



# SPEC® CINT2006 Result

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## Hewlett-Packard Company

**SPECint®\_rate2006 = 1580**

ProLiant DL980 G7 (2.27 GHz, Intel Xeon X7560)

**SPECint\_rate\_base2006 = 1510**

CPU2006 license: 3

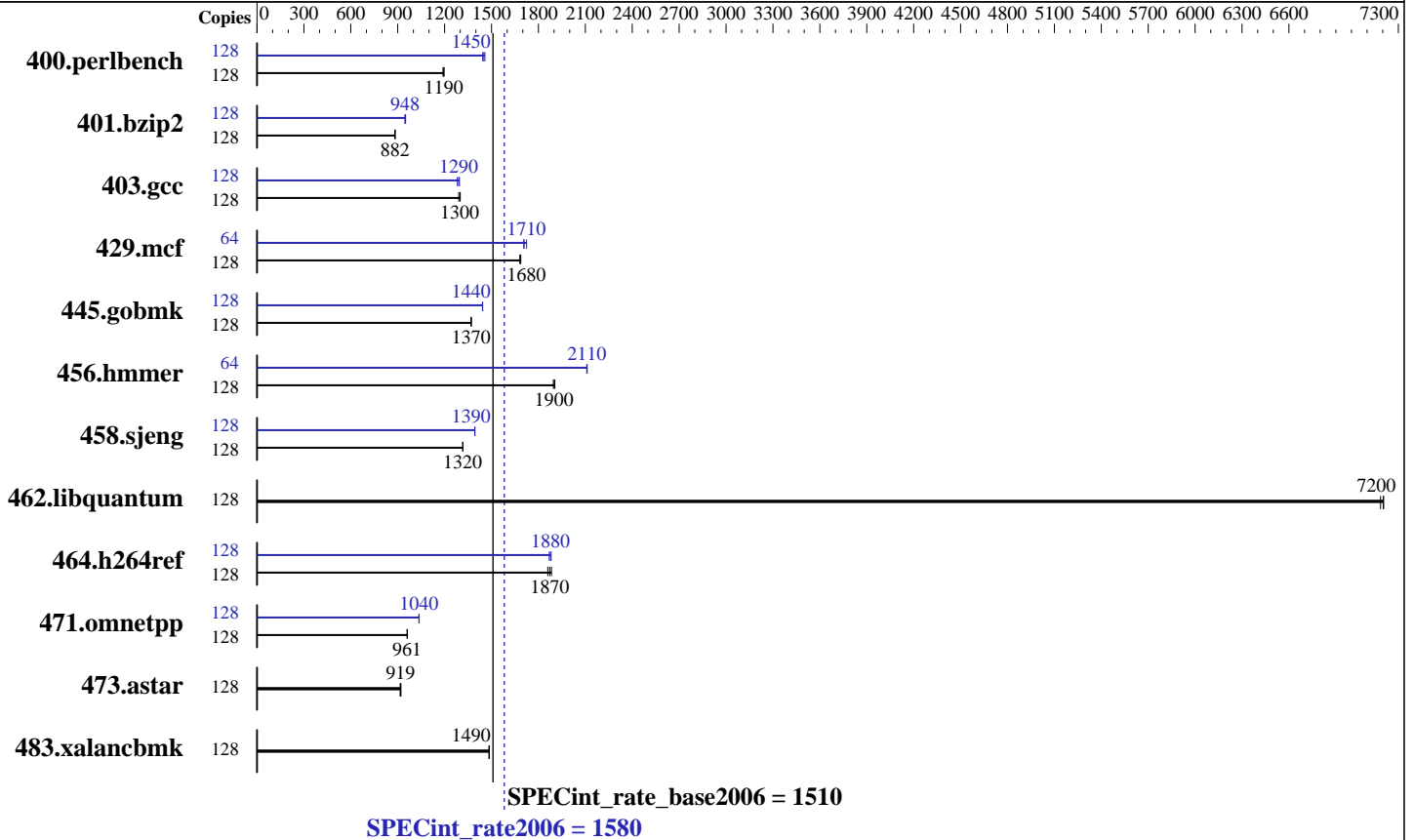
Test date: Jan-2011

Test sponsor: Hewlett-Packard Company

Hardware Availability: Oct-2010

Tested by: Hewlett-Packard Company

Software Availability: Nov-2010



### Hardware

CPU Name: Intel Xeon X7560  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.67 GHz  
 CPU MHz: 2266  
 FPU: Integrated  
 CPU(s) enabled: 64 cores, 8 chips, 8 cores/chip, 2 threads/core  
 CPU(s) orderable: 4, 8 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: 24 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 1 TB (128 x 8 GB 2Rx4 PC3-10600R-9, ECC, running at 1066 MHz)  
 Disk Subsystem: 2x 146 GB 15K SAS  
 Other Hardware: 512 MB FBWC Module for P410i SmartArray

### Software

Operating System: SUSE Linux Enterprise Server 11 (x86\_64) SP1 Kernel 2.6.32.12-0.7-default  
 Compiler: Intel C++ and Fortran Composer XE 2011 for IA32 and Intel 64, 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	128	<b><u>1047</u></b>	<b><u>1190</u></b>	1051	1190	1046	1200	128	866	1440	<b><u>862</u></b>	<b><u>1450</u></b>	858	1460
401.bzip2	128	1400	882	<b><u>1400</u></b>	<b><u>882</u></b>	1399	883	128	1300	950	1305	947	<b><u>1303</u></b>	<b><u>948</u></b>
403.gcc	128	799	1290	793	1300	<b><u>794</u></b>	<b><u>1300</u></b>	128	796	1290	<b><u>799</u></b>	<b><u>1290</u></b>	804	1280
429.mcf	128	692	1690	<b><u>693</u></b>	<b><u>1680</u></b>	694	1680	64	<b><u>342</u></b>	<b><u>1710</u></b>	339	1720	342	1710
445.gobmk	128	<b><u>980</u></b>	<b><u>1370</u></b>	980	1370	981	1370	128	930	1440	<b><u>931</u></b>	<b><u>1440</u></b>	931	1440
456.hammer	128	630	1900	<b><u>628</u></b>	<b><u>1900</u></b>	627	1900	64	283	2110	<b><u>283</u></b>	<b><u>2110</u></b>	283	2110
458.sjeng	128	1175	1320	<b><u>1177</u></b>	<b><u>1320</u></b>	1177	1320	128	<b><u>1112</u></b>	<b><u>1390</u></b>	1111	1390	1112	1390
462.libquantum	128	<b><u>368</u></b>	<b><u>7200</u></b>	369	7190	368	7210	128	<b><u>368</u></b>	<b><u>7200</u></b>	369	7190	368	7210
464.h264ref	128	1504	1880	<b><u>1513</u></b>	<b><u>1870</u></b>	1523	1860	128	1506	1880	<b><u>1509</u></b>	<b><u>1880</u></b>	1515	1870
471.omnetpp	128	832	961	<b><u>833</u></b>	<b><u>961</u></b>	833	961	128	772	1040	772	1040	<b><u>772</u></b>	<b><u>1040</u></b>
473.astar	128	976	920	<b><u>978</u></b>	<b><u>919</u></b>	981	916	128	976	920	<b><u>978</u></b>	<b><u>919</u></b>	981	916
483.xalancbmk	128	595	1480	<b><u>595</u></b>	<b><u>1490</u></b>	595	1490	128	595	1480	<b><u>595</u></b>	<b><u>1490</u></b>	595	1490

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

I/O scheduler for the device holding the filesystem set to "noop"  
SPEC files placed in /dev/shm/cpu2006 with /dev/shm  
mounted as tmpfs with mpol=interleave  
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run  
Hugepages were not configured on the system

## Platform Notes

Power Regulator set to HP Static High Performance Mode

## General Notes

Binaries were compiled on RHEL5.5 with binutils-2.17.50.0.6-14.el5

## Base Compiler Invocation

C benchmarks:  
icc -m32

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## Base Compiler Invocation (Continued)

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

C++ benchmarks:  
icpc -m32



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## 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

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

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## Peak Optimization Flags (Continued)

471.omnetpp (continued):  
-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-revA.html>

<http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20110216.html>

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

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

<http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20110216.xml>

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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