The AMD Opteron™ processor is the ideal solution for High Performance Computing

OPTERON PROCESSOR AMD
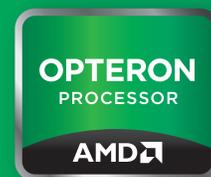
AMD Opteron™ processors = More For Your IT Dollar

Reasons to Recommend AMD Opteron™ processors for HPC:

- AMD Opteron™ 6200 Series processors offer up to 34% lower processor price/theoretical GFLOP than Intel Xeon E5-2600 Series processors. Making it an ideal solution for public sector and university research opportunities.[1]
- AMD has been helping to build the highest performing supercomputers in the world for many years, including 24 of the 100 most powerful systems in the most recent Top 500 list.[2]
- Consistency across the AMD Opteron™ 6000 series processors for easy upgradeability and backwards compatibility

How to Sell/Position:

- AMD dedicated cores deliver consistent thread performance for highly scalable workloads.
- 4 memory channels per AMD Opteron™ 6200 Series processor results in outstanding memory bandwidth.

Positioning Guidance

The table below is sorted by descending SPECint®_rate2006 performance. For example, a server using 2 x AMD Opteron™ processors Model 6274 provides higher SPECint®_rate2006 performance than a server using 2 x Intel Xeon™ processor Model E5-2640 AND has a lower total processor 1kU price.

Model	SPECint®_rate2006[3]	SPECfp®_rate2006	SPECint®_rate_base2006	GFLOPs (Theoretical)	Total Processor 1kU Price - 2P*
Intel Xeon™ processor Model E5-2690	705	510	671	371	$4,114
Intel Xeon™ processor Model E5-2680	666	494	640	346	$3,446
Intel Xeon™ processor Model E5-2670	647	486	622	333	$3,104
Intel Xeon™ processor Model E5-2665	617	470	592	307	$2,880
Intel Xeon™ processor Model E5-2660	596	459	572	282	$2,658
AMD Opteron™ processor Model 6284 SE	573	417	499	346	$2,530
AMD Opteron™ processor Model 6282 SE	543	403	474	333	$2,038
Intel Xeon™ processor Model E5-2650	543	433	521	256	$2,214
AMD Opteron™ processor Model 6278	520	394	455	307	$1,978
AMD Opteron™ processor Model 6276	488	376	435	294	$1,576
AMD Opteron™ processor Model 6274	472	369	413	282	$1,278
Intel Xeon™ processor Model E5-2640	466	377	447	240	$1,770
AMD Opteron™ processor Model 6272	463	362	408	269	$1,046
Intel Xeon™ processor Model E5-2630	439	362	420	221	$1,224
AMD Opteron™ processor Model 6238	418	341	367	250	$910
Intel Xeon™ processor Model E5-2620	396	338	379	192	$812
AMD Opteron™ processor Model 6234	388	325	345	230	$754
AMD Opteron™ processor Model 6220	319	277	280	192	$1,046
AMD Opteron™ processor Model 6212	279	249	247	166	$532

*Pricing reflects 1kU tray pricing on www.amd.com and www.intel.com as of June 28, 2012, and is subject to change.

For processors supporting a maximum memory speed of DDR3-1600, theoretical memory bandwidth = 12.8GB/s x number of memory channels per server. For processors supporting a maximum memory speed of DDR3-1333, theoretical memory bandwidth = 10.667GB/s x number of memory channels per server. For AMD Opteron™ processors, theoretical FLOPs = Core Count x Core Frequency x number of processors per server x 4. For Intel Xeon E5-2600 Series processors, theoretical FLOPs = Core Count x Core Frequency x number of processors per server x 8.

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Workload Needs	Why Choose AMD
Floating point capabilities for complex math algorithms	The new Flex FP enables up to 16 floating point units per CPU at 128-bit or 8 floating points units per CPU at 256-bit bringing new levels of flexibility to technical computing.
Large memory footprint and higher bandwidth	The AMD Opteron™ 6200 Series processor has up to 4 memory channels and 3 DIMMs per channel, which allow for more robust memory configurations.
Scalability – compute, memory and I/O that supports high bandwidth interconnects	The AMD Opteron™ 6200 Series processor offers: → Four DDR3-1600 memory channels → Four HT3.1 links running at up to 6.4GT/s → HT Assist improves memory bandwidth → PCI Express® Gen 2 for high speed I/O peripherals (QDR InfiniBand & 10GigE)
Optimized rack space for large installations	The AMD Opteron™ 6200 Series processor has 8-16 physical cores that provide significant compute density to help address the most demanding tasks

Customer Case Studies

Don't just take our word for it! Use these HPC case studies as proof points with your customers:

DownUnder GeoSolutions: www.amd.com/DUGEO

Sherbrooke University: www.amd.com/sherbrooke

Or visit www.amd.com/hpccasestudies

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Additional Reference Materials:

For the latest benchmarking information, visit: **www.amd.com/opteronperformance**

Download the AMD blog concerning the Blue Waters project from http://blogs.amd.com/work/2012/04/04/charting-the-uncharted-waters/?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+amd%2Fwork+%28AMD+at+Work%29

Download the HPC High Performance Linkpack Whitepaper for AMD Opteron 6200 series processors from http://developer.amd.com/Assets/linpack_wp_bd.pdf

Download the Compiler Options Quick Reference Guide from http://developer.amd.com/Assets/CompilerOptQuickRef-62004200.pdf

Download the AMD Opteron 6200 Series Processors Linux Tuning Guide from http://developer.amd.com/Assets/51803A_OpteronLinuxTuning-Guide_SCREEN.pdf

To subscribe to the AMD Developer Central newsletter, register at ssl-developer.amd.com/membership/registration.aspx

Additional information on HPC & AMD at **www.amd.com/hpc**

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