

Message-Passing Programming

EPSRC

NERC SCIENCE OF THE ENVIRONMENT

archer

CRAY
THE SUPERCOMPUTER COMPANY

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Contents

- Day 1
 - Message Passing Concepts
 - Basic MPI Programs
 - Point-to-Point Communication
 - Modes, Tags and Communicators



Contents (cont.)

- Day 2
 - Non-blocking Communication
 - Collective Communications
 - Virtual Topologies
 - Derived Datatypes
- Day 3
 - Case Study: Image processing
 - MPI design
 - Case Study (cont.) / Open Surgery



Aims

- A practical course to teach you to
 - understand the message-passing model for parallel programming
 - write parallel programs in C or Fortran using the MPI library
- You will learn this through
 - lectures
 - notes
- But **MOST IMPORTANTLY** by
 - writing and executing example MPI programs
 - each lecture has an associated practical example



Motivation

- The MPI library is the most important piece of software in parallel programming
- All of the world's largest supercomputers are programmed using MPI
- Writing parallel programs using MPI is fun!

