



SPEC® CINT2006 Result

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Hewlett-Packard Company

SPECint®_rate2006 = 393

ProLiant ML350p Gen8
(2.00 GHz, Intel Xeon E5-2620)

SPECint_rate_base2006 = 377

CPU2006 license: 3

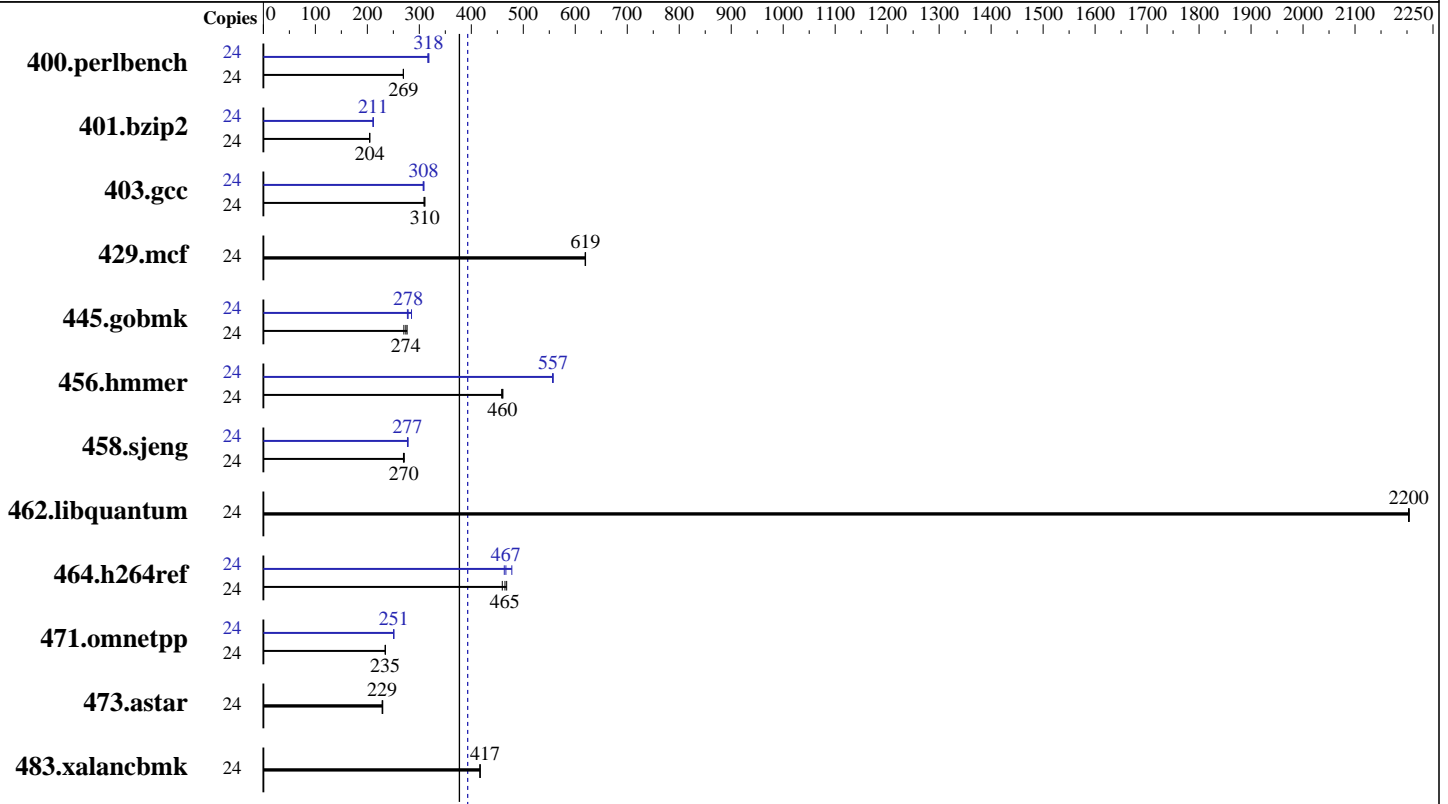
Test date: Oct-2012

Test sponsor: Hewlett-Packard Company

Hardware Availability: Oct-2012

Tested by: Hewlett-Packard Company

Software Availability: Jun-2012



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Hardware

CPU Name: Intel Xeon E5-2620
 CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core
 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: 15 MB I+D on chip per chip
 Other Cache: None
 Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz and CL9)
 Disk Subsystem: 2 x 300 GB 15 K SAS, RAID 1
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 6.3, (Santiago)
 2.6.32-279.el6.x86_64
 Compiler: C/C++: Version 12.1.3.293 of Intel C++ Studio XE for Linux
 Build 20120212
 Auto Parallel: No
 File System: ext4
 System State: Run level 3 (multi-user)
 Base Pointers: 32-bit
 Peak Pointers: 32/64-bit
 Other Software: Microquill SmartHeap V9.01



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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	24	870	269	871	269	870	270	24	737	318	738	318	741	316
401.bzip2	24	1134	204	1133	204	1131	205	24	1097	211	1096	211	1096	211
403.gcc	24	622	310	622	311	625	309	24	625	309	627	308	629	307
429.mcf	24	354	619	353	620	353	619	24	354	619	353	620	353	619
445.gobmk	24	932	270	911	276	919	274	24	883	285	909	277	904	278
456.hammer	24	486	461	489	458	487	460	24	402	557	402	557	403	556
458.sjeng	24	1076	270	1071	271	1078	269	24	1047	277	1043	278	1048	277
462.libquantum	24	226	2200	226	2200	226	2200	24	226	2200	226	2200	226	2200
464.h264ref	24	1135	468	1143	465	1156	460	24	1146	463	1111	478	1138	467
471.omnetpp	24	639	235	640	234	640	235	24	598	251	598	251	598	251
473.astar	24	734	230	737	229	736	229	24	734	230	737	229	736	229
483.xalancbmk	24	397	417	397	417	397	417	24	397	417	397	417	397	417

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 Profile set to Custom
Thermal Configuration set to Maximum Cooling
Energy/Performance Bias set to Maximum Performance

Sysinfo program /SPEC/config/sysinfo.rev6801
\$Rev: 6801 \$ \$Date:: 2012-02-29 #\$ 97210b12a36633f0c6f39ef1d894b47e
running on mpaton350b.perflabs.hp.com Wed Oct 17 14:21:50 2012

This section contains SUT (System Under Test) info as seen by
Continued on next page



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Platform Notes (Continued)

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 E5-2620 0 @ 2.00GHz
 2 "physical id"s (chips)
 24 "processors"
cpu cores      : 6
siblings       : 12
physical 0: cores 0 1 2 3 4 5
physical 1: cores 0 1 2 3 4 5
cache size    : 15360 KB
```

```
From /proc/meminfo
MemTotal:      132119544 kB
HugePages_Total: 0
Hugepagesize:  2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.3 (Santiago)
```

```
From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.3 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.3 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

```
uname -a:
Linux mpaton350b.perflabs.hp.com 2.6.32-279.el6.x86_64 #1 SMP Wed Jun 13
18:24:36 EDT 2012 x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Oct 17 14:19 last=5
```

```
SPEC is set to: /SPEC
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda7       ext4      108G  6.5G  96G   7% /SPEC
```

```
Additional information from dmidecode:
BIOS HP P72 08/20/2012
Memory:
16x HP Not Specified 8 GB 1600 MHz 2 rank
```

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/SPEC/libs3/32:/SPEC/libs3/64"

Binaries compiled on a system with 2x Xeon E5-2667 CPU + 256GB memory using SLES11SP2



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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/spec/libs2/32 -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

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks:

icpc -m32



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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: -xSSE4.2 -ipo -O3 -no-prec-div

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

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)
 -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
 -L/spec/libs2/32 -lsmartheap

473.astar: basepeak = yes

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Peak Optimization Flags (Continued)

483.xalanbmk: 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-ic12.1-official-linux64.20120425.html>
<http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-A.20120829.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml>
<http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-A.20120829.xml>

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For other inquiries, please contact webmaster@spec.org.

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