SPEC® CINT2006 Result
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NEC Corporation

Express5800/B120d (Intel Xeon E5-2430)

SPECint®2006 = 41.5
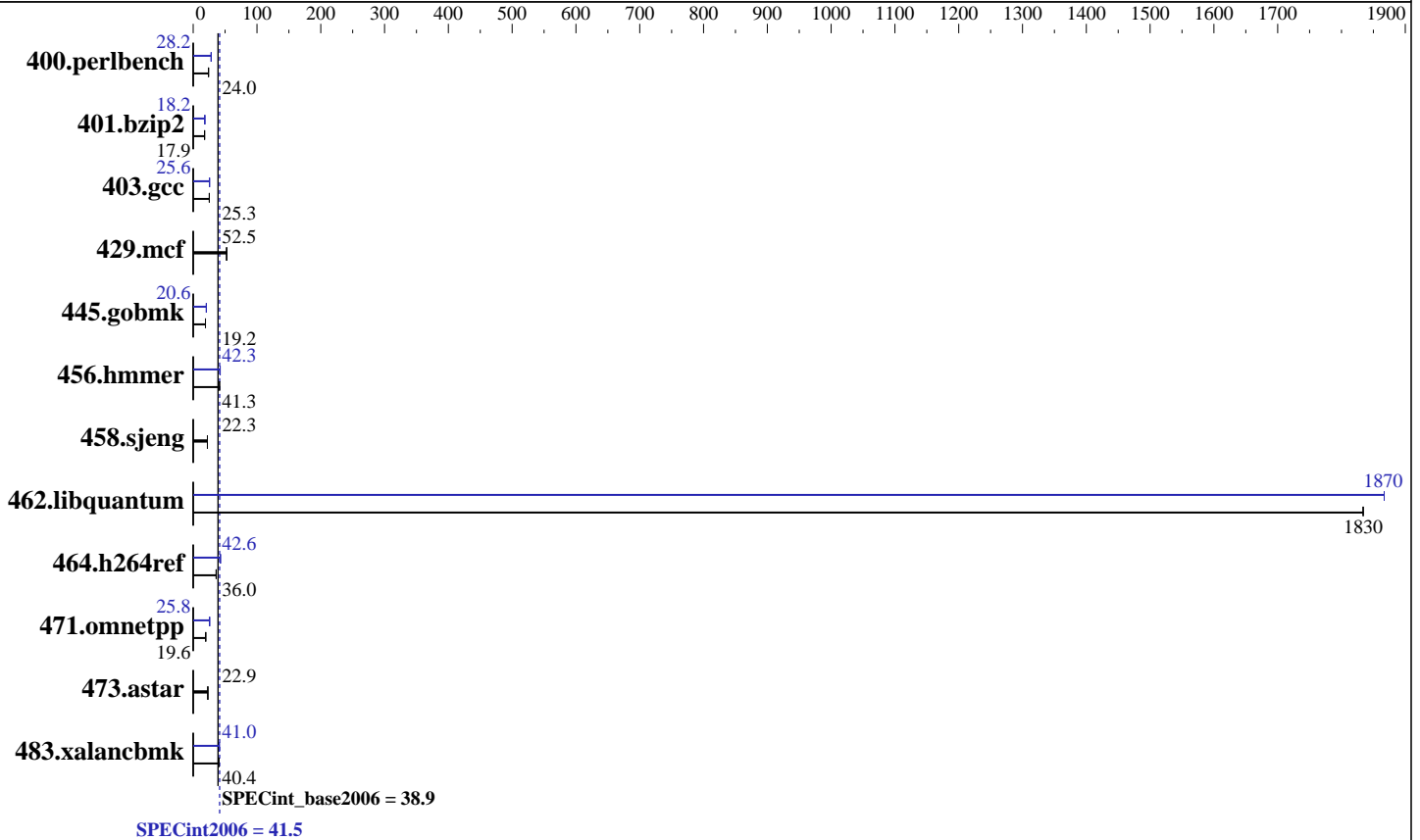
SPECint_base2006 = 38.9

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

Test date: Aug-2012
Hardware Availability: Oct-2012
Software Availability: Feb-2012

SPECint_base2006 = 38.9

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Benchmark	Peak	Base
400.perlbench	28.2	24.0
401.bzip2	18.2	17.9
403.gcc	25.6	25.3
429.mcf		52.5
445.gobmk	20.6	19.2
456.hmmer	42.3	41.3
458.sjeng		22.3
462.libquantum	1870	1830
464.h264ref	42.6	36.0
471.omnetpp	25.8	19.6
473.astar		22.9
483.xalancbmk	41.0	40.4

Hardware

CPU Name:	Intel Xeon E5-2430
CPU Characteristics:	Intel Turbo Boost Technology up to 2.70 GHz
CPU MHz:	2200
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 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:	15 MB I+D on chip per chip
Other Cache:	None
Memory:	96 GB (12 x 8 GB 2Rx4 PC3L-12800R-11, ECC, running at 1333 MHz and CL9)
Disk Subsystem:	1 x 500 GB SATA, 7200 RPM
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 12.1.3.293 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 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	407	24.0	406	24.0	**406**	**24.0**	**346**	**28.2**	347	28.2	346	28.2
401.bzip2	539	17.9	**540**	**17.9**	543	17.8	529	18.2	**529**	**18.2**	530	18.2
403.gcc	318	25.3	**319**	**25.3**	319	25.2	315	25.6	**314**	**25.6**	314	25.6
429.mcf	**174**	**52.5**	175	52.1	173	52.6	**174**	**52.5**	175	52.1	173	52.6
445.gobmk	545	19.2	546	19.2	**546**	**19.2**	509	20.6	509	20.6	**509**	**20.6**
456.hmmer	**226**	**41.3**	227	41.2	226	41.3	**220**	**42.3**	221	42.2	220	42.4
458.sjeng	543	22.3	543	22.3	**543**	**22.3**	543	22.3	543	22.3	**543**	**22.3**
462.libquantum	11.3	1830	**11.3**	**1830**	11.3	1830	**11.1**	**1870**	11.1	1870	11.1	1870
464.h264ref	**615**	**36.0**	615	36.0	613	36.1	520	42.5	**519**	**42.6**	516	42.9
471.omnetpp	318	19.6	**318**	**19.6**	318	19.6	244	25.6	**243**	**25.8**	242	25.8
473.astar	307	22.8	303	23.1	**307**	**22.9**	307	22.8	303	23.1	**307**	**22.9**
483.xalancbmk	171	40.4	**171**	**40.4**	171	40.3	168	41.0	**168**	**41.0**	169	40.9

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"

Platform Notes

    BIOS Settings:
     Energy Performance: Performance

General Notes

    Environment variables set by runspec before the start of the run:
    KMP_AFFINITY = "granularity=fine,compact,1,0"
    LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"
    OMP_NUM_THREADS = "12"

     Added glibc-static-2.12-1.47.el6.x86_64.rpm
     to enable static linking

    Transparent Huge Pages enabled with:
     echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

Base Compiler Invocation

    C benchmarks:
        icc -m64

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Base Compiler Invocation (Continued)

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/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

      445.gobmk: icc -m32

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Peak Compiler Invocation (Continued)

> 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: `-xAVX -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`

> 458.sjeng: `basepeak = yes`

> 462.libquantum: `-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch`
> `-auto-p32`

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Peak Optimization Flags (Continued)

```
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/opt/SmartHeap_8.1/lib -lsmartheap
```

```
  473.astar: basepeak = yes
```

```
483.xalancbmk: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
               -Wl,-z,muldefs -L/opt/SmartHeap_8.1/lib -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/NEC-Platform-Settings-V1.2-R120d-RevA.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/NEC-Platform-Settings-V1.2-R120d-RevA.xml

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

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