SPEC® CINT2006 Result
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Hewlett-Packard Company

ProLiant DL380e Gen8
(2.40 GHz, Intel Xeon E5-2440)

SPECint®_rate2006 = 437

SPECint_rate_base2006 = 420

CPU2006 license: 3	**Test date:** Jul-2012
Test sponsor: Hewlett-Packard Company	**Hardware Availability:** Jun-2012
Tested by: Hewlett-Packard Company	**Software Availability:** Mar-2012

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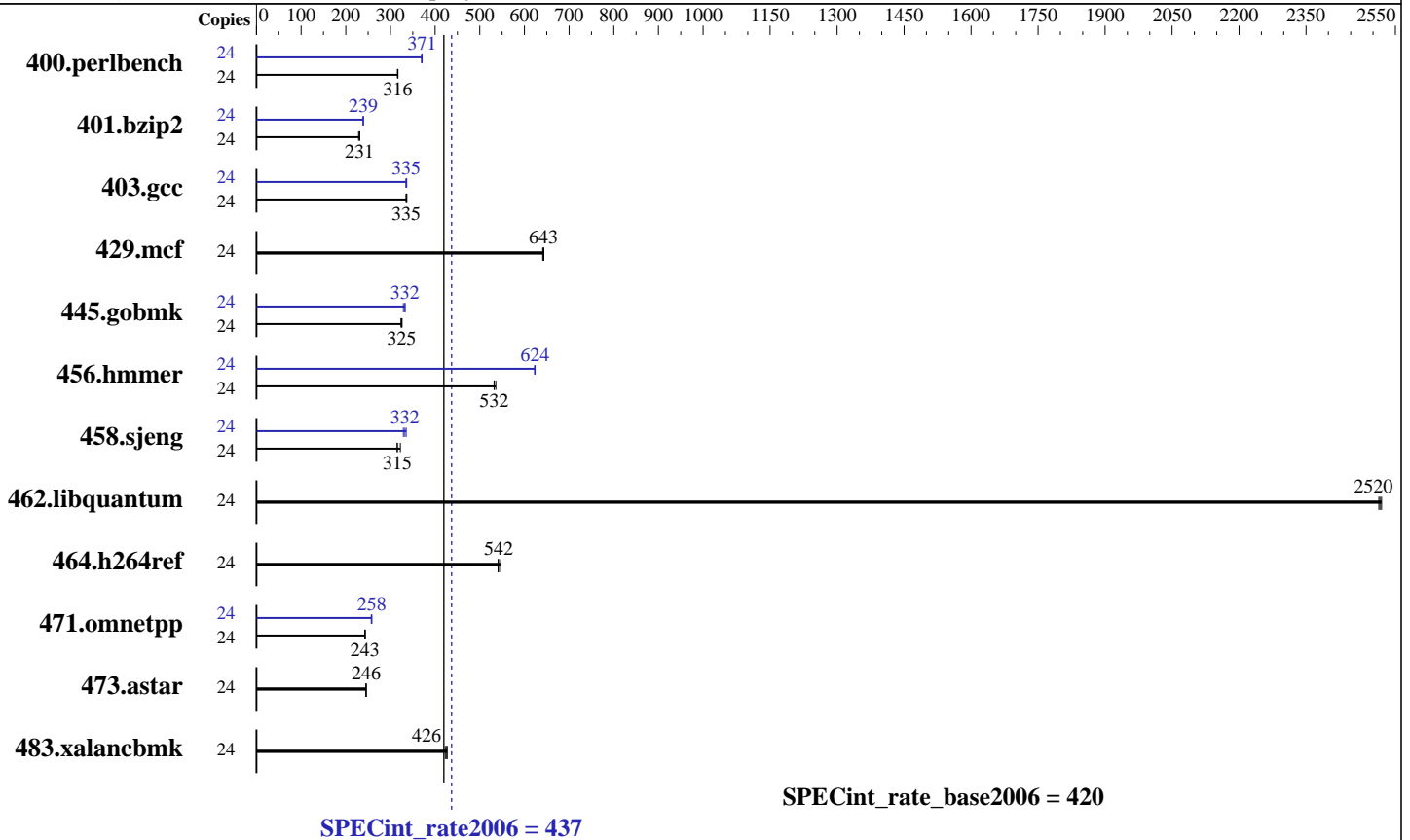
Hardware

CPU Name:	Intel Xeon E5-2440
CPU Characteristics:	Intel Turbo Boost Technology up to 2.90 GHz
CPU MHz:	2400
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 cores/chip, 2 threads/core
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:	15 MB I+D on chip per chip
Other Cache:	None
Memory:	96 GB (12 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz and CL9)
Disk Subsystem:	2 x 300 GB 10 K SAS, RAID 1
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.2, (Santiago) Kernel 2.6.32-220.el6.x86_64
Compiler:	C/C++: Version 12.1.2.273 of Intel C++ Studio XE for Linux
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 HP Array Configuration Utility, CLI version

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Results Table

Benchmark	Copies	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	24	740	317	743	316	**742**	**316**	24	632	371	635	369	**633**	**371**
401.bzip2	24	**1005**	**231**	1002	231	1013	229	24	**969**	**239**	968	239	969	239
403.gcc	24	576	335	574	337	**576**	**335**	24	**576**	**335**	577	335	574	336
429.mcf	24	342	641	**341**	**643**	340	643	24	342	641	**341**	**643**	340	643
445.gobmk	24	779	323	**774**	**325**	773	326	24	**757**	**332**	766	329	757	333
456.hmmer	24	421	532	**421**	**532**	418	536	24	**359**	**624**	360	623	359	624
458.sjeng	24	**921**	**315**	901	322	922	315	24	883	329	**874**	**332**	866	335
462.libquantum	24	198	2510	197	2520	**198**	**2520**	24	198	2510	197	2520	**198**	**2520**
464.h264ref	24	**980**	**542**	982	541	972	547	24	**980**	**542**	982	541	972	547
471.omnetpp	24	616	243	**617**	**243**	617	243	24	**582**	**258**	584	257	581	258
473.astar	24	686	246	688	245	**686**	**246**	24	686	246	688	245	**686**	**246**
483.xalancbmk	24	**389**	**426**	388	427	392	423	24	**389**	**426**	388	427	392	423

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
    Zone reclaim mode enabled with:
    each 1 > /proc/sys/vm/zone_reclaim_mode
    runspec command invoked through numactl i.e.:
    numactl --interleave=all runspec <etc>
    Drive Write Cache set to Enabled in HP Array Configuration Utility, CLI version
    Accelerator Ratio for Reads/Writes set to = 100% Read / 0% Write in HP Array Configuration Utility,
    CLI version

Platform Notes

    BIOS Configuration:
     HP Power Profile set to Custom
     Energy/Performance Bias is set to Maximum Performance
     Thermal Configuration set to Maximum Cooling
     Collaborative Power Control set to Disabled
    Sysinfo program /cpu2006/config/sysinfo.rev6800
                              Continued on next page

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Platform Notes (Continued)

```
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on dl380e-5 Sat Jul 28 17:49:17 2012

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 E5-2440 0 @ 2.40GHz
      2 "physical id"s (chips)
      24 "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 : 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:       99033568 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 dl380e-5 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 Jul 28 17:47

SPEC is set to: /cpu2006
   Filesystem     Type     Size  Used Avail Use% Mounted on
   /dev/sda3      ext4     273G   17G  243G   7% /

Additional information from dmidecode:
  BIOS HP P73 06/01/2012
  Memory:
   12x HP Not Specified 8 GB 1600 MHz 2 rank

(End of data from sysinfo program)
```

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General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/cpu2006/libs2/32:/cpu2006/libs2/64"

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

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

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Peak Compiler Invocation (Continued)

400.perlbench: `icc -m64`

401.bzip2: `icc -m64`

456.hmmer: `icc -m64`

458.sjeng: `icc -m64`

C++ benchmarks:
`icpc -m32`

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`

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Peak Optimization Flags (Continued)

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

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.20120425.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.20120425.xml

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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