

Description

M88DR5DB01 is a dual 4-bit bidirectional Data Buffer (DB) with differential strobes designed for 1.1V V_{DD} operation. The device has a dual 4-bit host bus interface, a dual 4-bit DRAM interface, and an input-only control bus interface that consists of a 3-bit control bus, a reset signal, a Chip Select input and a differential clock input.

All DQ inputs of M88DR5DB01 are pseudo-differential with an internal voltage reference. All DQ outputs are V_{DD} terminated drivers optimized to drive single or dual terminated traces in DDR5 LRDIMM applications. Differential DQS strobes are used to sample the DQ inputs and are regenerated internally.

M88DR5DB01 supports dedicated pins for ZQ calibration. Besides, dynamic ODT control is supported on Host interface.

The device features a set of 8-bit control words, which can be configured to improve the device properties for different raw card designs.

Features

- Fully compliant with JEDEC DDR5DB01 specification
- Speed up to 4800 MT/s
- Dual 4-bit bidirectional data register
- Regeneration of differential data strobe (DQS) signals from input clock
- Two x4 DRAMs supported
- Up to 2 package ranks supported

- Power-down of unused package rank supported
- Dynamic ODT control on Host interface
- FIFOs on DQ path for decoupling Host and DRAM interface time domains
- Independent internal Vref control for Host, DRAM and BCOM interfaces
- ZQ calibration
- BCOM Training Mode
- Per X Addressability features
 - Per DRAM Addressability (PDA) mode
 - Per Buffer Addressability (PBA) mode
 - PBA Enumerate ID programming
- Dual Frequency support
- Strobe and Data Training
- DRAM Periodic Update
- DQ Pass-through Mode
- Transparent Mode and Continuous Burst Mode
- Loopback Mode for debugging/testing/training purposes
- A 4-tap DFE integrated on host-interface receivers
- Power saving modes
 - PDE Power Down
 - PDE Power Down with ODT control
 - Self Refresh with clock stop
 - Self Refresh without clock stop
- 1.1V V_{DD} with ultra-low power consumption
- Green package: 55-ball FBGA
- RoHS compliant

Applications

- DDR5 LRDIMMs

LRDIMM Application Example

