# SPEC® CINT2006 Result

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## NEC Corporation

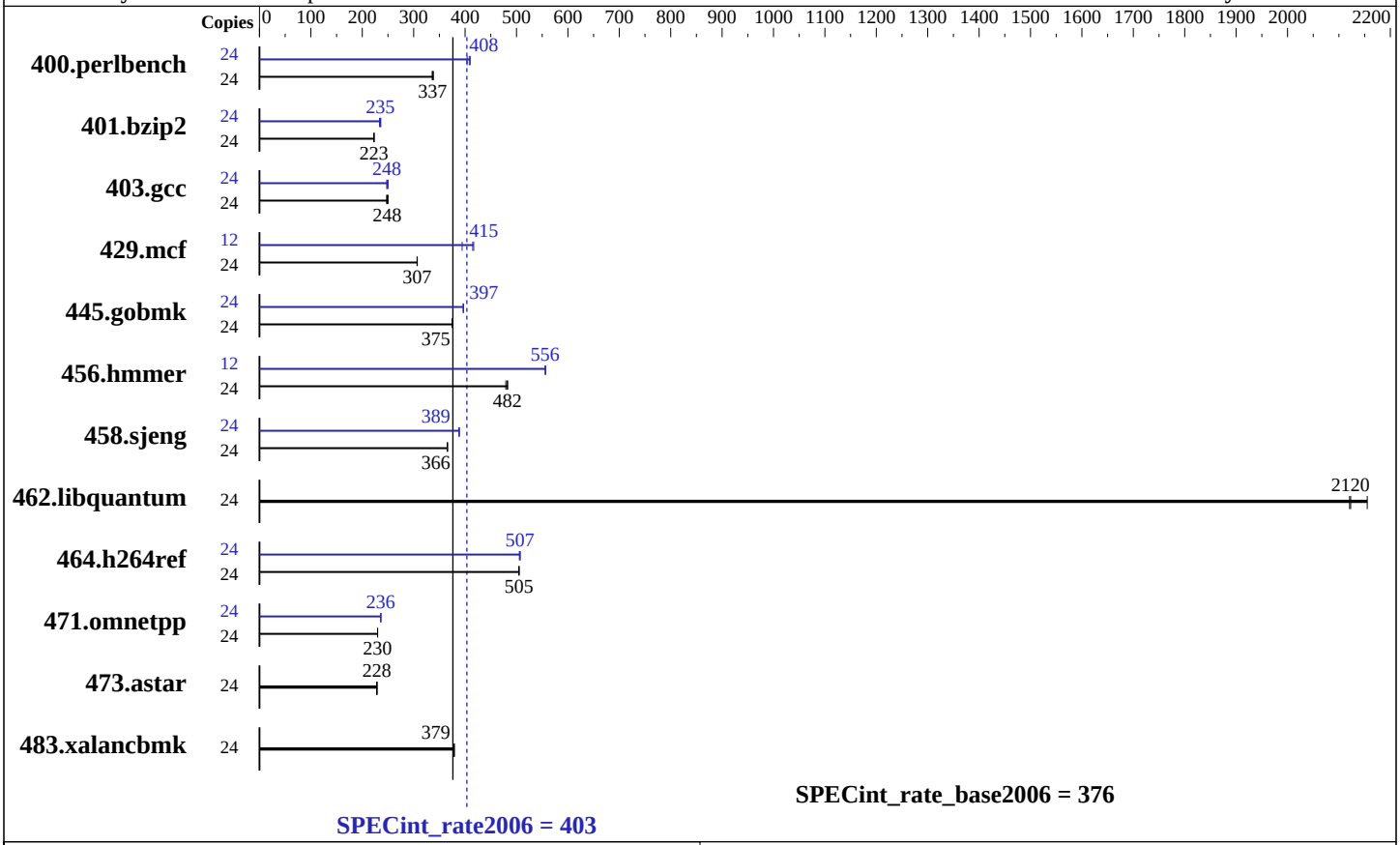
## Express5800/R120b-1 (Intel Xeon X5675)

SPECint®_rate2006 = 403

SPECint_rate_base2006 = 376

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

**Test date:** Jul-2011
**Hardware Availability:** Feb-2011
**Software Availability:** Mar-2011




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X5675 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.46 GHz |
| CPU MHz: | 3067 |
| FPU: | Integrated |
| CPU(s) enabled: | 12 cores, 2 chips, 6 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1,2 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: | 96 GB (12 x 8 GB 2Rx4 PC3-10600R-9, ECC) |
| Disk Subsystem: | 1 x 500 GB SATA, 7200 RPM |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.12-0.7-default |
| Compiler: | Intel C++ Compiler XE for applications running on IA32, Version 12.0.3.174 Build 20110309 |
| 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 |

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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 | 693 | 338 | 697 | 336 | **697** | **337** | 24 | 572 | 410 | 581 | 404 | **575** | **408** |
| 401.bzip2 | 24 | 1038 | 223 | 1041 | 222 | **1040** | **223** | 24 | 992 | 234 | **984** | **235** | 981 | 236 |
| 403.gcc | 24 | **778** | **248** | 781 | 247 | 772 | 250 | 24 | 780 | 248 | 772 | 250 | **779** | **248** |
| 429.mcf | 24 | 714 | 306 | 713 | 307 | **713** | **307** | 12 | 263 | 417 | 278 | 394 | **264** | **415** |
| 445.gobmk | 24 | 671 | 375 | **671** | **375** | 671 | 375 | 24 | 634 | 397 | 635 | 396 | **635** | **397** |
| 456.hmmer | 24 | 464 | 483 | **464** | **482** | 467 | 479 | 12 | 201 | 556 | **201** | **556** | 201 | 557 |
| 458.sjeng | 24 | **794** | **366** | 794 | 366 | 795 | 365 | 24 | **747** | **389** | 747 | 389 | 748 | 388 |
| 462.libquantum | 24 | 231 | 2160 | **234** | **2120** | 234 | 2120 | 24 | 231 | 2160 | **234** | **2120** | 234 | 2120 |
| 464.h264ref | 24 | 1053 | 504 | 1051 | 505 | **1052** | **505** | 24 | 1047 | 507 | 1051 | 506 | **1048** | **507** |
| 471.omnetpp | 24 | 652 | 230 | 653 | 230 | **653** | **230** | 24 | 636 | 236 | 636 | 236 | **636** | **236** |
| 473.astar | 24 | 736 | 229 | 739 | 228 | **738** | **228** | 24 | 736 | 229 | 739 | 228 | **738** | **228** |
| 483.xalancbmk | 24 | **437** | **379** | 437 | 379 | 438 | 378 | 24 | **437** | **379** | 437 | 379 | 438 | 378 |

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
Huge pages were not configured for this run
```

## Platform Notes

```
BIOS Settings:
Performance/Watt: Traditional
Server Class: Custom
Data Reuse Optimization: Disabled
Memory Voltage: Normal
```

## General Notes

```
The Express5800/R120b-1 and
the Express5800/R120b-2 models are electronically equivalent.
The results have been measured on the Express5800/R120b-1 model.
```

## 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 -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_8.1/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

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

Continued on next page

## Peak Compiler Invocation (Continued)

C++ benchmarks:
icpc -m32

## 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

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## Peak Optimization Flags (Continued)

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_8.1/lib -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/NEC-Intel-Linux-Settings-flags-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.xml`
`http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revF.xml`


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For other inquiries, please contact webmaster@spec.org.

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