

Die Supply in a Post Hybrid Age
or
What the Semiconductor Manufacturers
don't tell you

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Post Hybrid?

- **Die supply originally for**
 - **Military**
 - **Aerospace**
 - **Space flight**



Post Hybrid?

- **Low Volumes**
- **Availability was prime consideration**
- **Quality assured by inspection & qualification**
- **Price insensitive**

Result?

- **Poor product support from vendor**
- **High prices**

Hence

- **Minimal real market for die**
 - **Vendors lose interest**
-
- **Hybrid manufacturers gave up the battle**

Today

- **Many vendors will not sell die/wafers**

They cite:

- ‘**low volume**’
- ‘**technically difficult**’
- ‘**quality concerns**’
- ***“not worth the effort”***

Applications

- **Automotive**
- **Computer networking**
- **Industrial**
- **Telecom**
- **Commercial**
- **Smart Cards**
- **RF ID**

Assumptions made by users

New users

- **Product exists, therefore die must be available**
- **Die cheaper than package product**
- **Samples will be available**
- **Quality levels at <4PPM**

What will Vendors support?

- **Sales > \$ n M p.a.**
where $n \gg 1$
- **Easy business**
no onerous demands on:
Time/Delivery/Technical/Quality
- **Key customer support**
- **Business fits Vendor paradigm**

Die Supply in a Post Hybrid Age

What the Semiconductor Manufacturers do not tell you

- **Growth of ‘fab-less’ manufacturers**
- **Growth of sub-contract manufacturing**
- **Fab Capacity**

In times of shortage, die users suffer most

- **Vendor Engineering Resource Issues**
 - **Knowledge base for die applications**
 - **Engineering Priority**
 - **Focus on short/high value returns**

Supporting the 90+% Die users that Vendors ignore

- **“Chip Houses”**
 - **Sub-contract wafer and die processors**
 - **Value Added Reseller**
- **Relationship based business**

Chip House - Common Perceptions

- **Low volumes**
- **No automation**
- **High prices**
- **Poor Test facilities**
- **Non-existent technical support**
- **No Warranty on product**



Eltek Semiconductors

The Reality

- **Volumes** currently 1KK p.w. capacity
- **Pricing** Generally very competitive -
 especially for high volume customers
- **Test Facilities** Comprehensive
- **Warranty*** Eltek guarantees
 everything we sell
- *see Terms & Conditions

High Volume Processing



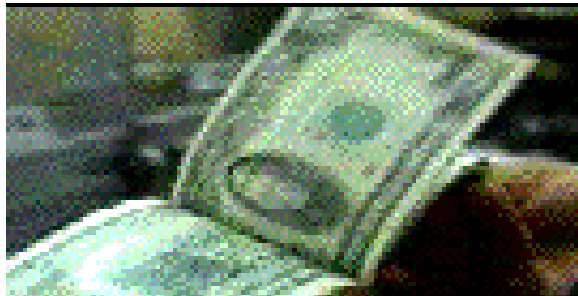
Test Facilities

- **State of the Art Memory Test**
- **Digital**
- **Mixed Signal**
- **Analog**
- **Discretes**

Investment

- During the last 2 years, Eltek has invested in new equipment & capabilities.

\$1,000,000



Die Supply in a Post Hybrid Age

- **Key Players**
 - **Money to spend!! (\$m)**
 - **Expect minimal support from all but the biggest vendors**
- **The rest....**
 - **Develop a strategic relationship with the chip house best able to supply what you need**

Summary

- **Eltek offers a range of services-
*for all die users***
 - Die sales
 - Wafer processing
 - Qualification & Test
 - Wafer banking
 - Assembly
 - Obsolescence management