

HIGH  
TECHNOLOGIES  
FROM  
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WIRTSCHAFTSFÖRDERUNG  
SACHSEN

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## Microelectronics

*Smart Labels know more  
than meets the eye*

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## Microelectronics

*Relaxed driving with an  
intelligent cruise control*

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*Looming wires are no  
longer in fashion*

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in the lab*

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everybody will like*

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## Production Engineering

*Fast food made really fast on  
the assembly line*

## The car that takes you home more relaxed

*You talk on the phone, have a snack, drink something or chat a bit – and who is driving? Right, it is your car. Of course, an attentive driver can never be replaced. But wouldn't it be nice to build a car that finds its way home with the help of an autopilot like an airplane? Safely and without any stress? The engineers at Radeberger Hybridelektronik GmbH are working on this vision. The electronic module maker develops components for an intelligent "gas pedal".*

The latest generation of cruise control devices is called "Adaptive Cruise Control" (ACC). These systems are part of an active safety concept, already a must for developing luxury cars. Modern upmarket models can scan a parking space while backing up or "feel" a traffic jam ahead or – even better – try to avoid the jam altogether by accelerating more carefully. The last point mentioned is where ACC comes into the picture: A driver picks the speed he likes to travel at and the preferred distance to the car in front of his. Once activated, ACC then monitors the data and accelerates or decelerates the car automatically, according to the traffic situation. The driver can interrupt at any given time and keeps the vehicle always under control that way. The system uses already established components of driving stability (ESP and ABS).

ACC even steps on the brakes when the car in front is getting too close and the minimum distance is about to be violated. If the road is clear again, the car will accelerate automatically to the selected speed. The system works best while driving at speeds of more than 30 km/h. Rainy or foggy weather conditions do not bother it: the distance to vehicles in front is monitored with three overlapping radar beams. The reflected signals tell the sensor unit the direction and distance of other cars.

Radeberger Hybridelektronik GmbH (RHe) makes one of the core modules of the high-frequency sensor unit of ACC, which was

developed by automotive supplier Bosch: a structured substrate for the transmission of radar beams (77GHz). This quartz glass substrate is only 0,18mm thin and four square centimetres in size, with very precise, only 60µm wide conductor lines. RHe has been making custom-made hybrid circuits for many years – to be applied in fast data networks or biosensors. The company manufactures different kinds of substrates and PCBs (printed circuit boards) in thick and thin film technology, which are combined with other components such as SMD, bare die, flip-chip or BGA (ball grid array) elements to modules.

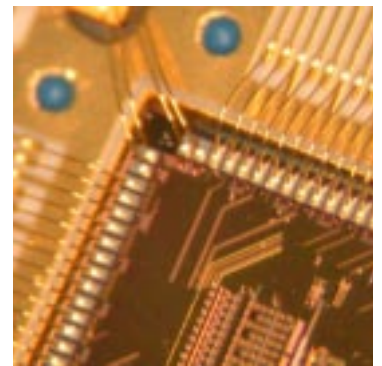
**Radeberger Hybridelektronik GmbH was founded in 1991 as a management buy-out of formerly state-owned electronics concern Robotron. The company specialises in custom-made hybrid circuits and electronic modules, where it can boast more than 25 years of experience. With 56 employees, RHe reached revenues of five million Euros in 2002. Long-time customers include Siemens, Infineon and the European Space Agency ESA.**

Demand for RHe products comes from the aerospace industry as well as from telecoms and medical device makers. Its modules are about to get tinier still: the next generation of Bosch's ACC sensor units will be two thirds smaller than the present ones. It will also hold many new functions which are supposed to monitor traffic even better. Up to now, ACC has been for "cruising", for relaxed gliding on the autobahn. Soon, ACC might help cars to manoeuvre curvy country roads or manage inner city stop-and-go traffic.

[www.rhe.de](http://www.rhe.de)



Radeberger Hybridelektronik GmbH



The ACC sensor control unit with components from RHe

