



HiPC 2016 Student Parallel Programming Challenge **Intel Track**

Training Material and Sessions

To help with getting the best performance on Intel architectures we present a three part Video set and resources that help you to :

1. Part 1 : **Introduction to Parallel Programming**
2. Part 2 : **Intel Software tools and programming methodology for Intel® Xeon Phi™**
3. Part 3 : **The 2nd Generation Intel® Xeon Phi™ (Knights Landing) architecture and programming**

Intel will also host a web-chat “Meet the HPC experts session” on the 17th of October 2016 from 2PM – 4PM to help participants with clarifications and queries they might have on various aspects related to improving performance on their codes. Here is the link for registering for the session:

<https://attendee.gotowebinar.com/register/2240951310200227843>

Intel tools

Intel® Parallel Studio XE 2016 is a software development suite that helps boost application performance by taking advantage of the ever-increasing processor core count and vector register width available in Intel® Xeon® processors, Intel® Xeon Phi™ coprocessors and compatible processors.

To download 30 day full featured evaluation of the tools to optimize your code visit:

<https://software.intel.com/en-us/intel-parallel-studio-xe/try-buy>

Training Videos

Part-1 of Training: Introduction to Parallel Programming

Sl.no	Topics
1.	<u>Why Parallel? Why Now?</u>
2.	<u>Finding Parallelism</u>
3.	<u>Shared Memory Considerations</u>
4.	<u>Confronting Race Conditions</u>

5.	<u>Deadlocks</u>
6.	<u>OpenMP for Task Decomposition</u>
7.	<u>Reducing Parallel Overhead</u>

Part-2 of Training: Intel Software tools and programming methodology for Intel® Xeon Phi™

Sl.no	Topics
1.	<u>Programming for Today and Tomorrow, Not Yesterday</u>
2.	<u>Create Faster Code Faster – Intel® Parallel Studio XE 2017</u>
3.	<u>Vectorization Advisor</u>
4.	<u>Optimize for AVX-512 with or without AVX-512 hardware</u>
5.	<u>Advanced Topics in Vector Programming</u>
6.	<u>Intel® Threading Building Blocks (Intel® TBB)</u>
7.	<u>Best Practices in Vector Programming</u>
8.	<u>3 Keys to HPC Performance</u>
9.	<u>Additional Videos Published by Colfax International on Intel® Xeon Phi™ Coprocessors.</u>

Part-3 of Training: The 2nd Generation Intel® Xeon Phi™ (Knights Landing) architecture and programming

Sl.no	Topics
1.	<u>Knights Landing: The Second Generation Intel® Xeon Phi™</u>
2.	<u>An Intro to MCDRAM (High Bandwidth Memory) on Knights Landing</u>
3.	<u>Knights Landing – An Overview for Developers</u>