SPEC® CINT2006 Result
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Hewlett-Packard Company

ProLiant BL460c Gen8
(1.70 GHz, Intel Xeon E5-2650L v2)

SPECint®2006 =   37.4

SPECint_base2006 =   35.0

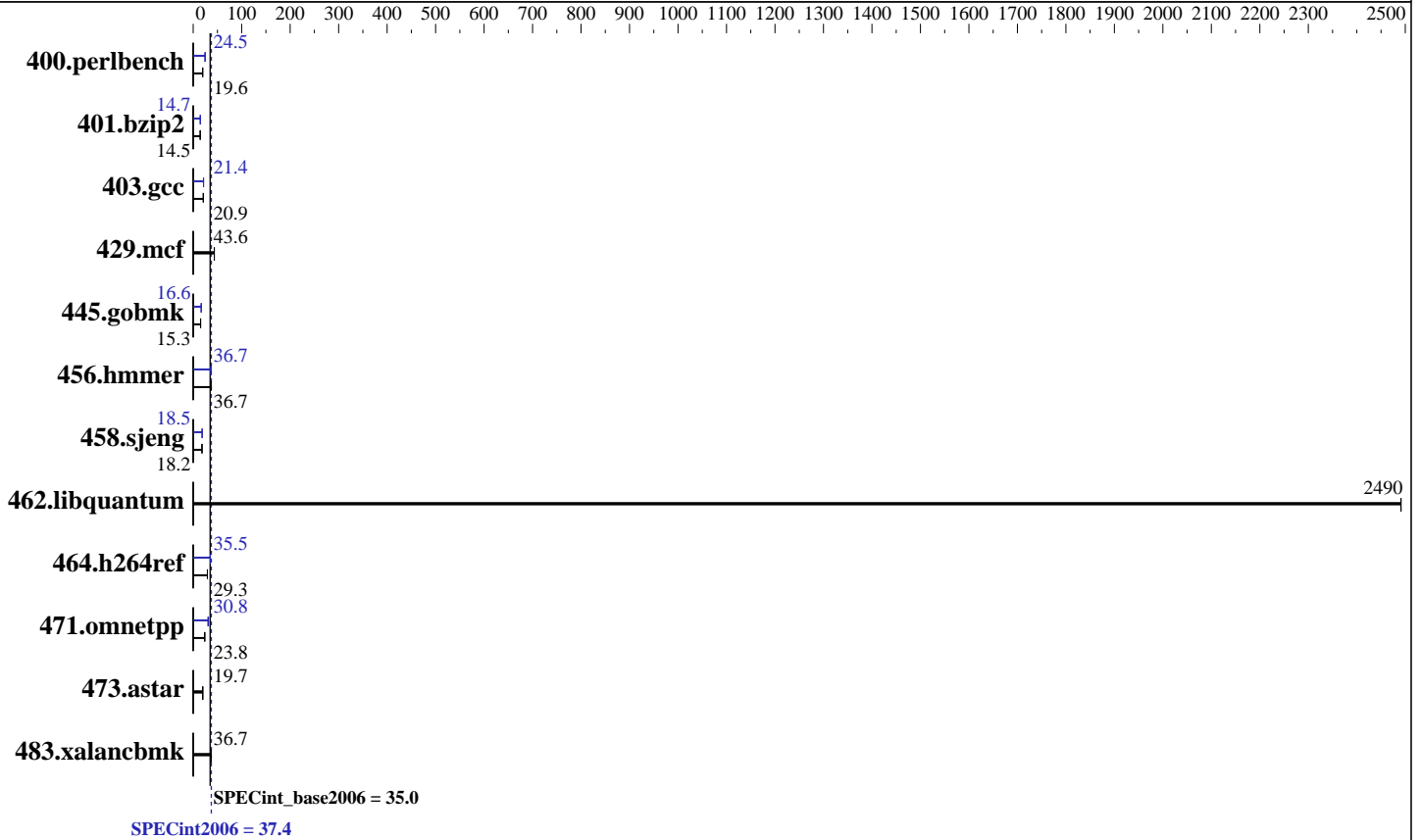|	
CPU2006 license: 3	**Test date:** Oct-2013
Test sponsor: Hewlett-Packard Company	**Hardware Availability:** Sep-2013
Tested by: Hewlett-Packard Company	**Software Availability:** Sep-2013

0   100   200   300   400   500   600   700   800   900   1000   1100   1200   1300   1400   1500   1600   1700   1800   1900   2000   2100   2200   2300   2500

400.perlbench 24.5 / 19.6

401.bzip2 14.7 / 14.5

403.gcc 21.4 / 20.9

429.mcf 43.6

445.gobmk 16.6 / 15.3

456.hmmer 36.7 / 36.7

458.sjeng 18.5 / 18.2

462.libquantum 2490

464.h264ref 35.5 / 29.3

471.omnetpp 30.8 / 23.8

473.astar 19.7

483.xalancbmk 36.7

SPECint_base2006 = 35.0

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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 146 GB 15 K SAS, RAID 1
Other Hardware:	None

Software
Operating System:	SUSE Linux Enterprise Server 11 SP3 Kernel version 3.0.76-0.11.1
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 Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
400.perlbench	499	19.6	**499**	**19.6**	500	19.5	**398**	**24.5**	398	24.5	398	24.6
401.bzip2	665	14.5	665	14.5	**665**	**14.5**	658	14.7	**657**	**14.7**	657	14.7
403.gcc	**385**	**20.9**	385	20.9	386	20.9	377	21.4	**377**	**21.4**	377	21.3
429.mcf	209	43.6	**209**	**43.6**	209	43.6	209	43.6	**209**	**43.6**	209	43.6
445.gobmk	**686**	**15.3**	685	15.3	686	15.3	**632**	**16.6**	632	16.6	632	16.6
456.hmmer	**254**	**36.7**	254	36.8	254	36.7	254	36.8	255	36.5	**254**	**36.7**
458.sjeng	**666**	**18.2**	666	18.2	665	18.2	654	18.5	655	18.5	**655**	**18.5**
462.libquantum	8.32	2490	8.32	2490	**8.32**	**2490**	8.32	2490	8.32	2490	**8.32**	**2490**
464.h264ref	755	29.3	756	29.3	**755**	**29.3**	623	35.5	625	35.4	**624**	**35.5**
471.omnetpp	**262**	**23.8**	263	23.8	262	23.8	197	31.7	**203**	**30.8**	204	30.6
473.astar	356	19.7	**356**	**19.7**	356	19.7	356	19.7	**356**	**19.7**	356	19.7
483.xalancbmk	188	36.6	**188**	**36.7**	188	36.8	188	36.6	**188**	**36.7**	188	36.8

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
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:
 Intel Hyperthreading Options set to Disabled
 HP Power Profile set to Maximum Performance
 Minimum Processor Idle Power Core State set to C6 State
 Minimum Processor Idle Power Package State set to Package C6 (non-retention) State
 Memory Power Savings Mode set to Maximum Performance
 Collaborative Power Control set to Disabled
 Dynamic Power Capping Functionality set to Disabled
 Thermal Configuration set to Maximum Cooling
 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 bl460c-gen8-bay8 Wed Oct  9 14:09:44 2013
```

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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 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:       132130196 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 bl460c-gen8-bay8 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 Oct 9 07:36 last=S

SPEC is set to: /cpu2006
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda2       ext3  133G   12G  121G   9% /

Additional information from dmidecode:
  BIOS HP I31 09/08/2013
  Memory:
   16x HP 689911-071 8 GB 1600 MHz

(End of data from sysinfo program)
Regarding the sysinfo display about the CPU cores from /proc/cpuinfo, the correct
mapping should display as cores 0 through 9. The mapping should read as the
following:
   physical 0: cores 0 1 2 3 4 5 6 7 8 9
   physical 1: cores 0 1 2 3 4 5 6 7 8 9
```

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General Notes

```
Environment variables set by runspec before the start of the run:
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:

Continued on next page

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Base Other Flags (Continued)

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 -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.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_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

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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

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

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-revB.xml
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml

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