Report Documentation Page

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DM-0001682
### Drivetrain
- **1960:** Ignition
- **1970:** Fuel Injection
- **1980:** Engine control Otto
- **1990:** Valve control
- **2000:** FSI
- **2010:** Electromagn. Valves?
- **1990:** Diesel pump
- **2000:** Pumpe-Düse-ECU
- **2010:** 32-bit Controller
- **2000:** Slip control
- **2010:** Hybrid

### Chassis
- **1960:**
- **1970:**
- **1980:** ABS
- **1990:** ESP
- **2000:** Bremsassistent
- **2010:** elektrohyd. Brake
- **1990:** autom. Cruise Control
- **2000:** ACC Stop-go
- **2010:** UVF?
- **1990:** Lenkhilfe
- **2000:** Überlagerungslenkung
- **2010:** steer-by-wire?
- **2000:** controlled Damping
- **2010:** Wankausgleich

### Safety
- **1960:**
- **1970:**
- **1980:** Airbag
- **1990:**
- **2000:** 2 step Airbags
- **2010:** Pedestrian Protect.
- **2000:** byteflight
- **2010:** precrash

### Comfort
- **1960:**
- **1970:**
- **1980:** Climate control
- **1990:** Xenon-lights
- **2000:** Keyless Entry
- **2010:** advanced frontlighting
- **2000:** 2 Motor-Wiper

### Power+Wiring
- **1960:**
- **1970:**
- **1980:** CAN
- **1990:** D2B
- **2000:** MOST, LIN
- **2010:** TTP/Flexray
- **1990:** watercooled Generator
- **2000:** Startergenerator
- **2010:** APU?
- **2000:** elektron. ZE
- **2010:** power module
- **2000:** 42V?

### Information
- **1960:**
- **1970:**
- **1980:** Radio
- **1990:**
- **2000:** Sound systems
- **2010:** TV
- **1990:** Infotainment
- **2000:** Satellite radio
- **2010:** DAB
- **2000:** GSM
- **2010:** Bluetooth
- **1990:** UMTS
- **2000:** GPS Navigation
- **2010:** Internet
- **2000:** Veh.-Veh.-Comm
Source: “Hierarchical Scheduling of Complex Embedded Real-Time Systems”
Errors are introduced early but detected (too) lately

High Fault Leakage Drives Major Increase in Rework Cost

Aircraft industry has reached limits of affordability due to exponential growth in SW size and complexity.

70% Requirements & system interaction errors

80% late error discovery at high rework cost

70%, 3.5% 1x

10%, 50.5% 20x

Major cost savings through rework avoidance by early discovery and correction

A $10k architecture phase correction saves $3M

70% of SW cost, and SW is 70% of system cost.

Costly certification process leads to high percentage of operational work around.

Sources:
Architecture Analysis Design Language

Safety & Reliability
- MTBF
- FMEA
- Hazard analysis

Security
- Intrusion
- Integrity
- Confidentiality

Data Quality
- Data precision/accuracy
- Temporal correctness
- Confidence

Real-time Performance
- Execution time/Deadline
- Deadlock/starvation
- Latency

Resource Consumption
- Bandwidth
- CPU time
- Power consumption

Resource Consumption

Auto-generated analytical models
Workshop Statistics

8 accepted papers

- Connection with various safety-critical systems design aspects
- International community (Canada, France, Japan, Spain, Russia, USA)

2 tutorials

- AADL Inspector, Pierre Dissaux
- BLESS, Brian Larson

Shows maturity and expansion of the technology
Workshop Program - Morning

0800-0815 - Welcome and Workshop Presentation - Julien Delange

0815-0900 - Keynote: The Story of AADL - Peter Feiler

0900-0930 - A discrete-event simulator for early validation of avionics systems - Denis Buzdalov and Alexey Khoroshilov

0930-1000 - Executable AADL: Real-Time Simulation of AADL Models - Pierre Dissaux and Olivier Marc

1000-1030 - Automatic Derivation of AADL Product Architectures in Software Product Line Development - Javier Gonzalez-Huerta, Silvia Abrahao, Emilio Insfran and Bruce Lewis

1030-1100 - Coffee Break

1100-1130 - Towards an Architecture-Centric Approach dedicated to Model-Based Virtual Integration for Embedded Software Systems - Huafeng Yu

1130-1230 - AADL Inspector Tutorial - Pierre Dissaux
Workshop Program - Afternoon

0200-0230 - An Extension for AADL to Model Mixed-criticality Avionic Systems Deployed on IMA architectures with TTEthernet - Robati Tiyam, Amine El Kouhen, Abdelouahed Gherbi, Sardaouna Hamadou and John Mullins

0230-0300 - Contract-based specification and analysis of AADL models - Ernesto Posse and Juergen Dingel

0300-0330 - Modeling Shared-Memory Multiprocessor Systems with AADL - Stéphane Rubini, Pierre Dissaux and Frank Singhoff

0330-0400 - Coffee Break

0400-0500 - BLESS Tutorial - Brian Larson

0500-0530 - Multi-core Code Generation from Polychronous Programs with Time-Predictable Properties - Zhibin Yang, Jean-Paul Bodeveix and Mamoun Filali

0530-0600 - Workshop Discussion: future directions for architecture-centric research efforts? - Conclusion and Follow-Up - Moderator: Julien Delange
AADL standardization committee

Located in the conference area at Innova Room

Discussions on AADL evolution (ballot, new annexes, etc.)

Free attendance, contributions are welcome
Post-Workshop Dinner

Meeting the AADL community in a great location

Located at Casa Vela (Aragón), Avenida Aragón, 24, 46021 Valencia

Fix price, 25 euros including tapas, wine and desert

About 3 Km from the conference

http://www.aadl.info/acvi
Enjoy the workshop

Thanks to the conference organizers …
… especially to Emilio and all local organizers!

Join the post-workshop dinner
Details online, check http://www.aadl.info/aadl/acvi/

Please provide feedback, suggestions, comments
E-mail: acvi14@easychair.org

Engage participation to next edition
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