



NETLIST

## HyperCloud™ 4, 8, 16GB vRank DDR3 RDIMMs

HyperCloud™ is a family of DDR3 RDIMMs that incorporates Netlist's patented memory expansion technology. This advancement enables server optimization and improves datacenter efficiency through server consolidation.

### Breaking the Memory Barrier with Rank Multiplication

This technology breaks the 192GB memory-barrier in dual socket servers. The new DDR3 RDIMM presents two virtual ranks (vRanks) to the Memory Controller Hub (MCH), allowing four 16GB 2 vRank DIMMs per channel. Using Netlist's patented rank multiplication technology, 16GB two virtual rank (four physical ranks) RDIMMs can fully populate a dual socket server with 288GB of memory (up to 384GB in 24 slot systems).

### Maximum Data-Rate with Load Reduction

In addition, the HyperCloud memory rank multiplication implements load reduction for higher data speeds. Servers populated with three and four DIMMs per channel can operate at the maximum data-rate of 1333MT/s providing maximum memory bandwidth and increased server performance.

### Datacenter Savings with Server Optimization

Servers are typically underutilized due to memory bottlenecks. HyperCloud memory solves this problem by offering the highest DRAM capacity and memory bandwidth possible which maximizes server utilization and increases efficiency. Optimal server utilization is especially important in server virtualization, memcache, database, and high performance computing applications.

### Features

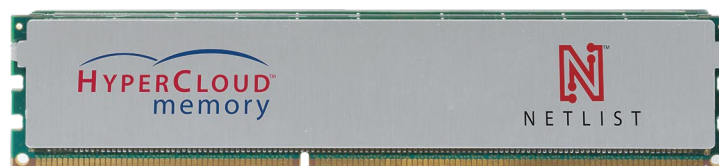
- 4GB, 8GB, 16GB 2 vRank module options
- Rank multiplication
- Load reduction
- Increases DRAM server capacity up to 384GB
- Supports 4 DIMMS per channel at 1333MT/s
- RoHS 6/6
- JEDEC compatible

### Benefits

- Increases server performance
- Provides lower power
- Reduces TCO

### Applications

- Virtualization
- Search
- Cloud computing
- High performance computing
- Video services
- Memcache appliances
- Online gaming
- Electronic Design Automation



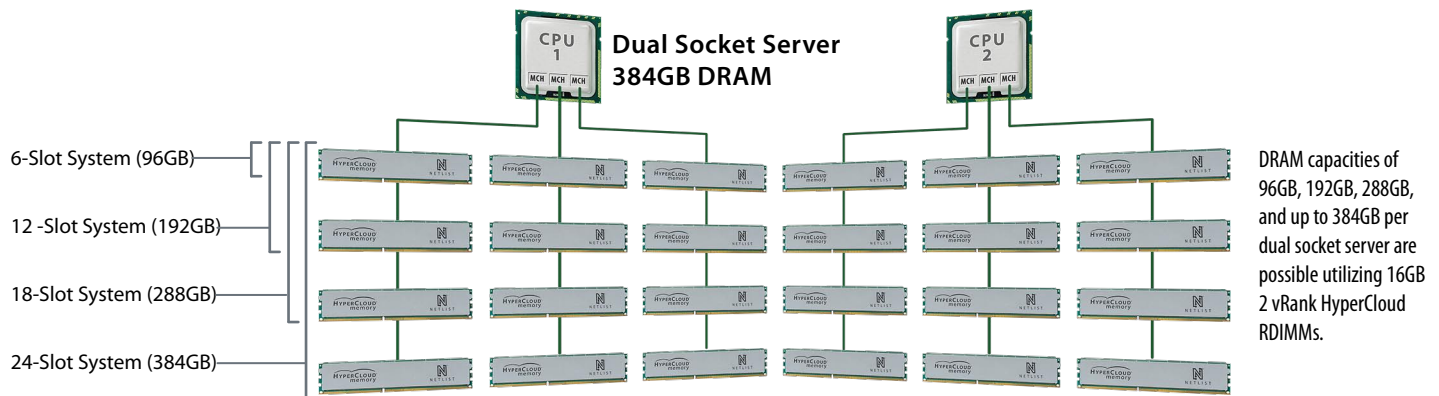
## Optimal DRAM Server Capacity with HyperCloud Technology

Netlist HyperCloud memory allows one, two, three or four DIMMs per channel to be populated with the maximum density and highest memory bandwidth vs standard JEDEC RDIMMs. HyperCloud rank multiplication technology presents two virtual ranks (four physical ranks) or one virtual rank (two physical ranks) to the Memory Controller Hub (MCH).

Speed	Physical Rank <sup>1</sup>	2 DIMMs Populated		3 DIMMs Populated		4 DIMMs Populated	
		Standard	Netlist	Standard	Netlist	Standard	Netlist
DDR3-800	2R	JEDEC	JEDEC	JEDEC	JEDEC	JEDEC <sup>2</sup>	HyperCloud
	4R	JEDEC	JEDEC	N/A	HyperCloud	N/A	HyperCloud
DDR3-1066	2R	JEDEC	JEDEC	N/A	HyperCloud	N/A	HyperCloud
	4R	N/A	HyperCloud	N/A	HyperCloud	N/A	HyperCloud
DDR3-1333	2R	JEDEC	JEDEC	N/A	HyperCloud	N/A	HyperCloud
	4R	N/A	HyperCloud	N/A	HyperCloud	N/A	HyperCloud

<sup>1</sup> Applies to virtual ranks on HyperCloud Memory

<sup>2</sup> May not operate at speed



Description	Module Density	Organization	DRAM Density	Form-Factor
4GB 2 vRank	4GB	x8	1Gb	Planar LP
8GB 2 vRank	8GB	x8	2Gb	Planar LP
8GB 2 vRank	8GB	x4	1Gb	Planar-X LP
16GB 2 vRank	16GB	x4	2Gb	Planar-X LP
16GB 2 vRank	16GB	x4	4Gb DDP	Planar LP

(Available in 1066 or 1333MHz)