

9/8/72

John Milliken 532 - 7567  
Status of 74157 not released -  
Will check costs with buyer

74L98

Tony Scoville

Call from Gene Kuhar Sys 7. 22F  
~~X4765~~ 032-3  
would like copy of Coleco KBD package  
sent to John Fox.  
Described set method of operation & request to Raleigh.  
Check with Roger if he has copy -  
ask him to call Roger.  
Call Rudy Priority - asked him to call Roger

Call John Fox  
will be in Boca the 25<sup>th</sup>  
Could he be ready to meet with us that week -

Programmer - Don Crandall - 4261  
Bob WISNER 4261

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old file to new PALM -

Device addrs C.

sense DSW E.

need 60 cycle interrupt.

9/21/12

Need KBD Command to move head  
14 motor positions to the left to com head  
away from platter - allows insertion of paper

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10/3/12

Phone conversation with John Fox -

He has agreed to modify 66 key board  
to provide all of the functions we have  
requested - Board will have standard  
Alpha-numeric set plus  $\frac{1}{4}$  extra key on left and  
8 keys on right side of main cluster -

We are to send old gate KBD to John -

KeyBoard D/B ready next week -

slg

Wf 9/25/72

Solved Priority race (first bus in Parity)  
between Print emitter, trigger and Timer  
interrupt trigger. Using - set print SS  
instead of trailing edge of print SS.

Works due to the fact that set print SS is controlled  
by ~~the~~ controller timing pulse C5.

Timer is driven by horizontal drive which is also  
a division of base timing.

Only interrupt exposure (asynchronous  
bus in in so far as interrupts are concerned)  
is the timeout SS trigger.

Other non-timed status bits would be manual  
switches and forms switch, and margin switch.

11/1/72 -

Finally - got no Print assembly -  
Jim Freedhoper to the rescue -

11/3/72.

Finally able to transfer more than one block of data to pblm - But to no avail -

1. memory cards fail above address 0400 Hef -
  2. assembler does not assign proper address constant for any address above 0040 in constant table ~~address area~~
- 

Sat. 11/4

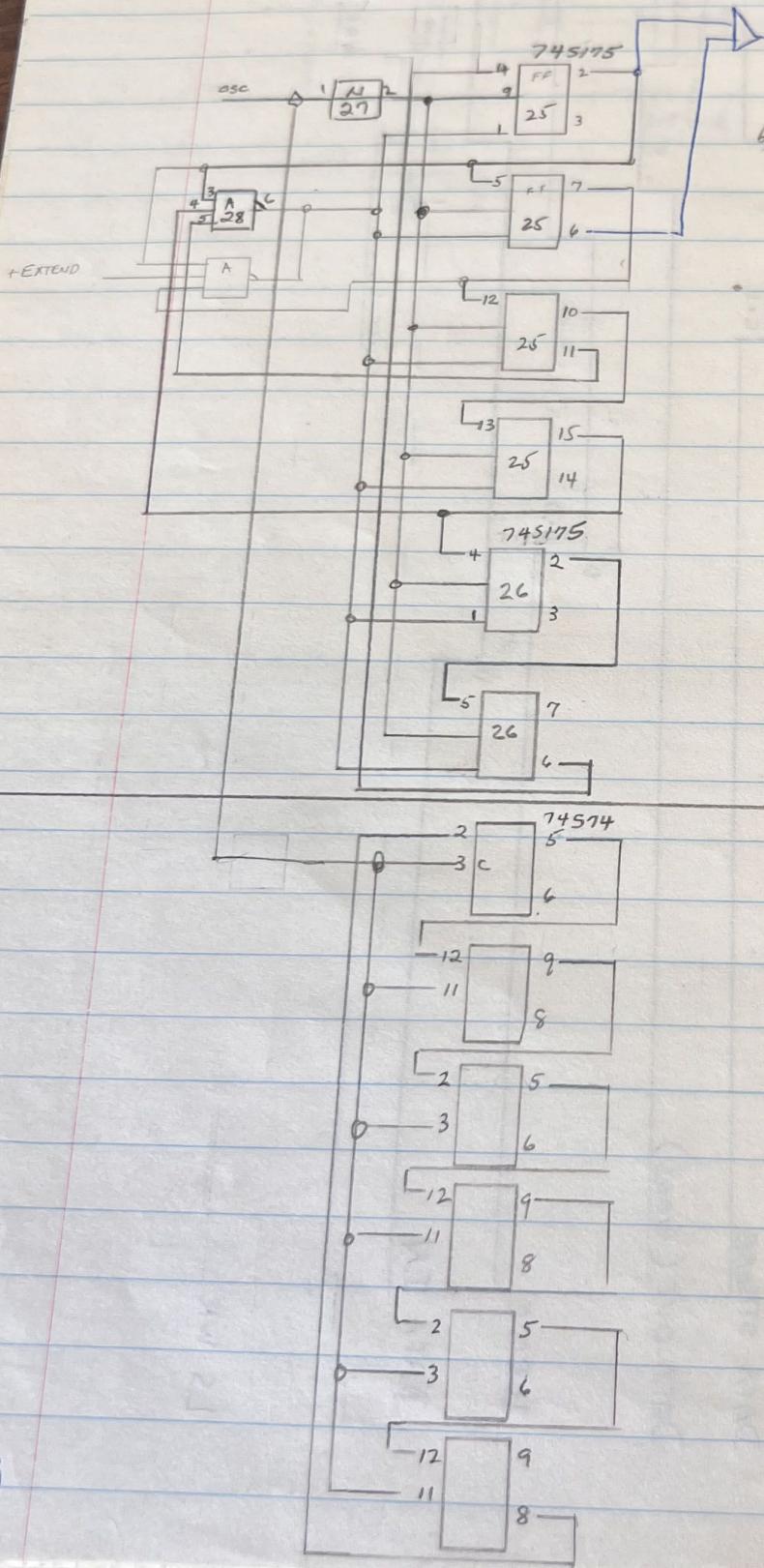
Power Pulses on the Fritz -

Diodes for 6V supply dropped from circuit card - Solder melted

did not puncture ~~the~~ diodes or blow fuse -

J. D. GEORGE  
JAN 03 1973

Measure delay of 12 point clock using  
74574 modules and 745175



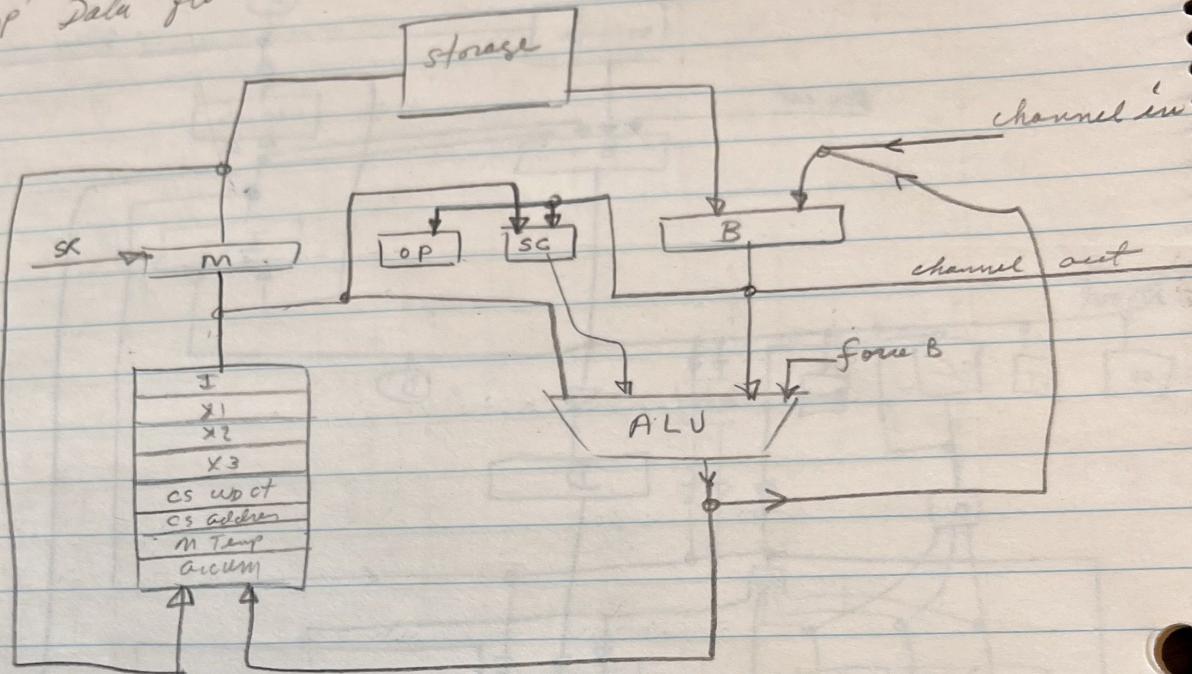
next for test of Dutcher's model -

- c) Unloaded rise / fall  $\approx 3 \text{ ns}$

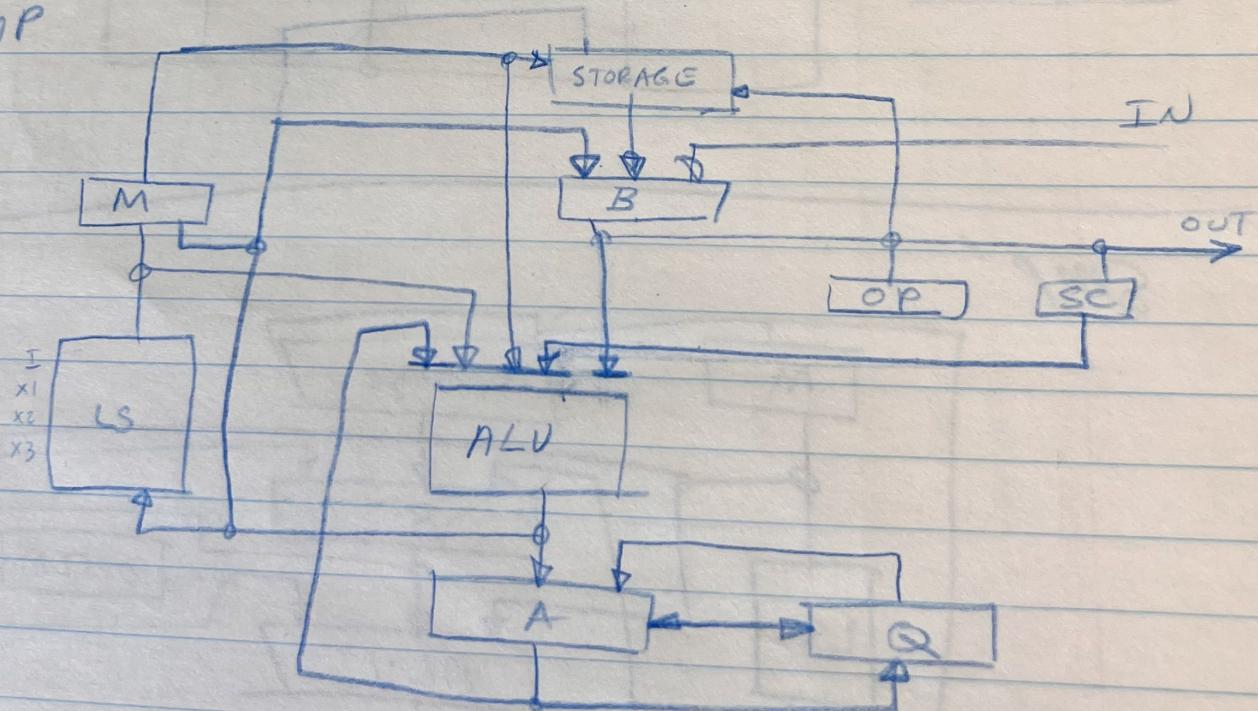
b) With Z<sub>opt</sub> to ground & 270-2 to +5V  
 measured from clock to output  
 $= 0.00097 \text{ to } 0.0011 \text{ ns}$ , LTH, HTL

One sample Only

SMP' data flow



SMP



Call to  
Dick  
Prett

1/5/73

Chet Ratajki, Mgr. | Bob Hall.  
Tech.  
8-442-5678 FEDIV.

Program Mgr.  
Ralph M. Tedball.

TT2 program -  
Test Equipment for external use.  
has tape deck, TP,  
72 bit wide interface

Display - cycle steal. (non buffered)

Hardware attachment Bahia, calcio,  
display in VTL -  
D1 DO - to S7

TP attach in dutchon 4/73  
logic simulation now - 6-7 dutchon  
few VTL. (Wyatt - )

D1DO card to PALM - (RIT VAN Duren)

Software:

No application software ? Good chance ship board will use palm.  
for Bahia, calcio. Radar, buffered display.

No applications programs for ENIT.

→ Raleigh has 1130 and OS assembler - higher level language than  
Boca assembler.

ENIT will IPL from TP link -

Call to Chet (in hospital) | Charlie Seward 442-5939 - in charge of program.

1/8/73 no response

George Bronswig - Prod. planner.

1/9/73 1/14/73

No data checking on UC-5.

In process of documenting software. ~~not~~ expect  
to release in 1 to 2 weeks -

Leo Kohr.  
Software -

Trade secret program - ~~not~~ limited.

Chet Hardware - Calcio KBD - Big Sync-adaptor - TP for acoustical input  
display like Boca - Tape cassette like Sy 3 sy 7 tape -  
Considering greater ~~function~~ function cassette -  
Possibly light Pen - not doing

Storage select - cycle stealing -

Software + attachments operational by 1/3, 1/73 -  
Complete package 3/73.

24

1/11/73. Fritz:

(A) phone conversation with Dick Pratt, Boca Raton -  
PALM - EMT Engineering group - GSD.

a) Hardware attachments for Bahia, Calico, TP attachment  
DIDO to sys 7.

b) Software has been written to test alone attachments -

c) No application programs -

1/16/73 (Vern Kendricks says big push on application programs)

phone conversation with George Braunschweig, Raleigh -

1. FE division, TT2 program -

c) Main reason for selecting palm is parity checking capability of storage and channel. (UC5 is parity checked for channel & output of memory)

b) Will use Boca Raton's Calico KBD attachment.

c) They also have Bi-Sync adaptor, TP adaptor for acoustic coupler, tape cassette adaptor for sys 3 / sys 7 tape deck, video display also Boca Raton's design -

d) Also considering attachment for full function tape cassette, light Pen, and cycle steal channel -

2. Software & attachments scheduled to be operational 1/31/73.  
Complete documented package 3/73,

3. Assembler is higher level than that used in Boca Raton. Expect to have full documentation within two weeks -

Contacts in Raleigh - R.M. Tidball - program mgr -

Chet Ratuski } hardware/planning  
George Braunschweig }  
Leo Klohr — software

NOTE: TT2 ~~is confidential~~  
a trade secret program.  
Limited distribution of documents - Letter to  
R.M. Tidball required to get on distribution list.

Joe George

1/13/73

Palm WC power = 13 watts -  
Nominal 9.50 watts -

Input from Chris.

FSU memory

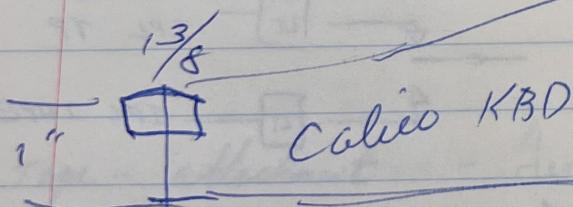
$$18 \times 5/2 =$$

$$8.5V = 30-35 \text{ mA}$$

$$\begin{array}{r} +5V \\ \hline 78-85 \text{ mA} \end{array}$$
$$\begin{array}{r} 65 \\ 175 \\ \hline 210 \\ \hline 2.275 \text{ Amps} \end{array}$$
$$\begin{array}{r} 85 \\ 65 \\ 425 \\ 510 \\ \hline 5.525 \text{ Amps} \end{array}$$

Scheduled 10 CS 8/73

$$13\frac{7}{8} \times 7\frac{1}{4}$$



Calico KBD

3  $\frac{3}{8}$

input from  
Bob Cotton

$\frac{24}{8}$

1/16/73

- c) message print out - at work station.  
Factory, warehouse -
- b) Demand encoder for optical tags  $\frac{200 \times 5}{50} = \$20/\text{ms}$   
Were bar code -  
and characters

transcriber -

Info for Jack Stattard - Hand Held printer -

Conversation with Dan Darwin - X4613

not doing anything on printers at this time -

approximate figures: 10K ~~15K~~ units - printer -  $\frac{\$50}{\$25-30\% \text{ cost}}$  avg mfg  
cost much cont.

18 S20 wire cable - 6' in length.

Power unit for Handy printer only - \$125-135 -

based on 10K - qty.

- All parts = approx \$50.00

Economical if attached to host matrix printer  
shares host power + logic -

Figures are based on IBM's way of doing business -  
Cost could be less by going to outside vendors, etc -

They are looking at new ways to do power supplies.

Ludwig Siegle - Looking for more conventional p-s  
for Bahia. X4630 -

Asked for prints of handy printer power supply.

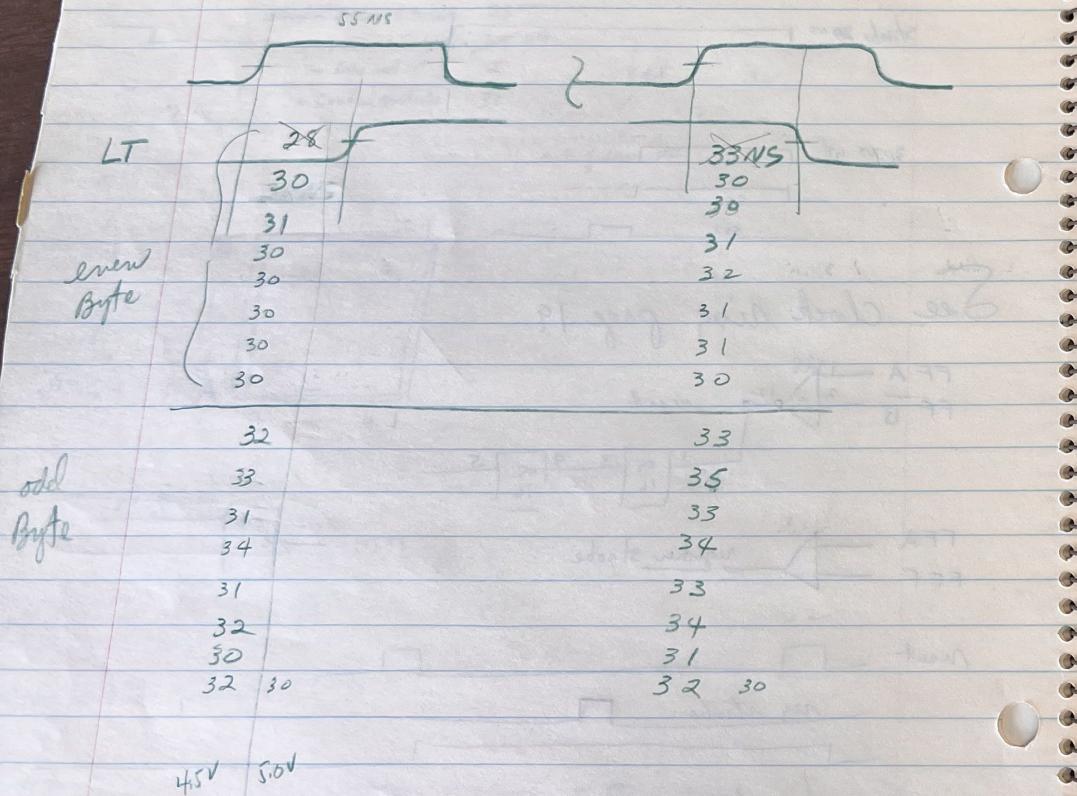
Don promised to send some.

1/18

Make sure file is mega byte capacity.  
Check if Rochester can build one for Fritz.

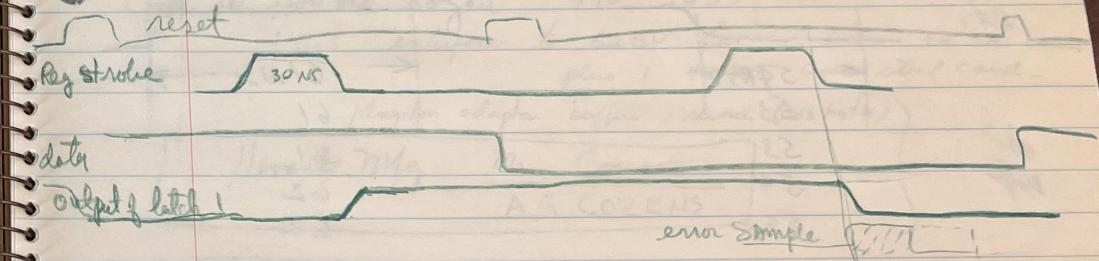
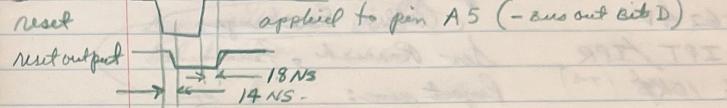
$$V_a = 4.5V$$

Increased sample pulse to 60ns



1/16/13

Voltage at module = 4.5V



adjusted error FF sample pulse -  
Failed at 27 ns.



1/24/3

Call from Pat Smith 624 3252  
Palo Alto Dev.

Questions on PALM -

mentioned Raleigh effect -

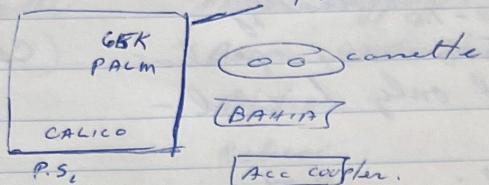
He has Bahia "program".

1/30/73

1 Q 74

SCAMP I

APL



PAT SMITH

J. D. GEORGE

JAN 31 1973

1 ME DESIGNER  
2 SOFT TEST ? Palo  
2 L8 EE APL alto }  
2 TECH }  
3-4 MO -

1 PROD REST  
1 SMD  
1 mic  
FE

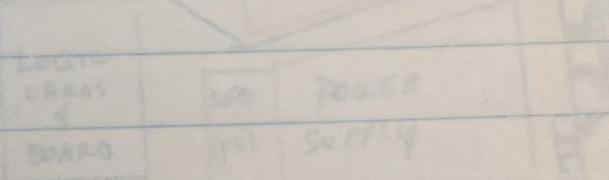
mfg in Boa

Need shift instructions?  
Consider how to add file -

Need 2 models -

par

Could this be  
the beginning?



DR. GEORGE

Snoopy card - ~~1.4Watts - standby  
5.24.8-7.0~~  
~~5.8 max operation . (CCo)~~  
 Can we select only 1 card -

Convection cooling = twice volume -  
 Small quiet fan may be best bet.

$$8K \times 9 \times 8 = 65K \text{ bytes} - \quad (2W\ 3H)$$

$$+ 8.5V \quad \underline{-} \quad 5V$$

Currents <sup>(max)</sup> from Snoopy Functional Spec 12/72 (

		8.5	+5	-5
8Kx9	min stay	50	180	2
"	max	170	1050	50
	max operation	400	1050	50

Max configuration = X8

	50x8	400	180x8	1.440	16
170x8 =	1.360	Amps	1050x8	8.400	400
<u>400x1</u>	400			8.400	400
			1.76	8.4	400

1/30/73

J. D. GEORGE  
JAN 31 1973

Need to Order:

power supply (2)

PALM controller (2)

Bahia (2)

Colico (2)

TV?

Cassette (2)

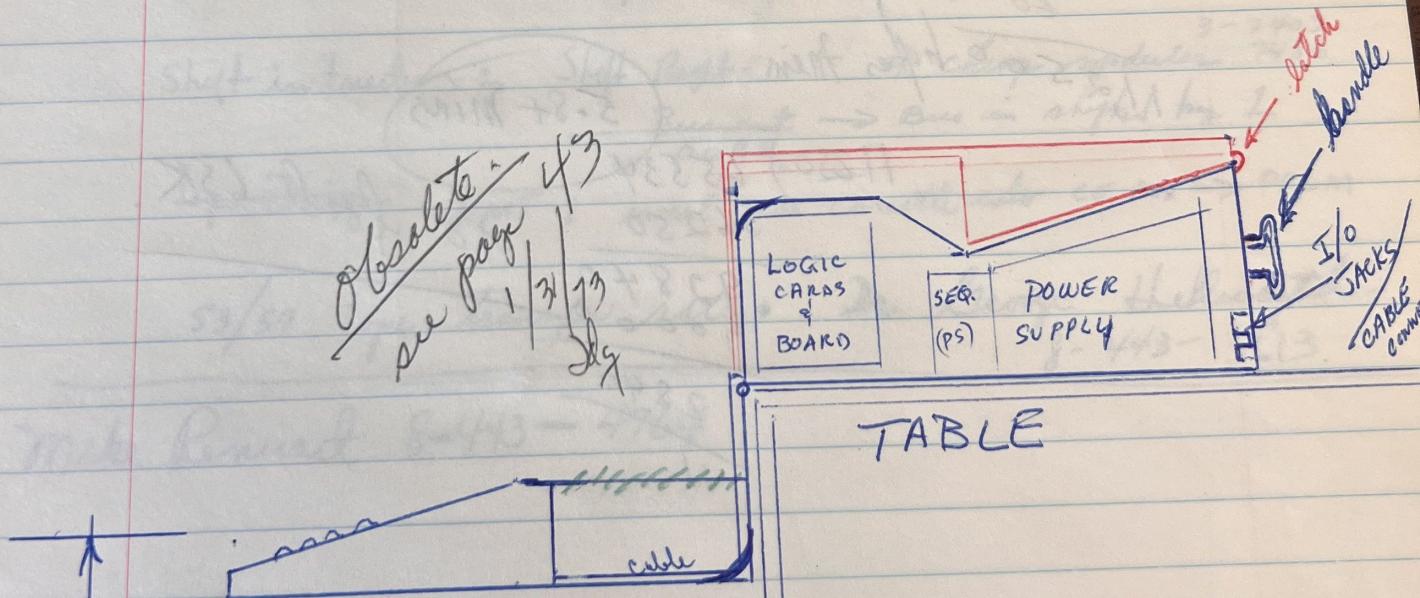
Memory cards (FSU) (Reusing) (2) 65K bytes

APL ROS FOR DISPLAY (character Generator)

IPL ROS

VTL SAV 74S 257

Design Considerations: To overcome table/desk height design could be as follows:



29.5": standard acceptable height to center row of KBD.

Call to:  
1/31/73 Charlie Seward 8-442-5939

Full function tape ref/w - 3/13 } 442-5678

rewind, backspace,  
Using commercial Tape deck \$2500.00 25"/sec. 600K bytes  
Bi Sync - only test next week -

Cassette complete.

Working with Boca for low cost tape unit - \$400-500  
GSD megabyte cassette area. Hellworth  
Back room project. (REA involved)

IPL from TP & cassette.

Power supply — can not use standby power for memory operation

Bill Tutte x4222 | Pratt 4223

status of PALM: 9 modules in + running  
1 more - ship 2/1/73  
interface 2/15/73 } 4W 6H1

Shift instruction is Shift Right 1 = 4 cheap modules 3-7403  
7486  
Bus out → Bus in shifted by 1.  
OORE<sub>16</sub>.

Tape Drive. Enclosure will use cassette into CE box → PALM

53/57 tape transfer rate. Dr. George Hellworth  
8-443-3613

Mike Renner 8-443-4764

1/31/23

Cohris informs me that Snoopy card power requirements must be figured with max standby currents - requirement for 65K would be 60 watts - Could reduce to 48 watts by specifying  $\pm 3\%$  power supply tolerance and lowering E 10%.

Keith Slack 8-456-6667 - out of town - back 2/2/23

FSU 8KX9 4 sockets 3 hi 4-4.5 watts.  
can be reduced some -

Standby = 80% of running -  
 $\approx \frac{1}{2}$  power of snoopy -

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Sy 7 JR using ~~8KX9~~ 6 hi 8KX9 snoopy card  
4W

1/31/73

— Sys / Arch —  
Mgr Paul FRIEDL

Call to Pat Smith 8-624-3252

Minimum storage = 65K bytes.

Type III 1130 APL System

requires approx. 40K bytes to store  
routines now stored on disk.

Initial release:

Printer / 15BD / PADM / storage / cassette.

Follow on T8, Coupler -

Possible 8K RAM for 1130 emulates  
+ attachment software

Conversation with Pat Smith 2/1/73

1st Cus Ship 2/74

<10K Purchase      65K, PALM, colic, Bobia, cassette  
= 12K OK

Riesling = .13 bit alternate

8x9 = \$1K

4/73 -

74 .305 f/bit

75 .228/

76 .243

Card cost 8x9 - \$438,-

\$246

206,-

214,-