DESIGN AND REALIZATION OF A REAL-TIME CO-OPERATING SYSTEM FOR MULTIPROCESSOR WORKSTATIONS

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ABSTRACT

I have designed a Real-Time Co-Operating System (RTCS) for simultaneously supporting real-time and non-real-time activities on a workstation with two or more processors. The RTCS is the software equivalent of a co-processor, with software architecture analogous to the hardware architecture that has been used in many workstations and personal computers. In this paper, I discuss a software prototype of the RTCS, which co-exists with Solaris 7 on a four-processor Sun SPARC 20. I summarize the feasibility of the approach through an experimental characterization of Solaris 7. I address the various technical issues involved and present the details of my design. The RTCS is targeted towards real-time applications in the signal processing, sensor- based control, process control, multimedia, and manufacturing domains.

KEYWORDS: Designed a Real-Time Co-Operating System