SPEC® CINT2006 Result
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Oracle Corporation

Sun Fire X4470 M2 (Intel Xeon E7-4870 2.40 GHz)

SPECint®_rate2006 = 1080
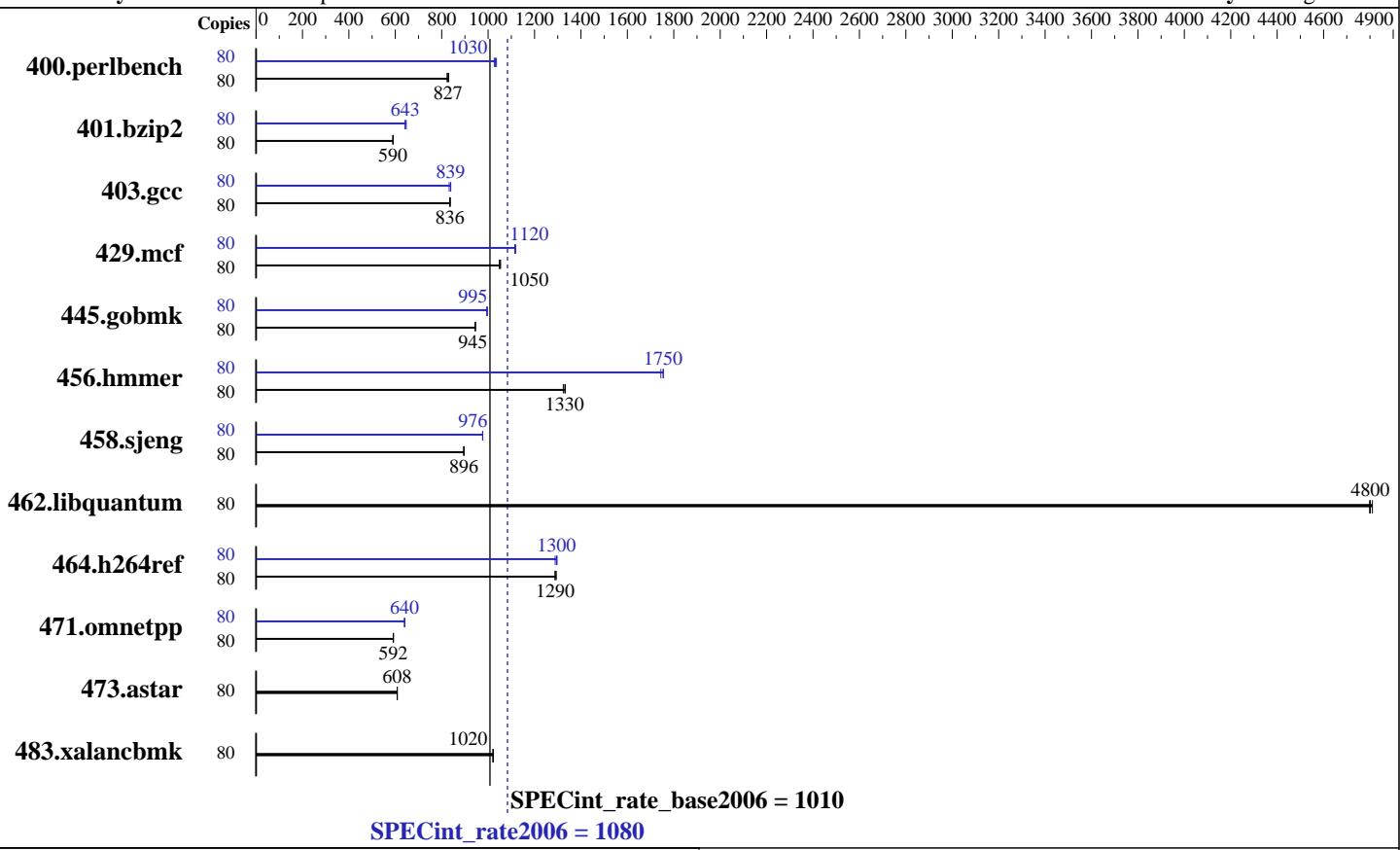
SPECint_rate_base2006 = 1010

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

Test date: Jun-2011
Hardware Availability: Jun-2011
Software Availability: Aug-2011

Benchmark	Copies	Peak	Base
400.perlbench	80	1030	827
401.bzip2	80	643	590
403.gcc	80	839	836
429.mcf	80	1120	1050
445.gobmk	80	995	945
456.hmmer	80	1750	1330
458.sjeng	80	976	896
462.libquantum	80		4800
464.h264ref	80	1300	1290
471.omnetpp	80	640	592
473.astar	80		608
483.xalancbmk	80		1020

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Hardware

CPU Name: Intel Xeon E7-4870
CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz: 2400
FPU: Integrated
CPU(s) enabled: 40 cores, 4 chips, 10 cores/chip, 2 threads/core
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: 30 MB I+D on chip per chip
Other Cache: None
Memory: 512 GB (64 x 8 GB 2Rx8 PC3L-10600R-9, ECC, running at 1066 MHz)
Disk Subsystem: 1 x 500 GB, SATA, 7200 RPM
Other Hardware: None

Software

Operating System: Oracle Linux 6
kernel 2.6.32-100.28.5.el6.x86_64
Compiler: Intel C++ Compiler XE for applications running on IA-32
Version 12.0.1.116 Build 20101116
Auto Parallel: No
File System: ext4
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 Copies	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Copies	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
400.perlbench	80	**946**	**827**	942	830	950	823	80	**758**	**1030**	762	1030	755	1040
401.bzip2	80	1307	591	**1308**	**590**	1310	589	80	1193	647	**1202**	**643**	1202	642
403.gcc	80	769	837	772	834	**771**	**836**	80	**768**	**839**	774	832	768	839
429.mcf	80	696	1050	**694**	**1050**	692	1050	80	**654**	**1120**	654	1120	652	1120
445.gobmk	80	888	946	889	944	**888**	**945**	80	842	997	844	994	**843**	**995**
456.hmmer	80	560	1330	**561**	**1330**	564	1320	80	425	1760	**426**	**1750**	428	1740
458.sjeng	80	1080	896	**1080**	**896**	1082	895	80	**991**	**976**	991	977	992	976
462.libquantum	80	**345**	**4800**	345	4810	345	4800	80	**345**	**4800**	345	4810	345	4800
464.h264ref	80	**1373**	**1290**	1368	1290	1374	1290	80	1374	1290	**1367**	**1300**	1365	1300
471.omnetpp	80	844	592	**845**	**592**	846	591	80	**781**	**640**	781	641	782	639
473.astar	80	923	608	923	608	**923**	**608**	80	923	608	923	608	**923**	**608**
483.xalancbmk	80	**540**	**1020**	540	1020	541	1020	80	**540**	**1020**	540	1020	541	1020

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 36000 > /proc/sys/vm/nr_hugepages
   export HUGETLB_MORECORE=yes
   export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

Platform Notes

```
Default BIOS Settings were used.
```

General Notes

```
Binaries were compiled on RHEL5.5
```

Base Compiler Invocation

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

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Base Compiler Invocation (Continued)

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

      401.bzip2: icc -m64

    456.hmmer: icc -m64

      458.sjeng: icc -m64

C++ benchmarks:
    icpc -m32

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Peak Portability Flags

```
400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
   401.bzip2: -DSPEC_CPU_LP64
  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: -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 -auto-ilp32 -ansi-alias
              -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

    403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div
             -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

    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: -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)
                -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
```

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Peak Optimization Flags (Continued)

471.omnetpp (continued):
```
-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_64.20110808.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_64.20110808.xml

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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