Supermicro

Supermicro C7Z170-M motherboard
(C7Z170-M, Intel Core i5-6600K)

SPECint\_rate2006 = 210
SPECint\_rate\_base2006 = 204

CPU2006 license: 001176
Test sponsor: Supermicro
Tested by: Supermicro

Test date: Oct-2015
Hardware Availability: Sep-2015

Tested by: Supermicro
Software Availability: Sep-2014

400.perlbench
401.bzip2
403.gcc
429.mcf
445.gobmk
456.hmmer
458.sjeng
462.libquantum
464.h264ref
471.omnetpp
473.astar
483.xalancbmk

Hardware

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Core i5-6600K</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU MHZ:</td>
<td>3500</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>4 cores, 1 chip, 4 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1 chip</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td>256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache:</td>
<td>6 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>16 GB (4 x 4 GB 1Rx8 PC4-2666P-U, running at 2133 MHz)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>1 x 200 GB SATA III SSD</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>None</td>
</tr>
</tbody>
</table>

Software

| Operating System: | Red Hat Enterprise Linux Server release 7.1, Kernel 3.10.0-229.el7.x86_64 |
| Compiler: | C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux |
| Auto Parallel: | No |
| File System: | xfs |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 32-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | Microquill SmartHeap V10.0 |
**SPEC CINT2006 Result**

Supermicro
Supermicro C7Z170-M motherboard
(C7Z170-M, Intel Core i5-6600K)

**CPU2006 license:** 001176
**Test sponsor:** Supermicro
**Tested by:** Supermicro

**Results Table**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<th>Ratio</th>
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<td>226</td>
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<td>226</td>
<td>173</td>
<td>226</td>
<td>173</td>
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<td>bzip2</td>
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<td>413</td>
<td>93.4</td>
<td>411</td>
<td>93.3</td>
<td>414</td>
<td>93.2</td>
<td>414</td>
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<td>93.2</td>
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<tr>
<td>gcc</td>
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<td>mcf</td>
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<td>230</td>
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<td>159</td>
<td>230</td>
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<td>230</td>
</tr>
<tr>
<td>gobmk</td>
<td>4</td>
<td>338</td>
<td>124</td>
<td>340</td>
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<td>124</td>
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<tr>
<td>hammer</td>
<td>4</td>
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<td>346</td>
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<td>346</td>
<td>105</td>
<td>356</td>
<td>105</td>
<td>356</td>
<td>105</td>
<td>356</td>
</tr>
<tr>
<td>sjeng</td>
<td>4</td>
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<td>146</td>
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<td>146</td>
<td>332</td>
<td>146</td>
</tr>
<tr>
<td>libquantum</td>
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<td>2100</td>
<td>39.7</td>
<td>2090</td>
<td>39.8</td>
<td>2080</td>
<td>39.5</td>
<td>2100</td>
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<td>2090</td>
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<td>h264ref</td>
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<td>omnetpp</td>
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<td>93.3</td>
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<td>97.4</td>
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<td>97.4</td>
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<tr>
<td>astar</td>
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<td>256</td>
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<td>109</td>
<td>257</td>
<td>109</td>
<td>257</td>
<td>109</td>
</tr>
<tr>
<td>xalancbmk</td>
<td>4</td>
<td>113</td>
<td>244</td>
<td>114</td>
<td>243</td>
<td>113</td>
<td>244</td>
<td>113</td>
<td>244</td>
<td>113</td>
<td>244</td>
</tr>
</tbody>
</table>

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"

**Platform Notes**

As tested, the system used a Supermicro CSE-731i-300B chassis.
The chassis is configured with a PWS-305-PQ power supply, 1 SNK-P0046A4 heatsink, as well as 1 FAN-0108L4 rear cooling fan.
Sysinfo program /usr/cpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on C7Z170-01 Tue Oct 20 02:55:25 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) i5-6600K CPU @ 3.50GHz
- 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.)

Continued on next page
![spec](spec)  

**SPEC CINT2006 Result**  
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**Supermicro**  
Supermicro C7Z170-M motherboard  
(C7Z170-M, Intel Core i5-6600K)  

<table>
<thead>
<tr>
<th>CPU2006 license:</th>
<th>001176</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test sponsor:</td>
<td>Supermicro</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Supermicro</td>
</tr>
</tbody>
</table>

**SPECint_rate2006 = 210**  
**SPECint_rate_base2006 = 204**

---

**Platform Notes (Continued)**

```plaintext
cpu cores : 4  
siblings : 4  
  physical 0: cores 0 1 2 3  
cache size : 6144 KB
```

From `/proc/meminfo`

```plaintext
MemTotal:       16334556 kB  
HugePages_Total:       0  
Hugepagesize:       2048 kB
```

From `/etc/*release* /etc/*version*`

```plaintext
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)  
```

```plaintext
uname -a:  
  Linux C7Z170-01 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
```

```plaintext
run-level 3 Oct 20 01:58
```

**SPEC is set to: /usr/cpu2006**

```plaintext
Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sda2      xfs   183G   24G  159G  13% /
```

Additional information from dmidecode:

```plaintext
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. T20151015150001 10/15/2015**

**Memory:**

```plaintext
  4x 0420 F4-2666C15-4GRR 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:

```plaintext
LD_LIBRARY_PATH = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64:/usr/cpu2006/sh"
```

Continued on next page

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info@spec.org  
http://www.spec.org/
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SPECint_rate_base2006 = 204

General Notes (Continued)
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 -m32 -L/opt/intel/composer_xe_2015/lib/ia32
C++ benchmarks:
    icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

Base Portability Flags
400.perlbench: -DSPEC_CPU_LINUX_IA32
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags
C benchmarks:
    -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
C++ benchmarks:
    -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs -L/sh -lsmartheap

Base Other Flags
C benchmarks:
    403.gcc: -Dalloca=_alloca

Peak Compiler Invocation
C benchmarks (except as noted below):
    icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
    400.perlbench: icc -m64

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Test sponsor: Supermicro
Tested by: Supermicro

Test date: Oct-2015
Hardware Availability: Sep-2015
Software Availability: Sep-2014

Peak Compiler Invocation (Continued)

401.bzip2: icc -m64
456.hmmer: icc -m64
458.sjeng: icc -m64

C++ benchmarks:
icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

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.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-auto-ilp32
401.bzip2: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32 -ansi-alias
403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div
429.mcf: basepeak = yes
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
458.sjeng: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll4 -auto-ilp32
462.libquantum: basepeak = yes

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**Supermicro**

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(C7Z170-M, Intel Core i5-6600K)

| SPECint_rate2006 | 210 |
| SPECint_rate_base2006 | 204 |

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**Hardware Availability:** Sep-2015

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---

### Peak Optimization Flags (Continued)

464.h264ref:
- `-xCORE-AVX2` (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:
- `-xCORE-AVX2` (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` `-L/sh` `-lsmartheap`

473.astar: `basepeak = yes`

483.xalancbmk: `basepeak = yes`

### 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/Intel-ic15.0-official-linux64.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/Intel-ic15.0-official-linux64.xml)
- [http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revG.20141230.00.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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