

Description

M88MR5RCD01 is a Multiplexed Registering Clock Driver (MRCD) used on DDR5 MRDIMM / MCRDIMM for driving and buffering the Command/Address (CA) bus, Chip Selects, and clock between the host controller and the DRAMs. It operates at 4000, 6400-8800 MT/s with the DRAM operating at half rate. It also creates a BCOM bus to control the Multiplexed Data Buffers (MDBs) for MRDIMM / MCRDIMM.

M88MR5RCD01 provides two separate sub-channels. Each sub-channel is further divided into two pseudo-channels and has a DDR CA bus input, a single parity input, two Chip Select (CS) inputs, and produces two copies of SDR CA bus outputs per pseudo-channel as well as separate copies of CS outputs. The pseudo-channels substantially increase the total bandwidth of the host system.

The device features a set of Control Word registers (CW) that can be configured to optimize the device properties for different MRDIMM / MCRDIMM raw card designs.

Features

- Compliant with Intel DDR5 MCR Specification Rev 0.99
- Speed up to 8800 MT/s
- Two sub-channels, each divided into two pseudo-channels (PS0 and PS1)
- Two pseudo-channels splitting the incoming Command/Address inputs and generating separate outputs

- Integrated PLL clock driver distributing one differential clock input to five differential clock pairs per channel
- 1.1V V_{DD} and 1.0V V_{DDIO} Voltage
- Dual chip selects support
- Parity checking across CA and DPAR inputs separately on two sub-channels
- Output characteristics configurable through Register Words
- ZQ calibration
- Latency equalization
- Dual Frequency support
- Output delay control
- Continuous Time Linear Equalization (CTLE) to improve signal margins
- Training modes support for:
 - DCS training and DCS DFE training
 - DCA training and enhanced DCA training
 - BCOM training
 - QCS training
 - QCA training
- Sideband bus interface
 - I²C FM+ mode (1MHz)
 - I3C basic mode (up to 12.5 MHz)
- Power saving modes
 - PDE power down mode
 - Self Refresh mode with/without Clock Stop
- Green package: 240-ball flip-chip BGA
- RoHS compliant

Applications

- High-performance DDR5 MRDIMM / MCRDIMM

MRDIMM / MCRDIMM Application Example

