The Design of a Parallel Garbage Collector

in a Transputer Network System

Louis R. Chow

Tamkang University

R.O.C.

Shing-Peir Wang

Tamkang University

R.O.C.

Abstract

This paper presents an innovative architecture and a novel algorithm of parallel garbage collection designed for a transputer network system. Three list processors (LPs) for list processing and one garbage collector (GC) for garbage collecting are contained. These processors are operated concurrently, communicating with each other through the links. The collector, namely as "PGCT"-Parallel Garbage Collector of tne Transputer-is described in different situations including various system environments: the ways that PGCT operates, the performance it provides and the scheduling algorithm for multi-tasking in the transputer network system works. The proposed method showed significant results of improving space utilization, releasing deadlock among processors, and controlling the consistency of the system.

Keywords: Garbage Collector, Transputer Network System.