SPEC® CINT2006 Result
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NEC Corporation

Express5800/B120e (Intel Xeon E5-2403 v2)

SPECint®2006 =   29.1
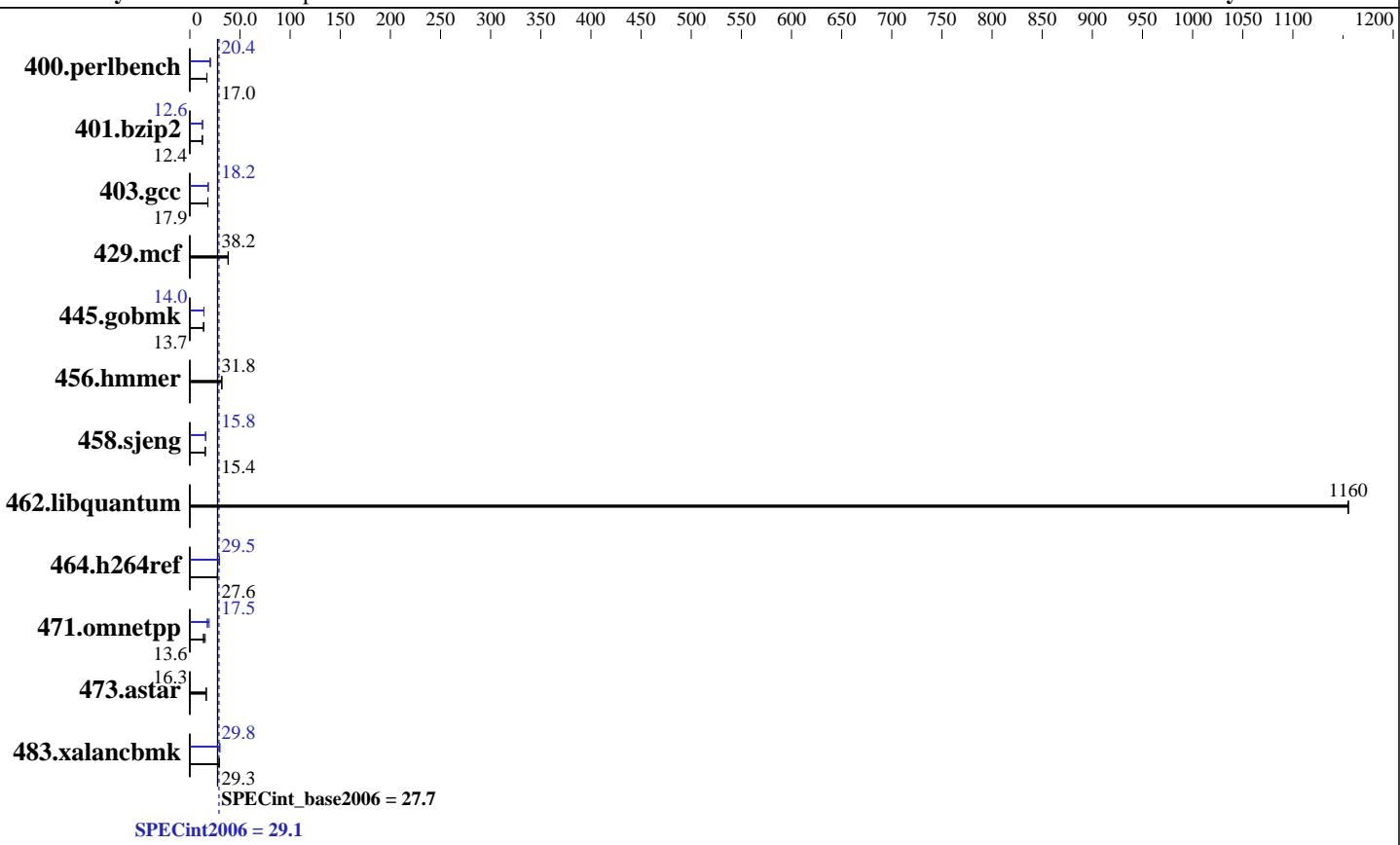
SPECint_base2006 =   27.7

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

Test date: Mar-2014
Hardware Availability: Jan-2014
Software Availability: Oct-2013

Benchmark results chart:
- 400.perlbench: 20.4 / 17.0
- 401.bzip2: 12.6 / 12.4
- 403.gcc: 18.2 / 17.9
- 429.mcf: 38.2
- 445.gobmk: 14.0 / 13.7
- 456.hmmer: 31.8
- 458.sjeng: 15.8 / 15.4
- 462.libquantum: 1160
- 464.h264ref: 29.5 / 27.6
- 471.omnetpp: 17.5 / 13.6
- 473.astar: 16.3
- 483.xalancbmk: 29.8 / 29.3

SPECint_base2006 = 27.7
SPECint2006 = 29.1

Hardware

CPU Name:	Intel Xeon E5-2403 v2
CPU Characteristics:	
CPU MHz:	1800
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip
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:	10 MB I+D on chip per chip
Other Cache:	None
Memory:	192 GB (12 x 16 GB 2Rx4 PC3L-12800R-11, ECC, running at 1333 MHz and CL9)
Disk Subsystem:	1 x 400 GB SATA, SSD
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.4 (Santiago) Kernel 2.6.32-358.23.2.el6.x86_64
Compiler:	C/C++: Version 14.0.0.080 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	573	17.0	**575**	**17.0**	575	17.0	479	20.4	**480**	**20.4**	481	20.3
401.bzip2	**776**	**12.4**	777	12.4	776	12.4	766	12.6	**766**	**12.6**	766	12.6
403.gcc	**449**	**17.9**	446	18.1	449	17.9	442	18.2	**442**	**18.2**	440	18.3
429.mcf	**239**	**38.2**	237	38.4	239	38.2	**239**	**38.2**	237	38.4	239	38.2
445.gobmk	**763**	**13.7**	763	13.7	762	13.8	746	14.1	**747**	**14.0**	747	14.0
456.hmmer	**293**	**31.8**	293	31.8	293	31.9	**293**	**31.8**	293	31.8	293	31.9
458.sjeng	**788**	**15.4**	788	15.4	789	15.3	768	15.8	768	15.7	**768**	**15.8**
462.libquantum	17.9	1160	17.9	1160	**17.9**	**1160**	17.9	1160	17.9	1160	**17.9**	**1160**
464.h264ref	802	27.6	**802**	**27.6**	803	27.6	750	29.5	**750**	**29.5**	750	29.5
471.omnetpp	**458**	**13.6**	460	13.6	408	15.3	358	17.5	**358**	**17.5**	324	19.3
473.astar	431	16.3	**431**	**16.3**	430	16.3	431	16.3	**431**	**16.3**	430	16.3
483.xalancbmk	235	29.3	236	29.3	**235**	**29.3**	**232**	**29.8**	232	29.8	231	29.9

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
 Memory Voltage: 1.5 V
```

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:/home/cpu2006/sh"
OMP_NUM_THREADS = "8"

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

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:
```
     -xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32
```

C++ benchmarks:
```
     -xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -Wl,-z,muldefs
     -L/sh -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
```

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

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

```
      473.astar: icpc -m64
```

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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: -xAVX(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: -xAVX(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: -xAVX(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
                     -ansi-alias

         456.hmmer: basepeak = yes

          458.sjeng: -xAVX(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: -xAVX(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: -xAVX(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/sh -lsmartheap
```

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Peak Optimization Flags (Continued)

473.astar: basepeak = yes

483.xalancbmk: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
-Wl,-z,muldefs -L/sh -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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120-RevB.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120-RevB.xml

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

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