

7. Übung, WS 2012/13
Zuverlässige Systeme/ Dependable Systems
Ausgegeben am 31.1.2013
Vorstellung 7.2.2013

Katinka Wolter
Inst. für Informatik
Freie Universität Berlin

Assignment 1. Butterfly Network

Show that the extra-stage butterfly network can tolerate the failure of up to one switchbox and still retain connectivity from any input to any output. Assume that if the failed switchbox is either in the extra or the output stages, its bypass multiplexer is still functional.

Assignment 2. Interstitial Mesh

Compare the reliability of an $N \times M$ interstitial mesh (with N and M both even numbers) to that of a regular $N \times M$ mesh, given that each node has a reliability $R(t)$ and links are fault-free. For what values of $R(t)$ will the interstitial mesh have a higher reliability?

Assignment 3. Approximate Reliability of interstitial mesh

Derive an approximate expression for the reliability of a square (4,4) interstitial redundancy array with 16 primary nodes and 9 spares. Denote the reliability of a node by R and assume that the links are fault-free.