Fehler früher finden - Modellbasiertes Echtzeittesten

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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 …

1. Simulink Coder
2. C Compiler
3. xPC Target Real-Time Kernel

Ethernet
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**
- **LEGO MINDSTORMS NXT**
- **Gumstix® Overo®**

New in 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