



# SPEC® CINT2006 Result

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## Hewlett-Packard Company

**SPECint®2006 = 44.8**

ProLiant DL380e Gen8  
(2.20 GHz, Intel Xeon E5-2420 v2)

**SPECint\_base2006 = 42.0**

CPU2006 license: 3

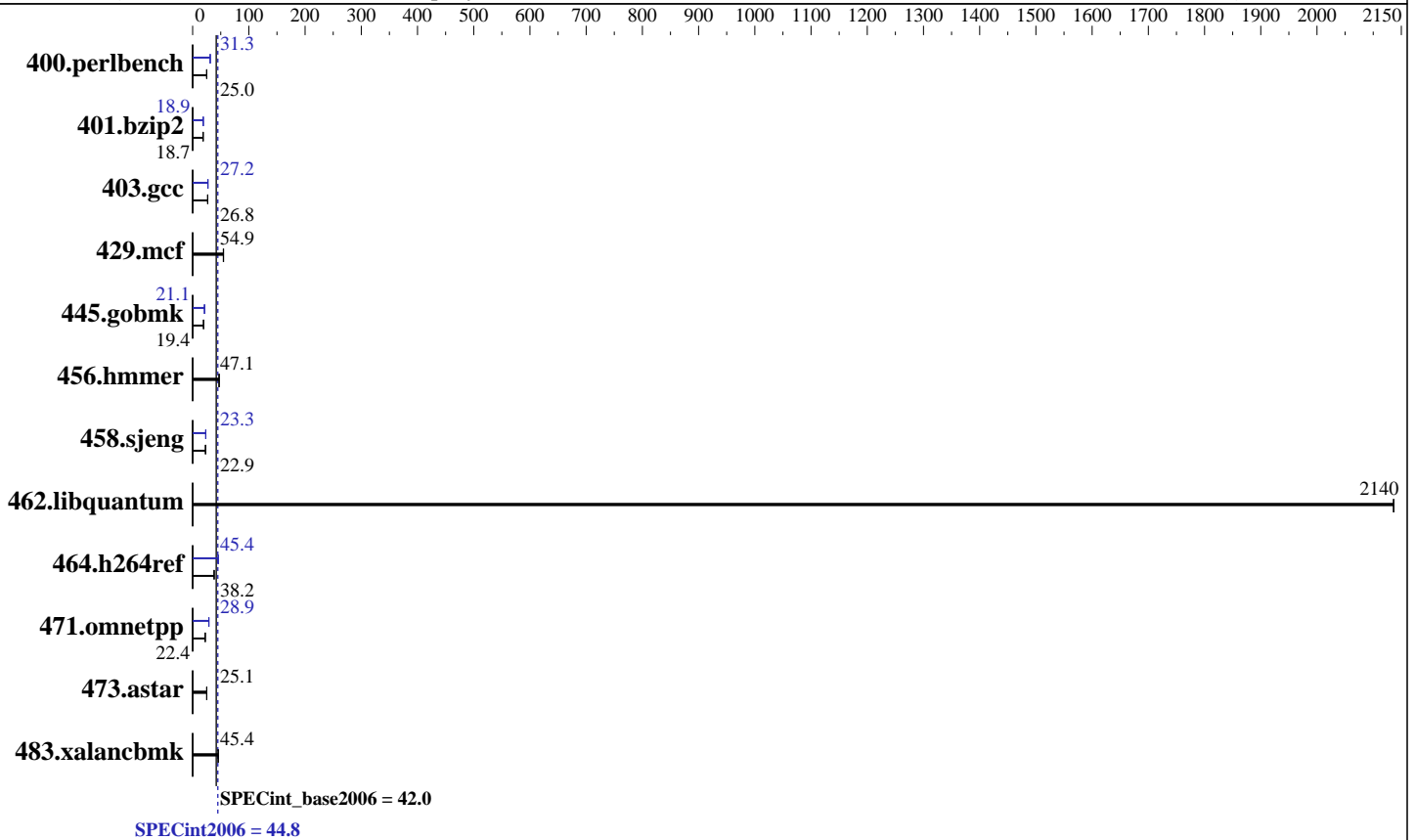
Test date: Mar-2014

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jan-2014

Tested by: Hewlett-Packard Company

Software Availability: Nov-2013



### Hardware

CPU Name: Intel Xeon E5-2420 v2  
 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  
 CPU(s) orderable: 1,2 chip  
 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 PC3-12800R-11, ECC)  
 Disk Subsystem: 1 x 500 GB 7.2 K, RAID 0  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.5  
 Kernel 2.6.32-431.el6.x86\_64 x86\_64  
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext4  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V10.0



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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	<b><u>391</u></b>	<b><u>25.0</u></b>	390	25.0	391	25.0	<b><u>313</u></b>	<b><u>31.3</u></b>	313	31.2	313	31.3
401.bzip2	517	18.7	<b><u>517</u></b>	<b><u>18.7</u></b>	517	18.7	511	18.9	511	18.9	<b><u>511</u></b>	<b><u>18.9</u></b>
403.gcc	301	26.8	<b><u>301</u></b>	<b><u>26.8</u></b>	301	26.7	<b><u>296</u></b>	<b><u>27.2</u></b>	296	27.2	296	27.2
429.mcf	<b><u>166</u></b>	<b><u>54.9</u></b>	166	55.0	167	54.5	<b><u>166</u></b>	<b><u>54.9</u></b>	166	55.0	167	54.5
445.gobmk	<b><u>540</u></b>	<b><u>19.4</u></b>	541	19.4	540	19.4	497	21.1	<b><u>497</u></b>	<b><u>21.1</u></b>	497	21.1
456.hammer	198	47.1	199	46.9	<b><u>198</u></b>	<b><u>47.1</u></b>	198	47.1	199	46.9	<b><u>198</u></b>	<b><u>47.1</u></b>
458.sjeng	528	22.9	528	22.9	<b><u>528</u></b>	<b><u>22.9</u></b>	519	23.3	519	23.3	<b><u>519</u></b>	<b><u>23.3</u></b>
462.libquantum	9.70	2140	9.70	2140	<b><u>9.70</u></b>	<b><u>2140</u></b>	9.70	2140	9.70	2140	<b><u>9.70</u></b>	<b><u>2140</u></b>
464.h264ref	578	38.3	<b><u>579</u></b>	<b><u>38.2</u></b>	580	38.2	487	45.4	488	45.3	<b><u>488</u></b>	<b><u>45.4</u></b>
471.omnetpp	279	22.4	280	22.3	<b><u>279</u></b>	<b><u>22.4</u></b>	218	28.7	<b><u>216</u></b>	<b><u>28.9</u></b>	216	29.0
473.astar	<b><u>280</u></b>	<b><u>25.1</u></b>	279	25.1	281	25.0	<b><u>280</u></b>	<b><u>25.1</u></b>	279	25.1	281	25.0
483.xalancbmk	<b><u>152</u></b>	<b><u>45.4</u></b>	152	45.4	152	45.4	<b><u>152</u></b>	<b><u>45.4</u></b>	152	45.4	152	45.4

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

## 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
Reclaim mode enabled with:
  echo 1 > /proc/sys/vm/zone_reclaim_mode
```

## Platform Notes

```
BIOS Configuration:
Intel Hyperthreading Options set to Disabled
HP Power Profile set to Maximum Performance
Minimum Processor Idle Power Core State set to C1E
Memory Power Savings Mode set to Maximum Performance
Thermal Configuration set to Maximum Cooling
Collaborative Power Control set to Disabled
Dynamic Power Capping Functionality set to Disabled
Processor Power and Utilization Monitoring set to Disabled
Memory Refresh Rate set to 1x

Sysinfo program /cpu2006/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on DL380e-Gen8-012 Fri Mar 21 23:13:34 2014
```

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:

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### Platform Notes (Continued)

<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

```

From /proc/cpuinfo
  model name : Intel(R) Xeon(R) CPU E5-2420 v2 @ 2.20GHz
    2 "physical id"s (chips)
    12 "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  : 6
    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:      98901568 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 DL380e-Gen8-012 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 Mar 21 23:12

```

SPEC is set to: /cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda3       ext4  457G   11G  423G   3% /

```

```

Additional information from dmidecode:
  BIOS HP P73 11/12/2013
  Memory:
    12x HP 689911-071 8 GB 1600 MHz 2 rank

```

(End of data from sysinfo program)

### General Notes

```

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/cpu2006/libs/32:/cpu2006/libs/64:/cpu2006/sh"
OMP_NUM_THREADS = "12"

```

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## General Notes (Continued)

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

## Base Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

## 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.hmmmer: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
464.h264ref: -DSPEC\_CPU\_LP64  
471.omnetpp: -DSPEC\_CPU\_LP64  
473.astar: -DSPEC\_CPU\_LP64  
483.xalancbmk: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32  
-Wl,-z,muldefs -L/sh -lsmartheap64

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca



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## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

400.perlbench: icc -m32

445.gobmk: icc -m32

464.h264ref: icc -m32

C++ benchmarks (except as noted below):

icpc -m64

471.omnetpp: icpc -m32

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -DSPEC\_CPU\_LP64  
403.gcc: -DSPEC\_CPU\_LP64  
429.mcf: -DSPEC\_CPU\_LP64  
456.hmmmer: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
473.astar: -DSPEC\_CPU\_LP64  
483.xalancbmk: -DSPEC\_CPU\_LP64 -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)  
-opt-prefetch -ansi-alias  
401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div -prof-use(pass 2) -auto-ilp32  
-opt-prefetch -ansi-alias  
403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -inline-calloc  
-opt-malloc-options=3 -auto-ilp32  
429.mcf: basepeak = yes  
445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias

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## Peak Optimization Flags (Continued)

456.hmmcr: basepeak = yes

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

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)  
-opt-ra-region-strategy=block -ansi-alias  
-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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