



SPEC® CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

NEC Corporation

SPECint®_rate2006 = 1700

Express5800/B120g-h (Intel Xeon E5-2699 v4)

SPECint_rate_base2006 = 1640

CPU2006 license: 9006

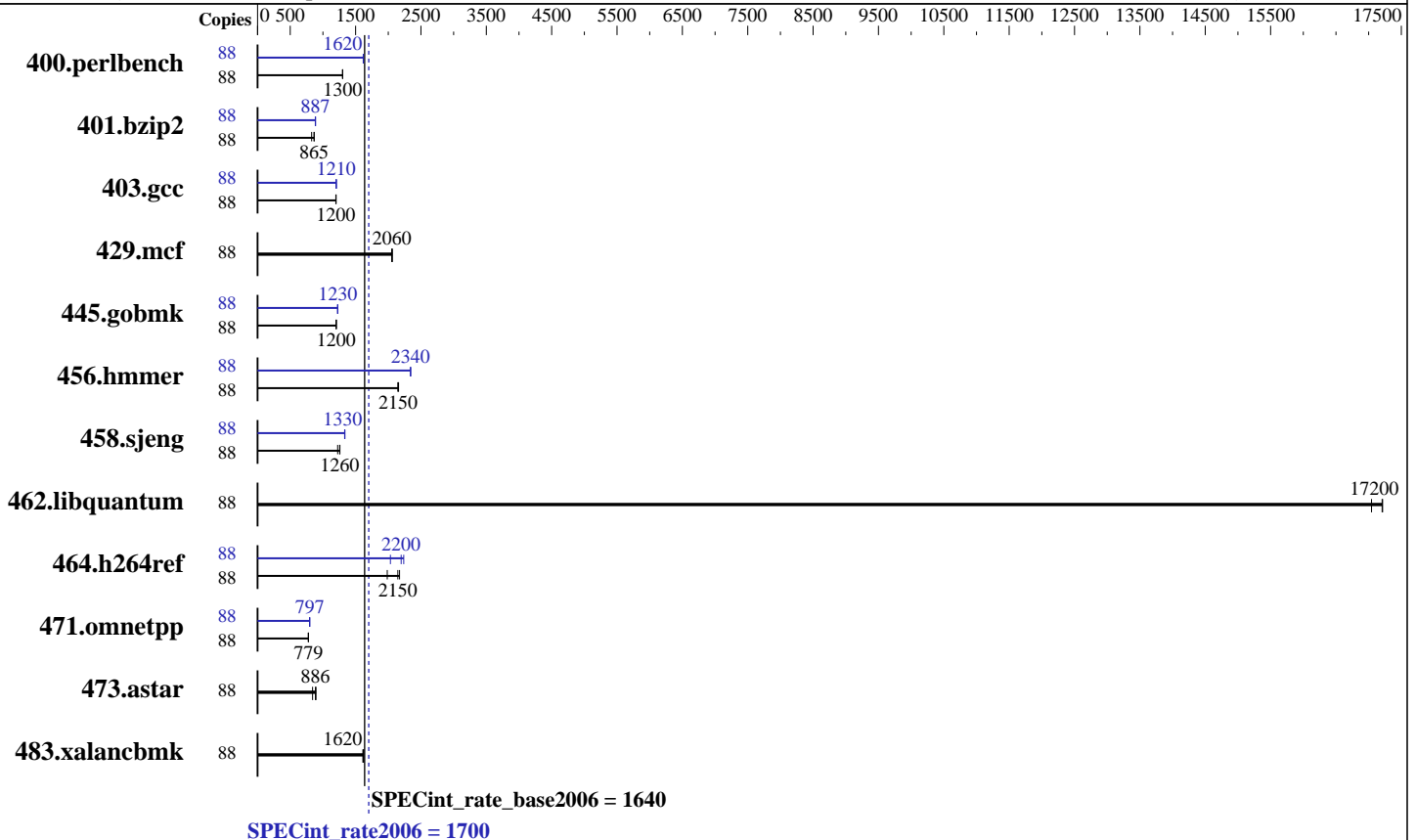
Test date: Apr-2016

Test sponsor: NEC Corporation

Hardware Availability: Dec-2016

Tested by: NEC Corporation

Software Availability: Jan-2016



Hardware

CPU Name: Intel Xeon E5-2699 v4
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
 CPU MHz: 2200
 FPU: Integrated
 CPU(s) enabled: 44 cores, 2 chips, 22 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: 55 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (8 x 32 GB 2Rx4 PC4-2400T-R)
 Disk Subsystem: NEC Storage M310 via Fibre Channel
 (See additional details below)
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 7.2 (Maipo)
 Kernel 3.10.0-327.4.5.el7.x86_64
 Compiler: C/C++: Version 16.0.0.101 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 V10.2



SPEC CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

NEC Corporation

SPECint_rate2006 = 1700

Express5800/B120g-h (Intel Xeon E5-2699 v4)

SPECint_rate_base2006 = 1640

CPU2006 license: 9006

Test date: Apr-2016

Test sponsor: NEC Corporation

Hardware Availability: Dec-2016

Tested by: NEC Corporation

Software Availability: Jan-2016

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	88	660	1300	662	1300	660	1300	88	532	1620	532	1620	531	1620
401.bzip2	88	982	865	1026	827	981	866	88	961	884	958	887	958	887
403.gcc	88	589	1200	591	1200	591	1200	88	590	1200	588	1210	588	1210
429.mcf	88	391	2050	389	2060	390	2060	88	391	2050	389	2060	390	2060
445.gobmk	88	767	1200	768	1200	766	1210	88	752	1230	753	1230	754	1220
456.hammer	88	381	2160	382	2150	382	2150	88	351	2340	351	2340	351	2340
458.sjeng	88	845	1260	847	1260	869	1230	88	799	1330	799	1330	796	1340
462.libquantum	88	106	17200	106	17200	107	17000	88	106	17200	106	17200	107	17000
464.h264ref	88	896	2170	981	1980	907	2150	88	958	2030	886	2200	871	2240
471.omnetpp	88	706	779	708	776	706	779	88	689	798	690	797	690	797
473.astar	88	734	842	698	886	691	894	88	734	842	698	886	691	894
483.xalancbmk	88	377	1610	375	1620	374	1620	88	377	1610	375	1620	374	1620

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:

Energy Performance: Performance
Patrol Scrub: Disabled
Cluster on Die: Enabled
QPI Frequency Limit: 6.4 GT/s

Storage Configuration for Disk Subsystem:

NEC Storage M310 has 4 x 600 GB 10000 RPM SAS disks under RAID-10 configuration mounted over 8Gbps Fibre Channel interface with these options "defaults" in the /etc/fstab.

General Notes

Environment variables set by runspec before the start of the run:

LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

NEC Corporation

SPECint_rate2006 = 1700

Express5800/B120g-h (Intel Xeon E5-2699 v4)

SPECint_rate_base2006 = 1640

CPU2006 license: 9006

Test date: Apr-2016

Test sponsor: NEC Corporation

Hardware Availability: Dec-2016

Tested by: NEC Corporation

Software Availability: Jan-2016

General Notes (Continued)

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
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/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.hmmcr: -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/sh -lsmarheap
```



SPEC CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

NEC Corporation

SPECint_rate2006 = 1700

Express5800/B120g-h (Intel Xeon E5-2699 v4)

SPECint_rate_base2006 = 1640

CPU2006 license: 9006

Test date: Apr-2016

Test sponsor: NEC Corporation

Hardware Availability: Dec-2016

Tested by: NEC Corporation

Software Availability: Jan-2016

Base Other Flags

C benchmarks:

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: -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

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

NEC Corporation

SPECint_rate2006 = 1700

Express5800/B120g-h (Intel Xeon E5-2699 v4)

SPECint_rate_base2006 = 1640

CPU2006 license: 9006

Test date: Apr-2016

Test sponsor: NEC Corporation

Hardware Availability: Dec-2016

Tested by: NEC Corporation

Software Availability: Jan-2016

Peak Optimization Flags (Continued)

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

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.hmmmer: -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/sh -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca



SPEC CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

NEC Corporation

SPECint_rate2006 = 1700

Express5800/B120g-h (Intel Xeon E5-2699 v4)

SPECint_rate_base2006 = 1640

CPU2006 license: 9006

Test date: Apr-2016

Test sponsor: NEC Corporation

Hardware Availability: Dec-2016

Tested by: NEC Corporation

Software Availability: Jan-2016

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-B120g-RevB.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-B120g-RevB.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 Feb 7 17:00:32 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 7 February 2017.