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RENESAS TECHNICAL UPDATE

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Product Category	MPU/MCU		Document No.	TN-RA*-A0022A/E	Rev.	1.00
Title	RA6M5 Group, Note on the number of ADC channels.		Information Category	Technical Notification		
Applicable Product	RA6M5 Group	Lot No. All	Reference Document	RA6M5 Group User's Manual Hardware Rev.1.10		

The descriptions about the number of ADC channels were changed.

1. Overview

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Before

Table 1.9 Analog

Feature	Functional description
12-bit A/D Converter (ADC12)	A 12-bit successive approximation A/D converter is provided. Up to 29 analog input channels are selectable. Temperature sensor output and internal reference voltage are selectable for conversion. See section 43, 12-Bit A/D Converter (ADC12).

After

Table 1.9 Analog

Feature	Functional description
12-bit A/D Converter (ADC12)	Two units of successive approximation 12-bit A/D Converter (ADC12) are provided. Analog input channels are selectable up to 13 in unit 0 and up to 16 in unit 1. Each 3 analog inputs of unit 0 and 1 are assigned to same port (AN000/AN100, AN001/AN101, AN002/AN102), up to 26 ports are available as analog input. The temperature sensor output and an internal reference voltage are selectable for conversion of each unit 0 and 1. See section 43, 12-Bit A/D Converter (ADC12).

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Table 1.15 Function Comparison

Parts number		R7FA6M5XX2CBG	R7FA6M5XX3CFC	R7FA6M5XX3CFB	R7FA6M5XX3CFP
Pin count		176		144	100
Analog	ADC12	Unit 0: 13, Unit 1: 16		Unit 0: 12, Unit 1: 13	Unit 0: 11, Unit 1: 9

After

Table 1.15 Function Comparison

Parts number		R7FA6M5XX2CBG	R7FA6M5XX3CFC	R7FA6M5XX3CFB	R7FA6M5XX3CFP
Pin count		176		144	100
Analog	ADC12	Unit 0: 13, Unit 1: 16 Shared channel pin: 3*2		Unit 0: 12, Unit 1: 13 Shared channel pin: 3*2	Unit 0: 11, Unit 1: 9 Shared channel pin: 3*2

Note2. Some input channels of the ADC units are sharing same port pin.

2. 12-Bit A/D Converter (ADC12)

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Before

43. 12-Bit A/D Converter (ADC12)

43.1 Overview

The MCU includes 12-bit successive approximation A/D converter (ADC12) units. In unit 0, up to 13 analog input channels are selectable. In unit 1, up to 16 analog input channels, temperature sensor output, internal reference voltage, can be selected for conversion in respective units.

After

43. 12-Bit A/D Converter (ADC12)

43.1 Overview

The MCU includes 12-bit successive approximation A/D converters (ADC12) units. Analog input channels are selectable up to 13 in unit 0 and up to 16 in unit 1. Each 3 analog inputs of unit 0 and 1 are assigned to same port (AN000/AN100, AN001/AN101, AN002/AN102), up to 26 ports are available as analog input. The temperature sensor output and an internal reference voltage are selectable for conversion of each unit 0 and 1.

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Before

Table 43.1 ADC12 specifications (1 of 3)

Parameter	Specifications
Number of units	two units
Input channels	Up to 29 channels (AN000 to AN010, AN012, AN013, AN100 to AN102, AN116 to AN128) Extended

After

Table 43.1 ADC12 specifications (1 of 3)

Parameter	Specifications
Number of units	two units
Input channels	Up to 26 channels (AN000 to AN010, AN012, AN013, AN100 to AN102, AN116 to AN128)*4 Extended

Note 4. AN000 & AN100, AN001 & AN101, and AN002 & AN102 are assigned to same port pin.

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Before

Table 43.2 ADC12 functions (1 of 2)

Parameter	function
Analog input channel	AN000 to AN010, AN012, AN013(unit 0), AN100 to AN102, AN116 to AN128(unit 1) Internal reference voltage Temperature sensor output

After

Table 43.2 ADC12 functions (1 of 2)

Parameter	function
Analog input channel *3	AN000 to AN010, AN012, AN013(unit 0), AN100 to AN102, AN116 to AN128(unit 1) Internal reference voltage Temperature sensor output

Note 3. AN000 & AN100, AN001 & AN101, and AN002 & AN102 are assigned to same port pin.

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Before

Table 43.3 ADC12 I/O pins (unit 0)

Pin name	I/O	Function
AVCC0	Input	Analog block power supply pin (Connect to VCC when ADC12/DAC12 is not used.)
AVSS0	Input	Analog block power supply ground pin (Connect to VSS when ADC12/DAC12 is not used.)
VREFH0	Input	Reference high-potential power supply pin
VREFL0	Input	Reference low-potential power supply ground pin
AN000 to AN010, AN012, AN013	Input	Analog input pins 0 to 10, 12, 13
ADTRG0	Input	External trigger input pin for starting A/D conversion

Table 43.4 ADC12 I/O pins (unit 1)

Pin name	I/O	Function
AVCC0	Input	Analog block power supply pin
AVSS0	Input	Analog block power supply ground pin
VREFH	Input	Reference power supply pin
VREFL	Input	Reference power supply ground pin
AN100 to AN102, AN116 to AN128	Input	Analog input pins 0 to 2, 16 to 28
ADTRG1	Input	External trigger input pin for starting A/D conversion

After

Table 43.3 ADC12 I/O pins (unit 0)

Pin name	I/O	Function
AVCC0	Input	Analog block power supply pin (Connect to VCC when ADC12/DAC12 is not used.)
AVSS0	Input	Analog block power supply ground pin (Connect to VSS when ADC12/DAC12 is not used.)
VREFH0	Input	Reference high-potential power supply pin
VREFL0	Input	Reference low-potential power supply ground pin
AN000 to AN010, AN012, AN013 *1	Input	Analog input pins 0 to 10, 12, 13
ADTRG0	Input	External trigger input pin for starting A/D conversion

Note 1. AN000 & AN100, AN001 & AN101, and AN002 & AN102 are assigned to same port pin.

Table 43.4 ADC12 I/O pins (unit 1)

Pin name	I/O	Function
AVCC0	Input	Analog block power supply pin
AVSS0	Input	Analog block power supply ground pin
VREFH	Input	Reference power supply pin
VREFL	Input	Reference power supply ground pin
AN100 to AN102, AN116 to AN128 *1	Input	Analog input pins 0 to 2, 16 to 28
ADTRG1	Input	External trigger input pin for starting A/D conversion

Note 1. AN000 & AN100, AN001 & AN101, and AN002 & AN102 are assigned to same port pin.