Paragon-neo

Calnex
Insight and Innovation

Paragon-neo Release 5

NEW FUNCTIONALITY AND ENHANCEMENTS

(Release 05.00.XX)

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1 Software Release Overview

Release 5 (05.00.XX) also includes target features from Release 3 and adds the following features to Paragon-neo and CAT[1]:

Software Update with valid CSS
(Customer Support Service) contract

New Options	Base product enhancements
Option FlexE 100G **Option E1/T1 Wander Meas**	Defect Fixes

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

[1] This release includes enhancements to the CAT. The CAT accompanies Paragon-neo and is used to display/present graphical results such as Wander and Time Error and to calculate metrics such as MTIE/TDEV for further analysis.

2 Features and Benefits

Paragon-neo	Benefit
Option: FlexE 100G (Requires Option: 100G)	Allows a FlexE Overhead Sync Test, enabling 100GbE (4x25G) FlexE interface for testing synchronization as per ITU-T G.8312. PTP and/or SyncE testing capabilities of Paragon-neo can be extended with the same sub-ns precision to testing synchronization within the control overhead
Option: E1/T1 Wander Meas	High Accuracy frequency measurement of E1 and T1 clock signals

3 New Options

3.1 Option: FlexE 100G

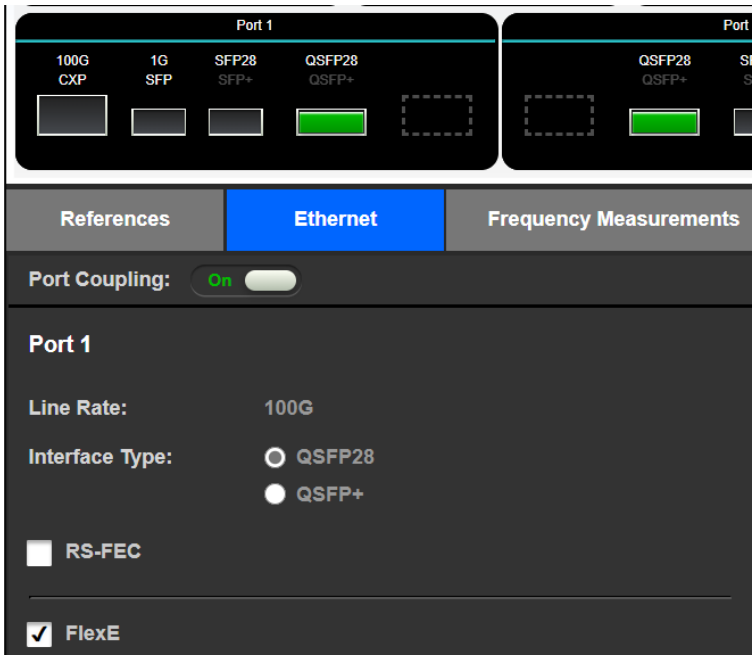
G.8312/FlexE is a Layer 2 (Hardware-oriented) approach to network slicing. The main capabilities of FlexE to assist in Network Slicing are: Bonding, Channelization and Sub rating.

Many of the end applications that network slicing is intended to support also rely on precise synchronization and therefore the transport network must still preserve timing performance. For applications requiring performance levels that are supported by full network timing support and G.8273.2 Class-C/D level device timing accuracy, synchronization is transported in the FlexE Overhead Channel, as per clause 7.3.5 of the OIF FlexE Implimentation agreement.

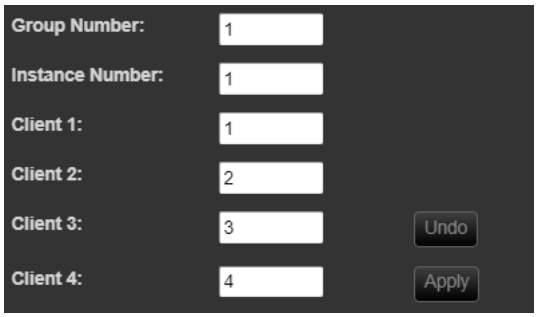
With the **FlexE 100G** option on Paragon-neo, users can configure 4x25G clients on a 100G FlexE interface, with control of PTP and SyncE generation and measurement in the overhead channel (in line with the relevant options installed on the unit).

This allows a full range of standards-based synchronization testing to be performed, including complete ITU-T G.8273.2 conformance testing for all clock classes.

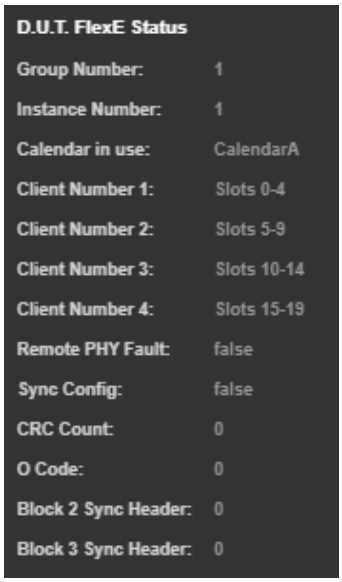
In the ***Setup Ports*** page with QSFP28 interface selected FlexE implementation is enabled by tickbox:



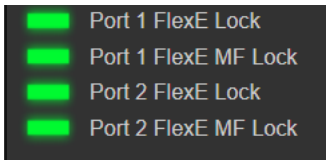
Group numbers and numbers for each of the 4 25G clients can then be configured:



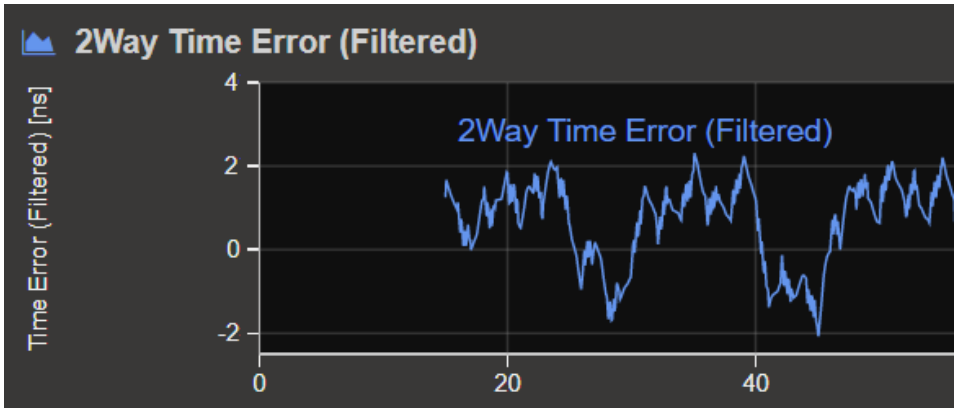
Further information about the DUT status is also visible:



From the right-hand status LEDs, users can also check the FlexE lock and FlexE Multiframe (MF) lock status, to confirm a FlexE link has been established prior to testing.



Once the link is successfully established, the full range of precision timing test capabilities of the Paragon-neo unit are available, for performance test down to sub-ns accuracy.

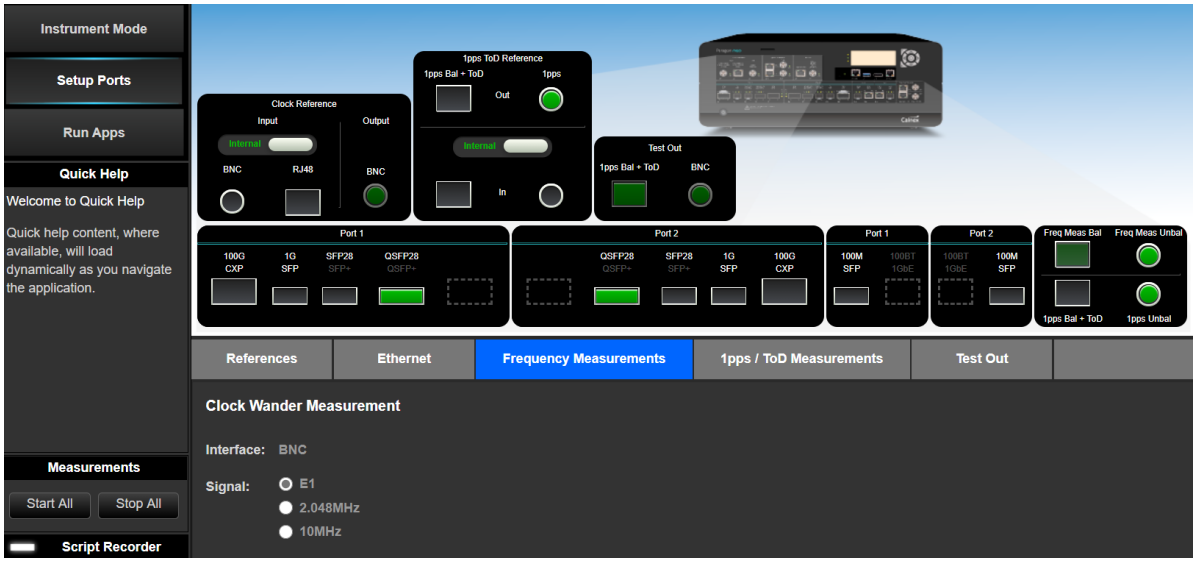


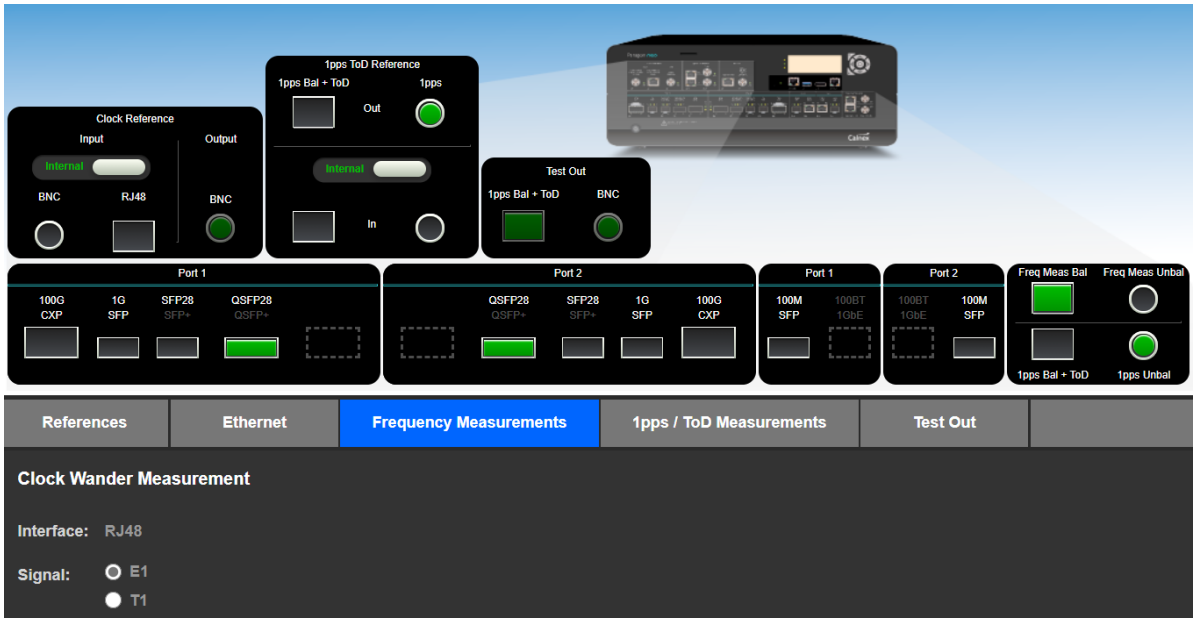
More details on sync test capabilities are available in the Conformance Test Guides available in the Paragon-neo GUI.

3.2 Option: E1/T1 Wander Measurement

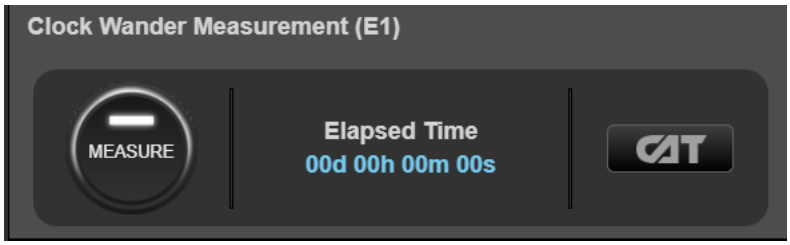
As many devices in development/deployment for enhanced timing requirements such as 5G networks are also intended to provide tributary signals to pre-existing network equipment, validation of E1/T1 interface frequency performance is still widely required, and also benefits from increased measurement precision.

Therefore, this release includes a high-accuracy option for measuring frequency wander on E1 and T1 signals, which can now be selected from the ***Setup Ports*** page, under frequency measurements. Selections are available as appropriate when either the BNC or RJ48 interface is selected from the front-panel diagram.





A full range of frequency measurements and metrics are then available.



4 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

- If displaying packet data in the packet debug mode when multiple VLANs are present, only the first VLAN will be displayed in PFV, along with the PTP packet data. In future releases this will be enhanced to display all present VLANs.

- It is not recommended to have multiple web browser tabs open on the PFV in live mode as this can have a significant effect on performance.

- When using automation, it is recommended to have live captures stopped before trying to access/read data via script, as there can be intermittent errors.

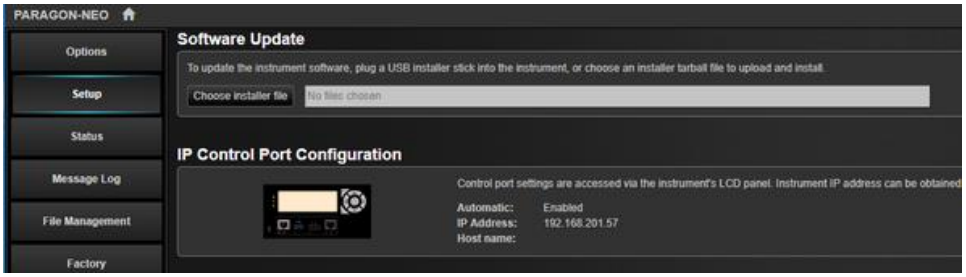
To Install:

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

Note that .tar upgrade should be from version 4. If you are running an older SW version, please first upgrade to version 4.

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:
- Click **System** in the menus on the top right of the UI
- Click **Setup** in the left hand menu bar
- The UI should look something like



- 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 process**.

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