x40a3 - Fn Inversion for multi-host devices

Version 0

[0] **getGlobalFnInversion**(hostIndex) → hostIndex, fnInversionState, fnInversionDeafaultState, fnInversionCapabilitiesMask
[1] **setGlobalFnInversion**(hostIndex, fnInversionState) → hostIndex, fnInversionState, fnInversionDeafaultState, fnInversionCapabilitiesMask
[event0] **fLockChange** → hostIndex, fnInversionState, fnInversionDeafaultState, fnInversionCapabilitiesMask

Overview

Fn Inversion for multi-host devices feature is dedicated to multi-host keyboards to give possibility to SW to set Fn Inversion option for each connected host separately. Also, device can have F-Lock function available for the user to use it manualy by pressing on a key combination (ex. Fn+Esc). When F-Lock is pressed device sends HID++ notification to SW with the status equal to 1 if Fn Inversion is enabled, or 0 if Fn Inversion is disabled. Notification is not sent if the Fn Inversion state is updated via SW. Fn inversion value (set manually or via SW) is written in the nvs memory of the device, and stored for each host separately, so value is persistent after off/on of the device or host change. SW will be informed if device has Fn Lock manual function via capability flag.

Functions and Events

[0] getGlobalFnInversion(hostIndex) → hostIndex, fnInversionState, fnInversionDeafaultState, fnInversionCapabilitiesMask

Returns host index for which status was asked, Fn Inversion current state (common for all keys "Affected by FnToggle"), Fn Inversion default state and Fn Inversion capabilities flag (declaring if Fn Inversion manual settings are available on the device as a key combination).

To know if a key is "toggleable" see "Affected by FnToggle" bit field in 0x1b04 KBD reprogrammable keys and MSE buttons.

When Fn Inversion is ON pressing Fn+Fkey outputs Fkey and pressing a Fkey by itself performs the special funtion.

When Fn Inversion is OFF pressing Fn+Fkey performs the special funtion and pressing a Fkey by itself outputs the Fkey.

Parameters

[1byte] hostIndex: Channel / host index. 0xFF = Current Host; 0x00 = Host 1, 0x01 = Host 2, etc.

Table 1. getGlobalFnInversion() request packet format

byte \ bit	7	6	5	4	3	2	1	0
0	hostIndex							
1..15	reserved							

Return

[1byte] hostIndex: Channel / host index. 0xFF = Current Host; 0x00 = Host 1, 0x01 = Host 2, etc.

[1byte] fnInversionState (0 = Fn Inversion Off, 1 = Fn Inversion On)

[1byte] fnInversionDefaultState (0 = Fn Inversion Off, 1 = Fn Inversion On)

[1byte] fnInversionCapabilitiesMask

fnInversionCapabilitiesMask

8-bit unsigned representing the capabilities of the device.

```
fn lock      = (0)/1 ->  device has fn lock manual option capability
```

Table 2. fnInversionCapabilitiesMask packet format

byte \ bit	7	6	5	4	3	2	1	0
0	capabilities mask							
	---	---	---	---	---	---	---	fn lock
1..15	reserved							

Table 3. getGlobalFnInversion() response packet format

byte \ bit	7	6	5	4	3	2	1	0
0	hostIndex							
1	fnInversionState							
2	fnInversionDefaultState							
3	fnInversionCapabilitiesMask							
4..15	reserved							

Errors

none

[1] setGlobalFnInversion(hostIndex, fnInversionState) → hostIndex, fnInversionState, fnInversionDeafaultState, fnInversionCapabilitiesMask

Returns host index for which Fn Inversion status change was asked, Fn Inversion new current state (common for all keys "Affected by FnToggle") that is set by this function, Fn Inversion default state and Fn Inversion capabilities flag (declaring if Fn Inversion manual settings are available on the device as a key combination).

Parameters

[1byte] hostIndex

Channel / host index. 0xFF = Current Host; 0x00 = Host 1, 0x01 = Host 2, etc.

[1byte] fnInversionState (0 = Fn Inversion Off, 1 = Fn Inversion On)

Table 4. setGlobalFnInversion() request packet format

byte \ bit	7	6	5	4	3	2	1	0
0	fnInversionState							
1	hostIndex							
2..15	reserved							

Return

[1byte] hostIndex: Channel / host index. 0xFF = Current Host; 0x00 = Host 1, 0x01 = Host 2, etc..

[1byte] fnInversionState (0 = Fn Inversion Off, 1 = Fn Inversion On)

[1byte] fnInversionDefaultState (0 = Fn Inversion Off, 1 = Fn Inversion On)

[1byte] fnInversionCapabilitiesMask

fnInversionCapabilitiesMask

8-bit unsigned representing the capabilities of the device.

```
fn lock      = (0)/1 ->  device has fn lock manual option capability
```

Table 5. fnInversionCapabilitiesMask packet format

byte \ bit	7	6	5	4	3	2	1	0
0	capabilities mask							
	---	---	---	---	---	---	---	fn lock
1..15	reserved							

Table 6. setGlobalFnInversion() response packet format

byte \ bit	7	6	5	4	3	2	1	0
0	hostIndex							
1	fnInversionState							
2	fnInversionDefaultState							
3	fnInversionCapabilitiesMask							
4..15	reserved							

Errors

none

[event0] fLockChange → hostIndex, fnInversionState, fnInversionDeafaultState, fnInversionCapabilitiesMask

Event sent when current host's F-Lock Status is changed by the user manually (or other mean than software receiving the event).

Values

[1byte] hostIndex: Channel / host index. 0xFF = Current Host; 0x00 = Host 1, 0x01 = Host 2, etc.

[1byte] fnInversionState (0 = Fn Inversion Off, 1 = Fn Inversion On)

[1byte] fnInversionDefaultState (0 = Fn Inversion Off, 1 = Fn Inversion On)

[1byte] fnInversionCapabilitiesMask

fnInversionCapabilitiesMask

8-bit unsigned representing the capabilities of the device.

```
fn lock      = (0)/1 ->  device has fn lock manual option capability
```

Table 7. fnInversionCapabilitiesMask packet format

byte \ bit	7	6	5	4	3	2	1	0
0	capabilities mask							
	---	---	---	---	---	---	---	fn lock
1..15	reserved							

Table 8. fLockChange() event packet format

byte \ bit	7	6	5	4	3	2	1	0
0	hostIndex							
1	fnInversionState							
2	fnInversionDefaultState							
3	fnInversionCapabilitiesMask							
4..15	reserved							

ChangeLog

- Version 0: Initial version