1784PKTX Hardware Compatibility Issue with DASABDHPlus

Introduction

This *Tech Note* addresses the incompatibility between some Allen Bradley 1784PKTX PCI cards and certain motherboard configurations, thus making the DASABDHPlus ineffective.

This *Tech Note* assumes you have installed a 1784PKTX card according to the **Wonderware Tech Note 366 - Configure DASABDHPlus to Work with the 1784-PKTx Adapter**.

Problem Summary

Indications of a problem may include a message in the Wonderware Log Viewer:
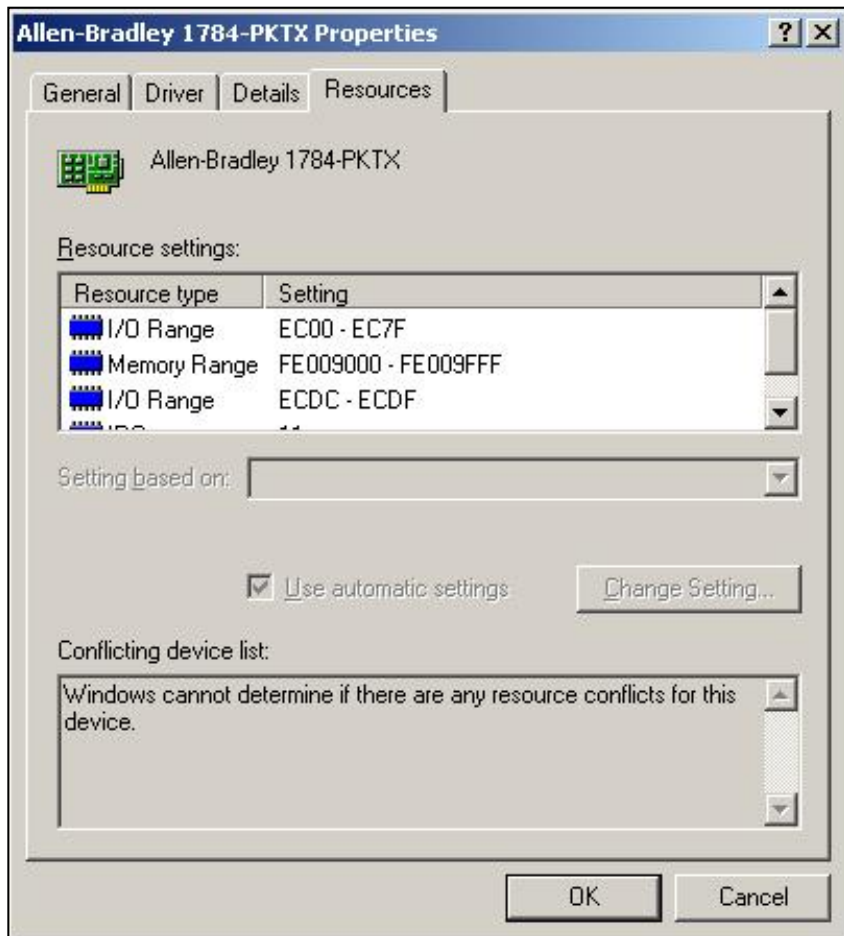
> **KT dual port memory (memory window) not detected at [memory location]. Please verify that the memory address DIP Switch settings on KT card match configuration in server.**

As a result, no communication is possible between the HMI, the DA Server, and the adapter card.

Troubleshooting Checklist

The following list explains possible reasons that might affect the communications of this PCI card to the PLC:

1. Make sure the jumper on the AB1784PKTX card are connected properly at 32 bit instead of 1M. The **CID = 0** position is selected if you have only one 1784PKTX card in this machine.

2. Make sure the DH+ (Blue Hose) cable is connected straight through the entire network (node to node). No cross over (the Blue and the Shield) should be used.

3. Use the Device Manager to locate the **1784PKTX** card. Check under the **Property/Resources** tab to see the Assignment. Resources must be assigned to this card, or it will not work.

Figure 1: System Resource Assigned to the PCI Card

4. The ABDHPlus DAServer might not work if the 1784PKT card is in a PCI 64 bit data bus with 3.3 V power supply.

5. You can see the following error in the Wonderware LogViewer:

KT Dual port memory (memory window) not detected at xxxxxxxx – please verify that the memory address DIP switch on KT card match configuration in server.

This error is caused by the Windows XP Operating System or higher upgrade; MS no longer, by default, allows access to certain memory location which is used by or IO server.

You must manually change the default setting in the **boot.ini** file to disable the Data Execution Prevention (DEP).

To open the boot.ini file

• Open **Control Panel\System\Advance\Startup and Recovery Settings\Edit**. The boot.ini file is opened for editing as shown in **Figure 2** below.

Please notice the partition number in the last line of code needs to match the partition number in the default line. And if the NoExecute is equal to **Optin** or **Optout**, you must change it to **AlwaysOff**.
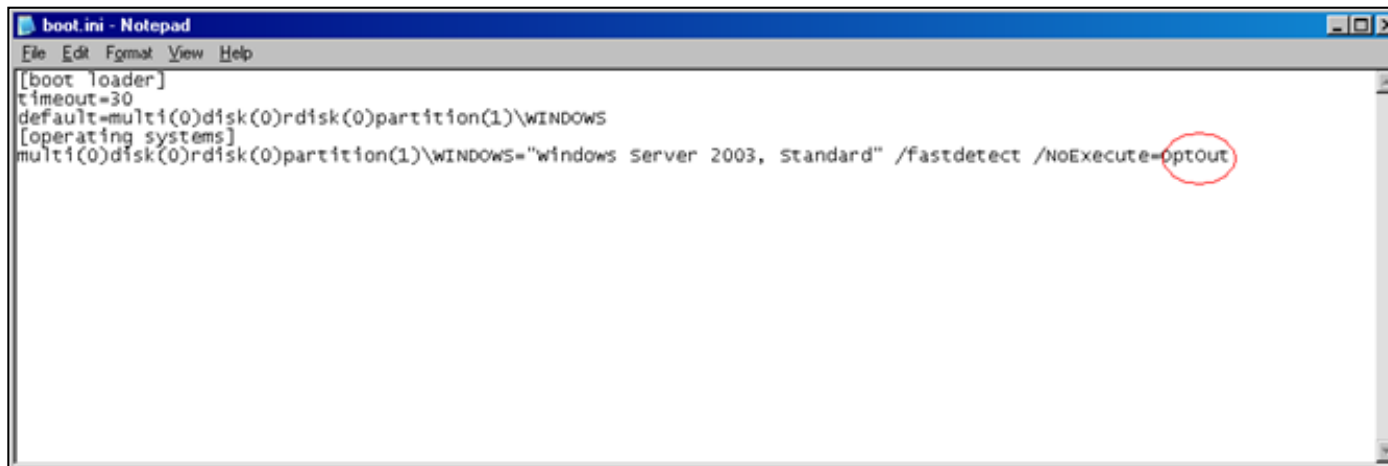
- Save the file and reboot for this change to take affect. See the **following section** for more details.

6. In some cases, after the boot.ini file is modified, the error message still occurs in the LogViewer. You may have to disable the default driver found by the plug and play.

    - To do this, open **Control Panel/Administrative Tools/Computer Management/Device Manager**.

    - Find the card in the network adapters list.

    - Right click the card and select **Properties**. Under **Use this device**, select **Do not use this device (disable)**.

    - Click **OK** and reboot.

7. If you have RSLinx running on the same machine, make sure to remove the **AB1784PKTX** driver from RSLinx to avoid the conflict in accessing the same port by multiple software drivers.

Boot.ini Change Detail

The **KT dual port memory...not detected** error is sometimes resolved by making a minor change to the Windows boot.ini file – disabling the Data Execution Prevention (DEP). You should see a line in the **boot.ini** file with the parameter /**NOExecute**. By default, this parameter is set to /**NOExecute=optin**.

To modify the boot.ini file, change this parameter to /**NoExecute=alwaysoff**.

> **Note:** You may have to go to folder options and allow hidden and system files to be visible so you can find the boot.ini file under c:\ directory.

Figure 2: Change /NOExecute Parameter

Here is an example of the change (yours may look slightly different):

```
multi(0)disk(0)rdisk(0)partition(2)\WINDOWS="Microsoft Windows XP Professional" /
noexecute=optin /fastdetect
```

to

```
multi(0)disk(0)rdisk(0)partition(2)\WINDOWS="Microsoft Windows XP Professional" /
noexecute=alwaysoff /fastdetect
```

Make sure that you only change the **/NOExecute** parameter.

- Reboot the PC then try communicating again. This modification is likely to resolve the **Dual port memory detected** error and establish good communication and data updates.

Modifying the Device Manager to Disable the Plug-N-Play Default Driver

If the **steps above** did not eliminate the **Dual Port Memory Not Detected...** error, complete the following steps to change the Device Usage setting for the PKTX1784 adapter.

1. Open the Properties dialog box for the Allen-Bradley 1784-PKTX Device.

2. Set the Device usage parameter in the **Properties/General** tab to **do not use this device** in the Device Manager.

3. Click **OK** and reboot your machine.

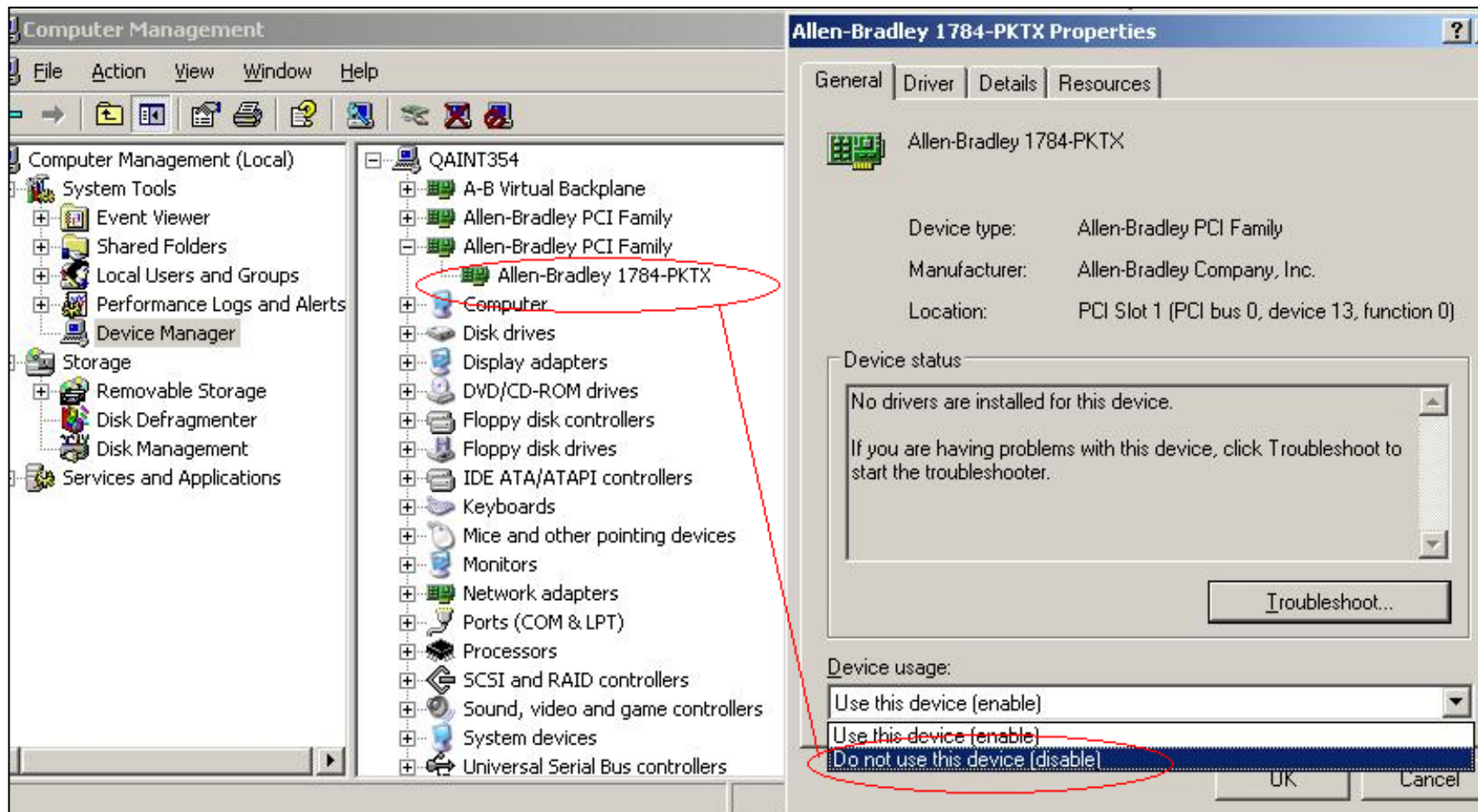   **You do *not* need to re-enable the Device Driver after you reboot.**

Figure 3: Device Manager Setting Do Not Use this Device (Disable)

Note: The current ReadMe file for the DASABDHPlus indicates the DA Server will not be compatible with a PC adapter that has a PCI Express slot on it. This is because Wonderware Development anticipated the DA Server would not work with motherboards that have the PCI Express slots (due to revised Bus Management Package).

However, Wonderware has tested the DA Server and found it does in fact work in PCs that have all three types of PCI buses. The following section discusses this in more detail.

PCI Bus Details

Three types of PCI slots are currently available on any motherboard:

1. (Legacy) **Standard PCI** slot, support 32 bit data bus, 5V power supply.

2. (Legacy) **Newer standard PI** slot, support 64 bit data bus, 3.3V power supply.

For these 2 PCI slot types, **please click here** for more information.

3. PCI Express slot (usually for game cards) - this is a much different connector - the difference between the Express and the standard PCI card is compared in the following sections.

Current PCI standard and PCI Express cards are used in a variety of platforms, including servers, workstations, and desktops. PCI Express defines standard and low-profile cards that can replace or coexist with legacy PCI cards. These cards have the same dimensions as PCI cards and are equipped with a rear bracket to accommodate external cable connections.

The differences between the PCI and PCI Express cards lie in their I/O connectors. A x1 PCI Express connector has 36 pins, compared to the 120 pins on a standard PCI connector.

Figure 4 (below) compares PCI and PCI Express low-profile cards. The x1 PCI Express connector shown is much smaller than the connector on the PCI card. Next to the PCI Express connector is a small tab that precludes it from being inserted into a PCI slot. The standard and low-profile form factors also support **x4**, **x8**, and **x16** implementations.

PCI - LAN Card   PCI - LAN Card   x1 PCI Express - LAN Card
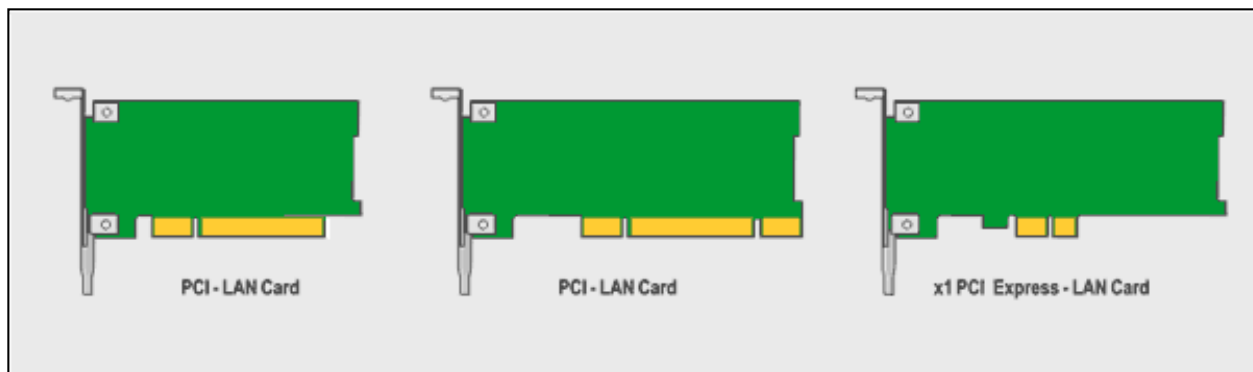
Figure 4. Comparison of PCI Express and PCI Low-Profile Cards

To date, Allen Bradley has not made any 1784PKTX PCI card to fit into any PCI Express slot. Their Rev A card will only fit into the legacy standard PCI slots; their Rev B card can fit into both legacy standard and new standard PCI slots.

Wonderware DASABDHPlus server is tested to work (in a vast majority of cases) with a PC that comes with a motherboard equipped with only 5V 32 bit data bus PCI slots.

Wonderware test results also show that the DA Server works with the REV A 1784PKTX PCI card in most cases, on motherboards that have both types of slots (5V and 3.3V).

> **Note:** Since Wonderware has only seen a handful of Rev B PCI cards work with the DA Server in this same motherboard, the results are inconclusive at this point as to the make, model, and manufacturer.

Wonderware recognizes this as a known issue documented as Change Request **#L00062055**. Any 1784PKTX PCI card Rev B unable to work with DASABDHPlus can be linked to this CR.

Workaround Recommendations

- Use the REV A 1784PKTX PCI card if available. They are no longer sold by AB.

- Use RSLinx as an OPC server and FSGateway to obtain the data from RSLinx. *

- Use RSLinx as a DDE server locally to the client application (InTouch, InSQL….). *

   * Requires at least RSLinx Professional or Gateway License

   - RSLinx Lite – Not a server, can not serve any data to clients.

   - RSLinx OEM – Best for OEM client applications – RSView, RSPanel and so on.

   - RSLinx Professional – Full Local DDE\OPC server. As OPC server, only support InProc connection (supports single instance OPC client connection)

   - RSLinx Enterprise Gateway – Full network DDE\OPC server. Support multiple OPC clients via Out-of-Proc connections.

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For technical support questions, send an e-mail to **support@wonderware.com**.

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