



# **4-bit Single Chip Microcomputer**

- Original Architecture Core CPU
- Low Current Consumption
- High Speed Operation in Low Voltage

### DESCRIPTION

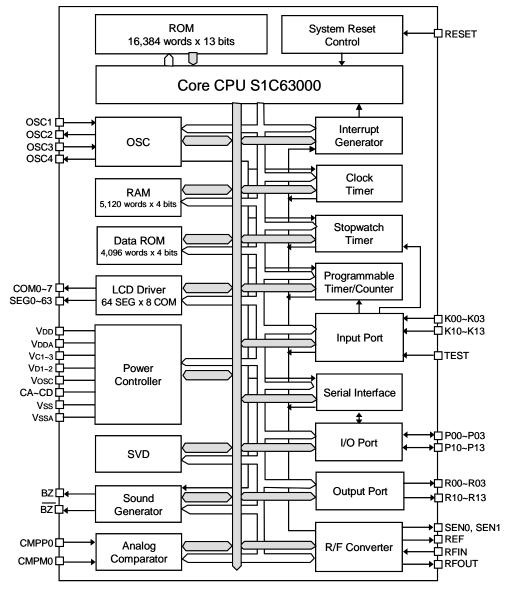
The S1C63666 is a microcomputer which has a high-performance 4-bit CPU S1C63000 as the core CPU, ROM (16,384 words × 13 bits), RAM (5,120 words × 4 bits), multiply-divide circuit, serial interface, watchdog timer, programmable timer, time base counters (2 systems), an LCD driver that can drive a maximum 64 segments × 8 commons, sound generator and R/f converter built-in. The S1C63666 features low current consumption, this makes it suitable for battery driven portable equipment with R/f converter.

## FEATURES

OSC1 oscillation circuit OSC3 oscillation circuit Instruction set	32.768 kHz (Typ.) crystal oscillation circuit 4 MHz (Max.) ceramic or 1.1 MHz (Typ.) CR oscillation circuit (*1) Basic instruction: 46 types (411 instructions with all) Addressing mode: 8 types	
Instruction execution time	During operation at 32.768 kHz: During operation at 4 MHz:	61 µsec 122 µsec 183 µsec 0.5 µsec 1 µsec 1.5 µsec
ROM capacity	Code ROM: 16,384 words × 13 bits Data ROM: 4,096 words × 4 bits	
RAM capacity	Data memory: 5,120 words × 4 bits Display memory: 160 words × 4 bits	
Input port	8 bits (Pull-down resistors may be supplemented *1)	
Output port	8 bits (It is possible to switch the 2 bits to special output *2)	
I/O port	8 bits (It is possible to switch the 4 bits to serial I/F input/output *2)	
Serial interface	1 port (8-bit clock synchronous system)	
LCD driver	64 segments $\times$ 4, 5 or 8 commons (*2)	
Time base counter	Clock timer	
	Stopwatch timer (1/1000 sec, with direct key input function)	
Programmable timer	8 bits $\times$ 3 ch. or 16 bits $\times$ 1 ch. + 8 bits $\times$ 1 ch. (*2)	
Watchdog timer	Built-in	
Sound generator	With envelope and 1-shot output functions	
R/f converter	2 ch., CR oscillation type, 20-bit counter	
Multiply-divide circuit	8-bit accumulator $\times$ 1 ch.	
Maniply arrive circuit	Multiplication: 8 bits × 8 bits -> 16-bit product	
	Division: 16 bits $\div$ 8 bits -> 8-bit guotient and 8-bit remainder	
Analog comparator	1 ch.	
Supply voltage detection (SVD)	Criteria voltage is selectable from 8 types (1.85 to 2.90 V *2)	
Supply voltage detection (SVD)	(External voltage detection is possible *1)	
External interrupt	Input port interrupt: 2 systems	
Internal interrupt	Clock timer interrupt: 2 syste	4 systems
memarmenupi	Stopwatch timer interrupt:	4 systems
	Programmable timer interrupt:	3 systems
	Serial interface interrupt:	1 system
	R/f converter interrupt:	2 systems
Dower eupply veltage		
Power supply voltage	2.4 to 3.6 V: Max. 4 MHz operation in normal mode 2.4 to 3.6 V: 32 kHz operation in halver mode	
On exeting to man exeture year as	1.8 to 3.6 V: 32 kHz operation in normal mode	
Operating temperature range	-20 to 70°C	In an estal as a filled and b
Current consumption (Typ.)	Low-speed operation (OSC1 = $32 \text{ kH}$	
	During HALT 3.0 V (LCD ON, H	
	During operation 3.0 V (LCD ON,	halver mode) 2.5 µA
	High-speed operation (OSC3):	4 1
	During operation 3.0 V (LCD ON)	1 mA
Shipment form	QFP20-144pin (plastic) or chip	*2: Can be selected with software
	*1: Can be selected with mask option	2. Can be selected with software

# S1C63666

# BLOCK DIAGRAM



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