

# Cray XC Series Programming and Optimization HQ7G7S

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| <b>HPE course number</b>                          | HQ7G7S                   |
| <b>Course length</b>                              | 4 days                   |
| <b>Delivery mode</b>                              | ILT/VILT                 |
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## Why HPE Education Services?

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In this intensive hands-on course, students learn about the HPE Cray Programming Environment and how it is used on HPE Cray EX Series systems. The HPE Cray Programming Environment consists of compilers, libraries, debuggers, and analysis tools that enable developers to efficiently utilize massively parallel supercomputers at scale. The HPE Cray EX Series supercomputer is the latest high performance computing solution from HPE and is the platform for the world's first Exascale class systems. This course includes hands-on lab exercises.

## Audience

This course is intended for end users of HPE Cray EX Series systems with the HPE Cray Programming Environment.

## Course objectives

When this course is completed, a learner will be able to:

- Provide an architectural overview of the HPE Cray EX Series supercomputer including the Slingshot network
- Perform basic Lustre configuration to optimize file I/O in their applications
- List and describe the various components of the HPE Cray Programming Environment
- Use a supported workload manager (WLM) to run an application on an HPE Cray EX Series system
- Use HPE Cray compilers to build and optimize, Fortran, C, C++, or UPC applications
- Build and launch a parallel application using a supported version of MPI
- Set up an interactive debugging session of a parallel application on an HPE Cray EX Series system
- Use the comparative debugger within the HPE Cray Programming Environment

## Detailed course outline

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**Module 1: HPE Cray EX Series System Overview**

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**Module 2: Lustre Filesystem Overview**

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**Module 3: HPE ClusterStor E1000 System Overview**

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**Module 4: HPE Cray EX User Access Options**

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**Module 5: HPE Cray Programming Environment Overview**

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**Module 6: Using Supported Workload Managers on HPE Cray EX Series Systems**

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**Module 7: Compilers in the HPE Cray Programming Environment**

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**Module 8: MPI Environment in the HPE Cray Programming Environment**

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**Module 9: Debugging Tools in the HPE Cray Programming Environment**

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**Module 10: Performance Analysis and Optimization Tools in the HPE Cray Programming Environment**

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**Module 11: Scientific Libraries Included with HPE Cray Programming Environment**

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**Module 12: HPE Cray EX Node Optimization**

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