

CS 6363: Advanced Compiler Construction

Feb 22, 2010

You Name:

1. Given the following loop nest,

```
DO I = 2, N
```

```
DO J = 2, M
```

```
DO K = 2, L
```

```
    A(I, J, K) = A(I, J-1, K-1) + A(I-1, J-1, K) + A(I-1, J, K-1) + A(I, J, K-1)
```

```
ENDDO
```

```
ENDDO
```

```
ENDDO
```

- (a) Give the dependence distance matrix for the above loop nest.
- (b) Estimate the memory access cost when each loop is put at the innermost position.
- (c) Which loop nesting order is likely to give the best performance for both coarse grained parallelism and memory performance? Justify your answer.