How-To:

Convert an Alta PCIe device to use legacy interrupts instead of MSI interrupts

Note: This application note applies to MS-Windows environments only. Contact Alta support for assistance on other OSes such as Linux.

This application note describes how to make your Alta PCIe-based device use legacy interrupts instead of the default MSI interrupts. This process would only be needed in cases where the user application meets all of the following criteria:

- Separate applications open one or more channels (or bank, for A429) on the Alta card
- Hardware interrupts are used in each separate application

This does not apply to PCI devices as they use legacy hardware interrupts by default and will operate correctly in the constraints noted above.

The steps required to use legacy interrupts in a Microsoft Windows OS are as follows:

1. Modify the existing delivered inf files

The inf files delivered by Alta are **AltaDT_Dev_PCI.inf** and **AltaDT_Dev_PCIe.inf**. What we need to do is move the entry for the device that you want to convert to legacy interrupts from the **AltaDT_Dev_PCIe.inf** file to the **AltaDT_Dev_PCI.inf** file.

1.1. Create a working folder on the system which contains the Alta API and the device to be converted is installed.

1.2. 64-bit Windows:
Copy the **AltaDT_Dev_PCI.inf** and **AltaDT_Dev_PCIe.inf** files from **C:\Program Files\Alta Data Technologies\Alta Software\ADT_DeviceDriver\Win64** to this working folder.

32-bit Windows:
Copy the **AltaDT_Dev_PCI.inf** and **AltaDT_Dev_PCIe.inf** files from **C:\Program Files\Alta Data Technologies\Alta Software\ADT_DeviceDriver\Win32** to this working folder.

1.3. Open both files in the working folder for editing.

1.4. From the **AltaDT_Dev_PCIe.inf** file, locate the line under the **[DeviceList]** heading that identifies the device you want to convert. For instance, I want to convert the **Alta PCIE4L-1553 MSI** device and I find this line in the **AltaDT_Dev_PCIe.inf** file under the **[DeviceList]** heading:

"Alta PCIE4L-1553 MSI"=Install, PCI\VEN_AD00&DEV_001E&SUBSYS_001EAD00&REV_00

1.5. Cut this line from the **AltaDT_Dev_PCIe.inf** file and paste it under the **[DeviceList]** heading in the **AltaDT_Dev_PCI.inf.**

1.6. Likewise, cut this line from the **[DeviceList.NTamd64]** heading from the **AltaDT_Dev_PCIe.inf** file and paste it under the **[DeviceList.NTamd64]** heading in the **AltaDT_Dev_PCI.inf.** This is the device listing section for 64-bit Windows.

NOTE: For consistency, perform the cut/paste operation for **BOTH** sections (**[DeviceList] and [DeviceList.NTamd64]**), even though only one is applicable per OS.

1.7. Save the file **AltaDT_Dev_PCIe.inf** that you cut two lines from in your working folder.

1.8. Before saving **AltaDT_Dev_PCI.inf**, edit the two lines that you just pasted and delete the trailing **<space>MSI** in the quoted area. For instance, you will change two lines from

"Alta PCIE4L-1553 MSI"=Install, PCI\VEN_AD00&DEV_001E&SUBSYS_001EAD00&REV_00
to
"Alta PCIE4L-1553"=Install, PCI\VEN_AD00&DEV_001E&SUBSYS_001EAD00&REV_00

This will allow you to readily view in Device Manager that the device is not using MSI interrupts.

1.9. Save the file **AltaDT_Dev_PCI.inf** in your working folder.

2. Remove the existing device driver node

2.1. Open Windows Device Manager.

2.2. Locate the Jungo tab

2.3. Right-click the device **<YOUR ALTA DEVICE>**, then select Uninstall. Click OK to confirm. Leave Device Manager Open.
Note: **<YOUR ALTA DEVICE>** can be any of the PCIe-based Alta devices. In this example per above, it would reflect **Alta PCIE4L-1553 MSI.**

DO NOT RIGHT-CLICK ON THE ALTADT DEVICE!

2.4. Click OK to confirm Uninstall.

3. Remove existing inf files and copy modified inf files to appropriate locations

3.1. Open Windows Explorer as administrator. Navigate to **C:\Windows\inf**.

3.2. Delete the files **AltaDT_Dev_PCI.inf** and **AltaDT_Dev_PCIe.inf**.
(Also delete **AltaDT_Dev_PCI.PNF** and **AltaDT_Dev_PCIe.PNF** if they exist).

3.3. Copy the modified files of the same name from your working folder above to **C:\Windows\inf**.

3.4. Navigate to **C:\Windows\System32**.

3.5. Delete the files **AltaDT_Dev_PCI.inf** and **AltaDT_Dev_PCIe.inf**.

3.6. Copy the modified files of the same name from your working folder above to **C:\Windows\System32**.

4. Install modified inf files

4.1. Go back to Device Manager. Select **Action->Scan for hardware changes**.

4.2. Wait for Device Manager to complete installation. When it is done and refreshes itself, you should see, under the Jungo tab, your PCIe device WITHOUT stating “MSI”. In this example, I would see **Alta PCIE4L-1553**.

If all has been done correctly, you will now be able to open multiple applications on separate channels and accurately respond to hardware interrupts!

One final note – the number of legacy interrupt lines available are system dependent. If there are other PCI-based devices using a fixed number of interrupt lines, this process may not work as there are not enough physical interrupt lines available.