USB-C ALT-MODE AUTO-DISABLED WITH CPU GTO

HP INC
USB-C Alt-mode auto-disabled with CPU GT0

Provide a mechanism to disabled USB-C 3.1 Alt-mode of Flex Port module if a CPU GT0 without physical display output ability is detected in the system. A CPU GT0 could be detected by BIOS, and USB-C 3.1 Alt-mode of Flex Port module could be disabled through USB Type-C PD controller.

Today, USB-C 3.1 Alt-mode Flex Port module is not limited to be installed with CPU GT0 which does not support iGFX output routed to USB-C 3.1 Alt-mode Flex Port module on HP Workstation Z2 G4. Customers would confuse that there is no display output and no response from connected display monitor if their system was installed CPU GT0 and USB-C 3.1 Alt-mode Flex Port module both. A service call might be triggered if there was no any messages delivered to customers.

If USB-C 3.1 Alt-mode of Flex Port module is disabled to be USB data-only mode by BIOS (Fig. 2), a warning message (Fig. 1) would pop out in Windows OS via UCSI (USB Type-C Software Interface) to remind customers that USB-C port does not support Alt-mode with display output after customers trying to connect the USB-C port to a DisplayPort monitor. It would be helpful to customers understand that the USB-C 3.1 Alt-mode of Flex Port module is not available with CPU GT0 and reduce the confusions leading service calls.

Advantages

- Easy implementation through BIOS update
- Reduce customer’s confusions leading service calls

Table 1

<table>
<thead>
<tr>
<th>USB-C 3.1 Alt mode Flex Port connected to DP monitor</th>
<th>HP Workstation Z2 G4</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU GT2/4 installed</td>
<td>Support DP output</td>
</tr>
<tr>
<td>CPU GT0 installed</td>
<td>No display and response</td>
</tr>
<tr>
<td>With Alt-mode enabled</td>
<td></td>
</tr>
<tr>
<td>CPU GT0 installed</td>
<td>A warning message (Fig. 1) would pop out to remind customers the limitation</td>
</tr>
<tr>
<td>With Alt-mode disabled</td>
<td></td>
</tr>
</tbody>
</table>

Fig. 1

Display connection might be limited
Make sure the DisplayPort device you're connecting to is supported by your PC.
Select this message for more troubleshooting info.
Fig. 2, BIOS control flow chart

```
BIOS detect USB-C Alt Flex Port is installed?
  Yes
  BIOS detect CPU GT0 is installed?
    Yes
    Disable USB-C Alt mode of Flex Port
    No
    Enable USB-C Alt mode of Flex Port
```

**Disclosed by Poying Chih, Raymond Liu and Tan Lin, HP Inc.**