**Report of COM6521 Parallel Computing with GPUs**

1. Description:

|  |  |  |
| --- | --- | --- |
| Image Size | Size of tails | Number of tails in one raw |
| 256x256 | 32 | 8 |
| 1024x1024 | 32 | 32 |
| 4096x4096 | 32 | 128 |

Table 1: The information of images

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Image Size | Init | Stage 1 | Stage 2 | Stage 3 | CPU run time |
| 256x256 | 0.105 | 0.219 | 0.221 | 0.221 | 0.630 |
| 1024x1024 | 0.539 | 2.799 | 0.040 | 2.981 | 7.191 |
| 4096x4096 | 9.969 | 66.044 | 0.090m | 18.656 | 255.151 |

Table 2: The serial run time of CPU code

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Image Size | Description | Number of Loops | Stage 1 | Stage 2 | Stage 3 |
| 256 x 256 | Images to tails | 8 x 8 (Nest) | Y | Y | Y |
| 256 x 256 | Tails to pixel | 32 x 32(Nest) | N | Y | Y |
| 256 x 256 | Pixel Chanel | 3 | Y | Y | N |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Image Size | Description | Number of Loops | Stage 1 | Stage 2 | Stage 3 |
| 1024 x 1024 | Images to tails | 32 x 32 (Nest) | Y | Y | Y |
| 1024 x 1024 | Tails to pixel | 32 x 32(Nest) | N | Y | Y |
| 1024 x 1024 | Pixel Chanel | 3 | Y | Y | N |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Image Size | Description | Number of Loops | Stage 1 | Stage 2 | Stage 3 |
| 4096 x 4096 | Images to tails | 128 x 128 (Nest) | Y | Y | Y |
| 4096 x 4096 | Tails to pixel | 32 x 32(Nest) | N | Y | Y |
| 4096x4096 | Pixel Chanel | 3 | Y | Y | N |

Table 3: The information of loops in stage in different size of image