

Title

CALCULATION OF THE KLEENE STAR IN THE MAX-PLUS ALGEBRA USING PLAYSTATION3'S CELL PROCESSOR

Abstract

The goal of this research is to calculate an operation in the Max-Plus Algebra under the concepts of parallelization, both in the data and processes level, in order to prove that the use of this programming techniques imply an improvement in the execution times. The *CELL* processor included in the video game console *PlayStation3*, produced by *Sony*, was used, given that this device provides the necessary properties for developing applications based in parallel computation. The Max-Plus Algebra is useful for representing optimization and resource maximization problems. Even more, the calculation of the *Kleene Star* for matrices in this algebra solves the problem of the paths of maximum weight among all the nodes in a system.