

Illinois Fast Messages on 1Gbps Fibre Channel

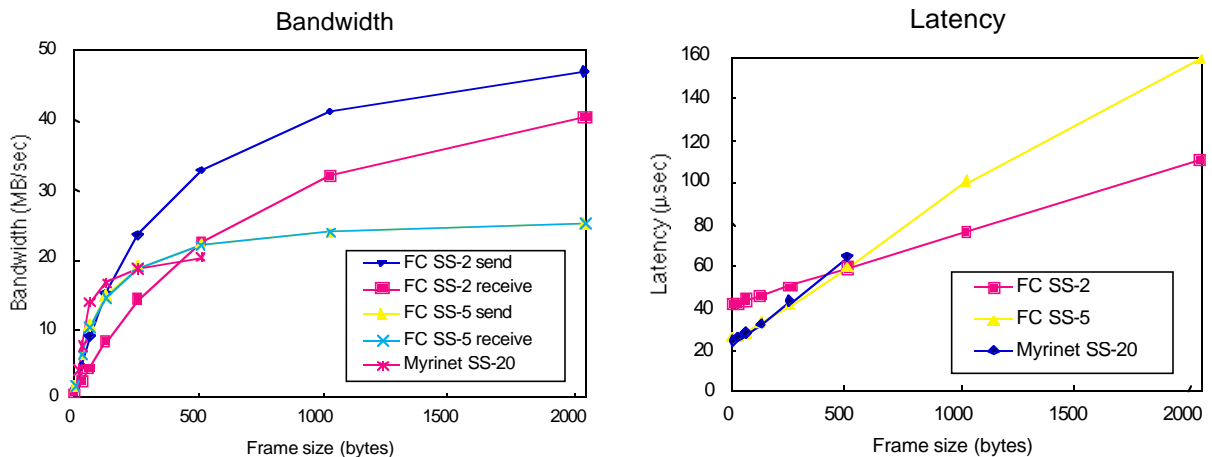
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Abstract

Yet another Illinois Fast Messages (FM) implementation on a 1Gbps Fibre Channel (FC) based cluster system is discussed. We have developed a 1Gbps FC adapter for SBus and implemented a variant of FM version 1.1 on the adapter. The evaluation result shows the system has achieved a comparable or better performance to the Myrinet FM, and more, demonstrated a possibility to realize hundreds-mega-bytes-per-second FM.

Our investigation aim is to clarify the possibility of using standard networks for cost and DMA for better bandwidth. To reduce the DMA control overhead, our adapter supports some sophisticated multiple area DMA facility. To eliminate the DVMA memory management overhead, we have added a tip, the zero copy principle, to the FM. The combination of these considerations has brought a good result in both the bandwidth and the latency. As a next step, we are building a PCI version of 1Gbps FC adapter that should realize the 100MB/sec bandwidth.

network adapter	1Gbps (100MB/s) Fibre Channel (FC1 compatible interface) Full hardware supported framing control SBus DVMA with block transfer mode Multiple area DMA facility
computer	SS-2 with SunOS 4.1.3_U1 (64-byte-block DMA) SS-5 with SunOS 4.1.3_U1 (32-byte-block DMA)
connection	point to point



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