The Fundamentals of EDA
The Disappearing Upper Mainstream
2008

ELECTRONIC DESIGN STRATEGY & MARKET ANALYSIS

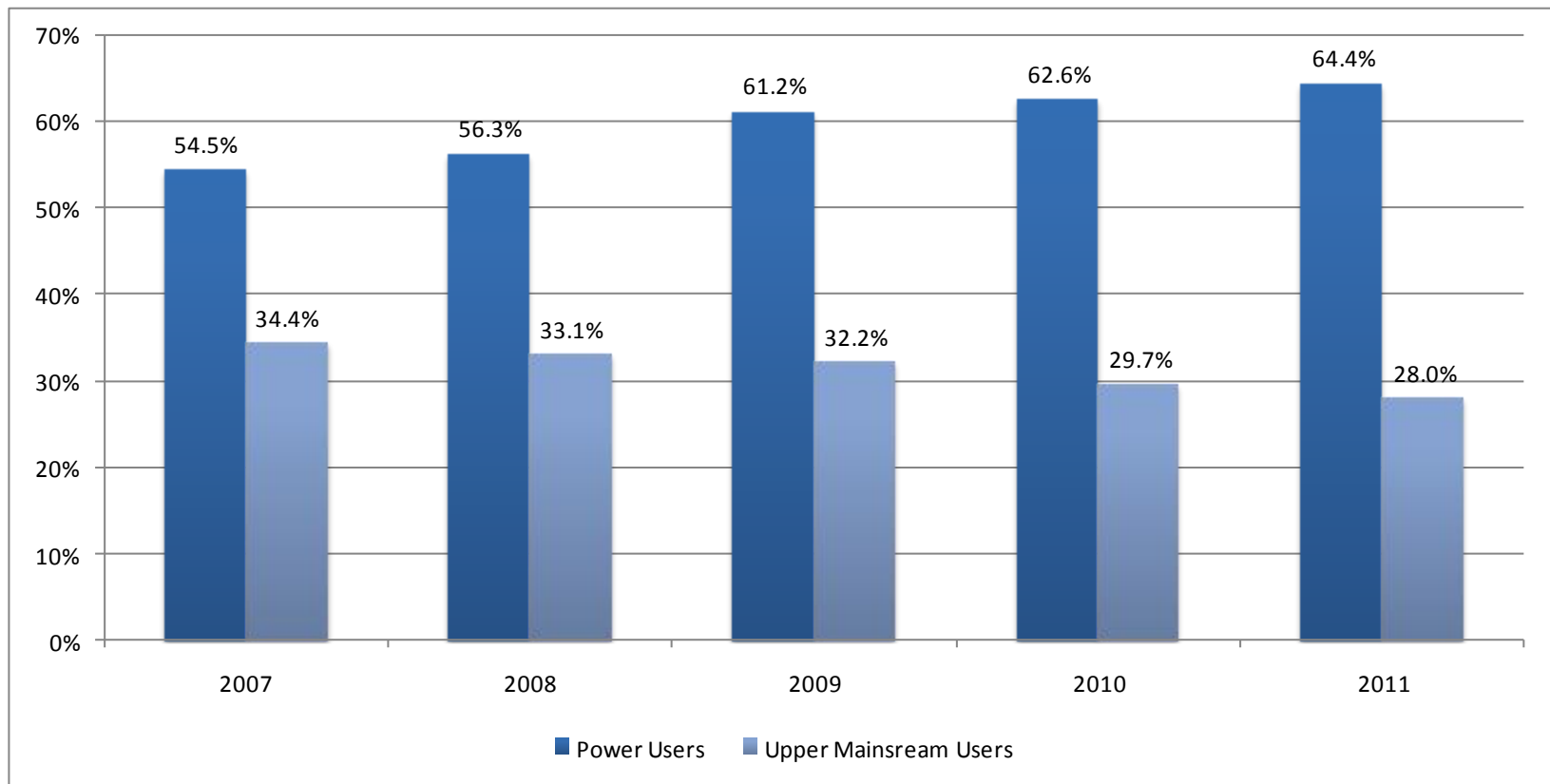www.garysmithEDA.com

EDA's Customers

- Power Users – Engineers that push the state-of-the-art

- Upper Mainstream – Engineers that lag the Power Users by one or two silicon nodes

- Lower Mainstream – Engineers who's competitive advantage is not the IC (they usually use FPGAs)

- Late Adopter – Engineers that do low end (or specialty) designs using low cost EDA tools

(see Definitions under Research at www.garysmithEDA.com)

The Decline of the Upper Mainstream

- Since the Gate Level era the Upper Mainstream Users provided a majority of the EDA revenue

- In 2001 they still were in the #1 position at 41.9% of EDA revenue

- In 2002 the Power Users took over the #1 position

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The Decline of the Upper Mainstream

Chart: Power Users vs. Upper Mainstream Users, 2007–2011

Year	Power Users	Upper Mainstream Users
2007	54.5%	34.4%
2008	56.3%	33.1%
2009	61.2%	32.2%
2010	62.6%	29.7%
2011	64.4%	28.0%

■ Power Users ■ Upper Mainsream Users

Source: Gary Smith EDA December 2008

The Upper Mainstream is Floundering

➢ Cost impact of lagging the Power Users is growing significantly
- In 2008 it cost them $8.6 million "more" to design the average high end SoC than it did a Power User

➢ There are two choices
1. Increase CAD spending in order to move from Upper Mainstream to Power User
2. Adjust costs by shutting down the Implementation Team (RTL Synthesis and below) and hand-off the design at the Register Transfer Level (RTL)
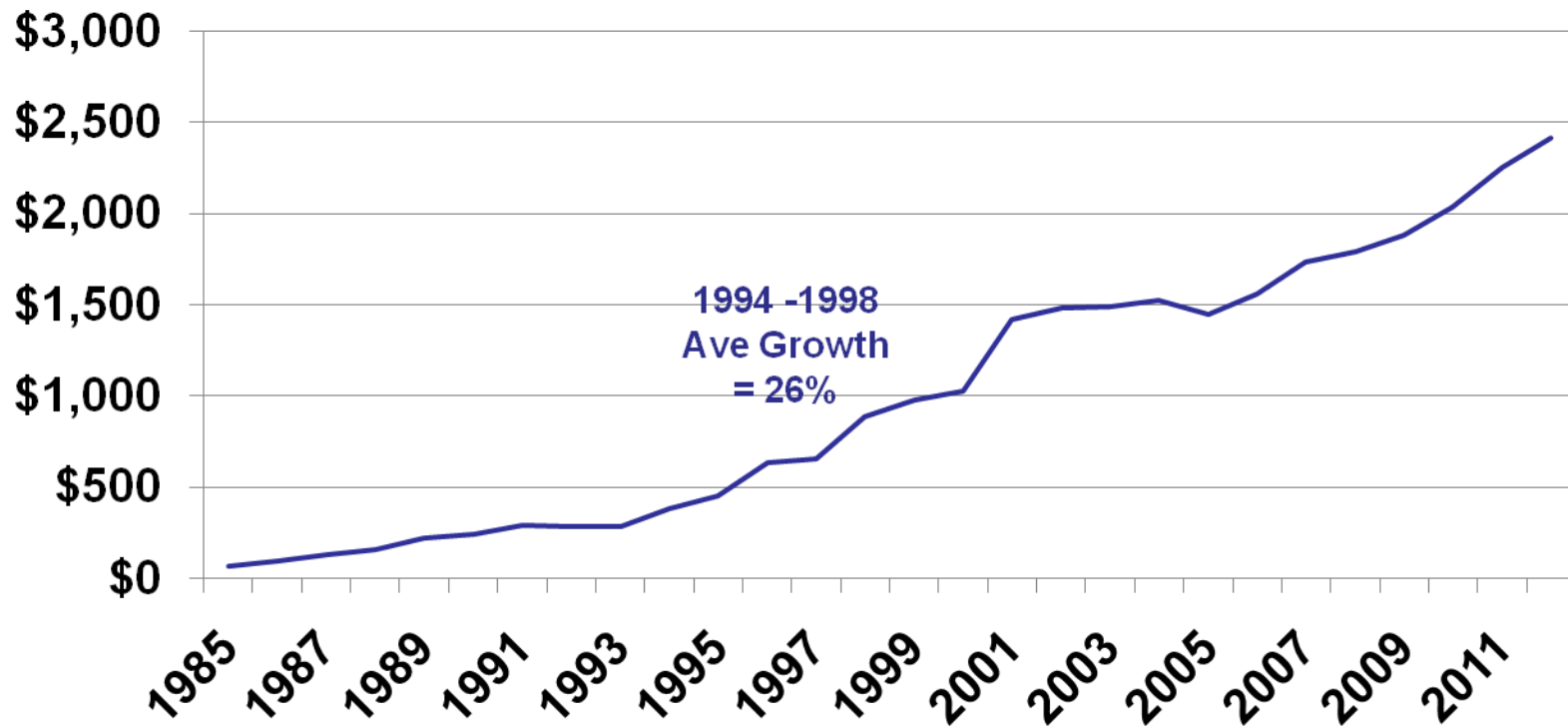
➢ But there is no robust Silicon Virtual Prototype (SVP) for the hand-off

The Revival of the ASIC Industry

- Development of a robust Silicon Virtual Prototype – The RTL Hand-Off

- Upper Mainstream will no longer do Implementation (RTL and below)
    - A reversal of the move to In-House Place & Route of the 1990s

- The ASIC industry will revive and look a lot like it did in the 1980s

IC CAD

Impact of Upper Mainstream on IC CAD

1994 -1998
Ave Growth
= 26%

IC CAD Will Grow – "But"

- Design For Manufacturing (DFM) will drive IC CAD growth

- At the same time the seat count will shrink due to the exodus of the Mainstream Users

- IC CAD will grow but not with the 30% to 45% growth of the mid 1990s.

- Still it will be double digit growth