



Embedded Systems



Industrial IT



Prevas *In brief*



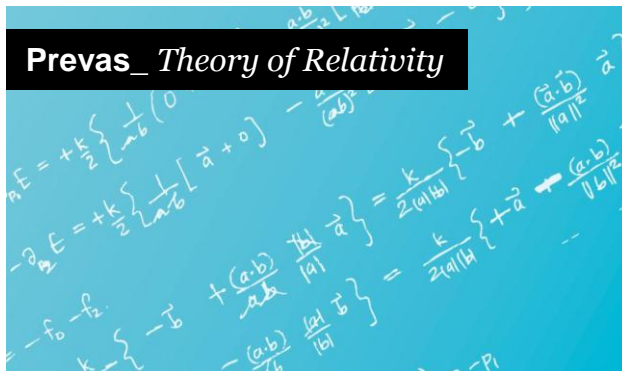
References *Chosen*



Excellence in Delivery *_9/10*



Prevas *Theory of Relativity*



Prevas Test System Design

How to make a
test solution last

Prevas

- Founded in 1985
- Nordic leader in Embedded Systems
- Nordic leader within MES, EMI and Automation
- 550 employees – Sweden, Norway, Denmark, India and Dubai.
- Listed on NASDAQ OMX
- ISO 9001:2008 Certification



Prevas Centre of Excellence **TEST SYSTEM DESIGN**



**Test
Evolution**



**with
LabVIEW**





Use well established tools

Chose a well established tool

Consider the following:

- **Life length**
 - Will it be available in 5-10 years
- **Support**
 - Is it open source or is support available
- **Efficiency**
 - Is the tool efficient for your application
- **Knowledge**
 - Do you have the knowledge in the company.
 - Is the knowledge easy available outside the company.



Systemize the test case development

Consider an object oriented approach when building the test cases.

This enables reuse and make the maintenance easier.

Test Case

Funktion driver

Electric drivers

CAN

I/O

Device under
Test



Minimize the use of different tools

**Minimize the amount of different tools
used in the system**

This will:

- **Lower the license cost**
- **Reduce the need of knowledge of different tools**
- **Make maintenance easy**
- **Remember the emb. test application**





Embedded test application (If applicable)

Define where to put the intelligence.

Intelligence in the Test Case:

- Make the ESW a bridge and send commands to be triggered in the DUT

Intelligence in the Embedded Software:

- Optimize functions in the embedded software with measurement and tuning functions.





Minimize the code in the core (platform)



Use commercial test tools such as TestStand or VeriStand to minimize the development cost and also the maintenance.

Use the tools out of the box and consider what is acceptable and what needs to be adopted. This may affect future updates.





Create processes for maintaining and support of the Test system

A test system needs to be maintained

The device to be tested may change or new variants are released. This is often due to embedded software changes in the product to be tested but it may effect both the hardware and software in the test system

This requires version control of both the hardware and software of the system.

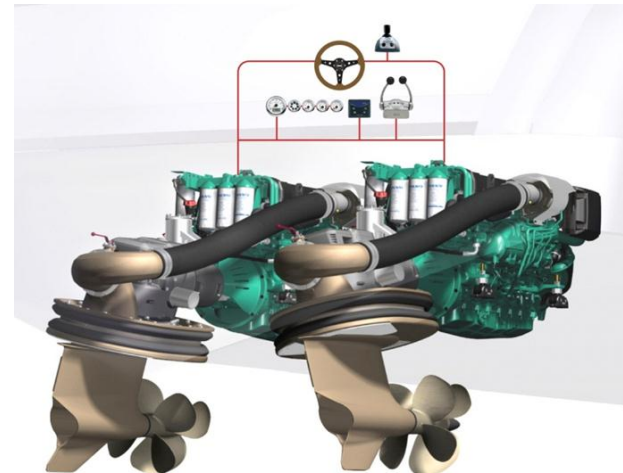
A number of projects cutting this corners will result in a system than can not be used.



Involve the whole R&D organization

Introducing computerized testing in R&D involves the whole organization.

- The system needs to be trusted
- New competences may be required
- Processes needs to be in place:
 - Requirements to automatic test cases
 - Test Results evaluation, Product approval
 - Error handling, corrections , release handling



The Make or Buy Matrix



Thanks

