



syn1588® Software Suite

# Release Notes

Version 1.14.3 – January 19<sup>th</sup> 2022

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## 1 Release 2022-01-18 (v1.14-48)

### 1.1 Change log syn1588® PTP Stack

- 281917ef5bd8cafd91aad62a80929d491c35efc9  
**Improvement**  
Updated example PTP configuration for operation as PTP Follower in a SMPTE system
- b728cbca8ce2992c159696d66ef5a3e104bbd8b9  
**Improvement**  
Added virtual interface support
- 37c6b3ad797642336cb7acce48eb68deabfcd242  
**Critical bugfix**  
Fixed a bug for leap second handling, that can apply a single leap second twice for the IRIG-B output generator in certain system configurations.
- a5a5633794ac19cbab2cd2b64ac9991e11beb244  
**Bugfix**  
Disentangled compile time switches for Spike Filter and Clock Statistic Calculation
- eda73d43b75e91ea511d0edf06f9622545f488cf  
**Bugfix**  
Added support for old/new SO\_TIMESTAMPING for CentOS 6
- 937d3f799aabf536e1d78e8912587ca2ce53444b  
**Bugfix**  
802.1as compatibility fix: implementation did not ignore twoStep flag on reception and ignored followUp if this flag was not set to TRUE by a PDelay Responder

### 1.2 Change log for ptpmmm

- 11040ef0ae809f3f52ec636016d971e223fe3dab  
**Improvement**  
Output of this command line utility is no longer printed to the log but only to the command shell.

### 1.3 Change log for lSync

### 1.4 Change log for eSync

### 1.5 Change log for fSync

### 1.6 Change log for vSync

- 1e82f1184cc2301c91c5cf7bfacd322b9ec566fc

#### **Improvement**

Further improvements to the SDI Next Alignment, Audio Next Alignment Point and SDI LTC Timecodeword generators (full use of these will require a hardware update for the syn1588® PCIe NIC)

### 1.7 Change log for syn1588 app

- 11040ef0ae809f3f52ec636016d971e223fe3dab

#### **Improvement**

Output of this command line utility is no longer printed to the log but only to the command shell.

### 1.8 Change log for syn1588 API

### 1.9 Change log for shared memory API

- 2c0d133f95c9408ca624d0f2cb10a9582a1765eb

#### **New feature**

Support for Windows namespaces allows the access of the shared memory of a PTP Stack (or utility) running as service from a non-service user application. Refer to AN021 for a detailed description.

### 1.10 Change log for syn1588® PTPMMM GUI

### 1.11 Change log syn1588® PCIe and Dual NIC Linux driver (v1.14.1)

- 894a0eb8361c587ad0147609a736e6d5fc0e13ab

#### **Improvement**

The new Linux module has been restructured to be provided as single module “syn1588.ko”. This replaces the previous setup of two modules linked together, “SyncDriver.ko” and “syn1588nic.ko”.

- 84abd7a49eb504b5a129c5e8fc8491e8c6d11239

#### **New feature**

Added rpm file for easier installation of the module in a RHEL/CentOS system.

- b48d9ecf54d2f3c70e89dd4f0ac1850e4d4af1ff  
**New feature**  
Add support for Dual NIC hardware clock selection via module parameter. Refer to redSync chapter and AN034 for more information. Refer to module README.md for usage.
- b48d9ecf54d2f3c70e89dd4f0ac1850e4d4af1ff  
**New feature**  
Added module parameter to silence the SMA outputs. Refer to module README.md for usage.
- e4952cc5049d7b450e3f2508f08c641a8400ade0  
**New feature**  
Added basic PHC interface.
- 894a0eb8361c587ad0147609a736e6d5fc0e13ab  
**Compatibility**  
Extended module support to Linux Kernel 5.13, compatibility to newer kernels may also apply but has not been tested.
- a38e6beb58e9a5dc1dba26e94643454324a2e70f  
**Compatibility**  
Fixed RHEL/CentOS 7.x compatibility
- 65f1051fe3603c8f0b86768599d38f9bd2673966  
**Compatibility**  
Fixed RHEL/CentOS 8.x compatibility

## 1.12 Change log for syn1588® PCIe NIC (Build 876)

- **Bugfix**  
In rare circumstances, the EVENT1 timestamping delivered wrong timestamps.
- **Bugfix**  
In rare circumstances, the packet timestamping delivered wrong timestamps.

## 1.13 Change log for syn1588® Dual NIC (Build 2042)

- **Improvements**  
Minor internal improvements
- **Bugfix**  
In rare circumstances, the packet timestamping delivered wrong timestamps.

## 1.14 Change log for syn1588® NIC Updater

### 1.15 Change log for redSync

- 5075f52089f932ed000b451a8bfd31ff41a3d479  
**New feature**  
redSync can now be used together with a syn1588 Dual NIC for increased redundancy. Refer to AN034 for a detailed description.
- 5075f52089f932ed000b451a8bfd31ff41a3d479  
**Bugfix**  
Fixed memory issue

### 1.16 Change log General

- ae50e77898ce12e4f679750fdbb6b07f2e3dad9f  
**New Feature**  
Implementation of the new logger. This new feature has implications for the PTP Stack and all utilities. Refer to syn1588 Release Notes Upcoming Changes for a detailed overview.
- db50334c8f42b579cc48086b5590531c370ba062  
**Improvement**  
Included the installation of the VS redistributable into the Windows installer
- 4ae22bddcdc216adcb7e31e7a9d433766bdc9a59  
**Bugfix**  
Fixed C Compiler Flags in the CMake build environment

## 1.17 Known Issues

### 1.17.1 Layer-2 with VLAN on Windows

- Using the syn1588® PTP Stack in Layer-2 mode in combination with VLAN is currently not supported on Windows platforms. This is a feature that will be made available in future releases.

### 1.17.2 ISync automated mode

- The use of the auto mode (-O A) is currently discouraged.  
The auto mode (-O A) can cause the hardware clock to jump at the start of the synchronization. ISync will compensate this after a few seconds but this disturbance in the beginning may cause issues for certain applications.  
The auto mode (-O A) was removed from the command menu, it may still be used for legacy applications.

### 1.17.3 Windows 64-Bit access to the Event function of syn1588® PCIe NIC/Dual NIC

- Accessing the Event function provided by a syn1588® PCIe NIC or Dual NIC is not working for Windows 64-Bit builds using the syn1588 API.  
Workaround: If your application requires access to the Event function of a syn1588® PCIe NIC or Dual NIC, build your application as 32-Bit binary.

### 1.17.4 syn1588® NIC Updater and Dual NIC

- The Updater GUI can currently not be used for updating syn1588® PCIe Dual NICs. Please use the command line utility “syn1588” to update a Dual NIC, follow the help instructions for the update command of this utility as provided by the syn1588 Userguide, chapter 6.1.1.25.

## 2 Release 2021-07-27 (v1.13-27)

### 2.1 Change log syn1588® PTP Stack

- 144caa02e098af65b95f54cc429a4823f5039ab5:  
**BETA operation of PTP v2.1**  
This release includes a preliminary version of the full PTP v2.1 base operation. With this release you can test-drive PTP v2.1 in your environment but keep the following remarks in mind:
  - Our internal tests have shown potential issue for operation in mixed systems (PTP v2.0 and PTP v2.1) that stem from intermediate network devices built for PTP v2.0 (TC or BC). These older devices may not detect v2.1 message properly, will not add residence time measurements (TC) and may degrade the synchronization accuracy.
  - We are currently working on a firmware update for the syn1588® GBIT Switch as it is optimized for PTP v2.0 operation and will not measure residence time for PTP v2.1 messages with the current Firmware (121).
  - The syn1588 PTP Stack v1.12 and older will only accept PTP v2.1 messages when PTP Security is enabled. If you want to test PTP v2.0 and PTP v2.1 cross operation, use the current or future release (v1.13+) for both sides.
- 6836df3a44e2352b0ea47179b8aac799c8709d4c:  
**New feature**  
Decouple selection of network interface and syn1588 hardware clock. A new command line “-i” and configuration file parameter (“clockID”) parameter allows to select the syn1588® hardware clock by the PTP clockID that should be controlled by the PTP Stack, instead of automatically using the syn1588 hardware clock connected to the selected interface (“-i” or “interface”).



- 2e58fff2bf3051db6622c3f191b6a03f02c8b2b6:
  - Compatibility**
  - Added support for old/new SO\_TIMESTAMPING style support, this is handled in the background when the PTP Stack is started on an older Linux distribution (older Linux kernel)
- 2e58fff2bf3051db6622c3f191b6a03f02c8b2b6:
  - New feature**
  - A dedicated selection of the timestamper that is to be used for the PTP Stack operation is now possible via the configuration file of the PTP Stack.  
→ see “timestamper” config file parameter description in the generalConfiguration.cfg example that is delivered together with the binaries/source files
- 34e800d819c5220104ea041424bc0a2665000720:
  - Improvement**
  - Added more accurate PTP profile selection switches for the “power” profiles
    - DEPRECATED: “power”/“power\_s”: They can still be used to operate the PTP Stack with C37.238-2011 Power Profile version BUT without enforcing the use of default VLAN tagging
    - “c37\_238\_2011”/“c37\_238\_2011\_s”: The PTP Stack will enforce default VLAN tagging (ID: 0) as specified by the Power Profile Standard C37.238-2011
    - DEPRECATED: “c37\_238”/“c37\_238\_s”: This was the former PTP profile selection switch for C37.238-2017 PTP Profile operation
    - “c37\_238\_2017”/“c37\_238\_2017\_s”: The PTP Stack will activate the PTP profile as specified by the Power Profile Standard C37.238-2017. This is a direct replacement of the deprecated PTP profile selection switch “c37\_238” or “c37\_238\_s”
- 34e800d819c5220104ea041424bc0a2665000720:
  - Cleanup**
  - Removed previously deprecated PTP profile selection switches for the “telecom2” profiles
    - REMOVED: “telecom2”/“telecom2\_s”: These PTP profile selection switches (command line and config file parameters) will no longer be accepted -> direct replacements are:  
“telecom2” → “g8275\_1” and  
“telecom2\_s” → “g8275\_1\_s”
- 186c67d2063855bfd88ca963e08c8936c8cdeb6d:
  - Bugfix**
  - UTC offset can now be explicitly set to 0 via the command line parameter -U  
→ “-U 0”

- 35022206590845c8a6ba09775567107925ddbe4c:  
**Bugfix**  
Unicast Signaling response messages now correctly use the seqId of the received Signaling request message.

## 2.2 Change log for ptpmmm

- No changes

## 2.3 Change log for ISync

- b5d8e8db54c214c489c0e904e7019b134face44f:  
**New feature**  
Added tandem operation with redSync (command line parameter “-l”/”useLSync true” for redSync and “-r”/”useRedsync true” for ISync). In this mode ISync can select between two PTP instances operating on two different physical interfaces synchronized to different PTP Masters.  
ISync will use the better Port for synchronization of the System clock.  
The comparison of the port quality is handled by redSync.
- bc4ce4bbec011e3b0c544c821123cfbe47314323:  
**Workaround**  
The use of the auto mode (-O A) is currently discouraged.  
A bug in the auto mode (-O A) can cause the hardware clock to jump at the start of the synchronization. ISync will regulate this fine but this disturbance in the beginning may cause issues for certain applications.  
Removed the auto mode (-O A) from the command menu, it can still be used for legacy applications.

## 2.4 Change log for eSync

- 6836df3a44e2352b0ea47179b8aac799c8709d4c:  
**New feature**  
Decouple selection of network interface and syn1588 hardware clock. A new command line “-l” and configuration file parameter (“clockID”) parameter allows to select the syn1588® hardware clock by the PTP clockID that should be controlled by the eSync utility, instead of using the card index.
- 34e800d819c5220104ea041424bc0a2665000720:  
**Improvement**  
Added operation for PTP profile G8275.2  
Selectable via command line parameter switch “-O g8275\_2” and config file parameter “ptp\_profile g8275\_2”

- 34e800d819c5220104ea041424bc0a2665000720:  
**Cleanup**  
Removed previously deprecated PTP profile selection switches for the “telecom2” profiles
  - REMOVED: “telecom2”/”telecom2\_s”: These switches will no longer be accepted -> direct replacements are:  
“telecom2”→”g8275\_1” and  
“telecom2\_s”→”g8275\_1\_s”

## 2.5 Change log for fSync

- No changes

## 2.6 Change log for vSync

- 6836df3a44e2352b0ea47179b8aac799c8709d4c:  
**Improvement**  
Re-work of the vSync application for future applications in the Broadcasting sector
- 6836df3a44e2352b0ea47179b8aac799c8709d4c:  
**Improvement**  
SDI Next Alignment, Audio Next Alignment Point and SDI LTC Timecodeword generators (full use of these will require a hardware update for the syn1588® PCIe NIC)

## 2.7 Change log for syn1588 app

- 6836df3a44e2352b0ea47179b8aac799c8709d4c:  
**New feature**  
Decouple selection of network interface and syn1588 hardware clock. A new command line “-l” and configuration file parameter (“clockID”) parameter allows to select the syn1588® device by the PTP clockID that should be accessed by the syn1588 utility, instead of using the card index.
- ba1834b2ebeac51e6e360d30ecd58e3c7fdb7e9:  
**Improvement**  
Improved Bitstream detection and handling for syn1588® PCIe and syn1588® Dual NIC update

## 2.8 Change log for syn1588 API

- 4649ed7bb91301aa13e50a82ab65b461eb43fa50:  
**Bugfix**  
Fixed issues for accessing Timestamper FIFOs when not operating with

SO\_TIMESTMAPING support and high message rates (Windows OS or user Timestamper)

## 2.9 Change log for shared memory API

- a48100275d16b6e8d5795fcafc8092579d572da8:  
**Improvement**  
Name of the shared memory will now contain the full port number.

## 2.10 Change log for syn1588® PTPMMM GUI

- f94c49c71f6b9bf3b8a73ac6227f034e2fa57627:  
**Improvement**  
Updated build for Linux and Windows

## 2.11 Change log syn1588® PCIe and Dual NIC Linux driver (v1.13.1)

- 03a843a9bec96f24e412b6d77a6282e3263766f4:  
**New feature**  
The driver is provided as debian package for easier installation and system maintenance
- 26d43f05834239e71d925b3f7cd8f61e44909b5f:  
**Compatibility**  
Extended support for up-to Linux Kernel 5.8
- 7409b16110ea0f50e85d5e5bb617a40ec4d70eb0:  
**Compatibility**  
Improved support for old Linux Kernel Version used by RHEL 6.0
- 1900999b724a8bffb44714f1c344cc4ae40021f9:  
**Improvement**  
Multiple syn1588® Dual NIC can be used in a system in parallel
- 1900999b724a8bffb44714f1c344cc4ae40021f9:  
**Bugfix**  
DMA Buffer pool initialization for syn1588® Dual NIC
- 6eff8e422564d88b481f48ce7901538030b64b08  
**Bugfix**  
Fixed rare race condition in the transmit path

## 2.12 Change log for syn1588® PCIe NIC (Build 865)

- **Improvement**  
Improved internal structure for increased network throughput

- **Improvement**  
Enhanced initial FPGA configuration to improve compatibility with certain PC chip sets
- **New Feature**  
Added Period2 Light and Period3 Light outputs available now via IOMATRIX register

## 2.13 Change log for syn1588® Dual NIC (Build 2039)

- **Initial version**

## 2.14 Change log for syn1588® NIC Updater

- f94c49c71f6b9bf3b8a73ac6227f034e2fa57627:  
**Improvement**  
Updated build for Linux and Windows
- ba1834b2ebeac51e6e360d30ecd58e3c7fdb7e9:  
**Improvement**  
Improved Bitstream detection and handling for syn1588® PCIe and syn1588® Dual NIC update

## 2.15 Change log for redSync

- b5d8e8db54c214c489c0e904e7019b134face44f:  
**New feature**  
Added tandem operation with redSync (command line parameter “-l”/”useLSync true” for redSync and “-r”/”useRedsync true” for ISync). In this mode ISync can select between two PTP instances operating on two different physical interfaces synchronized to different PTP Masters.  
ISync will use the better Port for synchronization of the System clock.  
The comparison of the port quality is handled by redSync.

## 2.16 Known Issues

### 2.16.1 Layer-2 with VLAN on Windows

- Using the syn1588® PTP Stack in Layer-2 mode in combination with VLAN is currently not supported on Windows platforms. This is a feature that will be made available in future releases.

### 2.16.2 ISync automated mode

- The use of the auto mode (-O A) is currently discouraged.  
The auto mode (-O A) can cause the hardware clock to jump at the start of the

synchronization. ISync will compensate this after a few seconds but this disturbance in the beginning may cause issues for certain applications.

The auto mode (-O A) was removed from the command menu, it may still be used for legacy applications.

### 2.16.3 Windows 64-Bit access to the Event function of syn1588® PCIe NIC/Dual NIC

- Accessing the Event function provided by a syn1588® PCIe NIC or Dual NIC is not working for Windows 64-Bit builds using the syn1588 API.  
Workaround: If your application requires access to the Event function of a syn1588® PCIe NIC or Dual NIC, build your application as 32-Bit binary.

## 3 Release 2020-10-09 (v1.12-5)

### 3.1 Change log syn1588® PTP Stack

- 39488d5aaf5e2422759720a4c9fa24101dc08cd0:  
Modified build environment to dynamically link to external libraries per default
- 41468329c522a3467892f40226f83effab775d2b:  
Added example PTP profile configuration files for Telecom Profile G8275.2, updated example PTP profile configuration files
- b45dde0fbb869960c9a3f45aee1079d5c684de24:  
Inform user when an invalid configuration is set (1-step + P2P delay)
- 9fc483c8926caca686fee65bb4b1f3912d27ddc3:  
Increased length of PTPv2 evaluation from 1 hour to 24 hours
- b3b4858827afd58ef50cd8bb5b9cdaca38c6c09a:  
Fixed Windows/Linux timing of shared memory access
- bda4499120495001bc0fb567f8e15fd60d1929a2:  
Fixed potential loss of synchronization when handling PTP management messages
- 6be481938516e7032646eae79c9b8cb52fe8d8b0:  
First release of the redSync utility, added mechanism to check for PTP stack health

### 3.2 Change log for ptpmmm

- No changes

### 3.3 Change log for ISync

- 160a3fdef0b44c9b764f2d6ca69851cf9078fe60:  
Removed deprecated XMA port indices from ISync and eSync utilities

### 3.4 Change log for eSync

- 160a3fdef0b44c9b764f2d6ca69851cf9078fe60:  
Removed deprecated XMA port indices from ISync and eSync utilities

### 3.5 Change log for fSync

- No changes

### 3.6 Change log for vSync

- 03e1b73110496240fd93e3ca4f23c71501a92cce:  
Fixed bug introduced with v1.11 that caused problems for generating video signals

### 3.7 Change log for syn1588 app

- 9d9d4f2b31f014d0f8c1f800d23d78852cc346d7:  
Added support for syn1588® Dual NIC firmware update via the syn1588 command line utility

### 3.8 Change log for syn1588 API

- a0431d39a7d6e971252b59ce7332017b257b9b52:  
Added basic identification of systems using only a syn1588®Clock\_M IP core and no MAC

### 3.9 Change log for shared memory API

- b3b4858827afd58ef50cd8bb5b9cdaca38c6c09a:  
Fixed Windows/Linux timing of shared memory access
- 6be481938516e7032646eae79c9b8cb52fe8d8b0:  
First release of the redSync utility, added mechanism to check for syn1588®PTP Stack health

### 3.10 Change log for syn1588® PTPMMM GUI

- No changes

### 3.11 Change log syn1588® PCIe NIC Linux driver

- 547a935fdb40bdae1924e28401e61e886213ba79:  
Rework of syn1588 Linux driver as preparation for the syn1588® Dual NIC

### 3.12 Change log for syn1588® PCIe NIC (Build 840)

- SVN 5016:  
Preparations for additional Period (Period light 2/3) functions

### 3.13 Change log for syn1588® NIC Updater (Build 8)

- No changes

### 3.14 Change log for redSync

- 6be481938516e7032646eae79c9b8cb52fe8d8b0:  
First release of the redSync utility

## 3.15 Known Issues

### 3.15.1 Layer-2 with VLAN on Windows

- Using the syn1588® PTP Stack in Layer-2 mode in combination with VLAN is currently not supported on Windows platforms. This is a feature that will be made available in future releases.

## 4 Release 2019-11-21 (v1.11-4)

### 4.1 Change log syn1588® PTP Stack (V1.11-4 gd4650f2)

- a9766f9b8d: Fixed a bug in command line parser, which lead to a segfault when Stack was started with argument '--'
- 01f154aaf4: Add option to configure a user timestamper via config file
- 18772e241d: Fixed compile errors in packet generator
- 433a95d821: New Feature: optional Slave Monitoring (IEEE1588-2019 16.11)
- 1f95746549: Removed constraint that the lower limit for the adjustRate = syncRate applies only for non-UC network operation modes
- 018d4ddb10: Fixed a bug where first received Sync message would be discarded
- ba8ed52e0d: Fixed incorrect data collection time calculation if Master sync rate higher than Slave adjust rate

### 4.2 Change log for ptpmmm (V1.11-4 gd4650f2)

- 6c39c7b68d: Fixed a bug that lead to messages being sent multiple times



#### 4.3 Change log for ISync (V1.11-4 gd4650f2)

- No changes

#### 4.4 Change log for eSync (V1.11-4 gd4650f2)

- No changes

#### 4.5 Change log for fSync (V1.11-4 gd4650f2)

- No changes

#### 4.6 Change log for vSync (V1.11-4 gd4650f2)

- No changes

#### 4.7 Change log for syn1588 app (V1.11-4 gd4650f2)

- e2a6bdb093: Fixed a memory leak on NIC firmware update

#### 4.8 Change log for syn1588 API (V1.11-4 gd4650f2)

- ab49f51cf9: Added extensive doxygen documentation

#### 4.9 Change log for shared memory API (V1.11-4 gd4650f2)

- fc4c8224fa: Improved documentation of example programs
- 6356cca834: Fixed broken export of security example program
- ab49f51cf9: Added extensive doxygen documentation
- b02afef21b: Add possibility to adjust the noClockAdjustment config parameter during runtime

#### 4.10 Change log for syn1588® PTPMMM GUI (V1.11-4 gd4650f2)

- 0ef2f33023: Fixed a bug where Clocks might not be found on startup
- 5b92eec67f: Fixed a bug that lead to an unresponsive VIP Parameter window

#### 4.11 Change log syn1588® PCIe NIC Linux driver (V1.11-0 gba29ad0)

- fd8a62e91e: Added support for Linux Kernel 5.0+

#### 4.12 Change log for syn1588® PCIe NIC (Build 838)

- No changes

## 4.13 Change log for syn1588® NIC Updater (Build 8)

- e2a6bdb093: Fixed a memory leak on NIC firmware update

## 4.14 Known Issues

### 4.14.1 Layer-2 with VLAN on Windows

Using the syn1588® PTP-Stack in Layer-2 mode in combination with VLAN is currently not supported on Windows platforms. This is a feature that will be made available in future releases.

## 5 Release 2019-09-06 (v1.10-7)

### 5.1 Change log syn1588® PTP Stack (V1.10-7 g5756774)

- 0bfb89702d: Fixed compilation error on disabled PTP Security
- 987735b708: Removed a memory leak in relation to drift calculation
- d4163eb853: Fixed compilation error on missing PROTECT define
- eefbc83e56: Allow 'allowmutable' parameter to be set via configuration file
- 82f1a0c57f: Added support for x64 compilation in Linux and Windows

### 5.2 Change log for ptpmmm (V1.10-7 g5756774)

- 19fea2ad4e: Improved usability and robustness

### 5.3 Change log for ISync (V1.10-7 g5756774)

- 7a8a65a424: Improved calculation of CPU frequency in Linux

### 5.4 Change log for eSync (V1.10-7 g5756774)

- No changes

### 5.5 Change log for fSync (V1.10-7 g5756774)

- No changes

### 5.6 Change log for vSync (V1.10-7 g5756774)

- No changes

### 5.7 Change log for syn1588 app (V1.10-7 g5756774)

- ca67967cb6: Removed (undefined) low-level jitter cleaner PLL access commands

### 5.8 Change log for syn1588 API (V1.10-7 g5756774)

- e3a1c9bd66: Improved error checking on instantiation of Syn1588 objects

### 5.9 Change log for shared memory API (V1.10-7 g5756774)

- 82f1a0c57f: Added support for x64 compilation in Linux and Windows

(This fixes the x86/x64 Incompatibility, see 6.14.1)

## 5.10 Change log for syn1588® PTPMMM GUI (V1.10-7 g5756774)

- No changes

## 5.11 Change log syn1588® PCIe NIC Linux driver (V1.10-0 g362f1bb)

- 362f1bbd17: Change permissions to allow regular users to access the device

## 5.12 Change log for syn1588® PCIe NIC (Build 838)

- Activate autonegotiation during initialization phase of a 1000BASE-T SFP transceiver module

## 5.13 Change log for syn1588® NIC Updater (Build 7)

- No changes

## 5.14 Known Issues

### 5.14.1 Layer-2 with VLAN on Windows

Using the syn1588® PTP-Stack in Layer-2 mode in combination with VLAN is currently not supported on Windows platforms. This is a feature that will be made available in future releases.

## 6 Release 2019-08-05 (v1.9-12)

### 6.1 Change log syn1588® PTP Stack (V 1.9-12 gf592864)

- 5d0b8b08eb: New feature: PTP Security v2.1
- 9b892c1f02: Fixed bug in leap second handling of Slaves in software mode  
(This fixes the Leap Seconds Regression, see 8.10.1)
- 125753f2de: Changes required for clean compilation using gcc8
- 08a60b79b2: Improved implementation of Outlier Filter
- 4b41672f4a: Improvements to the implementation of PHC clock
- c741b46b49: Fixed a build warning in Transparent Clocks
- 2032fec3b5: Moved large data types to heap to decrease stack size
- eb83d64bb1: Decreased stack size for better portability to embedded platforms
- 897d31628a: Performance improvements in PTP\_Timestamp implementation
- 7fb3bd34fb: Fixed incorrect severity of some log messages

### 6.2 Change log for ptpmmm (V 1.9-12 gf592864)

- No changes

### 6.3 Change log for ISync (V 1.9-12 gf592864)

- No changes

### 6.4 Change log for eSync (V 1.9-12 gf592864)

- 28fa930f9a: Fix '-l' parameter parsing in eSync
- 59a08f2a22: Improved documentation of '-s' parameter
- c6ed0b2291: Remove deprecated parameter '-o' and update documentation

### 6.5 Change log for fSync (V 1.9-12 gf592864)

- No changes

### 6.6 Change log for vSync (V 1.9-12 gf592864)

- No changes

## 6.7 Change log for syn1588 app (V 1.9-12 gf592864)

- fdee4e184d: Increased numbers of registers read for sfpinfo command

## 6.8 Change for syn1588 API (V 1.9-12 gf592864)

- d73fc32524: Improvements of the syn1588 API examples

## 6.9 Change log for shared memory API (V 1.9-12 gf592864)

- ef254c0c00: Improvements of the Shared Memory API example

## 6.10 Change log for syn1588® PTPMMM GUI (V 1.9-12 gf592864)

- 0e6d01ad25: Fix incorrect values being shown in register window

## 6.11 Change log syn1588® PCIe NIC Linux driver (V 1.9-12 gf592864)

- 12cc178d2a: Added timestamping capabilities API to ethtool interface

## 6.12 Change log for syn1588® PCIe NIC (Build 837)

- Added a pull-up resistor on-chip onto the clk\_ocxo\_i input signal to make the OCXO detection more robust

## 6.13 Change log for syn1588® NIC Updater (Build 7)

- 56dfec562d: Fixed an issue leading to segmentation faults on startup

## 6.14 Known Issues

### 6.14.1 x86/x64 Incompatibility

Due to changes in the structure of the Shared Memory, current PTP Stack binaries are no longer compatible with the Shared Memory API when compiled for a 64-bit architecture. This issue will be addressed in an upcoming release.

### 6.14.2 Layer-2 with VLAN on Windows

Using the syn1588® PTP-Stack in Layer-2 mode in combination with VLAN is currently not supported on Windows platforms. This is a feature that will be made available in future releases.

## 7 Release 2019-04-19 (v1.8-4)

### 7.1 Change log syn1588® PTP Stack (V 1.8-4 Rev g274ca2e)

- c540e884c2: Increase range of announceRecptTout to 2 ... 255
- 8c9ca9bb9a: Optimized internal handling of Syn1588::getType()
- 75fd000d6a: Increased robustness in handling of illegal PTP management Ids
- c95e5c5a9f: Added timestamper patch needed for 10G hardware
- c51cdf15ed: Fixed config file parsing issues
- 18f13e7be3: Disabled retrieving of sync timestamp in onestep mode in layer2
- 22d7f180df: Fixed occasional incorrect offset compensation on startup
- f37c40b084: New feature: Dynamic Port Re-configuration

### 7.2 Change log for ptpmmm (V 1.8-4 Rev g274ca2e)

- 0e8c81001a: Fixed internal timeout for parameter update command to VIP Rev3

### 7.3 Change log for ISync (V 1.8-4 Rev g274ca2e)

- No changes

### 7.4 Change log for eSync (V 1.8-4 Rev g274ca2e)

- c40acf5c39: Fixed a bug where IOMATRIX would change value of X4 when selecting X7 as input

### 7.5 Change log for fSync (V 1.8-4 Rev g274ca2e)

- No changes

### 7.6 Change log for vSync (V 1.8-4 Rev g274ca2e)

- No changes

### 7.7 Change log for syn1588 app (V 1.8-4 Rev g274ca2e)

- No changes

### 7.8 Change for syn1588 API (V 1.8-4 Rev g274ca2e)

- 5e55f1e0ce: Fixed an error in API export script that would lead to broken project files for msvc



- 7fba2544fd: Changed Syn1588::waitForEvent() to return 0 on timeout
- ede87460f0: Fixed a bug in the syn1588 event example

## 7.9 Change log for shared memory API (V 1.8-4 Rev g274ca2e)

- 5d56381d0a: Added an example for Dynamic Port Re-configuration

## 7.10 Change log for syn1588® PTPMMM GUI (V 1.8-4 Rev g274ca2e)

- 00d79f1ce6: Changed design to new Oregano Systems logos

## 7.11 Change log syn1588® PCIe NIC Linux driver (V 1.8 Rev g357da87)

- 80fa49ca3a: Fixed inst\_cur target in driver Makefile

## 7.12 Change log for syn1588® PCIe NIC (Build 825)

- No changes

## 7.13 Change log for syn1588® NIC Updater (Build 5)

- 00d79f1ce6: Changed design to new Oregano Systems logos

## 7.14 Known Issues

### 7.14.1 Layer-2 with VLAN on Windows

Using the syn1588® PTP-Stack in Layer-2 mode in combination with VLAN is currently not supported on Windows platforms. This is a feature that will be made available in future releases.

## 8 Release 2018-10-29 (v1.7-14)

### 8.1 Change log syn1588® PTP Stack (V 1.7-14 Rev gc10fa03)

- 86eb2f5a9d: Added support for G8275\_1 and G8275\_2 profiles for Windows
- 850c48664e: Implement layer 2 mode for Windows
- 5253479dae: Fix lucky packet filter
- a37846e04c: Fix offset compensation in P2P mode
- abc785453c: Fix parser error message when domain is out of range

- 4ce4b83a9b: Fix segmentation fault in layer 2 mode for Linux
- d6d39e21d: Fix BMCA failure
- 5d836ada3e: Update parser testcase reference
- F21aa64c59: Add support to handle CTRL-BREAK signal for Windows
- 3ec4db0d04: Fix bug in Management Handler
- bb8d79e6b: Finished implementation of profile C37.238-2017
- 887573b90e: Remove internal management port

## 8.2 Change log for ptpmmm (V 1.7-14 Rev gc10fa03)

- 3ec4db0d04: Fix bug in Management Handler

## 8.3 Change log for ISync (V 1.7-14 Rev gc10fa03)

- Dbfbaca954: Fix issue when handing event inputs

## 8.4 Change log for eSync (V 1.7-14 Rev gc10fa03)

- Dbfbaca954: Fix issue when handing event inputs

## 8.5 Change log for fSync (V 1.7-14 Rev gc10fa03)

- No changes

## 8.6 Change log for vSync (V 1.7-14 Rev gc10fa03)

- No changes

## 8.7 Change log for syn1588 app (V 1.7-14 Rev gc10fa03)

- No changes

## 8.8 Change log for syn1588® PTPMMM GUI (v1.6-206-ga026da8)

- a026da86a8: Fix parsing of time properties dataset
- 37b304bb11: Fix issue: PTPMMM GUI stops working after midnight

## 8.9 Change log syn1588® PCIe NIC Linux driver (1.7-0-g1293164)

- 1e5ad520c4: add "blacklist\_altera\_cvp.sh" to blacklist the altera\_cvp kernel module
- 391d58695d: Update driver to support kernel version 4.15+

## 8.10 Known Issues

### 8.10.1 Leap Seconds Regression:

During our current release tests, we detected a regression in our Leap Seconds handling code.

#### 8.10.1.1 Affected products:

The issue only affects the syn1588® PTP-Stack when it is running in software mode.

If you are running our syn1588® PTP-Stack in combination with our syn1588® PCIe NIC or one of our syn1588® IP cores you are not affected by this regression.

#### 8.10.1.2 Known effects of this regression:

The premonition phase of a leap second starts 24 hours before the leap second and ends with the leap second event itself.

If a syn1588® PTP-Stack is started in Slave mode during the premonition phase of an upcoming leap second, the syn1588® PTP-Stack will fail to properly respond to the leap second.

This will lead to a discontinuity in the offset of the syn1588® PTP-Stack of about one second at the time of the leap second.

The control loop of the syn1588® PTP-Stack will readjust itself after this event.

If the syn1588® PTP-Stack running in Slave mode was started before the premonition phase, the syn1588® PTP-Stack will properly respond to the leap second and there will be no discontinuity.

If you have any further questions related to this issue, please contact us at [support@oreganosystems.at](mailto:support@oreganosystems.at)

## 9 Release 2018-09-18 (v1.6-3)

### 9.1 Change log syn1588® PTP Stack (V 1.6-3 Rev ge913c1f5)

- Optimized default parameters of our PI controller

### 9.2 Change log for ptpmmm (V 1.6-3 Rev ge913c1f5)

- No changes

### 9.3 Change log for ISync (V 1.6-3 Rev ge913c1f5)

- No changes

### 9.4 Change log for eSync (V 1.6-3 Rev ge913c1f5)

- No changes

### 9.5 Change log for fSync (V 1.6-3 Rev ge913c1f5)

- No changes

### 9.6 Change log for vSync (V 1.6-3 Rev ge913c1f5)

- No changes

### 9.7 Change log for syn1588 app (V 1.6-3 Rev ge913c1f5)

- No changes

## 10 Release 2018-07-18 (v1.6-2)

### 10.1 Change log syn1588® PCIe NIC Windows driver (Rev g1ded90b)

- 1ded90bbea: Signed driver for use in Windows 10.

### 10.2 Change log syn1588® PCIe NIC Linux driver (Rev g1ded90b)

- cbd7598f00: Added support for SFP registers
- 71e6d3cc61: Do not write to dev->last\_rx anymore to avoid a driver compilation issue with recent kernels.
- 8da43ba3a8: Move initialization of fake fifo from nic\_dev\_open to nic\_dev\_init

### 10.3 Change log syn1588® PTP Stack (V 1.6-2 Rev g4939b2b)

- bf3174828f: Apply correct IPv6 multicast scope to packet generator
- a7cc928fb9: Fixed IPv6 multicast mac address
- 7028e12fe4: Added slew locking support
- 8ecb1b9e9f: Added implementation of an Acceptable Master Table
- 775dd73797: Updated PTP Stack to use the new parser
- c73aff59c4: Fixed bugs in 802.1AS implementation

- 267388a1f0: Change UDP payload padding for IPv6 mode of PKTGEN to be compliant with IEEE1588-2008 ANNEX E
- 7b36364d65: Added a readout && logging of board revision and board serial number at startup
- 5bfe9f6d20: Implemented single log file descriptor per logfile
- eac4a0d1b6: Added logrotate support for output files
- fcaea3bb29: Fixed issue in encodeParam()/decodeParam() on disabled luckyPacket filter
- bc985c385b: Changed logoutput of SpikeFilter statistics to print signed values

#### 10.4 Change log for ptpmmm (V 1.6-2 Rev g4939b2b)

- 8e4dd0c5d8: Updated ptpmmm to use the new parser
- f02bf8d845: Added frequency and extclk command improvements

#### 10.5 Change log for ISync (V 1.6-2 Rev g4939b2b)

- 6d6282db90: Updated ISync to use the new parser

#### 10.6 Change log for eSync (V 1.6-2 Rev g4939b2b)

- 841a426d2e: Updated eSync to use the new parser
- 66d8da6b42: Added error message on missing com port if sync source is NMEA+PPS

#### 10.7 Change log for fSync (V 1.6-2 Rev g4939b2b)

- 813f4636ce: Updated fSync to use the new parser
- 22d6f93ebf: Added initial version

#### 10.8 Change log for vSync (V 1.6-2 Rev g4939b2b)

- 4c69e23347: Fixed some vSync bugs
- 953b6095f8: Updated vSync to use the new parser

#### 10.9 Change log for syn1588 app (V 1.6-2 Rev g4939b2b)

- 71240766f2: Added missing phase alignment of frequency generation to syn1588 app
- a44effd8c8: Updated syn1588 app to use the new parser

- d6759164d1: Fixed Error message string (when the config file for extclk cannot be found) to point to the correct file name
- f02bf8d845: Added frequency and extclk command improvements

#### 10.10 Change for syn1588 API (V 1.6-2 Rev g4939b2b)

- 36fc77e02b: Added virtual registers VR\_ETH\_MIICOMMAND && VR\_ETH\_SFP\_EEPROM to Syn1588lfc
- 5bfe9f6d20: Implemented single log file descriptor per logfile
- 60d2fd7b70: Enable access to event16 registers when CAP1\_MEASURE is present

#### 10.11 Change log for shared memory API (V 1.6-2 Rev g4939b2b)

- 5bfe9f6d20: Implemented single log file descriptor per logfile

#### 10.12 Change log for syn1588® PCIe NIC (Build 825)

- Improved support for all types of SFP transceiver modules including copper modules
- Corrected boot time of factory default bitstream. It is now 100ms as required by the PCI/PCIe standard

#### 10.13 Change log for syn1588® PTPMMM GUI (Rev g0ceb417)

- 0ceb417a32: Added firmware update duration message
- 0e439de6bb: Reworked the PTPMMM GUI to be more user-friendly

#### 10.14 Change log for syn1588® NIC Updater (Build 5)

- No changes

## 11 Release 2018-04-10 (v1.5)

For the current release significant changes and improvements have been applied to most of the source files. Please note that the directory structure has been modified for better partitioning of the various functions.

General remarks: For all tools and utilities the following changes /updates were made

- The Makefiles under Linux were restructured and improved
- The MSVC projects were updated to MSVC 2017
- For all platforms the respective compile options for source code analysis were improved to enable a more stringent checking.

### 11.1 Change log syn1588® PCIe NIC Windows driver (Rev g2dcf873)

- 6f6f49177e: Added virtual MAC\_CAPABILITIES\_0 register (VR\_ETH\_CAPABILITIES\_0)
- 0575935aea: Removed the usage of deprecated registers and adjusted behavior according to current hardware layout of the syn1588® PCIe NIC.
- 124849d47a: Removed obsolete call of NDIS\_PAGEABLE\_FUNCTION macro.

### 11.2 Change log syn1588® PCIe NIC Linux driver (Rev g2dcf873)

- 70b642d10c: Added support for Linux kernel versions greater or equal to 4.7.0
- 4f818fd17b: Added support for Linux kernel versions greater or equal to 4.10.0
- 8c4afe79cc: Added MAC\_CAPABILITIES\_0 register to virtual registers.
- fff4c0c3e3: Fixed small issue in Linux driver which could cause incorrect TX timestamps.
- eabc7a1ec1: Fixed compilation issue with kernel version 3.10.0-693
- 0575935aea: Removed the usage of deprecated registers and adjusted behavior according to current hardware layout of the syn1588® PCIe NIC.

### 11.3 Change log syn1588® PTP Stack (V 1.5-19 Rev gfc59fa3)

- edd2aec087: Fixed build warnings
- 73030df0ff: Added fixed 37 second leap seconds
- 4d75fefb8a: Implemented shared memory update semaphore for Windows and Linux
- 3abb6c2dd6: Implemented improved handling of leap seconds when PTPv2 is running in software mode.

- bab713f623: Fixed bug in PTP slave to not propagate manageLeap59 and/or manageLeap61 when both leap flags are set in the announce message from the master
- ec02bc4391: Increased compiler version of MSVC
- 562a933868: Added anti windup configuration parameter to PI controller
- d5ca996d2e: Implemented LuckyPacket Filter
- fb72e83f2a: Added precision integrator to PI controller
- fbeadec1b8: Added Sample Rate Converter as a mutually exclusive alternative to the adaptive IIR filter
- 8d3811d8e3: Fixed controller for negative adjust intervals
- a16b9b65d2: Added extended filter configurations to default.cfg
- 9a2c763d41: Fixed issue with additional padding bytes in ipv6 messages
- 3cca061438: Fixed memory leaks when certain deleting objects
- c705e3f650: Added domain range limits for Profile Telecom G8275.1
- 2f14668a48: G8275.1: Added updateSlave function so that the slave will not update its DS with prio1 values of a master that uses different prio1 settings as defined by this profile.
- 52e23fe6ef: G8275.1: Corrected range for local priority, increased allowed size for log filename, corrected min/max values for delay\_request\_offset parameter
- 2a6fa93869: Added exemplary G8275.1 PTP configuration files
- fab8b6d889: Fixed issue with masking of ultimate timestamp bits
- 8cc9a51ee2: Renamed G8275 profile(s) BMC as both telecom profiles (.1 and .2) use the same alternative BMC
- d92961cf4a: Changed clock to update adjust interval via the caller of PTP\_Clock::synchronize
- 08fb616e57: Added BMC patches for 802.1as
- fd16f90242: Fixed timestamp-storage for P2P mode
- fd27a32d16: Added set and restore timer period in OS class
- fbba906cad: Added command line parameter -w disablesots to disable SO\_TIMESTAMPING
- d28bc73bd6: Fixed minor memory leaks in sharedmem\_api.cpp and context\_ifc.h
- 2c81c10ee6: Fixed null pointer exception in ptp\_run\_multiport



- 1a146a6053: Added -w 802.1as\_bridge as command line parameter option similar to -w bridge
- de87feafad: Fixed layer-2 communication issue between ptp stack and ptpmmm on same node
- 1be62005c5: Fixed bug: PTP Master shall respond with unicast response to unicast request in mixed mode
- 606297c2ce: Updated UC default duration for requests from 10 (= PTP standard minimum) to 300 (= PTP standard default)
- 048b46d40b: Improved response time (i.e. reduced latency) to Announce message changes in 802.1AS mode
- 85561069c4: Fixed L61 execution both on master and slave
- 7f007aa85d: Added logrotate support with SIGHUP for log file specified on a per port basis
- 08fb616e57: Fixed error in BMCA for cascaded BCs and 802.1AS bridges
- 34cb66d47b: Fixed error in PTP management message processing under high network load
- 09e874cfb6: Fixed error in port assignment for multiport applications in BC mode with more than 5 ports.
- 08271ad4ed: Improvements to control loop
- 34cb66d47b: Fixed host to network reordering issue
- 79d7c30915: Updated 802.1as profile
- 71b0296ae8: Fixed a bug that set portId to 0 instead of 1, when no port is given in config file

#### 11.4 Change log for ptpmmm (V 1.5-19 Rev gfc59fa3)

- edd2aec087: Fixed build warnings
- 650d8b3dee: Added vSync parameter handling and corrected type usage
- 63c3d82f41: Increased range of IDs allowed in the initialize management messages
- 5f271e9f3d: Fixed display bug in ptpmmm
- 69832b61b2: Added an increased timeout for update cmd in case a VIP Rev3 board is targeted
- c9dd2ce6c3: Added 0 tlv to vSync management message
- 57853b40c8: Added extclk command to ptpmmm
- 908408943a: Updated handling of configuration files for frequency/extclk command

- 1be00bd442: Added "extclk off" command variation to syn1588app and ptpmmm
- b60a42c312: Added support to frequency command for NIC vs. VIP differentiation
- 2975a1fb9d: Added vSync commands to the ptpmmmGUI and ptpmmm processing
- f00ad59500: Increased range of allowed initialize management message IDs
- dadf5c542c: Added improvements to VIP rev detection.
- 70f3491413: Added address range 0x2100-0x213F to accepted values for clkman command
- 4e0fe78f1f: Added eSync parameter to ptpmmm
- cf1b501088: Fixed a bug in UpdateHandler
- fb6109e8e3: Fixed display of IPv4 and IPv6 addresses in output of ptpmmm clock command
- de87feafad: Fixed layer-2 communication issue between ptp stack and ptpmmm on same node

### 11.5 Change log for ISync (V 1.5-19 Rev gfc59fa3)

- edd2aec087: Fixed build warnings
- ba3f04cbcd: Fixed Layer-2 IP address parsing issue
- daf235cd52: Changed helpscreen to indicate that -i can now be used on Linux with an IPv4 address
- fc59fa340c: Improved control loop PI values

### 11.6 Change log for eSync (V 1.5-19 Rev gfc59fa3)

- edd2aec087: Fixed build warnings
- 7905a5d7e9: Fixed build dependencies and undefined variables in Makefiles
- b1227ce0cd: Fixed math error in alignment point calculation for frequency sync
- 8e17550a02: Fixed a bug when switching from slave to master while using eSync
- 6b0c246c7c: Fixed eSync communication with ptp-stack
- 00d8e8bb66: Fixed eSync shared memory locking issue
- 4cb92efa8b: Added semaphore fix so that eSync does not block indefinitely when it is the only one accessing the shared mem
- c5d7eff3bb: Adapted eSync PI values to improve synchronization
- dbc2353a05: Added G8275.2 profile to PTP config and eSync
- b8c742971b: Fixed a bug that resulted in incorrect offset calculation in eSync

## 11.7 Change log for vSync (V 1.5-19 Rev gfc59fa3)

- edd2aec087: Fixed build warnings
- 957f52cfb3: Fixed vSync register read errors

## 11.8 Change log for syn1588 app (V 1.5-19 Rev gfc59fa3)

- edd2aec087: Fixed build warnings
- f262932cf8: Removed deprecated and redundant information
- 908408943a: Updated handling of configuration files for frequency/extclk command
- 9112861d5e: Added check of hw type and build number to be consistent with the check done in the ptpmmm tool
- 1eedd9a930: Fixed an issue where syn1588app would segfault when pressing enter repeatedly at a command prompt
- b267365cae: Fixed user input parsing issue

## 11.9 Change for syn1588 API (V 1.5-19 Rev gfc59fa3)

- edd2aec087: Fixed build warnings
- 6bd3fa80c9: Added more levels of distinction between different NIC revisions
- f1e56666ae: Added range extension for reading of hardware revision to syn1588 interface
- 5c9886634c: Added a check for build number before accessing MAC capability register to avoid OS freezing when syn1588 app is used with previous PFGA versions.
- ed855607fa: Added constants for build numbers that enable certain registers
- 979e650a79: Added functions to read MAC, Build Revision and Serial from EEPROM Registers<sup>1</sup>
- 4d75fefb8a: Implemented shared memory update semaphore for Windows and Linux
- 7905a5d7e9: Fixed build dependencies and undefined variables in Makefiles
- 24bf18ee77: Removed deprecated TIME\_L and TIME\_E register readout
- 903857725d: Added I2C interface and TCXO analog frequency control
- 08fb616e57: Added BMC patches for 802.1as

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<sup>1</sup> See 11.14 Known Issues for compatibility information

- 9dccb11d0f: Changed syn1588\_ifc to always assume miits0 is available
- 29c6e9791b: Added syn1588::disableEvent() method to disable a registered event
- 82108fec0e: Changed syn1588::registerEvent() to disable output on event port if any was set
- 82108fec0e: Added improvements to syn1588 examples
- a7b4bb2689: Removed usage of deprecated registers in API

### 11.10 Change log for shared memory API (V 1.5-19 Rev gfc59fa3)

- edd2aec087: Fixed build warnings
- d28bc73bd6: Fixed minor memory leaks in shared memory API
- 4d75fefb8a: Implemented shared memory update semaphore for Windows and Linux to avoid polling of shared memory
- 7905a5d7e9: Fixed build dependencies and undefined variables in Makefiles

### 11.11 Change log for syn1588® PCIe NIC (Build 818)

- Added system capability registers. For this both major IP cores had been slightly re-structured. Increased their minor version number.
- Added SPI sequencer for the jitter cleaner PLL

### 11.12 Change log for syn1588® PTPMMM GUI (Rev g09e874c)

- 2d9c5b75ca: Added tab for *vSync* parameters to PTPMMM-GUI
- bd0868d6a1: Improved software version parsing to be compatible with VIP & VIP Rev 3
- 0753442663: Bugfix: Protect VIP parameter window from internal state corruption when window is opened and closed several times
- 2975a1fb9d: Added *vSync* command to PTPMMM-GUI and ptpmmm
- 46139a4b5d: Added *frequency* command to PTPMMM-GUI
- 9ebb82c774: Fixed *update* command in PTPMMM-GUI
- 01ff8b3e49: Updated clock IDs and *about* box of PTPMMM GUI

### 11.13 Change log for syn1588® NIC Updater (Build 5)

- No changes

## 11.14 Known Issues:

- **Only under Linux:** Starting the syn1588® PTP-stack in Layer-2 mode on an interface that has no valid IP address set will cause the PC to crash.
- Reading of MAC, Build Revision and Serial from EEPROM Registers via the syn1588 app is only available on NIC Rev 2.1 and build 818 or higher
- A multiport PTP setup can only have one active profile configured via command line. It is not possible to use a "-g8275.1" command line profile switch on port 1 and a "-g8275.2" command line profile switch on port 2.

Workaround: It is possible and recommended to set different profiles per port by using a config file.

## 12 Release 2017-12-11 (v1.4-56-2)

### 12.1 Change log Windows driver (Rev bfc5f42283d4b)

- bfc5f42283: Copy known issue regarding Windows 10 1607 or higher and driver code signing from master branch README.txt to release branch README.txt

### 12.2 Change log Linux driver (Rev 3e7a593c483b3)

- No changes

### 12.3 Change log syn1588® PTP Stack (V 1.4-56 Rev g653b350)

- No changes

### 12.4 Change log for ptpmmm

- Not included in this release

### 12.5 Change log for ISync (V 1.4-56 Rev g653b350)

- No changes

### 12.6 Change log for eSync (V 1.4-56 Rev g653b350)

- No changes

### 12.7 Change log for vSync (V 1.4-56 Rev g653b350)

- No changes

### 12.8 Change log for syn1588 app (V 1.4-56 Rev g653b350)

- No changes

### 12.9 Change for syn1588 API (V 1.4-50 Rev g19426a0)

- No changes

### 12.10 Change log for shared memory API (V 1.4-50 Rev g19426a0)

- No changes

### 12.11 Change log for syn1588® PCIe NIC (Build 808)

- No changes

## 12.12 Change log for syn1588® PTPMMM GUI

- Not included in this release

## 12.13 Change log for syn1588® NIC Updater (Build 5)

- No changes

## 13 Release 2017-11-28 (v1.4 56-1)

### 13.1 General Changes

- 1ebfc3f264: fix GCC 7 compiler warnings/errors
- 6c9e75adae: reworked Makefile.arm.inc
- 8d60c7682a: fixed Makefile where on export of APIs the Makefile.inc was missing
- 653b3504ba: fixed compile warnings in licensegen

### 13.2 Change log Windows driver (Rev 3e7a593c483b3)

- No changes

### 13.3 Change log Linux driver (Rev 3e7a593c483b3)

- No changes

### 13.4 Change log syn1588® PTP Stack (V 1.4-56 Rev g653b350)

- See 2.1 General Changes

### 13.5 Change log for ptpmmm

- Not included in this release

### 13.6 Change log for ISync (V 1.4-56 Rev g653b350)

- See 2.1 General Changes

### 13.7 Change log for eSync (V 1.4-56 Rev g653b350)

- See 2.1 General Changes

### 13.8 Change log for vSync (V 1.4-56 Rev g653b350)

- See 2.1 General Changes

### 13.9 Change log for syn1588 app (V 1.4-56 Rev g653b350)

- See 2.1 General Changes

### 13.10 Change for syn1588 API (V 1.4-50 Rev g19426a0)

- No changes



### 13.11 Change log for shared memory API (V 1.4-50 Rev g19426a0)

- No changes

### 13.12 Change log for syn1588® PCIe NIC (Build 808)

- No changes

### 13.13 Change log for syn1588® PTPMMM GUI

- Not included in this release

### 13.14 Change log for syn1588® NIC Updater (Build 5)

- No changes

## 14 Release 2017-06-20 (v1.4-51)

### 14.1 Change log Windows driver (Rev 3e7a593c483b3)

- No changes

### 14.2 Change log Linux driver (Rev 3e7a593c483b3)

- No changes

### 14.3 Change log syn1588® PTP Stack (V 1.4-51 Rev gfc70f1e)

- No changes

### 14.4 Change log for ptpmmm

- Not included in this release

### 14.5 Change log for ISync (V 1.4-51 Rev gfc70f1e)

- No changes

### 14.6 Change log for eSync (V 1.4-51 Rev gfc70f1e)

- No changes

### 14.7 Change log for vSync (V 1.4-51 Rev gfc70f1e)

- fc70f1ec4a: workaround for -O2 error where vSync is not working

### 14.8 Change log for syn1588 app (V 1.4-51 Rev gfc70f1e)

- No changes

### 14.9 Change for syn1588 API (V 1.4-50 Rev g19426a0)

- No changes

### 14.10 Change log for shared memory API (V 1.4-50 Rev g19426a0)

- No changes

### 14.11 Change log for syn1588® PCIe NIC (Build 808)

- No changes

#### 14.12 Change log for syn1588® PTPMMM GUI

- Not included in this release

#### 14.13 Change log for syn1588® NIC Updater (Build 5)

- No changes

## 15 Release 2017-06-16 (v1.4-50)

### 15.1 Change log Windows driver (Rev 3e7a593c483b3)

- No changes

### 15.2 Change log Linux driver (Rev 3e7a593c483b3)

- No changes

### 15.3 Change log syn1588® PTP Stack (V 1.4-50 Rev g19426a0)

- d3e20a1243: Add support for command line parameters -B duration and -u ttl
- afd4862cb: Add example config files for 802.1as and telecom profile

### 15.4 Change log for ptpmmm (V 1.4-50 Rev g19426a0)

- No changes

### 15.5 Change log for ISync (V 1.4-50 Rev g19426a0)

- No changes

### 15.6 Change log for eSync (V 1.4-50 Rev g19426a0)

- No changes

### 15.7 Change log for vSync (V 1.4-50 Rev g19426a0)

- No changes

### 15.8 Change log for syn1588 app (V 1.4-50 Rev g19426a0)

- No changes

### 15.9 Change for syn1588 API (V 1.4-50 Rev g19426a0)

- No changes

### 15.10 Change log for shared memory API (V 1.4-50 Rev g19426a0)

- No changes

### 15.11 Change log for syn1588® PCIe NIC (Build 808)

- No changes

### 15.12 Change log for syn1588® PTPMMM GUI (Build 925)

- 19426a07ea: Included newest OUI in check for isSyn1588

### 15.13 Change log for syn1588® NIC Updater (Build 5)

- No changes

## 16 Release 2017-06-08 (v1.4-46)

### 16.1 Change log Windows driver (Rev 3e7a593c483b3)

- Rev 4679: Update PHY delays

### 16.2 Change Log Linux driver (Rev 3e7a593c483b3)

- Rev 4679: Update PHY delays

### 16.3 Change log syn1588® PTP Stack (V 1.4-46 Rev g66f07ee)

- ca7f3f1176: fix issue in DriftCalc which prohibits sync with high sync rates
- 8b0da8fc38: changed default value of boundary hops from 1 to 16 to allow transmission of the sync metadata over multiple boundary clocks.
- 1063ffef18: Add dedicated 802.1as engine
- c8d9291298: Implemented support for SO\_TIMESTAMPING for linux in layer2 mode
- 3312d98c8e: improvements to BMCA robustness

### 16.4 Change log for ptpmmm (V 1.4-46 Rev g66f07ee)

- No changes

### 16.5 Change log for ISync (V 1.4-46 Rev g66f07ee)

- c5ebb0355b: Added missing command line parameter option for Isync
- 9c46a262f8: Set UTC offset default value to PTP\_ConfigIc::c\_utcOffset instead of 0
- 03c5d07e65: Implemented NMEA output for Isync
- fa0f0ec16a: ISync code cleanup

### 16.6 Change log for eSync (V 1.4-46 Rev g66f07ee)

- 2902b05771: add explanation eSync is not SyncE

### 16.7 Change log for vSync (V 1.4-46 Rev g66f07ee)

- 90006d5ad1: first version of vSync utility

### 16.8 Change log for syn1588 app (V 1.4-46 Rev g66f07ee)

- No changes

#### 16.9 Change for syn1588 API (V 1.4-46 Rev g66f07ee)

- No changes

#### 16.10 Change log for shared memory API (V 1.4-46 Rev g66f07ee)

- No changes

#### 16.11 Change log for syn1588® PCIe NIC (Build 808)

- Build 808: Improved timing for EUI device access.
- Build 803: Add interface to Video Add-On-Board

#### 16.12 Change log syn1588® VIP (HW 617; SW Rev 1113)

- No changes

#### 16.13 Change log for syn1588® PTPMMM GUI (Build 925)

- No changes

#### 16.14 Change log for syn1588® NIC Updater (Build 5)

- No changes

## 17 Release 2016-12-23 (v1.3.3)

### 17.1 Change log Windows driver (Rev 4378)

- No changes

### 17.2 Change Log Linux driver (Rev 4586)

- Rev 4586: Code clean-up
- Rev 4583: Fixed a rare TX queue deadlock issue. Refactored IRQ handling: The driver now has three separate tasklets for RX, TX and CSC IRQ handling
- Rev 4553: Increase MDIO frequency to boost performance.
- Rev 4515: Added description about how to sign kernel modules

### 17.3 Change log syn1588® PTP Stack (1.3.3 Rev 1221)

- No changes

### 17.4 Change log for ptpmmm (1.3.3 Rev 1221)

- No changes

### 17.5 Change log for ISync (1.3.3 Rev 1221)

- No changes

### 17.6 Change log for eSync (1.3.3 Rev 1221)

- No changes

### 17.7 Change log for syn1588 app (1.3.3 Rev 1221)

- No changes

### 17.8 Change for syn1588 API (1.3.3 Rev 1221)

- Fixed event example API (timestamp array or defines not used properly), added comments to timestamping example and used `getSingleTimestamp` instead of `pollTimestamp` for a better test output. Furthermore added more "Filter Options" to `configureTimestamp()` function. Corrected bug in `syn1588.cpp` - `waitForEvent-Funktion` replace `else-if` with `separate if block` - otherwise only one event is shown.

### 17.9 Change log for shared memory API (1.3.3 Rev 1221)

- No changes



## 17.10 Change log for syn1588® PCIe NIC (Build 787)

- Build 787: Streamlined the design by merging the two TSE-MACs for RJ45 and SFP mode
- Build 784: Added a new “stop clock” feature to subtract offsets
- Build 783: Fixed an issue in the TX FIFO fill level calculation
- Build 782: Corrected 1 PPS and IRIG-B output alignment
- Build 780: Added IRIG-B input unit to synchronize to external IRIG-B signals.

## 17.11 Change log syn1588®VIP (HW 617; SW Rev 1113)

- No changes

## 17.12 Change log for syn1588® PTPMMM GUI (Build 925)

- Build 925: Code clean-up
- Build 924: Help message now displayed in main window when no clocks are detected.

## 17.13 Change log for syn1588® NIC Updater (Build 5)

- Build 5: Fixed a small typo in dialog window.

## 18 Release 2016-06-30 (v1.3.2)

### 18.1 Change log Windows driver (Rev 4378):

- Rev 4378: Updated windows driver to avoid bluescreens when accessing non existing hardware registers, updated inf file for driver installation
- Rev 4336: Added support for new error counters
- Rev 4332: Changed burst length in windows driver for rev 2 nics to 32 to improve performance
- Rev 4328: Created unified 32bit and 64bit Windows driver.
- Rev 4307: Fixed an issue where the last 4 bytes of a multicast packet weren't received
- Rev 4302: Added optional FCS forwarding
- Rev 4296: Add alignment check to M core register access.
- Rev 4295: Change to new code signing certificate. Note: The new certificates do not work with Windows XP anymore.
- Rev 4203: Updated Marvell 88E1111 PHY delay in Windows driver. Added Micrel KSZ8031MNX PHY delay to Windows driver.
- Rev 4179: Process up to 64 RX BDs in MPInterruptHandler.

### 18.2 Change Log Linux driver (Rev 4496):

- Rev 4496: Fixed an issue in the SO\_TIMESTAMPING code which could lead to a module crash on new processors
- Rev 4494: Added minor fix to compile with kernel versions  $\geq 4.1$
- Rev 4492: Fixed an issue which could lead to temporarily lose the network link (code modifications in syn\_mdio\_read and syn\_mdio\_write)
- Rev 4491: Fixed a bug in the VR register map of the driver: Addresses of VR\_ETH\_TS\_RXMEM\_BASE and VR\_ETH\_TS\_TXMEM\_BASE were interchanged
- Rev 4336: Added support for new error counters
- Rev 4332: Changed burst length in windows driver for rev 2 nics to 32 to improve performance
- Rev 4296: Adapted Linux driver to accept more than 4 different VLAN-IDs (VLAN GROUP Register)
- Rev 4202: Updated Marvell 88E1111 PHY delay. Added Micrel KSZ8031MNX PHY delay

### 18.3 Change Log Free BSD driver:

- Dropped support for the BSD driver with this release

## 18.4 Change log syn1588® PTP Stack (1.3.2 Rev 1221):

- Rev 1176: Fixed an issue where selection of the correct master out of a bunch masters took too long
- Rev 1167: Re-wrote command line parser
- Rev 1155: It is now possible to use different VLAN IDs for different Ports of a boundary clock (Linux only)
- Rev 1151: Add support for 802.1as end-nodes (Linux only). The organization extension TLV is now added to Follow-Up messages. Added support for the path trace feature
- Rev 1140: Current Unicast connections can now be monitored via shared memory API.
- Rev 1136: Added further message counters (messages per second) accessible via shared memory API
- Rev 1102: Fixed a bug in network mode “both”
- Rev 1080: Increase range of minPdlyRequestInterval to -8 to be compliant with SMPTE profile requirements
- Rev 1006: Message counter statistics are now available via Shared Memory API
- Rev 1005: PDelay Requests are no longer processed in Disabled State.
- Rev 982: Added new parameter -Q (transport\_802\_1as in config file) for 802.1as transportSpecific field in PTP header (Layer2 only)
- Rev 978: Added log output for PDly timestamps (loglevel 3)
- Rev 970: Fixed an issue where PTP Stack could jump between master and passive state.
- Rev 957: Shared memory API can be used to disable/enable a PTP port.
- Rev 952: Slave only flag can now be correctly queried with management messages.

## 18.5 Change log for ptpmmm (1.3.2 Rev 1221):

- Rev 1190: Added support for selecting the network mode (parameter -N)
- Rev 1004: Added support for generating precise frequencies using the jitter cleaner PLL on the syn1588® PCIe NIC rev2
- Rev 995: Fixed command line parsing error (crash if an incorrect number of arguments was used)

## 18.6 Change log for ISync (1.3.2 Rev 1221):

- Rev 1076: Fixed “auto” mode to automatically select the synchronization source depending on PTP state.

## 18.7 Change log for eSync (1.3.2 Rev 1221):

- Rev 1150: Fixed an issue where eSync did not detect missing NMEA messages correctly
- Rev 1048: Define a threshold value for maximum amount of missed sync pulses. When the maximum number of missed sync pulses is reached, eSync goes into holdover mode.

## 18.8 Change log for syn1588 app (1.3.2 Rev 1221):

- Rev 1198: Removed commands cfgts, getts, clrts and regev due to their complexity. If you need the functionality, use the syn1588 API provided by Oregano Systems.
- Rev 1177: Prevent syn1588 from running without admin privileges
- Rev 1156: Added more counters to macctr command
- Rev 1094: Added new command macctr to read read TSE MAC's packet counter (on syn1588® PCIe NIC)
- Rev 1004: Added support for generating precise frequencies using the jitter cleaner PLL on the syn1588® PCIe NIC rev2

## 18.9 Change log for syn1588® PCIe NIC (Build 779)

- Build 779: Improved data path from/to Ethernet packet FIFOs (now 64 bit wide, further reduced latency). Added video features (precision period function). Update of the 1 Gbit SFP transceiver interface (no functional change). Added more Ethernet statistic counters to the MAC.
- Build 760: Added VLAN group filtering function. Update of the PHYDELAY values in the hardware (pre-set values). Optimization of GMII TX path timing for corner cases.
- Build 757: Corrected bugs in PERIOD, EVENT and TRIGGER functions.

## 18.10 Change log syn1588®VIP (HW 617; SW Rev 1113):

- Rev 1113: Added support for new IO Matrix feature to change I/O assignment of the output pins

## 18.11 Change log for syn1588® PTPMMM GUI (Build 924)

- Build 921: All ports of a boundary clocks are displayed now
- Build 920: Fixed domain number change
- Build 919: Improve responsiveness of PTPMMM GUI in case of disappearing clocks

## 18.12 Change log for syn1588® NIC Updater (Build 4)

- New App: The syn1588® NIC Updater allows you to update your syn1588® PCIe NIC with an intuitive graphical user interface

## 19 Release 2015-03-04 (v1.2.419)

### 19.1 Change log Windows driver (Rev 4166):

- Rev 4166: Commit binaries of current driver version.
- Rev 4165: Further memory footprint reductions.
- Rev 4164: Reduce memory footprint of shared memory for DMA.
- Rev 4161: Rewrite link speed detection. Use IEEE mandatory registers instead of vendor registers.
- Rev 4151: Improve force link speed mode with Micrel Phy.
- Rev 4149: Do not power down Micrel Phy during NIC reset. The PHY loses state.
- Rev 4148: Improve Micrel Phy auto negotiation settings.
- Rev 4133: Increase Phy status polling interval.
- Rev 4044: Fix an error in IOCTL function.

### 19.2 Change Log Linux driver (Rev 4034):

- Rev 4111: Driver compiles with kernel 3.17
- Rev 4105: Fix a compiler warning with recent Linux kernels. Properly indicate a fiber connection in ethtool.

### 19.3 Change Log Free BSD driver:

- No changes

### 19.4 Change log syn1588® PTP Stack (1.2.419 Rev 945):

- Rev 926: Implement telecom master profile mode.
- Rev 906: Fixed a BMCA issue when announce messages were received from more than one master over a long period of time.

### 19.5 Change log for ptpmmm (1.2.419 Rev 945):

- No changes

### 19.6 Change log for ISync (1.2.419 Rev 945):

- No changes

### 19.7 Change log for eSync (1.2.419 Rev 945):

- No changes

### 19.8 Change log for syn1588 app (1.2.419 Rev 945):

- Rev 903: Finished remote update support for PCIe NIC rev2
- Rev 899: Enable remote update of Rev2 NICs.

### 19.9 Change log for syn1588® PCIe NIC (Build 749)

- Properly handle PHY collision detection in full duplex mode.
- Increase clock frequency of I<sup>2</sup>C interface.
- Add new I<sup>2</sup>C interface to read EUI device.

### 19.10 Change log syn1588® VIP (HW 605; SW 1.2.368 Rev 794):

- No changes

## 20 Release 2014-12-16 (v1.2.409)

### 20.1 Change log Windows driver (Rev 4050):

- Rev 4041: Added support for copper and fiber SFPs on PCIe NIC rev2
- Rev 4022: Added support for PHY on PCIe NIC rev2
- Rev 4016: Added PCI revision register (VR\_PCI\_REVISION)
- Rev 4008: PCIe NIC rev2 SPI registers are now accessible, OCXO voltage is set to default value
- Rev 3903: Driver works again with PCIe NIC build 611

### 20.2 Change Log Linux driver (Rev 4034):

- Rev 4015: Added PCI revision register (VR\_PCI\_REVISION)
- Rev 4004: Improved VLAN support
- Rev 3990: PCIe NIC rev2 SPI registers are now accessible, OCXO voltage is set to default value
- Rev 3916: Disabled CRC forwarding of RX Ethernet MAC per default
- Rev 3914: Added register access for packet generator
- Rev 3910: Restructured driver: PCI related functions are separated, driver can be used as platform driver as well.

### 20.3 Change Log Free BSD driver:

- No changes

### 20.4 Change log syn1588® PTP Stack (1.2.409 Rev 905):

- Rev 905: Temporarily disabled unicast support
- Rev 895: Delay request offset parameter is now 0 by default. When using Layer 2 unicast, the -g parameter accepts MAC addresses in the format XX:XX:XX:XX:XX as well as XXXXXXXXXXXX. Slaves cancel sync and dly req connections from old master if they change to a new master.
- Rev 894: Add new parameter -w logstamp. This prepends an OS timestamp to each line of log output.
- Rev 884: Added new C API for accessing syn1588 hardware
- Rev 881: Fixed a problem in unicast when a master was not selected correctly.
- Rev 879: Added support for power 2 profile (C37.238 2014) - preliminary.
- Rev 875: Changes to compile with gcc 4.8



- Rev 870: Preliminary versions of SMPTE profile (ST-2059-2) and telecom profile 2 (G.8275.1) are now included in default version
- Rev 862: Added full support for packet generator
- Rev 859: Changes to shareMem API: Configuration through multiple applications is now supported. Update of message rates is now supported (Please read [an\\_shared\\_memory\\_api.pdf](#) for more details)
- Rev 844: Fixed PTP statistics (causing a crash)
- Rev 819: Implemented unicast load balancing (available on request)
- Rev 818: Small changes to BMCA: Master is now correctly selected in unicast mode with more than one grantor, Master selection is faster now.
- Rev 816: Added support for second telecom profile (G.8275.1)

#### 20.5 Change log for ptpmmm (1.2.409 Rev 905):

- No changes

#### 20.6 Change log for ISync (1.2.409 Rev 905):

- No changes

#### 20.7 Change log for eSync (1.2.409 Rev 905):

- Rev 872: New profile parameter to switch between telecom and default profile clock characteristics
- Rev 864: Improved NMEA string handling
- Rev 841: Added the possibility to configure eSync via configuration file

#### 20.8 Change log for syn1588 app (1.2.409 Rev 905):

- Rev 903: Finished remote update support for PCIe NIC rev2

#### 20.9 Change log for syn1588® PCIe NIC (Build 739)

- No changes

#### 20.10 Change log syn1588®VIP (HW 619; SW 1.2.394 Rev 874):

- Rev 876: Improvements for detecting loss of the NMEA signal
- Rev 873: Enabled fast locking by default
- Rev 870: Fixed leap second jump
- Rev 867: UTCOffset is now used for NMEA output (if UTC offset valid)

## 21 Release 2014-07-29 (v1.2.374)

### 21.1 Change log Windows driver (Rev 3889):

- Rev 3889: Completed tests with PCIe NIC rev2
- Rev 3888: Restored support for VLAN. Fixed RX interrupt on multicore CPUs.
- Rev 3882: Added support for PCIe NIC rev2
- Rev 3871: Added default values for PHY delay. Added support for NTP mode (refer to application note [an\\_syn1588\\_ntp\\_vs\\_ptp\\_timescale.pdf](#) for details). Support for ultimate timestamper.
- Rev 3428: Added optional tool for tuning performance of syn1588® PCIe NIC (plxperf)

### 21.2 Change Log Linux driver (Rev 3887):

- Rev 3887: Fix reception of full size frames with VLAN tags. Increase allowed maximum frame size to 1522 bytes.
- Rev 3857: Removed build number dependency from linux driver
- Rev 3767: Added default values for PHY delay. Added support for NTP mode (refer to application note [an\\_syn1588\\_ntp\\_vs\\_ptp\\_timescale.pdf](#) for details)
- Rev 3707: Added compatibility for PCIe NIC rev2
- Rev 3567: Added support for kernel 3.11
- Rev 3461: Added \*.deb and \*.rpm packages for linux driver

### 21.3 Change Log Free BSD driver:

- No changes

### 21.4 Change log syn1588® PTP Stack (1.2.374 Rev 813):

- Rev 808: Support for SMPTE PTP profile (preliminary)
- Rev 805: A PTP Stack in master mode automatically detects and applies a pending leap second jump
- Rev 803: ptpmmm supports management of local PTP Stack (ptp and ptpmmm running on the same PC)
- Rev 792: Fixed a bug where remote getReg, setReg did not work in Linux.
- Rev 787: Start time and stop time is now correctly displayed.
- Rev 780: Fixed a bug when a slave receives two-step sync messages from two different masters. Added Fast locking mechanism (state correction; can be disabled with cmd parameter -b 0). Introduced a new holdover mode.

- Rev 767: New feature: one step layer 2 timestamping (programmable one step timestamper)
- Rev 765: reserved field in unicast messages is now set to zero. Requests with unknown messages types are now explicitly denied.
- Rev 763: Adjusted range of unicast duration (10...1000). Corrected behavior of requesting unicast connections.
- Rev 757: Unicast duration is now configurable via configuration file. Fixed an issue when the duration of unicast connections was not updated correctly.
- Rev 751: Added a fix to prevent processing a delay response if there was no timestamp for a delay request in unicast mode.
- Rev 749: Changed hybrid network mode behavior: if activated, delay requests are answered with unicast responses if unicast flag was set in request. Otherwise in multicast mode. Unicast flag is not correctly set.
- Rev 748: Fixed an issue where PTP Stack crashed if there was no hardware support present.
- Rev 745: Added a spike filter to improve synchronization performance by eliminating one-time outliers. One step mode and P2P delay mechanism is now forbidden.
- Rev 742: Fixed an issue where the passive state was left too early (if there was no Announce message from the passive requestor within one sync period).

### 21.5 Change log for ptpmmm (1.2. 374 Rev 813):

- Rev 803: : ptpmmm supports management of local PTP Stack (ptp and ptpmmm running on the same PC)

### 21.6 Change log for ISync (1.2. 374 Rev 813):

- Rev 831: Fixed an issue where ISync could crash

### 21.7 Change log for eSync (1.2. 374 Rev 813):

- Rev 780: Improved NMEA string handling
- Rev 764: Fixed an issue when esync was not correctly terminated (on sigkill) when using the polling mechanism.

### 21.8 Change log for syn1588 app (1.2. 374 Rev 813):

- Rev 797: Remote update supports new lot of syn1588® PCIe NICs

### 21.9 Change log for syn1588® PCIe NIC (Build 705)

- Added programmable 1-step timestamper now allowing also 1-step timestamping of layer2 packets.

- Improve TXBD busy flag handling
- Improved handling of late collisions in half duplex mode
- Add SET and INITIAL function for PERIOD outputs.
- Added NTP mode.

## 21.10 Change log syn1588®VIP (HW 605; SW 1.2.368 Rev 794):

- Rev 794: It is now possible to select the start level of the period signal if it is triggered by TRIGGER1.
- Rev 780: Fixed a bug when a slave receives two-step sync messages from two different masters. Added Fast locking mechanism (state correction; can be disabled by setting boundary parameter to 0). Introduced a new holdover mode. Ported spike filter to VIP.
- Rev 774: Small changes to external synchronization mechanism
- Rev 767: New feature: one step layer 2 timestamping (programmable one step timestamper)
- Rev 766: Added support for VIP to adjust clock class, accuracy, and certain flags according to 1 PPS input and NMEA input. Small changes to syn1588® VIPer.
- Rev 765: reserved field in unicast messages is now set to zero. Requests with unknown messages types are now explicitly denied.
- Rev 763: Adjusted range of unicast duration (10...1000). Corrected behavior of requesting unicast connections.
- Rev 758: Added IPv6 and VLAN support for syn1588® VIPer
- Rev 757: Added software support for syn1588® VIPer (syn1588® VIP packet generator version, available on request). Unicast duration is now configurable via configuration file. Fixed an issue when the duration of unicast connections was not updated correctly.
- Rev 751: Added a fix to prevent processing a delay response if there was no timestamp for a delay request in unicast mode.
- Rev 749: Changed hybrid network mode behavior: if activated, delay requests are answered with unicast responses if unicast flag was set in request. Otherwise in multicast mode. Unicast flag is not correctly set.
- Rev 745: One step mode and P2P delay mechanism is now forbidden.
- Rev 742: Fixed an issue where the passive state was left too early (if there was no Announce message from the passive requestor within one sync period).

## 22 Release 2013-12-10 (v1.2.300)

### 22.1 Change log Windows driver (Rev 3403):

- Rev 3403: Added virtual registers for VR\_ETH\_RX and VR\_ETH\_TX
- Rev 3351: Renewed Digi-Cert-Certificate
- Rev 3335: Removed htonl-Bug in swfifo and ioctl which resulted in bigger offset-jitter
- Rev 3322: Code cleanup and improvements for software fifos. Restored Windows XP support
- Rev 3273: Support for virtual registers. Debug code clean up. Support for software fifos for timestamping with syn1588® PCIe NIC build ID > 625
- Rev 3265: Support for syn1588® PCIe NIC with build ID > 625

### 22.2 Change Log Linux driver (Rev 3400):

- Rev 3400: Added virtual registers for error counters
- Rev 3306: fix kernel crash related to fake fifo spinlock
- Rev 3291: Added support for ultimate timestamper. SO\_TIMESTAMPING support is deactivated if ultimate timestamper is found. Sub ns data is pushed into the SW FIFO.
- Introduced virtual limit for fake fifo.
- Rev 3287: Changed byte order in fake fifo. Timestamp byte order is now the same with and without fake fifo.
- Rev 3272: Driver is now compatible with kernel 3.8.0
- Rev 3252: Eliminated all compilation warnings. Fake fifo is now enabled per default.
- Rev 3227: Add support for syn1588 PCIe NIC with bitstream version 632 and above when using a Linux Kernel without SO\_TIMESTAMPING capability.
- Rev 3211: Added SO\_TIMESTAMPING support for kernel 2.6.30 to 2.6.36

### 22.3 Change Log Free BSD driver:

- No changes

### 22.4 Change log syn1588® PTP Stack (1.2.300 Rev 739):

- Rev 730: Added transparent clock functionality to the syn1588® PTP Stack
- Rev 725: Fixed an issue in the configuration when using boundary clock mode
- Rev 721: All unicast connections are now canceled before shutdown. Timestamper is now deactivated at shutdown.

- Rev 715: Corrected Power Profile TLVs order. Power profile can be now used without VLAN (ptp -power -l disabled). In slave mode alternate time offsets are now correctly applied.
- Fixed an issue when simultaneous configuration via ptp management and shared memory lead to unexpected behavior.
- Rev 709: Unicast mode, master state: Sequence IDs of Sync and Announce messages increases now always be one, no matter what interval a slave requested. Fixed an issue when the master's delay request interval was applied in unicast mode.
- Rev 708: Offset is now displayed with 2 decimal places.
- Rev 701: Support for Ultimate TS version. Sub nanosecond support in the PTP\_lib.
- Rev 688: corrected behaviour of option -z. now a value of 0 in the commandline doesn't result in disabling the statistics output.
- Rev 682: New config file parameter: card\_index. Enables selection of desired PHC device. Improved SO\_TIMESTAMPING mechanism. Eliminated an issue where a Delay Response was processed even if there was no valid Delay Request timestamp.
- Rev 678: Improved SO\_TIMESTAMPING mechanism for layer 2 mode (fake fifo)
- Rev 671: Dedicated sockets for multicast and unicast communication to ensure that the correct interface address is used (if there are multiple addresses for a single interface). New config file parameter: ipv6\_multicast\_scope
- Rev 670: Refactoring of internal Timer mechanism to improve timeout processing
- Rev 666: Restored behavior of '-w' parameter
- Rev 662: Make PHC library excludable to build for Linux Kernels before version 3.0.
- Rev 661:
  - Changed middle part of clock id to 0xFFFE
  - Added new parameters to command line: priority2 (-O), ptp\_timescale (-n)
  - Added new parameters to config file: multicast\_ttl, unicast\_ttl
- Rev 659: Isolated class Syn1588 as public API to the syn1588 hardware.
- Rev 657: Added support for Linux PTP Hardware Clock Interface
- Rev 640: Compatibility improvements for SO\_TIMESTAMPING feature.
- Rev 637: Randomize initial sequence id of PeerDelayRequest
- Rev 636: Increase entropy of delay randomization function of PTP\_Timer

## 22.5 Change log for ptpmmm (1.2.300 Rev 739):

- No changes

## 22.6 Change log for ISync (1.2.300 Rev 739):

- No changes

## 22.7 Change log for eSync (1.2.300 Rev 739):

- Rev 732: eSync can now be used to configure the syn1588® PTP Stack according to the current sync quality. PTP properties like clock class or clock accuracy are updated if the `-s` command line option is set.
- Rev 704: latency can now have negative values as well

## 22.8 Change log for syn1588 app (1.2.300 Rev 739):

- Rev 715: new 'irigb' command to enable IRIG-B output
- Rev 640: Reintroduced the ">" command prompt for the syn1588 tool.

## 22.9 Change log syn1588®VIP (HW 559; SW 1.2.275 Rev 662):

- Rev 697: MAC packet counters are now accessible with `ptpmmm` using virtual register addresses from NIC. Moved VIP default IP address to 10.0.x.x range (10.0.1.17 instead of 192.168.103.17)
- Rev 689: Again small changes to 8051 TX TS polling mechanism
- Rev 686: Improved TX mechanism for new MAC timestamper
- Rev 660: Add support for the MAC timestamper

## 23 Release 2013-05-28 (v1.2.265)

### 23.1 Change log Windows driver (Rev 3198, 2013-05-22):

- Rev 3198: Moved addresses of ISync specific registers

### 23.2 Change Log Linux driver (Rev 3209):

- Rev 3209: Improved SO\_TIMESTAMPING capabilities
- Rev 3198: Moved addresses of ISync specific registers

### 23.3 Change Log Free BSD driver:

- No changes

### 23.4 Change log syn1588® PTP Stack (1.2.265 Rev 635):

- Rev 635: Changed number of maximum unicast connections to 500 (it still depends on the individual message rates if this number can be reached)
- Rev 634: In one step mode TX timestamps will not be retrieved in master mode
- Rev 630: Native support for Linux SO\_TIMESTAMPING interface for retrieving timestamps (hardware and software) in IPv6 and IPv4 mode.
- Rev 630: Supported for syn1588® PCIe NIC HW build > 625.

### 23.5 Change log for ptpmmm (1.2.265 Rev 635):

- Rev 633: Added support for latest features of syn1588® VIP (IPv6, VLAN)

### 23.6 Change log for ISync (1.2.265 Rev 635):

- Rev 629: Moved addresses of ISync specific registers

### 23.7 Change log for eSync (1.2.265 Rev 635):

- No changes

### 23.8 Change log syn1588®VIP (HW 559; SW 1.2.263 Rev 633):

- HW 559, SW 633: Added IPv6 support, updated whole network Stack
- HW 559, SW 633: Added VLAN support
- HW 559, SW 633: Improved P2P delay mechanism support for IPv4 and IPv6
- HW 559, SW 633: (limited) IGMP support for IPv4



- HW 559, SW 633: (limited) MLD support for IPv6

## 24 Release 2013-05-16 (v1.2.253)

### 24.1 Change log Windows driver (Rev 3159, 2013-04-03):

- Added "Fixed Speed Selection"-Feature. Link speed(s) are advertised on the interface
- Streamlined RX packet handling to fix VLAN/nonVLAN memory issues
- Improved 802.1Q support: VLAN 0 is usable, QoS-Bits are configurable

### 24.2 Change Log Linux driver (Rev 3176):

- Limited support for SO\_TIMESTAMPING interface
- Support for syn1588® NIC build > 625
- Code cleanup to remove some compiler warnings when compiling the driver with new versions of GCC
- Linux Driver compiles and works with kernel 3.7.9 now. (Fedora 18)
- Fixed bug when PDelay processing only works after "ifconfig ethX promisc" or "ifconfig ethX allmulti"
- Changed driver version syntax
- Added VLAN ID 0 support to Linux driver
- Performance improvements

### 24.3 Change Log Free BSD driver:

No changes

### 24.4 Change log syn1588® Apps:

- All Apps have a new welcome banner containing more information about hardware, versions, etc.

### 24.5 Change log syn1588® PTP Stack (1.2.253 Rev 628):

- VLAN ID 0 is now supported
- DSF field in the IPv4 header can now be configured in Linux via config file
- System time & date is now shown when the PTP stack is started.
- UTC offset is now configurable via command line (-U) in the PTP Stack. When configured -> currUTCOffsValid is true as well. Can both also be configured via config file (utc\_offset, utc\_offset\_valid).
- Changed main logging output of PTP Stack. TsM is now T1 and so on. Delay Request Timestamps + correction field are now logged as well (log level 3).

- Added config file feature. PTP Stack can now be configured by using a configuration file.
- Delay Responses are now only sent in E2E mode (answer to Delay Request).
- PDelay Responses are now only sent in P2P mode (answer to Pdelay Request).
- HQ oscillator is now detected automatically
- Added Hybrid network mode. If enabled, Dly Requests, Dly Responses and Management messages are now sent as unicast messages.
- Software only mode can now be used with syn1588 cards
- Introduced Shared Memory API to allow local monitoring and configuring of the PTP Stack
- Added V1 HW compatibility mode.
- Added dedicated profile support. PTP Stack can now be started with preconfigured parameters for Default Profile (E2E and P2P) and Power Profile.
- Added power profile capabilities (alternate time offset TLVs and power profile TLVs): Linux only because of Layer2 requirement.
- Announce Interval is now applied from master if port state is slave
- Sync Interval is applied from master if port is slave and multicast mode
- Unicast grants are now transmitted to the requesting port using the correct PortId (instead of "multicast" PortId)
- IPv6 support for the PTP Stack. Use -i with an IPv6 address to enable it (no Win XP support). If you require Windows XP compatible binaries, please contact Oregano Systems.
- Fixed an issue when delay requests are not always answered in Unicast mode.
- Introduced two new command line parameters: '-x timeSrc' to configure the time source and '-M value' to enable/disable Management support.
- A timestamp is now inserted into the timestamp field of sync (two step only), dly req and pdlyreq messages.
- Added output of missing syncs/follow-ups/dly resp. Added an additional output to log dly requests (master only).
- Improved FIFO error logging
- PTP Stack is now running as high priority task by default

#### 24.6 Change log for ptpmmm (1.2.253 Rev 628):

- Fixed a bug when ptpmmm sometimes returns "Command not found: p"
- Added the -v loglevel parameter for ptpmmm

## 24.7 Change log for ISync (1.2.253 Rev 628):

- ISync applies UTC offset from PTP only when currUTCOffsValid == true.

## 24.8 Change log for eSync (1.2.253 Rev 628):

- Added -b commandline parameter which can be used to set the baud rate of the serial interface (default is 38400, supported are 115200, 57600, 38400, 19200, 9600, 4800)
- eSync -o parameter: serial interface is not opened if enabled.
- Added a new polling mechanism for eSync. Can be used without interrupts. Use '-P' to activate it.
- Added a new parameter (-o) to eSync to use only a PPS signal for synchronization.

## 24.9 Change log syn1588®VIP (HW 551; SW 1.2.238 Rev 585):

- Added two new remotely configurable parameters for 8051: SyncInOffset and baud rate. SyncInOffset allows the configuration of a offset for the NMEA input time. Baud rate is now configurable.
- Improved duration of the remote update process
- New configuration option: if enableSyncOut is disabled, PPS only is used for synchronizing.
- Corrected NMEA output string.
- Added configuration possibility of the DSF (QOS) field
- Added bank switching: Now up to 128 kbyte ROM. All PTP features are now available on the VIP feature as well. Can be configured via ptpmmm or ptpmmm\_gui
- Input delay of event input is now compensated.

## 25 Release 2012-07-12

### 25.1 Change log Windows driver:

- Fixed automatic insertion of current date into syn1588.inf file.
- Removed IA64 section from inf file since the IA64 platform is not supported
- Added support for high precision ISync
- Fixed bug: Driver crashes on call to "registerEvent" for every card except card 0

### 25.2 Change Log Linux driver:

- Fixed VLAN support
- Enhanced supported Linux kernel versions. Driver now works up to kernel version 3.1.10
- Added support for high precision ISync
- Enhanced support for virtual registers

### 25.3 Change Log Free BSD driver:

No changes

### 25.4 Change log syn1588® PTP Stack:

- Default UTC offset is now 35 seconds
- Linux: ptp works now correctly with VLAN interfaces
- If there is now hardware support found, the syn1588® PTP Stack now requires an additional argument (-w swmode) to run in software only mode)
- Added error processing and system report (command line parameter -Y)
- Windows: Added functionality to insert current build/version number and icon into .exe file
- Fixed an issue in StateChangeEventHandler when switching between multiple masters.
- Introduced new command line parameter '-T' for announce reception timeout (default 3).
- Announce Interval can be now in the range from -4 to 4 (previously 0 to 4)
- Improved Unicast negotiation mechanism
- Changed TTL field for Unicast messages to 64
- '-i' is now a required parameter
- Management messages are now padded correctly
- Added new algorithm for initializing rate
- Corrected a small BMCA issue

- Execution requires administrator privileges in Windows
- Added a new statistics function to display information of the synchronization behavior of ptp over the time (command line parameter `-z`)
- Added support for negative delay request intervals. Changed valid range of DelayRequestOffset (added to sync interval) to 0 ... 5.
- Added support for HW model detection
- Improved some PTP management message responses: Now it is possible to receive information about the HW (model, serial, build number, clock version) via the PTP management 'clock' message. Use the syn1588 ptpmmm tool (clock command) or the syn1588® ptpmmm\_gui (double click on a node in your network) to see information about your hardware.
- Added support for clock adjust intervals below 1/second (log2 range from -8 to 8)
- Reworked boundary clock management message forwarding

### 25.5 Change log syn1588 tool:

- Added command line options: `-h` (help), `-v` (log level), `-f` (file logging), `-c` (start with card)
- Changed name from syn1588app to syn1588 in Windows
- New update feature for syn1588® PCIe NIC. Now it is possible to update your PCIe NIC firmware directly on your PC. Requires HW build 562.

### 25.6 Change log ptpmmm:

- Updated ptpmmm update feature with more output and security features
- Added "quit" and "help" command
- Added new usage screen
- Introduces new parameter update for syn1588® VIP. Now it is possible to update all PTP specific parameters, network specific parameters and general parameters over the network. Additionally, it is possible to store the current parameter configuration in a non-volatile memory. So parameter changes last even after power cycles.

### 25.7 Change log for ISync:

- Added Windows support for high precision ISync
- Retrieves the current UTC offset automatically from a running syn1588® PTP Stack
- Reworked command line output

### 25.8 Change log for eSync:

- Added input delay compensation for eSync.
- Fixed IO matrix SMA Src bug. '-p' parameter is now working correctly.

## 25.9 Change log syn1588®VIP:

- Added support for remote unicast configuration: GRANTOR0, GRANTOR1 and NWMODE
- Large offsets are now displayed correctly
- Corrected initial rate after start up
- The init management command is now able to reset the board.
- HWBuild is displayed on booting

## 26 Release 2011-10-03

### 26.1 Change log Windows driver:

- 29.11.2011: Digitally signed unified windows driver
- 03.10.2011: Added HWBuild virtual register
- 08.10.2011: Windows 32 bit unified driver beta
- 22.08.2011: Fixed Frequency Register detection.

### 26.2 Change Log Linux driver:

- 01.09.2011: added new virtual register HWBuild
- 02.08.2011: changed copyright message
- 14.07.2011: driver updates related to lsync
- 15.06.2011: changed syscall to get current system times

### 26.3 Change Log Free BSD driver:

- 01.09.2011: added new virtual register HWBUILD

### 26.4 Change log syn1588app:

- 08.09.2011: Updated measurement command
- 05.09.2011: improved output of command listcards
- 01.09.2011: new command listcards
- 31.08.2011: measurement function updated

### 26.5 Change log syn1588® PTP Stack:

- 20.09.2011: added new command line switch -f to allow logging to file instead of stderr
- 23.08.2011: OCXO analog tuning support
- 20.07.2011: update of clockID comparison mechanism
- 04.07.2011: improved accuracy of clock rate adjust
- 15.06.2011: changed LSync filter parameters

### 26.6 Change log syn1588®VIP:

- 01.09.2011: HWBuild is displayed on bootup
- 15.07.2011: updated of external sync for VIP
- 12.07.2011: update of saveNonVolatile handler
- 04.07.2011: change serial handling due to new FIFOs on the UART



- 04.07.2011: implemented saveNonVolatile

## 27 Release 2011-06-06

### 27.1 Change log Windows driver:

### 27.2 Change Log Linux driver:

- 12.05.2011: fixed type in step size calculation code
- 10.05.2011: enhanced supported Linux kernel versions. Driver now works up to kernel version 2.6.38
- 23.03.2011: changed behavior of driver when different syn1588®Clock\_M version are encountered

### 27.3 Change Log Free BSD driver:

### 27.4 Change log syn1588app:

- 08.04.2011: added text based visualization for syn1588app measurement command
- 23.03.2011: syn1588app can handle multiple cards now

### 27.5 Change log syn1588® PTP Stack:

- 06.04.2011: added timestamp range window
- 01.04.2011: fixed sequence id for PDlyRespFup
- 18.02.2011: -O parameter is now mandatory for LSync
- 18.02.2011: enabled UDP checksums again for on-the-fly-timestamping
- 13.01.2011: added UTC Offset parameter to LSync

### 27.6 Change log syn1588 VIP:

- 23.03.2011: VIP software optimizations

## 28 Release 2010-11-30

### 28.1 Change log Windows driver:

- 12.05.2010: fixed typo in step size calculation code for frequency approximation
- 18.03.2010: fixed bug: driver crashes with old hardware

### 28.2 Change Log Linux driver:

- 28.10.2010: unified linux driver
- 16.07.2010: enhanced supported Linux kernel versions. Driver now works up to kernel version 2.6.34
- 08.07.2010: enhanced supported Linux kernel versions. Driver now works up to kernel version 2.6.32
- 31.12.2009: support for memory mapped IO added
- 14.12.2009: added handling of TIME2 registers
- 22.07.2009: fixed sysfs link creation issue

### 28.3 Change Log Free BSD driver:

- 19.01.2010: added memory mapped IO to Free BSD driver
- 13.01.2010: added support for MAC BUILD 3100
- 27.05.2010: fixed typo in step size calculation code
- 17.12.2009: Added TIME2 registers
- 02.12.2009: code cleanup and version increment to 1.0
- 16.11.2009: initial version of FreeBSD driver

### 28.4 Change log syn1588app:

### 28.5 Change log syn1588® PTP Stack:

- 18.11.2010: integrated boundary clock support
- 20.10.2010: brought simulation up to date
- 11.02.2010: removed ACE library

### 28.6 Change log syn1588 VIP:

- 10.11.2010: VIP DMA support
- 15.10.2010: added initial send packet for ARP
- 22.09.2010: added busy monitoring
- 27.01.2010: added watchdog

## 29 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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