

# Don't Run Out Of CASH!

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## Article Subject: EDA Business

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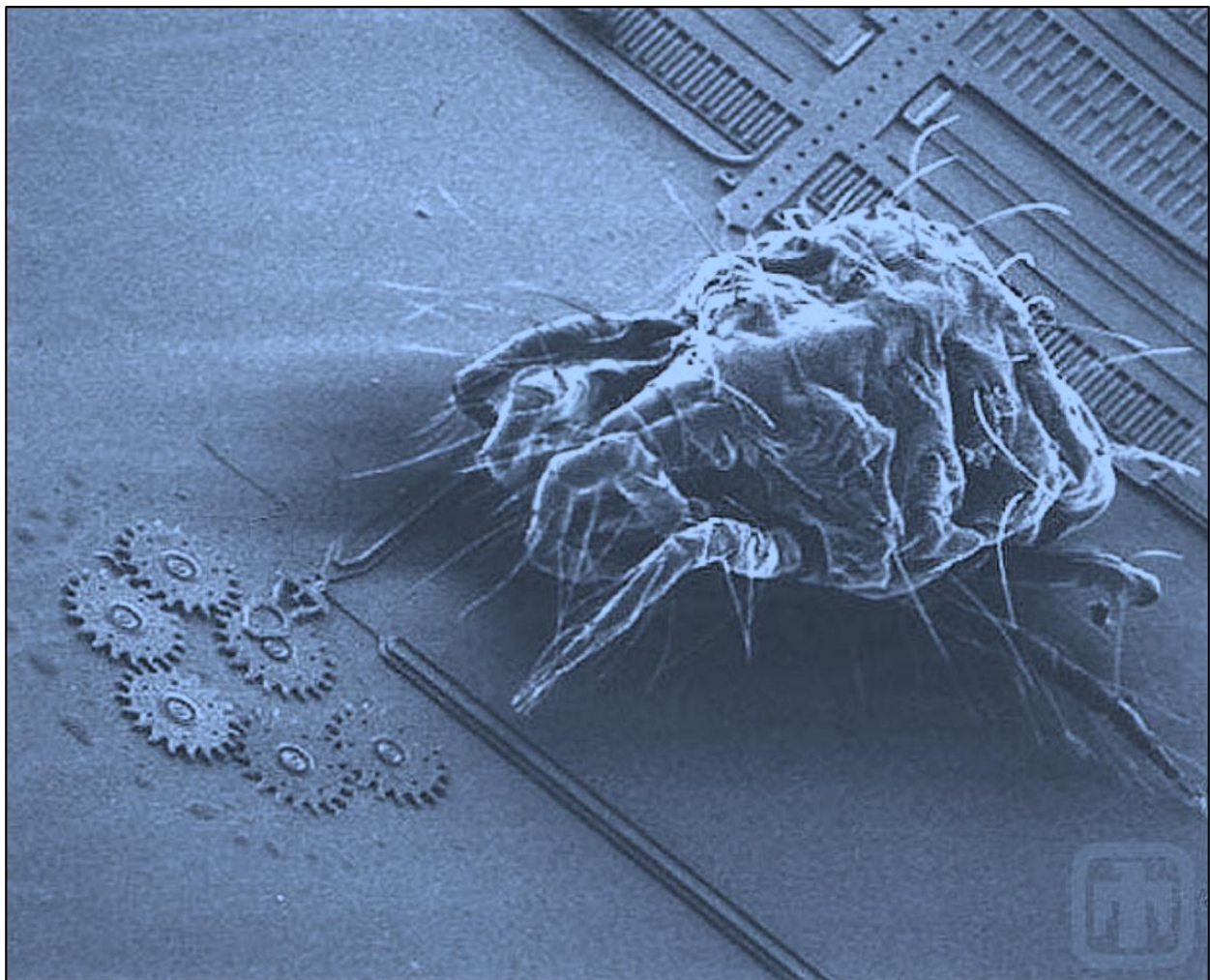
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**Editor's Note** — This article is one of a planned series in which noted EDA investors and entrepreneurs take time out to give some hints and advice to “three guys in a garage”.

**Index Terms**— EDA startup, advice, Moore's Law, semiconductor manufacturing



## I. BACKGROUND

The EDA/IP startup environment has changed significantly in the past 6 years. In the 2001 time frame, several EDA-ish companies had their initial IPOs: PDF, Artisan, Simplex, Veristy, Synplicity, Numerical Technologies, etc. These companies by and large were slightly profitable with revenue of between \$20m and \$100m. The resulting public enterprise value saw a high of \$1.4B for Numerical Technologies, for example. Since then, there have also been some great returns for some private companies such as Silicon Perspective, Brion and Clearshape. It was these levels of returns that attracted investors and especially Venture Capital. But the semiconductor world has changed in many ways. EDA as a lagging indicator of semiconductor health has suffered.

**First**, the semiconductor companies themselves are no longer vertically organized. There has been a rapid march to disaggregation with value flowing increasingly from the semiconductor companies to the foundry and IP suppliers.

**Second**, the complexity and associated cost of new foundries results in wafer prices that can only be supported by large volume consumption. The obvious market is consumer electronics with short product cycles and very high amounts of capital required to enter the game for would-be semiconductor suppliers.

**Third**, Moore's Law lives on and has moved to the nanoscale geometries. With this move there is significant manufacturing variance (timing and power) introduced that lengthens process node ramp times and introduces tremendous risk for early adopters. This is a high-stakes game.

**Fourth**, the march of consumer electronics to increasing the integration of functionality while requiring higher performance and lower power. These are very difficult costing parameters to optimize together. Those that can do it win. Those that don't win perish quickly.

**Fifth**, the IPO market for technology companies has evaporated. Without the IPO market, would-be buyers are treating startups as asset buys, and resulting exit values are reduced significantly. Investors themselves are now cash-starved. To reduce risk, VCs must look to safer, later-stage investments for their limited partners.

This has resulted in an environment where the old rules no longer apply. What are the new rules?

## II. THE MESSAGE

With exit values very low for EDA, the required approach is:

- Raise the lowest possible amount of capital and compress the number of rounds to 2 or less.
- Keep the dilution at a minimum; don't raise more than \$8m.
- Execution in the least amount of time to break-even will result in the best Enterprise Value and exit.

Excellent current examples of this approach are Apache, Gate Rocket and Altos. All bootstrapped until they had working technology and market validation, and were already break-even. When they needed capital they took minimum (under \$5m) amounts and avoided dilution.

### III. THE NEW RULES

**What are the new rules for EDA startups?** Let's go back to previous experiences.

#### A. Enterprise Value

Term sheets are a focusing event for the activity in both investment and exits. **Enterprise Value** is the central issue. Enterprise value is the value of a company minus its cash. There are two big knobs on value; bookings/revenues/margins, and strategic value or perception.

Public EDA companies are now trading at relatively low revenue multiples between 1.25 and 1.75. The improving semiconductor industry will have a positive effective on EDA revenue multiples and we should see the range rise to 3x in 2010. A buyer's revenue multiple affects its willingness to pay for a company or an asset. Let's use an example of a company called **NewESL**. New ESL is a three year-old company that has raised \$4m. Its post-money value is \$9m. Currently the company is break-even and has just closed 2009 with \$4m in bookings (as appose to revenues). One key to break-even is to keep the cash burn low. Successful companies keep the headcount to a minimum.

*In most cases in the initial phase this is a total number of less than 15 people. Of that 15 most are either developers or application engineers. G&A should at most be 3 people. Salaries are another important consideration. Market rates have been compressed. Whereas a few years ago with VC funding developers could get what they expected form a larger public EDA company, today they can no longer expect that level. In many cases the founding team goes without any salary for at least 12 months. This extends the cash and allows startups to get to technology and market validation before a pre-money is established, thus raising the pre-money and lowering the dilution.*

All bookings in 2009 were one-year deals (that will be \$4m base in 2010), and as a result all were recognized as revenue in 2010 to make things simple. Assume that **NewESL** will be able to revenue another \$2m and book \$5m in 2010. The potential buyer will require an accretive deal if there is no strategic multiplier.

Using a 2010 EDA multiple of revenue, **NewESL** will be \$4m (from 2009 bookings) + \$2m (2010 revenues) = \$6m (combined revenue) \* 3 (top of 2010 EDA public multiple) = \$18m in enterprise value that is accretive to the buyer. Clearly not the return on capital anyone is looking for.

#### B. Strategic Perception

This is generally the harder of the two things to work on. Successful startups keep their heads down, focusing on customers and execution; they keep cash burn to a minimum and don't run out of money. However, they often don't understand the need to market their company: they need to get the word out about their company, not just their product.

If the company has flattened out on the booking side then there is not much upside in the exit value. If the acquirer doesn't see much growth in their channel they have no ability to pay a higher multiple.

If the company is growing on the bookings and looks to be able to do it through the next three fiscal years then there is an opportunity to argue for a higher multiple – and a strategic multiple can be justified.

Another argument for a strategic multiple could be that the product of NewESL is essential to getting the current design done. The easiest example is that at a process node inflection, what was a second-order physical concern in the preceding process node is now a first-order issue in the new process node. This was the case, for example, at 130nm when *crossstalk* became an issue, or at 180nm when timing closure was increasingly impossible – or lithography variability at 45nm. Companies that provided



solutions at those nodes exited with a significantly higher strategic multiple. What is also true is that the first company to exit gets the highest multiples of both revenue and strategic value.

The last factor is luck – or, are you in the right place at the right time.

This is where a large EDA company or potentially a CapEx company (e.g. ASML/Brion) has not been able to field a competitive product or solution. Because most EDA revenue is now based on % of customer budget, it is important that the large EDA companies have complete and credible technology to offer. Otherwise, they put at risk their % of the customer's budget. This is called the Ox in the Ditch problem. People will pay more to get their ox out of the ditch fast in order to remain in the race.

Another aspect of strategic value is to create next-generation technology that will be required to be integrated into a future design flow or tool. Initially a lot of technologies start as verification or analysis technology (find the problems), but will need to migrate into the design creation tools (don't create problems). Signal integrity and some aspects of RET are good examples. When big EDA needs to add that technology to their SP&R tools, having the market leading technology is a good place to be and creates value that is somewhat independent of revenue. If Cadence hadn't integrated CadMOS technology into whatever its place and route, then it risked losing that revenue stream, and not just gaining the standalone revenue stream of CadMOS tools.

#### IV. WHAT IS DESIRED AT EACH ROUND?

##### • Seed / Concept – minimal amount of capital raised, if possible less than \$1m

- System Architecture established and proof of concept (Core Algorithms) or technical proficiency – founder innovation
- Marketing Requirement Specification or Document (MRD) – need to get the functions/features correct, performance and stability will come in the next phase.
- Establishing a learning customer or ecosystem partner. An example of this is you may have developed a physical tool at 65nm. However, the process physics are really different at 28nm. You must have this learning partner at 28nm to build a viable product. This will demonstrate you scalability and will influence enterprise value positively.
- Market validation (1 or 2 strategic customers have engaged), not necessarily production but work with these customers to establish a beach head to launch in the next phase
- Establish a desired business model – what are customers willing to do and is it enough to sustain a company. Often you may be able to sell for \$15k/design your tool; this is not enough to money to sustain a company. If this is the case you have a technology and should sell now.

##### • Round A – Validation

- Feature focused with validation with Alpha customer. Here, the features and functions are validated and stability must start.
- Build System Infrastructure (DB, UI, etc.).
- Engage in the ecosystem. For example, in the physical area a key ecosystem partner would be the foundries, and for an EDA tool, work to establish yourself in their “golden flow”.
- Capture some early booking or money associated with a Joint Development Program (JDP) with 1 to 3 strategic customers. You must see a way to move from 1 or 2 tools in the customer's hands to 10s to 100s. This is the only way to ensure a company is viable. If not, you will require more capital and most likely should look to exit if you can't demonstrate proliferation.

- **Round B – Productization/Proliferation** – The company has a product that can be sold.
  - Stability – a customer can execute the product evaluation by themselves. In this way you will lower the cost of customer acquisition by no FAE intervention.
  - Beta customer program focus on performance and usability. You will probably need to increase your run rate for build and documentation to make you product less support intensive.
  - Establish the first sales beachheads that can be proliferated in later stages.
  - You should be break-even. If you are not, then more capital is required. Common shareholders will be severely diluted if more capital is raised. An EDA company, to be successful in today's environment, should never take a C round. If the company has not established break-even then the company should be sold, hopefully for some multiple based on revenue and strategic value.
- **Round C – Scalability** – Channel build-out, only to be done if the enterprise value will be benefited by more revenue. This might be a good idea if the IPO market returns.
  - Sales and Support productivity focused. For EDA, \$3m/sales head.
  - Broader product proliferation.
  - Round C is the round where the company must achieve revenue, margin and growth targets. A buyer may not come. The choice for investors is a public exit. The public markets are only now showing a little life. We have to assume they'll be back. The numbers will be a minimum of \$50m revenue per year, 60% gross margins and a growth rate of at least 25%. This will take at least 2 to 3 years for a company to achieve.
- **Exit – Accelerate Enterprise Value** – Through M&A or IPO.
  - Focus – shareholder value or Enterprise Value, through:
    - Grow bookings, revenue (+25%) and margin (gross margins +60%)
    - Strategic value, key customers and ecosystem partnerships
      - This is a must-have, not just a nice to have, for any chance of a strategic multiple.
  - Roadmap – new follow-on products
  - Global expansion – sequenced by the size of the opportunities.

## V. WHAT ARE EDA STARTUP SUCCESS ATTRIBUTES?

- **#1, Don't run out of Cash**
  - Keep headcount to minimum (less than 5 in Seed phase)
  - Make office space the least amount you can
  - Don't hire sales too early. Founding team should do marketing and sales through Round A.
- **Discrete, defensible and sustained growth market**
  - Technology discontinuity – Supply chain dis-aggregation
  - Market segment not adequately served

- A market that can sustain top line growth during start up and after exit to ensure maximum enterprise value
- Make it easy to establish your Value Proposition
  - Don't take on established franchises where there is only a technical advantage
  - They will catch up and use their economic strength to freeze you out
  - Better to prioritize early bookings than continue to add features prior to first bookings

• **Adaptable and scalable founding and executive team**

- Always better if the team has had prior success
- Need for staying power – it might take six years
  - The team must be true believers: the dream of riches fades fast
  - The team needs to adapt to their market discoveries and adapt the product and business model

• **Capitalization structure allows room for qualified investors and employee stock option pool. It is important that the people who make the company successful are rewarded. Typical A round target ownership:**

- Investors 40 to 60% (preferred)
- Employee pool 15 to 25 % (common), depends on the founders backgrounds, typically 20%.
- Founders and seed capital 15 to 40%, typically 20 to 30%

• **A differentiated technology that has a sustainable competitive advantage**

- Patents are absolutely necessary in IP, focus initially on USA; then the EU/Japan/Taiwan/China/Korea
  - Must file US patent application within one year of publication/offer for sale
- EDA patents are not as important, most algorithms are held as trade secrets. However in IP, patents are very important acquire both method/process and structural.

• **An adaptable business plan – it always changes**

- Doesn't use a lot of cash (less than \$1m) to get to technology and market validation
- Whenever possible compress the round to the fewest number of investors. In EDA more than A B round is likely to yield any founders or original investors very little.
- Current EDA exits don't support multiple rounds and are very difficult with post money valuation of more than \$15m. This is a function of acquirer's ability to pay in most cases. Typically the large EDA companies can afford to pay to extent that it is not material to them and is accretive

• **Core competencies that need to be there by Round C**

- Market specification & solution architecture
- Product specification & technical architecture
- Product development

- Integration & test
- Packaging & field deployment
- **Quality of the investment group that brings:**
  - Marketing and operational expertise. Just getting investment money, and some as board members who only look at the forecast as the measure of success, is of no help. If the investor or board member comes with an operational background, chances are they'll provide a lot of value in product positioning, recruitment and contacts at potential customers and ecosystem partners. This is called **smart money**, versus **dumb money**.
  - A network that can help recruit and introduce to customers. The best person is the one that retired yesterday from a big successful company such as Qualcomm or Marvell. The network is fresh and relevant. They are generally only one or two calls from the person you need.
  - An ability to remain funded over multiple horizons. Especially over the last two years, VCs have been unable to keep up with their companies' capital needs. There are a lot of reasons for this, but the biggest one is that their limited partners don't want capital calls because their portfolios have been reduced by at least 30%. If you are doing a software company, generally your capital needs will not exceed \$10m to \$15m. Typically, this will be \$5m to \$6m for a large investor over two calls. If they don't have that kind of money, find someone else.
- **Luck – you can't discount it – timing is everything.**

## VI. WHAT ARE AREAS THAT MAY YIELD RETURNS IN THE NEXT FEW YEARS?

From our perspective, funding companies in what we will call "**EDA Classic**" is not generally going to result in great returns. We define "**EDA Classic**" as those tools that reside in the design flow from RTL signoff to Mask signoff. This arena is well-served by the existing large EDA companies. Because of the way the large EDA companies sell, their contracts with their customers have a fixed price, and that allows the customer to use the "**all you can eat**" approach. It is therefore very difficult for a new technology to break into the flow currently serviced by "**EDA Classic**".

Success in recent years has come to companies exiting either at the **ESL System** level of the design hierarchy, or in the **Design for Manufacturing (DFM)** domain. Both these areas are at the frontier of "**EDA Classic**" and exploit new design budget.

Again from the investor's point of view: The goal is the least risk with the most gain.

**The most important message today:**

# Don't run out of cash!