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Machine Problem 2 Report

To compare the overhead of sending a request over a request channel to a separate process to the overhead of executing a local function, the program was executed 10 times and the results were averaged. The average time of execution for sending requests to a separate process was 465.5 microseconds. Execution times for sending requests to a separate process ranged from 316 microseconds to 681 microseconds. The average time of execution for calling local functions was 203 microseconds. Execution times for calling local functions ranged from 118 microseconds to 288 microseconds.

The data shows that sending requests over request channels to a separate process is on average over twice as slow compared to calling local functions. This extra overhead is likely incurred due to the context switching required by the processor to execute multiple processes simultaneously. Each switch between the child and parent process is expensive when compared to the total execution time of the program. Another important factor to consider in regards to the execution time of the program is the variability of run times between executions. Like the total runtime, the range of run times for separate processes is over twice as large as the range of run times for calling functions in a single process. Calling functions in a single process has the advantage of being less variable in its time required for execution.

Function	Process
118	488
223	533
281	486
123	344
236	316

Function	Process
235	359
288	533
131	461
116	681
279	454

	Function	Process
Average Run Time	203	465.5
Range of Run Times	172	365