SPEC® CINT2006 Result
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Hewlett-Packard Company
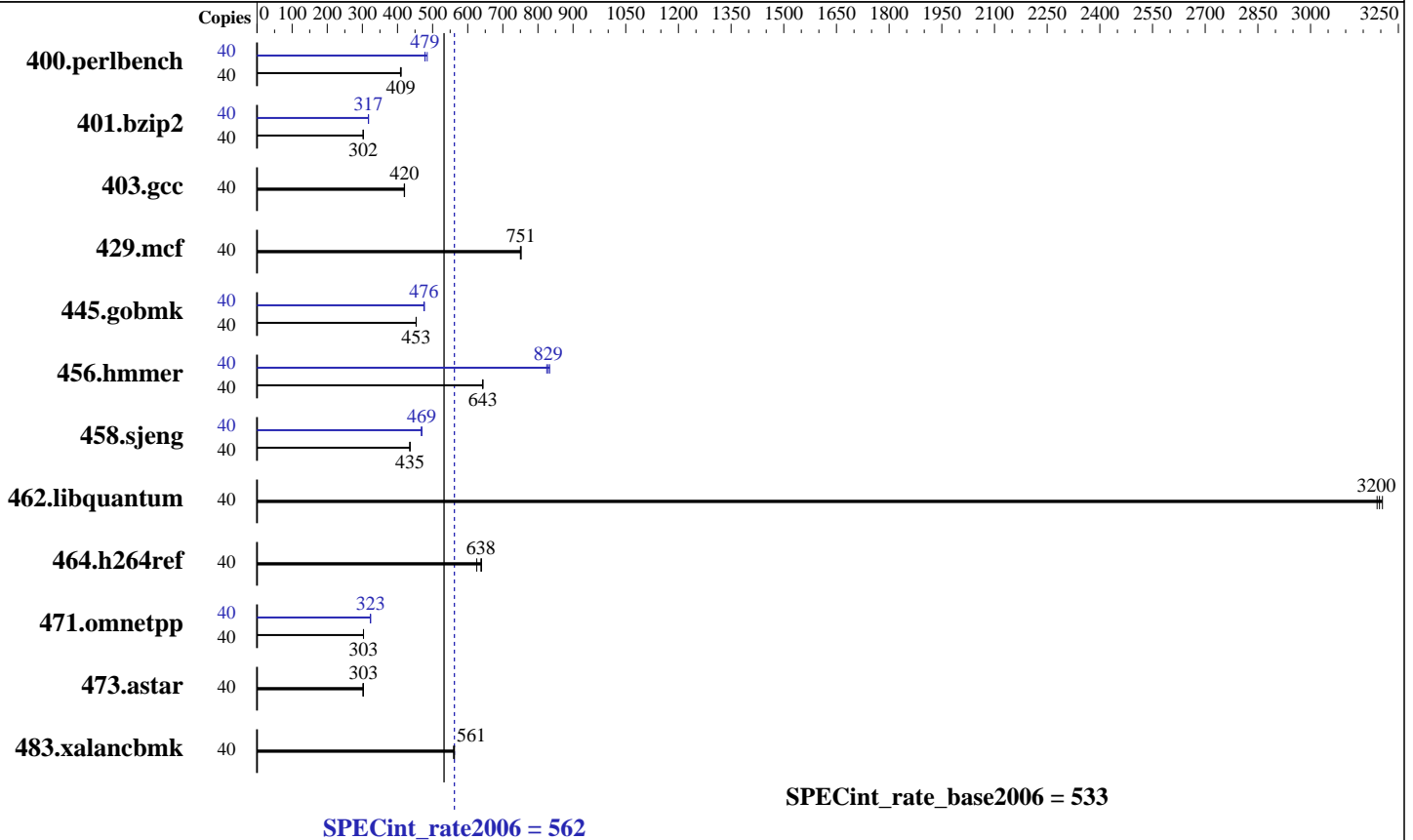
ProLiant BL620c G7
(2.40 GHz, Intel Xeon E7-2870)

SPECint®_rate2006 =   562

SPECint_rate_base2006 =   533

CPU2006 license: 3

Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Mar-2012

Hardware Availability: Apr-2011

Software Availability: Dec-2011

Copies 0 100 200 300 400 500 600 700 800 900 1050 1200 1350 1500 1650 1800 1950 2100 2250 2400 2550 2700 2850 3000 3250

400.perlbench 40 / 479 ; 40 / 409

401.bzip2 40 / 317 ; 40 / 302

403.gcc 40 / 420

429.mcf 40 / 751

445.gobmk 40 / 476 ; 40 / 453

456.hmmer 40 / 829 ; 40 / 643

458.sjeng 40 / 469 ; 40 / 435

462.libquantum 40 / 3200

464.h264ref 40 / 638

471.omnetpp 40 / 323 ; 40 / 303

473.astar 40 / 303

483.xalancbmk 40 / 561

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Hardware

CPU Name: Intel Xeon E7-2870

CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz

CPU MHz: 2400

FPU: Integrated

CPU(s) enabled: 20 cores, 2 chips, 10 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: 30 MB I+D on chip per chip

Other Cache: None

Memory: 512 GB (32 x 8 GB 2Rx4 PC3-10600R-9, ECC)

Disk Subsystem: 1 x 146 GB 10 K SAS

Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 6.2
Kernel 2.6.32-220.el6.x86_64

Compiler: C/C++: Version 12.1.0.225 of
Intel Compiler XE
Build 20110803

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	40	**955**	**409**	957	409	952	410	40	817	478	806	485	**816**	**479**
401.bzip2	40	1276	302	**1276**	**302**	1276	303	40	1216	318	1217	317	**1216**	**317**
403.gcc	40	**767**	**420**	766	420	768	419	40	**767**	**420**	766	420	768	419
429.mcf	40	**486**	**751**	485	752	486	750	40	**486**	**751**	485	752	486	750
445.gobmk	40	926	453	926	453	**926**	**453**	40	**882**	**476**	880	477	883	475
456.hmmer	40	580	643	581	642	**580**	**643**	40	**450**	**829**	452	825	448	833
458.sjeng	40	1112	435	**1112**	**435**	1110	436	40	1032	469	**1032**	**469**	1034	468
462.libquantum	40	**259**	**3200**	260	3190	259	3200	40	**259**	**3200**	260	3190	259	3200
464.h264ref	40	1415	626	1384	639	**1389**	**638**	40	1415	626	1384	639	**1389**	**638**
471.omnetpp	40	824	303	**824**	**303**	825	303	40	773	323	**774**	**323**	774	323
473.astar	40	926	303	**927**	**303**	932	301	40	926	303	**927**	**303**	932	301
483.xalancbmk	40	493	560	491	562	**492**	**561**	40	493	560	491	562	**492**	**561**

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/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>

Platform Notes

    BIOS configuration:
     Power Profile set to Maximum Performance
     Thermal Configuration set to Increased Cooling
    Sysinfo program /cpu2006/config/sysinfo.rev6800
    $Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
    running on bl620cg7-tlm Sun Nov 6 17:22:02 2011

    From /proc/cpuinfo
       model name : Intel(R) Xeon(R) CPU E7- 2870 @ 2.40GHz
          2 "physical id"s (chips)

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Platform Notes (Continued)

```
     40 "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  : 20
      physical 0: cores 0 1 2 8 9 16 17 18 24 25
      physical 1: cores 0 1 2 8 9 16 17 18 24 25
   cache size : 30720 KB

 From /proc/meminfo
   MemTotal:       264517312 kB
   HugePages_Total:        0
   Hugepagesize:        2048 kB

 /usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.2 (Santiago)

 From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

 uname -a:
   Linux bl620cg7-tlm 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13 EST 2011
   x86_64 x86_64 x86_64 GNU/Linux

 run-level 3 Nov 4 19:01

 SPEC is set to: /cpu2006
   Filesystem    Type    Size  Used Avail Use% Mounted on
   /dev/sda3     ext4    133G  7.1G  119G   6% /

 Additional information from dmidecode:
   BIOS HP I25 11/04/2011
   Memory:
   32x Not Specified Not Specified 8 GB 1333 MHz 2 rank

 (End of data from sysinfo program)
```

General Notes

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

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RHEL5.5
```

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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/smartheap -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: 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

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/smartheap -lsmartheap`

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

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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-A.html
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.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-A.xml
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml

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

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