

Proiect APD

Topic: **Quick Sort**

Limbaje de programare utilizate: **C++**

Sisteme si/sau framework-uri utilizate: **MPI, CUDA**

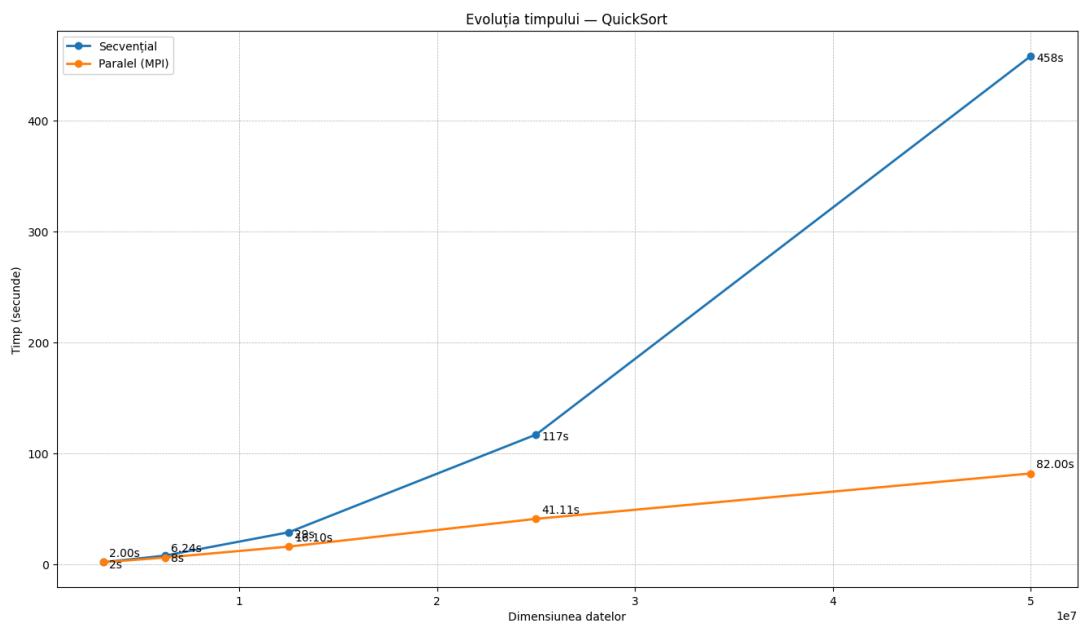
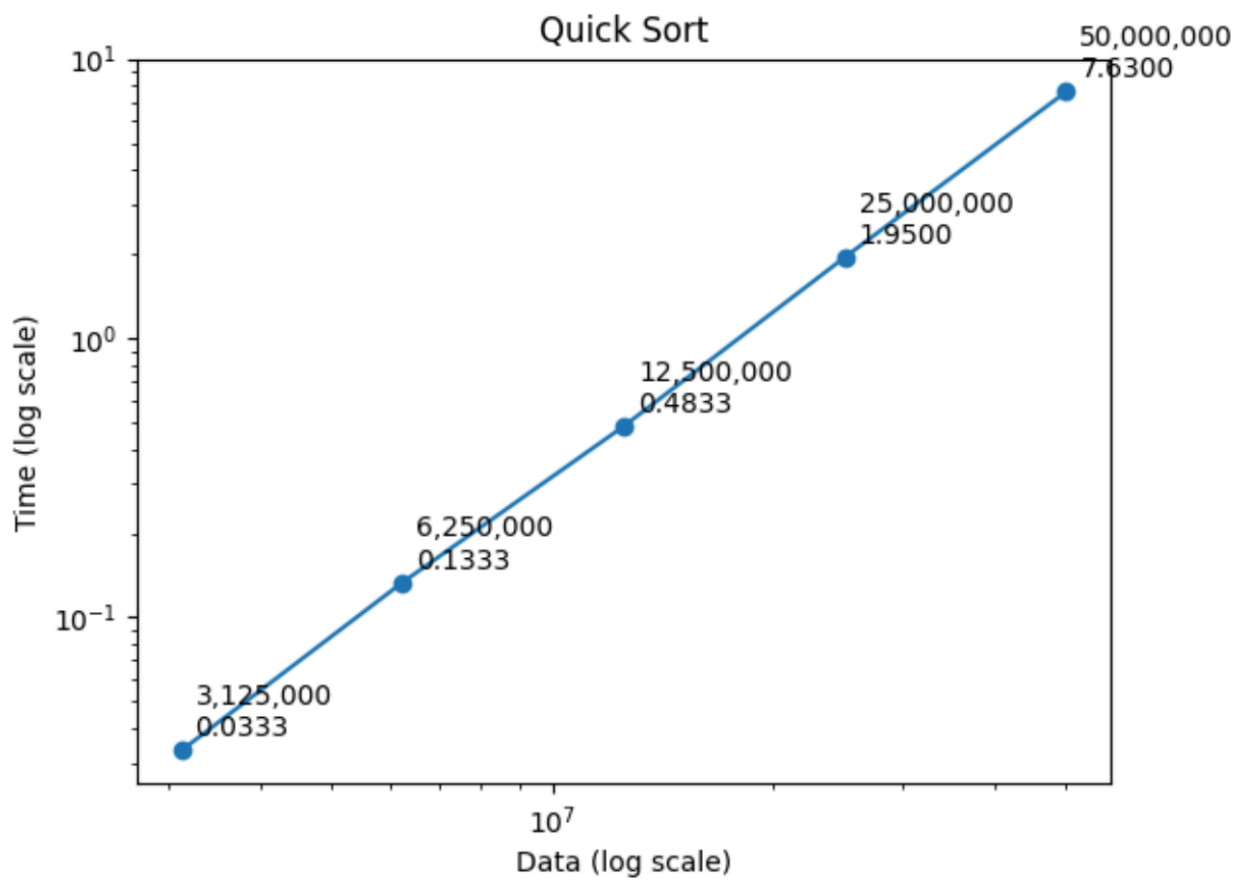
Pseudocod Quick Sort:

```
PARTITION(A, low, high)  
  pivot = A[high]  
  swapMarker = low - 1  
  for curIndex = low to high - 1 do  
    if A[curIndex] <= pivot then  
      swapMarker = swapMarker + 1  
      SWAP(A[swapMarker], A[curIndex])  
  SWAP(A[swapMarker + 1], A[high])  
  return swapMarker + 1
```

```
QUICK_SORT(A, low, high)  
  if low < high then  
    pivot = PARTITION(A, low, high)  
    QUICK_SORT(A, low, pivot - 1)  
    QUICK_SORT(A, pivot + 1, high)
```

Rezultate Experimentale:

<i>Data size</i>	Time Sequential	Time Parallel (MPI)
3 125 000	0.0333 min(2s)	2s
6 250 000	0.1333 min(8s)	6.24s
12 500 000	0.4833 min(29s)	16.1s
25 000 000	1.95 min(117s)	41.112s
50 000 000	7.63 min(458s)	82s



Info Masini:

Processor:AMD Ryzen 7 6800HS(8C,16T)

OS:Windows 11 Home x64