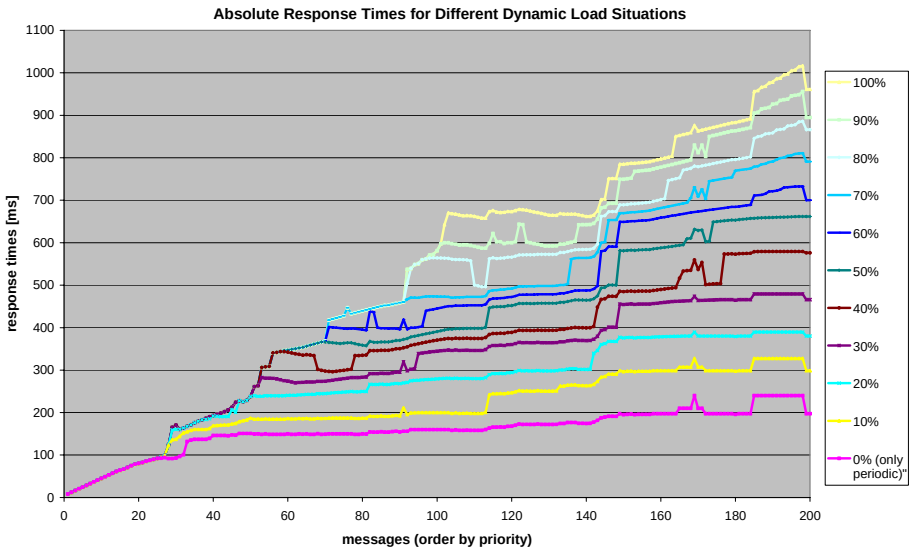
Automotive Use Case:
Mastering Dynamics on CAN Buses



Problem

Automotive manufacturers have to dimension and configure CAN buses for reliable transport of both periodic and dynamic frames.

This challenges CAN analysis and complicates CAN design and extension. It must be ensured that all frames meet deadlines or at least do not get lost during periods of heavy bus contentions. Jitters must be in an acceptable range.

Event-triggered frames disturb the cyclic frame schedule, in particular in the body electronics domain. They induce a dynamic load that might vary over time and is inherently non-deterministic.

Today, CAN bus design, verification, and optimization suffers from the complexity of dynamic frames. As an effect, some CAN bus projects turn out to be over-dimensioned and expensive, while others are under-dimensioned and thus unreliable.

Solution

SymTA/S determines the static and dynamic CAN bus performance in various situations. The possibility to perform “what-if” analyses quickly, in combination with efficient and comprehensible dynamic load models, let SymTA/S users perform thorough analysis of dynamics covering:

- Dynamic load profiles, possibly taken from measurements
- Mutually exclusive scenarios, e.g. by considering either ESP or ABS in the chassis domain
- Environment dependent behavior, e.g. RPM-dependent timings in the engine domain

SymTA/S generates a set of dynamic profiles (see curves) with detailed information on frame and signal timing. This way, SymTA/S not only determines the influence of dynamic frames on the overall CAN timing, it also allows comparison of different dynamic load situations.

SymTA/S users can safeguard and optimize CAN timing also in the presence of triggered or mixed frames.

Symtavision GmbH
Frankfurter Straße 3B
D-38122 Braunschweig, Germany

+49 (531) 88 61 79 - 0
www.symtavision.com
info@symtavision.com

SYMTA VISION