LynuxWorks

The company behind the winners

All over the world, in industries ranging from aerospace and defense to telecommunications, consumer electronics and more, LynuxWorks operating systems are hard at work.

Whether you're watching the Summer Olympic Games, aboard a Boeing 777, or just making Xerox® copies, chances are that a LynuxWorks operating system is there in the background, working for you.

For almost two decades, LynuxWorks™ has been known as the premier provider of operating systems for the most demanding real-time and embedded systems.

After all, the LynxOS® and LynxOS-178 real-time operating systems offer the most inherently secure, reliable design of virtually any commercial off-the-shelf (COTS) embedded operating system, and are the most open, hard real-time operating systems available today.

LynuxWorks is also an industry leader in the embedded Linux® revolution, having long recognized the value of open standards in a complex industry and demonstrated a serious committment to their advancement.

LynuxWorks' expansive suite of smart development tools is designed to help engineers optimize their systems, reduce development costs, and accelerate time to market. Our global consulting services are always here to help guarantee the success of every project built with a LynuxWorks operating system inside.

The bottom line? LynuxWorks is here to make our customers' jobs easy and their business profitable, by offering the freedom to choose from multiple compatible operating systems, multiple tools, multiple support and consulting options, and much more—and all for the very latest technologies.

LynuxWorks operating systems are embedded in millions of systems and devices worldwide

LynuxWorks Incorporated helped launch the embedded software market in the 1980s and remains a technology leader at the heart of the embedded systems revolution.

LynuxWorks set standards early on for openness and performance with its initial product offering, the LynxOS hard real-time operating system, offering open, standard APIs and very high-end memory management support unique for its time.

The company won its reputation with its early design wins in mission- and life-critical applications in the aerospace and defense sectors.

In today's exploding embedded market, where Internet communications and standardization are now leading drivers, LynuxWorks continues to set standards in openness and mission-critical performance with products ranging from embedded Linux and hard-real time operating systems to a broad spectrum of software development tools.

LynuxWorks software addresses the diverse and complex operating-system and development needs across a variety of industries—communications, aerospace/defense, office automation, automotive/transportation, and consumer electronics.

Only LynxOS and LynxOS-178 combine hard, real-time technology with broad conformance to open and de facto standards such as Linux, POSIX®, and UNIX®, while providing a feature set that is unique in the industry.

· **Hard real-time performance** and absolute determinism are required by many safety- and mission-critical embedded applications.

· **Time and space partitioning** provides each application component with its own fully protected operating space.

· **Full POSIX conformance** assures code portability between systems.

· **Linux ABI-compatibility** means that Linux applications can run under LynxOS, without source-code recompiliation.

· **High availability** allows for the building of fault-tolerant embedded systems capable of 99.999 percent uptime.

· **State-of-the-art networking technology** makes LynxOS the most advanced of all the commercial RTOS offerings.

Based on the 2.6 Linux kernel, BlueCat is a commercial-grade embedded operating system release that delivers immediate productivity.

BlueCat is ideal for embedded systems ranging from small consumer-type devices to large-scale, multi-CPU systems.

Inherently stable and reliable, BlueCat Linux delivers an embedded operating system that is truly unique in the industry—open source, version-stabilized and robust, and royalty-free—with cross-hosted development tools that help developers.

The new features in BlueCat Linux, such as a preemptible kernel, a low-latency scheduler, improved POSIX threading support and POSIX timers, offer Linux developers a greater measure of real-time performance than ever before.

LynxOS-178 builds on the advanced technology inside LynxOS and is the only POSIX-compatible RTOS that is certifiable to the rigorous DO-178B level A standard used by the FAA for airborne systems.

LynxOS-178 boasts a full suite of standards-based development tools, complete customer support including DO-178B-capable consulting services, and an artifacts package with DO-178B-required documentation.

LynxOS-178 eliminates man-years of effort and significantly lowers the overall expense of software certification to DO-178B.

LynxOS provides the most robust feature set of any DO-178B certifiable operating system and enables rapid time-to-market for safety- and business-critical applications.

Which operating system is right for you?

LynxOS and **LynxOS-178** are the world's choices for real-time systems that can't afford downtime. The LynxOS product line has been certified POSIX®-conformant (Portable Operating System Interface) so that interoperability between systems can be assured.

LynxOS-178 is today's answer for companies seeking to meet the rigorous requirements of the DO-178B standard that is mandatory for so many safety-critical applications in the military and aerospace sectors.

BlueCat Linux delivers the flexibility and cost benefits of open-source software and is based on the 2.6 kernel. BlueCat is compatible with LynxOS and can be employed alongside LynxOS for functions in a product where hard real-time response is not required.

Open standards open the market

Many developers are migrating to Linux and open-systems software in embedded systems designs. In a tight market, open standards allow developers to leverage freely available software and spend their valuable resources on product differentiators.

By reducing costs, speeding time-to-market, and increasing market adoption and acceptance, products developed around open standards benefit from a higher return on investment (ROI).

The use of open standards also expands available options and resources, improves communications, reduces risk and creates more durable solutions. By helping to define component interfaces, open standards also increase interoperability, leading to simpler and quicker integration efforts and increased developer productivity (ROI).

POSIX conformance

POSIX is a family of standards designed to ensure source-code portability of application programs across hardware and operating systems. It is increasingly mandated for commercial applications and government contracts.

The LynxOS real-time operating system has supported a full POSIX process model since its introduction in 1988. LynxOS is the only RTOS certified by the IEEE as POSIX-conformant.

Code written for one POSIX operating system will generally port easily to another, including most UNIX, Linux and other LynuxWorks operating systems.

More than ever, organizations need ways to ensure that their software systems can function across multiple platforms, and LynuxWorks is always here to help.

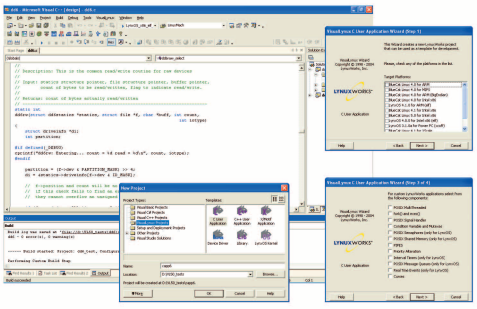
LynuxWorks is ISO 9001-certified

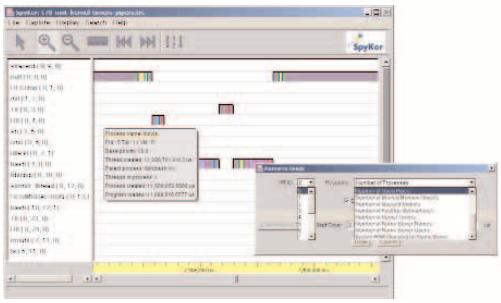
LynuxWorks is the only ISO 9001:2000-registered company that provides embedded Linux.

We adhere to ISO 9001:2000-standard practices to increase quality through accountability and well-defined procedures, so that developers can be assured of a solid software foundation for their products.

The accountability inherent to ISO 9001:2000 policies is invaluable in helping customers meet key certification ratings with LynuxWorks operating systems.

LynuxWorks all-star development tools lead developers down the path to success, providing the right tools for the job





VisualLynux™ Windows-based IDE: All the ease and convenience of Microsoft® Visual Studio® is now for embedded-system developers: two debuggers, a cross process viewer and much more.

Luminosity IDE: Get an editor, code browser, compiler, linker, and debugger, all in a single application, with project-management capabilities to streamline code creation.

TotalView: Debugging multi-process, multi-threaded and multi-processor application systems is now as easy as debugging a single computer.

SpyKer™: The only dynamically instrumented system trace tool available today. Visualize program execution and timing of events. Catch elusive application bugs and fine-tune system performance.

LynxInsure++: Pinpoint memory leaks and allocation errors resulting from code that might be syntactically correct, yet programmatically wrong.

Aphelion Java™ Toolkit for LynxOS: Create complete embedded Java applications running on LynxOS with none of the obstacles common to the use of Java in an embedded environment.

Messenger: Intelligent devices cooperatively process information with this message-based communication protocol.

Consulting and global services

Comprehensive professional services uphold LynuxWorks' commitment to support customers throughout all phases of product development. World-class global professional services encompass:

· **OS porting**—complete and rapid ports of LynxOS and BlueCat Linux to custom CPU boards on currently supported hardware architectures.

· **High-availability systems**—collaboration and design to support hot swap of peripherals, CPU failover and system redundancy, for telecommuncations and other mission-critical systems.

· **Complete application design, implementation and optimization**—end-to-end development of embedded applications, from requirements specification through design, implementation, testing and optimization.

· **Device drivers and hardware support**—the LynuxWorks experts can accelerate development of LynxOS and BlueCat Linux drivers for custom hardware or daughter boards, serial and parallel devices, Ethernet, ATM, wireless, ISO9660 support, and much more.

· **Migration paths**—recommendations on migration paths from other operating systems to LynxOS or BlueCat Linux to maximize reusability of existing software and avoid potential bottlenecks.

· **Performance improvements**—debug specific problems with drivers or applications and working with customer engineers.

· **Software certification support**—to cost-effectively create certifiable applications and gain certification for customer solutions. Software certification support and LynxOS-178 are designed to address a wide range of certification standards.

· **Tailored technical support**—customized assistance across the entire product life cycle.

· **Educational services**—professional training classes, labs, and workshops held throughout the year, and conducted on-site at customer premises and at LynuxWorks training facilities in the U.S. and Europe.

SynergyWorks

SynergyWorks, the LynuxWorks industry partners network, leverages the technological expertise and diversity of its many members to deliver additional hardware and software solutions to developers using LynuxWorks operating systems.

SynergyWorks partners include board manufacturers, database suppliers, and companies who specialize in networking, middleware and high-availability systems, and they work in fields such as telecommunications, military and aerospace, industrial, and process control.

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ISO REGISTERED 9001:2000

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