SPEC® CINT2006 Result
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NEC Corporation

Express5800/R120a-2
(Intel Xeon E5540)

$SPECint^®2006 =$ 29.4

$SPECint\_base2006 =$ 26.5

Benchmark	Base	Peak
400.perlbench	19.8	24.5
401.bzip2	14.6	15.6
403.gcc	22.3	24.2
429.mcf	40.0	
445.gobmk	18.8	21.2
456.hmmer	18.6	25.6
458.sjeng	20.1	21.8
462.libquantum	266	
464.h264ref	30.1	32.6
471.omnetpp	19.9	22.6
473.astar	14.5	16.8
483.xalancbmk	29.3	

SPECint_base2006 = 26.5

SPECint2006 = 29.4

Hardware

CPU Name:	Intel Xeon E5540
CPU Characteristics:	Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz:	2533
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 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:	8 MB I+D on chip per chip
Other Cache:	None
Memory:	48 GB (12 X 4 GB PC3-8500R, 2 rank, CL7, ECC)
Disk Subsystem:	1x146.5 GB SAS, 15000 RPM
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16.60-0.34-smp
Compiler:	Intel C++ Compiler Professional 11.0 for Linux Build 20090131 Package ID: l_cproc_p_11.0.081
Auto Parallel:	Yes
File System:	ReiserFS
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V8.1 Binutils 2.18.50.0.7.20080502

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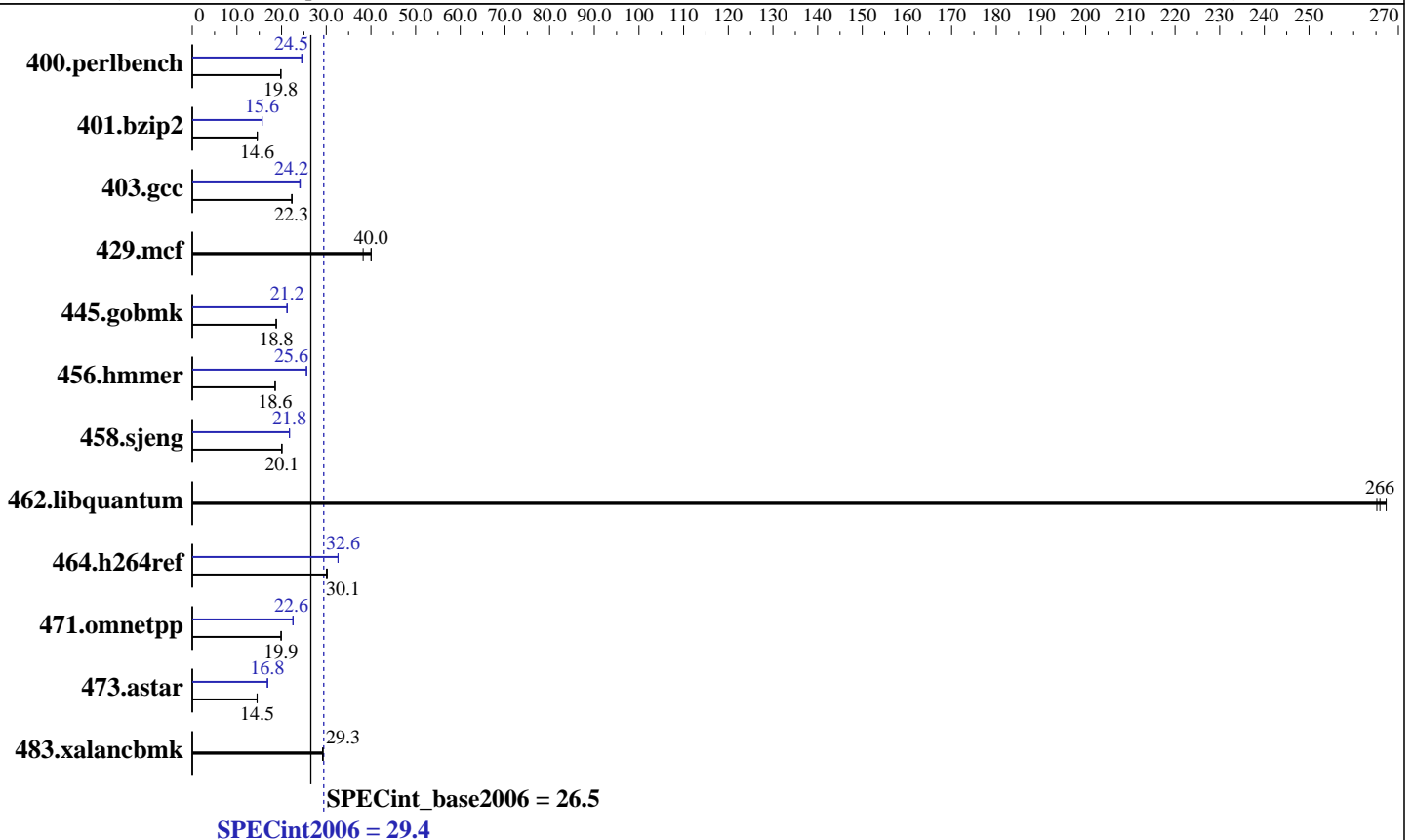SPECint2006 = 29.4

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

Test date: Apr-2009
Hardware Availability: Apr-2009
Software Availability: Feb-2009

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	492	19.9	**493**	**19.8**	493	19.8	**398**	**24.5**	397	24.6	399	24.5
401.bzip2	664	14.5	662	14.6	**663**	**14.6**	**617**	**15.6**	617	15.6	617	15.6
403.gcc	**361**	**22.3**	361	22.3	360	22.3	**333**	**24.2**	333	24.2	334	24.1
429.mcf	238	38.3	228	40.0	**228**	**40.0**	238	38.3	228	40.0	**228**	**40.0**
445.gobmk	558	18.8	**558**	**18.8**	558	18.8	493	21.3	494	21.2	**494**	**21.2**
456.hmmer	503	18.6	**503**	**18.6**	503	18.6	365	25.6	**365**	**25.6**	364	25.6
458.sjeng	605	20.0	602	20.1	**603**	**20.1**	556	21.8	**556**	**21.8**	556	21.8
462.libquantum	**77.9**	**266**	78.1	265	77.5	267	**77.9**	**266**	78.1	265	77.5	267
464.h264ref	**734**	**30.1**	736	30.1	732	30.2	**678**	**32.6**	678	32.6	678	32.7
471.omnetpp	**314**	**19.9**	314	19.9	314	19.9	277	22.6	**277**	**22.6**	277	22.6
473.astar	484	14.5	**483**	**14.5**	483	14.5	**417**	**16.8**	416	16.9	417	16.8
483.xalancbmk	237	29.2	236	29.3	**236**	**29.3**	237	29.2	236	29.3	**236**	**29.3**

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

Platform Notes

```
BIOS setting:
NUMA configuration : Enabled
```

General Notes

```
The NEC Express5800/R120a-1(Intel Xeon E5540),
the NEC Express5800/R120a-2(Intel Xeon E5540),
the Bull NovaScale R440 E2 (Intel Xeon E5540, 2.53 GHz) and
the Bull NovaScale R460 E2 (Intel Xeon E5540, 2.53 GHz) models are electronically equivalent.
The results have been measured on a NEC Express5800/R120a-1(Intel Xeon E5540) model.
```

Base Compiler Invocation

C benchmarks:
```
icc
```

C++ benchmarks:
```
icpc
```

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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 -static -parallel
-par-runtime-control -opt-prefetch
```

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

Base Other Flags

C benchmarks:

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

Peak Compiler Invocation

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

```
401.bzip2: /opt/intel/Compiler/11.0/081/bin/intel64/icc
```

```
456.hmmer: /opt/intel/Compiler/11.0/081/bin/intel64/icc
```

```
458.sjeng: /opt/intel/Compiler/11.0/081/bin/intel64/icc
```

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

```
473.astar: /opt/intel/Compiler/11.0/081/bin/intel64/icpc
```

Peak Portability Flags

```
400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
```

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CPU2006 license: 9006		**Test date:**	Apr-2009
Test sponsor: NEC Corporation		**Hardware Availability:**	Apr-2009
Tested by: NEC Corporation		**Software Availability:**	Feb-2009

Peak Portability Flags (Continued)

```
      458.sjeng: -DSPEC_CPU_LP64
  462.libquantum: -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(pass 2) -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

         429.mcf: basepeak = yes

       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 -auto-ilp32

  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) -static(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/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 -auto-ilp32
                  -Wl,-z,muldefs -L/opt/SmartHeap_8.1/lib64 -lsmartheap64
```

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Peak Optimization Flags (Continued)

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-ic11.0-int-linux64-revF.html
http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revD.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revF.xml
http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revD.xml

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

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