# SPEC® CINT2006 Result

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## NEC Corporation

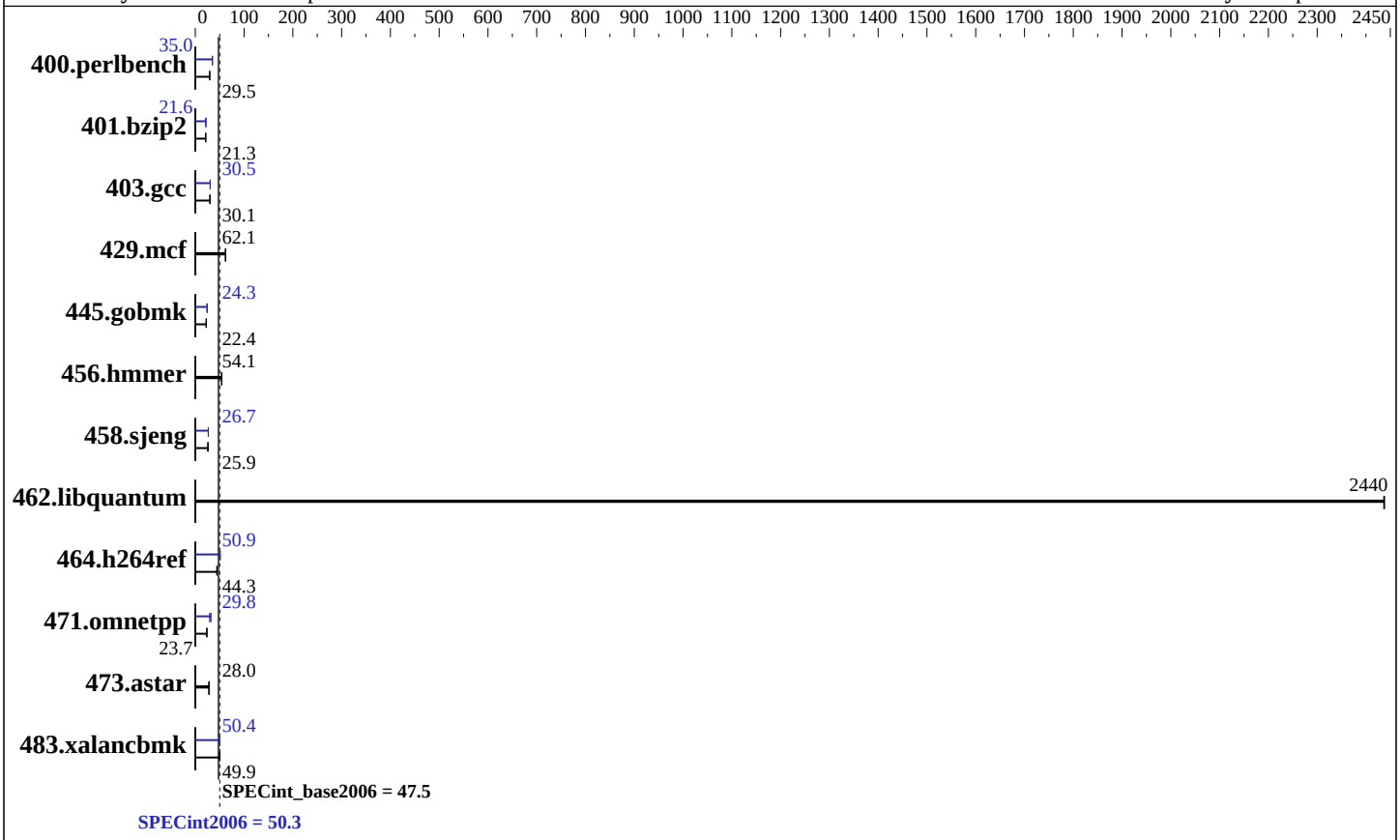
Express5800/R120e-2M (Intel Xeon E5-2630 v2)

SPECint®2006 = 50.3

SPECint_base2006 = 47.5

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

**Test date:** Nov-2013
**Hardware Availability:** Sep-2013
**Software Availability:** Sep-2013




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2630 v2 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.10 GHz |
| CPU MHz: | 2600 |
| 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: | 15 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 256 GB (16 x 16 GB 2Rx4 PC3L-12800R-11, ECC) |
| Disk Subsystem: | 1 x 300 GB SAS, 10000 RPM, RAID 0 |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | Red Hat Enterprise Linux Server release 6.4 (Santiago)<br>Kernel 2.6.32-358.18.1.el6.x86_64 |
| Compiler: | C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux |
| Auto Parallel: | Yes |
| File System: | ext4 |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 32/64-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | Microquill SmartHeap V8.1 |

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## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 331 | 29.5 | 332 | 29.5 | **331** | **29.5** | 279 | 35.0 | 278 | 35.1 | **279** | **35.0** |
| 401.bzip2 | 452 | 21.3 | 453 | 21.3 | **453** | **21.3** | **446** | **21.6** | 446 | 21.6 | 446 | 21.6 |
| 403.gcc | 268 | 30.1 | **268** | **30.1** | 268 | 30.0 | 263 | 30.6 | **264** | **30.5** | 264 | 30.4 |
| 429.mcf | 146 | 62.5 | **147** | **62.1** | 148 | 61.5 | 146 | 62.5 | **147** | **62.1** | 148 | 61.5 |
| 445.gobmk | 468 | 22.4 | **468** | **22.4** | 468 | 22.4 | 432 | 24.3 | **432** | **24.3** | 433 | 24.2 |
| 456.hmmer | 172 | 54.2 | **173** | **54.1** | 173 | 54.0 | 172 | 54.2 | **173** | **54.1** | 173 | 54.0 |
| 458.sjeng | 466 | 26.0 | 468 | 25.9 | **467** | **25.9** | 454 | 26.7 | 453 | 26.7 | **454** | **26.7** |
| 462.libquantum | 8.50 | 2440 | 8.50 | 2440 | **8.50** | **2440** | 8.50 | 2440 | 8.50 | 2440 | **8.50** | **2440** |
| 464.h264ref | 500 | 44.3 | 498 | 44.4 | **499** | **44.3** | **435** | **50.9** | 434 | 50.9 | 436 | 50.7 |
| 471.omnetpp | 264 | 23.6 | 263 | 23.8 | **264** | **23.7** | 194 | 32.3 | **210** | **29.8** | 210 | 29.7 |
| 473.astar | 248 | 28.3 | 252 | 27.9 | **250** | **28.0** | 248 | 28.3 | 252 | 27.9 | **250** | **28.0** |
| 483.xalancbmk | 138 | 50.0 | **138** | **49.9** | 138 | 49.9 | 137 | 50.4 | 137 | 50.4 | **137** | **50.4** |

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

## Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
```

## Platform Notes

```
BIOS Settings:
 Energy Performance: Performance
 Memory Voltage: 1.5 V
 Package C state Limit: C0
```

## General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"
OMP_NUM_THREADS = "12"

 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
 The Express5800/R120e-1M and
 the Express5800/R120e-2M models are electronically equivalent.
 The results have been measured on the Express5800/R120e-2M model.
```

## Base Compiler Invocation

C benchmarks:
```
icc  -m64
```

C++ benchmarks:
```
icpc -m64
```

## Base Portability Flags

400.perlbench: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64`
401.bzip2: `-DSPEC_CPU_LP64`
403.gcc: `-DSPEC_CPU_LP64`
429.mcf: `-DSPEC_CPU_LP64`
445.gobmk: `-DSPEC_CPU_LP64`
456.hmmer: `-DSPEC_CPU_LP64`
458.sjeng: `-DSPEC_CPU_LP64`
462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`
464.h264ref: `-DSPEC_CPU_LP64`
471.omnetpp: `-DSPEC_CPU_LP64`
473.astar: `-DSPEC_CPU_LP64`
483.xalancbmk: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

## Base Optimization Flags

C benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32
```

C++ benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -Wl,-z,muldefs
-L/sh -lsmartheap64
```

## Base Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

## Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc  -m64
```

Continued on next page

## Peak Compiler Invocation (Continued)

400.perlbench: `icc -m32`

445.gobmk: `icc -m32`

464.h264ref: `icc -m32`

C++ benchmarks (except as noted below):
`icpc -m32`

473.astar: `icpc -m64`

## Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
401.bzip2: `-DSPEC_CPU_LP64`
403.gcc: `-DSPEC_CPU_LP64`
429.mcf: `-DSPEC_CPU_LP64`
456.hmmer: `-DSPEC_CPU_LP64`
458.sjeng: `-DSPEC_CPU_LP64`
462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`
473.astar: `-DSPEC_CPU_LP64`
483.xalancbmk: `-DSPEC_CPU_LINUX`

## Peak Optimization Flags

C benchmarks:

400.perlbench: `-xAVX`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2) `-opt-prefetch -ansi-alias`

401.bzip2: `-xAVX`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div -prof-use`(pass 2) `-auto-ilp32 -opt-prefetch -ansi-alias`

403.gcc: `-xAVX -ipo -O3 -no-prec-div -inline-calloc -opt-malloc-options=3 -auto-ilp32`

429.mcf: `basepeak = yes`

445.gobmk: `-xAVX`(pass 2) `-prof-gen`(pass 1) `-prof-use`(pass 2) `-ansi-alias`

456.hmmer: `basepeak = yes`

Continued on next page

## Peak Optimization Flags (Continued)

458.sjeng: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4

462.libquantum: basepeak = yes

464.h264ref: -xAVX(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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -opt-ra-region-strategy=block -ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap

## 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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120-RevB.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120-RevB.xml


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