



# SPEC® CINT2006 Result

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## Hewlett-Packard Company

### SPECint®\_rate2006 = 137

ProLiant BL685c G5  
(2.7 GHz AMD Opteron 8384)

### SPECint\_rate\_base2006 = 111

CPU2006 license: 3

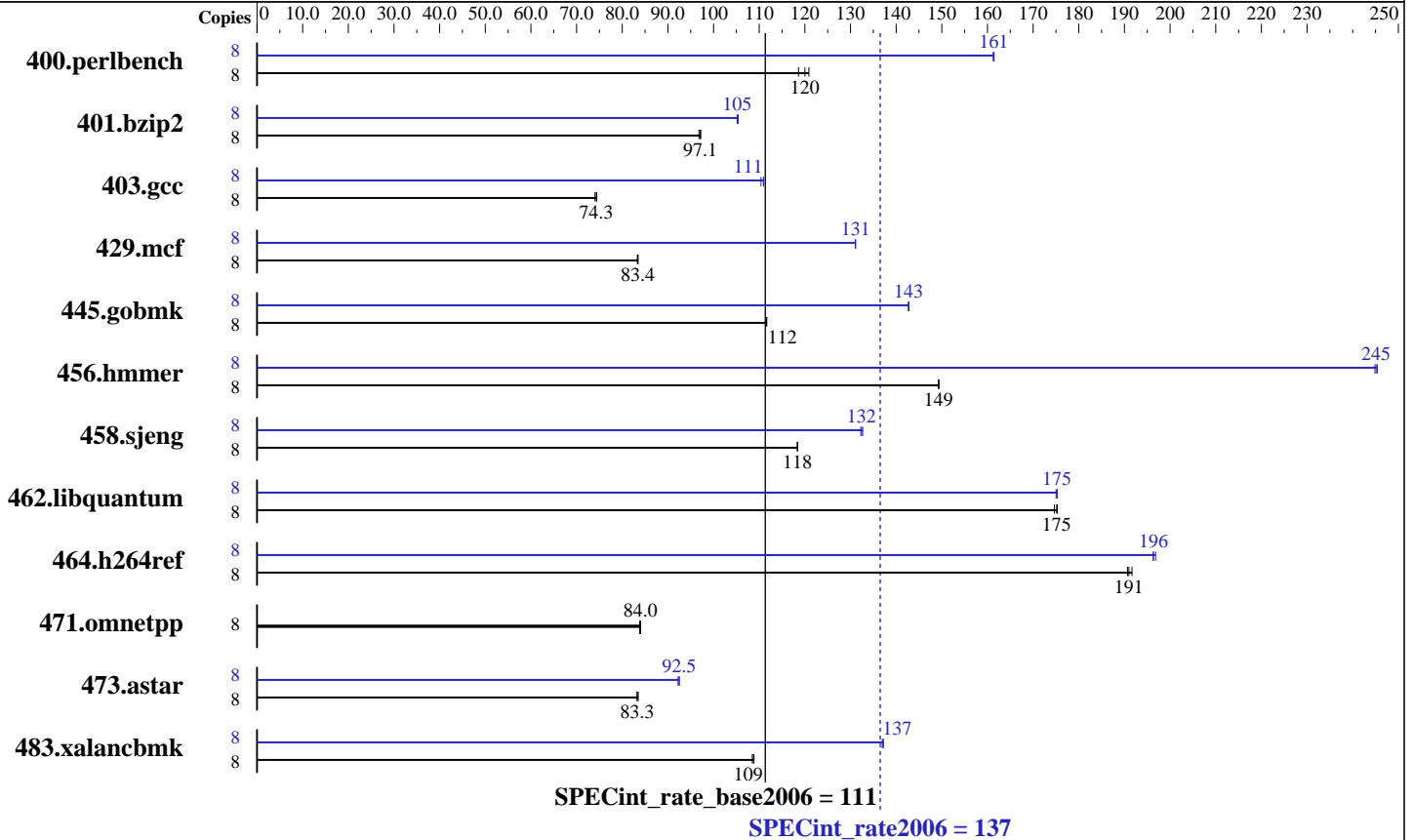
Test date: Nov-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Nov-2008

Tested by: Hewlett-Packard Company

Software Availability: Jun-2008



### Hardware

CPU Name: AMD Opteron 8384  
 CPU Characteristics:  
 CPU MHz: 2700  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 2,4 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: 6 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 32 GB (8x4 GB, PC2-6400P CL5)  
 Disk Subsystem: 1x146 GB 10 K SAS  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 5.2  
 Advanced Platform, Kernel 2.6.18-92.el5  
 Compiler: PGI Server Complete Version 7.2  
 PathScale Compiler Suite Version 3.2  
 Auto Parallel: No  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: binutils 2.17.50  
 32-bit and 64-bit libhugetlbfs libraries  
 SmartHeap 8.1 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	<b>651</b>	<b>120</b>	647	121	659	119	8	484	161	<b>484</b>	<b>161</b>	485	161
401.bzip2	8	798	96.8	794	97.2	<b>795</b>	<b>97.1</b>	8	732	105	<b>734</b>	<b>105</b>	734	105
403.gcc	8	<b>866</b>	<b>74.3</b>	870	74.0	866	74.4	8	580	111	<b>581</b>	<b>111</b>	583	110
429.mcf	8	<b>874</b>	<b>83.4</b>	876	83.3	874	83.4	8	557	131	557	131	<b>557</b>	<b>131</b>
445.gobmk	8	752	112	<b>752</b>	<b>112</b>	753	112	8	588	143	588	143	<b>588</b>	<b>143</b>
456.hammer	8	500	149	500	149	<b>500</b>	<b>149</b>	8	<b>305</b>	<b>245</b>	305	245	304	245
458.sjeng	8	<b>818</b>	<b>118</b>	817	118	818	118	8	730	133	732	132	<b>731</b>	<b>132</b>
462.libquantum	8	946	175	<b>946</b>	<b>175</b>	949	175	8	946	175	<b>946</b>	<b>175</b>	947	175
464.h264ref	8	929	191	924	192	<b>927</b>	<b>191</b>	8	<b>902</b>	<b>196</b>	902	196	900	197
471.omnetpp	8	595	84.0	<b>595</b>	<b>84.0</b>	597	83.8	8	595	84.0	<b>595</b>	<b>84.0</b>	597	83.8
473.astar	8	<b>674</b>	<b>83.3</b>	673	83.5	675	83.2	8	609	92.2	<b>607</b>	<b>92.5</b>	607	92.5
483.xalancbmk	8	509	108	<b>508</b>	<b>109</b>	507	109	8	403	137	<b>402</b>	<b>137</b>	402	137

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

Environment stack size set to 'unlimited'  
Max locked memory set to 2097152  
The libhugetlbfs libraries were installed using the installation rpms that came with the distribution.  
PGI\_HUGE\_PAGES set to 896.  
Total number of huge pages available is 7168.  
NCPUS set to number of cores

## Platform Notes

BIOS configuration:  
Power Regulator set to Static High Performance Mode

## General Notes

Environment variables set by runspec before the start of the run:  
HUGETLB\_MORECORE = "yes"



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## 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
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:

```

-Mvect=cachesize:6291456 -fastsse -Msmartalloc=huge -Mfprelaxed
-Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi

```

C++ benchmarks:

```

-Mvect=cachesize:6291456 -fastsse -Msmartalloc=huge -Mfprelaxed
--zc_eh -Mipa=fast -Mipa=inline:6 -tp barcelona-32 -Bstatic_pgi

```

## Base Other Flags

C benchmarks:

-Mipa=jobs:4

C++ benchmarks:

-Mipa=jobs:4

## Peak Compiler Invocation

C benchmarks (except as noted below):

pathcc

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## Peak Compiler Invocation (Continued)

456.hmmcr: pgcc

462.libquantum: pgcc

C++ benchmarks (except as noted below):

pgcpp

483.xalancbmk: pathCC

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64  
401.bzip2: -DSPEC\_CPU\_LP64  
445.gobmk: -DSPEC\_CPU\_LP64  
456.hmmcr: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
464.h264ref: -DSPEC\_CPU\_LP64  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -march=barcelona -fb\_create fbdata(pass 1)  
-fb\_opt fbdata(pass 2)  
-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf\_x86\_64.xBDT(pass 2)  
-L/usr/lib64 -lhugetlbfs(pass 2) -Ofast -IPA:plimit=20000  
-IPA:field\_reorder=on -LNO:opt=0 -WOPT:if\_conv=0  
-CG:local\_sched\_alg=1  
401.bzip2: -march=barcelona -O3 -OPT:alias=disjoint -OPT:Ofast  
-OPT:goto=off -INLINE:aggressive=on -CG:local\_sched\_alg=1  
-m3dnow  
-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf\_x86\_64.xBDT  
-L/usr/lib64 -lhugetlbfs  
403.gcc: -march=barcelona -fb\_create fbdata(pass 1)  
-fb\_opt fbdata(pass 2) -Ofast -OPT:malloc\_alg=1  
-LNO:trip\_count=256 -LNO:prefetch\_ahead=10  
-CG:prefer\_lru\_reg=off -m32  
429.mcf: -march=barcelona -O3 -ipa -INLINE:aggressive=on  
-CG:gcm=off -GRA:prioritize\_by\_density=on -m32  
-L/usr/lib -lhugetlbfs

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## Peak Optimization Flags (Continued)

445.gobmk: -march=barcelona -fb\_create fbdata(pass 1)  
-fb\_opt fbdata(pass 2)  
-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf\_x86\_64.xBDT(pass 2)  
-L/usr/lib64 -lhugetlbfs(pass 2) -O3 -OPT:alias=restrict  
-LNO:prefetch=1 -LNO:ignore\_feedback=off -CG:p2align=on

456.hmmcr: -Mvect=cachesize:6291456 -fastsse -Mvect=partial  
-Munroll=n:8 -Msmartalloc=huge -Msafeptr -Mprefetch=t0  
-Mfprelaxed -Mipa=const -Mipa=ptr -Mipa=arg -Mipa=inline  
-tp barcelona-64 -Bstatic\_pgi

458.sjeng: -march=barcelona -fb\_create fbdata(pass 1)  
-fb\_opt fbdata(pass 2)  
-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf\_x86\_64.xBDT(pass 2)  
-L/usr/lib64 -lhugetlbfs(pass 2) -O3 -ipa  
-LNO:ignore\_feedback=off -LNO:full\_unroll=10 -LNO:fusion=0  
-LNO:fission=2 -IPA:pu\_reorder=2 -CG:ptr\_load\_use=0  
-OPT:unroll\_times\_max=8 -INLINE:aggressive=on

462.libquantum: -Mvect=cachesize:6291456 -fastsse -Munroll=m:8  
-Msmartalloc=huge -Mprefetch=distance:4 -Mfprelaxed  
-Mipa=fast -Mipa=inline -Mipa=noarg -tp barcelona-64  
-Bstatic\_pgi

464.h264ref: -march=barcelona -fb\_create fbdata(pass 1)  
-fb\_opt fbdata(pass 2)  
-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf\_x86\_64.xBDT(pass 2)  
-L/usr/lib64 -lhugetlbfs(pass 2) -O3 -IPA:plimit=20000  
-OPT:alias=disjoint -LNO:prefetch=0 -CG:ptr\_load\_use=0  
-CG:push\_pop\_int\_saved\_regs=off -CG:prefer\_lru\_reg=off

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -Mphi(pass 1) -Mpfo(pass 2) -Mipa=fast(pass 2)  
-Mipa=inline:6(pass 2) -Mvect=cachesize:6291456 -fastsse  
-O4 -Msmartalloc=huge -Msafeptr=global -Mfprelaxed  
--zc\_eh -tp barcelona-32 -Bstatic\_pgi

483.xalancbmk: -march=barcelona -Ofast -INLINE:aggressive=on -m32  
-L/cpu2006/SmartHeap\_8.1/lib -lsmartheap

## Peak Other Flags

C benchmarks:

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## Peak Other Flags (Continued)

456.hmmmer: -Mipa=jobs:4

462.libquantum: -Mipa=jobs:4

C++ benchmarks (except as noted below):  
-Mipa=jobs:4(pass 2)

483.xalancbmk: No flags used

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/amd-platform-amd909gh.20090710.html>

[http://www.spec.org/cpu2006/flags/CPU2006\\_flags.20090710.html](http://www.spec.org/cpu2006/flags/CPU2006_flags.20090710.html)

[http://www.spec.org/cpu2006/flags/pgi72\\_linux\\_flags.html](http://www.spec.org/cpu2006/flags/pgi72_linux_flags.html)

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

<http://www.spec.org/cpu2006/flags/amd-platform-amd909gh.20090710.xml>

[http://www.spec.org/cpu2006/flags/CPU2006\\_flags.20090710.xml](http://www.spec.org/cpu2006/flags/CPU2006_flags.20090710.xml)

[http://www.spec.org/cpu2006/flags/pgi72\\_linux\\_flags.xml](http://www.spec.org/cpu2006/flags/pgi72_linux_flags.xml)

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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