Poster Session (P)
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A SELF-STABILIZING FAULT-TOLERANT TIME SYNCHRONIZATION ALGORITHM FOR MULTIPLE MODULAR REDUNDANCY ON-BOARD COMPUTER

Abstract

This paper presents a fault-tolerant self-stabilizing time synchronization algorithm for multiple modular redundancy on-board computer. It combines software synchronization and hardware synchronization modes, and achieves time synchronization by exchanging information among different modules. This algorithm contains three parts: initial synchronization, synchronization keeping and synchronization searching. A single module of the computer establishes its synchronization state by initial synchronization, and can automatically recover synchronization by synchronization searching when it loses synchronization as a result of temporary faults. Because ofmicro-seconds level precision, high reliability and low cost, this algorithm can be used in time synchronization of multiple modular redundancy on-board computer, and improve its self-stabilization ability.