

GARYSMITH

CONSULTING IN ELECTRONIC DESIGN

EDA

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

ELECTRONIC DESIGN STRATEGY & MARKET ANALYSIS

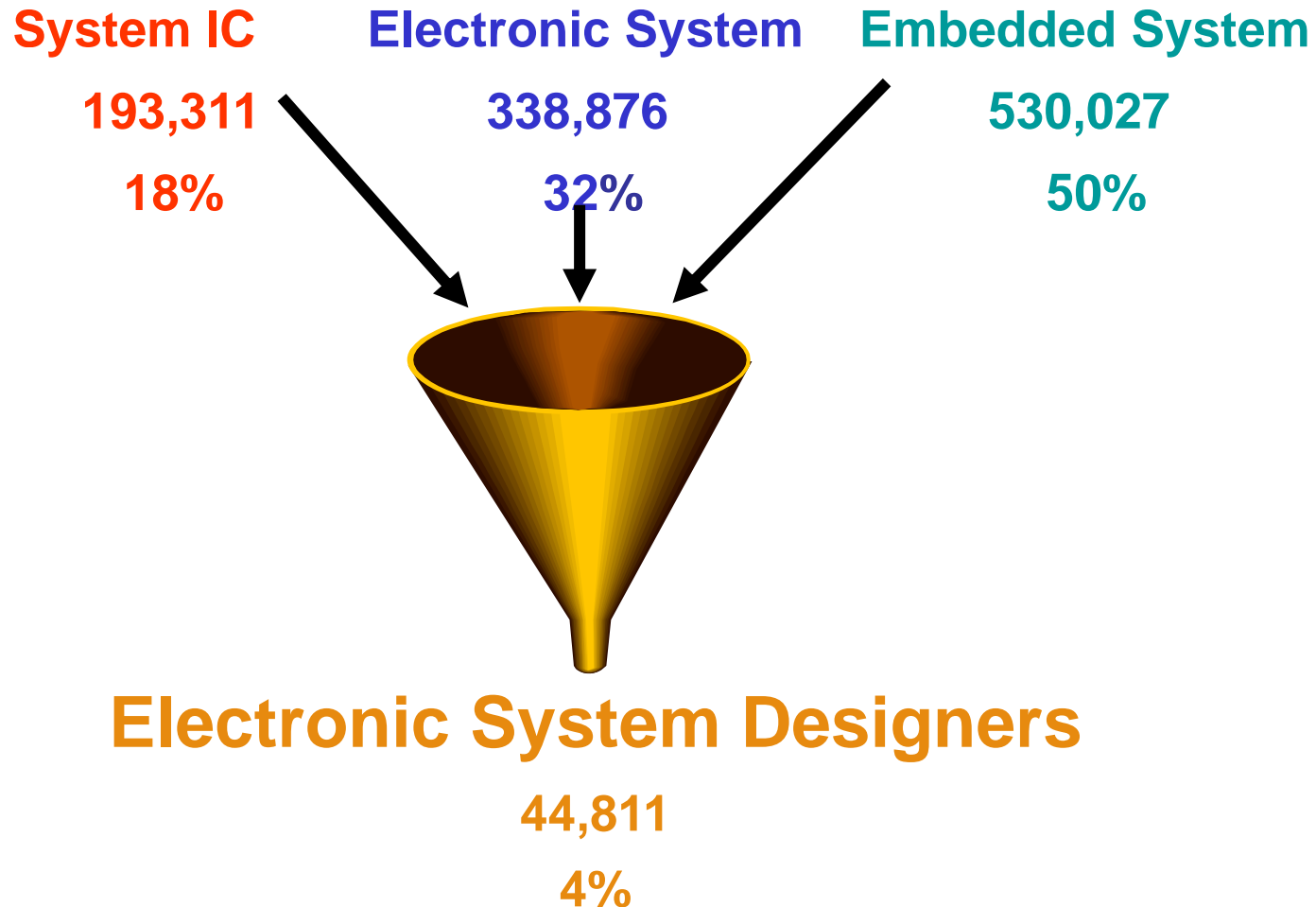
Electronic System Level (ESL)

aka

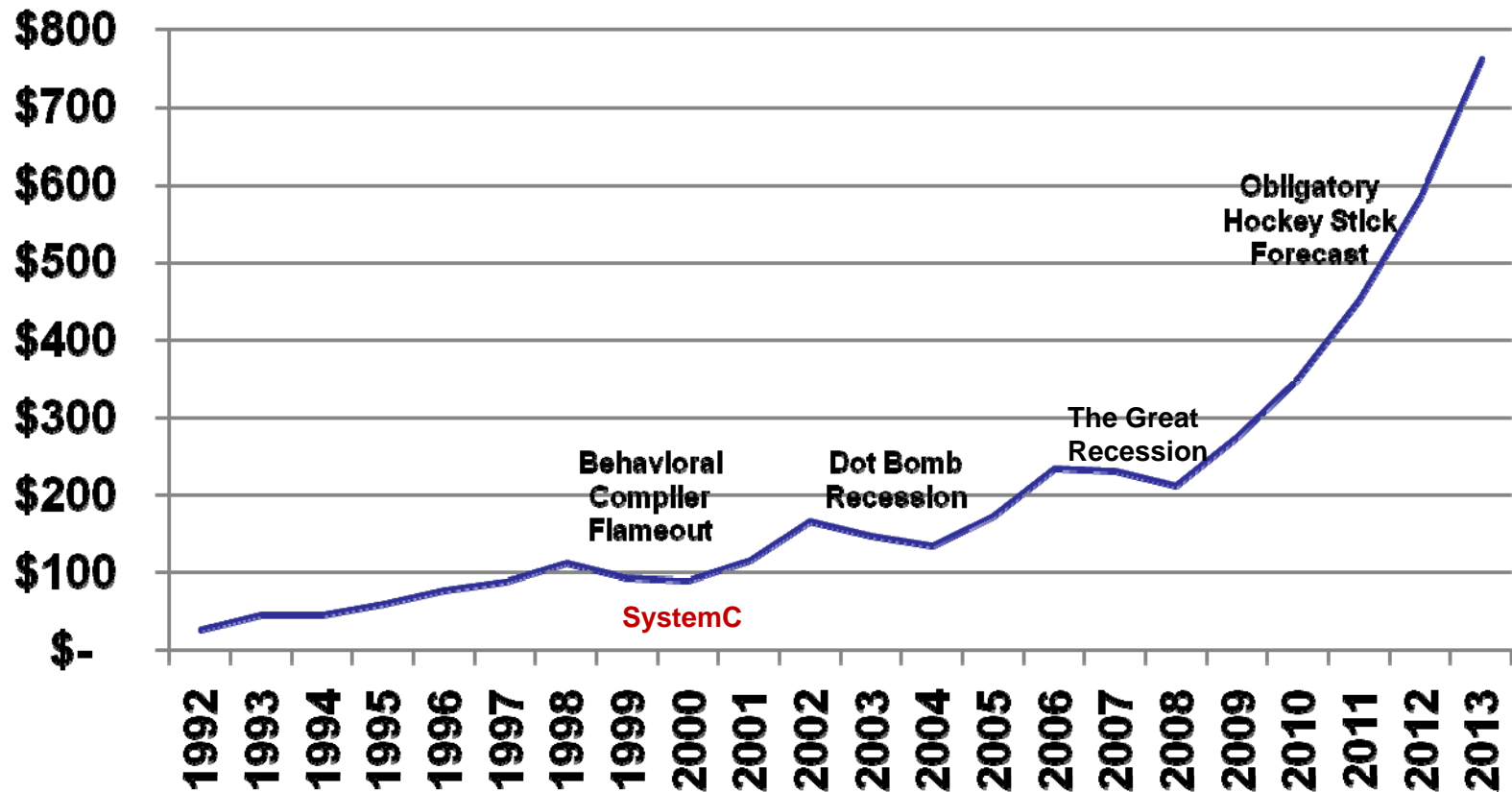
***Electronics System Design
Automation (ESDA)***

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 Coherent in the race

4. Silicon Virtual Prototype

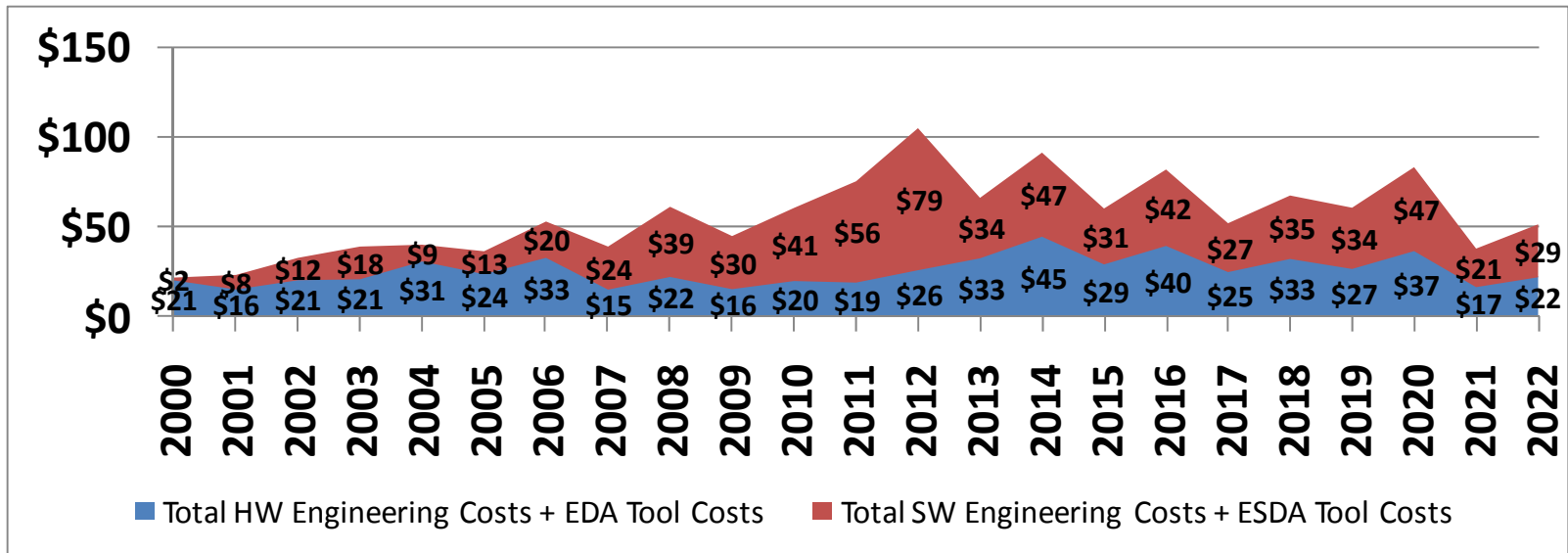
- Atrenta and Cadence working on it

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

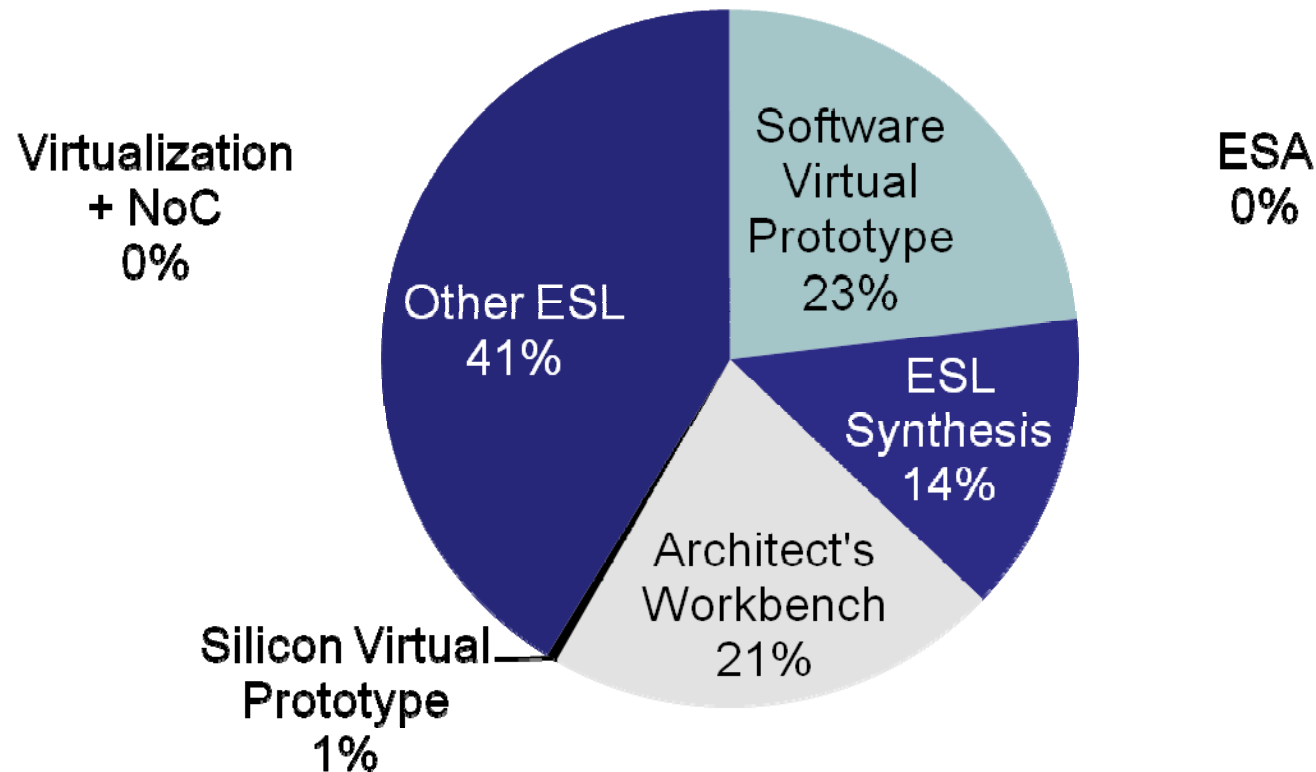


Where We're Going II

- 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.

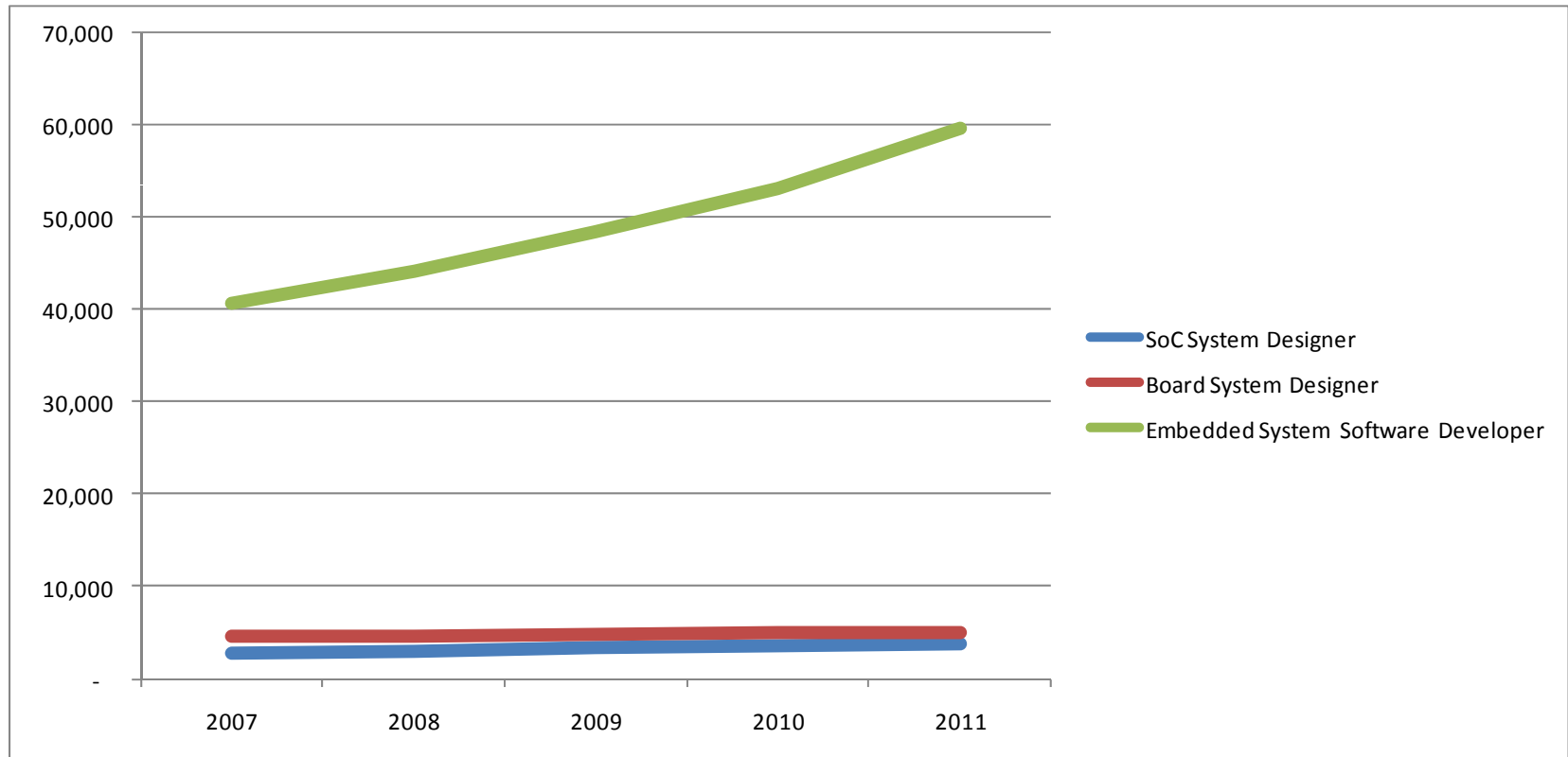
ESL Killer Apps



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