



SPEC[®] CINT2006 Result

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NEC Corporation

Express5800/320Fd-MR
(Intel Xeon E5450)

SPECint[®]_rate2006 = 71.4

SPECint_rate_base2006 = 66.7

CPU2006 license: 9006

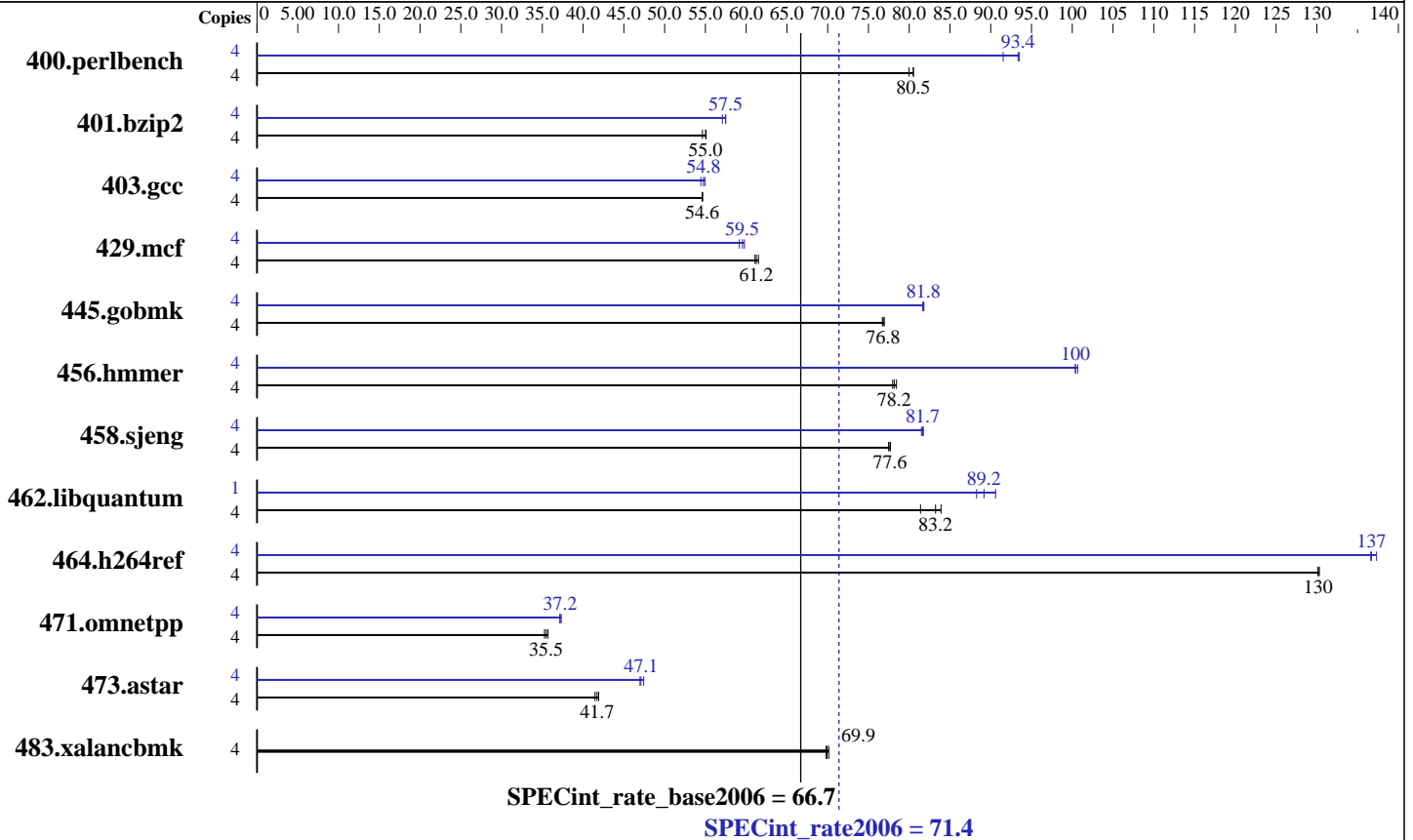
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Dec-2008

Hardware Availability: Oct-2008

Software Availability: Nov-2008



Hardware

CPU Name: Intel Xeon E5450
 CPU Characteristics: 1333 MHz system bus
 CPU MHz: 3000
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip
 CPU(s) orderable: 1,2 chips (fault tolerant, see Platform Notes)
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 12 MB I+D on chip per chip, 6 MB shared / 2 cores
 L3 Cache: None
 Other Cache: None
 Memory: 24 GB (6x4 GB PC2-5300F, 2 rank, CL5-5-5, ECC)
 Disk Subsystem: 2x146.5 GB SAS, 15000 RPM, Software RAID Level1
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 5.2
 Advanced Platform, Kernel 2.6.18-92.1.13.el5 on an x86_64
 Compiler: Intel C++ Compiler 11.0 for Linux
 Build 20081105 Package ID: l_cproc_p_11.0.074
 Auto Parallel: Yes
 File System: ext3
 System State: Run level 3 (multi-user)
 Base Pointers: 32-bit
 Peak Pointers: 32/64-bit
 Other Software: MicroQuill SmartHeap Library 8.1
 ft Server Control Software 6.0.2-198



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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	4	489	80.0	485	80.5	485	80.5	4	418	93.5	427	91.5	419	93.4
401.bzip2	4	702	55.0	706	54.6	701	55.1	4	671	57.5	671	57.5	676	57.1
403.gcc	4	589	54.6	589	54.6	589	54.6	4	591	54.4	588	54.8	586	54.9
429.mcf	4	597	61.1	596	61.2	593	61.5	4	617	59.2	613	59.5	610	59.8
445.gobmk	4	547	76.7	546	76.8	545	76.9	4	513	81.8	514	81.7	513	81.8
456.hammer	4	479	78.0	477	78.2	476	78.4	4	371	101	372	100	372	100
458.sjeng	4	623	77.7	623	77.6	625	77.5	4	593	81.7	594	81.5	592	81.7
462.libquantum	4	1018	81.4	996	83.2	988	83.9	1	235	88.3	232	89.2	229	90.6
464.h264ref	4	680	130	680	130	679	130	4	648	137	648	137	645	137
471.omnetpp	4	709	35.3	705	35.5	700	35.7	4	673	37.1	672	37.2	670	37.3
473.astar	4	677	41.5	673	41.7	670	41.9	4	596	47.1	592	47.4	598	47.0
483.xalancbmk	4	395	69.8	395	69.9	394	70.1	4	395	69.8	395	69.9	394	70.1

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.
taskset was used to bind processes to cores except
for 462.libquantum peak

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 "physical,0"
KMP_STACKSIZE set to 64M

Platform Notes

This Express5800/320Fd-MR is a fault-tolerant server.
Two modules are installed in this server.
Each module physically has "1CPU chips,24GB memory", The total physical configuration
is "2CPU chips,48GB memory".
Using fault-tolerant lockstep technology, these two modules communicate with each other
and execute the same instructions at the same time, The operating system only sees
"1CPU chips,24GB memory" as the other components add only redundancy and do not
contribute to any performance benefit.



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General Notes

The NEC Express5800/320Fd-MR(Intel Xeon E5450) and the Bull NovaScale R630 E1 MR(Intel Xeon E5450, 3.00 GHz) models are electronically equivalent. The results have been measured on a NEC Express5800/320Fd-MR(Intel Xeon E5450) model.

Base Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

Base Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -static -inline-calloc
-opt-malloc-options=3 -opt-prefetch

C++ benchmarks:

-xSSE4.1 -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/11.0/074/bin/intel64/icc
-L/opt/intel/Compiler/11.0/074/ipp/em64t/lib
-I/opt/intel/Compiler/11.0/074/ipp/em64t/include

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Peak Compiler Invocation (Continued)

```
456.hmmer: /opt/intel/Compiler/11.0/074/bin/intel64/icc
           -L/opt/intel/Compiler/11.0/074/ipp/em64t/lib
           -I/opt/intel/Compiler/11.0/074/ipp/em64t/include
```

C++ benchmarks:
icpc

Peak Portability Flags

```
400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX
```

Peak Optimization Flags

C benchmarks:

```
400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
               -no-prec-div -static -ansi-alias -opt-prefetch

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

403.gcc: -xSSE4.1 -ipo -O3 -no-prec-div -static -inline-calloc
         -opt-malloc-options=3

429.mcf: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
         -no-prec-div -static -opt-prefetch

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

456.hmmer: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2
          -ansi-alias

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

462.libquantum: -xSSE4.1 -ipo -O3 -no-prec-div -static
               -opt-malloc-options=3 -parallel -par-runtime-control
               -opt-prefetch

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

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Peak Optimization Flags (Continued)

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -ansi-alias -opt-ra-region-strategy=block
-Wl,-z,muldefs -L/opt/SmartHeap_8.1/lib -lsmartheap

473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -ansi-alias -opt-ra-region-strategy=routine
-Wl,-z,muldefs -L/opt/SmartHeap_8.1/lib -lsmartheap

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-revD.20090713.html>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revB.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-revD.20090713.xml>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revB.xml>

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For other inquiries, please contact webmaster@spec.org.

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