AMD Opteron™ 6000 Series Platform

The world's first 16-core x86 processor, delivering a rich mix of performance, scalability and efficiency for today's highly threaded computing environments.

AMD Opteron™ 6000 Series Platform Product Comparison

	AMD Opteron™ 6100 Series Processor	AMD Opteron™ 6200 Series Processor	
	Features	**Features**	**Benefits**
Processor Cores	Options of 8 and 12 core processors for performance and scalability	Options of 4, 8, 12 and 16 core processors for performance, scalability and efficiency	Up to 33% more cores[1] — over prior generation — for scalable systems
Processor Cache	L2: 512 K/core L3: 12 MB	L2: 2 MB shared by 2 cores L3: 16 MB	Twice the L2 cache per core over previous generation[2]
Memory	Up to 4 memory channels supporting R/U DDR3 and LV-DDR3 up to 1333MHz	Up to 4 memory channels supporting LRDIMM, ULV-DIMM, UDIMM, RDIMM up to 1600MHz	20% faster memory and new 1.25V ULV memory offering; high memory bandwidth[3]
Power	HE/Std/SE	HE/Std/SE	HE/Std/SE power options to match workload performance and power requirements
HyperTransport™ Technology 3.0 (HT3)	4X HT3 links with peak bandwidth of 6.4 GT/s per link	4X HT3 links with peak bandwidth of 6.4 GT/s per link	Helps improve overall system balance and scalability for scale-out computing environments like HPC, database and web serving
Performance	Up to 12 cores	Up to 16 cores, new features include AMD Turbo CORE technology, FMAC and Flex FP, in addition to all new core architecture	Greater throughput[4], 33% more cores[1]; FMAC units in the Flex FP help drive more performance by executing FMA4 instructions that execute complex calculations in half the cycles as the competition
AMD-P Technology	New features include enhanced APML (in APML-enabled platforms), AMD CoolSpeed technology, C1E, LV-DDR3 support, and Link Width Power Cap	New power-saving features like C6 Power State and TDP Power Cap along with 1.25 (volt) ULV-DIMM	C6 Power State shuts down power to idle cores. TDP Power Cap gives you the flexibility to set power limits without capping processor frequency.
AMD Virtualization™ (AMD-V™) Technology Features	Mainstream availability of extended migration and I/O virtualization	Performance enhancements to AMD-V™ technology help drive more efficient processing for robust virtualization workloads.	AMD-V™ advances virtualization efficiency with new enhancements to AMD-V™ technology. The higher core counts of these products allow customers to run 33% more VMs per server[5], optimizing data center rack space and helping minimize management tasks.

AMD Opteron™ 6000 Series platform optimized for high performance and scalability

Performance
→ Unleash unprecedented performance of highly threaded applications through massive, industry-leading core density

Scalability
→ Today's highly threaded applications demand more scalability and the AMD Opteron™ 6000 Series platform delivers the most cores in the industry[6]

Efficiency
→ Bring unparalleled efficiency to your processing, power and financial budgets

AMD Opteron™ 6200 Series Processor Model Numbers

Cores	Model	Core Frequency	All Core Boost Frequency	AMD Turbo CORE Max Frequency	TDP	North Bridge	L2 Cache	L3 Cache
16	6284 SE*	2.7 GHz	3.1 GHz	3.4 GHz	140W	2.0 GHz	8 x 2 MB	16 MB
	6282 SE	2.6 GHz	3.0 GHz	3.3 GHz	140W	2.0 GHz		
	6278*	2.4 GHz	2.7 GHz	3.3 GHz	115W	2.0 GHz		
	6276	2.3 GHz	2.6 GHz	3.2 GHz	115W	2.0 GHz		
	6274	2.2 GHz	2.5 GHz	3.1 GHz	115W	2.0 GHz		
	6272	2.1 GHz	2.4 GHz	3.0 GHz	115W	2.0 GHz		
	6262 HE	1.6 GHz	2.1 GHz	2.9 GHz	85W	1.8 GHz		
12	6238	2.6 GHz	2.9 GHz	3.2 GHz	115W	2.0 GHz	6 x 2 MB	16 MB
	6234	2.4 GHz	2.7 GHz	3.0 GHz	115W	2.0 GHz		
8	6220	3.0 GHz	3.3 GHz	3.6 GHz	115W	2.0 GHz	4 x 2 MB	16 MB
	6212	2.6 GHz	2.9 GHz	3.2 GHz	115W	2.0 GHz		
4	6204	2.3 GHz	N/A	N/A	115W	2.0 GHz	2 x 2 MB	16 MB

*New SKUs available with Speed Bump Launch 2012

1 AMD Opteron™ processor Model 6272 has 16 cores and a 1ku list price of $523, which is $33 per core. AMD Opteron™ processor Model 6188 has 12 cores and a 1ku list price of $744, which is $62 per core. This comparison represents the SKUs with the highest core counts and lowest processor price for each series. SVR-154

2 AMD Opteron 6200 Series processors have 1024 KB L2 cache per core while AMD Opteron 6100 Series processors have 512 KB L2 cache per core. SVR-28

3 Testing based on STREAM benchmark. 4P: 146GB/s using 4 x AMD Opteron™ procesor Model 6276 in "Drachma" reference design kit, 64GB (16 x 4GB DDR3-1600) memory, SuSE Linux® Enterprise Server 64-bit 110GB/s using 4 x AMD Opteron™ processors Model 6176 in "Drachma" reference design kit, 64GB (16 x 4GB DDR3-1333) memory, SuSE Linux® Enterprise Server 11 64-bit. 2P: 73GB/s using 2 x AMD Opteron™ 6200 Series processors in "Dinar" reference design kit, 32GB (8 x 4GB DDR3-1600) memory, SuSE Linux® Enterprise Server 64-bit 55GB/s using 2 x AMD Opteron™ processors Model 6176 in "Dinar" reference design kit, 32GB (8 x 4GB DDR3-1333) memory, SuSE Linux® Enterprise Server 11 64-bit. SVR-26

4 TPC and TPC-C are trademarks of the Transaction Processing Performance Council. The results stated above reflect results published on http://www.tpc.org as of November 28, 2011. The comparison presented above is based on the best performing two-socket servers using AMD Opteron™ processor Models 6282 SE and 6176 SE, operating at each processor's default frequency. For the latest TPC-C results, visit http://www.tpc.org. Performance (tpmc) = 1,207,982, 2 x AMD Opteron™ processors Model 6282 SE: http://www.tpc.org/tpcc/results/tpcc_result_detail.asp?id=111111501. Performance (tpmc) = 705,652, 2 x AMD Opteron™ processors Model 6176 SE: http://www.tpc.org/tpcc/results/tpcc_result_detail.asp?id=110040801. SVR-16 http://www.tpc.org/tpcc/results/tpcc_result_detail.asp?id=110040801. SVR-16

5 Based on comparison of 16-core AMD Opteron™ 6200 Series processor with 12-core AMD Opteron 6100 Series processor using 1 VM per core loading model. Core counts at http://www.amd.com/us/products/server/processors/Pages/model-numbers.aspx as of 4/12/12. SVR-153

6 Comparison of 16-core AMD Opteron™ 6200 Series processor with 8-core Intel Xeon E5-2600 Series processor and 10-core Intel Xeon E7 Series processors according to www.intc.com/pricelist.cfm as of 4/12/12. SVR-30

7 Learn more about average CPU power at: www.amd.com/acp

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