



SPEC® CINT2006 Result

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NEC Corporation

SPECint®_rate2006 = 345

Express5800/E120g-M (Intel Xeon E5-2620 v4)

SPECint_rate_base2006 = 327

CPU2006 license: 9006

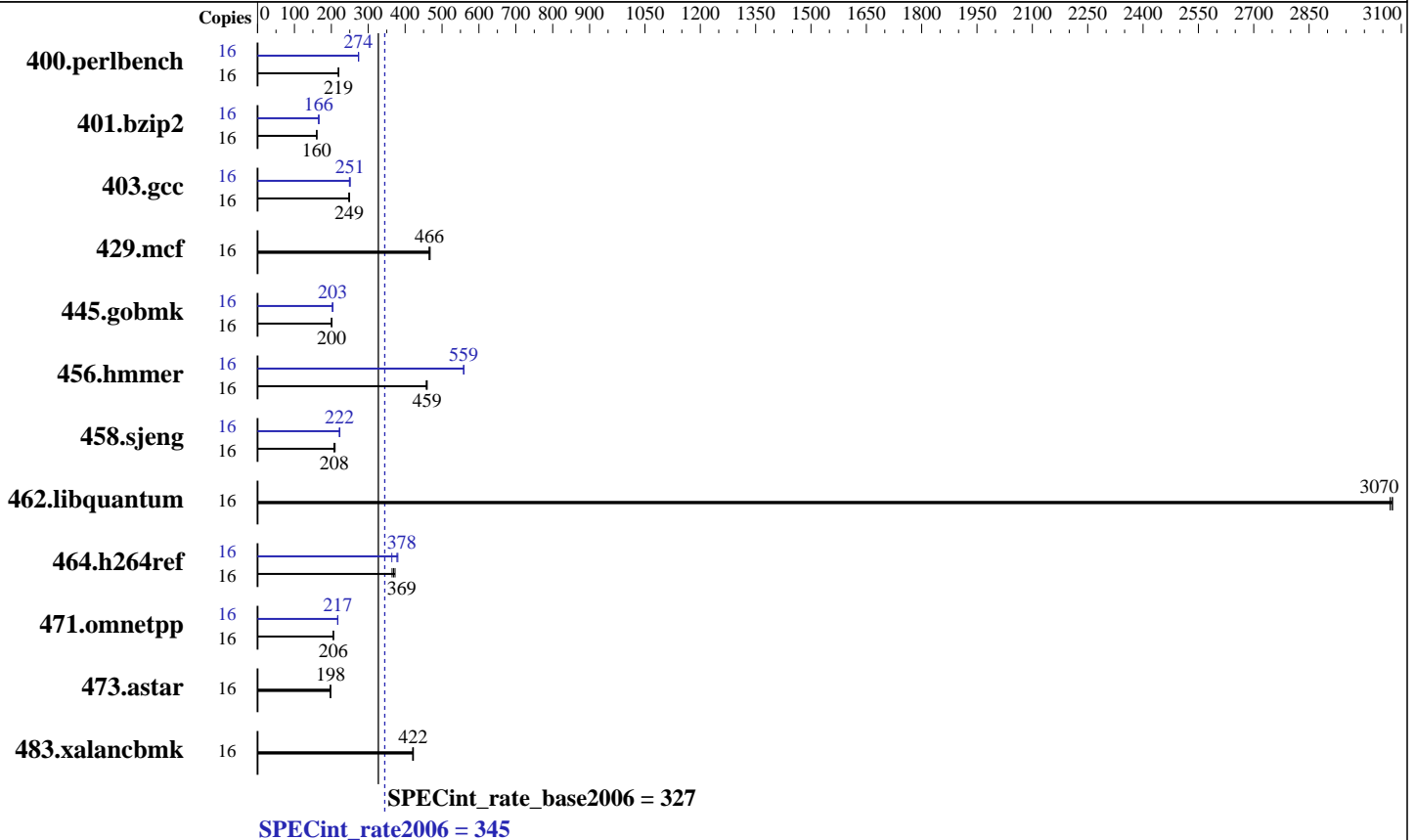
Test date: Mar-2016

Test sponsor: NEC Corporation

Hardware Availability: Apr-2016

Tested by: NEC Corporation

Software Availability: Nov-2015



Hardware

CPU Name: Intel Xeon E5-2620 v4
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz
 CPU MHz: 2100
 FPU: Integrated
 CPU(s) enabled: 8 cores, 1 chip, 8 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: 20 MB I+D on chip per chip
 Other Cache: None
 Memory: 128 GB (8 x 16 GB 2Rx4 PC4-2400T-R, running at 2133 MHz)
 Disk Subsystem: 1 x 1 TB SATA, 7200 RPM
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 7.2 (Maipo)
 Kernel 3.10.0-327.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



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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	16	713	219	713	219	<u>713</u>	<u>219</u>	16	572	273	571	274	<u>571</u>	<u>274</u>
401.bzip2	16	<u>963</u>	<u>160</u>	964	160	960	161	16	<u>931</u>	<u>166</u>	929	166	932	166
403.gcc	16	516	250	521	247	<u>518</u>	<u>249</u>	16	517	249	513	251	<u>514</u>	<u>251</u>
429.mcf	16	312	468	<u>313</u>	<u>466</u>	314	465	16	312	468	<u>313</u>	<u>466</u>	314	465
445.gobmk	16	<u>837</u>	<u>200</u>	837	200	834	201	16	824	204	826	203	<u>825</u>	<u>203</u>
456.hammer	16	<u>325</u>	<u>459</u>	325	459	327	457	16	267	559	<u>267</u>	<u>559</u>	267	558
458.sjeng	16	934	207	<u>932</u>	<u>208</u>	921	210	16	868	223	874	222	<u>870</u>	<u>222</u>
462.libquantum	16	<u>108</u>	<u>3070</u>	108	3070	108	3080	16	<u>108</u>	<u>3070</u>	108	3070	108	3080
464.h264ref	16	<u>960</u>	<u>369</u>	971	365	950	373	16	<u>937</u>	<u>378</u>	973	364	931	380
471.omnetpp	16	487	205	486	206	<u>487</u>	<u>206</u>	16	<u>460</u>	<u>217</u>	460	217	460	217
473.astar	16	<u>568</u>	<u>198</u>	570	197	568	198	16	<u>568</u>	<u>198</u>	570	197	568	198
483.xalancbmk	16	263	420	261	422	<u>262</u>	<u>422</u>	16	263	420	261	422	<u>262</u>	<u>422</u>

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

Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset 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:
Power Management Policy: Custom
Energy Performance: Performance
Patrol Scrub: Disabled

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"

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



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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.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/sh -lsmartheap

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

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Peak Compiler Invocation (Continued)

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`

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`

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Peak Optimization Flags (Continued)

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/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-ic16.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-120g-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-V1.2-120g-RevB.xml>



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For other inquiries, please contact webmaster@spec.org.

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