Accelerating the Pace…

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Accelerating the Pace of Engineering and Science
Accelerating the Pace of Discovery, Innovation, Development, and Learning in Engineering and Science
MathWorks Product Families

**MATLAB**
for technical computing

**SIMULINK**
for simulation and Model-Based Design
MathWorks at a Glance

Key markets

- Aerospace and defense
- Automotive
- Biotech and pharmaceutical
- Communications
- Education
- Electronics and semiconductors
- Energy production
- Financial services
- Industrial automation and machinery
- Medical devices
Trend: Computing resources in flux

- Assume students will have laptops and/or tablets, and want to work from anywhere
- Students may or may not be physically on campus to use labs
- Computer labs shrinking or disappearing, or reserved for physical experiments
- Servers and clouds (private and public) at various stages of implementation and use
Trend: Computing resources in flux
Response: Provide as much flexibility as possible

- Cluster
- Cloud
- Student laptop
- Computer lab PC
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- iPhone
- iPad
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Trend: Hands-on is fun, engaging, and instructional
Accessible and low-cost real-time hardware
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Accessible and low-cost real-time hardware
Response: Personal real-time systems for students

- A built-in feature of Simulink, introduced March 2012
- Generates an executable application from a Simulink model and runs it on supported target hardware
- No add-on products required

<table>
<thead>
<tr>
<th>Device</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arduino</td>
<td>$40-80</td>
</tr>
<tr>
<td>BeagleBoard</td>
<td>$195</td>
</tr>
<tr>
<td>LEGO® MINDSTORMS® NXT</td>
<td>$530</td>
</tr>
</tbody>
</table>
Trend: Hands-on is fun, engaging, and instructional
Accessible and low-cost real-time hardware
Response: Personal real-time systems for students

- A **built-in** feature of Simulink

- Included in MATLAB & Simulink Student Version

- Downloadable packages include:
  - Simulink block library
  - Help browser content
  - Demos and tutorials
  - Third-party software (build tools)
Trend: Proliferation of student competitions
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Response: More… smaller-scale, virtualized
Trend: Systems engineering emphasis in industry

Chevrolet Volt

Credit: General Motors LLC 2011
Trend: Systems engineering emphasis in industry

- Engine
- Generator
- Control Strategies
- Electric Drive Unit
- Li-ion Battery

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Trend: Systems engineering emphasis in industry
Response: Guidance and exposure to education
Trend: Curriculum development and other support

Response: Academic support possibilities

- Curriculum development in engineering, science, mathematics or finance
- Lab course development
- Faculty research projects
- Projects for undergraduates/graduates
- Industry advisory boards/programs
- Prizes for student-focused contests, projects, events
- Student competitions
- We are hiring!
- Over 200 openings
- [www.mathworks.com](http://www.mathworks.com)
What trends do you want to accelerate?