

$$\begin{array}{r} 9.814 \\ 1054 \\ \hline 210 \end{array}$$

$$\begin{array}{r} 10 \\ 70 \\ \hline 80 \end{array}$$

$$\begin{array}{r} 1.9 \\ 95 \\ \hline 70 \\ 135 \end{array}$$

	2-CPU 6180	w/ 8M work	1-CPU PDP-10 (A)
raw performance	today	1.4	0.5 mips
effective mips	<u>.68</u>	<u>.95</u>	<u>.7</u>
data delivered	.84 mips	1.33 mips	.35 mips
program rate	.55	.86	unknown
		$\frac{1.33}{.35} = 3.8$	$\frac{1.33}{.84} = 1.58$

~~Homagall proposal~~

today's cost	83.5 114k today	$12 \sqrt{2.0}$
\$4.8M purchase	114k/m rental	10
w/ 2.5M purchase	<u>52 k/m opⁿ</u>	25
160k/m total	160k/m total	1.0 (not today)

HLSI proposal	w/ 8M work	
\$8.6M purchase	214k/m rental	
	<u>52 k/m opⁿ</u>	$\frac{266}{166} = 1.6$ cost increase
	266 k/m total	

Counter proposal	w/ 4M work at 1.56\$/hr for all work	
\$6.1M purchase	160 k/m rental	
	<u>52 k/m opⁿ</u>	$\frac{212}{166} = 1.28$ cost increase
	212 k/m total	

Assumptions

1. Cache + 1.5 piece memory is equivalent to 0.5 piece memory.
2. Interference drops with prog. toward rfc, so w/ VM work,
95% usable time results.

~~$\frac{1.58}{1.1} = 1.46$ price/performance improvement over today.~~

To buy 25% ↑ capacity (1.34 mips = 1 POP-10 with)

cost = 550 k/yr. , 46k/mo.

$$\begin{array}{r} 160k \\ \underline{44} \\ 640 \\ \underline{640} \\ \hline \cancel{710,040k} \\ 7,040 \end{array}$$

$$\begin{array}{r} 575 \\ 60 \overline{) 3,45} \\ \underline{300} \\ 450 \\ \underline{420} \end{array}$$

$$\begin{array}{r} 4.4 \\ 253 \overline{) 11126} \\ \underline{1280^2} \\ 1024 \\ \underline{1020} \end{array}$$

$$\begin{array}{r} 214 \\ \underline{44} \\ 856 \\ \underline{856} \\ \hline 9.416 \end{array}$$

$$50 \sqrt{.84 \text{ mips}}$$

$$.0168 \text{ mips / sec.}$$

$$1 \text{ mips} / 20 \text{ sec.}$$

$$.0168$$

$$\frac{20}{.0168} \text{ mi / 20 sec.}$$

$$\frac{.0168}{.84} = \frac{1}{3} \text{ sec.}$$

$$\frac{\frac{1}{3} \times}{.55} =$$

$\frac{2}{9}$ sec response time

+ query time.

Large Memory Proposal
Note for only

1/24/74

Get 4 copies of book memo for reviewers

Also file

Alternative (fish or cut bait)

1. Fish

a.

~~Get~~ Prod IPC + 4M to go to 2M at w cost,
with promise that we push to 4M

↓

Go to sponsor (ANPA, NSF^{AFC}, other?)

for 800k, add to 300k to

buy 1.1M outstrip, give to IPC.

in return, get 30k/yr free billing for 12 mo of
work, or for 40-50 mo, with return of money later.

↓

or, spend ~~300k~~ guarantee to spend 30k/yr for (2-3?)

years above on average billing for last 12 mo, in return

for IPC's investment of 4M work total; plan to spend 300k

that way, + new funds on-site + old funds. (200k/yr.)