SPEC® CINT2006 Result
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Fujitsu

PRIMERGY BX920 S4, Intel Xeon E5-2403 v2, 1.80 GHz

$SPECint^®2006 =$ 29.0

$SPECint\_base2006 =$ 27.7

CPU2006 license: 19	**Test date:** Jan-2014
Test sponsor: Fujitsu	**Hardware Availability:** Jan-2014
Tested by: Fujitsu	**Software Availability:** Sep-2013

Benchmark results (scale 0 to 1150):

- **400.perlbench** — 20.2 / 16.8
- **401.bzip2** — 12.6 / 12.4
- **403.gcc** — 18.2 / 18.0
- **429.mcf** — 37.9
- **445.gobmk** — 14.1 / 13.8
- **456.hmmer** — 31.9
- **458.sjeng** — 15.8 / 15.4
- **462.libquantum** — 1140
- **464.h264ref** — 29.6 / 27.5
- **471.omnetpp** — 17.3 / 14.1
- **473.astar** — 16.5 / 16.4
- **483.xalancbmk** — 29.8 / 29.6

SPECint_base2006 = 27.7

SPECint2006 = 29.0

Hardware

CPU Name:	Intel Xeon E5-2403 v2
CPU Characteristics:	
CPU MHz:	1800
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 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:	10 MB I+D on chip per chip
Other Cache:	None
Memory:	192 GB (12 x 16 GB 2Rx4 PC3L-12800R-11, ECC, running at 1333 MHz and CL9)
Disk Subsystem:	1 x SATA, 500 GB, 7200 RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.4 (Santiago) 2.6.32-358.11.1.el6.x86_64
Compiler:	C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux
Auto Parallel:	Yes
File System:	ext4
System State:	Run level 5 (multi-user)
Base Pointers:	32/64-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V10.0

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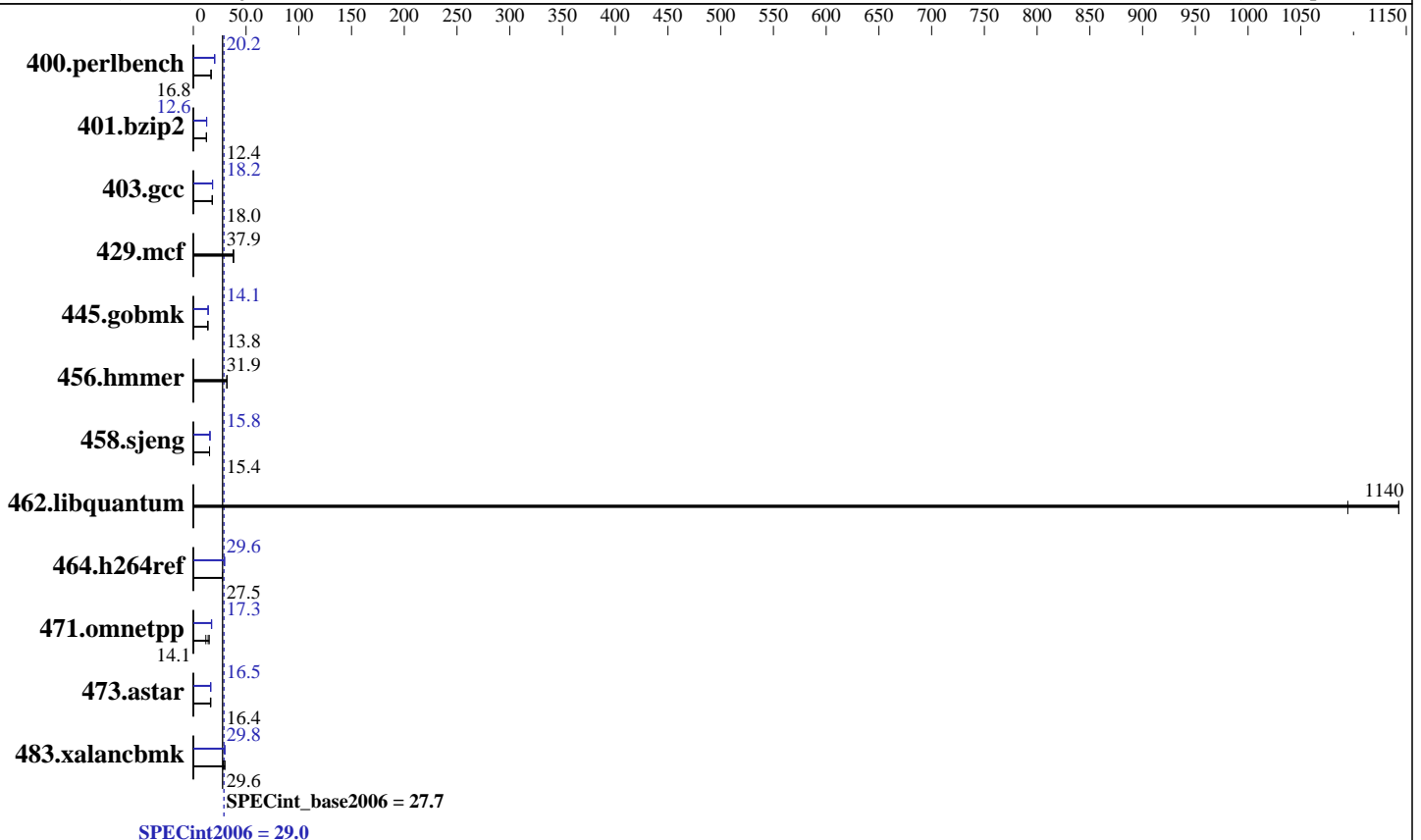| SPECint2006 =	29.0
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Results Table

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	**580**	**16.8**	578	16.9	580	16.8	483	20.2	**483**	**20.2**	484	20.2
401.bzip2	776	12.4	**776**	**12.4**	776	12.4	764	12.6	764	12.6	**764**	**12.6**
403.gcc	**448**	**18.0**	448	18.0	448	18.0	442	18.2	441	18.3	**442**	**18.2**
429.mcf	241	37.9	**241**	**37.9**	238	38.3	241	37.9	**241**	**37.9**	238	38.3
445.gobmk	**763**	**13.8**	763	13.7	761	13.8	747	14.0	746	14.1	**746**	**14.1**
456.hmmer	**292**	**31.9**	293	31.8	292	31.9	**292**	**31.9**	293	31.8	292	31.9
458.sjeng	788	15.4	**788**	**15.4**	787	15.4	767	15.8	768	15.8	**767**	**15.8**
462.libquantum	18.9	1090	**18.1**	**1140**	18.1	1140	18.9	1090	**18.1**	**1140**	18.1	1140
464.h264ref	**804**	**27.5**	804	27.5	805	27.5	750	29.5	**748**	**29.6**	748	29.6
471.omnetpp	527	11.9	413	15.1	**445**	**14.1**	360	17.4	**360**	**17.3**	365	17.1
473.astar	424	16.6	**427**	**16.4**	433	16.2	426	16.5	427	16.4	**427**	**16.5**
483.xalancbmk	**233**	**29.6**	230	30.0	243	28.4	**232**	**29.8**	231	29.8	232	29.7

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.

Operating System Notes

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

Platform Notes

    BIOS configuration:
    Energy Performance = Performance
    Utilization Profile = Unbalanced

General Notes

    Environment variables set by runspec before the start of the run:
    KMP_AFFINITY = "granularity=fine,compact,1,0"
    LD_LIBRARY_PATH = "/SPECcpu2006/libs/32:/SPECcpu2006/libs/64:/SPECcpu2006/sh"
    OMP_NUM_THREADS = "8"

    Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
    memory using RedHat EL 6.4
    Transparent Huge Pages enabled with:
    echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

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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:
```
    -xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32
```

C++ benchmarks:
```
    -xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -Wl,-z,muldefs
    -L/sh -lsmartheap64
```

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`

445.gobmk: `icc -m32`

464.h264ref: `icc -m32`

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

473.astar: `icpc -m64`

Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
401.bzip2: `-DSPEC_CPU_LP64`
403.gcc: `-DSPEC_CPU_LP64`
429.mcf: `-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_LINUX`

Peak Optimization Flags

C benchmarks:

400.perlbench: `-xAVX(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`

401.bzip2: `-xAVX(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: `-xAVX -ipo -O3 -no-prec-div -inline-calloc`
`-opt-malloc-options=3 -auto-ilp32`

429.mcf: `basepeak = yes`

445.gobmk: `-xAVX(pass 2) -prof-gen(pass 1) -prof-use(pass 2)`
`-ansi-alias`

456.hmmer: `basepeak = yes`

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Peak Optimization Flags (Continued)

458.sjeng: `-xAVX`(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: `-xAVX`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-prof-use`(pass 2) `-unroll2`
`-ansi-alias`

C++ benchmarks:

471.omnetpp: `-xAVX`(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/sh -lsmartheap`

473.astar: `-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32`
`-Wl,-z,muldefs -L/sh -lsmartheap64`

483.xalancbmk: `-xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias`
`-Wl,-z,muldefs -L/sh -lsmartheap`

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/Fujitsu-Platform.20131009.html
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20131009.xml
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml

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