SPEC® CINT2006 Result

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Oracle Corporation

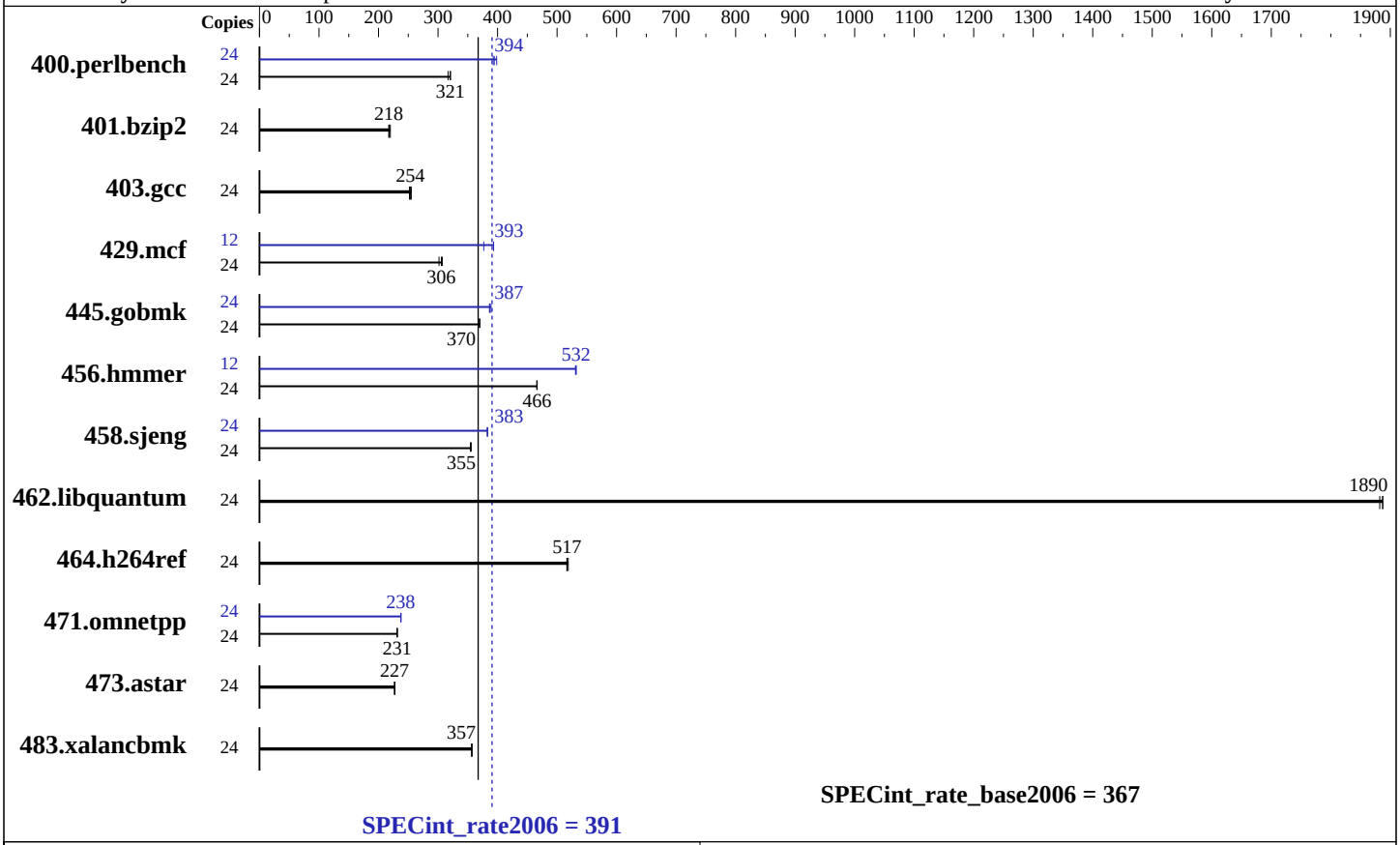
Sun Fire X4170 M2 (Intel Xeon X5675 3.06 GHz)

SPECint®_rate2006 = 391

SPECint_rate_base2006 = 367

CPU2006 license: 6
Test sponsor: Oracle Corporation
Tested by: Oracle Corporation

Test date: May-2011
Hardware Availability: Mar-2011
Software Availability: Nov-2010



Hardware

CPU Name:	Intel Xeon X5675
CPU Characteristics:	Intel Turbo Boost Technology up to 3.46 GHz
CPU MHz:	3067
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	12 MB I+D on chip per chip
Other Cache:	None
Memory:	48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem:	1 x 300 GB 10000 RPM SAS2
Other Hardware:	None

Software

Operating System:	Oracle Linux 5.5 kernel 2.6.18-194.el5
Compiler:	Intel C++ Compiler XE for applications running on IA-32 Version 12.0.1.116 Build 20101116
Auto Parallel:	No
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V9.01

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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	740	317	731	321	**731**	**321**	24	597	393	**594**	**394**	588	399
401.bzip2	24	1053	220	1065	217	**1065**	**218**	24	1053	220	1065	217	**1065**	**218**
403.gcc	24	758	255	**761**	**254**	767	252	24	758	255	**761**	**254**	767	252
429.mcf	24	726	302	**716**	**306**	713	307	12	290	377	**278**	**393**	278	393
445.gobmk	24	**681**	**370**	684	368	680	370	24	652	386	647	389	**651**	**387**
456.hmmer	24	**480**	**466**	480	467	481	466	12	211	531	**211**	**532**	210	532
458.sjeng	24	817	355	**818**	**355**	819	355	24	**758**	**383**	758	383	758	383
462.libquantum	24	**264**	**1890**	264	1890	264	1880	24	**264**	**1890**	264	1890	264	1880
464.h264ref	24	1028	516	**1028**	**517**	1024	519	24	1028	516	**1028**	**517**	1024	519
471.omnetpp	24	**648**	**231**	648	231	648	231	24	631	238	631	238	**631**	**238**
473.astar	24	742	227	741	227	**742**	**227**	24	742	227	741	227	**742**	**227**
483.xalancbmk	24	**464**	**357**	464	357	465	356	24	**464**	**357**	464	357	465	356

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.
numactl was used to bind copies to the cores
```

Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
Hugepages was enabled with the following:
   'nodev   /mnt/hugepages   hugetlbfs  defaults   0 0' added to /etc/fstab
    echo 10800 > /proc/sys/vm/nr_hugepages
    export HUGETLB_MORECORE=yes
    export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

Platform Notes

```
Load Default BIOS Settings and then change the following
  Hardware Prefetch Enabled
  Adjacent Cache Line Prefetch Enabled
  L1 Data Prefetch Enabled
  Data Reuse Optimization Disabled
```

General Notes

```
Binaries were compiled on RHEL5.5 with Binutils binutils-2.17.50.0.6-14.el5
This result is measured on Sun Fire X4170 M2 server.
Note that the Sun Fire X4170 M2 server and Sun Fire X4270 M2 server are
electrically equivalent.
```

Base Compiler Invocation

C benchmarks:
```
icc  -m32
```

C++ benchmarks:
```
icpc -m32
```

Base Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
462.libquantum: `-DSPEC_CPU_LINUX`
483.xalancbmk: `-DSPEC_CPU_LINUX`

Base Optimization Flags

C benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/smartheap -lsmartheap
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT
```

Base Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc  -m32
```

400.perlbench: `icc -m64`

456.hmmer: `icc -m64`

458.sjeng: `icc -m64`

C++ benchmarks:
```
icpc -m32
```

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

401.bzip2: basepeak = yes

403.gcc: basepeak = yes

429.mcf: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-ansi-alias -auto-ilp32

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias -auto-ilp32

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll4 -auto-ilp32
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

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

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.html`
`http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.20110622.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml`
`http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.20110622.xml`

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For other inquiries, please contact webmaster@spec.org.

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