



# SPEC® CINT2006 Result

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## Supermicro

**SPECint®2006 = 56.8**

SuperServer 2027GR-TRF (X9DRG-HF, Intel E5-2690)

**SPECint\_base2006 = 52.4**

CPU2006 license: 001176

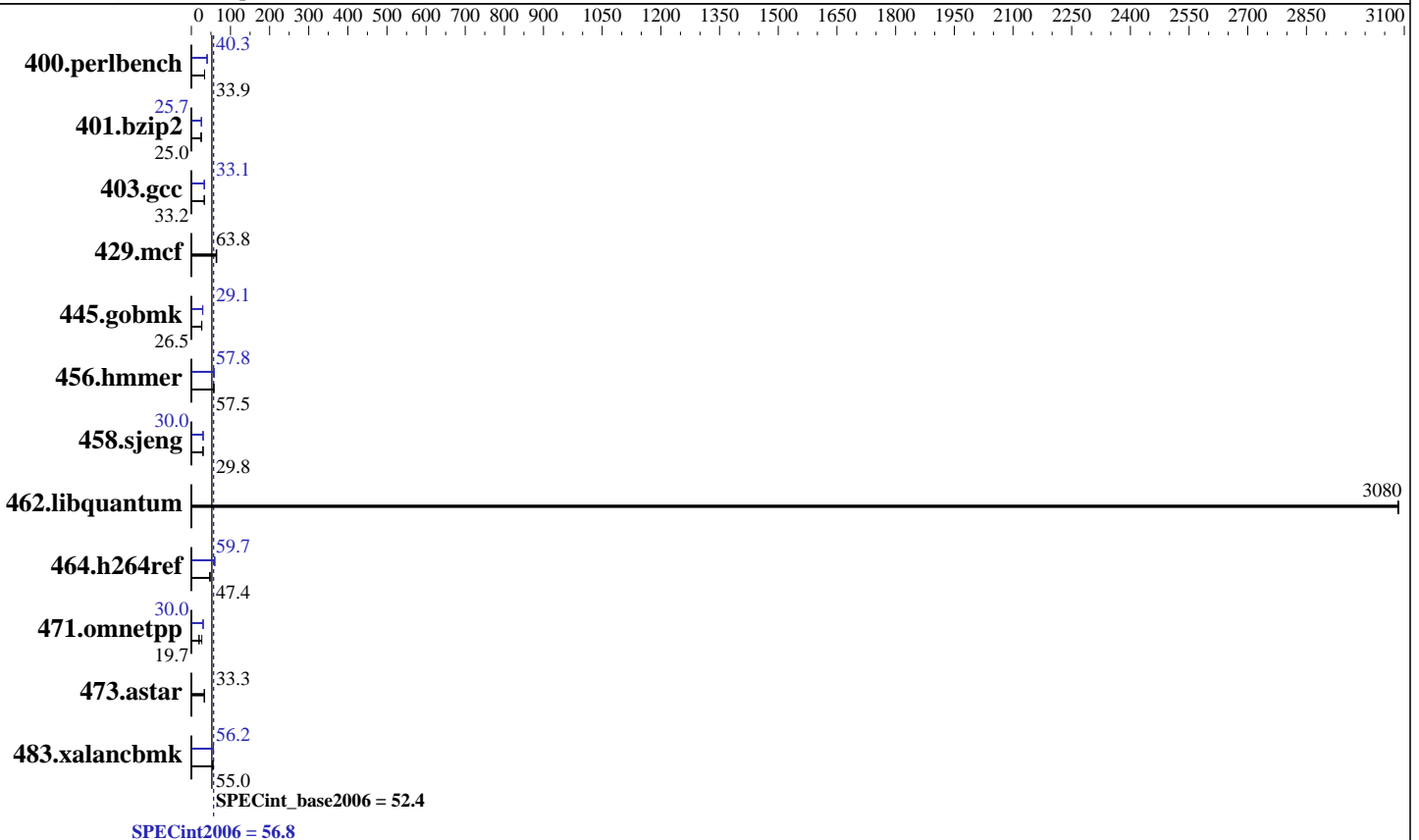
Test date: Jan-2012

Test sponsor: Supermicro

Hardware Availability: Mar-2012

Tested by: Supermicro

Software Availability: Oct-2011



### Hardware

CPU Name: Intel Xeon E5-2690  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz  
 CPU MHz: 2900  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core  
 CPU(s) orderable: 2 chip  
 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 PC3-12800R-11, ECC)  
 Disk Subsystem: 1 x 300 GB SATA II, 7200 RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.1 (Santiago)  
 2.6.32-131.0.15.el6.x86\_64  
 Compiler: C/C++: Version 12.1.0.225 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 V9.01



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## Results Table

| Benchmark      | Base       |             |             |             |            |             | Peak       |             |             |             |            |             |
|----------------|------------|-------------|-------------|-------------|------------|-------------|------------|-------------|-------------|-------------|------------|-------------|
|                | Seconds    | Ratio       | Seconds     | Ratio       | Seconds    | Ratio       | Seconds    | Ratio       | Seconds     | Ratio       | Seconds    | Ratio       |
| 400.perlbench  | 289        | 33.8        | <b>289</b>  | <b>33.9</b> | 288        | 33.9        | 243        | 40.3        | <b>243</b>  | <b>40.3</b> | 242        | 40.3        |
| 401.bzip2      | <b>385</b> | <b>25.0</b> | 385         | 25.0        | 385        | 25.1        | <b>376</b> | <b>25.7</b> | 376         | 25.7        | 375        | 25.7        |
| 403.gcc        | 243        | 33.2        | <b>243</b>  | <b>33.2</b> | 242        | 33.3        | 243        | 33.1        | <b>243</b>  | <b>33.1</b> | 243        | 33.1        |
| 429.mcf        | 140        | 65.0        | 144         | 63.4        | <b>143</b> | <b>63.8</b> | 140        | 65.0        | 144         | 63.4        | <b>143</b> | <b>63.8</b> |
| 445.gobmk      | <b>396</b> | <b>26.5</b> | 395         | 26.5        | 396        | 26.5        | 361        | 29.1        | <b>361</b>  | <b>29.1</b> | 361        | 29.1        |
| 456.hammer     | 164        | 57.0        | 162         | 57.5        | <b>162</b> | <b>57.5</b> | 162        | 57.8        | 161         | 57.8        | <b>162</b> | <b>57.8</b> |
| 458.sjeng      | 406        | 29.8        | 405         | 29.8        | <b>406</b> | <b>29.8</b> | 403        | 30.0        | 404         | 29.9        | <b>404</b> | <b>30.0</b> |
| 462.libquantum | 6.72       | 3080        | <b>6.72</b> | <b>3080</b> | 6.71       | 3090        | 6.72       | 3080        | <b>6.72</b> | <b>3080</b> | 6.71       | 3090        |
| 464.h264ref    | 468        | 47.3        | 463         | 47.8        | <b>466</b> | <b>47.4</b> | 371        | 59.6        | <b>371</b>  | <b>59.7</b> | 371        | 59.7        |
| 471.omnetpp    | 234        | 26.7        | 320         | 19.5        | <b>317</b> | <b>19.7</b> | <b>208</b> | <b>30.0</b> | 208         | 30.1        | 209        | 29.9        |
| 473.astar      | 210        | 33.4        | <b>211</b>  | <b>33.3</b> | 211        | 33.2        | 210        | 33.4        | <b>211</b>  | <b>33.3</b> | 211        | 33.2        |
| 483.xalancbmk  | 126        | 55.0        | 125         | 55.0        | <b>125</b> | <b>55.0</b> | <b>123</b> | <b>56.2</b> | 123         | 56.1        | 123        | 56.3        |

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"

## General Notes

Environment variables set by runspec before the start of the run:  
KMP\_AFFINITY = "granularity=fine,scatter"  
LD\_LIBRARY\_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"  
OMP\_NUM\_THREADS = "16"

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

## Base Compiler Invocation

C benchmarks:  
icc -m64  
  
C++ benchmarks:  
icpc -m64



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## 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/smartheap -lsmartheap64`

## Base Other Flags

C benchmarks:

`403.gcc: -Dalloca=_alloca`

## Peak Compiler Invocation

C benchmarks (except as noted below):

`icc -m64`

`400.perlbench: icc -m32`

`445.gobmk: icc -m32`

`464.h264ref: icc -m32`

C++ benchmarks (except as noted below):

`icpc -m32`

`473.astar: icpc -m64`



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## 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: -xAVX -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
            -ansi-alias

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/smartheap -lsmartheap

```

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## Peak Optimization Flags (Continued)

473.astar: basepeak = yes

483.xalancbmk: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias  
-Wl,-z,muldefs -L/smartheap -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-ic12.1-official-linux64.20111122.html>

<http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-revA.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>

<http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-revA.xml>

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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