### Fujitsu PRIMERGY TX200 S6, Intel Xeon E5645, 2.40 GHz

**CPU2006 license:** 19  
**Test sponsor:** Fujitsu  
**Tested by:** Fujitsu  
**Test date:** Mar-2011  
**Hardware Availability:** Feb-2011  
**Software Availability:** Jan-2011

#### SPECint2006 Results

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECint</th>
<th>SPECint_base</th>
</tr>
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<tbody>
<tr>
<td>400.perlb</td>
<td>35.7</td>
<td></td>
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<tr>
<td>401.bzip2</td>
<td></td>
<td></td>
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<tr>
<td>403.gcc</td>
<td></td>
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<tr>
<td>473.astar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td></td>
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</tbody>
</table>

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### Hardware

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon E5645</th>
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<tbody>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 2.80 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>2400</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>12 cores, 2 chips, 6 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1.2 chips</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td>256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache:</td>
<td>12 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, ECC)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>1 x SAS, 300 GB, 10000 RPM</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>--</td>
</tr>
</tbody>
</table>

### Software

| Operating System: | SUSE Linux Enterprise Server 11 (x86_64) with SP1,  
|                   | Kernel 2.6.32.12.0.7-default |
| Compiler:         | Intel C++ Intel 64 Compiler XE for applications running on Intel 64  
|                   | Version 12.0.1.116 Build 20101116 |
| Auto Parallel:    | Yes                             |
| File System:      | ext3                        |
| System State:     | Run level 3 (multi-user)      |
| Base Pointers:    | 32/64-bit                    |
| Peak Pointers:    | 32/64-bit                    |
| Other Software:   | Microquill SmartHeap V9.01   |
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PRIMERGY TX200 S6, Intel Xeon E5645, 2.40 GHz

SPECint2006 = 35.7
SPECint_base2006 = 33.7

CPU2006 license: 19

Test sponsor: Fujitsu
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Software Availability: Jan-2011

Test date: Mar-2011

Results Table

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<tr>
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<th>Ratio</th>
<th>Seconds</th>
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<th>Seconds</th>
<th>Ratio</th>
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<tr>
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<td>22.2</td>
<td>438</td>
<td>22.3</td>
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<td>22.3</td>
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<td>25.2</td>
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<td>16.3</td>
<td>591</td>
<td>16.3</td>
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<td>16.3</td>
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<td>403.mcf</td>
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<td>22.8</td>
<td>356</td>
<td>22.6</td>
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<td>22.8</td>
<td>336</td>
<td>23.9</td>
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<tr>
<td>429.gcc</td>
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<td>19.6</td>
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<td>19.5</td>
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<td>19.5</td>
<td>494</td>
<td>21.2</td>
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<td>41.2</td>
<td>221</td>
<td>41.2</td>
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<td>41.3</td>
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<td>43.8</td>
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<td>43.9</td>
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<tr>
<td>456.hmmer</td>
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<td>40.0</td>
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<td>40.1</td>
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<td>40.7</td>
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<tr>
<td>458.sjeng</td>
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<td>20.7</td>
<td>268</td>
<td>23.3</td>
<td>267</td>
<td>23.4</td>
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<tr>
<td>473.astar</td>
<td>347</td>
<td>20.2</td>
<td>343</td>
<td>20.5</td>
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<td>20.5</td>
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<tr>
<td>483.xalancbmk</td>
<td>215</td>
<td>32.2</td>
<td>210</td>
<td>32.9</td>
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<td>32.8</td>
<td>215</td>
<td>32.2</td>
<td>210</td>
<td>32.9</td>
</tr>
</tbody>
</table>

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
'nodev /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab
'echo 900 > /proc/sys/vm/nr_hugepages'
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so

Platform Notes

BIOS configuration:
Data Reuse Optimization = Disable
Intel HT Technology = Disable

General Notes

OMP_NUM_THREADS set to number of cores
For information about Fujitsu please visit: http://www.fujitsu.com
Binaries were compiled on RHEL5.5 with binutils-2.17.50.0.6-14.el5

Base Compiler Invocation

C benchmarks:
   icc -m64

C++ benchmarks:
   icpc -m64
**SPEC CINT2006 Result**

**Fujitsu**

PRIMERGY TX200 S6, Intel Xeon E5645, 2.40 GHz

| SPECint2006 = | 35.7 |
| SPECint_base2006 = | 33.7 |

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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.hmmer:** -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 -parallel -opt-prefetch -auto-p32`
- `-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT`

**C++ benchmarks:**
- `-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs`
- `-L/smartheap -lsmartheap64`
- `-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT`

### 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`

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**SPECint2006** = 35.7
**SPECint_base2006** = 33.7

Peak Compiler Invocation (Continued)

C++ benchmarks (except as noted below):

icpc -m64

471.omnetpp: icpc -m32

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_LP64 -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) -prof-use(pass 2)
-opt-prefetch -ansi-alias
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div -prof-use(pass 2) -auto-ilp32
-opt-prefetch -ansi-alias

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -inline-cALLOC
-opt-malloc-options=3 -auto-ilp32
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

429.mcf: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-auto-ilp32 -ansi-alias
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-auto-ilp32 -ansi-alias
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
-ansi-alias
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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SPEC CINT2006 Result

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Peak Optimization Flags (Continued)

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

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
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

C++ benchmarks:

471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-ra-region-strategy=block -ansi-alias -Wl,-z,muldefs
-L/smartheap -lsmartheap
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

C++ benchmarks:

The flags files that were used to format this result can be browsed at

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.20110316.xml
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.20110316.xml
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For questions about this result, please contact the tester. For other inquiries, please contact webmaster@spec.org.

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