

VSP951/VSP952

High Performance Pentium™
Processor Cache Controller with
64- or 32-bit System Interface

VITESSE

FEATURES

- Optimizes Pentium™, P54C & P54CM 66 MHz Processor Performance
- Zero Wait States: 2-1-1-1 Bursts, 1-1-1-1 Pipelined Reads
- Direct-Mapped Cache Sizes: 128K, 256K, 512K, 1MByte, 2 MByte & 4MByte
- Choice of two 33 MHz System Bus Interfaces:
 - 64-bit, Pentium Processor-Compatible
 - 32-bit, Pentium OverDrive CPU- Compatible
- Uses Standard Asynchronous SRAMs for Tag & Data Storage
- Supports up to 128K Tag Entries, 4GByte Cacheable Memory
- 4-Deep Write Buffer to Eliminate Cache Miss Penalty
- Concurrent CPU & System Operation
- Snoop Filtering to Reduce CPU Stalls
- Read By-Pass to Streamline CPU Operation
- Software Transparent — No BIOS to Configure
- Simplified Clock and Address Signal Distribution
- VSP951: 184 PQFP, VSP952: 208 PQFP

FUNCTIONAL DESCRIPTION

Vitesse's VSP951/952 is a high performance serial cache controller chipset specifically designed for use in uniprocessor systems based on the Intel Pentium™, P54C or P54CM processors. The complete chipset provides all of the control functions to implement a second-level, direct-mapped, copy-back cache sub-system up to 4MByte in size.

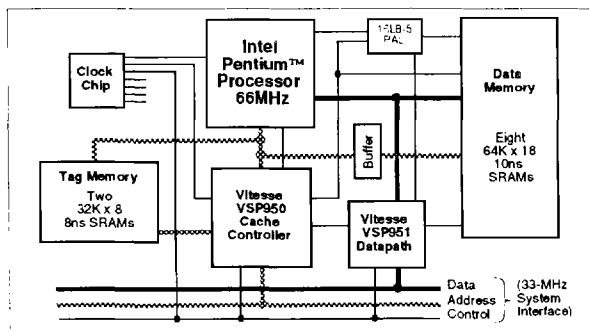
The high speed VSP951 allows the system designer to use standard asynchronous SRAMs for Tag and Data storage while allowing the processor to run at full speed (zero wait-states). This feature provides significant power and cost savings over other solutions that require synchronous SRAMs.

A 4-deep write buffer supports zero-wait-state

operation on write-miss cycles as well as supporting concurrent copy-back operation. The CPU is free to operate concurrently with the system.

The VSP951/952 is similar to the VSP945/946. The main difference is in the System Interface. The VSP951/952 has a 64-bit Pentium CPU-compatible system interface that offers the highest possible performance and a 32-bit Pentium OverDrive CPU-compatible option that allows a more cost effective system design. For high performance servers and PCs operating at 66-MHz, the VSP951/952 provides the highest system performance level at the lowest cost. Planned upgrades will offer the same solution for systems operating at 80-MHz and beyond.

1MByte Cache Simplified System Diagram (66-MHz)



Cache Configuration

Size	Tag RAM	Data RAM
128 KB	8Kx8	16 8Kx8
256 KB	8Kx8	32 8Kx8
512 KB	32Kx8	16 32Kx8
1,024 KB	32Kx8	8 64Kx16
2,048 KB	128Kx8	16 128Kx8
4,096 KB	128Kx8	8 256Kx16

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