Status of the EVM/RCN Project

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Reliable Broadcast Library (I.S.)

- Still working on UDP/FastEthernet version
- Bug fixes
  - Recovery from ’Repair Request’ drops
  - Avoiding lengthy drop of sequential packets
- Design changes
  - Better option setting
- Still needs
  - Tuning buffer depth at several places
  - Safety mechanism for ’ACK’ packet drops
  - Design change to allow multiple instances

Reliable Broadcast Library (cont'd)

- It passed preliminary reliability tests
  - Continuous sending (by I.S.)
  - Repeating short burst w/ various packet length (by J.G.)
- Still malfunctioning at high rate (1MHz trigger)
- Implementation on IEEE1394 asynchronous mode is not yet done due to technical problems

Simulation – CNCL (M.L.)

- Comparison w/ XDAQ benchmark tests
  - up to 4x4+1 system, GM on Lanai7 NICs
  - a latency parameter tuned w/ 1x1 configuration works well up to 4x4 configuration

1x1

R\NumGather	1	4	16	64
1	8/10.7=0.7	23/27.3=0.8	43/43.9=1.0	56/52.1=1.1
4	23/23.7=1.0	48/49.3=1.0	62/68.0=0.9	66/68.1=1.0
16	25/25.2=1.0	48/49.4=1.0	61/65.0=0.9	
64	25/25.4=1.0			

4x4

R\NumGather	1	4	16	64
1	23/27.9=0.8	45/43.7=1.0	61/57.4=1.1	67/57.0=1.2
4	40/37.6=1.1	59/55.6=1.1	67/62.4=1.1	69/54.1=1.3
16	40/39.0=1.0	59/56.6=1.0	66/62.4=1.1	
64	40/39.1=1.0			

Simulation – CNCL (cont'd)

- Barrel shifter for data traffic was implemented
- Future plan
  - Barrel shifter for control messages
  - Parameter tuning + fixes
  - Rerun test cases
  - Code freeze and put into CVS

Simulation – Ptolemy (S.A., M.L., C.M.)

- Preliminary implementation of the BM and the XDAQ control messages
  - with consultation of S.Erhan and A.Oh
  - debugging underway
- Next steps
  - Run the simulator and compare results w/ XDAQ benchmarks, scaling studies
  - RM + RCN implementation
- We need concrete/detailed goals of the simulation study

Future Work

- More reliability/timing tests of the reliable broadcast library
- Putting IEEE1394 into the library
- XDAQ benchmarks w/ RCN
- Extending Ptolemy simulator for the EVM study
- ...and we provide all necessary EVM related materials for the TDR draft

Future Work (cont'd)

- Milestones
  - RCN in Ptolemy simulator − 2001/Q4
  - RCN integration to the vertical demonstrator − 2002/Q1
  - Test setup for the GTP I/F − 2002/Q2
  - Full simulator/test bench comparison − 2002/Q2
- Decisions to be made soon
  - EVM−GTP I/F design
  - Barrel shifter in the EVM test bench
  - How to make simulator/test bench comparison. (Barrel shifter w/o XDAQ, GM w/ XDAQ or barrel shifter w/ XDAQ.)

Summary

- J.Gutleber's visit at Fermi helped the RCN software development a lot.
- The reliable broadcast library is ready to be tested w/ XDAQ now.
- More effort was assigned to the simulation project recently and progress should be faster.