SPEC® CFP2006 Result
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Cisco Systems

Cisco UCS B200 M3 (Intel Xeon E5-2667 v2, 3.30 GHz)

$SPECfp^{®}2006 =$ 105
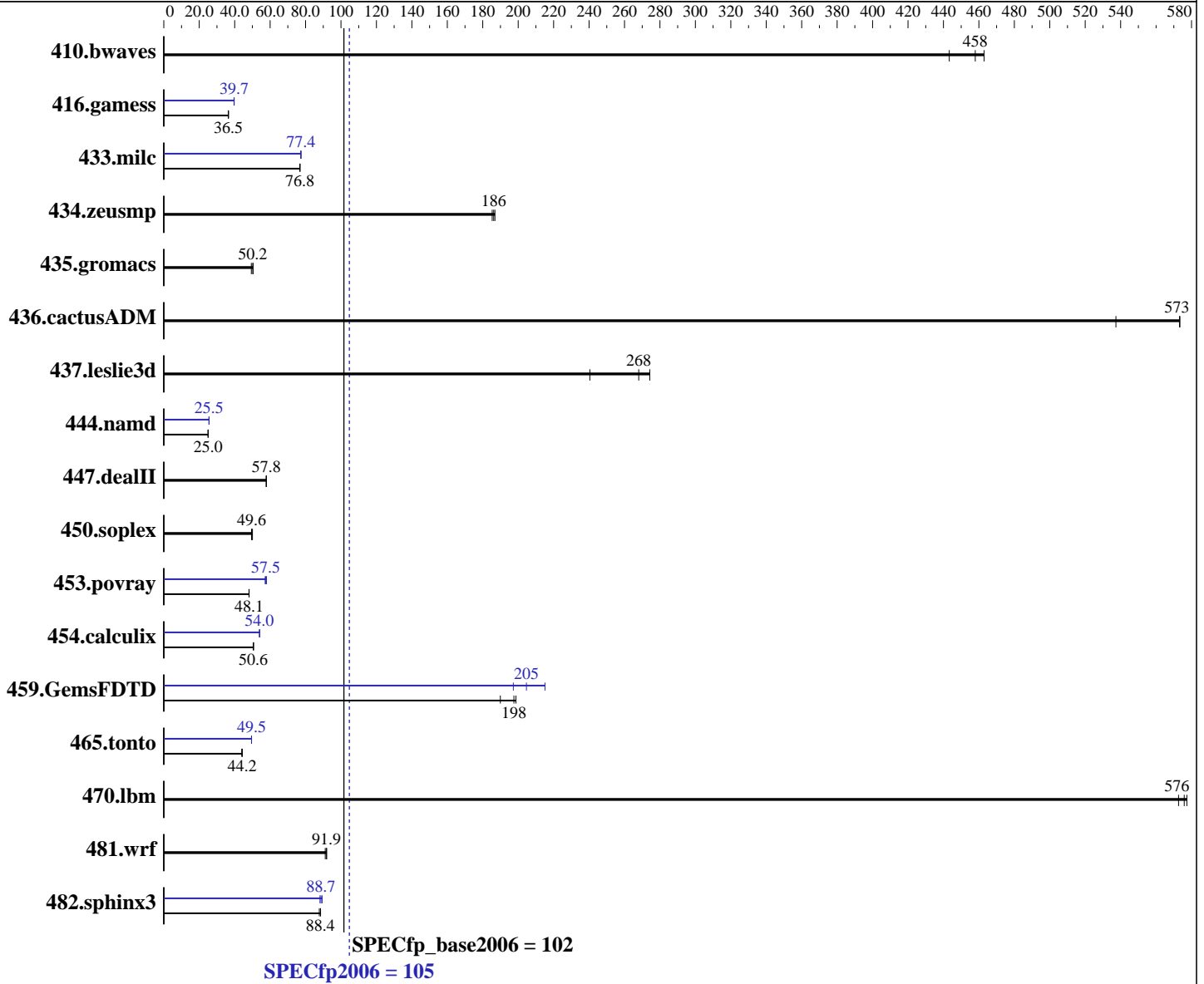
$SPECfp\_base2006 =$ 102

CPU2006 license: 9019
Test sponsor: Cisco Systems
Tested by: Cisco Systems

Benchmark	Result
410.bwaves	458
416.gamess	39.7 / 36.5
433.milc	77.4 / 76.8
434.zeusmp	186
435.gromacs	50.2
436.cactusADM	573
437.leslie3d	268
444.namd	25.5 / 25.0
447.dealII	57.8
450.soplex	49.6
453.povray	57.5 / 48.1
454.calculix	54.0 / 50.6
459.GemsFDTD	205 / 198
465.tonto	49.5 / 44.2
470.lbm	576
481.wrf	91.9
482.sphinx3	88.7 / 88.4

SPECfp_base2006 = 102
SPECfp2006 = 105

Hardware

CPU Name: Intel Xeon E5-2667 v2
CPU Characteristics: Intel Turbo Boost Technology up to 4.00 GHz
CPU MHz: 3300
FPU: Integrated
CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip
CPU(s) orderable: 1,2 chip
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core
Continued on next page

Software

Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)
2.6.32-358.el6.x86_64
Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;
Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
Auto Parallel: Yes
File System: ext4
Continued on next page

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L3 Cache:	25 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	64-bit
Memory:	128 GB (16 x 8 GB 2Rx4 PC3-14900R-13, ECC)	Peak Pointers:	32/64-bit
Disk Subsystem:	1 X 146 GB 15000 RPM SAS	Other Software:	None
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	30.7	443	**29.7**	**458**	29.4	463	30.7	443	**29.7**	**458**	29.4	463
416.gamess	**537**	**36.5**	537	36.5	538	36.4	**493**	**39.7**	493	39.7	494	39.6
433.milc	119	76.8	120	76.8	**119**	**76.8**	119	77.3	119	77.4	**119**	**77.4**
434.zeusmp	49.1	185	48.7	187	**48.9**	**186**	49.1	185	48.7	187	**48.9**	**186**
435.gromacs	142	50.4	145	49.4	**142**	**50.2**	142	50.4	145	49.4	**142**	**50.2**
436.cactusADM	**20.8**	**573**	20.8	573	22.2	537	**20.8**	**573**	20.8	573	22.2	537
437.leslie3d	34.3	274	39.1	240	**35.1**	**268**	34.3	274	39.1	240	**35.1**	**268**
444.namd	**321**	**25.0**	320	25.0	321	25.0	**314**	**25.5**	314	25.5	314	25.5
447.dealII	198	57.9	198	57.8	**198**	**57.8**	198	57.9	198	57.8	**198**	**57.8**
450.soplex	167	50.0	**168**	**49.6**	168	49.6	167	50.0	**168**	**49.6**	168	49.6
453.povray	111	48.1	**111**	**48.1**	110	48.2	**92.5**	**57.5**	91.8	58.0	93.0	57.2
454.calculix	163	50.7	163	50.5	**163**	**50.6**	153	54.1	**153**	**54.0**	153	54.0
459.GemsFDTD	**53.7**	**198**	55.9	190	53.4	199	53.8	197	**51.8**	**205**	49.3	215
465.tonto	**223**	**44.2**	222	44.3	224	44.0	**199**	**49.5**	199	49.5	199	49.5
470.lbm	23.8	577	24.0	573	**23.9**	**576**	23.8	577	24.0	573	**23.9**	**576**
481.wrf	123	91.1	**122**	**91.9**	122	91.9	123	91.1	**122**	**91.9**	122	91.9
482.sphinx3	**220**	**88.4**	220	88.5	222	87.8	221	88.1	218	89.4	**220**	**88.7**

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

Operating System Notes

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

Platform Notes

```
BIOS Settings:
Intel HT Technology = Disabled
CPU performance set to HPC
Power Technology set to Custom
CPU Power State C6 set to Enabled
CPU Power State C1 Enhanced set to Disabled
Energy Performance policy set to Performance
Memory RAS configuration set to Maximum Performance
DRAM Clock Throttling Set to Performance
LV DDR Mode set to Performance-mode
```

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Test date: Nov-2013
Hardware Availability: Sep-2013
Software Availability: Sep-2013

Platform Notes (Continued)

```
DRAM Refresh Rate Set to 1x
 Sysinfo program /opt/cpu2006-1.2/config/sysinfo.rev6818
 $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
 running on B200M3CRCR Sun Nov 10 02:19:14 2013

 This section contains SUT (System Under Test) info as seen by
 some common utilities.  To remove or add to this section, see:
   http://www.spec.org/cpu2006/Docs/config.html#sysinfo

 From /proc/cpuinfo
    model name : Intel(R) Xeon(R) CPU E5-2667 v2 @ 3.30GHz
       2 "physical id"s (chips)
       16 "processors"
    cores, siblings (Caution: counting these is hw and system dependent.  The
    following excerpts from /proc/cpuinfo might not be reliable.  Use with
    caution.)
       cpu cores : 8
       siblings  : 8
       physical 0: cores 1 2 3 4 8 9 10 11
       physical 1: cores 1 2 3 4 8 9 10 11
    cache size : 25600 KB

 From /proc/meminfo
    MemTotal:       132089328 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB

 /usr/bin/lsb_release -d
    Red Hat Enterprise Linux Server release 6.4 (Santiago)

 From /etc/*release* /etc/*version*
    redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
    system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
    system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

 uname -a:
    Linux B200M3CRCR 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013
    x86_64 x86_64 x86_64 GNU/Linux

 run-level 3 Nov 9 20:55

 SPEC is set to: /opt/cpu2006-1.2
    Filesystem     Type     Size  Used Avail Use% Mounted on
    /dev/sda1      ext4     134G   68G   60G  54% /

 Additional information from dmidecode:
   BIOS Cisco Systems, Inc. B200M3.2.1.2.12.080620131158 08/06/2013
   Memory:
    16x 0xAD00 HMT31GR7EFR4C-RD 8 GB 1866 MHz 2 rank
    8x NO DIMM NO DIMM

 (End of data from sysinfo program)
```

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CPU2006 license: 9019	**Test date:** Nov-2013
Test sponsor: Cisco Systems	**Hardware Availability:** Sep-2013
Tested by: Cisco Systems	**Software Availability:** Sep-2013

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/opt/cpu2006-1.2/libs/32:/opt/cpu2006-1.2/libs/64:/opt/cpu2006-1.2/sh"
OMP_NUM_THREADS = "16"

 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
 runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>
```

Base Compiler Invocation

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

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

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc   -m64 ifort -m64
```

Base Portability Flags

```
    410.bwaves: -DSPEC_CPU_LP64
    416.gamess: -DSPEC_CPU_LP64
      433.milc: -DSPEC_CPU_LP64
    434.zeusmp: -DSPEC_CPU_LP64
   435.gromacs: -DSPEC_CPU_LP64 -nofor_main
  436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
   437.leslie3d: -DSPEC_CPU_LP64
     444.namd: -DSPEC_CPU_LP64
    447.dealII: -DSPEC_CPU_LP64
    450.soplex: -DSPEC_CPU_LP64
    453.povray: -DSPEC_CPU_LP64
   454.calculix: -DSPEC_CPU_LP64 -nofor_main
  459.GemsFDTD: -DSPEC_CPU_LP64
     465.tonto: -DSPEC_CPU_LP64
      470.lbm: -DSPEC_CPU_LP64
       481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
    482.sphinx3: -DSPEC_CPU_LP64
```

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Base Optimization Flags

C benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias
```

C++ benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
```

Fortran benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias
```

Peak Compiler Invocation

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

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

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc    -m64 ifort -m64
```

Peak Portability Flags

```
Same as Base Portability Flags
```

Peak Optimization Flags

C benchmarks:

```
433.milc: -xAVX(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

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias
             -parallel
```

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Peak Optimization Flags (Continued)

C++ benchmarks:

    444.namd: `-xAVX`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-prof-use`(pass 2) `-fno-alias`
`-auto-ilp32`

    447.dealII: `basepeak = yes`

    450.soplex: `basepeak = yes`

    453.povray: `-xAVX`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-prof-use`(pass 2) `-unroll4 -ansi-alias`

Fortran benchmarks:

    410.bwaves: `basepeak = yes`

    416.gamess: `-xAVX`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-prof-use`(pass 2) `-unroll2`
`-inline-level=0 -scalar-rep-`

    434.zeusmp: `basepeak = yes`

    437.leslie3d: `basepeak = yes`

  459.GemsFDTD: `-xAVX`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-prof-use`(pass 2) `-unroll2`
`-inline-level=0 -opt-prefetch -parallel`

    465.tonto: `-xAVX`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-prof-use`(pass 2) `-inline-calloc`
`-opt-malloc-options=3 -auto -unroll4`

Benchmarks using both Fortran and C:

    435.gromacs: `basepeak = yes`

  436.cactusADM: `basepeak = yes`

    454.calculix: `-xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias`

    481.wrf: `basepeak = yes`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.20130717.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/Cisco-Platform-Settings-V1.2.20130717.xml

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