SPEC® CINT2006 Result

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Oracle Corporation

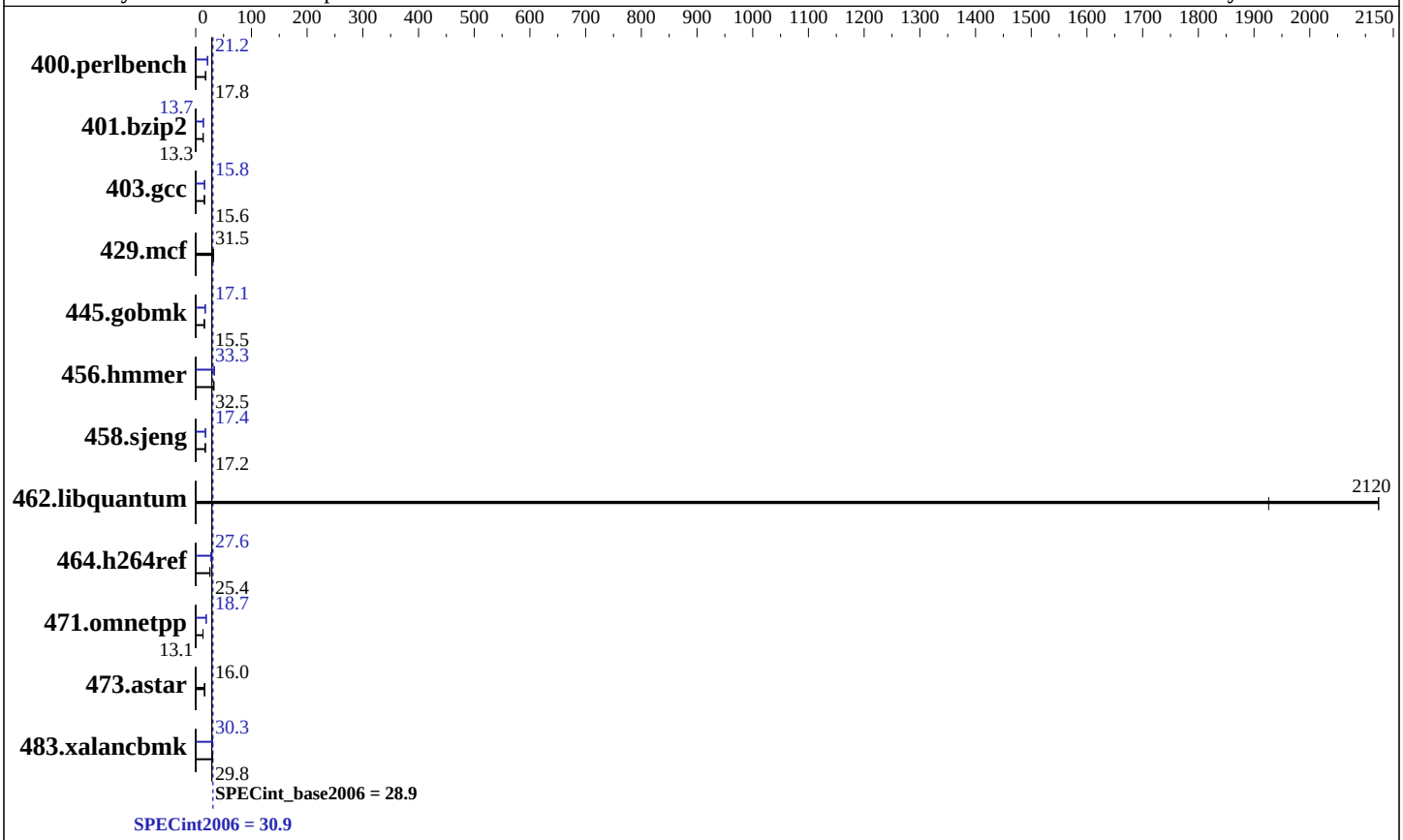
Sun Server X2-4 (Intel Xeon E7-4820 2.0 GHz)

SPECint®2006 = 30.9

SPECint_base2006 = 28.9

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

Test date: Dec-2011
Hardware Availability: Jun-2011
Software Availability: Oct-2011



Hardware

CPU Name:	Intel Xeon E7-4820
CPU Characteristics:	Intel Turbo Boost Technology up to 2.27 GHz
CPU MHz:	2000
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 cores/chip
CPU(s) orderable:	2,4 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:	18 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (64 x 4 GB 2Rx8 PC3L-10600R-9, ECC)
Disk Subsystem:	1 x 300 GB, SATA, 7200 RPM
Other Hardware:	None

Software

Operating System:	Oracle Linux 6.1 kernel 2.6.32-100.34.1.el6uek.x86_64
Compiler:	C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux
Auto Parallel:	Yes
File System:	ext4
System State:	Run level 5 (multi-user)
Base Pointers:	32/64-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V9.01

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	547	17.9	**548**	**17.8**	550	17.8	459	21.3	460	21.2	**460**	**21.2**
401.bzip2	725	13.3	726	13.3	**726**	**13.3**	706	13.7	706	13.7	**706**	**13.7**
403.gcc	**515**	**15.6**	514	15.7	515	15.6	510	15.8	510	15.8	**510**	**15.8**
429.mcf	290	31.4	290	31.5	**290**	**31.5**	290	31.4	290	31.5	**290**	**31.5**
445.gobmk	671	15.6	**678**	**15.5**	679	15.4	615	17.0	615	17.1	**615**	**17.1**
456.hmmer	287	32.5	287	32.5	**287**	**32.5**	280	33.4	280	33.3	**280**	**33.3**
458.sjeng	704	17.2	**704**	**17.2**	705	17.2	**694**	**17.4**	695	17.4	694	17.4
462.libquantum	**9.76**	**2120**	9.76	2120	10.8	1930	**9.76**	**2120**	9.76	2120	10.8	1930
464.h264ref	**871**	**25.4**	872	25.4	871	25.4	**800**	**27.6**	800	27.6	800	27.7
471.omnetpp	478	13.1	477	13.1	**477**	**13.1**	334	18.7	**334**	**18.7**	333	18.8
473.astar	**439**	**16.0**	439	16.0	446	15.7	**439**	**16.0**	439	16.0	446	15.7
483.xalancbmk	**232**	**29.8**	231	29.8	234	29.4	227	30.3	**228**	**30.3**	228	30.3

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

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
```

Platform Notes

```
Load Default BIOS Settings and then change the following
  Intel Hyperthreading Option Disabled

Oracle's Sun Server X2-4 was formerly known as the Sun Fire X4470 M2
```

General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/home/cpu2006v1.2/libs/32:/home/cpu2006v1.2/libs/64"
OMP_NUM_THREADS = "32"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RHEL5.5
```

Base Compiler Invocation

C benchmarks:

```
icc  -m64
```

Continued on next page

Base Compiler Invocation (Continued)

C++ benchmarks:
icpc -m64

Base Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-Wl,-z,muldefs -L/smartheap -lsmartheap64

Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m64

400.perlbench: icc -m32

445.gobmk: icc -m32

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Peak Compiler Invocation (Continued)

464.h264ref: `icc -m32`

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

473.astar: `icpc -m64`

Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
401.bzip2: `-DSPEC_CPU_LP64`
403.gcc: `-DSPEC_CPU_LP64`
429.mcf: `-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) `-prof-use`(pass 2)
`-opt-prefetch -ansi-alias`

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

403.gcc: `-xSSE4.2 -ipo -O3 -no-prec-div -inline-calloc`
`-opt-malloc-options=3 -auto-ilp32`

429.mcf: `basepeak = yes`

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

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

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`

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Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

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

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) -opt-ra-region-strategy=block -ansi-alias -Wl,-z,muldefs -L/smartheap -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias -Wl,-z,muldefs -L/smartheap -lsmartheap

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-ic12.1-official-linux64.20111122.html
http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.CPUv1.2-RevA.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.CPUv1.2-RevA.xml

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