



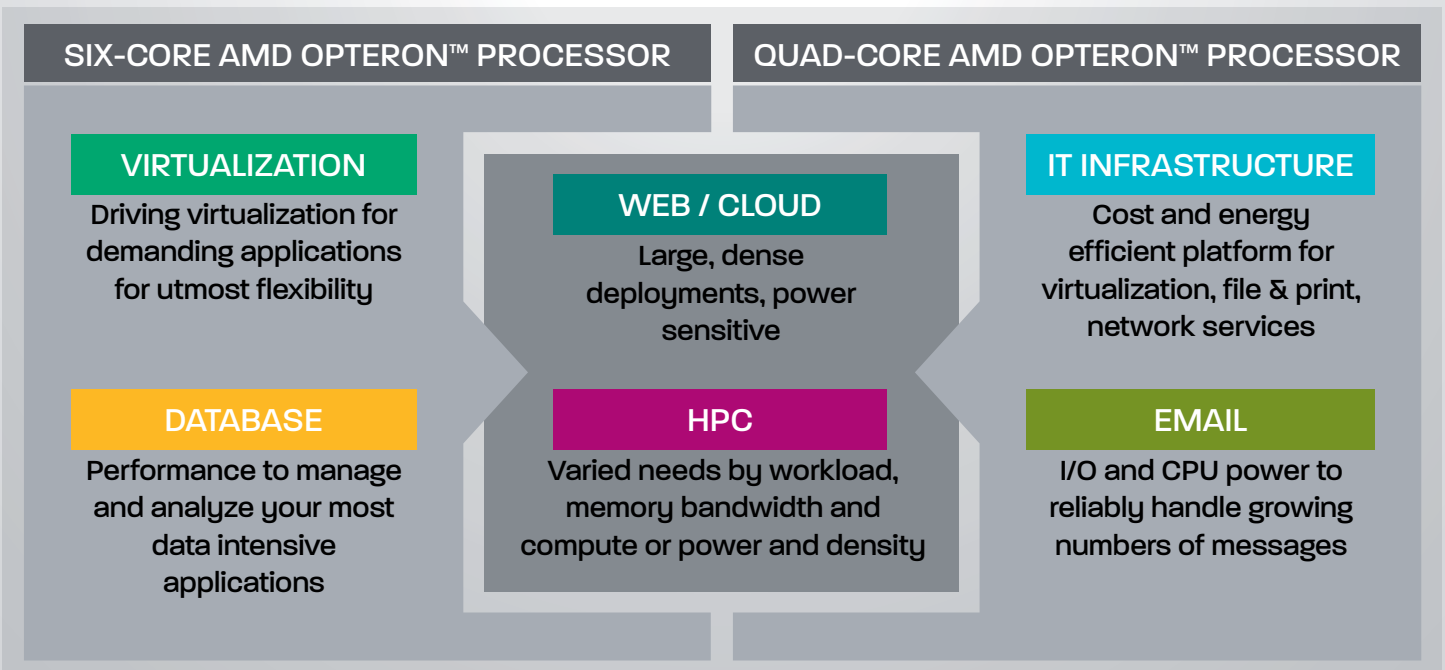
# Six-Core AMD Opteron™ Processors: Top-line performance that's bottom-line efficient

- Industry's only x86 six-core processor for 2P, 4P and 8P and servers
- Up to 50% higher performance (depending on workload)\* than Quad-Core AMD Opteron™ processor-based servers at the same processor ACP
- Total cost advantage with AMD Opteron™ processors = Affordability without compromise

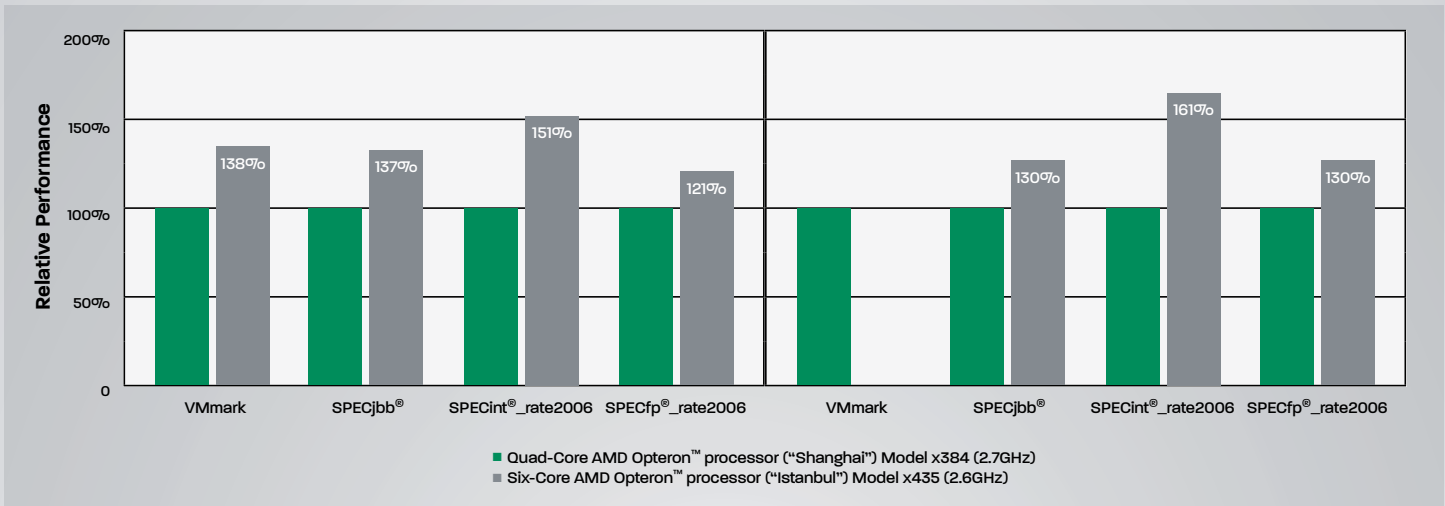
**Quad-Core AMD Opteron™ Processor and Six-Core AMD Opteron™ Processor Product Comparison**

	Quad-Core AMD Opteron™ Processor	Six-Core AMD Opteron™ Processor	Six-Core Benefit
	Quad-core performance for applications that need a balance of clock speed and threading	Six-core performance for applications that need a higher amount of threading	
<b>Cores</b>	4	6	Scalable systems to 48 total cores
<b>Power/Thermals</b>	ACP 40/55/75/105 TDP 60/79/115/137	ACP TBD/55/75/105 TDP 60/79/115/137**	Full line of products from EE to SE,** More performance in the same power/thermals
<b>HyperTransport™ Technology</b>	3x HyperTransport™ 1 or 3x HyperTransport™ 3 technology (between CPUs) Up to 17.6GB/s per link @ 4.4 GT/s	3x HyperTransport™ 1 or 3x HyperTransport™ 3 technology (between CPUs) Up to 19.2GB/s per link @ 4.8 GT/s	Improved overall system balance and scalability for scale out computing environments
<b>Performance</b>	Up to ~35% performance increase over Quad-Core AMD Opteron™ processor codenamed "Barcelona"***	Up to 50% performance increase over Quad-Core AMD Opteron™ processor codenamed "Shanghai"***	Increased performance within the same power envelope
<b>Optimized Workloads</b>	Web serving, email, file/print, network infrastructure, compute intensive, clock-sensitive HPC	Virtualization, database, multi-threaded or power-constrained HPC, cloud computing	Value and choice based on the needs of the workload

## Which AMD Opteron™ processor is right for me?



# Up to 50% higher performance (depending on workload)\* than Quad-Core AMD Opteron™ processor-based servers at the same processor ACP



## Six-Core AMD Opteron™ Processor Model Numbers



Model	Cores	Freq	Northbridge	ACP	L2 Cache	L3 Cache	Planned Production
8435	6	2.6GHz	2.2GHz	75W	512K/core	6MB	In Production
8431		2.4GHz					
2435		2.6GHz					
2431		2.4GHz					
2427		2.2GHz					
8425 HE	6	2.1GHz	2.2GHz	55W	512K/core	6MB	In Production
2425 HE		2.1GHz					
2423 HE		2.0GHz					
8439 SE	6	2.8GHz	2.2GHz	105W	512K/core	6MB	In Production
2439 SE		2.8GHz					
2419 EE	6	1.8GHz	2.0GHz	TBD	512K/core	6MB	Q3

\* Up to 50% greater performance than prior generation:

Internal testing at AMD performance labs as of 3/27/09 showed the following performance gains for Six-Core AMD Opteron™ processor Model 2384 ("Istanbul") over Quad-Core AMD Opteron™ processor Model 2435 ("Shanghai"): SPECint®\_rate2006 (estimate) 42%; SPECfp®\_rate2006 (estimate) 19%; virtualization 41%; and the following performance gains for Six-Core AMD Opteron™ processor ("Istanbul") Model 8435 over Quad-Core AMD Opteron™ processor ("Shanghai") Model 8384: SPECint®\_rate2006 (estimate) 51%; SPECfp®\_rate2006 (estimate) 26%; virtualization 38%; database 33%; java server 17%. Configuration for 2P SPECint®\_rate2006 & SPECfp®\_rate 2006 estimates: Supermicro A+ Server 1021M-UR+B server, 32GB (8x4GB DDR2-800) memory, 300GB SATA disk drive, SuSE Linux® Enterprise Server 10 SP1 64-bit. Configuration for 2P virtualization: Dell R805 server, 64GB memory (8x8GB DDR2-533), VMware® ESX 3.5 Update 3. Configuration for 4P SPECint®\_rate2006 & SPECfp®\_rate 2006 estimates: Tyan Transport TX46 server, 64GB (16x4GB DDR2-800) memory, 250GB SATA disk drive, SuSE Linux® Enterprise Server 10 SP1 64-bit. Configuration for virtualization: Dell R905 server, 128GB memory (16x8GB DDR2-667), VMware® ESX 3.5 Update 3. Configuration 4P for database: HP DL585 G5 server, 256GB memory (32x8GB), Microsoft® Windows Server® 2003 Enterprise x64 Edition SP2, Microsoft® SQL Server® 2005 Enterprise x64 Edition SP2. Configuration for java server: Tyan Transport TX46 server, 64GB (16x4GB DDR2-800) memory, 250GB SATA disk drive, Microsoft® Windows Server® 2008

\*\* Six-Core AMD Opteron™ EE processors expected launch dates Q3 09.

\*\*\* Benchmarks published on amd.com as of November 13, 2008, show the following performance gains vs. systems based on the Quad-Core AMD Opteron™ processor codenamed "Barcelona": SPECint®\_rate2006: 32%; SPECfp®\_rate2006: 32%; SPECjbb®2005: 64%. See [http://www.amd.com/us-en/Processors/ProductInformation/0,30\\_118\\_8796\\_8800,00.html](http://www.amd.com/us-en/Processors/ProductInformation/0,30_118_8796_8800,00.html).

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