SPEC® CINT2006 Result
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Supermicro

Supermicro C7Z170-OCE motherboard
(C7Z170-OCE , Intel Pentium G4400)

$SPECint^{®}_rate2006 = $ 98.8

$SPECint_rate_base2006 = $ 95.9

CPU2006 license: 001176　　　　　　　　　　　　　　　**Test date:** Jan-2016
Test sponsor: Supermicro　　　　　　　　　　　　　　**Hardware Availability:** Sep-2015
Tested by: Supermicro　　　　　　　　　　　　　　　**Software Availability:** Sep-2015

400.perlbench: 2 / 90.6, 2 / 80.5
401.bzip2: 2 / 44.7, 2 / 43.2
403.gcc: 2 / 78.1, 2 / 78.3
429.mcf: 2 / 123
445.gobmk: 2 / 55.3, 2 / 56.9
456.hmmer: 2 / 154, 2 / 133
458.sjeng: 2 / 68.4, 2 / 66.3
462.libquantum: 2 / 686
464.h264ref: 2 / 127, 2 / 126
471.omnetpp: 2 / 57.8, 2 / 54.5
473.astar: 2 / 55.0
483.xalancbmk: 2 / 139

SPECint_rate_base2006 = 95.9
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Hardware

CPU Name:	Intel Pentium G4400
CPU Characteristics:	
CPU MHz:	3300
FPU:	Integrated
CPU(s) enabled:	2 cores, 1 chip, 2 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:	3 MB I+D on chip per chip
Other Cache:	None
Memory:	16 GB (4 x 4 GB 1Rx8 PC4-2800R-U, running at 2133 MHz)
Disk Subsystem:	1 x 200 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:	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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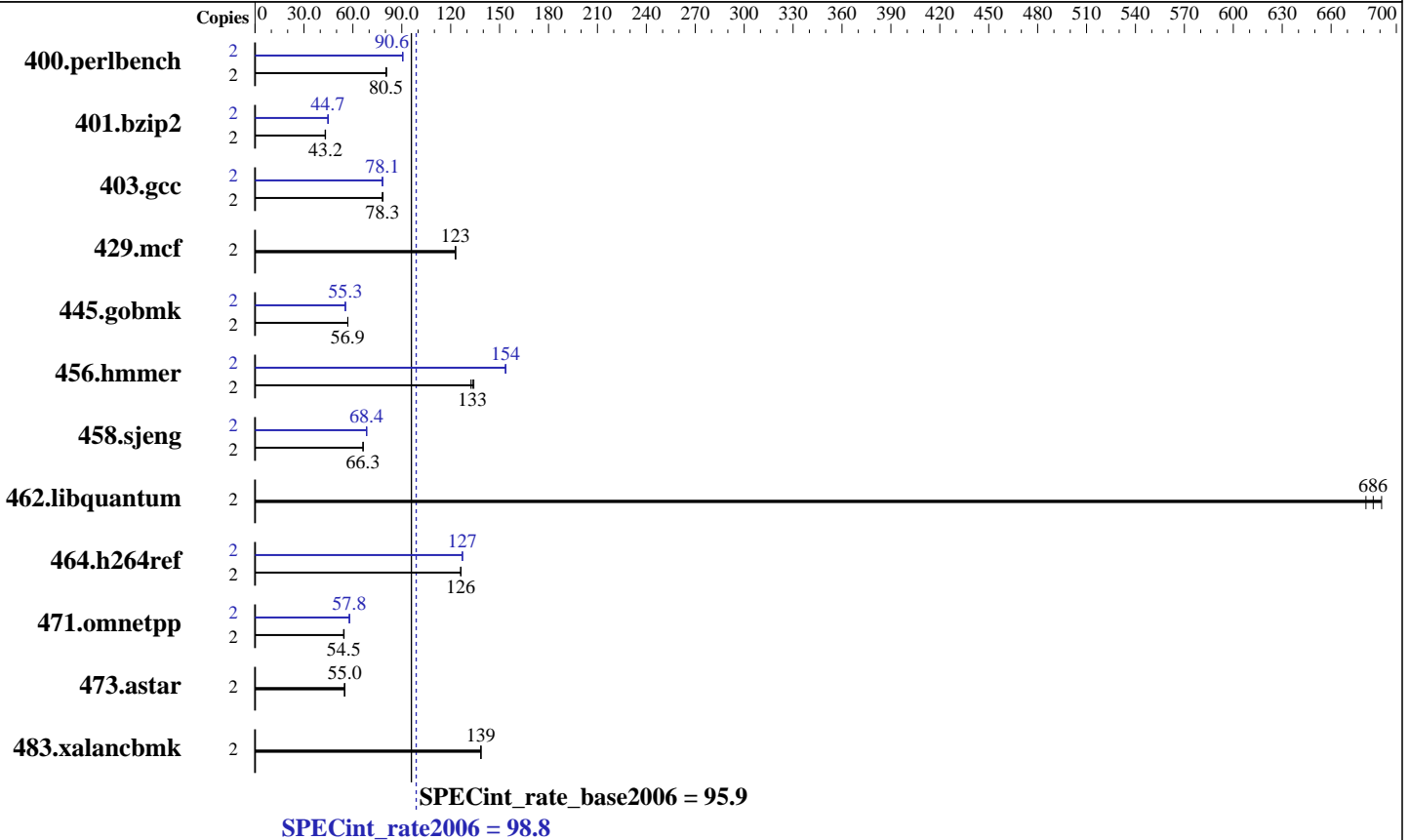SPECint_rate_base2006 = 95.9

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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	2	**243**	**80.5**	242	80.6	243	80.3	2	215	90.7	**216**	**90.6**	216	90.5
401.bzip2	2	447	43.2	**447**	**43.2**	449	43.0	2	**432**	**44.7**	429	45.0	432	44.7
403.gcc	2	205	78.4	206	78.1	**206**	**78.3**	2	206	78.3	206	78.1	**206**	**78.1**
429.mcf	2	**148**	**123**	148	123	148	123	2	**148**	**123**	148	123	148	123
445.gobmk	2	**369**	**56.9**	369	56.9	369	56.9	2	378	55.5	380	55.3	**379**	**55.3**
456.hmmer	2	141	132	**140**	**133**	139	134	2	**121**	**154**	121	154	122	153
458.sjeng	2	365	66.3	365	66.3	**365**	**66.3**	2	354	68.4	354	68.5	**354**	**68.4**
462.libquantum	2	**60.4**	**686**	60.0	691	60.8	681	2	**60.4**	**686**	60.0	691	60.8	681
464.h264ref	2	**351**	**126**	351	126	350	126	2	**348**	**127**	348	127	348	127
471.omnetpp	2	**229**	**54.5**	230	54.3	229	54.6	2	216	58.0	216	57.8	**216**	**57.8**
473.astar	2	255	55.0	**255**	**55.0**	256	54.8	2	255	55.0	**255**	**55.0**	256	54.8
483.xalancbmk	2	99.6	139	99.7	138	**99.6**	**139**	2	99.6	139	99.7	138	**99.6**	**139**

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-743TQ-1200B-SQ chassis. The chassis is configured with a PWS-1K25P-PQ power supply, 1 SNK-P0051AP4 heatsink, as well as 1 FAN-0103L4 rear fan and 2 FAN-0104L4 chassis fan. Sysinfo program /usr/cpu2006/config/sysinfo.rev6914 $Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1 running on C7Z170-01 Sat Jan 16 13:26:56 2016

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) Pentium(R) CPU G4400 @ 3.30GHz
        1 "physical id"s (chips)
        2 "processors"
    cores, siblings (Caution: counting these is hw and system dependent. The
    following excerpts from /proc/cpuinfo might not be reliable. Use with

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Platform Notes (Continued)

```
   caution.)
      cpu cores : 2
      siblings  : 2
      physical 0: cores 0 1
   cache size : 3072 KB

From /proc/meminfo
   MemTotal:       16207064 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 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

run-level 3 Jan 16 03:01

SPEC is set to: /usr/cpu2006
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda2      xfs   183G   32G  151G  18% /
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 01/08/2016
  Memory:
  4x 0420 F4-2800C16-4GRK 4 GB 1 rank 2133 MHz

(End of data from sysinfo program)
```

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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"

 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:
    -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch

C++ benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
    -L/sh -lsmartheap

Base Other Flags

C benchmarks:

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):
    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: -xSSE4.2(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: -xSSE4.2(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

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Peak Optimization Flags (Continued)

403.gcc: `-xSSE4.2 -ipo -O3 -no-prec-div`

429.mcf: basepeak = yes

445.gobmk: `-xSSE4.2(pass 2) -prof-gen:threadsafe(pass 1)`
`-prof-use(pass 2) -par-num-threads=1(pass 1) -ansi-alias`

456.hmmer: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32`

458.sjeng: `-xSSE4.2(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: `-xSSE4.2(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: `-xSSE4.2(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.

Tested with SPEC CPU2006 v1.2.
Report generated on Tue Feb 9 17:20:29 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 9 February 2016.