

## 32-bit Single Chip Microcontroller

- High-speed 32-bit RISC Core
- Multiply Accumulation
- 10-bit ADC
- Built-in RAM
- High-speed DMA, Intelligent DMA
- Twin-clock Oscillator

### ■ DESCRIPTIONS

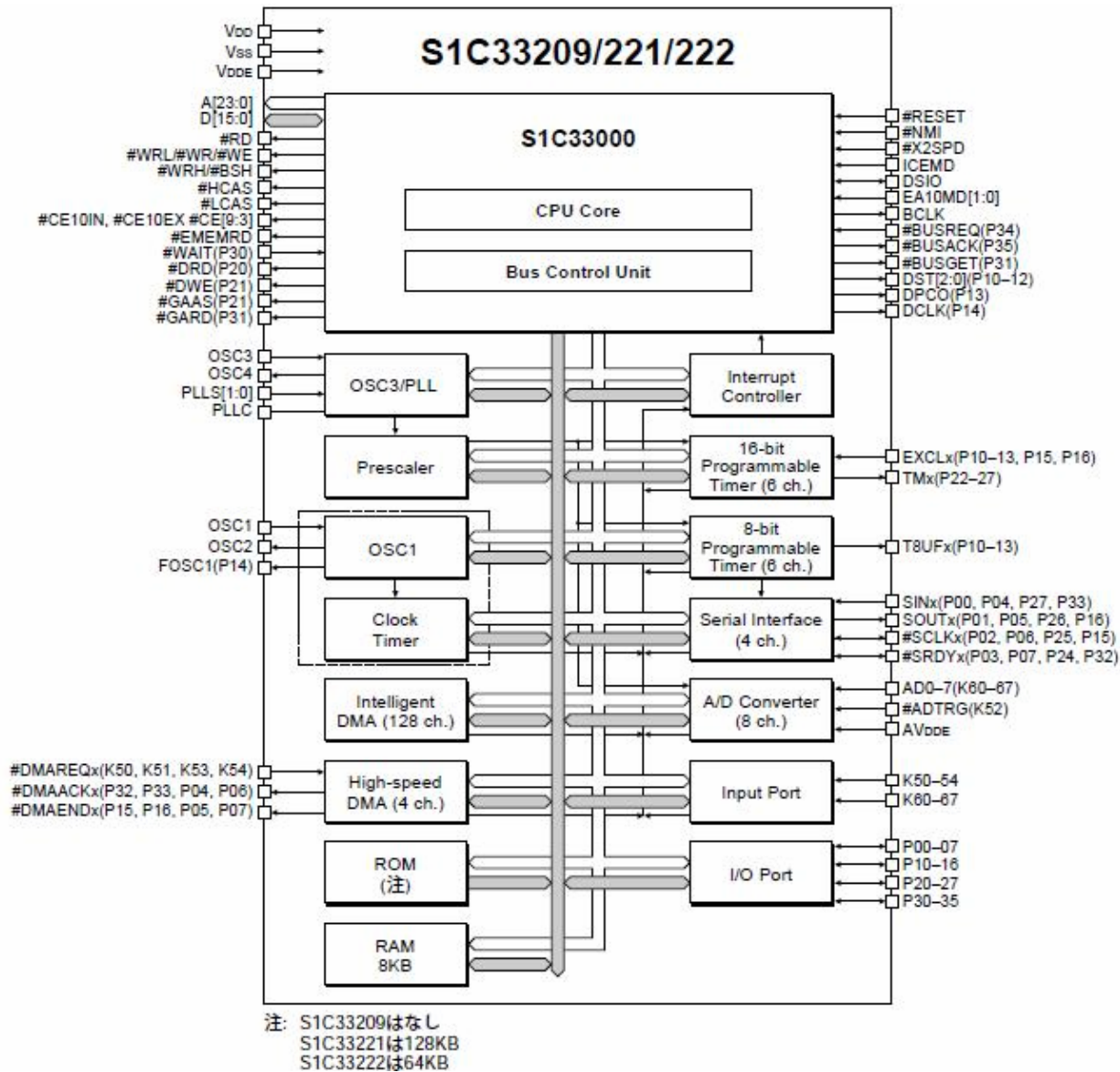
The S1C33221/222 is a CMOS 32-bit microcomputer composed of a CMOS 32-bit RISC core, ROM, RAM, DMA, timers, SIO, PLL and other circuits. The S1C33221/222 can be operated with high speed and spend little current. With the ADC, PWM and the MAC function, the S1C33221/222 is suitable for voice applications, PDAs and OA products such as printers.

### ■ FEATURES

- CMOS LSI 32-bit parallel processing S1C33000 RISC core
- Main clock 50MHz (Max., up to 12.5MHz external clock input)
- Sub clock 32.768kHz (Typ., crystal)
- Instruction set 16-bit fixed length, 105 instructions  
(MAC instruction is included, 2 cycles)
- Internal RAM size 8,192 bytes
- Internal ROM size 131,072 bytes (S1C33221), 65,536 bytes (S1C33222)
- Clock timer 1 channel
- Programmable timer 8 bits × 6 channels and 16 bits × 6 channels
- PWM timer Realized with a 16-bit programmable timer
- Watchdog timer Realized with a 16-bit programmable timer
- Serial interface 4 channels  
Clock synchronization type and asynchronization type are selectable.  
Usable as an infrared ray (IrDA) interface.
- 10-bit A/D converter Successive approximation type, 8 input channels
- High-speed DMA 4 channels
- Intelligent DMA 128 channels
- I/O port Input port : 13 bits  
I/O port : 29 bits  
Pins are shared with the inputs and outputs of built-in peripheral circuits.
- Interrupt controller External interrupts : 10 types  
Internal interrupts: 29 types
- External bus interface 24-bit address bus, 16-bit data bus, 7 chip enable pins  
DRAM and burst ROM may be connected directly.
- Shipping form QFP15-128pin
- Supply voltage Core voltage : 1.8 to 3.6V  
I/O voltage: 1.8 to 5.5V
- Current consumption SLEEP state : 10μA (3.3V, 32.768kHz, clock timer run state, Typ.)  
: 2.5μA (2.0V, 32.768kHz, clock timer run state, Typ.)  
RUN state : 70mA (3.3V, 50MHz Typ.)

# S1C33221/222

## ■ Block Diagram



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