

RENESAS TECHNICAL UPDATE

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Product Category	MPU/MCU		Document No.	TN-RA*-A0139A/E	Rev.	1.00
Title	Additional Information of I/O Port function		Information Category	Technical Notification		
Applicable Product	RA4M3 Group	Lot No.	Reference Document	Renesas RA4M3 Group User's Manual: Hardware Rev. 1.40		
		All				

This document describes the additional information of I/O Port module in the user's manuals: hardware for the applicable products stated above.

Before addition

Table 19.2 I/O port functions

Port	Port name	Input pull-up	Open-drain output	Drive capacity switching	5V tolerant	I/O
PORT0	P000 to P009, P014, P015	✓	✓	Low	—	Input / Output
PORT1	P100 to P115	✓	✓	Low, middle, high	—	Input / Output
PORT2	P200	✓	—	—	—	Input
	P201	✓	✓	Low	—	Input / Output
	P202 to P204, P207 to P214	✓	✓	Low, middle, high	—	Input / Output
	P205, P206	✓	✓	Low, middle, high	✓	Input / Output
PORT3	P300 to P313	✓	✓	Low, middle, high	—	Input / Output
PORT4	P400, P401, P407 to P415	✓	✓	Low, middle, high	✓	Input / Output
	P402 to P406	✓	✓	Low, middle, high	—	Input / Output
PORT5	P500 to P507	✓	✓	Low, middle, high	—	Input / Output
	P511, P512	✓	✓	Low, middle, high	✓	Input / Output
PORT6	P600 to P605, P608 to P614	✓	✓	Low, middle, high	—	Input / Output
PORT7	P700 to P705	✓	✓	Low, middle, high	—	Input / Output
	P708 to P713	✓	✓	Low, middle, high	✓	Input / Output
PORT8	P800, P801	✓	✓	Low, middle, high	—	Input / Output

Note: ✓: Available
—: Setting prohibited

After addition

Table 19.2 I/O port functions

Port	Port name	Input pull-up	Input mode switching							Open drain output	Drive capacity switching	5V tolerant	I/O	
			Peripheral											
			GPIO PMR=0 ASEL=0 and ISEL=0	ANALOG PMR=0 ASEL=1 and ISEL=0	IRQ PMR=0 ASEL=0 and ISEL=1	IIC PMR=1 PSEL[4:0] =00111b ^{*1}	CTSU PMR=1 PSEL[4:0] =01100b ^{*1}	USBFS PMR=1 PSEL[4:0] =10011b ^{*1}	Others PMR=1 PSEL[4:0] =xxxxxb ^{*1}					
Port 0	P000 to P002	✓	CMOS	Disable	Schmitt ^{*2}	-	-	-	-	✓	Low	-	Input/Output	
	P003	✓	CMOS	Disable	-	-	-	-	-	✓	Low	-	Input/Output	
	P004 to P006	✓	CMOS	Disable	Schmitt ^{*2}	-	-	-	-	✓	Low	-	Input/Output	
	P007	✓	CMOS	Disable	-	-	-	-	-	✓	Low	-	Input/Output	
	P008, P009	✓	CMOS	Disable	Schmitt ^{*2}	-	-	-	-	✓	Low	-	Input/Output	
	P014	✓	CMOS	Disable	-	-	-	-	-	✓	Low	-	Input/Output	
	P015	✓	CMOS	Disable	Schmitt	-	-	-	-	✓	Low	-	Input/Output	
Port 1	P100, P101	✓	CMOS	-	Schmitt	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output	
	P102, P103	✓	CMOS	-	-	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output	
	P104, P105	✓	CMOS	-	Schmitt	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output	
	P106, P107	✓	CMOS	-	-	-	-	-	-	✓	Low, middle, high	-	Input/Output	
	P108, P109	✓	CMOS	-	-	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output	
	P110, P111	✓	CMOS	-	Schmitt	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output	
	P112 to P115	✓	CMOS	-	-	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output	
Port 2	P200	✓	Schmitt	-	-	-	-	-	-	-	-	-	Input	
	P201	✓	CMOS	-	-	-	-	-	-	✓	Low	-	Input/Output	
	P202, P203	✓	CMOS	-	Schmitt ^{*2}	-	-	Disable	-	Schmitt	✓	Low, middle, high	-	Input/Output
	P204	✓	CMOS	-	-	-	-	Disable	Schmitt ^{*3}	Schmitt	✓	Low, middle, high	-	Input/Output
	P205	✓	CMOS	-	Schmitt ^{*2}	CMOS/TTL	Disable	Schmitt ^{*4}	Schmitt	✓	Low, middle, high	✓	Input/Output	
	P206	✓	CMOS	-	Schmitt ^{*2}	CMOS/TTL	Disable	-	Schmitt	✓	Low, middle, high	✓	Input/Output	
	P207	✓	CMOS	-	-	-	-	Disable	-	Schmitt	✓	Low, middle, high	-	Input/Output
	P208 to P211	✓	CMOS	-	-	-	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output
	P212, P213	✓	CMOS	-	Schmitt	-	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output
	P214	✓	CMOS	-	-	-	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output
Port 3	P300	✓	CMOS	-	-	-	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output
	P301, P302	✓	CMOS	-	Schmitt	-	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output

Port	Port name	Input pull-up	Input mode switching							Open drain output	Drive capacity switching	5V tolerant	I/O	
			GPIO	Peripheral										
				ANALOG	IRQ	IIC	CTSU	USBFS	Others					
				PMR=0 ASEL=0 and ISEL=0	PMR=0 ASEL=1 and ISEL=0	PMR=0 ASEL=0 and ISEL=1	PMR=1 PSEL[4:0] =00111b ^{*1}	PMR=1 PSEL[4:0] =01100b ^{*1}	PMR=1 PSEL[4:0] =10011b ^{*1}					PMR=1 PSEL[4:0] =xxxxxb ^{*1}
Port 3	P303	✓	CMOS	-	-	-	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output
	P304	✓	CMOS	-	Schmitt	-	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output
	P305	✓	CMOS	-	Schmitt	-	-	-	-	-	✓	Low, middle, high	-	Input/Output
	P306	✓	CMOS	-	-	-	-	-	-	-	✓	Low, middle, high	-	Input/Output
	P307 to P313	✓	CMOS	-	-	-	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output
Port 4	P400	✓	CMOS	-	Schmitt	CMOS/TTL	-	-	-	Schmitt	✓	Low, middle, high	✓	Input/Output
	P401	✓	CMOS	-	Schmitt ^{*2}	CMOS/TTL	-	-	-	Schmitt	✓	Low, middle, high	✓	Input/Output
	P402 to P404	✓	CMOS	-	Schmitt ^{*2}	-	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output
	P405, P406	✓	CMOS	-	-	-	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output
	P407	✓	CMOS	-	-	CMOS/TTL	Disable	Schmitt ^{*5}	Schmitt	✓	Low, middle, high	✓	Input/Output	
	P408	✓	CMOS	-	Schmitt	CMOS/TTL	Disable	Schmitt	Schmitt	✓	Low, middle, high	✓	Input/Output	
	P409 to P411	✓	CMOS	-	Schmitt	-	Disable	-	Schmitt	✓	Low, middle, high	✓	Input/Output	
	P412, P413	✓	CMOS	-	-	-	Disable	-	Schmitt	✓	Low, middle, high	✓	Input/Output	
	P414, P415	✓	CMOS	-	Schmitt	-	Disable	-	Schmitt	✓	Low, middle, high	✓	Input/Output	
Port 5	P500	✓	CMOS	Disable	-	-	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output
	P501, P502	✓	CMOS	Disable	Schmitt	-	-	Schmitt	Schmitt	✓	Low, middle, high	-	Input/Output	
	P503	✓	CMOS	Disable	-	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output	
	P504	✓	CMOS	Disable	-	-	-	Schmitt	Schmitt	✓	Low, middle, high	-	Input/Output	
	P505	✓	CMOS	Disable	Schmitt	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output	
	P506	✓	CMOS	Disable	Schmitt	-	-	-	-	✓	Low, middle, high	-	Input/Output	
	P507	✓	CMOS	-	-	-	-	-	-	✓	Low, middle, high	-	Input/Output	
	P511, P512	✓	CMOS	-	Schmitt	CMOS/TTL	-	-	Schmitt	✓	Low, middle, high	✓	Input/Output	
Port 6	P600 to P604	✓	CMOS	-	-	-	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output
	P605	✓	CMOS	-	-	-	-	-	-	✓	Low, middle, high	-	Input/Output	

Port	Port name	Input pull-up	Input mode switching							Open drain output	Drive capacity switching	5V tolerant	I/O	
			GPIO	Peripheral										
				ANALOG	IRQ	IIC	CTSU	USBFS	Others					
				PMR=0 ASEL=0 and ISEL=0	PMR=0 ASEL=1 and ISEL=0	PMR=0 ASEL=0 and ISEL=1	PMR=1 PSEL[4:0] =00111b ^{*1}	PMR=1 PSEL[4:0] =01100b ^{*1}	PMR=1 PSEL[4:0] =10011b ^{*1}					PMR=1 PSEL[4:0] =xxxxxb ^{*1}
	P608 to P611	✓	CMOS	-	-	-	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output
	P612 to P614	✓	CMOS	-	-	-	-	-	-	-	✓	Low, middle, high	-	Input/Output
Port 7	P700 to P703	✓	CMOS	-	-	-	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output
	P704	✓	CMOS	-	-	-	-	-	-	-	✓	Low, middle, high	-	Input/Output
	P705	✓	CMOS	-	-	-	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output
	P708, P709	✓	CMOS	-	Schmitt	-	-	Disable	-	Schmitt	✓	Low, middle, high	✓	Input/Output
	P710	✓	CMOS	-	-	-	-	Disable	-	Schmitt	✓	Low, middle, high	✓	Input/Output
	P711 to P713	✓	CMOS	-	-	-	-	Disable	-	Schmitt	✓	Low, middle, high	✓	Input/Output
Port 8	P800	✓	CMOS	-	-	-	-	-	-	Schmitt	✓	Low, middle, high	-	Input/Output
	P801	✓	CMOS	-	-	-	-	-	-	-	✓	Low, middle, high	-	Input/Output

Note: ✓: Available

—: Setting prohibited

Note 1. See section 19.6. Peripheral Select Settings for Each Product.

Note 2. Schmitt is also available when DPSIER0.DIRQmE=1 (m=0to7) or DPSIER1.DIRQnE=1 (n=8to15).

Note 3. Schmitt is also available on the condition, DPSIER3.DUSBFS0IE=1 & DPUSR1R.DOVRCRBE0=1.

Note 4. Schmitt is also available on the condition, DPSIER3.DUSBFS0IE=1 & DPUSR1R.DOVRCRAE0=1.

Note 5. Schmitt is also available on the condition, DPSIER3.DUSBFS0IE=1 & DPUSR1R.DVBSE0=1.