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(54) **READ-ONLY MEMORY DIAGNOSIS AND REPAIR**

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(57) **ABSTRACT**

A testing circuit configured to test and diagnose a read-only memory comprises two multiple-input signature registers configured to generate two sets of signatures for multiple iterations of reading some or all of words stored in the read-only memory, control circuitry configured to control, according to a test algorithm, from which of the outputs of the read-only memory each of the two multiple-input signature registers receives test response signal bits for each of the reading operations during each of the iterations, and a faulty element location determination device configured to generate a faulty element location signal for the read-only memory based on results of comparing the two sets of signatures with reference signatures.