SPEC® CINT2006 Result

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Supermicro

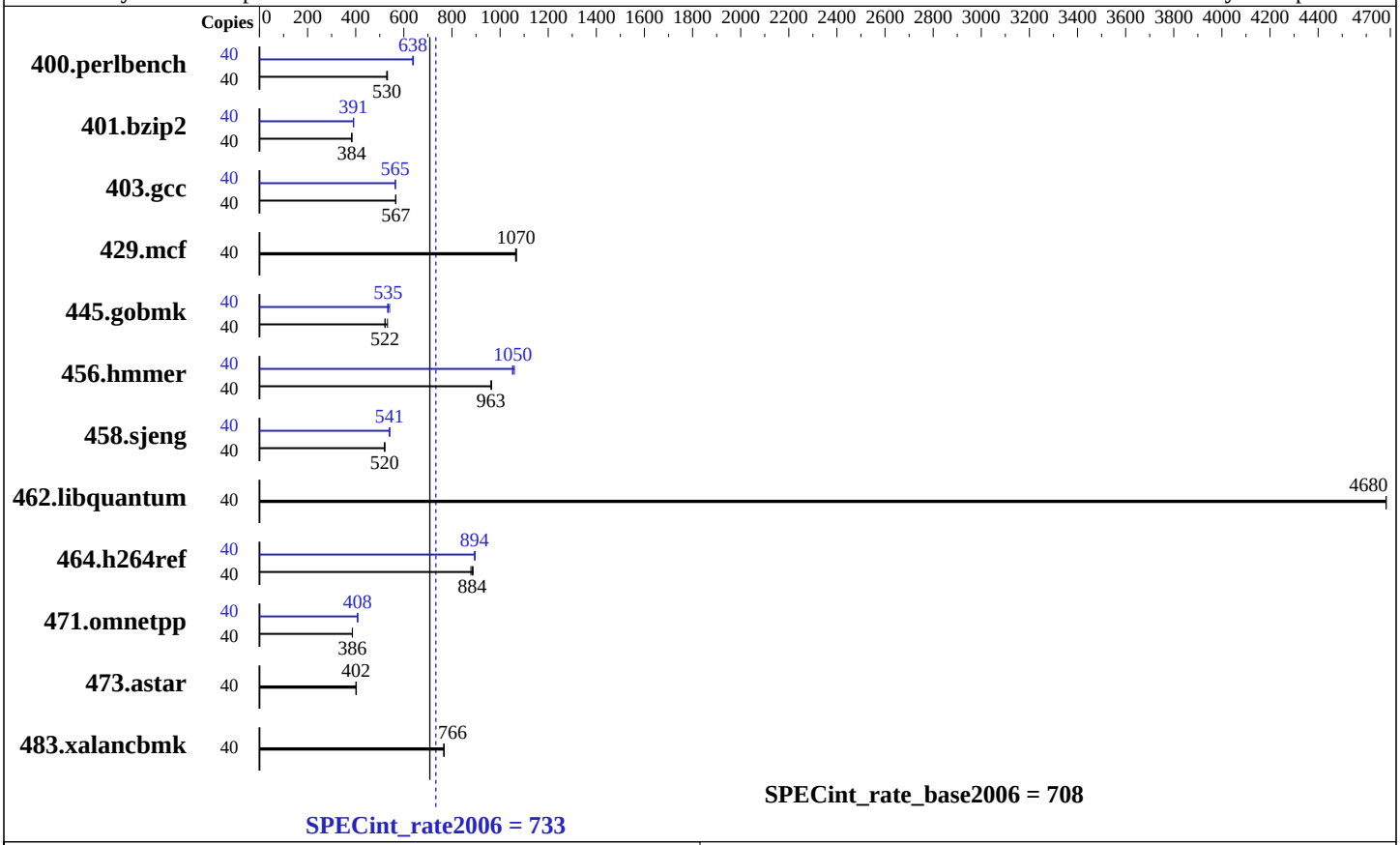
Supermicro SuperServer 2027R-72RFTP+
(X9DRW-7TPF+ , Intel Xeon E5-2660 v2)

SPECint®_rate2006 = 733

SPECint_rate_base2006 = 708

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

Test date: Jun-2014
Hardware Availability: Dec-2013
Software Availability: Sep-2013



Hardware

CPU Name:	Intel Xeon E5-2660 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.00 GHz
CPU MHz:	2200
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 (8 x 16 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem:	1 x 1 TB SATA II, 7200 RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.4, Kernel 2.6.32-358.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:	64-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	40	735	532	739	529	**737**	**530**	40	613	637	**613**	**638**	611	640
401.bzip2	40	1005	384	**1005**	**384**	1010	382	40	988	391	**988**	**391**	986	391
403.gcc	40	569	565	568	567	**568**	**567**	40	**570**	**565**	571	564	570	565
429.mcf	40	342	1070	343	1060	**342**	**1070**	40	342	1070	343	1060	**342**	**1070**
445.gobmk	40	804	522	**804**	**522**	788	532	40	776	541	**784**	**535**	788	533
456.hmmer	40	387	965	**388**	**963**	388	962	40	355	1050	352	1060	**354**	**1050**
458.sjeng	40	**930**	**520**	932	519	929	521	40	895	541	895	541	**895**	**541**
462.libquantum	40	177	4680	**177**	**4680**	177	4680	40	177	4680	**177**	**4680**	177	4680
464.h264ref	40	997	888	**1001**	**884**	1007	879	40	990	894	**990**	**894**	987	896
471.omnetpp	40	**647**	**386**	647	386	648	386	40	614	407	**613**	**408**	613	408
473.astar	40	**699**	**402**	700	401	697	403	40	**699**	**402**	700	401	697	403
483.xalancbmk	40	**360**	**766**	360	768	360	766	40	**360**	**766**	360	768	360	766

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 194-195.jnet Thu Jun  5 00:39:55 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

 From /proc/cpuinfo
    model name : Intel(R) Xeon(R) CPU E5-2660 v2 @ 2.20GHz
       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:       132121112 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 194-195.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 Jun 5 00:25

   SPEC is set to: /usr/cpu2006
      Filesystem     Type    Size  Used Avail Use% Mounted on
      /dev/sda2      ext4    1.3T  428G  833G  34% /

   Additional information from dmidecode:
     BIOS American Megatrends Inc. 3.0a 12/06/2013
     Memory:
      8x   16 GB
      1x DimmA2_Manufacturer DimmA2_PartNumber
      1x DimmA3_Manufacturer DimmA3_PartNumber
      1x DimmB2_Manufacturer DimmB2_PartNumber
      1x DimmB3_Manufacturer DimmB3_PartNumber
      1x DimmC2_Manufacturer DimmC2_PartNumber
      1x DimmC3_Manufacturer DimmC3_PartNumber
      1x DimmD2_Manufacturer DimmD2_PartNumber
      1x DimmD3_Manufacturer DimmD3_PartNumber
      1x DimmE2_Manufacturer DimmE2_PartNumber
      1x DimmE3_Manufacturer DimmE3_PartNumber
      1x DimmF2_Manufacturer DimmF2_PartNumber
      1x DimmF3_Manufacturer DimmF3_PartNumber
      1x DimmG2_Manufacturer DimmG2_PartNumber
      1x DimmG3_Manufacturer DimmG3_PartNumber
      1x DimmH2_Manufacturer DimmH2_PartNumber
      1x DimmH3_Manufacturer DimmH3_PartNumber
      8x Hynix Semiconductor HMT42GR7AFR4C-RD 16 GB 1866 MHz 2 rank
```

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Platform Notes (Continued)

```
 (End of data from sysinfo program)
Only 8 DIMMs are installed. Please ignore extra info above.
```

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`

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Peak Optimization Flags (Continued)

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

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-revC.html
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revD.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-revC.xml
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revD.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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