

# M3D-C1 ZOOM Meeting

04/17/2023

## Upcoming Meetings

### CS Issues

1. LBL update
2. Adaptation update.... RPI
3. Perlmutter Scaling update and issue with large jobs
4. Request for 64 bit scorec libraries.... J. Chen
5. Anything else

## In attendance

Steve Jardin

Hank Straus

Adelle Wright

Andreas Kleiner

Jin Chen

Chen Zhao

Nate Ferraro

Brendan Lyons

Cesar Clauser

Priyanjana Sinha

Chang Liu

M. Yoo

Mark Shephard

Seegyung Seo

Usman Riaz

Sam Williams

Sherry LI

Nan Ding

Hans Johansen

Yang Liu

# Upcoming Meetings

Sherwood Theory	May 8-10	Knoxville, TN
EPS	July 3-7	Bordeaux, France
TSDW	July 19-21	Princeton, NJ
IAEA	Oct 16-21	London, UK
APS	Oct 30 – Nov 1	Denver, CO
AAPPS-DPP	Nov 12-17	Nagoya, JP

# LBL Report

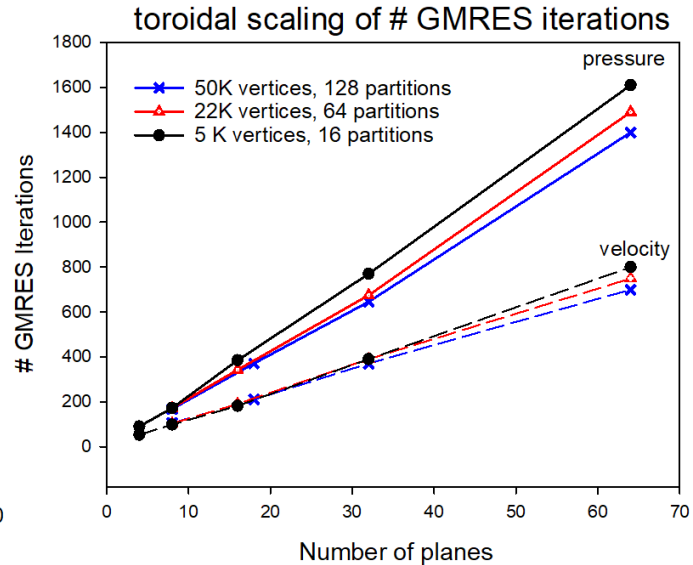
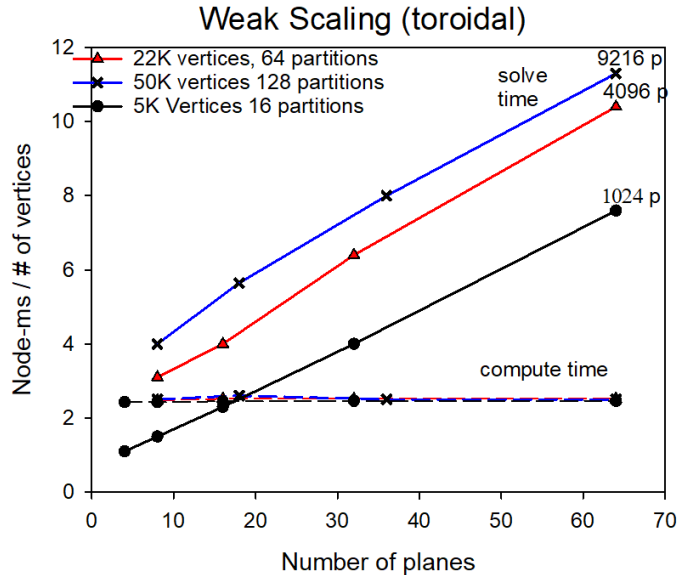
# Adaption Update

RPI?

# Perlmutter Scaling Update (1)

## Toroidal Weak Scaling

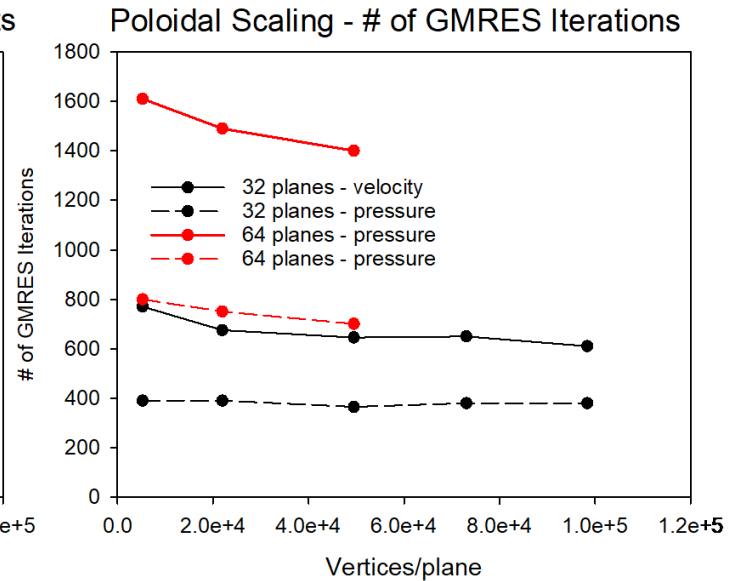
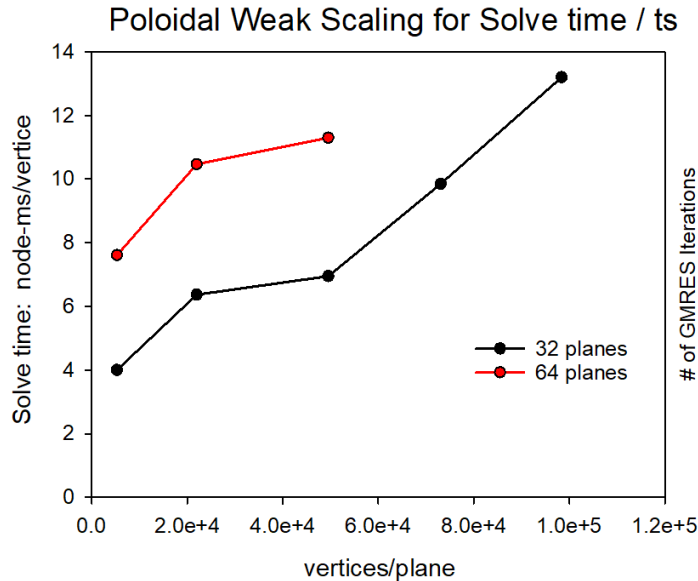
- Compute time (defining matrix) scales perfectly
- Solve time (solving matrix) increases linearly with # planes
- # of GMRES iterations also increases linearly with # planes



# PerMutter Scaling Update (2)

## Poloidal Weak Scaling

- # of GMRES iterations does NOT increase linearly with #poloidal vertices
- Solve time does increase approximately linearly with #poloidal vertices

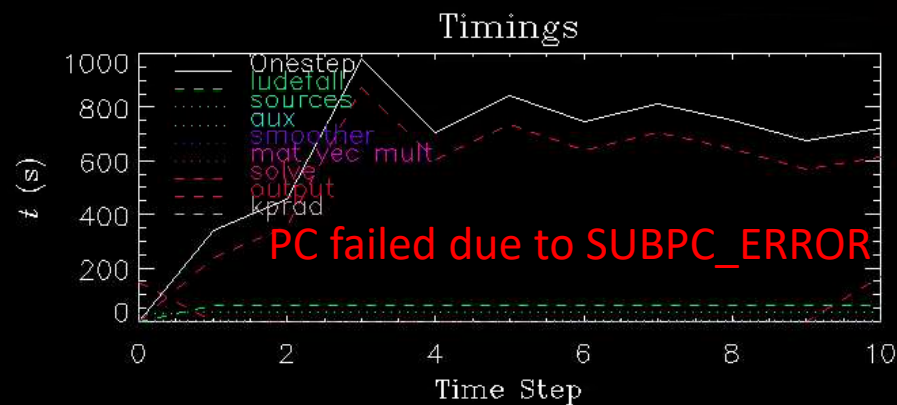


# Problem with large jobs on Perlmutter\_cpu:

Same job, submitted twice, 192 partitions. 32 planes, 96 nodes, 6144 p, 73044 V/P

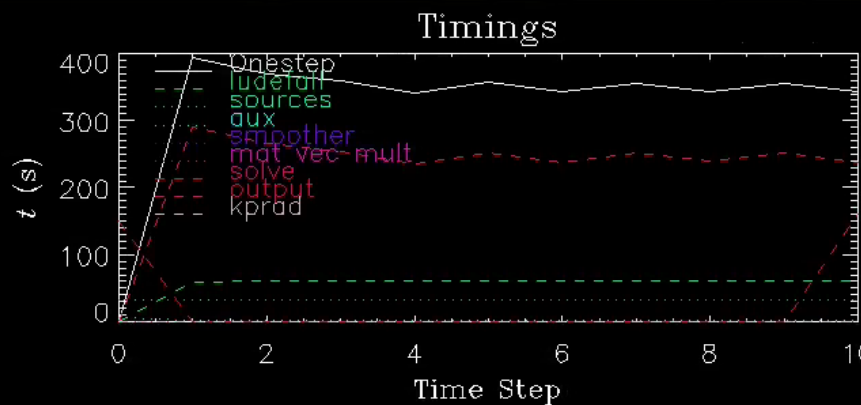
192-N-Run10a

IDL 0

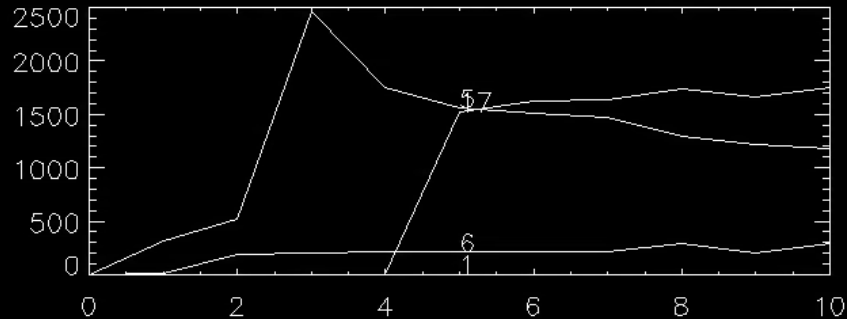


192-N-Run10b

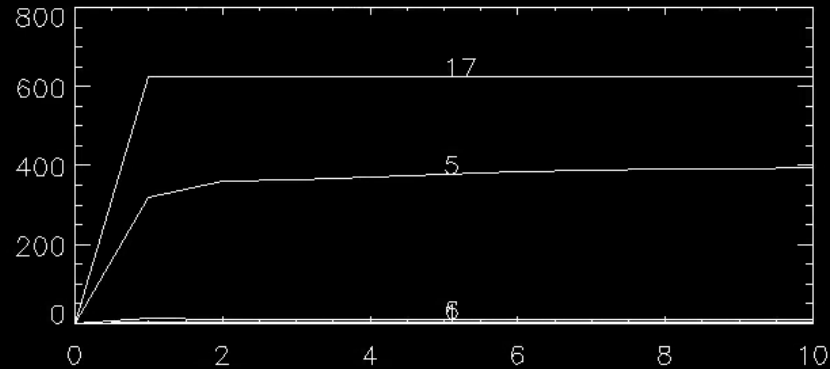
IDL 0



KSPSolve iteration numbers for 5, 1, 17, 6



KSPSolve iteration numbers for 5, 1, 17, 6





# Request for 64 bit scorec libraries

Jin Chen has compiled 64-bit petsc libraries:

```
/global/cfs/cdirs/mp288/jinchen/PETSC/petsc.20220915
```

```
drwxrws--- 9 jinchen mp288 4096 Mar 24 12:10 perlmuttercpu-nvidia-64bit
```

```
drwxrws--- 9 jinchen mp288 4096 Mar 25 15:33 perlmuttercpu-nvidia-st-64bit
```

```
drwxrws--- 9 jinchen mp288 4096 Mar 25 18:19 perlmuttercpu-nvidia-cplx-64bit
```

and now needs the RPI group to port their scorec library to be compatible with this build.

That's All I have

Anything Else ?