syn1588® Software Suite

Release OS Support

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1 Legals

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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 are not tested with the current release but are still supported and/or will be phased-out by the OS maintainer themselves soon are marked yellow.

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).

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

Linux

syn1588 Linux module v1.x vs. v2.x and syn1588 hardware support

With release v1.16 of the syn1588® Software Suite we provide a completely new Linux driver v2.x that replaces the old Linux driver with v1.x. v2.16 of this new Linux module provides full access to the syn1588® PCIe NICs of Revision 2.0, 2.1 and the new syn1588® PCIe NIC of Revision 2.3.

The Linux module v2.16 provides only limited support for the syn1588® Dual NIC of Revision 1.0 for updating the Firmware. If you require full access to the syn1588® Dual NIC we recommend continue using the Linux module v1.15. We will add full support for the syn1588® Dual NIC in the future, which will be reflected in the OS/Distribution support list provided in this document.

Main Distributions

The main line syn1588® Software Suite supports 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) with Kernel 5.4. 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). 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.

@Available on-demand:
Please note that on-demand Kernel support can involve significant engineering effort and will be evaluated together with your demand of syn1588 PCIe NICs case-by-case.

Table 1: Main Linux Distributions

syn1588® Linux module		Distribution	Kernel	syn1588® Hardware			Support
from	till			PCIe NIC Rev 2.0/2.1	PCIe NIC Rev 2.3	Dual NIC [3] Rev 1.0	
v2.x			6.0+				planned
v2.16	ongoing		5.17-5.19			limited	Full support[6]
v2.16	ongoing	Ubuntu 22.04.0 LTS	5.15	yes	yes	limited	Full support[6]
v2.16	ongoing	Ubuntu 20.04.1/0 LTS	5.4	yes	yes	limited	Full support[6]
v2.16	ongoing	Debian “Bullseye” 11.x	5.10	yes	yes	limited	Full support[6]
v2.16	ongoing	CentOS (Linux) 6.10 [2]	2.6.32-*	yes	yes	limited	Full support[6]
on demand	on demand	other distributions	…	possible	possible	limited	Available on demand[6]
v1.15	ongoing	Ubuntu 22.04.0 LTS	5.15	yes	no	yes	Full support
v1.14	ongoing	Ubuntu 20.04.4 LTS	5.13	yes	no	yes	Full support
v1.14	ongoing	Ubuntu 20.04.3 LTS	5.11	yes	no	yes	Full support
v1.13	ongoing	Ubuntu 20.04.2 LTS	5.8	yes	no	yes	Full support
v1.13	ongoing	Ubuntu 20.04.1/0 LTS	5.4	yes	no	yes	Full support

syn1588® Software Suite		Distribution	Kernel	syn1588® Hardware			Support
from	till			PCIe NIC Rev 2.0/2.1	PCIe NIC Rev 2.3	Dual NIC (3) Rev 1.0	
v1.13	ongoing	Ubuntu 18.04.x LTS	4.15 (1) … 5.4	yes	no	yes	Full support
v1.11	ongoing	Ubuntu 16.04.x LTS	4.4 … 4.15 (1)	yes	no	yes	Full support
v1.3.2	on demand	Ubuntu 14.04.x LTS	3.13 … 4.4	yes	no	yes	Available on demand
v1.13	on demand	Ubuntu pre-14.04	2.26.32	possible	no	possible	Available on demand
v1.15	ongoing	SUSE 15 SP3 (2)	5.3	yes	no	yes	Full support
n.a.	n.a.	CentOS Stream(5)	…	possible	no	possible	…
v1.13	ongoing	CentOS Linux 8.x (5)	4.18-*	yes	no	yes	Full support
v1.2.374	on demand	CentOS Linux 7.x (2)	3.10.0-*	possible	no	possible	Available on demand (4)
v1.0	on demand	CentOS (Linux) 6.x (2)	2.6.32-*	yes	no	yes	Available on demand
v1.0	on demand	CentOS (Linux) 5.x (2)	2.6.18-*	no	no	no	Software timestamping
v1.14	ongoing	Debian “Bullseye” 11.x	5.10	yes	no	yes	Full support
v1.13	ongoing	Debian “Buster” 10.x	4.19 (1)	yes	no	yes	Full support

syn1588® Software Suite		Distribution	Kernel	syn1588® Hardware			Support
from	till			PCIe NIC Rev 2.0/2.1	PCIe NIC Rev 2.3	Dual NIC (3) Rev 1.0	
v1.13	ongoing	Debian “Stretch” 9.x	4.9	yes	no	yes	Full support
v1.2.419	on demand	Debian “Jessie” 8.x	3.16	yes	no	yes	Available on demand
v1.2.x	on demand	Debian pre-8.x	2.26.32 +	possible	no	possible	Available on demand
v1.2.253	on demand	Fedora 13+	2.26.32 +	possible	no	possible	Available on demand

(1) … a missing check in a Linux module for CvP (Configuration via Protocol) 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.

(2) … 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.

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

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

(5) … CentOS Stream is not supported by default, it is possible that the current driver supports a specific version of CentOS Stream but this compatibility can break due to the nature of CentOS Stream. Note that CentOS Linux 8.x and CentOS Stream 8.x are not the same.

(6)… The Linux module v2.16 provides only limited support for a syn1588® Dual NIC

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 (32/64 Bit)	Latest Build	syn1588® Hardware			Support for Windows **without network layer 2 VLAN operation**
from	till			PCIe NIC Rev 2.0/2.1	PCIe NIC Rev 2.3	Dual NIC (1) Rev 1.0	
On demand	On demand	Windows Server	18362+	possible	no	no	Qualification on demand
v1.6-2	ongoing	Windows Server 2019	17763	yes	no	no	Full support for Windows
v1.4	ongoing	Windows Server 2016	14393	yes	no	no	Full support for Windows
v1.3.2	ongoing	Windows Server 2012	9600	yes	no	no	Full support for Windows (2)
v1.0	ongoing	Windows Server 2008	7601	yes	no	no	Full support for Windows (2)
v1.0	v1.2.419	Windows Server 2003	3790	possible	no	no	Old version, on demand

syn1588® Software Suite		Windows version (32/64 Bit)	Latest Build	syn1588® Hardware			Support for Windows **without network layer 2 VLAN operation**
from	till			PCIe NIC Rev 2.0/2.1	PCIe NIC Rev 2.3	Dual NIC (1) Rev 1.0	
v1.16	ongoing	Windows 10+ 64 Bit	21H2+	yes	yes(3)	no	BETA
v1.15	ongoing	Windows 10+ 64 Bit	21H2+	yes	no	no	BETA
On demand	On demand	Windows 10	21H2+	possible	no	no	Qualification on demand
v1.4	ongoing	Windows 10	19043 (21H1)	yes	no	no	Full support for Windows
v1.3.2	ongoing	Windows 8.1	9600	yes	no	no	Full support for Windows (2)
v1.3.2	ongoing	Windows 8	9200	yes	no	no	Full support for Windows (2)
v1.0	ongoing	Windows 7	7601	yes	no	no	Full support for Windows (2)
v1.0	v1.2.419	Windows XP	3790	possible	no	no	Old version, on demand

(1) … the Dual NIC is currently only available for Linux based systems, contact Oregano Systems if you require support for Windows

(2) … 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.

(3) … the syn1588® PCIe Rev 2.3 NIC is only available as SFP NIC, please refer to the Known Issue for Windows/SFP operation in the release notes for the syn1588® Software Suite

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 for syn1588 PCIe NIC Rev 2.3

The new syn1588 PCIe Rev 2.3 NIC is currently only supported by this new Windows NDIS 6.3 driver.

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 currently 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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