



syn1588®

Version 1.3 – December 2014

Abstract

This application note describes the procedure for updating the firmware of the syn1588® PCIe NIC. This procedure is required to enable new or improved functions for your existing syn1588® PCIe NIC.

Prerequisites

One requires a PC equipped with the syn1588® PCIe NIC, the utility “syn1588” (please make sure to use the correct version for your operating system) and the new firmware file. The drivers for the syn1588® PCIe NIC have to be installed on the PC.

syn1588® PCIe NIC

The firmware upgrade is supported starting with build ID 562 of the syn1588® PCIe NIC. One can check for the appropriate build ID either by invoking the syn1588® PTP Stack

```
C:\>ptp -v2 -i 192.168.103.143 -CS
syn1588(R) PTP Stack - V 1.2.227 Rev 570 $ - IEEE1588-2008
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Command line: ptp -v2 -i 192.168.103.143 -CS
Found Configuration for 1 ports
(0) Device \\.\SYN1588_0 found
(0) syn1588(R) PCIe NIC, Build 562
(0) Hardware Clock M 2.3.0 f=87500000 Hz
(0) Using Oregano Systems; syn1588(R) PCIe NIC; 00:04:A3:2D:5A:81
(0) with ClockId 00:04:A3:00:00:2D:5A:81
```

or by invoking the utility “syn1588”

```
C:\>syn1588
syn1588(R) Driver Interface - V 1.2.100 Rev 499 $ - Apr 3 2012
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Device \\.\SYN1588_0 found
syn1588(R) PCIe NIC, Build 562
```

```
Hardware Clock M 2.1.3 f=88888000 Hz
Selected syn1588(R) card 0
```

syn1588 Tool

The syn1588 tool is located on the syn1588® LiveCD-ROM/USB-Stick (or on an ISO image file of the LiveCD) in the directory “sw/apps/linux” or “sw/apps/win32”. If you require a copy of the syn1588® LiveCD/USB-Stick please contact Oregano Systems support either via email contact@oregano.at or via our web site <http://www.oregano.at> .

Firmware File

The firmware file for upgrading the syn1588® PCIe NIC will be provided by Oregano Systems’ support. Depending on the hardware revision of your card it is necessary to use the correct firmware version. The syn1588® PCIe NIC **Revision 1.0** (MAC address starts with 00:60:35) requires a firmware file starting with “enc_syn1588_nic_17...”. **Revision 1.5** of the syn1588® PCIe NIC (MAC address starts with 00:04:A3 or 00:1E:C0) requires a file starting with “enc_syn1588_nic_30...”. **Revision 2.0** requires a file starting with “syn1588_nic_rev2...”. However, the syn1588 tool automatically checks if the correct version is used.

Caution

Upgrading the syn1588® PCIe NIC may affect the normal operation of the card. We strongly recommend to stop any application that accesses the syn1588® PCIe NIC hardware including the syn1588® PTP Stack.

Do not power down the PC during the firmware upgrade process. Any interrupt of the power during the firmware upgrade will corrupt the syn1588® PCIe NIC.

Upgrade Procedure

Upgrading the syn1588® PCIe NIC is a three step process.

- Check syn1588® PCIe NIC firmware version
- Perform update
- Power cycle your PC

The chapter Prerequisites describes how to check for the build ID of the syn1588® PCIe NIC. All builds starting with 562 and greater will support firmware update.

For updating the syn1588® PCIe NIC’s firmware start the utility “syn1588”. If you have more than one syn1588® PCIe card built into your system, all available cards will be displayed by the syn1588 tool. Use the “card”

command and the number of the card (starting with 0) to select the desired NIC. The “listcards” command may be used to display all available cards with the respective clock ID (MAC address).

To start with the update process, issue the command “update” followed by the name of the firmware file. If the firmware file is not in the same directory as the syn1588 binary it is necessary to specify the path to the file as well. This command triggers this firmware update process for the syn1588® PCIe NIC. The “update” command requires the firmware file as the single argument.

Update Syntax

Use the following syntax to update the syn1588® PCIe NIC after invoking the syn1588 tool:

```
update [filename]
```

The following excerpt shows an example of the update process:

```
C:\>syn1588
syn1588(R) Driver Interface - V 1.2.100 Rev 499 $ - Apr  3 2012
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Device \\.\SYN1588 0 found
syn1588(R) PCIe NIC, Build 566
Hardware Clock M 2.1.3 f=87500000 Hz
Device \\.\SYN1588 1 found
syn1588(R) PCIe NIC, Build 562
Hardware Clock M 2.1.3 f=88888000 Hz
Selected syn1588(R) card 0
>card 1
Selected syn1588(R) card 1
>update enc_syn1588_nic_30_571.jed
NOTE DATE CREATED:      Tue Apr 03 10:02:56 2012*
NOTE DESIGN NAME:       syn1588_nic_impl1.ncd*
NOTE DEVICE NAME:       LFXP2-30E-7FTBGA256*
Device ID XP2: 30
```


The firmware version is identified by the build ID (562 in the example above). After entering the “update” command the software executes a few checks on the firmware update file to check its integrity. If the tool reports that your syn1588® PCIe NIC is not compatible with the provided firmware file, please contact Oregano Systems (please prepare the serial number of the NIC). Afterwards, one will be asked to confirm the update process by entering ‘y’ or ‘Y’. Everything else will abort the process. The update process will take a few minutes.

Power Cycle your PC


After a successful update, you will be prompted to power cycle your PC. Please do not just restart (reset) your PC. A full power cycle is required.

One may perform the power cycle any time after the successful completion of the firmware update. Even after hours or days. Please note that the changes of the upgraded firmware will take affect after this power cycle.

Optionally verify the successful update by checking the build ID again.

After the Update Process

Oregano Systems recommends to use only the newest driver and software versions (e.g. the syn1588® PTP Stack) with a new firmware. Therefore, please make sure to install the latest driver on your PC after upgrading your syn1588® PCIe NIC which are included with a new firmware file. If you are not sure if you have the latest available software and drivers please contact Oregano Systems.

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