

# Zeus software / firmware release notes

## 1. Software 1.8.X

Date	08/02/2024
Software version	1.8.6
Firmware versions	XGbE-006C / E1-596E

Improvements included in this software / firmware release are listed in the following table:

#	Description	Remarks
1	PTP test for boundary clocks (BCs) and transparent clocks (TCs). In this mode, xGenius port A works in master emulation mode and port B measures TE and other performance metrics from the device under test.	<ul style="list-style-type: none"><li>Requires "IEEE 1588v2 Advanced Test" software option.</li></ul>
2	PTP slave clock test. This is a test that configures xGenius port A to provide a PTP clock reference to a slave clock (SC) and it then measures the SC performance in a frequency or time output generated by this clock using port C or the PHM-25 IRIG-B port.	<ul style="list-style-type: none"><li>Requires "IEEE 1588v2 Advanced Test" software option.</li></ul>
3	PTP dual slave clock test. It runs independent PTP performance tests in xGenius ports A and B. It generates independent sets of TE results and it also generates differential TE results between both testing ports.	<ul style="list-style-type: none"><li>Requires "IEEE 1588v2 Advanced Test" software option.</li></ul>
4	New average total TE statistic for PTP, equivalent to cTE metric defined in ITU-T standards.	<ul style="list-style-type: none"><li>Requires "IEEE 1588v2 Wander Test" software option.</li></ul>
	New "IEEE 61850-3 PTP Test" and "Boundary Clock test (G.8273.2)" shortcuts enable quick configuration of new PTP tests.	
5	New implementation for the Delay / PDV statistics panel with a simpler representation of all metrics related with latency in PTP applications.	<ul style="list-style-type: none"><li>Requires "IEEE 1588v2 Emulation" software option.</li></ul>
6	Adds support for multi-band GNSS receiver (L1, L2 and L5). The new GNSS receivers provide a significant increase in the accuracy of time and latency measurements.	<ul style="list-style-type: none"><li>Requires multi-band GNSS receiver.</li></ul>
7	Adds support for GNSS receivers supporting the NavIC constellation.	<ul style="list-style-type: none"><li>Requires reference board with multi-band GNSS receiver.</li></ul>
8	Support for jamming and spoofing detection in GNSS references.	<ul style="list-style-type: none"><li>Requires reference board.</li></ul>
9	Adds controls for minimum C/N0 and minimum elevation for the GNSS receiver	<ul style="list-style-type: none"><li>Requires reference board.</li></ul>
10	Improved support of 1PPS references which is now supported in all PTP, NTP and delay tests for TDM interfaces.	<ul style="list-style-type: none"><li>Requires reference board.</li></ul>

## 2. Software 1.6.X

Date	24/04/2023
Software version	1.6.1
Firmware versions	XGbE-0069 / E1-596E

Improvements included in this software / firmware release are listed in the following table:

#	Description	Remarks
1	Supports IRIG-B analysis through the new PHM 25 module.	• Requires the IRIG-B monitor option.
2	Includes enhanced generation and analysis in contra-directional interfaces through a new version of the PHM 22 module.	• Requires the G.703/E0 test option.
3	Improved detection of IEEE C37.94 alarms (AIS, ALL 1s)	• Requires the IEEE C37.94 test option.
4	New implementation of the IEEE C37.94, T1 and E1 bidirectional pass-through monitoring function with improved jitter tolerance.	• Requires at least one of the IEEE C37.94, E1 or T1 test options. For E1 and E1 options the "dual TDM" test option is also required.
5	The event logger has been modified to add more events (C37.94 events). Some other events have been moved to a different location to increase their availability (clock reference events).	
6	New unified system menu to enable or disable services. This service allows to improve security by disabling unnecessary services.	
7	New PTP implementation based on firmware fixed all issues related with CPU performance and PTP message rates.	• Requires the PTP test option.
8	German language is now supported in the GUI.	
9	Includes new Power Management firmware to minimize power consumption when the unit is powered off. The Power Management version is now upgradable by any user.	
10	The GOOSE and SV results menu is modified to display the filter which is currently applied to received traffic.	
11	The system stability is improved when a long sequence of configuration files is loaded to the unit.	
12	Implements the latest MIB library including the new RFC 2544 MIB and Ethernet link status reports.	• Requires the SNMP management option.

### 3. Software 1.4.X

Date	30/07/2021
Software version	1.4.1
Firmware versions	XGbE-0066 / E1-54BA

Improvements included in this software / firmware release are listed in the following table:

#	Description	Remarks
1	Includes new local one-way delay test in E1, T1 and IEEE C37.94 modes to enable measurement of forward and backward latency with a single unit and without the need for an external clock reference.	• Requires at least one of the E1, T1 or IEEE C37.94 testing modes and the one-way delay software options
2	Provides configuration of synthesized clock source in pass-through mode for E1, T1 and IEEE C37.94 operation modes. This configuration is useful to interconnect two devices without the ability to generate a clock.	• Requires at least one of the E1, T1 or IEEE C37.94 software options
3	Includes IRIG-B detailed clock reference input analysis and provides details about ToD clock reference status. These functions provide diagnostic resources to help users detecting issues that could degrade test results in synchronization and latency tests.	• Requires a unit equipped with a clock references board with support for IRIG-B. It also requires the IRIG-B clock reference software option.
4	Provides a more flexible and advanced delay generation function for E1, T1 and IEEE C37.94 in pass-through and loopback modes. The new modes include both symmetric and asymmetric delay generation.	• Requires at least one of the E1, T1 or IEEE C37.94 software options.

#	Description	Remarks
5	Includes support for forwardable and non-forwardable destination addresses in multicast PTP modes with Ethernet payloads.	<ul style="list-style-type: none"> <li>Requires software options related with PTP clock emulation.</li> </ul>
6	Adds the settings required to configure PTP clock accuracy and clock variance when the unit is configured as a grandmaster or an ordinary clock.	<ul style="list-style-type: none"> <li>Requires software options related with PTP clock emulation.</li> </ul>
10	Improves interoperability of NMEA clock references received from third party devices	<ul style="list-style-type: none"> <li>Requires a unit equipped with a clock references board.</li> </ul>
11	Increases time resolution in service disruption time tests and improves the operation with some triggers.	<ul style="list-style-type: none"> <li>Requires at least one of the E1, T1 or IEEE C37.94, datacom, VF or G.703/E0 software options together with their requirements.</li> </ul>
12	Includes multilanguage support in PDF reports for languages with latin characters	

The most important bug corrections included in this software / firmware release are listed below:

#	Description	Remarks
1	Solves random failure starting the GUI on boot up with the VNC remote control enabled.	-
2	Miscellaneous fixes related with file management, including importing and exporting functions.	-
3	Miscellaneous fixes related with PDF report generation in languages different to English.	-

Date	29/11/2021
Software version	1.4.3
Firmware versions	XGbE-0067 / E1-54BA

The most important bug corrections included in this software / firmware release are listed below:

#	Description	Remarks
1	Fixed random incorrect FDV results in multi-stream configurations when the analysis runs in Port B.	
2	The unexpected "Error waiting PPS" message displayed at the beginning of a ToD NMEA test (clock monitor mode) has been corrected.	
3	The GNSS fixed mode now goes to <i>manual</i> once the position survey finishes. With this change it is avoided to run unnecessary position surveys every time the tester boots up.	
4	Management of long file names in the file manager has been improved. Operations over files with long names are now not ignored. The maximum file name size has been increased too.	
5	SDT results are now included in all reports.	
6	The ITU-T G.821 test for datacom interfaces has been fixed.	

## 4. Software 1.2.X

Date	15/01/2021
Software version	1.2.1
Firmware versions	XGbE-0063 / E1-5157

Improvements included in this software / firmware release are listed in the following table:

#	Description	Remarks
1	Improved protocol analysis function with built in packet dissectors for many common protocols including PTP, NTP, DNS, DHCP, ARP, GOOSE and SV. Packet-by-packet delay estimates for time critical protocols.	<ul style="list-style-type: none"> <li>Requires the new <i>Packet capture</i> software option.</li> </ul>
2	NTP client and server emulation and NTP test mode including delay and time error measurements.	<ul style="list-style-type: none"> <li>References board rand OCXO hardware options recommended.</li> </ul>
3	New family of filters for NTP. Includes different filtering rules to select and classify NTP messages.	<ul style="list-style-type: none"> <li>Requires the new NTP test license.</li> </ul>
4	More accurate and simple terminology for PTP latency statistics. Now delay standard deviations and ranges are classified as PDV (jitter) rather than PTD (delay) statistics.	<ul style="list-style-type: none"> <li>Requires that the PTP licenses are unlocked.</li> </ul>
5	Units in Ethernet and IP bandwidth statistics are now user configurable: b/s, kb/s and Mb/s.	
6	Support transmission speeds up to 10 Mb/s in synchronous data communications interfaces: X.21 / V.11, V.35, V.36 (RS-449), EIA-530, EIA-530A.	<ul style="list-style-type: none"> <li>Requires the E1 or T1 test together with the Datacom test licenses to be unlocked</li> </ul>
7	More accurate terminology for data communications frequency results. Now the unit displays the clock circuit where the frequency was measured.	<ul style="list-style-type: none"> <li>Requires the E1 or T1 test together with the Datacom test licenses to be unlocked</li> </ul>
8	Generation of custom phase between data and clock circuits (0°, 90°, 180°, 270°) in synchronous data communication interfaces. Measurement of data-to-clock phase in synchronous data communication circuits.	<ul style="list-style-type: none"> <li>Requires the E1 or T1 test together with the Datacom test licenses to be unlocked</li> </ul>
9	Adds support for the new PHM-24 module supporting an additional E1 or T1 interface in the unit.	
10	More attractive and advanced format for PDF reports. Support for MTIE and TDEV charts and tables in reports.	
11	Graphical export of charts generated from the Event logger function in PDF format.	
12	New Power Management version with more advanced shut b down and reboot features	

The most important bug corrections included in this software / firmware release are listed below:

#	Description	Remarks
0	-	-