SPEC® CINT2006 Result

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Supermicro

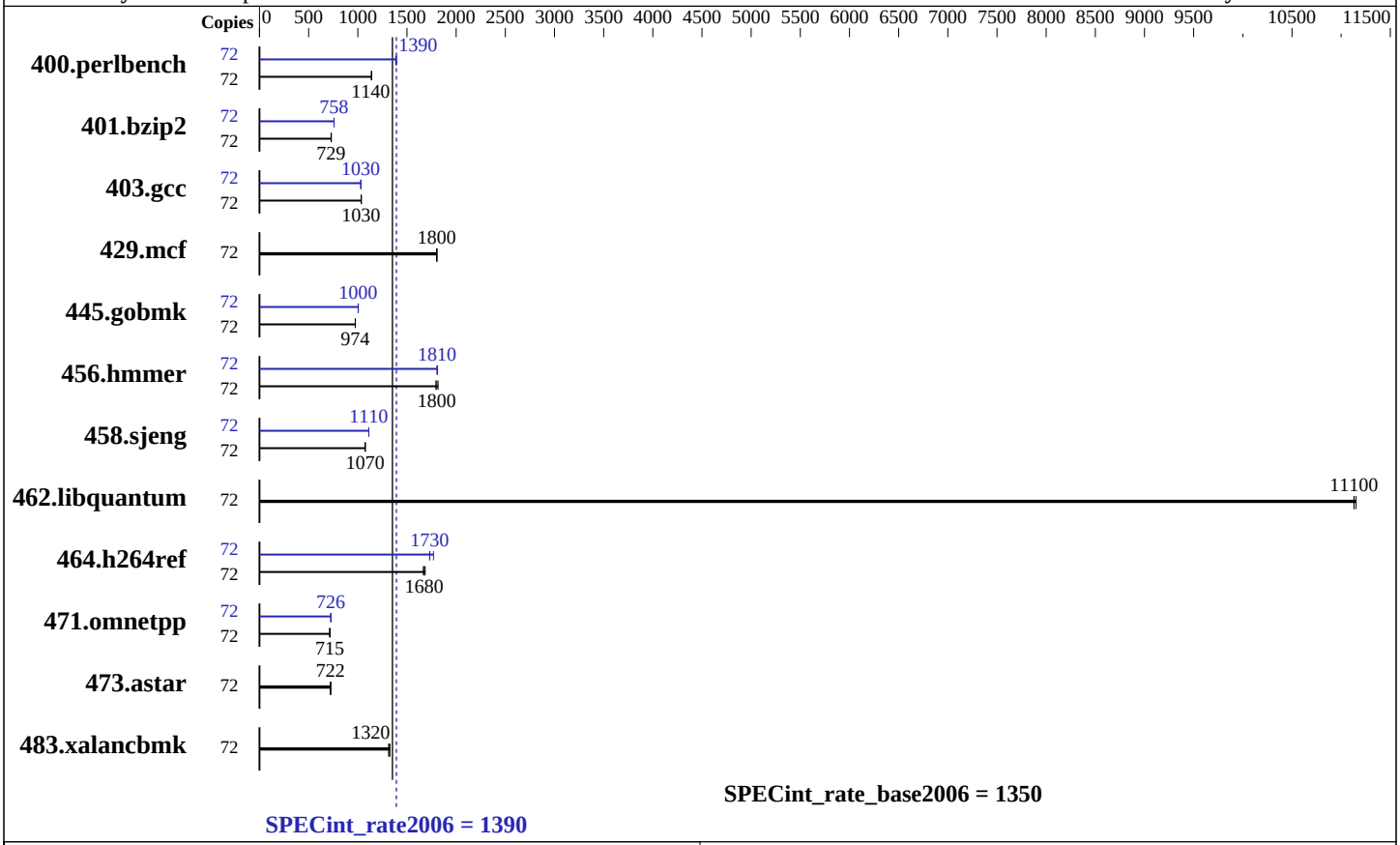
SuperServer 7048R-C1RT
(X10DRH-CT , Intel Xeon E5-2699 v3)

SPECint®_rate2006 = 1390

SPECint_rate_base2006 = 1350

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

Test date: Nov-2014
Hardware Availability: Nov-2014
Software Availability: Nov-2013



Hardware

CPU Name:	Intel Xeon E5-2699 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz:	2300
FPU:	Integrated
CPU(s) enabled:	36 cores, 2 chips, 18 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	45 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem:	1 x 1000 GB SATA III, 7200 RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.5, Kernel 2.6.32-431.el6.x86_64
Compiler:	C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux
Auto Parallel:	No
File System:	ext4
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V10.0

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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	72	618	1140	**617**	**1140**	617	1140	72	**506**	**1390**	508	1380	505	1390
401.bzip2	72	951	731	954	728	**953**	**729**	72	**916**	**758**	915	759	917	758
403.gcc	72	**561**	**1030**	561	1030	559	1040	72	**562**	**1030**	561	1030	563	1030
429.mcf	72	364	1810	364	1800	**364**	**1800**	72	364	1810	364	1800	**364**	**1800**
445.gobmk	72	**775**	**974**	775	974	775	974	72	753	1000	751	1010	**752**	**1000**
456.hmmer	72	375	1790	**372**	**1800**	370	1820	72	371	1810	372	1810	**372**	**1810**
458.sjeng	72	**810**	**1070**	811	1070	810	1080	72	784	1110	783	1110	**783**	**1110**
462.libquantum	72	**134**	**11100**	134	11200	134	11100	72	**134**	**11100**	134	11200	134	11100
464.h264ref	72	956	1670	946	1680	**951**	**1680**	72	900	1770	921	1730	**920**	**1730**
471.omnetpp	72	628	716	**629**	**715**	630	715	72	621	725	**620**	**726**	619	727
473.astar	72	**700**	**722**	696	726	702	720	72	**700**	**722**	696	726	702	720
483.xalancbmk	72	**375**	**1320**	378	1310	375	1320	72	**375**	**1320**	378	1310	375	1320

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

Submit Notes

```
The numactl mechanism was used to bind copies to processors. The config file option 'submit'
was used to generate numactl 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

```
BIOS Settings:
Enforce POR - Disable
Memory Frequency - 2133
Enable COD - Enable
Early Snoop - Disable

Memory Configuration:
16x 16GB Samsung memory modules installed in 2DPC configuration running at 2133 MHz

 Sysinfo program /root/cpu2006/config/sysinfo.rev6818
 $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
 running on 192-248.hnet Mon Nov 17 18:18:36 2014

 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
```

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Platform Notes (Continued)

```
From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
      2 "physical id"s (chips)
      72 "processors"
   cores, siblings (Caution: counting these is hw and system dependent.  The
   following excerpts from /proc/cpuinfo might not be reliable.  Use with
   caution.)
      cpu cores : 18
      siblings  : 36
      physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
   cache size : 23040 KB

From /proc/meminfo
   MemTotal:       264420928 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.5 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux 192-248.hnet 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013
   x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Nov 17 17:48

SPEC is set to: /root/cpu2006
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda1      ext4  673G  135G  505G  22% /

Additional information from dmidecode:
  BIOS American Megatrends Inc. 1.0 09/09/2014
  Memory:
   16x   16 GB
   16x Samsung(data:14/16) M393A2G40DB0-CPB 16 GB 2133 MHz 2 rank

(End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/root/cpu2006/libs/32:/root/cpu2006/libs/64:/root/cpu2006/sh"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RedHat EL 6.4
```

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General Notes (Continued)

```
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1>       /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
```

Base Compiler Invocation

C benchmarks:
```
icc  -m32
```

C++ benchmarks:
```
icpc -m32
```

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
-opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-opt-mem-layout-trans=3 -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
```

Continued on next page

Peak Compiler Invocation (Continued)

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks:
icpc -m32

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)
-O3(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)
-O3(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 -opt-mem-layout-trans=3

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)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll4 -auto-ilp32

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Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

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 -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/Supermicro-Platform-Settings-V1.2-revE.html
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revE.xml
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml

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