

Xilinx Processor Support

Real-time and embedded Linux solutions



BlueCat® Linux® from LynuxWorks™, based on the 2.6 kernel, is an implementation of the Linux model enhanced for use in embedded systems ranging from small consumer-type devices to large-scale, multi-CPU systems.

BlueCat Linux delivers the flexibility and cost benefits of open-source software. It's uniquely constructed to be a stable, commercial-grade embedded operating system release which provides immediate productivity and optimized performance through:

- Packages that are tailored to your varying requirements for tools and technical support
- Its comprehensive set of tools and board support packages for devel-

BlueCat Linux Features

- **Preemptible kernel**—preemption points in the kernel allow you to suspend an executing process so that you can launch another, higher-priority process.
- **Low-latency scheduler**—ensures that processes are executed when they are ready to run, which improves overall system performance.
- **Improved POSIX threading support**—open-standards ideology providing compatibility of applications over different architectures.
- **POSIX timers**—time and alarm management needed for real-time. Applications requiring high throughput or fast response would benefit from these high-resolution timers.

oping, debugging and deploying Linux into embedded environments

- Customers' ability to leverage 20 years of LynuxWorks expertise and experience in embedded operating systems, the UNIX® programming model, POSIX® and more

Linux steps into real-time

The 2.6 kernel at the heart of BlueCat Linux is preemptible. Preemption points in the kernel allow you to suspend an executing process so that you can launch another, higher-priority process.

Linux 2.6 also features a rewritten scheduler that speeds up the process of selecting tasks for execution, which is of particular benefit to complex multitasking applications. Scheduling is now completed in a predictable amount of time.

These new features, together with improved POSIX threading support and new POSIX signals and timers, give your BlueCat Linux applications an improved level of real-time performance.

Another benefit is that applications written for BlueCat Linux can be migrated to the LynxOS® real-time operating system if you ever find that your Linux application requires stricter, hard real-time performance. Your Linux application code can run unmodified on LynxOS, and this protects you against high cost and time-to-market penalties if you need to switch to a hard real-time operating system later.

What's more, the Luminosity IDE and development tools support our whole

family of operating systems, so there are no new tools or development environments to purchase and no new learning curves. This value proposition is unique in the Linux and embedded-systems world.

Rapid time-to-market

Tap into the growing talent pool of experienced Linux programmers. BlueCat Linux empowers developers to become immediately productive through tool chains and board support packages for the embedded industry's widest range of popular processor architectures for Linux.

Linux support for Xilinx processors

LynuxWorks' BlueCat Linux is a port of the 2.6 kernel to the Xilinx® PowerPC® and MicroBlaze™ processors. This version of BlueCat Linux enables support for Xilinx MicroBlaze processors with and without Memory Management Units (MMUs).

BlueCat Linux is now available integrated in Xilinx Embedded Development Kits (EDKs). Out-of-the-box support is provided for the PowerPC-based Xilinx ML403, ML405, ML410 and ML507 boards. Also supported are the MicroBlaze-based Spartan-3E 1600E, Spartan-3A DSP 1800A and Spartan-3A DSP 3400A boards.

The Xilinx MicroBlaze and PowerPC EDKs provide a rich feature set for developing BlueCat Linux applications and configuring custom BSPs using Xilinx hardware designs. The EDKs also provide an easy path to system expansion with additional PowerPC and MicroBlaze hardware using supported Virtex or Spartan FPGAs.

The pre-configured Xilinx EDKs include the award-winning Platform Studio tool suite and the necessary documentation and peripheral IP for designing Xilinx Platform FPGAs with PowerPC hard-processor cores or MicroBlaze soft-processor cores.

MicroBlaze soft processors

The MicroBlaze core is a 32-bit RISC Harvard architecture soft-processor core with 32 general-purpose regis-

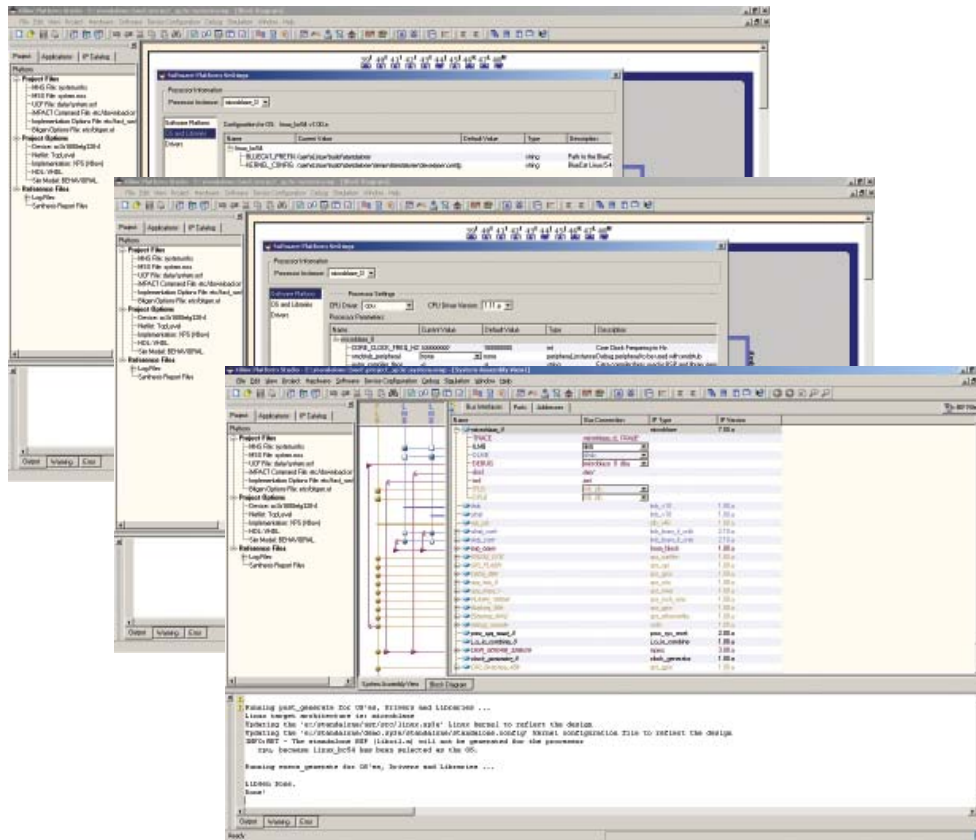
ters, and a rich instruction set optimized for embedded applications. It supports both on-chip block RAM and/or external memory. You get to specify the combination of peripherals, memory and interface features that will provide optimal system performance and lowest cost, all on a single FPGA.

PowerPC hard processors

The Xilinx Virtex platform FPGAs provide up to two PowerPC 405,

32-bit RISC processor cores in a single device. These industry-standard processors offer high performance and a broad range of third-party support.

For more information on Xilinx processor support, please visit the Xilinx support page on our web site:
<http://www.linuxworks.com/xilinx.php>



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