SPEC® CINT2006 Result

Fujitsu

SPECint®2006 = 35.7

PRIMERGY RX300 S6, Intel Xeon E5645, 2.40 GHz

SPECint_base2006 = 33.7

Benchmark	Base	Peak
400.perlbench	22.2	25.2
401.bzip2	16.3	17.1
403.gcc	22.7	23.9
429.mcf	41.2	43.8
445.gobmk	19.6	21.2
456.hmmer	40.1	40.6
458.sjeng	22.4	23.0
462.libquantum	853	
464.h264ref	30.1	35.6
471.omnetpp	20.7	23.3
473.astar	20.4	
483.xalancbmk	32.9	

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Hardware

CPU Name: Intel Xeon E5645

CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz

CPU MHz: 2400

FPU: Integrated

CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip

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 (12 x 4 GB 2Rx4 PC3-10600R-9, ECC)

Disk Subsystem: 1 x SAS, 300 GB, 10000 RPM

Other Hardware: --

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

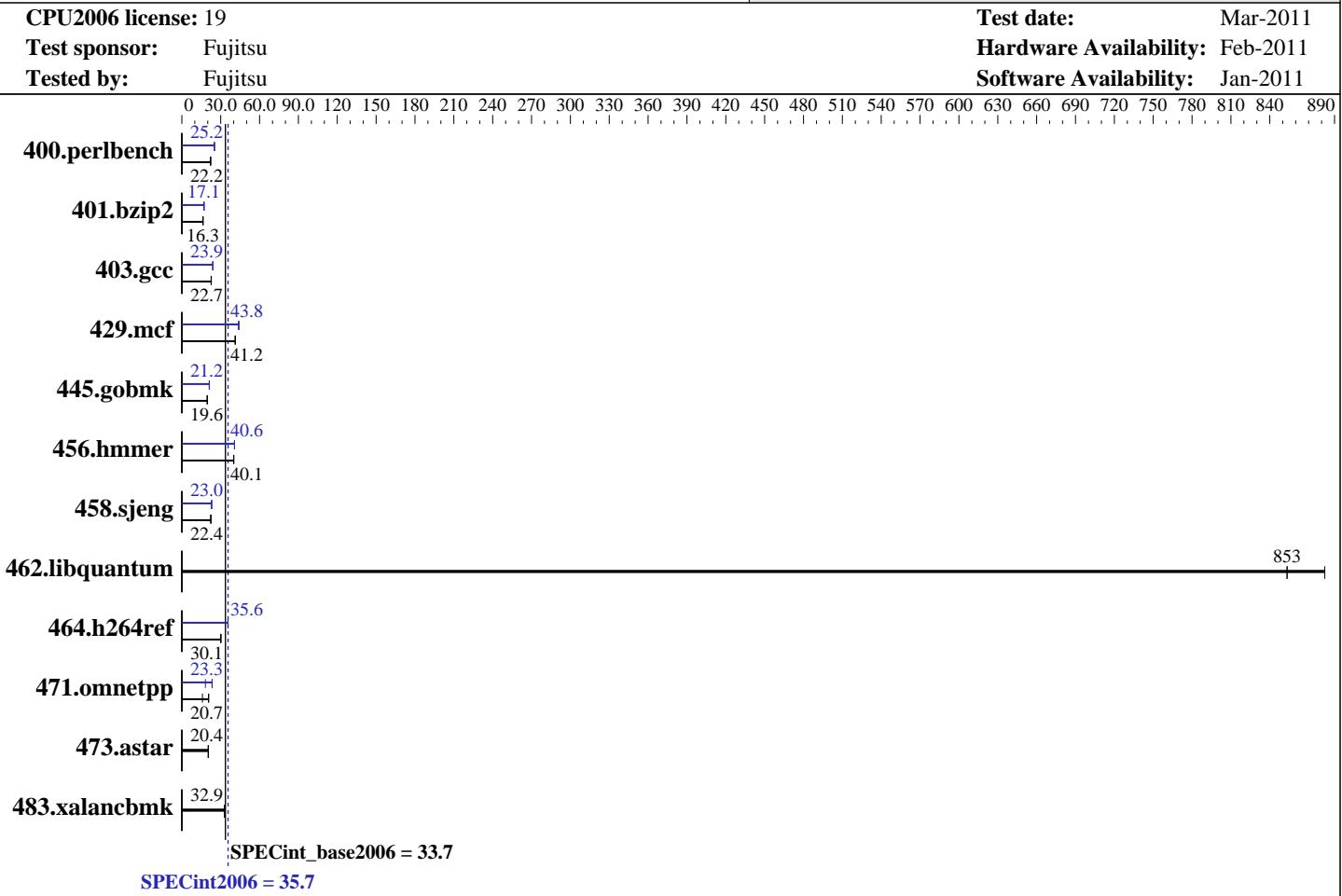Other Software: Microquill SmartHeap V9.01

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Results Table

Benchmark	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
400.perlbench	440	22.2	**440**	**22.2**	440	22.2	387	25.2	**388**	**25.2**	389	25.1
401.bzip2	591	16.3	591	16.3	**591**	**16.3**	564	17.1	**564**	**17.1**	564	17.1
403.gcc	**355**	**22.7**	354	22.8	356	22.6	337	23.9	337	23.9	**337**	**23.9**
429.mcf	221	41.2	**221**	**41.2**	221	41.3	208	43.8	**208**	**43.8**	207	44.1
445.gobmk	**536**	**19.6**	537	19.5	529	19.8	497	21.1	**494**	**21.2**	494	21.2
456.hmmer	**233**	**40.1**	233	40.1	233	40.0	229	40.7	230	40.6	**230**	**40.6**
458.sjeng	**541**	**22.4**	542	22.3	538	22.5	526	23.0	527	23.0	**527**	**23.0**
462.libquantum	24.3	853	**24.3**	**853**	23.5	882	24.3	853	**24.3**	**853**	23.5	882
464.h264ref	737	30.0	**736**	**30.1**	733	30.2	622	35.6	**622**	**35.6**	621	35.6
471.omnetpp	302	20.7	**303**	**20.7**	393	15.9	343	18.2	**268**	**23.3**	268	23.4
473.astar	**344**	**20.4**	345	20.4	343	20.5	**344**	**20.4**	345	20.4	343	20.5
483.xalancbmk	210	32.8	209	33.1	**210**	**32.9**	210	32.8	209	33.1	**210**	**32.9**

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
This result was measured on the PRIMERGY TX300 S6. The PRIMERGY TX300 S6
and the PRIMERGY RX300 S6 are electronically equivalent.
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

Submitted_by: "Klassen, Peter" <peter.klassen@ts.fujitsu.com>
Submitted: Mon Mar 28 12:08:25 EDT 2011
Submission: cpu2006-20110328-15263.sub
```

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Base Compiler Invocation

C benchmarks:
```
icc  -m64
```

C++ benchmarks:
```
icpc -m64
```

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
```

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Peak Compiler Invocation (Continued)

400.perlbench: `icc -m32`

429.mcf: `icc -m32`

445.gobmk: `icc -m32`

464.h264ref: `icc -m32`

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`

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Peak Optimization Flags (Continued)

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`

458.sjeng: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2)
`-O3`(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)
`-O3`(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)
`-O3`(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`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.20110316.html
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.20110316.html

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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