Supermicro
Supermicro C7Z170-SQ motherboard
(C7Z170-SQ, Intel Core i5-6600T)

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<tr>
<td>197</td>
<td>191</td>
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CPU2006 license: 001176
Test sponsor: Supermicro
Tested by: Supermicro

CPU Name: Intel Core i5-6600T
CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz
CPU MHz: 2700
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: 6 MB I+D on chip per chip
Other Cache: None
Memory: 16 GB (4 x 4 GB 1Rx8 PC4-2133P-U)
Disk Subsystem: 1 x 400 GB SATA III SSD
Other Hardware: None

Operating System: Red Hat Enterprise Linux Server release 7.1, Kernel 3.10.0-229.e17.x86_64
Compiler: C/C++: Version 16.0.0.101 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 V10.2
Supermicro

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Results Table

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<th>Benchmark</th>
<th>Base</th>
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<tr>
<td></td>
<td>Ratio</td>
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</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-732G-903B chassis.
The chassis is configured with a PWS-903-PQ power supply, 1 SNK-P0051AP4 heatsink, as well as 1 FAN-0124L4 rear cooling fan.

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) i5-6600T CPU @ 2.70GH
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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CPU2006 license: 001176  
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**Platform Notes (Continued)**

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

From /proc/meminfo

- MemTotal: 16169696 kB  
- HugePages_Total: 0  
- Hugepagesize: 2048 kB

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

- 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 localhost.localdomain 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 Dec 7 08:51

SPEC is set to: /usr/cpu2006

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/sda2</td>
<td>xfs</td>
<td>369G</td>
<td>164G</td>
<td>206G</td>
<td>45%</td>
<td>/</td>
</tr>
</tbody>
</table>

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. T20151015150001 10/15/2015
- Memory: 4x Micron 8ATF51264AZ-2G1A2 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:

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

Continued on next page
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SPECint_rate2006 = 197
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CPU2006 license: 001176
Test sponsor: Supermicro
Tested by: Supermicro

Test date: Dec-2015
Hardware Availability: Sep-2015
Software Availability: Sep-2015

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 -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
C++ benchmarks:
  icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

Base Portability Flags
400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32
401.bzip2: -D_FILE_OFFSET_BITS=64
403.gcc: -D_FILE_OFFSET_BITS=64
429.mcf: -D_FILE_OFFSET_BITS=64
445.gobmk: -D_FILE_OFFSET_BITS=64
456.hmmer: -D_FILE_OFFSET_BITS=64
458.sjeng: -D_FILE_OFFSET_BITS=64
462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
464.h264ref: -D_FILE_OFFSET_BITS=64
471.omnetpp: -D_FILE_OFFSET_BITS=64
473.astar: -D_FILE_OFFSET_BITS=64
483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

Base Optimization Flags
C benchmarks:
  -xCORE-AVX2 -ipo -03 -no-prec-div -opt-prefetch
C++ benchmarks:
  -xCORE-AVX2 -ipo -03 -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/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
```

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

C++ benchmarks:
```
icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
```

Peak Portability Flags

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
403.gcc: -D_FILE_OFFSET_BITS=64
429.mcf: -D_FILE_OFFSET_BITS=64
445.gobmk: -D_FILE_OFFSET_BITS=64
456.hmmer: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
458.sjeng: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
464.h264ref: -D_FILE_OFFSET_BITS=64
471.omnetpp: -D_FILE_OFFSET_BITS=64
473.astar: -D_FILE_OFFSET_BITS=64
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) -auto-ilp32
```
```
401.bzip2: -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
   -auto-ilp32 -ansi-alias
```
```
403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div
```
```
429.mcf: basepeak = yes
```
**SPEC CINT2006 Result**

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**CPU2006 license:** 001176
**Test date:** Dec-2015
**Test sponsor:** Supermicro
**Hardware Availability:** Sep-2015
**Tested by:** Supermicro
**Software Availability:** Sep-2015

### 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: 
- `–xCORE-AVX2`
- `–ipo` –O3
- `–no-prec-div`
- `–unroll12`
- `–auto-ilp32`

458.sjeng: 
- `–xCORE-AVX2` (pass 2)
- `–prof-gen:threadsafe` (pass 1)
- `–ipo` (pass 2)
- `–03` (pass 2)
- `–no-prec-div` (pass 2)
- `–par-num-threads=1` (pass 1)
- `–prof-use` (pass 2)
- `–unroll14`
- `–auto-ilp32`

462.libquantum: `basepeak = yes`

464.h264ref: 
- `–xCORE-AVX2` (pass 2)
- `–prof-gen:threadsafe` (pass 1)
- `–ipo` (pass 2)
- `–03` (pass 2)
- `–no-prec-div` (pass 2)
- `–par-num-threads=1` (pass 1)
- `–prof-use` (pass 2)
- `–unroll12`
- `–ansi-alias`

### Peak Other Flags

**C++ benchmarks:**

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

473.astar: `basepeak = yes`

483.xalancbmk: `basepeak = yes`

-----

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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For other inquiries, please contact webmaster@spec.org.

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