

# GPIB Hardware Guide

## CONFIGURATION AND INSTALLATION

AT-GPIB-TNT  
GPIB-PCII/IIA  
PC/104-GPIB  
NEC-GPIB/TNT

## INSTALLATION

AT-GPIB/TNT (PnP) and AT-GPIB/TNT+  
GPIB-1394  
GPIB-USB-A  
NEC-GPIB/TNT (PnP)  
PCI-GPIB and PCI-GPIB+  
PCMCIA-GPIB and PCMCIA-GPIB+  
PMC-GPIB  
PXI-GPIB

## SPECIFICATIONS

## TECHNICAL SUPPORT

## IMPORTANT INFORMATION

## COMPLIANCE



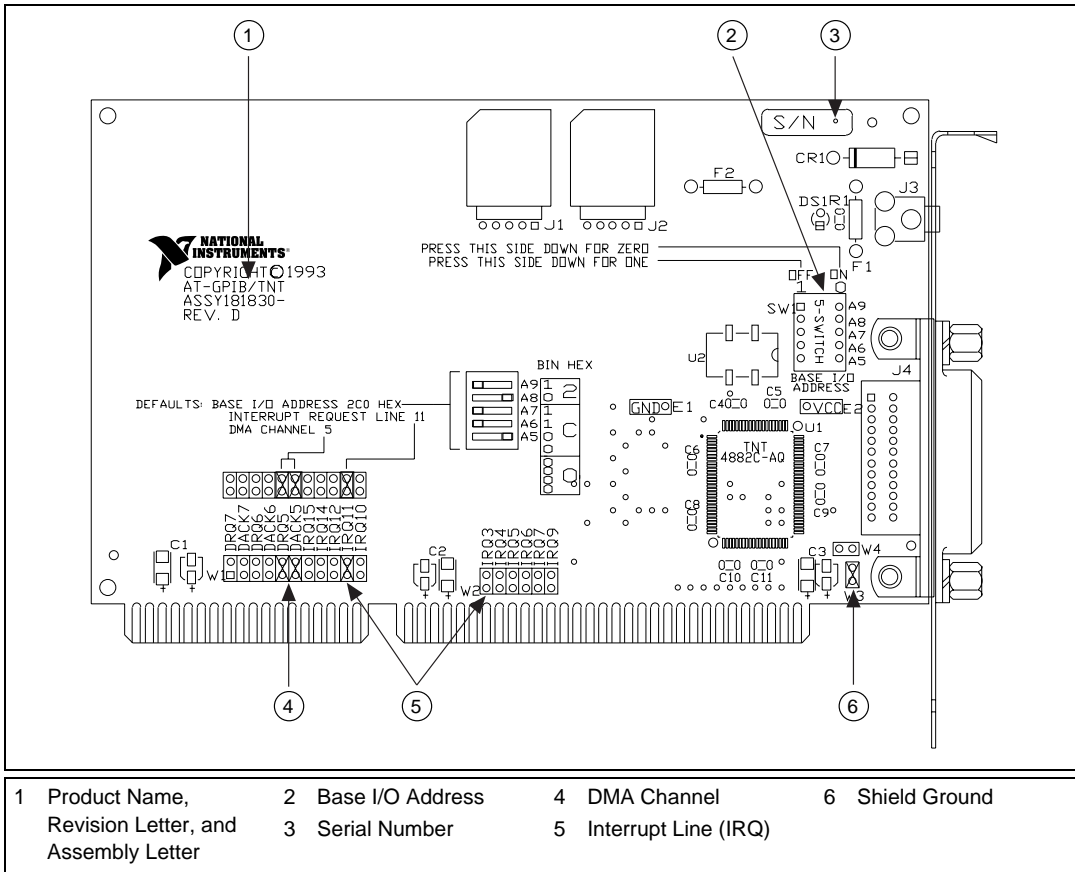
# Configure and Install Your AT-GPIB/TNT

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1. [Configure the AT-GPIB/TNT Base I/O Address](#)
2. [Configure the AT-GPIB/TNT Interrupt Line \(IRQ\).](#)
3. [Configure the AT-GPIB/TNT DMA Channel.](#)

After you finish these steps, you are ready to [Install the AT-GPIB/TNT](#).





**Figure 1.** AT-GPIB/TNT Parts Locator Diagram



## Configure the AT-GPIB/TNT Base I/O Address

Click on the base I/O address assigned to your AT-GPIB/TNT from the list below, and change the switch settings to match the base I/O address assigned to your board.

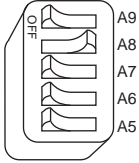
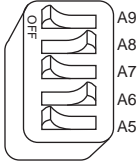
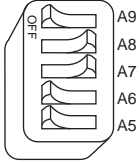
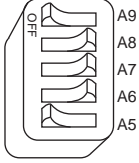
If you do not know what resources were assigned to your AT-GPIB/TNT, click here to [Determine Assigned Resources](#).

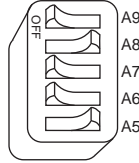
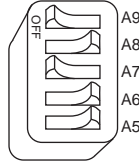
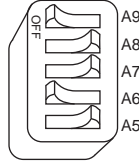
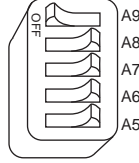
100	200	300
120	220	320
140	240	340
160	260	360
180	280	380
1A0	2A0	3A0
1C0	2C0*	3C0
1E0	2E0	3E0

\* default setting



**Table 1.** Possible Base I/O Address Switch Settings for AT-GPIB/TNT

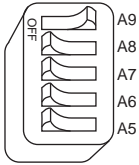
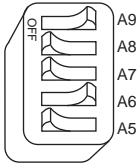
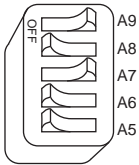
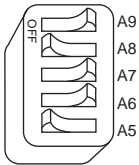
Base I/O Address (hex)	Switch Setting
100	
140	
180	
1C0	

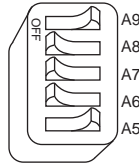
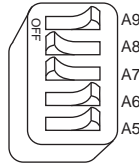
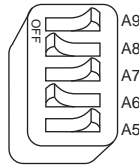
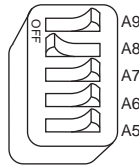
Base I/O Address (hex)	Switch Setting
120	
160	
1A0	
1E0	

[View Parts  
Locator  
Diagram](#)



**Table 1.** Possible Base I/O Address Switch Settings for AT-GPIB/TNT (Continued)

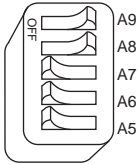
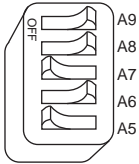
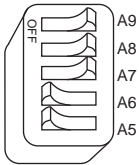
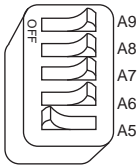
Base I/O Address (hex)	Switch Setting
200	
240	
280	
2C0	

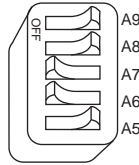
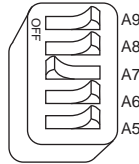
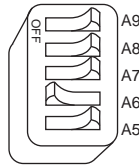
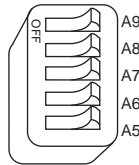
Base I/O Address (hex)	Switch Setting
220	
260	
2A0	
2E0	

[View Parts  
Locator  
Diagram](#)



**Table 1.** Possible Base I/O Address Switch Settings for AT-GPIB/TNT (Continued)

Base I/O Address (hex)	Switch Setting
300	
340	
380	
3C0	

Base I/O Address (hex)	Switch Setting
320	
360	
3A0	
3E0	

[View Parts Locator Diagram](#)

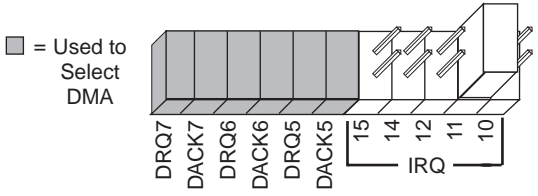
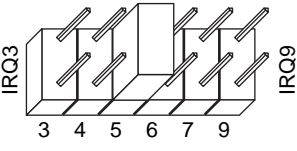
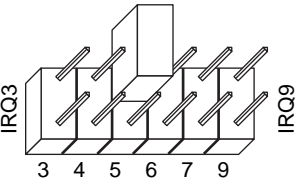


# Configure the AT-GPIB/TNT Interrupt Line (IRQ)

Change the jumper settings to match the interrupt line (IRQ) assigned to your board. By default, the AT-GPIB/TNT is configured to use interrupt line (IRQ) 11.

If you do not know what resources were assigned to your AT-GPIB/TNT, click here to [Determine Assigned Resources](#).

**Table 2.** AT-GPIB/TNT Interrupt Line Configurations

Interrupt Line (IRQ)	Interrupt Jumper Setting
10, 11, 12, or 15 (IRQ 11 is shown)	 <p>■ = Used to Select DMA</p>
3, 4, 5, 7, or 9 (IRQ 5 is shown)	
No Interrupt Line (IRQ)	

[View Parts Locator Diagram](#)



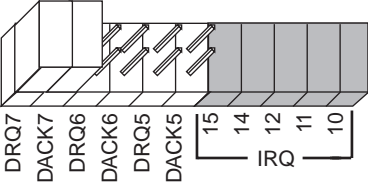
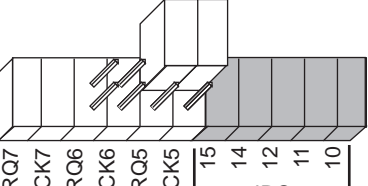


# Configure the AT-GPIB/TNT DMA Channel

Change the jumper settings to match the DMA channel assigned to your board. You must set both the DMA Acknowledge and DMA Request lines. By default, the AT-GPIB/TNT is configured to use DMA channel 5.

If you do not know what resources were assigned to your AT-GPIB/TNT, click here to [Determine Assigned Resources](#).

**Table 3.** AT-GPIB/TNT DMA Channel Settings

DMA Channel	DMA Jumpers
<p>5, 6, or 7 (DMA 7 is shown)</p>	<p>■ = Used to Select IRQ</p> 
<p>No DMA Channel</p>	<p>■ = Used to Select IRQ</p> 

[View Parts Locator Diagram](#)



# Set the AT-GPIB/TNT Shield Ground Configuration

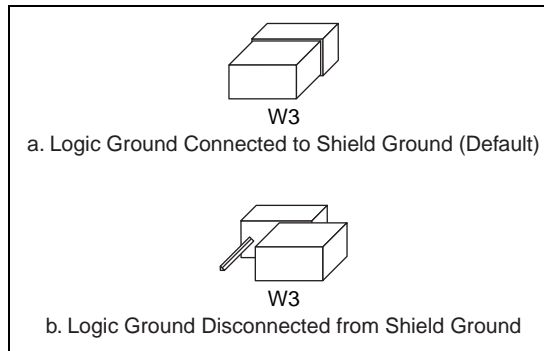
The AT-GPIB/TNT is set at the factory with the jumper in place to connect the logic ground of the AT-GPIB/TNT to its shield ground. This configuration minimizes EMI emissions.



**Caution** The AT-GPIB/TNT was tested for compliance with FCC standards with the shield ground connected to logic ground. Removing the jumper might cause EMI emissions to exceed any or all of the applicable standards.

Most users do not need to change the shield ground configuration. If you feel you must disconnect logic ground from shield ground, follow these steps:

1. Locate the shield ground jumper W3 on the AT-GPIB/TNT. (View the [AT-GPIB/TNT Parts Locator Diagram](#).)
2. Remove the jumper and place it across only one of the jumper pins, as shown in the following figure.



**Figure 2.** AT-GPIB/TNT Ground Configuration Jumper Settings



# Install the AT-GPIB/TNT

## PRINT THIS TOPIC!

Your computer needs to be off while you install your AT-GPIB/TNT. To print this topic, select **File»Print**, select the **Pages** radio button, and print pages **11-12**.



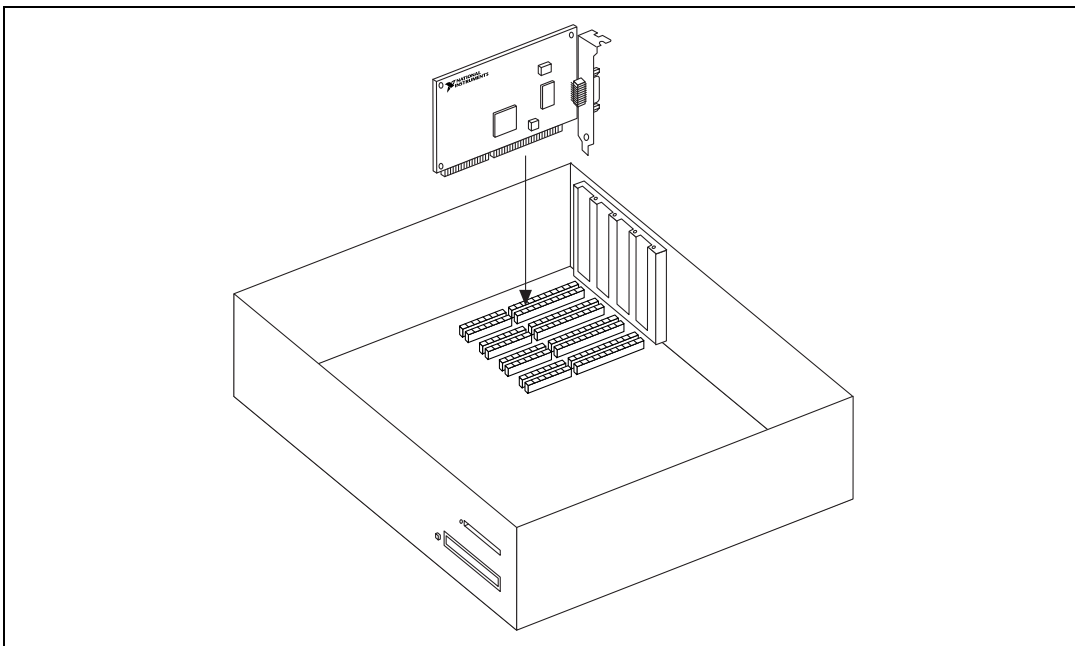
**Caution** Electrostatic discharge can damage several components on these GPIB boards. To avoid such damage in handling your board, touch the antistatic plastic package to a metal part of your computer chassis before removing the board from the package.

Complete the following steps to install your AT-GPIB/TNT:

1. Make sure that your board is configured to match the assigned resources. (If you are not sure, view instructions to [Configure and Install Your AT-GPIB/TNT](#).)
2. Shut down Windows and turn off your computer. Keep the computer plugged in so that it remains grounded while you install the AT-GPIB/TNT.
3. Remove the top cover (or other access panels) to give yourself access to the computer expansion slots.
4. Find an unused expansion slot in your computer. The AT-GPIB/TNT requires a 16-bit ISA expansion slot.
5. Remove the corresponding slot cover on the back panel of the computer.



6. Insert the AT-GPIB/TNT into the slot with the GPIB connector sticking out of the opening on the back panel, as shown in Figure 3. It might be a tight fit, but do not force the board into place.



**Figure 3.** Installing the AT-GPIB/TNT

7. Screw the mounting bracket of the AT-GPIB/TNT to the back panel rail of the computer.
8. Replace the top cover (or the access panel to the expansion slot).
9. Power on your computer and start Windows.

The AT-GPIB/TNT hardware installation is now complete.



# Configure and Install Your GPIB-PCII/IIA

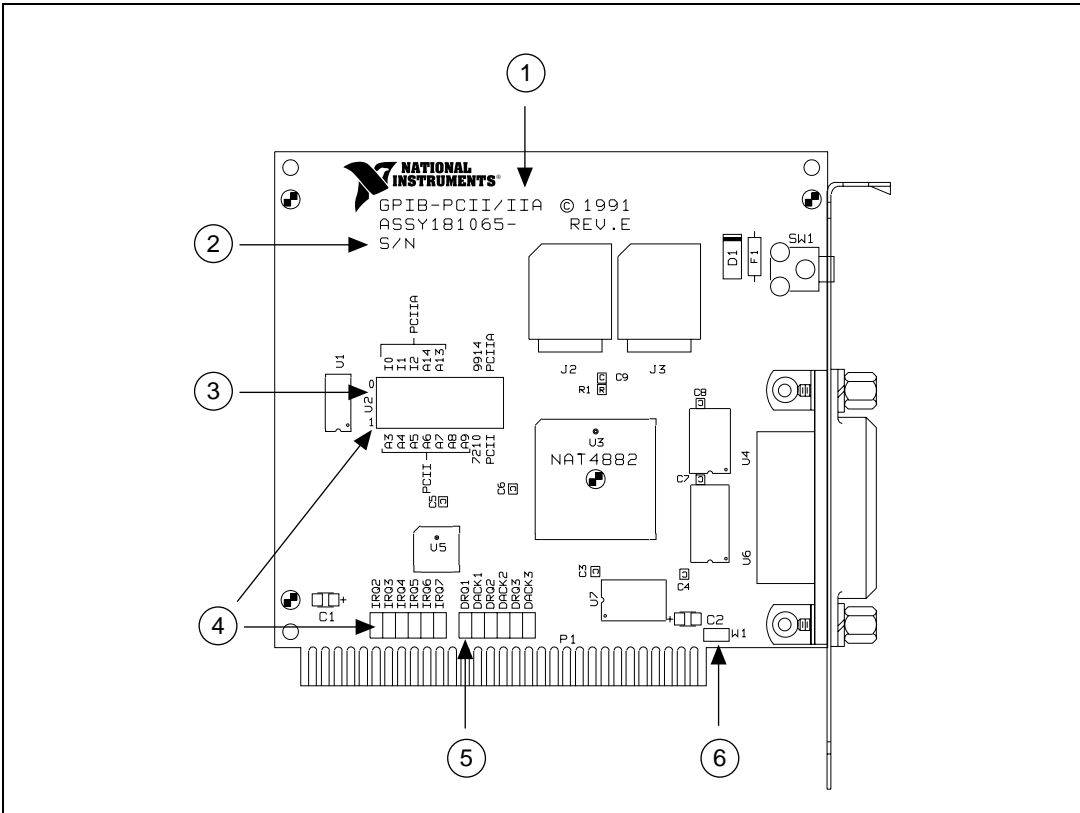
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1. [Configure the GPIB-PCII/IIA Base I/O Address \(GPIB-PCII Mode\).](#)
2. [Configure the GPIB-PCII/IIA Interrupt Line \(IRQ\) \(GPIB-PCII Mode\).](#)
3. [Configure the GPIB-PCII/IIA DMA Channel.](#)

After you finish these steps, you are ready to [Install the GPIB-PCII/IIA](#).

National Instruments recommends that you configure the board in PCII mode, using the above steps. If you want to use your GPIB-PCII/IIA in PCIIA mode, click here to [Configure the GPIB-PCII/IIA in GPIB-PCIIA Mode](#).





- |   |   |   |                      |   |               |
|---|---|---|----------------------|---|---------------|
| 1 | Product Name  | 3 | Base I/O Address     | 5 | DMA Channel   |
| 2 | Assembly Number, Serial Number, and Revision Number | 4 | Interrupt Line (IRQ) | 6 | Shield Ground |

**Figure 4. GPIB-PCII/IIA Parts Locator Diagram**



## Configure the GPIB-PCII/IIA Base I/O Address (GPIB-PCII Mode)

Click on the base I/O address assigned to your GPIB-PCII/IIA from the list below, and change the switch settings to match the base I/O address assigned to your board.

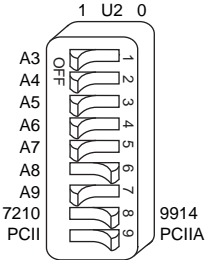
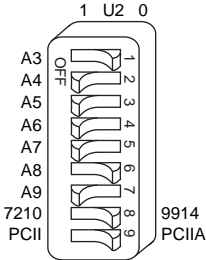
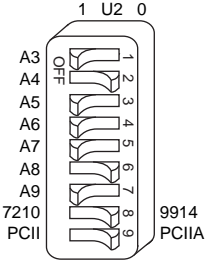
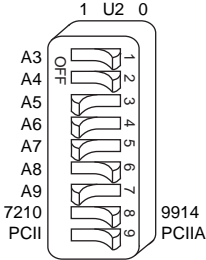
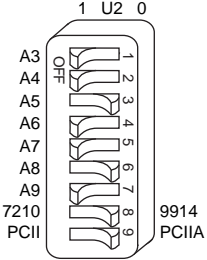
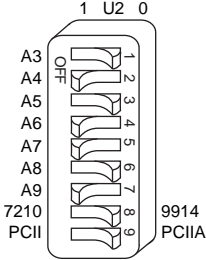
If you do not know what resources were assigned to your GPIB-PCII/IIA, click here to [Determine Assigned Resources](#).

100	180	200	280	300	380
108	188	208	288	308	388
110	190	210	290	310	390
118	198	218	298	318	398
120	1A0	220	2A0	320	3A0
128	1A8	228	2A8	328	3A8
130	1B0	230	2B0	330	3B0
138	1B8	238	2B8*	338	3B8
140	1C0	240	2C0	340	3C0
148	1C8	248	2C8	348	3C8
150	1D0	250	2D0	350	3D0
158	1D8	258	2D8	358	3D8
160	1E0	260	2E0	360	3E0
168	1E8	268	2E8	368	3E8
170	1F0	270	2F0	370	3F0
178	1F8	278	2F8	378	3F8

\*default setting



**Table 4.** Possible Base I/O Address Switch Settings for GPIB-PCII/IIA (PCII Mode)

Base I/O Address (hex)	Switch Setting	Base I/O Address (hex)	Switch Setting
100		108	
110		118	
120		128	

[View Parts Locator Diagram](#)





**Table 4.** Possible Base I/O Address Switch Settings for GPIB-PCII/IIA (PCII Mode) (Continued)

Base I/O Address (hex)	Switch Setting
130	
140	
150	

Base I/O Address (hex)	Switch Setting
138	
148	
158	

[View Parts Locator Diagram](#)



**Table 4.** Possible Base I/O Address Switch Settings for GPIB-PCII/IIA (PCII Mode) (Continued)

Base I/O Address (hex)	Switch Setting	Base I/O Address (hex)	Switch Setting
160		168	
170		178	
180		188	

[View Parts Locator Diagram](#)



**Table 4.** Possible Base I/O Address Switch Settings for GPIB-PCII/IIA (PCII Mode) (Continued)

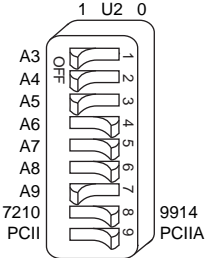
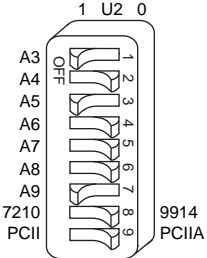
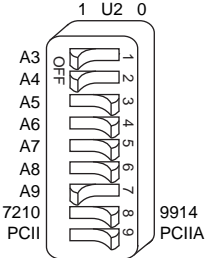
Base I/O Address (hex)	Switch Setting
190	
1A0	
1B0	

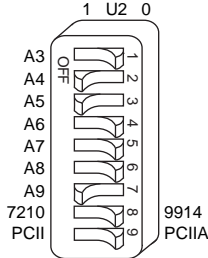
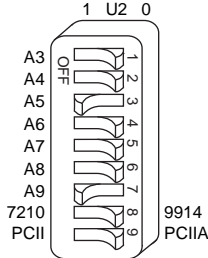
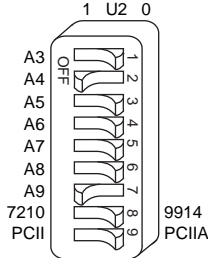
Base I/O Address (hex)	Switch Setting
198	
1A8	
1B8	

[View Parts Locator Diagram](#)



**Table 4.** Possible Base I/O Address Switch Settings for GPIB-PCII/IIA (PCII Mode) (Continued)

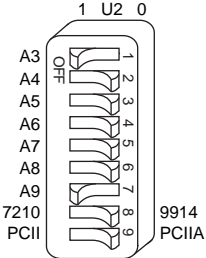
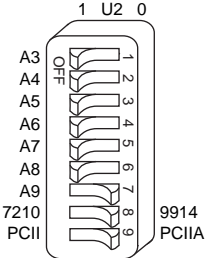
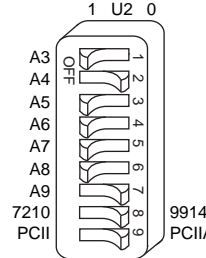
Base I/O Address (hex)	Switch Setting
1C0	
1D0	
1E0	

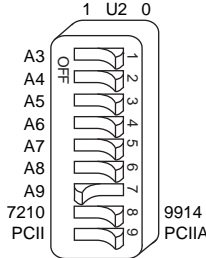
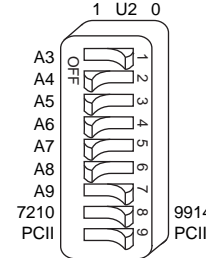
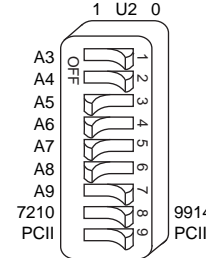
Base I/O Address (hex)	Switch Setting
1C8	
1D8	
1E8	

[View Parts Locator Diagram](#)



**Table 4.** Possible Base I/O Address Switch Settings for GPIB-PCII/IIA (PCII Mode) (Continued)

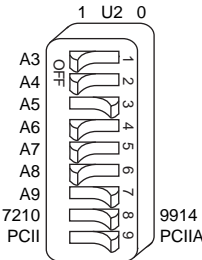
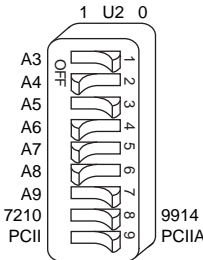
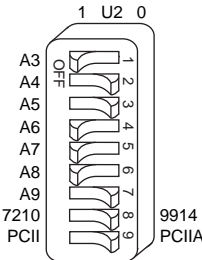
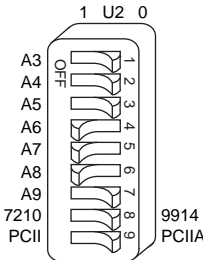
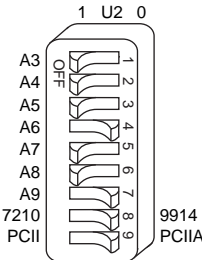
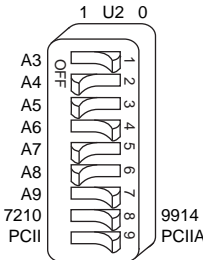
Base I/O Address (hex)	Switch Setting
1F0	
200	
210	

Base I/O Address (hex)	Switch Setting
1F8	
208	
218	

[View Parts Locator Diagram](#)



**Table 4.** Possible Base I/O Address Switch Settings for GPIB-PCII/IIA (PCII Mode) (Continued)

Base I/O Address (hex)	Switch Setting	Base I/O Address (hex)	Switch Setting
220	 <p>1 U2 0</p> <p>A3 A4 A5 A6 A7 A8 A9 7210 PCII</p> <p>9914 PCIIA</p>	228	 <p>1 U2 0</p> <p>A3 A4 A5 A6 A7 A8 A9 7210 PCII</p> <p>9914 PCIIA</p>
230	 <p>1 U2 0</p> <p>A3 A4 A5 A6 A7 A8 A9 7210 PCII</p> <p>9914 PCIIA</p>	238	 <p>1 U2 0</p> <p>A3 A4 A5 A6 A7 A8 A9 7210 PCII</p> <p>9914 PCIIA</p>
240	 <p>1 U2 0</p> <p>A3 A4 A5 A6 A7 A8 A9 7210 PCII</p> <p>9914 PCIIA</p>	248	 <p>1 U2 0</p> <p>A3 A4 A5 A6 A7 A8 A9 7210 PCII</p> <p>9914 PCIIA</p>

[View Parts  
Locator  
Diagram](#)



**Table 4.** Possible Base I/O Address Switch Settings for GPIB-PCII/IIA (PCII Mode) (Continued)

Base I/O Address (hex)	Switch Setting
250	
260	
270	

Base I/O Address (hex)	Switch Setting
258	
268	
278	

[View Parts Locator Diagram](#)



**Table 4.** Possible Base I/O Address Switch Settings for GPIB-PCII/IIA (PCII Mode) (Continued)

Base I/O Address (hex)	Switch Setting
280	
290	
2A0	

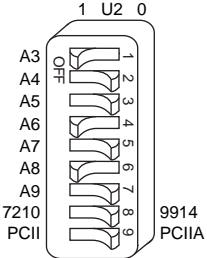
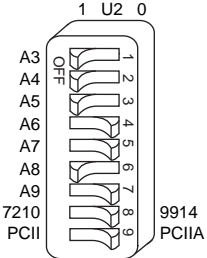
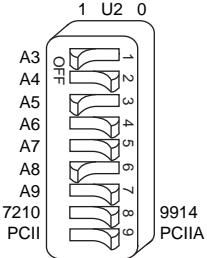
Base I/O Address (hex)	Switch Setting
288	
298	
2A8	

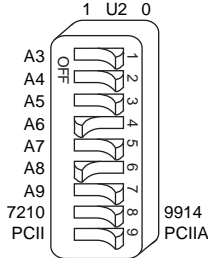
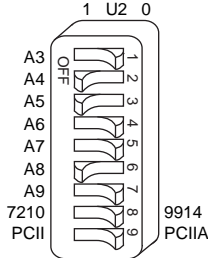
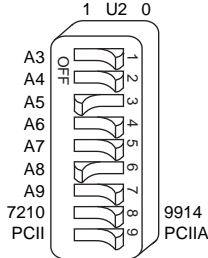
[View Parts Locator Diagram](#)





**Table 4.** Possible Base I/O Address Switch Settings for GPIB-PCII/IIA (PCII Mode) (Continued)

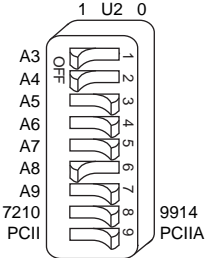
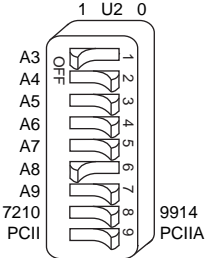
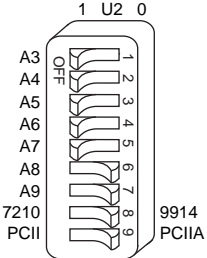
Base I/O Address (hex)	Switch Setting
2B0	
2C0	
2D0	

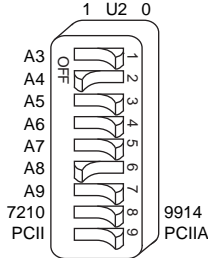
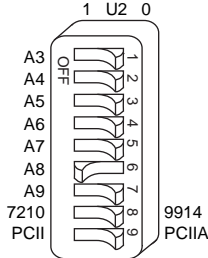
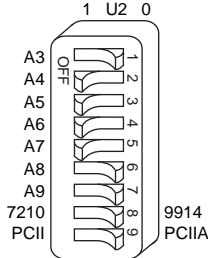
Base I/O Address (hex)	Switch Setting
2B8	
2C8	
2D8	

[View Parts Locator Diagram](#)



**Table 4.** Possible Base I/O Address Switch Settings for GPIB-PCII/IIA (PCII Mode) (Continued)

Base I/O Address (hex)	Switch Setting
2E0	
2F0	
300	

Base I/O Address (hex)	Switch Setting
2E8	
2F8	
308	

[View Parts Locator Diagram](#)



**Table 4.** Possible Base I/O Address Switch Settings for GPIB-PCII/IIA (PCII Mode) (Continued)

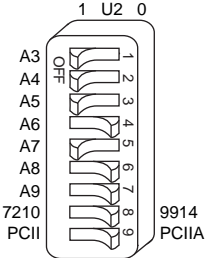
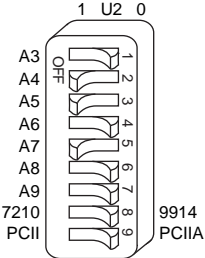
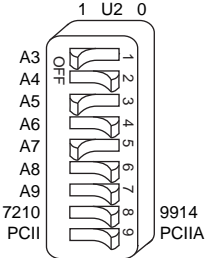
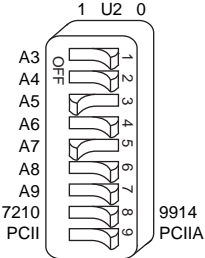
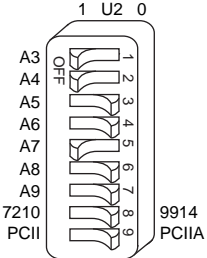
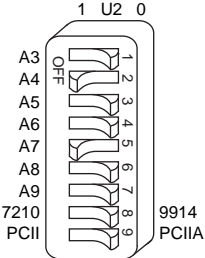
Base I/O Address (hex)	Switch Setting
310	
320	
330	

Base I/O Address (hex)	Switch Setting
318	
328	
338	

[View Parts Locator Diagram](#)



**Table 4.** Possible Base I/O Address Switch Settings for GPIB-PCII/IIA (PCII Mode) (Continued)

Base I/O Address (hex)	Switch Setting	Base I/O Address (hex)	Switch Setting
340		348	
350		358	
360		368	

[View Parts Locator Diagram](#)



**Table 4.** Possible Base I/O Address Switch Settings for GPIB-PCII/IIA (PCII Mode) (Continued)

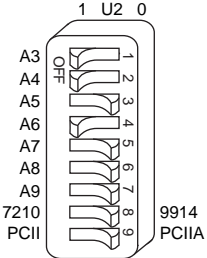
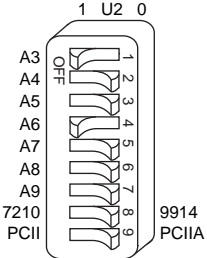
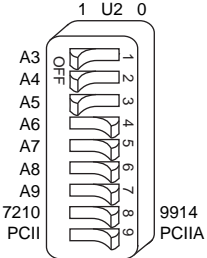
Base I/O Address (hex)	Switch Setting
370	
380	
390	

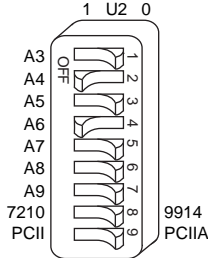
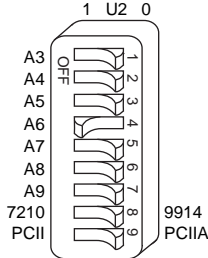
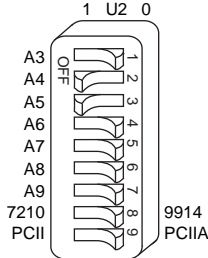
Base I/O Address (hex)	Switch Setting
378	
388	
398	

[View Parts Locator Diagram](#)



**Table 4.** Possible Base I/O Address Switch Settings for GPIB-PCII/IIA (PCII Mode) (Continued)

Base I/O Address (hex)	Switch Setting
3A0	
3B0	
3C0	

Base I/O Address (hex)	Switch Setting
3A8	
3B8	
3C8	

[View Parts Locator Diagram](#)



**Table 4.** Possible Base I/O Address Switch Settings for GPIB-PCII/IIA (PCII Mode) (Continued)

Base I/O Address (hex)	Switch Setting
3D0	
3E0	
3F0	

Base I/O Address (hex)	Switch Setting
3D8	
3E8	
3F8	

[View Parts Locator Diagram](#)

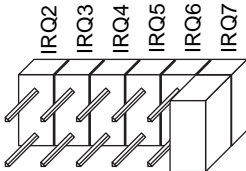
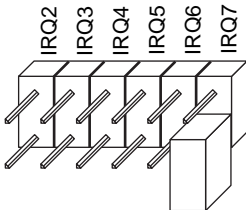


## Configure the GPIB-PCII/IIA Interrupt Line (IRQ) (GPIB-PCII Mode)

Change the jumper settings to match the interrupt line (IRQ) assigned to your board. By default, the GPIB-PCII/IIA is configured to use interrupt line (IRQ) 7.

If you do not know what resources were assigned to your GPIB-PCII/IIA, click here to [Determine Assigned Resources](#).

**Table 5.** GPIB-PCII Interrupt Line Configurations

Interrupt Line (IRQ)	Interrupt Jumper Setting
2, 3, 4, 5, 6, 7 (IRQ 7 is shown)	
No Interrupt Line (IRQ)	

[View Parts  
Locator  
Diagram](#)



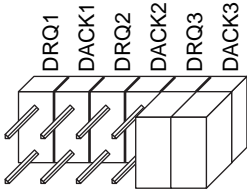
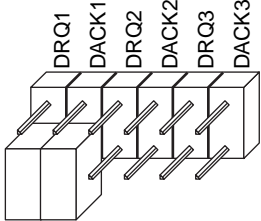


# Configure the GPIB-PCII/IIA DMA Channel

Change the jumper settings to match the DMA channel assigned to your board. You must set both the DMA Acknowledge and DMA Request lines. By default, the GPIB-PCII/IIA is configured to use DMA channel 1.

If you do not know what resources were assigned to your GPIB-PCII/IIA, click here to [Determine Assigned Resources](#).

**Table 6.** GPIB-PCII/IIA DMA Channel Settings

DMA Channel	DMA Jumpers
1, 2, or 3 (DMA 3 is shown)	
No DMA	

[View Parts  
Locator  
Diagram](#)



# Set the GPIB-PCII/IIA Shield Ground Configuration

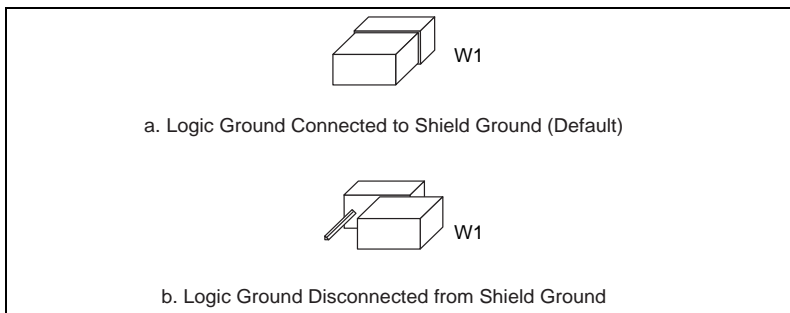
The GPIB-PCII/IIA is set at the factory with the jumper in place to connect the logic ground of the GPIB-PCII/IIA to its shield ground. This configuration minimizes EMI emissions.



**Caution** The GPIB-PCII/IIA was tested for compliance with FCC and CE standards with the shield ground connected to logic ground. Removing the jumper might cause EMI emissions to exceed the applicable standards.

Most users do not need to change the shield ground configuration. If you feel you must disconnect logic ground from shield ground, follow these steps:

1. Locate the shield ground jumper W1 on the GPIB-PCII/IIA. (View the [GPIB-PCII/IIA Parts Locator Diagram](#).)
2. Remove the jumper and place it across only one of the jumper pins, as shown in the following figure.



**Figure 5.** GPIB-PCII/IIA Ground Configuration Jumper Settings



# Install the GPIB-PCII/IIA

## PRINT THIS TOPIC!

Your computer needs to be off while you install your GPIB-PCII/IIA. To print this topic, select **File»Print**, select the **Pages** radio button, and print pages **35-36**.



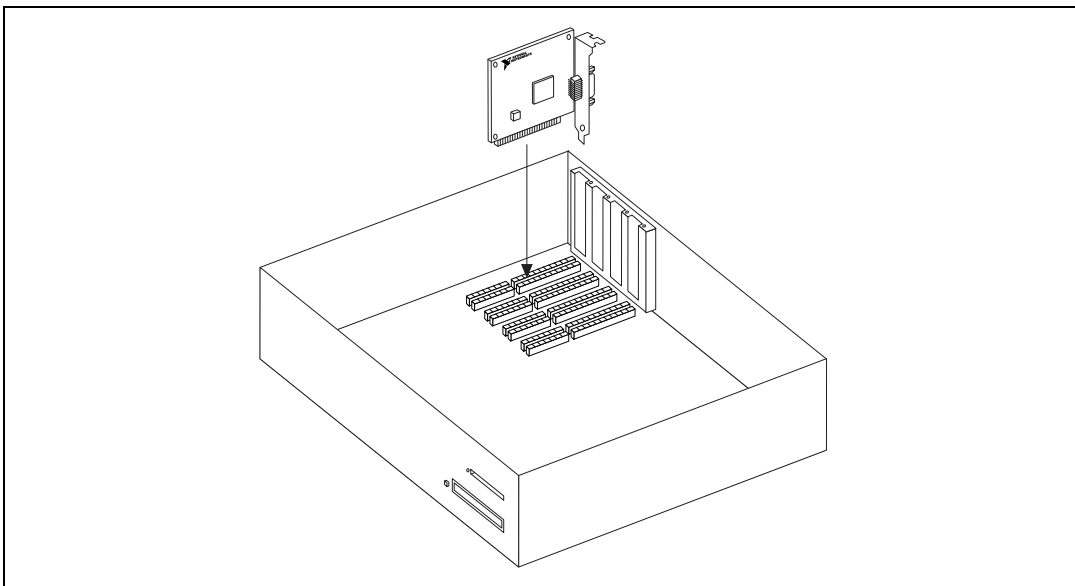
**Caution** Electrostatic discharge can damage several components on these GPIB boards. To avoid such damage in handling your board, touch the antistatic plastic package to a metal part of your computer chassis before removing the board from the package.

Perform the following steps to install the GPIB-PCII/IIA:

1. Make sure that your board is configured to match the assigned resources. (If you are not sure, view instructions to [Configure and Install Your GPIB-PCII/IIA](#).)
2. Shut down Windows and turn off your computer. Keep the computer plugged in so that it remains grounded while you install the GPIB-PCII/IIA.
3. Remove the top cover (or other access panels) to give yourself access to the computer expansion slots.
4. Find an unused expansion slot in your computer.
5. Remove the corresponding slot cover on the back panel of the computer.



6. Insert the GPIB-PCII/IIA into the slot with the GPIB connector sticking out of the opening on the back panel, as shown in Figure 6. It might be a tight fit, but do not force the board into place.



**Figure 6.** Installing the GPIB-PCII/IIA


7. Screw the mounting bracket of the GPIB-PCII/IIA to the back panel rail of the computer.
8. Replace the top cover (or the access panel to the expansion slot).
9. Turn on your computer and start Windows.

The GPIB-PCII/IIA hardware installation is now complete.



# Configure the GPIB-PCII/IIA in GPIB-PCIIA Mode

This section describes how to configure your GPIB-PCII/IIA board for use in GPIB-PCIIA mode.

 **Note** National Instruments recommends that you [Configure and Install Your GPIB-PCII/IIA](#) in PCII mode. The NI-488.2 software allows you to install your GPIB-PCII/IIA board for use in GPIB-PCII or GPIB-PCIIA mode. The two modes use different I/O addresses and interrupt schemes. However, you should be aware of a potential problem with the Windows Device Manager when using your board in GPIB-PCIIA mode under Windows. The Device Manager does not reliably report base address conflicts involving the GPIB-PCII/IIA in GPIB-PCIIA mode. Additionally, the Device Manager fails to display all of the I/O addresses used by the GPIB-PCII/IIA in GPIB-PCIIA mode. Therefore, a base address conflict may go unchecked when using your board in GPIB-PCIIA mode. Base address conflicts can cause your computer to hang or otherwise behave unreliably. Therefore, it is safest to use the board only in GPIB-PCII mode, not in GPIB-PCIIA mode.

1. [Configure GPIB-PCIIA and 7210 Modes.](#)
2. [Configure the GPIB-PCII/IIA Base I/O Address \(GPIB-PCIIA Mode\).](#)
3. [Configure the GPIB-PCII/IIA Interrupt Line \(IRQ\) \(GPIB-PCIIA Mode\).](#)
4. [Configure the GPIB-PCII/IIA DMA Channel.](#)

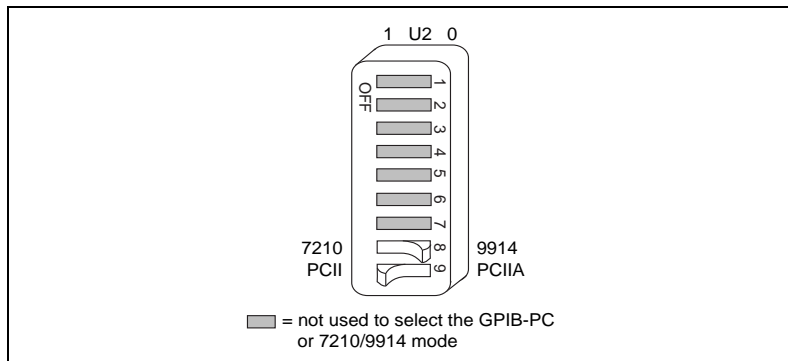
After you finish these steps, you are ready to [Install the GPIB-PCII/IIA](#).



## Configure GPIB-PCIIA and 7210 Modes


The GPIB-PCII/IIA comes already configured to run in PCII and 7210 modes. You need to change the configuration to PCIIA mode.

1. Examine switch 9 in switch block U2. (Click here to view the [GPIB-PCII/IIA Parts Locator Diagram](#)). Press switch 9 down on the side labeled PCIIA, as shown in the following figure.



**Figure 7.** GPIB-PCIIA Mode Selection Setting

2. Verify that switch 8 is pressed down on the side labeled 7210.

 **Note**      **The National Instruments NI-488.2 software requires the board to be in 7210 mode.**



# Configure the GPIB-PCII/IIA Base I/O Address (GPIB-PCIIA Mode)

Change the switch settings to match the base I/O address assigned to your board. By default, the GPIB-PCII/IIA is configured to use base I/O address 2E1 hex when in GPIB-PCIIA mode.

If you do not know what resources were assigned to your GPIB-PCII/IIA, click here to [Determine Assigned Resources](#).

**Table 7.** Base I/O Settings for the GPIB-PCII/IIA in PCIIA Mode

Base I/O Address	Switch Setting	Base I/O Address	Switch Setting
2E1		22E1	
42E1		62E1	

[View Parts  
Locator  
Diagram](#)



## Configure the GPIB-PCII/IIA Interrupt Line (IRQ) (GPIB-PCIIA Mode)

Click on the interrupt line (IRQ) setting assigned to your GPIB-PCII/IIA from the list below, and change the jumper and switch settings to match the interrupt line (IRQ) assigned to your board. By default, the GPIB-PCII/IIA is configured to use interrupt request line IRQ 7.

If you do not know what resources were assigned to your GPIB-PCII/IIA, click here to [Determine Assigned Resources](#).

2

3

4

5

6

7

Interrupt Disabled





**Table 8.** Interrupt Request Settings for GPIB-PCII/IIA in PCIIA Mode

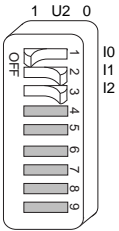
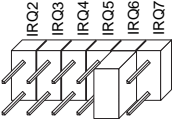
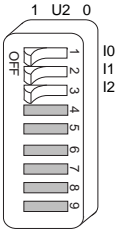
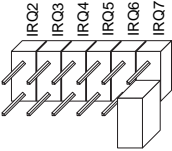
Interrupt Line	Switch	Jumper	Interrupt Line	Switch	Jumper
2			3		
4			5		

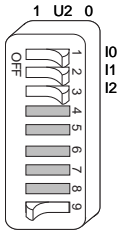
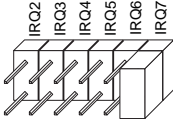
The remaining steps in the installation and configuration process are the same for GPIB-PCII mode and GPIB-PCIIA mode. Click [here](#) to go to the section [Configure the GPIB-PCII/IIA DMA Channel](#), and continue configuring and installing your GPIB-PCII/IIA.

[View Parts  
Locator  
Diagram](#)



**Table 8.** Interrupt Request Settings for GPIB-PCII/IIA in PCIIA Mode (Continued)

Interrupt Line	Switch	Jumper
6		
Interrupt Disabled		

Interrupt Line	Switch	Jumper
7		

The remaining steps in the installation and configuration process are the same for GPIB-PCII mode and GPIB-PCIIA mode. Click [here](#) to go to the section [Configure the GPIB-PCII/IIA DMA Channel](#), and continue configuring and installing your GPIB-PCII/IIA.

[View Parts  
Locator  
Diagram](#)



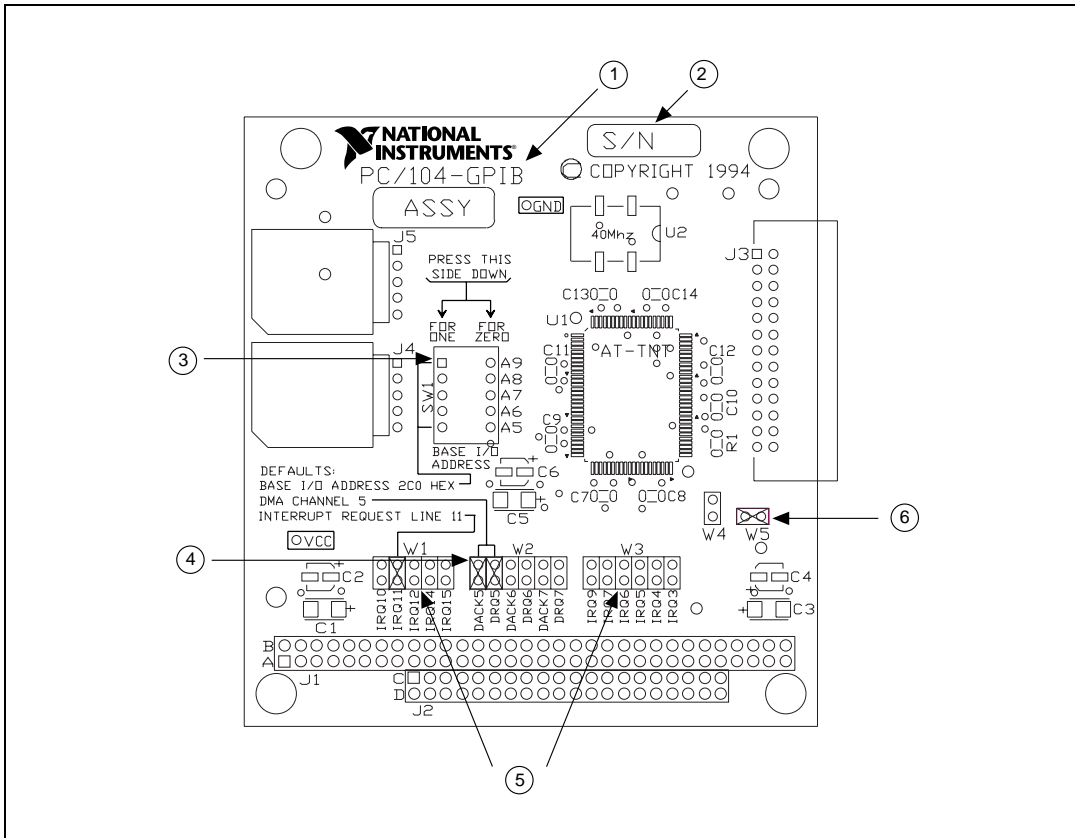
# Configure and Install Your PC/104-GPIB

---

1. [Configure the PC/104-GPIB Base I/O Address.](#)
2. [Configure the PC/104-GPIB Interrupt Line \(IRQ\).](#)
3. [Configure the PC/104-GPIB DMA Channel.](#)

After you finish these steps, you are ready to [Install the PC/104-GPIB.](#)





- |                                    |                    |                        |
|------------------------------------|--------------------|------------------------|
| 1 Product Name and Assembly Number | 3 Base I/O Address | 5 Interrupt Line (IRQ) |
| 2 Serial Number                    | 4 DMA Channel      | 6 Shield Ground        |

Figure 8. PC/104-GPIB Parts Locator Diagram



## Configure the PC/104-GPIB Base I/O Address

Click on the base I/O address assigned to your PC/104-GPIB from the list below, and change the switch settings to match the base I/O address assigned to your board.

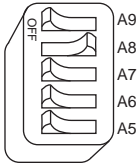
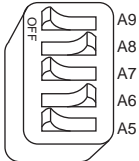
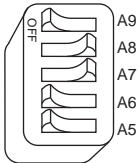
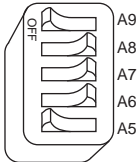
If you do not know what resources were assigned to your PC/104-GPIB, click here to [Determine Assigned Resources](#).

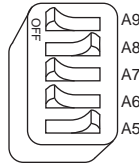
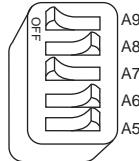
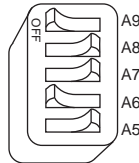
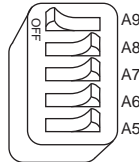
100	200	300
120	220	320
140	240	340
160	260	360
180	280	380
1A0	2A0	3A0
1C0	2C0*	3C0
1E0	2E0	3E0

\*default setting



**Table 9.** Possible Base I/O Address Switch Settings for PC/104-GPIB

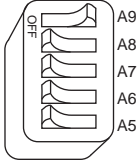
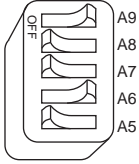
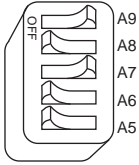
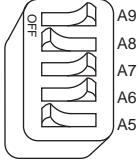
Base I/O Address (hex)	Switch Settings
100	
140	
180	
1C0	

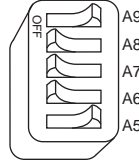
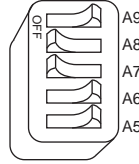
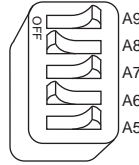
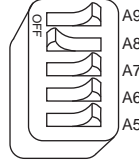
Base I/O Address (hex)	Switch Settings
120	
160	
1A0	
1E0	

[View Parts  
Locator  
Diagram](#)



**Table 9.** Possible Base I/O Address Switch Settings for PC/104-GPIB (Continued)

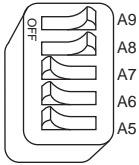
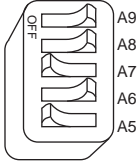
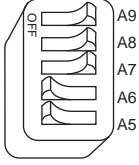
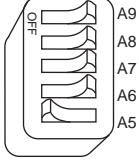
Base I/O Address (hex)	Switch Settings
200	
240	
280	
2C0	

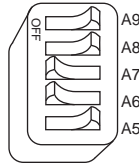
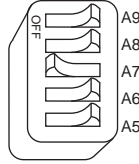
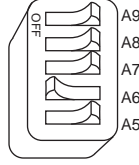
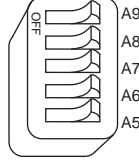
Base I/O Address (hex)	Switch Settings
220	
260	
2A0	
2E0	

[View Parts Locator Diagram](#)



**Table 9.** Possible Base I/O Address Switch Settings for PC/104-GPIB (Continued)

Base I/O Address (hex)	Switch Settings
300	
340	
380	
3C0	

Base I/O Address (hex)	Switch Settings
320	
360	
3A0	
3E0	

[View Parts  
Locator  
Diagram](#)



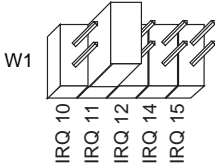
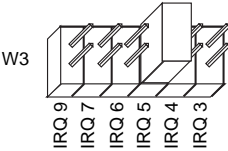
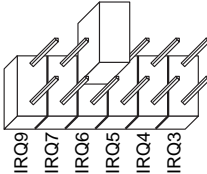


## Configure the PC/104-GPIB Interrupt Line (IRQ)

Change the jumper settings to match the interrupt line (IRQ) assigned to your board or, if you are installing the PC/104-GPIB in an 8-bit stack, to the line in the range IRQ3 to IRQ7 you chose on the **Resources** page of the **PC/104-GPIB Properties** dialog box. By default, the PC/104-GPIB is configured to use interrupt line IRQ 11.

If you do not know what resources were assigned to your PC/104-GPIB, click here to [Determine Assigned Resources](#).

**Table 10.** PC/104-GPIB Interrupt Line Configuration

Interrupt Lines	Jumper Setting
Lines 10, 11, 12, or 15 (IRQ 11 is shown)	 <p>W1</p> <p>IRQ 10 IRQ 11 IRQ 12 IRQ 14 IRQ 15</p>
Lines 3, 4, 5, 7, or 9 (IRQ 5 is shown)	 <p>W3</p> <p>IRQ 9 IRQ 7 IRQ 6 IRQ 5 IRQ 4 IRQ 3</p>
No IRQ	 <p>IRQ 9 IRQ 7 IRQ 6 IRQ 5 IRQ 4 IRQ 3</p>

[View Parts  
Locator  
Diagram](#)



# Configure the PC/104-GPIB DMA Channel

If Windows is unable to assign a DMA resource to the PC/104-GPIB, or if you are installing the PC/104-GPIB in an 8-bit stack, you can configure DMA to none and still use the NI-488.2 software.

Change the jumper settings to match the DMA channel assigned to your board, or to no DMA if you are installing the PC/104-GPIB in an 8-bit stack. You must set both the DMA Acknowledge and DMA Request lines. By default, the PC/104-GPIB is configured to use DMA channel 5.

If you do not know what resources were assigned to your PC/104-GPIB, click here to [Determine Assigned Resources](#).

**Table 11.** PC/104-GPIB DMA Channel Settings

DMA Channel	DMA Jumpers
5, 6, or 7 (DMA 7 is shown)	<p style="text-align: center;">W2</p> <p style="text-align: center;">DACK5 DRQ5 DACK6 DRQ6 DACK7 DRQ7</p>
No DMA	<p style="text-align: center;">W2</p> <p style="text-align: center;">DACK5 DRQ5 DACK6 DRQ6 DACK7 DRQ7</p>

[View Parts  
Locator  
Diagram](#)



# Set the PC/104-GPIB Shield Ground Configuration

The PC/104-GPIB is set at the factory with the jumper in place to connect the logic ground of the PC/104-GPIB to its shield ground. This configuration minimizes EMI emissions.

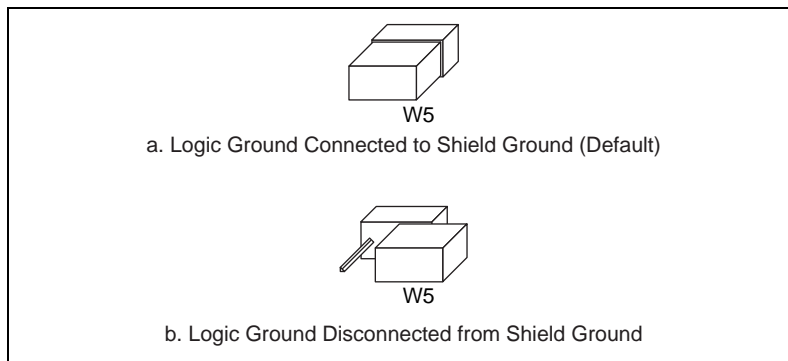


## Note

**The PC/104-GPIB was tested for compliance with FCC and CE standards with the shield ground connected to logic ground. Removing the jumper might cause EMI emissions to exceed any or all of the applicable standards.**

Most users do not need to change the shield ground configuration. If you feel you must disconnect the logic ground from shield ground, follow these steps:

1. Locate the shield ground jumper W5 on the PC/104-GPIB. (View the [PC/104-GPIB Parts Locator Diagram](#).)
2. Remove the jumper and place it across only one of the jumper pins, as shown in the following figure.



**Figure 9.** PC/104-GPIB Ground Configuration Jumper Settings



# Install the PC/104-GPIB

## PRINT THIS TOPIC!

Your computer needs to be off while you install your PC/104-GPIB. To print this topic, select **File»Print**, select the **Pages** radio button, and print pages **52-54**.



**Caution**    **Electrostatic discharge can damage several components on these GPIB boards. To avoid such damage in handling your board, touch the antistatic plastic package to a metal part of your computer chassis before removing the board from the package.**

The PC/104-GPIB is available in two versions: stackthrough 16-bit and stackthrough 8-bit. 16-bit modules have two PC/104 connectors and 8-bit modules have one PC/104 connector. Verify that you have the correct version for your system.

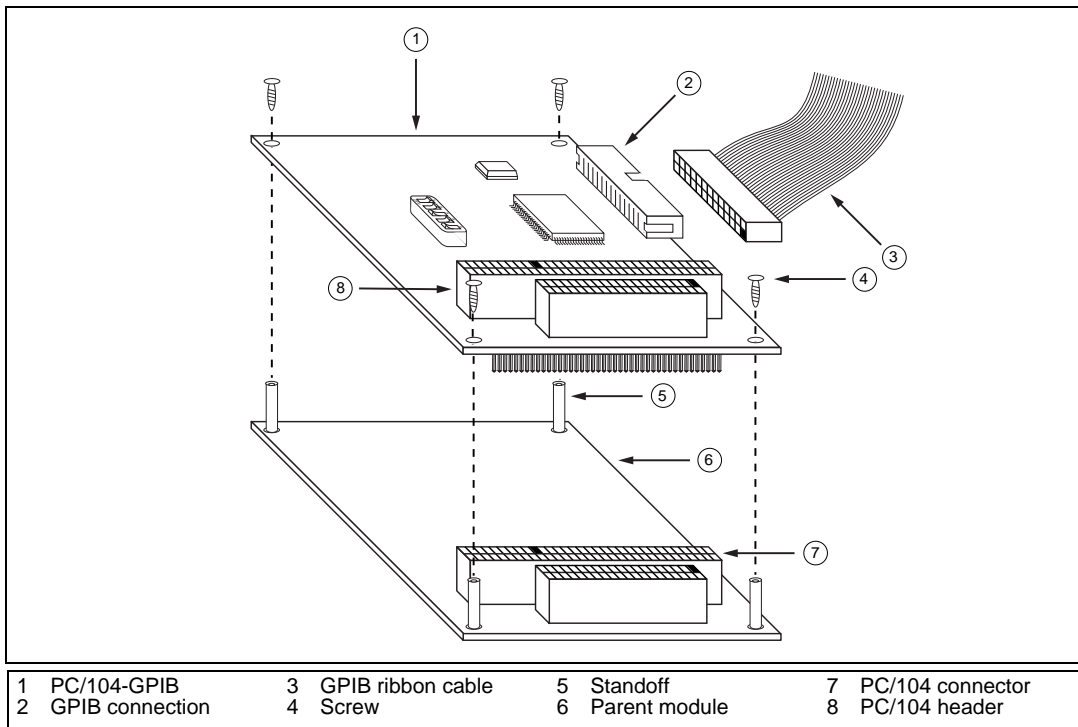
Complete the following steps to install the PC/104-GPIB. In this section, the term *parent module* generically refers to either the parent system or the adjacent PC/104 module you stack the PC/104-GPIB onto.

1. Shut down Windows and turn off your computer. Keep the computer plugged in so that it remains grounded while you install the PC/104-GPIB.
2. Mount the provided standoffs to the parent module before installing the PC/104-GPIB. You might need to install the provided hex nuts on the bottom side of the parent module to secure the standoffs in place. Notice that the parent module might have only two mounting holes for the standoffs instead of four; in this case, you need only two standoffs.
3. Plug the PC/104-GPIB into the parent module. The PC/104 header is keyed so that it fits in only one direction. Do not force the PC/104 connector into place.

After the PC/104-GPIB has been plugged in, ensure proper contact by gently pressing down at the PC/104 connector region of the PC/104-GPIB until the module is level with respect to the parent module.

4. Fasten the PC/104-GPIB to the standoffs with the provided 4-40 screws. Refer to the following figure view how to install the board.





**Figure 10.** Installing the PC/104-GPIB

5. Plug the GPIB ribbon cable into the GPIB connection on the PC/104-GPIB. The GPIB connection is keyed so that it fits in only one direction. Do not force the GPIB ribbon cable connector into place. The GPIB ribbon cable is 20 in. long and terminated with a panel-mount GPIB connector that can be mounted for easy access in your system.





## Note

**If you plan to perform HS488 high-speed protocol transfers, you must configure the NI-488.2 software for the amount of GPIB cable length in your system. You must add the 20 in. GPIB ribbon cable to your total GPIB cable length.**

6. Check the installation.
7. Power on your system and start Windows.



# Configure and Install Your NEC-GPIB/TNT

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Configure the NEC-GPIB/TNT Base I/O Address.

After you finish configuration, you are ready to [Install the NEC-GPIB/TNT](#).



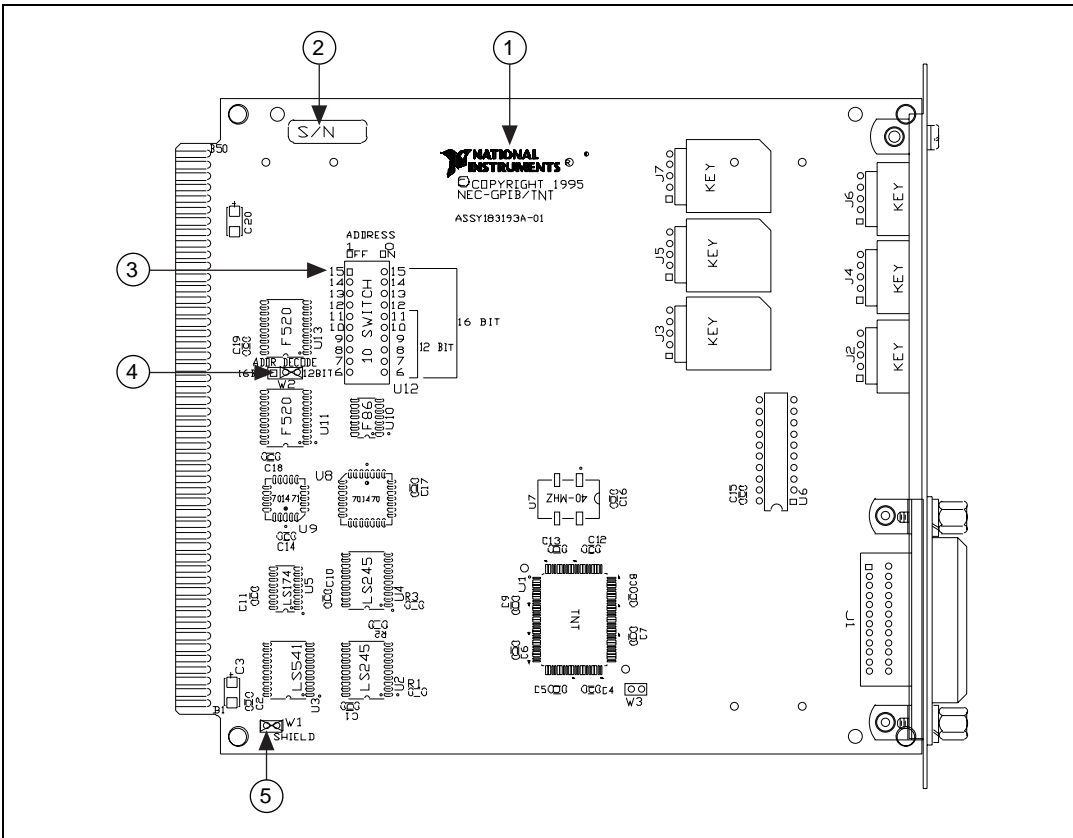


Figure 11. NEC-GPIB/TNT Parts Locator Diagram





## Configure the NEC-GPIB/TNT Base I/O Address

Click on the base I/O address assigned to your NEC-GPIB/TNT from the list below, and change the switch settings to match the base I/O address assigned to your board.

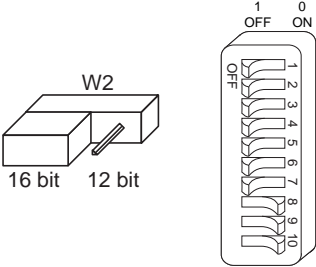
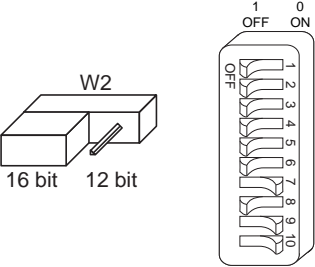
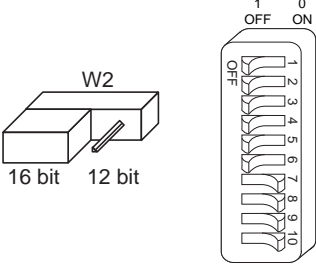
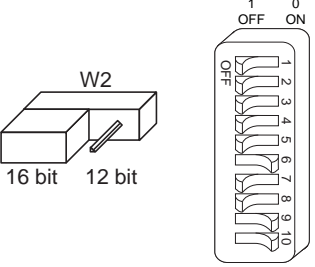
If you do not know what resources were assigned to your NEC-GPIB/TNT, click here to [Determine Assigned Resources](#).

1D0	2D0
3D0	4D0
5D0	6D0
7D0*	

\* default setting



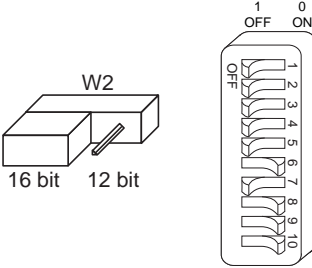
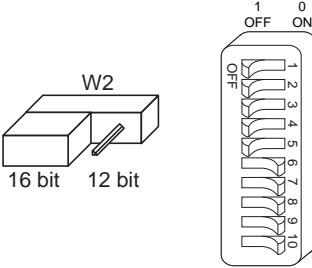
**Table 12.** Possible Base I/O Address Switch Settings for NEC-GPIB/TNT

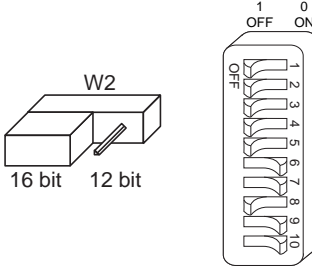
Base I/O Address (hex)	Switch Settings	Base I/O Address (hex)	Switch Settings
1D0		2D0	
3D0		4D0	

[View Parts Locator Diagram](#)



**Table 12.** Possible Base I/O Address Switch Settings for NEC-GPIB/TNT (Continued)

Base I/O Address (hex)	Switch Settings
5D0	
7D0	


Base I/O Address (hex)	Switch Settings
6D0	

[View Parts  
Locator  
Diagram](#)



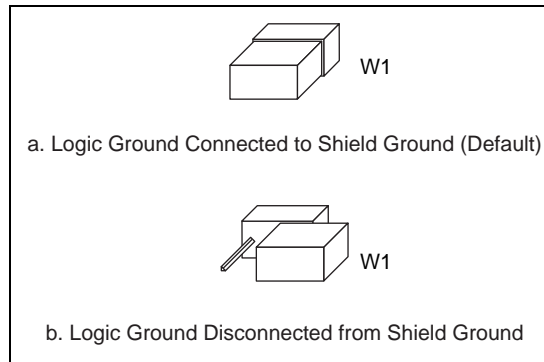
# Set the NEC-GPIB/TNT Shield Ground Configuration

The NEC-GPIB/TNT is set at the factory with the jumper in place to connect the logic ground of the NEC-GPIB/TNT to its shield ground. This configuration minimizes EMI emissions.

 **Note**     **The NEC-GPIB/TNT was tested for compliance with FCC standards with the shield ground connected to logic ground. Removing the jumper might cause EMI emissions to exceed any or all of the applicable standards.**

Most users do not need to change the shield ground configuration. If you feel you must disconnect the logic ground from shield ground, follow these steps:

1. Locate the shield ground jumper W1 on the NEC-GPIB/TNT. (View the [NEC-GPIB/TNT Parts Locator Diagram](#).)
2. Remove the jumper and place it across only one of the jumper pins, as shown in the following figure.



**Figure 12.** NEC-GPIB/TNT Ground Configuration Jumper Settings



# Install the NEC-GPIB/TNT

## PRINT THIS TOPIC!

Your computer needs to be off while you install your NEC-GPIB/TNT. To print this topic, select **File»Print**, select the **Pages** radio button, and print page **61**.



**Caution** Electrostatic discharge can damage several components on these GPIB boards. To avoid such damage in handling your board, touch the antistatic plastic package to a metal part of your computer chassis before removing the board from the package.

Complete the following steps to install the NEC-GPIB/TNT :

1. Make sure that your computer is turned off. Keep the computer plugged in so that it remains grounded while you install the GPIB hardware.
2. Find an unused expansion slot in your computer.
3. Remove the corresponding slot cover on the back panel of the computer.
4. Insert the NEC-GPIB/TNT into the slot. It might be a tight fit, but do not force the board into place.
5. Screw the mounting bracket of the NEC-GPIB/TNT to the back panel of the computer.
6. Turn on your computer and start Windows.

The NEC-GPIB/TNT hardware installation is now complete.



# Determine Assigned Resources

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Before you configure and install your board, you need to know the resources assigned to your hardware.

## **Windows 98/95:**

The **Add GPIB Hardware Wizard** automatically opens this PDF file after it assigns resources to your GPIB hardware. The **Add GPIB Hardware Wizard** window is probably open on your desktop. Switch to that window to view the resources assigned to your GPIB hardware.

If you do not have the **Add GPIB Hardware Wizard** running, launch it by selecting **Start»Programs»National Instruments NI-488.2»Add GPIB Hardware**. Follow the steps until it displays the list of resources assigned to your GPIB hardware.

## **Windows NT:**

Windows NT is not a true Plug and Play operating system; therefore, it does not have an **Add GPIB Hardware Wizard** concept. When you install new GPIB hardware, try to use the default hardware settings. If these setting fail due to a resource conflict, use the **Start»Programs»Administrative Tools»Windows NT Diagnostics** utility. Use the **Resources** tab of this utility to get a list of resources that are known to be in use. This list is not necessarily complete, so remember that the resources not listed only *might* be available. The only way to know if a resource is available is to configure your hardware to use it, try it, and see if the NI-488.2 Troubleshooting Wizard passes.

After you select your resources, configure and install your GPIB hardware using the information in this PDF file. Then, use the GPIB Configuration Utility to communicate the resources assigned to your GPIB hardware. Run the **NI-488.2 Getting Started Wizard** for instructions on using the GPIB Configuration Utility.



# AT-GPIB/TNT (PnP) and AT-GPIB/TNT+ Installation

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## PRINT THIS TOPIC!

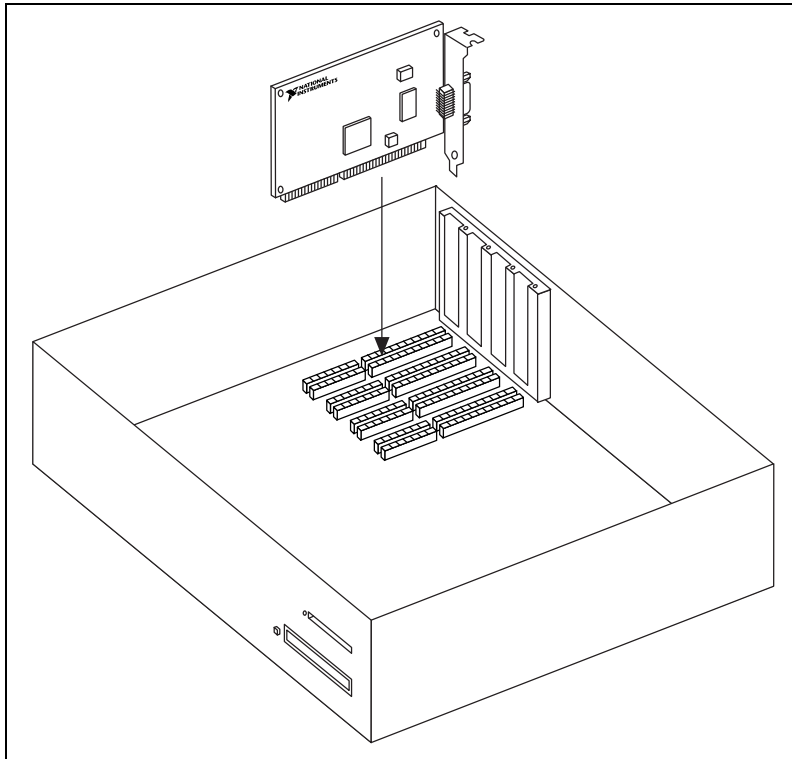
Your computer needs to be off while you install your interface. To print this topic, select **File»Print**, select the **Pages** radio button, and print pages **63-64**.



**Caution**    **Electrostatic discharge can damage several components on these GPIB boards. To avoid such damage in handling your board, touch the antistatic plastic package to a metal part of your computer chassis before removing the board from the package.**

1. Make sure that your computer is turned off. Keep the computer plugged in so that it remains grounded while you install the GPIB hardware.
2. Remove the top cover (or other access panels) to give yourself access to the computer expansion slots.
3. Find an unused expansion slot in your computer. The AT-GPIB/TNT (PnP) board requires a 16-bit ISA expansion slot.
4. Remove the corresponding slot cover on the back panel of the computer.
5. Insert the GPIB board into the slot with the GPIB connector sticking out of the opening on the back panel, as shown in [Figure 13](#). It might be a tight fit, but do not force the board into place.





**Figure 13.** Installing the AT-GPIB/TNT (PnP)

6. Screw the mounting bracket of the GPIB board to the back panel rail of the computer.
7. Replace the top cover (or the access panel to the expansion slot), power on your computer, and start Windows.

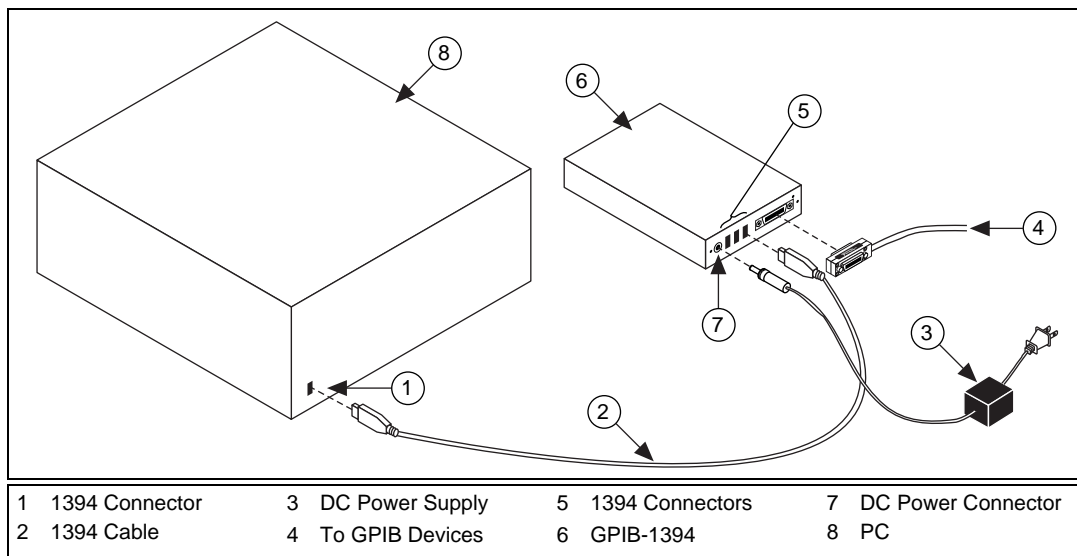
The GPIB hardware installation is now complete.





# GPIB-1394 Installation

1. Screw the DC power connector of the DC power supply into the DC power connector on the back panel of the GPIB-1394.
2. Plug the DC power supply into an AC outlet. Figure 14 shows how to connect the GPIB-1394.



**Figure 14.** Installing the GPIB-1394

3. Connect 1394 cable to any available 1394 connector on your PC.
4. Connect 1394 cable to any available 1394 connector on your GPIB-1394.
5. Turn on the GPIB-1394 with the power switch on its front panel. The GPIB-1394 is now powered by the DC power supply.

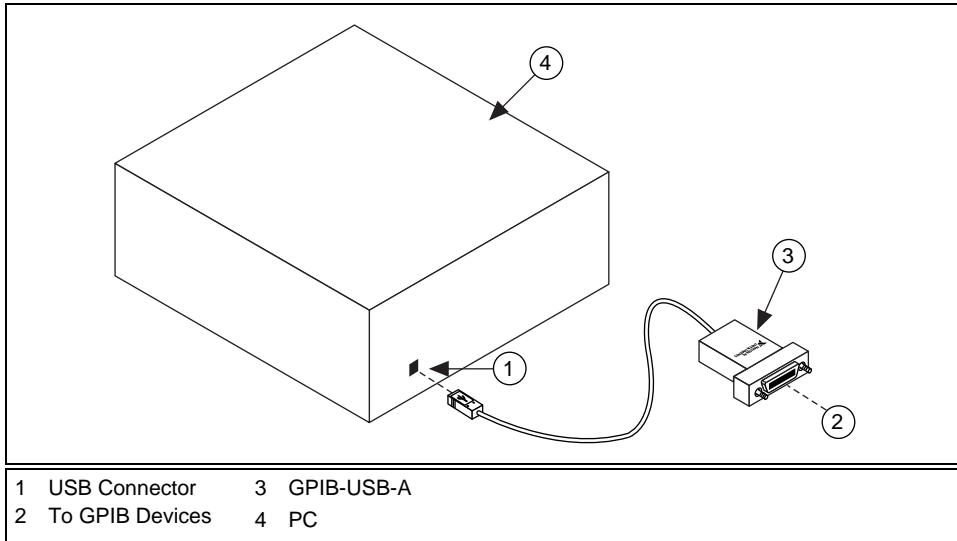
The GPIB-1394 installation is now complete.

# GPIB-USB-A Installation

## PRINT THIS TOPIC!

To print this topic, select **File»Print**, select the **Pages** radio button, and print page **66**.

To install the GPIB-USB-A, connect the USB connector from the GPIB-USB-A to an available USB port on your computer. The GPIB-USB-A connects directly to most GPIB devices without requiring a GPIB cable. If your computer is already running, Windows automatically detects the GPIB hardware. Otherwise, start your computer and Windows will detect the GPIB hardware.



**Figure 15.** Installing the GPIB-USB-A

# NEC-GPIB/TNT (PnP) Installation

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## PRINT THIS TOPIC!

Your computer needs to be off while you install your interface. To print this topic, select **File»Print**, select the **Pages** radio button, and print page **67**.

Complete the following steps to install the NEC-GPIB/TNT (PnP):



**Caution**    **Electrostatic discharge can damage several components on these GPIB boards. To avoid such damage in handling your board, touch the antistatic plastic package to a metal part of your computer chassis before removing the board from the package.**

1. Make sure that your computer is turned off. Keep the computer plugged in so that it remains grounded while you install the GPIB hardware.
2. Find an unused expansion slot in your computer.
3. Remove the corresponding slot cover on the back panel of the computer.
4. Insert the NEC-GPIB/TNT (PnP) into the slot. It might be a tight fit, but do not force the board into place.
5. Screw the mounting bracket of the NEC-GPIB/TNT (PnP) to the back panel of the computer.
6. Power on your computer and start Windows.

The NEC-GPIB/TNT (PnP) hardware installation is now complete.



# PCI-GPIB and PCI-GPIB+ Installation

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## PRINT THIS TOPIC!

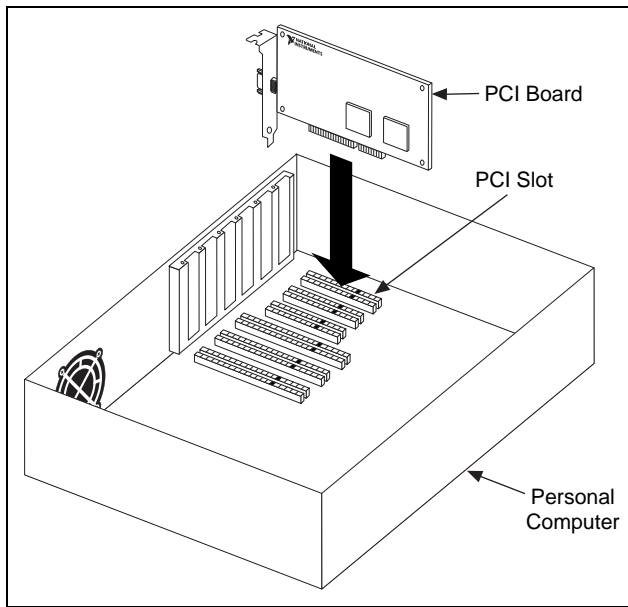
Your computer needs to be off while you install your interface. To print this topic, select **File»Print**, select the **Pages** radio button, and print pages **68-69**.



**Caution**    **Electrostatic discharge can damage several components on these GPIB boards. To avoid such damage in handling your board, touch the antistatic plastic package to a metal part of your computer chassis before removing the board from the package.**

1. Make sure that your computer is turned off. Keep the computer plugged in so that it remains grounded while you install the GPIB hardware.
2. Remove the top cover (or other access panels) to give yourself access to the computer expansion slots.
3. Find an unused expansion slot in your computer. The PCI-GPIB requires a PCI slot.
4. Remove the corresponding slot cover on the back panel of the computer.
5. Insert the GPIB board into the slot with the GPIB connector sticking out of the opening on the back panel, as shown in [Figure 16](#). It might be a tight fit, but do not force the board into place.





**Figure 16.** Installing the PCI-GPIB

6. Screw the mounting bracket of the GPIB board to the back panel rail of the computer.
7. Replace the top cover (or the access panel to the expansion slot).
8. Power on your computer and start Windows.

The GPIB hardware installation is now complete.



# PCMCIA-GPIB and PCMCIA-GPIB+ Installation

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## PRINT THIS TOPIC!

To print this topic, select **File»Print**, select the **Pages** radio button, and print pages **70-71**.

### For Windows 98/95:

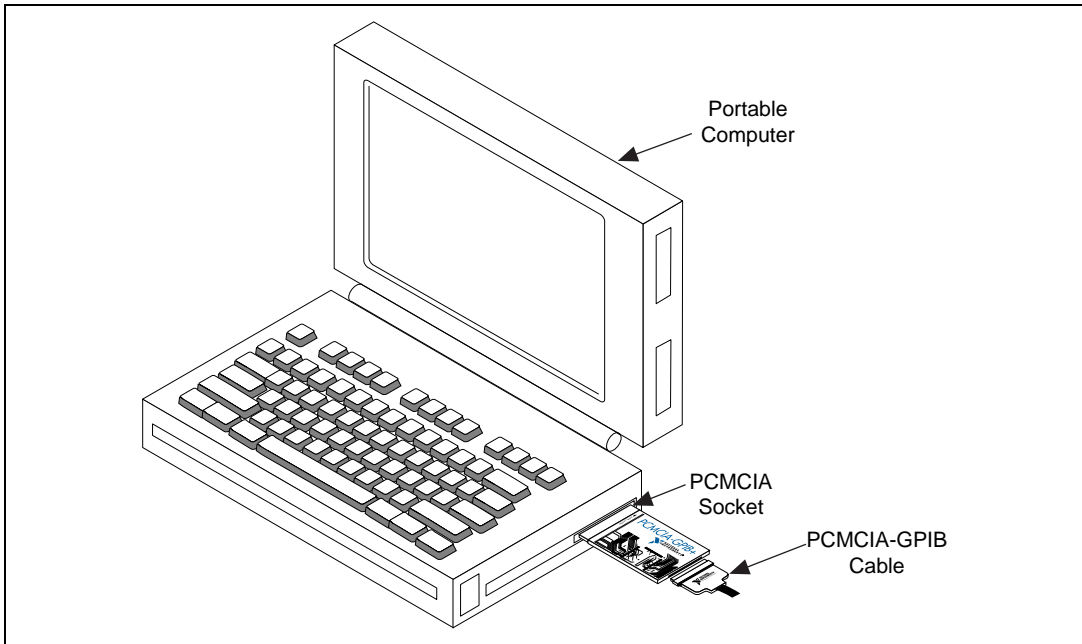
1. Restart Windows.
2. If the PCMCIA-GPIB is not already inserted, insert it into a free PC Card (PCMCIA) socket. The card has no jumpers or switches to set, and you do not need to power down the system when you insert it.

### For Windows NT:

1. Power off your computer.
2. Insert the PCMCIA-GPIB into a free PC Card (PCMCIA) socket. The card has no jumpers or switches to set, and you do not need to power down the system when you insert it.
3. Power on your computer and start Windows.

[Figure 17](#) shows how to insert the PCMCIA-GPIB and how to connect the cable.





**Figure 17.** Inserting the PCMCIA-GPIB

The hardware installation is now complete.



# PMC-GPIB Installation

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## PRINT THIS TOPIC!

Your computer needs to be off while you install your interface. To print this topic, select **File»Print**, select the **Pages** radio button, and print pages **72-74**.



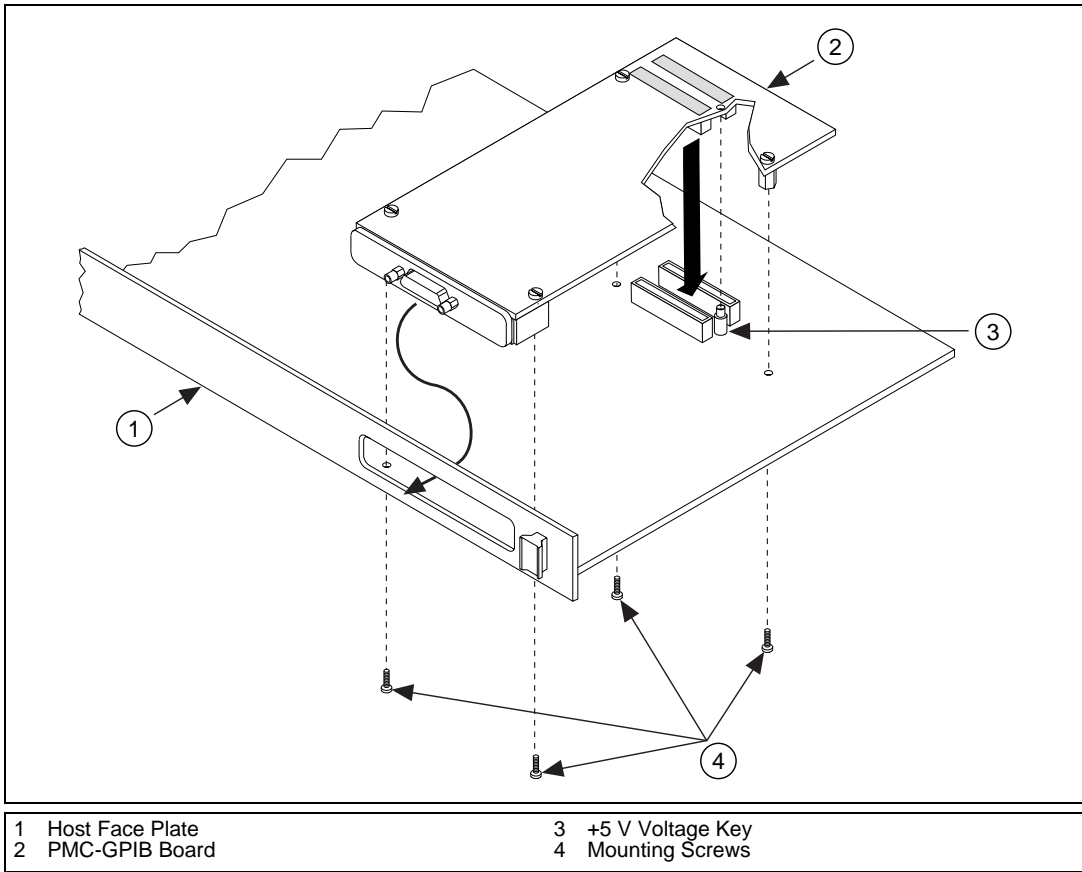
**Caution** Electrostatic discharge can damage several components on these GPIB boards. To avoid electrostatic damage when you handle the board, touch the antistatic plastic package to a metal part of your system chassis before removing the board from the package.

Complete the following steps to install your PMC-GPIB:

1. Turn off your system.
2. Find an unused PMC slot in your system. You may need to remove the host from the system to access the PMC slot.
3. Remove the corresponding slot filler panel from the host.
4. Insert the PMC-GPIB into the slot as shown in [Figure 18](#). It might be a tight fit, but do not force the board into place.







**Figure 18.** Installing the PMC-GPIB

5. Use the mounting hardware provided to fasten the PMC-GPIB to the host.
6. Reinstall the host, if you removed it to install the PMC-GPIB.
7. Turn on your system and start Windows.

The PMC-GPIB hardware installation is now complete.



# PXI-GPIB Installation

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## PRINT THIS TOPIC!

Your computer needs to be off while you install your interface. To print this topic, select **File»Print**, select the **Pages** radio button, and print pages **75-77**.

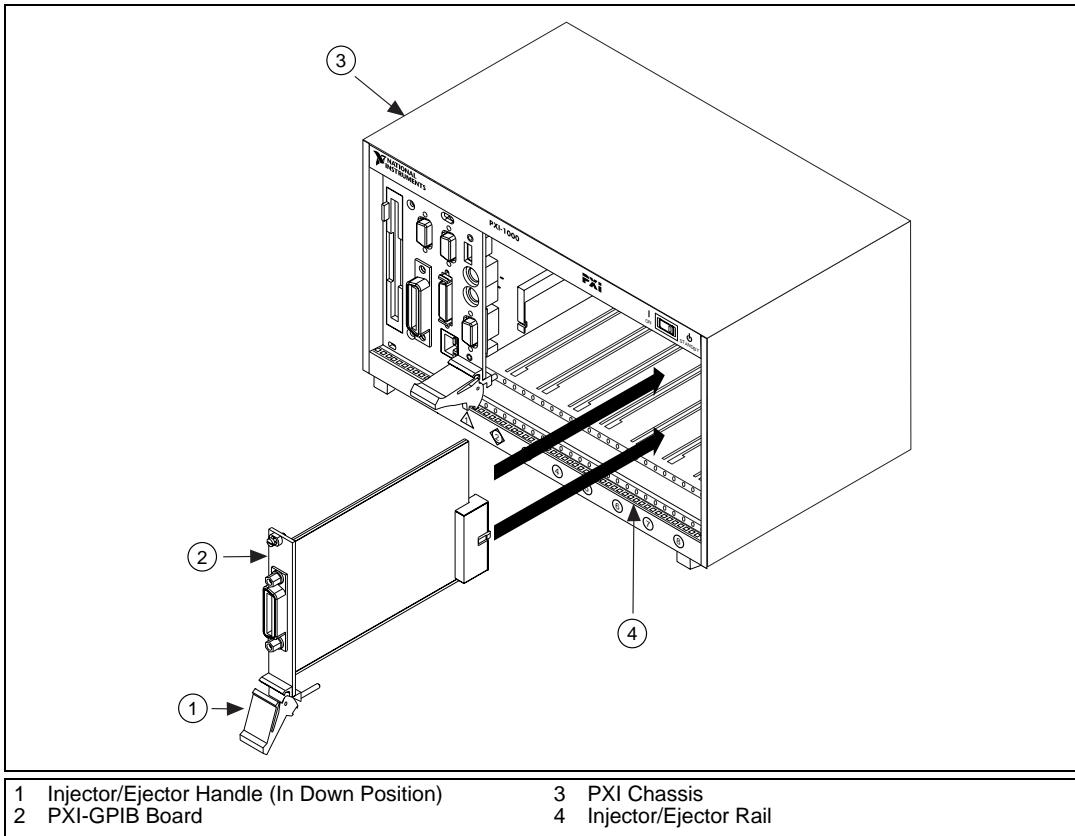


**Caution** Electrostatic discharge can damage several components on these GPIB boards. To avoid electrostatic damage when you handle the board, touch the antistatic plastic package to a metal part of your system chassis before removing the board from the package.

Complete the following steps to install your PXI-GPIB:

1. Make sure that your PXI or CompactPCI chassis is turned off. Keep the PXI or CompactPCI chassis plugged in so that it remains grounded while you install the PXI-GPIB.
2. Choose an unused PXI or CompactPCI 5 V peripheral slot. For maximum performance, the PXI-GPIB has an onboard DMA controller that can only be used if the board is installed in a slot that supports bus arbitration, or bus master cards. National Instruments recommends installing the PXI-GPIB in such a slot. If you install the board in a non-master slot, you must disable the PXI-GPIB onboard DMA controller using the board-level call `ibdma`. Refer to the *NI-488.2 Online Help* for a complete description of `ibdma`.
3. Remove the filler panel for the peripheral slot you have chosen.
4. Touch a metal part on your chassis to discharge any static electricity that might be on your clothes or body.
5. Insert the PXI-GPIB into the selected 5 V slot. Use the injector/ejector handle to fully inject the device into place. [Figure 19](#) shows how to install the PXI-GPIB into a PXI or CompactPCI chassis.





**Figure 19.** Installing the PXI-GPIB



6. Screw the front panel of the PXI-GPIB to the front panel mounting rail of the PXI or CompactPCI chassis.
7. Turn on your PXI or CompactPCI chassis and start Windows.

The PXI-GPIB installation is now complete.



# Specifications

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[AT-GPIB/TNT Specifications](#)

[PCI-GPIB Specifications](#)

[AT-GPIB/TNT+ Specifications](#)

[PCI-GPIB+ Specifications](#)

[AT-GPIB/TNT \(PnP\) Specifications](#)

[PCMCIA-GPIB Specifications](#)

[GPIB-1394 Specifications](#)

[PCMCIA-GPIB+ Specifications](#)

[GPIB-PCII/IIA Specifications](#)

[PC/104-GPIB Specifications](#)

[GPIB-USB-A Specifications](#)

[PMC-GPIB Specifications](#)

[NEC-GPIB/TNT Specifications](#)

[PXI-GPIB Specifications](#)

[NEC-GPIB/TNT \(PnP\) Specifications](#)



# AT-GPIB/TNT Specifications

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**Table 13.** AT-GPIB/TNT Hardware Characteristics

<b>Characteristic</b>	<b>Specification</b>
Dimensions	10.7 cm by 16.5 cm (4.2 in. by 6.5 in.)
Power Requirement (from PC AT I/O Channel)	+5 VDC    50 mA Typical 100 mA Maximum
I/O Connector	IEEE 488 Standard 24-Pin
Operating Environment Component Temperature Relative Humidity	0° to 55° C 10% to 90%, Noncondensing
Storage Environment Temperature Relative Humidity	-20° to 70° C 5% to 90%, Noncondensing
EMI	FCC Class B Certified



**Table 14.** GPIB Software Transfer Rates for the AT-GPIB/TNT

<b>Transfer Method</b>	<b>Maximum GPIB Transfer Rate</b>
3-Wire (IEEE 488)	1.5 Mbytes/s*
High Speed (HS488)	1.6 Mbytes/s*

\* Actual speed may vary considerably from speed shown because of system and instrumentation capabilities.





## Declaration of Conformity

according to ISO/IEC Guide 22 and BS 7514

Manufacturer's Name:

National Instruments

Manufacturer's Address:

6504 Bridge Point Parkway  
Austin, Texas 78730-5039  
USA

The manufacturer hereby declares that the product

Product Name:

GPIB Interface Card for ISA

Model Numbers:

AT-GPIB/TNT GPIB-HP700-AT

Product Options:

All

conforms to the following standards or other normative documents:

Electromagnetic Emissions:

EN 55022: 1987

(by Council Directive 89/336/EEC)

CISPR 22: 1985 Class B

Electromagnetic Immunity:

EN 50082-1: 1992

(by Council Directive 89/336/EEC)

IEC 801-2: 1991

4.0 kV by Contact  
8.0 kV by Air

IEC 801-3: 1991

3.0 V/m  
26 .. 1000 MHz

IEC 801-4: 1988

0.5 kV Signal Lines  
1.0 kV AC Power Lines

EN 61010-1: 1993

Safety:

(by Council Directive 73/23/EEC)

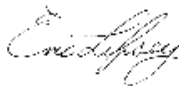
Supplementary Information

X2 grade shielded cable is required for electromagnetic compatibility and is available from the manufacturer.

When and Where Issued

11 October 1996

Austin, Texas USA



Eric Lifsey

Compliance Engineer

Marks of Compliance



European Contact

National Instruments Corporation (U.K. Ltd.)

21 Kingfisher Court, Hambridge Road

Newbury, Berkshire RG14 5SJ

Tel (44) 1635 523545

Fax (44) 1635 523154



# AT-GPIB/TNT (PnP) Specifications

**Table 15.** AT-GPIB/TNT (PnP) Hardware Characteristics

<b>Characteristic</b>	<b>Specification</b>
Dimensions	10.7 cm by 16.5 cm (4.2 in. by 6.5 in.)
Power Requirement (from PC AT I/O Channel)	+5 VDC    120 mA Typical 240 mA Maximum
I/O Connector	IEEE 488 Standard 24-Pin
Operating Environment Component Temperature Relative Humidity	0° to 55° C 10% to 90%, Noncondensing
Storage Environment Temperature Relative Humidity	-20° to 70° C 5% to 90%, Noncondensing
EMI	FCC Class B Certified



**Table 16.** GPIB Software Transfer Rates for the AT-GPIB/TNT (PnP)

<b>Transfer Method</b>	<b>Maximum GPIB Transfer Rate</b>
3-Wire (IEEE 488)	1.5 Mbytes/s*
High Speed (HS488)	1.6 Mbytes/s*
* Actual speed may vary considerably from speed shown because of system and instrumentation capabilities.	



## Declaration of Conformity

according to ISO/IEC Guide 22 and BS 7514

Manufacturer's Name:

National Instruments

Manufacturer's Address:

6504 Bridge Point Parkway  
Austin, Texas 78730-5039  
USA

The manufacturer hereby declares that the product

Product Name:

GPIB Interface Card for ISA

Model Numbers:

AT-GPIB/TNT Plug and Play

Product Options:

All (Fujitsu and Xylinx)

conforms to the following standards or other normative documents:

Electromagnetic Emissions:

EN 55022: 1987

(by Council Directive 89/336/EEC)

CISPR 22: 1985 Class B

Electromagnetic Immunity:

EN 50082-1: 1992

(by Council Directive 89/336/EEC)

IEC 801-2: 1991

4.0 kV by Contact  
8.0 kV by Air

IEC 801-3: 1991

3.0 V/m  
26 .. 1000 MHz

IEC 801-4: 1988

0.5 kV Signal Lines  
1.0 kV AC Power Lines

EN 61010-1: 1993

Safety:

(by Council Directive 73/23/EEC)

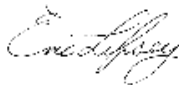
Supplementary Information

X2 grade shielded cable is required for electromagnetic compatibility and is available from the manufacturer.

When and Where Issued

11 October 1996

Austin, Texas USA



Eric Lifsey  
Compliance Engineer

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National Instruments Corporation (U.K. Ltd.)  
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Marks of Compliance



# AT-GPIB/TNT+ Specifications

**Table 17.** AT-GPIB/TNT+ Hardware Characteristics

<b>Characteristic</b>	<b>Specification</b>
Dimensions	10.67 cm by 16.51 cm (4.2 in. by 6.5 in.)
Power Requirement (from PC AT I/O Channel)	+5 VDC    445 mA Typical 845 mA Maximum
I/O Connector	IEEE 488 Standard 24-Pin
Operating Environment Component Temperature Relative Humidity	0° to 55° C 10% to 90%, Noncondensing
Storage Environment Temperature Relative Humidity	-20° to 70° C 5% to 90%, Noncondensing
EMI	FCC Class B Certified



**Table 18.** GPIB Software Transfer Rates for the AT-GPIB/TNT+

<b>Transfer Method</b>	<b>Maximum GPIB Transfer Rate</b>
3-Wire (IEEE 488)	1.5 Mbytes/s*
High Speed (HS488)	1.6 Mbytes/s*

\* Actual speed may vary considerably from speed shown because of system and instrumentation capabilities.



## Declaration of Conformity

Manufacturer's Name:

according to ISO/IEC Guide 22 and BS 7514

Manufacturer's Address:

National Instruments  
6504 Bridge Point Parkway  
Austin, Texas 78730-5039  
USA

The manufacturer hereby declares that the product

Product Name:

GPIB Interface Card for AT

Model Numbers:

AT-GPIB/TNT+

Product Options:

All

conforms to the following standards or other normative documents:

Electromagnetic Emissions:

EN 55022: 1987

(by Council Directive 89/336/EEC)

CISPR 22: 1985 Class B

Electromagnetic Immunity:

EN 50082-1: 1992

(by Council Directive 89/336/EEC)

IEC 801-2: 1991

4.0 kV by Contact

8.0 kV by Air

IEC 801-3: 1991

3.0 V/m

26 .. 1000 MHz

IEC 801-4: 1988

0.5 kV Signal Lines

1.0 kV AC Power Lines

Safety:

EN 61010-1: 1993

(by Council Directive 73/23/EEC)

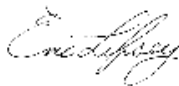
Supplementary Information

X2 grade shielded cable is required for electromagnetic compatibility and is available from the manufacturer.

When and Where Issued

11 October 1996

Austin, Texas USA



Eric Lifsey  
Compliance Engineer

Marks of Compliance



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# GPIB-1394 Specifications

**Table 19.** GPIB-1394 Hardware Characteristics

<b>Characteristic</b>	<b>Specification</b>
Dimensions	14.6 cm by 21.3 cm by 3.8 (5.8 in. by 8.4 in. by 1.5 in.)
Power Requirement	+9 to 30 VDC 5 W Typical at 9 VDC 580 mA Typical 1 A Maximum
I/O Connector	IEEE 488 Standard 24-Pin Three IEEE 1394 6-pin sockets
1394 Ports	S400, S200, S100 data rates
GPIB Port	Compatible with IEEE 488.1 and IEEE 488.2
Operating Environment Component Temperature Relative Humidity	0° to 55° C 0% to 90%, Noncondensing
Storage Environment Temperature Relative Humidity	-20° to 70° C 10% to 90%, Noncondensing
EMI	FCC Class A Certified





**Table 20.** GPIB Software Transfer Rate for the GPIB-1394

<b>Transfer Method</b>	<b>Maximum GPIB Transfer Rate</b>
3-wire (IEEE 488)	>1.4 Mbytes/s*
High Speed (HS488)	>4.5 Mbytes/s*
* Actual speed may vary considerably from speed shown because of system and instrumentation capabilities.	



## Declaration of Conformity

according to ISO/IEC Guide 22 and BS 7514

Manufacturer's Name:

National Instruments

Manufacturer's Address:

11500 North Mopac Expressway  
Austin, Texas 78759-3504  
USA

The manufacturer hereby declares that the product

Product Name:

GPIO to IEEE-1394 Controller

Model Numbers:

GPIO-1394

Product Options:

All.

conforms to the following standards or other normative documents:

Electromagnetic Emissions

EN 55011: 1991

(by Council Directive 89/336/EEC)

CISPR 11: 1990 (mod) Group 1, Class A at 10 meters

Electromagnetic Immunity

EN 50082-1: 1992

(by Council Directive 89/336/EEC)

IEC 801-2: 1991 (mod) 4.0 kV by Contact  
8.0 kV by Air

IEC 801-3:

Draft 5 3.0 V/m  
26 .. 1000 MHz  
and 900 MHz Digital RF

IEC 801-4: 1988

0.5 kV Signal Lines  
1.0 kV AC Power Lines

EN 61010-1: 1993 Based on V-0 rating of printed circuit board material.

Low Voltage Safety:

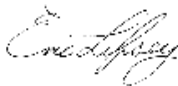
(by Council Directive 73/23/EEC)

Supplementary Information

Electromagnetic compatibility (EMC) requires the use of shielded interface cables

When and Where Issued

14 January 1999  
Austin, Texas  
USA



Authorized Signature

Name: Eric Lifsey

Position: Compliance Engineer

European Contact

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Marks of Compliance



# GPIB-PCII/IIA Specifications

**Table 21.** GPIB-PCII/IIA Hardware Characteristics

<b>Characteristic</b>	<b>Specification</b>
Dimensions	10.7 cm by 11.1 cm (4.2 in. by 4.35 in.)
Power Requirement (from PC/XT/AT I/O channel)	+5 VDC    50 mA typical 120 mA maximum
I/O Connector	IEEE 488 Standard 24-pin
Operating Environment Component Temperature Relative Humidity	0° to 55° C 10% to 90%, noncondensing
Storage Environment Temperature Relative Humidity	-20° to 70° C 5% to 90%, noncondensing
EMI	FCC Class B Certified

**Table 22.** GPIB Software Transfer Rate for the GPIB-PCII/IIA

<b>Transfer Method</b>	<b>Maximum GPIB Transfer Rate</b>
3-wire (IEEE 488)	300 kbytes/s*
* Actual speed may vary considerably from speed shown because of system and instrumentation capabilities.	



## Declaration of Conformity

according to ISO/IEC Guide 22 and BS 7514

Manufacturer's Name:

National Instruments

Manufacturer's Address:

6504 Bridge Point Parkway  
Austin, Texas 78730-5039  
USA

The manufacturer hereby declares that the product

Product Name:

GPIB Interface Card for PC/XT/AT

Model Numbers:

GPIB-PCII/IIA/IIB

Product Options:

All

conforms to the following standards or other normative documents:

Electromagnetic Emissions:

EN 55022: 1987

(by Council Directive 89/336/EEC)

CISPR 22: 1985 Class B

Electromagnetic Immunity:

EN 50082-1: 1992

(by Council Directive 89/336/EEC)

IEC 801-2: 1991

4.0 kV by Contact  
8.0 kV by Air

IEC 801-3: 1991

3.0 V/m  
26 .. 1000 MHz

IEC 801-4: 1988

0.5 kV Signal Lines  
1.0 kV AC Power Lines

EN 60950: 1993

Safety:

(by Council Directive 73/23/EEC)

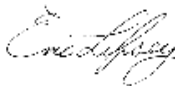
Supplementary Information

X2 grade shielded cable is required for electromagnetic compatibility and is available from the manufacturer.

When and Where Issued

11 October 1996

Austin, Texas USA



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Marks of Compliance



# GPIB-USB-A Specifications

**Table 23.** GPIB-USB-A Hardware Characteristics

<b>Characteristic</b>	<b>Specification</b>
Dimensions	10.7 by 6.5 by 2.7 cm (3.6 by 2.6 by 1.0 in.)
Power Requirement (from USB host or self-powered hub)	2 unit loads (200 mA Maximum)
I/O Connector	IEEE 488 Standard 24-pin male
Operating Environment Temperature Relative Humidity	0° to 55° C 10% to 90%, noncondensing
Storage Environment Temperature Relative Humidity	-20° to 70° C 10% to 90%, noncondensing
EMI	FCC Class A Verified

**Table 24.** GPIB Software Transfer Rate for the GPIB-USB-A

<b>Transfer Method</b>	<b>Maximum GPIB Transfer Rate</b>
3-wire (IEEE 488)	Over 650 kbytes/s*
* Actual speed may vary considerably from speed shown because of system and instrumentation capabilities.	



## Declaration of Conformity

according to ISO/IEC Guide 22 and BS 7514

Manufacturer's Name:

National Instruments

Manufacturer's Address:

11500 North MoPac Expressway  
Austin, Texas 78759-3504 USA

The manufacturer hereby declares that the product

Product Name:

GPIO to Universal Serial Bus (USB) Controller

Model Numbers:

GPIO-USB-A

Product Options:

All

conforms to the following standards or other normative documents:

**Council Directive 89/336/EEC, Electromagnetic Compatibility, EN 61326-1:1997 A1:1998 Emission:** ISM Group 1, Class A (Referencing ANSI C63.4)

EN 55011:1991 (mod) Distance 10 meters

**Immunity:** Minimum Requirements (Table 1)

Performance Criteria

Continuous Unmonitored Operation

EN 61000-4-2: 1995

4.0 kV by Contact, 8.0 kV by Air

EN 61000-4-3: 1996

3.0 V/m, 80% AM with 1 kHz Sine, 80 .. 1000 MHz. 900 MHz, 200 Hz, Pulsed RF

EN 61000-4-4: 1995

0.5 kV Signal Lines, 1.0 kV AC Power Lines

EN 61000-4-5: 1995

0.5 kV Signal Lines, 0.5 kV Mains DM, 1.0 kV Mains CM

EN 61000-4-6: 1996

3.0 V RMS, 80% AM with 1 kHz Sine, 0.15 .. 80 MHz, AC Mains CM (I/O Waived)<sup>1</sup>

EN 610004-11: 1994

AC Mains, 1 cycle, 100% Interruption

Council Directive 73/23/EEC, Low Voltage Safety, EN 61010-1: 1993

Safety compliance based on material flammability ratings.

### Supplementary Information

Electromagnetic compatibility requires the following installation measures:

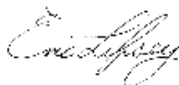
Good screening (shielding) techniques must be employed throughout the user installed portion of the GPIO and USB systems. All attached GPIO peripherals must be protective-earth (e.g. three wire mains cords) to control unwanted radiated noise emissions.

<sup>1</sup>I/O ports with shielded cables are not tested to EN 61000-4-6 by waiver in EN 61326-1 for shielded I/O lines.

When and Where Issued

18 May 2000

Austin, Texas USA



Eric Lifsey  
Compliance Engineer

Marks of Compliance



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National Instruments Corporation (U.K.) Ltd.  
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# NEC-GPIB/TNT Specifications

**Table 25.** NEC-GPIB/TNT Hardware Characteristics

<b>Characteristic</b>	<b>Specification</b>
Dimensions	17 cm by 14.8 cm (6.7 in. by 5.8 in.)
Power Requirement (from PC-98 Bus)	+5 VDC    260 mA Typical 750 mA Maximum
I/O Connector	IEEE 488 Standard 24-Pin
Operating Environment Component Temperature Relative Humidity	0° to 40° C 10% to 90%, Noncondensing
Storage Environment Temperature Relative Humidity	-20° to 70° C 10% to 90%, Noncondensing
EMI	VCCI Certified



**Table 26.** GPIB Software Transfer Rates for the NEC-GPIB/TNT

<b>Transfer Method</b>	<b>Maximum GPIB Transfer Rate</b>
3-Wire (IEEE 488)	1.0 Mbytes/s*
High Speed (HS488)	1.0 Mbytes/s*
* Actual speed may vary considerably from speed shown because of system and instrumentation capabilities.	





# NEC-GPIB/TNT (PnP) Specifications

Table 27. NEC-GPIB/TNT (PnP) Hardware Characteristics

Characteristic	Specification
Dimensions	17 cm by 14.8 cm (6.7 in. by 5.8 in.)
Power Requirement (from PC-98 Bus)	+5 VDC    260 mA Typical 750 mA Maximum
I/O Connector	IEEE 488 Standard 24-Pin
Operating Environment Component Temperature Relative Humidity	0° to 40° C 10% to 90%, Noncondensing
Storage Environment Temperature Relative Humidity	-20° to 70° C 10% to 90%, Noncondensing
EMI	VCCI Certified



**Table 28.** GPIB Software Transfer Rates for the NEC-GPIB/TNT (PnP)

<b>Transfer Method</b>	<b>Maximum GPIB Transfer Rate</b>
3-Wire (IEEE 488)	1.0 Mbytes/s*
High Speed (HS488)	1.0 Mbytes/s*
* Actual speed may vary considerably from speed shown because of system and instrumentation capabilities.	



# PCI-GPIB Specifications

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**Table 29.** PCI-GPIB Hardware Characteristics

<b>Characteristic</b>	<b>Specification</b>
Dimensions	13.3 cm by 10.7 cm (5.3 in. by 4.2 in.)
Power Requirement (from PCI Bus)	+5 VDC    300 mA Typical 450 mA Maximum
I/O Connector	IEEE 488 Standard 24-Pin
Operating Environment Ambient Temperature Relative Humidity	0° to 55° C 10% to 90%, Noncondensing
Storage Environment Temperature Relative Humidity	-20° to 70° C 5% to 90%, Noncondensing
EMI	FCC Class B Certified



**Table 30.** GPIB Software Transfer Rates for the PCI-GPIB

<b>Transfer Method</b>	<b>Maximum GPIB Transfer Rate</b>
3-Wire (IEEE 488)	1.5 Mbytes/s*
High Speed (HS488)	7.7 Mbytes/s*
* Actual speed may vary considerably from speed shown because of system and instrumentation capabilities.	



## Declaration of Conformity

according to ISO/IEC Guide 22 and BS 7514

Manufacturer's Name:

National Instruments

Manufacturer's Address:

6504 Bridge Point Parkway  
Austin, Texas 78730-5039  
USA

The manufacturer hereby declares that the product

Product Name:

GPIB Interface Card for PCI

Model Numbers:

PCI-GPIB

Product Options:

All

conforms to the following standards or other normative documents:

Electromagnetic Emissions:

EN 55022: 1987

(by Council Directive 89/336/EEC)

CISPR 22: 1985 Class B

Electromagnetic Immunity:

EN 50082-1: 1992

(by Council Directive 89/336/EEC)

IEC 801-2: 1991

4.0 kV by Contact  
8.0 kV by Air

IEC 801-3: 1991

3.0 V/m  
26 .. 1000 MHz

IEC 801-4: 1988

0.5 kV Signal Lines  
1.0 kV AC Power Lines

EN 61010-1: 1993

Safety:

(by Council Directive 73/23/EEC)

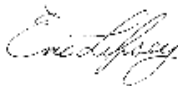
Supplementary Information

X1 or X2 grade shielded cable is required for electromagnetic compatibility and is available from the manufacturer.

When and Where Issued

17 October 1996

Austin, Texas USA



Eric Lifsey  
Compliance Engineer

Marks of Compliance



European Contact  
National Instruments Corporation (U.K. Ltd.)  
21 Kingfisher Court, Hambridge Road  
Newbury, Berkshire RG14 5SJ  
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Fax (44) 1635 523154



# PCI-GPIB+ Specifications

**Table 31.** PCI-GPIB+ Hardware Characteristics

<b>Characteristic</b>	<b>Specification</b>
Dimensions	13.3 by 10.7 cm (5.3 by 4.2 in.)
Power Requirement (from PCI bus)	+5 VDC    500 mA    typical 750 mA    maximum
I/O Connector	IEEE 488 Standard 24-Pin
Operating Environment: Component Temperature Relative Humidity	0° to 55° C 10% to 90%, noncondensing
Storage Environment: Temperature Relative Humidity	-20° to 70° C 5% to 90%, noncondensing
EMI	FCC Class B Certified*
* Look at the labels on the bracket. If an FCC ID is present, the equipment is Class B; otherwise, it is Class A.	



**Table 32.** GPIB Software Transfer Rates for the PCI-GPIB+

<b>Transfer Method</b>	<b>Maximum GPIB Transfer Rate</b>
3-wire (IEEE 488)	1.5 Mbytes/s*
High Speed (HS488)	7.7 Mbytes/s*
*Actual speed may vary considerably from speed shown because of system and instrumentation capabilities.	



## Declaration of Conformity

according to ISO/IEC Guide 22 and BS 7514

Manufacturer's Name:

National Instruments

Manufacturer's Address:

6504 Bridge Point Parkway  
Austin, Texas 78730-5039  
USA

The manufacturer hereby declares that the product

Product Name:

GPIB Interface Card for PCI with Analyzer

Model Numbers:

PCI-GPIB+

Product Options:

All

conforms to the following standards or other normative documents:

Electromagnetic Emissions:

EN 55022: 1987

(by Council Directive 89/336/EEC)

CISPR 22: 1985 Class B

Electromagnetic Immunity:

EN 50082-1: 1992

(by Council Directive 89/336/EEC)

IEC 801-2: 1991

4.0 kV by Contact  
8.0 kV by Air

IEC 801-3: 1991

3.0 V/m  
26 .. 1000 MHz

IEC 801-4: 1988

0.5 kV Signal Lines  
1.0 kV AC Power Lines

EN 61010-1: 1993

Safety:

(by Council Directive 73/23/EEC)

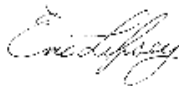
Supplementary Information

X2 grade shielded cable is required for electromagnetic compatibility and is available from the manufacturer.

When and Where Issued

1 May 1997

Austin, Texas USA



Eric Lifsey  
Compliance Engineer

Marks of Compliance



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National Instruments Corporation (U.K. Ltd.)  
21 Kingfisher Court, Hambridge Road  
Newbury, Berkshire RG14 5SJ  
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# PCMCIA-GPIB Specifications

**Table 33.** PCMCIA-GPIB Hardware Characteristics

<b>Characteristic</b>	<b>Specification</b>
Dimensions	85.6 mm by 54.0 mm by 5.0 mm (3.370 in. by 2.126 in. by 0.197 in.)
Power Requirement (from PCMCIA Expansion Slot)	+5 VDC    65 mA Typical 85 mA Maximum
I/O Connector	Special IEEE 488 cable with 24-Pin Converter for PC Card
Operating Environment Component Temperature Relative Humidity	0° to 55° C 10% to 90%, Noncondensing
Storage Environment Temperature Relative Humidity	-20° to 70° C 5% to 90%, Noncondensing
EMI	FCC Class A Verified



**Table 34.** GPIB Software Transfer Rates for the PCMCIA-GPIB

<b>Transfer Method</b>	<b>Maximum GPIB Transfer Rate</b>
3-Wire (IEEE 488)	1.3 Mbytes/s*
High Speed (HS488)	2.2 Mbytes/s*

\* Actual speed may vary considerably from speed shown because of system and instrumentation capabilities.



## Declaration of Conformity

according to ISO/IEC Guide 22 and BS 7514

Manufacturer's Name:

National Instruments

Manufacturer's Address:

6504 Bridge Point Parkway  
Austin, Texas 78730-5039  
USA

The manufacturer hereby declares that the product

Product Name:

GPIO Interface Card for PCMCIA

Model Numbers:

PCMCIA-GPIB

Product Options:

All

conforms to the following standards or other normative documents:

Electromagnetic Emissions:

EN 55022: 1987

(by Council Directive 89/336/EEC)

CISPR 22: 1985 Class A

Electromagnetic Immunity:

EN 50082-1: 1992

(by Council Directive 89/336/EEC)

IEC 801-2: 1991

4.0 kV by Contact  
8.0 kV by Air

IEC 801-3: 1991

3.0 V/m  
26 .. 1000 MHz

IEC 801-4: 1988

0.5 kV Signal Lines  
1.0 kV AC Power Lines

EN 61010-1: 1993

Safety:

(by Council Directive 73/23/EEC)

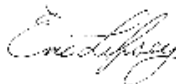
Supplementary Information

Electromagnetic compatibility requires double-shielded cable, which is available from the manufacturer. The manufacturer suggests its X2 grade cables for all other GPIB cables in the installed system.

When and Where Issued

11 October 1996

Austin, Texas USA



Eric Lifsey  
Compliance Engineer

Marks of Compliance



European Contact  
National Instruments Corporation (U.K. Ltd.)  
21 Kingfisher Court, Hambridge Road  
Newbury, Berkshire RG14 5SJ  
Tel (44) 1635 523545  
Fax (44) 1635 523154



# PCMCIA-GPIB+ Specifications

**Table 35.** PCMCIA-GPIB+ Hardware Characteristics

<b>Characteristic</b>	<b>Specification</b>
Dimensions	8.56 by 54.0 by 5.0 mm (3.370 by 2.126 by 0.197 in.)
Power Requirement (from PCMCIA Expansion Slot)	+5 VDC 150 mA Typical
I/O Interface	Special IEEE 488 cable with 24-pin Converter for PC Card
Operating Environment Component Temperature Relative Humidity	0° to 55° C 10% to 90%, Noncondensing
Storage Environment Temperature Relative Humidity	-20° to 70° C 5% to 90%, Noncondensing
EMI	FCC Class A Verified



**Table 36.** GPIB Software Transfer Rates for the PCMCIA-GPIB+

<b>Transfer Method</b>	<b>Maximum GPIB Transfer Rate</b>
3-Wire (IEEE 488)	1.3 Mbytes/s*
High Speed (HS488)	2.2 Mbytes/s*
* Actual speed may vary considerably from speed shown because of system and instrumentation capabilities.	



## Declaration of Conformity

according to ISO/IEC Guide 22 and BS 7514

Manufacturer's Name:

National Instruments

Manufacturer's Address:

6504 Bridge Point Parkway  
Austin, Texas 78730-5039  
USA

The manufacturer hereby declares that the product

Product Name:

GPIB Interface/Analyzer Card for PCMCIA

Model Numbers:

PCMCIA-GPIB+

Product Options:

All

conforms to the following standards or other normative documents:

Electromagnetic Emissions:

EN 55022: 1987

(by Council Directive 89/336/EEC)

CISPR 22: 1985 Class A

Electromagnetic Immunity:

EN 50082-1: 1992

(by Council Directive 89/336/EEC)

IEC 801-2: 1991

4.0 kV by Contact  
8.0 kV by Air

IEC 801-3: 1991

3.0 V/m  
26 .. 1000 MHz

IEC 801-4: 1988

0.5 kV Signal Lines  
1.0 kV AC Power Lines

EN 61010-1: 1993

Safety:

(by Council Directive 73/23/EEC)

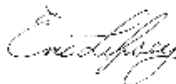
Supplementary Information

Electromagnetic compatibility requires double-shielded cable, which is available from the manufacturer. The manufacturer suggests its X2 grade cables for all other GPIB cables in the installed system.

When and Where Issued

11 October 1996

Austin, Texas USA



Eric Lifsey  
Compliance Engineer

Marks of Compliance



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# PC/104-GPIB Specifications

**Table 37.** PC/104-GPIB Hardware Characteristics

<b>Characteristic</b>	<b>Specification</b>
Dimensions	9.7 cm by 9.1 cm (3.8 in. by 3.6 in.)
Power Requirement (from PC AT I/O Channel)	+5 VDC    50 mA Typical 100 mA Maximum
I/O Connector	20 in. Ribbon Cable Terminated with Panel-Mount IEEE 488 Standard 24-Pin
Operating Environment Ambient Temperature Relative Humidity	0° to 55° C 10% to 90%, Noncondensing
Storage Environment Temperature Relative Humidity	-40° to 85° C 5% to 90%, Noncondensing
EMI	FCC Class A Verified



**Table 38.** GPIB Software Transfer Rates for the PC/104-GPIB

<b>Transfer Method</b>	<b>Maximum GPIB Transfer Rate</b>
3-Wire (IEEE 488) In ISA System	1.5 Mbytes/s*
High Speed (HS488) In ISA System	1.8 Mbytes/s*
* Actual speed may vary considerably from speed shown because of system and instrumentation capabilities.	





## Declaration of Conformity

according to ISO/IEC Guide 22 and BS 7514

Manufacturer's Name:

National Instruments

Manufacturer's Address:

6504 Bridge Point Parkway  
Austin, Texas 78730-5039  
USA

The manufacturer hereby declares that the product

Product Name:

GPIB Interface for PC/104 Systems

Model Numbers:

PC/104-GPIB

Product Options:

All

conforms to the following standards or other normative documents:

Electromagnetic Emissions:

EN 55011: 1991

(by Council Directive 89/336/EEC)

CISPR 11: 1990 Group 1, Class A

Electromagnetic Immunity:

EN 50082-1: 1992

(by Council Directive 89/336/EEC)

IEC 801-2: 1991

4.0 kV by Contact  
8.0 kV by Air

IEC 801-3: 1991

3.0 V/m  
26 .. 1000 MHz

IEC 801-4: 1988

0.5 kV Signal Lines  
1.0 kV AC Power Lines

Safety:

EN 61010-1: 1993

(by Council Directive 73/23/EEC)

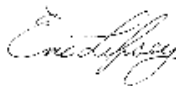
Supplementary Information

X2 grade shielded cable required for electromagnetic compatibility is available from the manufacturer. Field assembled systems such as PC/104 require proper shielding to insure electromagnetic compliance, which is the responsibility of the user.

When and Where Issued

23 October 1996

Austin, Texas USA



Eric Lifsey

Compliance Engineer

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Marks of Compliance



# PMC-GPIB Specifications

**Table 39.** PMC-GPIB Hardware Characteristics

<b>Characteristic</b>	<b>Specification</b>
Dimensions	7.4 cm by 14.9 cm (2.9 in. by 5.9 in.)
Power Requirement (from PMC bus)	+5 VDC    600 mA Typical 800 mA Maximum
I/O Connector	Micro D-sub 25-pin
PCI Signaling Environment	+5 VDC
Power Dissipation	3 Watts Typical 4 Watts Maximum
Operating Environment Temperature Relative Humidity	0° to 55° C 10% to 90%, Noncondensing
Storage Environment Temperature Relative Humidity	-20° to 70° C 5% to 90%, Noncondensing
EMI	FCC Class A Verified



**Table 40.** GPIB Software Transfer Rates for the PMC-GPIB

<b>Transfer Method</b>	<b>Maximum GPIB Transfer Rate</b>
3-Wire (IEEE 488)	1.5 Mbytes/s*
High Speed (HS488)	7.7 Mbytes/s*
* Actual speed may vary considerably from speed shown because of system and instrumentation capabilities.	



## Declaration of Conformity

according to ISO/IEC Guide 22 and BS 7514

Manufacturer's Name:

National Instruments

Manufacturer's Address:

6504 Bridge Point Parkway  
Austin, Texas 78730-5039  
USA

The manufacturer hereby declares that the product

Product Name:

GPIB Interface for PMC

Model Numbers:

PMC-GPIB

Product Options:

All

conforms to the following standards or other normative documents:

Electromagnetic Emissions:

EN 55011: 1991

(by Council Directive 89/336/EEC)

CISPR 11: 1990 Group 1, Class A

Electromagnetic Immunity:

EN 50082-1: 1992

(by Council Directive 89/336/EEC)

IEC 801-2: 1991

4.0 kV by Contact  
8.0 kV by Air

IEC 801-3: 1991

3.0 V/m  
26 .. 1000 MHz

IEC 801-4: 1988

0.5 kV Signal Lines  
1.0 kV AC Power Lines

EN 61010-1: 1993

Safety:

(by Council Directive 73/23/EEC)

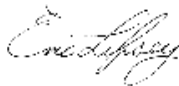
Supplementary Information

Electromagnetic compatibility requires the use of X2 style shielded GPIB cable available from the manufacturer.

When and Where Issued

22 January 1997

Austin, Texas USA



Eric Lifsey  
Compliance Engineer

Marks of Compliance



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National Instruments Corporation (U.K. Ltd.)  
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Newbury, Berkshire RG14 5SJ  
Tel (44) 1635 523545  
Fax (44) 1635 523154



# PXI-GPIB Specifications

**Table 41.** PXI-GPIB Hardware Characteristics

<b>Characteristic</b>	<b>Specification</b>
Dimensions	16 cm by 10 cm (6.3 in. by 3.9 in.)
Power Requirement (from CompactPCI bus)	+5 VDC    600 mA Typical 800 mA Maximum
I/O Connector	IEEE 488 Standard 24-pin
Operating Environment Temperature Relative Humidity	0° to 55° C 10% to 90%, Noncondensing
Storage Environment Temperature Relative Humidity	-20° to 70° C 5% to 95%, Noncondensing
EMI	FCC Class A Verified



**Table 42.** GPIB Software Transfer Rates for the PXI-GPIB

<b>Transfer Method</b>	<b>Maximum GPIB Transfer Rate</b>
3-Wire (IEEE 488)	1.5 Mbytes/s*
High Speed (HS488)	7.7 Mbytes/s*
* Actual speed may vary considerably from speed shown because of system and instrumentation capabilities.	



## Declaration of Conformity

according to ISO/IEC Guide 22 and BS 7514

Manufacturer's Name:

National Instruments

Manufacturer's Address:

6504 Bridge Point Parkway  
Austin, Texas 78730-5039 USA

The manufacturer hereby declares that the product

Product Name:

General Purpose Instrument Bus Interface for PXI

Model Numbers:

PXI-GPIB CPCI-GPIB

Product Options:

All.

conforms to the following standards or other normative documents:

Electromagnetic Emissions

EN 55011: 1991

(by Council Directive 89/336/EEC)

CISPR 11: 1990 (mod) Group 1, Class A at 10 meters

Electromagnetic Immunity

EN 50082-1: 1992

(by Council Directive 89/336/EEC)

IEC 801-2: 1991 (mod) 4.0 kV by Contact  
8.0 kV by Air

IEC 801-3: Draft 5

3.0 V/m  
26 .. 1000 MHz  
900 MHz Digital RF

IEC 801-4: 1988

0.5 kV Signal Lines  
1.0 kV AC Power Lines

EN 61010-1: 1993

Low Voltage Safety

Based on V-0 rating of printed circuit board material.

(by Council Directive 73/23/EEC)

Supplementary Information

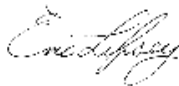
Electromagnetic compatibility (EMC) requires the use of the manufacturer's X2 style GPIB interface cable.

When and Where Issued

10 June 1998

Austin, Texas

USA



Eric Lifsey  
Compliance Engineer

Marks of Compliance

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Tel (44) 1635 523545 Fax (44) 1635 523154



# Technical Support Resources

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National Instruments offers technical support through electronic, fax, and telephone systems. The electronic services include our Web site, an FTP site, and a fax-on-demand system. If you have a hardware or software problem, please first try the electronic support systems. If the information available on these systems does not answer your questions, contact one of our technical support centers, which are staffed by applications engineers, for support by telephone and fax. To comment on the documentation supplied with our products, send e-mail to [techpubs@ni.com](mailto:techpubs@ni.com).

## Web Site

The InstrumentationWeb address is <http://www.ni.com>. From this Web site you can connect to our Web sites around the world (<http://www.ni.com/niglobal/>) and access technical support (<http://www.ni.com/support/>).

## FTP Site

To access our FTP site, log in to our Internet host, <ftp.ni.com>, as anonymous and use your e-mail address, such as [yourname@anywhere.com](mailto:yourname@anywhere.com), as your password. The support files and documents are located in the `\support` directories.

## Fax-on-Demand Support

Fax-on-Demand is a 24-hour information retrieval system containing a library of documents in English on a wide range of technical information. You can access Fax-on-Demand from a touch-tone telephone at 512 418 1111.

## E-Mail Support

You can submit technical support questions to the applications engineering team through e-mail at [support@ni.com](mailto:support@ni.com). Remember to include your name, address, and phone number so we can contact you with solutions and suggestions.





## Telephone and Fax Support

National Instruments has branch offices all over the world. Use the following list to find the technical support number for your country. If there is no National Instruments office in your country, contact the source from which you purchased your software to obtain support.

<b>Country</b>	<b>Telephone</b>	<b>Fax</b>
Australia	03 9879 5166	03 9879 6277
Austria	0662 45 79 90 0	0662 45 79 90 19
Belgium	02 757 00 20	02 757 03 11
Brazil	011 284 5011	011 288 8528
Canada (Ontario)	905 694 0085	905 785 0086
Canada (Québec)	514 694 8521	514 694 4399
Denmark	45 76 26 00	45 76 26 02
Finland	09 725 725 11	09 725 725 55
France	0 1 48 14 24 24	0 1 48 14 24 14
Germany	089 741 31 30	089 714 60 35
Hong Kong	2645 3186	2686 8505
India	91805275406	91805275410
Israel	03 6120092	03 6120095
Italy	02 413091	02 4139215
Japan	03 5472 2970	03 5472 2977
Korea	02 596 7456	02 596 7455
Mexico (D.F.)	5 280 7625	5 520 3282



<b>Country</b>	<b>Telephone</b>	<b>Fax</b>
Mexico (Monterrey)	8 357 7695	8 365 8543
Netherlands	0348 433466	0348 430673
Norway	32 84 84 00	32 84 86 00
Singapore	2265886	2265887
Spain (Madrid)	91 640 0085	91 640 0533
Spain (Barcelona)	93 582 0251	93 582 4370
Sweden	08 587 895 00	08 730 43 70
Switzerland	056 200 51 51	056 200 51 55
Taiwan	02 2377 1200	02 2737 4644
United Kingdom	01635 523545	01635 523154
United States	512 795 8248	512 794 5678



# Important Information

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## Warranty

The GPIB hardware is warranted against defects in materials and workmanship for a period of two years from the date of shipment, as evidenced by receipts or other documentation. National Instruments will, at its option, repair or replace equipment that proves to be defective during the warranty period. This warranty includes parts and labor.

The media on which you receive National Instruments software are warranted not to fail to execute programming instructions, due to defects in materials and workmanship, for a period of 90 days from date of shipment, as evidenced by receipts or other documentation. National Instruments will, at its option, repair or replace software media that do not execute programming instructions if National Instruments receives notice of such defects during the warranty period. National Instruments does not warrant that the operation of the software shall be uninterrupted or error free.

A Return Material Authorization (RMA) number must be obtained from the factory and clearly marked on the outside of the package before any equipment will be accepted for warranty work. National Instruments will pay the shipping costs of returning to the owner parts which are covered by warranty.

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## **WARNING REGARDING MEDICAL AND CLINICAL USE OF NATIONAL INSTRUMENTS PRODUCTS**

National Instruments products are not designed with components and testing for a level of reliability suitable for use in or in connection with surgical implants or as critical components in any life support systems whose failure to perform can reasonably be expected to cause significant injury to a human. Applications of National Instruments products involving medical or clinical treatment can create a potential for death or bodily injury caused by product failure, or by errors on the part of the user or application designer. Because each end-user system is customized and differs from National Instruments testing platforms and because a user or application designer may use National Instruments products in combination with other products in a manner not evaluated or contemplated by National Instruments, the user or application designer is ultimately responsible for verifying and validating the suitability of National Instruments products whenever National Instruments products are incorporated in a system or application, including, without limitation, the appropriate design, process and safety level of such system or application.



# Compliance

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## FCC/DOC Radio Frequency Interference Compliance

This equipment generates and uses radio frequency energy and, if not installed and used in strict accordance with the instructions in this manual, may cause interference to radio and television reception. Classification requirements are the same for the Federal Communications Commission (FCC) and the Canadian Department of Communications (DOC). The FCC/DOC classification is indicated on a label on the devices. If an FCC ID is present, the equipment is Class B; otherwise, it is Class A. Look at the product to determine the classification, then read the appropriate information below regarding the compliance of your product:

### Determining FCC Class

The FCC places electronic equipment into two classes based on the unwanted electrical noise emissions created by the product and the intended location where the product will be used. The noise emissions are very weak radio signals, but can nonetheless interfere with radio or television broadcasts if the product FCC Class is not considered during use. However, the marking methods and terminology specified in the FCC rules are rather vague.

By looking at the National Instruments GPIB product you purchased, you can determine the FCC Class and therefore which of the two basic FCC Warnings apply. In most cases, the product is FCC Class A and displays a simple warning statement regarding interference. FCC Class B products are distinguished by displaying either a FCC ID code starting with the letters EXN, or the newer FCC compliance mark that appears generally as follows:



Due to the risk of interference to communications, FCC Class A products are not to be used in proximity (approximately 33 yards or 30 meters) to residential areas. FCC Class B products have lower noise emissions and therefore no restrictions, except for the basic prohibition against causing harmful interference to communications.

The curious reader can consult web site <http://www.fcc.gov> for more information.



## Class A

### Federal Communications Commission

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### Canadian Department of Communications

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

**Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.**

## Class B

### Federal Communications Commission

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### Canadian Department of Communications

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

**Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.**



## FCC Notices to User

Changes or modifications not expressly approved by National Instruments could void the user's authority to operate the equipment under the FCC Rules.

**If your device is listed as Class A Shielded or Class B Shielded, the following statement applies:**

**This device complies with the FCC rules only if used with shielded interface cables of suitable quality and construction. National Instruments used such cables to test this device and provides them for sale to the user. The use of inferior or nonshielded interface cables could void the user's authority to operate the equipment under the FCC rules.**

**If necessary, consult National Instruments or an experienced radio/television technician for additional suggestions. The following booklet prepared by the FCC may also be helpful: Interference to Home Electronic Entertainment Equipment Handbook. This booklet is available from the U.S. Government Printing Office, Washington, DC 20402.**

