NEC Corporation

Express5800/R120e-1M (Intel Xeon E5-2630 v2)

SPECint®_rate2006 = 504
SPECint_rate_base2006 = 485

CPU2006 license: 9006
Test sponsor: NEC Corporation
Tested by: NEC Corporation

Hardware
- CPU Name: Intel Xeon E5-2630 v2
- CPU Characteristics: Intel Turbo Boost Technology up to 3.10 GHz
- CPU MHz: 2600
- FPU: Integrated
- CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core
- Primary Cache: 32 KB I + 32 KB D on chip per core
- Secondary Cache: 256 KB I+D on chip per core
- L3 Cache: 15 MB I+D on chip per chip
- Other Cache: None
- Memory: 256 GB (16 x 16 GB 2Rx4 PC3L-12800R-11, ECC)
- Disk Subsystem: 1 x 300 GB SAS, 10000 RPM, RAID 0

Software
- Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)
- Compiler: CIC++: Version 14.0.0.080 of Intel C++ Studio XE for Linux
- Auto Parallel: No
- File System: ext4
- System State: Run level 3 (multi-user)
- Base Pointers: 32-bit
- Peak Pointers: 32/64-bit
- Other Software: Microquill SmartHeap V8.1
## SPEC CINT2006 Result

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**CPU2006 license:** 9006

**Test date:** Nov-2013

**Hardware Availability:** Sep-2013

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**Software Availability:** Sep-2013

### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Copies</td>
<td>Seconds</td>
<td>Ratio</td>
<td>Seconds</td>
<td>Ratio</td>
</tr>
<tr>
<td>400.perlbench</td>
<td>24</td>
<td>660</td>
<td>355</td>
<td>660</td>
<td>355</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>24</td>
<td>905</td>
<td>256</td>
<td>909</td>
<td>255</td>
</tr>
<tr>
<td>403.gcc</td>
<td>24</td>
<td>499</td>
<td>387</td>
<td>503</td>
<td>384</td>
</tr>
<tr>
<td>429.mcf</td>
<td>24</td>
<td>289</td>
<td>759</td>
<td>289</td>
<td>757</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>24</td>
<td>709</td>
<td>355</td>
<td>710</td>
<td>355</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>24</td>
<td>342</td>
<td>654</td>
<td>342</td>
<td>655</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>24</td>
<td>819</td>
<td>354</td>
<td>818</td>
<td>355</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>24</td>
<td>156</td>
<td>3180</td>
<td>156</td>
<td>3180</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>24</td>
<td>900</td>
<td>590</td>
<td>898</td>
<td>591</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>24</td>
<td>555</td>
<td>270</td>
<td>555</td>
<td>270</td>
</tr>
<tr>
<td>473.astar</td>
<td>24</td>
<td>595</td>
<td>283</td>
<td>594</td>
<td>284</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>24</td>
<td>305</td>
<td>542</td>
<td>306</td>
<td>542</td>
</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

### Submit Notes

The `numactl` mechanism was used to bind copies to processors. The config file option 'submit' was used to generate `numactl` commands to bind each copy to a specific processor.

For details, please see the config file.

### Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

### Platform Notes

**BIOS Settings:**
- Energy Performance: Performance
- Memory Voltage: 1.5 V

### General Notes

Environment variables set by `runspec` before the start of the run:

```
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"
```

Transparent Huge Pages enabled with:
- `sudo echo always >/sys/kernel/mm/redhat_transparent_hugepage/enabled`
- `sudo echo 1 > /proc/sys/vm/drop_caches`
- `sudo runspec command invoked through numactl i.e.: numactl --interleave=all runspec <etc>`

The Express5800/R120e-1M and

Continued on next page
**NEC Corporation**

Express5800/R120e-1M (Intel Xeon E5-2630 v2)

| SPECint_rate2006 | 504 |
| SPECint_rate_base2006 | 485 |

**CPU2006 license:** 9006  
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**General Notes (Continued)**

the Express5800/R120e-2M models are electronically equivalent. The results have been measured on the Express5800/R120e-2M model.

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**Base Compiler Invocation**

C benchmarks:  
*icc* -m32

C++ benchmarks:  
*icpc* -m32

---

**Base Portability Flags**

<table>
<thead>
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<th>Benchmark</th>
<th>Flags</th>
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<tbody>
<tr>
<td>400.perlbench</td>
<td>-DSPEC_CPU_LINUX_IA32</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>-DSPEC_CPU_LINUX</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>-DSPEC_CPU_LINUX</td>
</tr>
</tbody>
</table>

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**Base Optimization Flags**

C benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3

C++ benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3  
-Wl,-z,muldefs -L/sh -lsmartheap

---

**Base Other Flags**

C benchmarks:  
403.gcc: -Dalloca=_alloca

---

**Peak Compiler Invocation**

C benchmarks (except as noted below):  
*icc* -m32

<table>
<thead>
<tr>
<th>Benchmark</th>
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<tr>
<td>400.perlbench</td>
<td><em>icc</em> -m64</td>
</tr>
<tr>
<td>401.bzip2</td>
<td><em>icc</em> -m64</td>
</tr>
</tbody>
</table>

Continued on next page
Peak Compiler Invocation (Continued)

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks:
icpc -m32

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-auto-ilp32

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32 -ansi-alias

403.gcc: -xSSE4.2 -ipo -03 -no-prec-div

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -03 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(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)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll2 -ansi-alias

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## NEC Corporation

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- **Software Availability:** Sep-2013

### 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/sh -lsmartheap`

  - 473.astar: `basepeak = yes`

  - 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:

- [Intel ic14.0 official linux64 20140128.html](http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html)
- [NEC Platform Settings V1.2 R120d RevA.html](http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120d-RevA.html)

You can also download the XML flags sources by saving the following links:

- [Intel ic14.0 official linux64 20140128.xml](http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml)
- [NEC Platform Settings V1.2 R120d RevA.xml](http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120d-RevA.xml)

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Tested with SPEC CPU2006 v1.2.


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