Keysight M80885RCA DDR5 Receiver Test Application

This document contains latest information on the Keysight M80885RCA DDR5 Receiver Test Application.

Related Document

For detailed information, refer to the following document for this application:

- "Keysight_M80885RCA_UserGuide.pdf"

This document can be found at the following location after you install the application:
C:\Program Files\Keysight\M8070B\Apps\M80885RCA\help
The M8070B documents can be located by clicking *Start > Keysight M8070B > Keysight M8070B Documentation*. Alternatively, you can also visit www.keysight.com/find/m8070b to find the latest versions of M8070B documents.

Installation Steps

To install the M80885RCA DDR5 Receiver Test Application, perform the following steps:

1. Review the System Requirements for this application.

   a. Download the installer file:
      Go to the link: http://www.keysight.com/find/M80885RCA

   b. Click the **Technical Support** link on the right side of this page.

   c. Select the **Drivers, Firmware & Software** tab.

   d. Click the link to download the M80885RCA DDR5 receiver test application

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2. Double-click the downloaded installer file on your PC.

3. Please note that both Keysight License Manager 6 and Keysight License Manager 5 are installed on your system when you install M80885RCA software.
When prompted, install Keysight License Manager 6.0, if the same is not already available on your computer.

4. Follow and respond to the installer prompts.

5. **Accept** the terms of the Keysight Software End-User License Agreement and click **Next**.

6. Click **Install**.

7. Click **Finish** to finish the installation and exit the installation wizard.

8. Install the required licenses via the Keysight License Manager (if not done before). To know about the required licenses, refer to the User Guide.

Getting Started

To access the installed M80885RCA application, perform the following steps:

1. From the **Start** menu of the Windows Operating System, select **Keysight M8070B Applications** > **Launch Keysight M80885RCA**.

2. If you are launching the Keysight M80885RCA application for the first time, the End-User License Agreement window appears. Select **Agree** to continue.
The M80885RCA application banner is displayed.

3. If there is a single instance of the M8070B software running locally, the M80885RCA application launches after automatically getting connected to the M8070B software.

4. If the M80885RCA application does not detect any instance of the M8070B software running locally, the **Connect to M8070** window appears.

5. When the application starts successfully, it will start with the default layout and will show the **Set Up** tab.

   For more information on how to use the various features in the M80885RCA application, refer to the *Keysight M80885RCA DDR5 Receiver Test Application Online Help.*

Keysight M80885RCA Software Version 4.0.1.0

Released Date:	April, 2023
Operating System:	Microsoft Windows 10 (64 bit)
Memory	8 GB RAM [minimum]
Display resolution:	WXGA+ (1440 x 900) [minimum]
PC Interfaces:	USB LAN
Instrument Firmware:	M8020A/M8041A BERT - M8070B System Software • M8070B system software for M8000 series Ver. 9.1.110.4 or later and M8070ADVB Advanced Measurement Package for M8000 Series Ver.1.9.10.2 or later Infiniium Oscilloscope software – • Ver. 06.73.00003 or later (for V-Series) • Ver. 11.30.00601 or later (for UXR-Series)
Software Prerequisites:	Keysight IO Library rev. 18.1 or later MATLAB compiler runtime M8070B system software Infiniium Oscilloscope software
BERT:	M8020A-BU2 mainframe with USB option M8070A-0TP/1TP System Software M8041A-C08/0G2/0G3/0G4/0G5/0G6/0G7/0A2/0A3 High Performance BERT Generator-Analyzer-Clock Module
Infiniium Oscilloscope:	Infiniium V-series and UXR-series oscilloscopes D9020JITA or N8823X-1XX and D9010DMBA or D9020ASIA or N5465X-1XX and D9020ASIA or N5461X-1XX and E2688X-1XX, N5384A
File Name:	SetupM80885RCA_DDR5RxTest_4.0.1.0.exe

Features

- Updated Keysight License Manager 5.

Fixes

- N/A

Known Issues

- N/A

Keysight M80885RCA Software Version 4.00.0000

Released Date:	November 10, 2022
Operating System:	Microsoft Windows 10 (64 bit)
Memory	8 GB RAM [minimum]
Display resolution:	WXGA+ (1440 x 900) [minimum]
PC Interfaces:	USB LAN
Instrument Firmware:	M8020A/M8041A BERT - M8070B System Software • M8070B system software for M8000 series Ver. 9.1.110.4 or later and M8070ADVB Advanced Measurement Package for M8000 Series Ver.1.9.10.2 or later Infiniium Oscilloscope software – • Ver. 06.73.00003 or later (for V-Series) • Ver. 11.30.00601 or later (for UXR-Series)
Software Prerequisites:	Keysight IO Library rev. 18.1 or later MATLAB compiler runtime M8070B system software Infiniium Oscilloscope software
BERT:	M8020A-BU2 mainframe with USB option M8070A-0TP/1TP System Software M8041A-C08/0G2/0G3/0G4/0G5/0G6/0G7/0A2/0A3 High Performance BERT Generator-Analyzer-Clock Module
Infiniium Oscilloscope:	Infiniium V-series and UXR-series oscilloscopes D9020JITA or N8823X-1XX and D9010DMBA or D9020ASIA or N5465X-1XX and D9020ASIA or N5461X-1XX and E2688X-1XX, N5384A
File Name:	SetupM80RxDDR5G04000000.exe

Features

- Increased speed support up to 8800 to align with DDR5 Full Spec JESD79-5B.
- In the InfiniSim Setup, the InfiniSim Transfer Functions section contains three InfiniiSim groups that allow users to select different transfer function files for Sensitivity Calibrations, Host Output TP1 calibrations, and Stressed Eye Calibrations.
- App supports the Host DUT to test host controllers.
- In compliance with spec standards, removed the following calibrations and tests:
  - DQS/DQ Stressed-Eye Calibrations at Device Ball

- o CK/CA Stressed-Eye Calibrations at Device Ball.
- o Stressed Eye Device test
- o DQ Voltage Sensitivity Characterization
- o CK/CA Voltage Sensitivity Characterization
- Pulse response used to calculate DFE and simulate Stressed Eye Calibration.
- App allows users to upload the measurement results with multiple values to the Dataset on the web repository.
- App allows users to edit compliance limits via the Create/Edit limit set…feature.
- Added UDIMM support.
- Added MRDIMM support.
  Note that the Multiplexed Rank Dual Inline Memory Module (MRDIMM) is an emerging form factor being developed in JEDEC. The test procedure including device initialization, power sequencing, calibration and test process is still under development.

Fixes

- App is now available under the M8070B applications.
- App can be launched in the Demo (offline) mode.

Known Issues

- N/A

Keysight M80885RCA Software Version 03.00.0000

Released Date:	March 05, 2021
Operating System:	Microsoft Windows 7 (64 bit)
	Microsoft Windows 8 (64 bit)
	Microsoft Windows 10 (64 bit)
Memory	8 GB RAM [minimum]
Display resolution:	WXGA+ (1440 x 900) [minimum]
PC Interfaces:	USB LAN
Instrument Firmware:	M8020A/M8030A BERT - M8070A System Software
	• M8070B system software for M8000 series Ver. 7.5.700.8 or later and M8070ADVB Advanced Measurement Package for M8000 Series - 1.3.200.4
	Infiniium Oscilloscope software –
	• Ver. 06.60.00403 or later (for V-Series)
	• Ver. 10.25.01302 or later (for UXR-Series)
Software Prerequisites:	Keysight IO Library rev. 18.1 or above
	MATLAB compiler runtime
	M8070B system software
	Infiniium Oscilloscope software
BERT:	M8020A-BU2 mainframe with USB option
	M8070A-0TP/1TP System Software
	M8041A-C08/0G2/0G3/0G4/0G5/0G6/0G7/0A3 High Performance BERT Generator-Analyzer-Clock Module
	M8051A-G08/0G2/0G3/0G4/0G5/0G7
Infiniium Oscilloscope:	Infiniium V-series and UXR-series oscilloscopes D9010JITA or D9020JITA or N8823X-1XX and D9010DMBA or D9020ASIA or N5465X-1XX and D9020ASIA or N5461X-1XX and E2688X-1XX, N5384A
File Name:	SetupM80RxDDR5G03000000.exe

Features

- Application updates to accommodate specification changes (esp. around the stressed eye area)

- Added new calibration groups in response to industry requirements. Thus, the DQS/DQ calibrations are divided into the following three groups:
  - DQS/DQ Calibrations for Sensitivity (includes the calibrations from the prior versions)
  - DQS/DQ Stressed-eye Calibrations at TP1
  - DQS/DQ Stressed-eye Calibrations at Device Ball

  Likewise, for CK/CA calibrations:

- Added the following new test:
  - DFE Characterization Tap1
- The DQS2DQ Skew Calibration and DQS2DQ Test have been re-added to the test list.
- Added support for the following switch matrices to automatically connect the appropriate pin of the DUT to the test equipment.
  - Keysight L8990C-00U
  - Keysight L8990C-014
- New configuration variables for enhanced DUT control and usability.

Fixes

- N/A

Known Issues

- N/A

Keysight M80885RCA Software Version 02.00.0000

Released Date:	December 6, 2019
Operating System:	Microsoft Windows 7 (64 bit)
	Microsoft Windows 8 (64 bit)
	Microsoft Windows 10 (64 bit)
Memory	8 GB RAM [minimum]
Display resolution:	WXGA+ (1440 x 900) [minimum]
PC Interfaces:	USB LAN
Instrument Firmware:	M8020A/M8030A BERT - M8070A System Software • M8070B system software for M8000 series Ver. 6.7.330.4 or later and M8070ADVB Advanced Measurement Package for M8000 Series - 1.2.800.2 Infiniium Oscilloscope software – • Ver. 06.40.01201 or later (for V-Series) • Ver. 10.11.05004 or later (for UXR-Series)
Software Prerequisites:	Keysight IO Library rev. 18.1 or above MATLAB compiler runtime M8070B system software Infiniium Oscilloscope software
BERT:	M8020A-BU2 mainframe with USB option M8070A-0TP/1TP System Software M8041A-C08/0G2/0G3/0G4/0G5/0G6/0G7/0A3 High Performance BERT Generator-Analyzer-Clock Module M8051A-G08/0G2/0G3/0G4/0G5/0G7
Infiniium Oscilloscope:	Infiniium V-series and UXR-series oscilloscopes D9010JITA or D9020JITA or N8823X-1XX and D9010DMBA or D9020ASIA or N5465X-1XX and D9020ASIA or N5461X-1XX and E2688X-1XX, N5384A
File Name:	SetupM80RxDDR5G02000000.exe

Features

- The DQS2DQ Skew Calibration, DQS2DQ Test, CK CA Skew Calibration, and CK2CA Test have been removed; instead, these measurements are now automatically run wherever applicable including between multiple trials of measurements. Also, if either of the

channels was turned off due to any reason or if the alignment seems to be off, the application runs these measurements.

- User-configurable Stressed Eye calibration and Stressed Eye test have been enabled. The default implementation complies with the specification; user has the choice to configure custom values for stress parameters.
- Enhanced DUT control:
  o Separate sections for selecting the DUT type and controller type on the Setup tab. Based on the selection, the application performs several initialization and setup tasks. There is a choice for user controller wherein the users need to perform DUT setup and control tasks for all the phases themselves between the pauses that the application takes. Otherwise, the application provides automated control for the remaining controllers.
  o New configuration variables for enhanced DUT control and usability.

Fixes

- Issue: Turning DQS/DQ (CK/CA) off and on changes alignments within the devices as well as user interaction between tests.
  Fix: Each test now automatically runs a DQS2DQ (CK2CA) and Vref alignment at the start of each test.
- Issue: For DQS Voltage Sensitivity, using DQ as loopback gives false BER results. A missed DQS edge misaligns the loopback data.
  Fix: DQS Voltage Sensitivity now uses DQS loopback. If one error detector is present, then the connection requests connection changes. If two error detectors are present, the connection requests both loopback connections (DQ to Chan1 and DQS to Chan2).

Known Issues

- UXR Current 10.12 release does not have the required DFE updates needed for stressed eye calibration. This will be in the 10.20 release of the UXR code planned for Jan/Feb of 2020. If you are a UXR user, please contact your field representative and request special version 102.01.0004.

Keysight M80885RCA Software Version 01.00.0000

Released Date:	January 28, 2019
Operating System:	Microsoft Windows 7 (64 bit)
	Microsoft Windows 8 (64 bit)
	Microsoft Windows 10 (64 bit)
Memory	8 GB RAM [minimum]
Display resolution:	WXGA+ (1440 x 900) [minimum]
PC Interfaces:	USB LAN
Instrument Firmware:	M8020A/M8030A BERT - M8070A System Software • M8070B system software for M8000 series Ver. 6.0.100.2 or later and M8070ADVB Advanced Measurement Package for M8000 Series - 1.0.59.0 OR • M8070A system software for M8000 series Ver. 5.1.50.2 Infiniium Oscilloscope software – • Ver. 06.30 or later (for V-Series) • Ver. 10.00 or later (for UXR-Series)
Software Prerequisites:	Keysight IO Library rev. 18.1 or above MATLAB compiler runtime M8070B/A system software Infiniium Oscilloscope software
BERT:	M8020A-BU2 mainframe with USB option M8070A-0TP/1TP System Software M8041A-C08/0G2/0G3/0G4/0G5/0G6/0G7/0A3 High Performance BERT Generator-Analyzer-Clock Module M8051A-G08/0G2/0G3/0G4/0G5/0G7
Infiniium Oscilloscope:	Infiniium V-series and UXR-series oscilloscopes D9010JITA or D9020JITA or N8823X-1XX and D9010DMBA or D9020ASIA or N5465X-1XX and D9020ASIA or N5461X-1XX and E2688X-1XX, N5384A
File Name:	SetupM80RxDDR5G01000000.exe

Features

First release of Keysight M80885RCA DDR5 Receiver Test Application. M80885RCA DDR5 Receiver Test Application provides a platform for stressed receiver sensitivity test and characterization, which is compliant to standards for DDR5 SDRAM Testing.

The solution consists of several test instruments and fixtures, such as a Bit Error Rate Tester (BERT), Oscilloscope, Compliance Test Card, Device Test Card operating together with the M80885RCA software package.

Some salient features of the M80885RCA DDR5 Receiver Test Application include:

- Remote control of the main test instrumentation
- Automated calibration following the recommended procedures
- Automatic and unattended conformance testing and characterization measurements
- Quick and easy measurement results to assess the performance of your DUT without expertise in BERT and DDR5 standard
- Support for Data Analytics using N8844A Data Analytics Web Service Software

    Please contact Keysight Technical Support (www.keysight.com/find/supportrequest) if you encounter any other issue.