A Crisis in Semiconductor Start-up Funding
November 7th, 2012
THE PROBLEM

THE SEMICONDUCTOR INDUSTRY HAS BECOME UNATTRACTIVE TO VENTURE CAPITAL

IF START-UP M&A IS AN IMPORTANT SOURCE OF INNOVATION AND GROWTH, THE INDUSTRY IS ABOUT TO FACE A CRISIS
Moore’s Law of Semiconductor Complexity

Microprocessor Transistor Counts 1971-2011 & Moore’s Law

- The graph shows the transistor count doubling every two years.
- The x-axis represents the date of introduction.
- The y-axis represents the transistor count.

Key points:
- 1971: MOS 6502
- 1980: 8080
- 1990: Pentium
- 2000: Core 2 Duo
- 2011: Six-Core Xeon Westmere-EX, Sandy Bridge, and Ivy Bridge
Exponential Progression of Semiconductors

- For 40 years:
  - Transistor Count of State-of-the-art ICs has doubled every 24 months
  - Development Cost of State-of-the-art ICs has doubled every 56 months
  - Dollar Productivity of Design has doubled every 42 months
Semi M&A Remains; Start-up Funding Slows

The number of private semiconductor M&A deals in North America, Europe and Israel between 2002 and 2011 has been steady (between 37 and 59 deals per year)

Dramatic Drop-off in Initial Funding

Companies Receiving Initial Venture Funding (two independent views)

Transaction Year (1)

| Transaction Value | 2002 | %   | 2003 | %   | 2004 | %   | 2005 | %   | 2006 | %   | 2007 | %   | 2008 | %   | 2009 | %   | 2010 | %   | 2011 | %   | Total | %   |
|-------------------|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|
| $500+             | -    | 0%  | -    | 0%  | 1    | 2%  | -    | 0%  | 1    | 2%  | -    | 0%  | -    | 0%  | -    | 0%  | -    | 0%  | -    | 0%  | 1    | 0%  |
| $200 - $499       | 1    | 2%  | 2    | 4%  | 1    | 2%  | 2    | 4%  | 1    | 2%  | 1    | 3%  | 4    | 10% | 6    | 10% | 19   | 4%  | 1    | 0%  | 4%   |
| $100 - $199       | 2    | 4%  | 2    | 5%  | 4    | 10% | 4    | 8%  | 3    | 7%  | 5    | 9%  | 3    | 7%  | 5    | 14% | 1    | 2%  | 5    | 8%  | 34   | 7%  |
| $50 - $99         | 3    | 6%  | 8    | 20% | 6    | 14% | 10   | 20% | 6    | 15% | 12   | 23% | 5    | 12% | 6    | 16% | 4    | 10% | 6    | 10% | 66   | 14% |
| $0 - $49          | 33   | 66% | 23   | 56% | 28   | 67% | 22   | 45% | 22   | 54% | 26   | 47% | 23   | 53% | 14   | 38% | 15   | 37% | 21   | 36% | 226  | 50% |
| Undisclosed        | 11   | 22% | 8    | 20% | 3    | 7%  | 10   | 20% | 9    | 17% | 11   | 26% | 11   | 30% | 17   | 41% | 21   | 36% | 110  | 24% |
| Total             | 50   | 100%| 41   | 82% | 42   | 84% | 49   | 98% | 41   | 98% | 53   | 106%| 43   | 91% | 37   | 74% | 41   | 84% | 59   | 122%| 456  | 100%|

Source: GSA

Average # of Exits (M&A and IPO) per Annum = 49

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Sources: VentureSource, GSA, Pagemill Partners
VC Funding Impact on Fab-less Semi

Semiconductor Industry’s Relationship with Venture Capital has Fundamentally Changed

Source: GSA Website

- Year 2000: $17B Ind, $3.6B VC Funding
- Year 2010: >$100B Ind, <$1B VC Funding
- US Venture Participation in monotonic decline
  - International VC funding does not fill the gap
- Decline in new, series "A" deals, with **2008 GFC “stopping the music”**
  - Venture Funds flowing to support “follow-on” deals supporting “placed bets”

**The data portends dramatic decline in M&A targets in 3-5 years**
Between 2007 and 2010 “The Industry” added over $7B to cash on hand
- Dramatic especially since the “business environment” was historically poor
- During that time the “the Industry” also paid ~$6B/ann in dividends and stock re-purchase

If Seeding Start-ups is an important investment for growth, “The Industry” generates more than enough cash to fill the “VC gap”
FRAMEWORK FOR A SOLUTION

THE PROBLEM IS STRUCTURAL AND NO “SILVER BULLET” SOLUTION EXISTS

A FRAMEWORK THAT PROVIDES APPROPRIATE ACCESS TO RESOURCES AND RE-BALANCES THE RISK/REWARD MUST BE ESTABLISHED
Identifying the Disconnect with Venture
The “barriers to entry” have become significant

- Access to “Necessary to Compete” and/or “Enabling” IP
  - New Designs contain necessary but undifferentiated IP
    - Basic IP: e.g. standard cell libraries, basic I/O
    - Enabling IP: e.g. processor blocks
    - Advanced or Application IP
      - e.g. High Speed I/O, security processors, MPEG Decode

- Need for “Back-end” Infrastructure
  - Layout, Timing Closure “flow” at advance process nodes
  - “Shuttle Runs” for IP Test Structures and Product Prototypes
  - Product Engineering resources and processes
  - Operations Infrastructure and Quality Systems

- High Fixed Cost between Working Design and Volume
  - Time to Volume depends on customer and market
  - Often measured in years while fixed costs continue

Silicon Start-ups need new “Tools & Funding” Processes
Framework for a New Start
Taking on the “barriers to entry”

- Pioneer new relationship between Venture raised money and existing industry players
- Re-think the risk/reward for Venture Investor, Strategic Partner, Ecosystem, and Entrepreneur

New Venture Funding Paradigm: Silicon Ventures
Semiconductor Companies: Strategic Partner with Startup

Design Infrastructure & Services: Available without using VC raised cash
New Startup Paradigm: Entrepreneur shared success with ecosystem

Making Solutions available to the Entrepreneur
Cap-Lite Deliverable Framework
Taking on the “barriers to entry”

- Access to IP
- Back-end
- Risk/Cost to Volume

**Cap-Lite Toolkit**

- *IP, Tools and Services accessible to start-up with other than early VC raised cash*
- *IP, Tools and Services – IP Extreme has made available a cloud-based framework for creating access to IP*
- Development of Non-Cash Currencies
  - IP Warrants
  - Triggered Royalty
  - Others
    - Extra Preferences
    - Convertible Debt

**Cap-Lite Process**

- *Pioneer a new relationship between Venture raise money and existing industry players. Re-thinking the risk/reward for each of Venture Investor, Entrepreneur and Strategic Partner*

Cap-Lite Deliverables focus on Solutions
INTRODUCING
THE CAPITAL-LITE RESOURCE PORTAL

POWER BY Xena
Enabling the Entrepreneur

- Capital-Lite Resource Portal, powered by Xena
  - Xena is a complete platform for managing and using IP
    - Packaging, Cataloging, Delivering, Using, Supporting
  - Xena also supports a broad range of uses and offerings for
    - Semiconductor and Service companies

- The Capital-Lite Resource Portal provides start-ups with a single sign-on website that allows them to easily locate IP, Tools and Services from companies that utilize Capital Lite principles
  - Creates instant access to otherwise high cost infrastructure without exclusive use of VC-raised cash
  - Provides vendors early exposure to start-ups and the ability participate in the upside potential of select companies
Xena Enables Private Transactions
Connecting the New Venture to Resources

This is an interesting company

We’d like to learn more about your ideas

I see you work with new companies, can we talk?

Venture or Semi Firms

Entrepreneurs

EDA

IP

Foundries
Design Services
Packaging
Test etc.,

Services
Growing Participation with full eco-system partners
INVESTMENT IN SILICON

A NEW PARADIGM IS NEEDED
Investment in Silicon: A New Paradigm

- Tradition Venture Capital identifies transformational ideas and teams that can “Build Companies, not Products”
  - However, the IP and Operational Infrastructure costs portend consolidation, not expansion of Semiconductor Companies

- The Semi Industry benefits from external investment in Novel Silicon Architectures and Emerging Integrate-able Systems

- To attract investment in Semis the industry must rebalance the risk between funding sources and industry acquirers:
  - Provide selective access to needed infrastructure (i.e. reduce cost)
    - Evolution of a “Deconstructed Industry”
    - GSA Capital-lite Portal
  - Provide direct or indirect investment dollars and/or “guidance” to Architectures and Systems of Value (i.e. reduce risk)

Industry must participate to recreate an attractive Risk/Reward
Entrepreneur Initiates

Traditional approach

VC Fund Initiates

Using acquirer roadmap as a guide for team formation

GSA or Strategic Referral

GSA / strategic partner knows an existing company or a strong startup team and believes they are a solid funding candidate, after initial meeting makes referral to Silicon Ventures

Silicon Ventures

Identify Partner Needs

Agree on Device to Build

Milestones to Acquisition

Inception / Funding Process

- Identify strategic partner and eventual acquirer
- Heavy due diligence on start-up technical team and fit to project
- Pre-negotiate acquisition details, including milestones, timing, etc.
- Work closely with start-up to facilitate development efforts, stay on schedule and within capital budget

Re-creating a pipeline of Acquisition targets for Industry Growth
The Semiconductor Industry has lost the interest of the Venture Capital investors, a valued source of investment in Innovation.

This is an Semiconductor Industry problem, not a Venture industry problem.

The Semiconductor Industry has Cash and Resources to address the issue.

Call to action:

- Sign-up and Support the GSA Capital-Lite Portal
  - The value to entrepreneurs and investors will evolve as deals begin to flow
  - GSA Portal becomes a source for IP and Services for a increasingly “de-constructed” industry

- Engage with Entrepreneurs and Funding Sources with attractive investments in New Silicon Architecture and Emerging Integrate-able Systems