



# SPEC® CINT2006 Result

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## Supermicro

SuperServer 6018R-MT  
(X10DRL-i , Intel Xeon E5-2667 v3)

**SPECint®2006 = 64.8**

**SPECint\_base2006 = 61.7**

**CPU2006 license:** 001176

**Test sponsor:** Supermicro

**Tested by:** Supermicro

**Test date:** Dec-2014

**Hardware Availability:** Nov-2014

**Software Availability:** Sep-2013



### Hardware

CPU Name: Intel Xeon E5-2667 v3  
CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz  
CPU MHz: 3200  
FPU: Integrated  
CPU(s) enabled: 16 cores, 2 chips, 8 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: 20 MB I+D on chip per chip  
Other Cache: None  
Memory: 128 GB (8 x 16 GB 2Rx4 PC4-2133P-R)  
Disk Subsystem: 1 x 500 GB SATA III, 7200 RPM  
Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.4, Kernel 2.6.32-431.el6.17.1.x86\_64  
Compiler: C/C++: Version 14.0.0.080 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 V10.0



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## Results Table

| Benchmark      | Base              |                    |                   |                    |                    |                    | Peak              |                    |                   |                    |                    |                    |
|----------------|-------------------|--------------------|-------------------|--------------------|--------------------|--------------------|-------------------|--------------------|-------------------|--------------------|--------------------|--------------------|
|                | Seconds           | Ratio              | Seconds           | Ratio              | Seconds            | Ratio              | Seconds           | Ratio              | Seconds           | Ratio              | Seconds            | Ratio              |
| 400.perlbench  | 240               | 40.7               | <b><u>240</u></b> | <b><u>40.7</u></b> | 240                | 40.7               | <b><u>202</u></b> | <b><u>48.3</u></b> | 202               | 48.3               | 202                | 48.3               |
| 401.bzip2      | <b><u>371</u></b> | <b><u>26.0</u></b> | 371               | 26.0               | 371                | 26.0               | <b><u>368</u></b> | <b><u>26.3</u></b> | <b><u>368</u></b> | <b><u>26.2</u></b> | 368                | 26.2               |
| 403.gcc        | 229               | 35.2               | <b><u>229</u></b> | <b><u>35.1</u></b> | 230                | 35.0               | <b><u>227</u></b> | <b><u>35.5</u></b> | 227               | 35.4               | 226                | 35.6               |
| 429.mcf        | 146               | 62.5               | <b><u>145</u></b> | <b><u>62.9</u></b> | 145                | 62.9               | <b><u>144</u></b> | <b><u>63.4</u></b> | 146               | 62.3               | <b><u>146</u></b>  | <b><u>62.3</u></b> |
| 445.gobmk      | 368               | 28.5               | <b><u>367</u></b> | <b><u>28.6</u></b> | 367                | 28.6               | <b><u>349</u></b> | <b><u>30.1</u></b> | 348               | 30.1               | <b><u>348</u></b>  | <b><u>30.1</u></b> |
| 456.hammer     | <b><u>130</u></b> | <b><u>72.0</u></b> | 131               | 71.0               | 130                | 72.0               | <b><u>139</u></b> | <b><u>67.2</u></b> | 140               | 66.8               | <b><u>139</u></b>  | <b><u>67.2</u></b> |
| 458.sjeng      | 357               | 33.9               | <b><u>357</u></b> | <b><u>33.9</u></b> | 357                | 33.9               | <b><u>352</u></b> | <b><u>34.3</u></b> | 352               | 34.4               | 353                | 34.3               |
| 462.libquantum | 3.64              | 5690               | 3.64              | 5690               | <b><u>3.64</u></b> | <b><u>5690</u></b> | 3.64              | 5690               | 3.64              | 5690               | <b><u>3.64</u></b> | <b><u>5690</u></b> |
| 464.h264ref    | 409               | 54.1               | <b><u>410</u></b> | <b><u>54.0</u></b> | 410                | 54.0               | <b><u>409</u></b> | <b><u>54.1</u></b> | <b><u>410</u></b> | <b><u>54.0</u></b> | 410                | 54.0               |
| 471.omnetpp    | 235               | 26.6               | 234               | 26.7               | <b><u>234</u></b>  | <b><u>26.7</u></b> | <b><u>157</u></b> | <b><u>39.7</u></b> | 159               | 39.4               | <b><u>159</u></b>  | <b><u>39.4</u></b> |
| 473.astar      | 203               | 34.6               | <b><u>203</u></b> | <b><u>34.7</u></b> | 203                | 34.7               | <b><u>201</u></b> | <b><u>34.8</u></b> | 202               | 34.7               | <b><u>202</u></b>  | <b><u>34.8</u></b> |
| 483.xalancbmk  | 104               | 66.1               | <b><u>104</u></b> | <b><u>66.2</u></b> | 104                | 66.3               | <b><u>103</u></b> | <b><u>66.9</u></b> | <b><u>103</u></b> | <b><u>66.9</u></b> | 104                | 66.6               |

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

## Submit Notes

The config file option 'submit' was used.

## Operating System Notes

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

## Platform Notes

BIOS settings:

Enforce POR = Disable

Memory Frequency = 2133

Hyper-Threading (ALL) = Disable

Memory info from dmidecode is incorrect. There are only 8x 16GB Samsung memory DIMMs installed

Sysinfo program /root/cpu2006/config/sysinfo.rev6818

\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191

running on 23-125.hnet Tue Dec 16 17:51:06 2014

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 E5-2667 v3 @ 3.20GHz

2 "physical id"s (chips)

16 "processors"

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

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<http://www.spec.org/>

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## Platform Notes (Continued)

```
caution.)
cpu cores : 8
siblings : 8
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB
```

```
From /proc/meminfo
MemTotal:      132051032 kB
HugePages_Total:    0
Hugepagesize:    2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.4 (Santiago)
```

```
From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

```
uname -a:
Linux 23-125.hnet 2.6.32-431.17.1.el6.x86_64 #1 SMP Fri Apr 11 17:27:00 EDT
2014 x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Dec 16 15:20
```

```
SPEC is set to: /root/cpu2006
Filesystem      Type      Size      Used Avail Use% Mounted on
/dev/sda3        ext4      260G      13G   234G   6% /
```

```
Additional information from dmidecode:
BIOS American Megatrends Inc. 1.0a 08/01/2014
Memory:
8x 16 GB
8x Samsung (date:14/16) M393A2G40DB0-CPB 16 GB 2133 MHz 2 rank
```

(End of data from sysinfo program)

## General Notes

Environment variables set by runspec before the start of the run:

```
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/root/cpu2006/libs/32:/root/cpu2006/libs/64:/root/cpu2006/sh"
OMP_NUM_THREADS = "16"
```

```
Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
memory using RedHat EL 6.4
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>
```



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## Base Compiler Invocation

C benchmarks:  
icc -m64

C++ benchmarks:  
icpc -m64

## 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:  
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:  
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32  
-wl, -z, muldefs -L/sh -lsmartheap64

## Base Other Flags

C benchmarks:  
403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):  
icc -m64

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## Peak Compiler Invocation (Continued)

400.perlbench: `icc -m32`

445.gobmk: `icc -m32`

C++ benchmarks (except as noted below):  
`icpc -m32`

473.astar: `icpc -m64`

## 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`  
464.h264ref: `-DSPEC_CPU_LP64`  
473.astar: `-DSPEC_CPU_LP64`  
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)  
-opt-prefetch -ansi-alias`

401.bzip2: `-xCORE-AVX2(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: `-xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc  
-opt-malloc-options=3 -auto-ilp32`

429.mcf: `-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel  
-opt-prefetch -auto-p32`

445.gobmk: `-xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias`

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

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## Peak Optimization Flags (Continued)

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

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

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)  
-opt-ra-region-strategy=block -ansi-alias  
-wl, -z, muldefs -L/sh -lsmarheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-auto-p32 -wl, -z, muldefs -L/sh -lsmarheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-ansi-alias -wl, -z, muldefs -L/sh -lsmarheap

## 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-ic14.0-official-linux64.20140128.html>

<http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revD.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>

<http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revD.xml>

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