SPEC® CINT2006 Result
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Hewlett-Packard Company

ProLiant BL460c Gen8
(2.0 GHz, Intel Xeon E5-2640 v2)

SPECint®2006 = 43.2

SPECint_base2006 = 40.4

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

Test date: Oct-2013
Hardware Availability: Sep-2013
Software Availability: Sep-2013

Benchmark results chart:

- 400.perlbench: 29.2 / 23.3
- 401.bzip2: 17.5 / 17.3
- 403.gcc: 24.7 / 24.3
- 429.mcf: 51.0
- 445.gobmk: 19.8 / 18.2
- 456.hmmer: 43.8
- 458.sjeng: 21.9 / 21.5
- 462.libquantum: 2560
- 464.h264ref: 42.3 / 35.5
- 471.omnetpp: 32.3 / 23.9
- 473.astar: 23.4
- 483.xalancbmk: 42.9

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Hardware

CPU Name:	Intel Xeon E5-2640 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 2.50 GHz
CPU MHz:	2000
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 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:	20 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 (x86_64) Kernel3.0.76-0.11-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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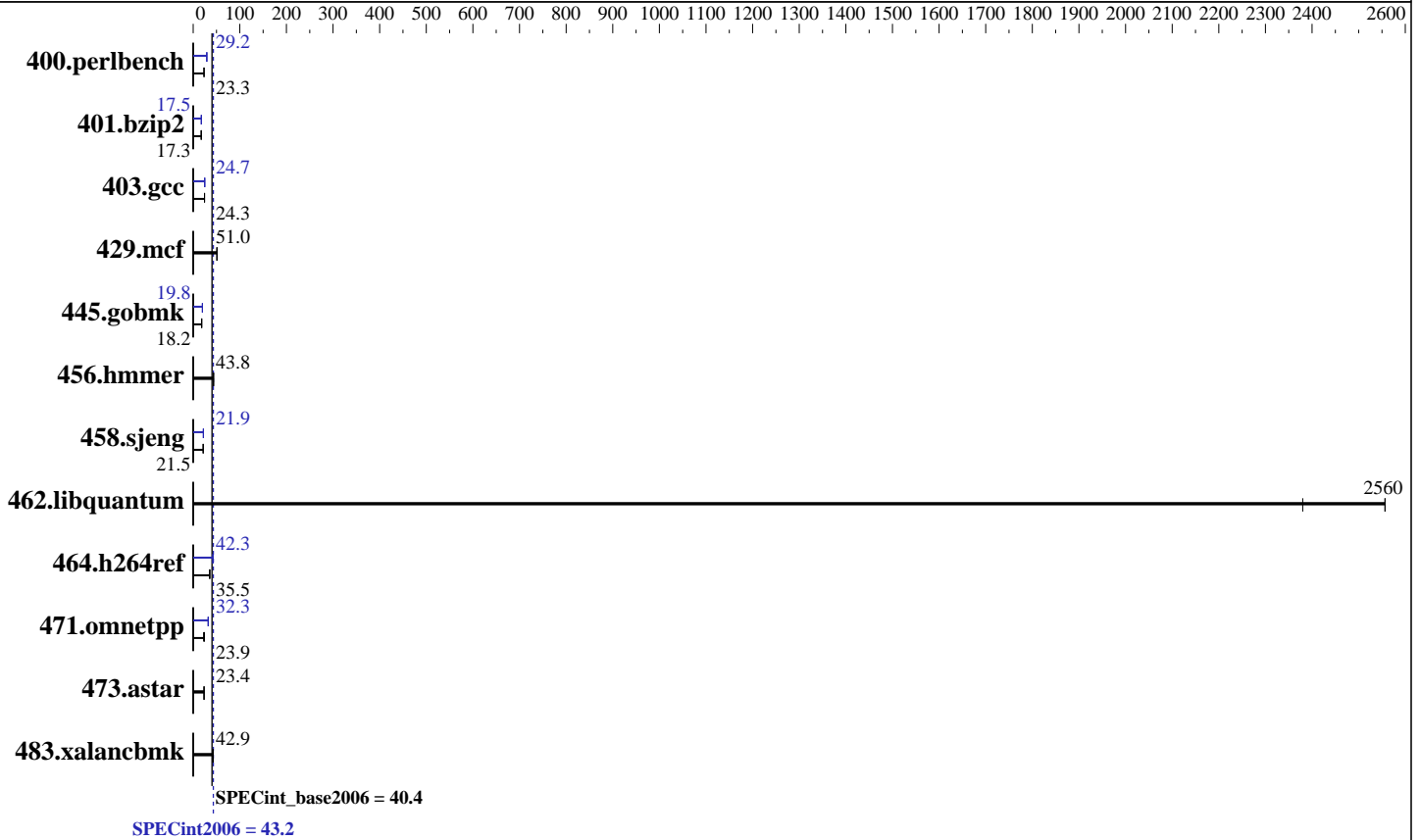|		
CPU2006 license: 3	**Test date:**	Oct-2013
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Results Table

Benchmark	Base						Peak					
	Seconds	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
400.perlbench	418	23.3	**419**	**23.3**	422	23.1	335	29.2	**335**	**29.2**	335	29.2
401.bzip2	558	17.3	**558**	**17.3**	558	17.3	**552**	**17.5**	552	17.5	552	17.5
403.gcc	332	24.3	**331**	**24.3**	331	24.3	326	24.7	**326**	**24.7**	325	24.7
429.mcf	**179**	**51.0**	179	51.0	179	51.0	**179**	**51.0**	179	51.0	179	51.0
445.gobmk	575	18.2	**576**	**18.2**	576	18.2	**530**	**19.8**	531	19.8	530	19.8
456.hmmer	**213**	**43.8**	213	43.8	216	43.2	**213**	**43.8**	213	43.8	216	43.2
458.sjeng	**563**	**21.5**	564	21.5	563	21.5	554	21.9	553	21.9	**554**	**21.9**
462.libquantum	8.10	2560	8.71	2380	**8.10**	**2560**	8.10	2560	8.71	2380	**8.10**	**2560**
464.h264ref	623	35.5	624	35.5	**624**	**35.5**	**524**	**42.3**	524	42.3	524	42.2
471.omnetpp	**261**	**23.9**	280	22.3	260	24.1	195	32.0	193	32.4	**194**	**32.3**
473.astar	301	23.3	300	23.4	**300**	**23.4**	301	23.3	300	23.4	**300**	**23.4**
483.xalancbmk	164	42.1	**161**	**42.9**	160	43.2	164	42.1	**161**	**42.9**	160	43.2

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/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>
Used "stop-services" script before the run
```

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
 Minimum Processor Idle Power Package State set to C6 (non-retention)
 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
 running on bl460c-gen8-bay8 Fri Oct 11 16:53:21 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 E5-2640 v2 @ 2.00GHz
         2 "physical id"s (chips)
         16 "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 : 8
         siblings  : 8
         physical 0: cores 0 1 2 3 4 5 6 7
         physical 1: cores 0 1 2 3 4 5 6 7
      cache size : 20480 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 11 16:38 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)
```

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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 = "16"

 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:

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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: 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/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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