Hyperbus Flash Memory Controller

Overview

Emerging high-performance applications demand increasingly fast read throughputs from NOR-flash memory devices. At the same time, the pin-count required to implement the memory subsystem should be restricted. Mobiveil’s HyperBus flash controller was developed to satisfy the need for higher read/write performance while remaining sensitive to the pin-count constraints of modern microcontrollers. Mobiveil’s HyperBus flash controller has the ability to satisfy the memory requirements for both volatile and non-volatile memories in a large swath of high-performance applications.

Mobiveil’s HyperBus flash Interface is a low pin count interface that achieves significantly higher performance than legacy parallel and SPI interfaces for SPI based NOR flashes. This controller Interface involves a simple read/write protocol that is suitable for both memories and peripheral interfaces. Interestingly, this interface only requires an additional six pins more than the QSPI. The HyperFlash memories coupled with our Hyperbus flash controller provide a new standard for performance by delivering up to 333 MB/s using this 12-pin interface.

Features

- Compatible with spansion hyperbus based memory products.
- 0 Wait State Write Burst Operation for HyperBus memory on AXI interface of up to 256 words.
- AXI-lite port for control registers accesses.
- True Continuous Burst Read operation for HyperFlash on HyperBus memory interface.
- Minimum Gap between two Read Operations for highest performance on HyperBus memory interface.
- Cache Line accesses for Execution-in-Place (XiP).
- HyperBus memory device clock of up to 166MHz.
- Upto 16 outstanding address support in AXI.
Specifications

Configurable Options
- Internal FIFO Depths is configurable
- AXI parameters configurable

Design Attributes
- Highly modular design
- Clearly demarked clock domains
- Software control for key features
- Loopback for Debugging

Product Package
- Configurable RTL Code
- HDL based test bench and behavioral models
- Test cases
- Protocol checkers, bus watchers and performance monitors

Documentation
- Design Guide
- Verification Guide
- Application Note

About Mobiveil

Mobiveil is a fast growing Technology company that specializes in creation of Intellectual Properties, Frameworks and Solutions for the Networking, Enterprise and Device Mobility markets. The Mobiveil team leverages decades of experience in delivering high-quality, production-proven, high-speed serial interconnect Silicon IP cores to the leading customers worldwide. With a highly motivated engineering team, dedicated integration support, flexible business models, strong industry presence through strategic alliances and key partnerships, Mobiveil solutions have added tremendous value to the customers in executing their marketing and engineering goals within budget and on time.

Mobiveil is headquartered in the Silicon Valley with engineering development centers located in Milpitas,CA, Chennai and Bangalore, India, and sales offices and representatives located in US, Europe, Israel, Japan, Taiwan and Peoples Republic of China.