource-constrained and multiprocessing applications and support for easier porting from legacy kernels. INTEGRITY 5.0 has been certified under the POSIX®: Certified by IEEE and The Open Group program to the 1003.1-2003 System Interfaces Product Standard and is listed on the certification register at <http://get.posixcertified.ieee.org/register.html>.

(Note to editors: please see the related announcement, "Green Hills Software's INTEGRITY Operating System First to Be Certified Under the IEEE and The Open Group POSIX® Certification Program.")

"Green Hills Software has received certification while some other RTOS vendors are just beginning to talk about POSIX," commented Dan O'Dowd, founder and CEO of Green Hills Software. "POSIX System Interfaces and the other major upgrades in velOSity and INTEGRITY 5.0 demonstrate Green Hills Software's commitment to providing embedded software developers with the most advanced RTOS technology and development environment enabling our customers to get to market first with the highest performance, most reliable, most secure and lowest cost electronic products."

Major 5.0 Features

Significant enhancements in the 5.0 release of the velOSity microkernel and INTEGRITY RTOS include:

- Automotive platform A new fast boot option provides embedded devices with an instant on capability, an essential requirement for automotive electronics. Boot times for velOSity 5.0 are as fast as 15 milliseconds on a 600 MHz Blackfin processor and 40 milliseconds on a 233 MHz PowerPC processor, several orders of magnitude faster than the seconds required to boot a typical desktop operating system. Also new with 5.0 are audio drivers and an audio Application Programming Interface (API) for infotainment applications.
- Multiprocessing The EventAnalyzer system visualization tool has been extended to provide a synchronized multiprocessor view, simplifying debugging and optimization of inter-processor interactions such as messaging passing. In addition, velOSity and INTEGRITY 5.0 now support multiprocessor configurations where processors share a bus, memory and on-board peripherals.
- Resource-constrained systems A new dynamic loader allows multiple independent programs to be loaded and run on non-MMU systems without requiring symbolic information stored on the target, reducing memory use while maximizing performance. The Integrate utility can now automatically scale the operating system to include only that functionality required by the application, even if incremental or dynamic loading is being used. This provides a minimum footprint and significantly eases configuration. For custom hardware systems, velOSity and INTEGRITY 5.0 can run without a Board Support Package (BSP) or other hardware-dependent code, significantly easing BSP development and allowing application testing on real hardware to begin much sooner in the development cycle.
- Portability from legacy kernels Several new programming interfaces have been added to ease porting from legacy operating systems to velOSity/INTEGRITY and POSIX interfaces. These include new inter-task communication mechanisms (message queues, event flags and mailboxes), a flexible multi-level exception



handling capability and an alternative error-handling model that generates exceptions from system call errors. Availability Blackfin and ColdFire processor families are now supported. PowerPC support is extended to the Freescale PowerQUICC III and IBM PowerPC 970.

Scalable POSIX Implementation

In addition to the certified IEEE 1003.1 (POSIX.1) System Interfaces in the INTEGRITY RTOS, velOSity 5.0 also includes significantly enhanced POSIX compliance. The velOSity microkernel provides all the POSIX interfaces in INTEGRITY 5.0 that do not depend on the use of a hardware Memory Management Unit (MMU). The velOSity and INTEGRITY family provides a migration path for applications that do not need full POSIX.1 System Interfaces conformance or the additional reliability and security provided by the INTEGRITY RTOS today, but may take advantage of them in the future. The velOSity and INTEGRITY combination also allows device manufacturers to share source code across products with different underlying manufacturing cost, reliability and security requirements.

The seamless scalability between the velOSity microkernel and INTEGRITY RTOS gives a tremendous amount of flexibility to POSIX developers, noted David Kleidermacher, vice president of Engineering for Green Hills Software. With the velOSity microkernel, developers can deploy applications developed using pure POSIX interfaces on highly resource-constrained systems that may not have an MMU. With the INTEGRITY RTOS, they can run the identical application and use the identical development environment while taking advantage of full memory protection and secure partitioning for the utmost in reliability and security.

Availability and Pricing

Both velOSity and INTEGRITY 5.0 are available now for ARM, ColdFire, MIPS, PowerPC, StrongArm, x86/Pentium and XScale target processors. For Blackfin processors, velOSity 5.0 is available now and INTEGRITY 5.0 will be available in fourth quarter 2004. Development is supported from Windows, Linux, Solaris and HP-UX hosts.

INTEGRITY 5.0 was certified under the POSIX: Certified by IEEE and The Open Group program on a Freescale MCP750-HA PowerPC processor. The INTEGRITY RTOS will be certified on other platforms as required by customers.

Upgrades to version 5.0 are free to current velOSity and INTEGRITY customers under maintenance. For new customers, development licenses for the royalty-free velOSity microkernel start at \$9,500 USD and development licenses for the royalty-free INTEGRITY RTOS start at \$15,000 USD.

About velOSity and INTEGRITY

The velOSity microkernel is small, fast and royalty-free, making it ideal for cost-sensitive and resource-constrained applications. Built on the velOSity microkernel, the INTEGRITY RTOS provides embedded applications with total reliability and absolute security. The INTEGRITY RTOS is securely partitioned, guaranteeing each task the resources it needs to run correctly and fully protecting the operating system and user tasks from errant and malicious code, including denial of service attacks, hackers, worms and Trojan horses.

The velOSity microkernel and INTEGRITY RTOS share a rich set of device drivers, Board Support Packages and middleware, including IPv4, IPv6, IPsec, SSL, SSH, Web server, CORBA and graphics. Both are also tightly integrated with Green Hills Software's industry-leading MULTI development environment. Common tools and programming interfaces enable seamless migration from the velOSity microkernel to the



INTEGRITY RTOS, providing embedded software developers with unprecedented scalability.

About Green Hills Software

Founded in 1982, Green Hills Software, Inc. is the technology leader for real-time operating systems and software development tools for 32- and 64-bit embedded systems. Our royalty-free INTEGRITY RTOS, velOSity microkernel, compilers, MULTI and AdaMULTI Integrated Development Environments and TimeMachine debugger, offer a complete development solution that addresses both deeply embedded and high-reliability applications. Green Hills Software is headquartered in Santa Barbara, CA, with European headquarters in the United Kingdom. Visit Green Hills Software on the web at www.ghs.com.

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