

COMPREHENSIVE SERVICES

We offer competitive repair and calibration services, as well as easily accessible documentation and free downloadable resources.

SELL YOUR SURPLUS

We buy new, used, decommissioned, and surplus parts from every NI series. We work out the best solution to suit your individual needs.


 Sell For Cash  Get Credit  Receive a Trade-In Deal

OBSOLETE NI HARDWARE IN STOCK & READY TO SHIP

We stock **New**, **New Surplus**, **Refurbished**, and **Reconditioned** NI Hardware.



Bridging the gap between the manufacturer and your legacy test system.

 1-800-915-6216

 www.apexwaves.com

 sales@apexwaves.com

All trademarks, brands, and brand names are the property of their respective owners.

Request a Quote

 **CLICK HERE**

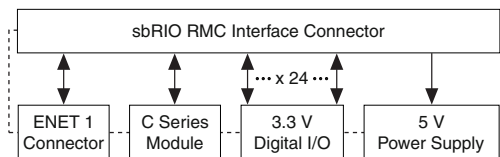
sbRIO-9219

sbRIO-9698

One-Slot C Series and Secondary Ethernet RIO Mezzanine Card

The sbRIO-9698 one-slot C Series RIO Mezzanine Card is an accessory you can use to connect one board-only C Series module to the NI sbRIO-9607/9627. The sbRIO-9698 includes an Ethernet port for Ethernet communication or EtherCAT master functionality.

Figure 1. sbRIO-9698 Block Diagram



Note Board-only C Series modules are designated sbRIO. For example, the NI 9219 is the enclosed C Series module and the sbRIO-9219 is the board-only version of the module.



Notice NI makes no electromagnetic compatibility (EMC) or CE marking compliance claims for the sbRIO-9698. The end-product supplier is responsible for conformity to any and all compliance requirements.



Notice The sbRIO-9698 must be installed inside a suitable enclosure prior to use. Hazardous voltages may be present.



Notice Follow proper ESD precautions to ensure you are grounded before installing hardware.

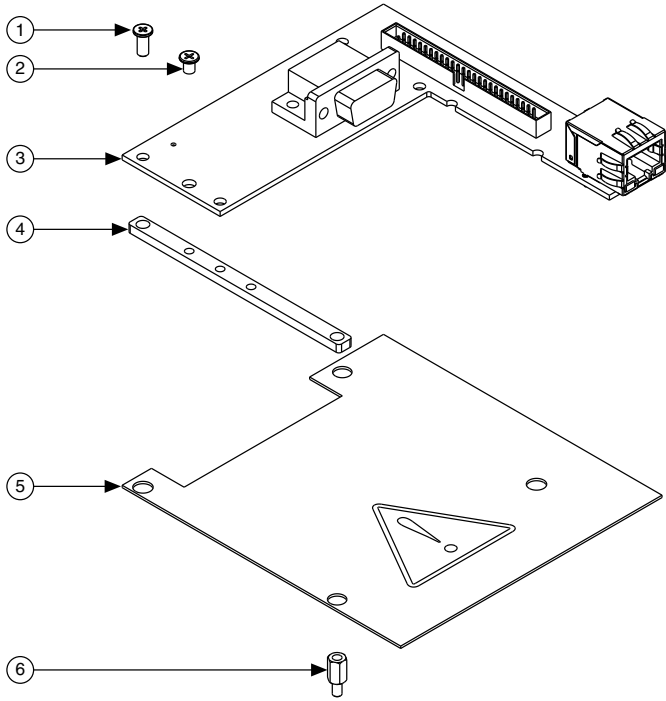


Notice The protection provided by the sbRIO-9698 can be impaired if the sbRIO-9698 is used in a manner not described in this document.

Verifying the Kit Contents

Verify that the following items are included in the sbRIO-9698 kit.

Figure 2. sbRIO-9698 Kit Contents



-
- | | |
|--------------------------------------------|-----------------------------------------|
| 1. M3 × 7 mm Silver Low-Profile Screw (x4) | 4. C Series Module Support Bracket (x2) |
| 2. M3 × 4 mm Black Low-Profile Screw (x6) | 5. Isolator Sheet |
| 3. sbRIO-9698 | 6. M3 × 7 mm Standoff (x4) |
-

sbRIO-9698 Digital I/O Connector Pinout

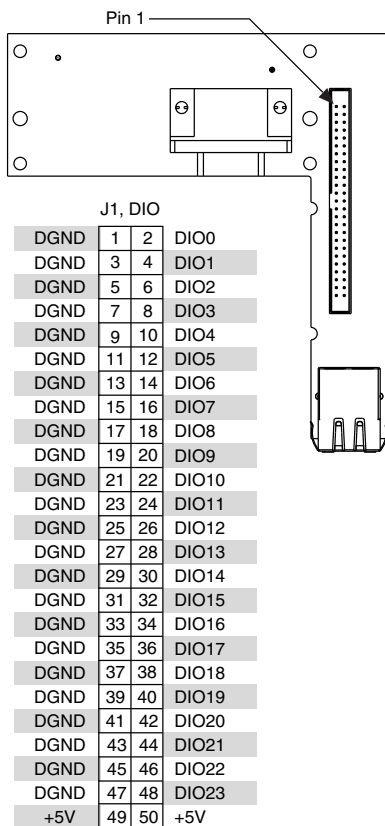


Table 1. Signal Descriptions

Signal	Description
DGND	Ground reference for the digital signal
DIO	Digital input/output signal connection
+5 V	5 V power output connection for external devices



Note The DIO numbering on this connector corresponds to naming of the DIO on the NI sbRIO device. For example, DIO0 on the sbRIO-9698 connector corresponds to DIO0 on the NI sbRIO-9607/9627 RMC connector.

sbRIO-9698 Dimensions

The following figures show the side and rear dimensions of the sbRIO-9698. For two-dimensional drawings and three-dimensional models of the sbRIO-9698, visit ni.com/dimensions and search by model number.

Figure 3. Side View with Dimensions

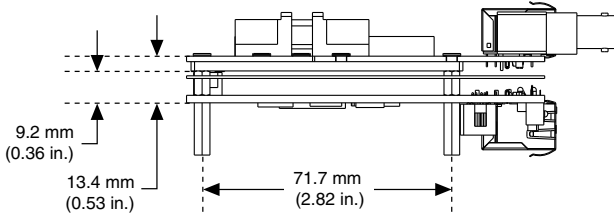
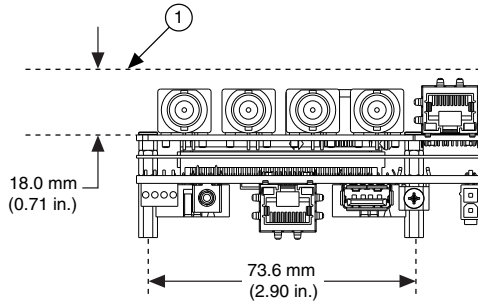


Figure 4. Front View with Dimensions



1. Recommended Keepaway from Modules

Installing the sbRIO-9698

What to Use

- sbRIO-9698
- sbRIO device
- Socket driver, 4.5 mm
- Screwdriver, Phillips #1

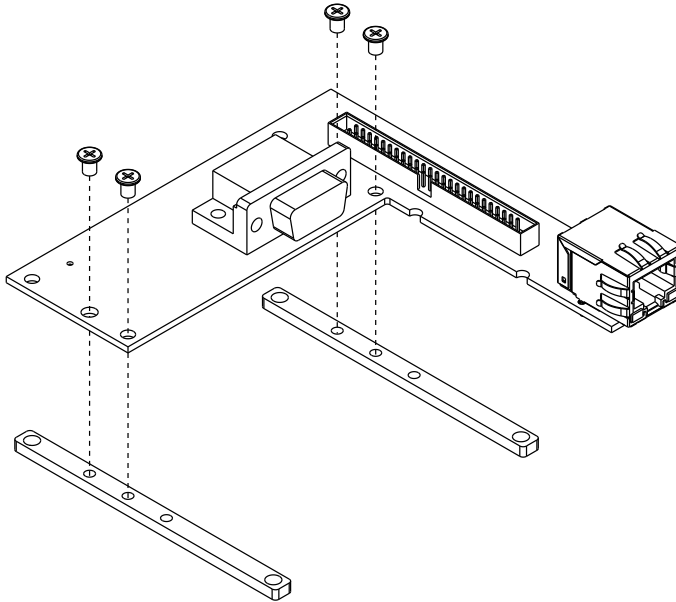
What to Do

1. Attach the two C Series support brackets to the sbRIO-9698 using four of the M3 × 4 mm black, low-profile screws included in the kit.



Note Do not tighten the screws until you reach step 8. You may need to adjust the brackets during assembly.

Figure 5. Attaching the Support Brackets to the sbRIO-9698

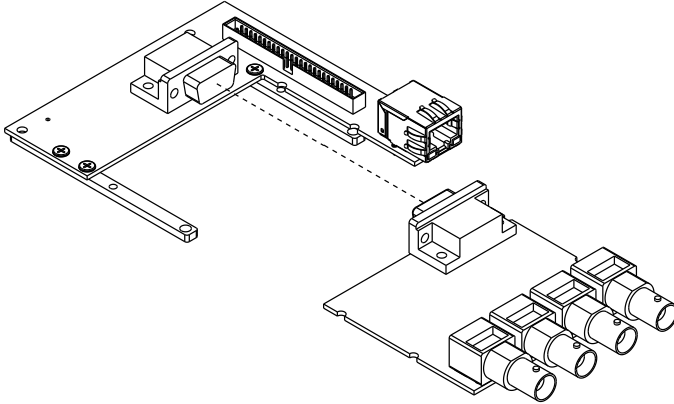


2. Connect board-only C Series modules to the sbRIO-9698.



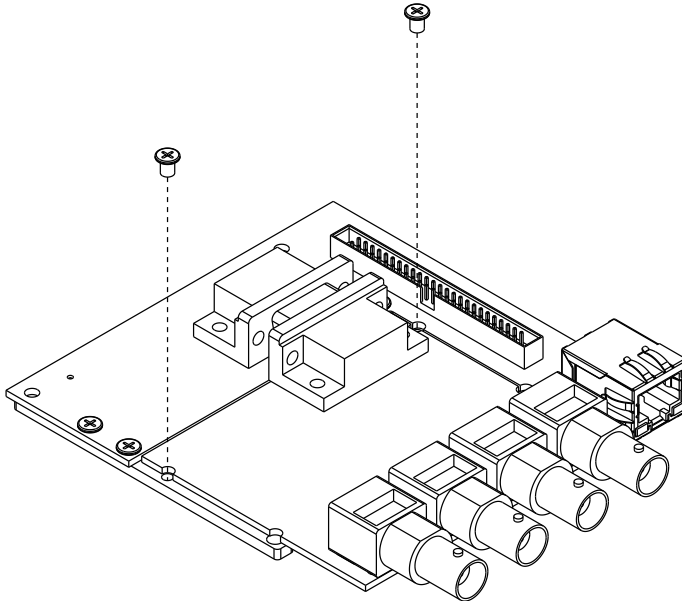
Caution To avoid causing damage to the sbRIO-9698 and the C Series modules, do not allow C Series module support brackets to contact components on the secondary side of the board-only C Series modules.

Figure 6. Connecting Board-only C Series Modules to the sbRIO-9698



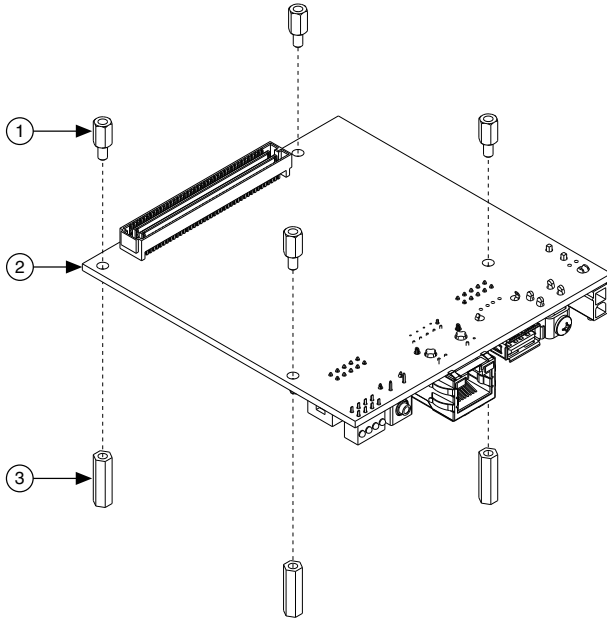
3. Screw two of the remaining $M3 \times 4$ mm black, low-profile screws into the holes.

Figure 7. Inserting Two Screws into the Module and Bracket Holes



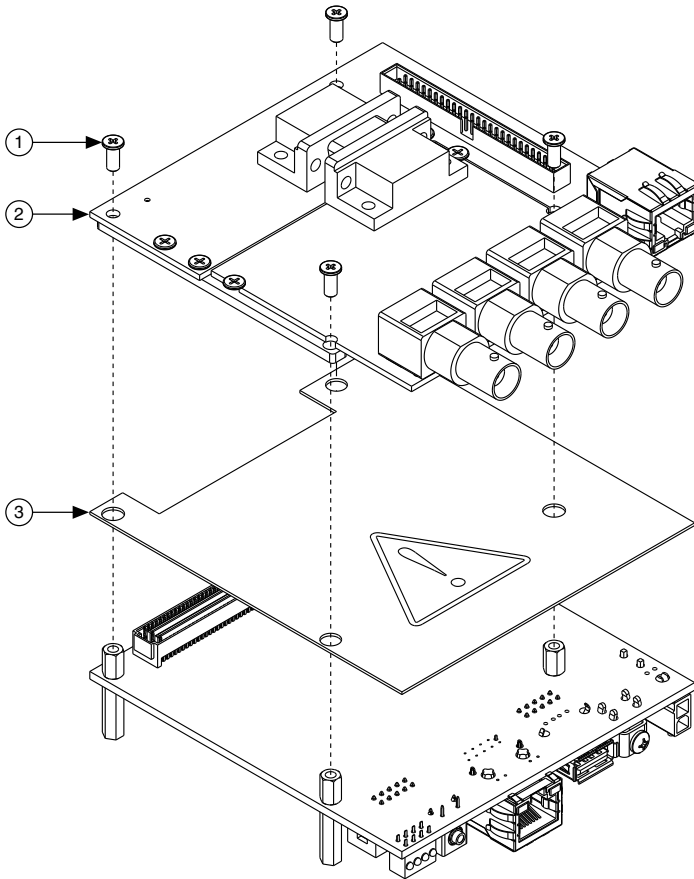
4. Insert the four $M3 \times 7$ mm standoffs from the secondary side of the NI sbRIO device into the four mounting standoffs for your application. The mounting standoffs are not included in the sbRIO-9698 kit.

Figure 8. Inserting the Standoffs into the NI sbRIO Device



1. M3 × 7 mm Standoff (x4)
 2. sbRIO Device
 3. Mounting Standoff (x4, Not Provided)
-
5. Tighten the standoffs to 0.45 N · m (4.0 lb · in.). Do not overtighten.
 6. Press the isolator sheet over the standoffs so that 1 mm to 2 mm of standoff protrudes through the holes.
 7. Align the bracket holes attached to the sbRIO-9698 with the tops of the M3 × 7 mm standoffs, and insert the four M3 × 7 mm silver low-profile screws.

Figure 9. Inserting the Standoffs and Screws into the NI sbRIO Device



1. M3 × 7 mm Silver Low-Profile Screw (x4)
2. sbRIO-9698
3. Isolator

8. Tighten all the screws to 0.45 N · m (4.0 lb · in.). Do not overtighten.

sbRIO-9698 Specifications



Caution Do not operate the sbRIO-9698 in a manner not specified in this document. Product misuse can result in a hazard. You can compromise the safety protection built into the product if the product is damaged in any way. If the product is damaged, return it to NI for repair.

Definitions

Warranted specifications describe the performance of a model under stated operating conditions and are covered by the model warranty.

Characteristics describe values that are relevant to the use of the model under stated operating conditions but are not covered by the model warranty.

- *Typical* specifications describe the performance met by a majority of models.
- *Nominal* specifications describe an attribute that is based on design, conformance testing, or supplemental testing.

Specifications are *Typical* unless otherwise noted.

3.3 V Digital I/O on 50-Pin IDC Connector

Number of DIO channels	24
Maximum tested current per channel	±3 mA
Input logic levels	
Input low voltage, V_{IL}	0 V minimum; 0.8 V maximum
Input high voltage, V_{IH}	2.0 V minimum; 5.25 V maximum
Output logic levels	
Output high voltage, V_{OH} when sourcing 3 mA	2.4 V minimum; 3.465 V maximum
Output low voltage, V_{OL} when sinking 3 mA	0.0 V minimum; 0.4 V maximum

Network/Ethernet Port

Number of interfaces	1
Network interface	10Base-T, 100Base-TX, and 1000Base-T Ethernet
Compatibility	IEEE 802.3
Communication rates	10 Mbps, 100 Mbps, 1000 Mbps auto-negotiated, half-/full-duplex
Maximum cabling distance	100 m/segment

Physical Characteristics

If you need to clean the device, wipe it with a dry towel.

Torque for screws	0.45 N · m (4.0 lb · in)
Weight	39 g (1.4 oz)

Environmental

Operating temperature -40 °C to 85 °C
(IEC 60068-2-1, IEC 60068-2-2)

Thermal validation of an NI sbRIO system assembled with the sbRIO-9698 requires validating the NI sbRIO device and board-only C Series modules. Measure the operating temperature of board-only C Series modules 7.6 mm (0.3 in.) above the module surface. Refer to the documentation of the NI sbRIO device and board-only C Series modules for operating temperature limits and, if applicable, for typical specifications.

Storage temperature -40 °C to 85 °C
(IEC 60068-2-1, IEC 60068-2-2)

Operating humidity 10% RH to 90% RH, noncondensing
(IEC 60068-2-78, IEC 60068-2-2)

Storage humidity 5% RH to 95% RH, noncondensing
(IEC 60068-2-78, IEC 60068-2-2)

Maximum altitude 5,000 m

Indoor use only.

Product Certifications and Declarations

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for NI products, visit ni.com/certification, search by model number or product line, and click the appropriate link in the Certification column.

Environmental Management

NI is committed to designing and manufacturing products in an environmentally responsible manner. NI recognizes that eliminating certain hazardous substances from our products is beneficial to the environment and to NI customers.

For additional environmental information, refer to the *Minimize Our Environmental Impact* web page at ni.com/environment. This page contains the environmental regulations and directives with which NI complies, as well as other environmental information not included in this document.

Waste Electrical and Electronic Equipment (WEEE)



EU Customers At the end of the product life cycle, all NI products must be disposed of according to local laws and regulations. For more information about how to recycle NI products in your region, visit ni.com/environment/weee.

电子信息产品污染控制管理办法（中国 RoHS）



中国客户 National Instruments 符合中国电子信息产品中限制使用某些有害物质指令 (RoHS)。关于 National Instruments 中国 RoHS 合规性信息，请登录 ni.com/environment/rohs_china。(For information about China RoHS compliance, go to ni.com/environment/rohs_china.)

Worldwide Support and Services

The NI website is your complete resource for technical support. At ni.com/support, you have access to everything from troubleshooting and application development self-help resources to email and phone assistance from NI Application Engineers.

Visit ni.com/services for information about the services NI offers.

Visit ni.com/register to register your NI product. Product registration facilitates technical support and ensures that you receive important information updates from NI.

NI corporate headquarters is located at 11500 North Mopac Expressway, Austin, Texas, 78759-3504. NI also has offices located around the world. For support in the United States, create your service request at ni.com/support or dial 1 866 ASK MYNI (275 6964). For support outside the United States, visit the *Worldwide Offices* section of ni.com/niglobal to access the branch office websites, which provide up-to-date contact information.

Information is subject to change without notice. Refer to the *NI Trademarks and Logo Guidelines* at ni.com/trademarks for information on NI trademarks. Other product and company names mentioned herein are trademarks or trade names of their respective companies. For patents covering NI products/technology, refer to the appropriate location: **Help»Patents** in your software, the `patents.txt` file on your media, or the *National Instruments Patent Notice* at ni.com/patents. You can find information about end-user license agreements (EULAs) and third-party legal notices in the `readme` file for your NI product. Refer to the *Export Compliance Information* at ni.com/legal/export-compliance for the NI global trade compliance policy and how to obtain relevant HTS codes, ECCNs, and other import/export data. NI MAKES NO EXPRESS OR IMPLIED WARRANTIES AS TO THE ACCURACY OF THE INFORMATION CONTAINED HEREIN AND SHALL NOT BE LIABLE FOR ANY ERRORS. U.S. Government Customers: The data contained in this manual was developed at private expense and is subject to the applicable limited rights and restricted data rights as set forth in FAR 52.227-14, DFAR 252.227-7014, and DFAR 252.227-7015.

© 2017 National Instruments. All rights reserved.

377267A-01 June 5, 2018