TTL_PAPERS Operation	**Latency for 4 PEs (microseconds)**	**Latency for *n* PEs (microseconds)**
Partition	0.1	0.1
Barrier Synchronization	2.5	2.5
ANY Test	6.3	6.3
ALL Test	6.3	6.3
4-bit Global OR	6.3	6.3
1-bit Multibroadcast	6.3	6.3 * ceil(*n* / 4)

TTL_PAPERS Operation	**Bandwidth for 4 PEs (bytes/s per PE)**	**Bandwidth for *n* PEs (bytes/s per PE)**
Broadcast	78K	78K
Permutation	20K	78K / *n*
Arbitrary Multibroadcast	20K-78K	78K / (*number of sources*)
Global OR	78K	78K