# SPEC® CINT2006 Result

## Fujitsu

PRIMERGY RX200 S7, Intel Xeon E5-2660, 2.20 GHz

$SPECint^{®}\_rate2006 =$ 301

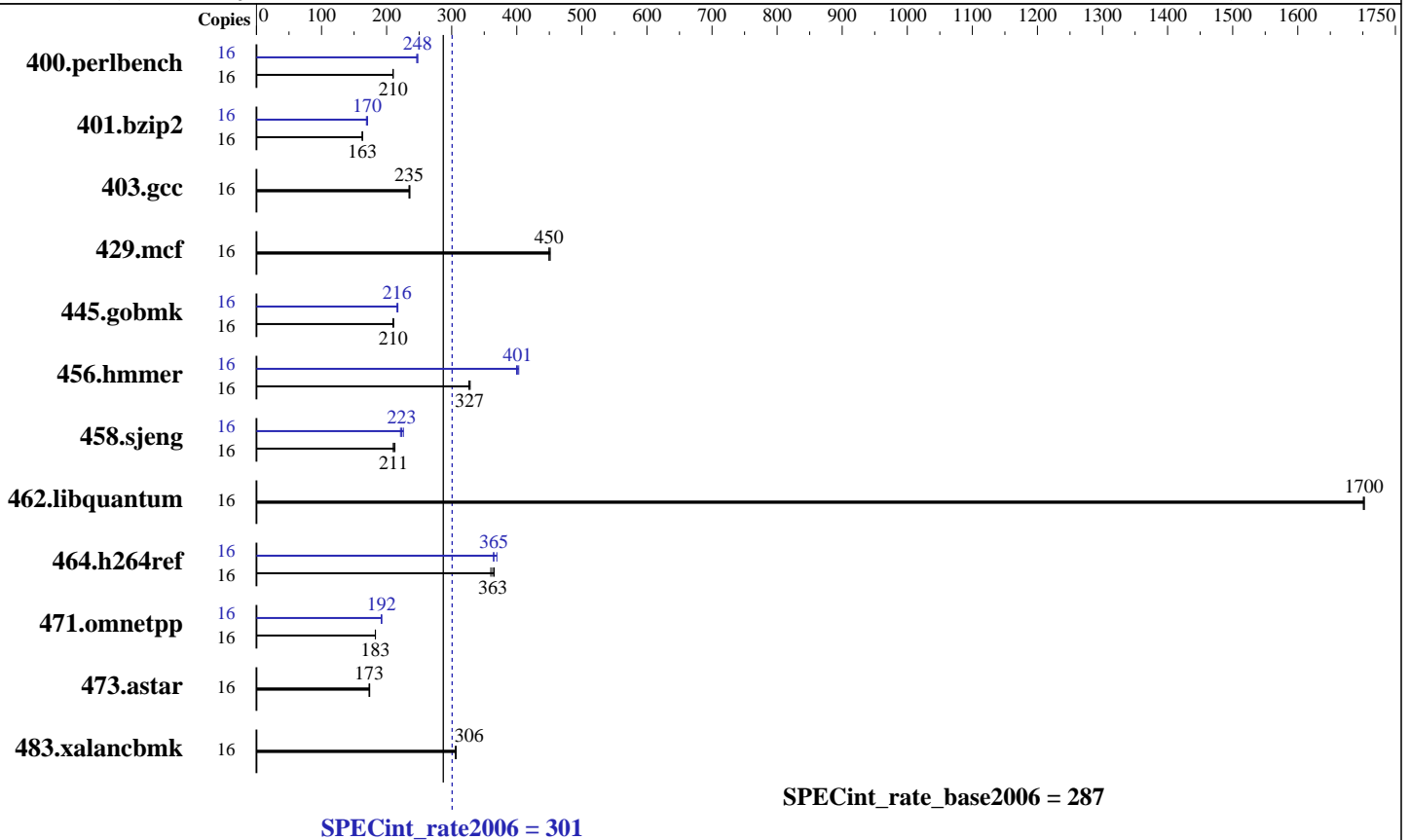$SPECint\_rate\_base2006 =$ 287

**CPU2006 license:** 19
**Test sponsor:** Fujitsu
**Tested by:** Fujitsu

**Test date:** Jan-2012
**Hardware Availability:** Mar-2012
**Software Availability:** Dec-2011



Benchmark results (Copies = 16):

| Benchmark | Peak | Base |
|---|---|---|
| 400.perlbench | 248 | 210 |
| 401.bzip2 | 170 | 163 |
| 403.gcc | | 235 |
| 429.mcf | | 450 |
| 445.gobmk | 216 | 210 |
| 456.hmmer | 401 | 327 |
| 458.sjeng | 223 | 211 |
| 462.libquantum | | 1700 |
| 464.h264ref | 365 | 363 |
| 471.omnetpp | 192 | 183 |
| 473.astar | | 173 |
| 483.xalancbmk | | 306 |

SPECint_rate_base2006 = 287

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### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2660 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.0 GHz |
| CPU MHz: | 2200 |
| FPU: | Integrated |
| CPU(s) enabled: | 8 cores, 1 chip, 8 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: | 20 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 64 GB (8 x 8 GB 2Rx4 PC3L-12800R-11, ECC) |
| Disk Subsystem: | 1 x SATA, 500 GB, 7200 RPM |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | Red Hat Enterprise Linux Server release 6.2 (Santiago) 2.6.32-220.el6.x86_64 |
| Compiler: | C/C++: Version 12.1.0.225 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 V9.01 |

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## Results Table

| Benchmark | Copies | Base Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Peak Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 400.perlbench | 16 | 746 | 210 | **_745_** | **_210_** | 744 | 210 | 16 | **_631_** | **_248_** | 635 | 246 | 631 | 248 |
| 401.bzip2 | 16 | 947 | 163 | **_949_** | **_163_** | 950 | 162 | 16 | 914 | 169 | **_907_** | **_170_** | 905 | 171 |
| 403.gcc | 16 | 546 | 236 | **_549_** | **_235_** | 549 | 235 | 16 | 546 | 236 | **_549_** | **_235_** | 549 | 235 |
| 429.mcf | 16 | 325 | 450 | **_324_** | **_450_** | 323 | 451 | 16 | 325 | 450 | **_324_** | **_450_** | 323 | 451 |
| 445.gobmk | 16 | 801 | 210 | **_799_** | **_210_** | 796 | 211 | 16 | 772 | 217 | 777 | 216 | **_776_** | **_216_** |
| 456.hmmer | 16 | 457 | 326 | **_456_** | **_327_** | 455 | 328 | 16 | 370 | 403 | **_372_** | **_401_** | 374 | 400 |
| 458.sjeng | 16 | 920 | 210 | 910 | 213 | **_919_** | **_211_** | 16 | 875 | 221 | 858 | 226 | **_867_** | **_223_** |
| 462.libquantum | 16 | **_195_** | **_1700_** | 195 | 1700 | 195 | 1700 | 16 | **_195_** | **_1700_** | 195 | 1700 | 195 | 1700 |
| 464.h264ref | 16 | 969 | 365 | 983 | 360 | **_975_** | **_363_** | 16 | 972 | 364 | 959 | 369 | **_971_** | **_365_** |
| 471.omnetpp | 16 | 548 | 183 | 547 | 183 | **_547_** | **_183_** | 16 | **_520_** | **_192_** | 521 | 192 | 520 | 192 |
| 473.astar | 16 | 645 | 174 | 649 | 173 | **_648_** | **_173_** | 16 | 645 | 174 | 649 | 173 | **_648_** | **_173_** |
| 483.xalancbmk | 16 | 361 | 306 | 360 | 307 | **_360_** | **_306_** | 16 | 361 | 306 | 360 | 307 | **_360_** | **_306_** |

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"

## General Notes

    Environment variables set by runspec before the start of the run:
    LD_LIBRARY_PATH = "/SPECcpu2006/libs/32:/SPECcpu2006/libs/64"

    Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
    memory using RHEL5.5
    Transparent Huge Pages enabled with:
    echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
    runspec command invoked through numactl i.e.:
    numactl --interleave=all runspec <etc>
    For information about Fujitsu please visit: http://www.fujitsu.com

## Base Compiler Invocation

C benchmarks:
    icc -m32

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## 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:
    -xAVX -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3

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

## 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

C++ benchmarks:
    icpc -m32

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# 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: -xAVX(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: -xAVX(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: basepeak = yes

      429.mcf: basepeak = yes

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

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

    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
               -auto-ilp32

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) -ansi-alias
               -opt-ra-region-strategy=block -Wl,-z,muldefs
               -L/smartheap -lsmartheap

     473.astar: basepeak = yes

 483.xalancbmk: basepeak = yes
```

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# 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/Fujitsu-Platform.20120320.html
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20120320.xml
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml

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

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