

# Spec CPU 2006

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The SPEC CPU 2006 benchmark from the Standard Performance Evaluation Corporation (SPEC) is a proprietary benchmark in use until September 2017. The benchmark suite includes SPECint® benchmarks and SECfp® benchmarks. The SPECint® 2006 benchmark includes 12 different benchmark tests and the SPECfp® 2006 benchmark includes 19 different benchmark tests. It can be used to measure computer speed or throughput.

{{% pageinfo %}}

This benchmark has been superseded by SPEC CPU® 2017, version 1.1.9 as of 2023-03-11.

{{% /pageinfo %}}

## 1 Some Hints For Intel Clusters

### 1.1 Preparation Before Running

As root:

```
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
echo 1 > /proc/sys/vm/drop_caches
```

As user:

```
cd /cpu2006
source /opt/intel/bin/compilervars.sh intel64
#source /cm/shared/apps/intel-ics-2013/bin/compilervars.sh intel64
source shrc
ulimit -s unlimited
```

### 1.2 Running The Long Time Benchmark

```
bin/runspec -c intel2 --action=run --define external --rate 24 --define
↪ smt \
--define cores=24 --define physicalfirst --define invoke_with_interleave \
--define drop_caches --define THP_enabled -T all --reportable -o all fp
```

## 2 Minimal Install On CentOS 7

Spec CPU 2006 must be purchased.

### 2.1 Dependencies

```
yum install dmidecode vim screen tree zsh rsync openssh-clients wget
yum install gcc-gfortran.x86_64 numactl libgfortran.i686
↪ libgfortran.x86_64 \
compat-gcc-34-g77.x86_64 compat-libf2c-34.i686 compat-libf2c-34.x86_64 \
kernel-devel make
```

### 2.2 Configuration

```
useradd -s /bin/bash -U -m -c HPC -d /home/hpc hpc
mkdir /cpu2006
```

```
chown hpc:hpc /cpu2006
su - hpc
ssh-keygen
```

Copy ISO image to `/home/hpc/src`

```
mkdir /home/hpc/src
wget ../cpu2006-1.2.iso
mkdir /home/hpc/mnt
mount -o loop /home/hpc/src/cpu2006-1.2.iso /home/hpc/mnt
```

As user `hpc`

```
cd /home/hpc/mnt/
./install.sh
```

Specify the directory in which you want to install (e.g. `/usr/cpu2006`).

```
/cpu2006
yes
```

As root

```
umount /home/hpc/mnt
```

## 2.3 More Configuration

```
cd /cpu2006/config
wget http://www.spec.org/cpu2006/results/res2013q4/cpu2006-20131007-
↳ 26551.cfg
cp cpu2006-20131007-26551.cfg
↳ aurora-E5-2697v2-f1.2.ic14.0.linux64.avx.rate.cfg

cd /cpu2006/Docs
mv sysinfo sysinfo.6775
wget http://www.spec.org/cpu2006/Docs/sysinfo
mv sysinfo sysinfo.6818
chmod +x sysinfo.6818
ln -s sysinfo.6818 sysinfo
```

## 2.4 Intel Compiler

The `URL` depends on the compiler you want to use

```
#wget http://registrationcenter-  
  ↪ download.intel.com/akdlm/irc_nas/2871/l_ics_2013.0.028.tgz  
wget http://registrationcenter-  
  ↪ download.intel.com/akdlm/irc_nas/3471/l_ics_2013.1.039.tgz
```

## 2.5 Running

As root:

```
echo 1 > /proc/sys/vm/drop_caches  
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled  
ulimit -s unlimited  
/root/tools/setmaxturbofreq.sh
```

As user `hpc` :

```
source /cpu2006/shrc  
source /opt/intel/composer_xe_2013/bin/compilervars.sh intel64  
ulimit -s unlimited  
  
bin/runspec -c aurora --action=run --define external --rate=40 --define  
  ↪ smt \  
--define cores=20 --define physicalfirst --define invoke_with_interleave \  
--define drop_caches --define THP_enabled -T all --reportable -o all fp  
  
bin/runspec -c aurora --action=run --define external --rate=40 --define  
  ↪ smt \  
--define cores=20 --define physicalfirst --define invoke_with_interleave \  
--define drop_caches --define THP_enabled -T all --reportable -o all fp \  
--nobuild
```

## 2.6 Power Measurement

An example of a power measurement could be as follows (assuming the power measurement logic is provided in the `query` script). The content of this script is not provided, as the way the measurement is done is very architecture dependent. The loop queries the power supply every second for 21600 seconds, or 6 hours.

```
for i in {1..21600}; do ./query $i >> 2013-10-22-1900.log; sleep 1; done
```

### 3 Links

- [Spec CPU 2006](#)
- [Spec CPU 2017](#)

### 4 History

Version	Date	Notes
0.1.4	2023-03-11	Improve writing, latest version hint
0.1.3	2022-06-16	History, shell->bash
0.1.2	2020-12-27	Typos, more explanations
0.1.1	2020-05-03	Typos, replacement remark
0.1.0	2016-02-17	Initial release

### 5 Disclaimer of Warranty

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