**Report**

**Name:**

**Reg. No:**

**Programming Environment:** OpenMP

**Problem:** Vector Addition

**Date:**

**Hardware Configuration:**

|  |  |  |  |
| --- | --- | --- | --- |
| CPU NAME | | : | Intel core i7 – 9700 @ 3.00 Ghz |
| Number of Sockets: | | : | 1 |
| Cores per Socket | | : | 8 |
| Threads per core | | : | 1 |
| L1 | Cache size | : | 32KB |
| L2 | Cache size | : | 256KB |
| L3 | Cache size(Shared): | | 12MB |
| RAM | | : | 16 GB |

**Serial Code:**

**Parallel Code:**

**Compilation and Execution:**

Give Commands

|  |  |  |
| --- | --- | --- |
| **Observations:** |  |  |
|  |  |  |
| **Number of** | **Execution** |  |
| **Threads** | **Time** | **Speed-up** |
| 1 | 17.427979 | 1 |
| 2 | 8.925049 | 1.95 |
| 4 | 4.468066 | 3.90 |
| 6 | 2.980898 | 5.85 |
| **8** | **2.214966** | 7.87 |
| 10 | 3.092041 | 5.64 |
| 12 | 3.017822 | 5.78 |
| 16 | 2.981445 | 5.85 |
| 20 | 2.974854 | 5.86 |
| 32 | 2.910645 | 5.99 |
| 64 | 2.892334 | 6.03 |
| 128 | 2.931152 | 5.95 |
| 150 | 3.003662 | 5.80 |

**Assumption:**

Following extra for loop is added to increase the number of operations in the parallel region to visualize the effect of multi-threading in vector addition.

for(int j=0;j<m;j++)

c[i] = a[i] + b[i];

**Screen Shots:**

**s**

**Plot1---Number of Threads vs Execution Time:**

**Plot2----Number of Threads vs Speedup:**

**Inference: (Conclusion)**