

Abstract

Deterministic replay is used during testing to reproduce a scenario and drive the system under test to a given state. In this work, we replay an a-priori defined bus traffic to influence the clock synchronization mechanism. Beyond testing this distributed mechanism itself, our aim is to draw conclusions on the nodes' bus receiver operation. Since these replay activities are part of a transparent online test procedure, it is important to ensure that they do not represent a threat for proper system operation. We present a respective formal proof for TTP/C, while for the case of FlexRay we show that the system precision can be bounded according to the replay operation applied. Experimental results confirm and illustrate our approach.