Area efficient concurrent error detection and correction for parallel filters

Abstract:

In modern signal processing circuits, it is common to find several filters operating in parallel. Proposed is an area efficient technique to detect and correct single errors occurring in pairs of parallel filters that have either the same input data or the same impulse response. The technique uses a primary implementation comprised of two independent filters and a redundant implementation that shares input data between both filters so as to detect and correct errors.The area cost of the proposed scheme is shown to be slightly more than double that of the unprotected filter, whereas the conventional triple modular redundancy solution requires an area three times that of the unprotected filter.

**LANGUAGE USED:**

**TOOLS REQUIRED:**

* MODELSIM – Simulation
* XILINX-ISE – Synthesis