



# SPEC<sup>®</sup> CINT2006 Result

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## NEC Corporation

SPECint<sup>®</sup>\_rate2006 = 152

Express5800/R120b-2  
(Intel Xeon L5640)

SPECint\_rate\_base2006 = 142

CPU2006 license: 9006

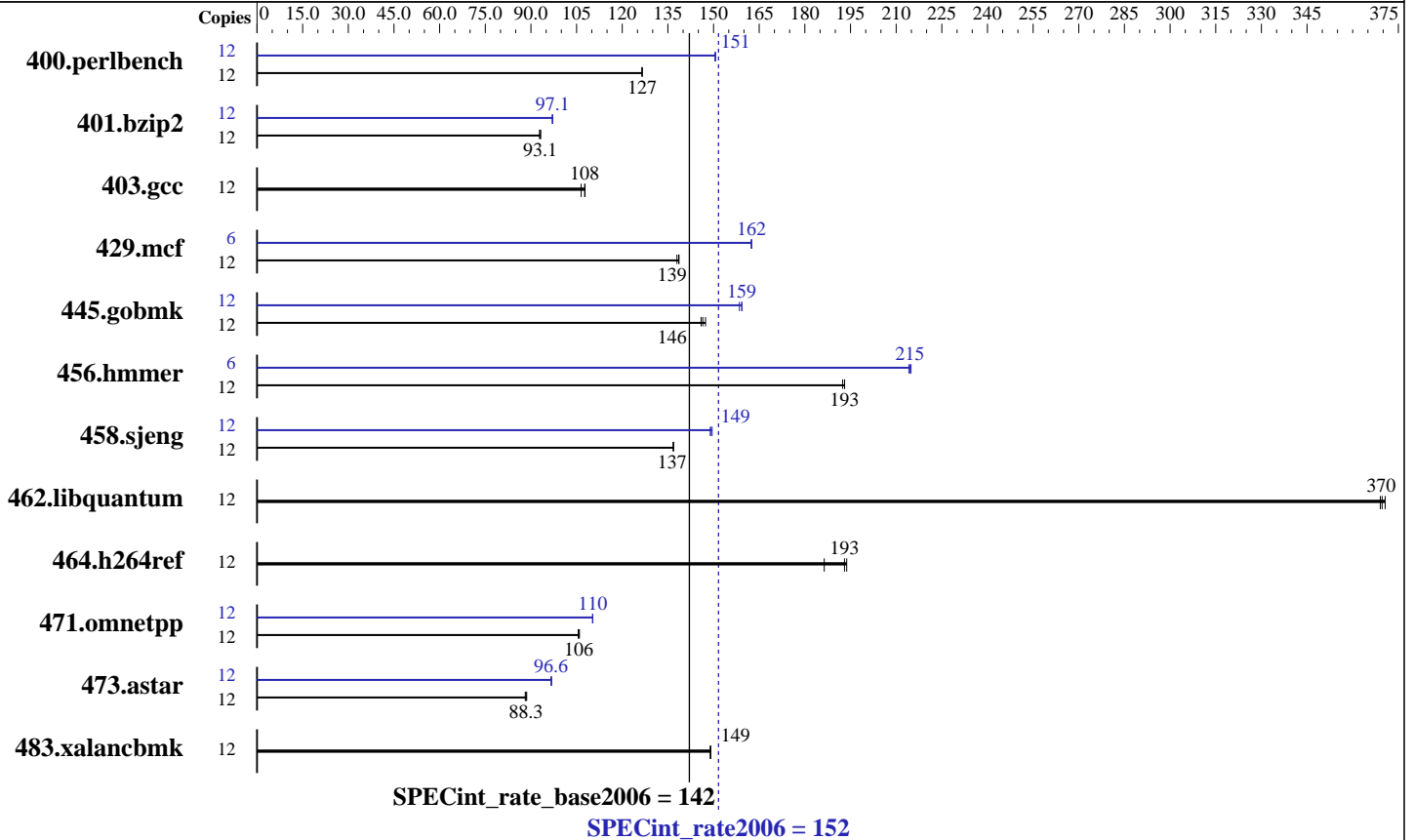
Test date: Jul-2010

Test sponsor: NEC Corporation

Hardware Availability: Sep-2010

Tested by: NEC Corporation

Software Availability: Dec-2009



### Hardware

CPU Name: Intel Xeon L5640  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz  
 CPU MHz: 2267  
 FPU: Integrated  
 CPU(s) enabled: 6 cores, 1 chip, 6 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: 12 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 48 GB (6 x 8 GB PC3L-10600R, 2 rank, CL9, ECC)  
 Disk Subsystem: 1x160 GB SATA, 7200 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: No  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V8.1



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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  | 12     | 926         | 127         | 927         | 126         | <b>926</b> | <b>127</b> | 12     | 779         | 150         | <b>779</b>  | <b>151</b> | 778        | 151         |
| 401.bzip2      | 12     | 1243        | 93.2        | <b>1244</b> | <b>93.1</b> | 1248       | 92.8       | 12     | <b>1192</b> | <b>97.1</b> | 1194        | 97.0       | 1192       | 97.2        |
| 403.gcc        | 12     | <b>897</b>  | <b>108</b>  | 907         | 106         | 896        | 108        | 12     | <b>897</b>  | <b>108</b>  | 907         | 106        | 896        | 108         |
| 429.mcf        | 12     | 793         | 138         | 789         | 139         | <b>790</b> | <b>139</b> | 6      | 337         | 162         | <b>337</b>  | <b>162</b> | 337        | 163         |
| 445.gobmk      | 12     | 863         | 146         | <b>859</b>  | <b>146</b>  | 854        | 147        | 12     | 794         | 158         | 790         | 159        | <b>790</b> | <b>159</b>  |
| 456.hammer     | 12     | <b>580</b>  | <b>193</b>  | 582         | 192         | 580        | 193        | 6      | 261         | 214         | 261         | 215        | <b>261</b> | <b>215</b>  |
| 458.sjeng      | 12     | <b>1062</b> | <b>137</b>  | 1061        | 137         | 1062       | 137        | 12     | 975         | 149         | 971         | 150        | <b>973</b> | <b>149</b>  |
| 462.libquantum | 12     | <b>673</b>  | <b>370</b>  | 671         | 371         | 674        | 369        | 12     | <b>673</b>  | <b>370</b>  | 671         | 371        | 674        | 369         |
| 464.h264ref    | 12     | 1425        | 186         | <b>1376</b> | <b>193</b>  | 1371       | 194        | 12     | 1425        | 186         | <b>1376</b> | <b>193</b> | 1371       | 194         |
| 471.omnetpp    | 12     | 708         | 106         | 711         | 106         | <b>710</b> | <b>106</b> | 12     | <b>680</b>  | <b>110</b>  | 680         | 110        | 680        | 110         |
| 473.astar      | 12     | <b>954</b>  | <b>88.3</b> | 951         | 88.6        | 956        | 88.1       | 12     | 870         | 96.8        | 872         | 96.6       | <b>872</b> | <b>96.6</b> |
| 483.xalancbmk  | 12     | 556         | 149         | <b>556</b>  | <b>149</b>  | 555        | 149        | 12     | 556         | 149         | <b>556</b>  | <b>149</b> | 555        | 149         |

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.  
numactl was used to bind copies to the cores

## Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run

## Platform Notes

BIOS setting:  
Performance/Watt: Traditional  
Memory Voltage: Normal

## General Notes

The Express5800/R120b-1 and  
the Express5800/R120b-2 models are electronically equivalent.  
The results have been measured on the Express5800/R120b-1 model.

## Base Compiler Invocation

C benchmarks:  
icc -m32

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**Test date:** Jul-2010

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## Base Compiler Invocation (Continued)

C++ benchmarks:  
icpc -m32

## 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 -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 -m32

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks (except as noted below):  
icpc -m32

473.astar: icpc -m64



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## Peak Portability Flags

```

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

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) -opt-prefetch -ansi-alias -auto-ilp32

403.gcc: basepeak = yes

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 -auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

```

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 -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 file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100823.00.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.20100823.00.xml>

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

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