Advaned Programming fo HPC - Report 1

Dinh Anh Duc

October 31, 2021

How do I implement the conversion ?

- Added the calculation code from labwork1_CPU() to labwork1_OpenMP()
- Added the line "# pragma omp parallel for"

```
void Labwork::labwork1_OpenMP() {
    printf("Open MP");
    int pixelCount = inputImage->width * inputImage->height;
    outputImage = static_cast<char *>(malloc(pixelCount * 3));
    // do something here
    # pragma omp parallel for
    for (int j = 0; j < 100; j++) {// let's do it 100 times, otherwise it's too fast!
        for (int i = 0; i < pixelCount; i++) {
            outputImage[i * 3] =
            (((int) inputImage->buffer[i * 3] + (int) inputImage->buffer[i * 3 + 1]
            + (int) inputImage->buffer[i * 3 + 2]) / 3);
            outputImage[i * 3 + 1] = outputImage[i * 3];
            outputImage[i * 3 + 2] = outputImage[i * 3];
        }
    }
}
```

What is the speed up ?

- labwork 1 CPU ellapsed 261 ms
- labwork 1 ellapsed 43.4 ms (OpenMP modifired)

It looks like 7 times faste !