SPEC® CINT2006 Result

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Oracle Corporation

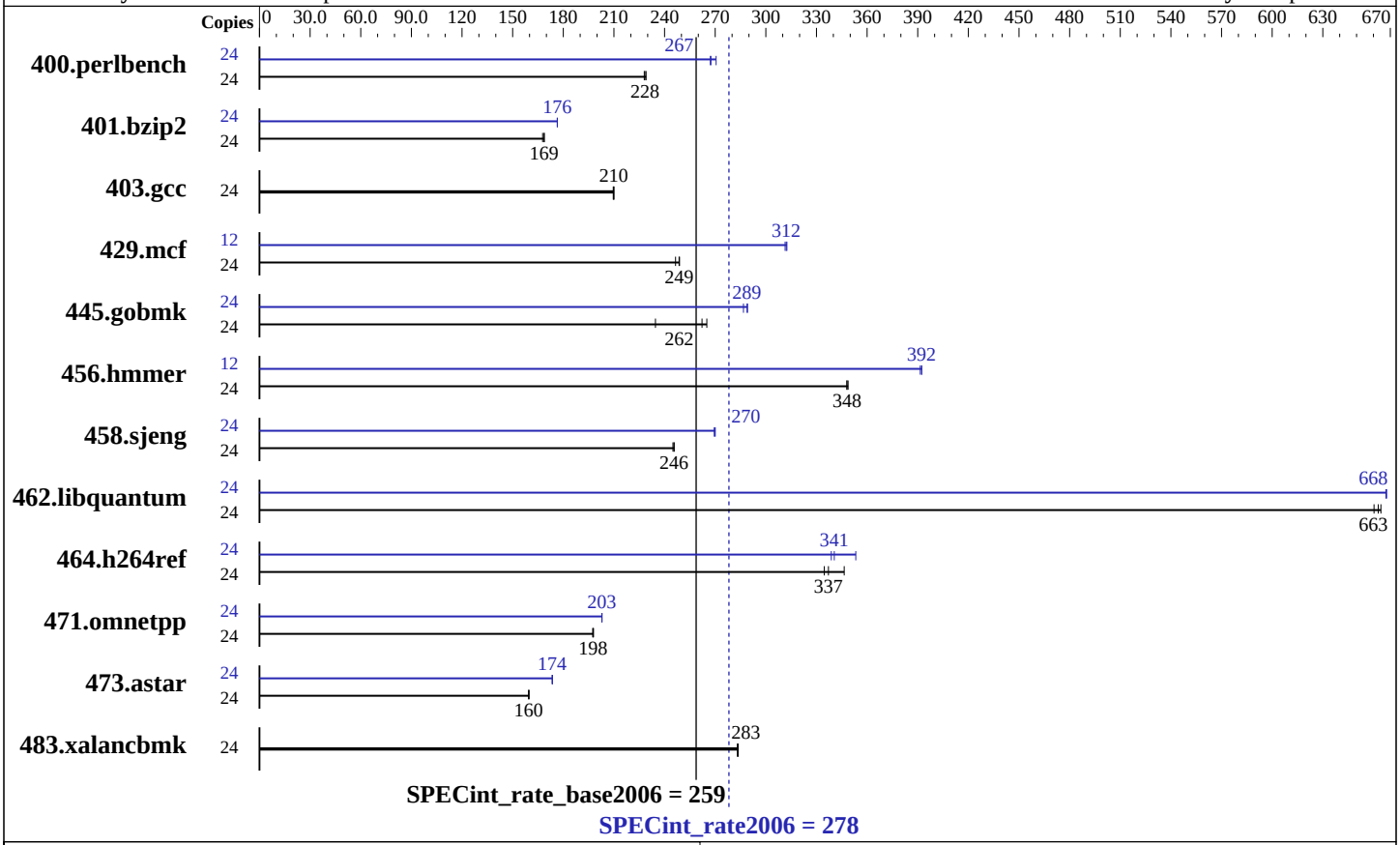
Sun Fire X4170 M2 (Intel Xeon L5640 2.27 GHz)

SPECint®_rate2006 = 278

SPECint_rate_base2006 = 259

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

Test date: Sep-2010
Hardware Availability: Jun-2010
Software Availability: Apr-2010



Hardware

CPU Name:	Intel Xeon L5640
CPU Characteristics:	Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz:	2267
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 cores/chip, 2 threads/core
CPU(s) orderable:	1 or 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 146 GB SAS, 10000 RPM
Other Hardware:	None

Software

Operating System:	Oracle Enterprise Linux Server release 5.5 kernel 2.6.18-194.el5
Compiler:	Intel C++ Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cproc_p_11.1.064
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 V8.1 Binutils 2.18.50.0.7.20080502

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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	1024	229	1029	228	**1027**	**228**	24	867	271	**877**	**267**	878	267
401.bzip2	24	1373	169	1381	168	**1373**	**169**	24	1313	176	1312	177	**1312**	**176**
403.gcc	24	922	210	920	210	**921**	**210**	24	922	210	920	210	**921**	**210**
429.mcf	24	888	247	**880**	**249**	879	249	12	**351**	**312**	351	311	350	312
445.gobmk	24	950	265	**960**	**262**	1073	235	24	**872**	**289**	871	289	878	287
456.hmmer	24	642	349	643	348	**643**	**348**	12	285	392	**285**	**392**	286	391
458.sjeng	24	1182	246	1185	245	**1183**	**246**	24	**1077**	**270**	1078	269	1075	270
462.libquantum	24	**750**	**663**	753	660	748	664	24	745	667	**745**	**668**	745	668
464.h264ref	24	1587	335	1533	346	**1576**	**337**	24	1503	353	1568	339	**1560**	**341**
471.omnetpp	24	760	197	758	198	**759**	**198**	24	739	203	**739**	**203**	740	203
473.astar	24	**1056**	**160**	1057	159	1055	160	24	970	174	**971**	**174**	972	173
483.xalancbmk	24	**584**	**283**	585	283	584	284	24	**584**	**283**	585	283	584	284

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 to invoke the command numactl
to bind copies to the cores.  (For details, please see the config file.)
```

Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
```

Platform Notes

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

General Notes

```
This result is measured on a Sun Fire X4170 M2
server.  The Sun Fire X4170 M2 and the Sun Fire
X4270 M2 are electronically 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 -static -opt-prefetch
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L(path to library) -lsmartheap
```

Base Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

Peak Compiler Invocation

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

401.bzip2: `icc -m64`

456.hmmer: `icc -m64`

458.sjeng: `icc -m64`

462.libquantum: `icc -m64`

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

Continued on next page

Peak Compiler Invocation (Continued)

473.astar: icpc -m64

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
473.astar: -DSPEC_CPU_LP64
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) -static(pass 2)
-prof-use(pass 2) -ansi-alias

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
-prof-use(pass 2) -opt-prefetch -ansi-alias -auto-ilp32

403.gcc: basepeak = yes

429.mcf: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

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

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2
-ansi-alias -auto-ilp32

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
-prof-use(pass 2) -unroll4 -auto-ilp32

462.libquantum: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32
-opt-prefetch

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

Continued on next page

Peak Optimization Flags (Continued)

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(path to library) -lsmartheap`

473.astar: `-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=routine -Wl,-z,muldefs -L(path to library) -lsmartheap64`

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-ic11.1-linux64-revE-pathfix-smartheap.20101027.html
http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.20101027.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE-pathfix-smartheap.20101027.xml
http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.20101027.xml

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