QUICK START GUIDE

NI Real-Time Hypervisor

Version 3.0

The NI Real-Time Hypervisor uses virtualization technology to run NI LabVIEW Real-Time and Windows in parallel on multi-core PXI controllers.

NI Real-Time Hypervisor Configuration

Your NI Real-Time Hypervisor ships pre-configured with everything you need to develop and run LabVIEW and LabVIEW Real-Time applications simultaneously on a single controller. NI Factory Installation Services (FIS) has equipped your system with hardware that meets the requirements of the NI Real-Time Hypervisor. In addition, FIS has partitioned this hardware between Windows and the LabVIEW Real-Time OS (NI ETS) according to the preferences you specified during the ordering process and the resource partitioning requirements of the NI Real-Time Hypervisor.

However, you can assign the resources in your system to different OSes. Refer to the *Getting Started with Your NI Real-Time Hypervisor System* section for information about completing this task.

Getting Started with Your NI Real-Time Hypervisor System

Complete the following steps to become familiar with your system configuration utility, known as the NI Real-Time Hypervisor Manager, and begin developing applications:

1. Power on or restart your system.

2. Select **Windows** from the boot menu.

3. Use the NI Real-Time Hypervisor Manager to view the devices assigned to each OS.

   a. Select **Start»All Programs»National Instruments»NI Real-Time Hypervisor» NI Real-Time Hypervisor Manager** to launch the NI Real-Time Hypervisor Manager.

   b. Review the OS partition settings.

      • The **Basic** tab displays each device and the OS to which each device is assigned.

      • The **Advanced** tab displays each device, the OS to which each device is assigned, and the PCI Interrupt Request Line (PIRQ) that each device uses.

4. (Optional) Change the OS partition settings.

   a. Click the **Basic** tab to display the list of devices and the OS to which each one is assigned.

b. Use the pull-down menus next to each device to change the OS to which each device is assigned.

c. Right-click the **Memory** row and select **Set Memory Allocation** to partition the system memory between the OSes according to your application needs.

d. Use the pull-down menus next to each CPU core to assign CPU cores to OSes according to your application needs.

e. Click the **Apply** button to apply the partitioning configuration. The NI Real-Time Hypervisor Manager generates a set of instructions.

f. Follow the instructions generated by the NI Real-Time Hypervisor Manager to ensure that each hardware device is connected to the correct card slot.

5. Power on or restart your system.

6. Select **NI Real-Time Hypervisor** from the boot menu to boot into Hypervisor mode.

7. Develop and run applications just as you would with a normal host and real-time system.

Communicating Between Operating Systems

The NI Real-Time Hypervisor includes a virtual RT console, a virtual Ethernet connection, and a shared memory feature that you can use to communicate between Windows and the LabVIEW Real-Time OS (NI ETS).

📝 **Note** The following sections reference the *NI Real-Time Hypervisor Help*. To open the *NI Real-Time Hypervisor Help*, select **Help»NI Real-Time Hypervisor Help** from LabVIEW or the NI Real-Time Hypervisor Manager. You can launch the NI Real-Time Hypervisor Manager while booted into Windows only.

Using the Virtual RT Console

Use the virtual RT console to view configuration and troubleshooting information for the NI Real-Time Hypervisor. For example, you can use the virtual RT console to determine the RT target IP address. Refer to the *Connecting to the NI Real-Time Hypervisor Virtual Console* topic of the *NI Real-Time Hypervisor Help* for more information.

Using the Virtual Ethernet Connection

Use the virtual Ethernet connection to communicate between Windows and NI ETS with remote communication methods. Refer to the *Transferring Data Between Operating Systems* topic of the *NI Real-Time Hypervisor Help* for more information.

Using Shared Memory

You can share up to 95 MB of system memory between the OSes on your NI Real-Time Hypervisor system. Use shared memory to transfer data between OSes if remote communication methods are inefficient. Refer to the *Transferring Data Between Operating Systems* topic of the *NI Real-Time Hypervisor Help* for more information.

Restoring Your System

Refer to the *Restoring Your NI Real-Time Hypervisor System* topic on the **Contents** tab in the *NI Real-Time Hypervisor Help* for instructions to restore your system.

Where to Go from Here

Refer to the *NI Real-Time Hypervisor Help* for complete documentation of the NI Real-Time Hypervisor, including an introduction to virtualization and techniques for communicating between Windows and the LabVIEW Real-Time OS (NI ETS). To open the *NI Real-Time Hypervisor Help*, select **Help»NI Real-Time Hypervisor Help** from LabVIEW or the NI Real-Time Hypervisor Manager. You can launch the NI Real-Time Hypervisor Manager while booted into Windows only.

Refer to `ni.com/info` and enter the Info Code `NIRTHVKI` to access known issues for the NI Real-Time Hypervisor 3.0.

Refer to `ni.com/info` and enter the Info Code `HV_Devices` for information about unsupported hardware devices and drivers.

Where to Go for Support

The National Instruments Web site is your complete resource for technical support. At `ni.com/support` you have access to everything from troubleshooting and application development self-help resources to email and phone assistance from NI Application Engineers.

National Instruments corporate headquarters is located at 11500 North Mopac Expressway, Austin, Texas, 78759-3504. National Instruments also has offices located around the world to help address your support needs. For telephone support in the United States, create your service request at `ni.com/support` and follow the calling instructions or dial 512 795 8248. For telephone support outside the United States, visit the Worldwide Offices section of `ni.com/niglobal` to access the branch office Web sites, which provide up-to-date contact information, support phone numbers, email addresses, and current events.