



SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECint®_rate2006 = 91.9

PowerEdge T605 (AMD Opteron 2350, 2.00 GHz)

SPECint_rate_base2006 = 80.1

CPU2006 license: 55

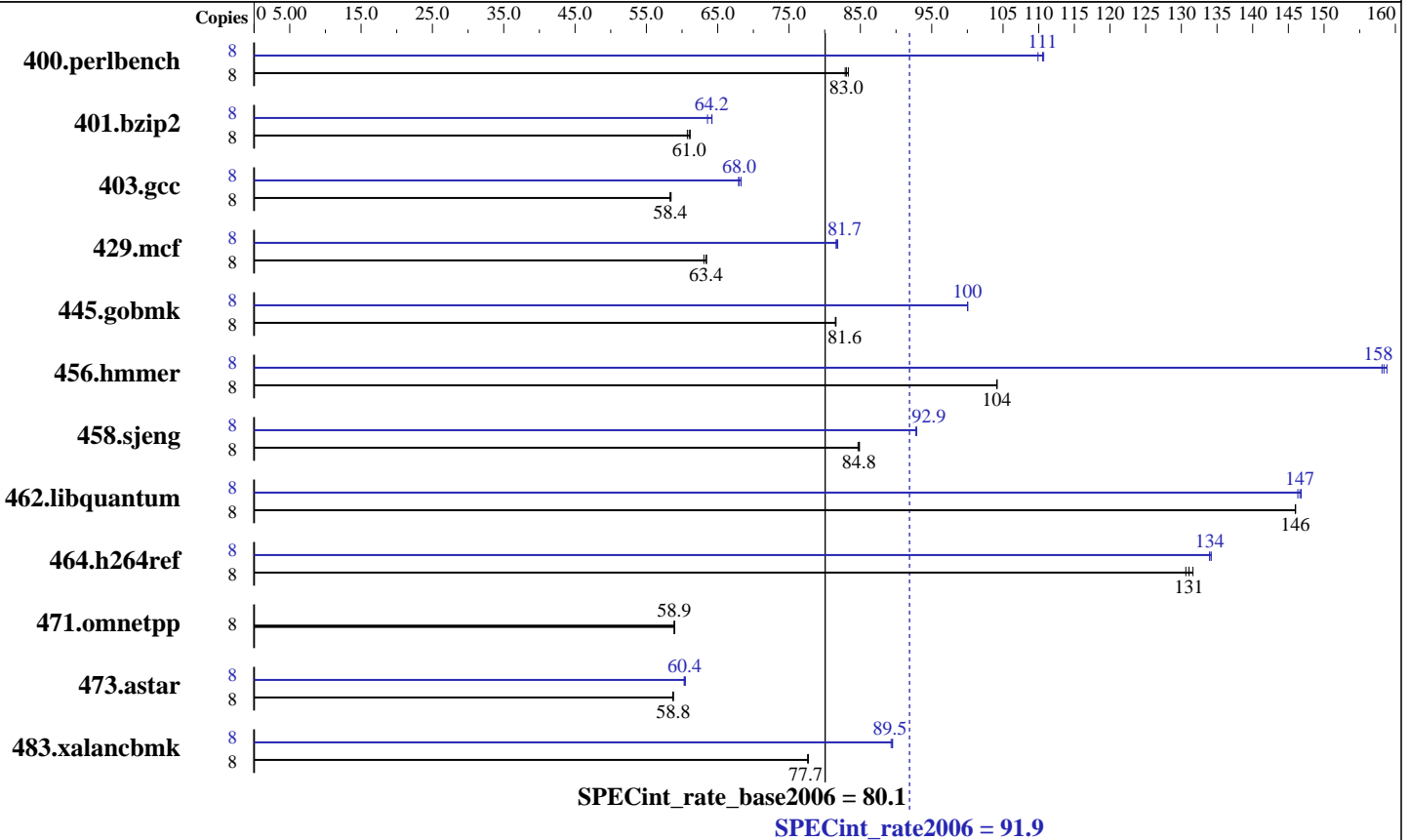
Test date: Mar-2008

Test sponsor: Dell Inc.

Hardware Availability: Apr-2008

Tested by: Dell Inc.

Software Availability: May-2008



Hardware

CPU Name: AMD Opteron 2350
 CPU Characteristics: 2000
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip
 CPU(s) orderable: 1,2 chips
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 512 KB I+D on chip per core
 L3 Cache: 2 MB I+D on chip per chip
 Other Cache: None
 Memory: 16 GB (4 x 4 GB, DDR2-667, CL5, Reg, Dual Rank)
 Disk Subsystem: 2 x 250 GB 7200 RPM SATA (RAID 0)
 Other Hardware: None

Software

Operating System: SuSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp
 Compiler: PGI Server Complete Version 7.2 PathScale Compiler Suite Version 3.1
 Auto Parallel: No
 File System: ReiserFS
 System State: Run Level 3 (multi-user)
 Base Pointers: 32/64-bit
 Peak Pointers: 32/64-bit
 Other Software: SmartHeap 8.0 32-bit Library for Linux



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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	938	83.3	943	82.9	<u>941</u>	<u>83.0</u>	8	711	110	706	111	<u>707</u>	<u>111</u>
401.bzip2	8	<u>1266</u>	<u>61.0</u>	1263	61.1	1271	60.7	8	1214	63.6	<u>1203</u>	<u>64.2</u>	1202	64.2
403.gcc	8	<u>1104</u>	<u>58.4</u>	1102	58.5	1104	58.3	8	948	67.9	<u>947</u>	<u>68.0</u>	943	68.3
429.mcf	8	1157	63.1	<u>1152</u>	<u>63.4</u>	1150	63.4	8	<u>893</u>	<u>81.7</u>	894	81.6	892	81.8
445.gobmk	8	1030	81.5	1029	81.6	<u>1029</u>	<u>81.6</u>	8	<u>839</u>	<u>100</u>	839	100	839	100
456.hmmer	8	716	104	717	104	<u>717</u>	<u>104</u>	8	472	158	<u>471</u>	<u>158</u>	470	159
458.sjeng	8	1143	84.7	<u>1141</u>	<u>84.8</u>	1140	84.9	8	1043	92.8	1042	92.9	<u>1042</u>	<u>92.9</u>
462.libquantum	8	1135	146	<u>1135</u>	<u>146</u>	1136	146	8	<u>1131</u>	<u>147</u>	1129	147	1133	146
464.h264ref	8	1345	132	1355	131	<u>1351</u>	<u>131</u>	8	<u>1321</u>	<u>134</u>	1319	134	1322	134
471.omnetpp	8	<u>849</u>	<u>58.9</u>	849	58.9	848	59.0	8	<u>849</u>	<u>58.9</u>	849	58.9	848	59.0
473.astar	8	957	58.7	<u>956</u>	<u>58.8</u>	955	58.8	8	<u>930</u>	<u>60.4</u>	932	60.3	929	60.5
483.xalancbmk	8	710	77.7	711	77.6	<u>711</u>	<u>77.7</u>	8	<u>617</u>	<u>89.5</u>	617	89.5	618	89.3

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

Operating System Notes

```
'numactl' was used to bind copies to the cores
Environment variable PGI_HUGE_PAGES set to 150
'ulimit -s unlimited' was used to set environment stack size
'ulimit -l 2457600' was used to set environment locked pages in memory quantity
Set /proc/sys/vm/nr_hugepages=1200
mount -t hugetlbfs nodev /mnt/hugepages
```

Base Compiler Invocation

C benchmarks:
pgcc

C++ benchmarks:
pgcpp

Base Portability Flags

```
400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
```

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Base Portability Flags (Continued)

458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:

-fast -Mipa=jobs:4 -Mipa=fast -Mipa=inline -Mfprelaxed
-Msmartalloc=huge:150 -tp barcelona-64 -Bstatic_pgi

C++ benchmarks:

-fastsse -Mipa=jobs:4 -Mipa=fast -Mipa=inline -Mfprelaxed
-Msmartalloc=huge:150 --zc_eh -tp barcelona -Bstatic_pgi

Base Other Flags

C benchmarks:

-w

C++ benchmarks:

-w

Peak Compiler Invocation

C benchmarks (except as noted below):

pgcc

400.perlbench: pathcc

403.gcc: pathcc

445.gobmk: pathcc

C++ benchmarks (except as noted below):

pathCC

471.omnetpp: pgcpp



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Peak Portability Flags

```

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
483.xalanbmk: -DSPEC_CPU_LINUX

```

Peak Optimization Flags

C benchmarks:

```

400.perlbench: -march=barcelona -fb_create fbdata(pass 1)
               -fb_opt fbdata(pass 2) -Ofast -IPA:plimit=20000 -LNO:opt=0
               -WOPT:if_conv=0 -CG:local_sched_alg=1

401.bzip2: -Mpfi(pass 1) -Mpfo(pass 2) -fast -O4
           -Msmartalloc=huge:150 -Mnounroll -tp barcelona-64
           -Bstatic_pgi

403.gcc: -march=barcelona -fb_create fbdata(pass 1)
          -fb_opt fbdata(pass 2) -m32 -O3 -OPT:Ofast

429.mcf: -fastsse -Mipa=jobs:4 -Mipa=fast -Mipa=inline:1
         -Msmartalloc=huge:150 -tp barcelona -Bstatic_pgi

445.gobmk: -march=barcelona -fb_create fbdata(pass 1)
           -fb_opt fbdata(pass 2) -O3 -OPT:alias=restrict -LNO:opt=0
           -CG:p2align=on

456.hmmer: -fastsse -Munroll=n:8 -Msmartalloc=huge:150 -Mfprelaxed
           -Mvect=partial -Msafeptr -Mipa=jobs:4 -Mipa=const
           -Mipa=ptr -Mipa=arg -Mipa=inline -tp barcelona-64
           -Bstatic_pgi

458.sjeng: -Mpfi(pass 1) -Mipa=jobs:4(pass 2) -Mipa=fast(pass 2)
           -Mipa=inline:1(pass 2) -Mipa=noarg(pass 2) -Mpfo(pass 2)
           -fastsse -Msmartalloc=huge:150 -Mfprelaxed
           -tp barcelona-64 -Bstatic_pgi

462.libquantum: -fastsse -Mfprelaxed -Msmartalloc=huge:150 -Munroll=m:8
               -Mipa=jobs:4 -Mipa=fast -Mipa=inline -Mipa=noarg
               -tp barcelona-64 -Bstatic_pgi

464.h264ref: -Mpfi=indirect(pass 1) -Mipa=jobs:4(pass 2)
             -Mipa=fast(pass 2) -Mipa=inline(pass 2)
             -Mpfo=indirect(pass 2) -fastsse -Msmartalloc=huge:150
             -Mfprelaxed -tp barcelona-64 -Bstatic_pgi

```

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Peak Optimization Flags (Continued)

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -march=barcelona -Ofast -TENV:frame_pointer=off
-WOPT:if_conv=0 -GRA:optimize_boundary=on -IPA:plimit=525
-m32 -lsmartheap

483.xalancbmk: -march=barcelona -Ofast -m32 -OPT:unroll_times_max=8
-CG:push_pop_int_saved_regs=off -CG:ptr_load_use=0
-lsmartheap

Peak Other Flags

C benchmarks (except as noted below):

-w

400.perlbench: No flags used

403.gcc: No flags used

445.gobmk: No flags used

C++ benchmarks (except as noted below):

-L/root/work/cpu2006/amd123GH.libs/32

471.omnetpp: -w

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/amd123GH-flags.20090714.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/amd123GH-flags.20090714.xml>

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