1、若待排序的数组*a*如下，且并行快排算法最终得到一个完全二叉树，试说明此次排序的执行过程。

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

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* |  |  |  |  |  |  |  |

2、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。

3、若*p*=，分析PSRS排序算法的平均时间复杂度和加速比。