

PA3

PA3 focused on the open IPC method. We used 3 different method: FIFO, Message queue, and shared memory. I am here to demo the time difference. The video demo is here: https://drive.google.com/file/d/1QKM6V_Skk6e52TJXN8vM5tHAbk_AKWGH/view?usp=sharing

First using FIFO. I used the `./client -p 10 -e 1 -c 5 i f` to have five channels. And I calculate it in milliseconds. It took 14384543ms.

```
All further communication will happen through it instead of the main channel
Time total 14384543ms
Client-side is done and exited
Client-side is done and exited
Client-side is done and exited
Client-side is done and exited
Client-side is done and exited
Server terminated
```

Next, using message queue. I used the `./client -p 10 -e 1 -c 5 i q` to have five channels. I used the `./client -p 10 -e 1 -c 5 i f` to have five channels. It took 14373774ms.

```
All further communication will happen through it instead of the main channel
Time total 14373774ms
Client-side is done and exited
Client-side is done and exited
Client-side is done and exited
Client-side is done and exited
Client-side is done and exited
Server terminated
```

Last, using shared memory. I used the `./client -p 10 -e 1 -c 5 i m` to have five channels. It took 14305614ms.

```
All further communication will happen through it instead of the main channel
Time total 14305614ms
Client-side is done and exited
Client-side is done and exited
Client-side is done and exited
Client-side is done and exited
Client-side is done and exited
Server terminated
Client-side is done and exited
```

Now we want to find the time for file transfer, to keep it consistent. We are going to use 50 channels as constant.

First, we truncate a 1MB file called the 1MB.dat.

For fifo I used `./client -f 1MB.dat -c 50 -i f` to do it. Fifo used 103852ms.

```
All further communication will happen through it instead of the main channel
File size: 1000000
Time total 103852ms
```

For message queue, I used `./client -f 1MB.dat -c 50 -i q`. Message queue used 85538ms.

```
All further communication will happen through it instead of the main channel
File size: 1000000
Time total 85538ms
```

For shared memory, I used `./client -f 1MB.dat -c 50 -i m`. Shared memory took 83810ms.

```
All further communication will happen through it instead of the main channel
File size: 1000000
Time total 83810ms
```

In fact, for both data points and file transfer, shared memory is always the fastest, then message queue, then fifo.