|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Trial # | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| **INIT\_TIME** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **FIN\_TIME** | **15000** | **15000** | **15000** | **15000** | **15000** | **15000** | **15000** | **15000** | **15000** | **15000** | **15000** |
| **ARRIVE\_MIN** | **10** | **7** | **10** | **20** | **12** | **5** | **25** | **10** | **15** | **5** | **30** |
| **ARRIVE\_MAX** | **15** | **20** | **15** | **35** | **40** | **20** | **30** | **15** | **18** | **6** | **40** |
| **CPU\_MIN** | **5** | **8** | **20** | **5** | **3** | **10** | **20** | **25** | **5** | **15** | **5** |
| **CPU\_MAX** | **20** | **15** | **30** | **15** | **10** | **25** | **25** | **40** | **10** | **25** | **10** |
| **DISK1\_MIN** | **20** | **25** | **50** | **30** | **15** | **20** | **30** | **15** | **5** | **3** | **1** |
| **DISK1\_MAX** | **30** | **40** | **60** | **70** | **30** | **40** | **35** | **20** | **10** | **5** | **10** |
| **DISK2\_MIN** | **20** | **25** | **50** | **40** | **15** | **30** | **40** | **20** | **5** | **3** | **5** |
| **DISK2\_MAX** | **40** | **40** | **60** | **80** | **30** | **80** | **45** | **25** | **10** | **5** | **15** |
| **SEED** | **1330** | **700** | **50** | **100** | **75** | **500** | **10** | **1000** | **60** | **5** | **36** |
| **QUIT\_PROB** | **20** | **20** | **20** | **20** | **20** | **20** | **20** | **20** | **20** | **20** | **20** |
| Max E\_Q length | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 4 | 5 | 4 | 6 |
| Max CPU length | 968 | 708 | 1080 | 2 | 4 | 1005 | 425 | 1107 | 482 | 2572 | 36 |
| Max D1\_Q length | 5 | 67 | 2 | 161 | 103 | 3 | 1 | 0 | 1 | 0 | 1 |
| Max D2\_Q length | 5 | 68 | 2 | 160 | 104 | 3 | 1 | 0 | 1 | 0 | 1 |
| Avg. E\_Q length | 4.89983 | 5.08662 | 4.86489 | 4.94021 | 4.9977 | 4.91991 | 4.54958 | 3.61355 | 4.12047 | 3.45236 | 4.07525 |
| Avg CPU length | 482.839 | 357.398 | 540.048 | 0.303112 | 0.545282 | 491.762 | 213.355 | 552.175 | 240.889 | 1283.23 | 19.3729 |
| Avg D1\_Q length | 0.631606 | 29.9264 | 0.292599 | 79.5234 | 054.5004 | 0.534758 | 0.0197667 | 0 | 0.000823529 | 0 | 0.00360697 |
| Avg D2\_Q length | 0.681347 | 29.97 | 0.34739 | 79.5849 | 54.4936 | 0.696063 | 0.0191186 | 0 | 0.00129412 | 0 | 0.00410448 |
| Max CPU response | 20 | 15 | 30 | 15 | 10 | 25 | 25 | 40 | 10 | 25 | 10 |
| Max D1 response | 30 | 40 | 60 | 70 | 30 | 40 | 35 | 20 | 10 | 5 | 10 |
| Max D2 response | 40 | 40 | 60 | 80 | 30 | 80 | 45 | 0 | 10 | 0 | 15 |
| Avg CPU response | 12.4386 | 11.4155 | 25.003 | 9.98636 | 6.63694 | 17.457 | 22.5564 | 32.8337 | 7.48154 | 20.0937 | 7.47926 |
| Avg D1 response | 25.0151 | 32.5207 | 55.3636 | 48.2797 | 22.7796 | 30.7454 | 32.5537 | 17.4832 | 7.45555 | 3.99161 | 5.57962 |
| Avg D2 response | 29.9294 | 32.8458 | 55.0252 | 60.498 | 22.642 | 56.0567 | 42.3644 | 0 | 7.47325 | 0 | 10.1795 |
| CPU throughput | 0.0804 | 0.0876 | 0.0400667 | 0.0733333 | 00.126333 | 0.0573333 | 0.0443333 | 0.0304667 | 0.1336 | 0.0498 | 0.1334 |
| D1 throughput | 0.0354 | 0.0306 | 0.0161333 | 0.0207333 | 0.0438667 | 0.0288 | 0.0204667 | 0.0238667 | 0.0727333 | 0.0397333 | 0.0837333 |
| D2 throughput | 0.0292667 | 0.0302667 | 0.0158667 | 0.0164667 | 0.0441333 | 0.0164667 | 0.0157333 | 0 | 0.0324 | 0 | 0.0234 |
| CPU util | 1.00007 | 1 | 1.0018 | 0.732333 | 0.838467 | 1.0087 | 1 | 1.00033 | 0.999533 | 1.00067 | 0.997733 |
| D1 util | 0.885533 | 0.995133 | 0.8932 | 1.001 | 0.999267 | 0.885467 | 0.666267 | 0.417267 | 0.542267 | 0.1586 | 0.4672 |
| D2 util | 0.875933 | 0.994133 | 0.873067 | 0.9962 | 0.999267 | 0.923067 | 0.666533 | 0 | 0.242133 | 0 | 0.2382 |

When running the program multiple times, I’ve learned that decreasing arrival interval time (such as in trial 10) creates longer CPU queue because more jobs are in system. Shorter CPU processing time (such as in trials 4 and 5) creates shorter CPU queue length because jobs get processed faster. They also create longer disk queues because more jobs are being sent to disk faster, so they build up at disk queues. The event queue length stayed pretty much the same throughout all trials. CPU queue length is usually longer than disk queues which makes sense because jobs start by going to CPU and then sometimes they don’t reach the disk so it would make sense that there are more jobs waiting in CPU queues than in disk queues. When the process time of disk is shorter the disk utility is also smaller (such as in trial 10). CPU utility stays pretty similar throughout all trials, shows that CPU is being used for pretty much the entire simulation which is important for computer systems to do. Disk queues stayed relatively small for most trials, which also makes sense because jobs split between two components after using the CPU.