SPEC® CINT2006 Result

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Supermicro

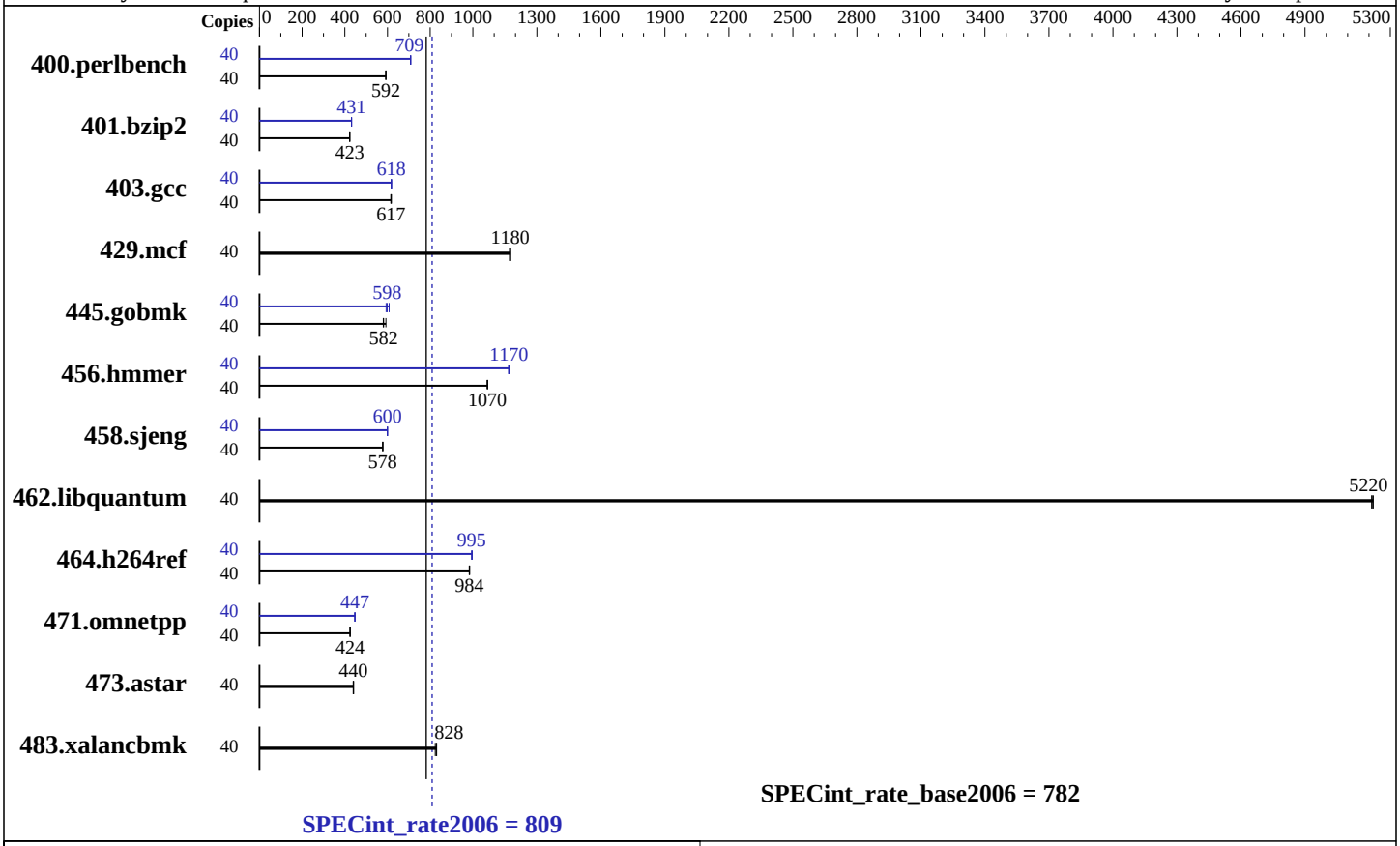
Supermicro SuperServer 2027R-N3RF4+
(X9DRW-3LN4F+, Intel Xeon E5-2670 v2)

SPECint®_rate2006 = 809

SPECint_rate_base2006 = 782

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

Test date: Nov-2013
Hardware Availability: Oct-2013
Software Availability: Sep-2013



Hardware

CPU Name:	Intel Xeon E5-2670 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz:	2500
FPU:	Integrated
CPU(s) enabled:	20 cores, 2 chips, 10 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:	25 MB I+D on chip per chip
Other Cache:	None
Memory:	128 GB (16 x 8 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem:	1 x 500 GB SATA II, 7200 RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.?, Kernel 2.6.32-358.23.2.el6.x86_64
Compiler:	C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux; Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
Auto Parallel:	No
File System:	ext4
System State:	Run level 3 (multi-user)
Base Pointers:	32/64-bit
Peak Pointers:	32/64-bit
Other Software:	None

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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	40	660	592	**660**	**592**	660	592	40	552	708	**552**	**709**	551	709
401.bzip2	40	912	423	**912**	**423**	914	422	40	893	432	**895**	**431**	896	431
403.gcc	40	523	615	**522**	**617**	521	618	40	520	620	**521**	**618**	522	617
429.mcf	40	310	1180	311	1170	**310**	**1180**	40	310	1180	311	1170	**310**	**1180**
445.gobmk	40	**721**	**582**	708	593	723	580	40	**701**	**598**	707	594	691	608
456.hmmer	40	350	1070	349	1070	**349**	**1070**	40	**319**	**1170**	319	1170	320	1170
458.sjeng	40	837	578	**838**	**578**	838	578	40	808	599	806	600	**807**	**600**
462.libquantum	40	**159**	**5220**	159	5220	159	5210	40	**159**	**5220**	159	5220	159	5210
464.h264ref	40	899	985	**899**	**984**	900	983	40	888	997	890	994	**890**	**995**
471.omnetpp	40	588	425	**589**	**424**	589	424	40	558	448	560	446	**559**	**447**
473.astar	40	636	442	639	439	**638**	**440**	40	636	442	639	439	**638**	**440**
483.xalancbmk	40	335	824	**333**	**828**	332	830	40	335	824	**333**	**828**	332	830

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 Configuration:
Disable C1E Support, DRAM RAPL Mode, Demand Scrub, Double Refresh.
Set Package C-state Limit to C0
 Sysinfo program /usr/cpu2006/config/sysinfo.rev6818
 $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
 running on 192-132.jnet Tue Oct 29 15:03:55 2013

 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) Xeon(R) CPU E5-2670 v2 @ 2.50GHz
       2 "physical id"s (chips)
       40 "processors"
    cores, siblings (Caution: counting these is hw and system dependent.  The
    following excerpts from /proc/cpuinfo might not be reliable.  Use with
```

Continued on next page

Platform Notes (Continued)

```
      caution.)
         cpu cores : 10
         siblings  : 20
         physical 0: cores 0 1 2 3 4 8 9 10 11 12
         physical 1: cores 0 1 2 3 4 8 9 10 11 12
      cache size : 25600 KB

   From /proc/meminfo
      MemTotal:       132121880 kB
      HugePages_Total:       0
      Hugepagesize:       2048 kB

   /usr/bin/lsb_release -d
      Red Hat Enterprise Linux Server release 6.4 (Santiago)

   From /etc/*release* /etc/*version*
      redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
      system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
      system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

   uname -a:
      Linux 192-132.jnet 2.6.32-358.18.1.el6.x86_64 #1 SMP Fri Aug 2 17:04:38 EDT
      2013 x86_64 x86_64 x86_64 GNU/Linux

   run-level 3 Oct 28 16:55

   SPEC is set to: /usr/cpu2006
      Filesystem     Type    Size  Used Avail Use% Mounted on
      /dev/sda2      ext4    385G   98G  268G  27% /

   Additional information from dmidecode:
     BIOS American Megatrends Inc. 3.00 06/20/2013
     Memory:
      1x   16 MB
      16x   8 GB
      1x DimmA3_Manufacturer DimmA3_PartNumber
      1x DimmB3_Manufacturer DimmB3_PartNumber
      1x DimmC3_Manufacturer DimmC3_PartNumber
      1x DimmD3_Manufacturer DimmD3_PartNumber
      1x DimmE3_Manufacturer DimmE3_PartNumber
      1x DimmF3_Manufacturer DimmF3_PartNumber
      1x DimmG3_Manufacturer DimmG3_PartNumber
      1x DimmH3_Manufacturer DimmH3_PartNumber
      16x Hynix Semiconductor HMT41GR7AFR8C-RD 8 GB 1866 MHz 2 rank
      1x Micron/Numonyx 25Q Series 16 MB 33 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"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RedHat EL 6.4
 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:
```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xSSE4.2 -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

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: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2 -ipo -O3 -no-prec-div

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias -opt-mem-layout-trans=3

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

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll4 -auto-ilp32

Continued on next page

Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(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: -xSSE4.2(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/Intel-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revB.20130719.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revB.20130719.xml

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