Title (en)
AUTOMATICALLY DETECTING AND CORRECTING MEMORY ERRORS IN A SECURE MULTI-CHANNEL COMPUTER

Title (de)
AUTOMATISCHES ERKENNEN UND KORRIGIEREN VON SPEICHERFEHLERN IN EINEM SICHEREN MEHRKANALIGEN RECHNER

Title (fr)
DÉTECTION ET CORRECTION AUTOMATIQUES D'ERREURS DE MÉMOIRE DANS UN ORDINATEUR MULTICANAL SÉCURISÉ

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Abstract (en)
[origin: WO2023020807A1] The invention relates to a method for automatically detecting and correcting memory errors in a secure multi-channel computer (7) of a railway system (1), each channel (8, 9) of the computer (7) having at least one memory device (13, 14) and the same data being stored in parallel in the memory devices (13, 14) of the channels (8, 9). In order to provide a reliable method without needing additional hardware, according to the invention: a first check value (17) is calculated for data in a sub-region (28) of the first memory device (13); a second check value (19) is calculated for the same data in a sub-region (28) of the second memory device (14); the first and the second check value (17, 19) are compared with one another; if the first and the second check value (17, 19) are different, the first check value (17) and/or the second check value (19) are compared with an old check value (23); the data in the sub-region (28) of the first memory device (13) are replaced by the data in the sub-region (28) of the second memory device (14) if the second check value (19) corresponds to the old check value (23); and the data in the sub-region (28) of the second memory device (14) are replaced by the data in the sub-region (28) of the first memory device (13) if the first check value (17) corresponds to the old check value (22).

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