

**Step1-4:** Same to Step1-4 in Figure 4

**Result 1-4:** The arrays of ordered receiving cell IDs, receiving process IDs, sending cell IDs, and sending process IDs

**Loop 1:** The loop size is the count of sending process IDs

Loop 1 is completed

Loop 1 is continuing

**Result 5:** A sending operation is launched

**Step5:** Sending data to a single process with the non-blocking MPI point-to-point sending interface

**Loop 2:** The loop size is the count of receiving process IDs

Loop 2 is completed

Loop 2 is continuing

**Result 6:** A receiving operation is completed

**Step6:** Receiving data from a single process with the MPI blocking point-to-point receiving interface

End

