Introduction

The SST5136SD PCI adapter card is similar to the Allen Bradley’s 1784PKTX adapter card, and provides the interface between the HMI machine and the Allen Bradley Data Highway Plus protocol.

The SST5136SD PCI card supports DH+ 57.6, 115.2, and 230.4 baud rates used in Allen Bradley PLC families.

The main difference with SST5136SD PCI card is that there are no jumper settings for base memory and Card ID. The firmware provided by Wonderware's I/O Server for this PCI card automatically determines how many PCI cards are installed, and what base memory to use for each PCI card installed on the machine.

**Note:** The cables used for the SST5136SD PCI card and those used for AB1784PKTX PCI card are different: The SST cable is a cross-over version of the 1784 cable:
Application Versions

This Tech Note uses the following I/O Server versions:

- SSTDHP Version 8.1
- DASDHPlus Server Version 1.0

Assumption

- The user has basic knowledge in working with the Allen Bradley PLC series.
- The adapter card(s) had been successfully installed in the PC that is to be configured.

Note: Wonderware's I/O Servers and DAServers support multiple PCI adapters and dual-channel port adapter cards. However, the following bug was identified in the DASABDHPlus DAServer: The second PCI card cannot be configured properly.
Configure the Interface SST5136 PCI Card Using SSTDHP I/O Server V8.1 (New Release)

Wonderware's new SSTDHP I/O Server V8.1 is the replacement for the SS5136SD I/O Server.

To check the version of this I/O Server, select **About SSTDHP** from the Help command in the main menu bar (Figure 2 below):

![Figure 2: Help/About SSTDHP](image)

The **About SSTDHP** dialog box appears, containing the version number (Figure 3 below):
To configure the I/O Server, we'll begin with the Adapter Card Settings.

1. Select **Configure/Adapter Card Settings** from the menu bar.

   The **Adapter Card Settings** dialog box appears.

   If this is the first time you are configuring the I/O Server, click the **New** button to add a new card configuration (Figure 4 below):
2. Configure the Adapter Card settings as explained in the following section.

**Note:** The **Modify** button is available after creating a configuration.

In Figure 5 (below), the SSTDHP Adapter Card Settings dialog box contains the default Card Name of **Wonder0** for the first adapter card, with the parameters necessary to make the I/O Server work properly:
• The Memory Base Address and I/O Port Base Address options are disabled when the PCI option for the Card Types setting is selected.

• The Card's Highway Address must be unique but can be arbitrary between 0 and 77.

• Reply Timeout default value is 3 seconds. SSTDHP I/O sever supports all 3 DH+ baud rate. However, the speed configured in this server must match the speed that is configured in the PLC processor.

• In the Card Types area, selecting the PCI option displays all available cards in the drop-down list, with a unique card id value.

For this Tech Note, 2 PCI cards are installed on the machine. Each Adapter Card Setting (Wonder0 and Wonder1) points to a different card as shown in Figure 4 and Figure 5.

Note: if you do not see any card in the PCI card list, please check your card installation.
The following graphic (Figure 6 below) shows the **Wonder1** SSTDHP Adapter Card settings for the second adapter card:

![Figure 6: Wonder1 Adapter Card Settings Dialog Box](image)

3. Press the **Configure** button. The **Firmware Configuration** dialog box appears (Figure 7 below).

4. Select the **Load Firmware** and **Server Supplied** options.
Note that since the firmware is supplied by the Wonderware server, the LED pattern on the PCI card will not be the same as the manufacturer's description (from the manual).

The following table explains the LED pattern display in all combinations when using WW Server-supplied firmware:

<table>
<thead>
<tr>
<th>Condition</th>
<th>DH+ Cable Connected</th>
<th>No DH+ Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Client Connected</td>
<td>Red LED ON solid, Green LED OFF</td>
<td>Red LED ON solid, Green LED OFF</td>
</tr>
<tr>
<td>Client Connected, No Data Request</td>
<td>Red LED OFF, Green LED ON solid</td>
<td>Red LED OFF, Green LED OFF</td>
</tr>
<tr>
<td>Client Connected and Polling Data</td>
<td>Green LED ON solid, Red LED ON flashing</td>
<td>Red LED OFF, Green LED OFF</td>
</tr>
</tbody>
</table>

5. Click **OK** to close the **Firmware Configuration** dialog box, then **OK** in the **SSTDHP Adapter Card Settings** dialog box.

This completes the Adapter Card configuration.
1. Select **Configure/Topic Definition**.

The **Topic** dialog box appears. If this is the first time you configuring the I/O Server, nothing appears in the **Topics** list panel.

2. Click the **New** button to create one or more topics. The topics are saved to the configuration file and can be modified later if required:

![Figure 8: Configure/Topic Definition](image)

The **Topic Definition** dialog box appears containing the default topic name **ABPLC** (Figure 9 below).

This topic name can be changed arbitrarily; for this *Tech Note* the first **Topic Name** is renamed **ABPLC0**: 

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**Figure 8: Configure/Topic Definition**

The **Topic Definition** dialog box appears containing the default topic name **ABPLC** (Figure 9 below).

This topic name can be changed arbitrarily; for this *Tech Note* the first **Topic Name** is renamed **ABPLC0**: 

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• Each Topic must map to an Adapter card.

• The **PLC Family** area contains a list of all PLCs that are supported by this I/O Server.

• Note that with the **PLC5** family, if you need to work with the PID loops and String files, you must select the **Support PID and String Files** option. Other PLC families do not use this special parameter.

• For the **Connect Type** list, **Local** is the default selection for **PLC 5** and **SLC500** PLCs. If you are talking to other PLC family types, then you may have to use other connection types via different bridges.

Please refer to specific PLC family user's guide to determine the correct bridge to use.

Figure 10 (below) shows the second topic configured and using a different PCI card (**Wonder1**).

One very important parameter to mention is the **Networking Addressing** area, in which the **DH+ Node**
address is configured for the PLC: it must match the PLC address exactly.

![SSTDHP Topic Definition Dialog Box](image)

**Figure 10: SSTDHP Topic Definition Dialog Box**

This concludes our legacy I/O Server configuration.

Figure 11 (below) shows the **wwclient** test that indicates valid configurations and wwclient is receiving data updates from the PLC via our SSTDHP I/O Server, after completing its configuration:
Wonderware's ABDHPlus DAServer can also be configured for use with the SST5136 PCI adapter to communicate with the PLCs running in the DH+ network.

**Assumptions**
This Tech Note assumes the following:

- Basic knowledge of the System Management Console (SMC).
- Successfully installed PCI adapter and the DASABDHPlus on the machine that is to be configured.

If the reader is not familiar with SMC and having trouble installing the DASABDHPlus, please contact your local distributor or Wonderware Technical Support for assistance.

1. Launch the SMC from **Start/Program Files/Wonderware**, then select **System Management Console** (SMC).

2. Expand the SMC to show **DAServer Manager/Default Group/Local**.

3. Locate **Archestra.DASABDHPlus.1** as shown in Figure 12 (below):

![Figure 12: Archestra.DASABDHPlus.1](image)

Some customers may find after they expand the **Local** object, there is nothing under it, even though the
installation of the DAServer is complete.

This is caused by the User's Account information mismatch. Please refer to **Technote 343, Setting up the DAServer Account for Administrator Privileges** for instructions on how to resolve that issue.

The SMC window displays information about the version and release data of the major .dll files being used by the DAServer. Please keep this information available if you need to contact Wonderware Technical Support for assistance with the DAServer.

4. Expand the **Archestra.DASABDHPlus.1** icon. The configuration object is directly underneath.

5. Double-click this icon to open the **Global Parameters** Editor panel (Figure 13 below):

![Figure 13: Global Parameters Editor](image)
Global Parameters are used by all the objects within this DAServer. For the details of each parameter and their functions please refer to Tech Note 424, Working with DAServers.

Wonderware recommends leaving the default values for all the parameters except the Diagnostic Backlog Size.

6. Change to 10 or 20 from 0. This reserves the registers for future diagnostics.

7. Save your changes by clicking the Save icon in the upper right-hand corner of the SMC.

8. Right-click the Configuration icon in the SMC tree.

9. Select Add SSTPCI_CARD Object from the sub-menu (Figure 14 below):

![Figure 14: Add SSTPCI_CARD Object](image)
The **New_SSTPCI_CARD_000 Parameters** editor panel appears (Figure 15 below):

![New_SSTPCI_CARD_000 Parameters Editor Panel](image)

**Figure 15: New...Parameters Editor Panel**

- The **DH Plus Node Address** is the PCI card address installed in your PC. It can be arbitrarily defined between **0 – 77** but must be unique in the DH+ network.

- The **Firmware Path** field stores the location where the DAServer keeps the firmware for the PCI card.

- The **PCI Card** parameter displays all the available PCI cards installed in this machine. Recall that in this example, multiple PCI cards are supported with the DAServer.

Wonderware recommends keeping most parameters with their default value unless you are an experienced user who knows exactly the effect when changing each of them.
• The **Baud Rate** must match what is configured in the PLC.

10. Save your configuration.

    The following prompt appears (Figure 16 below):

![Parameter Change Warning Prompt](image)

**Figure 16: Parameter Change Warning Prompt**

11. Click **OK**, and complete the configuration before restarting your computer.

12. After the PCI Card object configuration is completed, right-click the PCI Card object in the SMC tree.

    For this *Tech Note*, add the PLC5 object. (Figure 17 below).

13. Select **AddPLC5_DHP Object** from the sub-menu.
Figure 17: Add PLC5 Object

The object's configuration editor panel appears (Figure 18 below):
To configure the DAServer to talk to a PLC5

1. Enter the DH Plus network address of the PLC in the **DH Plus Node Number** field.
   This address must be matched with the same address in the PLC5 processor. Leave the other parameters in this window with the default values.

2. Select the **Device Group** tab.

3. Right-click within the **Device Groups** tab field, and select **Add** to add device group(s) (Figure 19 below):
Figure 19: Add Device Group

At least one device group must be created for each PLC configuration.

In Figure 20 (below), the default device group is named **Topic_0**; however, this name can be anything. For this *Tech Note*, it is named **PLC520**.
**Figure 20: Default Device Group**

**Note:** The Device Group to a DAServer is exactly the same as a Topic Name to a Legacy I/O Server.

Once the device group is created, the DAServer configuration is complete. One more step is required to run the DAServer online – to activate the DAServer.

4. Select the **Archestra.DASABDHPlus.1** icon, and right-click it. The available activation options are displayed in the dialog box (Figure 21 below).
Figure 21: DAServer Activation

5. Select **Activate Server**.

**Note:** By default the DAServer configuration file is saved with a predefined file name. In this case, the ABDHPlus DAServer file is called **DASABDHPlus.aacfg**. This file can be renamed arbitrarily to a customer-selected name but the file type must be **.aacfg**.

The configuration file is kept in the following location: **Program Files\Wonderware\DAServer\DASABDHPlus\Bin**.

It is possible to save multiple configuration files in this location. The DAServer has the option to select one particular configuration file to load and run it from a list of configuration files.
Figure 22 (below) shows 2 configuration files in the Bin folder.

To select a different configuration file from the SMC

1. Deactivate the server first (or you will not be able to find the proper option list).
2. Locate the Configuration object.
3. Open it (double-click) to show the Global Parameters editor.
4. Right-click the right mouse button to display the option sub-menu.
5. Select **Use Another Configuration Set** (Figure 23 below).

Note that the caption bar at the bottom of the window reads: **Changes Configuration Set used by the DAServer**:

![Figure 23: Use Another Configuration Set Sub-Menu Selection](image)

When this menu command is selected, all the available configuration files in the **Bin** folder are listed, and the currently-loaded configuration set appears as disabled menu item.

Use the **Configuration** sub-menu to select any other configuration set and select it to load the different configuration set.
For this *Tech Note*, the wwClient utility is used to verify the connection to the PLC by obtaining data updates to the items being advised by the utility (Figure 24 below):

![Figure 24: Wonderware Client on Advise](image)

Figure 25 shows that when the DA.Server is activated, the **Diagnostics** object is available in the SMC. 6 diagnostic components are available:

**Figure 25: Diagnostics Object in SMC**
Figure 25: Diagnostics List

Figure 14 (above) shows reserving the Backlog Size of 20. This parameter is used for monitoring the writing transactions.

Figure 26 (below) shows that for each poke command issue from the client (in this Tech Note, we have poked the register N7:1 with one value from wwClient), each write is reported in an entry as a Demand Write transaction:
Other diagnostics components are outside the scope of the discussion in this Tech Note. For details on their use, see Tech Note 424, Working with DAServers.

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Tech Notes are published occasionally by Wonderware Technical Support. Publisher: Invensys Systems, Inc., 26561 Rancho Parkway South, Lake Forest, CA 92630. There is also technical information on our software products at www.wonderware.com/support/mmi

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