SPEC® CINT2006 Result
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NEC Corporation

Express5800/R140b-4
(Intel Xeon X7560)

$SPECint®2006 =$ 31.7

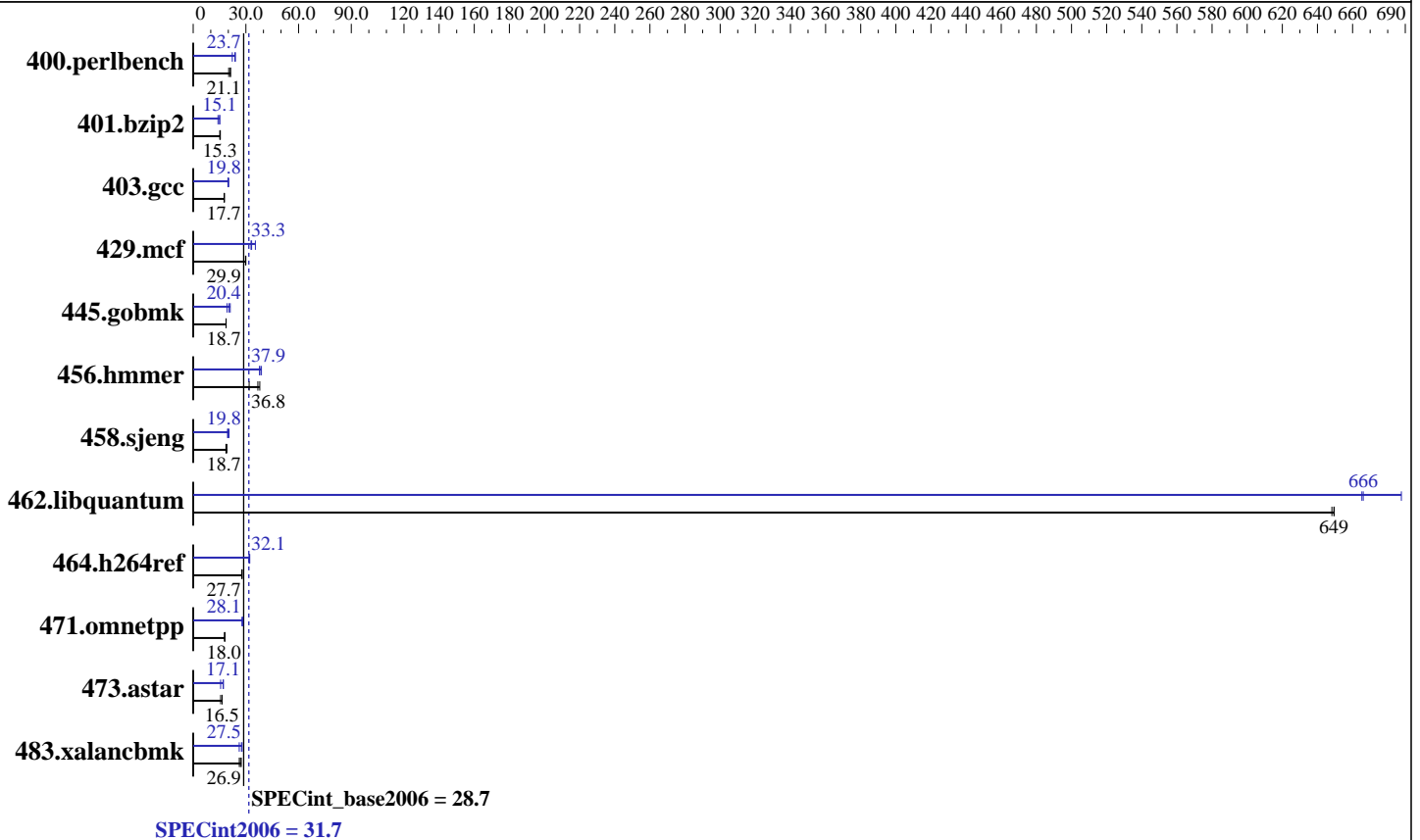$SPECint\_base2006 =$ 28.7

CPU2006 license: 9006
Test sponsor: NEC Corporation
Tested by: NEC Corporation

Test date: Jun-2010
Hardware Availability: Aug-2010
Software Availability: Dec-2009

Benchmark results chart (scale 0 to 690):

- 400.perlbench: 23.7 / 21.1
- 401.bzip2: 15.1 / 15.3
- 403.gcc: 19.8 / 17.7
- 429.mcf: 33.3 / 29.9
- 445.gobmk: 20.4 / 18.7
- 456.hmmer: 37.9 / 36.8
- 458.sjeng: 19.8 / 18.7
- 462.libquantum: 666 / 649
- 464.h264ref: 32.1 / 27.7
- 471.omnetpp: 28.1 / 18.0
- 473.astar: 17.1 / 16.5
- 483.xalancbmk: 27.5 / 26.9

SPECint_base2006 = 28.7
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Hardware

CPU Name:	Intel Xeon X7560
CPU Characteristics:	Intel Turbo Boost Technology up to 2.67 GHz
CPU MHz:	2267
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 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:	24 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (64 x 4 GB PC3-10600R, 2 rank, CL9, ECC, running at 1066 MHz)
Disk Subsystem:	1x300 GB SAS, 10000 RPM
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-default
Compiler:	Intel C++ Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cproc_p_11.1.064
Auto Parallel:	Yes
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V8.1

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Results Table

Benchmark	Base						Peak					
	Seconds	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
400.perlbench	460	21.2	**462**	**21.1**	484	20.2	406	24.0	**412**	**23.7**	439	22.3
401.bzip2	636	15.2	624	15.5	**631**	**15.3**	640	15.1	684	14.1	**640**	**15.1**
403.gcc	454	17.7	**455**	**17.7**	456	17.7	407	19.8	398	20.2	**406**	**19.8**
429.mcf	306	29.8	304	30.0	**305**	**29.9**	277	32.9	258	35.4	**274**	**33.3**
445.gobmk	560	18.7	**560**	**18.7**	562	18.7	543	19.3	497	21.1	**513**	**20.4**
456.hmmer	293	31.9	246	37.9	**253**	**36.8**	247	37.8	240	38.8	**246**	**37.9**
458.sjeng	**647**	**18.7**	630	19.2	649	18.6	**612**	**19.8**	618	19.6	593	20.4
462.libquantum	31.9	650	32.0	648	**31.9**	**649**	30.1	688	31.1	665	**31.1**	**666**
464.h264ref	799	27.7	795	27.8	**798**	**27.7**	**688**	**32.1**	697	31.8	688	32.2
471.omnetpp	347	18.0	350	17.9	**347**	**18.0**	**222**	**28.1**	225	27.8	220	28.3
473.astar	**426**	**16.5**	449	15.6	426	16.5	**410**	**17.1**	449	15.6	409	17.2
483.xalancbmk	**257**	**26.9**	263	26.2	252	27.4	**251**	**27.5**	263	26.2	248	27.8

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

Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run

Platform Notes

    BIOS setting:
    Performance/Watt: Traditional
    Hyper-Threading Technology: Disabled

General Notes

    OMP_NUM_THREADS set to number of cores
    KMP_AFFINITY set to granularity=fine,scatter

Base Compiler Invocation

C benchmarks:
     icc -m64

C++ benchmarks:
     icpc -m64

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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 -static -parallel -opt-prefetch
```

C++ benchmarks:

```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/opt/SmartHeap_8.1/lib64 -lsmartheap64
```

Base Other Flags

C benchmarks:

```
403.gcc: -Dalloca=_alloca
```

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc  -m64
```

```
400.perlbench: icc -m32
```

```
429.mcf: icc -m32
```

```
445.gobmk: icc -m32
```

```
464.h264ref: icc -m32
```

C++ benchmarks (except as noted below):
```
icpc -m32
```

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Peak Compiler Invocation (Continued)

473.astar: `icpc -m64`

Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
401.bzip2: `-DSPEC_CPU_LP64`
403.gcc: `-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) -static(pass 2)`
`-prof-use(pass 2) -ansi-alias -opt-prefetch`

401.bzip2: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)`
`-O3(pass 2) -no-prec-div -static(pass 2) -prof-use(pass 2)`
`-auto-ilp32 -opt-prefetch -ansi-alias`

403.gcc: `-xSSE4.2 -ipo -O3 -no-prec-div -static -inline-calloc`
`-opt-malloc-options=3 -auto-ilp32`

429.mcf: `-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch`

445.gobmk: `-xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -O2`
`-ipo -no-prec-div -ansi-alias`

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

458.sjeng: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)`
`-O3(pass 2) -no-prec-div(pass 2) -static(pass 2)`
`-prof-use(pass 2) -unroll4`

462.libquantum: `-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel`
`-opt-prefetch -par-schedule-static=32768 -ansi-alias`

464.h264ref: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)`
`-O3(pass 2) -no-prec-div(pass 2) -static(pass 2)`
`-prof-use(pass 2) -unroll2 -ansi-alias`

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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/opt/SmartHeap_8.1/lib -lsmartheap`

473.astar: `-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=routine -Wl,-z,muldefs`
`-L/opt/SmartHeap_8.1/lib64 -lsmartheap64`

483.xalancbmk: `-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch`
`-Wl,-z,muldefs -L/opt/SmartHeap_8.1/lib -lsmartheap`

Peak Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE-R140.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE-R140.xml

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Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 13:34:21 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 19 August 2010.