

Lab 1

CS 259

Spring 2024

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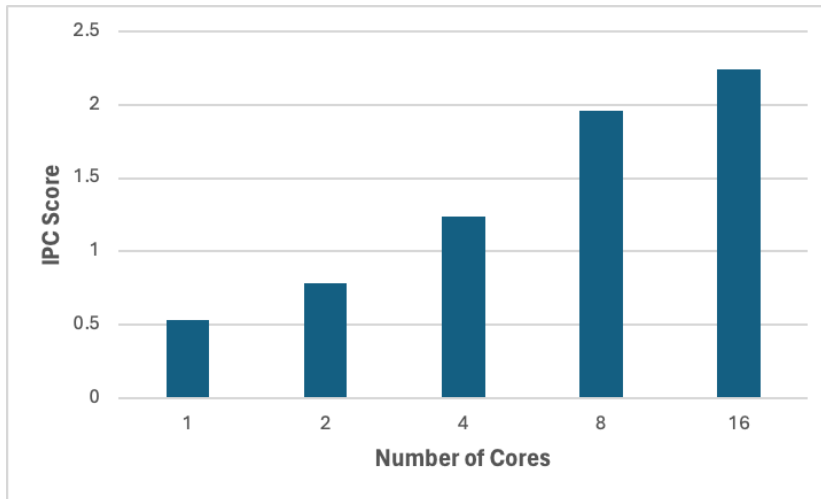
4/29/2024

Evaluation

Plot 1: IPC Score versus Cores

All five IPC results in the plot below have the following common configuration:

- Input Size = 16,384
- Driver = RTLISM
- Warps = 4, Threads = 4, Issue Width = 1

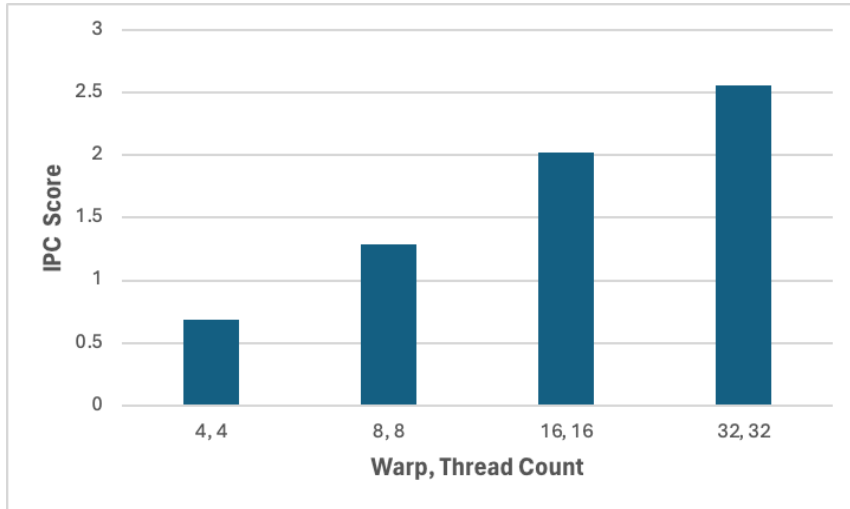


Cores	IPC
1	0.530054
2	0.782600
4	1.241073
8	1.955624
16	2.239900

Plot 2: IPC Score versus (Warp, Thread) Count

All four IPC results in the plot below have the following common configuration:

- Input Size = 16,384
- Driver = RTLISM
- Cores = 1, Issue Width = 4



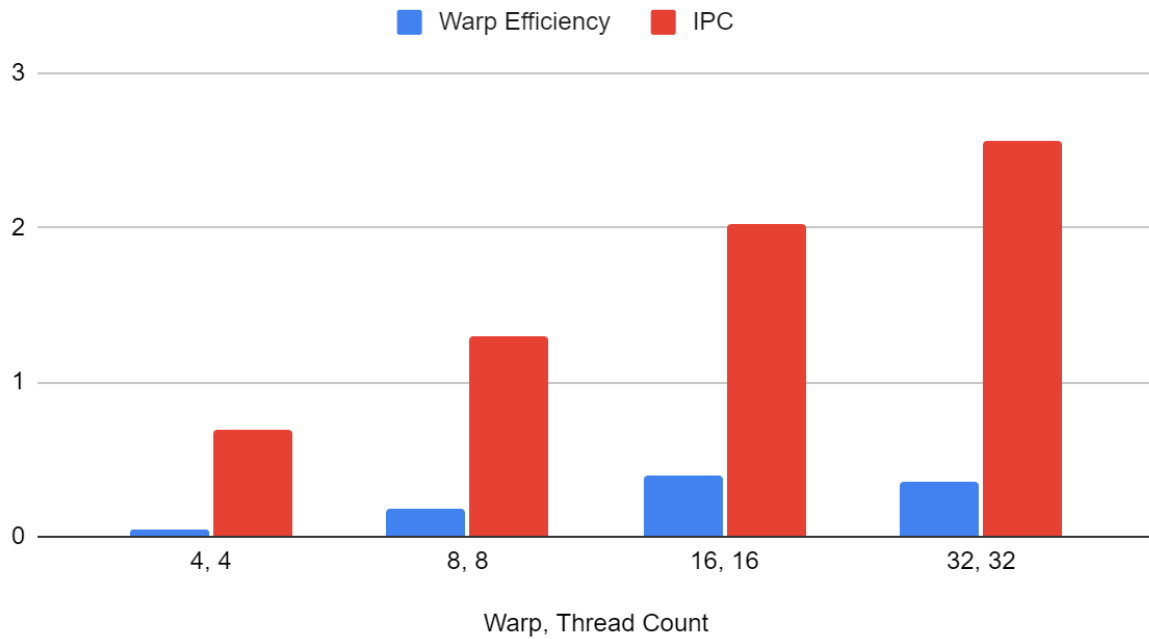
WARP, THREAD	IPC
(4, 4)	0.689388
(8, 8)	1.292246
(16, 16)	2.025992
(32, 32)	2.559216

Profiling

All four Warp Efficiency and IPC results in the plot below have the following common configuration:

- Input Size = 16,384
- Driver = RTLISM
- Cores = 1, Issue Width = 4

Warp Efficiency and IPC



WARP, THREAD	Warp Efficiency	IPC
(4, 4)	0.051652	0.689388
(8, 8)	0.181872	1.292246
(16, 16)	0.389612	2.025992
(32, 32)	0.349808	2.559216

Submission Files

*** Lab1Submission/Report.pdf:

- Contains results of lab 1 and additional submission file descriptions.

*** Lab1Submission/changes.diff:

- Contains all the files that were changed since the master branch. I recommend looking at the files mentioned later (psum.diff and profiling.diff) for more relevant changes.

The following are additional files that are what we changed for the lab.

Lab1Submission/Programming:

psum/

- main.cpp
- kernel.cpp
- Makefile
- common.h
- Other additional files

psum.diff

- Contains changes made in main.cpp, kernel.cpp, and Makefile

Lab1Submission/Evaluation:

Results/

- Plot1Results/
 - Output for command with varying core=1, 2, 4, 8, 16
- Plot2Results/
 - Output for command with varying Warp, Thread count=4x4, 8x8, 16x16, 32x32

Lab1Submission/Profiling:

profiling/

- utils.cpp
- VX_csr_data.sv
- VX_pipeline_perf_if.sv
- VX_schedule.sv
- VX_types.h
- VX_types.vh

Results/

- Output for command with varying Warp, Thread count=4x4, 8x8, 16x16, 32x32

profiling.diff

- Contains changes made in utils.cpp, VX_csr_data.sv, VX_pipeline_perf_if.sv, VX_schedule.sv, VX_types.h, VX_types.vh

Lab1Submission/Running Commands.md:

- Commands that were run for Evaluation and Profiling to produce results