



syncore
technologies



Talking Points

- Short Introduction Syncore
- Challenge in test system environments for LRU verification
- SLSC
- Labview User Group

Product Development

Lifecycle Support

Test- and Verification
Systems

Aerospace Safety Critical LRUs (DO-178C, ...)

Industrial Systems

Functional Safety Industrial Systems

Developing systems from requirements, delivering qualified products or product designs

Long term cooperation with Saab

Supporting products & systems throughout life cycles

Test systems for ... verification, qualification, production...



- Syncore developed and produces 3 units per shipset (DO-178B Level C, Level D)
 - ADILA – cockpit audio amplifier
 - CALU – Crew Alert Logic Unit
 - ICU – IFF Converter Unit
- SSPD - portable Verification System



Main Verification

Channels and Alarms

Channel 1 ☒

Channel 2 ☒

Channel 3 ☒

Channel 4 ☒

Channel 5 ☒

Channel 6 ☒

Channel 7 ☒

Channel 8 ☒

Channel 9 ☒

Channel 10 ☒

Channel 11 ☒

Channel 12 ☒

Channel 13 ☒

Channel 14 ☒

Channel 15 ☒

Channel 16 ☒

Channel 17 ☒

Channel 18 ☒

Channel 19 ☒

Channel 20 ☒

NO ALARM

Time of Last Reset
09:55:06
2019/01/18

Time Since Last Reset

Weeks Days

Hours Minutes Seconds

Application Control

START **Reset Alarms**

STOP

Stop Monitoring

Time Since Monitoring Started
H 1 M 59 S 59

TB1

Connection Status ☒

Ignitor 1	<input checked="" type="radio"/> Open <input type="radio"/> Closed	Active <input checked="" type="checkbox"/>	Pulse <input checked="" type="checkbox"/>
Ignitor 2	<input checked="" type="radio"/> Open <input type="radio"/> Closed	Active <input checked="" type="checkbox"/>	Pulse <input checked="" type="checkbox"/>
Fusible Link	<input checked="" type="radio"/> Open <input type="radio"/> Auto <input type="radio"/> Closed	Triggered <input checked="" type="checkbox"/>	

TB2

Connection Status ☐

Ignitor 1	<input type="radio"/> Open <input type="radio"/> Closed	Active <input type="checkbox"/>	Pulse <input type="checkbox"/>
Ignitor 2	<input type="radio"/> Open <input type="radio"/> Closed	Active <input type="checkbox"/>	Pulse <input type="checkbox"/>
Fusible Link	<input type="radio"/> Open <input type="radio"/> Auto <input type="radio"/> Closed	Triggered <input type="checkbox"/>	

TB3

Connection Status ☒

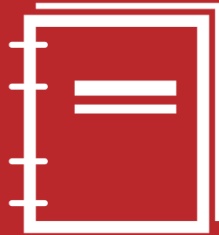
Ignitor 1	<input type="radio"/> Open <input type="radio"/> Closed	Active <input type="checkbox"/>	Pulse <input type="checkbox"/>
Ignitor 2	<input type="radio"/> Open <input type="radio"/> Closed	Active <input type="checkbox"/>	Pulse <input checked="" type="checkbox"/>
Fusible Link	<input type="radio"/> Open <input type="radio"/> Auto <input type="radio"/> Closed	Triggered <input type="checkbox"/>	

- "ETE" Part of Gripen Production Test System
- NI base with custom form factor
- Portable





INCREASING
COMPLEXITY



CHANGING
REQUIREMENTS



LACK OF
MANPOWER



UNREALISTIC
SCHEDULES



Whatever Development Model...



Development and HW/SW Integration Testing (HIL)

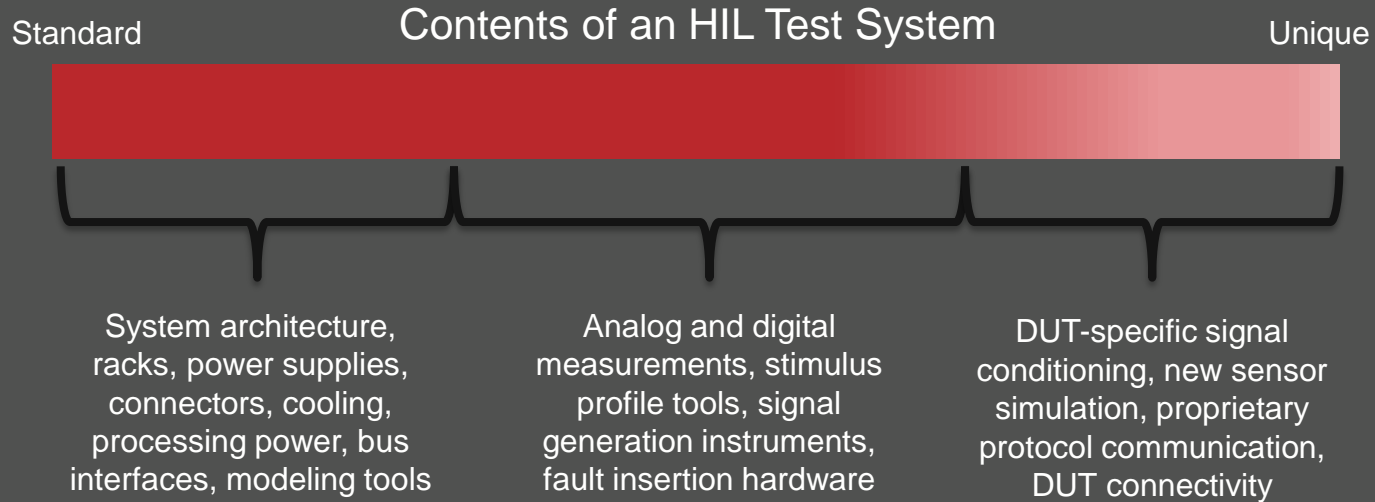
SW Qualification Testing?

Environmental Qualification Testing (EME+ENV)

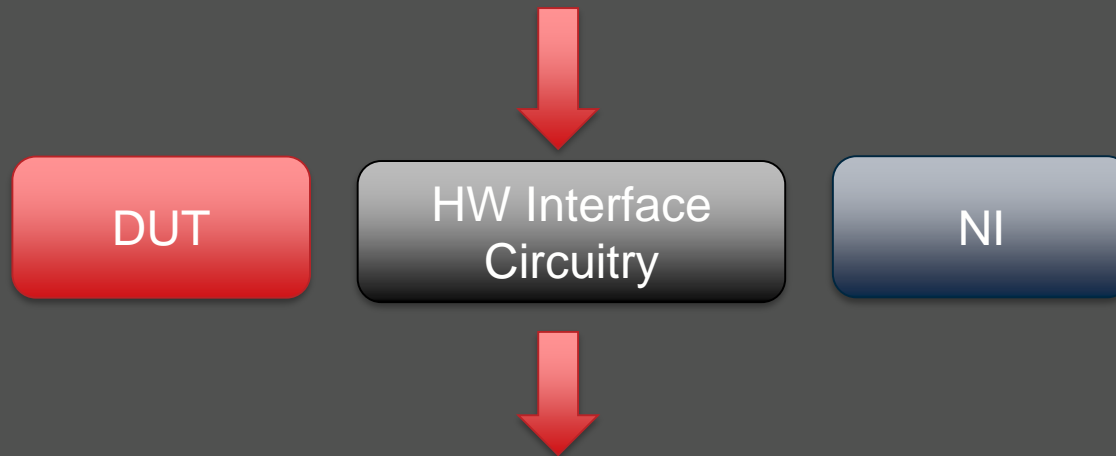
Production ATP Testing "EOL"-testing

Field Test Equipment

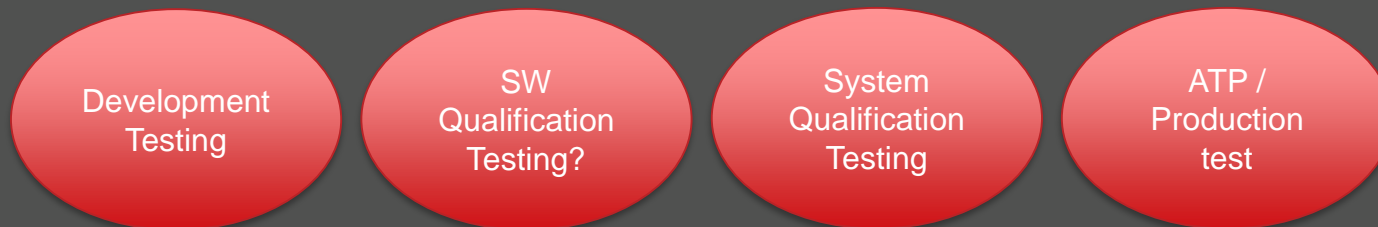
System Integration Test Rigs

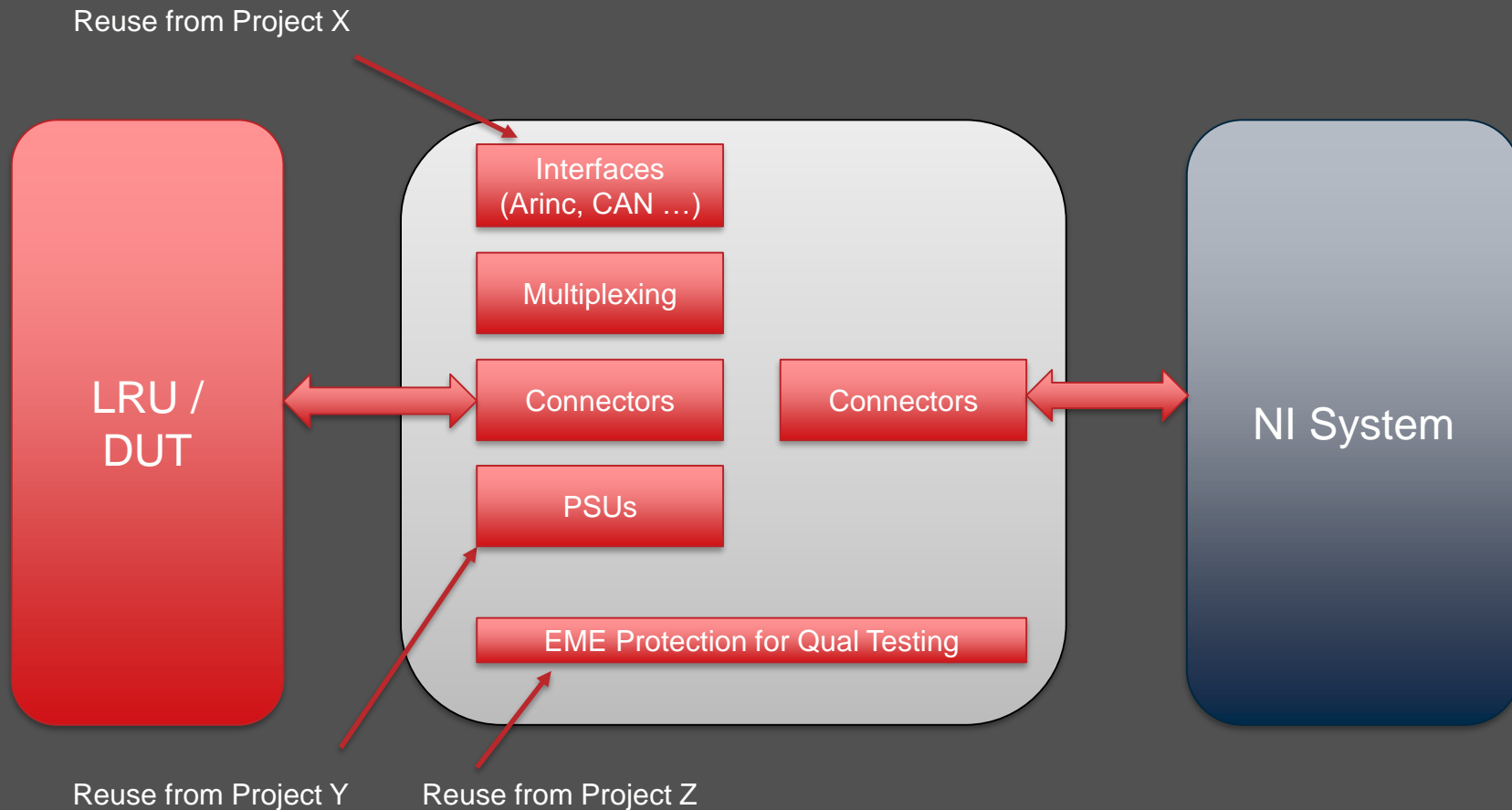


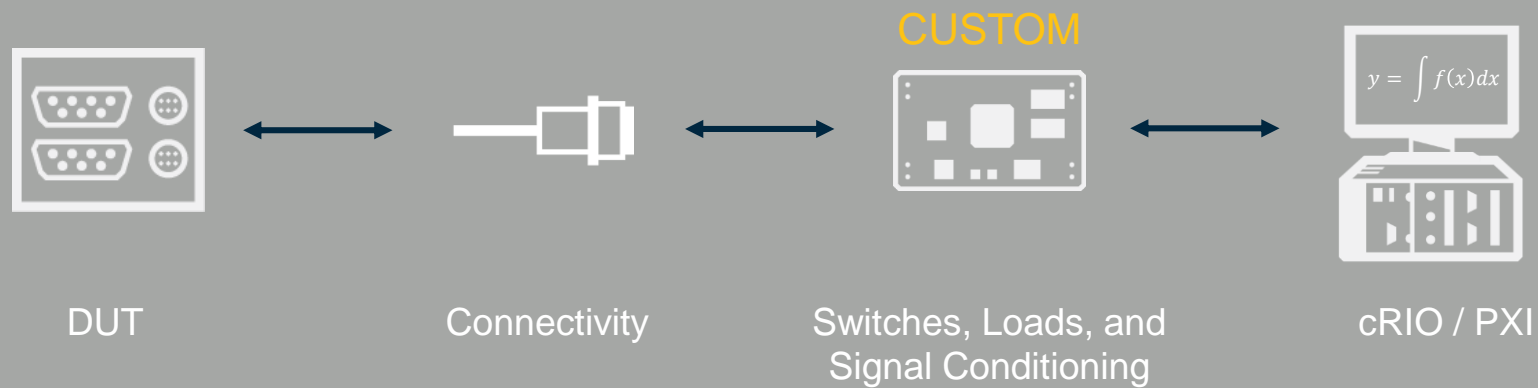
Case-by-Case Reuse of
individual components

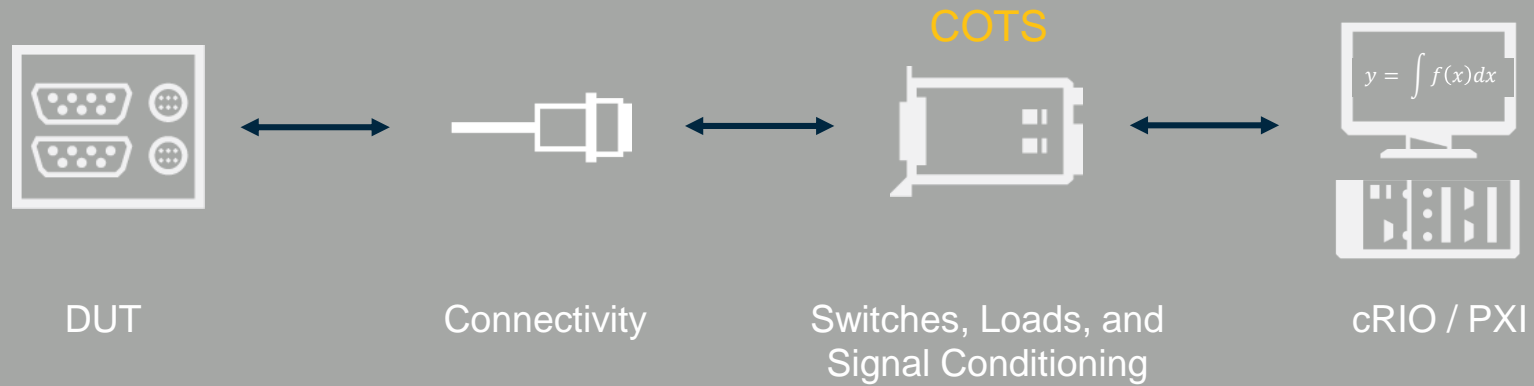


Modification for different phases in project











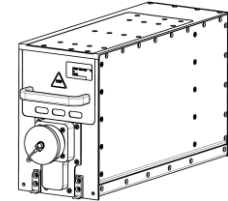
- Scalability & Standardization of form
- Adds custom signal conditioning
- Reduces signal routing complexity



cRIO / PXI

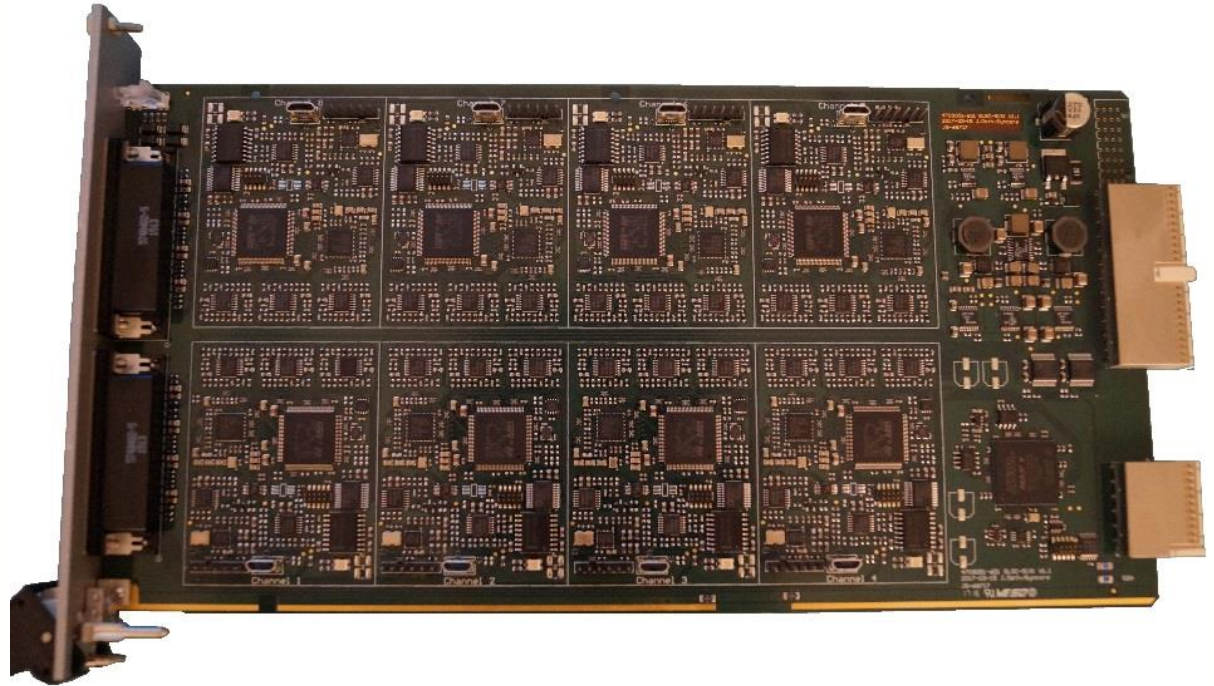


SLSC



DUT

3 SLSC boards developed
2 SLSC boards in progress



Saab R/LVDT sensor board

Gripen Simulation Rig



Conclusion

SLSC offers the potential to...

- Increase reuse
- Reduce cost of test development
- Enable higher adaptability to requirements
- Increase level of automated test coverage
- Lifecycle Sustainability
- -> Reduce overall Risk!

East Sweden LabView Usergroup

Group Focus : Share knowledge and experience in an informal setting (also NI Lectures, Themes... group decides)

- Next meeting 22/5-2019
- Formal invitations sent from NI
(or contact markus.ekdahl@syncore.se)

The End

