| Sort Type | File Name | Time (ns) # o | f File # | of entrieT | ime per entry (ns) |
|-----------|--------------|---------------|----------|------------|--------------------|
| QS STD | rev10K.dat | 93738651 | 6 | 10000 | 9373.8651 |
| QS STD | asc1K.dat | 1138760 | 14 | 1000 | 1138.76 |
| QS MED | rev5K.dat | 3735979 | 1 | 5000 | 747.1958 |
| QS STD | rev500-1.dat | 141481 | 22 | 500 | 282.962 |
| QS MED | dup2K.dat | 524333 | 2 | 2000 | 262.1665 |
| QS 50 | rev50.dat | 7984 | 7 | 50 | 159.68 |
| QS 50 | dup2K.dat | 305635 | 2 | 2000 | 152.8175 |
| QS 50 | rev5K.dat | 747492 | 1 | 5000 | 149.4984 |
| QS 100 | asc500.dat | 72878 | 3 | 500 | 145.756 |
| QS 100 | rev50.dat | 6698 | 7 | 50 | 133.96 |
| QS MED | ran50.dat | 6491 | 5 | 50 | 129.82 |
| QS 100 | asc2K.dat | 256534 | 4 | 2000 | 128.267 |
| QS 50 | ran500.dat | 51608 | 10 | 500 | 103.216 |
| QS STD | dup2K.dat | 205013 | 2 | 2000 | 102.5065 |
| QS 50 | ran50.dat | 4617 | 5 | 50 | 92.34 |
| QS STD | ran10K.dat | 884192 | 19 | 10000 | 88.4192 |
| QS STD | asc50.dat | 4261 | 13 | 50 | 85.22 |
| QS STD | rev50.dat | 3598 | 7 | 50 | 71.96 |
| QS 50 | rev1K.dat | 71457 | 12 | 1000 | 71.457 |
| QS STD | ran5K.dat | 356534 | 17 | 5000 | 71.3068 |
| QS 50 | asc5K.dat | 347988 | 11 | 5000 | 69.5976 |
| QS STD | dup5K.dat | 346027 | 15 | 5000 | 69.2054 |
| QS 50 | rev10K.dat | 680887 | 6 | 10000 | 68.0887 |
| QS STD | ran1K.dat | 67802 | 18 | 1000 | 67.802 |
| QS STD | dup10K.dat | 654454 | 8 | 10000 | 65.4454 |
| QS STD | dup500.dat | 30810 | 23 | 500 | 61.62 |
| QS 50 | asc1K.dat | 59451 | 14 | 1000 | 59.451 |
| QS STD | ran2K.dat | 114604 | 16 | 2000 | 57.302 |
| QS STD | dup1K.dat | 57042 | 9 | 1000 | 57.042 |
| QS MED | rev50.dat | 2678 | 7 | 50 | 53.56 |
| QS MED | asc50.dat | 2547 | 13 | 50 | 50.94 |
| QS 50 | dup1K.dat | 48761 | 9 | 1000 | 48.761 |
| QS 50 | dup5K.dat | 237217 | 15 | 5000 | 47.4434 |
| QS MED | asc2K.dat | 89783 | 4 | 2000 | 44.8915 |
| QS 50 | ran2K.dat | 77568 | 16 | 2000 | 38.784 |
| QS MED | dup500.dat | 19279 | 23 | 500 | 38.558 |
| QS 50 | dup10K.dat | 381581 | 8 | 10000 | 38.1581 |
| QS MED | dup10K.dat | 352019 | 8 | 10000 | 35.2019 |
| QS MED | asc10K.dat | 350994 | 20 | 10000 | 35.0994 |
| QS MED | ran5K.dat | 159178 | 17 | 5000 | 31.8356 |
| QS MED | asc5K.dat | 156242 | 11 | 5000 | 31.2484 |
| QS MED | ran1K.dat | 31138 | 18 | 1000 | 31.138 |
| QS MED | dup1K.dat | 30756 | 9 | 1000 | 30.756 |
| QS MED | ran10K.dat | 282599 | 19 | 10000 | 28.2599 |

| QS MED | ran500.dat | 14022 | 10 | 500 | 28.044 |
|--------|--------------|--------|----|-------|---------|
| QS MED | rev10K.dat | 279813 | 6 | 10000 | 27.9813 |
| QS MED | asc1K.dat | 26695 | 14 | 1000 | 26.695 |
| QS MED | ran2K.dat | 48789 | 16 | 2000 | 24.3945 |
| QS MED | rev1K.dat | 23970 | 12 | 1000 | 23.97 |
| QS MED | dup5K.dat | 111372 | 15 | 5000 | 22.2744 |
| QS MED | rev500-1.dat | 10374 | 22 | 500 | 20.748 |
| QS 50 | ran5K.dat | 99493 | 17 | 5000 | 19.8986 |
| QS MED | rev2K.dat | 31249 | 21 | 2000 | 15.6245 |
| QS STD | ran500.dat | 35454 | 10 | 5000 | 7.0908 |
| QS 50 | rev500-1.dat | 2890 | 22 | 500 | 5.78 |
| QS 50 | asc10K.dat | 56746 | 20 | 10000 | 5.6746 |
| QS 50 | ran1K.dat | 5197 | 18 | 1000 | 5.197 |
| QS 100 | rev500-1.dat | 2312 | 22 | 500 | 4.624 |
| QS 100 | asc10K.dat | 44374 | 20 | 10000 | 4.4374 |
| QS 100 | ran500.dat | 2184 | 10 | 500 | 4.368 |
| QS 50 | dup500.dat | 2063 | 23 | 500 | 4.126 |
| QS 100 | asc5K.dat | 20394 | 11 | 5000 | 4.0788 |
| QS 100 | dup1K.dat | 3445 | 9 | 1000 | 3.445 |
| QS 50 | ran10K.dat | 31621 | 19 | 10000 | 3.1621 |
| QS 100 | dup500.dat | 1569 | 23 | 500 | 3.138 |
| QS 100 | ran1K.dat | 3108 | 18 | 1000 | 3.108 |
| QS 100 | asc1K.dat | 2987 | 14 | 1000 | 2.987 |
| QS 100 | rev1K.dat | 2549 | 12 | 1000 | 2.549 |
| QS 100 | rev2K.dat | 5051 | 21 | 2000 | 2.5255 |
| QS 50 | rev2K.dat | 4927 | 21 | 2000 | 2.4635 |
| QS 100 | ran5K.dat | 11993 | 17 | 5000 | 2.3986 |
| QS 100 | dup10K.dat | 19928 | 8 | 10000 | 1.9928 |
| QS 100 | dup5K.dat | 9860 | 15 | 5000 | 1.972 |
| QS 100 | ran10K.dat | 18300 | 19 | 10000 | 1.83 |
| QS 100 | ran2K.dat | 2958 | 16 | 2000 | 1.479 |
| | | | | | |

| Sort Type | File Name |
|-----------|------------|
| NMS | rev10K.dat |
| NMS | rev5K.dat |
| NMS | rev2K.dat |
| NMS | rev1K.dat |
| NMS | rev500-1.d |
| NMS | rev50.dat |

| Elapsed Time (ns) | File Num | # of entries | Rate (ns/entry) |
|-------------------|----------|--------------|-----------------|
| 337483718 | 18 | 10000 | 33748.3718 |
| 67763332 | 23 | 5000 | 13552.6664 |
| 11681576 | 20 | 2000 | 5840.788 |
| 2127801 | . 19 | 1000 | 2127.801 |
| 1403259 | 22 | 500 | 2806.518 |
| 8691 | . 21 | 50 | 173.82 |

| Reverse | | | | |
|---------------------|---------------|-------------|-------------|---------------------|
| Sort Type File Name | Time (ns) # c | of File # o | f entries 7 | Time per entry (ns) |
| QS STD rev5K.dat | 1.55E + 08 | 1 | 5000 | 31067.9946 |
| QS STD rev2K.dat | 2186714 | 21 | 2000 | 1093.357 |
| QS STD rev1K.dat | 787256 | 12 | 1000 | 787.256 |
| QS MED rev5K.dat | 3735979 | 1 | 5000 | 747.1958 |
| QS STD rev500-1.dat | 141481 | 22 | 500 | 282.962 |
| QS 100 rev5K.dat | 798644 | 1 | 5000 | 159.7288 |
| QS 50 rev50.dat | 7984 | 7 | 50 | 159.68 |
| QS 50 rev5K.dat | 747492 | 1 | 5000 | 149.4984 |
| QS 100 rev50.dat | 6698 | 7 | 50 | 133.96 |
| QS STD rev50.dat | 3598 | 7 | 50 | 71.96 |
| QS 50 rev1K.dat | 71457 | 12 | 1000 | 71.457 |
| QS MED rev50.dat | 2678 | 7 | 50 | 53.56 |
| QS MED rev1K.dat | 23970 | 12 | 1000 | 23.97 |
| QS MED rev500-1.dat | 10374 | 22 | 500 | 20.748 |
| QS MED rev2K.dat | 31249 | 21 | 2000 | 15.6245 |
| QS 50 rev500-1.dat | 2890 | 22 | 500 | 5.78 |
| QS 100 rev500-1.dat | 2312 | 22 | 500 | 4.624 |
| QS 100 rev1K.dat | 2549 | 12 | 1000 | 2.549 |
| QS 100 rev2K.dat | 5051 | 21 | 2000 | 2.5255 |
| QS 50 rev2K.dat | 4927 | 21 | 2000 | 2.4635 |
| | | | | |

| Sort Type | File Name | Time (ns) # of | File # of | entries Time p | er entry (ns) |
|-----------|-----------|----------------|-----------|----------------|---------------|
| QS 100 | dup2K.dat | 5835721 | 2 | 2000 | 2917.8605 |
| QS MED | dup2K.dat | 524333 | 2 | 2000 | 262.1665 |
| QS 50 | dup2K.dat | 305635 | 2 | 2000 | 152.8175 |
| QS STD | dup2K.dat | 205013 | 2 | 2000 | 102.5065 |

| QS STD | dup5K.dat | 346027 | 15 | 5000 | 69.2054 |
|-----------|------------|-------------|------------------|------------|--------------------|
| QS STD | dup10K.dat | 654454 | 8 | 10000 | 65.4454 |
| QS STD | dup500.dat | 30810 | 23 | 500 | 61.62 |
| QS STD | dup1K.dat | 57042 | 9 | 1000 | 57.042 |
| QS 50 | dup1K.dat | 48761 | 9 | 1000 | 48.761 |
| QS 50 | dup5K.dat | 237217 | 15 | 5000 | 47.4434 |
| QS MED | dup500.dat | 19279 | 23 | 500 | 38.558 |
| QS 50 | dup10K.dat | 381581 | 8 | 10000 | 38.1581 |
| QS MED | dup10K.dat | 352019 | 8 | 10000 | 35.2019 |
| QS MED | dup1K.dat | 30756 | 9 | 1000 | 30.756 |
| QS MED | dup5K.dat | 111372 | 15 | 5000 | 22.2744 |
| QS 50 | dup500.dat | 2063 | 23 | 500 | 4.126 |
| QS 100 | dup1K.dat | 3445 | 9 | 1000 | 3.445 |
| QS 100 | dup500.dat | 1569 | 23 | 500 | 3.138 |
| QS 100 | dup10K.dat | 19928 | 8 | 10000 | 1.9928 |
| QS 100 | dup5K.dat | 9860 | 15 | 5000 | 1.972 |
| • | • | | | | |
| Sort Type | File Name | Time (ns) # | of File # of | entries Ti | ime per entry (ns) |
| QS STD | asc10K.dat | 1.01E+08 | 20 | 10000 | 10147.1759 |
| QS STD | asc2K.dat | 15935677 | 4 | 2000 | 7967.8385 |
| QS STD | asc5K.dat | 16861761 | 11 | 5000 | 3372.3522 |
| QS STD | asc1K.dat | 1138760 | 14 | 1000 | 1138.76 |
| QS STD | asc500.dat | 268501 | 3 | 500 | 537.002 |
| QS 100 | asc50.dat | 24952 | 13 | 50 | 499.04 |
| QS MED | asc500.dat | 208185 | 3 | 500 | 416.37 |
| QS 50 | asc50.dat | 9903 | 13 | 50 | 198.06 |
| QS 50 | asc2K.dat | 363338 | 4 | 2000 | 181.669 |
| QS 50 | asc500.dat | 86529 | 3 | 500 | 173.058 |
| QS 100 | asc500.dat | 72878 | 3 | 500 | 145.756 |
| QS 100 | asc2K.dat | 256534 | 4 | 2000 | 128.267 |
| QS STD | asc50.dat | 4261 | 13 | 50 | 85.22 |
| QS 50 | asc5K.dat | 347988 | 11 | 5000 | 69.5976 |
| QS 50 | asc1K.dat | 59451 | 14 | 1000 | 59.451 |
| QS MED | asc50.dat | 2547 | 13 | 50 | 50.94 |
| QS MED | asc2K.dat | 89783 | 4 | 2000 | 44.8915 |
| QS MED | asc10K.dat | 350994 | 20 | 10000 | 35.0994 |
| QS MED | asc5K.dat | 156242 | 11 | 5000 | 31.2484 |
| QS MED | asc1K.dat | 26695 | 14 | 1000 | 26.695 |
| QS 50 | asc10K.dat | 56746 | 20 | 10000 | 5.6746 |
| QS 100 | asc10K.dat | 44374 | 20 | 10000 | 4.4374 |
| QS 100 | asc5K.dat | 20394 | 11 | 5000 | 4.0788 |
| QS 100 | asc1K.dat | 2987 | 14 | 1000 | 2.987 |
| | | | | | |
| Sort Type | File Name | Time (ns) # | of File # of | entries Ti | ime per entry (ns) |
| QS 100 | ran50.dat | 684914 | 5 | 50 | 13698.28 |
| | | | | | |

| QS STD | ran50.dat | 28327 | 5 | 50 | 566.54 |
|--------|------------|--------|----|-------|---------|
| QS MED | ran50.dat | 6491 | 5 | 50 | 129.82 |
| QS 50 | ran500.dat | 51608 | 10 | 500 | 103.216 |
| QS 50 | ran50.dat | 4617 | 5 | 50 | 92.34 |
| QS STD | ran10K.dat | 884192 | 19 | 10000 | 88.4192 |
| QS STD | ran5K.dat | 356534 | 17 | 5000 | 71.3068 |
| QS STD | ran1K.dat | 67802 | 18 | 1000 | 67.802 |
| QS STD | ran2K.dat | 114604 | 16 | 2000 | 57.302 |
| QS 50 | ran2K.dat | 77568 | 16 | 2000 | 38.784 |
| QS MED | ran5K.dat | 159178 | 17 | 5000 | 31.8356 |
| QS MED | ran1K.dat | 31138 | 18 | 1000 | 31.138 |
| QS MED | ran10K.dat | 282599 | 19 | 10000 | 28.2599 |
| QS MED | ran500.dat | 14022 | 10 | 500 | 28.044 |
| QS MED | ran2K.dat | 48789 | 16 | 2000 | 24.3945 |
| QS 50 | ran5K.dat | 99493 | 17 | 5000 | 19.8986 |
| QS STD | ran500.dat | 35454 | 10 | 5000 | 7.0908 |
| QS 50 | ran1K.dat | 5197 | 18 | 1000 | 5.197 |
| QS 100 | ran500.dat | 2184 | 10 | 500 | 4.368 |
| QS 50 | ran10K.dat | 31621 | 19 | 10000 | 3.1621 |
| QS 100 | ran1K.dat | 3108 | 18 | 1000 | 3.108 |
| QS 100 | ran5K.dat | 11993 | 17 | 5000 | 2.3986 |
| QS 100 | ran10K.dat | 18300 | 19 | 10000 | 1.83 |
| QS 100 | ran2K.dat | 2958 | 16 | 2000 | 1.479 |
| | | | | | |

| Sort Type | File Name E | lapsed Time Fil | le Num | # of entries | Rate (ns/er |
|-----------|-------------|-----------------|--------|--------------|-------------|
| NMS | rev10K.dat | 337483718 | 18 | 10000 | 33748.37 |
| NMS | rev5K.dat | 67763332 | 23 | 5000 | 13552.67 |
| NMS | rev2K.dat | 11681576 | 20 | 2000 | 5840.788 |
| NMS | rev1K.dat | 2127801 | 19 | 1000 | 2127.801 |
| NMS | rev500-1.d | 1403259 | 22 | 500 | 2806.518 |
| NMS | rev50.dat | 8691 | 21 | 50 | 173.82 |

| Sort Type | File Name | Elapsed Time (ns) | File Num | # | of entrie | |
|-----------|------------|-------------------|----------|----|-----------|--|
| NMS | dup10K.dat | 52867455 | 7 | 7 | 10000 | |
| NMS | dup5K.dat | 85771028 | 3 | 11 | 5000 | |
| NMS | dup2K.dat | 1217658 | 3 | 9 | 2000 | |
| NMS | dup1K.dat | 3672492 | 2 | 8 | 1000 | |
| | | | | | | |

| Sort Type | File Name | Elapsed Time (ns) File Num | # | of entrie |
|-----------|------------|----------------------------|---|-----------|
| NMS | asc10K.dat | 525564237 | 1 | 10000 |
| NMS | asc5K.dat | 84066733 | 6 | 5000 |
| NMS | asc2K.dat | 33370851 | 3 | 2000 |
| NMS | asc1K.dat | 3122172 | 2 | 1000 |
| NMS | asc500.dat | 554667 | 5 | 500 |
| NMS | asc50.dat | 10666 | 4 | 50 |

| NMS | ran5K.dat | 77348315 | 17 | 5000 |
|-----|------------|----------|----|------|
| NMS | ran2K.dat | 10345872 | 14 | 2000 |
| NMS | ran1K.dat | 3765727 | 13 | 1000 |
| NMS | ran500.dat | 617087 | 16 | 500 |
| NMS | ran50.dat | 29630 | 15 | 50 |

ntry) QS STD AV 16985159 QS 100 AV 424646.3 QS 50 AVG 160215.3 QS MED A\ 282542.8 NMS AVG 93001084 QS REV 2933509

Rate (ns/entry)

52867.46

17154.21

6088.294

3672.492

Rate (ns/entry)

52556.42

16813.35

16685.43

3122.172

1109.334

213.32

15469.66 5172.936 3765.727 1234.174 592.6