|  |  |  |  |
| --- | --- | --- | --- |
| ***IN ORDER, n = 128*** | **Comparisons** | **Movements** | **Runtime (nano)** |
| **Insertion** | 8128 | 0 | 195944 |
| **Selection** | 8128 | 381 | 266390 |
| **Radix** | 515 | 512 | 435274 |
| **Heap** | 2825 | 1714 | 215072 |
| **Merge** | 2303 | 2048 | 190812 |
| **Quick** | 4316 | 3280 | 184281 |

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| ***REVERSE ORDER, n = 128*** | **Comparisons** | **Movements** | **Runtime (nano)** |
| **Insertion** | 24366 | 24357 | 613490 |
| **Selection** | 8128 | 4316 | 261258 |
| **Radix** | 515 | 512 | 186613 |
| **Heap** | 6707 | 4680 | 97039 |
| **Merge** | 11515 | 10240 | 37789 |
| **Quick** | 8185 | 6208 | 1417326 |

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| ***ALMOST ORDER, n = 128*** | **Comparisons** | **Movements** | **Runtime (nano)** |
| **Insertion** | 8634 | 759 | 241197 |
| **Selection** | 8128 | 383 | 241664 |
| **Radix** | 515 | 512 | 257059 |
| **Heap** | 11040 | 7910 | 52718 |
| **Merge** | 13818 | 12288 | 47587 |
| **Quick** | 11788 | 8998 | 124564 |

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| --- | --- | --- | --- |
| ***RANDOM ORDER, n = 128*** | **Comparisons** | **Movements** | **Runtime (nano)** |
| **Insertion** | 15656 | 11292 | 495924 |
| **Selection** | 8128 | 796 | 367628 |
| **Radix** | 515 | 512 | 655011 |
| **Heap** | 2574 | 1554 | 362962 |
| **Merge** | 2303 | 2048 | 254260 |
| **Quick** | 3660 | 2698 | 138094 |

|  |  |
| --- | --- |
| **SORT** | **WORST CASE BIG O** |
| **Insertion** | O(n^2) |
| **Selection** | O(n^2) |
| **Radix** | O(n) |
| **Heap** | O(nlogn) |
| **Merge** | O(nlogn) |
| **Quick** | O(n^2) |

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| --- | --- |
| **SORT (10,000)** | **RUNTIME (MS)** |
| **Insertion** | 85 |
| **Selection** | 132 |
| **Radix** | 15 |
| **Heap** | 0 |
| **Merge** | 0 |
| **Quick** | 0 |

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| --- | --- |
| **SORT (100,000)** | **RUNTIME (MS)** |
| **Insertion** | 4611 |
| **Selection** | 3377 |
| **Radix** | 16 |
| **Heap** | 16 |
| **Merge** | 31 |
| **Quick** | 37 |

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| --- | --- |
| **SORT (1,000,000)** | **RUNTIME (MS)** |
| **Insertion** | N/A |
| **Selection** | N/A |
| **Radix** | 555 |
| **Heap** | 223 |
| **Merge** | 278 |
| **Quick** | 2183 |

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| --- | --- |
| **SORT (5,000,000)** | **RUNTIME (MS)** |
| **Insertion** | N/A |
| **Selection** | N/A |
| **Radix** | 1704 |
| **Heap** | 1418 |
| **Merge** | 1172 |
| **Quick** | 45214 |