

## Agenda

PART I - Introduction (1.5 hours) - 8:30-10:00

Xeon Phi Architecture

Programming models

Native Execution (MPI / Threads / MPI+Threads )

MPI on host and Phi

MPI on host, offload to Phi

Targeted

Automatic (MKL)

Offload to host from the Phi

LAB

Login and explore busybox

BREAK 10:00 -10:30

PART II - Native Execution (1.5 hours)

Native Execution

Why run native?

How to build a native application?

How to run a native application?

Best practices for running native

KMP\_AFFINITY

Optimization

Cache + ALU/SIMD details

Vectorization

Parallelization

Alignment

Compiler reports

LAB

Interactive exercise using compiler reports

Interactive exercise to show logical to physical proc mapping

**LUNCH 12:00 - 1:00**

PART III - Offload Execution (2 hours hours) - 1:00 - 3:00

Offload to Phi

What is offloading?

Directives

Automatic offloading with MKL

Compiler assisted offloading

Offloading inside a parallel region

LAB

Interactive exercise with simple offload and data transfer

BREAK 3:00 - 3:30

PART IV - Symmetric Execution (1.5 hours) - 3:30 - 5:00

MPI execution

Symmetric execution

Workload distribution

ibrun.sym

Correct pinning of MPI tasks on host and coprocessor

Interactive exercise showing symmetric at work

MPI + offload

Pinning tasks to host and MIC

LAB

Exercise with symmetric execution and pinning