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What is the NetChip PCI-RDK?

NetChip's PCI-RDK is a 'complete development solution' for engineers to create USB 1.1 or 2.0 device firmware, host drivers and applications.

The primary goal is to provide the engineer with a stable hardware and software platform for developing firmware for NetChip peripheral controllers, for both USB 1.1 full speed and 2.0 high speed compliant products such as the NET2890 and NET2270. In many cases, firmware, drivers and applications can be almost fully developed and tested before hardware is completed. This means quicker development time and faster time to market.

With the PCI-RDK installed, the Windows PC becomes a USB firmware development platform. This is not a simulation. Emulation of almost any USB device can be accomplished with the PCI-RDK.

With the PCI-RDK it is possible to:

- Become familiar with NetChip's peripheral chip register set using provided register monitor software.
- Run pre-compiled firmware examples to experiment with USB transfers. Firmware runs on a Windows PC as a standard 'console application.'
- Recompile, test, and modify provided examples to suit development requirements. The kit includes robust USB host drivers and applications for low level control over USB devices.
- Debug firmware using MSVC or any good Windows debugging tools. Debugging features, such as breakpoints, single-step and trace can all be applied.
- Deliver customized PCI-RDK firmware to host driver and applications development team so they can get a 'head start' before hardware is ready.
- Move firmware from the PCI-RDK to hardware platform easily and at any time. Projects are designed for portability.

The kit includes complete and working device firmware, host drivers applications with source code.

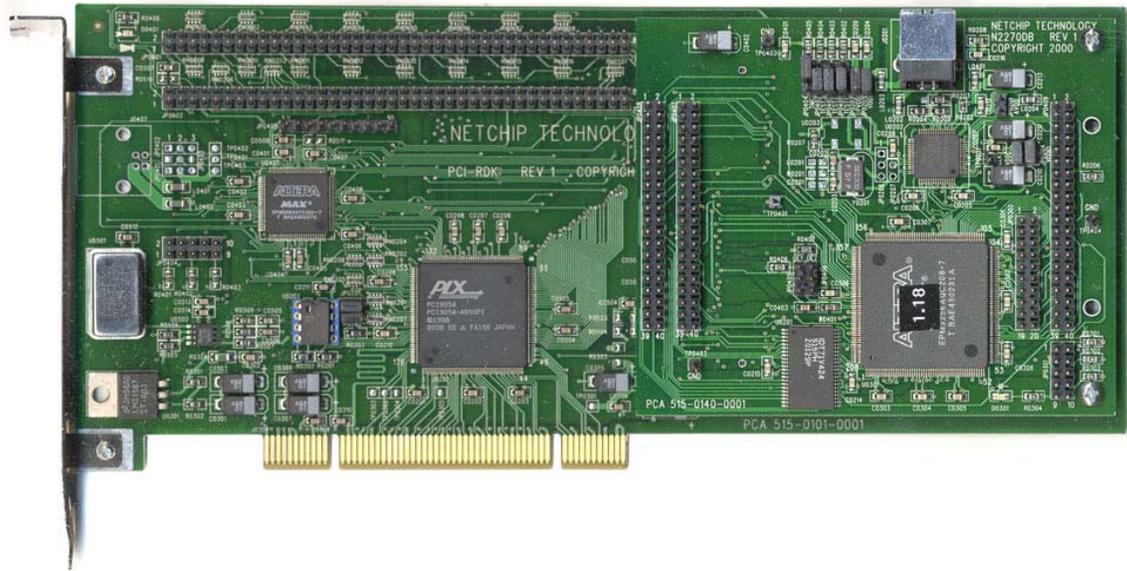


Figure 1. PCI-RDK picture

What is included in the PCI-RDK kit?

The kit includes operational hardware, software and source code for development of USB devices based on NetChip's family of USB 1.1 and 2.0 peripheral controllers.

PCI-RDK package contents:

- PCI board
- NetChip device development card (mounted to PCI board)
- CD-ROM

The development card comes pre-mounted to the PCI board. Development cards can be re-mounted and 'wire-wrapped' to your existing system board. Extra development cards can be purchased separately.

PCI board: What's on it?



Figure 2. NetChip PCI-RDK board (without development card)

The PCI board interfaces NetChip device development cards to the PCI bus.

PCI board component highlights:

- PCI to local bus bridge chip (PLX 9054)
- Connector for the NetChip device development card
- Header pins (so that all NetChip local bus device signals can be probed)
- Small EPLD (required to overcome some peculiar PLX 9054 restrictions)

Device development card: What's on it?

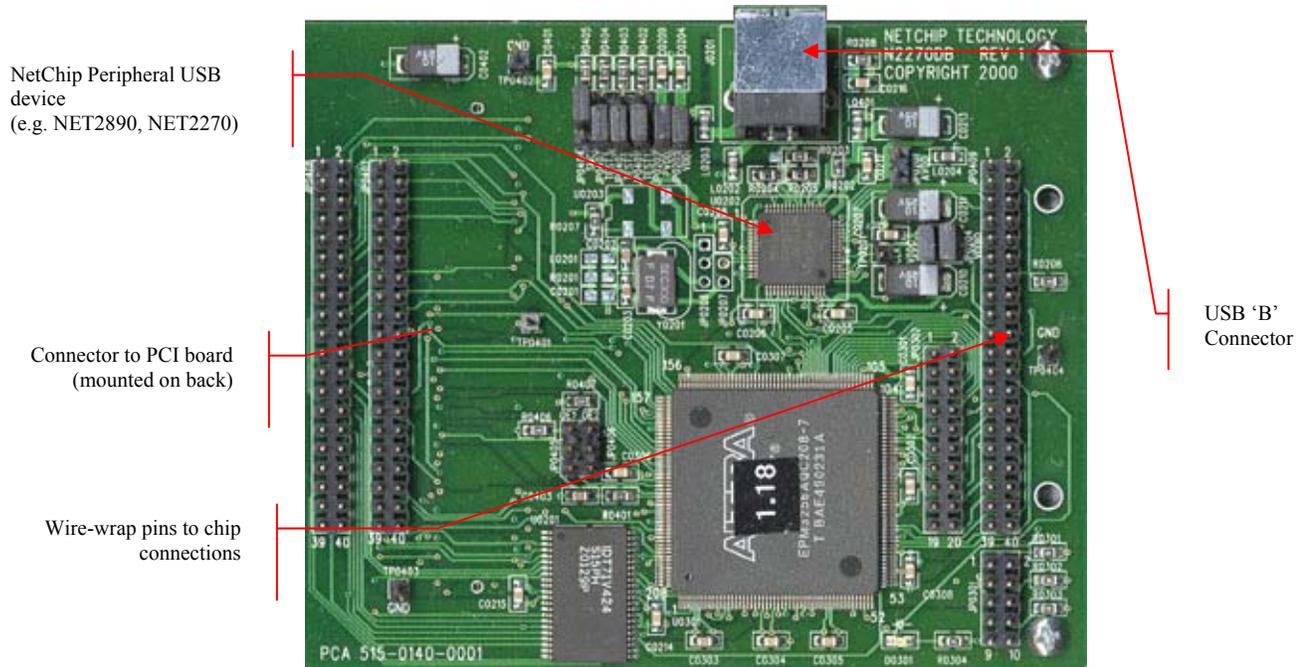


Figure 3. Development Card

Device development card component highlights:

- NetChip peripheral USB interface chip (e.g. NET2890 or NET2270)
- Connector to the PCI board
- Header pins (for 'blue-wiring' to your system board)
- USB 'B' connector

CD-ROM: What's on it?

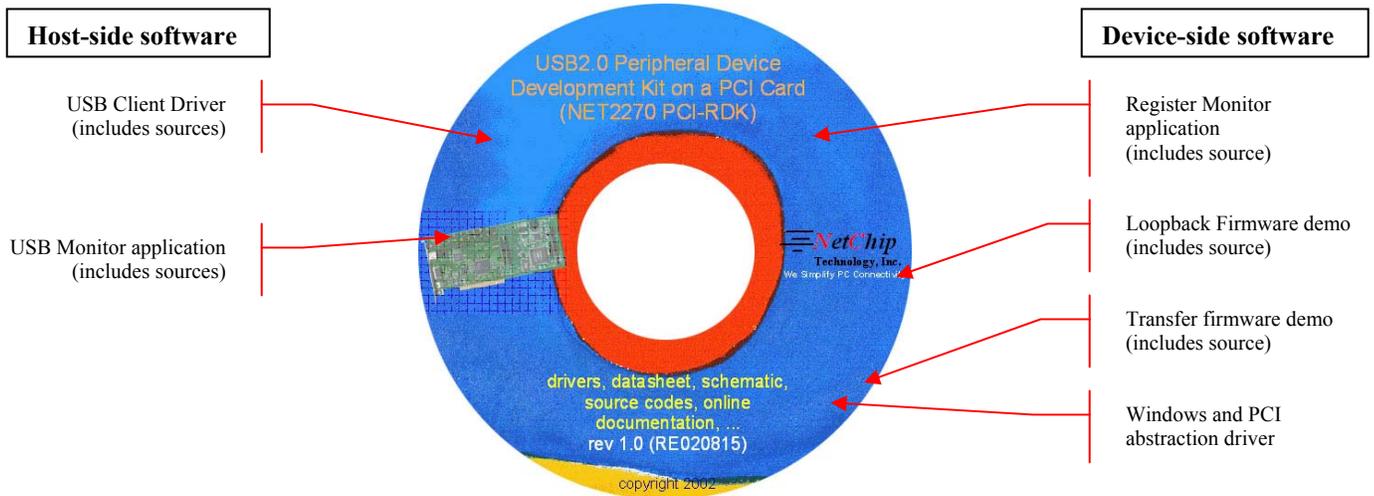


Figure 4. PCI-RDK CD-ROM software content

The PCI-RDK CD-ROM contains USB host and USB device programs for Windows, as well as source code:

USB Host (PC) software on the CD-ROM:

- USB client driver (Includes complete source code)
- USB monitor application (Includes complete source code)

USB Device software on the CD-ROM¹

- Loopback firmware (Includes complete, portable source code)
- Transfer firmware (Includes complete, portable source code)
- Device Register Monitor application (Includes complete source code)
- Windows and PCI abstraction driver (Source code available)

What does a USB 2.0 PCI-RDK development environment look like?



Figure 5. Typical PCI-RDK development environment

¹ Minimum device-side software inclusions. Kits for some NetChip devices may include more. The CD-ROM includes other non-software content, such as BOMs.

Upgrade to USB 2.0 host PC requires a USB 2.0 PDK (USB 2.0 PCI host controller card and Microsoft Win2K USB 2.0 driver stack) available from USB.ORG

How can I get the most out of the PCI-RDK?

Here is one suggested sequence for getting the most out of the NetChip PCI-RDK:

1. Use the RegMON.EXE to familiarize yourself with the chip's registers set
 - RegMON can (and should) be left running during all subsequent steps
2. Run precompiled loopback and transfer demo firmware with host monitor application
3. Recompile firmware, and run under debugger (MSVC)
 - Explore firmware using MSVC breakpoints and single step features
4. Customize firmware to create a USB device interface that matches your specifications
 - Deliver this device to your driver and host application development teams
5. Port firmware to your hardware

Order Information:

USB 2.0

NET2270 PCI-RDK (16-Bit USB 2.0 Peripheral Device Development Kit on a PCI Card)

USB 1.1

NET2890 PCI-RDK (USB 1.1 Peripheral Device Development Kit on a PCI Card)