Data Mining
Massively Parallel, Fine Grained Apriori Association Rule Mining
Damon Bruccoleri – Sponsor: Dr. Junping Sun

ABSTRACT
The overall research project proposes to degenerate the Apriori Association Rule Mining algorithm into FPGA circuits capable of fine grained parallel processing. A recurring requirement of the algorithm is to find the support count of item-sets from the transaction database. A support count of one candidate item-set is normally accomplished in O(n) asymptotic time. This research specifically presents the results of a prototype of support counting algorithms.

Objective: Degenerate the Apriori Algorithm into a parallelizable hardware implementation.

Advantage: High Speed, SCALABLE.

Platform: Altera Cyclone II EP2C20F484C7 FPGA, Quartus Synthesis tool, Verilog HDL, running on Terasic DE1 University Board at 50Mhz.

Future Work: Systolic approach using memory vs registers, implement candidate generation, pruning…. Application: Specific to Degenerate the Apriori Algorithm into FPGA circuits capable of fine grained parallel processing. The Transaction database is a list of basket items: T100: A,B T200: A,D,E T300: A,B,E T400: B,D,F T500: A,B,E

REFERENCES