Paragon-neo

Calnex
Insight and Innovation

Paragon-neo A (PAM4) Release 9

NEW FUNCTIONALITY AND ENHANCEMENTS

(Release 09.00.XX)

Contents

1 Software Release Overview

Release 9 (09.00.XX) adds the following features to Paragon-neo.

Software Update with valid CSS
(Customer Support Service) contract

New Options	Enhancements to existing Options	Base product enhancements
Option NEO-A-100G (PAM4 Optical) **Option NEO-A-200G (PAM4 Optical)** **Option NEO-A-SMPTE**	**Option NEO-A-RTE**	Defect Fixes

To check the current software version installed, select **Help > About** on the Paragon-neo GUI.

2 Features and Benefits

Paragon-neo A	Benefit
Option NEO-A-100G (PAM4 Optical)	Quick and easy validation of PTP and/or SyncE capabilities over 100G PAM4 using the QSFP28 interface.
Option NEO-A-200G (PAM4 Optical)	Quick and easy validation of PTP and/or SyncE capabilities over 200G PAM4 using the QSFP56 interface.
Option NEO-A-RTE	The option now allows a third port (1Gb only) to provide a PTP M-Clock to the DUT as well as the two S-Clocks used for relative measurements.
Option NEO-A-SMPTE	SMPTE Profile PTP testing. Allows SMPTE ST 2059-2 PTP profile to be generated, in combination with the functionality of any installed PTP M-Clock/S-Clock emulation option. Must be ordered together with a PTP option.

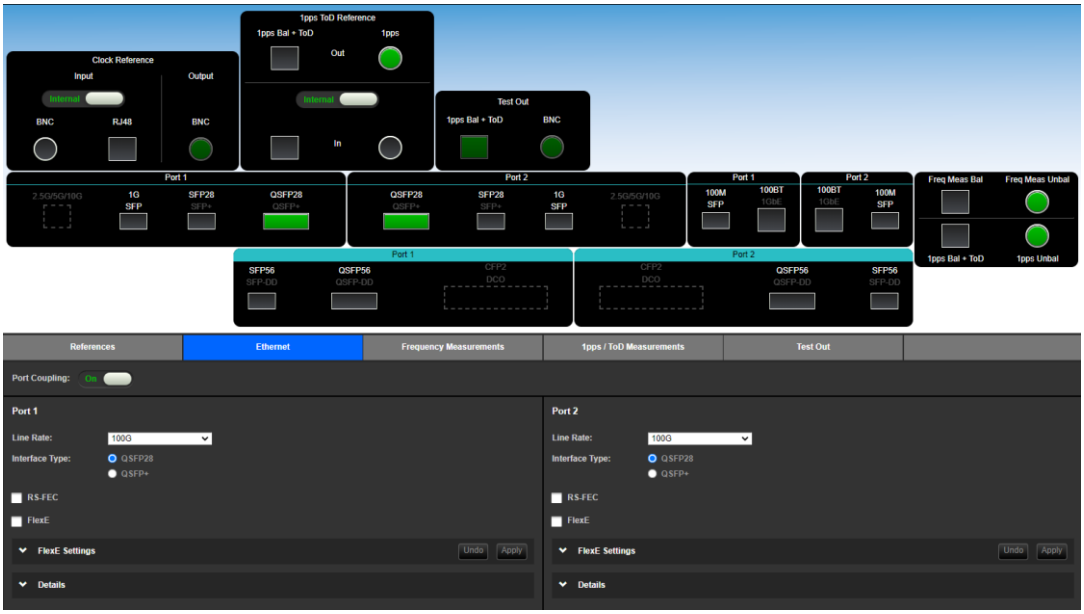
3 New Options

3.1 Option: NEO-A-100G (PAM4 Optical)

This option allows validating the DUT to PTP and/or SyncE standards-based synchronization, including ITU-T G.8273.2 conformance testing of devices (DUTs) up to Class C specification using the QSFP28 interface.

This option uses the QSFP28 interface rather than the SFP-DD interface due to the greater availability of QSFP28 PAM optical modules. This option will be updated to include SFP-DD modules in a later release.

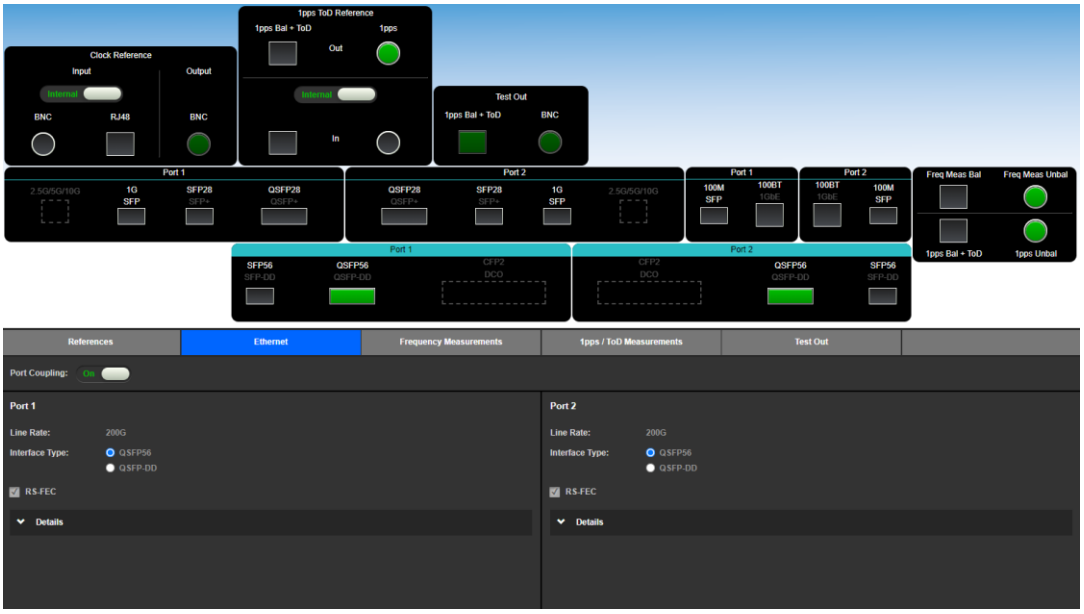
In the **Setup Ports** page select the **QSFP28 interface** to enable 100G PAM4:



3.2 Option: NEO-A-200G (PAM4 Optical)

This option allows validating the DUT to PTP and/or SyncE standards-based synchronization, including ITU-T G.8273.2 conformance testing of devices (DUTs) up to Class C specification using the QSFP56 interface.

In the **Setup Ports** page select the **QSFP56 interface** to enable 200G PAM4:

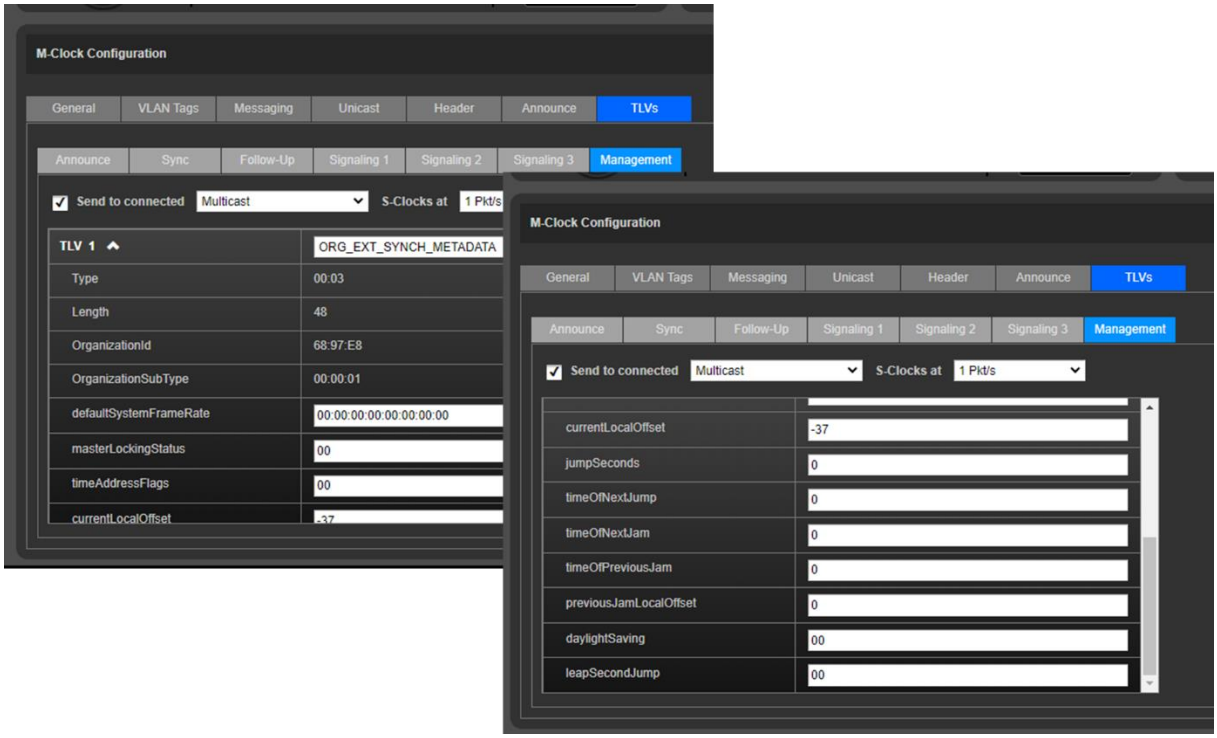


3.3 Option: NEO-A-SMPTE

The Society of Motion Picture and Television Engineers (SMPTE) has defined the 2059-2 PTP profile to meet the needs of Professional Broadcast. Hence this is commonly referred to as the *PTP Broadcast Profile*.

Along with the requirement to configure equipment and networks appropriately to deliver synchronization accurate to 1 microsecond across a network, the Broadcast profile provisions for a **Synchronization Metadata (SM) TLV** – carried in PTP management messages – to carry timing-related information (such as default frame rates) through the Ethernet network.

With the addition of this profile option (SMPTE) to any installed PTP M-Clock/S-Clock emulation option (?), the ability to configure SMPTE ST-2059-2 PTP quickly using the drop-down profile tool, plus the generation of management messages with editable SM-TLV is added to the pre-existing PTP functionality.

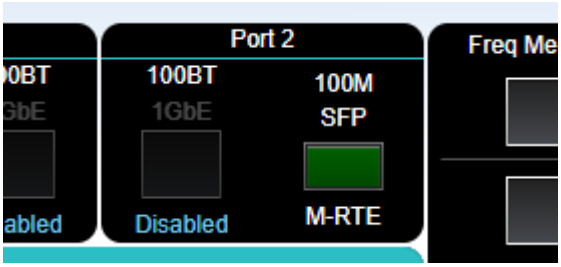


4 Enhancements to Existing Options

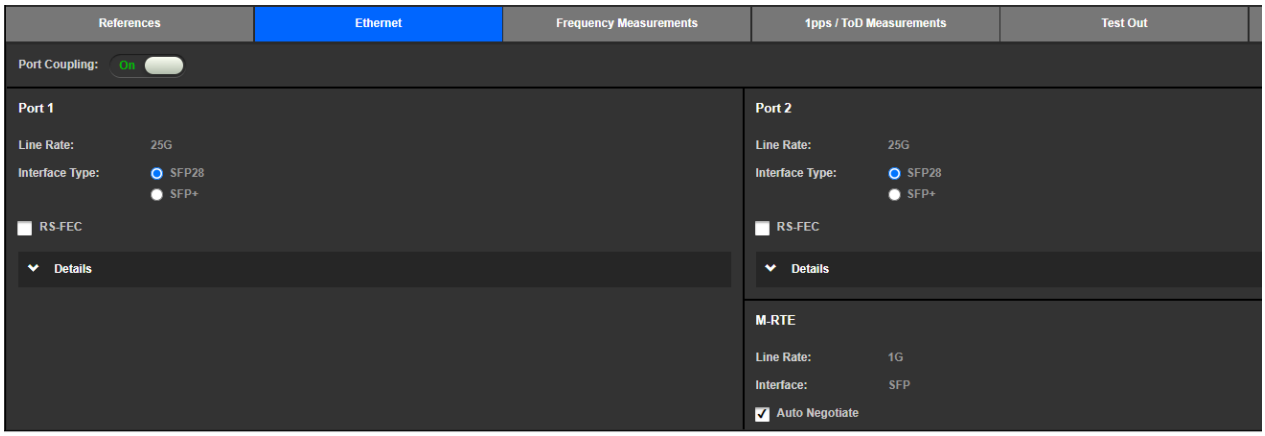
4.1 Option: NEO-A-RTE

This release provides an update to the TE_R test mode that captures two PTP M-Clocks simultaneously. The option now allows a third port (1Gb only) to provide a PTP M-Clock to the DUT.

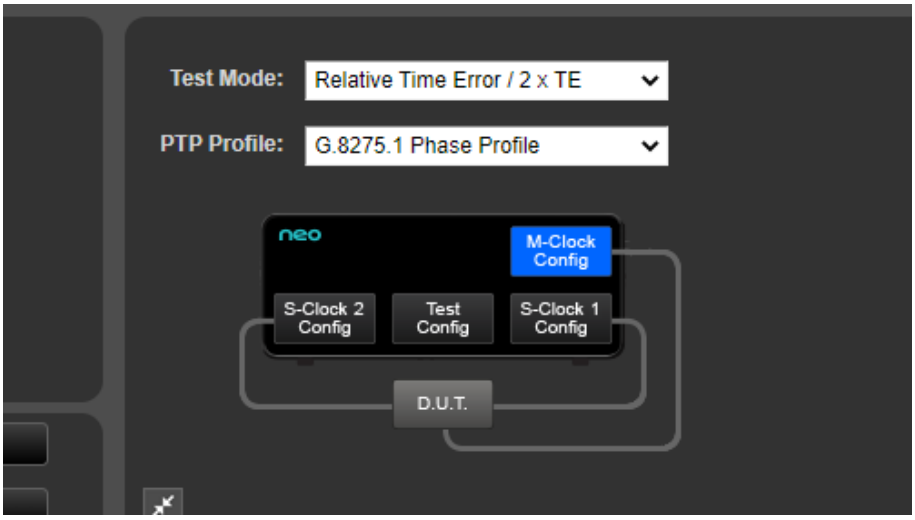
Port 2 (labeled 100M SFP however it is configured as 1Gb SFP) is automatically selected for this purpose.



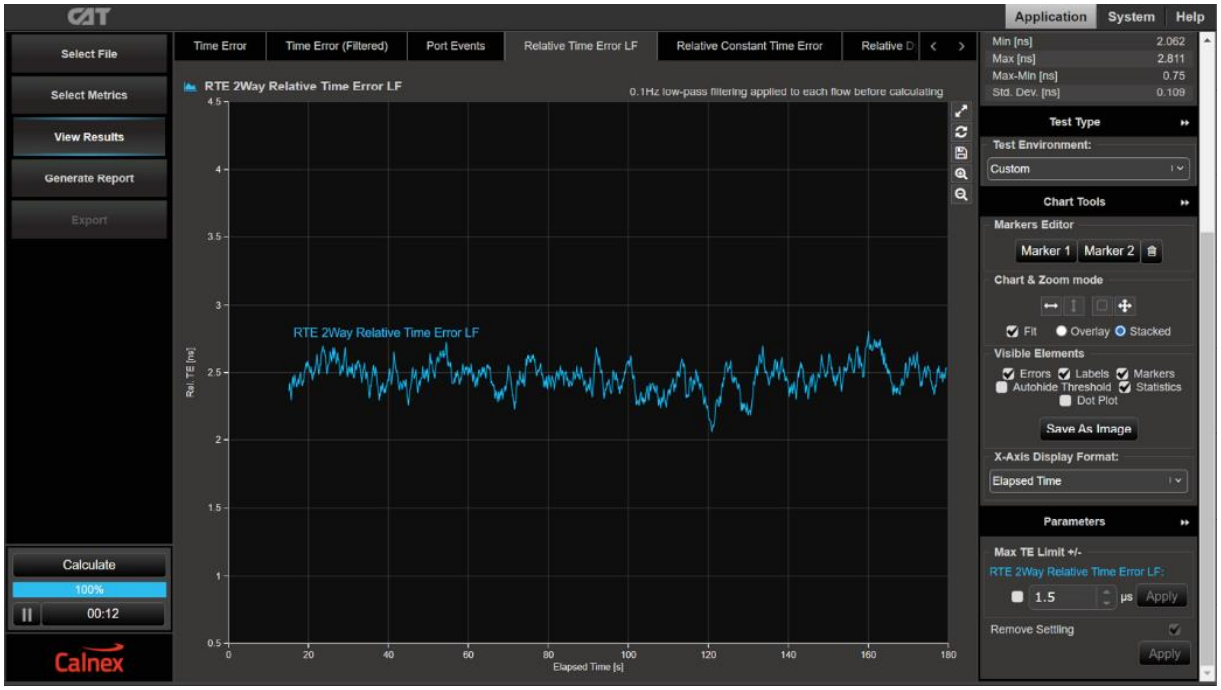
The port is automatically configured to 1Gb.



Select **Relative Time Error / 2 x TE** as before. Then configure the **M-Clock** as well as both **S-Clocks** by clicking on the appropriate icon.



The same measurement process for making relative time error measurements can then be followed.



Appendix A: Software Advisory Notes

- For more information on features and fixes in this Release, along with other user information on Calnex products, please visit the Knowledge Base at: https://calnexsolutions.atlassian.net/wiki/spaces/KB/overview

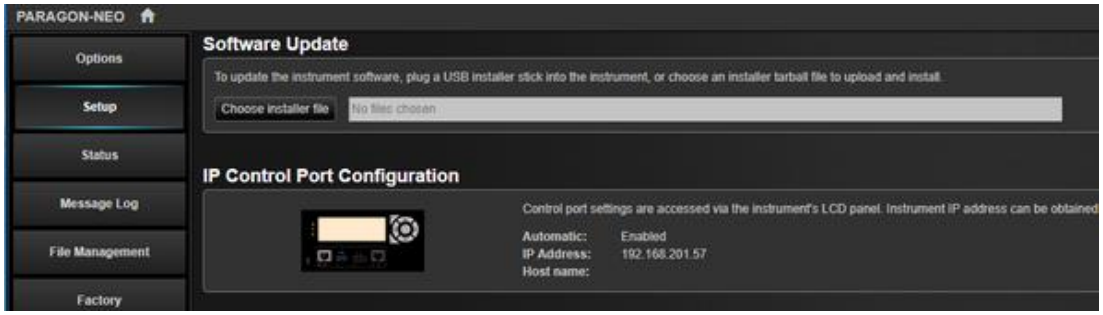
- There is a known issue in this release that removal and re-connection of 1PPS / TOD measurement cable during a test will result in TOD offset. To ensure expected performance, toggle the 1PPS between internal and external after pulling the cable to re-synchronise the sequence numbers.
- When using the additional M-Clock function while configured for relative time error measurements, it is not recommended to transfer jumbo packets to the M-Clock. In this particular scenario, the RTE master TE measurement performance is not guaranteed.
- Note that generating SyncE wander on the 100M elec/opt and the 1G elec may add pkt-pkt noise in the T1 and 2Way measurements. This noise does not affect the mean TE, in addition it is likely to be filtered out. This is for information only.

To Install:

The Paragon-neo software is delivered as a tar file (*.tar)

To install using tar file:

- Download the tar file and save it to a location on your PC.
- Before upgrading the instrument, you must first stop all generation and capture.
- Follow the steps below to upgrade:
  1. Click **System** in the menus on the top right of the UI.
  2. Click **Setup** in the left-hand menu bar. The UI should look something like below:



  3. Click **Choose installer file** to select the tar file that you saved earlier.

     The instrument will now begin the upgrade process. Note that this will take a while (maybe as much as an hour). **Do not power off while the upgrade is in progress**.

Calnex Solutions plc
Oracle Campus
Linlithgow
West Lothian EH49 7LR
United Kingdom

tel: +44 (0) 1506 671 416
email: info@calnexsol.com

calnexsol.com

Document v1.0 Dec-22