Installation of Quantis drivers and libraries

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04/07/2012 (v.0.06)

Abstract

The following instructions provide an overview of the installation procedure for device drivers and libraries required to use Quantis quantum random number generator on Linux-based systems. Please consult the documentation provided with the Quantis software package for more information.

1 Device drivers

In the following instructions `Quantis-v11.12.13` should be replaced by the appropriate directory depending on the version of Quantis software package you are using during the installation. Provided compilation and installation instructions should work on any systems running Debian GNU/Linux distribution. The difference between Debian and Fedora/RedHat-based system in pointed during some steps.

One should also note that most of the command issued during the installations process require super-user (root) privileges. On most modern Linux systems this can be achieved using `sudo` or `su` commands.

1.1 PCI and PCI-express version

PCI driver for the Quantis is required only for using PCI or PCI-express version of the device. If you are suing USB version, please consult installation instructions in Sections 1.2 and 1.3.

Note: According to information obtained from the Quantis developers, as of July 2012 the driver for the Quantis PCI devices provides a support for Linux kernel in version $\leq 2.6.36$ only. Support for the kernel in version 3.x is expected to be added in the version 2.5 of the PCI driver, which is to be released in summer 2012.

1. Install module-assistant package
   `apt-get install module-assistant`

   and prepare your system for module compilation

   `m-a prepare`

   Note: On RedHat/Fedora-based systems you need to install `kernel-devel` package and collection of development tools instead.

   ```
   yum install kernel-devel
   yum groupinstall "Development Tools"
   ```

2. Unpack the Quantis software package and go to
   `Quantis-v11.12.13/Drivers/Unix/QuantisPci`.

3. Compile the module
   `make`

4. Install the module
   `make install`
   and check if the module has been installed properly
   `find /lib/modules/ -name quantis_pci.ko`

5. Make sure that the driver will be loaded during the next boot
   `echo "quantis_pci" >> /etc/modules`

   Note: On RedHat/Fedora-based systems you need to modify `/etc/rc.modules` file in order to load the driver automatically during the boot

   `echo modprobe quantis_pci >> /etc/rd.modules`

6. Follow the instructions concerning in Section 1.3 to set the required permissions for using Quantis device.

1.2 USB version

1. Install `libusb` and `libusb-dev` packages
   `apt-get install libusb-1.0-0 libusb-1.0-0-dev`

2. Check your device with `lsusb`
   `lsusb -d 0aba:0102 -v` or `lsusb -v | grep Quantis`

3. Follow the instructions concerning in Section 1.3 to set the required permissions for using Quantis device.

1.3 Device permissions

1. Make sure that the `plugdev` group exists
   `cat /etc/group | grep plugdev`

2. Add the user that will be permitted to use Quantis to the `plugdev` group
   `usermod -G plugdev -a LOGIN`,
   where `LOGIN` is the login name of the user

3. Copy file `Quantis-v11.12.13/Drivers/Unix/idq-quantis.rules`,
   to `/etc/udev/rules.d/` directory and reload the UDEV rules
   `udevadm control --reload-rules`

2 Libraries

1. Unpack distribution files from `Quantis-v11.12.13/Packages/Linux` to a selected directory, *e.g* `/usr/local/IDQ/Quantis`
   `mkdir /usr/local/IDQ`
   `tar xjvf QuantisRNG-2.5.0-Linux-amd64.tar.bz2`
   `mv QuantisRNG-2.5.0-Linux-amd64 /usr/local/IDQ/Quantis`

After this step the `EasyQuantis` application should be in
`/usr/local/IDQ/Quantis/bin/EasyQuantis`

2. Copy Quantis.h and DllMain.h from
   `Quantis-v11.12.13/Libs-Apps/Quantis`
   to
   `/usr/local/IQD/Quantis/include`

3. Add `/usr/local/IDQ/Quantis/lib` (or `/usr/local/IDQ/Quantis/lib64`) to `/etc/ld.so.config` or some file which is included by this file *e.g* `/etc/ld.so.conf.d/quantis.conf`

4. Update the loader cache
   `ldconfig`