

Mobile Access Gateway IC

- 32-bit RISC CPU
- HDLC controller
- Three serial I/O (SIO) interfaces
- PDC, PHS, and CdmaOne interfaces*1
- Multiply-and-accumulate instructions
- 8 Kbytes of built-in RAM
- Built-in analog-to-digital converter
- High-speed DMA and intelligent DMA
- Low power consumption

*1: These interfaces require the software modem module.

■ DESCRIPTIONS

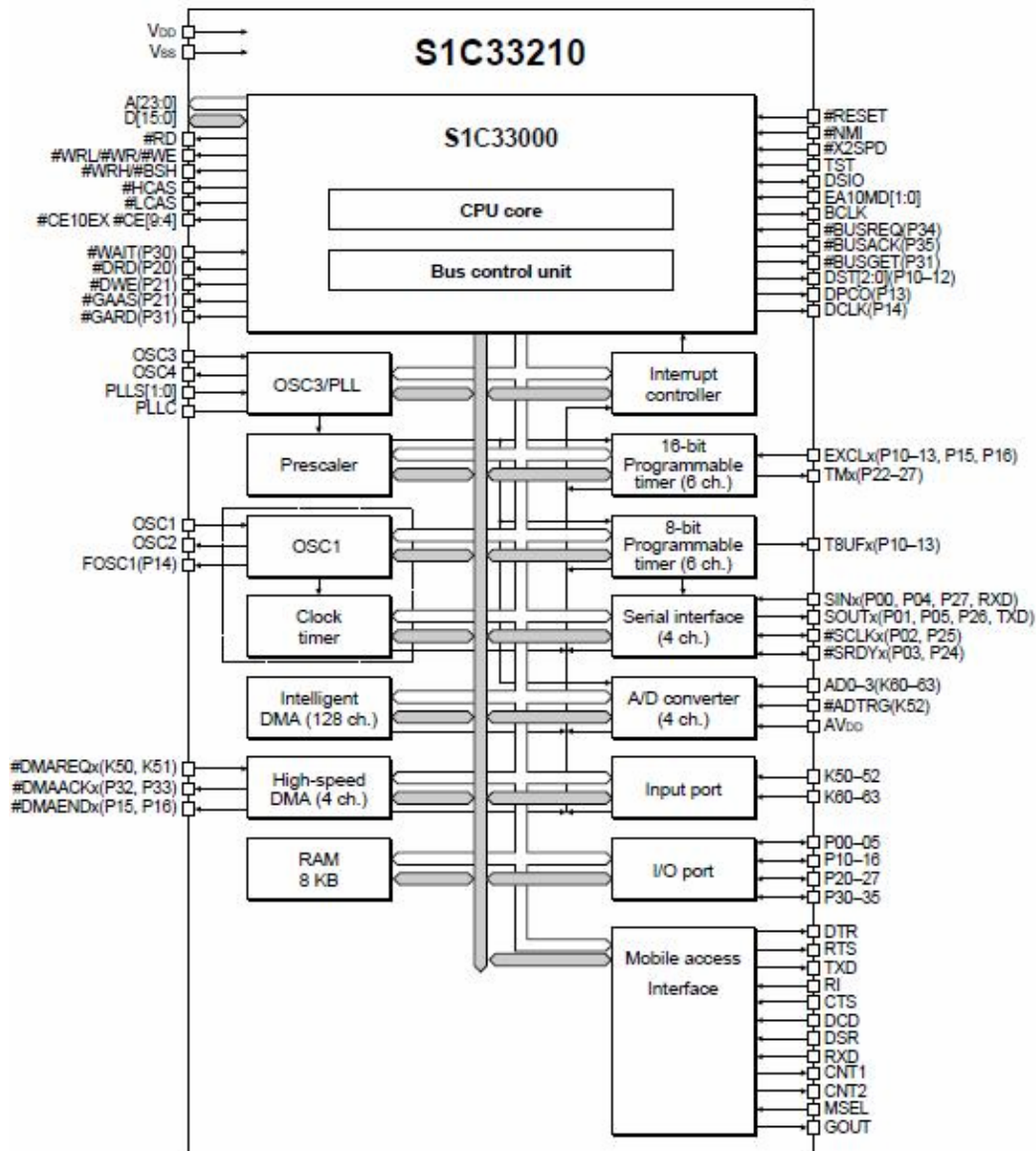
The S1C33210 single-chip microcomputer consists of the S1C33000 CMOS 32-bit RISC CPU core plus an HDLC controller, three serial I/O (SIO) interfaces, 8 Kbytes of built-in RAM, a direct memory access (DMA) controller, timers, an analog-to-digital converter, and other components. The device features both high-speed operation and low power consumption. The HDLC controller, serial I/O (SIO) interfaces, and other components necessary for mobile access make this device ideal for data communications adapters, PDAs, and other portable information equipment. The multiply-and-accumulate instructions and analog-to-digital converter support voice recognition, voice synthesis, and other forms of digital signal processing for use in portable multimedia terminals.

■ FEATURES

- | | |
|---------------------------------------|---|
| ● CMOS LSI 32-bit parallel processing | S1C33000 RISC core |
| ● Main clock | 50 MHz (Max., with built-in 4× phase-locked loop) |
| ● 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 |
| ● Clock timer | 1 channel |
| ● Programmable timer | 8 bits × 6 channels and 16 bits × 6 channels |
| ● PWM timer | Application for 16-bit programmable timer |
| ● Watchdog timer | Realized with a 16-bit programmable timer |
| ● PDC interface | 1 channel
Control interface represents application for serial I/O (SIO) interface |
| ● PHS interface | 1 channel
Control interface represents application for serial I/O (SIO) interface.
Supports both 32 and 64 kbps. Built-in 1.460 speed conversion. |
| ● HDLC controller | 1 channel |
| ● Serial interface | 3 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 : 7 bits, I/O port : 27 bits
These pins double as I/O pins for the onboard peripherals. |
| ● 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 | Internal operating voltage: 2.7 to 3.6 V
I/O levels: 2.7 to 3.6 V |
| ● Current consumption | In SLEEP mode: 4 μW Typ.
During normal operation: 230 mW Typ. at 3.3 V, 50 MHz |

S1C33210

■ Block Diagram



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