RT_Viz

March 9, 2017

0.0.1 Simulation Parameters

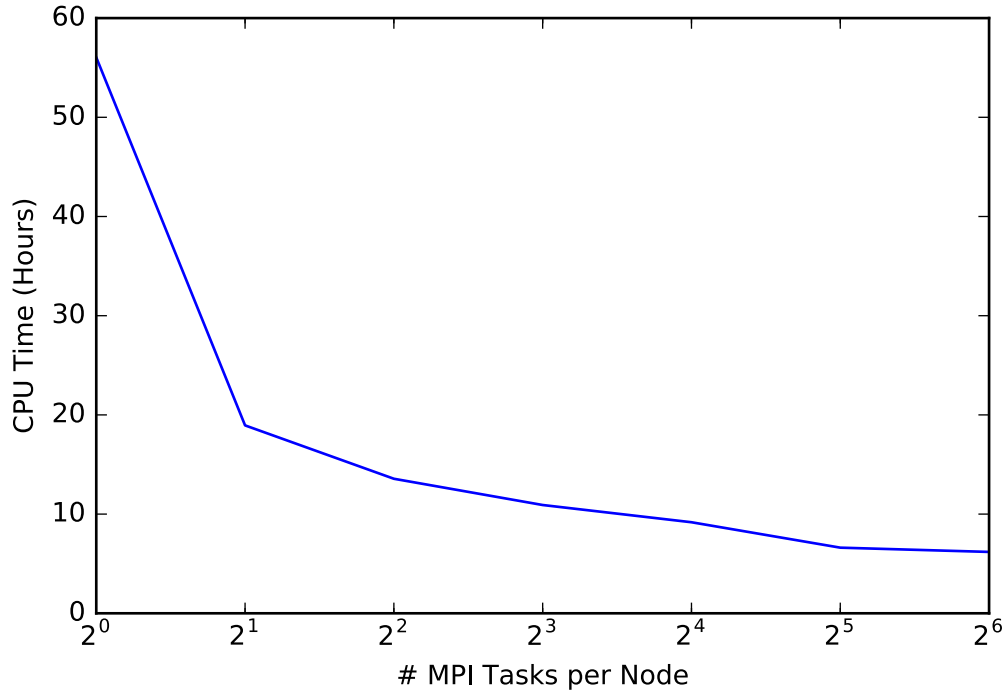
Code: Castro
Setup: Rayleigh-Taylor Code Test (dir:Exec/hydro_tests/RT/)
Params: 4 AMR Levels, base res 32x64, max res 512x1024, hydro only

0.0.2 Cori Submit Script

%#!/bin/bash
%#SBATCH -N 2
%#SBATCH -C haswell
%#SBATCH -p debug
%#SBATCH -J rt_mpi1_omp64
%#SBATCH -t 00:30:00
%#OpenMP settings:
%export OMP_NUM_THREADS=64
%export OMP_PLACES=threads
%export OMP_PROC_BIND=spread
%cd $SCRATCH/rt_test/test_mpi1_omp64
%#run the application:
%srun -n 2 -c $OMP_NUM_THREADS –cpu_bind=threads /global/cscratch1/sd/dkhatami/rt_test/Castro2d.gnu.PROF.MPI
%/global/cscratch1/sd/dkhatami/rt_test/inputs_2d

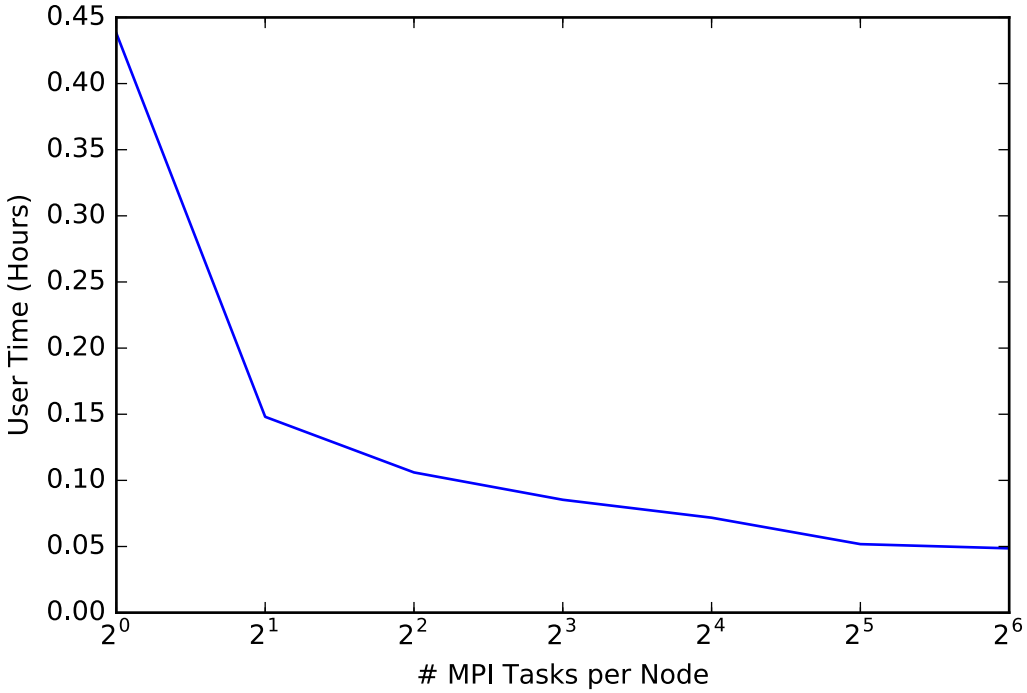
```
In [19]: num_omp = 1,2,4,8,16,32,64
         num_mpi = 64,32,16,8,4,2,1
         t_cpu = 6.1875, 6.61687, 9.17924, 10.9166, 13.563, 18.9428, 56.0362
         t_user = 0.04861, 0.05179, 0.07177, 0.08533, 0.1060, 0.14805, 0.438
```

```
In [20]: plt.semilogx(num_mpi,t_cpu,basex=2)
         plt.xlabel("# MPI Tasks per Node")
         plt.ylabel("CPU Time (Hours)")
         plt.show()
```

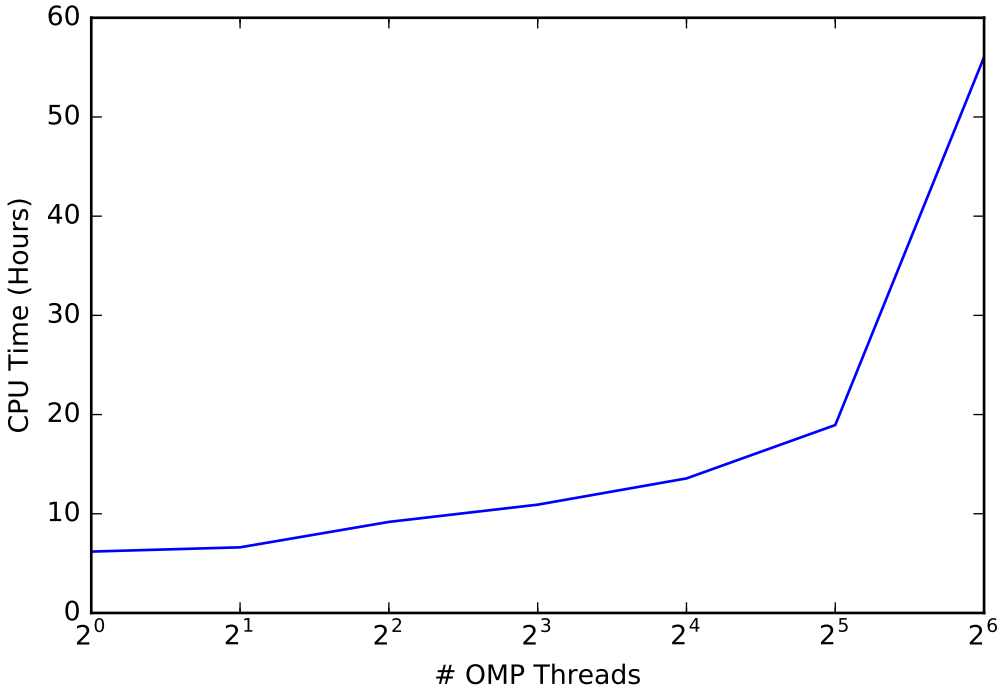


In [21]:
```
plt.semilogx(num_mpi,t_user,basex=2)
plt.xlabel("# MPI Tasks per Node")
plt.ylabel("User Time (Hours)")
```

Out[21]: <matplotlib.text.Text at 0x11785c8d0>

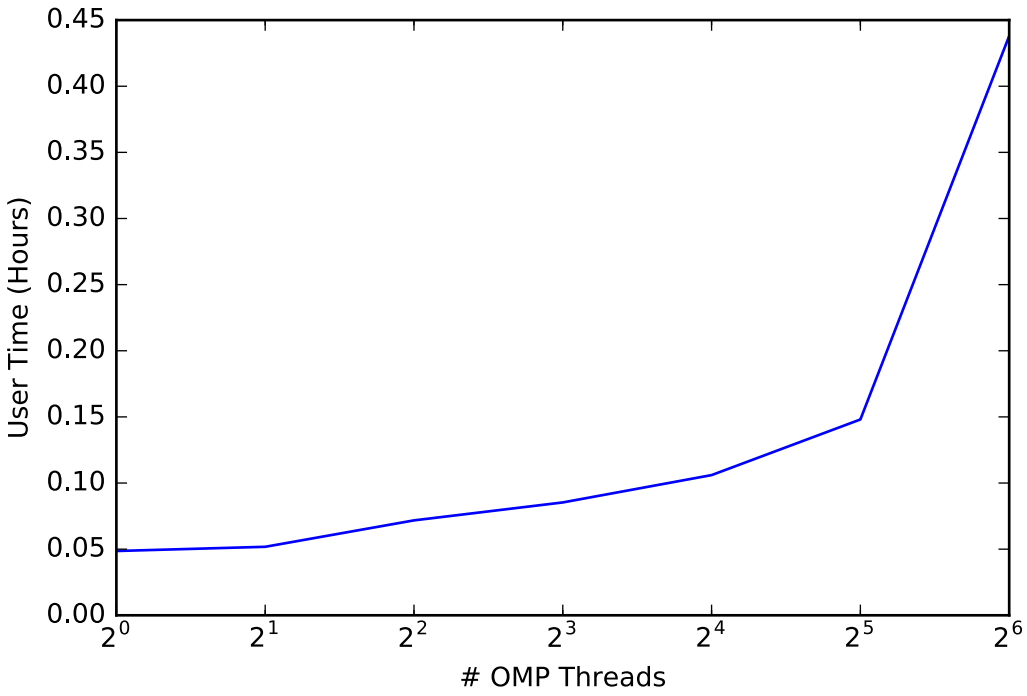


In [25]:
```
plt.semilogx(num_omp,t_cpu,basex=2)
plt.xlabel("# OMP Threads")
plt.ylabel("CPU Time (Hours)")
plt.show()
```



In [27]:
```
plt.semilogx(num_omp,t_user,basex=2)
plt.xlabel("# OMP Threads")
plt.ylabel("User Time (Hours)")
```

Out[27]:
```
<matplotlib.text.Text at 0x117898320>
```


0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
User Time (Hours)
2^0
2^1
2^2
2^3
2^4
2^5
2^6
OMP Threads

In [ ]: