



# SPEC® CINT2006 Result

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## NEC Corporation

Express5800/320Fc-MR  
(Intel Xeon X5355)

SPECint®\_rate2006 = 97.2

SPECint\_rate\_base2006 = 79.4

CPU2006 license: 9006

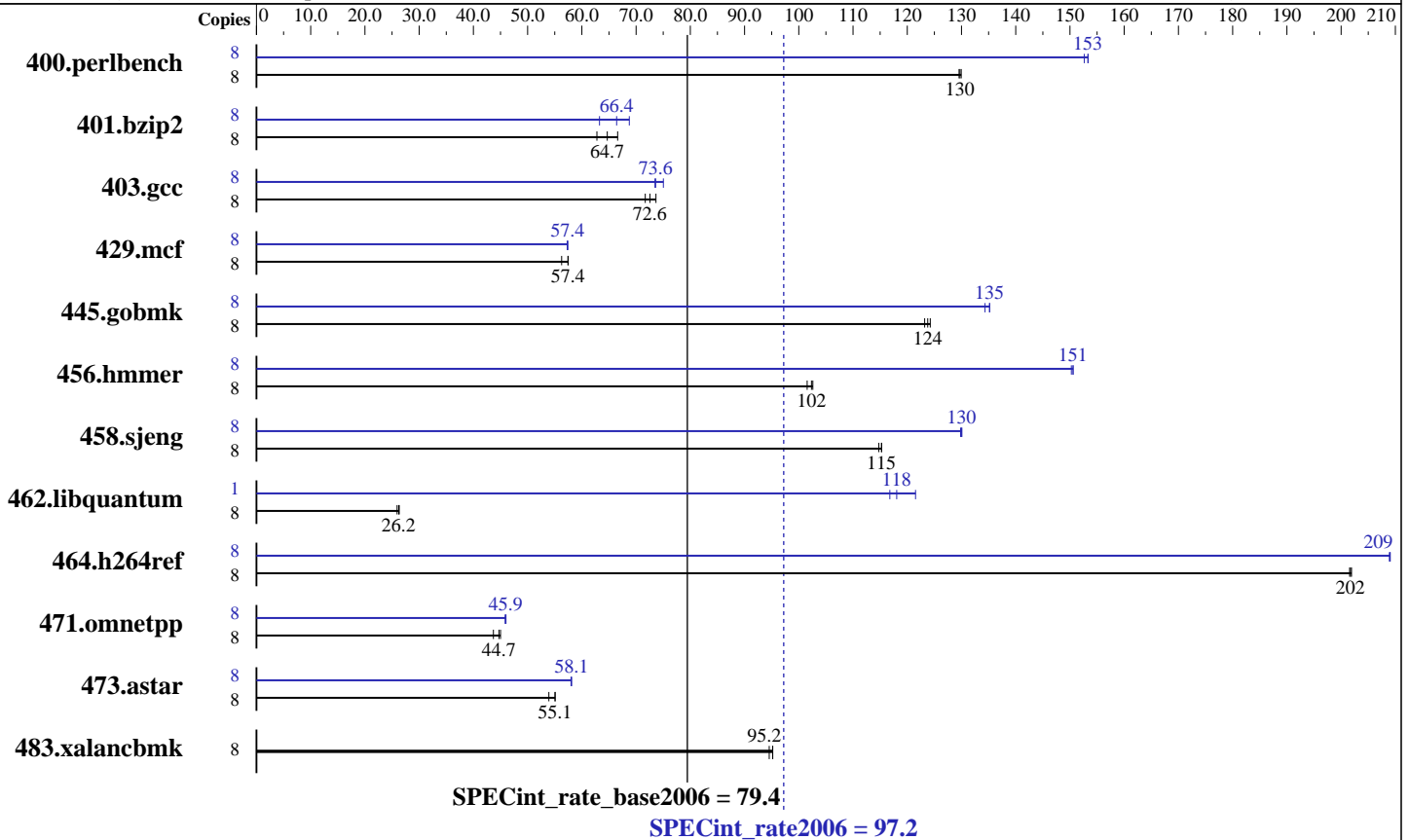
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Apr-2008

Hardware Availability: Oct-2007

Software Availability: Feb-2008



### Hardware

CPU Name: Intel Xeon X5355  
 CPU Characteristics: 2.66 GHz, 2x4 MB L2 shared, 1333 MHz bus  
 CPU MHz: 2667  
 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: 8 MB I+D on chip per chip, 4 MB shared / 2 cores  
 L3 Cache: None  
 Other Cache: None  
 Memory: 12 GB (6x2 GB PC2-5300F, 2 rank, CL5-5-5, ECC)  
 Disk Subsystem: 2x73.2 GB SAS, 15000RPM, Software RAID Level1  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux AS release 4 (Nahant Update 5), Kernel 2.6.9-55.0.12.ELsmp on an X86\_64  
 Compiler: Intel C++ Compiler for Linux32 and Linux64 version 10.1 Build 20070913 Package ID: L\_cc\_p\_10.1.008  
 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  
 binutils-2.17.tar.gz, Version 2.17  
 ft Server Control Software 5.0-0231



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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	8	601	130	603	130	<b>603</b>	<b>130</b>	8	512	153	<b>510</b>	<b>153</b>	510	153
401.bzip2	8	1230	62.8	<b>1193</b>	<b>64.7</b>	1159	66.6	8	1221	63.3	1123	68.7	<b>1162</b>	<b>66.4</b>
403.gcc	8	898	71.7	<b>888</b>	<b>72.6</b>	874	73.7	8	876	73.5	<b>875</b>	<b>73.6</b>	858	75.0
429.mcf	8	1297	56.3	1269	57.5	<b>1270</b>	<b>57.4</b>	8	1273	57.3	1271	57.4	<b>1272</b>	<b>57.4</b>
445.gobmk	8	681	123	<b>678</b>	<b>124</b>	675	124	8	625	134	621	135	<b>621</b>	<b>135</b>
456.hammer	8	735	102	<b>729</b>	<b>102</b>	728	103	8	497	150	496	151	<b>496</b>	<b>151</b>
458.sjeng	8	840	115	843	115	<b>840</b>	<b>115</b>	8	744	130	746	130	<b>745</b>	<b>130</b>
462.libquantum	8	6393	25.9	<b>6320</b>	<b>26.2</b>	6296	26.3	1	<b>176</b>	<b>118</b>	177	117	170	122
464.h264ref	8	<b>878</b>	<b>202</b>	878	202	877	202	8	847	209	<b>847</b>	<b>209</b>	848	209
471.omnetpp	8	1144	43.7	<b>1118</b>	<b>44.7</b>	1111	45.0	8	1090	45.9	<b>1089</b>	<b>45.9</b>	1087	46.0
473.astar	8	1042	53.9	<b>1020</b>	<b>55.1</b>	1020	55.1	8	<b>967</b>	<b>58.1</b>	967	58.1	968	58.0
483.xalancbmk	8	584	94.5	580	95.2	<b>580</b>	<b>95.2</b>	8	584	94.5	580	95.2	<b>580</b>	<b>95.2</b>

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

## Platform Notes

This Express5800/320Fc-MR is a fault-tolerant server.  
Two modules are installed in this server and each module has "2CPU chips,12GB memory",  
so total "4CPU chips,24GB memory" are on this server.  
With lockstep technology, these two modules communicate each other  
and handle the same instructions at the same time,  
then logically the "CPU,Memory" is recognized as "2CPU chips,12GB memory" by the OS.

## General Notes

All benchmarks compiled in 32-bit mode except 401.bzip2,  
456.hammer, for peak, are compiled in 64-bit mode

The NEC Express5800/320Fc-MR(Intel Xeon X5355) and  
the Bull NovaScale R630 (Intel Xeon X5355,2.66GHz) models are electronically equivalent.  
The results have been measured on a NEC Express5800/320Fc-MR(Intel Xeon X5355) model.

## Base Compiler Invocation

C benchmarks:  
icc

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## Base Compiler Invocation (Continued)

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:  
-fast -inline-calloc -opt-malloc-options=3

C++ benchmarks:  
-xT -ipo -O3 -no-prec-div -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/cce/10.1.008/bin/icc  
-L/opt/intel/cce/10.1.008/lib  
-I/opt/intel/cce/10.1.008/include

456.hmmer: /opt/intel/cce/10.1.008/bin/icc  
-L/opt/intel/cce/10.1.008/lib  
-I/opt/intel/cce/10.1.008/include

C++ benchmarks:  
icpc



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## 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) -fast -ansi-alias  
-prefetch  
401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch  
403.gcc: -fast -inline-calloc -opt-malloc-options=3  
429.mcf: -fast -prefetch  
445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xT -O2 -ipo  
-no-prec-div -ansi-alias  
456.hmmer: -fast -unroll2 -ansi-alias -opt-multi-version-aggressive  
458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4  
462.libquantum: -fast -unroll4 -Ob0 -prefetch  
-opt-streaming-stores always -vec-guard-write  
-opt-malloc-options=3 -parallel -par-runtime-control  
464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-ansi-alias

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo  
-no-prec-div -ansi-alias -opt-ra-region-strategy=block  
-Wl,-z,muldefs -L/opt/SmartHeap\_8.1/lib -lsmarheap  
473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo  
-no-prec-div -ansi-alias -opt-ra-region-strategy=routine  
-Wl,-z,muldefs -L/opt/SmartHeap\_8.1/lib -lsmarheap  
483.xalancbmk: basepeak = yes



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## 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/NEC-Intel-ic10.1-INT-ia32-linux-flags.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/NEC-Intel-ic10.1-INT-ia32-linux-flags.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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