The UnROM

The UnRom is an adaptor for Digital Group Computer systems to allow control of the ROM disable function from software. Thus the user can write programs which require access to page 0 of the systems address space for operation. Particular application of this capability would be the ability to execute a program under a particular DG operating environment such as DISKMON, with the program first using the UnROM to disable the DISKMON ROM, and then to copy a ROM image for an alternate operating environment, such as MCOS into Page 0 RAM. The program could then instruct the operator to insert the appropriate diskette, and branch to location 000000, simulating a reset key operation. The RAM image of the ROM would then boot up the alternate system as if the ROM was actually installed within the system.

Functionally the UnROM occupies 2 port positions on the DG I/O buss. Only 8 address bits are decoded, thus memory mapped I/O is not supported. Port addresses 376 and 377 are decoded by the 7430's; with the I/O write signal used to gate the input to the latches formed by the 7400. The resistor - capacitor network attached to the 7402 provides a power-on reset to insure that the ROM is not disabled when the system powers up. Thus an output instruction to port 377 will cause the ROM to be disabled, and an out to port 376 will cause the ROM to re-appear. Providing a momentary ground to pin M on the I/O connector will also cause the ROM to reappear. Note that this pin is normally unused in the DG system. The provision for grounding pin M is optional, and is only to provide for an ability to return to a real ROM manually.

Construction of the UnROM involves assembling the required parts on either some form of a 22 pin .156" prototype card, or on the etched card listed in the bill of materials. The UnRom is then plugged into any unused 22 pin I/O Buss socket and the UnRom is ready for operation.

A copy of a sample BOOT program is available at no charge, copies for operation under DISKMON, PHIMON, and AUDIO are available. Both Assembler II source and object will be furnished, the requestor must furnish both media, and return postage. Either SUDING format AUDIO tapes can be furnished, or standard (8") DISKMON diskettes.

Caution: RAM images of ROM's suffer from 2 exposures which can yeild unpredictable results. First since the ROM, and its ROM delay are both disabled, any timing loops within the ROM code must be adjusted for normal memory operating speed. Copies of most ROM images, with speed adjustments are on the available software support media. Second since the ROM image is now not protected from write operations, an errant program could store data into page 0 causing unpredictable results - usually a crash.

BILL OF MATERIALS - the UnROM

1 7400 IC	2 7430 IC	1 2.2K $\frac{1}{4}$ W resistor
1 7402 IC	1 22uF tantalum, 10V or more	4 14 pin IC sockets

suitable 22 pin, .156 center dual readout proto card

Card may be Radio Shack prototyping card, DG DIP-PROTO paddle card or similair. Etched card also suitable.

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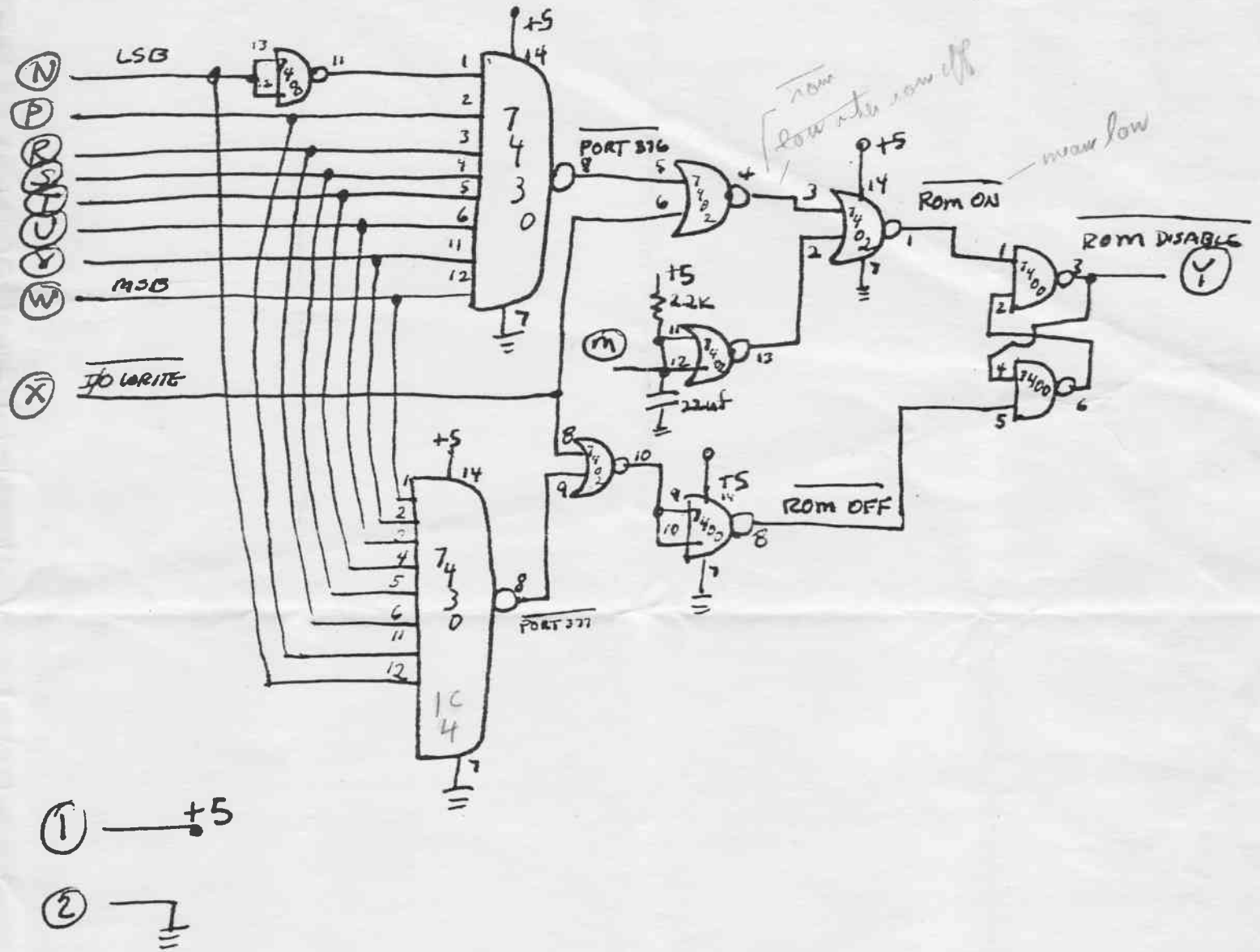
OUT   377   KILLS   ROM

OUT   376   ENABLES   ROM

when Y goes low, rom is disabled