SPEC® CINT2006 Result

Fujitsu

PRIMERGY BX620 S6, Intel Xeon E5649, 2.53 GHz

$SPECint®2006 =$ 37.2

$SPECint\_base2006 =$ 35.1

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

Benchmark results (base / peak):

- 400.perlbench: 26.3 / 23.2
- 401.bzip2: 17.8 / 17.0
- 403.gcc: 24.7 / 23.3
- 429.mcf: 45.4 / 42.4
- 445.gobmk: 22.2 / 20.6
- 456.hmmer: 42.5 / 41.9
- 458.sjeng: 24.0 / 23.3
- 462.libquantum: 914
- 464.h264ref: 37.3 / 31.7
- 471.omnetpp: 23.8 / 21.0
- 473.astar: 21.3
- 483.xalancbmk: 34.5

SPECint_base2006 = 35.1
SPECint2006 = 37.2

Hardware

CPU Name:	Intel Xeon E5649
CPU Characteristics:	Intel Turbo Boost Technology up to 2.93 GHz
CPU MHz:	2533
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:	96 GB (12 x 8 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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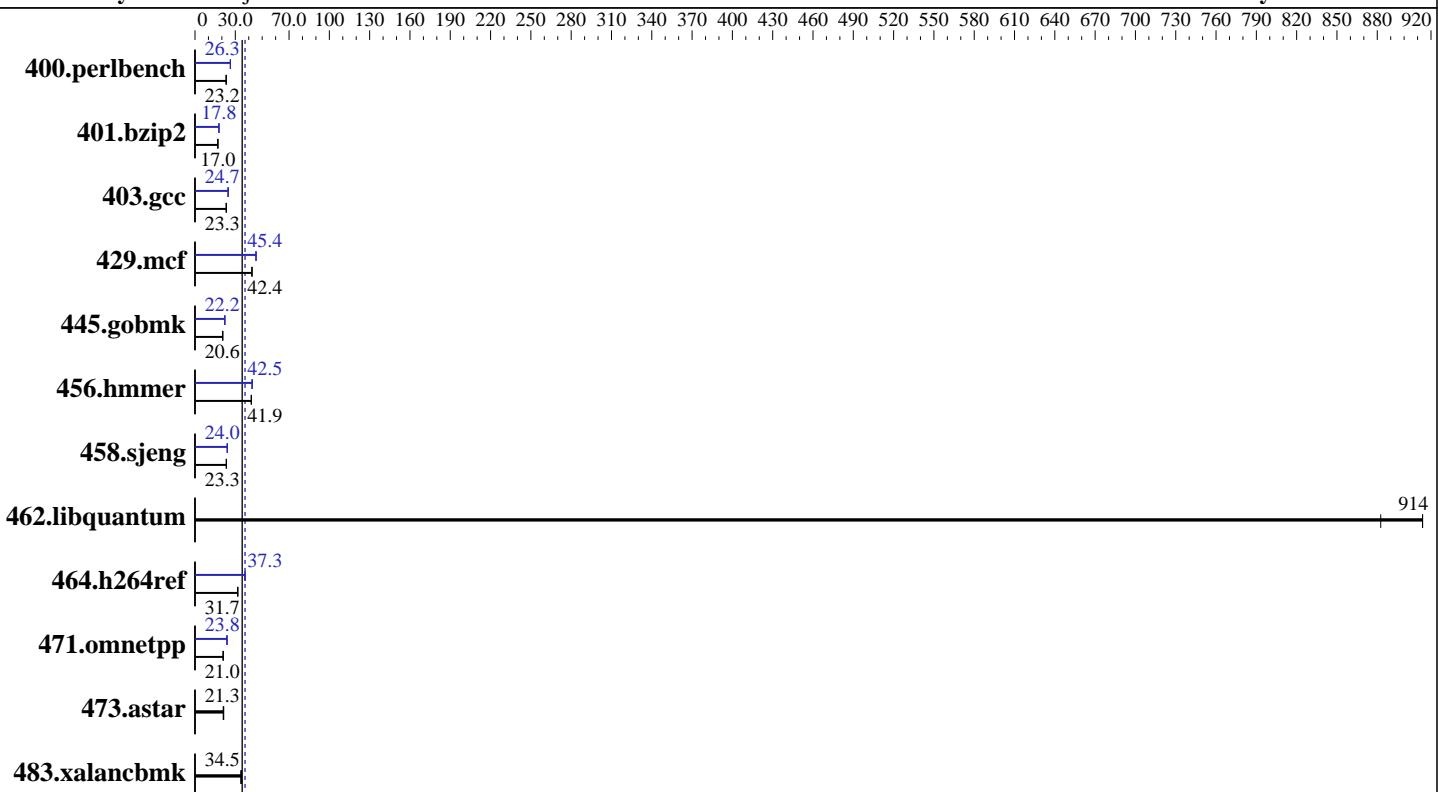|	
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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	421	23.2	420	23.2	**421**	**23.2**	371	26.4	**371**	**26.3**	371	26.3
401.bzip2	567	17.0	**567**	**17.0**	567	17.0	**541**	**17.8**	541	17.8	541	17.8
403.gcc	**346**	**23.3**	346	23.3	346	23.3	327	24.6	**326**	**24.7**	326	24.7
429.mcf	215	42.4	**215**	**42.4**	215	42.4	201	45.4	**201**	**45.4**	201	45.5
445.gobmk	512	20.5	506	20.7	**508**	**20.6**	472	22.2	**472**	**22.2**	472	22.2
456.hmmer	**223**	**41.9**	223	41.9	222	42.0	219	42.6	220	42.5	**219**	**42.5**
458.sjeng	518	23.4	519	23.3	**518**	**23.3**	504	24.0	504	24.0	**504**	**24.0**
462.libquantum	**22.7**	**914**	22.7	914	23.5	883	**22.7**	**914**	22.7	914	23.5	883
464.h264ref	692	32.0	699	31.7	**697**	**31.7**	594	37.2	594	37.3	**594**	**37.3**
471.omnetpp	**298**	**21.0**	299	20.9	297	21.0	**262**	**23.8**	263	23.7	262	23.9
473.astar	335	21.0	**330**	**21.3**	329	21.3	335	21.0	**330**	**21.3**	329	21.3
483.xalancbmk	202	34.1	**200**	**34.5**	200	34.5	202	34.1	**200**	**34.5**	200	34.5

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
Performance/Power Setting = Traditional
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
```

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Base Compiler Invocation (Continued)

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

    400.perlbench: icc -m32

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Peak Compiler Invocation (Continued)

      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`

     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`

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Peak Optimization Flags (Continued)

```
    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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