1、利用归并排序，画出能排序8个数的基于Batcher比较器的双调排序网络，假设输入为2,4,7,3,6,5,8,1，标出每个Batcher比较器的输入和输出。

2、给定序列(3, 9, 5, 8, 0, 1, 4)，若运行PRAM-CRCW模型上的快速排序算法后得到了一颗完全二叉树，写出执行过程中数组*f*、*LC*、*RC*的变化。

构造树的第1层后：

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *i* | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| *a* | 3 | 9 | 5 | 8 | 0 | 1 | 4 |
| *LC* |  |  |  |  |  |  |  |
| *RC* |  |  |  |  |  |  |  |
| *f* |  |  |  |  |  |  |  |

构造树的第2层后：

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *i* | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| *a* | 3 | 9 | 5 | 8 | 0 | 1 | 4 |
| *LC* |  |  |  |  |  |  |  |
| *RC* |  |  |  |  |  |  |  |
| *f* |  |  |  |  |  |  |  |

构造树的第3层后：

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *i* | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| *a* | 3 | 9 | 5 | 8 | 0 | 1 | 4 |
| *LC* |  |  |  |  |  |  |  |
| *RC* |  |  |  |  |  |  |  |
| *f* |  |  |  |  |  |  |  |

3、若待排序的数组*a*=(16,10,6,4,14,8,5,13,11,18,17,12,9,2,3,7,1,15)，处理器数*p*=3，试说明PSRS排序算法的执行过程。

4、若*p*=，分析PSRS排序算法的平均时间复杂度和加速比。