


## LEAN

## AND MEAN:

The Ford Fusion
features a four-cylinder gasoline engine and also a 93kilowatt electric motor-powerful enough to carry the car at speed all by itself.

## COVER:

BRYAN CHRISTIE
DESIGN
FORD MOTOR CO.

## COVER STORY

## 26 MARCH <br> OF THE SANDBOTS

Legged robots are striding more successfully than ever with the help of some fleet-footed desert natives.
By Daniel Goldman, Haldun Komsuoglu \& Daniel Koditschek

## 22 SHRINKING POSSIBILITIES

Transistors will continue scaling to smaller than 20 nanometers, but it won't happen without extreme ultraviolet lithography. By Bill Arnold

## 32 THE UNIVERSAL HANDSET

Riddle: How many gadgets does it take to make cellphone calls, tap the Internet, and receive broadcast television? Answer: Soon, only one.
By Peter Koch $\mathcal{O}$ Ramjee Prasad

## 38 TOP TEN TECH CARS

After years of talk, the auto industry is finally building electric (or partially electric) cars. By John Voelcker

## UPDATE

## 7 SMARTS ARE ONLY

FOR SOME BRIDGES
Despite a boost in infrastructure spending, most U.S. bridges will stay dumb. By Prachi Patel

## 9 AUTOMATED AUDITORS

10 SILENCING CELLPHONES
11 VOLCANIC LIGHTNING
12 CONSUMER FUEL CELLS

## 14 THE BIG PICTURE

TV gets its turn in the spotlight.

## OPINION

## 5 SPECTRAL LINES

Can "cap and tax" help President Obama's ambitious US $\$ 150$ billion energy plan succeed?

## 6 FORUM

The truth about scuba rebreathers and the state of the art in lattice-based cryptography. Plus: Nvidia talks back.

20 TECHNICALLY SPEAKING
Tap into the information at your fingertips. By Paul McFedries

## DEPARTMENTS

## 3 BACK STORY

Desert dwellers can be divas.

## 4 CONTRIBUTORS

## 16 HANDS ON

Profligate gasoline user, heal thyself! Step one: Build your own fuel-use monitor. By David Schneider

## 17 TOOLS \& TOYS

Solving equations has never been easier, with one new math program and big updates to four others.
By Kenneth R. Foster

## 18 MEDIA

Artist-programmer Aaron Koblin built a 10000 -person social network for his latest work. By Susan Karlin

## 19 CAREERS

How tightly do the ties that bindnoncompete clauses-bind?
By Willie D. Jones

## 52 THE DATA

Cray X-MP versus Sony PlayStation 3: And the winner is.... By Paul Wallich

