

466 PROJECT_Part2

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1. Show the variation of IPC value if the window size is 10 million cycles (collecting the IPC value for every 10 million cycles). Note: you should modify the simulator to get all the statistics in one run instead of running sim-outorder multiple times.

The changes of the file sim-outorder.c.

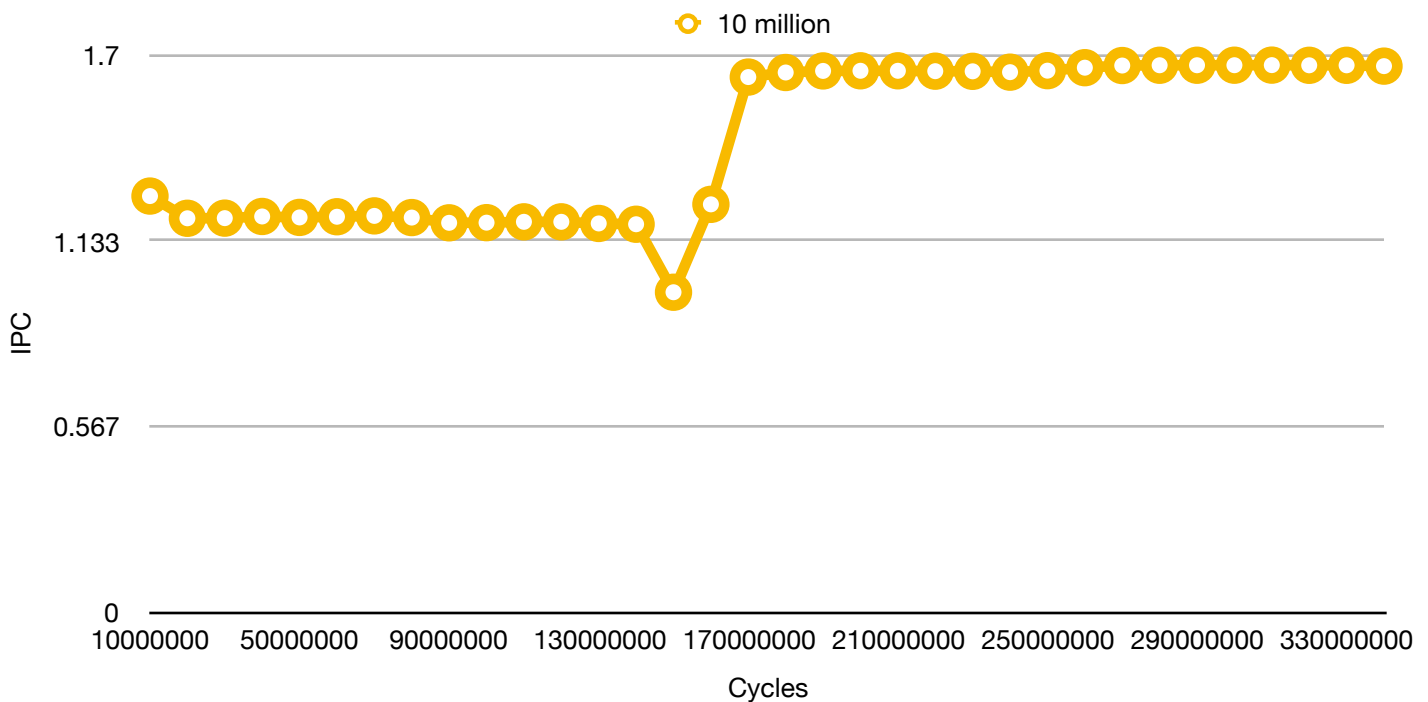
```
FILE *f;
/* go to next cycle */
//printf("the cycle is %d \n",sim_cycle);
if (sim_cycle==0)
{
    f=fopen("/home/ye/Desktop/data1.txt","w");
}
sim_cycle++;
if(sim_cycle%100000==0)
{
    ipc_window = (float)(sim_num_insn-inst_flag)/100000;
    inst_flag = sim_num_insn;
    printf("the answer is %f \n",ipc_window);
    if(f==NULL)
    {
        printf("Fail to open the file!\n");
    }
    fprintf(f,"%f\n",ipc_window);
}

/* finish early? */
if (max_insts && sim_num_insn >= max_insts)
{
    fclose(f);
    return;
}
```

The output in file data.txt.

data1.txt

```
1.26900576
1.20129471
1.20172437
1.206820
1.20393603
1.20598434
1.20859398
1.20346974
1.187456
1.18795545
1.19049579
1.19050173
1.18553391
1.18310346
0.97584993
1.24377363
1.63174374
1.64564631
1.65048147
1.65085371
1.65085074
1.64968155
1.649241
1.64668284
1.651261
1.66033296
1.66687587
1.66773024
1.66777578
1.66788072
1.66814505
1.66761144
1.66759164
1.66506615
```

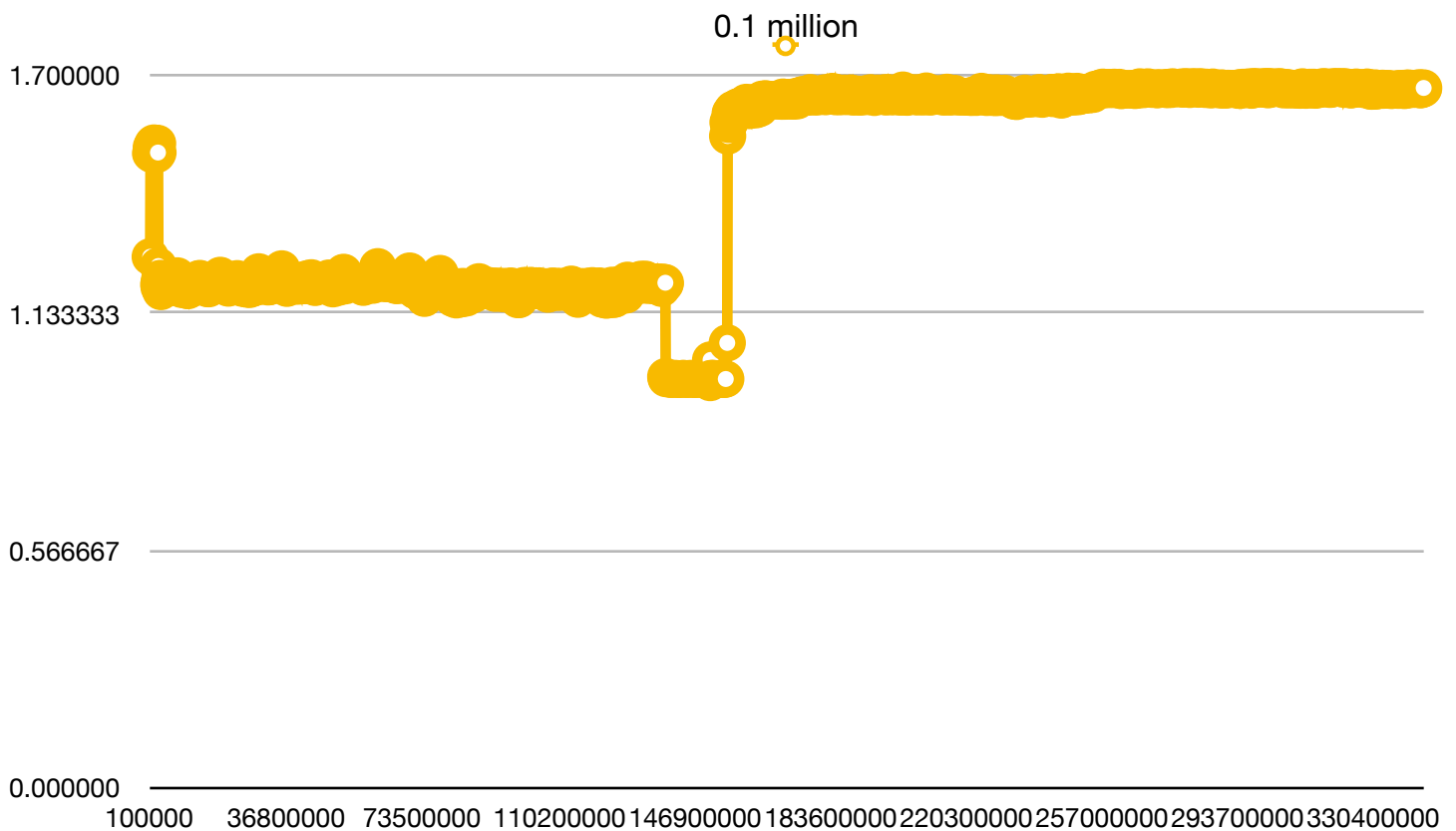


2. Use experiments to find the optimal monitor window size for this program. Hint: you can scale the window size up and down by a factor of 10 for fast identification.

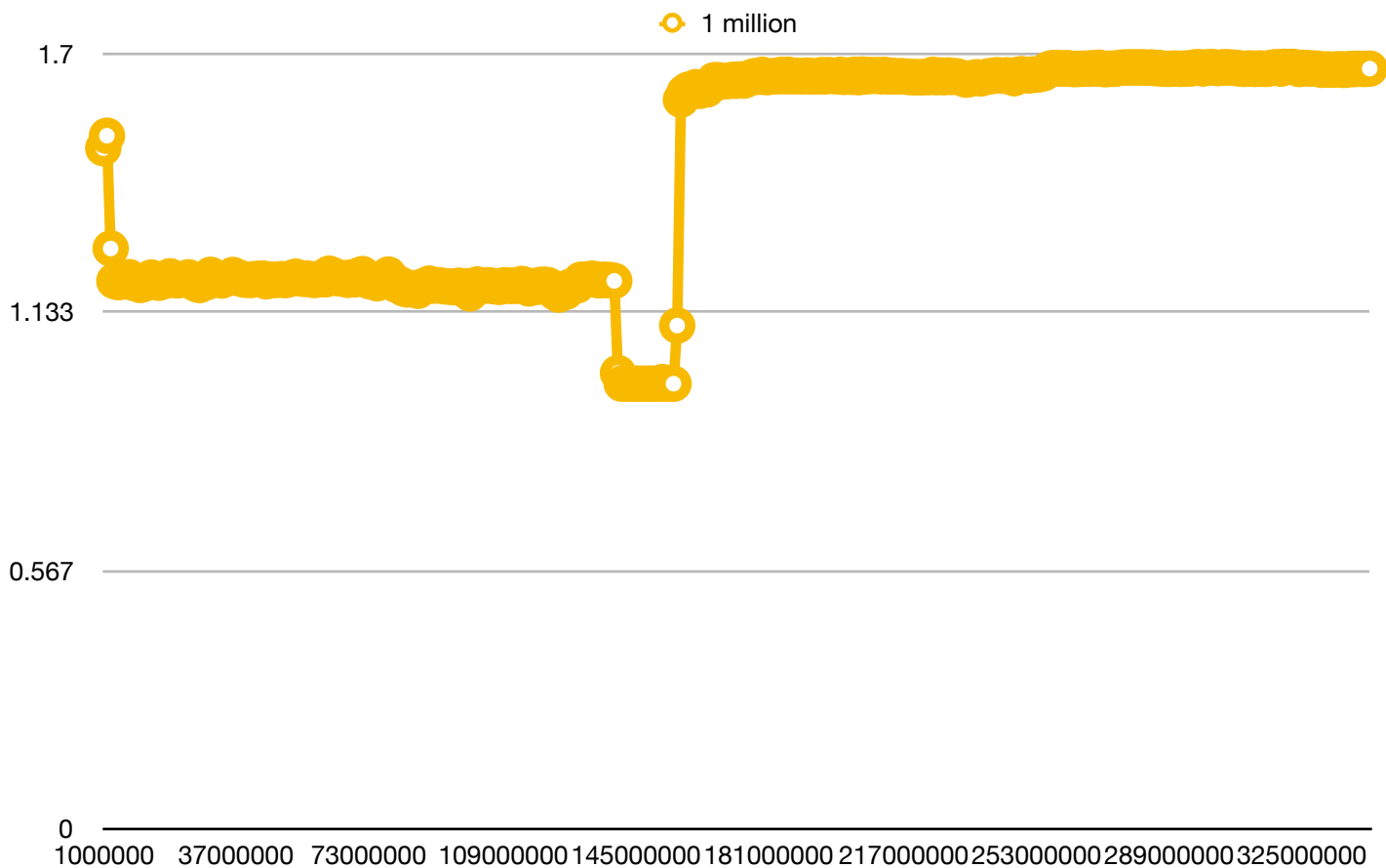
The optimal window size is 1 million.

Because when the window size is 100 million, it is too large to identify the changes timely. And when the window size is 0.1 million, it will have large overhead and get unnecessary fluctuations. As for 10 million, I think the fluctuations are not as clear as 1 million. So the optimal window size is 1 million.

The window size is 0.1 million:



The window size is 1 million:



The window size is 100 million:

