



syn1588® Software Suite

# Release OS Support

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## General

We test the syn1588 Software Suite with the current OS/distributions **marked green** in the following tables.

OS/distributions that will be phased-out by the OS maintainer themselves soon are **marked yellow**. The current release is not fully tested against these versions, but basic tests have shown good compatibility.

OS/distributions **marked orange** are no longer actively tested with the current release and may be moved out of support with upcoming releases, if you require support for these in your systems, please contact us ([support@oregano.at](mailto:support@oregano.at)).

Support for newer versions of OS/distributions (not colorized) will be added with upcoming releases.

## Linux

### Main Distributions

The main line syn1588® Software Suite supports in 32-Bit and 64-Bit Linux distributions. The syn1588® Software Suite is currently delivered in a USB LiveSystem based on Ubuntu 20.04 LTS (64-Bit). Some older Linux distributions are still supported but come with limitations and may be phased-out for future versions of the syn1588® Software Suite.

The default syn1588® Software Suite is statically linked with musl to provide support for various environments. Other flavors can be made available on-demand.

If you plan to use the syn1588 products together with unlisted Linux distributions and you encounter errors during installation of the drivers, please get in contact with us ([support@oregano.at](mailto:support@oregano.at)). When you do so, please provide information about the actual Linux distribution (version, service pack) as well as that versions Linux Kernel. Some distributions provide rolling releases or “stream” releases (e.g., CentOS). We do not support these releases directly, i.e., via the syn1588 .deb or .rpm packages, but provide the syn1588 driver sources directly. We can provide case-by-case support so get in touch with our support team via [support@oregano.at](mailto:support@oregano.at).

Table 1: Main Linux Distributions

| syn1588® Software Suite |           | Distribution               | Kernel                      | syn1588® Hardware |                 | Support                            |
|-------------------------|-----------|----------------------------|-----------------------------|-------------------|-----------------|------------------------------------|
| from                    | till      |                            |                             | PCIe NIC          | Dual NIC<br>(3) |                                    |
|                         |           |                            | 5.16+                       |                   |                 | planned                            |
| v1.15                   | ongoing   | Ubuntu 22.04.0 LTS         | 5.15                        | yes               | yes             | Full support                       |
| v1.14                   | ongoing   | Ubuntu 20.04.4 LTS         | 5.13                        | yes               | yes             | Full support                       |
| v1.14                   | ongoing   | Ubuntu 20.04.3 LTS         | 5.11                        | yes               | yes             | Full support                       |
| v1.13                   | ongoing   | Ubuntu 20.04.2 LTS         | 5.8                         | yes               | yes             | Full support                       |
| v1.13                   | ongoing   | Ubuntu 20.04.1/0 LTS       | 5.4                         | yes               | yes             | Full support                       |
| v1.13                   | ongoing   | Ubuntu 18.04.x LTS         | 4.15 <sup>(1)</sup> ... 5.4 | yes               | yes             | Full support                       |
| v1.11                   | ongoing   | Ubuntu 16.04.x LTS         | 4.4 ... 4.15 <sup>(1)</sup> | yes               | yes             | Full support                       |
| v1.3.2                  | on demand | Ubuntu 14.04.x LTS         | 3.13 ... 4.4                | yes               | yes             | Available on demand                |
| v1.13                   | on demand | Ubuntu pre-14.04           | 2.26.32 +                   | possible          | possible        | Available on demand                |
| v1.15                   | ongoing   | SUSE 15 SP3 <sup>(2)</sup> | 5.3                         | yes               | yes             | Full support                       |
| v1.13                   | ongoing   | CentOS 8.x <sup>(2)</sup>  | 4.18.* <sup>(1)</sup>       | yes               | yes             | Full support                       |
| v1.2.374                | on demand | CentOS 7.x <sup>(2)</sup>  | 3.10.0-*                    | possible          | possible        | Available on demand <sup>(4)</sup> |
| v1.0                    | on demand | CentOS 6.x <sup>(2)</sup>  | 2.6.32-*                    | yes               | yes             | Available on demand                |
| v1.0                    | on demand | CentOS 5.x <sup>(2)</sup>  | 2.6.18-*                    | no                | no              | software-based timestamping only   |

| syn1588® Software Suite |           | Distribution           | Kernel              | syn1588® Hardware |                         | Support             |
|-------------------------|-----------|------------------------|---------------------|-------------------|-------------------------|---------------------|
| from                    | till      |                        |                     | PCIe NIC          | Dual NIC <sup>(3)</sup> |                     |
| v1.14                   | ongoing   | Debian “Bullseye” 11.x | 5.10                | yes               | yes                     | Full support        |
| v1.13                   | ongoing   | Debian “Buster” 10.x   | 4.19 <sup>(1)</sup> | yes               | yes                     | Full support        |
| v1.13                   | ongoing   | Debian “Stretch” 9.x   | 4.9                 | yes               | yes                     | Full support        |
| v1.2.419                | on demand | Debian “Jessie” 8.x    | 3.16                | yes               | yes                     | Available on demand |
| v1.2.x                  | on demand | Debian pre-8.x         | 2.26.32 +           | possible          | possible                | Available on demand |
| v1.2.253                | on demand | Fedora 13+             | 2.26.32 +           | possible          | possible                | Available on demand |

<sup>(1)</sup> ... a missing check in a Linux module for CvP (Configuration via Protol) FPGA handling caused issues when operating a syn1588® PCIe NIC, you may experience these issues in systems with Kernel 4.14 ... 4.20 (fixed with 5.0), the Application note: “**an023\_issues\_with\_linux\_4\_14\_and\_altera-cvp\_module**” describes this further and provides a solution.

<sup>(2)</sup> ... various Linux distributions use custom kernels containing backported features from newer mainline Linux Kernels. This can cause unexpected compatibility issues for newer versions of distributions. The Kernel version listed here depicts the Kernel version as given by the respective distribution which is NOT equivalent to the mainline Linux Kernel.

<sup>(3)</sup> ... The syn1588® Dual NIC support has been added with Release v1.12 of the syn1588® Software Suite

<sup>(4)</sup> ... CentOS 7.x 64 Bit systems are incompatible with the default build of the syn1588® Software Suite, we can provide a build on-demand

## Custom Linux

We support 32 Bit distributions as well as these are typically needed for Linux based SoC systems (e.g., Yocto or Petalinux). If you plan to use syn1588® Technology in your custom SoC/Linux system, we recommend that you enable the following kernel configurations for a seamless integration:

- Linux Device Tree  
SoC/Linux based systems rely on the Linux Device Tree to describe the system and provide proper information to device modules. We can provide support for integrating the syn1588 technology device modules in your Linux Device Tree based system.
- SO\_TIMESTAMPING (Linux Kernel 2.26.32+)  
This interface is provided by the Linux kernel as general interface for software and hardware Ethernet packet timestamping. If you plan to use our syn1588® PCIe NIC or Dual NIC in your system, we recommend keeping this feature in the kernel. If you want to use the syn1588® IP cores, we can help you in setting up the system for operation with the syn1588® Software Suite.
- Use without syn1588® hardware technology, for optimal performance you will need an IEEE 1588 capable network device, to be more precise:
  - SO\_TIMESTAMPING support in the network device  
(SOF\_TIMESTAMPING\_RX\_HARDWARE and SOF\_TIMESTAMPING\_TX\_HARDWARE).
  - PHC support in the network device
- PHC (Physical Hardware Clock)  
This interface is provided by the Linux kernel (3.0+) as general interface to a hardware clock. If the syn1588® Software Suite is used together with syn1588® PCIe NIC, Dual NIC, or IP Cores this is not required.

## Windows (with syn1588 NDIS 5.0 driver)

Table 2: Main Windows Versions

| syn1588® Software Suite |           | Windows version<br>(32/64 Bit) | Latest Build | syn1588® Hardware |                         | Support for Windows<br><br><b>without<br/>network layer 2 VLAN<br/>operation</b> |
|-------------------------|-----------|--------------------------------|--------------|-------------------|-------------------------|--|
| from                    | till      |                                |              | PCIe NIC          | Dual NIC <sup>(1)</sup> |  |
| On demand               | On demand | Windows Server                 | 18362+       | possible          | no                      | Qualification on demand  |
| v1.6-2                  | ongoing   | Windows Server 2019            | 17763        | yes               | no                      | Full support for Windows   |
| v1.4                    | ongoing   | Windows Server 2016            | 14393        | yes               | no                      | Full support for Windows   |
| v1.3.2                  | ongoing   | Windows Server 2012            | 9600         | yes               | no                      | Full support for Windows <sup>(2)</sup>  |
| v1.0                    | ongoing   | Windows Server 2008            | 7601         | yes               | no                      | Full support for Windows <sup>(2)</sup>  |
| v1.0                    | v1.2.419  | Windows Server 2003            | 3790         | possible          | no                      | Old version, on demand   |

| syn1588® Software Suite |           | Windows version<br>(32/64 Bit) | Latest Build | syn1588® Hardware |                         | Support for Windows<br><br><b>without network layer 2 VLAN operation</b> |
|-------------------------|-----------|--------------------------------|--------------|-------------------|-------------------------|--|
| from                    | till      |                                |              | PCIe NIC          | Dual NIC <sup>(1)</sup> |  |
| v1.15                   | ongoing   | Windows 10+ 64 Bit             | 21H2+        | yes               | no                      | BETA   |
| On demand               | On demand | Windows 10                     | 21H2+        | possible          | no                      | Qualification on demand  |
| v1.4                    | ongoing   | Windows 10                     | 19043 (21H1) | yes               | no                      | Full support for Windows   |
| v1.3.2                  | ongoing   | Windows 8.1                    | 9600         | yes               | no                      | Full support for Windows <sup>(2)</sup>                                  |
| v1.3.2                  | ongoing   | Windows 8                      | 9200         | yes               | no                      | Full support for Windows <sup>(2)</sup>                                  |
| v1.0                    | ongoing   | Windows 7                      | 7601         | yes               | no                      | Full support for Windows <sup>(2)</sup>                                  |
| v1.0                    | v1.2.419  | Windows XP                     | 3790         | possible          | no                      | Old version, on demand   |

<sup>(1)</sup> ... the Dual NIC is currently only available for Linux based systems, contact Oregano Systems if you require support for Windows

<sup>(2)</sup> ... there is no support for signed drivers for these OS versions. Secure boot must be disabled to use the driver on these OS versions. Windows 7 users might need to install → [KB3033929](#).

## Limitations for Windows systems

The support of Windows, i.e., no network layer 2 VLAN operation, will reduce the feature-set of the PTP stack on a Windows system. Some PTP Profiles require operation over network layer 2 VLANs, i.e., Power profiles (C37.238-2011 and C37.238-2017) and are not supported on a Windows-based system.

We recommend customers to use a Linux-based system for operating the syn1588® Software suite for these application scenarios.

Please refer to the Application Note “**an006\_ptp\_profiles**” to get a full overview of the PTP profiles supported by the syn1588® Software Suite.

## New Windows driver (NDIS 6.3 version) - BETA Version

To prepare for the new Windows infrastructure for native PTP support, we have been working on an updated windows driver based on NDIS 6.3.

In the long run, this driver will replace the current NDIS 5.0 driver for Windows 10 (Server 2016) and newer Windows systems. For release v1.15 we will provide the new driver as beta version for early exploration. Final tests will commence in the background and a Microsoft-certified driver will be provided in future releases.

Note that the BETA driver should not be used for production and is not provided as Microsoft-certified driver.

For testing this BETA driver, please update your Windows 10 Version to at least 21H1 19043.1706.

## Other OS

The syn1588® Software Suite has been ported to various hardware platforms and operating systems. A porting guide, a brief overview of the different components, estimations, and further information is given in the Application Note “**an016\_porting\_syn1588\_ptpstack**”.

## Further Information

You are looking for further information about our syn1588® product line-up? Please contact Oregano Systems support! We will be pleased to provide you all the required information.



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