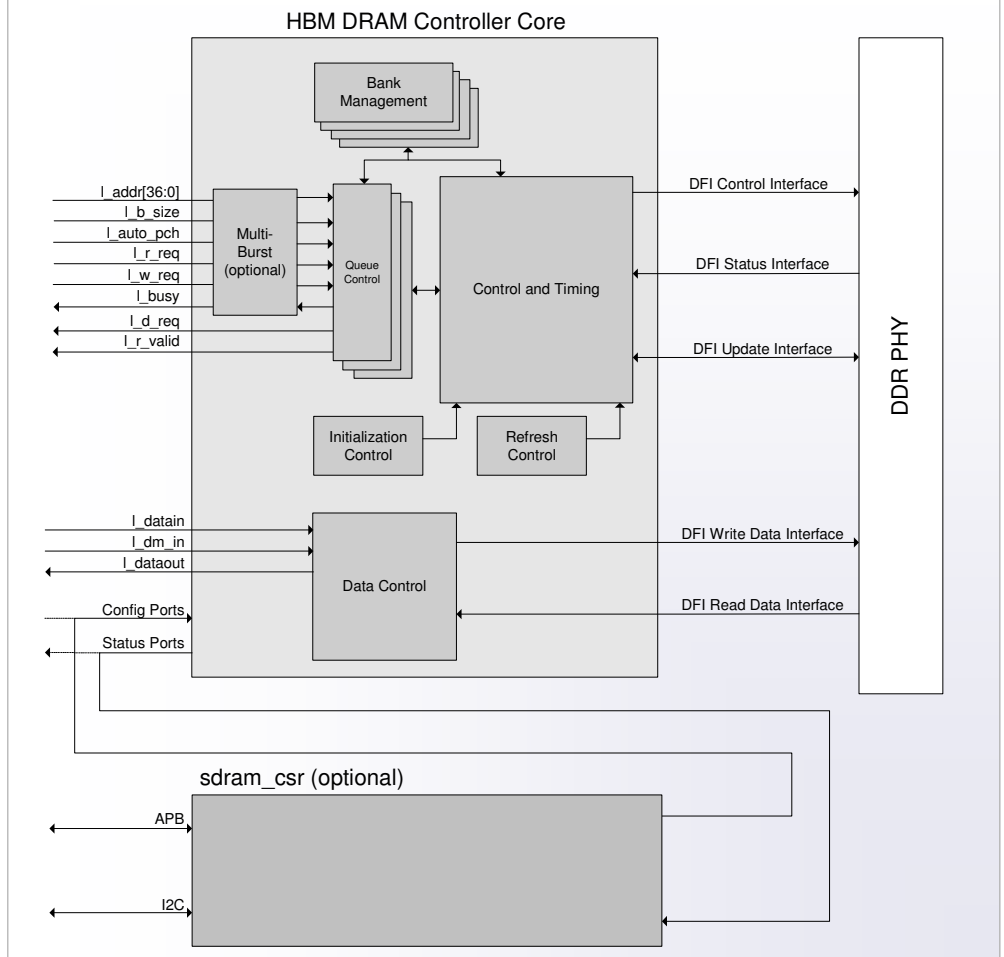


Product Highlights

- Maximizes bus efficiency via Look-Ahead command processing, Bank Management, and Auto-Precharge
- Minimal latency achieved via parameterized pipelining
- Achieves high clock rates with minimal routing constraints
- Full run-time configurable timing parameters and memory settings
- DFI 3.1 Compatible including full PHY training support
- Full set of Add-On Cores available
- Delivered fully integrated and verified with FPGA PHY or 3rd party ASIC PHY
- Supports all defined HBM channel densities, from 1Gb to 32Gb
- Supports HBM Self-Refresh and Power-Down modes
- Minimal ASIC gate count
- Source code available
- Customization and Integration services available

Block Diagram



Product Overview

Northwest Logic's High Bandwidth Memory (HBM) DRAM Controller Core is designed for use in applications requiring high memory throughput, high clock rates and full programmability.

The core accepts commands using a simple local interface and translates them to the command sequences required by HBM DRAM devices. The core also performs all initialization and refresh functions.

The core uses bank management modules to monitor the status of each SDRAM bank. Banks are only opened or closed when necessary, minimizing access delays.

The core queues up multiple commands in the command queue. This enables optimal bandwidth utilization for both short transfers to highly random address locations as well as longer transfers to contiguous address space. The command queue is also used to opportunistically perform look-ahead activates, precharges and auto-precharges further improving overall throughput.

The core supports all HBM features, including: data bus inversion (DBI), DQ parity, and command / address parity modes.

Add-On Cores such as a Multi-Port Front-End and Reorder Core can be optionally delivered with the core. The core is delivered fully integrated and verified with the target DDR PHY. Northwest Logic supports a broad range of third party PHYs. Contact Northwest Logic for more information.

Northwest Logic also provides IP Core customization services. Contact Northwest Logic for a quote.

Product Deliverables:

- Core (Netlist or Source Code)
- Testbench (Source Code) with support for Aldec
- Complete Documentation
- Expert Technical Support & Maintenance Updates