# SPEC® CINT2006 Result

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## Hewlett-Packard Company

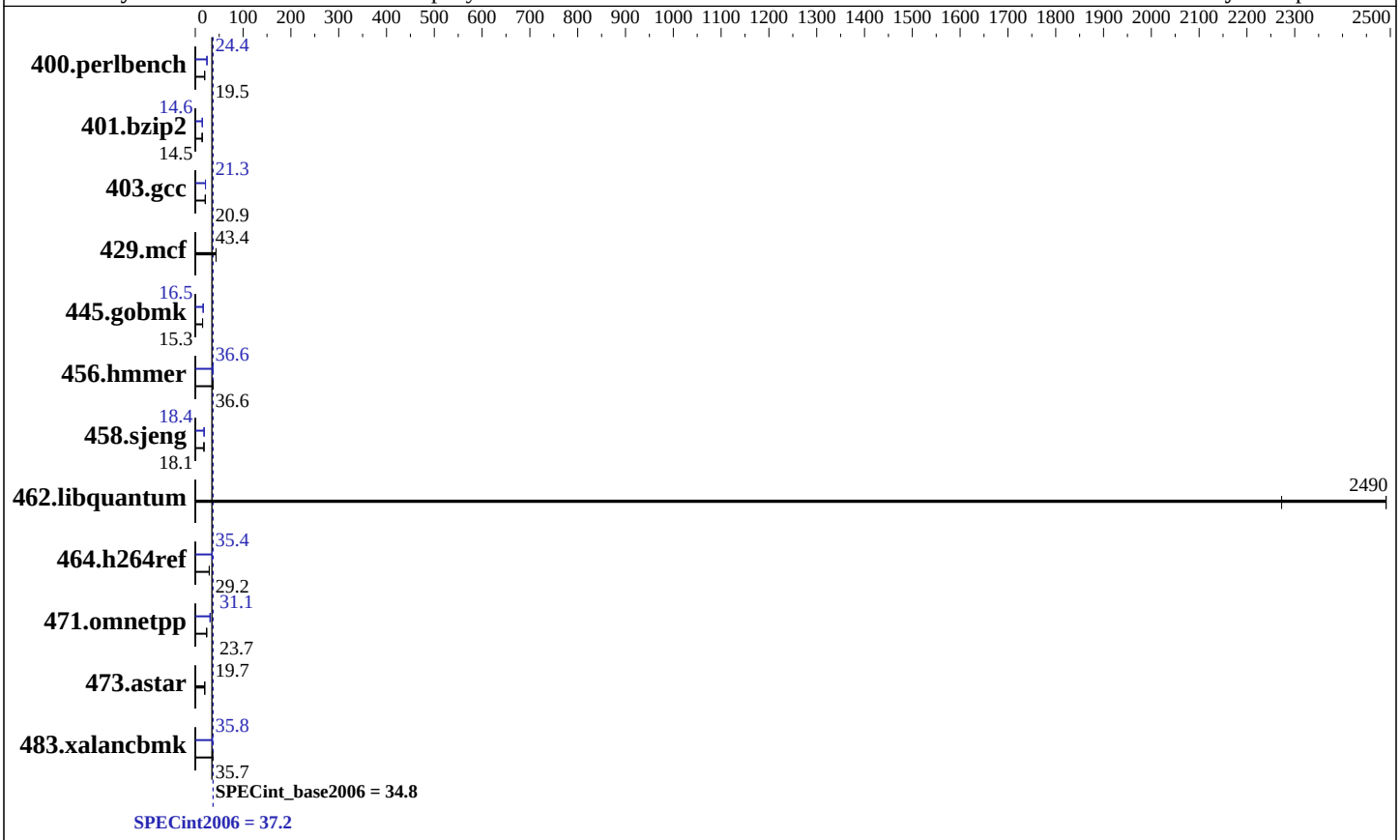
ProLiant DL380p Gen8
(1.70 GHz, Intel Xeon E5-2650L v2)

SPECint®2006 = 37.2

SPECint_base2006 = 34.8

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

**Test date:** Feb-2014
**Hardware Availability:** Dec-2013
**Software Availability:** Sep-2013




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2650L v2 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 2.10 GHz |
| CPU MHz: | 1700 |
| FPU: | Integrated |
| CPU(s) enabled: | 20 cores, 2 chips, 10 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: | 25 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 128 GB (16 x 8 GB 2Rx4 PC3-14900R-13, ECC, running at 1600 MHz and CL11) |
| Disk Subsystem: | 1 x 400 GB SATA SSD, RAID 0 |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 11 (x86_64) SP3 Kernel 3.0.76-0.11-default |
| Compiler: | C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux |
| Auto Parallel: | Yes |
| File System: | ext3 |
| 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 | **500** | **19.5** | 501 | 19.5 | 500 | 19.5 | **400** | **24.4** | 400 | 24.4 | 400 | 24.4 |
| 401.bzip2 | 667 | 14.5 | 667 | 14.5 | **667** | **14.5** | 660 | 14.6 | **660** | **14.6** | 660 | 14.6 |
| 403.gcc | 383 | 21.0 | 385 | 20.9 | **385** | **20.9** | **378** | **21.3** | 378 | 21.3 | 378 | 21.3 |
| 429.mcf | **210** | **43.4** | 210 | 43.4 | 210 | 43.5 | **210** | **43.4** | 210 | 43.4 | 210 | 43.5 |
| 445.gobmk | **687** | **15.3** | 688 | 15.2 | 687 | 15.3 | 634 | 16.6 | 634 | 16.5 | **634** | **16.5** |
| 456.hmmer | 255 | 36.7 | **255** | **36.6** | 255 | 36.5 | 254 | 36.7 | 256 | 36.5 | **255** | **36.6** |
| 458.sjeng | 668 | 18.1 | **667** | **18.1** | 667 | 18.1 | 657 | 18.4 | 655 | 18.5 | **656** | **18.4** |
| 462.libquantum | 9.12 | 2270 | **8.32** | **2490** | 8.32 | 2490 | 9.12 | 2270 | **8.32** | **2490** | 8.32 | 2490 |
| 464.h264ref | 757 | 29.2 | 758 | 29.2 | **757** | **29.2** | **626** | **35.4** | 625 | 35.4 | 627 | 35.3 |
| 471.omnetpp | 263 | 23.7 | **264** | **23.7** | 264 | 23.6 | 199 | 31.4 | 204 | 30.6 | **201** | **31.1** |
| 473.astar | 357 | 19.7 | 357 | 19.7 | **357** | **19.7** | 357 | 19.7 | 357 | 19.7 | **357** | **19.7** |
| 483.xalancbmk | 188 | 36.6 | 193 | 35.7 | **193** | **35.7** | 193 | 35.8 | **193** | **35.8** | 193 | 35.7 |

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"
Reclaim mode enabled with:
 echo 1 > /proc/sys/vm/zone_reclaim_mode
Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/transparent_hugepage/enabled
Filesystem page cache cleared with:
 echo 1 > /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
 numactl --localalloc runspec <etc>
```

## 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 state
 Minimum Processor Idle Power Package State set to Package C6 (retention) State
 Energy/Performance Bias is set to Maximum Performance
 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
```

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## Platform Notes (Continued)

```
running on DL380p-Gen8-0YD Fri Feb  7 01:15:00 2014

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 E5-2650L v2 @ 1.70GHz
      2 "physical id"s (chips)
      20 "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 : 10
      siblings  : 10
      physical 0: cores 0 1 2 3 4 8 9 10 11 12
      physical 1: cores 0 1 2 3 4 8 9 10 11 12
   cache size : 25600 KB

From /proc/meminfo
   MemTotal:       132130192 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   SUSE Linux Enterprise Server 11 (x86_64)

From /etc/*release* /etc/*version*
   SuSE-release:
      SUSE Linux Enterprise Server 11 (x86_64)
      VERSION = 11
      PATCHLEVEL = 3

uname -a:
   Linux DL380p-Gen8-0YD 3.0.76-0.11-default #1 SMP Fri Jun 14 08:21:43 UTC 2013
   (ccab990) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Feb 6 23:37 last=S

SPEC is set to: /cpu2006
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda3      ext3  365G   12G  335G   4% /

Additional information from dmidecode:
  BIOS HP P70 12/20/2013
  Memory:
   16x HP 689911-071 8 GB 1600 MHz
   8x UNKNOWN NOT AVAILABLE

(End of data from sysinfo program)
Regarding the sysinfo display about the memory installed, the correct amount of
memory is 128 GB and the dmidecode description should have one line reading as:
```

Continued on next page

## Platform Notes (Continued)

```
      16x HP 689911-071 8 GB 1600 MHz
```

## 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 = "20"

 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.hmmer: -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`

## 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 -m32`

473.astar: `icpc -m64`

## 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.hmmer: `-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_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`

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# Peak Optimization Flags (Continued)

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

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

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: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
-Wl,-z,muldefs -L/sh -lsmartheap

# 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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Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 19:59:13 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 25 February 2014.