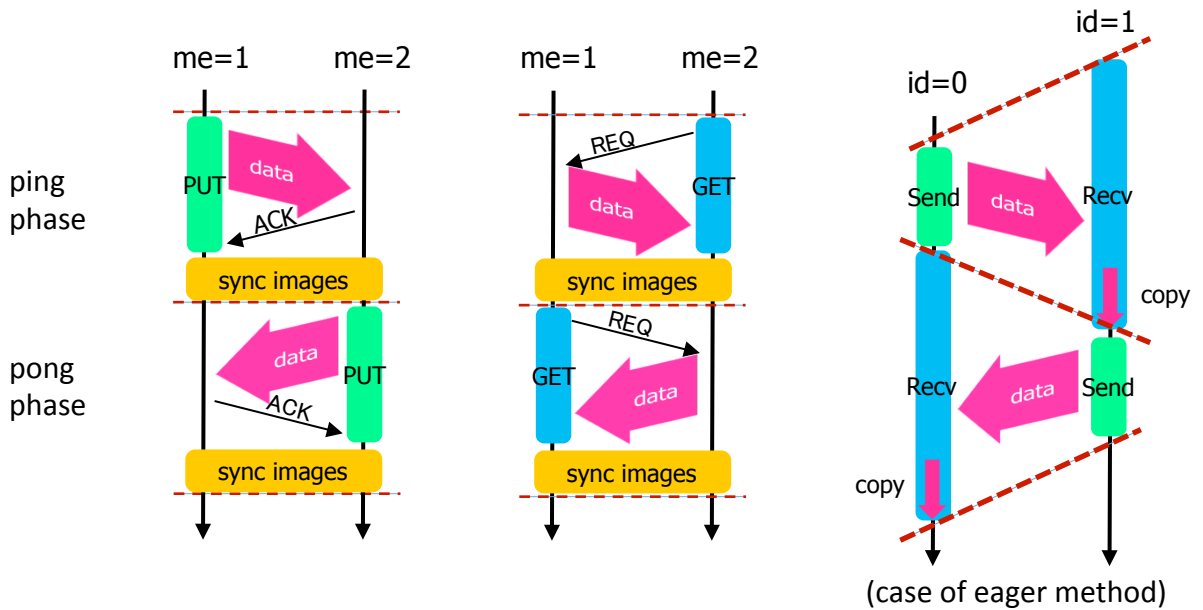
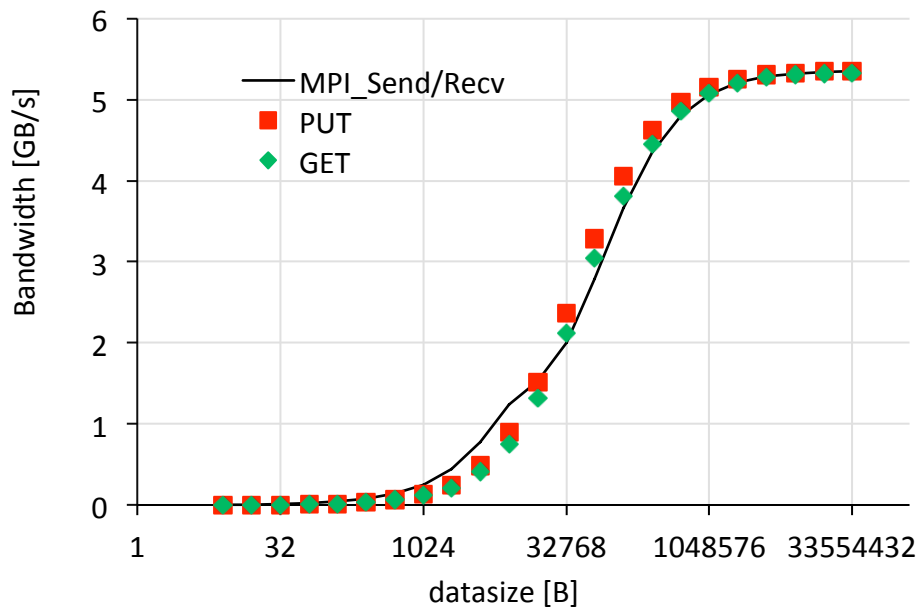
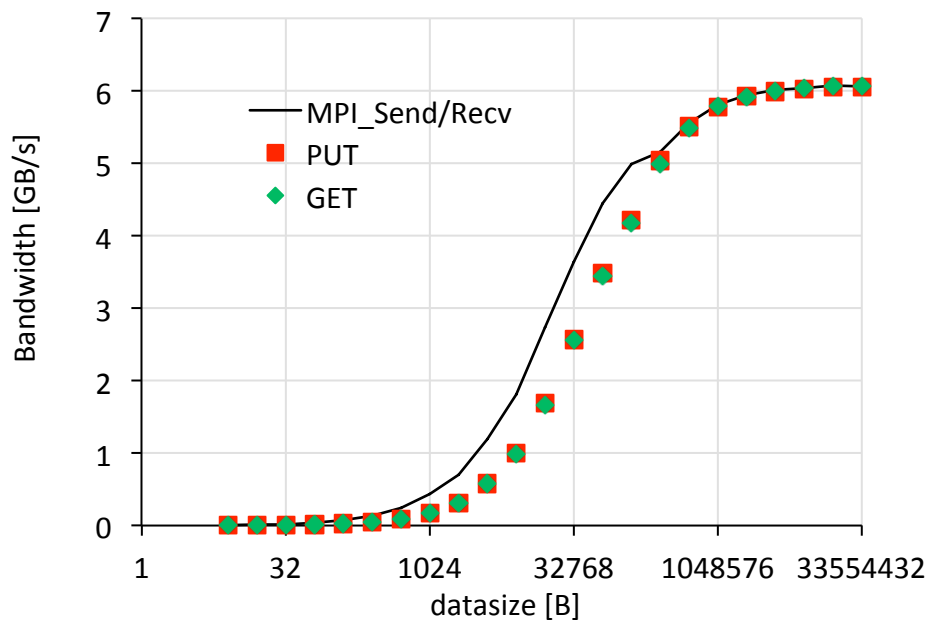


	PUT version	GET version	MPI version
ping phase	<pre> if (me == 1) then x(1:n)[2] = x(1:n) sync images(2) else if (me == 2) then sync images(1) end if </pre>	<pre> if (me == 1) then sync images(1) else if (me == 2) then x(1:n) = x(1:n)[1] sync images(1) end if </pre>	<pre> if (id == 0) then call MPI_Send(x, n, ... 1, ...) else if (id == 1) then call MPI_Recv(x, n, ... 0, ...) end if </pre>
pong phase	<pre> if (me == 1) then sync images(2) else if (me == 2) then x(1:n)[1] = x(1:n) sync images(1) end if </pre>	<pre> if (me == 1) then x(1:n) = x(1:n)[2] sync images(2) else if (me == 2) then sync images(1) end if </pre>	<pre> if (id == 0) then call MPI_Recv(x, n, ... 1, ...) else if (id == 1) then call MPI_Send(x, n, ... 0, ...) end if </pre>

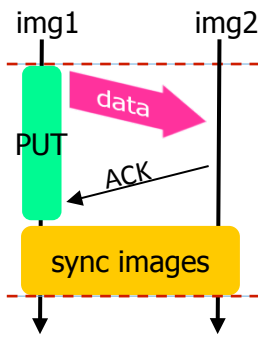




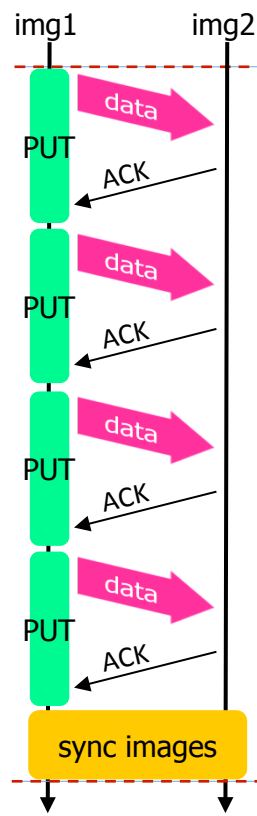
**(a) PRIMEHPC FX100
(FJ-RDMA, CA-method)**



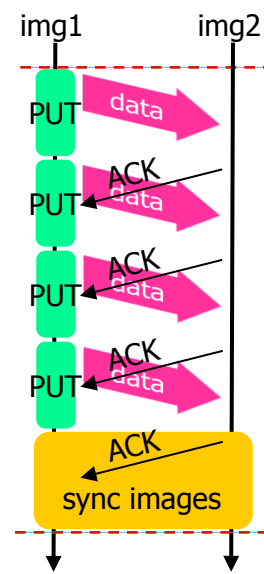
(b) HA-PACS
(MPI-3, RS-method)



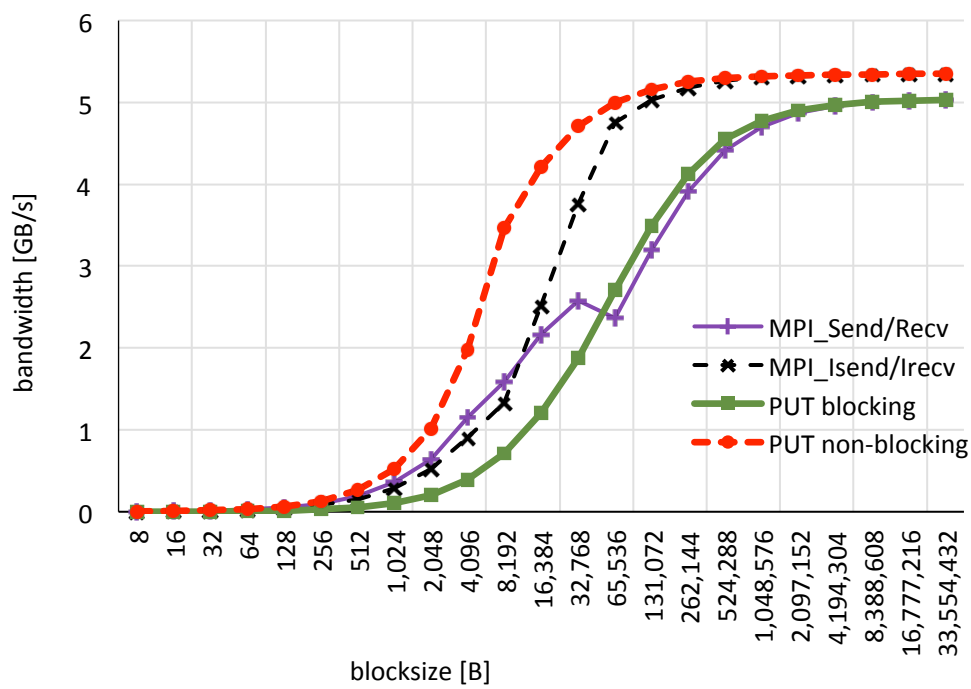
(a) 1-variable/
blocking



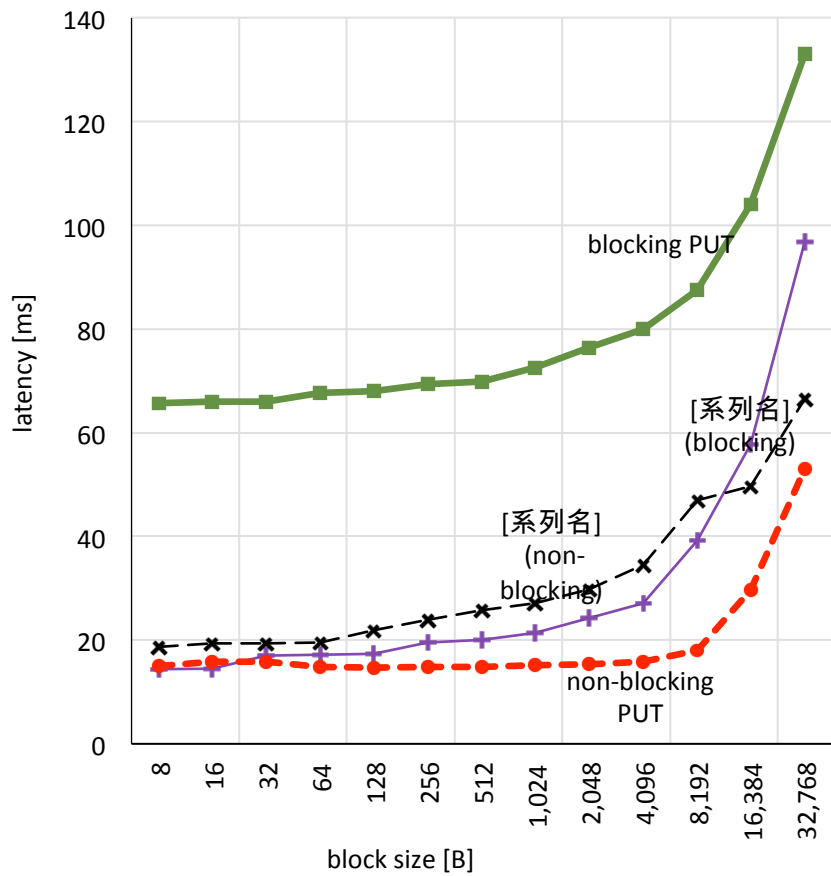
(b) n -variable/
blocking



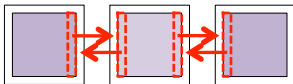
(c) n -variable/
nonblocking

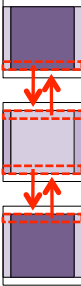


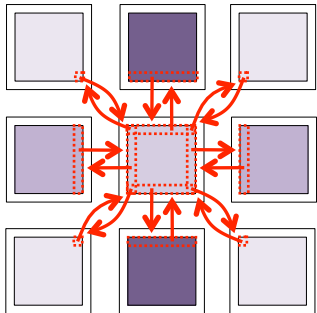
PRIMEHPC FX100
8-var Ping-pong

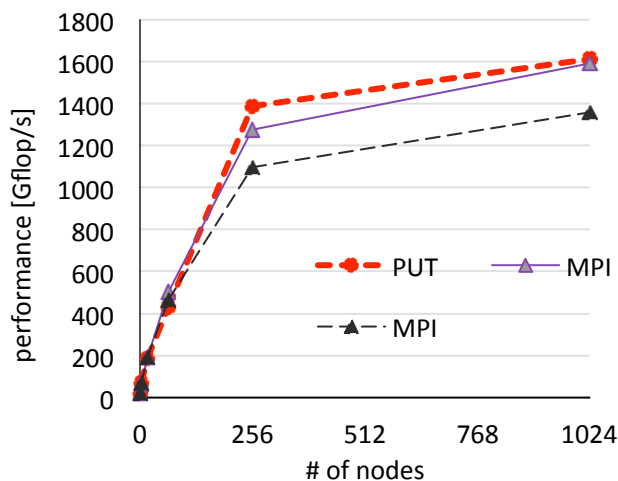


PRIMEHPC FX100
8-variable Ping-pong

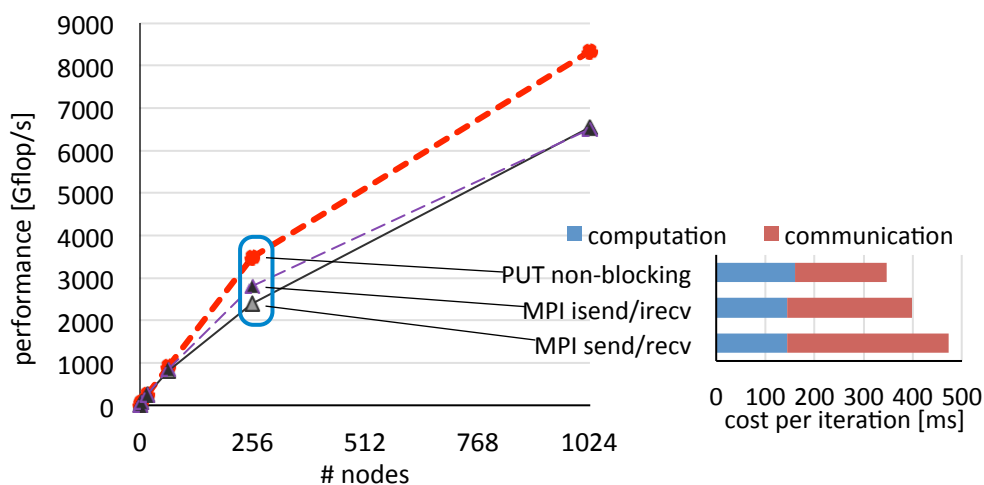




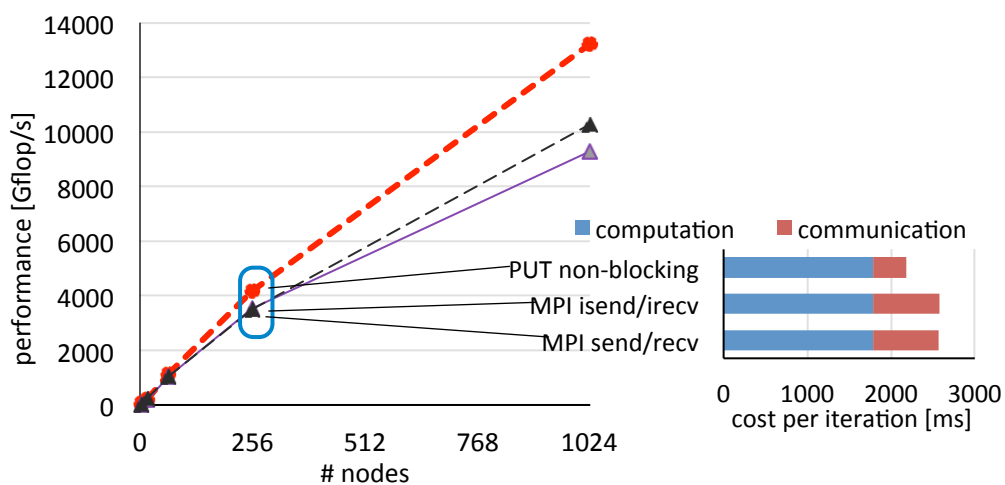




(a) Himeno Size-M (256x128x128)



(b) Himeno Size-L (512x256x256)

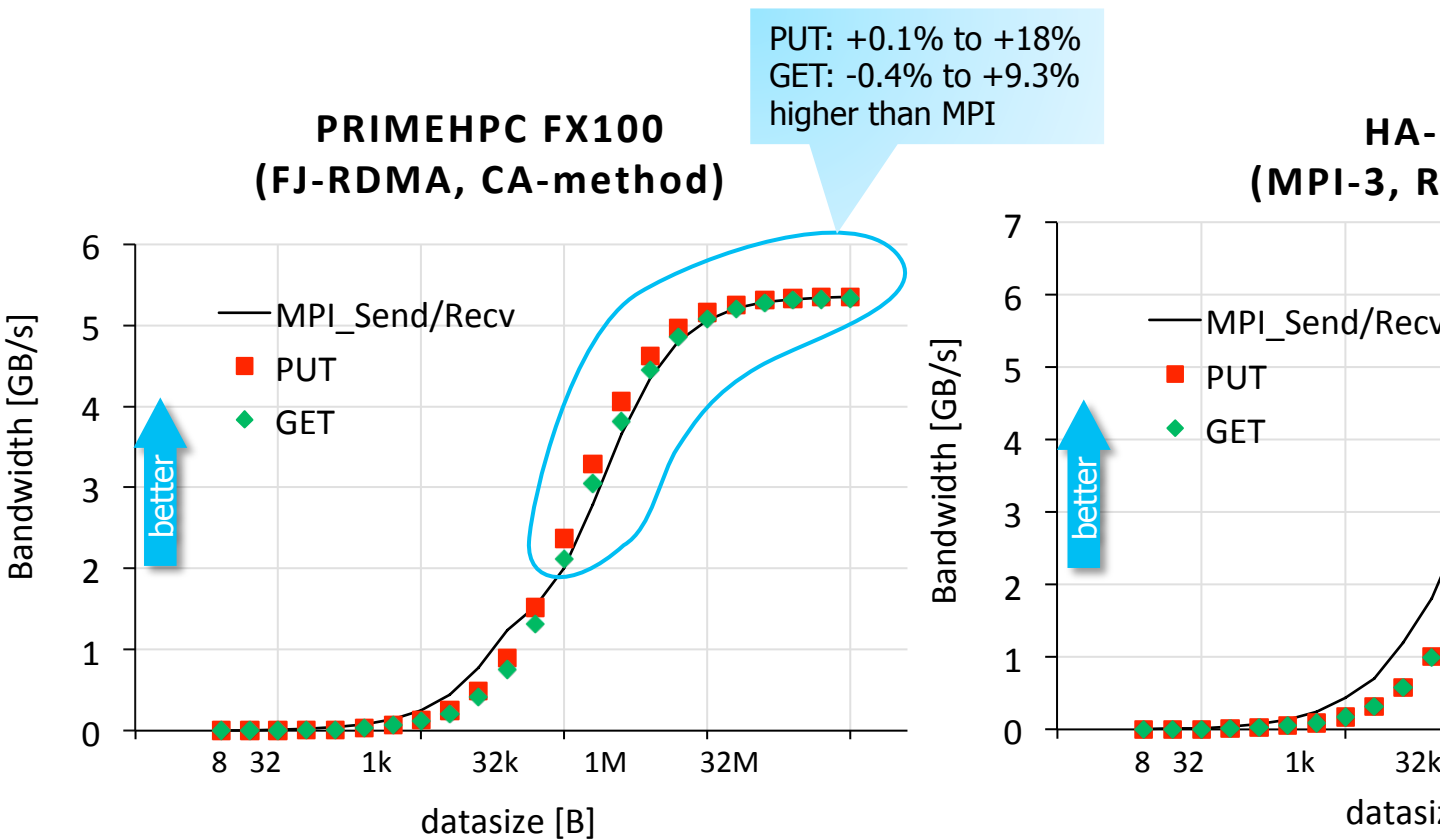


(c) Himeno Size-XL (1024x512x512)

予備

- Result

- One-sided communication slightly outperforms MPI rendezvous for large data.

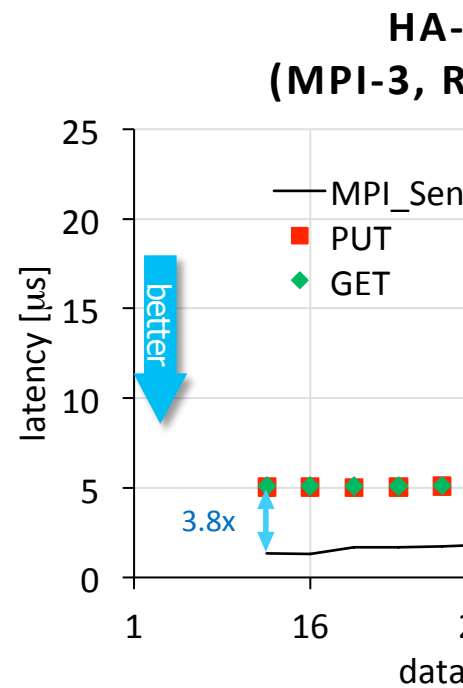
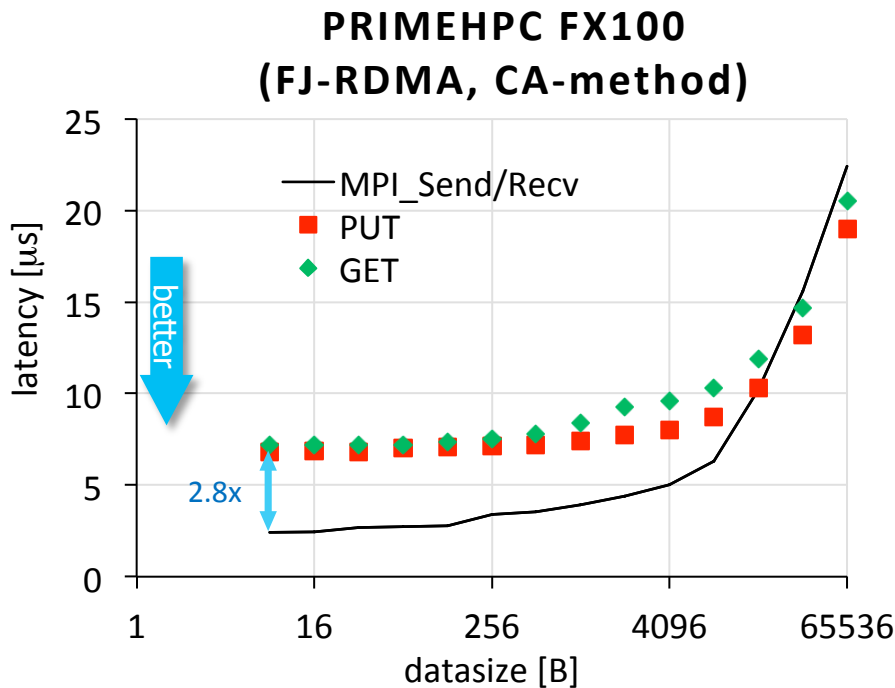


- Result

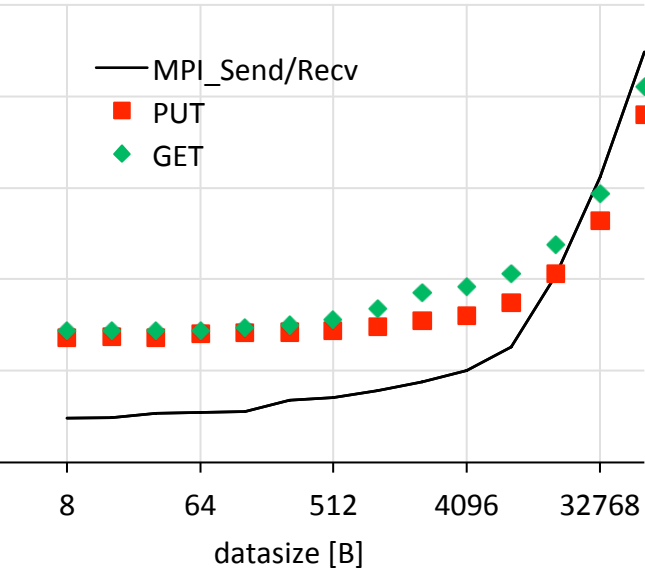
- For small data, PUT and GET are several times slower than MPI

- Issue

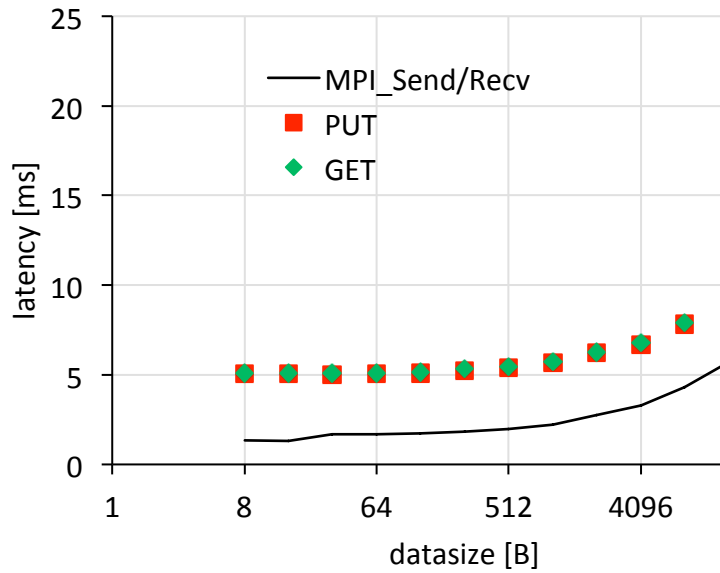
- Analysis of the reason
 - Modification of the ping-pong program and improvement of the



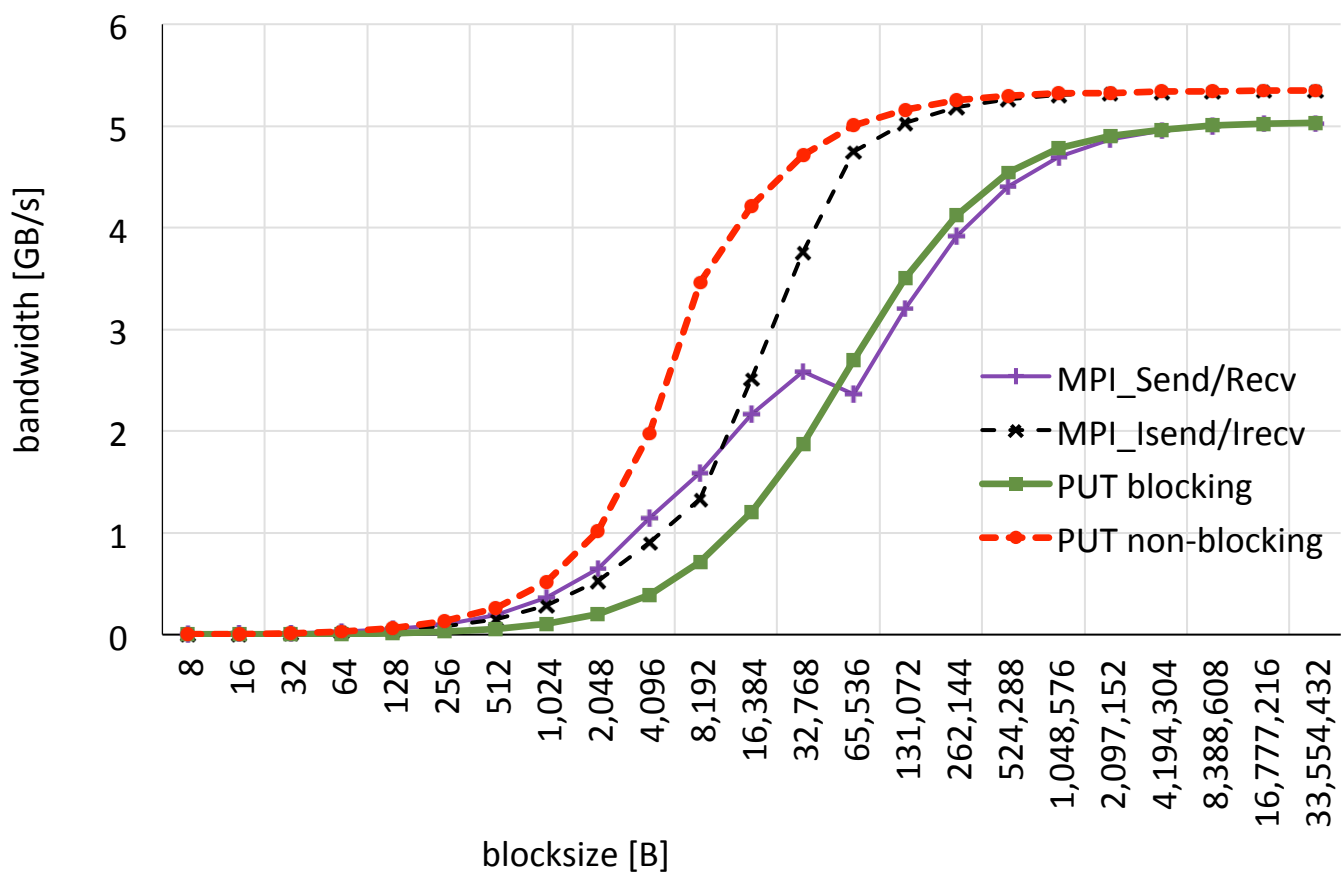
PRIMEHPC FX100
(FJ-RDMA, CA-method)



HA-PACS
(MPI-3, RS-method)



PRIMEHPC FX100
8-var Ping-pong



XMP runtime library

communication library

hardware interface

