



# SPEC<sup>®</sup> CINT2006 Result

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## Hewlett-Packard Company

**SPECint<sup>®</sup>\_rate2006 = 1620**

ProLiant DL580 Gen8  
(2.30 GHz, Intel Xeon E7-4850 v2)

**SPECint\_rate\_base2006 = 1570**

**CPU2006 license:** 3

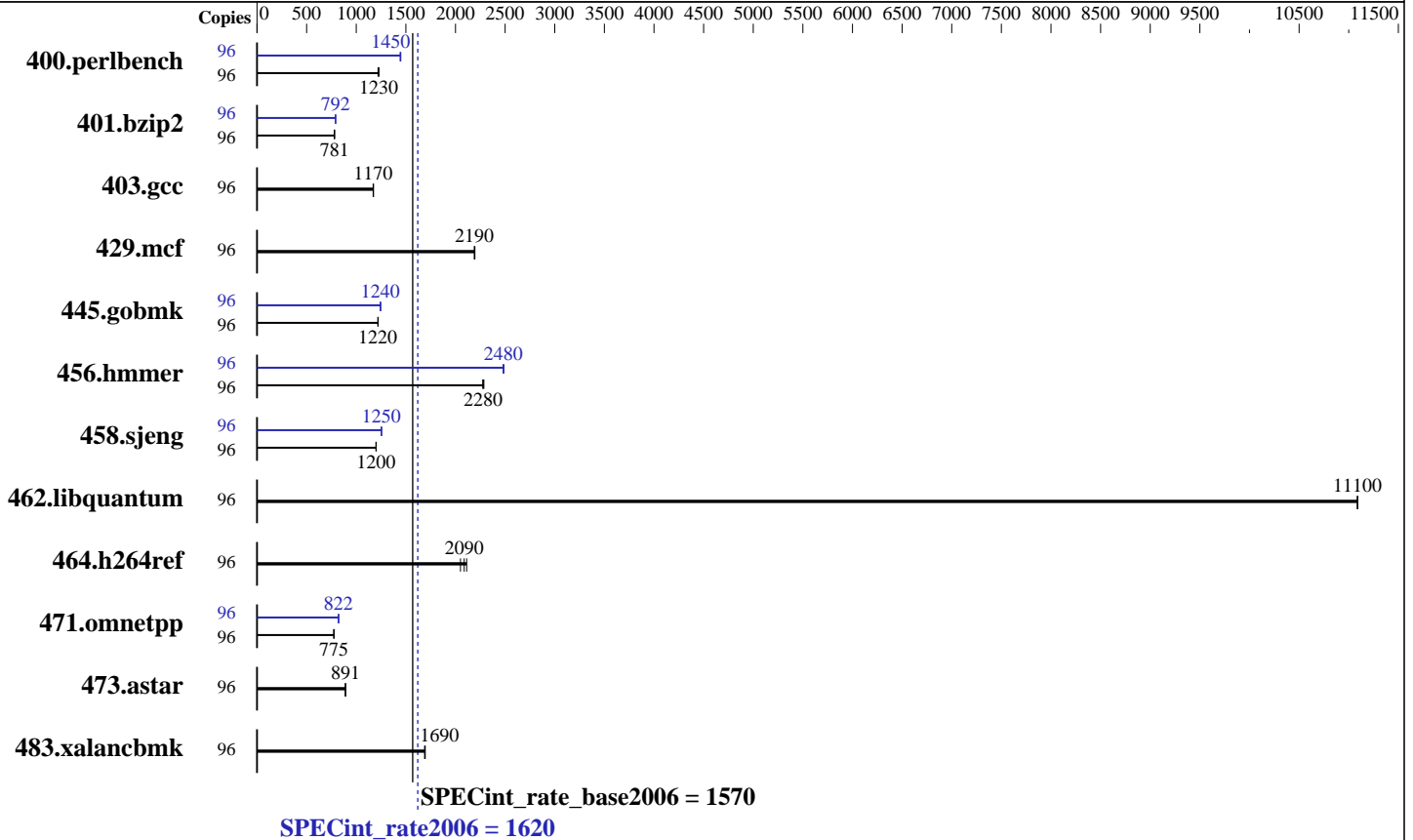
**Test date:** May-2014

**Test sponsor:** Hewlett-Packard Company

**Hardware Availability:** Feb-2014

**Tested by:** Hewlett-Packard Company

**Software Availability:** Nov-2013



### Hardware

**CPU Name:** Intel Xeon E7-4850 v2  
**CPU Characteristics:** Intel Turbo Boost Technology up to 2.80 GHz  
**CPU MHz:** 2300  
**FPU:** Integrated  
**CPU(s) enabled:** 48 cores, 4 chips, 12 cores/chip, 2 threads/core  
**CPU(s) orderable:** 2,4 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 (64 x 16 GB 2Rx4 PC3-14900R-13, ECC, running at 1333 MHz and CL9)  
**Disk Subsystem:** 1 x 400 GB SSD SAS, RAID 0  
**Other Hardware:** None

### Software

**Operating System:** Red Hat Enterprise Linux Server release 6.5, (Santiago)  
Kernel 2.6.32-431.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	96	769	1220	<b><u>765</u></b>	<b><u>1230</u></b>	764	1230	96	647	1450	<b><u>649</u></b>	<b><u>1450</u></b>	650	1440
401.bzip2	96	1185	782	<b><u>1186</u></b>	<b><u>781</u></b>	1191	778	96	1169	792	1171	791	<b><u>1170</u></b>	<b><u>792</u></b>
403.gcc	96	<b><u>659</u></b>	<b><u>1170</u></b>	658	1170	660	1170	96	<b><u>659</u></b>	<b><u>1170</u></b>	658	1170	660	1170
429.mcf	96	400	2190	<b><u>400</u></b>	<b><u>2190</u></b>	399	2200	96	400	2190	<b><u>400</u></b>	<b><u>2190</u></b>	399	2200
445.gobmk	96	827	1220	825	1220	<b><u>826</u></b>	<b><u>1220</u></b>	96	<b><u>810</u></b>	<b><u>1240</u></b>	810	1240	808	1250
456.hammer	96	394	2270	392	2290	<b><u>393</u></b>	<b><u>2280</u></b>	96	<b><u>361</u></b>	<b><u>2480</u></b>	361	2480	360	2490
458.sjeng	96	969	1200	967	1200	<b><u>968</u></b>	<b><u>1200</u></b>	96	927	1250	925	1260	<b><u>927</u></b>	<b><u>1250</u></b>
462.libquantum	96	<b><u>179</u></b>	<b><u>11100</u></b>	179	11100	179	11100	96	<b><u>179</u></b>	<b><u>11100</u></b>	179	11100	179	11100
464.h264ref	96	1036	2050	<b><u>1018</u></b>	<b><u>2090</u></b>	1006	2110	96	1036	2050	<b><u>1018</u></b>	<b><u>2090</u></b>	1006	2110
471.omnetpp	96	<b><u>774</u></b>	<b><u>775</u></b>	775	774	774	775	96	729	823	<b><u>730</u></b>	<b><u>822</u></b>	731	821
473.astar	96	<b><u>756</u></b>	<b><u>891</u></b>	756	892	757	890	96	<b><u>756</u></b>	<b><u>891</u></b>	756	892	757	890
483.xalancbmk	96	391	1700	392	1690	<b><u>391</u></b>	<b><u>1690</u></b>	96	391	1700	392	1690	<b><u>391</u></b>	<b><u>1690</u></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>  
Disabled unused Linux services through "stop\_services.sh" before running.

## Platform Notes

BIOS Configuration:  
HP Power Profile set to Maximum Performance  
Collaborative Power Control set to Disabled  
Thermal Configuration set to Maximum Cooling  
Processor Power and Utilization Monitoring set to Disabled  
Memory Refresh Rate set to Disabled

Sysinfo program /cpu2006/config/sysinfo.rev6818  
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191  
running on DL580-Gen8-SR Thu May 8 16:49:17 2014  
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### Platform Notes (Continued)

This section contains SUT (System Under Test) info as seen by 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 E7-4850 v2 @ 2.30GHz
 4 "physical id"s (chips)
 96 "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 : 12
  siblings  : 24
  physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
  physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
  physical 2: cores 0 1 2 3 4 5 8 9 10 11 12 13
  physical 3: cores 0 1 2 3 4 5 8 9 10 11 12 13
cache size : 24576 KB
```

```
From /proc/meminfo
MemTotal:      1058653984 kB
HugePages_Total:      0
Hugepagesize:    2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.5 (Santiago)
```

```
From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

```
uname -a:
Linux DL580-Gen8-SR 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013
x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 May 7 17:15
```

```
SPEC is set to: /cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda3       ext4  365G   99G  248G  29% /
```

```
Additional information from dmidecode:
BIOS HP P79 02/21/2014
Memory:
64x HP 712383-081 16 GB 1333 MHz 2 rank
32x UNKNOWN NOT AVAILABLE
```

(End of data from sysinfo program)  
Regarding the sysinfo display about the memory installed, the correct amount of memory is 1 TB and the dmidecode description should have one line reading as:  
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## Platform Notes (Continued)

64x HP 712383-081 16 GB 1333 MHz 2 rank

## General Notes

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

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB  
memory using RedHat EL 6.4

Assuming that the memory populations rules found in the DL580 Gen8  
QuickSpecs are followed, HP supports memory running at 1333 MHz on  
the E7-4850 v2, E7-4830 v2, E7-4820 v2, or E7-4809 v2 processors with  
any BIOS prior to the 1.03\_06-27-2014 ROM. Any BIOS that is the  
1.03\_06-27-2014 ROM or later, does not support the memory running at  
1333 MHz due to a change in the Intel MRC (Memory Reference Code).

## 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 -lsmarthearp



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## 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

## 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: basepeak = yes

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## Peak Optimization Flags (Continued)

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: basepeak = yes

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-revD.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-revD.xml>



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

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