S1C63658

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4-bit Single Chip Microcomputer

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

■ DESCRIPTION

The S1C63658 is a microcomputer which has a high-performance 4-bit CPU S1C63000 as the core CPU, ROM (8,192 words × 13 bits), RAM (1,024 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 56 segments × 8 commons, sound generator and R/f converter built-in. The S1C63658 features low current consumption, this makes it suitable for battery driven portable equipment with R/f converter.

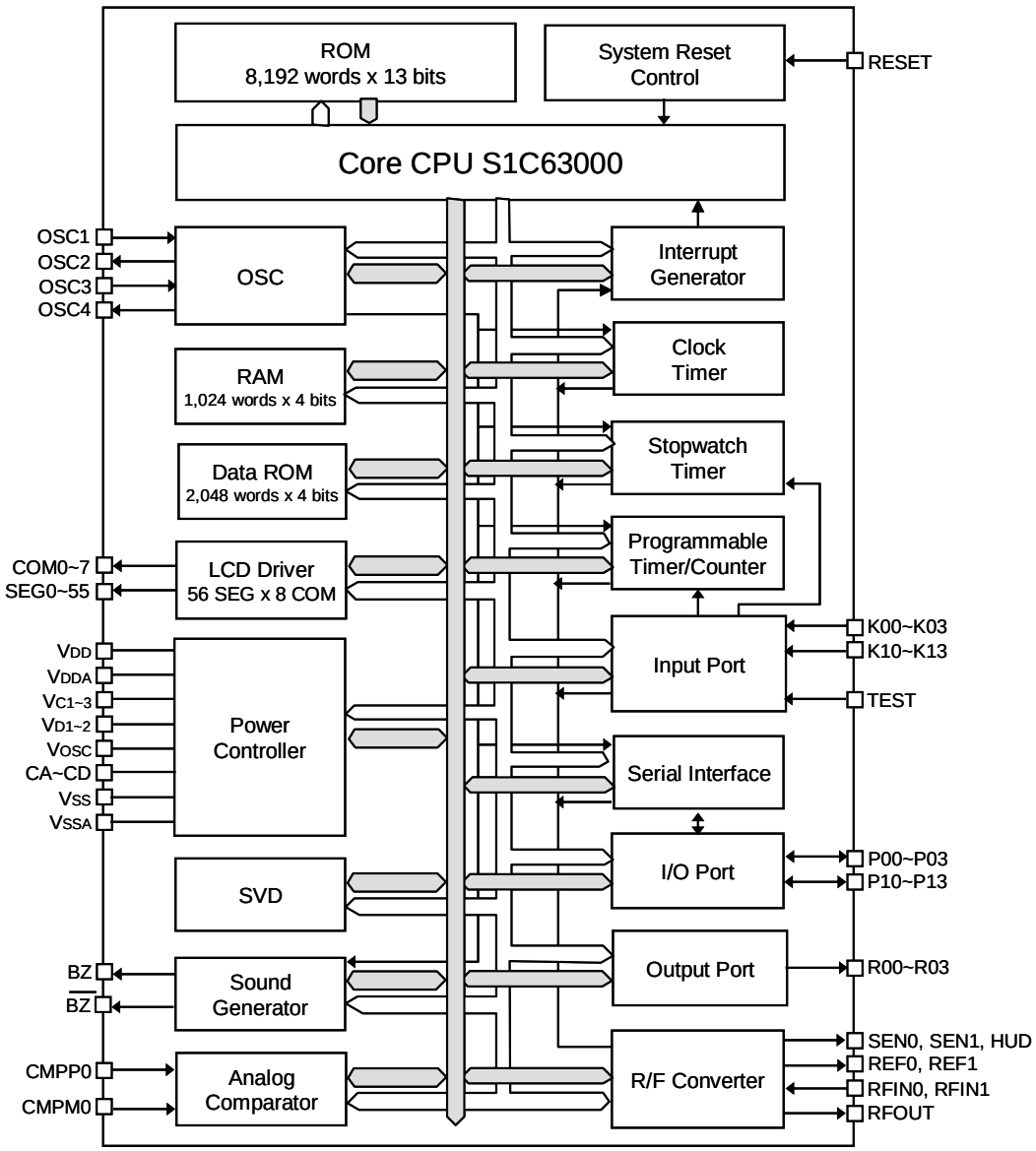
■ FEATURES

OSC1 oscillation circuit	32.768 kHz (Typ.) crystal oscillation circuit
OSC3 oscillation circuit	4 MHz (Max.) ceramic (2 MHz Max. when OSC3 is used as the R/f converter operating clock) or 1.1 MHz (Typ.) CR oscillation circuit (*1)
Instruction set	Basic instruction: 46 types (411 instructions with all) Addressing mode: 8 types
Instruction execution time	During operation at 32.768 kHz: 61 µsec 122 µsec 183 µsec During operation at 4 MHz: 0.5 µsec 1 µsec 1.5 µsec
ROM capacity	Code ROM: 8,192 words × 13 bits Data ROM: 2,048 words × 4 bits
RAM capacity	Data memory: 1,024 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	56 segments × 4, 5 or 8 commons (*2)
Time base counter	Clock timer Stopwatch timer (1/1000 sec, with direct key input function)
Programmable timer	8-bit timer × 3 ch., 16-bit timer × 1 ch. + 8-bit timer × 1 ch., 8-bit PWM × 2 ch. + 8-bit timer × 1 ch. or 16-bit PWM × 1 ch. + 8-bit timer × 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 Supports resistive humidity sensors
Multiply-divide circuit	8-bit accumulator × 1 ch. Multiplication: 8 bits × 8 bits -> 16-bit product Division: 16 bits ÷ 8 bits -> 8-bit quotient 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) (External voltage detection is possible ＊ 1)
External interrupt	Input port interrupt: 2 systems
Internal interrupt	Clock timer interrupt: 4 systems Stopwatch timer interrupt: 4 systems Programmable timer interrupt: 5 systems Serial interface interrupt: 1 system R/f converter interrupt: 2 systems
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 1.8 to 3.6 V: 32 kHz operation in normal mode

Operating temperature range	-20 to 70°C	
Current consumption (Typ.)	Low-speed operation (OSC1 = 32 kHz crystal oscillation):	
	During HALT 3.0 V (LCD ON, halver mode)	0.65 µA
	During operation 3.0 V (LCD ON, halver mode)	2.5 µA
	High-speed operation (OSC3):	
	During operation 3.0 V (LCD ON)	1 mA
Shipment form	QFP20-144pin (plastic) or chip	

*1: Can be selected with mask option *2: Can be selected with software

■ BLOCK DIAGRAM



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