S1C17601

EPSON
EXCEED YOUR VISION

Low Power 16-bit Single Chip Microcontroller

- Low Power MCU (operating voltage 1.8 V, 0.6 µA/SLEEP, 2.0 µA/HALT)
- Flash memory(32KByte), 8.2MHz high speed operating at 1.8V power voltage
- LCD driver: max 128 segment, 16seg x 8com or 20seg x 4com
- Analog I/F: A/D converter(INL/DNL Max. 1.5LSB), R/F converter
- S1C17 High Performance 16-bit RISC CPU Core with C Optimized Compact Code and Serial ICE Support

■ DESCRIPTIONS

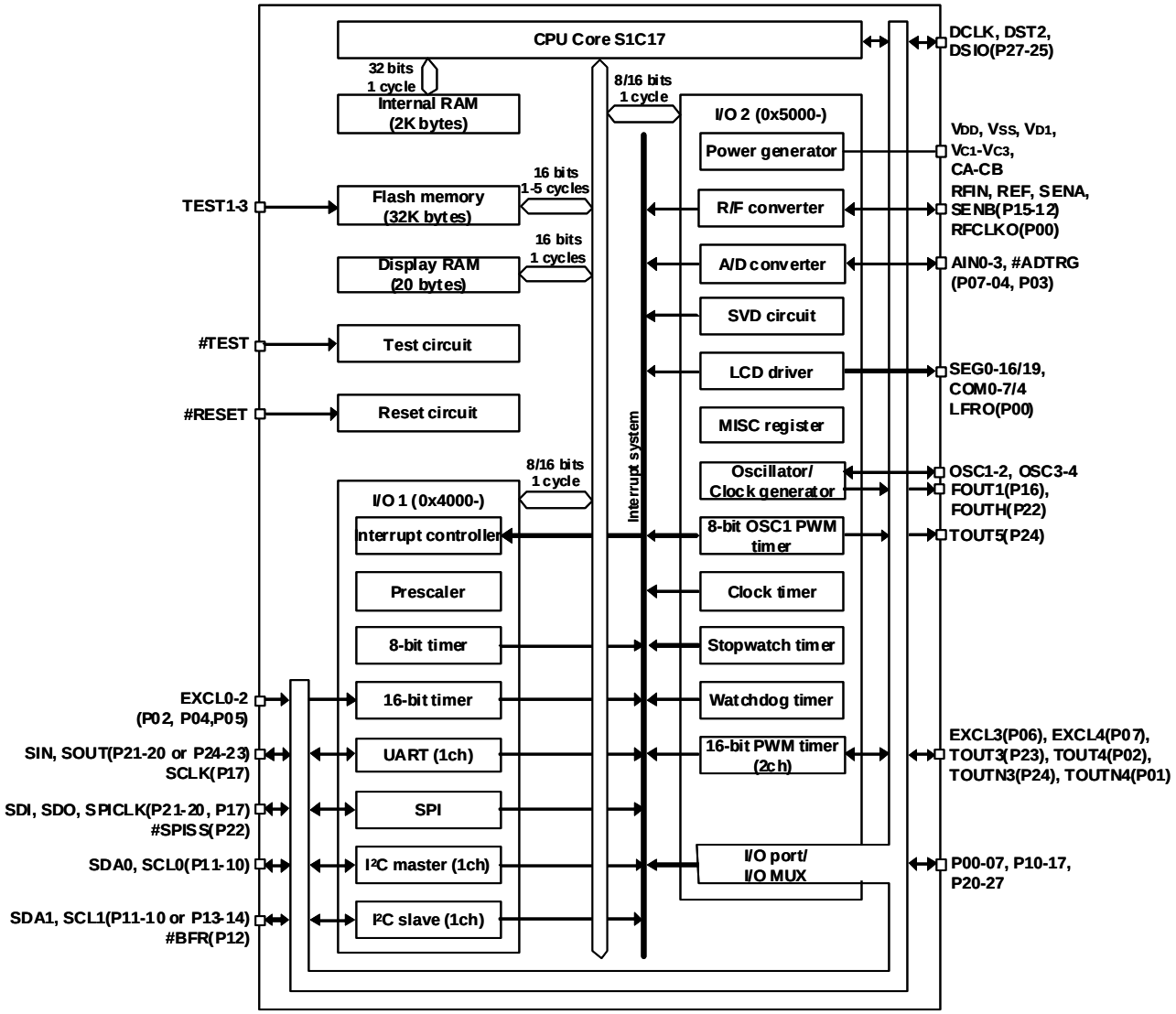
The S1C17601 is a 16-bit MCU featuring high-speed low-power operations, compact dimensions, wide address space and on-chip ICE. A/D converter and R/F converter are built in and sensor of various analog I/F can be connected. It is suitable for the application of health care product, sports watch and meter module etc. with sensor that is required a small size and micro display in the battery driven.

■ FEATURES

●CPU	Epson original 16-bit RISC CPU core S1C17 16 bit x 16 bit + 32 bit product-sum operation, 16 bit ÷ 16 bit division arithmetic unit	
●IOSC oscillator circuit	2.7 MHz (typ.) Oscillating start up 5 µs (max.) Boot Clock (External components not required.)	
●OSC3 oscillator circuit	Crystal oscillator circuit or ceramic oscillator circuit, 8.2 MHz (max.) or external clock input	
●OSC1 oscillator circuit	Crystal oscillator circuit 32.768 kHz (typ.)	
●Internal flash memory	32 Kbytes (for both instructions and data) Allows 1,000 rewrites (min.) Read/write protection function Allows onboard rewriting with the ICD Mini (S5U1C17702H) debug tool and self-rewriting via software.	
●Internal RAM	2 Kbytes	
●Internal Display RAM	20 bytes	
●A/D Converter	10 bit resolution 4ch	
●R/F Converter	DC oscillation/AC oscillation/External input 1ch.	
●Input/output port	Max. 24-bit general purpose input/output (shared with peripheral circuit input/output pins)	
●Serial interfaces	SPI (master/slave) I^2C (master) I^2C (slave) UART (460,800 bps, IrDA1.0 compatible)	1ch 1ch 1ch 1ch
●Timers	8-bit timer (T8F) 16-bit timer (T16) PWM timer (T16E) 8-bit OSC1 timer (T8OSC1) Clock timer (CT) Stopwatch timer (SWT) Watchdog timer (WDT)	1ch 3ch 1ch 1ch 1ch 1ch 1ch
●LCD Driver	16 SEG x 8 COM or 20 SEG x 4 COM (1/3 bias) Internal booster power supply circuit (16-value programmable contrast)	
●Supply voltage detector	15-value programmable (1.8 V to 3.2 V)	
●Interrupts	NMI, P Port Input interrupt Serial Interface interrupt Timer interrupt LCD, SVD, ADC, RFC interrupt	3ch. 4ch. 9ch.
●Power supply voltage	1.8 V to 3.6 V (for normal operations) 2.7 V to 3.6 V (for flash deletion/programing) Including voltage regulator circuit (with binary programmable operating voltage)	
●Operating temperature	-25°C to 70°C	
●Power consumption	SLEEP mode: 0.6 µA typ. (OSC1=OFF, IOSC=OFF, OSC3=OFF)	

	HALT mode:	2.0 µA typ. (OSC1=32 kHz, IOSC=OFF, OSC3=OFF, PCKEN=0x0, LCD OFF)
		2.7 µA typ. (OSC1=32 kHz, IOSC=OFF, OSC3=OFF, PCKEN=0x0, LCD ON (All LCD On, maximum contrast, VC2 standard)
	When operating:	12 µA typ. (OSC1= 32kHz, IOSC=OFF, OSC3=OFF, LCD OFF)
		340 µA typ.(OSC1=OFF, IOSC=OFF, OSC3=1 MHz ceramic oscillator)
● Shipping form	TQFP13-64 package (10 mm x 10 mm body, 0.5 mm pitch)	
	VFBGA8H-81 package (8 mm x 8 mm, body, 0.8 mm pitch)	
	Bare chip 100 µm pitch	

■ Block Diagram



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■ **Epson semiconductor website**

http://www.epson.jp/device/semicon_e/

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