

aprun Example Using Intel

- `$ KMP_AFFINITY=none \
OMP_NUM_THREADS=2 \
aprun -n 1020 -N 32 -d2 -j1 -cc depth a.out`
- `-n = --pes == number of MPI ranks`
- `-N = --pes-per-node == number of ranks per node`
- `-d = --cpus-per-pe == separation between ranks;
depth`
- `-j = --CPUs == number of Hyper-Threads per
physical core`
- `-cc = --cpu-binding == CPU affinity binding`

aprun Examples Using GNU or CCE

- 1 node, 4 MPI ranks with 4, 16 or 64 OpenMP threads
 - \$ OMP_NUM_THREADS=4 aprun -n 4 -d 4 -j1
 - \$ OMP_NUM_THREADS=16 aprun -n 4 -d 16 -j1
 - \$ OMP_NUM_THREADS=64 aprun -n 4 -d 64 -j4
 - This example requires using 4 hyperthreads

More aprun Examples

- **1 node, 256 MPI ranks, no OpenMP threads, 4 ranks per core**
 - \$ aprun -n 256 -j4

- **1 node, 128 MPI ranks, 2 hyperthreads per rank, 2 OpenMP threads per rank**
 - \$ OMP_NUM_THREADS=2 aprun -n 128 -d 2 -j4

- **1 node, 16 MPI ranks, 4 hyperthreads per core, 16 OpenMP threads per rank**
 - \$ OMP_NUM_THREADS=16 aprun -n 16 -d 16 -j4