



# SPEC® CINT2006 Result

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## Hewlett-Packard Company

SPECint®\_rate2006 = 413

ProLiant DL360e Gen8  
(2.20 GHz, Intel Xeon E5-2430)

SPECint\_rate\_base2006 = 400

CPU2006 license: 3

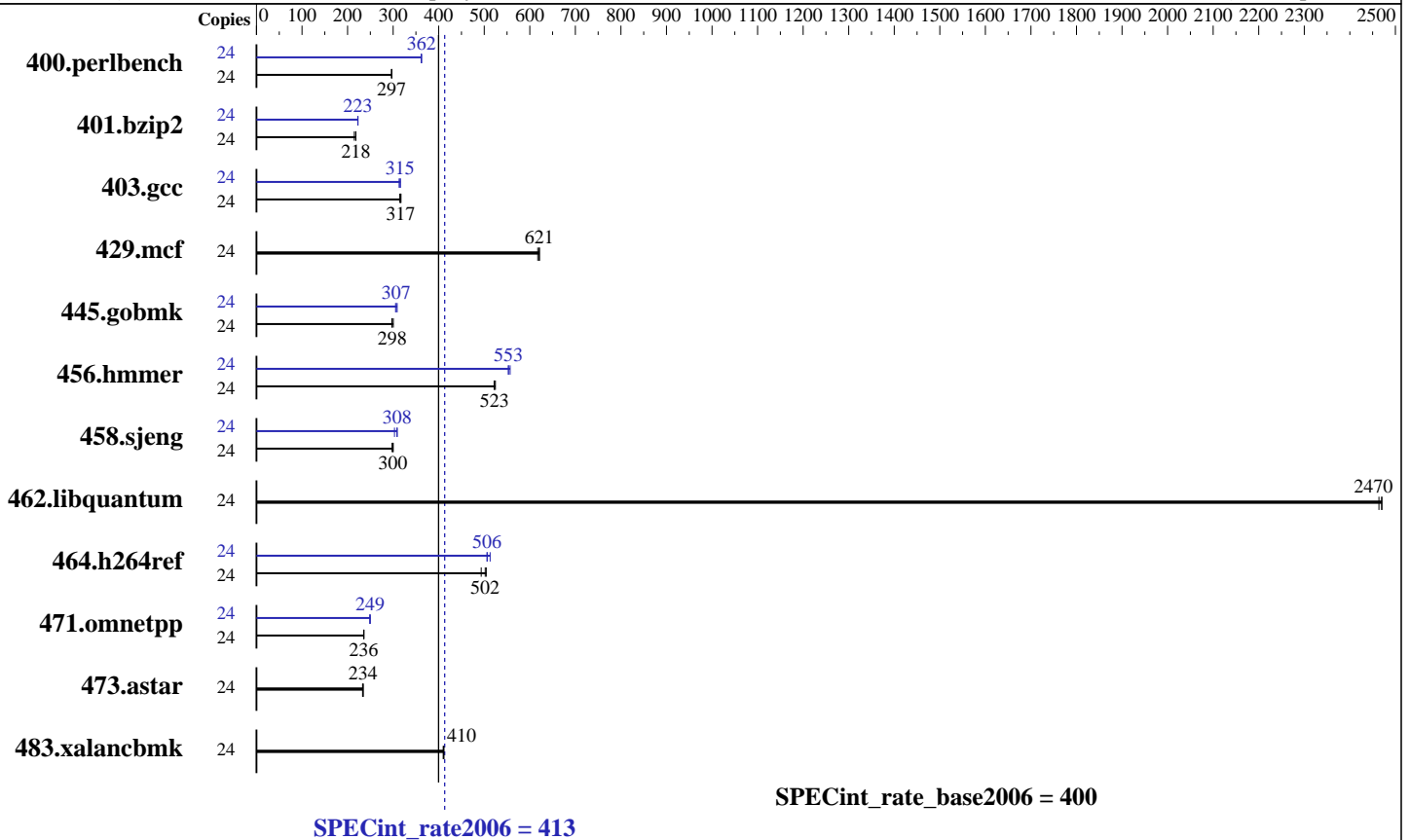
Test date: Aug-2013

Test sponsor: Hewlett-Packard Company

Hardware Availability: May-2012

Tested by: Hewlett-Packard Company

Software Availability: Sep-2013



**Hardware**

CPU Name: Intel Xeon E5-2430  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.70 GHz  
 CPU MHz: 2200  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core  
 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: 15 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 96 GB (12 x 8 GB 2Rx4 PC3-10600R-9, ECC)  
 Disk Subsystem: 1 x 1 TB 7.2 K SATA  
 Other Hardware: None

**Software**

Operating System: Red Hat Enterprise Linux Server release 6.4, (Santiago)  
 2.6.32-358.el6.x86\_64  
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux  
 Auto Parallel: No  
 File System: ext4  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V10.0



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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	24	791	296	789	297	<b>790</b>	<b>297</b>	24	<b>647</b>	<b>362</b>	649	361	647	362
401.bzip2	24	<b>1063</b>	<b>218</b>	1061	218	1078	215	24	1041	222	1039	223	<b>1040</b>	<b>223</b>
403.gcc	24	<b>610</b>	<b>317</b>	609	317	615	314	24	617	313	<b>613</b>	<b>315</b>	611	316
429.mcf	24	354	617	<b>353</b>	<b>621</b>	352	621	24	354	617	<b>353</b>	<b>621</b>	352	621
445.gobmk	24	838	300	847	297	<b>845</b>	<b>298</b>	24	825	305	815	309	<b>820</b>	<b>307</b>
456.hammer	24	429	522	427	525	<b>428</b>	<b>523</b>	24	<b>405</b>	<b>553</b>	402	557	405	553
458.sjeng	24	<b>969</b>	<b>300</b>	968	300	976	298	24	<b>942</b>	<b>308</b>	958	303	940	309
462.libquantum	24	201	2470	<b>201</b>	<b>2470</b>	202	2460	24	201	2470	<b>201</b>	<b>2470</b>	202	2460
464.h264ref	24	1053	504	1077	493	<b>1058</b>	<b>502</b>	24	1049	506	<b>1049</b>	<b>506</b>	1035	513
471.omnetpp	24	635	236	638	235	<b>637</b>	<b>236</b>	24	601	250	<b>601</b>	<b>249</b>	603	249
473.astar	24	<b>720</b>	<b>234</b>	723	233	719	234	24	<b>720</b>	<b>234</b>	723	233	719	234
483.xalancbmk	24	402	412	404	410	<b>403</b>	<b>410</b>	24	402	412	404	410	<b>403</b>	<b>410</b>

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

## Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"  
Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled  
Filesystem page cache cleared with:  
echo 1 > /proc/sys/vm/drop\_caches  
runspec command invoked through numactl i.e.:  
numactl --interleave=all runspec <etc>

## Platform Notes

BIOS Configuration:

HP Power Profile set to Maximum Performance  
Collaborative Power Control set to Disabled  
Thermal Configuration set to Increased Cooling

Sysinfo program /cpu2006/config/sysinfo.rev6818  
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191  
running on DL360e-Gen8-kds Thu Aug 29 11:42:09 2013

This section contains SUT (System Under Test) info as seen by  
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### Platform Notes (Continued)

some common utilities. To remove or add to this section, see:  
<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

```
From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2430 0 @ 2.20GHz
 2 "physical id"s (chips)
 24 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
caution.)
  cpu cores : 6
  siblings  : 12
  physical 0: cores 0 1 2 3 4 5
  physical 1: cores 0 1 2 3 4 5
cache size : 15360 KB
```

```
From /proc/meminfo
MemTotal:      99025784 kB
HugePages_Total:      0
Hugepagesize:    2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.4 (Santiago)
```

```
From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

```
uname -a:
Linux DL360e-Gen8-kds 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST
2013 x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Aug 28 14:56
```

```
SPEC is set to: /cpu2006
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda3       ext4      915G  12G  857G   2% /
```

```
Additional information from dmidecode:
BIOS HP P73 07/01/2013
Memory:
12x HP 689911-071 8 GB 1333 MHz 2 rank
```

(End of data from sysinfo program)

### General Notes

Environment variables set by runspec before the start of the run:  
LD\_LIBRARY\_PATH = "/cpu2006/libs/32:/cpu2006/libs/64"

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## General Notes (Continued)

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5

## 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 -opt-mem-layout-trans=3

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3  
-Wl,-z,muldefs -L/sh -lsmartheap

## 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

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## Peak Compiler Invocation (Continued)

456.hmmer: `icc -m64`

458.sjeng: `icc -m64`

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)  
-auto-ilp32`

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`

403.gcc: `-xSSE4.2 -ipo -O3 -no-prec-div`

429.mcf: `basepeak = yes`

445.gobmk: `-xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias -opt-mem-layout-trans=3`

456.hmmer: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32`

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`

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/sh -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-ic14.0-official-linux64.20140128.html>  
<http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-revB.20131009.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>  
<http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-revB.20131009.xml>

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

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