



# SPEC® CINT2006 Result

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## NEC Corporation

Express5800/R140b-4  
(Intel Xeon E7520)

SPECint®2006 = 22.7

SPECint\_base2006 = 20.9

CPU2006 license: 9006

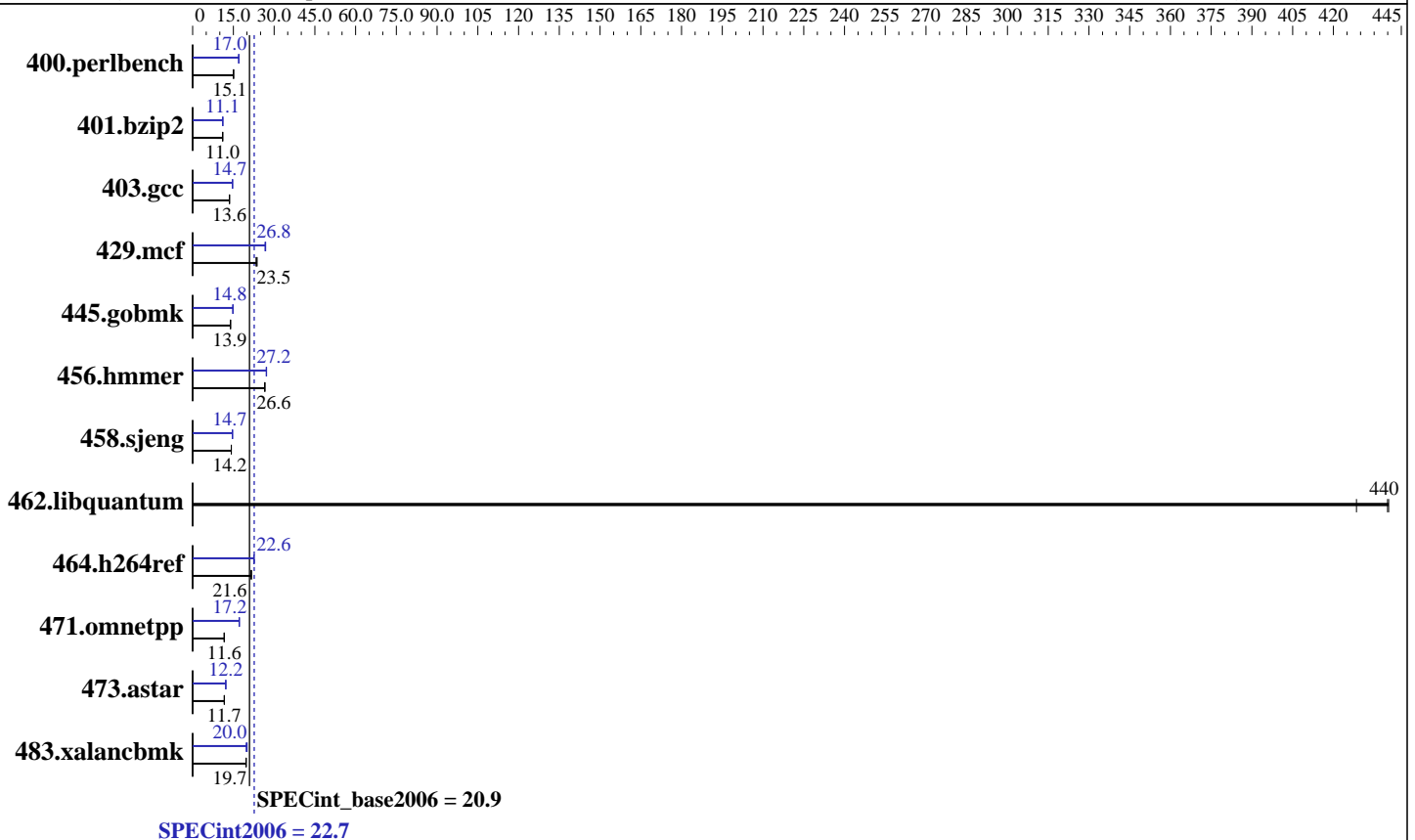
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Aug-2010

Hardware Availability: Aug-2010

Software Availability: Dec-2009



### Hardware

CPU Name: Intel Xeon E7520  
 CPU Characteristics:  
 CPU MHz: 1867  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 4 chips, 4 cores/chip  
 CPU(s) orderable: 2,4 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: 18 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (64 x 4 GB PC3-10600R, 2 rank, CL9, ECC, running at 800 MHz)  
 Disk Subsystem: 1x300 GB SAS, 10000 RPM  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 11 (x86\_64), Kernel 2.6.27.19-5-default  
 Compiler: Intel C++ Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l\_cproc\_p\_11.1.064  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 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	648	15.1	650	15.0	<b>648</b>	<b>15.1</b>	<b>574</b>	<b>17.0</b>	574	17.0	576	16.9
401.bzip2	871	11.1	<b>874</b>	<b>11.0</b>	874	11.0	869	11.1	<b>869</b>	<b>11.1</b>	871	11.1
403.gcc	593	13.6	<b>593</b>	<b>13.6</b>	594	13.6	549	14.7	<b>548</b>	<b>14.7</b>	548	14.7
429.mcf	390	23.4	<b>388</b>	<b>23.5</b>	384	23.7	<b>340</b>	<b>26.8</b>	339	26.9	342	26.6
445.gobmk	753	13.9	<b>753</b>	<b>13.9</b>	752	14.0	706	14.9	<b>708</b>	<b>14.8</b>	708	14.8
456.hammer	<b>351</b>	<b>26.6</b>	351	26.6	352	26.5	343	27.2	345	27.1	<b>343</b>	<b>27.2</b>
458.sjeng	851	14.2	<b>850</b>	<b>14.2</b>	849	14.2	825	14.7	<b>825</b>	<b>14.7</b>	825	14.7
462.libquantum	48.4	428	47.1	440	<b>47.1</b>	<b>440</b>	48.4	428	47.1	440	<b>47.1</b>	<b>440</b>
464.h264ref	1022	21.6	1028	21.5	<b>1025</b>	<b>21.6</b>	978	22.6	<b>979</b>	<b>22.6</b>	982	22.5
471.omnetpp	534	11.7	<b>538</b>	<b>11.6</b>	539	11.6	365	17.1	363	17.2	<b>364</b>	<b>17.2</b>
473.astar	<b>602</b>	<b>11.7</b>	601	11.7	603	11.7	<b>575</b>	<b>12.2</b>	577	12.2	574	12.2
483.xalancbmk	351	19.7	<b>351</b>	<b>19.7</b>	350	19.7	350	19.7	344	20.1	<b>345</b>	<b>20.0</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

## Platform Notes

BIOS setting:  
Hyper-Threading Technology: Disabled

## General Notes

OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to granularity=fine,scatter

## 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.hmmmer: -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:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch`

C++ benchmarks:

`-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs  
-L/opt/SmartHeap_8.1/lib64 -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`

`429.mcf: icc -m32`

`445.gobmk: icc -m32`

`464.h264ref: icc -m32`

C++ benchmarks (except as noted below):

`icpc -m32`

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## Peak Compiler Invocation (Continued)

473.astar: icpc -m64

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -DSPEC\_CPU\_LP64  
403.gcc: -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: -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 -static(pass 2) -prof-use(pass 2)  
-auto-ilp32 -opt-prefetch -ansi-alias

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -static -inline-alloc  
-opt-malloc-options=3 -auto-ilp32

429.mcf: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

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

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

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## Peak Optimization Flags (Continued)

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 -Wl,-z,muldefs  
-L/opt/SmartHeap\_8.1/lib64 -lsmartheap64

483.xalancbmk: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch  
-Wl,-z,muldefs -L/opt/SmartHeap\_8.1/lib -lsmartheap

## 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/Intel-ic11.1-linux64-revE.20100609.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100609.xml>

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

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