



# SPEC® CINT2006 Result

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## Supermicro

SPECint®\_rate2006 = 157

Motherboard X9SCA-F (Intel Xeon E3-1220 v2)

SPECint\_rate\_base2006 = 151

CPU2006 license: 001176

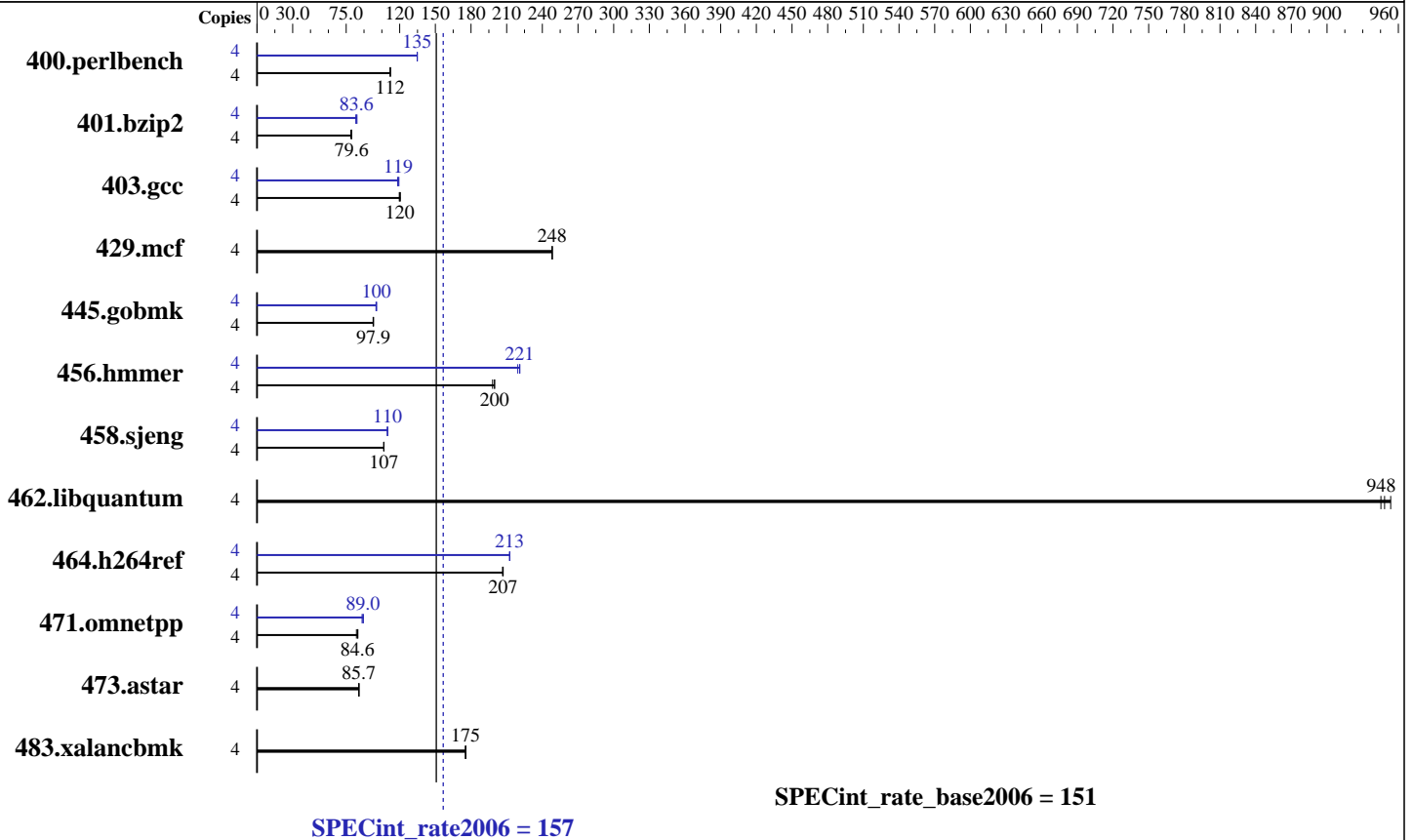
Test date: Jul-2012

Test sponsor: Supermicro

Hardware Availability: May-2012

Tested by: Supermicro

Software Availability: Dec-2011



### Hardware

CPU Name: Intel Xeon E3-1220 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 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: 16 GB (2 x 8 GB 2Rx8 PC3-12800E-11, ECC)  
 Disk Subsystem: 1 x 500 GB SATA II, 7200 RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.2 (Santiago), Kernel 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      | Base   |            |             |             |            |            |             | Peak   |            |             |             |             |            |             |
|----------------|--------|------------|-------------|-------------|------------|------------|-------------|--------|------------|-------------|-------------|-------------|------------|-------------|
|                | Copies | Seconds    | Ratio       | Seconds     | Ratio      | Seconds    | Ratio       | Copies | Seconds    | Ratio       | Seconds     | Ratio       | Seconds    | Ratio       |
| 400.perlbench  | 4      | 348        | 112         | 349         | 112        | <u>349</u> | <u>112</u>  | 4      | <u>290</u> | <u>135</u>  | 290         | 135         | 290        | 135         |
| 401.bzip2      | 4      | 489        | 78.9        | 484         | 79.7       | <u>485</u> | <u>79.6</u> | 4      | <u>462</u> | <u>83.6</u> | 464         | 83.1        | 459        | 84.1        |
| 403.gcc        | 4      | 267        | 121         | 269         | 120        | <u>268</u> | <u>120</u>  | 4      | 272        | 118         | 270         | 119         | <u>271</u> | <u>119</u>  |
| 429.mcf        | 4      | 147        | 248         | 147         | 248        | <u>147</u> | <u>248</u>  | 4      | 147        | 248         | 147         | 248         | <u>147</u> | <u>248</u>  |
| 445.gobmk      | 4      | <u>429</u> | <u>97.9</u> | 430         | 97.6       | 428        | 98.0        | 4      | 417        | 101         | 419         | 100         | <u>418</u> | <u>100</u>  |
| 456.hammer     | 4      | 187        | 200         | <u>187</u>  | <u>200</u> | 188        | 198         | 4      | <u>169</u> | <u>221</u>  | 170         | 219         | 169        | 221         |
| 458.sjeng      | 4      | <u>454</u> | <u>107</u>  | 454         | 107        | 453        | 107         | 4      | <u>441</u> | <u>110</u>  | 441         | 110         | 441        | 110         |
| 462.libquantum | 4      | 86.9       | 954         | <u>87.4</u> | <u>948</u> | 87.7       | 945         | 4      | 86.9       | 954         | <u>87.4</u> | <u>948</u>  | 87.7       | 945         |
| 464.h264ref    | 4      | 429        | 206         | 428         | 207        | <u>428</u> | <u>207</u>  | 4      | 417        | 212         | <u>417</u>  | <u>213</u>  | 416        | 213         |
| 471.omnetpp    | 4      | <u>296</u> | <u>84.6</u> | 299         | 83.6       | 295        | 84.9        | 4      | 283        | 88.4        | <u>281</u>  | <u>89.0</u> | 279        | 89.5        |
| 473.astar      | 4      | 327        | 85.8        | 328         | 85.6       | <u>328</u> | <u>85.7</u> | 4      | 327        | 85.8        | 328         | 85.6        | <u>328</u> | <u>85.7</u> |
| 483.xalancbmk  | 4      | <u>157</u> | <u>175</u>  | 157         | 176        | 157        | 175         | 4      | <u>157</u> | <u>175</u>  | 157         | 176         | 157        | 175         |

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

## Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset 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"  
Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled

## Platform Notes

As tested, the system used a Supermicro CSE-111T-560CB chassis.  
The system includes a PWS-562-1H power supply, SNK-P0046P heatsink, and 3 FAN-0106L4 cooling fans.  
Sysinfo program /home/cpu2006/config/sysinfo.rev6800  
\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
running on 103-81.inet Fri Jul 6 21:16:52 2012

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:  
<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

```
From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E3-1220 V2 @ 3.10GHz
1 "physical id"s (chips)
4 "processors"
```

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## Platform Notes (Continued)

cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

```
cpu cores : 4
siblings  : 4
physical 0: cores 0 1 2 3
cache size : 8192 KB
```

```
From /proc/meminfo
MemTotal:      16305376 kB
HugePages_Total:    0
Hugepagesize:    2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.2 (Santiago)
```

```
From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

```
uname -a:
Linux 103-81.inet 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13 EST 2011
x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Jul 6 21:14
```

```
SPEC is set to: /home/cpu2006
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/vg_10381-lv_home
                ext4      392G  45G  328G  12% /home
```

Additional information from dmidecode:

```
Memory:
2x Hynix/Hyundai HMT41GU7MFR8C-PB 8 GB 1600 MHz 2 rank
```

(End of data from sysinfo program)

## General Notes

Environment variables set by runspec before the start of the run:  
LD\_LIBRARY\_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5



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## Base Compiler Invocation

C benchmarks:  
icc -m32  
  
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.xalanbmk: -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: -xAVX -ipo -O3 -no-prec-div

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.xalanbmk: 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/Intel-ic12.1-official-linux64.20120425.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-linux64.20120425.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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