



# SPEC® CINT2006 Result

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## Supermicro

SuperServer 5019S-L  
(X11SSL-F , Intel Xeon E3-1245 v5)

SPECint®2006 = 73.8

SPECint\_base2006 = 71.8

CPU2006 license: 001176

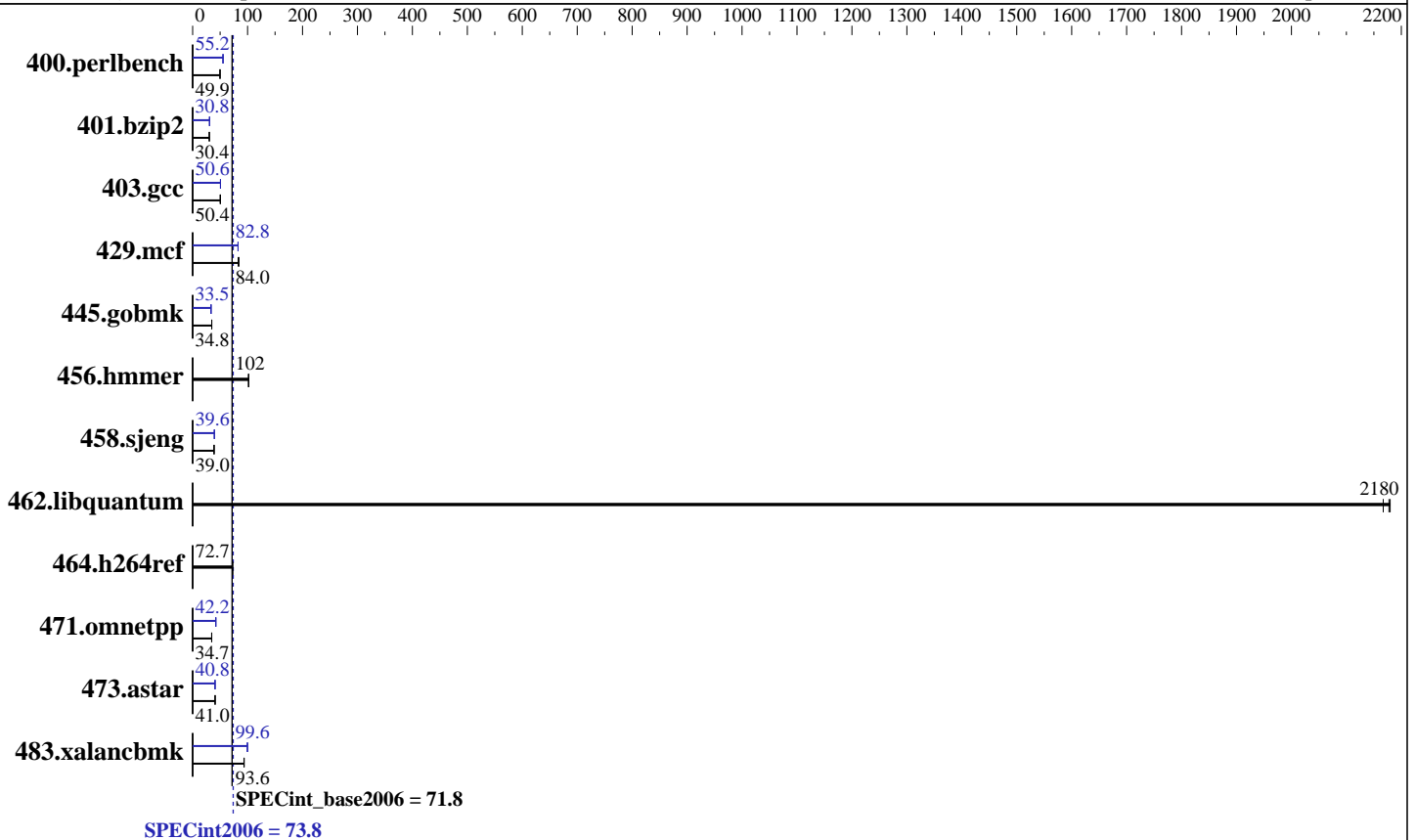
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Dec-2015

Hardware Availability: Oct-2015

Software Availability: Sep-2015



### Hardware

CPU Name: Intel Xeon E3-1245 v5  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.90 GHz  
 CPU MHz: 3500  
 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: 64 GB (4 x 16 GB 2Rx8 PC4-2133P-E)  
 Disk Subsystem: 1 x 400 GB SATA III SSD  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 7.1, Kernel 3.10.0-229.el7.x86\_64  
 Compiler: C/C++; Version 16.0.0.101 of Intel C++ Studio XE for Linux  
 Auto Parallel: Yes  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V10.2



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## Results Table

| Benchmark      | Base               |                    |                   |                    |                    |                   | Peak               |                    |                   |                    |                    |                    |
|----------------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|--------------------|--------------------|
|                | Seconds            | Ratio              | Seconds           | Ratio              | Seconds            | Ratio             | Seconds            | Ratio              | Seconds           | Ratio              | Seconds            | Ratio              |
| 400.perlbench  | <b><u>196</u></b>  | <b><u>49.9</u></b> | 196               | 49.9               | 197                | 49.7              | <b><u>177</u></b>  | <b><u>55.2</u></b> | 177               | 55.2               | 176                | 55.6               |
| 401.bzip2      | 318                | 30.3               | <b><u>318</u></b> | <b><u>30.4</u></b> | 318                | 30.4              | <b><u>314</u></b>  | <b><u>30.8</u></b> | 313               | 30.8               | 314                | 30.8               |
| 403.gcc        | 159                | 50.5               | <b><u>160</u></b> | <b><u>50.4</u></b> | 160                | 50.3              | 159                | 50.6               | 159               | 50.8               | <b><u>159</u></b>  | <b><u>50.6</u></b> |
| 429.mcf        | 108                | 84.1               | <b><u>109</u></b> | <b><u>84.0</u></b> | 110                | 82.8              | 111                | 82.5               | <b><u>110</u></b> | <b><u>82.8</u></b> | 110                | 82.8               |
| 445.gobmk      | 302                | 34.8               | <b><u>302</u></b> | <b><u>34.8</u></b> | 302                | 34.8              | 313                | 33.5               | <b><u>313</u></b> | <b><u>33.5</u></b> | 314                | 33.5               |
| 456.hammer     | 91.7               | 102                | 91.5              | 102                | <b><u>91.6</u></b> | <b><u>102</u></b> | 91.7               | 102                | 91.5              | 102                | <b><u>91.6</u></b> | <b><u>102</u></b>  |
| 458.sjeng      | 310                | 39.0               | <b><u>310</u></b> | <b><u>39.0</u></b> | 310                | 39.0              | <b><u>306</u></b>  | <b><u>39.6</u></b> | 306               | 39.5               | 306                | 39.6               |
| 462.libquantum | <b><u>9.52</u></b> | <b><u>2180</u></b> | 9.51              | 2180               | 9.56               | 2170              | <b><u>9.52</u></b> | <b><u>2180</u></b> | 9.51              | 2180               | 9.56               | 2170               |
| 464.h264ref    | 305                | 72.7               | <b><u>304</u></b> | <b><u>72.7</u></b> | 304                | 72.8              | 305                | 72.7               | <b><u>304</u></b> | <b><u>72.7</u></b> | 304                | 72.8               |
| 471.omnetpp    | 180                | 34.8               | <b><u>180</u></b> | <b><u>34.7</u></b> | 181                | 34.6              | 148                | 42.2               | <b><u>148</u></b> | <b><u>42.2</u></b> | 148                | 42.1               |
| 473.astar      | 171                | 41.0               | <b><u>171</u></b> | <b><u>41.0</u></b> | 172                | 40.7              | 172                | 40.9               | <b><u>172</u></b> | <b><u>40.8</u></b> | 173                | 40.7               |
| 483.xalancbmk  | <b><u>73.7</u></b> | <b><u>93.6</u></b> | 73.9              | 93.4               | 73.5               | 93.8              | <b><u>69.2</u></b> | <b><u>99.6</u></b> | 69.3              | 99.6               | 69.1               | 99.8               |

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:

Hyper-threading = Disabled

Sysinfo program /usr/cpu2006/config/sysinfo.rev6914

\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1

running on X10SRA-01 Wed Jan 14 03:47:58 2015

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 E3-1245 v5 @ 3.50GHz

1 "physical id"s (chips)

4 "processors"

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

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### Platform Notes (Continued)

physical 0: cores 0 1 2 3  
cache size : 8192 KB

From /proc/meminfo  
MemTotal: 65924020 kB  
HugePages\_Total: 0  
Hugepagesize: 2048 kB

From /etc/\*release\* /etc/\*version\*  
os-release:  
NAME="Red Hat Enterprise Linux Server"  
VERSION="7.1 (Maipo)"  
ID="rhel"  
ID\_LIKE="fedora"  
VERSION\_ID="7.1"  
PRETTY\_NAME="Red Hat Enterprise Linux Server 7.1 (Maipo)"  
ANSI\_COLOR="0;31"  
CPE\_NAME="cpe:/o:redhat:enterprise\_linux:7.1:GA:server"  
redhat-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)  
system-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)  
system-release-cpe: cpe:/o:redhat:enterprise\_linux:7.1:ga:server

uname -a:  
Linux X10SRA-01 3.10.0-229.el7.x86\_64 #1 SMP Thu Jan 29 18:37:38 EST 2015  
x86\_64 x86\_64 x86\_64 GNU/Linux

run-level 3 Jan 14 03:42

SPEC is set to: /usr/cpu2006  
Filesystem Type Size Used Avail Use% Mounted on  
/dev/sda2 xfs 183G 5.1G 178G 3% /

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS American Megatrends Inc. 1.0a 10/23/2015  
Memory:  
4x Samsung M391A2K43BB1-CPB 16 GB 2 rank 2133 MHz

(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 = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64:/usr/cpu2006/sh"  
OMP\_NUM\_THREADS = "4"

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### General Notes (Continued)

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1  
Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/transparent\_hugepage/enabled

### 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



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## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

400.perlbench: icc -m32 -L/opt/intel/compilers\_and\_libraries\_2016/linux/compiler/lib/ia32\_lin

445.gobmk: icc -m32 -L/opt/intel/compilers\_and\_libraries\_2016/linux/compiler/lib/ia32\_lin

C++ benchmarks (except as noted below):

icpc -m32 -L/opt/intel/compilers\_and\_libraries\_2016/linux/compiler/lib/ia32\_lin

473.astar: icpc -m64

## Peak Portability Flags

400.perlbench: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX\_IA32

401.bzip2: -DSPEC\_CPU\_LP64

403.gcc: -DSPEC\_CPU\_LP64

429.mcf: -DSPEC\_CPU\_LP64

445.gobmk: -D\_FILE\_OFFSET\_BITS=64

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: -D\_FILE\_OFFSET\_BITS=64

473.astar: -DSPEC\_CPU\_LP64

483.xalancbmk: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -prof-use(pass 2) -opt-prefetch  
-ansi-alias

401.bzip2: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div  
-par-num-threads=1(pass 1) -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

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## Peak Optimization Flags (Continued)

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-prof-use(pass 2) -par-num-threads=1(pass 1) -ansi-alias

456.hmmer: basepeak = yes

458.sjeng: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -prof-use(pass 2)  
-opt-ra-region-strategy=block -ansi-alias  
-Wl,-z,muldefs -L/sh -lsmartheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-ansi-alias -Wl,-z,muldefs -L/sh -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-ic16.0-official-linux64.html>

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

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

<http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml>

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



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