



SPEC® CINT2006 Result

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Dell Inc.

SPECint®_rate2006 = 155

PowerEdge R410 (Intel Xeon E5607, 2.26 GHz)

SPECint_rate_base2006 = 161

CPU2006 license: 55

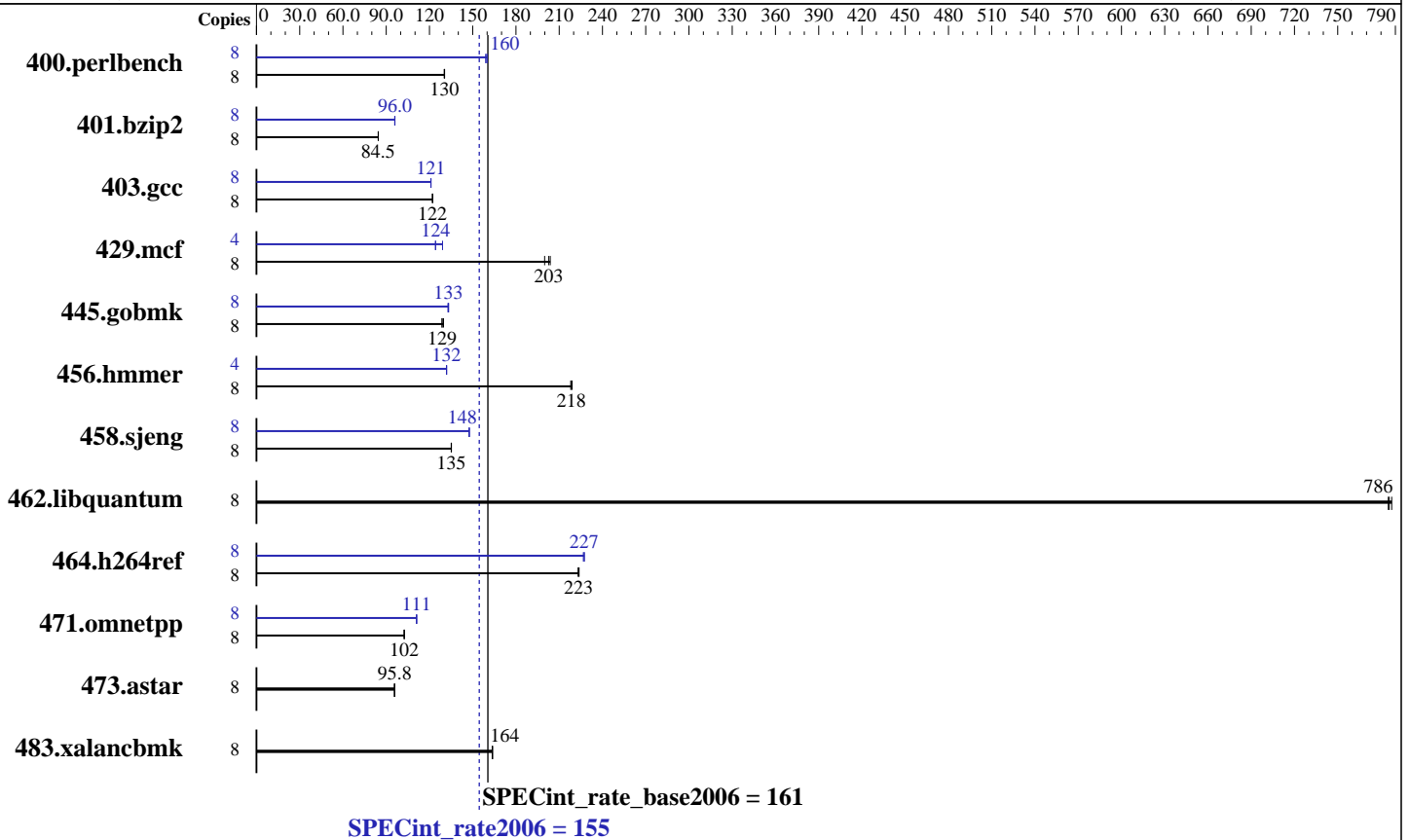
Test date: Mar-2011

Test sponsor: Dell Inc.

Hardware Availability: Feb-2011

Tested by: Dell Inc.

Software Availability: Jan-2011



Hardware

CPU Name: Intel Xeon E5607
 CPU Characteristics: 2267
 CPU MHz: 2267
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip
 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 (6 x 8 GB 2Rx4 PC3-10600R-9, ECC, running at 1066 MHz)
 Disk Subsystem: 1 x 146 GB 15000 RPM SAS
 Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.12-0.7-default
 Compiler: Intel C++ Compiler XE for applications running on IA-32 Version 12.0.1.116 Build 20101116
 Auto Parallel: No
 File System: ext3
 System State: Run level 3 (multi-user)
 Base Pointers: 32-bit
 Peak Pointers: 32/64-bit
 Other Software: Microquill SmartHeap V9.01



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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	8	599	131	<u>599</u>	<u>130</u>	600	130	8	492	159	<u>489</u>	<u>160</u>	489	160
401.bzip2	8	<u>914</u>	<u>84.5</u>	913	84.5	914	84.5	8	<u>804</u>	<u>96.0</u>	804	96.1	805	95.9
403.gcc	8	528	122	527	122	<u>527</u>	<u>122</u>	8	532	121	532	121	<u>532</u>	<u>121</u>
429.mcf	8	365	200	<u>360</u>	<u>203</u>	358	204	4	294	124	<u>293</u>	<u>124</u>	283	129
445.gobmk	8	<u>652</u>	<u>129</u>	647	130	652	129	8	629	133	<u>630</u>	<u>133</u>	632	133
456.hammer	8	341	219	342	218	<u>342</u>	<u>218</u>	4	<u>283</u>	<u>132</u>	283	132	283	132
458.sjeng	8	716	135	717	135	<u>716</u>	<u>135</u>	8	657	147	<u>656</u>	<u>148</u>	656	148
462.libquantum	8	211	785	<u>211</u>	<u>786</u>	211	787	8	211	785	<u>211</u>	<u>786</u>	211	787
464.h264ref	8	791	224	794	223	<u>792</u>	<u>223</u>	8	<u>779</u>	<u>227</u>	781	227	778	227
471.omnetpp	8	487	103	488	102	<u>488</u>	<u>102</u>	8	450	111	<u>450</u>	<u>111</u>	450	111
473.astar	8	586	95.8	<u>586</u>	<u>95.8</u>	587	95.7	8	586	95.8	<u>586</u>	<u>95.8</u>	587	95.7
483.xalancbmk	8	337	164	338	163	<u>337</u>	<u>164</u>	8	337	164	338	163	<u>337</u>	<u>164</u>

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
'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
echo 3600 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
```

Platform Notes

BIOS Settings:
Power Management = Maximum Performance (Default = Active Power Controller)

General Notes

Binaries were compiled on RHEL5.5
The Dell PowerEdge R410 and
the Bull NovaScale R430 F2 models are electronically equivalent.
The results have been measured on a Dell PowerEdge R410 model.



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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
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/smartheap -lsmartheap
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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

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Peak Compiler Invocation (Continued)

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)
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

429.mcf: -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 -auto-ilp32

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias -auto-ilp32

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

462.libquantum: basepeak = yes

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Peak Optimization Flags (Continued)

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/smartheap -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-ic12.0-linux64-revB.html>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20110524.00.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20110524.00.xml>

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

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