

VSC210

IPMI Baseboard Management Controller Product Brief



Overview

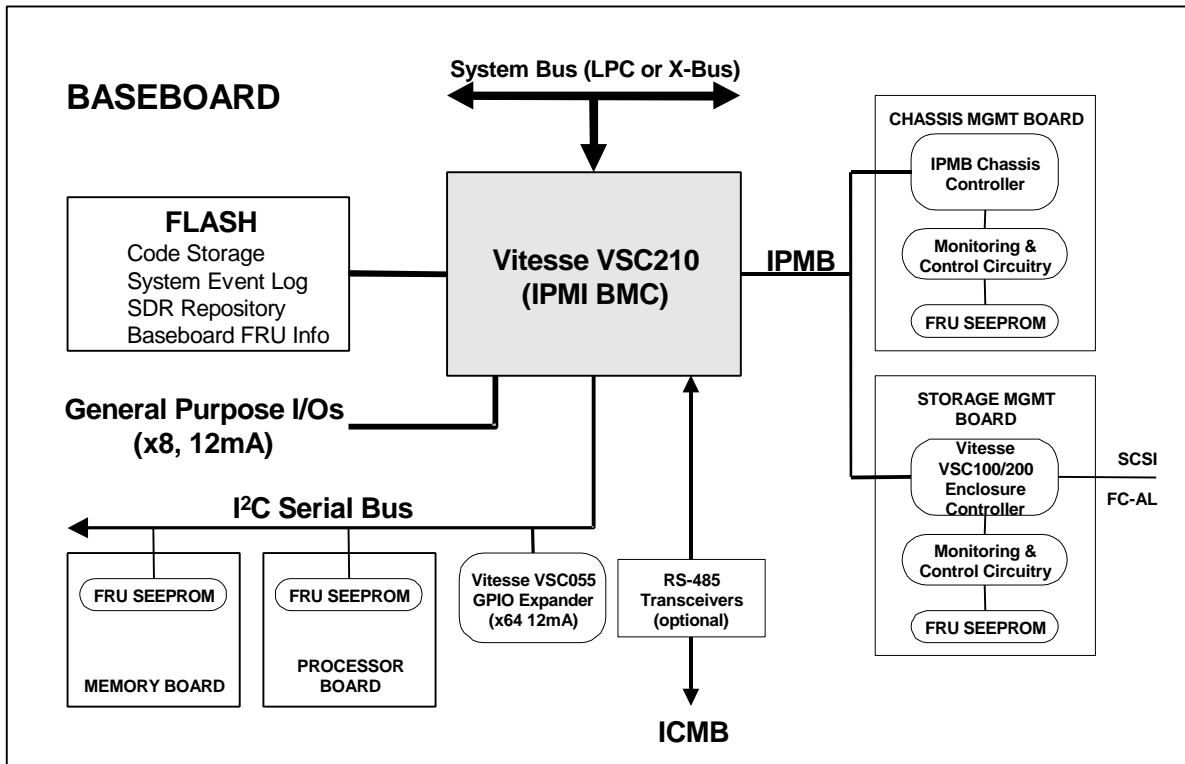
The VSC210 is an embedded controller tailored for Intelligent Platform Management Interface (IPMI) Baseboard Management Controller (BMC) applications. The feature set selection and flexibility of this device makes it the perfect BMC solution for entry through high-end servers. No additional logic is required to interface the VSC210 into Intel-Architecture (IA) servers and workstations supporting LPC or X-Bus. Two I²C serial multi-master controllers and UARTs allow system designers to mix and match IPMB, ICMB and private I²C configurations to best meet the requirements of a particular system. The VSC210 includes a high performance, 32-bit RISC processor, which provides the processing bandwidth and addressability required for sophisticated platform management strategies. The Software Development Kit (SDK) and evaluation board allow for reduced development cycles, high code reuse between implementations and faster time-to-market.

Device Features

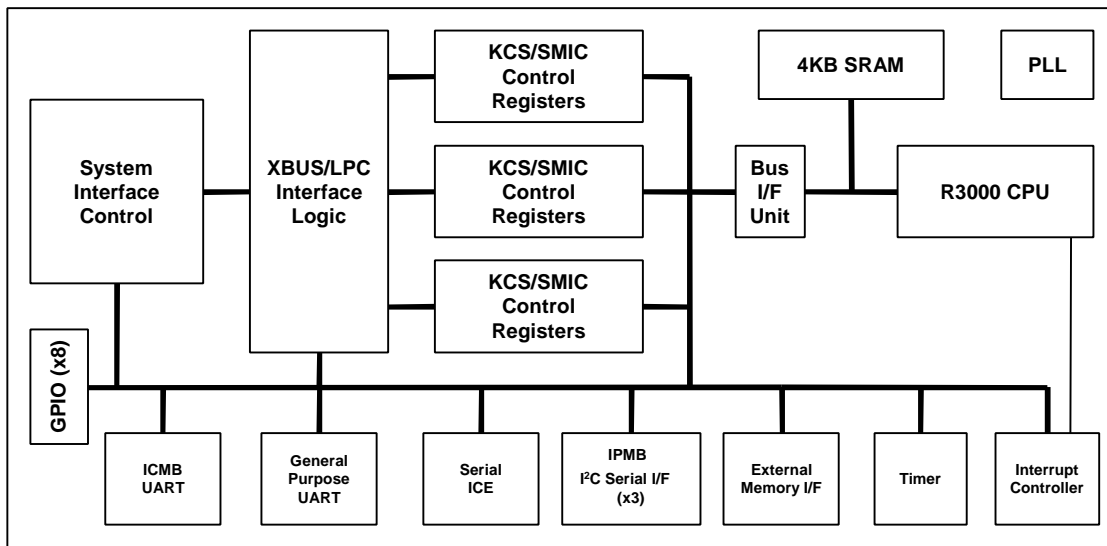
- IPMI 1.0 Compatible
- LPC and X-Bus System Interfaces
- KCS and SMIC Logical Interfaces
- 32-bit, RISC CPU w/Debug Port
- Three IPMB or Multi-Master I²C Interfaces
- Two UARTs (one with ICMB)
- Up to 26 Programmable General Purpose I/Os
- User definable clock from 20-50MHz
- PLL for use with low frequency/cost crystals
- Internal 4KB SRAM
- Four External 1MB Address Ranges
- External Flash and/or SRAM (60ns to 350ns)
- 100 PQFP Package

Software Development Kit Features

- Abstracts IPMI Message handling to easy to use APIs
- Modular architecture to support migration to other I/O technologies and protocols
- Extensive peripheral device library
- Sample Personality Module source code



VSC210 Based IPMI Server Baseboard Architecture



VSC210 Functional Block Diagram

Applications

The VSC210 is an ideal Baseboard Management Controller for server management applications. The VSC210 and related Software Development Kit (SDK) implement the IPMI 1.0 specification for BMCs. The VSC210 may also be used in applications other than IPMI through firmware modifications.

Architecture

System Level Integration (SLI) techniques were used to create a complete system on a chip. The VSC210 is based on Vitesse's proven architecture for enclosure and platform management solutions. It integrates an embedded RISC processor, a flexible system interface, memory and multiple peripheral interfaces to create an embedded system for server platform management.

The VSC210 includes three, I²C multi-master bus controllers. These controllers may be used to interface to off-the-shelf instrumentation and control devices commonly used in environmental monitoring and management applications such as Vitesse's SSC050/055 Backplane Controller. The controllers also support direct connection to Intelligent Platform Management Buses (IPMB).

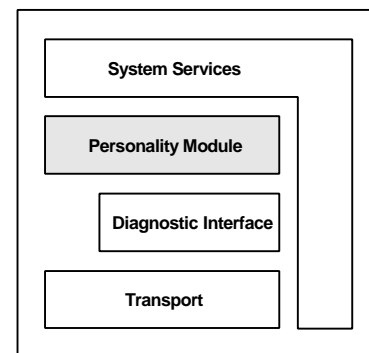
The VSC210 requires off chip memory for firmware code storage. Most applications will use flash memory devices for non-volatile storage. Static RAM may be added for higher performance applications. The VSC210 has four external chip selects each with a one-megabyte address range.

The VSC210 integrates three UARTs. One port may be used as a firmware debug port. A second port fully implements the Intelligent Chassis Management Bus (ICMB) defined by IPMI. A third, general purpose UART is provided for maximum system design flexibility. The Vitesse provided Software Development Kit includes ROM Monitor and firmware download functionality via the UARTs.

Software

The software designed to execute on the VSC210 determines the characteristics of the overall server management solution. Most server management applications will be unique to a customer's individual product. The VSC210 firmware architecture uses a Personality Module with captures the unique functionality required by a particular application. Vitesse provides a Software Development Kit (SDK) to customers to assist their development of their Personality Module.

The SDK includes software to implement KCS and System Management Interface Chip (SMIC) transport and IPMI diagnostic environment. In addition, the SDK also includes a System Services module with provides APIs to the peripheral functionality (interrupts, timers etc.) in the VSC210. The System Services also includes driver libraries for popular I²C devices such as National's LM75, LM78, and many others.



SDK Firmware Block Diagram

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