SPEC® CINT2006 Result
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Supermicro

Supermicro C7Z170-SQ motherboard
(C7Z170-SQ , Intel Core i7-6700T)

SPECint®_rate2006 =   232

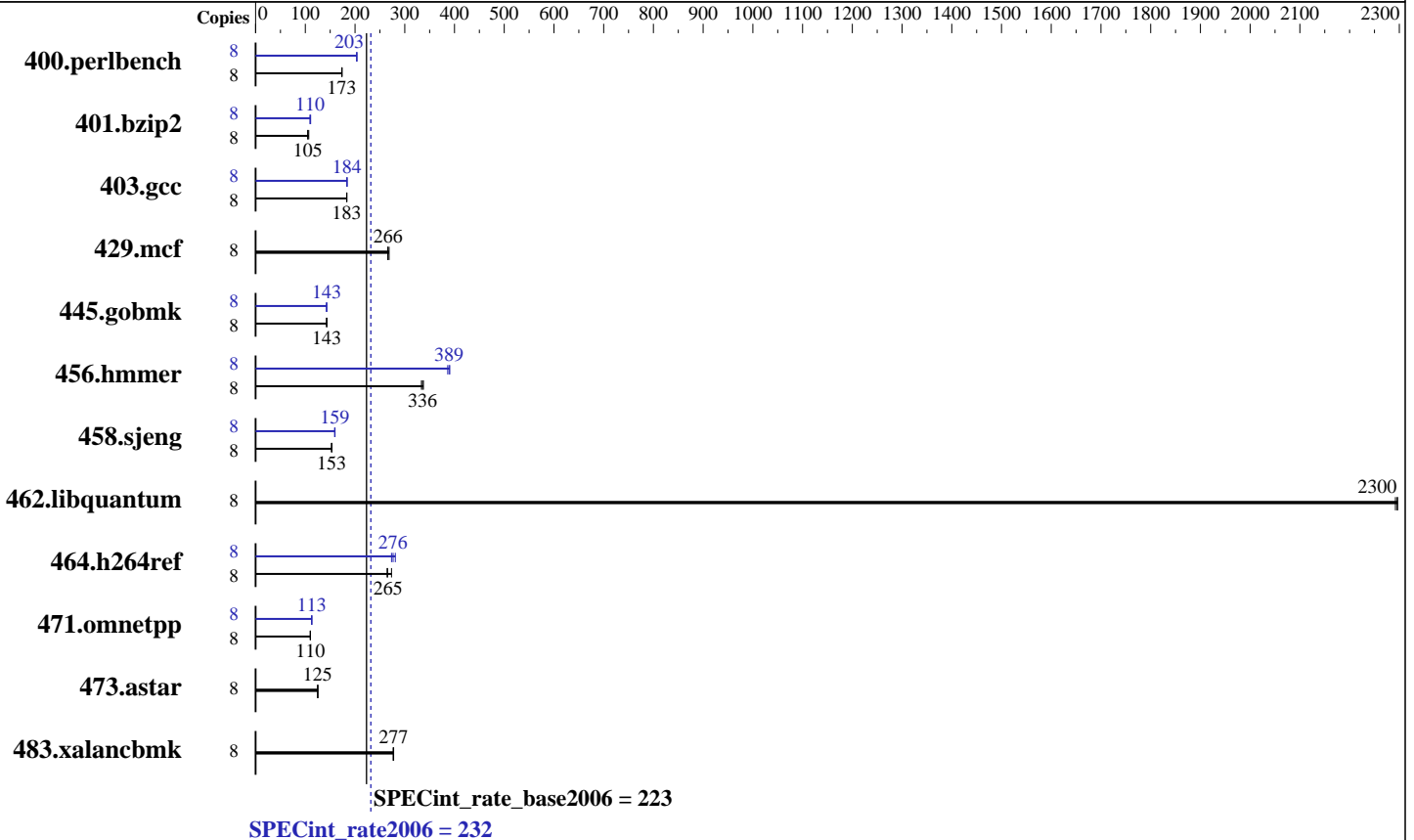SPECint_rate_base2006 =   223

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Nov-2015

Hardware Availability: Sep-2015

Software Availability: Sep-2015

Copies

Benchmark	Copies	Peak	Base
400.perlbench	8 / 8	203	173
401.bzip2	8 / 8	110	105
403.gcc	8 / 8	184	183
429.mcf	8		266
445.gobmk	8 / 8	143	143
456.hmmer	8 / 8	389	336
458.sjeng	8 / 8	159	153
462.libquantum	8		2300
464.h264ref	8 / 8	276	265
471.omnetpp	8 / 8	113	110
473.astar	8		125
483.xalancbmk	8		277

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Hardware

CPU Name: Intel Core i7-6700T

CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz

CPU MHz: 2800

FPU: Integrated

CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip, 2 threads/core

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: 16 GB (4 x 4 GB 1Rx8 PC4-2133P-U)

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.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

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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	8	449	174	451	173	**451**	**173**	8	384	203	384	204	**384**	**203**
401.bzip2	8	737	105	722	107	**735**	**105**	8	705	110	697	111	**703**	**110**
403.gcc	8	**351**	**183**	351	183	351	183	8	351	184	350	184	**351**	**184**
429.mcf	8	272	268	**274**	**266**	274	266	8	272	268	**274**	**266**	274	266
445.gobmk	8	587	143	**587**	**143**	587	143	8	**587**	**143**	587	143	588	143
456.hmmer	8	224	334	**222**	**336**	221	337	8	**192**	**389**	193	386	191	391
458.sjeng	8	**633**	**153**	631	153	634	153	8	606	160	**607**	**159**	609	159
462.libquantum	8	72.3	2290	**72.2**	**2300**	72.2	2300	8	72.3	2290	**72.2**	**2300**	72.2	2300
464.h264ref	8	648	273	**667**	**265**	670	264	8	630	281	**640**	**276**	648	273
471.omnetpp	8	454	110	**454**	**110**	455	110	8	**443**	**113**	443	113	442	113
473.astar	8	449	125	**449**	**125**	450	125	8	449	125	**449**	**125**	450	125
483.xalancbmk	8	199	278	200	277	**199**	**277**	8	199	278	200	277	**199**	**277**

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.
    Sysinfo program /usr/cpu2006/config/sysinfo.rev6914
    $Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
    running on localhost.localdomain Tue Nov 24 15:40:51 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) i7-6700T CPU @ 2.80GHz
         1 "physical id"s (chips)
         8 "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  : 8
      physical 0: cores 0 1 2 3
   cache size : 8192 KB

From /proc/meminfo
   MemTotal:       16169104 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 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 Nov 24 10:02

SPEC is set to: /usr/cpu2006
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda2      xfs   369G  6.6G  363G   2% /
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"
```

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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 -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 -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
```

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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
```

Continued on next page

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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: `-xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32`

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`
`-auto-ilp32`

462.libquantum: `basepeak = yes`

464.h264ref: `-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) -unroll2`
`-ansi-alias`

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) -ansi-alias`
`-opt-ra-region-strategy=block -Wl,-z,muldefs`
`-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-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 questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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