CS622A ADVANCED COMPUTER ARCHITECTURE ASSIGNMENT 2

Memory Reuse and Sharing Profile Analysis

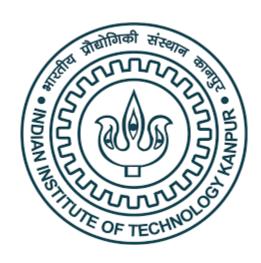
GROUP 16

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1 Introduction

In this assignment, we use PIN tool to instrument a set of parallel programs and collect thread-wise memory access trace and break it down to x86 machine accesses. Then with the resultin trace, we analyze the sharing profile and memory reuse for the given parallel programs.

2 Analysis Results

PART 1: Collection of machine-access traces

Programs	Run 1	Run 2	Run 3	Run 4	Run 5
prog1.c	5259461	5398166	3951778	1446388	1446388
prog2.c	11574350	3036461	1663059	1373402	1446388
prog3.c	3094660	336851	166320	170531	1446388
prog4.c	1378895	969678	627532	342146	1446388

Table 1: Machine accesses count across 5 runs

PART 4: Sharing profile analysis

	prog1.c	prog2.c	prog3.c	prog4.c
Private	5259461	5398166	3951778	1446388
2-Shared	11574350	3036461	1663059	1373402
3-Shared	3094660	336851	166320	170531
4-Shared	1378895	969678	627532	342146
5-Shared	1378895	969678	627532	342146
6-Shared	1378895	969678	627532	342146
7-Shared	1378895	969678	627532	342146
8-Shared	1378895	969678	627532	342146

Table 2: Sharing profile analysis for 8 threads

PART 2: Access distance analysis

PART 3: Access distance filtered by LRU cache