SPEC® CINT2006 Result
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Hewlett-Packard Company

SPECint®2006 = 32.7

ProLiant DL380 G7
(2.40 GHz, Intel Xeon E5645)
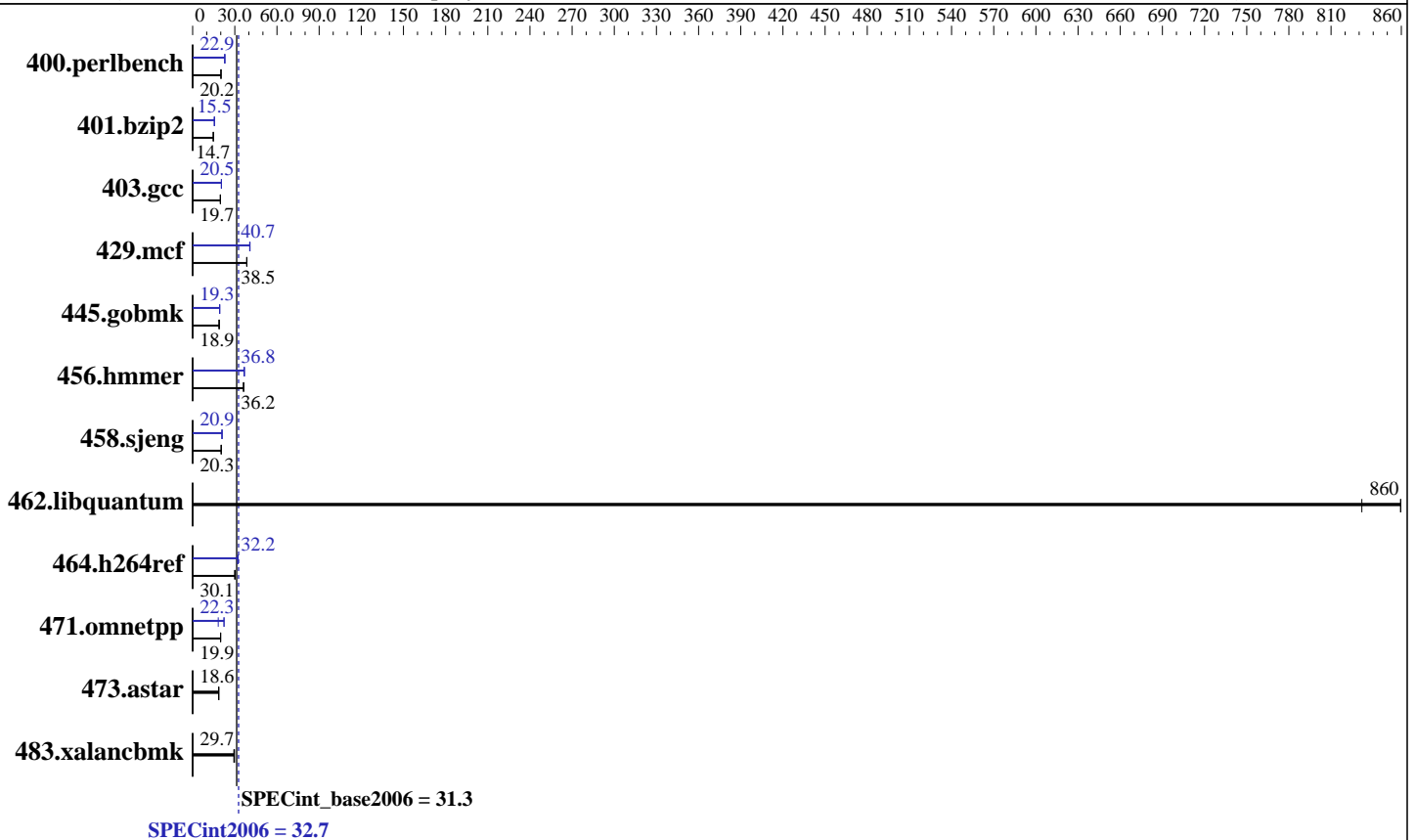
SPECint_base2006 = 31.3

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

Test date: Feb-2011
Hardware Availability: Feb-2011
Software Availability: Dec-2010

400.perlbench 22.9 / 20.2
401.bzip2 15.5 / 14.7
403.gcc 20.5 / 19.7
429.mcf 40.7 / 38.5
445.gobmk 19.3 / 18.9
456.hmmer 36.8 / 36.2
458.sjeng 20.9 / 20.3
462.libquantum 860
464.h264ref 32.2 / 30.1
471.omnetpp 22.3 / 19.9
473.astar 18.6
483.xalancbmk 29.7

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Hardware

CPU Name: Intel Xeon E5645
CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz: 2400
FPU: Integrated
CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip
CPU(s) orderable: 1,2 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core
L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 96 GB (12 x 8 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem: 1 x 300 GB 10 K SAS
Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 11 (x86_64) SP1, Kernel 2.6.32.12-0.7-default
Compiler: Intel C++ Intel 64 Compiler XE for applications running on Intel 64 Version 12.0.1.116 Build 20101116
Auto Parallel: Yes
File System: ext3
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V9.01

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	**484**	**20.2**	484	20.2	484	20.2	**427**	**22.9**	426	22.9	428	22.8
401.bzip2	655	14.7	656	14.7	**656**	**14.7**	623	15.5	**623**	**15.5**	623	15.5
403.gcc	408	19.7	408	19.7	**408**	**19.7**	393	20.5	**393**	**20.5**	393	20.5
429.mcf	236	38.6	237	38.5	**237**	**38.5**	225	40.6	223	40.8	**224**	**40.7**
445.gobmk	561	18.7	**554**	**18.9**	553	19.0	545	19.3	547	19.2	**545**	**19.3**
456.hmmer	**257**	**36.2**	257	36.2	257	36.2	254	36.7	**254**	**36.8**	254	36.8
458.sjeng	595	20.3	595	20.3	**595**	**20.3**	**579**	**20.9**	579	20.9	579	20.9
462.libquantum	24.9	832	**24.1**	**860**	24.1	860	24.9	832	**24.1**	**860**	24.1	860
464.h264ref	736	30.1	735	30.1	**736**	**30.1**	686	32.2	**687**	**32.2**	689	32.1
471.omnetpp	314	19.9	**314**	**19.9**	314	19.9	**280**	**22.3**	343	18.2	280	22.3
473.astar	378	18.5	**378**	**18.6**	378	18.6	378	18.5	**378**	**18.6**	378	18.6
483.xalancbmk	**232**	**29.7**	232	29.7	235	29.3	**232**	**29.7**	232	29.7	235	29.3

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

Operating System Notes

```
 'nodev   /mnt/hugepages   hugetlbfs   defaults   0 0' added to /etc/fstab
 'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
echo 900 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

Platform Notes

```
 BIOS configuration:
  Intel HyperThreading Options set to Disabled
  HP Power Profile set to Maximum Performance
  Thermal Configuration set to Increased Cooling
  Data Reuse set to Disabled
```

General Notes

```
 Binaries were compiled on RHEL5.5
```

Base Compiler Invocation

C benchmarks:
```
     icc  -m64
```

C++ benchmarks:
```
     icpc -m64
```

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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
    -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT
```

C++ benchmarks:
```
    -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
    -L/smartheap -lsmartheap64
    -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT
```

Base Other Flags

C benchmarks:

```
    403.gcc: -Dalloca=_alloca
```

Peak Compiler Invocation

C benchmarks (except as noted below):
```
    icc  -m64
```

```
    400.perlbench: icc -m32
```

```
    429.mcf: icc -m32
```

```
    445.gobmk: icc -m32
```

```
    464.h264ref: icc -m32
```

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Peak Compiler Invocation (Continued)

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
         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
                    -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

         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
                    -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

           429.mcf: -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 -ansi-alias
                    -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

         445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
                    -auto-ilp32 -ansi-alias
                    -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

         456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
                    -ansi-alias
                    -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT
```

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Peak Optimization Flags (Continued)

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
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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/smartheap -lsmartheap
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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-ic12.0-linux64-revB.html
http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20110316.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml
http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20110316.xml

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