Fehler früher finden - Modellbasiertes Echtzeittesten

Dr.-Ing. Stephan Myschik  
Senior Team Leader Application Engineering  
MathWorks
Real-Time Testing Challenges

How Do I …

- Prototype quickly on hardware?
- Avoid writing driver blocks?
- Avoid installation issues?
- Deploy smoothly?
HIGH-END
xPC Target Turnkey
Model-Based Real-Time Testing

xPC Target Turnkey

- combines MathWorks design software with Speedgoat hardware
- to offer a complete solution for real-time simulation and testing
Real-Time Execution with xPC Target
Task: Design an Object Tracking System and Test It in Real-Time
Object to Track ...
Use a Camera as Sensor …
Use a Servo as Actuator ...
Control it in Real-Time…
1. Design the Tracking Algorithm …
2. Simulate the Servo Controller ...
3. Connect Hardware I/O
4. Generate Code and Download …
5. Test the Servo
5. Attach the Tracking Algorithm …
6. Deploy and Test it in Real-Time
ENTRY-LEVEL
Run-On-Target-Hardware
Hardware Support for Simulink
What is it?

Arduino

BeagleBoard

Gumstix® Overo®

new

R2013a

LEG0 MINDSTORMS NXT

new

R2013a
targetinstaller
Installed Components
Simulink Block Libraries
Real-Time Testing Challenges

You have seen how to …

- Prototype quickly on hardware
- Use given driver blocks
- Avoid installation issues
- Deploy smoothly
Key Take Aways

- Simulink and xPC Target provide efficient means for Model-Based Realtime Testing
- xPC Target and speedgoat Hardware provide turnkey capabilities for Model-Based Realtime Testing
- Evaluate Designs quickly with Run-On-Target-Hardware