
Parallel Swap

```
In[47]:= generateExpression[length_] := ToString[N[Pi, length], InputForm]

SwapProgram[pass_] := Module[{a, b, sendreq, recvreq, oldTime, elapsedTime},
  (* send/rcv simulateously with ISend/IRecv *)
  a = Evaluate[generateExpression[2^pass]];
  If[0 == Mod[idproc, 2],
    (* note: the third argument is a tag *)
    (* even nodes *)
    mpiIRecv[b, idproc + 1, idproc + 1, mWorld, recvreq];
    mpiISend[a, idproc + 1, idproc, mWorld, sendreq],
    (* odd nodes *)
    mpiIRecv[b, idproc - 1, idproc - 1, mWorld, recvreq];
    mpiISend[a, idproc - 1, idproc, mWorld, sendreq]];
  mpiWait[sendreq];
  mpiWait[recvreq];
  mpiGather[{$IdProc, a, b}]
]
```

```
In[52]:= SwapProgram[2]
```

```
Out[52]= {{0, 3.1415926535897932384626433832795028842`4., b$8923},
 {1, 3.1415926535897932384626433832795028842`4., b$8257},
 {2, 3.1415926535897932384626433832795028842`4., b$8257},
 {3, 3.1415926535897932384626433832795028842`4., b$8244},
 {4, 3.1415926535897932384626433832795028842`4., b$8257},
 {5, 3.1415926535897932384626433832795028842`4., b$8257},
 {6, 3.1415926535897932384626433832795028842`4., b$8257},
 {7, 3.1415926535897932384626433832795028842`4., b$8244}}
```