

USB3.0 Hub Controller

(Ver 5.0)

This document describes the notification of μPD720210, USB 3.0 Hub controller.

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## 20141020-1. Cannot support LED function

### [Problem]

μPD720210 cannot support LED function (μPD720210 cannot support Port indicator control) in SuperSpeed mode.

LED function is available for USB2.0 mode only (green color only; amber color not supported).

### [Workaround]

None available

### [Note]

Please follow the pin connections as below.

Pin No	Pin Name	Description
37	LED1B/SUSPEND	Connect to external Suspend circuit if desired when using Suspend output mode. Connect to pull up or pulldown resistor for setting the configuration by pin strapping.
39	SPISI/LED2B	Connect to SPI ROM when using ROM. Connect to pull up or pulldown resistor for setting the configuration by pin strapping.
40	SPISO/LED3B	Connect to SPI ROM when using ROM. Connect to pull up or pulldown resistor for setting the configuration by pin strapping.
41	SPISCK/LED4B	Connect to SPI ROM when using ROM. Connect to pull up or pulldown resistor for setting the configuration by pin strapping.

We will revise the documents (Datasheet and user's manual) to modify the below item.

- Remove the description of LED function

## 20140620-1.Change of integrated ROM code

This item is the supplement for the following PCN (Product Change Notice).

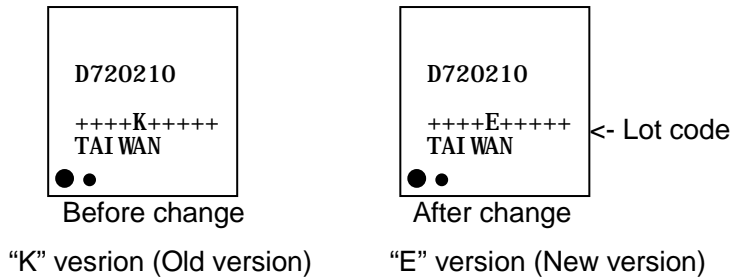
PCN Tracking Number : SAG-B-14-0008

### [Overview]

This change enables the elimination of external SPI ROM. Systems using the current version with external SPI ROM are not affected by replacing the version with this change, because the functionality of these versions will be identical, in the case where they are used with the external SPI ROM.

### [Identification of Change]

Changing 5<sup>th</sup> character of lot code by each plant as below. (Before change : K, after change : E)



### [Integrated ROM version]

The integrated ROM version of “E” version is as below.

Version 1.0.2.1 – 005

Please refer to "Release note" for the detailed change items. (ReleaseNote-USB3-210-FW.txt)

### [How to change from “K” version]

"E" version is backward compatible with "K" version.

Please note the below points in each case.

Before		After		Notes
Version	ROM	Version	ROM	
“K”	Use	“E”	Use	Replace only the sample from "K" to "E". No need to make other changes. There is no impact on the current board design.
“K”	Use	“E”	Not use	Need to consider the pin strapping on the board. Need to set the pin strapping to become the same function between before change and after change.

**["E" version requires the external SPI ROM in the below cases]**

- 1) To receive USB-IF Certification
- 2) Need to change the ROM only settings

Some configurable Items of  $\mu$ PD720210 can be set only by the ROM. (Refer to the  $\mu$ PD720210 User's Manual Section 3.4)

In case of changing the ROM only setting, need to use the external SPI ROM.

**[Recommendation for users to use the "E" version from the beginning]**

We strongly recommend designing the schematic on the basis that the serial ROM can be on the board because you can update the firmware if you find any interoperability problems in the evaluation stage. Next, remove the external SPI ROM after starting the mass production stage, if the evaluation is completed without any problems. In this case, consider the pin strapping on the board. Set the pin strapping to achieve the same function between evaluation stage and mass production stage.

**[Notes]**

In case of using "E" version, please note the below points.

- If using FW Version 1.0.2.3 -008 or later, use the external SPI ROM.
- If the design needs to support "Gang mode without power switch", use the external SPI ROM. (Refer to Notification : 20140213-1 in this document.)
- Use the ROM writing tool for Windows : Version 1.4.0.0 or later.

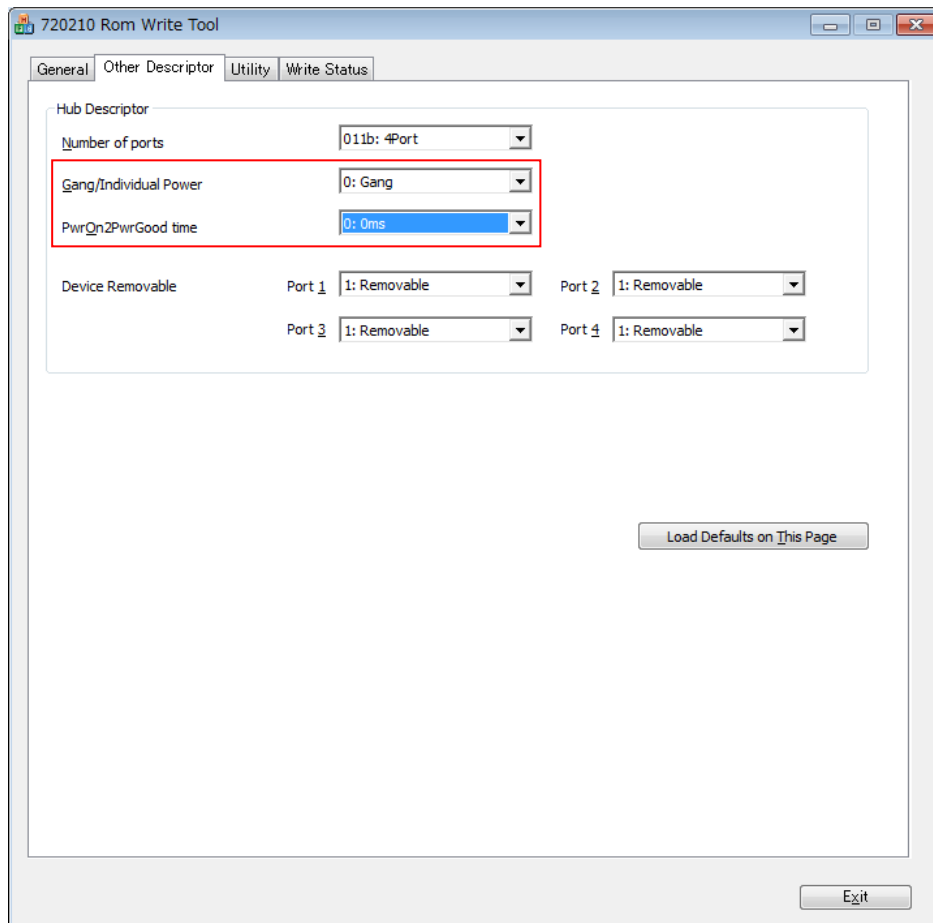
## 20140213-1. Recommend updating FW for products supporting gang mode without a power switch

[Problem]

Some non-compliant USB 3.0 devices that are connected to uPD720210 cause the interoperability problem that they are not recognized to the PC after hibernation and resume when uPD720210 is used in the gang mode and VBUS on its downstream port is not controlled by a power switch. Those devices seem to have the restriction that they go out of control when detecting the disconnection of the far-end Rx termination while keeping VBUS.

[Workaround]

1. This problem is fixed by updating FW. Please update with FW Version 1.0.2.3 - 008 or later when the product supports the gang mode without power switch. Note that this workaround is enabled only when Gang/Individual Power is "0: Gang" and PwrOn2PwrGood time is "0: 0ms" in the uPD720210 ROM Writing Tool for Windows. And when this workaround is enabled, "Low Power Mode during Suspend" is forcibly disabled and power consumption is higher than when this workaround is disabled due to enabling the Rx termination.



2. Or, use a power switch in gang mode. In this case, PwrOn2PwrGood time should be "1: 100ms" in the uPD720210 ROM Writing Tool

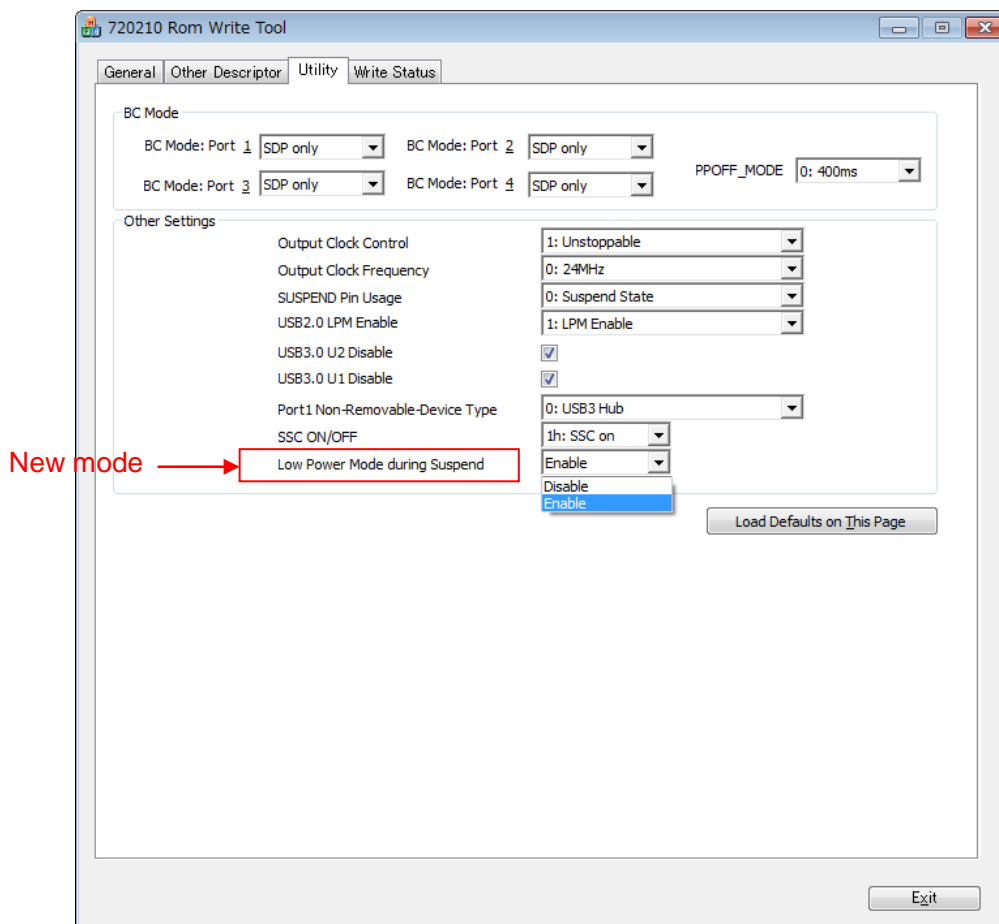
## 20140107-1. Disclose a new mode to reduce the power consumption during Suspend

[Notification]

We disclose a new mode to reduce the power consumption of uPD720210 during Suspend (U3 State) where the uPD720210 is disabled from signaling a remote wakeup due to a connect or disconnect event. We named this new mode “Low Power Mode during Suspend”.

By enabling this mode, the power consumption during Sleep state decreases to under 5mW in the Windows 8 and Windows 8.1 environments.

To enable it, use uPD720210 ROM Writing Tool Ver.1.3.0.0 or later to create FW Image data for the external ROM. The following figure shows the new dialog in the tool and the added list box to enable or disable the “Low Power Mode during Suspend”.



The information in this document is subject to change without notice.



## 20140107-2. Need to use the latest ROM Writing Tool for Windows (ver. 1.3.0.0 or later)

The ROM Writing Tool for Windows of ver. 1.1.0.0 or older has the following problem.

### [Problem]

The “bMaxPower” value of Configuration Descriptor is set to a wrong value with the following repro steps by using the ROM Writing Tool for Windows of ver.1.1.0.0 or older. Although it should be set to ‘00h’, it is set to ‘0Ch’ for USB 3.0 and ‘32h’ for USB 2.0 only when the “Load Default on This Page” button is clicked after loading the FW to the tool. If the “Load Default on This page” button is not clicked, this problem does not occur.

### <Repro Steps>

1. Click “Load” button in General tab
2. Select a FW
3. Click “Load Default on This Page” button in Other Descriptor tab
4. Click “Write ALL ROMs” button in Write Status tab or click “Save” button in General tab

### [Workaround]

Please use the latest ROM Writing Tool for Windows of ver.1.3.0.0 or later.

**[History]**

Rev	Document No.	Issue Date	Comments
5.0	ICTS2-IBB-14-5003	Oct. 20, 2014	4 <sup>th</sup> Edition
4.0	ICTS2-IBB-14-5000	June. 20, 2014	3 <sup>rd</sup> Edition
3.0	IBB-ED1-010039	Feb. 13, 2014	2 <sup>nd</sup> Edition
2.0	IBB-ED1-010038	Jan. 7, 2014	1 <sup>st</sup> edition.

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