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Appendix to memo of 1/23/68

Further experiments with the full Process Exchange module (excluding the scheduler, which is compiled as a separate segment) verify the extrapolations. The Process exchange was compiled three times:

- a. as currently being used in Multics
- b. with the per-process interlocks replaced by a global interlock set in the module px-ss
- c. with global interlock and all bit declarations changed to fixed binary with appropriate program changes to eliminate all bit variable usage.

As a measure of the execution time of the Process Exchange, the assembled location of the first literal was recorded. This number is equal to the number of instructions compiled by EPL. The results, in decimal, are as follows:

Original Process Exchange	1734	location of 1st literal
Locks removed	1006	or 728 instructions fewer
Strings removed	828	or <u>178</u> instructions fewer
		806 instructions removed

The resulting program is estimated therefore to execute in about half the time of the original. Again a rough guess is that hand coding could compress the 828 location version by factor of three to the vicinity of 300 instructions.