Abstract

This paper concentrates on the evaluation of reliability measures of a computer system by introducing the concept of priority of hardware repair over software up-gradation. The system operates with one more hardware in cold standby. The failure times of hardware and software are independent random variables which follow negative exponential distribution. The repair facility (called server) attends the faults immediately which occur during operation of the system. Repair of the hardware is done at failure while software undergoes for up-gradation. The distributions of hardware repair and software up-gradation times are taken as arbitrary with different probability density functions. The system model has been analyzed using semi-Markov process and regenerative point technique. The trends of some important measures of system effectiveness have been observed for arbitrary values of the parameters. The profit of the present model has also been compared with that of the system model in which no priority is given to hardware repair.


**Index Terms**

Computer Science  
Circuits and Systems

**Keywords**

Computer System, Hardware Redundancy, Priority to Repair, Software Up-gradation, Hardware Repair and Reliability Measures