



TECHNISCHE UNIVERSITÄT HAMBURG

PROBLEM-BASED LEARNING

Advanced System-on-Chip Design

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Advanced System-on-Chip Design

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1 Cache Simulation - Results

1.1 Column Major

Placement (Policy)	Cache Block Size (Words)	Cache Hit Count	Cache Miss Count	Cache Hit Rate
Direct Mapping	2	0	256	0
Direct Mapping	4	0	256	0
Direct Mapping	8	0	256	0
Direct Mapping	16	0	256	0
2-Way Set Associative	2	0	256	0
2-Way Set Associative	4	0	256	0
2-Way Set Associative	8	0	512	0
2-Way Set Associative	16	0	256	0
4-Way Set Associative	2	0	256	0
4-Way Set Associative	4	0	256	0
4-Way Set Associative	8	0	256	0
4-Way Set Associative	16	0	256	0

1.2 Row Major

Placement (Policy)	Cache Block Size (Words)	Cache Hit Count	Cache Miss Count	Cache Hit Rate
Direct Mapping	2	128	128	50
Direct Mapping	4	192	64	75
Direct Mapping	8	224	32	88
Direct Mapping	16	240	16	94
2-Way Set Associative	2	128	128	50
2-Way Set Associative	4	192	64	75
2-Way Set Associative	8	224	32	88
2-Way Set Associative	16	240	16	94
4-Way Set Associative	2	128	128	50
4-Way Set Associative	4	192	64	75
4-Way Set Associative	8	224	16	88
4-Way Set Associative	16	240	16	94

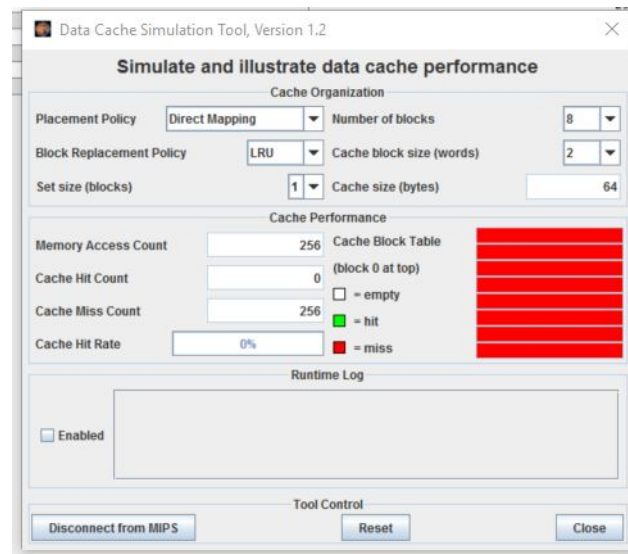


Abbildung 1: Column Major, Direct Mapping, Cache Block Size 2

2 Appendix

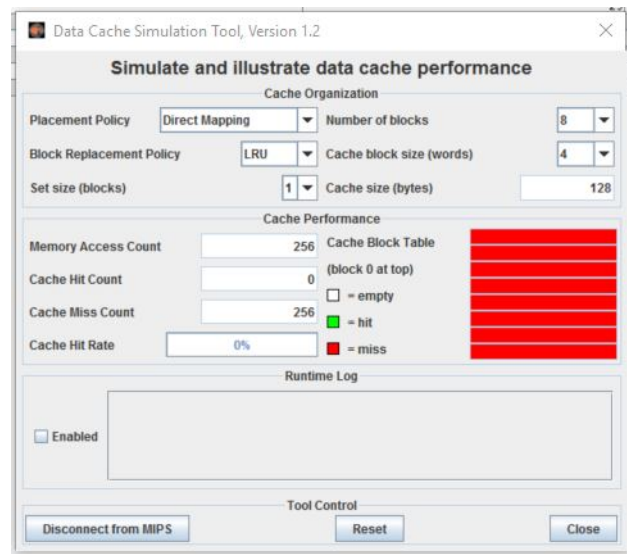


Abbildung 2: Column Major, Direct Mapping, Cache Block Size 4

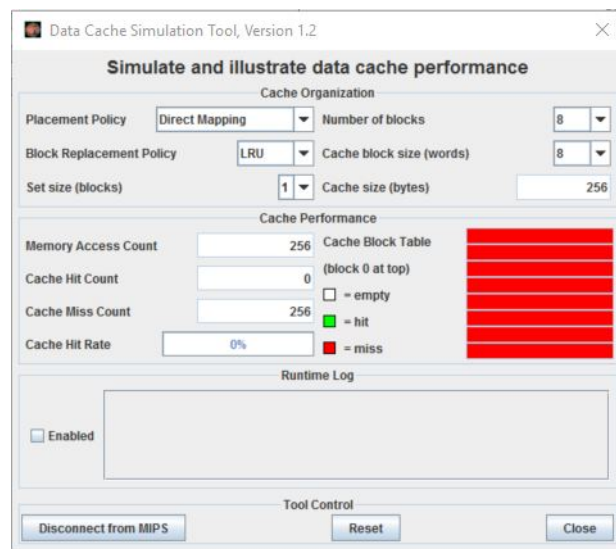


Abbildung 3: Column Major, Direct Mapping, Cache Block Size 8

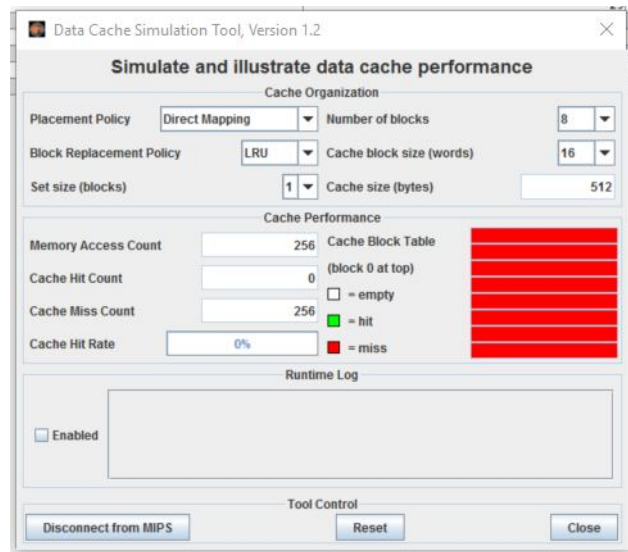


Abbildung 4: Column Major, Direct Mapping, Cache Block Size 16

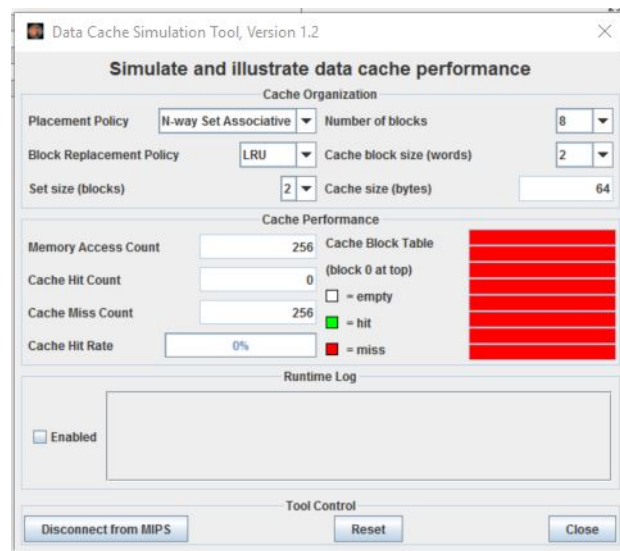


Abbildung 5: Column Major, 2-Way Associative, Cache Block Size 2

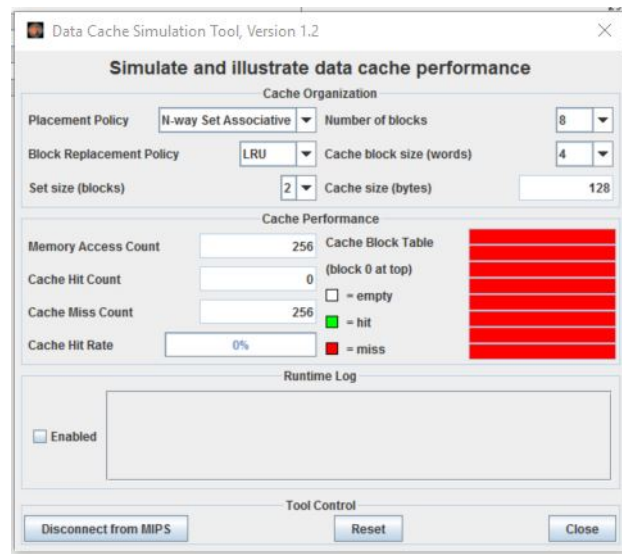


Abbildung 6: Column Major, 2-Way Associative, Cache Block Size 4

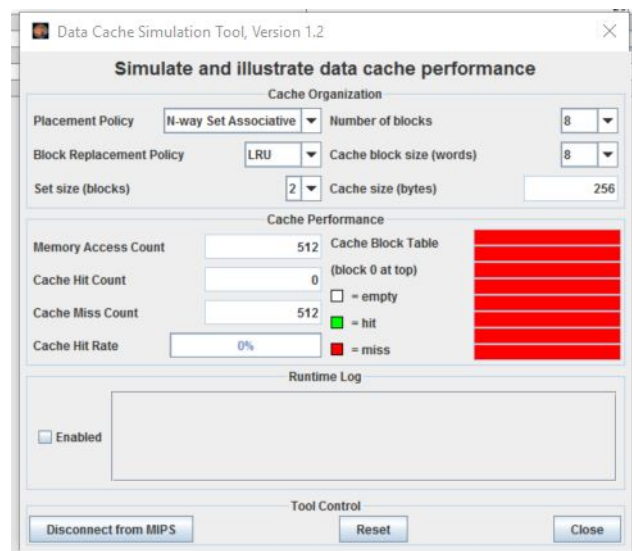


Abbildung 7: Column Major, 2-Way Associative, Cache Block Size 8

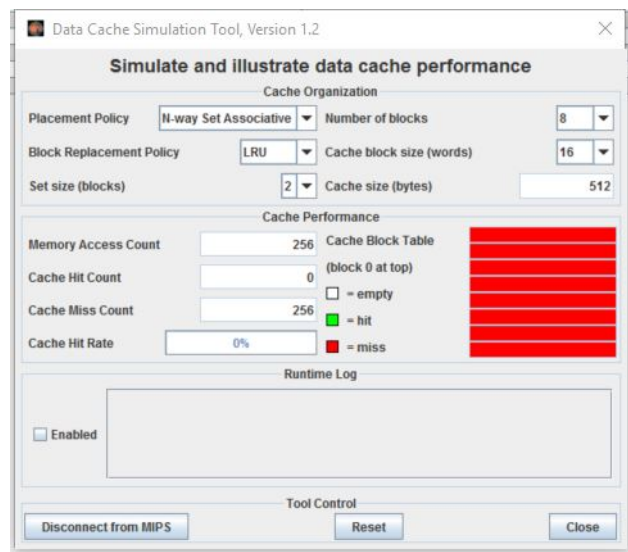


Abbildung 8: Column Major, 2-Way Associative, Cache Block Size 16

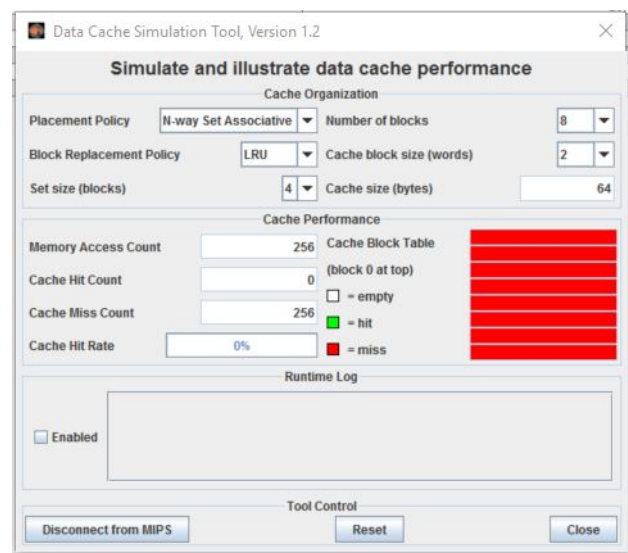


Abbildung 9: Column Major, 4-Way Associative, Cache Block Size 2

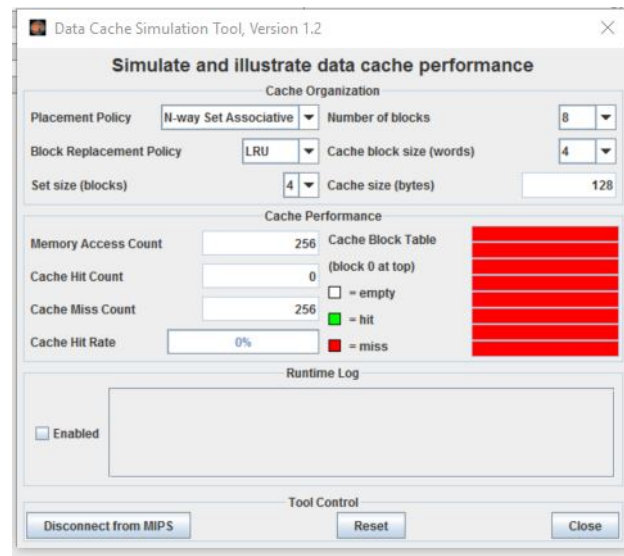


Abbildung 10: Column Major, 4-Way Associative, Cache Block Size 4

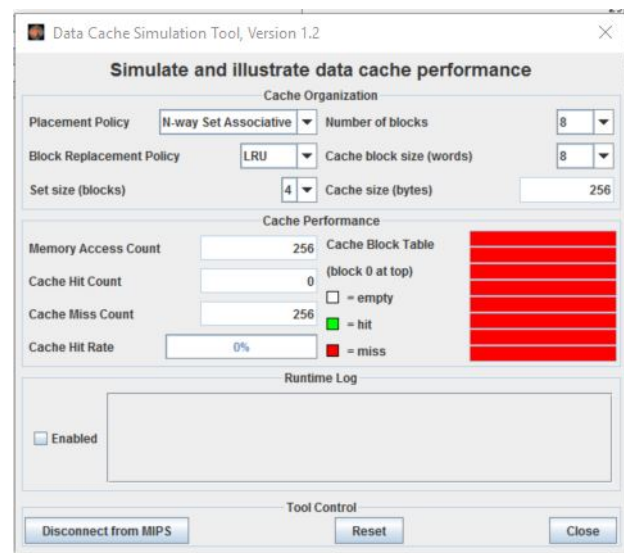


Abbildung 11: Column Major, 4-Way Associative, Cache Block Size 8

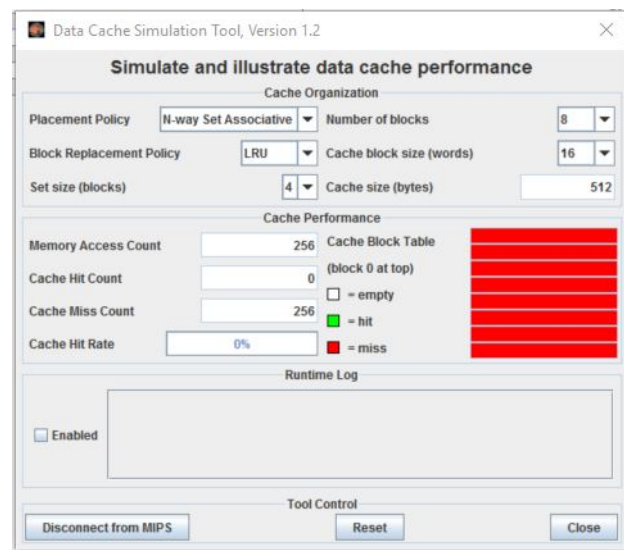


Abbildung 12: Column Major, 4-Way Associative, Cache Block Size 16

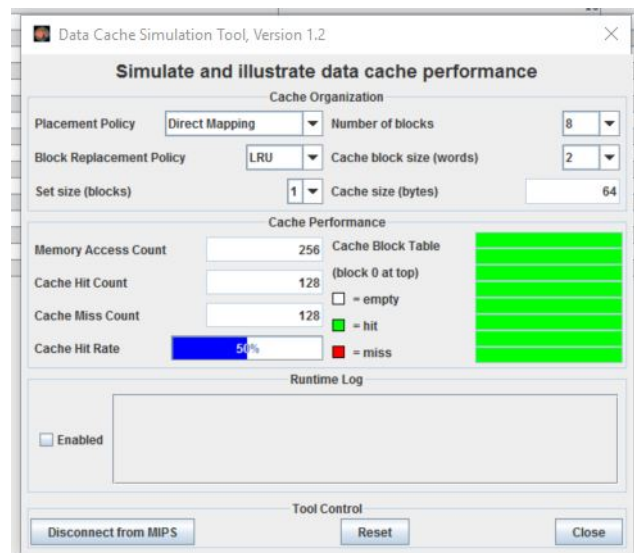


Abbildung 13: Row Major, Direct Mapping, Cache Block Size 2

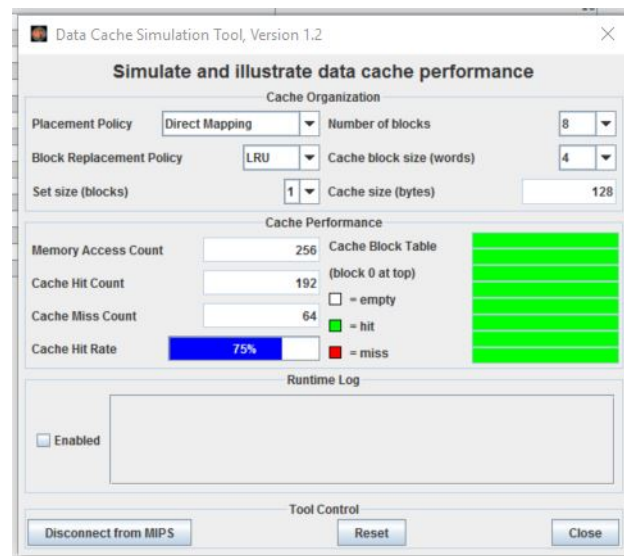


Abbildung 14: Row Major, Direct Mapping, Cache Block Size 4

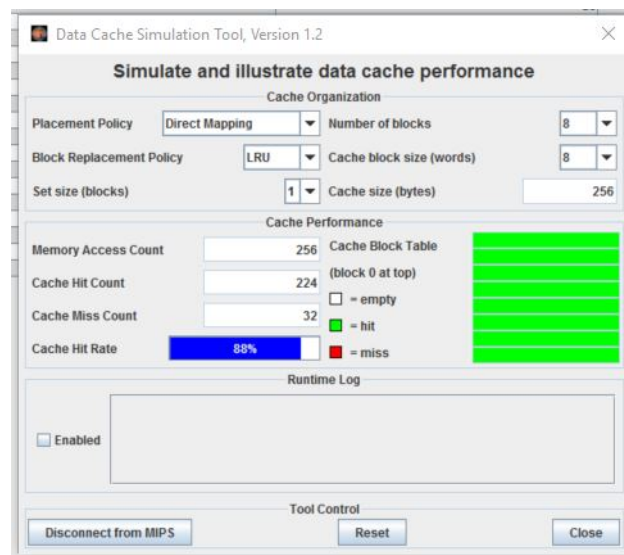


Abbildung 15: Row Major, Direct Mapping, Cache Block Size 8

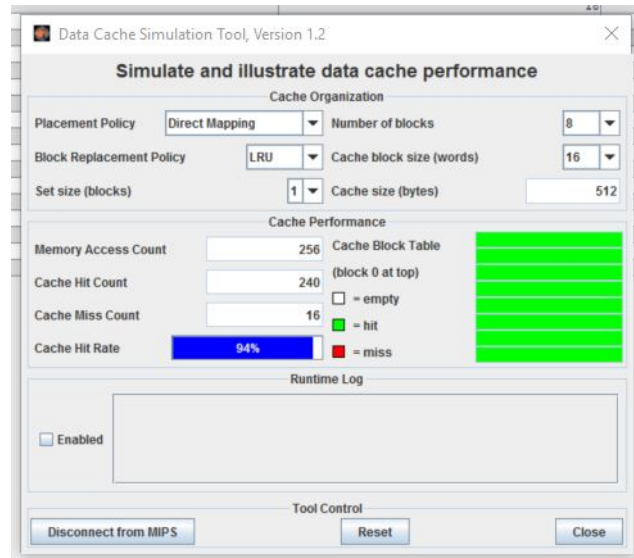


Abbildung 16: Row Major, Direct Mapping, Cache Block Size 16

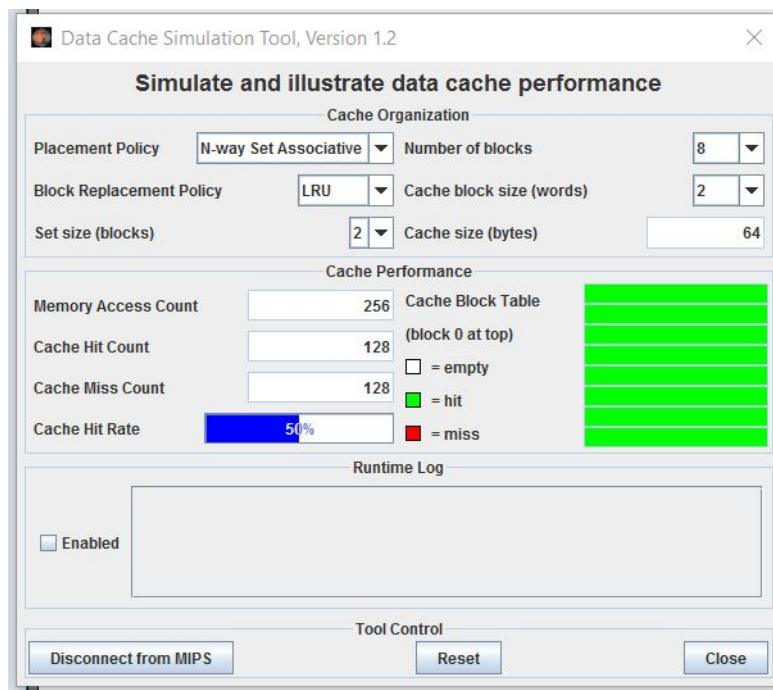


Abbildung 17: Row Major, 2-Way Associative, Cache Block Size 2

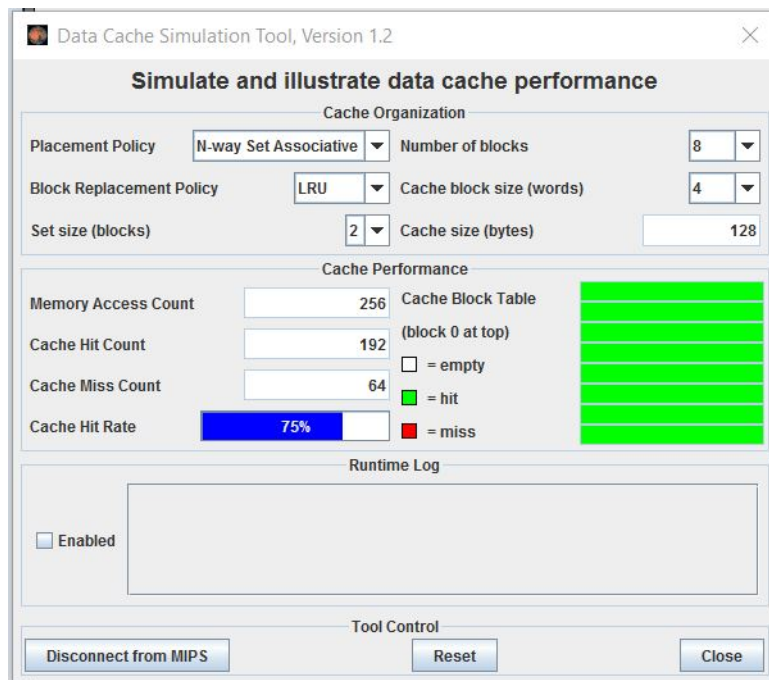


Abbildung 18: Row Major, 2-Way Associative, Cache Block Size 4

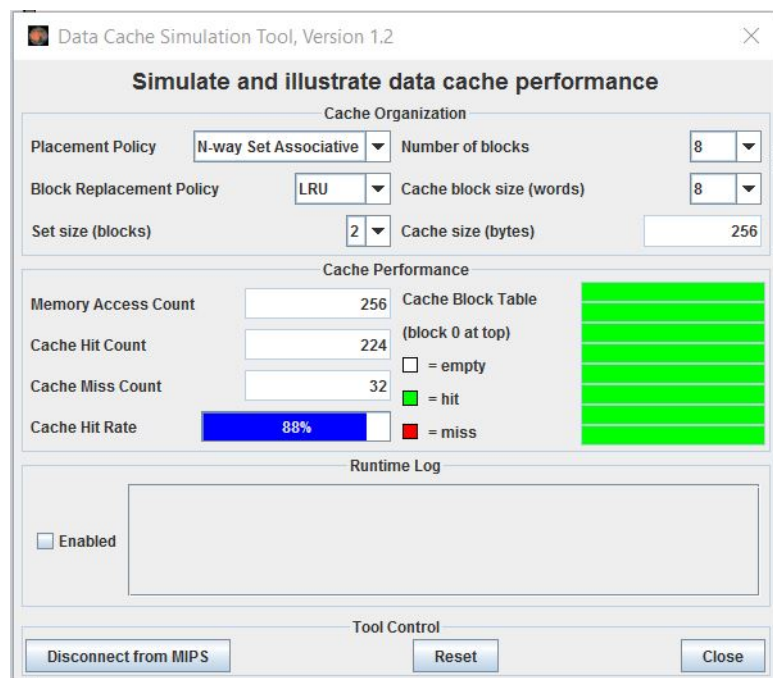


Abbildung 19: Row Major, 2-Way Associative, Cache Block Size 8

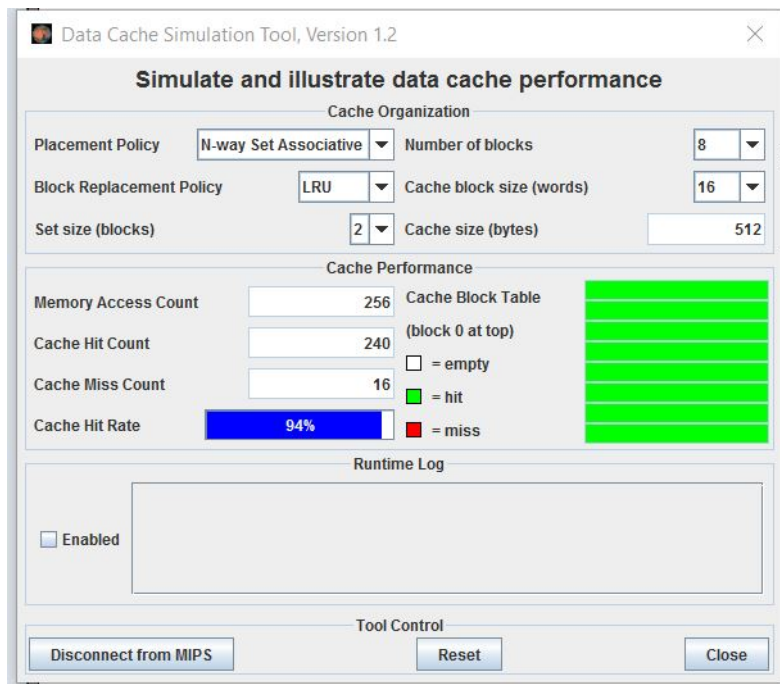


Abbildung 20: Row Major, 2-Way Associative, Cache Block Size 16

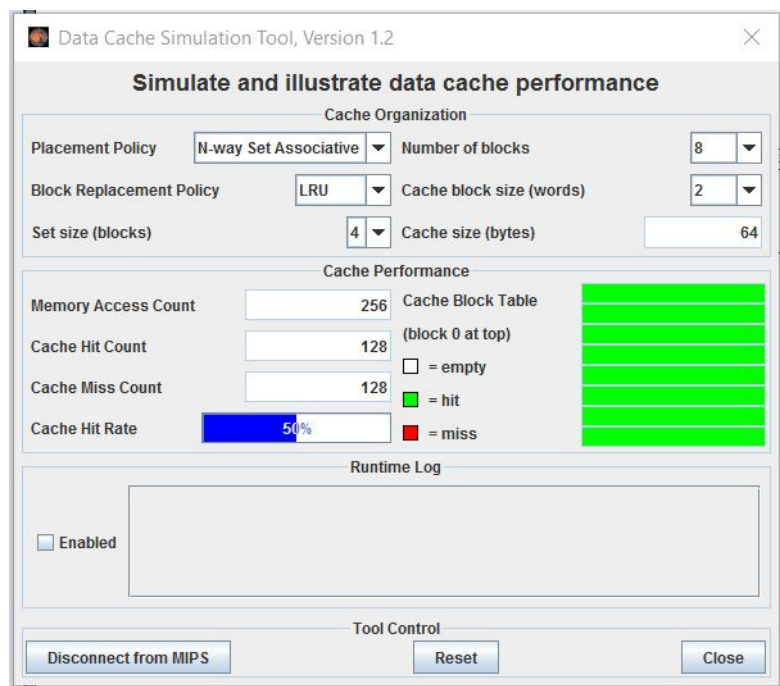


Abbildung 21: Row Major, 4-Way Associative, Cache Block Size 2

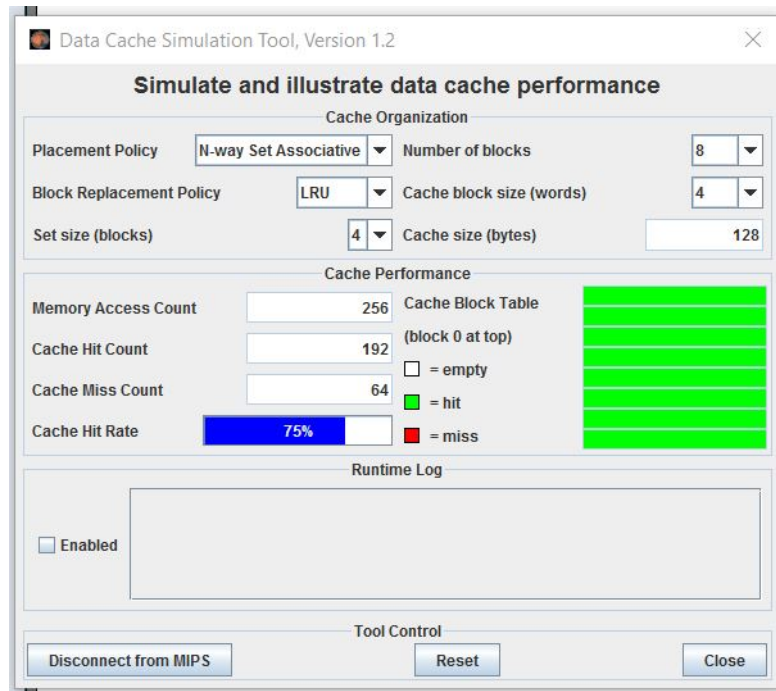


Abbildung 22: Row Major, 4-Way Associative, Cache Block Size 4

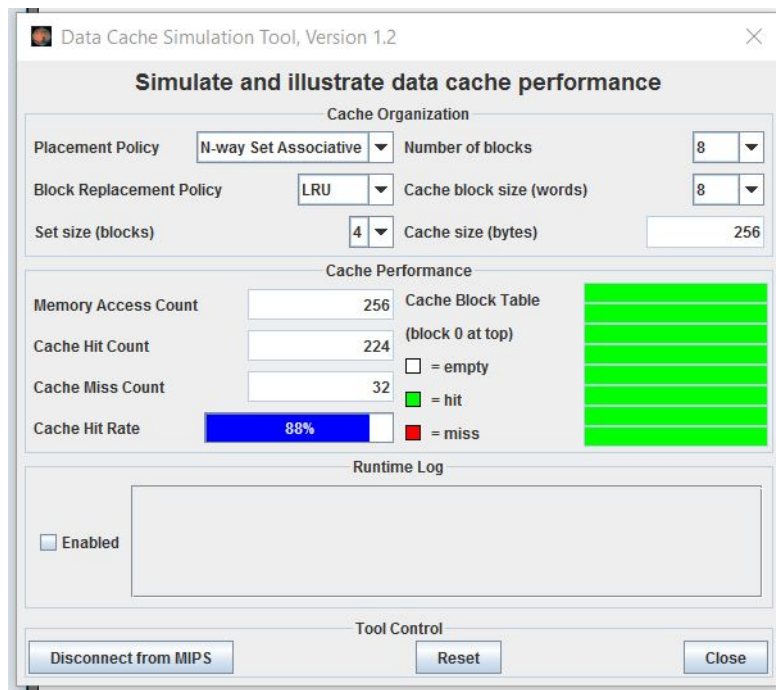


Abbildung 23: Row Major, 4-Way Associative, Cache Block Size 8

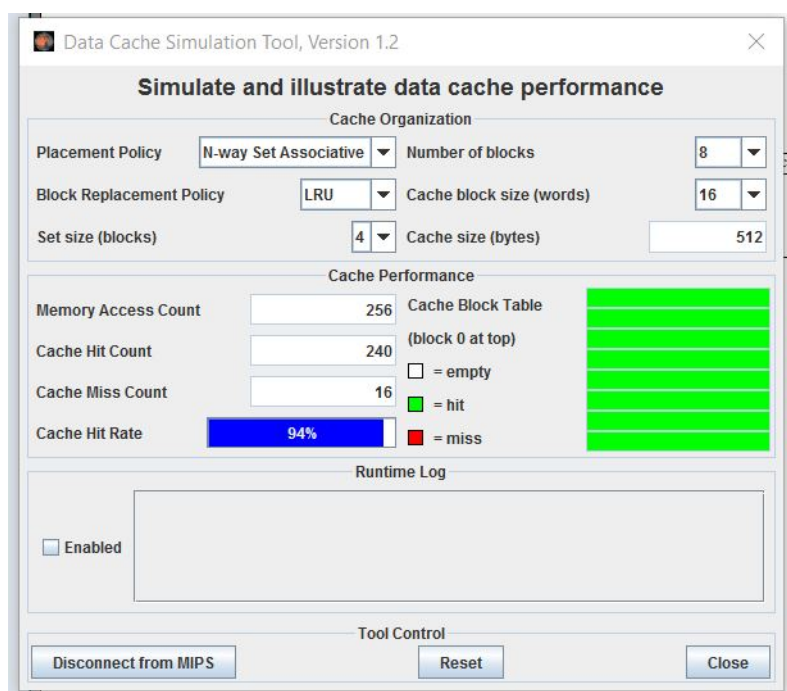


Abbildung 24: Row Major, 4-Way Associative, Cache Block Size 16