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Apple III Hardware: 12-volt Confidence RAM Test

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Security: Everyone

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A Confidence RAM Test for Apple IIIs is on the Confidence Disk and the Dealer Diagnostic Disk. With this test, you can locate bad chips on a 12-volt board.

--> NOTE: Before running the Confidence RAM test, remove all peripheral cards from the Apple III, especially any ProFile interface cards and Grappler printer cards.

The test results show the bank, address, and test expectations and actual performance. For example, after the test, say the console displays:

BNK 82, ADR 67AF, EXP 40, GOT 48.

To locate the bad chip, you must translate these results into a map that corresponds to the 3 banks of 16 chips on the memory board.

1. The bad chip is in bank 2. The bank number comes from the last digit of the BNK field.

BANK: 0	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
BANK: 1	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
BANK: 2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

2. The bad chip is in the right side of the bank. The side is determined by the range that the address, 67AF, the number in the ADR field, falls into.

	ADDRESS RANGE:	ADDRESS RANGE:													
	2000-3FFF	4000-7FFF													
	8000-9FFF														
BANK 0	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	ADDRESS RANGE:	ADDRESS RANGE:													
	0800-0FFF	0000-07FF													

	1800-1FFF	1000-17FF
	C000-C7FF	A000-BFFF
	D000-D7FF	C800-CFFF
	E000-FFFF	D800-DFFF
BANK 1	x x x x x x x x x	x x x x x x x x

	ADDRESS RANGE:								ADDRESS RANGE:							
	2000-5FFF								6000-9FFF							
BANK 2	x	x	x	x	x	x	x	x	X	X	X	X	X	X	X	X

3. The bad chip is in location number B5. The bad chip shows up in the comparison of the binary representation of the hexadecimal values in the fields EXP and GOT, which contain the test expectations and performance. Any difference between the two is a map of where to find the bad chip or chips.

hexidecimal binary hexidecimal binary hexidecimal binary

0	0000				
1	0001	6	0110	B	1011
2	0010	7	0111	C	1100
3	0011	8	1000	D	1101
4	0100	9	1001	E	1110
5	0101	A	1010	F	1111

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EXP = 40 (hexadecimal) = 01000000 (binary)
GOT = 48 (hexadecimal) = 01001000 (binary)
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EXP = 40 (hexadecimal) = 0 1 0 0 0 0 0 0 (binary)
GOT = 48 (hexadecimal) = 0 1 0 0 1 0 0 0 (binary)
                        ok ok ok ok ! ok ok ok

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ADDRESS RANGE:
6000-9FFF

BANK 2 x x x x x x x x x x x x X x x x

In the chip location number B5, the letter comes from the letter of the banks of chips on the memory board:

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LETTER: D
BANK: 0      x  x  x  x  x  x  x  x  x  x  x  x  x  x  x

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LETTER: C
BANK: 1 x x x x x x x x x x x x x x x x

LETTER: B
BANK: 2 x x x x x x x x x x x x X x x x

The number comes from the number of the chip on the memory board:

NUMBER: 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2
LETTER: D x x x x x x x x x x x x x x x (BANK 0)

C	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	(BANK 1)
B	x	x	x	x	x	x	x	x	x	x	x	x	X	x	x	x	(BANK 2)

Replace the bad memory chip(s) and run the test again. If the system fails the memory board test, exchange the memory board itself. If that dosen't help, exchange the main logic board.

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