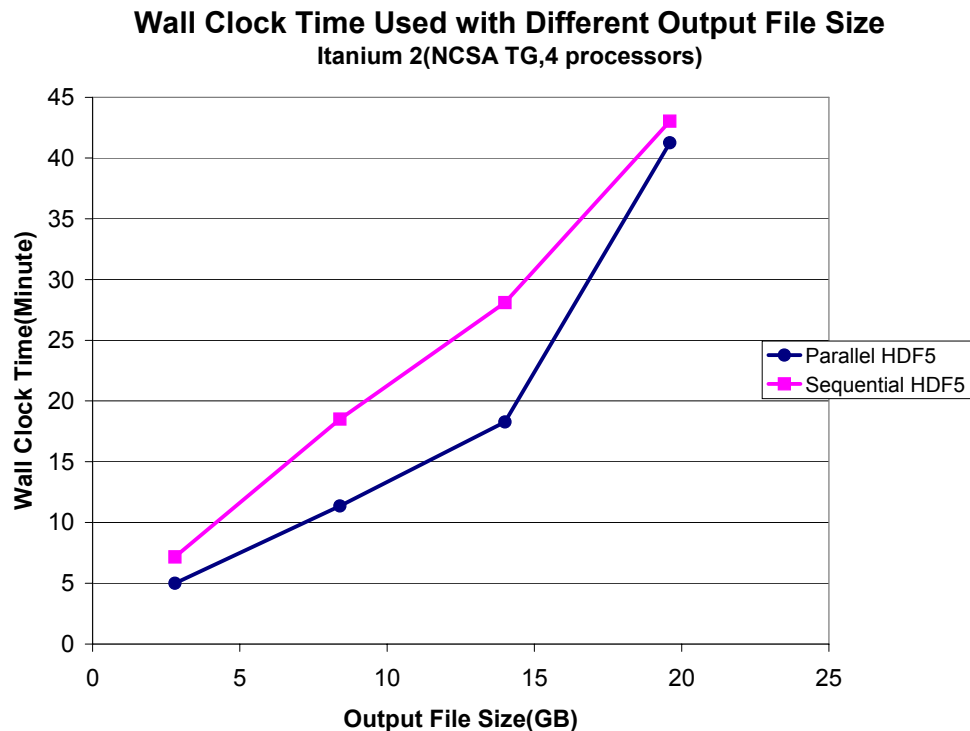# Teragrid Parallel WRF-HDF5 Performance report
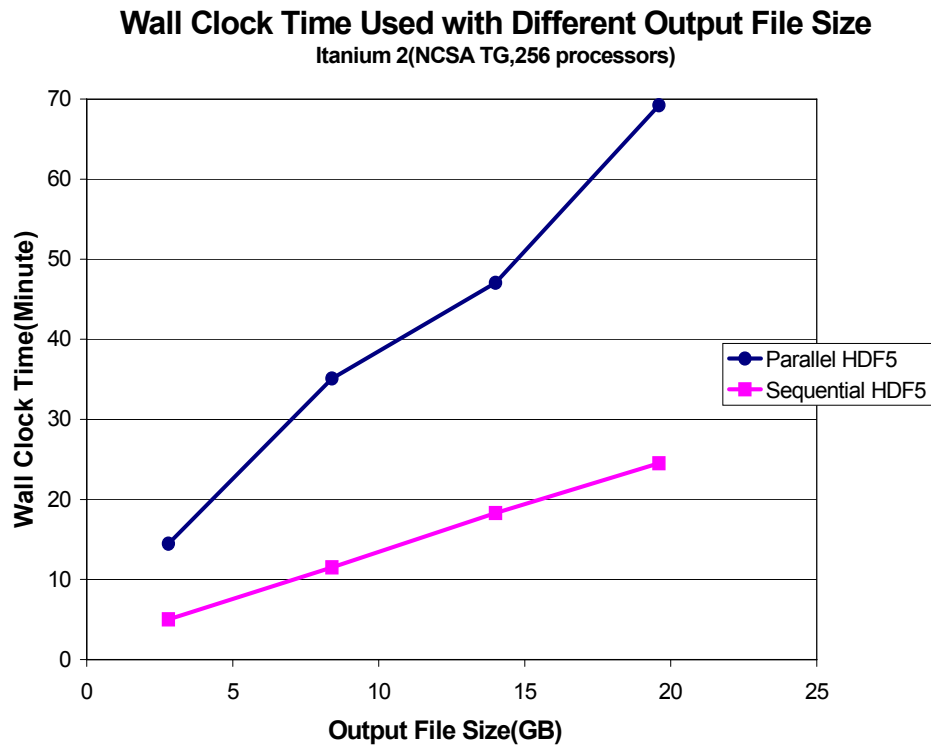
I. Introduction

    1. For MPI compiler information and how to compile Parallel HDF5 and WRF;
See the first report of running Parallel WRF-HDF5 at TG.
2. Benchmark Criterion:
wall clock time of running the WRF model for different
output file size.
3. What we want to compare:
Parallel WRF-HDF5 writer vs Sequential WRF-HDF5 writer
4. Note: The comparison is made only on different IO modules; the computing
module of the model is always in Parallel (MPI).

II. Comparison between Parallel HDF5-WRF module and Sequential HDF5-WRF
module

Summary: Parallel is much worse than sequential as the number of processors increases.

See following figures:

Wall Clock Time Used with Different Output File Size
Itanium 2(NCSA TG,4 processors)

Wall Clock Time Used with Different Output File Size

Itanium 2(NCSA TG,256 processors)
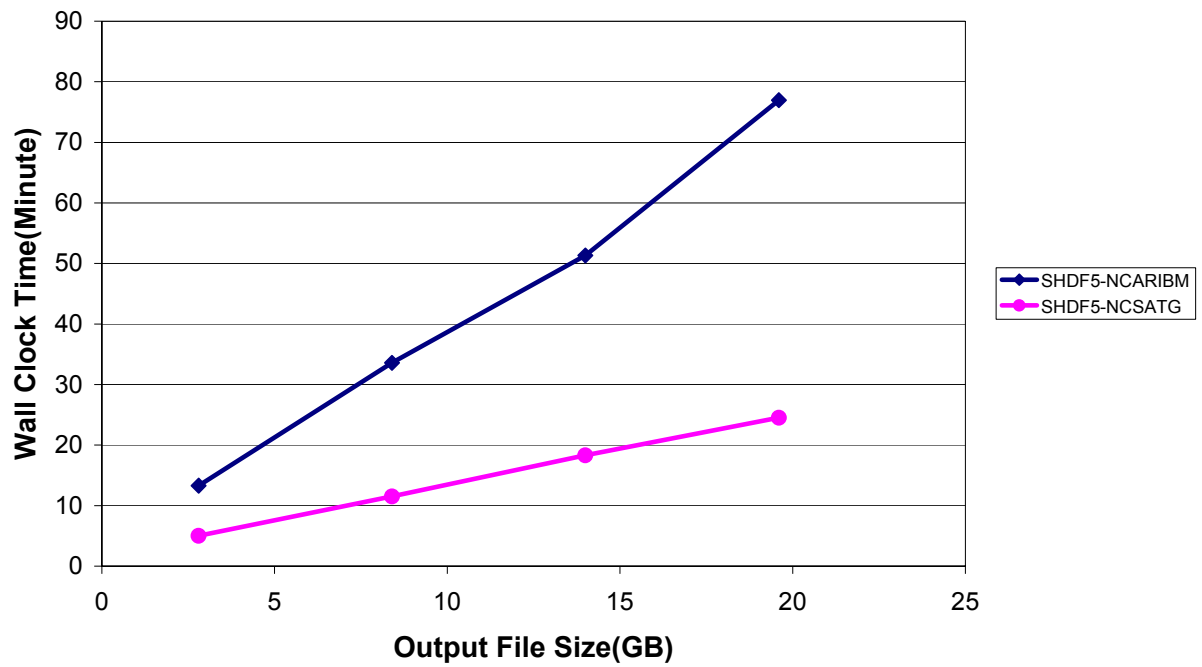

III. Compared with NCAR IBM SP(blackforest),

Summary:
The sequential module behaves reasonable well at NCSA TG(1.3 GHZ(TG) VS 375 MHZ(IBM)).
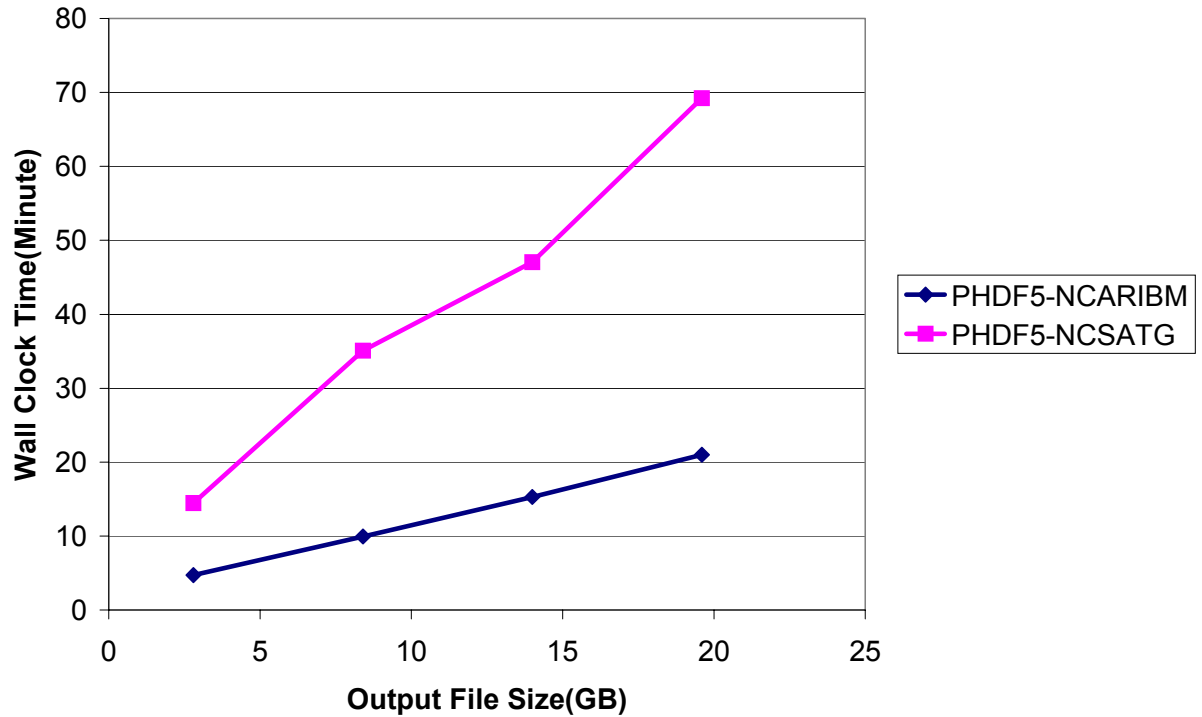The parallel module is much worse at TG than NCAR IBM SP with many processors.

Wall Clock Time Comparision of Sequential HDF5-WRF between NCAR IBM and NCSA TG

NCAR IBM WinterHawkII(375MHZ); NCSA TG-Itanium 2(1.3GHZ)

Wall Clock Time Comparision of Parallel HDF5-WRF module between NCAR IBM and NCSA TG

NCAR IBM WinterHawkII(375MHZ); NCSA TG-Itanium 2(1.3GHZ)
256 processors

IV. Albert Cheng points out that it is possible that GPFS performance is saturated when the number of processors is above 8 processors.

He said: the GPFS IO speed is about 400 MB/S(he can get 300 MB/S).