



# SPEC® CINT2006 Result

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## Hewlett-Packard Company

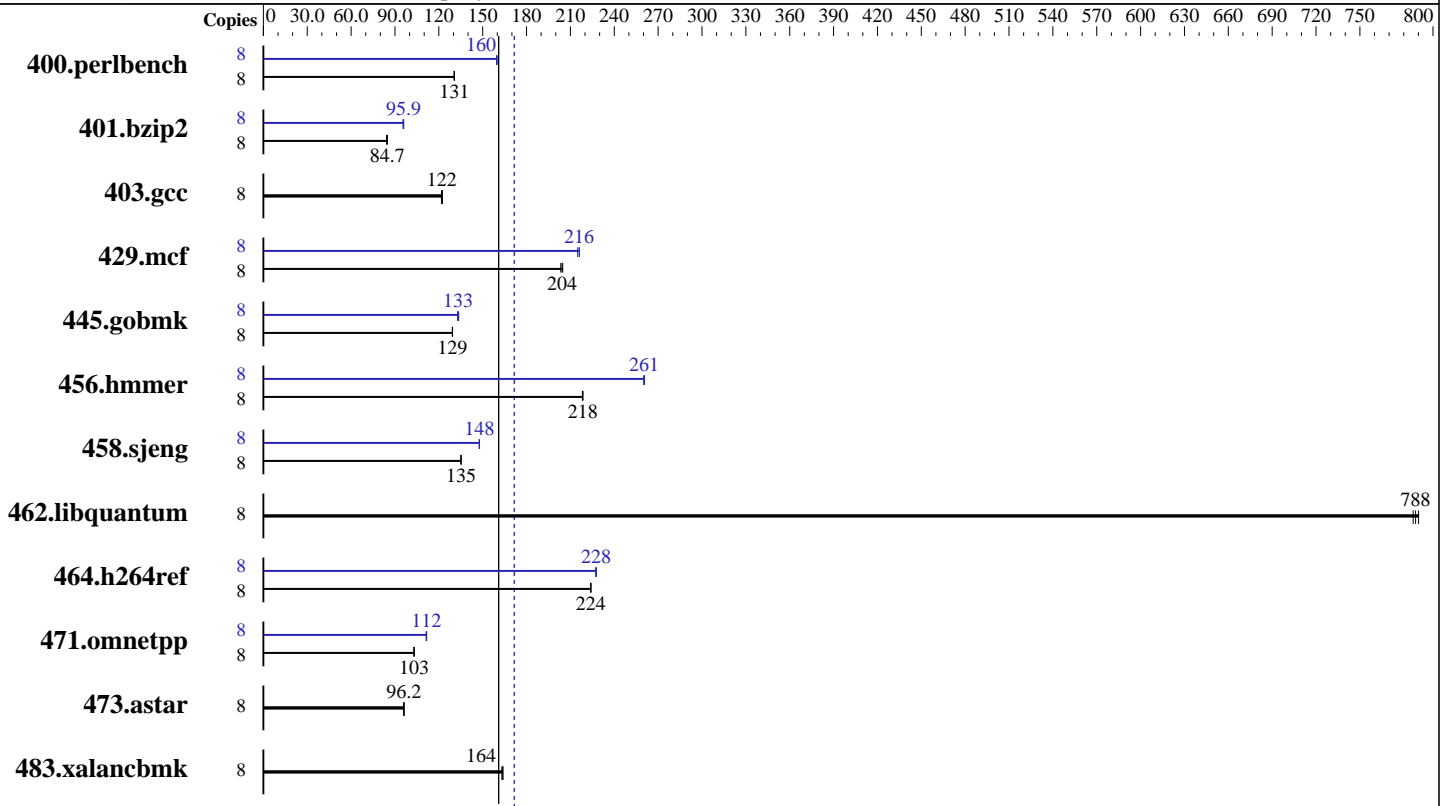
SPECint®\_rate2006 = 172

ProLiant BL460c G7  
(2.27 GHz, Intel Xeon E5607)

SPECint\_rate\_base2006 = 161

CPU2006 license: 3  
Test sponsor: Hewlett-Packard Company  
Tested by: Hewlett-Packard Company

Test date: Mar-2011  
Hardware Availability: Feb-2011  
Software Availability: Dec-2010



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### Hardware

CPU Name: Intel Xeon E5607  
 CPU Characteristics:  
 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: 96 GB (12 x 8 GB 2Rx4 PC3-10600R-9, ECC, running at 1067 MHz)  
 Disk Subsystem: 1 x 146 GB 10 K SAS  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 11 (x86\_64) SP1, 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	598	131	<b>598</b>	<b>131</b>	599	130	8	489	160	<b>489</b>	<b>160</b>	490	160
401.bzip2	8	911	84.8	916	84.3	<b>912</b>	<b>84.7</b>	8	804	96.0	<b>805</b>	<b>95.9</b>	809	95.5
403.gcc	8	<b>528</b>	<b>122</b>	528	122	526	122	8	<b>528</b>	<b>122</b>	528	122	526	122
429.mcf	8	359	203	356	205	<b>357</b>	<b>204</b>	8	<b>338</b>	<b>216</b>	339	215	338	216
445.gobmk	8	<b>649</b>	<b>129</b>	649	129	648	129	8	628	134	<b>630</b>	<b>133</b>	632	133
456.hammer	8	<b>342</b>	<b>218</b>	342	218	342	219	8	287	260	286	261	<b>286</b>	<b>261</b>
458.sjeng	8	716	135	<b>716</b>	<b>135</b>	716	135	8	655	148	<b>655</b>	<b>148</b>	656	148
462.libquantum	8	210	790	211	786	<b>210</b>	<b>788</b>	8	210	790	211	786	<b>210</b>	<b>788</b>
464.h264ref	8	<b>790</b>	<b>224</b>	790	224	791	224	8	777	228	<b>778</b>	<b>228</b>	779	227
471.omnetpp	8	485	103	485	103	<b>485</b>	<b>103</b>	8	448	112	449	111	<b>448</b>	<b>112</b>
473.astar	8	584	96.2	<b>584</b>	<b>96.2</b>	586	95.9	8	584	96.2	<b>584</b>	<b>96.2</b>	586	95.9
483.xalancbmk	8	<b>337</b>	<b>164</b>	338	163	337	164	8	<b>337</b>	<b>164</b>	338	163	337	164

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

```
'nodev /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
echo 3600 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

### Platform Notes

BIOS configuration:  
HP Power Profile set to Maximum Performance  
Thermal Configuration set to Increased Cooling  
Data Reuse set to Disabled

### General Notes

Binaries were compiled on RHEL5.5



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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: basepeak = yes

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

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

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## Peak Optimization Flags (Continued)

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/HP-Intel-Linux-Settings-flags.20100525.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/HP-Intel-Linux-Settings-flags.20100525.xml>

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

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