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Apple III Hardware: 5-volt Confidence RAM Test

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Security: Everyone

Apple III Hardware: 5-volt Confidence RAM Test

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There is a Confidence RAM Test for Apple IIIs on the Confidence Disk and the Dealer Diagnostic Disk. With this test, you can locate bad chips on a 5-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 37AF, EXP 40, GOT 48.

To locate the bad chip, you must translate these results into a map that corresponds to the 2 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.

BANKS: 0, 1, 2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BANKS: 3, 4, 5, 6	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 into which the address--37AF, the number in the ADR field--falls.

ADDRESS RANGE:
4000-7FFF

ADDRESS RANGE:
2000-3FFF
8000-9FFF

BANKS: 0, 1, 2	x	x	x	x	x	x	x	x	X	X	X	X	X	X	X
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ADDRESS RANGE:

ADDRESS RANGE:

4000-7FFF 2000-3FFF
8000-9FFF

BANKS: 3, 4, 5, 6 x x x x x x x x x x x x x x x x

3. The bad chip is D5. 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 indicates 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

EXP = 40 (hexadecimal) = 01000000 (binary)

GOT = 48 (hexadecimal) = 01001000 (binary)

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

ADDRESS RANGE:

2000-3FFF

BANK 1 x x x x x x x x x x x x x X x x x

In the chip location number D5, the letter comes from the letter of the banks of chips on the memory board:

LETTER: D

BANKS: 0, 1, 2 x x x x x x x x x x x x x X x x x

LETTER: C

BANKS: 3, 4, 5, 6 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 x x (BANKS 0, 1, 2)

C x x x x x x x x x x x x x x x x (BANKS 3, 4, 5, 6)

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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