



# SPEC<sup>®</sup> CINT2006 Result

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## Sun Microsystems

### SPECint<sup>®</sup>\_rate2006 = 241

### Sun Blade X6450 (Intel Xeon E7450 2.4GHz)

### SPECint\_rate\_base2006 = 225

CPU2006 license: 6

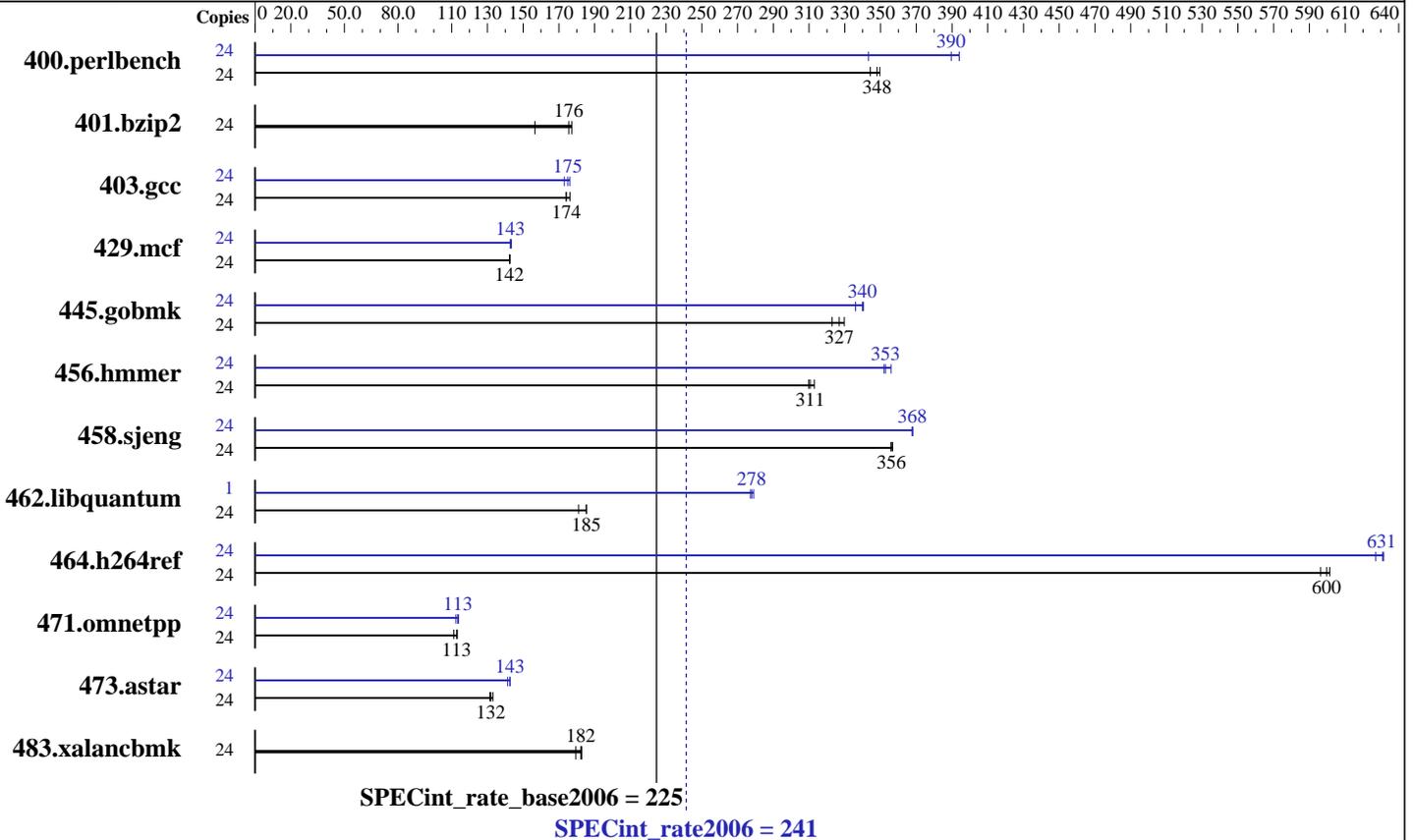
Test sponsor: Sun Microsystems

Tested by: Sun Microsystems

Test date: Aug-2008

Hardware Availability: Sep-2008

Software Availability: Nov-2008



#### Hardware

CPU Name: Intel Xeon E7450  
 CPU Characteristics:  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 24 cores, 4 chips, 6 cores/chip  
 CPU(s) orderable: 2,4 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 9 MB I+D on chip per chip, 3 MB shared / 2 cores  
 L3 Cache: 12 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 32 GB (16x2 GB PC2-5300F, 2 rank, CL5-5-5, ECC)  
 Disk Subsystem: Compact Flash, 16 GB for Linux  
 SAS, 72 GB, 10 K RPM via NFS for SPEC CPU2006  
 Other Hardware: None

#### Software

Operating System: SUSE Linux Enterprise Server 10 (x86\_64) SP1, Kernel 2.6.16.46-0.12-smp  
 Compiler: Intel C++ Compiler 11.0 for Linux Build 20080730 Package ID: l\_cproc\_b\_11.0.042  
 Auto Parallel: Yes  
 File System: NFSv3  
 (See additional details below)  
 System State: Multi-user, run level 3  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Binutils 2.18.50.0.7.20080502  
 Microquill SmartHeap V8.1



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## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	24	681	344	671	350	<b>674</b>	<b>348</b>	24	683	343	<b>602</b>	<b>390</b>	595	394
401.bzip2	24	1479	157	<b>1319</b>	<b>176</b>	1307	177	24	1479	157	<b>1319</b>	<b>176</b>	1307	177
403.gcc	24	1097	176	1111	174	<b>1109</b>	<b>174</b>	24	<b>1104</b>	<b>175</b>	1097	176	1116	173
429.mcf	24	1538	142	1534	143	<b>1537</b>	<b>142</b>	24	1526	143	1533	143	<b>1531</b>	<b>143</b>
445.gobmk	24	780	323	764	330	<b>770</b>	<b>327</b>	24	749	336	<b>741</b>	<b>340</b>	739	341
456.hmmmer	24	<b>721</b>	<b>311</b>	723	310	716	313	24	636	352	<b>635</b>	<b>353</b>	629	356
458.sjeng	24	816	356	814	357	<b>816</b>	<b>356</b>	24	789	368	<b>790</b>	<b>368</b>	790	368
462.libquantum	24	2682	185	2748	181	<b>2683</b>	<b>185</b>	1	74.7	277	<b>74.6</b>	<b>278</b>	74.3	279
464.h264ref	24	891	596	883	601	<b>886</b>	<b>600</b>	24	847	627	<b>842</b>	<b>631</b>	841	632
471.omnetpp	24	1326	113	1349	111	<b>1330</b>	<b>113</b>	24	1318	114	1334	112	<b>1322</b>	<b>113</b>
473.astar	24	1265	133	1283	131	<b>1276</b>	<b>132</b>	24	1181	143	1192	141	<b>1181</b>	<b>143</b>
483.xalancbmk	24	923	179	906	183	<b>909</b>	<b>182</b>	24	923	179	906	183	<b>909</b>	<b>182</b>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Submit Notes

The config file option 'submit' was used.

## Operating System Notes

taskset was used to bind processes to cores except for 462.libquantum peak  
NFS for file system: Sun Fire X4440 with 1 x SAS,72 GB,10 K RPM  
both client and server use onboard ethernet ports connected  
to a 10/100 Ethernet switch.

'ulimit -s unlimited' was used to set the stacksize to unlimited  
OMP\_NUM\_THREADS set to number of cores.  
KMP\_STACKSIZE set to 64M  
KMP\_AFFINITY set to physical,0

## Platform Notes

Default BIOS configuration used (includes this settings):  
Hardware Prefetch : Disabled; Adjacent Sector Prefetch : Disabled

## General Notes

All benchmarks compiled in 32-bit mode except 456.hmmmer  
for peak, was compiled in 64-bit mode



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## Base Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -static -inline-calloc  
-opt-malloc-options=3 -opt-prefetch

C++ benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs  
-L/spec/cpu2006.1.1/lib -lsmartheap

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc

456.hmmer: /opt/intel/Compiler/11.0/042/bin/intel64/icc  
-L/opt/intel/Compiler/11.0/042/ipp/em64t/lib  
-I/opt/intel/Compiler/11.0/042/ipp/em64t/include

C++ benchmarks:

icpc



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## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
456.hmmer: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -ansi-alias -opt-prefetch

401.bzip2: basepeak = yes

403.gcc: -xSSE4.1 -ipo -O3 -no-prec-div -static -inline-alloc  
-opt-malloc-options=3

429.mcf: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -opt-prefetch

445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -O2 -ipo  
-no-prec-div -ansi-alias

456.hmmer: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2  
-ansi-alias

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll4

462.libquantum: -xSSE4.1 -ipo -O3 -no-prec-div -static  
-opt-malloc-options=3 -parallel -par-runtime-control  
-opt-prefetch

464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -ansi-alias -opt-ra-region-strategy=block  
-Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap

473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -ansi-alias -opt-ra-region-strategy=routine  
-Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap

483.xalancbmk: basepeak = yes



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## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revA.20090713.07.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revA.20090713.07.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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