# SPEC® CINT2006 Result

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## NEC Corporation

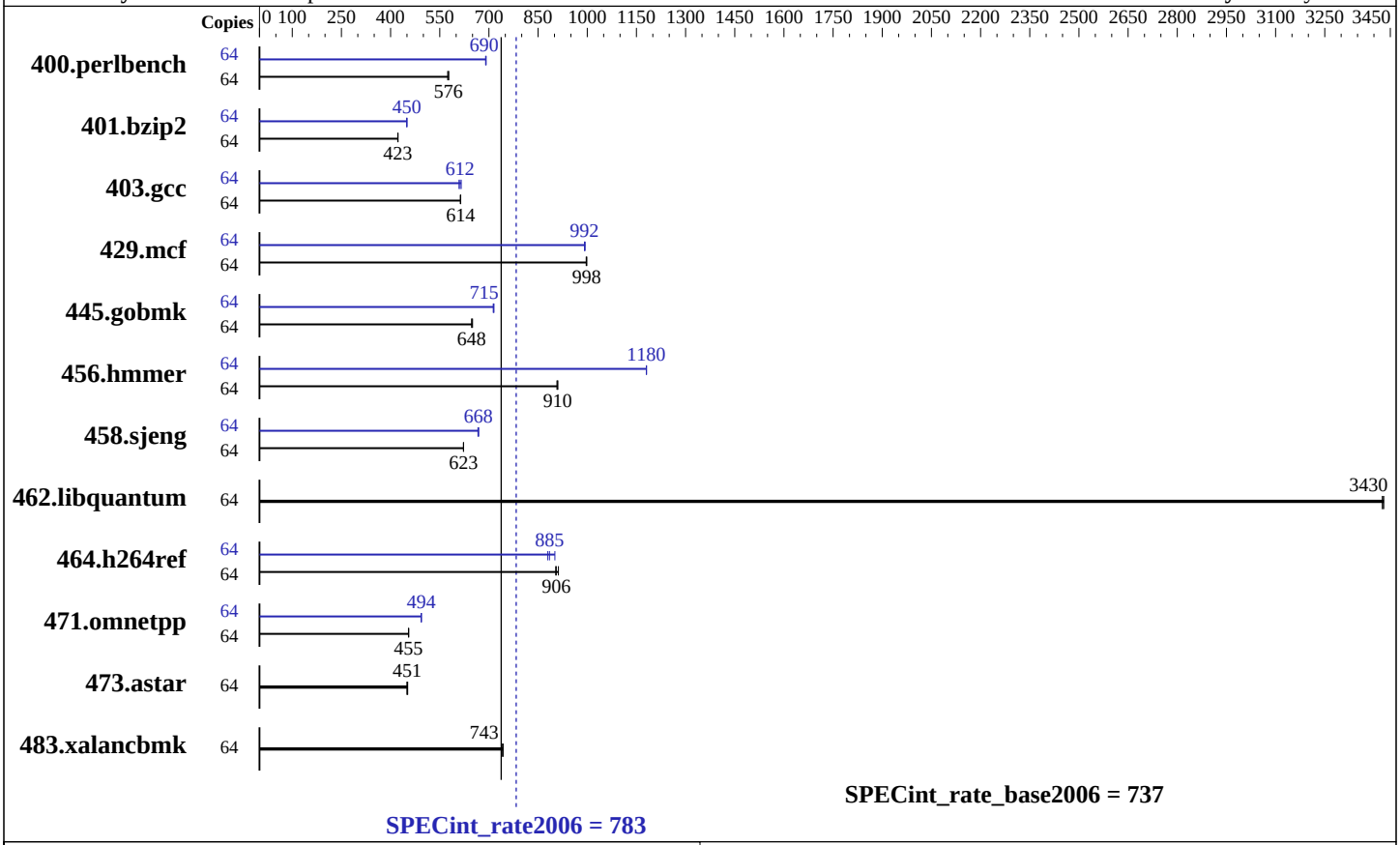
## Express5800/A1080a-D (Intel Xeon E7-8830)

**SPECint®_rate2006 = 783**

**SPECint_rate_base2006 = 737**

**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 E7-8830 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 2.40 GHz |
| CPU MHz: | 2133 |
| FPU: | Integrated |
| CPU(s) enabled: | 32 cores, 4 chips, 8 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1,2,3,4 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: | 24 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 256 GB (64 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 | 64 | **1085** | **576** | 1083 | 577 | 1089 | 574 | 64 | **906** | **690** | 906 | 690 | 904 | 692 |
| 401.bzip2 | 64 | 1462 | 423 | 1464 | 422 | **1462** | **423** | 64 | 1373 | 450 | **1373** | **450** | 1376 | 449 |
| 403.gcc | 64 | **839** | **614** | 839 | 614 | 841 | 613 | 64 | **842** | **612** | 846 | 609 | 837 | 615 |
| 429.mcf | 64 | 585 | 998 | 586 | 997 | **585** | **998** | 64 | 589 | 991 | **589** | **992** | 587 | 994 |
| 445.gobmk | 64 | 1033 | 650 | 1037 | 648 | **1037** | **648** | 64 | 941 | 713 | **939** | **715** | 939 | 715 |
| 456.hmmer | 64 | **656** | **910** | 658 | 907 | 656 | 910 | 64 | **506** | **1180** | 506 | 1180 | 506 | 1180 |
| 458.sjeng | 64 | **1244** | **623** | 1244 | 623 | 1244 | 622 | 64 | 1162 | 667 | 1158 | 669 | **1160** | **668** |
| 462.libquantum | 64 | 387 | 3430 | 387 | 3430 | **387** | **3430** | 64 | 387 | 3430 | 387 | 3430 | **387** | **3430** |
| 464.h264ref | 64 | 1567 | 904 | 1553 | 912 | **1564** | **906** | 64 | 1610 | 880 | 1572 | 901 | **1601** | **885** |
| 471.omnetpp | 64 | **879** | **455** | 879 | 455 | 880 | 455 | 64 | 810 | 494 | **810** | **494** | 811 | 493 |
| 473.astar | 64 | **996** | **451** | 994 | 452 | 999 | 450 | 64 | **996** | **451** | 994 | 452 | 999 | 450 |
| 483.xalancbmk | 64 | 595 | 743 | **595** | **743** | 595 | 742 | 64 | 595 | 743 | **595** | **743** | 595 | 742 |

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

```
Patrol Scrubbing set to disabled in Maintenance Console
```

## General Notes

```
The Express5800/A1080a-S and the Express5800/A1080a-D models are electronically equivalent.
The results have been measured on the Express5800/A1080a-S model.
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-revB.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-revB.xml`


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