# SPEC® CINT2006 Result

## Supermicro

Supermicro C7H170-M motherboard  
(C7H170-M, Intel Core i7-6700K)

**SPECint®2006 = 77.2**  
**SPECint_base2006 = 75.3**

<table>
<thead>
<tr>
<th>CPU2006 license: 001176</th>
<th>Test date: Oct-2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test sponsor: Supermicro</td>
<td>Hardware Availability: Aug-2015</td>
</tr>
<tr>
<td>Tested by: Supermicro</td>
<td>Software Availability: Sep-2014</td>
</tr>
</tbody>
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### Hardware

<table>
<thead>
<tr>
<th>CPU Name: Intel Core i7-6700K</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics: Intel Turbo Boost Technology up to 4.20 GHz</td>
</tr>
<tr>
<td>CPU MHz: 4000</td>
</tr>
<tr>
<td>FPU: Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable: 1 chip</td>
</tr>
<tr>
<td>Primary Cache: 32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache: 256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache: 8 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache: None</td>
</tr>
<tr>
<td>Memory: 16 GB (4 x 4 GB I8x8 PC4-2800R-U, running at 2133 MHz)</td>
</tr>
<tr>
<td>Disk Subsystem: 1 x 200 GB SATA III SSD</td>
</tr>
<tr>
<td>Other Hardware: None</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Operating System: Red Hat Enterprise Linux Server release 7.1, Kernel 3.10.0-229.el7.x86_64</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td>Auto Parallel: Yes</td>
</tr>
<tr>
<td>File System: xfs</td>
</tr>
<tr>
<td>System State: Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers: 32/64-bit</td>
</tr>
<tr>
<td>Peak Pointers: 32/64-bit</td>
</tr>
<tr>
<td>Other Software: Microquill SmartHeap V10.0</td>
</tr>
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**Results Table**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<tbody>
<tr>
<td>400.perlbench</td>
<td>182</td>
<td>53.8</td>
<td>182</td>
<td>53.6</td>
<td>182</td>
<td>53.6</td>
<td>158</td>
<td>61.7</td>
<td>158</td>
<td>61.7</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>292</td>
<td>33.1</td>
<td>292</td>
<td>33.1</td>
<td>292</td>
<td>33.1</td>
<td>291</td>
<td>33.2</td>
<td>291</td>
<td>33.2</td>
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<tr>
<td>403.gcc</td>
<td>155</td>
<td>51.8</td>
<td>156</td>
<td>51.8</td>
<td>156</td>
<td>51.8</td>
<td>152</td>
<td>53.0</td>
<td>152</td>
<td>53.1</td>
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<tr>
<td>429.mcf</td>
<td>100</td>
<td>90.8</td>
<td>102</td>
<td>89.8</td>
<td>99.9</td>
<td>91.3</td>
<td>99.8</td>
<td>91.4</td>
<td>101</td>
<td>90.3</td>
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<td>445.gobmk</td>
<td>284</td>
<td>36.9</td>
<td>284</td>
<td>37.0</td>
<td>284</td>
<td>37.0</td>
<td>294</td>
<td>35.7</td>
<td>294</td>
<td>35.7</td>
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<tr>
<td>456.hmmer</td>
<td>85.1</td>
<td>110</td>
<td>85.1</td>
<td>110</td>
<td>85.1</td>
<td>110</td>
<td>89.9</td>
<td>104</td>
<td>89.7</td>
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<td>458.sjeng</td>
<td>286</td>
<td>42.3</td>
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<td>42.2</td>
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<td>42.2</td>
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<td>42.6</td>
<td>284</td>
<td>42.5</td>
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<tr>
<td>462.libquantum</td>
<td>9.43</td>
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<td>9.43</td>
<td>2200</td>
<td>9.46</td>
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<td>9.43</td>
<td>2200</td>
<td>9.43</td>
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<td>464.h264ref</td>
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<td>71.7</td>
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<td>71.7</td>
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<td>471.omnetpp</td>
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<td>37.3</td>
<td>169</td>
<td>37.0</td>
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<td>37.2</td>
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<td>45.1</td>
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<td>45.3</td>
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<tr>
<td>473.astar</td>
<td>161</td>
<td>43.7</td>
<td>162</td>
<td>43.5</td>
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<td>43.7</td>
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<td>43.6</td>
<td>161</td>
<td>43.6</td>
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<tr>
<td>483.xalancbmk</td>
<td>76.3</td>
<td>90.4</td>
<td>76.5</td>
<td>90.2</td>
<td>76.4</td>
<td>90.3</td>
<td>74.8</td>
<td>92.2</td>
<td>75.1</td>
<td>91.9</td>
</tr>
</tbody>
</table>

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

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**Submit Notes**

The config file option 'submit' was used.

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**Operating System Notes**

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

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**Platform Notes**

As tested, the system used a Supermicro CSE-743TQ-865B-SQ chassis.

The chassis is configured with a FAN-865-PQ power supply, 1 SNK-P0046A4 heatsink, as well as 1 FAN-0103L4 rear fan and 2 FAN-0104L4 chassis fan.

BIOS Settings:
Hyper-threading = Disabled
Sysinfo program /usr/cpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on C7H170-01 Fri Oct 30 19:54:07 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) Core(TM) i7-6700K CPU @ 4.00GHz
  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.)

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Platform Notes (Continued)

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

From /proc/meminfo
 MemTotal: 16334760 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)

uname -a:
 Linux C7H170-01 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 Oct 30 19:49

SPEC is set to: /usr/cpu2006
 Filesystem Type Size Used Avail Use% Mounted on
 /dev/sda2 xfs 183G 24G 159G 13% /

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 SMI BIOS" standard.

BIOS American Megatrends Inc. T20151015150001 10/15/2015
Memory:
 4x 0420 F4-2800C16-4GRK 4 GB 1 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"
Continued on next page
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General Notes (Continued)

OMP_NUM_THREADS = "4"
Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB
memory using RedHat EL 7.0
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

C benchmarks:
  -DSPEC_CPU_LP64
  -DSPEC_CPU_LINUX_X64

C++ benchmarks:
  -DSPEC_CPU_LP64

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

Continued on next page
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Base Other Flags (Continued)

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):

```plaintext
icc -m64
```

```plaintext
400.perlbench: icc -m32 -L/opt/intel/compiler_xe_2015/lib/ia32
445.gobmk: icc -m32 -L/opt/intel/compiler_xe_2015/lib/ia32
```

C++ benchmarks (except as noted below):

```plaintext
icpc -m32 -L/opt/intel/compiler_xe_2015/lib/ia32
```

```plaintext
473.astar: icpc -m64
```

Peak Portability Flags

```plaintext
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:

```plaintext
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
```

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Peak Optimization Flags (Continued)

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

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 -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-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revG.20141230.00.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revG.20141230.00.xml
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For other inquiries, please contact webmaster@spec.org.

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