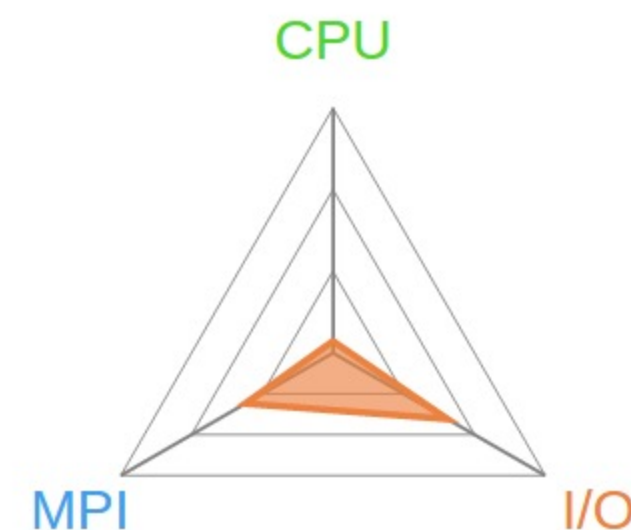


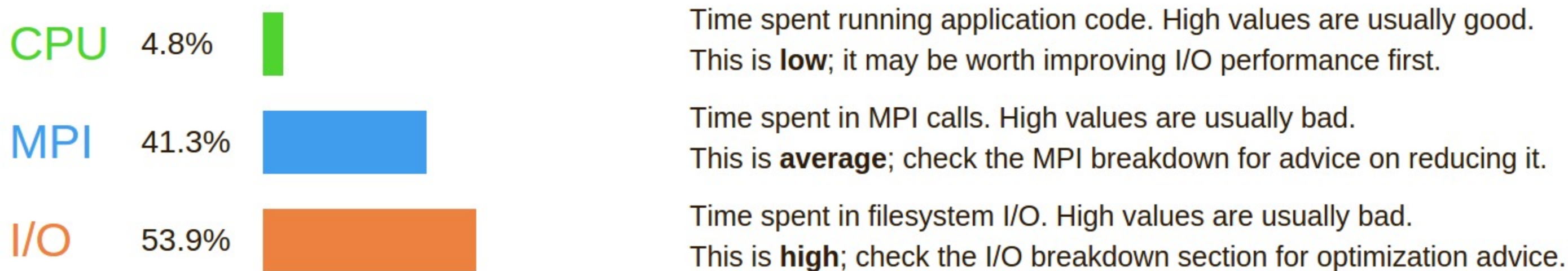


Executable: MADbench2  
 Resources: 16 processes, 1 node  
 Machine: sandybridge2  
 Start time: Mon Nov 4 12:27:50 2013  
 Total time: 109 seconds (2 minutes)  
 Full path: /tmp/MADbench2  
 Notes: 12-core server / HDD / 16 readers + writers



## Summary: MADbench2 is I/O-bound in this configuration

The total wallclock time was spent as follows:



This application run was **I/O-bound**. A breakdown of this time and advice for investigating further is in the **I/O** section below.

### CPU

A breakdown of how the 4.8% total CPU time was spent:

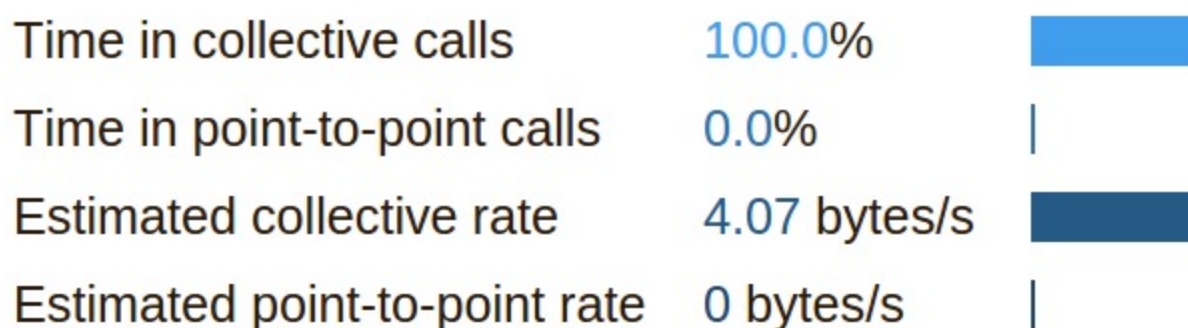


The per-core performance is **memory-bound**. Use a profiler to identify time-consuming loops and check their cache performance.

No time was spent in **vectorized instructions**. Check the compiler's vectorization advice to see why key loops could not be vectorized.

### MPI

Of the 41.3% total time spent in MPI calls:



All of the time is spent in **collective calls** with a very low transfer rate. This suggests a significant load imbalance is causing synchronization overhead. You can investigate this further with an MPI profiler.

### I/O

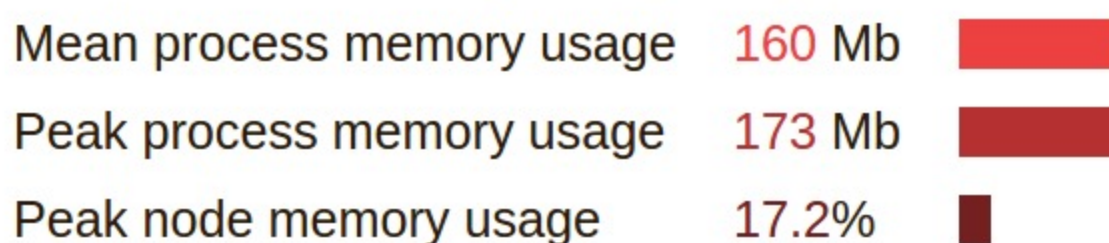
A breakdown of how the 53.9% total I/O time was spent:



Most of the time is spent in **write operations**, which have a very low transfer rate. This may be caused by contention for the filesystem or inefficient access patterns. Use an I/O profiler to investigate which write calls are affected.

### Memory

Per-process memory usage may also affect scaling:



The **peak node memory usage** is low. You may be able to reduce the total number of CPU hours used by running with fewer MPI processes and more data on each process.