MPI — One Sided Communications

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One Sided Communications

Modern hardware can operate with *Remote Memory Access* (RMA)

- Easier implementation of some algorithms;
- Performance improvement;
- Potentially increase overlap;

In particular, RMA allows different processes to be more decoupled from each other, since there is no need for a strict handshaking protocol.

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How do they work?

- Processes have to define a *window* that is visible to other processes;
- Data transfers can be executed during an *exposure epoch*;
- Both *put* and *get* operations are available.

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```
MPI_Win_create(void *base, MPI_Aint size, int disp_unit, MPI_I
               MPI_Comm comm, MPI_Win *win)
MPI_Win_lock(int lock_type, int rank, int assert, MPI_Win win)
```

An example

```
if (me == 0) {
  MPI_Win_lock(MPI_LOCK_EXCLUSIVE, 1, assert, win);
  MPI_Put(sendbuf, size, type, 1, 0, size, type,win);
  MPI_Win_unlock(1, win);
 }
```

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