# SPEC® CINT2006 Result

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## NEC Corporation

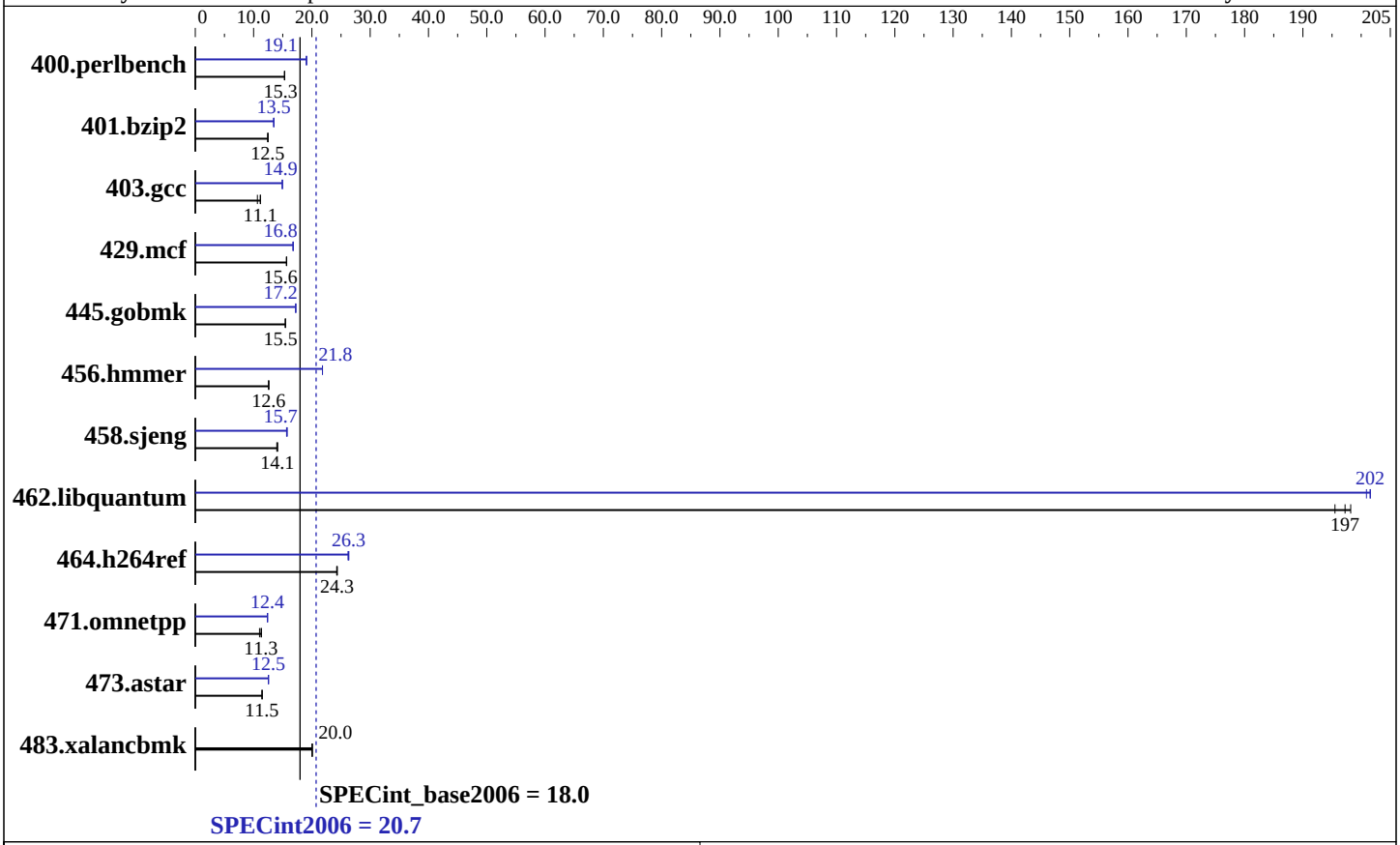
Express5800/140Ba-10
(Intel Xeon E7340)

SPECint®2006 = 20.7

SPECint_base2006 = 18.0

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

**Test date:** Mar-2008
**Hardware Availability:** Sep-2007
**Software Availability:** Nov-2007




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E7340 |
| CPU Characteristics: | 2.40 GHz, 2x4 MB L2 shared, 1066 MHz bus |
| CPU MHz: | 2400 |
| FPU: | Integrated |
| CPU(s) enabled: | 16 cores, 4 chips, 4 cores/chip |
| CPU(s) orderable: | 1,2,3,4 chips |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 8 MB I+D on chip per chip, 4 MB shared / 2 cores |
| L3 Cache: | None |
| Other Cache: | None |
| Memory: | 16 GB (16x1 GB PC2-5300F, 2 rank, CL5-5-5, ECC) |
| Disk Subsystem: | 1x73.2 GB SAS, 10000RPM |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp |
| Compiler: | Intel C++ Compiler for Linux32 and Linux64 version 10.1 Build 20070913 Package ID: l_cc_p_10.1.008 |
| Auto Parallel: | Yes |
| File System: | ext2 |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 32-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | MicroQuill SmartHeap library 8.1 binutils-2.17.tar.gz, Version 2.17 |

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## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 637 | 15.3 | 638 | 15.3 | **638** | **15.3** | 512 | 19.1 | 513 | 19.0 | **512** | **19.1** |
| 401.bzip2 | 774 | 12.5 | **775** | **12.5** | 777 | 12.4 | 716 | 13.5 | 719 | 13.4 | **716** | **13.5** |
| 403.gcc | 720 | 11.2 | **722** | **11.1** | 756 | 10.7 | 538 | 15.0 | **539** | **14.9** | 540 | 14.9 |
| 429.mcf | 583 | 15.6 | **583** | **15.6** | 582 | 15.7 | 542 | 16.8 | **543** | **16.8** | 544 | 16.8 |
| 445.gobmk | 679 | 15.5 | **679** | **15.5** | 679 | 15.5 | 609 | 17.2 | 609 | 17.2 | **609** | **17.2** |
| 456.hmmer | 741 | 12.6 | **741** | **12.6** | 741 | 12.6 | 428 | 21.8 | **428** | **21.8** | 428 | 21.8 |
| 458.sjeng | 865 | 14.0 | **859** | **14.1** | 857 | 14.1 | 773 | 15.7 | **770** | **15.7** | 767 | 15.8 |
| 462.libquantum | 105 | 198 | **105** | **197** | 106 | 196 | 103 | 201 | **103** | **202** | 103 | 202 |
| 464.h264ref | **910** | **24.3** | 908 | 24.4 | 912 | 24.3 | 845 | 26.2 | **841** | **26.3** | 840 | 26.3 |
| 471.omnetpp | 567 | 11.0 | **554** | **11.3** | 551 | 11.4 | 505 | 12.4 | 505 | 12.4 | **505** | **12.4** |
| 473.astar | 612 | 11.5 | **613** | **11.5** | 613 | 11.4 | 560 | 12.5 | **559** | **12.5** | 559 | 12.6 |
| 483.xalancbmk | 344 | 20.0 | 344 | 20.1 | **344** | **20.0** | 344 | 20.0 | 344 | 20.1 | **344** | **20.0** |

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

## Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
OMP_NUM_THREADS set to number of cores

## General Notes

All benchmarks compiled in 32-bit mode except 401.bzip2 and 456.hmmer,
for peak, are compiled in 64-bit mode

## Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

## Base Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

## Base Optimization Flags

C benchmarks:
```
-fast -vec-guard-write -parallel -par-runtime-control
```

C++ benchmarks:
```
-xT -ipo -O3 -no-prec-div -Wl,-z,muldefs
-L/opt/SmartHeap_8.1/lib -lsmartheap
```

## Base Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

## Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc
```

401.bzip2:
```
/opt/intel/cce/10.1.008/bin/icc
-L/opt/intel/cce/10.1.008/lib
-I/opt/intel/cce/10.1.008/include
```

456.hmmer:
```
/opt/intel/cce/10.1.008/bin/icc
-L/opt/intel/cce/10.1.008/lib
-I/opt/intel/cce/10.1.008/include
```

C++ benchmarks:
```
icpc
```

## Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
401.bzip2: `-DSPEC_CPU_LP64`
456.hmmer: `-DSPEC_CPU_LP64`
462.libquantum: `-DSPEC_CPU_LINUX`
483.xalancbmk: `-DSPEC_CPU_LINUX`

## Peak Optimization Flags

C benchmarks:

Continued on next page

## Peak Optimization Flags (Continued)

400.perlbench: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -ansi-alias -prefetch`

401.bzip2: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -prefetch -auto-ilp32`

403.gcc: `-fast -inline-calloc -opt-malloc-options=3`

429.mcf: `-fast -prefetch`

445.gobmk: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xT -O2 -ipo -no-prec-div -ansi-alias`

456.hmmer: `-fast -unroll2 -ansi-alias -opt-multi-version-aggressive -auto-ilp32`

458.sjeng: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll4`

462.libquantum: `-fast -unroll4 -Ob0 -prefetch -opt-streaming-stores always -vec-guard-write -opt-malloc-options=3 -parallel -par-runtime-control`

464.h264ref: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll2 -ansi-alias`

C++ benchmarks:

471.omnetpp: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xT -O3 -ipo -no-prec-div -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs -L/opt/SmartHeap_8.1/lib -lsmartheap`

473.astar: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xT -O3 -ipo -no-prec-div -ansi-alias -opt-ra-region-strategy=routine -Wl,-z,muldefs -L/opt/SmartHeap_8.1/lib -lsmartheap`

483.xalancbmk: `basepeak = yes`

## Peak Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/NEC-Intel-ic10.1-INT-ia32-linux-flags.20090713.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/NEC-Intel-ic10.1-INT-ia32-linux-flags.20090713.xml`


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Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 18:16:37 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 8 April 2008.