

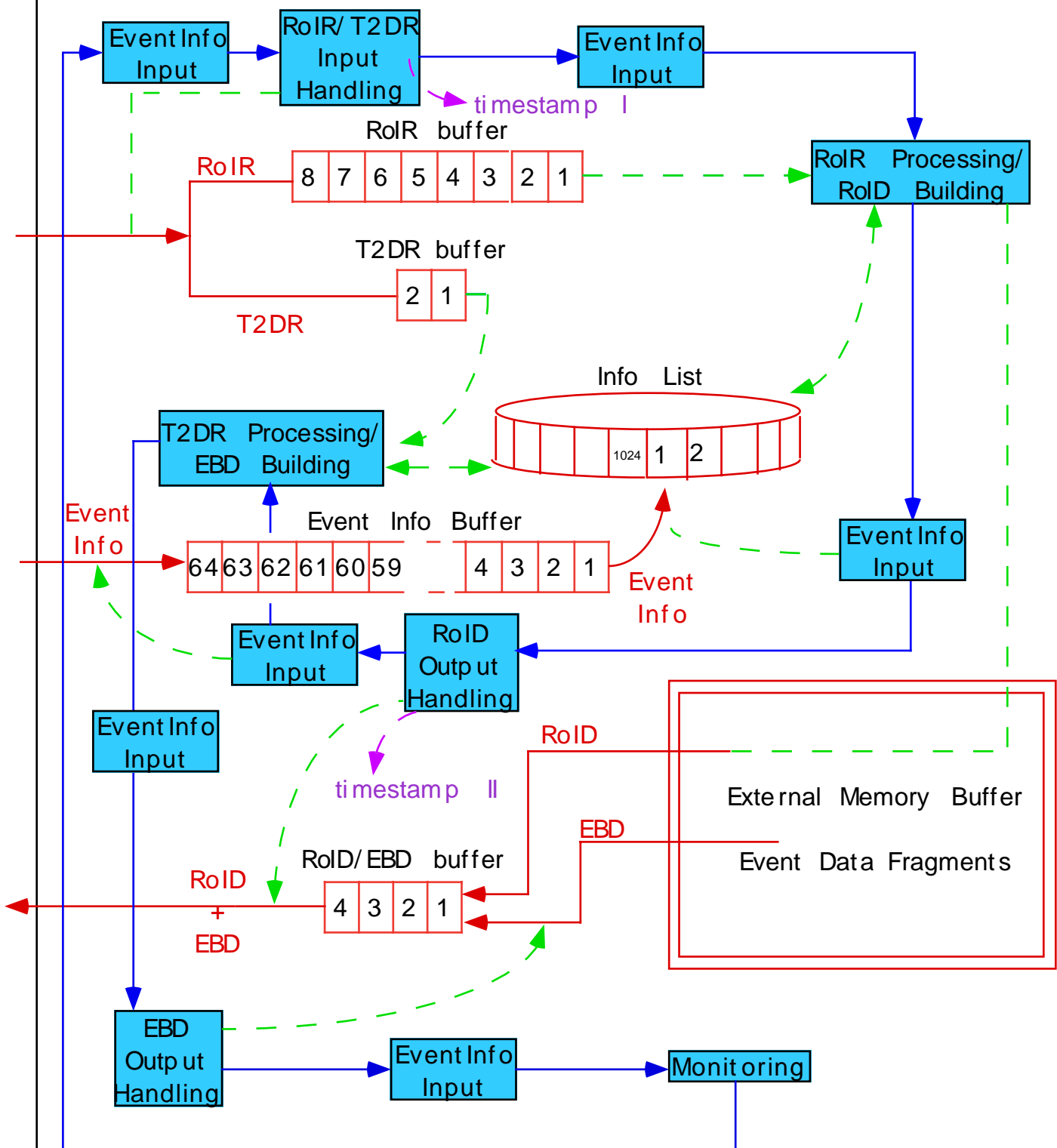
Simdaq : new developments

Detailed model of the CRUSH (SHARC based ROBIN) available, but requires somewhat more work. Developed by Roelf Slopsema

```
Parameters EM_CalLocal CRUSH
Specific 0 InternalBusSpeed 0.025
Specific 0 EventInfoInputSpeed 0.00625 EventInfoDMAStartUpTime 2.0
Specific 0 SHARCLinkSpeed 0.025
Specific 0 DMAStartUpTime 2.0
Specific 0 ProcessTimeA1 0.25 ProcessTimeA2 2.49
Specific 0 ProcessTimeB 0.40
Specific 0 ProcessTimeC1 0.96 ProcessTimeC2 0.26 ProcessTimeC3 0.13
Specific 0 ProcessTimeD1 0.96 ProcessTimeD2 0.20 ProcessTimeD3 1.23
Specific 0 ProcessTimeD4 0.51 ProcessTimeD5 0.26
Specific 0 ProcessTimeE1 1.47 ProcessTimeE2 2.22 ProcessTimeE3 0.25 ProcessTimeE4 0.60
Specific 0 ProcessTimeE5 0.60 ProcessTimeE6 0.15 ProcessTimeE7 0.60 ProcessTimeE8 0.60
Specific 0 ProcessTimeF1 0.43 ProcessTimeF2 1.33 ProcessTimeF3 0.98 ProcessTimeF4 0.24
Specific 0 ProcessTimeF5 1.31 ProcessTimeF6 0.25 ProcessTimeF7 1.15 ProcessTimeF8 0.28
Specific 0 ProcessTimeF9 1.34 ProcessTimeF10 0.28 ProcessTimeF11 1.18 ProcessTimeF12 0.50
Specific 0 ProcessTimeG1 2.83 ProcessTimeG2 0.30 ProcessTimeG3 0.30 ProcessTimeG4 2.95
Specific 0 ProcessTimeG5 0.45 ProcessTimeG6 0.45 ProcessTimeG7 0.26
Specific 0 ProcessTimeH 1.00
```

44 parameters ! Results from 710 different runs available

CRUSH :



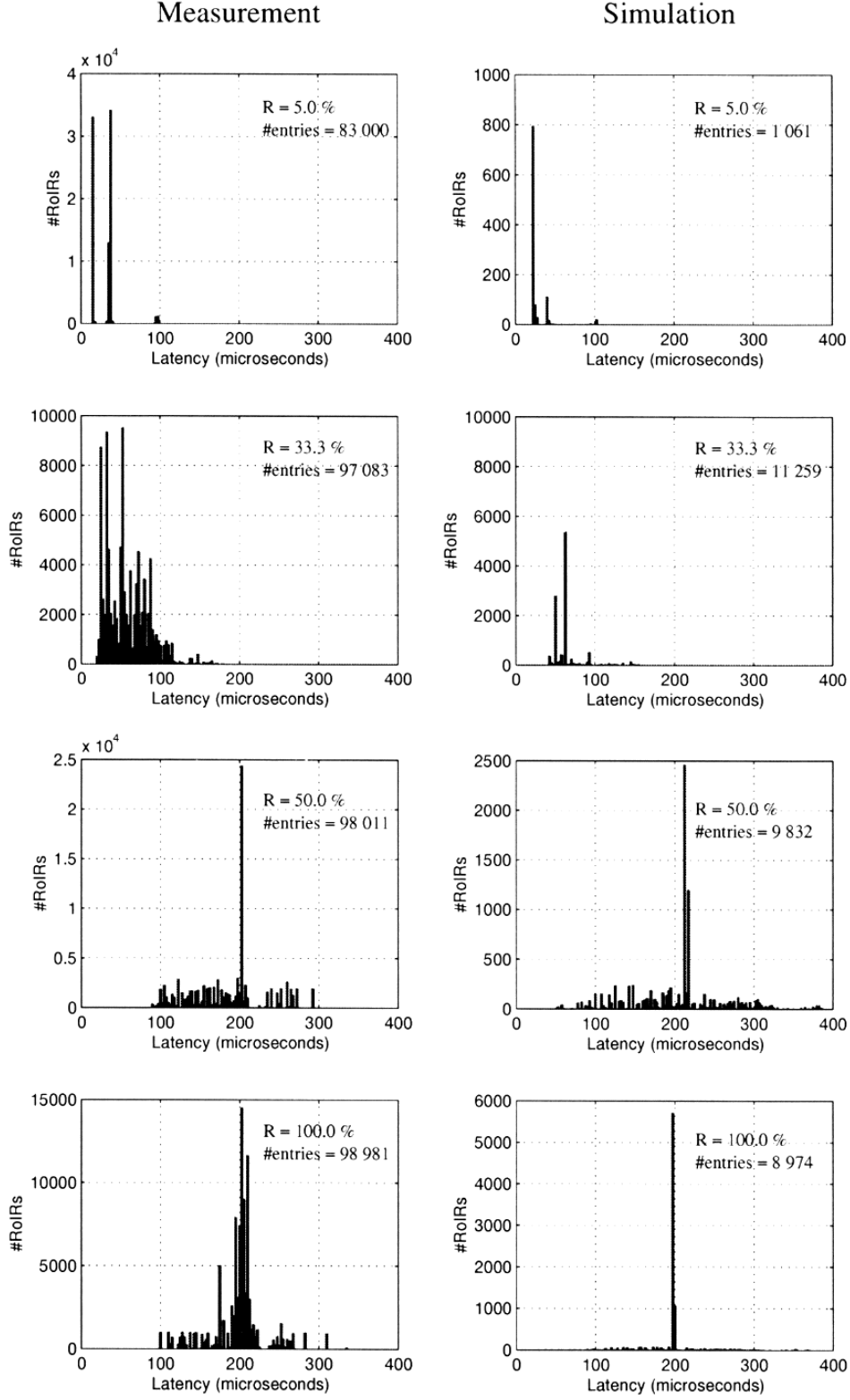


Figure 6.1: *Latency distributions for an event size of 512 Bytes, an accept fraction of 1%, and RoIR fractions of 5, 33, 50, and 100%. The plots on the left are measurement results, the ones on the right are simulation results.*

Simdaq : new developments

- Added new PPTestbedProcessor object with processing as in testbed farm processors
- Added support for testbed-like operation of supervisor
- Found and removed bug in process scheduler object (probably no effect on results on full generic model)
- Simulation of Ethernet based testbed with model similar to Ptolemy model, starting from same parameters. Good agreement with results documented in DAQ note, also good agreement with other testbed measurements for which the Ptolemy model also has been run.. Total # of different configurations : 122

400Mhz 1 super 1 ROBIN 1 steering

[illegible][illegible]

[illegible][illegible]

1 supervisor: 1 outstanding; 1 steering: 3 worker threads - changing number of ROBs per ROI

Rate (kHz) nb of Robs	64 bytes			512 bytes		
	atb	Ptolemy	simdaq	atb	Ptolemy	simdaq
2	2155	2329	1998	1429	1757	1371
3	2039	2177	1868	1246	1590	1205
4	1948	2043	1754	1109	1451	1075
5	1833	1924	1653	992	1335	971
6	1732	1820	1562	901	1237	885
7	1651	1699	1482	825	1151	813
8	1584	1563	1409	762	1047	751

Error (%) nb of Robs	64 bytes			512 bytes		
	atb	Ptolemy	simdaq	atb	Ptolemy	simdaq
2		8.1	-7.3		23.0	-4.1
3		6.8	-8.4		27.6	-3.3
4		4.9	-10.0		30.8	-3.1
5		5.0	-9.8		34.6	-2.1
6		5.1	-9.8		37.3	-1.8
7		2.9	-10.2		39.5	-1.5
8		-1.3	-11.0		37.4	-1.4

2 supervisors: 8 outstanding; 4 steering: 3 worker threads - changing number of ROBs per ROI

Rate (kHz)	64 bytes			512 bytes		
nb of Robs	atb	Ptolemy	simdaq	atb	Ptolemy	simdaq
2						
3						
4	11159	11168	11214	6987	7044	7074
5	11070	11168	11214	6963	7043	7073
6	11066	10152	11208	6773	6348	6723
7	10554	8992	10373	6003	5555	5985
8	9483	8072	9533	5386	4936	5386

Error (%)	64 bytes			512 bytes		
nb of Robs	atb	Ptolemy	simdaq	atb	Ptolemy	simdaq
2						
3						
4		0.1	0.5		0.8	1.2
5		0.9	1.3		1.1	1.6
6		-8.3	1.3		-6.3	-0.7
7		-14.8	-1.7		-7.5	-0.3
8		-14.9	0.5		-8.4	0.0