## Custom GPIO Application

### Description

Custom GPIO (custom\_gpio\_mon) application can be used to control and monitor a GPIO. Host can change the GPIO state by set/clear method. The GPIO state can be monitored using this application. When in monitor mode, this will receive an indication whenever there is a change in GPIO state and hence demonstrates indication handling in a user application.

### Prerequisites

GTKTerm or similar application.

### Command Description with Procedure

Open a serial terminal and navigate to the directory where custom applications are placed and issue the commands in the following sequence to set/clear/monitor GPIO pins in Talaria TWO.

For this application, the allowed GPIOs are GPIO17, GPIO18 and GPIO19.

|  |
| --- |
| # ./custom\_gpio set <GPIO num> |

To clear the GPIO state, Talaria TWO will clear the GPIO output.

|  |
| --- |
| # ./custom\_gpio clear <GPIO num> |

To monitor GPIO state changes, Talaria TWO will send GPIO state change indications to the Host.

|  |
| --- |
| # ./custom\_gpio monitor <GPIO num> |

### Procedure

Execute the following operations on the Talaria TWO:

Step 1: Short GPIO\_19 and GPIO\_18

Step 2: Set GPIO\_18 to control the PIN

Step 3: Set GPIO\_19 to monitor and send indication to Host

Step 4: Reset the state of GPIO\_18

Step 5: Observe the indication received at custom\_gpio monitor

### Expected Output

#### Host Console Logs

A computer screen with white text

Description automatically generated

Figure 2: custom\_gpio – host serial log

Host console log – text output:

|  |
| --- |
| innophase@innophase-ThinkPad-E15-Gen-2:~/Documents/xxxxxxxxx/hapi/dual\_stack/bins$ ./custom\_gpio monitor 18& [3] 17202  innophase@innophase-ThinkPad-E15-Gen-2:~/Documents/xxxxxxxxx/hapi/dual\_stack/bins$ ./custom\_gpio set 19  GPIO State changed..  Group\_id :0x41,msg\_id ::0xc3,  GPIO state=0  GPIO State changed..  Group\_id :0x41,msg\_id ::0xc3,  GPIO state=1  innophase@innophase-ThinkPad-E15-Gen-2:~/Documents/xxxxxxxxx/hapi/dual\_stack/bins$ ./custom\_gpio clear 19  GPIO State changed..  Group\_id :0x41,msg\_id ::0xc3,  GPIO state=0 |

### List of Message IDs Used

This application uses three message IDs and Group number 65:

1. GPIO\_CUSTOM\_SET\_REQ

This message will be sent to Talaria TWO when the application is invoked with “set” command. When Talaria TWO receives this command, it will enable the GPIO and replies with status code to Host. If the GPIO is enabled successfully, it will return 0, otherwise non-zero.

1. GPIO\_CUSTOM\_CLEAR\_REQ

This message will be sent to Talaria TWO when the application is invoked with “clear” command. When Talaria TWO receives this command, it will disable the GPIO and replies with status code to Host. If the GPIO is disabled successfully, it will return 0, otherwise non-zero.

1. GPIO\_CUSTOM\_MONITOR\_REQ

This message will be sent to Talaria TWO when the application is invoked with “monitor” command. When Talaria TWO receives this command, it will start monitoring the GPIO and replies with a status code to Host. If the GPIO monitor is started successfully, it will return 0 otherwise non-zero.

1. GPIO\_CUSTOM\_VAL\_IND

When GPIO monitor is issued, Talaria TWO starts monitoring the GPIO state changes. Whenever the state changes, it sends a state change indication message to Host.