

RENESAS TECHNICAL UPDATE

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Product Category	MPU/MCU	Document No.	TN-RA*-A0162A/E	Rev.	1.00
Title	Note for USBHS suspend/resume interrupt	Information Category	Technical Notification		
Applicable Product	RA8P1 Group RA8M2 Group RA8D2 Group	Lot No.	Reference Document	Hardware User Manual for each product (Refer table at the end of this document)	
		All			

This document describes the note for USBHS Deep Software Standby USB Suspend/Resume Interrupt. The page and section numbers are based on the RA8P1 Group. For other products, see the table on the last page.

1. Note

Deep software standby mode 1 is returned by a USB suspend/resume interrupt caused by a level change on the DP/DM pins, but a problem has been discovered in the circuit that generates the interrupt signal, where the DP and DM pin signals are connected in reverse.

In this case, if deep software standby mode 1 is set to be returned by a bus reset or a level change on the DP pin only upon disconnect detection, the device will not return deep software standby mode 1.

Note that resume detection, in which both the DP and DM pins change, does not affect the return operation from deep software standby mode 1.

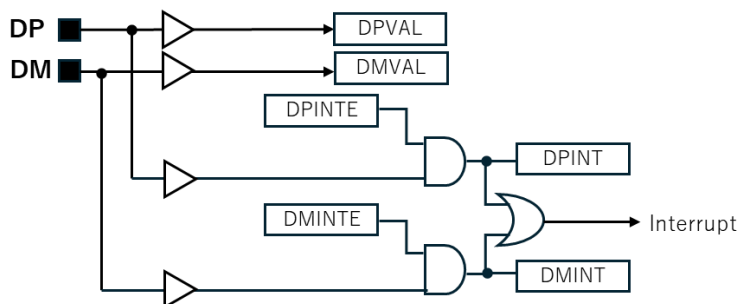


Fig.1 Correct connection

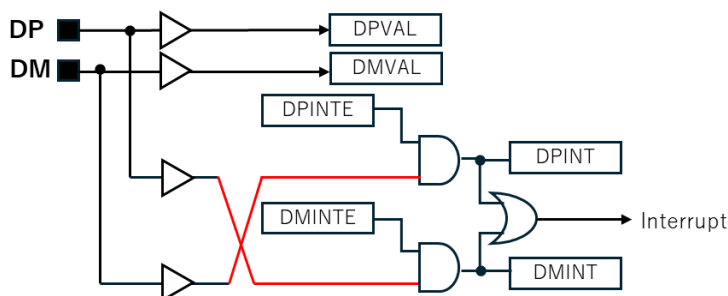


Fig.2 Incorrect connection

2. Countermeasure

Change the DP/DM interrupt enable bit and DP/DM interrupt indication bit as follows:

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38.2.51 DPUSR2R: Exchanges bits 9 and 8, and bits 1 and 0, of the Deep Software Standby USB Suspend/Resume Interrupt Register.

【Before Change】

38.2.51 DPUSR2R : Deep Software Standby USB Suspend/Resume Interrupt Register

Base address: USBHS = 0x4035_1000

USBHS_NS = 0x5035_1000

Offset address: 0x168

Bit Position	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Bit field	—	—	—	—	—	—	DMINT E	DPINT E	—	—	DMVAL	DPVAL	—	—	DMINT	DPINT
Value after reset	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Bit	Symbol	Function	R/W
0	DPINT	Indication of Return from DP Interrupt Source 0: System has not recovered from Deep Software Standby mode 1 1: System recovered from Deep Software Standby mode 1	R
1	DMINT	Indication of Return from DM Interrupt Source 0: System has not recovered from Deep Software Standby mode 1 1: System recovered from Deep Software Standby mode 1	R
8	DPINTE	DP Interrupt Enable Clear 0: Disable recovery from Deep Software Standby mode 1 1: Enable recovery from Deep Software Standby mode 1	R/W
9	DMINTE	DM Interrupt Enable Clear 0: Disable recovery from Deep Software Standby mode 1 1: Enable recovery from Deep Software Standby mode 1	R/W

【After Change】

38.2.51 DPUSR2R : Deep Software Standby USB Suspend/Resume Interrupt Register

Base address: USBHS = 0x4035_1000

USBHS_NS = 0x5035_1000

Offset address: 0x168

Bit Position	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Bit field	—	—	—	—	—	—	DPINT E	DMINT E	—	—	DMVAL	DPVAL	—	—	DPINT	DMINT
Value after reset	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Bit	Symbol	Function	R/W
0	DMINT	Indication of Return from DM Interrupt Source 0: System has not recovered from Deep Software Standby mode 1 1: System recovered from Deep Software Standby mode 1	R
1	DPINT	Indication of Return from DP Interrupt Source 0: System has not recovered from Deep Software Standby mode 1 1: System recovered from Deep Software Standby mode 1	R
8	DMINTE	DM Interrupt Enable Clear 0: Disable recovery from Deep Software Standby mode 1 1: Enable recovery from Deep Software Standby mode 1	R/W
9	DPINTE	DP Interrupt Enable Clear 0: Disable recovery from Deep Software Standby mode 1 1: Enable recovery from Deep Software Standby mode 1	R/W

[Reference document]

Applicable Product	Manual Title	Document Number	Page Number	Section Number
RA8P1	RA8P1 Group User’s Manual: Hardware Rev.1.20	R01UH1064EJ0120	2127 of 4294	38.2.51
RA8M2	RA8M2 Group User’s Manual: Hardware Rev.1.20	R01UH1066EJ0120	2080 of 3896	37.2.51
RA8D2	RA8D2 Group User’s Manual: Hardware Rev.1.20	R01UH1065EJ0120	2115 of 4279	37.2.51