



# SPEC® CINT2006 Result

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## NEC Corporation

Express5800/R120a-1  
(Intel Xeon L5520)

**SPECint®2006 = 26.9**

**SPECint\_base2006 = 24.2**

CPU2006 license: 9006

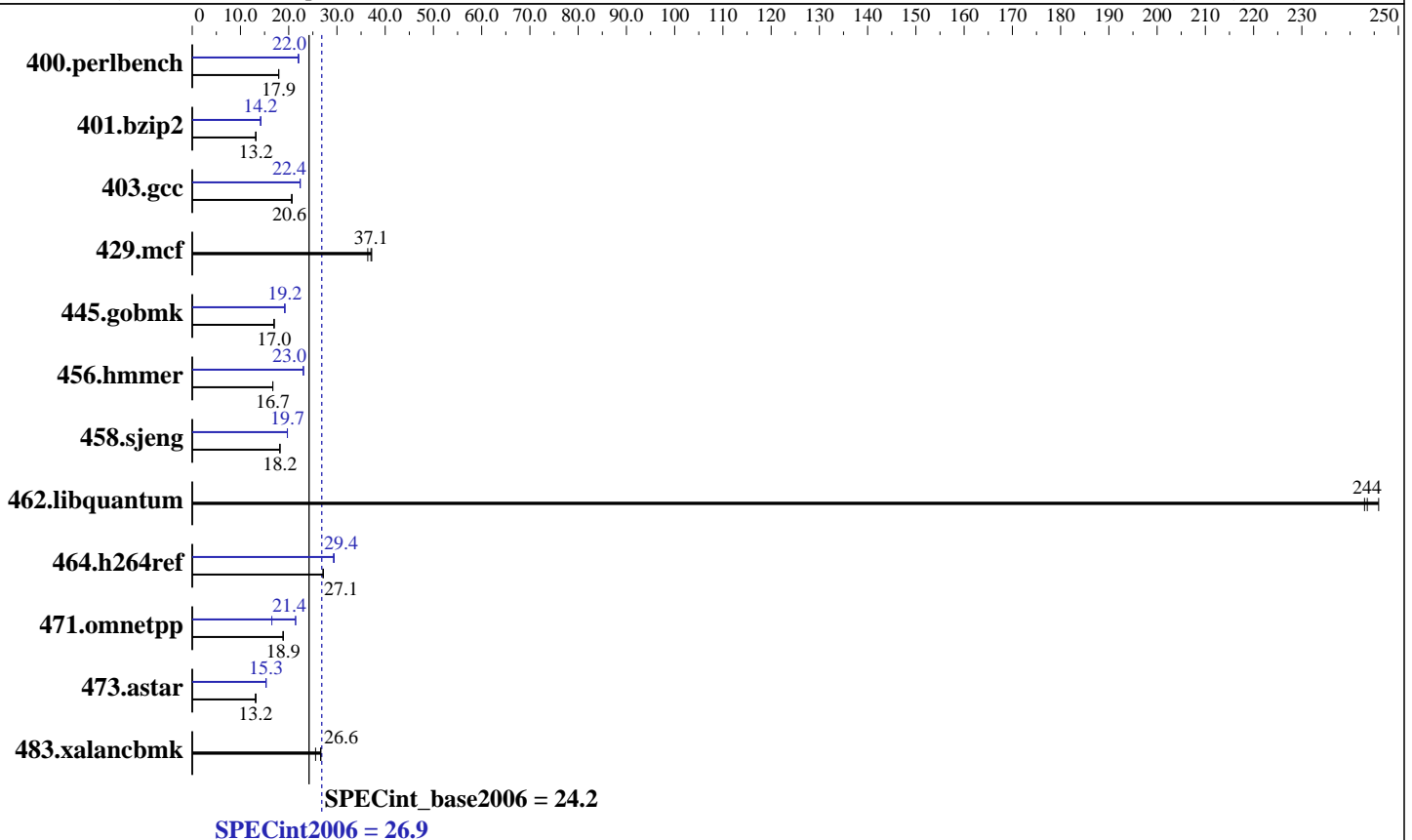
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Sep-2009

Hardware Availability: Jul-2009

Software Availability: Feb-2009



### Hardware

CPU Name: Intel Xeon L5520  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.53 GHz  
 CPU MHz: 2267  
 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 with patch Linux kernel 20090119, 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 Library 8.1 Binutils 2.18.50.0.7.20080502



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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	546	17.9	<b><u>545</u></b>	<b><u>17.9</u></b>	545	17.9	<b><u>445</u></b>	<b><u>22.0</u></b>	442	22.1	445	22.0
401.bzip2	733	13.2	731	13.2	<b><u>732</u></b>	<b><u>13.2</u></b>	<b><u>680</u></b>	<b><u>14.2</u></b>	681	14.2	680	14.2
403.gcc	<b><u>390</u></b>	<b><u>20.6</u></b>	389	20.7	391	20.6	<b><u>360</u></b>	<b><u>22.4</u></b>	360	22.4	360	22.4
429.mcf	251	36.4	<b><u>246</u></b>	<b><u>37.1</u></b>	245	37.2	251	36.4	<b><u>246</u></b>	<b><u>37.1</u></b>	245	37.2
445.gobmk	<b><u>618</u></b>	<b><u>17.0</u></b>	619	17.0	618	17.0	547	19.2	546	19.2	<b><u>547</u></b>	<b><u>19.2</u></b>
456.hammer	558	16.7	<b><u>559</u></b>	<b><u>16.7</u></b>	559	16.7	405	23.0	<b><u>405</u></b>	<b><u>23.0</u></b>	405	23.0
458.sjeng	<b><u>666</u></b>	<b><u>18.2</u></b>	666	18.2	665	18.2	613	19.7	614	19.7	<b><u>613</u></b>	<b><u>19.7</u></b>
462.libquantum	84.3	246	<b><u>85.1</u></b>	<b><u>244</u></b>	85.3	243	84.3	246	<b><u>85.1</u></b>	<b><u>244</u></b>	85.3	243
464.h264ref	<b><u>815</u></b>	<b><u>27.1</u></b>	815	27.2	816	27.1	753	29.4	755	29.3	<b><u>754</u></b>	<b><u>29.4</u></b>
471.omnetpp	331	18.9	<b><u>331</u></b>	<b><u>18.9</u></b>	332	18.8	379	16.5	<b><u>292</u></b>	<b><u>21.4</u></b>	292	21.4
473.astar	533	13.2	536	13.1	<b><u>534</u></b>	<b><u>13.2</u></b>	460	15.3	458	15.3	<b><u>459</u></b>	<b><u>15.3</u></b>
483.xalancbmk	259	26.7	<b><u>259</u></b>	<b><u>26.6</u></b>	270	25.6	259	26.7	<b><u>259</u></b>	<b><u>26.6</u></b>	270	25.6

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 L5520),  
the NEC Express5800/R120a-2(Intel Xeon L5520),  
the Bull NovaScale R440 E2 (Intel Xeon L5520, 2.26 GHz) and  
the Bull NovaScale R460 E2 (Intel Xeon L5520, 2.26 GHz) models are electronically equivalent.  
The results have been measured on a NEC Express5800/R120a-1(Intel Xeon L5520) 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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## 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 -lsmarheap  
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 -lsmarheap64

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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-revG.html>

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

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

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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