# 基于数据对称打包的云计算并行核心失败校验缓解

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摘　要：提出一种具有容错的云计算核心失败校验并行数据打包的前滚校验方法.首先，对云计算的核心失败校验算法进行介绍，同时为避免数据溢出，采用对称打包方式对输入进行并行计算，并利用打包输出所包含的冗余特征，提高连续核心故障的容错性能；其次，利用打包数据进行对应的通用矩阵乘法(generic matrix multiplication, GEMM)操作，建立新的整数矩阵的乘法运算、卷积运算和故障恢复机制，来缓解核心故障问题，并对所提方案的计算复杂度进行理论分析；最后，通过在数据平均吞吐量、数据恢复率以及算法的计算时间三项指标上的对比实验，验证了所提方法的有效性.

关键词：对称打包；云计算；容错校验；并行计算

## Cloud Computing Parallel Core Failure Tolerance Verification

## Based on Data Symmetry Packing

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Abstract：This paper here proposes a fault-tolerant cloud computing core failure check parallel data packing method. Firstly, the core of cloud computing failure check algorithm is introduced, at the same time to avoid data overflow, here use symmetric packing for parallel computing on the input and output using the redundant features contained in the package, which can improve the fault tolerance performance of continuous core fault; Secondly, the packet data corresponding to the GEMM operation, a new integer matrix the multiplication and convolution was construct to alleviate the core problem, and the computational complexity of the proposed scheme was analyzed in theory; Finally, the comparison experiments on the Amazon Web services optimization and image retrieval experiments show that the proposed method is effective.

Key words：symmetric packing; cloud computing; fault tolerance; parallel computing

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