Z2025A PCIe CBB Controller

Installation Guide

Third Edition

Please read this document thoroughly before using the Z2025A PCIe CBB Controller (hereafter, this device).

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1. Product Overview

This device remotely controls the power supply to the DUT by controlling the power reset control pins on the PCIe CBB 4.0 (Compliance Base Board 4.0) and enables the compliance test to be automated. To use this device, connect it to the MP1900A installed with the MX183000A (Ver 3.07.11 or later) and MX183000A-PL021 PCIe Link Training using the supplied USB cable.

2. System Requirements

- NI-DQATM mx Version 18.1 or later
- Conforming to the operating environment of the MX183000A (Ver 3.07.11 or later) and MX183000A-PL021 PCIe Link Training. Refer to Appendix A in the MX183000A High-Speed Serial Data Test Software Operation Manual (M-W3813AE).

3. Supplied Accessories

Before using, make sure all of the following accessories are supplied.

- USB-6501
- PCIe CBB control cable
- USB cable Type A Type B NI-DAQTM mx 18.1 or later with DAQExpressTM Interactive Application Software (DVD)

Note:

If there is no available external DVD drive, download the application from the National InstrumentsTM website.



4. Installing Supplied Software

Install NI-DAQTM mx 18.1 or later to MP1900A or PC where MX183000A is installed. Wait about 40 minutes until the installation is complete.

Note:

During the installation process, you need to specify **Custom** on the Select Installation Option page.

- 1. Have an external DVD drive on hand and connect it to MP1900A or PC for installing the software. If there is no available external DVD drive, download it from the National InstrumentsTM website.
- 2. Click **Run autorun.exe** to start installation.
 - If the AutoPlay dialog box doesn't appear, double-click autorun.exe on the DVD.

7 4	AutoPlay			
1	DVD RW Drive (Q:) NID	AQ1810		
E] Always do this for software and ga	imes:		
	Install or run program from your m	edia		
	Run autorun.exe Published by National Instrument	ts Corporation		
<u>-</u> ۱	General options			
	Open folder to view files using Windows Explorer			
V	iew more AutoPlay options in Contr	ol Panel		
<u> </u>	Name	Date modified	Туре	Size
4	Files Currently on the Disc (18	3)		
	DeviceDocumentation	6/21/2018 3:22 AM	File folder	
	퉬 Firmware	6/21/2018 3:22 AM	File folder	
	licenseAgreements	6/21/2018 3:19 AM	File folder	
=	Products	6/21/2018 3:19 AM	File folder	
Le-	JupportFiles	6/21/2018 3:24 AM	File folder	
	🕅 autorun	6/16/2018 12:34 AM	Application	1,760 KB
	🚛 autorun	6/21/2018 2:33 AM	Setup Information	2 KB
	🔁 DAQInstallGuide	6/16/2018 12:33 AM	Adobe Acrobat D	6,555 KB

3. If Microsoft .NET Framework 4.6.2 is not installed to the installation destination, you will be asked to install it. According to the prompt, install .NET Framework. If installation of .NET Framework is not asked, proceed to step 4.

NI-DAQmx 18.1 with DAQExpress
Microsoft .NET Framework 4.6.2 is required before you can install this product. Click OK to install the .NET Framework 4.6.2 now. (You may need to reboot your computer after you install .NET Framework 4.6.2.) Click Cancel to exit this installer.
OK Cancel

		10
Please accept the license terms to	continue.	۱.
MICROSOFT SOFTWARE SU	UPPLEMENTAL LICENSE TERMS	•
.NET FRAMEWORK AND AS MICROSOFT WINDOWS OP	SSOCIATED LANGUAGE PACKS F PERATING SYSTEM	OR
Microsoft Corporation (or ba	ased on where you live, one of its	
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4. To install NI-DAQmx, click Install NI-DAQmx.



5. On the Destination Directory page, click **Next** without making any changes.

THE DAQUIX 10.1 WITH DAQUAPIESS	
Destination Directory Select the installation directories.	
To change the default folder for installing National Instruments software, click Browse button and select another folder. You can select individual componen locations in the feature tree dialog.	the t
Destination Directory	
	Browse
<< <u>B</u> ack <u>N</u> e	xt >> <u>C</u> ancel

6. On the Select Installation Option page, select Custom, and click Next.

II NI-DAQmx 18.1 with DAQExpress	
Select Installation Option Select one of the following options.	
Typical Typical Install NI-DAQ mx device driver, hardware configuration suppr support, and DAQE xpress interactive application software. Custom Custom	ort, application development
<< <u>B</u> ack	Next >> Cancel

7. Click **NI-DQAmx xx.x** -> **Application Development Support**.



8. Click .NET Framework 4.5.1 Languages, select Install This feature to a local drive and click Next.

II-DAQmx 18.1 with DAQExpress	
Features Select the features to install.	
LabVIEW 2018 (32-bit) Support LabVIEW 2018 (64-bit) Support LabVIEW 2017 (32-bit) Support LabVIEW 2017 (32-bit) Support LabVIEW 2017 (32-bit) Support LabVIEW 2016 (64-bit) Support LabVIEW 2015 (32-bit) Support LabVIEW 2015 (32-bit) Support LabVIEW 2015 (64-bit) Support LabVIEW 2015 (64-bit) Support LabVIEW 2015 (64-bit) Support LabVIEW 2015 (64-bit) Support LabVIEW 2015 (54-bit) Support LabVIEW 2015 (64-bit) Support L	NET interface for communicating with instruments using NI-DAQmx. Requires the Microsoft .NET Framework 4.5.1 and is typically used with Visual Studio 2013.
Restore Feature Defaults	<< Back Next >> Cancel

9. On the Product Notifications page, clear the checkbox and click Next.



- 10. Follow the wizard instructions to complete the installation. If you are prompted to restart Windows OS, restart it.
- 11. If steps 4 to 8 haven't been followed correctly, retry installation from step 2.

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When restarting at step 10, connect the USB-6501 to the MP1900A or PC, which installs the driver automatically as shown below. You will see the following dialog box only when connecting it to the device for the first time. If started during installation, the MX190000A may not display Application Selector.



In this case, follow the procedure below to start Application Selector.

1. Tap the icon indicated by the red box in the figure below.



2. Tap **Application Selector** and tap the **Standard BERT for SI** icon to start the application.

PAM4 PPG/ED Based System (NRZ test is also available.)	Standard BERT for Read	
SI PPG/ED Based System (PAM4 test is also available.)	Standard BEAT for SI	
Miscellaneous System	Eport BERT	
Utility		
Application Selector		٦
<		

5. How to Use This Device

 Using the USB cable, connect the USB-6501 to the MP1900A or PC installed with the MX183000A (Ver 3.07.11 or later), MX183000A-PL021 PCIe Link Training and NI-DAQ[™] mx xx.x.



2. Connect the USB-6501 to the control pins on CBB 4.0 using cables as shown in the figure below. Always turn the CBB power switch to the OFF position when this function is used because the power supply to CBB is controlled from USB-6501.



- 3. Start the MX190000A and MX183000A PCIe Link Training. If this device has already been connected to the MP1900A, restart the MX183000A PCIe Link Training.
- 4. In the **Option** dialog box of the MX183000A PCIe Link Training, configure Reset-related settings. For details on the parameters, refer to the operation manual (M-W3813AE).

🚺 Option		
State Machine S	P Link EQ	PPG/ED Trigger
TS Parameter FTS Link Number	127 ×	Timeout to Loopback.Exit CBB Controller Auto Reset Auto Power Cycle
Lane Number Full Swing Low Frequency	0	Power Reset 2.0 x s Power Cycle 3.0 x s
EIEOS Reset Interval 16 G Format Rev	Disable 🔻	PPG Electrical Idle Time Speed Change Middle ▼ Comp Trigger 0.2 s Subscripts s Waiting Time 3.0 s Subscripts s Subscr

5. Click **Link Start**, and the Link Training starts after the CBB power is reset as configured in the **Option** dialog box. For the configuration example of the **Option** dialog box in step 4, the CBB power is turned off for 3 seconds, turned on, and kept stay in on state for 2 seconds. Then, Link Training is started.

MX183000A - PCIe Link T	raining	
File Setup Help		Operate MP1900A
Equipment Setup Link	fraining Run Test Graph Repor	rt Electrical Idle
Specification 4.0(16.0 GT/s)	DUT Endpoint (AIC)] More results
LTSSM State Linkup Speed	Received Use Preset PPG Final P	LEQ Test Setting Preset Rx LEQ

- 6. To automatically perform Rx and Tx LEQ Test in GRL PCIe 3.0 / 4.0 CEM Rx Test Application, follow the procedure below:
 - A) In the Configurations screen of GRL Application, set **Auto DUT Reset** to **Internal Power Cycle** or **Internal Power Reset**.
 - B) In the **Power Cycle Off Time** or **Power Reset Off Time** box, set the time required for DUT resetting.
 - C) In the Post Reset Wait Time box, set the time required to stabilize a DUT after resetting it.

GR. Anrite	J PCIe CEM 4.0 Rx Test	-		×
Applicat	on Options License Windows Help			
Config	rrations 📌 (1) 💠 (2) 🐨 🔀 🔍 → 🕨 → 🗮		?	
	Rx Tests			8
	Auto DUT Reset: Internal Power Cycle Power Cycle Off Time(s): 3			
	Power Reset Off Time(s): 3 Post Reset WaitTime(s): 2			
	– Link Training Wait Time(s): 5			
	BER Automation: PCIe Link Training			

D) In the Configurations screen of the GRL Application, set Prompt Before Link Training to False.

Appli	ication Options Setup License Windows Help
Cont	figurations 🦸 🔿 🔶 🔶 🕈
	Rx Tests Loopback Mode: Recovery BER Automation Type: PCIe Link Training Prompt Before Link Training: False Jgnore Failed Link Training: False Compliance BER Measurement Time(s): 125

E) Select test items.

Appli	cation	Options Setup License Windows Help			
Sele	ct Tests	6		/ 👔 🗘 🖣	🛊 🕲 🔲 🛠 🕥 + 🕨 + J
			et et et et et et et et et et		

F) Click **Run Tests**. Afterward, the CBB power resets automatically at the required timing.

Applic	ation	Options	License	Windows	Help									
Run	Run Tests 🧳 🗊 🔆 🎱													
		Run Option	est If Result	Exists										
		Replace	ce If Result I	Exists						l	Run lests			