

1. Write a 1 sentence summary of the system properties of the Khoury machines.

48 Intel 2.3Ghz CPUs with 12 cores, x86_64 architecture, 191GB memory

2. Write a 1 sentence description of why your program leaked memory when we allocated memory using `malloc` before forking new processes.

in total allocate 9 chunk of memory, but only one chunk(parent) is freed, the rest 8 are leak(child process) since 8 child and parent process will run in separate memory space and fork func will give both memory space with same content, while during child process no free action is performed therefore causes 8 memory leakages.

3. Write a 1 sentence description of why you do (or do not) need locks for the threaded solution in Part 2.

no need to use lock in this case since each thread would adjust one specific line and won't mess up other's painting row.