



SPEC[®] CINT2006 Result

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Hewlett-Packard Company

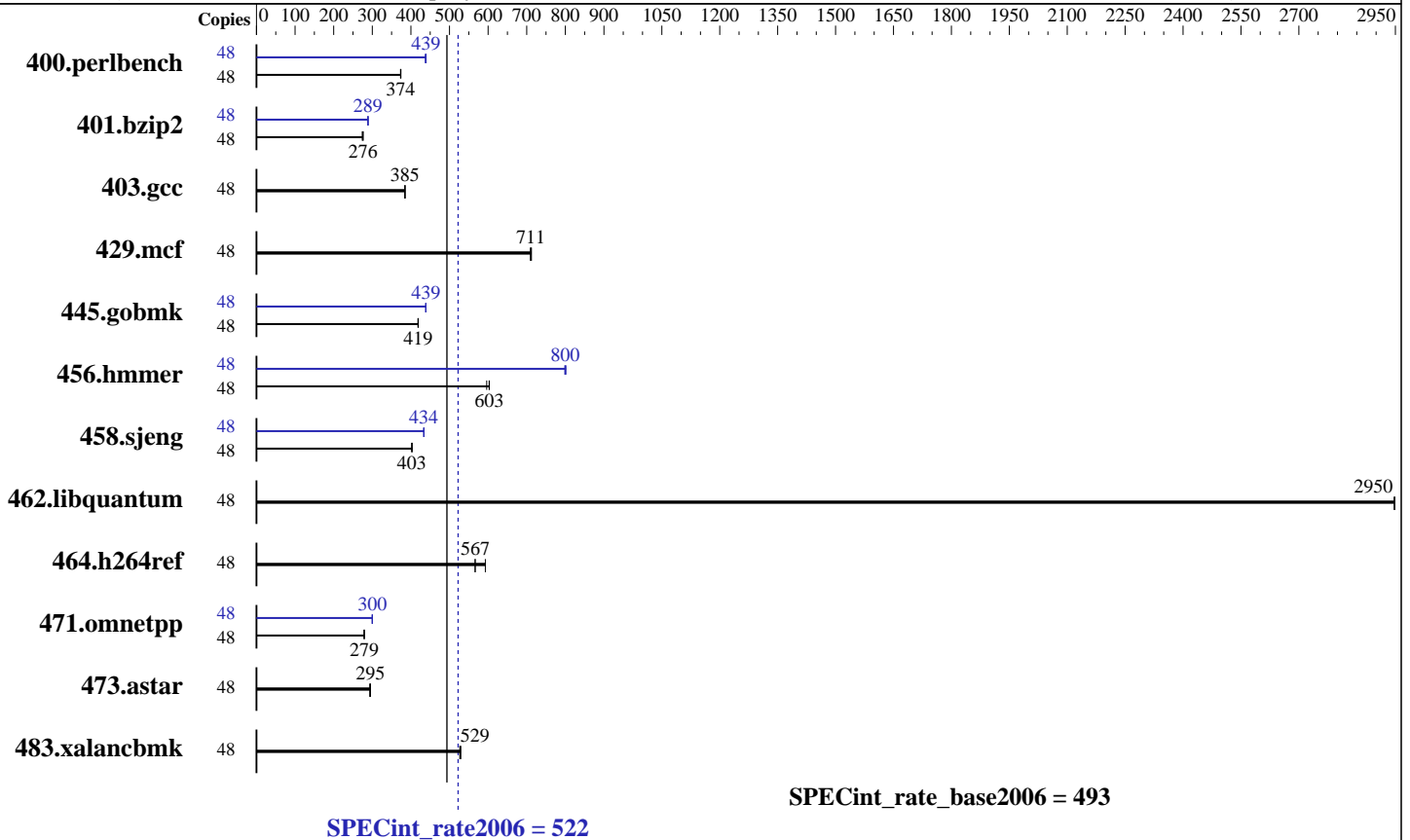
SPECint[®]_rate2006 = 522

ProLiant DL580 G7
(1.87 GHz, Intel Xeon E7-4807)

SPECint_rate_base2006 = 493

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

Test date: Apr-2012
Hardware Availability: Apr-2011
Software Availability: Dec-2011



Hardware

CPU Name: Intel Xeon E7-4807
 CPU Characteristics: 1867
 CPU MHz: 1867
 FPU: Integrated
 CPU(s) enabled: 24 cores, 4 chips, 6 cores/chip, 2 threads/core
 CPU(s) orderable: 2,4 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: 18 MB I+D on chip per chip
 Other Cache: None
 Memory: 512 GB (32 x 16 GB 2Rx4 PC3-10600R-9, ECC)
 Disk Subsystem: 4 x 146 GB 15 K SAS, RAID 0
 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 12.1.0.225 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



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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 | 48 | 1254 | 374 | 1257 | 373 | <u>1255</u> | <u>374</u> | 48 | 1067 | 439 | <u>1068</u> | <u>439</u> | 1073 | 437 |
| 401.bzip2 | 48 | 1691 | 274 | <u>1680</u> | <u>276</u> | 1676 | 276 | 48 | <u>1604</u> | <u>289</u> | 1600 | 289 | 1606 | 288 |
| 403.gcc | 48 | <u>1005</u> | <u>385</u> | 1006 | 384 | 1003 | 385 | 48 | <u>1005</u> | <u>385</u> | 1006 | 384 | 1003 | 385 |
| 429.mcf | 48 | 615 | 712 | 617 | 709 | <u>616</u> | <u>711</u> | 48 | 615 | 712 | 617 | 709 | <u>616</u> | <u>711</u> |
| 445.gobmk | 48 | 1201 | 419 | <u>1203</u> | <u>419</u> | 1203 | 419 | 48 | 1149 | 438 | <u>1147</u> | <u>439</u> | 1147 | 439 |
| 456.hammer | 48 | <u>743</u> | <u>603</u> | 751 | 596 | 742 | 603 | 48 | <u>560</u> | <u>800</u> | 559 | 802 | 561 | 799 |
| 458.sjeng | 48 | <u>1443</u> | <u>403</u> | 1441 | 403 | 1444 | 402 | 48 | 1340 | 433 | 1339 | 434 | <u>1340</u> | <u>434</u> |
| 462.libquantum | 48 | 337 | 2950 | <u>337</u> | <u>2950</u> | 337 | 2950 | 48 | 337 | 2950 | <u>337</u> | <u>2950</u> | 337 | 2950 |
| 464.h264ref | 48 | 1876 | 566 | 1792 | 593 | <u>1875</u> | <u>567</u> | 48 | 1876 | 566 | 1792 | 593 | <u>1875</u> | <u>567</u> |
| 471.omnetpp | 48 | 1075 | 279 | 1074 | 279 | <u>1075</u> | <u>279</u> | 48 | <u>1000</u> | <u>300</u> | 999 | 300 | 1001 | 300 |
| 473.astar | 48 | <u>1142</u> | <u>295</u> | 1148 | 293 | 1142 | 295 | 48 | <u>1142</u> | <u>295</u> | 1148 | 293 | 1142 | 295 |
| 483.xalancbmk | 48 | 626 | 529 | 629 | 527 | <u>627</u> | <u>529</u> | 48 | 626 | 529 | 629 | 527 | <u>627</u> | <u>529</u> |

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 Maximum Performance
Thermal Configuration set to Increased Cooling
Collaborative Power Control set to Disabled
Sysinfo program /cpu2006/config/sysinfo.rev6800
\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3
running on dl580g7-da Mon Apr 16 09:42:23 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>

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Platform Notes (Continued)

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E7- 4807 @ 1.87GHz
 4 "physical id"s (chips)
48 "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 1 8 9 16 17 24
  physical 1: cores 0 8 9 16 17 25
  physical 2: cores 1 8 9 16 17 24
  physical 3: cores 0 8 9 16 17 25
cache size : 18432 KB

From /proc/meminfo
MemTotal:      529265536 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 dl580g7-da 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 Apr 16 09:01

SPEC is set to: /cpu2006
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda3       ext4      537G  6.4G  503G   2% /

Additional information from dmidecode:
BIOS HP P65 05/23/2011
Memory:
 32x Not Specified Not Specified 16 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"

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General Notes (Continued)

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

400.perlbench: icc -m64

401.bzip2: icc -m64

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Peak Compiler Invocation (Continued)

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: `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`

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Peak Optimization Flags (Continued)

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>

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

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