Clarius Compliance DDR5 Rx Calibration and Test Solution Release Notes

Version 2.0.0

Clarius Automation Framework	• Version 2.0.0 • Release: Dec-2024
Clarius Compliance DDR Rx Calibration and Test Solution	• Version 2.0.0 • Release: Dec-2024

Supported models

Oscilloscope for DDR5 DRAM Rx	• DPO72304DX\MSO72304DX\DPO72304SX or above • Non-ATI channels of DPO75002SX, DPO75902SX, DPO7702SX, DPS75004SX, DPS75904SX, and DPS77004SX.
BERT	MX190000A_VER_10_03_04 or above

Release features

- **Test bench creation enhancements**

    - Simplified test bench creation aligned with user workflows.
    - Capability to create test benches for various acquisition modes, including Live and Recorded.
    - Display of necessary instruments for selected applications/technologies on the Live Test Bench.
    - Capability to fetch the instrument properties of the connected instruments on providing the VISA resource addresses in live setup.
    - Functionality to check instrument service connectivity during test bench creation and display connectivity status within the test bench list.
    - Enables flexible instrument control for application-defined instruments. Supports integration with diverse instrument classes (e.g., AFG, AWG) or custom specific controls.
    - Refreshing master oscilloscope properties ensures all extension scopes are visible.

- **Test creation and test run enhancements**

    - Simplified access to acquisition mode selection for a test.
    - Recorded tests utilize pre-acquired data from specified waveform folder path. Standardized for the test rather than for individual applications.
    - Flexibility to run recorded tests on Recorded and Live test benches, while Live tests are exclusive to Live test benches.
    - Flexibility to run recorded tests with Instrument Service installed on the Clarius installed computer either during the initial installation or added subsequently.
    - Notifies the user on start of the test if Clarius disk storage is over 90% capacity or essential Clarius services are not operational.
    - Test execution terminates automatically if Clarius disk storage exceeds 90% allocated capacity or the essential Clarius services are not operational.

- **Test and waveform deletion enhancements:**

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- • Facilitates efficient storage management and ensures retention of relevant data by enabling users to delete multiple selected tests or waveforms.
- • **Bulk waveform download using SDK:**
  - • Enables users to download waveforms (exceeding 1GB) using SDK.
- • **Notification enhancements:**
  - • Critical Error and Warning Indicators as notifications in Clarius UI, upon exceeding thresholds [user-configurable].
  - • System Error notification displayed when essential Clarius services are not operational.
- • **Clarius Admin Console**
  - • Streamlined service management with start, stop, and restart capabilities.
  - • User Configurable settings [threshold and alert frequency] for Critical Error and Warning notifications.
- • **In-App Help:**
  - • A comprehensive in-app help is enabled in the Clarius webpage under Help for immediate user assistance and guidance.
- • Dual Rank DUT support is added.
- • Debug features include options to Skip DUT initialization, Skip Loopback and Pause Before Phase Change.
- • BERT offset calibration for VRef DQ settings.
- • Offset calculation methods support both the average offset across all phases and individual phase offset calculations.

Known limitations

- • Export/Import of tests from one Clarius VM to another is not supported.
- • The functions of starting, restarting, and stopping instances of test benches (instrument service) and monitor remote instances of measurement services are not available.
- • When running tests back to back in LIVE acquisition mode, test may have different run times or fail intermittently due to instrument connectivity. You may provide a time delay between test runs to avoid failure or contact Tektronix to update TekVisa.
- • For SX oscilloscopes operating in standalone mode, ATI channels are not selectable in **Sources and Signals**. Selection for non-ATI channels remains unaffected.
- • Re-running tests does not accommodate lane changes or the use of multi lane configurations with grouping features.
- • Search feature on the Reports & Test List page is confined to the results of the page currently being viewed.
- • If user creates a duplicate user name for login, no error is displayed but duplicate username will not be created.
- • **Test tab** > **View Results** > **Generate report** generates report only for 30 tests displayed in the current page.
- • New notifications are populated at the end of the list within the notification widget.
- • Maximum of 10 applications can be added in a single sequence.
- • Installation operations cannot be cancelled once they are in progress.
- • Pan and zoom capabilities are limited in waveform view.
- • Re-analysis of waveforms captured from a previous test can only be done by downloading waveforms and analyzing them in pre-recorded mode.
- • The progress bar reflects the count of scenarios executed. If certain scenarios require more time, the progress bar will remain in the same status until those scenarios are fully executed.
- • When test is configured with multiple sequences; progress bar of individual sequences does not function.
- • In multi-stack oscilloscope scenarios, extension oscilloscope instrument services cannot be monitored.
- • In multi-iteration acquisition mode, the software determines overall measurement pass/fail status based solely on the results of the final acquisition. However, the results from all individual acquisition iterations are accessible through the SDK, allowing users to perform custom calculations and determine their own overall measurement status if desired.
- • Based on the timeout duration, when Instrument does not respond, test gets aborted and a log message detailing the error is available.
- • There is no differentiation between the error icons for critical or system errors in notification.

- Lane change notification does not provide information on the lane that needs to be changed.

- The "Fail" status in **Tests** > **List of Tests** page and in Reports indicates that either the test execution was unsuccessful or the measurements did not meet the specified limits.

- As there is no FAILED status defined in DDR5 RX Calibration, all the passed calibration files will be listed under the corresponding DDR5 RX Tests, regardless of the results.

- The application provides support to multi-sequence options both in test and calibration. In tests, if multisequence calibration is selected it always refers to the first calibrated data.

- For Stressed Eye Calibration using the ISI feature, it is advised to run only one Data Rate at a time.

- When user selects "Delete and Merge" for an already run Stressed Eye Calibration result, running new scenarios (DQS/DQ/RJ/DCD) with the Stressed Eye result, will run only the first selected calibration and the calibration will be stuck indefinitely.

- Dual rank DUTs have not been completely validated.

- When multi-sequence calibrations or tests are running, even if one sequence fails, the entire test will be considered as a FAIL.

- RJ and DCD calibration should be run together, in order to consume the calibration file in the DQS Jitter Sensitivity test.

- Two separate Testbenches are expected to be configured, one each for Rx Calibration and Rx Test.

Known issues

- Hyper-V Default switch issues: Windows updates may cause the default Hyper-V switch used by Clarius Core Services to become unresponsive. This can lead to installation failures or connectivity problems. Refer to the FAQ section in Clarius Getting Started guide for resolution steps.

- Clarius Compliance user interface may become unresponsive due to lack of required resources such as network speed, memory, disk space, and CPU. This can be tracked by using the Monitoring and Admin console under 'Clarius Platform' in your system.

- Uninstalling Clarius instrument service necessitates re-installation of required application instrument service.

- When the test is running, the Events and Logs pages would refresh to the most recent page even if the user selects to view a different page.

- In some cases, due to temporary disruptions in internal services (example: constraint service in admin console) may lead to inconsistent error messages in the UI and SDK.

- The scrollbar resets to the top of the page after every refresh during stressed eye calibration, rather than staying at the most recent result.

- At higher data rates, Stressed Eye Calibration may experience convergence issues and you may see scattered SJ and RJ plots.

- When multi-sequence calibrations or tests are running, results and plots update only during the execution of the final sequence.

- Dual Rank DUTs are not validated end-to-end. As a work around, Skip DUT Initialization/Loopback feature allows user to pause the test execution and put DUT into loopback manually and continue with the tests.

Version 1.0.0

Clarius Automation Framework	• Version -1.1.0
	• Release: Aug-2024
Clarius Compliance DDR Rx Calibration and Test Solution	• Version -1.1.0
	• Release: Aug-2024

Supported models

Oscilloscope for DDR5 DRAM Rx	DPO72304DX\MSO72304DX\DPO72304SX or above
BERT	MX190000A_VER_10_01_02 or above

Release features

- DDR Calibration for DQ & DQS Voltage, DQS Jitter (RJ, DCD), and DQ Stressed Eye
- DDR Tests for DQ & DQS Voltage, DQS Jitter Sensitivity, and DQ Stressed Eye Test.
- Calibration compatibility with both a CTC + Parametric Test Card and a CTC2 + Replica Channel.
- Support for DDR5 Data Rates from 3200 MT/s to 8400 MT/s.
- De-embedding support across all scenarios.
- Integration of external ISI/internal BERT ISI channels is supported.
- Multi-lane support requires minimal manual intervention.
- Access to pre-built loopback scripts that can be customized or replaced with user-specific scripts for different DUT setups.
- Base loopback scripts are provided and can be easily modified to suit the user's DUT configuration.
- Advanced sweep tests for DQ, DQS, and Jitter that go beyond standard specification requirements.
- Both calibrated and uncalibrated advanced tests for stressed eye that go beyond standard specification requirements
- Adaptive DFE optimization is included in the calibration process.
- Graphical representation of test results with bathtub curves and sweep curves for all four phases, accompanied by detailed reports with plots and result tables.
- An import sequence feature that allows users to save and import test sequences, avoiding the need for manual setup each time.
- The capability to perform multi-data rate calibration/testing in a single run.

Known limitations

- Download and installation operations cannot be cancelled once they are in progress.
- Limits are not shown with explicit units in the Results section and are presented in the same row of individual results indicating they take the same units as Value (measurement result).
- "Fail" status in **Tests** > **List of Tests** page and in Reports indicates that either the test execution failed or measurements have failed against limits.
- Export/Import of tests from one Clarius VM to another is not supported.
- Progress bar only shows progress based on number of scenarios executed. When some scenarios take a long time to run, progress bar will remain in the same status until the scenario is executed completely.
- User account will be locked after three unsuccessful login attempts and cannot be unlocked for an hour.
- The functions of starting, restarting, and stopping instances of test benches (instrument service) and monitor remote instances of measurement services are not available.

- When running tests back to back in LIVE acquisition mode, test may have different run times or fail intermittently due to instrument connectivity. You may provide a time delay between test runs to avoid failure or contact Tektronix to update TekVisa.
- The application provides support to multi-sequence options both in test and calibration. In tests, if multisequence calibration is selected it always refers to the first calibrated data.
- There is no defined 'fail' status for calibrations.
- For Stressed Eye Calibration using the ISI feature, it is advised to run only one Data Rate at a time.
- The default example calibration has not been added.

Known issues

- Occasionally, the default switch in the Windows system becomes unresponsive and the Clarius automation framework installation may fail. Rebooting the system and installing any pending windows updates should fix the issue.
- Clarius Compliance user interface may become unresponsive due to lack of required resources such as network speed, memory, disk space, and CPU. This can be tracked by using the Monitoring and Admin console under 'Clarius Platform' in your system.
- When multiple applications are present in the system or oscilloscope, uninstalling one "application instrument service" necessitates re-installation of the required application instrument service.
- When the test is running, the Events and Logs pages would refresh to the most recent page even if the user selects to view a different page.
- The Generate Report button will not be functional for the test results that are listed after first page under the Tests tab. You can generate results for those tests from the result page of the test.
- The scrollbar resets to the top of the page after every refresh during stressed eye calibration, rather than staying at the most recent result.
- At higher data rates, Stressed Eye Calibration may experience convergence issues and you may see scattered SJ and RJ plots.
- When multi-sequence calibrations or tests are running, results and plots update only during the execution of the final sequence.