TDDC78: Quick reference for Sigma

VER. 2023-03-29

!! See also NSC presentation slides + website and TDDC78 lab compendium !!

Before starting

SSH to Sigma: ssh [Sigma username]@sigma.nsc.liu.se

- Load compiler module:
  module load buildenv-intel/2018.u1-bare
- Select today's reservation, example:
  usereservation TDDC78-2023-04-12

Recommended compiler

C   icc / mpiicc
C++   icpc / mpiicpc

OpenMP: Add flag -fopenmp

SLURM commands

- projinfo
- see info about all projects you are member of.
- listreservations
  lists available reservations.
- usereservation
  set a reservation as default for this login session.
- salloc/ompsalloc
  request compute nodes when needed
  This is the **recommended way** to work in this course
- squeue (-u for your user, -A for a particular project)
  lists jobs, SLURMs view
- sbatch
  submits a jobscript to run later on the compute nodes.
- scancel
  cancels/deletes a job.
- interactive
  create interactive shell on compute nodes.
- jobsh
  ssh-like access to allocated nodes / job.

Using salloc

salloc <RESOURCE SPEC> mpprun ./bin [args]
ompsalloc <RESOURCE SPEC> ./bin [args]

Resource specification

- -N asks for a number of nodes, example (2 nodes, 64 cores): -N2 (normally not used)
- -n asks for a number of tasks, example (16 tasks, 16 cores): -n16

- -c ask for a number of cores per task (for use with OpenMP):
  Example: ompsalloc -c10 (> OpenMP run with 10 threads)
- -t, format is either minutes or hh:mm:ss, example: -t60 or -t1:00:00

For debugging

Build with -g flag. Run in interactive mode:

- interactive <RESOURCE SPEC>

DDT

- module load arm-DDT/22.0.3

Graphical debugger, requires a ThinLinc session and **interactive** mode.

- mpprun -ddt ./bin [args]

ITAC

Run additac after loading modules but before building/running.
Build with mpiicc -trace
Start with salloc + mpprun
Analyze trace file (.stf) with traceanalyzer [trace file name]

Reservations for project liu-compute-2023-9

- listreservations

```
TDDC78-2023-04-12  from 2023-04-12T13:15:00 to 2023-04-12T19:00:00
TDDC78-2023-04-13  from 2023-04-13T17:15:00 to 2023-04-13T19:00:00
TDDC78-2023-04-18  from 2023-04-18T10:15:00 to 2023-04-18T12:00:00
TDDC78-2023-04-19  from 2023-04-19T13:15:00 to 2023-04-19T15:00:00
TDDC78-2023-04-25  from 2023-04-25T10:15:00 to 2023-04-25T12:00:00
TDDC78-2023-04-26  from 2023-04-26T15:15:00 to 2023-04-26T17:00:00
TDDC78-2023-05-03  from 2023-05-03T13:15:00 to 2023-05-03T17:00:00
TDDC78-2023-05-05  from 2023-05-05T08:15:00 to 2023-05-05T10:00:00
TDDC78-2023-05-10  from 2023-05-10T13:15:00 to 2023-05-10T17:00:00
TDDC78-2023-05-11  from 2023-05-11T17:15:00 to 2023-05-11T19:00:00
TDDC78-2023-05-15  from 2023-05-15T08:15:00 to 2023-05-15T10:00:00
TDDC78-2023-05-16  from 2023-05-16T10:15:00 to 2023-05-16T12:00:00
TDDC78-2023-05-17  from 2023-05-17T13:15:00 to 2023-05-17T17:00:00
```

usereservation devel