CMPEN 431

Project 1

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The provided framework and its components enable design space exploration by easily allowing us to change cache sizes and subsequent latencies. Although adjusting every parameter and running tests on it is not possible, the heuristic we used allowed us to look at the different

The design space chosen by our DSE for performance was configuration 0 0 2 2 0 6 0 2 3 1 0 0 4 2 3 1 5 4 (proposedGeoEDP=4.099e-08, bestEDP=3.91484e-08, proposedGeoTime=0.00019431, bestTime=0.000194057)

The design space chosen by our DSE for energy was configuration 0 0 2 2 0 5 0 1 3 1 0 0 3 3 2 1 4 3 (proposedGeoEDP=4.04925e-08, bestEDP=3.84011e-08, proposedGeoTime=0.000203431, bestTime=0.000197122)

Performance run on school comp: Iter # 72 config: 0 0 2 1 0 6 0 2 3 1 0 0 4 3 4 0 5 4 : running simulation

proposedGeoEDP=4.87324e-08, bestEDP=4.68223e-08, proposedGeoTime=0.000217074, bestTime=0.00021687

returned the same configuration

energy run on school comp: Iter # 75 config: 0 0 2 1 0 5 0 1 3 1 0 0 4 3 4 0 4 3 : running simulation

proposedGeoEDP=4.54715e-08, bestEDP=4.54045e-08, proposedGeoTime=0.000219469, bestTime=0.000219267

returned the same configuration

Plots

|  |  |  |
| --- | --- | --- |
| Parameter | Performance | EDP |
| Width | Value = 0  Why = | Value = 0  Why = |
| Scheduling | Value = 0  Why = | Value = 0  Why = |
| L1block | Value = 2  Why = | Value = 2  Why = |
| Dl1sets | Value = 2  Why = | Value = 2  Why = |
| Dl1assoc | Value = 0  Why = | Value = 0  Why = |
| Il1sets | Value = 6  Why = | Value = 5  Why = |
| Il1assoc | Value = 0  Why = | Value = 0  Why = |
| Ul2sets | Value = 2  Why = | Value = 1  Why = |
| Ul2block | Value = 3  Why = | Value = 3  Why = |
| Ul2assoc | Value = 1  Why = | Value = 1  Why = |
| Replacepolicy | Value = 0  Why = | Value = 0  Why = |
| Fpwidth | Value = 0  Why = | Value = 0  Why = |
| branchsettings | Value = 4  Why = | Value = 3  Why = |
| Ras | Value = 2  Why = | Value = 3  Why = |
| Btb | Value = 3  Why = | Value = 2  Why = |
| Dl1lat | Value = 1  Why = | Value = 1  Why = |
| Il1lat | Value = 5  Why = | Value = 4  Why = |
| Ul2lat | Value = 4  Why = | Value = 3  Why = |

A better heuristic to more efficiently explore the design space might be

Some insights we gained while working on this project is

Resources we used are