

To: Messrs Corbett, Daley, Clinger

From: J. A. Solja

Subj: Observations about Multics performance for ⁶⁰ ~~64~~ users.

As a prerequisite for planning a strategy to ~~improving~~
upgrading Multics performance to the point that a 1 processor system can
support 60 users, it is appropriate to first consider exactly what Multics
operat we can say about Multics operation in that case. ~~We can~~
~~extrapolate~~ Since our basic standard is CTSS, we can define or
interpret this situation

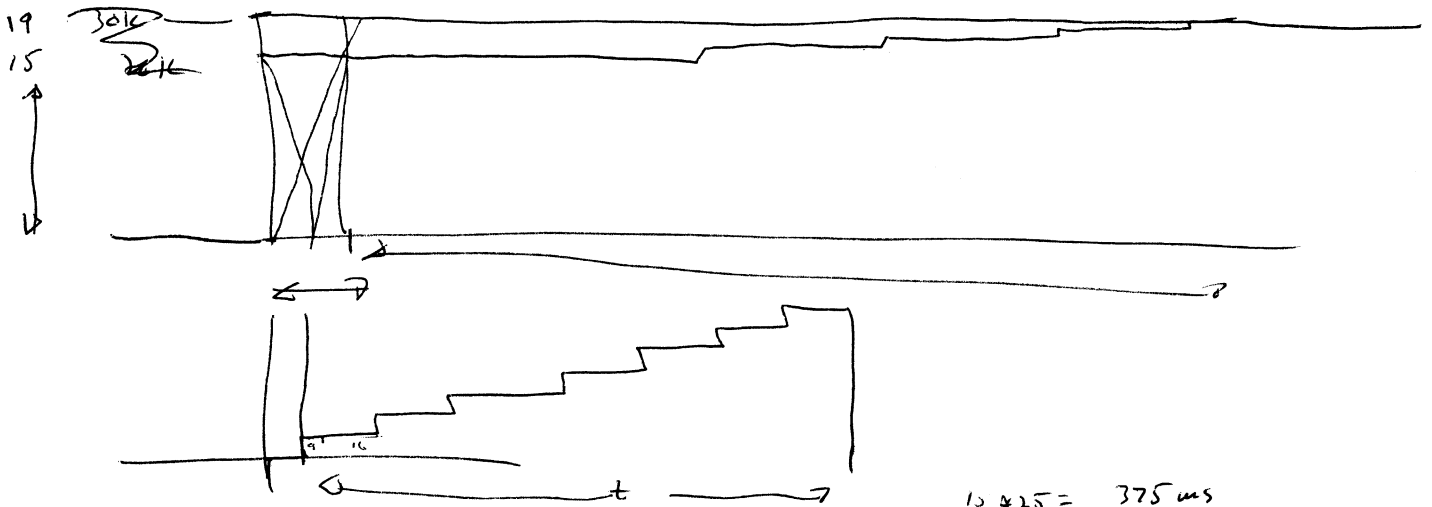
Currently available p.f. time is $\approx 10 \mu s$ 10
 available s.f. via some add. dev $\frac{40 \mu s}{58 \mu s}$ \rightarrow $\frac{20 \mu s}{30 \mu s / \text{frame}}$

$$3 \overline{) 18 \frac{2}{3}}$$

19 missing pages max / interaction.

12 user pages.

7 max # of system pages / interaction.



$$10 * 25 = 375 \text{ ms}$$

$$C_1 = 15K * (15 * 10 + \frac{60}{30 \text{ ms}})$$

computation pages per sec
 60 ms * 15

block- μs 15 * 180 w-sec. minimum

$$C_L = \cancel{25} * 375 \text{ ms} * 15 \text{ p.p.s.} = 187 * 15$$

$$\Delta = \frac{120 * 15}{1600} = 2 \text{ blocks}$$

$$\text{Sery} = 25 \text{ ms/page} * 15 \text{ words} * 7 \text{ pages tie up.}$$

$$= 375 * 15 \text{ words} / \text{sec.}$$

$$= \frac{375 * 15}{1600} \text{ blocks} = \frac{25 * 15 * 15}{1000} = 5 \text{ blocks}$$

To: MPN distribution

From: J. H. Solter

Subj: Catalog of suggested performance improvements.

This memo is intended to provide a ~~written memo~~ ^{place to record} for all suggested performance improvements which have not yet been incorporated into

the Standard Multics System ~~and which are also felt to have some~~ .

~~Appearance in this list does not guarantee that the suggested improvements~~

~~have been evaluated~~ Where known, an estimate of the ^{performance} value of

the suggested improvement is given. ~~Program~~ Suggestion are

grouped into three broad categories according to the part of the system which

must be changed (not necessarily the part which shows improved results):

Hard core system

Supervisors outside hardware (I/O, user control, hardware shell, etc.)

Communications languages

Hard Core System

1. Couple page table presence in core with ~~present~~ AST entry.
entry in Active Segment Table.