

# MARMOT

## MPI Analysis and Checking Tool

The Message Passing Interface Standard (MPI) is currently the only way to write parallel programs that scale to thousands of processors in a portable manner. Unfortunately, this way of programming is also very error prone. The reasons are lack of portability between different MPI implementations, irreproducibility of parallel programs and race conditions that occur only with hundreds of processors after several hours of run-time. Standard debuggers and tools offer little support for this type of problems. MARMOT is a tool that aims to address these problems in distributed programming using MPI.

### Design Goals of MARMOT

- scalability
  - automatic debugging is applied wherever possible
- portability
  - verify that a program is a correct MPI program, which runs on any platform with any MPI implementation
- reproducibility
  - detect possible race conditions
  - pseudo-serialize the program on user demand
- collaboration with classical debuggers
  - allow source-level debugging of the program
  - start the debugger for further analysis as soon as a deadlock is detected

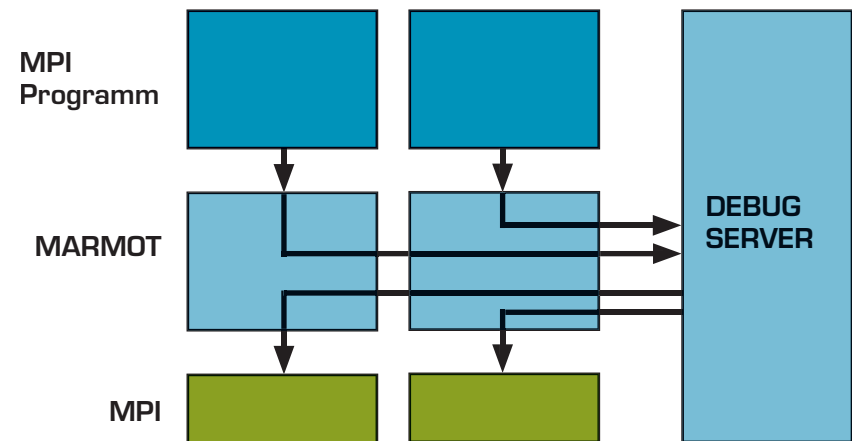
### Current Status

MARMOT supports the full MPI-1.2 standard. It checks automatically at run-time whether the application conforms to this standard and issues warnings in case of a deadlock.

### Supported Platforms

MARMOT has been tested on the following systems:

- Linux with MPICH or LAM
- NEC SX5
- IBM
- Cray T3E
- Hitachi SR8000



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