



SPEC® CINT2006 Result

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Hewlett-Packard Company

SPECint®2006 = 24.6

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

SPECint_base2006 = 23.2

CPU2006 license: 3

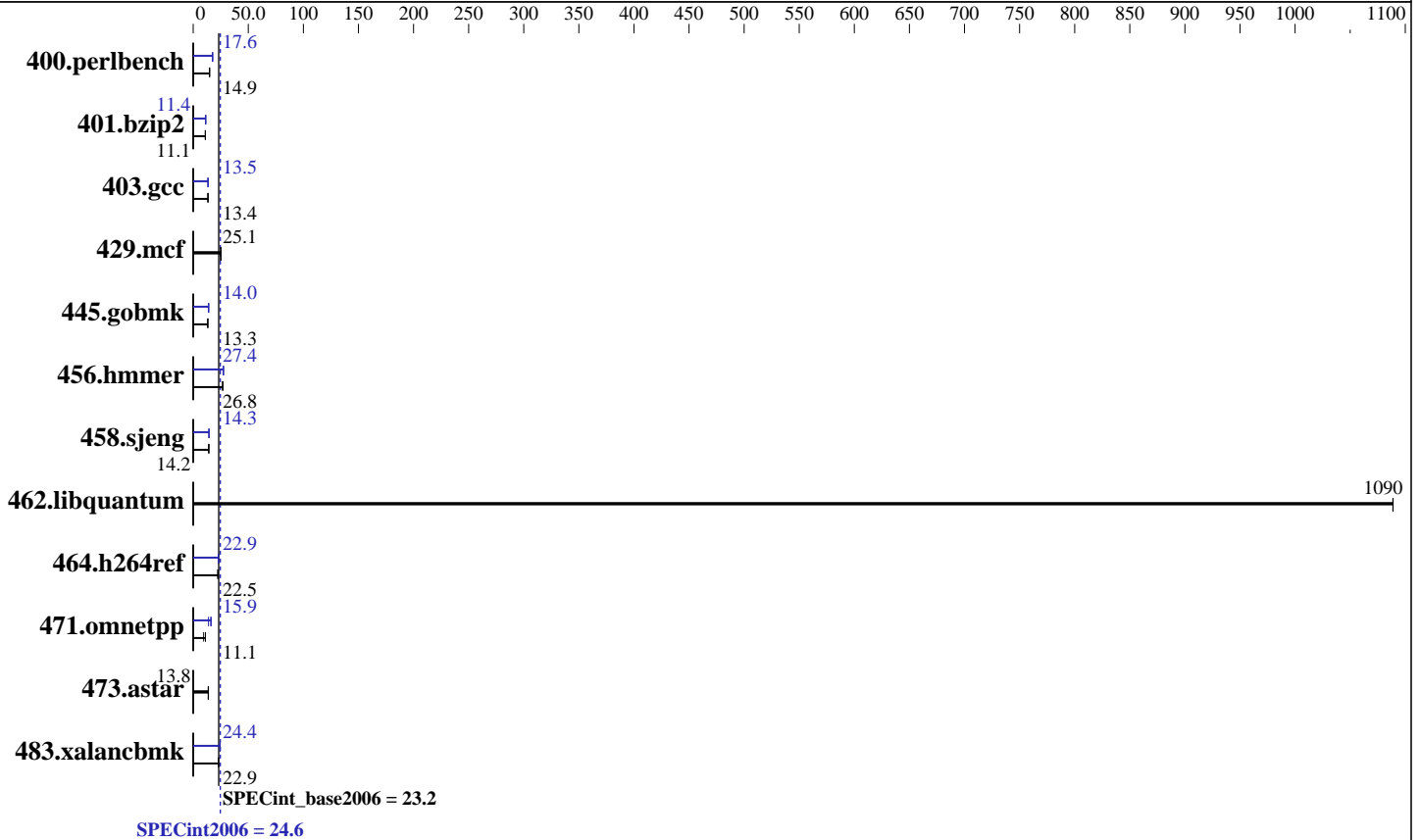
Test date: Apr-2012

Test sponsor: Hewlett-Packard Company

Hardware Availability: Apr-2011

Tested by: Hewlett-Packard Company

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
 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: Yes
 File System: ext4
 System State: Run level 3 (multi-user)
 Base Pointers: 32/64-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	<u>656</u>	<u>14.9</u>	655	14.9	662	14.8	553	17.7	556	17.6	<u>556</u>	<u>17.6</u>
401.bzip2	873	11.1	<u>873</u>	<u>11.1</u>	874	11.0	850	11.4	<u>850</u>	<u>11.4</u>	849	11.4
403.gcc	<u>600</u>	<u>13.4</u>	599	13.4	601	13.4	602	13.4	<u>597</u>	<u>13.5</u>	594	13.6
429.mcf	<u>364</u>	<u>25.1</u>	368	24.8	361	25.2	<u>364</u>	<u>25.1</u>	368	24.8	361	25.2
445.gobmk	792	13.3	792	13.2	<u>792</u>	<u>13.3</u>	<u>748</u>	<u>14.0</u>	746	14.1	750	14.0
456.hammer	<u>348</u>	<u>26.8</u>	348	26.8	348	26.8	<u>340</u>	<u>27.4</u>	340	27.4	340	27.4
458.sjeng	855	14.2	<u>855</u>	<u>14.2</u>	855	14.2	843	14.3	<u>845</u>	<u>14.3</u>	845	14.3
462.libquantum	19.0	1090	<u>19.0</u>	<u>1090</u>	19.0	1090	19.0	1090	<u>19.0</u>	<u>1090</u>	19.0	1090
464.h264ref	<u>985</u>	<u>22.5</u>	987	22.4	984	22.5	969	22.8	968	22.9	<u>968</u>	<u>22.9</u>
471.omnetpp	<u>561</u>	<u>11.1</u>	561	11.1	658	9.50	<u>393</u>	<u>15.9</u>	383	16.3	450	13.9
473.astar	514	13.6	<u>510</u>	<u>13.8</u>	507	13.9	514	13.6	<u>510</u>	<u>13.8</u>	507	13.9
483.xalancbmk	301	22.9	302	22.9	<u>301</u>	<u>22.9</u>	282	24.5	<u>282</u>	<u>24.4</u>	284	24.3

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

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
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
Intel Hyperthreading set to Disabled
Sysinfo program /cpu2006/config/sysinfo.rev6800
\$Rev: 6800 \$ \$Date:: 2011-10-11 # \$ 6f2ebdff5032aaa42e583f96b07f99d3
running on dl580g7-da Fri Apr 20 13:45:56 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 E7- 4807 @ 1.87GHz
4 "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

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Platform Notes (Continued)

```
caution.)
cpu cores : 6
siblings  : 6
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 20 13:45
```

```
SPEC is set to: /cpu2006
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda3        ext4      537G   98G  412G  20% /
```

```
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:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/cpu2006/libs/32:/cpu2006/libs/64"
OMP_NUM_THREADS = "12"

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 -m64

C++ benchmarks:

icpc -m64

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

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-Wl,-z,muldefs -L/smartheap -lsmartheap64

Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

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Peak Compiler Invocation (Continued)

400.perlbench: `icc -m32`

445.gobmk: `icc -m32`

464.h264ref: `icc -m32`

C++ benchmarks (except as noted below):

`icpc -m32`

473.astar: `icpc -m64`

Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`

401.bzip2: `-DSPEC_CPU_LP64`

403.gcc: `-DSPEC_CPU_LP64`

429.mcf: `-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_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`

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`

429.mcf: `basepeak = yes`

445.gobmk: `-xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias`

456.hmmer: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
-ansi-alias`

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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

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

473.astar: basepeak = yes

483.xalancbmk: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
-Wl,-z,muldefs -L/smartheap -lsmartheap

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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