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# United States Patent [19]

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Cheng

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[54] **SYSTEM AND METHOD FOR FAULT DETECTION IN MICROCONTROLLER PROGRAM MEMORY**

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[57] **ABSTRACT**

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A method for fault detection in microcontroller program memory includes a new move instruction. An address of program instruction data is placed in a word register and a mode register. The new address points to a new instruction in a program memory. The program instruction data is read from the program memory into an instruction register and then transferred from the instruction register to the word register and the mode register. The contents of the word register and the mode register are then written to a data memory. With the program instruction data now available in the data memory, the new instruction can be tested for data integrity and validity using, for example, fault detection mechanisms or processes. A system for fault detection to check instructions or data in the program memory for data integrity and validity in a program memory also is disclosed.

[51] Int. Cl.<sup>6</sup> ..... **G11C 7/00; G11C 13/00**

[52] U.S. Cl. .... **395/183.18; 395/380; 395/569; 395/800.23; 711/137; 711/218**

[58] Field of Search ..... **395/183.18, 183.2, 395/183.16, 381, 395, 383, 583, 598, 569, 580, 800.41, 800.23; 711/137, 218**

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**6 Claims, 5 Drawing Sheets**

