



Federal Ministry of Education and Research



Universität Hannover

Institute of Microelectronic Systems Leibniz Universität Hannover

VDE/BMBF Initiative INVENT a CHIP How to arouse students' interest in microelectronics



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Acknowledgment

- Prof. Barke
- Thomas Jambor
- Anja Rottke
- VDE, BMBF



Outline

- Need for promotion activities
- Overview "Invent a Chip"
- Schedule and procedure
- Regina Hartfiel: The Anti-Scorching-Chip





Skill Shortage

- Knowledge society
 - Exploitation of emerging technologies
 - Learning and knowledge as main vehicles of society
 - Increase in knowledge-centered activities
- Demand for employees
 - Without vocational education: -19,1%
 - With vocational education : +29,8%
 - University graduates: +27,3%

[Institute of German Economics: Prediction for 2009]





Quality and Availability of Graduates in Germany



[Koppel2007]

 \rightarrow We must arouse student's interest!

IMS Institute of Microelectronic Systems Leibniz Universität Hannover



Invent a Chip – The Contest





Objectives

- To inspire students for microelectronics and its applications
- To arouse student's interest for technical bachelor and master courses to educate a strong new generation in this field
- To stimulate cooperation between schools, universities and industry





- Supported by VDE, BMBF and sponsors
- Nationwide competition
- Students get the opportunity to design their own chip
- Target group: students aged 13-19
- Teams are educated and supervised by IMS EDA group, Hannover









Number of Participants





Schedule of the Contest

- February
- April
- Begin of May
- May-September
- October

Shipment of documents Application deadline Workshop for students Phase of practical involvement Awards

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Application

- Participants
 - Single students
 - Teams (max. four participants)
 - With/without support by teacher
- Questionnaire
 - 20 Questions
 - Chip Idea

6. Weltrekord in optischer Datenübertragung

Im Bereich der drahtlosen optischen Datenübertragung ist ein neuer Weltrekord aufgestellt worden. Wissenschaftlern der Sant'Anna School of Advanced Studies in Italien ist es erstmals gelungen, über eine Distanz von 210 Metern mittels optischem Richtfunk (Free Space Optics, FSO) eine Rekord-Übertragungsrate zu erzielen. Hierbei wurden Daten über 32 Kanäle zu je 40 Gigabit pro Sekunde (Gbps) übermittelt.

Welcher Rekord-Datenübertragungsrate entspricht dies?







Application – Chip Ideas





Home automation chip (team from Hannover, 2006)

Silencer chip (participants from Bochum, 2009)





Workshop for Students







Participants Last Weekend







Workshop: Discussion of Ideas





Workshop: Implementation Concepts







Workshop: Verilog, Simulation, Emulation

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Practical Phase Supported by Research Assistants





Workshop for Teachers

- Objectives
 - Educate multipliers
 - Insight into contest topics
 - Enable teachers to teach chip design at schools









Workshop for Teachers

- Effort
 - 8 hours
- Content
 - Advanced content from the contest
 - Ready-to-use course material
 - Experience vs. theory: discussion with "practitioners"







After Jury's Decision: The Awards







Last But Not Least: The Real Chip



- Contains the best designs
- Shipped to teams
- Manufacture provided through Europractice

Conclusions

- "Invent a chip" is a successive contest
- Introduces students to topics in the field of microelectronics
- Growing interest of students

Thanks to





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Thank you for your time and attention



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