Motivations

Sequential code → Parallel code

Compilation Process

Initial Code

Initial Sequential Code

Mapping

Automatic

Initial Variable Elimination

Local Optimisations

Dual Code Elimination

Group Copies

Global Optimisations

Useless Communications Elimination

Array Resizing

Code Generation

MPI Code

UPC Code

X10 Code

Communications as Copies

Removing Useless Copies-Communications

Task Scheduling

Sequential: x = -1, y = 2

Parallel: x = 80

References


Contributions

- Generation of Distributed Code from Sequential Code
- Simple Step by Step Transformations
- Elimination of Useless Communications
- Optimisation of Communications
- Optimisation of Local Memory
- Semantically Equivalent Program

Results

Speed up sequential 2 procs 4 procs 8 procs