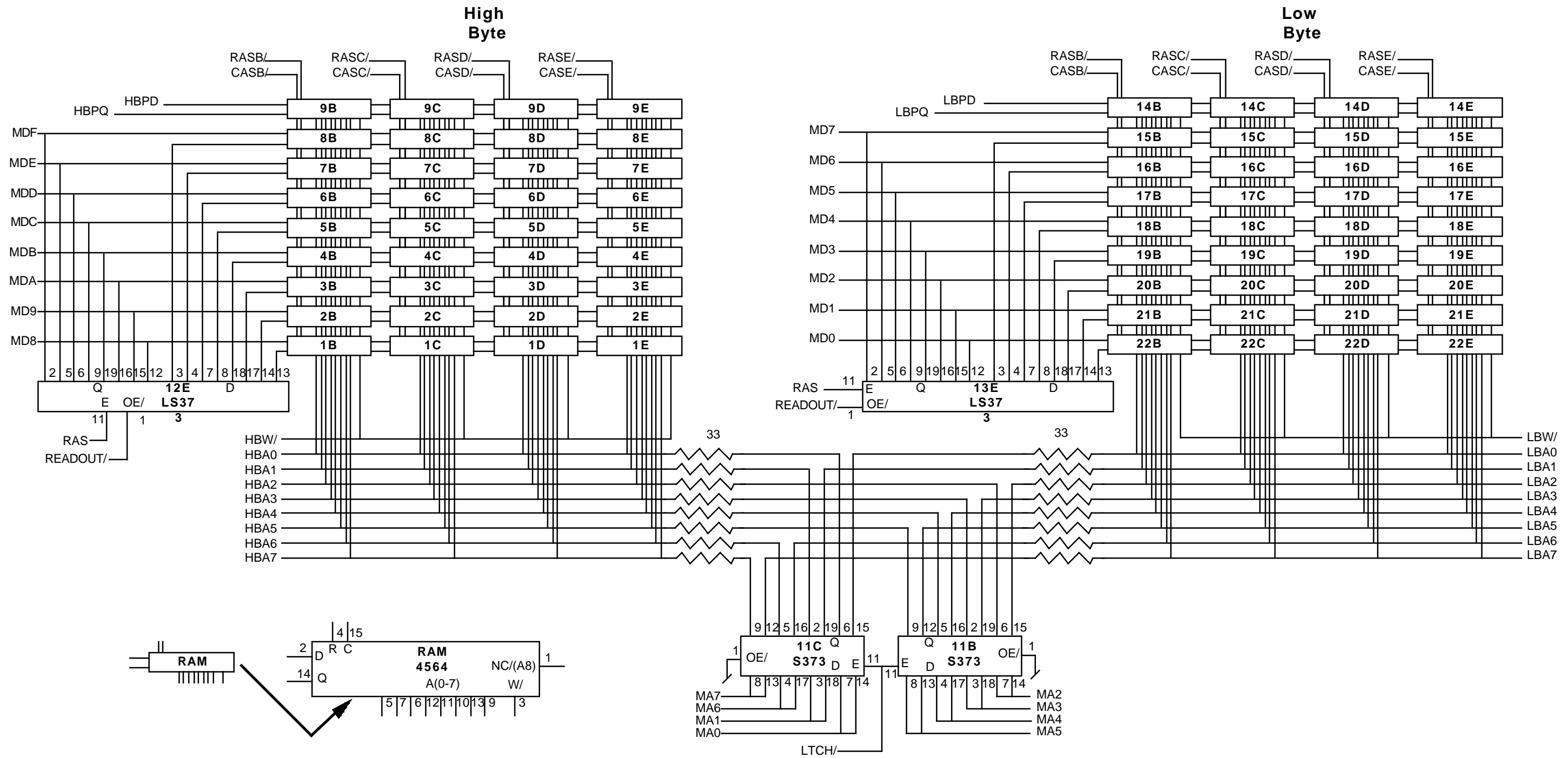


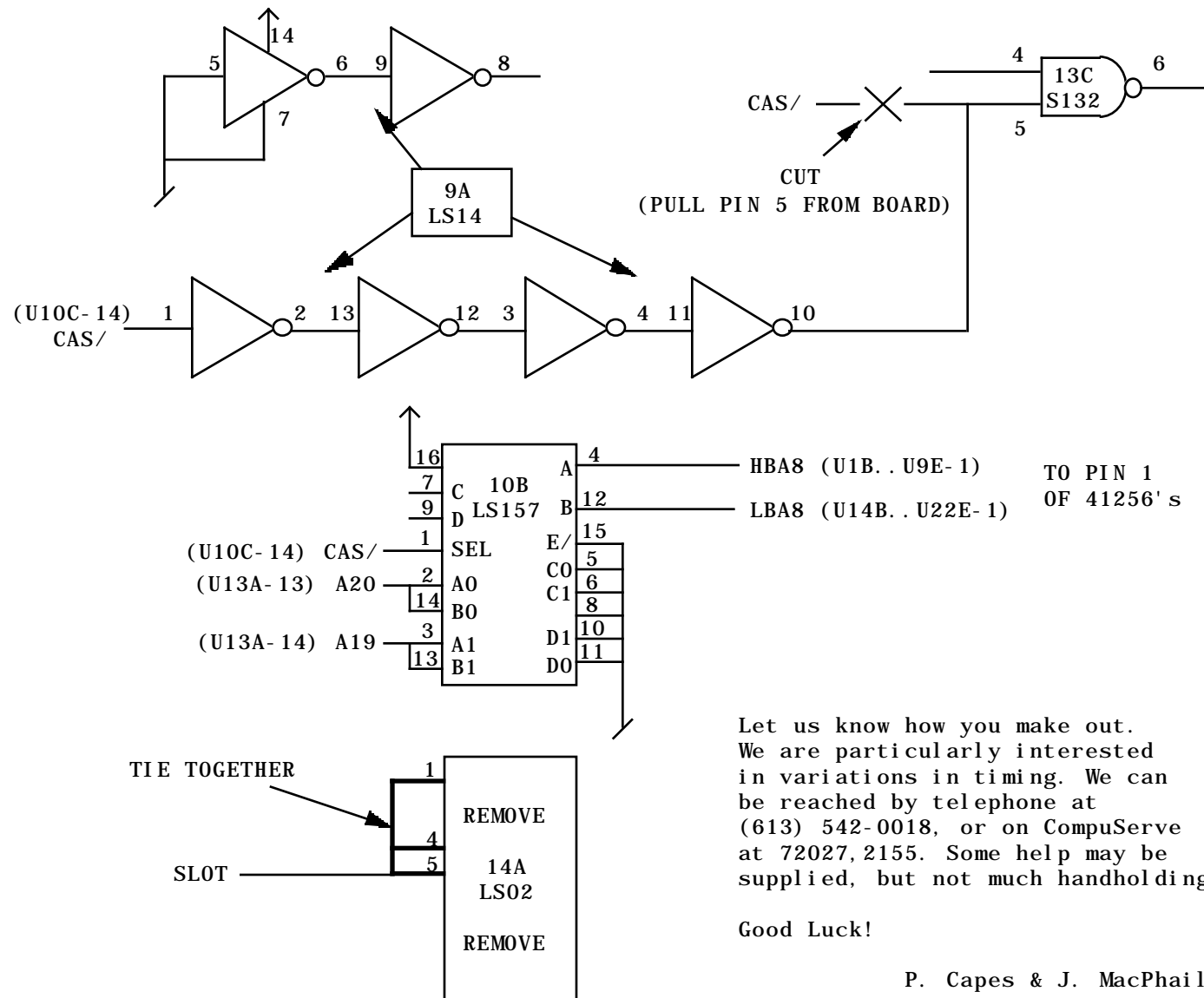
Lisa 512K Dynamic RAM Board	
Control Logic	
NTS	Dwg. 1 of 3
pc/jdm	June 23, 1986



Lisa 512K Dynamic RAM	
Board Memory Array	
NTS	Dwg. 2 of 3
pc/jdm	June 23, 1986

Lisa 512K Ram board - Upgrading to 2M.

1. Desolder 72 4564 Ram chips. Board is easily damaged by pointy instruments. You will need LOTS of heat for the power supply pins. Find someone with a desoldering station.
2. Desolder U14A - 74LS02 and pin 5 of U13C - 74S132.
3. Solder in 72 41256 Ram Chips. Use sockets if you care to. Only 150ns chips have been tried. 200ns will probably work. Solder in a 74LS14 as U9A, and a 74LS157 as U10B.
4. Wire all the High Byte pin 1's together, all the Low Byte Pin 1's together.
5. Connect the rest of the circuitry as shown below. Pull pin 5 of U13C out of the board so you can connect to the chip only. The hole is a feedthrough, so hacking the traces is inadvisable.
6. Jumper pins 1,4, and 5 of the missing U14A. This enables BDSL (Board select) always when in the Mem1 slot, never in the Mem2 slot, hence the board only works in Mem1.
7. It will probably be useful to know that pulling pin 118 of the I/O board low generates a level 7 interrupt, and there is a service mode which is entered with Control-S from the boot-error mode. (Where you are after you try to boot a floppy with none in the drive)
8. (JDM 90/01/10) Note that you can save some ram chips by disabling the parity. This would require 64 chips to give 2Mb.

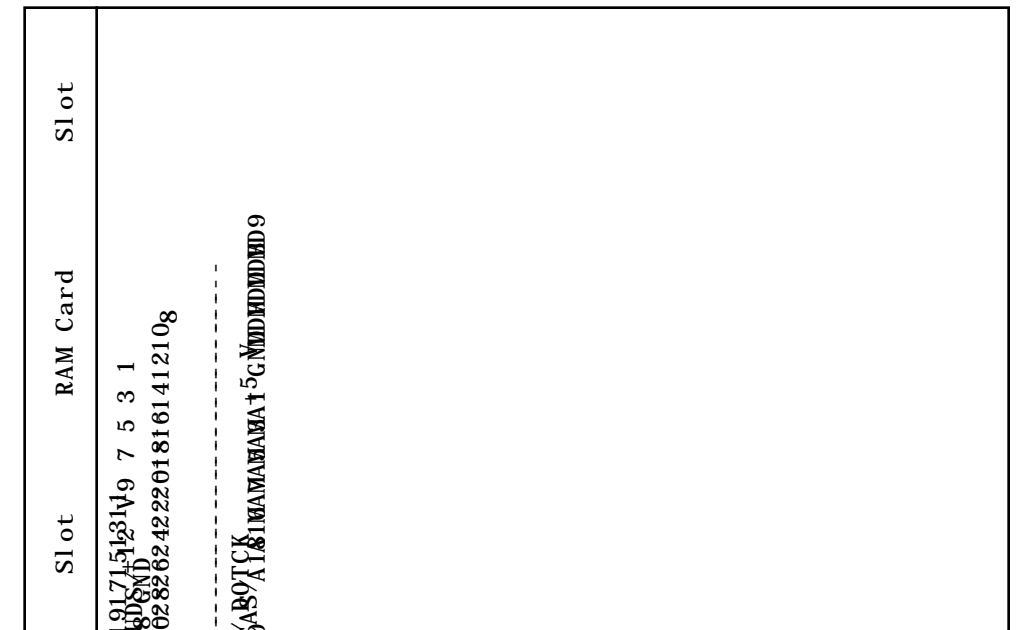


Let us know how you make out. We are particularly interested in variations in timing. We can be reached by telephone at (613) 542-0018, or on CompuServe at 72027,2155. Some help may be supplied, but not much handholding.

Good Luck!

P. Capes & J. MacPhail

Lisa Memory Card Connector Assignment



NOTES	
Example	Meaning
+	Indicates no connection. There are <u>NO FOUR WAY CONNECTIONS</u> on these dwgs.
↑	Indicates connection to Vcc (+5 V).
↓	Indicates connection to logic ground.
RESET/	Trailing slash indicates signal is active low.
	Power supply connections and decoupling not shown.
!	Nothing is ever what it seems. Use these drawings at your own risk!

jdm

Lisa 512K Dynamic RAM Board	
Notes	
NTS	Dwg. 3 of 3
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