

INTERDEPARTMENTAL

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from the office of

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To: Charles Clingen
From: J.H. Saltzer
Subject: Predicted GIM Interrupt Times

The following prediction of average times for processing GIM interrupts is made by counting instructions in the path, and using measured Traffic Controller Performance.

<u>Module</u>	<u>instructions in path</u>	<u>est. time, including call, save, return</u>
Interrupt Interceptor	66, EPLBSA	180
GIM Interrupt Handler	37, PL	1000
Device Signal Table Manager	4, PL	200
AOS Function	1, EPLBSA	85
Wakeup		<u>900</u>
		2365

Thus figures on the order of 2.4 ms are anticipated. If the GIM processes a burst of interrupts, something less than 2.0 ms/status word will be added, but later some shorter interrupts of 1.2 ms should also come in.

Observations:

1. The old traffic controller wakeup time was 5.9 ms. If it is substituted, the interrupt handling time would be

2.4	time with new T.C.
+5.9	+time for old T.C. wakeup.
<u>-.9</u>	-time for new T.C. wakeup.
7.4 ms	

in the range which you measured.

2. If AOS and DSTM were recoded in machine language, their 285 μ sec total could be reduced to 80 or 90 μ sec.
3. Dave Stone estimates that with effort, the GIM handler might be compressed by a factor of two. Unless 2.4 ms interrupts are too expensive because of their frequency, it probably is not worth the effort.

JHS:MD