Introducing the Network Interface Cards

Rockwell Automation 1784-PKT*x* family PCI cards connect PCs to PLC controllers on Data Highway Plus (DH+) or SLC processors on DH-485 networks for easy programming and data acquisition. I/O scanner functionality is also available in the cards so they can be used with soft-control or embedded-control engines. And, because these cards incorporate the Universal PCI Card Standard, they are compatible with almost any PC. If general programming, configuration, and monitoring capabilities via an industrial or desktop PC are required, these cards are a necessity.

Your 1784-PKT*x* network interface card (cat. nos. 1784-PKTX and 1784-PKTXD) is a PCI (Peripheral Component Interconnect) universal card that must be inserted into a PCI bus slot. A universal card can be placed into a PCI bus slot that is keyed for either 3.3 Volt or 5 Volt signalling. This card may also be placed in a 64-bit slot, although it will not use the extended 64-bit operation. Table 1.1 outlines features supported by the PKT*x* cards.

Table 1.1 Features supported by PKT*x* cards

KT*x* card catalog #	# of channels	Active node on these networks	Remote I/O scanner capability?
1784-PKTX	1	DH+ or DH-485	yes
1784-PKTXD	2	DH+ and/or DH-485[1]	yes

[1] Available only on channel 1

Compatibility

You need a PCI-compatible personal computer. Table 1.2 outlines operating systems and drivers that support the PKT*x* cards.

Table 1.2 Operating Systems and drivers supporting the PKT*x* cards

	Windows 98 or later	Other operating system
DH+	Included with RSLinx	Write your own driver using 1784-DP4
DH-485	Included with RSLinx	Same as DH+
Remote I/O	Write your own driver using 6001-RIO - RIO Tool Kit	Write your own driver using 6001-RIO - RIO Tool Kit

How the 1784-PKT*x* Card Operates

The 1784-PKTX and -PKTXD cards:

- communicate with nodes on Data Highway Plus networks, including PLC-5®, PLC-5/250™, and SLC 5/04 processors, and SLC 5/01™, SLC 5/02, and SLC5/03 processors (only via 1785-KA5)
- communicate with SLC™ processors on DH-485 networks
- communicate to DH+ and Remote I/O via SoftLogix-5
- communicate to ControlLogix through a 1756-DHRIO module
- act as a remote I/O scanner

The 1784-PKT*x* performs data transmission, management, and local network diagnostics. The interface to the host processor is through a board-resident dual-port memory.

Rockwell Automation RSLinx interface software manages data transmission and reception through dual-port memory.

The PCI BIOS on your computer automatically assigns the PKT*x* card's IRQ and base memory address (one for each channel). If your card has two channels, both channels share the same IRQ.

Configuring the PKT*x* Hardware

Introduction

The 1784-PKT*x* card is a PCI bus card, compliant with the PCI Bus Specification Revision 2.3. This card was developed with Plug and Play functionality, as defined in Revision 1.0A of the Plug and Play BIOS Specification. Because of this, PKT*x* cards do not require the use of switches or jumpers to configure their specific interrupt request levels (IRQ) and base memory address values. These configurations are automatically assigned to the PKT*x* card by the PCI BIOS when the computer is powered-up. The configurations are stored in the PCI configuration registers. These values may be retrieved by application software used to communicate with the PKT*x* card.

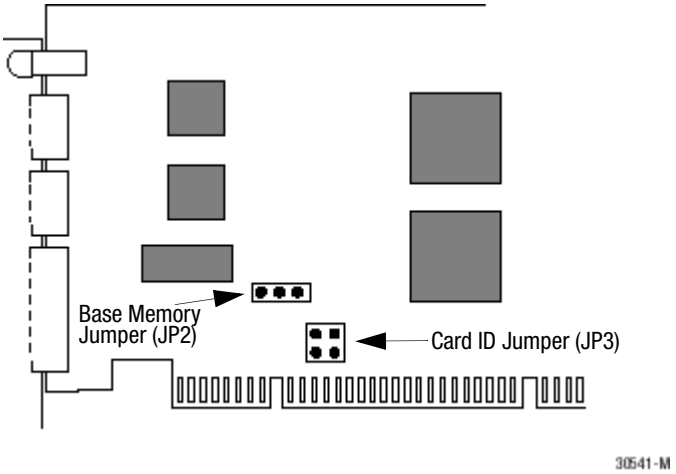
Interrupt Request Assignment

The PCI BIOS automatically assigns the PKT*x* card an IRQ. Because of this, each time you add or remove cards and restart your computer, the BIOS may assign a different IRQ to each card. You should check the IRQ assignment each time you start your system. Most application software will verify this assignment for you. If you're using RSLinx, its Plug and Play driver verifies the IRQ.

Base Memory Address Values

Although the assignment of the IRQ and base memory address values is automatic, and does not require user intervention, there is one jumper on the PKT*x* card that is used to restrict the range of values that can be assigned to the base memory address by the PCI BIOS. This jumper is called the Base Memory Address jumper, and its default position is set to 32 bit. If you are not using Microsoft Windows 95 or later, you may have to set this jumper. See Figure 2.1 on page 2-2.

Figure 2.1 Overview of the jumpers on the PKT*x* card



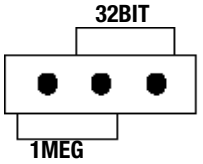
Setting a Base Memory Address Jumper

The host computer and the PKT*x* card exchange data via a dual-port interface. The dual-port requires 4 Kbytes of memory. This 4 Kbyte block of memory begins at the base memory address assigned to the card by the PCI BIOS when the computer is started.

Under MS-DOS, Windows 3.1 and Windows for Workgroups, the base memory address of PC cards should fall within the range of 0 and 1 Megabyte of PC memory. For the newer Windows operating systems, this restriction is no longer required, and the base memory address should be located anywhere in the PC memory space.

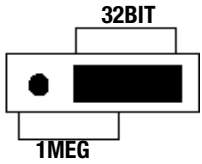
The Base Memory Address jumper (JP2) forces the PCI BIOS to assign the base memory address to one of two address ranges, as shown in the table below. You should select the jumper position based on the operating system running on your PC.

When looking directly at the 1784-PKT*x* card, the Base Memory Address jumper looks like:



This is a jumper that is not covered.

This is a jumper that has the 32bit position for Windows 95 (or later) covered.



40022

Using Multiple PKTx Cards

It is possible to have more than one PKT*x* card within your system. You can have **up to four** cards functioning at the same time. There are two jumpers that can be set to establish unique identification between the PKT*x* cards. The position and combination of the two jumpers allow each card to be uniquely recognized by any application software.

The default position, card ID 0, has both jumpers in place.