MR25H256 – 256Kb SPI MRAM

VHDL Model Readme File

Introduction

This is the VHDL model of the MR25H256 – a 256Kb SPI MRAM Product from Everspin. This is a high level abstraction of this product.

Device Summary

The **MR25H256** is a 262,144-bit magnetoresistive random access memory (MRAM) device organized as 32,768 words of 8 bits. The **MR25H256** offers serial EEPROM and serial Flash compatible read/write timing with no write delays and unlimited read/write endurance. Unlike other serial memories, both reads and writes can occur randomly in memory with no delay between writes. The **MR25H256** is available in a small footprint 5 mm x 6 mm 8-pin DFN package that is compatible with serial EEPROM, Flash, and FeRAM products. Data Retention of greater than 20 years is guaranteed.

Model Release Notes

Product Datasheet: http://www.everspin.com/PDF/EST_MR25H256_prod.pdf
Model Revision: 1.0
Model Release Data: August 2010
Model Test Tools: Mentor Graphics ModelSim, Symphony Sonata

Files

1. Readme_MR25H256 - This File
2. MR25H256.vhdl - Device Model
3. Package_Utility - Standard Conversion Utilities
4. Benchtest.vhdl - Top Level Test Bench
5. MR25H256.vhdl - Sample Test Vectors used for the Verification
6. MR25H256.txt - Memory Initialization File

VHDL Model

MR25H256.vhdl is the abstracted model of the 256Kb SPI MRAM.

Test Bench

Benchtest.vhdl and MR25H256_driver.vhdl form the example test bench used to verify this model. This is not a complete test bench and has been provided to give information on model usage.

Memory Initialization

MR25H256.txt is used to initialize the memory on startup. This file is updated on every memory write depending on the state of the MemoryUpdate Flag. The MemoryUpdate flag can be turned off to improve simulation speed or when data written into the MRAM array need not be saved.

The memory initialization file has the following format
FF FF FF FF ……..……..FF
FF FF FF FF ……..……..FF
Each row in the file has 1024 bytes of data. The MR25H256.txt has 32 rows.

Warning: These VHDL models are provided "as is" without warranty of any kind, including, but not limited to, any implied warranty of merchantability and fitness for a particular purpose.

Revision History

Date	Revision	Changes
8/27/2010	1.0	New Model – Initial Release

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