# SPEC® CINT2006 Result
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## NEC Corporation

SPECint®_rate2006 = 322

Express5800/T120f (Intel Xeon E5-2609 v3)

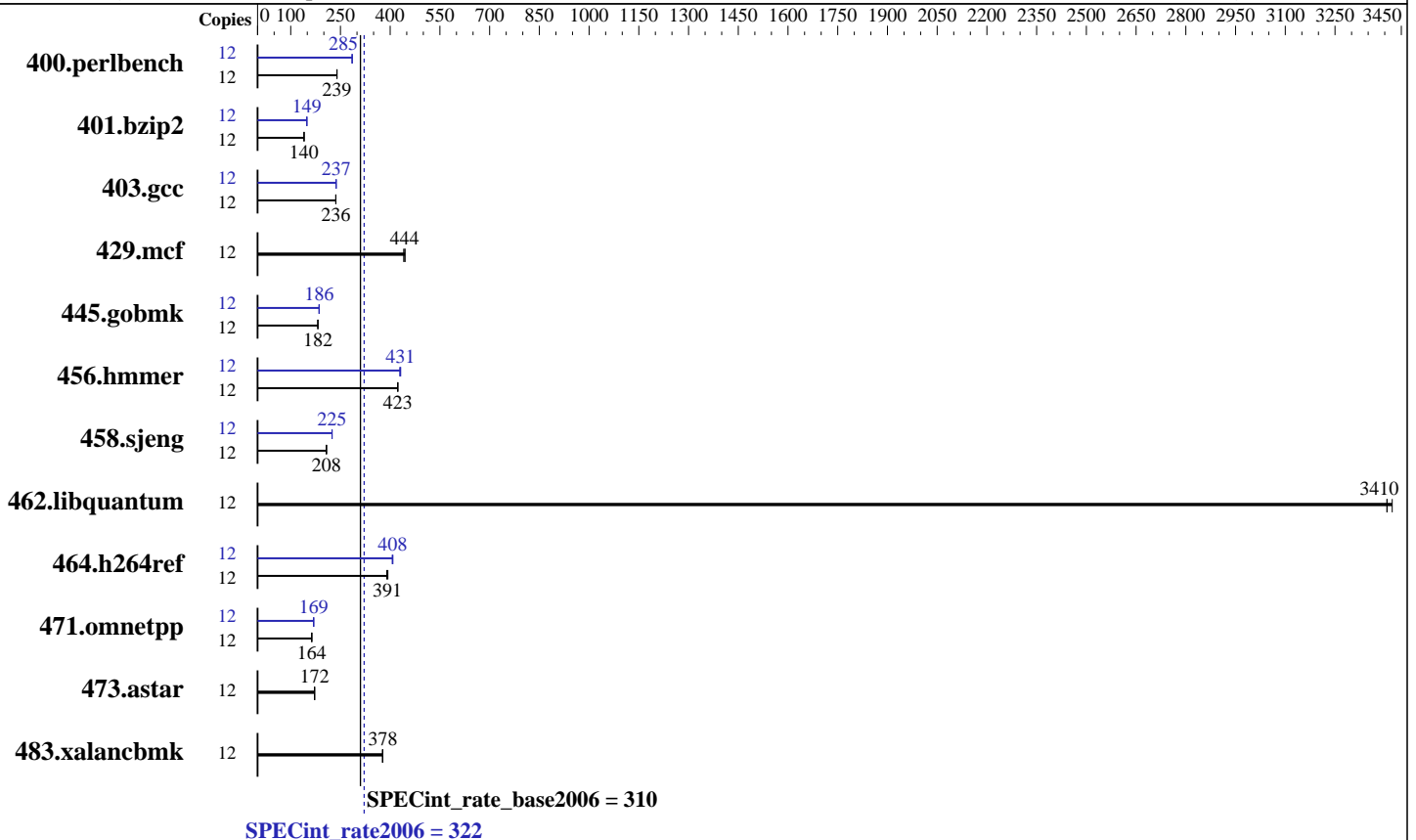SPECint_rate_base2006 = 310

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

**Test date:** Mar-2015  
**Hardware Availability:** Jan-2015  
**Software Availability:** Jul-2014

| Benchmark | Copies | Value |
|---|---|---|
| 400.perlbench | 12 / 12 | 285 / 239 |
| 401.bzip2 | 12 / 12 | 149 / 140 |
| 403.gcc | 12 / 12 | 237 / 236 |
| 429.mcf | 12 | 444 |
| 445.gobmk | 12 / 12 | 186 / 182 |
| 456.hmmer | 12 / 12 | 431 / 423 |
| 458.sjeng | 12 / 12 | 225 / 208 |
| 462.libquantum | 12 | 3410 |
| 464.h264ref | 12 / 12 | 408 / 391 |
| 471.omnetpp | 12 / 12 | 169 / 164 |
| 473.astar | 12 | 172 |
| 483.xalancbmk | 12 | 378 |

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## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2609 v3 |
| CPU Characteristics: | |
| CPU MHz: | 1900 |
| FPU: | Integrated |
| CPU(s) enabled: | 12 cores, 2 chips, 6 cores/chip |
| 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 PC4-2133P-R, running at 1600 MHz) |
| Disk Subsystem: | 1 x 250 GB SATA, 7200 RPM |
| Other Hardware: | None |

## Software

| | |
|---|---|
| Operating System: | Red Hat Enterprise Linux Server release 6.5 (Santiago) Kernel 2.6.32-431.20.3.el6.x86_64 |
| Compiler: | C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux |
| 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 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 | 12 | 489 | 240 | **490** | **239** | 490 | 239 | 12 | 410 | 286 | 411 | 285 | **411** | **285** |
| 401.bzip2 | 12 | 823 | 141 | 828 | 140 | **826** | **140** | 12 | 779 | 149 | 778 | 149 | **779** | **149** |
| 403.gcc | 12 | 410 | 236 | **409** | **236** | 409 | 236 | 12 | 408 | 237 | 407 | 237 | **408** | **237** |
| 429.mcf | 12 | **246** | **444** | 246 | 445 | 248 | 441 | 12 | **246** | **444** | 246 | 445 | 248 | 441 |
| 445.gobmk | 12 | 691 | 182 | 692 | 182 | **692** | **182** | 12 | 678 | 186 | 678 | 186 | **678** | **186** |
| 456.hmmer | 12 | 265 | 423 | 264 | 423 | **265** | **423** | 12 | 261 | 429 | 259 | 432 | **260** | **431** |
| 458.sjeng | 12 | 702 | 207 | **698** | **208** | 697 | 208 | 12 | **646** | **225** | 647 | 225 | 646 | 225 |
| 462.libquantum | 12 | 73.0 | 3410 | 72.6 | 3420 | **73.0** | **3410** | 12 | 73.0 | 3410 | 72.6 | 3420 | **73.0** | **3410** |
| 464.h264ref | 12 | 676 | 393 | **679** | **391** | 681 | 390 | 12 | 651 | 408 | 654 | 406 | **652** | **408** |
| 471.omnetpp | 12 | 458 | 164 | **458** | **164** | 460 | 163 | 12 | 442 | 170 | 444 | 169 | **444** | **169** |
| 473.astar | 12 | 489 | 172 | 490 | 172 | **489** | **172** | 12 | 489 | 172 | 490 | 172 | **489** | **172** |
| 483.xalancbmk | 12 | **219** | **378** | 219 | 378 | 220 | 377 | 12 | **219** | **378** | 219 | 378 | 220 | 377 |

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

## Submit Notes

    The numactl mechanism was used to bind copies to processors. The config file option 'submit'
    was used to generate numactl commands to bind each copy to a specific processor.
    For details, please see the config file.

## Operating System Notes

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

## Platform Notes

    BIOS Settings:
      Power Management Policy: Custom
      Energy Performance: Performance
      Patrol Scrub: Disabled

## General Notes

    Environment variables set by runspec before the start of the run:
    LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"

    Transparent Huge Pages enabled with:
    echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
    Filesystem page cache cleared with:
    echo 1 > /proc/sys/vm/drop_caches
    runspec command invoked through numactl i.e.:
    numactl --interleave=all runspec <etc>

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## Base Compiler Invocation

C benchmarks:
```
icc  -m32 -L/opt/intel/composer_xe_2015/lib/ia32
```

C++ benchmarks:
```
icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
```

## Base Portability Flags

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

## Base Optimization Flags

C benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-opt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh -lsmartheap
```

## Base Other Flags

C benchmarks:

```
    403.gcc: -Dalloca=_alloca
```

## Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc  -m32 -L/opt/intel/composer_xe_2015/lib/ia32
```

```
    400.perlbench: icc -m64
```

```
    401.bzip2: icc -m64
```

```
    456.hmmer: icc -m64
```

```
    458.sjeng: icc -m64
```

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## Peak Compiler Invocation (Continued)

C++ benchmarks:
    icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

## 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: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                   -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
                   -auto-ilp32

       401.bzip2: -xCORE-AVX2(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

         403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div

         429.mcf: basepeak = yes

       445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
                  -ansi-alias -opt-mem-layout-trans=3

       456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

       458.sjeng: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                  -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
                  -unroll4 -auto-ilp32

    462.libquantum: basepeak = yes

      464.h264ref: -xCORE-AVX2(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:

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# Peak Optimization Flags (Continued)

471.omnetpp: `-xCORE-AVX2(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/sh -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-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-120f-RevC.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-120f-RevC.xml

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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