Version 1.17.0 - February 2024

# Abstract

With the syn1588® PTP Stack Oregano Systems is offering one of the leading and most versatile commercial PTP solutions. The software provides ample support for all PTP profiles and is equipped with various linear and non-linear digital filter stages to cope with even the most cruel network conditions with respect to packet delay variations. Yet, there is no power without control, The syn1588® PTP stack has an impressive number of command line options allowing the user to select a wide range of configurations.

Knowing that the best way to get familiar with the syn1588® PTP Stack is by evaluating it at your own pace, we offer our software as an evaluation version. This application note describes the underlying procedure.

# Overview

The syn1588® PTP Stack can be obtained as an evaluation version both for Linux and Windows. It is provided as a ready-to-use pre-complied executable. Please note that Oregano Systems cannot provide any evaluation on source code level.

# How to receive the evaluation version?

Simply contact either

- Oregano Systems sales via email sales@oregano.at
- Oregano Systems sales via our contact form on our Web pages
  https://www.oreganosystems.at/contact/support-request
- our syn1588® distributors
  https://www.oreganosystems.at/contact/distributors

Please provide your company details as well as whether you require the syn1588® PTP Stack evaluation software for Windows or for Linux. If you give us a brief description of your intended application we can give you additional information to simplify your test setup.

The software will be provided electronically via our download portal. In addition to the software itself you will receive the syn1588® User Guide describing all features and functions of the syn1588® PTP Stack and how to configure them.

If required we can also provide you with an API allowing you access and control the syn1588® PTP Stack via a software interface. If you require more information on this API (it is referred to as "Shared Memory API") please check this application note:

https://www.oreganosystems.at/download_file/view/457/242

# PTP Requirements

To achieve sub µs accuracies PTP devices require appropriate hardware support allowing them to draw time stamps very accurately. To this end, most modern NICs are equipped with PTP hardware support. Yet, these hardware modules have to be accessible by the PTP Stack which is a user application and thus cannot communicate directly with the hardware within operating systems like Linux or Windows. It has to rely on some kind of driver to access the underlying PTP hardware.

Out of the box, the syn1588® PTP Stack can access the syn1588® hardware like the syn1588® PCIe NIC, because Oregano Systems provides all respective drivers for Windows and Linux alike. To access the hardware of 3rd party NICs the respective manufacturers have to provide such drivers as well. Under Linux there is well established and standardized path to do that, which is referred to SO_TIMESTAMPING.

The syn1588® PTP Stack supports this mechanism and thus can and will make use of the PTP hardware support of modern NICs. During its initialization process it will check for the respective feature set of the network interface it has been configured to operate on.

If no hardware support is found, the syn1588® PTP Stack will revert to using the system clock. This is the case when using the syn1588® PTP Stack in combination with a 3rd party NIC under Windows, because currently, there is no common timing interface developed/published by Microsoft. Unfortunately, most manufacturers of network cards do not provide any legacy driver support for PTP for Windows either.

If you are interested in evaluating the features of the syn1588® PTP Stack with respect to the Precision Time Protocol or the PTP profile support and are less interested in sub-µs accuracy measurements you may use the syn1588® PTP Stack under Windows perfectly well in software more without any limitations. Yet, even in software mode the syn1588® PTP Stack delivers exceptionally accurate results. Please contact Oregano Systems, if your require more information on this topic.

# Are there limitations of the evaluation version?

The evaluation version of the syn1588® PTP Stack is fully functional without any limitations whatsoever. This version, however, will operate continuously only for a limited period of time after being invoked. After that period, which we have set to 24 hours by default, is exceeded the syn1588® PTP Stack will stop processing PTP messages and thus will cease to re-adjust the local clock. To become operational again it needs to be stopped and re-started.

# How to Order

## Source Code License

The syn1588® PTP Stack source code license can be ordered directly via Oregano Systems or any of our distributors. You will receive the fully documented source code of the software suite as well build environments for Windows and Linux. Upon request an example of an embedded build setup can be provided which uses no operating system (bare metal) but a simple light-weight IP stack. There is an application note available which describes porting of the syn1588® PTP Stack to a given target operating system or PTP hardware.

https://www.oreganosystems.at/download_file/view/191/242

Apart from the source code license we offer an optional annual maintenance path which gives you direct access to the syn1588® support team allowing you to enter bug reports as well as feature requests. Additionally, you will be entitled to receiving new releases of the syn1588® PTP Stack which are quarterly published on average. The syn1588® PTP Stack is continuously improved and updated; new functions are added (e.g. the new IEEE1588-2019 aka PTP version 2.1 features) and support for new or updated PTP profiles provided.

## Binary Licenses

Binary licenses are available via our parent company Meinberg Funkuhren (https://www.meinbergglobal.com). Meinberg provides ready-to-use binary versions of the syn1588® PTP Stack called "PTP Client Software". The software can be licensed on a per server/PC basis; they are licensed using the MAC addresses of your respective devices. More information can be found here:

https://www.meinbergglobal.com/english/products/ptp-client-software-win-linux.htm

Since Meinberg and Oregano Systems share their worldwide sales channels you may contact your local syn1588® distributors for a quote. The Oregano

Systems sales and support team will be happy to connect you with the appropriate sales representatives.