# SPEC® CINT2006 Result
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## Hewlett-Packard Company

ProLiant BL660c Gen8
(2.40 GHz, Intel Xeon E5-4657L v2)

SPECint®_rate2006 = 1800

SPECint_rate_base2006 = 1740

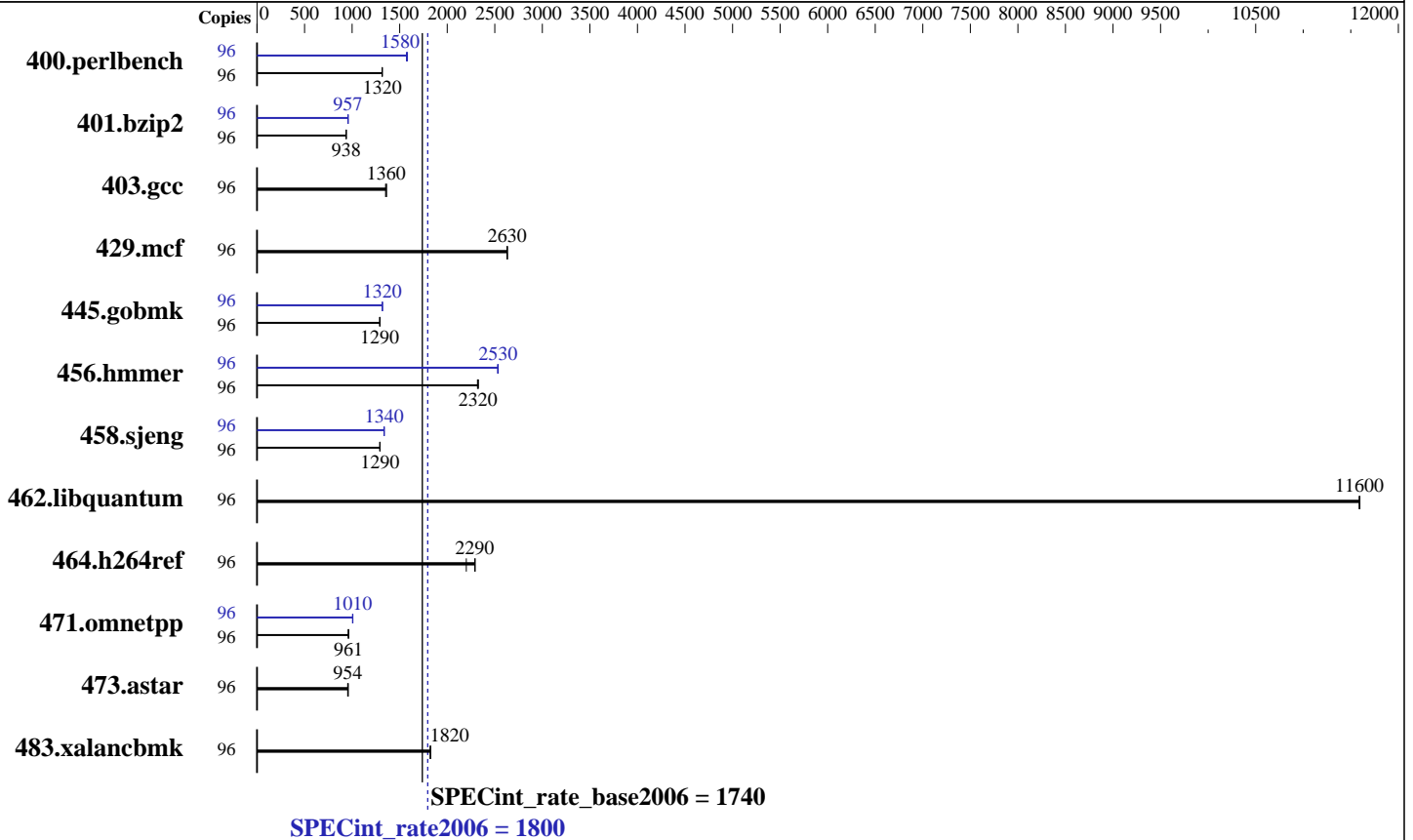| | |
|---|---|
| **CPU2006 license:** 3 | **Test date:** Jan-2014 |
| **Test sponsor:** Hewlett-Packard Company | **Hardware Availability:** Mar-2014 |
| **Tested by:** Hewlett-Packard Company | **Software Availability:** Nov-2013 |

Copies

400.perlbench 96 1580 / 96 1320
401.bzip2 96 957 / 96 938
403.gcc 96 1360
429.mcf 96 2630
445.gobmk 96 1320 / 96 1290
456.hmmer 96 2530 / 96 2320
458.sjeng 96 1340 / 96 1290
462.libquantum 96 11600
464.h264ref 96 2290
471.omnetpp 96 1010 / 96 961
473.astar 96 954
483.xalancbmk 96 1820

**SPECint_rate_base2006 = 1740**

SPECint_rate2006 = 1800

## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-4657L v2 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 2.90 GHz |
| CPU MHz: | 2400 |
| FPU: | Integrated |
| CPU(s) enabled: | 48 cores, 4 chips, 12 cores/chip, 2 threads/core |
| CPU(s) orderable: | 2,4 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: | 30 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 256 GB (32 x 8 GB 2Rx4 PC3-14900R-13, ECC) |
| Disk Subsystem: | 1 x 500 GB 7200 RPM SATA, 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: | No |
| File System: | ext3 |
| 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 | **<u>713</u>** | **<u>1320</u>** | 713 | 1320 | 712 | 1320 | 96 | 597 | 1570 | **<u>595</u>** | **<u>1580</u>** | 593 | 1580 |
| 401.bzip2 | 96 | 987 | 938 | 990 | 936 | **<u>988</u>** | **<u>938</u>** | 96 | 966 | 959 | 969 | 956 | **<u>968</u>** | **<u>957</u>** |
| 403.gcc | 96 | 568 | 1360 | 572 | 1350 | **<u>568</u>** | **<u>1360</u>** | 96 | 568 | 1360 | 572 | 1350 | **<u>568</u>** | **<u>1360</u>** |
| 429.mcf | 96 | 333 | 2630 | 333 | 2630 | **<u>333</u>** | **<u>2630</u>** | 96 | 333 | 2630 | 333 | 2630 | **<u>333</u>** | **<u>2630</u>** |
| 445.gobmk | 96 | 779 | 1290 | **<u>780</u>** | **<u>1290</u>** | 780 | 1290 | 96 | 763 | 1320 | 765 | 1320 | **<u>764</u>** | **<u>1320</u>** |
| 456.hmmer | 96 | 385 | 2330 | **<u>386</u>** | **<u>2320</u>** | 386 | 2320 | 96 | 353 | 2540 | 354 | 2530 | **<u>354</u>** | **<u>2530</u>** |
| 458.sjeng | 96 | **<u>899</u>** | **<u>1290</u>** | 899 | 1290 | 899 | 1290 | 96 | **<u>869</u>** | **<u>1340</u>** | 868 | 1340 | 870 | 1330 |
| 462.libquantum | 96 | **<u>172</u>** | **<u>11600</u>** | 172 | 11600 | 172 | 11600 | 96 | **<u>172</u>** | **<u>11600</u>** | 172 | 11600 | 172 | 11600 |
| 464.h264ref | 96 | **<u>928</u>** | **<u>2290</u>** | 926 | 2290 | 965 | 2200 | 96 | **<u>928</u>** | **<u>2290</u>** | 926 | 2290 | 965 | 2200 |
| 471.omnetpp | 96 | **<u>624</u>** | **<u>961</u>** | 625 | 960 | 624 | 962 | 96 | 595 | 1010 | 597 | 1000 | **<u>597</u>** | **<u>1010</u>** |
| 473.astar | 96 | **<u>706</u>** | **<u>954</u>** | 702 | 960 | 706 | 954 | 96 | **<u>706</u>** | **<u>954</u>** | 702 | 960 | 706 | 954 |
| 483.xalancbmk | 96 | 364 | 1820 | 363 | 1820 | **<u>363</u>** | **<u>1820</u>** | 96 | 364 | 1820 | 363 | 1820 | **<u>363</u>** | **<u>1820</u>** |

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/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 Regulator was set to HP Static High Performance Mode
     HP Power Profile was set to Maximum Performance
     Memory Refresh Rate was set to 1x Refresh
    Sysinfo program /home/cpu2006/config/sysinfo.rev6874.hp
    $Rev: 6874 $ $Date:: 2013-11-20 #$ e05b96ddac6c3d74bfe176502a0a2391
    running on bl660-rwen-blade4 Fri Jan 24 22:20:43 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

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## Platform Notes (Continued)

```
From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-4657L v2 @ 2.40GHz
      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 : 30720 KB

From /proc/meminfo
   MemTotal:       264505672 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 bl660-rwen-blade4 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 Jan 24 22:16 last=S

SPEC is set to: /home/cpu2006
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda2       ext3  274G  8.3G  264G   4% /
Additional information from dmidecode:

   Warning: Use caution when you interpret this section. The 'dmidecode' program
   reads system data which is "intended to allow hardware to be accurately
   determined", but the intent may not be met, as there are frequent changes to
   hardware, firmware, and the "DMTF SMBIOS" standard.

   BIOS HP I32 11/15/2013
   Memory:
   32x HP 712382-071 8 GB 1866 MHz

(End of data from sysinfo program)
```

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## General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"

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

## 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

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## Peak Compiler Invocation (Continued)

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`

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`

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# Peak Optimization Flags (Continued)

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-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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