SYMTA VISION

SymTA/S by Symtavision

State-of-the-art in standards and tools for schedulability analysis

ArtistDesign Workshop on Real-Time System Models for Schedulability Analysis

Christoph Ficek

Santander, February 7-8, 2011

TECHNOLOGIE TRANSFERPREIS
IHK Braunschweig
Winners 2008

Symtavision – Who we are

Timing analysis experts for embedded real-time systems

Dr. Jersak
CEO

Company

- Founded 2005
- 20 employees
- Based in Braunschweig, Germany
  - Munich branch
  - Distributors in France, Italy, Japan, China, Korea
- Customers: Bosch, Daimler, VW, GM, Toyota …

Dr. Richter
CTO

De-facto Standard Solutions

- Timing analysis tools: SymTA/S™, TraceAnalyzer™
- Integration with best-in-class partners
- Engineering and methodology services

W. Ries
CSO

Our Customers

OEMs & Suppliers

- Automotive
- Aerospace

Focus

- Powertrain
- Chassis & Safety
- Driving assistance
- Network and EE-architecture
- Domain integration

SymTA/S Demo

SymTA/S – advantages

- Standard scheduler combination, for example:
  - AUTOSAR: SPP + SPnP
  - FlexRay: TDMA + SPP
  - ARINC653: TDMA + SPP (hierarchical)

  →Combination of all with End-to-End analysis

- Analysis performance
  - Scales and usable for large industrial systems

- Usability
  - Domain specific models and terminology (e.g. AUTOSAR)
  - Import/Export interfaces
  - Scriptable
  - ...

Daimler Example (2/2)

DAIMLER

Applying Timing Analysis to Vehicle Networking

Handling large Vehicle Systems in SymTA/S

A SymTA/S-System based on AUTOSAR-XML import consists of all ECU-variants, busses, PDUs and signals defined. It has to be configured for various analyses.

According to our experience the current release of SymTA/S

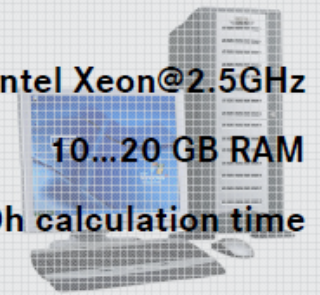
- can handle a complete vehicle network system on a 64-Bit Workstation
- lacks automation mechanisms for efficient configuration
- benefits little of today's computing power (single thread computation)

10 CAN/Flexray-Busses

100 ECUs

~1500 PDUs

~7000 Signals



Intel Xeon@2.5GHz

10...20 GB RAM

>200h calculation time

Verification of entire vehicle networks is feasible. The possible level of details is limited by automation capability, computation efficiency and available memory.

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Further concepts

- Sensivity analysis
- Distribution analysis
- Experiment Framework
  - Data consistency
  - Communication overhead analysis (multicore)
- ...

SYMTA VISION

Thank You !

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