

GARYSMITH

CONSULTING IN ELECTRONIC DESIGN

EDA

**ESL: Where We Are
and
Where We're Going**

ELECTRONIC DESIGN STRATEGY & MARKET ANALYSIS

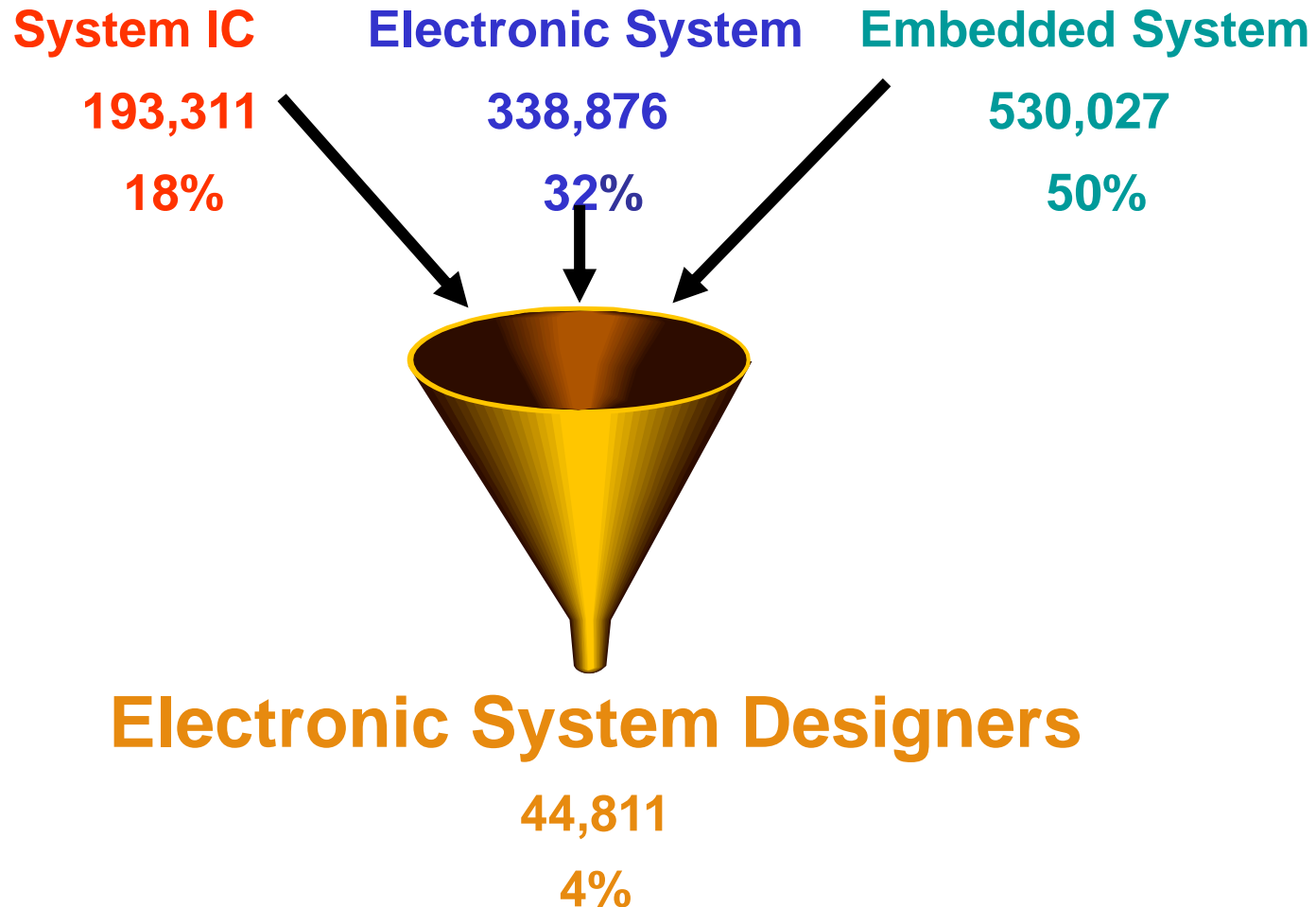
Electronic System Level (ESL)

aka

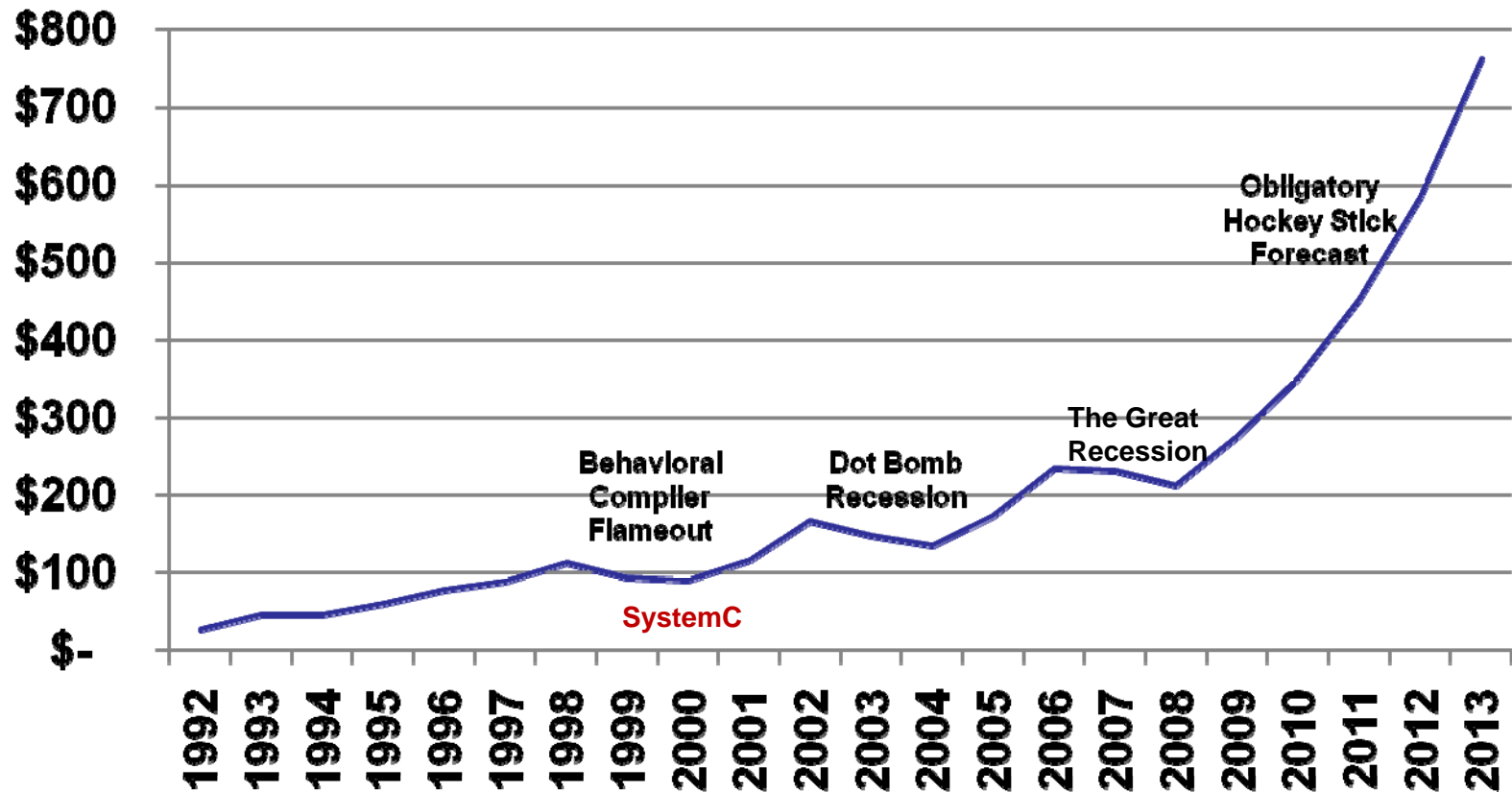
***Electronics System Design
Automation (ESDA)***

What a long strange trip it's been !

2006 Year Two of the ESL Era



ESL Revenue



Where We Are

Two Killer Apps Down

1.ESL Synthesizer

- Mentor will be hard to Beat

2.Software Virtual Prototype

- Synopsys bought everyone but Carbon and Imperas

ESL Languages

- Behavioral Level – C, SystemC, UML, M
- Architectural Hardware – SystemC, C
- Architectural Software – C, C++
- Verification – SystemC, e, C

Methodology / Tool Flow

- Hardware Methodology Firming up
- Hardware Tool flow filling out
- Software Methodology still up in the air
- Software Tool Flow needs development

Where We're Going

Three More to Go

3. Architect's Workbench

- MathWorks, Mentor and CoFluent in the race

4. Silicon Virtual Prototype

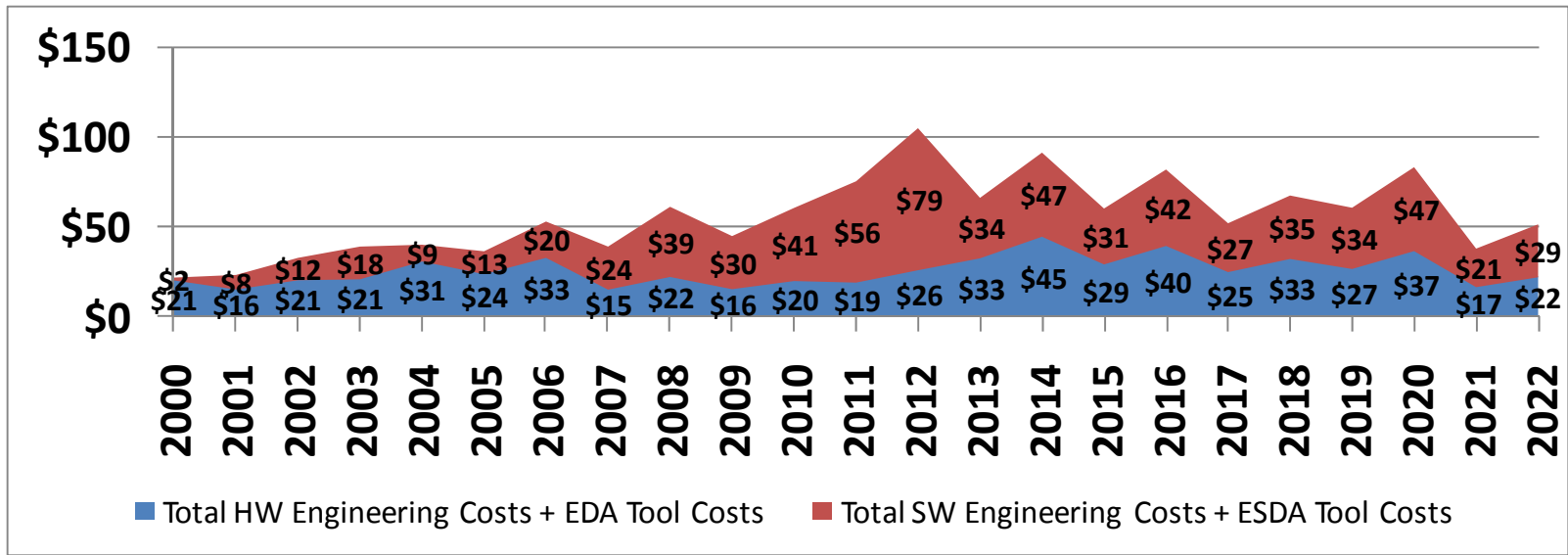
- Atrenta and Cadence working on it

ITRS Cost Chart 2009



(in Millions of Dollars)

- IC Implementation Tool Set
- RTL Functional Verif. Tool Suite
- Transaction Level Modeling
- Very large block reuse
- AMP Parallel Processing
- Intelligent Testbench
- Many Core Devel. Tools
- SMP Parallel Processing
- Concurrent Memory
- System Design Automation
- Executable Specification



Where We're Going II

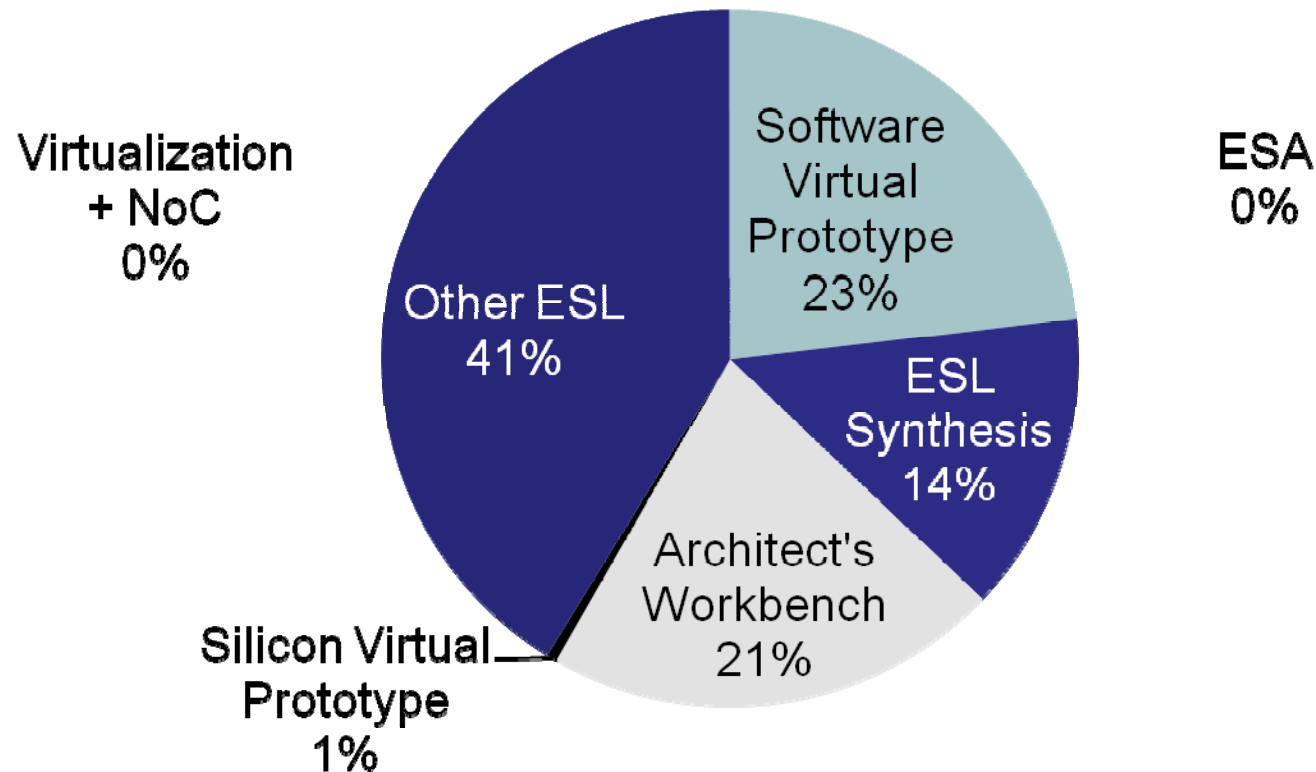
5. Virtualization + Network on Chip

- The new RTOS for Many-Core SoCs ?

? ESA – Embedded Software Automation

- Up to ten new tools need to be developed
- Some of these will be Killer Apps.

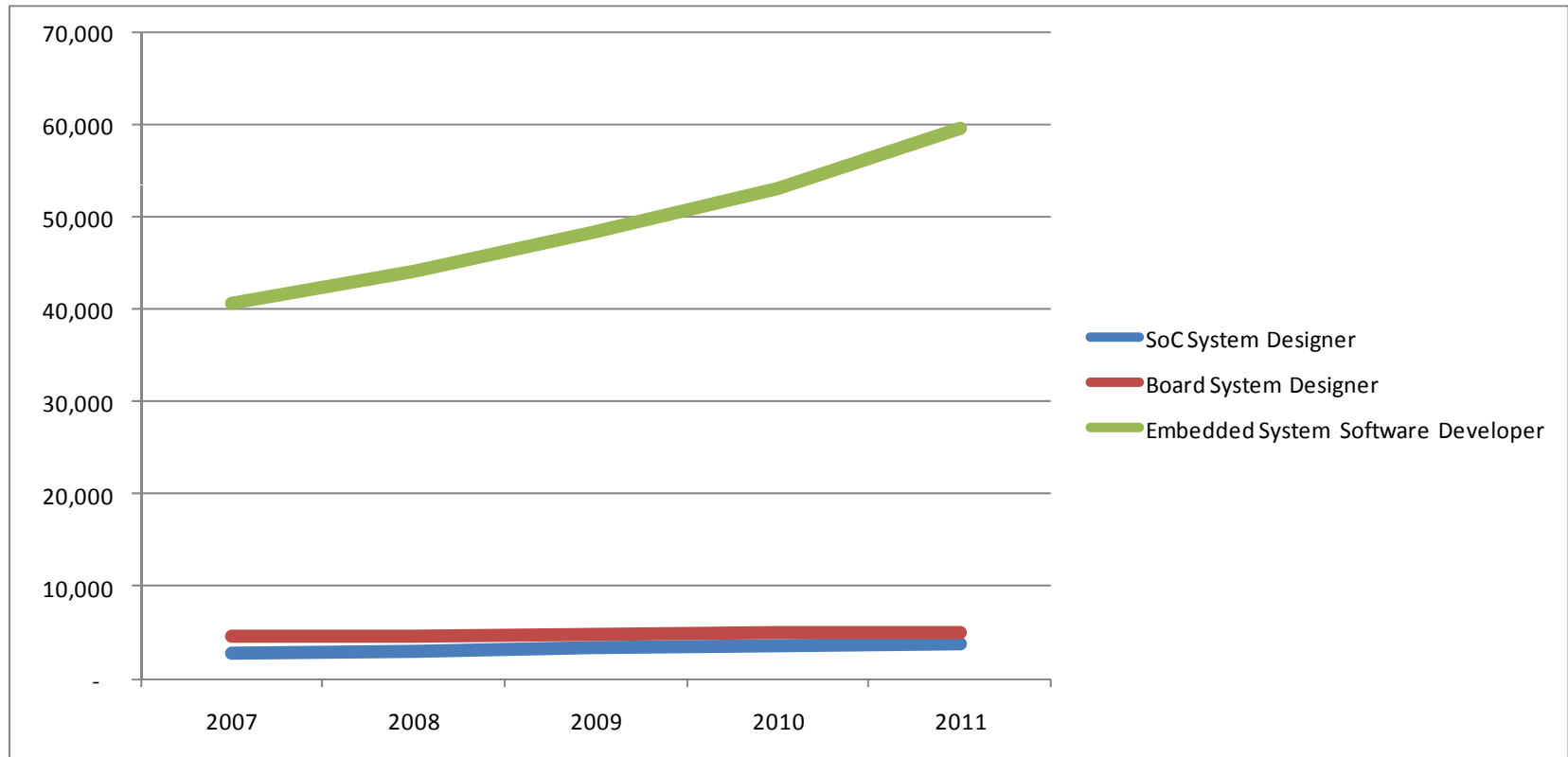
ESL Killer Apps



There are Four User Groups

- System Architect's Team
- SoC System Designer
- Board System Designer
- Embedded System Software Developer

ESL Seats



My SystemC Wish List

- A Behavioral Level SystemC Standard
- A more robust SystemC Testbench Library
- SystemC for Embedded Parallel Processing Software Development