

To our customers,

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## Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

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Renesas Electronics Corporation

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## 3806 Group, 3886 Group

### Differences between 3806 Group and 3886 Group

#### 1. Differences between 3806 Group and 3886 Group

		3806 Group	3886 Group	Additional Register in 3886 Group
Minimum Instruction Execution Time		0.5 $\mu$ s in Standard ver. 0.4 $\mu$ s in High-speed ver. (at max. 8 MHz oscillation frequency)	0.4 $\mu$ s (at max. 10 MHz oscillation frequency)	—
Sub-clock Oscillating Circuit		—	Composed of P40/XCOUT and P41/XCIN	CPU mode register (bits 4, 6, 7 at address 003B <sub>16</sub> )
Internal System Clock $\phi$		$f(XIN) / 2$ , only	$f(XIN) / 2$ in high-speed mode, $f(XIN) / 8$ in middle-speed mode, $f(XCIN) / 2$ in low-speed mode	CPU mode register (bits 4 to 7 at address 003B <sub>16</sub> ); <b>*MCU starts in middle-speed mode after releasing Reset.</b>
Interrupt		16 sources, 16 vectors (external 7, internal 8, software 1)	21 sources, 16 vectors (external 9, internal 11, software 1)	—
Watchdog Timer		—	16-bit $\times$ 1	Watchdog timer control register (address 001E <sub>16</sub> )
LED Direct Drive Port		—	4 pins, P24 to P27; IOL(peak) = 20 mA, $\Sigma$ IOL(peak) = 80 mA, IOL(avg) = 15 mA, $\Sigma$ IOL(avg) = 40 mA	Port control register 1 (address 002E <sub>16</sub> ), Port control register 2 (address 002F <sub>16</sub> )
Software Pull-up Resistors		—	Included in port P3, Programmable for each 4-bit unit	Port control register 1 (bits 4, 5 at address 002E <sub>16</sub> )
A-D Converter	Resolution	8-bit	10-bit	—
	Channel	8 channels, P60 to P67	8 channels; P60 to P67	—
Timer	Structure	Prescaler 12 (8-bit) $\rightarrow$ Timer 1 (8-bit) $\rightarrow$ Timer 2 (8-bit) Prescaler X (8-bit) $\rightarrow$ Timer X (8-bit) Prescaler Y (8-bit) $\rightarrow$ Timer Y (8-bit)	Prescaler 12 (8-bit) $\rightarrow$ Timer 1 (8-bit) $\rightarrow$ Timer 2 (8-bit) Prescaler X (8-bit) $\rightarrow$ Timer X (8-bit) Prescaler Y (8-bit) $\rightarrow$ Timer Y (8-bit)	—
	Count source	$f(XIN) / 16$ , only	$f(XIN) / 16$ for Timers 1, 2, X; Selectable $f(XIN)/16$ or $f(XCIN)$ for Timer Y in Timer mode, Pulse output mode	Port control register 2 (bit 5 at address 002F <sub>16</sub> )
Serial I/O1 (UART/Clock synchronous)		8-bit $\times$ 1 channel, P44 to P47 used	8-bit $\times$ 1 channel, P44 to P47 used	—
Serial I/O2 (Clock synchronous)		8-bit $\times$ 1 channel, P70 to P73 used	8-bit $\times$ 1 channel, P70 to P73 used	—
PWM		—	14-bit $\times$ 2 channels	Port control register 1 (bits 6, 7 at address 002E <sub>16</sub> ) PWM0H register (address 0030 <sub>16</sub> ) PWM0L register (address 0031 <sub>16</sub> ) PWM1H register (address 0032 <sub>16</sub> ) PWM1L register (address 0033 <sub>16</sub> ) AD/DA control register (bits 4, 5 at address 0034 <sub>16</sub> )
D-A Converter		8-bit $\times$ 2 channels	8-bit $\times$ 2 channels	—

• The above mentioned (\*) shows that it differs from 3806 Group.

	3806 Group	3886 Group	Additional Register in 3886 Group
Bus Interface	—	2 bytes	Data bus buffer register 0 (address 0028 <sub>16</sub> ) Data bus buffer status register 0 (address 0029 <sub>16</sub> ) Data bus buffer control register (address 002A <sub>16</sub> ) Data bus buffer register 1 (address 002B <sub>16</sub> ) Data bus buffer status register 1 (address 002C <sub>16</sub> ) Port control register 2 (bit 2 at address 002F <sub>16</sub> )
I <sup>2</sup> C-Bus Interface	—	1 channel	I <sup>2</sup> C data shift register (address 0012 <sub>16</sub> ) I <sup>2</sup> C address register (address 0013 <sub>16</sub> ) I <sup>2</sup> C status register (address 0014 <sub>16</sub> ) I <sup>2</sup> C control register (address 0015 <sub>16</sub> ) I <sup>2</sup> C clock control register (address 0016 <sub>16</sub> ) I <sup>2</sup> C start/stop condition control register (address 0017 <sub>16</sub> )
Comparator Circuit	—	8 channels	Comparator data register (address 002D <sub>16</sub> ) Serial I/O2 control register (bit 7 at address 001D <sub>16</sub> )
N-channel Open-drain Pin	P70 to P77	P00 to P07, P10 to P17, P42 to P46	Port control register 1 (bits 0 to 3 at address 002E <sub>16</sub> ) Port control register 2 (bit 2 at address 002F <sub>16</sub> )

## 2. Reference

### Data Sheet

3886 Group Datasheet

3806 Group Datasheet

### User's Manual

3886 Group USER'S MANUAL

3806 Group USER'S MANUAL

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### Revision Record

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		Page	Summary
1.00	Nov.10.00	—	Issue as reference selection.
1.01	Mar.18.05	—	Change to application note format and issue

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