

**Design needs of SME companies.
Is China getting it right?**

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Topics for discussion

- What are the most pressing needs of UK SME companies with respect to electronic product design
- How is UK meeting the need
- Does China have a different model
- If so, is the Chinese model better

Basis of presentation

- Needs of UK companies based on outcomes of 10 years of DTI support programmes
 - ◆ Microelectronics in Business
 - ◆ Electronics Design
- Experience of Far East based on working there and trade missions



MICROELECTRONICS *in business*



Electronics Design

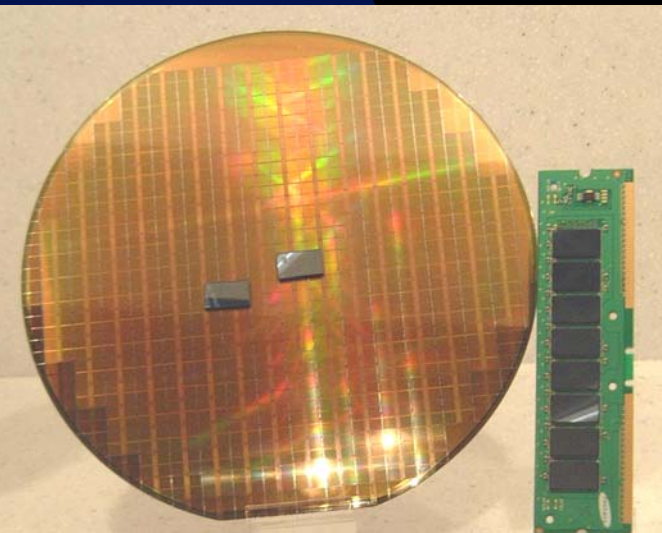
UK needs. Findings from MiB/ED programmes



- Silicon Design
- Product Design
 - ◆ Design for cost
 - ◆ Design for manufacture
 - ◆ Design for test
 - ◆ Design for environment
 - ◆ DF*
- Design for Business



UK needs. Silicon design



- Simple rather than complex design
 - ◆ Programmable logic design
 - ◆ Microcontrollers
 - ◆ Simple analogue (oxymoron??)
- So far, Few UK companies need to design SoC. Many more need to use SoC
- Many (Many Many) companies not currently using electronics could be (ED gets over 1,000 contacts per year)

UK needs. Product design



- The 'new project' is not just an excuse to pursue your hobby at your employers expense!!
- Designs end up in manufacture (well, about one in ten does)
- Making things is at least as hard as designing things
- Sexiest technologies rarely produce the best products

UK needs. DF*

- Problem exists in large, medium, and small companies and design houses
- A much bigger source of design failure than, say, getting the Silicon wrong
- Mistakes in these areas are expensive, company-killing, show-stoppers

UK needs. Business minded engineers

- Common positions
 - ◆ What's a business plan?
 - ◆ This gizmo is so good that everybody will want one
 - ◆ I'm not sure how many we'll sell – lots and lots!
 - ◆ I don't really know why we should do this project rather than leaving the money in a shoe box under the bed

What is UK doing?

- Letting the ED Programme and its network wither on the vine
- Seeming to concentrate effort on advanced materials, and complex designs
- Leaving the SME community to go it alone
- IMHO, this is completely Upton Park (two stops past Barking)

Is China different?



- Many years of experience of Product Engineering. (HiFi, Telecom, Consumer)
- Methods not always elegant – but often very effective
 - ◆ Design reuse by cut and paste
 - ◆ Design driven by cost
 - ◆ Design driven by manufacturing
- Much less experience than UK in Silicon Design and in ‘managing complexity’ in design

Advances in silicon design



- Incubator centres
 - ◆ e.g. at Fudan University Shanghai
 - ◆ Multiple start-ups
 - ◆ Questionable business plans
- Returning ex-pat designers from USA and Europe
- Massive investment in Fab capacity
 - ◆ e.g. SMIC, TSMC

Conclusions

- Electronic design in China is more advanced than UK in some areas but behind in others
- China is taking big steps to close the gap
- Gap-closing will effect the competitiveness of all areas of industry
- China government is providing extensive support to design start-ups

What can UKDF do?



- Visit FE companies and see for yourself
- Lobby for continued support to the SME community:
 - ◆ IEE already is
 - ◆ SBA already is
 - ◆ Intellect already is

Questions

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