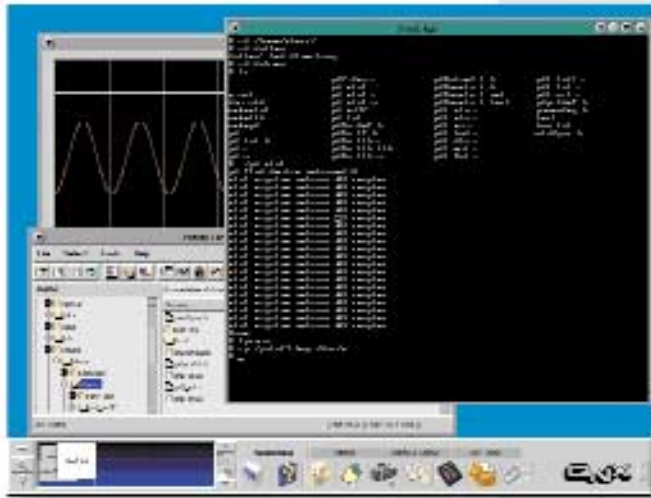


PowerDAQ Real-Time Support



Features

- OS extensions for RTLinux (Real-Time Linux)
- OS extensions for RTAI under Linux
- Linkable driver modules for QNX
- Check our web site to examine the continually growing list of supported environments



General Description

Technical programmers face continual frustration because no matter how much Microsoft works on the desktop versions of Windows, that OS never achieves the level of determinacy needed for realtime, mission-critical applications. Thus, they're increasingly looking at alternative environments such as realtime extensions for Linux or dedicated RTOSs such as QNX. Unfortunately, few vendors of data-acq cards supply drivers for those environments—but UEI is a shining exception to that rule!

First consider Linux. UEI has tested its realtime extensions, which it supplies at no charge on the Software Suite CD-ROM, with both RTLinux and RTAI Linux. In fact, programmers can use the same driver module for both realtime and non-realtime applications. To effectively use this driver, a user application should consist of two parts: a realtime task that serves realtime processing, and a user application part. All realtime tasks communicate with the user application through realtime FIFOs and shared buffers.

When programming an application under RTLinux or RTAI, you can access the PowerDAQ driver five different ways:

- From the user space, link your application with `powerdaq32.lib`
- Install `powerdaq32.o` as a shared library, and then from the user space link your applications dynamically with it
- From the user space make simple "read" and "write" commands to access basic read/write operations for analog and digital subsystems
- Link your realtime module with `powerdaq32.o`. Every function call to the PowerDAQ API is translated into `posixio()` style calls to the `ioctl()` entry point of the driver.
- Call exported functions of the `pwrdaq.o` module directly. It's the fastest way to call the driver functions, but no ownership or race-condition checking occurs.

UEI's support for QNX takes a somewhat different form due to that OS's architecture. The QNX SDK includes all the definition files and libraries you need to link into an application. Further, you get startup code as well as example programs with C source code that illustrate both software-clocked and hardware-paced analog inputs.

Implementing a QNX driver is different than working with Windows or Linux drivers. QNX allows applications with root privileges to directly access PCI bus addresses and resources including interrupts. Thus the driver contains no `read()/write()/ioctl()` routines. We've implemented the PowerDAQ for QNX driver as a library to link with user back-end applications (server).

The number and variety of realtime operating environments and extensions is changing quite rapidly. UEI keeps up with the latest industry trends, and we expect to have driver support for more realtime environments in the future. To find out about our latest support, make sure you check our web site or ask to be put on the mailing list for our monthly PowerDAQ News e-mail newsletter.

Ordering Information

PD-QNX	PowerDAQ for QNX
PD-RTLINUX	PowerDAQ for Realtime Linux