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CS-465-001

Professor Zhong

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Homework 4: Part 2

Group 1: Directed-Mapping

|  |  |  |  |
| --- | --- | --- | --- |
| Number of Blocks | Cache Block Size | Replacement Policy | Hit Rate |
| 8 | 2 | LRU | 18% |
| 8 | 4 | LRU | 59% |
| 8 | 8 | LRU | 80% |
| 8 | 16 | LRU | 90% |

Explanation:

Group 2: Directed-Mapping

|  |  |  |  |
| --- | --- | --- | --- |
| Number of Blocks | Cache Block Size | Replacement Policy | Hit Rate: |
| 8 | 8 | LRU | 80% |
| 16 | 8 | LRU | 80% |
| 32 | 8 | LRU | 95% |

Explanation:

Group 3: Directed-Mapping

|  |  |  |  |
| --- | --- | --- | --- |
| Number of Blocks | Cache Block Size | Replacement Policy | Hit Rate |
| 16 | 8 | LRU | 80% |
| 8 | 16 | LRU | 90% |
| 4 | 32 | LRU | 91% |
| 2 | 64 | LRU | 95% |

Explanation:

Group 4: Fully Associated

|  |  |  |  |
| --- | --- | --- | --- |
| Number of Blocks | Cache Block Size | Replacement Policy | Hit Rate |
| 8 | 4 | LRU | 59% |
| 8 | 4 | Random (3 Times) | (59% + 60% + 59%)/3 = 59.3% |
| 4 | 8 | LRU | 80% |
| 4 | 8 | Random (3 Times) | (80% + 80% + 80%)/3 = 80% |

Explanation:

Group 5:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Placement | # of Blocks | Block Size | Replacement | Hit Rate |
| Directed - Mapping | 16 | 8 | LRU | 80% |
| Fully Associative | 16 | 8 | LRU | 93% |
| 1 – Way Set | 16 | 8 | LRU | 80% |
| 2 – Way Set | 16 | 8 | LRU | 80% |
| 4 – Way Set | 16 | 8 | LRU | 80% |
| 8 – Way Set | 16 | 8 | LRU | 93% |

Explanation: