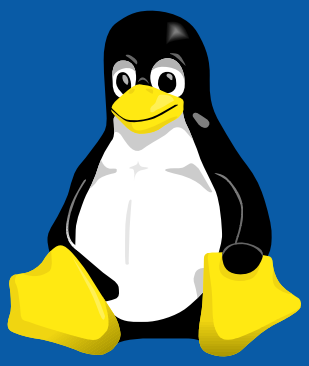
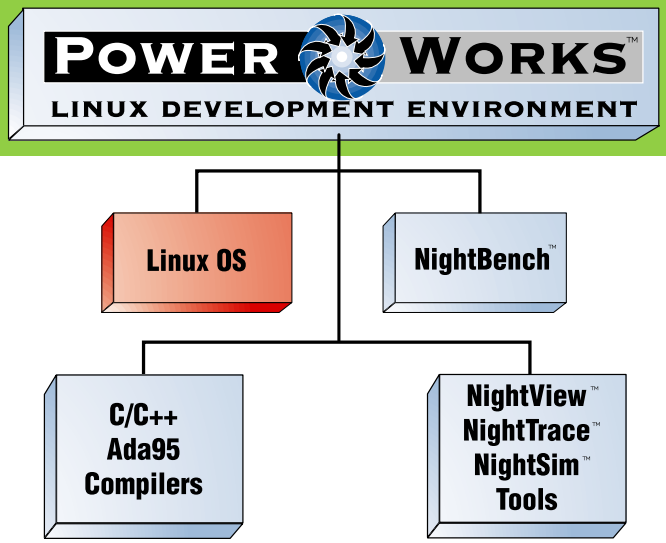
PowerWorks™
Linux Development Environment

Features

- Full desktop development of Concurrent real-time applications
  - Develop under Linux
  - Target PowerMAX OS™ real-time UNIX®
- Non-intrusive real-time development tools
  - NightView™ symbolic debugger
  - NightTrace™ data analyzer
  - NightSim™ frequency-based scheduler
- C/C++ Languages
  - ANSI X3.159-1989 C
  - ANSI X3J16/95-0185 C++
- MAXAda Ada95 language environment
  - ANSI/ISO/IEC-8652:1995
  - Multiprocessor Ada tasking
  - Predictable task execution
  - Hardware interrupt handling
- NightBench GUI program development environment





Overview

Concurrent's PowerWorks™ Linux development environment (PLDE) allows users on a Linux PC to develop applications for any Concurrent PowerPC-based real-time computer system. PLDE offers an easy and economical way to utilize the extensive features of Concurrent compilers and real-time graphical user interface (GUI) tools. Application programs are compiled and debugged directly on a Linux PC while targeted to a system running Concurrent's PowerMAX OS real-time UNIX-based operating system.

PowerWorks LDE consists of high-performance C/C++ and Ada95 compilers, the NightView symbolic debugger, the NightTrace event analyzer, the NightSim frequency-based scheduler, and the NightBench GUI desktop work environment.

NightBench Program Development Environment

NightBench is a GUI that provides a common work environment for the PLDE editor, compilers, and development tools. NightBench organizes all of the information required for consistent, repeatable development of PowerMAX OS applications, while providing an efficient interface for editing, browsing, building, and debugging.

Concurrent Compilers

Concurrent C/C++ and MAXAda are ANSI standard compilers especially designed for the development of large-scale real-time applications. Concurrent compilers maximize run-time performance by employing multiple levels of optimized code generation. State-of-the-art optimizations include constant folding, common sub-expression elimination, constraint propagation, moving of invariant code, reduction of operator strength, peephole optimization, and efficient instruction scheduling, vital for optimal performance in PowerPC RISC architectures.

All Concurrent compilers come with PowerMAX OS run-time libraries that allow compilation and linking of applications directly on the Linux system.

CONCURRENT COMPUTER CORPORATION®

Real-Time... Real Benefits

Real-Time Development Tools

With PLDE real-time development tools, users can debug and monitor their applications running on a PowerMAX OS system directly from the desktop Linux PC. Each tool includes a small run-time agent that runs on the PowerMAX OS target system in a non-intrusive manner, preserving the deterministic characteristics of the application.

NightView Source-Level Debugger

NightView is a graphical, source-level debugging and monitoring tool specifically designed for real-time applications. NightView can monitor, debug, and patch multiple real-time processes running on multiple processors with minimal intrusion. In addition to standard debugging capabilities, NightView supports application-speed eventpoint conditions, hot patches, synchronized data monitoring, exception handling, and loadable modules.

NightTrace Data Analyzer

NightTrace is a graphical tool for analyzing the dynamic behavior of single and multiprocessor applications. NightTrace can log application data events from simultaneous processes executing on multiple CPUs or even multiple systems. NightTrace combines application events with PowerMAX OS events and presents a synchronized view of the entire system. NightTrace allows users to zoom, search, filter, summarize, and analyze events in a wide variety of ways. PowerMAX OS events include individual system calls, context switches, machine exceptions, page faults, and interrupts. Application events are defined by the user, allowing logging of the data items associated with each event.

NightSim Scheduler

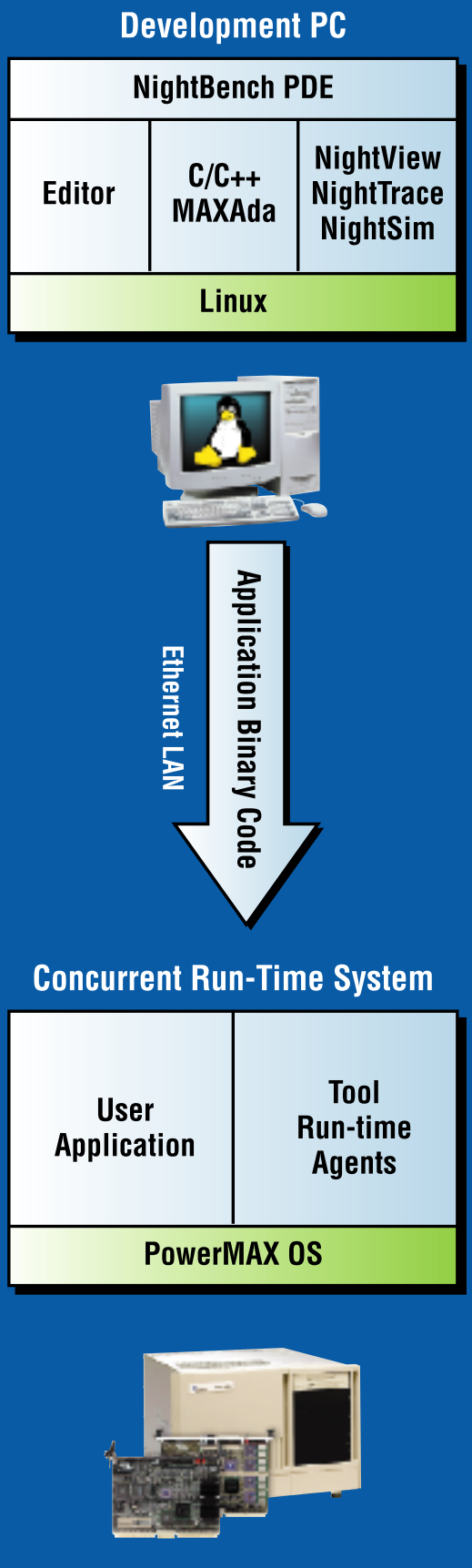
NightSim is a tool for scheduling and monitoring real-time applications that require predictable, repetitive process execution. NightSim provides a graphical interface to the PowerMAX OS frequency-based scheduler and performance monitor. With NightSim, application builders can control and dynamically adjust the periodic execution of multiple coordinated processes, their priorities and their CPU assignments. NightSim's performance monitor tracks the CPU utilization of individual processes and provides a customizable display of period times, minimums, maximums, and frame overruns.

System Requirements

PLDE runs on Intel-based PCs running Red Hat Linux 6.2 or higher. An Ethernet LAN connection to one or more PowerMAX OS target systems is required for application debug.

PLDE Products

- PLDE includes C/C++ compiler, NightView, NightTrace, NightSim, NightBench, PowerMAX OS run-time libraries, and TCP/IP, NFS, and X Window System libraries
- MAXAda development option



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