HORIZON RAMDISK 256K EXPANSION

The HORIZON RAMDISK is available in 90K SSSD (360 SECTOR) and 180K DSSD (720 SECTOR) sizes. This project expands the size to 256K (976 SECTORS) for an increase in storage capacity of 64K (256 SECTORS) or 35.5%.

This increase is accomplished by adding one 74LS154 (4 to 16 DECODER), one 74LS02 (NOR GATE), and eight 8K 6264LP-15 STATIC RAM chips, removing one 74LS138 (3 to 8 DECODER) chip, and modifying the DSR CODE to recognize the existance of the added memory. The original HORIZON RAMDISK CIRCUIT does not fully decode one of the five memory address lines from U9 limiting it to 180K. By fully decoding this line we pick up eight more CHIP SELECT SIGNALS bringing us up to 256K (976 SECTORS). This utilizes the original design to its fullest potential with only a few SIMPLE MODIFICATIONS.

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6. Install the ADDITIONAL 4 TO 16 DECODER CHIP (74LS154) PIGGYBACKED on top of the ORIGINAL 4 TO 16 DECODER CHIP, U2. Connect PIN 12 and PINS 20 THRU 24 to their corresponding PINS below. Bend PINS 1 THRU 11 and PINS 13 THRU 19 OUTWARD. Reinstall the PIGGYBACKED PAIR of 4 TO 6 DECODERS in its U2 socket. Connect lines from the UPPER CHIP PINS 1 THRU 8 as follows.

PIN 1 to U1 SOCKET PIN 15.	PIN 2 to U1 SOCKET PIN 14.
PIN 3 to U1 SOCKET PIN 13.	PIN 4 to U1 SOCKET PIN 12.
PIN 5 to U1 SOCKET PIN 11.	PIN 6 to U1 SOCKET PIN 10.
PIN 7 to U1 SOCKET PIN 9.	PIN 8 to U1 SOCKET PIN 7.

These provide the CHIP SELECT SIGNALS to the ORIGINAL (CENTER LAYER) of 8K RAM CHIPS.

Connect lines from the UPPER CHIP PINS 9 THRU 11 and 13 THRU 17 as follows.

PIN 9 to PIN 20 U3 TOP 8K CHIP.	PIN 10 to PIN 20 U4 TOP 8K CHIP.
PIN 11 to PIN 20 U5 TOP 8K CHIP.	PIN 13 to PIN 20 U6 TOP 8K CHIP.
PIN 14 to PIN 20 U12 TOP 8K CHIP.	PIN 15 to PIN 20 U13 TOP 8K CHIP.
PIN 16 to PIN 20 U14 TOP 8K CHIP.	PIN 17 to PIN 20 U15 TOP 8K CHIP.

These provide the CHIP SELECT SIGNALS to the ADDITIONAL EIGHT 8K RAM CHIPS (TOP LAYER)

7. Install a new NOR GATE (74LS02) PIGGYBACKED on top of the ORIGINAL NOR GATE, U10. Connect PINS 2, 7, and 14 to the CORRESPONDING PINS below. BEND PINS 1, 3 THRU 6, and 8 THRU 13 outward. Reinstall the PIGGYBACKED PAIR of NOR GATES in its U10 socket. Connect LINES from the UPPER CHIP as follows.

PIN 1 to PINS 18 and 19 U2 UPPER CHIP.	PIN 3 to U1 SOCKET PIN 6.

These provide the CHIP SELECT SIGNAL for U2 UPPER 4 TO 16 DECODER CHIP thus fully decoding the available MEMORY ADDRESS LINES.

PINS 4 THRU 6 and PINS 8 THRU 13 of the UPPER NOR GATE U10 are not used and are left NOT connected. They may be used in future modifications.

This completes the HARDWARE modifications to the RAMDISK CARD.