



# SPEC® CINT2006 Result

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## Supermicro

SuperServer 5037MC-H8TRF (X9SCD-F single node, Intel E3-1220)

SPECint®2006 = 48.4

SPECint\_base2006 = 45.8

CPU2006 license: 001176

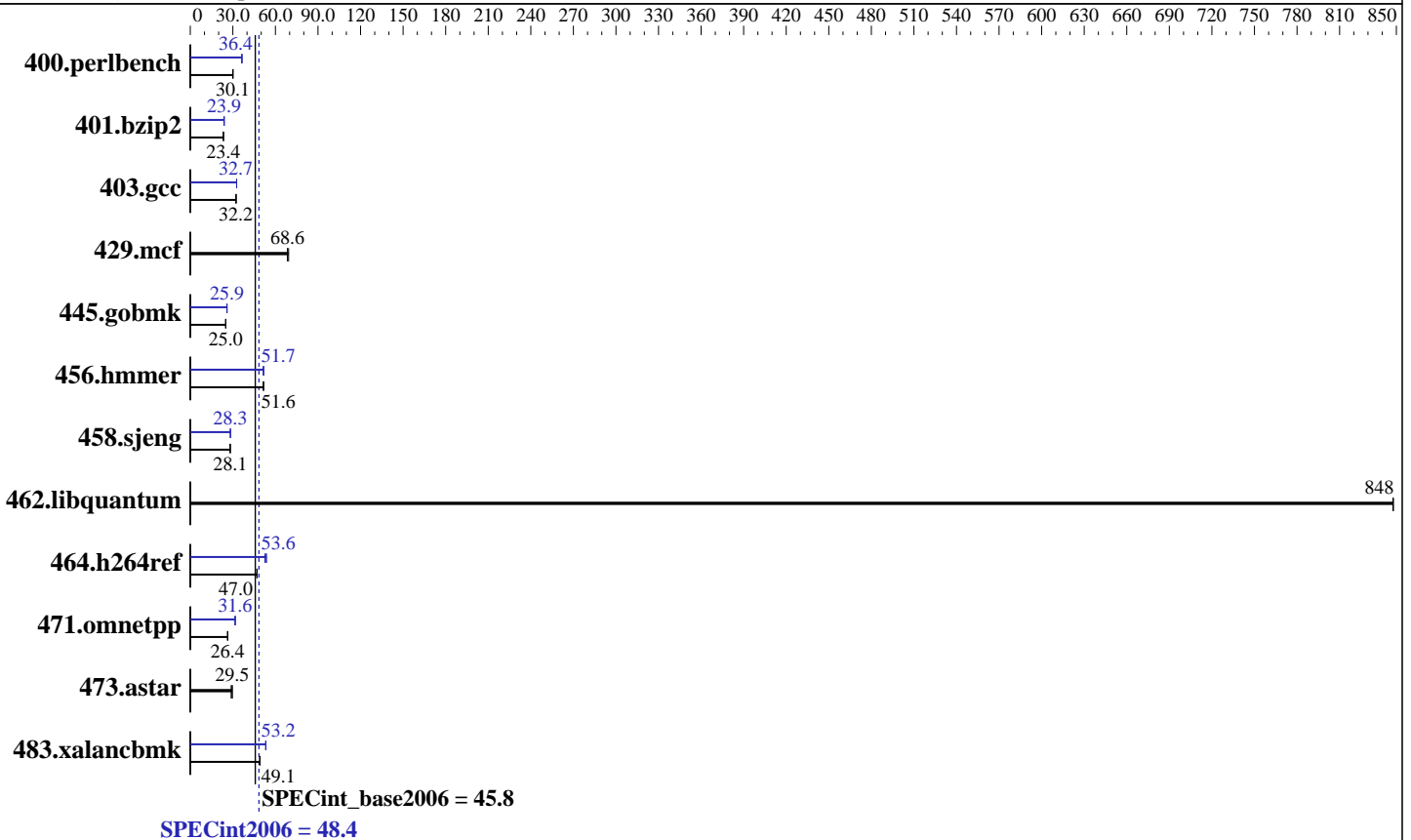
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Mar-2012

Hardware Availability: Aug-2011

Software Availability: Oct-2011



### Hardware

CPU Name: Intel Xeon E3-1220  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.40 GHz  
 CPU MHz: 3100  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip  
 CPU(s) orderable: 1 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: 8 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 8 GB (2 x 4 GB 2Rx8 PC3-10600E-9, ECC)  
 Disk Subsystem: 1 x 500 GB SATA III, 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  | 326         | 29.9        | 324        | 30.1        | <u>325</u> | <u>30.1</u> | 269         | 36.3        | 268        | 36.4        | <u>268</u> | <u>36.4</u> |
| 401.bzip2      | 413         | 23.3        | <u>413</u> | <u>23.4</u> | 413        | 23.4        | 405         | 23.8        | <u>404</u> | <u>23.9</u> | 404        | 23.9        |
| 403.gcc        | 250         | 32.2        | 249        | 32.3        | <u>250</u> | <u>32.2</u> | 246         | 32.7        | 247        | 32.6        | <u>246</u> | <u>32.7</u> |
| 429.mcf        | 133         | 68.5        | <u>133</u> | <u>68.6</u> | 132        | 69.3        | 133         | 68.5        | <u>133</u> | <u>68.6</u> | 132        | 69.3        |
| 445.gobmk      | 420         | 25.0        | <u>420</u> | <u>25.0</u> | 420        | 25.0        | 406         | 25.9        | 405        | 25.9        | <u>406</u> | <u>25.9</u> |
| 456.hammer     | 181         | 51.6        | <u>181</u> | <u>51.6</u> | 181        | 51.6        | 182         | 51.4        | 180        | 51.8        | <u>180</u> | <u>51.7</u> |
| 458.sjeng      | 430         | 28.1        | 429        | 28.2        | <u>430</u> | <u>28.1</u> | <u>427</u>  | <u>28.3</u> | 427        | 28.3        | 428        | 28.3        |
| 462.libquantum | <u>24.4</u> | <u>848</u>  | 24.4       | 848         | 24.4       | 848         | <u>24.4</u> | <u>848</u>  | 24.4       | 848         | 24.4       | 848         |
| 464.h264ref    | <u>471</u>  | <u>47.0</u> | 470        | 47.1        | 471        | 47.0        | <u>413</u>  | <u>53.6</u> | 421        | 52.6        | 413        | 53.6        |
| 471.omnetpp    | 237         | 26.4        | <u>237</u> | <u>26.4</u> | 237        | 26.3        | 198         | 31.6        | 197        | 31.7        | <u>198</u> | <u>31.6</u> |
| 473.astar      | <u>238</u>  | <u>29.5</u> | 237        | 29.6        | 244        | 28.8        | <u>238</u>  | <u>29.5</u> | 237        | 29.6        | 244        | 28.8        |
| 483.xalancbmk  | 140         | 49.2        | <u>140</u> | <u>49.1</u> | 141        | 48.8        | <u>130</u>  | <u>53.2</u> | 129        | 53.4        | 130        | 53.2        |

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 = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64"
OMP_NUM_THREADS = "4"
```

```
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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Software Availability: Oct-2011

## 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 other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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