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Find the *National Instruments GPIB-SPRC-B / SB-GPIB* at our website: *Click HERE*

INSTALLATION GUIDE

Installing Your SB-GPIB/TNT and NI-488.2™ for Solaris

This document describes how to install NI-488.2 for Solaris and the SB-GPIB/TNT or SB-GPIB into your Sun SPARC system. The NI-488.2 software included in this kit is intended for use with Sun SPARC systems running Solaris 2.6 or later.

Other documentation, including the software reference manual, is available on your NI-488.2 software for Solaris CD in the `\documentation` folder.

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NATIONAL INSTRUMENTS™

Installing the GPIB Hardware

Before you install your GPIB controller, consult the manual that came with your workstation for specific instructions and warnings. You must have superuser privileges to install the hardware and software.



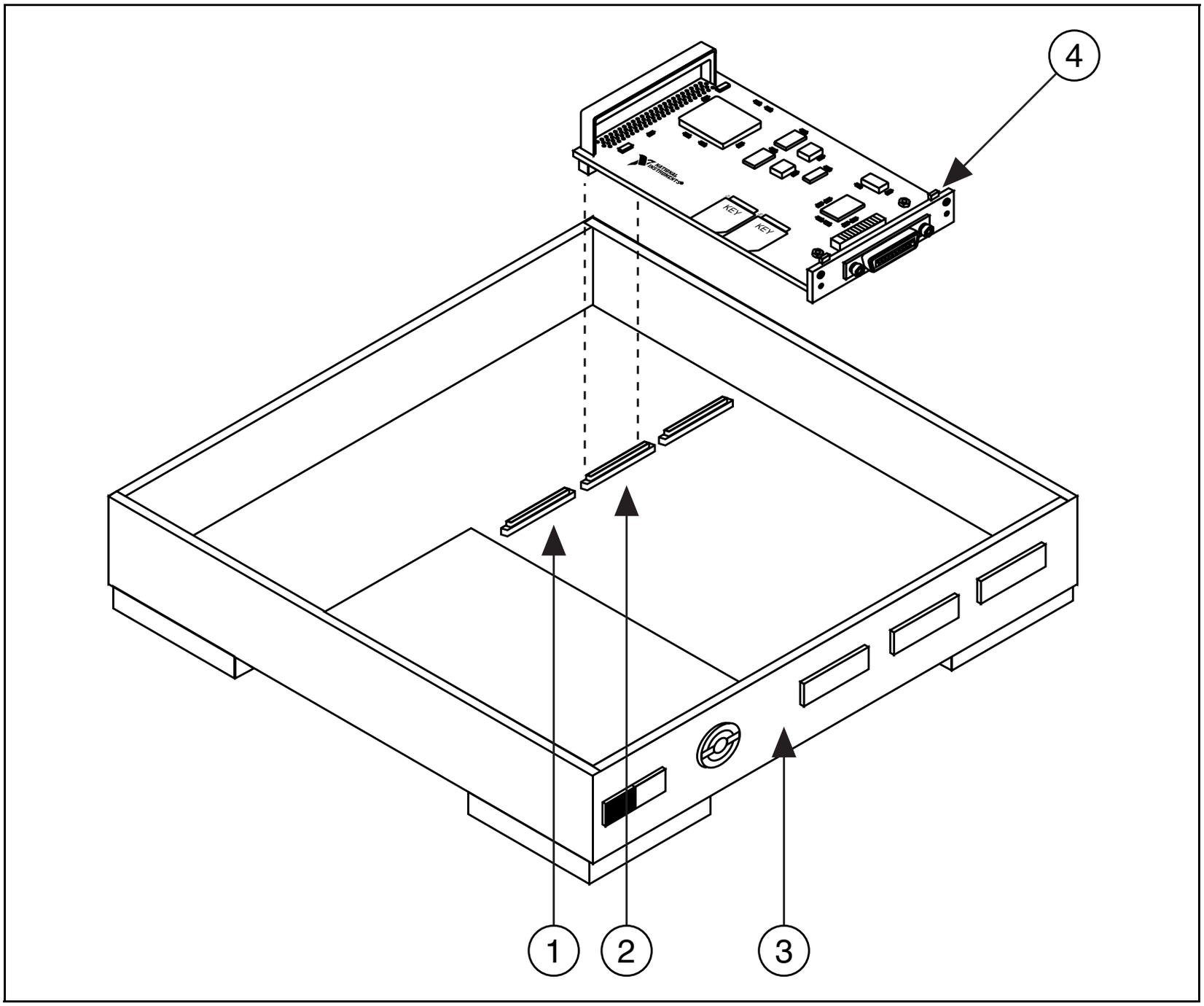
Caution Electrostatic discharge can damage several components on your GPIB board. To avoid electrostatic damage when you handle the module, touch the antistatic plastic package to a metal part of your computer chassis before you remove the board from the package.

Complete the following steps to install the GPIB board.

1. Log on as superuser. To become a superuser, type `su root` and enter the root password.
2. Shut down your system by typing the following commands at the command line prompt:

   ```
   sync; shutdown
   ```
3. Power off your computer after it has shut down. Keep the computer plugged in so that it remains grounded while you install the GPIB board.
4. Remove the top cover of the system unit.
5. Remove the GPIB connector extender (if your board came with one) by loosening the thumbscrews.
6. Find an unused DVMA master slot in your computer.

7. Insert the GPIB board into the slot with the GPIB connector sticking out of the opening on the back panel, as shown in Figure 1. Do *not* insert the board into a slave-only physical slot if you are using DVMA; only programmed I/O transfers are possible in slave-only slots. Refer to the documentation for your Sun SPARC system for information about DVMA master and DVMA slave slots.
8. Replace the system unit cover.
9. Reinstall the GPIB connector extender you removed in step 5 if you have problems connecting the GPIB cable to the connector on the board due to space restraints.
10. Power on your computer. The GPIB interface board is now installed.



1	Slot 1	3	Back Panel Rail
2	Slot 2	4	Backplate Adapter

Figure 1. Installing the SB-GPIB/TNT or SB-GPIB

Installing NI-488.2

Complete the following steps to install NI-488.2 for Solaris.

1. Insert the NI-488.2 for Solaris installation CD.
2. You must have superuser privilege before you can install NI-488.2 for Solaris. If you are not already a superuser, type `su root` and enter the root password.
3. Add NI-488.2 to the operating system by entering the following command.
   a. On Solaris 2.6 or later versions, the CD automatically mounts as soon as you insert the CD. If this feature is disabled on your workstation, you must mount the CD by typing the following command:

```
/usr/sbin/mount -o ro -F hsfs /dev/dsk/c0t6d0s2 /cdrom/cdrom0
```

   b. Enter the following command to add NI-488.2 to your system:

```
/usr/sbin/pkgadd -d /cdrom/cdrom0 NICsbgpib
```

4. Follow the instructions on your screen to complete the installation.

Configuring the Software with ibconf (Optional)

`ibconf` is an interactive utility you can use to examine or modify the configuration of the driver. You might want to run `ibconf` to change the settings of the software parameters. You must have superuser privilege to run `ibconf`.

`ibconf` is largely self explanatory and contains help screens that explain all commands and options. For more information on using `ibconf`, refer to the *NI-488.2M Software Reference Manual*.

Complete the following steps to change the default parameters of your NI-488.2 software. The driver should not be in use while you run `ibconf`.

1. Log on as superuser (`root`).
2. Type the following command to start `ibconf`:

   ```
   ibconf
   ```

After you have installed and configured the software, you should verify the installation. Refer to the *Installation Verification* section.

Removing NI-488.2 (Optional)

If you ever decide to stop using your GPIB board, you can remove NI-488.2 from your system. To remove NI-488.2 from the kernel configuration, you must have superuser privilege and the driver must not be in use. Enter the following command to unload the software:

```
pkgrm NICsbgpib
```

Installation Verification

The software installation test `ibtsta` verifies that the driver is installed correctly. It checks for correct access to the device driver.

Run `ibtsta` by entering the following command:

```
ibtsta
```

If no error occurs in `ibtsta`, NI-488.2 is installed correctly.

If `ibtsta` fails, it displays an error message that explains why the test failed and how you can correct the problem. If you are unable to run `ibtsta` successfully

after you have followed the on-screen instructions, refer to the *Common Questions* section.

Using NI-488.2 with Solaris

This section helps you get started with NI-488.2 for Solaris.

Introduction to ibic

The NI-488.2 software includes the Interface Bus Interactive Control utility, `ibic`. You can use `ibic` to enter NI-488 functions and IEEE 488.2-style functions (also known as *NI-488.2 routines*) interactively and display the results of the function calls automatically. Without writing an application, you can use `ibic` to do the following:

- Verify GPIB communication with your device quickly and easily
- Become familiar with the commands of your device
- Receive data from your GPIB device
- Learn new NI-488.2 functions and routines before integrating them into your application
- Troubleshoot problems with your application
- Enter the following command to run `ibic`:

  ```
  ibic
  ```
- For more information about `ibic`, refer to Chapter 6, *ibic*, of the *NI-488.2M Software Reference Manual*.

Programming Considerations

Depending on the programming language you use to develop your application, you must include certain files, statements, or global variables at the beginning of your application. For example, you must include the header file `sys/ugpib.h` in your source code if you are using C/C++.

You must link the language interface library with your compiled source code. Link the GPIB C language interface library using one of the following commands, where `example.c` is your application name:

```
cc example.c -lgpib
```

or

```
cc example.c -dy -lgpib
```

or

```
cc example.c -dn -lgpib
```

`-dy` specifies dynamic linking, which is the default method. It links the application to `libgpib.so`. `-dn` specifies static linking in the link editor. It links the application to `libgpib.a`. For more information about compiling and linking, refer to the `man` pages for `cc` and `ld`.

For information about each NI-488 function and IEEE 488.2-style function, choosing a programming method, developing your application, or compiling and linking, refer to the *NI-488.2M Software Reference Manual*.

Common Questions

What is wrong if ibfind returns a –1?

The driver may not be installed correctly, or the nodes may not have been created when the driver was loaded. Try removing and reinstalling NI-488.2 from the CD-ROM.

Also, the file may require read/write privileges you do not have, or you may have renamed a device. Make sure that the device names in your application program match the device names in `ibconf`.

What information should I have before I call National Instruments?

Please have the results of the diagnostic test `ibtsta`. You also should have run `ibic` to try to find the source of your problem.

Does this driver work with 64-bit Solaris?

Yes. NI-488.2 for Solaris works with either 32-bit or 64-bit Solaris. You also can create 32-bit or 64-bit applications. The driver installs both 32-bit and 64-bit language interface libraries on the system. For information on using the NI-488.2 language interfaces, refer to the *Using NI-488.2 with Solaris* section of this document.

Technical Support and Professional Services

Visit the following sections of the National Instruments Web site at `ni.com` for technical support and professional services:

- **Support**—Online technical support resources include the following:
  - **Self-Help Resources**—For immediate answers and solutions, visit our extensive library of technical support resources available in English, Japanese, and Spanish at `ni.com/support`. These resources are available for most products at no cost to registered users and include software drivers and updates, a KnowledgeBase, product manuals, step-by-step troubleshooting wizards, conformity documentation, example code, tutorials and application notes, instrument drivers, discussion forums, a measurement glossary, and so on.
  - **Assisted Support Options**—Contact NI engineers and other measurement and automation professionals by visiting `ni.com/support`. Our online system helps you define your question and connects you to the experts by phone, discussion forum, or email.
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- **Declaration of Conformity (DoC)**—A DoC is our claim of compliance with the Council of the European Communities using the manufacturer's declaration of conformity. This system affords the user protection for

electronic compatibility (EMC) and product safety. You can obtain the DoC for your product by visiting `ni.com/hardref.nsf`.

- **Calibration Certificate**—If your product supports calibration, you can obtain the calibration certificate for your product at `ni.com/calibration`.

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