



SPEC® CINT2006 Result

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NEC Corporation

SPECint®_rate2006 = 202

Express5800/R120a-1
(Intel Xeon E5520)

SPECint_rate_base2006 = 188

CPU2006 license: 9006

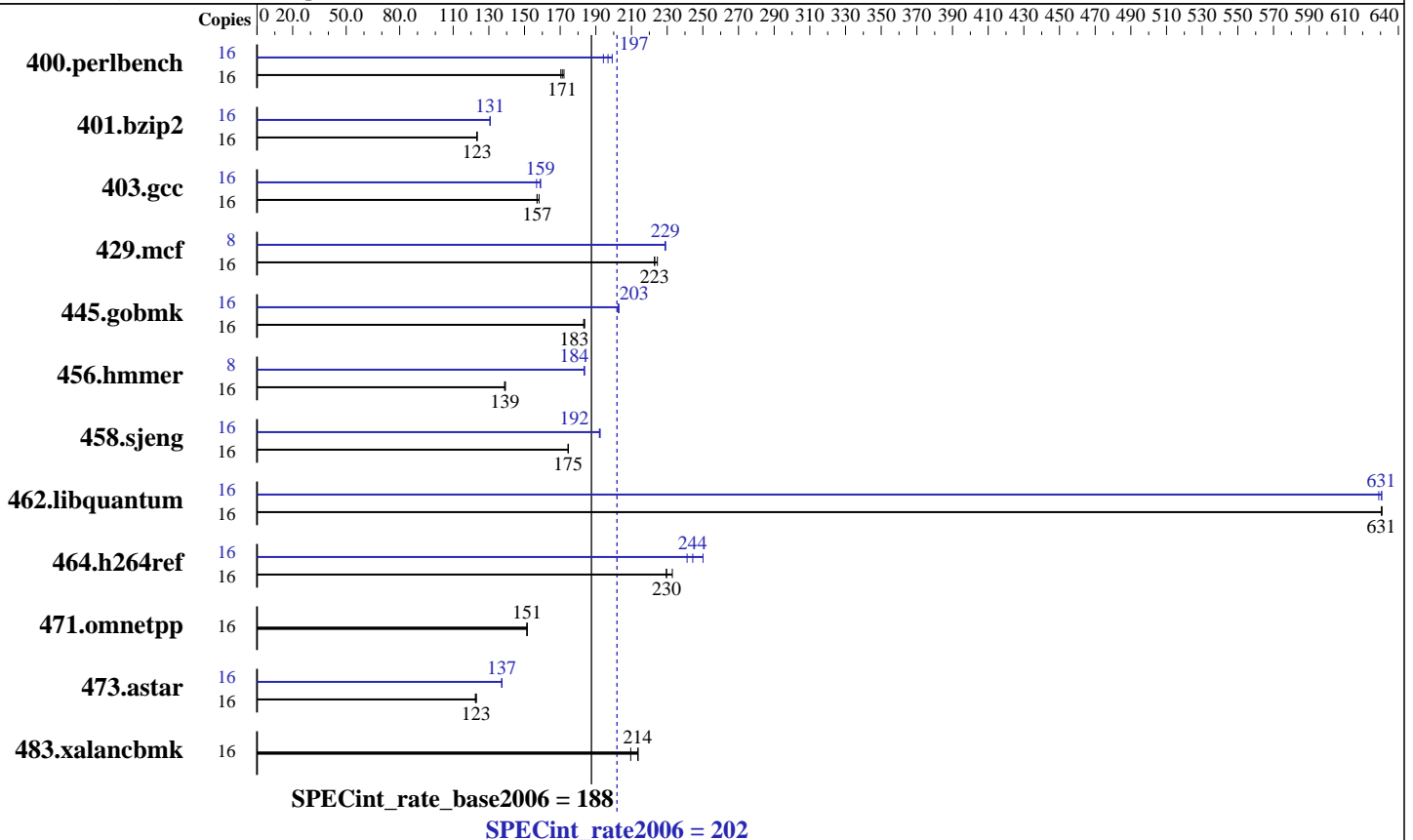
Test date: Mar-2009

Test sponsor: NEC Corporation

Hardware Availability: Apr-2009

Tested by: NEC Corporation

Software Availability: Feb-2009



Hardware

CPU Name: Intel Xeon E5520
 CPU Characteristics: Intel Turbo Boost Technology up to 2.53 GHz
 CPU MHz: 2267
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 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: 8 MB I+D on chip per chip
 Other Cache: None
 Memory: 48 GB (12 X 4 GB PC3-8500R, 2 rank, CL7, ECC)
 Disk Subsystem: 1x146.5 GB SAS, 15000 RPM
 Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16.60-0.34-smp
 Compiler: Intel C++ Compiler 11.0 for Linux Build 20090131 Package ID: l_cproc_p_11.0.081
 Auto Parallel: No
 File System: ReiserFS
 System State: Run level 3 (multi-user)
 Base Pointers: 32-bit
 Peak Pointers: 32/64-bit
 Other Software: MicroQuill SmartHeap Library 8.1 Binutils 2.18.50.0.7.20080502



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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	918	170	<u>913</u>	<u>171</u>	908	172	16	785	199	<u>794</u>	<u>197</u>	805	194
401.bzip2	16	<u>1252</u>	<u>123</u>	1250	123	1253	123	16	1182	131	1180	131	<u>1181</u>	<u>131</u>
403.gcc	16	814	158	<u>820</u>	<u>157</u>	820	157	16	822	157	<u>811</u>	<u>159</u>	810	159
429.mcf	16	655	223	<u>654</u>	<u>223</u>	650	225	8	319	229	318	229	<u>319</u>	<u>229</u>
445.gobmk	16	<u>915</u>	<u>183</u>	914	184	916	183	16	<u>828</u>	<u>203</u>	827	203	829	203
456.hammer	16	1075	139	1072	139	<u>1074</u>	<u>139</u>	8	407	183	406	184	<u>407</u>	<u>184</u>
458.sjeng	16	1110	174	1109	175	<u>1109</u>	<u>175</u>	16	<u>1007</u>	<u>192</u>	1007	192	1008	192
462.libquantum	16	<u>526</u>	<u>631</u>	526	631	526	631	16	<u>526</u>	<u>631</u>	526	631	527	629
464.h264ref	16	<u>1542</u>	<u>230</u>	1520	233	1543	230	16	1468	241	<u>1449</u>	<u>244</u>	1416	250
471.omnetpp	16	661	151	660	151	<u>660</u>	<u>151</u>	16	661	151	660	151	<u>660</u>	<u>151</u>
473.astar	16	<u>915</u>	<u>123</u>	913	123	917	122	16	818	137	818	137	<u>818</u>	<u>137</u>
483.xalancbmk	16	517	214	<u>517</u>	<u>214</u>	527	210	16	517	214	<u>517</u>	<u>214</u>	527	210

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

Submit Notes

The config file option 'submit' was used.
numactl was used to bind copies to the cores

Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run

Platform Notes

BIOS setting:
NUMA configuration : Enabled

General Notes

The NEC Express5800/R120a-1(Intel Xeon E5520),
the NEC Express5800/R120a-2(Intel Xeon E5520),
the Bull NovaScale R440 E2 (Intel Xeon E5520, 2.26GHz) and
the Bull NovaScale R460 E2 (Intel Xeon E5520, 2.26GHz) models are electronically equivalent.
The results have been measured on a NEC Express5800/R120a-1(Intel Xeon E5520) model.

Base Compiler Invocation

C benchmarks:
icc

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Base Compiler Invocation (Continued)

C++ benchmarks:
icpc

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 -static -inline-calloc
-opt-malloc-options=3 -opt-prefetch

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/opt/SmartHeap_8.1/lib -lsmartheap

Base Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
icc

401.bzip2: /opt/intel/Compiler/11.0/081/bin/intel64/icc
456.hmmer: /opt/intel/Compiler/11.0/081/bin/intel64/icc
458.sjeng: /opt/intel/Compiler/11.0/081/bin/intel64/icc

C++ benchmarks (except as noted below):
icpc

473.astar: /opt/intel/Compiler/11.0/081/bin/intel64/icpc



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Peak Portability Flags

```

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
473.astar: -DSPEC_CPU_LP64
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) -static(pass 2)
               -prof-use(pass 2) -ansi-alias -opt-prefetch

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
            -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
            -prof-use(pass 2) -opt-prefetch -ansi-alias -auto-ilp32

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -static -inline-calloc
          -opt-malloc-options=3

429.mcf: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
          -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
          -prof-use(pass 2) -opt-prefetch

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -O2
            -ipo -no-prec-div -ansi-alias

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

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

462.libquantum: -xSSE4.2 -ipo -O3 -no-prec-div -static
                -opt-malloc-options=3 -opt-prefetch

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
              -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
              -prof-use(pass 2) -unroll2 -ansi-alias

```

C++ benchmarks:

471.omnetpp: basepeak = yes

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Peak Optimization Flags (Continued)

```
473.astar: -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=routine -auto-ilp32
          -Wl,-z,muldefs -L/opt/SmartHeap_8.1/lib64 -lsmartheap64
```

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-ic11.0-int-linux64-revF.html>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revD.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revF.xml>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revD.xml>

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

Tested with SPEC CPU2006 v1.1.

Report generated on Wed Jul 23 01:45:27 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 14 April 2009.