SPEC® CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation

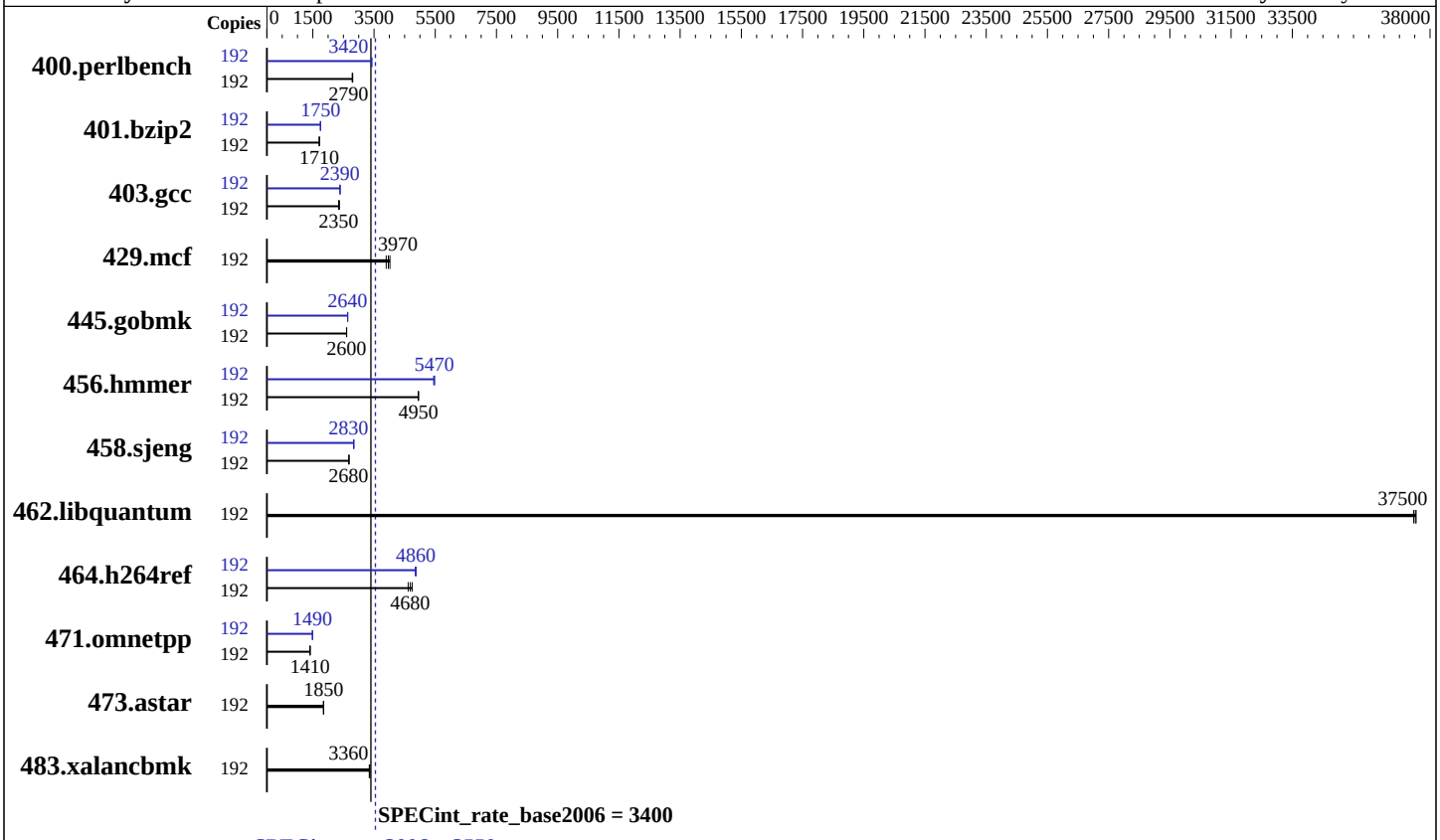
Express5800/A2040d (Intel Xeon E7-8890 v4)

SPECint®_rate2006 = 3550

SPECint_rate_base2006 = 3400

CPU2006 license: 9006
Test sponsor: NEC Corporation
Tested by: NEC Corporation

Test date: Sep-2016
Hardware Availability: Sep-2016
Software Availability: May-2016



Hardware

CPU Name:	Intel Xeon E7-8890 v4
CPU Characteristics:	Intel Turbo Boost Technology up to 3.40 GHz
CPU MHz:	2200
FPU:	Integrated
CPU(s) enabled:	96 cores, 4 chips, 24 cores/chip, 2 threads/core
CPU(s) orderable:	2,3,4 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:	60 MB I+D on chip per chip
Other Cache:	None
Memory:	512 GB (64 x 8 GB 1Rx4 PC4-2133P-R , running at 1600 MHz)
Disk Subsystem:	1 x 600 GB SAS, 15000 RPM, RAID 0
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.8 (Santiago) Kernel 2.6.32-642.el6.x86_64
Compiler:	C/C++: Version 16.0.0.109 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 Multi-Core V10.01

SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation

Express5800/A2040d (Intel Xeon E7-8890 v4)

SPECint_rate2006 = 3550

SPECint_rate_base2006 = 3400

CPU2006 license: 9006
Test sponsor: NEC Corporation
Tested by: NEC Corporation

Test date: Sep-2016
Hardware Availability: Sep-2016
Software Availability: May-2016

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	192	**672**	**2790**	669	2800	672	2790	192	547	3430	550	3410	**548**	**3420**
401.bzip2	192	1084	1710	1080	1720	**1081**	**1710**	192	1061	1750	**1056**	**1750**	1056	1750
403.gcc	192	**658**	**2350**	660	2340	652	2370	192	648	2390	**647**	**2390**	646	2390
429.mcf	192	436	4020	**441**	**3970**	449	3900	192	436	4020	**441**	**3970**	449	3900
445.gobmk	192	774	2600	773	2610	**773**	**2600**	192	**763**	**2640**	762	2640	764	2640
456.hmmer	192	362	4950	**362**	**4950**	362	4950	192	**327**	**5470**	327	5480	329	5450
458.sjeng	192	866	2680	**867**	**2680**	867	2680	192	817	2840	**820**	**2830**	820	2830
462.libquantum	192	106	37500	**106**	**37500**	106	37500	192	106	37500	**106**	**37500**	106	37500
464.h264ref	192	895	4750	921	4620	**907**	**4680**	192	876	4850	872	4870	**873**	**4860**
471.omnetpp	192	855	1400	**853**	**1410**	847	1420	192	807	1490	805	1490	**805**	**1490**
473.astar	192	730	1850	727	1850	**728**	**1850**	192	730	1850	727	1850	**728**	**1850**
483.xalancbmk	192	394	3360	**394**	**3360**	396	3340	192	394	3360	**394**	**3360**	396	3340

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:
 Memory RAS Mode: Independent mode
 VT-x : Disabled
 Processor C6 Report : Disabled
 OS Performance Tuning : Disabled
 Energy Performance : Performance
 Patrol Scrub : Disabled
 Demand Scrub : Disabled
 Memory P.E. Retry : Disabled
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/opt/SmartHeap_10mc/lib:/opt/SmartHeap_10mc/lib64:/opt/intel/compilers_and_libraries_2016.0.109/linux/compiler/lib/ia32_lin:/opt/intel/compilers_and_libraries_2016.0.109/linux/compiler/lib/intel64_lin"

 Transparent Huge Pages enabled with:
```

Continued on next page

General Notes (Continued)

```
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 -L/opt/intel/compilers_and_libraries_2016.0.109/linux/compiler/lib/ia32_lin
```

C++ benchmarks:

```
icpc -m32 -L/opt/intel/compilers_and_libraries_2016.0.109/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
-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/opt/SmartHeap_10mc/lib -lsmartheap
```

Base Other Flags

C benchmarks:

Continued on next page

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_2016.0.109/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_2016.0.109/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`

Continued on next page

Peak Optimization Flags (Continued)

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div

429.mcf: basepeak = yes

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -prof-use(pass 2) -par-num-threads=1(pass 1) -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: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/opt/SmartHeap_10mc/lib -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/NEC-platform-Settings-V1.2-A2040d-RevA.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/NEC-platform-Settings-V1.2-A2040d-RevA.xml

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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 Oct 4 14:49:38 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 4 October 2016.