Version 1.13.0 – July 2021

Abstract

This application note describes the update procedure of a syn1588® PCIe NIC using the new graphical user interface. With this tool it is possible to upgrade a syn1588® PCIe NIC with a new bitstream file thus ensuring the card is capable of supporting the latest features of the syn1588® PTP Stack.

Introduction

The syn1588® NIC Updater is based on the command line tool syn1588® NIC Updater. It provides the same functions with the added benefit of a user-friendly graphical user interface simplifying the updating process for multiple syn1588® PCIe NICs.

Prerequisites

Generally, a computer with an operating system based on Linux or Microsoft with a syn1588® PCIe NIC installed is required. The application is able to update syn1588® PCIe network interface cards (NIC) starting from hardware revision 1.5 and build ID 562. If you require older versions (i.e. all revision 1.0 devices or revision 1.5 devices with build versions lower than 562) to be updated, please contact Oregano Systems directly.

The syn1588® NIC Updater program is located on the syn1588® USB-Stick (or on an ISO image file) in the directory “sw/apps/gui”. The program is provided for Windows and Linux in separate ZIP-File, each of which contains the executable and this application note. If you require a copy of the syn1588® USB-Stick please contact Oregano Systems support either via email contact@oregano.at or via our web site http://www.oregano.at.

Features

The syn1588® NIC Updater offers a number of new features, it can:

- Update one or more syn1588® PCIe NICs with board revisions 1.5 build 562 and higher or board revision 2.0 build 747 and higher. If you have a syn1588® PCIe NIC revision 1.0 please contact Oregano for further information regarding a firmware update.
- Display all necessary information of all syn1588® PCIe NICs installed in your computer.
- If there are more than one syn1588® PCIe NICs installed in your system, the syn1588® PCIe NICs are marked which have been already updated successfully.

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- The application can be executed on Microsoft systems as well as on Linux.

Invoking the syn1588® NIC Updater

As the update process requires privileged access to the syn1588® hardware, is has to be invoked with administrator/supervisor privileges. Under Windows you may have to right-click on the icon and select “run as administrator”. Under Linux please use the shell script “start_syn1588_nic_update.sh”. Invoke this script from any suitable command shell.

syn1588® NIC Updater

After invoking syn1588® NIC Updater a start page will appear as figure 1 depicts. Starting from the top, the menu bar offers three options. First there is the “File” menu, which is disabled as long as no card is selected. Then there is the “Help” menu. After click on “Help” and submenu point “User Manual” this document will appear. Finally there is the “Exit” menu to close the application. In the middle of the page a dropdown box allows to select an available card.

Figure 1: start page

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Depending on the number of available syn1588® PCIe NICs in the computer a list with all cards appears (see Figure 2).

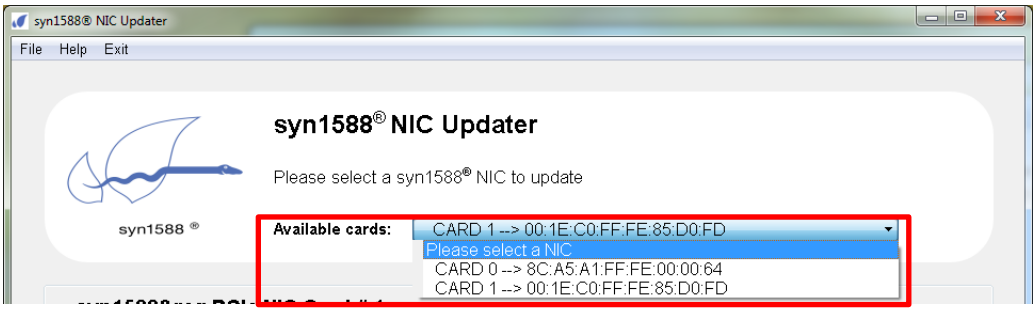

Figure 2: Dropdown box with a list of all available syn1588® PCIe NICs

syn1588® NIC Updater Procedure

1) To update a specific syn1588® PCIe NIC, the first step is to select a card via the dropdown box. All cards are listed by their IDs and MAC addresses.
2) After having selected a NIC, all revision information will be displayed in the area below the dropdown box as shown in figure 3:
   - MAC
   - Build Number
   - Hardware Revision
   - Clock Core Version
   - MAC Version (Version ID of the Ethernet MAC)

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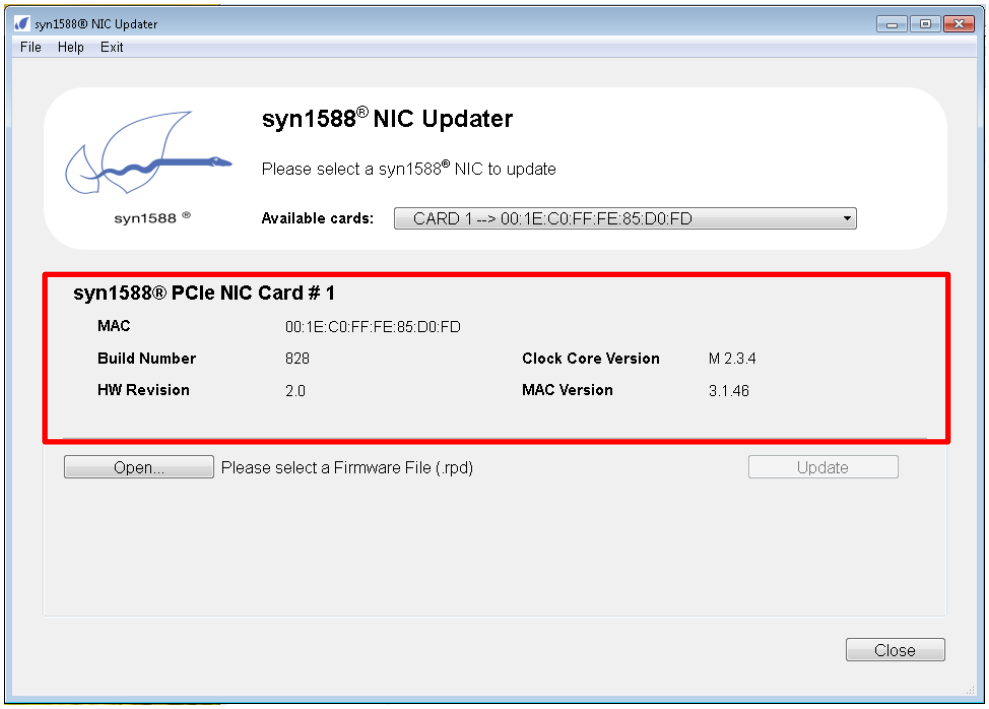

Figure 3: Information area of selected syn1588® PCIe NIC

3) The most important item to be used for updating is the build number. It indicates, if the NIC is up to date or needs to be updated with a new bitstream file. Oregano delivers new firmware update files with the build number contained in the respective filename.

4) Depending on the hardware revision of your syn1588® PCIe NIC different files are available.
   - **.jed Files**, are associated with Revision 1.5 devices and require a update file starting with “enc_syn1588_nic_30…”.
   - **.rpd Files** , are associated with Revision 2.0 or higher. The naming convention for these files is “syn1588_nic_rev2…”. However, the syn1588® tool automatically checks, if the correct version is used.

5) There are two different ways to select a firmware file
   - In the menubar there is a “File” menu with the “Open Firmware File…” entry (see figure 4). Clicking this menuentry will open a open file selection dialog.

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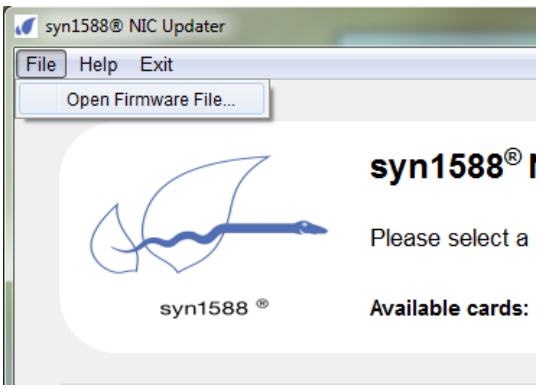

Figure 4: Menu "File" – "Open Firmware File…"

- The equivalent to the menu "File" is the Button "Open..". This will also open a file selection dialog (as figure 5 despicts).

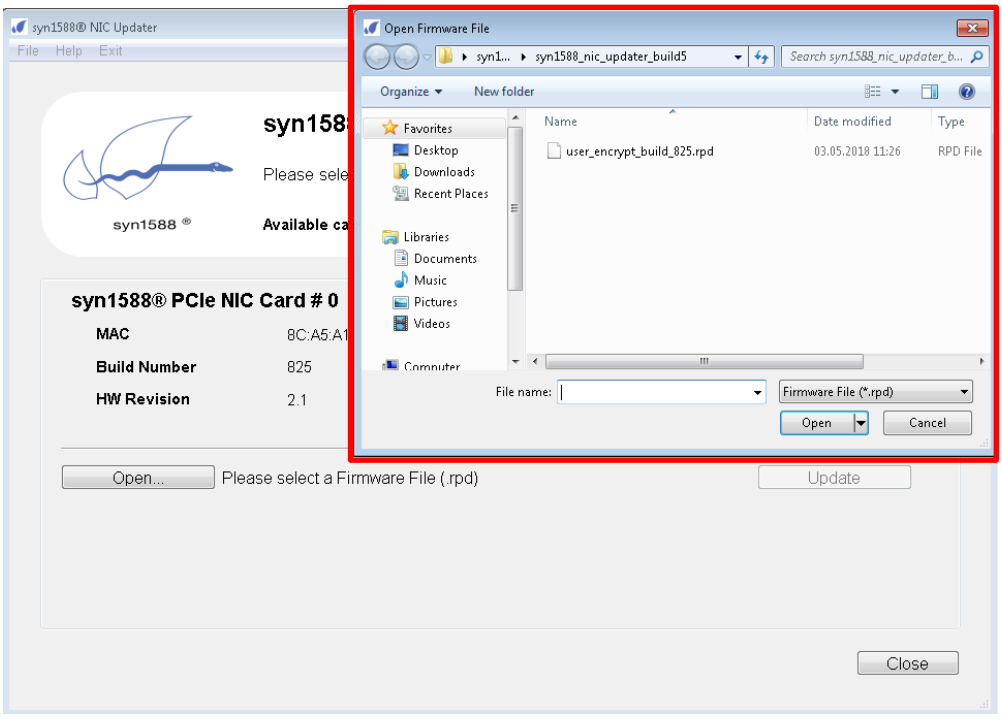

Figure 5: File Selection Dialog Box

- After confirming the file selection dialog, the selected file and its path are shown in the field beside the "Open…" button (see figure 6).

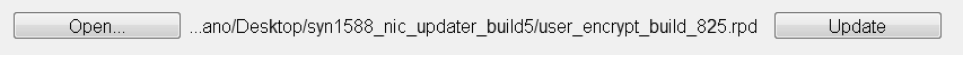

Figure 6: Selected Filename and Path

6) To start the syn1588® PCIe NIC Firmware updating process, click the button "Update" as figure 7 despicts.

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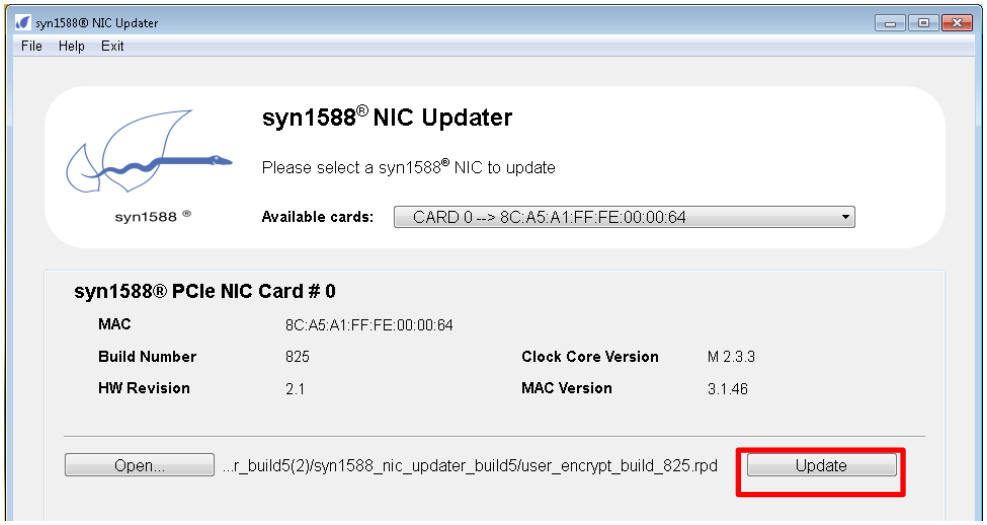

Figure 7: Button "Update"

7) The application will now check syn1588® PCIe NIC firmware version and perform the update.

   For security reasons an additional dialog box needs to be confirmed, to proceed with the update process (see figure 8):

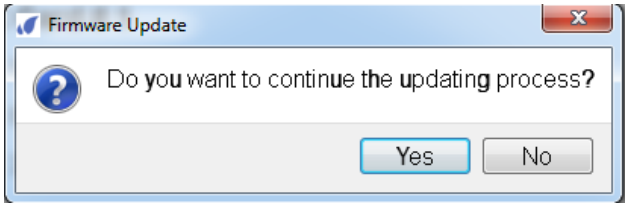

Figure 8: "Continue?" Dialog

8) If the pre-update verification process results in an error (i.e. if an incompabtile file was choosen), it will be displayed in the aera below the "Open…" and "Update" button (figure 9).

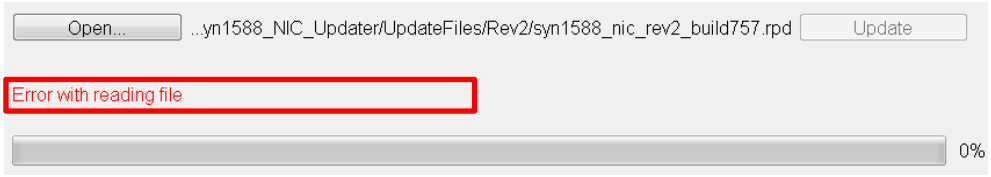

Figure 9: Error Message

9) During the update process a progress bar (see figure 10) will show the actual status of the update.

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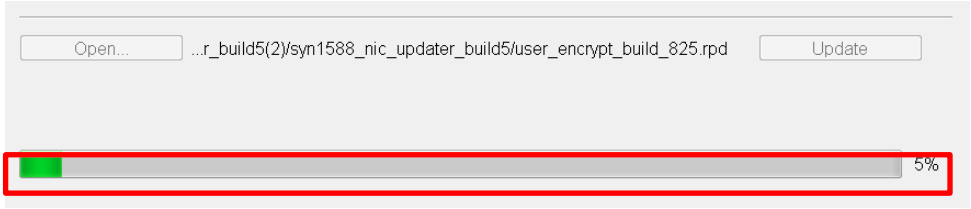

Figure 10: Progress Bar

10) After the syn1588® NIC Updater process completed successfully a notification will pop up offereing 3 different options to proceed (see Figure 11):
    - **Shutdown PC now:** After shutdown and restart updates of the syn1588® PCIe NIC will take effect.
    - **Quit Application (shutdown later manually):** The computer has to be shut down manually in order for the update to be activated.
    - Return and update another Card: return to the application to update more syn1588® PCIe NICs

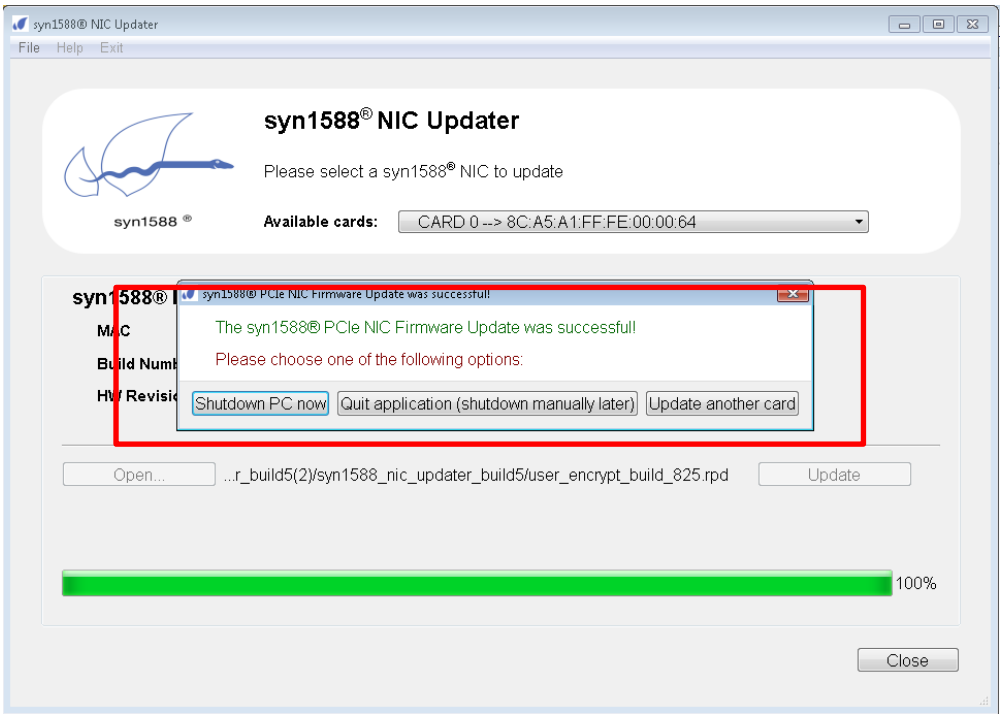

Figure 11: Quit Application

If the option “Return and update another Card” is selected different diaglogs indicate which card has already been updated successfully (figure 12). For cards, which have been already been updated the process cannot be repeated before the computer was restarted as described below.

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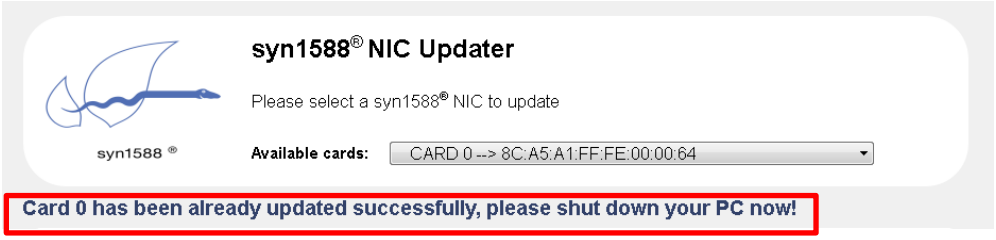

Figure 12: Update successful notification

When closing the application and there are any cards, which have been updated before, a notification dialog reminds the user that it is necessary to shut down the PC in order that the update takes effect.

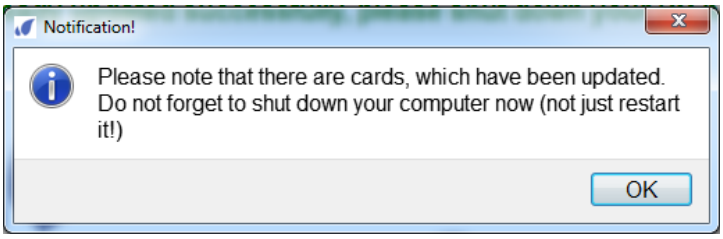

Figure 13: Shutdown reminder

Important Notes

- Please note that the changes of the upgraded firmware will take effect only after a power cycle.
- Please shut down your computer. It is not sufficient to merely restart your computer, because the syn1588® PCIe NIC need to be powered off to have the new firmware activated.
- Do not abort or cancel and active update process! This may lead to malfunction of the syn1588® PCIe NIC.

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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. They 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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Version 1.13.0 – July 2021

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