Computer Architecture Laboratory

Assignment-4

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Required Statistics:

Object File	No. of Cycles	Number of Insts	CPI	IPC	Number of OF Stage stalls	Instruction entering wrong branch path
descending.out	658	658	1.0	1.0	126	220
evenorodd.out	19	19	1.0	1.0	10	4
fibonacci.out	157	157	1.0	1.0	44	36
prime.out	124	124	1.0	1.0	51	18
palindrome.out	79	79	1.0	1.0	19	28

Discussion of Observations:

First of all, we observe that the IPC and CPI remains 1, as the number of instructions is equal to the number of cycles taken. We observe that particularly the descending function takes more instructions as it involves a lot of branching while sorting the numbers. Hence we see a lot more OF stage stalls and instructions entering the wrong branch path. The prime instructions have a lot more stalls compared to instructions entering the wrong branch path as we are using if-else many times in a loop, but we actually don't enter the wrong branch path that often, since there aren't many branches here. Evenorodd function is a straightforward uncomplicated program, thus not many stalls. Palindrome and fibonacci have a good number of instructions but not many branches and hence its performance is as we expected. We are correlating the above functions with the benchmark, by trying to observe the number of branches involved and we are getting results closely to what we are expecting.