



syn1588®

Version 1.2 - August 2019

Abstract

A conflict with a new module (altera_cvp) added to the Linux Kernel with 4.14 till 4.20, leads to the problem, that syn1588® PCIe NIC devices are no longer visible.

The issue has been fixed with Linux Kernel v5.0 and newer.

This application note gives instructions for identifying and solving this problem.

Introduction

In Linux kernel version 4.14+ the "altera_cvp" module has been added to the kernel to support the Configure-via-Protocol (CvP) feature of Intel (ex-Altera) FPGAs. This kernel module erroneously identifies and locks all Intel FPGA devices, like the syn1588® PCIe NIC, even though these devices do not support CvP at all. Thus, the syn1588® PCIe NIC driver can no longer find the syn1588® PCIe NIC hardware and it is no longer available as Ethernet device.

Pre-requisites

- wooden USB stick holding the syn1588® software including driver
- this application note
- patch file "issues_with_linux_4.14_and_altera-cvp_module.zip"

If the syn1588® PCIe NIC device driver has not been installed, please refer to the application note syn1588® PCIe NIC Quick Start Guide (AN004, Version 1.6 - May 2019)

The patch file (ZIP-file) can be directly downloaded from the Oregano Systems web site (where you downloaded this application note).

Identification of the Linux Kernel version

Open the terminal and enter following command to get the Linux Kernel version:

```
> uname -r
```

Example terminal output of a Linux kernel 4.15:

```
4.15.0-36-generic
```

Work Around

Extract the shell script “blacklist_altera_cvp.sh” from the patch file (ZIP-file) you downloaded from the Oregano Systems web site to any directory. Make sure that the file permissions are set to allow execution of this shell script.

```
➤ sudo chmod +x blacklist_altera_cvp.sh
```

Now simply invoke the shell script `blacklist_altera_cvp.sh`. It unloads the `altera_cvp` module and adds the module to the blacklist to avoid automatic loading after a reboot. Additionally the `syn1588nic` and `SyncDriver` are reloaded.

```
➤ sudo ./blacklist_altera_cvp.sh
```

Successful terminal output:

```
unloading altera_cvp

adding altera_cvp module to the blacklist /etc/modprobe.d/blacklist.conf
# The altera_cvp module is called for PCI devices that have an Altera
ID.
# Every syn1588nic has an Altera PCI ID, therefor the syn1588nic will be
# registered by the altera_cvp and are no longer available for the
syn1588nic driver!
# To avoid this, blacklist the altera_cvp module.
blacklist altera_cvp

reload syn1588 PCIe NIC device driver
Done!
```

Now enter following command to check if the `syn1588nic` and `SyncDriver` modules are properly loaded.

```
➤ lsmod | grep syn1588nic
```

Expected terminal output:

```
syn1588nic          53248  1 SyncDriver
mii                 16384  1 syn1588nic
```

Now, the `syn1588®` PCIe NIC is visible again in your system.

Effects of blacklisting `altera_cvp`

The entry in the blacklist will remain valid even after a reboot. Hence, the supported Configure-via-Protocol (CvP) feature of the `altera_cvp` module is not available any more.

Literature

AN004. (Version 1.6 - May 2019). *Application Note: "syn1588@ PCIe NIC - Quick Start Guide"*. Oregano Systems.



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