



SPEC® CINT2006 Result

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Hewlett-Packard Company

SPECint®_rate2006 = 2180

ProLiant DL980 G7 (2.4 GHz, Intel Xeon E7-4870)

SPECint_rate_base2006 = 2070

CPU2006 license: 3

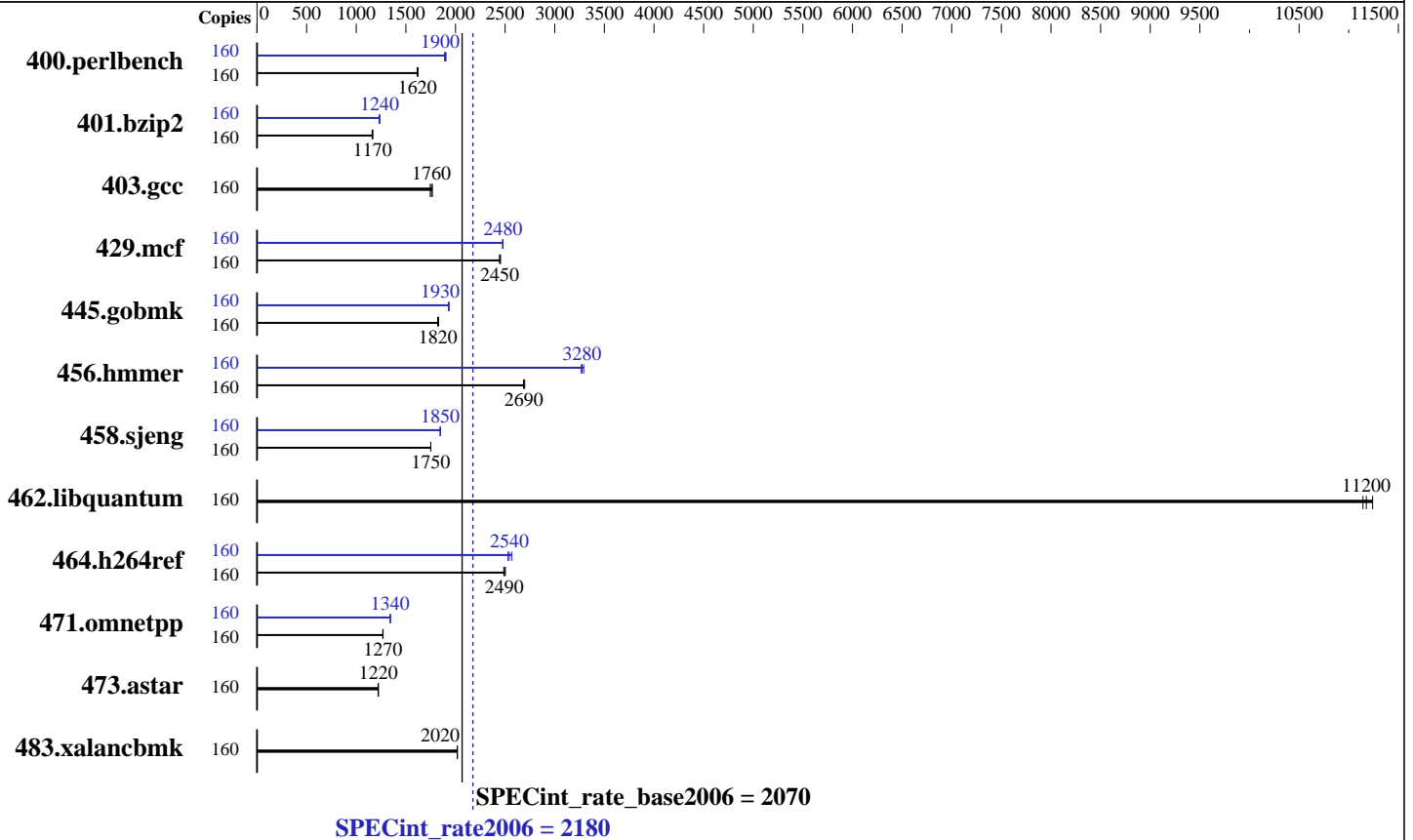
Test date: Sep-2011

Test sponsor: Hewlett-Packard Company

Hardware Availability: Aug-2011

Tested by: Hewlett-Packard Company

Software Availability: Jul-2011



Hardware

CPU Name: Intel Xeon E7-4870
 CPU Characteristics: Intel Turbo Boost Technology up to 2.8 GHz
 CPU MHz: 2400
 FPU: Integrated
 CPU(s) enabled: 80 cores, 8 chips, 10 cores/chip, 2 threads/core
 CPU(s) orderable: 4, 8 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: 1 TB (128 x 8 GB 2Rx4 PC3L-10600R-9, ECC, running at 1066 MHz)
 Disk Subsystem: 1 x 120 GB SATA SDD
 Other Hardware: 512 MB FBWC Module for P410i SmartArray

Software

Operating System: SUSE Linux Enterprise Server 11 (x86_64) SP1, Kernel 2.6.32.12-0.7-default
 Compiler: C/C++: Version 12.0.5 of Intel C++ Composer XE 2011 for Linux Build 20110719
 Auto Parallel: No
 File System: tmpfs
 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	160	964	1620	967	1620	968	1610	160	823	1900	827	1890	821	1900
401.bzip2	160	1325	1170	1324	1170	1332	1160	160	1249	1240	1255	1230	1249	1240
403.gcc	160	733	1760	729	1770	738	1750	160	733	1760	729	1770	738	1750
429.mcf	160	597	2450	595	2450	597	2450	160	589	2480	589	2480	590	2470
445.gobmk	160	917	1830	920	1820	922	1820	160	868	1930	868	1930	870	1930
456.hammer	160	555	2690	556	2690	553	2700	160	457	3270	456	3280	453	3290
458.sjeng	160	1106	1750	1105	1750	1106	1750	160	1049	1850	1048	1850	1048	1850
462.libquantum	160	295	11200	298	11100	297	11200	160	295	11200	298	11100	297	11200
464.h264ref	160	1424	2490	1415	2500	1421	2490	160	1392	2540	1400	2530	1379	2570
471.omnetpp	160	789	1270	787	1270	787	1270	160	744	1340	745	1340	745	1340
473.astar	160	919	1220	919	1220	921	1220	160	919	1220	919	1220	921	1220
483.xalancbmk	160	547	2020	547	2020	547	2020	160	547	2020	547	2020	547	2020

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

Submit Notes

The config file option 'submit' was used.
numactl was used to bind copies to the cores

Operating System Notes

```
I/O scheduler for the device holding the filesystem set to "noop"
SPEC files placed in /dev/shm/cpu2006 with /dev/shm
mounted as tmpfs with mpol=interleave, size=500G
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'nodedv /mnt/hugetlbfs hugetlbfs defaults 0 0' added to /etc/fstab
echo 160000 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib/libhugetlbfs.so
```

Platform Notes

BIOS Settings:
Power Regulator set to HP Static High Performance Mode
Sysinfo program /dev/shm/cpu2006/Docs/sysinfo
\$Rev: 6775 \$ \$Date:: 2011-08-16 #\$ 8787f7622badcf24e01c368b1db4377c
running on s9 Fri Sep 9 01:43:40 2011

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

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Platform Notes (Continued)

```

model name : Intel(R) Xeon(R) CPU E7- 4870 @ 2.40GHz
 8 "physical id"s (chips)
160 "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 3 4 5 6 7 8 9
physical 1: cores 0 1 2 3 4 5 6 7 8 9
physical 2: cores 0 1 2 3 4 5 6 7 8 9
physical 3: cores 0 1 2 3 4 5 6 7 8 9
physical 4: cores 0 1 2 3 4 5 6 7 8 9
physical 5: cores 0 1 2 3 4 5 6 7 8 9
physical 6: cores 0 1 2 3 4 5 6 7 8 9
physical 7: cores 0 1 2 3 4 5 6 7 8 9
cache size : 30720 KB

```

```

From /proc/meminfo
MemTotal:      1040205340 kB
HugePages_Total:    160000
Hugepagesize:      2048 kB

```

```

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 11 (x86_64)

```

```

From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 11 (x86_64)
VERSION = 11
PATCHLEVEL = 1

```

```

uname -a:
Linux s9 2.6.32.12-0.7-default #1 SMP 2010-05-20 11:14:20 +0200 x86_64 x86_64
x86_64 GNU/Linux

```

run-level 3 Sep 9 00:49 last=S

```

SPEC is set to: /dev/shm/cpu2006
Filesystem      Type      Size  Used Avail Use% Mounted on
tmpfs           tmpfs    497G  2.7G  494G   1% /dev/shm

```

(End of data from sysinfo program)

Base Compiler Invocation

C benchmarks:
icc -m32

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Base Compiler Invocation (Continued)

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
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/smartheap -lsmartheap
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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)
 -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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
 -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

403.gcc: basepeak = yes

429.mcf: -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 -auto-ilp32

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
 -ansi-alias -auto-ilp32

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
 -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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
 -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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/smartheap -lsmartheap

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Peak Optimization Flags (Continued)

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-ic12.0-linux64-revB.20111012.html>
<http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-compiler-flags.html>
<http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-platform-flags.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.20111012.xml>
<http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-compiler-flags.xml>
<http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-platform-flags.xml>

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

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