# SPEC® CINT2006 Result

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## NEC Corporation

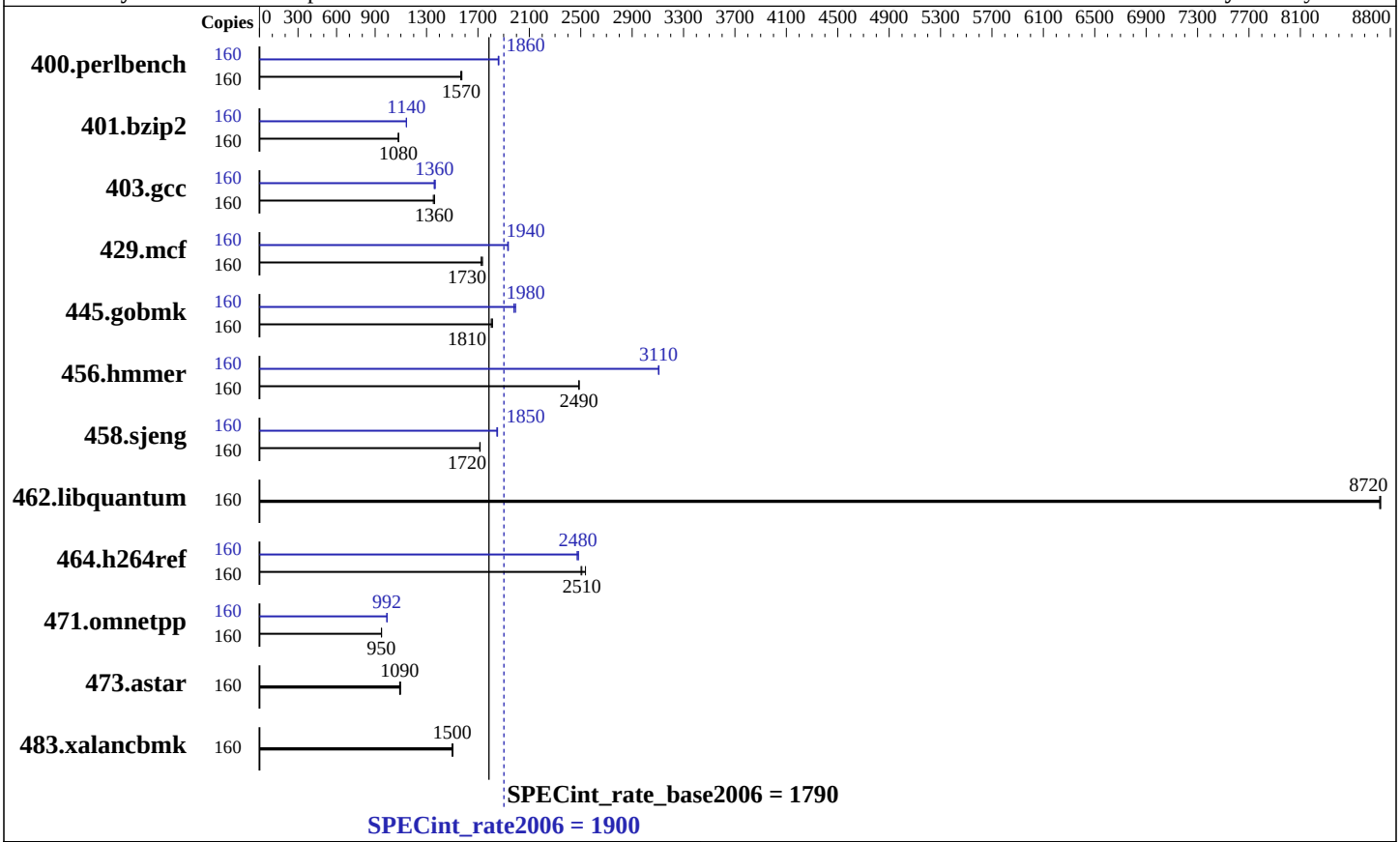
## Express5800/A1080a-E (Intel Xeon E7-8870)

**SPECint®_rate2006 = 1900**

**SPECint_rate_base2006 = 1790**

**CPU2006 license:** 9006
**Test sponsor:** NEC Corporation
**Tested by:** NEC Corporation

**Test date:** Aug-2011
**Hardware Availability:** Nov-2011
**Software Availability:** May-2011




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E7-8870 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 2.80 GHz |
| CPU MHz: | 2400 |
| FPU: | Integrated |
| CPU(s) enabled: | 80 cores, 8 chips, 10 cores/chip, 2 threads/core |
| CPU(s) orderable: | 8 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 (128 x 4 GB 2Rx4 PC3-8500R-7, ECC) |
| Disk Subsystem: | 2x300 GB SAS, 10000 RPM, RAID 0 |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | Red Hat Enterprise Linux Server release 6.1, Kernel 2.6.32-131.0.15.el6.x86_64 on an x86_64 |
| Compiler: | C/C++: Version 12.0.4.191 of Intel Compiler XE for applications on IA-32 Build 20110427 |
| 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 | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 160 | **995** | **1570** | 993 | 1570 | 998 | 1570 | 160 | 839 | 1860 | **840** | **1860** | 841 | 1860 |
| 401.bzip2 | 160 | 1426 | 1080 | 1429 | 1080 | **1428** | **1080** | 160 | **1351** | **1140** | 1349 | 1140 | 1351 | 1140 |
| 403.gcc | 160 | **947** | **1360** | 945 | 1360 | 952 | 1350 | 160 | 947 | 1360 | **946** | **1360** | 941 | 1370 |
| 429.mcf | 160 | 846 | 1730 | **844** | **1730** | 841 | 1740 | 160 | 754 | 1940 | 755 | 1930 | **754** | **1940** |
| 445.gobmk | 160 | **928** | **1810** | 926 | 1810 | 931 | 1800 | 160 | 842 | 1990 | 848 | 1980 | **846** | **1980** |
| 456.hmmer | 160 | **600** | **2490** | 600 | 2490 | 601 | 2490 | 160 | 481 | 3110 | **481** | **3110** | 480 | 3110 |
| 458.sjeng | 160 | 1128 | 1720 | 1129 | 1710 | **1128** | **1720** | 160 | 1045 | 1850 | **1047** | **1850** | 1047 | 1850 |
| 462.libquantum | 160 | **380** | **8720** | 380 | 8720 | 380 | 8720 | 160 | **380** | **8720** | 380 | 8720 | 380 | 8720 |
| 464.h264ref | 160 | 1415 | 2500 | 1396 | 2540 | **1412** | **2510** | 160 | 1433 | 2470 | **1429** | **2480** | 1426 | 2480 |
| 471.omnetpp | 160 | **1053** | **950** | 1053 | 950 | 1054 | 949 | 160 | 1009 | 991 | 1007 | 994 | **1008** | **992** |
| 473.astar | 160 | 1023 | 1100 | 1030 | 1090 | **1028** | **1090** | 160 | 1023 | 1100 | 1030 | 1090 | **1028** | **1090** |
| 483.xalancbmk | 160 | 734 | 1510 | **736** | **1500** | 736 | 1500 | 160 | 734 | 1510 | **736** | **1500** | 736 | 1500 |

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 stack size to unlimited prior to run
echo 1 > /proc/sys/vm/zone_reclaim_mode
Huge pages were not configured for this run
```

## Platform Notes

```
ACPI Type set to Type 3 in BIOS
Patrol Scrubbing set to disabled in Maintenance Console
```

## General Notes

```
Binaries were compiled on RHEL 5.6
```

## Base Compiler Invocation

C benchmarks:

```
icc  -m32
```

Continued on next page

## 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/opt/SmartHeap_9/lib -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

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks:
icpc -m32

## 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_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) -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: -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) -O2
-ipo -no-prec-div -ansi-alias

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
-L/opt/SmartHeap_9/lib -lsmartheap

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## Peak Optimization Flags (Continued)

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.20110705.html`
`http://www.spec.org/cpu2006/flags/NEC-platform-linux64-revF.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.20110705.xml`
`http://www.spec.org/cpu2006/flags/NEC-platform-linux64-revF.xml`


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