Samsung Memory for Supercomputing

20nm class DDR4 SDRAM

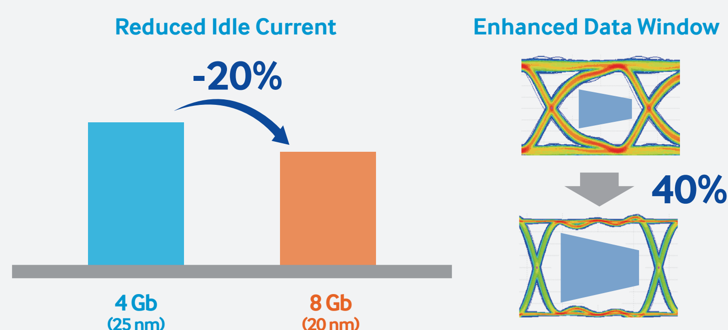
Samsung DDR4 SDRAM
Provide an optimized solution for enterprise applications

Samsung DDR4 SDRAM is an optimized solution for highly virtualized environments, high-performance computing and networking. Semiconductor modules of Samsung DDR4 SDRAM are designed with new system circuit architecture to deliver higher performance with low power requirements than previously available memory products.

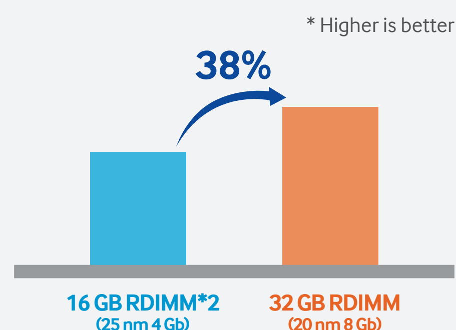
The Samsung portfolio of DDR4 SDRAM-based modules using 20nm-class process technology includes registered dual inline memory modules (RDIMMs) and load-reduced DIMMs(LRDIMMs). These memory modules are available with initial speeds up to 2400 Mbps, increasing to the Joint Electron Devices Engineering Council (JEDEC)-defined 3200 Mbps.

20nm class DDR4 SDRAM Benefit (8 Gb based 32 GB RDIMM)

[Advanced Technology]



[Better Efficiency (Performance/Watt)]



Samsung 20nm DRAM module line-up

Type	Capacity*	Component	Rank, IO	Part number	Speed	Available**
DDR4 RDIMM	8 GB	4 Gb	1Rx4 2Rx8	M393A1G40EB1-CPB/RC M393A1G43EB1-CPB/RC	2133/ 2400	CS(4Q)
	16 GB	4 Gb	2Rx4	M393A2G40EB1-CPB/RC		CS
		8 Gb	1Rx4 2Rx8	M393A2K40BB%-CPB/RC M393A2K43BB1-CPB/RC		MP
	32 GB	8 Gb	2Rx4	M393A4K40BB%-CPB/RC		MP
	64 GB	8 Gb (TSV)	4Rx4	M393A8K40B21-CRB/TC		CS
	128 GB	8 Gb (TSV)	8Rx4	M393AAG40B41-CRB/TC		CS(4Q)
DDR4 LRDIMM	32 GB	8 Gb	2Rx4	M386A4K40BB0-CRC		MP
	64 GB	8 Gb	4Rx4	M386A8K40BM1-CPB/RC		MP

Note

* 25nm 4 Gb based RDIMM/LRDIMM is also available now (including 64 GB TSV RDIMM)

** CS : Customer sample, MP : Mass production

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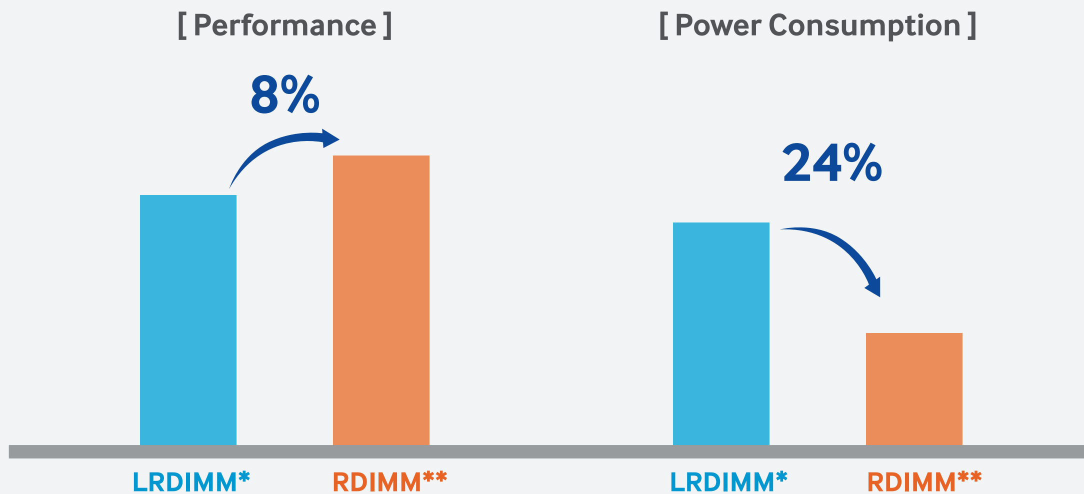
64 GB RDIMM Solution : TSV Technology

High performance with less power consumption



* 20nm 8 Gb DDP based 64 GB LRDIMM
** 20nm 8 Gb TSV based 64 GB RDIMM

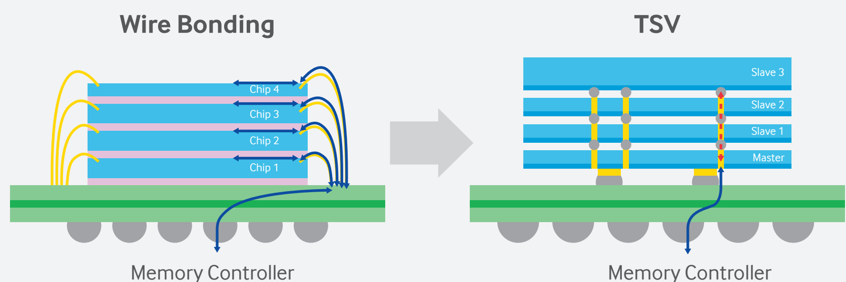
Appendix : TSV Introduction

DDR4 SDRAM TSV Technology

TSV (Through Silicon Via) vertical stacking technology involves punching hundreds of microscopic holes onto the cutting-edge DDR4 SDRAM chips that are only half as thick as a sheet of paper, and then filling these holes with an electrically conductive material to form electrodes that penetrate the chips, connecting the top and bottom chips electrically. Products made by using the TSV method are capable of performance that is superior to the conventional wire bonding method. Samsung began to mass-produce DRAM products with TSV technology in the second half of 2014, and became the first company to commercialize the TSV technology, which may help the industry overcome the challenges in process scaling.

TSV Features

- Through Silicon Via Technology
- Speed : Up to 3200 Mbps
- Stack : Up to 4 High
- Package : 78 ball FBGA
- Module Capacity : 64 GB / 128 GB
- Availability : Now in Mass Production



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